Novel Josephson Effect in Triplet-Superconductor–Ferromagnet–Triplet- Superconductor Junctions

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We predict a novel type of Josephson effect to occur in triplet-superconductor–ferromagnet–triplet-superconductor (TFT) Josephson junctions [1]. We show that the Josephson current, I_J, exhibits a rich dependence on the relative orientation between the ferromagnetic moment and the **d** vectors of the superconductors. This dependence can be used to build several types of Josephson current switches. Moreover, we predict an unconventional sign change of I_J with increasing temperature. Our proposed junction can (a) be used as a new phase-sensitive device and (b) is also relevant for quantum computing because a two-level system can be realized.

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