



Contribution ID: 851

Type: **Poster Presentation**

## Energy and rapidity dependence of pion production at relativistic energies using Tsallis statistics

Transverse momentum distributions of pions produced in relativistic nuclear collisions (p-p, Cu-Cu, Pb-Pb, Au-Au) at various energies including BES data are studied using Tsallis distribution as a parametrization. We will present the energy dependence and collision centrality of the Tsallis fit parameters, Tsallis temperature, volume and non-extensivity parameter, a parameter characterizing the degree of non-equilibrium for the systems produced in these collisions. Rapidity dependence of the Tsallis parameters is investigated using BRAHMS data and it is found that deviations from Boltzmann statistics are decreasing with rapidity, temperature values are increasing with rapidity, but the  $T/\cosh(y)$  ratio is constant as a function of rapidity. The physics implications of these results on the collision dynamics will be discussed.

### Experimental Collaboration

**Primary authors:** RISTEA, Oana (University of Bucharest, Faculty of Physics); Dr JIPA, Alexandru (University of Bucharest, Faculty of Physics); Dr RISTEA, Catalin (Institute of Space Science, Bucharest-Magurele, University of Bucharest); Dr LAZANU, Ionel (University of Bucharest, Faculty of Physics); Dr CALIN, Marius (University of Bucharest, Faculty of Physics); Dr ESANU, Tiberiu (National Institute of Nuclear Physics and Engineering Horia Hulubei, Magurele)

**Presenter:** RISTEA, Oana (University of Bucharest, Faculty of Physics)

**Session Classification:** Poster session

**Track Classification:** Heavy Ion Physics