

## Evidence for Kitaev quantum spin liquid physics in $\alpha$ -RuCl<sub>3</sub>

The magnetic semiconductor  $\alpha$ -RuCl<sub>3</sub> is composed of very weakly coupled honeycomb layers of edge-sharing RuCl<sub>6</sub> octahedra. The Ru<sup>3+</sup> ion has five *d* electrons in a low spin state, and the system is expected to have an effective  $J = 1/2$  single ion ground state with an interacting spin Hamiltonian containing Kitaev-like terms. Inelastic neutron scattering has revealed the presence of an unusual magnetic excitation exhibiting a continuum in energy. Detailed measurements of the response show evidence for the fractionalized excitations that are characteristic of the Kitaev Quantum Spin-liquid.

See:

- A. Banerjee *et al.*, Nature Materials **15**, 733 (2016).
- H. B. Cao *et al.*, Phys. Rev. B **93**, 134423 (2016).
- A. Banerjee *et al.*, arXiv:1609.00103 (2016).