Curriculum vitae
István Lagzi

Personal information

Name: István Lagzi

DOB: 02/13/1973

Web: http://nimbus.elte.hu/~lagzi/

Studies, positions

2012– ***Associate Professor (****Budapest University of Technology and Economics*, Budapest)

2011–2012 ***Research Associate Professor (****Eötvös Loránd University,* Budapest)

2008–2010 ***Postdoc*** (with Professor Bartosz Grzybowski, *Northwestern University*, *Robert R. McCormick School of Engineering and Applied Science*, Evanston, USA)

2007–2008 ***Research Fellow*** (*Eötvös Loránd University,* Budapest)

2004–2007 ***Postdoc*** (*Eötvös Loránd University*) *Hungarian Scientific Research Fund*

2004 ***Ph.D. in Physical Chemistry*** (*Eötvös Loránd University,* Budapest)

2002–2004 ***Junior Research Fellow*** (*Eötvös Loránd University*, Budapest)

1999–2002 ***Graduate Student*** (with Professor Tamás Turanyi, *Eötvös Loránd University*, Budapest)

1997–1999 ***High School teacher position (Pusztamérges)***

1997 ***M.Sc.; Chemistry & Physics*** (*University of Szeged*, Szeged)

Awards and prizes

2013*–2014* ***Zoltán Magyary Postdoctoral Fellowship***

2007–2008 Bolyai János Research Fellowship of the Hungarian Academy of Sciences

2007 Polányi Prize of the Hungarian Academy of Sciences

2006–2007 Öveges Research Program

2006 Postdoctoral Fellowship of the Hungarian Ministry of Education

2005 Publication Award of the Hungarian Meteorological Service

2004–2007 Hungarian Research Fund Postdoctoral Fellowship

Funding ID (PI)

1. ***M ERA-NET2 (NN125752), (2017-2020), HUF 17,778,000, 'Material synthesis in non-equilibrium conditions'***
2. ***Turkish-Hungarian Bilateral Research Program (TÉT_15-1-2016-0079), (2016-2017), HUF 1,700,000, 'Chemical and mechanical control of chemical patterns in gels' (with Dr. Bilge Baytekin)***
3. ***Norway Grants (HU09-0118-A2-2016), (2016-2017), HUF 18.000.000, 'Development of an environment-friendly process for the production of gold nanoparticles and their use for biosensor signal amplification'***
4. ***Hungarian Scientific Research Fund (OTKA K116506)***, (2015-2019), HUF 31,976,000, *'Development of the components of an atmospheric dispersion'*
5. ***Japanese-Hungarian Bilateral Research Program (*TÉT_12_JP-1-2014-0005*), (2015-2017), HUF 4,200,000, 'Self-assembly of nanoparticles' (with Dr. Daishin Ueyama)***
6. ***Hungarian Scientific Research Fund (OTKA K104666)***, (2012-2016), HUF 18,196,000, *'Driven assembly at the nanoscale by nonlinear chemical dynamics'*

7. ***Japanese-Hungarian Bilateral Research Program (JAP-06/2006), (2008-2009), HUF 4,200,000, 'Nonlinear Dynamics in Chemistry and Atmospheric Sciences' (with Dr. Daishin Ueyama)***
8. ***Indo-Hungarian Bilateral Research Program (IND-02/2006),*** (2008-2009), HUF 4,110,000, *'Precipitation Pattern Formation in Reaction-Diffusion Systems'*, (with Prof. George Varghese)
9. ***S&T project with the Paks Nuclear Power Plant (project number 4500130517)***, (2007-2008), HUF 6.300.000, *'Development of an accidental release software for the Paks Nuclear Power Plant'*
10. ***Hungarian Scientific Research Fund (OTKA K68253)***, (2007-2010), HUF 7,500,000, *'Pattern formation and self-organization in precipitation systems, design and control of patterns in the micro and nanoscales'*
11. ***Hungarian Scientific Research Fund Postdoctoral Fellowship (D048673)***, (2004-2007), HUF 18,200,000, *'Investigation of complex reaction-diffusion systems and parallelization of their models'*
12. **FP7 - Science in Society *(217725)***, (2008-2010), 875,081 EUR, *'Mind the gap: learning, teaching, research and policy in inquiry-based science education (MIND THE GAP) '* (Co-PI)

Research innovations

- **Air pollution modeling using GPU computing.** *A new parallel framework to solve air pollution problems on the Graphical Processing Unit (GPU).*
  Related paper was '**HOT PAPER**': F. Molnár Jr., T. Szakály, R. Mészáros, I. Lagzi***, Air pollution modelling using a Graphics Processing Unit with CUDA**, Comput. Phys. Commun.,* 181, 105-112, 2010
- **Maze solving by a chemotactic fatty acid droplet.** *Design autonomously moving droplet.* Related paper was '**HOT PAPER**' **Featured in Nature, ScienceNOW**, New Scientist, Chemical and Engineering News, PopSci, Organosynthetic and Organometallic Chemistry, The Times:
  I. Lagzi, S. Soh, P. J. Wesson, K. P. Browne, B. A. Grzybowski, ***Maze solving by chemotactic droplets**, J. Am. Chem. Soc*., 132, 1198-1199, 2010
- **Oscillations in nanoparticle systems.** *Design procedure for autonomously oscillating nanoparticles.* Related paper is '**HOT PAPER**', **Featured in Nature Chemistry**:
  I. Lagzi, B. Kowalczyk, D. Wang, B. A. Grzybowski, ***Nanoparticle Oscillations and Front**, Angew. Chem. Int. Ed*, 49, 8616-8619, 2010

Conference organization

- Section on XXXVII Dynamics Days Europe, Self-organization, Self-propulsion, Compartmentalization and Their Applications, MS11, (Szeged, June 5-9, 2017)
- Japanese-Hungarian Workshop on Applied Mathematics and Complex Systems, (***Budapest, Hungary, 28 July, 2015***)
- Japanese-Hungarian Conference on Applied Mathematics and Nonlinear Dynamics, (***Budapest, Hungary, 17 December, 2013***)
- ***International Workshop on Complex Systems in Chemistry, Physics, and Biology (Budapest, Hungary, 02-03 November, 2011)***
- ***International Workshop on Pattern Formation in Chemical and Biological Systems (Budapest, Hungary, 25-26 October, 2010)***
- ***International Workshop on Pattern Formation (Budapest, Hungary, 12 March, 2008)***

Scientific referee

Journal of Environmental Radioactivity, Journal of Colloid and Interface Science, Journal of American Chemical Society, Journal of Physical Chemistry, Science of the Total Environment, Colloids and Surfaces A: Physicochemical and Engineering Aspects, BSF Grant, Langmuir, Physical Chemistry Chemical Physics, Journal of Chemical Physics, Physics Letters, Superlattices and Microstructures, Chemical Physics Letters, Journal of Environmental Monitoring, Biogeosciences, Europhysics Letters, Computers & Geosciences, Journal of Environmental Management, Journal of Crystal Growth, Journal of Environmental Informatics, Geofluids, Időjárás, Entropy, Theoretical Applied Climatology, Chaos, Computer Physics Communications, Electrophoresis, NSF, Chemical Physics, Scientific Reports, Current Physical Chemistry

Edited books

- S. Nakata, V. Pimienta, I. Lagzi, H. Kitahata, N. J. Suematsu (eds.), *Self-organized Motion: Physicochemical Design Based on Nonlinear Dynamics*, pp. 371, Royal Society of Chemistry, 2018
- I. Lagzi (ed), *Precipitation Patterns in Reaction-Diffusion Systems*, pp. 236, Research Signpost, Kerala, India, 2010 ISBN 978-81-308-0420-0
- *G. Kiss, I.* Lagzi *(eds.), Proceedings of Hungarian Research Teachers, pp. 246 2006* ISBN 963-87-225-1-7 *(in Hungarian)*

The most important publications

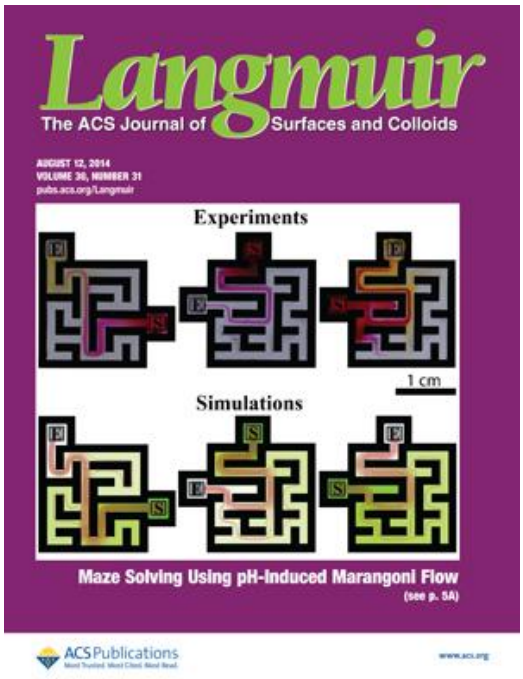
- H. Nakanishi, A. Deák, G. Hólló, I. Lagzi, *Existence of a precipitation threshold in the electrostatic precipitation of oppositely charged nanoparticles*, *Angew. Chem. Int. Ed.*, 57, 16062-16066, 2018 (IF:12.102) Hot Paper
- R. Mészáros, A. Leelőssy, T. Kovács, I. Lagzi, *Predictability of the dispersion of Fukushima-derived radionuclides and their homogenization in the atmosphere*, *Sci. Rep.*, 6, 19915, 2016 (IF: 5.578)
- I. Derényi, I. Lagzi, *Fatty acid droplet self-division driven by a chemical reaction*, *Phys. Chem. Chem. Phys.*, 16, 4639-4641, 2014 (IF: 3.830)
- S. Thomas, I. Lagzi, F. Molnár, Z. Rácz, *Probability of the emergence of helical precipitation patterns in the wake of reaction-diffusion fronts*, *Phys. Rev. Lett.*, 078303, 2013 (IF: 7.370) Cover Art
- B. Kowalczyk, K. J. M. Bishop, I. Lagzi, D. Wang, Y. Wei, S. Han, B. A. Grzybowski, *Charged nanoparticles as supramolecular surfactants for controlling the growth and stability of microcrystals*, *Nature Mater.*, 11, 227-232, 2012 (IF: 32.841)
- D. Wang, R. J. Nap, I. Lagzi, B. Kowalczyk, S. Han, B. A. Grzybowski and I. Szleifer, *How and why nanoparticle's curvature regulates the apparent pKa of the coating ligands*, *J. Am. Chem. Soc.*, 133, 2192-2197, 2011 (IF: 9.019)
- I. Lagzi, S. Soh, P. J. Wesson, K. P. Browne and B. A. Grzybowski, *Maze solving by chemotactic droplets*, *J. Am. Chem. Soc.*, 132, 1198-1199, 2010 (IF: 9.019)
- S. Han, Y. Wei, C. Valente, I. Lagzi, J. J. Gassensmith, A. Coskun, J. F. Stoddart and B. A. Grzybowski, *Chromatography in a single metal-organic framework (MOF) crystal*, *J. Am. Chem. Soc.*, 132, 16358-16361, 2010 (IF: 9.019)
- I. Lagzi, B. Kowalczyk, D. Wang and B. A. Grzybowski, *Nanoparticle oscillations and fronts*, *Angew. Chem. Int. Ed.*, 49, 8616-8619, 2010 (IF: 12.730)

Publication summary

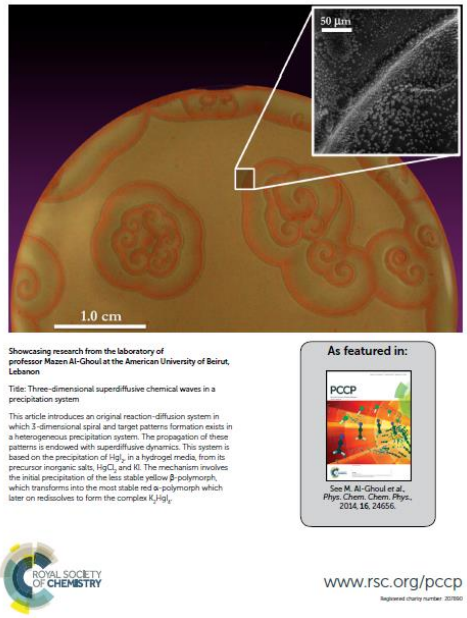
Cumulative IF: ~ 350; Number of citations: **2238 (1502 ISI)**

Peer reviewed journal papers	***110 (99 ISI)***
Conference talks and posters	75
Parts of books	***5***
Edited books	***3***
Conference proceedings	***18***
Conference abstracts	***39***
Invited talks	***21***

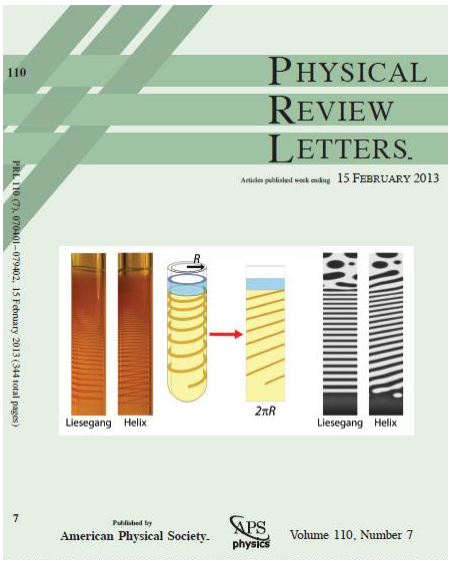
Cover Arts



K. Suzuno, D. Ueyama, M. Branicki, R. Tóth, A. Braun, I. Lagzi, Maze solving using fatty acid chemistry, *Langmuir*, 30, 9251–9255, 2014



M. Ayass, I. Lagzi, M. Al-Ghoul, Three-dimensional superdiff usive chemical waves in a precipitation system, Phys. Chem. Chem. Phys., 16, 24656-24660, 2014



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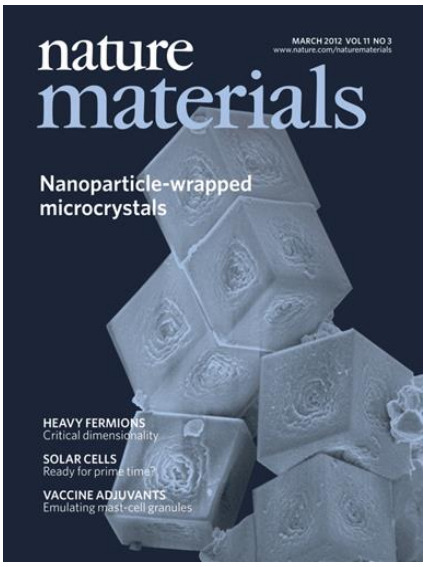

B. Kowalczyk, K. J. M. Bishop, I. Lagzi, D. Wang, Y. Wei, S. Han, B. A. Grzybowski, Charged nanoparticles as supramolecular surfactants for controlling the growth and stability of microcrystals, *Nature Mater.*, 11, 227-232, 2012

D. Wang, I. Lagzi, P. J. Wesson and B. A. Grzybowski, Rewritable and pH-sensitive micropatterns based on nanoparticle 'inks', *Small*, 6, 2114-2116, 2010