



Contribution ID: 137

Type: **Talk**

SU(3) gauge theory with 12 flavours in a twisted box

Wednesday, 25 June 2014 09:40 (20 minutes)

We present our study of the running coupling constant in SU(3) gauge theory with 12 flavours of fermions. In this work we use the method of the step scaling, implemented on lattices with twisted boundary condition. The lattice volumes in this work are 6, 8, 10, 12, 16, 20, and 24. This choice of volumes enables us to investigate the systematic effects in the continuum extrapolation. We discuss in detail the approach of using the Wilson Flow for extracting the coupling constant via the computation of the energy density. In particular, we present results obtained with two different lattice discretisations (clover and the plaquette) of the energy density. Our results shed light on the recent controversy over the infrared behaviour of this gauge theory. Finally, we also briefly comment on the coupling constant computed using the Twisted Polyakov Loop scheme.

Primary author: Prof. LIN, C.-J. David (National Chiao-Tung University, Taiwan)

Co-authors: Dr RAMOS, Alberto (DESY Zeuthen); Dr SHINTANI, Eigo (Mainz University); Dr OHKI, Hiroshi (Kobayashi-Maskawa Institute for the Origin of particles and the universe); Dr OGAWA, Kenji (National Chiao-Tung University, Taiwan (till November 2013))

Presenter: Prof. LIN, C.-J. David (National Chiao-Tung University, Taiwan)

Session Classification: Physics beyond the standard model

Track Classification: Physics Beyond the Standard Model