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## Rapidity Distributions of Pb+Pb and Au+Au from the microscopic Ultra-relativistic Quantum Molecular Dynamics (UrQMD 3.3) model

Monday, 4 July 2022 12:00 (15 minutes)

The Ultra-relativistic Quantum Molecular Dynamic model (UrQMD 3.3) is a microscopic model based on a phase space description of nuclear reaction and it can now support the Large Hadron Collider energies (LHC) of up to a  $\sqrt{(s_{nn})} = 14$  TeV. This model is used to simulate the ultra-relativistic heavy-ion collisions of a finite matter between two Pb+Pb and Au+Au collisions at an energy of  $E_{ecm} = 200$  GeV and  $t = 400-2$  fm/c. The simulated results are then used to calculate the rapidity distributions and particle ratios of both mesons particles ( $\pi$ ,  $\rho$ , and K) and baryons particles (p and  $\bar{p}$ ). The rapidity results show that at early time t fm/c the rapidity of all three light mesons is maximum at mid-rapidity and that of (p and  $\bar{p}$ ) are depicted at mid-rapidity for both Pb+Pb and Au+Au collisions. The particle ratios between different particle species are then compared between that of Pb+Pb collision with that of Au+Au Collision. The results are in good agreement with the previous studies done.

**Apply to be considered for a student ; award (Yes / No)?**

yes

**Level for award;(Hons, MSc, PhD, N/A)?**

MSc

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