

## MSSI Theme:

# "Creating Sustainable Materials for the Future"

<https://mcgill.ca/mssi/creating-sustainable-materials-future>

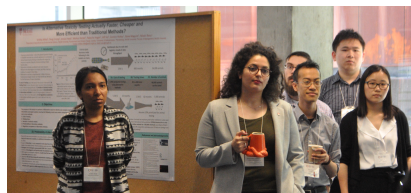
Our vision is to establish a transdisciplinary research programme at McGill focussing on the design, development, evaluation, and use of sustainable materials (i.e., functional materials and molecules) to help address grand challenges of the 21st century. To achieve this vision, the MSSI Sustainable Materials group will coalesce activities into the following mutually reinforcing domains:

1. To develop *de novo* function-driven materials and molecules that meet pressing societal needs [**benign by design**];
2. To identify, characterize, and assess risks associated with emerging materials and molecules – at the level of design and synthesis - with respect to human and ecosystem health [**21st-century risk assessment**];
3. To understand and inform government and business policy that promotes responsible – rather than regrettable – stakeholder adoption and catalyzes the commercialization and scaling of sustainable materials while reducing extant risks to acceptable levels [**stakeholder-driven**].

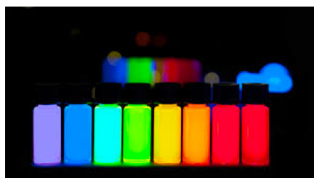
### KEY FEATURES OF OUR THEME:



1) Transdisciplinary dialogue



2) Student centered activities



3) Case studies



4) Seminar series



We acknowledge support for today's event from the McGill Faculties of Agricultural and Environmental Sciences, Engineering, Medicine, and Sciences largely via the McGill Sustainability Systems Initiative and the McGill Global Health Programs.

# 2018 Cells to Society Symposium on "Environment & Health": Sustainable Materials



8:30a – 5:00p

Friday Oct 26, 2018

Faculty Club, McGill University

### Registration:

<https://mcgill.ca/mssi/registration-cells-society-symposia>

An annual full day conference that brings together those interested in the environmental health sciences. This year we use the event to launch the MSSI research theme program "Creating Sustainable Materials for the Future", and thus we focus the day on the challenges and opportunities concerning the design, development, evaluation, and use of materials to help address grand challenges of the 21st century.

# MORNING

- 8:30a **Opening Remarks**, Prof. Bruce Lennox, Dean of Science, McGill University
- 8:35a **Overview of the MSSI Materials Group**, Profs. Audrey Moores, George Demopoulos, Nil Basu
- 8:50a **Keynote Speaker #1**  
Prof. Andrew Maynard, Arizona State University  
*"Base Code - How convergent technologies are transforming the future of sustainable materials, and the challenge and opportunities they in turn present"*
- 10:00a **Morning Break**
- 10:30a **Panel #1 – 21<sup>st</sup> Century Material Risks**  
Prof. Barbara Hales (flame retardants)  
Prof. Koren Mann (medical devices)  
Prof. Jonathan Chevrier (pesticides)  
Prof. Saji George (nanomaterials)
- 11:30a **Discussion Session led by Students**  
(followed by lunch provided to registered individuals)



Andrew Maynard is a professor in the Arizona State University School for the Future of Innovation in Society, Director of the ASU Risk Innovation Lab, and author of the forthcoming book *Films from the Future: The Technology and Morality of Sci-Fi Movies*. In addition to his work with organizations such as the US National Academy of Sciences and the Canadian Institute for Advanced Research (where he is a member of the President's

Research Council), he is a member of the World Economic Forum Global Future Council on Agile Governance, and a contributor to the Forum's annual review of top ten emerging technologies. Andrew's work focuses on technological convergence and socially responsible innovation, and is widely published on risks and benefits of technologies ranging from nanotechnology and synthetic biology, to artificial intelligence. He was previously chair of the Environmental Health Sciences department at the University of Michigan, and graduated from the University of Cambridge in 1992 with a PhD in ultrafine aerosol particle analysis.

# AFTERNOON

- 1:00p **Keynote Speaker #2**  
Prof. Joel Tickner, University of Massachusetts Lowell  
*"From acceptable risk to safer alternatives: Driving changes in science, policy, and the marketplace that support innovation in sustainable chemicals and materials"*
- 2:10p **Panel #2 – Innovation in Sustainable Materials**  
Sarah Vanden Hoven (Health Canada; regulatory)  
Prof. Tomislav Friščić (green chemistry)  
Prof. Nikolas Provatas (partnerships)  
Prof. Manuele Margni (life cycle assessments)  
Prof. Emine Sarigollu (marketplace)
- 3:30p **Discussion Session led by Students**
- 4:00p **Student Posters:** Rapid poster presentations followed by poster social and cash bar



Joel Tickner will discuss some of the drivers of safer chemicals and materials, the challenges of the current science and policy system safer chemistry and outline some of the changes needed to achieve a transition to safer chemicals and products. He will introduce two UMass Lowell initiatives that are trying to address current systems limits, including growing the field of alternatives assessment and informed substitution as well as green chemistry. Alternatives assessment has been defined as a "process for identifying and

comparing potential chemical and non-chemical alternatives that could replace chemicals or technologies of concern on the basis of their hazards, performance, and economic viability." The science policy field has grown tremendously over the past several years, in part due the publication of the 2015 National Research Council Framework to Guide Selection of Chemical Alternatives. In many cases, safer alternatives to chemicals of concern may not exist, in which case research and development of green chemistry alternatives is needed. Green chemistry is the design of chemicals and materials that are less hazardous throughout their lifecycles. The Green Chemistry and Commerce Council (GC3), 125-member business to business network of companies across sectors and the value chain working collaboratively to advance green chemistry adoption.