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Signature of liquid-gas phase transition and critical behavior in projectile multifragmentation

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A high-statistics exclusive study of the multifragmentation of Mg-Em interaction at 4.5 AGeV has been performed to realize the critical behaviour. A number of relevant observables such as fluctuation in the sizes of the largest cluster, reduced variance and the mean value of second moment of charge distribution were estimated with the experimental data. The observed results are compared with the results of Kr-Em interaction at 0.95 AGeV as well as the results of EOS collaboration for Au, La and Kr on carbon at 1 AGeV. Systematic variation in the heights and positions of the peaks observed with the change of the fragmenting nuclei thereby confirms the critical behaviour and a possible association of liquid-gas phase transition on multifragmentation mechanism.

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