



Contribution ID: 185

Type: Poster

Update on the Heavy-Meson Spectrum Tests of the Oktay–Kronfeld Action

Wednesday, 15 July 2015 18:30 (2h 30m)

We present updated results of the heavy-meson spectrum obtained using the Oktay–Kronfeld (OK) action on MILC asqtad lattices. The OK action was designed to improve the heavy-quark action of the Fermilab formulation by including complete dimension six and part of dimension seven bilinear improvement terms. Improvement terms are truncated by power counting of order Λ^3/m^3 for heavy-light system and v^6 for quarkonium. They suffice for tree-level matching to QCD of the given order from the power counting. To assess the improvement, we update previous numerical tests with heavy meson masses by generating new data that covers both charm and bottom quark mass regions on an ensemble of lattice spacing $a = 0.12$ fm. We update the analyses of the inconsistency parameter and the hyperfine splittings for the rest and kinetic masses.

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Session Classification: Poster Session

Track Classification: Hadron Spectroscopy and Interactions