

Abstract Submitted
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Inverse spin-galvanic effect in the interface between a topological insulator and a ferromagnet¹ ION GARATE, University of British Columbia and Canadian Institute for Advanced Research, MARCEL FRANZ, University of British Columbia — When a ferromagnet is deposited on the surface of a topological insulator, the topologically protected surface state develops a gap and becomes a 2-dimensional quantum Hall liquid. We demonstrate that the Hall current in such a liquid, induced by an external electric field, can have a large effect on the magnetization dynamics of the ferromagnet by changing the effective anisotropy field. This change may be substantial even in weakly spin-orbit coupled ferromagnets. We study the possibility of dissipationless current-induced magnetization reversal in monolayer-thin, insulating ferromagnets with a soft perpendicular anisotropy.

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