

Low-Frequency Noise Properties in Single Layer thin Film High- T_c SQUID Gradiometers

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We have investigated the low-frequency noise in high-critical-temperature (high T_c) direct-coupled superconducting quantum interference device (SQUID) first order gradiometer in static magnetic field. We designed and fabricated gradiometers having 50 μm flux dams across the grain boundary in order to suppress the vortex motion in pick-up loops ; slot, parallel loops (PL) type. The out-size of pick up coil is 38×38 mm. The baseline of the SQUID gradiometer is 5 mm. Each of the fabricated gradiometer was mounted on a carrier, together with a small modulation/feedback coil. The Dewar and a Helmholtz coil were placed in magnetic shielding room. For noise measurements, it was connected to a NKT DC SQUID MASTER SE105C and a spectrum analyzer. After cooling devices in zero magnetic field (ZFC), we applied a magnetic field and increased from 0.3 μT up to 12 μT .