

Supporting Information

Nitrogen-doped, carbon-rich, highly-photoluminescent carbon dots from ammonium citrate

Zhi Yang, Minghan Xu, Yun Liu, Fengjiao He, Feng Gao, Yanjie Su, Hao Wei* and Yafei Zhang*

Key Laboratory for Thin Film and Microfabrication of Ministry of Education, Research Institute of Micro/Nano Science and Technology, Shanghai Jiao Tong University, Shanghai 200240, P. R. China. E-mail: haowei@sjtu.edu.cn and yfzhang@sjtu.edu.cn; Tel.:+86-21-34205665; Fax: +86-21-34205665

Quantum yield (QY) measurements: The QY was measured according to “A guide to Recording Fluorescence Quantum Yields” by Jobin Yvon Horiba Ltd. at <http://www.jobinyvon.co.uk/ukdivisions/Fluorescence/plqy.htm>. Quinine sulfate in a 0.1 M H₂SO₄ aqueous solution (quantum yield is 0.54) was selected as a reference for N-doped CDs. The QY was determined by comparing the integrated photoluminescence intensity (excited at 340 nm for N-doped CDs) and the absorbance value (less than 0.1 at the excitation wavelength) of samples with that of the references. The slope method was used to calculate the QYs of N-doped CDs using the equation:

$$QY_u = QY_s (m_u/m_s) (n_u/n_s)^2$$

Where QY is the quantum yield, m is the slope determined by the curves in Fig S2, n is the refractive index (1.33 for water and a 0.1

M H₂SO₄ aqueous solution). The subscript “s” refers to the standards and “u” refers to the unknown samples.

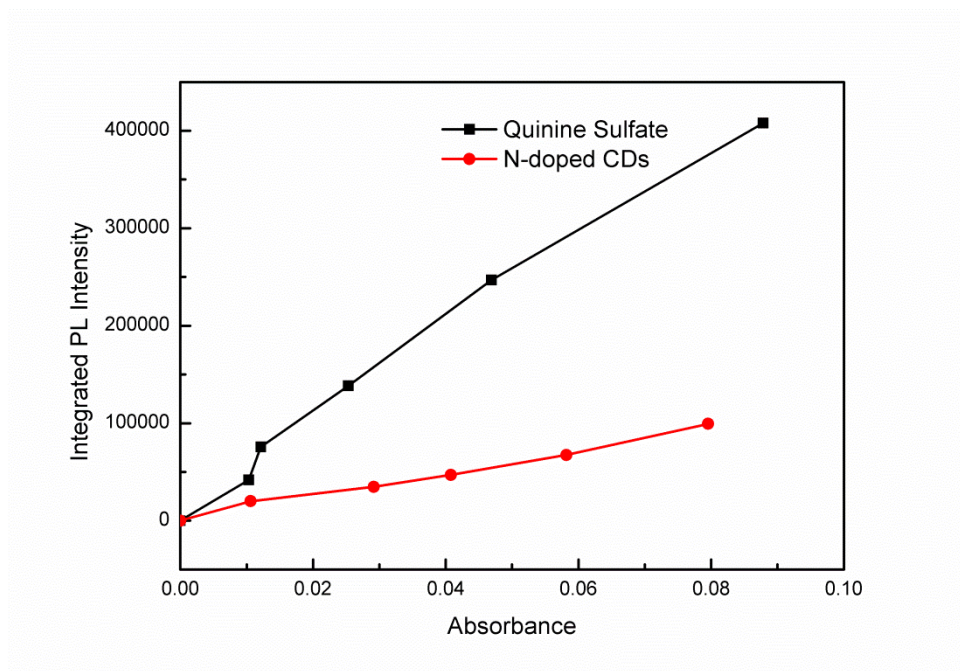


Fig. S1. Photoluminescence and absorbance of N-doped CDs and quinine sulfate.

Table S1. The detailed information of XPS.

Name	Position	FWHM	Area/ (T*MFP)	%At Concn.	%Mass Concn.
N1s	400.39	3.057	532.47	4.95	5.35
C1s	284.84	1.507	4430.00	74.10	68.75
O1s	531.94	2.693	3670.39	20.95	25.90