**Link:** <https://solar-power-tech.com/e-posters/psc_eposter_03/>

**Abstract**

Interfacial layer such as Hole transport layer (HTL) plays a crucial role in improving the performance of organic photovoltaic cells (OPV) and perovskite photovoltaic cells by adjusting the electrode work function, transporting the holes from the organic semiconductor to the electrode andavoiding the charges recombination by blocking the electrons at ITO/photoactive layer interface. The MoO3 thin film has good hole transporter property but on the other hand lacks the ability to block electrons[1]. Therefore, the aim of this work is the synthesis of new buffer layer to reduce the free charge losses at the interface electrode/active layer.

In this work, we opted for a hybrid buffer layer synthetized by wet chemical process based on molybdenum trioxide and molybdenum disulfide (MoO3/MoS2) according to a partially oxidation of MoS2 using hydrogen peroxide as oxidant. The chemical reaction was carried out at room temperature, while other reaction parameters are controlled to adjust the atomic percentages of each component. Promising results are obtained by X-ray photoelectron spectroscopy analysis which confirms that there is a growth of the two materials (MoOx and MoSy).

The synthesis of the thin films was followed by morphological, optical characterization to fulfill the conditions for a good HTL.