Eftychia E. Martino

Chemical Engineer, MEng MSc, PhD

Collaborative Teaching Staff (Lecturer) Intermediate in Chinese system

PERSONAL INFORMATION

Nationality
Greek

CONTACT

email
eftychiamart@gmail.com

LinkedIn profile
https://www.linkedin.com/in/eftychia-martino-329247b9/

G. Scholar
https://scholar.google.com/citations?user=LOlOmvsAAAAJ&hl=el&oi=sra

SOFT SKILLS

creative thinking, teamwork, time management, positivity, problem solving

TECHNICAL SKILLS

chemical engineer, electrochemistry, electrochemical cells, fuel cells & batteries, electrochemical and physicochemical characterization, catalyst preparation and deposition, mathematical modeling, experiment supervision, reporting, process tunning

TEACHING EXPERIENCE

Lecturer
Chemical Engineering Dept., University of Patras, Rion, Greece
Spring semester 2024
Responsible for "Chemical Processes I" (6th semester) & "Materials for Energy Applications" (10th semester)
Spring semester 2022 – Spring semester 2023
Responsible for "Laboratory of Analytical Chemistry" (2nd semester) & "Reactor Analysis and Design" (10th semester) courses

Teaching assistant
Chemical Engineering Dept., University of Patras, Rion, Greece
Spring Semester 2017
Physical chemistry laboratory (3rd semester)
Fall Semester 2013 & Fall Semester 2016
Introduction to Chemical Engineering (1st semester)

Course Coordinator
August 2015
Responsible for Implementation and supporting of necessary development procedures of "Introduction to Chemical Engineering" course of University of Patras for the program: "Open Academic Lessons of University of Patras"

Undergraduate diploma student supervisor
Chemical Engineering Dept., University of Patras, Rion, Greece
April 2013 - September 2019
Supervisor of more than 20 undergraduate diploma students

Tutoring High-School Students
September 2009 - June 2012

WORKING AND RESEARCH EXPERIENCE

Principal Investigator
Chemical Engineering Dept., University of Patras, Rion, Greece
October 2022 - today
National research Program: Novel electrocatalysts for conventional and triode bio-alcohol fuel cells "BioTriode"

Postdoctoral Researcher
Material Science Dept., University of Patras, Rion, Greece
December 2021 - May 2022
National research Program: Development of Sodium ion batteries based on plant materials anodes

Product Engineer
Northvolt Ett, Skellefteå, Västerås, Sweeden
July 2021 – September 2021
Design and implement cost-reductive changes, overseeing the daily running of the manufactory area, rising and controlling work orders according to the production planning, fine tune the installed process to meat company goals

Postdoctoral Researcher
Chemical Engineering Dept., University of Patras, Rion, Greece
October 2019 - May 2021
National research program: Scale up of Electrochemically Promoted Catalytic Hydrogenation of CO_2 for fuel production

PhD candidate (scholarship)
Chemical Engineering Dept., University of Patras, Rion, Greece
August 2017 - July 2019
National funding: 1st ELIDEK Scholarship for PhD Candidates

PhD candidate (scholarship)
Chemical Engineering Dept., University of Patras, Rion, Greece
September 2015 - July 2017
European research Program: D.971: Development of a Closed Loop Regenerative HT-PEM Fuel Cell System

Master student (scholarship)
Chemical Engineering Dept., University of Patras, Rion, Greece
September 2014 - July 2015
National research program: D.953: Electrochemical enhancement of aerobic - catalytic treatment of toxic pollutants in aqueous phase, ARISTIA II

Master student (scholarship)
Chemical Engineering Dept., University of Patras, Rion, Greece
September 2014 - July 2015
European research program: Innovative SOFC Architecture based on Triode Operation, T-CELL

Undergraduate student (scholarship)
Chemical Engineering Dept., University of Patras, Rion, Greece
April 2012 - July 2012
National program "C.705.002: Special Program of E.L.K.E. Project title: Investigation of low temperature fuel cells"

Chemical Analyst
July 2009 - September 2009
Internship in quality control department

EDUCATION

Doctor of Philosophy
Chemical Engineering Dept., University of Patras, Rion, Greece
January 2016 – July 2019
Dissertation: Mathematical modeling and optimization of fuel cells triode operation
Advisor: Professor Costas G. Vayenas

Master of Science in "Energy and Environment"
Chemical Engineering Dept., University of Patras, Rion, Greece
April 2013 – December 2015

Diploma in Chemical Engineering and Master of Engineering (300 ECTS)
Chemical Engineering Dept., University of Patras, Rion, Greece
October 2006 – February 2013

SCIENTIFIC PUBLICATIONS (main)

1. Vayenas, C.G., Tsousis, D.G., Martino E.H., Catalysis in Chemistry and Physics, **The Roles of Leptons, Special Relativity and Quantum Mechanics**, Springer 2024, ISBN 978-3-031-68121-9.
2. Lymperi, A.; Chatzilias, C.; Xydas, F.; Martino, E.; Kyriakou, G.; Katsaounis, A. **Electrochemical Promotion of CO_2 Hydrogenation Using a Pt/YSZ Fuel Cell Type Reactor**. Nanomaterials 2023, 13, doi:10.3390/nano13131930.
3. Chatzilias, C.; Martino, E.; Zagoraios, D.; Kyriakou, G.; Katsaounis, A. **Electrochemical Promotion of Catalysis for CO_2 Valorization**. In; 2023.
4. Chatzilias, C.; Martino, E.; Vayenas, C.G.; Kyriakou, G.; Katsaounis, A. **A Low Temperature SOFC as Self-Promoted Reactor for CO_2 Catalytic Hydrogenation**. Appl. Catal. B Environ. 2022, 121778, doi:10.1016/J.APCATB.2022.121778.
5. Chatzilias, C.; Martino, E.; Tsatsos, S.; Kyriakou, G.; Katsaounis, A.; Vayenas, C.G. **Kinetic Study of CO_2 Hydrogenation on Ru/ YSZ Catalyst Using a Monolithic Electropromoted Reactor (MEPR)**. Chem. Eng. J. 2022, 430, 132967, doi:10.1016/j.cej.2021.132967.
6. Hasa, B.; Martino, E.; Tsatsos, S.; Vakros, J.; Kyriakou, G.; Katsaounis, A. **Non-Precious Sn as Alternative Substitute Metal in Graphene-Based Catalysts for Methanol Electrooxidation**. J. Appl. Electrochem. 2022, 52, doi:10.1007/s10800-021-01648-9.
7. Martino, E.; Katomeris, D.; Katsaounis, A.; Vayenas, C.G. **Effect of temperature on fuel cell triode operation**. Sustain. Ind. Process. SUMMIT Exhib. 2019, 1.
8. Vayenas, C.G.; Grigoriou, D.; Tsousis, D.; Martino, E. **Measured and Computed Proton Internal Pressure Distribution Strongly Support the Rotating Lepton Model**. Sustain. Ind. Process. SUMMIT Exhib. 2019, 10, 194–201.
9. Vayenas, C.G.; Grigoriou, D.; Martino, E. **Proton Internal Pressure Distribution Suggests a Simple Proton Structure**. J. Mech. Behav. Mater. 2019, 28, doi:10.1515/jmbm-2019-0001.
10. Hasa, B.; Martino, E.; Vakros, J.; Trakakis, G.; Galiotis, C.; Katsaounis, A. **Effect of Carbon Support on the Electrocatalytic Properties of Pt−Ru Catalysts**. ChemElectroChem 2019, 4970–4979, doi:10.1002/celc.201900566.
11. Martino, E.; Gusev, A.; Katsaounis, A.; Vayenas, C.G. **Steady State Multiplicities in Low Temperature PEM Fuel Cells**. In Proceedings of the Materials Today: Proceedings; 2018; Vol. 5, pp. 27397–27405.
12. Martino, E.; Koilias, G.; Athanasiou, M.; Katsaounis, A.; Dimakopoulos, Y.; Tsamopoulos, J.; Vayenas, C.G. **Experimental Investigation and Mathematical Modeling of Triode PEM Fuel Cells**. Electrochim. Acta 2017, 248, 518–533, doi:10.1016/j.electacta.2017.07.168.

PARTICIPATION IN CONFERENCES (main)

1. E. Martino, C. Chatzilias, C. G. Vayenas, G. Kyriakou, A. Katsaounis, **16th Panhellenic Symposium of Catalysis**, Chania, Greece, October 20-22 (poster)
2. E. Martino, A. Katsaounis, C. G. Vayenas, **25th Topical Meeting of the International Society of Electrochemistry**, Toledo, May 12-15, 2019, (speech).
3. E. Martino, G. Kilias, M Athanasiou, J. Dimakopoulos, A. Katsaounis, J. Tsamopoulos, C.G. Vayenas, **11th Hellenic Conference of Chemical Engineering**, Thessaloniki, May 25-27, 2017, (speech).
4. E. Martino, M. Athanasiou, G. Kilias, A. Katsaounis, J. Tsamopoulos, C.G. Vayenas, **67th Annual Meeting of the International Society of Electrochemistry**, The Hague, August 21-26, 2016, (poster).
5. E. Martino, M. Athanasiou, A. Katsaounis, C.G. Vayenas, **2nd Workshop of Graduates and Postdocs in Chemical Engineering Sciences**, Patras, September 21, 2016, (best speech).
6. C.G. Vayenas, E. Martino, A. Katsanounis, **226th Meeting of the ECS**, Cancun, Mexico, October 5-10, 2014, (speech).

1. Seminars in **safety culture, fire safety, battery cell design and waste management, chemical safety, digital tools in production, quality and Clean and Dry room theory**, Northvolt Labs, Västerås, Sweeden, July 2021
2. Training course for the **operation of the Chromatec Crystal 9000 gas chromatograph** with FID and TCD detectors and the Chromatec Analytic Software, Patras, March 14-15, 2019.
3. Training course for the **operation of the Shimatzu GC-2010 Plus gas chromatograph** with FID and TCD detectors and the GC Solution software, Patras, May 7-8, 2014.
4. Seminar on **Health and Safety at Work**, Patras, April 28-29, 2014
5. Summer school: **Electrolytes for PEM Water Electrolysis** (SUSHGEN) October 19-21, 2011, FORTH/ICEHT Patras, GREECE

SKILLS

Computer Skills

Autodesk Fusion 360 (3D reactors design)
Microsoft Office 365
Outlook, Jira, Confluence
Grapher, Origin, Tecplot Focus graphing packages
Programming in Fortran
Photoshop, Coral
Process Simulation Software Aspen Hysys, Honeywell UniSim Design

Languages

Greek - Mother tongue
English - Excellent knowledge
Spanish - Basic knowledge

Technical Skills

Analytical techniques: Gas chromatography (GC), Infrared spectroscopy (IR), Differential Electrochemical Mass Spectrometry (DEMS)
Deposition methods: Sputtering, wet impregnation method
Methods of electrochemical characterization: Rotating Disc Electrode, CO stripping, Potential - Current measurements under steady state polarization, cyclic voltammetry
Methods of physicochemical characterization: TEM, XRD, RAMAN, TGA, BET
Electrochemical cell design: fuel cells and batteries

Memberships

International Society of Electrochemistry (ISE)
Member of the Organizing Committee of "2nd Workshop of Graduates and PostDocs in Chemical Engineering Sciences", FORTH/ICE-HT, Patras, September 2016
Member of Technical Chamber of Greece