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The discrete ordinates method for the neutron transport equation in an infinite cylindrical domain. (English) [Zbl 0767.65095](#)

Math. Models Methods Appl. Sci. 2, No. 3, 317-338 (1992).

Regularity results proven for a Fredholm integral equation with weakly singular kernel connected with a one-velocity neutron transport equation in an infinite cylinder are used to derive error estimates in L_1 - norm for the discrete ordinates method to solve the neutron transport problem. An error bound for the critical eigenvalue of the corresponding problem is obtained as a consequence. The regularity is established using Besov space techniques.

Reviewer: [L.P.Lebedev \(Rostov-na-Donu\)](#)

MSC:

- [65R20](#) Numerical methods for integral equations
- [45K05](#) Integro-partial differential equations
- [82C70](#) Transport processes in time-dependent statistical mechanics
- [45C05](#) Eigenvalue problems for integral equations

Cited in **5** Documents

Keywords:

cylindrical domain; convergence; regularity; error bound; Fredholm integral equation; weakly singular kernel; neutron transport equation; error estimates; discrete ordinates method; critical eigenvalue; Besov space techniques

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