

Triplet Andreev reflection off a domain wall in a lateral geometry

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Because of the complete absence of minority carriers in a half metal, Andreev reflection is not possible at the interface between a half metal and an s-wave superconductor, unless the magnetization direction of the half metal has a spatial nonuniformity. In that case Andreev reflection can take place through the "triplet proximity effect", first predicted by Bergeret, Volkov and Efetov. In this talk, I'll consider the effectiveness of a domain wall as the source of the spatially nonuniform magnetization and discuss differences between serial and lateral contacts between the half metal and the superconductor. For a lateral contact, domains walls can be an effective source of the triplet proximity effect.