

第217回化学コロキウム

日時： 2013年2月22日(金) 11:00~13:00

場所： 8号館301号室

講師： Prof. David Andelman (Tel Aviv University, Israel)

題目： Ionic Specific Effects beyond the Poisson-Boltzmann Theory:
Electrolytes, Surfaces and Membranes

要旨：

In aqueous solutions, dissolved ions interact strongly with the surrounding water and surfaces, thereby modifying solution properties in an ion-specific manner. The Poisson-Boltzmann description of ionic solutions has been successfully used in predicting charge distributions and interactions between charged macromolecules. However, when dealing with various aspects of real physical, chemical and biological systems, the Poisson-Boltzmann has several noticeable shortcomings. In the talk I will describe several such effects that we have considered recently. I will review how this strategy has been used to predict some of the ways ion-specific effects can modify the forces acting within and between charged interfaces immersed in salt solutions. Among others, they include steric effects due to finite ion size close to interfaces, decrement of the solution dielectric constant due to the presence of ions, mixed solvent effects, direct ion-surface interactions and charge regulation, and solutions of antagonist ions.

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