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5:00 p.m.

Room 1360, Genetics/Biotechnology Center, 425 Henry Mall

Proteins, Nucleic Acids, and Surfaces - Understanding Interactions at Interfaces

Abstract:

The interaction of biological molecules with surfaces is prevalent in nature and many applications. For example, controlling protein absorption is important in medical implants, biosensors, and protein arrays. Other biological molecules, such as DNA, are also involved in inhomogeneous systems of which microarrays are an example. Understanding the underlying biophysics involved in such systems will aid in furthering the advancement of such technologies.

To this end, we have employed advanced simulation methods to model the interactions of proteins and nucleic acids with different types of "tailor-made" surfaces. I will present our work beginning with a brief introduction of the role of simulation in genomic science and the basic principles of the technique. After this, results will be shown where we have analyzed the mechanical and thermal stability of a 3-helix-bundle peptide on different surfaces. This will be followed by results for DNA on surfaces. I will conclude with a summary of where our future work lies.
