



Institute Seminar

26 November 2015

4:00 p.m.

Fermion

Speaker:

Dr. Bijay Kumar Agarwalla
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University of Toronto

Title:

Charge and Energy transfer in molecular junctions: models, methods, mechanisms and fundamental aspects

Abstract:

In this talk, I will first present a brief experimental and theoretical overview of both charge and energy transfer study in molecular junction setup. I will then focus on three different aspects, namely, (i) the fundamentals of non-equilibrium statistical physics in terms of universal fluctuation theorems (ii) vibrationally assisted charge transport and mechanisms of device functionality and (iii) Universality in efficiency statistics for time-reversal breaking systems. Our analysis is mostly based on a full-counting statistics approach using eminent methods namely non-equilibrium Green's function and quantum master equation approach.

References:

- [1] Bijay. K. Agarwalla, Baowen. Li, and J.-S. Wang, Phys. Rev. E *85*(051142)(2012).
- [2] Bijay. K. Agarwalla, J. -H. Jiang, D. Segal, ArXiv: 1508.02475.
- [3] J. -H. Jiang, Bijay. K. Agarwalla, D. Segal, Phys. Rev. Lett.* 115*(040601) (2015).
