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Fabrication of Superconducting Diamond Devices

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A novel fabrication methodology incorporating neon-ion milling is developed to engineer superconducting boron-doped diamond devices including the first diamond nano-SQUID, with noise properties (flux noise: 0.14 $\mu\phi_0/\sqrt{\text{Hz}}$ at 1 kHz, spin sensitivity: 11 spins/$\sqrt{\text{Hz}}$) comparable to optimal Nb-nano-SQUIDs reported.

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