Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Information

The effect of doping temperature on nitrogen-bonding configuration of nitrogen-doped graphene by hydrothermal treatment

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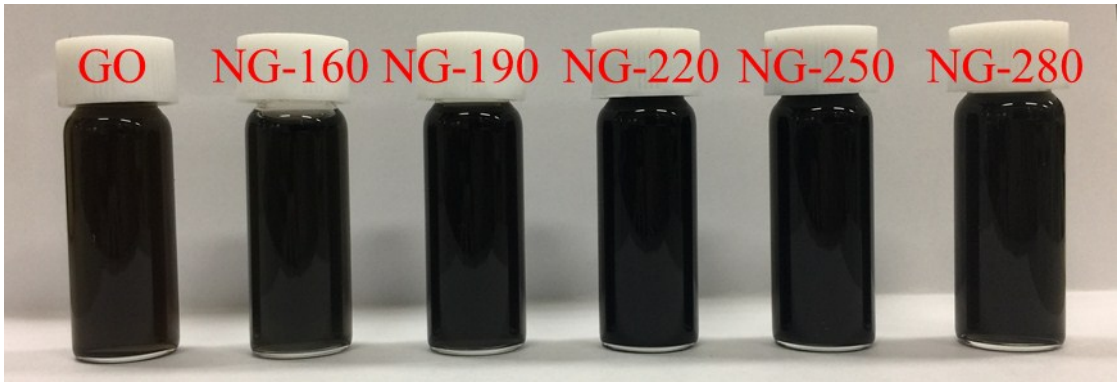

Fig. S1 Photograph of the dark brown solution of GO and NG sample. (Conc. 0.5mg/mL)

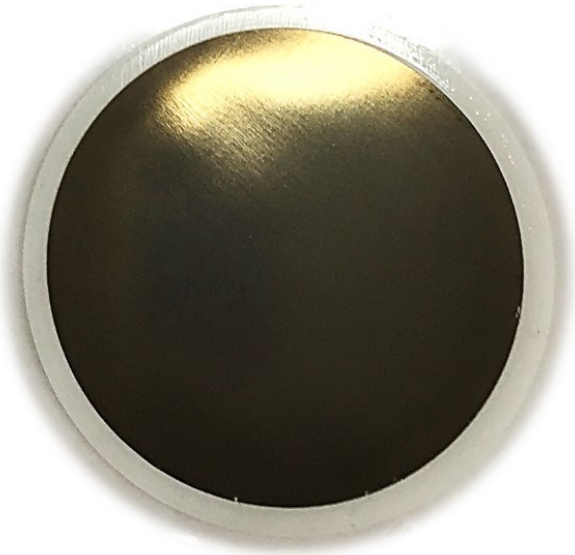

Fig. S2 Photograph of the typical filtrated NG on ceramic substrate; Shiny dark black one is nitrogen-doped graphene part and below one is ceramic substrate (47mm).

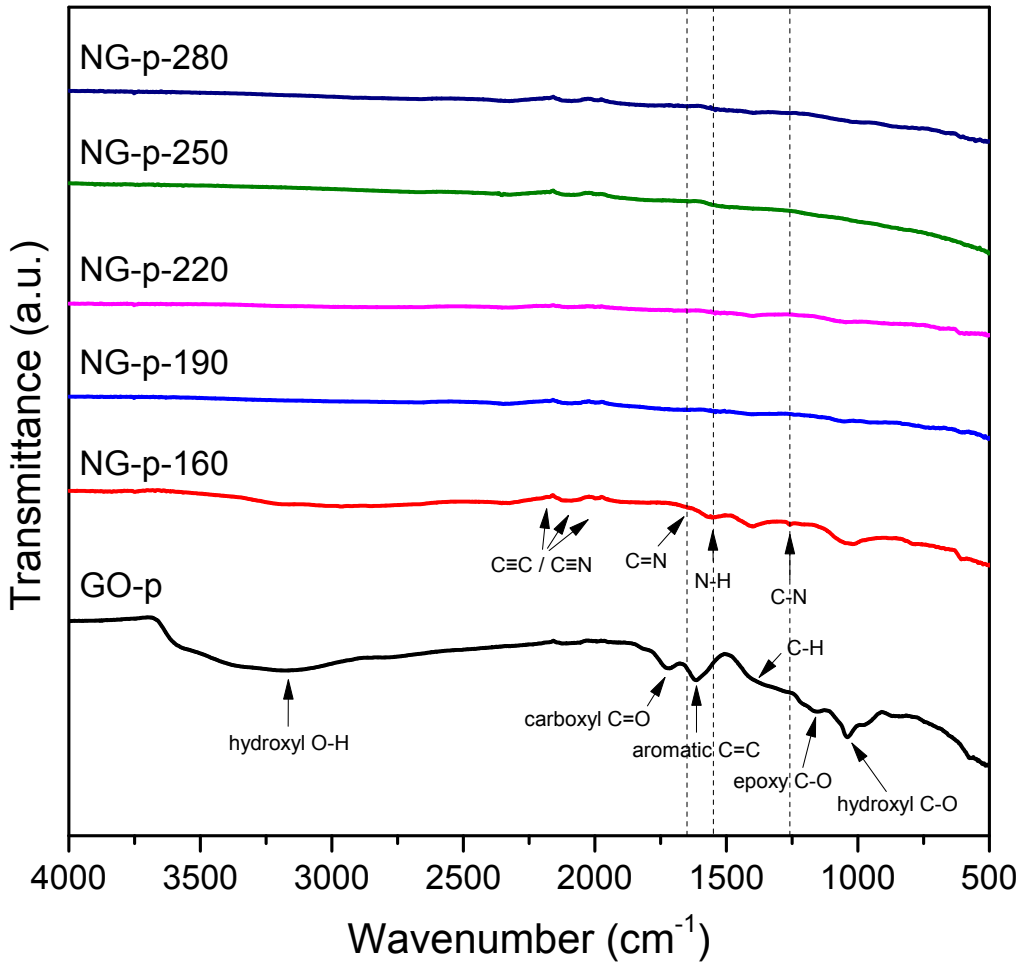

Fig. S3 FT-IR spectra of GO and NG powder samples synthesized by different doping temperature.

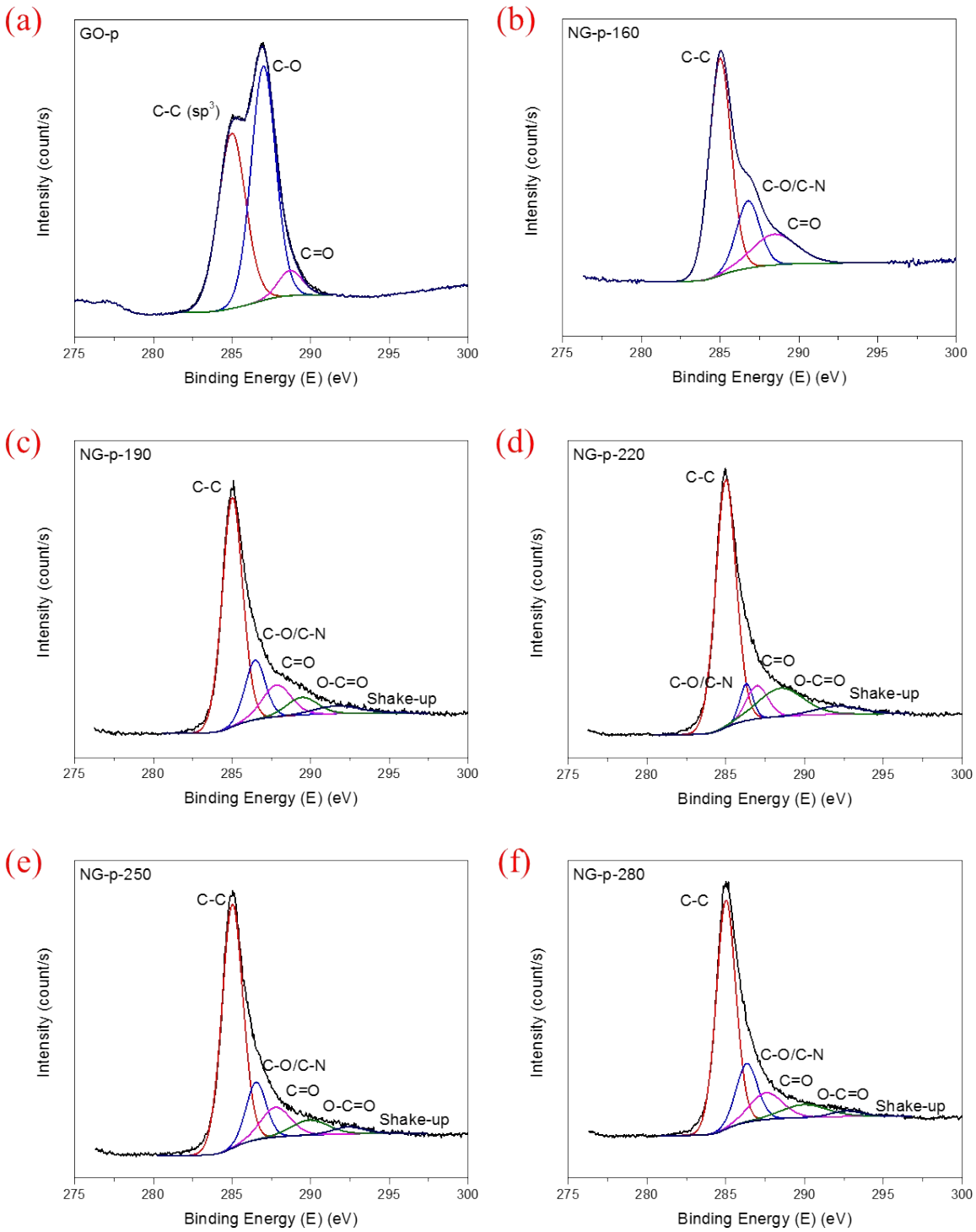

Fig. S4 High resolution of C 1s spectra of powder samples: (a) GO, (b) NG-p-160, (c) NG-p-190, (d) NG-p-220, (e) NG-p-250, (f) NG-p-280.

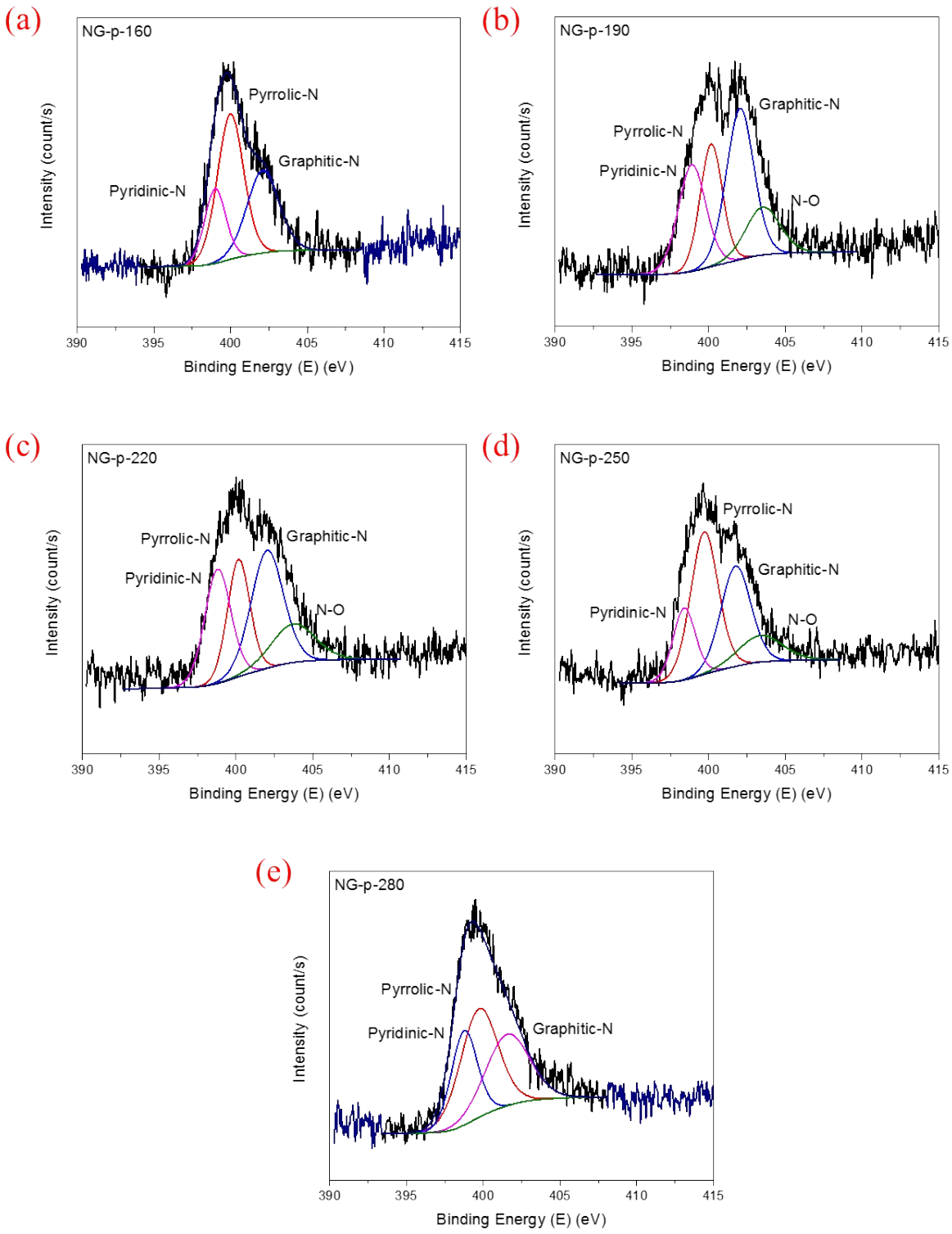

Fig. S5 High resolution of N 1s of NG powder samples; (a)NG-p-160, (b)NG-p-190, (c)NG-p-220, (d)NG-p-250, (e)NG-p-280

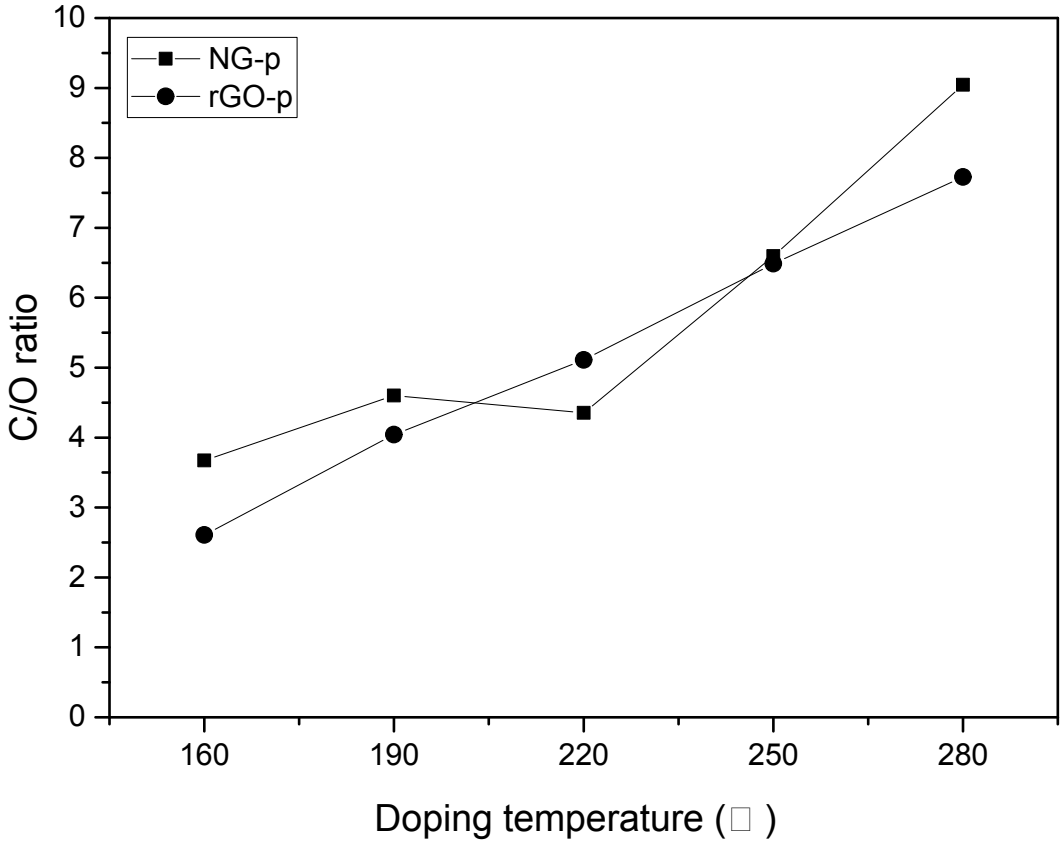

Fig. S6 The C/O ratio (i.e. reduction degree) comparison between NG and rGO powders by doping temperature. It indicates that NG-p is generally higher than that of rGO-p, in some case, rGO-p is greater than or similar to that of NG-p.

Table. S1 List of parameters estimated from normalized Raman data for various samples

	D peak	I_D	FWHM(D)	G peak	I_G	FWHM(G)	I_D/I_G
GO-p	1350	0.967918	173.3	1592	0.922506	109.5	1.049
NG-p-160	1349	0.975473	179.6	1582	0.848722	100.7	1.149
NG-p-190	1350	0.974062	218.2	1584	0.842853	97.6	1.156
NG-p-220	1347	0.970771	201.5	1585	0.797519	94.9	1.217
NG-p-250	1347	0.979484	217.5	1589	0.789652	95.1	1.240
NG-p-280	1348	0.965377	200.4	1587	0.764012	95.8	1.264