

## Effects of Triplet Pairing Components in S/N/F Trilayers

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We calculated the pairing amplitude of Superconductor/ Normal metal/ Ferromagnet (S/N/F) trilayers using the Usadel equation in dirty limit. The S/N interface of S/N/F trilayers is modeled with the single particle spin non-flip scatterings (interface resistance) parameterized by  $\gamma_b^{SN}$ , while the N/F interface is modeled with the spin non-flip and spin-flip scatterings parameterized, respectively, by  $\gamma_b^{NF}$  and  $\gamma_m^{NF}$ . Both the interface resistance and spin-flip scatterings make pairing amplitude at the S/N interface and N/F interface discrete. Moreover, the spin flip scatterings at the N/F interface induce the spin triplet pairing components with s-wave in momentum and odd symmetry in frequency from the s-wave singlet pairing component of the superconducting region. In this calculation, we confirm the proximity effect of S/N/F trilayers by showing the singlet component of pairing amplitude as the function of  $x$  (thickness). In addition, we explain the effects of triplet pairing components by showing pairing amplitude when putting the  $\gamma_m^{NF}$  into the N/F interface in S/N/F trilayers.

keywords : Superconductor/Normal metal/Ferromagnet, Proximity effect, Usadel equation