

Leptonic and semi-leptonic decays of charmed mesons at BESIII

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BESIII accumulated the world largest samples of e^+e^- collision at $\sqrt{s} = 3.773$ and 4.178 GeV. The purely leptonic decays $D_{(s)}^+ \rightarrow l^+\nu$, and the semi-leptonic decays of $D^0 \rightarrow K(\pi)^- e^+\nu$, $K(\pi)^- \mu^+\nu$, $\rho^- e^+\nu$; $D^+ \rightarrow K^0(\pi^0)e^+\nu$, $K^0(\pi^0)\mu^+\nu$; $D_s^+ \rightarrow K^{(*)0}e^+\nu$ and $\eta^{(\prime)}e^+\nu$ have been studied. We will report the improved measurements of the branching fractions of these decays, of the CKM matrix elements $|V_{cs(d)}|$, of the $D_{(s)}^+$ decay constants, and of the form factors of $D_{(s)}$ semi-leptonic decays. These results are important to calibrate the LQCD calculations of $D_{(s)}^+$ decay constants and form factors as well as to test the CKM unitarity.

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