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Electric-field Assisted Deposition of the DNA on Polymer Surface JUNHWAN RYU, Loomis Chaffee School, KE ZHU, JULIA BUDASSI, JONATHAN SOKOLOV, Stony Brook University — Recently, the interaction of DNA with surfaces has been widely studied for its range of applications, including mapping, sequencing and analyzing DNAs. In this study, the Lambda DNA molecules were aligned in 6:50(0.1M NaOH:0.02M MES) buffer solution with different electric fields and deposited onto polymethylmetacrylate (PMMA) surfaces by dipping and retracting PMMA coated silicon wafers into the solution. Electric field was set up with platinum wire and gold plated Si wafer. The DNA strands were dyed with YoYo-1 and observed using a fluorescence microscope. The efficiency of deposition was optimized with respect to DNA concentration, DNA length and electric field. The results indicate that the density and possibly the lengths of the DNA deposited on surface can be controlled by this method. Enhancement of adsorption density of greater than twenty-fold were found using electric field strengths of 10v/cm. This study is supported by NSF-DMR-MRSEC program.

Ke Zhu
Stony Brook University

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