



Contribution ID: 770

Type: Poster

## Deviations from isotropic turbulence of heavy-ion collision plasma

*Friday, 8 July 2022 20:10 (20 minutes)*

Signs of turbulence have been observed at the relativistic heavy-ion collision at high collision energies. We study the signatures of turbulence in this system and find that there are significant departures from isotropic turbulence in the initial and the pre-equilibrium stages of the collision. As the anisotropic fluctuations are subleading to the isotropic fluctuations, the Kolmogorov spectrum can usually be obtained even for the initial stages. However, the energy spectrum and the temperature fluctuations indicate deviations from isotropic turbulence. Since a strong momentum anisotropy exists between the transverse and the longitudinal plane, we study the energy density spectrum in these two planes by slicing the sphere into different planes. The geometrical anisotropy is reflected in the anisotropic turbulence generated in the rotating plasma and we find that the scaling exponent is different in the two planes. We also obtain the temperature spectrum in the pre-equilibrium stages. The spectrum deviates from the Gaussian spectra expected for an isotropic turbulence. All these seem to indicate that the large-scale momentum anisotropy persists in the smaller length scales for the relativistic heavy-ion collisions.

### In-person participation

Yes

**Primary authors:** SAHA, ABHISEK (University of Hyderabad); Dr SANYAL, Soma (University of Hyderabad)

**Presenter:** SAHA, ABHISEK (University of Hyderabad)

**Session Classification:** Poster Session

**Track Classification:** Heavy Ions