Seminar Series of the
CIHR Training Grant in

Protein Folding and Interaction Dynamics

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Probing the structure and dynamics of intrinsically disordered proteins with single-molecule spectroscopy

The cellular functions of proteins have traditionally been linked directly to their well-defined three-dimensional structures. It is becoming increasingly clear, however, that many proteins perform their functions without being folded. Single-molecule spectroscopy provides new opportunities for investigating the structure and dynamics of such “intrinsically disordered proteins” (IDPs). The combination of single-molecule Förster resonance energy transfer (FRET) with nanosecond correlation spectroscopy, microfluidic mixing, and related methods can be used to probe intramolecular distance distributions and reconfiguration dynamics on a wide range of timescales, and even in heterogeneous environments, including live cells. In view of the large structural heterogeneity of disordered proteins, a description in terms of polymer physical principles is often a powerful way of conceptualizing their behavior.

Host: Dr. Hue Sun Chan

Thursday, June 18 - **4:00pm**
Medical Sciences Building, Rm. 4279
University of Toronto