

High Linearity SQIF-like Josephson-Junction Structures

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Abstract—Recently we reported design approaches for the synthesis of multi-SQUID structures capable of providing high linearity voltage response. These structures were developed to form periodic voltage responses. This paper presents possible design solutions for multi-element structures providing SQIF-like high linearity voltage response. The approach is based on the use of a differential scheme of two parallel SQIFs with arrays oppositely frustrated by applied magnetic field δB . The differential scheme enables a high efficiency synthesis of highly linear SQIF response by subtraction of deviations from linear law.

Index Terms— SQUID arrays, parallel SQIF, differential scheme, amplifiers, high linearity, dynamic range.

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