ANNOUNCING ATSE'S 2021

New Fellows

EMBARGO UNTIL 13:00 AEDT Friday 26 November 2021

Elected by their peers, the 2021 new Fellows represent an extraordinary breadth of expertise across engineering, applied science and technology.

Where available, high-res imagery and b-roll can be supplied on request.

MEDIA CONTACT

Edwyn Shiell
Director, Strategic Communication
M +61 402 254 968
T + 61 2 6185 3240
edwyn.shiell@atse.org.au

ATSE

Australian Academy of Technology & Engineering

Louise Adams FTSE

Chief Operating Officer, Aurecon (VIC)

Global engineering business leader

Louise Adams is an engineer, business manager and a prominent leader in infrastructure with substantial international experience.

With over 20 years' experience leading civil and multi-disciplinary projects in land development and technical advisory for project planning, Louise now drives Aurecon's financial, operational and people performance to achieve strategic business goals.

She is a champion of female equality within STEM and a passionate advocate for greater organisational diversity as a pathway to increased innovation.

In 2020, in her prior role as the Chief Executive for Australia & New Zealand, Louise was named Australian CEO of the Year by CEO Magazine.

Professor Kenneth Baldwin FTSE

Director, ANU Grand Challenge: Zero-Carbon Energy for the Asia-Pacific (ACT)

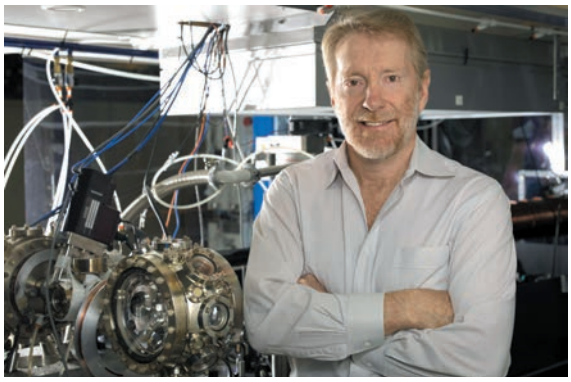
Energy transition innovator

Professor Ken Baldwin is a leader in the global energy transition. He has created significant initiatives to address energy change in response to climate change, bringing together industry, government, and academia.

Ken's main work is in facilitating Australia's transformation into an Asia-Pacific renewable energy powerhouse by researching trade in zero-carbon exports.

He has also made eminent contributions to fundamental laser and atomic physics, including techniques for making better microchips, understanding energy balance and ozone formation in the earth's atmosphere, and harnessing the quantum nature of atoms.

In 2004, Ken won the Australian Government Eureka Prize for initiating Science meets Parliament, an annual event connecting Federal Parliamentarians with STEM leaders.



Kelly Bayer Rosmarin FTSE

Chief Executive Officer, Optus (NSW)

Digital technology disruptor

Kelly Bayer Rosmarin is a corporate executive known for her rare combination of astute business acumen and the creativity to leverage digital technology to disrupt traditional markets. Kelly is behind the evolution of Optus as a technology company, with the industry-leading launch of the 'Living Network' to empower and enrich customer experiences and interactions with their mobile network.

Prior to joining Optus, Kelly spent 14 years with Commonwealth Bank of Australia where she was instrumental in leading technological innovation, most notably with the launch of 'Albert', a revolutionary mobile payment device that transformed point-of-sale terminals and attracted worldwide attention.

She is a member of the UNSW Engineering Dean's Advisory Committee where she was the creative inspiration behind The Maker Games, a rapid prototyping competition that won an AFR innovation award. She has also been named in the Top 3 Tech CEOs in Australia, Top 25 Women in Asia Pacific Finance, the Top 10 Businesswomen in Australia, and 50 Most Powerful Women in Australian Business.

Sandeep Biswas FTSE

Managing Director and Chief Executive Officer, Newcrest Mining Limited (QLD)

Sustainable mining champion

Sandeep Biswas is a global leader in mining with extensive experience running complex metals mining operations. His passion for safety and using innovation to unlock the benefits of mineral resources has been a signature of his extensive career. Under his leadership, Newcrest has become a leader in the mining technique known as block-caving, the deployment of robotics for use in high-temperature environments and automation in underground mining, resulting in a dramatic reduction in downtime and increases in productivity and employee safety.

Sandeep is a champion of sustainable mining. He has set Newcrest's goal of net-zero carbon emissions by 2050 and advocates for continuous improvement in environmental performance of the mining industry through his leadership as Vice-Chair of the Minerals Council of Australia, Vice-Chair of the World Gold Council and Chair of the Environmental, Social and Governance (ESG) Taskforce, and a member of the International Council on Mining and Metals.

Professor Elizabeth Croft FTSE

Dean of Engineering, Monash University (VIC)

Human-robot engineering advocate

Professor Elizabeth Croft is an expert in human-robot interaction. Her research seeks to advance the collaboration between people and robots in safe, predictable and helpful ways. She has directed and delivered major research projects using robots alongside people in manufacturing.

Elizabeth is also known for her exceptional contributions to education and the recruitment of women into engineering. At Monash, she has introduced new learning opportunities to attract and train the next generation
of engineering leaders in Australia.

She is a Fellow of the Institute of Engineers Australia, American Society of Engineers, and the Canadian Academy of Engineering.

Professor Wenhui Duan FTSE

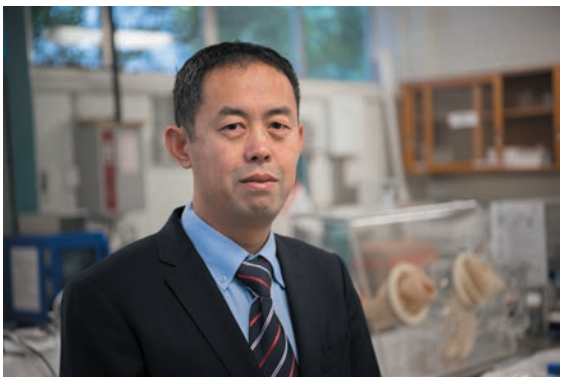
Director, ARC Nanocomm Hub, Monash University (VIC)

Nanocomposites structural engineer

Professor Wenhui Duan is a structural engineer building a more sustainable and liveable Australia by using the science of the ultra-small to transform construction materials.

Nanocomposites contain materials with dimensions in the nanometre range, giving them unprecedented flexibility, strength and other superior physical properties. Wenhui helped create and now leads the Nanocomm Hub, one of Australia's top university-industry transformation hubs, dedicated to advancing construction materials through nanoscience.

Its work has delivered startling innovations in the development and manufacture of sustainable materials and structures resulting in millions in revenue and tangible environmental benefits.



Professor Richard Eckard FTSE

Professor of Sustainable Agriculture, University of Melbourne, and Director, Primary Industries Climate Challenges Centre (VIC)

Sustainable agriculture advisor

Professor Richard Eckard is a world authority on sustainable agricultural production, with a focus on carbon neutral agriculture and agricultural adaptation to climate change.

He developed the first greenhouse gas accounting tools for agriculture and his research provided the science basis for six carbon offset methods in Australia.

He is a science advisor to the Australian, New Zealand and UK governments, the International Livestock Research Institute, the Food and Agriculture Organisation of the United Nations, and the European Union, providing advice on climate change adaptation and mitigation in agriculture. He is also the Australian representative on the Global Research Alliance on Agricultural Greenhouse Gases.

Professor Karen Hapgood FTSE

Executive Dean of Science, Faculty of Science Engineering and Built Environment, Deakin University (VIC)

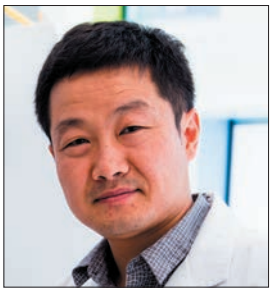
Medical research engineer

Professor Karen Hapgood is a leading chemical engineer whose research on engineering powder particles is used worldwide by the pharmaceutical industry to enhance manufacturing processes for new drugs.

Her career includes five years of pharmaceutical R&D and manufacturing experience giving her deep insight into translating research into solutions for industry problems.

She is passionate about encouraging more women into STEM and is one of the few women in Australia to be appointed dean of an engineering faculty.

Karen has received several awards recognising her academic leadership and excellent contribution to student learning.



Distinguished Professor Dayong Jin FTSE

Australian Laureate Fellow and
Director, Institute for Biomedical Materials & Devices, UTS (NSW)

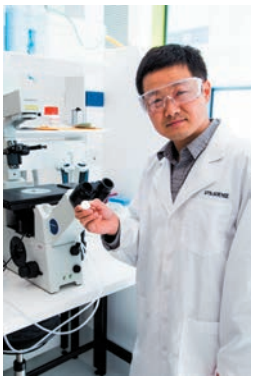
Disease detection innovator

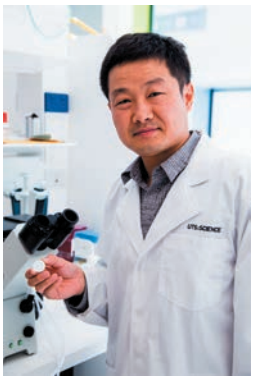
Distinguished Professor Dayong Jin is an acclaimed scientist who has dedicated himself to using light waves and particles to achieve single molecule sensitivity. He develops biomedical, analytical, and imaging devices that will detect diseases much earlier, including cancer.

Collaboration is key in Dayong's vision. He established the cross-disciplinary research institute IBMD along with an outstanding international network from academia and industry to transform advances in photonics and materials into health care technologies.

Recently, his team developed a saliva test for COVID-19 that detects the virus within 10 minutes, which can be used earlier in the virus's infection cycle.

Dayong has received many prestigious awards for his inspiring work.





Dr James Johnson FTSE

Chief Executive Officer, Geoscience Australia (ACT)

Geoscience technologist

Dr James Johnson is a geologist with over 35 years' experience, including private sector mining and mineral exploration and science leadership in government.

He is an international leader in applying geoscience to solving society's major economic, social and environmental challenges.

James has led numerous teams of geoscientists and recorded a diverse array of achievements, from the discovery of two million ounces of gold reserves while in industry, to the creation of national geoscience programs for government attracting significant exploration investment to Australia.

He is passionate about building a more diverse and inclusive Geoscience Australia, in particular by engaging Aboriginal and Torres Strait Islander people.

Dr Sue Keay FTSE

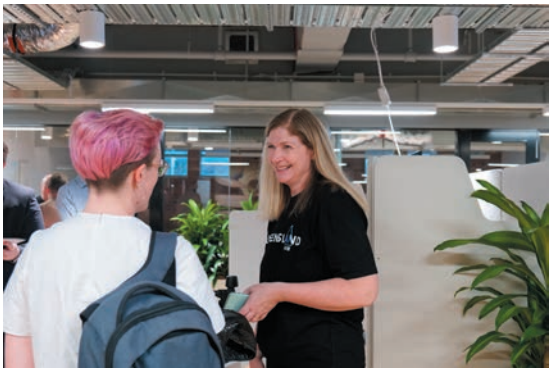
Chief Executive Officer, Queensland AI Hub

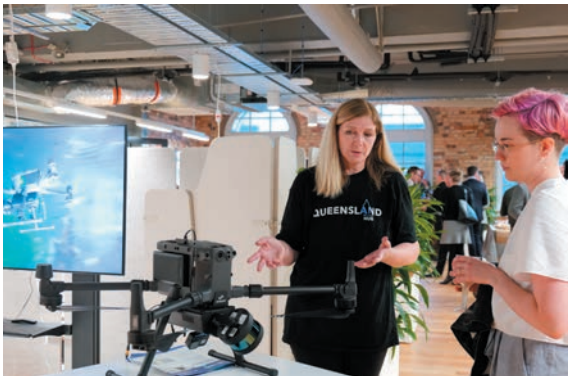
AI and robotics champion

Dr Sue Keay is one of Australia's most influential leaders in artificial intelligence and robotics. She led the development of Australia's first robotics roadmap, highlighting how advances in robotics impact on every sector of the Australian economy.

Sue is dedicated to building ecosystems to support R&D as she sees robotic technology as critical in maintaining living standards, protecting the environment, providing services to remote communities, reducing healthcare costs, and creating more efficient and safer workplaces.

Named one of the first Superstars of STEM, Sue is a strong advocate for diversity, and is closely involved with global organisations for women in technology.





Dr Dale Lambert PSM FTSE

Chief of Cyber and Electronic Warfare Division, Defence Science and Technology Group (SA)

Information fusion leader

Dr Dale Lambert is a world class scientist in high-level information fusion, using artificial intelligence to integrate and analyse multiple data sources enabling decision superiority for the defence and intelligence communities.

He is a respected leader in information warfare, influencing national and international research programs.

In 2020, Dale was awarded a Public Service Medal for outstanding service in the use of AI in surveillance and reconnaissance, command and control systems, intelligence gathering and autonomous platforms.
He combines his expertise with a passion for STEM education to partner with Australian universities in expanding national expertise in this significant area.

Professor Chengdao Li FTSE

Professor and Director, Western Crop Genetics Alliance, Murdoch University and Department of Primary Industries and Regional Development (WA)

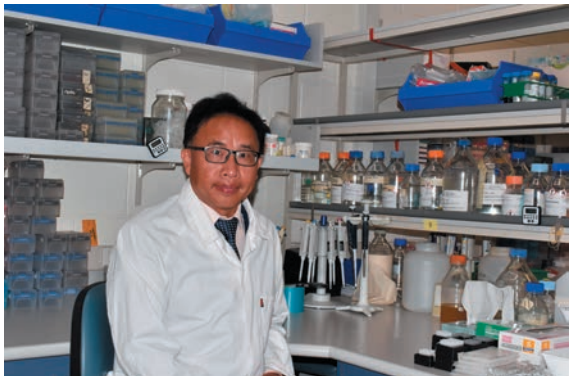
Barley geneticist

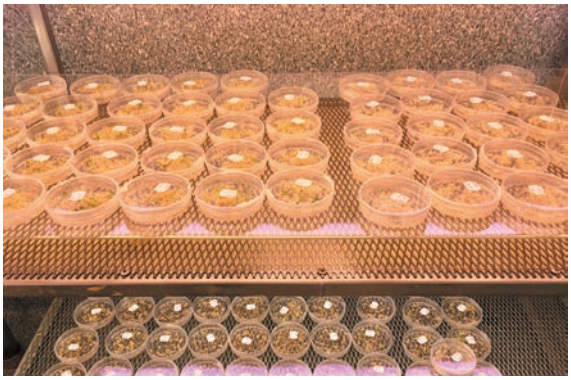
Professor Chengdao Li is a geneticist and breeder who has developed breeding technologies and released world leading varieties to facilitate Australia's barley industry transformation.

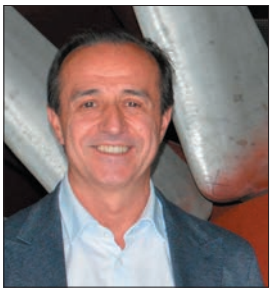
He was instrumental in developing China as a $1 billion malting barley market, collaborating with major customers to enrich their understanding of Australian barley.

His pioneering research on barley tolerance to acidic soil laid a strong foundation for the future sustainability of Australian barley.

Chengdao's team is now developing technologies for new lupin and oat varieties. Australia produces 70% of the world's lupins, and demand is increasing for plant-based protein to help reduce carbon emissions and aid food security.







Distinguished Professor Ivan Marusic FTSE FAA

Deputy Dean (Research), Faculty of Engineering and IT
The University of Melbourne (VIC)

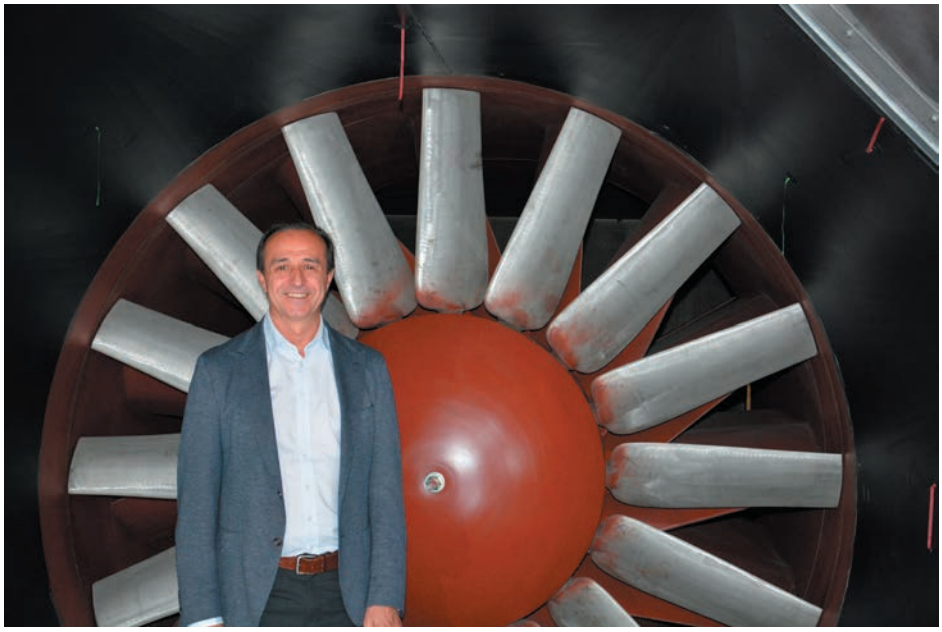
Fluid mechanics engineer

Distinguished Professor Ivan Marusic is an eminent researcher on fluid mechanics – forces and flow in liquids and gasses. Turbulence is the most common and complicated type of fluid motion.

Many seemingly simple questions remain unanswered. It becomes even more complex when flows are bounded by a solid surface.

Ivan's discovery of 'superstructures' in wall-bounded turbulence was a breakthrough. The behaviour of superstructures in near-wall turbulence regulates the drag force on planes and ships, the distribution of heat in the atmosphere, and the energy required to deliver fluids through pipelines.

Ivan's discoveries have influenced the modelling of environmental flows in rivers, lakes and seas, and the design of pipes, ships and planes.



Professor Sally McArthur FTSE

Director, Manufacturing Futures Research Institute, Swinburne University of Technology (VIC)

Research-industry collaborator

Professor Sally McArthur is a leading biomedical engineer, passionate about using engineering principles to improve human wellbeing. She excels at applying fundamental research to the design of innovative new products.

At CSIRO, she was a member of the team that developed extended wear contact lenses, an innovation that gained substantial market share and significant royalties when licensed to Ciba Vision.

Today, she oversees world-class collaborations between research and industry, delivering complex solutions across advanced materials, industrial automation and robotics, advanced manufacturing, design and data science, to help secure Australia's industrial future.

She is an enthusiastic mentor to Australia's next generation of STEM leaders.

Dr Graeme Moad FTSE FAA

CSIRO Fellow, CSIRO Manufacturing (VIC)

World-renown polymer scientist

Dr Graeme Moad is a renowned chemist at the forefront of polymer science in Australia and internationally.

Natural polymers include proteins such as hair and wool, polysaccharides such as cotton and starch, and DNA. Synthetic polymers which include plastics are now essential to modern life being used in electronics, biomedicine and nanotechnology.

Graeme was a key inventor of CSIRO's RAFT technology, which has garnered worldwide acclaim. Using preeminent radical chemistry, it precisely controls the composition and architecture, and therefore the properties, of synthetic polymers, something previously believed unattainable. Today, RAFT can be used in manufacturing materials from solar cells and paints, to cosmetics, and even biomaterials, polymer therapeutics and improved drug delivery methods.

In 2020, Graeme was awarded the prestigious David Craig Medal for his outstanding contributions to chemistry. His extensive expertise supports initiatives to develop a circular economy for plastics.

Dr Andrew Nash FTSE

Chief Scientific Officer, CSL Limited (VIC)

Bio-pharmaceuticals research leader

Dr Andrew Nash is a global leader in biopharmaceuticals. He is CSL's Chief Scientific Officer and Senior Vice President, Head of Research.

CSL is one of the world's largest biotech companies and has invested more than US$4 billion in R&D in the last five years.

Andrew completed his PhD in Immunology and led an academic research group for eight years before transitioning to industry. He is an Honorary Associate Professor at the University of Melbourne.

In his role, Andrew provides overarching scientific leadership at CSL and is directly responsible for its large global effort focused on the discovery of new medicines to treat rare and serious human disease.

During his career, Andrew has contributed to the translation of many promising early research discoveries into new medicines that have progressed into clinical trials and beyond.

Professor Andrew Parfitt FTSE

Vice-Chancellor and President, UTS (NSW)

Academic leader and telecommunications engineer

Professor Andrew Parfitt is a respected university administrator with a strong background in engineering and technology, including telecommunications and space science.

Recognised for his energy, insight and deep knowledge of the academic environment, he has worked for over a decade at the intersection of education, research and industry to strengthen the performance of three universities: UniSA, Newcastle, and University of Technology Sydney.

Other career highlights include leading the Cooperative Research Centre for Satellite Systems, and stints with CSIRO and Defence Science and Technology.

Andrew is a champion of gender equity and increased academic participation by Indigenous Australians and students from diverse backgrounds, particularly in STEM.

Dr Michael Robertson FTSE

Deputy Director, CSIRO Agriculture and Food (WA)

Sustainable agriculture scientist

Dr Michael Robertson is an outstanding agricultural scientist playing a crucial role in research addressing the existential challenges facing Australian farmers in a changing climate.

His 1000-strong research team is developing technologies to help farmers and industry, including drought-resistant crops, digital agriculture tools, and systems to measure farm sustainability.

For example, the Agricultural Production Systems Simulator predicts the production and sustainability of farming systems. This helps farmers make decisions to optimise outcomes in a risky climate. The tool is used widely around the world by researchers and industry practitioners.

Michael also leads multi-disciplinary teams tackling complex national agricultural issues and works with all major agricultural industries.

Professor Jason Sharples FTSE

Professor of Bushfire Dynamics, UNSW Canberra (ACT)

Bushfire behaviour researcher

Professor Jason Sharples is a mathematical scientist and internationally recognised expert in dynamic bushfire behaviour and extreme bushfire development.

His research has extensively influenced policy and practice in Australia and internationally. The recommendations of the NSW Bushfire Inquiry into the 2019-20 bushfires are framed by Jason's research.

Using complex predictive mathematical models, Jason aims to prevent big fires forming by forecasting danger periods and predicting areas where small fires could develop into big ones.

He directs several national research projects and contributes to international professional dialogue.

A Bundjalung man, Jason says Indigenous Australians have been innovators and scientists for thousands of years, a heritage that can continue today, especially through fire and land management.

Kylie Sproston FTSE

Chief Executive Officer, Bellberry Limited (SA)

Pharamaceutical manufacturing leader

Kylie Sproston is a chartered engineer and internationally experienced leader in the pharmaceutical and biotechnology industries with a strong focus on manufacturing.

She has expertise across the full pharmaceutical product lifecycle and has held senior positions in Australia and the UK in technical and management functions.

She is currently chief executive of Bellberry, a private not-for-profit company that promotes and improves the welfare of research participants and the quality, efficiency and effectiveness of human research projects in Australia.

Kylie also chairs the CRC Advisory Committee which oversees and advises the government on its cooperative research centre program.

Professor Hugh Williams FTSE

Enterprise Professor, Melbourne Business School, The University of Melbourne (VIC)

Digital education champion

Professor Hugh Williams is an international technology leader who has made a significant contribution to both the university and commercial sectors.

Best known as one of the inventors of Infinite Scroll, Hugh is admired across the Australian start-up scene, has worked in the top echelons of US tech, and now advises the next generation of disruptors and investment firms.

He is Melbourne Business School's first Enterprise Professor, a role he commenced after leading Google Maps' product and engineering teams. He also held executive roles at eBay and Microsoft.

In 2018, Hugh co-founded a non-profit, CS in Schools, that is creating sustainable change in Australian digital technology secondary school education.

Professor Trish Williams FTSE

Cisco Chair and Professor of Digital Health Systems, College of Science and Engineering, Flinders University (SA)

Digital health innovator

Professor Trish Williams is passionate about improving healthcare through technology. She has three decades' experience in healthcare computing, including 15 years in industry.

She has deep expertise in maintaining security of digital health information while facilitating the interoperability of multiple digital health information systems. Collaborating with industry, Trish led a project to develop a benchmark for hospitals to evaluate their digital infrastructure by assessing what digital services they provide and how well these support clinicians and patients. This benchmark is now an international standard. Trish is international co-chair of HL7 Security, a group overseeing international security standards governing health care interoperability. She also led development of Australia's general practice information security standards.

Distinguished Professor Irene Yarovsky FTSE

School of Engineering, RMIT University (VIC)

Materials science engineer

Distinguished Professor Irene Yarovsky is a world leading researcher. She has made outstanding contributions to materials science and engineering.

She is co-leader of the Australian Steel Innovations Research Hub where academia and industry work in an integrated, value chain-wide approach to innovation across numerous projects, including environmental sustainability of iron and steelmaking and coated steel products.

She leads an RMIT research group in theory and simulation of materials with a strong application focus, ranging from industrial to biomaterials and novel nanomaterials.

Irene is also a Visiting Professor at Imperial College London where she collaborates with world leading experts to create innovative materials for biosensing, regenerative medicine and therapeutics.

Professor Xiao Lin Zhao FTSE

Associate Dean (International), Faculty of Engineering, UNSW Sydney (NSW)

Sustainable structures engineer

Professor Xiao Lin Zhao is known internationally for his work improving the resilience and safety of engineered structures.

He is a leader in rehabilitating existing steel structures using advanced composite materials and has also provided sustained international leadership in the development and construction of steel and hybrid tubular structures.

Xiao-Lin leads research into sustainable alternatives to cement, the world's single biggest industrial cause of carbon pollution, including work on geopolymer concrete utilising seawater, sea sand, recycled aggregate and industrial waste such as slag and fly ash.

He has several prestigious international fellowships and has received 25 Australian Research Council grants.

FOREIGN FELLOW 2021

Distinguished Professor Menachem Elimelech FTSE

Sterling Professor of Chemical and Environmental Engineering, Yale University (USA)

Environmental engineer

Distinguished Professor Menachem Elimelech is an acclaimed environmental engineer, widely known for his work addressing the global water crisis.

More than 3.2 billion people live in areas of significant water shortage. Unchecked, demand for water will exceed supply by 40% in 2030. Desalination — including of seawater, brackish water and wastewater — is effective in augmenting water supply, but the process is energy intensive.

Menachem researches physical and chemical processes at the nexus of water and energy, including high performance membranes for energy-efficient desalination and wastewater re-use; advanced materials for water decontamination; and environmental applications of nanomaterials.

Menachem founded Yale's renowned Environmental Engineering Program in 1998. He has received major international awards, including the prestigious Eni Prize, and educated and mentored the next generation of university professors and industry leaders in this field. He has also made a significant contribution to research collaborations in Australia.

HONORARY FELLOW 2021

Distinguished Professor Marcia Langton AO FTSE FASSA

Foundation Chair of Indigenous Studies & Associate Provost, The University of Melbourne (VIC)

Anthropologist and geographer

Distinguished Professor Marcia Langton is a descendant of the Iman people of Central and South Western Queensland.

She is an anthropologist, geographer and public intellectual, and has made an enormous contribution to Australia.

Marcia is recognised internationally for her ground-breaking work modernising the mining industry's engagement with Indigenous people, particularly in the difficult area of negotiating and settling agreements.

Her research has established a body of data examining public and private sector practices of negotiation and settlement with Indigenous groups in Australia, Canada, New Zealand, South Africa and elsewhere. This innovative approach, incorporating detailed case studies of good practice models, extended analysis of agreement-making into new territory, informing practitioners and scholars worldwide.

Marcia has contributed to education policy nationally, and established new courses of study at universities, ensuring the inclusion of Indigenous students and Indigenous knowledge in education. This work is driven by the recognition of education's critical role in Aboriginal cultural survival.