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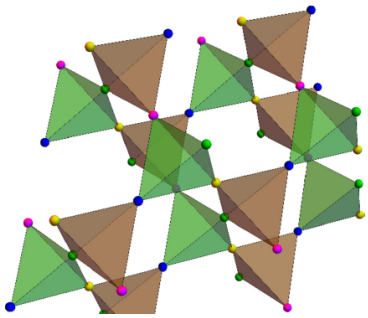
Research Interests

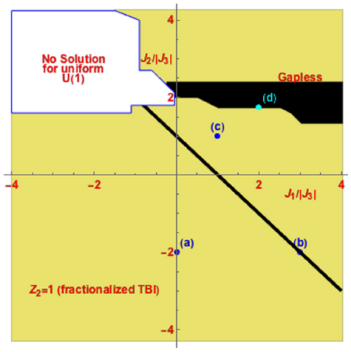
- Quantum spin liquids and fractional excitations
- Topological phases
- Disorder in strongly correlated electron systems

Brief Summary of Research

I work in the area of strongly correlated electron systems, in particular quantum spin liquids, quantum Hall states and other topological phases. I try to understand the nature of ground state phases, excitations, phase transitions and effects of disorder in these systems. Recently I have been working on rare-earth magnetic systems and some two dimensional spin models (like Kitaev models).

Quantum Spin Liquid phases in a model of pyrochlore magnet





Recent Publications (Full list of publications: https://arxiv.org/search/cond-mat?searchtype=author&query=Dhochak%2C+K)

- S. Sanyal, K. Dhochak, S. Bhattacharjee, "Interplay of uniform U(1) quantum spin liquid and magnetic phases in rare earth pyrochlore magnets : a fermionic parton approach" , Phys. Rev. B 99, 134425 (2019).
- M. Koch-Janusz, K. Dhochak, E. Berg, "Edge-entanglement correspondence for a gapped topological phase with symmetry", Phys. Rev. B 95, 205110 (2017).
- K. Dhochak, E. Shimshoni, and E. Berg, "Spontaneous layer polarization and conducting domain walls in the quantum Hall regime of bilayer graphene", Phys. Rev. B 91, 165107 (2015).