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Negative heat capacity for hot nuclei: confirmation with formulation from the microcanonical ensemble.

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B. Borderie et al. - INDRA Collaboration

By using freeze-out properties of multifragmenting hot nuclei produced in quasi-fusion central 129 Xe+ nat Sn collisions at different bombarding energies (32, 39, 45 and 50 AMeV) which were estimated by means of a simulation based on experimental data collected by the 4π INDRA multidetector, heat capacity in the thermal excitation energy range 4 - 12.5 AMeV was calculated from total kinetic energies and multiplicities at freeze-out. The microcanonical formulation was employed. Negative heat capacity which signs a first order phase transition for finite systems is observed and confirms previous results using a different method.

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Auteur principal: Dr BORDERIE, Bernard (IJCLab Orsay, France)

Orateur: Dr BORDERIE, Bernard (IJCLab Orsay, France)

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