

# ECE SPEAKER SERIES

Department of Electrical  
and Computer Engineering

## Dr. Federico Rosei

### Multifunctional Materials for Electronics and Photonics

*The bottom-up approach is considered a potential alternative for low cost manufacturing of nanostructured materials. It is based on the concept of self-assembly of nanostructures on a substrate, and is emerging as an alternative paradigm for traditional top down fabrication used in the semiconductor industry. We demonstrate various strategies to control nanostructure assembly (both organic and inorganic) at the nanoscale. We study, in particular, multifunctional materials, namely materials that exhibit more than one functionality, and structure/property relationships in such systems, including for example: (i) control of size and luminescence properties of semiconductor nanostructures, synthesized by reactive laser ablation; (ii) we developed new experimental tools and comparison with simulations are presented to gain atomic scale insight into the surface processes that govern nucleation and growth; (iii) we devised new strategies for synthesizing multifunctional nanoscale materials for electronics and photovoltaics.*

**April 11, 2016 • 10:00am- 11:00am • Egr Bldg 2 Rm W122**

*Federico Rosei has held the Canada Research Chair in Nanostructured Organic and Inorganic Materials since 2003. He is Professor and Director of Institut National de la Recherche Scientifique, Énergie, Matériaux et Télécommunications, Université du Québec, Varennes (QC) Canada. Since January 2014 he holds the UNESCO Chair in Materials and Technologies for Energy Conversion, Saving and Storage. He received MSc and PhD degrees from the University of Rome "La Sapienza" in 1996 and 2001, respectively. In 2014, he has been elected Fellow of the Royal Society of Canada. He is Member of the European Academy of Sciences, Fellow of the American Physical Society, Honorary Fellow of the Chinese Chemical Society, Fellow of the American Association for the Advancement of Science, Fellow of SPIE, Fellow of the Canadian Academy of Engineering, Fellow of ASM International, Fellow of the Royal Society of Chemistry (UK), Fellow of the Institute of Physics, Fellow of the Institution of Engineering and Technology, Fellow of the Institute of Materials, Metallurgy and Mining, Fellow of the Institute of Nanotechnology, Senior Member of the IEEE, Fellow of the Engineering Institute of Canada, Member of the Global Young Academy, Fellow of the Australian Institute of Physics and Member of the Sigma Xi Society.*



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