Sensitivity studies on the lepton universality in the channel $\Upsilon(nS) \rightarrow \ell\ell$ via initial-state radiation

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Abstract

In this note we present the results of sensitivity studies on the lepton universality in the channel $\Upsilon(nS) \rightarrow \ell\ell$ via initial-state radiation (ISR). The study is performed with Phase III Monte Carlo samples and cover an integrated luminosity range up to the design value of 50 ab$^{-1}$. This work show that the even with the complete design dataset the statistical uncertainty is not reduced enough to have a competitive measurement.
Figure 1: Projection of statistical uncertainty on the cross section of $e^+e^- \rightarrow \gamma_{ISR} (\Upsilon(1S) \rightarrow \tau\tau)$ as a function of the integrated luminosity. The dashed red line shows the statistical uncertainty of the competitive analysis from BaBar [1].

References