

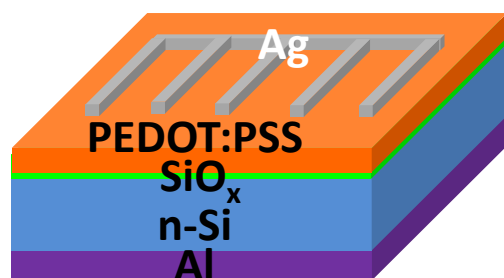
**Supporting Information**

**High-efficiency hybrid solar cells by nanostructural modification in  
PEDOT:PSS with co-solvent addition**

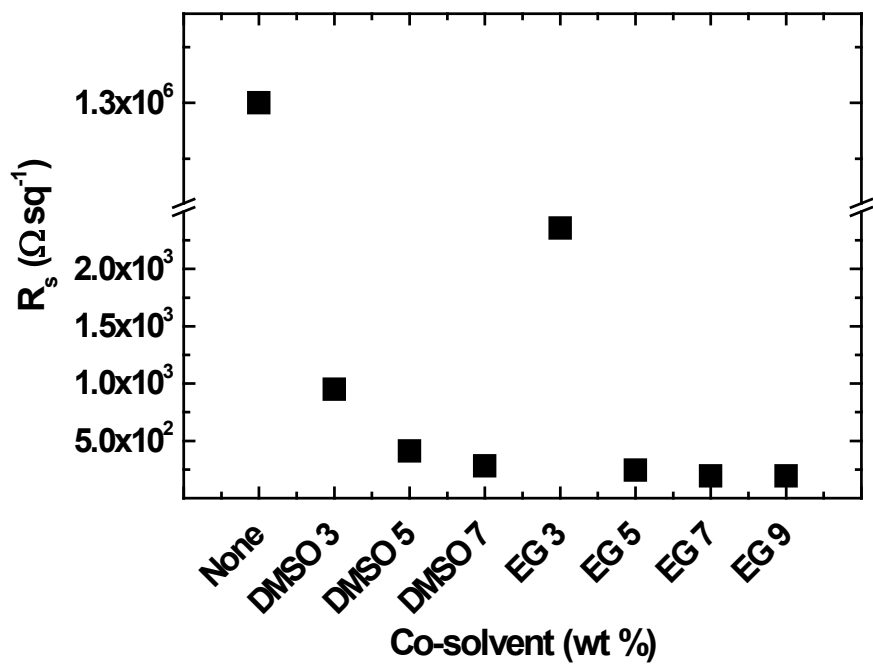
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<sup>a</sup>*WATLab and Department of Chemistry, University of Waterloo, Waterloo, Ontario, N2L3G1, Canada;*

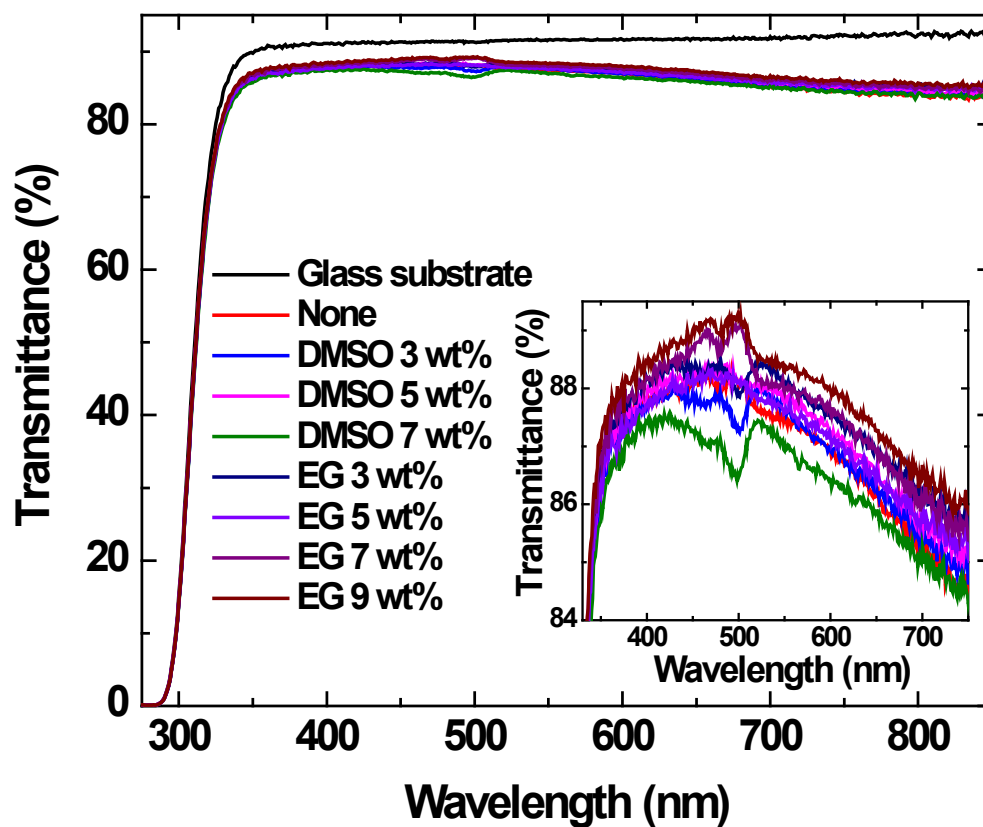
<sup>\*</sup>*E-mail: tong@uwaterloo.ca*



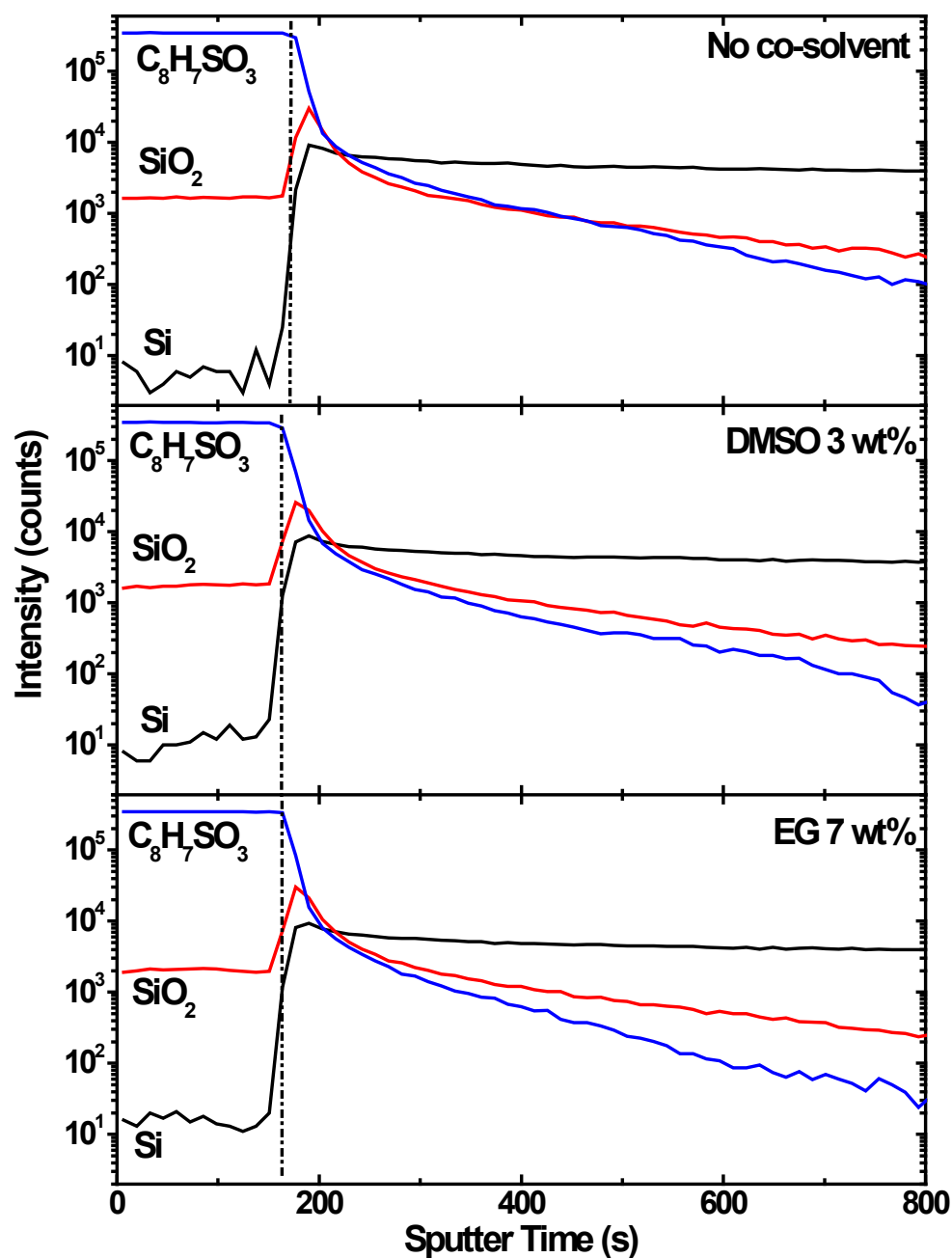
**Scheme S1.** Schematic diagram of the device structure of the hybrid solar cell used in the present work.



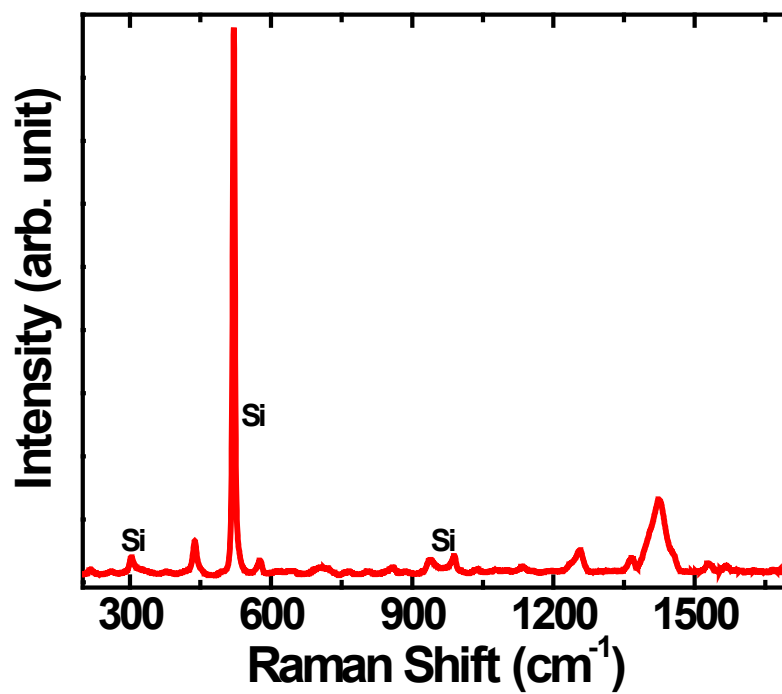
**Figure S1.** Sheet resistance ( $R_s$ ) variation with and without the addition of co-solvents in PEDOT:PSS film spin-coated on glass substrates.



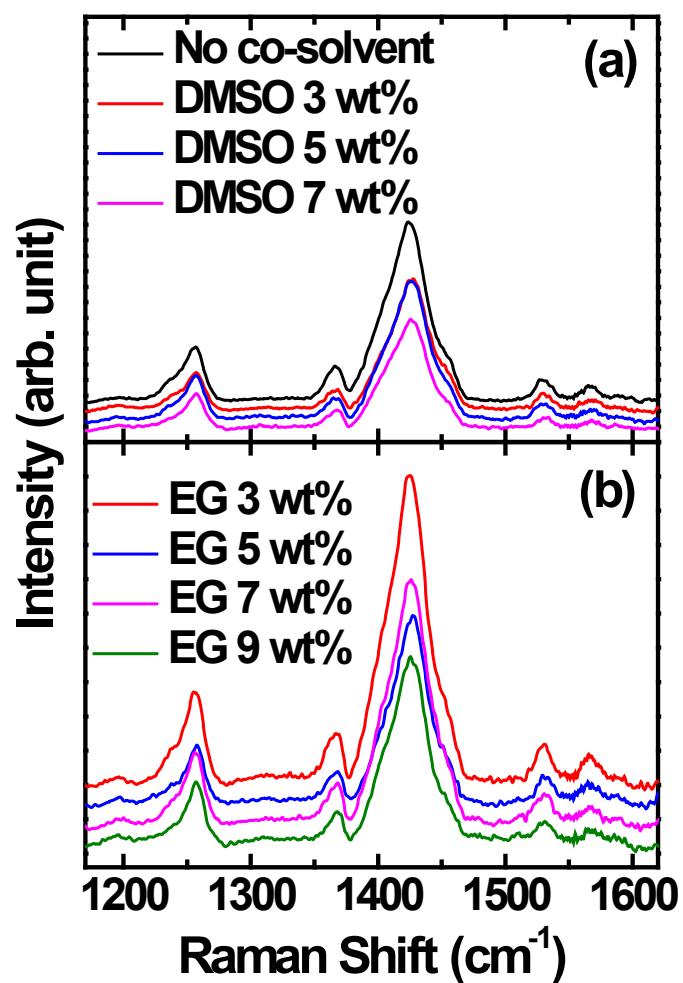
**Figure S2.** Transmittance spectra of PEDOT:PSS films on glass substrates in the UV-Vis range (Perkin Elmer 1050). The transmittance spectrum of a glass substrate is also shown in the figure for comparison. The inset shows an enlarged view of the transmittance spectra of PEDOT:PSS films.



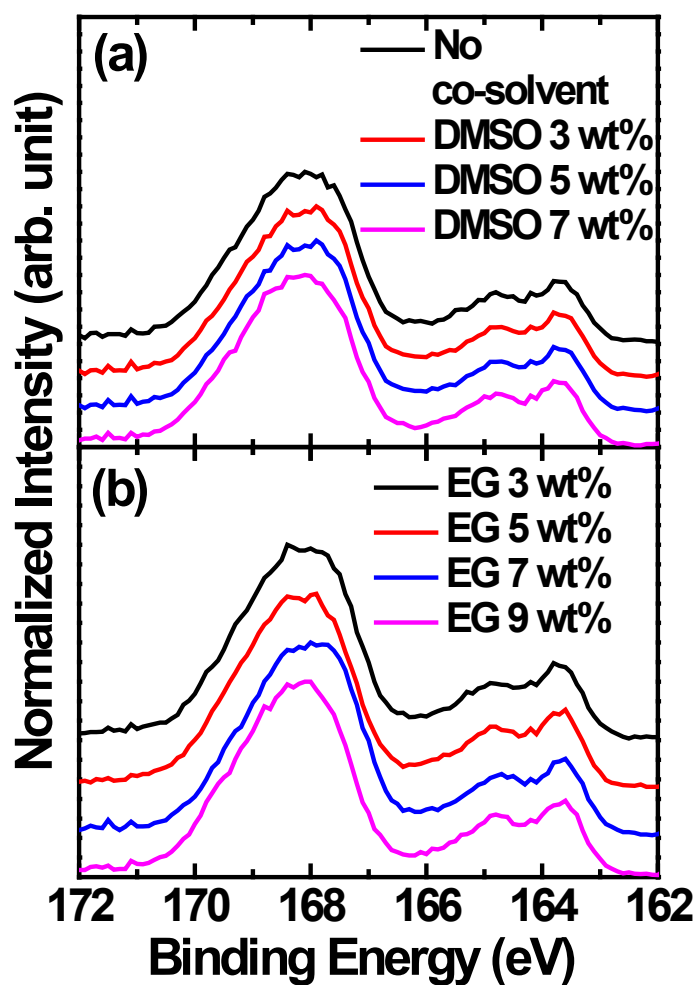
**Figure S3.** TOF-SIMS depth profiles (negative polarity mode) of PEDOT:PSS spin-coated on Si substrate before and after the addition of 3 wt% DMSO and 7 wt% EG. The dotted lines mark the interface between PEDOT:PSS and Si, which indicates a slight variation in the sputtering time to reach the interface due to the difference in film thickness after the addition of co-solvents.



**Figure S4.** Raman spectra of PEDOT:PSS film spin-coated on Si substrate. The Si (substrate) features are marked.



**Figure S5.** Raman spectra of PEDOT:PSS films spin-coated on Si substrates (a) before and after the addition of 3 to 7 wt% of DMSO and (b) of 3 to 9 wt% of EG in the range of 1170-1620  $\text{cm}^{-1}$ .



**Figure S6.** XPS spectra of the S 2p region of PEDOT:PSS films spin-coated on Si substrates (a) before and after the addition of 3 to 7 wt% of DMSO and (b) of 3 to 9 wt% of EG.