

Supporting information

A one-step building of smart graphene/silica nanocomposite and its use for anticorrosion in waterborne coating

Table S1. Formula of BTA@SN-GO with different R-GO or BTA amount

Experiment number	TEOS amount	R-rGO amount	BTA amount	CTAB amount
1	7g	1g	2.5g	1.5g
2	7g	6g	2.5g	1.5g
3	7g	10g	2.5g	1.5g
4	7g	15g	2.5g	1.5g
5	7g	100g	2.5g	1.5g
6	7g	10g	0.25g	1.5g
7	7g	10g	0.5g	1.5g
8	7g	10g	1g	1.5g
9	7g	10g	5g	1.5g

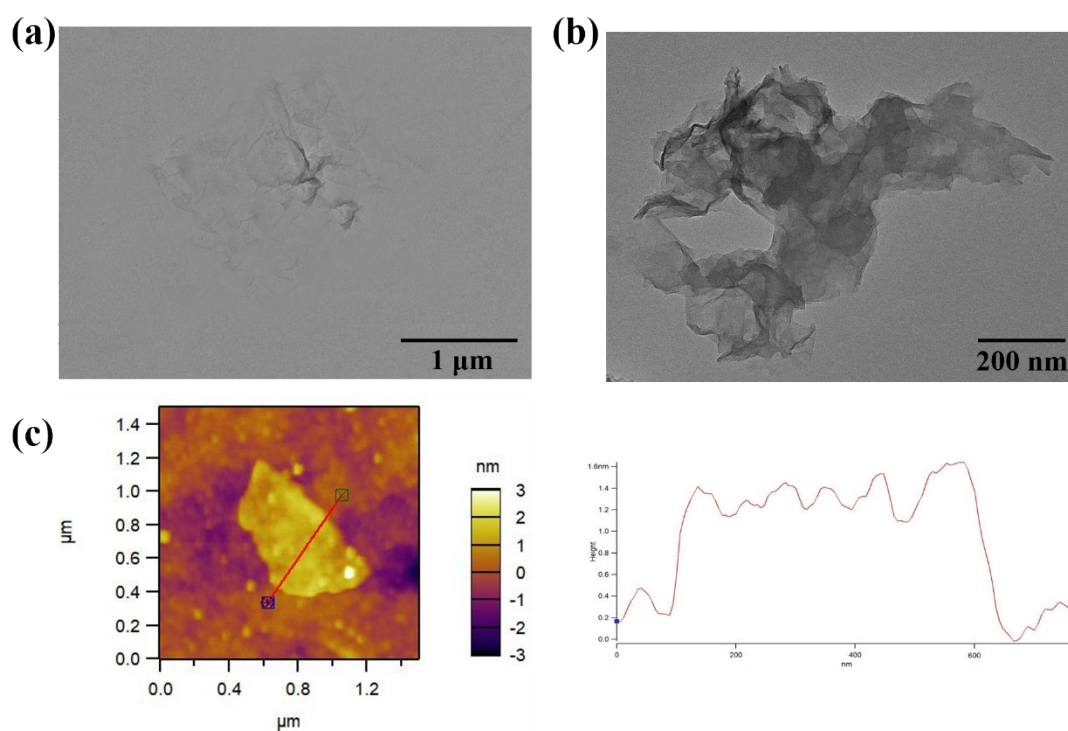


Figure S1. TEM images of GO (a) and H-rGO (b); AFM images and height profiles of GO (c).

Table S2. Zeta potential of GO and R-rGO

	GO	R-rGO
Zeta potential	-33.3 mV	-46.1 mV

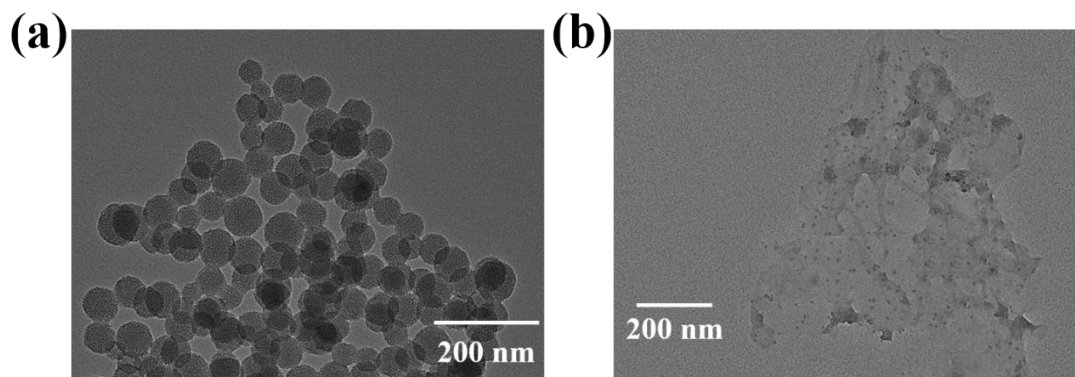


Figure S2. TEM image of SN (a) and SN-rGO (b) nanoparticles.

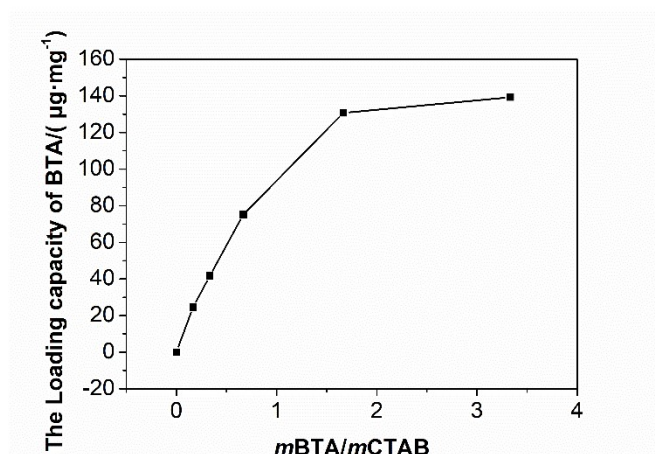


Figure S3. The loading capacity of BTA of BTA@SN as the functions of the mass ratios of BTA to CTAB in reactants.

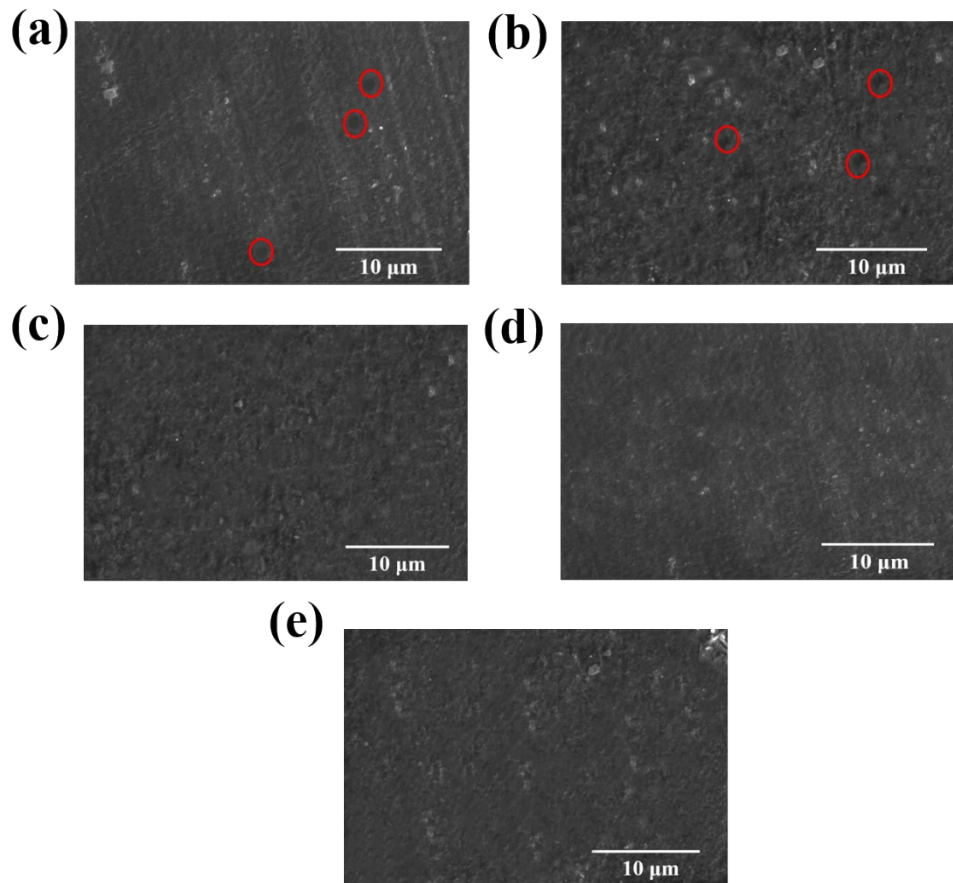


Figure S4. SEM images of coatings. (a) BPc (b) SPc (c) SGPc (d) SrGPc (e) SrGIAC

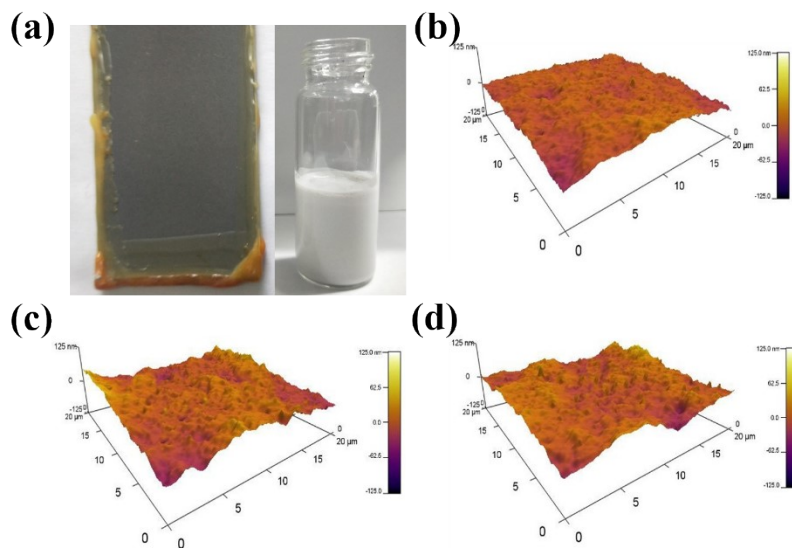


Figure S5. SEM images of coatings. (a) BPc (b) SPc (c) SGPc (d) SrGPc (e) SrGIAC

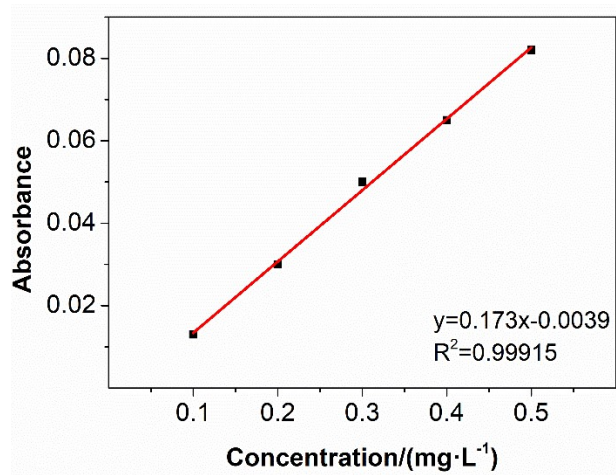


Figure S6. Standard curve of ferric ions.

Table S3. Absorbance value with different immersion time

Sample	Time	Abs.
BPc	1h	0.016
	24h	0.024
	48h	0.038
	72h	0.052
	96h	0.063
(B+SN-rGO)Pc	1h	0.014
	24h	0.017
	48h	0.026
	72h	0.037
	96h	0.053
(B@S+rG)Pc.	1h	0.018
	24h	0.023
	48h	0.034
	72h	0.046
	96h	0.061
SrGIAc-0.25	1h	0.013
	24h	0.014
	48h	0.019
	72h	0.023
	96h	0.030

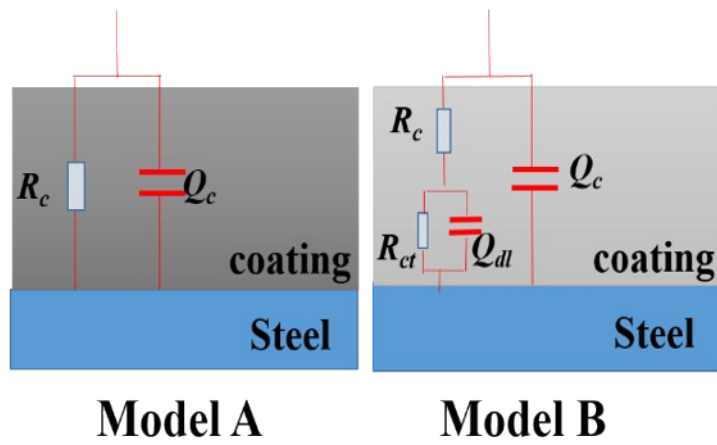


Figure S7. Equivalent electrical circuits used to fit EIS results.