

Supplementary Information

Article

Green-emitting carbon quantum dots: highly sensitive temperature sensing probe in nanocomposite and lubrication system

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Methods: For transmission electron microscopy (TEM) and high-resolution TEM (HR-TEM), an FEI G2F30 electron microscope with a Gatan SC 200 CCD camera equipped with an energy dispersive spectroscopy (EDS) was employed. For material crystal structure characterization, X-ray diffraction (XRD) patterns were acquired using a Bruker AXS D8 Discover X-ray diffractometer at a wavelength of Cu K (1.79). A Bruker VERTEX70 micro-infrared spectrometer was used to obtain infrared spectra of carbon quantum dots. An Edinburgh Instruments FLS920 spectrophotometer with an integrated nanowire was used to record fluorescence spectra. A laser, a spectrometer,

an optical fiber, a digital thermostat, an MX 100 data gathering device, and a platinum resistance temperature sensor are all parts of the temperature dependency experimental platform.

Figure S1 shows the XPS fine spectrum of the prepared Carbon quantum dot material. As can be seen from the figure, the prepared material successfully contains all the elements required for the Carbon quantum dot.

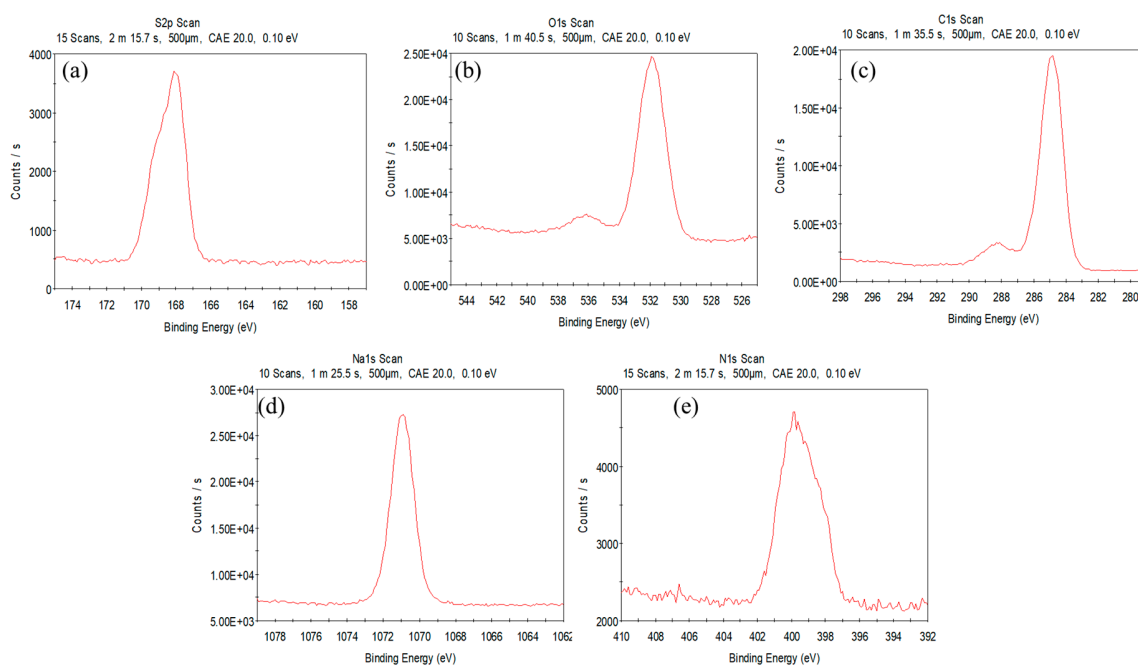


Figure S1. XPS fine spectra of the prepared Carbon quantum dot materials. (a) XPS fine spectra of S elements. (b) XPS fine spectra of O elements. (c) XPS fine spectra of C elements. (d) XPS fine spectra of Na elements. (e) XPS fine spectra of N elements.