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Education

BSc in Chemistry (8.76/10): Chemistry Department, **Aristotle University of Thessaloniki**
(1989)

PhD in Electrochemistry: Chemistry Department, **Southampton University**, UK (1994)
("Oxygen reduction at microelectrodes"; Supervisor: Professor
Derek Pletcher)

Academic experience

Postdoctoral Researcher: **Cambridge University**, Chemistry Department, UK
(1994-1995)

Postdoctoral Researcher: **Johns Hopkins University**, Materials Science and
Engineering Department, USA (1995-1996)

Lecturer: **Nottingham University**, School of Chemical, Environmental
and Mining Engineering, UK (1996-2000)

Lecturer: **Aristotle University of Thessaloniki**, Chemistry Department
(October 2000 –December 2004)

Assistant Professor: **Aristotle University of Thessaloniki**, Chemistry Department
(December 2004-November 2008)

Assistant Professor (tenured): **Aristotle University of Thessaloniki**, Chemistry Department
(November 2008-August 2010)

Associate Professor: **Aristotle University of Thessaloniki**, Chemistry Department
(August 2010-2015)

Professor: **Aristotle University of Thessaloniki**, Chemistry Department
(April 2015-current date)

Editor [Electrochimica Acta](#) (Elsevier Ltd)

Area of Research Specialisation ELECTROCHEMISTRY

Main Research Interests

- Electrocatalysis (preparation, characterization and electrochemical activity of electrocatalytic materials, with emphasis to fuel cell related reactions)
- Photoelectrocatalysis (preparation, characterization and electrochemical activity of TiO₂-based photocatalytic materials for organics photooxidation reactions and/or hydrogen production, with emphasis to electric field enhancement effects and to better utilization of incident radiation)
- Electroanalysis (microelectrode sensors, gas sensors, stripping voltammetry, with emphasis to signal dependence on physicochemical parameters and the use of microelectrodes)
- Adsorption of organics on electrode surfaces (adsorption on Hg electrodes)
- Scanning probe microscopies (AFM, STM, SECM)
- Applied electrochemistry (electroplating, electro dialysis, environmental remediation)

Selected Recent Publications

- *“Probing the hydrogen adsorption affinity of Pt and Ir by surface interrogation scanning electrochemical microscopy (SI-SECM)”* Papaderakis, A., Tsiplakides, D., Balomenou, S., Sotiropoulos, S. (2017) *Electrochemistry Communications*, 83, pp. 77-80.

- *“Electrocatalysts prepared by galvanic replacement”* Papaderakis, A., Mintsouli, I., Georgieva, J., Sotiropoulos, S. (2017) *Catalysts*, 7 (3), art. no. 80.
- *“Oxygen Evolution at IrO₂ Shell-Ir-Ni Core Electrodes Prepared by Galvanic Replacement”* Papaderakis, A., Pliatsikas, N., Prochaska, C., Vourlias, G., Patsalas, P., Tsiplakides, D., Balomenou, S., Sotiropoulos, S. (2016) *Journal of Physical Chemistry C*, 120 (36), pp. 19995-20005.
- *“Pt-Cu electrocatalysts for methanol oxidation prepared by partial galvanic replacement of Cu/carbon powder precursors”*, Mintsouli, I., Georgieva, J., Armyanov, S., Valova, E., Avdeev, G., Hubin, A., Steenhaut, O., Dille, J., Tsiplakides, D., Balomenou, S., Sotiropoulos, S. *Applied Catalysis B: Environmental* Volume 136-137, 5 June 2013, Pages 160-167.
- *“Bi-component semiconductor oxide photoanodes for the photoelectrocatalytic oxidation of organic solutes and vapours: A short review with emphasis to TiO₂-WO₃ photoanodes.”* Georgieva, J., Valova, E., Armyanov, S., Philippidis, N., Poullos, I., Sotiropoulos, S. (2012) *Journal of Hazardous Materials*, 211-212, pp. 30-46.

Selected Research Projects

- *“Optimization of Seawater Electrodialysis for the Production of Sea Water Nasal Spray Athomer” -OPTATHOMER (2018-2021)*
- *“Barrel-plating of Coins with Ni-Cu Alloys »-ΠΟΔΑ Ltd (2017-2019)*
- *“Electrochemical Processing of Cr-containing effluents» –INVALOR (2017-2020)*
- *“Novel Bimetallic Catalysts for Fuel Cell Electrocatalytic Reactions”-ΗΠΑΚΛΕΙΤΟΣ II (2010-2013)*
- *“Nanomaterials for Photochemical and Photoelectrochemical Purification Processes”-NATO SfP (2007-2010)*

Teaching

Undergraduate

- Physical Chemistry I (Chemical Thermodynamics)
- Physical Chemistry III (Chemical Kinetics)
- Statistics
- Electrochemical Reactions and Applications
- Electroanalysis

Postgraduate

- Materials Characterization Methods
- Principles of Electrode Reactions and Electrochemical Applications
- Applied Electrochemistry