



Canadian Association
of Physicists

Association canadienne
des physiciens et physiciennes

Contribution ID: 564

Type: **Invited Speaker** / **Conférencier(ère) invité(e)**

(I) Microscopic Theory of Spin Frustration in Quantum Magnets

Tuesday 8 June 2021 14:45 (30 minutes)

Elementary excitations in highly entangled states such as quantum spin liquids may exhibit exotic statistics, different from those obeyed by fundamental bosons and fermions. Excitations called non-Abelian anyons are predicted to exist in a Kitaev spin liquid - the ground state of an exactly solvable model proposed by Kitaev. Material realization of the spin liquid has been the subject of intense research in recent years. The 4d honeycomb Mott insulator α -RuCl₃ has emerged as a leading candidate, as it enters a field-induced magnetically disordered state where a half-integer quantized thermal Hall conductivity was reported. I will present a microscopic theory of generic spin models, including Kitaev and other bond-dependent spin-interactions responsible for disordered phases. Essential ingredients to engineer spin liquids, applications to materials, and the intriguing link to exotic multipolar orders in transition metals will be also discussed.

Author: KEE, Hae-Young (University of Toronto)

Presenter: KEE, Hae-Young (University of Toronto)

Session Classification: TS-8 Magnetic North VII / Nord magnétique VII

Track Classification: Magnetic North/Magnétisme Nord