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Investigating the variability of self-affine multiplicity for the events generated at relativistic energy for 84Kr-AgBr reactions

The two-dimensional factorial moment approach and the idea of the Hurst exponent (H) are used to study self-affine multiplicity fluctuation. It is suggested that the anisotropy of phase space causes the regional differences in multiplicity at relativistic energy multiparticle creation to be self-affine rather than self-similar. The best power law behaviors are shown at H=0.7 for compound particles released in 84Kr-AgBr reactions at 1 A GeV. Additionally, covered are the multifractality and non-thermal phase change that take place in the production of the compound particles in 84Kr-AgBr interaction. There is no indication of a non-thermal phase change in the synthesis of compound particles.

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