

Supporting Information

CF_x Primary Batteries Based on Fluorinated Carbon Nanocages

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1. XRD and HRTEM results

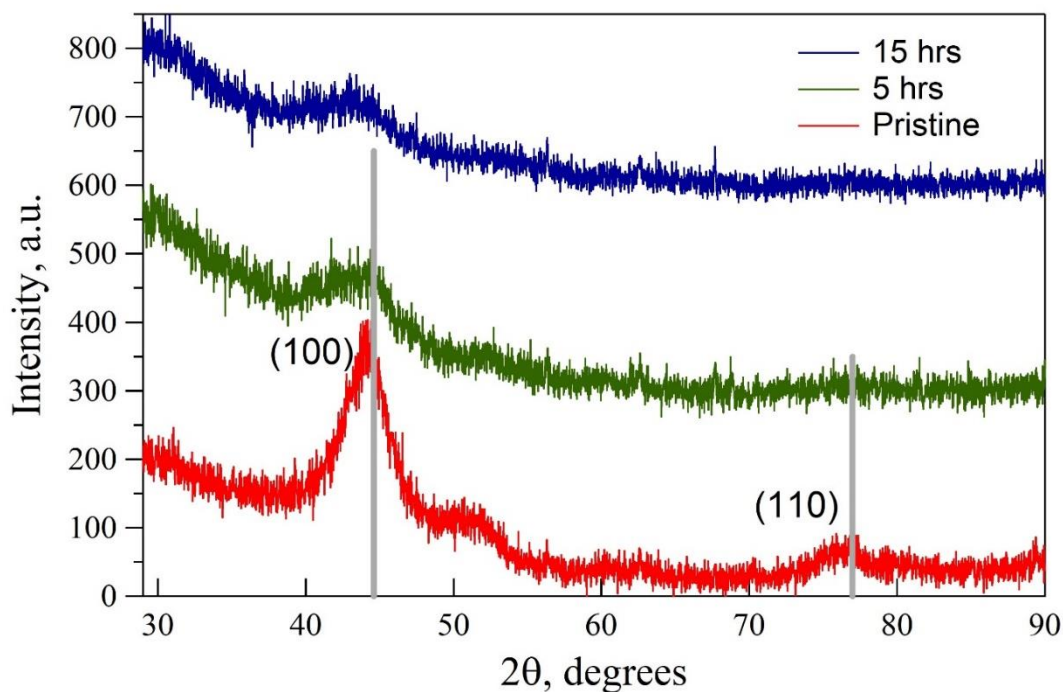


Figure S1. X-ray Diffraction patterns for pristine and progressively fluorinated CNCs.

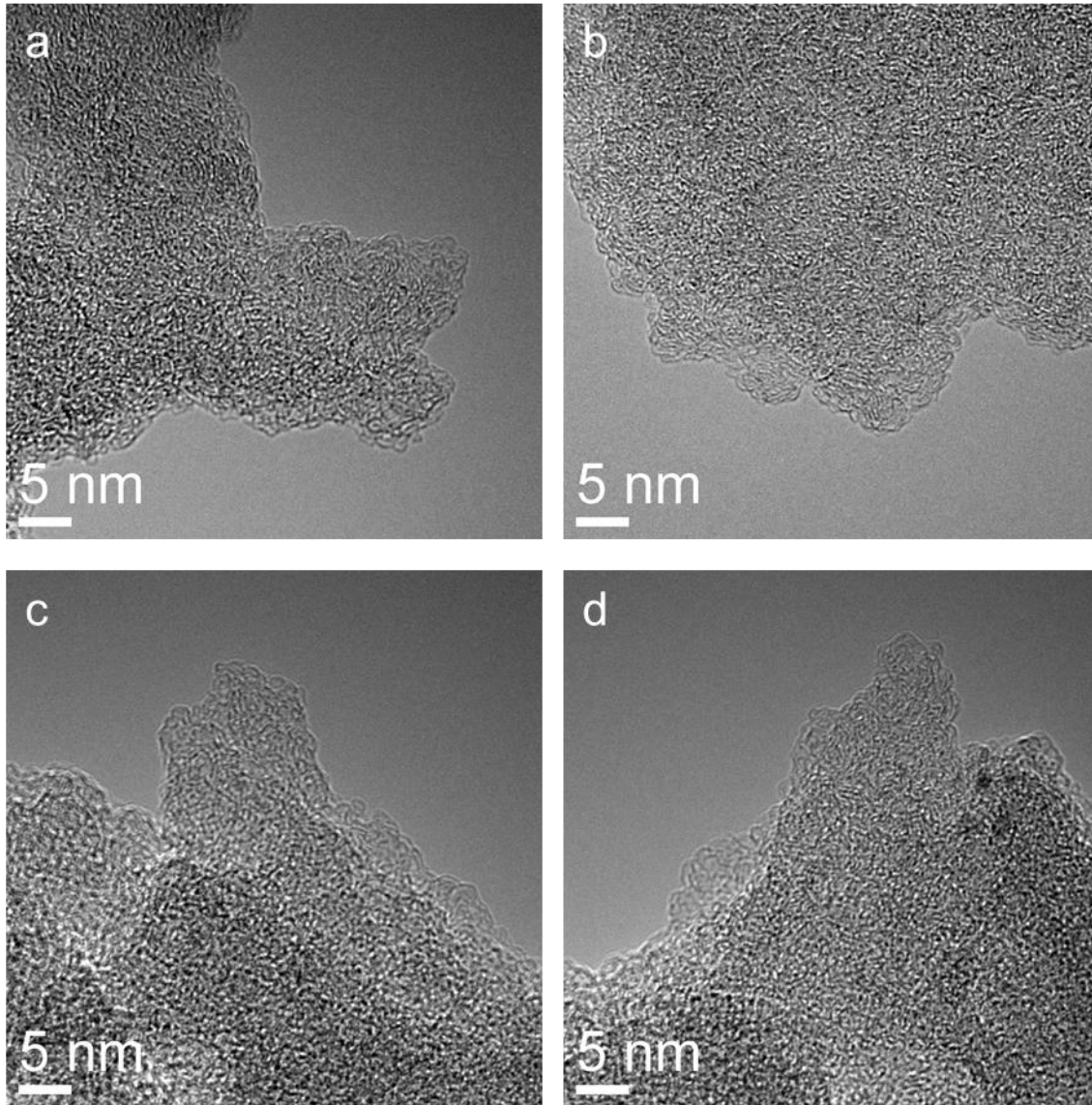


Figure S2. HRTEM images of the 3 hrs fluorinated sample.

2. Tap density and charge capacity

The tap density measurements were performed and following parameters were obtained:

- m (mass of CNCs) = 0.0301 g.
- V_o (unsettled volume) = 0.06 ml
- V_f (tapped volume) = 0.05 ml

This gives the following:

- Tapped density = $m/V_f = 0.602$ g/ml
- Hausner ratio = $V_o/V_f = 1.2$
- Compressibility index = $100 (V_o - V_f) / V_o = 16.67$

The obtained tap density value and the charge capacity of 850 mAh/g at 2 V gives 1700 Wh/kg and 2824 Wh/L. Commercial Li-CFx batteries have the energy density of ~780 Wh/kg and 1478 Wh/L.