



## UNIVERSITY OF CALGARY

### MSc position at the University of Calgary

In 2016, the University of Calgary was awarded \$75 million over seven years from the [Canada First Research Excellence Fund](#) (CFREF) for its initiative entitled: “*Global Research Initiative in Sustainable Low carbon Unconventional Resources*”. The goal of this research is to dramatically reduce the impact of energy extraction and production on the environment.

As part of the implementation of its GRI scientific strategy and to improve hydrocarbon recovery, while reducing emissions and energy intensity, we are looking to fill several positions to investigate the use of novel additives in Oil Sands Recovery Processes.

We seek applications from qualified and motivated young scientists with a passion for clean energy and interdisciplinary research to fill the following position:

#### **MSc position in Enzyme Enhanced Oil Recovery**

Enhanced oil recovery (EOR) is a highly dynamic process that can be achieved by reducing oil viscosity, improving oil displacement (reducing interfacial tension), and modulating the rock-surface wettability. Principally, enzymes hold great advantages in EOR process; (i) enzymes can hydrolyze some crude oil components to reduce its viscosity, (ii) enzyme surface is amphiphilic (with both hydrophilic and hydrophobic functional groups), which enables enzymes to act as surfactant by minimizing interfacial tension between oil and water/solvent phases (emulsification), (iii) the high affinity of enzyme to water/solvent-solid interface allows enzymes to improve wettability of the rock surface towards oil recovery.

We welcome applications from candidates with a background in Chemical or Biochemical engineering or related disciplines with a strong interest in biochemistry, enzymology, piloting and process scale-up, and process optimization. The student will be responsible for evaluating several enzymes and biochemical pathways for enhanced oil recovery. The students will work in a multidisciplinary research environment and will learn and apply genetic manipulation approaches to edit/modify the DNA sequence and create new characteristics of these enzymes. Students will use enzyme immobilization technologies (immobilize enzyme on nanoparticles) to improve enzyme stability and also improve the interaction of enzymes and targeted substrates. Students will also perform genome mining of related micro-organisms using bioinformatic tools to identify novel targets (enzymes) and homologs across enzyme families.

For more information and to apply for this position, contact Dr. Jinguang Hu ([jinguang.hu@ucalgary.ca](mailto:jinguang.hu@ucalgary.ca)).

MSc and PhD students are expected to follow the rules outlined by the hosting department. All students and post-doctoral fellows will be expected to apply for major funding opportunities they are eligible for (e.g. NSERC, Killam, AITF, Banting)

In addition, each candidate will be required to work within a team environment and so excellent communication skills and the ability to work effectively with a diverse group of interdisciplinary researchers is a must.

Applications should consist of a current CV, a list of 2-3 referees with contact information and a cover letter indicating which area you are interested in, as well as your availability.

We would also like to invite you to complete and submit the optional **Employment Equity Applicant Data Survey** that can be found at the end of this posting, along with your application. In assembling the CFREF research teams, aggressive diversity and equity targets are in place and so applications from qualified female candidates are especially encouraged.<sup>1</sup>

The position is available immediately and the search will continue until the team is assembled. In assembling the GRI research teams, aggressive diversity and equity targets are in place and so applications from under-represented groups are especially encouraged. To be eligible as a PhD student at the University of Calgary, the candidate must meet Faculty of Graduate Studies minimum admission requirements, as well as the admission requirements specific to the graduate program of interest as the program requirements may call for higher scores, additional documentation and testing. Please review the Faculty of Graduate Studies admission requirements prior to applying for this position.

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<sup>1</sup> *The University of Calgary recognizes that a diverse staff/faculty benefits and enriches the work, learning and research experiences of the entire campus and greater community. We are committed to removing barriers that have been historically encountered by some people in our society. We strive to recruit individuals who will further enhance our diversity and will support their professional success while they are here. We encourage all qualified applicants to apply.*



We would like to invite you to complete the following optional **Employment Equity Applicant Data Survey**. This information is collected to assist the University of Calgary in meeting our obligations under the Federal Contractor Program and to evaluate our selection processes. Please read the questions below carefully and make the appropriate response. Note that submission of this information is voluntary and refusal to complete the survey will not adversely affect your application. **The information you provide is confidential** and will be used for data reporting requirements and will not be utilized in making any employment decisions.

**Thank you in advance for your participation in this survey.** This information is collected under the authority of the Freedom of Information and Protection of Privacy Act and the Employment Equity Act. If you have questions about the collection of this information, please contact Human Resources at [eequity@ucalgary.ca](mailto:eequity@ucalgary.ca).

1. For the purposes of employment equity, women are a designated group. Do you self-identify as a woman?
  
2. Aboriginal Persons - For the purposes of employment equity, "aboriginal person" includes North American Indian, Métis, or Inuit person and/or member of a North American First Nation. An Aboriginal Person may have treaty status or a non-status, and a registered or non-registered Indian (as defined by the Indian Act, 1985) Based on this definition, are you an Aboriginal person?
  
3. Persons with Disabilities - For the purposes of employment equity, "persons with disabilities" means persons who have a long-term or recurring physical, sensory, psychiatric or learning impairment and who (a) consider themselves to be disadvantaged in employment by reason of that impairment, or (b) believe that an employer or potential employer is likely to consider them to be disadvantaged in employment by reason of that impairment, and includes persons whose functional limitations owing to the impairment have been accommodated in their current job or workplace. Based on this definition, are you a person with a disability?

4. Visible Minorities - For the purposes of employment equity, “visible minorities” means persons, other than aboriginal persons, who are non-Caucasian in race or non-white in colour. Based on this definition, are you a member of a visible minority?