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Charge transfer between a superconductor and a hopping insulator[1] YURI GALPERIN, University of Oslo, VENIAMIN KOZUB, ALEXANDER ZYUZIN, Ioffe Institute RAS, Russia, VALERII VINOKUR, Argonne National Laboratory, USA — We develop a theory of the low-temperature charge transfer between a superconductor and a hopping insulator. We show that the charge transfer is governed by the coherent two-electron – Cooper pair conversion process, *time reversal reflection*, where electrons tunnel into superconductor from the localized states in the hopping insulator located near the interface, and calculate the corresponding interface resistance. This process is an analog to conventional Andreev show that the time reversal interface resistance is accessible experimentally, and that in mesoscopic structures it can exceed the bulk hopping resistance.

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