## Supplementary Materials

# Effect of HDI-modified GO on the thermoelectric performance of poly(3,4-ethylenedioxythiophene):poly(styrenesulfonate) nanocomposite films

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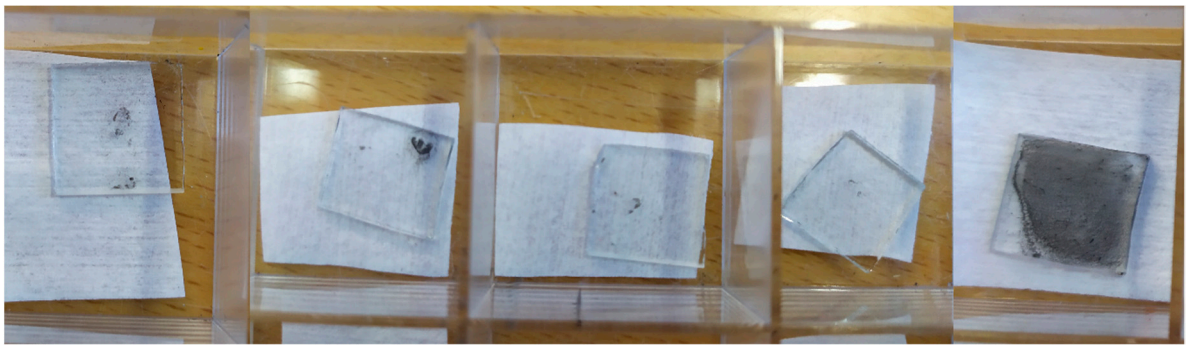

**Figure S1.** Spin coating samples of HDI-GO 5 in DMSO (10 wt%) (from left to right): spin-coated at 1000 rpm, substrate without ozone treatment; spin-coated at 1000 rpm, substrate with ozone treatment; spin-coated at 1800 rpm, substrate without ozone treatment; spin-coated at 1800 rpm, substrate with ozone treatment. For comparison, the drop-casted reference sample is shown in the last photo.

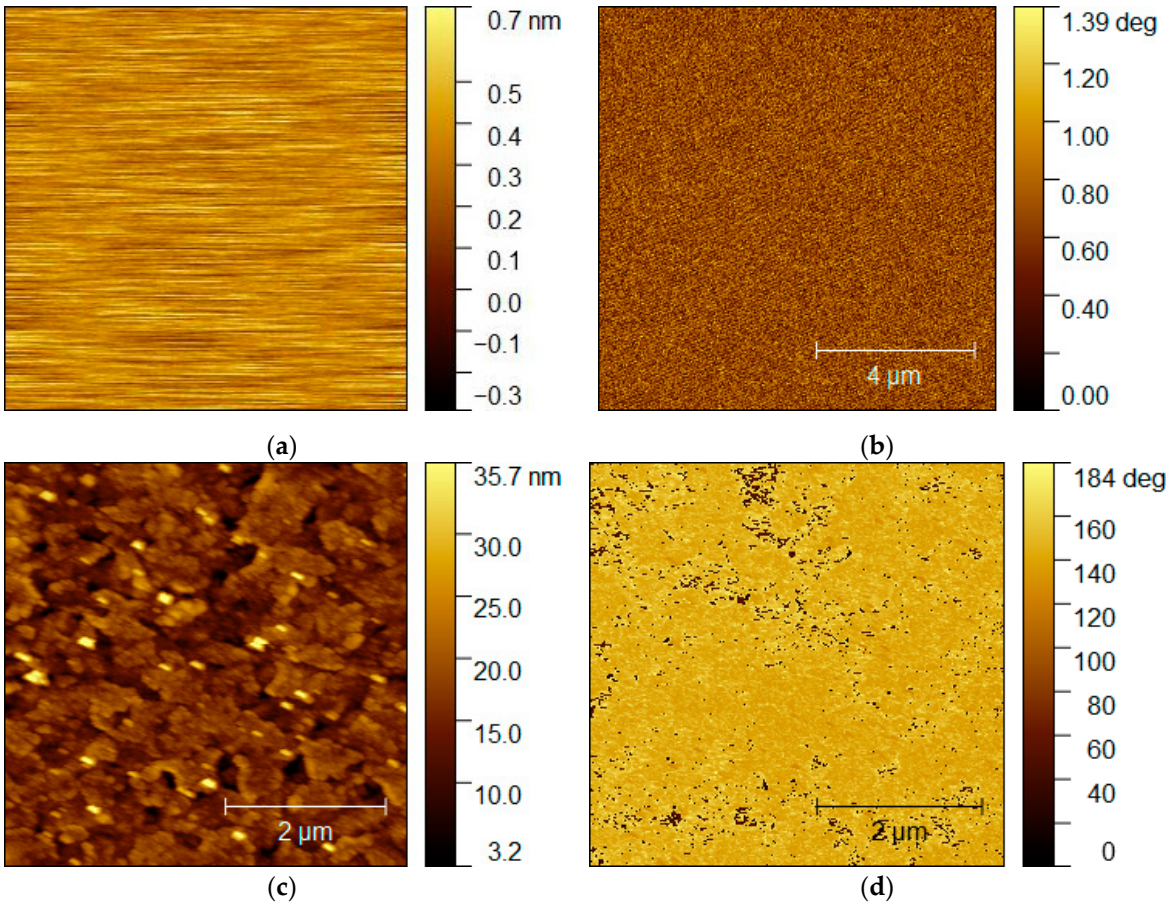


**Figure S2.** AFM images of the substrate reference samples: (**a**) glass 10x10 µm topography image; (**b**) glass 10x10 µm phase image; (**c**) glass/ITO 5x5 µm topography image; (**d**) glass/ITO 5x5 µm phase image.

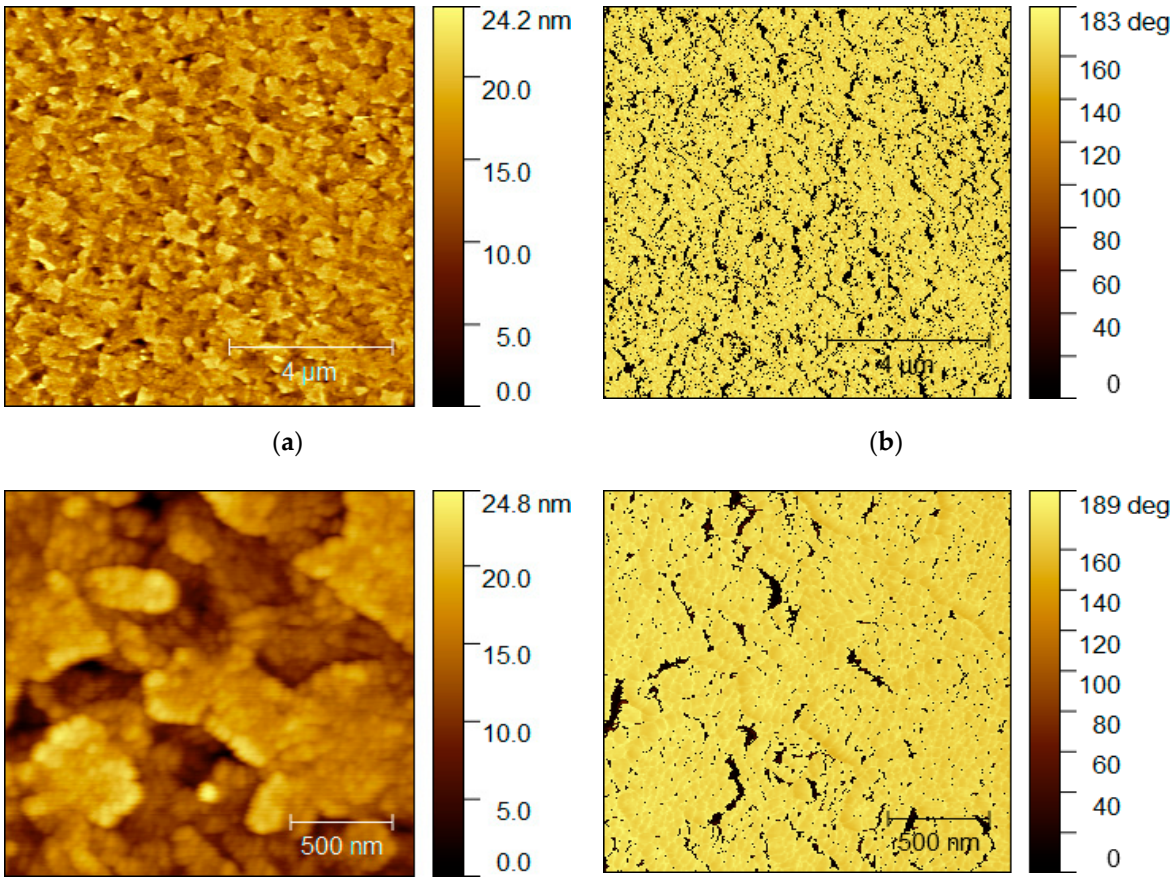


**Figure S3.** AFM images of HDI-GO5 spin coated at 1000 rpm over glass/ITO treated with ozone plasma and using DMSO as the solvent, at different magnifications: (**a and c**) topography images; (**b and d**) phase images.

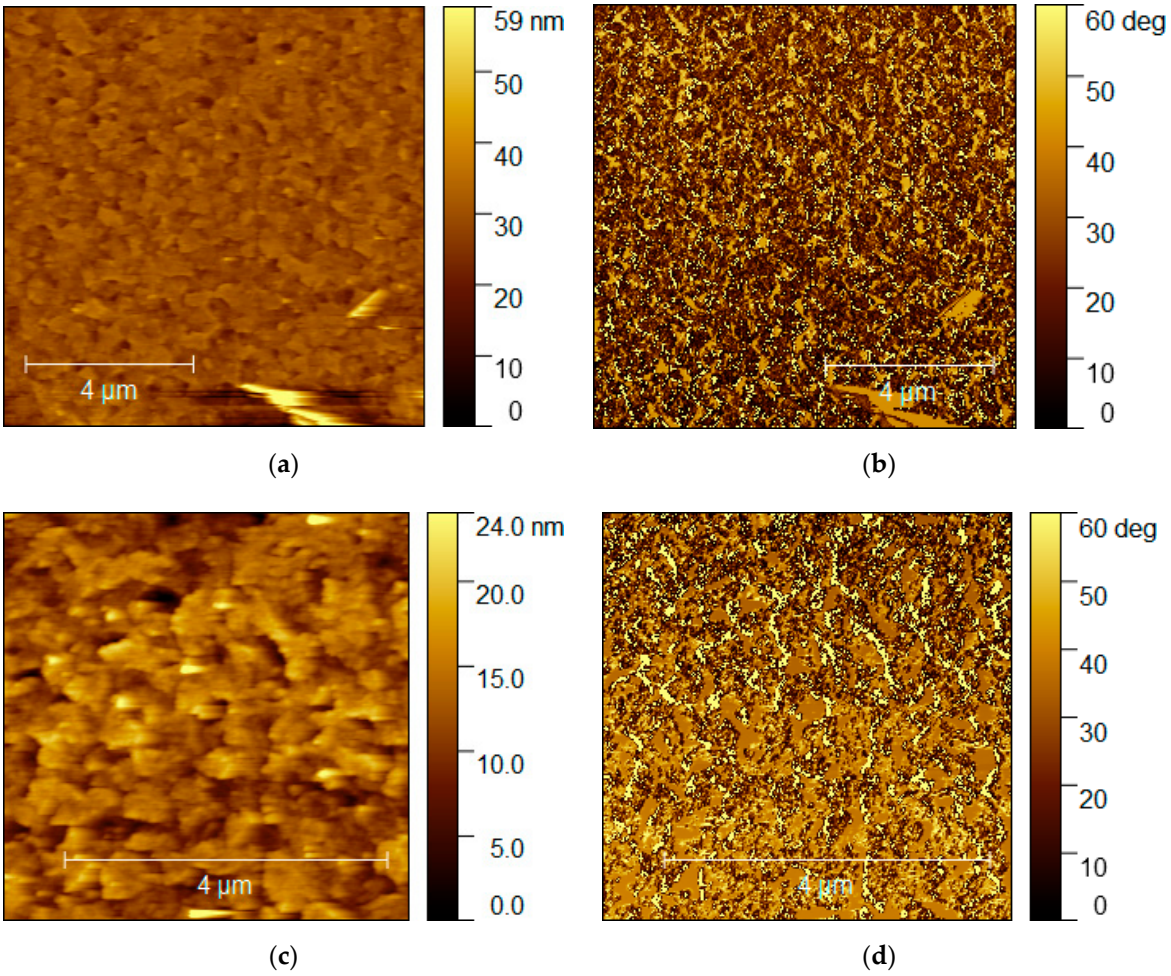


**Figure S4.** AFM images of HDI-GO 5 spin coated at 1000 rpm over glass/ITO treated with ozone plasma treatment and using IPA as the solvent: (**a**) 10x10 µm topography images; (**b**) 10x10 µm phase images; (**c**) 5x5 µm topography images; (**d**) 5x5 µm phase images.

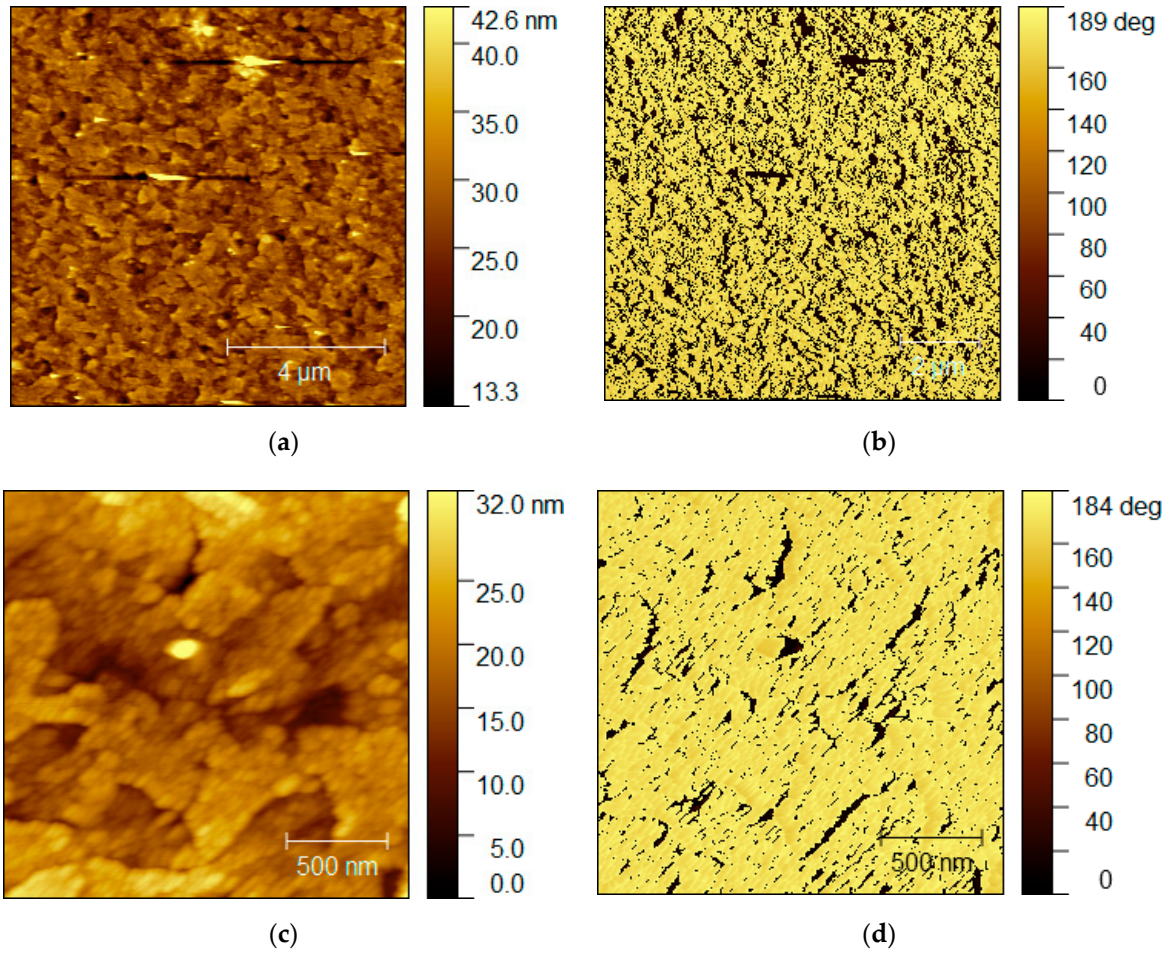


**Figure S5.** AFM images of HDI-GO 5 sample spin coated at 1000 rpm over glass/ITO substrates without plasma treatment and using IPA as solvent: (**a**) 10x10 µm topography micrograph; (**b**) 10x10 µm phase micrograph; (**c**) 5x5 µm topography micrograph; (**d**) 2x2 µm phase micrograph.