

Center of Nuclear Physics Data (CNPD), RFNC-VNIIEF

Technical paper for the NRDC Meeting, Vienna, May 23-24, 2011

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Compilation activity

Three transmission files TRANS.F039, TRANS.F040 and PRELIM.F041 were prepared for the EXFOR data library within the past period. Much attention was paid to the work on error correction. 32 old entries were revised. Besides, there was introduced a set of corrections into entries with index "A".

Scanning of home journals "Yadernaya Fizika", "Izvestiya Akademii Nauk" was continued. Articles from old issues of «Physical Review» and «Nuclear Physics» were also reviewed.

Last year the works on the development of the Reference Database for Ion Beam Analysis (IBANDL) performed within the ISTC frames were successfully completed.

For three year approximately 800 files including the sets of experimental data on charged particle interaction with nuclei were introduced into the library.

Software

EXFOR-Editor

Intensive development of EXFOR – Editor is being continued. The software improvement is based mainly on the numerous comments and feedbacks of the users.

Lately many new functions and additional service were implemented to the EXFOR – Editor. Constant work on error correction is being performed.

In August last year G. Pikulina and S. Taova took part in the Workshop on the development of the Exfor library organized by NDS. Technical reports describing the main steps of the software improvement were presented.

On the basis of different comments and advises of the Workshop participants a new version of EXFOR – Editor was prepared. The distributive and a file describing the main changes made in the program were placed at the NDS open area.

Optical Model calculations

Last year the works on designing the program code on the basis of optical model for the analysis of elastic scattering cross sections of neutrons, protons, deuterons and alpha particles were completed in general.

At present the active testing of this program code is being performed. When designing the program some innovations contributing to accuracy improvement and calculating speed increase were introduced into high-precision numerical methods. The procedure of optimum potential automatic search at describing elastic scattering data was implemented and is being under test now.

It is planned to present the early calculation results on differential cross sections at the conference “Nucleus-2011”.

The works on obtaining the calculated reaction cross sections with the EMPIRE code are being continued in our Center. The constantly update program version available through the Internet CVN protocol is used.

General

The report entitled “Center of Nuclear Physics Data in VNIIEF” was presented last year in Saint-Petersburg at the 60th Meeting on Nuclear Spectroscopy and Nuclear Structure “Nucleus 2010. Methods of Nuclear Physics for Femto - and Nanotechnologies”.

The Center staff takes an active part in preparation of the 61st conference “Nucleus-2011” which will be held in Sarov, October 10-14, 2011.