

Gravitational Wave Instrumentation Research Projects
Physics, University of Western Australia
ARC Centre of Excellence for Gravitational Wave Discovery,
PhD/Honours/Master/Internship

The detection of gravitational waves started a new era for gravitational wave astronomy. The 2017 Nobel Prize in Physics was awarded to 3 gravitational waves physicists. The UWA instrumentation team in the new ARC Centre of Excellence for Gravitational Wave Discover (OzGrav <http://www.ozgrav.org>) has been working on the gravitational wave detector techniques for decades. Our UWA team is part of the LIGO Scientific Collaboration and contributed some key technologies towards the detection of the gravitational waves. We work on developing techniques to further improve the sensitivity of the advanced detectors and the 3rd generation detectors. The development of advanced techniques to improve the sensitivity of gravitational wave detectors leads to exciting new physics phenomena and techniques that may have application beyond gravitational wave detectors.

We offer a variety of research projects including

- Opto-mechanics: precision quantum measurement techniques, both on tabletop scales and on large scale high optical power systems
- Quantum measurement theory in gravitational wave detectors and opto-mechanical systems
- Control of parametric instabilities
- High performance vibration isolation system and control
- Airborne mineral exploration instrumentation
- Seismic sensing and imaging for seismic noise reduction

Requirements

PhD: Honours or Master degree from Physics or Engineering (Mechanical or Electrical).

Scholarship

We offer various type scholarships for PhD/Master/Vacation students.

General UWA PhD entrance requirements and scholarship can be found on the UWA Future Students website:

<https://study.uwa.edu.au/courses/doctor-of-philosophy#admission-requirements>

<https://study.uwa.edu.au/courses/doctor-of-philosophy#fees-and-scholarships>

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