

Effective gauge field theory of spintronics

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概 要

Spintronics phenomena are discussed based on the concept of effective gauge field [1]. The effective gauge fields arise from structures of localized spin (magnetization) and couple to spin current of conduction electron. The adiabatic component of the gauge field gives rise to spin Berry's phase, topological Hall effect and spin motive force, while nonadiabatic components are essential for Dzyalozinski-Moriya interaction and dynamic spin pumping effects.

[1] Tataru, G., *Physica E: Low-dimensional Systems and Nanostructures* **106**, 208 (2019).

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