

WEDNESDAY, NOVEMBER 30, 2016

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**Frustration through anisotropy:**  
**New routes to novel phases**

ABSTRACT

Magnetism is one of the most ubiquitous collective phenomena in condensed matter physics. In frustrated magnets, the inability to satisfy the local interactions globally can suppress conventional forms of magnetic order and expose new states of matter. This can include unusual magnetic and non-magnetic orders as well as disordered classical and quantum spin liquids. The simplest route to such frustration is geometric, realized by Heisenberg antiferromagnets on lattices built from triangles, such as in the triangular, kagome or pyrochlore lattices. In this talk I will discuss an alternative route that has attracted recent interest: frustration through anisotropic interactions. Such anisotropy naturally arises in materials where the magnetic ions have strong spin-orbit coupling, such as in rare-earths or heavy transition metals. I will survey the rich physics that can arise in such systems, drawing examples from recent theoretical and experimental proposals for Kitaev physics in 4d and 5d transition metal oxides. Finally I will discuss some new possibilities for finding such physics in rare-earth magnets.

SCIENCE COMPLEX ROOM 115

11:00 AM

All Welcome!

Check schedule on the web for updates: <http://www.trentu.ca/physics/seminars.php>