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(G) Guide-coating facility for the TUCAN EDM experiment

Monday 27 May 2024 17:30 (15 minutes)

The TRIUMF Ultracold Advanced Neutron (TUCAN) collaboration is building a surface coating facility at the University of Winnipeg. The primary purpose of this facility is to prepare ultracold-neutron (UCN) guides to transport UCNs from the TUCAN source to the TUCAN Electric Dipole Moment (EDM) experiment. UCN losses during the transport can be minimized by the application of special coatings. The facility specializes in providing diamond-like-carbon (DLC) coatings onto the inside of tubes using a high-power excimer laser and a custom vacuum-deposition chamber. This facility provided DLC-coated UCN guides for the LANL UCNA experiment in the 2000s and was moved from Virginia Tech to Winnipeg in June 2023. The first DLC guide samples are expected to be made in the spring of 2024 where coating properties will be assessed from various surface science tools. This talk will discuss the progress of the facility setup and the surface science results of the coated samples.

Keyword-1

Guide-coating

Keyword-2

Ultracold neutron

Keyword-3

Primary author: ZAHRA, aber (University of Manitoba)

Presenter: ZAHRA, aber (University of Manitoba)

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