

ΒΙΟΓΡΑΦΙΚΟ ΣΗΜΕΙΩΜΑ

Nikos Tagmatarchis

Director
Theoretical and Physical Chemistry Institute
National Hellenic Research Foundation
48 Vassileos Constantinou Avenue
Athens 11635, Greece

Phone: + 30 210 7273835

E-mail: tagmatar@eie.gr

Education

Ph.D. in Organic Chemistry, Department of Chemistry, University of Crete, Greece (1997).

Diploma in Chemistry, Department of Chemistry, University of Crete, Greece (1992).

Professional Experience & Appointments

- 04/2021 – present Director TPCI, NHRF, Athens, Greece.
- 04/2021 – present Member of the Board of Directors NHRF, Athens, Greece
- 11/2020 – 02/2023 Member of the Sectorial Scientific Council (ΤΕΣ) of Physical Sciences & Mathematics of the National Council of Research, Technology and Innovation (ΕΣΕΤΕΚ), Greece.
- 12/2012 – present Director of Research, TPCI, NHRF, Athens, Greece
- 07/2006 – 11/2012 Senior Researcher, TPCI, NHRF, Athens, Greece.
- 12/2004 – 06/2006 Collaborating Researcher, TPCI, NHRF, Athens, Greece.
- 01/2002 – 11/2004 EC Postdoctoral Fellow & Research Associate, Department of Pharmaceutical Sciences, University of Trieste, Italy.
- 12/1999 – 11/2001 JSPS Postdoctoral Fellow, Department of Chemistry, Nagoya University, Japan.
- 12/1997 – 11/1999 EC Marie-Curie Postdoctoral Fellow, School of Chemistry, Physics and Environmental Sciences, Sussex University, United Kingdom.

Main Research Interests

- Chemistry of nanocarbons and two-dimensional nanomaterials.
- Fullerenes, nanotubes, graphene, diamond, transition metal dichalcogenides.
- Electron donor-acceptor and hybrid nanostructured materials.
- Supramolecular chemistry and self-assembly.

- Spectroscopic, thermal and morphological characterization of organic compounds and nanostructured materials.
- Electronic, optical, photophysical and electrochemical properties of organic compounds and nanostructured materials.
- Energy conversion, charge-transfer, solar & photoelectrochemical cells, sensors.
- Electrocatalysis and photocatalysis, water splitting, hydrogen evolution, oxygen evolution, oxygen reduction, methanol oxidation, etc.

External Funding

Coordinator, principal investigator (EU-FP7, H2020, HE, EURYI-ESF/EUROHORCS, JSPS, Chinese Academy of Sciences) and participant (EU-FP6, H2020, HE, COST) in numerous competitive international and national (GSRT, GSRI, HFRI, NSRF 2007-2013 & 2014-2020) research projects in collaboration with academic and industrial partners.

Conferences & Invited Talks

- Over 260 announcements at international scientific conferences, universities and research centres, including plethora of invited lectures.
- Co-organizer European Materials Research Society E-MRS 2024 Spring Meeting, Symposium J: "*Chemical functionalization of 2D materials*", 2024, Strasbourg, France.
- Organizer and chairman of the "Fullerene Silver Anniversary Symposium – FSAS2010", 4-10 October, 2010, Crete, Greece.
- Organizer and chairman of the "International Conference on Carbon Nanostructured Materials - Cnano'09", 4-8 October, 2009, Santorini, Greece.
- International Scientific Committee Member, Local Organizing Committee Member and International Advisory Committee Member at numerous international conferences.

Teaching Activities

- Graduate course in the framework of the Graduate Program "Polymer Science and its Applications": "Carbon-based nanostructured materials, graphene and 2D transition metal dichalcogenides", Department of Chemistry, National and Kapodistrian University of Athens, Greece (2021-present)
- Graduate course in the framework of the Graduate Program "Laboratory Techniques for Nanomaterials": "*Photoluminescence*", School of Applied Mathematical and Physical Sciences, National Technical University of Athens, Greece (2018-present)
- Graduate course in the framework of the Graduate Program "Organic Chemistry": "Carbon-based nanostructured materials", Department of Chemistry, National and Kapodistrian University of Athens, Greece (2010-2018).

- Nanodema Summer School: "Multifunctional carbon nanostructures", Departments of Chemistry, Physics, Materials Science and Engineering, University of Patras, Greece (2012).
- Frontiers in Science & Technology of Carbon Nanomaterials, International Summer School: (a) "Azafullerenes – Synthesis, properties and chemistry", (b) "Carbon nanohorns functionalization", Krutyn, Poland (2012).
- Supervision of Diploma & M.Sc. students, Ph.D. candidates, and postdoctoral researchers.

Research Management & Evaluation

- Director of TPCI, NHRF (04/2021 – present).
- Member of the Board of Directors of NHRF (04/2021 – present).
- Member of the Sectorial Scientific Council (ΤΕΣ) of Physical Sciences & Mathematics of the National Council of Research, Technology and Innovation (ΕΣΕΤΕΚ), Greece (11/2020 – 02/2023).
- Alternate Member of the General Assembly of the Hellenic Foundation for Research & Innovation, Athens, Greece (2018-2021).
- Member of Scientific Council of TPCI, NHRF (2009-2018).
- Regular reviewer for a plethora of international journals in the fields of chemistry and materials science.
- Regular reviewer for a plethora of national and international research proposals.

Professional Affiliations & Activities

- Advisory Board Member "*Royal Society Open Science*" (*Chemistry Section*), Royal Society of Chemistry (2020-present)
- Editorial Board Member "Chemistry A European Journal", Wiley (2014-2022)
- Editorial Board Member "*Nanomaterials*", MDPI (2019-present)
- Editorial Board Member "Chemistry of Graphene", Versita (2012-2013)
- Editorial Board Member "Current Medicinal Chemistry", Bentham Science (2005-present)
- Editorial Board Member "Medicinal Chemistry", Bentham Science (2004-2015)
- Regional Editor "Mini-Reviews in Medicinal Chemistry", Bentham Science (2001-2015)
- Management Committee Member and National Representative for COST Action MP0901 "Designing Novel Materials for Nanodevices - from Theory to Practice (NanoTP)" (2009-2014)
- Management Committee Member and National Representative for COST Action CA21126 "Carbon molecular nanostructures in space (Nanospace)" (2022-2026)
- International Partner of GDR-I (Group-de-Research) Scientific Coordination Network "Graphene and Nanotubes: Science and Applications" (2009-2016)

- International Partner of GDR-I (Group-de-Research) Scientific Coordination Network "Graphene & Co" (2017-present)
- Scientific Council Member of TPCI (2009-2018)
- Association of Greek Chemists Member (1992-present)

Awards & Distinctions

- Top 2% of Scientists Worldwide in Chemistry, in the field of Nanoscience & Nanotechnology and associated sub-field Organic Chemistry, for
 - 2022 according to J. P. A. Ioannidis (4 October 2023) "October 2023 data-update for updated science-wide author databases of standardized citation indicators", DOI: [10.17632/btchxktzyw.6](https://doi.org/10.17632/btchxktzyw.6)
 - 2021 according to J. P. A. Ioannidis (10 October 2022 and 3 November 2022) "September 2022 data-update for updated science-wide author databases of standardized citation indicators", DOI: [10.17632/btchxktzyw.4](https://doi.org/10.17632/btchxktzyw.4) and [10.17632/btchxktzyw.5](https://doi.org/10.17632/btchxktzyw.5)
 - 2020 according to J. Baas, K. W. Boyack, J. P. A. Ioannidis (19 October 2021) "August 2021 data-update for updated science-wide author databases of standardized citation indicators", DOI: [10.17632/btchxktzyw.3](https://doi.org/10.17632/btchxktzyw.3) and (8 October 2020) "Data for updated science-wide author databases of standardized citation indicators", DOI: [10.17632/btchxktzyw.2](https://doi.org/10.17632/btchxktzyw.2)
 - 2019 & 2018 according to J. P. A. Ioannidis, J. Baas, R. Klavans, K. W. Boyack, (6 July 2019) "Supplementary data tables for a standardized citation metrics author database annotated for scientific fields", DOI: [10.17632/btchxktzyw.1](https://doi.org/10.17632/btchxktzyw.1) and *PLoS Biol.* **18**, e3000918 (2019).
- Chemistry Europe Fellow Class 2018/2019
- Invited Fellow for Long-term Research in Japan, by The Japan Society for the Promotion of Science (2013-2014 & 2018)
- Visiting Professor for Senior International Scientists, by the Chinese Academy of Sciences (2011-2012)
- European Young Investigator (EURYI) Award, by EUROHORCs / ESF (2004)

Publications

Over 290 original research papers in peer-reviewed journals, including 30 invited review and highlight articles, 20 publications in refereed conference proceedings, 10 chapters in books, 1 book edited, 1 book-monograph and 3 patents (American, International and European). More than 18,150 citations and h-index=56 (Google Scholar, 2/2024).

Selected Recent Publications

1. "Sustainable photocatalytic acylation of transition metal dichalcogenides with atom economy", I. K. Sideri, R. Canton-Vitoria, H. J. Ojeda-Galvan, M. Quintana, N. Tagmatarchis, [Small 20, In press \(2024\)](#).
2. "Noncontact layer stabilization of azafullerene radicals: Route toward high-spin-density surfaces", Y. Tanuma, G. Kladnik, L. Schio, M. van Midden Mavric, B. Anezo, E. Zupanic, G. Bavdek, R. Canton-Vitoria, L. Floreano, N. Tagmatarchis, H. A. Wegner, A. Morgante, C. P. Ewels, D. Cvetko, D. Arcon, [ACS Nano 17, 25301 \(2023\)](#).
3. "Carbon dots strongly immobilized onto carbon nanohorns as non-metal heterostructure with high electrocatalytic activity towards protons reduction in hydrogen evolution reaction", A. Kagkoura, H. J. Ojeda-Galvan, M. Quintana, N. Tagmatarchis, [Small 19, 2208285 \(2023\)](#).
4. "Tungsten disulfide interfacing nickel-porphyrin for photo-enhanced electrocatalytic water oxidation", M. P. Minadakis, R. Canton-Vitoria, C. Stangel, E. Klontzas, R. Arenal, J. Hernandez-Ferrer, A. M. Benito, W. Maser, N. Tagmatarchis, [ChemSusChem 16, e202202322 \(2023\)](#).
5. "Crystalline phase effects on the nonlinear optical response of MoS₂ and WS₂ nanosheets: Implications for photonic and optoelectronic applications", M. Stavrou, N. Chazapis, E. Nikoli, R. Arenal, N. Tagmatarchis, S. Couris, [ACS Appl. Nano Mater. 5, 16674 \(2022\)](#).
6. "Photo/electrocatalytic hydrogen peroxide production by manganese and iron porphyrin/molybdenum disulfide nanoensembles", D. K. Perivoliotis, C. Stangel, Y. Sato, K. Suenaga, N. Tagmatarchis, [Small 18, 2203032 \(2022\)](#).
7. "Graphene performs the role of an electron donor in covalently interfaced porphyrin-boron azadipyrromethene dyads and manages photoinduced charge-transfer processes", R. Canton-Vitoria, A. Z. Alsaleh, G. Rotas, Y. Nakanishi, H. Shinohara, F. D'Souza, N. Tagmatarchis, [Nanoscale 14, 15060 \(2022\)](#).
8. "Interfacing carbon dots for charge transfer processes", A. Stergiou, N. Tagmatarchis, [Small 17, 2006005 \(2021\)](#).
9. "Controlled chemical functionalization toward 3D-2D carbon nanohorn-MoS₂ heterostructures with enhanced electrocatalytic activity for protons reduction", A. Kagkoura, R. Arenal, N. Tagmatarchis, [Adv. Funct. Mater. 31, 2105287 \(2021\)](#).
10. "Unveiling the photoinduced electron-donating character of MoS₂ in covalently linked hybrids featuring perylenediimide", I. K. Sideri, Y. Jang, J. Garcés-Garcés, A. Sastre-Santos, R. Canton-Vitoria, R. Kitaura, F. Fernández-Lazaro, F. D'Souza, N. Tagmatarchis, [Angew. Chem. Int. Ed. 60, 9120 \(2021\)](#).
11. "Noble-metal-free doped carbon nanomaterial electrocatalysts", I. K. Sideri, N. Tagmatarchis, [Chem. Eur. J. 26, 15397 \(2020\)](#).

12. "Covalently functionalized layered MoS₂ supported Pd nanoparticles as highly active oxygen reduction electrocatalyst", D. K. Perivoliotis, Y. Sato, K. Suenaga, N. Tagmatarchis, [Nanoscale 12, 18278 \(2020\)](#).
13. "Laser-deposited carbon aerogel derived from graphene oxide enables NO₂-selective parts-per-billion gas sensing", S. Nufer, P. J. Lynch, M. J. Large, S. P. Ogilvie, J. P. Salvage, M. Pelaez-Fernandez, T. Waters, I. Jurewicz, E. Munoz, R. Arenal, A. M. Benito, W. K. Maser, N. Tagmatarchis, C. Ewels, A. Brunton, A. B. Dalton, [ACS Appl. Mater. Interfaces 12, 39541 \(2020\)](#).
14. "Covalently functionalized MoS₂ with dithiolenes", I. K. Sideri, R. Arenal, N. Tagmatarchis, [ACS Mater. Lett. 2, 832 \(2020\)](#).
15. "Functionalized graphene and targeted applications – Highlighting the road from chemistry to applications", A. Stergiou, R. Canton-Vitoria, M. N. Psarrou, S. P. Economopoulos, N. Tagmatarchis, [Prog. Mater. Sci. 114, 100683 \(2020\)](#).
16. "Ping-pong intercomponent energy transfer in covalently linked porphyrin-MoS₂ architectures", R. Canton-Vitoria, T. Scharl, A. Stergiou, A. Cadranel, R. Arenal, D. M. Guldi, N. Tagmatarchis, [Angew. Chem. Int. Ed. 59, 3976 \(2020\)](#).
17. "A Long-lived azafullerenyl radical stabilized by supramolecular shielding with a [10]cycloparaphenylene", A. Stergiou, J. Rio, J. H. Griwatz, D. Arcon, H. A. Wegner, C. P. Ewels, N. Tagmatarchis, [Angew. Chem. Int. Ed. 58, 17745 \(2019\)](#).
18. "Excited state charge transfer in covalently functionalized MoS₂ with a zinc phthalocyanine donor-acceptor hybrid", R. Canton-Vitoria, H. B. Gobeze, V. M. Blas-Ferrando, J. Ortiz, Y. Jang, F. Fernandez-Lazaro, A. Sastre-Santos, Y. Nakanishi, H. Shinohara, F. D'Souza, N. Tagmatarchis, [Angew. Chem. Int. Ed. 58, 5712 \(2019\)](#).
19. "(Photo)electrocatalysis of molecular oxygen reduction by S-doped graphene decorated with a star-shaped oligothiophene", A. Stergiou, D. Perivoliotis, N. Tagmatarchis, [Nanoscale 11, 7335 \(2019\)](#).
20. "Template synthesis of defect-rich MoS₂-based assemblies as electrocatalytic platforms for hydrogen evolution reaction", A. Kagkoura, I. Tzanidis, V. Dracopoulos, N. Tagmatarchis, D. Tasis, [Chem. Commun. 55, 2078 \(2019\)](#).
21. "Interfacing transition metal dichalcogenides with carbon dots for managing photoinduced energy and charge-transfer processes", L. Vallan, R. Canton-Vitoria, H. B. Gobeze, Y. Jang, R. Arenal, A. M. Benito, W. K. Maser, F. D'Souza, N. Tagmatarchis, [J. Am. Chem. Soc. 140, 13488 \(2018\)](#).
22. "Supramolecular-enhanced charge-transfer within entangled polyamide chains as origin of the universal blue fluorescence of polymer carbon dots", L. Vallan, E. P. Urriolabeitia, F. Ruiperez, J. Mattin Matxain, R. Canton-Vitoria, N. Tagmatarchis, A. M. Benito, W. K. Maser, [J. Am. Chem. Soc. 140, 12862 \(2018\)](#).

23. "Sulfur-doped graphene-supported nickel-core palladium-shell nanoparticles as efficient oxygen reduction and methanol oxidation electrocatalyst", D. K. Perivoliotis, Y. Sato, K. Suenaga, N. Tagmatarchis, [ACS Appl. Energy Mater. 1, 3869 \(2018\)](#).
24. "Electrostatic association of ammonium-functionalized layered-transition-metal dichalcogenides with an anionic porphyrin", R. Canton-Vitoria, C. Stangel, N. Tagmatarchis, [ACS Appl. Mater. Interfaces 10, 23476 \(2018\)](#).
25. "Electronic communication between two [10]cycloparaphenylenes and bisazafullerene (C₅₉N)₂ induced by cooperative complexation", J. Rio, S. Beeck, G. Rotas, S. Ahles, D. Jacquemin, N. Tagmatarchis, C. Ewels, H. A. Wegner, [Angew. Chem. Int. Ed. 57, 6930 \(2018\)](#).