

Abstract Submitted
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Polarization and Angle Dependence of Fluorescence from Aligned DNA¹ ASHISH SRIDHAR, Brophy College Preparatory, SURI BANDLER, Ramaz Upper School, KE ZHU, YINGZHAN GU, JULIA BUDASSI, JONATHAN SOKOLOV, Stony Brook University — DNA molecules can be deposited and aligned on various surfaces and imaged by confocal microscopy when labeled with fluorescent dyes. SyBr Gold dye, is known to possess a high angle and polarization dependence. We measured the emission intensity for various incident angles as a function of incident polarization angle. Samples were created by means of dipping PMMA-coated silicon wafers into dyed DNA solutions with DC electric field setup or drop evaporation. The blue laser as the imaging light source was mounted on an optical rail with a polarizer with rotatable half wave plate to change the incident polarization relative to the DNA molecular orientation. When applied to samples dyed using SyBr Gold, a clear change in the intensity of imaged DNA strands was observed though a range of input polarization angle. We have shown that it is possible to optimize the conditions in which aligned DNA is imaged using confocal microscopy by varying the polarization and angle of incidence of laser light on the sample. This study is supported by NSF-DMR-MRSEC program.

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