

Nanoparticle/Graphene Capsules by Capillary Molding

K. Sohn¹, Y. J. Na¹, H. Chang², K. Roh², H. D. Jang² and J. Huang¹

¹ Northwestern University

² Korea Institute of Geoscience and Mineral Resources

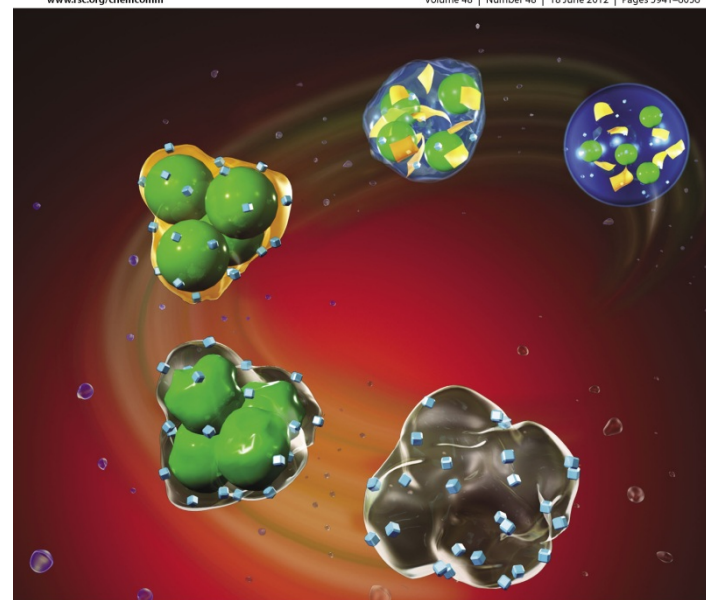
Hollow graphene capsules are synthesized by capillary molding of graphene oxide (GO) sheets against polystyrene bead template in evaporating aerosol droplets, followed by simultaneous reduction of GO and decomposition of the polymer template under heating. Nanoparticles such as Au can be added to the initial mixture of GO sheets and polystyrene template, and eventually loaded onto the wall of the resulting capsules. All of these can be done in one step using ultrasonic spray pyrolysis. The resulting Au/graphene capsules have large free volume and thin shell thickness, and can effectively extract organic molecules from water and concentrate them inside the cavity, making them potentially attractive for SERS based sensing.

ChemComm

Chemical Communications

www.rsc.org/chemcomm

Volume 48 | Number 48 | 18 June 2012 | Pages 5941–6056



ISSN 1359-7345

RSC Publishing

COMMUNICATION
Hee Dong Jang and Jiaxing Huang *et al.*
Oil absorbing graphene capsules by capillary molding



1359-7345(2012)48:48:1-0



K. Sohn, *et al.*, *Chem. Comm.*, 48, 2, 5968 (2012).

NSF Grant #DMR-1121262

MRSEC