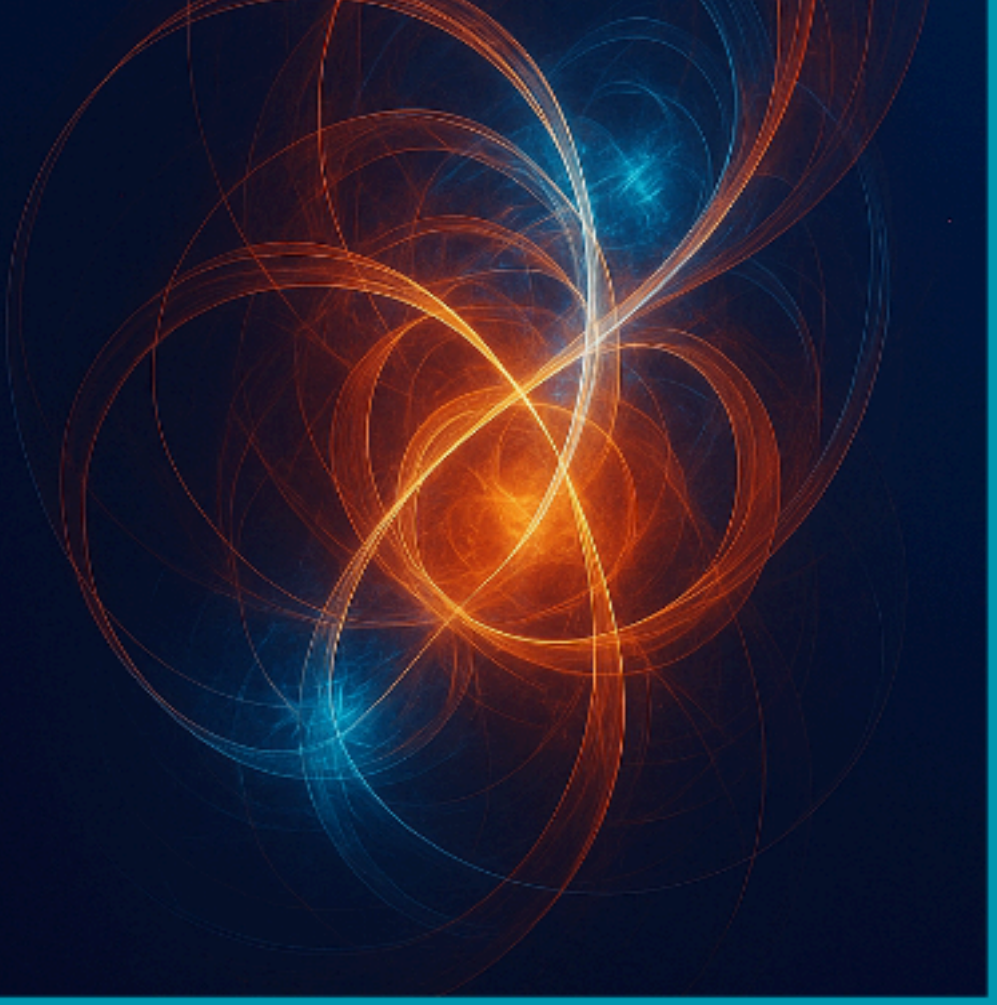
AUSTRALIAN INSTITUTE OF PHYSICS

www.aip.org.au

2025 STUDENT CONFERENCE

Hosted by UWA, Physics Department



CONFERENCE PROCEEDING

CONFERENCE AGENDA

FRIDAY | NOVEMBER 14 | 2025

Welcome to the AIP WA student conference! Below is the schedule for the day.

TIME	DESCRIPTION	DURATION
08:30 — 09:00	Registration	30 mins
09:00 — 09:15	Welcome	15 mins
09:15 — 11:00	Session 1	1 hour 45 mins
11:00 — 11:30	Morning Tea	30 mins
11:30 — 12:30	Session 2	60 mins
12:30 — 13:00	Panel Discussion	30 mins
13:00 — 14:00	Lunch and Poster	60 mins
14:00 — 15:30	Session 3	1 Hour 30 mins
15:30 — 16:00	Evening Tea	30 mins
16:00 — 17:30	Session 4	1 Hour 30 mins
17:30-17:45	Discussion Session	15 minutes

17:45 - 18:00	Award and Wrapup	15 Minutes

Please adhere to the AIP code of ethics and code of conduct.

Session 1

Time	Presenter
9:15	**Joshua . J. Collier** *Phase stabilised long baseline interferometry of incoherent sources*
09:30	**Jordan Moncrieff** *Black hole mergers in active galactic nuclei*
09:45	**Mac Button** *Optimal Modelling of Gravitational Waves from Post-merger Neutron Stars*
10:00	**Jamie Erak** *Constraints on Circumsatellitial Rings from Magnetic Fields*
10:15	**Luke Armstrong** *Low Frequency Design of a Compact and Robust Rotational Sensor*
10:30	**Kyna Schrick** *Anion behaviour in the AEgIS apparatus: CERN Summer Program*
10:45	**Emily Mazalevskis** *Exploring the Optomechanical Interactions of a Micro-Resonator for Broadband White-Light Cavities*

Session 2

Time	Presenter
11:30	**Siqi Yuan** *NSBH GW Early Warning Using UWA's SPIIR Pipeline*
11:38	**Anastasia Lonshakova** *Maths for Einstein's Universe: A Mathematical Learning Progression for Early Understanding of Einsteinian Physics*
11:45	**Donny Bhuana** *Dissolvable Magnesium for Orthopaedic Implant Material*
11:52	**Benjamin Rossdeutcher** *Designing Quantum Solutions to the Closest String and Substring Problems*
12:00	**Saojin Huang** *Wind-induced Newtonian noise cancellation*
12:08	**Ashleigh Mansfield** *Optical Turbulence Monitoring at TeraNet sites using a Generalised Differential Image Motion Monitor*
12:15	**Nathan Mayhew** *Rapidly Prototyping RF Components with Fused Deposition Modelling*

Panel Session

Session 3

Time	Presenter
14:00	**Alexandra Adam** *Optical Feedback for the Mitigation of Parametric Instability in Gravitational Wave Detectors*
14:15	**Callum Wood** *Role of fullerene-like structures on the nanoconfinement of hydrogen in porous carbon*
14:30	**Naziah Azarah** *The Systematic Review and Meta analysis for Renal function*
14:45	**Kavin Kumar** *Disentangling AGNs from Stellar contributions to the Cosmic Spectral Energy Distribution*
15:00	**Thevikum Nayanajith** *Impact of Planning Technique on Heart and LAD Dose in Left Breast DIBH Radiotherapy: A Systematic Review*
15:15	**Koh Baker** *CHETA: Preventing Transient Parametric Instability in High Power Optical Cavities*

Session 4

Time	Presenter
16:00	**Joel Isaac Noble** *Deep Learning-Based Segmentation and Quantification of PSMA PET/CT for Optimizing Prostate Cancer Diagnosis and Treatment in Nuclear Medicine*
16:15	**Ajitesh Vishwanthan** *Estimating the Accretion Rate in Galaxy Formation Simulation*
16:30	**Dashiell Tobias Green** *Design and Development of 3D-Printed Applicators and Phantoms for Forearm Superficial Brachytherapy*
16:45	**Theo Philippe J Lucas** *Automated Lesion Tracking and Dual-Tracer PET Biomarkers in Prostate Cancer*
17:00	**Mirzei Milad** *CyberKnife for Spinal Chordoma: Precise and Shorter Radiotherapy in Fewer Sessions*
17:15	**Joel Banks** *Cross sections for electron scattering on Ga+ ions*
17:30	**Sama Baloch** *Tracing the Impact of Dark Matter Halo Environment on Galaxy Quenching*

Posters

To be presented during breaks

Presenter
Nandhinie Supramanian *Magnetic Compensation with Machine Learning in Airborne Magnetometry*
Emma Paterson *Distinct Berry Phases in a Single Triangular Möbius Microwave Resonator*
Jaime Brook *Computational Study of the Crystallisation of Cobalt in Hardmetals*
Michael Hatzon *Advancements on the Scalar Aharonov–Bohm Effect*
Sonali Parashar *Split post Microwave Displacement Readout*

Marking Rubric:

Please refer to the marking rubric for your presentation by clicking to the link below
Judging Sheet

Parking & Event Information

The AIP WA student conference will be hosted in the Atrium of the Department of Physics, the University of Western Australia. The talks will take place in Ross lecture theatre, located on the ground floor of the Department of Physics.

If you are planning to commute via car, there are several car parks near the physics building which **require payment** for the day. There are two to three parking bays in ICRAR where parking is free for a few hours. You can find the venue using Campus Map. The coloured regions in figure 1 denote paid parking areas close to the physics building. The blue region costs $1.50 per hour or $10 for the day. The pink region costs $2.50 per hour or $14 for the day. The red region is free parking **reserved for sponsors and exhibitors**.



Acknowledgements – I

We acknowledge our sponsors for their generous support of this event. You can learn more about them below.

Gold sponsors





Silver sponsors

Oz-Grav

The ARC Centre of Excellence for Gravitational Wave Discovery (OzGrav) is at the forefront of this exciting new frontier. The ARC Centre of Excellence for Gravitational Wave Discovery (OzGrav) is to capitalize on the historic first detections of gravitational waves to understand the extreme physics of black holes and warped spacetime, and to inspire the next generation of Australian scientists and engineers through this new window on the Universe. With cutting-edge research and world-class facilities, OzGrav plays a pivotal role in this global scientific revolution. OzGrav brings together Australia's pulsar and gravitational wave communities, creating a dynamic national program that positions Australian scientists and students at the heart of gravitational wave research on the global stage. OzGrav is funded by a $35 million grant from the Australian Research Council (ARC), with additional support from OzGrav nodes and partners. To learn more, please visit their Website

Oz-GRAV Research has Three Category of Research in Instrumentation, Discovery and Physics



Quantum Australia

Quantum Australia is a champion for the Australian quantum industry, and was established in 2024 and is a delivery arm for the National Quantum Strategy. creating a pipeline of new ventures, diverse talent, real-world use cases and partnerships. Backed by the Department of Industry, Science and Resources, state governments, and 13 university partners, we support and promote Australia's quantum interests on the global stage with a unified voice for the entire ecosystem. They bridge the gap between world-class research and commercial success by coordinating efforts across universities and translating breakthrough science into practical applications and globally competitive companies. Through national collaboration, use case discovery, commercialisation

and coordination, we accelerate the development and adoption of quantum technologies across industries. The detailed and elaborative quantum road map has been provided on the website that helps discover Australia's Quantum Advantage. The Quantum Australia program is funded by the Department of Industry, Science and Resources, along with state governments and universities. The aim of Quantum Australia is to help grow the quantum industry and ecosystem in Australia, by supporting the collaboration of academia, industry, and other key leaders to unlock the potential of quantum technology. To learn more, please visit their Website

Ezzi Vision

Ezzi Vision Australia is part of the Ezzi International Group of Companies founded in the United Kingdom in 2000. Ezzi Vision's core business is the supply of vacuum, glove box and thin film coating equipment to universities, research & scientific institutes and industrial & manufacturing companies.

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CONTACT US

Melbourne Office:
Ezzi Vision Pty Ltd
13/62 Ramset Drive
Chirnside Park, VIC 3116
Australia
Email: vic@ezzivision.com.au
Phone : 1800 463 994

Sydney Office:
Ezzi Vision Pty Ltd
13U/175 Lower Gibbes Street
Chatswood NSW 2067
Australia
Email: nsw@ezzivision.com.au
Phone : 1800 463 994

Perth Office:
Ezzi Vision Pty Ltd
Unit 11, 24 Baile Road
Canning Vale, WA 6155
Australia
Email: wa@ezzivision.com.au
Phone : 1800 463 994

Pawsey

The Pawsey Supercomputing Research Centre is an unincorporated joint venture between CSIRO, Curtin University, Edith Cowan University, Murdoch University and The University of Western Australia.
It is supported by the Western Australian and Federal Governments.

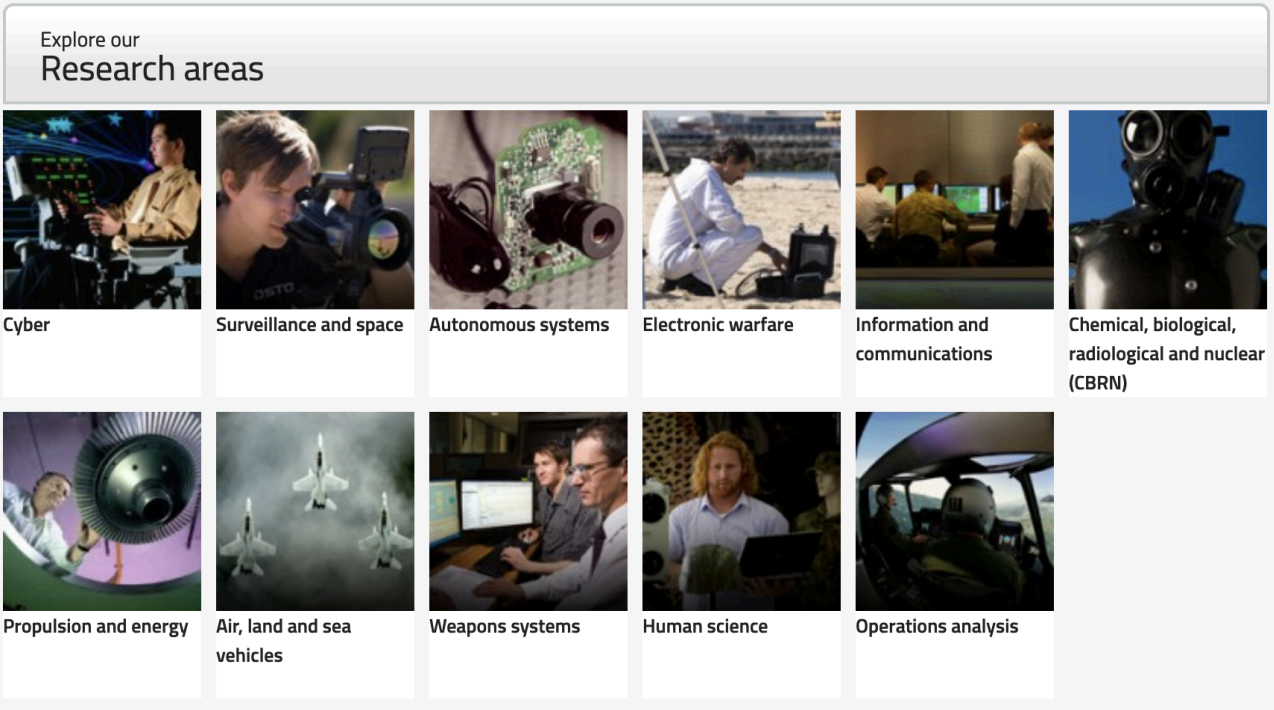
They provide support to students and industry personnel, researchers, academics and scientists via seminars and symposia covering data, visualisation and supercomputing, as well as training, internships and workshops covering advanced computing and research and development opportunities.

For more information please visit their website.

Defence Science and Technology Group (DSTG)

DSTG brings together interdisciplinary expertise from across Australia and around the world to address Defence and national security challenges.

Headed by the Chief Defence Scientist, they have an annual budget of approximately $408 million and employ approximately 2200 staff, predominantly scientists, engineers, IT specialists and technicians. They have a presence in nearly every state and territory in Australia



Bronze sponsors

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ExploreGeo is a consulting group specialising in: geophysical consulting and services to the minerals exploration industry, processing and interpretation of non-seismic oil and gas exploration methods, geophysical advice on geotechnical surveys for front end engineering design, geophysical software development and sales and the provision of high quality services to clients.

The company operates from an office in the northern Perth suburb of Wangara and consults on projects throughout the world. The group consists of independent consultants working through their own company structure supported by staff, software and hardware from the group. As education is a core element in staff becoming consultants, they are provided with high level mentoring and opportunities for professional development.

For more information, please visit their website.

Lastek

The Lastek Group of Companies was formed in 1988 and operates today from a large, fully-restored factory located in the former University of Adelaide's Commerce and Research Precinct at Thebarton, Adelaide, South Australia. The Group offers a unique set of laser and optical technological resources to the Australian and New Zealand photonics industry. With a staff of over fifteen employees, Lastek brings together a wealth of experience in lasers, optics and complementary technologies.



Lastek is the leading distributor in Australia and New Zealand for many of the world's most advanced laser and photonics companies. Their sales and service personnel, including five PhDs, are the most experienced in the industry. Lastek supports customers in leading edge applications in diverse fields. These range from fundamental research in physics, chemistry, engineering and biology, to industrial applications of photonics technology, to advanced microscopy, imaging systems, and spectroscopy.

For more information, please visit their website.

ICRAR



The International Centre for Radio Astronomy Research is an equal joint venture between Curtin University and The University of Western Australia with funding support from the State Government of Western Australia. The centre is home to more than 150 world-class scientists, engineers and big data experts, along with in-house project managers and industry engagement specialists.With various different ongoing research programs including science, engineering, data intense astronomy, translation and impact. For more information, please visit their Website

Acknowledgements – II

Event Organisers

- Sonali Parashar
- Michael Hatzon
- Emma Paterson

AIP Committee:

- **Karen Siu & Team**

Catering

- Ultimo Catering & Events
- University Caterers

UWA Ops Team: Wendy Carter , Bronte

UWA Physics Society

Curtin Physics Club

AIP WA Committee — 2025

- **Chair:** Ben Travaglione
- **Treasurer:** Almantas Pivrikas
- **Secretary**: Casey Myers
- **Vice Chair :** Matthew Young
- **Committee:** Bruce Gardiner, Diana Tomasos, Gerd Schroeder-Turk, Jasper Fromant, Johanna Stalley, John Waghorn, Dr. Pouran N Hudson, Lance Maschmedt, Stephanie Black, John Brooks, Emma Paterson, Jyoti Kaur, Vincent Wallace, Ryan van den Berg, Sonali Parashar

The AIP acknowledges the Traditional Custodians of the land, the Whadjuk Nyoongar people. We pay our respect to their Elders past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples

Physics Building Entry:

Due to some ongoing construction work, the main gate of the physics building is barricaded . Find this entrance next to the main entrance gate. Use the makings on the wall to find the physics atrium on the ground floor. We welcome you there for the conference.


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