



SFB/TRR 21 - Colloquium

25. Mai 2012, Stuttgart

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### Mesoscopic Spintronics

A major issue in semiconductor-based spin electronics is the creation and control of spin-polarized currents. Coherence in mesoscopic conductors of reduced dimensionality gives rise to quantum interference and thereby opens up novel means to manipulate the electron spin degree of freedom. I will discuss concepts to achieve and tune spin-polarized currents in non-magnetic mesoscopic systems, ranging from semiconductor nanostructures with spin orbit interaction to spin-polarized edge currents in graphene and topological insulators.

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