

Gordevskyĭ, V. D.; Sazonova, O. S.

Continual distribution with screw modes. (English) Zbl 1374.76199

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Summary: Explicit approximate solution of the Boltzmann equation for the hardsphere model is constructed. It has the kind of continual distribution in the case of local Maxwellians of special form describing the screw-shaped stationary equilibrium states of gas. Some limited cases, in which this distribution minimized the uniform-integral remainder between the sides of this equation are obtained.

MSC:

76P05 Rarefied gas flows, Boltzmann equation in fluid mechanics

45K05 Integro-partial differential equations

82C40 Kinetic theory of gases in time-dependent statistical mechanics

35Q55 NLS equations (nonlinear Schrödinger equations)

Keywords:

hard spheres; Boltzmann equation; Maxwellian; screws; remainder; continual distribution

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