



## **Physics Colloquium**

**Thursday April 4th , 2013  
4:10 – 5:00 pm, EPS108**

**“From the Infinite to the Finite: Philosophical Problems with Phase Transitions”**

**Margaret Morrison, Professor, Department of Philosophy, Trinity College, University of Toronto, Canada**

### **Abstract:**

Emergent phenomena are typically described as those that cannot be reduced, explained nor predicted from their microphysical base. Some of these phenomena include superconductivity, superfluidity as well as ferromagnetism. Although we normally think that these phenomena are explainable using modern physical theories, the reality is slightly different. The reason for this is that emergent phenomena involve phase transitions, a process that requires infinite physical systems. Yet, we know that phase transitions involve finite systems. The puzzle surrounding the physical nature of these explanations will be discussed as well as some speculation about the relation between mathematical notions and physical reality.

### **Host:**

Prasanta Bandyopadhyay, Jiong Qiu, Rufus Cone

**Refreshments 3:45 p.m.  
EPS 2nd Floor Atrium**