

Precision measurement of the $B[Y(3S) \rightarrow \tau^+\tau^-] / B[Y(3S) \rightarrow \mu^+\mu^-]$ ratio at BABAR

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We report on a precision measurement of the ratio $R^{\Upsilon(3S)}_{\tau\mu} = B[\Upsilon(3S) \rightarrow \tau^+\tau^-] / B[\Upsilon(3S) \rightarrow \mu^+\mu^-]$ using data collected with the BaBar detector at the SLAC PEP-II e^+e^- collider. The measurement is based on a 28 fb^{-1} data sample collected at a center-of-mass energy of 10.355 GeV corresponding to a sample of 122 million $\Upsilon(3S)$ mesons. The ratio is measured to be $R^{\Upsilon(3S)}_{\tau\mu} = 0.966 \pm 0.008 \text{ (stat)} \pm 0.014 \text{ (syst)}$ and is in agreement with the Standard Model prediction of 0.9948 within 2 standard deviations. The uncertainty in $R^{\Upsilon(3S)}_{\tau\mu}$ is almost an order of magnitude smaller than the only previous measurement.

What is your topic?

Lepton universality and flavour violation

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