

A*STAR Institute of Materials Research and Engineering Presents



5th Molecular Materials Meeting (M3)

Theme: The Next 50 Years of Materials Research

03-05 August 2015

Resorts World Convention Centre
Singapore



SESSION INFORMATION

Topics

Topics	Session Titles
Sustainable Materials	Materials for Sustainability
Next-Generation Materials	2D Materials & Devices
	Metamaterials & Plasmonics: The Next Frontier
Intelligent Materials	Biomimetic, Bioinspired and Biohybrid Materials
	Material Surfaces: Intelligent Design at the Molecular Level and Beyond
Hybrid Materials	Nanohybrids, Mesoporous Materials and Nanocomposites
Materials for Consumer Care, Lifestyle & Wellness	Food Nanotechnology
	Medical Molecular Materials
	Soft Materials for Consumer Care and Health Care
Materials for Sensing	Bio-Applications of Colloidal Nanoparticles
	Luminescent Materials for Sensing
Materials Development & Partnerships	Open Innovation – Strategic Public-Private Partnership
	Interinstitutional & Interdisciplinary Materials Research
	Developments in Analytical and Characterization Capabilities

Session Descriptions

Session	Description
Materials for Sustainability	This session will focus on advances in materials for applications in the harvesting and storage of clean and renewable energy. Topics of interest include, but are not limited to: solar cells, photocatalytic water splitting, supercapacitors and batteries.
2D Materials & Devices	This session will focus on advances in two-dimensional materials, synthetic and natural – from fabrication to characterisation and application in devices. Topics of interest include, but are not limited to: growth and synthesis, structure and properties, chemistry and modifications, and applications of 2D nanomaterials.
Metamaterials & Plasmonics: The Next Frontier	This session will focus on advances in metamaterials, metasurfaces, and plasmonics – from design, modelling, fabrication, characterisation to application in devices. Topics of interest include, but are not limited to: metasurfaces, sub-wavelength optics, plasmonic-electronic integration, nanoplasmonics, and applications of metamaterials & plasmonics.
Biomimetic, Bioinspired and Biohybrid Materials	This session will focus on advances in biomimetic, bioinspired & biohybrid materials, particularly in functional materials and structures inspired by the biological world for applications in, but not limited to, biomedicine, energy and environment.
Material Surfaces: Intelligent Design Molecular Level and Beyond	This session will focus on advances in surface science and engineering, highlighting technologies enabled by intelligent surface design and novel fabrication approaches. Topics of interest include, but are not limited to: experimental and theoretical aspects of surface physico-chemical phenomena as well as the design, fabrication and modification of surfaces leading to applications in controlled wetting, oil repellency, biomedicine, membranes, sensors, and fluidic devices amongst many others.
Nanohybrids, Mesoporous Materials and Nanocomposites	This session will focus on advances in nanohybrids, mesoporous materials and nanocomposites for applications in energy, biomedicine, environment and sustainable development.

Session	Description
Food Nanotechnology	This session will focus on advances in nanotechnology for food. Topics include, but not limited to: nanostructured materials for food packaging, nanotechnology for food sensors, nanoencapsulation of food nutrients, food material science, characterisation of food with modern analytical techniques, and food safety in a globally-connected environment.
Medical Molecular Materials	This session will focus on advances in molecular materials for medical applications. Topics include, but are not limited to: drug testing and drug delivery, microfluidics and nanofluidics for diagnosis and therapeutics, and ultrasound diagnostics and therapeutics.
Soft Materials for Consumer Care and Health Care	This session will focus on advances in soft materials for consumer care and health care. From fundamentals to application, this session covers the related research fields, represented by hydrogels, rheology modification, depositions, antibacterials as well as the encapsulation and delivery of active ingredients, drugs, gene and cells for consumer care and health care. Topics include but are not limited to: soft materials for beauty care, encapsulation of active ingredients of cosmetics, drug/DNA/RNA/cell delivery, and bioimaging.
Bio-Applications of Colloidal Nanoparticles	This session will focus on the use of colloidal nanoparticles in bio-applications. Topics include, but are not limited to: the application of wet-chemically synthesized metal, metal oxide or semiconductor nanoparticles in bio-imaging, biomedical diagnostics, biocatalysis, drug delivery and therapeutics. The synthetic development of nanoparticles with novel properties or innovations in surface modification that potentially enhance current bio-applications are also welcome.
Luminescent Materials for Sensing	This session will focus on luminescent materials for sensing applications. Recent advances in molecular fluorophores and optical nanoparticles that emerge as luminescent markers for sensing metal ions, small molecules, and macromolecules will be highlighted in this session.
Developments in Analytical and Characterization Capabilities	This session will showcase some of the latest analytical and characterization capabilities, with a focus on molecular materials and molecular science.