

The Josephson current in the SFS sandwich taking into account the proximity effect and Umklapp processes

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Abstract

We consider the Josephson effect in a three-layer symmetric superconductor/ferromagnet-superconductor (SFS) system. In the framework of the proximity effect theory we calculate the Josephson current as a function of the ferromagnet thickness, taking into account the Umklapp processes at the internal boundary and the critical temperature dependence of the order parameter phase difference. The results of the calculations are in good agreement with experimental data. © (2012) Trans Tech Publications.

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Keywords

Josephson effect, Proximity effect, Umklapp processes