

# Report on EXFOR Compilation 2016

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## Abstract

In this report, we present our activities 2016 in the compilation of experimental nuclear reaction data. In fiscal year from April 2016 to March 2017, we compiled 64 entries and transmitted 10 TRANS files .

## 1 Introduction

The Nuclear Reaction Data Centre (JCPRG)[1] of Hokkaido University compiles charged-particle induced nuclear reaction data obtained in the Japanese facilities in its own data format (Nuclear Reaction Data File: NRDF)[2] and in the international format (EXchange FORmat: EXFOR)[3]. EXFOR is maintained by the International Atomic Energy Agency (IAEA) [4] and the International Network of Nuclear Reaction Data Centres (NRDC). The NRDC collaborates on compilation of experimental data, development of related software for compilation and dissemination. JCPRG is a member of NRDC, and has contributes about 10 percent of the charged-particle nuclear reaction data in the EXFOR library. In this report, we present the activities in 2016, the compilation of experimental nuclear data by JCPRG.

## 2 Organization

The total staff includes the centre head (Kimura Masaaki), JCPRG staff (Shuichiro Ebata) and three researchers (Dagvadorj Ichinkhorloo, Sarsembayeva Aiganym and Singh Jagjit).

## 3 Compilation Activities

In 2016, we compiled 64 new papers reporting on nuclear reaction experimental data performed in Japan. Every week, we assign each compiler one paper and check their compilation to finalize by all the members in the compilation meeting. For higher quality of the compilation contents, we contact the authors of a particular paper concerned to request them to provide their original experimental data plotted in each figure in the paper to ensure the accuracy of the data compiled in the NRDF and the EXFOR library. If the original data could not be directly obtained from the authors, we digitize the plotted curves on the figures in the paper with the digitization software GSYS [5].

## 4 Journal Survey

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

- 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 Physics (PTP)
- Journal of Physical Society of Japan (JPJ)
- Nuclear Science and Engineering (NSE)

## 5 Transmitted File in 2016

The most important work is to translate compiled entries into the EXFOR format for the transmission of the experimental nuclear reaction data worldwide. The transmission includes the new compiled entries as well as the modified entries. In 2016, 10 TRANS files: E100, E101, E102, E103, E104, E105, E106, E107, E108, K016 and K017 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 10 TRANS files, contain 64 EXFOR new entries and 11 modified entries. There are frequent transmissions of the new entries, in which 10 registered entries contain the RIBF data.

## 6 Compilation of Nuclear Reaction Data at RIBF

In the JCPRG, 10 papers were produced by using the RIBF data and those data satisfy the compilation scope of the EXFOR library. We have established an effective procedure to compile all of the new publications during the last six-year collaboration with the RIKEN Nishina Center. Therefore, most of the recent experimental nuclear reaction data from the RIBF have successfully been compiled in the EXFOR database.

## 7 Summary

In this article, we reported recent compilation work in the JCPRG. We summarized the status of the EXFOR file transmission: the 10 TRANS files, named as E101, E102, E103, E104, E105, E106, E107, E108, K016 and K017 were transmitted in fiscal year 2016.

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Table 1: The list of transmitted new and revised entries in 2016

TRANS	Prelim	Final	Entry New			Entry Rev		
E101	2016.03.04	2016.04.30	E2483	E2485	E2487			
			E2488	E2489	E2490			
			E2491	E2492	E2493			
			E2494					
E102	2016.03.25	2016.05.11	E2495	E2496		E1522	E1994	E2406
						E2458		
E103	2016.05.21	2016.06.25	E2214	E2219	E2220			
			E2224	E2225	E2226			
			E2227	E2228	E2230			
			E2231	E2233	E2234			
			E2235	E2237	E2238			
			E2239	E2241	E2242			
			E2244	E2247	E2254			
			E2256	E2261	E2262			
			E2307	E2308	E2309			
			E2313	E2319	E2321			
			E2330	E2508				
E104	2016.11.17	2017.02.17				E2125		
E105	2016.11.17	2017.03.03	E2412	E2459	E2475			
			E2484	E2486	E2498			
			E2500	E2501	E2502			
			E2503					
E106	2016.11.24	2017.03.03	E2504			E1988	E2121,	
E107	2017.01.26	2017.05.08	E2507	E2511	E2515			
			E2522					
E108	2017.03.21	2017.05.29	E2506	E2518		E2494		
K016	2016.05.25	2016.08.12	K2373	K2497	K2499	K2320		
K017	2016.08.24	2016.11.23				K2027	K2373	
Total			64			11		

research collaboration among Faculty of Science, Hokkaido University and RIKEN Nishina Center.

## References

- [1] <http://www.jcprg.org/>
- [2] <http://www.jcprg.org/nrdf/>
- [3] <http://www.jcprg.org/exfor/>
- [4] <http://www-nds.iaea.org/>
- [5] <http://www.jcprg.org/gsys/>