



1 Research Associate Position-Perovskite Nanoparticles

Within the international M-ERA.NET project “Engineering of perovskite photocatalysts for sunlight-driven hydrogen evolution from water splitting” (SunToChem) one research associate position is immediately available at Advanced Materials Department of Jožef Stefan Institute, Slovenia.

Together with other partners of SunToChem, we aim to combine the latest knowledge in density functional theory calculations, engineering of perovskite particle morphologies, photoreactor design and photocatalytic measurements to clarify and promote the understanding of different aspects known to have important effects on the surface chemistry of photocatalyst particles and therefore determine the efficiency of H₂ evolution from photocatalytic water splitting. These aspects include enhancement of photocatalytic performance of defined shape perovskite particles through improvement of the spatial separation of photogenerated charges on the same particle by means of ferroelectricity or different polarity of the facets due to different orientation/termination, controlling reactant adsorption/product desorption and improvement of light absorption by doping (self-doping=reduction) and morphology.

The open position is related to:

- Development of synthesis procedures for preparation of (i) defined shape MTiO₃ (M=Sr, Ba, Ca) perovskite nanoparticles with controlled type of exposed facets and termination, (ii) perovskite mesocrystallites and (iii) heterostructures,
- Deposition of co-catalysts and optimization of the deposition procedure (photo-deposition, impregnation),
- Structural, morphological and surface characterization of bare- and with co-catalyst decorated perovskite particles.

Requirements:

- PhD degree in chemistry, material science or related field,
- A very good knowledge of English language,
- Creative, motivated candidate should be able to work independently, as well as in a collaborative environment.

Post-doc and established researchers from all countries are invited to submit their applications. The position is available from one up to two years. The salary is according to Slovenian Research Agency regulations.

For additional information please contact Marjeta Maček Kržmanc, PhD, Advanced Materials Department, Jožef Stefan Institute, Jamova 39, 1000 Ljubljana, Slovenia (marjeta.macek@ijs.si, tel.: 00386 1 477 3292) or visit www-k9.ijs.si/en.

Each applicant should send to the above mentioned e-mail address:

- A covering letter describing the applicant’s research motivation,
- A CV with detailed description of candidate’s education and professional career,
- Bibliography list,
- At least three references.

Please submit your application before August 10, 2019.

