

Brief Curriculum Vitae

Personal Information

Name:	Athanasios
Surname:	Papaderakis
Father's name:	Antonios
Date of birth:	22.02.1989
Place of birth:	Thessaloniki, Greece
Nationality:	Greek
Position:	Assistant Professor, Laboratory of Physical Chemistry, School of Chemical Engineering, National Technical University of Athens, Greece
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Education

06.2013– 11.2017	PhD in Chemistry Chemistry Department, Aristotle University of Thessaloniki, Greece
10.2011 – 04.2013	MSc in Physical Chemistry of Materials and Electrochemistry (<i>with Honors</i>) Chemistry Department, Aristotle University of Thessaloniki, Greece
10.2007 – 12.2011	Chemistry degree (BSc) Chemistry Department, Aristotle University of Thessaloniki, Greece

Employment History/Research Experience

02.2025 – present	Assistant Professor Laboratory of Physical Chemistry, Department of Materials Science and Engineering, School of Chemical Engineering, National Technical University of Athens, Greece
10.2023 – 01.2025	Research Associate Department of Chemistry and Biochemistry, Ruhr University Bochum, Bochum, Germany
01.2020 – 08.2023	Research Associate Department of Chemistry and Henry Royce Institute, The University of Manchester, Manchester, UK

Employment History/Research Experience (continues)

03.2023 – present	Journal Editor
	Editorial board member in Nature Springer's journal <i>Discover Electrochemistry</i>
08.2021 – 02.2022	Scientific Managing Editor
	Scientific managing editor for the journals <i>Electrochimica Acta</i> and <i>Journal of Electroanalytical Chemistry</i> , Elsevier Ltd., Kidlington, Oxford, UK
10.2019 – 09.2020	Adjunct Teaching Lecturer
	Aristotle University of Thessaloniki (AUTH), Faculty of Sciences, Chemistry Department, Laboratory of Physical Chemistry, Greece
12.2018 – 05.2019	Research Associate
	Chemical Process and Energy Resources Institute (CPERI), The Centre for Research and Technology Hellas (CERTH), Greece
10.2013 – 06.2017	Research Fellow – Chemist (MSc)
	Chemical Process and Energy Resources Institute (CPERI), The Centre for Research and Technology Hellas (CERTH), Greece

Area of Research Specialization and Main Research Interests

- Electrochemistry
- Physical electrochemistry
- Electrochemical energy conversion and storage
- Liquid|liquid electrochemistry
- Theory and applications of advanced electrochemical techniques (Electrochemical Impedance Spectroscopy and Scanning Electrochemical Microscopy)
- Organic electrosynthesis
- Photoelectrochemistry

Publication Record

Number of publications in <u>refereed journals</u> :	40
Number of <u>citations</u> *:	879
<u>h-index</u> *:	17
<u>i10-index</u> *:	27

*By combining data from *Scopus* and *Google scholar* (02.2025)

https://scholar.google.com/citations?hl=en&user=uDTNZqAAAAAJ&view_op=list_works&sortby=pubdate

Teaching activities (as an independent lecturer)

04.2024 – 01.2025**Teaching Lecturer**

Department of Chemistry and Biochemistry, Ruhr University Bochum, Bochum, Germany

Master of Science in “Electrochemistry and Nanoscale Materials”

Modules: “Electrochemistry: From Fundamentals to Applications, I & II”

10.2019 – 09.2020**Adjunct Teaching Lecturer**

Aristotle University of Thessaloniki, Faculty of Sciences, Chemistry Department, Laboratory of Physical Chemistry

Courses (Undergraduate)

- (i) Electrochemical Energy Systems and Environmental Applications (7th semester)
- (ii) Electrochemical Reactions and Applications (Theory and Laboratory, 5th semester)
Colloids Chemistry (Theory and Laboratory, 7th semester)
- (iii) Colloids Chemistry (Theory and Laboratory, 7th semester)
- (iv) Physical Chemistry II (Laboratory, 3rd semester)
- (v) Materials Characterization Techniques (MSc in Electrochemical Systems, 1st semester)

Course evaluation results*

Electrochemical Energy Systems and Environmental Applications

Teaching staff (per instructor): **98.0** (Department mean: 70.2),

Course Quality Index, Q: **90.0** (Department average: 69.3),

Colloids Chemistry

Teaching staff (per instructor): **100.0** (Department mean: 70.2)

Course Quality Index, Q: **92.9** (Department average: 69.3)

**Data Adopted from the Quality Assurance Unit (MODIP) of the Aristotle University of Thessaloniki (<https://qa.auth.gr>)*

Distinctions and Awards

2023	Department of Chemistry, The University of Manchester, UK – Outstanding Scientific Achievement Award
2017	Alexander S. Onassis Public Benefit Foundation (Athens, Greece) and Council for the Lindau Nobel Laureate Meetings (Lindau, Germany) – Grant for participation in the 67th Lindau Nobel Laureate Meeting, Lindau
2015	International Society of Electrochemistry (ISE) – 5 th Regional Symposium on Electrochemistry South – East Europe: Young Scientist Award
2011 – 2013	Greek State Scholarship Foundation (IKY) – Scholarship of Excellence for Master Studies in Physical Sciences

Reviewing Activities and Membership in Scientific Communities

Journal referee	Overall reviewer record (2017-present): 200+ articles Electrochimica Acta (2017-present), Journal of Electroanalytical Chemistry (2018-present), International Journal of Hydrogen Energy (2019-present), Catalysis Letters (2019-present), Environmental Technology (2019-present), Catalysts (2019-present), Energies (2019-present), Nanomaterials (2019-present), Small (2021-present), Electrochemistry Communications (2022-present), Advanced Functional Materials (2022-present), Journal of Materials Chemistry A (2022-present), Nature Communications (2022-present), Langmuir (2022-present), ACS Energy & Fuels (2022-present), Current Opinion in Electrochemistry (2022-present), ACS Energy & Fuels (2023-present), ACS Nano (2023-present), ACS Omega (2023-present), ACS Inorganic Chemistry (2023-present), Journal of Physical Chemistry C (2024-present), Journal of Solid State Electrochemistry (2024-present), ACS Catalysis (2024-present), ACS Electrochemistry (2024-present), Physical Chemistry Chemical Physics (2024-present), Results in Physics (2024-present), ChemElectroChem (2024-present)
Guest editor	Journal of Solid State Electrochemistry, Virtual Special Issue (T-VSI) honoring Prof. Dimitra Sazou (10.2024 – <i>ongoing issue</i>) https://link.springer.com/collections/jgcedhbbfg
Guest editor	Electrochimica Acta, Thematic Virtual Special Issue (T-VSI), “The physical electrochemistry of carbon and related materials” (06.2023 – 11.2023) https://www.sciencedirect.com/special-issue/10414ZV7FST
Scientific communities	International Society of Electrochemistry (2013-present) Association of Greek Chemists (2011-present)

Journal (Peer Reviewed) Publications

1. A.A.Papaderakis*, Eirini-Maria Paschalidou, León Zendejas Medina, Ezgi Hatipoglu, Aparna Saksena, Baptiste Gault, Birhan Sefer, David Malmström, Pouya Hosseini, Oliver Trost, Adrianna Lozinko, Mohini Ramkaran, Anne Juel, Kristina Tschulik, Robert AW Dryfe, "Hydrogen induced superhydrophilicity in an amorphous CrFeNi-based multi-principal element alloy thin film", *Acta Materialia*, 286 (2025), 120756. <https://doi.org/10.1016/j.actamat.2025.120756>
2. S.Kaewmorakot, A.A.Papaderakis, R.A.W.Dryfe, "Electrowetting on glassy carbon substrates", *Nanoscale Advances*, 6 (2024), 5441-5450. <https://doi.org/10.1039/D4NA00506F>
3. A.Elgendy, A.A.Papaderakis, A.Ejigu, K.Helmbrecht, B.F.Spencer, A.Groß, A.S.Walton, D.J.Lewis, R.A.W.Dryfe, "Nanosized Chevrel phases for dendrite-free zinc-ion based energy storage: unraveling the phase transformations", *Nanoscale*, 16 (2024), 13597-13612. <https://doi.org/10.1039/D4NR01238K>
4. A.A.Papaderakis*, M.Leketas, Z.Wei, I.Hwang, P.Carbone, A.Juel, R.A.W.Dryfe, "Electrowetting of Carbon-based Materials for Advanced Electrochemical Technologies", *ChemElectroChem*, 11 (2024), e202400143 – Front Cover Article. <https://doi.org/10.1002/celc.202400143>
5. J.Yang, A.A.Papaderakis*, J.S.Roh, A.Keerthi, R.W.Adams, M.A.Bissett, B.Radha, R.A.W.Dryfe, "Measuring the Capacitance of Carbon in Ionic Liquids: From Graphite to Graphene", *The Journal of Physical Chemistry C*, 128 (2024), 9, 3674-3684. <https://doi.org/10.1021/acs.jpcc.3c08269>
6. Z.Wei, J.D.Elliott, A.A.Papaderakis*, R.A.W.Dryfe, P.Carbone, "Relation between double layer structure, capacitance, and surface tension in electrowetting of graphene and aqueous electrolytes", *Journal of the American Chemical Society*, 146 (2024), 1, 760-772. <https://doi.org/10.1021/jacs.3c10814>
7. A.A.Papaderakis*, A.Ejigu, J.Yang, A.Elgendy, B.Radha, A.Keerthi, A.Juel, R.A.W.Dryfe, "Anion intercalation into graphite drives surface wetting", *Journal of the American Chemical Society*, 145 (2023), 14, 8007-8020. <https://doi.org/10.1021/jacs.2c13630>
8. A.A.Papaderakis*, H.A.Al Nasser, J.Y.Chen, A.Juel, R.A.W.Dryfe, "Deciphering the mechanism of electrowetting on conductors with immiscible electrolytes". *Electrochimica Acta*, 452 (2023), 142342. <https://doi.org/10.1016/j.electacta.2023.142342>
9. A.A.Papaderakis*, J.S.Roh, K.Polus, J.Yang, M.Bissett, A.Walton, A.Juel, R.A.W.Dryfe, "Dielectric-free electrowetting on graphene", *Faraday Discussions*, 246 (2023), 307-321. <https://doi.org/10.1039/D3FD00037K>
10. A.A.Papaderakis*, R.A.W.Dryfe, "The renaissance of electrowetting". *Current Opinion in Electrochemistry*, Vol.38 (2023), 101245. <https://doi.org/10.1016/j.coelec.2023.101245>
11. J.Qu, A.Elgendy, R.Cai, M.A.Buckingham, A.A.Papaderakis, H.Latour, K.Hazeldine, G.F.S.Whitehead, F.Alam, C.Smith, D.J.Binks, A.Walton, J.Skelton, R.A.W.Dryfe, S.J.Haigh, D.J.Lewis, "A low-temperature synthetic route towards a high-entropy 2D hexernary transition metal dichalcogenide for hydrogen evolution electrocatalysis". *Advanced Science*, 10 (2023), 2204488. <https://doi.org/10.1002/advs.202204488>
12. A.A.Papaderakis*, K.Polus, P.Kant, F.Box, B.Etcheverry, C.Byrne, M.Quinn, A.Walton, A.Juel, R.A.W.Dryfe, "Taming electrowetting using highly concentrated aqueous solutions". *Journal of Physical Chemistry C*, 126 (2022), 49, 21071-21083. <https://doi.org/10.1021/acs.jpcc.2c06517>
13. J.D.Elliott, A.A.Papaderakis, R.A.W.Dryfe, P.Carbone, "The electrochemical double layer at the graphene/aqueous electrolyte interface: what we can learn from simulations, experiments, and theory". *Journal of Materials Chemistry C*, 10 (2022), 15225-15262. <https://doi.org/10.1039/D2TC01631A>

Journal (Peer Reviewed) Publications (continues)

14. E.M.Paschalidou, R.Shu, R.Boyd, A.A.Papaderakis, B.Bakhit, A.Febvrier, G.Greczynski, P.Eklund, L.Nyholm, "The effect of the Nb concentration on the corrosion resistance of nitrogen-containing multicomponent TiZrTaNb-based films in acidic environments". *Journal of Alloys and Compounds*, Vol.927 (2022) 167005. <https://doi.org/10.1016/j.jallcom.2022.167005>
15. A.Elghendy, A.A.Papaderakis, R.Cai, K.Polus, S.J.Haigh, A.S.Walton, D.J.Lewis, R.A.W.Dryfe, "Nano-cubic Chevrel phase Mo₆S₈ prepared by a simple and rapid molecular precursor approach as an efficient electrocatalyst for hydrogen evolution reaction in acidic media". *Nanoscale*, 14 (2022) 10125-10135. <https://doi.org/10.1039/D2NR02014A>
16. A.Elghendy, A.A.Papaderakis, C.Byrne, E.P.C.Higgins, A.Ejigu, A.S.Walton, D.J.Lewis, R.A.W.Dryfe, "Nano-cubic Chevrel phase Mo₆S₈ prepared by a simple and rapid molecular precursor approach as an efficient electrocatalyst for hydrogen evolution reaction in acidic media". *ACS Applied Energy Materials*; vol. 4, 11 (2021), 13015-13026. <https://doi.org/10.1021/acsaem.1c02646>
17. E.P.C.Higgins, A.A.Papaderakis, C.Byrne, R.Cai, S.J.Haigh, A.S.Walton, D.J.Lewis, R.A.W.Dryfe, "High performance AACVD nanostructured MoS₂ electrodes with spontaneous ultra-low gold loading for hydrogen evolution". *Journal of Physical Chemistry C*; vol. 125, 38 (2021) 20940-20951. <https://doi.org/10.1021/acs.jpcc.1c06733>
18. N.Dimitrova, A.Banti, O.N.Spyridou, A.A.Papaderakis, J.Georgieva, S.Sotiropoulos, E.Valova, S.Armyanov, D.Tatchev, A.Hubin, K.Baert, "Photodeposited IrO₂ on TiO₂ support as a catalyst for oxygen evolution reaction". *Journal of Electroanalytical Chemistry*; vol. 900 (2021) 115720. <https://doi.org/10.1016/j.jelechem.2021.115720>
19. E.P.C.Higgins, A.A.Papaderakis, C.Byrne, A.S.Walton, D.J.Lewis, R.A.W.Dryfe, "Intrinsic effects of thickness, surface chemistry and electroactive area on nanostructured MoS₂ electrodes with superior stability for hydrogen evolution". *Electrochimica Acta*; vol. 382 (2021) 138257. <https://doi.org/10.1016/j.electacta.2021.138257>
20. A.A.Papaderakis*, I.Matouli, O.N.Spyridou, A.O.Grammenos, A.Banti, A.Touni, N.Pliatsikas, P.Patsalas, S.Sotiropoulos, "Ternary IrO₂-Pt-Ni deposits prepared by galvanic replacement as bifunctional oxygen catalysts". *Journal of Electroanalytical Chemistry*; vol. 877 (2020) 114499. <https://doi.org/10.1016/j.jelechem.2020.114499>
21. A.A.Papaderakis*, O.N.Spyridou, N.Karanasios, A.Touni, A.Banti, N.Dimitrova, S.Armyanov, E.Valova, J.Georgieva and S.Sotiropoulos, "The effect of carbon content on methanol oxidation and photo-oxidation at Pt-TiO₂-C electrodes". *Catalysts*; 10(2) (2020) 248. <https://doi.org/10.3390/catal10020248>
22. A.Touni, A.A.Papaderakis*, D.Karfaridis, A.Banti, I.Mintsouli, D.Lambropoulou and S.Sotiropoulos "Oxygen evolution at IrO₂-Ti anodes prepared by a simple galvanic deposition method". *Journal of Electroanalytical Chemistry*; vol 855 (2019) 113485. <https://doi.org/10.1016/j.jelechem.2019.113485>
23. A.G.Anastopoulos and A.A.Papaderakis "Formation and reduction of anodic film on polycrystalline Bi electrode in pure methanol". *Journal of Electrochemical Science and Engineering*; 9(4) (2019) 223-230. <http://dx.doi.org/10.5599/jese.689>
24. A.Touni, A.A.Papaderakis, D.Karfaridis, G.Vourlias and S.Sotiropoulos "Oxygen evolution reaction at IrO₂/Ir(Ni) film electrodes prepared by galvanic replacement and anodization: effect of precursor Ni film thickness". *Molecules*, 24, 20195 (2019). <https://doi:10.3390/molecules24112095>
25. A.A.Papaderakis*, N.Pliatsikas, P.Patsalas, D.Tsiplakides, S.Balomenou, A.Touni and S.Sotiropoulos, "Hydrogen evolution at Ir-Ni bimetallic deposits prepared by galvanic replacement". *Journal of Electroanalytical Chemistry*; vol. 808 (2018) 21-27. <https://doi.org/10.1016/j.jelechem.2017.11.055>

Journal (Peer Reviewed) Publications (continues)

26. S.Dellis, N.Pliatsikas, N.Kalfagiannis, O.Lidor-Shalev, A.A.Papaderakis, G.Vourlias, S.Sotiropoulos, D.C. Koutsogeorgis, Y.Mastai and P.Patsalas, "Broadband luminescence in defect-engineered electrochemically produced porous Si/ZnO nanostructures". *Scientific Reports*, 8, Article number: 6988 (2018). <https://doi.org/10.1038/s41598-018-24684-6>
27. A.A.Papaderakis*, D.Tsiplakides, S.Balomenou and S.Sotiropoulos, "Probing the hydrogen adsorption affinity of Pt and Ir by surface interrogation scanning electrochemical microscopy (SI-SECM)". *Electrochemistry Communications*; vol. 83 (2017) 77-80. <https://doi.org/10.1016/j.elecom.2017.09.003>
28. A.A.Papaderakis, I.Mintsouli, J.Georgieva and S.Sotiropoulos, "Electrocatalysts prepared by galvanic replacement". *Catalysts*; 7(3) (2017) 80. <https://doi.org/10.3390/catal7030080>
29. A.A.Papaderakis*, A.Chatzitakis, N.Karanasios, J.Georgieva, E.Pavlidou, G.Litsardakis, I.Poulios and S.Sotiropoulos, "Comparison of the photoelectrochemical performance of particulate and nanotubes TiO₂ photoanodes". *Catalysis Today*; vol 280 (2017) 14-20. <https://doi.org/10.1016/j.cattod.2016.07.017>
30. J.Georgieva, S.Sotiropoulos, E.Valova, S.Armyanov, A.Hubin, O.Steenhaut, M.Raes and A.A.Papaderakis "Pt-doped TiO₂/WO₃ bi-layer catalysts on graphite substrates with enhanced photoelectrocatalytic activity for methanol oxidation under visible light". *Journal of Photochemistry and Photobiology A: Chemistry*; vol. 346 (2017) 70-76. <https://doi.org/10.1016/j.jphotochem.2017.05.049>
31. A.A.Papaderakis*, A.G.Anastopoulos and S.Sotiropoulos "Electrochemical studies of processes occurring at the polycrystalline copper/methanol interface". *Journal of Electroanalytical Chemistry*; vol. 783 (2016) 217-225. <https://doi.org/10.1016/j.jelechem.2016.11.017>
32. A.A.Papaderakis, N.Pliatsikas, Ch.Prochaska, G.Vourlias, P.Patsalas, D.Tsiplakides, S.Balomenou and S.Sotiropoulos, "Oxygen evolution at IrO₂ shell-Ir-Ni core electrodes prepared by galvanic replacement". *Journal of Physical Chemistry C*; vol 120, 36 (2016) 19995-20005. <https://doi.org/10.1021/acs.jpcc.6b06025>
33. B.Vanrenterghem, A.A.Papaderakis, S.Sotiropoulos, D.Tsiplakides, S.Balomenou, S.Bals and T.Breugelmans "The reduction of benzylbromide at Ag-Ni deposits prepared by galvanic replacement". *Electrochimica Acta*, vol 196 (2016) 756-768. <https://doi.org/10.1016/j.electacta.2016.02.135>
34. I.Mintsouli, J.Georgieva, A.A.Papaderakis, S.Armyanov, E.Valova, V.Khomenko, S.Balomenou, D.Tsiplakides and S.Sotiropoulos, "Methanol oxidation at platinized copper particles prepared by galvanic replacement". *Journal of Electrochemical Science and Engineering*, 6(1) (2016) 17-28. <http://dx.doi.org/10.5599/jese.239>
35. A.G.Anastopoulos, A.Papoutsis and A.A.Papaderakis "Differential capacitance and electrochemical impedance study of surfactant adsorption on polycrystalline Ni electrode". *Journal of Solid State Electrochemistry*; vol 19 (2015) 2369-2377. <https://doi.org/10.1007/s10008-015-2879-7>
36. A.A.Papaderakis, S.Sotiropoulos, S.Balomenou and D.Tsiplakides "Electrochemical impedance studies of IrO₂ catalysts for oxygen evolution reaction". *Journal of Electroanalytical Chemistry*; vol 757 (2015) 216-224. <https://doi.org/10.1016/j.jelechem.2015.09.033>
37. A.A.Papaderakis, N.Pliatsikas, C.Prochaska, K.M.Papazisi, S.Balomenou, D.Tsiplakides, P.Patsalas and S.Sotiropoulos, "Ternary Pt-Ru-Ni catalytic layers for methanol electrooxidation prepared by electrodeposition and galvanic replacement". *Frontiers in Physical Chemistry and Chemical Physics*; vol 2 (2014) article 29. <https://doi.org/10.3389/fchem.2014.00029>

Journal (Peer Reviewed) Publications (continues)

38. A.G.Anastopoulos and A.A.Papaderakis. "On the origin of frequency dispersion at the interface between mercury electrode and aqueous solutions of alkali halides". *Russian Journal of Electrochemistry*; vol 50 (2014) 78-88. <https://doi.org/10.1134/S102319351302002X>
39. A.Papoutsis, A.G.Anastopoulos A.A.Papaderakis and M.Paschalidou "Morphological changes at the Hg/solution interface in the presence of adsorbed cations related to bulk solvent properties". *Journal of Solid State Electrochemistry*; vol 17 (2013) 547-553. <https://doi.org/10.1007/s10008-012-1914-1>
40. I.Mintsouli, J.Georgieva, E.Valova, S.Armyanov, A.Kakaroglou, A.Hubin, O.Steenhaut, J.Dille, A.A.Papaderakis, G.Kokkinidis, S.Sotiropoulos et al "Pt-Ni carbon-supported catalysts for methanol oxidation prepared by Ni electroless deposition and its galvanic replacement by Pt". *Journal of Solid State Electrochemistry*; vol 17 (2013) 435-442. <https://doi.org/10.1007/s10008-012-1915-0>

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