

Monday July 15th		Tuesday July 16th	Wednesday July 17th
9:00-10:30	9:00-9:15 - Registration - 9:15-9:30 - Welcome	Biomechanics - Chairs: Laura Baumgartner, Elham Alizadeh	Entrepreneurship & Innovation I - Proposed Chairs: Nuria Brunet, Javier Santamaría
	9:30-10:30 - Opening Conversation - Zina Jarrahi Cinker , PhD, Director General MATTER, Creator PUZZLE X Barcelona	9:00-9:25 - BT 06 - Sandra Elizaguerri Gallardo - Analyzing the influence of bone changes on the knee bone-cartilage interface during gait using finite element models 09:30-09:55 - BT 07 - Marc Torres Vila - Model validation of Subperiosteal Implants (SI) with Finite Element Analysis (FEA) 10:00-10:25 - BT 8 - Natalia Franco Montegudo - Design of a prosthetic device for transmetatarsal partial foot amputation type	9:00-9:25 - BT 33 - Ariadna Plans Bellavista - Efficient Healthcare Resources Management in ASSIR: Powering Coordination for Quality Success in the Centres de Sexe i Reproducció de Catalunya 9:30-9:55 - BT 34 - Ariadna Quíngles Lamarca - A Proof-of-Concept for the "MedTech Tiberina" Platform: Facilitating Access to Latest Catalan Biomedical Engineering Information 10:00-10:25 - BT 35 - German Anashkin Kachalin - Market analysis and prototype validation for TransCOR
10:30-11:00	Coffee	Coffee	10:30-10:55 - BT 36 - Pol Guash Roig - Implementation of Intellectual Property Protection Strategy and Regulatory Roadmap for TransCor: A Web-based Data Analysis Platform for Support in Clinical Decision-making in Cardiology
11:00-13:00	Signal Analysis - Chairs: Gorka Zamora, Murat Demirtas (TBC) 11:00-11:25 - BT 09 - Alba Pi Mas - Phase and Morphology Analysis of Cerebral Blood Flow Signals for Intracranial Pressure Characterization 11:30-11:55 - BT 10 - Pau Boncompte - Task Engagement Modulation in the Primary Visual Cortex: A Layer and Frequency-Specific Analysis 12:00-12:25 - BT 11 - Salva Elizondo Urrutia - Prediction of Seizure Onset Zone in epilepsy patients via a network coupling measure 12:30-12:55 - BT 12 - Joan Prenafeta Ribau - Characterization of neuronal dynamics in working memory	Neuroscience - Chairs: Demetrio Ferro, Marc Grau 11:00-11:25 - BT 21 - Jan Cases Gendra - A Novel Biophysical Whole-Brain Model Explains Power Spectrum Alterations of Serotonergic Psychedelics Using Multimodal Neuroimaging 11:30-11:55 - BT 22 - Zaid Al Haklou - How synaptic transmission influences the dynamics of populations of spiking neurons 12:00-12:25 - BT 23 - Marcel Socoró Garrigosa - Rebalancing the depressed brain: a whole-brain computational study on the effects of external perturbations in pilsoclybin and escitalopram treatments. 12:30-12:55 - BT 24 - Alba Roca de las Heras - A Multimodal Assessment of Freezing of Gait in Patients With Parkinson's Disease	11:00-11:30 Coffee Entrepreneurship & Innovation II - Chairs: Antoni Ivorra, Sikha Okkath 11:30 - 11:55 - BT 39 - Gonzalo Plaza Arriola - Neuroimaging-based machine learning estimation of biological brain age: discovering patterns of brain aging & enriching interventional trials
			12:00-12:25 - BT 37 - Mariam Coris Erououch - Feasibility analysis of a microwave-based device for the diagnosis and monitoring of Rheumatoid Arthritis
			12:30-12:55 - BT 38 - Patricia Maria Barrufet Garbayo - Viability analysis of a microwave-based device for the diagnosis and monitoring of periodontitis and peri-implantitis
			13:00-13:25 - BT 40 - Núria Blanco i Quintanilla - Real-time environment monitoring for an artificial placenta system
13:00-14:00	Lunch	Lunch	13:30-14:30 Lunch
14:00-16:00	Cardiovascular - Chairs: Viacheslav Danilov, Gabriele Bernardino 14:00-14:25 - BT 18 - Antoni Cardona Riera - Computational Fluid Dynamics Analysis of Thrombus Formation in the Left Atrium Post-Heart Transplantation 14:30-14:55 - BT 20 - Marina Ribera Pascual - Multi-scale model for simulating thrombus formation and anticoagulant treatment 15:00-15:25 - BT 19 - Eva Maria Ferrer Beltran - Enhanced Prioritization and Reporting for Coronary Artery Disease Diagnosis 15:30-15:55 - BT 17 - Adriana Royuela Bermúdez - Artificial intelligence-based algorithm for left ventricular hypertrophy prognosis classification using magnetic resonance imaging cine sequences	Biology - Chairs: Pilar Rivera, María Segarra-Queralt 14:00-14:25 - BT 25 - Samuel González Castro - Bacterial cellulose-based scaffolds for cell attachment: a novel approach for tissue regeneration and pseudo-tissues assays 14:30-14:55 - BT 26 - Paul Mihai Cozmăuta Mihut - Mathematical and computational modelling of a multicellular synthetic associative learning circuit 15:00-15:25 - BT 27 - Roger Torra Vaquero - Implementation of genetic circuits in <i>Cutibacterium acnes</i> 15:30-15:55 - BT 28 - Mariana Alexandra Gomes Del Castillo - A Novel Genetic Architecture to Enhance Probiotics: Integrating a Thermoinducible Bioswitch with Intermediate Recombinase	Imaging - Chairs: Bart Bijnens, Gerard Marti 14:30 - 14:55 - BT 13 - Esther Guillén Buisán - Assessing the viability of generating Synthetic 7T MRI scans from 3T Clinical MRI: implications for estimating brain-derived measures in Multiple Sclerosis 15:00-15:25 - BT 14 - Laura Martínez Pérez - Analysis and quantification of MRI sequences in a mouse model with multiple sclerosis, and correlation of the results with a histopathology study 15:30-15:55 - BT 41 - Laura Salort Benejam - 3D reconstruction of endoscopic tissues by unsupervised neural rendering
16:00-16:30	Coffee	Coffee	16:00-16:25 - BT 16 - Irene Freire Barbará - Development of Software for the Extraction of Omic Features from Radiotherapy Treatment Plans and Application in the Creation of a Predictive Model for 6-Month Progression-Free Survival
16:30-18:30	Data, Machine learning & Stratification - Chairs: Oscar Camara, Miguel Ángel González Ballester 16:30-16:55 - BT 01 - Martin Méndez Lopez - Trajectory Generation Framework for a Upper Limb Impairment dataset 17:00-17:25 - BT 02 - Arig Kamalmaz Zahir - Cost-effectiveness analysis of advanced therapies for acute ischemic stroke using the QALY measure through natural language processing 17:30-17:55 - BT 03 - Nerea Berbel Casado - Deep Learning-based pipeline for automated analysis of fetal echo biometry images 18:00-18:25 - BT 15 - Selma Ibn Tahar Ben Tahar - Deep Brain Stimulation electrode localization and computer reconstruction: correlation of activation region with clinical motor improvements	Medical Devices - Chairs: Laura Becerra, Sergio Sánchez 16:30-16:55 - BT 29 - Aida Jiménez Ordoñez - Electromechanical evaluation of novel cardiac resynchronization therapy pacing techniques in an in silico left bundle branch block population 17:00-17:25 - BT 32 - Nil Palomé Bartrina - Design of a thoracic arrangement of superficial electrodes to wirelessly power implanted sensors for heart failure remote monitoring 17:30-17:55 - BT 30 - Anna Barredo Porta - Machine learning-driven optimization of left atrial appendage occlusion device selection 18:00-18:25 - BT 31 - Laura Triay Jorda - Designing a Characterization System for Electrospun Patches to treat Aortic Dissections	Picture + Farewell Aperó
			CONFIDENTIAL PRESENTATIONS



Dr. Zina Jarrahi Cinker is a recognized Frontier Tech strategist, condensed matter physicist, MATTERVerse thought leader & Deep Science advocate. She serves as the Director General of MATTER, an international think tank of 30 country chapters, and Chief Creator of PUZZLE X– the leading international event for Frontier Tech for the future–. PUZZLE X Barcelona supported by the Government of Spain, Generalitat de Catalunya, and Barcelona City Hall–, drives stakeholder dialogues among industry, governments, academia, and capital on how Frontier Technologies can shape the next chapter for cities, citizens, industries, and societies.

Dr. Cinker received a Ph.D. in Condensed Matter Ultrafast Spectroscopy from Vanderbilt University and has spent the past decade helping the materialization of deep science into technologies with broader impact. She previously served as the Executive Director of the U.S. National Graphene Association, the main organization, and body in North America with over 5,000 international members and organizations.