

## Supporting Information

### **Self-assembly of Mesoporous ZnCo<sub>2</sub>O<sub>4</sub> Nanomaterials: Density Functional Theory Calculation and Flexible All-Solid-State Energy Storage**

Deyang Zhang,<sup>a</sup> Yihe Zhang,<sup>\*a</sup> Xiaowei Li,<sup>a</sup> Yongsong Luo,<sup>b</sup> Hongwei Huang,<sup>a</sup> Jiaping wang<sup>c</sup> and Paul K. Chu<sup>d</sup>

*<sup>a</sup>Beijing Key Laboratory of Materials Utilization of Nonmetallic Minerals and Solid Wastes, National Laboratory of Mineral Materials, School of Materials Science and Technology, China University of Geosciences, Beijing, 100083, PR China*

*<sup>b</sup>School of Physics and Electronic Engineering, Xinyang Normal University, Xinyang 464000, P. R. China*

*<sup>c</sup>Department of Physics and Tsinghua-Foxconn Nanotechnology Research Center, Tsinghua University, Beijing 100084, China*

*<sup>d</sup>Department of Physics & Materials Science, City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong, China*

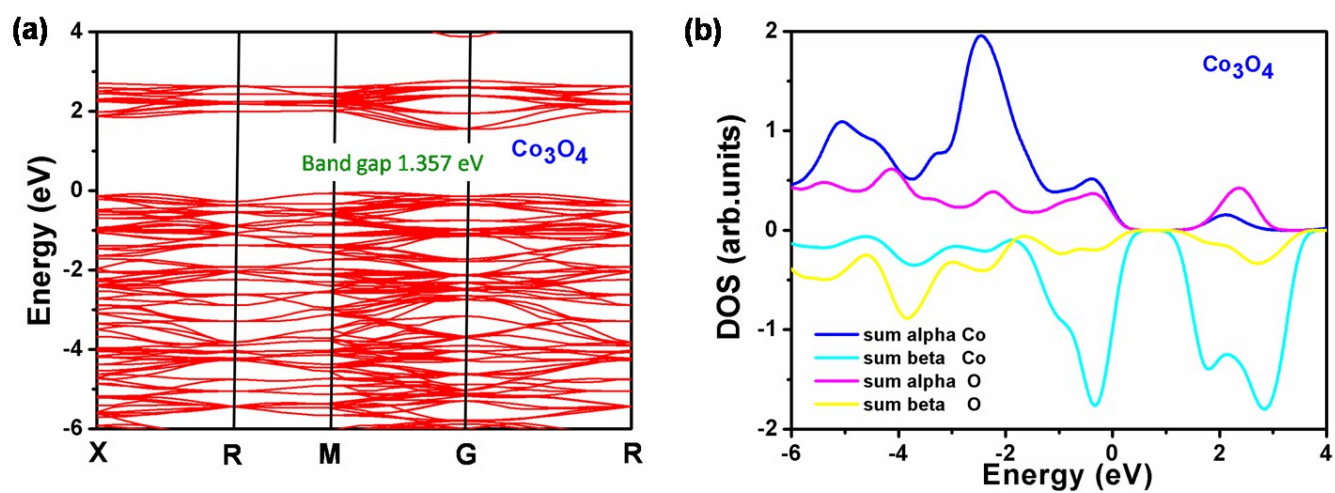


Figure S1. Calculated band structure (a) and total densities of states (b) of spinel  $\text{Co}_3\text{O}_4$  by the CASTEP.

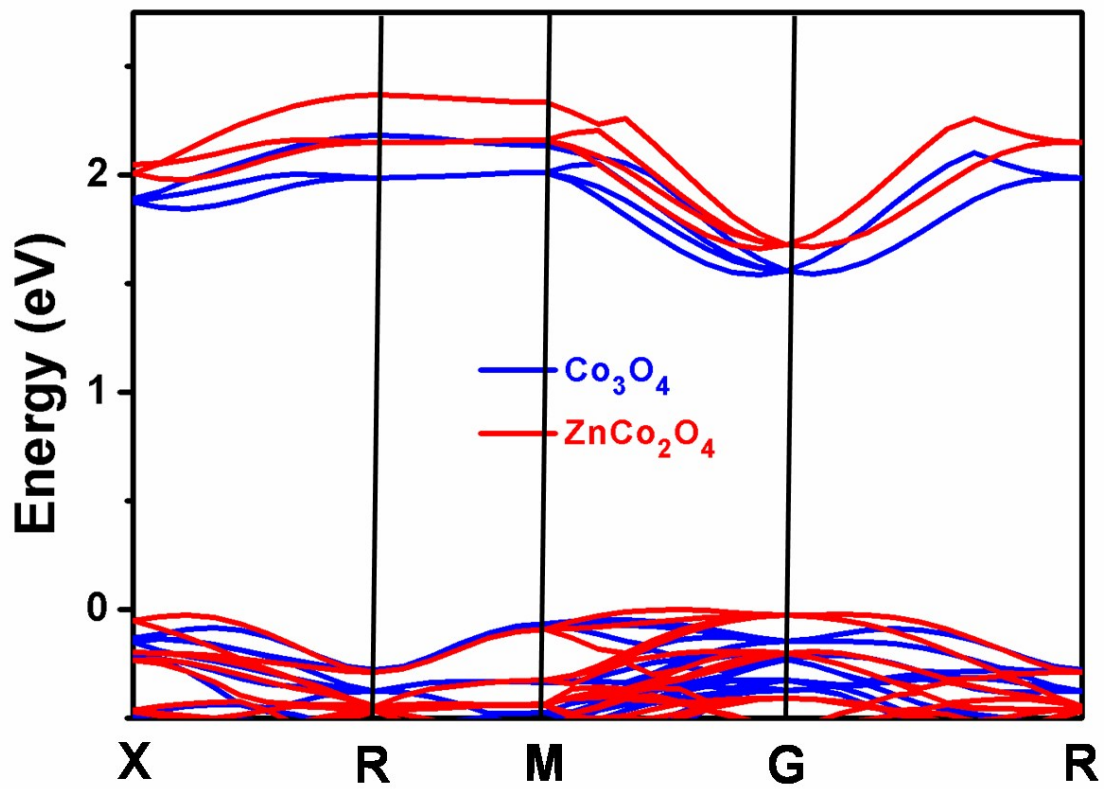
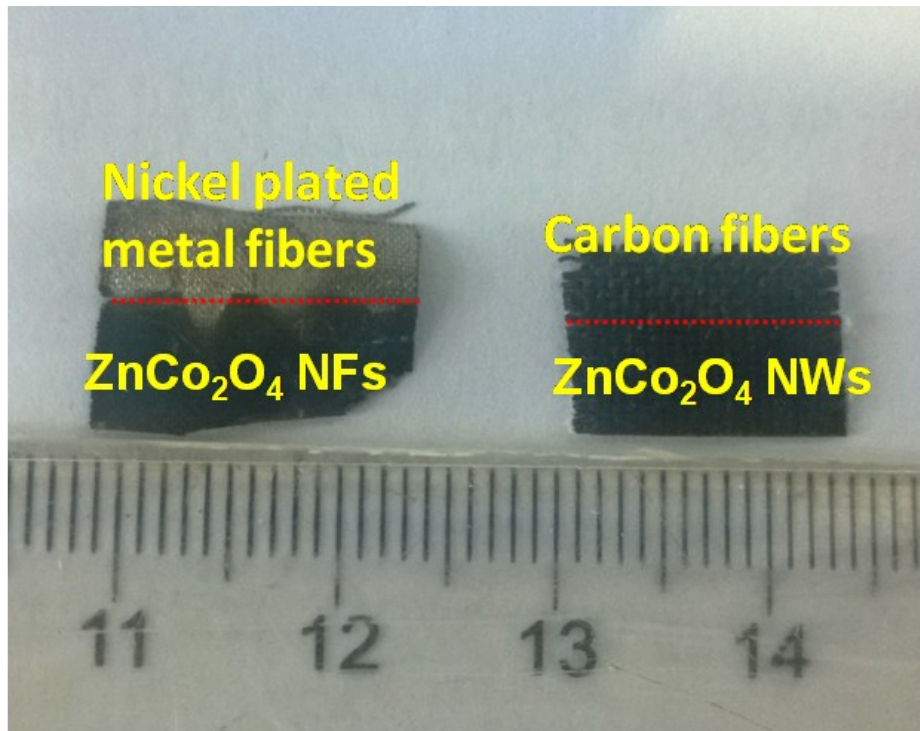
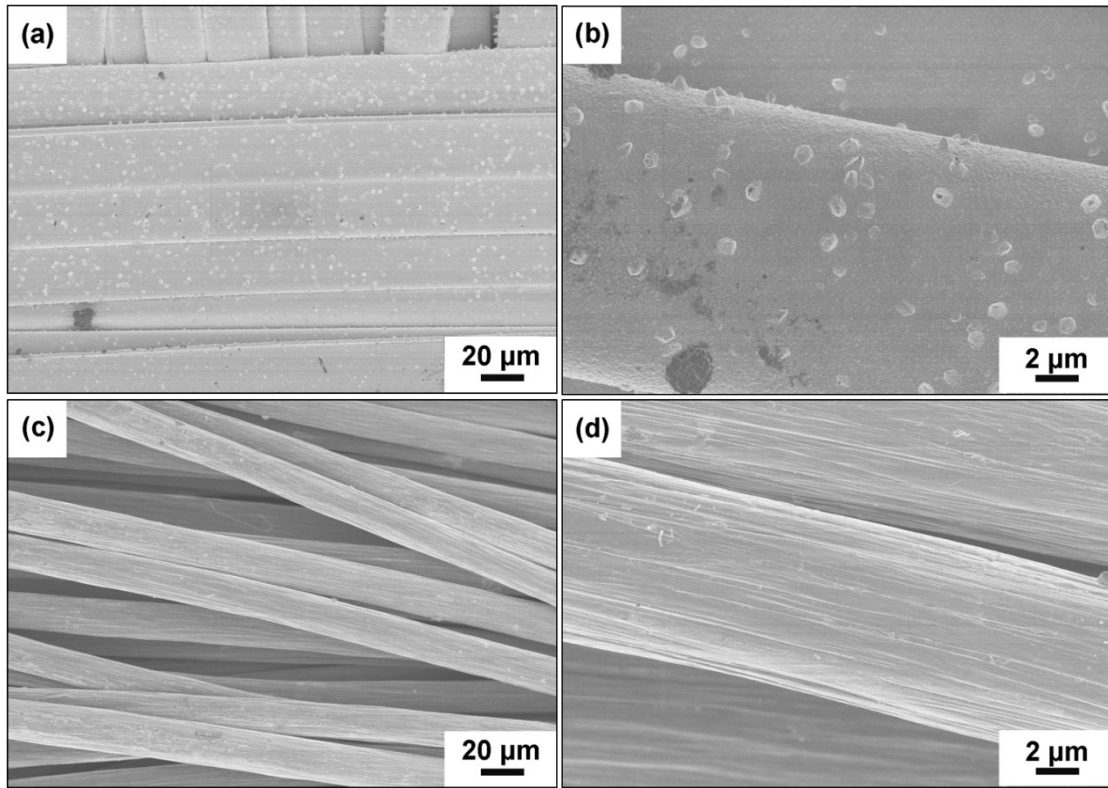


Figure S2. Calculated band structures of spinel  $\text{Co}_3\text{O}_4$  and  $\text{ZnCo}_2\text{O}_4$  near the Fermi level.



**Figure S3.** Optical images of the ZnCo<sub>2</sub>O<sub>4</sub> NFs and ZnCo<sub>2</sub>O<sub>4</sub> NWs on the substrates.



**Figure S4.** (a, b) Low-magnification SEM images of the nickel plated steel mesh; (c, d) low-magnification SEM images of the carbon fibers.



**Figure S5.** (a, b) Optical photographs of flowers in the real world; c, d) low-magnification and high-magnification SEM images of the  $\text{ZnCo}_2\text{O}_4$  NFs.