

Semileptonic and leptonic charm decays at BESIII

Content

BESIII has collected data samples corresponding to luminosities of 2.93 fb⁻¹ and 3.19 fb⁻¹ at center-of-mass energies of 3.773 and 4.178, respectively. We report recent measurements that include the decays $D(s)^+ \rightarrow l^+ \nu$ ($l = \mu, \tau$), $D0(+) \rightarrow \bar{K}(\pi)l^+ \nu$ ($l = e, \mu$), $D0(+) \rightarrow a0(980)e^+ \nu$, $D^+ \rightarrow K1(1270)e^+ \nu$, $D(s)^+ \rightarrow \eta^{(\prime)}e^+ \nu$, $Ds^+ \rightarrow K^{*0}e^+ \nu$, $Ds^+ \rightarrow \phi e^+ \nu$. The first searches for $Ds^+ \rightarrow \gamma e^+ \nu$ and $Ds^+ \rightarrow \bar{p} p e^+ \nu$ are also presented. From these analyses, the decay constants $fD(s)^+$, the semileptonic form factors $f^*P_{\rightarrow}^+(0)$ [$P = K, \pi, \eta^{(\prime)}$], the CKM matrix elements $|V_{cs}(d)|$ are determined precisely. These results can verify the LQCD calculations of $fD(s)^+$, $f^*P_{\rightarrow}^+(0)$ and the CKM matrix unitarity. Precision tests of lepton flavor universality are also made via $D(s)^+ \rightarrow l^+ \nu$ and $D0(+) \rightarrow \bar{K}(\pi)l^+ \nu$, decays.

Summary

Primary author(s) : ZHANG, Jingzhi (IHEP,Beijing)

Presenter(s) : ZHANG, Jingzhi (IHEP,Beijing)