Functionality Enhancement of the EXFOR-Editor Software Package for Experimental Nuclear Data Compilation into the EXFOR Format

by G.Pikulina, S.Taova

CNPD, Russian Federal Nuclear Center – VNIIEF, Sarov 607188, Russia

The CNPD-developed EXFOR-Editor software is specialized software for the input and editing of nuclear data in the EXFOR library format. It takes into account strict requirements and limitations of the EXFOR format and simplifies the entering of structured information.

The EXFOR-Editor software consists of two independent programs:

− the ExfData is an editor specially designed for handling EXFOR files;

− the InpGraph is a digitizing program for processing graphic information.

We support and develop both programs on the basis of the use-proven algorithms and subroutines with the same well-proven basic software and user-friendly interface. This paper describes the enhancement of functional capabilities of the ExfData.

The current version of the ExfData provides the compilation of nuclear data into the EXFOR format in the frame of one EXFOR entry that contains the experimental results obtained in one scientific laboratory with the help of the specific facility.

A compiler should combine several entries into an exchange file (TRANS file) to transmit data into the EXFOR library (NDS IAEA).

To compose such files we use text editors available in the Microsoft Windows. Additional errors may be introduced while creating and editing the TRANS file. It is difficult to find them as usually the TRANS file has a great size (several thousand lines). We have to use special checking programs for this purpose.

The ExfData provides users with all existing checking programs (ZChex, TransChecker) and with its own checking services under the integrated user's environment. We decided to insert the possibility of TRANS file preparing into the ExfData. So, all functions of data processing and checking are available for the TRANS file now. For example, there are a specialized editor, a tree presentation of edited file structure, special dialog boxes for editing and entering information by keywords, numeric

data processing, numeric data plotting in the form of dependences on the graph and so on.

Two commands for TRANS file creation were implemented. The “Append” command selects and adds the Entry file to the end of current TRANS file. The “Merge” command combines all Entry files currently opened by the ExfData into one TRANS file.

We support our own database in CNPD. It stores the information about all entries compiled by our centre. We input information into the database manually after every TRANS file preparation. Now the ExfData can create a service file with brief information about entries of processed TRANS file automatically. Such file contains references, lists of authors, lists of institutes. Such opportunity simplifies the database maintenance.

We also implemented the plotting of numeric data from different entries on one graph. This possibility will be useful to compare curves from different entries for additional checking.

We developed a trial version of the ExfData 4.0 with TRANS files processing functions. Now we are testing it and preparing a final version for free use.