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Investigation of tunneling density of state of FSF trilayers. JUN HYUNG KWON, JEWOOK PARK, SEONG KOOK CHOI, KOOKRIN CHAR, Center for Strongly Correlated Materials Research, Dept. of Physics and Astronomy, P.G. SANGIORGIO, M.R. BEASLEY, Dept. of Applied Physics, Stanford University — Unconventional superconductivity such as π-state and long range triplet superconductivity may arise in an FSF trilayer structure, depending on the relative directions of the magnetization of two ferromagnetic layers. In order to observe such unconventional states by measuring tunneling density of state(DOS) of FSF structure, we fabricated Al(12nm)/AlOx/CoFe(2,5nm)/Nb(20,30,40nm)/NiFe(10nm) using stencil mask method in a cross-strip geometry. In order to easily change magnetization direction of the magnetically soft NiFe layer, we further etched the last NiFe layer into a square shape by ion beam milling. We will present magnetic force microscope(MFM) image of the NiFe layer as its magnetization direction is switched to different directions. Density of state measurement of FSF structure with different thicknesses of the CoFe layer will be able to probe the unconventional superconductivity with appropriate magnetization directions of the two F layers. Our latest efforts to measure such state will be presented.

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