

## Catalysis for sustainable energy

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Essentially all sustainable energy systems rely on the energy influx from the sun. In order to store solar energy it is most conveniently transformed into a chemical form, a fuel. The key to provide an efficient transformation of energy to a chemical form is the availability of suitable catalysts, and we will need to find new catalysts for a number of processes if we are to successfully synthesize fuels from sunlight. Insight into the way the catalysts work at the molecular may prove essential to speed up the discovery process. The lecture will discuss some of the challenges to catalyst discovery, the associated challenges to science as well as some approaches to molecular level catalyst design. Specific examples will include the photo-electrochemical hydrogen evolution and carbon dioxide reduction reactions.