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An easily prepared self-assembled interface layer upon active layer doping facilitates charge transfer in, polymer solar cells

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**Response Letter of EA18-3609:**

Reviewers' comments:

Reviewer #1: The authors employed PEI as an additive in BHJ to improve the performance of organic solar cells. They explained PEI migrated to the TiO<sub>2</sub>/BHJ interfaces, and improve the interfacial charge transfer. Although this paper is carefully organized, I donot think this paper reaches the standard of *Electrochimica Acta* at the present form.

(1) Interface engineering is a conventional method to improve the efficiency of organic solar cells. Besides, the reported PCE of 7.2% is also not eye-catching. In addition, the content of electrochemistry is few.

Answer: Many thanks for reviewer's advice. According to reviewer's advice, we have offered more electrochemistry in our revised manuscript.

(2) The paper is not complete. There was not any descriptions about characterization details in the experimental section. For example, EIS and KP measurement. Besides, the KP experimental results should be provided. In addition, the authors claimed that the PEI separated with BHJ and spontaneously move to interface anchoring on TiO<sub>2</sub>. More strong evidences should be provided to support.

Answer: Many thanks for reviewer's advice. According to reviewer's advice, we have revised manuscript on this work.

a) Descriptions about characterization details in the experimental section are added in the manuscript: The J–V characteristics were measured using a Keithley 2400 source meter under illumination and in the dark. Solar cell performance was examined under a 1 sun, AM 1.5G full spectrum solar simulator (Crowntech Inc., model: SOLARBEAM-02-3A) with an intensity of 100 mW cm<sup>-2</sup> calibrated with a standard silicon photovoltaic traced to the National Institute of Metrology, China. Incident photo-electron conversion efficiency (IPCE) was measured by Pharos Technology QEM1000 under short circuit conditions with respect to a calibrated silicon diode. Water contact angles of the surfaces of thin films were measured with a commercial contact angle system (Data Physics, OCA 20) at ambient temperature. The film topography was investigated using AFM (Digital Instruments/Veeco) in tapping mode.

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