Ph.D. in Computational Fluid Dynamics
University of Massachusetts, Lowell

Job Title	Ph.D. in Computational Fluid Dynamics
Department	Mechanical Engineering https://www.uml.edu/engineering/mechanical/
Institution	University of Massachusetts, Lowell Lowell, Massachusetts
Date Posted	Dec. 6, 2017
Application Deadline	January 2018
Position Start Date	August 2018
Job Categories	Graduate Student
Academic Field(s)	Sustainable Engineering Mechanical Engineering Engineering Physics Computer Engineering Aerospace/Aeronautical/Astronautics Engineering - Other
Apply By Email	cfdsearch.uml@gmail.com

Job Description

Ph.D. in Computational Fluid Dynamics of Plasma Flows

To enable a future based in renewable electricity, electric power has to be channeled to produce the reactivity that fuels society. Plasmas - electrically-conducting gases formed by electrical discharges - are ideal means to produce such reactivity, as amply exploited in diverse applications in materials, manufacturing, and energy. An especially important research frontier is the interaction of plasma with liquids, found in novel applications in materials and chemical synthesis, environmental remediation, bioengineering and medicine.

Ph.D. in Computational Fluid Dynamics
University of Massachusetts, Lowell

Plasma flows are reactive electromagnetic gas flows that present some remarkable microscopic and macroscopic characteristics, from unique chemical kinetics to self-organization. The computational description of plasma flows present compound challenges found in other Computational Fluid Dynamic (CFD) applications, such as multi-scale resolution, multi-physics coupling, and multi-phase interactions.

We invite applications for up to two Ph.D. research assistantship positions in the Department of Mechanical Engineering at the University of Massachusetts Lowell (UMass Lowell). The successful applicants will work under the supervision of Prof. Juan Pablo Trelles to conduct research in novel numerical methods for plasma-liquid flows. More information about research being conducted at Prof. Trelles' lab is found in: http://faculty.uml.edu/Juan_Pablo_Trelles/ and https://www.uml.edu/Research/Energy/. The assistantships include complete tuition and fees waivers and graduate student stipends.

Qualifications:

• B.S. or M.S. degree in Mechanical Engineering, Chemical Engineering, Aerospace Engineering, Applied Mathematics, or closely related areas.
• Experience in numerical methods and computational fluid dynamics.
• Programming experience (preferably in C++/C or Fortran).
• Good English communication skills (writing and oral).

Desired Experience:

• Plasma, reacting, compressible, and/or magnetohydrodynamic flows.
• Finite element methods, or other unstructured mesh methods.
• Use and development of large-scale CFD codes.
• High performance computing (Linux development, profilers, parallel processing).

To Apply:

Interested applicants should send as a single PDF document to: cfdsearch.uml@gmail.com containing:

(1) Resume/Curriculum Vitae.
(2) Copies of transcripts.
(3) Copies of relevant publications, professional (journal articles, conference proceedings) or academic (project reports, academic thesis).

Optional:

Ph.D. in Computational Fluid Dynamics
University of Massachusetts, Lowell

(4) Samples/portions of computing codes authored by the applicant.
(5) TOEFL and GRE scores (needed to apply to Graduate programs in the U.S.).

Successful applicants will be directed to apply to the Department of Mechanical Engineering (https://www.uml.edu/Catalog/Graduate/Engineering/Mechanical-Engineering/Doctoral-Program.aspx). Prof. Trelles will arrange the waiving of application fees. Review of submissions will begin December 18, 2017 and will proceed until January 19, 2018.

About Lowell and UMass Lowell:

The city of Lowell is located at a 30-minute ride from Boston, in the high-tech region of Massachusetts in the U.S. northeast coast. Lowell is among the most cosmopolitan cities in the U.S., has a rich history as the cradle of the industrial revolution, and its downtown area is a National Historical Park. More information about the city of Lowell, please visit: http://www.likelowell.com.
UMass Lowell has a distinguished reputation in science and engineering and is committed to educating students for lifelong success and conducting high-quality research. UMass Lowell is a Carnegie Doctoral High Research university and is ranked in the top tier of the US News and World Report's national university ranking. Annual funded research expenditures exceed $60 million and research is deeply integrated throughout the campus, including 37 interdisciplinary centers and institutes. For example, the new $80 million interdisciplinary Emerging Technologies and Innovation Center houses state-of-the-art facilities for advanced materials, manufacturing, nanotechnology, and energy research. UMass Lowell is within the 5 most rapidly growing institutions among academic rankings in the U.S. The Department of Mechanical Engineering has more than 30 faculty, 200 graduate, and 600 undergraduate students.

EEO/AA Policy

The University of Massachusetts Lowell is an Equal Opportunity/Affirmative Action, Title IX employer. All qualified applicants will receive consideration for employment without regard to race, sex, color, religion, national origin, ancestry, age over 40, protected veteran status, disability, sexual orientation, gender identity/expression, marital status, or other protected class

Contact Information

Ph.D. in Computational Fluid Dynamics
University of Massachusetts, Lowell

Contact Prof. Juan Pablo Trelles
Mechanical Engineering
University of Massachusetts, Lowell
UMass Lowell, Mechanical Engineering
One University Avenue
Lowell, MA 01854

Contact E-mail cfdsearch.uml@gmail.com