Contribution ID: **11** Type: **Talk**

Axial charge dynamics: topological transition and quark mass effect

The dynamics of axial charge has been a key component of the celebrated chiral magneic effect (CME) and chiral magnetic wave (CMW) in heavy ion collisions. Due to the non-conservation of axial charge, the inclusion of axial charge in hydrodynamic equations is a subtle issue. On one hand, axial charge is generated by fluctuation owing to its non-conservation, on the other hand, the non-conservation also provide mechanism of charge dissipation. A more appropriate treatment is to use stochastic hydrodynamics for axial charge. In this talk, I will discuss two sources of non-conservation: topological transition[1,2] and quark mass[3]. Both of them contribute to the fluctuation and dissipation of axial charge.

[1] I. Iatrakis, S. Lin and Y. Yin, "Axial current generation by P-odd domains in QCD matter" Phys. Rev. Lett.114 (2015)
[2] I. Iatrakis, S. Lin and Y. Yin, "The anomalous transport of axial charge: topological vs non-topological fluctuations", JHEP 030 (2015)
[3] E-d. Guo and S. Lin, "Quark mass effect on axial charge dynamics", Phys. Rev. D 93 (2016)

Primary author: LIN, Shu (Sun Yat-Sen University)

Co-authors: GUO, Er-dong (ITP, CAS); IATRAKIS, Ioannis (Utrecht University); YIN, Yi (Brookhaven national laboratory)

Presenter: LIN, Shu (Sun Yat-Sen University)

Session Classification: Parallel Track 3