

**QPT 2021**

**Guiyang, China**

Contribution ID: 110

Type: not specified

## **Space-average electromagnetic fields and EM anomaly weighted by energy density in heavy-ion collisions**

In this work we study the space-average electromagnetic (EM) fields weighted by the energy density in the central regions of heavy ion collisions. These average quantities can serve as a barometer for the magnetic-field induced effects such as the magnetic effect, the chiral separation effect and the chiral magnetic wave. Comparing with the magnetic fields at the geometric centre of the collision, the space-average fields weighted by the energy density are smaller in the early stage but damp slower in the later stage. The space average of squared fields as well as the EM anomaly  $\mathbf{E} \cdot \mathbf{B}$  weighted by the energy density are also calculated. We give parameterised analytical formula for these average quantities as functions of time by fitting numerical results for collisions in the collision energy range 7.7 – 200 GeV with different impact parameters.

**Primary author:** SIDDIQUE, IRFAN (University of Science and Technology of China)

**Co-authors:** Prof. WANG, Qun (University of Science and Technology of China); Mr 盛, 欣力 (University of Science and Technology of China)

**Presenter:** SIDDIQUE, IRFAN (University of Science and Technology of China)