

## Dr. LAMPRINI-ARETI TSAKANIKΑ, Chemical Engineer

### CURRICULUM VITAE

**Dr. Lamprini-Areti Tsakanika** has received her diploma in Chemical Engineering in 1996 and her PhD thesis in 2013 from School of Chemical Engineering of National Technical University of Athens. Her doctoral research focuses on the separation and recovery of rare earth elements (REEs) from red mud, a voluminous byproduct generated during bauxite processing via the Bayer method for alumina production. In 2023, she has received her MSc diploma in Technoeconomic Systems. Since 2007 she is employee of NTUA while since 2014 she belongs to the Laboratory Teaching Staff of Inorganic and Analytical Chemistry Lab of School of Chemical Engineering NTUA. Her field of expertise is “Analytical and Applied Chemistry”. She speaks English, French, and Italian.

Her research interest focuses on the development and validation of spectrometric and chromatographic methods for the determination of critical materials and chemical species in environmental, biological and food samples, the environmental pollution and the assessment of ecotoxicology. She has more than 20 years of experience in instrumental analysis and analytical data processing including *Inductively Coupled Plasma Optical Emission Spectrometry-ICP-OES (including hydride method)*, *Inductively Coupled Plasma-Mass Spectrometry-ICP-MS*, *Atomic Absorption Spectrometry-AAS (flame, graphite, hydride method)*, *High Performance Liquid Chromatography-HPLC*, *Ion Chromatography-IC*, *FT-IR/ATR*, *UV-Vis e.t.c.* She has analyzed and characterized a wide variety of samples such as geological or metallurgical materials and byproducts, airborne particulate matter, waters (drinking, surface and groundwater), soils, catalysts, polymers, food samples and drugs. She has also participated in interlaboratory testing and programs for the certification of reference materials. In the above experience, her expertise in pilot plant processes is also included.

From 2007 to 2014, she was the Quality Manager for the research team "Physical Methods of Analysis - Environment," which was certified under the ISO 9001:2008 standard.

Regarding her teaching activities, since 2000 she has been participating and continues to teach in laboratory courses of both undergraduate and postgraduate study programs of the Schools of Chemical Engineering and Metallurgical Engineering at NTUA. More specifically, she participates in:

#### Undergraduate courses:

- Inorganic Chemistry, School of Chemical Engineering, NTUA
- Analytical Chemistry, School of Chemical Engineering, NTUA
- Instrumental Chemical Analysis, School of Chemical Engineering, NTUA
- Modern Chemical Analysis Techniques, School of Chemical Engineering, NTUA

- Pharmaceutical Chemistry and Technology, School of Chemical Engineering, NTUA
- Analytical Chemistry - Physical Methods of Analysis, School of Mining and Metallurgical Engineering, NTUA

Postgraduate course:

- Advanced Materials Exercises, MSc Program in "Science and Technology of Materials," Scientific School: School of Chemical Engineering, NTUA

She also co-supervises undergraduate and postgraduate, as well as doctoral theses. She has contributed to collective publications of laboratory guides for the courses of Instrumental Chemical Analysis and Inorganic Chemistry of School of Chemical Engineering.

Her academic achievements include authoring/co-authoring 23 articles in peer-reviewed international scientific journals, 54 presentations in international conference proceedings, and 15 presentations in Greek conference proceedings. She has participated in at least 23 international, European, and Greek research programs, collaborating successfully with international and Greek industries as a member of the research teams.

She has been a member of the Technical Chamber of Greece (TEE) since October 1996 and a member of the Panhellenic Association of Chemical Engineers since October 2007. She has served as a representative of the Laboratory Teaching Staff in the General Assembly of the Sector of Chemical Sciences (I) in the years: 2015-2016, 2022-2023, 2023-2024, 2024-2025, and 2025-2026.

**Publications in peer review journals:**

1. Plakantonaki, S., Zacharopoulos, N., Christopoulos, M., Kiskira, K., Markou, G., Tsakanika, L.-A., Priniotakis, G. *"Upcycling industrial peach waste to produce dissolving pulp"*, *Environmental Science and Pollution Research* (2025) 32, 4636–4655. <https://doi.org/10.1007/s11356-025-35977-5>
2. Isleyen A., Can S.Z., Cankur O. *et al.* "Correction: Certification of the total element mass fractions in UME EnvCRM 03 soil sample via a joint research project", *Accred Qual Assur* (2024) 29, 303. <https://doi.org/10.1007/s00769-024-01611-z>
3. Lympelopoulou Th., Balta-Brouma K., Tsakanika L.-A., Tzia C., Tsantili-Kakoulidou A., Tsopelas F. "Identification of lentils (*Lens culinaris* Medik) from Eglouvi (Lefkada, Greece) based on rare earth elements profile combined with chemometrics", *Food Chemistry* (2024) 447, 138965
4. Kiskira, K., Lympelopoulou, T., Lourentzatos, I. *et al.* "Bioleaching of Scandium from Bauxite Residue using *Fungus Aspergillus Niger*", *Waste Biomass Valor* (2023) 14, 3377–3390. <https://doi.org/10.1007/s12649-023-02116-5>
5. Stergiopoulos C., Tsakanika L.- A., Ochsenkühn-Petropoulou M., Tsantili- Kakoulidou A., Tsopelas F. *"Application of micellar liquid chromatography to model ecotoxicity of pesticides. Comparison with immobilized artificial membrane chromatography and n-octanol-water partitioning"*, *Journal of Chromatography A* (2023) 1696, 463951
6. Banou P., Boyatzis S., Choulis K., Karabotsos T., Tsimogiannis D., Tsakanika L.-A., Tzia C., Alexopoulou A. *"Oil Media on Paper: Investigating the Effect of Linseed Oils on*

- Lignocellulosic Paper Supports*", *Analytica* (2022) 3(3), 266-286. <https://doi.org/10.3390/analytica3030019>
7. Banou P., Choulis K., Karabotsos T., Tsimogiannis D., Tsakanika L.-A., Tzia C., Alexopoulou A. "Oil Media on Paper: Investigating the Effect of Linseed Oils on Pure Cellulosic Paper Supports. A Research Matter of Damage Assessment", *Analytica* (2022) 3(1), 120-134. <https://doi.org/10.3390/analytica3010009>
  8. Tsakanika L.-A., Panagiotatos G., Lymperopoulou T., Chatzitheodoridis E., Ochsenkühn K., Ochsenkühn-Petropoulou M. "Direct Phosphoric Acid Leaching of Bauxite Residue for Selective Scandium Extraction", *Metals* (2022) 12(2), 228. <https://doi.org/10.3390/met12020228>
  9. Kiskira K., Lymperopoulou T., Tsakanika L.-A., Pavlopoulos C., Papadopoulou K., Ochsenkühn K.-M., Lyberatos G., Ochsenkühn-Petropoulou M. "Study of Microbial Cultures for the Bioleaching of Scandium from Alumina Industry By-Products", *Metals* (2021) 11(6), 951. <https://doi.org/10.3390/met11060951>
  10. Kekes, T., Tsakanika, L., Kolliopoulos, G., Tzia, C. "Adsorption of Indigo Carmine onto Chitosan - Cerium Oxide Nanobiosorbent: Adsorption Isotherms, Kinetics, and Thermodynamics", *IOP Conference Series: Earth and Environmental Science*, (2021) 690(1), 012048. doi:10.1088/1755-1315/690/1/012048
  11. Seeger S., Osan J., Czömpöly O., Gross A., Stosnach H., Stabile L., Ochsenkuehn-Petropoulou M., Tsakanika L.A., Lymperopoulou T., Goddard S., et al. "Quantification of Element Mass Concentrations in Ambient Aerosols by Combination of Cascade Impactor Sampling and Mobile Total Reflection X-ray Fluorescence Spectroscopy", *Atmosphere* (2021) 12(3), 309. <https://doi.org/10.3390/atmos12030309>
  12. Bescond A., Oster C., Fisticaro P., Goddard S., Quincey P., Tsakanika L.-A., Lymperopoulou T., Ochsenkuehn-Petropoulou M. "Method for Preparation of a Candidate Reference Material of PM<sub>10</sub> and PM<sub>2.5</sub> Airborne Particulate Filters Loaded with Incineration Ash-Inter Comparison Results for Metal Concentrations", *Atmosphere* (2021) 12(1), 67. <https://doi.org/10.3390/atmos12010067>
  13. Kalliantas D, Kallianta M, Tsakanika LA, Kordatos K, Karagianni Ch.S. The Impact of 'Succussion' during preparation of ultra high diluted solution medicinal products, *J Nanomed* (2020) 3(1), 1023
  14. Hatzilyberis, K., Tsakanika, L.-A., Lymperopoulou, T., Georgiou, P., Kiskira, K., Tsopelas, F., Ochsenkühn K.-M., Ochsenkühn-Petropoulou, M. "Design of an Advanced Hydrometallurgy Process for the Intensified and Optimized Industrial Recovery of Scandium from Bauxite Residue", *Chemical Engineering and Processing - Process Intensification* (2020) 155, 108015. doi:10.1016/j.cep.2020.108015
  15. Lymperopoulou Th., Georgiou P., Tsakanika L.-A., Hatzilyberis K., Ochsenkuehn-Petropoulou M. "Optimizing Conditions for Scandium Extraction from Bauxite Residue Using Taguchi Methodology", *Minerals* (2019) 9, 236. doi:10.3390/min9040236
  16. Ochsenkühn-Petropoulou M., Tsakanika L.-A., Lymperopoulou Th., Ochsenkühn K.-M., Hatzilyberis K., Georgiou P., Stergiopoulos C., Serifi O., Tsopelas F. "Efficiency of Sulfuric Acid on Selective Scandium Leachability from Bauxite Residue", *Metals* (2018) 8, 915. doi:10.3390/met8110915
  17. Hatzilyberis K., Lymperopoulou Th., Tsakanika L.-A., Ochsenkühn K.-M., Georgiou P., Defteraios N., Tsopelas F., Ochsenkühn-Petropoulou M. "Process Design Aspects for

*Scandium-Selective Leaching of Bauxite Residue with Mineral Acids*”, Minerals (2018) 8, 79. doi:10.3390/min8030079.

18. Tsopelas F., Stergiopoulos C., Tsakanika L.-A., Ochsenkühn-Petropoulou M., Tsantili-Kakoulidou A. “*The use of immobilized artificial membrane chromatography to predict bioconcentration of pharmaceutical compounds*”, Ecotoxicology and Environmental Safety (2017) 139, 150-157 doi: 10.1016/j.ecoenv.2017.01.028
19. Zosima A., Tsakanika L., Ochsenkühn-Petropoulou M., “*Particulate Matter Emissions, metals and toxic elements in airborne particulates emitted from biomass combustion. The importance of biomass type and combustion conditions*”, Journal of Environmental Science and Health, Part A. (2017) doi: 10.1080/10934529.2017.1281685
20. Chranioti C., Karamberi A., Tsakanika L.-A., Tzia C. “*Freeze-Dried Fennel Oleoresin Products Formed by Biopolymers: Storage Stability and Characterization*”, Food and Bioprocess Technology (2016) 9, 2002-2011 doi: 10.1007/s11947-016-1773-3
21. Tsopelas F., Tsakanika L.-A., Ochsenkühn-Petropoulou M. “*Extraction of arsenic species from airborne particulate filters-Application to an industrial area of Greece*”, Microchemical Journal (2008) 89, 165-170
22. Tsopelas F., Ochsenkühn-Petropoulou M., Mergias I., Tsakanika L., “*Comparison of ultra-violet and inductively coupled plasma- atomic emission spectrometry for the on-line quantification of selenium species after their separation by reversed-phase liquid chromatography*”, Analytica Chimica Acta (2005) 539, 327-333
23. Tsakanika L., Ochsenkühn-Petropoulou M., Mendrinou L. “*Investigation of the separation of Rare Earth elements from red mud by use of reversed-phase HPLC*”, Analytical and Bioanalytical Chemistry (2004) 379, 796-802

#### **Indicative Research Programs (last 8 years):**

- i. 2024-2025 “Synthesis of advanced nanomaterials from the selective adsorption of heavy metals and crude oil - ATTP4-0359579”, Research Committee code 68/1639, NTUA
- ii. 2024-2025 “Recovery of critical elements from by-products”, Research Committee code 95/0373, NTUA
- iii. 2023-2025 “Utilization of by-products for the separation and recovery of high value-added products”, Research Committee code 95029000, NTUA
- iv. 2021-2023 “Metagenomic analysis of the microbial population on stone surfaces of monuments and development of nano-biomaterials for the sustainable protection of cultural heritage - BIOFOS”, Research Committee code 68146900, NTUA
- v. 2020- 2023 ProtBioTox: Investigation of protein-drug interactions and their relation to aquatic toxicity and bioconcentration tendency in aquatic organisms, Basic Research Funding Program, Research Committee code 652274 NTUA
- vi. 2020-2023 “Advanced aerosol metrology for atmospheric science and air quality- AEROMETII”, 19ENV08, EMPIR, EURAMET, Research Committee code 96000400, NTUA
- vii. 2017- 2020 “Aerosol metrology for atmospheric science and air quality - AEROMET” JRP-v10 /16ENV07, EMPIR, EURAMET, Research Committee code 63/2175, NTUA
- viii. 2017-2021 “Production of Scandium compounds and Scandium Aluminum alloys from European metallurgical by-products - SCALE”, Horizon 2020, European Commission Framework, proposal ID 730105, Research Committee code 63/2131, NTUA

- ix. 2015-2018 “Matrix reference materials for environmental analysis - ENVCRM”, 14RPT03, EMPIR, EURAMET, Research Committee code 63/2080, NTUA

### **Organization of conferences**

Member of the Organizing Committee of the International Conferences on Instrumental Chemical Analysis “*International Conference on Instrumental Methods of Analysis - Modern Trends and Applications-IMA*”:

- 9th International Conference on Instrumental Methods of Analysis - Modern Trends and Applications (IMA 2015), *September 20-24, 2015, Kalamata, Greece*
- 10th International Conference on Instrumental Methods of Analysis - Modern Trends and Applications (IMA 2017), *September 17-21, 2017, Heraklion, Greece*
- 11th International Conference on Instrumental Methods of Analysis - Modern Trends and Applications (IMA 2019), *September 22-25, 2019, Ioannina, Greece*
- 12<sup>th</sup> International Conference on Instrumental Methods of Analysis- Modern Trends and Applications, IMA 2021, *20-23 September 2021 (Virtual Event)*
- 13<sup>th</sup> International Conference on Instrumental Methods of Analysis- Modern Trends and Applications, IMA 2023, *17-20 September 2023, Chania, Greece*