Curriculum vitae
Sonia Petrone

- **Mailing & Office Address**

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- **Education**

  PhD in Statistics, University of Trento (1989).

  Laurea in Discipline Economiche e Sociali, Bocconi University, Milano (1984).

- **Academic position**

  She has an *idoneità* as Full Professor since October 2002. November 2001- : Associate Professor of Statistics, Istituto di Metodi Quantitativi, Bocconi University, Milano. She was previously Associate Professor of Statistics in the Department of Economics, University of Insubria (1998-2001) and Assistant Professor in the Department of Economics and Quantitative Methods, University of Pavia.

  She has been visiting and conducted research in various universities and research Institutes, including Stanford University, Cornell University, the University of Washington, the Institute for Mathematics and its Applications - University of Minnesota, the Indian Statistical Institute.

- **Society Membership**

  She is a member of the Società Italiana di Statistica, Institute of Mathematical Statistics, American Statistical Association. She has been member of the Board of Directors of the International Society of Bayesian Analysis (2002-2004).

- **Main research interests**

  Bayesian statistics;

  Bayesian nonparametric analysis;

  mixtures and latent variables models;

  dynamic models, state space models.

- *Referee* She has served as referee for several scientific journals, including the Journal of the American Statistical Society, the Journal of the Royal Statistical Society, Ser.B, the Annals of Statistics, the Scandinavian Journal of Statistics, Neural Computation, the Journal of the Italian Statistical Society, Bernoulli, Journal of Computational and Graphical Statistics, Journal of Nonparametric Statistics, Statistical Methods and Applications.

- **Scientific meetings**

  She has been in the scientific and organizing committee of several international conferences, including the series of workshops on "Bayesian nonparametrics" and "Bayesian Inference for Stochastic Processes" (BISP).

  2005-2008

  - Invited speaker, *Ninth Brazilian Bayesian Meeting* (Sao Paulo, February 27-March 1, 2008)

  - Invited speaker, *Hyderabad Symposium in Probability and Statistics* (December 17-19, 2007, Hyderabad, India).

  - Invited speaker, *CLAGAD 2007* (Macerata, September 13-16, 2007)

  - Invited to organize a section, *S.Co 2007* (Statistics and computing) (Venice, September 6-8 2007)

  - Invited speaker, *Bayesian Nonparametric Regression: Theory, Methods and Applications*, Isaac Newton Institute for Mathematical Sciences, Cambridge, 7-10 August 2007

  - Member of the Scientific Committee of the *Fifth Workshop on Bayesian inference in stochastic processes* (Valencia, Spain, June 2007)

  - *International Indian Statistical Association (IISA) International Conference on Statistics, Probability and related Areas* (Cochin, India, January 2-5, 2007) (invited speaker)

  - *Valencia-ISBA Eighth World Meeting on Bayesian Statistics* (Benidorm, Spain, June 1-7 2006) (invited discussant)

  - member of the Scientific Committee of the *5-th workshop on Bayesian Nonparametrics* (June 18-21, 2006, Jeju, Korea)

  - *25rd European Meeting of Statisticians* (Oslo, July 24-28th, 2005; Invited to organize a session)

  - *Fourth Workshop on Bayesian inference in stochastic processes* (Varenna, Italy, June 2005; member of the Scientific Committee)

  - *Second Latin American Congress on Bayesian Statistics COBAL2* (San Jose' del Cabo, Mexico, February 2005) (invited speaker)

  - *Workshop on Quantitative Finance* (Bocconi University; January 2005) (contributed talk)

  - 2nd IMS-ISBA joint meeting on *MCMski: the past, the present and the future of Gibbs sampling* (Bormio, January 2005) (invited to organize a session)

  - Invited to organize a session for the *International Conference on Bayesian Statistics and its Applications* (January 6-8, 2005, Banaras Hindu University, Varanasi, India).

- **Teaching**

  She is vice-coordinator of the Ph.D. in Statistics, Bocconi University.

  Teaching (2006-2007 and current academic year): Statistics (undergraduate), Time series analysis for economic financial data (*Laurea magistrale*-Master), Mixture models (PhD in Statistics).

- **Main publications**

In scientific journals, volumes and proceedings (with referee)

Hjort, N.L. and Petrone, S. (2007). Nonparametric quantile inference with Dirichlet processes. In *Advances in Statistical Modeling and Inference. Essays in Honor of Kjell A Doksum*, Vijay Nair Ed., 463-492.

Gelfand, A.E., Guindani, M. and Petrone, S. (2006). Bayesian nonparametric modelling for spatial data using Dirichlet processes (with discussion). In *Bayesian Statistics 8*, J.M. Bernardo, J.O. Berger, Dawid, A.P. and A.F.M. Smith Eds, to appear.

Petrone, S. (2004). On the role of mixtures in Bayesian nonparametrics. *Atti della XLII Riunione Scientifica della Società Italiana di Statistica*, Vol.1, 257-268, Cleup, Padova.

Petrone, S. and Wasserman, L. (2002). Consistency of Bernstein polynomial posteriors. *Journal of the Royal Statistical Society, Ser. B*, **64**, 79-100

Petrone, S. and Veronese, P. (2002). Non parametric mixture priors based on an exponential random scheme. *Statistical Methods and Applications*, **11**, 1-20.

Campagnoli, P., Muliere, P., and Petrone, S. (2001). Generalized dynamic linear models for financial time series. *Applied Stochastic Models in Business and Industry*, **17**, 27-39.

Petrone, S. (1999). Random Bernstein polynomials. *Scandinavian Journal of Statistics*, **26**, 373-393.

Petrone, S. (1999). Bayesian density estimation using Bernstein polynomials. *Canadian Journal of Statistics*, **27**,105-126.

Petrone, S., Roberts, G.O. and Rosenthal, J.S. (1999). A note on convergence rates of Gibbs sampling for nonparametric mixtures. *Far East Journal of Theoretical Statistics*, **3**, 2,213-225.

Petrone, S. and Raftery, A. (1997). A note on the Dirichlet process prior in Bayesian nonparametric inference with partial exchangeability. *Statistics and Probability Letters*, **36**, 69-83.

Petrone, S. (1998). Analisi bayesiana di modelli "annidati". *Atti della XXXIX Riunione Scientifica della SIS*, Sorrento.

Mira, A. and Petrone, S. (1996). Bayesian hierarchical nonparametric inference for change-point problems. In *Bayesian Statistics V.* J.M. Bernardo, J.O.Berger, A.P. Dawid, A.F.M. Smith Eds., 693 - 703, Oxford University Press, N.Y.

Petrone, S. (1996). Polinomi di Bernstein e processo di Dirichlet. *Atti della XXXVIII Riunione Scientifica della Società Italiana di Statistica.* 749-756. Rimini.

Muliere, P. and Petrone, S. (1995). A sample monotone dependence function based on the generalized Lorenz curve of concomitants of order statistics. In *Income Distribution, Social Welfare, Inequality and Poverty*, C. Dagum and A. Lemmi Eds, 289-300. JAI-Press, Greenwich, CT, USA.

Berti, P., Petrone, S. and Rigo, P. (1994). Su alcune classi complete di funzioni di decisione. *Atti della XXXVII Riunione scientifica della Società Italiana di Statistica*, Vol. II, 483-489, Sanremo.

Muliere, P. and Petrone, S. (1993). A Bayesian predictive approach to sequential searching for an optimal dose: parametric and nonparametric models. *Journal of the Italian Statistical Society*, **3**, 349-364.

Muliere, P. and Petrone, S. (1992). Generalized Lorenz curve and monotone dependence orderings. *Metron*, **L**, 19-38.

Muliere, P. and Petrone, S. (1992). La ricerca sequenziale di una dose ottimale: impostazione bayesiana previsiva. *Atti della XXXVI Riunione Scientifica della Società Italiana di Statistica*, Vol II, 203-210, Pescara.

Corielli, F. and Petrone, S. (1990). Funzioni di decisione bayesiane con leggi di probabilità finitamente additive. *Atti della XXXV Riunione Scientifica della Società Italiana di Statistica*, Vol II, 419-426, Padova.

Invited discussions

Petrone, S. (2006). Discussion on "Approximating interval hypothesis: p-values and Bayes factors", by J. Russeau. *Bayesian Statistics 8*, J.M. Bernardo, J.O. Berger, Dawid, A.P. and A.F.M. Smith Eds, to appear.

Petrone, S. (2003). A predictive point of view on Bayesian nonparametrics. In *Highly Structured Stochastic Systems*, P. Green, N. Hjort and S. Richardson Eds, Oxford University Press.

Petrone, S. (1999). Discussion on "Bayesian nonparametric inference for random distributions and related functions", by Walker, S.G., Damien, P., Laud, P.W., Smith, A.F.M., *Journal of the Royal Statistics Society, Ser. B*, **61**, 522-523.

Petrone, S. (1999). Discussion on "Robustifying Bayesian procedures", by Walker, S.G. and Gutierrez-Pena, E. In *Bayesian Statistics 6*, J.M. Bernardo, J.O. Berger, Dawid, A.P. and A.F.M. Smith Eds, Oxford University Press, 703-705.

Petrone, S. (1997). Discussion on "Choosing among models when none of them are true", by Key, J.T., Pericchi, L.R. and Smith, A.F.M. *Proceedings of the Workshop on Model Selection*, Racugno, W. Editor, Pitagora Editrice, Bologna, 355-358.

In Proceedings and research projects reports (no referee)

Cifarelli D.M., Muliere P., Petrone S. (2001). Predictive Inference : a review and new developments. *Revista de Estadistica*, 23 European Meeting of Statisticians. Vol. 2, pp. 43-47.

Muliere, P. and Petrone, S. (1999). Inferenza bayesiana nonparametrica. In *Atti delle Giornate di Studio su "Decisioni Statistiche"*, 47-67. Pitagora Editrice, Bologna.

Corielli, F. and Petrone, S. (1997). Polinomi di Bernstein e modelli di non arbitraggio per la curva dei rendimenti. *Atti del XXI Convegno Annuale A.M.A.S.E.S.*, Roma, 115-129.

Recent work

Petris, G., Petrone, S., Campagnoli, P. *Dynamic linear models with R*, (*in preparation* for Springer-Verlag, New York).

Gelfand, A.E., Guindani, M. and Petrone, S. (2007). Hybrid Dirichlet processes for functional data. (submitted).

Petris, G. and Petrone, S. (2007). Bayesian inference for dynamic linear models with random variances. To appear in *Proceedings of the Sixth Scientific Meeting of CLADAG*, Macerata.

Petrone, S. and Corielli, F. (2005). No-arbitrage issues in dynamic models for estimating the yield curve. (*Substantially revised version of Corielli and Petrone, 2001*).

Petrone, S. and Veronese, P. (2003). Approximation of distribution functions: a constructive scheme with application in Bayesian nonparametrics. *Studi Statistici n. 81*, Istituto di Metodi Quantitativi, Bocconi University, Milano. (under revision)

Corielli, F. and Petrone, S. (2001). Dynamic regression using Bernstein polynomials with application to estimation of the term structure of interest rates. *Studi Statistici n. 61*, Istituto di Metodi Quantitativi, Università Bocconi.

Petrone, S. and Veronese, P. (2001). Feller operators based on natural exponential families. *Studi Statistici n. 60*, Istituto di Metodi Quantitativi, Università Bocconi, Milano.