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Growth and Magnetotransport Properties of Dirac Semimetal Candidate Cu_3PdN C. X. QUINTELA, N. CAMPBELL, D. T. HARRIS, University of Wisconsin - Madison, D. F. SHAO, University of Nebraska - Lincoln, L. XIE, Nanjing University (China), X. Q. PAN, University of California - Irvine, E. Y. TSYMBAL, University of Nebraska - Lincoln, M. S. RZCHOWSKI, C. B. EOM, University of Wisconsin - Madison — Since the discovery of three-dimensional Dirac semimetals (DSM) Cd_3As_2 and Na_3Bi , many efforts have been made to identify new DSM materials. Recently, nitride antiperovskite Cu_3PdN has been proposed by two different groups as a new DSM candidate. However, until now, the experimental realization of bulk Cu_3PdN and the study of its electronic properties has been hindered due to the difficulty of synthesizing bulk single crystals of this material. Here, we report the first growth and magnetotransport characterization of epitaxial Cu_3PdN thin films on (001) SrTiO_3 substrates. Magnetotransport measurements reveal *p*-type metallic conduction with very low temperature coefficient of the resistance and small non-linear magnetoresistance at low temperatures. The successful growth of Cu_3PdN thin films opens the path to investigating the unknown electronic properties of this material, and provides a template for further research on other antiperovskite DSM candidates such as Cu_3ZnN .

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