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### **Novel platforms for emergent quasiparticles in quantum spin liquids**

ARNAB BANERJEE, Purdue University

Quantum dynamics can work in peculiar ways leading to a host of phenomena not seen in classical physics, which includes Dirac, Weyl and Majorana type excitations and fractionalized quasiparticles. These quasiparticles take a world of their own and can be used for new applications ranging from topological quantum computation and ultrasensitive sensors. In this talk, I will present the recent results on a quantum spin system, the transition-metal trihalides, where we observe such a host of exotic phenomena. I will particularly concentrate on RuCl<sub>3</sub> where bond-dependent frustration stabilizes a Kitaev type Ising interactions leading to a spectrum of Majorana Fermions. In a magnetic field, these fermions produce a spin gap below which the existence of a gapless edge current of Majorana fermions - indirect evidence of bulk non-abelian anyons - were experimentally seen. We performed inelastic scattering experiments to show how the excitations evolve which gives us critical insights into the nature of these spin excitations and future pathways to manipulate them.