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Spin-triplet superconducting proximity effect in $SrRuO_3/Sr_2RuO_4$ hybrids MUHAMMAD SHAHBAZ ANWAR, Kyoto University, SEUNGRAN LEE, Seoul National University, R ISHIGURO, Tokyo University of Science, Y SUGIMOTO, Kyoto University, Y TANO, Tokyo University of Science, S. J. KANG, Y.J. SHIN, Seoul National University, SHINGO YONEZAWA, Kyoto University, H TAKAYANAGI, Tokyo University of Science, TAE WON NOH, Seoul National University, YOSHITERU MAENO, Kyoto University, YOSHITERU MAENO TEAM, TAE WON NOH TEAM, TAKAYANAGI COLLABORATION — Spin-*triplet* superconducting correlations can be induced into a ferromagnet (FM) out of a spin-*singlet* superconductor (SSC) via magnetic inhomogeneity at the SSC/FM interface. In this case, however, the proximity effect is not readily controllable because spins are quenched. In contrast, superconducting spintronics can be realized by using spin-*triplet* superconductors (TSCs) and FM hybrids. Theoretically, it has been predicted that spin-triplet proximity effect can be controlled by the relative orientations between the magnetization in the FM and the Cooper pair spin in TSC. We fabricate Au(600-nm)/$SrRuO_3$(15-nm) /Sr_2RuO_4 junctions by growing epitaxial $SrRuO_3$ FM thin films on Sr_2RuO_4 TSC single crystals. Differential conductance vs voltage shows the conductance enhancements with superconducting transitions at three different characteristic voltages. These three features can naturally be interpreted as originating from the SC gaps in bulk Sr_2RuO_4 as well as at two distinct interfaces (Au/$SrRuO_3$ and $SrRuO_3/Sr_2RuO_4$). The effect of applied magnetic field reveals that the proximity effect is robust against the loss of magnetic inhomogeneity.

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