

Summary of NJOY User Group Meeting

20 November 2006

General Conclusions

NJOY Users have discussed the proposed arrangements and procedures relative to updates required for processing with NJOY files other than ENDF/B. There has been a general agreement that this initiative is of value and will avoid confusion when comparing JEFF data performance in benchmarking with libraries produced by different users. Also it allows identifying what exact version was used.

This scheme will be in support of the NJOY code management at LANL and who have the final say as to official releases and acceptance therein of proposed updates. It should also alleviate the burden of maintenance at LANL as the procedures of the NEADB NJOY updates handling requires that the updates be tested and validated before they are proposed.

It was acknowledged that some of the application libraries generated with older official updates of NJOY may be correct if equivalent local updates were used or if the new updates refer to modules that are not needed in the chain of calculations for that particular library; if in doubt, the author of the application library should be consulted.

Proposals made:

One of the proposals made during the NJOY User Group meeting is to display a list of known unsolved problems. JEFF-3.1 has a list of known problems, most of which can be attributed to problems in the files rather than to the processing codes. Non compliance with the standard format is a problem to be solved in the evaluations.

One such example is Cr-52 of JEFF-3.1 as reported in

<http://www.nea.fr/html/dbdata/jeff3feedback/feedback-31.html>:

Nuclide: 24-Cr- 52

File name: JEFF31N2431_0.ASC

From: O. Bouland, M. Mattes

Date: 31 January 2006

Comment: Corrections on MF=4, MT=2: 1/ The file can not be processed by GROUPR of NJOY because of the very high number of energy points (23825 instead of max 2000 for the ENDF format)--> number of points decreased down to 1394. 2/ The GROUPR module of NJOY can not process the section MF4/MT2 because of redundant energy points in the file. This is due to the option 'conversion of data fields to standard form' in the STANEF code which forces the file MF4/MT2 output to adopt the ENDF format with 6 significant digits, rather than 7, for the energy values. --> section MF4/MT2 recreated correctly.

JEFF31TNN2431_1.ASC

Status: Proposed

Further comment: However, there is still a problem with the recreated file and when using GROUPR and NONE of the group boundaries are exactly 1 MeV. In fact one double point is still present and consequently the energy interval is zero which leads during linear interpolation to a division by zero exception. If one of the group boundaries is exactly 1 MeV, the problem does not appear. The source of this error might also be due to the fact that this file contains two ranges for interpolation, both linear. This is a redundancy and one range would be sufficient and the problem might well disappear if combined to one. Or has NJOY to be able to handle correctly such redundancies?

Queries/Answers:

Can the new formats proposed by Nancy Larsson for the resolved energy region (LRF=7 General R-matrix) be used now?

A patch was produced, but should be available with the next major release of NJOY. In fact no currently available evaluation contains data in that format, therefore for users today it is not relevant. However, it will be available once new evaluations with that format are produced and distributed.

Can competitive elastic channels be processed now?

This feature is of interest for 2 Nuclides F-19 and Cl-37. This is already included in codes such as SAMMY-7. The next release of NJOY should be capable of handling this.

Why should we make much efforts with NJOY-99, knowing that NJOY-200x is going to be released?

The co-operative arrangement between DOE and NEA concerning exchange of computer codes and data was signed in April 2006. The delay in the actual exchange is due to the implementation into procedures of new US export control requirements. This will now be resolved shortly. NJOY99 was maintained to be able to cope with the processing of new evaluations. As NJOY-99 has proven its value over the years, the approach of maintaining updates for it is sound. It is expected that the new release will come after the successful processing of the current evaluations. For some time the two codes should be maintained in parallel for validation purposes.

Comment: the patches adopted by the NEADB NJOY co-ordination effort should not be called "uplocal", but carry the name of the latest patch.

This has been done, and is now called **upnea009**, which is compatible with the official updates of NJOY99 up to version 161. Therefore the current patch for JEFF-3.1 is called **up161+upnea009**.

The present version of ERRORR can handle only single-level Breit-Wigner resonances. PUFF-IV can handle Reich-Moore, Adler-Adler and general R-matrices. How about ERRORJ?

ERRORJ has recently been released to the NEA Data Bank (Ivo Kodeli) and can be plugged into NJOY as replacement or as alternative module in NJOY. ERRORJ can process the same features as PUFF-IV except the general R-matrix. The next release of NJOY will have the full features of ERRORJ incorporated into the code.