

Recent results on τ -lepton decays with the BABAR detector

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We report on the most recent results of studies of tau-lepton decays, relying on about $430 \times 10^6 e^+e^- \rightarrow \tau^+\tau^-$ events produced at a center-of-mass energy near 10.6 GeV with the BABAR detector at the PEP-II e^+e^- collider.

We present measurements of the branching fractions and the spectral functions for the processes $\tau^- \rightarrow K^- K_S(\pi^0)\nu_\tau$, which can be used to determine the hadronic contribution to the muon $g - 2$ due to the vacuum polarization.

We present also measurements of the branching fractions of the processes $\tau^- \rightarrow K^- n\pi^0\nu_\tau$, with $n=1,2,3$, which can be used to improve the determination of $|V_{us}|$ from the branching fraction $\tau^- \rightarrow X_s\nu_\tau$ computed as the sum of all measured exclusive modes with a method based on finite-energy QCD sum rules.

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