

Direct observation and spectroscopy of nanoscaled carboxylated carbonaceous fragments coated on carbon nanotubes

(Supporting information)

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1. Experimental details for the sample preparation.

Raw CNTs were kindly provided by the Department of Physics and the Tsinghua-Foxconn Nanotechnology Research Center of the Tsinghua University. These CNTs contain from three to five carbon layers with an inner and outer diameters of 4-8 and 6-10 nm, respectively. Raw CNTs were pretreated in HNO₃ following a procedure described in Ref. 8. After the treatment the materials were evacuated to 10⁻⁴ Pa at 400 °C and exposed to TiCl₄ vapors. The mixture was kept at 100 °C for 48 h, followed by washing with anhydrous ethanol to allow slow hydrolysis of TiCl₄ under Ar atmosphere. Samples were left at ambient conditions for two days before drying at 120 °C.