Supporting Information

Synthesis of Mesochannel Carbon Nanowall Material from CO_2 and Its Excellent Performance for Perovskite Solar Cells

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1. Characterizations of CEG.

The CEG sample was subjected to structure characterization. The FESEM image reveals CEG possesses a nanoflake-structure (Figure S1a). Its XRD pattern shows two diffraction peaks at 26.6^{o} and 43.8^{o}, corresponding with (002) and (100) plans of graphitic carbon, respectively (Figure S1b). As shown in Figure S1c, one can see the typical Raman spectra, in which broadened D band and G band, which are associated with disorder/defects in graphene sheets, can be observed for CEG samples. The disorder/defects of the CEG samples were further proved by IR spectra, namely, C-O-C, C-OH, and C=O functional groups were observed at 1066, 1225, and 1727 cm^{-1}. Those are typical characters of chemical exfoliated graphene.

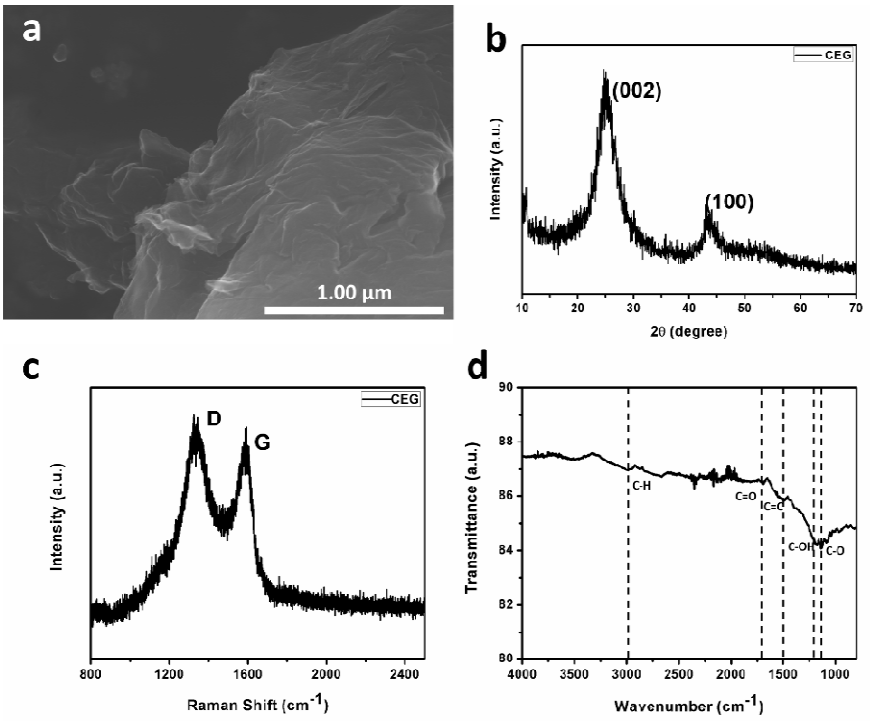

Figure S1. Characterization of CEG: (a) FESEM image, (b) XRD pattern, (c) Raman spectrum, and (d) FTIR pattern.