University of Toronto
Faculty of Applied Science and Engineering
Mechanical and Industrial Engineering Department

September 16, 2021

Area of Research: **Stable and Scalable Systems Development for CO_2 electrocatalysis**

The carbon dioxide (CO_2) reduction reaction (CO_2RR) converts CO_2 into fuels and chemical feedstocks, and can be powered by renewable electricity. It is a promising route to close the carbon cycle; however, stable and efficient systems must be developed to translate these electrolyzers to commercial devices.

Description of Duties: The Sinton group at the University of Toronto seek an exceptional PDF to contribute to collaborative projects in the reduction of CO_2 and CO to valued products, ethanol and ethylene, paired with oxidation reactions. The main project focus will be developing membrane electrode assemblies and systems to carry-out these reactions as part of an NSERC-funded project. The candidate will integrate catalyst materials into membrane electrode assemblies while optimizing for energy efficiency and stability, as well as demonstrating a scalable design. The principal goal of the PDF will be first-authored publications in high-impact journals and the development of intellectual property, accompanied with an expectation that the PDF will devote a fraction of time to co-mentoring graduate students in the group.

Required Qualifications: Candidates must have a PhD in a relevant field. Excellent communication skills, strong independent research skills, and sensitivity to industry partner direction are also required. The applicant will be expected to work independently, provide leadership to an interdisciplinary team of graduate students, and produce publishable results.
Candidates will bring proven expertise in one or more of the following domains:

- Electrochemical systems, fuel cell systems
- Electrochemistry, electrocatalysis
- Chemical process engineering, process chemistry
- CO_2RR, CORR
- Nanomaterial catalyst synthesis

Ideal candidates are leaders that excel at motivating and managing small teams; have excellent organizational and time-management skills; and have excellent communication skills, including the capacity to offer thoughtful and clear technical guidance on research projects.

Salary: $55,000/year

Expect start date: Immediate

Term: 1 year term with possible renewal

FTE: 100%

Posting Date: September 16, 2021
Closing date: September 30, 2021

The normal hours of work are 40 hours per week for a full-time postdoctoral fellow (pro-rated for those holding a partial appointment) recognizing that the needs of the employee's research and training and the needs of the supervisor's research program may require flexibility in the performance of the employee's duties and hours of work.

Application Instructions: Applications should be sent by September 23, 2021, to Dave Sinton (sinton@mie.utoronto.ca). Please use the subject line "PDF-Scalable CO2RR" to reference this opportunity. Evaluation of candidates will begin immediately, and continue until filled.

Employment as a Postdoctoral Fellow at the University of Toronto is covered by the terms of the CUPE 3902 Unit 5 Collective Agreement. This job is posted in accordance with the CUPE 3902 Unit 5 Collective Agreement.

The University of Toronto is strongly committed to diversity within its community and especially welcomes applications from racialized persons/ persons of colour, women, Indigenous/ Aboriginal People of North America, persons with disabilities, LGBTQ persons, and others who may contribute to the further diversification of ideas.