

Electronic Supplementary Information

Graphene exfoliation in organic solvents and switching solubility in aqueous media with the aid of amphiphilic block copolymers

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Procedure for calculating solubility values of exfoliated graphene.

Graphite flakes (50 mg) were sonicated for 60 min. in the appropriate solvent (100 mL, NMP or o-DCB; see Table S1). After that period, the material was centrifuged for 15 min. at 2500 rpm and the black supernatant was collected. An aliquot (5 mL) was used for recording the absorbance at 660 nm. The remaining supernatant was filtered through a pre-weighted Nylon membrane filter (pore size 0.2 μm), which was then placed in a vacuum oven and dried at 60 $^{\circ}\text{C}$ for 16 hours. After that period, it was carefully weighted and the concentration of exfoliated graphene in the appropriate solvent (i.e. NMP or o-DCB) was calculated (see Table S1). **This procedure was repeated 5 times with a 5 % error on the measured weight and the concentration of exfoliated graphene was estimated.** Then, the initial aliquot was diluted to 10, 20 and 40 mL, respectively, and the absorbance at 660 nm was recorded each time. Finally, the observed absorbance divided by the cuvette length (1 cm) was plotted versus concentration values (Fig. S1), showing linear fitting which follows the Beer-Lambert law, with an average absorption coefficient $\epsilon = 3,780 \text{ L g}^{-1} \text{ m}^{-1}$.

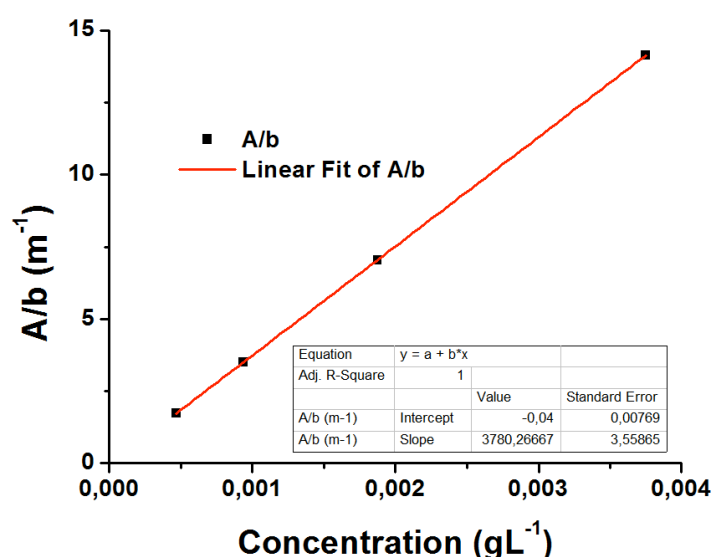


Fig. S1. Titration curve to estimate absorption coefficient of exfoliated graphene in NMP.

Table S1. Solubility values of exfoliated graphene in NMP and o-DCB at varied sonication periods.

Sample	Sonication Time (min)	Solvent	Solubility ($\mu\text{g/ml}$)
1	5	NMP	0.4
2	15	NMP	0.9
3	30	NMP	1.7
4	60	NMP	3.8
5	5	o-DCB	3.0
6	15	o-DCB	7.4
7	30	o-DCB	8.7
8	60	o-DCB	17.8

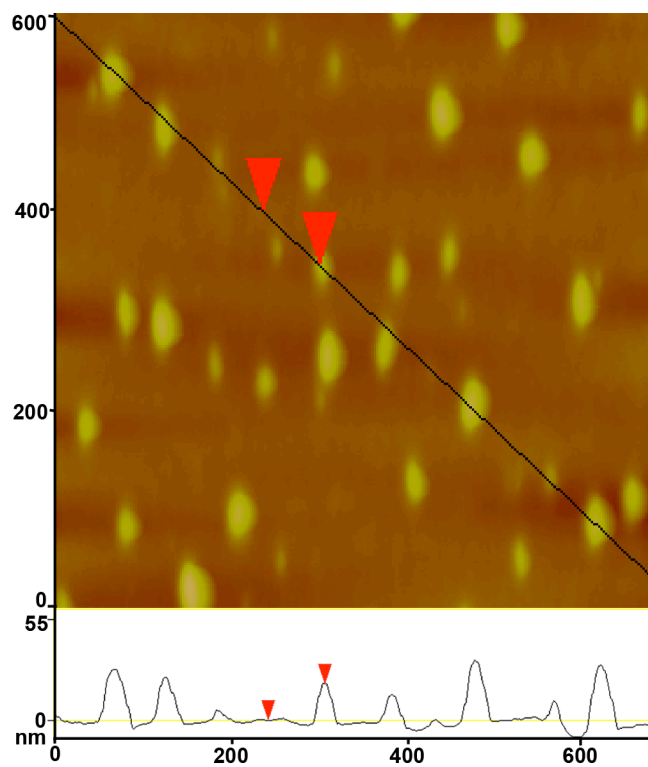


Fig. S2. AFM image and section analysis of a graphene/PS-b-P2VP ensemble from NMP dispersion (height difference between arrows is 20 nm).