

BiophysTO Lunchtime Seminar Series

Dr. Régis Pomès

Program in Molecular Medicine Research Institute, The Hospital for Sick Children Date Thursday, Sept 26 2019 12:00 – 1:00 pm

Location McLennan Physical Laboratories Room MP606 60 St. George Street

Pizza and refreshments will be provided

Folding and self-assembly of peptides and proteins in membranes

Many biological processes of interest, such as ion and solute transport, bacterial infection, and immune response, are mediated by proteins embedded in biological membranes. However, elucidating the molecular factors underlying the interaction of proteins with lipid bilayers is challenging. Large-scale computing and efficient sampling methods make it possible to examine the structure and function of peptides and proteins in membranes at the atomic level of detail. I will present recent and ongoing molecular simulation studies aimed at characterizing the structural and physical basis for the solvation, folding, and self assembly of peptides and proteins in lipid membranes. Specifically, I will present studies of the selectivity and specificity of trans-membrane α -helix association in the homotetrameric M2 channel of influenza A; the self assembly of peptides into β -sheet oligomers linked to the toxicity of prion diseases; and the spontaneous formation of toroidal pores by bee venom peptide melittin.

Host: Andrea Guljas



Biochemistry

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Physics

Chemistry