

Abstract Submitted
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Microwave Plasma Deposition of N-doped Diamond Films- Experiments & Modelling¹ MICHAEL BRADLEY, HAMMED EJALONIBU, GORDON SARTY, University of Saskatchewan —

Doping of diamond with nitrogen is of interest for various applications, including those exploiting the NV centre. NV centres in diamond can be introduced in various ways. One method is to dope the diamond film during the Microwave Plasma CVD growth process. Production of thin diamond films doped with NV- centres has the potential to be a key enabling technology for high-precision magnetic field sensing. In this talk, recent results on the growth of N-doped thin diamond films using Microwave Plasma CVD [1,2] will be discussed, and correlations between the modelled plasma parameters and the N-doped diamond film growth results will be presented.

References:

- [1] H.A. Ejalonibu, M.P. Bradley, G. Sarty The effect of step-wise surface nitrogen doping in MPECVD grown polycrystalline diamonds, *Materials Science and Engineering: B* 258, 114559 (2020)
- [2] H.A. Ejalonibu, G.E. Sarty, and M.P. Bradley, Optimal parameter(s) for the synthesis of nitrogen-vacancy (NV) centres in polycrystalline diamonds at low pressure, *J. Mater. Sci.: Mater. Electron.* 30, 10369-10382 (2019).

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