



Contribution ID: 12

Type: **not specified**

Long Range Force and Y-Bosonic strings in Baryons

Thursday, December 10, 2015 6:00 PM (20 minutes)

The potential due to system of a three static quark (3Q) is studied using SU(3) lattice QCD at finite T. The (3Q) potential is calculated in pure SU(3) Yang-Mills lattice gauge theory at finite temperature with Polyakov loops operators. In this work, we focus on the relation between the parameterization ansatz of the (3Q) potential and the observed form of the strings in the baryon. The interesting result is that, although the gluonic pattern is a Δ -shaped, the lattice data for the potential fits well to a Y-shaped string pattern. Moreover, we found that in order to reproduce the quark anti-quark string tension, the fit ansatz of the Y-law must include a Dedekind eta function accounting for the Y-string fluctuation with modular corresponding to the minimal length of the Y-string.

Our results may promote the picture of the baryonic strings as always exhibiting a Δ field profile, however, the baryonic potential is consistent with a Y-law describing a system of fluctuating strings.

Primary author: Dr BAKRY, Ahmed (Institute of Modern Physics,CAS)

Co-authors: Prof. ZHANG, Pengming (Institute of Modern Physics); Prof. CHEN, Xurong (Institute of Modern Physics)

Presenter: Dr BAKRY, Ahmed (Institute of Modern Physics,CAS)

Session Classification: Session 6