2. Function: This code[1] performs first-order perturbation calculations. Provision has been made to calculate perturbations due to changes in microscopic cross sections and nuclide densities. Perturbations due to a linear dependence of macroscopic cross sections on temperature may be obtained given temperature distributions and associated cross-section data. Nuclide importance data may be calculated.

3. Method of Solution: Numerical integration.

4. Related Material: Standard interface data files adopted in the U.S. Department of Energy reactor physics code coordination effort are used. User input data must be processed externally. Other modules using consistent formulations and interface data file specifications will couple directly with this one.

5. Restrictions: Variable dimensioning is used throughout. Three data-handling modes are programmed, the choice of which depends on the amount of core storage available. (This is not a stand-alone code; it must be implemented in a modular environment.)

6. Compter: This code has been run on IBM model 360 computers.

7. Running Time: Required time depends on the problem to be solved and the mode of data handling. Since the calculations performed are noniterative, the required central processor unit time is small compared with that required to solve neutronics problems.

8. Programming Languages: Most of the programming is in FORTRAN language. Known limitations of manufacturer's current compilers are not exceeded. Special routines programmed in IBM assembler language are used for certain functions, e.g., memory allocation.

9. Operating System: The basic OS-360 IBM operating system has been used under the front end processors HASP and ASP with a FORTRAN IV, H-level complier version 21.8.

10. Machine Requirements: A 50 000 short word or larger memory is required in addition to auxiliary disk storage. Typically, 30 logical I/O units are used.

11. Material Available: FORTRAN source deck card images and documentation are available to domestic users from the National Energy Software Center at the Argonne National Laboratory.

12. *Reference*:

[1]D. R. VONDY and T. B. FOWLER, "The Code PERTUBAT for Processing Neutron Diffusion Theory Neutronics Results for Perturbation Analyses," ORNL-5376, Oak Ridge National Laboratory (1978).

RODMOD

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1. Program Identification: Control Rod Positioning Code: RODMOD.

2. Function: This code[1] may be used to position control rods during the calculation of a reactor history. Provision has been made to treat the control rod follower explicitly or to apply a fractional rod insertion. Control rods may be represented by the "black absorber" boundary condition. Full rod insertion may be treated, as well as shutdown rod insertion, and then removal may be accounted for.

3. Method of Solution: Data processing.

4. Related Material: Standard interface data files adopted in the U.S. Department of Energy reactor physics code coordination effort are used. User input data must be processed externally. Other modules using consistent formulations and interface data file specifications will couple directly with this one.

5. Restrictions: Variable dimensioning is used throughout. (This is not a stand-alone code; it must be implemented in a modular environment.)

6. Computer: This code has been run on IBM model 360 computers.

7. Running Time: Trivial compared with that for solving neutronics problems.

8. Programming Languages: Most of the programming is in FORTRAN language. Known limitations of manufacturer's current compilers are not exceeded. Special routines programmed in IBM assembler language are used for certain functions, e.g., memory allocation.

9. Operating System: The basic OS-360 IBM operating system has been used under the front end processors HASP and ASP with a FORTRAN IV, H-level compiler version 21.8.

10. Machine Requirements: For use with the VENTURE modular code system, a 50 000 short word or larger memory is required in addition to auxiliary disk storage.

11. Material Available: FORTRAN source deck card images and documentation are available to domestic users from the National Energy Software Center at the Argonne National Laboratory.

12. *Reference*:

[1]D. R. VONDY and T. B. FOWLER, "RODMOD–A Code for Control Rod Positioning," ORNL-5466, Oak Ridge National Laboratory (1978).