

Spin generation from charge current, heat, and light

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Manipulating magnetization by a spin current rather than a magnetic field is a fundamental issue in spintronics. To generate a spin current, some forms of energy is required. In this talk, I will review physical mechanisms for the spin generation from charge current, heat, and light, and my research for the spin generation will be shown accordingly. The mechanisms for the electrical spin generation are spin-filter effect, spin Hall effect, and Rashba effect [1-3]. The mechanisms for the thermal spin generation are spin-dependent Seebeck effect, spin Seebeck effect, and spin pumping effect [4-7]. The mechanisms for the optical spin generation are inverse Faraday effect, optical orientation, and photo-spin current [8-12].

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