Centre for Research in Mathematics Newsletter
University of Western Sydney

Official Opening of the Centre

Prof Barney Glover addressing the gathering.

The big news is the formal inauguration ceremony of the Centre on the 28th of May. The opening ceremony was a star-studded event, with the stars of course, of the academic world. Vice-Chancellor Prof Barney Glover addressed the gathering and declared the Centre open.

Prof Jonathan Borwein from the University of Newcastle shared his experiences of starting and running the successful research centre CARMA at University of Newcastle. There were short talks by the members of the Centre showcasing our research activities. The talks were followed by an informal gathering accompanied by hors d'oeuvres and wine.
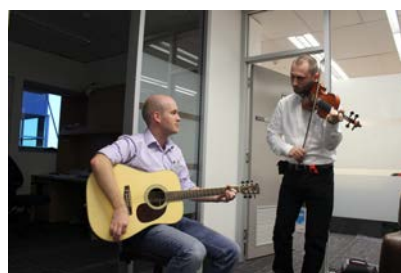
The evening was closed on a high note, with James and Attila on guitar and violin charming the audience. Congratulations to everyone involved for putting up such a well-organised event! Thanks are also due to Springer Publishers and Wolfram Research for their support in providing the displays for the event.

Prof Borwein sharing his experiences.

Interesting conversations.

Algebraists collaborate.

Seminars & Colloquia

Peter Jarvis from the University of Tasmania gave a talk about *"Diagram Algebras and Representations"* on 27th February.

Stefen Friedl from the University of Regensburg, Germany visited CRM and gave a talk titled "New results on fundamental groups of 3-manifolds" on 16th April.

Recent activities of members

- **Volker Gebhardt** visited University of Caen in January and University of Paris in February. He was able to give two talks at the University of Paris - in Chevalley Seminar and Garside theory seminar.

- In April, **Volker Gebhardt** visited University of Seville where he gave two talks at Department of Algebra seminar.

- **Andrew Francis** attended the Algebraic Statistics 2014 conference at the Illinois Institute of Technology in May. He gave a talk in the conference about algebraic models of evolution, and worked with Henry Wynn from London School of Economics on some new problems.

Recent papers accepted

- **Rehez Ahlip** "Semi Analytical Pricing of Currency Options in the Heston/CIR Jump Diffusion Hybrid Model" to appear in *Journal Of Applied Mathematical Finance*.

- **Rehez Ahlip** "Pricing of Foreign Exchange Options under the MPT Stochastic Volatility Model and the CIR Interest Rates" to appear in *European Journal of Finance*.

- **James East** "Singular braids and partial permutations" to appear in *Acta Scientiarum Mathematicarum Szeged*.
- **James East** "A symmetrical presentation for the singular part of the symmetric inverse monoid" to appear in *Algebra Universalis*.
- **James East** "Infinite partition monoids" to appear in *International Journal of Algebra and Computation*.
- **Andrew Francis** and Henry P. Wynn "Subgroup majorization" appeared in *Linear Algebra and its Applications, Volume 444*.
- Tadeusz Bak, Dewei Chu, **Andrew Francis**, Wenxian Li and Janusz Nowotny "Concentration of electrons at grain boundaries in TiO2 (Rutile): Impact on charge transport and reactivity" appeared in *Catalysis Today, Volume 224*.
- **Volker Gebhardt** and Stephen Tawn "Normal forms of random braids" published in *Journal of Algebra 408 (2014)*.
- Jon Berrick, **Volker Gebhardt** and Luis Paris "Finite index subgroups of mapping class groups" published in *Proceedings of the London Mathematical Society 108 (2014)*.
- Patrick Dehornoy and **Volker Gebhardt** "Algorithms for Garside calculus" published in *Journal of Symbolic Computation 63 (2014)*.
- **Laurence A. F. Park**, and Glenn Stone, "Inducing controlled error over variable length ranked lists" to appear in *Proceedings of the 18th Pacific-Asia Conference on Knowledge Discovery and Data Mining*.
- **Laurence A. F. Park**, and Simeon Simoff "Second order probabilistic models for within-document novelty detection in academic articles" to appear in *SIGIR '14: Proceedings of the 37th International ACM SIGIR Conference on Research and Development in Information Retrieval*.

Miscellaneous

CRM Summer scholarships were awarded to Madalyn Thompson and Chad Clark. Madalyn worked with Roozbeh Hazrat and Chad worked with James East for a period of four weeks. We wish both of them good luck, and hope that they continue to find beauty and excitement in mathematics.

CRM Researchers

Core members:

- Dr James East
- Prof Andrew Francis
- Dr Volker Gebhardt
- Dr Roozbeh Hazrat
- A/Prof Glenn Stone
- Prof Wei Xing Zheng.

Associated researchers:

- Dr Rehez Ahlip
- Sangeeta Bhatia
- Dr Attila Egri-Nagy
- A/Prof Leanne Rylands
- Stuart Serdoz
- Dr Stephen Tawn

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Dr Attila Egri-Nagy

Dr Attila Egri-Nagy is a post-doctoral research fellow in Algebraic Biology. His main research interest is developing and applying mathematical tools for solving biological problems, especially those where a computational approach is useful.

For him work is a passion, so there is no clear distinction between research and personal life. Maybe the activities of reading books, philosophical thinking, playing the violin and go games, walking in nature and formerly roaming the British canal network living on a narrowboat may qualify as his hobbies.

A/Prof. Glenn Stone

Glenn Stone is an Associate Professor of Statistics in CRM. His main area of research interest is Computational Statistics, mostly with scientific applications. Additionally, he has worked across a range of statistical areas including, bioinformatics, biostatistics, data mining and risk management.

He has a wife and three children, Abbie (14), Maisie (9) and Fletcher (<3), and therefore has no spare time. However, he does try to run (when his calves are not hurting), cycle (when his knee is not hurting) and read books (when his eyesight is not failing).