

Probing spin polarization and spin fluctuations using Point Contact Andreev Reflection

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In recent years Point Contact Andreev reflection (PCAR) has been established as a powerful probe to obtain spin resolved information on the electrons close to Fermi surface in a ferromagnet. In the first part of this talk I will describe the investigations carried out in our laboratory on the transport spin polarization of some novel ferromagnets using this technique. In the second part I will concentrate on the temperature dependence of the transport spin polarization measured using PCAR in the low T_c ferromagnet NdNi₅ ($T_c \sim 8K$). I will show that close to the ferromagnetic transition temperature large critical spin fluctuations results in a sharp decrease in the quasiparticle lifetime in the superconductor, making PCAR a potentially powerful probe to investigate spin fluctuations in low T_c ferromagnets as well as in paramagnetic metals which are on the verge of ferromagnetic ordering.