



Global COE program "Center for Electronic Devices Innovation" **Global Seminar**

Development of Nanoscale Superconducting Quantum Interference Devices

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"Center for Electronic Devices Innovation" (CEDI)

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Graduate School of Engineering Science, Osaka University,
Toyonaka, Osaka, Japan

Speaker

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Abstract

Nanoscale superconducting quantum interference devices (SQUIDs) have sensitivities approaching that required for single spin detection. We report on our recent development and characterization of nano-SQUIDs using focused-ion beam (FIB)-based techniques. We have developed planar devices using FIB-lithography that measure magnetic fields perpendicular to the substrate. We have also developed free standing SQUID structures deposited by FIB-induced chemical vapour deposition that allow fields parallel to the substrate to be measured. We report on the electrical characterisation of both types of device and discuss their limitations and potential future capabilities.

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