The 3rd International Conference on Mineral Engineering and Materials Science (iCMEMS-2025)
Western Sydney University (Parramatta South Campus)
26-28 November 2025, Sydney, Australia

Hosts:

Western Sydney University

Global Circle for Scientific, Technological and Management Research (GCSTMR)

Co-hosts:

Northeastern University

University of Wollongong

UNSW

Lanzhou University

Hunan University

Jiangxi University of Science and Technology

Website:

Conference Management by GCSTMR, Sydney, Australia

CONFERENCE INFORMATION

The 3rd International Conference on Mineral Engineering and Materials Science (iCMEMS-2025) will bring together leading academics, researchers, industry professionals, and graduate students to share cutting-edge research, foster collaborations, and address global challenges in sustainable material development and processing.

This iCMEMS-2025 conference will be organised jointly by the Western Sydney University and Global Circle for Scientific, Technological and Management Research (GCSTMR), together with our co-hosts from other universities. It will be held on 26-28 November 2025 at Western Sydney University's Parramatta South campus, which has excellent public transport link to Sydney CBD. The traditional landmarks of Sydney including Sydney Harbour, Sydney Opera House and Harbour Bridge are within easy reach of the conference venue as is the Blue Mountains World Heritage National Park.

The iCMEMS-2025 conference will feature keynote, invited and regular presentations. All the abstracts and full papers submitted to iCMEMS-2025 will be refereed by two independent reviewers and if accepted will be published in the conference proceedings. An edited book will be published (Springer) based on the selected papers (subject to author upgrade and editor acceptance).

Western Sydney University (WSU) has been ranked first in the world in 2022-2024 in The Times Higher Education (THE) Impact Ranking in sustainability. It is in a unique position to continuously host such a conference to promote sustainability across all spheres of life. Mineral engineering and materials science are interconnected in driving sustainable development by enabling efficient resource extraction, innovative material design, and eco-friendly processes, ensuring responsible engineering solutions for future generations.

Conference themes

- **Additive Manufacturing and Powder Processing**
  - Powder-based materials for 3D printing and additive manufacturing
  - Mechanical properties and post-processing of 3D-printed parts
  - Optimization of powders for additive manufacturing applications
  - Advanced sintering and compaction techniques for powder processing
- **Advanced Reactor Design and Process Control**
  - Catalytic reactor design and optimization
  - AI-driven process control and optimization
  - Advanced process control (APC) and real-time monitoring
  - Multiscale modelling and simulation of chemical reactors
  - Heat and mass transfer in multiphase reactor systems
- **Advanced Separation and Processing Techniques**
  - Innovations in flotation, gravity, and magnetic separation
  - Sensor-based ore sorting and fine particle recovery
  - Advanced filtration and sedimentation techniques
  - Separation processes in chemical and process engineering
  - Novel techniques for mineral beneficiation and e-waste recycling
- **Critical Minerals and Resource Recovery**
  - Processing of rare earth elements and critical minerals
  - Extraction of lithium, cobalt, and nickel for energy storage
  - Resource recovery from electronic waste (e-waste)
  - Challenges in metallurgical processing of critical materials

- Supply chain sustainability for critical minerals
- **Digital Transformation and Smart Technologies**
  - AI and machine learning in mineral, particle, and process industries
  - Big data analytics for geometallurgy and process optimization
  - Digital twins for plant operations and manufacturing
  - Smart sensors and IoT in mining and material processing
  - Automation, robotics, and autonomous systems in mining and manufacturing
- **Materials Characterization and Simulation**
  - Advanced microscopy and spectroscopy techniques
  - Computational materials design and simulation
  - Fracture mechanics and failure analysis of materials
  - Non-destructive testing methods for materials and structures
  - Multiscale modelling of material properties and behaviour
- **Materials for Energy and Environment**
  - Materials for renewable energy systems (solar cells, batteries, fuel cells)
  - High-entropy alloys and metallic glasses for energy applications
  - Functional ceramics for energy storage and conversion
  - Materials for hydrogen production, storage, and usage
  - Advanced materials for carbon capture and environmental remediation
- **Nanotechnology and Functional Materials**
  - Synthesis of functional nanoparticles and nanostructured materials
  - Nanomaterials for energy storage and renewable energy systems
  - Nanotechnology applications in mineral recovery and processing
  - Self-assembled nanostructures and metamaterials
  - Nanoparticles in drug delivery, catalysis, and environmental applications
- **Particle Engineering and Characterization**
  - Particle size, shape, and surface area analysis
  - Agglomeration, granulation, and powder compaction
  - Fluidization and fluid-particle interactions in reactors
  - Coating and surface modification of particles for specific applications
  - Simulation and modelling of particulate systems (DEM, CFD)
- **Process Intensification and Modular Systems**
  - Compact and modular process design for flexible manufacturing
  - Microreactors for chemical and material production
  - Energy-efficient process intensification strategies
  - Multiphase flow and heat transfer in intensified processes
  - Process scale-up challenges and solutions
- **Sustainable Mining and Mineral Processing**
  - Energy-efficient grinding and milling technologies
  - Tailings management and mine waste valorization
  - Water conservation and reuse in mineral processing
  - Autonomous and remote-controlled mining systems
  - Biodiversity conservation and post-mining land rehabilitation
- **Sustainable Practices in Engineering and Materials**
  - Zero-waste mining and resource management
  - Circular economy in mineral and material utilization
  - Recycling and recovery of critical metals and materials
  - Sustainable processing of rare earth elements and battery materials
  - Waste valorization and secondary resource recovery
  - Carbon capture, utilization, and storage (CCUS)

Key dates

Conference Stage	Date
Abstract Submission	31 July 2025
Full Paper Submission	30 August 2025
Acceptance Notification	30 September 2025
Early Bird Registration	30 September 2025
Conference Date	26-28 November 2025

Abstract and full paper submission

Please visit the iCMEMS-2025 conference website to download the templates to prepare your abstracts, extended abstracts, and full papers.

Conference registration

You are highly recommended to register for the conference early. If registration is completed late, your papers may not be included in the Conference Proceedings. Please note that a maximum of two accepted papers per registration is allowed. An additional $350 is applicable for the submission of a second paper. Registration fees are as follows.

Category	Early Bird	Normal
Full registration (face-to-face, including dinner)	Au$995	Au$1095
Student registration (no dinner)	Au$650	Au$750
Conference dinner	Au$150	Au$130
One-day participant	Au$600	Au$700
Accompanying family member	Au$400	Au$500
Online presentation via Zoom	Au$250	Au$300
Additional paper	Au$350	Au$350

Registration fees include conference materials, lunch, refreshments, admission to all sessions, and conference dinner (for full delegate registration and student registration). An extra dinner ticket can be purchased for $130 per person.

- International delegates and international students from countries with a per capita GDP of less than US$ 10,000 (World Bank, 2023) will receive a discount of Au$100 on the registration fee.
- To use the student registration rate, the student needs to provide his/her supervisor's contact information in registration.

Conference venue:

iCMEMS-2025 will be held at Western Sydney University's Parramatta South campus, Sydney, Australia (the corner of James Ruse Drive and Victoria Road in Rydalmere, NSW 2116).

Attractions nearby:

The traditional landmarks of Greater Sydney including Blue Mountains, Sydney Darling Harbour, Sydney Opera House and Harbour Bridge are conveniently accessible from the conference venue.

Co-chairs

A/Prof Qinghua Zeng, Western Sydney University, Australia
Prof Xizhong An, Northeastern University, China

Conference secretary

Dr Xuefeng Dong, University of Wollongong, Australia

Technical committee

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- Prof Kaiwei Chu, Shandong University, China
- A/Prof Kejun Dong, Western Sydney University, Australia
- Prof Hao Ding, China University of Geosciences (Beijing), China
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- Dr Dianyu E, Jiangxi University of Science and Technology, China
- Dr Yuqing Feng, CSIRO Mineral Resources, Australia
- Dr Shibo Kuang, Monash University, Australia
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- Prof Zongyan Zhou, Jiangxi University of Science and Technology, China
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- Prof Brian G Falzon, Western Sydney University, Australia
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