

Report on EXFOR Compilation 2014

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Abstract

In this report, we present our activities in 2014, concerning the compilation of experimental nuclear reaction data. In this fiscal year, we compiled 23 entries and transmitted 9 TRANS files from April 2013 to March 2014.

1 Introduction

Experimental data are found in EXFOR database, which is maintained by the International Atomic Energy Agency (IAEA) and the International Network of Nuclear Reaction Data Centres (NRDC). The NRDC involves in database compilation and developed related software. One of the NRDC staff is the Hokkaido University Nuclear Reaction Data Centre (JCPRG) [1]. JCPRG has contributed about 10 percent of the data on charged-particle nuclear reactions in the EXFOR library. In the JCPRG, the compiled nuclear reaction data is available on the online search system of the NRDF and the EXFOR library [2], respectively. In this report, we present our activities in 2014, concerning the compilation of experimental nuclear reaction data by JCPRG.

2 Organization

The total staff includes two JCPRG staff (Masayuki Aikawa and Shuichiro Ebata) and four researchers (Dagvadorj Ichinkhorloo, Shoutarou Imai, Sarsembaeva Aiganym and Zhou Bo) carry out compilation work.

3 Compilation activities

Every week, we assign one paper for compiler and check by all in the compilation meetings which are finalized as for compilation by the all the members. We contact authors to provide the original numerical data plotted in each figure to ensure the accuracy of data compiled in the NRDF and the EXFOR library. If the original data could not be obtained from the corresponding author, we digitized numerical data from the plotted figures with the digitization software GSYS [3]. The numerical data for almost all of the EXFOR entries compiled in 2014 were proofread by authors, and a detailed description of the entries has been revised according to the authors' comments.

4 Journal Survey

The journal survey is carried out on the published papers in parallel with the IAEA-NDS survey. Sometimes we find some published papers that are not necessary for the EXFOR but are in the scope of NRDF. The lists of the surveyed journals are as following:

- Physical Review C (PRC)
- Physical Review Letters (PRL)
- Nuclear Physics A (NP/A)
- Physics Letters B (PL/B)
- The European Physical Journal A (EPJ/A)
- Journal of Nuclear Science and Technology (NST)
- Journal of Physics G (JP/G)
- Nuclear Instruments and Methods in Physics Research A (NIM/A)
- Nuclear Instruments and Methods in Physics Research B (NIM/B)
- Progress of Theoretical and Experimental Physics (PTEP)
- Journal of Physical Society of Japan (JPJ)
- Nuclear Science and Engineering (NSE)

5 Transmitted file in 2014

First we prepare a PRELIM version and send to the IAEA-NDS for comments and suggestions for the transmission of the compiled files. After modifying the entries of transmitted files according to the comments and suggestions from IAEA-NDS and other nuclear data centres, we send the final version of TRANS files to IAEA. In 2014, 9 TRANS files: E088, E089, E090, E091, E092, E093, E094, E095 and E096 are submitted to the IAEA. Table 1 represents the TRANS files that include the new as well as modified entries with their accession number. These 9 TRANS files, contain 23 EXFOR new entries and 22 modified entries. There are frequent transmissions of the new entries, in which 11 registered entries contain the RIBF data.

6 Compilation of nuclear reaction data at RIBF

In the JCPRG, the compiled nuclear reaction data is available on the online search system of the NRDF and the EXFOR library [2], respectively. In addition to the collaboration with the NRDC network, JCPRG established a collaborative research contract with the RIKEN Nishina Center in 2010, to increase the availability of the nuclear reaction data produced at the RIBF. The compiled files of the nuclear data produced at the RIBF are translated to the EXFOR format for the benefit of nuclear data users. In this article, we report on our activities in 2014, concerning the compilation of experimental nuclear reaction data from RIKEN. In 2014, we compiled sixteen papers from the RIBF data in the compilation scope of the EXFOR library were found.

Table 1: The list of transmitted new and revised entries in 2014

TRANS	Prelim	Final	Entry New			Entry Rev		
E088		2014.04.01	E2367					
E089		2014.04.26				E2135	E2382	E2441
E090	2014.05.28	2014.07.07				E2007	E2110	E2127
						E2007	E2110	E2127
						E2150	E2159	E2367
						E2369	E2407	
E091	2014.05.30	2014.07.11	E2392	E2450	E2451	E2170		
			E2455					
E092	2014.06.23	2014.09.17	E2312	E2398	E2399	E1923	E2343	E2434
			E2454	E2456	E2457			
E093	2014.07.17	2014.09.18	E2453	E2458		E2451		
E094	2014.11.25	2015.02.06	E2452	E2460	E2461			
			E2462	E2463	E2467			
E095	2015.02.17					E1905	E2172	E2404
						E2443		
E096	2015.03.05		E2465	E2466	E2469	E2461	E2463	
			E2473					
Total			23			22		

7 Summary

In this article, we reported recent compilation works in the JCPRG. We summarized the status of the EXFOR file transmission: the 9 TRANS files, named as E088, E089, E090, E091, E092, E093, E094, E095 and E096 were transmitted in fiscal year 2014. In these files, data of sixteen papers from the RIBF experiments are included.

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References

- [1] <http://www.jcprg.org/>
- [2] <http://www.jcprg.org/exfor/>
- [3] <http://www.jcprg.org/gsys/>