

Gravitational Wave Astronomy in Africa

31st May – 1st June 2012

St George Hotel and Conference Centre, Pretoria – South Africa

The South African Institute of Physics (SAIP) in collaboration with international partners will be hosting a workshop to promote Gravitational Wave Astronomy in Africa.

Laser Interferometer Gravitational Observatories (LIGO, see www.ligo.org) have been operational since 2000, but at the sensitivity of the initial generation of instruments a detection was possible but not likely. Currently there are two LIGO facilities in the USA, as well as GEO and VIRGO in Europe. Construction of a detector in Japan has begun. Technology has been improving, and Advanced LIGO is scheduled to be online in 2014, although it may only be sometime later that design sensitivity is achieved. Once this happens, the most probable detection rate is many events per year. The era of gravitational wave astronomy will have arrived!

Gravitational wave astronomy is a very broad field, encompassing hardware design, pulsar timings, data analysis, use of numerical and approximate methods in general relativity, and astrophysical modelling. Internationally, research in all these fields has become a growth area, but not in South Africa and Africa. For example, the LIGO Scientific Collaboration (LSC) comprises about 850 members from around the world, but has no members from Africa. The purpose of the workshop is to introduce the research opportunities in gravitational wave astronomy to researchers and students in related disciplines such as astronomy, astrophysics, computational physics, cosmology, high performance computing, lasers, relativity, and statistics.

The workshop will cover the various aspects of gravitational wave astronomy. It will include presentations by seven international experts, as well as sessions on current activity in gravitational wave astronomy in Africa, and on funding and infrastructural needs in South Africa. The schedule allows time for informal discussion with the international speakers about collaboration possibilities. The international speakers that have confirmed to date are

- Luc Blanchet, Institut d'Astrophysique de Paris, France
- Manuela Campanelli, Rochester Institute of Technology, USA
- Gabriela Gonzalez, Louisiana State University, USA, and Spokesperson for the LSC
- Luis Lehner, Perimeter Institute, Canada
- Fred Raab, Head, LIGO Hanford Observatory, USA
- Bernard Schutz, Director, Max Planck Institute for Gravitational Physics, Germany

Updates will be posted on the website.

Target Audience: Academics, researchers and students in astronomy, astrophysics, computational physics, lasers, relativity, cosmology, statistics, high performance computing, geophysics and related fields.

Costs: There will be no charge for registration or for accommodation. Funding is available, on application, to support travel costs within South Africa.

Support: The LOC has applied for funding to support needy delegates, and information will be posted on the website as and when it becomes available.

Deadline: Applications, using the form on the website, must be submitted by **20 April 2012**.

Session on current GWA activity in Africa: If you would like to contribute, please contact the LOC Chair n.bishop@ru.ac.za.

Local Organising Committee: Nigel Bishop (Rhodes University) – Chairperson; Sunil Maharaj (UKZN); Denis Pollney (Rhodes University); Patrick Woudt (UCT); Brian Masara (SAIP).

International Scientific Advisory Committee: Manuela Campanelli, (Rochester Institute of Technology, Rochester, New York, USA); Badri Krishnan (Max Planck Institute for Gravitational Physics, Potsdam, Germany); Ilya Mandel (University of Birmingham, Birmingham, UK); Fred Raab (LIGO Hanford Observatory, Richland, Washington, USA).

Conference Website: <http://indico.saip.org.za/conferenceDisplay.py?confId=20>

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