

IMS-FPS-2014 (IMS-Finance, Probability and Statistics)

3–5 July 2014

University of Technology, Sydney

Alex Novikov*

Organising Committee

- Professor Philip Protter (Columbia University), co-chairman
- Professor Alex Novikov (UTS), co-chairman
- Professor Xin Guo (University of California, Berkeley)
- Professor Steven Kou (Columbia University and NUS)
- Professor Kostya Borovkov (Melbourne University)
- Professor Ben Goldys (Sydney University)
- Associate Professor Juri Hinz (UTS)
- Professor Erik Shlogl (QFRC, UTS)
- Adjunct Professor Pavel Shevchenko (UTS and CSIRO, Sydney)
- Adjunct Professor Volf Frishling (UTS and National Australian Bank)

Topics covered

High frequency trading, retirement products and insurance, options pricing, stochastic optimal control, risk management and regulation, stochastic analysis, energy markets, Monte Carlo methods and empirical properties of financial markets.

Special presenters

- Rene Carmona (Paul M. Wythes '55 Professor of Engineering and Finance, Princeton University): 'Equilibrium analysis of large population dynamics'.
- Xunyu Zhou (Nomura Chair of Mathematical Finance and Director of the Nomura Centre for Mathematical Finance, University of Oxford): 'Rank dependent utility and risk taking'.
- Tze Lai (Professor of Statistics, Stanford University): 'Adaptive particle filters: theory and financial applications'.
- Dilip Madan (Professor of Finance at the Robert H. Smith School of Business, University of Maryland): 'Modelling and monitoring risk acceptability in markets: the case of the credit default swap'.

This was the fourth workshop for the special interest group 'Finance, Probability and Statistics' (FPS), recently formed under the auspices of the Institute for Mathematical Statistics (IMS). The event was a satellite of the joint Australian

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Fields of Research (FOR) code: 010205, 010404, 010405.

Statistical Conference/IMS Annual meeting, held 7–10 July 2014 in Sydney. The first IMS-FPS workshops were held in 2011 at Columbia University, in 2012 at the University of California at Berkeley and in 2013 at the National University of Singapore, respectively. By bringing together leading academic experts, practitioners and junior researchers, the workshop highlighted important contributions to mathematical finance made through the use of statistics and probability, and identified emerging directions where statistics and probability will play an essential role in the future.

On 2 July at the pre-workshop ‘High Frequency Trading’ Professors Philip Protter (Columbia University), Rene Carmona (Princeton) and Xin Guo (UC, Berkeley) presented their research on new models for analysing trading strategies. Indisputably, this is one of the hottest areas of research in mathematical finance and applications. Other main topics of the workshop were: analytical and numerical methods for pricing financial contracts, retirement products and insurance, stochastic optimal control, risk management and regulation, stochastic analysis, energy markets, Monte Carlo methods and empirical properties of financial markets.

The workshop lasted for four days, with 13 plenary talks and 45 invited talks in two or three parallel sessions. The program of the workshop and abstracts of talks can be viewed at <http://www.qfrc.uts.edu.au/IMS-FPS-2014/>. It was a great opportunity to mix with people from academia and industry.

The session ‘Australian practitioners’ organised by Dr Volf Frishling, Head of Market Risk Quantitative Support at National Australia Bank (NAB) attracted a lot of interest. In this session Dr John Jarratt, Head of Operational Risk Quantitative Analysis (NAB) presented a plenary talk on ‘Developments in operational risk modelling’. Dr Alan Brace, one of the founders of the famous LIBOR market model (known as the BGM Model), discussed some open problems in the area of interest rate modelling.

Thanks to AMSI and AustMS sponsorship we were able to provide partial support for the following scholars: Professor Dilip Madan (Cornell U), Xunyu Zhou (Oxford and Hong Kong U), Masaaki Kijima (Tokyo Metropolitan U), Tze Lai (Stanford U) and Rong Chen (Rutgers U). Furthermore, AMSI contribution allowed the setting of very reasonable registration fees and, as a result, among the 79 participants there were 26 postgraduate students.

Selected papers will be published in a Special Issue of the *ANZIAM Journal* devoted to recent advances in Financial Mathematics and Applied Stochastic Analysis.

Organisers’ opinion of success

Our opinion is that the workshop was a great success. We were able to assemble talks from a wide variety of topics and in particular we were very happy to have fantastic talks from esteemed international speakers. There were robust discussions and questions answered following many of the talks and all participants (students, academics and practitioners alike) benefited by attending this event.