

# Sergios Agapiou

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**Date and place of birth:** 7<sup>th</sup> May 1984, Nicosia, Cyprus

**Citizenship:** Cypriot

**Address:** Department of Mathematics and Statistics, University of Cyprus  
1 University Avenue, 2109 Nicosia, Cyprus

**Email:** sergiosagapiou@gmail.com

**Homepage:** <http://www.sergiosagapiou.com>

**Phone:** +357 22893919

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**Research Interests:** Problems in Applied Mathematics at the interface of Differential Equations and Probability/Statistics. Bayesian regularization of inverse problems in infinite dimensions: theoretical foundation, asymptotic performance of posterior distributions in the small noise limit, design and analysis of sampling algorithms in high dimensions, unbiased estimation of posterior expectations.

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## Employment

- 09/2015 - present, Lecturer (Tenure Track)  
Department of Mathematics and Statistics, University of Cyprus
  - 12/2014 - 08/2015, Postdoctoral Research Fellow  
Department of Statistics, University of Warwick
    - Position under the EPSRC funded project  
*Enabling Quantification of Uncertainty in Inverse Problems (EQUIP)*
    - Supervisor: Prof. Gareth Roberts.
  - 10/2013 - 11/2014, Postdoctoral Research Fellow  
Mathematics Institute, University of Warwick
    - Position under the ERC funded project  
*Problems at the Applied Mathematics-Statistics interface (AMSTAT)*
    - Supervisor: Prof. Andrew Stuart.
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## University Education

- 2013, PhD in Mathematics  
University of Warwick
  - Thesis: *Aspects of Bayesian inverse problems*
  - Supervisor: Prof. Andrew Stuart.
- 2010, MSc in Mathematics (Distinction)  
University of Warwick
  - Dissertation: *A classical and a Bayesian approach to linear ill-posed inverse problems*
  - Dissertation supervisor: Prof. Andrew Stuart.
- 2009, BSc in Applied Mathematics and Physical Sciences (First Class)  
National Technical University of Athens
  - University Medal for graduating top in School's class of 2009
  - Diploma dissertation: *Stable and Infinitely Divisible distributions*
  - Dissertation supervisor: Prof. Spyros Argyros.

## Journal Publications

- S. Agapiou, M. Burger, M. Dashti and T. Helin, *Sparsity-promoting and edge-preserving maximum a posterior estimators in non-parametric Bayesian inverse problems*, Inverse Problems 2018, Vol. 34, No. 4.
- S. Agapiou and P. Mathé, *Posterior contraction in Bayesian Inverse Problems under Gaussian priors*, New trends in parameter identification for mathematical models 2018, Springer Trends in Mathematics series,1-29.
- S. Agapiou, G. O. Roberts and S. J. Vollmer, *Unbiased Monte Carlo: posterior estimation for intractable/infinite-dimensional models*, Bernoulli 2018, Vol. 24, No. 3, 1726-1786 .
- S. Agapiou, O. Papaspiliopoulos, D. Sanz-Alonso and A. M. Stuart, *Importance Sampling: intrinsic dimension and computational cost*, Statistical Science 2017, Vol. 32, No. 3, 405-431.
- S. Agapiou, J. M. Bardsley, O. Papaspiliopoulos and A. M. Stuart, *Analysis of the Gibbs sampler for hierarchical inverse problems*, SIAM/ASA Journal on Uncertainty Quantification 2014, Vol. 2, No. 1, 511-544.
- S. Agapiou, A. M. Stuart and Yuan-Xiang Zhang, *Bayesian posterior contraction rates for linear severely ill-posed inverse problems*, Journal of Inverse and Ill-Posed Problems 2014, Vol. 22, No. 3, 297-321.
- S. Agapiou, S. Larsson and A. M. Stuart, *Posterior contraction rates for the Bayesian approach to linear ill-posed inverse problems*, Stochastic Processes and their Applications 2013, Vol. 123, No. 10, 3828-3860.

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## Talks (invited talks in bold, titles and slides available on homepage)

- 2017: Applied Inverse Problems conference (Hangzhou), Algorithms and Computationally Intensive Inference seminar (Warwick), Greek Stochastics  $\iota'$  (Milos), **Bayesian and Nonlinear Inverse Problems workshop (Lorentz center, Leiden)**
- 2016: **EQUIP/AIB Meeting: Data Assimilation and Inverse Problems (Warwick)**, **Joint Scientific Computation and Statistics seminar (Nottingham)**, **Retrospective Monte Carlo Workshop (Warwick)**
- 2015: Algorithms and Computationally Intensive Inference seminar (Warwick), **Computational Statistics seminar (University College London)**, MiR@W day Uncertainty in Complex Computer Models (Warwick), **Statistics Seminar (Imperial College London)**, Applied Inverse Problems conference (Helsinki), Reading-Warwick Data Assimilation day (Reading)
- 2014: Greek Stochastics  $\zeta'$  (Athens), EQUIP lunch seminar (Warwick), Reading-Warwick Data Assimilation meeting (Warwick), Monte Carlo and Quasi Monte Carlo conference (Leuven), SIAM conference on Uncertainty Quantification (Savannah)
- 2013: CSC@lunchtime seminar (Warwick), **Bayesian Nonparametrics conference (Amsterdam)**, Inverse Problems and Applications conference (Linköping), **Stochastic Analysis seminar (Oxford)**
- 2012: **Canberra Symposium on Regularization (Australian National University)**, NSF/CBMS conference on Small Deviation Probabilities (Huntsville), Bayesian Inverse Problems workshop (Warwick), Numerical Analysis postgraduate workshop (Reading)
- 2011: **Computational and Applied Mathematics seminar (Chalmers University of Technology)**, Young Researchers in Mathematics conference (Warwick)

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## Teaching Experience

- Lecturer of Topics in Statistics, Winter terms 2015/16, 2016/17  
University of Cyprus (MSc course on topics from the area of Statistical Learning)
- Lecturer of Generalized Linear Models, Summer terms 2015/16, 2017/18  
University of Cyprus (MSc course on topics from Statistical Regression)
- Lecturer of Linear Models II, Summer terms 2015/16-2017/18  
University of Cyprus (4<sup>th</sup>-year course on statistical regression, model selection, classification)
- Lecturer of Computational Statistics, Winter terms 2016/17, 2017/18  
University of Cyprus (MSc course on introduction to Statistical simulation using R)
- Lecturer of Control Theory, Winter terms 2013/14, 2014/15  
University of Warwick (3<sup>rd</sup>-year course, introducing controllability, observability, stabilizability, Gaussian probability, filtering/smoothing and optimal control)
- Assistant for lecture series on Bayesian inverse problems by Prof. Andrew Stuart, 05/2012 & 07/2012  
Göttingen University and Peking University
  - Taught supplementary lectures and helped with preparation of lecture notes
  - Research level week-long course introducing prior modelling in function space, Bayes theorem for PDE inverse problems, well-posedness and approximation of posterior distributions, and algorithms for probing the posterior.
- Assistant for lecture series on Data Assimilation by Prof. Andrew Stuart, 07/2012  
Peking University
  - Taught supplementary lectures and helped with preparation of lecture notes
  - Research level week-long course introducing the discrete-time filtering and smoothing problems, the most important relevant algorithms, and briefly discussing the continuous-time case.

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## Scholarships - Awards

- MSc and PhD funding through Prof. Andrew Stuart's ERC grant AMSTAT, 2008/09-2012/13
- Scholarship for undergraduate studies by Greek Scholarships Foundation, 2004/05-2008/09
- Awards for performance as an undergraduate student at the School of Applied Mathematical and Physical Sciences, NTUA
  - Charalambos Chrysovergis award and University Medal for graduating top in School's class of 2009 (average grade 9.69/10)
  - Greek Scholarships Foundation annual awards and honorary scholarships for excellent performance, 2004/05-2008/09
  - Demetres Thomaidis Foundation awards for School's highest year-average grade, 2004/05, 2007/08, 2008/09
  - Christos Papakyriakopoulos awards for School's highest average grades in first and second year mathematics, 2004/05, 2005/06
  - Nikolaos Kritikos scholarship for highest average grade in first year Mathematics, 2004/05

- Evangelos-Manthos Anastasakis award for highest average grade in first and second year Physics, 2004/05-2005/06
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### Other Academic Activities

- Co-organizer of mini-symposia *Bayesian inverse problems with non-Gaussian priors* and *Communications in uncertainty quantification and inverse problems*, in AIP2017 conference at Hangzhou
- Co-organizer of mini-symposium *Markov chain Monte Carlo in high dimensions*, in MCQMC2014 conference at KU Leuven
- Organizer of the Mathematics and Statistics colloquium, University of Cyprus, 2015-2017
- Co-organizer of the EQUIP lunch seminar and organizer of postdoc reading group on the Bayesian approach to inverse problems, 2014/15
- Referee for *Electronic Journal of Statistics*, *Scandinavian Journal of Statistics*, *Bernoulli*, *SIAM Journal on Uncertainty Quantification*, *Inverse Problems*, *Inverse Problems and Imaging*, *Journal of Complexity* and *Statistics and Computing*
- Internal examiner of Andreas Makrides' PhD thesis, *Statistical inference for multi-state reliability systems*, University of Cyprus 2016.
- Junior member of the Isaac Newton Institute
- Mentoring of MASDOC PhD students Daniel Sanz-Alonso and Matthew Thorpe, University of Warwick 2013-2015