Supporting information

Luminescent Properties and Exciton Dynamics of Core-Multi-Shell Semiconductor Quantum Dots Leading to QLEDs

Mohan Singh Mehata* and R. K. Ratnesh

Laser-Spectroscopy Laboratory, Department of Applied Physics, Delhi Technological University, Bawana Road, Delhi-110042, INDIA.

Corresponding author E-mail: msmehata@gmail.com; msmehata@dtu.ac.in

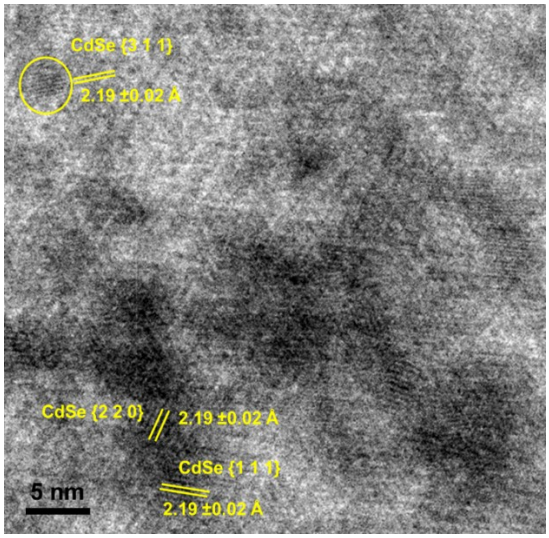

Fig. S1: HRTEM image (with higher magnification, showing lattice fringes) of CdSe QDs.

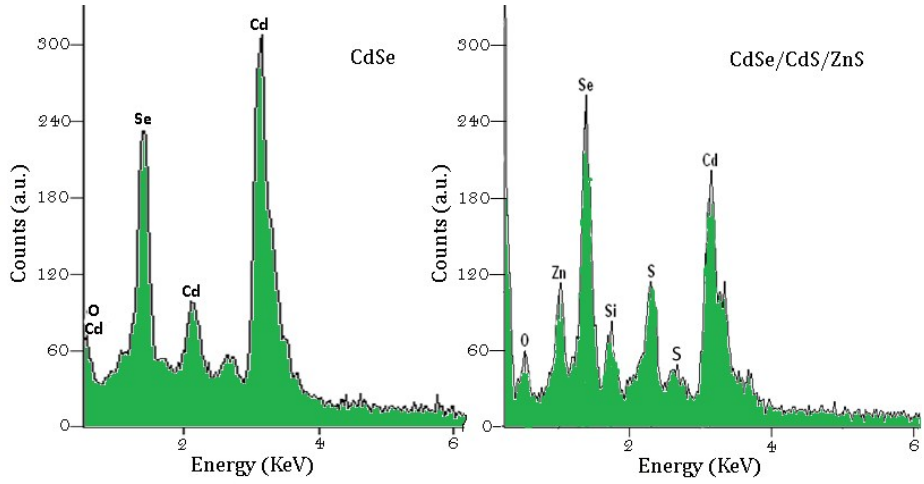

Figure S2: EDX spectra of CdSe and CdSe/CdS/ZnS core-shell QDs.

Table S1: The percentage of constituents of each element in the CdSe and CdSe/CdS/ZnS core-shell QDs.

Samples	Elements	Weight %	Atom %
CdSe	Cd	68.72	60.25
	Se	31.28	39.75
CdSe/CdS/ZnS	Cd	56.63	43.77
	Se	25.46	24.82
	Zn	08.59	12.52
	S	09.32	18.89

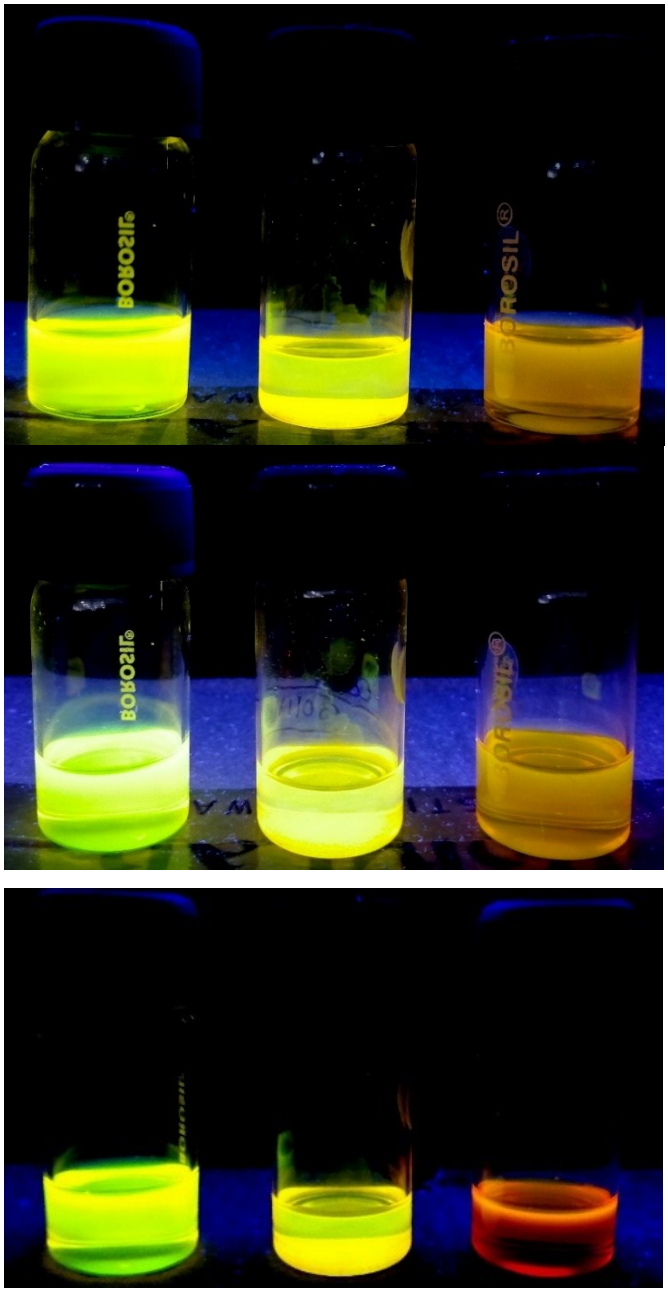

Figure S3: Image of CdSe (left), CdSe/CdS/ZnS (middle) and CdSe/ZnS/ZnS (right) QDs colloid (top-to-bottom corresponds three different concentration) under irradiated with 365 nm UV lamp.

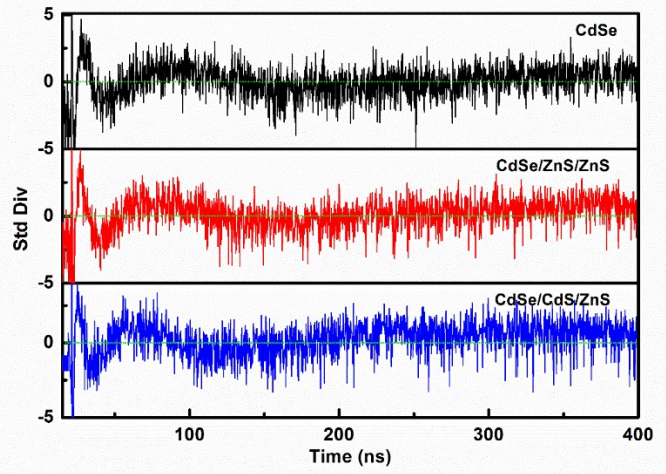

Figure S4: Residuals of fitted decay curves of CdSe, CdSe/ZnS/ZnS and CdSe/CdS/ZnS core-shell QDs dispersed in toluene.

The rate of electron transfer (K_{eT}) for CdSe-core and different core-multi-shell QDs

$$K_{eT} = \frac{1}{\tau_{QDC}} - \frac{1}{\tau_{QD}}$$

Where τ_{QDC}= The average lifetime of complex QDs

τ_{QD} = The average lifetime of QDs

Table S2:

Sample	$K_{eT} \times 10^{9}(S^{-1})$
CdSe	0.026
CdSe/CdS	0.014
CdSe/ZnS	0.003
CdSe/CdS/ZnS	0.017
CdSe/CdS/ZnS	0.006
CdSe/ZnS/ZnS	- 0.005
CdSe/CdS/ZnS	0.006