

PROGRESS IN HIGH-LINEARITY SQIF STRUCTURES

V.R. Kornev, I.I. Soloviev, N.V. Klenov, O.A. Mukhanov

Physics department, Moscow State University, Moscow, Russia

This paper summarizes both theoretical and experimental studies aimed at synthesis of high-linearity multi-element Josephson structures. Such structures are of great promise for design of highly sensitive broadband amplifying systems. Parallel SQIFs with special pattern and serial SQIFs consisting of bi-SQUIDs have been developed, fabricated and tested. The obtained results are presented and discussed in detail.

SUPERCONDUCTING QUANTUM BIT STATE EVOLUTION UNDER DETERMINED EXTERNAL FORCE

N.V. Klenov, A.V. Sharafiev, V.K. Kornev, S.V. Bakursky

Physics department, Moscow State University, Moscow, Russia

Evolution of the superconducting quantum bit (qubit) density matrix has been analyzed both numerically and analytically in the frame of Lindblad type equation. Characteristic time of the coherent state decay under determined external force is analyzed for different rigidity factors of measurement procedure or qubit design and discussed from viewpoint of logic operation and readout procedure.