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Work Experience

08/2026 – present

Associate Researcher
Department of Physical Chemistry and Materials Science
Faculty of Science and Informatics
University of Szeged, Szeged, Hungary

10/2024 – 07/2026

Postdoctoral Researcher
Bio- and Soft Matter Division
Institute of Condensed Matter and Nanosciences
*Université catholique de Louvain,
Ottignies-Louvain-la-Neuve, Belgium*

09/2024 – 10/2024

Postdoctoral Researcher
Department of Physical Chemistry and Materials Science
Faculty of Science and Informatics
University of Szeged, Szeged, Hungary

Education

09/2020 – 08/2024

Doctoral School of Chemistry
Biocolloids Research Group
Department of Physical Chemistry and Materials Science
Faculty of Science and Informatics
University of Szeged, Szeged, Hungary

09/2023 – 12/2023

Visiting Research Student
Interdisciplinary Nanoscience Center (iNano)
Aarhus University, Aarhus, Denmark

10/2022 – 01/2023

Visiting Research Student
Australian Institute for Bioengineering and
Nanotechnology(AIBN)
University of Queensland, Brisbane, QLD Australia

02/2018 – 06/2020

Master's Degree in Chemistry
Faculty of Science and Informatics
University of Szeged, Szeged, Hungary

09/2014 – 01/2018

Bachelor's Degree of Molecular Bionics
Engineering
Faculty of Science and Informatics
University of Szeged, Szeged, Hungary

Language skills

Hungarian: native

English: fluent

German: intermediate

Teaching activity

General chemistry lecture for BSc students

General chemistry laboratory for BSc students and for pharmacy students

Co-supervision (4 BSc, 4 MSc (2 in Belgium) and 3 high school students)

Scholarships

MTA Bolyai János Research Scholarship (2026-2029)
Hungarian academy of sciences

University Doctoral Excellence Scholarship (2023/24 fall and spring semester)
Doctoral School of Chemistry, University of Szeged

New National Excellence Program (2022/23)
Ministry of Culture and Innovation

„Tudományos Mecenatúra Pályázat” (2021)
Ministry of Innovation and Technology

Scholarship for Young National Talents (2021)
Ministry of Human Capacities

Other activities

European Student Colloid Conference
Member of the Organizing committee
Szeged, Hungary 2022

European Olympiad of Experimental Science
Member of the organizing committee
Szeged, Hungary 2021 (online)

Digital Skills

Microsoft Office, Igor Pro, Origin, CorelDraw, EndNote, ChemsSketch

Scientometric Data:

Sum of peer reviewed publications: 25

Independent citations: 321

h-index: 13

Publication list

A. Szerlauth, B. A. Wasserman, D. D. Smet, M. Vanneste, C. D'Haese, K. Glinel, A. M. Jonas: Nanogravure printing for PFAS-free water-repellent textiles with hierarchical roughness, *ACS Appl. Mater Interfaces* 18 (2026) 23803

H. Kovács, O. Dömötör, A. Giricz, N. Igaz, K. Szőke, C. Bocz, M. Kiricsi, **A. Szerlauth**, R. Ormos, I. Szilágyi, É. A. Enyedy: Interactions of IOX1, a histone demethylase inhibitor, with essential metal ions, albumin, and its clay-based nanoformulation, *Dalton Trans.* 55 (2026) 6462

A. Szerlauth, Z. D. Kónya, K. Sugihara, M. Pavlovic, G. Varga, I. Szilágyi: Anionic clay-based nanozymes: Interfacial regulation, structural design and functional applications, *Adv. Colloid Interface Sci.* 352 (2026) 103832

A. Szerlauth, S. Anand, I. Szenti, M. Chen, M. Dong, Z. Kónya, I. Szilágyi: Layered double hydroxide nanozyme decorated polycaprolactone membranes as superoxide radical scavengers, *ChemPhysMater* 5 (2026) 100

K. Karádi, **A. Szerlauth**, Á. Kukovecz, Z. Kónya, G. Varga: The acid/base ratio dictates catalytic efficiency of layered double hydroxide derivatives in transesterification reactions, *Mater. Today Chem.* 50 (2025) 103257

Z. D. Konya, **A. Szerlauth**, I. Szilagy: Bionanocomposite of dual antioxidant and protease function by co-immobilization of tannic acid and papain on anionic clays, *Chemistry-A European Journal* 31 (2025) e202500846

T. G. Halmagyi, A. Voros, S. Saringer, V. Hornok, N. V. May, G. F. Samu, I. Szenti, **A. Szerlauth**, Z. Konya, I. Szilagy: Coamplified nanozyme cocktails for cascade reaction-driven antioxidant treatments, *ACS Applied Materials & Interfaces* 16 (2024) 54485

T. G. Halmagyi, L. Noureen, **A. Szerlauth**, I. Szilagy: Engineering inorganic nanozyme architectures for decomposition of reactive oxygen species, *Dalton Transactions* 53 (2024) 14132

T. Péter, D. Takács, S. Sáringer, **A. Szerlauth**, K. Sajdik, G. Galbács, M. Tomsic, S. Shaw, K. Morris, G. Douglas, I. Szilágyi: Interaction between uranyl cations and layered double hydroxide nanoparticles: implications for nuclear wastewater management, *ACS EST Water* 4 (2024) 3059

A. Szerlauth, T. Madácsy, G. F. Samu, P. Bíró, M. Erdélyi, G. Varga, Z. P. Xu, J. Maléth, I. Szilágyi: Reduction of intracellular oxidative stress with copper incorporated layered double hydroxide, *Chemical Communications* 60 (2024) 1325

A. Szerlauth, S. Varga, I. Szilágyi: Molecular antioxidants maintain synergistic radical scavenging activity upon co-immobilization on clay nanoplatelets, *ACS Biomaterials Science & Engineering* 9 (2023) 5622

I. Z. Papp, **A. Szerlauth**, T. Szűcs, P. Béteky, J. F. G. Perez, Z. Kónya, Á. Kukovecz: Fabrication and characterization of a bifunctional zinc oxide/multiwalled carbon nanotube/poly(3,4-ethylenedioxythiophene): polystyrene sulfonate composite thin film, *Thin Solid Films* 778 (2023) 139908

A. Szerlauth, Z. D. Kónya, G. Papp, Z. Kónya, Á. Kukovecz, M. Szabados, G. Varga, I. Szilágyi: Molecular orientation rules the efficiency of immobilized antioxidants, *Journal of Colloid and Interface Science* 632 (2023) 260

A. Szerlauth, Á. Varga, T. Madácsy, D. Sebők, S. Bashiri, M. Skwarczynski, I. Toth, J. Maléth, I. Szilágyi: Confinement of triple-enzyme-involved antioxidant cascade in two-dimensional nanostructure, *ACS Materials Letters* 5 (2023) 565

A. Szerlauth, E. Balog, D. Takács, S. Sáringer, G. Varga, G. Schuszter, I. Szilágyi: Self-assembly of delaminated layered double hydroxide nanosheets for the recovery of lamellar structure, *Colloid and Interface Science Communications* 46 (2022) 100564

B. Katana, K. P. Kókai, S. Sáringer, **A. Szerlauth**, D. Takács, I. Szilágyi: The influence of solvents and colloidal particles on the efficiency of molecular antioxidants, *Antioxidants* 12 (2022) 99

M. Pavlovic, **A. Szerlauth**, S. Muráth, G. Varga, I. Szilágyi: Surface modification of two-dimensional layered double hydroxide nanoparticles with biopolymers for biomedical applications, *Advanced Drug Delivery Reviews* 191 (2022) 114590

N. B. Alsharif, G. F. Samu, S. Sáringer, **A. Szerlauth**, D. Takács, V. Hornok, I. Dékány, I. Szilágyi: Antioxidant colloids via heteroaggregation of cerium oxide nanoparticles and latex beads, *Colloids and Surfaces B: Biointerfaces* 216 (2022) 112531

A. Szerlauth, L. Szalma, S. Muráth, S. Sáringer, G. Varga, L. Li, I. Szilágyi: Nanoclay-based sensor composites for the facile detection of molecular antioxidants, *Analyst* 147 (2022) 1367

B. Katana, D. Takács, **A. Szerlauth**, S. Sáringer, G. Varga, A. Jamnik, F. D. Bobbink, P. Dyson, I. Szilágyi: Aggregation of halloysite nanotubes in the presence of multivalent ions and ionic liquids, *Langmuir* 37 (2021) 11869

D. Takács, B. Katana, **A. Szerlauth**, D. Sebők, M. Tomsic, I. Szilágyi: Influence of adsorption of ionic liquid constituents on the stability of layered double hydroxide colloids, *Soft Matter* 17 (2021) 9116

S. Muráth, **A. Szerlauth**, D. Sebők, I. Szilágyi: Layered double hydroxide nanoparticles to overcome the hydrophobicity of ellagic acid: An antioxidant hybrid material, *Antioxidants* 9 (2020) 153

A. Szerlauth, S. Muráth, I. Szilágyi: Layered double hydroxide-based antioxidant dispersions with high colloidal and functional stability, *Soft Matter* 16 (2020) 10518

A. Szerlauth, S. Muráth, S. Viski, I. Szilágyi: Radical scavenging activity of plant extracts from improved processing, *Heliyon* 5 (2019) e02763

S. Sáringer, R. A. Akula, **A. Szerlauth**, I. Szilágyi: Papain adsorption on latex particles: charging, aggregation, and enzymatic activity, *Journal of Physical Chemistry B* 123 (2019) 9984

Conferences

A. Szerlauth, D. D. Smet, M. Vanneste, C. D'Haese, K. Glinel, A. M. Jonas: Micro-structured, PFAS-free textile coatings for increased water-repellency, *Spring Meeting of the European Materials Research Society* (2026) Strasbourg (France)

A. Szerlauth, D. D. Smet, M. Vanneste, C. D'Haese, K. Glinel, A. M. Jonas: Fabrication of PFAS-FREE water-repellent textiles by designing roughness at the sub-micrometer scale, *16th Japan-Belgium Symposium on Polymer Science* (2025) Hasselt (Belgium)

A. Szerlauth, T. Madácsy, Z.P. Xu, J. Maléth, I. Szilágyi: Layered double hydroxide-based nanoparticles to combat oxidative stress, *38th Conference of the European Colloid & Interface Society* (2024) Copenhagen (Denmark) **keynote presentation**

A. Szerlauth, S. Varga, I. Szilágyi: Heterogenization of synergistic antioxidants on 2D nanoparticles, *12th International Colloids Conference* (2023) Palma de Mallorca (Spain) **poster presentation**

A. Szerlauth, Á. Varga, T. Madácsy, J. Maléth, I. Szilágyi: Confinement of triple enzyme cascade in layered double hydroxide-based nanocomposites to prevent oxidative stress, *96th ACS Colloid and Surface Science Symposium* (2022) Golden (Colorado, USA) **oral presentation**

A. Szerlauth, Á. Varga, T. Madácsy, J. Maléth, I. Szilágyi: Immobilization of antioxidant enzymes on layered double hydroxide nanosheets to prevent oxidative stress, *18th European Student Colloid Conference (2022)* Szeged (Hungary) oral presentation

A. Szerlauth, E. Balog, D. Takács, S. Sáringer, G. Varga, G. Schusztter, I. Szilágyi: Aggregation study on restacking ability of layered double hydroxide nanosheets, *The 33rd Australian Colloid and Surface Science Student Conference (2022)* (online) oral presentation

A. Szerlauth, A.A. Ádám, G. Varga, I. Szilágyi: Layered double hydroxide-based hybrid colloids for catalytic transfer hydrogenation, *11th International Colloids Conference (2022)* Lisbon (Portugal) poster presentation

A. Szerlauth, E. Balog, D. Takács, S. Sáringer, G. Varga, G. Schusztter, I. Szilágyi. Aggregation study on the recovery of the lamellar structure of layered double hydroxides, *35th Conference of the European Colloid & Interface Society (2021)* (online) oral presentation

A. Szerlauth, S. Muráth, I. Szilágyi: Design of an efficient antioxidant composite of high functional and colloidal stability, *Geneva Colloids (2021)* (online) poster presentation