

Artificial Photosynthesis towards Solar Fuels Production

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Direct formation of a solar fuel, from water and carbon dioxide with sunlight as the only energy input, is an attractive concept to harvest and store the vast but intermittent solar irradiation. Direct solar fuel production is not dependent on biomass, and has the potential to be much more efficient. There are only few ideas on how to achieve direct solar fuels production and the presentation is built on one of them: by learning from nature we will use molecular catalysts to make hybrid devices for water splitting by artificial photosynthesis. More research is needed to understand how to efficiently couple light-induced charge separation to catalysis of the multi-electron/multi-proton chemistry of water splitting and fuel forming reactions.