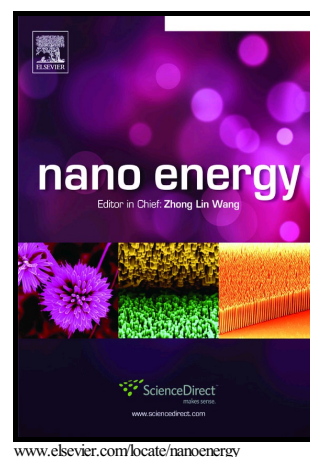


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# High performance polymer solar cells with electron extraction and light-trapping dual functional cathode interfacial layer

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## Abstract

For polymer solar cells (PSCs), the interfaces between the back and front contacts with the photoactive layer play a crucial role for charge extraction. Herein, we demonstrate high performance PSCs with dual functional tantalum methoxide (Ta-OMe) cathode interfacial layer, which can reduce the interface energy barrier and form a light trapping structure with reflective metal electrode. The energy level of Ta-OMe is investigated by ultraviolet photoelectron spectroscopy (UPS). The composition of the Ta-OMe film is confirmed by X-ray photoelectron spectroscopy (XPS). The surface morphologies of the photoactive layer with and without Ta-OMe layer are measured by scanning electron microscopy (SEM) and tapping mode atomic force microscopy (AFM). Three polymer donors with different band gaps and two classical fullerene acceptors were selected as photoactive materials for fabrication

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