

## Supplementary information

### **Engineering 2D Multi-Layer Graphene-like Co<sub>3</sub>O<sub>4</sub> Thin Sheets with Vertically Aligned Nanosheet as Basic Building Units for Advanced Pseudocapacitor Materials**

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## About the name of the CQU-Chen-Co-O-1

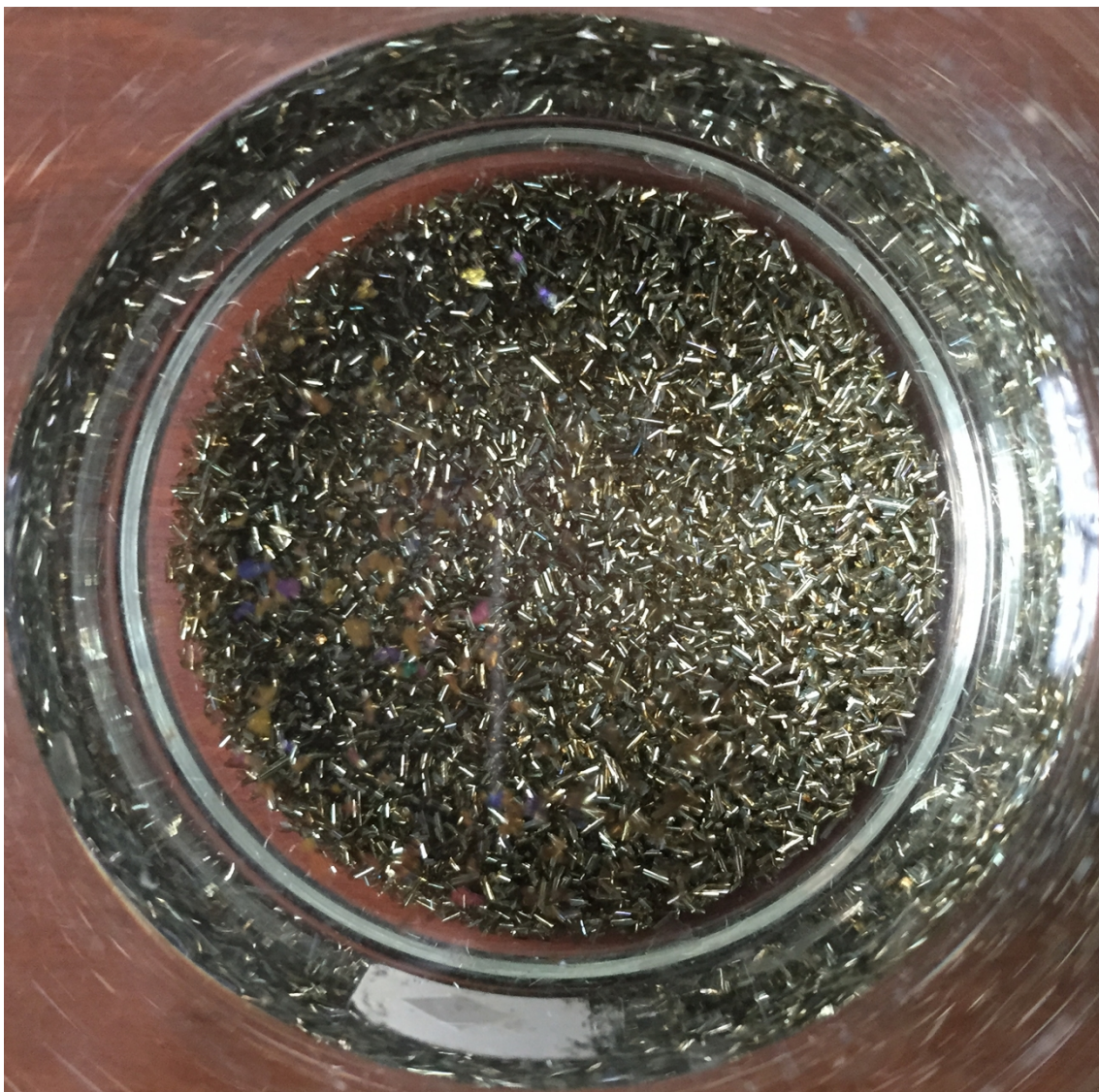
We report here a novel 2D multi-layer graphene-like  $\text{Co}_3\text{O}_4$  thin sheets which was first synthesized using  $\text{Co}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$  and acetic acid (AA). **CQU** is the abbreviation of Chongqing University, **Chen** is the surname of the corresponding author of Lingyun **Chen**. In addition, we use this abbreviation apart from other  $\text{Co}_3\text{O}_4$  nanostructures synthesized in our laboratory.

## Characterization

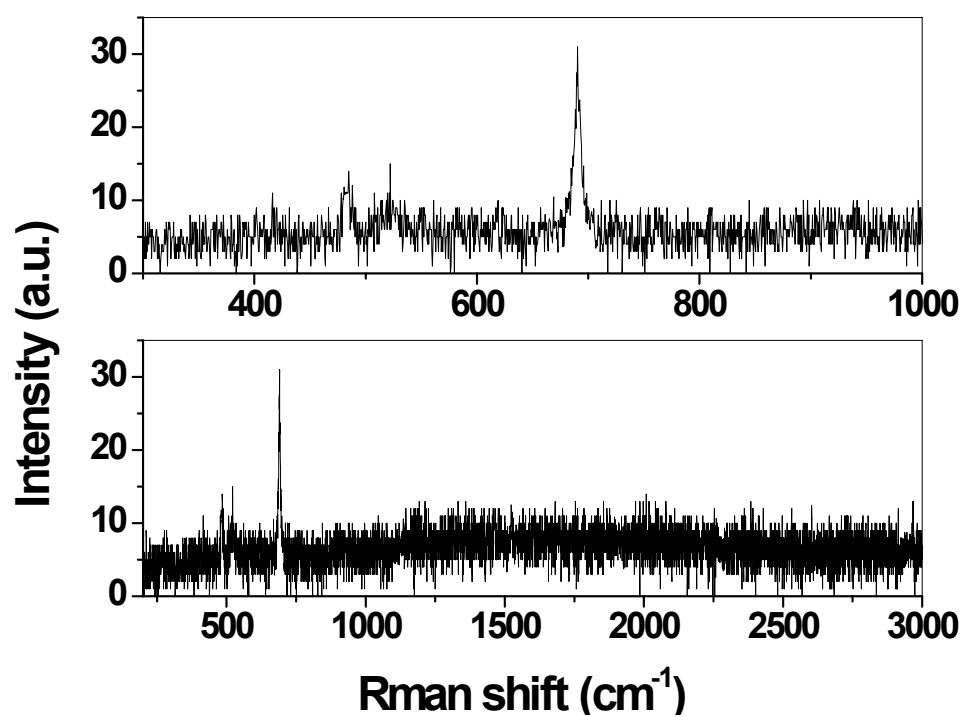
The crystal structure of the products were characterized by powder X-ray diffraction (XRD, Bruker D8 Advance X-ray diffract meter) using nickel-filtered  $\text{Cu K}\alpha$  radiation ( $\lambda = 1.5406 \text{ \AA}$ ). Raman spectra were recorded in the range  $200\text{--}3000 \text{ cm}^{-1}$  on a LabRAM HR Evolution (HORIBA Scientific, Japan). The morphology and microstructures of the samples were investigated by field-emission scanning electron microscopy (SEM, HITACHI S-4800 electron microscopy) with energy-dispersive X-ray (EDX) spectra at an accelerating voltage of 20 kV. TEM and SAED images were investigated on a Tecnai G2 F20 S-Twin operated at 200 kV.

## Electrochemical measurements

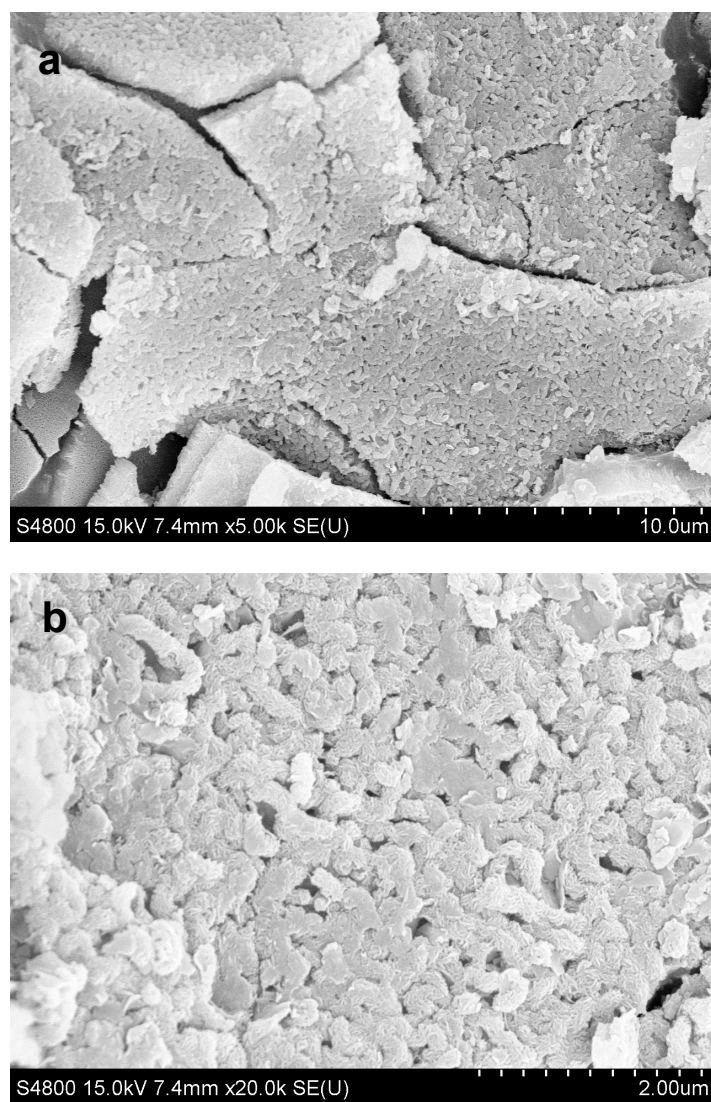
All the electrochemical experiments were carried out with a CHI 660E electrochemical workstation (Chenhua Corp., Shanghai, China). A three-electrode system was employed in all the electrochemical experiments in 6 M KOH. The working electrode was made of as-prepared CQU-Chen-Co-O-1 (80 wt %), acetylene black (15 wt %) and polytetrafluoroethylene (PTFE) binder (5 wt %). After grinding, the mixed materials were pasted onto a piece of nickel foam under a pressure of 5.0 MPa and dried under vacuum at  $60^\circ\text{C}$  for 12 h. Platinum foil and standard calomel electrode (SCE) were used as the counter and reference electrodes, respectively.



**Fig. S1** Digital photography of the CQU-Chen-Co-O-1 in 50 ml beaker after hydrothermal reaction.



**Fig. S2** Raman spectra of the CQU-Chen-Co-O-1.



**Fig. S3** (a) and (b) SEM image of the CQU-Chen-Co-O-1 after charge/discharge cycles.