

Thermal Responsive Fluorescent Nanocomposites Based on Carbon Dots

*Xiaohuan Zhao, Shoujun Zhu, Yubin Song, Junhu Zhang, Bai Yang**

State Key Laboratory of Supramolecular Structure and Materials, College of Chemistry, Jilin University, Changchun, 130012, P. R. China

E-mail: byangchem@jlu.edu.cn

Table of contents in Supporting Information:

Fig. S1 The SEM image of PNIPAM & CDs at high concentration.

Fig. S2 a) UV absorption spectrum of PNIPAM, CDs, PNIPAM & CDs(0.01 g) composites and PNIPAM & CDs(0.05 g) composites. b) FTIR spectrum of PNIPAM, CDs, PNIPAM & CDs(0.01 g) composites and PNIPAM & CDs(0.05 g) composites.

Fig. S3 (a) Fluorescent intensity of different concentration of CDs and outer CDs solution at 360nm excitation. (b) linear tendency of fluorescent intensity and CDs concentration.

Fig. S4 (a) Fluorescence spectrum of CDs from 300 nm to 440 nm, the excitation spectrum was detected when the received wavelength was 443 nm. (b) Fluorescence spectrum of PNIPAM & CDs composites (c) Fluorescence spectrum of pure PNIPAM.

Fig. S5 DLS measurements of the PNIPAM & CDs composites at 25 °C and 45 °C.

Fig. S6 PNIPAM & CDs composites with 0.01 g CDs at low temperature under sunlight (left)
PNIPAM & CDs composites with 0.05 g CDs at low temperature under sunlight (right)

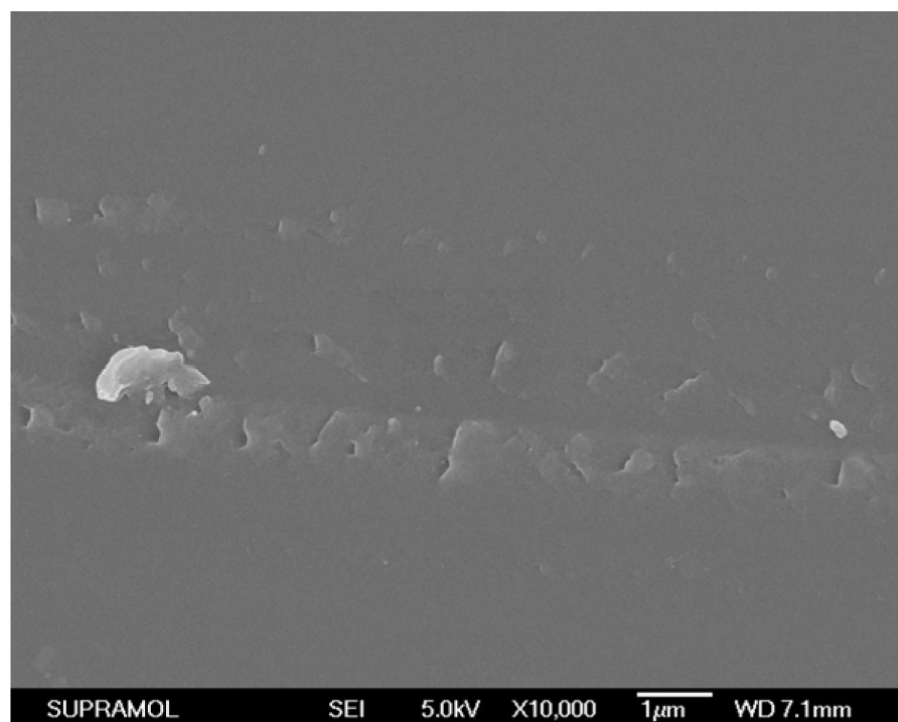


Fig. S1 The SEM image of PNIPAM & CDs at high concentration.

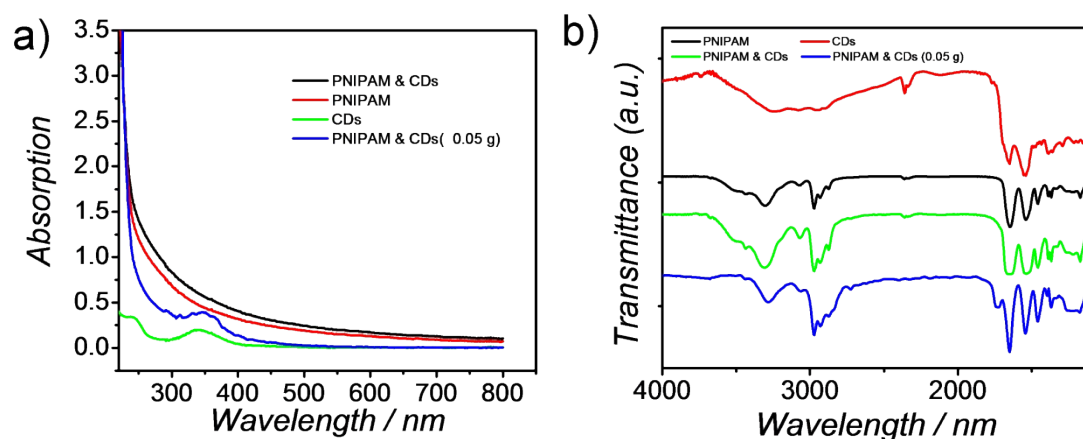


Fig. S2 a) UV absorption spectrum of PNIPAM, CDs, PNIPAM & CDs(0.01 g) composites and PNIPAM & CDs(0.05 g) composites. b) FTIR spectrum of PNIPAM, CDs, PNIPAM & CDs(0.01 g) composites and PNIPAM & CDs(0.05 g) composites.

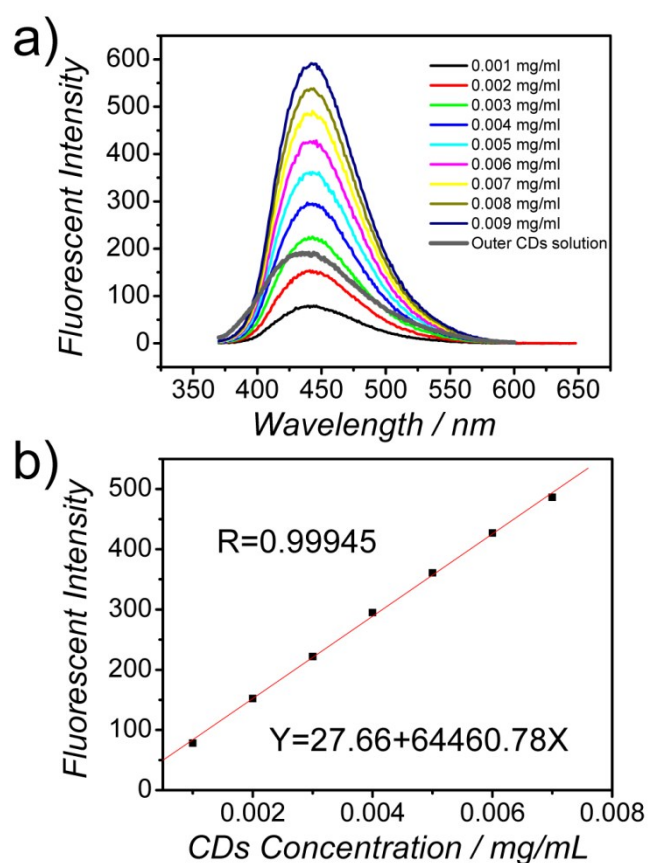


Fig. S3 (a) Fluorescent intensity of different concentration of CDs and outer CDs solution at 360nm excitation. (b) linear tendency of fluorescent intensity and CDs concentration.

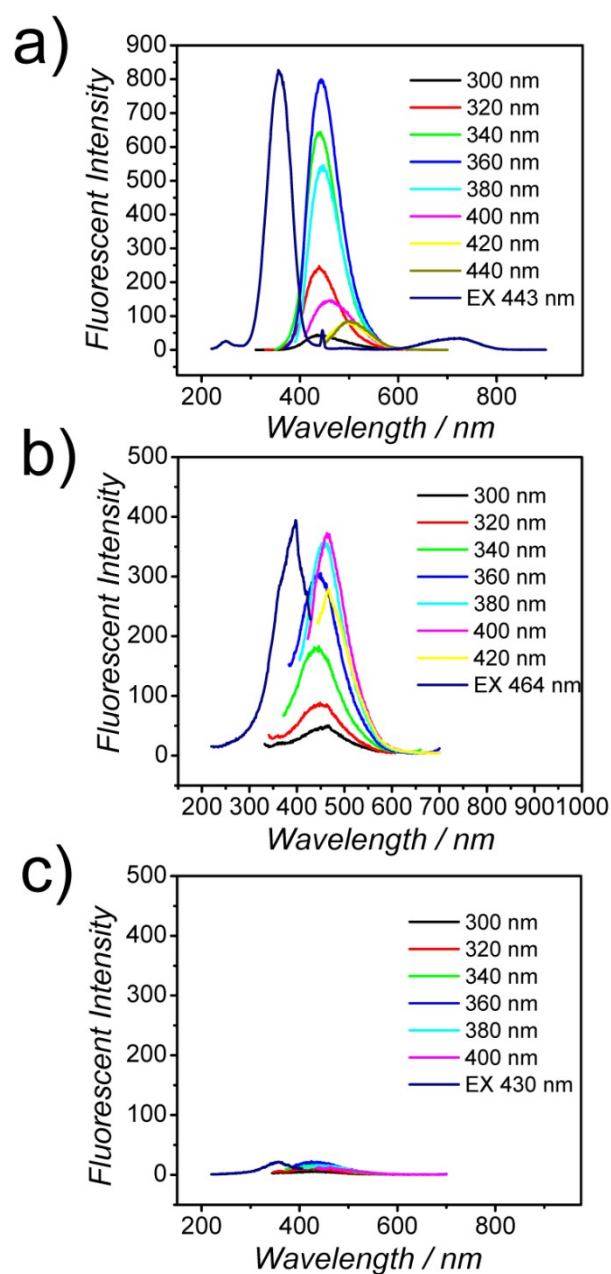


Fig. S4 (a) Fluorescence spectrum of CDs from 300 nm to 440 nm, the excitation spectrum was detected when the received wavelength was 443 nm. (b) Fluorescence spectrum of PNIPAM & CDs composites (c) Fluorescence spectrum of pure PNIPAM.

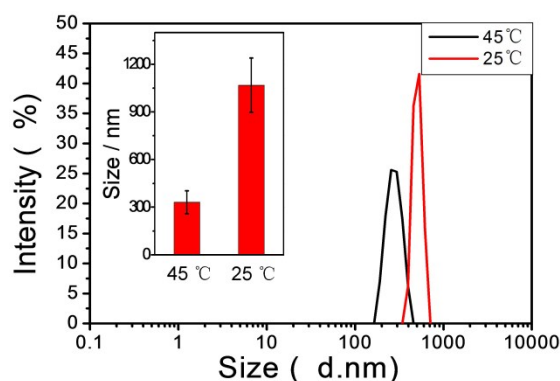


Fig. S5 DLS measurements of the PNIPAM & CDs composites at 25 °C and 45 °C

Note: The composites synthesized here were soft and the cross linking degree was very low, which lead to the relatively broad size distribution. Based on the reasons above, the specific sizes of the composites on DLS are very difficult to get. The data were not qualified to show the specific size of the composites in water. But it is enough to show the change in size at different temperature. The average size of the composites at 25 °C is 1068 nm, and it is 330 nm at 45 °C.

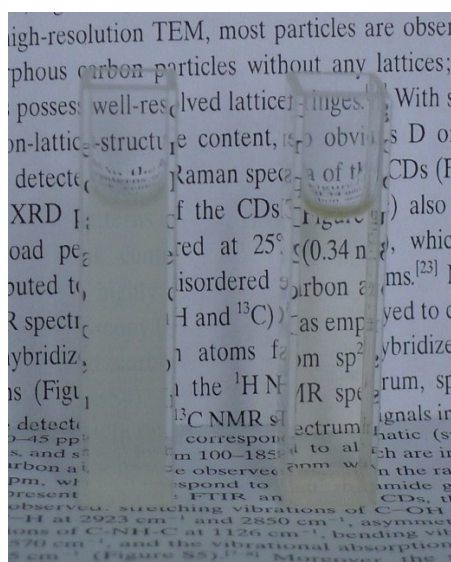


Fig. S6 PNIPAM & CDs composites with 0.01 g CDs at low temperature under sunlight (left)
PNIPAM & CDs composites with 0.05 g CDs at low temperature under sunlight (right)