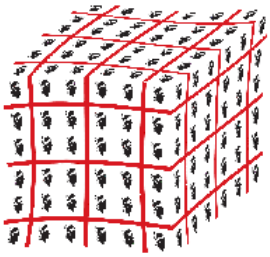

Contribution ID: **9** Type: **not specified**

Preliminary results of $\Delta I = 1/2$ and $3/2$, K to $\pi\pi$ Decay Amplitudes from Lattice QCD

Tuesday, 15 June 2010 09:30 (20 minutes)

We report a direct lattice calculation of the K to $\pi\pi$ decay matrix elements for both $\Delta I = 1/2$ and $3/2$ channels on 2+1 flavor, domain wall fermion, $16^3 \times 32$ lattices. All possible contractions are carefully listed and calculated and identities among them are verified. The decay into the isospin zero $\pi\pi$ final state, which receives contributions from the disconnected graphs, is very difficult to calculate, but a clear signal in the similar disconnected $\pi\pi$ correlator can be seen. We also demonstrate that a large explicit subtraction of the divergent $\bar{s}\gamma_5 d$ contribution is necessary even for the case of kinematics which are nominally energy conserving. Preliminary results, some with large errors, will be presented for the various contributions to the renormalized weak matrix elements A_0 and A_2 for the $m_\pi = 420MeV$ and $m_\pi = 236MeV$(partially quenched light quark) cases.

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talk

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Session Classification: Parallel 17: Weak decays and matrix elements

Track Classification: Weak decays and matrix elements