1. PERSONAL DETAILS

Surname / Name: Papaefthimiou Spiros (Spyridon)

Date of birth: 6 October 1971

Current work status:
- Professor in Technical University of Crete.
- Affiliate Professor in ESCP.

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Spiros is the Director of the **Industrial, Energy and Environmental Systems Lab** and he specializes in renewables, energy efficiency issues and energy saving applications. His research interests include various aspects of renewables (assessment and implementation of technologies and especially photovoltaics and solar thermal systems, implementation of national policies related to renewables and financial and social incentive schemes, renewable energy heating and cooling applications, renewable energy auctions and market exchange, Life Cycle Assessment and environmental impacts analysis from large-scale deployment of renewable energy technologies); Sustainability in the energy sector; Energy saving devices; Technologies of "smart" materials for energy related applications; Energy characterization of building structural elements.

As part of his academic work, he has published more than 65 papers in peer-reviewed international journals and has been cited more than 3700 times, with a current h-index of 34; additionally, he has actively participated in more than 50 research projects. He has presented papers to numerous international energy related conferences and acted as referee for international journals in the area of Renewables, Energy efficiency and Energy policy, while at the same time he has served as member in various professional and academic associations such as the International Association for Energy Economics and the International Solar Energy Society.

He is an Affiliate Professor at **ESCP Business School**, London, and the Academic Director of the **Executive Master in Future Energy (EMFE)**. Additionally, he has provided lectures and supervised MSc theses in various academic institutions including EADA Spain and Montpellier Business School. He is a founding member and the President of the **Hellenic Association for Energy Economics**.

As a global recognition of his academic impact, Spiros has been a member of the "Top 2% of the World's top scientists" for 2022-2024 in the field of Energy, according to the "**World's Top 2% Scientists**" ranking published by Stanford University.

2. RESEARCH INTERESTS

Energy saving devices – "Smart" materials for energy applications
- Experimental preparation and characterization of "smart" electrochromic glazing incorporating thin films.
- Theoretical design, modelling, preparation and characterization of low emissivity coatings (low-e coatings) for application in energy saving devices.

Study of advanced solar collectors and photovoltaics
- Design and experimental study of various types flat solar collectors.
- Experience in designing, manufacturing and testing of stationary high-efficiency solar collector using asymmetric mirrors (CPC type).
- Design and experimental study of concentrating photovoltaics with enhanced performance for integration into building façades.

Thermal and energy characterization of building structural elements
- Thermal and energy characterization of building components (such as windows, frames, glazing, special walls, energy façades, etc.). Study of the energy performance of buildings incorporating "smart" energy glazing.

Environmental Systems Analysis: Life Cycle Assessment, Eco-efficiency analysis, Circular approach
- Life Cycle Assessment (LCA) and Eco-Efficiency analysis of energy saving applications.
- Development of a methodology for energy labelling of building elements (i.e. glazing) with a combination of life cycle analysis and ecological performance assessment.
- Combined environmental, energy and economic assessment of energy systems (wind-solar-photovoltaic plants, geothermal installations, etc.)

Management and modelling of Renewable Energy Sources (RES)
- Determination of necessary procedures for the integration of RES in remote communities. Environmental legislation. Public awareness issues on energy matters: energy savings in buildings, renewable energy for domestic use, large-scale projects.

Environmental and energy related issues in the transportation sector
- Energy analysis and cost-efficiency issues. Anticipated policies and market-based measures in ports and airports.

- Emissions reduction schemes for the maritime and aviation sectors.
- Advanced web-based technologies for monitoring air emissions.

3. TEACHING ACTIVITY

Academic years 2012-now:	– **Affiliate Professor at ESCP Business School**, London, lectures on Renewable Energy Sources, Sustainability in the Energy sector for Master in Energy Management (MEM), Master in Management (MIM), Executive Master in Energy Management (EMEM), Executive Master in Business Administration (EMBA), Executive Master in Future Energy (EMFE). **Academic Director of EMFE**.
Academic years 2012-now:	– **Professor at School of Production Engineering and Management**, Technical University of Crete (lectures on Renewable Energy Sources, Sustainability, Energy Efficiency, Environmental analysis, Smart materials and energy systems).
Academic years 2016-now:	– **Invited Lecturer** on MSc courses at EADA Business School, Madrid (lectures on Renewables). – **Invited Lecturer** on MSc courses at Montpellier Business School (lectures on Renewables and Sustainability).
Academic years 1997-2011:	– **Associate Professor** at Technological Educational Institution of Patras, Departments of Electrical and Mechanical Engineering, Department of Telecommunication Systems and Networks.

4. SUPERVISION OF MSc – PhD THESES

1. Supervision of more than 100 bachelor-25 MSc theses and 7 PhDs in Technical University of Crete.
2. Participation in more than 20 PhD committees as an external member.
3. Supervision of several MSc theses at ESCP London (MEM, MIM, EMEM).

5. SELECTED LIST OF EU RESEARCH PROJECTS (principal researcher or scientific coordinator)

1. MERMAID "Mediterranean Environmental Review Monitoring for port Authorities through Integrated Development ", MED Maritime Integrated Projects, 2014-2015.
2. "Novel structural skins: Improving sustainability and efficiency through new structural textile materials and designs", COST action TU1303, 2014-2016.
3. GABI "Geothermal energy Applications in Buildings and Infrastructure", COST action TU1405, 2015-2018.
4. ASVACS "Advanced Solar Vacuum Collectors & Systems: Development, design, production and environmental analysis of advanced solar thermal collectors and heat storage systems using vacuum and phase change materials", 2018-2021.
5. Circular City: Implementing Nature-Based Solutions for creating a resourceful circular city", COST Action CA17133, 2019-2022.
6. Geothermal-DHC "Research network for including geothermal technologies into decarbonized heating and cooling grids", COST Action CA18219, 2019-2022.
7. FACTLOG "Energy-aware Factory Analytics for Process Industries", H2020 2019-2022.
8. NESOI "New Energy Solutions Optimized for Islands", H2020 2019-2023.
9. IANOS "IntegrAted SolutioNs for the DecarbOnization and Smartification of Islands", H2020 2021-2025.
10. SmartGreen "Implementing an intelligent and sustainable Greenhouse module through the application of innovative information and control technologies", RIS3Crete 2014 – 2020, 2020-23.
11. ROBINSON "Smart Integration of Local Energy Sources and Innovative Storage for Flexinle, Secure and Cost-Efficient Energy Supply on Industrialized Islands", Horizon 2020, LC-SC3-ES-4-2018-2020 - Decarbonising energy systems of geographical Islands.
12. AquaSPICE "Advancing Sustainability of Process Industries through Digital and Circular Water Use Innovations", Horizon 2020, H2020-Low Carbon Circular Industries 2020.
13. SmartLIK "Smart Leak detection network based on IoT technology and Knowledge", 2023-2024, XM-EOX, "Water Management", GR-Environment.
14. EXCEED "Cost-effective, sustainable and responsible extraction routes for recovering distinct critical metals and industrial minerals as by-products from key European hard-rock lithium projects", Horizon - CL4-2022-RESILIENCE-01-07.
15. ENPOWER "Power in our hands", Horizon - CL5-2022-D3-01-08.
16. EVELIXIA "Buildings as active utility nodes", Horizon - CL5-2022-D4-02-04.

6. SELECTED ACADEMIC ACTIVITIES

6.1 Guest Editor in Academic Journals related to Energy

- Energy Markets, Special Issue in "Energy Financial Management", Energy Markets, 8 (3), September 2015.
- Energy Systems, Special Issue "Recent Developments in Energy Modeling and Management", 2016 Energy Systems 7.
- Energy Policy, Special Issue "Energy markets and policy implications", 2016, Energy Policy, 88.
- The Energy Journal, Special Issue "The New Era of Energy Transition", 2019, Volume 40
- Renewable Energy, Special Issue on "Renewable Energy technologies in the era of circular economy", 2021.
- Energies, Special Issue on "Development, Design, Production and Environmental Analysis of Advanced Solar Thermal Collectors and Heat Storage Systems", 2020-21.

6.2 Organization of scientific Conferences

- International Conference "1st HAEE Energy Transition Symposium", Athenaeum Intercontinental Hotel – Αθήνα, 22 Μαρτίου 2016.
- "Hydrocarbon Research and Exploitation: Development Prospects for the Greek Economy", Athens, March 29, 2017.
- International Conference "2nd HAEE Energy Transition Symposium: The landscape in the new era of energy transition: Challenges, investment opportunities and technological innovations", Metropolitan Hotel – Athens, 18-20 May 2017.
- "Energy Efficiency Conference 2017", OTEAcademy, Athens, September 29 2017.
- "1st EcoMobility Conference", Athens, 22 March 2018.
- International Conference "3rd HAEE Annual Conference: Energy Transition: European and Global Perspectives", Wydham Hotel – Athens, 3-5 May 2018.
- "Energy Efficiency Conference 2018", Athens, 27 June 2018.
- "Desalination with RES on islands. Prospects and funding opportunities for Crete", Crete, 8 October 2018.
- "2nd EcoMobility Conference", Athens, 22 January 2019.
- International Conference "4th HAEE Annual Conference: Energy Transition IV SE Europe and beyond", Divani Caravel Hotel, Athens, 6-8 May 2019.
- "EcoFest 2020", Technopolis, Athens, 18-20 January 2020.
- "Smart and Accessible Cities – Circular Economy – Electromobility: Political and Financial Solutions for Local Government", Technopolis, Athens, 19 January 2020.
- "3rd Eco-Mobility Conference 2020", Technopolis, Athens, 20 January 2020.
- International Conference "5th HAEE Energy Transition Symposium: Energy Transition V: Global & Local Perspectives", Theoxenia Palace Hotel, Kifissia Athens, 30 September - 2 October 2020.
- "4th Eco-Mobility Conference 2021", Athens, 20 January 2021.
- "EcoFest 2021", Plateia Nerou, Kallithea, Athens, 4-6 June 2021.
- International Conference "6th HAEE Energy Transition Symposium: Looking Ahead with Optimism, Beyond the Covid Era", Theoxenia Palace Hotel, Kifissia Athens, 28 September - 1 October 2021.
- "EcoFest 2021", Πλατεία νερού, Καλλιθέα, Αθήνα, 4-6 Ιουνίου 2021.
- "5th Eco-Mobility Conference 2022", January 20, 2022.
- International Conference "17th IAEE European Energy Conference, The Future of Global Energy Systems", The American College of Greece, Athens, 21-24 September 2022.
- "6th Eco-Mobility Conference 2023", January 18, 2023.
- International Conference "8th HAEE Energy Transition Symposium: The new state of play for a secure and sustainable future", French Institute of Greece, 27-29 September 2023.
- "7th Eco-Mobility Conference 2024", January 24, 2024.
- International Conference "9th HAEE Energy Transition Symposium: "Striving for Stability in a Highly Uncertain Energy World", Maroussi Plaza Centre, Athens, 22-24 May 2024
- "8th Eco-Mobility Conference 2025", January 29, 2025.

7. SELECTED PUBLICATIONS IN INTERNATIONAL SCIENTIFIC JOURNALS

Publications in International Journals:	65
Citations:	more than 3700
h-index (Scopus):	34

Data from Google Scholar and Scopus

1. Y. Tripanagnostopoulos, P. Yianoulis, S. Papaefthimiou, M. Souliotis and Th. Nousia, "Cost effective asymmetric CPC solar collectors", Renewable Energy 16 (1999) 628-631 https://doi.org/10.1016/S0960-1481(98)00239-0
2. G. Leftheriotis, S. Papaefthimiou and P. Yianoulis, "Development of multilayer transparent conductive coatings", Solid State Ionics 136-137 (2000) 655 https://doi.org/10.1016/S0167-2738(00)00328-3

3. E. Syrrakou, S. Papaefthimiou, P. Yianoulis, "Environmental assessment of electrochromic glazing production", Solar Energy Materials and Solar Cells 85 (2005) 205 https://doi.org/10.1016/j.solmat.2004.03.005
4. S. Papaefthimiou, E. Syrrakou and P. Yianoulis, "Energy performance assessment of an electrochromic window", Thin Solid Films 502 (2006) 257 https://doi.org/10.1016/j.tsf.2005.07.294
5. E. Syrrakou, S. Papaefthimiou and P. Yianoulis, "Eco-efficiency evaluation of a smart window prototype", Science of the Total Environment 359 (2006) 267 https://doi.org/10.1016/j.scitotenv.2005.10.023
6. S. Papaefthimiou, E. Syrrakou, P. Yianoulis "An alternative approach for the energy and environmental rating of advanced glazing: an electrochromic window case study", Energy and Buildings 41 (2009) 17 https://doi.org/10.1016/j.enbuild.2008.07.008
7. S. Papaefthimiou, "Chromogenic technologies: Towards the realization of smart electrochromic glazing for energy-saving applications in buildings", Advances in Building Energy Research 4 (2010) 77 https://doi.org/10.3763/aber.2009.0404
8. R. Winkel, U. Weddige, D. Johnsen, V. Hoen, S. Papaefthimiou, "Shore Side Electricity in Europe: Potential and environmental benefits", Energy Policy 88 (2016) 584–593 https://doi.org/10.1016/j.enpol.2015.07.013
9. S. Papaefthimiou, M. Souliotis, K. Andriosopoulos, "Grid parity of solar energy: imminent fact or future's fiction?", The Energy Journal 37 (2) (2016) 263-276 https://doi.org/10.5547/01956574.37.SI2.spap
10. N. Arnaoutakis, M. Souliotis, S. Papaefthimiou, "Comparative experimental life cycle assessment of two commercial solar thermal devices for domestic applications", Renewable Energy 111 (2017) 187-200 https://doi.org/10.1016/j.renene.2017.04.008
11. M. Souliotis, G. Panaras, P. A. Fokaides, S. Papaefthimiou, S.A. Kalogirou, "Solar water heating for social housing: Energy analysis and Life Cycle Assessment", Energy and Buildings 169 (2018) 157-171 https://doi.org/10.1016/j.enbuild.2018.03.048
12. E. Zervas, C. Voyatzi, E. Massou, G. Gemenetzi, S. Papaefthimiou, S. Poulopoulos, "Energy use and saving in residential sector and occupant behaviour: a case study in Athens", Energy and Buildings 181 (2018) 1-9 https://doi.org/10.1016/j.enbuild.2018.09.039
13. M. Milousi, M. Souliotis, G. Arampatzis and S. Papaefthimiou, "Evaluating the Environmental Performance of Solar Energy Systems Through a Combined Life Cycle Assessment and Cost Analysis", Sustainability11(9) (2019) 2539; https://doi.org/10.3390/su11092539
14. E. Galariotis, I. Kalaitzoglou, K. Kosmidou, S. Papaefthimiou, S. Spyrou, "Could Market Making be Profitable in The European Carbon Market?", Energy Journal 40 (2019) 5; https://doi.org/10.5547/01956574.40.SI1.egal
15. D. Pearlmutter, D. Theochari, T. Nehls, B. Pucher, P. Pinho, P. Piro, A. Korolova, S. Papaefthimiou, "Enhancing the circular economy with nature-based solutions in the built urban environment: green building materials, systems and sites", Blue-Green Systems 2(1) (2020) 46 https://doi.org/10.2166/bgs.2019.928
16. E. Doundoulakis and S. Papaefthimiou, "A comparative methodological approach for the calculation of ships air emissions and fuel-energy consumption in two major Greek ports" Maritime Policy & Management, 2021; https://doi.org/10.1080/03088839.2021.1946610
17. D. Ipsakis, G. Varvoutis, A. Lambropoulos, S. Papaefthimiou, G. Marnellos and M. Konsolakis, "Techno-economic assessment of a scaled-up conversion process of industrially-captured CO_2 by means of renewable hydrogen", Renewable Energy, 179 (2021) 1884-1896, https://doi.org/10.1016/j.renene.2021.07.109
18. G. Mihalakakou, M. Souliotis, M. Papadaki, G. Halkos, J. Paravantis, S. Makridis, S. Papaefthimiou, "Applications of Earth-to-Air Heat Exchangers: A Holistic Review" Renewable & Sustainable Energy Reviews Renewable and Sustainable Energy Reviews 155 (2022) 111921 https://doi.org/10.1016/j.rser.2021.111921
19. N. Arnaoutakis, A.P. Vouros, M. Milousi, S. Papaefthimiou, M. Souliotis, "Design, Energy, Environmental and Cost Analysis of an Integrated Collector Storage Solar Water Heater Based on Multi-Criteria Methodology", Energies 15(5) (2022) 1673 https://doi.org/10.3390/en15051673
20. E. Doundoulakis, S. Papaefthimiou, "Estimation of Air Emissions Externalities Due to Shipping: Analytical Methodological Framework", Climate, 10(7) (2022) 100 https://doi.org/10.3390/cli10070100
21. M. Milousi, A. Pappas, A.P. Vouros, M. Souliotis, S. Papaefthimiou, "Evaluating the Technical and Environmental Capabilities of Geothermal Systems through Life Cycle Assessment", Energies 15(15) (2022) 5673 https://doi.org/10.3390/en15155673
22. E. Doundoulakis, S. Papaefthimiou, "Comparative analysis of fuel consumption and CO_2 emission estimation based on ships activity and reported fuel consumption: the case of short sea shipping in Crete" Greenhouse Gases: Science and Technology 12(5) (2022) 629–641 https://doi.org/10.1002/ghg.2174
23. E. Doundoulakis, S. Papaefthimiou, I. Sitzimis, "Environmental impact assessment of passenger ferries and cruise vessels: the case study of Crete", European Transport 87 (2022) 2 https://doi.org/10.48295/ET.2022.87.2
24. Mihalakakou, G., Souliotis, M., Papadaki, M., Giannakopoulos, E., Papaefthimiou, S., "Green roofs as a nature-based solution for improving urban sustainability: Progress and perspectives", Renewable and Sustainable Energy Reviews 180 (2023) 113306 https://doi.org/10.1016/j.rser.2023.113306
25. Pappa, A., Pham-Huu, C., Papaefthimiou, S., Zafeiratos, S., "Catalytic Approaches for CO_2 Conversion to Value-Added Products: An Overview of Life Cycle Assessment Studies", Advanced Energy and Sustainability Research (2025) 2400399 https://doi.org/10.1002/aesr.202400399