A TEST PROBLEM WITH THE ANALYTICAL SOLUTION OF RADIATIVE AND ENERGY TRANSFER EQUATIONS IN 2D AXIALLY SYMMETRIC GEOMETRY

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Through the expansion of the transfer operator resolvent into a Neumann series we construct a test problem with the analytical solution of radiative and energy transfer equations in 2D axially symmetric geometry and provide numerical results at different absorption coefficients [1]. An important feature of the test problem is that it allows us to compare the exact solution with calculations for an anisotropic intensity distribution over photon directions. This helps evaluate the accuracy of the quadrature formulas we use to approximate radiation intensity in the phase space of photon directions.

References

1. **Startsev, A. N.** A test problem with the analytical solution of radiative and energy transfer equations in 2D axially symmetric geometry [Text] / A. N. Startsev, A. A. Shestakov // J. Issues in Atomic Science and Technology. – 2024. – Is. 2. – P. 28–34.