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Study of new aerogel radiators for the LHCb RICH upgrade

Hadron identification in LHCb after the high luminosity LHC upgrade (Run 5) will be extremely challenging. A number of different technologies are under study, including the use of aerogel as a Cherenkov radiator. Novel pinhole drying hydrophobic aerogel radiators have improved transparency compared to the tiles used in the Belle II ARICH. In the framework of the LHCb RICH Upgrade we are investigating potential use of novel aerogel radiators for particle identification. In a high energy pion test beam we studied Cherenkov photons from aerogel focused on an array of multianode photomultipliers. Our findings show that the number of detected Cherenkov photons is consistent with the expectations and that the background due to large angle scattering in aerogel is almost negligible. In this contribution, we will show the results of the measurements recorded during summer 2021 beam test.

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