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Systematic study of energy loss in the QGP for various collision systems at PHENIX

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In studies of QGP, it has been observed that at high-energy heavy-ion (A+A) collisions, high-momentum particles with light and heavy flavors receive significant suppression. This indicates that particles lose their energies in QGP. One of the most important topics is to quantify the energy loss and to investigate the energy loss mechanism.
PHENIX measured the fractional momentum loss, S_{loss}, by comparing the inclusive spectra in A+A and $p+p$ collisions. To study the path length dependence in more detail, we extend the S_{loss} measurement by comparing the in-plane and out-of-plane spectra using the azimuthal anisotropy v_2. Using the PHENIX data, we extract the updated Sloss in Au+Au, Cu+Au, and Cu+Cu collisions and systematically compare them.
In this poster, we will present the systematic comparison of the updated Sloss from various collision systems and discuss the energy loss mechanism.

Category

Experiment

Collaboration (if applicable)

PHENIX

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