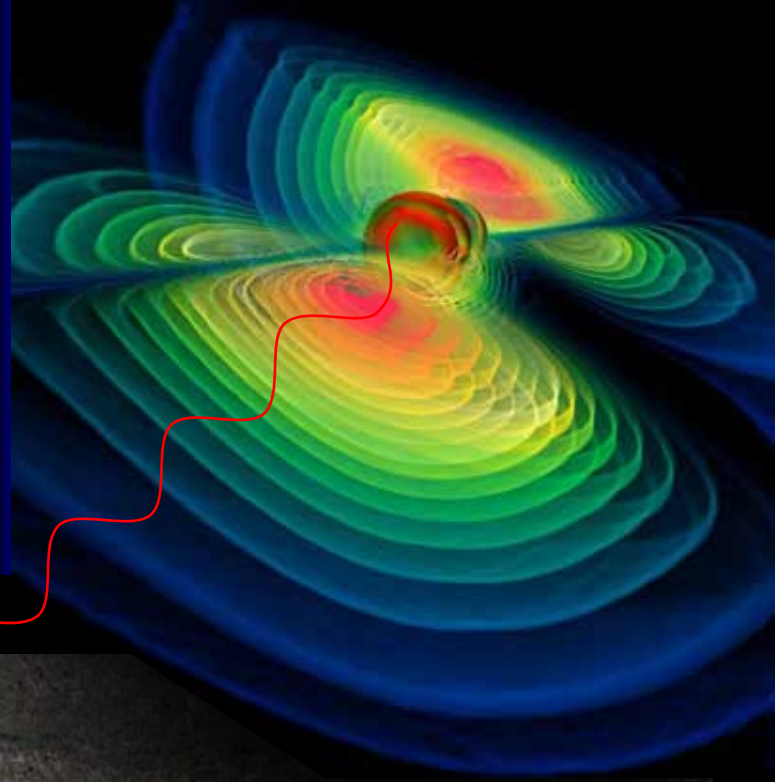


Physics for the Future



INTERNATIONAL WORKSHOP
ON THE AUSTRALIAN GRAVITATIONAL WAVE OBSERVATORY

27 – 29 September 2012

University of Western Australia

Physics for the Future:
International Workshop on the Australian Gravitational Wave Observatory

PROGRAM

Thursday, 27 September 2012

University Club Main Auditorium, University of Western Australia

8.15 Registration and Coffee

8.30 **Welcome:** UWA Deputy Vice-Chancellor (Research) Robyn Owens:

Welcome to Senator Louise Pratt – representing Minister for Science Hon Chris Evans, Senator David Johnston, Kate Doust MP, Mal Washer MP, Hon Philip Gardiner MLC, Italian Science Attaché – Dr Oscar Moze, French Science Attaché – Marie-Hélène Wehr, Chinese Science Councillor Dr Jie Xu, Prof Federico Ferrini and Prof Jean-Yves Vinet leading the Italy-France Delegation, Academician Prof Jun Luo leading the Chinese Delegation, Prof Stan Whitcomb representing the US LIGO Laboratory, Prof Shih Chao (Taiwan), Co-Chairs of the Gravitational wave Observatory development committee Adj Prof Howard Golden and Mr Jens Balkau, Chair of the Gravity Discovery Centre Adj Prof Brian Hewitt, Sir Harald Clough, Dr Gary Bowtell from Clough representing Australian Industry, Mr John Chapman representing the Australian Institute of Physics, Dr Gareth Moorhead representing CSIRO, Policy Makers and Scientists.

Executive Briefing - Chair: Jesper Munch, University of Adelaide.

8.40 Prof Stan Whitcomb: Gravitational Wave International Committee
The International Need for the Australian GWO and Status of the Field.

8.50 Prof Brian Schmidt: *Gravitational Waves – Tool for Future Astronomy.*

9.00 Adj Prof Howard Golden (Rio Tinto): *National Benefits of the GWO.*

9.05 W/Prof David Blair: *From Innovation to Education - Ticking all the Boxes.*

9.10 W/Prof Mike Tobar: *New Technology Outcomes from Gravitational Waves.*

9.15 Prof Federico Ferrini: *A Vision of International Partnership (example of CERN).*

9.20 Hon Phillip Gardiner MLC: *GWO Benefits to the Wheatbelt.*

Official Opening

9.25 Official opening by Senator Pratt

9.35 Address by Senator David Johnston (Shadow Minister for Defence)

Gravitational Wave Technology, Innovations and Benefits – Chair: Brian Hewitt

9.45 *Up-skilling Industry: Benefits of High Tech Projects:* Gary Bowtell, Clough Engineering
Innovations in pipeline construction : STM Duraduct
Innovations in construction technology : Bluescope Steel Constructions

9.55 *Pioneering Geothermal Energy for the Wheatbelt:* WA Centre of Excellence in Geothermal Energy (Klaus Regenauer-Lieb / Hui Tong Chua)

10.00 *Ultimate Optics for Ultrasensitive Measurements:* David Farrant: CSIRO

10.05 *Wavefront Control for High Power Laser Technology:* Jesper Munch, University of Adelaide

10.10 *Squeezed Light for Future Metrology:* David McClelland, ANU

10.15 *Exploration Technology: Helping to Discover the Next Olympic Dam: New Gravity and Electromagnetic Technologies:* Howard Golden, Rio Tinto

- 10:20 *Education for the Future*: Grady Venville, UWA
 10.25 *GPU Supercomputing*: George Beckett / Linqing Wen / Susan Scott
 10.30 *Multimessenger astronomy: Adding value to the SKA: TAROT and Zadko*: Michel Boer, ARTEMIS, Obs de Cote d'Azur.
 10.35 Discussion and questions

10:45 **Morning Tea**

- 11.00 **Fundamental Research Driving Innovation - Innovation outcomes of GW Research.**
 Chair: Federico Ferrini
 11.00 *LIGO project: active vibration isolation, low outgassing vacuum materials*: Stan Whitcomb, California Institute of Technology
 11.20 *Virgo project: engineering mirrors to sub-nanometer precision, advanced digital control*: Jean-Yves Vinet
 11.40 *Regional Government Support for Science and Technology in Italy*: Oscar Moze
 12.00 *The Einstein Telescope Project*: Michele Punturo, INFN, Perugia.
 12.20 *Advanced Coating Technology*. Shih Chao, National Tsinghua University, Taiwan
 12.35 *Fundamental research driving innovation in China*: Jun Luo, China
 12.50 Discussion

1:00 **Lunch**

- 2.00 **Staged Development and Design Concept for AIGO - Discussion Paper.** Chair Andrew Melatos
 2.35 *Policy Issues for Development with International, National, State and Regional Participation.* Moderator: Jens Balkau, Andrew Munro DIISRTE Observer
 Proposed Discussion leaders (TBC): Oscar Moze (Italy), Jun Luo (China), Jie Xu (China), Federico Ferrini (EGO), Michele Clement (WA Govt Dept Innovation), Stan Whitcomb (LIGO), Gareth Moorhead (CSIRO Research Program Leader), Shih Chao (Taiwan),
 3.05 *The Letter of Intent: Discussion of Draft proposal.* Chair: Howard Golden
 Federico Ferrini, Jun Luo, Stan Whitcomb, Jesper Munch.

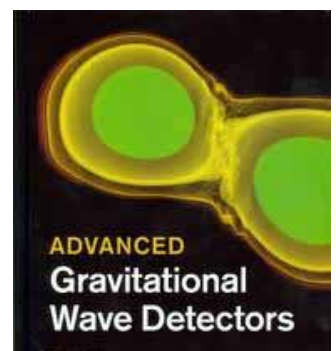
4:00 **Afternoon Tea**

- 4.30 *Ultimate Astronomy for the Future*: robotic telescopes, neutrino telescopes and gravity wave detectors working together to uncover the mysteries of the universe.
 4.30 **Parallel Event** at Parliament House, Perth: Meeting with Brendan Grylls - Minister for Regional Development, GWODC and national representatives.
 4.50 Video: *The Gingin AIGO Research Centre*

6:00 **Reception**

Clough Centre, Faculty of Engineering, UWA
 sponsored by the Embassy of Italy and Clough

- 6.10 Welcome by Sir Harald Clough
 6.15 Oscar Moze will launch the book
 "Advanced Gravitational Wave Detectors"
 6.20 Address by Gary Bowtell.



28 September 2012

Scientific Working meeting, SPICE Conference Room

9.00 International Participation in AIGO

- Advisory Committees: definition and membership
- Governance of the international project
- Funding Opportunities and Plan
- Design Choices: How to learn from Advanced Detector commissioning results.
- Optimisation of a 2.5 generation detector

12.00 Tour of iVEC GPU-cluster, Physics Building.

12:30 *Lunch*

1.30 - 4.00 ACIGA international collaboration projects

- Australian Tier 2 Data Centre: Discussion leaders Linqing Wen / Susan Scott / Andrew Melatos
- Australian Instrumentation projects: Reports from ANU, Adelaide, UWA
- ACIGA-led Centre of Excellence Application: Discussion led by David McClelland

6.00 Informal barbeque
61 Helena St, Guildford.

29 September 2012

AIGO Site Visit

9.00 Depart Perth for Gravity Discovery Centre, Gingin

10.15 Site Overview from the Leaning Tower of Gingin
View location for long baseline detector, Geosciences Australia Magnetic Observatory, CSIRO Flux Tower

10.45 Walking tour of Gravity Discovery Centre, The Zadko Robotic telescope, Gingin Observatory

11.15 *Coffee Break at AIGO Research Centre*

11.40 Tour of the High Optical Power Test Facility

- Advanced Isolation Systems
- High Power Laser Sources
- The 80m Interferometer
- High finesse high power cavity
- Geothermal cooling system
- End stations
- Kip Thorne's tree

12.40 *Kangaroo Barbeque at the AIGO Research Centre*

2.00 Chinese Collaboration Meeting: Co-chairs: Linqing Wen, Ju Li, Chunnong Zhao
Brief Student Research Presentations

3.00 Trip to beach
Fish and Chips by the Indian Ocean



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WESTERN AUSTRALIA**
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