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Confronting the sign problem for frustrated magnets

Wednesday 22 January 2025 14:45 (45 minutes)

Kitaev materials are a class of crystals that are believed to show fractionalization in terms of Majorana fermions. These models do not allow for negative sign free formulations. Here we show that by optimizing the path integral formulation, we can reach temperature scales down to 40K, a scale relevant to experiments. In fact we will show that we can reproduce experimental results for a specific Kitaev material RuCl3. If time allows I will also touch on Kondo lattice physics, and its relation to U(1) gauge theories.

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