

MAR16-2015-020118

Abstract for an Invited Paper
for the MAR16 Meeting of
the American Physical Society

Interplay of magnetic and electronic states in pyrochlore iridates

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The pyrochlore iridates are a series of compounds undergoing antiferromagnetic ordering and metal-insulator transitions. They are of interest because they combine electron correlation effects and the potential for non-trivial band topology. We will discuss the theoretical picture of these materials, from electronic structure to magnetism and phase transitions, and how they may be controlled through applied fields and temperature. Comparison will be made between theory and recent experiments.