Luminescent CdTe quantum dots incarcerated in columnar matrix of discotic liquid crystals for optoelectronic applications

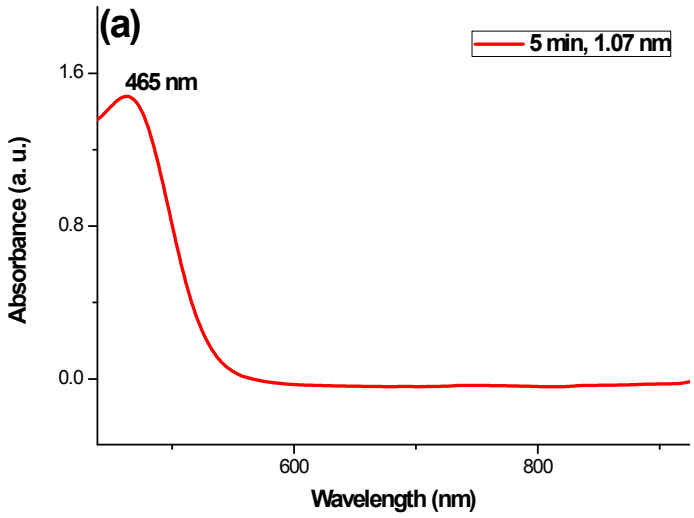
Manish Kumar and Sandeep Kumar*

Raman Research Institute, C.V. Raman Avenue, Sadashivanagar, Bangalore - 560 080, India

Phone: +91 80 23610122, Fax: +91 80 23610492, E-mail: skumar@rri.res.in

1. Uv-vis absorption spectroscopy

As the reaction time and temperature increases the growth of QD become rapid and this can be seen in absorption spectrum. Absorption spectra are red shifted and this is the result of the growth of CdTe QDs. After 5 min, 15 min and 20 min of the reaction time the size of quantum dot is 1.076, 3.46 nm and 3.58 nm respectively. The absorption spectra of these sample is shown in **Figure S1**.



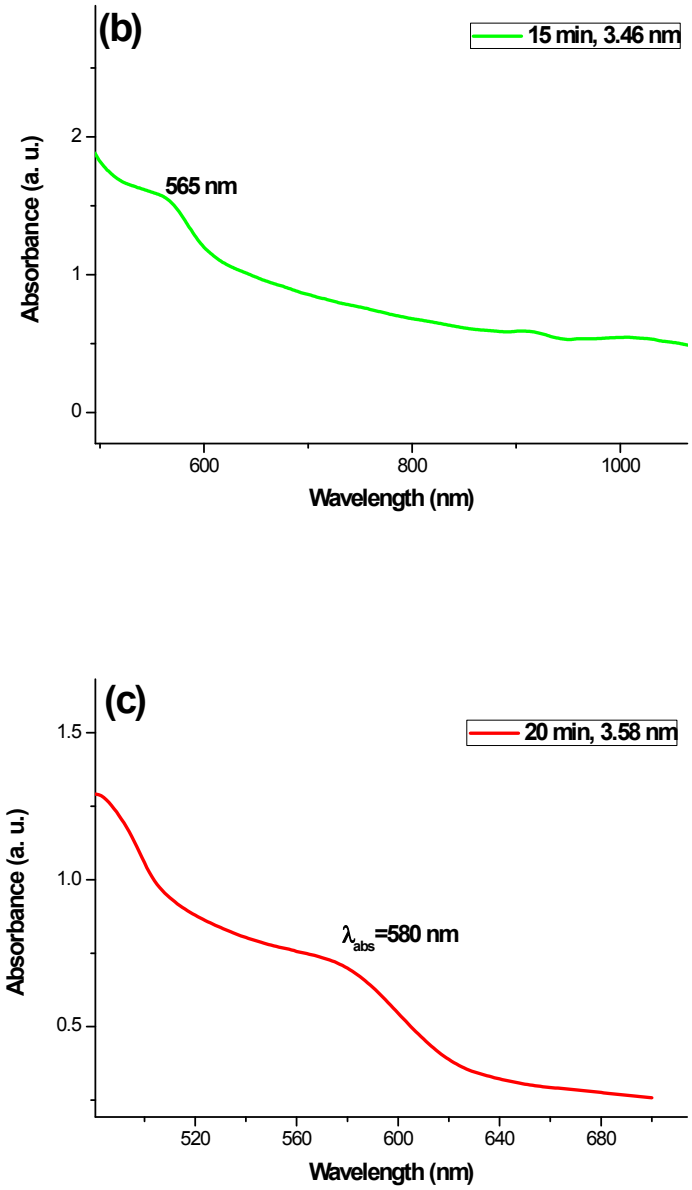


Figure S1. Uv-vis spectra of CdTe quantum dots at various time intervals on different temperature: (a) 135 ºC after 5 min., (b) 155 ºC after 15 min and (c) 165 ºC after 20 min.

2. POM studies

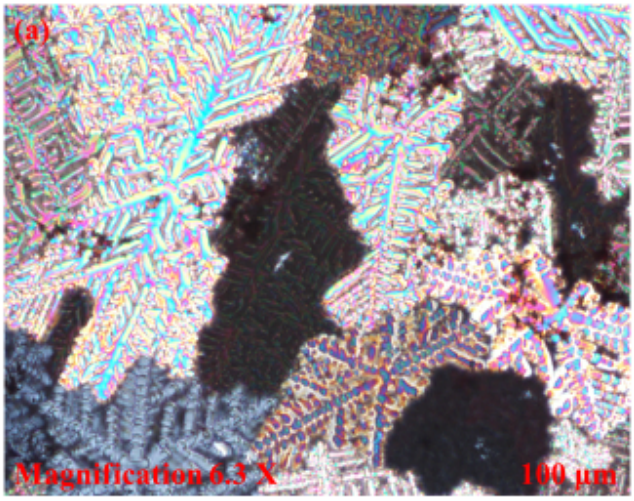


Figure S2. Polarizing optical microscope image of the columnar phase of 7% CdTe QDs/HAT4 clearly indicating the aggregation of CdTe QD.