Supplementary Material (ESI) for Chemical Communications
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Supporting Information for

Microwave Synthesis of Fluorescent Carbon Nanoparticles with Electrochemiluminescence Properties

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Experimental Sections

Firstly, 2g glucose and 10 ml PEG-200 were dissolved into 3 ml distilled water to form a clear solution. Then the solution was put into a domestic microwave oven for different time periods. Finally the color-changed solutions were purified and diluted with water.

UV-vis absorption was characterized by Cary 50 UV-vis NIR spectrometer (Varian, USA). Photoluminescence (PL) emission measurements were performed using a LS-55 luminescence spectrometer (Perkin-Elmer). Fluorescence lifetime data were measured with a Lecroy Wave Runner 6100 digital oscilloscope (1 GHz) using a 337 nm laser (pulse width of 4ns) as the excitation source (Continuum Sunlite OPO). Transmission electron microscopy (TEM) were carried out with JEM-2000 FX operating at 200 kV accelerating voltage. X-Ray diffraction (XRD) patterns of the prepared samples were recorded on a Rigaku-Dmax 2500 diffractometer equipped with graphite monochromatized Cu Kα (λ=0.15405 nm) radiation at a scanning speed of 4°/min in the range from 20° to 70°. The X-ray photoelectron spectrum (XPS) was measured by a VG ESCALAB MKIIX-ray photoelectron spectrometer using Mg-Kα as the exciting source (1253.6

eV) and binding energy calibration was based on C 1s at 284.6 eV. FT-IR spectra were recorded on a Bruker Vertex 70 FT-IR spectrometer. ECL behavior of the sample A at the ITO electrode was investigated by an ECL & EC muti-functional detection system (Remex Electronic Instrument Lt. Co., Xi'an China).

The quantum yield (Φ)of CNPs was measured by comparing the integrated photoluminescence intensities and the absorbency values with the reference quinine sulfate (QS). The quinine sulfate (literature Φ=0.54) was dissolved in 0.1M H_2SO_4 (refractive index (η) of 1.33) and the CNPs was dissolved in distilled water (η =1.33).

$$\Phi = \Phi_R \times \frac{I}{I_R} \times \frac{A_R}{A} \times \frac{\eta^2}{\eta_R{}^2}$$

Where Φ is the quantum yield, I is the measured integrated emission intensity, η is the refractive index, and A is the optical density. The subscript R refers to the reference fluorophore of known quantum yield.

1.

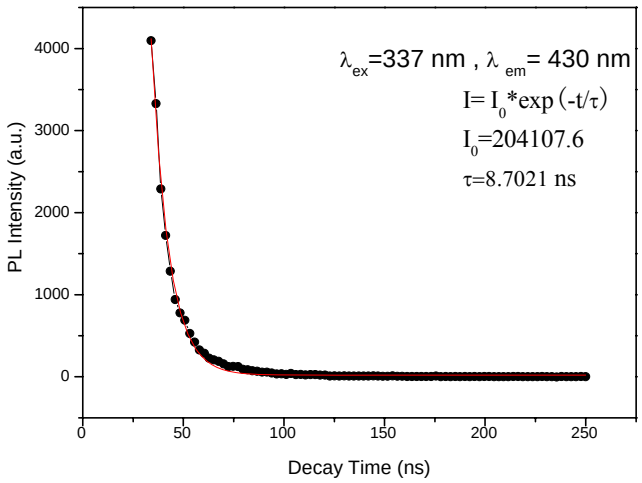

Fig. S1 luminescence decay curve for sample A.

2.

Table S1 quantum yield of sample A

Sample	Integrated emission intensity (I)	Abs. at 340 nm (A)	Refractive index of solvent (η)	Quantum Yield (Φ)
Quinine sulfate	40893.5	0.03835	1..33	0.54 (known)
CNPs sample	16483.5	0.1325	1.33	0.063

Table S2 quantum yield of sample B

Sample	Integrated emission intensity (I)	Abs. at 380 nm (A)	Refractive index of solvent (η)	Quantum Yield (Φ)
Quinine sulfate	602.2	0.02592	1..33	0.54 (known)
CNPs sample	114.78	0.0806	1.33	0.031

3. Uv-vis absorption and PL spectra of the CNPs without the adding of PEG-200.

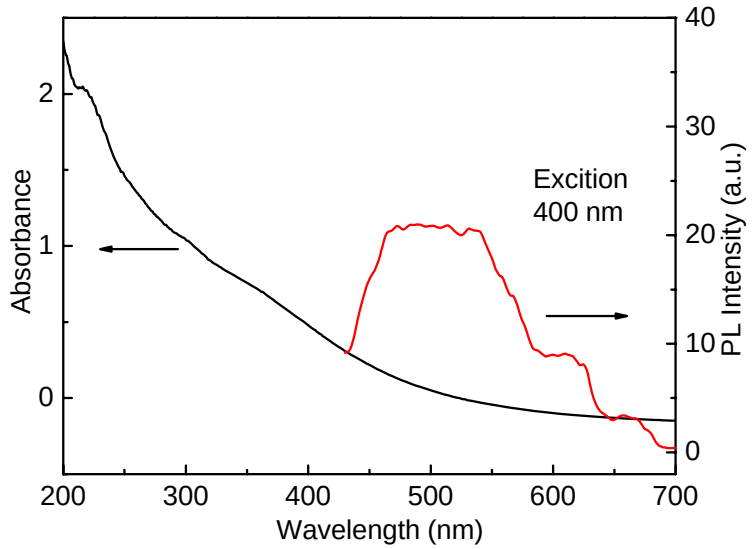

Fig. S 2 the UV-vis absorption and PL spectra of the CNPs without the adding of PEG-200

4. XRD pattern of the CNPs

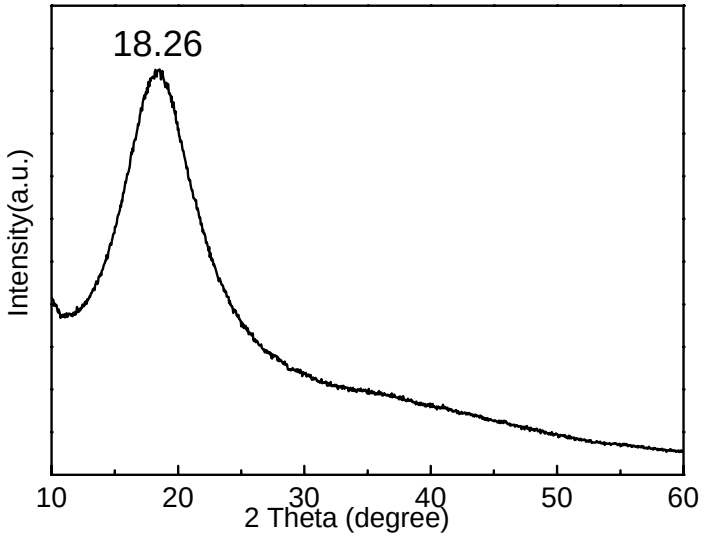

Fig. S 3 XRD pattern for the CNPs

5. XPS of the CNPs

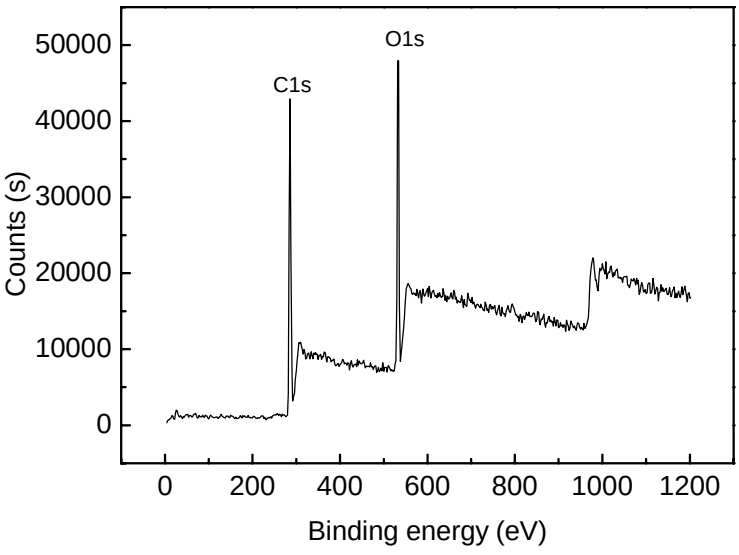

Fig. S 4 XPS spectrum for the CNPs.