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CP violation and mixing in charm decays at Belle

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We have searched for CP violation of charmed mesons in the decays $D \rightarrow K0_S P$, where D denotes $D0$, D^+ and D_s^+ , and P denotes the pseudo-scalar mesons π^+ , K^+ , π^0 , η and η' . No evidence of CP violation in these decays is observed. We have measured the CP asymmetry difference between the Cabibbo suppressed decay $D^+ \rightarrow \phi \pi^+$ and the Cabibbo favored $D_s^+ \rightarrow \phi \pi^+$ decays. The measured asymmetry is corrected for the residual asymmetry due to detector effects, and the contributions of both CP and forward-backward asymmetries are determined. We also present a measurement of $D0$ -anti- $D0$ mixing parameters in three-body $D0$ decays using a time-dependent Dalitz plot analysis. These results are obtained on a large data sample collected at and near the Upsilon(4S) resonance with the Belle detector operating at the KEKB asymmetric-energy $e^+ e^-$ collider.

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