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Two particle correlation in heavy-ion collisions using momentum kick

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In heavy-ion collisions at high energies, the medium consisted of elementary particles, called parton, is created in a short time. The medium expands fast and cools down. As it cools down, partons combine into various hadrons, which are coming out of the medium with high speed. There are streams of energetic particles in a certain direction, which are called jets. The momenta of jets particles are correlated with momenta of other energetic particles through the medium partons. In a literature, they count the number of particles in a certain direction with respect to the specific jet particle. It shows the peak at zero azimuthal angle due to the cone-shape of the stream. However, the shapes are different depending on the momentum range of jet particles. We try to understand this behavior using the momentum kick model. Very energetic jet particle experiences several collisions while coming through the medium. It transfers the momentum kick to the medium partons in a same direction and the medium partons can align along the jet particle. We applied this model to the Pb-Pb collision data in LHC and found that the model works well.

Biography

Jin-Hee Yoon is an experienced researcher from Inha University in Korea, where she has been a Professor since 1995. Her expertise is in phenomenological understanding of high-energy heavy-ion collision experiments and she is currently leading a Korean ALICE group.

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