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Dichroic Filter Characterization

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Dichroic filters, filters that selectively transmit and reflect specific wavelengths while minimizing absorption, are increasingly employed in nuclear and particle physics for photon-detection, including in EOS for Cherenkov and scintillation light separation. In this talk, I will present transmission and reflection measurements of several dichroic filters over a range of angles of incidence and in multiple media: air, water, and LAB-based liquid scintillator. These measurements reveal how the optical response shifts with environment and geometry, and demonstrate that a modified Bragg's Law provides a good model for the transmission edge. These results provide essential input for optical simulations and detector design, and support the development of wavelength-separation optical systems for next-generation hybrid Cherenkov/scintillator detectors.

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