UNRESOLVED PROBLEMS IN THE NUMERICAL SOLUTION OF RADIATION TRANSPORT EQUATIONS

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The method of discrete ordinates (DS_n method) is now widely used for solving radiation transport. In 1972, one of its developers, Carlson, formulated four problems which remained unresolved [1]:

5. Proving that the DS_n difference solution convergences to the exact one;

6. Convergence of iterations;

7. Constructing difference relationships which would be relatively easy to use (like the St and DD schemes of the DS_n method) and nevertheless ensure higher accuracy, and

8. Necessity and justification of the use of moment equations.

The paper is devoted to issues related to the solution of these problems as well as the new ones emerged after 1972.

References

1. Greenspan, H. Computing methods in reactor physics. – M. : ATOMIZDAT Publishers, 1972. – P. 372.