RCNP, OSAKA UNIVERSITY NUCLEAR PHYSICS THEORY SEMINAR

Title Speaker Date and Time

Place

Three-quark potential from lattice QCD MIHO KOMA FEB 27th (Tue) in 2018 14:00 Lecture room 2 on the 6th floor of RCNP main building

Abstract:

The static interquark potential for a three-quark system, the three-quark potential, is one of the characteristic quantities in quantum chromodynamics (QCD), which is relevant to spectroscopy of hadrons, especially, of baryons.

We investigate the static interquark potential for the three-quark system in SU(3) lattice gauge theory at zero temperature by using Monte Carlo simulations.

We extract the potential from the correlation function of the three Polyakov loops instead of the three-quark Wilson loop to reduce systematic effects.

By employing the multilevel algorithm extensively, we obtain remarkably clean results of the three-quark potential for O(200) sets of the three-quark geometries including not only the cases that three quarks are put at the vertices of acute, right, and obtuse triangles, but also the extreme cases such that three quarks are put in line.

We find several new interesting features of the three-quark potential and discuss its possible functional form.

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