

Final Results on $K^+ \rightarrow \pi^+ \nu \bar{\nu}$ from BNL E949

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The extremely rare decay $K^+ \rightarrow \pi^+ \nu \bar{\nu}$ has been studied for the last 20 years with the E787 and E949 experiments and the high-intensity proton beam of the AGS accelerator at Brookhaven National Laboratory. The E949 experiment previously reported results above the $K^+ \rightarrow \pi^+ \pi^0$ peak, in the pion momentum region [211,229] MeV/c {Phys.Rev.Lett.93:031801(2004); Phys.Rev.D77:052003(2008)}. E949 has recently reported results below the $K^+ \rightarrow \pi^+ \pi^0$ peak, in the pion momentum region [140,199] MeV/c, {Phys.Rev.Lett.101:191802(2008); Phys.Rev.D79:092004(2009)}. A total of seven candidates of this very rare process have been identified. This talk will describe the experiment and these results.

Author: KETTELL, Steve

Presenter: KETTELL, Steve

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