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Photocatalytic H2-production by homogeneous and heterogeneous advanced materials

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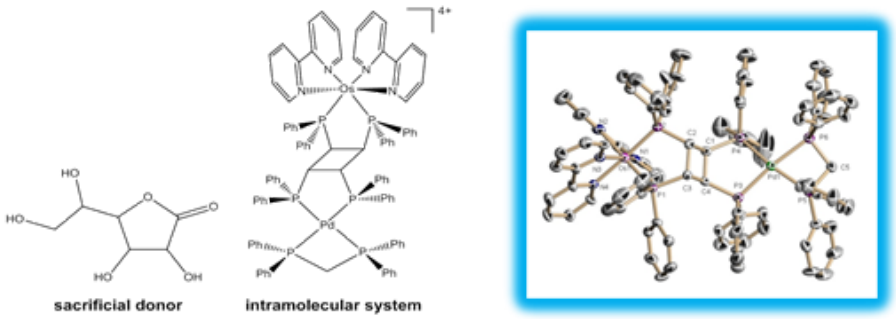
There are three possibilities: Homogeneous catalysis using dyads or triads and also intermolecular approaches. Nearly homogeneous systems containing quantum dots or nanomaterials as WRC (water reduction catalyst). Truely heterogeneous systems consisting of suspensions of inorganic particles. Interestingly triadic systems containing noble metals are suitable as model systems: single crystal X-ray structure of a typical supramolecular triad A-L-C consisting of a visible light absorber (A), a tetraphosphane as bridging ligand (L), and a water reduction catalyst (C). This is a homogeneous, molecular approach.



Though it has been known for some time that colloidal palladium catalyzes the photochemical water splitting reaction, a new type of nanomaterial consisting of 2.0 nanometer sized particles was developed. Photocatalytic hydrogen production of the semiconductor Ga2B3O7(OH) in methanol/water has been achieved only recently.

Biography

Peter Brüggeller has completed his PhD from the University of Innsbruck/Austria and Post-doctoral studies from EPFL Lausanne. He is now working as a Professor at the University of Innsbruck. He has published more than 50 papers in reputed journals and has been serving as a referee of repute.

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