Spin-triplet correlations in clean superconductor-ferromagnet multilayers ZORAN RADOVIC, ZORICA PAJOVIC, MILOS BOZOVIC, Department of Physics, University of Belgrade, POB 368, 11001 Belgrade, Serbia, JEROME CAYSSOL, ALEXANDER BUZDIN, Universite Bordeaux I, CPMOH, UMR 5798, 33405 Talence, France — We study transport phenomena in clean superconductor-ferromagnet (S-F) multilayers for a general case of arbitrary relative orientation of in-plane magnetizations and interface transparencies. The scattering problem based on the Bogoliubov-de Gennes equation is solved, taking into account both spin-singlet and spin-triplet superconducting correlations in two geometries, FSF and SFFS. We find a monotonic dependence of conductance spectra on the angle of misorientation of magnetizations α as their alignment is changed from parallel to antiparallel in FSF. Moreover, the critical Josephson current in SFFS multilayers is also a monotonic function of α when the junction is far enough from 0-π transitions. In contrast to the diffusive case, no substantial impact of long–range spin–triplet superconducting correlations neither on conductance nor on the Josephson current has been found in the clean limit.

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