

Abstract Submitted  
for the APR12 Meeting of  
The American Physical Society

**Non-linear Imaging of Nanoscale Surface Defects on Alphabet Letter Shaped Colloids in a Uniformly Aligned Nematic Liquid Crystal<sup>1</sup>**

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The formation of defect structures on the surfaces of colloids immersed in uniformly aligned nematic liquid crystals is a phenomenon which, if better understood, could lead to advances in micro and nanoscale colloidal self assembly techniques. In this study, three photon fluorescence microscopy (3PFM) was used in conjunction with holographic optical tweezers (HOT) in order to stabilize and image surface defects on English alphabet letter shaped colloids suspended in a uniformly aligned nematic liquid crystal. This data made it possible to characterize the location and strength of these defects for a robust variety of shapes. A relationship between particle shape and angle of orientation vs the host nematic was also observed.

<sup>1</sup>Support provided by the NSF summer REU program.

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Date submitted: 06 Jan 2012

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