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Abstract for Guide coating and evaluation techniques for Ultracold Neutron transport[1] XINJIAN DING, Virginia Tech University, UCNA COLLABORATION — UCN are produced by cold neutron flux down-scattering in a solid deuterium source in Area B of Los Alamos National Laboratory and then transported to the experimental decay volume of the UCNA experiment and to other UCN experiments through a sequence of guide tubes. These tubes are coated with diamond-like carbon (DLC) films to maintain UCN polarization and maximize material potential. We will briefly review the UCNA guide system, the requirements for UCNA guides, and the pulsed-laser deposition (PLD) process we use to produce diamond-like carbon (DLC) films. There will be a discussion of some new analysis techniques for both in situ PLD coating and surface structure of the DLC film that are utilized in the UCN experiments. We will present both present and future research and development in UCN guide coating techniques and materials.

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