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Anomalous Hall effect of the magnon by the interaction with phonons RYUJI TAKAHASHI, Condensed Matter Theory Laboratory, RIKEN, NAOTO NAGAOSA, Center for Emergent Matter Science, RIKEN — We report a theoretical study of the Berry curvature in the magnon-phonon hybrid system. We rst discuss the hybridization between the magnon and acoustic phonons via the dipolar interaction. Next, the effective model of the magnon-phonon hybrid system is studied in the presence of both of the spin-orbit and dipolar interactions, and we show anisotropic texture of the Berry curvature and its divergence with and without gap-closing. We give realistic evaluations of the consequent anomalous velocity for yttrium iron garnet.

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