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Quntum beat generated by an acoustic wave in single-molecule magnets GWANG-HEE KIM, Sejong University, Seoul 143-747, South Korea — The Spin oscillation is studied for the case where a standing acoustic wave is delivered to two level states in single-molecule magnets. In order to obtain such states, we first saturate the sample in strong negative magnetic field and increase the field until it reaches zero. Maintaining zero field, we begin to apply the standing acousitc wave to the sample and see the change of the magnetization between the ground state and the excited state. Taking $\langle S_z \rangle$ averaged over the wavelength of the sound where $\langle S_z \rangle$ is the expectation value of the projection of the spin onto the easy anisotropy axis, we present the analytic form of $\langle S_z \rangle$ at $\hbar\omega = \Delta$ where ω is the frequency of sound and Δ the energy gap between two states. In addition, we find the optimal condition for quatnum beat strucuture and discuss the possibility of the future experiment.

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