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ARICH performance study in the Belle II experiment

The Belle II experiment at the SuperKEKB asymmetric e^+e^- collider in High Energy Accelerator Research Organization (KEK, Tsukuba, Japan) is searching for CP asymmetries in different rare decays, as well as a new physics beyond the standard model, and aims to collect a high statistics data set corresponding to an integrated luminosity of 50 ab^{-1} in order to search. The Belle II Aerogel Ring Imaging Cherenkov (ARICH) detector's response in terms of loglikelihood functions are studied using decay samples of $D^{*+} \rightarrow D^0 + \pi^+$ and $D^{*-} \rightarrow \bar{D}^0 + \pi^-$ resonances. The detection efficiency of the detector as well as the mis-identification rates as a function of a particle momentum and the polar angle will be presented. The experimental data will be shown in comparison of the relevant Monte Carlo simulations.

Author: GHEVONDYAN, Gayane (A.I.Alikhanyan National Laboratory)

Co-authors: Prof. AKOPOV, Norayr (A.Alikhanyan National Science Laboratory); Mr KARYAN, Gevorg (A.Alikhanyan National Science Laboratory)

Presenter: GHEVONDYAN, Gayane (A.I.Alikhanyan National Laboratory)

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