

A EUROPEAN CONSORTIUM LEADS THE WAY INTO SOLAR-DRIVEN HYDROGEN PRODUCTION

The EU project OHPERA - Optimised Halide Perovskite nanocrystalline based PhotoElectrolyser for clean, Robust, efficient and decentralised H₂ production - has officially started.



OHPERA consortium gathered during the Kick-off-Meeting in Barcelona, in October 2022.

Barcelona (Spain) – October 2022. The consortium of the new European-funded project OHPERA gathered for its kick-off-meeting in Barcelona on the 27th of October 2022, to **advance new research activities for the sustainable and innovative production of hydrogen (H₂).**

The meeting was held during the same week of the “[Materials for Sustainable Development Conference \(MAT-SUS22\)](#)” organised from the 24th to the 28th of October also in Barcelona. Different partners from OHPERA’s consortium also attended the MAT-SUS conference.

During the meeting, the first actions to be carried out by the project were discussed, along with the settlement of the important milestones to be reached during the three and a half years of duration of the project. OHPERA is funded by the Horizon Europe Research and Innovation programme of the European Commission, for a total budget of approximately € 3.2M, under the schemes of the European Innovation Council (EIC) Pathfinder calls, which support research and development of emerging breakthrough technologies. Two Programme Managers from the EIC agency also attended the meeting guiding the consortium to enhance OHPERA innovation and business potential, to reach a wider and effective impact for the energy transition.

OHPERA project aims at tackling the energy, environmental, and climate crisis through the development of a proof-of-concept unbiased tandem photoelectrochemical (PEC) cell to simultaneously achieve efficient solar-driven H₂ production and high added-value chemicals from valorisation of industrial waste (glycerol), being sunlight the only energy input. Thus, OHPERA will demonstrate the viability of producing chemicals with economic benefits starting

from industrial waste, using a renewable source of energy. For this purpose, OPHERA will integrate highly efficient and stable photoelectrodes based on halide lead-free perovskite nanocrystals (PNCs) and tailored catalytic/passivation layers, avoiding the use of critical raw materials (CRM), in a proof-of-concept eco-design PEC device.

OPHERA's consortium gathers partners from Spain, Germany, Hungary, and Israel. The project is coordinated by the Spanish **Institute of Advanced Materials of the University of Jaume I of Castellón (INAM - UJI)**, expert in the development of PNC-based photoelectrodes. These materials will be further improved in terms of stability and efficiency thanks to the excellence of **Ben-Gurion University of the Negev (BGU)**, from Israel, in the fabrication of passivation and electrocatalytic layers. Parallely, disruptive knowledge and experience of the **Institute of Chemical Research of Catalonia (ICIQ)** in theoretical modelling will be employed to guide the electrocatalysts and photoelectrodes optimisation in an iterative fashion. The device prototype will be designed and commissioned by the experienced German **Institute for Solar Fuels of Helmholtz-Zentrum Berlin für Materialien und Energie (HZB)**, with the support of the Hungarian company **eChemicals**, pioneer in developing innovative sustainable electrolyzers, providing the industrial expertise to address scaling-up issues and to design a realistic roadmap for its future business exploitation. All the scientific developments will be performed under the guidance of the Eco-design recommendations and the evaluation of the environmental, economic and social impacts through the Life Cycle Assessment methodology, provided by the Spanish SME **LOMARTOV (LOM)**, thanks to its multidisciplinary expertise bridging scientific and market knowledge.



Ben-Gurion University
of the Negev

HZB Helmholtz
Zentrum Berlin

eChemicals



LOMARTOV
[Applied Innovation Engineering]

The consortium is enthusiastic about starting this new collaboration and contributing to the research efforts to pave the way for a green energy transition. The first results will be published on the project channels.

Stay connected to follow the first project results and visit the website www.ohpera.eu available soon.



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