



# Library Indian Institute of Science Education and Research Mohali



**DSpace@IISERMohali (/jspui/)**

**/ Publications of IISER Mohali (/jspui/handle/123456789/4)**

**/ Research Articles (/jspui/handle/123456789/9)**

Please use this identifier to cite or link to this item: <http://hdl.handle.net/123456789/2205>

Title:	First Measurements of Absolute Branching Fractions of the $\Xi^0 c$ Baryon at Belle
Authors:	Bhardwaj, V. (/jspui/browse?type=author&value=Bhardwaj%2C+V.)
Keywords:	Measurement Fractions Absolute branching
Issue Date:	2019
Publisher:	American Physical Society
Citation:	Physical Review Letters, 122(8).
Abstract:	We present the first measurements of absolute branching fractions of $\Xi^0 c$ decays into $\Xi^- \pi^+$ , $\Lambda K^- \pi^+$ , and $p K^- K^- \pi^+$ final states. The measurements are made using a dataset comprising $(772 \pm 11) \times 10^6 B^- \bar{B}$ pairs collected at the $Y(4S)$ resonance with the Belle detector at the KEKB $e^+e^-$ collider. We first measure the absolute branching fraction for $B^- \rightarrow \bar{\Lambda}^- c \Xi^0 c$ using a missing-mass technique; the result is $B(B^- \rightarrow \bar{\Lambda}^- c \Xi^0 c) = (9.51 \pm 2.10 \pm 0.88) \times 10^{-4}$ . We subsequently measure the product branching fractions $B(B^- \rightarrow \bar{\Lambda}^- c \Xi^0 c) B(\Xi^0 c \rightarrow \Xi^- \pi^+)$ , $B(B^- \rightarrow \bar{\Lambda}^- c \Xi^0 c) B(\Xi^0 c \rightarrow \Lambda K^- \pi^+)$ , and $B(B^- \rightarrow \bar{\Lambda}^- c \Xi^0 c) B(\Xi^0 c \rightarrow p K^- K^- \pi^+)$ with improved precision. Dividing these product branching fractions by the result for $B^- \rightarrow \bar{\Lambda}^- c \Xi^0 c$ yields the following branching fractions: $B(\Xi^0 c \rightarrow \Xi^- \pi^+) = (1.80 \pm 0.50 \pm 0.14)\%$ , $B(\Xi^0 c \rightarrow \Lambda K^- \pi^+) = (1.17 \pm 0.37 \pm 0.09)\%$ , and $B(\Xi^0 c \rightarrow p K^- K^- \pi^+) = (0.58 \pm 0.23 \pm 0.05)\%$ . For the above branching fractions, the first uncertainties are statistical and the second are systematic. Our result for $B(\Xi^0 c \rightarrow \Xi^- \pi^+)$ can be combined with $\Xi^0 c$ branching fractions measured relative to $\Xi^0 c \rightarrow \Xi^- \pi^+$ to yield other absolute $\Xi^0 c$ branching fractions.
Description:	Only IISERM authors are available in the record.
URI:	<a href="https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.122.082001">https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.122.082001</a> ( <a href="https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.122.082001">https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.122.082001</a> ) <a href="http://hdl.handle.net/123456789/2205">http://hdl.handle.net/123456789/2205</a> ( <a href="http://hdl.handle.net/123456789/2205">http://hdl.handle.net/123456789/2205</a> )
Appears in Collections:	Research Articles (/jspui/handle/123456789/9)

Files in This Item:

File	Description	Size	Format
Need to add pdf.odt (/jspui/bitstream/123456789/2205/1/Need%20to%20add%20pdf.odt)		8.63 kB	OpenDocument Text

[View/Open \(/jspui/bitstream/123456789/2205/1/Need%20to%20add%20pdf.odt\)](/jspui/bitstream/123456789/2205/1/Need%20to%20add%20pdf.odt)

Show full item record (/jspui/handle/123456789/2205?mode=full)

[Statistics \(/jspui/handle/123456789/2205/statistics\)](/jspui/handle/123456789/2205/statistics)

Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.