

CLUSTER FORMATION IN A SYSTEM OF GRAVITATING PARTICLES

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S u m m a r y

Based on a field theory approach to the statistical description of a system of gravitationally interacting particles, the spatially inhomogeneous distribution, a cluster, is described in the Boltzmann limit. The conditions for cluster formation are obtained at a fixed mean density in two cases: for the infinitely large system (in the limit $N \rightarrow \infty$, $V \rightarrow \infty$ but N/V is fixed) and a large but finite one. It is proved to be that, in the above-mentioned cases, the behavior of the system may be different at the same temperature. The nature of these differences is disclosed using a simple clear consideration.