

Strongly intensive measures for chemical fluctuations in A+A and p+p collisions: statistical and transport models.

The chemical fluctuations may indicate a presence and determine the position of the critical point on a phase diagram of the QCD matter. This inspired energy and system size scan program of NA61 collaboration at the SPS CERN and low energy scan program of STAR collaboration at the RHIC BNL. However, many other effects – fluctuations of the number of nucleon participants in A+A collisions, effects of global conservation laws, and the change in the detector acceptance with energy – may hide or produce the fluctuation signals. All these effects are discussed in the present talk within statistical and transport models. Recently, the strongly intensive measures of chemical fluctuations which are independent of volume and volume fluctuations were proposed. We calculate these strongly intensive quantities for pions, kaons, and protons produced in A+A collisions at SPS and RHIC energies in statistical models. The results for different statistical models within grand canonical, canonical and micro-canonical ensembles are compared with the HSD transport model calculations in p+p and A+A collisions. We also present the HSD model predictions for the future measurements of strongly intensive quantities in p+p collisions by NA61 collaboration within their detector acceptances.

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Track Classification: Correlations and fluctuations