Search for the Lepton Family Number Violating Decays $B^\circ \to e^\pm \tau^\mp, \mu^\pm \tau^\mp$

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Abstract

We report on a search, using the CLEO detector, for the lepton-family-number violating decays $B^\circ \to e^\pm \tau^\mp, \mu^\pm \tau^\mp$ where $\tau^\mp \to \pi^\mp \nu_\tau$. The search is conducted on a sample of 9.70×10^6 $B\bar{B}$ events, and ν_τ candidates are inferred by studying the missing energy of each event. This method of reconstructing the neutrino kinematics has hitherto not been applied to such a search. No evidence of the decays were found. New upper limits on the branching fractions for these decays have been calculated: $B(B^\circ \to \tau^\pm e^\mp) < 2.7 \times 10^{-4}$ at 90% C.L. and $B(B^\circ \to \tau^\pm \mu^\mp) < 3.2 \times 10^{-4}$ at 90% C.L.