Curriculum Vitae

Iulian Cîmpean

Research interests.

Markov processes and their potential theory, ergodic theory, Dirichlet forms, stochastic (partial) differential equations, and related applications in Monte Carlo methods and Machine Learning.

Education:

- I received my Ph.D. degree in 2016 (officially on 30.01.2017). I defended at Simion Stoilow Institute of Mathematics of the Romanian Academy (IMAR), with thesis entitled *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:

- 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, 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
2. L.Beznea, I. Cîmpean, M. Röckner, Strong Feller semigroups and Markov processes: A counter example, to appear in *Stoch PDE: Anal Comp* (2023). https://doi.org/10.1007/s40072-023-00300-1, SNSIn or arxiv:2211.14789.
3. 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).
4. 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
5. 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)
6. I. Cîmpean, A. Grecu, The nonlinear Schrödinger equation with white noise dispersion on quantum graphs, *Commun. Math. Sci.* (2020). arXiv:1905.11708v2

7. 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
8. 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
9. L.Beznea, I. Cîmpean, Quasimartingales associated to Markov processes, *Trans. Amer. Math. Soc.*, 370, 7761-7787 (2018). arXiv:1702.06282
10. 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
11. 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
12. L.Beznea, I. Cîmpean, On Bochner-Kolmogorov theorem, In: *Seminaire de Probabilites XLVI* (Lecture Notes in Mathematics, Vol. 2123), Springer, 61-70 (2014).
13. 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).

- 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.

Scholarships and research visits.

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

Research visitor at

- **Bielefeld University** (Germany), invited by Prof. Dr. Michael Röckner: 2024(two weeks), 2023 (one month), 2022 (three-weeks visit), 2019 (three two-weeks visits), 2018 (two two-weeks visits), 2017 (one two-weeks visits), 2016 (one two-weeks visits), 2015 (one three-weeks visit and one month visit), 2014 (three one-week visits), 2013 (one month visit).
- **BCAM Bilbao** (Spain), invited by Prof. Dr. Arghir Zarnescu: 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.

Co-organizer of conferences and workshops

- 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)

August 31, Bucharest