

Applications of Small Josephson Junctions

Nam Kim^{a, b}, Jinee Kim^a, Klavs Hansen^b, Jussi Toppari^b, Sorin Paraoanu^b, Jukka Pekola^b

^a *Korea Research Institute of Standards and Science, Daejeon, Korea*

^b *University of Jyväskylä, Jyväskylä, Finland*

For the past decades advances in micro-fabrication technology have made it possible to fabricate metal-insulator-metal tunnel junction of sub-micrometer size. Various electronic devices, utilizing Josephson junctions of which the size are small enough to exhibit both Coulomb blockade effects and Josephson tunneling effects, have been suggested and fabricated. Applications of such small Josephson junctions include quantum bit, sensitive electrometer, Cooper pair pump, and electrical thermometer. Review on the current status in this field along with our experimental result will be presented.

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