Electronic Supplementary Information (ESI):

Indium-Doped SnO_2 Nanoparticle-Graphene Nanohybrids: Simple One-Pot Synthesis and Their Selective Detection of NO_2

Shumao Cui,[a] Zhenhai Wen,[a] Eric C. Mattson,[b] Shun Mao,[a] Jingbo Chang,[a] Michael Weinert,[b] Carol J. Hirschmugl,[b] Marija Gajdardziska-Josifovska[b] and Junhong Chen[a,*]

[a]*Department of Mechanical Engineering, University of Wisconsin-Milwaukee, 3200 North Cramer Street, Milwaukee, WI 53211, USA*

[b]*Department of Physics and Laboratory for Surface Studies, University of Wisconsin-Milwaukee, 1900 E. Kenwood Blvd, Milwaukee, WI, 53211,USA*

**E-mail: jhchen@uwm.edu; Fax: +1-414-229-6958; Tel: +1-414-229-2615*

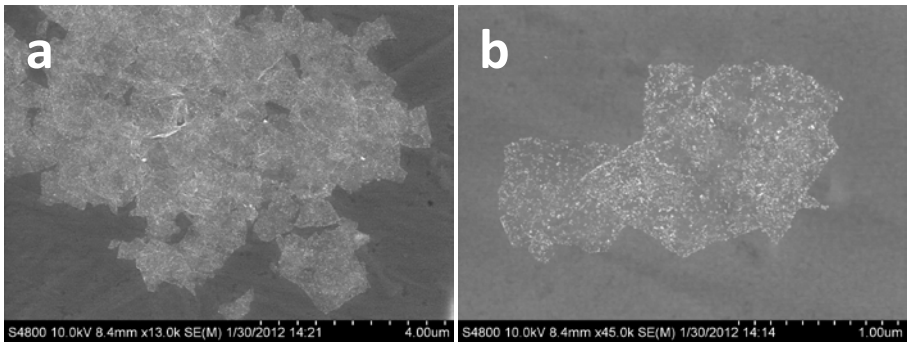

Fig. S1 SEM images of RGO–IDTO.

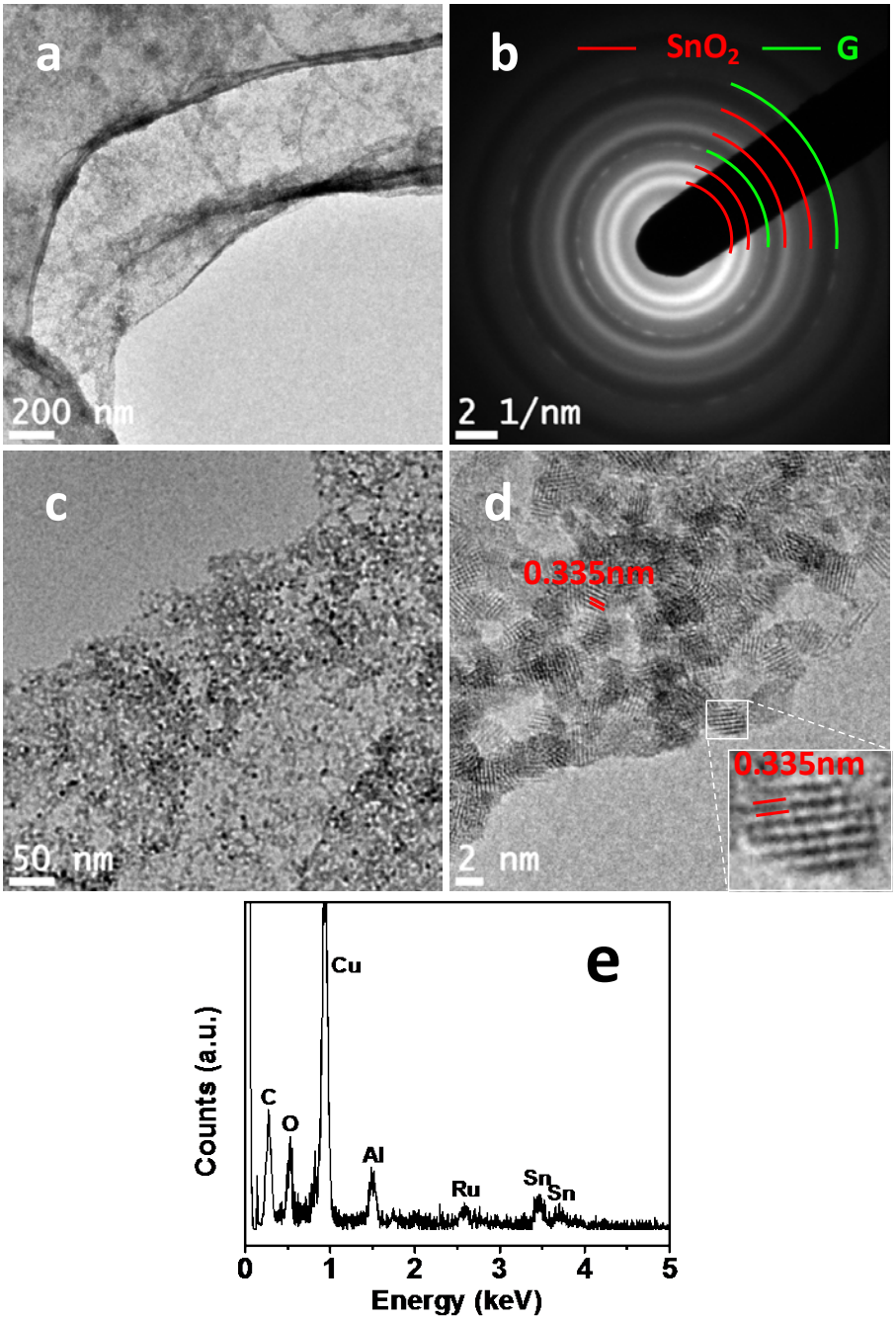

Fig. S2 (a, c) low magnification TEM images of RGO–RDTO nanohybrids. (b) SAD pattern indexed to rutile SnO_2 and G. (d) HRTEM image of RGO–RDTO nanohybrids. (e) EDS spectrum of RGO–RDTO nanohybrids.

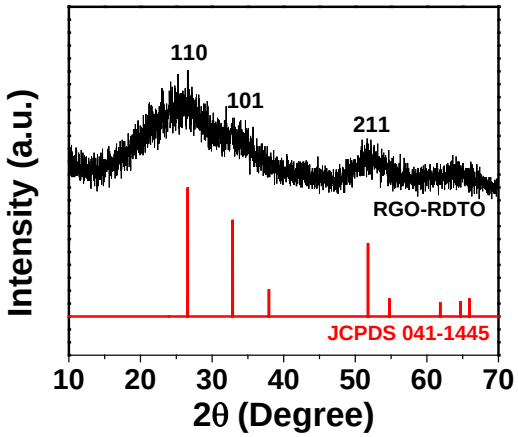

Fig. S3 XRD pattern of RGO–RDTO nanohybrids.

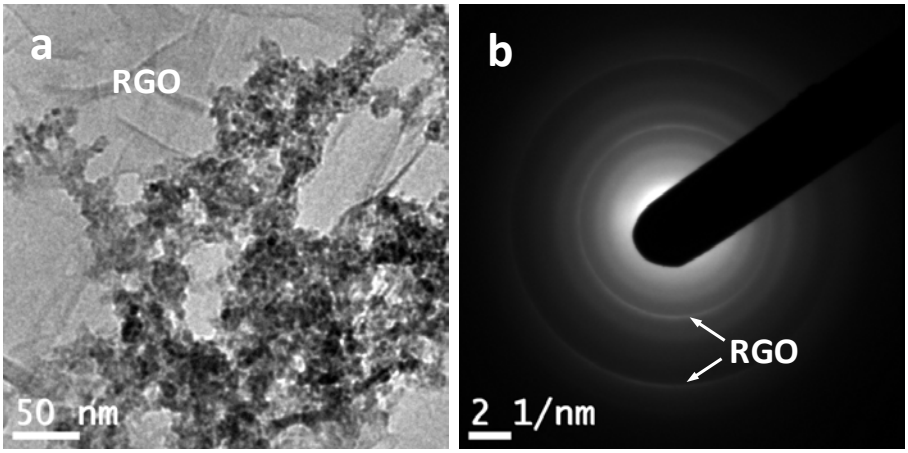

Fig. S4 TEM image (a) and SAED pattern (b) of product prepared by reducing $SnCl_4$ on GO using $NaBH_4$ and the same procedure for preparing RGO—IDTO nanohybrids.

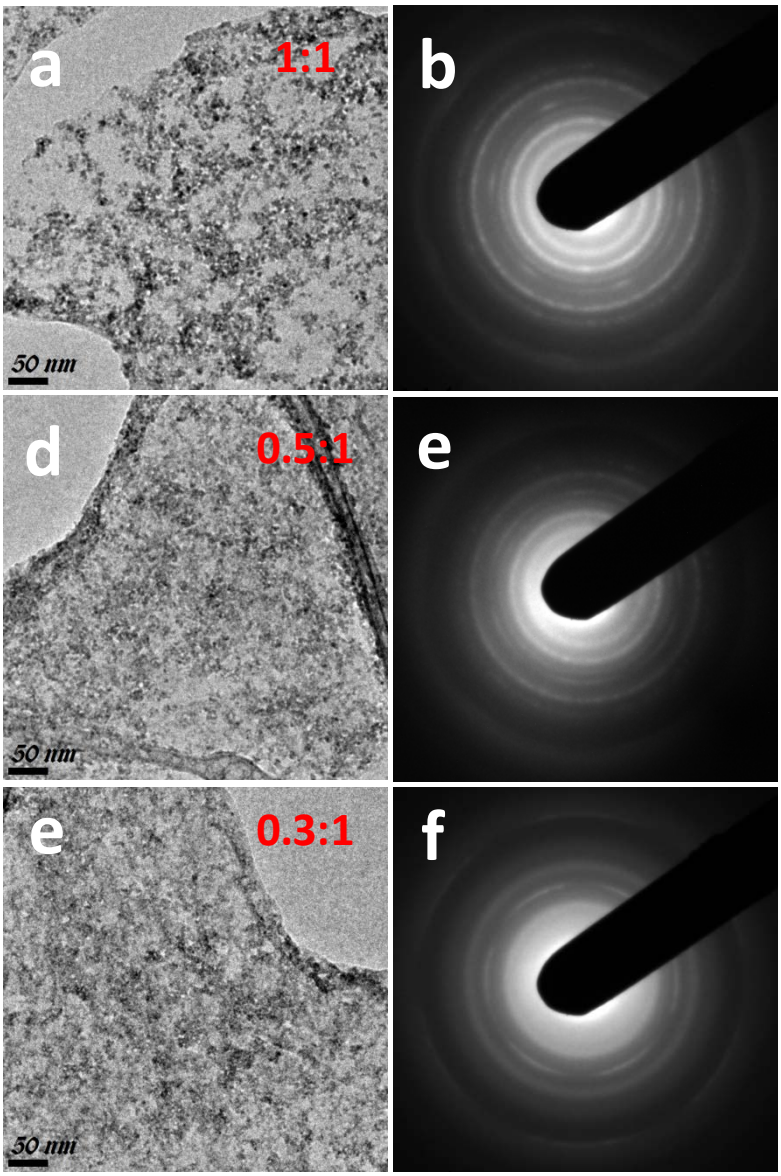

Fig. S5 TEM images and SAED patterns of RGO–IDTO nanohybrids prepared with In/Sn=1:1 (a, b), 0.5:1 (c, d), 0.3:1 (e, f), respectively.

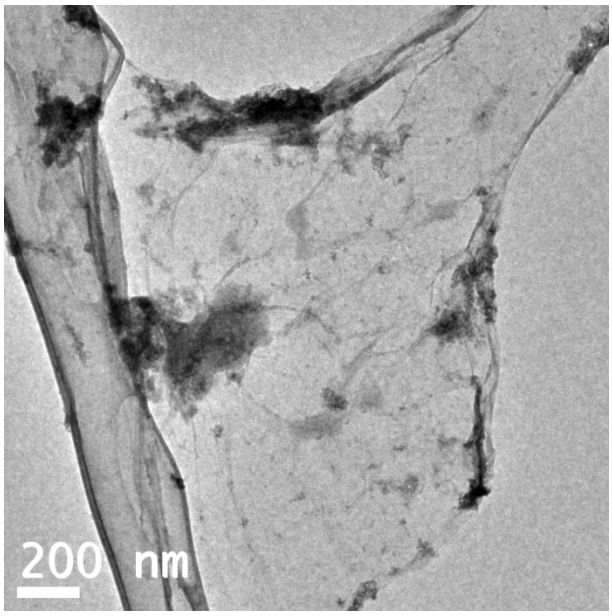

Fig. S6 TEM image of nanohybrids prepared by adding Sn into the GO dispersion followed by adding In.

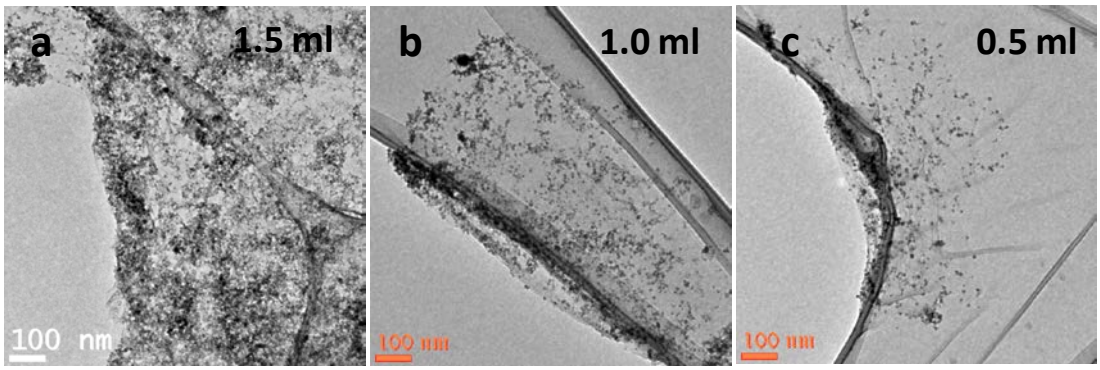

Fig. S7 TEM images of RGO–RDTO nanohybrids prepared with different amounts of Ru by adding different amounts of $RuCl_3$ (0.05 M) solutions (e.g., 1.5 ml, 1.0 ml and 0.5 ml) into 8 mg GO dispersion, while adding the same amount of $SnCl_4$.