Technical Notes

On the Milne-Problem Extrapolation Distance

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As a matter of interest we have attempted a truly "bench mark" calculation of the Milne-problem extrapolation distance for the conservative one-speed transport theory model with isotropic scattering. We found

$$Z_0 = 0.7104460895988 \ .$$

The calculation was made by dividing the variable range 0-1 into from one to ten subintervals and applying an 81-point improved Gaussian quadrature scheme[1] in each of these subintervals to solve iteratively a nonlinear integral equation for Case's X-function.[2] This X-function was then appropriately integrated, in the same manner, to yield the above result. The computation was performed in double-precision arithmetic on an IBM 360/75, and although we have no rigorous justification of the reported accuracy, we believe it to be correct to within one unit in the last digit shown.

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[1] A. S. KRONROD, *Nodes and Weights of Quadrature Formulas*, Consultants Bureau, Inc., New York (1965).

[2] K. M. CASE, *Ann. Phys.*, **9**, 1 (1960).