

# Preface to the proceedings

*Rob May, A. J. Roberts*

## Abstract

This Special Part of the ANZIAM Journal (Electronic Supplement) contains the refereed papers from the twelfth Biennial Computational Techniques and Applications Conference (CTAC2004) held at The University of Melbourne in September 2004.

The CTAC series of conferences is held under the auspices of the Computational Mathematics Group of the Australian and New Zealand Industrial and Applied Mathematics (ANZIAM) division of the Australian Mathematics Society. They provide a forum for scientists, engineers, and mathematicians interested in the development of computational techniques and their application to problems of practical importance.

Previous conferences in the CTAC series were held at University of Sydney (1983), University of Melbourne (1985), University of Sydney (1987), Griffith University, Brisbane (1989), University of Adelaide (1991), Australian National University, Canberra (1993), Swinburne University of Technology, Melbourne (1995), University of Adelaide (1997), Australian National University, Canberra (1999), The University of Queensland, Brisbane (2001), and Sydney (2003) (part of ICIAM).

Five keynote papers were presented at the conference; the titles and presenters were:

**Inverse Problems: A Pragmatist's Approach to the Recovery of Information from Indirect Measurements,**

Dr Bob Anderssen, CSIRO Mathematical and Information Sciences, Canberra, Australia;

**A perspective on the current status of the challenges in the computational modelling of fluids interacting with other physical phenomena,**

Prof Mark Cross, Centre for Numerical Modelling and Process Analysis, University of Greenwich, London, UK;

**The Fluctuation Theorem: Simulation, Theory and Experiment,**

Prof Denis Evans, Research School of Chemistry, ANU, Canberra, Australia;

**Computational Studies in Materials Research,**

Prof. Gary Leal, Department of Chemical Engineering, University of California at Santa Barbara, USA;

**High Performance Computation for DNS/LES,**

Prof Chaoqun Liu, Center for Numerical Simulation and Modeling, Department of Mathematics, University of Texas at Arlington, USA.

In addition to the invited presentations, 118 contributed papers were presented at the conference. A total of 97 of the contributed papers were submitted for consideration for the CTAC2004 Proceedings. Each of these papers was peer-reviewed by at least two referees, and all published papers were revised (if required) to satisfy the referees comments. The editors thank the referees for their time and effort with the refereeing process, and particularly acknowledge the assistance of

Malcolm Davidson  
in the selection of  
appropriate referees.

**CTAC2004  
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- Malcolm Davidson  
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- Steve Carnie  
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- Rob May (RMIT  
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- Jiyuan Tu (RMIT  
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