Séminaire

Lundi 2 mars 2026 à 14h00

Amphithéâtre Henri Benoît

David Andelman

School of Physics, Tel Aviv University, Israel

One Hundred Years of Electrified Interfaces and the Poisson-Boltzmann Theory: A Mini-review and Recent Results

The Poisson-Boltzmann theory, stemming from the pioneering work of Debye and Onsager, remains the benchmark for ionic solutions and electrified interfaces. It has been instrumental over the past century in predicting charge distributions and interactions among charged surfaces, membranes, electrodes, macromolecules, and colloids. After reviewing the Poisson-Boltzmann theory, I will briefly discuss several extensions and modifications applied to ions and charged macromolecules. These ideas include the effects of dipolar solvent molecules, finite ion size, ionic specificity, surface tension, charge regulation, and the conductivity of concentrated ionic solutions.

Bio Sketch:

David Andelman completed his PhD in Physics at MIT in 1984. Between 1984 and 1987, he was a Joliot-Curie postdoctoral fellow at the College de France (in the group of P.G. de Gennes) and at Exxon Research and Engineering (New Jersey). Since 1987, he has been on the faculty of Tel Aviv University's School of Physics. His interests center on modeling soft and biological matter using the tools of statistical physics. In recent years, he has worked on charged soft matter, including polyelectrolytes, ionic liquids and solutions, and charged membranes, exploring their equilibrium and electrokinetic properties. David Andelman is a fellow of the American and Israeli Physical Societies, a recipient of the Humboldt Award (Germany), the Bourke Award from the Royal Society (UK), and the CAS President's International Fellowship Initiative.

Les personnes souhaitant rencontrer l'orateur sont priées de prendre contact avec Jean Wolff.