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Test of lepton universality in the ratio of branching fractions $BF(Y(3S) \rightarrow \tau^+\tau^-)/BF(Y(3S) \rightarrow \mu^+\mu^-)$ at BABAR

We present a test of lepton universality through the measurement of the ratio of the branching fraction for $Y(3S)$ decays into tau leptons to that for decays to a muon pair ($R = BF(Y(3S) \rightarrow \tau^+\tau^-)/BF(Y(3S) \rightarrow \mu^+\mu^-)$). A violation of lepton universality would be evidence of new physics, for example via the existence of a light CP-odd Higgs boson. This measurement, which makes use of a sample of $Y(3S)$ decays corresponding to an integrated luminosity of 2.4 fb^{-1} collected by the BABAR detector at the PEP-II e^+e^- collider, represents a significant improvement upon the present precision of R .

Author: ANULLI, Fabio (Universita e INFN, Roma I (IT))

Presenter: ANULLI, Fabio (Universita e INFN, Roma I (IT))

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