

# *France-Stanford Symposium on selected topics in Biophysics*

**Tuesday Feb 9, 2010**

**4.15 pm**

Topological Classification of RNA Structures

Henri Orland

CEA Saclay

We present a novel topological classification of RNA secondary structures with pseudoknots. It is based on the topological genus of the circular diagram associated to the RNA base-pair structure. The genus is a positive integer number whose value quantifies the topological complexity of the folded RNA structure.

*The lecture will be given in Alway M106*

**Wednesday Feb 10, 2010**

**2.15 pm**

Beyond the Poisson-Boltzmann Model:  
Modeling Biomolecule-Water and Water-Water Interactions

Patrice Koehl

UC Davis

We present an extension to the Poisson-Boltzmann model in which the solvent is modeled as an assembly of self-orienting dipoles of variable densities. Van der Waals attractions between these dipoles are included implicitly using a Yukawa potential field. The computed water density profiles resemble those derived from molecular dynamics simulations.

**Wednesday Feb 10, 2010**

**3.30 pm**

X-ray structure of a pentameric ligand-gated ion channel

Marc Delarue

Inst Pasteur

Pentameric ligand-gated ion channels from the Cys-loop family mediate fast chemo-electrical transduction, but the mechanisms of ion permeation and gating of these membrane proteins remain elusive. Here we present the X-ray structure at 2.9Å resolution of the bacterial *Gloeobacter violaceus* pentameric ligand-gated ion channel homologue (GLIC). Structural comparison with ELIC, a bacterial homologue are consistent with a model of pore opening based on both quaternary twist and tertiary deformation.

Frédéric Poitevin

Inst Pasteur

Modeling the dynamics of pore opening of the receptor.

*Wednesday lectures will be given in Alway M112 for further information contact  
Sybille Katz, 723-1925*