



# INSTITUTE SEMINAR

**Monday, 6 July 2015**

**4:00 p.m.**

**Fermion**

**Speaker:**

**Rama Kant**

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**Title:**

**Influence of Nanoscopic Disorder in Electrochemical Processes**

**Abstract:**

Surface of a solid electrode ubiquitously possess morphological and energetic disorder hence greatly influences their kinetics and transport properties. These disorders exist on multi-length scales and often show fractal nature. Multiscale morphological structures or roughness on electrodes and their interactions with various phenomenological length scales originating in electrochemical processes are known to anomalously alter their responses. These influences are seen in transient methods, used extensively by electrochemists to elucidate quantities like diffusion coefficient, unknown concentration and electroactive area of electrode. Theoretically these are evaluated using classical equations which are devoid of influence of electrode roughness and heterogeneity. We present a technique wise analysis of the implications of electrode morphology on the subsequent estimation of desired parameters. Finally, we address question that how strongly the electrode disorder will be seen in the different electrochemical responses with varying time, frequency, scan rates etc.

**References:**

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