



PhD studies in Montréal (Québec, Canada) Fluid mechanics, combustion and acoustics

One PhD position is available in experimental fluid mechanics, more specifically on multiphase and reactive flows. The project aims at developing and characterizing techniques to manipulate and control particles suspended in gaseous flows, either upstream, downstream or in combustion zones. These techniques will include, but not be limited to, the use of acoustic forces to manipulate the particles.

Though fundamental in nature, this research project has the potential to contribute significantly and rapidly to the advancement of knowledge in several technical areas such as: the synthesis of nanomaterial, biofuel combustion and nanoparticle sampling. Understanding of the physical and chemical processes involved will be acquired through small-scale tests in controlled conditions, using advanced diagnostic techniques. These will include aerosol spectrometry, laser induced fluorescence (LIF), laser induced incandescence (LII) and high-speed imaging.

Description of position

One PhD position is available, with starting date in winter/spring 2018. Other graduate positions may become available in 2018. The research activities planned are:

1. **Experimental** development and characterisation of combustion facilities and acoustic manipulation techniques. This position requires aptitudes for laboratory work and a strong background in fluid mechanics, chemistry or physics.
2. **Modeling** acoustic manipulation processes for very small particles. Programing and simulation experience, for instance using Matlab, is a strong asset.

Qualifications

The required background for these positions is a Master of Science (MSc or equivalent). Candidates with diplomas in mechanical, physical or chemical engineering will be preferred. Excellent communication skills in technical English (both oral and written) are essential. The selection process will be made based on academic merit, language skills and publication record. The applicants must be strongly motivated for graduate studies and be able to work independently towards the objectives of the project.

Application

Individuals interested in joining the project should send:

1. Brief curriculum vitae along with their most recent academic grade transcripts;
2. An example of technical writing in English where the applicant is the main author (paper, report or master thesis for example).

3. A list of publications (if applicable) where one section is devoted to articles accepted/published in international refereed journals and one other section where all the other communications (conferences, books, papers not written in English, etc.) are listed;
4. A one-page letter explaining the expertise of the candidate and relevant contributions to research.

Applications should be sent by email to Prof. Etienne Robert: etienne.robert@polymtl.ca.

Incomplete or non-conform applications will not be considered. The applications received will be evaluated as they arrive, starting on October 1 2017, aiming for a project start for the winter or spring 2018 academic terms.

About Polytechnique Montréal

Founded in 1873, Polytechnique Montréal is one Canada's top engineering teaching and research institutions and first in Québec for the size of its student body and the scope of its research activities.