Curriculum Vitae
Iulian Cîmpean

Research interests. Fundamentals of Markov processes and their potential theory, ergodic theory, Dirichlet forms, stochastic (partial) differential equations, and related applications in Monte Carlo methods, mathematics of Machine Learning. **Google Scholar profile**

Education:

- 2016: Ph.D. at Simion Stoilow Institute of Mathematics of the Romanian Academy (IMAR), thesis *Stochastic analysis and potentials: ergodicity and quasimartingales of Markov processes,* supervised by **Prof. Dr. Lucian Beznea**. The announcement (including abstract of the thesis) can be found at **Ph.D. announcement**.
- 2011: M.Sc., Mathematical Analysis, Faculty of Mathematics and Informatics (FMI), University of Bucharest, supervized by **Prof. Dr. Gheorghe Bucur**.
- 2009: B.Sc., FMI, Specialization in Mathematics, supervized by Prof.Dr. Gheorghe Bucur.

Academic positions:

- 2026-present: Principal researcher II at IMAR.
- 2021-present: Associate Professor at Faculty of Mathematics and Informatics, University of Bucharest.
- 2018-present: Principal researcher III at IMAR.
- 2015-2018: Principal researcher at IMAR.
- 2014-2015: Junior researcher position at IMAR.

Interaction with the private sector:

- 2017-2019: researcher (part-time) at RAI SOFTWARE, dealing with state-space models for speech analysis.

Publications

1. L.Beznea, I. Cîmpean, M. Röckner, Regularization of the superposition principle: Potential theory meets Fokker-Planck equations (2026), http://arxiv.org/abs/2603.05174
2. I. Cîmpean, I. Popescu, A. Zarnescu, Quantitative boundary Holder estimates for the inhomogeneous Poisson problem through a probabilistic approach (2025), https://arxiv.org/abs/2510.06906
3. I. Cîmpean, A. Grecu, L. Marin, A probabilistic approach to spectral analysis of Cauchy-type inverse problems: Convergence and stability analysis, http://arxiv.org/abs/2508.08215 (2025)
4. I. Cîmpean, T. Do, L. Gonon, A. Jentzen, I. Popescu, Error analysis for the deep Kolmogorov method, arXiv preprint arXiv:2508.17167 (2025)
5. I. Cîmpean, Y. Nachit, C. A. Tudor, Quartic variation of the solution to the semilinear stochastic heat equation: limit behavior and asymptotic independence with respect to the data, *to appear in J. Math. Anal. Appl.* (2025)
6. I. Cîmpean, A. Grecu, L. Marin, Numerical spectral analysis of Cauchy-type inverse problems: A probabilistic approach, *to appear in IMA Journal of Numerical Analysis* (2026), https://arxiv.org/abs/2409.03686v2 (2024)
7. L.Beznea, M. Bezzarga, I. Cîmpean, Continuous flows driving Markov processes and multiplicative L^p-semigroups (2024), arxiv:2411.09407
8. L.Beznea, I. Cîmpean, M. Röckner, Construction of Hunt processes by the Lyapunov method and applications to generalized Mehler semigroups, to appear in the *J. Differ. Equ.* 2025 (submitted 2024, arxiv:2410.04861)
9. L.Beznea, I. Cîmpean, M. Röckner, Path continuity of Markov processes and locality of Kolmogorov operators, to appear in Stoch PDE: Anal Comp (2023). DOI:10.1007/s40072-023-00304-x arXiv:2208.06036

10. L.Beznea, I. Cîmpean, M. Röckner, Strong Feller semigroups and Markov processes: A counter example, *Stoch PDE: Anal Comp* (2023). https://doi.org/10.1007/s40072-023-00300-1, SNSIn or arxiv:2211.14789.
11. M. Bucataru, I. Cîmpean, L. Marin, Stable reconstruction of discontinuous solutions to the Cauchy problem in steady-state anisotropic heat conduction with non-smooth coefficients, *ESAIM: Mathematical Modelling and Numerical Analysis, Vol* 57, Nr 2, 1029 - 1062 (2023).
12. L.Beznea, I. Cîmpean, O. Lupascu-Stamate, I. Popescu, A. D. Zarnescu, From Monte Carlo to neural networks approximations of boundary value problems, *submitted* (2022). arxiv:2209.01432
13. M. Bucataru, I. Cîmpean, L. Marin, A Gradient-Based Regularization Algorithm for the Cauchy Problem in Steady-State Anisotropic Heat Conduction, *Computers and Mathematics with Applications*, Vol. 119, 220-240 (2022)
14. I. Cîmpean, A. Grecu, The nonlinear Schrödinger equation with white noise dispersion on quantum graphs, *Commun. Math. Sci.* (2020). arXiv:1905.11708v2
15. L.Beznea, I. Cîmpean, M. Röckner, A natural extension of Markov processes and applications to singular SDEs, *Ann. Inst. H. Poincare Probab. Statist.* Vol.56, No. 4, 2480-2506 (2020). arXiv:1904.01607v3
16. L.Beznea, I. Cîmpean, M. Röckner, A new approach to the existence of invariant measures for Markovian semigroups, *Ann. Inst. H. Poincare Probab. Statist.*, Volume 55, Number 2, 977-1000 (2019). arXiv:1508.06863v3
17. L.Beznea, I. Cîmpean, Quasimartingales associated to Markov processes, *Trans. Amer. Math. Soc.*, 370, 7761-7787 (2018). arXiv:1702.06282
18. L.Beznea, I. Cîmpean, M. Röckner, Irreducible recurrence, ergodicity, and extremality of invariant measures for resolvents, *Stoch. Process. Appl.*, 128, 1405-1437 (2018). arXiv:1409.6492v2
19. L.Beznea, I. Cîmpean, Invariant, super and quasi-martingale functions of a Markov process, In: *Stochastic Partial Differential Equations and Related Fields* (Springer Proceedings in Mathematics & Statistics 229), Springer, 421-434 (2018). arXiv:1709.01864
20. L.Beznea, I. Cîmpean, On Bochner-Kolmogorov theorem, In: *Seminaire de Probabilites XLVI* (Lecture Notes in Mathematics, Vol. 2123), Springer, 61-70 (2014).
21. I. Cîmpean, A remark on the proof of Cobzas-Mustata theorem concerning norm preserving extension of convex Lipschitz functions, *Studia Universitatis Babes-Bolyai Mathematica*, Volume 57, Number 3, 325-329 (2012).

Invited talks at international conferences or seminars (selection).

- Deterministic and stochastic evolution equations, Scuoala Normale Superiore, Pisa, 26-28.10.2026
- The 15th AIMS conference, Athens, Greece, July 06-10, 2026
- The 17th French-Romanian Conference on Applied Mathematics, Nancy, France, June 22-25, 2026
- International Workshop on Harmonic Analysis and Operator Theory, Bucharest, Romania, June 09-12, 2026
- DETERMINISTIC AND STOCHASTIC PROCESSES, Iasi, Romania, February 24-28, 2026
- Potential Analysis Afternoon, Bucharest, January 26th, 2026
- The 12th International Conference on Stochastic Analysis and its Applications , Bucharest, Romania, September 8-12, 2025
- Bielefeld Stochastic Afternoon, Bielefeld, Germany, August 06, 2025
- International Conference on Analysis, the 16th Romanian-Finnish Seminar, Alba Iulia, Romania, June 24-27, 2025
- Workshop Center of Mathematical Statistics 60, Bucharest, 15th October, 2024

- Analysis and geometry on Dirichlet spaces, Hammamet, Tunisia, 04-07 November, 2024
- Numerical spectral analysis of Cauchy-type inverse problems: A probabilistic approach, Tunis, Tunisia, 08 November, 2024
- Statistical Modeling with Applications 2024, 24-25th September, 2024, Belgrad, Serbia (online)
- Oberwolfach workshop: Recent Developments in Dirichlet Form Theory and Related Fields, Germany, 15-20.09.2024
- The 16th French Romanian Colloquium, Bucharest, 26-30th August, 2024
- The conference of the Romanian society of Probability and Statistics, Timisoara, 2024.
- Analysis and Potential, on the Anniversary of Gheorghe Bucur, Bucuresti, Romania, 2024
- Journées de Théorie du Potentiel et d'Équations aux Dérivées Partielles, Hammamet, Tunisia, 2024
- Numerical Analysis, Numerical Modeling, Approximation Theory (NA-NM-AT), Cluj, Romania, 2023
- Analysis & Control of Deterministic and Stochastic Differential Equations, Iassy, Romania, 2023
- Mathematics and Machine Learning, IMAR (Bucharest), 2023
- THE 24th CONFERENCE of the ROMANIAN SOCIETY of PROBABILITY and STATISTICS, Bucharest, 2023
- Bielefeld Stochastic Afternoon, Bielefeld University, Germany, 2023
- The tenth congress of the romanian mathematicians, Pitesti, Romania, 2023
- Bielefeld Stochastic Afternoon, Bielefeld University, Germany, 2022
- Online seminar organized by Prof. dr. Max von Renesse, Leipzig University, Germany, 2022
- BCAM scientific seminar, Bilbao, Spain, 2022.
- XVeme Colloque Franco-Roumain de Mathematiques Appliquees, Université Toulouse III - Paul Sabatier, 2022.
- "STOCHASTIC DYNAMICS FOR COMPLEX SYSTEMS", Complexity Science Hub, Vienna 2022.
- Stochastic Analysis Seminar - Imperial College London,2022.
- CSH Workshop (online): "Stochastic Dynamics for Complex Systems" Complexity Science Hub Vienna, 2021.
- TOTA 2021 (online) Instituto Superior Tecnico, Universidade de Lisboa, 25 iunie 2021.
- Atelier de travail en Stochastique et EDP, 2020, Bucharest.
- The Romanian-Finish seminar, 2019, Turku, Finland; plenary talk.
- The Ninth Congress of the Romanian Mathematicians, June, 2019, Galati, Romania.
- 9th International Conference on Stochastic Analysis and Its Applications, Bielefeld, Germany, 2018.
- Atelier de travail en Stochastique et EDP, Bucharest, 2018.
- Stochastic PDEs and Related Fields, 2016, Bielefeld, Germany.
- Colloque Franco-Roumaine de mathematique appliques, 2014 (Lyon) and 2016 (Iasi).
- 4th Summer school on Levy processes, 2016, Universite de Lille 1, France.
- The Eighth Congress of the Romanian Mathematicians, 2015, Iasi, Romania.
- Workshop for Young Researchers in Mathematics, 2015, '16, '17, '18.
- The Conference of the Romanian Society of Probability and Statistics, 2014, '18, '19 Bucharest, Romania
- Since 2012 I gave over 40 talks in the "Potential Theory Scientific Seminar" (FMI-IMAR). Also, I gave regular talks at "Bielefeld stochastic afternoon" and IGK seminars, both organized at Bielefeld University, Germany.
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Scholarships and research visits.

Scholarships: Three months DAAD scholarship at **Bielefeld University**, 2013.

Research visitor at

- **Bielefeld University** (Germany): 2025(one month), 2024(one month), 2023 (one month), 2022 (three weeks), 2019 (six weeks), 2018 (one month), 2017 (two weeks), 2016 (two weeks), 2015 (three weeks), 2014 (three weeks), 2013 (one month).
- **BCAM Bilbao** (Spain): 2025(10 days), 2024(10 days + 7 days), 2023 (one week), 2022 (two ten-days visits)

Grants.

Director of the post-doctoral national grant:

- **PN-III-P1-1.1-PD-2019-0780** (09.2020-08.2022)

Member of the teams of the following national grants:

- **CF-194-PNRR-III-C9-2023 (2024-),** postdoc position
- **PN-III-P4-PCE-2021-0921 (2022-2024)**, postdoc position.
- **PN-III-P4-IDPCE-2016-0372** (2016-2019), postdoc position.
- **PN-II-RU-TE-2014-4-0007** (2015-2017), Ph.D. student.
- **PN-II-RU-TE-2014-4- 0657** (2015-2017), Ph.D. student.

Other grants:

- Mobility grant: E-COST-GRANT-CA24104-d0f834b6, 2026

Co-organizer of conferences and workshops

- Special session on Stochastic Algorithms, at The 17th French Romanian Colloquium, Nancy, June 22-26th, 2026
- Special session on PDEs with Random Coefficients, Stochastic PDEs, at The 16th French Romanian Colloquium, Bucharest, 26-30th August, 2024
- Special session Stochastic Dynamics and Potential within Section 6 of The tenth congress of romanian mathematicians, 2023
- XIV-eme colloque Franco-Roumain de mathématiques appliquées, 2018, Bordeaux, France.
- Workshop for Young Researchers in Mathematics, 2018 and 2019, Bucharest, Romania.
- Analyse stochastique et thèmes connexes, 2019, Bucharest, Romania.
- Conference of the Romanian Society of Probability and Statistics

Teaching activities

- Since 2014, at Faculty of Mathematics and Computer Science, University of Bucharest: I give several master courses and graduate seminars, on probability, stochastic calculus, Markov processes, hidden Markov models, and partial differential equations. I also supervise dissertation students.

Prizes

- "Simion Stoilow" prize awarded by the Romanian Academy for year 2018 (received in 2020).
- The prize of the Romanian Society of Probability and Statistics, awarded for young researchers in probability and statistics (received in 2022)
- The prize of the Romanian Mathematical Society awarded for a young (at most 35 years of age) romanian mathematician (received in 2023)

Date: 03.11.2026