

Post Doctoral Fellow Position:

Synthesis and Characterization of Self-Assembling Polymers for Applications in Water Remediation (Code: PDF-STAR)

Position title: PDF

Effective Date (R&U): April 1, 2018 to April 1, 2020

Background

The U of A's Advanced Water Research Lab is collaborating with IBM-Almaden Research and the NRC Nanotechnology Research Centre in advancing water remediation processes. The technology involves self-assembling star block copolymers on water purification membrane surfaces to generate resilient anti-fouling coatings. This project is partially funded by the Alberta-IBM Centre for Advanced Studies.

Challenge

The incumbent will use synthetic organic chemistry to functionalize star block copolymer nanoparticles and work with the team to characterize and optimize the nanoparticle coatings for performance in specific oil and gas related water purification processes.

Key Activities

Key activities include the following:

- Synthesis of block copolymers
- Synthesis of novel monomers for incorporating into copolymers
- Processing block copolymers to provide resilient coatings
- Characterization of monomers, polymers and polymeric assemblies
- Presenting results to the team.
- Writing technical reports and peer reviewed publications

Statement of Qualifications

Education:

Ph.D. in organic and/or polymer chemistry.

Experience:

Instrumentation with which the PDF must be familiar include:

- Scanning Electron Microscopy
- Atomic Force Microscopy

- X-Ray Diffraction
- Dynamic Light Scattering and Z-potential
- Gel Permeation Chromatography (GPC)
- NMR Spectroscopy
- Mass Spectrometry
- FTIR
- UV-vis spectroscopy
- XPS

Technical Competencies:

- A deep knowledge of synthetic organic chemistry and knowledge of polymer chemistry is required, with a proven track record.
- Knowledge of the principles of self-assembly.
- Knowledge of laboratory safety.
- Knowledge of surface characterization techniques, such as those listed above.
- Ability to communicate effectively in English
- Ability to work as part of a multidisciplinary team and with people at all levels
- Ability to learn and acquire new skills and techniques.

How to apply

Please include the CODE: PDF-RENE in your application. Interested candidates should send their CV and the names of three references by e-mail to:

Dr. Mohtada Sadrzadeh, Ph.D., P.Eng.
Assistant Professor
Department of Mechanical Engineering
10-367 Donadeo Innovation Center for Engineering
6-074 National Institute for Nanotechnology (NINT)
Advanced Water Research Lab (AWRL)
University of Alberta, Edmonton, AB Canada, T6G 1H9
Email: sadrzade@ualberta.ca
Website: www.awrl.ca