Supplementary Materials for

Sandwich-like NiCo Layered Double Hydroxides/Reduced Graphene Oxide Nanocomposite

Cathode for High Energy Density Asymmetric Supercapacitors

Kai Le,^a Zhou Wang,^b Fenglong Wang,^b Qi Wang,^b Qian Shao,^c Vignesh Murugadoss,^{d,e}

Shide Wu,^g Wei Liu,^{a,*} Jiurong Liu,^{b,*} Qiang Gao,^{f,*} and Zhanhu Guo^{d,*}

^a Institute of Crystal Materials, Shandong University, Jinan, Shandong 250100, China

^b School of Materials Science and Engineering, Shandong University, Jinan, Shandong 250061, China

^c College of Chemical and Environmental Engineering, Shandong University of Science and Technology, Qingdao 266590, China

^d Key Laboratory of Materials Processing and Mold (Zhengzhou University), Ministry of Education; National Engineering Research Center for Advanced Polymer Processing Technology, Zhengzhou University, Zhengzhou, 450002, China

^e Integrated Composites Laboratory (ICL), Department of Chemical & Biomolecular Engineering, University of Tennessee, Knoxville, USA

^f Department of Heerogeneous Reaction, Max Planck Institute for Chemical Energy Conversion. Mülheim an der Ruhr, 45470, Germany

^g Henan Provincial Key Laboratory of Surface and Interface Science, Zhengzhou University of Light Industry, No. 136, Science Avenue, Zhengzhou, 450001, China

*Corresponding author.

E-mail addresses: weiliu@sdu.edu.cn (W. Liu), jrliu@sdu.edu.cn (J. Liu), eric.qiang@yahoo.com (Q.Gao), zguo10@utk.edu (Z. Guo).



Fig. S1. (a) SEM image and corresponding EDX elemental mapping images of O, Ni and Co,

and (b) EDX spectrum of LDH/rGO



Fig. S2. SEM image of LDH



Fig. S3. N2 adsorption/desorption isotherms and pore size distribution (inset) of Ni2Co-LDH

and Ni2Co-LDH/rGO composite.



Fig. S4. GCD curves of sample (a) LDH electrode and (b) LDH/rGO electrode at different



Fig. S5. GCD curves of sample (a) 1-2 LDH/rGO and (b) 4-1 LDH/rGO electrode at different

current density.



Fig. S6. SEM images of 1-2 LDH/rGO (a), 2-1 LDH/rGO, and 4-1 LDH/rGO (b).



Fig. S7. N₂ adsorption/desorption isotherms of the LDH/rGO with different Ni/Co ratios.



Fig. S8. (a) SEM image, (b) CV curves at different scan rates, (c) GCD curves at various current

densities, and (d) calculated specific capacitance of rGO electrode.