



EVENTO ENERGY CENTER LAB

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Solar Fuels by Artificial Photosynthesis — An Overview

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Abstract

The world's energy demand of 15 Trillion Watts is expected to double by 2050. We need clean energy and a potential solution is the sun. Fuels are among the best ways to store solar energy as they may be very competitive even compared to state-of-the-art batteries in terms of both energy density and environmental impact. Artificial Photosynthesis (AP) represents a scheme for capturing and storing the vast energy from sunlight in chemical bonds of a solar fuel while liberating O_2 as by-product. AP is regarded as a global socio-political & environmental game changer. The lecture will provide an overview of the AP concept and introduce the H2020-FETOPEN project entitled SoFiA, coordinated by Prof. Hammarström in partnership with 7 other EU organizations, including Politecnico di Torino.

Biography

Leif took his PhD in Physical Chemistry in 1995 at Uppsala University. In 1996 he was a post-doctoral fellow at University of Bologna with Professor Vincenzo Balzani as advisor. He is recognized as one of the world leaders in mechanistic studies of artificial photosynthesis. His main techniques are time-resolved laser spectroscopy, fluorescence spectroscopy, photochemistry and electrochemistry. His group studies and develops molecular systems for direct solar fuel production by artificial photosynthesis. He is a founding member and current chairperson of the Swedish Consortium for Artificial Photosynthesis (1994-present). As Head of Department of Photochemistry and Molecular Science, he led the formation (2006) of what was then the world's largest center for cross-disciplinary research on Solar Fuels by artificial photosynthesis. He is Chairman of the Solar Energy Platform Sweden and Core member of the international Solar Fuels Institute. He is elected Member of the Royal Society of Sciences.

