Selective oxidation of organic sulfur containing compounds by photocatalysis

Summary

Taltech Virumaa College, Research Group of Applied Chemistry offers a 4-year PhD position in Chemical and Materials Technology.

Research field:	Chemical, materials and energy technology
Supervisor:	Prof. Dr. Allan Niidu
Availability:	This position is available.
Offered by:	School of Engineering Virumaa College
Application deadline:	Applications are accepted between June 01, 2020 00:00 and July 03, 2020 23:59 (Europe/Zurich)

Description

Project aims at developing catalytic systems based on metal-organic framework structures to use oxygen as oxidant. The latter will be applied in situ to organic sulfur containing compounds leading to wide range of applications in defense and petrochemical industry. Some prominent examples include oxidative decontamination of nerve gas simulants and production of sulfones to purify liquid fuels.

Main tasks for PhD candidate are as follows:

1. Selection and preparation of MOF materials via solvothermal, hydrothermal or mechanochemical means. If necessary, post-synthetic modification processes will be applied.
2. Application of produced MOF-s in thiophene derivatives oxidation experiments.
3. Application of produced MOF-s in competitive oxidation experiments e.g. nitrogen containing compounds vs sulfur containing compounds

Qualifications

The applicants should fulfill the following requirements:

- MSc degree in chemistry, chemical engineering, or related field
- The MSc degree must be obtained not later than the date of employment in the project
- Fluent in English
- Experience in synthesis and characterization of chemical compounds will also be appreciated

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