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CP violation and the CKM matrix

Experiment: KLOE

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Measurement of the branching ratio for the decay K_S to $\pi e \nu$

The KLOE Collaboration

Abstract

We present a measurement of the branching ratio $\text{BR}(K \rightarrow \pi^\pm e^\pm \nu)$ performed using the KLOE detector. K_S mesons are produced in the reaction $e^+e^- \rightarrow \phi \rightarrow K_L K_S$ at the DAΦNE collider. In a sample of ~ 5 million K_S tagged events we find 624 ± 30 semileptonic K_S decays. Normalizing to the $K_S \rightarrow \pi^+ \pi^-$ count in the same data sample, we obtain $\text{BR}(K_S \rightarrow \pi e \nu) = (6.91 \pm 0.37) \times 10^{-4}$, in agreement with the Standard Model expectation.

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