

FLUCTUATION OF COOPER PAIRS

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Low-field part of microwave absorption (MA) line results from vortex currents in type II superconductors, thus from the broken Cooper pairs (PC). Because of strongly damped vibrations of vortices in weak junctions, AC Josephson absorption is non-resonant and results from energy dissipation of ac field, which is proportional to the concentration of normal electrons from broken Cooper pairs. Josephson junctions system (JJS) is well isolated from the lattice, so there is a local temperature different from the temperature of the lattice, $T_{JJS} \neq T_{lat}$. When Cooper pairs (which have spin $S=0$) break, electrons with the spin of $S=1/2$ should give resonant absorption. There is an anomalous temperature dependence of EPR line intensity due to electrons, which at low temperature are paired. It will be shown that resonant absorption manifests itself on Josephson hysteresis in oscillating electromagnetic field at 22 and 15 MHz.