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SQUID measurements of $\text{Mn}_x\text{Sc}_{(1-x)}\text{N}$ and $\text{Fe}_{0.1}\text{Sc}_{0.9}\text{N}$ Films Grown by Molecular Beam Epitaxy HAN-JONG CHIA, University of Texas at Austin, COSTEL CONSTANTIN, Seton Hall University, KANGKANG WANG, ABHIJIT CHINCHORE, ARTHUR SMITH, Ohio University, JOHN MARKERT, University of Texas at Austin — We report SQUID magnetic measurements on N-rich and N-poor $\text{Mn}_x\text{Sc}_{(1-x)}\text{N}$ and $\text{Fe}_{0.1}\text{Sc}_{0.9}\text{N}$ films grown on $\text{ScN}(001)/\text{MgO}(001)$ substrates by radio frequency plasma assisted molecular beam epitaxy. Ferromagnetism is present in both the Mn doped (x ranging from 3 to 15%) and the Fe doped ScN samples. Measurements on N-poor $\text{Mn}_{0.03}\text{Sc}_{0.97}\text{N}$ and $\text{Mn}_{0.15}\text{Sc}_{0.85}\text{N}$ (x=15%) show Curie temperatures of 383 K and 361 K, respectively. The $\text{Fe}_{0.1}\text{Sc}_{0.9}\text{N}$ film shows a Curie temperature above 350 K as well. Further studies will be required to determine the origin of the ferromagnetism and the Curie temperature of the remaining $\text{Mn}_x\text{Sc}_{(1-x)}\text{N}$ films. This work is supported by: Seton Hall: University Research Council; Ohio University: DOE-BES Grant No. DE-FG02-06ER46317 and NSF Grant No. 0730257; and UT Austin: NSF Grant Nos. DMR-0605828 and DGE-0549417, Welch Foundation Grant No. F-1191.

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