CURRICULUM VITAE

Emanuele Dolera

1 PERSONAL STATEMENT

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

Nationality: Italian

Address: via Torretta 21, 27100 Pavia, Italy

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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

Scientific Sector: MAT06–Probability and Mathematical Statistics

Period: from December 20th, 2010 to February 29th, 2016

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

- 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*: Bayesian Analysis; Electronic Journal of Probability; 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.

10.2 RESEARCH FUNDINGS

- 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

- Oberwolfach Workshop "Classical and Quantum Mechanical Models of Many-Particle Systems", Oberwolfach, Germany. (December 3-9, 2010)

- First Italian Meeting in 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

- 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

- 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 KacÕs 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

- DOLERA, E. and FAVARO, S. (2018). A new approach to Bayesian consistency via uniform continuity of the posterior distribution.

- 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.

- DOLERA, E. and FAVARO, S. (2017). Rate of convergence in Kolmogorov distance for de Finetti's theorem.

- DOLERA, E. and FAVARO, S. (2017). Berry-Esseen bounds for the alpha-diversity with application to species sampling problems in Bayesian nonparametrics.

- DOLERA, E. and REGAZZINI, E. (2017). Uniform rates of the Glivenko-Cantelli convergence and their use in approximating Bayesian inferences. *arXiv*:171207361.

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

- *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)

11.2 ORDINARY COURSES

The following courses have been taught at the Università degli Studi di Pavia, Pavia, Italy

- *Elementi di Probabilità.* First Level Degree in Mathematics (a.a. 2016-2017, first semester)

- *Probabilità.* Second Level Degree in Mathematics (a.a. 2016-2017, first semester)

The following courses have been taught at the Università degli Studi di Modena e Reggio Emilia, Modena, Italy

- *Probabilità e Statistica.* First Level Degree in Mathematics (a.a. 2015-2016, second semester)

- *Catene di Markov.* First Level Degree in Mathematics and Informatics (a.a. 2015-2016, second semester)

- *Processi Stocastici.* Second Level Degree in Mathematics (a.a. 2015-2016, first semester)

- *Modelli Probabilistici.* Second Level Degree in Mathematics (a.a. 2014-2015, second semester)

- *Catene di Markov.* First Level Degree in Mathematics and Informatics (a.a. 2014-2015, second semester)

- *Processi Stocastici.* Second Level Degree in Mathematics (a.a. 2014-2015, first semester)

- *Modelli Probabilistici.* Second Level Degree in Mathematics (a.a. 2013-2014, second semester)

- *Catene di Markov.* First Level Degree in Mathematics and Informatics (a.a. 2013-2014, second semester)

- *Processi Stocastici.* Second Level Degree in Mathematics (a.a. 2013-2014, first semester)

- *Catene di Markov.* First Level Degree in Mathematics and Informatics (a.a. 2012-2013, second semester)

- *Statistica con Elementi di Probabilità.* First Level Degree in Informatics (a.a. 2012-2013, first semester)

- *Processi Stocastici.* Second Level Degree in Mathematics (a.a. 2012-2013, first semester)

- *Teoria delle Funzioni.* First Level Degree in Mathematics (a.a. 2011-2012, second semester)

- *Statistica con Elementi di Probabilità.* First Level Degree in Informatics (a.a. 2011-2012, first semester)

11.3 CURRENT AND FORMER STUDENTS

- Second Level Degree in Mathematics at Università degli Studi di Pavia, Pavia, Italy: Nicolò Paviato (2018), Federico Sclavi (2017)

- Second Level Degree in Mathematics at Università degli Studi di Modena e Reggio Emilia, Modena, Italy: Andrea Guglielmi (2013), Andrea Roccaverde (2014), Enrico Ferri (2014), Sara Ferrari (2015), Chiara Magnani (2015)

- First Level Degree in Mathematics at Università degli Studi di Modena e Reggio Emilia, Modena, Italy: Cosimo Fiorini (2012), Cecilia Boschini (2012), Enrico Ferri (2012), Lorenzo Diazzi (2012), Alessandro Pederzoli (2014), Lorenzo Contini (2014), Lidia Geti (2015)