

Electrical Characterization of Hybrid Halide Perovskites Based Heterojunction Device *

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Herein, we have measured the mobility of Hole's for the configuration FT0/TiO₂/CH₃NH₃PbBr₃/PCBM/Al by the SCLC regime. The current-voltage (I-V) characteristics of the CH₃NH₃PbBr₃ perovskite based device shows the rectifying behavior as Schottky diode. Different parameters of the proposed device such as saturation current, ideality factor, barrier height have been taken out from I-V characteristics. The highest Hole's mobility from TiO₂ thin film through the perovskite and PEDOT:PSS film to the top aluminum electrode has of order $1.59 \cdot 10^{-4} \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$. Moreover, the proposed device shows the TFSCLC regime at lower voltage while, at higher voltages it shows the TCLC regime. In addition to this, some important parameters like junction resistance, capacitance and carrier lifetime of device can be measured by the spectroscopy analysis of impedance.

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