

# 1<sup>st</sup> MATECSS SCIENTIFIC WORKSHOP

April 10-11, 2014 • Montréal, Québec  
Room Hochelaga 3, Queen Elizabeth Hotel  
900 Boulevard René-Lévesque West



United Nations  
Educational, Scientific and  
Cultural Organization



# INRS

Université d'avant-garde

UNESCO Chair in Materials  
and Technologies for Energy Conversion,  
Saving and Storage (MATECSS)

Thursday, April 10	
Session Chair: Mohamed Chaker	
14:00	<b>Welcome and opening remarks</b> Federico Rosei <i>Energy, Materials and Telecommunications Centre, Institut national de la recherche scientifique (INRS) Varenes, Canada</i>
14:10	<b>Energy and clean energy needed for the development of Africa</b> S.E. Constant Horace <i>Ambassadeur Madagascar au Canada. Président association ambassadeurs d'Afrique francophone au Canada</i>
14:25	<b>Development of Energetic sources for the economic growth in Rwanda and the East African Regional Community</b> Emmanuel Muhawenimana <i>Representative Rwanda Development Board, Master in Education (UQAM) Former advisor Government of Quebec and Lecturer at the Univ of Quebec</i>
14:40	<b>The Global Young Academy: The world's next generation of science leaders</b> Rees Kassen <i>Professor and University Research Chair in Experimental Evolution, University of Ottawa, Canada</i>
15:00	<b>International Technology Collaboration and Sustainable Energy: Recasting “Truisms” with insights from emerging economies</b> Alexandra Mallett <i>School of Public Policy and Administration (SPPA), Carleton University, Ottawa, Canada</i>
15:20	<b>Light Up The World (LUTW)</b> Christoph Schultz <i>Program Director, Light Up The World (LUTW), Calgary, Canada</i>
15:40	<b>Capacity building for sustainable energy systems</b> Walter Mérida <i>Clean Energy Research Centre, University of British Columbia, Vancouver, Canada</i>
16:00	<b>Coffee break</b>
Session Chair: Walter Mérida	
16:20	<b>IOCD Strategy to Support Chemical Knowledge Dissemination</b> Alain Krief <i>Executive Director IOCD (International Organization for Chemical Sciences in Development) Emeritus Professor Namur University (UNamur) Chemistry Department</i>
16:40	<b>Global interactions in materials research with Africa</b> Eric Garfunkel <i>Department of Chemistry and Chemical Biology, Rutgers University, USA</i>
17:00	<b>Possibilities for cooperation in Nano-enabled Sustainable Energy</b> Barbara Karn <i>Sustainable Nanotechnology Organization Program Director for the Environmental Health and Safety of Nanotechnology at the National Science Foundation</i>
17:20	<b>Nanomaterials for energy technologies</b> Victor M. Castaño <i>Centro de Física Aplicada y Tecnología Avanzada Universidad Nacional Autónoma de México</i>
17:40	<b>Accelerated Functional Materials Discovery by Inverse Design Approach</b> Paul Ndione <i>National Renewable Energy Laboratory, Golden, CO, USA</i>
18:00	<b>Computational Materials Science for Development</b> Sandro Scandolo <i>The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy</i>
18:20	<b>Defect chemistry in ferroelectric materials</b> Carlos Gómez-Yáñez <i>Department of Materials and Metallurgy Engineering, National Polytechnic Institute, Mexico City, Mexico</i>

<b>Friday, April 11</b>	
Session Chair: Christine Luscombe	
09:00	<b>Pulsed laser ablation based synthesis of nanomaterials for photoactive device applications</b> My Ali El Khakani <i>Energy, Materials and Telecommunications Centre, Institut national de la recherche scientifique (INRS) Varenes, Canada</i>
09:20	<b>Low voltage electrolyte-gated polymer transistors</b> Clara Santato <i>Département de génie physique, École Polytechnique de Montréal, Montréal, Canada</i>
09:40	<b>Designing Nanostructures for Solar Cell Applications</b> Dongling Ma <i>Energy, Materials and Telecommunications Centre, Institut national de la recherche scientifique (INRS) Varenes, Canada</i>
10:00	<b>Engineered Photoanodes for High Efficiency Dye - and Quantum Dot - Sensitized Solar Cells</b> Alberto Vomiero <i>Energy, Materials and Telecommunications Centre, Institut national de la recherche scientifique (INRS) Varenes, Canada</i>
10:20	<b>Crystal Engineering of Bulk p/n Heterojunction by Complementary Hydrogen Bonding</b> Dmitrii F. Perepichka <i>Department of Chemistry, McGill University, Montreal, Canada</i>
10:40	<b>Quantum-dot LED for energy-saving quality lighting and displays</b> Xiao Wei Sun <i>Nanyang Technological University, Singapore</i>
11:00	<b>Coffee break</b>
Session Chair: Brahim Aïssa	
11:20	<b>Development of polymers for organic photovoltaics</b> Christine Luscombe <i>Materials Science and Engineering Department and Molecular Engineering and Sciences Institute University of Washington, Seattle</i>
11:40	<b>Nanostructural materials for new generation photovoltaic devices</b> Bodh Rajh Mehta <i>Department of Physics, Indian Institute of Technology Delhi, India</i>
12:00	<b>Perovskite materials-based systems for energy related applications</b> Riad Nechache <i>Energy, Materials and Telecommunications Centre, Institut national de la recherche scientifique (INRS) Varenes, Canada</i>
12:20	<b>High Efficiency Water Splitting and Hydrogen Production on Metal Nitride Nanowire Arrays</b> Zetian Mi <i>Department of Electrical and Computer Engineering, McGill University, Montreal, Quebec, Canada</i>
12:40	<b>Low-cost oxide heteronanostructures for solar water splitting</b> Lionel Vayssieres <i>International Research Center for Renewable Energy, Xi'an Jiaoatong University, China</i>
13:00	
13:20	<b>Lunch</b>
13:40	
Session Chair: Renzo Rosei	
14:00	<b>Hot Electron Based Gold Nanoplasmonic Optical Hydrogen Sensor</b> Eric Borguet <i>Department of Chemistry and College of Engineering, Temple University, Philadelphia, USA</i>
14:20	<b>Photo-induced &amp; tunable phenomena in nano-structured single oxides</b> Malik Maaza <i>UNESCO Africa Chair in Nanosciences &amp; Nanotechnology, College of Graduate Studies, University of South Africa, Pretoria, South Africa. Nanosciences African Network (NANOAFNET), iThemba LABS-National Research Foundation, Somerset West, South Africa</i>

14:40	<b>Development of novel nanomaterials for efficient energy devices</b> Mohamed Chaker <i>Energy, Materials and Telecommunications Centre, Institut national de la recherche scientifique (INRS) Varennnes, Canada</i>
15:00	<b>Visualizing the Near-fields of Nanoplasmonics with Ultrafast Transmission Electron Microscopy</b> Aycan Yurtsever <i>Energy, Materials and Telecommunications Centre, Institut national de la recherche scientifique (INRS) Varennnes, Canada</i>
15:20	<b>Tip-enhanced optical spectroscopy – breaking the diffraction limit towards the nanoworld</b> Andreas Ruediger <i>Energy, Materials and Telecommunications Centre, Institut national de la recherche scientifique (INRS) Varennnes, Canada</i>
15:40	<b>Nanoplasmonics for Enhanced Radiation-Matter Interaction</b> Luca Razzari <i>Energy, Materials and Telecommunications Centre, Institut national de la recherche scientifique (INRS) Varennnes, Canada</i>
16:00	<b>Ultrafast X-ray science at ALLS</b> François Légaré <i>Energy, Materials and Telecommunications Centre, Institut national de la recherche scientifique (INRS) Varennnes, Canada</i>
16:20	<b>Coffee break</b>
Session Chair: Malik Maaza	
16:40	<b>The importance of surface functionalization in Li-ion battery anodes</b> Marta Cerruti <i>Department of Mining and Materials Engineering, McGill University, Montreal, Canada</i>
17:00	<b>Nanoscience and Nanotechnology concepts for improving catalysts' activity, selectivity and stability</b> Renzo Rosei <i>QID Nanotechnology srl, Italy</i>
17:20	<b>Chemically stable proton conducting electrolytes for solid oxide fuel cells and electrolyzers</b> Enrico Traversa <i>Solar and Photovoltaics Engineering Research Center, Physical Science and Engineering Division, King Abdullah University of Science and Technology (KAUST), Saudi Arabia</i>
17:40	<b>Direct Ethanol Fuel Cells for Greenhouse Gas Emission Reduction</b> Mohamed Mohamedi <i>Energy, Materials and Telecommunications Centre, Institut national de la recherche scientifique (INRS) Varennnes, Canada</i>
18:00	<b>Recent Advances on energy conversion using microfluidic fuel cells technology</b> Luis Godinez Mora-Tovar <i>Centro de Investigación y Desarrollo Tecnológico en Electroquímica (CIDETEQ)</i>
18:20	<b>Novel Nanostructured Electrocatalysts for High-Performance and Low-Cost PEM Fuel Cells</b> Shuhui Sun <i>Energy, Materials and Telecommunications Centre, Institut national de la recherche scientifique (INRS) Varennnes, Canada</i>
<b>End of workshop</b>	