Luigi Marcello Borasi

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Born: Sep. 5th, 1985 Reggio Emilia, Italy
Nationality: Italian

Last position

1.10.2019–14.3.2021 *Postdoctoral researcher*, Institute for Applied Mathematics, Universität Bonn
Postdoctoral mentors: Prof. Dr. Massimiliano Gubinelli & Prof. Dr. Sergio Albeverio

Areas of specialization

• Random fields, Markov fields, Euclidean QFT • Non-commutative probability • Axiomatic QFT, foundational aspects of QFT • Oscillatory infinite dimensional integrals, rigorous Feynman path integrals • Global analysis, semisimple Lie groups

Further areas of interest

• Renormalization group, Constructive renormalization • Rough paths • Gauge theories • Infinite dimensional Lie algebras and groups

Publications

[4] L. Borasi, *Massive free fields of spin 0, 1/2, 1: a Rosetta stone*, in preparation

[3] L. Borasi, *Review and concrete description of the irreducible unitary representations of the universal cover of the complexified Poincaré group*, Rev. Math. Phys. (to appear)

[2] L. Borasi, *Finite dimensional systems of free Fermions and diffusion processes on Spin groups*, J. Math. Phys. **63** (2022)

[1] S. Albeverio, L. Borasi, F. C. de Vecchi, M. Gubinelli, *Grassmannian stochastic analysis and the stochastic quantization of Euclidean Fermions*, Probab. Theory Relat. Fields (2022)

Education

19.7.2019 *Ph.D. in Mathematics*, Institute for Applied Mathematics, Friedrich-Wilhelms-Universität Bonn, Germany
Thesis: *Probabilistic and differential geometric methods for relativistic and Euclidean Dirac and radiation fields*
Advisors: Prof. Dr. Juan J. L. Velázquez & Prof. Dr. Sergio Albeverio

20.10.2014 MA in Physics (*Laurea specialistica in Scienze fisiche*),Universitá di Pisa, Pisa, Italy
Thesis: *Complex scaled time oscillatory infinite dimensional integrals and the Gell-Mann Low formula* Advisor: Prof. Dr. Sergio Albeverio

24.6.2008 BA in Physics (*Laurea triennale in fisica*), Universitá di Pisa, Pisa, Italy
Thesis: Solitons and Instantons Advisor: Prof. Dr. Damiano Anselmi

Talks (selection)

Jun 2022 — *Grassmann stochastic analysis and Euclidean Fermion Fields*, Third Italian Meeting on Probability and Mathematical Statistics, Bologna, Italy

Jun 2018 — *A geometric stochastic model for Fermions*, 42nd LQP Workshop "Foundations and Constructive Aspects of QFT", Bergische Universität Wuppertal, Germany

Oct 2017 — *A geometric stochastic model for Fermions*, Bogoliubov laboratory of theoretical physics, JINR, Dubna, Russia

Sep 2016 — *Integrability and tail estimates for Gaussian rough differential equations* (on the paper: T. Cass, C. Litterer, and T. Lyons, *Ann. Probab.* **41**, (2013) 3026-3050), Summer School: Paraproducts and Analysis of Rough Paths, Kopp, Germany

Nov 2015 — *A Poisson random field model and Eulidean quantum electromagnetic field*, Applied Analysis seminar, Bonn University, Bonn, Germany

Conferences attended (selection)

Jun. 2022 — *Third Italian Meeting on Probability and Mathematical Statistics*, Bologna, Italy

Jun. 2018 — 42nd LQP Workshop: *Foundations and Constructive Aspects of QFT*, Wuppertal, Germany

Jun 2017 — 40th LQP Workshop: *Foundations and Constructive Aspects of QFT*, Leipzig, Germany

Sep 2016 — Summer School: *Paraproducts and Analysis of Rough Paths*, Kopp, Germany

Aug 2016 — CIME-EMS Summer School in applied mathematics: *Singular Random Dynamics*, Cetraro, Italy

Jun 2016 — *Stochastic Partial Differential Equations and Applications - X*, CIRM Levico, Italy

May 2015 — MASDOC Summer School: *Topics in renormalisation group theory and regularity structures*, Warwick, UK

Feb & Jun 2015 — *Geometric Mechanics, Variational and Stochastic Methods*, EPFL, Lausanne, Switzerland

Jan. 2015 — *Interacting particle systems in thermodynamic models*, GSSI, L'Aquila, Italy

Teaching

2017 Summer term — Teaching Assistant, Bonn University
Nonlinear PDE II, Prof. Dr. Disertori

Language skills

Italian: *native*
English: *fluent*
German: *intermediate*

14. 7. 2022 — Luigi Marcello Bonasi