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Title:	Measurements of branching fractions and asymmetry parameters of $\Xi^0_c \rightarrow \Lambda \bar{K}^0$, $\Xi^0_c \rightarrow \Sigma^0 \bar{K}^0$, and $\Xi^0_c \rightarrow \Sigma^+ K^-$ decays at Belle.
Authors:	Bhardwaj, Vishal (/jspui/browse?type=author&value=Bhardwaj%2C+Vishal) Patra, Sourav (/jspui/browse?type=author&value=Patra%2C+Sourav)
Keywords:	Branching fraction charmed physics
Issue Date:	2021
Publisher:	Springer Nature
Citation:	Journal of High Energy Physics, 2021(6), 160.
Abstract:	Using a data sample of 980 fb ⁻¹ collected with the Belle detector at the KEKB asymmetric-energy e ⁺ e ⁻ collider, we study the processes of $\Xi^0_c \rightarrow \Lambda \bar{K}^0$, $\Xi^0_c \rightarrow \Sigma^0 \bar{K}^0$, and $\Xi^0_c \rightarrow \Sigma^+ K^-$ for the first time. The relative branching ratios to the normalization mode of $\Xi^0_c \rightarrow \Xi^- \pi^+$ are measured to be $B(\Xi^0_c \rightarrow \Lambda \bar{K}^0)/B(\Xi^0_c \rightarrow \Xi^- \pi^+) = 0.18 \pm 0.02(\text{stat.}) \pm 0.01(\text{syst.})$, $B(\Xi^0_c \rightarrow \Sigma^0 \bar{K}^0)/B(\Xi^0_c \rightarrow \Xi^- \pi^+) = 0.69 \pm 0.03(\text{stat.}) \pm 0.03(\text{syst.})$, $B(\Xi^0_c \rightarrow \Sigma^+ K^-)/B(\Xi^0_c \rightarrow \Xi^- \pi^+) = 0.34 \pm 0.06(\text{stat.}) \pm 0.02(\text{syst.})$, where the uncertainties are statistical and systematic, respectively. We obtain $B(\Xi^0_c \rightarrow \Lambda \bar{K}^0) = (3.3 \pm 0.3(\text{stat.}) \pm 0.2(\text{syst.}) \pm 1.0(\text{ref.})) \times 10^{-3}$, $B(\Xi^0_c \rightarrow \Sigma^0 \bar{K}^0) = (12.4 \pm 0.5(\text{stat.}) \pm 0.5(\text{syst.}) \pm 3.6(\text{ref.})) \times 10^{-3}$, $B(\Xi^0_c \rightarrow \Sigma^+ K^-) = (6.1 \pm 1.0(\text{stat.}) \pm 0.4(\text{syst.}) \pm 1.8(\text{ref.})) \times 10^{-3}$, where the uncertainties are statistical, systematic, and from $B(\Xi^0_c \rightarrow \Xi^- \pi^+)$, respectively. The asymmetry parameters $a(\Xi^0_c \rightarrow \Lambda \bar{K}^0)$ and $a(\Xi^0_c \rightarrow \Sigma^+ K^-)$ are $0.15 \pm 0.22(\text{stat.}) \pm 0.04(\text{syst.})$ and $-0.52 \pm 0.30(\text{stat.}) \pm 0.02(\text{syst.})$, respectively, where the uncertainties are statistical followed by systematic.
Description:	Only IISER Mohali authors are available in the record.
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