H2020 projects on textiles and cloting

# C-VoUCHER

Project title: Circularize ValUe CHains across European Regional Innovation Strategies

Start Date: 2018-04-01 End Date:2021-03-31

Topic: Cluster facilitated projects for new industrial value chains

Most frequent returning words in objectives:

* ('C-VoUCHER', 3)
* ('cradle', 3)
* ('Design', 3)
* ('ones', 3)
* ('SMEs', 3)
* ('circular', 2)
* ('value', 2)
* ('chains', 2)
* ('Parties', 2)

C-VoUCHER aims to develop new circular (cradle to cradle) value chains, disrupting traditional linear (cradle to waste) business models by means of cross-fertilization with Design Thinking experts and Circular Disruptors.   
This approach is empowered by 6 Regional entities (2 leading ones from SE and DK and 4 learning ones from ES, FR, PL and RO), which together with their 41 clusters representing 5,763 SMEs (linked as 3rd Parties, including 11 gold, 4 silver and 7 bronze label ones) will work, at cross-border level, on embedding circular economy (CE) model in their Smart Specialization Strategies.  
C-VoUCHER is the proof-of-concept framework where 24 selected Classic SMEs from traditional industries (Agro-Food, Health, Sea, Textile, and Manufacturing), will be offered an innovative 4-phase Circularity Program to develop 12 Circularity Solutions, to be then introduced in 42 Adopter SMEs with similar challenges. The regional CE Champions will be showcased to create ‘school’ at Regional Level and beyond. The project will leverage €6M of complementary funding for CE Champions and Adopters (provided by private and public investors). Also, a ‘Circular Design Toolkit for Regions’ will be produced to mainstream the methodology in the other EU Regions.   
The project will be coordinated by FBA, the European leader in Financial Support to Third Parties and supported by BLUMORPHO (Business and LEAN Innovation Accelerator) and Fundingbox Communities (expert in online marketing and community building). Industry actors: MADE (representing manufacturing companies), ARLA (biggest Scandinavian dairy producer), Green Ship of the Future (private partnership working for cleaner maritime industry), Neuca (Polish entity from Health sector), Lifestyle & Design Cluster (specializing in Textiles), will help to define the industry challenges.  
C-VoUCHER will demonstrate how Europe can disrupt traditional value chains and become the Europe of entrepreneurial regions.

Coordinator: FUNDINGBOX ACCELERATOR SP ZOO from:PL

participant: SYSTEM@TIC PARIS REGION

participant: AGENCJA ROZWOJU MAZOWSZA SPOLKA AKCYJNA

participant: FORENINGEN MADE

participant: AGENTIA DE DEZVOLTARE REGIONALA NORD-VEST

participant: AXENCIA GALEGA DE INNOVACION

participant: VEJLE KOMMUNE

participant: FUNDINGBOX COMMUNITIES SL

participant: DANMARKS TEKNISKE UNIVERSITET

participant: BLUMORPHO SAS

participant: TREKANTOMRADET DANMARK

participant: DEN ERHVERVSDRIVENDE FOND DEVELOPMENT CENTRE UMT

participant: Tillväxtverket

# MATUROLIFE

Project title: Metallisation of Textiles to make Urban living for Older people more Independent Fashionable

Start Date: 2018-01-01 End Date:2020-12-31

Topic: Advanced materials and innovative design for improved functionality and aesthetics in high added value consumer goods

Most frequent returning words in objectives:

* ('project', 5)
* ('people', 3)
* ('process', 3)
* ('societal', 2)
* ('technology', 2)
* ('provide', 2)
* ('artists', 2)
* ('fashion', 2)
* ('designers', 2)

Urban areas are seeing an increasing population of older people and existing approaches to care for them are becoming unsustainable creating a European wide societal challenge. Assistive technology can provide them with security that will enable them to live independently e.g. wearing alarms and tracking devices around the arm or neck to alert carers to falls or their location if they wander. However such technology is often unsightly and stigmatises the user resulting in high abandonment rates.  
The MATUROLIFE project will integrate creative artists and fashion designers into the research team to facilitate design-driven innovation. The project will build on existing technological advances in materials which have produced a highly innovative selective metallisation process that utilises nanotechnology, electrochemistry and materials science to encapsulate fibres in textiles with metal and thereby provide conductivity and electronic connectivity. In this way, better integration of electronics and sensors into fabrics and textiles will be possible. This will give the fashion designers and artists the tools to produce AT for older people that is not only functional but is more desirable and appealing as well as being lighter and more comfortable.  
Building on exiting best practice the consortium will include societal stakeholder groups representing end users (i.e. older people) who will be heavily involved in the design process as well as giving feedback and direction on the development of AT prototypes contributing significantly to end-user acceptance. The prototypes will demonstrate proof of concept and the industrial scalability of the selective metallisation process will be validated. Thus, the project will end at TRL7.  
The Assistive Technology produced as a result of the project will benefit all the SMEs in the consortium but particularly those in the creative sector who expect to see sustainable growth and an increase in jobs as a direct result of the project.

Coordinator: COVENTRY UNIVERSITY from:UK

participant: EUROCARERS-ASSOCIATION EUROPEENNE TRAVAILLANT AVEC ET POUR LES AIDANTS NON-PROFESSIONNELS

participant: SENSING TEX S.L.

participant: INSTITUT FRANCAIS DU TEXTILE ET DE L'HABILLEMENT

participant: ASOCIACION PARA LA PROMOCION, INVESTIGACION, DESARROLLO E INNOVACION TECNOLOGICA DE LA INDUSTRIA DEL CALZADO Y CONEXAS DE LA RIOJA

participant: GEDS TEKNOLOJI HIZMETLERI VE DANISMANLIK LIMITED SIRKETI

participant: BERTIN AUBERT INDUSTRIES

participant: PLASMACHEM PRODUKTIONS- UND HANDEL GMBH

participant: INSTITUTO TECNOLOGICO DE ARAGON

participant: AGE PLATFORM EUROPE

participant: INTERNATIONAL PROJECT MANAGEMENT, PLATING AND MATERIALS

participant: UNIVERZA V MARIBORU

participant: PRINTED ELECTRONICS LIMITED

participant: UNIWERSYTET PRZYRODNICZO-HUMANISTYCZNY W SIEDLCACH

participant: INNOVATION SERVICE NETWORK PODJETNISKO IN POSLOVNO SVETOVANJE DOO

participant: MUEBLECONFORT SL

participant: CALZADOS PITILLOS SOCIEDAD ANONIMA

participant: LUKSJA SPOLKA Z OGRANICZONA ODPOWIEDZIALNOSCIA

participant: EMO SNC DI CICILIOT CARLO & C.

# CGM

Project title: A next generation nanomedia that can be tailored to capture and recycle specific micropollutants in contaminated industrial waste discharge

Start Date: 2017-06-01 End Date:2017-09-30

Topic: Accelerating the uptake of nanotechnologies advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('micropollutants', 5)
* ('water', 5)
* ('company', 3)
* ('capture', 3)
* ('clean', 2)
* ('supplies', 2)
* ('contaminants', 2)
* ('CustoMem', 2)
* ('Customem', 1)

Customem Ltd is a company founded in 2014 with the long term vision to harness nature’s capacity to make biomaterials to promote human health in alignment with sustainable development goals.A next generation nanomedia that can be tailored to capture and recycle specific micropollutants in contaminated industrial waste dischargeLack of access to clean water is predicted to affect 47% of the world’s population by 2030. Contamination of water supplies by micropollutants such as metal ions, pesticides and pharmaceuticals is a major contributor to this water stress. These pollutants are released by industrial processes in the textile and manufacturing industries. Existing water treatment removes 99.96% of contaminants, but does not remove the 0.04% of micropollutants. Although the remaining contaminants seem small, they are a major problem as they are exceptionally difficult to capture but also highly toxic to humans and animals. CustoMem have developed a customisable selective nanocellulose media called CustoMem Granular Media (CGM) that is bioengineered to capture and remove all micropollutants including the 0.04% that cannot currently be removed.Customers benefit from a simple, low cost, low energy solution that is low maintenance. It allows removal of all micropollutants resulting in clean water supplies. The company is headquartered in the Imperial College Incubator UK and employ 5 full time employees and multiple subcontractors. The company is currently in talks with companies in the EU who have shown an active interest in the project.

Coordinator: CUSTOMEM LTD from:UK

# Green-linker

Project title: Innovative eco-friendly crosslinker for leather and textile finishing

Start Date: 2017-05-01 End Date:2017-08-31

Topic: Boosting the potential of small businesses in the areas of climate action, environment, resource efficiency and raw materials

Most frequent returning words in objectives:

* ('Green-Linker', 3)
* ('polymeric', 2)
* ('chain', 2)
* ('capacity', 2)
* ('structure', 2)
* ('features', 2)
* ('crosslinker', 2)
* ('Italkem', 2)
* ('option', 2)

Crosslinkers are substances with a catalytic activity towards the polymeric chain and their main feature is the capacity to interact with separate polymeric units (by reacting with the free functional groups available along the chain) creating a net of links crossing between two chains (from here the term “cross-linker”) which leads to a 3D structure, once the film is dried (after application). This 3D structure is more solid and shows higher stability/fastness features, which result in improved resistance/fastness of the treated support (leather, fabric).  
Aiming at producing an innovative crosslinker able to reproduce the advantages of each rival without their faults, Italkem developed Green-Linker whose trials stated excellent features.  
Summarizing, Green-Linker results as the best performing in terms of highest temperature tolerance, fastest reaction time and longest pot-life, and colour fastness while its eco-friendliness level equals the best current option in the market in this regard. In addition, its competitive price is strongly supported by an improved storability, transport and logistic capacity, converting our crosslinker in the most worthwhile option.  
  
Thanks to Green-Linker, Italkem will be able to increase its sales of crosslinkers by 30% and differentiate production so to compete also in the textile sector. This will allow to reach an accumulative turnover of the present project of up to €19M and to hire 18 more people.

Coordinator: ITALKEM SRL from:IT

# CRYSTAL

Project title: New innovative textile cutting machine

Start Date: 2016-11-01 End Date:2017-02-28

Topic: Accelerating the uptake of nanotechnologies advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('turnover', 3)
* ('investment', 3)
* ('need', 3)
* ('year', 3)
* ('sector', 2)
* ('workers', 2)
* ('volume', 2)
* ('price', 2)
* ('quality', 2)

'The textile sector is a multi-million industry in Europe (€165 billion turnover, €4 billion investment and over 1.6 million workers in 2014). Clothing alone stands for €75.6 billion turnover, €1.4 billion investment and over 1.0 million workers in 2014, with two separate production areas: 'high volume - low price', and 'low volume'.  
  
These markets all have a distinctive need: the quality of the cut, sewed fabrics and the flexibility for introducing changes and personalisation. They rely on highly skilled artisans, who cut the material by hand to produce top quality material pieces. The problem arises with the current and foreseen disappearance trend of this highly skilled specialisation, coupled to the continued growth in the sector.  
  
Our project delivers a PATENTED single-layer cutting with the accuracy of an expert (\/- 0.1mm) but at the speed of an automatic machine, combined with automatic unloading, stacking and emptying. We have designed and developed a double blade system suitable for all types of fabric without any need for vacuum. Glass planarity and electro-static retention guarantee no tension, deformation or fraying of the fabric. Simplified mechanical components reduce the need for service, leading to significant savings per year on electrical power, consumables and maintenance (63% reduction for CRYSTAL).  
  
This market is about 1,000 cutting machines per year. With our project we intend to reach a market share of 10% (100 machines per year) by 2022. Our intention is to set a selling price for CRYSTAL of €100K for a 35K EUR margin per unit, allowing us to reach a turnover of €10M by 2022 and a net profit of €3.5 million. After €2.27 million total investment, we forecast a Return on Investment (ROI) of 2.74 by Y5.  
  
​With €700k already invested, we have produced 2 working prototypes, which are being tested by potential clients and proofing our Technology Readiness Level at 6.  
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Coordinator: BIERREBI ITALIA SRL from:IT

# ICONIC

Project title: Improving the crashworthiness of composite transportation structures

Start Date: 2016-10-01 End Date:2020-09-30

Topic: Innovative Training Networks

Most frequent returning words in objectives:

* ('industries', 2)
* ('energy', 2)
* ('lightweight', 2)
* ('materials', 2)
* ('engineers', 2)
* ('composites', 2)
* ('structures', 2)
* ('research', 2)
* ('ICONIC', 2)

The European aerospace, automotive, and rail industries are committed to improving their energy efficiency to meet targets set within the EU’s climate, energy and transport policies. This is motivating the increased use of lightweight composite materials in lieu of heavier metallics. To implement this transition, these industries must reach, at least, the same level of crash performance achieved with metals, but at significantly lower weight and without increasing cost. This is viewed by industry as an exceptionally challenging goal and will require highly trained engineers, versed in the myriad aspects of designing cost-effective, crashworthy composites structures, and capable of harnessing the latest research developments in the fast-changing world of composites. The ICONIC ETN aims to cultivate such a new generation of young engineers; comfortable and fluent in the integration and exploitation of knowledge from fields as diverse as materials science, chemistry, computational methods, solid and damage mechanics, textile technology, structural design and optimisation. These researchers will acquire the skills to enable the sustainable and economically-viable design of a new generation of highly efficient, lightweight transportation composite structures that will provide the maximum protection to occupants through superior crashworthiness. 15 Early Stage Researchers (ESRs) will be recruited to take up posts, across the UK, Ireland, Greece, Germany, Italy and Sweden, in an innovative, multidisciplinary and intersectoral structured research and training programme. ICONIC is supported by a strong consortium from academia, large industrial enterprises and innovative SMEs. A comprehensive training and secondment programme (including joint supervision and industrial mentoring) will equip researchers with additional transferable skills to ensure future employability and career progression.

Coordinator: THE QUEEN'S UNIVERSITY OF BELFAST from:UK

participant: SHORT BROTHERS PLC

participant: CENTRO RICERCHE FIAT SCPA

participant: RISE SICOMP AB

participant: UNIVERSITY OF LIMERICK

participant: DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV

participant: POLITECNICO DI TORINO

participant: PANEPISTIMIO PATRON

# GREENBIOCATALYST

Project title: NEW GENERATION OF BIOCATALYSTS FOR THE CHEMICAL INDUSTRY

Start Date: 2016-12-01 End Date:2017-05-31

Topic: Dedicated support to biotechnology SMEs closing the gap from lab to market

Most frequent returning words in objectives:

* ('developed', 3)
* ('production', 3)
* ('chemical', 3)
* ('Columbia', 3)
* ('Biocatalyst', 2)
* ('impact', 2)
* ('biocatalysts', 2)
* ('technology', 2)
* ('generation', 1)

A new generation of Biocatalyst is being studied and developed for the production of the fundamental acrylamide monomer used in a wide variety of fields like chemical, mining and textile, etc.  
The Biocatalyst developed by Columbia, is completely environmental concerned, offering on top strong energetic savings. Such economic reductions will have a huge impacts and benefits on companies, which will have to switch from the actual energy intensive copper-based catalyst. The current method is extremely toxic for men and contain residues that greatly pollute the environment.  
Columbia has been using non-GMOs and can truly impulse new job creation in Europe, as it will be the very first biocatalyst made and developed within the EU. It will eventually break down the actual monopolism of the only two Japanese manufacturers that sell biocats on exclusive way.  
An international patent guarantees Columbia’s innovation providing credibility and continuity to the project, which require high capital investments.  
In few words the impact of biocatalysts in the future will be precisely this: the increasing ability to use enzymes to catalyze chemical reactions in industrial processes, including the production of drug substances, flavors, fragrances, electronic chemicals, polymers—chemicals that literally impact almost every facet of our life. In adopting biocatalysts as a mainstream technology for chemical production, we will be introducing a technology that is greener, reduces pollution and cost, and creates greater sustainability.

Coordinator: COLUMBIA SRL from:IT

# Odex

Project title: A new process for removal of odour from Post Consumer Waste Polymer for non-food applications – ODEX

Start Date: 2016-12-01 End Date:2017-05-31

Topic: Boosting the potential of small businesses in the areas of climate action, environment, resource efficiency and raw materials

Most frequent returning words in objectives:

* ('waste', 4)
* ('process', 4)
* ('polymers', 3)
* ('value', 3)
* ('products', 3)
* ('polymer', 2)
* ('at-line', 2)
* ('consumer', 2)
* ('polypropylene', 2)

Although much progress has been made in recycling the easier polymer streams such as at-line production waste, or through specialist closed loop systems, the challenge to recycle Post Consumer polymer waste (mainly packaging from consumer goods such as food, sauces and detergents) is still strong, particularly for polypropylene and polyethylene. These polymers strongly absorb odours from their contents, and form musty taints due to bacterial action in the waste stream, which currently needs uneconomic levels of cleaning before they can be recycled into high value products such as automotive fascias and building products.   
Of all of the post consumer polypropylene waste produced, under 1% is recycled into high quality products; the rest is used in low value applications such as buried geotextiles, or is landfilled or incinerated. The ODEX process concept from Luxus, a recycling compounder for automotive plastics, has been specifically created to provide a cost effective method to deodourise polymers for higher value uses; it uses only the existing heat energy from the compounding process to drive the odourous compounds out of carefully designed pellets within a continuous at-line process. This project is intended to validate the feasibility of the process and formulate a business plan, to underpin our future objectives of scaling it up to commercial application. The future embodiment of the technology is envisaged as a turnkey or retrofit option for Luxus and other existing compounders as licencees, allowing them to provide high quality polymers from materials that would otherwise have been destined for landfill or incineration.

Coordinator: LUXUS LTD from:UK

# TES-FlexThin

Project title: Novel Thermoelectric Energy Solutions based on Flexible Thin-Film Materials

Start Date: 2016-05-01 End Date:2017-04-30

Topic: ERC Proof of Concept Grant

Most frequent returning words in objectives:

* ('energy', 4)
* ('project', 3)
* ('thermoelectric', 3)
* ('materials', 3)
* ('thin-film', 3)
* ('heat', 2)
* ('hybrid', 2)
* ('coatings', 2)
* ('devices', 2)

In this Proof-of-Concept project we will create a completely new kind of integrated energy solution platform based on thermoelectric (TE) heat energy harvesting materials that are capable of converting various types of heat flows directly into electricity. The strong basis for the project is the new oxide-based thermoelectric inorganic-organic hybrid materials discovered in the PI's ERC Advanced Grant Project “Molecular-Layer-Engineered Inorganic-Organic Hybrid Materials (LAYERENG-HYBMAT)”. These hybrid thin-film materials are fabricated by the combined atomic/molecular layer deposition (ALD/MLD) technique which uniquely allows for fabrication of highly conformal thin-film coatings on various flexible, sensitive, functional and/or nanostructured surfaces. Within this PoC project we will (1) design and construct a few prototype devices based on the flexible inorganic-organic thin-film thermoelectrics and (2) integrate the devices with novel material platforms (textiles, polymers, coatings). The novel integrated TE energy solutions will enable heat-based energy harvesting for usage scenarios that are not possible with the existing bulky and fragile TE materials/generators. In addition, (3) the market for flexible thermoelectric generators will be analysed and the commercialisation and the IPR strategies will be created for TE generation solutions.

Coordinator: AALTO KORKEAKOULUSAATIO SR from:FI

# Hazijax

Project title: Hazard-Sensing, Network Connected Garments for Industrial Safety-Critical Environments

Start Date: 2016-08-01 End Date:2016-10-31

Topic: Accelerating the uptake of nanotechnologies advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('garment', 3)
* ('smart', 2)
* ('sales', 2)
* ('products', 2)
* ('market', 2)
* ('customer', 2)
* ('garments', 2)
* ('markets', 2)
* ('project', 2)

Wearable Technologies Limited (WTL) is an early leader in the embedding of washable electronics into smart clothing, having already achieved global sales with our first generation of award winning products which includes functional jackets, vests and belts. The smart garment market is expanding rapidly and is expected to become a global market worth €5.6 billion per annum by 2020. WTL’s voice of the customer surveys have identified enormous opportunities for garments which will extend functionality to network connectivity for improved safety in industrial markets. These products represent the outcome of this project. Benefits that arise from this include the ability to sense hazardous chemicals and then indicate danger not only to the garment wearer, but also co-workers and a central control room for large staff deployments. The oil and gas industry provides suitable markets for such garments and discussions with BP have already indicated that they are willing to be early customers. The Hazijax project concept has already attracted the support of companies willing to assist with development, from systems integration (Mediatek, Orange Business) to distribution (T2S, DR Workwear).  
  
WTL has a broad IP portfolio and expertise gained from intelligent garment manufacture. We have 5-year forecast sales of €47.2 million to produce a profit of €13.85 million, a breakeven between year three and four and an ROI of 3.62:1. This feasibility study will be used to further quantify in detail the work needed to generate customer confidence in the product, its supply to them and WTL’s support of it in use by them.

Coordinator: WEARABLE TECHNOLOGIES LIMITED from:UK

# WearMark

Project title: New approach to Wearable devices wireless performance testing

Start Date: 2016-03-01 End Date:2016-08-31

Topic: Open Disruptive Innovation Scheme (implemented through the SME instrument)

Most frequent returning words in objectives:

* ('devices', 5)
* ('smart', 3)
* ('market', 3)
* ('performance', 3)
* ('developers', 3)
* ('Verkotan', 3)
* ('method', 3)
* ('project', 3)
* ('wearables', 3)

Wearable devices, such as smart glasses, smart watches, hearables, fitness and health trackers or even smart fashion, are noticeably starting to take an important role among our everyday technology. Thousands of new devices are launched every year and the trend is expected to accelerate in the coming years.  
  
As the market grows, more companies are engaging in the business and developing their own devices. To keep their products competitive, time-to-market, product quality and performance are becoming critical factors for the developers, and repetitive performance testing during the R&D cycle is necessary to achieve an advantage. However, there are very few professional testing services on the market for wearable devices, and developers are forced to conduct time-consuming and expensive wired field tests on their own.  
  
Verkotan Oy is a Finnish testing house that has created a novel, accurate and versatile method and measurement environment for wearable devices’ wireless performance measurements, benchmarking and competitor analysis using Over the Air (OTA) testing. The new method remarkably shortens testing cycles, cuts the product development time and saves on average €100,000-200,000 per project for the developers.  
  
The WearMark project helps Verkotan to assess the business potential and economic feasibility of the proposed innovation, and focuses on:  
• Creating a Business plan to define the best strategy for the commercialization of the method;   
• Conducting a freedom-to-operate study to ensure no other patents are infringed by the proposed project;   
• Technical feasibility assessment of the OTA test environment on Healthcare & Medical, Sports, and Industrial Smart Clothing wearables categories.  
  
The global retail revenue from wearables is expected to reach €49.4 billion by 2019 compared to €4.2 billion in 2014, and the market of wearables testing is expected to emerge in a similar way. The expected annual turnover of Verkotan reaches €32 million by 2021.

Coordinator: VERKOTAN OY from:FI

# sqetch

Project title: Sqetch – easily connecting fashion brands with apparel manufacturers

Start Date: 2016-03-01 End Date:2016-08-31

Topic: SME business model innovation

Most frequent returning words in objectives:

* ('business', 3)
* ('brands', 3)
* ('quality', 3)
* ('companies', 3)
* ('fashion', 3)
* ('manufacturers', 3)
* ('Sqetch', 3)
* ('project', 3)
* ('fair', 2)

Today`s world is constantly speeding the way we live (learn, communicate, entertain or do business). With over 3 billion searches on Google, “to buy” characterises today`s society. People are looking to be always fashion-conscious therefore they go shopping. This puts an important amount of pressure on brands interested to become more and more effective in order to satisfy customer’s expectations – high quality, fair price, short delivery time. Achieving this requires a paradigm shift in the way companies are conducting their business processes. And the fashion industry is no exception! Both fashion brands and apparel manufacturers are facing significant challenges: How to easily find suitable and trustful apparel manufacturers? Are those delivering the expected quality for a fair price? How to turn more fashion brands into new customers? How to confirm a good quality level of manufacturing?  
Our Sqetch project will offer a concrete solution by providing an innovative online platform which will help more than 170.000 European textile and clothing companies to connect. Our Sqetch project is driving a major change in how a traditional industry adopts actual business models, responding to the EC initiative for this sector: encouraging innovation and maintaining competitiveness. Sqetch positions as an online service to support a sector which employs 1, 6 million people and plays a crucial role in the economy and social well-being in many regions of Europe.  
The technical innovation resides in the matching algorithm which uses many weighted criteria to find the best matching manufacturer for a brand. The algorithm weighs, 10 times faster than existing solutions, all these criteria against their importance and finds which manufacturer in the database has the greatest match with that project. The result: faster match, easier usability, lower costs for brand and manufacturers. This translates into more innovative and competitive companies, the foundation of growth.

Coordinator: SQETCH BV from:NL

# Fluid Foil

Project title: A groundbreaking no contact, roll to roll, modular transportation and fluid delivery technology that enables faster and more uniform chemical reaction of any feature size without risk of damage.

Start Date: 2016-03-01 End Date:2016-05-31

Topic: Accelerating the uptake of nanotechnologies, advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('processing', 6)
* ('chemical', 4)
* ('rollers', 3)
* ('foil', 3)
* ('damage', 3)
* ('contact', 3)
* ('limit', 3)
* ('transport', 2)
* ('thin', 2)

A major problem with current chemical processing tools is that they use rollers to transport and support foil (any thin roll-to-roll substrate) through chemical treatment chambers located between un-winding and re-winding mechanisms. Roller transport limits and potentially prohibits fine detail treatment and reduces yield (to 10% in extreme cases) due to damage caused by contact with such rollers. Current technology employs long process tanks and slow speeds to minimise contact damage. In applications where contact is of less concern rollers still limit capability as the force required to turn them results stretching or breaking of the foil limiting foil type, thickness, and process residence times.  
Fluid Foil will provide frictionless, non-contact, modular transportation and fluid delivery technologies that enable chemical processing of any feature size without risk of damage to the web. Extremely low re-wind tensions enable processing of thin delicate and porous materials. Web processing density of 30 meters of web per linier meter of system dramatically increases processing speeds and most importantly places no limit on web length. Modular control software will complete activities such as data logging and real time fault analysis.  
Fluid Foil will have the capacity to accelerate innovation printed, organic & flexible electronics as well as enabling potential new markets to emerge (e.g. graphene, e-textiles and paper products). This will be achieved via the provision of low cost and adaptable machinery to fabricators, opening up chemical processing to SMEs. The commercial aim of the project is to limit the time-intensive work that goes into the customisation of machines and software and reduce the lead time and cost to the customer while increasing our output.Our goal for the overall project is to develop and build a suite of demonstrator modules which will help generate customer confidence and gain orders from early adopters before we go on to license the system.

Coordinator: CIRCUIT ENGINEERING MARKETING COMPANY LIMITED from:UK

# JUMPAIR

Project title: JUMPAIR: Decubitus Ulcers Diseases Diagnoses by means of Smart Anti-Decubitus System based on known Ulcers Activity Biomarkers

Start Date: 2015-12-01 End Date:2016-05-31

Topic: Clinical research for the validation of biomarkers and/or diagnostic medical devices

Most frequent returning words in objectives:

* ('decubitus', 6)
* ('ulcers', 5)
* ('system', 3)
* ('project', 2)
* ('JUMPAIR', 2)
* ('patients', 2)
* ('monitor', 2)
* ('biomarkers', 2)
* ('diagnoses', 2)

The project JUMPAIR will benefit a large number of patients who has suffered decubitus ulcers or they are running the risk to suffer it by remotely monitor ulcers biomarkers to improve early diagnoses, treatment and providing alerts at critical situations. JUMPAIR project meets the objectives of the PH 12 topic: clinical validation of known DeU diagnoses biomarkers by means of an innovative medical device which a potential wider clinical deployment in very short time. First of all, there is no decubitus system in the market able to monitor the onset of decubitus ulcers and provide alerts in real time to the hospital for long-term diseases, including the implementation of intelligent algorithms and an innovative integrated measurement system embedded in textiles. Secondly, the prototype will be enhanced and validated by means of clinical trials in real conditions in the Hospitals setting our European collaborators network. The final anti-decubitus system will contribute to decrease the healthcare expenditure preventing the onset of decubitus and avoiding unnecessary hospitalizations and therapeutic treatments. We believe that there is an unmet need in that field, and the final systems allows a preventive and therapeutic care of decubitus ulcers having a great impact for physicians and patients who deal with this critical decubitus ulcers disease.

Coordinator: DOFREN SRL from:IT

# SILVERWINE

Project title: Antiseptic kaolin-silver complex for substituting the use of sulfites in winemaking

Start Date: 2015-06-01 End Date:2015-10-31

Topic: Resource-efficient eco-innovative food production and processing

Most frequent returning words in objectives:

* ('KAgC', 4)
* ('SILVERWINE', 3)
* ('ENOSAN', 3)
* ('NASTRI-TEX', 3)
* ('vast', 3)
* ('product', 2)
* ('kaolin-silver', 2)
* ('infusion', 2)
* ('weight', 2)

We, the consortium integrating SILVERWINE, composed by ENOSAN and NASTRI-TEX, will put in the market a product consisting on a kaolin-silver complex (KAgC) contained in an infusion bag, that has antiseptic properties for substituting the use of sulfites in winemaking. The KAgC is composed of microparticles of kaolin (99% weight) and nanoparticles of metallic silver (1±0.1% weight). It is insoluble and it has a minimum reactivity with the food matrix, because the kind of silver used is Ag0, which has biocidal power and leaves no chemical or physical residue, as KAgC complex does not contain any potential allergenic protein fraction or any known allergen.  
We are two Spanish SMEs, with complementary roles in the supply chain of this product, as LABORATORIOS ENOSAN (5 people) –the leader- holds the vast know-how of elaborating and dosing the KAgC for a correct use in winemaking, and NASTRI-TEX (12 people), a company with vast experience with textile materials y, contributes with the infusion bags in which the SILVERWINE complex is disposed. ENOSAN has been recently established (2014) but its team is formed by technicians with a vast expertise up to 30 years in kaolin-silver complex applications in agri-food –specially winemaking- and pharma, and NASTRI-TEX counts with 35 years of expertise in industrial technological filters elaboration mainly oriented to the highly demanding needs of cosmetic industry.  
With SILVERWINE we will cover a global need of winemakers: the substitution of sulphites (SO2), a controversial compound that wine industry has been trying to replace for decades.

Coordinator: LABORATORIOS ENOSAN, S.L from:ES

# SILKENE

Project title: SILKENE: Bionic silk with graphene or other nanomaterials spun by silkworms

Start Date: 2016-03-01 End Date:2017-08-31

Topic: ERC Proof of Concept Grant

Most frequent returning words in objectives:

* ('project', 3)
* ('silkworms', 3)
* ('process', 2)
* ('silkene', 2)
* ('silk', 2)
* ('aims', 1)
* ('scaling-up', 1)
* ('towards', 1)
* ('mass', 1)

'The project aims at designing, developing, scaling-up and optimizing a pre-industrial process towards the mass production of “silkene”, a bionic silk fiber reinforced with graphene, or other nanomaterials such as nanotubes, directly spun by silkworms. The idea is simply based on nanomaterial ingestion and subsequent “silkene” spinning by silkworms. Silkene is expected to be significantly stronger and tougher that its natural counterpart. Since silk produced by silkworms has already impacted our society, the impact of SILKENE project could also be significant. The process under consideration should in this project be technically verified, optimized and taken to a pre-commercial stage, for applications in industrial sectors such as smart or high-performance technical fibers, textiles, and related reinforced composites. The concept has been already preliminarily (see http://arxiv.org/abs/1504.06751) demonstrated at the laboratory scale with spiders, within our ERC Starting Grant 'Bio-inspired Hierarchical Super Nanomaterials' (BIHSNAM).'

Coordinator: UNIVERSITA DEGLI STUDI DI TRENTO from:IT

# REACMIN

Project title: RECYCLING ASBESTOS CONTAINING MATERIALS INTO NEW ECO-FRIENDLY SECONDARY RAW MATERIALS FOR FURTHER INDUSTRIAL PROCESSES

Start Date: 2015-08-01 End Date:2015-10-31

Topic: Boosting the potential of small businesses for eco-innovation and a sustainable supply of raw materials

Most frequent returning words in objectives:

* ('asbestos', 5)
* ('REACMIN', 3)
* ('plant', 3)
* ('production', 3)
* ('building', 3)
* ('costs', 3)
* ('TIESSEPI', 2)
* ('years', 2)
* ('system', 2)

The REACMIN solution developed by TIESSEPI envisions a treatment plant which will allow the thermally induced crystal-chemical transformation of 400,000 tonnes of Asbestos Containing Materials (ACM) in 5 years. TIESSEPI’s system will thus place in the market a completely transformed asbestos-free product suitable to be used as a Secondary Raw Material (SRM) for other industrial uses such as concrete production, road building or environmental restoration with a forecasted turnover of 10 million Euros in five years per each installed plant.   
Before the discovery of its high toxicity, asbestos was for a long time considered as an extremely versatile and cheap raw material for building materials, automotive parts and even textile and other domestic products. In Europe, more than 40% of residential buildings were constructed before the 1960s and in the 1990s a large boom in construction still used asbestos. Health costs for diseases related to asbestos exposure amount over M€ 1,600 per year in Europe , so it is a main target to remove all remaining ACM. Only in Italy 2 billion m2 of asbestos-cement slates still cover roofs of industrial plants and civil buildings . Moreover, yet in 2012, rather than falling, worldwide asbestos production increased.   
The most extended current process for asbestos disposal is landfill in authorized sites. Associated costs are expensive, in the range of 150-300 €/Tn and no zero risk of fibres emission can be assured in the medium-long term. Other technologies based in thermal conversion exist but the only one at commercial level is up to 13 times more expensive than REACMIN system.   
The objectives of REACMIN project are:   
Demonstrate the technology by building a pilot plant with optimal security measures and acceptable costs (< 65 €/Tn).   
Test the resulting product suitability for the industrial production of concrete tiles   
Expand business model in other real industrial processes (glass, ceramics)   
Assure Zero risk of fibres release

Coordinator: TIESSEPI SRL from:IT

# LaForte

Project title: Large Format Textile Printing

Start Date: 2015-07-01 End Date:2016-12-31

Topic: Accelerating the uptake of nanotechnologies, advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('customers', 4)
* ('operation', 3)
* ('need', 3)
* ('company', 2)
* ('ALEPH', 2)
* ('Lurate', 2)
* ('Caccivio', 2)
* ('deliver', 2)
* ('solutions', 2)

Our company, ALEPH, was founded in 1999 (Lurate Caccivio, Italy) as a Software House & Integrated Hardware textile solution company. Since then, we have become a respected large-format printer manufacturer and consumables\software provider. This comprehensive capability allowed us to deliver our textile-industry customers strong sets of solutions so they can turn their design ideas into material reality. Thus, we cover the two main bases for this industry: 1) design\development, marketing and support of CAD/CAM software; 2) development of the OEM plotters themselves. We are framed within the so-called “Digital Valley” at Lurate Caccivio industrial area. As a result of our 15-year experience, we offer our customers integrated ad-hoc solutions in hardware and software for the Textile Industry in the digital print field.   
Our customers’ operation challenges have increased, demanding higher volumes and therefore higher production speed, together with their need for cheaper maintenance costs along the manufacturing process. Thus, ALEPH’s response is our new innovative project ‘LaFORTE’. By means of this, we will deliver new machines capable of increasing productivity in our clients enabling them to print 300 dots-per-inch (dpi) in UltraFast Speed (5,08 m/sec) in 1-direct smart print-pass or 600 dpi in High Speed mode (1,69 m/s) in 16 print-pass in an extra 15% output rate with 20% higher velocity and 15% less time in set-up operations and change-over times, due to the removal of the traditional need of glue for fixing paper position in Large Format Textile Printing. Our idea is to use controlled vacuum to fix it. As a result, the customers will not need to clean the glue from the surface pad with consequent saving in 50 kg dissolvent per operation batch and about 50 litres water per hour of operation. This equals to global 100.000 litres of water/year, giving our project an environmental relevant move forward.

Coordinator: ALEPH SRL from:IT

# STILAVIA

Project title: Disruptive On-line Stylist Engine

Start Date: 2015-04-01 End Date:2015-09-30

Topic: Open Disruptive Innovation Scheme (implemented through the SME instrument)

Most frequent returning words in objectives:

* ('platform', 3)
* ('on-line', 3)
* ('receive', 3)
* ('clothing', 3)
* ('purchases', 3)
* ('algorithms', 2)
* ('users', 2)
* ('items', 2)
* ('colour', 2)

STILAVIA is a new disruptive e-commerce platform that intends to provide on-line fashion shoppers with a totally new buying experience. Using our newly developed proprietary set of algorithms users will receive styling recommendations of specific clothing items based on their particular aspirations (to look thinner or taller; to emphasise breasts, shoulders, hips; to match the colour of clothing with the colour of the eyes or hair). This approach goes far beyond the usual on-line shopping procedure, which merely involves performing filtered searches in a previously selected retailer or offer aggregator, making the selection of the desired item based on pictures and written descriptions, and hoping that the size chosen will indeed fit. The consequence is that around 40% of purchases have some degree of dissatisfaction, either because the size was not correct or, mostly, because the piece of clothing does not meet the user expectations once worn. As a result 25% of the purchases are returned, with the retailer assuming the delivery expenses.  
The recommended items will be chosen among those on the databases provided by our strategic partners, major on-line retailers such as Zalando and Yoox, with whom we already signed B2B agreements. Our platform will help them to receive new costumers that will make satisfactory and definitive purchases, whereas we will receive a commission for each one of these transactions.  
In this SME Instrument Phase 1 we will launch a beta version of the platform in Spain (June 2015), and we will test it and improve it using the feedback of 300 users. In parallel, we will investigate the European market in order to adjust the algorithms to country-specific requirements, and with an eventual Phase 2 (which will include marketing activities) we will get ready for a global launch in 2017.

Coordinator: VALUE AGENTS SL from:ES

# i-LiveRest

Project title: Intelligent control system based on smart textiles to reduce pressure ulcer risk by real time measuring of tissue viability and intelligent trigger of prevention strategies adapted to user and context

Start Date: 2015-09-01 End Date:2016-01-31

Topic: Open Disruptive Innovation Scheme (implemented through the SME instrument)

Most frequent returning words in objectives:

* ('i-LiveRest', 8)
* ('risk', 5)
* ('solution', 3)
* ('prevention', 3)
* ('increase', 3)
* ('costs', 3)
* ('system', 2)
* ('time', 2)
* ('pressure', 2)

The aim is to convert the functional prototype from FP7 PUMA project into a commercially-ready intelligent control system and to introduce this new solution for Pressure Ulcer (PU) prevention in the European Assistive Technologies market. The novelties of i-LiveRest are a) to measure PU risk in real time based on Tissue Viability (TV) with impedance, pressure, temperature and humidity textile sensors; and b) to decide the best combination of PU prevention strategies based on risk, user and context. It can be embedded on wheelchair and mattresses. i-LiveRest will be the first ICT solution applied to PU risk detection and prevention.  
  
PU are preventable but 38% of PU appear using current devices because a) risk, user status and context are not taken into account; and b) PU risk assessment is only based on pressure instead of TV. There is no available solution able to provide the functionalities of i-LiveRest.  
  
Target customers are Spinal Cord Injury (SCI) patients, healthcare public bodies and private insurances. On the one hand, SCI will develop a PU during their lifetime and 7-8% will die. i-LiveRest will increase their sitting time, enhancing their independent living. On the other hand, i-LiveRest will reduce public and private costs related to PU treatment (20 B€/year); injuries of professionals due to manual repositioning (2,000 M€/year); and will increase labour force of SCI and their relatives.  
  
In Phase 1, we need to: assess the technical and economic viability of industrialising i-LiveRest by optimising components; identify providers; prepare CE mark; identify purchasing agents; contact stakeholders; and elaborate a business plan. In Phase 2, we will optimise i-LiveRest system to reduce components size and costs, achieve CE mark and perform a pilot demonstration in four European countries.  
  
i-LiveRest is aligned with key EU global challenges: disability, independent living and job inclusion; reduction of social and health care costs; and increase of labour

Coordinator: QIMOVA AS from:DK

# ShopStar

Project title: Image learning to create a new online marketing tool

Start Date: 2015-12-01 End Date:2016-05-31

Topic: Open Disruptive Innovation Scheme (implemented through the SME instrument)

Most frequent returning words in objectives:

* ('online', 11)
* ('clothes', 6)
* ('media', 5)
* ('retailers', 5)
* ('images', 4)
* ('advertising', 3)
* ('technology', 3)
* ('photos', 3)
* ('content', 2)

Europe’s media industry lacks an effective business model for their online content, particularly in the context of falling revenues from traditional online advertising – they need new ways to effectively monetise their content.  
  
Our aim is to allow media to generate revenue from their online images.   
We apply innovative image-analysis technology to detect clothes in online images, and match them with clothes in retailers’ online product catalogues. This creates a lucrative collaboration between online media and retailers – for every customer redirected to a retailers’ website via an online image, media publications receive a commission fee.   
  
An initial version of this automated technology (running in under 300 milliseconds) has already been developed. We can recognise photos of clothes in isolation (an image of an item of clothing on a plain background) and match them to the clothes sold by our 8000 partner retailers (Amazon, H&M…). We then give readers the opportunity to click to find a link to buy the same or similar item. This solution has already been commercialised to several leading magazines (including Closer, Grazia & Be), who have seen online advertising revenues increase by up to 6 times.  
However, photos of clothes in isolation represent only a small proportion of online images.   
  
Our ambition is therefore to adapt our technology to detect clothes in photos of people – representing a much larger proportion of online images. Online readers will be able to click to “Get the Look” of a celebrity or public figure in an online photo, and will be shown links to retailers selling similar items. The aim of our feasibility study is to refine the technological specifications and validate the commercial proof of concept with a base of current and potential clients.   
  
With ShopStar, we are creating a non-invasive advertising solution that can be deployed to international media groups worldwide, positioning Shopedia as category leader for this disruptive new approach

Coordinator: SHOPEDIA from:FR

# FIBRESPIN

Project title: New Generation of High Speed FIBRE SPINning machines

Start Date: 2015-09-01 End Date:2015-12-31

Topic: Accelerating the uptake of nanotechnologies, advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('textile', 2)
* ('world', 2)
* ('FIBRESPIN', 1)
* ('production', 1)
* ('machine', 1)
* ('spools', 1)
* ('wool', 1)
* ('fibres', 1)
* ('cotton', 1)

FIBRESPIN is an innovative textile production machine, designed for producing spools of wool fibres (or cotton) with outputs 52% higher than existing machines. And due to the innovative design and use of high-tech materials, maintenance downtime is greatly reduced and the current problem of component breakage is practically eliminated.   
We at Cognetex, based in Imola in Italy, have been manufacturing high quality textile machinery for over 60 years, and we are one of the 2 principal companies in the world in our sector. With an annual turnover of approximately €1.2million we currently employ 30 workers and have a list of almost 270 customers throughout the world.

Coordinator: COGNE MACCHINE TESSILI SPA from:IT

# SPIRYT

Project title: Platform for envIRonmentallY Sustainable Textile processing, to be replicated worldwide in the fashion industry Feasibility Study

Start Date: 2015-09-01 End Date:2016-02-29

Topic: Boosting the potential of small businesses for eco-innovation and a sustainable supply of raw materials

Most frequent returning words in objectives:

* ('Nearchimica', 6)
* ('SPYRIT', 3)
* ('project', 3)
* ('textile', 3)
* ('effects', 2)
* ('garments', 2)
* ('processing', 2)
* ('time', 2)
* ('growth', 2)

Textile finishing, imparting specific effects on the garments, is currently relying on practices considered as borderline or phased out by the environmental regulations and REACH restrictions. Fashion big names are leading the development of a greener chemistry, not compromising on the final aesthetics.  
SPYRIT project is aimed to apply Nearchimica skills to develop knowledge – intensive solutions to textile finishing, combining in innovative way laser, ozone, chemical, resins and enzymes processing, into targeted recipes. The results demonstrate the achievement of final effects on garments, granting at the same time lower environmental impact, energy and time expenditure. The added value is the long-standing expertise of Nearchimica, and the availability of a complete set of technologies, unlocking green growth potential, at the same performances level of the current processing. SPYRIT aims to cut environmental footprint more than 50%, in terms of LCA, providing to Nearchimica primary role in the supply of fine chemicals and in process consultancy to textile industry.  
Technological Feasibility Assessment, LCA verification of the effective sustainability, and the Business Models project objectives permit to unlock a real blue ocean of new opportunities in the sector.  
Nearchimica is an Italian company, dealing with the formulation, production and commercialization of chemicals for the textile industry, which mission is to provide customers with products responding to their needs under different aspects: performance, regulatory, ecological, cost effectiveness. In the latest 10 years, Nearchimica launched lines tailored to a reduced environmental footprint, sustainability, responding in advance to the REACH and safety issues.  
Nearchimica Business Model is fully aligned with the SPYRIT project, to gain a position of developer and consultant for Global Strategy, Geographical growth, R&D, anticipating market needs and ultimately Eco-sustainability of the whole sector.

Coordinator: Nearchimica Spa from:IT

# MAXITHERM

Project title: Innovative textile based heating system for technical applications with a special focus on Electric Vehicles

Start Date: 2015-05-01 End Date:2015-08-31

Topic: Small business innovation research for Transport

Most frequent returning words in objectives:

* ('heating', 3)
* ('MAXITHERM', 2)
* ('Electric', 2)
* ('system', 2)
* ('conductive', 2)
* ('objective', 1)
* ('contribute', 1)
* ('expansion', 1)
* ('mobility', 1)

The objective of MAXITHERM is to contribute to the expansion of Electric mobility by extending Electric Vehicles autonomy. We propose a heating system for EV that reduces electricity demand of heating systems in by 30% while maitaining passenger comfort. MAXITHERM is a heating system based on a technical textile composed by a blend of electrically conductive and non-electrically conductive fibres that is integrated within the structure of the vehicles. It provides direct and fast heat to passangers and is 32% more cost efficient that current solutions.

Coordinator: MAXITEX GMBH from:DE

# NewMoon

Project title: NewMoon - Smart Garments in Newborns and Babies Monitoring

Start Date: 2015-05-01 End Date:2015-11-30

Topic: Clinical research for the validation of biomarkers and/or diagnostic medical devices

Most frequent returning words in objectives:

* ('monitoring', 10)
* ('baby', 6)
* ('hours', 4)
* ('procedure', 4)
* ('system', 4)
* ('time', 3)
* ('life', 3)
* ('mother', 3)
* ('bonding', 3)

One of the most promising field of application of smart garment is baby monitoring: the most sensible periods of time in the  
first day of life of a newborn is the first 2-4 hours of life. When the baby is born, for the first 2-4 hours there is no monitoring  
active; the baby, after a rapid cleaning procedure and first checkup, is given naked to the mother who put him/her on her  
breast. The skin-to-skin contact facilitate the maternal bonding which consists in different aspects: thermoregulation of the  
baby, the kangaroo care, cognitive bond, etc. In this period of time, normally there is no ongoing monitoring in order to favor  
the bonding between mother and child; a discontinuous monitoring is usually implemented through a common visual  
recognition by the nursery staff. In this hours, in which the baby is in a transient periods from pre to post-natal, a continuous  
monitoring of bio-signal can be very useful to prevent critical situation. The monitoring system has the purpose to impact on  
the organization of the work of nursery staff, and increase the quality of the health service delivered through the use of a  
continuous quantitative monitoring, rather than a qualitative observation repeated over time in a discontinuous manner. This  
kind of monitoring system tries to be the least invasive as possible for the medical procedure, the baby and the mother.  
The introduction of a new monitoring procedure in a sensitive environment like the delivery room is a real clinical need we  
matched with our innovative smart garment embedding textile comfortable electrodes.  
Recently we investigated the compliance, the reliability and the acceptability of a new monitoring system applied in the first  
2-4 hours of life during bonding procedure in a clinical trial with excellent results.  
This proposal aims at industrially and commercially exploiting the system at national and international level also matching  
the different regulatory rules.

Coordinator: COMFTECH SRL from:IT

# INE IAPS

Project title: Intelligent active protection system for motorcyclists: saving lives through optimum use of latest advances in sensor technologies, wireless communication, Smartphone platforms, real-time analysis.

Start Date: 2015-05-01 End Date:2015-10-31

Topic: Open Disruptive Innovation Scheme (implemented through the SME instrument)

Most frequent returning words in objectives:

* ('protection', 5)
* ('motion', 5)
* ('user', 4)
* ('technology', 3)
* ('body', 2)
* ('devices', 2)
* ('parts', 2)
* ('market', 2)
* ('intelligent', 2)

The risk of fatalities or sustaining serious injuries in motorcycling accidents is poorly addressed by the existing body protection devices available to that community. They lack in reactivity characteristics and offer limited protection to the most affected parts of the body.  
Combining advances in sensor technologies, wireless communication and Smartphone platforms in particular, In&motion is set to revolutionise the market with their intelligent active protection system. With an ultra-high energy absorption capacity and a much wider protection area, their all-electronic system further differentiates itself from competitor products with its auto-learning capability: the more it is used the better it performs. With a business-to-business approach, In&motion joins forces with key European motorcycling garments manufacturers who recognise the need for their specialised clothes to become intelligent and highly protective. The technology is therefore fully integrated into the clothing, making it very convenient for the user. To further simplify the user’s experience, In&motion’s other innovation lies in the ability for the user to reactivate the device after deployment, thanks to easy-to-handle consumable parts. This provides a significant step change in accessibility, dispensing and affordability for the user.  
With European motoring legislations set to further impact the market potential for body-protection devices, In&motion’s solution is bound to be truly disruptive.  
The technology has already been highly acclaimed by ski athletes and the International Ski Federation, and In&motion have high ambitions to see that technology also used in other areas such as drone protection, senior’s health and well-being, and work at height.

Coordinator: IN&MOTION from:FR

# UPCYCLINGTHEOCEANS

Project title: High quality clothes made from marine plastic litter

Start Date: 2015-06-01 End Date:2015-11-30

Topic: Boosting the potential of small businesses for eco-innovation and a sustainable supply of raw materials

Most frequent returning words in objectives:

* ('plastic', 6)
* ('marine', 5)
* ('ECOALF', 4)
* ('market', 3)
* ('products', 3)
* ('fabrics', 3)
* ('clothes', 3)
* ('litter', 3)
* ('waste', 3)

ECOALF is an SME that design and market high quality textile products and accessories made of recycled materials (bottles, fishing nests, tyres, coffee, cotton…).  
  
The main objective of the UPCYCLING THE OCEANS project is to produce and sell fabrics and clothes made from marine plastic litter, by recycling and industrial methods to convert these plastics into high properties textiles.   
  
European seas contain many tons of waste, mainly plastic (around 400 kg per km2). This plastic litter has a very negative impact in the marine environment even affecting the food chain (potentially triggering endocrine and/or carcinogenic processes).  
  
To contribute to mitigate this problem ECOALF proposes to implement a collaborative scheme with fishermen’s organisations (agreements already signed) to collect plastic from seas; to implement an industrial process that includes waste management, pellets production and additivation, spinning and fabrics, and clothes manufacturing; and to distributions and marketing the new products in Europe.  
  
To that end ECOALF proposes a feasibility study:  
-To analyse the economic feasibility of the initiative (production cost, volume of sales, incomes; relevant economic indicators; sensitive analysis).  
-To identify logistical needs to obtain the marine plastic litter and to establish a mechanism to provide the consumer with a reliable Guarantee of Origin (GoO) that reflects that the clothes are made 100% from plastic waste and which percentage is from marine origin.  
-To ensure the technical feasibility to additivate properly the flakes to obtain pellets that fulfill with ECOALF fabrics requirements. To define the adequate terrestrial / marine mix to ensure stability during the sinning process.  
-To carry out a survey among clients and distributors to assess the market reaction to these products and to select at least four countries to carry out a market test.

Coordinator: ECOALF SL from:ES

# We TAP IN

Project title: Weaving Technology based Automated Production Processes in the Composite Industry (We TAP IN)

Start Date: 2015-07-01 End Date:2016-01-31

Topic: Accelerating the uptake of nanotechnologies, advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('production', 9)
* ('products', 5)
* ('quality', 4)
* ('industry', 4)
* ('tapes', 4)
* ('recyclability', 3)
* ('volume', 3)
* ('processes', 3)
* ('Industry', 2)

The Weaving Technology based Automated Production Processes in the Composite Industry (We TAP IN) project aims at a commercial validation of high quality unidirectional glassfiber / polymer composite tape mass production technology and commercialization.   
  
Industry development  
The composite industry is a fast growing and widely expanding industry. The majority of all commercial composite product are based on thermosets. Thermosets can not be separated in the original fiber and matrix materials. Hence reuse or recycling is hardly possible. Within a few years the lack of recyclability imposes an undesired situation.   
Problem  
Mass production is required to server high volume commodity products and markets. Mass production require advanced automated production processes which requires thermoplastic tapes as semi-finished product. Current thermoplastic tapes are of limited quality, hampering the shift towards increased recyclability.  
Intended Innovation  
Years of involvement in the industry and the development of thermoplastic unidirectional tapes production processes resulted in an improved production method. The production method is based on an industry knowledge cross-over. The realization of a full scale mass production facility will be realized with an incumbent textile manufacturer, by means of a joint venture.   
Benefit  
Once commercial available, the innovation contributes to a increased recyclability of new composite products. The use of high quality thermoplastic tapes will reduce weight in several products of high volume markets. The realized weight reduction of the products will result in a decrease of CO2 emission during the transportation and during the lifetime of products.   
Effect  
The innovation bridges the gab between, low cost medium quality raw materials and advanced automated production processes. As a result high volume market can be targeted and a contribution can be realized on a knowledge intensive manufacturing base in Western Europe.

Coordinator: SUSTAINABLE BUSINESS ENGINEERS B.V. from:NL

# UFPC Technology

Project title: Hybrid Ultra Flexible Printed Circuits combining flexible and low-cost printed electronics with high performance traditional silicon components.

Start Date: 2015-07-01 End Date:2015-10-31

Topic: Accelerating the uptake of nanotechnologies, advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('electronics', 8)
* ('components', 4)
* ('circuits', 4)
* ('technology', 3)
* ('UFPC', 3)
* ('manufacturing', 2)
* ('printing', 2)
* ('thin', 2)
* ('price', 2)

Printed electronics is a revolutionary, new way of manufacturing electronic components by using standard printing processes coming from the graphic arts, such as screen printing or inkjet, the difference being that it uses conducting inks. This new technique allows to print electronic components and circuits (e.g. connectors, resistors, sensors, transistors), on widely differing flexible substrates, like plastic, textiles or paper. The printed circuits and components are thin, lightweight, flexible, enabling single use/disposable devices, ubiquitous electronics and new applications, with high volume production at an economical price, compared to traditional silicon electronics.   
  
VIVAINNOVA, a company specialised in the field of printed electronics, has developed an innovative hybrid technology, the Ultra Flexible Printed Circuit (UFPC) that combines printed electronics with traditional silicon components in an ultra low cost, ultra thin and ultra flexible electronic circuit solution. Through the new UFPC technology we will transform the electronics industry by exploiting the competitive advantages of both technologies, combining the ‘high-performance and intelligent silicon-electronics’ with the ‘cost-effective and flexible printed electronics’ and to fill the technological gap between fully-printed electronics and the expansive market of the intelligent objects. The UFPC technology will develop a new generation of electronic circuits giving to the products many properties previously unthinkable like ‘smart capabilities’ combined with ‘flexibility, thinness, light-weight and robustness’, at an ‘economical price’. It will allow to reduce the manufacturing cost of smart flexible electronic circuits by up to 50% compared with the current hybrid solutions.

Coordinator: VIVA DEVELOPMENTS SL from:ES

# ECOFLEX

Project title: Feasibility study of a Eco-friendly, Compact and Flexible System for Post Digital Printing Treatment of Textiles

Start Date: 2015-03-01 End Date:2015-08-31

Topic: Boosting the potential of small businesses for eco-innovation and a sustainable supply of raw materials

Most frequent returning words in objectives:

* ('printing', 4)
* ('ECOFLEX', 4)
* ('market', 4)
* ('costs', 3)
* ('production', 3)
* ('digital', 3)
* ('Reduction', 3)
* ('system', 3)
* ('dimensions', 2)

Today, because of the large dimensions and costs of finishing machines, most printing houses cannot be equipped with a full production line and, after digital printing, they must send fabrics to third companies for finishing and for specific functionalizations. For European SMEs, this leads a general increase of production time and costs and a further threat to competitiveness against the larger and mass-production structured Far East companies. All over Europe, several digital printing SMEs located out of a textile district, are currently suffering the absence of a close, complete supply chain, and they seriously risk of closing their activities because of this scarce completeness. ECOFLEX is going to be proposed to the market of digitally printed fabrics, which is leaded by Europe with 45% total share and is expected to grow in the next years according to recent Industry surveys. Thanks to ECOFLEX, all the operations needed for the textiles finishing and functionalisation will be performed in a single, all-in-one and customized machine, available at low price and compact dimensions. The main benefits for the ECOFLEX users will be: Reduction of the initial investment of about 70%, Reduction of waste and production costs of about 30%, Reduction in the consumption of water and energy of about 30% and 50% respectively, time to market reduction, floor optimization, full control over the quality and repeatability of the final product, resources valorisation.  
The ECOFLEX project will evaluate technical and market feasibility of an innovative, compact and flexible system for post digital printing treatment of textiles. The feasibility study will include: analysis of the technical scenario and enabling technologies, system conceptual design, identification of providers and key partners for system prototyping and scale-up, extensive market study including key countries, turnovers and competitive solutions, definition of suitable business model and business plan.

Coordinator: CIBITEX SRL from:IT

# Solvatten\_agri-bus

Project title: Feasibilty study to determine market entrance for the Solvatten green technology into the agri-business value chains in Eastern Africa

Start Date: 2015-06-01 End Date:2015-11-30

Topic: Boosting the potential of small businesses for eco-innovation and a sustainable supply of raw materials

Most frequent returning words in objectives:

* ('market', 4)
* ('distribution', 4)
* ('technology', 3)
* ('production', 3)
* ('provide', 2)
* ('business', 2)
* ('markets', 2)
* ('agri-business', 2)
* ('sector', 2)

The objectives of this feasibility study are to provide Solvatten AB with the cornerstones of our business plan to enter into the Eastern African market with our green technology, with Kenyan and Ethiopian markets as pilot markets, with the agri-business sector targeted as our initial distribution channel and customer segment.   
  
Our business goal would be to explore distribution and payment models, and undertake a partnership search using key due diligence processes, in order to test distribution and payment models for tackling the end-user and developing them as our customer base.  
  
Today’s increasingly global environment is putting added pressure on all types of industries ranging from manufacturing, production of food and beverages, to the production of textiles. Shifting production patterns and increased regulatory demands impact these industries directly. Compounding these trends, there are increased demands from consumers to know where and how their products are produced, down to every last coffee bean or thread of cloth. Furthermore, there is a pressure to for companies to ensure that their employees are productive, protected, and safe. Workers’ standards are increasingly being debated and put under review.   
  
These developments and pressures are abundant in the high-income countries. Simultaneously, the agri-business sector is growing in the developing countries. Africa now earns an average of 24% of its annual growth from farmers and their crops.75% of the world’s poor live in rural areas. According to the World Bank Agricultural Action Plan, most of these people have agriculture as their livelihood. In 2030, the African agribusiness market is set to top USD 1 trillion.   
  
The Solvatten grene technology is unique in the market, and can provide a significantly needed technology to these sectors. Solvatten wants to capitalise on these trends in order to scale up distribution and sales with an end-goal of reaching new direct customers on the open market.

Coordinator: SOLVATTEN AB from:SE

# TailorFit

Project title: TailorFit; The Integrated “made to measure” workflow automation for menswear

Start Date: 2015-06-01 End Date:2015-11-30

Topic: Accelerating the uptake of nanotechnologies, advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('time', 4)
* ('fashion', 3)
* ('cloths', 3)
* ('manufacturing', 3)
* ('fabric', 3)
* ('luxury', 2)
* ('menswear', 2)
* ('clothing', 2)
* ('personalisation', 2)

'The project targets all luxury fashion firms that specifically manufacture classic menswear clothing (i.e. shirts, jackets, pants, coats...) and propose its personalisation. On one hand, personalisation is a great opportunity to provide the final clients with the cloths they desire, but on the other luxury fashion houses are facing the increasing need of having some automated solutions that will help them in creating 'customized product' in a faster lead time. In fact all fashion houses manufacturing menswear are focused on providing Made to Measure products to their customers, because it increases their revenues, but at the same time this also increases their costs. An integrated and automated management of the whole value chain will decrease the lead time, increase customization application and decrease costs.  
Crea Solution Srl proposes the TailorFit solution that will dramatically accelerate the timing of the whole process, by managing every step of the cloths manufacturing: 1) Acquisition of body measures and selection of the type of clothing, collected in a store anywhere in the world or online, 2) Outfit design: data are sent to an intelligent CAD-based system that will generate the optimal person-tailored outfit design starting from the chosen cloths model, 3) Outfit manufacturing: a software will identify the optimized fabric cut according to the tissue and its physical characteristics (i.e. the deformation of the fabric) and then will cut it rapidly allowing time and fabric savings.   
TailorFit solution is innovative compared to existing ones as those do not provide the management of the entire process, but rather they separate it into parts, do not allow customers to have an integration with the web, do not handle the perfect cut of fabrics and cutting times are operational only for striped fabrics and paintings.  
'

Coordinator: CREA SOLUTION SRL from:IT

# PYRATEX

Project title: Natural, health-benefiting fabrics to protect our skin from external agents

Start Date: 2019-07-01 End Date:2019-10-31

Topic: SME instrument

Most frequent returning words in objectives:

* ('PYRATEX®', 6)
* ('body', 4)
* ('fabrics', 4)
* ('skin', 3)
* ('Pyrates', 3)
* ('COSMETIC', 3)
* ('HEALTH', 3)
* ('PYRATEX', 3)
* ('society', 2)

Today, society is increasingly exposed to environmental pollution: UV radiation generate 90,000 new cases of skin cancer annually in Europe and 7m people die prematurely from exposure to air pollution. Current solutions to protect the body from environmental factors require the daily use of expensive cosmetic skin creams, which are time-consuming to apply for today´s busy society. Our clothing is also a potentially powerful tool to protect our bodies from external agents. However, current fibres from which textile fabrics are made are either synthetic or natural but treated with chemicals/ additives that are harmful for environment and our body. There is a necessity to find a natural and additive- free fabric that provides the body the protection needed against environmental agents. In response, our company Pyrates Smart Fabrics (Pyrates) has developed, PYRATEX® COSMETIC and PYRATEX® HEALTH (PYRATEX) are unrivalled additive and chemicals -free fabrics made of natural fibres. They are manufactured via a sustainable and traditional process enabling the final textiles to take care of the skin and body by providing protection against UV radiation (PYRATEX® HEALTH) and air pollutants (PYRATEX® COSMETIC). PYRATEX organic and natural fabrics avoid the use of 19,500 tons of dyes per year and unlock total customer value of €15m by year 5 after launch. Having validated the reliability of the PYRATEX® COSMETIC and PYRATEX® HEALTH fabrics at the pilot scale, we now want to finalise its development and achieve market preparedness. In Phase 1 we aim to carry a Feasibility Study to warrant the project from a technical, commercial and financial point of view. Besides the crucial benefits that it will bring to natural textile sector, PYRATEX will boost the growth of Pyrates, expecting to gain € 16.6 million profits and 28 new people after 5 years in the market, reaching a ROI of € 10.12 per euro invested.

Coordinator: PYRATES SMART FABRICS SL from:ES

# STRENTEX

Project title: ERA Chair for emerging technologies and innovative research in Stretchable and Textile Electronics

Start Date: 2020-01-01 End Date:2024-12-31

Topic: ERA Chairs

Most frequent returning words in objectives:

* ('research', 6)
* ('Chair', 5)
* ('Project', 3)
* ('excellence', 3)
* ('innovation', 3)
* ('create', 2)
* ('Novi', 2)
* ('Serbia', 2)
* ('environment', 2)

The motivation behind this Project is to create a point of excellence of the Faculty of Technical Sciences, University of Novi Sad (FTN), Novi Sad, Vojvodina, Serbia, to continuously advance state-of-the-art research, technological innovation and contribution to broader social goals, in the field of Stretchable and Textile Electronics. The Project is set in the framework of the ERA Chair action to simultaneously reinforce the research potentials of the FTN and to create cutting-edge dynamic and sustainable research environment. With the support of the network of existing international/regional/national partners, SMEs and stakeholders, research results will be fruitfully exploited and provide a move from flexible/bendable to stretchable products, defined by the needs of society. These products with a high future market potential, such as human monitoring patches, sensors in baby slings, theranostic dressings, will enable a move from “technology push” to “market pull” and will facilitate involvement of the ERA Chair into “Industry 4.0” revolution. STRENTEX project envisages the following activities: (1) ERA Chair establishment – ERA Chair holder appointment and employment of his/her team members; (2) Implementation of structural changes in FTN, for sustainable excellence; (3) Raising research profile of the FTN and its staff, thanks to ERA Chair; (4) Boosting FTN’s innovative capacities and capabilities; (5) Dissemination, communication and exploitation activities. Thanks to this Project, disparities in terms of research and innovation performance between Serbia and innovation leaders in EU will be significantly decreased. Far-reaching effects of the STRENTEX will be creation of world-class working environment and favourable eco-system for flourishing centre of excellence and innovative start-up companies, strengthening of the Serbian and European economy.

Coordinator: UNIVERZITET U NOVOM SADU FAKULTET TEHNICKIH NAUKA from:RS

# SONO-textile

Project title: An advanced process for coating medical textiles with antibacterial nanoparticles through a one-step sonochemical reaction

Start Date: 2017-06-01 End Date:2017-09-30

Topic: Accelerating the uptake of nanotechnologies advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('costs', 3)
* ('healthcare', 3)
* ('Nano', 3)
* ('Textile', 3)
* ('technology', 3)
* ('Professor', 3)
* ('systems', 2)
* ('need', 2)
* ('team', 2)

Each year, 511 million people contract a hospital-acquired infection; 13,8 million die. These “nosocomial” infections are transmitted via bed linen, drapes, towels, pyjamas, staff clothing, and so on. The WHO says they represent “the most frequent adverse event during care delivery and no institution or country can claim to have solved the problem yet.” The consequences are grave: “prolonged hospital stays, long-term disability, increased resistance of microorganisms to antimicrobials, massive additional costs for health systems, high costs for patients and their family, and unnecessary deaths.” Europe shares the burden: with an average prevalence of 10%, 3 million deaths and €11 billion of healthcare costs, there is a pressing need to find a solution.   
  
Nano Textile is bringing one to market. Its experienced team was assembled to commercialise cutting edge technology developed by renowned nanotechnology scientist, Emeritus Professor Aharon Gedanken, at Bar Ilan University. Professor Gedanken’s team have built a sonochemical reactor that embeds zinc oxide nanoparticles into textile fabric fibres via a one-step nanometric explosion process. It is cost effective and transfers enduring antibacterial properties to readymade fabric – without colouration, toxicity or other common issues. Transferring technology typically used in aerospace engineering into textiles, Nano Textile will capitalise on increasing awareness of the need for effective antibacterial control programs in healthcare facilities. The EC has already recognised the innovation’s potential impact, having funded €8,3 million of a 17-participant, €12 million FP7 project – SONO – coordinated by Professor Gedanken between 2008 and 2013. The proprietary, proven technology that emerged has been exclusively licensed by Bar Ilan University to Nano Textile. Successful commercialisation has the potential to reduce morbidity on a large scale, save millions of lives and ease cost burdens on strained healthcare systems.

Coordinator: NANO-TEXTILE LTD from:IL

# ALDing

Project title: Novel industrial processes using the Atomic Layer Deposition technique

Start Date: 2017-04-01 End Date:2019-03-31

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('deposition', 4)
* ('surface', 4)
* ('materials', 3)
* ('vapor', 2)
* ('thin', 2)
* ('industry', 2)
* ('applications', 2)
* ('Different', 1)
* ('chemical', 1)

Different from chemical vapor deposition (CVD) and physical vapor deposition (PVD), atomic layer deposition (ALD) is based on saturated surface reactions. In this case, the thin films are grown in a layer-by-layer fashion allowing sub-nanometer thickness control, low temperature depositions, good uniformity and superior step coverage on high specific surface area components compared to CVD and PVD.  
These advantages of ALD over other thin film deposition processes have been conventionally applied mainly in semiconductor electronic industry on the preparation of layers of outstanding High-K dielectric materials.   
But, due to the advances in tool design and recipe development, the importance of ALD is rapidly expanding for producing innovative nanoscale materials.   
ALD new applications are highly multidisciplinar. It has an emerging potential on photovoltaic cells, flexible electronics, enhanced performance glass, paper and textiles, new generation transistors, sensors, and advanced energy materials technology. Innovations brought by nanotechnology to biosciences and biosensors are also proving to be good candidates to benefit from these potentialities and its surface funcionalization.  
Under this scenario, this proposal intends to built up an outstanding Research and Development department at a recently created SME (CTECHnano) that will be focused on extending the applications of ALD technique to all the emerging and/or unexplored industrial areas mentioned above. This action will contribute to enhance european industry competitiveness on the surface modification manufacture.

Coordinator: COATING TECHNOLOGIES SL from:ES

# wellwatch

Project title: A hands-free remote monitoring solution for continuous and accurate medical grade assessment of heart health

Start Date: 2017-02-01 End Date:2017-04-30

Topic: Open Disruptive Innovation Scheme

Most frequent returning words in objectives:

* ('wellwatch', 4)
* ('market', 4)
* ('costs', 3)
* ('deaths', 2)
* ('care', 2)
* ('healthcare', 2)
* ('monitoring', 2)
* ('patient', 2)
* ('heart', 2)

Cardiovascular disease (CVD) is the leading cause of death in the EU with over 4m deaths annually. Although up to 80% of premature deaths are preventable through early prognosis and treatment the associated costs are significant with global estimates of €41tn in the next 25 years. There is an increasing focus on making care more patient-centric which could save €99bn in healthcare costs in the EU annually.   
  
Currently the only medically acceptable method of monitoring a CVD condition includes a trip to the hospital, a complete 12 lead ‘wet’ electrocardiogram (ECG) and a follow-up with a doctor. This process is time-consuming, costly to hospitals and provides only a snapshot of a patient’s heart health.   
  
At Smartlife, we have developed wellwatch; a wearable technology garment with our patented textile sensors built in and our unique contactless electronics hub that transmits signals to a mobile application for remote monitoring by patient and clinician. Our technology can be truly disruptive – assisting in the diagnosis of early onset or predictive heart conditions.   
  
To gain first mover advantage in the challenging medical market we must secure our supply chain, fully develop the care pathway and present an attractive value proposition to licensees and suppliers. We expect our initial route to market will be through private healthcare, as historically they have a faster uptake of novel solutions. The primary aim of our overall innovation project is to develop a clinically and economically validated wellwatch platform for self-monitoring of CVD. The objective of this feasibility study is to develop our business model for successful commercialisation of wellwatch.  
  
The market size of smart textiles in medical applications is forecast to be worth €0.9bn by 2021; our growth projections for wellwatch are to achieve a 5-year ROI of 250% for Smartlife following market entry in 2019, based on our estimated project costs this equates to an ROI of 770% to the EC.

Coordinator: SMARTLIFEINC LIMITED from:UK

# IHS

Project title: water and energy efficient Induction Humidification System for textile applications

Start Date: 2016-11-01 End Date:2017-02-28

Topic: Stimulating the innovation potential of SMEs for a low carbon and efficient energy system

Most frequent returning words in objectives:

* ('water', 5)
* ('company', 2)
* ('AERIS', 2)
* ('development', 2)
* ('technology', 2)
* ('years', 2)
* ('turnover', 2)
* ('textile', 2)
* ('production', 2)

Located near Bergamo, Italy, our company, AERIS Group, is specialized in design, development, manufacturing and commissioning of air technological applications, ranging from air conditioning over process air technology up to removal and heat recovery. With more than 50 years of experience and a turnover above €4 million, our group is composed of 3 companies: AERIS air technologies, expert in HVAC and filtering, EDENYA for air cooling solutions and MAZZINIICI, our textile division. The technical know-how of our high-specialized professionals, our detailed knowledge of materials, production processes and production methods in the different industrial fields as well as a business strategy turned towards continuous innovation and global presence are the basis of our success and growth.   
  
We listen carefully to our customers from the textile sector – which represents 35% of or turnover –, their feedback and concerns on product quality, water and energy consumption. This led us 20 years ago to the development of the patented Supra high pressure water technology.  
  
Today, we propose the next step, called Induction Humidification System (IHS): by integrating a customized air distribution and diffusion system with specific diffusers, we can “move” a volume of air 10 times equal to the primary air, and fully mixed with micronized water for even humidity level without water waste. The IHS reduces drastically water consumption by 50% and energy by up to 80%, while guaranteeing an optimum control of humidity (\/-0.5%) and temperature (\/- 0.5 degrees).   
  
The IHS system will achieve long-term profitability for both our customers and our company, with an increase of sales reaching €5.7million by 2023, for a total of €15.0 million of accumulated revenues of the 2019-2023 period.

Coordinator: AERIS GROUP HOLDING SRL from:IT

# SmartHELMET

Project title: Intersectoral Network for Innovation on Smart Thermal Solutions for Bicycle Helmets

Start Date: 2015-03-01 End Date:2019-02-28

Topic: Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE)

Most frequent returning words in objectives:

* ('helmets', 5)
* ('thermal', 5)
* ('products', 4)
* ('expertise', 3)
* ('research', 3)
* ('project', 3)
* ('knowledge', 3)
* ('headgear', 3)
* ('implications', 2)

Bicycle helmets are a tremendously important asset against head injuries during accidents. However, their normal use is often associated with strong thermal discomfort due to the (thermally) insulating nature of the materials used in their structures. This affects directly the willingness to wear helmets, which has direct implications in terms of the risk to which riders are exposed to. However, the capacity and expertise to improve the thermal performance of helmets exist on academic institutions (e.g. expertise in thermal physiology, monitoring of bio-responses, active cooling) but they lack a viable supply chain to go from prototypes to finished products, ready for exploitation. On the other hand, SMEs lack the technical skills and research facilities to perform R&D activities, to solve the mentioned problem. To solve this intersectoral problem, the SmartHELMET project will create a sustainable ecosystem of collaboration and knowledge transfer between academic and industrial partners that will develop the next generation of bicycle helmets with smart thermal management. The project’s innovative aspects in terms of new products, processes and applications are very significant, as the new knowledge has many potential applications in the development of other smart headgear products (e.g. motorcycle helmets, industrial protective headgear, sports related headgear, etc.) as well as smarts products in other sectors where the thermal aspect is crucial (e.g. protective garments, sports clothing and footwear). To achieve its objectives, SmartHELMET will put together research expertise and resources from three large academic partners with market, commercialization and innovation experience from three SMEs, to exchange knowledge through intersectoral staff secondments. The project will bridge research initiatives between the academic and industrial sectors, creating long-term cooperation between them, while raising society awareness about its implications for citizens.

Coordinator: UNIVERSIDADE DO PORTO from:PT

participant: CENTER FOR TECHNOLOGY RESEARCH ANDINNOVATION (CETRI) LTD

participant: UNIVERSITE DE STRASBOURG

participant: CHRISTOS PAPADOPOULOS & SIA O.E.

participant: LAZER SPORT NV

# TEMPERA

Project title: Teaching Emerging Methods in Palaeoproteomics for the European Research Area

Start Date: 2017-03-01 End Date:2021-02-28

Topic: Innovative Training Networks

Most frequent returning words in objectives:

* ('TEMPERA', 5)
* ('ancient', 5)
* ('heritage', 4)
* ('specialists', 3)
* ('proteins', 3)
* ('state-of-the-art', 2)
* ('training', 2)
* ('mass', 2)
* ('protein', 2)

TEMPERA will provide international, intersectoral and interdisciplinary state-of-the-art doctoral training to prepare the next generation of specialists in mass spectrometry-based ancient protein residues analysis for biomolecular diagnostics and conservation of cultural heritage material.  
Due to their chemical and mechanical properties, proteins have always represented the category of biomolecules most extensively exploited by humans to satisfy basic needs, including: nutrition, clothing, sheltering and transportation. However presently there are very few specialists that have been trained to analyse ancient proteins, in stark contrast to the study of ancient DNA. The growing demand of information provided by mass spectrometry-based ancient protein sequencing will require highly specialised profiles with a multidisciplinary background in analytical chemistry, engineering, molecular biology, archaeology and art restoration.  
Within the TEMPERA network, a team of talented young scientists from both experimental sciences and cultural heritage conservation disciplines will be created and prepared to become a group of highly qualified specialists.  
The TEMPERA network aims at:  
(i) forming, through research-based training, the professional profiles behind tomorrow’s state-of-the-art analysis of ancient proteins from cultural heritage materials,  
(ii) consolidating existing constructive interaction across disciplines to focus different expertise and backgrounds into the common aim of safeguarding and enhancing European cultural heritage,  
(iii) stimulating, through the right set of specific research-related and transferable skills, the development of  
 application-oriented mind set for direct or indirect exploitation of TEMPERA R&D activities.  
As a key TEMPERA feature, the unique contribution provided by each participating institution will be integrated in a strong partnership to achieve valuable complementary research-specific and widely transferrable professional competence.

Coordinator: KOBENHAVNS UNIVERSITET from:DK

participant: UNIVERSITA DEGLI STUDI DI NAPOLI FEDERICO II

participant: UNIVERSITY OF YORK

participant: DEVRO PLC

participant: UNIVERSITE DE LILLE

participant: MAX-PLANCK-GESELLSCHAFT ZUR FORDERUNG DER WISSENSCHAFTEN EV

# PROTECT

Project title: Pre-commercial lines for production of surface nanostructured antimicrobial and anti-biofilm textiles, medical devices and water treatment membranes

Start Date: 2017-01-01 End Date:2020-12-31

Topic: Pilot Line Manufacturing of Nanostructured Antimicrobial Surfaces using Advanced Nanosurface Functionalization Technologies

Most frequent returning words in objectives:

* ('PROTECT', 3)
* ('processes', 3)
* ('pilot', 3)
* ('step', 2)
* ('materials', 2)
* ('textiles', 2)
* ('water', 2)
* ('treatment', 2)
* ('membranes', 2)

PROTECT aims to introduce to the market One step antimicrobial finish processes for polymeric materials used in i) specialty textiles for public areas and hospitals, ii) water treatment membranes, and iii) implantable medical devices. Compared to main existing manufacturing routes, the proposed one-step coating technologies are simple, fast, and reproducible. For this, PROTECT uses as a starting point four existing pilot lines emanated from high successful FP7 projects SONO, NOVO and BioElectricSurface. PROTECT will upgrade the nanocoating One step process platform comprising: two roll to roll (R2R) pilots (sonochemical and spray coating) for functional textiles production, a R2R thermo-embedding pilot for antibacterial/biofilm preventing water treatment membranes, and a batch sonochemical pilot for antibacterial/antibiofilm/biocompatible medical devices. This platform will cover a wide range of applications due to their specific characteristics by the following objectives:   
a) Incorporating ‘antibacterial antibiofilm biocompatible novel nanoparticles’(NPs) of the following categories: inorganic (CuxZn1-xO ,5 Ga@C-dots, Si/TiO2 composite) polymer (polypyrrole, PPy)) and biologicals (antibacterial enzymes, functionalized lipids (FSLs), hybrid antibacterials) to obtain ‘biocompatible nanostructured surfaces with antimicrobial and anti-adhesive’ properties.   
b) Implementing real time characterization methods for monitoring at the nanoscale to characterise relevant materials, process properties and product features for ‘real-time nanoscale characterization’ to ensure ‘reproducibility’ and ‘quality’ of the nano-coated products  
c) Improving ‘coating efficiency, production capacity, reproducibility, robustness, cost-effectiveness, safety and sustainability’ of the processes in relation to the targeted applications.   
d) Introducing a Labs Network (PLN) that will include also lab scale processes of the proposed technologies for ‘training and knowledge dissemination.

Coordinator: UNIVERSITAT POLITECNICA DE CATALUNYA from:ES

participant: TESSITURA PERTILE SRL

participant: INDATECH SAS

participant: FONTE NUOVA SRL

participant: NSC - NANO SONO COOPERATION LTD

participant: STEINBEIS GMBH & CO. KG FUER TECHNOLOGIETRANSFER

participant: CENTITVC - CENTRO DE NANOTECNOLOGIA E MATERIAIS TECNICOS FUNCIONAIS E INTELIGENTES ASSOCIACAO

participant: ASOCIACION DE INVESTIGACION DE LA INDUSTRIA TEXTIL

participant: Kessler ProData GmbH

participant: I.C.O.N.E.

participant: UNIVERSITY OF LIMERICK

participant: AGENCIA ESTATAL CONSEJO SUPERIOR DEINVESTIGACIONES CIENTIFICAS

participant: OSM-DAN LTD

participant: BAR ILAN UNIVERSITY

participant: CONSIGLIO NAZIONALE DELLE RICERCHE

participant: Klopman International Srl

participant: CEDRAT TECHNOLOGIES SA

participant: UNIVERSITA' DEGLI STUDI DI MILANO-BICOCCA

participant: DEGANIA SILICONE LTD

participant: MAROCO, LDA

participant: SYNTHAUR OOO

participant: PROJECT SAS DI MASSIMO PERUCCA

# MODCOMP

Project title: Modified cost effective fibre based structures with improved multi-functionality and performance

Start Date: 2016-04-01 End Date:2020-03-31

Topic: Fibre-based materials for non-clothing applications

Most frequent returning words in objectives:

* ('materials', 9)
* ('applications', 5)
* ('properties', 4)
* ('value', 3)
* ('Current', 2)
* ('production', 2)
* ('products', 2)
* ('project', 2)
* ('performance', 2)

Current technological demands are increasingly stretching the properties of advanced materials to expand their applications to more severe or extreme conditions, whilst simultaneously seeking cost-effective production processes and final products. The aim of this project is to demonstrate the influence of different surface enhancing and modification techniques on CF-based materials for high value and high performance applications. These materials are a route to further exploiting advanced materials, using enabling technologies for additional functionalities, without compromising structural integrity. Carbon fibre (CF) based materials have particular advantages due to their lightweight, good mechanical, electrical and thermal properties. Current generation CFs have extensively been used in a multitude of applications, taking advantage of their valuable properties to provide solutions in complex problems of materials science and technology, however the limits of the current capability has now being reached.   
MODCOMP aims to develop novel fibre-based materials for technical, high value, high performance products for non-clothing applications at realistic cost, with improved safety and functionality. Demonstrators will be designed to fulfil scalability towards industrial needs . End users from a wide range of industrial sectors (transport, construction, leisure and electronics) will adapt the knowledge gained from the project and test the innovative high added value demonstrators. An in-depth and broad analysis of material development, coupled with related modelling studies, recycling and safety will be conducted in parallel for two types of materials (concepts):   
• CF-based structures with increased functionality (enhanced mechanical, electrical, thermal properties).  
• CNF-based structures for flexible electronics applications.  
  
Dedicated multiscale modelling, standardisation and production of reference materials are also considered

Coordinator: NATIONAL TECHNICAL UNIVERSITY OF ATHENS - NTUA from:EL

participant: NCC OPERATIONS LIMITED

participant: RISE SICOMP AB

participant: ANTHONY, PATRICK & MURTA-EXPORTACAO LDA

participant: THE UNIVERSITY OF BIRMINGHAM

participant: INNOVATION IN RESEARCH & ENGINEERING SOLUTIONS

participant: AERNNOVA ENGINEERING DIVISION SAU

participant: "DERZHAVNE PIDPRIEMSTVO ""KONSTRUKTORSKE BYURO ""PIVDENIE"" IM. M.K.YANGELYA"""

participant: INSTITUTO TECNOLOGICO DE ARAGON

participant: EUROMOBILITA SRO

participant: POLITECNICO DI TORINO

participant: FRENI BREMBO Spa

participant: OPEN SOURCE MANAGEMENT LIMITED

participant: THALES SA

participant: INEGI - INSTITUTO DE CIENCIA E INOVACAO EM ENGENHARIA MECANICA E ENGENHARIA INDUSTRIAL

participant: TWI LIMITED

# 1D-Neon

Project title: 1D Nanofibre Electro-Optic Networks

Start Date: 2016-04-01 End Date:2020-03-31

Topic: Fibre-based materials for non-clothing applications

Most frequent returning words in objectives:

* ('manufacturing', 4)
* ('applications', 4)
* ('smart', 3)
* ('products', 3)
* ('materials', 2)
* ('platform', 2)
* ('performance', 2)
* ('vision', 1)
* ('proposal', 1)

The vision of 1D-NEON proposal is to develop fibre-based smart materials along with an integrated technology platform for the manufacturing in Europe of new products with multi-sectorial applications in consumer electronics, energy, healthcare and fitness, smart buildings, sensors and e-skin for soft robotics.  
The overall objective of 1D-NEON is to build a modular platform for manufacturing fibre-based industrial products in multiple market sectors. Nanomaterials will be assembled into five basic fibre components along with manufacturing processes for integration into smart products, to impact three pilot applications.  
Our design and manufacturing approach will address both technical performance and cost-effectiveness of these multi-sectorial applications, targeting sustainable development of new high-value, high performance devices and systems that could be integrated safely into everyday objects for an improved quality of life.   
With that perspective, 1D-NEON fully addresses the challenges of the H2020 work programme topic NMP 22 – 2015: Fibre-based materials for non-clothing applications.

Coordinator: THE CHANCELLOR MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE from:UK

participant: SAATI SPA

participant: HENKEL KGaA

participant: BIOAGE SRL

participant: CENTITVC - CENTRO DE NANOTECNOLOGIA E MATERIAIS TECNICOS FUNCIONAIS E INTELIGENTES ASSOCIACAO

participant: UNINOVA-INSTITUTO DE DESENVOLVIMENTO DE NOVAS TECNOLOGIAS-ASSOCIACAO

participant: SILVACO EUROPE LTD

participant: SOLVAY SPECIALTY POLYMERS ITALY SPA

participant: RELATS SA

participant: THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD

participant: FUNDACIO EURECAT

participant: LG DISPLAY GERMANY GMBH

participant: PHILIPS LIGHTING B.V.

# FLOWTONICS

Project title: Solid-state flow as a novel approach for the fabrication of photonic devices

Start Date: 2016-02-01 End Date:2021-01-31

Topic: ERC Starting Grant

Most frequent returning words in objectives:

* ('photonic', 5)
* ('substrates', 4)
* ('fabrication', 3)
* ('approaches', 3)
* ('development', 2)
* ('energy', 2)
* ('food', 2)
* ('management', 2)
* ('health', 2)

The development of advanced photon-based technologies offers exciting promises in fields of crucial importance for the development of sustainable societies such as energy and food management, security and health care. Innovative photonic devices will however reveal their true potential if we can deploy their functionalities not only on rigid wafers, but also over large-area, flexible and stretchable substrates. Indeed, providing energy harvesting, sensing, or stimulating abilities over windows, screens, food packages, wearable textiles, or even biological tissues will be invaluable technological breakthroughs. Today, however, conventional fabrication approaches remain difficult to scale to large area, and are not well adapted to the mechanical and topological requirements of non-rigid and curved substrates. In FLOWTONICS, we propose innovative materials processing approaches and device architectures to enable the simple and scalable fabrication of nano-structured photonic systems compatible with flexible and stretchable substrates. Our strategy is to direct the flow of optical materials through an innovative and thus far unexplored exploitation of the solid-state dewetting and thermal drawing processes. Our objectives are three-fold: (1) Study and demonstrate, for the first time, the strong potential of the dewetting of chalcogenide glasses layers for the fabrication of large area photonic devices; (2) Show that dewetting can also be exploited to realize photonic architectures onto engineered, nano-imprinted flexible and stretchable polymer substrates; (3) Demonstrate, for the first time, the use of the thermal drawing process as a novel tool to realize advanced flexible and stretchable photonic ribbons and fibers. These novel approaches can contribute to game-changing scientific and technological advances for the sustainable management of our resources and to meet our growing health care needs, putting Europe at the forefront of innovation in these crucial areas.

Coordinator: ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE from:CH

# Trash-2-Cash

Project title: Trash-2-Cash: Designed high-value products from zero-value waste textiles and fibres via design driven technologies

Start Date: 2015-06-01 End Date:2018-11-30

Topic: Materials solutions for use in the creative industry sector

Most frequent returning words in objectives:

* ('waste', 6)
* ('material', 5)
* ('fibre', 4)
* ('design', 4)
* ('Trash-2-Cash', 3)
* ('paper', 2)
* ('industry', 2)
* ('textile', 2)
* ('consumption', 2)

Within Trash-2-Cash, growing problems with paper fibre waste from the paper industry and textile fibre waste, originating from a continuously increasing textile consumption, will be solved through design-driven innovation. This will be performed by using the wastes to regenerate fibres that will be included into fashion, interior and other products. The cotton production suffers from non-sustainable environmental and socio-economical issues and the polyester fibre manufacture produces waste that to date has no viable deposition. Designers will lead the recycling initiative, defining the material properties, and will feed the material scientists to evaluate newly developed eco-efficient cotton fibre regeneration and polyester recycling techniques. The future exploitation will be ascertained through a two-sided exchange between the designers and the end-product manufacturers, also taking into account the consumer-related product needs, and prototypes will be produced in a realistic test production environment.  
The objectives are to:  
• Integrate design, business and technology to a coherent discipline to establish new creative industries  
• Develop new material and product opportunities via creative design from waste or process by-product  
• Reduce the utilization of virgin materials; improve material efficiency; decrease landfill volumes and energy consumption  
• Use design for recycling with the vision of closing the material loop  
• Create new business opportunities by adding the return loop of the discarded goods to be reused into attractive products  
• Promote development of the creative sector by providing technological solutions for exploitation of waste streams  
Europe's creative industry will be strengthened through Trash-2-Cash taking the lead worldwide in the design for recycled materials area. Moreover, Trash-2-Cash will support a better waste utilization and contribute to reduction of landfill area needs.

Coordinator: RISE RESEARCH INSTITUTES OF SWEDEN AB from:SE

participant: RISE IVF AB

participant: SOKTAS DOKUMA ISLETMELERI SANAYI VE TICARET ANONIM SIRKETI

participant: SOEX TEXTIL-VERMARKTUNGSGESELLSCHAFT MBH

participant: TEKSTINA TEKSTILNA INDUSTRIJA DOO

participant: GRADO ZERO INNOVATION SRL

participant: SCA OBBOLA AB

participant: Teknologian tutkimuskeskus VTT Oy

participant: THE UNIVERSITY OF THE ARTS LONDON

participant: AALTO KORKEAKOULUSAATIO SR

participant: REIMA OY

participant: VANBERLO BV

participant: COPENHAGEN BUSINESS SCHOOL

participant: TEKO, SVERIGES TEXTIL- OCH MODEFORETAG I

participant: CELANESE PRODUCTION ITALY S.R.L.

participant: MAIER SCOOP

participant: MATERIAL CONNEXION ITALIA SRL

# PENELOPE

Project title: A study of weaving as technical mode of existence

Start Date: 2016-12-01 End Date:2021-11-30

Topic: ERC Consolidator Grant

Most frequent returning words in objectives:

* ('ancient', 4)
* ('investigation', 4)
* ('technology', 3)
* ('Greece', 2)
* ('mode', 2)
* ('threads', 2)
* ('paradigm', 2)
* ('concept', 2)
* ('archaic', 2)

The PENELOPE project builds on the hypothesis that there was a significant but tacit contribution of textile technology involved in the advent of science in ancient Greece. Bruno Latour recently claimed that technologies require an original mode of existence that accounts for their particular form of detour. I agree and propose the technological labyrinth of threads in weaving as a paradigm for this mode. In contrast to the well-known but insufficient idea of hylemorphism (a form/idea applied to material) I suggest the concept of penemorphism (a co-existence of shifting and un-shifting threads, 'pene' in Greek) that enables to describe the integration of various levels and elements that are included in each and every technology, especially the digital ones. I focus in theory and practice on the technological principles of ancient weaving. In archaic Greece, we find a veridiction, a very particular way of telling the truth in weaving terms that is hidden behind the relations of metaphor and concept or mythos and logos. I detect this veridiction in all sorts of ancient texts, be they philosophical, poetical, mythographic, cosmological, or mathematical. Ancient weaving contains framing features that are lost in modern clothing technology but were decisive for their use as a model of cosmic order. For this investigation I set up a PENELOPEan laboratory where I 1. Detect the models and topologies of weaves (ancient and modern) 2. Develop codes to make them virtually explorable, and 3. Compare different types of coding and their scope with regard to their dependence on specific systems. The laboratory work is accompanied by a comparative investigation of archaic Greek texts, a selective investigation of scientific theories that employ concepts analogous to my weaving paradigm, and an anthropological investigation of the relation of codes, notations and conditions for the development of notation systems.

Coordinator: DEUTSCHES MUSEUM VON MEISTERWERKEN DER NATURWISSENSCHAFT UND TECHNIK from:DE

# DRESSINGTHENEWWORLD

Project title: Dressing the New World. The Trade and the Culture of Clothing in the New Spanish Colonies (1600-1800)

Start Date: 2015-09-01 End Date:2017-08-31

Topic: Marie Skłodowska-Curie Individual Fellowships (IF-EF)

Most frequent returning words in objectives:

* ('World', 4)
* ('research', 4)
* ('unique', 4)
* ('century', 3)
* ('project', 3)
* ('source', 3)
* ('History', 3)
* ('Fashion', 2)
* ('Textiles', 2)

Dressing the New World. The Trade and the Culture of Clothing in the New Spanish Colonies (1600-1800).  
  
What effect did the successful marketing of European products have on the New World at the beginning of the 18th century? And how should one go about studying the European Fashion and Textiles that transformed the way people dressed in the Spanish colonies?   
“Dressing the New World” research project is framed by a unique document, which describes Mexico in 1700s. This document is a rare reference for the knowledge of Spanish America at the beginning of the 18th century, and a very unique source to understand how and why Europe aimed to disseminate its textiles, commodities and fashionable goods overseas.   
The research project seeks to consider Early Modern Fashion in detail through this historical piece and other resources from literature, iconography and material culture, merging into different disciplines: Modern History, Art History and Dress History. Finally the research project aims to integrate the impact of politics and global connections in fashion studies for the early modern period.   
Official reports, political correspondence and accounts written by travellers are a rich source of information that allows us to write the history of fabrics and fashions and to study their impact, consumption and distribution in early modern times. Taken together these sources will offer a unique manner in which to envisage and articulate textiles and dress in the mix of cultures of the New World from the Spanish conquest in 1521 up to the 19th century, and map up how the global market connected different parts of the world in early modern time.   
Matched with a unique source of iconography (the “Casta paintings”), the achieved research will produce the first illustrated glossary on Textiles and Garments whose were consumed on a global scale in the preindustrial time.

Coordinator: KOBENHAVNS UNIVERSITET from:DK

# XoSoft

Project title: Soft modular biomimetic exoskeleton to assist people with mobility impairments

Start Date: 2016-02-01 End Date:2019-01-31

Topic: Robotics

Most frequent returning words in objectives:

* ('XoSoft', 4)
* ('mobility', 4)
* ('project', 3)
* ('people', 3)
* ('health', 3)
* ('modular', 2)
* ('exoskeleton', 2)
* ('sensors', 2)
* ('developed', 2)

The XoSoft project will develop a modular soft lower-limb exoskeleton to assist people with mobility impairments. The consortium includes 5 research groups and 3 companies each with EU project experience in exoskeleton/assistive orthoics development.   
XoSoft, a class I medical device, assists people with low to moderate levels of reduced mobility, enabling them to remain active performing tasks of daily living, which they would otherwise either refrain from doing or could not do. It can also be used in clinics by people with disabilities such as muscle weakness or partial loss of sensory functions. Being a modular system, it comprises an ankle, knee and hip which can be use individually or combined and used unilaterally or bilaterally.  
XoSoft is revolutionary: Soft robotics sensors and actuators will be developed using existing basis science concepts and integrated with connected health functionality. It will be the first commercially orientated soft exoskeleton for the mainstream mobility assistance market.   
XoSoft is a user centered design achieved by involving primary, secondary and tertiary end users throughout the project. It is easy and comfortable to wear, has a significant impact on the persons mobility and health, on their independence and quality of life.   
Advanced textiles and smart materials will be developed to create sensing, variable stiffness joints and actuation using technologies such as electro rheological fluids, flexible tactile sensors based on polymeric films with carbon nanotubes and nanowires. Control is through biomimetics to identify the user’s motion and intention and to determine and provide the appropriate level of assistance. Connected health connectivity and analysis enable the wearer and their clinicians/therapist to review activity information. The concept is tested extensively in the lab, is subject to trials in clinical settings and home environments.

Coordinator: FONDAZIONE ISTITUTO ITALIANO DI TECNOLOGIA from:IT

participant: STICHTING SAXION

participant: ROESSINGH RESEARCH AND DEVELOPMENT BV

participant: Össur hf

participant: UNIVERSITY OF LIMERICK

participant: AGENCIA ESTATAL CONSEJO SUPERIOR DEINVESTIGACIONES CIENTIFICAS

participant: WALDKRANKENHAUS ST MARIEN GGMBH

participant: ACCELOPMENT AG

# GENOLACT

Project title: Consolidating a genomic framework for exploiting lactobacilli

Start Date: 2015-06-01 End Date:2017-05-31

Topic: Marie Skłodowska-Curie Individual Fellowships (IF-EF)

Most frequent returning words in objectives:

* ('food', 4)
* ('applications', 3)
* ('effects', 2)
* ('consumer', 2)
* ('Lactobacillus', 2)
* ('species', 2)
* ('production', 2)
* ('non-food', 2)
* ('health', 2)

Probiotics are defined as live microorganisms with a long history of safe use and a robust evidence for providing beneficial effects to the consumer. The majority of probiotic bacteria belong to Lactobacillus genus, which includes a large number of GRAS species, essential in fermented food production and for use as food preservatives. Lactobacilli have also a range of non-food applications, such as industrial production of lactate for the textile industry in environmentally friendlier ways than chemical synthesis.  
Despite their broad use, health claims approval by EFSA for probiotics is challenging due to scientific difficulties in validating probiotic mechanisms and a lack of proper strain characterization. Although there has been a surge in research into probiotics, the conversion into actual claims and compliance with the regulatory requirements has proved difficult.   
The aim of the project is to perform forensically detailed comparative genomic analysis of Lactobacillus species to i) unravel the genetic backbone that has been moulded by genome decay and gene acquisition ii) delineate the genetic features and molecular mechanisms that underpin their health-promoting effects and suitability for use, and iii) identify genes associated with the phenotypes for new food applications.  
A deeper insight into the safety-related issues for food strains will provide a comprehensive assessment on risk factors to be transferred to companies as supplementary safety guidelines for successful health claim proposals. Data obtained will be used to develop new dietary solutions and safe non-food applications, thus increasing manufacturers’ interest in placing beneficial products on the market and meeting the consumer’s ambitions to live healthier.  
Within the project, the applicant will have the chance to perform high-level research with leading scientists and create a link between academic institutions and companies for efficient technology transfer and novel industrial solutions.

Coordinator: UNIVERSITY COLLEGE CORK - NATIONAL UNIVERSITY OF IRELAND, CORK from:IE

# DuRSAAM

Project title: PhD Training Network on Durable, Reliable and Sustainable Structures with Alkali-Activated Materials

Start Date: 2018-11-01 End Date:2022-10-31

Topic: Innovative Training Networks

Most frequent returning words in objectives:

* ('concrete', 7)
* ('technology', 4)
* ('materials', 3)
* ('DuRSAAM', 2)
* ('material', 2)
* ('construction', 2)
* ('resources', 2)
* ('market', 2)
* ('industry', 2)

DuRSAAM is a collaborative PhD framework creating a critical mass of experts skilled in innovative alkali-activated material (AAM) concrete, as a key enabling technology for a sustainable and resilient built environment. AAM technology presents a new generation of materials, ideally conceived to respond to the need for more efficient, durable, eco-friendly and reliable construction, and utilizing by-product resources as raw materials. Modern concrete will be produced with low carbon footprint (CO2 emissions reduced by 80%), lower energy consumption and reduced use of primary resources (>1.5 t raw materials are quarried per t Portland cement clinker; this will be reduced by >60%), and with an addressable market for AAM binders of 5 B€/yr. DuRSAAM answers unmet industry demands, to facilitate emerging AAM technology for continued market entry and to unlock its potential in society.   
The consortium brings together 7 academic and 15 non-academic partners, to excel in the scientific development and exploitation of AAM concrete, advancing design, modelling and practice beyond the state-of-the-art. It holds a unique focus on: (1) today’s concerns of users and engineers that the durability and sustainability of AAM concrete is yet insufficiently quantified; and (2) provision of an AAM technology for rehabilitation of structures to meet the growing demand for renovation, to be developed in parallel with AAM for new concrete structures.  
The network will deliver world-leading training in this multidisciplinary field through 13 PhDs in interrelated aspects of AAM concrete, fibre reinforced high-performance concrete, and textile-reinforced mortar, as well as sustainability assessment. The outcomes will be instrumental in delivering a sustainable future in Europe’s construction industry, which is increasingly driven by the growing demand for durable yet cost-effective solutions, driving a greater focus on reliable and comprehensive eco-efficient material technologies such as AAM.

Coordinator: UNIVERSITEIT GENT from:BE

participant: THE UNIVERSITY OF SHEFFIELD from:UK

participant: KARLSRUHER INSTITUT FUER TECHNOLOGIE from:DE

participant: EIDGENOESSISCHE TECHNISCHE HOCHSCHULE ZUERICH from:CH

participant: PANEPISTIMIO PATRON from:EL

participant: TECHNISCHE UNIVERSITEIT DELFT from:NL

# COPAST

Project title: The Colours of the Past in Victorian England

Start Date: 2016-03-01 End Date:2018-02-28

Topic: Marie Skłodowska-Curie Individual Fellowships (IF-EF)

Most frequent returning words in objectives:

* ('England', 2)
* ('works', 2)
* ('writers', 2)
* ('artists', 2)
* ('colours', 2)
* ('hues', 2)
* ('chemical', 2)
* ('dyes', 2)
* ('ancient', 2)

This project entitled “The Colours of the Past in Victorian England” (COPAST) aims to analyse the reception of the chromatic material culture of Antiquity and the Middle Ages in the works of writers and painters from William Morris’s close circle. These politically-committed poets and artists looked towards the ideologically-charged colours of Hellenic and medieval arts and crafts, in order to retrieve and emulate supposedly more meaningful hues and dyeing processes which they believed modern science and economic imperatives had stripped of their symbolic and artistic value. The Victorian age (1837-1901) was indeed a turning point in terms of scientific discoveries of new chemical colours, including coal-tar based synthetic dyes. Dr. Ribeyrol will investigate ideological approaches to ancient polychromy in the context of the Greek and Gothic Revivals which affected industrialized England in the second half of the 19th century. Using close analysis of art works, literary texts and pigment recipe books, she will contrast these ancient hues with the new chemical aniline dyes which were mainly devised for the expanding textile industry. This innovative focus on chromatic materiality in the field of Victorian art history and literature will enable her to shed light on the artistic impact of this colour revolution which radically unsettled the way certain avant-garde Victorian writers and artists related to chromatic terminology and used traditional, organic pigments.

Coordinator: THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD from:UK

# FIBFAB

Project title: INDUSTRIALIZATION OF BIOBASED TEXTILE FABRICS FOR CLOTHING APPLICATIONS

Start Date: 2017-01-01 End Date:2019-09-30

Topic: Fast Track to Innovation Pilot

Most frequent returning words in objectives:

* ('fibres', 5)
* ('fabrics', 3)
* ('clothing', 3)
* ('FIBFAB', 2)
* ('project', 2)
* ('applications', 2)
* ('wool', 2)
* ('cotton', 2)
* ('requirements', 2)

FIBFAB project aims to industrialize and launch successfully the production of biodegradable and sustainable polylactic acid (PLA) based fabrics (wool/PLA and cotton/PLA) for the applications in casual (men and womenswear), protective and workwear clothing, and to overcome current limitations of PLA fibres as real alternative to current fabrics (wool and cotton with polyester fibres).  
  
Main FIBFAB project innovations are:  
  
- To obtain a final clothing product 100% bio-based and biodegradable that meets the mechanical and performance requirements of the textile sector   
  
- To improve the current poor thermal resistance of PLA fibres to meet the requirements in several clothing applications by adding additives to enhance the final PLA crystallinity.   
  
- To improve the extrusion process for PLA fibres and especially the mechanical spinning process   
  
-To introduce in the textile market yarns and fabrics produced from PLA fibres combined with cotton or wool.

Coordinator: AIMPLAS - ASOCIACION DE INVESTIGACION DE MATERIALES PLASTICOS Y CONEXAS from:ES

participant: CENTRE SCIENTIFIQUE & TECHNIQUE DE L'INDUSTRIE TEXTILE BELGE

participant: YUNSA YUNLY SANAYI VE TICARET ANONIM SIRKETI

participant: SINTEX AS

# CHLAMYS

Project title: Chlamys: The cultural biography of a garment in Hellenistic Egypt

Start Date: 2015-05-01 End Date:2017-04-30

Topic: Marie Skłodowska-Curie Individual Fellowships (IF-EF)

Most frequent returning words in objectives:

* ('Alexandria', 4)
* ('chlamys', 4)
* ('garment', 4)
* ('cultures', 3)
* ('Greece', 3)
* ('city', 3)
* ('differences', 2)
* ('groups', 2)
* ('Alexander', 2)

Hellenistic Egyptian history has been described as a 'tale of two cultures'. This duality is manifest in the differences between the textile cultures of the two ethic groups that came into contact during the time of the Ptolemies. The fundamental differences concern: a/ the traditional fibre used (linen in Egypt–wool in Greece); b/ the colour preference for garments (white for Egypt-a variety of vivid colours in Greece; c/ the loom used for weaving (horizontal in Egypt-vertical in Greece). When Alexander the Great first came to Egypt, he decided to leave his mark on the territory, and founded the first city that would bear his name: Alexandria. Descriptions of the city detailed by such later ancient authors as Diodorus Siculus, Strabo, Pliny the Elder and Plutarch report that the city had the shape of a chlamys, the typical woollen cloak of Alexander and his cavalry. The first chlamys-shaped wold map was also produced in Alexandria by Eratosthenes, head librarian at the famous library under the third Ptolemy. The founding of Alexandria inaugurates systematic cross-cultural interactions between Greeks and Egyptians, two ethnic groups with distinct languages, cultures, ways of life, and, naturally, dress. The garment chlamys becomes the garment of Ptolemaic royals, while it continues to be the garment of the army. The make-up of this largely mercenary army, though, had since become ethnically diverse, and included local Egyptians. A host of sources (e.g. papyri, iconography on temples, tombs, ostraca, coinage) testify to the fact that the chlamys becomes widespread in both Alexandria and the rest of the Egyptian territory. This project investigates the garment chlamys both as a material object and as a cultural symbol, thus capturing multiple glimpses of everyday life in Hellenistic Egypt, while providing a reassessment of the ongoing discource on dress, ethnicity and identity in cross-cultural cont

Coordinator: KOBENHAVNS UNIVERSITET from:DK

# OLE-DIOX

Project title: Catalytic reductive carboxylation of unactivated olefins with carbon dioxide

Start Date: 2016-06-01 End Date:2017-11-30

Topic: ERC Proof of Concept Grant

Most frequent returning words in objectives:

* ('OLE-DIOX', 3)
* ('acids', 2)
* ('protocols', 2)
* ('toxic', 2)
* ('waste-producing', 2)
* ('hydroformylation', 2)
* ('olefins', 2)
* ('carbon', 2)
* ('catalysts', 2)

Carboxylic acids are building blocks of utmost importance in our chemical industry, as these motifs are extensively used in the manufacture of soaps, detergents, pharmaceuticals, rubber, plastics, dyes, textile, perfumes, and animal feed, among many others. Current industrial protocols for their synthesis rely heavily on toxic reagents, lengthy-step pathways or waste-producing procedures such as hydrolysis of nitriles or two-step techniques based on hydroformylation of olefins with highly toxic carbon monoxide with expensive noble catalysts (Rh) followed by oxidation. Unlike hydroformylation methods, OLE-DIOX offers the opportunity of promoting a carboxylation event using unactivated olefins, products produced in bulk from petroleum processing, with abundant carbon dioxide as C1 source. The protocol is user-friendly, with components that are neither air- nor moisture sensitive, utilizes earth-abundant catalysts and operates under mild conditions. OLE-DIOX represents an important contribution for our circular economy by effectively recycling bulk materials into valuable products in one-step operation. These unique features makes OLE-DIOX technically and economically viable for its implementation at large-scale en route to industrially-valuable carboxylic acids, thus avoiding lengthy and waste-producing protocols in the established oil-to-carboxylic acid process chain.

Coordinator: FUNDACIO PRIVADA INSTITUT CATALA D'INVESTIGACIO QUIMICA from:ES

# PhotoCloth

Project title: PhotoCloth: A framework to synthesize real-time photorealistic cloth animation from video input.

Start Date: 2016-10-01 End Date:2018-09-30

Topic: Marie Skłodowska-Curie Individual Fellowships (IF-EF)

Most frequent returning words in objectives:

* ('cloth', 10)
* ('animation', 6)
* ('model', 4)
* ('methods', 3)
* ('properties', 3)
* ('computer', 2)
* ('clothing', 2)
* ('problem', 2)
* ('space', 2)

Computer Graphics is the area of computer science that studies methods for digitally synthesizing and animating visual content. Among all the potential contexts where computer graphics techniques can be used, cloth animation is a particularly interesting case since, in the real world, clothing is far more than just the physical objects that we wear; clothing is a key element to show someone’s expressiveness and motion, it even defines his or her identity.   
  
However, cloth animation is a complex and extremely high-dimensional problem. To digitally synthesize cloth animation, a large number of properties that affect the way cloth behaves need to be estimated: textures, deformations, collisions, materials, illumination, etc.   
  
Current approaches for cloth animation tried to overcome this challenging problem following two main trends: image-based methods use captured data to construct a low-dimensional model to digitally synthesize new animations, however they can only sample a small portion of the high-dimensional space of cloth and poses; the physics-based methods aim to simulate cloth only using mathematical equations that express physics laws, however, they are computationally expensive and have trouble replicating real-world behavior.   
  
This fellowship will investigate a new model for cloth simulation that combines a physical-based method with image-based infomation to generate real-time believable cloth animation. The new model will use a multi-scale framework to handle the dynamic geometry and appearance at different levels of detail. The most salient dynamic geometric properties of the animation will be handled by a low-resolution representation of the cloth using a physics-based model, which reduces the high-dimensionality of the pose space to a lower-dimensional subspace. Mid- and fine-scale details such as shading, wrinkles and appearance will be incorporated by an image-based approach, using the input imagery to learn to predict those properties.

Coordinator: UNIVERSIDAD REY JUAN CARLOS from:ES

# FabricMetrics

Project title: Computer-Aided Fashion with Yarn-Level Fabric Models

Start Date: 2017-01-01 End Date:2018-06-30

Topic: ERC Proof of Concept Grant

Most frequent returning words in objectives:

* ('models', 4)
* ('textiles', 4)
* ('fashion', 3)
* ('behavior', 2)
* ('yarn-level', 2)
* ('project', 2)
* ('prototype', 2)
* ('plan', 2)
* ('Animetrics', 1)

The Animetrics ERC Starting Grant has led to the invention of the first computer models capable of simulating in an accurate, efficient and robust manner the behavior of full textiles using a yarn-level representation. The proposed models handle frictional yarn interactions at the small scale, yet they naturally produce the rich large-scale nonlinearity of textiles. In contrast, models used in the fashion, engineering, or VFX industries nowadays, describe textiles as a continuum, and do not reach the accuracy required for validating the mechanical behavior and visual appearance of cloth.  
  
The FabricMetrics project will develop a commercial prototype that will leverage yarn-level fabric models, and will enable digital testing of designs, utilize economic and renewable materials while achieving desired mechanical properties, or explore the design space of textiles until the desired fit, drape and flow are achieved. The project plan includes the development of the commercial prototype, testing phases, establishment of connections and alliances with potential customers (fashion schools and fashion companies), and the refinement of the current business plan.

Coordinator: UNIVERSIDAD REY JUAN CARLOS from:ES

# E-TEX

Project title: All-organic devices in textiles for wearable electronics

Start Date: 2016-10-01 End Date:2018-09-30

Topic: Marie Skłodowska-Curie Individual Fellowships (IF-EF)

Most frequent returning words in objectives:

* ('devices', 4)
* ('fabrics', 3)
* ('clothing', 3)
* ('materials', 3)
* ('electronics', 3)
* ('garments', 2)
* ('textiles', 2)
* ('monitoring', 2)
* ('applications', 2)

We are surrounded by fabrics, the carpet floors in our homes or offices, the seats in our cars, and obviously all our garments and clothing accessories. There are already examples of smart textiles in garments for monitoring physiological and biomechanical signals. However, the manufacturing schemes for current applications rely mostly on the integration of off-the-shelf electronic components mounted on a textile substrate. Such components are silicon-based, thus unsuitable for applications where flexibility and fault-tolerance are required.   
The incorporation of current technological items, such as communication or tracking devices on fabrics would certainly be a game-changer in modern technology. This innovative project aims at building electronic devices directly on textile fibres which can be woven into fabrics. Two types of key electronic devices will be targeted, field-effect transistors and loudspeakers. The approach described herein relies in using unconventional materials in electronics: organic and molecular materials, particularly graphene and its derivatives. These materials overcome many limitations of current technology, namely allowing flexibility, elasticity and transparency.  
This breakthrough will allow the development of completely new approaches for integrated electronics, capable to be embedded into our everyday clothing. Since textiles are so present in society, these devices would transform our clothing into mobile phones, displays with electronic newspapers or GPS-activated maps. Establishing the foundations for this future in wearable electronics is also essential for other societal needs, such as biomedical monitoring, communication tools for sensory impaired people and personal security.

Coordinator: THE UNIVERSITY OF EXETER from:UK

# TEXREX

Project title: TEXTILE REFLECTIONS: MULTI-SENSORY REPRESENTATION OF TEXTILE WORK IN LATIN POETRY AND PROSE

Start Date: 2016-09-01 End Date:2018-08-31

Topic: Marie Skłodowska-Curie Individual Fellowships (IF-EF)

Most frequent returning words in objectives:

* ('textile', 8)
* ('work', 5)
* ('project', 4)
* ('Latin', 4)
* ('ancient', 4)
* ('archaeology', 4)
* ('structure', 3)
* ('training', 3)
* ('research', 2)

This interdisciplinary research project explores and re-interprets the representations of textile work and textiles in Latin literature. Literary analysis taking into account matters of metrics, sound figures and structure will show that Latin authors display greater technical understanding of textile work than previously assumed, and suggest that their tacit knowledge of textiles/textile production has influenced the artistic development of descriptions of textile crafts. By indexing and analysing all references to textile work in Latin sources (as called for by J.P. Wild in 2000), I will address the discipline-wide problem of multi-purpose terminology. Interdisciplinarity is fundamental to my project and a core value of my host institution (Centre for Textile Research): observation and recordings of reconstruction of ancient textile work (experimental archaeology) will be the basis for my investigation of semblances of textile work in metre, sound-play and structure in Latin texts, providing thematic literary interpretation, highlighting neglected connections between structure, sound-play and meaning. The project results will complement knowledge based on epigraphy and archaeology of the role played by textiles and textile production in Roman life, their ideological connotations, and trials investigation of ancient soundscapes through literary sources. My project relates to four disciplines: philology, sound studies, ancient history, and archaeology. An ambitious training programme is planned for me to expand my expertise in Classical Philology to include aspects of textile archaeology and ancient history, an outcome of this will be a distance learning course, also involving me providing training in online learning at CTR. To maximise long-term impact, I will receive training in research management and network building, e.g. through planned conference organisation and co-publication of a paper with my supervisor Prof. Nosch, part of a wider dissemination strategy.

Coordinator: KOBENHAVNS UNIVERSITET from:DK

# MONTEX

Project title: MONKS, NUNS AND TEXTILES: Production, Circulation, and Distribution of Textiles in the Monastic Environment in Egypt (4th-8th Centuries AD)

Start Date: 2017-01-01 End Date:2020-05-17

Topic: Marie Skłodowska-Curie Individual Fellowships (IF-EF)

Most frequent returning words in objectives:

* ('textiles', 5)
* ('production', 4)
* ('research', 4)
* ('studies', 4)
* ('environment', 3)
* ('MONTEX', 2)
* ('project', 2)
* ('Roman', 2)
* ('Byzantine', 2)

The MONTEX project will consider Egyptian society in the Late Roman, Byzantine and Early Arab periods through its economy and material culture. It focuses on the production, circulation, and distribution of textiles. Textile production was one of the most important branches of the Egyptian economy at the time. This research will be conducted using the example of the monastic environment. As monks and nuns came from all social groups, their professional occupations and everyday life strongly correspond in many aspects with the lifestyle of lay people. The sources related to monastic environment are numerous and provide us with some information unavailable elsewhere regarding lay craftsmen and customers.  
This comparative research will be conducted in interdisciplinary studies combining all kinds of sources: archaeological evidence, iconographic representations, and literary, normative, and documentary texts written in a bilingual Greek and Coptic environment. The MONTEX project provides studies on the provision of raw materials, and the organisation of textile production and craft training, also considering the gender aspect of these topics. The studies of the circulation and distribution of textiles will focus on the innovative topic of textiles not destined for clothing and used in various contexts. It also offers new lexicographical approach to the Greek vocabulary concerning textiles and their production. The main goal of this research is a synthetic study of textiles in Late Roman and Byzantine Egypt, a topic which has never received interdisciplinary and comparative analysis.  
The Project will be hosted by the University of Copenhagen’s Centre for Textile Research (Denmark), a highly specialized centre for textile studies. The secondment institution will be the Université Paris Ouest – Nanterre La Défense (France), with its Department of Art History and Archaeology famous for teaching and research into Mediterranean material culture.

Coordinator: KOBENHAVNS UNIVERSITET from:DK

# SWLCONNECTIVITY

Project title: Sheep, Wool, Landscape and Connectivity

Start Date: 2016-01-10 End Date:2018-01-09

Topic: Marie Skłodowska-Curie Individual Fellowships (IF-EF)

Most frequent returning words in objectives:

* ('action', 4)
* ('research', 4)
* ('History', 3)
* ('University', 3)
* ('allows', 3)
* ('investigation', 3)
* ('Palladino', 2)
* ('Professor', 2)
* ('Theory', 2)

The purpose of the proposed Marie Sklodowska-Curie action is to enable Paolo Palladino, Professor of History and Theory in the Department of History at Lancaster University, to advance his scientific career by means of further training through research. The programme of research, which Luis Lobo-Guerrero, Professor of History and Theory of International Relations in the Faculty of Arts at the University of Groningen will supervise, and around which the action will develop, focuses on the processes involved in the evolution of three regional economies and the commodification of their agro-biological heritage, specifically as this relates to sheep and the production of woollen textiles (these regions are the Lake District and Dales of northern England, the Catalonian Pyrenees, and the Piedmontese Alps). A trans-national, comparative approach allows for investigation of the diversity of local responses to the transformation of agro-biological products into commodities traded on a global scale; an extended chronological perspective also allows for the investigation of the similarly complex relationship between the creation of bio-economic value and the passage of time (WP1, WP2 and WP3). The results of such investigation then serve as the basis for the development of an empirically grounded, critical understanding of socio-cultural structures and their transformation (WP4). The action thus allows Palladino to advance his understanding of research skills and methods at the intersection of historical, philosophical and sociological modes of inquiry. At the same time, the hosting organisation and beneficiary of the action, the Institute for the Study of Culture (ICOG) at the University of Groningen, will expand its programme of research on the political economy of global integration, on the importance of biological and ecological resources to such integration, and on the role of the past in the construction of a more sustainable future.

Coordinator: RIJKSUNIVERSITEIT GRONINGEN from:NL

# NETIA

Project title: Neolithic textiles and clothing industries in the Aegean

Start Date: 2015-09-01 End Date:2017-08-31

Topic: Marie Skłodowska-Curie Individual Fellowships (IF-EF)

Most frequent returning words in objectives:

* ('project', 4)
* ('textile', 4)
* ('crafts', 3)
* ('technologies', 2)
* ('societies', 2)
* ('data', 2)
* ('activities', 2)
* ('Textile', 2)
* ('NETIA', 1)

The NETIA research project explores the textile arts and crafts of the early agricultural communities in the Aegean (6500-3300 BCE). The scope of this interdisciplinary project is to examine the origins and the first stages of textile crafts and other related technologies for coverage, protection and decoration of the human body. It focuses on raw materials, tools, technologies and textile design but aims towards an understanding of spatial organization of crafts and its impact on the economy, social structure of ancient societies and their natural environment.   
The main data collection will be carried out primarily within the borders of the modern Greek state, while comparisons will be made with Neolithic evidence from the Balkan countries and Anatolia. Since industrial activities in the Neolithic societies are closely related to the earliest systematic exploitation of natural resources and the domestication of wild species (plants and animals) first attested in the Near East, this synthesis, combined with other archaeological data, will contribute to an overall understanding of innovations, cultural exchange and population mobility in contemporary Neolithic Europe.  
The project is hosted by the University of Copenhagen’s Centre for Textile Research (CTR), a highly specialized center for textile studies with rich activity and international collaborations providing optimal training for the project's purposes, and by the TOPOI Excellence cluster ‘’Textile Revolution in FU Berlin. The results will be presented in a series of academic and popular outreach activities and will supply material for educational and industrial applications.

Coordinator: KOBENHAVNS UNIVERSITET from:DK

# FLAIR

Project title: Flexible Hyperspectral Infrared Detectors

Start Date: 2016-03-01 End Date:2018-09-28

Topic: Marie Skłodowska-Curie Individual Fellowships (IF-EF)

Most frequent returning words in objectives:

* ('detectors', 4)
* ('graphene', 3)
* ('absorption', 3)
* ('research', 2)
* ('information', 2)
* ('communication', 2)
* ('human', 2)
* ('device', 2)
* ('technology', 2)

One of the major driving forces for current research in electronics is the desire to realize the so-called internet of things, an autonomous information network that enables communication between objects without external human intervention. To this end, much of the research effort in device physics is currently directed into sensors technology, and specifically, to photodetectors. The infrared (IR) region of the spectrum is of particular interest as it can carry information about an object’s temperature, and its chemical composition. IR waves are also used for long-range waveguided communication, as well as short-range free space signaling. In IR systems, the readout noise is reduced by exploiting multicolor IR detection, so-called hyperspectral IR, thus lowering false positive detection.  
Nowadays, IR detectors are not transparent in the visible wavelength and they are made of brittle materials. Hence their potential in technology such as food and drug packaging, textile fabrics-embedded devices for health care and homeland security systems, has yet to be realized. In this proposal we will harvest the unique potential of emerging atomically thin materials to pioneer a new class of flexible hyperspectral infrared detectors (FLAIR) which are imperceptible to the human eyes and yet highly efficient. These FLAIR detectors will consist of a layered structure with an active graphene bilayer, sandwiched between two dielectric h-BN layers and two outer gates made of heavily doped graphene. The top gate will be patterned as a continuous array of anti-discs to enhance the light absorption at the plasmon excitation frequency. A perpendicular electric field applied to bilayer graphene will be used to open a tuneable energy gap unique to this material and cut off the absorption of the lower frequencies to ensure a superior signal-to-noise ratio. Arrays of detectors with different plasmon absorption frequencies will enable the hyperspectral response of the device.

Coordinator: THE UNIVERSITY OF EXETER from:UK

# BIOXYARN

Project title: In vitro evaluation of the biocompatibility of nanofibrous yarns from an oxidative stress perspective

Start Date: 2015-12-01 End Date:2017-11-30

Topic: Marie Skłodowska-Curie Individual Fellowships (IF-EF)

Most frequent returning words in objectives:

* ('materials', 6)
* ('electrospun', 5)
* ('stress', 4)
* ('cell', 3)
* ('response', 3)
* ('biocompatibility', 3)
* ('fibres', 2)
* ('tissues', 2)
* ('vivo', 2)

'Fibres and textiles have been used as biomaterials for thousands of years, mainly as sutures and in dressings for wound care. Recently, it has become of increasing interest to use fibres as implantable materials to support the repair of damaged tissues and organs. In particular, the emergence of nanoscale electrospun fibres has allowed the fabrication of scaffolds that mimic the architecture of native biological tissues. Many studies have demonstrated that these biomimetic nanofibrous materials have the ability to promote cell adhesion, proliferation, and differentiation. However, mixed results have been observed in vivo with regards to their biological effects, including the inflammatory response. Therefore, there is a strong need to understand better the mechanisms involved in the cell response to nanofibres and to come up with better in vitro models for predicting the biocompatibility of electrospun materials in vivo. In tissue healing processes, oxidative stress has been identified as one of the key pathophysiological elements. Therefore, this project will evaluate the biocompatibility of electrospun yarns, a new and promising generation of electrospun materials, from an oxidative stress perspective. Human fibroblasts will be grown on the materials under standard and induced oxidative stress conditions. The cell response to the materials will be assessed, in particular in respect to the induction of 4-hydroxynonenal, a major bioactive marker of lipid peroxidation known as the 'second messenger of free radicals'. Particular attention will be given to the effects of material degradation and of added antioxidants on the onset of oxidative stress. This interdisciplinary project will contribute to understand the mechanisms underlying interactions between cells and nanofibres that occur upon implantation. Additionally, it will guide the development of electrospun yarns with improved biocompatibility and will aid to evaluate the risks associated to their implantation.'

Coordinator: RUDER BOSKOVIC INSTITUTE from:HR

# TACTILITY

Project title: TACTIle feedback enriched virtual interaction through virtual realITY and beyond

Start Date: 2019-07-01 End Date:2022-06-30

Topic: Interactive Technologies

Most frequent returning words in objectives:

* ('tactile', 8)
* ('research', 4)
* ('stimulation', 4)
* ('novel', 3)
* ('experience', 3)
* ('TACTILITY', 2)
* ('innovation', 2)
* ('action', 2)
* ('information', 2)

TACTILITY is a multidisciplinary innovation and research action with the overall aim of including rich and meaningful tactile information into the novel interaction systems through technology for closed-loop tactile interaction with virtual environments. By mimicking the characteristics of the natural tactile feedback, it will substantially increase the quality of immersive VR experience used locally or remotely (tele-manipulation).   
The approach is based on transcutaneous electro-tactile stimulation delivered through electrical pulses with high resolution spatio-temporal distribution. To achieve it, significant development of technologies for transcutaneous stimulation, textile-based multi-pad electrodes and tactile sensation electronic skin, coupled with ground-breaking research of perception of elicited tactile sensations in VR, is needed.   
The key novelty is in the combination of:  
1) the ground-breaking research of perception of electrotactile stimuli for the identification of the stimulation parameters and methods that evoke natural like tactile sensations,   
2) the advanced hardware, that will integrate the novel high-resolution electrotactile stimulation system and state of the art artificial electronic skin patches with smart textile technologies and VR control devices in a wearable mobile system, and   
3) the novel firmware, that handles real-time encoding and transmission of tactile information from virtual objects in VR, as well as from the distant tactile sensors (artificial skins) placed on robotic or human hands.   
Proposed research and innovation action would result in a next generation of interactive systems with higher quality experience for both local and remote (e.g., tele-manipulation) applications. Ultimately, TACTILITY will enable high fidelity experience through low-cost, user friendly, wearable and mobile technology.

Coordinator: FUNDACION TECNALIA RESEARCH & INNOVATION from:ES

participant: INSTITUT NATIONAL DE RECHERCHE ENINFORMATIQUE ET AUTOMATIQUE

participant: IMMERSION

participant: TECNALIA SERBIA DOO BEOGRAD

participant: MANUS MACHINAE BV

participant: UNIVERSITAT DE VALENCIA

participant: UNIVERSITA DEGLI STUDI DI GENOVA

participant: SMARTEX S.R.L.

# FMGESI

Project title: REFUGEES IN THE GLOBAL ECONOMY: SITUATION, ROLE, AND IMPLICATIONS: THE CASE OF SYRIAN REFUGEE WORKERS IN THE EXPORT INDUSTRY IN ISTANBUL

Start Date: 2019-10-01 End Date:2021-09-30

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('economy', 6)
* ('refugee-workers', 5)
* ('refugees', 4)
* ('research', 3)
* ('situation', 3)
* ('host', 3)
* ('country', 3)
* ('role', 3)
* ('Istanbul', 3)

This research aims to explore the situation of refugee-workers in the global economy and its implications for their everyday life. The forced migrant is usually seen as a person who receives aid rather than one who participates in economic production in the host country. Nevertheless, there are many studies which demonstrate the positive role of the refugees in the national economy of the host country. However, these usually focus on the role of the refugees entrepreneurs or other ‘elites’, thereby ignoring refugee-workers and their position in the global economy. As such, we could ask what role does refugee-workers play in the global economy? How does their position in this economy impact their everyday lives and thus their future plans? These are the orienting questions for the proposed research. The approach is as follows: First, we will conduct an analysis of the city and its borders. Second, an analysis of the workers’ situation. Finally we will explore in-depth the situation of refugee-workers by undertaking an explorative case study; Syrian refugee-workers in Istanbul. Here, we will use a qualitative approach with in-depth semi-structured interviews. We chose Istanbul because Turkey's economic policy makes it one of the biggest suppliers of textiles to Europe. It is also the country with the highest number of refugees in the world. Most of these are Syrian, and the biggest number of them reside in Istanbul. This research will make a great contribution toward two of the most relevant issues in the horizon 2018-2020 work program; societal resilience and market creation innovation. It will provide a better understanding and useful recommendations for policymakers on how to manage forced migration, with ‘sustainable development goals’ related to the integration of the refugees in their host society and economy. Furthermore, gender is at the heart of this view, since forced migration is usually accompanied by extreme changes in social roles, especially for women.

Coordinator: UNIVERSIDAD DE GRANADA from:ES

# ITC

Project title: Revolutionary instant thread colouring technology for industrial embroidery

Start Date: 2017-02-01 End Date:2019-01-31

Topic: Accelerating the uptake of nanotechnologies advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('embroidery', 4)
* ('products', 3)
* ('technology', 3)
* ('market', 3)
* ('company', 2)
* ('product', 2)
* ('development', 2)
* ('customers', 2)
* ('work', 2)

Created 13 years ago in Jönköping, Sweden, our company, Inventech Europe AB, is a young entrepreneurial entity, specialized in consulting and technical product development. Our team, made of experts in mechanics, software, hardware, chemistry and physics, allows us to give to our customers’ products new dimensions and added value through an innovative approach, working with the latest technologies through partnerships with world-leading researchers and industrial leaders. Our philosophy is based upon setting the bar with innovative, high quality and reliable products and systems. This has led us, from previous work with textile industries in 2009, to the development of our own disruptive technology which addresses the current problems ​of the embroidery and textile sector regarding inefficiency, harsh work condition and environmental impact associated with traditional process.   
  
Our project, called ITC (Instant Thread Colouring), will revolutionise these industries by enabling an environmental friendly instant colouring of embroidery threads on demand in a fully controlled and resource efficient way. Using one thread reel instead of several representing each colour will provide increased productivity (\30-35% on average, up to \80% with complicated designs) while offering new colouring possibilities never seen before.   
  
There is no similar product on the market. The commercialization of the ITC technology and associated products will allow us to penetrate and position ourselves strongly in the embroidery sector, aiming to achieve a long term profitability for both our customers and our company: 7.5% share of the global embroidery technology market (€200 million revenues), where the European market represents 25% of it (€50 million revenues), by 2022.

Coordinator: INVENTECH EUROPE AB from:SE

# KARMA2020

Project title: Industrial Feather Waste Valorisation for Sustainable KeRatin based MAterials.

Start Date: 2017-01-01 End Date:2019-12-31

Topic: Industrial technologies for the valorisation of European bio-resources into high added value process streams

Most frequent returning words in objectives:

* ('KaRMA', 4)
* ('waste', 3)
* ('materials', 3)
* ('flame', 3)
* ('retardant', 3)
* ('tons', 2)
* ('poultry', 2)
* ('value', 2)
* ('food', 2)

According to European Commission, 13.1 million tons of poultry meat was produced only in the European Union (EU-28) in 2014 with an estimated generation of 3.1 million tons feather waste. At present the majority of poultry feathers are converted into low nutritional value animal food or disposed in landfills, causing environmental and health hazards. In this context, the overall objective of KaRMA2020 is the industrial exploitation of such underutilized waste to obtain added value raw materials for the chemical sector: keratin, bioplastics, flame retardant coatings, non-woven and thermoset biobased resins. This will be accomplished through either: i) innovative and sustainable approaches (already patented by some of KaRMA2020 partners), or ii) conventional and economic techniques. The obtained raw materials will be manufactured at industrial scale and further used for the production of novel bio-based products such as: slow release fertilizers, biodegradable food packaging plastics, flame retardant coated textiles and flame retardant thermoset biobased composites. The sustainability of the new raw materials and end-products will be evaluated through LCA assessment. Additionally, an integrated waste management plan will be elaborated to minimize environmental impacts generated by wastes.  
Communication and knowledge transfer as well as a detailed business plan will allow maximizing overall profitability of KaRMA2020 results.  
The well balanced composition of the consortium including industry, RTD performers and academia give KaRMA2020 the maximum chance of success.

Coordinator: FUNDACION CIDETEC from:ES

participant: GRUPO SADA P A SA

participant: FKUR KUNSTSTOFF GMBH

participant: SIOEN INDUSTRIES NV

participant: CENTRE SCIENTIFIQUE & TECHNIQUE DE L'INDUSTRIE TEXTILE BELGE

participant: Teknologian tutkimuskeskus VTT Oy

participant: AIMPLAS - ASOCIACION DE INVESTIGACION DE MATERIALES PLASTICOS Y CONEXAS

participant: RISE RESEARCH INSTITUTES OF SWEDEN AB

participant: AVANTIUM CHEMICALS BV

participant: DAREN LABORATORIES & SCIENTIFIC CONSULTANTS LTD

participant: FERTIBERIA SA

participant: INSTYTUT BIOPOLIMEROW I WLOKIEN CHEMICZNYCH

participant: CIAOTECH Srl

participant: VERTECH GROUP

participant: CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS

# SILKNOW

Project title: SILKNOW. Silk heritage in the Knowledge Society: from punched cards to big data, deep learning and visual / tangible simulations

Start Date: 2018-04-01 End Date:2021-03-31

Topic: European cultural heritage, access and analysis for a richer interpretation of the past.

Most frequent returning words in objectives:

* ('Silk', 4)
* ('heritage', 4)
* ('SILKNOW', 3)
* ('digital', 3)
* ('data', 3)
* ('silk', 2)
* ('textile', 2)
* ('industries', 2)
* ('impact', 2)

Silk was a major factor for progress in Europe, mostly along the Western Silk Road’s network of production and market centres. Silk trade also allowed for exchange of ideas and innovations. Punched cards were first used in Jacquard silk looms, long before modern computers were even imagined. Today, too, fashion and high-end textile industries have a huge impact in the EU, reaching €525 billion in annual turnover. Silk, however, has become a seriously endangered heritage. Although many European specialized museums are devoted to its preservation, they usually lack size and resources to establish networks or connections with other collections. SILKNOW aims to produce an intelligent computational system that goes beyond current technologies in order to improve our understanding of European silk heritage. This legacy will be studied, showcased and preserved through the digital modelling of its weaving techniques (a “Virtual Loom”). Users will access the resulting information through visual and tangible simulations, and experience vastly enhanced search tools, providing better results through automatic visual recognition, advanced spatio-temporal visualization, multilingual and semantically enriched access to existing digital data. Thus, SILKNOW will improve the understanding of EU heritage and its rich diversity, applying next-generation ICT research to the needs of various users (museums, education, tourism, creative industries, media…), and preserving an intangible heritage (ancient weaving techniques) for younger generations. Its research activities and outputs will have direct impact in computer science and big data management, focusing on searching digital content in heterogeneous, multilingual and multimodal databases. SILKNOW will be possible only with the close cooperation of a multidisciplinary team, including areas as ICT, text analytics, image processing, semantics, big data, 3D printing, art history, terminology, textile fabrication and conservation.

Coordinator: UNIVERSITAT DE VALENCIA from:ES

participant: INSTITUT JOZEF STEFAN

participant: MONKEYFAB S.C.

participant: UNIVERSITA DEGLI STUDI DI PALERMO

participant: INSTITUTO CERVANTES

participant: EURECOM

participant: GARIN 1820 SOCIEDAD ANONIMA

participant: CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS

# IHS

Project title: WATER AND ENERGY EFFICIENT INDUCTION HUMIDIFICATION SYSTEM FOR TEXTILE APPLICATIONS

Start Date: 2018-05-01 End Date:2020-04-30

Topic: SME instrument

Most frequent returning words in objectives:

* ('water', 5)
* ('AERIS', 2)
* ('development', 2)
* ('years', 2)
* ('turnover', 2)
* ('textile', 2)
* ('production', 2)
* ('customers', 2)
* ('energy', 2)

The AERIS Group, is located near Bergamo, Italy and specializes in the design, development, manufacturing and commissioning of air technological applications, ranging from air conditioning through to removal and heat recovery. With more than 50 years of experience and a turnover of over €6 million in 2016, our group is composed of 3 companies: AERIS air technologies, expert in HVAC and filtering, EDENYA for air cooling solutions and MAZZINIICI, our textile division. The technical know-how of our high-specialized professionals, our detailed knowledge of materials, production processes and production methods in the different industrial fields as well as a business strategy turned towards continuous innovation and global presence are the basis of our success and growth.   
We listen carefully to customers feedback from the textile sector – which represents 35% of our turnover – and their concerns about product quality, water and energy consumption. This led us to the development of the patented Supra high pressure water technology 20 years ago.  
 We are now developing the next step, the Induction Humidification System (IHS): by integrating a customized air distribution and diffusion system with specific diffusers, we can “move” a volume of air 10 times equal to the primary air, and fully mixed with micronized water for even humidity level without water waste. The IHS reduces drastically water consumption by 65% and energy by up to 80%, while guaranteeing an optimum control of humidity (\/-0.5%) and temperature (\/- 0.5 degrees).   
The IHS system will achieve long-term profitability for both our customers and our company, with an increase of sales reaching € 36 millions, profit for € 8.7 millions and 31 new employees by 2024.

Coordinator: AERIS GROUP HOLDING SRL from:IT

# FIBRESPIN

Project title: New Generation of High Speed FIBRE SPINning machines

Start Date: 2017-09-01 End Date:2019-10-31

Topic: Accelerating the uptake of nanotechnologies advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('FIBRESPIN', 4)
* ('project', 4)
* ('COGNETEX', 3)
* ('machine', 3)
* ('revenues', 3)
* ('ELETTRONICA', 2)
* ('textile', 2)
* ('systems', 2)
* ('clients', 2)

Cogne Macchine Tessili (COGNETEX) and ELETTRONICA GF (EGF)'s FIBRESPIN, is a Phase 1 winning project from the Horizon 2020 SME Instrument. The project consists of the industrialisation and commercialisation of a new technology for textile spinning machine designed for producing spools of wool/cotton fibres.   
Based in Imola (Italy), COGNETEX have been manufacturing high quality textile machinery for over 60 years (€4.2million revenues, 30 workers). In order to execute all necessary technological developments, our trusted collaborator, ELETTRONICA GF, an Italian hardware and software manufacturer based in Faenza (€6.2million turnover, 43 employees) has joined us in this project as our partner to develop and exclusively supply the hardware-software embedded systems in FIBRESPIN. Key stakeholders, early adopters are also present, along with an identified list of 120\ clients worldwide from our 270\ customers' portfolio.   
Thanks to our innovative design including the use of high-tech materials (ceramic components), an innovative electromagnetic braking system and an advanced electronic control of the whole machine, FIBRESPIN will greatly reduce maintenance downtimes as well as strongly boost productivity, outperforming existing machines (\52% outputs, -57% footprint). An important objective of this project is also to reduce the investment costs (CAPEX) for our customers. FIBRESPIN will let our clients obtain with a 624-spindle machine the same productivity that a traditional 960-spindle one reaches, which translates into more than €35,000 savings/machine. Besides, less spindles means less energy consumption.   
As we will see in detail, COGNETEX expects to reach 46,400 spindles sold annually by 2023, representing €8.89million revenues. As exclusive supplier of the electronic parts and systems, EGF will achieve €1.76 million annual revenues by 2023.

Coordinator: COGNE MACCHINE TESSILI SPA from:IT

# POLYBIOSKIN

Project title: High performance functional bio-based polymers for skin-contact products in biomedical, cosmetic and sanitary industry

Start Date: 2017-06-01 End Date:2020-05-31

Topic: Biopolymers with advanced functionalities for high performance applications

Most frequent returning words in objectives:

* ('products', 3)
* ('polymers', 3)
* ('PolyBioSkin', 3)
* ('parts', 3)
* ('and/or', 2)
* ('skin-contact', 2)
* ('product', 2)
* ('industry', 2)
* ('care', 1)

Personal care, Cosmetic and biomedical industries deal with high-value and/or large volume consumption of polymer-based products which are often derived from fossil sources. Although a number of alternative bio-based polymers is the subject of recent research, more effort is still needed to increase their specific functionalities and performances in order to proceed with their true translation into market. PolyBioSkin aims at developing skin-contact biopolymer-based product parts with increased performance and functionality, such as parts of diapers, cosmetic pads and wound dressings. Indeed, PolyBioSkin will focus on two main classes of bio-based polymers relevant for next generation bio-based industry: biopolyesters (polylactic acid and polyhydroxyalkanoates) because fully renewable, biocompatible and biodegradable and available at an industrial scale, and natural polysaccharides (cellulose/starch and chitin/chitosan), derived from biomass and food waste, for their peculiar properties, such as absorbency and anti-infectivity.   
Films and textiles will be produced starting from these polymers and their combinations to prove that key products and/or product parts in sanitary, cosmetic and biomedical industry can be effectively translated from a fossil-derived to bio-based polymer production. PolyBioSkin will provide to skin-contact products a much more environmentally friendly end of life than the current accumulation in landfills or incineration, thanks to their biodegradability allowing the organic recycling.

Coordinator: IRIS TECHNOLOGY SOLUTIONS, SOCIEDAD LIMITADA from:ES

participant: BIOINICIA SL

participant: TEXOL SRL

participant: FIBROLINE SA

participant: UNIVERSITEIT GENT

participant: TEHNOLOSKI FAKULTET NOVI SAD

participant: CONSORZIO INTERUNIVERSITARIO NAZIONALE PER LA SCIENZA E TECNOLOGIA DEI MATERIALI

participant: THE UNIVERSITY OF WESTMINSTER LBG

participant: EXERGY LTD

participant: ASSOCIATION POUR LA RECHERCHE ET LE DEVELOPPEMENT DES METHODES ET PROCESSUS INDUSTRIELS

participant: MAVI SUD SRL

# NanoComSol

Project title: Nanocomposite Solutions

Start Date: 2017-03-01 End Date:2018-05-31

Topic: ERC-Proof of Concept-2016

Most frequent returning words in objectives:

* ('materials', 8)
* ('polymer', 7)
* ('properties', 6)
* ('production', 3)
* ('innovation', 2)
* ('components', 2)
* ('methods', 2)
* ('surface', 2)
* ('NanoComSol', 2)

Composite polymer materials are a rapidly growing market. These materials are also strongly driving device and product innovation by allowing creation of multifunctional, light-weight and moldable components for various products from airplanes to electronics and textiles. We have invented new methods for scalable production of inorganic nanomaterials that allow us to control their distribution and properties in polymer materials. In short, we can mask functional nano- or microparticles by a thin surface coating such that it assumes the properties of the polymer (or environment) in which it should be processed. Thereby, they can be controllably mixed and organized into the polymer, which is essential to give the polymer material better or additional e.g. mechanical and optical properties. Our methods are nearly universal and cost effective; they incorporate an innovation that allows us to modify the surface of quantum dots and other nanoparticles with very precise optic, electric and magnetic properties without deleterious effect on those properties. Industrial partners from the polymer materials industry have shown great interest in these developments. In NanoComSol we will develop industrially relevant application demonstrators that show how these innovations can further be used to create composite materials that have qualitatively new properties produced at industrial scale. Successful such demonstrations will lead to manufacturing of polymer composite materials as active instead of only passive optical, electrical and magnetic components, while reducing costs, environmental impact and materials use in production. NanoComSol thus applies ERC-funded innovations in nanomaterial synthesis to develop industrial scale production of advanced functional materials.

Coordinator: UNIVERSITAET FUER BODENKULTUR WIEN from:AT

# SmartLife

Project title: Smart Clothing Gamification to promote Energy-related Behaviours among Adolescents

Start Date: 2017-01-01 End Date:2019-03-31

Topic: Gaming and gamification

Most frequent returning words in objectives:

* ('behaviours', 5)
* ('health', 4)
* ('adolescents', 3)
* ('promote', 3)
* ('need', 3)
* ('user', 3)
* ('SmartLife', 3)
* ('project', 3)
* ('smart', 3)

Energy-related behaviours (physical activity, sedentary behaviour) are main modifiable determinants of several non-communicable health conditions, e.g. diabetes type 2, overweight and obesity, and track into adulthood. Promoting these behaviours among youngsters can have great health and societal gains. Meeting recommended levels for these behaviours is especially low among adolescents, girls and those of lower socio-economic status. An intervention to promote energy-related behaviours among adolescents is thus indicated, and may also address social inclusion. Exergames, which require movement to be played, have great yet underused potential to promote these behaviours. To fully utilise this potential, exergames need to promote moderate-to-vigorous physical activity; need to be tailored to the individual user; and need to be more engaging. The SmartLife project aims to create such an exergame. The SmartLife exergame will be: 1) a mobile game requiring lower body movements; 2) combined with a smart textile that provides immediate physiological feedback (e.g. heartrate, respiration) and ensures exercises are performed at a moderate-to-vigorous intensity level; 3) tailored to individual user’s needs, using the smart textile data, and based on available evidence and big data analysis; 4) highly engaging, e.g. by adding a narrative and context information, and using user input throughout the design (‘participatory development’). The project includes extensive testing and dissemination of results. Market analysis will explore commercial business opportunities (e.g. technology-based connected health) and social marketing opportunities (e.g. via schools). The SmartLife project proposes a technological innovation via integration of exergames and smart textiles, to optimally reach the exergaming’s full market potential and effectively address the non-leisure purpose of health promotion among adolescents, as stipulated in the work programme.

Coordinator: KNOWLEDGEBIZ CONSULTING-SOCIEDADE DE CONSULTORIA EM GESTAO LDA from:PT

participant: NUROGAMES GMBH from:DE

participant: UNIVERSITEIT GENT from:BE

# URBANREC

Project title: New approaches for the valorisation of URBAN bulky waste into high added value RECycled products

Start Date: 2016-06-01 End Date:2019-11-30

Topic: Eco-innovative solutions

Most frequent returning words in objectives:

* ('waste', 7)
* ('project', 5)
* ('URBANREC', 4)
* ('level', 4)
* ('treatments', 3)
* ('Belgium', 3)
* ('Spain', 3)
* ('Poland', 3)
* ('Turkey', 3)

URBANREC project aims to develop and implement an eco-innovative and integral bulky waste management system (enhancing prevention, improving logistics and allowing new waste treatments to obtain high added value recycled products) and demonstrate its effectiveness in different regions. In URBANREC project, Northern, Mediterranean, Eastern and South-eastern areas in Europe are represented by Belgium, Spain, Poland and Turkey, which have very different urban waste recycling rates, from around a 60% in Belgium, 25-30% in Spain, or 20% in Poland, to less than 5% in Turkey.  
URBANREC project aims to improve the separation and disassembling of bulky waste - implementing advanced fragmentation techniques to obtain high quality raw materials, promoting innovative valorisation routes for those considered more problematic (PUR foam, mixed hard plastics and mixed textiles), not recycled due to lack of eco-innovative cost-effective solutions.   
The waste treatments considered in the project include i) rebonding and chemical glycolisis for the PUR materials, to prepare renewable adhesives, ii) needle felt to obtain isolation panels from textiles, iii) fibre reinforced composites from textiles, iv) wood Plastic composites (WPC) and v) catalytic hydro-gasification with plasma for mixed hard plastics to obtain chemicals or fuel. These treatments will be optimized and implemented at industrial level thanks to the collaboration of the URBANREC partners: top Research Institutes at EU level, and companies interested in obtaining novel eco-friendly products from waste, under a circular economy approach.   
All relevant actors in the waste management chain in every country have been also involved as project partners (local authorities and city amenity sites in Belgium, Spain, Poland and Turkey) guaranteeing the implementation of the proposed solutions at local level, adapting them to suit the particular characteristics of each area, ensuring the replication at EU level

Coordinator: AIMPLAS - ASOCIACION DE INVESTIGACION DE MATERIALES PLASTICOS Y CONEXAS from:ES

participant: IZNAB SPOLKA Z OGRANICZONA ODPOWIEDZIALNOSCIA

participant: CENTRE SCIENTIFIQUE & TECHNIQUE DE L'INDUSTRIE TEXTILE BELGE

participant: EUROSPUMA SOCIEDADE INDUSTRIAL DE ESPUMAS SINTETICAS SA

participant: INTERGEMEENTELIJKE MAATSCHAPPIJ VOOR OPENBARE GEZONDHEID IN ZUID-WEST-VLAANDEREN

participant: COLCHONES DELAX SL

participant: FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.

participant: CONSORCIO VALENCIA INTERIOR V3

participant: PROCOTEX CORPORATION SA

participant: IZMIR INSTITUTE OF TECHNOLOGY

participant: MIASTO STOLECZNE WARSZAWA

participant: BLUEPLASMA POWER SL

participant: ASSOCIATION DES VILLES ET REGIONS POUR LA GESTION DURABLE DES RESSOURCES

participant: ECOFRAG-MENTATION EUROPE SL

participant: RESCOLL

participant: DIPUTACION PROVINCIAL DE VALENCIA

participant: OPENBARE VLAAMSE AFVALSTOFFENMAATSCHAPPIJ

participant: INSTYTUT OCHRONY SRODOWISKA - PANSTWOWY INSTYTUT BADAWCZY

participant: BORNOVA BELEDIYESI

participant: VANHEEDE ENVIRONMENT GROUP

# MacroFuels

Project title: Developing the next generation Macro-Algae based biofuels for transportation via advanced bio-refinery processes

Start Date: 2016-01-01 End Date:2019-12-31

Topic: Developing next generation technologies for biofuels and sustainable alternative fuels

Most frequent returning words in objectives:

* ('seaweed', 5)
* ('production', 4)
* ('yield', 4)
* ('MacroFuels', 3)
* ('biofuels', 3)
* ('biomass', 3)
* ('sugars', 3)
* ('fuels', 3)
* ('technology', 3)

MacroFuels aims to produce advanced biofuels from seaweed or macro-algae. The targeted biofuels are ethanol, butanol, furanics and biogas. The project will achieve a breakthrough in biofuel production from macroalgae by:  
  
• Increasing the biomass supply by developing a rotating crop scheme for cultivation of seaweed, using native, highly productive brown, red and green seaweeds. Combined with the use of advanced textile substrates these breakthroughs will result in a year round biomass yield of 25 kg seaweeds (wet weight) per m2 per year harvested at 1000m2/hr;  
• Improving the pre-treatment and storage of seaweed and to yield fermentable and convertible sugars at economically relevant concentrations (10-30%);  
• Increasing the bio-ethanol production to economically viable concentrations of > 4%/l and;  
• Increasing the bio-butanol yield to 15 g./l by developing novel fermenting organisms which metabolize all sugars at 90% efficiency for ethanol and butanol;  
• Increasing the biogas yield to convert 90% of the available carbon in the residues by adapting the organisms to seaweed;  
• Developing the thermochemical conversion of sugars to fuels from the mg. scale to the kg. scale;  
• Performing an integral techno-economic, sustainability and risk assessment of the entire seaweed to biofuel chain.  
  
MacroFuels will develop technology for the production of fuels which are suitable as liquid fuels or precursor thereof for the heavy transport sector as well as potentially for the aviation sector. The technology will be taken from TRL3 to TRL 4/5.  
  
MacroFuels will expand the biomass available for the production of advanced biofuels. Seaweed does not need fresh water, arable land or fertilizers to grow, which provides environmental benefits, and in addition has a high carbon dioxide reduction potential as well as reduces the demand for natural resources on land. The technology offers many novel opportunities for employment along the entire value chain.

Coordinator: TEKNOLOGISK INSTITUT from:DK

participant: AARHUS UNIVERSITET

participant: SIOEN INDUSTRIES NV

participant: THE SCOTTISH ASSOCIATION FOR MARINESCIENCE LBG

participant: NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK TNO

participant: ENVIRONMENTAL RESOURCES MANAGEMENT LIMITED

participant: CLANCY HAUSSLER RITA

participant: MATIS OHF

participant: AVANTIUM CHEMICALS BV

participant: Fermentationexperts AS

participant: STICHTING ENERGIEONDERZOEK CENTRUM NEDERLAND

# SKHINCAPS

Project title: SKin Healthcare by Innovative NanoCAPsuleS

Start Date: 2015-10-01 End Date:2019-09-30

Topic: Novel nanomatrices and nanocapsules

Most frequent returning words in objectives:

* ('skin', 5)
* ('nanocapsules', 5)
* ('SKHINCAPS', 4)
* ('healthcare', 3)
* ('end-users', 3)
* ('nanoencapsulation', 2)
* ('technology', 2)
* ('products', 2)
* ('applications', 2)

SKHINCAPS project will explore an innovative and sustainable in situ self-assembly nanoencapsulation technology to deliver novel products for skin healthcare applications, with increased efficiency and cost benefits, leading to ground-breaking innovations on the actual products.  
Using this safe, sustainable and easily scalable technology, different actives will be addressed for nanoencapsulation: phase-change materials (PCMs), a cocktail of vitamins and antioxidants, and natural essential oils. The nanocapsules will be engineered to achieve three possible release mechanisms, enhancing actives efficiency.  
Different demonstrators will be developed with these customised and safe nanocapsules for skin healthcare applications:  
- First layer garments with no-release nanocapsules loaded with PCMs, to improve thermal management and skin comfort;  
- Creams with triggered nanocapsules containing the cocktail, to improve the anti-ageing effect on the end-users skin;  
- Lotions and textiles containing targeted nanocapsules loaded with natural essential oils to prevent or even mitigate bacterial infections on the end-users skin.   
These demonstrators will be fully tested for their safety and performance assessment to fulfil the present regulation requirements.  
SKHINCAPS comprises SMEs from different stages of the supply chain, so it will promote stronger collaborations between materials suppliers, manufacturers and end-users. SKHINCAPS is therefore entirely aligned with the European 2020 strategy, contributing to boost competitiveness and support the creation of jobs and new sources of growth. SKHINCAPS is also committed with the flagships initiatives, and with a number of wider H2020 objectives including: control healthcare expenditure, H2020 strategic cosmeceuticals sector and plural H2020 Key Enabling Technologies (KETs).

Coordinator: CENTITVC - CENTRO DE NANOTECNOLOGIA E MATERIAIS TECNICOS FUNCIONAIS E INTELIGENTES ASSOCIACAO from:PT

participant: INSTITUT FUER VERBUNDWERKSTOFFE GMBH

participant: Teknologian tutkimuskeskus VTT Oy

participant: PRO-ACTIVE

participant: UNIVERSITAT POLITECNICA DE CATALUNYA

participant: BIONANOPLUS SL

participant: ASOCIACION INDUSTRIAL DE OPTICA, COLOR E IMAGEN

participant: DEVAN-MICROPOLIS S.A.

# INTERACT

Project title: Intelligent Non-woven Textiles and Elastomeric Responsive materials by Advancing liquid Crystal Technology

Start Date: 2015-04-01 End Date:2020-03-31

Topic: ERC Consolidator Grant

Most frequent returning words in objectives:

* ('rubber', 4)
* ('materials', 3)
* ('intelligent', 3)
* ('components', 3)
* ('response', 3)
* ('research', 2)
* ('realization', 2)
* ('robotics', 2)
* ('textile', 2)

A grand challenge in today’s materials research is the realization of flexible materials that are also intelligent and functional. They will be the enablers of true breakthroughs in the hot trends of soft robotics and wearable technology. The standard approach to the latter is to decorate rubber sheets with electronic components, yielding two serious flaws: rubber is uncomfortable as it does not breath and solid state electronics will eventually fail as a garment is flexed and stretched when worn. While the softness of rubber is ideal it must be used in the form of textile fibers to provide breathability, and for long-term failure resistance we need intelligent components that are soft. A solution to this conundrum was recently presented by the PI with the concept of liquid crystal (LC) electrospinning. The extreme responsiveness of LCs is transferred to a non-woven textile by incorporating the LC in the fiber core, yielding a smart flexible mat with sensory function. Moreover, it consumes no power, providing a further advantage over electronics-based approaches. In a second research line he uses microfluidics to make LC rubber microshells, functioning as autonomous actuators which may serve as innovative components for soft robotics, and photonic crystal shells. This interdisciplinary project presents an ambitious agenda to advance these new concepts to the realization of soft, stretchable intelligent materials of revolutionary character. Five specific objectives are in focus: 1) develop understanding of the dynamic response of LCs in these unconventional configurations; 2) establish interaction dynamics during polymerisation of an LC precursor; 3) elucidate LC response to gas exposure; 4) establish correlation between actuation response and internal order of curved LCE rubbers; and 5) assess usefulness of LC-functionalized fibers and polymerized LC shells, tubes and Janus particles in wearable sensors, soft robotic actuators and high-security identification tags.

Coordinator: UNIVERSITE DU LUXEMBOURG from:LU

# CLOTHILDE

Project title: CLOTH manIpulation Learning from DEmonstrations

Start Date: 2018-01-01 End Date:2022-12-31

Topic: ERC Advanced Grant

Most frequent returning words in objectives:

* ('objects', 4)
* ('manipulation', 4)
* ('cloth', 3)
* ('actions', 3)
* ('human', 2)
* ('people', 2)
* ('clothing', 2)
* ('robot', 2)
* ('skills', 2)

Textile objects pervade human environments and their versatile manipulation by robots would open up a whole range of  
possibilities, from increasing the autonomy of elderly and disabled people, housekeeping and hospital logistics, to novel  
automation in the clothing internet business and upholstered product manufacturing. Although efficient procedures exist for  
the robotic handling of rigid objects and the virtual rendering of deformable objects, cloth manipulation in the real world has  
proven elusive, because the vast number of degrees of freedom involved in non-rigid deformations leads to unbearable  
uncertainties in perception and action outcomes.  
  
This proposal aims at developing a theory of cloth manipulation and carrying it all the way down to prototype implementation in our Lab. By combining powerful recent tools from computational topology and machine learning, we plan to characterize the state of textile objects and their transformations under given actions in a compact operational way (i.e., encoding task-relevant topological changes), which would permit probabilistic planning of actions (first one handed, then bimanual) that ensure reaching a desired cloth configuration despite noisy perceptions and inaccurate actions.  
  
In our approach, the robot will learn manipulation skills from an initial human demonstration, subsequently refined through  
reinforcement learning, plus occasional requests for user advice. The skills will be encoded as parameterised dynamical  
systems, and safe interaction with humans will be guaranteed by using a predictive controller based on a model of the robot  
dynamics. Prototypes will be developed for 3 envisaged applications: recognizing and folding clothes, putting an elastic  
cover on a mattress or a car seat, and helping elderly and disabled people to dress. The broad Robotics and AI background  
of the PI and the project narrow focus on clothing seem most appropriate to obtain a breakthrough in this hard fundamental  
research topic.

Coordinator: AGENCIA ESTATAL CONSEJO SUPERIOR DEINVESTIGACIONES CIENTIFICAS from:ES

# Wearonics

Project title: Developing Stretchable Conductive Fibres and their Implementations in Wearable Electronics

Start Date: 2017-04-01 End Date:2019-03-31

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('conductive', 3)
* ('electronics', 3)
* ('industry', 3)
* ('wearonics', 3)
* ('SCFs', 3)
* ('Europe', 2)
* ('materials', 2)
* ('material', 2)
* ('challenge', 2)

Europe needs to take action to develop stretchable conductive materials to lead to the wearable electronics industry, which will be worth over $30 billion dollars in 2020. Although flexible electronics are dominating the current wearonics industry, their applications are restricted due to significant reduction in their conductivity under the applied strain. All stretchable conductors with mechanical compliance materials like human skin are required for epidermal electronic devices and wearable electronics. The ideal solution to this problem would be using a stretchable conductive material that can be woven into washable and breathable fabrics, which remains a significant challenge. To address this challenge, I have formulated an innovative and interdisciplinary strategy based on my research experience to develop stretchable conductive fibres (SCF) using silver nanowires and spandex fibre. After developing SCFs, I will bring together diverse academic and industrial experts to utilize SCFs in 4 different research environments. First, I will receive intensive training at the Wireless Communication and Research Lab to utilize SCFs in wireless communication and pervasive computing systems. Then, I will integrate these systems into the disabled friendly apparels at Universal Textile Centre. Finally, I will be seconded to two industrial organisations, ComfTech and Antelope, to create SCF based prototypes of Health Monitoring Systems and Electro Muscle Stimulation technologies. This fellowship will allow me to gain new expertise in multiple disciplines, and build complementary international partnerships between academia and industry, which will enable me to enhance my independence as a researcher in the wearonics field. The successful completion of this timely and innovative project will result in an advanced material that will contribute to the competitiveness of Europe in the wearonics field.

Coordinator: ISTANBUL TEKNIK UNIVERSITESI from:TR

# TCBL

Project title: TCBL – Textile and Clothing Business LabsTransformative Business Models for the Textile Clothing Sector

Start Date: 2015-07-01 End Date:2019-06-30

Topic: Business models with new supply chains for sustainable customer-driven small series production

Most frequent returning words in objectives:

* ('Labs', 5)
* ('TCBL', 3)
* ('business', 3)
* ('Business', 3)
* ('value', 3)
* ('deployment', 2)
* ('strategies', 2)
* ('experimentation', 2)
* ('framework', 2)

TCBL uses Europe’s Textiles & Clothing (T&C) industry as test beds for evolutionary-driven co-design, dynamic optimisation and deployment of business models. It aims to increase the performance of a sector that, over the past two decades, upheld three main strategies to handle global competitive pressure: cost-oriented, product/service-oriented and productivity-oriented. TCBL provides a business experimentation framework for exploring variations on such strategies. The framework will be supported by Knowledge Spaces as a generative force and Business Services as an enabling force. A network of Business Labs will be set up, based on three key variations: Design Labs (e.g. creating emotionally-oriented immaterial value), Making Labs (e.g. converting skilled labour into material value), and Place Labs (e.g. generating spatial community- and socially- oriented value). Each of these Labs will explore the issues of cost, product/service and productivity enhancement in a transversal manner and from cross-disciplinary perspectives - including economic, anthropological, and engineering approaches as well as new business values such as environmental and social responsibility, sharing economy, social enterprising, customer-driven small series production (the focus of this call) and emergent or disruptive technologies. With these tools, and supported by an open Associates Programme, TCBL will carry out real-life experimentation and market deployment of a number of Supply Chain, Localisation, Business, Skill Management and Policy innovations involving no fewer than 160 workshops, laboratories and manufacturing plants at EU level with at least 15,000 T&C workers involved. In addition, 10 new innovative companies will be generated within the supply chain of T&C, enabling the diffusion and scaling up of results. By so doing, a knowledge based, transformational ecosystem will be developed, integrated into an open, yet structured platform environment.

Coordinator: COMUNE DI PRATO from:IT

participant: CLEAR COMMUNICATION ASSOCIATES LIMITED - CCA

participant: CENTRE SCIENTIFIQUE & TECHNIQUE DE L'INDUSTRIE TEXTILE BELGE

participant: UNIONE REGIONALE DELLE CAMERE DI COMMERCIO INDUSTRIA, ARTIGIANATO E AGRICOLTURA DEL VENETO

participant: SQETCH BV

participant: HUDDERSFIELD & DISTRICT TEXTILE TRAINING COMPANY LIMITED

participant: CONSORZIO ARCA - CONSORZIO PER LA PROMOZIONE DELLE APPLICAZIONI DELLA RICERCA E LA CREAZIONE DI AZIENDE INNOVATIVE

participant: TAVISTOCK INSTITUTE OF HUMAN RELATIONS LBG

participant: HELLENIC CLOTHING INDUSTRY ASSOCIATION

participant: INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM

participant: SKILLAWARE SRL

participant: ANONYMI ETAIREIA VIOMICHANIKIS EREVNAS, TECHNOLOGIKIS ANAPTYXIS KAI ERGASTIRIAKON DOKIMON, PISTOPIISIS KAI PIOTITAS

participant: ASOCIATIA REGINNOVA NE

participant: SANJOTEC - ASSOCIACAO CIENTIFICA E TECNOLOGICA

participant: ISTITUTO SUPERIORE MARIO BOELLA SULLE TECNOLOGIE DELL'INFORMAZIONE E DELLE TELECOMUNICAZIONI ASSOCIAZIONE

participant: E-ZAVOD, ZAVOD ZA PROJEKTNO SVETOVANJE, RAZISKOVANJE IN RAZVOJ CELOVITIH RESITEV

participant: OXFORD BROOKES UNIVERSITY

participant: DEUTSCHE INSTITUTE FUR TEXTIL- UND FASERFORSCHUNG DENKENDORF

participant: FONDAZIONE LINKS - LEADING INNOVATION & KNOWLEDGE FOR SOCIETY

participant: INSTITUT D'ARQUITECTURA AVANCADA DE CATALUNYA

participant: STICHTING WAAG SOCIETY

participant: THE OPEN UNIVERSITY

participant: CLEVIRIA SRL

participant: INSTITUT FRANCAIS DE LA MODE

# cPET

Project title: Tackling the global plastic waste issue, by upcycling no value streams into 100% virgin material and enabling new plastic circular economy

Start Date: 2018-09-01 End Date:2019-02-28

Topic: SME instrument

Most frequent returning words in objectives:

* ('plastic', 5)
* ('waste', 4)
* ('plastics', 3)
* ('circular', 3)
* ('approach', 3)
* ('area', 3)
* ('tons', 2)
* ('year', 2)
* ('break', 2)

72 million tons of PET (the second most used plastic polymer) are produced each year from petroleum refining. The same year, 53 million tons of waste PET is landfilled, incinerated or floats into seas and oceans.   
Gr3n proposes a completely new way to break this vicious circle and create plastic from waste.  
The problem with PET is that it is currently “reused” and not “recycled”, as only transparent and pale bottles are mechanically treated to be partly added to virgin PET in the production of plastic bottles and trays. All other PET derived products, as waste polyester textiles and coloured plastics are almost worthless to the market and end up polluting the environment.  
Our vision is to enable the first truly circular approach to PET recycling, empowered by our patented technology able to break any kind of PET into its two main building blocks, for creating new PET plastics infinitely and cost-effectively.  
Through a 15,000 tons/year gr3n plant we do expect to collect, process and address the need of virgin plastics and polyester of a metropolitan area, thus triggering a true circular approach to plastic recycling. The cPET project is focused on validating the sustainability of creating a European distributed network of gr3n plants localized in each urban area, able to treat any PET-derived waste and produce new plastic for local consumption.   
This SME Instrument innovation project aims to tear down all the technical, economic, regulatory and logistics/organizational risks to scale up the initial 1,000 tons/year demonstrator to a full-fledged industrial plant.  
This will be achieved through a real demonstration is a small urban area, where a circular approach to PET recycling will be really tested, streamlining the logistics and measuring the economic, environmental and societal benefits before proceeding with a global commercialization strategy.

Coordinator: GR3N SAGL from:CH

# VegeaTextile

Project title: Innovative biomaterials production from wine industry waste

Start Date: 2018-03-01 End Date:2019-12-31

Topic: Stimulating the innovation potential of SMEs for sustainable and competitive agriculture, forestry, agri-food and bio-based sectors

Most frequent returning words in objectives:

* ('production', 4)
* ('innovation', 3)
* ('process', 3)
* ('leather', 3)
* ('chemical', 2)
* ('processes', 2)
* ('Start', 2)
* ('VegeaTextile', 2)
* ('project', 2)

Vegea is a young start-up with a solid chemical background with long experience in natural polymers and industrial processes, constituted by researchers coming from the academy with a strong entrepreneurial inclination. It has already received several awards recognizing the value of its disruptive innovation, such as Start&Cup Award-2015, Start&Re-Start-2016, and H&M Global Change Award-2016 for a total funding of more than €300.000. The main scope of VegeaTextile project is the deployment of an absolute breakthrough innovation demonstrating a novel, cost-effective and eco-friendly process for the production of organic textile and introducing in the European leather goods market a new kind of bio-textile using a non-animal and renewable raw material, considered up today an agricultural waste: the grape marc. In fact, the production process can be classified “low impact” for the environment since it makes minimal use of chemical reagents or additional water, and at the contrary, it produces reusable water from the grape marc exsiccation (60% w/w). Our innovation will allow leather goods manufacturers to answer to the increasing customers’ awareness about environmentalist and animalist concerns, to propose a new product with same quality of common leather and, at the same time, to find an alternative and renewable raw material, helping them to overcome stringent regulations about animal treats and tanning processes. Upon project length we aim at industrializing the process production by 2022, reaching a forecasted production capability of 4.5 million m2/yr, the ambitious business objectives of € 8,64 million net profits over 4 yrs of commercialization (2022), and consequently a greater-than-market ROI (26%) and profitability (22%). For the launch of VegeaTextile by 2019, we foresee a total investment of more than €900.000, of which €801.875 budgeted for the Phase-2.

Coordinator: VEGEA SRL from:IT

# FBD\_BModel

Project title: A Knowledge-based business model for small series fashion products by integrating customized innovative services in big data environment (Fashion Big Data Business Model)

Start Date: 2017-12-01 End Date:2020-11-30

Topic: Business models and industrial strategies supporting novel supply chains for innovative product-services

Most frequent returning words in objectives:

* ('platform', 5)
* ('supply', 4)
* ('chain', 4)
* ('consumers', 4)
* ('design', 3)
* ('production', 3)
* ('comfort', 3)
* ('business', 3)
* ('technology', 2)

FBD\_BModel aims at creating a digital technology platform for delivering small series innovative functional garment products through a European Union-based local textile supply chain, meeting consumers’ personalized requirements in terms of fashion and functional performances. This new supply chain will permit to get through the information channel from fabric materials to consumers via various processes, in order to dynamically organize design and production in the big data environment. This technology platform will integrate two interconnected knowledge-based sub-systems (an Interactive Design System (IDS) and a Supply Chain and Production Management System (SCPMS)). The platform will provide a range of data-based services (product and design recommendation, supplier selection, dynamic tasks planning, production simulation, …) dedicated to consumers and concerned professionals (producers, designers, retailers, …) of the supply chain. An extended virtual space will be created for visually displaying and evaluating fashion and functional performances (thermal comfort, skin touch comfort and skin pressure comfort in relation to body movements) of designed products in order to integrate consumers’ lifestyle into the product design process. This platform will enable the direct connection of the professional networks of producers, designers and retailers and optimize all activities of the supply chain. Based on this platform, a novel B2B2C business model will be built by establishing the economic viability and overall exploitation strategy, developing a detailed business plan, along with a full exploitation strategy and associated risk analysis, and performing a series of extensive pilot operations and market replication actions. This business model will be helpful for creating customized textile production in Europe, promoting material innovations of European SMEs with connected professional networks, and preserving and updating professional knowledge in Europe.

Coordinator: ECOLE NATIONALE SUPERIEURE ARTS INDUSTRIES TEXTILES from:FR

participant: THE UNIVERSITY OF MANCHESTER

participant: DESAP SYSTEM SOLUTIONS LIMITED

participant: GRADO ZERO ESPACE SRL

participant: BESTE SPA

participant: AZADORA SRL

participant: HOEGSKOLAN I BORAS

participant: KUVERA SPA

participant: FITIZZY

participant: BEWARRANT

participant: DEUTSCHE INSTITUTE FUR TEXTIL- UND FASERFORSCHUNG DENKENDORF

# ECOVAPOR

Project title: Cost-effective High-efficiency Smart Steam Boiler of Low Emission technology

Start Date: 2016-10-01 End Date:2018-09-30

Topic: Fast Track to Innovation Pilot

Most frequent returning words in objectives:

* ('emissions', 3)
* ('company', 3)
* ('EcoVapor', 2)
* ('smart', 2)
* ('steam', 2)
* ('industry', 2)
* ('market', 2)
* ('energy', 2)
* ('Burnertech', 2)

With EcoVapor, we offer a smart steam boiler that will make steam production a very cost-effective (ca. 30-50% cheaper than typical 3-pass boilers of low NOx emissions), energy-efficient (up to 95% overall), smart (custom-designed based on specific needs for the industry which operates at different powers within a large modulation range (5-100%)), and environmentally friendly alternative (only 80mgNOx/kWh emissions able to comply with the most stringent regulations) to appeal to market segments that want to foster the uptake of new steam-generating technologies to reduce energy bills, optimise energy consumption, and reduce NOx emissions.   
Our company, ICI Caldaie, has partnered with Burnertech - a UK based engineering company specialised in design and manufacturing of tailored solutions for burner design – Troll System - an Italian company with more than 20 years expertise in custom-designed products of the electronic market - and CTIC-CITA - a Spanish cluster of companies of the F&B sector, to exploit €69.44 million accumulated revenues (by 2022) business opportunity.   
EcoVapor has been developed integrating a low NOx pre-mix burner developed by ICI based on the combustion head of Burnertech (patent application: WO2014167270 (A1)), and an e-term® PCB control electronics from Troll.  
We plan to penetrate initially the EU F&B industry by mid-2018 in countries coinciding with ICI highest volume of sales (Italy, Spain, UK, France, Poland, and Romania), and then, other industries starting from 2019 (i.e. textile, tanning, chemical, and pharmaceutical) in EU and non-EU countries we already have a consolidated presence (Serbia, Ukraine, Russia, and Kazakhstan) along with US and Canada by 2020, through direct contact of our current sales force.

Coordinator: I.C.I CALDAIE SPA from:IT

participant: ASOCIACION PARA LA INVESTIGACION DESARROLLO E INNOVACION DEL SECTOR AGROALIMENTARIO - AIDISA from:ES

participant: TROLL SRL from:IT

# WEAR

Project title: Wearable technologists Engage with Artists for Responsible innovation

Start Date: 2017-01-01 End Date:2019-02-28

Topic: Boost synergies between artists, creative people and technologists

Most frequent returning words in objectives:

* ('technology', 6)
* ('issues', 6)
* ('development', 5)
* ('technologies', 4)
* ('data', 4)
* ('stakeholders', 4)
* ('market', 3)
* ('design', 3)
* ('wearables', 3)

Wearable technologies aimed at private consumers constitute a nascent market, expected to grow very fast. Their disruptive power is exemplified by the competition between established technology giants and start-ups. In particular, the development of the wearable market relies on its capacity to break down barriers between creative industries and digital technology companies. At the core of this market is the amount of data that wearable technologies allow to capture, in particular over their users’ personal data. This raises ethical issues regarding the ownership of this data, and what wearable providers do with that data, among other ethical issues, such as labour issues manufacturing, and mineral sourcing in the supply chain. There is a need to raise awareness around such issues, while ensuring the continued development of the wearable technology and smart textiles industries.  
WEAR proposes to bring wearable technology stakeholders to work more closely with designers and artists across Europe to shift the development of the EU wearable industry, drawing on the rich European landscape of wearable technology and smart textile stakeholders, toward addressing the core issues head on within the research & development stages. To do so, WEAR will:  
Develop a sustainable European network of stakeholders and hubs, to connect and push the boundaries in the design and development of wearables;  
Encourage cross-border and cross-sector collaboration between creative people and technology developers to design and develop wearables ;  
Develop a framework within which future prototypes can be made that will become the next generation of what ethical and aesthetic wearables could/should be;  
Lead the emergence of innovative approaches to design, production, manufacturing and business models for wearable technologies;  
Make citizens, entrepreneurs and other stakeholders more aware of the ethical and aesthetic issues in making and use of wearable technologies

Coordinator: INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM from:BE

participant: DIGITAL SPACES LIVING LAB OOD

participant: BLUMINE SRL

participant: WE CONNECT DATA

participant: UNIVERSITAT DER KUNSTE BERLIN

participant: QUEEN MARY UNIVERSITY OF LONDON

# INE IAPS

Project title: Intelligent active protection system for motorcyclists: saving lives through optimum use of latest advances in sensor technologies, wireless communication, smartphone platforms, real-time analysis

Start Date: 2016-06-01 End Date:2018-05-31

Topic: Open Disruptive Innovation Scheme

Most frequent returning words in objectives:

* ('protection', 5)
* ('motion', 5)
* ('user', 4)
* ('technology', 3)
* ('body', 2)
* ('devices', 2)
* ('parts', 2)
* ('market', 2)
* ('intelligent', 2)

The risk of fatalities or sustaining serious injuries in motorcycling accidents is poorly addressed by the existing body protection devices available to that community. They lack in reactivity characteristics and offer limited protection to the most affected parts of the body.  
Combining advances in sensor technologies, wireless communication and Smartphone platforms in particular, In&motion is set to revolutionise the market with their intelligent active protection system. With an ultra-high energy absorption capacity and a much wider protection area, their all-electronic system further differentiates itself from competitor products with its auto-learning capability: the more it is used the better it performs. With a business-to-business approach, In&motion joins forces with key European motorcycling garments manufacturers who recognise the need for their specialised clothes to become intelligent and highly protective. The technology is therefore fully integrated into the clothing, making it very convenient for the user. To further simplify the user’s experience, In&motion’s other innovation lies in the ability for the user to reactivate the device after deployment, thanks to easy-to-handle consumable parts. This provides a significant step change in accessibility, dispensing and affordability for the user.  
With European motoring legislations set to further impact the market potential for body-protection devices, In&motion’s solution is bound to be truly disruptive.  
The technology has already been highly acclaimed by ski athletes and the International Ski Federation, and In&motion have high ambitions to see that technology also used in other areas such as drone protection, senior’s health and well-being, and work at height.

Coordinator: IN&MOTION from:FR

# INSPUR

Project title: In-Situ Polyurethane Resins

Start Date: 2016-03-01 End Date:2017-08-31

Topic: Accelerating the uptake of nanotechnologies, advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('INSPUR', 6)
* ('manufacturing', 4)
* ('market', 3)
* ('performances', 3)
* ('project', 2)
* ('process', 2)
* ('technology', 2)
* ('toxic', 2)
* ('products', 2)

Objective of the INSPUR project is to bring to the market a fully sustainable and solvent-less manufacturing process for the polyurethane direct and transfer coating of fabrics, knits, nonwovens or other substrates. INSPUR technology is based on an innovative bi-component resin formulation, which permits to avoid the use of solvents, or other toxic compounds, further improving the flexibility and reducing of 30% the energy consumption of coating manufacturing processes.  
INSPUR made products show remarkable improvement in terms of resistance, durability, mechanical performances, washing resistance allowing their utilization for high-end sports and technical applications, fashions and upholsteries. The Belgium Company VETEX, specialized in the manufacturing of high performances technical textiles, will provide the necessary case studies to validate the INSPUR technology in a real manufacturing environment by assessing the most suitable process migration strategies, the industrial performances and the technical capabilities of INSPUR. VETEX will further issue an earlier-adopter business case to evaluate the market uptake potential and to collect user feedbacks for INSPUR market validation. The overall European Technical textile sector will benefit by the completion of the project and by its large-scale uptake reducing the dependence from third countries, and avoiding the utilization of toxic chemicals for large consumer products.

Coordinator: IMA SRL from:IT

# ACE

Project title: ANNULUS CLOSURE EXPANDABLE DEVICE BASED ON SHAPE-MEMORY MATERIALS AND MEDICAL TEXTILES: SCALE-UP TO PRODUCTION, TESTING AND DEMONSTRATION.

Start Date: 2015-10-01 End Date:2018-09-30

Topic: Accelerating the uptake of nanotechnologies, advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('NEOS', 6)
* ('project', 2)
* ('product', 2)
* ('Closure', 2)
* ('Device', 2)
* ('Implants', 2)
* ('permanent', 2)
* ('solution', 2)
* ('impact', 2)

The objective of the ACE project is to broaden NEOS’ product portfolio by launching its first Spinal Product, an Annulus Closure Device in 2018. Sales from this product will more than triple NEOS’ turnover between 2018 and 2022. It will also position NEOS in a very strategic segment of the Spinal Implants Market: Non-Fusion Spinal Implants (900-1400 M€, CAGR 10-18%), consolidating its visibility as a manufacturer of innovative implants.  
  
The ACE provides a permanent solution to an unmet clinical need: disc hernia management. The ACE solves the challenge by providing a barrier to re-herniation which is expandable, is securely fixed to the vertebra, has minimum impact on the current surgery procedure, and respects natural spine movements. This is done by combining expertise in implant design, textile technology, and advanced manufacturing techniques, and was developed by a European consortium in a Eurostars-funded project.   
  
The ACE is currently at TRL6, and is ready for testing in its operational environment. The European patent of the invention is in conversations with the examiner, approval foreseen in 2015. Freedom to Operate had been verified. The ACE has been validated with clinicians and commercial partners and the ACE Business Plan has been approved by NEOS’ Board of Directors.  
  
The ACE will address a “Blue Ocean” type market with a dynamic IP and start-up landscape, with only one commercially active player at the moment.   
  
The ACE will add value to Patients, Surgeons and Payers by offering a cost-effective, permanent solution to low back pain. NEOS will be the first European company to launch an Annulus Closure Device, which will address many European challenges: the socio-economic impact of low back pain (Health Costs, sick leaves, productivity loss), European industrial leadership in the high added-value Medical Devices sector, and bridging the gap between research and the market.  
The ACE is the cornerstone of NEOS’ Strategic Plan to accelerate its growth.

Coordinator: NEOS SURGERY SL from:ES

# RESYNTEX

Project title: A new circular economy concept: from textile waste towards chemical and textile industries feedstock

Start Date: 2015-06-01 End Date:2019-05-31

Topic: Moving towards a circular economy through industrial symbiosis

Most frequent returning words in objectives:

* ('textile', 9)
* ('waste', 6)
* ('chemical', 4)
* ('collection', 3)
* ('feedstock', 3)
* ('order', 3)
* ('project', 2)
* ('symbiosis', 2)
* ('blends', 2)

The RESYNTEX project aims at designing, developing and demonstrating new high environmental impact industrial symbiosis between the unwearable blends and pure components of textile waste and the chemical and textile industries. The project comprises:  
- a strategic design of the whole value chain from textile waste collection, until the new marketable feedstock for chemical & textile industrie, by which the symbiosis opportunities are evaluated (by public authorities and the private sector) in terms of their social, technical, economic, environmental and legislative aspects  
- the improvement of collection approaches particularly for non-wearable textiles for recycling by changing citizen’s behaviour and creation of tools for higher social involvement and recycling promotion. This will ensure a greater accessibility to textile waste as resource and increase the textile waste rates destined for recycling. With 50% collection rate all over Europe would be a significant improvement in order to provide large quantities of feedstock  
- a data aggregation system that will be developed and implemented in order to ensure waste traceability and also provide relevant data for economic and environmental assessment;  
- the development of new business models adapted for different synergies identified and for new markets. In addition, environmental LCA and LCC for different scenarios and identification of the most promising routes and synergies will support this objective  
- automation of the macro separation and sorting for pure or blended textiles, in order to enhance productivity and competitiveness of the whole recycling process  
- a new demonstration process based on a synergistic chemical and biotechnological cascading separation/transformation approach of textile basic components (proteins, cellulose, polyamide and polyester) from textile blends as basic feedstock materials for chemical & textile industries. Liquid and solid waste treatment and valorisation will close the loop

Coordinator: SOEX TEXTIL-VERMARKTUNGSGESELLSCHAFT MBH from:DE

participant: DETTIN SPA

participant: INGEG S.R.L

participant: CHIMAR (HELLAS) AE - ANONYMI VIOMICHANIKI KAI EMPORIKI ETAIREIA CHIMIKON PROIONTON

participant: IOS, INSTITUT ZA OKOLJEVARSTVO IN SENZORJE, DOO

participant: SUSTAINABILITY CONSULT

participant: TEKSTINA TEKSTILNA INDUSTRIJA DOO

participant: PROSPEX INSTITUTE

participant: NATIONAL TECHNICAL UNIVERSITY OF ATHENS - NTUA

participant: INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM

participant: THE MANCHESTER METROPOLITAN UNIVERSITY

participant: VALAGRO CARBONE RENOUVELABLE POITOU-CHARENTES

participant: UNIVERZA V MARIBORU

participant: UNIVERSITAET FUER BODENKULTUR WIEN

participant: ARKEMA FRANCE SA

participant: CONSEIL EUROPEEN DE L'INDUSTRIE CHIMIQUE AISBL

participant: SEPAREX SAS

participant: ABOUTGOODS COOMPANY

participant: EUROPEAN APPAREL AND TEXTILE CONFEDERATION

# ETexWeld

Project title: Welding of E-Textiles for Interactive Clothing

Start Date: 2015-01-01 End Date:2019-06-30

Topic: Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE)

Most frequent returning words in objectives:

* ('e-textile', 7)
* ('protective', 4)
* ('project', 3)
* ('clothing', 3)
* ('structures', 3)
* ('transmission', 3)
* ('electronics', 2)
* ('textiles', 2)
* ('informatics', 2)

The new field of science dealing with implementation of electronics to textiles in combination with informatics is known as e-textiles. This project proposal leads to knowledge transfer among partners in order to develop innovative e-textile products for interactive protective clothing and footwear using welding technologies by bringing experts from different countries, sectors and disciplines together to focus their effort in innovative e-textile product designs.   
Within this context, the project aims to develop novel e-textile structures including transmission lines, sensors, actuators, microprocessors, personalized algorithms, on-body computing and user feedbacks in order to make a breakthrough towards development of interactive protective clothing and footwear that able to monitor health, activity, position of the user in the environmental risky situations, the welding technologies will be mainly used in three concepts:  
I. Designing of transmission lines of e-textile structures;   
II. Integration of electronic elements (different sensors, actuators, microprocessors, data transmission and power supply systems) to textile structures;   
III. Design and development of whole e-textile system for protective clothing applications including interactive protective garments and shoes.  
Thus, project draws on strong transitions of textiles, electronics and informatics researches and is internationally acknowledged for its pioneering contributions to e-textile researches through the industry-academia cooperation. This will not only help to develop future generations of entrepreneurial researchers more capable of contributing effectively to the knowledge-based e-textile research area, within and between public and private sectors, but also add to the intersectorial and trans-national employability of these researchers as well as to the attraction of young people to a research career on textile/electronics areas.

Coordinator: ISTANBUL TEKNIK UNIVERSITESI from:TR

participant: INLAS INTELEKTUALNA LASTNINA IN SVETOVANJE DOO

participant: PANEPISTIMIO DYTIKIS ATTIKIS

participant: THE UNIVERSITY OF MANCHESTER

participant: ECOLE NATIONALE SUPERIEURE ARTS INDUSTRIES TEXTILES

participant: TEXNOLOGIES FOTONIKON KAI HLEKTRONIKON SYSTHMATVN AE

participant: UNITED MEDICAL INNOVATION LTD

participant: ANOTATO EKPAIDEYTIKO IDRIMA PEIRAIA TECHNOLOGIKOY TOMEA

participant: KIVANC KIMYA SANAYII VE TICARET ANONIM SIRKETI

# InKreate

Project title: Transfer the real 3D world to interactive creative endeavours in apparel industry

Start Date: 2017-01-01 End Date:2018-06-30

Topic: Support technology transfer to the creative industries

Most frequent returning words in objectives:

* ('design', 6)
* ('cost', 4)
* ('manufacturing', 3)
* ('apparel', 3)
* ('technologies', 3)
* ('process', 3)
* ('tools', 3)
* ('scanners', 3)
* ('designs', 3)

Whereas the manufacturing and distribution of apparel has advanced in past years with the application of new CAM and ITC technologies, the design process is still very traditional. Sketching ideas, creating story boards, draping, and developing technical drawings (also known as technical sketches) are just some of the tasks that are still being done either in the old-fashioned way or with the aid of digital tools, most of which are spinoff uses of technologies developed for other industries, and not adapted to the necessities of the creative apparel industry.  
At the same time, there are emerging technologies that could reduce the timing and the cost of the design process, such as 3D scanners and 3D sketching tools. New low cost 3D scanners have indeed appeared in the market, and could allow a real customization of the clothes design. Moreover, libraries of 3D realistic avatars adapted to the target population of a new clothing collection will be a great improvement for mass production. Theoretically, a designer could sketch the design over the avatar of a customer, or over a realistic avatar that represents a target population. Sketching designs over real 3D bodies allows the visualization of designs in real dimensions, improves communication between the creative team, and reduce misunderstandings in the following steps (e.g. pattern making, manufacturing, etc.). The realistic visualization of the designs has many advantages:  
1) Elimination of manual tasks.  
2) Improvement of the communication between designers and decision takers (the managers that approve the design for manufacturing). The realistic visualization reduces misunderstandings and failures.  
3) Better cost analysis.  
InKreate expects to improve the apparel design process using low cost 3D scanners and 3D sketching tools.

Coordinator: INSTITUTO DE BIOMECANICA DE VALENCIA from:ES

participant: ASSOCIACAO TEXTIL E VESTUARIO DE PORTUGAL

participant: P&R TEXTEIS SA

participant: TITERA, TEHNICNO INOVATIVNE TEHNOLOGIJE, DOO

participant: KATTY FASHION SRL

participant: CONFECCIONES M.R.F. SA

participant: ASOCIACION TEXTIL DE GALICIA

participant: BROWZWEAR INTERNATIONAL LTD

participant: FUTURE IN TEXTILES ASSOCIATION

# OXYTRAIN

Project title: Harnessing the power of enzymatic oxygen activation

Start Date: 2017-01-01 End Date:2020-12-31

Topic: Innovative Training Networks

Most frequent returning words in objectives:

* ('knowledge', 4)
* ('enzyme', 3)
* ('enzymes', 3)
* ('oxygenases', 2)
* ('consortium', 2)
* ('network', 2)
* ('beneficiaries', 2)
* ('selective', 1)
* ('incorporation', 1)

For the selective and effective incorporation of oxygen into biological molecules (oxygenation reaction), several enzyme types have evolved in nature. They catalyse crucial reactions in various metabolic routes. The chemistry feasible with these biocatalysts is unrivalled when compared with conventional chemical methods. Therefore, these oxygenating enzymes are very promising tools in biotechnological approaches. However, when compared with other enzyme classes, such as hydrolases, oxygenases are still in their infancy considering their biotechnological potential. To fully exploit the catalytic power of oxygenases, several hurdles have to be taken for which a higher level of knowledge on these enzymes is needed while also technical aspects have to be solved.  
  
The European Training Network (ETN) OXYTRAIN is a joint academic/non-academic training initiative supporting the convergence of biochemistry, enzyme engineering and biotechnology. The consortium's mutual goal is developing a new generation of innovative and entrepreneurial early stage researchers (ESRs) to satisfy the need for knowledge and skills to produce and apply oxidative enzymes. This will be achieved by setting up a network and intersectoral programme in which multiple disciplines will be integrated and exploited. By bringing together 7 academic beneficiaries that are experts in the field of individual oxygenase groups, the network will provide perfect conditions for cross-fertilization of knowledge, while the 3 industrial beneficiaries and 5 partner organisations will add to the consortium by translating the generated knowledge into real industrial applications, such as textiles, pharmaceuticals and biorefineries.

Coordinator: RIJKSUNIVERSITEIT GRONINGEN from:NL

participant: WESTFAELISCHE WILHELMS-UNIVERSITAET MUENSTER

participant: TECHNISCHE UNIVERSITAET GRAZ

participant: DSM FOOD SPECIALTIES BV

participant: RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN

participant: NORGES MILJO-OG BIOVITENSKAPLIGE UNIVERSITET

participant: UNIVERSITY OF YORK

participant: UNIVERSITA DEGLI STUDI DI PAVIA

participant: SANKO TEKSTIL ISLETMELERI SANAYI VETICARET ANONIM SIRKETI

# ECWRTI

Project title: ECOLORO: Reuse of Waste Water from the Textile Industry

Start Date: 2015-06-01 End Date:2019-05-31

Topic: First application and market replication

Most frequent returning words in objectives:

* ('textile', 6)
* ('water', 5)
* ('EColoRO', 5)
* ('project', 4)
* ('waste', 4)
* ('concept', 3)
* ('industry', 3)
* ('efficiency', 2)
* ('sectors', 2)

Constant extraction of increasingly scarce fresh water puts a vital demand on increasing water-use efficiency in all sectors. The ECWRTI project will demonstrate the EColoRO concept on full industrial scale in two locations in the European textile industry.   
  
The EColoRO concept uses electro-coagulation (EC) combined with flotation to remove pollutants, colorants and chemicals from waste water very effectively. This unique feature enables using ultrafiltration and reverse osmosis membrane processes downstream in an optimized way. The key advantages are:   
- Total reuse of waste-water in textile industry reducing fresh-water intake by at least 75%   
- Low-cost and economically highly attractive   
- Very flexible, containerized and modular, easy scalable, low footprint, suitable for retro-fit, brownfield or greenfield application  
- Low energy use, no use of chemicals or flocculants, producing concentrated waste streams with very high re-use potential  
- Enabler for optimizing use of water, allowing for advanced energy and resource efficiency in the textile manufacturing processes  
  
EC and the EColoRO concept are currently proven at TRL 6. The ECWRTI project will run for 48 months and will deliver technological proof at TRL 8, ready for commercial uptake. It will further deliver the materials, analysis and tools needed for rapid commercial roll-out.  
The consortium consists of a focused and well-balanced team. The project is SME driven with EColoRO as coordinator and 6 partners from 3 EU member states with key know-how on waste water purification (VITO, EColoRO), textile technology and production (Inotex, Utexbel, Tintoria Pavese), electro-coagulation and engineering (Morselt), process technology, open innovation and project support (ISPT) and EU wide market access in the textile sector (Euratex). An advisory board with stakeholders from textile, process industry and waste water sectors will provide guidance, critical feedback and dissemination support.

Coordinator: STICHTING S-ISPT from:NL

participant: UTEXBEL NV

participant: VLAAMSE INSTELLING VOOR TECHNOLOGISCH ONDERZOEK N.V.

participant: INOTEX SPOL SRO

participant: TINTORIA PAVESE SPA

participant: MORSELT BORNE BV

participant: ECOLORO BV

# SUPERCONCRETE

Project title: SUstainability-driven international/intersectoral Partnership for Education and Research on modelling next generation CONCRETE

Start Date: 2015-07-01 End Date:2019-06-30

Topic: Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE)

Most frequent returning words in objectives:

* ('SUPERCONCRETE', 3)
* ('project', 2)
* ('models', 2)
* ('concretes', 2)
* ('Concrete', 2)
* ('constituents', 2)
* ('materials', 2)
* ('objective', 2)
* ('transversal', 2)

SUPERCONCRETE is a synergetic cross-disciplinary international/intersectoral project addressing theoretical models for next-generation concretes, characterised by a significant sustainability enhancement for the construction industry.   
  
Three advanced concrete classes (CCs) are selected which represent the projects’ key research lines:  
- Low-Carbon Concrete (LCC), characterised by non-conventional constituents, often derived from recycling industrial waste or by-products;  
- High-Class Concrete (HCC), encompassing materials with enhanced performance in strength, durability;  
- Fibre-reinforced Cementitious Composites (FCC), with special features on fibre/textile reinforcement and matrix improvement.  
  
Developing synergetic through-life multi-scale models for these novel materials is the key objective of the SUPERCONCRETE project. Particularly, three transversal modelling issues (MIs) are considered:  
- Rheology and Early age, dealing with the various physical and coupled thermo-hygro-chemical phenomena taking place in the first hours after mixing;  
- Hardened state and service life, approached by constitutive modelling intended at predicting the instantaneous and long-term behaviour, for both service and ultimate conditions;  
- Extreme conditions, based on constitutive theories capable of simulating the response under fire and high temperature exposure.  
  
Each CC and MI is covered by one participant and the interactions among them is based on a matrix-like organisational approach aiming at achieving a true synergistic collaboration among those with specific CC knowledge and the ones bringing in transversal competences on MIs. A further cross-cutting objective aims at defining a “Sustainability Index”, based on its constituents and processes requested for each CC.  
  
SUPERCONCRETE’s final deliverables will be 1) a joint international course on sustainable concretes with 2) an underlying textbook and 3) a web-based platform for interacting with students and practitioners.

Coordinator: UNIVERSITA DEGLI STUDI DI SALERNO from:IT

participant: UNIVERSIDADE DO MINHO

participant: GESELLSCHAFT FUER MATERIALFORSCHUNG UND PRUEFUNGSANSTALT FUER DAS BAUWESEN LEIPZIG MBH

participant: FUNDACION TECNALIA RESEARCH & INNOVATION

participant: WILHELM ROSER SOHNE GMBH CO. KG

participant: TECHNISCHE UNIVERSITAT DARMSTADT

# iART

Project title: Consumer-oriented ICT Solutions for creative SMEs providing Art in Bespoke Fashion

Start Date: 2015-01-01 End Date:2016-06-30

Topic: Support the growth of ICT innovative Creative Industries SMEs

Most frequent returning words in objectives:

* ('clothing', 4)
* ('bespoke', 3)
* ('business', 3)
* ('artist', 3)
* ('shirts', 3)
* ('fabric', 3)
* ('objective', 2)
* ('iART', 2)
* ('project', 2)

The main objective of the iART project is to bring visual art into bespoke clothing so as to make apparel products more valuable compared to other garments in the market and to support artists to exploit their work. To reach this objective a set of innovative ICT solutions has to be developed first.   
This new approach will also change the business relationship along the conception and design phase in the clothing sector from B2B to B2C, where the artist and the consumer will connect through enabling platforms like iArt. iArt will be built upon an existing B2C webshop for bespoke shirts Bivolino.com.  
In particular, the specific ICT developments of the project are:   
1. Upgrade the configuration toolkit from 2.5D to 2.5D/3D by including shadowing and rotating features without the need of plug-ins and ease the extension of the catalog to clothing accessories and nightwear fitting with the shirts.   
2. Move to real-time online rendering (fabric draping), so as to speed up and increase the flexibility of the whole process from artist design over fabric creation to customized bespoke shirts and other garments (fabric rendering on 2.5D/3D clothing configurator).  
3. Build a B2C platform enabling co-creation and user generated art content. Develop an Advanced Artist Interface (AAI) with artist cockpit. Implement an advanced user interface to allow easy 2.5D/3D viewing in many other platforms through open API.  
iART is expected to create extra revenues for Artist’s micro SMEs. The European Fashion and Clothing industry SMEs take up ICT enabling innovative supply-chains to generate more revenues through high-margin made-to-order collections which cannot be imported from mass production countries. Finally ICT providers are stimulated to offer innovative tools generating business and turnover.   
As this sustainable business model is supported by easily accessible advanced ICT tools (through open API’s) it will be replicable and so has the potential to create a wide impact.

Coordinator: DOUËLOU NV from:BE

participant: UNIVERSITEIT HASSELT from:BE

participant: ANDRIESSEN CORNELIS CHRISTIAAN JACOB from:NL

participant: VANMECHELEN MIEKE from:IE

# SMARTMEM

Project title: Stimuli-responsive Membranes for consumer goods sustainability

Start Date: 2016-04-01 End Date:2020-03-31

Topic: Marie Skłodowska-Curie Innovative Training Networks (ITN-EID)

Most frequent returning words in objectives:

* ('project', 3)
* ('consumer', 3)
* ('training', 3)
* ('SMARTMEM', 2)
* ('technology', 2)
* ('smart', 2)
* ('products', 2)
* ('objective', 2)
* ('students', 2)

SMARTMEM is a multidisciplinary project leveraging the emerging technology platforms around so-called smart membranes   
and evolving this platform to commercial use in consumer good products. The objective of this project is the training of 5   
PhD students in various scientific fields around membrane technology, involving disciplines from advanced materials   
synthesis, to membrane production, linking product application and product performance driving new consumer value. The   
training will be setup in a multi sector way for the students to learn the technical depth of the disciplines as well as the   
innovation cycle from idea to market application and commercialisation. The objective of the project will be achieved through   
finding applicability in established markets like textiles with functional benefits, air care devices with health benefits and   
innovate beyond like develop improved microcapsules which release on demand and improved single dose detergent   
products, among others. Therefore, SMARTMEM will contribute to accomplish the goals of Europe 2020 strategy through:   
- training of highly skilful scientists in emerging fields such as stimuli-responsive materials   
- placing Europe at the vanguard of innovation in sustainable consumer goods by smart controlled release

Coordinator: PROCTER & GAMBLE SERVICES COMPANY NV from:BE

participant: UNIVERSITAT ROVIRA I VIRGILI

# SMARTGEARBOX

Project title: Development of a new gearbox without lubricants for low OM costs, higher efficiency, and oiless applications

Start Date: 2016-01-01 End Date:2017-12-31

Topic: Accelerating the uptake of nanotechnologies, advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('company', 4)
* ('product', 3)
* ('customers', 3)
* ('manufacturing', 2)
* ('costs', 2)
* ('maintenance', 2)
* ('lubricants', 2)
* ('increase', 2)
* ('sales', 2)

Located in the Bologna region in Italy, our company, VARVEL, is specialized in manufacturing of speed reducers and variators for light industry applications, such as machinery, conveyors, feeding systems, photovoltaic devices or sliding doors and so on (metalworking, chemical, textile, farming, construction industries).  
From its establishment in 1955, innovation has been guiding our company in every decision and business strategy, making us a strong and reliable partner in power transmission equipment on the international scene (Production: 300,000 units/Turnover: €31 million [2013]): from product research to increasing use of automation and robotics in manufacturing, from company management by formalized processes to logistics flow computerization. All our efforts focusing on the customers’ needs and satisfaction, in terms of product uses, costs and performance.  
Listening to our customers’ feedback and concern on oil maintenance and leaking risks, we have been working on new “oiless gearbox”: by eliminating oil lubricants, we can decrease the operation and maintenance costs of our products by 50% and increase their efficiency by 10-15% while making them more environmental friendly. Besides, this new product will allow us to penetrate new markets such as food processing and medical, where the use of lubricants is prohibited. This project, called Smart GearBox, aims at integrating our developments on our worm-wheel gearboxes for commercialization, achieving a long-term profitability for both our customers and our company: increase of sales margin by 11% and sales by 42%, leading to an additional 6.3 million of turnover by 2020

Coordinator: VARVEL SPA from:IT

# ROLL-OUT

Project title: High-performance, Flexible, AUTOnomous Systems manufactured with Unique, Industrial ROLL-to-roll equipments

Start Date: 2015-01-01 End Date:2017-12-31

Topic: Advanced Thin, Organic and Large Area Electronics (TOLAE) technologies

Most frequent returning words in objectives:

* ('action', 5)
* ('thin', 3)
* ('large-area', 3)
* ('high-performance', 3)
* ('circuits', 3)
* ('partners', 3)
* ('roll-to-roll', 2)
* ('fabrication', 2)
* ('electronics', 2)

This R&I action will focus on optimally combining traditional roll-to-roll (R2R) compatible fabrication technologies such as printing with unique R2R sputtering, ALD and heterogeneous integration for flexible, thin, large-area electronics applications. It is seen that the different R2R fabrication methods all have their strengths and weaknesses such that using a cost-performance-optimized combination of them for a single production will enable new levels of applicability for TOLAE devices for mass markets. The goal of the ROLL-OUT project is to create a multi-purpose technology for, thin, large-area, high-performance, smart, and autonomous systems comprising of integrated circuits (based on metal-oxide thin-film transistors), sensors, and electronics. They will be utilized in advancing the packaging, automotive interiors and textile industries beyond their traditional scope. The key features are high-performance circuits and components. To fabricate high-performance circuits, the project intends to use novel, hybrid, moderate-temperature, roll-to-roll processes, namely sputtering, Atomic Layer Deposition (ALD) and screen-printing on thin, flexible, large-area substrates. This will enable enormous value addition to the products of European industries without adding any significant extra cost.   
  
ROLL-OUT has 5 research organizations (RO) and 5 industrial partners (IND). The action has 6 work-packages (WPs) of which 3 are led by ROs and 3 by INDs. The technology development WPs are led by ROs and demonstration and exploitation WPs are led by INDs. The action intends to create 3 tangible industrial smart, autonomous system demonstrators that will be validated by the industrial partners in accordance with standard testing protocols.  
  
The action seeks EU funding of 3.66M€ for a period of 36 months. 356,5 person-months will be dedicated to the work. The consortium consists of partners from 7 EU member states with complimentary expertise essential for the action.

Coordinator: Teknologian tutkimuskeskus VTT Oy from:FI

participant: PICOSUN OY

participant: LOGOPLASTE INNOVATION LAB LDA

participant: POLYTEKNIK AS

participant: FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.

participant: UPPSALA UNIVERSITET

participant: UNINOVA-INSTITUTO DE DESENVOLVIMENTO DE NOVAS TECNOLOGIAS-ASSOCIACAO

participant: MAIER SCOOP

participant: FUNDACION CIDETEC

# INDIA-H2O

Project title: bIo-mimetic and phyto-techNologies DesIgned for low-cost purficAtion and recycling of water

Start Date: 2019-02-01 End Date:2023-07-31

Topic: EU-India water co-operation

Most frequent returning words in objectives:

* ('water', 7)
* ('treatment', 4)
* ('systems', 4)
* ('osmosis', 4)
* ('developed', 3)
* ('wastewater', 3)
* ('solutions', 3)
* ('technologies', 3)
* ('design', 2)

INDIA-H20 will develop, design and demonstrate high-recovery, low-cost water treatment systems for saline groundwater and industrial wastewaters. The focus for developments will be in the arid state of Gujarat, where surface water resources are very scarce. We will develop novel batch-reverse osmosis technology for a 10-fold reduction in specific energy consumption with high fractions of water recovery (80%) reducing /m3 operating costs to below €0.35/m3 (<30 rupees/m3). Forward osmosis will be developed and piloted for use in wastewater recovery applications including hybrid arrangements with reverse osmosis for further reduction in energy consumption. These solutions will be demonstrated in small-scale rurally relevant low-cost systems for brackish groundwater treatment for use as safe drinking water, which will be extended to include phyto-technology solutions for rural domestic wastewater treatment. Systems will remove salinity and emerging pollutants (e.g. agricultural chemicals), valorise rejected brines in halophytic crop cultivation. For specific industrial wastewater in textile, desalination and dairy we will develop and demonstrate cost-effective high-efficiency hybrid technologies for water recycling with minimum liquid discharge, using advanced membrane technologies to achieve the required water quality for recycling. A centre of excellence will be established in water treatment membrane technologies, design operation and monitoring. Activities such as supply chain mapping and EU India collaboration on developing industrial scale forward osmosis membranes and batch-RO systems will support the development of business models to exploit the developed solutions to mutual EU/India economic advantage. We will analyse and produce policy briefs on economic models and governance arrangements for viable adoption of the developed systems.

Coordinator: THE UNIVERSITY OF BIRMINGHAM from:UK

participant: ENVIROCHEM SERVICES (OPC) PVT LTD

participant: MODUS RESEARCH AND INNOVATION LIMITED

participant: STICHTING IHE DELFT INSTITUTE FOR WATER EDUCATION

participant: GOVIND BALLABH PANT KRISHI EVAM PRODYOGIK VISHWAVIDYALYA

participant: BEN-GURION UNIVERSITY OF THE NEGEV

participant: Advanced Center for Water Resources Development & Management

participant: CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS-CIEMAT

participant: FUNDACION CENTRO TECNOLOGICO DE INVESTIGACION MULTISECTORIAL

participant: PANDIT DEENDAYAL PETROLEUM UNIVERSITY

participant: JADAVPUR UNIVERSITY

participant: DAVEY PRODUCTS

participant: ACONDICIONAMIENTO TARRASENSE ASSOCIACION

participant: AQUAPORIN AS

# PANI WATER

Project title: Photo-irradiation and Adsorption based Novel Innovations for Water-treatment

Start Date: 2019-02-01 End Date:2023-01-31

Topic: EU-India water co-operation

Most frequent returning words in objectives:

* ('water', 9)
* ('wastewater', 5)
* ('drinking', 5)
* ('prototypes', 4)
* ('L/day', 4)
* ('CECs', 3)
* ('treatment', 3)
* ('system', 3)
* ('sources', 2)

About 2.1 Billion people live without access to safe water sources. Contaminants of Emerging Concerns (CECs) such as pharmaceuticals, personal care products, pesticides and nanoparticles are increasingly being detected in wastewater and in drinking water around the world, in addition to geogenic pollutants, pathogens, antibiotic resistant bacteria and antibiotic resistance genes. Water treatment systems that remove CECs and common contaminants from wastewater and drinking water are therefore urgently needed.   
  
PANI WATER will develop, deploy and validate in the field six prototypes for the removal of contaminants, including CECs, from wastewater and drinking water. The prototypes for wastewater treatment will consist of (i) a 20,000 L/day multifunctional oxidation reactor, (ii) a 10 L/day photoelectrochemical system, and (iii) a 100 L/day solar photolytic plant. The prototypes for drinking water treatment will consist of (iv) a 300 L/hour filtration, adsorption, and UVC LED system (v) a 20 L transparent jerrycan for solar water disinfection, and (vi) a 2,000 L/day electrocoagulation, oxidation, and disinfection t system. These prototypes will be deployed in peri-urban and rural areas in India. The consortium will work closely with the communities at the fieldsites, and carry out water quality analyses, health and social impact assessments, and advocate for safe reuse of treated wastewater for irrigation, and preservation of drinking water sources. PANI technologies can find promising application among the agricultural sector, water-demanding businesses (e.g. textile, pharmaceutical), and the Indian water utilities.

Coordinator: ROYAL COLLEGE OF SURGEONS IN IRELAND from:IE

participant: INNOVA SRL

participant: INSTITUTE OF TECHNOLOGY SLIGO - ITS

participant: KWALITY PHOTONICS PRIVATE TTD

participant: BUCKINGHAMSHIRE NEW UNIVERSITY

participant: UNIVERSIDAD DE SANTIAGO DE COMPOSTELA

participant: CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS-CIEMAT

participant: NATIONAL UNIVERSITY OF IRELAND MAYNOOTH

participant: AQUASOIL SRL

participant: SOCIETY FOR TECHNOLOGY AND ACTION FOR RURAL ADVANCEMENT

participant: UNIVERSIDAD REY JUAN CARLOS

participant: SOCIETY FOR DEVELOPMENT ALTERNATIVES

participant: UNIVERSITY OF CYPRUS

participant: UNIVERSITY OF ULSTER

# FoReCaST

Project title: Forefront Research in 3D Disease Cancer Models as in vitro Screening Technologies

Start Date: 2015-07-01 End Date:2020-12-31

Topic: ERA Chairs

Most frequent returning words in objectives:

* ('region', 4)
* ('innovation', 3)
* ('FoReCaST', 3)
* ('research', 3)
* ('system', 2)
* ('knowledge', 2)
* ('Northern', 2)
* ('UMINHO', 2)
* ('field', 2)

PT11 is a convergence Portuguese region with innovative effort and performance bellow EU-average. Strengthening of the regional innovation system is crucial to create the pre-conditions for a knowledge based economy globally competitive. The socio-economical profile of the Northern region (PT11) presents a large contribution from the low educational records of the population and the predominance of traditional companies in the industrial sector (e.g., textile, shoes, etc). FoReCaST will attract to the Northern Portuguese region and UMINHO experienced human resources (ERA Chairs team) to settle in the region and to contribute to 5 strategic Research Lines (RLs) in cancer research field. The hiring of dedicated research staff will allow the nucleation of new strategic RLs, while simultaneously promoting the consolidation of pre-existing know-how by reinforcing some of lines of research already successfully exploited. Besides that, hiring experienced researchers will avoid the “brain drain”, train them in this high-tech field and finally increasing scientific international networking by exchanging of know-how. Moreover, PT11 will benefit from this project through the creation of profitable technologies and products (and consequently, business opportunities), increasing regional growth and income, and contributing to the reduction of the unemployment or even appearing of new SMEs. In this sense, FoReCaST will be fundamental to strengthen the regional innovation system in order to achieve scientific excellence and a higher level of integration in international knowledge networks. FoReCaST can be an important tool to boost even more the UMINHO scientific and innovation capabilities, its international visibility and cooperation, entirely aligned with Norte’s RIS3.

Coordinator: UNIVERSIDADE DO MINHO from:PT

# ArcInTex ETN

Project title: ArcInTex ETN

Start Date: 2015-01-01 End Date:2019-02-28

Topic: Marie Skłodowska-Curie Innovative Training Networks (ITN-ETN)

Most frequent returning words in objectives:

* ('design', 16)
* ('research', 6)
* ('living', 5)
* ('foundations', 3)
* ('network', 3)
* ('interaction', 3)
* ('practice', 3)
* ('academia', 3)
* ('sector', 3)

A fundamental challenge in design research today is to define the design programs that suggest how we can turn our days scientific knowledge and technical development into design for new forms of living that will provide foundations for a more sustainable way of life. Through a cross-disciplinary and cross-national network in architecture, textiles and interaction design the consortium will build and train a new research community to take on this challenge in practice based design research from a broader perspective, in  
collaboration between academia and the private sector, combining areas of design where Europe by tradition have a very strong   
position. The proposed ArcInTex ETN aims to strengthen the foundations of design for new forms of more sustainable ways of living by connecting architecture, textiles and interaction design in a training network for Early stage researchers. Deepening connections between textile, architectural and interaction design will open up for new reflective foundations of the design for living in an age of technological innovations, designing for adaptive and responsive environments connecting the scales of the body, the interior and the building. By a combination of in depth specialization, collaborative project work training and company internship, the ESRs of the network will form a highly trained avant-garde ready to take on fundamental challenges both in academia and in the private sector building their work practice on new ideas of material thinking and design thinking with emphasis on sensitive design expressions for reflective living. By strong focus on practice based design research the ETN will contribute to further establish design research at a level similar to that of engineering science in areas of special importance for the design of our future ways of living, which is crusial for academia and private sector collaboration in the given areas of design research.

Coordinator: HOEGSKOLAN I BORAS from:SE

participant: VILNIAUS DAILES AKADEMIJA

participant: AB LUDVIG SVENSSON

participant: UNIVERSITAT DER KUNSTE BERLIN

participant: HERIOT-WATT UNIVERSITY

participant: PHILIPS ELECTRONICS NEDERLAND B.V.

participant: TECHNISCHE UNIVERSITEIT EINDHOVEN

participant: THE ROYAL COLLEGE OF ART

# DECOAT

Project title: Recycling of coated and painted textile and plastic materials

Start Date: 2019-01-01 End Date:2023-01-31

Topic: Smart plastic materials with intrinsic recycling properties by design (RIA)

Most frequent returning words in objectives:

* ('DECOAT', 7)
* ('coatings', 5)
* ('parts', 4)
* ('novel', 4)
* ('additives', 3)
* ('products', 3)
* ('circular', 2)
* ('textiles', 2)
* ('plastic', 2)

The main goal of DECOAT is to enable circular use of textiles and plastic parts with (multilayer) ‘coatings’, which are typically not recyclable yet. These ‘coatings’ comprise functional and performance coatings and paints as well as adhesion layers. Therefore, novel triggerable smart polymer material systems and the corresponding recycling processes will be developed. The triggerable solutions will be based on smart additives (like microcapsules or microwave triggered additives) for the ‘coating’ formulations that will be activated by a specific trigger (heat, humidity, microwave, chemical).   
A continuous recycling pilot plant will demonstrate the novel DECOAT principle that allows upgrading existing mechanical recycling by adding tools for sorting by and activation of the trigger. The optimal use of the Creasolv® process for recycling of coated parts will be assessed. The focus is on recycling of the bulk material, but re-use of the coatings materials themselves will also be tackled. Using these recycling processes, circular use of demo cases for outdoor gear, household electronics and automotive parts will be validated.  
The novel triggerable DECOAT technologies will create new markets for additives, coatings, paints and adhesives fulfilling the recycling need. The concepts will support designers and product developers for making ‘recyclable-by-design’ products. This will create direct business opportunities for the DECOAT partners and serve as examples for promoting DECOAT solutions to the wider stakeholder community.   
The targeted products (parts) are coated plastic from cars, electrical and electronic equipment and coated textiles which produce annually almost 3.5 million tons waste. DECOAT will lead to a decrease in landfilling of ca. 75% and a reduction in the carbon footprint by at least 30% for these products. By enabling their recycling, DECOAT is expected to generate on medium term a novel market of over 150 million in Europe (or ca 500 jobs).

Coordinator: CENTRE SCIENTIFIQUE & TECHNIQUE DE L'INDUSTRIE TEXTILE BELGE from:BE

participant: VAUDE SPORT GMBH & CO KG

participant: INTERNATIONAL SOLID WASTE ASSOCIATION

participant: NATIONAL TECHNICAL UNIVERSITY OF ATHENS - NTUA

participant: FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.

participant: AIMPLAS - ASOCIACION DE INVESTIGACION DE MATERIALES PLASTICOS Y CONEXAS

participant: ECOMATTERS B.V.

participant: INNOVATION IN RESEARCH & ENGINEERING SOLUTIONS

participant: FUNDACION PARA LA PROMOCION DE LA INNOVACION, INVESTIGACION Y DESARROLLO TECNOLOGICO EN LA INDUSTRIA DE AUTOMOCION DE GALICIA

participant: RESCOLL

participant: PANASONIC ECO SOLUTIONS ELEKTRIK SANAYI VE TICARET ANONIM SIRKETI

participant: MERCEDES-BENZ TURK AS

participant: MAIER SCOOP

participant: OPEN SOURCE MANAGEMENT LIMITED

participant: C-TECH INNOVATION LIMITED

participant: DEVAN-MICROPOLIS S.A.

# ThermoTex

Project title: Woven and 3D-Printed Thermoelectric Textiles

Start Date: 2015-06-01 End Date:2020-05-31

Topic: ERC Starting Grant

Most frequent returning words in objectives:

* ('thermoelectric', 6)
* ('health', 3)
* ('textiles', 3)
* ('programme', 3)
* ('order', 2)
* ('realise', 2)
* ('power', 2)
* ('body', 2)
* ('heat', 2)

Imagine a world, in which countless embedded microelectronic components continuously monitor our health and allow us to seamlessly interact with our digital environment. One particularly promising platform for the realisation of this concept is based on wearable electronic textiles. In order for this technology to become truly pervasive, a myriad of devices will have to operate autonomously over an extended period of time without the need for additional maintenance, repair or battery replacement. The goal of this research programme is to realise textile-based thermoelectric generators that without additional cost can power built-in electronics by harvesting one of the most ubiquitous energy sources available to us: our body heat.  
  
Current thermoelectric technologies rely on toxic inorganic materials that are both expensive to produce and fragile by design, which renders them unsuitable especially for wearable applications. Instead, in this programme we will use polymer semiconductors and nanocomposites. Initially, we will focus on the preparation of materials with a thermoelectric performance significantly beyond the state-of-the-art. Then, we will exploit the ease of shaping polymers into light-weight and flexible articles such as fibres, yarns and fabrics. We will explore both, traditional weaving methods as well as emerging 3D-printing techniques, in order to realise low-cost thermoelectric textiles.  
  
Finally, within the scope of this programme we will demonstrate the ability of prototype thermoelectric textiles to harvest a small fraction of the wearer’s body heat under realistic conditions. We will achieve this through integration into clothing to power off-the-shelf sensors for health care and security applications. Eventually, it can be anticipated that the here interrogated thermoelectric design paradigms will be of significant benefit to the European textile and health care sector as well as society in general.

Coordinator: CHALMERS TEKNISKA HOEGSKOLA AB from:SE

# REACT

Project title: REcycling of waste ACrylic Textiles

Start Date: 2019-06-01 End Date:2022-05-31

Topic: Methods to remove hazardous substances and contaminants from secondary raw materials

Most frequent returning words in objectives:

* ('acrylic', 6)
* ('process', 4)
* ('material', 3)
* ('waste', 3)
* ('textiles', 3)
* ('textile', 3)
* ('landfill', 2)
* ('incineration', 2)
* ('virgin', 2)

Recycle is a common word used always more and more but continues to be low in the EU, while landfill and incineration rates remain high. One of the major problems is to have secondary raw material similar to virgin one. This is because of contamination, treatments, and so on, that lowen product performance.  
The REACT proposal will address the management of waste acrylic textiles coming from outdoor awnings and furnishing. A clue issue is the analysis and removal of finishing substances (fluorocarbons, melamine and acrylic resins, anti-mold agents) that affect the secondary raw material purity and their management. Then a mechanical recycling process will be implemented to obtain second life fiber and fabrics, which performance will be tested for best application.  
A full environment friendly process to remove hazardous materials on finishing of waste acrylic textile will be investigated and developed to enhance their recycling, improve sustainability and reduce environmental and health risk. The removing of finishing products via chemical reaction will involve the combination of many factors and has never been studied in this sector.  
Final goal is a fully compatible recycled acrylic textile for reuse and guidelines for hazardous chemicals removing from finished textile with innovative investigation techniques.  
The main objectives of this proposal, 36 months long, are therefore: to remove those substances up to 93%; re-use the acrylic textiles as raw material for other production cycles, also in combination with virgin fibres to reach 3,300 tons total of waste prevented from disposal; reduce the amount of landfill and incineration of acrylic textiles of at least 30% for the outdoor sector (awnings and furnishing).  
At the end of the project, we aim to set recommendations on the design and manufacturing of materials for recyclability and on the recycling process for standardization of the whole process, that would be applied on other sectors.

Coordinator: CENTRO TESSILE COTONIERO E ABBIGLIAMENTO SPA from:IT

participant: JAK SPINNING GYARTO ES KERESKEDELMI KORLATOLT FELELOSSEGU TARSASAG

participant: PARA' SPA

participant: UNIVERSITEIT GENT

participant: ASSOCIATION CETI (CENTRE EUROPEEN DES TEXTILES INNOVANTS)

participant: SOFT CHEMICALS SRL

# GRETE

Project title: Green chemicals and technologies for the wood-to-textile value chain

Start Date: 2019-05-01 End Date:2023-04-30

Topic: Apply emerging breakthrough technologies to improve existing value chains

Most frequent returning words in objectives:

* ('fibres', 7)
* ('GRETE', 4)
* ('cellulose', 4)
* ('pulps', 4)
* ('textile', 3)
* ('man-made', 3)
* ('offer', 3)
* ('chemical', 3)
* ('value', 2)

The GRETE project will tackle the challenges caused by increased global demand for sustainable textile fibres by offering new breakthroughs in the wood-to-textile value chain. The substitution of cotton by man-made cellulose fibres is also necessary because of sustainability issues. Currently the raw material base for the production of man-made cellulose fibres from wood is limited, as only highly processed dissolving grade pulps are used industrially. GRETE will introduce technologies by which paper grade pulps from softwood and hardwood sources can be used as raw material for man-made textile fibres. GRETE will also offer safe and sustainable solvent systems for the production of regenerated cellulose fibres, instead of the present ones which are based on toxic or explosive chemicals. The developed novel solvents are ionic liquids (IL’s), which will be non-toxic, recyclable and synthesized from low-cost industrially available chemicals. GRETE will also develop innovative technologies for chemical modification and enzymatic pre-treatment of pulps prior to cellulose dissolution. Chemical modification carried out either before or after dissolution and regeneration of pulps will bring chemical functionalities to fibres. The modifications either directly improve fiber properties (e.g. decreased fibrillation, improved fire resistance) or offer an easy route to further fibre processing. Improved dye adsorption and chemical reactivity will offer new options for dyeing and finishing treatments of the fibres, enabling e.g. the creation of a water-scarce end to the textile manufacturing value chain as well as open up the possibility for other targeted and water-scarce finishing treatments.

Coordinator: Teknologian tutkimuskeskus VTT Oy from:FI

participant: HELSINGIN YLIOPISTO

participant: METSA SRING OY

participant: CELULOSE BEIRA INDUSTRIAL SA

participant: UNIVERSIDADE DE AVEIRO

participant: UNIVERSITAET FUER BODENKULTUR WIEN

participant: VERTECH GROUP

# TEXDANCE

Project title: TEXtiles in Etruscan DANCE (8th-5th centuries BC)

Start Date: 2019-09-01 End Date:2021-08-31

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('dance', 7)
* ('textiles', 6)
* ('studies', 5)
* ('community', 4)
* ('sources', 3)
* ('approach', 3)
* ('dress', 3)
* ('TEXDANCE', 2)
* ('understand', 2)

TEXDANCE will explore Etruscan dance through textiles from 8th to 5th centuries BC. It will use the visual sources to analyse Etruscan society and its élite’s ritual practices in a multidisciplinary approach. This study will make us understand the movements of dance, their ritual functions, their diversity, their performativity and the social relations which intertwine. This is important to understand as textiles in Etruscan dance in particular reflect a different community organisation from the Mediterranean and contribute to question our contemporary European community organisations. Also, for the first time, the two-way transfer of knowledge between dance studies and costume studies will be connected via an innovative approach. The project combines three types of sources: primarily the iconographic representations as they constitute the most important documentation for Etruria, literary sources and archaeological evidence. TEXDANCE has seven objectives: 1. the types of dress and textiles used in dance; 2. dress motion; 3. the acoustics of textiles; 4. Etruscan fashion and dress identity; 5. Etruscan community organisation; 6. ritual textiles making; and, 7. the visuality of textiles. The comparative and interdisciplinary approach includes the history of dance, rituals and religion, performance studies, ethnoarchaeology, archaeoacoustics, sensory studies, motor praxeology, and visual studies. The application of new digital technologies is a crucial aspect with the opportunity to 3D model how cloths move in dance. Digital humanities will also play a fundamental role in the presentation and diffusion of the results that will be made available thanks to a fully open-access philosophy to the scientific community and the general public. Conceived as such, the project is fundamental for both the proposer and the hosting institution, and it will contribute to European excellence and competitiveness in the creation of a common and widespread European culture and history.

Coordinator: KOBENHAVNS UNIVERSITET from:DK

# TUNICS

Project title: The expression of cultural cross-fertilization in Egyptian clothing of the 7th-10th centuries AD.

Start Date: 2019-09-01 End Date:2021-08-31

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('comparative', 4)
* ('TUNICS', 3)
* ('project', 3)
* ('Egypt', 3)
* ('study', 3)
* ('period', 2)
* ('identity', 2)
* ('field', 2)
* ('archaeology', 2)

The TUNICS project explores the impact of cultural cross-fertilization between the diverse populations in Egypt in the Early Medieval period (7th - 10th centuries AD) through an innovative, comparative study of the tunics, the basic garment in Ancient Egypt, and items par excellence to express their wearers’ identity. TUNICS will be the first comprehensive study of clothing from this period in Egypt and will provide a systematic overview of an almost entirely unexplored field in Egyptian archaeology. Both comparative, experimental archaeology and innovative digital research methods will be used to fully investigate the relationship between the garments and their wearer. This research will be primarily object-based and the comparative analysis of data gathered from various museum collections and archaeological sites will not only enhance the insight in technical crafts knowledge, but will also contribute to the understanding of the development of ancient garments and offer a unique perspective to explore different aspects of cultural identity and society.   
The TUNICS project is hosted by the University of Copenhagen’s Centre for Textile Research (CTR) a world-wide renowned institute in the field of ancient textile studies. The project will benefit from the stimulating and interdisciplinary scientific environment, training opportunities and CTR’s international network.  
The comparative study will be communicated through a series of academic publications and conferences. An Open Access database will be accessible to professionals as well as to a broader audience with interest in costume and textile history.

Coordinator: KOBENHAVNS UNIVERSITET from:DK

# DEEPCAT

Project title: Degradable Polyolefin Materials Enabled by Catalytic Methods

Start Date: 2019-10-01 End Date:2024-09-30

Topic: ERC Advanced Grant

Most frequent returning words in objectives:

* ('groups', 5)
* ('in-chain', 3)
* ('environment', 2)
* ('polymerization', 2)
* ('yield', 2)
* ('particle', 2)
* ('materials', 2)
* ('properties', 2)
* ('Plastics', 1)

Plastics are essential to virtually any modern technology and therefore ubiquitious. However, when released to the environment they can persist for centuries. One pillar of a responsible future economy is therefore to endow important plastics with a non-persistent nature. Polyethylene (PE) is the largest scale synthetic material, used in transportation, energy storage, water cleaning, clothing and many other fields. However, it is most problematic concerning degradability. This proposal addresses this major challenge by introducing photo- and hydrolytically degradable groups in the PE chain. Directly during catalytic PE synthesis, isolated keto groups will be generated by incorporation of small amounts of carbon monoxide. This yet unachieved goal is targeted via catalysts with extreme shielding and rigid ligand environments in heterobimetallic Ni(II) / main group metal complexes. A compartmentalized aqueous polymerization with precise control of high ethylene/CO ratios will yield the in-chain functionalized PE as nano- and microscale particle dispersions. Living catalytic polymerization in nanoparticles is pursued to achieve ultra high molecular weights and gradient PE chains forming nanodomains varying in ketone density. Aqueous heterophase oxidation with benign oxidants on all these nanoparticle will yield in-chain ester groups. Further types of hydrolytically cleavable groups are targeted via the complementary synthetic approach of step growth from seed- or microalgae-oil derived PE-telechelics. This yields linear PE with in-chain carbonate, acetal and anhydride groups. Basic materials properties of all polymers are determined by tensile tests. Degradation studies reflecting a marine environment will indicate the persistency behaviour and fate of microfragments, using macroscopic specimens and the above particles as models. Knowledge of the particle and bulk morphologies will be instrumental to understand the materials and degradation properties.

Coordinator: UNIVERSITAT KONSTANZ from:DE

# TEXTHIOL

Project title: Conductive elastomers with tuneable properties for smart wearable electronics.

Start Date: 2019-06-01 End Date:2021-05-31

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('conductive', 4)
* ('textile', 4)
* ('materials', 4)
* ('properties', 4)
* ('create', 4)
* ('polymers', 3)
* ('products', 3)
* ('electronics', 3)
* ('smart', 2)

Organic conductive polymers are gaining increased interest each day due to their broad applications, low cost and ease of manipulation. Their potential to develop new products that will transform the daily lives of people in Europe and around the world is significant. Among the application areas with the highest potential, smart textiles provide one of the most futuristic and innovative potential products. At present, a conducting polymeric material that can be use directly as textile does not exist primarily a consequence of the poor (brittle) materials properties of conducting polymers. Any such products are created by coating of the conductive material onto the textile or tissue. However the ability to use polymers to create wearable electronics has transformative potential to become a disruptive technology. This proposal aims to create a conductive polymer with elastomeric properties such that it has enhanced materials properties and can therefore be applied directly as scaffold for smart textile creation. To make the polymeric scaffold, the nucleophilic thiol-yne “click” reaction between an activated alkyne and thiol will be used. This pathway will enable retention of the electrical conductivity while presenting the possibility to tune the mechanical properties by choosing the stereochemistry (E/Z) of the unsaturated bond that is formed. Moreover, the elastomeric nature of the resultant materials, presents a unique opportunity to create conductive elastomers that can be easily applied to wearable electronics: able to record electrical signals such as heartbeats or muscular contractions. The project is going to combining the organic synthesis and click chemistry expertise of Mantione with that of conducting polymer synthesis and characterization of Prof. Hadziioannou. The planned secondment is aiming to allied to the expertise of Prof. Malliaras (Cambridge, UK) in wearable electronics: biotest the materials and practically create the textile.

Coordinator: UNIVERSITE DE BORDEAUX from:FR

# PoliticsOfPatents

Project title: Politics of Patents: Re-imagining citizenship via clothing inventions 1820 - 2020

Start Date: 2019-03-01 End Date:2024-02-29

Topic: ERC Consolidator Grant

Most frequent returning words in objectives:

* ('clothing', 4)
* ('women', 2)
* ('citizenship', 2)
* ('patents', 2)
* ('Patent', 2)
* ('research', 2)
* ('inventors', 2)
* ('cyclists', 1)
* ('stigma', 1)

From Victorian women cyclists, who suffered social stigma for daring to replace their skirts with bloomers a century ago, to the recent French burkini ban, where women were forcibly removed from beaches, specifically clothed bodies have long been sites of debate about gender, race, class and religion in public space. Clothing is directly connected to social life and the political world and as such is central to ideas around the politics of identity, participation and belonging. Yet, it is under explored in relation to citizenship studies. This five-year project undertakes for the first time a transnational sociological investigation of 200 years of clothing inventions. It focuses on clothing patents in Espacenet, the European Patent Office’s free online database. Inventors are the focus as they operate on the cutting edge of social and political change; building on the past to make claims on the present and imagine different futures. Central to this research is the idea that clothing inventors can be explored as citizen-makers and that clothing patents are rich untapped sources of data that render visible alternative citizenship possibilities, which may provoke new questions about things we take for granted. The research will be located in a Patent Lab using an inventive mixed-methods approach including quantitative and in-depth visual and document analysis, interviews with inventors and garment reconstruction.

Coordinator: GOLDSMITHS' COLLEGE from:UK

# SINTEC

Project title: Soft intelligence epidermal communication platform

Start Date: 2019-01-01 End Date:2022-12-31

Topic: Flexible and Wearable Electronics

Most frequent returning words in objectives:

* ('technology', 4)
* ('SINTEC', 3)
* ('manufacturing', 3)
* ('bodies', 2)
* ('sensors', 2)
* ('smart', 2)
* ('devices', 2)
* ('market', 2)
* ('results', 2)

Electronics are set to merge with our bodies to extend our perceptions. Smartphones and watches will give way to the bodyNET: a network of sensors and smart devices woven into our clothing, worn on our skin and implanted in our bodies. Smart wearables are the next step in the Internet of Things wearable evolution. This market is one of the most vigorous over the coming years. SINTEC addresses a market, in terms of size, that reach over €70BN by 2026.   
A large amount of scientific results have emerged and a few start-ups are focused on stretchable electronics and sensors that employ liquid alloys for interconnects and passive components. However, there are until today no dedicated commercial equipment for manufacturing of such devices. This hinders large-scale industrial exploration and needs to be addressed.  
By a novel manufacturing technology for large area rigid-stretch PCB and integration, SINTEC will provide soft, sticky and stretchable sensor patches that can be used multiple times and at longer periods. With its dynamic compliance and water repellent permeable encapsulation it withstands vigorous action, sweating and water; making it ideal for an active life. A ground breaking intra body communication technique gives large bandwidth and secure consumption at low power, allowing for multiplex sensoric inputs from many nodes on the body.  
To demonstrate the advantages of the novel technology, SINTEC will apply it in clinical environment and in athletics performance evaluation. Industrial partners will exploit the results in manufacturing technology, Fat-IBC, and in soft compliant smart patch applications, e.g., in preventive care, sports and fitness, and medical technology.

Coordinator: UPPSALA UNIVERSITET from:SE

participant: MITTUNIVERSITETET

participant: ISTITUTO SUPERIORE MARIO BOELLA SULLE TECNOLOGIE DELL'INFORMAZIONE E DELLE TELECOMUNICAZIONI ASSOCIAZIONE

participant: EVALAN BV

participant: MYCRONIC AB

participant: FONDAZIONE LINKS - LEADING INNOVATION & KNOWLEDGE FOR SOCIETY

participant: MYSPHERA SL

participant: STMICROELECTRONICS SRL

# REFREAM

Project title: Re-Thinking of Fashion in Research and Artist collaborating development for Urban Manufacturing

Start Date: 2018-12-01 End Date:2021-11-30

Topic: STARTS  The Arts stimulating innovation

Most frequent returning words in objectives:

* ('manufacturing', 5)
* ('hubs', 4)
* ('artists', 3)
* ('research', 3)
* ('technology', 3)
* ('fashion', 3)
* ('production', 3)
* ('support', 2)
* ('Berlin', 2)

Re-FREAM will support art-driven innovation in European R&I projects by inclusion of artists in research consortia via linked third-parties with strong support from art-related partners like the Art University of Linz (UFG) and the European Institute of Design (IED), creative hubs and facilitators like Wear-IT Berlin (FashionTech), AITEX, ARCA and Creative Region combined with remarkable technology from IZM Fraunhofer (E-textiles) Stratasys, Haratech (3D-printing), EMPA (3D bodyshaping), Care applications (Garement nebulization) and Profactor (Additive manufacturing). STARTS lighthouse pilot for “art-inspired urban manufacturing of fashion” will engage industry, technology, end-users and artists in a broad artistic exploration of technologies with the aim of creating a new urban manufacturing value chain for Fashion production The Art/ Tech Co. Research will be initiated by an European wide open call for artists answering specific challenges in “Additive Manufacturing” “Electronic and Textiles” and “Sustainable Finishing of Fashion” and will be explored in 3 identical research hubs providing access to high end technology, material, know how and facilities and interconnected through common research activities. In co-creation processes of 20 awarded Artist/ Researcher teams, digitalized manufacturing of fashion will be developed up to TRL 5 to enable small-scale production of fashion in urban environment in an co. creation process. Out of this developed RE- FREAM technologies, Urban Manufacturing in Europe will be made possible in European cities with customized design creation (IED), small scale production hubs (HAR, CAR and IZM linked with the Berlin Maker Space Labs. CRE, WIB and ARC will facilitate cooperation and knowledge transfer between both worlds. An Open-Innovation Platform will finally link the know how and the communities of the hubs, will offer access to relevant facilities and make the RE-FREAM art-inspired urban manufacturing working model sustainable

Coordinator: CREATIVE.REGION LINZ & UPPER AUSTRIA GMBH from:AT

participant: ISTITUTO EUROPEO DI DESIGN SL

participant: UNIVERSITAT FUR KUNSTLERISCHE UND INDUSTRIELLE GESTALTUNG LINZ

participant: CONSORZIO ARCA - CONSORZIO PER LA PROMOZIONE DELLE APPLICAZIONI DELLA RICERCA E LA CREAZIONE DI AZIENDE INNOVATIVE

participant: FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.

participant: ASOCIACION DE INVESTIGACION DE LA INDUSTRIA TEXTIL

participant: HARATECH GMBH

participant: STRATASYS LTD

participant: CARE APPLICATIONS SL

participant: WEAR IT BERLIN GMBH

participant: PROFACTOR GMBH

# WEARPLEX

Project title: Wearable multiplexed biomedical electrodes

Start Date: 2019-01-01 End Date:2021-12-31

Topic: Flexible and Wearable Electronics

Most frequent returning words in objectives:

* ('electrodes', 8)
* ('electronics', 5)
* ('WEARPLEX', 3)
* ('stimulation', 3)
* ('electrode', 3)
* ('pads', 3)
* ('system', 3)
* ('multi-pad', 2)
* ('number', 2)

WEARPLEX is a multidisciplinary research and innovation action with the overall aim to integrate printed electronics with flexible and wearable textile-based biomedical multi-pad electrodes. It aims to answer the growing need for user-friendly electrodes for pervasive measurement of electrophysiological signals and application of electrical stimulation. It focuses on the development of the printable electronics and manufacturing processes for stretchable textile based multi-pad electrodes with integrated logic circuits that enable a significant increase in the number of electrode pads (channels) and facilitate the creation of new products in the sectors of medical electronics and life-style. The advanced printed electronics integrated in WEARPLEX electrodes will allow the individual pads to be connected in arbitrary configurations to the output leads of the electrode. Therefore, the pads will be flexibly organized into several virtual electrodes of arbitrary position, shape and size that can be connected to any standard multi-channel recording and stimulation system. In addition, software methods will be developed for automatic calibration of these virtual electrodes, to detect stimulation/recording hotspots and adjust the virtual electrodes accordingly.   
  
Therefore, the WEARPLEX project will lead to a new generation of smart electrodes that will be able to adapt simultaneously to the user (wearable and stretchable garment), recording/stimulation scenario (movement type and target muscles) and recording/stimulation system (number of channels). This is a paradigm shift in designing the recording and stimulation systems, as the switching electronics is shifted from the custom-made stimulator/recording device to the smart electrode, leading to a universal solution compatible with any system.

Coordinator: UNIVERSITY OF SOUTHAMPTON from:UK

participant: ABALONYX AS

participant: FUNDACION TECNALIA RESEARCH & INNOVATION

participant: RISE RESEARCH INSTITUTES OF SWEDEN AB

participant: SCREENTEC OY

participant: TECHNISCHE UNIVERSITAET CHEMNITZ

participant: IDUN TECHNOLOGIES AG

participant: AALBORG UNIVERSITET

# CORTI

Project title: CO-OPERATIVE ROBOT APPLICATION IN THE TEXTILE INDUSTRY FOR FANCY YARN MACHINE

Start Date: 2018-06-01 End Date:2018-11-30

Topic: SME instrument

Most frequent returning words in objectives:

* ('textile', 3)
* ('industry', 2)
* ('industries', 2)
* ('machines', 2)
* ('collaborative', 2)
* ('Gualchieri', 2)
* ('Textile', 1)
* ('world', 1)
* ('sustain', 1)

Textile industry is one of the largest industries in the world. To sustain its commercial success it becomes imperative to produce goods of high quality at reasonable prices to achieve customer satisfaction, which asks for continuous modernization of the textile machines.  
Each step towards innovation means streamlining activities with a versatile approach to minimize the manpower in the intensive and repetitive jobs. It is expected to have an incremental level of automatization in the textile industries implemented with human-robot collaborative models, where humans are doing “customization” tasks.  
CORTI project idea was born with the aim to facilitate the introduction of collaborative robot in the spinning area of the textile industry with a special outlook, at this stage, to the fancy yarn machines designed, produced and selled by Gualchieri&Gualchieri.

Coordinator: GUALCHIERI E GUALCHIERI & C. SRL from:IT

# XIMOFILM

Project title: The first ultra-low extractable silicone film release liner for electronics, silicone adhesive market and medical applications

Start Date: 2018-08-01 End Date:2018-11-30

Topic: SME instrument

Most frequent returning words in objectives:

* ('silicone', 9)
* ('release', 7)
* ('liners', 5)
* ('solvent', 4)
* ('contamination', 3)
* ('sector', 3)
* ('resistant', 3)
* ('present', 3)
* ('XIMOFILM', 3)

Today, silicone contamination is one of the main challenges for players of the electronics sector which require the use of Pressure Sensitive Adhesives (PSA). Silicon contamination can drive to 10-20% of defective products. The release liners used for this PSA require low levels of extractible silicone (<20 ng/cm²). Besides, the adhesives used in the electronic market are solvent based. Today, solvent resistant release liners present still high levels of extractible silicone. On the other hand, those release liners with low extractible silicone are not solvent resistant and often do not present high subsequent adhesion. XIMOFILM is also a release liner addressed to the medical sector, where silicone and soft silicone gel adhesives are increasingly used. In this sector the release liners must also present low level of extractible silicones.   
Founded in 2001, CPI is a spin-off French pioneering company offering complete service for industrial atmospheric plasma integration addressed to professionals of packaging, printing, polymer transformations and textiles. Thanks to the optimisation and industrialisation of our cold atmospheric plasma technology, CPI will offer the first ultra-low extractable film silicone release liners with good release force properties (low) and high subsequent adhesion of the adhesive (more than 90% compared to 65% of current competitors), solvent resistant and with very low silicone contamination (<10ng/cm²). The production cost will be also reduced, allowing to purchasing prices 30% cheaper than our competitors.   
For this Phase 1, we will focus on the technical and financial feasibility of XIMOFILM process and well define the business model to extend our commercial network to Europe and Asia. For CPI, this project will imply a ROI of 9% in 2024. For end users, XIMOFILM will represent an opportunity to reduce damaged final products due to silicone which would save them up to 15% due to after sales services and wasted devices.

Coordinator: COATING PLASMA INNOVATION SAS from:FR

# CLEANprocesses

Project title: Gaining an in-depth understanding of the technical feasibility and commercialization potential for the cold-active amylase enzyme

Start Date: 2018-06-01 End Date:2018-11-30

Topic: SME instrument

Most frequent returning words in objectives:

* ('enzyme', 7)
* ('enzymes', 7)
* ('market', 4)
* ('producers', 4)
* ('AmyI3C', 3)
* ('Enzymes', 2)
* ('detergents', 2)
* ('goal', 2)
* ('discover', 2)

CLEANprocesses (CoLd-active Enzymes and New sustainable Processes) will analyse the technical feasibility of a cold-active amylase enzyme as well as its commercial potential in various markets.   
Enzymes are a key ingredient in many consumer products, such as food & drinks, textile, pharmaceuticals and detergents, and the enzyme market has become a multibillion dollar industry worldwide. For decades, it has been a goal for enzyme producers to discover truly cold-active enzymes, due to their performance at low temperature industrial processes resulting in significant reduction in energy and costs. However until now, results have been insufficient, as only partially cold-active enzymes have been achieved.  
The cold-active enzymes on the market are mainly active at temperatures down to 30° and the best in class is active down to 16°. But if the goal is to be able to use these enzymes in tap water with a temperature around 7°, there is still a long way to go as even the best in class will be almost inactivated at this level.   
Coldzymes (CZ) is the first company in the world to discover and develop truly cold-active enzymes with industrial relevance and potential. These stem from ikaite pillars in Greenland, which are made up of unusual minerals that precipitate when ion-rich spring water from Greenland mixes with seawater. In particular, CZ has discovered the α-amylase AmyI3C6, which has already been proven in cold wash detergents. It acts optimally at 5-20°C and still maintains over 70% of its activity at 0-1℃.   
The market for enzymes is global, and the top three enzyme producers hold app. 75 % of the market share. CZ will develop and test the cold-active AmyI3C6 before selling the DNA sequence to the large enzyme producers. In turn CZ will receive royalties for the sales of the AmyI3C6, as the enzyme producers will include it in their portfolios on equal terms with their other enzymes. This business model entails that the enzyme is commercialised broadly.

Coordinator: NUNAZYMES APS from:GL

# APOLO

Project title: SmArt Designed Full Printed Flexible RObust Efficient Organic HaLide PerOvskite solar cells

Start Date: 2018-04-01 End Date:2022-03-31

Topic: Developing the next generation technologies of renewable electricity and heating/cooling

Most frequent returning words in objectives:

* ('technology', 4)
* ('materials', 4)
* ('APOLO', 4)
* ('market', 3)
* ('cost', 3)
* ('solar', 2)
* ('cells', 2)
* ('generation', 2)
* ('lead', 2)

Perovskite solar cells (PSC) have shown an impressive learning curve in the last decades in comparison with 1st, 2nd and initial 3rd generation solar cells (such as DSSC and OPV). Since the very beginning, the main market demands for 3rd generation PV were more flexibility and more colour choices. Both of these ideal properties lead to new business opportunities in BIPV, electronic consumer goods, textiles, etc. These technologies also have low cost using fully printing process, low temperature processes and out of clean rooms which reduce the production cost. The most important problem in PSC technology is the short lifetime which is currently the main barrier for the marketability of PSC. Up to now all the developed PSC used cheap materials and/or solution which did not exhibit high efficiencies. In contrast high efficiency PSCs usually require relatively expensive materials and vacuum deposition process. PSC toxicity is considered to be negligible since the amount of lead in perovskite layer is not so relevant if it is compared against Si technology, nevertheless, the solvent toxicity should be taken in account in order to benefit industrialization of PSC products. APOLO consortium will surpass the aforementioned barriers for market deployment by providing flexible and stable PSCs using scalable and low cost processes, reducing amount of toxic materials tackle the challenges to provide market niches solutions. APOLO developments will ensure to enhance the TRL of PSC technology. APOLO consortium will work on advanced materials, from cell to encapsulant to develop flexible PSC, fully printable, with efficiency of 22% with at least 80% of initial performance after relevant accelerated test from standards. APOLO solutions will allow the development of a totally new product by integrating the modules into the architecture design of buildings. New applications of this technology open doors to other markets apart from BIPV, such as automotive, textile, etc.

Coordinator: ACONDICIONAMIENTO TARRASENSE ASSOCIACION from:ES

participant: UNIVERSITA DEGLI STUDI DI ROMA TOR VERGATA

participant: FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.

participant: COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES

participant: ACCUREC-RECYCLING GMBH

participant: ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE

participant: UNINOVA-INSTITUTO DE DESENVOLVIMENTO DE NOVAS TECNOLOGIAS-ASSOCIACAO

participant: GREATCELL SOLAR ITALIA SOCIETA' A RESPONSABILITA' LIMITATA

participant: ARKEMA FRANCE SA

participant: FLEXBRICK SL

# MoMa

Project title: Mobility and management of cattle in Iron Age and Roman Netherlands

Start Date: 2018-03-01 End Date:2020-02-29

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('cattle', 9)
* ('research', 4)
* ('management', 4)
* ('Iron', 4)
* ('Roman', 4)
* ('period', 4)
* ('investigate', 4)
* ('analysis', 4)
* ('project', 3)

This research project aims to study long-term developments in cattle management and mobility in the Netherlands, from the Iron Age to the Roman period (750 BC – AD 450). Cattle have always played a crucial role in this region, in supporting arable farming by traction and manure, in providing food in the form of meat and dairy products, and in providing raw materials for clothing and artefacts. Our understanding of cattle management could be improved enormously by an integrated study of traditional and newer methods of research.   
The main objectives of the research project are:  
• to investigate movements of cattle in the Iron Age, indicating exchange and/or raiding;  
• to investigate movements of cattle in the Roman period, indicating import and/or local supply;  
• to investigate whether the size increase of cattle in the Roman period was a direct result of the incorporation in the Empire, or whether it should be seen as a continuation of developments that started in the Iron Age;  
• to provide a comprehensive view of cattle management in the Iron Age and Roman period.   
The objectives will be achieved through the applied methodology, which consists of three lines. First, through Strontium isotope analysis, the local or non-local origin of cattle can be established. Second, biometrical analysis will be used to investigate developments in shape and size over time. And third, mortality profiles offer insight into how cattle were exploited.   
Two work packages correlate to the first two methods, while the third combines the results from the other work packages with mortality data to obtain a comprehensive view of cattle management. A fourth work package is concerned with dissemination of the results among an academic and non-academic audience, while the fifth covers training in statistics and transferable skills.  
The project will provide the applicant with specific research skills (stable isotope analysis, biometrical analysis) that are still underused in the Netherlands.

Coordinator: THE UNIVERSITY OF SHEFFIELD from:UK

# HIPER-YARN

Project title: High performance yarn for public transport, home textiles and protective wear

Start Date: 2018-06-01 End Date:2018-11-30

Topic: SME instrument

Most frequent returning words in objectives:

* ('HIPER-YARN', 6)
* ('yarns', 5)
* ('EGARFIL', 4)
* ('market', 4)
* ('textile', 2)
* ('upholstery', 2)
* ('resistance', 2)
* ('performance', 2)
* ('process', 2)

This project represents a breakthrough innovation for EGARFIL as it aims to introduce to the market HIPER-YARN, a new product, which represents a technological advance in the field, not comparable with state-of-the-art solutions.   
  
HIPER-YARNs are advanced composite textile materials that EGARFIL developed driven by the market need of yarns resistant to cutting for anti-vandal applications, in particular for public transportation seating upholstery. Bus and train operators spend millions each year to repair vandal acts across the EU that could be reduced by using high resistance and cut-proof yarns in their textile seating upholstery.  
  
HIPER-YARN has a performance outclassing current yarns available in the market (50% more resistance, 40% more durable). It is manufactured by using the worsted spinning process while current products are made of filament yarns or by using the cotton spinning process. The unique selling points of HIPER-YARN are: (a) high performance surpassing those of continuous filament yarns, (b) better aesthetics and touch feeling, (c) increased durability and (d) significantly lower cost both by the composition and due to its easier downstream processing ability  
  
HIPER-YARN has the potential to enter several high-end markets (MOBILTECH, HOMETECH and PROTECH). A total of 9 current customers (national and EU) are interested in HIPER-YARN and there are 21 more identified which are not customers at this moment, but are potential consumers.  
Estimated target sales for HIPER-YARN are to reach 8.4M€ in 2024 in this sector with a profit of 1M€ based on a 12% gross profit margin after an additional investment of 550k€ (3.7 ROI). This expansion will create 9 full-time jobs in EGARFIL from 2021 to 2024.  
  
The main result of phase 1 will be the feasibility study including a business plan. This will enable EGARFIL better assess the market opportunity, technical requirements and viability, identify key players and establish initial contacts with key stakeholders.

Coordinator: SOCIEDAD ANONIMA HILADOS EGARFIL from:ES

# MASTRO

Project title: Intelligent bulk MAterials for Smart TRanspOrt industries.

Start Date: 2017-12-01 End Date:2021-05-31

Topic: Architectured /Advanced material concepts for intelligent bulk material structures

Most frequent returning words in objectives:

* ('transport', 4)
* ('materials', 3)
* ('polymer', 3)
* ('composites', 3)
* ('concrete', 3)
* ('formulations', 3)
* ('Project', 2)
* ('intelligent', 2)
* ('sector', 2)

MASTRO Project aim is to develop intelligent bulk materials for the transport sector based on the novel concepts like self-sensing, self-deicing, self-curing, self-healing and self-protection methodologies to increase consumer safety, component life-span and performance while reducing maintenance and manufacturing costs. The functionality of the developed components will be demonstrated under relevant conditions at prototype level for the aerospace, automotive and transport transport networks. These developments will be supported by theoretical material models to capture the self-responsive functionalities. The outputs of the Project will consist of numerous applications in these sectors.  
The matrices addressed consist of lightweight polymer composites like glass/carbon fibre reinforced polymers and thermoplastic materials (including melt-spinning for textiles used in the transport sector) together with asphalt and concrete formulations incorporating electrical carbon-based conductive nanomaterials. These self-responsive functionalities are based on two physical phenomena: piezoresistivity and Joule effect. The aim of self-responsiveness properties can be summarized as follows:  
Self-sensing: to confer to the intelligent components the ability to monitor/store data about its own condition in terms of vibrations, defects, fatigue, creep and strain.  
Self-deicing: to avoid the ice layer formation or the loss of performance due to cold weather.   
Self-curing: to increase quality and durability while reducing manufacturing cost of the polymer composites and cement concrete formulations by improving the curing process step.  
Self-healing: to aid the repair of polymer composites and asphalt concrete formulations by healing those materials without the need of an external and expensive maintenance operation.  
Self-protection: to minimize the failure occurrence in case of electrostatic charge accumulation or lightning impacts by discharging the voltage through the smart component

Coordinator: ACCIONA CONSTRUCCION SA from:ES

participant: UNIVERSIDAD DE ALICANTE

participant: UNIVERSITA DEGLI STUDI DI SALERNO

participant: BSRIA LIMITED

participant: ALKE SRL

participant: EMBRAER PORTUGAL SA

participant: THE UNIVERSITY OF SHEFFIELD

participant: DIAD GROUP SRL

participant: CENTRO DI RICERCHE EUROPEO DI TECNOLOGIE DESIGN E MATERIALI

participant: SUPERIOR GRAPHITE DEUTSCHLAND GMBH

participant: CENTRO TECNOLOGICO DAS INDUSTRIAS TEXTIL E DO VESTUARIO DE PORTUGAL

participant: AXIA INNOVATION UG

participant: APPLYNANO SOLUTIONS S.L.

participant: CENTRE TECHNIQUE INDUSTRIEL DE LA PLASTURGIE ET DES COMPOSITES

participant: ARKEMA FRANCE SA

# DiReC-IL

Project title: Computer Simulation of the Dissolution and Regeneration of Cellulose from Ionic Liquids

Start Date: 2017-01-01 End Date:2018-12-31

Topic: Marie Skłodowska-Curie Individual Fellowships (IF-EF)

Most frequent returning words in objectives:

* ('cellulose', 4)
* ('technologies', 4)
* ('applications', 3)
* ('dissolution', 3)
* ('molecular', 3)
* ('importance', 2)
* ('novel', 2)
* ('fibers', 2)
* ('need', 2)

The technological importance of cellulose, the most abundant and most widely used organic material on Earth is paramount with a very versatile range of applications. It constitutes the basis, among others, for paper and textile industries. Two emerging applications have been gaining importance and substantial attention: one is developing new fiber reinforced nanocomposites. The other novel application is as a carbon-neutral and renewable source for the production of biofuels. Due to its recalcitrance, cellulose fibers always need pre-treatment before actual applications. Traditional techniques work with harmful compounds constituting great environmental risk. In line with the Europe 2020 strategy, cheap and environmentally friendly technologies need to be promoted to achieve a more sustainable and resource efficient economy. Ionic liquids, a novel class of complex solvents with unique properties and a great potential to revolutionize chemical technologies, have been applied as dissolution media for processing cellulose, which has already led to cheaper and “greener” methods. To further develop these technologies, a thorough understanding of the molecular details of the dissolution and recrystallization processes is needed. Although considerable efforts have been dedicated to it, this has not yet been achieved. In this project we propose a new molecular simulation based approach by using enhanced sampling techniques to elucidate the molecular details of the slow and intricate dissolution and recrystallization processes. Unlike previous studies, we will start by investigating glucose and then increase the complexity of the system through larger oligomers enabling us to extrapolate our results eventually to cellulose fibers. This new systematic bottom-up approach will decrease the arbitrariness which previous studies suffered from. We expect the long-term impact of this project immense leading to new innovations and more efficient green technologies.

Coordinator: UNIVERSITAT WIEN from:AT

# SOMATCH

Project title: Support IT solution for creative fashion designers by integrated software systems to collect, define and visualize textile and clothing trends through innovative image analysis from open data

Start Date: 2015-01-01 End Date:2016-06-30

Topic: Support the growth of ICT innovative Creative Industries SMEs

Most frequent returning words in objectives:

* ('fashion', 5)
* ('data', 4)
* ('SOMATCH', 3)
* ('visualization', 3)
* ('image', 3)
* ('analysis', 3)
* ('users', 3)
* ('design', 2)
* ('collection', 2)

The objective of the SOMATCH is to improve the competitiveness of EU SMEs in Textile and Clothing (T&C) and design focused sectors by the collection, definition and visualization by ad hoc interfaces of fashion trends. SOMATCH will provide creative designers with detailed and reliable trends estimations and forecasts of user acceptance. Its goal will be achieved by the creation of an innovative tool for the mining and visualization of large sets of unstructured data, related to the use and preferences of fashion products by consumers, supporting T&C companies quick reaction to the market dynamics and better adaptation of design to real consumers’ demand.  
SOMATCH faces this complex and challenging deal by the combined development and application of SoA advanced image analysis technology, unexploited and innovative in clothing and fashion, combined with social network analysis. Its results will be presented to interested end users by dedicated interfaces and instruments: mobile devices as well as ad hoc visualization tools will be explored for this purpose.   
The visualisation of the generated data will be performed from off-line statistics, generated after data processing, and by new real-time instruments for image collection and evaluation of designs. They will be targeted also by the integration of the systems with new SoA mobile and wearable (for ex. Google Glass) devices to collect information and to visualise trend interpretation. This approach will open a vast field of new approaches for the fashion designers, supporting final users involvement into the whole trend evaluation and a close interaction with them.  
To reach this purpose Somatch consortium includes research centres expert in image and content analysis (TUM, UPC), software providers experts in data management, platform development and fashion tools (Holonix. Sparsity, Ideal), end users from SME textile industry and retail (DENA) and social networking and e-commerce (Weblogs, NJAL).

Coordinator: UNIVERSITAT POLITECNICA DE CATALUNYA from:ES

participant: HOLONIX SRL

participant: MANDELLI LAURA

participant: TECHNISCHE UNIVERSITAET MUENCHEN

participant: I-DEAL S.R.L.C.R.

participant: NOT JUST A LABEL LIMITED

participant: SPARSITY SL

# BIOMOTIVE

Project title: Advanced BIObased polyurethanes and fibres for the autoMOTIVE industry with increased environmental sustainability

Start Date: 2017-06-01 End Date:2021-05-31

Topic: Bio-based polymers/plastic materials with new functionalities for medical, construction, automotive and textile industries

Most frequent returning words in objectives:

* ('materials', 4)
* ('properties', 4)
* ('production', 4)
* ('project', 3)
* ('plastic', 2)
* ('polyurethanes', 2)
* ('developed', 2)
* ('pave', 2)
* ('ground', 2)

Vehicles are composed by different materials and a noticeable and fundamental fraction of them (20% w/w) is constituted by plastic material, among which polyurethanes. PU is fundamental since, thanks to its properties, it enables to reduce the overall weight of the car, resulting also in a lower fuel consumption. More and more vehicles’ manufacturers and suppliers are betting on biobased alternatives derived from renewable raw materials, but a biobased plastic able to mimic technical properties of PUs as well as to provide the required aesthetics and haptics has not been developed yet. The BIOMOTIVE project will pave the ground towards the production and subsequent market penetration of biobased automotive interior parts with enhanced technical performance, improved environmental profile and economic competitiveness, with the aim of replacing the fossil-based, non-biodegradable counterparts. Within the project, innovative and advanced biobased materials with an increased biobased content (60-80%), i.e. thermoplastic polyurethanes, 2-components thermoset polyurethane foams and regenerated natural fibres, will be produced starting from renewable biomass feedstock not in competition with food and feed, leveraging innovative production techniques. Such materials will be validated into cars’ interior parts (door handles and automotive seats) demonstrating advanced properties in terms of resistance to fire, mechanical strength and flexibility as well as improved recyclability of the end-of-life products. The project will also aim at demonstrating an innovative process for the production of 100% biobased NIPUs, with moisture-repellant properties. The involvement of external industrial players thorough targeted dissemination events will pave the ground to the widening of the market applications of the developed biomaterials: regenerated fibres from paper-grade wood pulp into textile production and biobased TPUs in nature based solutions within the construction sector.

Coordinator: SELENA LABS SPOLKA Z OGRANICZONA ODPOWIEDZIALNOSCIA from:PL

participant: NOVAMONT SPA

participant: PATENTOPOLIS BV

participant: LEDA POLYMER SP ZOO

participant: THURINGISCHES INSTITUT FUR TEXTIL-UND KUNSTSTOFF-FORSCHUNG RUDOLSTADTEV

participant: INSTYTUT CIEZKIEJ SYNTEZY ORGANICZNEJ BLACHOWNIA

participant: INTAP TOBIK SPOLKA JAWNA

participant: UNIVERSITA DI PISA

participant: METSA FIBRE OY

participant: E-OFFICE7 SPOLKA Z OGRANICZONA ODPOWIEDZIALNOSCIA

participant: UNION INTERNATIONALE DES TRANSPORTS PUBLICS

participant: RINA SERVICES SPA

participant: MAIER SCOOP

participant: FUNDACION CARTIF

participant: NADIR SRL

# MyoSuit

Project title: The MyoSuit – mobility assistance for everyday life

Start Date: 2019-06-01 End Date:2019-11-30

Topic: SME instrument

Most frequent returning words in objectives:

* ('impairments', 3)
* ('MyoSuit', 3)
* ('life', 2)
* ('simple', 2)
* ('population', 2)
* ('years', 2)
* ('support', 2)
* ('muscle', 2)
* ('algorithms', 2)

Mobility impairments can affect a person’s quality of life by making simple everyday tasks difficult or impossible to perform. These impairments may be the result of genetic disorders, a neurological injury, or simply ageing. Since many of these conditions cannot be cured with the current state of medical care available, the best option to regain—or maintain—mobility is to use assistive technologies.  
  
In Europe, 9.7% of the population of working age (15-64 years old) report difficulties with walking, sitting, standing, or lifting and carrying objects. For those over 65 years old—a segment of the population with a spending capacity of over €3,000 billion—age-related impairments are expected to grow from 68 million in 2005 to 84 million in 2020.  
  
To address this growing need for assistive devices that support users in their daily lives we have created the MyoSuit. The MyoSuit is a lightweight garment-like device that combines robotics with functional textiles to function as a wearable muscle. This wearable muscle uses novel algorithms and sensing technology to deliver continuous force assistance in an e-bike-like manner. With these intelligent algorithms, the MyoSuit detects the user’s movement patterns and provides optimal support to the lower limbs across activities of daily life such as walking, stair negotiation, and sitting transfers.  
  
We envision a future where technology for mobility assistance is simple, intuitive and—borrowing from the WHO’s approach to ageing and health—allows people to do the things they value for as long as possible.

Coordinator: MYOSWISS AG from:CH

# 3DAddChip

Project title: Additive manufacturing of 2D nanomaterials for on-chip technologies

Start Date: 2019-09-01 End Date:2024-08-31

Topic: ERC Consolidator Grant

Most frequent returning words in objectives:

* ('devices', 5)
* ('miniaturization', 3)
* ('technologies', 3)
* ('on-chip', 3)
* ('research', 3)
* ('energy', 3)
* ('process', 2)
* ('sensors', 2)
* ('goal', 2)

The realization of “the internet of things” is inevitably constrained at the level of miniaturization that can be achieved in the electronic devices. A variety of technologies are now going through a process of miniaturization from micro-electromechanical systems (MEMS) to biomedical sensors, and actuators. The ultimate goal is to combine several components in an individual multifunctional platform, realizing on-chip technology. Devices have to be constrained to small footprints and exhibit high performance. Thus, the miniaturization process requires the introduction of new manufacturing processes to fabricate devices in the 3D space over small areas. 3D printing via robocasting is emerging as a new manufacturing technique, which allows shaping virtually any materials from polymers to ceramic and metals into complex architectures.   
The goal of this research is to establish a 3D printing paradigm to produce miniaturized complex shape devices with diversified functions for on-chip technologies adaptable to “smart environment” such as flexible substrates, smart textiles and biomedical sensors. The elementary building blocks of the devices will be two-dimensional nanomaterials, which present unique optical, electrical, chemical and mechanical properties. The synergistic combination of the intrinsic characteristics of the 2D nanomaterials and the specific 3D architecture will enable advanced performance of the 3D printed objects. This research programme will demonstrate 3D miniaturized energy storage and energy conversion units fabricated with inks produced using a pilot plant. These units are essential components of any on-chip platform as they ensure energy autonomy via self-powering. Ultimately, this research will initiate new technologies based on miniaturized 3D devices.

Coordinator: IMPERIAL COLLEGE OF SCIENCE TECHNOLOGY AND MEDICINE from:UK

# smartX

Project title: Accelerating Smart Textile Entrepreneurship by Innovative Cross-regional, Cross-disciplinary and Cross-cultural Value Chains

Start Date: 2019-05-01 End Date:2022-04-30

Topic: Cluster facilitated projects for new industrial value chains

Most frequent returning words in objectives:

* ('smartX', 8)
* ('textiles', 5)
* ('value', 5)
* ('smart', 4)
* ('chain', 4)
* ('funding', 4)
* ('technology', 2)
* ('market', 2)
* ('manufacturing', 2)

smartX will match smart textiles technology with end market demand by filling the current industrial manufacturing gap. To realise this, smartX will establish a novel industrial value chain composed of SMEs and start-ups from textiles, designers, (micro)electronics, data processing, IoT, manufacturing technology, distributors, funding providers and end users.  
The smartX core is funding a portfolio of at least 40 Trailblazer projects, which will pioneer one or more stages of the novel smart textiles value chain. Independent external experts will select these small cross-sectorial, cross-cultural and cross-regional innovation actions that will be co-funded by smartX via an open call system. The projects will be supported from start to end via the smartX Coaching Approach covering all relevant multidisciplinary aspects and delivered by specially trained cluster managers. We will focus on protective wear, industrial applications and healthcare & wellbeing end markets.  
Trailblazer project formation will be supported by an open collaboration platform (target > 150 company members) that will support smart textiles value chain building. The platform will be maintained and extended beyond smartX. We will build on the successful WORTH project for implementing small funding schemes. We will apply the award-winning Innovation Potential Audit and will link with REGIOTEX, a thematic partnership of 15 regions under the S3 Platform on Industrial Modernisation to leverage follow up funding. smartX unites 8 clusters (accessing over 60.000 SMEs across Europe), 2 RTOs (for technological assistance) and 3 innovation support entities.  
The wearables market is estimated at ca €150 billion (2026). Assuming smart textiles will take 10%, the new value chain targeted by smartX represents in Europe ca €5.5 billion or ca 22.000 jobs. US and Asia are setting up significant public and private investments, so European action is needed not to miss this value and job creating opportunity.

Coordinator: PLATE-FORME TECHNOLOGIQUE EUROPEENNE POUR LE FUTURE DU TEXTILE ET DE L'HABILLEMENT from:BE

participant: STEINBEIS INNOVATION GGMBH

participant: CENTRE SCIENTIFIQUE & TECHNIQUE DE L'INDUSTRIE TEXTILE BELGE

participant: CENTRO TECNOLOGICO DAS INDUSTRIAS TEXTIL E DO VESTUARIO DE PORTUGAL

participant: SOURCEBOOK GMBH

participant: CONFEDERACION DE LA INDUSTRIA TEXTIL ASOCIACION

participant: CENTRE D'INNOVATION DES TECHNOLOGIES SANS CONTACT-EURARFID (CITC-EURARFID) ASSOCIATION

participant: CITTA STUDI SPA

participant: HOEGSKOLAN I BORAS

participant: ASSOCIATION UP-TEX

participant: DEUTSCHE INSTITUTE FUR TEXTIL- UND FASERFORSCHUNG DENKENDORF

participant: DSP VALLEY VZW

# SecWire

Project title: A highly innovative and low-cost anti-counterfeiting solution which utilises micro-wires to maximise security and authentication

Start Date: 2019-06-01 End Date:2019-09-30

Topic: SME instrument

Most frequent returning words in objectives:

* ('SecWire', 6)
* ('security', 4)
* ('anti-counterfeiting', 3)
* ('micro-wires', 3)
* ('production', 3)
* ('paper', 3)
* ('cards', 2)
* ('event', 2)
* ('governments', 2)

Counterfeiting of valuable and security documents is an increasingly serious problem worldwide. Banknotes, driving licenses, passport, ID cards, residence permits as well as event ticketing and stock certificates are all subject to increasingly frequent and accurate counterfeiting efforts. Each year, around €60B losses are experienced by governments as a result of counterfeiting. Current overt and covert anti-counterfeiting solutions are not effective at all as they are expensive to realize and can be easily overcome by skilled counterfeiters.  
To combat this, Wire Machine Technologies has developed SecWire, a ground-breaking anti-counterfeiting system which utilises ferro-magnetic micro-wires to offer high levels of IP security. The innovation behind the SecWire is in the manufacturing process which enables production of glass coated micro-wires of 2μm to 100μm diameter, small enough to be integrated in security paper. The SecWire is invisible and impossible to be removed, duplicated or deactivated. The micro-wires can be cut to any length and embedded (i.e. braided in the paper) into any products such as banknotes, passports, ID cards and event tickets. SecWire enables high security, it is durable and safe (microwires resist up to 600°C), it is 10 times cheaper than current solutions and it is highly scalable.  
During the feasibility assessment, a go-to-market strategy and the supply chain will be established as well as further IP protection will be pursued in other countries. Wire Machine Technologies will adapt SecWire for integration in different surfaces as paper, textile, plastic and polymers. They will also improve the production volume by increasing the number of working machines and expanding the production site. With the collaboration of secure document manufacturers and governments, extensive pilot tests will be performed to verify the anti-counterfeiting capacity of SecWire.

Coordinator: WMT WIRE MACHINE TECHNOLOGIES LTD from:IL

# SAM

Project title: Silk Aquamelts to Market

Start Date: 2019-06-01 End Date:2020-11-30

Topic: FET Innovation Launchpad

Most frequent returning words in objectives:

* ('market', 5)
* ('silk', 4)
* ('aquamelts', 4)
* ('aquamelt', 4)
* ('work', 3)
* ('FLIPT', 3)
* ('fibres', 2)
* ('novel', 2)
* ('healthcare', 2)

Silk Aquamelts to Market (SAM) will catalyse the process of bringing Spintex Engineering’s silk aquamelts, as high-performance artificially spun fibres, to the medical market. SAM aims to fully commercialise our bespoke silks, for novel healthcare solutions. Objective 1 starts with a market analysis of medical biotextiles and their patent landscape. A dedicated research analyst will identify networking, commercial and regulatory opportunities/challenges for our company’s novel and unmatched fibres. Sharing the results of this work, the market analysis will provide a detailed feasibility study for silk aquamelts in the biotextiles sector, assisting further developments from FLIPT members and their own roadmapping work which is currently textile focused. By focusing on healthcare SAM will target a market with attractive profit margins, and demonstrate the viability of the aquamelt pathway in a heavily regulated industry. Objective 2 will tackle this regulatory compliance and certification in Good Manufacturing Practice (GMP), and ISO 10993 & 13485 for our silk aquamelts. By training key personnel in compliance with ISO standards and GMP, audit certification with EU notified bodies and receipt of CE marks will be achieved and individuals upskilled. We will demonstrate silk aquamelts’ utility and safety and add value to FLIPT, by expanding the opportunities available for other aquamelt materials and assisting their route to market. Furthermore, contact with investors, customers and at conferences, will establish the aquamelt pathway as the future of EU fibre production. This will directly benefit the uptake of future aquamelt developments from the FLIPT project and help several key work packages and tasks.

Coordinator: SPINTEX ENGINEERING LIMITED from:UK

# EFFECTIVE

Project title: Advanced Eco-designed Fibres and Films for large consumer products from biobased polyamides and polyesters in a circular EConomy perspecTIVE

Start Date: 2018-06-01 End Date:2022-05-31

Topic: Advanced bio-based fibres and materials for large-volume applications

Most frequent returning words in objectives:

* ('films', 4)
* ('products', 4)
* ('project', 3)
* ('production', 3)
* ('polyamides', 3)
* ('polyesters', 3)
* ('fibres', 3)
* ('sustainability', 3)
* ('economy', 3)

The EFFECTIVE project intends to demonstrate first of its kind and economically viable routes for the production of biobased polyamides and polyesters from sustainable renewable feedstock for the obtaining of fibres and films with enhanced properties, market competitiveness and increased sustainability. Such materials will be applied into eco-designed large consumer products targeting different markets, i.e. construction, automotive, primary and secondary packaging and textile and with the potential of being applied into many other markets (fishing, engineering plastics, agriculture, hygiene and personal care).  
Following a circular economy approach, the sustainability of the value chains will be further enhanced by the demonstration of an improved end-of-life of the developed eco-designed biobased solutions through the application of monomer regeneration, recycling (for polyamides based fibres and films) and composting/anaerobic digestion (for polyesters based films) processes. The idea that “the end is a new beginning” will indeed drive the products design and realization.  
The project covers the whole value chain: feedstock production, conversion into innovative biobased building blocks through biotechnological and chemical processes, formulation of innovative biobased polymers (polyesters and polyamides), final products development, end-of-life products management and processing.  
The project intends to represent a key milestone towards the future industrialization of biobased fibres and films production in Europe foreseeing the mobilization of relevant investments by involved industry partners and fostering the adoption of multi-stakeholders collaboration models to demonstrate effective ways to develop new cases of biobased economy interconnected with circular regenerative economy joining environmental sustainability and economic profitability.

Coordinator: AQUAFILSLO PROIZVODNJA POLIAMIDNIH FILAMENTOV IN GRANULATOV DOO from:SI

participant: CARVICO SPA

participant: NOVAMONT SPA

participant: FUNDACION CIRCE CENTRO DE INVESTIGACION DE RECURSOS Y CONSUMOS ENERGETICOS

participant: VAUDE SPORT GMBH & CO KG

participant: AQUAFIL SPA

participant: BALSAN SAS

participant: LIFE CYCLE ENGINEERING SRL

participant: SUDZUCKER AG

participant: CIRCULAR CHANGE, INSTITUT ZA KROZNO GOSPODARSTVO

participant: HENNES & MAURITZ GBC AB

# FibreNet

Project title: A Training Network on Designing Novel Bio-based Fibre Products for Targeted Advanced Properties and New Applications

Start Date: 2017-12-01 End Date:2021-11-30

Topic: Innovative Training Networks

Most frequent returning words in objectives:

* ('fibre', 6)
* ('products', 6)
* ('properties', 4)
* ('training', 4)
* ('Europe', 3)
* ('research', 3)
* ('FibreNet', 2)
* ('sectors', 2)
* ('industry', 2)

FibreNet will train young fibre-professionals having multidisciplinary view to develop sustainable bio-based fibre products with tailored properties for different application fields in both academic and non-academic sectors. Bio-based fibre products are one of the corner-stones in the European bio-based industry corresponding to 12% of the employment in manufacturing. The industry, including such sectors as packaging, paper, biocomposites and biomedical and hygienic textiles, is currently undergoing a fundamental transformation in order to respond to the competition raised i) by low-wage countries and ii) by fossil-based materials. A common consensus in Europe is that to remain competitive and sustain the bio-based fibre industries in Europe, we should focus on developing new high added value products that have specific functionalities but reduced environmental impacts.  
  
In fibre-based products, developing new properties and improving the performance are, however, typically long and time-consuming processes. They usually involve massive and expensive laboratory and pilot-scale trials, which are followed by statistical analyses. There is a particular knowledge gap in understanding the influence of fibre and fibre interface properties on the mechanical properties of the end-product especially when developing products with tailored performance and functionalities. In addition to the research gap, there is a training gap in Europe, as we do not currently have a training programme which would educate professionals having a skill set needed for the fibre-centered approach that we propose in FibreNet.  
  
To fill the research and training gaps, we propose here a unique training and research network which provides and further develops knowhow, methods and tools in functionalization, characterization, numerical modelling and production of bio-based fibre products at multiple length scales. The network covers expertise on packaging, paper, biocomposites and biomedical textiles.

Coordinator: TTY-SAATIO from:FI

participant: TECHNISCHE UNIVERSITAET GRAZ

participant: KUNGLIGA TEKNISKA HOEGSKOLAN

participant: UNIVERSITEIT MAASTRICHT

participant: UNIVERZA V MARIBORU

participant: PREDILNICA LITIJA DOO

participant: KATHOLIEKE UNIVERSITEIT LEUVEN

# IDCLOTHING

Project title: Clothing, fashion and nation building in the Land of Israel

Start Date: 2019-01-14 End Date:2021-01-13

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('project', 5)
* ('nation', 4)
* ('building', 4)
* ('clothing', 4)
* ('history', 4)
* ('fashion', 3)
* ('Israel', 3)
* ('extent', 3)
* ('dress', 3)

'Culture is central to nation building, but clothing, fashion and aesthetic perceptions are often overlooked in this context. Taking 'Eretz Israel' (the 'Land of Israel') as a case study, this project argues that investigating these cultural practices brings to the fore the agency of migrant groups and adds a personal dimension to the history of nation building. Focusing on the period from the 1880s when large-scale migration began, until the foundation of the Israeli state in 1948, it investigates how Eastern European and German Jewish immigrants expressed social, cultural and political belonging through clothing and to what extent they were able to enforce their ideologies in the course of nation building. It asks to what extent the immigrants influenced each other in developing a specific mode of dress, and how they referenced the socio-cultural and political practices of countries of origin, as well as the clothing of Arab people and the Ottoman and British occupying authorities. With an unprecedented focus on gender and visual materials, the project examines how clothing became fashion and to what extent a consensual mode of dress emerged within a heterogeneous migrant society. Drawing from archival collections of 15 archives in Israel, Poland and England, and 6 Israeli, German, American and Russian databases, the project analyses private and public photographs and posters, and contextualises them against an assessment of written material and oral history interviews. Through highly interdisciplinary training, the project develops a new methodology that integrates approaches from fashion history and visual culture into the history of nation building to shed light on the processes of negotiation and power struggles on the micro level of a community. In times of mass migration, economic exploitation and global mobility the project contributes to an understanding of aesthetic perceptions, dress and beauty ideals as an expression of power, integration and exclusion.'

Coordinator: THE HEBREW UNIVERSITY OF JERUSALEM from:IL

# NanoTextSurf

Project title: Nanotextured surfaces for membranes, protective textiles, friction pads and abrasive materials

Start Date: 2017-11-01 End Date:2020-10-31

Topic: Pilot Lines for Manufacturing of Nanotextured surfaces with mechanically enhanced properties

Most frequent returning words in objectives:

* ('products', 5)
* ('materials', 4)
* ('novel', 4)
* ('nanomaterials', 3)
* ('manufacturing', 3)
* ('surfaces', 3)
* ('cellulose', 2)
* ('applications', 2)
* ('value', 2)

Cellulose, the most abundant polymer on Earth, is a classic example of a high reinforcement materials produced from renewable resources. Cellulose nanomaterials produced either with chemical and/or mechanical means from cellulose fibres are safe, biodegradable, ultra-strong, durable and suitable for novel functional applications. Cellulose nanomaterials strengthen the production of lean added value products. They enable novel functional products and improve the competitiveness of European industry. However, it is necessary to further develop application processes for cellulose nanomaterials.   
  
NanoTextSurf aims to upgrade existing pilot lines for manufacturing and demonstrating nanotextured surfaces with mechanically enhanced properties. The focal approach of the surface manufacturing concept is to construct nanostructured surfaces based on nanoscale biomaterials. Formation of surfaces will be realised by utilising these building blocks with on-line application techniques (cast and foam coating and screen-printing), which enable the formation of the true nanotextured architecture. This approach will guarantee that robust, efficient and easily up-scalable processes with in-line controlling methods will be available as open access services with reasonable costs.   
  
The nanotextured products and their mechanically enhanced performance will be demonstrated as value added products of the existing and novel bio-based membranes at liquid purification, functional textiles for fire retardant fabrics and linings, novel friction materials for transport applications and abrasive materials for surface finishing. Their economic feasibility, safety and environmental acceptability will be evaluated with life cycle sustainability assessment. The results can be exploited in the existing manufacturing lines. Besides these products, NanoTextSurf partners have recognised additional markets such as hospital textiles, industrial wipes, air purification filters and food packaging materials.

Coordinator: Teknologian tutkimuskeskus VTT Oy from:FI

participant: TEKSTINA TEKSTILNA INDUSTRIJA DOO

participant: UNIVERSITAT WIEN

participant: INSTITUTE OF OCCUPATIONAL MEDICINE

participant: FURKA REIBBELAGE AG

participant: IFEU - INSTITUT FUR ENERGIE UND UMWELTFORSCHUNG HEIDELBERG GMBH

participant: MIRKA OY

participant: UNIVERZA V MARIBORU

participant: BERNDORF BAND GMBH

participant: ACONDAQUA INGENIERIA DEL AGUA SL

participant: EIDGENOSSISCHE MATERIALPRUFUNGS- UND FORSCHUNGSANSTALT

participant: SARTORIUS STEDIM BIOTECH GMBH

# SUITCEYES

Project title: Smart, User-friendly, Interactive, Tactual, Cognition-Enhancer that Yields Extended Sensosphere - Appropriating sensor technologies, machine learning, gamification and smart haptic interfaces

Start Date: 2018-01-01 End Date:2020-12-31

Topic: Interfaces for accessibility

Most frequent returning words in objectives:

* ('SUITCEYES', 4)
* ('life', 3)
* ('communication', 3)
* ('solution', 3)
* ('users', 3)
* ('developed', 2)
* ('people', 2)
* ('impairments', 2)
* ('disability', 2)

Useful ICT innovations are continuously developed improving the quality of life for many people. However, such solutions do not typically included people with severe dual vision and hearing impairments, and at times also coupled with cognitive disability. Deafblindness is a grave condition. Though, rare at birth, it can be acquired due to different causes. There is an estimated 2.5 M deafblind persons in the EU. Limited communication is a major problem for this group; something that will be addressed by SUITCEYES in a novel way. Benefits are not limited to this group; rather the solution will scale to other areas.  
SUITCEYES proposes a new, intelligent, flexible and expandable mode of haptic communication via soft interfaces. Based on user needs and informed by disability studies, the project combines smart textiles, sensors, semantic technologies, image processing, face and object recognition, machine learning, and gamification. It will address three challenges: perception of the environment; communication and exchange of semantic content; learning and joyful life experiences. SUITCEYES will extract and map the inner structure of high-dimensional, environmental and linguistic clues to low-dimensional spaces, which then translate into haptic signals. It will also utilize image processing, mapping environmental data to be used for enriched semantic reasoning. SUITCEYES’ intelligent haptic interface will help the users to learn activation patterns by a new medium. With this interface, users will be able to take more active part in society, improving possibilities for inclusion in social life and employment.  
The solution will be developed in a user-centred iterative design process, with frequent evaluations and optimizations. The users’ learning experiences will be enriched through gamification and mediated social interactions. The proposed solution will take into account the potential differences in levels of impairments and user capabilities and adapt accordingly.

Coordinator: HOEGSKOLAN I BORAS from:SE

participant: LES DOIGTS QUI REVENT

participant: ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS

participant: STICHTING VU

participant: HOCHSCHULE OFFENBURG

participant: Harpo Sp. z o. o.

participant: UNIVERSITY OF LEEDS

# RE-FASHIONING

Project title: Re-fashioning the Renaissance: Popular Groups, Fashion and the Material and Cultural Significance of Clothing in Europe, 1550-1650

Start Date: 2017-04-01 End Date:2022-03-31

Topic: ERC Consolidator Grant

Most frequent returning words in objectives:

* ('dress', 8)
* ('fashion', 4)
* ('material', 4)
* ('analysis', 4)
* ('study', 3)
* ('Renaissance', 3)
* ('methodologies', 3)
* ('levels', 2)
* ('transformation', 2)

This study of Renaissance dress offers a better understanding of how fashion developed at popular levels of  
society in Europe, 1550-1650. Drawing on documentary, visual and material evidence, it investigates  
fundamental questions relating to the transformation of fashion that will shed light on popular taste,  
dissemination, transformation and adaption of fashion, on imitation and meaning, and on changing cultural  
attitudes to dress among popular groups. The central goal of the project is to develop a new methodology that  
combines my previous experience of empirical research and theoretical models with the tradition of textile  
analysis and costume conservation. This involves experimenting with a range of techniques, including  
technical analysis of textiles, dye- and fibre analysis, and the reconstruction and visualization of historical  
fashions using both 16th-century recipes as well as modern digital tools such as 3D printing and digital  
reconstruction. This framework of dress and textile history at both scientific and experimental levels helps me  
to provide a more comprehensive interpretation of the value, variations, and material experiences that were  
associated with dress and dressing in the Renaissance, and to develop methodologies that allow us to explore  
new ways in which narratives from historical documents, books, images, and material objects can be created.  
The new historical knowledge and methodologies built during the ERC will lead to the ultimate theoretical  
objective of the project –to rethink the scientific foundation and theory of dress studies within the ‘new  
materialist’ framework. By creating a material-based approach and methodologies to the study of fashion in the  
context of popular groups, my research will not only build new horizons for the study of popular dress and its  
material and cultural significance in the Renaissance, but it will also create a theoretical model that challenges  
dress historians to go beyond semiotic analysis of dress.

Coordinator: AALTO KORKEAKOULUSAATIO SR from:FI

# LightFasTR

Project title: Understanding the light-fastness of heritage Turkey Red textiles through modern dye chemistry and historical dyeing technology to inform sustainable display and access

Start Date: 2017-03-20 End Date:2019-03-19

Topic: Marie Skłodowska-Curie Individual Fellowships (IF-EF)

Most frequent returning words in objectives:

* ('LightFasTR', 4)
* ('textile', 3)
* ('archives', 3)
* ('materials', 3)
* ('chemistry', 3)
* ('heritage', 3)
* ('Fellow', 3)
* ('seeks', 2)
* ('increase', 2)

LightFasTR seeks to increase physical and creative access to Europe’s most profitable globalised textile of the 19th c. Industrial Revolution - Turkey red (TR) printed cotton. TR was famed for colourful bold patterns on a characteristic bright red background. Many 19th c. TR printed cottons survive within the pages of pattern books as well-preserved, vibrant and creative storyboards of forgotten global trade and cultural connections. Museums and archives want to exhibit these collections and increase access, but need to preserve the colours, especially the characteristic red. The 19th c. TR makers’ claim of excellent light-fastness for the red dye is unproven, raising uncertainty about suitable light levels and exposure times for historical TR textile collections. LightFasTR unites the materials and processes of making 19th c. TR with modern dye chemistry and heritage textile conservation science to provide essential guidance for museums and archives.   
LightFasTR draws upon the Fellow’s expertise in dye chemistry and reaction mechanisms, and extensive research knowledge of industrial dyeing, notably madder, the traditional natural dye for TR. The Fellow takes an innovative approach to heritage TR preservation by combining historical research of different 19th c. materials and methods with state-of–the art chemical studies of the colorants in historical and reconstructed textiles. LightFasTR seeks to answer: to what extent do differences in materials, methods, makers and period impact on TR colour light-fastness? How much light exposure is safe for historical TR, particularly the red dyes? Should recommended current light-levels in museums and archives be increased or decreased for TR? The Fellow brings the host organisation a unique skill-set of natural dye chemistry for industrialised dyeing to create a world-class knowledge base in the lost tacit and technical skills needed to needed to understand and preserve Europe’s surviving TR heritage.

Coordinator: UNIVERSITY OF GLASGOW from:UK

# AeroPul

Project title: Curved profiles for aerospace applications manufactured by Pultrusion

Start Date: 2016-09-01 End Date:2019-06-30

Topic: Development of pultrusion manufacturing applications

Most frequent returning words in objectives:

* ('pultrusion', 7)
* ('process', 7)
* ('capability', 4)
* ('Demonstration', 4)
* ('manufacturing', 3)
* ('applications', 3)
* ('aerospace', 3)
* ('profiles', 3)
* ('primary', 3)

This proposal addresses the topic JTI-CS2-2015-CFP02-LPA-02-10 “Development of pultrusion manufacturing applications” from the CLEAN SKY 2 Call for Proposals 02.  
The project AeroPul is about the evaluation and demonstration of the pultrusion process for applications in an aerospace environment. Pultrusion process is a highly automated and continuous process capable of high manufacturing rates. The advantage of the pultrusion process is the combination of impregnation, forming and curing in a continuous process and therefore no autoclave is required. The project will demonstrate the pultrusion of curved reinforced profiles for primary and secondary structures.  
  
- Evaluation of carbon fibre textiles and resin system for the capability for pultrusion of primary and secondary aerospace structures  
- Manufacturing of two profiles to initially demonstrate the aerospace quality capability of the pultrusion process  
- Demonstration and evaluation of required mechanical performance, FST properties and quality inspection methods  
- Manufacturing a sample profile for secondary aircraft structures  
- Demonstration of the manufacturing of a representative curved part section for primary aircraft structure applications  
- Demonstration of the process robustness and the capability for high production rates  
- Demonstration of the capability to manufacture curved reinforced profiles by pultrusion

Coordinator: FASERINSTITUT BREMEN EV from:DE

# Green Drop

Project title: New Digital Pigment Printing System for every Surface, for every Industry, faster, with less energy requirements and with no water needs

Start Date: 2019-05-01 End Date:2019-08-31

Topic: SME instrument

Most frequent returning words in objectives:

* ('printing', 9)
* ('market', 5)
* ('digital', 4)
* ('textile', 4)
* ('fabric', 4)
* ('treatment', 4)
* ('system', 4)
* ('Digital', 3)
* ('inks', 3)

Digital printing in an inkjet-based method has open many application areas including wide format graphics and various industrial applications such as textiles. While the digital textile printing market is growing at an annual output rate of 20%, the proportion of digital textile printing users only reached 2%. This is mainly due to the current limitations of the method. In order to print different types of textiles, varied types of inks are required since each ink is suitable for a specific fabric. Thus, the printer will adjust to the need for pre and post treatment printing process as well as printing quality ensuring ink stability on the fabric. This reflects on high production costs, lengthy process treatment and usage of several inks. Creazioni Digitali, present in the fabric printing sector since 2006 realise that we could create a state of the art system for textile digital printing using specialised inks and short pre and post treatment processes. GREENDROP is our project to launch the pioneer Digital Printing machinery system that will revolutionized the digital printing market for the Fashion, Automotive, Advertising and Home design segment sectors. GREENDROP system improves the working environment as it enables a 40% reduction on time and energy pre and post treatment, 30% reduction on ink usage and 0% water consumption in the printing process. In addition, the system can maintain the colour above the surface of the fabric, complying with the ISO standards on colour fastness. Our target market is promising: the global Digital Printing Market is forecast to reach €25 Billion by 2023 at a CAGR of 4.48% between 2017 to 2023 with the ink market segment holding the largest share. We expect at least to capture a Serviceable Obtainable Market of 200 textile and clothing companies, €7.5M market value with a ROI of 1.62 by 2026.

Coordinator: CREAZIONI DIGITALI SRL from:IT

# STREAM

Project title: Smart Textile foR hEAlth Monitoring

Start Date: 2020-09-01 End Date:2022-08-31

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('products', 3)
* ('sensors', 3)
* ('research', 2)
* ('textile', 2)
* ('textiles', 2)
* ('applications', 2)
* ('devices', 2)
* ('body', 2)
* ('allows', 2)

'Textiles evolved around two initial purposes (protection and aesthetic), while the contemporary research focuses on integrating functionality and comfort into the textile products. Using textiles in healthcare applications provides a convenient means for a continuous monitoring of patients with non-obtrusive devices that have an access to all areas of the body. This allows a mapping of physiological parameters over the entire body, leading to innovative products required by two Europe 2020 Strategy Flagship Initiatives. Optical fiber sensors (OFS) offer many advantages over sensors that require electrical conductivity; however, there is an urge to introduce and test new materials that compensate for their shortcomings. This project builds upon (and goes beyond) the current state-of-the-art and introduces effective, yet simple, methods to synergistically tackle three challenges of OFS, namely: sensitivity, distributed sensory, and production technology. A 'sensitive cladding' will be developed to allow localized as well as remote responses for external stimulants. This will be achieved by incorporating thermochromes and other functional molecules into the polymeric system. The OFS will be produced using a novel microfluidic device that allows a precise control for fiber's morphology. The developed sensors will be integrated into textiles to monitor skin temperature and alarm against (sub)cutaneous tumors/cancers.  
The multi-disciplinary nature of this project will diversify my (technical and soft) skills through hands-on as well as through-research trainings. Particularly with the optical performance of fibrous systems, which will ensure establishing myself as an independent researcher in the field of smart wearable devices. Disseminating and exploiting the results of this research will bring long-term benefits and innovative products for many applications beyond the textile field, and it will introduce me to the industrial sector with its new career opportunities.'

Coordinator: EIDGENOSSISCHE MATERIALPRUFUNGS- UND FORSCHUNGSANSTALT from:CH

# 3DConfigurator

Project title: Fully-automated software platform with 3D freeform configurator for design and production of individual and affordable furniture

Start Date: 2019-05-01 End Date:2021-04-30

Topic: SME instrument

Most frequent returning words in objectives:

* ('furniture', 11)
* ('FORMBAR', 5)
* ('design', 4)
* ('mass', 3)
* ('time', 3)
* ('OKINLAB', 3)
* ('customization', 2)
* ('customers', 2)
* ('market', 2)

Mass customization is finding its way into innumerable areas of daily life, e.g. textiles, shoes, as consumer strive for individuality. 84 million customers bout furniture online in the EU. The preconditions for mass furniture are enabled by digitization. Yet there is no solution for affordable individualized furniture representing a tremendous unexploited market.  
FORMBAR, our novel parametric design software based on mathematical-physical-architectural principles, is the enabling technology allowing customers for the first time to freely shape their furniture individually. In this Phase 2 project FORMBAR will be 100% automated. With simple mouse movements, the customer designs a photo-realistically rendered 3D model and thus constantly inspects his created piece of furniture visually with regard to the selected materiality and colour.  
By directly integrating the machine specifications into the design process, the self-generated 3D piece of furniture is automatically converted into an optimized cutting pattern and produced cost-effectively using state-of-the-art CNC milling machines. The generated milling data are sent to one of the more than 100 carpenters of OKINLAB in close vicinity to the customer. FORMBAR covers the entire furniture manufacturing process 100% automated, from design to production, in a single application. In combination with mathematically implied algorithms, OKINLAB can guarantee the functionality as well as the producibility of the furniture while at the same time implementing a scalable business model. With FORMBAR mass customization of individual furniture becomes affordable for the first time.  
OKINLAB with its team of 16 employees from software development, architecture, design, marketing, has developed a configurator in the past selling more than 1,500 pieces of furniture as of today. By automation of FORMBAR costs of the furniture is reduced by 50% opening the technology for the mass market with a potential of €25.3 billion.

Coordinator: OKINLAB GMBH from:DE

# BIOnTop

Project title: Novel packaging films and textiles with tailored end of life and performance based on bio-based copolymers and coatings

Start Date: 2019-06-01 End Date:2023-05-31

Topic: Develop bio-based packaging products that are biodegradable/ compostable and/or recyclable

Most frequent returning words in objectives:

* ('packaging', 10)
* ('BIOnTOP', 4)
* ('coatings', 3)
* ('plastic', 2)
* ('cost', 2)
* ('solutions', 2)
* ('applications', 2)
* ('conditions', 2)
* ('novel', 2)

Only 31% of plastic is currently recycled and plastic packaging still have a deficient end of life. Thus, improvements are needed to provide cost effective solutions with high bio-based contents and suitable performances for demanding packaging applications, with a consumption of 19M ton/year, while still achieving compostability in mild conditions.  
Using sustainably sourced comonomers, additives and fillers to formulate novel PLA copolymers and compounds, the BIOnTOP project will deliver recyclable-by-design cost competitive packaging solutions that can be mechanically recycled, industrially/home composted or even suitable for anaerobic digestion.   
Moreover, the barrier properties of delivered bio-packaging trays, films and derived packaging, will be enhanced using removable protein-based coatings and a novel fatty acid grafting technology to decrease permeability and compete with fossil packaging.   
In the field of textile packaging , most used coatings are not bio-based and of different nature from the coated fibres, making material or organic recycling extremely difficult. New PLA coatings or fatty grafting will allow reprocessing without significant loss of properties.  
BIOnTOP packaging, based on >85% renewable resources, will be compatible with a broad range of packaging applications’ requirements but also multiple end of Life options. Our materials will be biodegradable in home composting conditions but also recyclable for multiple use secondary packaging.  
Based on new circular bioeconomy value chains, BIOnTOP will generate growth for EU bioplastics and end users’ industries in the food and personal care sectors with potential in many fields: BIOnTOP production is estimated to reach close to 9.6 Mton per year by 2030, overall leading to €40 M turnover and 170 new jobs. All in all, reducing the environmental footprint of plastics, our new bio-based packaging will have a significant positive social and environmental impact.

Coordinator: AIMPLAS - ASOCIACION DE INVESTIGACION DE MATERIALES PLASTICOS Y CONEXAS from:ES

participant: SIOEN INDUSTRIES NV

participant: CENTRE SCIENTIFIQUE & TECHNIQUE DE L'INDUSTRIE TEXTILE BELGE

participant: QUESERIAS ENTREPINARES SA

participant: TOTAL CORBION PLA BV

participant: PLANET BIOPLASTICS SRL

participant: SILON SRO

participant: UBESOL SL

participant: ROMEI SRL

participant: CONSORZIO INTERUNIVERSITARIO NAZIONALE PER LA SCIENZA E TECNOLOGIA DEI MATERIALI

participant: LABORATORI ARCHA SRL

participant: MOVIMENTO CONSUMATORI

participant: EMSUR MACDONELL SA

participant: WEAREBIO OU

participant: FACHHOCHSCHULE ALBSTADT-SIGMARINGEN

participant: ENCO SRL

participant: EUROPEAN BIOPLASTICS EV

participant: ORGANIC WASTE SYSTEMS NV

participant: CRISTOBAL MESEGUER SA

participant: BIO-MI DRUSTVO S OGRANICENOM ODGOVORNOSCU ZA PROIZVODNJU, ISTRAZIVANJEI RAZVOJ

# YARNSCAPE

Project title: YARNSCAPE: Ecological Economies of Ancient Textiles

Start Date: 2020-08-01 End Date:2022-07-31

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('textiles', 4)
* ('data', 4)
* ('economies', 3)
* ('ancient', 3)
* ('relationship', 3)
* ('production', 3)
* ('study', 2)
* ('impact', 2)
* ('textile', 2)

“YARNSCAPE: ecological economies of ancient textiles”, will investigate the relationship between textiles and the emergence and expansion of early complex societies, through examination of published data from the eastern Mediterranean and western Asia in the 4th and 3rd millennium BCE, and by testing a set of innovative methods against an in-depth study of primary data from a field site on the Milesian Peninsula (Turkey). Accumulated archaeological and historical data hint at a deep cogenerative relationship between complex urban or market-style economies and textiles, but the impact of cloth on long-term economy and environment has been too often been sidelined as ephemeral. There is therefore a critical need to develop innovative techniques to access the impact of textile industries over the longue durée. Through training in Spain, Denmark and Germany in specific advanced approaches to 1) cloud-based geoprocessing of multi-temporal remote sensing data; 2) spatial analysis of ancient landscapes; 3) multi-proxy palaeoenvironmental indicators of fibre production; and 4) ethnoarchaeological study of agroeconomy of textiles; the project will enable the ER to develop a robust, cutting-edge toolkit and set of theoretical approaches to ancient fibre production and their economies. This will place the ER in position to design a global comparative project devoted to delineating and explaining the relationship between social complexity and textile production.

Coordinator: Institut Català d'Arqueologia Clàssica from:ES

# MIRASPEC

Project title: Miniature on-chip Raman spectrometer for personal volatile organic compound (VOC) monitoring

Start Date: 2018-01-01 End Date:2019-06-30

Topic: ERC-Proof of Concept

Most frequent returning words in objectives:

* ('spectrometer', 5)
* ('Raman', 4)
* ('Demonstration', 3)
* ('build', 2)
* ('target', 2)
* ('project', 2)
* ('aspire', 1)
* ('lightweight', 1)
* ('world', 1)

We aspire to build the smallest and most lightweight Raman spectrometer in the world, with a target size of 5x10x1 mm3 and a weight of only 0.1 g. The innovation builds on the combination of three key results of the ERC Advanced Grant project InSpectra (2011-2017): 1. Demonstration of Nanophotonic waveguide Enhanced Raman Spectroscopy (NERS); 2. Demonstration of a novel on-chip Fourier Transform Spectrometer (FTS); 3. Demonstration of the integration of III-V light sources on a silicon platform through bonding or transfer printing technologies. By using a standard CMOS process toolset for fabricating the Raman spectrometer, a cost-effective and high yield product can be guaranteed with a price level at least an order of magnitude lower than current commercial systems. The exceptional form factor of the spectrometer will generate a rich variety of innovative applications of Raman spectroscopy. A spectrometer this small can be implanted, incorporated in smartphones or smartwatches and fits into textiles, drones etc. In this ERC PoC project, we will build this miniature spectrometer and use it for the target application of detecting volatile organic compounds (VOC) for personal safety monitoring, both at work and at home.

Coordinator: UNIVERSITEIT GENT from:BE

# BodyPass

Project title: API-ecosystem for cross-sectorial exchange of 3D personal data

Start Date: 2018-01-01 End Date:2020-12-31

Topic: Big Data PPP: cross-sectorial and cross-lingual data integration and experimentation

Most frequent returning words in objectives:

* ('data', 12)
* ('sector', 9)
* ('information', 5)
* ('health', 4)
* ('consumer', 4)
* ('goods', 4)
* ('BodyPass', 3)
* ('companies', 3)
* ('exchange', 2)

BodyPass aims to break barriers between health sector and consumer goods sector and eliminate the current data silos. The main objective of BodyPass is to foster exchange, linking and re-use, as well as to integrate 3D data assets from the two sectors. For this, BodyPass has to adapt and create tools that allow a secure exchange of information between data owners, companies and subjects (patients and customers).  
3D personal data is type of data that contains useful information for product design, online sale services, medical research and patient follow-up.  
Currently hospitals store and grow massive collections of 3D data that are not accessible by researchers, professionals and companies. About 2.7 petabytes a year stored in the EU26.   
In parallel to the advances made in the health sector, new 3D body-surface scanning technology has been developed for the goods consumer sector, namely apparel, animation and art.  
Moreover, new low-cost scanning technologies are expected to exponentially increase 3D data creation. It is estimated that currently one person is scanned every 15 minutes in the US and Europe. And increasing.  
The 3D data of the health sector contains the body shape information, not only internal body information. These data could be used by designers and manufacturers of the consumer goods sector. At the same time, although 3D body-surface scanners have been developed primarily for the clothing industry, 3D scanners’ low cost, non-invasive character, and ease of use make them appealing for widespread clinical applications and large-scale epidemiological surveys.  
However, companies and professionals of the consumer goods sector cannot access the 3D data of health sector. And vice versa. Even exchanging information between data owners in the same sector is a big problem today. It is necessary to overcome problems related with data privacy and the processing of huge 3D datasets.

Coordinator: INSTITUTO DE BIOMECANICA DE VALENCIA from:ES

participant: FUNDACION PARA LA INVESTIGACION DEL HOSPITAL CLINICO DE LA COMUNITAT VALENCIANA, FUNDACION INCLIVA

participant: ELSE CORP SRL

participant: P&R TEXTEIS SA

participant: ATOS SPAIN SA

participant: ISTITUTO AUXOLOGICO ITALIANO

# NeoCel

Project title: NeoCel – Novel processes for sustainable cellulose-based materials

Start Date: 2016-09-01 End Date:2019-12-31

Topic: Sustainable cellulose-based materials

Most frequent returning words in objectives:

* ('textile', 5)
* ('NeoCel', 4)
* ('processes', 4)
* ('production', 3)
* ('fibres', 3)
* ('strength', 3)
* ('fibre', 3)
* ('consortium', 3)
* ('project', 2)

The main objective of NeoCel project is to develop innovative and techno-economically feasible alkaline processes enabling the sustainable production of higher quality eco-innovative textile fibres from reactive high-cellulose pulps and integration of these processes with pulp mills.  
  
Targets for the development of NeoCel processes are:   
- wet strength of fibres higher than the wet strength of standard viscose, competing with cotton properties.  
- lower environmental impact than any other type of existing textile fibre  
- Reduction of production cost by at least 15% compared to that of best available technology (BAT) viscose   
  
The targets will be met through development of adapted pulps with high reactivity/solubility in alkaline water-based solutions, advanced dissolution process to maximize cellulose concentration, novel cellulose regeneration chemistry enabling both recovery of process chemicals and increased strength properties of the spun fibre, design for integration of textile fibre production with the pulp mill for minimized environmental impact, increased energy efficiency and reduced chemical consumption through system analysis using software models of theoretical mills.  
  
In NeoCel, a consortium with raw material processing companies, chemical suppliers, equipment producers, SMEs and world-leading research institutes has formed to develop the processes for large scale manufacturing of eco-innovative textile fibres. The consortium expects that a successful NeoCel project will enable creation of 75 000 new jobs and a turn-over increase of 9.5 billion € for European forest products, textile and clothing industries within 15 years. However, already within 3 years, the consortium partners expect their joint turnover to increase by 170 MEuro

Coordinator: RISE RESEARCH INSTITUTES OF SWEDEN AB from:SE

participant: SOKTAS DOKUMA ISLETMELERI SANAYI VE TICARET ANONIM SIRKETI

participant: Teknologian tutkimuskeskus VTT Oy

participant: ING. A. MAURER SA

participant: ROAL OY

participant: LIST TECHNOLOGY AG

participant: RE:NEWCELL AB

participant: KATTY FASHION SRL

participant: AB Enzymes GmbH

participant: AKZO NOBEL PULP AND PERFORMANCE CHEMICALS AB

participant: ANDRITZ OY

participant: FOV FABRICS AB

participant: DOMSJO FABRIKER AB

# TexRobots

Project title: Textile based soft sensing actuators for soft robotic applications

Start Date: 2019-05-01 End Date:2021-04-30

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('materials', 4)
* ('robotics', 3)
* ('properties', 3)
* ('achieve', 3)
* ('actuators', 2)
* ('SPAs', 2)
* ('build', 2)
* ('rehabilitative', 2)
* ('elastomeric', 2)

Since the early 1990’s, robots have been used to aid the treatment of people with neuromuscular disabilities and soft robotics offers a unique platform due their inherent conformability to the body and enables safe human-device interaction. Previous studies showed that soft pneumatic actuators (SPAs) have great potential to build wearable devices for rehabilitative purpose. A general approach to manufacture SPAs is based on using elastomeric materials such as silicone and rubber; and then pneumatic pressure is employed to power actuators. Although elastic materials offer some superior properties, some properties of elastomeric materials – material density, stiffness, and strength - present challenges in wearable applications. As the soft robotics domain ventures into more comprehensive and demanding applications, sensor information becomes key to achieve high task performance, and thus the seamless integration of soft actuating and sensing parts is needed to achieve a continuum of sensing and actuation. Sensors also need to have similar material properties (modulus, extensibility) to be used for the actuator themselves in order to not to hinder the actuator’s performance. To address the challenges mentioned above, I will employ textile materials to achieve both sensing and actuation and computerized flatbed knitting technology will be primarily utilized for the fabrication of such structures and soft robotic glove as a hand rehabilitative device will be constructed. The combination of the acquired new technical skills, the advanced training received, the research management experience and the international and inter-sectoral mobility of this fellowship will significantly diversify my competences. This will enhance my capacity to pursue an independent academic career, i.e., to build my own lab after the fellowship and to apply for international grants both in soft robotics and wearable technologies.

Coordinator: ISTANBUL TEKNIK UNIVERSITESI from:TR

# RoboTexTherapy

Project title: Textile-based Wearable Mechanotheraphy Device with Liquid/Vapor Phase Change Actuation

Start Date: 2019-05-01 End Date:2021-04-30

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('tissue', 4)
* ('systems', 4)
* ('mechanotherapy', 2)
* ('devices', 2)
* ('applications', 2)
* ('compression', 2)
* ('forces', 2)
* ('mobility', 2)
* ('human-device', 2)

Soft Tissue Manipulation (STM) is a powerful and direct form of mechanotherapy, which has significant implications in physical rehabilitation, disease prevention and health promotions. Different types of devices for manipulating muscle tissue have been developed for clinical applications and pneumatic compression devices are already in the market and widely used. However, these systems have limited control modalities and lack of monitoring the forces being exerted to the body during the application and previous studies have shown that the loading conditions of soft tissue have a crucial effect on the mechano-therapeutic treatment. One of the main drawback of the pneumatic compression systems is they do need rigid and bulky pumping systems for the implementation of mechanotherapy and this requirement greatly reduces the mobility of the device. Furthermore, rigid-body industrial robotic manipulators have also been used for mechano-therapeutic applications. Although these systems have the ability to perfectly manipulate soft tissue and apply controlled forces, they are expensive and do not enable safe human-device interaction due to their rigid nature. Overall, to address the challenges above I will employ textile materials to achieve both sensing and actuation with the help of phase change property of low boiling point liquids. The textile-based approach will lead to system that are lighter and mobile and safe for human-device interaction. Its successful completion will contribute to the acceleration of the soft tissue providing better and more effective therapies in terms of wearability comfort, mobility and power consumption. By combining my existing skills with newly acquired skillset that will be gained during the fellowship I will have an opportunity for securing a permanent academic position within Marmara University or a top-tier European university and starting my own research group.

Coordinator: MARMARA UNIVERSITY from:TR

# The Invisible Helmet

Project title: Airbag bicycle helmet based on One Piece Woven technology

Start Date: 2016-04-01 End Date:2018-03-31

Topic: Small business innovation research for Transport

Most frequent returning words in objectives:

* ('cyclists', 5)
* ('head', 4)
* ('airbag', 4)
* ('protection', 3)
* ('product', 3)
* ('transport', 2)
* ('market', 2)
* ('helmets', 2)
* ('accident', 2)

Cycling is a crucial mode of transport in the common European challenge of making transport sustainable: cycling is energy efficient, environmentally friendly and very suitable for short distances.  
  
The use of helmet is not widely accepted by urban cyclists due to practical reasons, they are uncomfortable, cumbersome to carry around, look hideous, make sweat and ruin personal style.   
  
Hövding represents a head protection for cyclists unlike any other product on the market – an airbag for cyclists. Compared with traditional helmets, Hövding is more than three times better shock absorbance, can withstand multiple mpacts in one accident, reduce head rotation, provides much larger protection area and stabilizes head and neck in the accident. Hövding is easy to fold and bring in bag, discrete, works with a hat.   
  
Hövding has been sold during around 3 years. Now we focus on expanding from initial test sales in Sweden to successive rollout across Europe. However some limitations such as our quite manual manufacturing process impede us to scale up our product and meet our growth ambitions.   
  
The overall objective of our business innovation project is to automatize the manufacturing process of our airbag for cyclists called Hövding with the aim of scale-up and reduce production costs. To this end, airbag will be designed and manufactured in one piece with woven seams eliminating the need of conventional sewing. We also want increase the add-value of our airbag add Bluetooth Low Energy connectivity and developing an outer shell based on nanotechnology textiles to obtain  
superior lightweight, good water and stain repellent properties.   
  
Hövding addresses a market of an estimated 150 million adult cyclists in Europe alone and clearly contributes to EC policies intended to improve road safety offering a more safety solution to traditional helmets. With this business innovation project we want to establish Hövding as a novel product category – The No.1 head protection for cyclist

Coordinator: HOVDING SVERIGE AB from:SE

# PLASMAFIL

Project title: Efficient and cost-effective PLASMA surface treatment method Efficient and cost-effective PLASMA surface treatment method for flexible FILtration materials used in the separation of immiscible liquids

Start Date: 2018-05-01 End Date:2018-08-31

Topic: SME instrument

Most frequent returning words in objectives:

* ('treatment', 6)
* ('plasma', 5)
* ('surface', 5)
* ('polymeric', 3)
* ('filtration', 3)
* ('PLASMAFIL', 3)
* ('materials', 3)
* ('experience', 2)
* ('material', 2)

PLUME Srl is an innovative company founded in 2016 as a spin-off from the Plasma Prometeo Centre of the University of Milano-Bicocca. Our main business thrust is developing and marketing innovative and high-tech products based on plasma processing. Although a start-up, Plume has a combined experience of more than 20 years of applied research carried out in plasma treatment, deposition and material functionalization. Over the past year, we have focused our work on plasma processes that modify the hydrophilic and hydrophobic properties of textile, technical textile and polymeric films, gaining sound experience in surface treatment and characterisation in various fields of applications.  
  
After identifying a gap in water-oil filtration systems, we have developed PLASMAFIL, an innovative plasma surface treatment process for flexible filtration materials for the separation of immiscible liquids such as oil and water. Applied on polymeric fabric or polymeric membranes, our plasma treatment modifies the surface tension, altering both chemical properties and morphology of the filtering material surface. This improves the efficiency and durability of water filtration systems. This is done in a cost-effective manner, as PLASMAFIL does not require heat, nor solvent or coatings, therefore saving energy, materials and money.  
  
This is particularly of relevance for the oil and chemical sector where industrials are under economic, environmental and regulatory pressure to improve their oily wastewater treatment.   
  
With PLASMAFIL, we have a vision of expanding our influence and becoming renowned global suppliers of surface treatment processes and treated materials. This will see us grow sustainably, generating €9.48M cumulative revenue by 2024, with a ROI of 2.45.

Coordinator: PLUME SRL from:IT

# LifeCall

Project title: LifeCall Wearable EKG Heart Health Monitoring, Analysing and Warning System

Start Date: 2018-03-01 End Date:2018-08-31

Topic: Open Disruptive Innovation Scheme

Most frequent returning words in objectives:

* ('mobile', 4)
* ('device', 4)
* ('time', 3)
* ('shirt', 3)
* ('textile', 3)
* ('phase', 3)
* ('heart', 2)
* ('health', 2)
* ('record', 2)

Cardiac arrest is the leading cause of death that annually more than 17 million die in the World, 3 million in Europe.  
  
Worldwide 320 billion$ is spent for medication and diagnostics. EKG is a critical element of heart health. The longer we record EKG, deeper the diagnosis we can achieve.  
  
LifeCall is a mobile, wearable EKG device which captures real time EKG and stores it remotely to share with related parties.  
  
It consists of a shirt with newly developed innovative conductive textile electrodes and a device which can read real time EKG and sends it to our mobile application. It has no gel based electrodes since we use a special textile that can conduct low voltage electricity. This use of the nanotechnology based textile is unique.  
  
Our system can record EKG almost for 3 weeks without interruption, with low energy components, optimized wireless transactions. This can open up new era to health care industry. Critical life threatening heart events can be captured before actual damage is done, with just a basic shirt and its supporting ecosystem which is not possible with conventional hospital holter EKG.  
  
There will be 2 separate products that will be commercialized individually:  
  
1) A shirt and accompanying device that captures real time EKG data. The device will pass EKG data to mobile phone for recording which will later be pushed to our servers in a secure and private way.  
  
2) A platform for analysing, routing and sharing of these EKG outcomes with related parties through mobile and desktop applications.  
  
Our target end-users can be considering anyone that may have cardiovascular risk who is between 40 to 65 years old with arrhythmia complications, but pinpointing maximum impact complication is also a target of our feasibility study.  
  
In phase 1, we will conduct a feasibility study on market, pinpoint maximum impact hearth complication, risks, strategy and financial requirements. In phase 2, we will deliver the product based on phase 1 outcome.

Coordinator: SENSENCALL YAZILIM DANISMANLIK MEDIKAL ELEKTRONIK SANAYI VE TICARET ANONIM SIRKETI from:TR

# INTERWOVEN

Project title: Collecting, Displaying and Understanding Textiles in Decorative Arts Museums: Comparative Approaches in London and Madrid.

Start Date: 2016-07-01 End Date:2018-06-30

Topic: Marie Skłodowska-Curie Individual Fellowships (IF-EF)

Most frequent returning words in objectives:

* ('textiles', 5)
* ('museums', 4)
* ('studies', 4)
* ('research', 4)
* ('study', 3)
* ('Cabrera', 3)
* ('collections', 3)
* ('project', 2)
* ('Spain', 2)

This project will uncover how collecting practices reflected and informed wider discourses about the study of textiles in Britain and Spain’s national museums and institutes, by tracing specific textiles before and after their acquisition. Whilst fashion and textile studies are now recognised fields of academic research, we still know little about the role of museums in helping to facilitate this change. Cabrera will build on her extensive research to date at the National Museum of Decorative Arts (MNAD), to undertake new comparative studies of UK and Spanish approaches to the study of textiles. This will be achieved via case studies of some of the Victoria and Albert Museum’s (V&A) earliest acquisitions, which have direct connections with Spain.   
  
The project will focus on the period 1852-1951, during which many key national museums were born. It will assess the collections and impact of the V&A, which was the model for the MNAD. The V&A will undertake a major redevelopment of its Textile and Fashion Galleries commencing after 2017, which makes re-examination of its historic collections very timely.   
  
Cabrera will study textiles held at the V&A from a multidisciplinary perspective, to develop specific object histories and shed light on the formation of European museums and the use of their objects by the creative industries. Case studies will employ approaches from art and design history and engage with new ideas about the transfer of technologies, including the characterisation of raw materials and analysis of fabrics. Key sources will include unpublished archival files, reports and photographs, object labels and the textiles themselves.  
  
Cabrera’s training programme would develop her expertise through sustained engagement with museum collections and curatorial and research staff, working across a range of contexts and disciplines. As well as scholarly outcomes, wide public dissemination of the research will be achieved via online blogposts and catalogue entries.

Coordinator: VICTORIA AND ALBERT MUSEUM from:UK

# smartMELAMINE

Project title: A fire-resistant, thermal and acoustic insulating lightweight fabric

Start Date: 2017-05-01 End Date:2019-04-30

Topic: Accelerating the uptake of nanotechnologies advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('market', 3)
* ('needs', 3)
* ('insulation', 3)
* ('solutions', 3)
* ('smartMELAMINE', 3)
* ('project', 3)
* ('textiles', 2)
* ('regulations', 2)
* ('thermal', 2)

The global market for technical textiles grows rapidly. It is accompanied by increasing customer needs and stricter regulations combined with the demand for lower prices. This is especially true for high-value markets such as automotive insulation, thermal protective clothing or hot gas filtration. Even though these segments appear to be quite different, the major needs are very similar: higher safety (thermal insulation, flame resistance), higher comfort (lightweight, acoustic insulation, filtration efficiency), better processability, lower price. As current solutions cannot fulfil these high demands and regulations, this represents an excellent opportunity for smartMELAMINE. By enabling thermoplastic processing of melamine in a dedicated meltblown process, it is possible to create a fabric with unmatched fibre fineness and a unique set of properties at costs well below competitive solutions. The project is based on a thorough business plan. In talks with more than 100 potential customers, the need for new solutions has been emphasized and a high interest in smartMELAMINE was confirmed. Samples at pilot-scale (width: 300mm) have been produced on a continuously updated pilot plant and tests in an industrial environment have confirmed the processability of the melamine-meltblown at larger scale (TRL6-7). The main objective of the phase 2 project is the upscaling of the production process to industrial scale (2,400mm) and the further improvement of fibre fineness and volume weight, in order to perfectly address the market needs. The partners combine unique know-how regarding melamine processing and meltblown technology. The joint venture SML will build on this know-how to facilitate the commercialisation of smartMELAMINE. Unlimited licenses and patents guarantee the freedom to operate. The project will contribute to strengthen the European leadership in the market for advanced technical textiles and create further employment and wealth throughout Europe.

Coordinator: MELAMIN KEMICNA TOVARNA D.D. KOCEVJE from:SI

participant: SMARTMELAMINE, PODJETJE ZA PROIZVODNJO MELAMINSKIH FLISOV DOO from:SI

# FlowcusinUp

Project title: Scale Up of Microencapsulation Systems by using Flow Focusing Technology

Start Date: 2015-02-01 End Date:2015-06-30

Topic: Accelerating the uptake of nanotechnologies, advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('FlowcusinUP', 5)
* ('market', 5)
* ('Ingeniatrics', 5)
* ('production', 3)
* ('system', 2)
* ('technologies', 2)
* ('applications', 2)
* ('microcapsules', 2)
* ('reduction', 2)

FlowcusinUP global innovation project aims at designing an innovative Microencapsulation industrial-strength system sufficiently scalable, adaptable and versatile to fulfil new market opportunities.  
   
Ingeniatrics is a highly innovative SME with extensive background in micro-and-nanoscale market and technologies, and with an Intellectual Knowledge protected by over 80 national and international patents (and applications). Despite his proven track record, Ingeniatrics’ current laboratory-based manufacturing facility couldn’t afford the increasing demands of the fast-growing microcapsules market.   
  
FlowcusinUP industrialization will improve the efficiency in the process of manufacture, driving Ingeniatrics to produce monodisperse particles with a core-shell full protection and sizes below 100-150 microns. At this moment, there is no system capable of producing microcapsules with ultimate features that allow the patented technologies from Ingeniatrics and with efficient quantity/cost ratio to address industry-wide production.  
  
The present FlowcusinUP Phase 1 will undertake technical, economical, operational and marketing-related analysis to validate the profitability of the solution and successful access to global market. At the end of phase 2 FlowcusinUP foresees a reduction of production costs of approximately 50 times, and reduction of production time around 150 times compared to current systems.   
  
The future commercialization of the FlowcusinUP outcomes will strengthen EU microparticles’ ecosystem and related applications (nutraceuticals, agrochemical, pharmaceutical, food, textiles, paper industry...) and will booster Ingeniatrics to a leading position within the microencapsulation market.

Coordinator: INGENIATRICS TECNOLOGIAS SL from:ES

# DRESSFORMER

Project title: Virtual 3D fitting room for online shopping

Start Date: 2015-04-01 End Date:2015-07-31

Topic: Open Disruptive Innovation Scheme (implemented through the SME instrument)

Most frequent returning words in objectives:

* ('online', 9)
* ('fitting', 5)
* ('technology', 3)
* ('clothing', 3)
* ('avatar', 3)
* ('Dressformer', 3)
* ('returns', 3)
* ('users', 3)
* ('body', 3)

DRESSFORMER is a B2B/B2C platform technology allowing the user to virtually try on clothing pre-purchase and receive personal or professional feedback. The virtual fitting rooms are based on photorealistic 3D avatar & 3D models created from 2 photos of the cloth providing accuracy within 1 cm precision. Dressformer's fitting technology increases profitability of  
retailers by addressing fitting & likability simultaneously, hence reducing returns - better and faster than competing approaches. The current method for trying and visualizing clothes on online stores is highly ineffective as it only allows users the possibility to view clothes in a 2D picture or on a mannequin, resulting in extra costs due to returns from poor fitting  
purchases. Returns constitute more than 40% of items bought online. Out of them 20% of returns are due to poor fit. 80% of the online customers will not buy clothing online again. Dressformer proposes a “try on” button integrated with any online store. The function is based on a patented innovative technology that automatically generates a 3D model of a garment.  
Once pressed the online user is redirected to a pop-up window with 3D image of a dress worn by a 3D avatar that creates a virtual replica of the online buyer’s body. Dressformer generates simulations of clothing on the human form, including a realistic 3D rendering that displays imperfection and a heat map noting where different sizes will fit tightly on the body. The  
users will input their hip, waist and chest measurements into the online fitting application. Once the measurements are inserted the virtual avatar morphs into the natural shape and curves of the individual users’ body while taking materials and elasticity into consideration. This will allow online retail consumers to try on various garments and give them the ability to clearly and accurately distinguish between materials, textures, shapes, folds and embellishments.

Coordinator: DRESSFORMER LTD from:UK

participant: CAMICERIA GIOVANNI TACCALITI SRL

# Bioprene

Project title: Bio-based high-purity isoprene through high-yield technology

Start Date: 2015-04-01 End Date:2015-07-31

Topic: Boosting the potential of small businesses for eco-innovation and a sustainable supply of raw materials

Most frequent returning words in objectives:

* ('isoprene', 6)
* ('Visolis', 5)
* ('produce', 3)
* ('crude', 3)
* ('Isoprene', 2)
* ('by-product', 2)
* ('ethylene', 2)
* ('price', 2)
* ('microbe', 2)

Visolis represent the future in cheap sustainable isoprene. About 770,000 metric tonnes of Isoprene are produced annually and commonly used in tyres, but also many other rubber applications including medical equipment, toys, shoe soles, textiles.   
Currently the cheapest way to produce Isoprene is via its extraction from the steam by-product of ethylene production from crude oil cracking. However due to rising crude oil prices, ethylene is being produced more and more via natural gas that does not create isoprene as a by-product, risking a shortage of isoprene and a subsequent rise in its price. In addition, crude oil cracking releases a lot of C0₂ into the environment, about 5.4tonnes of CO₂ during the entire lifecycle procedure,   
contributing the greenhouse effect.   
Visolis have developed a new microbe and supporting process technology to produce bio-based high-purity isoprene, bioprene. The solution uses proprietary technology based on a bioengineered microbe that converts renewable materials (plant sugars) into isoprene with a high yield. Therefore Visolis are able to produce isoprene for less than half its current   
market price through a process that emits 4 times less the amount of CO₂. Visolis’ method can be industrially implemented by retrofitting bioethanol manufacturers existing fermentor systems.   
Visolis’ bioprocess is at Technology Readiness Level 6 moving towards TRL 9. Phase 1 project aims at assessing the activities needed to standardize the product, scale up to a large pilot implementation and test the market to achieve a sound business model.

Coordinator: VISOLIS TECHNOLOGIES LTD from:UK

# VisuaLook

Project title: Novel clothing e-commerce application for reliable size assignment and realistic fitting visualization

Start Date: 2015-02-01 End Date:2015-07-31

Topic: Open Disruptive Innovation Scheme (implemented through the SME instrument)

Most frequent returning words in objectives:

* ('clothing', 5)
* ('market', 5)
* ('e-commerce', 3)
* ('technologies', 3)
* ('VisuaLook', 3)
* ('Phase', 3)
* ('online', 2)
* ('sales', 2)
* ('application', 2)

E-commerce has become a focal point of expansion and growth for the consumer goods industry. However, clothing market still accounts for a low ratio of online sales compared to more established sectors. Online apparel retailers have a 40% return rate, the highest in e-commerce, being bad fit the main barrier for the online market and causing 75% of these returns. In addition, final buying decision for fashion shoppers relies on the possibility to visualize realistically the look and fit of the garment and this is not possible with the current available technologies.  
  
The overall objective of TecnologíasDIM with this innovation project is to introduce in the clothing e-commerce market a disruptive web-based application (VisuaLook) for reliable size assignment and realistic fitting visualization integrating advanced ICT technologies: mobile application to capture the ‘personal avatar’ (3D body geometry and photorealistic visualization), web-based virtual try on software, and ICT architecture that supports the integration and communication. We expect to reach a leading position in the market, increasing rapidly the market share and sales of the company, encouraged by an innovative and competitive solution for our clients (clothing manufactures and e-retailers) and an easy and fast adoption of the end users (e-buyers), becoming a reference for clothing e-commerce.  
  
Firstly, we will conduct a feasibility study in Phase 1 in order to assess the integration of the core technologies, the shopping experience outline, the regulatory issues and the commercialisation strategy, ending with the elaboration of a comprehensive business plan. In Phase 2 we will perform a pilot study to demonstrate VisuaLook in a real environment with the collaboration of a relevant e-retailer of the clothing sector. VisuaLook will be ready for commercialization in Phase 3.

Coordinator: TECNOLOGIAS DIM SL from:ES

# CGM

Project title: A next generation nano media tailored to capture and recycle hazardous micropollutants in contaminated industrial wastewater.

Start Date: 2018-04-01 End Date:2020-03-31

Topic: Accelerating the uptake of nanotechnologies advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('micropollutants', 5)
* ('water', 5)
* ('company', 3)
* ('capture', 3)
* ('CustoMem', 3)
* ('development', 2)
* ('clean', 2)
* ('supplies', 2)
* ('contaminants', 2)

Customem Ltd is a company founded with the long term vision to harness nature’s capacity to make biomaterials to promote human health in alignment with sustainable development goals. A next generation nanomedia that can be tailored to capture and recycle specific micropollutants in contaminated industrial wastewater. Lack of access to clean water is predicted to affect 47% of the world’s population by 2030. Contamination of water supplies by micropollutants such as metal ions, pesticides and pharmaceuticals is a major contributor to this water stress. These pollutants are released by industrial processes in the textile and manufacturing industries. Existing water treatment removes 99.96% of contaminants, but does not remove the 0.04% of micropollutants. Although the remaining contaminants seem small, they are a major problem as they are exceptionally difficult to capture but also highly toxic to humans and animals. CustoMem have developed a customisable selective nanocellulose media called CustoMem Granular Media (CGM) that is bioengineered to capture and remove all micropollutants including the 0.04% that cannot currently be removed. Customers benefit from a simple, low cost, low energy solution that is low maintenance. It allows removal of all micropollutants resulting in clean water supplies. The company is headquartered in the Imperial College Incubator UK and currently has 6 employees. The company is currently in talks with companies in the EU who have shown an active interest in the project. The Phase 2 project will allow CustoMem to finalise CGM development and accelerate its market introduction.

Coordinator: CUSTOMEM LTD from:UK

# CARBIDE2500

Project title: The first 2500°C industrial furnace, for higher efficiency and up to 5 times higher strength materials

Start Date: 2018-05-01 End Date:2020-04-30

Topic: SME instrument

Most frequent returning words in objectives:

* ('Carbide', 7)
* ('powder', 4)
* ('Carbides', 3)
* ('strength', 3)
* ('furnaces', 2)
* ('furnace', 2)
* ('systems', 2)
* ('operating', 2)
* ('sectors', 2)

With nearly 50 years of experience and holding international field offices in China, Japan, Taiwan, Korea, Brazil, Russia, Turkey and Italy, CREMER Thermoprozessanlagen GmbH is one of the world leading companies in industrial furnaces. Always working at the edge of technology, our company is specialized in pusher furnace systems with graphite coating, operating at extremely high-temperatures, above 2000°C. These systems are used in Carburizing processes of powder Carbides, such as Tungsten Carbide (WC).  
The European economic downturn, that has particularly affected large industrial sectors, impelled the necessary economic recovery. As one of the consequences, the demand for higher strength materials has significantly increased. These materials are required for their longer use-life and higher overall performance, allowing for lower operational costs.  
One of the most common Carbide powders is the Tungsten Carbide (WC). WC powder is used in many different applications and across multiple large industrial sectors, including utomotive and Aerospace Manufacturing, Construction, Surface and Underground Mining, Oil & Gas Exploration, as well as in many Manufacturing Industries (e.g. Paper, Textiles; Electronics).  
The global Tungsten Carbide powder market is expected to grow from 13.60 billion € in 2016 to 22.91 billion € in 2026, at a CAGR of 5.4%. Demand for other Carbides, such as Tantalum Carbide or Niobium Carbide, is also increasing. Tests have proven that Tungsten Carbide (WC) powder produced at 2500°C is 3 to 5 times higher strength than the same material produced at 2200°C. The problem is that, at industrial scale, there are no such furnaces able to operate at 2500°C.  
CARBIDE 2500 is the first industrial furnace capable of operating at 2500°C, making it possible to produce the highly demanded higher strength Carbides. With a potential market estimated at 1.08 billion € in 2020, a yearly urnover of 45.73 million €, in 2024, is expected with CARBIDE2500.

Coordinator: CREMER THERMOPROZESSANLAGEN GMBH from:DE

# CHBTECH

Project title: Sulphur-free production method for non-food biopolymers (dissolving pulp, hemicellulose and lignin)

Start Date: 2019-03-01 End Date:2021-02-28

Topic: SME instrument

Most frequent returning words in objectives:

* ('biomass', 4)
* ('technology', 4)
* ('wood', 3)
* ('hemicellulose', 3)
* ('lignin', 3)
* ('material', 3)
* ('bio-chemicals', 2)
* ('constituents', 2)
* ('fractionation', 2)

Wood-based biomass is one of the richest sources of bio-chemicals on Earth. Of the main constituents of wood – cellulose (40-50%), hemicellulose (20-30%) and lignin (20-30%) – mainly cellulose/pulp is utilised today. Rest of the biomass is disposed as waste. The main obstacle for wider use and further development of these hemicellulose and lignin is the lack of availability. Furthermore, current fractionation methods (based on Kraft process) use sulphur, which destroys the material properties of valuable bio-chemicals.   
CH-Bioforce Oy has developed a sulphur-free biomass fractionation technology, which allows the extraction of all three wood-based biomass constituents in an economically sound way, with extremely high purity, and in industrial scale. Technology is flexible in size, and can utilize practically any kind of wood as raw material, e.g., birch, pine, spruce, eucalyptus, even wheat straw and bagasse. The process works well even with low quality wood, such as sawdust and logging residues, which are not suitable for commonly used pulping processes.   
CH-Bioforce´s technology offers a renewable and cost-competitive option to replace fossil and food-based raw materials in a wide variety of applications, e.g in textiles, chemicals, and plastics. Company has conducted an intensive material testing and evaluation for dissolving pulp, polymeric hemicellulose and sulphur-free lignin produced by their pilot plants, and has already attracted several global corporations in energy, pulp&paper, and chemical industries. Business model for CH-Bioforce is to licence its technology to companies, who aim to produce and sell bio-based raw materials. Aim of this proposed project is to develop CH-Bioforce´s technology from current TRL-7 to TRL-9, to prepare the business scale up, and to convince the first customer to make the investment decision by the end of the project.

Coordinator: CH-BIOFORCE OY from:FI

# EGgPLANT

Project title: Sustainable and carbon-efficient mono-Ethylene Glycol generation in demonstration PLANT

Start Date: 2018-07-01 End Date:2020-06-30

Topic: SME instrument

Most frequent returning words in objectives:

* ('plant', 4)
* ('process', 4)
* ('project', 3)
* ('sources', 3)
* ('cost', 3)
* ('product', 3)
* ('Europe', 3)
* ('scale', 2)
* ('demonstration', 2)

The EGgPLANT project will scale up in a demonstration plant a novel method to produce monoethylene glycol (MEG) from renewable carbohydrates using a highly carbon efficient catalytic process.   
The global MEG market demand is growing from a current base of 30 Mton/year to over 50 Mton by 2035, requiring more than a million tons of additional supply every year for the next twenty years.  
Today, almost all of the MEG produced globally is from fossil sources despite a stated need from forward-looking brand owners, packaging and textile companies to source MEG from renewable sources.  
There is one provider of bio-based MEG on the market which is using an inefficient and expensive process compared to lower cost oil, shale gas, and coal-based alternatives. This high cost position is hampering the widespread use of bio-based MEG.  
To address this issue, Avantium has developed a one-step ‘Mekong’ process for producing bio-MEG from renewable sources which can compete with the incumbent fossil-based product on both cost and quality, making the product competitive in the global marketplace and poised to be a sustainable supply solution to address the increasing demand.  
The demonstration plant (11 ton/year) built and operated in this project allows for techno-economic scale-up and evaluation of the process, in addition to producing relevant sample quantities of product to support downstream validation in at least three applications, collecting of data to conduct a third-party environmental life-cycle assessment (LCA) and preparation for scale-up to industrial size plants.  
The next phase after this project is to deploy a 200 kton/year Mekong flagship plant with a strategic partner in Europe. Target customers of this flagship plant will primarily be European polyethylene terephthalate (PET) producers. Avantium and the strategic partner will deploy subsequent industrial scale plants in Europe, and will license out the technology to parties in geographies other than Europe.

Coordinator: AVANTIUM CHEMICALS BV from:NL

# ZYMVOLVER

Project title: Launching A Unified Cloud-Based Platform for Next Generation Protein Editing

Start Date: 2018-06-01 End Date:2018-09-30

Topic: SME instrument

Most frequent returning words in objectives:

* ('protein', 4)
* ('Europe', 3)
* ('tool', 3)
* ('enzymes', 2)
* ('software', 2)
* ('engineering', 2)
* ('computational', 2)
* ('life', 2)
* ('amounts', 2)

Actually, global enzymes market is today €8.18 billion and forecasted to reach €17.5 billion by 2024, so a sector growing at a CARG \9.56% in a 7-year projection. Europe is a main contender with over 62% of the exports. However, most companies with dedicated software for protein engineering computational are found in North America (46.0%), followed by Europe (29.4%), Asia-Pacific (17.9%) and RoW (6.7%).   
The production of daily life products such as paper, textiles, food, feed, chemicals and pharmaceuticals consumes large amounts of resources, water and energy. Furthermore, it generates enormous amounts of waste with an adverse impact on our environment and quality of life. Many studies show that implementing enzymatic processes instead of conventional chemical catalysis contributes to a more sustainable industry, reducing global warming (OECD, 2009; European Commission, 2009).  
ZYMVOLVER is a computer-driven speciality management to protein producers and industrial manufacturers. It offers a computer-aided decision-making tool for the adoption of industrial enzymes in standard industrial processes. We have developed a tool that will allow the democratization of computer-aided protein engineering. We offer a state-of-the-art, accessible, all-in-one computational tool that customize proteins with a 90% accuracy in terms of substrate selectivity, far beyond competition.   
ZYMEVOLVER - is exclusively owned by Zymvol. Our cloud-based, cost-effective software allows us to design any industrial enzyme from scratch, saving 50% of time and enzyme developing costs.  
The founding of Zymvol Biomodeling SL has over 20 years of combined experience previously working at one of Europe’s most important supercomputers – Barcelona Supercomputing Centre, which has been a necessary infrastructure for protein editing.   
ZYMVOL won the first prize in the pitch competition for most promising industrial start-up of 2017 organized by IQS Tech Factory and Richi Social Entrepreneurs in Boston.

Coordinator: ZYMVOL BIOMODELING SL from:ES

# HARVEST

Project title: Hierarchical multifunctional composites with thermoelectrically powered autonomous structural health monitoring for the aviation industry

Start Date: 2018-09-01 End Date:2021-08-31

Topic: Breakthrough innovation

Most frequent returning words in objectives:

* ('systems', 4)
* ('composites', 3)
* ('technologies', 2)
* ('carbon', 2)
* ('thermoset', 2)
* ('matrix', 2)
* ('self-repair', 2)
* ('materials', 2)
* ('parts', 2)

HARVEST will unleash the potential of breakthrough technologies by creating integrated multifunctional systems for Aeronautics via the development of i) Structural composites, comprised of hierarchical carbon fiber (CF) reinforcements and an innovative thermoset 3R (repair, recycle and reprocess) epoxy matrix with ThermoElectric Generation (TEG) and self-repair capabilities, ii) Autonomously TEG -driven integrated systems for on- and off-line structural health monitoring-(SHM) and iii) Wired and low-power wireless SHM data transmission and mining system. The innovative intelligent materials and parts, will be manufactured in purposefully developed pilot lines aiming at reducing production time and costs.   
CFs yarns or textiles will be coated with nanomaterials using facile & environmentally friendly deposition and doping methods in a Roll-to-Roll (R2R) pilot line targeting dramatically increased TEG performance compared to existing composites, carbon and organic based materials. Innovative TEG-hierarchical composites will be manufactured with new generation 3R thermoset matrix systems enabling out of autoclave manufacturing and self-repair. These will be interfaced with a purposely designed hardware to (i) power inherent functionalities (e.g. strain, damage or UV-exposure sensing), (ii) drive external elements (e.g. piezo electric sensors for SHM) and (iii) transmit sensing signals to a remote panel. The autonomous SHM systems will increase the safety of civil aviation; reduce emissions and maintenance & life cycle costs. The proposed technologies will be finally integrated in two aircraft demonstrator parts, targeting areas with temperature gradients (e.g. engine vs. environment, inside vs. outside fuselage during flight) or where quick heat dissipation is essential (e.g. landing gear after take-off). The location of suitable heat sinks in real structures will be established using advanced numerical tools to identify thermal gradients in operating environment.

Coordinator: PANEPISTIMIO IOANNINON from:EL

participant: INSTITUT FUER VERBUNDWERKSTOFFE GMBH

participant: SOCIETE NATIONALE DE CONSTRUCTION AEROSPATIALE SONACA SA

participant: TIRIAKIDIS BASILEIOS ANONIMI BIOMICHANIKI EMPORIKI TECHNIKI ETAIRIA AE

participant: UNIVERSITA DEGLI STUDI DI PADOVA

participant: TELETEL TECHNOLOGIA TILEPIKOINONION KAI PLIROFORIKIS ANONYMI EMPORIKI VIOMICHANIKI ETAIREIA

participant: CARBURES AEROSPACE & DEFENSE GLOBAL SA

participant: FOM TECHNOLOGIES APS

participant: STEINBEIS ADVANCED RISK TECHNOLOGIES GMBH

participant: NANOCYL SA

# NMRT

Project title: Using Nano-Magnetic Resonance to deliver the world’s most cost-efficient system for the treatment of toxic industrial and landfill wastewater

Start Date: 2019-01-01 End Date:2019-06-30

Topic: SME instrument

Most frequent returning words in objectives:

* ('NMRT', 5)
* ('wastewater', 4)
* ('project', 3)
* ('treatment', 3)
* ('water', 3)
* ('years', 3)
* ('market', 2)
* ('technology', 2)
* ('resonance', 2)

The NMRT project aims at rolling to market a disruptive technology that uses electromagnetic resonance to treat wastewater, producing inert flocculates as a biproduct. The current TRL 6 prototype has been successfully tested in different kinds of wastewater (winery, landfill, leachate, tannery and textile industries), with two valid independent laboratory analyses to confirm it. Our fist paid pilot is running since June 2018 with great results.  
NMRT has competitive installation costs (CAPEX - for both new wastewater treatment plants and as a secondary and tertiary system retrofitted in existing facilities) and has low maintenance and energy costs (OPEX), with no need for chemicals (compared to current best available technologies, such as reverse osmosis).  
Difficulties in reaching full compliance with EU water directives such as the Urban Wastewater Treatment Directive include high investment needs, mobilisation of the necessary funding, long and complex procedures for creating new infrastructure and for improving existing ones. NMRT is an innovative electromagnetic resonance treatment that specifically targets the pollutants that need to be eliminated before water can be reused for irrigation or groundwater discharge. Our project aligns completely with wastewater challenges identified by EU directives and legislation and H2020 objectives.  
We aim at demonstrating NMRT at a large-scale plant, and will make use of the Phase 1 project to prepare a detailed feasibility study to confirm the viability of our solution and gather potential client feedback and willingness-to-buy.  
FUNCIONAL is a European start-up created in 2016 specifically to bring NMRT technology to the market, and our consulting services and small-scale treatment plants have generated a turnover of 100.000€ in 2017. Our CEO has over 15 years of entrepreneurship experience, our Head of RDI is a waster water expert with 25 years of experience and our Head of Sales has 30 years of commercialization expertise.

Coordinator: FUNCIONAL - SOLUCOES TECNOLOGICAS,LDA from:PT

# ORTIKA

Project title: Toward sustainable fashion: nettle and blueberry garments to promote sustainable development of mountain areas and to boost young talents

Start Date: 2018-12-01 End Date:2019-05-31

Topic: SME instrument

Most frequent returning words in objectives:

* ('nettle', 4)
* ('clothing', 3)
* ('environment', 2)
* ('ORTIKA', 2)
* ('project', 2)
* ('creation', 2)
* ('blueberry', 2)
* ('collaboration', 2)
* ('hand', 2)

In the EU, the clothing industry alone accounts for 10% of the EU life-cycle environmental impacts and to several socio-environmental issues such as heavy use of chemicals, pesticides, substances harmful to the environment and human health, water/soil contamination, intensive farming practices, obsolescence of final products, waste production, CO2 emission and exploitation of cheap labor. ORTIKA takes its origins from the experience of the project “Divenire – School of Dreamers” of 13 young people involved in the project, living in the Modenese Apennine. The concept and its implementation lead to the creation of a start-up producing natural garments, starting from nettle and mixed nettle and blueberry. Natural fiber composites market is foreseen to grow at a CAGR of 11.33% from 2017 to 2021 and to reach 10.89 billion USD by 2024. The result is a new form of collaboration between all the actors involved, delivering, on one hand, the idea of strong collaboration based on each member talent and, on the other hand, the message of returning to a natural eco-lifestyle. Therefore, our innovation combines EU priorities (REACH regulation, Biocide Regulation, EU Textile and Clothing Vision for 2025, Circular Economy Action Plan, EU Ecolabel Textiles, Single Markets for Green Products, European Clothing Action Plan) with consumers’ needs by offering environmentally friendly clothing in nettle and mixed nettle and blueberry. Product design has a key role to conceive appealing and customized clothing inspired by sense of harmony, wellness, self-expression, sustainability and uniqueness. Further, ORTIKA targets the EU2020 employment strategy, EU2020 Growth strategy and New Skills Agenda through the revitalization youth employment in rural areas and the creation of a human-centered business environment. Research and expression of talents are intended as elements that increases the habitability of remote territories while becoming a source of wealth for the individual and society.

Coordinator: BETTI VALERIO from:IT

# NaturalDyers

Project title: Textile mass-personalisation and process-automation, integrating the textile value-chain to deliver scalable ‘Virtual Giga Factory’ production of biodegradable woven textiles.

Start Date: 2018-10-01 End Date:2019-03-31

Topic: SME instrument

Most frequent returning words in objectives:

* ('industry', 4)
* ('value-chain', 3)
* ('production', 3)
* ('material', 3)
* ('supply', 3)
* ('supply-side', 2)
* ('textiles', 2)
* ('demand', 2)
* ('textile', 2)

The supply-side value-chain of the textiles industry is highly fragmented, with difficulties in planning and scalable production of biodegradable material and produce bio-based yarns. Additionally, the sector is not verticalized on the supply-side, so powerful actors on the demand side control the supply-chain, whether big retailers or luxury Haute Couture design houses. The textile industry is a massive market employing millions, the majority being SME or self-employed professionals. Climate Change and other natural phenomena are further destabilising the regular supply of raw bio-based material. Small players are struggling in the face of further industrialisation, automation and consolidation of power. Big players mostly focus on chemical-based materials, so they can plan high-scale production - they struggle to find a way out from the major social and ecological challenges upstream. Consumers, designers, ateliers and other agents increasingly demand higher-quality customisable textiles with stricter sustainability criteria. Policy makers are pressing for better social and eco-efficiency practices.  
The emergence of digital technologies (connectivity, cloud-platforms, Internet-of-Things, and emergence of Smart Factories) is enabling a new era that will transform the way the textile industry is organised, redefining the bargaining relationships across the entire supply chain, and promoting organised mass-production of biodegradable fibres. Digitisation is promising new methods that make biodegradable production of fibres and natural dyes predictable and scalable, mitigating climatic risks, seasonality, and organising supply of raw material, promoting a circular bio-based economy.  
Digitisation provides democratisation to thousands participating in the value-chain, enabling co-organisation and cloud-based process-automation.  
NaturalDyers promises to disrupt the traditional value-chain and relation structures to address the important challenges faced by the industry.

Coordinator: NATURALDYER OU from:EE

# SMARTGEARBOX

Project title: Development of a new gearbox without lubricants for low OM costs, higher efficiency, and oiless applications

Start Date: 2014-11-01 End Date:2015-02-28

Topic: Accelerating the uptake of nanotechnologies, advanced materials or advanced manufacturing and processing technologies by SMEs

Most frequent returning words in objectives:

* ('company', 4)
* ('product', 3)
* ('customers', 3)
* ('manufacturing', 2)
* ('costs', 2)
* ('maintenance', 2)
* ('lubricants', 2)
* ('increase', 2)
* ('sales', 2)

Located in the Bologna region in Italy, our company, VARVEL, is specialized in manufacturing of speed reducers and variators for light industry applications, such as machinery, conveyors, feeding systems, photovoltaic devices or sliding doors and so on (metalworking, chemical, textile, farming, construction industries).   
From its establishment in 1955, innovation has been guiding our company in every decision and business strategy, making us a strong and reliable partner in power transmission equipment on the international scene (Production: 300,000 units/Turnover: €31 million [2013]): from product research to increasing use of automation and robotics in manufacturing, from company management by formalized processes to logistics flow computerization. All our efforts focusing on the customers’ needs and satisfaction, in terms of product uses, costs and performance.  
Listening to our customers’ feedback and concern on oil maintenance and leaking risks, we have been working on new “oiless gearbox”: by eliminating oil lubricants, we can decrease the operation and maintenance costs of our products by 50% and increase their efficiency by 10-15% while making them more environmental friendly. Besides, this new product will allow us to penetrate new markets such as food processing and medical, where the use of lubricants is prohibited. This project, called Smart GearBox, aims at integrating our developments on our worm-wheel gearboxes for commercialization, achieving a long-term profitability for both our customers and our company: increase of sales margin by 11% and sales by 42%, leading to an additional 6.3 million of turnover by 2020

Coordinator: VARVEL SPA from:IT

# Insuwaste

Project title: Recycling of hard-to-treat, post-consumer textile wastes and conversion to insulation material for construction industry using a novel conversion technology.

Start Date: 2014-11-01 End Date:2015-04-30

Topic: Boosting the potential of small businesses for eco-innovation and a sustainable supply of raw materials

Most frequent returning words in objectives:

* ('fibre', 5)
* ('waste', 4)
* ('manufacturing', 3)
* ('project', 2)
* ('scale', 2)
* ('carpets', 2)
* ('mattresses', 2)
* ('thermal', 2)
* ('and/or', 2)

This project, is relevent to call topic SC5-20-2014-1, is designed to scale up, develop and commercialise a manufacturing process for converting currently unusable post-consumer contaminated fibre waste from carpets and mattresses to a value added thermal and/or acoustic insulation for use in the building & construction industry. The project develops a novel insulation panel or roll with the effective design and development of a manufacturing system to collect and reprocess with novel anti-bacterial treatments to produce a competitive product that can be systemised at the commercial scale.   
  
A successful proof of principle trial and sample material has been produced. A detailed techno-economic feasibility study and experimental work is required for the improvement of the thermal performance and neutralisation of the bacterial contamination in the recycled fibre waste from carpets and mattresses. In addition, the production line requires machinery for cutting, tearing, cleaning, anti-bacterial contamination processing and packaging at the manufacturing level. EC support is the catalyst needed to drive this innovation into the market, while the exposure the scheme brings will help us to penetrate the market more quickly and exploit this technology in the UK, and will exploit within Europe and/or licence to others. The likely benefits to the partners, endusers and society are the access to valuable textile fibre, a significant reduction of carbon emissions and fostering business models that bring fibre waste close to zero and build a better understanding of the environmental impact of carpet waste fibre, as well as to mitigate the dependency of Europe on imported raw textiles.

Coordinator: JAMES ROBINSON FIBRES LIMITED from:UK

# WEAFING

Project title: Wearable Electroactive Fabrics Integrated in Garments

Start Date: 2019-01-01 End Date:2023-06-30

Topic: Flexible and Wearable Electronics

Most frequent returning words in objectives:

* ('textile', 8)
* ('technology', 5)
* ('garments', 4)
* ('actuators', 4)
* ('muscles', 4)
* ('wearables', 3)
* ('sensors', 2)
* ('stimulation', 2)
* ('lightweight', 2)

WEAFING will develop innovative garments with integrated textile actuators, sensors, and electronics for haptic stimulation. We will advance the technology and manufacturability of electroactive fabrics resulting in lightweight and flexible textile actuators. Integration of the actuators in wearables takes into account different textile morphologies, soft mechatronics, producibility, and human perception. The garments developed will have a high level of wearability as the actuator is the garment itself and the technology is silent. These wearables are based on a new kind of textile muscles that are also enhanced within the project. In wearable technology, most R&D comprises sensors and only very little concerns wearable actuator technology. There is a limited set of actuators for wearables and 95% of the applications for haptic feedback are based on vibration motors. Textile muscles offer a completely novel and different quality of haptic sensation. Furthermore, being textiles they offer a new way of designing and fabricating wearable haptics and can be seamlessly integrated into garments. They are silent, use low driving voltages, lightweight, soft and pliable, in contrast to other solutions that most often are hard, bulky and noisy. For these novel form of textile muscles we foresee a huge range of possible applications in haptics: for ergonomics, wellness, gaming, inclusion, or social communication. Electromechanically active polymers form a basis for the textile muscles. When low voltage is applied to the coated yarns, they contract. Processing the yarns into textiles multiplies the effect of the contraction and/or delivered force, depending on the textile construction. In a co-design approach involving end-users we will develop demonstrator garments for haptic stimulation and investigate their properties in a multidisciplinary team with members from chemistry, physics, soft mechatronics, textile technology, human perception and cognition, and wearable design.

Coordinator: UNIVERSITEIT TWENTE from:NL

participant: LINKOPINGS UNIVERSITET

participant: WEARABLE TECHNOLOGIES AG

participant: UNIVERSITE DE CERGY-PONTOISE

participant: ELITAC SYSTEMS BV

# LiveRest

Project title: Intelligent control system based on smart textiles to reduce pressure injury risk by real time measure of tissue viability, and intelligent trigger of prevention strategies adapted to user and context

Start Date: 2018-11-01 End Date:2020-10-31

Topic: SME instrument

Most frequent returning words in objectives:

* ('patients', 4)
* ('costs', 3)
* ('prevention', 3)
* ('risk', 3)
* ('Injury', 2)
* ('year', 2)
* ('EPHS', 2)
* ('resources', 2)
* ('caregivers', 2)

85% of Spinal Cord Injury (SCI) patients will develop a Pressure Injury (PI), and 8% of them will die due to associated complications. PI treatment costs €20 billion per year to the European Public Health System (EPHS), uses a lot of resources (e.g. caregivers and hospital beds) and causes injuries to the caregivers that perform repositioning of the patients, resulting in compensation costs and extra human resource reduction. PI are preventable, however 38% of PI appear using current commercial prevention devices because PI risk assessment is only based on pressure instead of Tissue Viability (TV) which also takes into account user status and context. The aim of this project is to demonstrate in operational environment, produce and commercialise in the Assistive Technology market LiveRest system, a disruptive ICT solution that is able to avoid the development of PI, being the only device on the market that clinically demonstrates PI prevention. LiveRest will be embedded on a personalised wheelchair, and its novelties are: a) to measure PI risk in real time based on TV with impedance, pressure, temperature and humidity textile sensors; b) to decide the best combination of PI prevention strategies based on risk, user and context; and c) to perform the selected strategy based on combined actuation systems. LiveRest is aligned with key EU global challenges: disability, independent living, job inclusion, reduction of social and health care costs, and increase of labour. Target customers are SCI patients and hospitals. Benefits for the patients are increased sitting time and enhanced health, social inclusion, independent living and ageing well. EPHS savings will result in more than €40 million per year, plus avoid loss of medical resources. During Phase 2, we will achieve the free marketability of LiveRest, demonstrate the system in operational environment and elaborate an investor-ready business plan, including commercialisation and mass-production strategies.

Coordinator: QIMOVA AS from:DK

# RADIANT PANEL

Project title: MULTIFUNCTIONAL HEATED AUTOREGULATED PTC RADIANT PANEL

Start Date: 2018-11-01 End Date:2021-10-31

Topic: Thermal conductive coating providing self-limitation of heating power at a selected temperature level

Most frequent returning words in objectives:

* ('cabin', 6)
* ('panel', 5)
* ('RADIANT', 3)
* ('project', 3)
* ('thermal', 2)
* ('comfort', 2)
* ('industry', 2)
* ('consortium', 2)
* ('years', 2)

The RADIANT Project has for ambition to create the smartest self-limiting heating system integrated on cabin panel to revolutionize the thermal comfort of Aircraft while contributing to the competitiveness of our industry.   
The consortium members are HUTCHINSON, a world leader for Cabin solutions, CANOE is a R&T centre with more than 5 years of expertise in the field of cost-effective carbon fibrous materials and smart composites especially for aeronautics market and CTAG a non-profit technology Center with years of expertise in the numerical simulation for thermal efficiency active in the automotive industry.   
The RADIANT PANEL project offers a disruptive innovation proposal based on three main pillars:   
A new positive temperature coefficient (PTC) textile coating made of ex-cellulose carbon fiber and a PVDF-based polymer,   
A heated multi-functional cabin panel  
A fully robotized manufacturing cell for the cabin panel assembly.   
During the project, 2 type of coating will be tested. The textile coating will be assembled with their connectors on the top layer of the cabin panel by a collaborative work between a Cobot and a 6 axis robot. It is also proposed to carry out the full cabin temperature and air flow simulation using a specific software (TAITherm) coupled with the Human Thermal Module for the comfort prediction. Functionnal test and certification test will be validated the soltuion.   
The RADIANT project has a 36 months duration and a budget of 702,516€. The consortium aims to take 10% market share of the cabin panel business, evaluated at 90 M€.

Coordinator: HUTCHINSON SA from:FR

participant: FUNDACION PARA LA PROMOCION DE LA INNOVACION, INVESTIGACION Y DESARROLLO TECNOLOGICO EN LA INDUSTRIA DE AUTOMOCION DE GALICIA from:ES

# HUMAN TEXTILES

Project title: Human, Woven, Tissue-Engineered Blood Vessels (TEBV) Exclusively from Cell-Assembled Extracellular Matrix (CAM).

Start Date: 2018-11-01 End Date:2023-10-31

Topic: ERC Advanced Grant

Most frequent returning words in objectives:

* ('human', 6)
* ('TEBV', 6)
* ('animal', 5)
* ('Task', 4)
* ('method', 3)
* ('yarns', 3)
* ('properties', 3)
* ('allogeneic', 3)
* ('vascular', 2)

'Synthetic vascular grafts perform very poorly in small diameter applications (coronary/peripheral bypass) and for dialysis access. Better vascular conduits for these applications would be life and limb-saving for a very large patient population. A biological, human, tissue-engineered blood vessel (TEBV) may be such a device. We have developed a method to produce robust sheets of cell-assembled extracellular matrix (CAM) from normal, adult, human fibroblasts in vitro. These have been rolled into TEBV and shown promising clinical results. However, this initial rolling approach is very costly, time consuming and has limited mechanical design potential. Here, we propose a new textile-based assembly method that can lift all these limitations.  
  
Task#1 will aim at processing CAM sheets into various types of yarns (human and large animal) and characterizing composition, organization, and mechanical properties. Task#2 will aim at quantifying the in vivo remodeling of the various yarns in nude rats (human yarn) and in an allogeneic recipient (large animal) as subcutaneous implants. This screening process will identify yarns with the best biological response and mechanical profiles. Task#3 will aim at weaving human and animal, non-living, TEBVs with clinically relevant biological and mechanical properties. Task#4 will evaluate the long-term (1 year) performance of the animal TEBV in an allogeneic setting.  
  
This study will provide:  
1) in-depth understanding of the immune reactivity of this CAM, both from the innate and specific immune system.  
2) long-term performance data of a woven, CAM-based, TEBV in an allogeneic setting (animal).  
3) a human woven TEBV with clinically relevant mechanical properties ready for in vivo testing.  
This “next generation” assembly method will reduce TEBV production time/cost 3-fold and represents a more versatile, reliable and highly tunable approach. HUMAN TEXTILES will provide a COMPLETELY NEW TYPE OF SCAFFOLD for engineering a variety of organs.'

Coordinator: INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE from:FR

# MAXHEAT

Project title: The best wearable heating system on the market. Together with strong clothing brands.

Start Date: 2018-09-01 End Date:2020-02-29

Topic: SME instrument

Most frequent returning words in objectives:

* ('MaxHeat', 7)
* ('heating', 5)
* ('clothing', 5)
* ('Inuheat', 4)
* ('users', 4)
* ('brands', 3)
* ('systems', 2)
* ('strategy', 2)
* ('implement', 2)

Inuheat is an innovative Swedish company who focuses on developing wearable heating systems which can be easily integrated in clothing. Our business strategy is to associate with leading clothing brands who implement our technology in their clothes. With a consolidated team of 12 engineers, developers and sales experts, our aim is to become the global standard in wearable heating technologies.  
Available wearable heating systems face multiple limitations, mainly the need for costly adaptations of manufacturing lines, a high price and low comfort, durability and efficiency. In 2016, Inuheat started the commercialisation of the Inuheat Wearable Heating Platform (IWHP), an innovative wearable heating system with advanced features allowing an easy implementation into standard clothing manufacturing equipment. The IWHP was introduced in 8 sock lines commercialised by Seger arousing great interest among final users and clothing brands.   
MaxHeat is the next step in Inuheat’s product pipeline. It will help outdoors enthusiasts and workers to keep warm by offering an affordable, easy to implement wearable heating system providing comfort, durability (3 years) and efficiency (8 hours battery life) while enabling full product traceability and a disruptive 2-way communication channel with the final users of the garments through a cloud network.  
MaxHeat has reached a TRL7 and is protected by 2 patents. Through MaxHeat project we aim to up-scale our production and fully develop MaxHeat cloud network. MaxHeat scale up will allow us to bring our production to Sweden, creating jobs and contributing to the development of the European industry. A strong commercialisation strategy will guarantee MaxHeat successfully reaches its target end users (clothing brands and final users of the heated garments), expanding our client base and sales. The market for smart textiles like MaxHeat is booming (33.6% CAGR) and is expected to reach €7.1 billion by 2022 creating a unique market opportunity.

Coordinator: INUHEAT GROUP AB from:SE

# CLIPP PLUS

Project title: Manufacture and commercialization of high quality recycled polyolefin films using an innovative continuous extrusion recycling process assisted by sc-CO2 for printed plastic waste

Start Date: 2015-07-01 End Date:2017-12-31

Topic: Boosting the potential of small businesses for eco-innovation and a sustainable supply of raw materials

Most frequent returning words in objectives:

* ('waste', 6)
* ('packaging', 6)
* ('SKYMARK', 5)
* ('films', 3)
* ('products', 3)
* ('plastic', 3)
* ('industry', 2)
* ('material', 2)
* ('value', 2)

Every year at EU level more than 240 kt of waste printed or laminated films are generated by converting industry. Mechanical recycling of this waste is challenging due to the presence of inks and adhesives so that this recycled material is only suitable for manufacture low value products (rubbish bags, irrigation pipes and pots) when not diverted to energy recovery and landfill which has a negative environmental and societal impact.   
CLIPP \ aims to introduce into the market a cost-competitive environmentally friendly recycled PE film to be reused in the original or other high added value applications (such as packaging films) through a innovative technology based on a previous EU project (CLIPP) which demonstrated the effectiveness of supercritical CO2 technology to remove the contaminants associated to this type of printed/laminated plastic packaging.   
Turning waste into a valuable resource is a goal for SKYMARK in order to contribute to raw material savings and more sustainable development. CLIPP\ project is fully aligned with Directives 94/62/EC and 2008/98/EC encouraging the reuse of materials obtained from recycled packaging waste for the manufacturing of packages improving market conditions and reaching zero plastic waste to landfill by 2020 in Europe.  
SKYMARK (UK) is one of the leading independent manufacturers of flexible packaging solutions in Europe. The company has an excellent reputaton in the converting industry for the quality fo its products for packaging sector including films for fresh produce, flowers, labels, stationery, textile, tissue, food & drink, wipes, hygiene & medical and other industrial & technical goods.   
SKYMARK emphasis is on developing innovative, technologically advanced and environmental aware products. SKYMARK cares for the environment and offers a range of sustainable packaging solutions.   
SKYMARK is an accredited re-processor of plastic waste materials by UK Department for Environment, Food & Rural Affairs (DEFRA) for t

Coordinator: SKYMARK PACKAGING INTERNATIONAL LIMITED from:UK

# PixCell

Project title: Photonics Cellulose Pigments

Start Date: 2018-10-01 End Date:2020-03-31

Topic: ERC-Proof of Concept

Most frequent returning words in objectives:

* ('photonic', 3)
* ('pigments', 3)
* ('cellulose', 3)
* ('fabrication', 2)
* ('novel', 2)
* ('nanocrystals', 2)
* ('objective', 1)
* ('proposal', 1)
* ('process', 1)

The objective of the proposal is to develop a process for large-scale fabrication of a novel class of cellulose-based photonic pigments, which will replace traditional, potentially hazardous colorants that are currently used in industry for cosmetics, food, textiles and security labelling. These novel photonic pigments consist of micron-sized spherical particles composed of naturally-derived cellulose nanocrystals. Within the remit of the ERC StG SeSaMe, it has been demonstrated that cellulose nanocrystals can self-assemble in aqueous droplets, forming dry microparticles, where the crystals are organised in chiral nematic ordered shells, capable of reflecting light of a specific colour.   
Scaling up the fabrication of such photonic cellulose pigments will allow to manufacture a truly sustainable, biocompatible and potentially edible alternative to conventional synthetic dyes for mass-market applications.

Coordinator: THE CHANCELLOR MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE from:UK

# SPEctRUM

Project title: Seismic Plus EneRgy Upgrading of Masonry Buildings using Advanced Materials

Start Date: 2018-12-01 End Date:2020-11-30

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('energy', 7)
* ('buildings', 5)
* ('masonry', 4)
* ('building', 3)
* ('performance', 3)
* ('stock', 2)
* ('consumption', 2)
* ('cost', 2)
* ('effectiveness', 2)

This project aims to develop innovative techniques integrating advanced materials for the simultaneous seismic and energy retrofitting of the European masonry building stock. Upgrading the existing masonry EU buildings is becoming progressively more important due to: (1) their poor seismic performance during recent earthquakes (i.e. Italy, Greece) that have resulted in significant economic losses, severe injuries and loss of human lives; and (2) their low energy performance which increases significantly their energy consumption (buildings are responsible for 40% of EU energy consumption). Since replacing the existing buildings with new is prohibitively expensive and has also huge environmental and social impact, their lifetime extension requires considering both seismic and energy retrofitting. It is noted that the annual cost of repair and maintenance of existing European building stock is estimated to be about 50% of the total construction budget, currently standing at more than €300 billion. To achieve cost effectiveness, SPEctRUM explores a novel approach, proposing for the first time a hybrid structural-plus-energy retrofitting solution which combines inorganic textile-based composites with thermal insulation systems for masonry building envelopes. The effectiveness of the proposed retrofitting system will be validated experimentally and analytically. Moreover, a common approach for the buildings performance classification will be proposed, allowing to assess whether energy efficiency and disaster-resilient practices should be integrated. Eventually, draft guidelines and recommendations for determining future research design on concurrent seismic and energy retrofitting of EU masonry buildings envelopes will be proposed.

Coordinator: JRC -JOINT RESEARCH CENTRE- EUROPEAN COMMISSION from:BE

# REW-TYRES

Project title: Innovative and compact process for recycling rubber suitable to improve the environmental footprint of the tyre industry over the life-cycle

Start Date: 2016-10-01 End Date:2019-09-30

Topic: Boosting the potential of small businesses in the areas of climate action, environment, resource efficiency and raw materials

Most frequent returning words in objectives:

* ('rubber', 6)
* ('process', 4)
* ('tyre', 4)
* ('project', 3)
* ('versions', 3)
* ('REWORK', 3)
* ('production', 3)
* ('produce', 3)
* ('RECYCLE', 3)

The project aims at developing and bringing to market an innovative process for recycling rubber in the tyre industry. The process is a sequence of mechanical operations implemented by a compact dedicated line and is foreseen in two versions that apply to different phases of tyres lifecycle:  
REWORK: main version that applies to tyre production to rework all scraps and non-compliant components and produce rubber 100% reusable in the main production;  
RECYCLE: a variant of process that applies to recovering rubber from end-of-life tyres (ELT) to produce sheeted rubber usable for moulded applications. Variants include pre-conditioning phases to clear rubber from textile cords.  
The two versions are conceived to serve different customer segments, REWORK for tyre manufacturers to improve eco-efficiency and reduce production costs, RECYCLE for recyclers of ELT to produce cleaner, more usable forms of recycled rubber suitable to open new high-value application opportunities and increase ELT management profit.  
In both segments business models and value chains are consolidated and needs to be served are explicit, thus creating a very favourable context for the exploitation.  
The project builds on a solid technological and business background. ELSY is the global leader of specialised machines and control systems for tyre and plastic industries. The process was conceived to respond to needs that came out from the day-by-day relationship with all the main manufacturers worldwide.  
Projects aims at 1) developing enabling subsystems for REWORK and RECYCLE lines, 2) building prototype versions of the two lines, 3) carrying out validation tests, 4) carrying out industrialisation including design and suppliers engagement, 5) organising exploitation including engagement of key partners and definition of common business cases.  
For ELSY the project is crucial in the strategy to expand vertically the offer in markets we already lead and enter in new market segments with excellent potential

Coordinator: ELECTRONIC SYSTEMS SPA from:IT

# GFSMART

Project title: Design and Integration of Graphene Fibre Based Antennas for Smart Textiles

Start Date: 2018-04-01 End Date:2020-03-31

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('smart', 6)
* ('textiles', 4)
* ('research', 4)
* ('GFSMART', 3)
* ('graphene', 3)
* ('textile', 3)
* ('wireless', 2)
* ('field', 2)
* ('antenna', 2)

Smart textiles that provide a seamless command-oriented user interface and have capable of wireless communication, have become active research field in recent decades with interest of wearable and attractive platforms. Well-known mechanical requirements such as light weight, compactness, and flexibility, that smart components should be invisibly and unobtrusively integrated into a garment to ensure the wearer’s comfort. GFSMART aims to develop graphene fibre based antennas for smart textiles that pushes the state-of-the-art in wireless body-centric systems, by utilizing traditional textile manufacturing techniques. Wearable antenna will be developed based on the merits of graphene as a flexible, conductive fibres. GFSMART project does not only involve implementation of novel materials and wearable electronics but also embraces design strategies of smart adaptive garments for people affected by dementia and Alzheimer’s disease. The proposal hosting by Royal College of Art (RCA), will involve collaboration with other EU universities, which will increase the impact of the developed results on the textile industry and enable my career restart in European research zone. GFSMART will lead to first implementation of graphene fibres in wearable antenna design and later in designing smart garments for people affected by dementia and Alzheimer’s disease. I have extensive experience on carbon nanomaterials and novel materials for textile applications and published more than 30 critically acclaimed journal and conference papers, patents in this subject. Through this innovative multidisciplinary research and with the help of experimental infrastructure provided by the RCA, as a newly appointed senior tutor in smart textiles at RCA, I am expected to gain maturity in managing research projects and advance my career toward being an esteemed professor in the field of smart textiles in Europe.

Coordinator: THE ROYAL COLLEGE OF ART from:UK

# MedRoute

Project title: On the route of multiculturalism(s). Marking and hybridizing identities in the late 17th and early 18th centuries Mediterranean port cities

Start Date: 2017-09-01 End Date:2020-08-31

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('Mediterranean', 5)
* ('multiculturalism', 3)
* ('cities', 3)
* ('research', 3)
* ('role', 3)
* ('project', 2)
* ('port', 2)
* ('identity', 2)
* ('identities', 2)

This project aims to analyze the phenomenon of multiculturalism in four Mediterranean port cities of the late seventeenth and the early eighteenth centuries. The research uses three identity markers (foodways, clothing, and language) to chart how differences in the political and physical environments affect the balance between marking and hybridizing identities in the port cities of Izmir, La Valletta, Livorno and Marseille. Although very different amongst themselves, these four cities, placed on a maritime trading route cutting the Mediterranean from east to west, share a highly developed cultural, ethnical, and religious pluralism. The comparative analysis adopted will shed light on the concept of multiculturalism(s) in the pre-modern Euro-Mediterranean space, explaining how members of the same group handled coexistence following different strategies. In analyzing identity as a dynamic process, the research enters into the historiographical debate on the One-Plural nature of the Mediterranean on two critical levels: the ways in which Mediterranean identities interact with one another and how they generate a multicultural zone. Through an interdisciplinary study, the project will shape the ineradicable ambiguous nature of multicultural zones in the Mediterranean. This goal will be undertaken through the analysis and verification of three main assumptions that form the basis of the research:  
1. The role of the political factor in determining the type of multiculturalism which developed and the ethical role of politics in assuming tolerance as a tool for fostering a more vibrant and resourceful society.  
2. The role played by internal members of the communities on the basis of social class, education and gender, and how these factors determined the individual positioning on the scale from integration to segregation.  
3. The functionality of multicultural policies in enhancing urban welfare.

Coordinator: CONSIGLIO NAZIONALE DELLE RICERCHE from:IT

# APRA

Project title: Active Polymers for Renewable Functional Actuators

Start Date: 2018-10-01 End Date:2023-09-30

Topic: ERC Advanced Grant

Most frequent returning words in objectives:

* ('material', 3)
* ('applications', 3)
* ('alignment', 3)
* ('actuator', 2)
* ('elastomers', 2)
* ('engineering', 2)
* ('actuation', 2)
* ('action', 2)
* ('concept', 2)

The idea of mechanical actuator based on intrinsic material properties of liquid-crystalline elastomers (rather than complex engineering of interacting components) has been understood for 20\ years. The remarkable characteristics of LCE actuation (fully reversible action; large-amplitude, with a stroke of 5%-300%; stress-strain-speed response almost exactly matching the human muscle) make it highly attractive in biomedical engineering, robotics, smart textiles, and other fields. Yet, there is a profound difficulty (bottleneck), which remains the reason why this concept has not found its way into any practical devices & applications. LCE actuation requires alignment (monodomain structure) of the local anisotropy in the permanently crosslinked polymer network - which has been impossible to achieve in any useful large-scale configuration except the flat film, due to the unavoidable restrictions of two competing processes: orientational alignment and network crosslinking.   
Recently, we made a breakthrough, developing LCE vitrimers (polymer networks covalently crosslinked by a bond-exchange reaction). Vitrimers are much more stable than other transient elastomer networks, allow easy thermal re-moulding (making the material fully renewable), and permit molding of complex shapes with intricate local alignment (which are impossible in traditional elastomers). This project will bridge from the concept to technology, tuning the material design for robust nematic LCE vitrimers, imparting photo-actuation capacity with a controlled wavelength, and finally utilising them in practical-engineering actuator applications where the reversible mechanical action is stimulated by light, solvent exposure, or more traditionally - heat. These applications include (but not limited to): continuous spinning light-driven motor, tactile dynamic Braille display, capillary pump and toggle flow switch for microfuidics, active textile fibre, and heliotracking filament that always points at the Sun.

Coordinator: THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE from:UK

# Green-linker

Project title: Innovative eco-friendly crosslinker for leather and textile finishing

Start Date: 2018-04-01 End Date:2020-03-31

Topic: Boosting the potential of small businesses in the areas of climate action, environment, resource efficiency and raw materials

Most frequent returning words in objectives:

* ('market', 5)
* ('Green-Linker', 4)
* ('product', 4)
* ('chemicals', 4)
* ('leather', 3)
* ('textile', 3)
* ('crosslinker', 2)
* ('sector', 2)
* ('dyers', 2)

Green-Linker is a crosslinker, a type of chemical product used by tanneries in the leather sector and dyers in the textile sector as a finishing agent. The ranges of chemicals used today are often toxic and potentially harmful to the environment. Tanneries and textile dyers are looking for cost-effective and eco-friendly solutions that would allow them to comply with stringent regulations on harmful chemicals, and with the strong request by consumers of environmentally sustainable leather garments and accessories. The market for leather and textile chemicals is projected to grow steadily (4% CAGR) until 2024 following these market trends.  
Current crosslinkers in the market cover only partially client’s needs since they have limitations in terms of quality, toxicity and environmental sustainability. Italkem has developed, in a single product, an innovative crosslinker with superior characteristics. Green-Linker offers technical, environmental, and economic advantages over its competitors. Green-Linker results as the best performing in terms of highest temperature tolerance, fastest reaction time and longest pot-life, and colour fastness while its eco-friendliness level equals the best option in the market. Green-Linker meets the severe constraints imposed on the environment and toxicity of chemicals, being the ideal candidate to be recognized with Eco-Label as a sustainable and green product. In addition, its competitive price (37% saving respect the highest technical performance) is strongly supported by an improved storability, transport and logistic capacity.  
From Italkem we have been trading since 2002 serving global markets from Italy. We plan to introduce this novel product in the market after final validation with industrial end users and up-scaling production. This will allow us to grow our turnover from crosslinkers and create new jobs.

Coordinator: ITALKEM SRL from:IT

# TextileLab

Project title: Race to the bottom? Family labour, household livelihood and consumption in the relocation of global cotton manufacturing, ca. 1750-1990

Start Date: 2018-10-01 End Date:2023-09-30

Topic: ERC Consolidator Grant

Most frequent returning words in objectives:

* ('textile', 6)
* ('production', 5)
* ('labour', 5)
* ('households', 4)
* ('consumption', 4)
* ('manufacturing', 3)
* ('study', 3)
* ('household', 3)
* ('relocation', 2)

Globalization and the shift of industries and jobs to low-wage countries are topical political issues, but have deep historical roots. For long, cotton manufacturing has been central in global trade and industrial relocation. Textile production has existed almost everywhere, but its major export centres have relocated in the past 250 years, notably from Asia to Europe/the US, then back to Asia. When and why these shifts occur is however still poorly understood. Reducing labour costs has been argued to be central in this ‘race to the bottom’, but this does not explain why textile production was resilient in some regions and periods, and not in others.  
This project explores the macro-economic global relocation of textile production from a micro-level perspective: households’ labour and consumption decisions. It proposes an in-depth comparative study of changes in labour allocation and consumption at the household level, to deepen macro-level studies on global textile production. Its main question is to what extent, and how, gender divisions of work, households’ multiple livelihood strategies, and local consumption patterns have influenced the continuation and disappearance of textile manufacturing over time and space? Its empirical contribution is a systematic long-term global comparison of nominal and real textile wages in the context of total household income. Its methodological innovation is to comparatively study labour costs, skill formation and income over time from the micro- perspective of the household, using quantitative and qualitative approaches from several academic fields. Its analytical value is to study interactions between causal mechanisms on the macro-economic level (markets, institutions) and the location of textile manufacturing, with households’ production and consumption choices. This lends workers and households the agency that most studies have overlooked, thus offering new explanations for the global division of labour.

Coordinator: UNIVERSITEIT UTRECHT from:NL

# EcoLeather

Project title: Durable, Environmentally Friendly and High-quality Leather Alternative

Start Date: 2017-08-01 End Date:2017-11-30

Topic: Boosting the potential of small businesses in the areas of climate action, environment, resource efficiency and raw materials

Most frequent returning words in objectives:

* ('leather', 12)
* ('genuine', 5)
* ('water', 5)
* ('material', 3)
* ('toxic', 3)
* ('Materiko', 2)
* ('quality', 2)
* ('textiles', 2)
* ('high-quality', 2)

Materiko is an Italian company specialising in the manufacture of revolutionary artificial high quality textiles. Due to the flexibility, and high-quality afforded by genuine leather, compared to conventional textiles, it has been used for centuries as material in several industries. However, leather is prone to scratching, water damage and UV damage which can limit its uses, particularly in external applications. Furthermore, the way in which leather is produced presents a huge environmental problem. The tanning process for genuine leather uses on average 360 L of water per m2 and over 50 L of that needs to be processing by wastewater treatment plants for chromium waste considered to be hugely toxic by the EU. To alleviate these environmental problems as well as consumer movement towards non-animal origin products a range of artificial leathers have been developed such as PVC and polyurethane (PU) based faux leathers and natural plant based options. PVC and PU based artificial leather have their own environmental problems including similarly high water usage, use of toxic chemicals and poor recyclability. Both plastic based and plant based leather alternatives have durability and quality issues when replicating genuine leather. The need for a high-quality, more durable, weather-proof leather like material which eliminates animal cruelty, water usage and toxic wastage associated with the genuine leather industry is clear and one for which Materiko have developed an innovative solution. Our EcoLeather is a novel material manufactured using an innovative semi-automatic manufacturing technique which produces a water and chemical free leather alternative which improves upon the physical properties of genuine, such as durability, scratch and weather resistance. With the high-end leather goods market worth an estimated €45 bn globally there is a huge demand for a leather alternative with improved physical properties.

Coordinator: MATERIKO SRL from:IT

# PEFerence

Project title: From bio-based feedstocks via di-acids to multiple advanced bio-based materials with a preference for polyethylene furanoate

Start Date: 2017-09-01 End Date:2022-08-31

Topic: Converting bio-based feedstocks via chemical building blocks into advanced materials for market applications

Most frequent returning words in objectives:

* ('FDCA', 4)
* ('bottles', 4)
* ('packaging', 4)
* ('polyesters', 3)
* ('aluminum', 3)
* ('material', 3)
* ('value', 3)
* ('project', 2)
* ('scale', 2)

The PEFerence project will establish a globally first-of-a-kind, industrial scale (50 000 tonnes/year), cost-effective FDCA (diacid) biorefinery flagship plant producing bio-based chemicals and materials (bottles, films, Lego Bricks, polyurethanes) using also existing facilities in industrial symbiosis. The consortium aims to replace a significant part of fossil based polyesters (such as PET), but also technologically superior packaging materials like glass and aluminum with 100 % bio-based polyesters (such as PEF). The unique properties of PEF (excellent barrier and strength) make it a material that can be applied in areas where PET is less suitable. The initial market focus will be on high value applications such as replacement of multilayer packaging, aluminum cans and small size PET bottles where PEF brings most value. On the longer term, when FDCA is produced at large scale and technology is further matured, FDCA based polyesters are expected to penetrate further into markets which allow smaller or no price premium.   
  
The potential significant reductions in non-renewable energy usage and greenhouse gas emissions compared to fossil based PET or aluminum based cans for PEF based packaging solutions will be assessed. Furthermore, PEF bottles can be recycled and used again as raw material for bottles, as well as in a cascading approach for packaging and textiles. During the project, fructose produced via an enzymatic isomerisation process from 2nd generation glucose will be assessed. The full value chain will be optimized ensuring cost-effective and environmentally sustainable raw material sourcing and production of FDCA, PEF/PBF and polyurethane products. Finally, together with customers and brand owners (Lego, Nestle), 100% bio-based end-products will be demonstrated and validated to ensure fast market deployment.

Coordinator: SYNVINA CV from:NL

participant: NESTEC SA

participant: SPINVERSE OY

participant: NOVA-INSTITUT FUR POLITISCHE UND OKOLOGISCHE INNOVATION GMBH

participant: AVANTIUM CHEMICALS BV

participant: BASF SE

participant: TEREOS PARTICIPATIONS

participant: ALPLA WERKE ALWIN LEHNER GMBH & COKG

participant: LEGO SYSTEM AS

participant: OMV MACHINERY SRL

# WEAP

Project title: The Western European Acheulian Project

Start Date: 2017-09-01 End Date:2019-08-31

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('Europe', 5)
* ('sites', 4)
* ('Middle', 3)
* ('Pleistocene', 3)
* ('technology', 3)
* ('France', 3)
* ('Acheulean', 2)
* ('WEAP', 2)
* ('study', 2)

The Western European Acheulean Project (WEAP) aims to characterize the occupational pattern of western Europe during the Middle Pleistocene (MP) –700 to 300Ka–, through the study of Acheulean technology. Recent research has shown that the Atlantic seaboard is the most likely route for colonisation due to the more oceanic climate compared to eastern Europe and to the richer range of resources in coastal areas. Due to cyclical changes in climate with glaciations and interglacials, northern Europe was frequently depopulated and then recolonized through this period probably from source areas in southern France and Iberia. This route-way should therefore bear witness to the cultural links between north and south. From 1 million to 600,000 years ago there is evidence of brief pioneering events in north-west Europe with a small number of sites and small numbers of stone tool artefacts. After 600,000 year ago more sustained occupation is shown by the increase in sites and the much large stone tool assemblages. They also show technological innovation in the form handaxes and possibly in the use of fire, clothing and shelter, which led to the first sustained occupation of northern latitudes. Although there has been much research and new sites excavated over the last twenty years, there has been little integration between the work in Spain, Britain and France. Based on the applicant’s previous experience, WEAP proposes to create a common method of analysis for the study of six Middle Pleistocene sites from UK and France –in agreement with three Middle Pleistocene technologists–, the use of the experimental technology to complete the archaeological record, and the use of new methodological approaches, such as the 3D scanning technology as the most appropriated statistical analysis, to improve understanding of behavioural patterns in order to build models of human dispersals from south-west to north-west Europe.

Coordinator: BRITISH MUSEUM from:UK

# DRAPer

Project title: Dressing Robotic Assistants for Persons with Reduced Mobility

Start Date: 2018-09-01 End Date:2020-08-31

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('persons', 4)
* ('health', 3)
* ('mobility', 3)
* ('person', 2)
* ('home', 2)
* ('care', 2)
* ('human', 2)
* ('project', 2)
* ('proposal', 2)

Physical disabilities due to illness, injury, or ageing can alter the way a person moves around the house, manipulates objects and senses their home. These issues make it harder for persons to execute daily home activities on their own, and therefore specialized professionals are required to take care of them. However, the growing elderly population and the persons having basic activity difficulties or suffering from long-standing diseases are saturating the health systems due to insufficient infrastructures and over-demand for health carers. Robotics-based solutions are a promising alternative to support the human labour at health care. This project focuses on how robotic assistants can be exploited to provide independence and empower people with different kinds of mobility problems. Specifically, the main goal is to assist these persons in dressing themselves, which has been found to be an important task for independent living. In this sense, a robotic dressing assistant needs to skilfully manipulate clothes, physically interact with the human, recognize his/her intentions and actions, and easily adapt to changes in the clothing, user posture, and degree of mobility of the assisted person. These highly complex features are tackled in this proposal from a robot learning perspective, in which programming-by-demonstration, reinforcement and interactive learning will be combined to create both sophisticated manipulation skills and safe assistance behaviours. The proposal envisions three different real experimental scenarios to test the proposed approaches and show their performance with real (able-bodied) participants (with restricted motion). This project will not only advance the state of the art in assistive robotics, robot learning and human-safe control, but also will play a major role in helping persons with reduced mobility to live independently for longer and with a better quality of life.

Coordinator: AGENCIA ESTATAL CONSEJO SUPERIOR DEINVESTIGACIONES CIENTIFICAS from:ES

# TexMeroe

Project title: Archaeology of Textile Production in the Kingdom of MeroeNew approaches to cultural identity and economics in ancient Sudan and Nubia

Start Date: 2018-03-05 End Date:2020-03-04

Topic: Individual Fellowships

Most frequent returning words in objectives:

* ('textile', 5)
* ('TexMeroe', 4)
* ('project', 2)
* ('ancient', 2)
* ('Sudan', 2)
* ('kingdom', 2)
* ('study', 2)
* ('textiles', 2)
* ('research', 2)

The TexMeroe project explores the textile industry of ancient Sudan and Nubia with the aim to improve our understanding of the little-known Meroitic kingdom (350BCE – 600CE). This study, the first of its kind, focusses on the exceptionally well-preserved archaeological textiles and tools to highlight the cultural attributes and economic bases of the Meroitic society. This objective will be achieved through the completion of two research-oriented Work Packages encompassing research stays, innovative training, and international collaborations with multidisciplinary experts. The data collected at archaeological sites and museums will not only provide a detailed analysis of manufacturing techniques but also assist in recognising textiles as a culturally significant medium. Textiles and textile implements will be used to study the economic immersion of raw materials, the organisation and outlay of craft production, and its trading mechanisms, thereby reconstructing important aspects of the Nile valley’s micro- and macro-economic environment. TexMeroe will provide a unique understanding of the textile craft development between the Pharaonic heritage, the Mediterranean influences, and the local sub-Saharan African traditions, helping to decipher and define the cultural identity and history of the Meroitic kingdom.   
TexMeroe is hosted by the University of Copenhagen’s Centre for Textile Research (CTR), a world-wide leader in the field of ancient textile studies. The project will benefit from CTR’s optimal research and training environment while contributing to the expansion of its global scientific network. The results will be communicated through a series of academic publications and conferences, as well as an Open Access online exhibition accessible to a broader audience. In Sudan, the TexMeroe outreach program hopes to start a dialogue connecting modern communities, genders, and generations through their shared textile traditions and history.

Coordinator: KOBENHAVNS UNIVERSITET from:DK

# iMDx

Project title: Microfiber Electrofluidics for Integrated Molecular Diagnostics

Start Date: 2017-08-01 End Date:2022-07-31

Topic: ERC Starting Grant

Most frequent returning words in objectives:

* ('detection', 5)
* ('amplification', 4)
* ('diagnostics', 3)
* ('devices', 3)
* ('iMDx', 3)
* ('techniques', 3)
* ('diseases', 2)
* ('analysis', 2)
* ('molecular', 2)

'Diagnosis of an increasing number of diseases (such as HIV, Ebola and antibiotic resistant bacteria) rely on centralized laboratories with specialized instruments and skilled personnel. This type of clinical analysis with long lead times and high cost is inappropriate for point of care diagnostics. Portable, automated, and disposable devices with integrated molecular diagnostics (iMDx), could solve this problem. Such devices, however, basically do not exist today.   
  
This research program will develop materials, methods, and diagnostic techniques to enable portable integrated molecular diagnostics (iMDx) devices, that are disposable (almost zero-cost), and that can detect a broad range of diseases using DNA amplification. To achieve this, we will develop '3D microfiber electrofluidics (MEF)'. MEFs rely on simple and readily available porous sheets including paper, and textiles. Their fabrication is simple, and yet they are very powerful because they can monolithically integrate 3D microfluidics, 3D microelectronics, electrochemical analysis, storage of reagents / biomolecules, as well as handling and manipulation of cells.   
  
We will develop techniques, using the combined capabilities of MEFs, for real-time DNA amplification and electrochemical DNA detection directly from samples. We will use three amplifications techniques for realizing a comprehensive iMDx platform: i) DNA detection, using established and state of the art amplification methods (e.g. PCR, LAMP, RPA). ii) RNA detection, using 'nucleic acid sequence-based amplification' (NASBA). iii) Protein detection, using antibody to DNA translation through 'proximity ligation assay' LPA, and using the detection of the amplified DNA is the indirect measure of proteins.  
  
The outcome of this program has the potential to be ground breaking, and change the structure of measuring, processing, and pricing of biomedical information, and dramatically broaden its accessibility and applicability.  
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Coordinator: KUNGLIGA TEKNISKA HOEGSKOLAN from:SE