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## Fontina Petrakopoulou, Ph.D.

### Contact Information

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Personal Website: [fontina-petrakopoulou.github.io](https://fontina-petrakopoulou.github.io)

### Research focus

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

### 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 CO<sub>2</sub> 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)

- 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 7<sup>th</sup> Framework Programme & University Carlos III of Madrid

### TECHNICAL UNIVERSITY OF MADRID, SPAIN (2013-present)

- Research collaboration  
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 7<sup>th</sup> Framework Programme

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

- Post-doctoral researcher  
Generation of biofuels, gasification, pyrolysis, CO<sub>2</sub> 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 7<sup>th</sup> Framework Programme

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

- Research assistant  
CO<sub>2</sub> capture in natural-gas power plants, conventional and advanced exergy-based analyses, optimization of zero-emission power plants, oxy-fuel, post- and pre-combustion CO<sub>2</sub> capture technologies
- Supported by: Marie Curie as part of the European Community's 6<sup>th</sup> Framework Programme

### 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)
- Supervisor of two Bachelor theses:
  1. Joel Ularte Bautista: Water desalination assisted by renewable energy
  2. Cristina Serrano Sanchez: Evaluation of hybrid power plants

### 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

### TECHNICAL UNIVERSITY OF MADRID, SPAIN (2013-present)

- Co-supervisor of one Ph.D. thesis  
Bego Ruperez: Evaluation of solar thermal plants

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

- Co-supervisor of two Bachelor theses:
  1. Pedro Luis Cruz: Parameter analysis of combined cycle power plants
  2. Noemí Castillo Cumplido: CO<sub>2</sub> capture in power plants
- 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 CO<sub>2</sub> capture

### NAGARJUNA FERTILIZERS AND CHEMICALS LIMITED (11/2009)

- Consulting activities related to technical auditing

## PARTICIPATION IN RESEARCH PROJECTS

- Optimization of solar thermal power plants, transient analysis and design of concentric receivers, EXTRASOL (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 (07/2015-09/2018)  
Principal investigator: Fontina Petrakopoulou  
Supported by: European Commission (MC-COFUND CONEX, FP7)  
Budget: 2.931.905,90 €  
Duration: 36 months (start July 2015)
- Green Energy for Islands, GENERGIS (332028) 05/2013 – 04/2015  
Principal investigator: Fontina Petrakopoulou  
Supported by: European Commission (MC-IEF-332028, FP7)  
Budget: 161.968,80 €  
Duration: 24 months (start May 2013)
- Study on the technological perspective of different paths of utilization of lignocellulosic biomass (09/2012 – 01/2013)  
Supported by: REPSOL  
Budget: 110.000 €  
Duration: 26 weeks (start September 2012)
- Development of efficient photocatalysts for obtaining products of commercial interest for the valuation of CO<sub>2</sub> (01/2012 – 01/2013)  
Supported by: REPSOL  
Budget: 208.500 €  
Duration: 24 months (start January 2012)
- Evaluation of Gasification Processes and their Improvement Potential (03/2011 – 01/2013)  
Principal investigator: Fontina Petrakopoulou  
Supported by: European Commission (COFUND AMAROUT, FP7) and IMDEA Energy  
Budget: 40.890 €  
Duration: 25 months (start March 2011)
- Sustainable routes for the production of oxygenated high energy density biofuels from lignocellulosic biomass in a sustainable and efficient way (ASBIOPLAT) 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) 03/2011 – 01/2013  
Supported by: The European Commission's Seventh Framework

Programme (FP7), Fuel Cells and Hydrogen Joint Undertaking

Budget: 4.16 million € (2.043.518 € funded by the EU)

Duration: 36 months (start January 2011)

- Use of agro-forest and oily residues to produce clean transportation fuels (RESTOENE) 03/2011 – 01/2013

Supported by: The Madrid Regional Authority (Comunidad de Madrid)

Budget: 150.344 €

Duration: 48 months (start January 2010)

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

Supported by: The European Commission (MC-RTN, FP6)

Budget: 2.942.810 €

Duration: 36 months (start January 2006)

- Design Optimization of products and procedures with emphasis on the parametric formation of fluctuations in complex geometry (Member of the research team), Programme “Pythagoras II” (06/2005-10/2005)

Supported by: Co-financed Development Programmes (EU, Greece)

Budget: 70.000 €

Duration: 19 months (start June 2005)

## FELLOWSHIPS

- 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)
- For completing the Dissertation studies from the Technical University of Berlin (Promotionsabschlussstipendium der Frauenbeauftragte) (2010)  
Personal fellowship awarded: 6.000 €
- INSPIRE Marie Curie Research Training Network MRTN-CT-2005-019296, European Commission’s Sixth Framework Programme (2006-2009)

## PRIZES AND AWARDS

- Award of Best Presentations at the 1<sup>st</sup> Workshop of IMDEA Energy (December 2012)
- Who’s Who in the World (30<sup>th</sup> Pearl Anniversary Edition 2012)
- Finalist (among the three best Ph.D. dissertations in Germany) of the Prize of the Future awarded by RWE AG. (Zukunftspreis), 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)

## INVITED PRESENTATIONS

- Invited presentation at the seminar of the *Master in Industrial Mechanics*, University Carlos III of Madrid (2016)
- Invited presentation at the *International Seminar on Perspectives for Near-Term CCS Development and Capacity Building for Emerging Economies*, supported by Petrobras, Porto Alegre, Brazil (2010)
- Invited presentation at the 2<sup>nd</sup> *Petrobras International Seminar on CO<sub>2</sub> capture and geological storage*, supported by Petrobras, Salvador, Brazil (2009)

## ORGANIZATION OF INTERNATIONAL CONFERENCES

- Member of the Organizing Committee and 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 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)

## PROFESSIONAL SERVICE

- Member of the Ph.D. thesis Committee of Blanca Corona Bellostas, Technical University of Madrid, Spain (2016)
- Committee Chair for 5 Bachelor theses, University Carlos III of Madrid, Spain (2016)
- Committee member 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 scientific journals (2009-present):  
*ACS, Environmental Science and Technology; ACS, Journal of Energy & Fuels; ASCE, Journal of Energy Engineering; ASCE, Journal of Heat Transfer; ASME, Scientific Research and Essays* (ISSN 1992- 2248); *ASME, Journal for Engineering for Gas Turbines and Power; Elsevier, Applied Energy; Elsevier, Energy Conversion and Management; Elsevier, Energy Systems; Elsevier, Energy – The International Journal;*

*Elsevier, Fuel; Elsevier, International Journal of Greenhouse Gas Control; Elsevier, International Journal of Hydrogen Energy; Elsevier, International Journal of Refrigeration; Elsevier, Journal of Cleaner Production; Energies (ISSN 1996-1073; CODEN: ENERGA); International Journal of Electrical Power; Korean Journal of Energy Engineering; Springer, International Journal of Energy and Environmental Engineering; Springer, Journal of Chemical Engineering; Thermal Science Journal (ISSN 2334-7163, 0354-9836); Wiley, Environmental Progress and Sustainable Energy; Wiley, International Journal of Energy Research*

## \*CONFERENCE PARTICIPATION

*\*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 14<sup>th</sup> 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 13<sup>th</sup> International Conference on Environmental Science and Technology, CEST2013, Athens, Greece, *scientific committee*
- 03 07/06/2013 21<sup>st</sup> European Biomass Conference & Exhibition, Copenhagen, Denmark
- 03 07/06/2012 19<sup>th</sup> World Hydrogen Energy Conference, Toronto, Canada, *poster*
- 10 13/06/2012 The 2<sup>nd</sup> International Conference on Algal Biomass, Biofuels and Bioproducts, San Diego, California, U.S., *poster*
- 18 22/06/2012 20<sup>th</sup> European Biomass Conference and Exhibition, Milan, Italy, *poster*
- 24 27/06/2012 ANQUE International Conference of Chemical Engineering, Sevilla, Spain, *poster*
- 26 29/06/2012 25<sup>th</sup> 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 2<sup>nd</sup> International Exergy, Life Cycle Assessment, and Sustainability Workshop & Symposium (ELCAS), Nisyros, Greece
- 04 07/07/2011 24<sup>th</sup> 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 23<sup>rd</sup> 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
- 04 06/06/2009 1<sup>st</sup> International Exergy, Life Cycle Assessment, and Sustainability Workshop & Symposium (ELCAS), Nisyros, Greece
- 15 17/06/2009 The 5<sup>th</sup> Trondheim Conference on CO<sub>2</sub> Capture, Transport and Storage, Trondheim, Norway
- 31/08 03/09/2009 22<sup>nd</sup> International Conference on Efficiency, Cost, Optimization, Simulation and environmental Impact of Energy Systems (ECOS), Foz do Iguassu, Brazil
- 31/08 03/09/2009 8<sup>th</sup> International Conference on Sustainable Energy Technologies, Aachen, Germany
- 29/09 03/10/2009 5<sup>th</sup> 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 2<sup>nd</sup> Petrobras International Seminar on CO<sub>2</sub> 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

- 23/02/2015 Seminar on Parameters, Online course, Earthshift
- 19/02/2015 Seminar on Impact Assessment Methods, Online course, Earthshift
- 29/01/2015 Seminar on Modeling in Product Stages-Beginner, Online course, Earthshift
- 15/01/2015 Seminar on Applied LCA in SimaPro II, Online course, Earthshift
- 14/01/2015 Seminar on Applied LCA in SimaPro I, Online course, 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 (10/2015-01/2016)

## SKILLS

- **Languages:** Native speaker of Greek, fluent in English, German and Spanish, beginner in French
- **Simulation software:** EpsilonProfessional, Gate Cycle, EES, AspenPlus, Thermoflow

- **Programming languages:** Basic knowledge of 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

## THESES

2. **Petrakopoulou F.**, 2010, “Comparative evaluation of power plants with CO<sub>2</sub> 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”, 7<sup>th</sup> 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 CO<sub>2</sub> 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 CO<sub>2</sub> 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

32. **Petrakopoulou F.**, “Economic and environmental considerations for zero-emission transport and thermal energy generation on an energy autonomous island”, in review.
31. Yolanda L., **Petrakopoulou F.**, Morosuk T., Boyano A., Tsatsaronis G., “The Relationship Between Costs and Environmental Impacts in Power Plants: An Exergy-Based Study”, in review.
30. **Petrakopoulou F.**, 2017. “The Social Perspective on the Renewable Energy Autonomy of Geographically Isolated Communities: Evidence from a Mediterranean Island”, *Sustainability* 9(3), 327; doi:10.3390/s9030327.
29. González-Gómez P.A., **Petrakopoulou F.**, Briongos J.V., Santana D., 2017. “Cost-based design optimization of the heat exchangers in a parabolic trough concentrating solar power plant”, *Energy – The International Journal* 123, 314-325.
28. Alhammadi M., Alblooshi M., **Petrakopoulou F.**, Dadach Z., 2016. “Effects of summer weather conditions on the environmental impact of a power plant in the UAE”, *International Journal of Energy Engineering* 6 (2), 29-42.
27. **Petrakopoulou F.**, 2016. “On the economics of stand-alone renewable hybrid power plants in remote regions”, *Energy Conversion and Management* 118, 63-74.
26. **Petrakopoulou F.**, Robinson A., Loizidou M., 2016. “Simulation and evaluation of a hybrid concentrating-solar and wind power plant for energy autonomy on islands”, *Renewable Energy* 96 (A), 863-871.
25. **Petrakopoulou F.**, Robinson A., Loizidou M., 2016. “Simulation and analysis of a stand-alone solar-wind and pumped-storage hydropower plant”, *Energy – The International Journal* 96, 676-683.
24. **Petrakopoulou F.**, Robinson A., Loizidou M., 2016. “Exergetic analysis and dynamic simulation of a solar-wind power plant with electricity storage and hydrogen generation”, *Journal of Cleaner Production* 113, 450-458.
23. **Petrakopoulou F.**, Sanz-Bermejo J., Dufour J., Romero, M., 2016. “Exergetic Analysis of Hybrid Power Plants with Biomass and Photovoltaics Coupled with a Solid-Oxide Electrolysis System”, *Energy – The International Journal* 94, 304-315.
22. **Petrakopoulou F.**, Tsatsaronis G., Morosuk T., 2015. “Advanced Exergoeconomic and Environmental Analysis of a Stand-Alone Renewable Hybrid Power Plant in Remote Regions”, *Energy Conversion and Management* 100, 100-110.

nomic Analysis of a Power Plant with CO<sub>2</sub> Capture”, *Energy Procedia* 75, 2253-2260.

21. Peters J., **Petrakopoulou F.**, Dufour J., 2015. “Exergy analysis of synthetic bio-fuel production via fast pyrolysis and hydrouppgrading”, *Energy The International Journal* 79, 325-336.
20. **Petrakopoulou F.**, Iribarren D., Dufour J., 2015. “Life-cycle performance of natural gas power plants with pre-combustion CO<sub>2</sub> capture”, *Greenhouse Gases: Science and Technology* 5(3), 268-276.
19. **Petrakopoulou F.**, Tsatsaronis G., 2014. “Can Carbon Dioxide Capture and Storage from Power Plants Reduce the Environmental Impact of Electricity Generation?”, *ACS Energy & Fuels*, 28(8), 5327-5338.
18. Iribarren D., Susmozas A., **Petrakopoulou F.**, Dufour J., 2014. “Environmental and exergetic evaluation of hydrogen production via lignocellulosic biomass gasification”, *Journal of Cleaner Production* 69, 165-175.
17. Peters J., **Petrakopoulou F.**, Dufour J., 2014. “Exergetic analysis of a fast pyrolysis process for bio-oil production”, *Fuel Processing Technology* 199, 245-255.
16. **Petrakopoulou F.**, Lee Y.D., Tsatsaronis G., 2014. “Simulation and Exergetic evaluation of CO<sub>2</sub> capture in a solid oxide fuel cell combined cycle power plant”, *Applied Energy* 114, 417-425.
15. **Petrakopoulou F.**, Tsatsaronis G., Morosuk T., 2014. “CO<sub>2</sub> capture in a chemical looping combustion power plant evaluated with an advanced exergetic analysis”, *Wiley - Environmental Progress and Sustainable Energy* 33(3), 1017-1025.
14. **Petrakopoulou F.**, Tsatsaronis G., Morosuk T., 2013. “Assessment of a power plant with CO<sub>2</sub> capture using an advanced exergoenvironmental analysis”, *ASME Journal of Energy Resources Technology* 136(2), 022001.
13. **Petrakopoulou F.**, Tsatsaronis G., Morosuk T., 2013. “Evaluating the potential for improvement of an oxy-fuel power plant with CO<sub>2</sub> capture using an advanced exergetic analysis”, *ACS Energy & Fuels* 27 (8), pp. 4850-4858.
12. **Petrakopoulou F.**, Tsatsaronis G., Morosuk T., 2013. “Evaluation of a Power Plant with Chemical Looping Combustion Using an Advanced Exergoeconomic Analysis”, *Sustainable Energy Technologies and Assessments* 3, pp. 9-16.
11. Iribarren D., **Petrakopoulou F.**, Dufour J., 2013. “Environmental and thermodynamic evaluation of CO<sub>2</sub> capture, transport and storage with and without enhanced resource recovery”, *Energy The International Journal* 50, pp. 477-485.
10. **Petrakopoulou F.**, Tsatsaronis G., Morosuk T., 2012. “Advanced exergoenvironmental analysis of a near-zero emission power plant with chemical looping combustion”, *Environmental Science and Technology* 46, pp. 3001-3007.
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