

**Posting: September 16, 2021**

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

**Area of Research: Advanced fluids and materials for renewable geothermal energy**

In contrast to intermittent renewables, geothermal energy can provide renewable baseload power on a continuous or dispatchable basis. Traditional geothermal systems are limited by cost and the need for specific geology. Closed-loop geothermal systems have the potential improve upon traditional systems by employing advanced thermal working fluids that increase performance. However, the application of such fluids entails the careful design of the working fluid properties, and entrained materials, according to geo-loop conditions.

**Description of Duties:** The Sinton group at the University of Toronto seeks an exceptional PDF to contribute to collaborative projects in closed-loop geothermal energy recovery using advanced fluids and materials, including, but not limited to, phase change materials. The project involves an experimental investigation of available materials for closed-loop geothermal as well as chemical treatment of the available materials to improve geo-loop performance. The PDF will be a member of industrial fluids team. The principal goal of the PDF will be first-authored publications in high-impact journals, 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 Ph.D. in materials engineering, chemical engineering, energy engineering, mechanical engineering, or other relevant fields. Excellent communication skills, strong independent research skills, and the ability to work productively with industry partners are also required.

The applicant will be expected to work independently, provide leadership to an interdisciplinary team of graduate students, and produce outstanding published work.

Candidates will bring proven expertise in one or more of the following domains:

- Phase change material
- Chemical synthesis/treatment
- Thermal fluids
- High pressure/temperature experiments
- Flow experiments
- Rheology analysis
- Thermophysical property measurements

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:** November 1, 2021

**Term:** 1 year term with possible renewal

**FTE:** 100%

**Posting Date:** September 16, 2021

**Closing date:** October 15, 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 October 1, 2021, to Dave Sinton (sinton@mie.utoronto.ca). Please use the subject line "PDF- Geothermal" 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.