

Coherent spin polarized current and creation of spin entangled states in double barrier M/Sc/M junctions

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The coherent spin polarized charge transport through double barrier M/Sc/M junctions consisting of two normal or ferromagnetic metals separated by a superconductor is considered. Characteristic features of the subgap electronic transmission and oscillations above the superconducting gap of the relevant transport processes such as the elastic cotunneling, and Andreev, crossed Andreev and normal reflections are discussed. The creation of mobile spin entangled electrons and/or holes in spatially separated metallic electrodes are also discussed.