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Correlated phases and excitations in the iridates[1]

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The iridium oxides form an intriguing set of materials controlled by a delicate balance of kinetic, spin-orbit, and Coulomb interaction energies. Many possible exotic phases and phenomena have been suggested for them in the literature. I will review the theoretical context for these compounds, emphasizing effects arising from the combination of strong spin-orbit coupling and electron-electron correlations. Finally, I will discuss our group's on-going efforts to understand the excitations and magnetic phases in these materials.

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