Seminar

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Wednesday, 27th March 2024, 14:00 s.t.
TU Wien (Freihaus), 1040 Wien, Wiedner Hauptstraße 8-10
Sem.R. DB05B (yellow area)

Synthesis and Applications of 2D Materials in Green Hydrogen Production: From Fundamentals to Scaled-Up Testing in an Electrolyser

What does it take to catalyse game-changing advances in renewable energy? I will be charting the path forward by critically assessing the suitability of 2D solids in energy applications prepared in my lab. As we stand at a crossroads and excitement for 2D materials is subdued compared with a decade ago – will their limitations outweigh the possibilities to capture their full potential?

One of these materials, $MoTe_2$ is a two-dimensional (2D) chalcogenide and it has burst onto the scene as promising hydrogen evolution catalysts for proton exchange membrane (PEM) electrolysers when tested in half-cell conditions. But how does it perform in real-world full-cell conditions? Exemplified by full-scale electrolyser tests in archetypal $MoTe_2$ intermetallic 2D material I will reveal that the challenges operation at scale may bring and what does this teach us about the need to evaluate emerging catalysts beyond the simple half-cell tests.

All interested colleagues are welcome to this seminar lecture
(45 min. presentation followed by discussion).

Günther Rupprechter
Director of Research

André Vogel
Coordinator