

Thiolate-Assisted Cation Exchange Reaction for the Synthesis of Near-Infrared Photoluminescent $\text{Hg}_x\text{Cd}_{1-x}\text{Te}$ Nanocrystals

Hongzhe Wang, Shiyun Lou, Zhaojun Tang, Weiwei Xu, Hangying Shang, Huaibin Shen, and Lin Song Li*

Key Laboratory for Special Functional Materials, Henan University, Kaifeng 475004, P. R. China

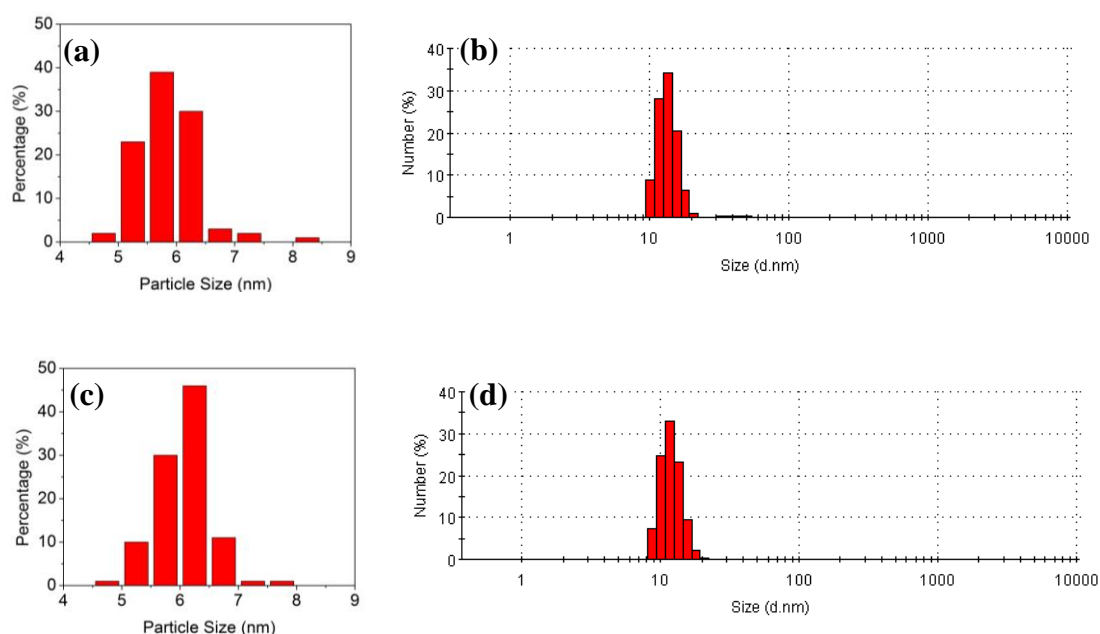


Figure S1 Particle size distribution histograms of 6 nm sized CdTe NCs obtained from TEM (a) and DSL analysis (b), respectively. And particle size distribution results of corresponding $\text{Hg}_x\text{Cd}_{1-x}\text{Te}$ NCs based on TEM characterization (c) and DLS result (d). Parameters used for the DLS data analysis: viscosity=0.563 cP, refractive index=1.442. Note that the discrepancy between the DLS and electron microscopy diameters is partly due to polydispersity effects (since DLS is more biased toward larger particles than TEM) and also reflects the swollen dimensions of these microgels in solution (compared to the high-vacuum conditions required for electron microscopy).

* To whom correspondence should be addressed. Fax: +86-378-3881358; Tel: +86-378-3881358; E-mail: lsli@henu.edu.cn.

Table S1. Observed interlayer spacing (kd Å) from the pronounced ($0k0$) reflections of as-synthesized $\text{Cd}_x\text{Hg}_{1-x}\text{Te}$ NCs nanocrystals

d_{obs} (Å)	k	kd (Å)
11.7777	3	35.33
8.7509	4	35.00
7.0756	5	35.38
5.8626	6	35.18
5.0069	7	35.05
4.3711	8	34.97
3.8804	9	34.92
3.4903	10	34.90
3.1730	11	34.90
2.9099	12	34.92
2.6884	13	34.95
2.4995	14	34.99
2.3248	15	34.87
2.1843	16	34.95
2.0519	17	34.88
1.9435	18	34.98
1.8399	19	34.96
1.7478	20	34.96
1.6599	21	34.86
1.5864	22	34.90
1.5155	23	34.86
1.4557	24	34.94
1.3975	25	34.94
1.3413	26	34.87
1.2935	27	34.92

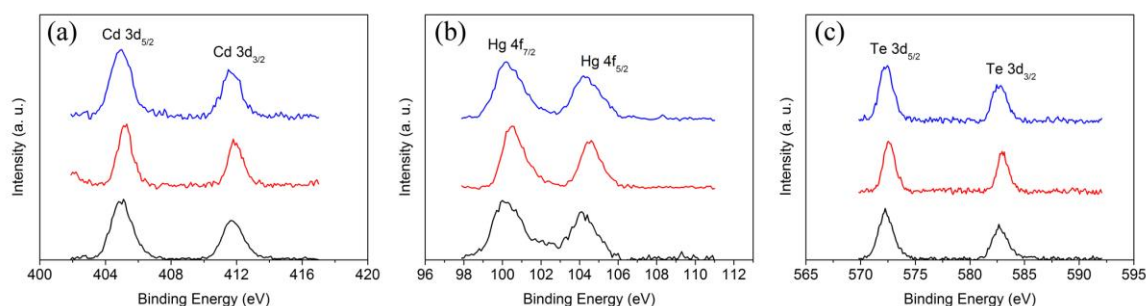


Figure S2 High-resolution XPS spectra of cadmium 3d (a), mercury 4f (b), and tellurium 3d of $\text{Hg}_x\text{Cd}_{1-x}\text{Te}$ NCs obtained under different reaction conditions. Black curves (lower), red curves (middle), and blue curves (upper) represent results obtained from same amount of CdTe NCs reacted with 0.02 mL, 0.04 mL, and 0.06 mL of 0.335M Hg (II) ions, respectively.