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

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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 center 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 $E \cdot B$ weighted by the energy density are also calculated. We give parameterized 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.

Is this abstract from experiment?

No

Name of experiment and experimental site

N/A

Is the speaker for that presentation defined?

Yes

Details

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Internet talk

Yes

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