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Sensitivity test and system size effects on the traditional signatures of critical behaviour of nuclear matter at intermediate energies

Content :

Sensitivity test and system size effects have been studied on a number of traditionally accepted signatures of critical behaviour of nuclear matter for projectile multifragmentation at intermediate energies. A 'Toy Model' of nuclear multifragmentation based on random number generation has been developed and the data generated with this toy model is compared with experimental data on Mg-Em, Kr-Em (our works) and Kr, La and Au carbon interactions (EOS works) at a few GeV/A. While some of the signatures of critical behaviour could pass the sensitivity test, doubts have been raised about a few others which otherwise are accepted to be true signals of criticality. The present investigation further reveals a considerable size effect for the studied parameters in terms of height and position of the peaks. It is expected that the result of such studies might have some relevance in the study of QGP phase transition at relatively higher energy.

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