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Induced electrostatic interactions between atomic force microscope tip and iridovirus SERGEI LYUKSYUTOV, OLGA MAYEVSKA[1], PAVEL PARAMONOV, Departments of Physics and Polymer Engineering, The University of Akron, OH 44325, SHANE JUHL, RICHARD A. VAIA, AF Research Laboratory, WPAFB, OH 45433 — Electrostatic nanolithography based on atomic force microscopy (AFMEN) is implemented to study interactions between an AFM tip and iridovirus assembly on a conductive substrate. Iridovirus is composed of proteins. Certain sequences of natural amino-acids arranged into a helix and folded in ternary structural pattern to form capsomers. Those are the building blocks of the virion capsid. AFMEN implemented on the iridovirus culture deposited on the surface of Au (111). In this proof-in-principle experiment the culture was deluted in water, poured on the gold surface and dried for 24 hours. An AFM tip was manipulated above the iridovirus surface drawing a square of 2×2 μm^2 so the virus attracted toward the tip forming piles on the otherwise uniform surface. The robust implementation of AM-AFMENpermits marking an individual virus in air under ambient humidity. Insight of structural protein changes with field magnitude, the threshold character of activation energy of protein re- arrangement, electrostriction, and the influence of filed-induced water condensation are discussed.

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