

Perovskites are doping interfacial polymers resulting in parasitic currents in solar cells

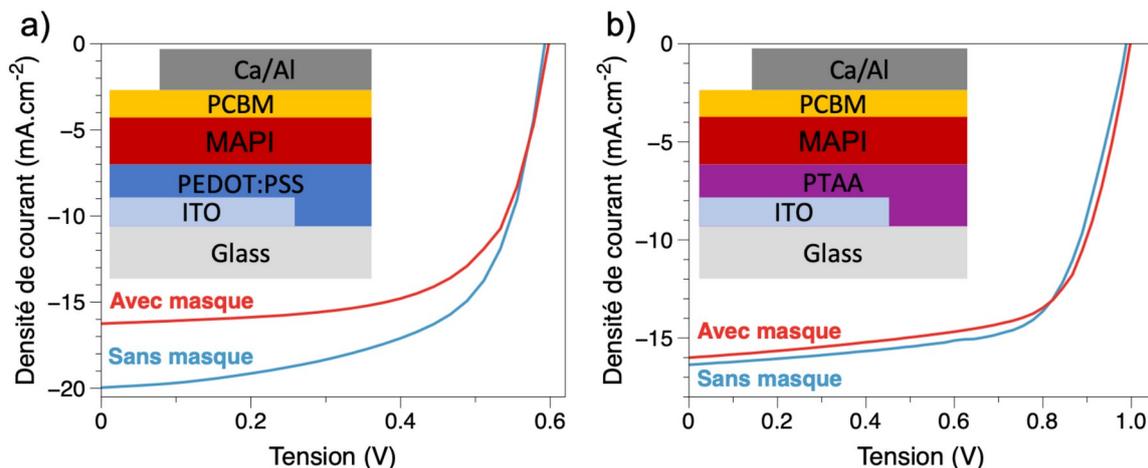
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The study demonstrate that precursors used during perovskite deposition are able to affect the underlying layer of Pi-conjugated polymer. In particular, in well-known p-i-n inverted structures where the perovskite is deposited onto conducting polymers such as PEDOT-PSS, the conductivity of the polymer is increased by two orders of magnitude. Such doping is shown responsible of parasitic currents when solar cells are characterization without the careful usage of shadow masking of the active area. As a consequence, short-circuit currents and the corresponding power conversion efficiency is significantly over-estimated in such structures. The doping phenomenon is generalized to various pi-conjugated polymers including PTAA. However, the low conductivity of pristine PTAA minimize the parasitic effect.



Typical IV curves of solar cells based on MAPI measured under AM1.5 illumination with or without the use of shadowmasking (a) with PEDOT:PSS (b) with PTAA.