

# Program

DAY 1 Monday 27th May

10:00-10:45 Registration & Morning Tea at Harris Room

## Broadway Room

10:45-11:30 Welcome - A/Prof Shery Chang

Traditional Welcome to Country  
Prof Kate McGrath, DVC Research UTS and  
Dr. Cathy Foley, Chief Scientist of Australia

Chair - Brant Gibson

11:30-12:00 **Invited Speaker - Prof. Takayuki Iwasaki** - Heavy group-IV quantum emitters in diamond for quantum network

12:00-12:30 **Invited Speaker - Prof. Quan Li** - Diamond based nanothermometry: opportunities and challenges

12:30-1:30 Lunch at Harris Room

## Broadway Room

**2D materials**  
Chair - Li-Chyong Chen

1:30-1:45 Priya Singh - Quantum Sensing with multi-species spin defects in hexagonal boron nitride

1:45-2:00 Yamada Takatoshi - Graphene/K-doped nano graphene stacking structure for high carrier mobility

2:00-2:15 Utkarsh Kumar - Fabrication of Graphyne for gas sensors

2:15-2:45 **Invited Speaker - Dr. Tushar Kumeria** - Photonic enhancement of fluorescence of carbon dots for sensing applications

2:45-3:15 Afternoon Tea at Harris Room

## Wattle Room

**Quantum Sensing I**  
Chair - Nir Bar-Gill

1:30-1:45 Harini Hapuarachchi - Plasmonically Engineering Diamond Quantum Spin Readout

1:45-2:00 Reza Tavakoli Dinani - Phase Adjustment to Balance Double Resonance Configuration

2:00-2:15 Michael Petrov - High PDMR contrast and photovoltaic effect of NV centres in diamond

2:15-2:30 Kosuke Kimura - Quantum sensing based on entangled state between NV-NV pair.

2:30-2:45 Alexander Healey - Generating nuclear spin polarisation in a fluorine-terminated diamond surface

## Broadway Room

**Diamond-like carbon and amorphous carbon**  
Chair - Dougal McCulloch

3:15-3:45 **Invited Speaker - Professor Jodie Bradby** - Shear-included formation of diamond and lonsdaleite

3:45-4:00 Pierre Everaere - Coupling X-ray Beam Induced Current, ToF-XBIC and X-ray Diffraction Imaging to characterize diamond plates used as semiconductor-based detectors

4:00-4:15 Daniel Stavrevski - Fluorescent colour centres in lonsdaleite

4:15-4:30 Hendrik Heimes - High-pressure phase transitions in diamondoids observed by in situ Raman spectroscopy

4:30-4:45 Alan Salek - Insights into the formation of diamond and lonsdaleite in ureilite meteorites

## Wattle Room

**Biomedical and sensing applications I**  
Chair - Paul Barclay

3:15-3:30 Fernando Meneses - Real-time object detection using a quantum diamond magnetometer and artificial intelligence methods

3:30-3:45 Yuliya Mindarava - Prospects of using defects in diamond for nuclear hyperpolarization

3:45-4:00 Marco Capelli - Absorption magnetometry in the near-infrared using nitrogen-vacancy centres in diamond

4:00-4:15 Roy Styles - Quantum sensing and light guiding with fluorescent nanodiamond-doped PVA fibers

4:15-4:45 **Invited Speaker - Professor Nir Bar-Gill** - Robust creation, characterization and sensing with NVs in diamond and VBs in hBN

## Harris Room

4:45-6:00 **Poster Session 1** (please see page 5 for details)

**Broadway Room**

Chair - Igor Aharonovich

**9:00 - 9:30 Invited Speaker - Dr. Olga Shenderova - TBC**

**9:30 - 10:00 Invited Speaker - Prof Petr Cigler - On the optimal chemical interface of diamond for quantum biosensing**

**10:00-10:30** Morning Tea at Harris Room

Broadway Room	Wattle Room
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**Surfaces and interfaces of carbon materials I**  
Chair - Robert Nemanich

**Colour centres in diamond & silicon carbide**  
Chair - Huan-Cheng Chang

**10:30-10:45** Petr Ashcheulov - Boron-doped diamond as a functional layer in chemiresistive gas sensors

**10:30-10:45** Philipp Reineck - Near-infrared fluorescent color centers in diamond

**10:45-11:00** Junjun Wei - Achieve low thermal boundary resistance of Diamond-on-GaN by double transition layers

**10:45-11:00** Nikolai Dontschuk - Ultra shallow NV ensembles for NMR

**11:00-11:15** Awadesh Mallik - High-density diamond seeding on GaN HEMT heterostructures

**11:00-11:15** Saffron Tyler - <sup>13</sup>C-Limited T2 Times of Shallow Implanted NV in Chemically-Mechanically Polished Diamond

**11:15-11:30** Yosuke Sasama - Field-effect transistor based on CVD-grown diamond utilizing h-BN gate insulator

**11:15-11:30** Ali Tayefeh Younesi - Photoexcitation dynamics of nitrogen vacancy centres in diamond

**11:30-12:00 Invited Speaker - A/Prof Dongchen Qi - Engineering Diamond Surfaces for Quantum Diamondtronics**

**11:30-11:45** Alexander Zappacosta - Silicon vacancies in silicon carbide via nitrogen irradiation

**11:45-12:00**

**12:00-1:30** Lunch at Harris Room

Broadway Room	Wattle Room
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**Single crystal diamond growth and doping I**  
Chair - Dominik Bucher

**Nanodiamond fabrication and applications I**  
Chair - Olga Shenderova

**1:30-2:00 Invited Speaker - Prof Philippe Bergonzo - Diamond Substrate Prospects for High-Performance Applications**

**1:30-1:45** Masazumi Fujiwara - Ultrabright spin-impurity controlled nanodiamonds for quantum biosensing

**2:00-2:15** Makoto Kawano - Influence of Mn doping on epitaxial growth of diamond (111) layers

**1:45-2:00** Haotian Wen - Size and shape effects on the brightness of fluorescent nanodiamonds revealed by machine-learning assisted correlative photoluminescence and transmission electron microscopy

**2:15-2:30** Felix Hoffmann - Nitrogen-phosphorus co-doped diamond for NV-based quantum applications

**2:00-2:15** Jacob Dalgleish - Fusion Splice-Embedding of Single-Diamonds in Glass Fibres for Magnetometry

**2:30-2:45** Peter Knittel - Charge Stabilisation of Nitrogen-Vacancy Centres in Delta-doped Diamond Films by Transfer Doping

**2:15-2:30** Dan Belnap - Scalable FND Manufacture Without Irradiation: PTQ Processing and Properties

**2:45-3:00** Marina Davydova - Improving quantum sensing via surface termination and preferentially-aligned NV centres on (111) and (110) diamond

**2:30-3:00 Invited Speaker - Prof. Paul Barclay - TBC**

**3:00-3:30** Afternoon Tea at Harris Room

**Broadway Room**

**3:30 - 5:30 Panel discussion - Future of diamond for quantum technologies**  
Panel Chair - A/Prof Shery Chang  
Panel - Dr. Olga Shenderova, Adamas Nanotechnologies, USA  
Marcus Doherty, Chief Scientific Officer Quantum Brilliance, Australia  
Philippe Bergonzo, SEKI Diamond Systems, USA  
A/Prof. David Simpson, The University of Melbourne, Australia

**Harris Room**

**5:30 - 6:30 Poster Session 2** (please see page 5 for details)

Broadway Room	
Chair - Shery Chang	
9:00 - 9:30	<b>Invited Speaker - Dr. Huan-Cheng Chang</b> - Fluorescent nanodiamonds with nitrogen-vacancy centers as immunodiagnostic reporters and extreme ultraviolet sensors
9:30 - 10:00	<b>Invited Speaker - Prof Melissa Mather</b> - Detecting Spin Noise from Transition and Lanthanide Metal-Based Magnetically Switchable Single Particles via Nitrogen Vacancy Centres in Diamond

10:00-10:30 Morning Tea at Harris Room

Broadway Room	Wattle Room
<p><b>Single crystal diamond growth and doping II</b> Chair - Philippe Bergonzo</p> <p>10:30-10:45 Tsuji Takeyuki - Decreasing tensile stress in (111) CVD homoepitaxial diamond film by increasing misorientation angle of substrate</p> <p>10:45-11:00 Ilya Ponomarev - Growth and modeling dislocation-free high-quality HPHT single-crystal diamonds</p> <p>11:00-11:15 Yi Chou - Diamond nucleation on boron and nitrogen co-doped Si(100)</p> <p>11:15-11:30 Daniel Roberts - High-retention overgrowth of the nitrogen-terminated diamond surface for dense NV delta layers</p>	<p><b>Quantum Sensing II</b> Chair - Petr Cigler</p> <p>10:30-10:45 Kento Sasaki - Quantitative wide-field imaging of superconducting vortices using diamond quantum sensors</p> <p>10:45-11:00 Di Wang - Improving NV Readout Protocols for Sensitivity Gain</p> <p>11:00-11:15 Erin Grant - Mitigating the effects of FND inhomogeneity on T1 relaxometry using an exponential decomposition method</p> <p>11:15-11:30 Daniel McCloskey - Imaging Liquid-Phase Electrical Transients by Charge State Conversion of Diamond Colour Centres</p> <p>11:30-11:45 Christian Giese - Diamond Photonic Device Fabrication for Quantum Technology</p> <p>11:45-12:00 Justas Zalieckas - Quantum sensing of microRNAs with nitrogen-vacancy centers in diamond</p>

12:00-1:30 Lunch at Harris Room

Broadway Room	Wattle Room
<p><b>Biomedical and sensing applications II</b> Chair - Tushar Kumeria</p> <p>1:30-2:00 <b>Invited Speaker - Dr Rahman Daiyan</b> - Developing Carbon based Nanomaterials and Electrolyser Systems for Power to X Applications</p> <p>2:00-2:15 Nour Mani - One-step fabrication method for 3D printing Diamond Electrodes</p> <p>2:15-2:30 David Broadway - Nanoscale magnetism and magnetic phase transitions in atomically thin CrSBr</p> <p>2:30-2:45 Galya Haim - Machine learning based high-bandwidth magnetic sensing</p>	<p><b>Surfaces and interfaces of carbon materials II</b> Chair - Philipp Reineck</p> <p>1:30-1:45 Rebecca Griffin - Identification of defects on CVD-grown hydrogen-terminated diamond using scanning tunnelling microscopy</p> <p>1:45-2:00 Atsushi Otake - Effects of Substrate Materials on the Electrochemical Properties of Boron-Doped Diamond Electrodes</p> <p>2:00-2:15 Richard Mildren - Sub-monolayer laser manipulation of diamond surfaces</p> <p>2:15-2:45 <b>Invited Speaker - Prof. Alon Hoffman</b> - Thermal stability and bonding of ambient exposed nitrogen-terminated H-diamond (111) surfaces by XPS and HREELS</p>

2:45-3:00 Group Photo

3:00-3:30 Afternoon Tea at Harris Room

Broadway Room	Wattle Room
<p><b>Single crystal diamond growth and doping III</b> Chair - Takashi Taniguchi</p> <p>3:30-4:00 <b>Invited Speaker - Dr. Naoji Fujimori</b> - Fabrication of planner and large diamond for various application</p> <p>4:00-4:15 Chang-seung Ha - Heteroepitaxy growth of single crystal diamond using hot-filament chemical vapor deposition on sapphire substrate</p> <p>4:15-4:30 Anjana Wijesekara - Patterning and Structuring of CVD Diamond by Catalytic Etching Using Nickel</p>	<p><b>Nanodiamond fabrication and applications II</b> Chair - Jodie Bradby</p> <p>3:30-3:45 Dougal McCulloch - The transformation of glassy carbon to diamond using flash laser heating</p> <p>3:45-4:00 Inga Kuschnerus - Using cryo-TEM to study the dispersion behavior of detonation nanodiamonds in different physiological environments</p> <p>4:00-4:30 <b>Invited Speaker - Prof.Chia-Liang Cheng</b> - Fe decorated nanodiamond for enhancing chemodynamical therapy for tumour hypoxia</p>

6:00-10:00 Conference Dinner - Boarding for your cruise is at King Street wharf no. 9, Darling Harbour at 06:00PM for 06:15PM departure.

Broadway Room	
Chair - Brant Gibson	
9:00 - 9:30	<b>Invited Speaker - Prof. Tokuyuki Teraji</b> - N-doped 12C-enriched CVD diamond {111} freestanding crystals
9:30 - 10:00	<b>Invited Speaker - Prof. Li-Chyong Chen</b> - Green Combinatory Modification Approach of g-C3N4-Based

10:00-10:45 Morning Tea at Harris Room

Broadway Room	Wattle Room
<b>Quantum computing, information and sensing</b> Chair - Melissa Mather	<b>High power device and detector applications I</b> Chair - Tokuyuki Teraji
10:45-11:15 <b>Invited Speaker - Dr. Marcus Doherty</b> - TBA	10:45-11:00 Bing Yang - Solar blind photodetector of single-crystalline diamond nanowire
11:15-11:30 Joe Smith - Heterogeneous Integration of Diamond Quantum Systems with Silicon Microelectronics	11:00-11:15 Liaxu Mu - Performance of Diamond detector with high radiation stability for dual sources $\alpha$ Particles
11:30-11:45 Brett Johnson - All-electrical magnetometry using defect spins in silicon carbide	11:15-11:45 <b>Invited Speaker - Prof. Robert Nemanich</b> - Surface Transfer, Modulation Doping at a Diamond-Dielectric Interface
11:45-12:00 Qiang Sun - Enhancement of magnetic fields near topological insulators	11:45-12:00 Makoto Kawano - Tunneling transport through permalloy/p-type B-doped diamond Schottky barrier

12:00-1:30 Lunch at Harris Room

Broadway Room	Wattle Room
<b>Quantum Sensing III</b> Chair - David Simpson	<b>High power device and detector applications II</b> Chair - Tokuyuki Teraji
1:30-2:00 <b>Invited Speaker - Prof. Dominik Bucher</b> - Diamond-based quantum sensors for nano- and microscale magnetic resonance spectroscopy	1:30-1:45 Rozita Rouzbahani - Investigation of p-type diamond-based Schottky barrier and p+/p-/n diodes with optimized CVD growth conditions for (100)-oriented P-doped diamond films
2:00-2:15 Rajesh V Nair - Cavity-mediated coherent emission from NV centers in nanodiamonds	1:45-2:00 Jiangwei Liu - Improvement of properties for boron-doped diamond MOSFETS
2:15-2:30 Yanzhao Guo - Laser-written waveguide-integrated quantum platform in diamond	2:00-2:15 Richard Pahlavani - Linewidth Compression in a Diamond Raman Laser
2:30-2:45 Jarryd Pla - Low Noise Microwave Measurements Using Diamond NV Ensembles	2:15-2:45 <b>Invited Speaker - Prof. Zhenxu Bai</b> - High-power diamond Brillouin laser via Raman conversion

2:45-3:15 Afternoon Tea at Harris Room

Broadway Room	
3:15-4:15 <b>Conference Close</b>	
<b>Awards</b>	
<b>Presentation for 2025</b>	

Link to Abstracts



Entry ID	Presenter Name	Title
3	Kazuhiro Kanda	Effect of soft X-rays on the vacancy-type defects in highly hydrogenated DLC films
4	Yuki Okigawa	Relationship between EBAC image and G-band position peak mapping of potassium-doped CVD few-layer graphene
6	Kun-An Chiu	Flow field impact on the synthesis of 2D-WS <sub>2</sub> on c-sapphire
7	Michael Olney-Fraser	Investigating nitrogen-vacancy centre ionisation pathways
10	Jiahui (Gloria) Zhao	Quantification of strain in diamond
12	Andreas Meier	Large diamond discs for microwave windows in fusion heating systems
22	Alex Shaji	A compact, portable device for millimetre-scale magnetic imaging based on diamond quantum sensors
30	James Belcourt	Atomically Step-Free growth of {100} Diamond
31	Juping Tu	Synthesis of Preferentially Oriented Diamond Films Using Ultra-Nanocrystalline Diamond Buffer Layers
32	Abhishek Bhatt	Improved polycrystalline diamond adhesion using 3D printed diamond-titanium substrates
34	Zichen Zhao	Atomically flat electron-grade diamond surfaces conductivity of hydrogen terminated diamond
37	Michal Gulka	Nanodiamond probes for selective quantum sensing using NV relaxometry
40	Bindu Bindu	Quantum Sensing and Imaging of van der Waals Ferromagnet using Nitrogen-Vacancy Centers
41	Atsushi Otake	Fabrication of 3-Dimensional Boron-Doped Diamond Electrode on SiC Micro-Scaffold
44	Kuei-Hsien Chen	Space-Capped VLS-Grown of Mo <sub>1-x</sub> V <sub>x</sub> S <sub>2</sub> for CO <sub>2</sub> Photoreduction
47	Kouki Mochizuki	Crystal quality evaluations of (001) diamond film heteroepitaxially grown on Ir/sapphire substrates
49	Saman Majdi	Investigation of Hall mobility in graphene/diamond hybrids
56	Karolina Schüle	Optimizing nitrogen-vacancy centre formation during CVD diamond growth
59	Hiromu Nakashima	Development of 3D microwave resonator for nanodiamond temperature measurement
62	Tomoaki Masuzawa	Wet doping of potassium and bromine to graphene
131	Mitchell de Vries	All Optical Thermometry with NIR Diamond Centre
132	Felipe Valdivia	Characterization of edge currents in quantum spin Hall insulators using diamond nanoscale magnetometry

## POSTER SESSION 2

Tuesday 28th May, Harris Room

Entry ID	Presenter Name	Title
61	Roman Přibyl	Deposition of copper-containing carbon-based nanocomposite thin films
71	Yi Chou	Microstructure of heavily phosphorus-doped (100) diamond
76	Lishi Zhou	Unsupervised machine learning segmentation and analysis of detonation nanodiamond aggregation behaviour in biological relevant media and cells
77	Hirofumi Nema	Low-frequency Raman spectroscopic study of phase transitions and boson peaks appeared in diamondoid compounds
80	Min Yeong Choi	Effects of methane concentration on tungsten filament temperature in hot-filament chemical vapor deposition
82	Qiang Sun	Luminescence Tuning of NV Centres in Nanodiamonds Encapsulated by Silica Shells with Plasmonic Properties
83	Ali Tayefeh Younesi	Cavity-free room temperature magnetometry using singlet absorption of NV centers in diamond
85	Yonhua Tzeng	Nanodiamond-silicon composite anode for high-capacity and long-cycling life lithium-ion battery
86	Sekhar Chandra Ray	Electron Structure and Ferroelectric Behaviors of UNCD Thin Films
87	Rotem Malkinson	Stabilization of near surface NVs using Nitrogen surface termination
90	Rani Mary Joy	Growth Studies of Tin Vacancy Centers in CVD Diamond
94	Tae-Kyu Kim	Electrochemical treatment of waste lithium-ion battery liquid using boron-doped diamond electrodes
97	Shuo Li	Quantum correlation enhanced super-resolution microscopy with photon-number-resolving detector
101	Sachin Kumar	Diamond particle distribution on different glass type surfaces
103	Xingshuo Huang	The hardness of lonsdaleite and diamond
105	Sebastian Stewart-Barry	An absorption microscope for correlative studies
110	Olga Rubinas	Control of Growth and Post-Processing for Enhanced Quantum Sensing with NV Centres in CVD Diamond
111	Laura Hung	Smart Wound Dressing for Rapid-Response in Wound Health Monitoring
112	Brett Johnson	Magnetic field sensitivity of hybrid diamond-glass optical fibres
122	Shumiao Zhang	Diamond/SnO <sub>2</sub> Heterojunction p-n Diodes with Ion/off of 10 <sup>8</sup> and breakdown voltage over 400V
125	Chiu-Hsien Wu	Ultrasensitive ozone gas sensors based on Mg-Doped Fullerene and Graphullerene
129	Kai Huang	Adsorption and Thermal Evolution of Nitrogen Species on Diamond Surfaces by DFT