



Contribution ID: 63

Type: **Parallel**

TKNN formula for general lattice Hamiltonian in odd dimensions

Friday 21 June 2019 14:00 (20 minutes)

Topological insulators in odd dimensions are characterized by topological numbers. We prove the well-known relation between the topological number given by the Chern character of the Berry curvature and the Chern-Simons level of the low energy effective action for a general class of Hamiltonians bilinear in the fermion with general $U(1)$ gauge interactions including non-minimal couplings by an explicit calculation. A series of Ward-Takahashi identities are crucial to relate the Chern-Simons level to a winding number, which could then be directly reduced to Chern character of Berry curvature by carrying out the integral over the temporal momenta.

Authors: ONOGI, Tetsuya (Osaka University); FUKAYA, Hidenori; Prof. YAMAGUCHI, Satoshi (Osaka University); Dr WU, Xi (Ariel University)

Presenter: ONOGI, Tetsuya (Osaka University)

Session Classification: Theoretical Developments

Track Classification: Theoretical Developments