

CAP Undergraduate Lecture in Physics

Exotic Probes and Extreme Conditions Reveal New States of Quantum Matter

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Abstract

Condensed matter systems provide an exciting laboratory for observing new states of quantum matter via emergence, where the collective behavior of electrons results in quasi-particles with fractional statistics, spin-charge separation, magnetic monopoles and Majorana fermions (particles that are their own anti-particles).

I will describe how we design and synthesize new quantum materials that can host these exotic new states of matter and then use a variety of experimental techniques including muon spin relaxation, neutron scattering and high magnetic fields to probe their properties.

Tuesday Feb. 6th
10:30am

Chem/Phys: C2045

(Pizza Luncheon to follow in C3024)

Research in the Luke group focusses on experimental studies of so-called quantum materials which include exotic superconductors and novel magnetic systems. Systems which combine superconductivity with magnetism are of special interest.

