

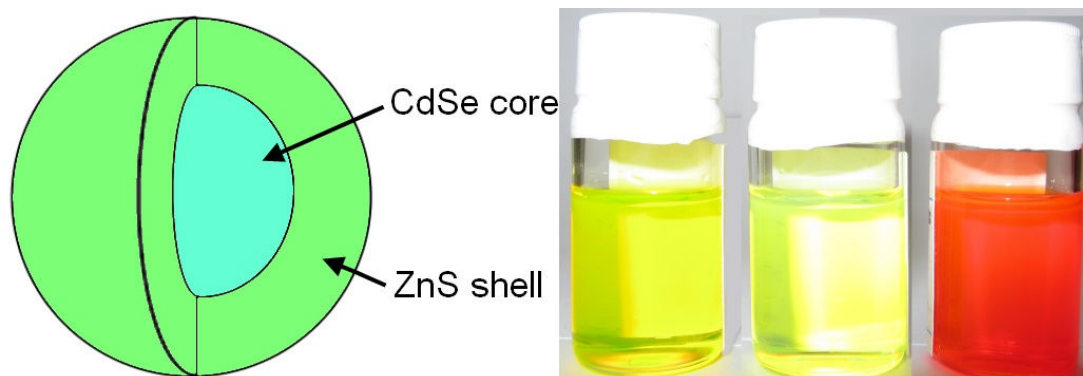
Quantum dots summary report

Potential applications:

Uses for quantum dots include transistors, solar cells, LEDs, and diode lasers.

Properties:

Three samples of CdSe/ZnS core-shell quantum dots were provided for study. All of the samples, which were produced by Evident Technologies, were suspended in toluene and handled under standard conditions.



Quantum dot structure and samples in toluene (Left to right: Lake Placid Blue, Catskill Green, Fort Orange)

Absorption and emission wavelengths were measured for each sample, followed by emission lifetimes. This information is important when deciding the suitability of the quantum dot for a particular application, e.g. does it absorb visible light? How long does it take to decay and re-emit energy absorbed?

Characterisation of quantum dot samples

Quantum dot	Lake Placid Blue	Catskill Green	Fort Orange
Absorption peak (nm)	461	514	506
Emission peak (nm)	486	538	613
Emission lifetime (ns)	20.21	26.1	19.63
Approximate crystal diameter (nm)	1.9	2.4	4

Note: crystal diameter supplied by manufacturer: Quantum Dot Nanomaterials for Research Specification Sheet, Evident Technologies, Inc., 2006