Theory of proximity induced triplet superconductivity in spin-orbit-coupled systems XIN LIU, JAINENDRA JAIN, CHAO-XING LIU, Department of Physics, The Pennsylvania State University, University Park, Pennsylvania 16802-6300 — We study proximity induced triplet superconductivity in a spin-orbit-coupled system, and show that the $\vec{d}$-vector of the induced triplet superconductivity undergoes precession that can be controlled by varying the Rashba and Dresselhaus spin-orbit couplings. In particular, a long range triplet-helix mode is predicted when the two spin-orbit couplings have equal strengths. We also study the Josephson junction geometry and show that a transition between 0- and π- junctions can be induced by controlling the spin-orbit coupling strength. An experimental setup is proposed to verify these effects. Conversely, the observation of these effects can serve as a direct confirmation of the triplet nature of the superconductivity.

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