Talk 9: 09:00–

Intensity of Electron Spin Resonance in Spin Dimer Systems

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Electron spin resonance (ESR) is one of the most important experiments to study magnetic excitations. The development in high magnetic field experiments enables us to study magnetic field-induced ordering in quantum spin systems. Here we discuss interacting spin dimers [1,2]. The groundstate of $TlCuCl_3$ is a spin-singlet liquid with only short-range correlations. The triplet excitations require a finite excitation energy from the spin-singlet groundstate. ESR experiments were performed in $TlCuCl_3$ and $KCuCl_3$ to reveal field dependence of magnetic excitations [3,4]. They observed transitions from the groundstate to excited states in both disordered and ordered phases. Sakai *et al.* studied the direct ESR transition theoretically taking Dzyaloshinskii-Moriya interactions into account [5]. We investigate intensity of ESR in both disordered and ordered phases applying a spin-wave theory described by bond operators, and elucidate effects of the Dzyaloshinskii-Moriya interaction on the ESR transition.

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