Abstract Submitted
for the APR18 Meeting of
The American Physical Society

Charmed Baryon to Strange Baryon Decay using QCD Sum Rules
BIJIT SINGHA, LEONARD KISSLINGER, Carnegie Mellon Univ — We estimate the rate of the Cabibbo-favored weak decay, $\Lambda_c^+ \to \Lambda_s^0\, \pi^+$, using QCD Sum Rules. A three-point correlation function of field operators corresponding to charmed lambda (Λ_c^+), strange lambda (Λ_s^0), and weak Hamiltonian (H_W) is considered in the presence of an external pion field. We evaluate the lowest-order perturbative diagram in which the charm quark decays into the strange quark via a weak-charged current. A dispersion relation is used for the correlator obtained from the OPE, and a Borel transform is carried out to ensure rapid convergence. After comparing the decay rate for this process to the strong decay mode, $\Lambda_c^+ \to pK^-\pi^+$, we find this weak decay to be small and consistent with experimental observations.

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Date submitted: 09 Jan 2018 Electronic form version 1.4