

Study of hybrid heterojunction solar cells containing $\text{CH}_3\text{NH}_3\text{PbI}_3$ and ZnO compounds

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Over the last months has emerged a new solar cells class: perovskite solar cells. Solid-state hybrid solar cells based on organometal trihalide $\text{CH}_3\text{NH}_3\text{PbI}_3$ perovskite absorbers deposited on TiO_2 nanostructured achieved record efficient about of 20 %. Thanks to the high absorbance of the perovskite material, its capacity to act as hole conductor, and to the ease of their fabrication, this new type of cells open a way to a low-cost and high efficiency solar cells.

In this work we studied the deposition of $\text{CH}_3\text{NH}_3\text{PbI}_3$ on zinc oxide substrate which has higher electron mobility than that of TiO_2 . The effects of ZnO-blocking layer (BL) in perovskite solar cells were investigated in planar and nanostructured heterojunction. The BL is generated through sputtering or electrochemical deposition onto fluorine tin oxide (FTO). For the nanostructured architecture a mesoporous ZnO is deposited on a ZnO-BL by electrochemistry.

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