## Charm 2012 - The 5th International Workshop on Charm Physics



Contribution ID: 2

Type: not specified

## D to K and D to pi FF and |V\_cs| from Lattice QCD

Wednesday, May 16, 2012 1:30 PM (20 minutes)

Chair: Jason Kumar (UH) <br>

<br>

Abstract:<br>

We present a new and very high statistics study of D and D\_s semileptonic decay form factors on the lattice. We work with MILC N\_f=2+1 lattices and use the Highly Improved Staggered Action (HISQ) for both the charm and the light valence quarks. We use both scalar and vector currents to determine the form factors  $f_0(q^2)$  and  $f_+(q^2)$  for a range of D and D\_s form factors including those for D to pi and D to K semileptonic decays. By using a phased boundary condition we are able to tune accurately to  $q^2=0$ . We also compare the shape in  $q^2$  to that from experiment, and extract the CKM matrix element |V\_cs|. We show that the form factors are very insensitive to the spectator quark: D to K and D\_s to eta\_s form factors are essentially the same, and the same is true for D to pi and D\_s to K. This has important implications when considering the corresponding B/B\_s processes.

**Presenter:** KOPONEN, Jonna (University of Glasgow)

Session Classification: Mixing, CPV, Rare, Charm Amplitudes Session