

Abstract Submitted  
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**Effects of radiation on switchable gratings and CdSe/ZnS nanostructures**<sup>1</sup> S.C. SHARMA, R.A. RAMSEY, J. MURPHREE, T. CHAKRABORTY, C. SHIVE, UT Atlington — Switchable gratings formed in Polymer-Dispersed Liquid Crystals (PDLCs) and CdSe/ZnS quantum dots are of interest from scientific and technological points of views[1,2].The Bragg reflection and transmission PDLC gratings can be switched on/off by external fields. We present new results on the effects of synthesis parameters and radiation on the forward/reverse-mode gratings and PL spectra of CdSe/ZnS quantum dots. The PL emission from these nanostructures changes as a result of simultaneous irradiation by 532-nm laser and gamma-rays. The results of this study reaffirm the role of radiation-induced charges in modifying thin films, such as the ones studied in this work containing CdSe/ZnS nanostructures and switchable diffractive elements formed in PDLCs[3]. [1] T. J. Bunning, L. V. Natarajan, V. P. Tondiglia, R. L. Sutherland, *Ann. Rev. Mat. Sci.* 30, 83 (2000), [2] R. A. Ramsey and S. C. Sharma, *Opt. Lett.* 30, 592-594 (2005); S. C. Sharma, J. Murphree, T. Chakraborty, *J. Lumin.* 128, 1771,(2008); R. A. Ramsey and S. C. Sharma, *Appl. Phys. B* (in press)., [3] S. C. Sharma, L. Zhang, A. J. Tapiawala, P. C. Jain, *Phys. Rev. Letts.* 87, 105501 (2001).

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