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Controlled synthesis of three-dimensional interconnected graphene-like nanosheets from graphite microspheres as high-performance anodes for lithium-ion batteries

Hong-Qiang Wang[a], Guan-Hua Yang[a], Li-San Cui[a], Ze-Sheng Li[b,*], Zhi-Xiong Yan[a], Xiao-Hui Zhang[a], You-Guo Huang[a] and Qing-Yu Li[a,*]

[a] *Guangxi Key Laboratory of Low Carbon Energy Materials, School of Chemical and pharmaceutical Sciences, Guangxi Normal University, Guilin, 541004, China*

[b] *Development Center of Technology for Petrochemical Pollution Control and Cleaner Production of Guangdong Universitites, College of Chemical Engineering, Guangdong university of Petrochemical Technology, Maoming, Guangdong, 525000, China*

Corresponding authors

E-mail addresses:

** Qing-Yu Li, liqingyu62@126.com Fax: +86-0773-5858562*

** Ze-Sheng Li, lzs212@163.com*

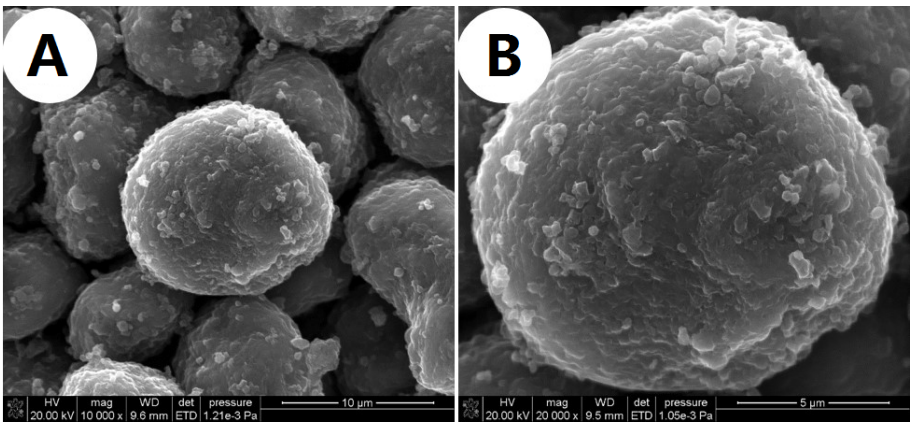

Fig. S1 Typical SEM images of GMCMBs.

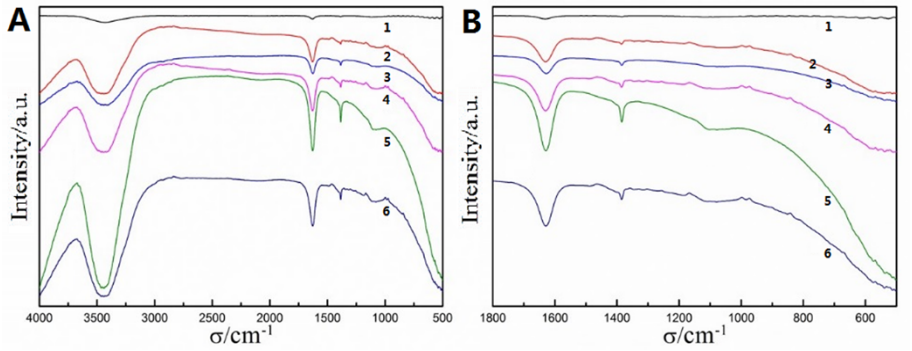

Fig. S2 FT-IR spectrums of GMCMBs (1) and 3DGNs (2-6) treated with different $KMnO_4$ dosages (2:10g, 3:12g, 4:14g, 5:16g, 6:18g) at the same heating temperature of 950 ^oC.

Fig. S2 shows the FT-IR spectras of f GMCMBs and 3DGNs samles (A is the full spectrum, B is the partial spectrum of 550-1800 cm^{-1}). The absorption peak at about 3440 cm^{-1} is characterized by –OH stretching vibration peaks. The absorption peak at about 1620 cm^{-1} is generated by the C=C bond stretching vibration of adjacent carbon atoms in graphite. The absorption peak at about 1400 cm^{-1} is the O-H bending vibration of the hydroxyl group in graphite, and the absorption peak at about 1100 cm^{-1} is the C-O-C asymmetric stretching vibration peak. All the absorption peaks in GMCMBs are very weak, and these absorption peaks in 3DGNs are obviously enhanced, which indicates that, after the oxidation and high temperature treatment, substantial oxygen containing groups have been introduced in 3DGNs.