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Probing Charm Baryon Dipole Moments: Advancing Physics and Experimental Innovation with ALADDIN at the LHC

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The ALADDIN experiment at the LHC aims to measure the electromagnetic dipole moments of charm baryons, a powerful probe of physics within and beyond the Standard Model. Utilizing the phenomenon of particle channeling in bent crystals and a novel detector setup, ALADDIN overcomes challenges posed by short-lived particles, enabling precise spin-precession measurements. This initiative not only promises groundbreaking physics insights but also drives the development of advanced detectors and experimental techniques. With a compact design and minimal impact on LHC operations, ALADDIN represents a new frontier in fixed-target experiments and instrumentation. This talk will explore its physics potential, experimental innovations, and broader implications.

Secondary track

T11 - Detectors

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