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Title:	Measurement of the $\tau$ lepton polarization and $R(D^*)$ in the decay $B^- \rightarrow D^* \tau^- \bar{\nu}_\tau$ with one-prong hadronic $\tau$ decays at Belle
Authors:	Bhardwaj, V. (/jspui/browse?type=author&value=Bhardwaj%2C+V.)
Keywords:	one-prong hadronic Polarization KEKB electron-positron collider
Issue Date:	2018
Publisher:	American Physical Society
Citation:	Physical Review D, 97(1).
Abstract:	With the full data sample of $772 \times 10^6$ $B\bar{B}$ pairs recorded by the Belle detector at the KEBB electron-positron collider, the decay $B^- \rightarrow D^* \tau^- \bar{\nu}_\tau$ is studied with the hadronic $\tau$ decays $\tau^- \rightarrow \pi^- \nu_\tau$ and $\tau^- \rightarrow \rho^- \nu_\tau$ . The $\tau$ polarization $P_\tau(D^*)$ in two-body hadronic $\tau$ decays is measured, as well as the ratio of the branching fractions $R(D^*) = B(B^- \rightarrow D^* \tau^- \bar{\nu}_\tau) / B(B^- \rightarrow D^* e^- \bar{\nu}_e)$ , where $e^-$ denotes an electron or a muon. Our results, $P_\tau(D^*) = -0.38 \pm 0.51(\text{stat}) - 0.16 \pm 0.21(\text{syst})$ and $R(D^*) = 0.270 \pm 0.035(\text{stat}) - 0.025 \pm 0.028(\text{syst})$ , are consistent with the theoretical predictions of the standard model. The polarization values of $P_\tau(D^*) > +0.5$ are excluded at the 90% confidence level.
Description:	Only IISERM authors are available in the record.
URI:	<a href="https://journals.aps.org/prd/abstract/10.1103/PhysRevD.97.012004">https://journals.aps.org/prd/abstract/10.1103/PhysRevD.97.012004</a> ( <a href="https://journals.aps.org/prd/abstract/10.1103/PhysRevD.97.012004">https://journals.aps.org/prd/abstract/10.1103/PhysRevD.97.012004</a> ) <a href="http://hdl.handle.net/123456789/2340">http://hdl.handle.net/123456789/2340</a> ( <a href="http://hdl.handle.net/123456789/2340">http://hdl.handle.net/123456789/2340</a> )
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