

ON THE KINETICS
OF SPATIALLY NON-UNIFORM STATES
OF PARTICLES WEAKLY INTERACTING
WITH A HYDRODYNAMIC MEDIUM

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S u m m a r y

Our work considers spatially non-uniform states of particles weakly interacting with a hydrodynamic medium. We have developed a microscopic theory of such systems by using Bogolyubov's reduced description method. It has been shown that such a system has both the kinetic and hydrodynamic stages of evolution. The kinetic stage of evolution for particles interacting with a medium has been considered. At this stage, the one-particle distribution function is a reduced description parameter for particles, and, therefore, a medium is described by five hydrodynamic parameters (density, temperature and velocity). The coupled system of motion equations for the reduced description parameters is obtained on the basis of Bogolyubov's reduced description method. The obtained equations can be used, for example, for the description of neutrons propagating in a hydrodynamic medium without multiplication and capture.