

8th RED LHC workshop



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COmpact DEtector for EXotics at LHCb: CODEX-b

The COmpact DEtector for EXotics at LHCb (CODEX-b) is a particle physics detector dedicated to displaced decays-in-flight of exotic long-lived particles (LLPs), compelling signatures of dark or hidden sectors Beyond the Standard Model, which arise in theories containing a hierarchy of scales and/or small parameters. CODEX-b is planned to be installed near the LHCb interaction point and makes use of fast gaseous detector technology (RPCs), which provides both a good space and temporal sensitivity and also a zero background environment, hence complementing the new-searches program of other detectors like ATLAS or CMS. At present, ongoing efforts are being made to install a demonstrator detector, CODEX- β , which will take data during LHC Run 3 and validate the design and physics case for the future CODEX-b. Specifically, validating the background estimations for CODEX-b and their reconstruction, the seamless integration in the LHCb readout system, and the suitability of the baseline tracking baseline and its mechanical support will be the challenges this detector will face in the short term.

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