Nano Health Symposium 2025

Join us for this one-day event featuring renowned speakers discussing the discovery and advancements of nanotechnology and its applications in health.

Monday 10 November 2025

THE UNIVERSITY OF SYDNEY

Nano Institute

CRICOS 00026A

Program

8:30 – 9:00	**Registrations, welcome and coffee**
9:00 – 9:15	**Opening remarks – Prof Benjamin Eggleton, Pro-Vice-Chancellor (Research)**
	Session 1 Chair: Dr Chun Xu
9:15 – 9:55 Plenary	**Prof Matt Trau (The University of Queensland)** Title: Catching, Reading, and "Playing Around" with Single Molecules and Nanoparticles: Applications in the Clinic and Nanomanufacturing
9:55 – 10:20 Invited	**Prof Antonio Tricoli (The University of Sydney)** Title: Molecular Manufacturing of Next-Generation Biosensors for Personalised and Remote Healthcare
10:20 – 10:45 Invited	**A/Prof Alain Wuethrich (The University of Queensland)** Title: Single Molecule Nanotechnologies for Digital Immune-Profiling in the Clinics
10:45 – 11:10	**Morning tea**
	Session 2 Chair: Prof Omid Kavehei
11:10 – 11:50 Plenary	**Prof Hala Zreiqat (The University of Sydney)** Title: Biomaterials for regenerative medicine (tentative)
11:50 – 12:15 Invited	**Dr Lilith Caballero Aguilar (The University of Melbourne)** Title: Powering Tissue Engineering through Programmed Oxygen Delivery: From Nanoscale Design to Translational Impact
12:15 – 12:40 Invited	**A/Prof Markus Muellner (The University of Sydney)** Title: Polymer Nanodiscs--How to Make, Break and Use Them to Deliver Cargo
12:40 – 13:25	**Lunch + Poster**

	Session 3 Chair: Dr Chang Lei
13:25 – 13:50 Plenary	**Prof Wai Yee Yeong (Nanyang Technological University)** Title: 3D Printing of Smart Materials for Bioelectronics: Design and Fabrication
13:50– 14:35	**Panel discussion:** Industry Engagement and Commercialisation **Panelist: A/Prof Khoon Lim (chair), Prof Antoine van Oijen, Prof Victoria Cogger, Dr Clara Thao Tran, and Prof Wai Yee Yeong**
14:35 – 15:05	**EMCR Flash Talk: Cong Chi Nguyen, Shuning Wang, Catherine Chen, Gerry Shami, Ange Weinrabe, Milan Maksimov**
15:05 – 15:30	**Afternoon tea + Poster**

	Session 4 Chair: Dr Ann-Na Cho
15:30 – 16:10 Plenary	**Prof Deok-Ho Kim (Johns Hopkins University)** Title: Advanced Human Organoids and Microphysiological Systems for Disease Modelling, Drug Development and Space Biology
16:10-16:35 Invited	**Prof Zhenpeng Qin (The University of Texas at Dallas)** Title: Nonviral Neuron Specific Molecule Delivery Across Species in the CNS
16:35-17:00 Invited	**A/Prof Tushar Kumeria (The University of New South Wales)** Title: Porous Silicon/Polymer Composite Nanofibers for Tissue Engineering
17:00 – 17:10	**Closing with prize announcement -- Prof Stephen Bartlett, Director of Sydney Nano**
17:10 – 18:30	**Social network event with cocktail**

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Discuss ground-breaking applications of nanotechnology in health

Plenary Speaker

Professor Matt Trau

The University of Queensland

Presentation topic: ***Catching, Reading, and "Playing Around" with Single Molecules and Nanoparticles: Applications in the Clinic and Nanomanufacturing***

Professor Matt Trau is an ARC Australian Laureate Fellow, Professor of Chemistry at the University of Queensland, and Director of the Centre for Personalised Nanomedicine. His research focuses on developing cutting-edge nano-diagnostic and therapeutic technologies that enable ultra-sensitive detection of diseases such as cancer, with the goal of transforming healthcare through early intervention and personalized treatment strategies.

He is also a senior group leader and co-founder of the Australian Institute for Bioengineering and Nanotechnology (AIBN). Internationally recognized, he has published over 300 papers, delivered more than 100 keynote lectures, and received numerous prestigious awards for his contributions to nanomedicine and translational science.

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Plenary Speaker

Professor Hala Zreiqat

The University of Sydney

Presentation topic: ***Biomaterials for regenerative medicine***

Professor Hala Zreiqat is a global leader in regenerative medicine and orthopaedic research. She is a Member of the Order of Australia and has received major honors including the Fulbright Senior Scholar (MIT), Harvard Radcliffe Fellow, NSW Premier's Woman of the Year, and the King Abdullah II Order of Distinction. She is a Fellow of AIMBE and the first Australian woman elected to the International College of Orthopaedic Research, as well as a Fellow of four Australian national academies.

She has published over 180 peer-reviewed papers and holds eight patents. Her research has attracted over $20 million in competitive funding. Prof. Zreiqat was Director of the ARC Training Centre for Innovative BioEngineering and currently chairs the Australia-Arab Council. She also founded BIOTech Futures, a global STEM mentorship program for high school students.

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Plenary Speaker

Professor Wai Yee Yeong

Nanyang Technological University

Presentation topic: 3D printing of Smart Materials For Bioelectronics: Design and Fabrication

Professor Yeong is internationally renowned for her pioneering research in 3D bioprinting and the 3D printing of functional materials. Her interdisciplinary work spans engineering, materials science, and biomedical applications. She has received numerous accolades, including the Top 50 Asia Women Tech Leaders 2024, NRF Investigatorship (Class of 2022), Singapore 100 Women in Tech (2021), and the Inaugural TCT Woman in 3D Printing Award (2019).

She has been listed among the Top 2% Scientists Worldwide (Stanford University) since 2021 and named a Clarivate Highly Cited Researcher in both 2022 and 2024. In 2025, she was ranked #1 globally in 3D printing (prior 5 years) by ScholarGPS. She is the founding editor of the International Journal of AI for Materials and Design, and serves as associate editor for the International Journal of Bioprinting and Virtual & Physical Prototyping.

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Plenary Speaker

Professor Deok-Ho Kim

Johns Hopkins University

Presentation topic: Advanced Human Organoids and Microphysiological Systems for Disease Modelling, Drug Development and Space Biology

Dr. Deok-Ho Kim is a Professor of Biomedical Engineering and Medicine at Johns Hopkins University and Founding Director of the Center for Microphysiological Systems. He is a Fellow of the American Institute for Medical and Biological Engineering (AIMBE), the Royal Society of Chemistry, the American Heart Association, and SLAS. He also serves on scientific advisory boards for major biotech companies, including Samsung Biologics.

Professor. Kim has published over 200 peer-reviewed papers, cited more than 20,000 times (H-index: 75), and holds 40+ patents. His work has been featured in Science, CNN, and UW Today, and recognized with awards from IEEE, AHA and ISBF. He is widely recognized for pioneering innovations at the intersection of engineering, biology, and medicine.

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Invited Speaker

Professor Antonio Tricoli

The University of Sydney

Presentation topic: Molecular Manufacturing of Next-Generation Biosensors for Personalised and Remote Healthcare

Professor Antonio Tricoli is a Professor of Materials Science at the University of Sydney, where he leads the Nanotechnology Research Laboratory. He also serves as Associate Editor of the *Chemical Engineering Journal*. His research focuses on light–matter interactions across multiscale interfaces to develop advanced materials and devices for applications in personalized medicine and renewable energy.

He has authored over 100 scientific publications and received numerous awards, including the ARC Future Fellowship, Westpac Research Fellowship, and the HILTI Prize for the most innovative PhD thesis at ETH Zurich. He is a founding member and co-chair of the ANU Grand Challenge "Our Health in Our Hands," which brings together interdisciplinary teams to develop transformative health technologies.

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Invited Speaker

Associate Professor Alain Wuethrich

The University of Queensland

Presentation topic: Single molecule nanotechnologies for digital immune-profiling in the clinics

A/Prof Alain Wuethrich is an NHMRC Emerging Leadership Fellow (EL2) and Group Leader at the Centre for Personalised Nanomedicine, Australian Institute for Bioengineering and Nanotechnology (AIBN), University of Queensland. He leads a multidisciplinary research program integrating biomedical engineering, nanotechnology, and immunology.

His work focuses on developing ultra-sensitive biosensing platforms for early detection of immune dysregulation, motor neuron disease, and cancer therapy monitoring. Supported by concurrent NHMRC Investigator and ARC DECRA fellowships, his research aims to translate nanotechnology innovations into clinical diagnostics with real-world impact.

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Invited Speaker

Dr Lilith Caballero Aguilar

The University of Melbourne

Presentation topic: Powering Tissue Engineering through Programmed Oxygen Delivery: From Nanoscale Design to Translational Impact

Dr. Lilith Caballero is a biomedical engineer with expertise in biomaterials, polymers, pharmacology, and medical devices. Her field of research lies at the intersection between drug delivery and biomaterials. Lilith has developed biodegradable materials able to release several bioactive molecules such as growth factors and chemotherapeutics and she is currently working as a Research Fellow at Melbourne University, where she focuses on engineering protein-based biomaterials for cartilage repair, wound healing and lipid drug delivery systems.

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Invited Speaker

Associate Professor Markus Muellner

The University of Sydney

Presentation topic: ***Polymer based materials***

Markus Müllner studied polymer and colloid chemistry at the University of Bayreuth, Germany. He received his PhD in polymer chemistry at the Bayreuth Graduate School of Mathematical and Natural Sciences. He joined the University of Melbourne as a postdoctoral researcher and was awarded a McKenzie Postdoctoral Fellowship to work at the Department of Chemical and Biomolecular Engineering. In 2015, he joined the School of Chemistry and the Key Centre for Polymers and Colloids at the University of Sydney, went on to become a ARC DECRA Fellow (2018-2020) and is currently an ARC Future Fellow (2021-2025). Markus is a member of Sydney Nano and the Sydney Institute for Agriculture.

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Invited Speaker

Professor Zhenpeng Qin

The University of Texas at Dallas, USA

Presentation topic: ***Nonviral neuron specific molecule delivery across species in the CNS***

Professor Zhenpeng "ZP" Qin is the Eugene McDermott Distinguished Professor of Mechanical Engineering and Bioengineering at the University of Texas at Dallas and UT Southwestern. He is a founding member of the Center for Advanced Pain Studies and a Fellow of ASME and Senior Member of the National Academy of Inventors. His lab focuses on targeted drug delivery and neural biomarkers, with over $23M in funding from NIH, NSF, DOD, and AHA.

He has published extensively and trained over 90 undergraduate and graduate researchers. He has received major honors, including the 2024 ASLMS Young Investigator Award, 2022 ASME Y.C. Fung Early Career Award, and NIH MIRA/R35 award. He is also active in bioengineering leadership and has co-founded several startups translating his technologies into real-world applications.

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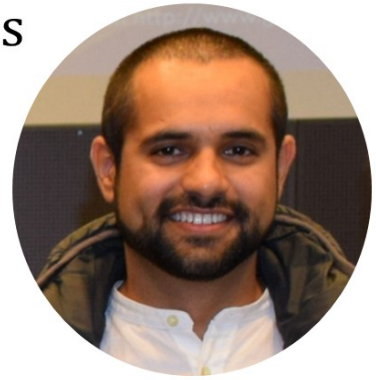

Invited Speaker

Associate Professor Tushar Kumeria

The University of New South Wales

Presentation topic: Porous Silicon/Polymer Composite Nanofibers for Tissue Engineering

A/Prof Tushar Kumeria is a Scientia Senior Lecturer and NHMRC Early Career Fellow at the School of Materials Science and Engineering, UNSW Sydney. He received his Ph.D. in 2015 from the University of Adelaide, awarded with the Doctoral Thesis Medal and Dean's Commendation. He completed postdoctoral training at UC San Diego in Prof. M. J. Sailor's lab, followed by a UQ Development Fellowship at the University of Queensland. He currently leads an independent research program supported by ~AU$3.5 million in competitive funding.

His research focuses on porous materials and their composites for biomedical applications, including: (1) porous materials-based drug delivery systems for efficient and targeted delivery; (2) porous materials/polymer composite scaffolds and implants for tissue engineering; and (3) porous photonic crystal-based point-of-care sensors for diagnostics and environmental applications.

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