



MATRIX News

Jan de Gier*

Mathematical Research Institute MATRIX

Book series

MATRIX is proud to announce the online installment of the MATRIX Book Series: The 2016 MATRIX Annals:

<https://www.matrix-inst.org.au/2016-matrix-annals/>

The 2016 Annals will be published by Springer later this year with expected number of pages close to 670. The Editorial Board consists of:

- David Wood (Editor-in-chief),
- Jan de Gier,
- Cheryl Praeger
- Terence Tao.

Articles can be peer-reviewed, containing original results, or reviews on a topic related to the program, or non-peer-reviewed expository lecture notes based on talks or activities at MATRIX.

Programs

MATRIX, Australia's international and residential mathematical research institute, is gearing up for its exciting last quarter research programs. In recent months the Creswick campus has been abuzz with researchers from across the globe. Recently completed programs:

- *Computational Inverse Problems*, 11–23 June 2017
Organisers: Tiangang Cui (Monash), Hans De Sterck (Monash), Markus Hegland (ANU), Youssef Marzouk (MIT), Ian Turner (QUT), Karen Willcox (MIT)
- *Integrability in Low-Dimensional Quantum Systems*, 26 June – 21 July 2017
Organisers: Murray Batchelor (ANU), Patrick Dorey (Durham), Clare Dunning (Kent), Giuseppe Mussardo (SISSA Trieste), Paul Pearce (Melbourne), Chaiho Rim (Sogang, Seoul)

Five further programs will be hosted in 2017. One is co-organised by Fields Medalist Andrei Okounkov, who will also speak at the 2017 AustMS meeting sponsored by MATRIX.

- *Elliptic Partial Differential Equations of Second Order: Celebrating 40 Years of Gilbarg and Trudinger's Book*, 16–28 October 2017

*MATRIX, Creswick, <http://www.matrix-inst.org.au/>

Organisers: Lucio Boccardo (Sapienza, Roma), Florica-Corina Cirstea (Sydney), Julie Clutterbuck (Monash), L. Craig Evans (California Berkeley), Enrico Valdinoci (Milan)

- *Combinatorics, Statistical Mechanics, and Conformal Field Theory*, 29 October – 18 November 2017

Organisers: Vladimir Korepin (Stony Brook), Vladimir Mangazeev (ANU), Bernard Nienhuis (Amsterdam), Jorgen Rasmussen (UQ)

- *Mathematics of Risk*, 20 November – 8 December 2017

Organisers: Kostya Borovkov (Melbourne), Kais Hamza (Monash), Masaaki Kijima (Tokyo), Alex Novikov (UTS), Peter Taylor (Melbourne)

- *Tutte Centenary Retreat*, 26 November – 2 December 2017 (in conjunction with the *5th International Combinatorics Conference* at Monash University)

Organisers: Marston Conder (Auckland), Graham Farr (Monash), Dillon Mayhew (Wellington), Kerri Morgan (Monash), James Oxley (Louisiana State), Gordon Royle (UWA)

- *Geometric R-Matrices: from Geometry to Probability*, 17–22 December 2017
Organisers: Rick Kenyon (Brown), Andrei Okounkov (Columbia), Anita Ponsaing (Melbourne), Paul Zinn-Justin (Melbourne)

MATRIX Programs

The MATRIX Scientific Committee selects programs on scientific excellence as well as on the participation rate of high profile international participants, among other criteria. MATRIX programs tend to have ample unstructured time to encourage collaborative research rather than having a traditional conference format. Longer term programs, lasting three weeks or more, could have an embedded conference or lecture series. Shorter workshops focussing on a special theme are also welcome. MATRIX offers additional support to participants with families through the MATRIX Family Fund.

The next deadline for program proposals in 2018–2020 will be in October 2017

Guidelines for proposals and expressions of interest (which may be submitted at any time) are available on our website www.matrix-inst.org.au.

MATRIX Minors

MATRIX Minor programs are self-funded visits to MATRIX to make use of the available office space and facilities at the Creswick Campus outside program times, for example to work intensively in a small group. Such visits are subject to the approval of MATRIX but can be arranged by sending an email request that briefly outlines the proposed research and timings.

Upcoming 2018 Programs

Nine exciting programs are scheduled for 2018. The final dates for some of these programs are to be confirmed.

- *Non-Equilibrium Systems and Special Functions*,
7 January – 2 February 2018
Organisers: Vadim Gorin (MIT), Tomohiro Sasamoto (Tokyo), Ole Warnaar (UQ), Michael Wheeler (Melbourne)
- *Month of Mathematical Biology*, 27 June – 20 July 2018
(in conjunction with the *Annual Meeting of the Society for Mathematical Biology* in Sydney)
Organisers: Ruth Baker (Oxford), Kevin Burrage (QUT), Helen Byrne (Oxford), Edmund Crampin (Melbourne), Mark Flegg (Monash), Alexander Fletcher (Sheffield), Edward Green (Adelaide), Samuel Isaacson (Boston), James Osborne (Melbourne), Hans Othmer (Minnesota)
- *Geometric and Categorical Representation Theory*, 9–21 December 2018
Organisers: Clifton Cunningham (Calgary), Masoud Kamgarpour (UQ), Anthony Licata (ANU), Peter McNamara (UQ), Sarah Scheretzke (Bonn), Oded Yacobi (Sydney)
- *Partial Differential Equations, Geometry, and the Calculus of Variations*,
19 February – 2 March, 2018
Organisers: Serena Dipierro (Milan), Jesse Gell-Redman (Melbourne), Xavier Ros-Oton (Austin), Enrico Valdinoci (Melbourne), Nirav Shah (UQ)
- *Algebraic Geometry, Approximation and Optimisation*, 5–16 February 2018
Organisers: Enrico Carlini (Torino), Jochen Garcke (Bonn), Wolfgang Hackbusch (Max Planck), Markus Hegland (ANU), Vera Roshchina (RMIT), Nadezda Sukhorukova (Swinburne), Julien Ugon (Federation), David Smyth (ANU).
- *On the Frontiers of High Dimensional Computation*, 4–15 June 2018
Organisers: Frances Kuo (UNSW), Hans De Sterck (Monash), Josef Dick (UNSW), Mahadevan Ganesh (Colorado), Mike Giles (Oxford), Markus Hegland (ANU), Dirk Nuyens (Leuven), Ian Sloan (UNSW), Clayton Webster (Oak Ridge), Henryk Wozniakowski (Warsaw and Columbia).
- *Dynamics, Foliations, and Geometry in Dimension*, September 2018
Organisers: Jonathan Bowden (Monash), Steven Frankel (Yale), Andy Hammerlindl (Monash), Rafael Potrie (Uruguay)
- *Recent Trends on Nonlinear PDEs of Elliptic and Parabolic Type*,
November to December 2018
Organisers: Yihong Du (New England), Daniel Hauer (Sydney), Angela Pistoia (Sapienza, Roma)
- *Functional Data Analysis and Beyond*, 4–15 December 2018
Organisers: Aurore Delaigle (Melbourne), Frederic Ferraty (Toulouse), Debashis Paul (Davis)

It is great to see program organisers from a variety of Australian universities, along with many international organisers and participants.

Background

MATRIX is currently a partnership between Monash University and The University of Melbourne, and associate member the ARC Centre of Excellence for Mathematical and Statistical Frontiers (ACEMS). MATRIX facilitates new collaborations and advances in the mathematical sciences through advanced residential research programs where world leading researchers, as well as experts from business and industry, come together to collaborate in an intellectually stimulating and supportive environment.

Questions

Comments, suggestions and requests are always welcome. Please send these, as appropriate, to:

Directors	Jan de Gier (jdg@matrix-inst.org.au) David Wood (davidw@matrix-inst.org.au)
Executive Officer	Sally Zanic (sallyz@matrix-inst.org.au)
Chair of the Advisory Board	Tony Guttmann (guttmann@unimelb.edu.au)



Professor De Gier's research interests are in mathematical physics and statistical mechanics, in particular in the theory and application of solvable lattice models as well as special functions in stochastic processes and combinatorics. Jan is a former Editor of the *Gazette*, organised an AMSI summer school and was inaugural Chair of the Australia and New Zealand Association of Mathematical Physics (ANZAMP). He is currently Head of the School of Mathematics and Statistics at The University of Melbourne and co-Director of MATRIX.