

Spin-current-induced charge current

Soon-wook Jung and Hyun-Woo Lee

*Department of Physics, Pohang University of Science and Technology, Pohang,
Kyungbuk, 790-784, Korea*

Abstract

We show that the injection of a *pure* spin current (not accompanied by charge current) into a ring can induce a circulating charge current in the ring, provided that transport coefficients of the ring are spin-dependent *and* inhomogeneous. As an example, we consider a hybrid ferromagnet(F)-normal metal(N) ring system and calculate the magnitude of the charge current induced by the pure spin current injection. This phenomenon may have relevance for spintronic applications.