

Introduction to Spin Transport in Magnetic Nanostructures

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Intuition from macroscopic world often fails in microscopic world. Recent developments in nanoscale fabrication technology allow one to probe spin transport properties in microscopic world. This tutorial aims to provide a pedagogical introduction to the spin transport in nanostructures. Spin transport is important in the context of giant magnetoresistance and current-driven magnetization dynamics. Starting from rather familiar spin-polarized transport, the discussion will proceed to less familiar examples such as spin current without charge current and spin current in insulators, which are gaining recent attentions for their relevance to device applications.