

Metal-organic frameworks as a platform for catalytical CO₂ sequestration

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

Stepping away from fossil fuels will inevitably lead to redefining of chemical industry since new feedstocks are needed to satisfy societies need for relatively cheap and abundant materials. As most of materials are and likely will be based on carbon, a new carbon source is required. One of the alternatives could be CO₂ as it's relatively abundant and allows societies to take part in carbon cycle in a sustainable manner when compared to the practices today. This leads to the current project which deals with CO₂ reactions with small organic molecules via CH-activation enabling access to a novel platform for future chemical industry. To that end, metal-organic framework (MOF) based catalysts will be developed for CO₂ addition to alkyl groups of various organic compounds relevant to the current industrial processes e.g. polymer or fine chemicals industries. As a bonus, certain MOF-s can be derived by CO₂ addition to known industrially available organic compounds like phenols, both synthetic and natural.

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 English
- Experience in synthesis and characterization of chemical compounds will also be appreciated, not mandatory



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