

A YBCO RF-SQUID MAGNETOMETER AND ITS APPLICATIONS.* Luwei Zhou, Jingwu Qiu, Xianfeng Zhang, Zhiming Tang, and Yongjia Qian. Physics Dept., Fudan Univ., Shanghai, China. -- An applicable RF-SQUID magnetometer has been made using a bulk sintered YBCO. The temperature range of the magnetometer is 77-300K and the field range 0-0.1T. At 77K, the equivalent flux noise of the SQUID is $5 \times 10^{-4} \phi_0 / \sqrt{\text{Hz}}$ at frequency range of 20-200 Hz. The experiments show that the SQUID noise at low-frequency end is mainly from $1/f$ noise. A coil test shows that the magnetic moment sensitivity Δm is 10^{-6}emu . The RF-SQUID is shielded in a YBCO cylinder with a shielding ability $B_{\text{in}}/B_{\text{ex}}$ of about 10^{-5} when external dc magnetic field is about a few Oe. The magnetometer is successfully used in characterizing superconducting thin films.

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