

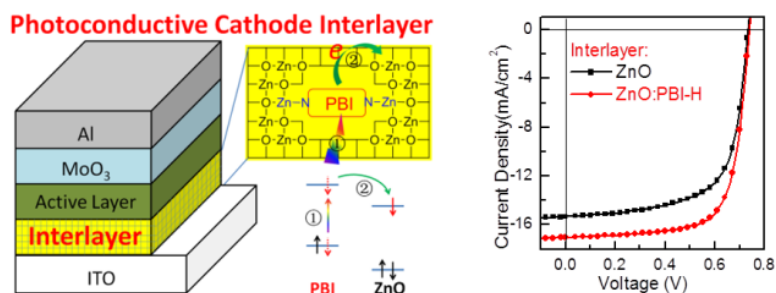
# Photoconductive Cathode Interlayer for High Performance Organic Solar Cells

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A highly photoconductive cathode interlayer (PCI) was achieved by doping 1wt% light absorber, i.e. perylene bisimide, into ZnO thin film, which absorbs a very small amount of light but shows highly increased conductivity of  $4.50 \times 10^{-3}$  S/m under sunlight. The photovoltaic devices based on this kind of photoactive cathode interlayer exhibit significantly improved device performance, which is rather insensitive to the thickness of the cathode interlayer over a broad range. Moreover, a power conversion efficiency (PCE) as high as 10.5% was obtained by incorporation of our photoconductive cathode interlayer with the PTB7-Th: PC<sub>71</sub>BM active layer, which is one of the best results for single-junction PSCs.

Further, the PCI was successfully applied in ternary photovoltaic devices and a PCE over 11% was achieved in our lab (certified PCE 10.38%). The working mechanism of PCI in photovoltaic devices will be discussed in detail, incorporating a novel aqueous solution processed PCI for thickness insensitive devices.



## References

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