

Abstract Submitted
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Conformation of Lysozymes Confined to nano Particles YUYING WEI, R. KENNETH MARCUS, DVORA PERAHIA, Chemistry Department Clemson University — Confinement of bio-molecules while retaining their activity is a key to many applications. The main challenge lies in the fact that when protein molecules interact with other particles they often lose their tertiary structure, resulting in irreversible reduction of their biological activity. The interfacial interactions of including direct chemical interactions, morphological factors, as well as adsorption under shear and hydrodynamic characteristics of flow next to the interfaces are among the factors that control the configuration. Using lysozyme as a model protein, the effects of physical absorption as a function of the topography of the confining surface from flat to curve with controlled roughness will be discussed. Atomic Force Microscopy together with small angle neutron studies correlated with measurements of retaining the degree of helicity in the system, provide a new insight into the factors that affect the conformational changes in protein upon confinement. While the chemical nature of the surface is an important parameter the topography of the surface determine many characteristics from the amount of absorption to distribution as well as the desorption of the protein.

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