

GYULA KAJNER

ANALYTICAL CHEMIST



CONTACT

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researchgate.net/profile/
Gyula-Kajner

PUBLICATIONS

- International papers: 6
- Cumulative IF: 33
- Total citations: 19
- Hirsh-index: 3

CONFERENCES

International conferences

- Presentations: 1
- Posters: 5

National conferences

- Presentations: 3
- Posters: 2

LANGUAGE

Hungarian Native
English C1 Level



PROFILE

I started my research career in 2018, in the Laser and Plasma Spectroscopy Research Group lead by Prof. Gábor Galbács at the University of Szeged (Hungary). During the past years, I have been involved in several research projects and gained practice in many fields of modern atomic laser and plasma spectroscopy, especially in single particle ICP-MS and LIBS. My research activity focuses on the development and use of nano- and microstructured particles and devices (e.g. microfluidic chips, sample introduction systems, nanoparticles, cells) to enhance the performance and expand the analytical applicability of these techniques.



EDUCATION

Chemistry Ph.D. 2023 - Present

Doctoral School of Chemistry, University of Szeged

Program: Analytical Chemistry

Master of Chemistry 2021 - 2023

University of Szeged

GPA: 4.00 / 4.00

Bachelor of Chemistry 2018 - 2021

University of Szeged

GPA: 3.97 / 4.00



SKILLS

Inductively coupled plasma mass spectrometry 6 years

Analysis, data evaluation

Laser induced breakdown spectroscopy 2 years

Analysis, data evaluation

Single particle analysis (spICP-MS) 5 years

Nanoparticles, microplastics cells

(Ultra)trace element analytics 6 years

Sample preparation, analysis

3D computer aided design 8 years

AutoCAD, Shapr3D

Additive manufacturing 3 years

3D printing: FDM, SLA, DLP

Numerical simulations 4 years

COMSOL Multiphysics



PROFESSIONAL EXPERIENCE

- Junior Researcher** 2018 - Present
Laser and Plasma Spectroscopy Research Group
- *Development, use and analysis of micro- and nanostructures in inductively coupled plasma mass spectroscopy (ICP-MS) and laser induced breakdown spectroscopy (LIBS)*
- Thematic Research Project (NKFIH - K 143766)** 2024 - 2027
University of Szeged - Wigner Research Centre for Physics
- *Development of micro- and nanostructures for analytical laser and plasma spectroscopy*
- National laboratories programme (NKFIH - 2022-2.1.1-NL- 2022-00002)** 2023 - 2026
Wigner Research Centre for Physics – University of Szeged
University of Debrecen – Technical University of Budapest
- *Nano-Plasmonic Laser Inertial confinement Fusion Experiment*
- Project Intern** 2023
Bioinorganic Chemistry Research Group
- *Investigations on the interaction of excipients with Hg(II) ions in the coordination chemistry of biomolecules*
- Summer Intern** 2022
SOLVO Biotechnology
- *Maintenance and method development for modern high performance liquid chromatography (HPLC) instruments using mass spectrometry and radioactivity based detection*
- Thematic research project (NKFIH - K 129063)** 2018 - 2022
University of Szeged - Wigner Research Centre for Physics
- *Development of sensitive and selective trace analytical methods by the construction of a spatial heterodyne laser induced plasma spectrometer*
- Human Resources Development Operational Programme (EFOP-3.6.2-16-2017-00005)** 2017 - 2021
University of Szeged – University of Pécs – University of Debrecen
- *Ultrafast physical processes in atoms, molecules, nanostructures and biological systems*



INTERNATIONAL PUBLICATIONS

- Performance assessment of a fully 3D-printed, plastic concentric nebulizer meant for short-term ICP-MS trace analytical use** 2025
Spectrochimica Acta Part B: Atomic Spectroscopy (223) 107078.
G. Kajner, Á. Béltéki, M. Cseh, Zs. Geretovszky, I. Szent, Á. Kukovecz, T. Ajtai, G. Galbács
- Heavy metals in cigarette smoke strongly inhibit pancreatic ductal function and promote development of chronic pancreatitis** 2024
Clinical and Translational Medicine, (14) e1733.
P. Pallagi, E. Tóth, M. Görög, V. Venglovecz, T. Madácsy, Á. Varga, T. Molnár, N. Papp, V. Szabó, E. Kúthy-Sutus, R. Molnár, A. Ördög, K. Borka, A. Schnúr, A. Kéri, G. Kajner, K. Csekő, E. Ritter, D. Csupor, Zs. Helyes, G. Galbács, A. Szentesi, L. Czakó, Z. Rakonczay, T. Takács, J. Maléth, P. Hegyi
- Design, Optimization, and Application of a 3D-Printed Polymer Sample Introduction System for the ICP-MS Analysis of Nanoparticles and Cells** 2023
Nanomaterials (13) 3018.
G. Kajner, Á. Béltéki, M. Cseh, Zs. Geretovszky, T. Ajtai, L. Barna, M. A. Deli, B. Pap, G. Maróti, G. Galbács

- Detection and characterization of mono-and bimetallic nanoparticles produced by electrical discharge plasma generators using laser-induced breakdown spectroscopy** 2023
Spectrochimica Acta Part B: Atomic Spectroscopy (209) 106804.
D. J. Palásti, L. Villy, B. Leits, A. Kéri, A. Kohut, Á. Bélteki, G. Kajner, F. A. Casian Plaza, É. Kovács-Széles, T. Ajtai, M. Veres, Zs. Geretovszky, G. Galbács
- Distinct Uptake Routes Participate in Silver Nanoparticle Engulfment by Earthworm and Human Immune Cells** 2022
Nanomaterials (12) 2818.
B. Kokhanyuk, V. B. Vántus, B. Radnai, E. Vámos, G. Kajner, G. Galbács, E. Telek, M. Mészáros, M. A. Deli, P. Németh, P. Engelmann
- Multifunctional microfluidic chips for the single particle inductively coupled plasma mass spectrometry analysis of inorganic nanoparticles** 2022
Lab on a Chip (22) 2766.
G. Kajner, A. Kéri, Á. Bélteki, S. Valkai, A. Dér, Zs. Geretovszky, G. Galbács



SCHOLARSHIPS AND SCIENTIFIC RECOGNITIONS

- Important Projects of Common European Interest (IPCEI) Programme** 2023 - 2027
Issued by Infineon Technologies AG - Austria
- University Research Fellowship Programme** 2023
Issued by the National Research, Development and Innovation Office - Hungary
- Outstanding M.Sc. Thesis Award** 2023
Issued by the Hungarian Chemical Society - Hungary
- Outstanding Student of the Faculty Award** 2022
Issued by the University of Szeged Faculty of Science and Informatics - Hungary
- Publication of the Month - Kajner et al. Lab on a Chip (2022)** 2022
Issued by Hungarian Academy of Sciences, Department of Chemical Sciences - Hungary
- Nagypál István Student Grant** 2022
Issued by Nagypál István Foundation - Hungary
- University of Szeged Talent List of Excellence** 2022 - 2023
Issued by the University of Szeged - Hungary
- National Scholarship for Higher Education** 2021 - 2022
Issued by the University of Szeged - Hungary
- New National Excellence Programme** 2021 - 2023
Issued by the National Research, Development and Innovation Office - Hungary
- 2nd place at National Scientific Students Conference (Analytical Chemistry Section)** 2020
Issued by the National Association for Student Research - Hungary
- Sófi József Student Grant** 2020
Issued by the Sófi József Foundation - Hungary