Symposium 01. Semiconductors & Electronic Materials Technologies

Chair(s) and Keynote Speakers:
• **Ramamoorthy Ramesh**, University of California, Berkeley, USA
• **Aristides Zdetsis**, University of Patras, Greece
• **Pavle Radovanovic,** University of Waterloo, Canada
• **Marta Mohedano,** Universidad Complutense de Madrid, Spain

This symposium focuses on advanced semiconductor and electronic materials that enable modern electronic and optoelectronic technologies. It brings together researchers and industry experts to discuss material design, fabrication, integration, and reliability for high-performance, energy-efficient, and scalable electronic devices and systems.

Primary focus areas include next-generation semiconductor materials, silicon and compound semiconductors, wide-bandgap materials, thin films and nanostructures, power and high-frequency electronics, fabrication and lithography, flexible and wearable electronics, sensors, memory and logic devices, and emerging quantum and neuromorphic materials.

Symposium 02. AI, Energy-Efficient, and Quantum Materials Technologies

Chair(s) and Keynote Speakers:
• **Chuan-Jian Zhong,** State University of New York at Binghamton, USA
• **Amir H Gandomi**, University of Technology Sydney, Australia
• **Kun Wang,** University of Miami, USA
• **Giulia Grancini,** University of Pavia, Italy

This symposium explores the convergence of artificial intelligence, energy-efficient technologies, and quantum materials, highlighting how interdisciplinary innovation is shaping sustainable energy systems and next-generation computing. It brings together researchers, industry experts, and policymakers to discuss AI-

driven materials discovery, low-energy devices, and advanced quantum materials for future technologies.

Key emphases include AI-enabled materials design and energy optimization; advanced batteries and low-power electronics; thermoelectric and photovoltaic materials; quantum and 2D materials; spintronics; and emerging applications that integrate AI, quantum technologies, and renewable energy systems.

Symposium 03. Automation, Robotics & Smart Manufacturing Technologies

Chair(s) and Keynote Speakers:
• **Hamid Marvi,** Arizona State University, USA
• **Sabry Shaheen**, Wuppertal University, Germany
• **Antonio Gil,** Universidad Publica de Navarra, Spain
• **Rujie He**, Beijing Institute of Technology, China

This symposium highlights the technologies that drive next-generation industrial systems, in which automation, robotics, AI, and smart manufacturing converge to enable efficient, flexible, and sustainable production. It focuses on intelligent automation, human–machine collaboration, real-time, data-driven decision-making, and climate-neutral manufacturing strategies that shape Industry 4.0 and beyond.

The emphasis of the discussion includes advanced automation and robotics, AI and machine learning for manufacturing, smart sensors and connected factories, digital twins and process optimization, quantum and advanced materials for manufacturing, sustainable production, and emerging Industry 5.0 concepts.

Symposium 04. Innovations in Net-Zero, Low-Carbon, and Circular Materials

Chair(s) and Keynote Speakers:
• **Daniel Ayejoto,** Texas Christian University, USA
• **Javier Izquierdo**, Universidad de La Laguna, Spain
• **Masakazu Anpo**, Fuzhou University, Japan
• **Guoxing Chen**, Technical University of Darmstadt, Germany

This symposium highlights advanced materials and technologies enabling a net-zero, low-carbon, and circular economy. It brings together experts from academia, industry, and policy to discuss sustainable material design, resource efficiency, recycling and upcycling, and strategies to reduce carbon footprints across energy, manufacturing, and construction sectors.

The main topics include net-zero and low-carbon materials, circular-economy solutions, sustainable industrial and construction materials, advanced recycling technologies, carbon-capture materials, AI-driven materials innovation, life-cycle assessment, and policy pathways for climate-neutral technologies.

Symposium 05. Translational and Commercialization Strategies in Materials Technology

Chair(s) and Keynote Speakers:
• **Joerg Lahann,** University of Michigan, USA
• **Bogusław Buszewski**, Kuyavian-Pomeranian Voivodeship R&D Centre, Poland
• **Melvin Pascall**, The Ohio State University, USA
• **Jijian Xu**, City University of Hong Kong, Hong Kong

This symposium focuses on turning materials research into market-ready technologies. It brings together researchers, entrepreneurs, investors, and industry leaders to explore practical strategies for scaling, protecting, funding, and commercializing advanced materials, thereby accelerating adoption, reducing time-

to-market, and enabling sustainable and profitable materials technologies and innovations.

The focus areas include research-to-market translation strategies, IP and patent management, scale-up and manufacturing, funding and investment, industry–academia collaboration, regulatory pathways, business models, and real-world commercialization case studies.

Symposium 06. Advanced Healthcare and Biomedical Innovations

Chair(s) and Keynote Speakers:
• **David Kisailus**, University of California Irvine, USA
• **Jennifer Lippincott-Schwartz,** HHMI Janelia Research Campus, USA
• **Ipsita Roy,** University of Sheffield, United Kingdom
• **Vladimir Katanaev**, University of Geneva, Switzerland

This symposium highlights emerging healthcare and biomedical technologies that are transforming diagnostics, treatment, and patient care. It brings together researchers, clinicians, and industry leaders to discuss AI-driven healthcare, advanced biomaterials, biomedical engineering, and digital health solutions, with a strong focus on translational research and clinical impact.

The research topic of discussion includes AI and machine learning in healthcare, biomedical imaging and sensing, advanced biomaterials and regenerative medicine, wearable and implantable devices, personalized and precision medicine, digital health and telemedicine platforms, clinical translation, and regulatory and commercialization pathways.