## Supporting Information

## *In-situ* Formation of Co<sub>3</sub>O<sub>4</sub> Nanocrystals Embedded in Laser-Induced Graphene Foam for High-Energy Flexible Microsupercapacitor

Xiaohong Ding<sup>a,c</sup>, Ruilai Liu<sup>a</sup>, Jingyun Zhao<sup>a</sup>, Jiapeng Hu<sup>a</sup>, Jinjin Wu<sup>b</sup>, Cheng Zhang<sup>b\*</sup>, Jing Lin<sup>d\*</sup>

<sup>a</sup> Fujian Provincial Key Laboratory of Eco-Industrial Green Technology, College of Ecological and Resources Engineering, Wuyi University, Wuyishan, Fujian, 354300, P. R. China.

<sup>b</sup> Fujian Key Laboratory of Functional Marine Sensing Materials, College of Material and Chemical Engineering, Minjiang University, Fuzhou, 350108, P. R. China.

<sup>c</sup> Department of Engineering Science and Mechanics, Materials Research Institute, Penn State University, University Park, Pennsylvania 16802, USA

<sup>d</sup> School of Chemistry and Chemical Engineering, Guangzhou University, Guangzhou, 510006, P. R. China.

\*To whom correspondences should be addressed. E-mails: <u>zhangcheng@mju.edu.cn</u> (Z. Cheng); <u>linjin00112043@126.com/</u>linjing@gzhu.edu.cn (J. Lin).



Figure S1: Low- and high-magnification SEM images of the  $Co_3O_4$ @LIG nanocomposites with low mass loading of  $Co_3O_4$  particles.



Figure S2: Low- and high-magnification SEM images of the  $Co_3O_4$ @LIG nanocomposites with high mass loading of  $Co_3O_4$  particles.



Figure S3: The specific gravimetric capacitance (a) and areal capacitance (b) of MSCs based on LIG,  $Co_3O_4$ @LIG,  $Co_3O_4$ -L@LIG and  $Co_3O_4$ -M@LIG hybrid electrodes at current densities of 1-30 A g<sup>-1</sup>; (c) The capacity retention of LIG-MSC,  $Co_3O_4$ @LIG-MSC,  $Co_3O_4$ . M@LIG-MSC and  $Co_3O_4$ -M@LIG-MSC after 3 000 cycles at constant current density of 2 A g<sup>-1</sup>.