

# SE&T Colloquium Series-Winter 2017

Speaker	Dr. Matthew Vannette Department of Physics
Title	<i>Disentangling the Electric and Magnetic Signals Observed in rf-Susceptibility</i>
Abstract	<p>It may be said the fundamental purpose of condensed matter physics is to understand or explain the interactions between the atoms composing a solid or liquid. In an equilibrium situation, the problem is reasonably tractable. However, as the temperature of a phase transition is approached interactions between the atoms and entropy compete on more or less even footing, and the system becomes less stable in some sense. Because of this thermodynamic properties change, sometimes rather dramatically. The way these properties change as the system passes through the phase transition can depend on applied electric and magnetic field, external pressure, and time. One such property is magnetic susceptibility, or the way the magnetic strength of a material changes when an applied magnetic field changes. A goal of our group is to study the time dependence of the magnetic susceptibility of materials showing long-range electric and magnetic order. We do this by varying the frequency at which we change the magnetic field. However, our obtained data are mixtures of two different properties. I will present results on our attempts to disentangle these two components and discuss steps we have taken to improve our signal-to-noise ratio.</p>
Date	Tuesday, February 7
Time	4:10-5:00pm
Place	Pioneer 240
	Refreshments will be served at 4:00pm.