

Conference on Nano-Micromaterials for Circular economy and Sustainability

29 Aug 2019 - 01 Sep 2019

Guild hall right chamber, National University of Singapore

Preamble:

Welcome to **National Science Foundation (USA)** sponsored conference on Nanomaterials for circular economy and sustainability in East Asia Pacific 2019, jointly organised by NUS Singapore and UCF USA. Delegates will have the opportunity to participate, present the research findings, learn more about circular economy and sustainability, networking and build relationships and partnerships in the field.

DAY ONE – Thursday, August 29, 2019

9.00 to 9.30 am	Networking and Registration
9.30 to 10.00 am	Conference inauguration – Prof Sudipta Seal and Prof Seeram Ramakrishna Key note speech by Prof. Alfred HUAN, Executive Director, IMRE, A*STAR
10.00 to 10.20 am	Invited talk 1: Creating a Circular Economy for Hard Disk Drives: A Shared Vision – Prof Carol Handwerker, Purdue Univ – USA
10.20 to 10.30 am	Group Photo
10.30 to 10.50 am	Invited talk 2: The new field of Sustainable Ultradilute Oxidation Catalysis (SUDOC): Integrating health, environmental and fairness performances with technical and cost performances for transformative sustainable water purification – Prof Terry Collins, Carnegie Mellon University - USA
10.50 to 11.10 am	Invited talk 3: The use of Synthetic Biology in remediation in E-waste – Prof YEW Wen Shan, National Univ Singapore, Singapore
11.10 to 11.30 am	Coffee/Tea Break
11.30 to 11.50 pm	Invited talk 4: Sustainable Plastics and the Center for Bioplastics and Biocomposites – Prof David Grewell, North Dakota State Univ – USA
11.50 to 12.10 pm	Invited talk 5: Collaboration Platform for Industrial Symbiosis – Dr Yeo Zhiquan, IMRE, A*STAR - Singapore

12.10 to 12.30 pm	Invited talk 6: Mainstreaming sustainability and the circular economy among materials researchers – Dr. Ashley A. White, Lawrence Berkeley National Laboratory - USA
12.30 pm to 1.30 pm	Lunch Break and Social
1.30 to 1.50 pm	Invited talk 7: Sustainable development of Nano-Micromaterials: Reduce, Recycle, Reuse (R ₃ CYCLE) – Prof Sudipta Seal / Dr. Tamil S. Sakthivel. UCF - USA
1.50 to 2.10 pm	Invited talk 8: Semiconductor Microelectronics Technology scaling: Sustainability and Environmental Consideration – Dr. Islam Salama, Intel Inc - USA
2.10 to 2.30 pm	Invited talk 9: Nutrient Mining for 'Nanoagriculture': The Smooth and Bumpy Road towards Sustainability – Prof Achintya Bezbaruah, North Dakota State Univ - USA
2.30 to 2.50 pm	Invited talk 10: Understanding the Water – Energy Nexus – Ms Tan Yee Shee, IMRE, A*STAR - Singapore
2.50 to 3.20 pm	Coffee/Tea Break and Social
3.20 to 3.40 pm	Invited talk 11: Design and Development of Circular Economy concept on the Recovery of Materials from Waste – Dr Subramanian Sundarrajan, National Univ Singapore – Singapore
3.40 to 4.00 pm	Invited talk 12: Accomplishing NEW (Nutrient-Energy-Water) Synergies in Microbial Electrochemical Systems for Resource-Efficiency – Prof Ganeswar Gude, Mississippi State University - USA
4.00 to 4.10 pm	Oral 1: Lessons from the Institute for Green Science's Catalyst Design Protocol for Designing Nano- and Micro-materials that Are Free of Low Dose Adverse Effects- Hannah Frame, Carnegie Mellon University - USA
4.10 to 4.20 pm	Oral 2: A Multi-level Model for Life Cycle Environmental Evaluation of Industrial Symbiosis – Piya Kerdlap, Graduate Student – NUS
4.20 to 4.30 pm	Oral 3: Catalytic Activity of Silver Nanoparticles Synthesized using Tectona Grandis. Linn F. Leaf Extract in the Reduction of 4-Nitrophenol- Dr Vidya Shetty, NITK - India
4.30 to 5.00 pm	Networking and Social

DAY TWO – Friday, August 30, 2019

9.00 to 9.30 am	Networking and gathering
9.30 to 10.00 am	Keynote Speech – Mr. Masayo Hada , Deputy Senior Manager, RICOH ASIA PACIFIC PTE LTD
10.00 to 10.20 am	Invited talk 12: Peace Engineering Mindset for a Sustainable Future – Prof Ramiro Jordan, The Univ of New Mexico - USA
10.20 to 10.40 am	Invited talk 13: Life Cycle Assessment of Singapore Food System – Mr Daren Tan, SIMTech, A*STAR - Singapore

10.40 to 11.00 am	Invited talk 14: Peace Engineering through Sustainable Air Quality – Dr Kamil Agi, SensorComm Technologies, Inc. - USA
11.00 to 11.30 am	Coffee/Tea Break and Social
11.30 to 11.50 pm	Invited talk 15: Sub-micron Materials Recovery from Mineral Processing Wastes – A Pathway towards Sustainable Circular Economy – Prof Brajendra Mishra, Worcester Polytechnic Institute - USA
11.50 to 12.10 pm	Invited talk 16: High-Temperature Wettability Studies for Green Manufacturing of Ceramic and Metal Joints – Prof Rajiv Asthana, University of Wisconsin-Stout - USA
12.10 to 12.30 pm	Invited talk 17: Biogenic and Bioinspired Functional Materials for Sustainability and a more Circular Economy – Prof Ulrike G.K. Wegst, Thayer School of Engineering, Dartmouth College - USA
12.30 pm to 1.30 pm	Lunch Break and Social
1.30 to 3.30 pm	Panel Discussion: Panel Theme: Circular Economy Opportunities & Gaps- diverse topics to include redesigning materials & products, waste to resources, education & training, R&D grand challenges, international standards development, sustainable finance, new businesses, health impact, and environmental management Panel Members: Dr. Brajendra Mishra (Worcester Polytechnic Institute), Dr. David Grewell (North Dakota State Univ), Dr. Ashley A. White (Lawrence Berkeley National Laboratory), Dr. Carol Handwerker (Purdue Univ), Dr. Terry Collins (Carnegie Mellon University), Mr. Marc Allen (Engeco), Dr Adrian Kuah (James Cook Univ)... Panel Chairs: Seeram Ramakrishna Panel Moderators: Sudipta Seal, Tamil Selvan Sakthivel, & Tamil Selvan Ramadoss
3.30 to 4.30 pm	Coffee/Tea Break and Networking

DAY THREE – Saturday, August 31, 2019

9.00 to 9.30 am	Networking and gathering
9.30 to 10.00 am	Key note Speech - Prof Rajan Jose , Univ Pahang Malaysia – Malaysia, Future of Materials Research: Renewable Materials & Smart Discovery Platforms
10.00 to 10.20am	Invited talk 18: Transforming Food Waste into Value Added Products: A Circular Economy Analysis of Malaysian Fisheries Sector- Dr Yudi Fernando, Univ Pahang Malaysia - Malaysia
10.20 to 10.40 am	Invited talk 19: Design Paradigm for Manufacturing Multifunctional Materials by Using Benign Biobased Precursors – Prof Surojit Gupta, Univ of North Dakota -USA
10.40 to 11.00 am	Invited talk 20: Lignin: Making valuable materials from waste- Dr Kai Dan, IMRE, A*STAR - Singapore
11.00 to 11.30 am	Coffee/Tea Break and Social

11.30 to 11.50 pm	Invited talk 21: Computational Modeling – Relevance and Binding Insights in Aptameric Biosensors for Critical Diseases and Economic Viability – Prof Ram Mohan, North Carolina A&T State University – USA
11.50 to 12.10 pm	Invited talk 22: Aerosol particles as micro/nanomaterial catalysts in the atmosphere - Dr Ryan Sullivan, Carnegie Mellon University – USA
12.10 to 12.20	Oral 4: Green synthesis of Bioleached Laterite Iron Nanoparticles (GBLFeNP) using Azadirachta indica leaves and evaluation of its catalytic role in Fenton’s oxidation of dicamba – Dr. Basavaraju Manu, NITK – India
12.20 to 12.30	Oral 5: Electromechanical response from as-electrospun fiber mats of nonpiezoelectric polymers - Dr Yuya Ishii, KIT - Japan
12.30 pm to 1.30 pm	Lunch Break and Social
1.30 to 1.50 pm	Invited talk 23: Toughening of poly(lactic acid)-based composite materials- Prof He Chaobin, IMRE, A*STAR - Singapore
1.50 to 2.10 pm	Invited talk 24: Past, Present and Future Perspectives of Municipal Solid Waste Management in Bangladesh: in Light of Japan and Singapore- Dr Md Matin - Bangladesh University of Engineering and Technology – Bangladesh
2.10 to 2.20 pm	Oral 6: On the potential of low-cost manufacturing of natural nanolaminate (MAX and MAB) Phase - Maharshi Dey, Univ of North Dakota - USA
2.20 to 2.30 pm	Oral 7: On the Design of Smart Manufacturing Approaches for Designing Environmentally Friendly Materials - Maggie Ahmann, Univ of North Dakota - USA
2.30 to 2.40 pm	Oral 8: Synthesis and Characterization of Novel Biocomposites by Using Customized Hemp and Sorghum Fibers as Reinforcements in PLA matrix - Sabah Javaid, Univ of North Dakota - USA
2.40 to 3.10 pm	Coffee/Tea Break and Social
3.10 to 3.20 pm	Oral 9: What are we doing to save the oceans from plastics? – Rashmi Anoop, National Univ Singapore, Singapore
3.20 to 3.30 pm	End note – Prof Seeram Ramakrishna
3.30 to 3.40 pm	End note – Prof Sudipta Seal

DAY FOUR – Sunday, September 1, 2019

NUS Lab Visit as per the request (9.30 am to 12.30 pm)