

# 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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