

## Improving the AC Sensitivity of an HTS SQUID Using a Cooled LC Circuit

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**Introduction:** In some applications of superconducting quantum interference devices (SQUIDs), a high magnetic field sensitivity is needed only at a distinct frequency. In the case of low-temperature superconducting (LTS) SQUIDs, a resonant sensitivity enhancement may easily be realized using a resonant flux transformer, consisting of a pickup coil wound from niobium wire and a capacitor [1]. In the case of HTS devices, however, only planar structures have been used to date, because flexible, bondable high- $T_c$  wire of sufficient quality is not available yet.

It has been shown that resonant transformers made of normal conducting wires could improve the sensitivity of a SQUID from several kHz to about 1 MHz [2,3]. We reported recently on a new design of resonant-type coupling circuit suitable for high- $T_c$  SQUID [4]. This note is a short version of [4]. Our LC circuit consists of only one coil which acts as both a pickup coil and an input coil. The coil surrounds the HTS SQUID within the liquid nitrogen bath and is shunted by a capacitor.

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