

Supervisor Expression of Interest MSCA-IF Marie Skłodowska Curie Action-Individual Fellowship 2020

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Research Topic:	Materials and time resolved spectroscopic tools for energy applications

Brief description of the research project idea:

Materials and time resolved spectroscopic tools for energy applications

The group is developing novel nano- and meso-structured materials for energy and health applications.

For instance, we synthesised *carbon dots* (C-dots) that may or may not contain coordinating catalytic active sites for the *electrochemical reduction of CO₂* into added-value chemical compounds. The voltage and current needed to perform the CO₂ catalytic process is provided by home made *perovskite solar cells*, used in our Solar to energy conversion Group projects. Other materials currently explored, in our energy related projects, are organic semiconductor molecules as selective carrier transport in solar cells and OLEDs.

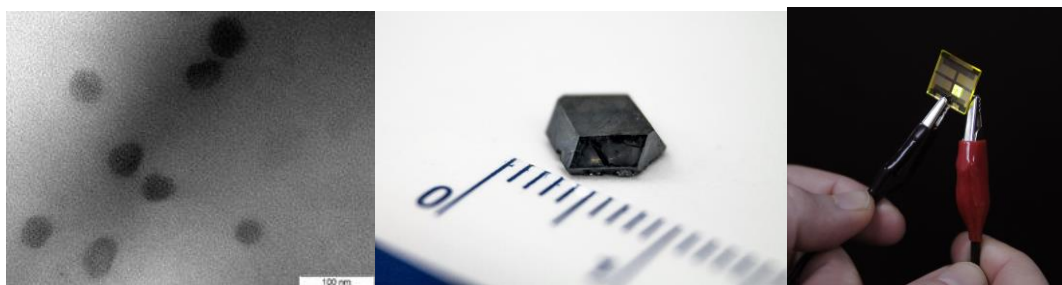


Figure 1. Left, Carbon dots. Center, hybrid perovskite crystal. Right, hybrid OLED.

All our activities involve the use of advanced steady-state and time resolved spectroscopy.