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Spin Relaxation and Spin Transport in Graphene

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In this talk we are going to present our theoretical investigations on spin dynamics of graphene under various conditions based on a fully microscopic kinetic-spin-Bloch-equation approach [1]. We manage to nail down the solo spin relaxation mechanism of graphene in measurements from two leading groups, one in US and one in the Netherland. Many novel effects of the electron-electron Coulomb interaction on spin relaxation in graphene are addressed. Our theory can have nice agreement with experimental data.

[1] M. W. Wu, J. H. Jiang, and M. Q. Weng, "Spin dynamics in semiconductors," Phys. Rep. **493**, 61 (2010).