

Abstract Submitted  
for the MAR07 Meeting of  
The American Physical Society

**Enhancement of luminescence of nematic liquid crystals doped with silver nanoparticles**<sup>1</sup> CHIE-TONG KUO, SHUAN-YU HUANG, CHIH-CHIEH PENG, Department of Physics, National Sun Yat-sen University, Kaohsiung, Taiwan 804, R.O.C. — The photoluminescence of nematic liquid crystals (5CB) doped with silver nanoparticles has been investigated. The profiles of luminescence with various concentrations of silver nanoparticles remain the same and possess the same peak position around 390 nm. The peak intensity of luminescence of nematic liquid crystals increases with the increasing concentration of silver nanoparticles. The quantum yield of enhancement is 1.5 for 1% of concentration of silver nanoparticles. The polarization dependence of photoluminescence was also performed by rotating the director of nematic liquid crystals relative to the polarization of pump beam. The intensities of photoluminescence with various concentrations of nanoparticles decrease and converge to the background luminescence from the director of nematic liquid crystals parallel to the polarization of pump beam to the perpendicular case. The ratio of photoluminescence intensity with director parallel to the perpendicular to the polarization of pump beam increases sharply with the concentration less than 0.1% and slowly with the concentration in the range from 0.25% to 1%.

<sup>1</sup>supported by NSC of R.O.C. under grand No. NSC-93-2112-M-110-016

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Date submitted: 28 Nov 2006

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