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## Charm meson physics at BESIII

*Friday, July 7, 2017 3:30 PM (30 minutes)*

The BESIII Experiment at the Beijing Electron Positron Collider (BEPCII) accumulated the world's largest  $e^+e^-$  collision samples at  $E_{cm} = 3.773, 4.009, 4.18$  GeV. Based on analyses of  $D(s)^+$  to  $l^+\nu$  ( $l = \mu, \tau$ ),  $D \rightarrow K(\pi)l^+\nu$  ( $l = e$  or  $\mu$ ),  $D^+ \rightarrow K^-\pi^+e^+\nu$ ,  $D^0(+) \rightarrow f_0(980)e^+\nu$ ,  $Ds^+ \rightarrow \eta^{(\prime)}e^+\nu$ , we report the determinations of CKM matrix elements  $|V_{cs}(d)|$ , the  $D(s)^+$  decay constants, the form factors of  $D$  semi-leptonic decays. These are important to calibrate the LQCD calculations of decay constant and form factors and to test the CKM unitarity. Using the quantum correlation property of  $D^0\bar{D}^0$ -bar production, we determine the parameters of the strong phase difference and  $D^0\bar{D}^0$ -bar mixing. We will also report some preliminary results for  $Ds^+$  decays to  $\omega\pi^+, \omega K^+$  and  $p\pi$ .

### Experimental Collaboration

BESIII

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