



Contribution ID: 322

Type: **not specified**

## Isopin breaking study on lattice

*Thursday, 17 June 2010 14:50 (20 minutes)*

We investigate isopin breaking effects due to different masses and electric charges between up and down quarks non-perturbatively using lattice QCD+QED with domain wall quarks. Individual up, down, and strange quark masses are determined using  $K^\pm$ ,  $K^0$ , and  $\pi^\pm$  meson masses as inputs.

New challenges include calculations for the electromagnetic (EM) correction to the decay constants, introduction of the electric charge effect of sea quarks (full QCD+ full QED), and the disconnected loop diagram in the  $\pi^0$  propagator.

We employ QCD gauge ensembles using 2+1 flavors of domain wall fermions and the Iwasaki gauge action. These configurations have been generated by RBC and UKQCD collaborations.

### Please, insert your presentation type (talk, poster)

talk

**Primary author:** IZUBUCHI, Taku (Brookhaven National Laboratory & RIKEN-BNL Research Center)

**Co-authors:** HAYAKAWA, Masashi (Department of Physics, Nagoya University); YAMADA, Norikazu (KEK Theory Center, Institute of Particle and Nuclear Studies, High Energy Accelerator Research Organization (KEK) & School of High Energy Accelerator Science, The Graduate University for Advanced Studies (Sokendai).); ZHOU, Ran (Physics Department, University of Connecticut); UNO, Shunpei (Department of Physics, Nagoya University); DOI, Takumi (Department of Pure and Applied Sciences, University of Tsukuba); BLUM, Tom (Physics Department, University of Connecticut); ISHIKAWA, Tomomi (Physics Department, University of Connecticut)

**Presenter:** IZUBUCHI, Taku (Brookhaven National Laboratory & RIKEN-BNL Research Center)

**Session Classification:** Parallel 45: Hadron spectroscopy

**Track Classification:** Hadron spectroscopy