This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie grant agreement No 101025659

Engineering Pores for Sustainable Catalytic Upgrading (Pores4Olefins)

PROJECT DETAILS

Funding Programme:
Horizon 1010
Sub-Programme:
Marie Sklodowska-Curie Individual Fellowships
Funding Scheme:
Global Fellowships
Project Reference:
101025659
Project Duration:
36 months (from 2021-07-01 to 2024-06-30)
Total Project Budget:
€ 245.732'16
Total EU Grant-Aid:
€ 245.732'16
UniOvi Budget:
€ 245.732'16
CORDIS link:
https://cordis.europa.eu/project/id/101025659

PROJECT DESCRIPTION

This fellowship aims at establishing the researcher as an expert in the field of heterogeneous catalysis—becoming an independent leader researcher in the EU—through interdisciplinary scientific (e.g., chemical engineering, organic and inorganic chemistry, materials and surface science) and transferable skills training (e.g., project management). The researcher, Dr. Jorge Quesada, will join the LSAC research group at UC Berkeley (USA) under the supervision of Prof. Enrique Iglesia, and will be reintegrated (EU) into the CRC research group at the Universidad de Oviedo (Spain) under the supervision of Prof. Salvador Ordóñez. Recent findings in LSAC have demonstrated that both the catalytic stability and selectivity in the alkene dimerization on Ni-based sites are enhanced when the transition states of the elementary steps are solvated by non-polar liquids. The liquid phase is formed at the reaction temperature by capillary condensation of the solvent molecules within the pores of the material used as the active sites support. This project proposes to augment the understanding of the solvation effects on the alkene dimerization on Co-based sites—by building knowledge on their kinetic and mechanistic consequences through a mixed-methods approach—and translational research that leverages these results to other similar C-C bond forming reactions of alkenes—metathesis and hydroarylation on Mo- and Ni-based sites, respectively. This technology strategy would allow the combination of ethene dimerization and metathesis resulting in an industrial one-pot ethene-to-propene process of significant potential impact—the project engages an industrial collaborator by an intersectoral secondment. This research is likely to provide a novel versatile technology for the production of value-added olefins and related chemicals, with promising applications in the current oil industry and, especially, in future biorefineries; therefore, having a positive impact on the EU society and competitiveness.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie grant agreement No 101025659

Engineering Pores for Sustainable Catalytic Upgrading (Pores4Olefins)

TEAM - UNIVERSIDAD DE OVIEDO

Jorge Quesada Sánchez[1]
jquesada@uniovi.es

Salvador Ordóñez García[1]

[1] Department of Chemical Engineering and Environmental Technology

PROJECT PARTNERS

Project Coordinator
UNIVERSIDAD DE OVIEDO, Spain

US • THE REGENTS OF THE UNIVERSITY OF CALIFORNIA