

Curriculum Vitae et Studiorum Federico Bassetti

Personal Data

Born in Milano, Italy, April 25, 1976.
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Present position

February, 2018- present *Associate Professor* of Probability and Mathematical Statistics, Dipartimento di Matematica, Politecnico of Milano.

Previous positions

- August 2015 - February, 2018. *Associate Professor* of Probability and Mathematical Statistics, University of Pavia.
- March, 2006 - July, 2015. *Assistant Professor* of Probability and Mathematical Statistics, University of Pavia.
- July, 2004 - February, 2006. *Post doc* at University of Pavia, Mathematical Department.

Scientific interests

- Bayesian statistics with application to biology and econometry (species sampling models, vectors of random measures, non-parametrics).
- Limit theorems in probability (central limit theorem for Kac like equations and other kinetic models).
- Random graphs, interacting particles systems and application to biology (transcription networks, horizontal gene transfer).
- Monte Carlo Markov Chain.
- Exchangeability.

ASN (national scientific abilitation)

-ASN2016: Abilitazione Prima Fascia settore 01/A3 - analisi matematica, probabilità e statistica matematica.

-ASN2013: Abilitazione Seconda Fascia settore 01/A3 - analisi matematica, probabilità e statistica matematica.

-ASN2012: Abilitazione Seconda Fascia settore 13/D1 - statistica.

NATIONAL AND INTERNATIONAL PROJECTS- GRANTS.

- PRIN 2015. 2015SNS29B-002. Modern Bayesian nonparametric methods. Local coordinator, 15/02/2017-15/02/2018 (PI: I. Pruenster).
- INDAM. Gnampa 2017. Metodi Bayesiani per l'analisi statistica di successioni scambiabili e parzialmente scambiabili, con applicazioni al campionamento di specie. (PI: E. Dolera).
- INDAM. Gnampa 2016. Successioni parzialmente scambiabili in statistica bayesiana (PI).
- INDAM. Gnampa 2014. Alcuni problemi di inferenza statistica per successioni parzialmente scambiabili (PI).
- INDAM. Gnampa 2012. Titolo progetto: Studio probabilistico di alcune equazioni cinetiche (PI).
- PRIN 2008. 2008MK3AFZ. Nuovi Sviluppi nell'Applicazione di Metodi Statistici Bayesiani (PI: E.Regazzini).
- PRIN 2006. 2006134525. Il punto di vista di de Finetti sul paradigma di Bayes-Laplace: nuovi sviluppi metodologici e applicazioni (PI: E.Regazzini).

Education

- March 2005. *Ph.D.* in Mathematical Statistics at Università degli Studi di Pavia.
- October 2000-October 2004. *PhD Student* in Mathematical Statistics, Dipartimento di Matematica, Università degli Studi di Pavia.
- July 2000. Graduated in Mathematics at Università degli Studi di Pavia.
- July 1995. Graduated from high school, liceo classico "G.Parini", Milano.

Metrics (18/07/2017)

SCOPUS: Documents:30; Citations: 167 total citations by 113 documents; h-index: 8, Co-authors 38.

Conferences - workshops

July 3-5, 2017. Statistics4atFlorence, Firenze, Italy (invited talk).

June 19-22, 2017. First Italian Meeting on Probability and Mathematical Statistics. Torino, Italy (invited talk).

December 09-11, 2016. Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2016) Higher Technical School of Engineering, University of Seville, Seville, Spain (invited talk) .

December 12-15, 2015. 8th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2015), Senate House University of London, UK (invited talk).

June 24-26, 2015. 3rd Meeting on Statistics. Athens University History Museum, Greece (invited talk).

September 12-17, 2011. XIX Congresso dell'UMI- Bologna, Italy (short communication).

July 11-15, 2011. Probabilistic Methods in Kinetic Theory, Many-body effective equations. CIRM, Luminy, France (invited talk).

June 5-17, 2011. YIRCoBL 2011. Yeditepe International Research Conference on Bayesian Learning, Istanbul, Turkey (invited talk).

February 19-11, 2011. Boltzmann equation: mathematics, modeling and simulations. In memory of Carlo Cercignani. Paris, France.

July 14-19, 2008. 7th World Congress in Probability and Statistics, Singapore (communication).

May 15-18, 2008. Kinetic equations: direct and inverse problems. Mantova, Italy (invited talk).

January 9-11, 2008. 3rd IMS-ISBA joint meeting: MCMski, Markov chain Monte Carlo in Theory and Practice. Bormio, Italy (poster).

September 24-29, 2007. XVIII Congresso dell'UMI- Bari, Italy (short communication).

September 3-7, 2007. Complex Stochastic Systems: Discrete vs. Continuous. W1 Stochastic processes and algorithms. Hausdorff Research Institute for Mathematics, Bonn, Germany (invited talk).

July 29 - August 2, 2007. Joint Statistical Meeting JMS2007. Salt lake city. USA.

May 15-17, 2006. Workshop on Probabilistic Symmetries and Their Applications. Fields Institute - University of Ottawa, Canada (communication).

April 25-29, 2005. "Analytical methods in number theory, probability and mathematical statistics". St. Petersburg Department of Steklov Institute of Mathematics and Euler International Mathematical Institute, Russia.

January 12-14, 2005. 2nd IMS-ISBA joint meeting: MCMski, Bormio, Italy.

June 13-16, 2004. IV Workshop Bayesian Nonparametric, Università di Roma "La Sapienza", Italy.

June 9-1, 2004. Convegno Società Statistica Italiana. XLII riunione scientifica, Bari, Italy (short communication).

September 8-13, 2003. XVII Congresso dell'Unione Matematica Italiana, Milano, Italy (short communication).

Schools and visiting (longer than one month)

January-May, 2004. *Visiting student* at Department of Statistics of *Stanford University* (Prof. P. Diaconis), CA, USA.

12-19 October, 2002. Oberwolfach. "Mass transportation problems and applications." Prof. L. Ambrosio, C. Villani.

August, 2002. Visiting student at Department of Statistics of Stanford University, (Prof. P. Diaconis) CA, USA.

July, 2001. Summer school of Probability and Statistics dell'Università Bocconi. "Large Sample Theory, problems and applications." Prof. Y. Rinott.

Organization

June 13-24, 2016. Quantitative Laws II. From physiology to ecology, from interaction structures to collective behavior. Lake Como School, Como, Italy. Organizing committee.

June 10-11, 2016. Advances in Statistics, Probability and Mathematical Physics A conference in honour of Eugenio Regazzini at the University of Pavia. Organizing committee.

June 27- July 5, 2013. Quantitative Laws of Genome Evolution. Lake Como School of Advanced Studies. Organizing committee.

Referee for

Journal of the Royal Statistical Society, Journal of Multivariate Analysis, Statistics and Computing, Kinetic and Related Modles, Metron, Internet Mathematics, Journal of Stat. Plan. and Inf., Journal of Inequalities, Journal of the Italian Statistical Society, PLOS one, EJS.

Seminars

Univesità Bocconi (Milano), Politecnico di Milano, Univesità degli Studi di Padova, Università Milano-Bicocca, Università Roma La Sapienza, Università degli Studi di Tornio, Università Insubria, Università Ca Foscari Venezia, Zentrum Mathematik Technische Universität München, Technische Universität Wien, Universidad de Navarra, Department of Mathematics Darmstat University.

Teaching

Phd Courses.

2015-2016. "Bayesian inference: foundational, modelling and computational aspects", Phd program in Mathematics, Università Milano Bicocca, Milano Università Statale, Politecnico di Milano, Università degli Studi di Pavia.

2013-2014. "Random Graphs and Complex Networks", Phd program in Mathematics, Università Milano Bicocca, Milano Università Statale, Politecnico di Milano, Università degli Studi di Pavia.

Courses at "laurea magistrale" (master) and "laurea triennale".

2017-2018. *Probabilità e Statistica Matematica*, Ingegneria Gestionale, Politecnico di Milano. *Stochastic Processes* (in english), Economia (master), Università degli Studi di Pavia.

Applied Statistics (in english), Ingegneria Elettrica (master), Politecnico di Milano.

2016-2017. *Elementi di Probabilità*, Matematica (laurea triennale), Università degli Studi di Pavia. *Matematica con elementi di Statistica*, Chimica e Tecnologie Farmaceutiche (laurea triennale), Università degli Studi di Pavia.

2015-2016. *Elementi di Statistica Matematica* Matematica (laurea triennale), Università degli Studi di Pavia. *Matematica con elementi di Statistica*, Chimica e Tecnologie Farmaceutiche (laurea triennale), Università degli Studi di Pavia.

2014-2015. *Elementi di Statistica Matematica*, Matematica (laurea triennale), Università degli Studi di Pavia.

2013-2014. *Elementi di Statistica Matematica*, Matematica (laurea triennale), Università degli Studi di Pavia. *Probabilità e Statistica* (Esercitazioni), Matematica, Università degli Studi di Pavia.

2012-2013. *Elementi di Statistica Matematica*, Matematica (laurea triennale), Università degli Studi di Pavia. *Probabilità e Statistica* (Esercitazioni), Matematica, Università degli Studi di Pavia.

2011-2012. *Statistica Matematica*, Matematica (laurea specialistica), Università degli Studi di Pavia. *Probabilità e Statistica*, (Esercitazioni) Matematica, Università degli Studi di Pavia.

2010-2011. *Probabilità e Statistica*, (Esercitazioni) Matematica, Università degli Studi di Pavia.

2009-2010. *Statistica Matematica*, Matematica (laurea specialistica), Università degli Studi di Pavia.

2008-2009. *Matematica e Statistica applicate alle Scienze Naturali*, Scienze Naturali, Università degli Studi di Pavia. *Statistica Matematica*, Matematica (laurea specialistica), Università degli Studi di Pavia.

2007-2008. *Matematica e Statistica applicate alle Scienze Naturali*, Scienze Naturali, Università degli Studi di Pavia. *Statistica Bayesiana*, Matematica (laurea specialistica), Università degli Studi di Pavia.

2006-2007. *Statistica Matematica*, Matematica (laurea specialistica), Università degli Studi di Pavia. *Probabilità e Statistica*, Matematica (seminari didattici), Università degli Studi di Pavia.

2004-2005. *Probabilità*, Matematica (seminari didattici), Università degli Studi di Pavia.

2002-2003. *Probabilità*, Matematica (seminari didattici), Università degli Studi di Pavia.

2001-2002. *Probabilità elementare e Statistica*, Matematica (seminari didattici), Università degli Studi di Pavia. *Matematica e Statistica*, Scienze Naturali (seminari didattici), Università degli Studi di Pavia.

Phd Students.

E. Nicolino, “Dottorato in Matematica e Statistica” of the “Università degli Studi di Pavia” ciclo XXIX. (discussion 28/03/2017). Title of the thesis: “Bayesian Analysis of AR

Copula Models with Tree Structural Representation”.

Master Thesis and other.

I supervised/co-supervised: 7 thesis “laurea triennale” (supervisor); 10 thesis “laurea specialistica (master)” (supervisor); 1 thesis “laurea triennale” (co-supervisor); 2 thesis “laurea specialistica (master)” (co-supervisor).

Since 2007-2008 I am member of the Phd program “Dottorato in Matematica e Statistica” of the “Università degli Studi di Pavia” .

I have been involved in the program “Progetti Nazionali Lauree Scientifiche” for the following years: 2006-2007, 2007-2008 and 2008-2009.

Publications

Papers

1. F. Bassetti, R. Casarin, L. Rossini (2019+). Hierarchical Species Sampling Models. *Bayesian Analysis* (to appear).
2. Auricchio, G., Bassetti, F., Gualandi, S., Veneroni, M. (2019). Computing Wasserstein Barycenters via Linear Programming. *Lecture Notes in Computer Science* (Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) 11494 LNCS, 355-363.
3. Auricchio, G, Gualandi, S, Veneroni, M, Bassetti, F. (2018). Computing Kantorovich-Wasserstein Distances on d-dimensional histograms using $(d + 1)$ -partite graphs *Advances in Neural Information Processing Systems* Volume 2018 December, 5793-5803.
4. F. Bassetti, E. Degiuli, E. Nicolino, C. Tarantola (2018). Multivariate Dependence Analysis via Tree Copula Models: An application to one-year forward energy contracts. *European Journal of Operational Research* 269, 1107-1121.
5. F. Bassetti, R. Casarin, F. Ravazzolo (2018). Bayesian Nonparametric Calibration and Combination of Predictive Distributions. *Journal of the American Statistical Association* Volume 113, 522.
6. F. Bassetti, I. Epifani, L. Ladelli (2017). A Cox Markov model for estimating single cell growth. *Electronic Journal of Statistics*, 11, 2931-297 .
7. Q. Zhang, F. Bassetti, M. Gherardi, M. Cosentino Lagomarsino (2017). Cell-to-cell variability and robustness in S-phase duration from genome replication kinetics. *Nucleic Acids Research*. gkx556 doi.org/10.1093/nar/gkx556
8. M. Gherardi, F. Bassetti, M. Cosentino Lagomarsino (2016). Law of corresponding states for open collaborations. *Physical Review E* **93** (4), 042307.
9. F. Bassetti, L. Ladelli, D. Matthes (2015). Infinite energy solutions to inelastic homogeneous Boltzmann equation. *Electron. J. Probab.* **20**, (89) 1-34.
10. F. Bassetti, G. Toscani (2015). Mean field dynamics of collisional processes with duplication, loss and copy. *Math. Mod. Meth. Appl. Scie.* **25** (10) 1887-1925.

11. Airoidi E., Costa T., Leisen F., Bassetti F. and Guindani M. (2014). Generalized Species Sampling Priors with Latent Beta reinforcements. *Journal of the American Statistical Association* **109** 508 1466-1480.
12. J. Grilli, M. Romano, F. Bassetti and M. Cosentino Lagomarsino (2014). Cross-species gene-family fluctuations reveal the dynamics of horizontal transfers. *Nucleic Acids Research* **42** (11) 6850-60. Doi: 10.1093/nar/gku378
13. F. Bassetti, R. Casarin, F. Leisen (2014). Beta-Product Dependent Pitman-Yor Processes for Bayesian Inference. *Journal of Econometrics* **180** 49-72.
14. F. Bassetti, G. Toscani (2014). Explicit equilibria in bilinear kinetic models. *Esaim: Proceedings and Surveys* **47** 1-16
15. F. Bassetti, D. Matthes (2014). Multi-dimensional smoothing transformations: Existence, regularity and stability of fixed points. *Stochastic Processes and their Applications* **124** 154-198.
16. F. Bassetti, L. Ladelli (2013). Large Deviations for the solution of a Kac-type kinetic equation. *Kinetic and Related Models* **6** 245 - 268.
17. F. Bassetti, E. Perversi (2013). Speed of convergence to equilibrium in Wasserstein metrics for Kac-like kinetic equations. *Electron. J. Probab.* **18** 1-35.
18. F. Bassetti, L. Ladelli (2012). Self similar solutions in one-dimensional kinetic models: a probabilistic view. *Ann. App. Prob.* **22**.
19. F. Bassetti, L. Ladelli, G. Toscani (2011). Kinetic models with randomly perturbed binary collisions. *Journal of Statistical Physics* **142** 686-709.
20. F. Bassetti, E. Gabetta (2011). Survey on probabilistic methods for the study of Kac-like equations. *Bollettino U.M.I.* (9) IV, 187-212
21. F. Bassetti, L. Ladelli, D. Matthes (2011). Central limit theorem for a class of one-dimensional kinetic equations. *Probability Theory and Related Fields*. **150** 77-109.
22. Bonomi A, Bassetti F, Gabrieli P, Beadell J, Falchetto M, Scolari F, Gomulski LM, Regazzini E, Ouma JO, Caccone A, Okedi LM, Attardo GM, Guglielmino CR, Aksoy S, Malacrida AR (2011). Polyandry is a common event in wild populations of the tsetse fly *Glossina fuscipes fuscipes* and may impact population reduction measures. *PLoS Neglected Tropical Diseases* 5: e1190.
23. F. Bassetti (2011). Quantitative comparisons between finitary posterior distributions and Bayesian posterior distributions. *Journal of Statistical Planning and Inference* **141** 787-799.
24. F. Bassetti, G. Toscani (2010). Explicit equilibria in a kinetic model of gambling. *Phys. Rev. E* **81** 066115
25. F. Bassetti, F. Leisen (2010). Maximal flow in branching trees and binary search trees. *Methodology & Computing in Applied Probability* **13** 475-486.
26. F. Bassetti, I. Crimalidi, F. Leisen (2010). Conditionally identically distributed species sampling sequences. *Advances in Applied Probability* **42** 433-459.

27. F. Bassetti (2009). On the distribution of certain functionals of two distinguished random probabilities. *Rendiconti dell'Istituto Lombardo* **142**.
28. F. Bassetti, L. Ladelli, E. Regazzini (2008). Probabilistic study of the speed of approach to equilibrium for an inelastic Kac model. *Journal of Statistical Physics* **133** 683-710.
29. F. Bassetti, E. Regazzini (2008). The unsung de Finetti's first paper about exchangeability. *Rendiconti di Matematica Istituto Nazionale di Alta Matematica F. Severi* **28** 1-17
30. F. Bassetti, P.G. Bissiri (2008). Random partition model and finitary Bayesian statistical inference. *Sankhya* **70** 88-108.
31. F. Bassetti, M. Cosentino Lagomarsino, S. Mandrà (2007). Exchangeable Random Networks. *Internet Mathematics* **4** 357-400.
32. F. Bassetti, P.G. Bissiri (2007). Finitary Bayesian statistical inference through partitions tree distributions. *Sankhya* **69** 808-841.
33. F. Barbaini, F. Bassetti, E. Regazzini, A. Torre (2007). Giochi di sorte e giochi contro avversari intelligenti: probabilita' ed interazione strategica. *L'insegnamento della matematica e delle scienze integrate* Vol 30 A-B n.4 441-486
34. F. Bassetti, E. Gabetta, E. Regazzini (2007). On the depth of the trees in the McKean representation of Wild's sums. *Transport Theory and Statistical Physics* **36** 421 - 438.
35. F. Bassetti, M. Cosentino Lagomarsino, B. Bassetti, P. Jona (2007). Random Networks Tossing Biased Coins. *Phys. Rev. E* **75**.
36. F. Bassetti, A. Bodini, E. Regazzini (2007). Consistency of minimum divergence estimators based on grouped data. *Statistics & Probability Letters* **77** 937-941.
37. F. Bassetti, A. Bodini, E. Regazzini (2006). On minimum Kantorovich distance estimators. *Statistics & Probability Letters* **76** 1298-1302.
38. F. Bassetti, P. Diaconis (2006). Examples comparing Importance Sampling and the Metropolis algorithm. *Illinois Journal of Mathematics* **50** 67-91.
39. F. Bassetti, E. Regazzini (2005). Asymptotic properties and robustness of minimum dissimilarity of location-scale parameters. *Teor. Veroyatn. Primen.* **50** 312-330; translation in *Theory Probab. Appl.* **50** (2006), 171-186.
40. F. Bassetti, E. Regazzini (2005). Asymptotic distribution and robustness of minimum total variation distance estimators. *Metron*, vol LXIII, 55-80.
41. F. Bassetti (2003). Variable Time-Step Discretization of Degenerate Evolution Equations in Banach Spaces. *Numerical Functional Analysis and Optimization* **24** 391-426.

Book Chapters

1. F. Bassetti, F. Leisen, E. Airoidi, M. Guindani (2015). Species sampling priors for modeling dependence: An application to the detection of chromosomal aberrations (Book Chapter). *Nonparametric Bayesian Inference in Biostatistics* pp. 97-114. Mitra, R., Muller, P. (Eds.), Springer.

Submitted papers

1. F. Bassetti, S. Gualandi, M. Veneroni (2018). On the Computation of Kantorovich-Wasserstein Distances between 2DHistograms by Uncapacitated Minimum Cost Flows. Available on arXiv: <https://arxiv.org/abs/1804.00445>. Submitted to a journal.