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A study for the measurement of the Λ baryon electromagnetic dipole moments in LHCb

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Introduction

Electric and magnetic dipole moments of particles are sensitive to physics within and beyond the Standard Model. In this thesis, sensitivity studies for the measurement of the Lambda baryon electromagnetic dipole moments based on pseudo experiments will be performed [1]. In addition, the possibility of a first measurement using data collected with the LHCb detector will be explored [2].

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[1] F. J. Botella, L. M. Garcia Martin, D. Marangotto, F. Martinez Vidal, A. Merli, N. Neri, A. Oyanguren, and J. Ruiz Vidal. On the search for the electric dipole moment of strange and charm baryons at LHC. *The European Physical Journal C*, 77(3), Mar 2017.

[2] I. Belyaev, G. Carboni, N. Harnew, C. Matteuzzi, and F. Teubert. The history of LHCb. *The European Physical Journal H*, 46(1), Mar 2021.