MAXWELL-AUZHAN BOUNDARY CONDITIONS FOR BOLTZMANN'S MOMENT SYSTEM EQUATIONS IN THIRD APPROXIMATION

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Abstract: In this article we prove existence and uniqueness of the solution of the problem with initial and Maxwell-Auzhan boundary conditions [2] for nonstationary nonlinear one-dimensional Boltzmann's six-moment system equations [1] in space of functions continuous in time and summable in square by a spatial variable. In order to obtain a priori estimation of the initial and boundary value problem for the nonstationary nonlinear one-dimensional Boltzmann's six-moment system equations we get the integral equality then use the spherical representation of vector. Then we obtain the initial value problem for Riccati equation. We have managed to obtain a particular solution of this equation in an explicit form [3-4].

Keywords: Maxwell-Auzhan Boundary conditions, Boltzmann's moment system equations

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References

[1] Sakabekov A., Initial-boundary value problems for the Boltzmann's moment system equations, Gylym, Almaty, 276 p., 2002.
[2] Sakabekov A., Auzhani Y., Boundary conditions for the onedimensional nonlinear nonstationary Boltzmann's moment system equations, *J.Math. Phys.*, 55, 123507, 2014.
[3] Kamke E., Differentialgleichungen: Losungsmethoden und Losungen, I. Gewohuliche Differentialgleichungen, B.G.Teubner, Leipzig, 1977.
[4] Tungatarov A., Akhmed-Zaki D.K., Caushy problem for one class of ordinary differential equations, *Int. Journal of Math. Analysis*, Vol.6, No.4, pp. 31-35, 2012.