

# Immobilized CdS Quantum Dots in Spherical Polyelectrolyte Brushes:

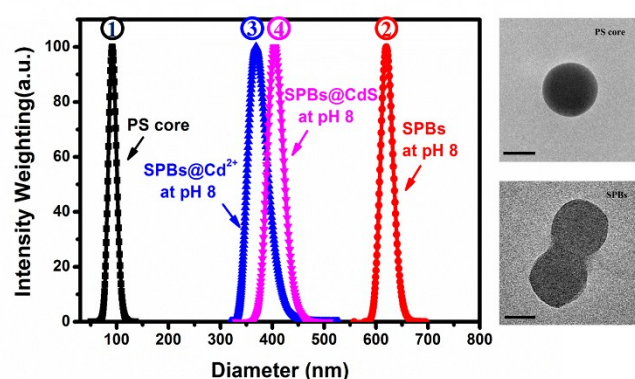
## Fabrication, Characteration and Optical Properties

Yu Cang, Rui Zhang\*, Guixin Shi, Jianchao Zhang, Lixiao Liu, Xiaoyan Hou,

Zhenchuan Yu, Dingye Fang, Xuhong Guo\*

(State-Key Laboratory of Chemical Engineering, East China University of Science and Technology, Shanghai 200237, China)

E-mail: r.zhang@ecust.edu.cn, guoxuhong@ecust.edu.cn



**Figure S1 Diameter of nanoparticles with different steps of synthesis process and TEM images of PS core and SPBs with collapsed shell. Scale bar is 50 nm.**

(1) PS core.  $D_{\text{core}}=91$  nm.

(2) SPBs (PS-PAA, at pH 8),  $D_{\text{SPBs}}=619$  nm.

(3) Ion-exchange process for introducing  $\text{Cd}^{2+}$  ions in SPBs layers,  $D_{\text{SPBs@Cd}^{2+}}=352$  nm.

(4) Immobilized CdS in SPBs,  $D_{\text{SPBs@CdS}}=406$  nm.

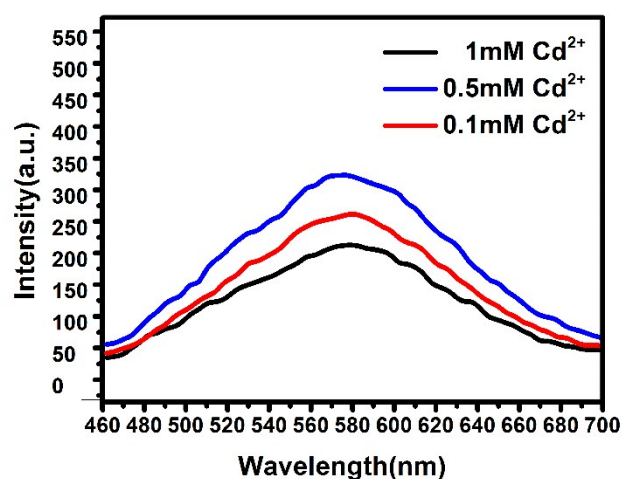


Figure S2 PL intensity of SPBs@CdS with different concentration of  $\text{Cd}^{2+}$  ions in ionic exchange process (0.1 wt% SPBs).

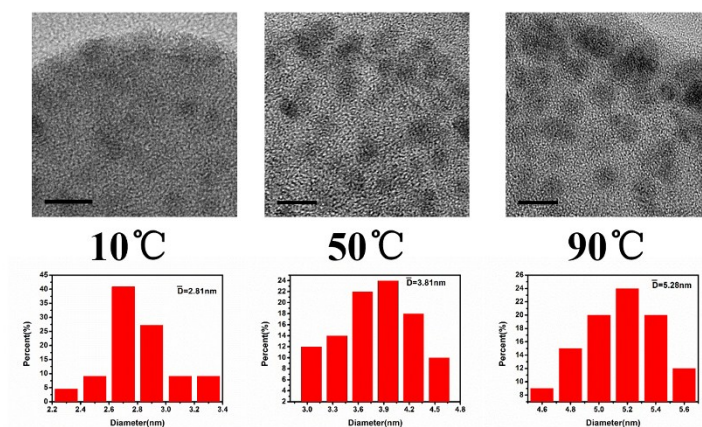


Figure S3 TEM images and size distribution of CdS at 10, 50, 90 °C. Scale bar is 10 nm.

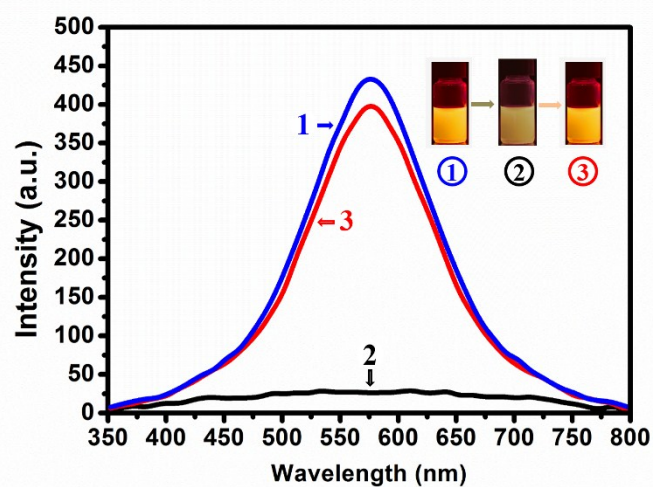


Figure S4 PL intensity of SPBs@CdS at pH-changing circle.  
(1) At pH 10.

- (2) Decrease pH of SPBs@CdS from 10 to 3.  
(3) Increase pH of SPBs@CdS from 3 to 10.

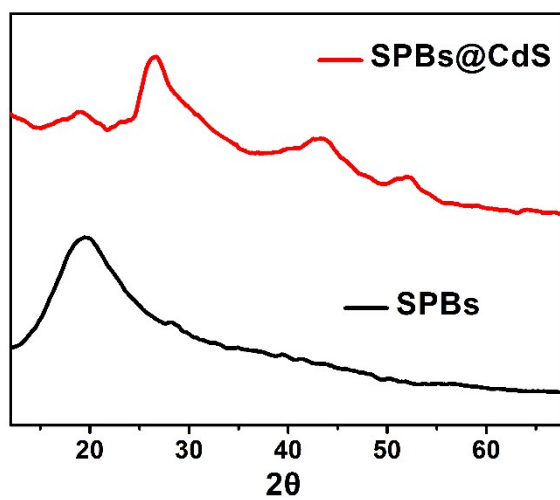


Figure S5 XRD pattern of SPBs and SPBs@CdS.