

## Finite-size scaling search for the critical endpoint of QCD in heavy ion data

Given the short lifetime and the reduced volume of the quark-gluon plasma (QGP) formed in high-energy heavy ion collisions, a possible critical endpoint (CEP) will be blurred over a region and the effects from criticality severely smoothed. Nevertheless, the non-monotonic behavior of correlation functions near criticality for systems of different sizes, given by different centralities in heavy ion collisions, must obey finite-size scaling. We apply the predicting power of scaling plots to the search for the CEP of strong interactions in heavy ion collisions using data from RHIC and SPS. The results of our data analysis suggest that a critical point cannot be below chemical potentials  $\mu \sim 450$  MeV. Extrapolating the analysis, we speculate that criticality could appear slightly above  $\mu \sim 500$  MeV. Using available data we extrapolate our scaling curves to predict the behavior of new data at lower center-of-mass energy, currently being investigated in the Beam Energy Scan program at RHIC.

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