

## Validation of the VUV-reflective coating for next-generation liquid xenon detectors

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Coating detector materials with films highly reflective in the vacuum ultraviolet (VUV) region improves sensitivity of the next-generation rare-event detectors that use liquid xenon (LXe). In particular, nEXO requires its Cu field-shaping rings and cathode to be coated by films that are 80% reflective at 175 nm, the mean wavelength of LXe scintillation. Other experiments, like DARWIN, could also benefit from such films. Al-MgF<sub>2</sub> coatings are known to be highly reflective in VUV, but depositing Al directly on Cu leads to alloying, decreasing VUV reflectance. Additionally, it was not clear how thin-film coatings would perform on realistic detector components, which are unpolished and passivated. This talk describes dedicated measurements in LXe and gaseous nitrogen of thin-film coatings that were designed to address these issues.

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