

Univ.-Prof. Dr.rer.nat. Jun Okuda
Lehrstuhl für Metallorganische Chemie und Institut für Anorganische Chemie

Bio-Inspired Catalysis with Biomimetic Energy Management

The project is situated in the area of catalysis research, at the interface of organometallic chemistry and biochemistry. It explores new catalyzed reactions for the activation of small molecules such as carbon dioxide and dihydrogen to produce organic molecules and macromolecules; and new methods to manage the required reaction and activation energy for chemical reactions in a synergistic way. To reach these goals molecularly defined organometallic catalysts will be embedded in an engineered protein matrix or a related biogeneous polymeric scaffold to create "artificial enzymes". The work delineated here can be regarded as the chemical counterpart of "synthetic biology" and in the long run, will contribute to quest for the origin of life.