Fontina Petrakopoulou, Ph.D.

Contact Information

Address:	Department of Thermal and Fluid Engineering University Carlos III of Madrid Avda. Universidad 30, 28911 Leganés (Madrid)
Tel.:	+34 916 249 935, +34 674 178 647
E-mail:	fpetrako@ing.uc3m.es
Personal Website:	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 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 CO_2 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 / 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, CO_2 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
  CO_2 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_2 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 evolutional 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 seven Bachelor theses (four completed) and one Master thesis:
  1. Joel Ularte Bautista: Comparative evaluation of renewable energy desalination for the production of potable water
  2. Cristina Serrano Sanchez: Evaluation of hybrid power plants
  3. Guillermo Fernandez Gil: Sustainable water generation to cover the demand of a Mediterranean island
  4. Gonzalo Rodriguez Hervas: Exergoeconomic evaluation of the Allam Cycle

URMIA UNIVERSITY, IRAN (07/2017-present)

- Co-supervisor of one Ph.D. thesis:

  Iman Golpour: Exergy and energy analyses of a juice production line for reducing energy consumption

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 CO_2 emissions
     Social Council Award of Rey Juan Carlos University for Young Researchers in 2013
  2. Noemí Castillo Cumplido: Advanced CO_2 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 CO_2 capture

NAGARJUNA FERTILIZERS AND CHEMICALS LIMITED (11/2009)

- Consulting activities related to technical auditing

PARTICIPATION IN RESEARCH PROJECTS

- 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 CO_2 (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 lignocelullosic 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 agro-forest 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)
- 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 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)

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 CO_2 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

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

- Member of the Scientific Committee of the European Conference on Renewable Energy Systems, 2017 Istanbul, Turkey

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 Editorial Board of *Environments* (ISSN 2076-3298), an international scientific open access journal of environmental sciences published monthly online by MDPI (2017-present)
- 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)
- Review Editor of the Editorial Board of Process and Energy Systems Engineering, Frontiers in Energy Research
- 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; Nature Energy; 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

- 25 27/06/2018 Sixth European Conference on Renewable Energy Systems ECRES, Istanbul, Turkey
- 13 16/12/2016 AGU Fall Meeting, San Francisco, USA
- 11 14/10/2016 SolarPACES, Abu Dhabi, UAE, *poster*

**oral presentations unless otherwise stated*

- 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 CO_2 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 CO_2 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

- 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 EbsilonProfessional 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 Turorials, 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 (Energietechnick 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 (Energietechnick 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:** 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

THESES

2. **Petrakopoulou F.**, 2010, "Comparative evaluation of power plants with CO_2 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 CO_2 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_2 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

35. **Petrakopoulou F.**, Santana D., in prep. "A new water costing model for power plants".

34. **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".

33. **Petrakopoulou F.**, Sánchez-Delgado S., Marugán-Cruz C., Santana D., 2017. "Improving the efficiency of gas turbine systems with volumetric solar receivers", Energy Conversion and Management 149, 579-592.

32. Yolanda L., **Petrakopoulou F.**, Morosuk T., Boyano A., Tsatsaronis G., 2017. "The Relationship Between Costs and Environmental Impacts in Power Plants: An Exergy-Based Study", Energy 138, 920-928.

31. **Petrakopoulou F.**, 2017. "Economic and environmental considerations for zero-emission transport and thermal energy generation on an energy autonomous island", European Journal of Sustainable Development Research, 2(1), 05, doi: 10.20897/ejosdr/74299.

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/su9030327.

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 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 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 94, 304-315.

22. **Petrakopoulou F.**, Tsatsaronis G., Morosuk T., 2015. "Advanced Exergoeconomic Analysis of a Power Plant with CO_2 Capture", Energy Procedia 75, 2253-2260.

21. Peters J., **Petrakopoulou F.**, Dufour J. 2015. "Exergy analysis of synthetic biofuel production via fast pyrolysis and hydroupgrading", Energy 79, 325-336.

20. **Petrakopoulou F.**, Iribarren D., Dufour J., 2015. "Life-cycle performance of natural gas power plants with pre-combustion CO_2 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_2 capture in a solid oxide fuel cell combined cycle power plant", Applied Energy 114, 417-425.

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