



Contribution ID: 242

Type: **Talk**

SU(6) model revisited

Monday, 29 July 2024 11:55 (20 minutes)

We present our study on the 't Hooft anomalies for generalized symmetry of a chiral SU(6) gauge theory with selfconjugate representation.

This theory is interesting since it is found to realize chiral symmetry breaking without bilinear condensate having three-fold degenerate vacua, based on previous study of the mixed anomaly between the center symmetry and discrete chiral symmetry

by S. Yamaguchi. However, the computation of full 't Hooft anomalies for all the symmetries of this model based on the UV theory is still missing.

We revisit this model and study all possible 't Hooft anomalies for generalized symmetry including pure discrete chiral anomaly and gravitational mixed anomaly, which can be obtained using eta invariant method. Based on this 't Hooft anomalies, we try to construct an effective theory in the low-energy regime that reproduces all these anomalies.

We showed that all anomalies except the self-anomaly can be reproduced by extending the WZW term, accounting for the threefold degenerate vacua. Finally, we demonstrated that the self-anomaly can be understood through the degrees of freedom on the domain wall inserted between these vacua, using Symmetric Topological Field Theory (SymTFT).

Primary author: YAMAOKA, Tatsuya (Osaka University)

Presenter: YAMAOKA, Tatsuya (Osaka University)

Session Classification: Vacuum structure and confinement

Track Classification: Vacuum Structure and Confinement