Abstract Submitted
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Interaction of a bi-molecular liquid crystal film with functionalized nanoparticles[1] JEFFERSON W. TAYLOR, L.J. MARTINEZ-MIRANDA, University of Maryland — We investigate the properties of a bi-molecular film of liquid crystal close to a magnetic nanoparticle (CoFe) with a functionalization compound (MHDA) with the atomic force microscope (AFM). We seek to investigate if the functionalization compound has an effect on the ordering of the liquid crystal in the vicinity of the nanoparticle. Studies in bulk liquid crystals have shown that the functionalization compound influences how the liquid crystal reorganize [1]. The results of this investigation will be compared to the results of work done on phospholipids in close contact with uncovered silica nanoparticles [2]. Preliminary studies of the liquid crystal in contact with the nanoparticles show that it behaves similarly to the way the phospholipids behave. More functionalization compounds are studied in order to establish whether it behaves differently depending on the functionalization compound.

[1] L. J. Martínez-Miranda, L. K. Kurihara, J. Appl. Phys 105, 084305 (2009).
[2] Yuri Roiter, Maryna Ornatska, Aravind R. Rammohan, Jitendra Balakrishnan, David R. Heine, and Sergiy Minko, Langmuir, 25, 6287-6299 (2009).

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