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Search for radiative D_s decays at Belle

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In the Standard Model(SM), the physics of charm meson is not expected to have new physics(NP) discovery potential because the relevant CKM matrix elements V_{cs} and V_{cd} are well known, CP asymmetries and D^0-$\bar{D}^0$ oscillations are small. It has been pointed out that the c$\rightarrow$ uγ decays might have some contributions from the non-minimal supersymmetry, which is the NP scenario. It was suggested that NP would result in deviation from $R_{\rho/\omega}$. From earlier studies, we noticed $R_{\rho/\omega}$ could be violated already in the SM framework, while a similar relation for D_s^+ radiative decays offers a much better test for c$\rightarrow$ uγ. Further radiative D_s decays, such as $D_s^+ \rightarrow K^{*+}\gamma$ and $D_s^+ \rightarrow \rho^+ \gamma$, have not been observed yet. Here we present a study of radiative Ds decays and aim to measure the branching fraction using the Belle data. The analyses are based on the full data set recorded by the Belle detector at the $\Upsilon(4S)$ resonance containing 772 million $B\bar{B}$ pairs from e^+e^- collisions produced by the KEKB collider. This is also the first measurement in these decay modes.

Session

Beyond the Standard Model

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