

9th live session of [Focus Materialchemie](#) – Wednesday, 28.06.2023 16:00 – @ [Seminarraum Lehar 01](#)
(TU-Wien, Getreidemarkt 9, BC, OG. 01, room A46) – join us on [ZOOM](#) (ID: 983 0066 2349)

Design of Metal-Organic Frameworks containing Single-Metal-Site Cocatalysts for Photocatalytic Hydrogen Production

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Photocatalytic hydrogen production from water is an increasingly important topic to satisfy the growing demand for sustainable energy carriers. This reaction requires efficient cocatalysts to yield good hydrogen production rates. Cocatalysts based on single-metal sites hereby represent an exciting option due to their maximum atom utilization efficiency and well-defined active sites. An ideal platform to deposit such single-site cocatalysts are metal-organic frameworks (MOFs) with their large surface areas and high tunability. In this work, single atoms of noble Pt or earth-abundant Ni were incorporated into the Zr-based MOF UiO-67 and the Ti-based MOF COK-47 using organometallic complexes as MOF linkers. The effect of this single-site-functionalization on the material properties and photocatalytic activity was assessed and explained, also highlighting the influence of different synthesis strategies.