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STATUS OF DELAYED NEUTRON DATA -1990

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- ABSTRACT -

Delayed neutron data play a key role in the reactor physics analysis of safety related parameters. This is the case for any type of reactor. For existing and operating reactors the interest is for an improvement of the basic data which are used to establish the reactivity scale and the reduction of the associated uncertainties. Moreover, there is at present a strong trend towards the study and development of new reactor types. For these advanced and innovative reactor concepts, there is a need to establish complete and sound data bases. In this context delayed neutron data also plays a significant role.

This paper carries out a review of the delayed neutron parameters and their uncertainties as available today. Using an exhaustive set of data, the results of an analysis focused on reactor technology are synthesized in a "consistent structure" having three levels of refinement. Conclusions on the quality of the data together with recommendations for improving them through modelling and measurements on each of the three levels are formulated.

Improvements in delayed neutron data make it possible to establish a more precise reactivity scale for existing reactors. Increased safety margins can be achieved by reducing the current uncertainty of 10 % for two standard deviations to 5 %.

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