



# InterMat chair

## *Interface Matters in Solution Processed Inorganic Organic Thin Film Solar Cells for Bio-inspired Solar Fuels Generation*




**InterMat aims to approach perovskite solar cells and novel catalysts to their use in CO<sub>2</sub> conversion photo-electrocatalytic systems to mimic photosynthesis.**

On the one hand, it will focus also on the investigation of the interface between the nanoscale inorganic semiconductor layers in these thin film solar cells to reduce non-radiate charge recombination processes and maximize the solar cell efficiency.

Furthermore, it will study the photoelectrocatalytic reactions at the surface of the organic or inorganic nano/micro-structured semiconductor electrodes used in the photo-reactor for the reduction of CO<sub>2</sub> into solar fuels.

How materials work-function changes, the interfacial charge transfer reactions that limits the devices theoretical maximum efficiency for CO<sub>2</sub> conversion, the mechanism for charge accumulation and charge transport across the interface are still unresolved challenges to achieve a quantum leap in efficiency in earth abundant and novel solution process photoelectrocatalytic systems for CO<sub>2</sub> catalysis.



 **Emilio PALOMARES** (Spain, 1974) is ICREA Research Professor at the Institute of Chemical Research of Catalonia (ICIQ). His research focuses on energy conversion devices ; from the synthesis of the materials to the analysis of the full device in operando conditions. He is Fellow of the Royal Society of Chemistry (UK) and has published over 250 articles.