

# Nikolaos S. Thomaidis



Professor

LAB OF ANALYTICAL CHEMISTRY, DEPARTMENT OF CHEMISTRY, NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS

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## EDUCATION

- 1990 Degree in Chemistry, Department of Chemistry, University of Athens, Grade "Very Good 8/10". Scholar of the "Bostanio" Foundation
- 1996 PhD in Analytical Chemistry, University of Athens, "Development of methodologies for the determination of trace elements: Improvement of the technique of Atomic Absorption Spectrometry with Electroheated Graphite using Chemical Modifiers and study of their mechanism of action", Scholar of National Scholarships Foundation (IKY).

## RESEARCH FIELDS

Mass spectrometry (high and low resolution), development of omic technologies workflows, target, suspect and non-target screening workflows, non-target analysis and use of advanced chemometric techniques and software for the identification of (bio)indicators, development of structure-property relationship (QSPR) models, hydrophilic interaction liquid chromatography (HILIC), determination of emerging pollutants in the environment and emerging chemical hazards in food, food authenticity documentation, sewage biomarker analysis for community health assessment through wastewater epidemiology.

## EDUCATIONAL EXPERIENCE

### UNDERGRADUATE COURSES

- Laboratory exercises of Instrumental Analysis I / Compulsory / Department of Chemistry / NKUA
- Instrumental Analysis II / Compulsory / Department of Chemistry / NKUA
- Laboratory exercises of Instrumental Analysis II / Compulsory / Department of Chemistry / NKUA
- Modern Analytical Techniques / Elective / Department of Chemistry / NKUA
- Quality Control and Quality Assurance - Accreditation / Elective / Department of Chemistry / NKUA

### GRADUATE COURSES

- Laboratory of Analytical Chemistry / Department of Chemistry / Master's degree program "Analytical Chemistry - Quality Assurance" / Spectrochemical techniques (Atomic spectrometry, Mass spectrometry)
- Laboratory of Analytical Chemistry / Department of Chemistry / Master's degree program "Analytical Chemistry - Quality Assurance" / Separation Techniques: LC-MS
- Laboratory of Analytical Chemistry / Department of Chemistry / Master's degree program "Analytical Chemistry - Quality Assurance" / Quality Assurance Systems
- Laboratory of Analytical Chemistry / Department of Chemistry / Master's degree program "Analytical Chemistry - Quality Assurance" / Food and Beverage Quality Control
- Laboratory of Analytical Chemistry / Department of Chemistry / Master's degree program "Analytical Chemistry - Quality Assurance" / Materials Quality Control
- Laboratory of Analytical Chemistry / Department of Chemistry / Master's degree program "Analytical

## Chemistry - Quality Assurance" / Environmental Quality Control

- Department of Biology / Interdepartmental Postgraduate Program "Clinical Biochemistry - Molecular Diagnostics" / Modern Methods of Analysis (Chromatographic Techniques - Mass Spectrometry)
- Department of Biology / Interdepartmental Postgraduate Program "Clinical Biochemistry - Molecular Diagnostics" / Clinical Chemistry (Trace Elements)
- Yale University / Yale School of Public Health / Master in Public Health (MPH) / Wastewater Based Epidemiology
- East China University of Science and Technology, Shanghai (ECUST) / School of Chemistry and Molecular Engineering / Master Programme on Environmental Engineering / Emerging Contaminants: Advanced Monitoring, Fate and Effects

## DISCRIMINATIONS / SCHOLARSHIPS

- "Vostanio" Foundation of Lesvos – for undergraduate studies
- National Foundation for Government Scholarships – for postgraduate studies
- Student bursary during the 7th Biennial National Atomic Spectroscopy Symposium, 20-22/07/1994, University of Hull, United Kingdom
- Student bursary during the SAC'95, 11-15/07/1995, University of Hull, United Kingdom
- Student bursary during the 1st Mediterranean Basin Conference on Analytical Chemistry, 5-11/11/1995, Cordoba, Spain
- National Foundation for Government Scholarships – for post-doctoral studies
- Fellowship during the 3rd Euroconference on Environmental Analytical Chemistry, 9-15/10/1999, Chalkidiki, Greece
- Best Poster award during the 4th Aegean Analytical Chemistry Days (AACD), 29/09-03/10/2004, Kusadaci, Turkey
- Top-50 cited paper in Journal of Chromatography A, 2007-2009
- Reviewer award from the Science of the Total Environment, Elsevier
- Best Oral Presentation during the Halting Antimicrobial Resistance Dissemination in Aquatic Environments (HEARD), 16-19/09/2018, Ascona, Switzerland, "The impact of on-site hospital wastewater treatment on the downstream communal wastewater system in terms of antibiotics and antibiotic resistant genes"
- Elsevier Atlas Award, "The impact of on-site hospital wastewater treatment on the downstream communal wastewater system in terms of antibiotics and antibiotic resistance genes, International Journal of Hygiene and Environmental Health, 2019, 222, 635-644 (doi: 10.1016/j.ijheh.2019.01.004)"
- Top Downloaded Paper in Addiction, 2018-2019, "Spatial differences and temporal changes in illicit drug use in Europe quantified by wastewater analysis, Addiction, 2014, 109, 1338–1352 (doi: 10.1111/add.12570)"

## RESEARCH GRANDS

- BIGDATA 4RIVERS / Improving the quality of European rivers through smart water management policies / Scientific Officer NKUA / EE / 2019-2023
- 3D Printed Wearable Sensors Based on Metal-Organic Structures for the Electrochemical Determination of Glucose in Sweat / Scientific Officer / ΓΓΕΤ, ΕΥΔΕ-ΕΤΑΚ, ΕΔΚ Β PART Τ2ΕΔΚ-00028 / 2020-2022
- Research and development of anti-inflammatory functional foods, of high nutritional value, enriched with ω-3 fatty acids, utilizing by-products of Greek fishing and aquaculture / Scientific Officer NKUA / ΓΓΕΤ, ΕΥΔΕ-ΕΤΑΚ, ΕΔΚ Β PART Τ2ΕΔΚ-02465 / 2020-2023
- Agricultural composted products as growth regulators and plant protection / Subcontractor / ΓΓΕΤ, ΕΥΔΕ-ΕΤΑΚ, ΕΔΚ Β PART Τ2ΕΔΚ-00965 / 2020-2023
- Use of -omic technologies for the enrichment of infant milk / Subcontractor / ΓΓΕΤ, ΕΥΔΕ-ΕΤΑΚ, ΕΔΚ Β PART Τ2ΕΔΚ-02222 / 2020-2023
- Rapid detection of contaminants and adulteration in raw milk with submersible nanophotonic sensors / ΓΓΕΤ, ΕΥΔΕ-ΕΤΑΚ, ΕΔΚ Β PART Τ2ΕΔΚ-01934 / 2020-2023
- Safe Food for Infants in China and the EU / Subcontractor / EU Horizon 2020 SFS-37-2019 861917 / 2020-2024
- NTS-EXPOSURE «The innovative wastewater-based epidemiology approach with the advances of high-resolution mass spectrometry as a complementary biomonitoring tool for assessing the health status of a population / Scientific Officer NKUA / EU Horizon 2020 Marie Skłodowska-Curie Individual Fellowships GA 896141 / 2020-2023
- Development of innovative pomegranate-based juices / Subcontractor / ESPA, RIS3 Region of Eastern Macedonia and Thrace / AMOP7-0072324 / 2020-2023
- Determination of chemical compounds in wastewater and correlation with SARS-CoV-2 / Scientific Officer NKUA / E.O.D.Y. / 2021-2022

- On-site Integrated Hospital Liquid Waste Management / Subcontractor / ELKE-University of Aegean / 2020-2022
- Research and Innovation Strategy for the CIVIS Alliance / Scientific Officer NKUA / EU Horizon 2020 Science with and for Society Programme (SWAFS) GA 101016691 / 2021-2023
- Cardioprotective properties of sea bream reared with a polar lipid fraction isolated from oil production by-products / Subcontractor / ΓΓΕΤ Τ1 ΕΔΚ-00687 / ELKE Harokopio University / 2021-2022
- Innovative Methodological Tools for Olive Oil and Olive Oil Traceability, Certification and Authenticity Control / Scientific Officer NKUA / ΓΓΕΤ, ΕΥΔΕ-ΕΤΑΚ, ΕΔΚ Β PART Τ2ΕΔΚ-02637 / 2021-2023
- Systematic use of contaminant data from apex predators and their prey in chemicals management - National Participation / Scientific Officer NKUA / General Secretariat of Research and Innovation / 2021-2022
- Development of an Intelligent Epidemiological Surveillance and Environmental Health Monitoring System based on wastewater epidemiology / Scientific Officer NKUA / PEP Attica, Attica Region / 2021-2023
- Amplification of research to identify new mutations of SARS-CoV 2 in wastewater and development of a sensitive dPCR method for their determination in wastewater / Scientific Officer NKUA / ELKE-NKUA / 2021
- Rendering of services for the determination of organic pollutants (conventional and priority) and investigation of the possible detection of emerging pollutants in the water of EYDAP S.A. before and after processing / Scientific Officer / EYDAP / 2022
- Partnership for the assessment of risks from chemicals / Scientific Officer NKUA / EU Horizon Europe / 2022-2029
- Rendering of services from the Laboratory of Analytical Chemistry to DPAN-DEI / Scientific Officer / DEI / 2022-2023
- Determination of organic pollutants in environmental samples from Israel by LC-QTOFMS / Scientific Officer / Ruppin Academic Center / 2022
- Novel polymer based MALDI matrices and next generation analytical platforms for the investigation of biologically relevant low molecular weight compounds / Scientific Officer / EL.ID.EK. / 2022-
- Action 2 of Sub-measure 16.1-2 of Measure 16 "SYNERGASIA" / "Standard integrated olive juice extraction complex with maximum bioactive load, for use in pharmaceutical applications and Superfood production" / Scientific Officer NKUA / AGRICULTURAL DEVELOPMENT PROGRAM OF GREECE 2014 – 2020 / 2022-
- Production of olive oil and by-products with high added value by pitting the olive fruit before pressing / Scientific Officer NKUA / AGRICULTURAL DEVELOPMENT PROGRAM OF GREECE 2014 – 2020 / 2022-
- Increasing the competitiveness and supporting sustainability of Greek livestock and feta production through authentic documentation of Greek sheep and goat milk / Scientific Officer NKUA / AGRICULTURAL DEVELOPMENT PROGRAM OF GREECE 2014 – 2020 / 2022-
- Production of a new olive oil product based on olives of the "Kolobi" variety from the mountain estates of the Palaiokipos region of Lesvos / Scientific Officer NKUA / AGRICULTURAL DEVELOPMENT PROGRAM OF GREECE 2014 – 2020 / 2022-
- Certification of the accumulation of antioxidant factors of high nutritional value in the fruit and olive oil of the "Koroneiki" variety / Scientific Officer NKUA / AGRICULTURAL DEVELOPMENT PROGRAM OF GREECE 2014 – 2020 / 2022-
- Research to determine the profile of fatty acids (ω-3) in fish samples / Scientific Officer / AVRAMAR S.A. / 2022

## REVIEWER OF SCIENTIFIC JOURNALS

Analytical Chemistry	Analytical and Bioanalytical Chemistry
Trends in Analytical Chemistry	Analytical Methods
Analyst	Analytica Chimica Acta
Talanta	Analytical Letters
Journal of Chromatography A	Journal of Separation Science
International Journal of Environmental Analytical Chemistry	Microchimica Acta
Journal of Agricultural and Food Chemistry	Current Analytical Chemistry
Food Analytical Methods	Rapid Communications in Mass Spectrometry
Journal of American Society for Mass Spectrometry	Journal of Analytical Atomic Spectrometry
Journal of Chromatographic Sciences	Spectrochimica Acta Part B
Journal of Pharmaceutical and Biomedical Analysis	Biomedical Chromatography
Journal of AOAC International	Food Chemistry
Food and Chemical Toxicology	Environmental Science & Technology
Science of the Total Environment	Journal of Hazardous Materials

Chemosphere	Environmental Science and Pollution Research (ESPR)
Environmental Monitoring and Assessment	Water Research
Journal of Water and Health	Global NEST Journal
Environmental Science: Processes & Impacts (ESPI) (πρώην Journal of Environmental Monitoring, RSC)	Journal of Water Supply Research and Technology - AQUA
Journal of Environmental Management	International Journal of Environment and Waste Management
Desalination	Toxicological & Environmental Chemistry
Environmental Research	Desalination and Water Treatment
The Canadian Journal of Analytical Sciences and Spectroscopy	Chemical Papers
Applied Organometallic Chemistry	Central European Journal Chemistry
Fuel	Hellenic Plant Protection Journal
Chinese Journal of Chemistry	Australian Journal of Chemistry
CLEAN - Soil, Air, Water	Journal of Analytical Methods in Chemistry
European Polymer Journal	Food Science and Nutrition
Chemistry, Molecular Sciences and Engineering	Human and Ecological Risk Assessment: An International Journal
Chemical Engineering Journal	Environmental Research
Journal of Chromatography B	Environmental Toxicology and Pharmacology
PLOS One	Environmental Science & Technology Letters
RSC Advances	Water (MDPI)
International Journal of Mass Spectrometry	Bioanalysis
Industrial & Engineering Chemistry Research	Scientific Reports
Metabolites	Molecules

## EDITOR OF BOOKS AND SPECIAL VOLUMES

- Member of the Advisory Board at the journal "Analytical Methods (RSC)" (2011-2017)
- Member of the Editorial Board at the journal "Journal of Analysis and Testing (Springer Nature)" (2016-)
- Member of the Editorial Board & Guest Editor at the journal "Molecules (MDPI)" (2018 -)
- Member of the Editorial Board at the journal "Separations (MDPI)" (2019 -)
- Member of the Editorial Board at the journal "Analytica (MDPI)" (2020 -)
- Associate Editor at the journal "Frontiers in Environmental Health and Exposome", a section of "Frontiers in Environmental Science and Public Health" (2014-).
- Associate Editor and Guest Editor (1<sup>st</sup> Issue of 2012) at Global NEST Journal (2009 -)
- Guest Editor in Special Issue of "Analytica Chimica Acta" (2004, Vol. 505(1)) for the 3rd Aegean Analytical Chemistry Days (Editorial paper: E1).
- Associate Editor in Special Issue of "Analytical Letters" (5<sup>th</sup> Issue 2012) for the 7th Aegean Analytical Chemistry Days (Editorial paper: E2).
- Associate Editor in Special Issue of "Analytical Letters" (7<sup>th</sup> Issue 2016) for the 9th Aegean Analytical Chemistry Days (Editorial paper: E3).
- Guest Editor in Special Issue of "Journal of Hazardous Materials" (2012), "Occurrence of Emerging Contaminants in Wastewater Treatment Systems" (containing selected papers from 12th International Conference on Environmental Science and Technology)
- Managing Guest Editor in Special Issue of "Journal of Hazardous Materials" (2017), "Emerging Contaminants" (following an open invitation from the journal)
- Guest Editor in Special Issue of "Chemosphere" (2013), "Emerging Pollutants" (containing selected papers from 13th International Conference on Environmental Science and Technology)
- Guest Editor of "Agriculture (MDPI)" (2020)
- Guest Editor of "Case Studies in Chemical and Environmental Engineering" (2021)

## ADDITIONAL INFORMATION

- Presentations at conferences: **347**
- Supervision of doctoral thesis: **25**
- Supervision of graduate students: **118**
- Supervision of undergraduate students: **84**

## SELECTED PUBLICATIONS

1. Varvara Nikolopoulou, Akinranti Ajibola, Reza Aalizadeh and Nikolaos S. Thomaidis, "Wide-scope target and suspect screening of emerging contaminants in sewage sludge from Nigerian WWTPs by UPLC-qToF-MS", *Science of The Total Environment*, Volume 857, Part 3, 20 January **2023**, 159529 (<https://doi.org/10.1016/j.scitotenv.2022.159529>)
2. Reza Aalizadeh, Varvara Nikolopoulou and Nikolaos S. Thomaidis, "Development of Liquid Chromatographic Retention Index Based on Cocamide Diethanolamine Homologous Series (C(n)-DEA)", *Analytical Chemistry*, 94, 46, 15987–15996, **2022**, (<https://doi.org/10.1021/acs.analchem.2c02893>)
3. Nikiforos Alygizakis, Theodoros Giannakopoulos, Nikolaos S. Thomaidis, Jaroslav Slobodnik, Detecting the sources of chemicals in the Black Sea using non-target screening and deep learning convolutional neural networks, *Science of The Total Environment*, Volume 847, **2022**, 157554, ISSN 0048-9697, (<https://doi.org/10.1016/j.scitotenv.2022.157554>)
4. Reza Aalizadeh, Varvara Nikolopoulou, Nikiforos A. Alygizakis, Nikolaos S. Thomaidis, "First Novel Workflow for Semiquantification of Emerging Contaminants in Environmental Samples Analyzed by Gas Chromatography–Atmospheric Pressure Chemical Ionization–Quadrupole Time of Flight–Mass Spectrometry", *Analytical Chemistry*, **2022**, 94, 27, 9766–9774 (<https://doi.org/10.1021/acs.analchem.2c01432>)
5. Anastasia S. Kritikou, Reza Aalizadeh, Dimitrios E. Damalas, Ioanna V. Barla, Carsten Baessmann, Nikolaos S. Thomaidis "MALDI-TOF-MS integrated workflow for food authenticity investigations: An untargeted protein-based approach for rapid detection of PDO feta cheese adulteration» *Food Chemistry*, **2022**, 370, 131057 (<https://doi.org/10.1016/j.foodchem.2021.131057>).
6. Aikaterini Galani, Reza Aalizadeh, Marios Kostakis, Athina Markou, Nikiforos Alygizakis, Theodore Lytras, Panagiotis G Adamopoulos, Jordan Peccia, David C. Thompson, Aikaterini Kontou, Apostolos Karagiannidis, Evi S. Lianidou, Margaritis Avgeris, Dimitrios Paraskevis, Sotirios Tsiodras, Andreas Scorilas, Vasilis Vasiliou, Meletios-Athanasios Dimopoulos, Nikolaos S. Thomaidis " SARS-CoV-2 wastewater surveillance data can predict hospitalizations and ICU admissions" *Science of the Total Environment*, **2022**, 804, 150151 (<https://doi.org/10.1016/j.scitotenv.2021.150151>).
7. Sofia K. Drakopoulou, Dimitrios E. Damalas, Carsten Baessmann, and Nikolaos S. Thomaidis, "Trapped Ion Mobility incorporated in LC-HRMS workflows as an integral analytical platform of high sensitivity: Targeted and untargeted 4D-metabolomics in extra virgin olive oil" *Journal of Agricultural and Food Chemistry*, **2021**, 69(51), 15728–15737 (<https://doi.org/10.1021/acs.jafc.1c04789>).
8. D. Paraskevis, E-G. Kostaki, N. Alygizakis, N.S. Thomaidis, C. Cartalis, S. Tsiodras, M.-A. Dimopoulos "A review of the impact of climatologic and urban factors to COVID-19: In the absence of public health measures high temperatures cannot probably mitigate outbreaks" *Science of the Total Environment*, **2021**, 768, 144578 (<https://doi.org/10.1016/j.scitotenv.2020.144578>).
9. Nikiforos Alygizakis, Athina N. Markou, Nikolaos I. Rousis, Aikaterini Galani, Margaritis Avgeris, Panagiotis G. Adamopoulos, Andreas Scorilas, Evi S. Lianidou, Dimitrios Paraskevis, Soritios Tsiodras, Athanassios Tsakris, Meletios-Athanasios Dimopoulos and Nikolaos S. Thomaidis "Analytical methodologies for the detection of SARS-CoV-2 in wastewater: Protocols and future perspectives" *Trends in Analytical Chemistry-TrAC*, **2021**, 134, 116125 (<https://doi.org/10.1016/j.trac.2020.116125>).
10. Pablo Gago-Ferrero, Anna A Bletsou, Dimitrios E Damalas, Reza Aalizadeh, Nikiforos A Alygizakis, Heinz P Singer; Juliane Hollender, Nikolaos S. Thomaidis "Wide-scope target screening of >2000 emerging contaminants in wastewater samples with UPLC-Q-ToF-HRMS/MS and smart evaluation of its performance through the validation of 195 selected representative analytes" *Journal of Hazardous Materials*, **2020**, 387, 121712 (<https://doi.org/10.1016/j.jhazmat.2019.121712>).