

Abstract Submitted
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Proposal to search for $D^0 \rightarrow \mu^+\mu^-$ decay at CMS SULEYMAN DURGUT, None — We propose to use $D^0 \rightarrow \varphi\rho$ as the normalization for search of $D^0 \rightarrow \mu^+\mu^-$ at CMS. The branching fraction of flavor changing natural current decay (FCNC) $D^0 \rightarrow \mu^+\mu^-$ is about 10^{-13} by SM. They decay via box diagrams in the short distance limit, but SUSY quarks and wino can contribute to the box diagrams can significantly enhance it. The charm meson decays are constraining couplings to up-type quarks not necessarily constrained by B decays, thus presents and immaculate and unexplored region to search for new physics. The current BF limit is 6×10^{-9} at 90% confidence level by LHCb. CMS PAS paper (BPH-11-017) sets limit to 5×10^{-7} at 90% confidence limit based on $90pb^{-1}$ of data. This is certainly an important channel to search for new physics.

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None

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