

"Critical-like behavior in a lattice gas model"

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Abstract:

The ALADIN multifragmentation data for reaction Au+Au at several hundreds A.MEV show features characteristic of critical behavior, which are very well reproduced by a bond percolation model. This suggests, in the context of the lattice gas model, that fragments are formed at nearly normal nuclear densities and temperatures corresponding to the Kert^e line. Calculations performed with a lattice gas model (LGM) have shown that similarly good reproduction can also be achieved for lower densities, particularly in the liquid-gas coexistence region. During the seminar I recall shortly the basic of the LGM that is used to confront with the ALADIN S114 data. Next I will present criticality analysis based on the largest fragment size. The fluctuations of the fragment size are measured by cumulants (cumulant ratios) of the probability distribution of the largest fragment size, such as the skewness, K3, and the kurtosis excess, K4.