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COmpact DEtector for EXotics at LHCb: CODEX-b

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The COmpact DEtector for EXotics at LHCb (CODEX-b) is a particle physics detector dedicated to displaced decays of exotic long-lived particles (LLPs), compelling signatures of dark sectors Beyond the Standard Model, which arise in theories containing a hierarchy of scales and small parameters. The CODEX-b detector is a cube with 10m per side with two internal sections, planned to be installed near the LHCb interaction point. It is built of a new generation of high performance RPCs triplet chambers, derived from the ATLAS upgrade RPC technology, providing a space x time resolution of a few mm x 300 ps per individual detector layer. It will have a zero background environment, hence complementing the new-searches program of other detectors like ATLAS or CMS. A demonstrator detector, CODEX- π , is being assembled now to take data beginning in 2025. It will validate the design and physics case for the future CODEX-b. CODEX- π will be responsible for validating the background estimations for CODEX-b, demonstrating integration in the LHCb readout system, and showing the suitability of the baseline tracking and its mechanical support. This talk will present the latest developments and will focus on the status and plans for CODEX- π .

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