Japan Charged-Particle Nuclear Reaction Data Group (JCPRG)

Nuclear Reaction Data File Steering Committee

Progress Report to the
IAEA Technical Meeting on the Network of Nuclear Reaction Data Centres
12-14 October 2005

0. General

Since the last NRDC meeting (October 2004, Brookhaven), we have carried out the following activities:

1. Compilation of CPND measured in Japan for NRDF and EXFOR
2. Compilation of CPND published in Japan for CINDA
3. Maintenance of data input system.
4. Maintenance of NRDF retrieval system.
5. Development of EXFOR and ENDF retrieval system
6. Development of digitization system
7. Data services

These activities are carried out under the supervision of NRDF Steering Committee, which consists of 9 senior researchers (8 nuclear physicists and 1 information scientist). Under this committee, 9 group members (5 postdoctoral researchers, 3 graduate students and 1 technical staff) work for the compilation. Additionally, 6 postdoctoral researchers, including some of the above, are working on system maintenance and development. These activities and data services are coordinated by 1 secretary.

Furthermore, our activities have been activated by V. McLane, who stayed at Hokkaido University from 6 February 2005 to 5 March 2005. During her stay, some US data in NRDF have been translated to EXFOR and submitted (TRANS.T020). She also held two workshops on EXFOR compilation for graduate students. Additionally, she gave an oral talk in the international symposium "Recent Advances in Astrophysics and Planetary Science" held at Hokkaido University.

The regular JCPRG budget ended at March 2001. We are applying to the Japanese government for a competitive budget for our further activity.

1. Compilation of CPND for NRDF and EXFOR

From April 2004 to March 2005, CPND in 45 references (540 records, 2.12 MB) have been newly compiled for NRDF. The data had been measured in Japan and published in JPJ, NST, PR/C, PRL, PL/B, NP, ARI, NP/A, NIM/A, EPJ/A and RCA.

Since 2004 NRDC meeting, we have made 111 new entries and have revised 37 old entries. These were transmitted as 7 trans files (E029-E033, J001-J003 and R015) to NDS open area. JCPRG is grateful for valuable comments from NDS and CAJaD on our transmissions. CHEX and TEST-EXF are useful for us.

Some numerical data of Japanese work received from NNDC are now in process of compilation.

According to the agreement (Conclusion 2004-14) at 2004 NRDC meeting, the scope of area J is defined as "Charged-particle nuclear data for projectile with non-positive baryon number" (See also Action 2004-24, CP-E/053). We thus moved 5 old entries from area E to area J. In addition, 4 new entries have been compiled in area J.

Author proofs have been made for several entries related to Cyclotron Radioisotope Center (CYRIC) in Tohoku University and Department of Applied Quantum Physics and Nuclear Engineering in Kyushu University. We appreciate the authors' cooperation.

2. Compilation of CPND for CINDA

We prepare CINDA batches for CPND published in Japan every half a year. Each batch covers 6 issues of each of 3 Japanese journals JPJ, PTP and NST. Some relevant proceedings and reports are also compiled. The first batch (86 new records) was submitted to NEA in July 2004, though the batch will be corrected according to the decision at 2004 NRDC meeting. The total number of records submitted to NEA-DB is then 141. Neutron related bibliographies are compiled by JAERI Nuclear Data Center as before.

3. Maintenance of NRDF and EXFOR editor "HENDEL"

A Web-based nuclear data input system is maintained and revised. Internal dictionaries for the system were immediately updated with that for NRDF or EXFOR. Various problems have been gradually fixed and corrected. All of our recent entries for NRDF and EXFOR are now generated by this system. This system thus provides us with a good environment for the compilation.

This system is available at our web site: http://jcprg.hucc.hokudai.ac.jp/editor/ . One can login as a guest user using the user id (*guest*) and password (*jcprgx4*) and then one can edit any entries with a centre identification character, X. We can issue other centre identification character and user id at request.

4. Maintenance of NRDF Retrieval System "DARPE"

The NRDF database is available at our web site: http://www.jcprg.org/nrdf/. New data, which has been finalized not yet for EXFOR but for NRDF, can be obtained from this site. This retrieval system is written in a Perl script without any database management system.

5. Development of EXFOR and ENDF Retrieval System "SPES"

The new EXFOR and ENDF retrieval system named "SPES" is being developed by the cooperation between JCPRG and JAERI. In this system, we can retrieve the required data from EXFOR and ENDF at the same time, and then draw 2D or 3D viewgraphs of cross sections or angular distributions in the same panel. Users can upload their own data files, and plot them with the data from EXFOR and/or ENDF. This system is composed of the programs written in Perl and a database management system, MySQL. We will finish the development by the next spring. A prototype of ENDF plotting tool for (PENDL) is also available at http://www.jcprg.org/endf/.

6. Development of Digitization System "GSYS"

A new digitizing system "GSYS" based on Java has been developed. This new system works on any kind of the operating system. With GSYS, one can easily read-in and digitize the graphical data with high accuracy. GSYS is freely available at http://jcprg.hucc.hokudai.ac.jp/gsys/gsys-e.html. Recently, we are trying to add the "feedback" function, which makes it possible to load the numerical data and plot the data as markers on an image. This function is very helpful to compare the numerical data with the original data on the graphical image visually and modify the numerical data if needed. The latest "GSYS" with the feedback function will be available in the near future.

7. Data services for Japanese Users

We provide Japanese researchers in nuclear physics and nuclear engineering with nuclear data as well as nuclear reaction data (NRDF and EXFOR). For more information, we published "Annual Report of Nuclear Reaction Data File Vol.18" in March 2005.

Recently we have established mutual communication with JENDL evaluators in Japan (e.g. JAERI Nuclear Data Center). They found many mistakes in EXFOR. We forwarded them to responsible centres. The list can be seen at http://jcprg.hucc.hokudai.ac.jp/exfor/feedbacks.html .

ANNEX: Organization and members of JCPRG

NRDF Advisory Committee

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NRDF Steering Committee

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3) Maintenance of NRDF and EXFOR editor:
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4) Maintenance of NRDF retrieval system:
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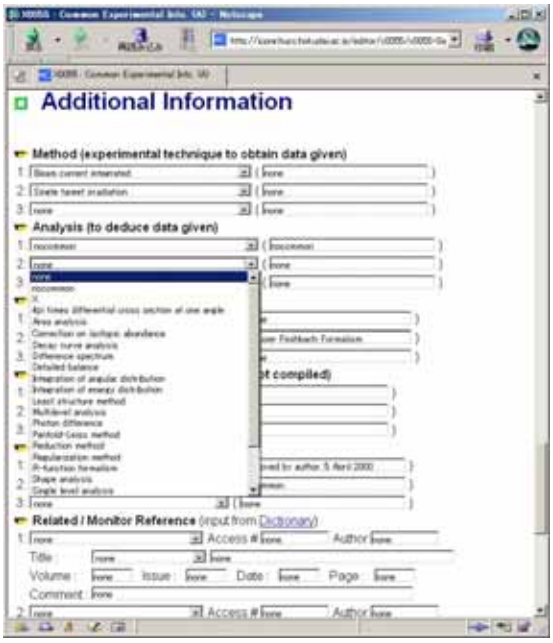
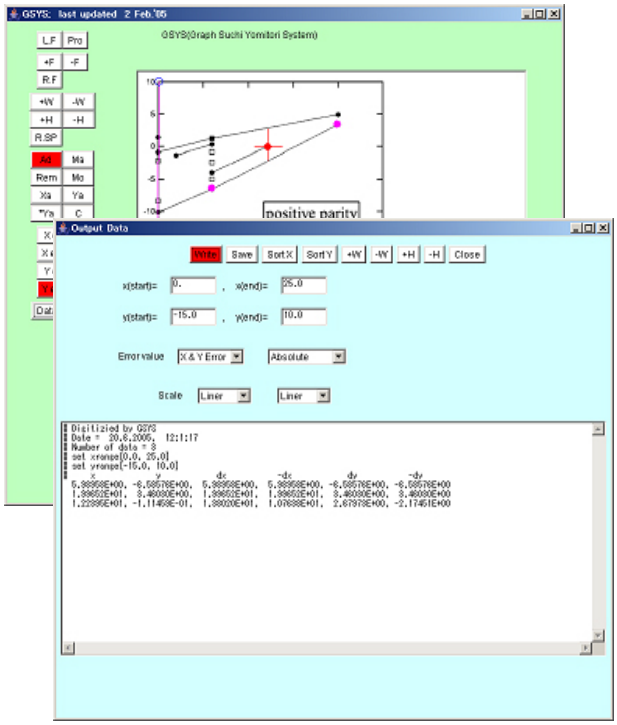
Screen Shot of Our Products

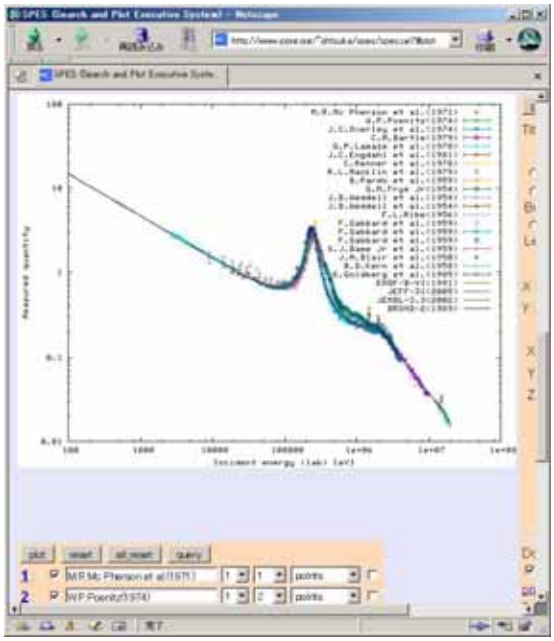


HENDEL (Nuclear data editor)
http://jcprg.hucc.hokudai.ac.jp/editor/

DARPE (NRDF search / plot)
http://www.jcprg.org/nrdf/



GSYS (Graph Digitizer System)
http://jcprg.hucc.hokudai.ac.jp/gsys/gsys-e.html



SPES (EXFOR and ENDF search/plot)
(under construction)