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## New results on Coulomb interaction effects in relativistic heavy ion collisions

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In heavy-ion collisions, the differences in shape between the positive and negative pion transverse momentum spectra at low  $p_T$  can be used to study the Coulomb final-state interaction. The produced charged particles are moving in a Coulomb field generated by the positive net-charge of the stopped participant protons. The charged pions, as the most abundantly produced and lightest species, are the particles most strongly influenced by this Coulomb field. Therefore, they are accelerated or decelerated and their final momentum is changed. The strength of the Coulomb field depends on the degree of baryon stopping produced in the collision. The effects of the Coulomb interaction on charged pion production in Au+Au collisions at RHIC-BES energies are investigated. From the pion transverse momentum spectra measured with STAR experiment, the negative-to-positive pion ratios as a function of transverse momentum are obtained and used to analyze the Coulomb interaction. The “coulomb kick”(a momentum change due to Coulomb interaction) and initial pion ratio for three different collision energies (7.7, 11.5 and 19.6 GeV) and various centrality classes were obtained. The Coulomb kick shows a decrease with the increase of beam energy and a clear centrality dependence, with largest values for the most central collisions. These results are connected with the kinetic freeze-out dynamics.

### Selected session

Heavy Ion collisions and QCD phases

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