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ANUBIS: Projected Sensitivities and Initial Results from the proANUBIS demonstrator with Run 3 LHC data

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Despite the success of the Standard Model (SM) there remains behaviour it cannot describe, in particular the presence of non-interacting Dark Matter. Many models that describe dark matter can generically introduce exotic Long-Lived Particles (LLPs). The proposed ANUBIS experiment is designed to search for these LLPs within the ATLAS detector cavern, located approximately 20-30 m from the IP. A prototype detector, proANUBIS, has taken data within the ATLAS detector cavern since 2024, corresponding to 104 fb⁻¹ of pp data. We report on the potential sensitivity of ANUBIS to a selection of LLP models, i.e. Higgs Portal and Heavy Neutral Leptons, as well as future planned studies. Additionally, we will show the first results of the proANUBIS demonstrator, and how it will be used to study the expected backgrounds for the ANUBIS detector.

Secondary track

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