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**Electric field control of magnetization dynamics in multiferroics**

VETLE RISINGGARD, IRYNA KULAGINA, JACOB LINDER, Department of Physics, Norwegian University of Science and Technology — Multiferroics with a strong magnetoelectric coupling hold great promise in spintronics because they enable magnetic control of the electric polarization as well as electric control of the magnetization. We take an analytical approach, using the Landau-Lifshitz-Gilbert equation to describe the dynamic state of the magnetization. In particular, we show that in insulating multiferroics which exhibit the inhomogeneous magnetoelectric effect there exists an electrically controlled magnon-induced torque that acts even on a homogeneous magnetization. Unlike the magnon-induced torques that arise from Dzyaloshinskii-Moriya interactions or in the proximity of a topological insulator, the strength and direction of this torque is tunable by the externally applied electric field.

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