

Position: Master (MSc)

Period: Fixed, 24 months.

Research Program: Methane to Products (M2P)

Project title: Project 15 - Studies of the high temperature conversion of methane in solid oxide electrochemical reactors

Research theme area: High temperature conversion of methane, Solid Oxide Fuel Cell, SOFC, SOEC, mixed and ionic conductor materials, cerium oxide-based nanomaterials synthesis, heterogeneous catalysis, chromatography and mass spectrometry, thin films.

Deadline: July 05, 2019

Lead institution: Instituto de Pesquisas Energéticas e Nucleares

Work Address of the position: Avenida Lineu Prestes, 2242, Cidade Universitária, São Paulo – SP

Supervisor: Fabio Coral Fonseca - fabiofcf@usp.br

Department: CCHH

Phone: (11) 3133-9282

Co-supervisor: Daniel Z. de Florio - dzflorio@usp.br

Department: CECS (UFABC)

Phone: (11) 3356-7499

Submission & documents:

Candidates should send the requested documentation to the e-mail opportunities.m2pcine@gmail.com until July 5, 2019, containing the following attachments:

- Updated CV (with a link to the Lattes Curriculum, if applicable);
 - A copy of the academic record/academic transcript of both graduate and undergraduate courses (as applicable);
 - A motivation letter highlighting your background and research interests (preferably in English, or in Portuguese).
-

Summary:

The main goal is to develop a stable and high-performance reversible solid oxide reactor to study both electrolytic and galvanostatic reactions of methane at high temperature. Such reactions will be explored to result in high-value products such as methanol. The main challenge is to control the reaction paths and the system stability in both fuel cell-like (SOFC) and electrolysis (SOEC) modes.

The present Master position is suited for a highly skilled individual willing to develop research and innovation in the area of energy. Specifically, the workplan of the present position is devoted to advancing electrochemical systems for methane conversion by an emerging cutting-edge field in catalysis, based or supported on ceramic materials.

It also aims to create the conditions for the selected candidate to obtain a high-level master dissertation, and to lead the individual to be highly skilled in research and scientific writing. Being successful, these outcomes would lead the student to suitably reach the next step in the professional career, independently if in industry or academia.

Requirements to fill the position:

Motivated prospective candidates with a degree in Physics, Chemistry, Materials Science, Engineering, or in related disciplines are invited to apply. Prior experience in the synthesis and characterization of ceramic materials and in electrochemistry are highly valued, albeit not required. Applicants should also be able to demonstrate excellent written and oral communication skills, which will be essential for collaborations within CINE, disseminating the results via journal publications and attendance at international conferences. Candidates completing undergrad studies by July/2019 are also highly welcome to apply for this position.

Funding Notes:

This Master studentship is funded by Shell, through the foundation FUNDEP. The studentship will cover a standard maintenance stipend of R\$26,934.24 per annum (R\$2,244.52 per month).