

Proiect : Horizon H2020-MSCA-ITN-2018 (Marie Skłodowska-Curie actions)
Plasma catalysis for CO₂ recycling and green chemistry (PIONEER)
Pillar: Excellent Science
Partener: Universitatea din București, Departamentul de Cataliză, Chimie Organică și Cataliză

PIONEER H2020-MSCA-ITN-2018 este un proiect doctoral European care oferă doctoranzilor, pe o perioadă de 48 de luni, o pregătire complexă în domenii de specialitate cât și activități specifice de formare. Acest proiect a fost selecționat în competiția 2018 în condițiile unei rate de succes de 3%.

Proiectul doctoral PIONEER este în co-tutelă cu Universitatea Pierre et Marie Curie (SORBONA), Paris.

Abstract: The main objective of the present ITN project is the formation of a new generation of experts in the subject of CO₂ valorization using plasma-catalytic coupled processes. Plasma intensification of CO₂ valorization processes, such as CO₂ hydrogenation and dry reforming of methane, can greatly contribute to the stabilization of CO₂ concentration in our atmosphere through the production of synthetic fuels that will be involved in overall zero or near zero emission cycles. This alternative utilization of yet C-based fuels will play an important role in our transition to a 100% renewable future. Chemical and thermochemical CO₂ valorization processes are hindered by very slow reaction kinetics. Catalysts are often used but, most of the time, they either are not enough, or their utilization is not feasible under real operation conditions. The use of plasmas in combination with a well-designed catalyst can turn this sluggish CO₂ valorization processes feasible. There is however a complete lack of knowledge about almost every aspect of this plasma-catalysis coupling. Research efforts will be then directed towards the understanding of CO₂ plasmas, their interaction with solid catalytic surfaces, the formation of excited species and the fundamentals of the reaction mechanisms involved. Different plasmas and different catalysts are needed. Novel reactor concepts need to be found. The PhD topics cover many different scientific disciplines: from the physics of plasmas to the physicochemical characterization of solid surfaces and catalysis. The students will be instructed in several fields, not only considering science but also other important skills, such as soft skills training, as well as specific formation on managing, marketing and business skills along the duration of this project. To clature this project a European conference on Plasma Catalysis for CO₂ Valorization and Green Chemistry is foreseen.

Proiectul se adresează absolvenților de master în domeniul chimie, fizica, inginerie chimică.

Pe lângă pregătirea de excepție, doctorandul va beneficia de o bursă de cca 2500 EUR/lunar timp de 36 de luni, precum și de multiple stagii de pregătire în Universități de prestigiu și în companii din Europa.

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