

## **Biographies**

### **Dr Barry Cox**

Barry Cox completed a Bachelor of Mathematics at the University of Wollongong in 1989 majoring in Applied Mathematics and Computing Science. After working in the computing industry for a number of years he commenced postgraduate studies in 2004, and in 2007 he was awarded the PhD in Applied Mathematics for his thesis titled "Mathematical modelling of nano-scaled structures, devices and materials" which was completed under the supervision of Professor James Hill and Dr Ngamta Thamwattana in the Nanomechanics Group at the University of Wollongong. He now has a post-doctoral appointment funded by the Australian Research Council in the same group. He has research interests in applied mathematics, mathematical modelling in nanotechnology, and specifically on the geometry and mechanics of carbon nanotubes and related nanostructures, as well as modelling the Winslow effect in electrorheological fluids. His publications include utilizing ideas from geometry, topology and combinatorial mathematics. His major modelling work involves many of the special functions of mathematical physics, particularly elliptic, harmonic, hypergeometric and Appell hypergeometric functions.

### **Dr Glen Fulford**

Glenn Fulford is a Senior Lecturer in applicable mathematics at the Queensland University of Technology in Brisbane. Before that he worked at the Australian Defence Forces Academy in Canberra with some brief stints outside academia working for Geoscience Australia in Canberra (where he developed software to create earthquake risk maps) and for AgResearch in New Zealand (where he developed population models and software for policy development associated with the control of Tb in possums, a major problem in New Zealand as possums infect cattle). Glenn has been interested in mathematical modelling and the teaching of mathematical modelling throughout his career. He has written three textbooks that aim to help undergraduate students learn how to formulate and analyse mathematical models in a wide variety of areas. One of these textbooks was a collaborative effort with Philip Broadbridge on Industrial mathematics that grew out of their interest in heat and mass transport problems in industry. Glenn is currently working with groups researching the population genetics of resistance in stored grain insects, the fluid mechanics of tear films, and heat and moisture transport in bagasse (sugarcane residue).

### **Prof Jim Hill**

James M. Hill is Professor of Theoretical Mechanics at the University of Wollongong. He has received two five year fellowships from the Australian Research Council; an ARC Senior Research Fellowship in 1997 to work on

Granular Materials, and an ARC Australian Professorial Fellowship in 2004 to work on Nanomechanics. Since 1983 he has received 13 major research awards, including ARC Large Grants, ARC Discovery Projects, National Research Fellowship, National Teaching Company Scheme. He has published five books, and almost 300 research publications in Applied Mathematics and Theoretical Mechanics. He is the recipient of the 2008 ANZIAM medal for contributions to research and the Applied Mathematics discipline. He is a Fellow of the Institute of Mathematics and its Applications. He has been an Associate Editor since 1982 of the ANZIAM Journal of Industrial and Applied Mathematics, which is published by the Australian Mathematical Society. His work has received international recognition through his appointment to the Editorial Boards of four international journals: Institute of Mathematics and its Applications, Journal of Applied Mathematics and the Quarterly Journal of Mechanics and Applied Mathematics, both published by Oxford University Press, Journal of Engineering Mathematics published by Kluwer Academic Press and Mathematics and Mechanics of Solids published by Sage Science Press.

### **Prof Tim Marchant**

Tim Marchant is professor and Head of School of Mathematics and Applied Statistics, at the University of Wollongong. He completed a PhD in Applied Mathematics at the University of Adelaide in 1989. He has published 50 journal papers in the fields of nonlinear waves and optics, combustion and industrial mathematics. He is currently director of the Mathematics in Industry Study Group and is a Endeavour Awards panel member.

### **Dr James Parkinson**

James finished his PhD in pure mathematics and the University of Sydney in 2005, and has spent the last years researching combinatorial aspects of Lie theory in America (Cornell University and the University of Wisconsin-Madison) and Austria (Technische Universit\at Graz). He takes up a lectureship in pure mathematics at Sydney University in January 2009.

James' research interests lie in the vast interconnected realm of Lie Theory. More specifically he works on Hecke algebras, buildings, symmetric functions, path combinatorics, Lie groups, Lie algebras, harmonic analysis (on Lie structures) and random walks (on Lie groups, buildings and related geometries). His other interests include climbing, skiing, cycling and surfing.

### **Assoc Prof David Pask**

David graduated from the University of Warwick (UK) in 1990 with a PhD. in Dynamical Systems, whilst harbouring an ongoing interest in abstract Mathematical Physics. He was therefore delighted to be offered a postdoctoral position to work at UNSW specialising in the field of Mathematical Physics known as Operator Algebras. David subsequently

moved to a permanent position at the University of Newcastle in 1992, and then to the University of Wollongong at the beginning of 2007.

His current research interests reflect both his background in Dynamical Systems and his underlying interest in Operator Algebras. This dual perspective has led to many insights, and underpins his ongoing research at the interface of Dynamical Systems and Operator Algebras. Specifically, he is interested in the representation of dynamical systems as operators on a Hilbert space. David's talks aim to provide a background in the theory of Hilbert space which underpins much of his research.

## **Prof Ian Raeburn**

Iain did his undergraduate studies at the University of Edinburgh, and received his PhD from the University of Utah in 1976. After a year in Canada, he took a lectureship at the University of New South Wales; by the time he left in 1990, he was an Associate Professor. In 1991 he became a Professor of Mathematics at the University of Newcastle (New South Wales). During his 16 years there he built up a major research group in Functional Analysis, which had strong international contacts and attracted visitors from all over the world. In 2007 he and a large part of this group moved to the University of Wollongong, where Iain holds a research chair.

Iain's main research interests are in modern analysis, and especially the representation theory and analysis of dynamical systems of various kinds. His main expertise lies in the representation of systems by linear operators on Hilbert space, and in algebraic systems of such operators; the subject is often described as (operator algebra). Over the years he has used a wide variety of methods from algebraic topology, Fourier analysis and algebra to study non-commutative dynamical systems, and in several of his current projects he is applying these methods to irreversible dynamical systems arising in number theory, in combinatorics and in wavelet analysis. In particular, the (graph algebras) introduced by Iain and his collaborators (including his Wollongong colleagues David Pask and Aidan Sims) are currently attracting a great deal of attention from researchers in several quite different areas of mathematics.

## **Assoc Prof Jacqui Ramagge**

I was born in London, went to Holland Park Comprehensive School (which was perhaps more exciting but less trendy than it now sounds), and studied Mathematics at Warwick University in the UK. Having been allowed to choose between a BA or a BSc in 1988 (I chose a BA) I was then given no choice and duly graduated with an MSc in Mathematics. Nothing if not persistent, I signed up for a PhD in Kac-Moody groups under the direction of Roger Carter which I wrote up in 1992 while living in Sydney. In the same year I won the BH Neumann award for the most outstanding student talk at the AustMS annual conference. I worked at the University of Newcastle from 1993 to

early 2007 during which time I received a Teaching Award. In Newcastle I was surrounded by analysts so I ended up doing some work on von Neumann algebras and some harmonic analysis on buildings before realising that George Willis was doing some really exciting stuff on topological groups and turning my mind to that instead. Two ARC grants and several years later we have made much progress but there is still so much to be done that I probably have plenty to keep me busy until I get so old that I can't remember my name, at which point I will probably publish under a pseudonym. I have been working at Wollongong since March 2007 and if anything at all goes wrong with the Summer School it must be my fault.

### **Dr Natalie Thamwattana**

Ngamta (Natalie) Thamwattana received a Bachelor of Science with First Class Honours in Mathematics at Mahidol University, Thailand, in 2000. In 2001, she undertook her PhD in Applied Mathematics at the University of Wollongong, Australia and graduated in 2005. Her PhD focused on the mechanics of granular materials. She is now an Australian Research Council Australian Postdoctoral Fellow in the Nanomechanics Group, University of Wollongong, working on nanotechnology. Her particular interests include mathematical modelling for electrorheological nanofluids, gigahertz nano-oscillators and nanomaterials for applications in biology and medicine.

### **Prof Matt Wand**

Matt Wand is a Research Professor in Statistics at the University of Wollongong, Australia. He has held faculty appointments at Harvard University, Rice University, Texas A&M University and University of New South Wales. Professor Wand is an elected Fellow of the Australian Academy of Science, American Statistical Association and the Institute of Mathematical Statistics and was awarded the P.A.P. Moran Medal for statistical research. He has served as an associate editor for the Journal of the American Statistical Association, Biometrika and Statistica Sinica.