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System size and multiplicity dependence of thermal parameters in high energy collisions

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We will present a comprehensive study of chemical freeze-out parameters in high energy collisions[1-3]. The experimental data of light flavor particles are used to obtain the freeze-out parameters using the statistical thermal model. Three different ensembles are used in this study: the grand canonical ensemble, the canonical ensemble with exact strangeness conservation, and the canonical ensemble with exact baryon number, strangeness, and electric charge conservation. Chemical freeze-out temperature, baryon chemical potential, Radius, and strangeness suppression factor are compared for different collision systems and energies. The multiplicity dependence of these parameters and thermodynamic limit in high multiplicity pp collisions at LHC will be also discussed [1].

[1] N. Sharma, J. Cleymans, and B. Hippolyte, *Advances in High Energy Physics* 2019, 5367349 (2019).

[2] N. Sharma, J. Cleymans, B. Hippolyte, and M. Paradza, *Phys. Rev. C* 99, 044914 (2019).

[3] N. Sharma, J. Cleymans, L. Kumar, *Eur. Phys. J. C* 78, no.4, 288 (2018).

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