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Electronic Supplementary Information for:

Synthesis of high quality reduced graphene oxide nanosheets free of paramagnetic metallic impurities

Nanjundan Ashok Kumar,[§]* Serge Gambarelli, Florence Duclairoir, Gérard Bidan and Lionel Dubois*

Laboratoire de Chimie Inorganique et Biologique, UMR-E CEA-UJF,

Institute for Nanoscience and Cryogenics,

Commissariat à l'énergie atomique (CEA), 17 rue des martyrs, 38054,

Grenoble, cedex 9, France

E-mail: ashoknanjundan@yahoo.com; ashok.nanjundan@tcd.ie or Lionel.Dubois@cea.fr

Fax: +33 (0) 438785090

[§]Presently at: *Centre for Adaptive Nanostructures and Nanodevices,*

Trinity College Dublin, Ireland

Fig. S1. Digital pictures of as prepared Sn-rGO (Please note that this procedure was repeated several times to check reproducibility and was also done with fewer amounts (1 g) of $SnCl_2$)

Reduction of graphite oxide (rGO) using hydrazine[1, 2]

In a typical procedure, GO (500 mg) was loaded in a 500-mL round- bottom flask and water (500 mL) was then added, yielding an in homogeneous yellow-brown dispersion. This dispersion was sonicated using a Branson 2210 ultrasonic bath cleaner until it became clear with no visible particulate matter. Hydrazine hydrate (1.00 mL, 32.1 mmol) was then added and the solution heated in an oil bath at 100 °C under a water-cooled condenser for 24 h over which the reduced GO gradually precipitated out as a black solid. This product was isolated by filtration over a medium fritted glass funnel, washed copiously with water (5L) and methanol (1L), and dried o under vacuum to obtain black solid product cake.

Reduction of GO via Fe[3]

In a typical experiment, 1g of Fe powder (Aldrich) and 20 mL of HCl (35 wt. %) were directly added into 100 mL of GO suspension at ambient temperature. The mixture was stirred for 30 min and then maintained for a period of time. After reduction, 15 mL of HCl (35 wt. %) was added into the above solution in order to fully remove excess Fe powder. Finally, the resulting rGO was collected with filtration, washed with pure water and ethanol several times, and dried at 100 °C overnight in a vacuum oven.

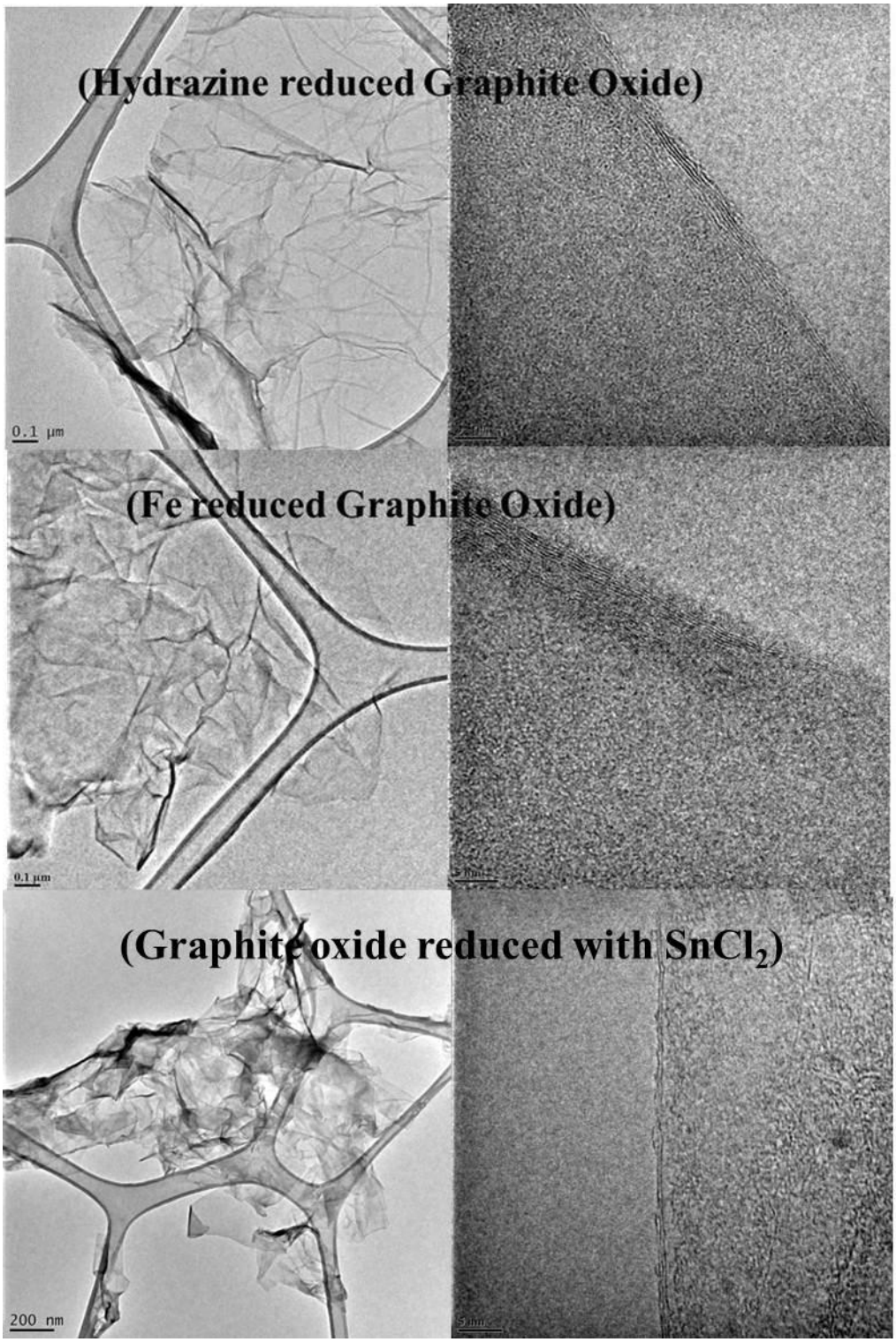

Fig. S2. High resolution TEM images of the prepared rGO's

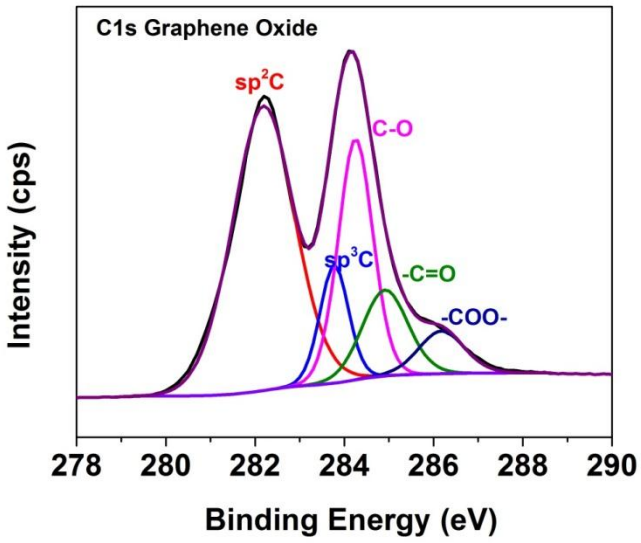

Fig.S3. High resolution XPS spectra -C1s region of GO

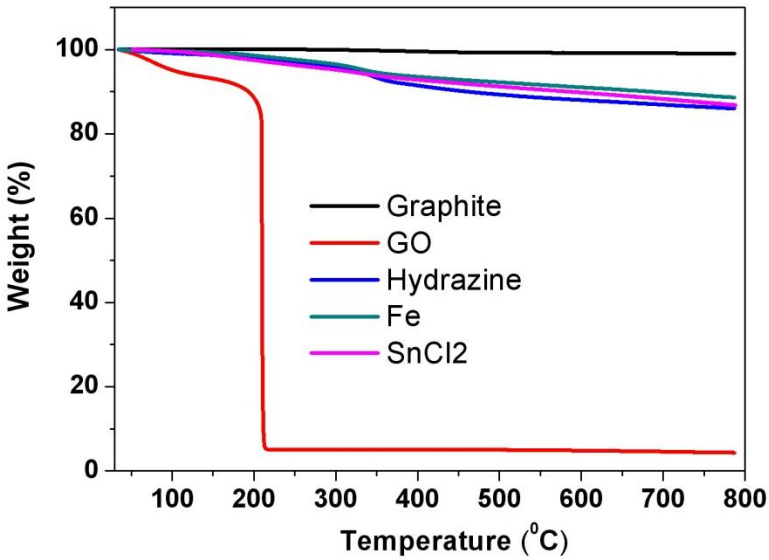

Fig.S4. TGA curves for all the prepared samples in nitrogen atmosphere.

References

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