CURRICULUM VITAE - ALESSANDRA BIANCHI

Dipartimento di Matematica
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Italian citizenship.
Born: December 31, 1977, Novafeltria (RN), Italy.

EDUCATION

1999-2003	• Undergraduate student of Mathematics at the University of Bologna. Title of the *laurea* thesis: *Thermodynamic Limit for Mean-Field Spin Models.* Advisor: P. CONTUCCI. Thesis defended on July 2003 (summa cum laude).
2003-2007	• Ph.D. student in Mathematics at the University of Roma Tre. Title of the thesis : *Mixing time for Glauber dynamics beyond $\mathbb{Z}^d$.* Advisor: F. MARTINELLI. Referees: A. BOVIER, G. POSTA,E. OLIVIERI. Thesis defended on April 2007.
2007-2009	• Postdoctoral fellow at the Weierstrass Institute for Applied Analysis and Stochastic (WIAS) of Berlin, in the team "Interacting Random Systems" headed by A. BOVIER.
2009-2012	• Postdoctoral fellow at the Department of Mathematics of the University of Bologna. Title of the project: *Autosimilar and long-range dependence processes.* Supervisor: M. CAMPANINO.

ACTUAL POSITION

since May 2012	*Ricercatore* (Researcher/Assistant Professor) in Probability and Mathematical Statistics - MAT/06 at the Mathematics Department of the University of Padova.
since May 2022	Italian national habilitation as Associate Professor in Probability and Mathematical Statistics - MAT/06.

RESEARCH INTERESTS

Probability Theory, Statistical Mechanics.
Main topics include:
- Interacting particle systems.
- Random walks on random structures.
- Random graphs.
- Metastability of Markov processes.
- Stochastic dynamics and relaxation time.

LANGUAGE SKILLS

English, French, German, Italian (native speaker)

Publications and preprints

1. A. Bianchi, F. Collet, E. Magnanini. Limit theorems for exponential random graphs. Preprint 2021, sottomesso per la pubblicazione.

2. A. Bianchi, F. Collet Convergence to equilibrium for a bipartite Curie-Weiss model. Preprint 2021, sottomesso per la pubblicazione.

3. A. Bianchi, G. Bet, M. Lenci , E. Magnanini, S. Stivanello (2021). Limit theorems for Lévy flights on a 1D Lévy random medium. *Electronic Journal of Probability*, **26**, 1-34.

4. A. Bianchi, A. Gaudilliere, P. Milanesi (2020). On soft capacities, quasi-stationary distributions and the pathwise approach to metastability. *J. Stat. Phys.*, **181** (3), 1052-1086.

5. A. Bianchi, M. Lenci, Françoise Pène (2020). Continuous-time random walk between Lévy-spaced targets in the real line. *Stochastic Process. Appl.*, **130** No. 2, 708-732.

6. A. Bianchi, S. Dommers, C. Giardinà (2017). Metastability in the reversible inclusion process. *Electronic Journal of Probability*, **22** No. 70, 1-34.

7. A. Bianchi, A. Gaudilliere (2016). Metastable states, quasi-stationary and soft measures, mixing time asymptotic via variational principles. *Stochastic Process. Appl.*, **126**(6), 1622-1680.

8. A. Bianchi, G. Cristadoro, M. Lenci, M. Ligabò (2015). Random walks in a one-dimensional Lévy random environment. *J. Stat. Phys.*, **163**(1), 22-40.

9. A. Bianchi, S. Bregni, I. Crimaldi, M. Ferrari (2012). Analysis of a Hurst parameter estimator based on the modied Allan variance. In: *2012 IEEE Globecom Workshops*, Anaheim, California, USA, 3-7 December 2012. p. 1716-1721.

10. A. Bianchi, M. Campanino, I. Crimaldi (2012). Asymptotic normality of a Hurst parameter estimator based on the modified Allan variance. *International J. of Stochastic Analysis*, vol. **2012**, 1-20.

11. A. Bianchi, A. Bovier, D. Ioffe (2012). Pointwise estimates and exponential laws in metastable systems via coupling methods. *Annals of Probability*, **40**(1), 339-371.

12. A. Bianchi, A. Bovier, D. Ioffe (2009). Sharp asymptotics for metastability in the random field Curie-Weiss model. *Electr. J. Prob.*, **14**, 1541-1603.

13. A. Bianchi (2008). Glauber dynamics on hyperbolic graphs: Boundary conditions and mixing time. *Electr. J. Prob.*, **13**, 1980–2012.

14. A. Bianchi, P. Contucci, A. Knauf (2004). Stochastically Stable Quenched Measures. *J. Stat. Phys.*, **117**(5/6), 831-844.

15. A. Bianchi, P. Contucci, C. Giardinà (2003). Thermodynamic Limit for Mean-Field Spin Models. *Math. Phys. El. J.*, **9**(6).

Research activities

- Research Projects

  - From 2019 to 2022, responsible of the project BIRD - Stochastic processes and applications to disordered systems - founded by the University of Padova;

  - From 2019 to 2020, responsible of the Padova Unit for project PRIN - Large Scale Random Structures;

  - From 2017 to 2019, participant of the project PRIN - Large Scale Random Structures;

  - From 2013 to 2015, participant of the SID-project - Stochastic processes and applications to complex systems - founded by the University of Padova;

- From 2012 to 2016, responsible of the Bologna unit for the project FIRB - Stochastic Processes and Interacting Particle Systems: duality, metastability and their applications;
- From 2011 to 2013, participant of the project PRIN - Percolation, Markovian evolutions and long-range systems.

- Visiting

  - From August 20 to September 20 2016, visitor at the research Institute IMPA of Rio de Janeiro (Brazil).
  - On April 2015, visitor at the research Institute ICERM of the Brown University (Providence, USA).
  - On March 2015, visitor at the Istitute IHP of Paris (France).
  - On September and October 2010, on November 2011 and on June 2013 visitor at the Laboratoire d'Analyse, Topologie, Probabilités (LATP), Université de Provence (Marseille, France) invited by Dr. A. Gaudilliere.
  - On April 2009 visitor at the University of Bonn (Germany), invited by Prof. A. Bovier.
  - On February 2009 visitor at EURANDOM (Eindhoven, The Netherlands) invited by Prof. A. Bovier.
  - On March 2007, May 2008 and May 2009, visitor at the Technion Israel institute of technology of Haifa (Israel), invited by Prof. D. Ioffe.

- Organization

  2022 Member of the organizing committee of the conference "*100 years of UMI - 800 years of UNIPD*" that will be held in Padova in May 23 - 27 2022.

  2021 Organiser and member of the scientific committee of the conference "*Analysis and simulations of metastable systems*", that will be held at the CIRM of Marseille (France) in April 3 - 7, 2023.

  2020 Member of the organizing committee of the cycle of seminars "*Seminari di Probabilità e Finanza*" of the Mathematics Department of Padova.
  Webpage `https://www.math.unipd.it/ bianchi/seminari/`

  2020 Member of the organizing committee of the cycle of online seminars of the national group DAI - The Community of Italian Dynamicists. Webpage `https://www.dinamici.org/dai-seminar/`

  2019 Organiser and member of the scientific committee of the "*Winter School in La Habana 2019*" that was held in La Habana (Cuba) on 28 January - 8 February 2019.

  2012 Member of the organizing and scientific committees of the "*Summer School in Probability 2012*" that was held in Bologna (Italy) on 3-7 September 2012.

  2009 Member of the organizing committee of the "*Summer School in Probability*" that was held in Bologna (Italy) on 6-8 July 2009.

- Supervision of PhD students and post-doctoral researchers

  - From 2013 to 2017, supervisor of two post-doc fellowships in the framework of the FIRB project - Stochastic Processes and Interacting Particle Systems: duality, metastability and their applications.
  Post-doc fellows: Francesca Collet e Sander Dommers.
  - From 2018 to 2020, supervisor of the PhD thesis in Mathematics of Samuele Stivanello.
  - From 2019 to 2021, supervisor of a research fellowship in the framework of the BIRD2019 project - Stochastic Processes and applications to disordered systems.
  Post-doc fellow: Elena Magnanini.

- Supervision of undergraduate and Master's students

Studenti LM: Marta Dai Pra, Federico Capannoli, Tommaso Visonà, Riccardo Michielan, Giulia Trevisan, Lisa Cassini, Federica Verga, Alberto Zuccolotto, Silvia Sgalletta, Samuele Stivanello, Lina Falcone, Saeda Marello, Michele Giglio, Giulia De Bortoli, Gianfelice Meli.

Studenti LT: Alessandro Oberti, Caterina Alessi, Alberto Cesaro, Alessandro Vici, Francesca Fabbian, Federico Zabeo, Riccardo Michielan, Pierfrancesco Piotto, Laura Bondi.

Talks and conference as invited speaker

- **2022** Interacting particle systems and hydrodynamic limits, CRM in Montreal, Canada (March 14-25, 2022); UFRJ Probability seminars, Universitade Federal de Rio de Janeiro, Brazil (May 23, 2022); Workshop for Junior Female Researchers in Probability, Technical University of Berlin, Germany (Oct. 5-7, 2022).

- **2021** Seminario Brasileiro de Probabilidade, IMPA, Rio de Janeiro, Brazil (Feb. 23, 2021); Bernoulli-IMS 10th World Congress in Probability and Statistics - session "Interacting particle systems and Inclusion process" - Seul, Corea (July 19-23, 2021); Pavia-Milano Seminar series on Probability and Mathematical Statistics, Milano, Italia (May 24, 2021).

- **2020** Random Polymers and Networks, IGESA Iles de Porquerolles, France (Sept. 7-11, 2020).

- **2019** Equilibrium and Non-equilibrium Statistical Mechanics - A conference in honor of François Dunlop, Villa Finaly, Firenze, Italia (April 8-10, 2019); Interacting particle systems from a duality point of view - Second Italian Meeting on Probability and Mathematical Statistics, Vietri sul mare, Italia (June 17-20, 2019); Nonlinear Processes and their Applications, Sant'Etienne University, France (July 2-5, 2019); 3rd Workshop on Large Scale Random Structures, University of Milano Bicocca, Italia (July 10-11, 2019).

- **2018** XXIII Convegno Nazionale di Fisica Statistica e dei Sistemi Complessi, University of Parma, Parma, Italia (June 20-22, 2018); Stochastic Methods in Finance and Physics, Heraklion, Crete, Greece (July 23-27, 2018); Oberseminar stochastische Prozesse und Anwendungen in der Biologie, Technical University of Berlin, Germany (May 14, 2018).

- **2017** One day workshop on "Large scale random structures", Università di Roma Tre, Italia (May 8,2017); Particle Systems and PDE's - VI, Laboratoire J.A. Dieudonné - Université de Nice, France (Nov. 27 - Dec. 1, 2017).

- **2016** Large Scale Behaviour of Random Spatial Models, Mathematics Institute of the University of Warwick, England (Jan. 4-8, 2016); Berliner Kolloquium at the Technical University of Berlin, Germany (Feb. 3, 2016); Metastability, EURANDOM, Eindhoven, The Netherlands (April 18-22, 2016); Condensation phenomena in stochastic systems, University of Bath, UK (July 4-6, 2016); First joint meeting of Brazil-Italy in Mathematics, IMPA, Rio de Janeiro, Brazil (Aug. 19 - Sept. 2, 2016).

- **2015** ICERM - Semester Program on Phase Transitions and Emergent Properties, Brown University, Providence, USA (13-17 Apr. 2015); XX Congresso dell'Unione matematica Italiana, Siena, Italia (7-12 Sett. 2015); Weekly Probability Seminar presso la Technical University of Leiden, The Netherlands (22 Nov. 2015).

- **2014** Journées scientifiques de l'Université de Nantes, France (June 4-6, 2014); Probability in Dynamics at IM-UFRJ, Rio de Janeiro, Brasil (May 26-30, 2014); Probability seminar at the University of Roma - La Sapienza, Italia (June 19, 2014).

- **2013** Condensation in Stochastic Particle Systems, Mathematics Institute of the University of Warwick, England (Jan. 07-09, 2013); Probability seminar at the University of Orléans, France (Jan. 24 2013); Random Combinatorial Structures and Statistical Mechanics, Palazzo Pesaro-Papafava, Venezia, Italia (May 6-10, 2013); Workshop "Dinamici: Third workshop of the (Young) Italian Dynamicists", Corinaldo, Italia (June 11-14, 2013); Women in Probability, Technical University of Munich, Germany (July 5-6, 2013); German-Japanese Meeting on Stochastic Analysis 2013, Mathematics Institute of Leipzig, Germany (Sept. 9-13, 2013); Junior female researchers in Probability, Technical Universities of Berlin and Potsdam, Germany (Oct. 10-11, 2013); Large Scale Stochastic Dynamics, Oberwolfach, Germany (Oct. 28 - Nov. 1, 2013); Probability seminar at the University of Modena and Reggio Emilia, Italia (Nov. 22, 2013).

- **2012** Large Scale Behaviour of Random Spatial Models, Mathematics Institute of the University of Warwick, England (28-2 Giu. 2012); Fifth Workshop on Random Dynamical Systems, Bielefeld, Germany (Oct. 4-5, 2012).

- **2011** Young Women in Probability, Institute for Applied Mathematics, Bonn, Germany (19–21 Mag. 2011); Systèmes désordonnés : Traitement probabiliste, Université de Nantes, France (June 6, 2011); La Pietra week in Probability 2011, Villa Finaly, Firenze, Italia (June 13-17, 2011); Probability seminar at the University of Roma Tre, Italia (July 7, 2011); Probability seminar at the Humboldt University of Berlin, Germany (Nov. 23, 2011).

- **2010** XIV Brazilian School of Probability, Búzios, Brazil (Aug. 2-7, 2010); Probability seminar at the Brazilian Center for Physics Research, Rio de Janeiro, Brazil (Aug. 11, 2010); Disordered systems and extreme value statistics, Hausdorff Research Institute for Mathematics, Bonn, Germany (Sept. 03-17, 2010); Probability seminar at the Laboratoire d'Analyse, Topologie, Probabilités (LATP), Université de Provence, Marseille, France (Oct. 8, 2010).

- **2009** Probability seminar at EURANDOM, Eidhoven, The Netherlands (Feb. 27, 2009); Mathematical Models from Physics and Biology, Hausdorff Center for Mathematics, Bonn, Germany (April. 2-4, 2009); Summer School in Probability - Tutorial session, Villa Pallavicini, Bologna, Italia (July 6-8, 2009); Statistical Mechanics on Random Structures, Banff International Research Station, Banff, Canada (Nov. 15-20, 2009).

- **2008** Metastability, EURANDOM, Eindhoven, The Netherlands (Jan. 09-11, 2008); From Dynamical Systems to Statistical Mechanics, CIRM, Marseille, France (March 18 - April 7, 2008); Statistical Mechanics on Random Structures, EURANDOM, Eindhoven, The Netherlands (March 10-14, 2008); Random Systems from Physics to Biology, TU Berlin, Germany (March 17-20, 2008); Probability seminar at the Technion Israel Institute of Technology, Haifa, Israel (May 4, 2008); Second workshop on Random Dynamical Systems, Bielefeld, Germany (Nov. 17-19, 2008); Probability seminar at the University of Bonn, Germany (Nov. 20, 2008).

- **2007** Probability seminar at the University of l'Aquila, Italia (April 15, 2007); Probability seminar at the University of Bologna, Italia (Jan. 11, 2007).

Teaching experiences (in Italian)

a) Incarichi didattici per i corsi di laurea

- 2021/2022

  - Docente di *Probabilità e Statistica*, laurea triennale in Matematica (Padova).
  - Docente di *Calcolo delle Probabilità*, laurea magistrale in Scienze Statistiche (Padova).

- 2020/2021

  - Docente di *Probabilità e Statistica*, laurea triennale in Matematica (Padova).
  - Docente di un modulo di *Calcolo delle Probabilità*, laurea magistrale in Scienze Statistiche (Padova).

- 2019/2020

  - Docente di *Probabilità e Statistica*, laurea triennale in Matematica (Padova).
  - Docente di *Analisi stocastica*, laurea magistrale in Matematica (Padova).

- 2018/2019

  - Docente di *Analisi stocastica*, laurea magistrale in Matematica (Padova).

- 2017/2018

  - Docente di *Analisi stocastica*, laurea magistrale in Matematica (Padova).

- 2016/2017
  - Docente di *Calcolo delle Probabilità*, laurea magistrale in Scienze Statistiche (Padova).
- 2015/2016
  - Docente di *Calcolo delle Probabilità*, laurea magistrale in Scienze Statistiche (Padova).
- 2014/2015
  - Docente di *Calcolo delle Probabilità*, laurea magistrale in Scienze Statistiche (Padova).
- 2013/2014
  - Docente di *Statistica*, laurea triennale in Biologia Molecolare (Padova).
- 2012/2013
  - Docente di *Statistica*, laurea triennale in Biologia Molecolare (Padova).
  - Docente di *Calcolo delle Probabilità e Statistica Matematica*, laurea triennale in Informatica (Bologna).
- 2011/2012
  - Docente di *Statistica*, laurea triennale in Biologia (Padova).
  - Docente di un modulo di *Probabilità e Statistica Matematica*, laurea triennale in Matematica (Bologna).

b) Incarichi didattici per le scuole di dottorato

- 2021/22 Docente di *Random Graphs and Networks*, Scuola di Dottorato in Matematica (Padova).
- 2018/19 Docente di *Probability Theory*, Scuola di dottorato in Statistica (Padova), in collaborazione con i Proff. Marco Formentin e Giorgia Callegaro.
- 2017/18 Docente di *Probability Theory*, Scuola di dottorato in Statistica (Padova), in collaborazione con i Proff. Marco Formentin e Giorgia Callegaro.

c) Incarichi didattici per scuole ed istituti

- dal 2013 al 2022, docente di *Introduzione ai modelli probabilistici* per la classe di Scienze Naturali della Scuola Galileiana di Padova.

OTHER PROFESSIONAL ACTIVITIES

- Academic responsibilities
  - In 2020, member of the **committee for the PhD admission** of the Mathematics department of Padova.
  - In 2018, 2019 e 2020, member of the **committee for the PhD final examination** (University of Padova and University of Modena and Reggio Emilia).
  - Since 2020, referent of the ERASMUS student exchange program between the Universities of Padova and Bielefeld.
  - Since 2018, member of the **didactics committee** and of the **third mission and teachers formation Committee** of the Mathematics Department of Padova.
  - From 2014 to 2018, member of the **evaluation committee** of the Mathematics Department of Padova.
  - On 2015, member of the **examination committee for the admission to the Galileian School** of Padova.
- Disclosure and third mission
  - In 2021, she co-organized and presented the orientation event ***Matematica: che professione?!*** for the Mathematics Department of Padova.

- In 2018 and 2021, she co-organized the orientation event **Open day** for the Mathematics Department of Padova.
- Since 2018, she co-organized the event **Kids University** for the Mathematics Department of Padova.
- In 2017 and in 2020, she was invited by the *Istituto Veneto di Scienza, Lettere e Arti* to give a lecture in the framework of the event **I Lincei per i Licei**.
- In 2014, she was invited by the Galileian School of Padova to give a lecture in the framework of the event **Summer Week 2014**.
- Since 2013, member of the organizing committee of the European event **The Research Night** for the Mathematics Department of Padova.
- Teacher of the **online course "Probability and Statistics"**, presented by Eduopen on 2018.
- From 2013 to 2017, **tutor of Applied Mathematics** at the Galileian School of Padova.

Padova, March 9 2022
Alessandra Bianchi