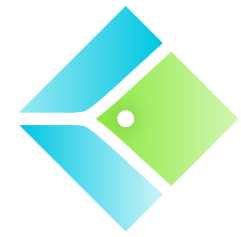




**HOKKAIDO**  
UNIVERSITY



Nuclear Reaction  
Data Centre (JCPRG)  
Faculty of Science, Hokkaido University

# JCPRG Progress Report

May 23, 2017

**Masaaki KIMURA**

**Nuclear Reaction Data Centre (JCPRG)  
Hokkaido University  
JAPAN**

# Nuclear Reaction Data Centre (JCPRG), Hokkaido University



# Nuclear Reaction Data Centre (JCPRG), Hokkaido University

**Nuclear Reaction Data Centre (JCPRG)** is a research center for nuclear data activities in **Hokkaido University**.

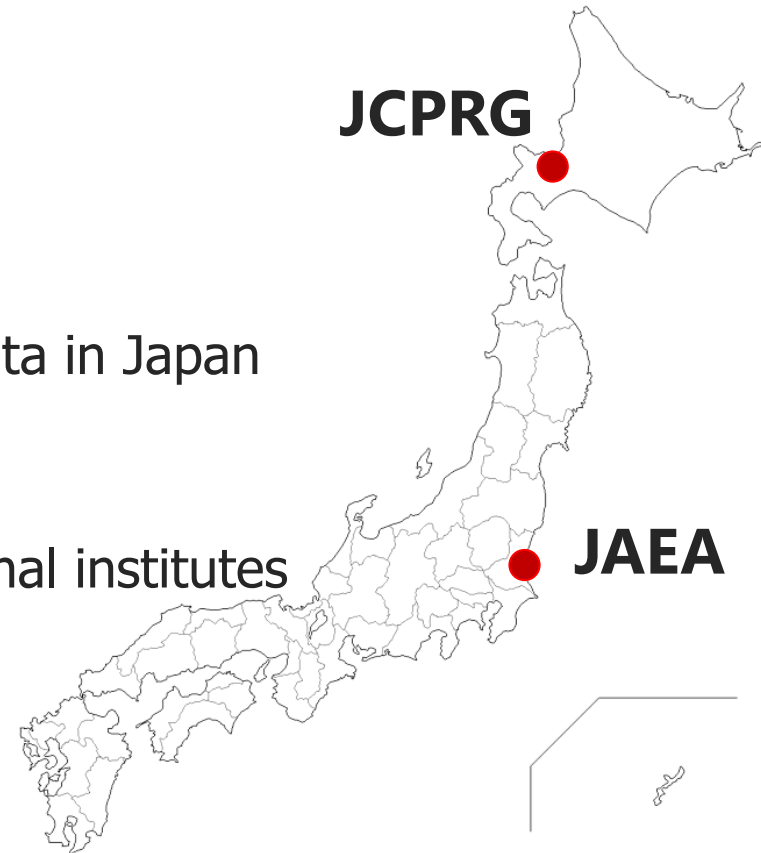
**The objectives of the center:**

**Compilation** of charged-particle reaction data in Japan

**Evaluation** of nuclear reaction data

**Collaboration** with domestic and international institutes

**Education** of graduate school students



# Nuclear Reaction Data Centre (JCPRG), Hokkaido University

We have 7+ active members

JCPRG is advised and assessed by the Committee

<b>JCPRG Member</b>	
<b>Staff</b>	M. Kimura (AP), S. Ebata (A)
<b>Postdocs</b>	D. Ichinkhorloo, J. Singh, S. Aiganym
<b>Senior Researchers</b>	K. Kato, M. Fujimoto
<b>Supporting staff</b>	M. Aikawa, H. Noto, M. Chiba, T. Katayama
<b>Steering Committee</b>	Horiguchi, Kimura, Hirabayashi, Arimura, Kamiyama
<b>External Advisory Committee</b>	Aoi (RCNP), Fukahori (JAEA), Ohnishi (YITP), Otsuka (IAEA), Sakurai (RIKEN)



# Data Compilation at JCPRG

Two Databases are compiled at JCPRG; **EXFOR** and **NRDF**

Compilation Working Group	
<b>EXFOR</b>	Ichinkhorloo, Singh, Aiganym, Saito Aikawa, Ebata, Kimura
<b>NRDF</b>	Aikawa, Chiba, Ebata, Katayama, Kato, Noto

**EXFOR:** 52 new entries which include 32 entries compiled by Saito (and Otsuka) during her internship at IAEA

**NRDF** (original database developed by JCPRG): 52 new entries



# EXFOR Compilation at JCPRG

EXFOR: 52 new and 8 revised entries were compiled at JCPRG since the last NRDC meeting. 32 entries were compiled by Ms. Saito (and N. Otsuka) during her intern at IAEA

<b>TRANS</b>	<b>TRANS Status</b>	<b>ENTRY Tot.</b>	<b>ENTRY New</b>	<b>ENTRY Rev.</b>
<b>E103</b>	Final (2016/06/25)	32	32	0
<b>E104</b>	Final (2017/02/17)	1	0	1
<b>E105</b>	Final (2017/03/03)	10	10	0
<b>E106</b>	Final (2017/03/03)	3	1	2
<b>E107</b>	Final (2017/05/08)	4	4	0
<b>E108</b>	Prelim. (2017/03/21)	3	2	1
<b>J010</b>	Prelim. (2017/05/08)	1	0	1
<b>K016</b>	Trans. (2016/8/12)	4	3	1
<b>K017</b>	Trans. (2016/11/23)	2	0	2
<b>Total</b>		60	52	8



# Evaluation (Theoretical Studies)

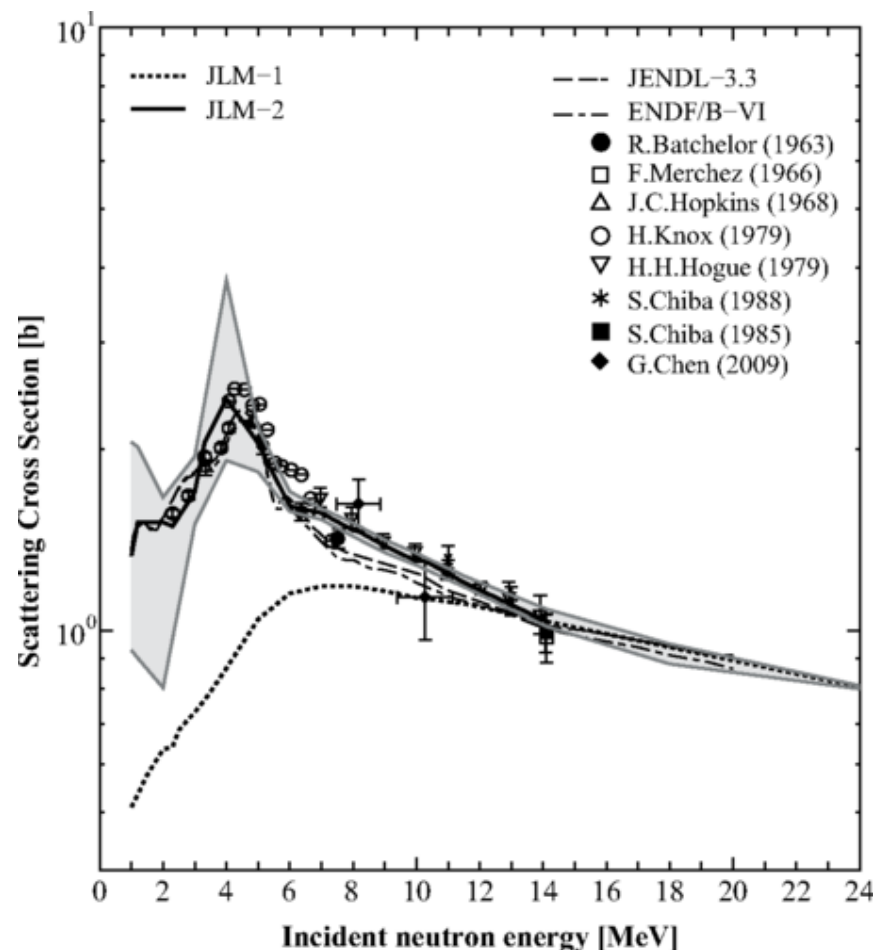
## Highlights

**Analysis** of neutron-induced reactions of light nuclei based of a microscopic nuclear reaction model (CDCC).

See Ichinkhorloo et al., PRC93, (2016).

**Construction** of theoretical nuclear reaction database by the density functional theory

See Ebata's presentation



Ichinkhorloo et al.,  
Phys. Rev. C93, 064612 (2016).



## Software for Database Coding

Editor "HENDEL", <http://www.jcprg.org/manuals/hendel/>

Digitizer "GSYS", <http://www.jcprg.org/gsys/gsys-e.html>

Java based New editor: **ForEx** ( $\beta$ ) will be tested by CIAE

## Data Retrieval System

NRDF: <http://www.jcprg.org/nrdf/>

NRDF/A: <http://www.jcprg.org/nrdfa/>

EXFOR/ENDF <http://www.jcprg.org/exfor/>





# International and Domestic collaboration

## **IAEA and NRDC**

CA-NRDB: Nuclear Physics, Nuclear Technology

RIKEN: Transmutation, Medicine

JAEA: Transmutation, Medicine

## **ATOMKI: Medicine**

Experiments were performed at ATOMKI and RIKEN.

Theoretical calculation will be performed  
in collaboration with JAEA.



# Summary

JCPRG is a data center at Hokkaido University, Japan, which aims;

**Compilation** of charged-particle reaction data in Japan

52 EXFOR and NRDF new entries in 2016

**Evaluation** of nuclear reaction data

Analysis of reactions and Construction of theoretical database

See Ebata's talk

**Collaboration** with domestic and international institutes

IAEA, NRDC, RIKEN, JAEA, ATOMKI,...

**Education** of graduate school students

Saito (& Otsuka) has compiled 32 new entries during IAEA internship.

