Sesto Incontro Nazionale di Fisica Nucleare



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Silica aerogel characterization for the ePIC dRICH detector

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The ePIC detector is specifically designed to address the entire physics program at the Electron-Ion Collider (EIC). It consists of several sub-detectors, each tailored to address specific physics channels. One of the key subsystems of ePIC is the dual-radiator Ring Imaging Cherenkov (dRICH) detector, which is a high-momentum particle-identification system located in the hadronic end-cap. For this purpose, silica aerogel has been chosen as a solid radiator.

The optical and geometrical characteristics of the aerogel tiles play a critical role in enhancing the Particle IDentification (PID) performance. Intensive R&D efforts are currently underway to optimize these properties. Ongoing studies are focused on defining and refining the aerogel tiles to ensure optimal performance. The measurement of the transmittance of 34 aerogel tiles with different refractive indices, including the setup and the measurement method, will be presented.

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