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Ph.D. Candidate at University of Athens

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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-to present), University of Athens

Research Topic:

Ph.D. Thesis

Development of novel methodologies for the identification of unknown compounds in the aquatic environment employing high resolution mass spectrometry

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.

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 to estimate the community usage of these drugs by the society (sewage epidemiology).

Research Interests

- Automated data processing procedures for LC-HRMS
- Advanced Statistics and Chemometrics techniques for prioritization of peaks in LC-HRMS
- Identification of unknown compounds (not-target screening) in the environment
- Investigation of the fate of emerging contaminants in the environment
- Retrospective analysis of emerging contaminants in environmental samples
- Hydrophilic interaction chromatography (HILIC)
- LC-HRMS/MS database construction

Publications in journals

1. **Nikiforos A. Alygizakis**, Pablo Gago-Ferrero, Viola L. Borova, Alexandra Pavlidou, Ioannis Hatzianestis, Nikolaos S. Thomaidis Occurrence and spatial distribution of 158 pharmaceuticals, drugs of abuse and related metabolites in offshore seawater, *Science of the Total Environment*. 2016, 541 (15), 1097-1105, DOI: [10.1016/j.scitotenv.2015.09.145](https://doi.org/10.1016/j.scitotenv.2015.09.145)
2. Nikolaos S. Thomaidis, Pablo Gago-Ferrero, Christoph Ort, Maragou N.C., **Nikiforos A. Alygizakis**, Viola L. Borova, Marilena Dasenaki Reflection of Socioeconomic Changes in Wastewater: Licit and Illicit Drug Use Patterns. *Environmental Science & Technology*. 2016, 50 (18), 10065-10072, DOI: [10.1021/acs.est.6b02417](https://doi.org/10.1021/acs.est.6b02417)
3. Natasa P. Kalogiouri, **Nikiforos A. Alygizakis**, Reza Aalizadeh, Nikolaos S. Thomaidis Olive oil authenticity studies by target and non-target LC-QTOF-MS combined with advanced chemometric techniques. *Analytical and Bioanalytical Chemistry*. 2016, 408 (28), 7955-7970, DOI: [10.1007/s00216-016-9891-3](https://doi.org/10.1007/s00216-016-9891-3)
4. Saer Samanipour, Jose A. Baz-Lomba, **Nikiforos A. Alygizakis**, Malcolm J. Reid, Nikolaos S. Thomaidis, Kevin V. Thomas Two stage algorithm vs commonly used approaches for the suspect screening of complex environmental samples analyzed via liquid chromatography high resolution time of flight mass spectroscopy: A test study. *Journal of Chromatography A*. 2017, 1501 (9), 68-78, DOI: [10.1016/j.chroma.2017.04.040](https://doi.org/10.1016/j.chroma.2017.04.040)
5. **Nikiforos A. Alygizakis**, Saer Samanipour, Juliane Hollender, María Ibáñez, Sarit Kaserzon, Varvara Kokkali, Jan A. van Leerdam, Jochen F. Mueller, Martijn Pijnappels, Malcolm J. Reid, Emma L. Schymanski, Jaroslav Slobodnik, Nikolaos S. Thomaidis, Kevin V. Thomas Exploring the Potential of a Global Emerging Contaminant Early Warning Network through the Use of Retrospective Suspect Screening with High-Resolution Mass Spectrometry *Environmental Science & Technology*. 2018, 52 (9), 5135-5144, DOI: [10.1021/acs.est.8b00365](https://doi.org/10.1021/acs.est.8b00365)

Conferences Presentations

Oral Contributions

1. **Alygizakis A.N.**, Gago-Ferrero P., Loos M., Singer H., Hollender J. and Thomaidis N.S., "Automatic detection of concentration trends of organic pollutants in wastewater using computational approaches and chemometric tools on data acquired by LC-HRMS", [14th International Conference on Environmental Science and Technology](#)
2. **Alygizakis A.N.** and Borova V.L., Pavlidou A., Hatzianestis I., Ioannou M., Thomaidis N.S., "Development of a LC-QTOFMS Method for the spatial determination of pharmaceuticals, controlled psychoactive and illicit drugs and their metabolites in Saronic Gulf", [9th International Conference "Aegean Analytical Chemistry Days \(AACD2014\)"](#)
3. **Borova V.L.**, Dasenaki M.E., Maragou N.C., **Alygizakis A.N.**, Stasinakis A.S., Thomaidis N.S. and Lekkas T.D., "Trends in use of pharmaceuticals, controlled psychoactive and illicit drugs as revealed from the influents' analysis of WWTP of Athens, Greece", [13th International Conference on Environmental Science and Technology](#)

Poster Presentations

4. **Alygizakis A.N.**, Gago-Ferrero P., Bletsou A.A. and Thomaidis N.S., "Trend analysis of influent wastewater using R-scripts and non-target HRMS screening approach", [MEDMSIII](#)
5. **Alygizakis A.N.**, Aalizadeh R., Gago-Ferrero P., Bletsou A.A. and Thomaidis N.S., "peakTrams: An automated computational approach for the simultaneous detection of features in Reverse Phase and HILIC HRMS screening", [14th International Conference on Environmental Science and Technology](#)

6. Borova V.L., Chrisochou E.M., Dasenaki M.E., **Alygizakis A.N.**, Tsaganou G. and Thomaidis N.S., "Determination of pharmaceuticals, controlled psychoactive and illicit drugs and their metabolites in sewage sludge of the WWTP of Athens", **13th International Conference on Environmental Science and Technology**

Scholarships and Awards

1. 2013-2015: Scholarship **John S. Latsis Foundation** for graduate studies
2. 2010-2013: Scholarship Antonios Papadakis, University of Athens (granted after exams)
3. **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
4. 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)

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