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Particle Production in $s_{NN} = 2.76$ TeV Heavy Ion Collisions[1]
JOHANN RAFELSKI, Department of Physics, The University of Arizona, JEAN LETESSIER, LPTHE, University Paris 6 et 7 — We consider, within the statistical hadronization model (SHM), the near central rapidity $y \simeq 0$ integrated hadron yields expected at LHC $\sqrt{s_{\rm NN}} = 2.76$ TeV ion reactions, for which the total charged hadron rapidity most central head-on collision yield is $dh/dy|_{y=0} \simeq 1800$. For the chemical equilibrium SHM, we discuss composition of dh/dy as function of hadronization temperature. For chemical non-equilibrium SHM, we input the computed specific strangeness yield s/S, demand explosive disintegration and study the QGP break up as a function of the critical hadronization pressure P. We develop observables distinguishing the hadronization models and conditions. We show the enhanced yield of strangeness and the related enhancement of (multi) strange particles. We find compared with the RHIC energy range a three times enhanced hadronization volume $dV/dy \simeq 4500$ fm^3 indicating corresponding changes in the HBT observables. The local rest frame thermal energy content $dE/dy|_0 = 2$ TeV constrains hydrodynamic models. A large yield of π^0, η and thus of associated decay photons is noted, enhanced somewhat in the.chemical non-equilibrium case.

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