



Contribution ID: 227

Type: **Talk**

## Six-dimensional regularization of chiral gauge theories on a lattice II

*Tuesday, July 26, 2016 4:50 PM (20 minutes)*

We propose a 6-dimensional lattice regularization of chiral gauge theories. In our formulation, Weyl fermions are localized on the junction of two different domain-walls. One domain-wall naturally exhibits the Stora-Zumino chain of the anomaly descent equations. Another domain-wall mediates a similar inflow of the global anomalies. The anomaly free condition is equivalent to requiring the measure of the 6-dimensional Dirac fermions to cancel the axial  $U(1)$  and parity anomalies. “Localizing” the gauge fields on the 4-dimensional junction using the Yang-Mills gradient flow, as proposed by Grabowska and Kaplan, we non-perturbatively define the 4-dimensional path integral of the target chiral gauge theory.

In the first talk, we present the basic idea of our formulation, emphasizing on why the 6-th dimension is needed for the global anomalies. In the second talk, we explain our lattice set-up in details.

**Primary author:** Mr YAMAMURA, Ryo (Osaka U.)

**Co-authors:** Dr FUKAYA, Hidenori (Osaka University); Mr YAMAMOTO, Shota (Osaka U.); Prof. ONOGI, Tetsuya (Osaka University)

**Presenter:** Mr YAMAMURA, Ryo (Osaka U.)

**Session Classification:** Theoretical Developments

**Track Classification:** Theoretical Developments