

**Department of Electrical and Computer Engineering
Materials Engineering Program**

**Texas Center for Superconductivity at Univ. of Houston
Center for Integrated Bio and Nano Systems**

4:00 p.m., June 17, 2022

102D, Engineering Building 1

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Mentorship for Young Scientists: Developing Scientific Survival Skills

Federico Rosei

**Centre for Energy, Materials and Telecommunications
Institut National de la Recherche Scientifique
Varenes (QC), Canada**

Abstract:

In this lecture, I will try to convey a feeling for our course on “Survival Skills for Scientists” [1]. This is a graduate course designed and developed in my department, in which we give basic advice and offer mentorship to our graduate students and post-docs. The central theme of this presentation is that succeeding in Science requires skills (often referred to as ‘soft professional skills’) beyond those needed for Science.

The lecture aims at giving basic guidance and mentoring to young scientists (typically science and engineering undergraduate and first year graduate students).

The main topics are:

- The job market for graduates in science and engineering (industry, national labs and academia; advantages and disadvantages)
- Funding in modern science
- Publish or perish; publishing quality papers, having an impact
- Presenting your work to your peers
- The fundamental laws of ‘scientific survival’ (know yourself, plan ahead, and play chess)
- Ethics in modern science
- Alternative careers

References

[1] F. Rosei, T.W. Johnston, “Survival Skills for Scientists”, Imperial College Press (2006).



Short Bio:

Federico Rosei (MSc (1996) and PhD (2001) from the University of Rome “La Sapienza”) is Full Professor at the Centre Énergie, Matériaux et Télécommunications, Institut National de la Recherche Scientifique, Varennes (QC) Canada, where he served as Director (07/2011–03/2019). He held the Canada Research Chair (Junior) in Nanostructured Organic and Inorganic Materials (2003–2013) and since May 2016 he holds the Canada Research Chair (Senior) in Nanostructured Materials. Since January 2014 he holds the UNESCO Chair in Materials and Technologies for Energy Conversion, Saving and Storage.

Dr. Rosei’s research interests focus on structure/property relationships in nanomaterials and their use as building blocks in emerging technologies. His research has been supported by multiple funding sources from the Province of Quebec, the Federal Government of Canada as well as international agencies, for a total in excess of M\$ 18. He has worked in partnership with over twenty Canadian R&D companies. He is co-inventor of three patents and has published over **425** articles in prestigious international journals (including *Science*, *Nature Photonics*, *Proc. Nat. Acad. Sci.*, *Adv. Mater.*, *Angew. Chem.*, *J. Am. Chem. Soc.*, *Adv. Func. Mater.*, *Adv. En. Mat.*, *Nanolett.*, *ACS Nano*, *Biomaterials*, *Small*, *Phys. Rev. Lett.*, *Nanoscale*, *Chem. Comm.*, *Appl. Phys. Lett.*, *Phys. Rev. B*, etc.), has been invited to speak at over **340** international conferences and has given over **250** seminars and colloquia, over **60** professional development lectures and **40** public lectures in **48** countries on all inhabited continents. His publications have been cited over **19,800** times and his H index is **75**.

He is Fellow of numerous prestigious national and international societies and academies, including: the Royal Society of Canada, the European Academy of Science, the Academia Europaea, the European Academy of Sciences and Arts, the African Academy of Sciences, the World Academy of Art and Science, the World Academy of Ceramics, the American Physical Society, AAAS, the American Ceramic Society, the Optical Society of America, SPIE, the Canadian Academy of Engineering, ASM International, the Royal Society of Chemistry (UK), the Institute of Physics, the Institution of Engineering and Technology, the Institute of Materials, Metallurgy and Mining, the Engineering Institute of Canada, the Australian Institute of Physics, Honorary Fellow of the Chinese Chemical Society, Foreign Member of the Mexican Academy of Engineering, Foreign Member of the Bangladesh Academy of Sciences, Senior Member of IEEE, Alumnus of the Global Young Academy and Member of the Sigma Xi Society.

He has received several awards and honours, including the FQRNT Strategic Professorship (2002–2007), the Tan Chin Tuan visiting Fellowship (NTU 2008), the Senior Gladden Visiting Fellowship (UWA 2009), Professor at Large at UWA (2010–2012), a Marie Curie Post-Doctoral Fellowship from the European Union (2001), a junior Canada Research Chair (2003–2013), a senior Canada Research Chair (2016–2023) a Friedrich Wilhelm Bessel Award (von Humboldt foundation 2011), the Rutherford Memorial Medal in Chemistry (Royal Society of Canada 2011), the Herzberg Medal (Canadian Association of Physics 2013), the Brian Ives lectureship award (ASM international 2013), the Award for Excellence in Materials Chemistry (Canadian Society for Chemistry 2014), the NSERC EWR Steacie Memorial Fellowship (2014), the José Vasconcelos Award for Education (World Cultural Council 2014), the IEEE NTC Distinguished Lectureship 2015–2016, the Lash Miller Award (Electrochemical Society 2015), the Chang Jiang Scholar Award (China), the Khwarizmi International Award (Iran), the Recognition for Excellence in Mentorship (American Vacuum Society 2015), the Selby Fellowship (Australian Academy of Sciences 2016), the John C. Polanyi Award (Canadian Society for Chemistry 2016), the Outstanding Engineer Award (IEEE Canada 2017), the President’s Visiting Fellowship for Distinguished Scientists (Chinese Academy of Sciences 2017), the Sigma Xi Distinguished Lectureship (2018–2020), the Sichuan 1000 talent (short term) award, the Lee Hsun Lecture Award (2018), the Changbai Mountain Friendship Award (2018), the IEEE Montreal Gold Medal (2018), the APS John Wheatley Award (2019), the Blaise

Pascal Medal (European Academy of Science 2019), the IEEE Photonics Society Distinguished Lectureship (2020–2022), the Guangxi Golden Silkball Friendship Award, the TMS Brimacombe Medal (2021), the Wolfson Fellowship (Royal Society), the Prix Urgel Archambault (ACFAS 2021), the Prix du Quebec “Marie Victorin” (2021) and the Julian C. Smith Medal (Engineering Institute of Canada 2022).

Please contact Dr. Jiming Bao <jbao@uh.edu> if you want to meet with the speaker.