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OPEX-II/PC

A Radiation Shield Optimization Code for PC

The radiation shield designer is faced with the task of selecting shield materials and material arrangements, which will not only provide adequate protection against radiation but will also minimize shield weight, cost, or space. If components of the total dose are independent of one another (i.e. primary gamma, and fission neutrons), and the geometry is simple, analytic expressions for the radiation dose may be defined and a closed form solution for minimum weight may be obtained.

OPEX-II/PC will determine the minimum weight configuration for spherical laminated shields subject to the constraint of a constant total dose rate at a selected detector point. Once an optimized base case is obtained, effects of nominal changes in reactor size, power level, and dose constraint on shield weight may be estimated. Specifying cost per unit volume rather than density for each region may also perform cost optimization.

The method of steepest descent has been maintained but the code has been completely rewritten to simplify data input, incorporate spherical geometry, expand the output, alter the dose-thickness relation, and effect other improvements. The dose rate is approximated by a sum of exponential representing each dose component obtained from experiments or analytical calculations.

We at **Galaxy Advanced Engineering, Inc. (GAE)** have taken steps to make this code available on your PC platform or %100 compatible under PC/DOS or MS/Windows95/98/2000/XP/ME and NT operating system. To obtain the code and more information, please contact our company or call us at 650-740-3244.