

## **Workshop Program**

# **Sixteenth Annual International Workshop on Advanced Materials (IWAM 2025)**

**Juman Ballroom**

**InterContinental Ras Al Khaimah Mina Al Arab Resort**

**Ras Al Khaimah, UAE**

*Monday, February 17 – Wednesday, February 19*

### **Sunday 16<sup>th</sup> February 2025**

<b>14:00 onwards</b>	<b>InterContinental Ras Al Khaimah Mina Al Arab Resort</b> <i>Hayat Island, Mina Al Arab, Ras al Khaimah, UAE</i>
<b>17:30-20:00</b>	<b>IWAM Registration &amp; Reception</b> <i>InterContinental Ras Al Khaimah Mina Al Arab Resort Secret Garden (across from Juman Ballroom)</i>

## Day 1: Monday 17<sup>th</sup> February 2025

<b>Session I</b>	<b>Opening Session</b>	<b>Start time: 08:30</b> <b>End time: 10:00</b>
<b>08:30</b>	<b>Welcome &amp; Overview of RAK CAM</b>  <b>Professor Sir Tony Cheetham</b> Chairman, Ras Al Khaimah Centre for Advanced Materials	
<b>09:00</b>	<b>Keynote Address</b>  <b>His Highness Sheikh Saud bin Saqr Al Qasimi, <i>Member of the Supreme Council of the UAE and Ruler of Ras Al Khaimah</i></b>	
<b>09:30</b>	<b>The Outdoor Comfort a crucial interdisciplinary target for sustainability in RAK</b>  <b>Professor Youssef Diab</b> Center for Outdoor Comfort and Cities in Ras Al Khaimah	
<b>09:50</b>	<b>Opportunities in the Sheikh Saqr Laboratory at the JNCASR</b>  <b>Professor Eswaramoorthy Muthusamy</b> Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, India	
<b>10:10</b>	<b>Coffee Break</b>	

<b>Session II</b>	<b>Soft Matter and Catalysis</b>	<b>Start time: 11:00</b> <b>End time: 13:00</b>
	<b>Chair: Eswar Muthusamy</b>	
<b>11:00</b>	<b>Knots in Polymers</b>  <b><u>Michael Klein</u></b> Institute for Computational Molecular Science Temple University, Philadelphia, Pennsylvania, United States of America	

<b>11:40</b>	<p><b>Unveiling the ‘hidden structural order’ in dense liquids and glasses</b></p> <p><b><u>Rajesh Ganapathy</u></b>          Jawaharlal Nehru Centre for Advanced Scientific Research          Jakkur, Bangalore, India</p>
<b>12:20</b>	<p><b>Single-Atom Catalysts for the Efficient Conversion of Isobutene into Highly Branched Liquid Hydrocarbons</b></p> <p><b><u>Samy El-Shall</u></b>          Department of Chemistry          Virginia Commonwealth University, Richmond, Virginia, USA</p>

<b>Session III</b>	<b>Poster Session</b>	<b>Start time: 13:00</b> <b>End time: 15:00</b>
<b>13:00</b>	<p><b>Poster Session I</b>          Lanteen rooms</p> <p><i>Lunch will be provided buffet style during the poster session</i>  <i>Please hang your poster at the start of the session</i>  <i>Odd number posters will present between 13:00-14:00</i>  <i>Even number posters will present between 14:00-15:00</i></p>	

<b>Session IV</b>	<b>Dresselhaus Memorial Lecture</b>	<b>Start time: 15:15</b> <b>End time: 16:15</b>
	<b>Chair: Andrew Holmes</b>	
<b>15:15</b>	<p><b>Atomic Electronics – building quantum computers in silicon with atomic precision</b></p> <p><b><u>Michelle Simmons</u></b>          Silicon Quantum Computing, and          University of New South Wales, Sydney, Australia</p>	
<b>16:15</b>	<b>Coffee Break</b>	

<b>Session V</b>	<b>Electronic Materials</b>	<b>Start time: 16:35</b> <b>End time: 17:55</b>
	<b>Chair: Michelle Simmons</b>	
<b>16:35</b>	<b>Oxide Thin films for Energy Applications</b>  <u><b>Judith Driscoll</b></u> Department of Materials Science University of Cambridge, Cambridge, United Kingdom	
<b>17:15</b>	<b>Electrochemical Ionic Synapses for Energy-Efficient Brain-Inspired Computing</b>  <u><b>Bilge Yildiz</b></u> Department of Materials Science & Engineering Massachusetts Institute of Technology, Cambridge, Massachusetts, USA	

*End of Day 1*

## **Day 2: Tuesday 18<sup>th</sup> February 2025**

<b>Session VI</b>	<b>Graduate Student Researcher Talks</b>	<b>Start time: 09:00 End time: 09:50</b>
	<b>Chairs:</b> <b>Ram Ramamurty and Kyriaki Polychronopoulou</b>	
<b>9:00</b>	<b>Modified Synthesis of Cs<sub>4</sub>PbBr<sub>6</sub> for Enhanced Purity and Quantum Yield and for Exploring Its Potential as a High Stokes Shift Material for Down-Conversion in Solar Cells</b>  <b><u>Elshaimaa Darwish</u></b> Department of Material Science Institute Materials for Electronics and Energy Technology Friedrich-Alexander-Universität Erlangen-Nürnberg Erlangen, Germany	
<b>9:10</b>	<b>Radionuclide Removal through PEI Spray-Coated Positively Charged Polyamide RO Membranes</b>  <b><u>Muhammad 'Adli Nor Azman</u></b> Membrane Technology Research Centre (AMTEC) Faculty of Chemical and Energy Engineering Universiti Teknologi Malaysia Skudai, Malaysia	
<b>9:20</b>	<b>Electrically and Magnetically Readable Memory with Graphene/1T-CrTe<sub>2</sub> Heterostructure: Anomalous Hall Transistor</b>  <b><u>Surabhi Menon</u></b> Theoretical Sciences Unit Jawaharlal Nehru Centre for Advanced Scientific Research Bengaluru, India	

<b>9:30</b>	<p><b>Poly(3-Hexylthiophene) based bioelectronic interface using conducting nanofibers (CNFs) for the sensitive determination of folate receptor cancer biomarkers in human plasma</b></p> <p><b><u>Noha Elnagar</u></b>  Institut de Chimie Moléculaire et des Matériaux d'Orsay (ICMMO),  Département of Materials Science and Nanotechnology , Department of Biotechnology and Life Sciences  Paris Saclay University  Orsay, France</p>
<b>9:40</b>	<p><b>Investigating porous structure effect on air electrode performance in lithium oxygen battery using zeolite templated carbon</b></p> <p><b><u>Lina Jarrar</u></b>  Department of Chemical and Petroleum Engineering  Khalifa University  Abu Dhabi, United Arab Emirates</p>
<b>9:50</b>	<b>Coffee Break</b>

<b>Session VII</b>	<b>Metal-Organic Frameworks</b>	<b>Start time: 10:20</b> <b>End time: 12:20</b>
	<b>Chair: Bettina Lotsch</b>	
<b>10:20</b>	<p><b>Merged-net Approach: Systematic Design of Multi-component Structures in Reticular Chemistry</b></p> <p><b><u>Mohamed Eddaoudi</u></b>  King Abdullah University of Science and Technology  Thuwal, Saudi Arabia</p>	
<b>11:00</b>	<p><b>Smart and Programmable Crystalline Sponges from Basic Science to Commercialization</b></p> <p><b><u>Omar Farha</u></b>  Department of Chemistry  Northwestern University, Evanston, Illinois, United States</p>	

<b>11:40</b>	<p><b>From concept to application: A systems approach to MOFs development</b></p> <p><b><u>Susana Garcia</u></b>  The Research Centre for Carbon Solutions (RCCS)  School of Engineering and Physical Sciences  Heriot-Watt University, EH14 4AS Edinburgh, United Kingdom</p>
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<b>Session VIII</b>	<b>Poster Session</b>	<b>Start time: 12:20</b> <b>End time: 14:20</b>
<b>12:20</b>	<p><b>Poster Session II</b>  Lanteen Rooms</p> <p><i>Lunch will be provided buffet style during the poster session</i>  <i>Please hang your poster at the start of the session</i>  <i>Odd number posters will present between 12:20-13:20</i>  <i>Even number posters will present between 13:20-14:20</i></p>	

<b>Session IX</b>	<b>2D Materials</b>	<b>Start time: 14:30</b> <b>End time: 15:50</b>
	<b>Chair: Judith Driscoll</b>	
<b>14:30</b>	<p><b>Electron Transport in the Dirac Liquid</b></p> <p><b><u>Andre Geim</u></b>  National Graphene Institute  University of Manchester, Manchester, United Kingdom</p>	
<b>15:10</b>	<p><b>The scale-up challenges of 2Dmaterials prototypes and beyond...</b></p> <p><b><u>John Whittaker</u></b>  University of Manchester  Manchester, United Kingdom</p>	
<b>15:50</b>	<b>Coffee break</b>	

<b>Session X</b>	<b>Energy Materials</b>	<b>Start time: 16:20</b> <b>End time: 17:40</b>
	<b>Chair: Bilge Yildiz</b>	
<b>16:20</b>	<b>Optoelectronics meets optoionics: Energy conversion and light storage in 2D carbon nitrides and beyond</b>  <u><b>Bettina Lotsch</b></u> Nanochemistry Department, Max Planck Institute for Solid State Chemistry, Germany Chemistry Department, University of Munich (LMU), Germany	
<b>17:00</b>	<b>Energy Efficiency through Mn Doping in Perovskite Materials</b>  <u><b>Ranjani Viswanatha</b></u> New Chemistry Unit and International Centre for Materials Science Jawaharlal Nehru Centre for Advanced Scientific Research Bangalore, India	
	RAK CAM board meeting at 5 pm (17:00)	

*End of Day 2*



## **Day 3: Wednesday 19<sup>th</sup> February 2025**

<b>Session XI</b>	<b>Sustainability Research in the UAE</b>	<b>Start time: 9:00</b> <b>End time: 11:00</b>
	<b>Chair: Yaser Greish</b>	
<b>9:00</b>	<b>Solar Energy Conversion Systems: Time-resolved Spectroscopy</b>  <b><u>Mohamed Abdellah Oenawy</u></b> Department of Chemistry United Arab Emirates University, Al Ain, United Arab Emirates	
<b>9:40</b>	<b>The Art of Designing Multifunctional Catalysts for Added-Valued Products: fundamentals and market perspectives</b>  <b><u>Kyriaki Polychronopoulou</u></b> Department of Mechanical Engineering and Center for Catalysis and Separations (CeCaS Center) Khalifa University of Science and Technology, Abu Dhabi, UAE	
<b>10:20</b>	<b>Advances in Magnesium-Based Cement Production Using Desalination Brine and Sustainable Construction Materials</b>  <b><u>Kemal Celik</u></b> Associate Professor of Civil Engineering at New York University Abu Dhabi Global Network Associate Professor of Tandon School of Engineering at New York University	
<b>11:00</b>	<b>Coffee Break</b>	

<b>Session XII</b>	<b>Phase Transitions and Microstructure</b>	<b>Start time: 11:30</b> <b>End time: 12:50</b>
	<b>Chair: Michael Klein</b>	
<b>11:30</b>	<b>Phase-change memory and switching materials</b>	
	<b><u>Stephen Elliott</u></b> University of Oxford, Oxford, United Kingdom and University of Cambridge, Cambridge, United Kingdom	
<b>12:10</b>	<b>Microstructures and mechanical properties of additively manufactured alloys</b>	
	<b><u>Upadrasta Ramamurty</u></b> School of Mechanical & Aerospace Engineering Nanyang Technological University (NTU), Singapore	
<b>12:50</b>	<b>Group photo</b>	
<b>13:00</b>	<b>Lunch break</b> <i>Lunch will be provided buffet style</i>	

<b>Session XIII</b>	<b>Photovoltaics and Perovskites</b>	<b>Start time: 14:40</b> <b>End time: 16:00</b>
	<b>Chair: Susana Garcia</b>	
<b>14:40</b>	<b>Recent progress in thin film organic and perovskite photovoltaic devices</b>	
	<b><u>Andrew B. Holmes</u></b> School of Chemistry and Bio21 Institute University of Melbourne, Vic 3010, Australia	
<b>15:20</b>	<b>Recent Developments in Perovskite Halides</b>	
	<b><u>Tony Cheetham</u></b> Materials Research Laboratory University of California, Santa Barbara, California, USA	
<b>16:00</b>	<b>Closing Remarks</b>	
	<b>Tony Cheetham</b>	

<b>19:00</b>	<b>Dinner Banquet at the Palace hosted by</b>  <b>His Highness Sheikh Saud bin Saqr Al Qasimi</b> Ruler of Ras Al Khaimah and Member of the Supreme Council of UAE  <i>All guests must wear nametag to attend banquet.</i> <i>Meet at Juman Ballroom at 6:00 PM (18:00) for departure to the palace.</i>

*End of Day 3*