Institut de Recerca en Energia de Catalunya
Catalonia Institute for Energy Research

Research Position on Alcohol Reforming to Hydrogen

The Sustainable Fuels group announces a first stage researcher position (R1) in the field of chemical engineering and catalysis. The candidate will work on developing breakthrough material and process engineering concepts for the methanol and ethanol refoming to hydrogen.

The candidate will join the thermo-catalytic laboratory activities of the ROAD2H2 project (Dual Compact Reformer for Hydrogen Generation). The main aim of the overall Project is to develop a dual compact reforming reactor for hydrogen production in collaboration with industrial companies. Focusing on ethanol and methanol as hydrogen carriers, the project leverages additive manufacturing and Atomic Layer Deposition for innovative technology integration.

We offer a 3 years research contract (with extension possibilities). Joining a team of highly qualified and motivated researchers working in the frontiers of knowledge in science and technology, and industrial collaboration with leading industries in the energy field.

Tasks

The candidate will work on advanced catalyst and innovative reactor design to enhance hydrogen conversion efficiency, and will test the performance of both technologies at lab and pilot-scale for use in vehicles.

The main tasks will be:

- Prepare a catalytic reaction system for alcohol reforming
- Commission the setup
- Conduct catalytic tests
- Develop kinetic models
- Validate innovative 3D-printed reactors with catalytic coating
- Operate the pilot reforming plant
- Result analysis, writing and oral communication activities
- LCA analysis
- Active collaboration with industrial partners

Selection criteria

We are looking for a highly motivated researcher, methodical, team player and results-oriented with writing and communication skills.

- BSc/MSc in Chemical Engineering, Renewable Energies, or related with an outstanding academic qualification record. Candidates who are in the final phase of the official master's degree will be considered
- Experience in experimental studies (TFG, TFM, practices) related to the chemical reactor engineering; catalysis synthesis, characterization and evaluation
- Experience with CFD simulations, preferably with Ansys
- Experience with LCA software, preferably with Gabi
- Fluent English, Catalan and Spanish

- Prior participation in research projects related to the subject.
- Aimed at solving a problem related to energy transition and economy decarbonization.

What we offer:

A 3-year contract (with extension possibilities to complete the PhD), a salary corresponding to the category as stated in the professional career plan of IREC.

Incorporation

The candidate should be available for incorporation in January 2025.

Application

Applicants should send a detailed Curriculum Vitae and a motivation letter to irecjobs@irec.cat (with copy to Dr. Jordi Guilera, jguilera@irec.cat) indicating "ROAD2H2".

Deadline for applications: 15/11/2024

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