NATIONAL INSTITUTE OF CHEMISTRY
SI-1001 Ljubljana
Hajdrihova 19, POBox 660
Phone: +386 (0)1/476 02 00
Fax: +386 (0)1/476 03 00
http://www.ki.si

CALL FOR APPLICATIONS FOR POSTDOCTORAL POSITION IN HETEROGENEOUS CATALYSIS

Host research group

Department for Environmental Sciences and Engineering at the National Institute of Chemistry, Ljubljana, Slovenia, is a top and internationally renowned research group in environmental protection. Its mission is to develop modern processes for water treatment along with catalytic processes in energy and production of high added-value compounds.

The department which currently consists of eight researchers, four PhD students and three research engineers, is equipped with top research equipment along with various lab- and pilot-scale reactors. More information about the research group is available at: http://www.ki.si/en/departments/d05-department-for-environmental-sciences-and-engineering/

The main research focus of the group is design and development of multi-functional nanostructured catalysts, applicable to the following fields: C-H bond activation in light alkanes, partial oxidation, syngas chemistry, methane and carbon dioxide valorization and TiO_2 based photocatalysts for degradation of organics in water. Research is aimed at understanding the chemistry of these transformations, occurring over the catalyst's surface.

Positions (1 person for each) are available for the following topics:

Catalytic oxidative dehydrogenation of propane with soft oxidants such as CO_2 and N_2O

Conversion of cheap and abundant alkanes to alkenes and other functionalized platform chemicals is of utmost importance for sustaining modern society. In order to perform these reactions selectively and efficiently, promising pathways need to be researched and their fundamental understanding improved.

Accepted candidate is expected to synthesize and characterize redox catalysts containing functionalities for activation of oxidant and propane. Catalytic tests will be performed in a tubular fixed bed reactor. Hands on experience with In-situ and operando UV-Vis and DRIFTS spectroscopic techniques to analyze the working state of the catalyst are a strong strong point.

Visible light driven catalytic oxidation of pollutants from wastewater

Application of advanced oxidation processes based with the use of catalysts is very attractive option for cleaning wastewaters that are too toxic to be treated with biological technology.

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Accepted candidate will work on development, synthesis and characterization of new class of semiconductor based catalysts used in visible light driven photocatalytic degradation of pollutants in wastewater. The research will also focus on development of new techniques for immobilization of catalysts for easier removal of catalysts after use.

Profile

The candidate with an outstanding track record has to possess a PhD in chemistry (preferably with specialty in catalysis or materials science) or chemical engineering. Skills in advanced catalyst characterization and spectroscopic techniques will be an asset. Hands on experience with EPR spectroscopy is a forte. He/she should be fluent in English.

The contract duration is planned for 12 months (+12 in option). Starting date to be determined with the selected candidate. Salary basis follows national rules (~2.200 € gross salary).

Contact

Dr. Petar Djinović
E-mail address: petar.djinovic@ki.si