POLITECNICO MILANO 1863

Department of Chemistry, Materials and Chemical Engineering "Giulio Natta"
CRECK Modeling Laboratory

Postdoctoral Position in Kinetic Modelling of Hydrocarbons cracking for the production of Turquoise Hydrogen and Value Added Carbon Materials.

The CRECK Modeling Laboratory of Politecnico di Milano offers a post-doctoral position (1 year with possibility of renewal) in the area of turquoise hydrogen production from hydrocarbons pyrolysis. Scaling up of such processes aided by accurate chemistry models is of key relevance in the context of energy transition as it embeds both the production of a carbon free energy carrier (H_2) while fixating the carbon content in valuable, durable and recyclable carbon materials such as C/C composites, graphene and carbon nanotubes.

The focus of the research activity is to further develop both the existing gas-phase CRECK kinetic framework (and the newly developed surface chemistry models describing pyrocarbon deposition on reactor walls, graphene and carbon nanotubes growth in CVD and CVI processes (https://www.sciencedirect.com/science/article/pii/S2667056923000184).

The researcher will be actively involved in two research projects in addition to industrial collaborations, namely:

1) "Carbon Hub" coordinated by Rice University (Texas, US) https://news.rice.edu/news/2023/kavli-exploration-award-backs-rice-led-sustainable-carbon-materials-research
2) HAMMER - Hydrogen and carbon black production from cracking in molten media a project of national interest financed by the Italian Ministry of University and Research and coordinated by Università di Roma "La Sapienza" and Politecnico di Milano.

Strong knowledge and a consolidated track record in the area of homogeneous and/or heterogeneous chemical kinetics and chemical kinetic models, chemical reaction engineering, numerical simulation of 0D and 1D reactors (CHEMKIN or similar) is required. Programming skills and theoretical kinetics background are also positively evaluated. Applicants must have a doctorate in chemical engineering, physical chemistry or related fields.

The activity is supervised by Prof. Matteo Pelucchi and Prof. Luna Pratali Maffei.

How to apply: interested post-doctoral researchers or final year doctoral students should email matteo.pelucchi@polimi.it attaching a CV, contact information for 2 references, list of all publications with PDF copies of relevant publications (3 maximum).

Tentative starting date: March 2024 – December 2024.

Prof. Matteo Pelucchi
Web site: creckmodeling.chem.polimi.it
Email: matteo.pelucchi@polimi.it
Piazza Leonardo da Vinci, 32,
20133 Milano, Italy
Tel. +39 02 2399 4234