

Session Program

30 November 2025 to 5 December 2025



AIP summer meeting 2025

Poster Session

Building 40, Room 153, Hope Theatre
University of Wollongong Northfields Avenue Wollongong NSW 2522

Monday 1 December

16:00

Poster Session: Monday Posters

Session | Location: Building 67, Foyer

16:00–17:00	Spin-Active Defects in Layered Hexagonal BeO: A Wide-Bandgap 2D Host for Quantum Technologies Speaker Aiden Thurloe
16:00–17:00	Foundations of Quantum Tunnelling in Interacting Systems Speaker Max Fleming
16:00–17:00	Iceberg resonance and Young's modulus Speaker Mr Mitchell Bonham
16:00–17:00	Effects of the Weak Quadrupole Moment in Atoms and Molecules Speaker Mr Shannon Ray
16:00–17:00	On the Copenhagen Interpretation of Quantum Measurement Speaker MICHAEL WALKER
16:00–17:00	Bridging Theory and Experiment: Quantum Gravity Phenomenology Speaker Gagandeep Singh
16:00–17:00	Transformative Wave Attenuation Techniques for 1D Composite Structures with Inerter Speaker Saeed Althamer
16:00–17:00	A Fresh Geometric Perspective of an Electron and its Waves Appear to Provide A More Comprehensive Description of Matter Speaker Fong Yang
16:00–17:00	Physically-Motivated Guiding States for Local Hamiltonians Speaker Gabriel Waite
16:00–17:00	Synthesis, Structural, and Spectral Studies of Mn2+ doped LiSrVO4 for Lighting Applications

Speaker

Parul Sharma

16:00–17:00

Rietveld-refined structural and optical properties of Dy³⁺ doped Li₂NaPO₄ nanophosphors as an efficient photoluminescent material**Speaker**

Dr Neha Lalotra

16:00–17:00

Self-Organising Maps with Relational Perspective Mapping (SOM-RPM); A practical tool for the evaluation hyperspectral data sets**Speaker**

Sarah Bamford

16:00–17:00

Assessing Quantum and Classical Approaches to Combinatorial Optimization: Testing Quadratic Speed-ups for Heuristic Algorithms**Speaker**

Pedro Contino da Silva Costa

16:00–17:00

Quantum Cellular Automata for the Density Classification Problem via Evolutionary Search**Speaker**

Pedro Contino da Silva Costa

16:00–17:00

Expressive and Scalable Quantum Fusion for Multimodal Learning**Speaker**

Tuyen Nguyen

16:00–17:00

Quantum Computing for Corrosion Simulation: Workflow and Resource Analysis**Speaker**

Samuel Elman

16:00–17:00

Quantum-classical reciprocity for photon-triplet modelling**Speaker**

Alexander Solntsev

16:00–17:00

Relativity Principles and the Hyperbolic Brachistochrone Equation**Speaker**

Peter Morrison

16:00–17:00

Nb Doping Strategy for Active Site Modification in Co₃O₄ to Enable Concurrent Hydrogen Production and Glycerol Valorization for Efficient Formate Production**Speaker**

Sanni Kapatel

16:00–17:00

Symmetry-Checking in Band Structure Calculations on a Noisy Quantum Computer

Speaker

Shaobo Zhang

16:00-17:00

Floquet Control of Coulomb Drag and Dispersion Forces in Nonequilibrium Quantum Systems**Speaker**

Christine Little

16:00-17:00

Broadband Entanglement over Fiber: PMD Metrics and Mitigation**Speaker**

Vadim Rodimin

16:00-17:00

Investigation of the physical properties and crystallography of Thin Film Multilayer $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ - $\text{NdBa}_2\text{Cu}_3\text{O}_{7-x}$ Superconductors.**Speaker**

Caleb Scarratt

17:00

Tuesday 2 December

15:30

Poster Session: Tuesday Posters

Session | Location: Building 67, Foyer

15:30–16:30

Exploring superconductivity of the $(\text{Hf}_{0.2}\text{Mo}_{0.2}, \text{Ta}_{0.2}, \text{Nb}_{0.2}, \text{Ti}_{0.2})\text{B}_2$ high entropy alloy and its metal diborides: The effect of adsorbed hydrogen

Speaker

Ke Ri Liang

15:30–16:30

Optimal Placement of Beam Position Monitors for the Australian Synchrotron 2

Speaker

Fareeha Almas Fareeha Almas

15:30–16:30

Charmed states and SU(3) flavour symmetry breaking from lattice QCD

Speaker

Lula Abdirashid Ali

15:30–16:30

Cryogenic endoscopic iSCAT microscopy of quantum-vortices

Speaker

Luke Kelly

15:30–16:30

The Complex Morphology of The Medusae Fossae Formation on Mars

Speaker

WILLIAM ZEALEY

15:30–16:30

Impact of uncertainties in CO₂, HCl, and H₂O cross sections on simulations of Venus atmospheric chemistry

Speaker

Franklin Mills

15:30–16:30

An Exploration of (SO)₂ as a Source for Polysulfur within a Simulated Venus Atmosphere with an Overabundance of Oxygen

Speaker

Griffin Katrivesis Brown

15:30–16:30

Shaping the Cosmos: Mergers, Black Hole Dynamics, and the Transformation of Spiral Galaxies

Speaker

Anmol Gandhi

15:30–16:30

A new understanding of gravity and particles voids the need for dark matter

Speaker

Dr PETER LAMB

15:30–16:30

Dark matter hypotheses and modifications of gravity**Speaker**

Enbang Li

15:30–16:30

Direct Detection of Dark Photons**Speaker**

Narise Williams

15:30–16:30

Tracing the Impact of Dark Matter Halo Environment on Galaxy Quenching**Speaker**

Sama Baloch

15:30–16:30

BEYOND $F=ma$: EMPIRICAL CHALLENGES TO NEWTON'S SECOND LAW IN REAL-WORLD PHYSICS EDUCATION**Speaker**

Amritpal Singh Nafria

15:30–16:30

Linear and nonlinear propagation of cylindrical vector beams through a nondegenerate four-level atomic system**Speaker**

Partha Das

15:30–16:30

Hydrogen-manipulated atomic layer epitaxy of titanium nitride for superconducting devices**Speaker**

Yi-Hsun Chen

15:30–16:30

Reflectometry using polarised cold neutrons to probe quantum heterostructures**Speaker**

David Cortie

15:30–16:30

Towards On-Demand Loading of Nanoparticles in Ultra-High Vacuum for Quantum Levitodynamics**Speaker**

Angus King

15:30–16:30

Scalable Preparation of Dicke States via Global Spin Squeezing in 2D Ion Crystals**Speaker**

Gustavo de Miranda

15:30–16:30

Universal programmable waveguide arrays**Speaker**

Dr Akram Youssry

15:30–16:30

Fully convolutional 3D neural network decoders for surface codes with syndrome circuit noise**Speaker**

Spiro Gicev

15:30–16:30

Beyond S_2 : Generalized Higher-Order Product Formulae**Speaker**

Abhishek Rawat

15:30–16:30

Time Optimal Quantum Computers**Speaker**

Peter Morrison

15:30–16:30

AI Optimised scalable process matrix tomography**Speaker**

Soumik Mahanti

15:30–16:30

Progress Towards Quantum Many-Body Physics Experiments with a Metastable Helium Bose-Einstein Condensate.**Speaker**

Shubhangi Gunjal

16:30

Thursday 4 December

15:10

Poster Session: Thursday Posters

Session | **Location:** Building 67, Foyer

15:10–16:10 **Erbium 3+ Ions in Silicon Nanostructures**

Speaker

Justin Brown

15:10–16:10

Revealing Structural Features of Amorphous Monolayer Carbon Using Persistent Homology Analysis

Speaker

Maya Sharp

15:10–16:10

Design and fabrication of air bridges for superconducting electronic circuits

Speaker

Valeriya Karmazina

15:10–16:10

Mechanisms of Spontaneous Vortex Clustering in Turbulent Two-Dimensional Superfluids

Speaker

Nicholas Jordinson

15:10–16:10

Hyperentanglement-empowered quantum waveguide optics

Speaker

Harshna Vithya Saahar Gounder

15:10–16:10

Designing cleaner microwave environments for superconducting quantum circuits

Speaker

Giorge Gemisis

15:10–16:10

Quantum advantage without without exponential concentration in kernel methods for learning data with group symmetries

Speaker

Kerstin Beer

15:10–16:10

Blind Spots of Randomized Benchmarking in the Presence of Temporal Correlations

Speaker

Abhinash Roy

15:10–16:10

Constant Factor Analysis of Optimal Quantum Linear Solvers in Practice

Speaker

Pedro Contino da Silva Costa

15:10–16:10

Electronically-controlled one- and two-qubit gates for transmon quasicharge qubits**Speaker**

Nicholas Christopher

15:10–16:10

Quantum State Tomography of Exciton-Polariton Bose-Einstein Condensates**Speaker**

Sheil Sequeira

15:10–16:10

Electrically Driven Hole Spin Resonance Detected with Charge Sensor in a Planar Si CMOS Structure**Speaker**

Aaquib Shamim

15:10–16:10

DFT vs ARPES: Comparing DFT Approaches for TMDCs Band Structure**Speaker**

Amal Alsaedi

15:10–16:10

Development of WSi Superconducting Nanowire Single Photon Detectors**Speaker**

Alison Goldingay

15:10–16:10

Frequency noise suppression in GdVO₄ Raman laser for linewidth narrowing**Speaker**

Bipin Kumar

15:10–16:10

Nuclear Wasteforms Studied with Positron Annihilation Lifetime Spectroscopy (PALS)**Speakers**

Joshua Machacek, Liam Wymer

15:10–16:10

Epitaxy of CdS on highly mismatched Al₂O₃ substrates**Speaker**

Anouk Jurewicz

15:10–16:10

KINETIC INDUCTANCE TRAVELLING-WAVE PARAMETRIC AMPLIFIERS USING NbTiN FILMS ON HIGH DIELECTRIC CONSTANT SUBSTRATES**Speaker**

Subhashish Barik

15:10–16:10

Towards single-longitudinal mode monolithic diamond Raman lasers**Speaker**

William O C Davis

15:10-16:10

Fast qubit parameter estimation using quantum circuits

Speaker

Usama Ahsan

15:10-16:10

Quantifying MGD in Heterogeneous Breast Phantoms for Synchrotron Phase Contrast CT- A Simulation-Based Study

Speaker

Tavjot Kaur Matharu

15:10-16:10

Rethinking Dose Point Kernels for Radionuclides in Cancer Treatment

Speaker

Ella Lengerer

16:10