Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Analysis of interactions between CNTs and LCs in a binary nematic mixture during Freedericksz transition in electric field GEORGI GEORGIEV, Assumption College, ZARNAB IFTIKHAR, YANIEL CABRERA, PETER GATI, MICHAEL MATTERA, AUSTIN POTTER, PEGGY CEBE, TUFTS/ASSUMPTION COLLABORATION — Making electro-optic cells by mixing them with organic liquid crystals shows a promise to allow alignment and orientation of the nanotubes using nematic coupling, surface anchoring, and electric and magnetic fields. This approach can be used to create electromechanical devices, for example a nanoswitch, and to position the carbon nanotubes in a particular 3D orientation. We chose 5CB as a liquid crystal because of its large dipole moments and birefringence, which are necessary for microscopic transmission ellipsometry; the method that we use to study the orientation of the carbon nanotubes as a function of the electric field. A downshift in the transition voltage for the carbon nanotube doped electro-optic cells was observed during the Freedericksz transition.

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Date submitted: 23 Oct 2008 Electronic form version 1.4