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Fundamental description of Field Induced Josephson junctions and devices built on their base

The placement ferromagnetic strip [1] or ferroelectric strip tuned electrostatically on the top of superconducting strip brings the possibility of obtaining the programmable matter. Such structures can be used for the construction of microelectronics elements. Also they can be used for quantum superconducting circuits. In this work the RCSJ model is used for the simulation of superconducting RAM memory for Rapid Single Quantum Flux electronics [2] . We also present the case of tunable detector for electromagnetic radiation built from the concept of FIJJ (field induced Josephson junction) [1]. Also the case of non-invasive superconducting detector of charge particles is drawn basing on the concept of FIJJ.

References

[1] K. Pomorski, P. Prokopow, ‘Possible existence of field induced Josephson, Physica Status Solidi B, 2012.

[2] K. Pomorski et. al, ‘Relaxation method in description of superconducting RAM, Compel, 2019.

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