

Solar Catalysis for a Renewable Energy Future



Timeline | 12/2021 to 11/2024



Overall Budget | 1,148,591.38 €

ICIQ's Budget | 169,075.00 €



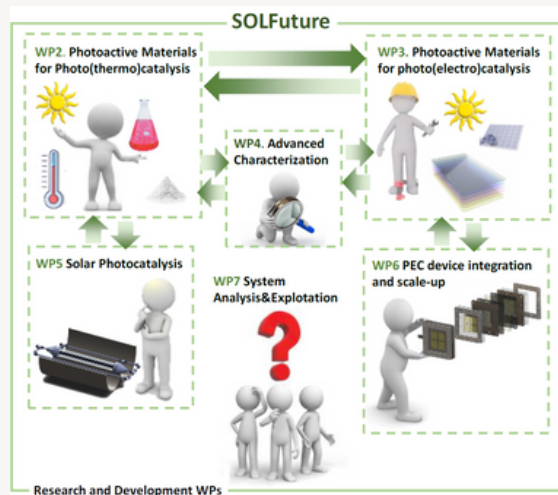
ICIQ People | [Palomares Research Group](#)
| [Ballester Research Group](#)



Call | [Proyectos I+D+i Líneas Estratégicas](#)

SUMMARY

The implementation of new systems to produce sustainable fuels and chemicals by the integration of renewable energy sources is one of the major challenges for our society. Solar energy conversion and storage is one of the most promising strategies to achieve this purpose. In this sense, **SOLFuture** is the base of a country strategy foundation for the efficient solar energy conversion to sustainable fuels and commodity chemicals through the development of reliable and efficient technologies. **SOLFuture** proposes two new concepts of photoreactor prototypes for the generation of value-added products and fuels (H_2 , CH_4 , C_2+ , NH_3 and chemical platforms). To achieve this objective a combined strategy based in two complementary approaches has been designed. On one hand, the development of photocatalytic technologies (Approach 1), based on the production of H_2 from waste water and biomass as reductant. A photo(electro)chemical (PEC) cell (Approach 2) will be design and built combining a hybrid photocathode, formed by organic-inorganic heterojunctions of the previously commented materials but in their thin-film form, and a PV-EC photoanode, made by the coupling of an organic solar cell and a highly active porous anode decorated with co-catalyst nanoparticles selected depending on the target product. These reactions will be performed both in liquid (PSA) and gas phase (IMDEA) depending on the selected residue using hybrid organo/inorganic heterojunctions based on metal oxides and conjugated porous polymers (CPPs).



PLANNING

WORK PACKAGES	Year 1	Year 2	Year 3
WP1. GENERAL MANAGEMENT			
WP2. PHOTOACTIVE MATERIALS FOR PHOTO(THERMO)CATALYSIS			
WP3. PHOTOACTIVE MATERIALS FOR PHOTO(ELECTRO)CATALYSIS			
WP4. ADVANCED CHARACTERIZATION			
WP5. SOLAR PHOTOCATALYSIS			
WP6. PEC DEVICE INTEGRATION AND SCALE-UP			
WP7. SYSTEM ANALYSIS & EXPLOITATION			

CONSORTIA

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