



Contribution ID: 83

Type: **Asynchronous Talk**

Tests of the Standard Model by means of $\Upsilon(3S)$ decays with the *BABAR* detector

The *BABAR* detector collected a sample of 122 million $\Upsilon(3S)$ mesons, corresponding to an integrated luminosity of 28 fb^{-1} , operating the PEP-II e^+e^- collider at a center-of-mass energy of $10.355 \text{ GeV}/c^2$. This sample is the largest ever collected at that energy and provides unique opportunities to test several aspects of the Standard Model (SM).

We report on a precision measurement of the ratio $R_{\tau\mu} = BF(\Upsilon(3S) \rightarrow \tau^+\tau^-)/BF(\Upsilon(3S) \rightarrow \mu^+\mu^-)$ using data collected with the *BABAR* detector at the SLAC PEP-II e^+e^- collider. The measured ratio is in agreement with the SM prediction. Its uncertainty is almost order of magnitude smaller than the only previous measurement reported by the CLEO collaboration.

We also present a search for the Lepton Flavour Violating decays $\Upsilon(3S) \rightarrow e^\pm\mu^\mp$, unobservable in the SM, but predicted to be enhanced in several new physics extensions.

Presenter: SIBIDANOV, Alexei (University of Victoria)

Session Classification: Flavor and Precision Physics Session 2

Track Classification: Flavor and Precision Physics