

Supporting information

Efficient and Stable Perovskite Solar Cells Based on Functional Graphene-Modified P3HT Hole-Transporting Layer

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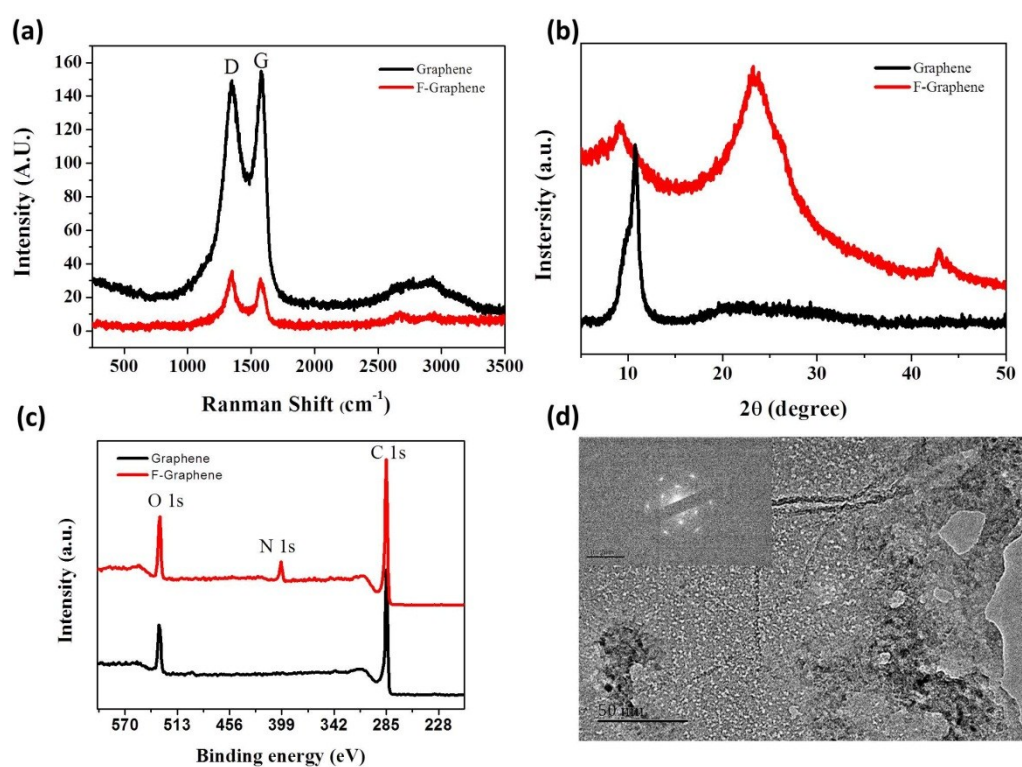


Figure S1. (a) Raman spectrum, (b) X-ray diffraction and (c) X-ray photoelectron spectroscopy (XPS) of pristine graphene powders (black line) and functional graphene powders (red line). (d) the Transmission Electron Microscope image of functional graphene.

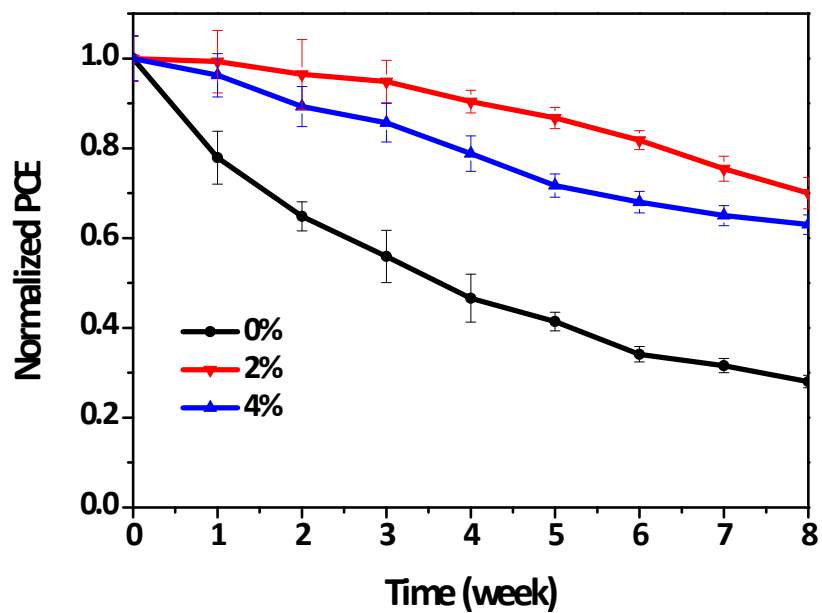


Figure S2 The normalized PCE of various weight content of F-graphene in P3HT HTMs based PSCs as a function of storage time in the ambient atmosphere (temperature 25°C, humidity 20%–40%).

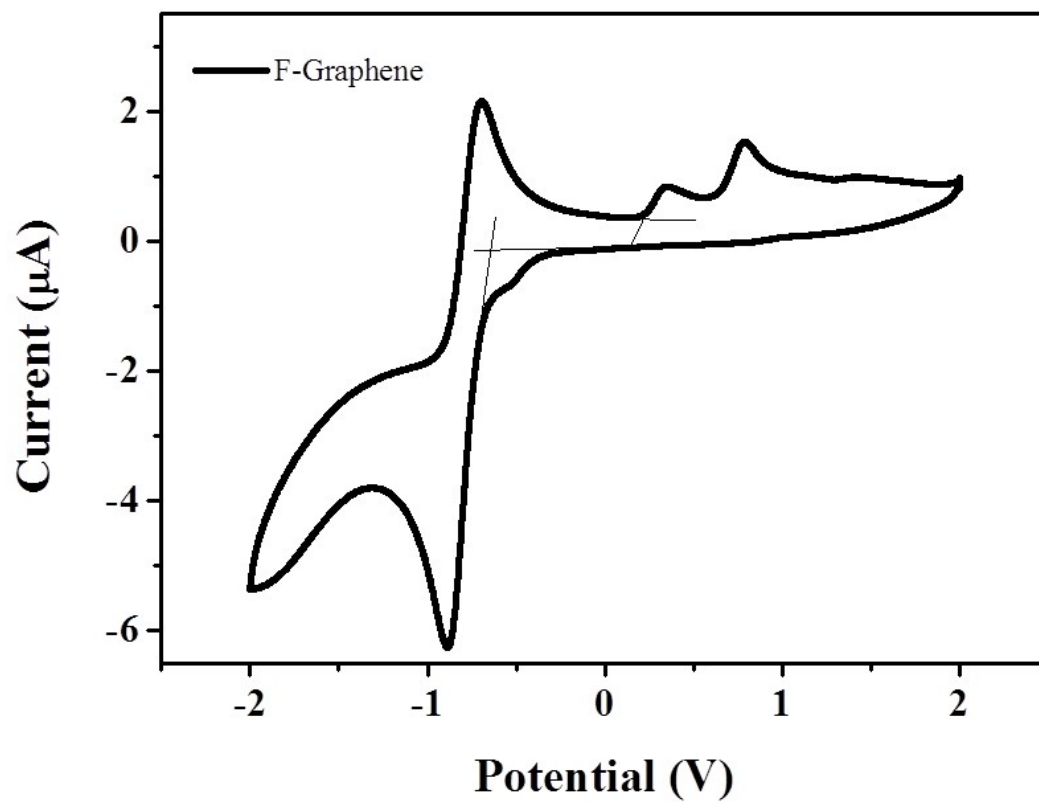


Figure S3. Cyclic voltammetry of the F-graphene drop-cast on a Pt electrode in a 0.1 mol L⁻¹ Bu₄NPF₆-acetonitrile solution at a scan rate of 50 mV s⁻¹