

NUCLEAR MODEL CODE INTERCOMPARISON

During 1977 and 1978 a series of Nuclear Model Code Comparisons has been organised by the Nuclear Model Codes Subcommittee of the Cross Section Evaluation Working Group (USA) under the chairmanship of Dr. A. Prince (B.N.L.). This study has resulted in a significant improvement in agreement for calculations of total, elastic, inelastic, capture and threshold reaction cross sections for the six codes of U.S. origin considered.

Dr. Prince has suggested an extension of this comparative study to include codes of European and Japanese origin, with the collaboration of the Nuclear Energy Agency Nuclear Data Committee and the Nuclear Energy Agency Data Bank.

The aim of the study is intercomparison of cross section calculation made with various nuclear model codes, not primarily to achieve better agreement with experimental data, but to pin point error and deficiencies in codes and to create confidence in code calculations where experimental data is non-existent.

The initial study has concentrated on comparison of cross section calculations for  $^{59}\text{Co}$  reactions in the neutron energy range up to 20 Mev. A further study including the fission channel is proposed for fertile and fissile nuclei, possibly  $^{232}\text{Th}$  and  $^{233}\text{U}$ . There is also interest in investigating charged particle producing reactions in the 20-50 Mev region for cross sections and energy and angular distributions. Particular interest will be given to the pre-equilibrium phase, and to coupled channel codes.

If you are interested in participating in this comparative study, would you complete the enclosed questionnaire and return it by 31st December 1979 to:

Dr. E. SARTORI  
NEA Data Bank  
B.P. 9  
F 91190  
GIF-sur-YVETTE  
France.

On the specific intercomparison exercise you will be contacted later. The coordination work for the European and Japanese area will be done by the NEA Data Bank, together with an expert in close collaboration with Dr. A. Prince (B.N.L.) who will process the results to give the final conclusion of the intercomparison.

In the meantime, we would like to receive some general information on the Nuclear Model Codes you and/or your colleagues are using at your Institute, the reason being that we are planning a selective dissemination of information in specific fields such as nuclear model codes, i.e. whenever we receive information relevant to your area of interest concerning modifications to existing programs, improved versions or new codes, we shall keep you informed.

If you have received in the past, computer codes from the NEA Data Bank Computer Program Service, we would like to know about your experience with these codes.

Our efforts to improve our computer program service will be successful only if you help us with your comments, and on your part, you will share the improvements collected from other people's contributions.

Please complete the questionnaire on Nuclear Model Codes' Use or pass it on to a colleague and send it to the address mentioned on page 1.

NUCLEAR MODEL CODE INTERCOMPARISON

NAME:

INSTITUTE:

I should like to participate in the comparative study with the following code(s):

- Brief description of the code and range of applicability:-

- This program was originated in our Institute

Author:

- This program was received from:

The original program was modified

The relevant modifications or improvements are as follows:-

The following computer will be used:-

I am willing to allocate approximately the following resources to this intercomparison:-

(manpower, computing time):

NUCLEAR MODEL CODE USE

NAME:

INSTITUTE:

I am using the following nuclear model code:-

- This code was originated in our Institute

Author:

- This code was received from:

The original version was not modified or

- was only slightly modified
- was modified to correct errors
- was modified to improve its performance

The following parts need to be improved:

Describe if possible a few calculations you have carried out successfully with this code:

I wish to receive information on Nuclear Model Codes.