Contribution ID: **155** Type: **Talk**

Determination of charm quark mass from temporal moments of charmonium correlator with Mobius domain-wall fermion

Tuesday, July 26, 2016 3:00 PM (20 minutes)

We extract the charm quark mass and the strong coupling
constant
by using the charmonium current correlators with $n_f = 2 + 1$ Mobius
domain
wall fermions. The temporal moments of the correlators are sensitive to
short-distance physics, and could be also calculated in the
continuum theory by perturbative expansion, which is known up to four-
loop order.We match our lattice calculation with perturbative result, and extract the charm quark mass with the uncertainty less than 1%.
We also confirm the correlators in the vector channel to be consistent with experimental data for R-ratio.
We used the ensembles by the JLQCD collaboration at lattice spacings a = 0.083 fm, 0.055 fm and 0.044 fm, are extrapolated to the continuum limit.

Primary author: NAKAYAMA, Katsumasa (Nagoya University)

Co-authors: Dr FAHY, Brendan (KEK); Prof. HASHIMOTO, Shoji (KEK)

Presenter: NAKAYAMA, Katsumasa (Nagoya University)

Session Classification: Standard Model Parameters and Renormalization

Track Classification: Standard Model Parameters and Renormalization