



Eight International Conference on  
**Smart Materials  
&  
Nanotechnology in Engineering**

25-28 November 2024, American University of Sharjah

**Chairs**

- Mehdi Ghommem, *American University of Sharjah, UAE*
- Ayech Benjeddou, *Institut Supérieur de Mécanique de Paris  
& UT-Compiègne/ROBERVAL Lab, France*
- Jinsong Leng, *Harbin Institute of Technology, China*
- Abdessattar Abdelkefi, *New Mexico State University, USA*

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- Daniil Yurchenko, *University of Southampton*, UK
- Norman M. Wereley, *University of Maryland*, USA
- Wael Zaki, *Khalifa University*, UAE

## Plenary Lecturers

**Alper Erturk**  
Georgia Tech, USA



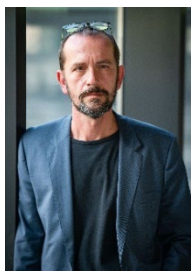
Prof. Alper Erturk is the Carl Ring Family Endowed Chair Professor in the Woodruff School of Mechanical Engineering at Georgia Tech. His theoretical and experimental research program is centered on dynamics, vibration, and wave propagation involving passive and active structures for a broad range of interdisciplinary engineering problems. His publication/ presentation record includes 150 journal papers, 250 conference papers/abstracts, 5 book chapters, and 2 books (total citations > 24,000 and h-index: 71). He is a recipient of many awards including an NSF CAREER Award (in dynamical systems), ASME C.D. Mote Jr. Early Career Award (for research excellence in vibration and acoustics), ASME Gary Anderson Early Achievement Award (for research excellence in adaptive structures and material systems), SEM James Dally Young Investigator Award (for research excellence in experimental mechanics), and numerous journal/ conference best paper awards including the Philip E. Doak Award of the *Journal of Sound & Vibration* (Elsevier) and most recently the ASME Best Paper Award in Structural Dynamics & Control. He served as an Associate Editor for various journals and is currently the Editor-in-Chief of *Smart Materials & Structures* (IOP). He held invited /Adjunct Professor positions at Politecnico di Milano) and at Korea Advanced Institute of Science & Technology. He is a Fellow of ASME and SPIE.

**Srinivasan Gopalakrishnan**  
Indian Institute of Science Bangalore, India



Prof. Gopalakrishnan received his BE degree from UVCE Bangalore, Master's Degree in Engineering Mechanics from Indian Institute of Technology Madras, Chennai and Ph.D. from School of Aeronautics and Astronautics from Purdue University, USA in 1992. Before proceeding for USA for his doctoral studies, Prof. Gopalakrishnan briefly worked at NAL Bangalore in the Structures Division. After his Ph.D., he was a Post-Doctoral Fellow in the department of Mechanical Engineering at Georgia Institute of Technology. In 1997, he joined the Department of Aerospace Engineering at Indian Institute of Science Bangalore, where currently he is a Senior Professor. His main areas of interest are wave propagation in complex media, computational material science, computational mechanics, smart structures, structural health monitoring, MEMS and nanocomposite structures. He is a proud alumnus of Vijaya High School, where he graduated in 1976. Prof. Gopalakrishnan has extensively published his work on many top-rated international journals. He has a total of 235 international journal papers, 7 graduate level textbooks, two under-graduate books, 13 book chapters, and 175 international conference papers. He has an h-index of 55 in Google scholar with nearly 10700 citations, which is the highest in India for any researchers in Aerospace domain. He is in the editorial board of 5 international journals and is the Editor-in-Chief of *ISSS Journal for Micro & Smart Systems* (Springer) and is the Associate Editor for *Smart Materials and Structures* (IOP) and *Structural Health Monitoring* (Sage).

**Michael Krommer**  
Johannes Kepler University Linz, Austria



Prof. Krommer holds a Ph.D. in Engineering Sciences from the Johannes Kepler University Linz (JKU), from which he also received his Habilitation in Technical Mechanics in 2007. From 1997-2014 he was teaching and conducting research at the Institute for Technical Mechanics at JKU, headed by Prof. Hans Irschik, first as an Assistant Professor, then as an Associate Professor. From 2009-2015 he also worked as a scientific head of the research area "Mechanics and Model Based Control" within the Austrian Center of Competence in Mechatronics. He spent one year (2002-2003) as a MAX-KADE fellow of the Austrian Academy of Sciences at the Pennsylvania State University. From 2014-2020 he was a Full Professor for Mechanics of Solids at the Institute of Mechanics and Mechatronics at TU-Vienna, and since 2020 he is a Full

**Hua-Xin Peng**  
Zhejiang University, China



Prof. Peng is a Qiushi Chair Professor and the Founding Director of the Institute for Composites Science Innovation at Zhejiang University (Hangzhou, China). He was a full Professor of Aerospace Materials in the Bristol Composites Institute at Bristol University (Bristol, UK) and had worked as a Research Fellow in the Materials Department at Oxford University and Brunel University. His key research interest lies in tailoring the composite microstructures at multiple scales for targeted performances. He has published over 240 peer reviewed Journal articles including 3 authoritative monographs in Progress in Materials Science. He has been invited to give Plenary, Keynote, or Invited talks at over 30 international conferences or workshops and involved in organizing major international conferences (e.g. ICCM, ACCM).

Professor and the Head of the Institute of Technical Mechanics at JKU. Prof. Krommer is the author and co-author of more than 150 publications in the field of Mechanics of Solids.

He currently serves as the President of the Asian-Australasian Association of Composite Materials and one of the founding Co-Editor-in-Chief of *Composites Communications* (Elsevier).

### Marcelo Areias Trindade

University of São Paulo, Brazil

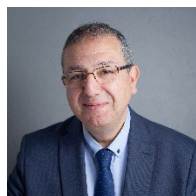


Prof. Trindade obtained his Ph.D. degree from the Conservatoire National des Arts et Métiers at Paris, France, in 2000. Since 2004, he has been working at the Department of Mechanical Engineering of São Carlos School of Engineering, University of São Paulo. Before that, he has worked as an Associate Consultant at McKinsey & Co, as a Visiting Scholar at the Pontifical Catholic University of Rio de Janeiro, Conservatoire National des Arts et Métiers at Paris, France, and School of Aerospace Engineering of Georgia Tech, USA. He also served as Editor-in-Chief of *Journal of the Brazilian Society of Mechanical Sciences & Engineering* (Springer). At the São Carlos School of Engineering, he served as Head of Laboratory of Dynamics, Coordinator of the Graduate Program of Mechanical Engineering and Administrative Assessor to the School Director. His main research interests include active and passive vibration control, smart materials and structures, model reduction techniques, uncertainty quantification and nonlinear dynamics. He has been co-author of more than 50 journal papers, co-chair of 5 international conferences and advisor of 15 graduate and 38 undergraduate students in research projects.

## Keynote Lecturers

### Zoheir Aboura

Université de Technologie de Compiègne, France



Zoheir Aboura joined *Université de Technologie de Compiègne (UTC)* in 2007 as a full professor in the Department of Mechanical Engineering, following his tenure as Associate Professor at the University of Paris 8, where he co-founded the L3M Laboratory (Laboratory of Mechanics, Materials, and Modeling). His research at the Roberval Mechanics Laboratory focuses on the mechanics and failure mechanisms of composite materials, with particular expertise in 3D-reinforced composites. Recently, he has expanded part of his research to include Structural Health Monitoring (SHM) of composite materials. Since 2016, he has led the Materials and Surface team within the Roberval Laboratory at UTC, managing 14 permanent staff members and 30 doctoral and post-doctoral researchers. He served as Vice President of the Scientific Council of UTC from December 2018 to 2021 and as Vice President of the Board of Directors from 2022 to 2023.

### Omar Elmazria

Université de Lorraine, France



Omar Elmazria is a Full Professor at Université de Lorraine, Nancy, France within Jean Lamour Institute (IJL UMR CNRS 7198) for research and Polytech Nancy for teaching. He was guest Professor at several Universities around the world (Simon Fraser University, Vancouver, Canada; Institute of Acoustics, Chinese Academy of Sciences, Beijing; University of Central Florida, USA, and Shanghai Jiao Tang University, China). Prof. Elmazria is the head of Nanomaterial, Electronic and Living (N2EV) department within the IJL and his current research focuses on micro-acoustics and MEMS including SAW devices for sensing applications. He is the author and co-author of 6 patents and more than 250 technical papers in the refereed international journal and proceeding. He is member of Technical Program Committee of several international conferences including IEEE IUS, IEEE MTT-26-RFID-Wireless-Sensor-and-IoT; SAW Symposium; IFTC. He is also AdCom member of IEEE UFFC Society and IEEE RFID Council. In 2017, he was a recipient of the URSI-France medal from the International Union of Radio Science.

## Program at a Glance

### Monday 25<sup>th</sup> November

3:00 pm to 5:00 pm	<b>Registration</b>
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### Tuesday 26<sup>th</sup> November

8:30 am to 9:30 am	<b>Registration</b>	
9:00 am to 4:30 pm	<b>Booth Exhibition</b>	
9:30 am to 9:45 am	<b>Opening Ceremony</b> AUS Chancellor/Provost, Dean of Engineering, Conference Chairs	
9:45 am to 10:30 am	<b>Plenary Lecture 1:</b> Alper Erturk, <i>Georgia Institute of Technology, USA</i>	
10:30 am to 11:00 am	Coffee break	
11:00 am to 1:00 pm	<b>Parallel Sessions</b>	
	Session 1 (incl. <b>KL 1</b> )	Session 2
		Session 3
1:00 pm to 2:00 pm	Lunch break	
2:00 pm to 4:00 pm	<b>Parallel Sessions</b>	
	Session 4	Session 5
		Session 6
4:00 pm to 4:30 pm	Coffee break	Poster Session 1
4:30 pm to 5:15 pm	<b>Plenary Lecture 2:</b> Srinivasan Gopalakrishnan, <i>Indian Institute of Science Bangalore, India</i>	
5:15 pm to 6:30 pm	<b>Welcome Reception at the AUS Plaza</b>	

### Wednesday 27<sup>th</sup> November

9:00 am to 9:45 am	<b>Registration</b>	
9:00 am to 4:30 pm	<b>Booth Exhibition</b>	
9:45 am to 10:30 am	<b>Plenary Lecture 3:</b> Michael Krommer, <i>Johannes Kepler University Linz, Austria</i>	
10:30 am to 11:00 am	Coffee break	
11:00 am to 1:00 pm	<b>Parallel Sessions</b>	
	Session 7 (incl. <b>KL 2</b> )	Session 8
		Session 9
1:00 pm to 2:00 pm	Lunch break	
2:00 pm to 4:00 pm	<b>Parallel Sessions</b>	
	Session 10	Session 11
		Session 12
4:00 pm to 4:30 pm	Coffee break	Poster Session 2
4:30 pm to 5:15 pm	<b>Plenary Lecture 4:</b> Hua-Xin Peng, <i>Zhejiang University, China</i>	
7:00 pm to 9:30 pm	<b>Conference Dinner at Sheraton Sharjah Beach Resort &amp; Spa</b>	

### Thursday 28<sup>th</sup> November

9:00 am to 9:45 am	<b>Registration</b>	
9:00 am to 12:30 pm	<b>Booth Exhibition</b>	
9:45 am to 10:30 am	<b>Plenary Lecture 5:</b> Marcelo Areias Trindade, <i>University of São Paulo, Brazil</i>	
10:30 am to 11:00 am	Coffee break	
11:00 am to 12:30 pm	<b>Parallel Sessions</b>	
	Session 13	Session 14
		Session 15 ( <i>Online</i> )
12:45 pm to 1:00 pm	<b>Closing Ceremony</b>	
1:00 pm to 1:45 pm	Lunch	
1:45 pm to 7:00 pm	<b>Visit Iconic Landmark in Sharjah: <i>Najd Al Meqsar</i></b>	

## Technical Sessions

Session 1	<b>GT 1: Smart Materials (1)</b>	Session 8	<b>MS 3: Functional Materials &amp; Composites</b>
Session 2	<b>MS 1: Mechanics of Composite Origami Structures</b>	Session 9	<b>SS 2: Advanced Modelling, Design &amp; Testing of Smart Composite Structures</b>
Session 3	<b>SS 3: Energy Harvesting for Sensor Applications</b>	Session 10	<b>GT 7: Engineering Applications (2)</b>
Session 4	<b>GT 7: Engineering Applications (1)</b>	Session 11	<b>SS 6: Monitoring &amp; Imaging with Smart Devices</b>
Session 5	<b>MS 2: Advances in Gas Sensors Technology</b>	Session 12	<b>SS 6: Advanced Modeling, Simulation &amp; Testing of Electro-Active Materials &amp; Structures</b>
Session 6	<b>GT 6: Environment-Friendly &amp; Sustainable Developments</b>	Session 13	<b>GT 5: Active Sensing, Actuation &amp; Transduction</b>
Session 7	<b>GT 1: Smart Materials (2)</b>	Session 14	<b>GT 1: Nanotechnology in Engineering</b>
Poster sessions	In parallel with coffee breaks of first 2 days' afternoons	Session 15	<b>Online</b>



## Detailed Program

**Monday, 25<sup>th</sup> November**

3:00 pm - 5:00 pm  
**Registration**

**Tuesday, 26<sup>th</sup> November**

8:30 am - 9:30 am  
**Registration**

9:00 am - 4:30 pm  
**Booth Exhibition**

9:30 am - 9:45 am  
Venue: Hall A  
**Opening Ceremony**

9:45 am - 10:30 am

**Plenary Lecture 1**  
**Vibration and Wave Manipulation in Piezoelectric Metamaterials via Digital Programming**  
*Alper Erturk, Georgia Institute of Technology, USA*

Venue: Hall A

Chairs: Srinivasan Gopalakrishnan & Mehdi Ghommem

10:30 am – 11:00 am  
**Coffee Break**

11:00 am – 1:00 pm  
**Parallel Sessions**

**GT 1: Smart Materials (1)**

Session 1

Venue: Hall A

Chairs: Omar Elmazria & Zoheir Aboura

**Keynote Lecture 1**

11:00-11:30 **Innovative Approaches to Structural Health Monitoring of Composite Materials: Advances and Challenges**  
*Zoheir Aboura, University of Technology of Compiègne, France*

11:30-11:50 **A Multi-Functional Conductive Composite Fiber: Integrating Strain, Pressure Sensing, and Self-Sensing Actuation Capabilities**  
*Li Ding, Dinghao Wu, Xinglong Gong, Dongsheng Zhang*

11:50-12:10 **Effect of Cu Addition on Abnormal Grain Growth in a FeMnAlNi-Based Super-elastic Alloy**  
*Zhenxin Li, Yang Zhang, Haosheng Wang, Pengfei Dai, Guangda Zhao, Zhongwu Zhang*

12:10-12:30 **Effects of Ni Addition on Abnormal Grain Growth in Super-elastic CuAlMnCoNi Alloy**  
*Xinghao Li, Junpeng Li, Weiguo Jiang, Xiyu Wang, Ye Cui, Yang Zhang, Guangda Zhao, Zhongwu Zhang*

12:30-12:50 **Enhancement of Super-elasticity in Fe-Based Alloys Through Synergistic Tailoring of High-Number-Density Coherent Nano precipitates and Grain Boundaries Types**  
*Xiyu Wang, Yang Zhang, Junpeng Li, Xinghao Li, Weiguo Jiang, Zhongwu Zhang*

<b>MS 1: Mechanics of Composite Origami Structures</b>		Session 2 Venue: Hall B Chairs: Jian Xiong & Mohammed Daqaq
11:00-11:20	<b>An Origami Inspired Low-Frequency Vibration Isolator</b> <i>Ravindra Masana, Shadi Khazaaleh, Mohammed Daqaq</i>	
11:20-11:40	<b>Dual-Matrix Origami-Inspired Folding Composite Structures: Folding-Stowing-Deployment Process</b> <i>Israr Ud Din, A. Ahmed, Kamran A. Khan</i>	
11:40-12:00	<b>Mechanical Behavior of an Origami-Inspired All-Composite Corrugate Structure Under Out-of-plane Compression and Shear</b> <i>Jian Deng, Zeng Xian Wang, Qiang Liu and Tian Jian Lu</i>	
12:00-12:20	<b>Rigidly Foldable Carbon Fibre Reinforced Origami Materials Allowing Repeatable Energy Absorption</b> <i>Jian Xiong</i>	
12:20-12:40	<b>Adaptive and Compact Thermal Management Technique Using Kresling Origami</b> <i>Ahmad Zueter, Hussam Alhoussein, Mohammed F. Daqaq</i>	

<b>SS 3: Energy Harvesting for Sensor Applications</b>		Session 3 Venue: Senate Room Chairs: Alireza Rezaniakolaei & Americo Cunha Jr.
11:00-11:20	<b>Piezoelectric Energy Harvesting for Leadless Pacemakers: The Investigation of Patients' ECGs</b> <i>Majid Khazaei, Zhangyu Xu, Sam Riahi, Omid Kavehei, Ali Asghar Enkeshafi, Alireza Rezaniakolaei</i>	
11:20-11:40	<b>Aeroelastic Behavior of a Piezoelectric Energy Harvesting Flag Under Wind Excitation</b> <i>Dheeraj Tripathi, Mehdi Ghommam, Lotfi Romdhane, Abdessattar Abdelkefi</i>	
11:40-12:00	<b>Global Sensitivity and Uncertainty Analysis of Asymmetric Bi-stable Energy Harvesters</b> <i>João Pedro Norenberg, Americo Cunha Jr., Samuel da Silva, Paulo S. Varoto</i>	
12:00-12:20	<b>Vibrational Energy Harvesting from the Low Frequency Intra-cardiac Kinetic Energy for Leadless Pacemakers</b> <i>Alireza Rezaniakolaei, Majid Khazaei, Ali Enkeshafi, Sam Riahi</i>	

1:00 – 2:00 pm <b>Lunch Break</b>	
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2:00 pm – 4:00 pm <b>Parallel Sessions</b>	
<b>GT7: Engineering Applications (1)</b>	
Session 4 Venue: Hall A Chairs: Fenghua Zhang & Jianglong Guo	
2:00-2:20	<b>Programmable Shape Memory Composites: 4D Printing, Structure and Applications</b> <i>Fenghua Zhang, Yanju Liu, Jinsong Leng</i>
2:20-2:40	<b>Enhanced NIR-Triggered Drug Delivery Using Sodium Alginate Coated Metal-Organic Frameworks</b> <i>Jubaydah Nasrin, Rana Sabouni</i>
2:40-3:00	<b>Interlocking Efficacy in Topologically Interlocked Materials</b> <i>Ahmed Dalaq, Mohammad Mirkhalaf, Francois Barthelat</i>
3:00-3:20	<b>Soft Smart Electro-adhesion for Versatile Applications</b> <i>Jianglong Guo, Yanju Liu, Jinsong Leng</i>
3:20-3:40	<b>Research on the Low-Velocity Impact Identification on Composite Structure Considering the Structural Damage</b> <i>Yuqing Qiu, Hongli Ji, Chongcong Tao, Jinhao Qiu</i>



<b>MS 2: Advances in Gas Sensors Technology</b>		Session 5 Venue: Hall B Chairs: Nouha Alcheikh & Abdessattar Abdelkefi
2:00-2:20	<b>Ferroelectric BiFeO<sub>3</sub>-based Nanomaterials for H<sub>2</sub>S and C<sub>3</sub>H<sub>6</sub>O Detection</b> <i>Xiaojie Li, Jinrong Cheng, Yongmei Lei, Jiaqiang Xu</i>	
2:20-2:40	<b>Heated Buckled Micro-Resonator for Gas Sensing Applications</b> <i>Ahmad Shalabi, Hassen Ouakad, Nouha Alcheikh</i>	
2:40-3:00	<b>Bifurcation Drift in Electrostatic MEMS</b> <i>Yasser Shama, Gaurang Swarup Sharma, Sasan Rahmanian, Joel Pennings, Mustafa Yavuz, Eihab Abdel-Rahman</i>	

<b>GT 6: Environment-Friendly and Sustainable Developments</b>		Session 6 Venue: Senate Room Chairs: Rana Sabouni & Maen Alkhader
2:00-2:20	<b>Application of Machine Learning to the Analysis of Thermal Storage System</b> <i>Dinesha Pijakala, Sooraj Mohan</i>	
2:20-2:40	<b>Areca Nut Waste to Hydrochar: Influence of Process Temperature on Hydrothermal Carbonization</b> <i>Sooraj Mohan, Dinesha Pijakala</i>	
2:40-3:00	<b>Hybrid Desiccants in Membrane-Assisted Dehumidifiers: An Experimental Study</b> <i>Shiva Kumar, Sampath Suranjan Salins</i>	

4:00 pm – 4:30 pm  
**Coffee Break**

<b>4:00 – 4:30 pm</b>		Venue: Main rotunda
<b>Poster Session 1 (In parallel with Coffee Break)</b>		
<b>A Review on Multi-Field Coupling Properties of Hydrogel Composites</b> <i>Yang Qingsheng, Xia Liu, Junjun Shang</i>		
<b>Performances Recovery of Bamboo Fiber Composites Exposed to a Wet-Dry Aging Cycle</b> <i>Mouad Chakkour, Mohamed Ould Moussa, Ismail Khay, Tarak Ben Zineb</i>		
<b>Numerical Evaluation of Shear Strength Enhancement in RC Beams Incorporating Various Web Opening Configurations and Pre-Stressed Fe-SMA Bar Sizes</b> <i>Mohamed Elkafrawy, Mohammad AlHamaydeh, Haya Zwaiter, Doha ElMaoue</i>		
<b>Photo-degradation of Methylene Blue by CeO<sub>2</sub>/NiO Modified Silicon Nanowires</b> <i>Afaf Brik, Sabrina Naama, Karima Benfadel, Toufik Hadjersi, Seifeddine Friha</i>		
<b>Advanced Ceramic Materials for 3D Printing</b> <i>Rouslan Svintsitski</i>		

<b>4:30-5:15 pm</b>		Venue: Hall A Chairs: Alper Erturk & Abdessattar Abdelkefi
<b>Plenary Lecture 2</b>		
<b>Surface-Bondable Multilayer Piezoelectric Actuator</b> <i>Srinivasan Gopalakrishnan, Indian Institute of Science Bangalore, India</i>		

5:15 pm – 6:30 pm  
**Welcome Reception at the AUS Plaza**

## Wednesday, 27<sup>th</sup> November

9:00 am - 9:45 am <b>Registration</b>
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9:00 am - 4:30 pm <b>Booth Exhibition</b>
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9:45-10:30 am <b>Plenary Lecture 3</b> <b>Modeling and Numerical Simulation of Electro-active Materials and Structures</b> <i>Michael Krommer, Johannes Kepler University Linz, Austria</i>	Venue: Hall A Chairs: Marcelo Trindade & Jinsong Leng
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10:30 – 11:00 am <b>Coffee Break</b>
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11:00 am – 1:00 pm <b>Parallel Sessions</b>
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<b>GT 1: Smart Materials (2)</b>	Session 7 Venue: Hall A Chairs: Zoheir Aboura & Cheng Lin
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11:00-11:30	<b>Keynote Lecture 2</b> <b>Magnetic Surface Acoustic Wave Sensor (MSAW) Based on Layered Structure Combining Magneto-elastic and Piezoelectric Smart Materials</b> <i>Omar Elmazria, Université de Lorraine, France</i>
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11:30-11:50	<b>Enhancing Durability and Performance of PEM Fuel Cells Through Integration of Self-Healing Polymers</b> <i>Ryan Alshaikh, Amani Al-Othman, Muhammad Tawalbeh, Paul Nancarrow, Abdulrahim Shamayleh</i>
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11:50-12:10	<b>The Hidden Power of Nano Magnets in Industry and Medicine</b> <i>Ahmed ElGendy</i>
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12:10-12:30	<b>Deformation Control Method for Active Shape Morphing Lattice Structure Using Topology Optimization Approach</b> <i>Jiacheng Han, Bo Xu, Xinru Yang, Xiaojun Gu, Jihong Zhu, Weihong Zhang</i>
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12:30-12:50	<b>Bi-Direction and Flexible Multi-Mode Morphing Wing Based on Antagonistic SMA Wire Actuators</b> <i>Diping Fang, Jiannan Yang, Xiaojun GU, Jihong Zhu, Weihong Zhang</i>
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<b>MS 3: Functional Materials &amp; Composites</b>	Session 8 Venue: Hall B Chairs: Wael Zaki & Michael Krommer
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11:00-11:20	<b>Effect of Temperature and Soaking Time on the Thermomechanical Response of Sintered Niti Shape Memory Alloy</b> <i>Fares Alawwa, Rashid Abu Al-Rub, Bashar El-Khasawneh, Wael Zaki</i>
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11:20-11:40	<b>Low-Speed Penetration Characterization of Sheet-Based Aluminum Additively Manufactured TPMS Structures</b> <i>Mohamad Yassine, Fahad Almaskari, Wael Zaki</i>
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11:40-12:00	<b>Microstructure, Phase Transformation and Mechanical Property of NiMnGa/Sn Composites</b> <i>Liu Jinyang, Shifa Xiaoa, Yunxiang Tonga, Li Lia, Bing Tian</i>
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12:00-12:20	<b>Prediction and Optimization Framework for the Surface Roughness of Additively Manufactured NiTi Based on Machine Learning</b> <i>Adriano Cebrian Carcavilla, Wael Zaki</i>
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12:20-12:40	<b>Surface Properties and Phase Transformation Temperatures of Nitinol Shape Memory Alloys Fabricated by Laser Powder Bed Fusion</b> <i>Wael Zaki, Adriano Cebrian Carcavilla</i>
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12:40-1:00	<b>Towards Wind Turbines Induced Rotation by a Shape Memory Alloys Based Actuator</b> <i>Hamza El Khaddaji, Mohamed Ould Moussa, Ismail Khay and Tarak Ben Zineb</i>
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<b>SS 2: Advanced Modelling, Design and Testing of Smart Composite Structures</b>		Session 9 Venue: Senate Room Chairs: Enrico Zappino & Chuang Feng
11:00-11:20	<b>Experimental and Modelling on Electrical Conductivity of Graphene Reinforced Cement Composites</b> <i>Chuang Feng</i>	
11:20-11:40	<b>High-Fidelity Modeling for Piezo-Based Health Monitoring Systems in Laminated Structures</b> <i>Enrico Zappino, Jamal Najd, Erasmo Carrera, Walid Harizi, Zoheir Aboura</i>	
11:40-12:00	<b>Multifunctional Properties and Applications of Filled Conductive Polymer Composites In Sensing Monitoring</b> <i>Zhi Wu, Enrico Zappino, Minghua Zhang, Jianke Du</i>	
12:00-12:20	<b>Optimal Toughness in Copolymer Ionogels: Revealing Phase-Separation Evolution via Coarse-Grained Molecular Dynamics Simulation</b> <i>Xin Wang, Xia Liu, Qingsheng Yang</i>	
12:20-12:40	<b>Finite Element Evaluation of Full 3D Effective Properties of d<sub>31</sub> Piezoelectric Macro-Fibre Composites</b> <i>Marcelo Trindade, Ayech Benjeddou</i>	
12:40-1:00	<b>Experimental Evaluation of the Effective Electromechanical Coupling of a Vibrating Aircraft-Type Hybrid Honeycomb Sandwich Panel with Bonded Piezoelectric Macro-Fibre Composite (MFC) Patch</b> <i>Ayech Benjeddou</i>	

1:00 – 2:00 pm <b>Lunch Break</b>	
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2:00 pm – 4:00 pm <b>Parallel Sessions</b>		
<b>GT7: Engineering Applications (2)</b>		Session 10 Venue: Hall A Chairs: Hua-Xin Peng & Wael Zaki
2:00-2:20	<b>Application of Variable Stiffness Chain Lattice Driven by Shape Memory Alloy</b> <i>Hongkai Wei, Xiaojun Gu, Jihong Zhu, Weihong Zhang</i>	
2:20-2:40	<b>Optimized Design and Performance Testing of Electro-Fluidic Soft Actuator</b> <i>Yuze Ye, Qingsong He, Lin Xie, Changli Yang, Diyi Liu</i>	
2:40-3:00	<b>Shape Memory Adhesive Material and Application</b> <i>Qingsong He, Yuze Ye, Changli Yang, Lin Xie, Shouyi Ni</i>	

<b>SS 6: Monitoring and Imaging with Smart Devices</b>		Session 11 Venue: Hall B Chairs: Jiaze He & Mohammad Harb
2:00-2:20	<b>A New Stress Measurement Strategy Based on Time-Frequency Characteristics of Lamb Waves</b> <i>Hexin Cui, Zhichun Zhang, Hongbo Jia, Jiaze He, Yanju Liu, Jinsong Leng</i>	
2:20-2:40	<b>Cure Monitoring of Composite Structural Adhesion Using Lamb Waves and the Discrete Wavelet Transform</b> <i>Michel Zakharia, Mohammad Harb</i>	
2:40-3:00	<b>High-Resolution Guided Wave Field-based Imaging for Structural Health Monitoring</b> <i>Jiaze He</i>	
3:00-3:20	<b>Sub-surface Void Detection with Seismic Surface Waves</b> <i>Zhendong Zhang, Yike Liu</i>	

<b>SS 4: Advanced Modeling, Simulation and Testing of Electro-Active Materials and Structures</b>		Session 12 Venue: Senate Room Chairs: Michael Krommer & Nazih Mechbal
2:00-2:20	<b>A New Hamiltonian Semi-Analytic Approach to Vibration Analysis of Piezoelectric Multi-Layered Plates</b> <i>Orlando Andrianarison, Ayech Benjeddou</i>	
2:20-2:40	<b>Analysis of Variable Kinematics Plate Elements with Stimulus Expansion Model for Electro-Active Materials</b> <i>Girolamo Di Cara, Adrian Ehrenhofer, Michele D'Ottavio, Olivier Polit, Thomas Wallmersperger</i>	
2:40-3:00	<b>Continuum Modelling and Finite Element Simulation of Incompressible Dielectric Viscoelastic Actuators at Finite Strains</b> <i>Mario Kunzemann, Astrid Pechstein, Alexander Humer, Michael Krommer</i>	
3:00-3:20	<b>Mixed Shell Elements for Incompressible Viscoelastic Dielectric Elastomers</b> <i>Sebastian Platzer, Astrid Pechstein, Alexander Humer, Michael Krommer</i>	
3:20-3:40	<b>Optimization of Annular Array Transducers for High-Purity Selective Excitation of Lamb Waves</b> <i>Hao Dong, Pierre Margerit, Marc Rebillat, Mickaël Pruvost, Nazih Mechbal</i>	

4:00 pm – 4:30 pm  
**Coffee Break**

<b>4:00 – 4:30 pm</b> <b>Poster Session 2 (In parallel with Coffee Break)</b>	Venue: Main rotunda
<b>In-Situ Pressure Venting via Off-Center Wafer Alignment as a Robust &amp; Repeatable Process to Improve Wafer Fusion Bonding</b> <i>Goutam Prakash, Ajeya Shettar, Pratik Tolambia, Sabiha Sultana</i>	
<b>Modular Structure Layout Design Based on Bayesian Optimization</b> <i>Ying Li, Xiaojun Gu, Jihong Zhu, Weihong Zhang</i>	
<b>Harnessing Waste for a Cooler Future: Radiative Cooling Films from Oyster Shells</b> <i>Youngjae Yoo, Byung-II Choi</i>	
<b>Impact of Silicon Surface Modification on the Catalytic Performance Towards CO<sub>2</sub> Conversion of Cu<sub>2</sub>S/Si-Based Photocathodes</b> <i>Benfadel Karima, Sabiha. Anas Boussaa, Afaf Brik, Lamia Talbi, Assia Boukezzata, Yahia Ouadah, Samira Kaci</i>	

4:30-5:15 pm <b>Plenary Lecture 4</b> <b>Smart Ferromagnetic Fibers for SHM of Composites</b> <i>Hua-xin Peng, Zhejiang University, China</i>	Venue: Hall A Chairs: Nazih Mechbal & Omar Elmazria
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7:00 pm – 9:30 pm  
**Banquet Dinner at Sheraton Sharjah Beach Resort & Spa**

## Thursday, 28<sup>th</sup> November

9:00 am - 9:45 am <b>Registration</b>
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9:00 am - 12:30 pm <b>Booth Exhibition</b>
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9:45-10:30 am <b>Plenary Lecture 5</b> <b>On the Modeling and Analysis of Periodic and Quasi-periodic Smart Structures</b> <i>Marcelo A. Trindade, University of São Paulo, Brazil</i>	Venue: Hall A Chairs: Michael Krommer & Ayech Benjeddou
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10:30 – 11:00 am <b>Coffee Break</b>
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11:00 am – 1:00 pm <b>Parallel Sessions</b>
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<b>GT 5: Active Sensing, Actuation and Transduction</b>		Session 13 Venue: Hall A Chairs: Maen Alkhader & Lotfi Romdhane
11:00-11:20	<b>Advancing Vibration Control: Autonomous Experiment-In-The-Loop System for Fast and Efficient Tuning of Active Controllers</b> <i>Rashed Alhammadi, Tarcisio Silva, Giulio Franchini, Abdulaziz Buabdulla, Prabakaran Balasubramanian, Marco Amabili</i>	
11:20-11:40	<b>Damage Identification and Application of Pre-stressed Concrete Beams Based on Hilbert-Huang Transform</b> <i>Yiqiang Xiang, Xiang Zhang, Yonggang Shen</i>	
11:40-12:00	<b>Effect of Strain Fields on Frequency Bandgaps of Periodic Lattice-Based Metamaterials</b> <i>Mohamad Shendy, Maen Alkhader, Bassam Abu-Nabah, T Venkatesh</i>	
12:00-12:20	<b>Bio Absorbable Multifunctional 4D-Printed Cardiac Occlusion Device</b> <i>Cheng Lin, Zhaoxiang Gu, Zhiru Liang, Mengjiao Yang, Yanju Liu, Jinsong Leng</i>	

<b>GT 2: Nanotechnology in Engineering</b>		Session 14 Venue: Senate Room Chairs: Salima Bouvier & Marcelo Trindade
11:00-11:20	<b>Evolution and Strengthening of Nano-precipitates in a High Strength Maraging Stainless Steel</b> <i>Junpeng Li, Weiguo Jiang, Yang Zhang, Yongzheng Yu, Xiyu Wang, Xinghao Li, Zhongwu Zhang</i>	
11:20-11:40	<b>Microstructure and Mechanical Properties of a Nanoscale-Precipitate-Strengthened Reduced-Activation Refractory Complex Concentrated Alloy</b> <i>Wenqing Jiang, Zhongwu Zhang, Yang Zhang, Mingyu Fan, Lixin Sun, Peter K. Liaw</i>	
11:40-12:00	<b>The Strength-Ductility and Radiation Tolerance of Cobalt-Free Multi-principal Element Alloys are Regulated by Nano-Precipitates</b> <i>Jihong Han, Yang Zhang, Zhongwu Zhang</i>	

<b>Online Session</b>		Session 15 Venue: LIB 011 CITL Room Chairs: Fehmi Najjar & Hassen Ouakad
11:00-11:20	<b>Life Cycle Assessment of Piezoelectric Materials Used for Energy Harvesting Systems</b> <i>Rabie Alouj, Barbara Lafarge, Berk Celik, Raoudha Gaha</i>	
11:20-11:40	<b>Designing Soft Robotic Materials</b> <i>Zhen Jiang, Maryam Adavoudi Jolfaei, and Geoffrey M. Spinks</i>	

11:40-12:00	<b>Electrostatic Kinetic Energy Harvester using a Bennet Doubler Conditioning Circuit and Autonomous Switching</b> <i>Hatem Samaali, Emine Zaouali, Fehmi Najar</i>
12:00-12:20	<b>Numerical Analysis of Mechanical Behavior Using Bio-Compatible Material for Dental Prosthesis</b> <i>Ayesha Ahmed Dogar, Imran Akhtar, Muhammad Rehan Khan, Hasan Aftab Saeed</i>
12:20-12:40	<b>Comparative Viscoelastic Modeling and Characterization of Piezoelectric Energy Harvesters With Stoppers</b> <i>Khalid Alluhydan, Fehmi Najar, Abdessattar Abdelkefi</i>

12:45 pm - 1:00 pm  
Venue: Hall A  
**Closing Ceremony**

1:00 – 1:45 pm  
**Lunch**

1:45 pm – 7:00 pm  
**Visit Iconic Landmark in Sharjah: *Najd Al Meqsar***



## Social Events

**Opening Ceremony** - This event includes welcoming remarks by the AUS Chancellor, the Dean of Engineering, and the Conference Chairs.

**Welcome Reception** - A welcome dinner will take place in the outdoor plaza area at AUS to greet all participants.

**Banquet at Sheraton Sharjah Beach Resort & Spa** - This gathering event will offer participants a great opportunity to exchange ideas, share experiences, and provide valuable insights.

**Visit iconic landmark in Sharjah: Najd Al Meqsar** - An abandoned settlement West of Khor Fakkan in Sharjah (UAE), now a heritage village and popular tourist spot. The village highlights the past traditional housing lifestyle, local agricultural and community practices.



## Booth Exhibition

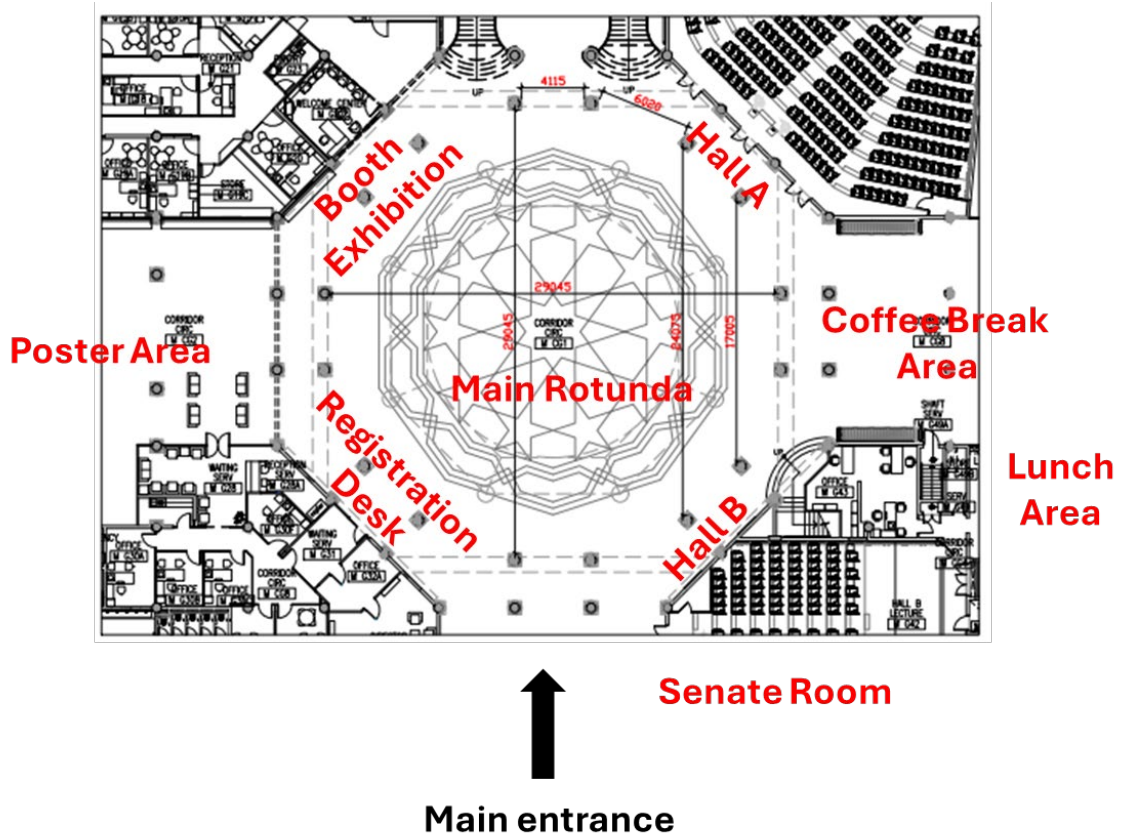
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## Venue Overview



AUS Main Building Google Map ( 25.3097° N, 55.4906° E ) - [Link](#)

## Transportation

Transportation from *Centro Sharjah* and *Sheraton Sharjah Beach Resort & Spa* to the conference venue and back will be provided to the conference attendees free of charge, according to the following schedule:

### ***Schedule to / from the Conference Venue***

#### **Tuesday, 26<sup>th</sup> November**

	Bus departure
From Sheraton Sharjah Beach Resort & Spa to AUS	8:00 am
From Centro Sharjah to AUS	8:30 am
From AUS (main roundabout–next to main building) to hotels	6:30 pm

#### **Wednesday, 27<sup>th</sup> November**

	Bus departure
From <i>Sheraton Sharjah Beach Resort &amp; Spa</i> to AUS	8:00 am
From <i>Centro Sharjah</i> to AUS	8:30 am
From AUS (main roundabout–next to main building) to <i>hotels</i>	5:30 pm
From <i>Sheraton Sharjah Beach Resort &amp; Spa</i> to Centro Sharjah	9:30 pm

#### **Thursday, 28<sup>th</sup> November**

	Bus departure
From <i>Sheraton Sharjah Beach Resort &amp; Spa</i> to AUS	8:00 am
From <i>Centro Sharjah</i> to AUS	8:30 am
From AUS (main roundabout–next to the main building) to <i>Najd Al Meqsar</i>	1:45 pm
From <i>Najd Al Meqsar</i> to hotels and AUS	6:00 pm