

Abstract Submitted  
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**Diamond-like-Carbon Coated Copper Guides for use in the UCNA Experiment: Production Techniques and Status** R.R. MAMMEI, Virginia Tech, F.E. PAZUCHANICS, Los Alamos National Lab, D.L. RICHARDSON, R.B. VOGELAAR, M.L. PITT, Virginia Tech, A.R. YOUNG, North Carolina State University, UCNA COLLABORATION — The UCNA experiment at Los Alamos National Lab employs ultracold neutrons (UCN) to measure the beta-asymmetry in polarized neutron decay. Our current beam line makes use of polished stainless steel and copper guides to transport and bottle the UCN. Due to their high Fermi potential and low depolarization per bounce, utilizing Diamond-like-Carbon (DLC) coated copper guides to preserve polarization and transport UCN after they have been polarized has the potential of increasing the observed decay rate in our trap and reducing the size of polarization-related systematic errors. However there have been challenges in obtaining a well-adhered DLC coating on the copper substrate. In order to overcome this difficulty a variety of guide preparation and production processes have been developed to obtain an acceptable coating. A review of the methods and analysis of the resulting coatings will be discussed along with beta-decay rate results from installing these guides in our experiment.

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