

CURRICULUM VITAE

Emanuele Dolera

1 PERSONAL STATEMENT

Place and date of birth: Lodi, Italy. December 7th, 1982

Nationality: Italian

Address: via Ferrata 5, 27100 Pavia, Italy

E-mail: emanuele.dolera@unipv.it

2 ACADEMIC POSITIONS

- CURRENT POSITION

Role: Assistant Professor (RU confermato)

Scientific Sector: MAT06–Probability and Mathematical Statistics

Period: from March 1st, 2016 up to now

Institution: Università degli Studi di Pavia, Italy, Department of Mathematics

Address: via Ferrata, 1, 27100 Pavia (PV)

Telephone: (+)39 0382 985 632

- PAST POSITION

Role: Assistant Professor (RU confermato)

Scientific Sector: MAT06–Probability and Mathematical Statistics

Period: from December 20th, 2013 to February 29th, 2016

Institution: Università degli Studi di Modena e Reggio Emilia, Italy, Department of Mathematics

Role: Assistant Professor (RU)

Scientific Sector: MAT06–Probability and Mathematical Statistics

Period: from December 20th, 2010 to December 19th, 2013

Institution: Università degli Studi di Modena e Reggio Emilia, Italy, Department of Mathematics

3 EDUCATION

- Ph.D. in Mathematics and Statistics, Università degli Studi di Pavia, Italy, (2007-2010). Phd Thesis: *Rapidity of convergence to equilibrium of the solution of the Boltzmann equation for Maxwellian molecules*. Advisor: prof. Eugenio Regazzini.
- Master at “Scuola Universitaria di Studi Superiori”, (IUSS) Pavia, Italy, (2006). Master Thesis: *Condizioni minime per la convergenza all’equilibrio per le soluzioni dell’equazione di Kac*. Advisor: prof. Eugenio Regazzini
- Degree (Second Level) in Mathematics cum laude, Università degli Studi di Pavia, Italy, (2004-2006). Degree Thesis: *Applicazione del teorema centrale del limite all’analisi della velocità di convergenza all’equilibrio della soluzione dell’equazione di Kac, nella metrica della variazione totale*. Advisors: prof. E. Regazzini, prof. E. Gabetta.
- Degree (First Level) in Mathematics cum laude, Università degli Studi di Pavia, Italy (2001-2004). Degree Thesis: *Su un’estensione della formula di Feynman-Kac, in relazione alla valutazione di opzioni corridoio*. Advisor: prof. E. Regazzini.
- Student of “Collegio Ghislieri”, Pavia, Italy, (2001-2006)

4 AWARDS AND HONORS

- Luigi Berzolari Prize, Università degli Studi di Pavia, Pavia, Italy (2008)
- Bruno de Finetti Prize, Accademia dei Lincei, Roma, Italy (2007)

5 AFFILIATIONS

- Istituto Nazionale di Alta Matematica “F. Severi” (INdAM), Roma (Italy)
- Collegio “Carlo Alberto”, Torino (Italy)

6 VISITING POSITIONS

- Statistical Laboratory, University of Cambridge, Cambridge, UK (October, 2018)
- Department of Statistics, University of California, Berkeley, CA, USA (August, 2018)
- Department of Statistics, Stanford University, Stanford, CA, USA (August, 2018)
- Department of Mathematics, Technische Universität München, Garching bei Munich, Germany (February, 2018)
- Department of Mathematics, Universität Wien, Wien, Austria (November, 2015)
- Department of Mathematics, Instituto Superior Técnico, Lisboa, Portugal. (June, 2013)

7 EDITORIAL ACTIVITY

- *Referee for:* Annals of Statistics; Bayesian Analysis; Electronic Journal of Probability; Electronic Journal of Statistics; Latin American Journal of Probability and Mathematical Statistics; Mathematical Physics, Analysis and Geometry.

8 ORGANIZATION OF CONFERENCES

- *Alcuni argomenti di Probabilità, Statistica e Teoria della Misura.* Conference in honor of Patrizia Berti. Università degli Studi di Modena e Reggio Emilia, Modena, Italy (June 8-9, 2015)

9 PHD TEACHING BOARDS

- Member of the PhD teaching board of the union of the Universities of Ferrara, Modena e Reggio Emilia, Parma (Italy)

10 ACADEMIC RESEARCH

10.1 FIELDS OF RESEARCH

Kinetic equations of rarefied gases; Limit Theorems of Probability Theory; Bayesian Statistics; Theory of Testing Statistical Hypothesis; Species Sampling Problems.

10.2 RESEARCH FUNDINGS

- ERC consolidator grant for the project (p.i. prof. Stefano Favaro,)
- Principal Investigator of the GNAMPA-INdAM project “Metodi Bayesiani per l’analisi statistica di successioni scambiabili e parzialmente scambiabili, con applicazioni al campionamento di specie” (2017-2018)
- PRIN-MIUR 2015SNS29B, member of the local unit in Pavia, Italy. P.I.: Igor Pruenster. (2016-up to now)
- PRIN-MIUR 2012AZS52J, member of the local unit in Pavia, Italy. P.I.: Mario Pulvirenti. (2012-2015)
- PRIN-MIUR 2008MK3AFZ, member of the local unit in Pavia, Italy. P.I.: Eugenio Regazzini (2008-2011)

10.3 PARTICIPATIONS IN CONFERENCES AND WORKSHOPS

- The Bayes Club, seminars on Bayesian statistics (April 9, 2021)
- XXI UMI Congress, Pavia, Italy (September 2-7, 2019)
- XII International Workshop on Bayesian Nonparametrics, Oxford, UK (June 24-28, 2019)
- Second Italian Meeting on Probability and Mathematical Statistics, Vietri, Italy (June 17-20, 2019)
- XXIX National Congress on Calculus of Variations, Levico Terme, Italy (February 4-8, 2019)
- Oberwolfach Workshop “Classical and Quantum Mechanical Models of Many-Particle Systems”, Oberwolfach, Germany. (December 3-9, 2018)
- First Italian Meeting on Probability and Mathematical Statistics, Torino, Italy (June 19-22, 2017)
- Workshop “Non-linear flows. Variational and Hamiltonian Structures: Models and Methods”, E. Schrödinger Institute, Wien, Austria (July 11-14, 2016)

- Conference in honor of Patrizia Berti: “Alcuni argomenti di Probabilità, Statistica e Teoria della Misura”, Modena, Italy (June 8-9, 2015)
- XIV Arrabida Meeting “Statistical Dynamics of Complex Systems”, Arrabida, Portugal (July 1-4, 2013)
- XIX UMI Congress, Bologna, Italy (September 12-17, 2011)
- CIRM Meeting “Probabilistic methods in kinetic theory”, Luminy, France (June, 11-15, 2011)
- Oberwolfach Workshop “Classical and Quantum Mechanical Models of Many-Particle Systems”, Oberwolfach, Germany. (December 5-10, 2010)
- Workshop “Kinetics and Statistical methods for complex particle systems”, Lisboa, Portugal (July 19-22, 2009)
- VII International Workshop on Bayesian Nonparametrics, Moncalieri, Italy (June 21-25, 2009)
- Workshop “Kinetic equations: direct and inverse problems”, Mantova, Italy (May 15-18, 2008)
- XVIII UMI Congress, Bari, Italy (September 24-29, 2007)

10.4 INVITED TALKS

- A new approach to Posterior Contraction Rates via Wasserstein dynamics. The Bayes Club, online. (April 9, 2021)
- Lipschitz-continuity of disintegration kernels. XXI UMI Congress. Pavia, Italy (September, 5th, 2019)
- A Berry-Esseen theorem for Pitman’s α -diversity. 12th International Conference on Bayesian Nonparametrics. Oxford, UK (June 26th, 2019)
- Optimal rates of mean Glivenko-Cantelli convergence. Second Italian Meeting in Probability and Mathematical Statistics, Vietri, Italy (June 19th, 2019)
- Lipschitz-continuity of regular conditional probability distributions. XXIX National Congress on Calculus of Variations, Levico Terme, Italy (February 5th, 2019)
- Uniform rates of Glivenko-Cantelli convergence and their use in Bayesian inference, Cambridge Seminar in Probability, Cambridge, UK (October 12th, 2018)

- Good-Turing type estimators for the number of unseen species. Oberseminar, Technische Universität München, Garching bei Munich, Germany (February 5th, 2018)
- Why and how frequentistic procedures are approximations of Bayesian ones. First Italian Meeting in Probability and Mathematical Statistics, Torino, Italy (June 20th, 2017)
- Existence and optimal rate of convergence to equilibrium for solutions to the homogeneous Boltzmann equation with a Maxwellian kernel. Wolfgang Pauli Institute, Wien, Austria (November 25th 2015)
- Hölder-continuous versions of posterior distributions in Bayesian Statistical Inference. Conference in honor of Patrizia Berti, Modena, Italy (June 8th, 2015)
- On a probabilistic representation of McKean-type for Spatially Homogeneous Maxwellian Molecules. XIV Arrabida Meeting “Statistical Dynamics of Complex Systems”, Arrabida, Portugal (July 3rd, 2013)
- Reaching the best possible rate of convergence to equilibrium of Boltzmann-equation solutions. Instituto Superior Técnico, Lisboa, Portugal (June 27th, 2013)
- Su una proprietà asintotica della distribuzione finale. XIX UMI Congress, Bologna, Italy (September 14th, 2011)
- The role of exchangeability in the mathematical validity of the Boltzmann equation. CIRM Meeting “Probabilistic methods in kinetic theory”, Luminy, France (June, 11th, 2011)
- New probabilistic methods for spatially homogeneous Boltzmann equation for Maxwellian molecules. Oberwolfach Seminar “Classical and Quantum Mechanical Models of Many-Particle Systems”, Oberwolfach, Germany. (December 7th, 2010)
- Optimal rates of convergence to equilibrium for low-dimensional Maxwellian molecules. Meeting “Kinetics and Statistical methods for complex particle systems”, Lisboa, Portugal (July, 21th, 2009)
- The role of the central limit theorem in discovering rates of convergence to equilibrium for the solution of the Kac equation. Meeting “Kinetic equations: direct and inverse problems”, Mantova, Italy (May 17th, 2008)
- Applicazione del teorema centrale del limite all’analisi della convergenza all’equilibrio per la soluzione dell’equazione di Kac. XVIII UMI Congress, Bari, Italy (September 28th, 2007)

10.5 PUBLICATIONS IN REFEREED JOURNALS

- DOLERA, E. and FAVARO, S. (2021). Compound Poisson Perspective of Ewens–Pitman Sampling Model. *Mathematics*, **9** 2820
- DOLERA, E. and FAVARO, S. (2020). A Berry-Esseen theorem for Pitman’s α -diversity. *The Annals of Applied Probability*, **30** 847-869
- DOLERA, E. and FAVARO, S. (2020). Rates of convergence in de Finetti’s representation theorem, and Hausdorff moment problem. *Bernoulli* **26** 1294-1322
- DOLERA, E. and MAININI, E. (2020). On uniform continuity of posterior distributions. *Statist. Probab. Lett.* **157**, 108627, 7 pp.
- DOLERA, E. (2019). A note on the asymptotic behavior of Kummer’s hypergeometric function with large values of b and z . *J. Inequal. Spec. Funct.* **10** 16-20
- DOLERA, E. and REGAZZINI, E. (2019). Uniform rates of the Glivenko-Cantelli convergence and their use in approximating Bayesian inferences. *Bernoulli* **25** 2982-3015
- CIFARELLI, D.M., DOLERA, E. and REGAZZINI, E. (2017). Note on “Frequentistic approximations to Bayesian prevision of exchangeable random elements” [*Int. J. Approx. Reason.* **78** (2016) 138-152]. *Int. Journal Approx. Reason.*, **86** 26-27
- CIFARELLI, D.M., DOLERA, E. and REGAZZINI, E. (2016). Frequentistic approximations to Bayesian prevision of exchangeable random elements. *Int. Journal Approx. Reason.*, **78** 138-152
- DOLERA, E. (2015). Mathematical treatment of the homogeneous Boltzmann equation for Maxwellian molecules in the presence of singular kernels. *Ann. Mat. Pura Appl.*, **194** 1707-1732
- DOLERA, E. and REGAZZINI, E. (2014). Proof of a McKean conjecture on the rate of convergence of Boltzmann-equation solutions. *Prob. Theory Relat. Fields*, **160** 315-389
- DOLERA, E. (2013). Estimates of the approximation of weighted sums of conditionally independent random variables by the normal law. *J. Inequal. Appl.* **2013**:320
- DOLERA, E. (2013). Su una proprietà asintotica della distribuzione finale. *Bollettino U.M.I.* (9) **VI** 741-748
- DOLERA, E. (2012). Spatially homogeneous Maxwellian Molecules in a Neighborhood of the Equilibrium. *Ist. Lombardo Rend. Sci.*, **145** 3-17

- DOLERA, E. (2011). On the computation of the spectrum of the linearized Boltzmann collision operator for Maxwellian molecules. (Dedicated to the memory of Carlo Cercignani). *Bollettino U.M.I.* (9) **IV** 47-68
- DOLERA, E. (2010). Rapidity of convergence to equilibrium of the solution of the Boltzmann equation for Maxwellian molecules. *SCIENTIFICA ACTA*, **4** 26-28
- DOLERA, E. and REGAZZINI, E. (2010). The role of the central limit theorem in discovering sharp rates of convergence to equilibrium for the solution of the Kac equation. *The Annals of Applied Probability*, **20** 430-461
- DOLERA, E., GABETTA, E. and REGAZZINI, E. (2009). Reaching the best possible rate of convergence to equilibrium for solutions of Kac's equation via central limit theorem. *The Annals of Applied Probability*, **19** 186-209

10.6 PUBLICATIONS IN CONFERENCE PROCEEDINGS

- DOLERA, E. (2010). New probabilistic methods for spatially homogeneous Maxwellian molecules. *Oberwolfach Reports*, **54** 3184-3186
- DOLERA, E., GIUSFREDI, F. and RIZZA, A. (2007). Nota et ignota: Problems and Desiderata in the Constitution of e-Corpora. *Chatressar 2007*, 59-72. P. Zemanek, J. Gippert, H.C. Luschützki, (eds.), *Electronic Corpora of Ancient Languages: Proceedings of the International Conference, Prague, November 16-17, 2007*

10.7 PREPRINTS

- CAMERLENGHI, F., DOLERA, E., FAVARO, S., and MAININI, E. (2022). Wasserstein posterior contraction rates in non-dominated Bayesian nonparametric models. [arXiv:2201.12225](https://arxiv.org/abs/2201.12225)
- DOLERA, E. and FAVARO, S. (2021). The power of private likelihood-ratio tests for goodness-of-fit in frequency tables. [arXiv:2109.09630](https://arxiv.org/abs/2109.09630)
- DOLERA, E., FAVARO, S. and PELUCHETTI, S. (2021). Learning-augmented count-min sketches via Bayesian nonparametrics. [arXiv:2102.04462](https://arxiv.org/abs/2102.04462)
- DOLERA, E., MAININI, E. and FAVARO, S. (2020). A new approach to posterior contraction rates via Wasserstein dynamics.
- DOLERA, E. and MAININI, E. (2020). Lipschitz continuity of probability kernels in the optimal transport framework. [arXiv:2010.08380](https://arxiv.org/abs/2010.08380)

- DOLERA, E., BULGARELLI, A., FAVARO, S. and ABOUDAN, A. (2018). A useful variant of Wilks' theorem for grouped data.
- CAMERLENGHI, F., DOLERA, E. and FAVARO, S. (2017). Good-Toulmin type estimators for the number of unseen species.

10.8 TECHNICAL REPORTS

- DOLERA, E. and REGAZZINI, E. (2010). Probabilistic interpretation of the solution of the Boltzmann equation for Maxwellian molecules. 11PV10/11/0 IMATI-CNR Pavia.
- DOLERA, E. (2009). Una interpretazione dell'indice di cograduazione. 21PV09/17/0 IMATI-CNR Pavia.
- DOLERA, E. (2009). Qualche considerazione sul confronto di indici statistici. 22PV09/18/0 IMATI-CNR Pavia.

11 TEACHING ACTIVITY

11.1 ADVANCED COURSES

- *Inference III*. Phd Course, Università degli Studi di Milano-Bicocca, Milano, Italy (May, 2021)
- *Inference III*. Phd Course, Università degli Studi di Milano-Bicocca, Milano, Italy (April-May, 2020)
- *Inference III*. Phd Course, Università degli Studi di Milano-Bicocca, Milano, Italy (May, 2019)
- *Weak Convergence of Probability Measures in Metric Spaces*. Phd Course, Università degli Studi di Pavia, Pavia, Italy (April-May, 2017)
- *Foundations of Bayesian Nonparametrics*. Phd Course, Università degli Studi di Modena e Reggio Emilia, Modena, Italy (May-June, 2015)
- *Foundations of Bayesian Nonparametrics*. Phd Course, Università degli Studi di Modena e Reggio Emilia, Modena, Italy (June-July, 2014)
- *The Mathematical Theory of the Boltzmann Equation*. Phd Course, Università degli Studi di Modena e Reggio Emilia, Modena, Italy (April-May, 2014)
- *Matematical Statistics*. Summer School SMI, Perugia, Italy (August, 2013)