

## Low-noise Applications of SQUID to Biomagnetic Multichannel Measurements

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We fabricated several multichannel superconducting quantum interference device (SQUID) systems with various pickup coil structures, and applied them to measure biomagnetic signals. SQUIDs are double relaxation oscillation SQUIDs having large flux-to-voltage transfer coefficient. Types of pickup coils are magnetometer, planar gradiometer of first-order and second-order, axial wire-wound gradiometers of first-order and second-order. Several multichannel systems were constructed, such as 64-channel systems to measure magnetocardiography signals, and 128 or 150-channel systems for magnetoencephalography signals. Some of these systems were installed in the hospitals and under clinical study, demonstrating the successful operation of the systems.

Keywords : SQUID, magnetic noise, magnetocardiography, magnetoencephalography