

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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