

Colloquium 3/23/2017 SP  
Michael Ramsey U Mass

Title: "Fundamental Symmetries of the Early Universe and the Origin of Matter"

Abstract: Explaining why the universe contains more matter than antimatter remains an open problem at the interface of particle and nuclear physics with cosmology. While the Standard Model of particle physics cannot provide an explanation, various candidates for physics beyond the Standard Model may do so by breaking fundamental symmetries. Among the most interesting and testable scenarios are those that would have generated the matter-antimatter asymmetry roughly 10 picoseconds after the Big Bang. I discuss recent theoretical ideas for such scenarios, developments in computing their dynamics, and prospects for testing their viability with experiments at the high energy and high intensity frontiers.