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Education

B.Sc. in Chemistry (2009-2013), University of Athens, Grade: 9.18/10.00

M.Sc. in Chemical Analysis-Quality Control (2013-2015), University of Athens, Grade 9.65/10.00

Ph.D. in Analytical Chemistry (2015-2019), University of Athens, Grade Excellent

Research Topic:

Ph.D. Thesis

Development of novel methodologies for the identification of unknown compounds in the environment employing non-target screening and high-resolution mass spectrometry

The objective of the thesis was to develop novel workflows employing state-of-the-art target, suspect and non-target screening tools and apply them on samples obtained from important European ecosystems such as the Danube River Basin (DRB) and the Black Sea (BS). More details are available at the following publications with DOI: [10.1016/j.trac.2019.04.008](https://doi.org/10.1016/j.trac.2019.04.008), [10.1021/acs.est.8b00365](https://doi.org/10.1021/acs.est.8b00365), [10.1016/j.envint.2019.03.060](https://doi.org/10.1016/j.envint.2019.03.060) and [10.1016/j.scitotenv.2019.04.445](https://doi.org/10.1016/j.scitotenv.2019.04.445).

Master Thesis

Implementation of chemometric techniques for the detection and non-target identification of analytes with distinguished time pattern in wastewater by LC-Q-TOF

The aim of this proposal was to implement a computational methodology that would facilitate the detection of contaminants with high fluctuation in intensity among wastewater samples sampled in time-series. The output of this methodology was a compound table with top-prioritized components. The identity of the top-ranked components was revealed by established non-target identification workflows. More details are available at the publication with DOI [10.1016/j.jhazmat.2018.08.073](https://doi.org/10.1016/j.jhazmat.2018.08.073).

Undergraduate Thesis

Determination of drugs of abuse and their metabolites in wastewater by LC-MS/MS (QQQ)

The objective of this study was to determine the concentration levels of illicit drugs and their metabolites in wastewater samples and the receiving environment. Concentration levels from wastewater samples were used to estimate the consumption of the drugs by the society (sewage epidemiology). More details are available at the publication with DOI [10.1021/acs.est.6b02417](https://doi.org/10.1021/acs.est.6b02417) and [10.1016/j.scitotenv.2015.09.145](https://doi.org/10.1016/j.scitotenv.2015.09.145).

Research Interests

- Automated data processing workflows for LC and GC-HRMS
- Advanced statistics and chemometrics techniques for prioritization of peaks in LC and GC-HRMS
- Identification of unknown compounds using not-target screening workflows
- Digital archivation of LC and GC-HRMS chromatograms
- Wide-scope retrospective screening of emerging contaminants in digitally-archived samples
- Strategies for the identification of river basin specific pollutants
- Application of bioassays to assess the biological responses of environmental samples
- Determination of antibiotics, their transformation products (TPs), antibiotic resistant bacteria and genes (ARB&ARGs)
- Application of prioritization decision trees to propose emerging contaminants for regulation
- Investigation of the fate of emerging contaminants in the environment
- New emerging technologies to achieve the widest possible chemical coverage (e.g. use of Hydrophilic interaction chromatography (HILIC) in monitoring)
- Big data, construction of databases and interfaces

Publications in journals

1. Wiebke Dürig, **Nikiforos A. Alygizakis**, Frank Menger, Oksana Golovko, Karin Wiberg, Lutz Ahrens, “Novel prioritisation strategies for evaluation of temporal trends in archived white-tailed sea eagle muscle tissue in non-target screening”, 2022, in press (doi: [10.1016/j.jhazmat.2021.127331](https://doi.org/10.1016/j.jhazmat.2021.127331))
2. Varvara Nikolopoulou, **Nikiforos A. Alygizakis**, Maria-Christina Nika, Martina Oswaldova, Peter Oswald, Marios Kostakis, Anastasia Koupa, Nikolaos S. Thomaidis, Jaroslav Slobodnik, “Screening of legacy and emerging substances in surface water, sediment, biota and groundwater samples collected in the Siverskyi Donets River Basin employing wide-scope target and suspect screening”, 2022, 805, 150253 (doi: [10.1016/j.scitotenv.2021.150253](https://doi.org/10.1016/j.scitotenv.2021.150253))
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6. Reza Aalizadeh, **Nikiforos A. Alygizakis**, Emma L. Schymanski, Martin Krauss, Tobias Schulze, María Ibáñez, Andrew D. McEachran, Alex Chao, Antony J. Williams, Pablo Gago-Ferrero, Adrian Covaci, Christoph Moschet, Thomas M. Young, Juliane Hollender, Jaroslav

- Slobodnik, and Nikolaos S. Thomaidis, “Development and Application of Liquid Chromatographic Retention Time Indices in HRMS-Based Suspect and Nontarget Screening”, *Analytical Chemistry*, 2021, 93, 33, 11601-11611 (doi: [10.1021/acs.analchem.1c02348](https://doi.org/10.1021/acs.analchem.1c02348))
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 8. **Nikiforos Alygizakis**, Aikaterini Galani, Nikolaos I. Rousis, Meletios-Athanasios Dimopoulos, Nikolaos S. Thomaidis, “Change of the chemical universe of untreated wastewater under COVID-19 pandemic”, *Science of the Total Environment*, 2021, 799, 149230 (doi: [10.1016/j.scitotenv.2021.149230](https://doi.org/10.1016/j.scitotenv.2021.149230))
 9. Aikaterini Galani, **Nikiforos Alygizakis**, Reza Aalizadeh, Efstathios Kastritis, Meletios-Athanasios Dimopoulos, Nikolaos S. Thomaidis, “Patterns of pharmaceuticals use during the first wave of COVID-19 pandemic in Athens, Greece as revealed by wastewater-based epidemiology”, 2021, *Science of the Total Environment*, 2021, 792, 149014 (doi: [10.1016/j.scitotenv.2021.149014](https://doi.org/10.1016/j.scitotenv.2021.149014))
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 21. Konstantina S. Diamanti, Reza Aalizadeh, **Nikiforos Alygizakis**, Marie Mardal, Nikolaos S. Thomaidis “Wide-scope target and suspect screening methodologies to investigate new psychoactive substances in influent wastewater from Athens” *Science of the Total Environment*, 2019, 685, 1058-1065, (doi: [10.1016/j.scitotenv.2019.06.173](https://doi.org/10.1016/j.scitotenv.2019.06.173))
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2. Andreas Scheidleder, Uta Wemhöner, Franko Humer, Pauline Louis, Marie-Noëlle Pons, Davide A.L. Vignati, Manfred Sengl, Uwe Kunkel, Andre Macherius, Tobias Schulze, Giulio Mariani, Simona Tavazzi, Sara Romero, Peter Oswald, Bernd Gawlik, **Nikiforos Alygizakis**, Jaroslav Slobodnik, Janine Halder, “Chapter 25 - Groundwater screening”, International Commission for the Protection of the Danube River (ICPDR), 2021, 245-270 (ISBN: [978-3-200-07450-7](#))
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7. Tobias Schulze, **Nikiforos Alygizakis**, Tobias Bader, Beate Escher, Lena Betz, Markus Flörs, Klára Hilscherová, Kevin Jewell, Eberhard Küster, Uwe Kunkel, André Macherius, Jiří Novák, Peter Oswald, Sinisa Repec, Rita Schlichting, Michael Schlüsener, Mechthild Schmitt-Jansen, Wolfgang Schulz, Manfred Sengl, Draženka Stipančev, Peter Tarábek, Nikolaos S. Thomaidis, Zuzana Toušová, Jaroslav Slobodnik, Werner Brack, Martin Krauss “Chapter 34 - Comparability of data obtained by suspect and non-target screening and by NORMAN panel of in vitro and in vivo bioassays: results of an interlaboratory study”, 2021, 373-394 (ISBN: [978-3-200-07450-7](#))
8. Jaroslav Slobodnik, **Nikiforos Alygizakis**, Maria-Christina Nika, Peter Oswald, Lubos Cirka, Nikolaos S. Thomaidis, Peter von der Ohe, Valeria Dulio “Chapter 36 - Prioritisation of Danube River Basin Specific Pollutants using the NORMAN Prioritisation Framework”, 2021, 419-446 (ISBN: [978-3-200-07450-7](#))
9. Martin Krauss, **Nikiforos Alygizakis**, Katerina Galani, Maria-Christina Nika, Nikolaos S. Thomaidis, Manfred Sengl, Uwe Kunkel, Andre Macherius, Giulio Mariani, Simona Tavazzi, Helle Skejo, Sara Comero, Bernd M. Gawlik, Jaroslav Slobodnik, Werner Brack, Tobias Schulze “Chapter 37 - Comparison of target screening and target analysis approaches for surface water samples”, 2021, 447-456 (ISBN: [978-3-200-07450-7](#))
10. Nikolaos Thomaidis, Peter Oswald, **Nikiforos Alygizakis**, Jaroslav Slobodnik, “Target, suspect and non-target screening of Black Sea pollutants in water and sediments by LC-HR-MS and GC-MS techniques”, 2016, 388-420, National Pilot Monitoring Studies and Joint Open Sea Surveys in Georgia, Russian Federation and Ukraine ([Scientific Report](#))

11. Nikolaos Thomaidis, Peter Oswald, **Nikiforos Alygizakis**, Jaroslav Slobodnik, “Target, suspect and non-target screening of Black Sea pollutants in biota by LC-HR-MS and GC-MS techniques”, 2016, 433-446, National Pilot Monitoring Studies and Joint Open Sea Surveys in Georgia, Russian Federation and Ukraine ([Scientific Report](#))
12. Maria-Christina Nika, **Nikiforos Alygizakis**, Aikaterini Psoma, Dimitrios Damalas and Nikolaos S. Thomaidis, “V.3 Target, suspect and non-target screening of Black Sea pollutants in water and sediments by LC-HR-MS and GC-MS techniques”, 2017, 424-463, Scientific Report – National Pilot Monitoring Studies and Joint Open Sea Surveys in Georgia, Russian Federation and Ukraine ([Scientific report](#))
13. Maria-Christina Nika, **Nikiforos Alygizakis**, Aikaterini Psoma, Dimitrios Damalas and Nikolaos S. Thomaidis, “VI. DESCRIPTOR 8 and 9 Concentration of contaminants in fish and seafood”, 2017, 464-532, Scientific Report – National Pilot Monitoring Studies and Joint Open Sea Surveys in Georgia, Russian Federation and Ukraine ([Scientific report](#))

Conferences Presentations

> 50 conference participations. Below are the most recent conference participations:

1. G. Gkotsis, A. Badry, G. Treu, M.C. Nika, N. Alygizakis, O. Krone, C. Baessmann, N. S. Thomaidis “Advanced HRMS techniques for the screening of organic micropollutants in white-tailed sea eagles through wide-scope target and suspect methodologies”, 69th ASMS Conference, 31/10/2021-04/11/2021, Pennsylvania, USA (poster presentation)
2. C. Postigo, R. Gil-Solsona, M.F. Herrera-Batista, P. Gago-Ferrero, N. Alygizakis, L. Ahrens, K. Wiberg “A step forward in the detection of chlorination byproducts of emerging contaminants”, ICNTS-21, 4-7/10/2021, Erding, Germany (poster presentation)
3. E. Aleiferi, A. Galani, A. Kontou, L. Gkogkou, M.C. Nika, N. Alygizakis, E. Bizani, N.S. Thomaidis “Application of Wastewater-Based Epidemiology during COVID-19 pandemic in Greece for the investigation of patterns in licit and illicit drug consumption and other chemical compounds’ use, utilizing HRMS and LC-MS/MS.”, CEST 2021 01-04/09/2021, Athens, Greece (poster presentation)
4. A. Androulakis, N. Alygizakis, G. Gkotsis, M. C. Nika, V. Nikolopoulou, E. Bizani, A. Badry, E. Chadwick, A. Cincinelli, D. Claßen, S. Danielsson, R. W.R.J. Dekker, G. Duke, N. Glowacka, H. A.H. Jansman, B. Knopf, O. Krone, T. Martellini, P. Movalli, S. Persson, A. Roos, E. O'Rourke, H. Rüdell, U. Siebert, G. Treu, N. W. van den Brink, L. A. Walker, J. Slobodnik, N. S. Thomaidis “Simultaneous determination of 56 perfluoroalkyl acids and precursors in top predators and their prey by liquid chromatography-tandem mass spectrometry”, CEST 2021 01-04/09/2021, Athens, Greece (oral presentation)
5. K. Diamanti, M. C. Nika, N. Alygizakis, M. Kostakis, A. Koupa, P. Oswald, J. Slobodnik, N. S. Thomaidis “Water quality monitoring in the Dnieper River Basin using advanced analytical methodologies”, CEST 2021 01-04/09/2021, Athens, Greece (poster presentation)
6. G. Gkotsis, M. C. Nika, K. Vasilatos, A. Orfanoti, A. Athanasopoulou, N. Alygizakis, P. Oswald, J. Slobodnik, N. S. Thomaidis “Investigation of the presence of organic micropollutants in biota specimens from the Antarctica ecosystem using state-of-the-art wide-scope target and suspect HRMS methodologies.” CEST 2021 01-04/09/2021, Athens, Greece (poster presentation)
7. P Movalli, T. Piersma, J. Hooijmeijer, R. Howison, R. Dekker, N. Alygizakis, G. Gkotsis, M. C. Nika, N. S. Thomaidis “High Resolution Mass Spectrometric non-target screening and wide-scope target analysis of emerging contaminants and target analysis of legacy contaminants in adult black-tailed godwit *Limosa limosa* in the Netherlands.” CEST 2021 01-04/09/2021, Athens, Greece (poster presentation)
8. G.S., Rubén, N. C. Nika, N. Alygizakis, M. Bustamante, M. C. Villanueva, M. Foraster, M. D. Gómez-Roig, E. Llurba-Olive, J. Sunyer, P. Dadvand, N. S. Thomaidis, P. Gago-Ferrero “Evaluation of the human exposure to a broad spectrum of organic chemicals and the potential use of sewage sludge to prioritize hazardous substances” CEST 2021 01-04/09/2021, Athens, Greece (poster presentation)

9. G. Treu, N. Alygizakis, A. Badry, K. Bauer, A. Cincinelli, D. Claßen, R. Dekker, W. Drost, G. Duke, N. Glowacka, B. Knopf, J. Koschorreck, T. Martellini, P. Movalli, M.C. Nika, H. Ruedel, N. S. Thomaidis, L. Walker, J. Slobodnik “Perspectives on the use of contaminant data from apex predators and their prey for hazard prioritization” CEST 2021 01-04/09/2021, Athens, Greece (poster presentation)
10. P. Movalli, N. Alygizakis, A. Badry, R. Buij, A. Cincinelli, R. W.R.J. Dekker, G. Duke, G. Gkotsis, N. Glowacka, H. Jansman, J. Koschorreck, T. Martellini, M.C. Nika, V. Nikolopoulou, M.G. Pereira, E.D. Potter, D. Sleep, R.F. Shore, J. Slobodnik, S. Thacker, N.S. Thomaidis, G. Treu, N. W. Van der Brink, S. Van der Mije, L. Walker “Use of raptor chemical monitoring data to assess the effectiveness of chemical risk mitigation measures; the impact of pooling liver samples on power to detect change in contaminant concentrations at country scale”, SETAC Europe 2021, 3-6/05/2021, Virtual (poster presentation)
11. P. Movalli, G. Cicero, G. Ramello, G. Sbokos, K. Vlachopoulos, R. W.R.J. Dekker, S. Espín, A.J. García-Fernández, P. Gómez-Ramírez, P.A. Hosner, S. Islam, D. Koureas, J.B. Kristensen, S. van der Mije, P. Sánchez-Virosta, O. Krone, M. Levits, N. Sarajlić, R.F. Shore, A. Vrezec, L.A. Walker, C. Wernham, A. Lopez-Antia, R. Lourenço, R. Mateo, A. Badry, T.I. Fuisz, M. Guiraud, U. Johansson, M. Pavia, O. Pauwels, M.G. Pereira, T. Töpfer, R. Väinölä, D. Vangeluwe, N. Alygizakis, A. Cincinelli, W. Drost, G. Gkotsis, N. Glowacka, J. Koschorreck, T. Martellini, M.C. Nika, V. Nikolopoulou, J. Slobodnik, N.S. Thomaidis, G. Treu G, G. Duke “A Novel Role for Natural Science Collections in European Contaminant Monitoring”, SETAC Europe 2021, 3-6/05/2021, Virtual (poster presentation)
12. W. Dürig, N. Alygizakis, O Golovko, F. Menger, A. Bignert, K. Wiberg, L. Ahrens “Novel prioritization strategy of non-target features in archived white tailed sea eagle muscle tissue using temporal trends”, LCMSMS workshop, 15-16/10/2020, Virtual (poster presentation)
13. H. Rüdél, B. Knopf, N. Alygizakis, N. Glowacka, J. Slobodnik, G. Gkotsis, M.C. Nika, N.S. Thomaidis, A. Cincinelli, T. Martellini, G. Duke, R. Shore, A. Badry, W. Drost, J. Koschorreck, P. Movalli, R. Dekker “Derivation of indicators for assessing the quality of biota samples and their suitability for environmental monitoring studies”, 30th Annual meeting SETAC Europe 03-07/05/2020, Dublin, Ireland. (oral presentation)
14. P. Movalli, R. Dekker, P. van der Mije, G. Gkotsis, N. Alygizakis, M.C Nika, N.S. Thomaidis “Wide scope screening of emerging contaminants in peregrine falcon Falco peregrinus in the Netherlands”, 30th Annual meeting SETAC Europe 03-07/05/2020, Dublin, Ireland. (poster presentation)

Scholarships and Awards

1. 2019-2021: Researcher at LIFE APEX Project (www.lifeapex.eu)
2. 2016-2019: Marie Skłodowska-Curie Fellowship at “**ANSWER**” Project (Grant agreement No 675530)
3. 2013-2015: Scholarship **John S. Latsis Foundation** for graduate studies
4. 2010-2013: Scholarship Antonios Papadakis, University of Athens (granted after exams)
5. **2011-2012&2012-2013**: Award from University of Athens (Heritage of Pantia Ralli) for high performance among students of department of Chemistry, University of Athens
6. 2011-2012: Award State Scholarships Foundation «**IKY**» for academic performance during 5th - 6th semesters of under graduate studies.

Professional Affiliations

Association of Greek Chemists (2013-present)

Hellenic Society of Mass Spectrometry (2015-present)

NORMAN Association (2015-present)

COST Actions: SCORE ES1307, NEREUS ES1403, ERBFacility CA16224

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