

Status of LWR fuel design and future usage of JENDL

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For all conventional LWR fuel design codes of LWR fuel manufactures in Japan, the cross section library are based on the ENDF/B. Recently we can see several movements for the utilization of JENDL library for the LWR fuel design. NEUPHYS cross section library is based on the JENDL-3.2.

One of the most important activities in the development of the nuclear power system is improvement of the nuclear data. Japanese serious activity has contributed to the many fields of the evaluation in the world ever. One of the fruits of its activity is the JENDL. It is important to appeal abroad for worldwide its usage.

Status of nuclear data library from the view point of usage of JENDL was reported by Hirano, 2006[1]. For all conventional LWR fuel design code of LWR fuel manufactures in Japan, the cross section library are based on the ENDF/B-IV / V/ VI. Recently several movements for the utilization of JENDL library for the LWR fuel design.

The cross section library of NEUPHYS[2] is generated from the JENDL-3.2[3]. For the validation of NEUPHYS was performed from various viewpoints. For example, Figure 1 shows the comparison of power distribution between NEUPHYS results and the measurement data at the NBN-VENUS critical experiment. Addition to NBN-VENUS experiment, the BASALA critical experiments and a MOX loaded commercial reactor analysis had been reported for the NEUPHYS validation[2].

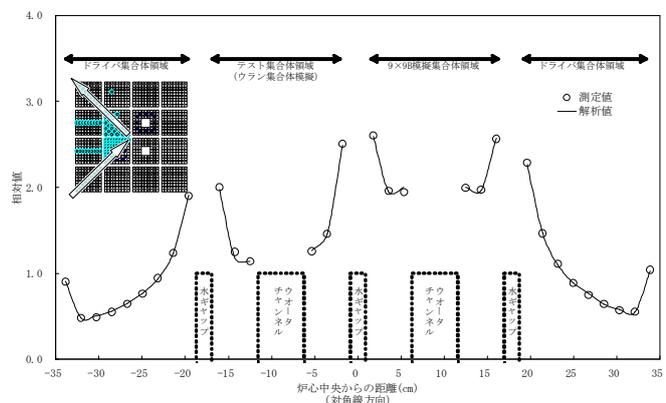


Figure 1

We can see the movement of the JENDL utilization in the field of LWR fuel design in Japan. It is important to enlarge this wave for keeping Japanese nuclear data evaluation activity in high level. In the other countries also, nuclear data evaluation work is located in the highest priority work, evident productions are generated as ENDF/B-VII.0. It is necessary to appeal abroad for worldwide JENDL usage through an effective documentation, a systematic preparation of benchmarking of JENDL and cooperation with international organizations.

References

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