

# Electron spin dynamics in two-dimensional systems

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Spin dynamics of conduction electrons in bulk semiconductors, quantum well and quantum wire structures is discussed theoretically. Special attention is paid to the spin relaxation of electrons in quantum wells. Precessional (D'yakonov-Perel') spin relaxation mechanism is analyzed in detail.

Outline: spin relaxation mechanisms in semiconductors; D'yakonov-Perel' spin relaxation mechanism; effects of electron-electron collisions on spin relaxation; kinetic equation and collision integral for the spin density matrix; role of electron-electron interaction in the case of the high spin polarization; comparison of theory and experiment; spin dynamics in magnetic field; interplay between cyclotron and Larmor effects; memory effects; spin relaxation in the systems with random spin-orbit coupling.

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