Ágnes Mester

Email: agnes.mester@ubbcluj.ro
Date of birth: September 25, 1993 [Updated: April 2026]

Education

Ph.D. in Mathematics — Budapest, Hungary
Óbuda University — 2017 – 2023
Doctoral School of Applied Informatics and Applied Mathematics
Thesis: ***Functional inequalities on Riemann-Finsler manifolds***
Supervisor: Alexandru Kristály

M.Sc. in Advanced Mathematics — Cluj-Napoca, Romania
Babeş-Bolyai University — 2015 – 2017
Faculty of Mathematics and Computer Science

B.Sc. in Mathematics and Computer Science — Cluj-Napoca, Romania
Babeş-Bolyai University — 2012 – 2015
Faculty of Mathematics and Computer Science

Work experience

Lecturer — Cluj-Napoca, Romania
Babeș-Bolyai University — 2024 – present
Faculty of Mathematics and Computer Science

Postdoctoral Researcher — Bern, Switzerland
University of Bern — 2024 – 2026
Mathematical Institute (MAI)

- Host: Zoltán Balogh
- Topic: Functional inequalities, optimal transport, and quantitative stability in geometric analysis

Assistant Lecturer — Cluj-Napoca, Romania
Babeș-Bolyai University — 2021 – 2024
Faculty of Mathematics and Computer Science

Teaching Associate — Cluj-Napoca, Romania
Babeș-Bolyai University — 2017 – 2021
Faculty of Mathematics and Computer Science

Working Student — Cluj-Napoca, Romania
Robert Bosch GmbH — 2015 – 2016

- Domain of interest: Computer Vision

Publications

[1] Z. Balogh, A. Kristály and Á. Mester. *Lp-Sobolev inequalities on minimal submanifolds.* J. London Math. Soc. **113** (2026), no. 4, Paper No. e70521. DOI: 10.1112/jlms.70521.

[2] Á. Mester. *Talenti's Comparison Theorem on Finsler Manifolds with Nonnegative Ricci Curvature.* Acta Universitatis Sapientiae – Mathematica **16** (2024), no. 1, 1–22. DOI: 10.47745/ausm-2024-0001.

[3] Á. Mester and K. Szilák. *A Dirichlet inclusion problem on Finsler manifolds.* 2023 IEEE 23rd International Symposium on Computational Intelligence and Informatics (CINTI). Budapest, Hungary, 2023, 99–104. DOI: 10.1109/CINTI59972.2023.10381972.

[4] A. Kristály, Á. Mester and I.-I. Mezei. *Sharp Morrey-Sobolev inequalities and eigenvalue problems on Riemannian-Finsler manifolds with nonnegative Ricci curvature.* Communications in Contemporary Mathematics **25** (2023), no. 10, Paper No. 2250063. DOI: 10.1142/S0219199722500638.

[5] A. Kopacz, Á. Mester, S. Kolumbán and L. Csató. *Standardized feature extraction from pairwise conflicts applied to the train rescheduling problem.* 2022 IEEE 20th Jubilee World Symposium on Applied Machine Intelligence and Informatics (SAMI). Poprad, Slovakia, 2022, 103–108. DOI: 10.1109/SAMI54271.2022.9780701.

[6] C. Farkas, A. Kristály and Á. Mester. *Compact Sobolev embeddings on non-compact manifolds via orbit expansions of isometry groups.* Calculus of Variations and PDE **60** (2021), Article No. 128. DOI: 10.1007/s00526-021-01997-5.

[7] Á. Mester and A. Kristály. *Three isometrically equivalent models of the Finsler-Poincaré disk.* 2021 IEEE 15th International Symposium on Applied Computational Intelligence and Informatics (SACI). Timișoara, Romania, 2021, 403–408. DOI: 10.1109/SACI51354.2021.9465545.

[8] Á. Mester, I. R. Peter and C. Varga. *Sufficient criteria for obtaining Hardy inequalities on Finsler manifolds.* Mediterranean Journal of Mathematics **18** (2021), Article No. 76. DOI: 10.1007/s00009-021-01725-5.

[9] Á. Mester, A. Kristály. *A bipolar Hardy inequality on Finsler manifolds.* 2019 IEEE 13th International Symposium on Applied Computational Intelligence and Informatics (SACI). Timișoara, Romania, 2019, 308–313. DOI: 10.1109/SACI46893.2019.9111497.

[10] Z. Gábos and Á. Mester. *Lines in the three-dimensional Bolyai-Lobachevskian hyperbolic geometry.* Studia Universitatis Babeș-Bolyai Mathematica **60** (2015), no. 4, 583–595.

[11] Z. Gábos and Á. Mester. *Curves with constant geodesic curvature in the Bolyai-Lobachevskian plane.* Studia Universitatis Babeș-Bolyai Mathematica **60** (2015), no. 3, 449–462.

Grants / Research Projects

Study of concavity phenomena via optimal transport 2022–2023

- Project number: ÚNKP-22-4
- Funder: New National Excellence Program of the Ministry for Culture and Innovation from the source of the National Research, Development and Innovation Fund
- Host institution: Óbuda University, Budapest, Hungary
- Role within the project: Research Associate
- Advisor: Alexandru Kristály, Ph.D.

Functional inequalities and elliptic PDEs: the influence of curvature, 2018–2022

- Project number: 127926
- Funder: National Research, Development and Innovation Fund of Hungary
- Host institution: Óbuda University, Budapest, Hungary
- Role within the project: Young Researcher (Ph.D. student)
- Project leader: Alexandru Kristály, Ph.D.

Optimizing train re-scheduling with reinforcement learning 2020–2021

- Project number: EFOP-3.6.2-16-2017-00015
- Funder: Hungarian Service Network for Mathematics in Industry and Innovations (HU-MATHS-IN)
- Host institution: Széchenyi István University, Győr, Hungary
- Role within the project: Research Assistant (Ph.D. student)
- Project leader: Sándor Kolumbán, Ph.D.
- https://hu-maths-in.hu/2021/03/16/a-smart-way-to-avoid-train-delays/

Selected Conferences

14th AIMS Conference
Abu Dhabi, UAE, 16-20. December 2024.
Presented: *Sharp Sobolev inequalities on Riemannian and Finsler manifolds with nonnegative Ricci curvature.*

20th EUROpt Workshop on Advances in Continuous Optimization
Budapest, Hungary, 23-25. August 2023.
Presented: *Sharp Sobolev inequalities on Finsler manifolds with nonnegative Ricci curvature.*

Eastern European Machine Learning Summer School (EEML 2021)
Virtual Budapest, Hungary, 7-15. July 2021.
Best poster award: A. Kopacz, Á. Mester, S. Kolumbán and L. Csató. *Optimizing train rescheduling with reinforcement learning.*

2021 IEEE 15th International Symposium on Applied Computational Intelli-

gence and Informatics (SACI)
Budapest, Hungary (online conference), 19-21. May 2021.
Presented paper: Á. Mester and A. Kristály. *Three isometrically equivalent models of the Finsler-Poincaré disk.*

International Conference on Fluids and Variational Methods
Rényi Institute, Budapest, Hungary, 10-14. June 2019.

2019 IEEE 13th International Symposium on Applied Computational Intelligence and Informatics (SACI)
Timișoara, Romania, 29-31. May 2019.
Presented paper: Á. Mester and A. Kristály. *A bipolar Hardy inequality on Finsler manifolds.*

Toulouse Winter School on Calculus of Variations
Toulouse, France, 11-22. February 2019.

Workshop for Young Researchers in Mathematics
Bucharest, Romania, 17-18. May 2018.
Presented: *Multipolar Hardy inequality on Finsler manifolds.*

Atelier de travail en Equations aux Dérivées Partielles
Bucharest, Romania, 7-8. December 2017.
Presented: *Hardy inequalities on Finsler manifolds.*

Language skills
Hungarian: Mother tongue
English: fluent (Cambridge ESOL Certificate in Advanced English - CAE, Level C2)
Romanian: fluent

Programming skills
Python, Programming Basics (C, C++)
MATLAB, Maple, Wolfram Mathematica