

Metal Oxides for sustainable solar energy TECHNOLOGIES (MOx-TECH)

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Instrument

Collaborative research project

Description

The project aims at strengthening the scientific collaboration between the two groups on the development Metal oxides (MOx) based devices for solar-energy conversion (SEC). The MOx film will be synthesized by sol-gel at UNIPD and by sputtering and spray deposition at Monash. Different types of MOx will be considered (for example TiO₂, Co₃O₄, MoO₃) and characterized by physicochemical characterization techniques such as XRD, XPS, UV-visible absorption spectroscopy, electron microscopy (SEM-EDX/TEM/STEM), Raman/ μ -Raman/IR, also in mapping fashion, and DLS. MOx-TECH has strong connection with the intentions of Horizon Europe (HE) to tackle problems of climate change, achieve sustainable development goals (particularly goals n. 7 affordable and clean energy and n. 9 industry, innovation and infrastructure) and boost competitiveness and growth.

**Expected
outcome**

The highly qualified network of research Labs will be able to provide excellent training and career development opportunities for young researchers, addressing the development of future technologies for well targeted applications by highly skilled individuals. A secondary outcome of MOx-TECH, which was fundamental for H2020 and is also for HE, is the possibility of bringing more good ideas to market and help innovators in this process, through the development of a class of SEC devices meeting the paradigms of low-costs, high efficiency, long duration and minimum environmental impact. By analyzing the aims and scopes of HE, MOx-TECH is pursuing the development of top-level research in one of the most critical fields in the EU and worldwide that is the conversion of solar energy.