Electronic Supplementary Information

Reduction of Graphene Oxide to Highly Conductive Graphene by Lawesson's Reagent and Their Electrical Applications

Hongtao Liu,[a,b] Lei Zhang,[a,b] Yunlong Guo,[a] Cheng Cheng,[a,b] Lianjiang Yang,[a,b] Lang Jiang,[a] Gui Yu,[a] Wenping Hu,[a] Yunqi Liu[,a] and Daoben Zhu*[,a]*

[a] *Beijing National Laboratory for Molecular Sciences, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, P. R. China. E-mail: liuyq@iccas.ac.cn; zhudb@iccas.ac.cn*

[b] *University of Chinese Academy of Sciences, No.19A Yuquan Road, Beijing 100049, P. R. China.*

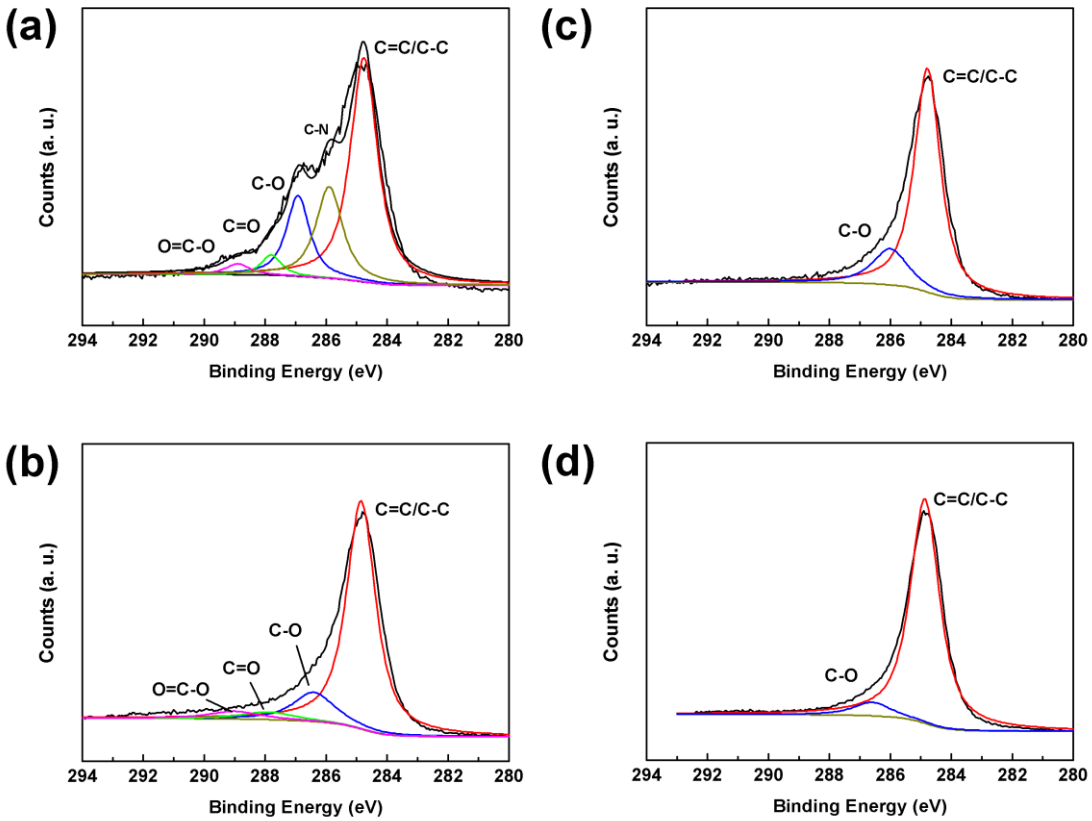

Fig. S1. Normalized XPS spectra of C1s peaks of (a) HRGO, (b) GO300, (c) GOLR300 and (d) GO900.

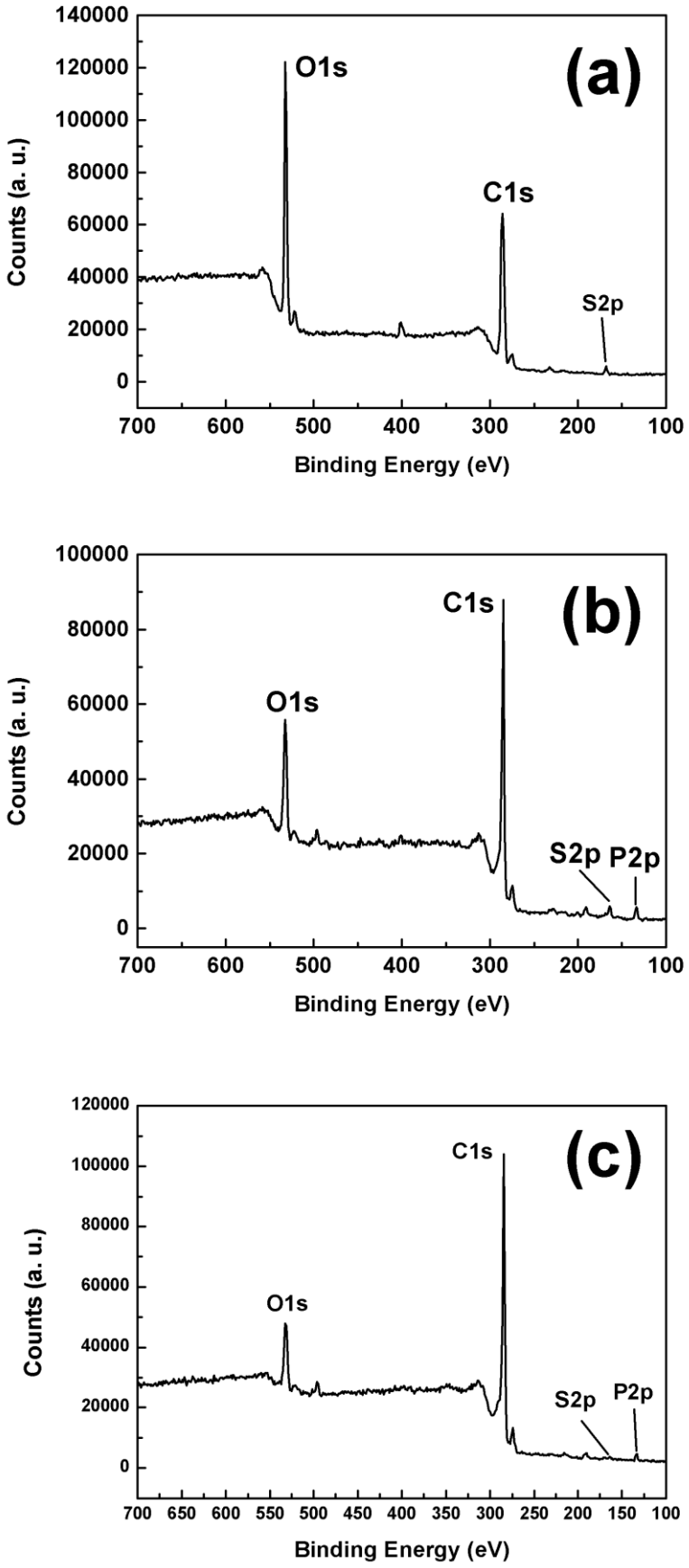

Fig. S2. XPS survey spectra of (a) GO, (b) GOLR and GOLR300.

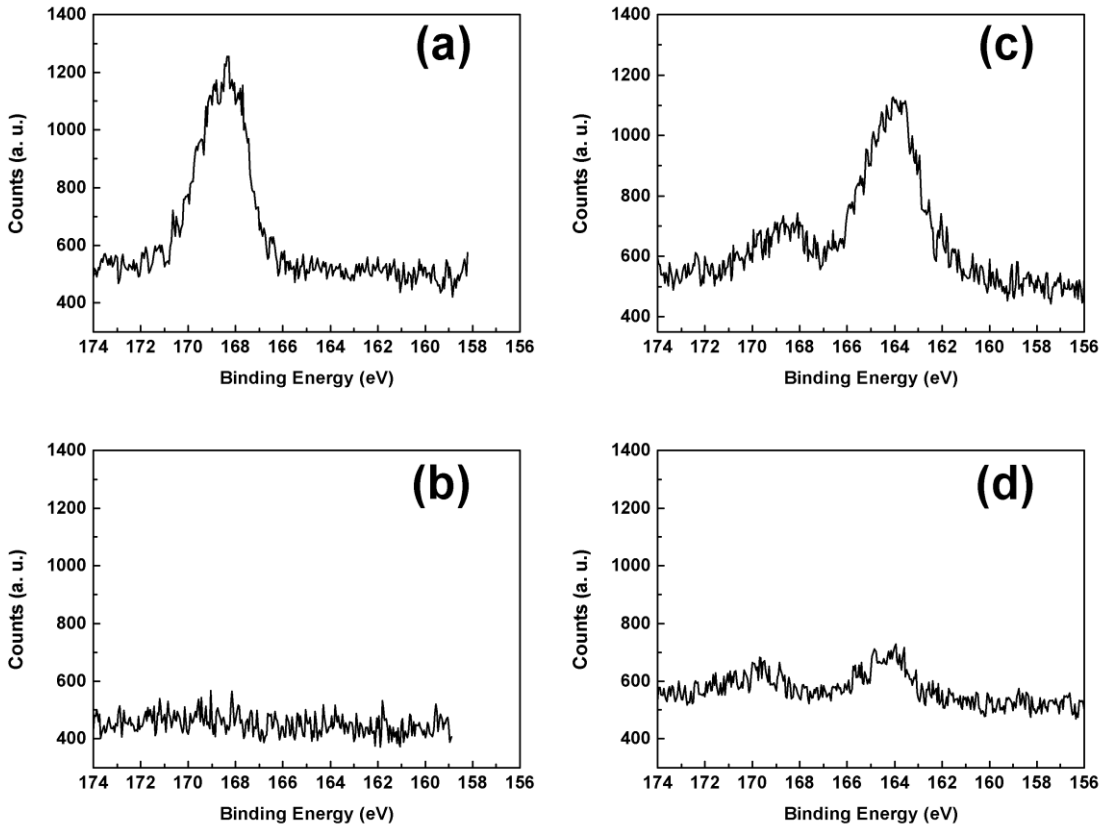

Fig. S3. XPS spectra of S2p of (a) GO, (b) GO300, (c) GOLR and (d) GOLR300.

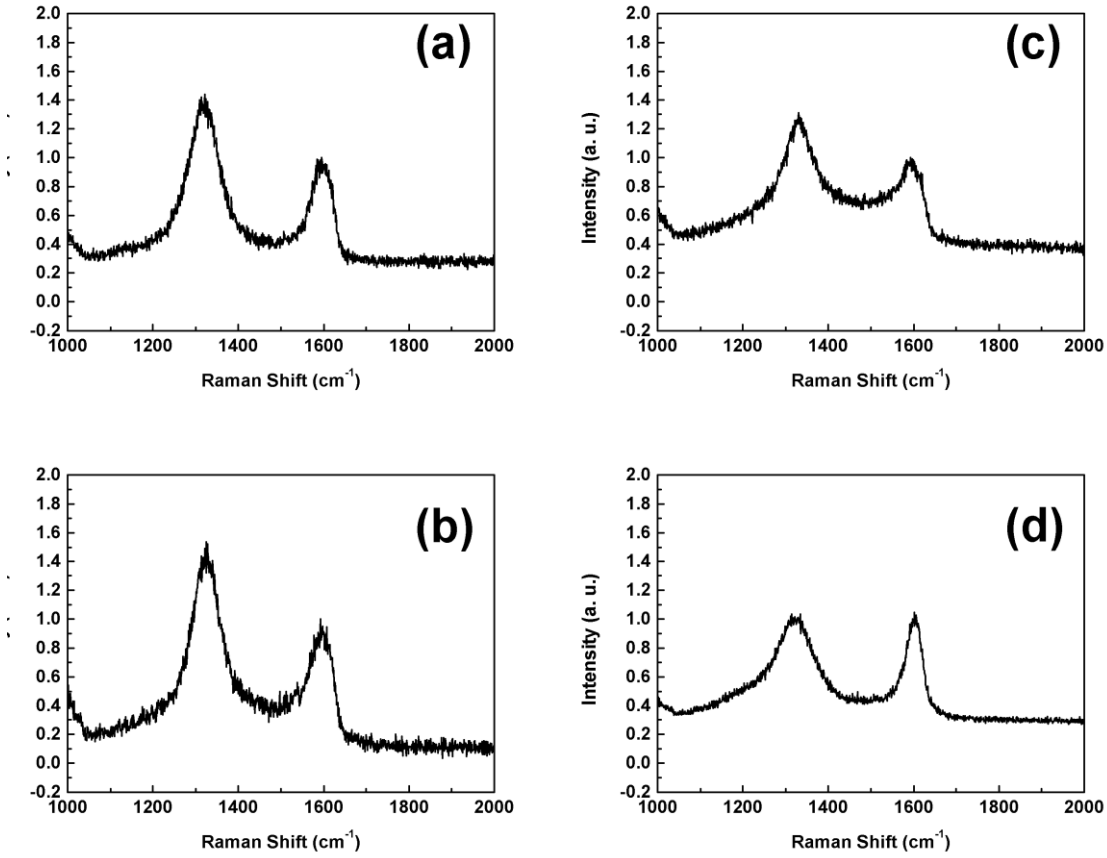

Fig. S4. Raman spectra of (a) HRGO, (b) GO300, (c) GOLR300 and (d) GO900, normalized at G bands.

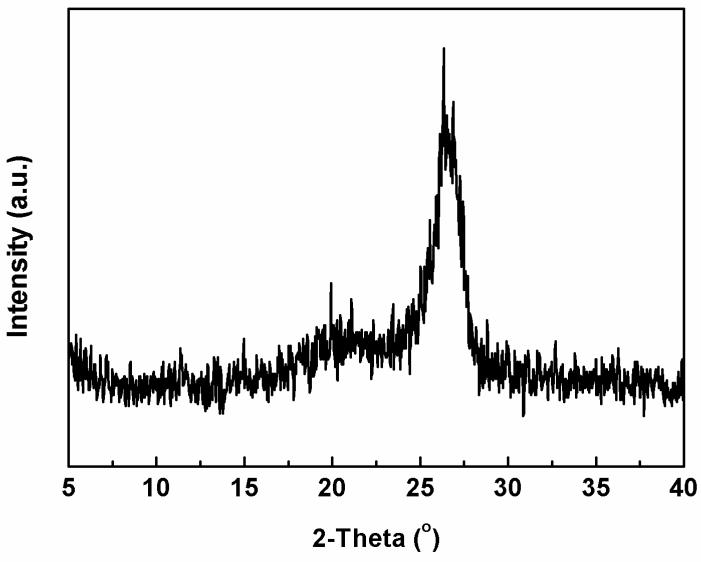

Fig. S5. XRD pattern of GO900.

Table S1. Raman Peak Positions

Raman shift/cm^{-1}	GO	GOLR	GOLR300	GO300	HRGO	GO900
D-band	1330	1318	1326	1322	1315	1321
G-band	1600	1587	1587	1594	1589	1599

Table S2. Mobilities of RGO obtained by different methods

Entry	Mobility/ $cm^2/(V\ s)$		Ref	Reduction Method
	Hole	Electron		
1	5.4 (1L) 50 (2L) 92 (3L)	1.1 (1L) 10 (2L) 51 (3L)	1	1000 ºC
2	0.01-1	0.003-0.2	2	Hydrazine+ hydrogen plasma
3	0.7	0.2	3	dimethyhydrazine
4	0.6	1.2	4	300 ºC
5	~ 1	~ 0.2	5	Hydrazine + 200 ºC
6	0.15	0.06	6	UV+PW
7	95		7	Rheologically derived RGO
8	15-40	10-30	8	Solvothermal
9	210		9	Alcohol + 1000 ºC, DMF
10	1-50		10	Ethelyne, CVD, 800 ºC

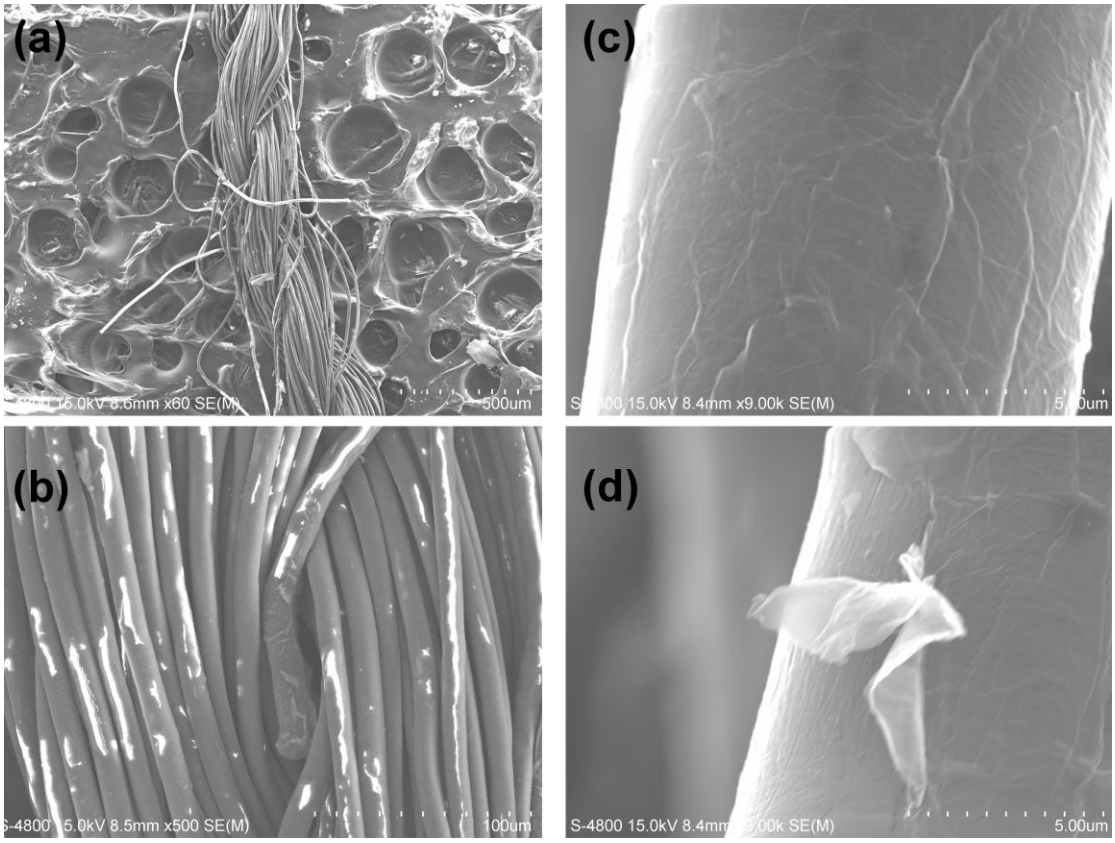

Fig. S6. SEM images of the cotton wire coated with GOLR. It can be seen that GOLR was tightly wrapped on surface of the wire. Those images were captured by scanning electron microscopy (SEM) (Hitachi S-4800, Hitachi, Ltd., Tokyo, Japan).

References:

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