Abstract Submitted
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**Magnetic properties of epitaxial $\beta$-Nb2N thin film on SiC substrate** ZIHAO YANG, ROBERTO MYERS, The Ohio State University, D. SCOTT KATZER, NEERAJ NEPAL, DAVID J. MEYER, U.S. Naval Research Laboratory — Previously superconductivity in $Nb_2N$ was studied in thin films synthesized by reactive magnetron sputtering or pulsed laser deposition.[1][2] Recently, $Nb_2N$ was synthesized by molecular beam epitaxy (MBE).[3] Here, we report on the magnetic properties of MBE grown $Nb_2N$ measured by SQUID magnetometry. The single hexagonal $\beta$ phase $Nb_2N$ is grown on a semi-insulating Si-face 4H SiC (0001) substrate in nitrogen rich conditions at a substrate temperature of 850 °C.[3] In-plane magnetization as a function of magnetic field measured at 5 K shows type-II superconductivity with critical fields $H_{c1}$ and $H_{c2}$ of 300 Oe and 10 kOe, respectively. In-plane field-cooled and zero-field-cooled a critical temperature ($T_c$) of 11.5 K, higher than in sputtered $Nb_2N$ films. This work was supported by Army Research Office and the Office of Naval Research. [1] Treece et. al. Chem. Mater. 6, 2205 (1994) [2] Chockalingam et. al. PRB 77, 214503 (2008) [3] Katzer et. al. APEX 8, 085501 (2015)

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