



Contribution ID: 261

Type: **not specified**

Lattice QCD with optimal domain-wall fermions: light meson spectroscopy

Monday, 14 June 2010 15:10 (20 minutes)

We give an overview of our simulations of 2-flavors and (2+1)-flavors QCD with optimal domain-wall fermions, using a GPU cluster with 200 Tflops(peak)/36 Tflops(sustained). We work on a lattice of size $16^3 \times 32$, with lattice cutoff $a^{-1} \simeq 1.6$ GeV, and eight dynamical (sea) quark masses in the range $m_s/8 - m_s$, where m_s is the physical strange quark mass. The exact chiral symmetry on the lattice is preserved with $N_s = 16$ in the fifth dimension. We present our first results of light meson masses and decay constants.

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talk

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Session Classification: Parallel 09: Hadron spectroscopy

Track Classification: Hadron spectroscopy