Lecture title: *Getting closer to a large scale process. Photocatalysts for light-assisted CO_2 hydrogenation*

Abstract: To achieve the goals of CO2 reduction set for 2030 and 2050, there is a considerable interest in developing possible CO2 transformation processes that can be performed at large scale, for instance, for the production of fuels. However, CO2 reactions are typically very slow and require high temperatures to be performed at a decent reaction rate. One alternative is to promote the reactions using solar light as energy source. The presentation will describe different photocatalytic systems developed at the Institute of Chemical Technology of Valencia to perform CO2 hydrogenations using simulated sunlight. The materials described include photo-responsive metal-organic frameworks, supported metal nanoparticles and 2D materials. The objective of the presentation is to summarize the state of the art on photocatalytic CO2 hydrogenation and to show how far or close are to develop a possible commercial process.

https://hermenegildogarciagroup.es/

Biography:

Prof. García is a full Professor of the Institute of Chemical Technology at the Technical University of Valencia. His group has expertise in CO2 utilization developing catalysts for CO2 conversion to methanol and C2+ products. He has published over 800 papers, has received over 50.000 citations, has an H index of 110 and his name is included continuously since 2015 in the annual list of the most cited Scientists published by the Shanghai-Tomson Reuters. He is the recipient of the Janssen-Cilag award of the Spanish Royal Society of Chemistry (2011) and the Rey D. Jaime I award in New technologies (2016). He is doctor honoris causa by the University of Bucharest and Honorary Professor at the King Abdulaziz University since 2015. He was awarded by the Lee Hsun lecturership of the Chinese Academy of Science at Shenyang. He has participated in over 20 EU funded projects and is member of the panel of ERC Consolidator Grant as well as other Comissions and panels. He is President of the international advisory editorial board of ChemCatChem. Several of his publications have constituted research fronts in Chemistry (as defined by Essential Science Indicators) Database, such as Photocatalytic CO2 reduction by non TiO2 photocatalysis, catalysis by MOFs, etc.