

Abstract Submitted  
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**Advanced guide coating techniques for Ultracold Neutron transport** BRITTNEY VORNDICK, UCNA COLLABORATION — The UCNA experiment utilizes ultracold neutrons (UCN) to measure angular correlations in beta-decay. UCN are produced in a solid deuterium source and then coupled to the experimental decay volume through a sequence of guide tubes. Requirements for the guides typically include smooth surfaces, high Fermi potentials, and often a very low depolarization probability per bounce. Studying different materials for the guides leads to greater efficiency for containing and transporting UCN. We review the UCNA guide geometry and characterize the effectiveness of recently developed diamond-like carbon coatings produced by pulsed laser deposition on electropolished Cu tubing in our decay volume and throughout the system. We also present research and development towards new coating processes and materials for UCN guides.

Brittney VornDick  
North Carolina State University

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