

MANIFESTATION OF DIFFERENT DYNAMICAL STATES ON CHIMERA AND BUZDIN STEP IN φ_0 JUNCTION

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In the presence of external electromagnetic radiation, the magnetization and current-voltage characteristics of superconductor-ferromagnet-superconductor φ_0 Josephson junctions have been studied. We demonstrate the implementation of two types of dynamical states of magnetization. These states in the synchronization region are distinguished by the type of magnetic moment precession and their Josephson oscillations have phase difference of π . The possibility of switching between these states using a current pulse is demonstrated. Transitions between these states with increasing and decreasing bias current show hysteresis, which is reflected in the bifurcation diagram and the current-voltage characteristics. Additionally, we demonstrate how the results can be verified experimentally by measuring the phase shift in voltage temporal dependence at fixed current values in both directions. Various applications of the results obtained can be found in the field of superconducting spintronics and quantum computing.

References

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