APR12-2012-000179

Abstract for an Invited Paper
for the APR12 Meeting of
the American Physical Society

Excited states in lattice QCD

COLIN MORNINGSTAR, Carnegie Mellon University

Progress in computing the spectrum of excited baryons and mesons in lattice QCD is described. Large sets of spatially-extended hadron operators are used. The need for multi-hadron operators in addition to single-hadron operators is emphasized, necessitating the use of a new stochastic method of treating the low-lying modes of quark propagation which exploits Laplacian Heaviside quark-field smearing. A new glueball operator is tested and computing the mixing of this glueball operator with a quark-antiquark operator and multiple two-pion operators is shown to be feasible.