

Post-doctoral / PhD student positions in two-dimensional molecular assembly and surface confined polymerization

We seek highly motivated young scientists with excellent research track-records to work on surface confined polymerization reactions on atomically clean and flat substrates [1]. Multiple positions at the post-doctoral and PhD student level are available. Our approach focuses on using traditional techniques of surface science to create novel molecular architectures, and to find unusual electronic properties in pi-conjugated organic materials. To this end we are exploring the surface confined polymerization of a variety of custom-designed building blocks, having recently demonstrated the simple case of Ullmann dehalogenation and subsequent polymerization of isomeric diiodobenzenes on Cu(110) [2]. The selected candidate(s) will also have the opportunity to work on other projects related to supramolecular assemblies at surfaces and surface functionalization [3-8]. These projects are carried out in close collaboration with Prof. D.F. Perepichka's group at McGill University.

The ideal candidate for this position will have experience in Ultra High Vacuum technology and Scanning Probe Microscopy, particularly Scanning Tunnelling Microscopy. Experience with other surface sensitive techniques (X-Ray Photoelectron Spectroscopy, Low Energy Electron Diffraction, Auger Electron Spectroscopy) is highly desirable.

Currently the Nano-Femto Laboratory at INRS is equipped with three separate UHV Scanning Probe Microscopes (Omicron Variable Temperature STM/AFM, JEOL STM/AFM/SEM, SPECS 'Aarhus'-type fast scanning STM). The NFL investigates the growth, processing and characterization of a variety of nanostructured materials. For more details on NFL activities please visit our website, www.nanofemtolab.qc.ca.

INRS is located on the south shore of greater Montreal, which is among the cities in North America with best living conditions.

To apply, please send a cover letter indicating your experience, interest in this particular project and longer term goals and career plans, as well as a detailed CV and publication list by email to: rosei@emt.inrs.ca, with cc to dmitrii.perepichka@mcgill.ca.

Incomplete applications or applications from candidates lacking the necessary qualifications will not receive any reply. Applicants with multiple post-doc experiences or with more than 4 years of post-PhD experience will not be considered.

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[3] O. Ivasenko, J.M. MacLeod, K.Yu. Chernichenko, E.S. Balenkova, R.V. Shpanchenko, V.G. Nenajdenko, F. Rosei, D.F. Perepichka, Supramolecular assembly of heterocirculenes in 2D and 3D, *Chem. Commun.* **10**, 1192–1194 (2009).

[4] J.A. Miwa, F. Cicoira, J. Lipton-Duffin, D.F. Perepichka, C. Santato, F. Rosei, Self-assembly of rubrene on Cu(111), *Nanotechnology*, **19**, 424021(2008).

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[6] K.G. Nath, O. Ivasenko, J.M. MacLeod, J.A. Miwa, J.D. Wuest, A. Nanci, D.F. Perepichka, F. Rosei, Crystal Engineering in Two Dimensions: An Approach to Molecular Nanopatterning, *J. Phys. Chem. C*, **111**, 16996 (2007).

[7] J. MacLeod, O. Ivasenko, D.F. Perepichka, F. Rosei, Stabilization of exotic minority phases in a multicomponent self-assembled molecular network, *Nanotechnology*, **18**, 424031 (2007).

[8] K.G. Nath, O. Ivasenko, J.A. Miwa, H. Dang, J.D. Wuest, A. Nanci, D.F. Perepichka, F. Rosei, A Rational Modulation of the Periodicity in Linear Hydrogen-Bonded Assemblies of Trimesic Acid on Surfaces, *J. Am. Chem. Soc.*, **128**, 4212 (2006).