

## Measurement of Eddy-Current Noise Induced in Metals Using SQUID Gradiometer

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We measured magnetic field noise induced in copper and brass using superconducting quantum interference device gradiometer. The metallic samples are solid blocks, enamel-insulated dense coil-foils with several wire diameters, and manually wound sparse coil winding. The metallic samples were positioned at 10-30 mm from the sensing coil of an axial first-order gradiometer having a baseline of 70 mm. Magnetic field noises were measured with the samples at room temperature and at liquid He temperature. Intrinsic noises of the SQUID gradiometers are around 3-4 fT/sqrt(Hz). Depending on the material type, shape of the sample and distance from the sensing coil, magnitude of noise was different, increasing to the range of 6-30 fT/sqrt(Hz).

Keywords: SQUID, magnetic noise, biomagnetic measurement