Abstract Submitted
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Atomic force microscopy electrostatic nanolithography for proteins study in wiseana iridovirus and barley chromosomes EWA ROWICKA, OLGA MAYEVSKA, SERGEI LYUKSYUTOV, The University of Akron, OH, MEGUMI SASOU, SHIGERU SUGIYAMA, National Food Research Institute, Japan — Manipulation of proteins and DNA at the nanoscale has been studied using atomic force microscopy electrostatic nanolithography (AFMEN) for two different biological objects: iridovirus wiseana, and stained barley chromosomes. Partially relaxed chromosomes were characterized using scanning near field optical/atomic force microscopy based on bent-type optical probe, which was used as a cantilever for constant force AFM mode. Virus capsids and chromosomes can be treated as polarized dielectrics in strong non-uniform electric field (up to 10^9 Vm^{-1}) induced by biased AFM tip. It is suspected that an electric field inside a polar medium produces energy densities sufficient for either structural changes or reorganization of the protein structure. Recent results related to manipulation of proteins using AFMEN will be presented.

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