Electronic Supplementary Material (ESI) for Polymer Chemistry. This journal is © The Royal Society of Chemistry 2016

## Electronic Supplementary Information

## Functionalization of graphene by a TPE-containing polymer using

## nitrogen-based nucleophiles

Jin Tu,<sup>1</sup> Min Zhao,<sup>2</sup> Xuejun Zhan,<sup>1</sup> Zhijun Ruan,<sup>1</sup> Haoli Zhang,<sup>\*, 2</sup> and Qianqian Li,<sup>1</sup> Zhen Li<sup>\*1</sup>

<sup>1</sup>Department of Chemistry, Hubei Key Lab on Organic and Polymeric Opto-Electronic Materials,

Wuhan University, Wuhan, 430072, China.

E-mail: lizhen@whu.edu.cn or lichemlab@163.com

<sup>2</sup> State Key Laboratory of Applied Organic Chemistry, College of Chemistry & Chemical Engineering,

Lanzhou University, Lanzhou, 730000, P. R. China.

## Table of Contents

- 1. **Figure S1.** Photographs of PCT with gradual addition of NaH under the illumination of a hand-held UV lamp ( $\lambda_{ex} = 365$  nm).
- 2. Figure S2. SEM of RGO-PCT-s (left) and SEM of RGO-PCT-i (right).
- 3. Figure S3. PL spectra of RGO-PCT-s in THF/H<sub>2</sub>O mixture with different water fraction. Concentration =  $10 \mu M$ .
- 4. Figure S4. XRD of PCT, RGO-PCT-s, RGO-PCT-i and GO.
- 5. Figure S5. Raman spectra of GO, RGO-PCT-s and RGO-PCT-i.
- 6. **Figure S6.** Open-aperture Z-scan curves of GO in water with different input intensities at 532 nm.
- 7. Figure S7. Open-aperture Z-scan of PCT in THF with different input intensities at 532 nm.
- 8. **Figure S8.** Open-aperture Z-scan results of RGO-PCT-i, GO and PCT, with the same linear transmittance of 75% to 8 ns, 532 nm pulses at an input intensity of 273 μJ.
- 9. **Figure S9.** Open-aperture Z-scan curves of RGO-PCT-s in  $H_2O$ .



Fig. S1 Photographs of PCT with gradual addition of NaH under the illumination of a hand-held UV lamp ( $\lambda_{ex}$  = 365 nm).





Fig. S3 PL spectra of RGO-PCT-s in THF/H2O mixture with different water fractions. Concentration = 10  $\mu M.$ 











