

Abstract Submitted  
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**Fluorescence of CdSe nanoparticles in the Liquid Crystal 8CB near the Phase Transitions** JODIE GRAY, SHANE DRYE, DARREN NORTH, SAMUEL BECK, Undergraduate Physics Research, TIM ROYAPPA, Department of Chemistry, LASZLO UJJ, CHANDRA PRAYAGA, Department of Physics — The liquid crystal 4'octyl—4-cyanobiphenyl (8CB) doped with cadmium selenide nanoparticles was injected into a commercially available liquid crystal cell (INSTEC, Inc). The cell was housed in a temperature controlled environment constructed in the lab and exposed to light from a frequency doubled Nd: YAG laser. Fluorescence from the sample was filtered from the incident light and detected using a photodiode and measured with a lock-in amplifier. Measurements have been made over the temperature range 25° to 45°C. The sample was stabilized at each temperature, and the fluorescence intensity was measured at several temperatures. The results show a significant change in fluorescence near the nematic-isotropic phase transition. The temperature control and precision allowed more than 1000 data points to be taken between 25-50°C, with most of these clustered in the transition region between 38.5–39.5°C, where the change in intensity was observed.

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