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Even- to Odd-frequency Pair Conversion by Magnetic Interfaces in SC/N Junctions[1] MATTHIAS ESCHRIG, University of Karlsruhe, Germany, JACOB LINDER, Norwegian University of Science and Technology, TAKEHITO YOKOYAMA, Nagoya University, Japan, ASLE SUDBØ, Norwegian University of Science and Technology — We study the proximity-induced superconducting correlations in a ballistic or diffusive normal metal (N) connected to a superconductor (SC) when the interface between them is spin-active. One of the hallmarks of the proximity effect in a non-magnetic bilayer is a minigap in the density of states of the normal metal. It scales with the Thouless energy of the normal metal and with the transmission probability of the interface. For a spin-active interface, the transmission properties of spin-$\uparrow$ and spin-$\downarrow$ electrons into N are different, giving rise to spin-dependent phase shifts at the interface. This leads to a rather surprizing result. Remarkably, for any interface spin polarization there is a critical interface resistance, above which the conventional singlet proximity component vanishes at the chemical potential, while an odd-frequency triplet component remains finite. At the same time, the minigap is replaced by a low-energy band with enhanced density of states. We propose a way to unambiguously observe the odd-frequency component.

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