Friday, August 7th
1:30 PM Session

Electromagnetic Field Generation Using a Multiphase Transport Model in Heavy-Ion Collisions

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We computed the electromagnetic fields generated in heavy-ion collisions by using a Multi-Phase Transport Model (AMPT) simulation. For our simulation, we examined Au-Au collisions at various energies from 15 GeV to 200 GeV. We compare results to the electromagnetic field characteristics generated from the Heavy Ion Jet Interaction Generator (HIJING) model. In particular, we studied how variations on time, impact parameter, and the Quark-Gluon Plasma (QGP) can affect the evolution of the electromagnetic fields. Additionally, we found the distributions of the electromagnetic fields for different events produced by the AMPT model. In a previous study done by Deng et al., the interactions between the electromagnetic field and the QGP were not included. Currently, the magnitude of the conductivity of the QGP is debated. However, if the conductivity is significantly large, the QGP will be greatly influenced by the electromagnetic field and in turn, the QGP will contribute to the original electromagnetic field. Our results indicate a general correlation between AMPT and HIJING results.