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Dynamical properties of fractional excitations in Kitaev spin liquids MASAFUMI UDAGAWA, Gakushuin University, Tokyo, Japan — Recently, Kitaev model is drawing a considerable interest as a new platform to study quantum spin liquid, and a number of compounds have been proposed as candidates to realize this novel state of matter. The Kitaev spin liquids host unusual excitations: spins are fractionalized into Majorana fermions and Z_2 vortices, and the latter behave as abelian/non-abelian anyons. In addition to their own interests, it is quite useful to investigate the dynamical properties of these fractionalized excitations in light of experimental detection of Kitaev spin liquids. Indeed, so far, dynamical responses have been theoretically studied to make connection with experimental probes, such as inelastic neutron scattering, Raman scattering, and nuclear relaxation rate. However, in the previous studies, dynamics of vortex excitations have been less considered, since they are completely static at the solvable limit. In this contribution, we will focus on the dynamical properties of vortex excitations and report how they affect experimental observables.

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