PROGRAM

UM 2025

Australian Synchrotron
User Meeting

Wed 26th - Fri 28th November 2025

ANSTO

*Note: Timetable subject to change

Tickets are available now for the User Meeting conference & Gala dinner via the below link:
https://www.trybooking.com/DDVKF

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ANSTO

User Meeting 2025 would like to thank the following Sponsors

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Program

Day 1 | Wednesday, 26 November 2025

10:00 Registrations open

10:45 **Welcome & House Keeping**

10:55 **Plenary Lecture 1 | Mid-career Research Award - Kaye Morgan:** *Advancing Medical Imaging with Patterned X-ray Light*

11:45 **Facility update - Danielle Martin, Andreas Moll**

12:30 Lunch

NCSS Auditorium

Session 1 | Diffraction, Scattering & Crystallography
Chair: TBA

13:20	36	Mechanistic Insights into Early Thermal Aggregation Events of Monoclonal Antibody Formulations	Vinodya Karunadhika
13:35	3	Scattering Approach to Understanding Protein-Nanoparticle Interactions within Ionic Liquids and Deep Eutectic Solvents	Zachary Candiloro
13:50	80	Designing Lipid Nanocarriers for Polyphenol Delivery in Neurodegenerative Disease	Lucrezia Guarneri
14:05	38	Exploring Interfacial Characteristics of Pure Glucose Fatty Acid Esters	Jessica Frahn

NCSS Seminar Room

Session 2 | Accelerator Science & Radiotherapy
Chair: TBA

	75	Optimizing Microbeam Radiation Therapy Through Temporal Fractionation in Non-Small Cell Lung Cancer	Christian Arzberger
	65	Benchmarking the PEER beamline for very high-energy electron radiotherapy studies	James Cayley
	53	Improving therapeutic efficacy in microbeam radiotherapy (MRT): From unidirectional to complex treatment geometries	Bernd Frerker
	51	Optimizing Orbit Correction in Future Australian Synchrotron Storage Rings	Tasman Harvey

14:20 Break

NCSS Auditorium

Session 3 | Imaging & Microscopy
Chair: TBA

14:30	62	Using Micro-Computed Tomography to analyse Fibre Orientation and Its Influence on Mechanical Performance in Moulded Fibre Materials	Emma Gobes
14:45	79	From Dim to Detail: Comparative Lung Imaging with CT, MRI, and PC-CT	Lucy Costello
15:00	89	Optimising Lung Aeration using External Negative Pressures in Near-Term Rabbit Kittens	Cailin Diedericks
15:15	97	Unravelling indium cycling in mine waste: insights from the combined application of high-energy synchrotron XFM and XAS	Olivia Mejias Gonzalez

NCSS Seminar Room

Session 4 | Diffraction, Scattering & Crystallography
Chair: TBA

	69	Structure-property relationship in liquid metal alloys	Vaishnavi Krishnamurthi
	86	Examining fundamental interactions between chitosan and sol-gel silica toward sustainable materials using SAXS and SANS	Christopher Hill
	90	Probing the Dispersion Behaviour of $Ti_3C_2T_x$ MXene Nanosheets Using X-ray Scattering	Rufus Mart Ceasar Ramos

15:30 Afternoon Tea

Program

Day 1 cont. | Wednesday, 26 November 2025

	NCSS Auditorium			NCSS Seminar Room		
	Session 5 | Spectroscopy **Chair: TBA**			**Session 6 | Imaging & Microscopy** **Chair: TBA**		
16:00	**87**	**Keynote**: Standing Still to Measure Even Faster: Fixed Energy XAS	Bernt Johannessen	**6**	**Keynote**: Microbeam radiotherapy for the primary tumour controls distant metastasis in a preclinical triple-negative breast cancer model	Olga Martin
16:30	93	Following Redox Chemistry Across Space and Time- Insight from Xr-rays from Molecular to Macro	Rosalie Hocking	7	Application of Deep Learning-Based Methods in medical imaging	Marian Cholewa
16:50	9	Revealing the role of spin in Electrocatalysis through Synchrotron-Based X-ray Spectroscopy	Xiaoning Li	57	Toward Patient-Specific Dosimetry in Synchrotron Phase-Contrast Breast CT: A Monte Carlo Framework for Clinical Translation at the Australian Synchrotron	Amir Entezam
17:10	18	Engineering and Probing Sub-Nanoscale Active Sites for Energy Conversion Applications	Porun Liu	55	Phase contrast and deep learning for X-ray dose reduction in breast cancer imaging	Ashkan Pakzad
17:30	Finish					
17:50	**Poster Session**					
19:30	Close					

Program

Day 2 | Thursday, 27 November 2025

	NCSS Auditorium			NCSS Seminar Room		
	Session 7 | Spectroscopy **Chair: TBA**			**Session 8 | | Diffraction, Scattering & Crystallography** **Chair: TBA**		
9:00	72	Tracking long-term flavonoid accumulation in Antarctic moss leaves non-destructively through synchrotron-based infrared microspectroscopy	Hao Yin	73	Towards observation of 3D microstructure in real time	Yu Chen
9:15	59	Thermal Transformation of Iron-Arsenic Minerals Under Realistic Bushfire Scenarios	Usman Faryad	19	Exploiting rewired metabolism in cancer: a biochemical focus on malic enzyme inhibitors using structure-based drug design	Ben Krinkel
9:30	24	Ultrasonic machined semi-metasurfaces on Quartz for THz Biosensing	Pabitraa Madhurima	56	In Situ Powder Diffraction Study of Hydrogen Release Mechanisms in Mg-Based Hydrides for Large-Scale Hydrogen Storage and Transportation	Xia Hua
9:45	5	Characterization of Electrospun Core-Shell Fibres Encapsulating Iron and Vitamin A for Nutrient Deficiency using Synchrotron THz/ Far Infrared	Latheesha Abeywardana	67	Self-Assembled Ion Transport Channels in Block Copolymer Electrolytes for Dendrite-Free All-Solid-State Sodium Batteries	Zhou Chen
10:00	39	Ultra-thin Films of 1-hexyl-3-methylimidazolium-based Ionic Liquids on Graphite	Sowbarnika Senthilkumar	66	Investigation of the Structural Expansion of a Skyrmion-Hosting Material upon Dual-Doping	Branwen Hastings
10:15	91	Hydrogen Adsorption of Graphene Quantum Dots and Metal-doped Activated Carbon Composites Fabricated from Biomass	Setareh Elyasi	104	Structural kinetics in aqueous Aluminum fumarate/Ag MOF composites via time-resolved in situ WAXS	Nandish Hosadoddi Srikantamurthy
10:30	Morning Tea					
11:00	**Plenary Lecture 2 | Early Career Researcher Award - Qi (Hank) Han:** *A Five-Year Journey Connecting Chemistry and Biology through Synchrotron Science*					
11:50	**AINSE Update**					
12:10	Lunch					
	NCSS Auditorium			**NCSS Seminar Room**		
	Session 9 | Diffraction, Scattering & Crystallography **Chair: TBA**			**Session 10 | Imaging & Microscopy** **Chair: TBA**		
13:10	**63**	**Keynote:** Probing grain growth via in-situ Synchrotron/lab dynamic Laue	Jun Wang	**49**	**Keynote:** In-situ loaded synchrotron high-flux X-ray tomography of structural supercapacitor compression specimens	Alex Harman
13:40	70	A first look at materials science research at the SAXS/WAXS beamline	Pablo Mota Santiago	21	In-situ synchrotron X-ray imaging of intermetallic growth and void distribution in an advanced soldering process: Overview	Kazuhiro Nogita
14:00	77	A Solid-Gas-Aqueous Reaction Cell for In Situ Transmission X-Ray Diffraction of Cement Carbonation	Tian Zhang	27	Technical details on and experiences of the MCT beamline multilayer monochromator	Andrew Stevenson
14:20	34	Differential stress and microstructure impact gypsum dehydration kinetics – insights from in-operando SAXS	Christoph Schrank	32	Evaluation of Distal Radius and Tibia Bone Microstructure in Human Specimens Using Phase-Contrast Synchrotron Radiation Computed Tomography	Ali Ghasem-Zadeh
14:40	Afternoon Tea					

Program

Day 2 cont. | Thursday, 27 November 2025

	NCSS Auditorium			NCSS Seminar Room		
	Session 11 | Spectroscopy **Chair: TBA**			**Session 12 | Diffraction, Scattering & Crystallography** **Chair: TBA**		
15:10	42	Updates from the Spectroscopy Group	Peter Kappen	84	Protic ionic liquids as stable carrier media for seral protein crystallography	Connie Darmanin
15:30	35	µMEX | Tender energy, scanning probe, X-ray fluorescence microscopy at MEX1	Bruce Cowie	30	Deconvoluting the thermal expansion of Sn and Bi in Sn-Bi low temperature solder alloys – an in-situ heating powder diffraction study	Xin Fu Tan
15:50	28	Accurate XANES measurements on non-symmetric crystals with XBDM	Michael Jones	101	Quantum Crystallography, Chemical Crystallography in the 21st Century	Alison Edwards
16:10	58	In situ foliar transformation of selenium nanoparticles during photosynthesis - evidence from µ-XANES and proteomics	Marjana Yeasmin	99	Zero-Emission NO_2 Capture Using Divalent Metal-Exchanged Zeolites for Clean Air Technologies	Qinfen Gu
16:30	Break					
16:40	**Plenary Lecture 3 | Stephen Wilkins Thesis Medal - Samantha Alloo:** *Decoding the Flow of Speckles to Unlock Multimodal X-ray Images*					
17:40	Finish					
18:30	**Gala Dinner at Park Royal**					
20:30	Close					

Program

Day 3 | Friday, 28 November 2025

08:30	Town Hall		
09:30	Break		
	NCSS Auditorium		
	Session 13 | Imaging & Microscopy **Chair: TBA**		
9:40	85	Seamless acceleration towards megapixels per minute & update from the XFM Beamline	Daryl Howard
10:00	82	Mid-Infrared Coded Aperture Holography	Molong Han
10:20	26	The XFM Beamline for Cultural Materials Studies	Daryl Howard
10:40	Morning Tea		
	NCSS Auditorium		
	Session 15 | Diffraction, Scattering & Crystallography **Chair: TBA**		
11:00	41	Enhancing Capabilities and Opportunities for Materials Research by Advanced Diffraction and Scattering Beamline at Australian Synchrotron	Yang Cao
11:20	100	(Ultra)-small-angle scattering of wormlike micelles to help design next-generation surfactants	Rico Tabor
11:40	8	Molecular assembly and aggregation of therapeutic peptides and proteins: structural insights from synchrotron SAXS and BioSAXS analysis in solution	Celine Valery
12:00	17	Solving Structures in Solution: Updates on the BioSAXS Beamline	Annmaree Warrender
12:20	45	Probing the Internal Structure of Lipid Nanoparticles at the Interface	Brendan Dyett
12:40	**Closing Remarks & Student Awards**		
13:00	Close		

	NCSS Seminar Room		
	Session 14 | Spectroscopy **Chair: TBA**		
98	Update on the Capabilities at the THz Beamline: from Environmental to Energy applications.	Dom Appadoo
95	Two for the price of one - double Illumination at the Australian Synchrotron	Stewart Walker
	NCSS Seminar Room		
	Session 16 | Imaging & Microscopy **Chair: TBA**		
22	MCT of soft tissue at the Australian Synchrotron	Roger Bourne
13	Dual-sample X-ray multi-modal imaging	Marie-Christine Zdora
68	Which dark-field imaging technique is best for me? Comparing a family of approaches at MicroCT	Michelle Croughan
46	Correlative synchrotron-Based Micro-CT, large area SEM and FIB-SEM imaging of biological samples	Denis Korneev