

## **STUDY OF FREEZE-OUT DYNAMICS IN RELATIVISTIC NUCLEAR COLLISIONS**

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Transverse momentum distributions measured by the BRAHMS Collaboration at the Relativistic Heavy Ion Collider from BNL, in a very wide rapidity range, were analysed using the Tsallis distribution. We will show the rapidity, collision centrality and energy dependence of the Tsallis fit parameters, the temperature and non-extensivity parameter, a parameter characterizing the degree of non-equilibrium for the systems produced in nuclear collisions at relativistic energies. The logarithmic oscillations that appear in "experimental data to Tsallis fit" ratio, a possible indicator of the system fractality, their dependence on the colliding system (Au-Au, d-Au, p-p), collision centrality and rapidity will be also shown and discussed. We will investigate the BRAHMS data using Tsallis Blast-Wave model in order to obtain information about the collective flow of the nuclear matter. Comparisons with the results obtained using the classical model Blast-Wave will be performed. The physics implications of these results on the collision dynamics will be discussed.