



**Australian
Geomechanics
Society**

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FOUNDATIONS: INNOVATION AND EXPERIENCE

PROCEEDINGS OF THE SYDNEY CHAPTER 2008 SYMPOSIUM

HELD IN

AUSTRALIAN NATIONAL MARITIME MUSEUM, DARLING HARBOUR, NSW

ON

October 15th 2008

Organising Committee : R.A. Moyle, R. Lamont, B. Ewers

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**ENGINEERS
AUSTRALIA**



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Australian Geomechanics Society

Geomechanics is the application of engineering principles to the earth sciences to improve continually the accuracy, efficiency, cost-effectiveness and safety of construction projects both above and below ground, including the recovery of the earth's mineral resources. It remains an imprecise discipline due to the infinite variety of conditions in the earth's crust but correspondingly offers a fascinating and rewarding field of research and practice.

The Australian Geomechanics Society was founded in 1970. Its origins lie in the National Committee of Soil Mechanics of the Institution of Engineers, Australia, established in 1953 and the call for a corresponding society in rock mechanics. In 1973 the society was expanded to include the third discipline of engineering geology and has remained substantially unchanged since that date.

The society is affiliated to the International society of Soil Mechanics and Foundation Engineering (ISSMFE), the International Society for Rock mechanics (ISRM) and the International Association for Engineering Geology and the Environment (IAEG).

The AGS is jointly sponsored by the Engineers Australia and the Australian Institute of Mining and Metallurgy.

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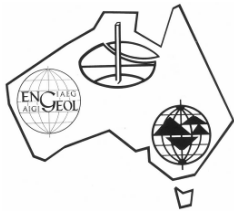
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Australian Geomechanics Society

Sydney Chapter



**ENGINEERS
AUSTRALIA**
SYDNEY DIVISION

2008 Symposium

Foundations: Innovation and Experience

Wednesday 15 October 2008

Australian National Maritime Museum, Darling Harbour, Sydney

Program

8:30 *Registration*

9:00 *Opening address*

Innovations In Design

Part 1

9:15 **Computer Design of Pile Foundation Systems for High Rise Buildings**
Prof Harry Poulos

9:45 **Design of a Piled Raft Foundation for Twin Gold Coast Towers**
Gary Chapman

10:15 **Foundation Design for Underground Metro Stations in Dubai**
Jim Yang

10:45 *Questions*

11:00-11:15 *Morning tea*

Innovations In Design

Part 2

11:15 **Computer Modelling of a Pile Group**
Tim Hull

11:45 **Foundation Design for the Marina Barrage, Singapore**
Frances Badelow

12:15 **Finite and Boundary Element Method: Theory and Application**
Jason Surjadinata

12:45 *Questions*

13:00-13:45 *Lunch*

Experience and Advances in Assessment and Monitoring

14:00 **Proposed Revisions to the Piling Standard: The Effect of Geotechnical Investigations and Test Loads**
Peter Andrews

14:30 **Case Studies for Piled Rafts on Clay**
Helen Chow

15:00 **Load Settlement Performance of Two towers**
Chris Haberfield

15:30 *Questions*

15:45-16:00 *Afternoon tea*

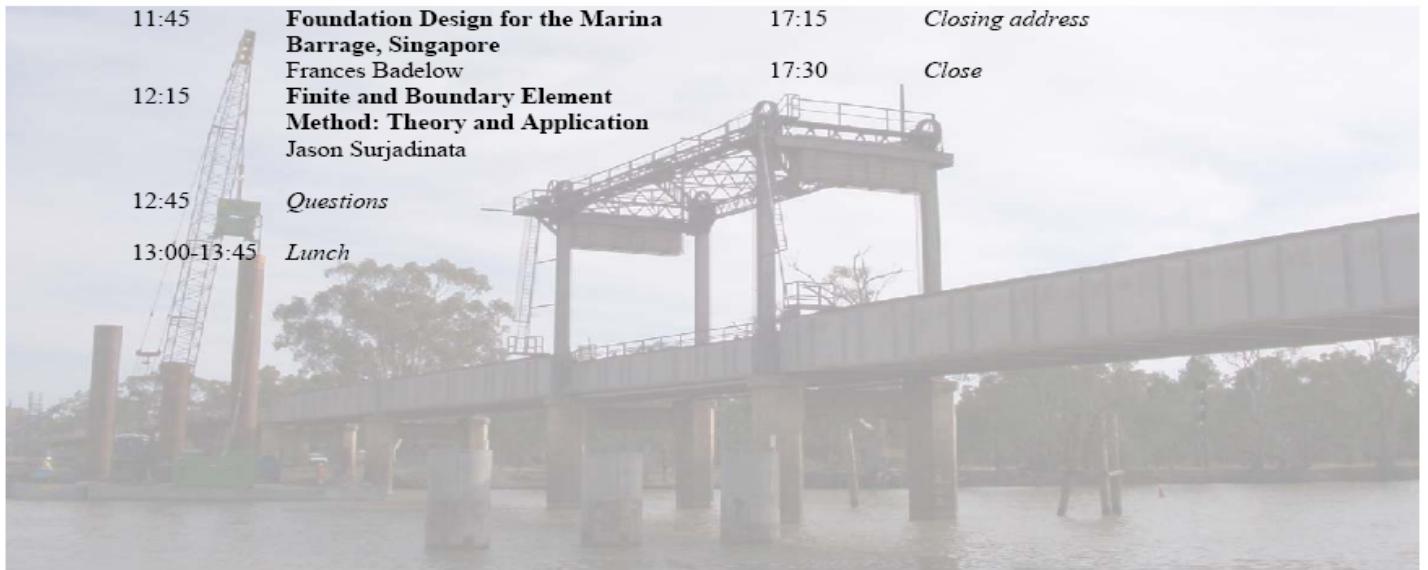
16:00 **Assessment of Foundations for Building Upgrade Projects**
Bruce McPherson

16:30 **Foundation Investigation in Weak Slaking Rock, Darwin**
Darren Paul

17:00 *Questions*

17:15 *Closing address*

17:30 *Close*



Australian Geomechanics Society, ABN 89 615 696 393

Venue: ANZ Theatre, Australian National Maritime Museum, 2 Murray Street, Darling Harbour, Sydney NSW 2000. (02) 9298 3625
AGS committee reserves the right to change the program and /or the identity of the presenters at any time without notice.

SYMPOSIUM – WEDNESDAY 15 OCTOBER 2008
FOUNDATIONS: INNOVATION AND EXPERIENCE

PREFACE

This document contains the papers for the 12th annual symposium organised by the Sydney Chapter of the Australian Geomechanics Society. It is hoped the symposium will keep practising geotechnical engineers, engineering geologists and other engineering professionals informed of recent developments in this field. It also recognises the need to gather together the experience of those practising throughout Australia and to allow transfer of knowledge and sharing of their experiences.

These symposia continue to be one of the best forums for bringing together the key stakeholders of the Australian geotechnical community. The objectives of the symposium held in Sydney on 15 October 2008 have been to advance the knowledge of foundation engineering.

The symposium includes a number of themes including innovations in design and experience and advances in assessment and monitoring. Contributors are leading geotechnical consultants. The papers present foundations project challenges and solutions from throughout Australia and overseas.

This symposium is the cooperative effort of many authors, peer reviewers, employers and clients. The Editors and organising committee wish to thank the authors, who have so generously contributed their time to prepare the various papers, and the employers of the authors, who have assisted with time, secretarial, drafting and photocopying facilities. The Editors and organising committee also wish to thank the following peer reviewers of the papers, who have so generously contributed their time to edit the papers:

- ▶ Paul Hewitt, Parsons Brinckerhoff
- ▶ Prof John Small, University of Sydney
- ▶ John Adamiec, Franki
- ▶ Patrick Wong, Coffey Geotechnics
- ▶ Dr Gary Chapman, Golder Associates
- ▶ Dr J.R. Morgan, Golder Associates
- ▶ Geoff Young, Douglas Partners

Appreciation is also extended to our sponsors for their support. Without them, the AGS Symposium would not be one of the best ongoing forums for the Australian geomechanics community.

Richard Moyle, Roberta Lamont, Brook Ewers

On behalf of the Australian Geomechanics Society, Sydney Chapter and Sydney Chapter Symposium Organising Committee

Annual Seminars of AGS Sydney Chapter

| No. | Date | Topic | Chairman & Organising Team |
|------------|-----------------|--|---------------------------------------|
| 1 | 9 April 1997 | Pavement Design Beyond 2000 | Andrew Leventhal |
| 2 | 1998 | Recent Developments in Piling Practice in Sydney | Peter Andrews |
| 3 | 11 August/1999 | Flexible Retaining Walls: Design to Prevent Failure | Peter Andrews/Paul Hewitt |
| 4 | 9 August 2000 | Computer Methods | Paul Hewitt/John Carter |
| 5 | 8 August 2001 | Excavation Retention | T. Walker/P. Hewitt |
| 6 | 2002 | Landslide Risk Management | B Walker/T Walker |
| 7 | 13 August 2003 | Geotechnical Instrumentation and Construction works Compliance Testing | G Scholey/T Walker |
| 8 | 12 October 2004 | The Engineering Geology of the Sydney Region – Revisited | G Scholey/M Parmar /G Young/G McNally |
| 9 | 12 October 2005 | Geotechnical Aspects of Tunnelling | H Buys/T Gourlay |
| 10 | 11 October 2006 | Soft Ground Engineering | H Buys/P Hewitt/R. Moyle |
| 11 | 10 October 2007 | Engineering Advances in Earthworks | R Moyle/R Lindbeck/H Liu |

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[All papers have been refereed in accordance with the full DETYA review process, unless stated otherwise.]

