



Contribution ID: 263

Type: **Talk (preferred)**

## Fabrication of Superconducting Diamond Devices

*Tuesday 13 December 2022 16:30 (15 minutes)*

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:  $11 \text{ spins}/\sqrt{\text{Hz}}$ ) comparable to optimal Nb-nano-SQUIDs reported.

**Author:** Dr BOSE, Manjith (The University of Melbourne)

**Co-authors:** Dr BARLOW, Anders (The University of Melbourne); Prof. PAKES, Christopher (La Trobe University); Dr CREEDON, Daniel (The University of Melbourne); Dr KLEMMENCIC, Georgina (Cardiff University); Dr VAN RIESSEN, Grant (La Trobe University); Dr STUIBER, Michael (Melbourne Centre for Nanofabrication (MCN)); Prof. WILLIAMS, Oliver (Cardiff University); Dr MANDAL, Soumen (Cardiff University)

**Presenter:** Dr BOSE, Manjith (The University of Melbourne)

**Session Classification:** Conference on Optoelectronic and Microelectronic Materials and Devices

**Track Classification:** COMMAD: COMMAD: Nano/micro-fabrication and processing