Theory of Spin-Orbit Torques in Topological Insulator DMSs

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I discuss some issues that arise in formulating theories of current-induced torques in magnetic conductors. I will then apply one relatively simple approach to the case of magnetically doped topological insulator thin films, arguing that this system is particularly simple and that quantitative comparisons between theory and experiment are therefore especially informative.

BIO: Allan H. MacDonald received the B.Sc. degree from St. Francis Xavier University, Antigonish, Nova Scotia, Canada in 1973 and the M.Sc. and Ph.D. degrees in physics from the University of Toronto in 1974 and 1978 respectively. He was a member of the research staff of the National Research Council of Canada from 1978 to 1987 and has taught at Indiana University (1987-2000) and the University of Texas at Austin (2000-present) where he now holds the Sid W. Richardson Chair in Physics.

He has contributed to research on the quantum Hall effect, electronic structure theory, magnetism, and superconductivity among a variety of other topics. Dr. MacDonald is a fellow of the American Physical Society, a member of the American Academy of Arts and Sciences and the US National Academy of Sciences, and a recipient of the Herzberg Medal, the Ernst Mach Honorary Medal, and the Buckley Prize.