Electronic Supplementary Material (ESI) for Soft Matter.

Supporting Information

Table S1. The $A_{0\text{-}0}/A_{0\text{-}1}$ ratios of different P3HT nanofibers and P3HT nanofiber/GO composites.

Sample	$A_{0\text{-}0}/A_{0\text{-}1}$			
Ultrasonication Time(min)	0	1	5	10
High M_w P3HT nanofibers	0.609	0.612	0.625	0.637
High M_w P3HT nanofiber/GO composites	0.657	0.666	0.673	0.697
Low M_w P3HT nanofibers	0.715	0.688	0.622	0.620
Low M_w P3HT nanofiber/GO composites	-	0.650	0.603	0.597

Table S2. The C=C peak positions of high M_w P3HT nanofibers and high M_w P3HT nanofiber/GO composites.

Sample	C=C peak position (cm^{-1})			
Ultrasonication Time (min)	0	1	5	10
High M_w P3HT nanofibers	1454	1452	1450	1448
High M_w P3HT nanofiber/GO composites	1452	1451	1449	1447

Table S3. The Fwhm of high M_w P3HT nanofibers and high M_w P3HT nanofiber/GO composites.

Sample	Fwhm (cm^{-1})			
Ultrasonication Time (min)	0	1	5	10
High M_w P3HT nanofibers	33.7	32.8	31.4	29.4
High M_w P3HT nanofiber/GO composites	30.9	29.8	29.6	29.2

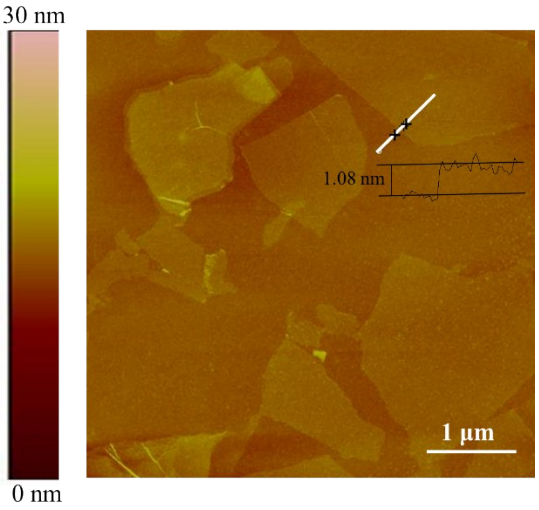

Figure S1. AFM image of GO sheets deposited on a Si substrate from an aqueous dispersion with cross-section measurements taken along the white line, indicating the sheet thickness of ca. 1.08 nm.

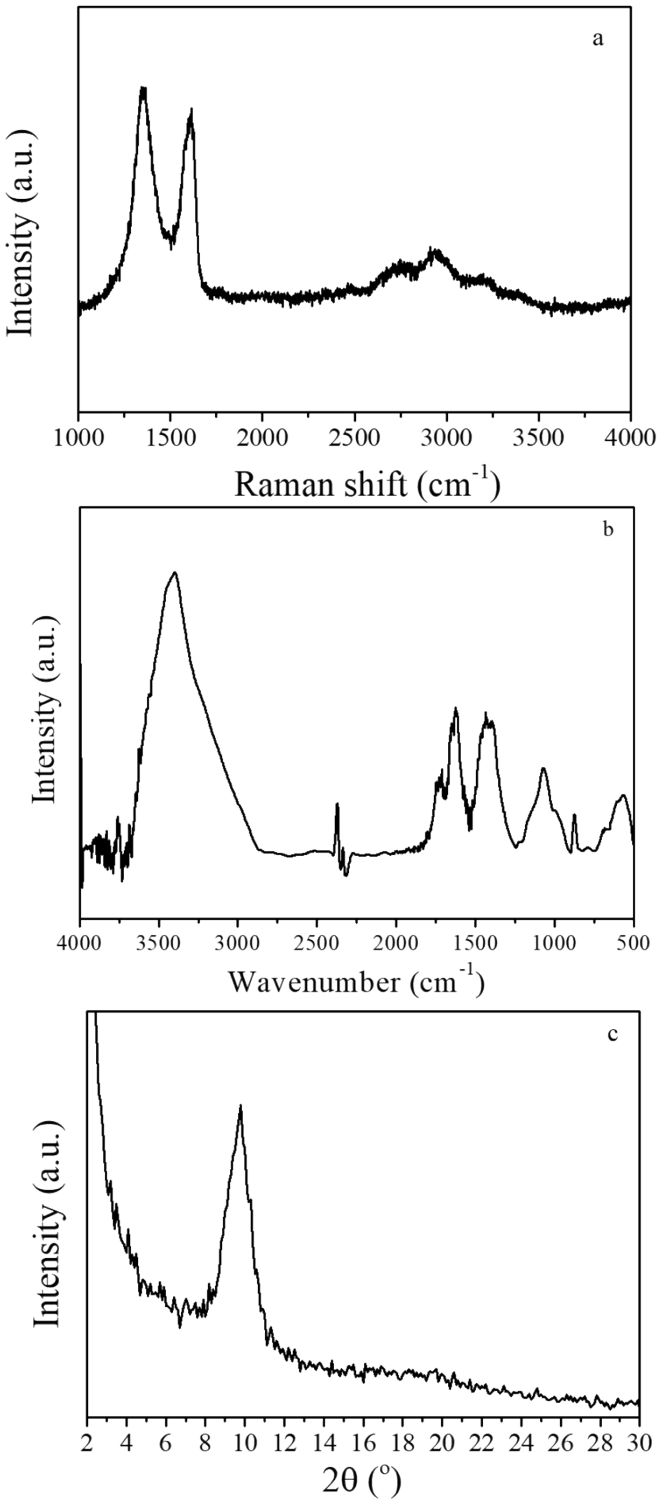

Figure S2. (a) Raman spectrum, (b) FTIR spectrum and (c) GIXRD curve of GO.

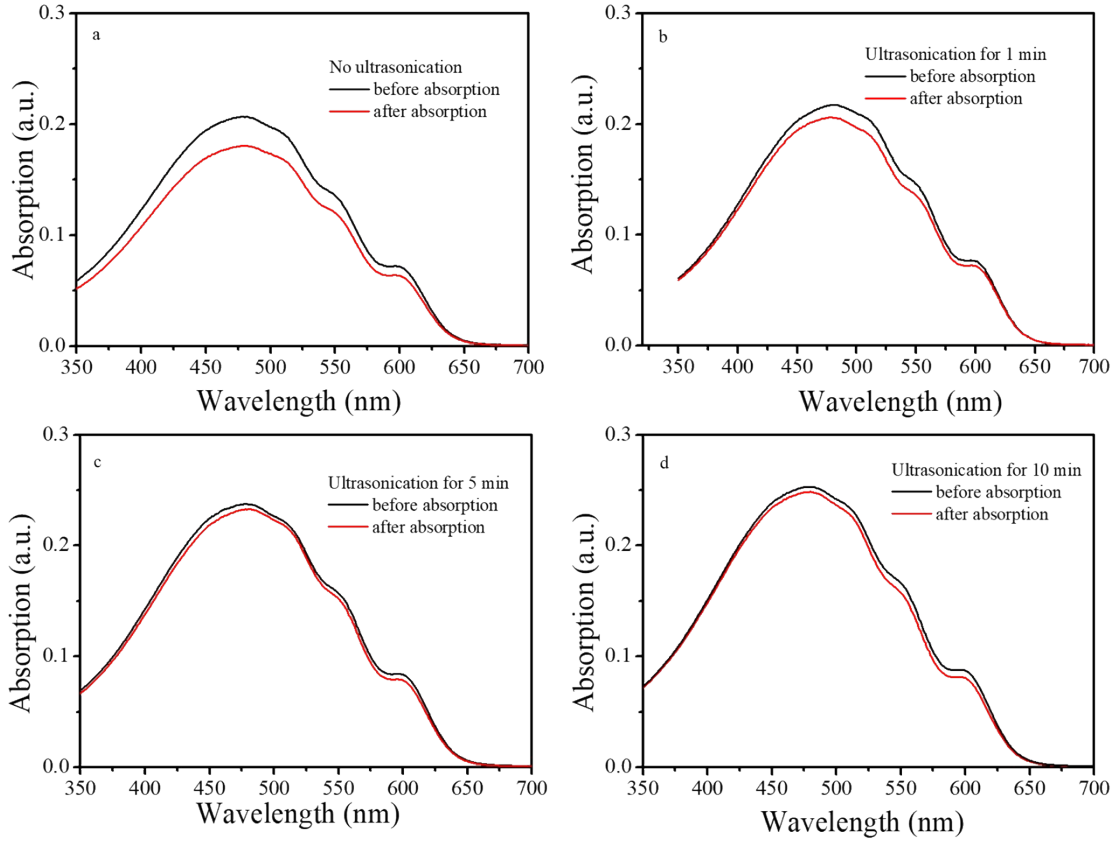

Figure S3. UV-vis spectra of high M_w finished crystallized P3HT solutions before and after GO absorption. The solution ultrasonication time: (a) 0 min, (b) 1 min, (c) 5 min, and (d) 10 min.

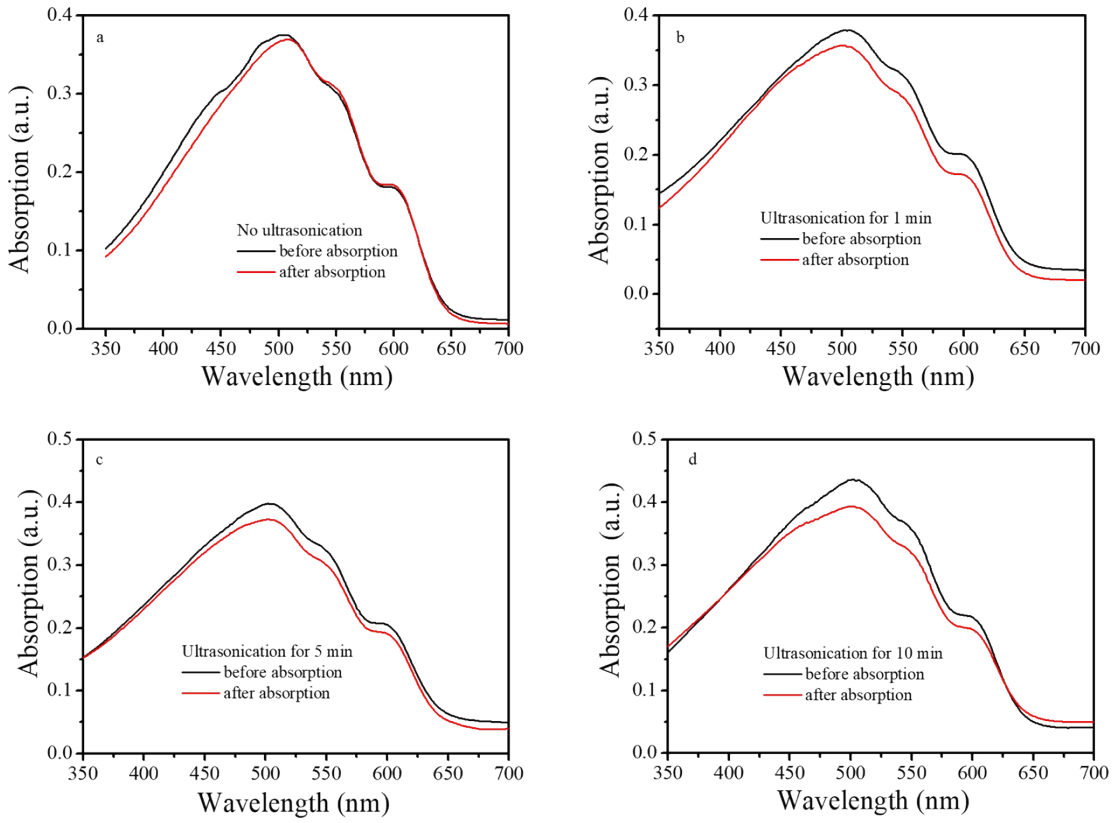

Figure S4. UV-vis spectra of low M_w finished crystallized P3HT solutions before and after GO absorption. The solution ultrasonication time: (a) 0 min, (b) 1 min, (c) 5 min, and (d) 10 min.

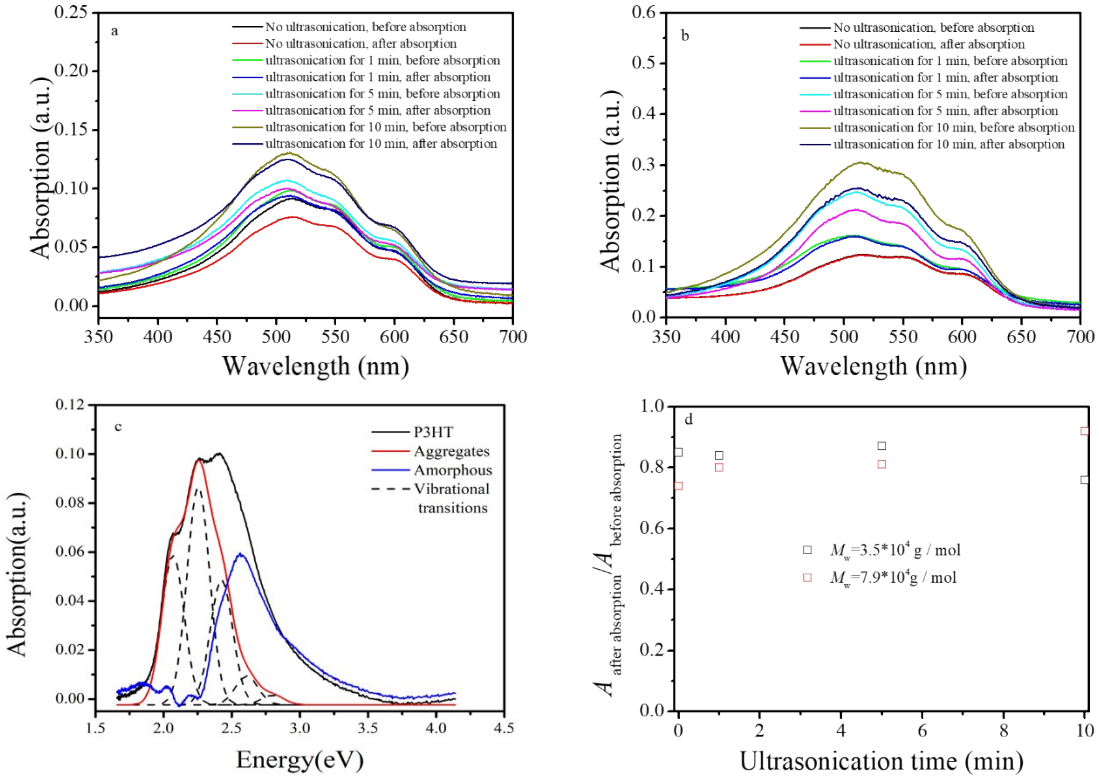

Figure S5. UV-vis spectra of (a) high M_w and (b) low M_w P3HT films dropping from the finished crystallized solution before and after GO absorption. (c) Absorption spectrum of P3HT thin film subjected to the peak fit analysis. (d) The $A_{\text{after absorption}}$ / $A_{\text{before absorption}}$ of P3HT thin films ultrasonication for different times. $A_{\text{after absorption}}$ is the amorphous peak area of the P3HT film dropping from the finished crystallized solution after GO absorption. $A_{\text{before absorption}}$ is the amorphous peak area of the P3HT film dropping from the finished crystallized solution before GO absorption.

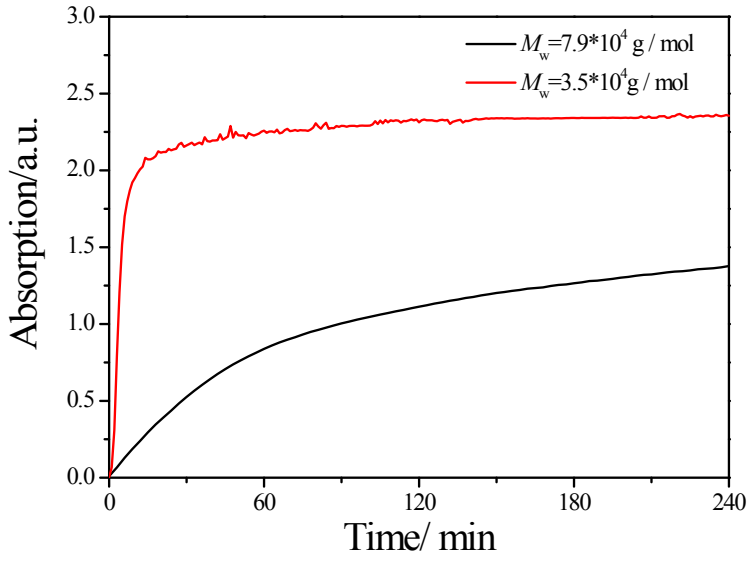

Figure S6. Absorbance at $\lambda \sim 602$ nm versus crystallization time of P3HT with different molecular weights. P3HTs crystallize in the mixed solvent at 20 ^{o}C under quiescent.