

# Chiral spin textures at metal surfaces

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The introduction of magnetic or non-magnetic impurities into normal metals or semiconductors gives rise to rich physics such as weak localization, weak anti-localization, negative magneto resistance at low temperature, conductance fluctuations, Kondo effect, screw scattering all known from bulk physics. The surface offers the possibility to investigate the properties with atomic resolution in real space using the STM. I will report on results worked out on the way to this analysis at which we realized that the metal surface is distinguished from ordinary bulk physics by the presence of spin-orbit interaction in a structure inversion asymmetric environment, which gives rise to unexpected and largely unexplored phenomena such as the Rashba effect [1-3], topological insulator [4] and unconventional scattering at magnetic and non-magnetic impurities [5] that lead to chiral spin textures and homochiral magnetic structures [6-8] which had been overlooked in the past.

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