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Insights from the proANUBIS demonstrator using Run 3 LHC collision data

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The proposed AN Underground Belayed In-Shaft (ANUBIS) experiment aims to search for long-lived particles (LLPs) within CERN's ATLAS underground cavern. Recent efforts to realise this experiment include the installation and commissioning of a prototype detector, proANUBIS, which has been collecting LHC collision data since in 2024. The key point physics programme of the proANUBIS demonstrator is the study of expected backgrounds for the ANUBIS experiment. The demonstrator employs the ATLAS BIS78 RPCs, which feature a 1mm gas gap, in contrast to the 2mm used in the legacy ATLAS RPCs. In this presentation, we will discuss the quality control and performance studies of these RPCs using cosmic ray flux. Additionally, we will report on the performance of proANUBIS, including hit multiplicity, cluster size, and reconstruction efficiency of these RPCs, based on recent data collected by the demonstrator during Run 3 LHC collisions.

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