

DEPARTMENT OF PHYSICS

CMT Seminar

Monday, November 14, 2016

11:30am Robert Smith Seminar Room

1080 Smith Seminar Room

**Premala Chandra
Rutgers University, Department of
Physics and Astronomy**



“Why Study Ferroelectric Quantum Critically?”

The quest for universality at continuous quantum phase transitions suggests that quantum criticality should be studied in a variety of settings. Displacive quantum paraelectrics have been proposed as simple quantum critical systems, as they have few degrees of freedom, propagating (phonon) dynamics and they reside at their marginal dimension where both scaling and generalized Langevin random field theories apply (up to unobservable logarithmic corrections). I will present characterization of temperature-dependent measurable quantities in the vicinity of displacive ferroelectric quantum critical points, indicating good agreement between theory and experiment. I will end with open questions for future research on this area that include unusual forms of superconductivity in doped quantum paraelectrics.

Work done in collaboration with J.C. Lashley, G.G. Lonzarich, C. Morice, S.E. Rowley, S. Saxena and J.F. Scott

FACULTY HOST: Nandini Trivedi



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