Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Photoelectric and Flexible poly (styrene-b-ethylene/butylene-b-styrene)-Zinc porphyrin- graphene hybrid composite: synthesis, performance, and mechanism

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1. XPS Characterization of Graphene

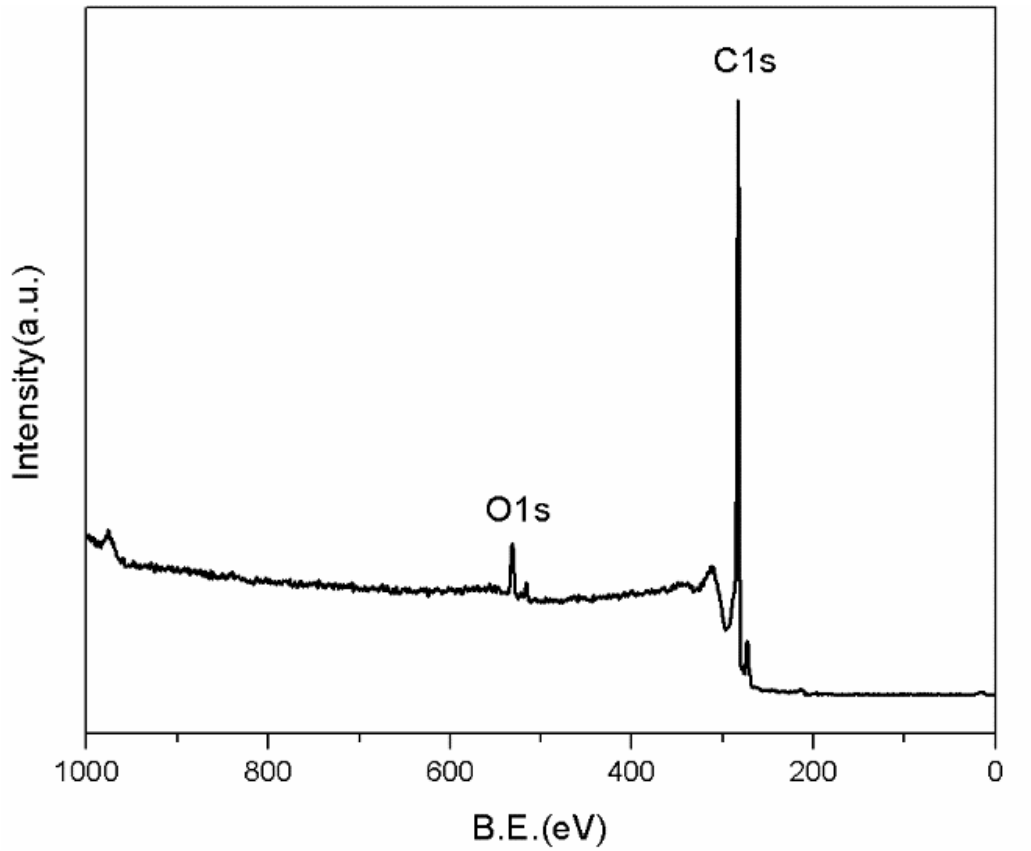

Fig. S1 XPS spectra of Graphene

Table S1 Element contents of Graphene calculated based on the XPS spectra in Fig. s1

Sample	Element content/%	
	C	O
Graphene	96.31%	3.69%

A typical XPS spectrum shows that mechanically exfoliated graphene is composed of 96.31% carbon and 3.69% oxygen and does not contain any heteroatoms.

2. Raman Characterization of Graphene

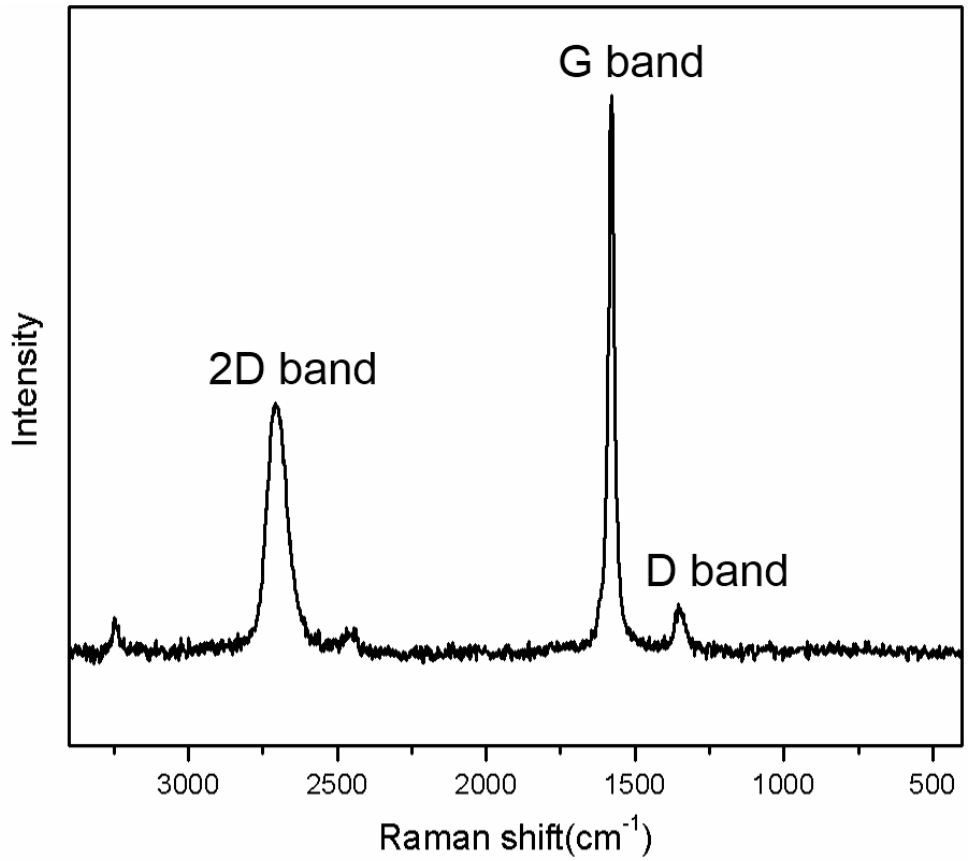

Fig. S2 Raman spectra of Graphene

A typical Raman spectrum shows the sheet structure of graphene and without much defects. [1]

3. Porphyrinization degree

Porphyrinization degree is calculated by the equation below:

$$G = \frac{5S_{\text{-}NH}}{S_{\text{-}NH} + 2S_{\text{benzene}}}$$

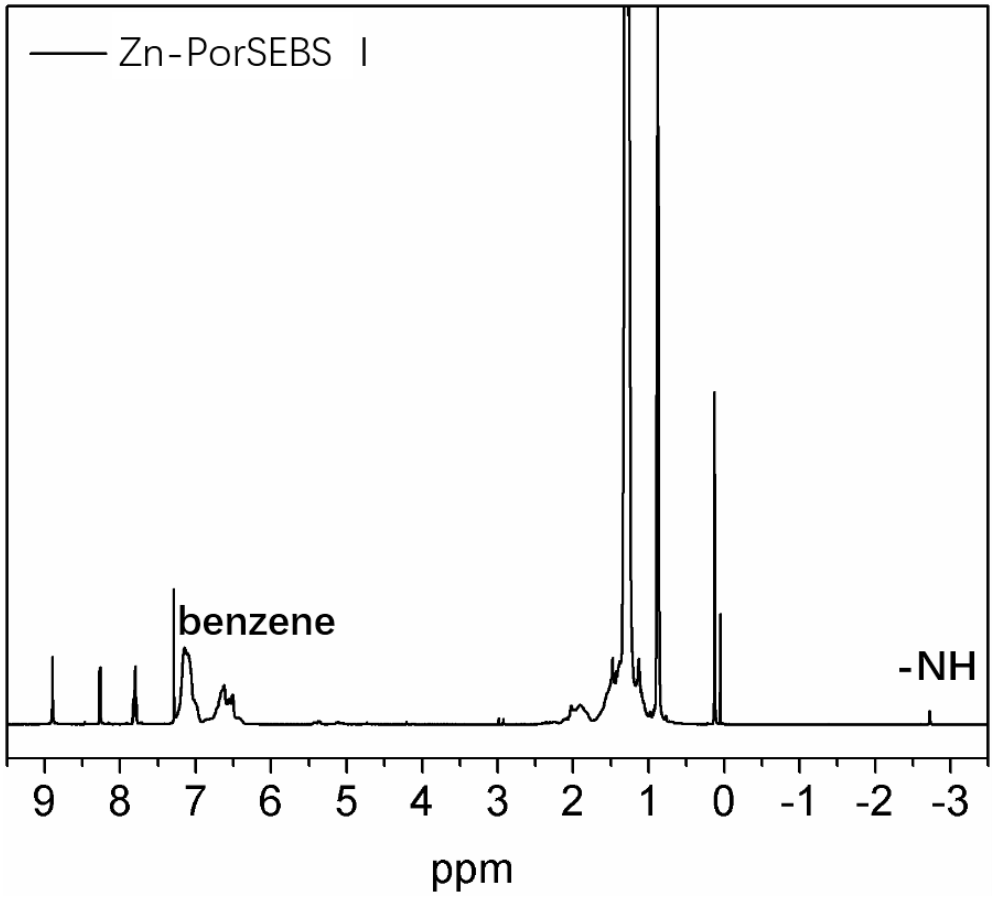

Fig. S3 ^{1}H-NMR spectra of Zn-PorSEBS I

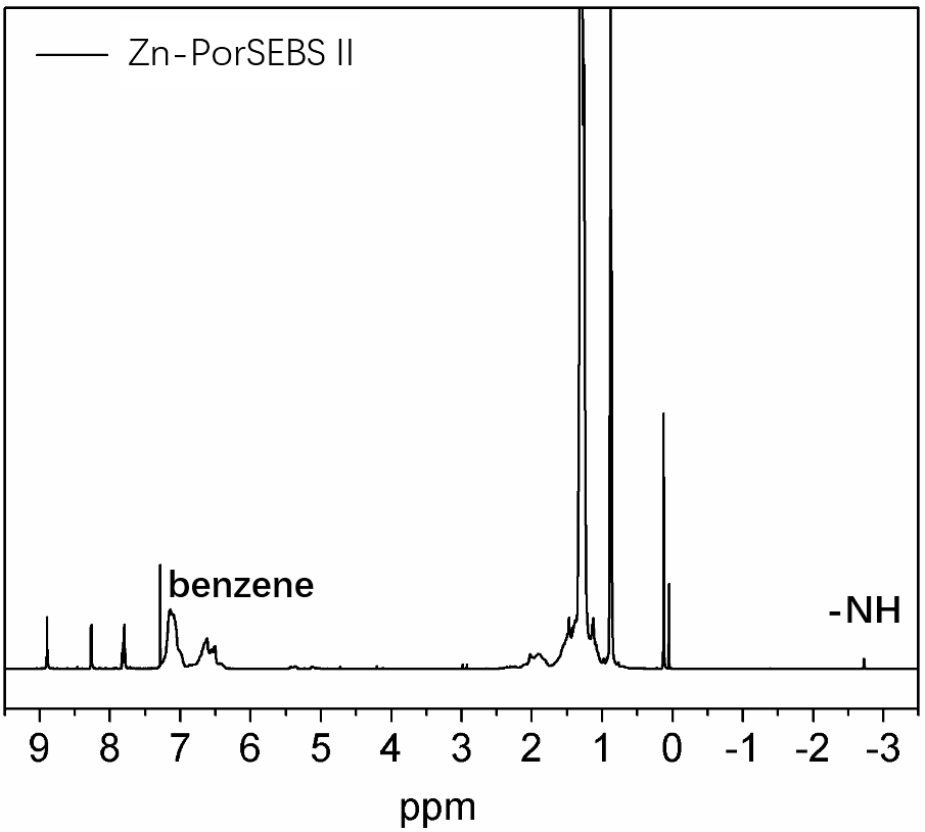

Fig. S4 ^{1}H-NMR spectra of Zn-PorSEBS II

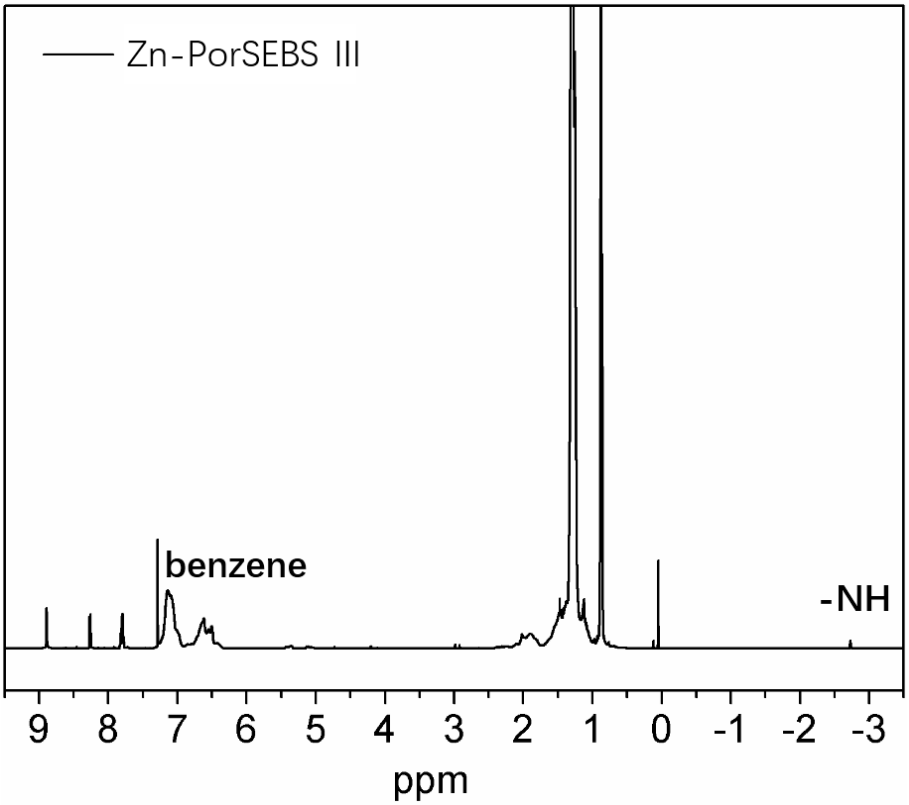

Fig. S5 ^{1}H-NMR spectra of Zn-PorSEBS III

Table S2 Summary of chloromethylation degree of Zn-PorSEBS

Samples	Zn-PorSEBS I	Zn-PorSEBS II	Zn-PorSEBS III
Chloromethylation degree (%)	7.2%	10.9%	13.6%

References:

1. E. J. Heller, Y. Yang, L. Kocia, W. Chen, S. Fang, M. Borunda and E. Kaxiras, *Acs Nano*, 2016, **10**, 2803-2818.