2025 the 16th International Conference on Mechanical and Intelligent Manufacturing Technologies (ICMIMT 2025)

2025 the 7th International Conference on Innovative and Smart Materials (ICISM 2025)

Cape Town, South Africa | May 16-18, 2025

(UTC+2)

Co-Sponsored by

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Venue: Pullman Cape Town City Centre

Add.: 22 Riebeek St, Cape Town City Centre, Cape Town, 8000, South Africa

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WELCOME MESSAGE

Dear all, we are delighted to welcome you to these conferences 2025 the 16th International Conference on Mechanical and Intelligent Manufacturing Technologies (ICMIMT 2025), along with the workshop 2025 7th International Conference on Innovative and Smart Materials (ICISM 2025) to be held in Cape Town, South Africa, during May 16-18, 2025. The conference is co-sponsored by India International Congress on Computational Intelligence (IICCI) and IEEE, hosted by the University of Cape Town (South Africa), with patrons from Nelson Mandela Metropolitan University (South Africa), University of Johannesburg (South Africa), and other institutions.

The objective of the conference is to provide a premium platform to bring together researchers, scientists, engineers, academics and graduate students to share up-to-date research results. We are confident that during this time you will get the theoretical grounding, practical knowledge, and personal contacts that will help you build a long term, profitable and sustainable communication among researchers and practitioners in the related scientific areas.

This year's program is composed of 4 keynote speeches delivered respectively by Prof. George Q. Huang, (Fellow of IEEE, IISE, ASME, HKIE, IET and CILT) from The Hong Kong Polytechnic University, China; Prof. Udochukwu B. Akuru, from Tshwane University of Technology, South Africa; Prof. Richard (Chunhui) Yang, from Western Sydney University, Australia and Prof Khaled Abou-El-Hossein, from Vaal University of Technology, South Africa; 4 onsite oral sessions and 2 online oral sessions. We would like to express our gratitude to all the speakers in these conferences. Special thanks to all of our committee members, all the reviewers, the attendees for your active participation. We hope the conferences will be proved to be intellectually stimulating to us all. Finally, we wish you very successful conferences!

Conference Organizing Committee

ICMIMT 2025
Ms. Nina Lee
Email: icmimt_conf@126.com

ICISM 2025
Ms. Veronica Reed
Email: icism_conf@163.com

CONFERENCE COMMITTEE *(in no particular order)*

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Arif Rochman, University of Malta, Malta

GENERAL INFORMATION

A Conference Venue

Venue: Pullman Cape Town City Centre

Add.: 22 Riebeek St, Cape Town City Centre, Cape Town, 8000, South Africa

Web: https://all.accor.com/hotel/C0H1/index.en.shtml

Email: pullman.ctcc.info@accor.com

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B On-site Registration

Registration desk→ Inform the staff of your paper ID→ Sign-in→ Claim your conference kits.

C Devices Provided by the Organizer

Laptops (with MS-Office & Adobe Reader) / Projectors & Screen / Laser Sticks

D Materials Provided by the Presenter

Oral Session: Slides (pptx or pdf version). Format 16:9 is preferred.

Presentation Language: English only.

E Duration of Each Presentation

Keynote Speech: 40min, including 5 min Q&A. Oral Session: 15min, including 3 min Q&A.

F Notice

※ Please wear your delegate badge (name tag) for all the conference activities. Lending your badge to others is not allowed.

※ Please take good care of your valuables at any time during the conferences. The conference organizer does not assume any responsibility for the loss of personal belongings of the participants during conference day.

G Zoom Meeting

	Meeting ID	Link
zoom ✧ ICMIMT Banner ✧ Zoom Background	882 5010 1883	https://us02web.zoom.us/j/88250101883

Note:

1. We recommend to install the Zoom platform beforehand. New users can login the Zoom meeting **without registration**.
2. Please set your display name before joining the online meeting. For instance,

Author/Presenter: Paper ID_Name < MT001_ Nina Lee >

Delegate: Delegate_Name < Delegate__ Nina Lee >

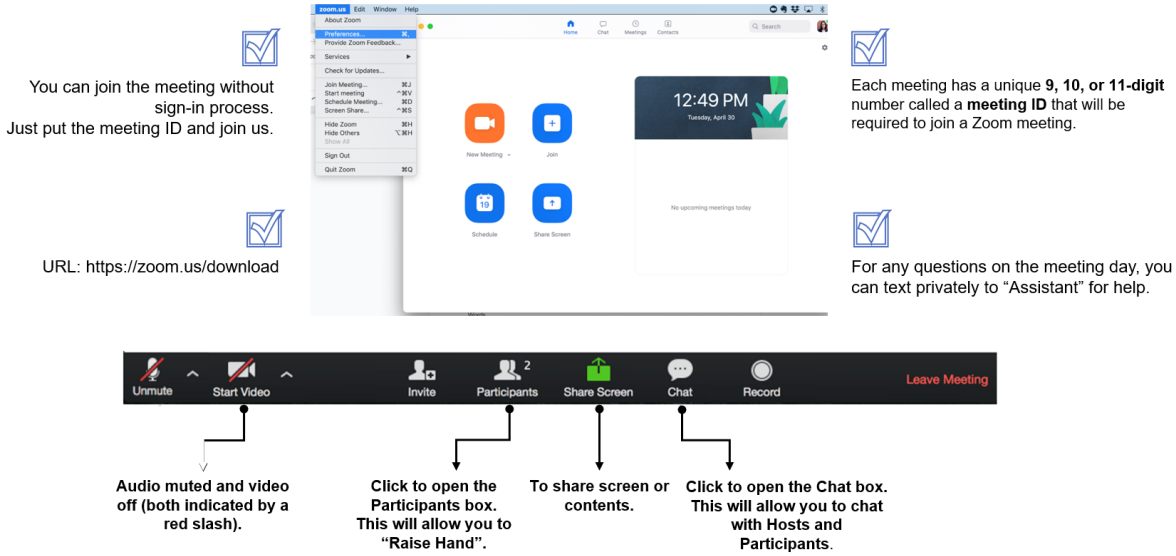
H No-Show Policy

Papers unpresented at the conference, without prior written approval by the Conference Technical Program Chair, will be removed from the final conference proceedings before uploading to IEEE Xplore. No refund will be approved to authors of those papers.

AGENDA OVERVIEW

Session Time	Friday, May 16, 2025 | Pre-Test/Registration	Venue
14:00-17:00	On-site Registration	Lobby of Pullman Cape Town City Centre
09:00-10:30	Zoom Pre-test, See below:	Meeting ID: 882 5010 1883 Link: https://us02web.zoom.us/j/88250101883
09:00-09:30	MT502&MT502, MT093&MT069, MT096, MT1016&MT1017, MT011, MT021, MT039	
09:30-10:00	MT007, MT035, MT036, MT045, MT090, MT1018, MT099, MT105, MT1019	
10:00-10:30	For other online participants, includes but not limited to keynote speakers, session chairs, committee members, delegates, etc.	

Presenters are required to join the rehearsal in Zoom on Friday, May 16, 2025. Duration: 2~3min apiece. Feel free to leave after you finish the test.



Saturday, May 17, 2025 (UTC+2)	
Keynote Speech (Onsite & Online)	**Conference Room: Calima <1st floor > I Meeting ID: 882 5010 1883**
Host: Prof. Khaled Abou-El-Hossein, Vaal University of Technology, South Africa	
09:00-09:10	Opening Speech: Prof. Khaled Abou-El-Hossein, Vaal University of Technology, South Africa
09:10-09:50	Keynote Speech I: Ultra-High Precision Machining of Optical Mould Inserts **Prof Khaled Abou-El-Hossein,** Vaal University of Technology, South Africa *(Onsite)*
09:50-10:30	Keynote Speech II: Magnet-Free or Magnet-Less Electrical Machines for Low-Cost Renewable Energy Devices **Prof. Udochukwu B. Akuru,** Tshwane University of Technology, South Africa *(Onsite)*
10:30-11:00	Group Photo & Coffee Break
11:00-11:40	Keynote Speech III: In Search of Breakthroughs for High-Performance Cyber-Physical Smart Manufacturing **Prof. George Q. Huang,** (Fellow of IEEE, IISE, ASME, HKIE, IET and CILT) The Hong Kong Polytechnic University, China *(Online)*
11:40-12:20	Keynote Speech IV: Study on mechanical behaviours and surface roughness of 3D printed PLA using fused filament fabrication **Prof. Richard (Chunhui) Yang,** Western Sydney University, Australia *(Online)*
12:20-13:30	Lunch: Stratus Room Restaurant, 2nd floor

Saturday, May 17, 2025 (UTC+2) | Parallel Session (Onsite)		
13:30-15:30	**Onsite Session 1:** Digital Twin and Additive Manufacturing MT043 MT048, MT053, MT058, MT073, MT075, MT042, MT049	Calima <1st floor >
	Onsite Session 2: Advanced Manufacturing Systems and Production Automation MT018, MT074, MT050, MT054, MT071, MT084, MT034, MT010	TBA<1st floor >
15:30-16:00	Break Time	
16:00-18:00	**Onsite Session 3:** Engineering Material Design and Performance Experiment MT028, MT031, MT030, MT033, MT041, MT056, MT057, MT101	Calima <1st floor >
	Onsite Session 4: Complex System Control, Fault Monitoring, and Reliability Assessment MT025, MT047, MT051, MT055, MT059, MT066, MT082, MT1012	TBA<1st floor >
18:00-20:00	Dinner: Stratus Room Restaurant, 2nd floor	

Sunday, May 18, 2025 (UTC+2) | Parallel Session (Onsite)	
08:00-18:00	One Day Tour, details can be funded in page 24.

Saturday, May 18, 2025 (UTC+2) | Parallel Session (Online)	
Meeting ID: 844 7712 9935	Link: https://us02web.zoom.us/j/88250101883
09:00-11:15	**Online Session 1:** Intelligent Materials and Mechanical Processing Technology MT501, MT502, MT093, MT096, MT1016, MT1017, MT011, MT021, MT039
11:15-12:00	Break Time
12:00-14:30	**Online Session 2:** Engineering Material Design and Performance Experiment MT007, MT035, MT036, MT045, MT069, MT090, MT1018, MT099, MT105, MT1019

INTRODUCTION OF KEYNOTE SPEAKER

Prof Khaled Abou-El-Hossein

Vaal University of Technology, South Africa

Ultra-High Precision Machining of Optical Mould Inserts

Abstract: Metal cutting techniques that result in surface roughness in the ranges of few nanometres and form accuracy in the sub-micron region are categorised as ultra-high precision machining (UHPM). In this technology, diamond inserts are used to shape components from various non-ferrous materials by lathe operation. These components are usually optical objects such as flats, convex and concave lenses made from aluminium, copper alloys, silicon, germanium, etc. Diamond turning can also be used to produce mould inserts for plastic optics injections. Optical injection moulds are usually made from high strength aluminium such as AA 6061 and beryllium copper alloys. These materials are easily machined by diamond tools. However, for high requirements mould inserts used for glass moulding, the mould inserts must be made from ultra-hard materials such as tungsten and silicon carbides. UHPM of these materials can be achieved using ultra-high precision grinding spindles. This presentation will highlight the capabilities of precision engineering when making optics and mould insert manufacturing. Optical components, including freeform, with form accuracy of about 0.1 um and surface roughness of 1 nm can be produced with diamond machining. Currently, we are busy investigating the process of diamond turning when machining a special grade of aluminium produced by rapid solidification and spin melting. This aluminium grade which enjoys elevated tensile strength (600 MPa) can be used as a mould material for injecting plastic optics.

Biography: Prof Abou-El-Hossein is a distinguished academic leader who currently serves as the Dean of the Faculty of Engineering and Technology at Vaal University of Technology. With an impressive tenure of over 24 years in academia, he has made substantial contributions to the field of mechanical, mechatronics engineering, and advanced high-precision manufacturing. Having held administrative positions such as Head of Engineering Departments and Director of the School of Engineering at various prestigious universities in Malaysia and South Africa, Prof Abou-El-Hossein possesses extensive experience in academic administration. His leadership skills and expertise have played a crucial role in the development and success of engineering education at these institutions.

Prof Abou-El-Hossein's research expertise lies in the manufacturing of aerospace components, with a particular focus on high-precision optics. His profound knowledge and hands-on experience in this area have propelled advancements in manufacturing technologies, especially in the aerospace sector. Additionally, he has a keen interest in additive manufacturing, constantly exploring innovative applications and techniques within this rapidly evolving field. Furthermore, Prof Abou-El-Hossein has actively engaged in design projects involving power generation from focused sun rays, utilizing oil and water steam. His involvement in these projects highlights his interdisciplinary approach and commitment to developing sustainable and efficient energy solutions.

Throughout his career, Prof Abou-El-Hossein has been recognized for his outstanding academic achievements, research contributions, and dedication to student mentorship. He is current holding a prestigious rating from South Africa National Research Foundation. His passion for advancing engineering and technology, combined with his expertise in manufacturing, optics, additive manufacturing, and renewable energy, solidifies his standing as a respected and influential figure in the academic community.

INTRODUCTION OF KEYNOTE SPEAKER

Prof. Udochukwu B. Akuru

Tshwane University of Technology, South Africa

Magnet-Free or Magnet-Less Electrical Machines for Low-Cost Renewable Energy Devices

Abstract: Renewable energy facilitates reduction in fossil fuel resources, environmental sustainability, cleaner energy solutions and economic development, among others. The growing deployment of renewable energy technologies in terms of wind power generation, electrified transportation, as well as the development of modern electricity grids, require the development and application of high torque density electrical machines which depend on the usage of rare-earth permanent magnet (PM) materials due to their high torque density and efficiency. However, PMs are associated with ecological damage from resource extraction, as well as high costs and risk of demagnetization. Recently, there has been the emergence of innovative brushless, stator-excited electrical machines which eliminates the need for PM materials as well as brushes and slip rings, while also offering flux regulation, and are very promising for renewable energy devices. In this presentation, some insights on the analytic and computer-aided design, performance evaluation and optimization, as well as smart manufacturing techniques of these emerging electrical machines for magnet-free or magnet-less designs will be provided. The presentation will highlight the development of novel topologies, as well as scalability studies, prototyping and experimentation which I have so far embarked. To facilitate their future industrial uptake, I will identify some showstoppers for driving future research and increased technological readiness of these electrical machines. To conclude, I will then show how the cost and performance competitiveness of these electrical machine could be translated into commercially viable products which contribute to economic growth and sustainable energy solutions.

Biography: Udochukwu B. Akuru obtained the Ph.D. degree in Electrical Engineering from Stellenbosch University, South Africa, in 2017. He was a postdoctoral research fellow at Stellenbosch University from 2018 to 2019. He started lecturing in the Department of Electrical Engineering, Tshwane University of Technology, South Africa, since 2020. He is a Senior Member of IEEE, Senior Member of SAIEE, South Africa National Research Foundation (NRF) rated researcher, and volunteer to various societies, committees and groups such as IEEE IAS EMC and IEEE IES EMTC. His field of expertise is in magnet-free or magnetless electrical machines design for renewable energy applications. He is a TWAS-DFG Research Fellow and an Associate Editor of IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS. Dr. Akuru also serves as current Chair: IEEE South Africa Section.

INTRODUCTION OF KEYNOTE SPEAKER

Prof. George Q. Huang

The Hong Kong Polytechnic University, China

In Search of Breakthroughs for High-Performance Cyber-Physical Smart Manufacturing

Abstract: The talk is about our search for an Industry 4.0 intelligent factory following a formal computer architecture and operating system. By so doing, computer hardware and software techniques can be adapted for high-performance factory production management. The breakthrough is achieved through a trilogy of innovations: (1) digitizing a factory with smart IoT devices into a "factory computer" (iFactory); (2) innovating iFactory visibility and traceability (VT) to enable "look around" techniques just as used in the "Out of Order Execution (OoOE)" algorithm by CPUs (Central Processing Units); and (3) developing novel models for iFactory shopfloor operations management. The iFactory architecture provides new opportunities to explore and study factory uncertainties through cyber-physical visibility and spatial-temporal traceability, and to develop brand-new data-driven decision models for factory operations planning, scheduling and execution. iFactory demonstrates a new approach to implement Industry 4.0 smart manufacturing systems for high performance, responsiveness and resilience.

Biography: George Q. Huang joined Department of Industrial and Systems Engineering at The Hong Kong Polytechnic University as Chair Professor of Smart Manufacturing and Director of PolyU Research Institute of Advanced Manufacturing (RIAM). George graduated from Southeast University (China) with BEng and Cardiff University (UK) with PhD degrees respectively. George has been working on smart manufacturing ever since his PhD study and continued and expanded into smart logistics and smart construction with substantial research grants from governments and industries. He published extensively in the related fields and his works have been widely cited with the research community. He served as senior / department / area / regional / associate editors and on editorial boards of more than a dozen of reputable journals. George is Chartered Engineer (CEng), Fellow of IEEE, ASME, IISE, IET, CILT and HKIE.

INTRODUCTION OF KEYNOTE SPEAKER

Prof. Richard (Chunhui) Yang

Western Sydney University, Australia

Study on mechanical behaviours and surface roughness of 3D printed PLA using fused filament fabrication

Abstract: Fused Filament Fabrication (FFF) is one of the innovative 3D printing technologies for fabricating complex components and products. Material properties and suface roughness of 3D-printed components mostly depend on intricate process parameters of 3D printing. This study experimentally investigates the effects of four key process parameters, including layer thickness, raster angle, feed rate, and nozzle temperature, on the tensile properties and surface roughness of FFF printed Polylactic Acid (PLA), and their failure mechanisms. The experimental results demonstrate that tensile strength improves up to 10 and 7% with increasing nozzle temperature (200 °C to 220 °C) and low feed rate (60 mm/sec to 40 mm/sec) during the 3D printing process. The tensile strength increases up to 12% with decreasing layer thickness (0.4 mm to 0.2 mm) and 40% with decreasing raster angle (90° to 0°). The surface roughness of the FFF printed PLA samples is found to be influenced by those key FFF process parameters too and an improvement in surface roughness is observed with the increase of nozzle temperature and reduction on feed rate.

Biography: Prof Yang is an internationally recognized research leader on fields of research include Advanced Manufacturing, Additive Manufacturing (3D printing) of metals, polymers and composites, Advanced Engineering Materials & Structures, Circular Manufacturing & Circular Economy, Defence Technology, Industry 4.0, Machine Condition Monitoring (MCM) & Structural Health Monitoring (SHM), Metal Forming, Metal Surface Treatment, etc. He has been awarded over AUD$16m in competitive research grants, including 13 ARC grants (1 ARC Training Centre, 3 DPs, 3 Linkages, and 6 LIEFs), 2 CSIRO/NSF Convergence Accelerator on recycled plastic waste as well as more than 20 from government and/or industry. As for scientific publication, he has published more than 300 high-quality technical publications in top scientific journals, books, and conferences as a major contributor in his relevant fields of research across Mechanical, Mechatronic, Manufacturing, Materials, Aerospace, Civil, Defence, etc. As for external service, he is serving as assessor for Australian Research Council (ARC), editor board member, conference committee member, reviewer of international journals and conferences, examiner for Master and PhD thesis, etc. He is Editor-in-Chief of 2 scientific journals, Associate Editor of 2, and on the Editorial Board of 5. He has been on the ANSHM Executive and the Editor of ANSHM Newsletter since 2016.

ONSITE SESSION 1

Saturday, May 17, 2025 <13:30~15:30>

Onsite Session 1: Digital Twin and Additive Manufacturing — Calima <1st Floor>

Chairperson: Prof. Zuhua Jiang, Shanghai Jiao Tong University, China

13:30~13:45 MT043	Impact of rolling strain on the deformation mechanisms on mechanical properties of aluminium (1050-H4) during accumulative Roll bonding (ARB) ***Moses Matshaba,*** University of South Africa, South Africa
13:45~14:00 MT048	Measurement noise characteristics of a 3D optical profilometer using additively manufactured materials ***Anas Alburayt,*** King Abdulaziz City for Science and Technology (KACST), Saudi Arabia
14:00~14:15 MT053	Online-Quality Assurance Using Operational-Parallel Real-Time Simulation ***Shengjian Chen,*** University of Stuttgart, Germany
14:15~14:30 MT058	Effects of Flowability on Heat Transfer in Granular Materials – a Review ***Samkelo M Khumalo,*** University of Johannesburg, South Africa
14:30~14:45 MT073	The parallel stack loading problem considering long-term storage bending ***Zuhua Jiang,*** Shanghai Jiao Tong University, China
14:45~15:00 MT078	Additive Manufacturing for Inductive Power Transfer in Robotic Applications ***Robin Waltersbacher,*** Work-Life Robotics Institute – Offenburg University of Applied Sciences, Germany
15:00~15:15 MT042	Impact of rolling strain on the deformation mechanisms on mechanical properties of Aluminium during Accumulative Roll Bonding (ARB) ***Moses Matshaba,*** University of South Africa, South Africa
15:15~15:30 MT049	Effect of post-weld heat treatment and cooling media on dissimilar aluminum alloys joints by friction stir welding ***SIBISISO NGINDA,*** University of Johannesburg, South Africa

ONSITE SESSION 2

Saturday, May 17, 2025 <13:30~15:30>

Onsite Session 2: Advanced Manufacturing Systems and Production Automation

TBA <1st Floor>

Chairperson:

13:30~13:45 MT018	The Impact of Industry 4.0 Technologies on Process Reengineering: A Case Study Review ***Boitumelo Masokoameng,*** University of Johannesburg, South Africa
13:45~14:00 MT074	A Systematic Literature Review Exploring Applicable 4IR Technologies for Optimising the Returns Management Process in the Manufacturing Sector ***Refentse Lydia Selepe***, Tshwane University of Technology, South Africa
14:00~14:15 MT050	Intelligent and autonomous partitioning of real-time simulation models ***Daniel Littfinski,*** ISW, University Stuttgart, Germany
14:15~14:30 MT054	Systematic Review of DMAIC for Quality Monitoring and Control: A Case Study in the Mining Industry ***Victor Mofokeng,*** University of Johannesburg, South Africa
14:30~14:45 MT071	The Use of Lean Tools to Improve Productivity and Operation Efficiency: A Case Study in Water Testing Facility ***Nditsheni Sikhwayi and Victor Mofokeng,*** University of Johannesburg, South Africa
14:45~15:00 MT084	Design of a fully automated sugarcane juice extractor ***Tebogo Mabowa,*** University of Johannesburg, South Africa
15:00~15:15 MT034	Industry 4.0 technologies for improving SCOR model's enable phase: A systematic literature review ***Refentse Lydia Selepe,*** Tshwane University of Technology, South Africa
15:15~15:30 MT010	Design Solution for Brake Line Insert Assembly ***Vuyo Terrence Hashe,*** Walter Sisulu University, South Africa

ONSITE SESSION 3

Saturday, May 17, 2025 <16:00~18:00>

Onsite Session 3: Engineering Material Design and Performance Experiment

Chairperson:

Calima <1st Floor>

16:00~16:15 MT028	Key Challenges in Ceramic Membrane Technology for Oil/Water Separation: A Critical Review and Future Prospects ***Nthabiseng Ramanamane,*** University of South Africa, South Africa
16:15~16:30 MT031	Exploring the Potential of Quartz Raw Materials for Affordable Membrane Technology in Efficient Oil/Water Separation for Water Recovery ***Nthabiseng Ramanamane,*** University of South Africa, South Africa
16:30~16:45 MT030	Experimental study on the tensile properties of HDPE/carbon nanofibers nanocomposites produced by compression moulding ***Sibusiso Duka Jobe,*** University of South Africa, South Africa
16:45~17:00 MT033	Fractographic characterization of alumina (Al_2O_3) ceramic for Bio-inspired 3D-printed dental implants ***Emmanuel Munenge,*** University of South Africa, South Africa
17:00~17:15 MT041	Rheological analysis of bio adhesive material from candelabra tree ***Alpheus Madiba,*** University of South Africa, South Africa
17:15~17:30 MT056	Experimental Study of Granular Material Flowability in a Heat Exchanger ***Samkelo M Khumalo,*** University of Johannesburg, South Africa
17:30~17:45 MT057	Numerical Study of Granular Material Flowability in a Heat Exchanger ***Samkelo M Khumalo,*** University of Johannesburg, South Africa
17:45~18:00 MT101	Comparison of Mechanical Properties Between AISI 321 and AISI 304 During Hot Working ***Tiyamike Ngonda,*** University of the Witwatersrand, South Africa

ONSITE SESSION 4

Saturday, May 17, 2025 <16:00~18:00>

Onsite Session 4: Complex System Control, Fault Monitoring, and Reliability Assessment

TBA <1st Floor>

Chairperson: Assoc. Prof. Bernard Xavier Tchomeni Kouejou, Vaal University of Technology, South Africa

16:00~16:15 MT025	Discrete Element Method analysis of an inclined mining screen: Probability Theory approach ***Thokozani Justin Kunene,*** University of Johannesburg, South Africa
16:15~16:30 MT047	Conceptual study of paper mill rainwater detention basin pumping arrangement ***Xolani Yokwana,*** UNISA, South Africa
16:30~16:45 MT051	AI-Powered Semantic Matching and Data Harmonization for Industrial Applications with OPC UA & Asset Administration Shells ***Samed Ajdinović,*** ISW, University Stuttgart, Germany
16:45~17:00 MT055	Enhancing Operational Efficiency through a Hybrid Quality Control Framework: Integrating TQM, Six Sigma, and JIT/Lean in the Mining Industry ***Victor Mofokeng,*** University of Johannesburg, South Africa
17:00~17:15 MT059	Modelling Combustion Pollutants from Coal-Sawdust Blends in a Drop Tube Furnace ***Garikai Tawanda Marangwanda,*** University of Johannesburg, South Africa
17:15~17:30 MT066	Predicting Biomedical Zinc Degradation Rate Using Machine Learning for Implant Material Optimization ***Muawiya Sadiq,*** Federal University of Technology Babura, Nigeria
17:30~17:45 MT082	Effect of Viscous Fluid on a Cracked Cardan Shaft Partially Immersed in Dense Fluid: A Study Using the Synchrosqueezing Method ***Bernard Xavier Tchomeni Kouejou,*** Vaal University of Technology, South Africa
17:45~18:00 MT1012	Automation and Optimization of Pipeline Leak Detection Using ANN-XGBoost Algorithms and PLC Integration ***Giresse Mukadi Komb,*** Computer Engineering, South Africa

ONLINE SESSION 1

Sunday, May 18, 2025 <09:00~11:15>

Online Session 1: Intelligent Materials and Mechanical Processing Technology

Meeting ID: 882 5010 1883

Chairperson:

09:00~09:15 MT501	Supercritical carbonation model of cement paste based on calcium dissolution. Part I: Multiphysics theory ***Jiaqian Ning,*** Tongji University, China
09:15~09:30 MT502	Supercritical carbonation model of cement paste based on calcium dissolution. Part II: Numerical model ***Jiaqian Ning,*** Tongji University, China
09:30~09:45 MT093	EXPERIMENTAL EVALUATION OF THE PERFORMANCE OF A HORIZONTALLY ORIENTED MUSCOVADO SUGAR CRYSTALLIZER EQUIPPED WITH CONTRA-ROTATING DOUBLE RIBBON AGITATOR BLADES ***Joenilo A. Duran,*** Technological University of the Philippines - Visayas, Philippines
09:45~10:00 MT096	Study on Dynamic Large Deformation Characteriscs of Thin-Walled Ellipsoidal Shells under Blast Loading ***Chun Xia,*** Beijing Institute of Technology, China
10:00~10:15 MT1016	Design of an Ergonomics-Based Auxiliary Chip Suction Device for Manual Drilling and Counterboring Operations ***Guangku Xue,*** AVIC Chengdu Aircraft Industrial (Group) CO. LTD, Chengdu, China
10:15~10:30 MT1017	Research on Perpendicularity Measurement Technology for Aircraft Skin Fastener Holes ***Guangku Xue,*** AVIC Chengdu Aircraft Industrial (Group) CO. LTD, Chengdu, China
10:30~10:45 MT011	Analysis of vehicle dynamics model and vibration characteristic ***Ming Hong,*** The School of Aerospace Engineering and Applied Mechanics, Tongji University, China
10:45~11:00 MT021	Theoretical model of 3D printed material surface roughness experiencing surface modification by laser shock peening ***Lebogang Lebea,*** Tshwane University Of Technology, South Africa
11:00~11:15 MT039	Exploring the Role of Marine Microbial Products in Biodegradable Energy Materials for Green Technologies: A bibliometric survey **Mariam Iyabo Adeoba,** University of South Africa, South Africa

ONLINE SESSION 2

Sunday, May 18, 2025 <12:00~14:30>

Online Session 2: Mechanical System Design and Fault Diagnosis based on Signal Detection

Meeting ID: 882 5010 1883

Chairperson:

12:00~12:15 MT007	Machine Learning-Driven OTPA Method for Advanced Noise Source Identification ***Sharif Khakshournia,*** Noise and Vibration Department, Automotive Industries Research & Innovation Center of SAIPA (AIRIC), Iran
12:15~12:30 MT035	Modeling and Simulation of green Hydrogen Generator using a Combined Wing Wind Turbine ***Yahir Piero Garcia Gonzales,*** Universidad Continental, Perú
12:30~12:45 MT036	Dual-Channel Network Based on Model-Agnostic Meta-Learning for Cross-Domain Fault Diagnosis ***Qun-Xiong Zhu,*** Beijing University of Chemical Technology, China
12:45~13:00 MT045	Structural Optimization Design of Fan Dust Removal Device Based on TRIZ Theory ***Wenxuan Jiang,*** Shandong Jianzhu University, China
13:00~13:15 MT069	Experimental Performance Evaluation of the Effect of Rotary Sifter Speed on the Product Quality, Purity and Recovery of Continuous Mungbean_Threshery ***Joenilo A. Duran,*** Technological University of the Philippines - Visayas, Philippines
13:15~13:30 MT090	Analysis of Fracture of Input Shaft Spline of Hybrid Power Vehicle Transmission ***Erpeng Wang,*** Ningbo Geely Royal Engine Components Co., Ltd., China
13:30~13:45 MT1018	Research on manufacturing resources optimization selection method based on Industrial Internet Platform ***Jinsong Liu,*** China Industrial Control Systems Cyber Emergency Response Team, China
13:45~14:00 MT099	Colorectal Cancer Detection Using ResNet Architecture ***Sowmya Sree Anumalisetti,*** Vignan Institute of Information Technology, India
14:00~14:15 MT105	Engineering Design Evolution Revolution (From DFMA to DFPI) ***Ngaka n/a Mosia, U***niversity of South Africa, South Africa
14:15~14:30 MT1019	STM-Microcontroller Based Dual Monitoring System: Enhancing Motion detection and Voice Recognition for Paralysed Patients ***Kalathiripi Rambabu,*** B V Raju Institute of Technology, India

One Day Tour

Tentative Itinerary

8:00: Start from Pullman Cape Town City Centre

8:30: Iziko Bo Kaap Museum

9:00 | Table Mountain（60mins）

10:00 | Campus Bay (20mins)

10:20 | Chapman's Peak Drive (40mins)

11:00: Cape of Good Hope (60mins)

13:30: Boulders Beach (60mins)

14:30: Fish Hoek Beach (60mins)

16:00: Muizenberg Beach (60mins)

NOTE:

* The fee includes pick-up and lunch, tickets for scenic spots are not included.

Registration closes at **May 12, 2025** (JST, UTC+11h)

Registration fee: **200 USD** per person

The tour is not included in the regular registration of author, presenter, delegate. To join the tour, please pay via the following link and send the proof of payment to the conference secretary for confirmation. Thank you.

https://confsys.iconf.org/awxpay

Tour Registration

Full Name:	
Sex: M / F	Date of Birth: DD/MM/YY
E-mail:	
Whatsapp No. (if you have)	
Please fill in the E-mail and Confirmation Number after paying	
E-mail:	Order Number:

Table Mountain

Table Mountain is one of South Africa's most iconic landmarks, towering over Cape Town at 1,085 meters (3,558 feet) above sea level. Known for its flat, table-like summit, the mountain forms part of the Table Mountain National Park and is a UNESCO World Heritage Site.

Cape of Good Hope

The Cape of Good Hope is one of South Africa's most iconic landmarks, located at the southwestern tip of the Cape Peninsula. This dramatic headland forms part of the Table Mountain National Park and is renowned for its spectacular ocean views, rugged cliffs, and rich biodiversity.

Campus Bay

Camps Bay is one of Cape Town's most glamorous coastal suburbs, known for its pristine white-sand beach, turquoise waters, and dramatic mountain backdrop.

Muizenberg Beach

Muizenberg Beach is one of Cape Town's most iconic beaches, famous for its colorful beach huts, gentle waves, and laid-back vibe.

Chapman's Peak Drive

Chapman's Peak Drive – One of the World's Most Scenic Coastal Roads

Boulders Beach

Boulders Beach - Home to Africa's Adorable Penguins

NOTE