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| Title: | Measurement of the branching ratio of $\bar{B}^0 \rightarrow D^* + \tau^- \bar{\nu}_\tau$ relative to $\bar{B}^0 \rightarrow D^* + \ell^- \bar{\nu}_\ell$ decays with a semileptonic tagging method |
| Authors: | Bhardwaj, V. (/jspui/browse?type=author&value=Bhardwaj%2C+V.) |
| Keywords: | Measurement Ratio Collider |
| Issue Date: | 2016 |
| Publisher: | American Physical Society |
| Citation: | Physical Review D, 94(7). |
| Abstract: | We report a measurement of the ratio $R(D^*) = \mathcal{B}(\bar{B}^0 \rightarrow D^* + \tau^- \bar{\nu}_\tau) / \mathcal{B}(\bar{B}^0 \rightarrow D^* + \ell^- \bar{\nu}_\ell)$, where ℓ denotes an electron or a muon. The results are based on a data sample containing 772×10^6 $B^+ B^-$ pairs recorded at the $\Upsilon(4S)$ resonance with the Belle detector at the KEKB $e^+ e^-$ collider. We select a sample of $B^0 \bar{B}^0$ pairs by reconstructing both B mesons in semileptonic decays to $D^* \mp \ell^\pm$. We measure $R(D^*) = 0.302 \pm 0.030$ (stat) ± 0.011 (syst), which is within 1.6σ of the Standard Model theoretical expectation, where the standard deviation σ includes systematic uncertainties. We use this measurement to constrain several scenarios of new physics in a model-independent approach. |
| Description: | Only IISERM authors are available in the record. |
| URI: | https://journals.aps.org/prd/abstract/10.1103/PhysRevD.94.072007 (https://journals.aps.org/prd/abstract/10.1103/PhysRevD.94.072007) http://hdl.handle.net/123456789/2433 (http://hdl.handle.net/123456789/2433) |
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