

**Position Title:** Research Associate/ Research Fellow

**Position Classification:** Level A/B

**Faculty/Office:** Engineering and Mathematical Sciences

**School/Division:** Physics

**Centre/Section:** The ARC Centre of Excellence for Gravitational Wave

Discovery

**Supervisor Title:** Professor

# Your work area

The UWA node of the ARC Centre of Excellence for Gravitational Wave Discovery (OzGrav-UWA) (<http://www.gravity.uwa.edu.au/>, <http://www.ozgrav.org/>) has a long history in gravitational wave research and is actively involved in the international LIGO Scientific Collaboration (LSC).

The instrumentation group of OzGrav-UWA current research is focused on developing advanced techniques for gravitational wave detectors. Our research programs include quantum measurement techniques for improving the quantum noise limited sensitivity, the control of parametric instability, optimal mode matching for reducing the loss of squeezed state injection, and silicon optics in high power cavities for next generation detectors. We operate the Australian High Optical Power Gravitational Wave Research Facility at Gingin, with 80m suspended high finesse cavities. At the UWA campus, we have several cleanroom optical laboratories for undertaking the benchtop experiments.

# Reporting Structure

*Reports to:* OzGrav-UWA Node Director

Direct Reports: Instrumentation group leader

# Your role

You will conduct research primarily on experiments towards measurement in quantum noise limited sensitivity;

You will also assist in supervising final year undergraduate, Master and PhD students working on opto-mechanical experiments;

You are expected to participate in proposing and developing new experiments aiming for improving the sensitivity of gravitational wave detectors.

# Key responsibilities

To undertake research in the field of quantum measurement techniques for gravitational wave detectors

Design and conduct experimental and computational work related to the research of the instrumentation group of OzGrav-UWA

Assist in supervising Honours, Master and PhD students

Write research papers in high impact international journals Other duties as directed.

# Your specific work capabilities (selection criteria)

A PhD (or soon be completed) in experimental physics

Experience in precision measurements, opto-mechanical systems, lasers, optics and feedback control systems.

Knowledge of basic quantum measurement theory, noise analysis and vibration isolation is desirable.

Writing and publishing papers in high impact journals

Ability to establish and maintain international collaborations with leading international experts.

# Special Requirements

Occasional weekend work and travel to Gingin laboratory

# Compliance

## Workplace Health and Safety

All supervising staff are required to undertake effective measures to ensure compliance with the Occupational Safety and Health Act 1984 and related University requirements (including Safety, Health and Wellbeing Objectives and Targets).

All staff must comply with requirements of the Occupational Safety and Health Act and all reasonable directives given in relation to health and safety at work, to ensure compliance with University and Legislative health and safety requirements.

Details of the safety obligations can be accessed at [http://www.safety.uwa.edu.au](http://www.safety.uwa.edu.au/)

## Equity and Diversity

All staff members are required to comply with the University’s Code of Ethics and Code of Conduct and Equity and Diversity principles. Details of the University policies on these can be accessed at [http://www.hr.uwa.edu.au/publications/code\_of\_ethics,](http://www.hr.uwa.edu.au/publications/code_of_ethics) [http://www.equity.uwa.edu.au](http://www.equity.uwa.edu.au/)