



DLR – DAAD Fellowships

Fellowship No. 413

Research Area : Energy

Research Topic: **Chemical process engineering simulation of energy and chemical plants utilizing electrochemical ceramic membrane reactors**

DLR Institute: Institute of Engineering Thermodynamics, DLR Stuttgart

Position: Postdoctoral Fellow

Openings: 1

Job Specification: The utilization of large ECMR (electrochemical ceramic membrane reactor) modules in energy and chemical plants is being investigated simulatively and experimentally within the research group. The Postdoctoral Fellow's focus will be the support of that research using transient (Dymola/Modelica) and stationary (Aspen Plus®) chemical process modelling and simulation. Additionally the Fellow will support design, construction and operation of complex system-test environments. The tasks include:

- Creation of models for ECMR modules, a library of process engineering submodels and concrete process energy plants
- Validation of these models based on experimental data
- Development of methods and investigation strategies for the process engineering research of energy plants and implementation of those
- Development of the chemical process engineering test beds and support of construction and experimental operation
- Identification of new application fields of ECMR reactors e.g. in direct electrochemical synthesis
- Concept development and realization of project proposals for existing and identified new application fields

- Required Qualification:** PhD in energy engineering, chemical process engineering or related fields, expert experience in chemical process systems modelling and simulation
- Advantageous Skills:** Expert knowledge in the areas of thermodynamics, heat transfer, reaction engineering (reaction kinetics, reactor modelling) and energy systems engineering, expert knowledge in electrochemistry and fuel cells, expert experience in transient process system modelling (e.g. Dymola/Modelica)
- English competence:** See requirements on www.daad.de/dlr
Fluent spoken and written
- Earliest Start Date:** As soon as possible
- Application Deadline:** until position filled
- Further Information:** <http://www.dlr.de>
<http://www.daad.de/dlr>