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A MANY-KIND PARTICLE SYSTEMS IN THE BOLTZMANN — GRAD LIMIT

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The evolution of states of many-particle systems is determined by an infinite system of integral and differential equations known as the BBGKY hierarchy of equations [1].

States of many-particle systems are described by an infinite sequence of particle distribution functions that satisfy the Cauchy problem for the BBGKY hierarchy of equations. A solution of the Cauchy problem for the BBGKY hierarchy of equations can be represented in the form of the iteration or the functional series, or the non-equilibrium cluster expansion [2, 3].

We consider an one-dimensional many-kind system of particles of lengthes $2\sigma_i > 0$ and masses $m_i > 0$ interacting as hard rods via a pair short range potential Φ.

In the paper, we present the probability approach to describe the state of the particle system in the Boltzmann — Grad limit. We take Maxwell velocity distribution function as the initial one. A solution of the problem on description of the state is a solution of the Cauchy problem for the diffusion equation.

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FEJER KERNELS OF p-ADIC SOLENOID

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Let p be a prime number. Consider a ring of p-adic integers $\mathbb{Z}_p$ as a set of series

$$u = \sum_{k=0}^{\infty} u_k p^k, \quad u_k \in \{0, 1, \dots, p-1\}$$

with summation and multiplication in p-adic number system. It is a locally compact group and hence it has a Haar measure $d_p u$. The factor group $\mathbb{R} \times \mathbb{Z}_p / \{(n, n) \,:\, n \in \mathbb{Z}\}$ is called