

Novel Magnetism in Iridates

Prof. Shixiong Zhang

Department of Physics, University of Indiana

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5d transition-metal oxides (e.g. iridates) have recently attracted growing interest because of their potential for realizing new topological phases, such as topological Mott insulators and Weyl semimetals, which can possibly arise from the interplay of strong spin-orbit coupling and electron correlation. In order to realize these topological states, it is essential to understand the magnetic properties as the electronic structures are strongly coupled with the magnetic ground states in these compounds. In this talk, I will present our recent studies of the magnetic properties of some important iridates, including some potential Weyl semimetals and spin-orbit Mott Insulators. In particular, I will present our dc magnetization measurements and electron spin resonance study that suggest the existence of novel magnetic ground states. I will also discuss the possible origins of the magnetic ordering at low temperatures.