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## Studying the dependence of observables on the impact parameter ( $b$ ) in Pb+Pb High Energy Heavy-Ion collision particle multiplicity from the microscopic model (UrQMD) at $E_{lab} = 300$ AGeV.

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The impact parameter dependence ( $b = 0 - 19\%$ ) of different meson and baryon species at central rapidity and particle ratios in Pb+Pb was studied employing High Energy Heavy-Ion collisions at an incident kinetic beam energy (lab frame) of  $E_{lab} = 300$  AGeV for a duration of  $t = 400$  fm/c. The Pb+Pb reaction was simulated from the Ultra-relativistic Quantum Molecular Dynamics model (UrQMD). We employed the particle ratios technique to distinguish between hadronic cascade and hydrodynamical models, incorporating a QGP phase transition. The study will give an insight into the behaviors of particle production at different impact parameters leading to chemical freezeout and thermal equilibrium. This will open more windows when it comes to a better understanding of the phase transition of the hadron gas for different High Energy Heavy-ion collision systems. We report here on the results at central rapidity and above the saturation time, at a randomly chosen time of  $t = 380$  fm/c, and also the particle ratio as a function of impact parameter at a different time  $t$  for both meson and baryon species.

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

yes

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

PhD

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