QUARK MATTER 2015
Sep. 27 – Oct. 3, 2015 Kobe, Japan

Contribution ID: **6**   Type: **Poster**

Chiral magnetic effect and Berry phase through quantum kinetic approach

Tuesday, 29 September 2015 16:30 (2 hours)

We derive a relativistic chiral kinetic equation with manifest Lorentz covariance from Wigner functions. It contains vorticity terms and a four-dimensional Euclidean Berry monopole which gives an axial anomaly. This provides a unified interpretation of the chiral magnetic and vortical effects, chiral anomaly, Berry curvature, and the Berry monopole in the framework of Wigner functions.

On behalf of collaboration:

NONE

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Session Classification: Poster Session

Track Classification: New Theoretical Developments