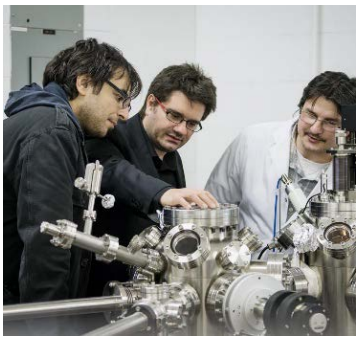
Nomination of Dr. Federico Rosei for the AVS Excellence in Leadership



Dr. Federico Rosei, INRS Centre for Energy, Materials and Telecommunications, www.nanofemtolab.qc.ca; http://matecss.org/; rosei@emt.inrs.ca

Scientific accomplishments: Federico Rosei has made seminal contributions to the development and application of nanomaterials, including breakthrough demonstrations of new materials and techniques, novel strategies to control the growth of organic and inorganic nanostructures and the elucidation of nucleation and crystallization phenomena in Group IV semiconductors. His work has led to new insights in structure/property relationships in several classes of materials, ranging from patterning functional materials and their integration in devices to nanostructuring surfaces to enhance biocompatibility. He is known internationally for his leadership in nanomaterials and their applications in photonics (solid state lighting and photovoltaics) and for pioneering work on the physical and chemical properties of surfaces. He identified new directions in 2D molecular self-assembly, including structures directed by non-covalent forces, and the first demonstration of extended surface confined polymerization using the Ullmann coupling reaction.

Dr. Rosei's influence is supported by his numerous awards and distinctions. He is Fellow of 14 Academies and Societies (including the European Academy of Sciences, the Royal Society of Canada, the American Physical Society and the American Association for the Advancement of Science) and has received 12 major national and international awards (e.g., see http://www.nserc-crsng.gc.ca/Prizes-Prix/Steacie-Steacie/Profiles-Profils/Rosei-Rosei_eng.asp).

In 2014 he received the José Vasconcelos Award for Education from the World Cultural Council, which was established to acknowledge those who have the all-important task of teaching the underlying basis of our present civilization. It is granted to a renowned educator who has significantly advanced the scope of culture for humanity. The receipt of this award is an unequivocal indication of the breadth and importance of Prof. Rosei's contributions to mentor the next generation of scientists and encourage them in their role as global citizens.

Outstanding mentoring: Prof. Rosei has a singularly clear vision of how science and its application can be used as a powerful tool to empower individuals to address humanity's most pressing challenges. He is an advocate of a global approach to societal development through scientific knowledge and innovation, inspiring and educating people and giving opportunities to young aspiring scientists, regardless of their background or origin. Through his vision and talent he has built a global network of young researchers, many of whom received prestigious fellowships and awards and obtained leading positions both in science and in society. His commitment to materials research is matched by his effort to mentor and train the next generation of scientists and to foster diversity, having already drawn over one hundred trainees from 30 countries on all six continents, many of whom have returned home to practise and teach science. Nearly one-quarter of these trainees are women.

His efforts in this arena extend well beyond his own research group. He has also created a graduate course to enhance soft professional skills in young scientists and delivered it to hundreds of students and postdocs, through a traditional course format and during intensive two-day workshops. He has given over 40 lectures in universities worldwide and 12 invited talks at international conferences on Survival Skills. The popularity of his best-selling book *Survival Skills for Scientists* (published in 2006, translated into Japanese in 2008) clearly indicates the value of his advice on professional development.

In an effort to bridge the scientific and technological knowledge gap in developing countries, Rosei has launched initiatives to aid materials research in the South. He has given invited lectures at conferences in many developing countries along with numerous seminars in academic institutions (48 in total since 2003). He concretized his vision by establishing the UNESCO Chair in Materials and Technologies for Energy Conversion, Saving and Storage (MATECSS), of which he is the inaugural chair holder at INRS (MATECSs.org/). The creation of MATECSS bears testimony to his strong connections with scientists the world over and demonstrates the reach of his education influence.

Short biography: Federico Rosei received M.Sc. (1996) and Ph.D. (2001) degrees from the University of Rome *La Sapienza*. He is Professor and Director of Institut National de la Recherche Scientifique, Énergie, Matériaux et Télécommunications, Varennes (QC) Canada. He has held the Canada Research Chair in Nanostructured Organic and Inorganic Materials since 2003. Dr. Rosei's research interests focus on the properties of nanostructured materials, and on how to control their size, shape, composition, stability and positioning on suitable substrates. He has published 190^{+} articles, given 190^{+} invited talks at international conferences and delivered 170^{+} seminars and colloquia in 42 countries. His publications have been cited over 5300 times (h-index 41). Moreover, he has delivered 20 public lectures on energy and society reflecting his passion for education, clean energy, sustainability, and outreach.