## The 33rd International Symposium on Lattice Field Theory (Lattice 2015)



Contribution ID: 182

Type: Talk

## On the axial U(1) symmetry at finite temperature

Saturday, 18 July 2015 09:00 (20 minutes)

We report the results of our finite temperature investigation of the

axial symmetry restoration at finite temperature. We simulated two flavors of domain-wall fermions at several volumes and lattice spacings.

After taking into account the systematic errors from the violation of the Ginsparg-Wilson relation,

our results show that in the chiral limit there is a strong suppression

of the axial U(1) symmetry breaking measured using meson susceptibilities.

This suppression is compatible with a no-breaking scenario at zero quark mass in the chirally symmetric phase.

We observed that the contribution of the violations of the GW relation to the meson susceptibilities are much larger that what the residual mass measurement would suggest.

We also show some insights on the sources of the violations related to the lowest eigenmodes of the Dirac operator.

Primary author: Dr COSSU, Guido (KEK High Energy Accelerator Research Organization)

**Co-authors:** Dr TOMIYA, Akio (Osaka university); Dr FUKAYA, Hidenori (Osaka University); Dr NOAKI, Jun (KEK); Prof. HASHIMOTO, Shoji (KEK); Dr KANEKO, Takashi (KEK)

Presenter: Dr COSSU, Guido (KEK High Energy Accelerator Research Organization)

Session Classification: Nonzero Temperature and Density

Track Classification: Nonzero Temperature and Density