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$D_q^* \to D_q\gamma$: Probing the inner structure of charm mesons

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The distribution amplitudes (DAs) for a heavy quark system are not known well and are very challenging. One tries to model them using heavy quark effective field theory. However, there is a free parameter involved which is related to the inverse moments of DAs. Its value needs to be fixed using some experimental data. For the case of B-meson, it is done using the information on the $B \to \ell\nu_\ell\gamma$ process which helps us in limiting its value by providing limits. For the case of D-meson, the uncertainty in its value is very large which leads to huge uncertainties in the non-perturbative hadronic quantities like form factors. \\
In this talk, we will shed some light on these issues and will discuss a possible solution using the experimental data of $D_q^* \to D_q\gamma$ (q=u,d,s) decays and comparing them with the results obtained using Light Cone Sum Rules. We will show how such an estimation can provide better and complementary results for these unknown parameters.

Session

Quark and Lepton Flavour Physics

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