

Fontina Petrakopoulou, Ph.D.

Contact Information

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Research focus

Simulation of advanced energy conversion systems, water minimization in energy systems, application of thermodynamic, economic and environmental analyses in order to increase operating efficiencies and reduce costs and environmental impacts simultaneously; development of new tools for power plant optimization.

CURRENT POSITION

UNIVERSITY CARLOS III OF MADRID, SPAIN (07/2015-present)
Tenure-track assistant professor (Ramon y Cajal / CONEX professor)

EDUCATION

TECHNICAL UNIVERSITY OF BERLIN, GERMANY (09/2006-12/2010)

- Ph.D. in Energy Engineering (defense: 06/12/2010)
- Thesis entitled *“Comparative Evaluation of Power Plants with CO₂ Capture: Thermodynamic, Economic and Environmental Performance”*
- Supervisor: Prof. George Tsatsaronis

TECHNICAL UNIVERSITY OF CRETE, GREECE (09/2000-06/2005)

- Diploma studies in Production Engineering and Management (Mechanical Engineering)
- Diploma thesis entitled: *“Analysis and Optimization of Differential Evolutionary Algorithms”*
- Supervisor: Prof. Ioannis Nikolos
- Final grade: 7.5/10 (graduated within the top 10% of the class)

MODEL EXPERIMENTAL SCHOOL OF ANAVRYTA, GREECE (09/1994-06/2000)

- Secondary Education Diploma
- Final grade: Very good, 18.2/20

ACADEMIC
RESEARCH

UNIVERSITY CARLOS III OF MADRID, SPAIN (07/2015-present)

- Ramon y Cajal Fellow (after June 2018) / CONEX Experienced Professor
Optimization of energy conversion systems, hybrid energy systems, polygeneration facilities, water minimization strategies, regional energy policies, economic and environmental considerations
- Supported by: Marie Curie Action COFUND as part of the European Community's 7th Framework Programme & University Carlos III of Madrid

UNIVERSITY OF NAPLES FEDERICO II (2017-present)

- Research collaboration with Prof. Francesco Calise

Simulation and exergy analyses of hybrid/polygeneration energy systems

TECHNICAL UNIVERSITY OF MADRID, SPAIN (2013-present)

- Research collaboration with Prof. Guillermo San Miguel

Simulation and thermodynamic and environmental analysis of hybrid energy conversion systems, solar thermal power plants, exergy-based analysis

NATIONAL TECHNICAL UNIVERSITY OF ATHENS (05/2013-06/2015)

- Research associate
Performed independent research on the renewable energy autonomy of remote regions. Studied topics included stand-alone hybrid renewable power plants, economic and environmental estimations of off-grid electricity generation, transition to fully renewable-based thermal energy generation and transport sector, energy policy
- Supported by: Marie Curie Action Intra European Fellowship (IEF) as part of the European Community's FP7

INSTITUTE IMDEA ENERGY, SPAIN (02/2011-01/2013)

- Post-doctoral researcher
Generation of biofuels, gasification, pyrolysis, CO₂ capture in fossil-fuel power plants, seawater desalination, exergetic, economic and environmental analyses
- Supported by: The Marie Curie Action COFUND as part of the European Community's FP7

TECHNICAL UNIVERSITY OF BERLIN, GERMANY (11/2005-02/2011)

- Research assistant
CO₂ capture in natural-gas power plants, conventional and advanced exergy-based analyses, optimization of zero-emission power plants, oxy-fuel, post- and pre-combustion CO₂ capture technologies
- Supported by: Marie Curie as part of the European Community's FP6

TECHNICAL UNIVERSITY OF CRETE, GREECE (01/2005-10/2005)

- Undergraduate researcher
Mathematical optimization techniques, Differential Evolutionary Algorithms, acceleration potential of evolutionary algorithms

TEACHING &
SUPERVISION
ACTIVITIES

UNIVERSITY CARLOS III OF MADRID, SPAIN (09/2016-present)

- Main instructor – Thermal Engineering (Undergraduate course, ECTS: 6)
- Main instructor – Energy and Water (Undergraduate course, ECTS: 3)
- Co-supervisor of two PhD theses:
 1. Eduardo de la Rocha Gamba: Zero-cooling-water power generation
 2. Iman Golpour: Exergy and energy analyses of a juice production line for reducing energy consumption (collaboration with Urmia University of Iran)
- Supervisor of six Bachelor theses and co-supervisor of three Master theses:
 1. Sara Fuoco: Mechanical storage for renewable power plants (in progress)
 2. Fabrizio Cangianiello and Francesco Adornetto: Dynamic analysis of polygeneration systems for energy and fresh water production from renewable sources (2019)
 3. Alessio Nunzio Esposito: Development of a thermoeconomic simulation model of polygeneration systems based on CPVT collectors and MED desalination (2019)
 4. Gonzalo Rodriguez Hervás: Exergoeconomic evaluation of the Allam Cycle (2018)
 5. Marina Olmeda Delgado: Multi-criteria evaluation of a power plants based on water use, thermodynamic and economic criteria (2018)
 6. Guillermo Fernandez Gil: Sustainable water generation to cover the demand of a Mediterranean island (2018)
 7. Amanda del Moral Sabroso: Simulation and analysis of a combined energy & water system (2018)
 8. Joel Ularte Bautista: Water desalination assisted by renewable energy (2017)
 9. Cristina Serrano Sanchez: Evaluation of hybrid power plants (2017)

SOUTHEAST UNIVERSITY, CHINA (02/2017-06/2018)

- Co-supervisor of one Master thesis:
Sun Jian: Performance analysis and fault diagnosis of a combined cycle plant based on exergy

TECHNICAL UNIVERSITY OF CRETE, GREECE (10/2013-02/2014)

- Main instructor – Course: Heat Transfer (Undergraduate course, ECTS: 6)
- Co-authored lecture notes (in Greek), developed and graded exams

INSTITUTE IMDEA ENERGY, SPAIN (02/2011-01/2013)

- Co-supervisor of two Bachelor theses:
 1. Pedro Luis Cruz: Study of the energetic efficiency in combined cycle power plants and its influence on CO₂ emissions
Social Council Award of Rey Juan Carlos University for Young Researchers in 2013
 2. Noemí Castillo Cumplido: Advanced CO₂ capture in energy conversion systems
- Co-supervisor of two Business Internships:
 1. María Belén Pastor Lledó: Conversion of plastic waste, gasification
 2. Rodrigo Tello Vadillo: Biomethanol generation, fermentation

TECHNICAL UNIVERSITY OF BERLIN, GERMANY (2007-2010)

- Teaching assistant (in German) - *Advanced Computational Training in Energy Engineering (Vertiefendes Rechnerpraktikum zur Energietechnik)*
Use of EBSILON® Professional, Aspen Plus, GateCycle™ & Engineering Equation Solver, EES; (2007-2010)
- Authored lecture notes related to the use of the software EbsilonProfessional and developed examples (in English)
- Teaching assistant (in German) - *Design, Analysis and Optimization of Energy Conversion Systems (Entwurf, Analyse und Optimierung von Energieumwandlungsanlagen)*

Use of EBSILON®*Professional* for the design of different types of energy conversion systems and their exergoeconomic evaluation and optimization (2009)

- Co-supervisor of 10 Student research / Bachelor / Master theses (Studienarbeit / Masterarbeit)

CONSULTING EXPERIENCE

SHELL GLOBAL SOLUTIONS INTERNATIONAL BV (01/2012-05/2012)

- Consulting activities concerning the advanced exergoeconomic evaluation of a combined-cycle power plant with and without post-combustion CO₂ capture

NAGARIJUNA FERTILIZERS AND CHEMICALS LIMITED (11/2009)

- Consulting activities related to technical auditing

PARTICIPATION IN RESEARCH PROJECTS

- Ramón y Cajal (call of 2016), Selected first in the area of mechanical and aerospace engineering

Supported by: Ministerio de ciencia, innovación y universidades

Duration: 60 months (start June 2018)

- Mejora del sistema de admisión de aire en la góndola de un aerogenerador

Supported by: Foundation IBERDROLA

Duration: 12 months (start September 2017)

- Optimization of solar thermal power plants, transient analysis and design of concentric receivers, EXTRASOL ENE2015-69486-R (01/2016-12/2018)

Supported by: The Spanish ministry of Economy and Competitiveness

Budget: 135.000 €

Duration: 36 months (start January 2016)

- Optimization of Hybrid Power Plants for Polygeneration, OPTIHYP COFUND2014-51509 (07/2015-09/2018)

Principal investigator: Fontina Petrakopoulou

Supported by: European Commission (MC-COFUND CONEX, FP7)

Budget: 210.897,36 €

Duration: 36 months (start July 2015)

- Green Energy for Islands, GENERGIS IEF2012-332028 (05/2013 – 04/2015)

Principal investigator: Fontina Petrakopoulou

Supported by: European Commission (IEF, FP7)

Budget: 161.968,80 €

Duration: 24 months (start May 2013)

- Development of efficient photocatalysts for obtaining products of commercial interest for the valuation of CO₂ (09/2012 – 11/2013)

Supported by: REPSOL

Budget: 110.613 €

Duration: 26 months (start September 2012)

- Evaluation of Gasification Processes and their Improvement Potential, 229599 (03/2011 – 01/2013)

Principal investigator: Fontina Petrakopoulou

Supported by: European Commission (COFUND AMAROUT, FP7) and IMDEA Energy
Budget: 42.152,19 €
Duration: 25 months (start March 2011)

- Sustainable routes for the production of oxygenated high energy density biofuels from lignocelulosic biomass in a sustainable and efficient way (ASBIOPLAT, CTQ2011-28216-C02-02) 01/2012 – 01/2013

Supported by: The Madrid Regional Authority (Comunidad de Madrid)
Budget: 71.390 €
Duration: 36 months (start January 2012)

- Advanced Electrolyser for Hydrogen Production with Renewable Energy Sources (ADEL, FCH-JU-2009-1, 256755) 01/2011 – 01/2013

Supported by: The European Commission's Seventh Framework Programme (FP7), Fuel Cells and Hydrogen Joint Undertaking
Budget: 118.819,40 €
Duration: 36 months (start January 2011)

- Use of agroforest and oily residues to produce clean transportation fuels (RESTOENE, S2009/ENE-1743) 03/2011 – 01/2013

Supported by: The Madrid Regional Authority (Comunidad de Madrid)
Budget: 134.790 €
Duration: 48 months (start January 2010)

- Optimization of Systems, Energy Management and Environmental Impact in Process Engineering INSPIRE (09/2006 – 09/2009)

Supported by: The European Commission (MC-RTN, FP6-2004-19296)
Budget: 2.942.810 €
Duration: 36 months (start January 2006)

- Optimal design of products and manufacturing processes, with focusing on the parametric formation of complicated geometry bladings, Programme "Pythagoras II" (01/2005-12/2007)

Supported by: Co-financed Development Programmes (EU, Greece)
Budget: 70.000 €
Duration: 36 months (start January 2005)

FELLOWSHIPS

- Ramón y Cajal, Ministerio de Economía y Competitividad, Gobierno de España (2017), Score 100/100
- Marie Skłodowska-Curie Action COFUND, European Commission's Seventh Framework Programme (2015-2018)
- Juan de la Cierva, Ministerio de Economía y Competitividad, Gobierno de España (2016)
- Marie Curie Action Intra-European Individual Fellowship (PEOPLE-IEF), European Commission's Seventh Framework Programme (2013-2015)
- Marie Curie Action COFUND, European Commission's Seventh Framework Programme (2011-2013)

PRIZES AND AWARDS

- Personal fellowship awarded: 6.000 € For completing the Dissertation studies from the Technical University of Berlin (Promotionsabschlussspendium der Frauenbeauftragte) (2010)
- INSPIRE Marie Curie Research Training Network MRTN-CT-2005-019296, European Commission's Sixth Framework Programme (2006-2009)
- Prize of Excellence, University Carlos III of Madrid (May 2019)
- Award of Best Presentations at the 1st Workshop of IMDEA Energy (December 2012)
- Who's Who in the World (30th Pearl Anniversary Edition 2012)
- Finalist (among the three best Ph.D. dissertations in Germany) of the Prize of the Future awarded by RWE AG. (Zukunftpreis), 2011; Committee: A. Fitting, I. Alpheus, D. Moest, A. Hartmann, M. Kuehn
- Best paper delivered at the International Conference on Optimization Using Exergy-Based Methods and Computational Fluid Dynamics, 2009; Committee: D. Moorhouse (Air force Research Laboratories, USA), G. Tsatsaronis (Technical University of Berlin, Germany), R. Weber (Technical University of Clausthal, Germany)

PRESS

- Article highlight with interview by SolarPACES (International Energy Agency, IEA): *A New Way to Dry Cool Solar Thermal Power Plants – with Underground Air*, <https://www.solarpaces.org/a-new-way-to-dry-cool-thermal-power-plants-with-underground%E2%80%A8-air/>, 2019.
- eLetter to Science Magazine: *Fossil power, not guilt free*, in response to the perspective "Fossil fuel, guilt free", <https://science.sciencemag.org/content/fossil-power-not-guilt-free>, 2017.

INVITED PRESENTATIONS

- Seminar of the *Master in Industrial Mechanics*, University Carlos III of Madrid (2016)
- *1st annual Workshop of Young Researchers of IMDEA Energy*, IMDEA Energy, Madrid (2012)
- *International Seminar on Perspectives for Near-Term CCS Development and Capacity Building for Emerging Economies*, supported by Petrobras, Porto Alegre, Brazil (2010)
- *2nd Petrobras International Seminar on CO₂ capture and geological storage*, supported by Petrobras, Salvador, Brazil (2009)
- *Workshop of the Inspire Network*, National Technical University of Athens, Athens, Greece, 03-05/05/2009
- *Workshop of the Inspire Network*, VŠB-Technical University of Ostrava, Ostrava, Czech Republic, 23–28/11/2008
- *Workshop of the Inspire Network*, Clausthal University of Technology, Clausthal, Germany, 02–09/07/2008
- *Workshop of the Inspire Network*, Brunel University, London, UK, 17–20/12/2007
- *Workshop of the Inspire Network*, University of Nova Gorica, Nova Gorica, Slovenia, 05–08/06/2007

PROFESSIONAL MEMBERSHIPS

- Member of the American Geophysical Union, AGU (2014-present)
- Member of the Association of German Engineers - Verein Deutscher Ingenieure, VDI (2012-present)
- Member of the American Society of Mechanical Engineers, ASME (2009-present)

ORGANIZATION OF INTERNATIONAL CONFERENCES

- Organizing Committee of the International European Conference on Renewable Energy Sources (ECRES), 2019 Madrid, Spain
- Co-chair of the topic “Energy efficiency and sustainability in buildings and industry” of the International European Conference on Renewable Energy Sources (ECRES), 2019 Madrid, Spain
- Member of the Scientific Committee of the European Conference on Renewable Energy Systems, 2017 Istanbul, Turkey
- Member of the Scientific Committee of the International Conference on Environmental Science and Technology, 2013 Athens, 2015 Rhodes, 2017 Rhodes, Greece
- Co-chair of the topic “Energy technologies and sustainability” of the International Conference on Environmental Science and Technology, 2013 Athens, 2015 Rhodes, 2017 Rhodes, Greece

PROFESSIONAL SERVICE

- Topic Editor of the of Journal of Applied Sciences, MDPI
- Member of Editorial Board of *Environments* (ISSN 2076-3298), an international scientific open access journal of environmental sciences published monthly online by MDPI (2017-present)
- Review Editor of the Editorial Board of Process and Energy Systems Engineering, Frontiers in Energy Research
- Committee Chair for the evaluation of 5 Master theses, University Carlos III of Madrid, Spain (2018)
- Member of the Ph.D. thesis Committee of Blanca Corona Bellostas, Technical University of Madrid, Spain (2016)
- Committee Chair for the evaluation of 5 Bachelor theses, University Carlos III of Madrid, Spain (2016)
- Committee member of the evaluation of 5 Master theses, University Carlos III of Madrid, Spain (2016)
- Reviewer for the International Conference on Environmental Science and Technology (2013-present)
- Reviewer for more than 30 scientific journals (2009-present)

*CONFERENCE PARTICIPATION

- 10 – 12/06/2019 Seventh European Conference on Renewable Energy Systems ECRES, Madrid, Spain
- 25 – 27/06/2018 Sixth European Conference on Renewable Energy Systems ECRES, Istanbul, Turkey

**oral presentations
unless otherwise
stated*

- 13 – 16/12/2016 AGU Fall Meeting, San Francisco, USA
- 11 – 14/10/2016 SolarPACES, Abu Dhabi, UAE, *poster*
- 28 – 31/03/2015 International Conference on Applied Energy 2015, Abu Dhabi
- 03 – 05/09/2015 14th International Conference on Environmental Science and Technology, CEST2015, Rhodes, Greece
- 15 – 19/12/2014 AGU Fall Meeting, San Francisco, USA, *2 posters*
- 19 – 21/06/2014 SYMBIOSIS 2014 International Conference, Athens, Greece, *attendee*
- 12 – 13/06/2014 2nd International Conference on Sustainable Solid Waste Management, Athens, Greece, *attendee*
- 10 – 11/06/2014 The Mediterranean City. Adaptation Strategies to Global Environmental, Athens, Greece Change in the Mediterranean City and the Role of Global Earth Observations, Athens, Greece, *poster*
- 27 – 28/03/2014 International Conference AdaptToClimate, Nicosia, Cyprus, *attendee*
- 05 – 07/09/2013 13th International Conference on Environmental Science and Technology, CEST2013, Athens, Greece, *scientific committee*
- 03 – 07/06/2013 21st European Biomass Conference & Exhibition, Copenhagen, Denmark
- 03 – 07/06/2012 19th World Hydrogen Energy Conference, Toronto, Canada, *poster*
- 10 – 13/06/2012 The 2nd International Conference on Algal Biomass, Biofuels and Bioproducts, San Diego, California, U.S., *poster*
- 18 – 22/06/2012 20th European Biomass Conference and Exhibition, Milan, Italy
- 24 – 27/06/2012 ANQUE International Conference of Chemical Engineering, Sevilla, Spain, *poster*
- 26 – 29/06/2012 25th International Conference on Efficiency, Cost, Optimization, Simulation and environmental Impact of Energy Systems (ECOS), Perugia, Italy
- 11 – 13/05/2011 GENERA 2011 - Energy and Environment International Trade, Madrid, Spain, *attendee*
- 19 – 21/06/2011 2nd International Exergy, Life Cycle Assessment, and Sustainability Workshop & Symposium (ELCAS), Nisyros, Greece
- 04 – 07/07/2011 24th International Conference on Efficiency, Cost, Optimization, Simulation and environmental Impact of Energy Systems (ECOS), Novi Sad, Serbia
- 28 – 31/08/2011 Life Cycle Sustainability Management (LCM) Conference, Berlin, Germany, *attendee*
- 11 – 17/11/2011 ASME International Mechanical Engineering Congress & Exposition, Denver, Colorado, USA
- 14 – 17/06/2010 23rd International Conference on Efficiency, Cost, Optimization, Simulation and environmental Impact of Energy Systems (ECOS), Lausanne, Switzerland
- 12 – 18/11/2010 ASME International Mechanical Engineering Congress & Exposition, Vancouver, Canada
- 10 – 12/03/2009 International scientific Climate Change Congress in Copenhagen, Denmark, *attendee*
- 04 – 06/06/2009 1st International Exergy, Life Cycle Assessment, and Sustainability Workshop & Symposium (ELCAS), Nisyros, Greece
- 15 – 17/06/2009 The 5th Trondheim Conference on CO₂ Capture, Transport and Storage, Trondheim, Norway
- 31/08 – 03/09/2009 22nd International Conference on Efficiency, Cost, Optimization, Simulation and environmental Impact of Energy Systems (ECOS), Foz do Iguassu, Brazil

- 31/08 – 03/09/2009 8th International Conference on Sustainable Energy Technologies, Aachen, Germany
- 29/09 – 03/10/2009 5th Dubrovnik Conference on Sustainable Development of energy, water and environmental systems, Dubrovnik, Croatia, *attendee*
- 20/10 – 23/10/2009 International Conference on Optimization Using Exergy-Based Methods and Computational Fluid Dynamics, Berlin, Germany
- 13/11 – 19/11/2009 ASME International Mechanical Engineering Congress & Exposition, Lake Buena Vista, Florida, USA
- 18 – 22/07/2008 Euroscience Open Forum, Barcelona, Spain, *attendee*
- 09 – 12/09/2008 2nd Petrobras International Seminar on CO₂ capture and geological storage, supported by *Petrobras*, Salvador, Brazil (**invited presentation**)
- 25 – 28/03/2007 Carbon Sequestration Leadership Forum Meeting, Paris, France, *attendee*
- 17 – 19/10/2007 International Seminar on Perspectives for Near-Term CCS Development and Capacity Building for Emerging Economies, supported by *Petrobras*, Porto Alegre, Brazil (**invited presentation**)

ADDITIONAL TRAINING

- 8/5 – 19/06/2019 Leadership Principles, Harvard Business School Online
- 9/1 – 06/03/2019 Negotiation Mastery, Harvard Business School Online
- 05 – 25/05/2018 Python for engineers, CEPPE
- 02 – 24/03/2018 Python course, Spanish Association of Computer Programmers
- 14 – 15/12/2017 Teaching development (Desarrollo docente), UC3M
- 14/11/2017 Training in Open Science, UC3M
- 07/06/2017 Intellectual Property Rights Course, UC3M
- 23/02/2015 Seminar on Parameters (Online), Earthshift
- 19/02/2015 Seminar on Impact Assessment Methods (Online), Earthshift
- 29/01/2015 Seminar on Modeling in Product Stages-Beginner (Online), Earthshift
- 15/01/2015 Seminar on Applied LCA in SimaPro II (Online), Earthshift
- 14/01/2015 Seminar on Applied LCA in SimaPro I (Online), Earthshift
- 02/06 – 19/07/2014 Seminars on the energy inspection of buildings, boilers, heating and air-conditioning installations, National Technical University of Athens, Greece
- 24/10/2012 Webinar on “Advanced Conversion: Maximizing the Potential for Energy from Waste”, Renewable Energy Focus
- 12/07/2010 Guided visit of the Vattenfall electric power transformation substation and the 400 kV Tunnel in Mitte, Vattenfall, Berlin, Germany
- 21/04/2010 Training at the Vattenfall-computer simulator, offered by Vattenfall, Germany
- 05/11/2009 Guided visit of the CCS pilot plant at Schwarze Pumpe, Vattenfall, Germany
- 03/09/2009 Guided visit of the Itaipu Dam, hydropower plant, Brazil and Paraguay
- 03 – 05/05/2009 Seminars on Exergy and Expert hints on writing good papers, Workshop of the Inspire Network, Athens, Greece
- 23 – 28/11/2008 Seminar on Environmental EU Regulations, Workshop of the Inspire Network, Ostrava, Czech Republic
- 25 – 26/09/2008 EpsilonProfessional Meeting of software users, Bensheim, Germany
- 02 – 09/07/2008 Seminars on Basics of Combustion, Fuel Characterisation, Experimental Data Acquisition and Usage of Experimental Data in CFD modeling, Workshop of the Inspire Network, Clausthal, Germany

- 17 – 20/12/2007 Seminar on Introduction to CFD analysis with FLUENT and CFD Tutorials, Workshop of the Inspire Network, London, UK
- 11/07/2007 Guided visit of the Vattenfall Power plant Schwarze Pumpe and the open-pit mine Nochten in Lausitz, Vattenfall, Germany
- 05 – 08/06/2007 Seminar on Exergy Analysis, Economic Analysis, Thermoeconomic Analysis and Life Cycle Assessment, Workshop of the Inspire Network, Nova Gorica, Slovenia
- 09/2006 – 02/2007 Energy Engineering II course (Energietechnik II) with Prof. Tsatsaronis, Technical University of Berlin
- 12/10/2006 MCFA Special event at Fraunhofer IFF in Magdeburg on European networks and career opportunities for young researchers in Europe, within the 2006 OPEN DAYS, Magdeburg, Germany
- 04 – 07/2006 Power Plant Engineering course (Kraftwerkstechnik) with Dr.-Ing. Frank Cziezla, Technical University of Berlin
- 04 – 07/2006 Energy Engineering I course (Energietechnik I) with Prof. Tsatsaronis, Technical University of Berlin
- 04 – 07/2006 Thermodynamics I course (Thermodynamik I) with Prof. Tsatsaronis, Dipl.-Ing. Marc Juedes and Dipl.-Ing. Schneider, Technical University of Berlin

CAREER BREAKS

- Maternity leave (10/2015-02/2016)
- Maternity leave (10/2019-03/2020)

SKILLS

- **Languages:** Native speaker of **Greek**, fluent in **English**, **Spanish**, and **German**, beginner in **French**
- **Simulation software:** EbsilonProfessional, Gate Cycle, EES, AspenPlus, Thermoflow
- **Programming languages:** Python, Matlab, Visual Basic
- **Computer design:** Basic knowledge of Pro-Engineer and CAD
- **Operating systems:** Windows, Mac OSX
- **Editing and publishing:** MS Office, HTML

EXTRACURRICULAR ACTIVITIES

- Member and leader of the Dancing Team for Classical and Modern Dance of the Technical University of Crete, 2002-2005
- Sailing
- Traveling
- Violin

THESES

2. **Petrakopoulou F.**, 2010, "Comparative evaluation of power plants with CO₂ capture: Thermodynamic, economic and environmental performance", Ph.D. Thesis, Technische Universität Berlin.
1. **Petrakopoulou F.**, 2005, "Analysis and Optimization of Differential Evolutionary Algorithms", Diploma thesis, Technical University of Crete.

REPORTS

7. **Petrakopoulou F.**, 2015. "Review of laws and regulations concerning renewable energy policy", Technical report, prepared for the FP7 project GENERGIS (IEF-2012-332028).
6. **Petrakopoulou F.**, 2015. "Energy statistics and renewable energy potential of Greece", Technical report, prepared for the FP7 project GENERGIS (IEF-2012-332028).
5. **Petrakopoulou F.**, 2015. "Demographics, geography, economy and energy statistics of Skyros", Technical report, prepared for the FP7 project GENERGIS (IEF-2012-332028).
4. **Petrakopoulou F.**, 2015. "Current energy use on Skyros: statistical, economic and environmental analysis", Technical report, prepared for the FP7 project GENERGIS (IEF-2012-332028).
3. **Petrakopoulou F.**, 2015. "Description, economics and environmental issues of renewable energy technologies", Technical report, prepared for the FP7 project GENERGIS (IEF-2012-332028).
2. **Petrakopoulou F.**, 2015. "Scenarios for the sustainable development of energy autonomy of Skyros", Technical report, prepared for the FP7 project GENERGIS (IEF-2012-332028).
1. **Petrakopoulou F.**, 2015. "Guidelines for sustainable development of stand-alone energy networks", Technical report, prepared for the FP7 project GENERGIS (IEF-2012-332028).

LECTURE NOTES

2. **Petrakopoulou F.**, Nikolos I., 2014. "Lecture notes and exercises of the class Heat Transfer" (in Greek: «Σημειώσεις και ασκήσεις μαθήματος Μετάδοση Θερμότητας»), Undergraduate class "Heat Transfer", 7th semester, Technical University of Crete.
1. **Petrakopoulou F.**, 2008. "Instructions for EbsilonProfessional 6.0" (in English), Undergraduate class "Entwurf, Analyse und Optimierung von Energieumwandlungsanlagen" ("Design, analysis and optimization of energy conversion systems"), Technical University of Berlin.

CHAPTERS IN
BOOKS

2. **Petrakopoulou F.**, Tsatsaronis G., Boyano, A., Morosuk, T., 2012. "Post-Combustion CO₂ Capture with Monoethanolamine in a Combined-Cycle Power Plant: Exergetic, Economic and Environmental Assessment", Chapter 21 in *Greenhouse Gases - Emission, Measurement and Management* (Dr. Guoxiang Liu), InTech (Open Access Publisher), ISBN: 978-953-51-0323-3, pp. 463-484.
1. **Petrakopoulou F.**, Tsatsaronis G., Piancanstelli C., Gallio I., Morosuk, T., 2011. "Exergetic and Exergoeconomic Analyses of an Oxy-Fuel Power Plant with CO₂ Capture", Chapter 9 in *Advances in Energy Research*, Vol. 6, (Morena J. Acosta), Nova Publishers, ISBN: 978-1-61122-075-9, pp. 229-242.

JOURNAL
PUBLICATIONS

45. **Petrakopoulou F.**, Marugán-Cruz C., Sánchez-Delgado S., Santana D., in prep. "Coupling a power plant with a refrigeration system for zero-water energy generation".
44. **Petrakopoulou F.**, in review. "Defining the cost of water impacts for sustainable power generation", submitted.
43. Calise F., Liberato Cappiello F., Vicidomini M., **Petrakopoulou F.**, "Water-Energy Nexus: a thermoeconomic analysis of polygeneration systems for small Mediterranean islands", accepted for publication, *Energy Conversion and Management*.
42. **Petrakopoulou, F.**, Robinson, A., Olmeda-Delgado, M., "Impact of climate change on power-plant operation", accepted for publication, *Journal of Cleaner Production*.
41. de la Rocha Camba, E., **Petrakopoulou, F.**, 2020. "Earth-cooling air tunnels for thermal power plants: initial design by CFD modelling", *Energies* 13, 797.
40. Khoshgoftar Manesh, M.H., Kabiri, S., Yazdi, M., **Petrakopoulou, F.** "Exergoeconomic modeling and evaluation of a combined-cycle plant with MSF and MED desalination", *Journal of Water Reuse and Desalination* 10 (2): 158–172.
39. Khoshgoftar Manesh, M.H., Kabiri, S., Yazdi, M., **Petrakopoulou, F.** "Thermodynamic evaluation of a combined-cycle power plant with MSF and MED desalination", *Journal of Water Reuse and Desalination* 10 (2): 146–157.
38. del Moral Sabroso, A., **Petrakopoulou, F.**, 2019. "Evaluation of the coupling of a hybrid power plant with a water generation system", *Applied Sciences*, 9(23), 4989.
37. Fernández-Gil, G., **Petrakopoulou, F.**, 2019, "Sustainable Water Generation on a Mediterranean Island in Greece", *Energies*, 12(22), 4247.
36. Rodríguez Hervas, G., **Petrakopoulou, F.**, 2019. "Exergoeconomic Analysis of the Allam Cycle", *Energy Fuels*, 33(8), 7561-7568.
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