IAEA
International Atomic Energy Agency

INDC International Nuclear Data Committee

Summary Report of the Technical Meeting on

International Network of Nuclear Reaction Data Centres

Global Centre for Nuclear Energy Partnership, Bahadurgarh, Haryana, India

1 – 4 May 2018

Prepared by

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June 2018

IAEA Nuclear Data Section, Vienna International Centre, A-1400 Vienna, Austria

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Abstract

This report summarizes the IAEA Technical Meeting on the International Network of Nuclear Reaction Data Centres held at the Global Centre for Nuclear Energy Partnership, Bahadurgarh, India from 1 to 4 May 2018. The meeting was attended by 20 participants representing 13 cooperative Centres from eight Member States (China, Hungary, India, Japan, Korea, Russia, Ukraine and USA) and two International Organisations (NEA, IAEA) as well as a participant from Kazakhstan. A summary of the meeting is given in this report along with the conclusions and actions.

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THE INTERNATIONAL NETWORK OF NUCLEAR REACTION DATA CENTRES

National, regional and specialized nuclear reaction data centres, coordinated by the International Atomic Energy Agency, cooperate in the compilation, exchange and dissemination of nuclear reaction data in order to meet the requirements of nuclear data users in all countries. At present, the following data centres participate in the network:

NNDC	US National Nuclear Data Center, Brookhaven National Laboratory, Upton, USA
NEA DB	OECD NEA Data Bank, Boulogne-Billancourt, France
NDS	IAEA Nuclear Data Section, Vienna, Austria
CJD	Russian Nuclear Data Centre, Institute of Physics and Power Engineering, Obninsk, Russia
CNDC	China Nuclear Data Centre, China Institute of Atomic Energy, Beijing, China
ATOMKI	Charged-Particle Nuclear Reaction Data Group, Institute for Nuclear Research (ATOMKI), Debrecen, Hungary
NDPCI	Nuclear Data Physics Centre of India, Bhabha Atomic Research Centre, Trombay, Mumbai, India
JAEA/NDC	Nuclear Data Center, Japan Atomic Energy Agency, Tokai-mura, Japan
JCPRG	Nuclear Reaction Data Centre, Hokkaido University, Sapporo, Japan
KNDC	Nuclear Data Center, Korea Atomic Energy Research Institute, Daejeon, Republic of Korea
CDFE	Centre for Photonuclear Experiments Data, Moscow State University, Moscow, Russia
CNPD	Centre of Nuclear Physics Data, Institute of Nuclear and Radiation Physics, Russian Federal Nuclear Center –All-Russia Research Institute of Experimental Physics, Sarov, Russia
UkrNDC	Ukrainian Nuclear Data Centre, Institute for Nuclear Research, Kyiv, Ukraine

A detailed description of the objectives of the network and the contributions of each Centre to these activities are given in INDC(NDS)-401 (Rev.6), "International Network of Nuclear Reaction Data Centres".

PREVIOUS NRDC MEETINGS

Bahadurgarh, 1-4 May 2018	Centre Heads + Technical	INDC(NDS)-0762
Vienna, 23-26 May 2017	Technical	INDC(NDS)-0736
Beijing, 7-10 June 2016	Centre Heads + Technical	INDC(NDS)-0718
Vienna, 21-23 April 2015	Technical	INDC(NDS)-0686
Smolenice, 6-9 May 2014	Centre Heads + Technical	INDC(NDS)-0661
Vienna, 23-25 April 2013	Technical	INDC(NDS)-0633
Paris, 16-19 April 2012	Centre Heads + Technical	INDC(NDS)-0618
Vienna, 23-24 May 2011	Technical	INDC(NDS)-0593
Sapporo, 20-23 April 2010	Centre Heads + Technical	INDC(NDS)-0573
Vienna, 25-26 May 2009	Technical	INDC(NDS)-0558
Obninsk+Moscow 22-25 Sept. 2008	Centre Heads + Technical	INDC(NDS)-0536
Vienna, 8-10 October 2007	Technical	INDC(NDS)-0519
Vienna, 25-28 September 2006	Centre Heads + Technical	INDC(NDS)-0503
Vienna, 12-14 October 2005	Technical	INDC(NDS)-0480
Brookhaven, 4-7 October 2004	Centre Heads + Technical	INDC(NDS)-464
Vienna, 17-19 June 2003	Technical	INDC(NDS)-446
Paris, 27-30 May 2002	Centre Heads + Technical	INDC(NDS)-434
Vienna, 28-30 May 2001	Technical	INDC(NDS)-427
Obninsk, 15-19 May 2000	Centre Heads + Technical	INDC(NDS)-418
Vienna, 18-20 May 1999	Technical	INDC(NDS)-407
Vienna, 11-15 May 1998	Centre Heads + Technical	INDC(NDS)-383
Vienna, 26-28 May 1997	Technical	INDC(NDS)-374
Brookhaven, 3-7 June 1996	Center Heads + Technical	INDC(NDS)-360
Vienna, 2-4 May 1995	Technical	INDC(NDS)-343
Paris, 25-27 April 1994	Center Heads + Technical	INDC(NDS)-308
Vienna, 1-3 Sept 1992	Technical	INDC(NDS)-279
Obninsk, 7-11 Oct 1991	Center Heads + Technical	INDC(NDS)-0262
Vienna, 13-15 Nov 1990	Technical	Memo CP-D/210
Vienna, 2-4 Oct 1989	Centre Heads + Technical	Memo CP-D/200
Vienna, 4-6 Oct 1988	Technical	Memo CP-D/190
Brookhaven, 27-29 Oct 1987	Center Heads + Technical	INDC(NDS)-204
Vienna, 7-9 Oct 1986	Technical	Memo CP-D/159
Saclay, 9-11 Oct 1985	Center Heads + Technical = 8th NRDC Meeting	INDC(NDS)-178
Vienna, 19-21 Sept 1984	Technical	Memo CP-D/131
Obninsk+Moscow, 17-21 Oct 1983	7th NRDC Meeting	INDC(NDS)-154
Vienna, 3-7 May 1982	6th NRDC Meeting	INDC(NDS)-141
Brookhaven, 29.9 - 2.10.1980	5th NRDC Meeting	INDC(NDS)-125
Karlsruhe, 8-13 Oct 1979	4th NRDC Meeting	INDC(NDS)-110
Paris, 19-23 June 1978	3rd NRDC Meeting	INDC(NDS)-99
Kiev, 11-16 April 1977	2nd NRDC Meeting = 3rd CPND + 13th 4-C	INDC(NDS)-90
Vienna, 28-30 April 1976	2nd CPND Meeting	INDC(NDS)-77
Vienna, 26-27 April 1976	12th 4C-Meeting	INDC(NDS)-78
Vienna, 8-12 Sept 1975	CPND Meeting	INDC(NDS)-69+71
Brookhaven, 10-14 March 1975	11th 4C-Meeting	INDC(NDS)-68
Paris, 6-10 May 1974	10th 4C Meeting	INDC(NDS)-58
Vienna, 24-26 April 1974	CPND + PhotoND	INDC(NDS)-59+61
Moscow/Obninsk, 4-8 June 1973	9th 4C Meeting	INDC(NDS)-54
Vienna, 16-20 Oct 1972	8th 4C Meeting	INDC(NDS)-51
Brookhaven, 25-29 Oct 1971	7th 4C Meeting	INDC(NDS)-41
Paris, 5-9 Oct 1970	6th 4C Meeting	INDC(NDS)-28
Moscow, 17-21 Nov 1969	5th 4C Meeting	INDC(NDS)-16

LIST OF ACRONYMS

ATOMKI   Nuclear Research Institute, Debrecen, Hungary

BARC   Bhabha Atomic Research Centre, Trombay, Mumbai, India

BNL   Brookhaven National Laboratory, Upton, New York, USA

BROND   Russian Evaluated Neutron Reaction Data Library

C4   Computational format for EXFOR data

CAJaD   Centre for Nuclear Structure and Reaction Data, Kurchatov Institute, Moscow, Russia

CDFE   Centr Dannykh Fotojad. Eksp., Moscow State University, Russia

CENDL   Chinese Evaluated Neutron reaction Data Library

CHEX   EXFOR check program (originating from NNDC)

CIAE   Chinese Institute of Atomic Energy, Beijing, China

CINDA   A specialized bibliography and data index on nuclear reaction data operated by NRDC

CJD   Russian Nuclear Data Centre, IPPE, Obninsk, Russia

CNDC   China Nuclear Data Centre, CIAE, Beijing, China

CNPD   Centre of Nuclear Physics Data at RFNC-VNIIEF, Sarov, Russia

CP...   Numbering code for memos exchanged within the NRDC

CPND   Charged-particle nuclear reaction data

CRP   Coordinated Research Project (of the IAEA Nuclear Data Section)

CSEWG   US Cross Section Evaluation Working Group

DOI   Digital Object Identifier, *e.g.* for bibliographic references

EMPIRE   A code system for nuclear reaction model calculations

ENDF-6   International format for evaluated data exchange, version 6

ENDF/B   US Evaluated Nuclear Data File/B

ENSDF   Evaluated Nuclear Structure Data File

EXFOR   Format for the international exchange of nuclear reaction data

GSYS   Data digitizing system by JCPRG

IAEA   International Atomic Energy Agency, Vienna, Austria

IBANDL   Ion Beam Analysis Nuclear Data Library, maintained at IAEA

INDC   International Nuclear Data Committee

IPPE   Institute of Physics and Power Engineering, Obninsk, Russia

IRDFF   International Reactor Dosimetry and Fusion File, maintained by the IAEA-NDS

JAEA   Japan Atomic Energy Agency

JANIS	Java Nuclear Information System of NEA-DB
JCPRG	Nuclear Reaction Data Centre, Hokkaido University, Sapporo, Japan
JEFF	Joint Evaluated Fission and Fusion File, coordinated by NEA-DB
JENDL	Japanese Evaluated Nuclear Data Library
KAERI	Korea Atomic Energy Research Institute, Daejeon, Korea
KNDC	Nuclear Data Center, KAERI, Daejeon, Korea
KINR	Kyiv Institute of Nuclear Research
LEXFOR	Part of the EXFOR manual containing physics information for compilers
MBDAV	Management Board for the Development, Application and Validation of Nuclear Data and Codes
NDS	IAEA Nuclear Data Section, Vienna, Austria
NEA	OECD Nuclear Energy Agency, Boulogne-Billancourt, France
NEA-DB	OECD/NEA Data Bank, Boulogne-Billancourt, France
NEANDC	OECD/NEA Nuclear Data Committee
NNDC	National Nuclear Data Center, Brookhaven National Laboratory, USA
NRDC	International Network of Nuclear Reaction Data Centres
NRDF	Japanese Nuclear Reaction Data File
NSDD	International Network of Nuclear Structure and Decay Data Evaluators
NSC	OECD/NEA Nuclear Science Committee
NSR	Nuclear Science References, a bibliographic system
OECD	Organization for Economic Cooperation and Development, Paris, France
ORDER	EXFOR program for addition of record identification
PhND	Photonuclear data
RIKEN	Institute of Physics and Chemistry Research, Wako-Shi, Saitama, Japan
TALYS	A code system for prediction of nuclear reactions and generation of nuclear data
TRANS	Name of transmission tapes for data exchange in the EXFOR system
UKRNDC	Ukraine Nuclear Data Centre at KINR, Kyiv, Ukraine
VNIIEF	Russian Federal Nuclear Centre, Sarov, Russia
WPEC	Working Party on International Nuclear Data Evaluation Co-operation
XTRACT	EXFOR indexing program
X4TOC4	Conversion program from EXFOR to computational format "C4"
ZCHEX	Current version of CHEX, updated and maintained by NDS
4C...	Numbering code of memos exchanged among the four Neutron Data Centres

MEETING SUMMARY

1. Introduction

The IAEA Technical Meeting on the International Network of Nuclear Reaction Data Centres was held at the Global Centre for Nuclear Energy Partnership (GCNEP) in Bahadurgarh, Haryana, India from 1 to 4 May 2018. The meeting was attended by 20 participants representing 13 cooperative Centres from eight Member States (China, Hungary, India, Japan, Korea, Russia, Ukraine and USA) and two International Organisations (NEA, IAEA) as well as a participant from Kazakhstan (see **Appendix A**). Meetings of this network are held annually, with full meetings involving Centre Heads and technical staff every two years. (The last full meeting was held in June 2016 in the China Hall of Science and Technology in Beijing, China.)

Main topics of the present meeting were various statistics, manuals and dictionaries, compilation needs, quality control, coding rules as well as software and dissemination (see **Appendix B**). The results of the discussions were summarized in 23 conclusions and 83 actions (see **Appendix C**).

2. Brief Summary

2.1 Opening

A. Saxena, Head of Nuclear Physics Division of Bhabha Atomic Research Centre (BARC) welcomed the participants, and the participants introduced themselves. He was elected as the chairperson, and the agenda was adopted after addition of several items.

2.2 Progress Reports

Progress reports from all 13 attending Centres were presented by **S. Takács**, **O. Iwamoto**, **S. Taova**, **O. Gritzay**, **V. Varlamov**, **N. Otsuka**, **M. Mikhailiukova**, **J. Singh**, **D. Raj**, **K. Suyama**, **S.C. Yang**, **Ge Zhigang** and **A. Sonzogni**, who highlighted the staffing, compilation, dissemination and other nuclear data related activities of interest to the network. See also progress reports P2018-01 to P2018-09 (**Appendix D**) for further details.

2.3 EXFOR General

N. Otsuka presented the statistics of transmissions, journal scanning and preliminary tape checking. He reported that 521 new entries and 996 revised entries have been newly finalized since the last NRDC meeting. He also mentioned that NDS regularly scans 77 journals since the last NRDC meeting (but 56 journals since November 2018 due to absence of Semkova's successor), and CNPD, JAEA and UkrNDC also perform their responsibility for scanning of new publications regularly.

N. Otsuka presented his analysis of compilation time (= time of transmission − time of publication) for seven selected journals. His analysis showed that the compilation time is 5.4 months on average for articles published in 2017, and 9.0 months on average for articles published in 2007 to 2017.

N. Otsuka reported there was neither a comment nor a proposal on the draft of the EXFOR reference paper (WP2017-07) from the centres until the end of 2017. The participants concluded that the ND2013 article (Nucl. Data Sheets 120(2014)272) should be cited by EXFOR users.

2.4 Manuals and Dictionaries

N. Otsuka (on behalf of **N. Soppera**) presented the result of assessment on ambiguous REFERENCE keyword coding form. He summarized all ambiguous coding forms (e.g., the issue number and paper number cannot be distinguished for a journal article code). The participants concluded that the absence of the page number must be indicated by including a separating comma for the reference types A, B, C, J and K.

2.5 CINDA

N. Otsuka (on behalf of **V. Zerkin**) reported that automatic updates of CINDA database using the EXFOR and NSR databases have been performed 12 times (from May 2017 to April 2018) after every update of NSR, and a MySQL dump of the complete CINDA database was sent to NNDC (USA), BARC (India), CNDC (China) and "Atomstandart" (Russia).

2.6 EXFOR Compilation Needs

N. Otsuka presented a summary of the EXFOR completeness checking for neutron, proton and alpha induced reaction data performed by V. Semkova. She checked EXFOR against NSR through the CINDA web interface, and prepared lists of articles missing in EXFOR in Memo 4C-3/412 (neutron induced reactions), CP-D/937 (proton induced reactions) and CP-D/947 (alpha induced reactions). He compared the number of missing articles with the number of existing EXFOR entries, and concluded that at least 3% of proton induced reaction experimental works and 20% of alpha induced reaction experimental works are still missing in EXFOR.

2.7 EXFOR Quality Control

N. Otsuka presented situation of English translation of Russian articles published in FCY, KSF, and ZTF, and asked the originating centres to add the bibliographies of English translations missing in EXFOR. He also mentioned that NDS completed systematic listing of English translation for all major EXFOR related journals published in the former USSR (except for UFZ).

2.8 EXFOR Coding Rule

N. Otsuka introduced two questions: (1) Shall we introduce a new modifier when the quantity is for a natural sample divided by the isotopic abundances of the target isotopes contributing to the reaction, or use the existing generic modifier FCT? (2) Shall we use the REACTION sum when the quantity is partial for unresolved two secondary energies from several product nuclides? The participants concluded that (1) we will use FCT without introducing a new modifier. (2) The process code X will be used without REACTION sum.

N. Otsuka proposed (1) indication of a fragment separator for separation of reaction products under DETECTOR, and (2) description for use of a secondary beam originated from projectile fragmentation under INC-SOURCE with a new incident source code FRAGM. The participants accepted these proposals, and also agreed to make two facility codes FRS and PRJFS obsolete.

N. Otsuka mentioned that a data subentry without REACTION code could be useful to archive supplemental numerical data (e.g., neutron source spectra, time-of-flight resolution functions) in BIB section for interpretation of the data compiled (e.g., spectrum averaged cross sections). **O. Gritzay** supported this idea for her compilation of filtered neutron spectra. The participants

agreed that this is an attractive option.

2.9 Tools for Compilation and Dissemination

S. Taova presented that the EXFOR Leaflet was revised as per comments from the other centres since the last meeting. The participants agreed that it is ready for distribution.

G. Pikulina reported about new possibilities of InpGraph. The numeric data processing according to the EXFOR rules is available now in the InpGraph 3.4. It is possible to generate DATA section and COMMON section of a subentry completely by the digitizer.

2.10 Other Business

T. Zholdybayev reported progress in compilation of data measured by his institute. He reported that his institute has preprints and logbooks which may replace digitized data in seven existing EXFOR entries and also may create new EXFOR entries.

B. Pritychenko provided a review of compilation effort in the Area #1 and mentioned that 5-year moratorium on conference proceedings is effectively denying access to the latest data and should be abolished per CSEWG and DNP APS attendees request. **N. Otsuka** mentioned (1) there is no reason to avoid compilation of the data published in conference proceedings when the data are available from authors; (2) the centres should encourage the authors to release the data for EXFOR compilation when there is a request for the data from an EXFOR user. **B. Pritychenko** also explored the EXFOR compilation HISTORY field for 2012-2016 time span, and provided a rough estimate of individual productivities in the NRDC network.

2.11 Closing

N. Otsuka proposed the dates and places for the next technical NRDC meeting (Vienna, Austria, 9 to 12 April 2019) and the next full NRDC meeting (Vienna, 2nd quarter of 2020), and they were approved.

A. Saxena made closing addresses. **S. Taova** and **N. Otsuka** thanked A. Saxena and D. Raj for their excellent local arrangement.

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AGENDA

Tuesday, 1 May 2018

9:30 – 13:00

1.	**Opening Items**			
1.1	Welcome address	10 min		A. Saxena
1.2	Introduction from NDS	10 min		A. Koning
1.3	Self-introduction	10 min		All
1.4	Announcement	5 min		D. Raj
1.5	Introduction to the Global Centre for Nuclear Energy Partnership (GCNEP)	30 min		A. Sharma
1.6	Introduction to the Inter-University Accelerator Centre (IUAC)	30 min		D. Kanjilal
1.7	Election of chairperson, adoption of the agenda, announcements	5 min		N. Otsuka

2.	**Progress Reports**			
2.1	ATOMKI (Debrecen, Hungary)	15 min	P2018-01	S. Takács
2.2	JAEA (Tokai, Japan)	15 min	P2018-02	O. Iwamoto
2.3	CNPD (Sarov, Russia)	15 min	P2018-03	S. Taova
2.4	UkrNDC (Kyiv, Ukraine)	15 min	P2018-04	O. Gritzay

160 min

14:00 – 18:00

2.	**Progress Reports (cont.)**			
2.5	CDFE ((Moscow, Russia)	15 min	P2018-05	V. Varlamov
2.6	NDS (Vienna, Austria)	15 min	P2018-06	N. Otsuka
2.7	CJD (Obninsk, Russia)	15 min	P2018-07	M. Mikhailiukova
2.8	JCPRG (Sapporo, Japan)	15 min	P2018-08	J. Singh
2.9	NDPCI (Mumbai, India)	15 min	P2018-09	D. Raj
2.10	NEA DB (Paris, France)	15 min		K. Suyama
2.11	KNDC (Daejeon, Korea)	15 min		S.C. Yang
2.12	CNDC (Beijing, China)	15 min		Ge Zhigang
2.13	NNDC (Upton, USA)	15 min		A. Sonzogni

135 min

Wednesday, 2 May 2018

9:30 – 13:00

3.	**EXFOR General**			
3.1	Transmission statistics since NRDC 2017 meeting	10 min	WP2018-02	N. Otsuka
3.2	Status of new article compilation (A1)	10 min	WP2018-03	N. Otsuka
3.3	Journal coverage (scanning of new publications, CP-D/955)	10 min	WP2018-04	N. Otsuka
3.4	Completeness checking for articles published in JEL (Vols. 1 to 82, CP-D/952)	10 min	WP2018-05	S. Selyankina
3.5	Statistics of review and finalization of preliminary tapes	10 min	WP2018-06	N. Otsuka
3.6	Correction of entries in Feedback List (A2)	10 min	WP2018-07	N. Otsuka
3.7	Other actions (A3,A4)	10 min		Chairperson
4	**Manuals and Dictionary**			
4.1	Revision of LEXFOR "Multilevel Resonance Parameters" (A9, CP-D/953 Rev.)	10 min	WP2018-08	N. Otsuka
4.2	Revision of EXFOR Formats Manual "Reference" (A10, CP-D/953 Rev.)	10 min	WP2018-08	N. Otsuka
4.3	EXFOR Formats Manual "BIB section" (CP-D/942)	10 min	WP2018-09	N. Otsuka
4.4	Expansion of the status code SPSDD (CP-D/946)	10 min	WP2018-10	N. Otsuka
4.5	LEXFOR "Thermonuclear reaction rate" (CP-D/956)	10 min	WP2018-11	N. Otsuka
4.6	EXFOR Formats Manual "Reaction specification" (CP-N/143)	10 min	WP2018-12	N. Otsuka
4.7	Ambiguous REFERENCE keyword coding forms (A13, CP-N/144)	20 min	WP2018-13	N. Soppera
4.8	Other actions (A5-A8, A11-A12)	10 min	WP2018-01	Chairperson

160 min

14:00 – 18:00

5	**CINDA**			
5.1	Status of CINDA database (A14)	10 min	WP2018-14	V. Zerkin

6	**EXFOR Compilation Needs**			
6.1	Compilation of articles with priority (A16-A30)	10 min	WP2018-15	N. Otsuka
6.2	Compilation of articles from completeness checking (A15, A31)	10 min	WP2018-16	N. Otsuka
6.3	Completeness checking for neutron-induced data against NSR through extended CINDA (4C-3/412)	10 min	WP2018-17	V. Semkova
6.4	Completeness checking for proton induced data against NSR through extended CINDA (CP-D/937)	10 min	WP2018-18	V. Semkova
6.5	Completeness checking for alpha-induced data against NSR through extended CINDA (CP-D/947)	10 min	WP2018-19	V. Semkova
6.6	Pn values adopted in Rudstam's review (1979) (4C-3/410)	10 min	WP2018-20	N. Otsuka
6.7	Delayed neutron energy spectra measurements cited in the Kratz's review (1979) (4C-3/411)	10 min	WP2018-21	V. Semkova
6.8	Other actions (A32-A42)	10 min	WP2018-01	Chairperson

7	**EXFOR Quality Control**			
7.1	Pending corrections (A43-A49, A51-A52, A54-A57)	10 min	WP2018-22	N. Otsuka
7.2	Duplications (A58)	10 min	WP2018-23	N. Otsuka
7.3	English translation of KSF, ZTF and FCY and other journals from USSR (CP-D/957)	10 min	WP2018-24	N. Otsuka
7.4	Detection of obsolete data type code EXP (experimental data)	10 min		N. Otsuka
7.5	Other actions (A50, A53, A59-A69).	20 min	WP2018-01	Chairperson

150 min

Thursday, 3 May 2018

9:30 – 12:00

8	**EXFOR Coding Rule**			
8.1	Deletion of publication year in the volume number field (4C-4/218, A70)	10 min	WP2018-25	M. Mikhailiukova
8.2	Coding of VMU/MUPB (CP-F/015)	10 min	WP2018-26	S. Taova
8.3	Cross section per equivalent quantum (CP-D/948)	20 min	WP2018-27	N. Otsuka
8.4	REACTION sum (CP-D/954)	20 min	WP2018-28	N. Otsuka
8.5	Coding of fragment separator (FRS, PRJFS, CP-D/958)	20 min	WP2018-29	N. Otsuka
8.6	Other actions (A71-A73)	10 min	WP2017-01	Chairperson
9	**Software and Dissemination**			
9.1	Optimization of numeric data processing by the INPGRAPH 3.4 (A92)	20 min	WP2018-30	G. Pikulina
9.2	EXFOR Leaflet	10 min	WP2018-31	S. Taova
9.3	Recent development of EXFOR-ENDF-CINDA, X4-NSR PDF databases, Web tools and software	30 min		V. Zerkin
9.4	Other actions (A74-A91, A93-A97)	10 min	WP2018-01	Chairperson

160 min

13:00 –
Scientific visit (Inter-University Accelerator Center, New Delhi)

Friday, 4 May 2018

9:30 – 13:00

10.	**Other items**			
10.1	Compilation of experimental nuclear reaction data measured in Central Asia region	15 min	WP2018-32	T. Zholdybayev
10.2	Report "Existing and upcoming particle accelerators in India" (INDC(IND)-0050)	30 min		A. Saxena
10.3	Technical aspects of compilation and dissemination of the U.S. and Canadian experimental nuclear reaction data	30 min	WP2018-33	B. Pritychenko
10.4	Perspectives on basic nuclear cross section measurements for nuclear reactor applications	30 min		U. Kannan
11.	**Closing**			
11.1	Dates and places of next meetings	10 min		N. Otsuka
11.2	Review of actions and conclusions	60 min		Chairperson
11.3	Closing address	10 min		

185 min

CONCLUSIONS AND ACTIONS

Conclusions

General

C1   The next full NRDC meeting will be held in Vienna, Austria in the 2nd quarter of 2020 (N.B. 1 July 2020 is the 50th Anniversary of the first EXFOR exchange).

C2   The next technical NRDC meeting will be held in Vienna, Austria from 9 to 12 April 2019.

C3   The next EXFOR compilation workshop will be held in Vienna, Austria from 22 to 25 October 2018.

EXFOR General

C4   Revision of the NRDC Protocol "Journal scanning responsibility" and Appendix B (WP2018-04=CP-D/955) was approved. N.B.

(1) Both NTC and CNST will be scanned by CNDC.
(2) PRM will be scanned by NDPC.
(3) YFE will be scanned by UkrNDC.

C5   (1) Centres will be encouraged to publish their EXFOR related activities in journals. NDS will assist it if necessary.
(2) Digitization could be a good subject in the NRDC progress report presented in the ND2019 conference.
(3) NDS will continue update of an initial draft of the "EXFOR big article" (WP2017-07) as per inputs from centres.
(4) The ND2013 article (Nucl. Data Sheets 120(2014)272) will be used for citation by EXFOR users.

C6   (1) Data published in conference proceedings should be compiled if the numerical data are available from the author.
(2) Centres should inform the responsible centre and NDS when there is a request of a data set published in conference proceedings but missing in EXFOR. This may accelerate release of the numerical data.
(3) The current moratorium duration (5 years) could be too long.

Manuals and Dictionary

C7   Revision of LEXFOR "Multilevel Resonance Parameters" (CP-D/953 Rev.=WP2018-08) was approved.

C8   Revision of EXFOR Formats Manual "Reference" (CP-D/953 Rev.=WP2018-08) was approved.

C9   Revision of EXFOR Formats Manual "BIB section" (CP-D/942=WP2018-09) was approved.

C10   The expansion of the status code SPSDD will be "Data superseded or withdrawn" (CP-D/946=WP2018-10).

C11   Revision of LEXFOR "Thermonuclear reaction rate" (CP-D/956=WP2018-11) was approved.

C12   Revision of EXFOR Formats Manual "Reaction specification" (CP-N/143=WP2018-12) was approved.

C13   Revision of LEXFOR "Measurement Techniques" (usage of FACILITY, INC-SOURCE and INC-SPECT) proposed in Memo CP-D/958=WP2018-29 was approved.

C14   The facility codes FRS and PRJFS will be made obsolete.

EXFOR Compilation Needs

C15   At least 3% of proton-induced reaction experimental works and 20% of alpha-induced reaction experimental works are missing in EXFOR (CP-D/937=WP2018-18, CP-D/947=WP2018-19).

EXFOR Quality Control

C16   Compilers were reminded that use of the obsolete data type code EXP (experimental data) is not detected by existing checking codes.

EXFOR Coding Rule

C17   If the page number is omitted under the REFERENCE, the absence must be indicated by including the separating comma for the reference type A, B, C, J and K. (See also CP-N/144=WP2018-13.)

C18   Cross sections per equivalent quantum have been coded with the modifier (REACTION SF8) BRA (CP-D/948=WP2018-27).

C19   The modifier (REACTION SF8) FCT will be used for quantities for a natural sample divided by the sum of the isotopic abundances of the target isotopes contributing to the reaction (CP-D/954=WP2018-28). When the authors give the isotopic abundances of the contributing target isotopes, they must be coded under the keyword SAMPLE.

C20 The process code (REACTION SF3) X will be used when the data set is partial for secondary energies originated from several reaction products and the secondary energies are unresolved (CP-D/954=WP2018-28).

C21 (1) Use of a fragment separator for separation of reaction products will be indicated under DETECTOR.
(2) Use of a secondary beam originated from projectile fragmentation will be mentioned under INC-SOURCE with a new incident source code FRAGM (CP-D/958=WP2018-29).

C22 A data subentry without a REACTION code could be useful to archive supplemental numerical data required for interpretation of the quantity compiled (e.g., neutron source spectra, time-of-flight resolution functions) in the BIB section.

Tools for Compilation and Dissemination

C23 The EXFOR Leaflet edited by CNPD (WP2018-31) is ready for printing. An EXFOR poster is also available.

Actions

EXFOR General

A1 All (Standing action) Give the highest priority to compilation of new articles.

A2 All (Standing action) Correct erroneous entries listed on the EXFOR Feedback List according to the indicated priorities. All urgent corrections must be done by the next meeting.

A3 Otsuka Send transmission statistics and correction statistics to centres every three months.

Manuals and Dictionaries

A4 Otsuka (Continuing action) Update Dictionaries every four months.

| A5 | Otsuka | (Continuing action) Revise the EXFOR Formats Manual for |
| | | |

       (1) "DECAY-DATA" and "RAD-DET" (CP-D/874=WP2016-28),
       (2) "Reaction specification" (CP-D/880 Rev.=WP2016-29, CP-D/896=WP2016-33, CP-N/143=WP2018-12),
       (3) "LEVEL-PROP" (CP-D/882=WP2016-30),
       (4) "ERR-ANALYS" (CP-D/894 Rev.=WP2016-32),
       (5) "FACILITY" (CP-D/899=WP2016-34),
       (6) "REFERENCE" (CP-C/452=WP2017-08, CP-D/920=WP2017-33, CP-D/953Rev=WP2018-08, NRDC2018 Conclusion 4),
       (7) "STATUS" (CP-D/915=WP2017-09),
       (8) "INC-SPECT" (CP-D/932=WP2017-31),
       (9) BIB Section (CP-D/942=WP2018-09).

A6   Otsuka   (Continuing action) Revise LEXFOR for

       (1) "Thermal Neutron Scattering" (4C-3/403 =WP2016-08),
       (2) "Fission Yields" (CP-D/895=WP2016-09),
       (3) "Thick- and thin-target yields" (CP-D/893=WP2016-31),
       (4) "Isomeric flags" (CP-D/896=WP2016-33),
       (5) "Status" (CP-D/904=WP2016-35, CP-C/443=WP2016-36),
       (6) "Sample" (CP-D/928=WP2017-35),
       (7) "Multilevel Resonance Parameters" (CP-D/953Rev=WP2018-08),
       (8) "Reference" (CP-D/953Rev=WP2018-08),
       (9) "Thermonuclear reaction rate" (CP-D/956=WP2018-11).

A7   Otsuka   Revised NRDC Protocol "Journal scanning responsibility" and Appendix B according to Conclusion C4.

A8   Otsuka   Submit a revision of LEXFOR "Sums" following Conclusion C19 and C20 (CP-D/954=WP2018-28).

A9   Otsuka   Updated the expansion of the status code SPSDD in Dictionary 16 according to Conclusion C10 (CP-D/946=WP2018-10).

A10   Otsuka   Make FRS and PRJFS obsolete in Dictionary 18 (Facilities).Also add FRAGM in Dictionary 19 (Incident sources). See also CP-D/958=WP2018-29.

A11   Otsuka   Add coding format of VAT/Y, VAT/O, VAT/I and VAT/F summarized in 4C-4/218=WP2018-25 in Dictionary 5 (Journals).

A12   Zerkin   (Continuing action) Summarize the role of family flags (also known as family codes, c.f. EXFOR Formats Manual Chapter 6) in systems (c.f. WP2017-11).

CINDA

A13	Zerkin	(Continuing action) Export EXFOR and NSR to CINDA, and distribute it to other Centres every month.

EXFOR Compilation Needs
(Underlined items are registered in the Article Allocation List.)

A14	Fleming	(Continuing action) Compile articles published in JINR Rapid Communication (KSO) and Phys. Part. Nucl. Lett. (PPN/L) and listed in CP-D/858.
A15	Fleming	(Continuing action) Compile with priority the articles cited in the NACRE II (an update and extension of European Compilation of Reaction Rates for Astrophysics) listed in Tables 1 and 2 of CP-D/833.
A16	Pritychenko	(Continuing action) Compile with priority articles related to the neutron dosimetry cross sections listed in the second table of CP-D/838.
A17	Fleming Pritychenko	(Continuing action) Compile the thermal neutron-induced reaction data cited in Mughabghab's "Atlas of Neutron Resonances" and listed in 4C-3/395.
A18	Fleming Pritychenko	(Continuing action) Compile with priority prompt fission neutron multiplicities listed in CP-D/871.
A19	Fleming Pritychenko	(Continuing action) Compile articles presented in Reactor Dosimetry Symposia listed in 4C-3/400=WP2016-16.
A20	Fleming Pritychenko	(Continuing action) Compile thermal neutron scattering data listed in 4C-3/404= WP2016-19.
A21	Fleming Pritychenko	Compile Pn values adopted in Rudstam's review (4C-3/410=WP2018-20).
A22	Kimura Pritychenko	(Continuing action) Compile with priority the proton-induced isotope production cross sections listed in CP-D/725 Rev. (~WP2012-19). Notify Semkova if the assigned centre does not compile the high energy (E > 1 GeV) data in the list.
A23	Pritychenko Taova	(Continuing action) Compile with priority the articles related to ion beam analysis application listed in CP-D/832 Rev.
A24	Kimura Pritychenko Taova	(Continuing action) Compile with priority the light charged-particle induced isotope production cross sections listed in CP-D/757. Notify Semkova if the assigned centre does not compile the high energy (E > 1 GeV) data in the list.

<u>A25</u>	Kimura Pritychenko Wang	(Continuing action) Compile with priority the neutron source spectra listed in CP-D/700 (Rev.3).
A26	Gritzay	(Continuing action) Consider compilation of neutron spectra for filtered neutrons published in the last 10 years.
A27	Pritychenko	(Continuing action) Monitor availability of P.E. Koehler's time-of-flight spectra on DVDs received from ORELA in 2015 for EXFOR compilation.
A28	Pritychenko	(Continuing action) Compile ^{238}U(n,f) cross sections in Table 4.6 of Zchariah W. Miller's thesis (Univ. of Kentucky, 2015) once they are published.
A29	Fleming Otsuka	(Continuing action) Receive the experimental fission product yield data collected by Robert Mills. Identify the numerical data sets missing in EXFOR once they are received.
A30	Fleming Otsuka	(Continuing action) Monitor communications among evaluators (e.g., CIELO mailing lists), and try to receive tabulated experimental data from evaluators who have their own internal database.
A31	Fleming Pritychenko	(Continuing action) Perform EXFOR completeness checking for the list of articles (4C-3/401, articles cited in S. Mughabghab's "Atlas of Neutron Resonances") to identify articles missing in EXFOR, and assign responsibility of compilation of the identified articles to centres by a memo.
A32	Gritzay Otsuka	Submit a proposal for compilation of supplemental numerical data (e.g., neutron source spectra, time-of-flight response function) in an additional subentry without a REACTION code (See also Conclusion C22).
A33	Kenzebayev Zholdybayev	(Continuing action) Scan domestic publications (*e.g.*, journals, laboratory reports) to identify articles for EXFOR compilation.

EXFOR Quality Control
(Underlined items are registered in the EXFOR Feedback List.)

<u>A34</u>	Pritychenko	(Continuing action) Look for the original value corresponding 12576.003 which provides a value renormalized by NNDC. If the original value is available, compile it and link it with 12576.003 by STATUS=OUTDT and RNORM. If the original value is no longer available, consider using free text instead of RNORM. (CP-D/841 Rev.=WP2014-45).

A35	Pritychenko	(Continuing action) Add three values in Table XII of P,WASH-1018,63,1959 to EXFOR 12185 which must be linked with 12185.004, 006 and 007 (values renormalized at NNDC) by STATUS=OUTDT and RNORM (CP-D/841 Rev.=WP2014-45).
A36	Pritychenko	(Continuing action) Explain availability of the neutron spectra of the ISNF facility compiled in the IRDF-2002 library under the keyword COMMENT of 13153.001 as compiler's comments.
A37	Pritychenko	(Continuing action) Supersedes the ^{235}U(n,f) prompt fission neutron spectra in EXFOR 13982.002 (P. Staples) by those corrected for the sample size effect as suggested by Robert Height.
A38	Varlamov	Correct reference code for VMU, and add its English translation (MUPB) under REFERENCE in M0293.001 as listed in CP-F/015=WP2018-26.
A39	Varlamov	Identify the reference of EXFOR M0126 (J,FCY,2,243,1975 does not exist.). See also CP-D/957=WP2018-24.
A40	Pritychenko Taova	Revise the subentries compiling thermonuclear reaction rates and listed in Memo CP-D/956=WP2018-11
A41	Kimura Pritychenko	(Continuing action) Correct half-lives and isomeric flags listed in Memo CP-D/888 =WP2016-25.
A42	Mikhailiukova Taova Varlamov	Add English translation information of Russian journals (KSF, FCY, ZET, ZTF) under REFERENCE as listed in Memo CP-D/957=WP2018-24.
A43	Flemming Mikhailiukova Taova Varlamov	Correct reference codes including the year of publication in the volume number field listed in Memo 4C-4/216. (N.B. CJD reported progress in correction in Memo 4C-4/218).
A44	Flemming Kimura Otsuka Taova Varlamov	Delete the "subentry 1" listed in WP2018-23 ("Duplication") if the proposal on the working paper is acceptable. If not, propose Otsuka an alternative solution.
A45	Fleming	(Continuing action) Consider addition of numerical data which are not superseded (SPSDD) and suitable for digitization, but still unobtainable (UNOBT) for neutron-induced reaction data published in old literature for ^{1}H, ^{16}O, ^{56}Fe, ^{235}U, ^{238}U and ^{239}Pu.
A46	Fleming	(Continuing action) Check the n-p scattering data set in EXFOR 22207.002 (G. Fink) against G. Fink's thesis (e.g., reference frame – lab or c.m.).

A47	Fleming	(Continuing action) Provide a report on mistakes in bibliographies and spells on each preliminary tape.
A48	Fleming	(Continuing action) Provide a list of erroneous and suspicious outliers by using various statistical approaches (c.f. WP2011-17, WP2013-19).
A49	Varlamov	Check if the volume number is absent for VMU published in 1969 and before.
A50	Otsuka Pritychenko	(Continuing action) Revise EXFOR entries compiling data sets from ORELA 40 m flight station listed in the Appendix of 4C-3/407=WP2017-30 by addition of 1) the corrigendum under REFERENCE of the common subentry, 2) STATUS=OUTDT to each data subentry with the correction factor in free text.
A51	Otsuka	(Continuing action) Submit a revised Memo CP-D/933 by addition of the remark to each subentry from Takács.
A52	Fleming Kimura Otsuka Taova	(Continuing action) Revise the REACTION codes of the thick target considering the changes proposed in Appendix of CP-D/933=WP2017-28 once the originating centre receives extraction of Revised Memo CP-D/933 from Otsuka. Revised entries must be assembled in a preliminary tape without including other entries to make trace of corrections at NDS easier.
A53	Soppera	(Continuing action) Provide JANIS Import Log created from the EXFOR Master File to Otsuka on a regular basis.
A54	Otsuka	(Continuing action) Assess the JANIS Import Log provided by Soppera as above, and register important errors to the EXFOR Feedback System.

EXFOR Coding Rule

A55	Fleming	(Continuing action) Check whether the current description of the eta value in LEXFOR defines the quantities compiled in entries listed in CP-D/789 (Rev.) (*e.g.*, whether the denominator is absorption cross section or non-elastic scattering cross section) in cooperation with Lee and Otsuka.

Tools for Compilation and Dissemination

A56	All	Inform Otsuka the number of EXFOR Leaflet hard copies to be printed by CNDC by the end of June.
A57	Taova	Replace the JAEA logo is the official one, and send source files of the EXFOR Leaflet to Ge for printing.

A58	Ge	Print EXFOR Leaflet.
A59	Mikhailiukova	Monitor progress in preparation of an English translation of V.N.Manokhin et al., Russian Nuclear Data Centre: The story of development and activity, Yad. Konst. 2017 No.2 p.117 for publication as an INDC(CCP) report.
A60	Fleming	(Continuing action) Make available on the NEA Data Bank web site the EANDC and NEANDC reports compiled in EXFOR and not available as INDC reports.
A61	Pikulina	(Continuing action) Continue development and testing of the EXFOR-Editor and InpGraph in cooperation with NDS and other data Centres.
A62	All	(Continuing action) Provide Pikulina feedback on EXFOR-Editor and InpGraph.
A63	Kimura	(Continuing action) Continue development and testing of GSYS in cooperation with NDS and other centres.
A64	All	(Continuing action) Provide Kimura feedback on GSYS.
A65	Soppera	(Continuing action) Continue development and testing of the JANIS TRANS Checker in cooperation with NDS and the other centres.
A66	All	(Continuing action) Provide Soppera feedback on JANIS TRANS Checker.
A67	Bhattacharyya	Keep centres informed about the progress in development of the EXFOR-I editor.
A68	Nayak	Monitor progress in development of the EXFOR-I editor.
A69	Otsuka	(Continuing action) Provide EXFOR News every month.
A70	Otsuka	(Continuing action) Support update of the Japanese editor (HENDEL) as time permits.
A71	Zerkin	(Continuing action) Update ZCHEX based on comments from compilers (*e.g.*, WP2011-36).
A72	All	(Continuing action) Provide feedback to NDS on the existing ZCHEX version (on bugs as well as desired additions.). Bugs must be reported with sample entries which are checked and not checked properly by ZCHEX.
A73	Zerkin	(Continuing action) Distribute the program package including a standalone platform independent program to generate X4+ from a standalone EXFOR entry.

A74	All	(Continuing action) Consider to use the X4+ format for author approval, and also send feedback to Zerkin.
A75	Zerkin	(Continuing action) Continue development of the EXFOR upload web tool.
A76	Zerkin	(Continuing action) Every four months produce an EXFOR distribution with (a) full Dictionary distribution; (b) EXFOR in C4 and XC4 format; (c) Dictionaries in MS Access; (d) X4Map.
A77	Zerkin	(Continuing action) Continue development of a new database encompassing correction factors and relevant comments for suspect/erroneous data (X4-evaluated) presented in WP2010-19; keep NRDC informed about conclusions of discussions on new database.
A78	Zerkin	(Continuing action) Introduce flags to indicate articles published in conference proceedings and the data are not available from the authors on the EXFOR Compilation Control System web page.
A79	Zerkin	(Continuing action) Consider translation of fission yields in EXFOR to a C4-like format in consultation with A. Trkov and B. Pritychenko.
A80	Zerkin Pritychenko	(Continuing action) Continue translation from EXFOR to NSR.
A81	Jing Kimura Pikulina Zerkin	(Continuing action) Study problems in 2D calibration of original pictures, and process of approval of results of digitizing using plotting facilities.
A82	All	(Continuing action) Finalize and submit EXFOR entries including covariance data provided by Zerkin (WP2017-Z3).
A83	All	(Continuing action) Provide Zerkin a list of name aliases to improve the search of EXFOR entries by the author name (WP2014-53).

Appendix D

LIST OF PROGRESS REPORTS

Number	Title	Presented by
P2018-01	Progress report of ATOMKI	S. Takács
P2018-02	Progress report of Nuclear Data Center of Japan Atomic Energy Agency for April 2016 – March 2018	O. Iwamoto
P2018-03	Center of Nuclear Physics Data (CNPD), RFNC-VNIIEF	S. Taoya
P2018-04	Ukrainian Nuclear Data Centre progress report, 2017/18	O. Gritzay
P2018-05	The CDFE 2017/2018 progress report on the results of photonuclear data compilation and evaluation	V. Varlamov
P2018-06	IAEA Nuclear Data Section: Progress report for period 2017/18	N. Otsuka
P2018-07	CJD progress report for NRDC2018 Technical Meeting	M. Mikhailiukova
P2018-08	Japan Nuclear Reaction Data Centre (JCPRG) progress report	J. Singh
P2018-09	A brief status update on the activities of BARC during 2016-2018	D. Raj

Note: These progress reports are available online: http://www-nds.iaea.org/nrdc/nrdc_2018/.

LIST OF WORKING PAPERS

Number	Title	From
WP2018-01	Conclusions and action of the 2017 NRDC Meeting	
WP2018-02	Transmission statistics since 2017 NRDC Meeting	N. Otsuka
WP2018-03	Status of new article compilation (A1)	N. Otsuka
WP2018-04	Journal coverage (scanning of new publications, Memo CP-D/955)	N. Otsuka
WP2018-05	Completeness checking for articles published in JEL (Vols. 1 to 82, CP-D/952)	S. Selyankina
WP2018-06	Time interval between submission of preliminary and final tapes	N. Otsuka
WP2018-07	Progress in correction of items on Feedback List (A2)	N. Otsuka
WP2018-08	Revision of Formats Manual and LEXFOR (NRDC 2017 A9, A10, CP-D/953rev)	N. Otsuka
WP2018-09	EXFOR Formats Manual "BIB section" (CP-D/942)	N. Otsuka
WP2018-10	Expansion of the status code SPSDD (CP-D/946)	N. Otsuka
WP2018-11	LEXFOR "Thermonuclear reaction rate" (CP-D/956)	N. Otsuka
WP2018-12	EXFOR Formats Manual "Reaction specification" (CP-N/143)	N. Otsuka
WP2018-13	Ambiguous REFERENCE keyword coding forms (CP-N/144)	N. Soppera
WP2018-14	Status of CINDA database	V. Zerkin
WP2018-15	Compilation of articles with priority (A16-A30)	N. Otsuka
WP2018-16	Compilation of articles from completeness checking (A15,A31)	N. Otsuka
WP2018-17	Completeness checking for neutron-induced data against NSR through extended CINDA (4C-3/412)	V. Semkova
WP2018-18	Completeness checking for proton-induced data against NSR through extended CINDA (CP-D/937)	V. Semkova
WP2018-19	Completeness checking for alpha-induced data against NSR through extended CINDA (CP-D/947)	V. Semkova
WP2018-20	Pn values adopted in Rudstam's review (1979) (4C-3/410)	N. Otsuka

WP2018-21	Delayed neutron energy spectra measurements cited in the Kratz's review (1979) (4C-3/411)	V. Semkova
WP2018-22	Pending corrections (A43-A49, A51-A52, A54-A57)	N. Otsuka
WP2018-23	Duplication (A58)	N. Otsuka
WP2018-24	English translation of KSF, ZTF and FCY and other journals from USSR (CP-D/957)	N. Otsuka
WP2018-25	Deletion of publication year in the volume number field (4C-4/218, A70)	M. Mikhailiukova
WP2018-26	Coding of VMU/MUPB (CP-F/015)	S. Taova
WP2018-27	Cross section per equivalent quantum (CP-D/948)	N. Otsuka
WP2018-28	REACTION sum (CP-D/954)	N. Otsuka
WP2018-29	Coding of fragment separator (FRS, PRJFS, CP-D/958)	N. Otsuka
WP2018-30	Optimization of numeric data processing by the INPGRAPH 3.4	G. Pikulina
WP2018-31	EXFOR Leaflet	S. Taova
WP2018-32	Compilation of experimental nuclear reaction data from Central Asia region	T. Zholdybayev
WP2018-33	Technical aspects of compilation and dissemination of the U.S. and Canadian experimental nuclear reaction data	B. Pritychenko

Note: These working papers are available online: http://www-nds.iaea.org/nrdc/nrdc_2018/

LIST OF PRESENTATIONS

TITLE	Presented by
Progress report of Nuclear Reaction Data Group at ATOMKI 2017	S. Takacs
Progress Report of Nuclear Data Center of Japan Atomic Energy Agency for April 2016 - March 2018	O .Iwamoto
Progress Report, 2017/18	O. Gritzay
The CDFE 2017/2018 Progress Report on the results of photonuclear data compilation and evaluation	V. Varlamov
IAEA Nuclear Data Section progress report for period 2017/2018	N. Otsuka
JCPRG progress report	J. Singh
A brief status update on the activities of BARC and allied units (2016-2018)	D. Raj
NEA Data Bank progress report 2017-2018	K. Suyama
KAERI/NDC progress report	S.C. Yang
2017/18 Status report of China Nuclear Data Center	Ge Zhigang
US Nuclear Data Program	A.A. Sonzogni
REACTION Sum (WP2018-28)	N. Otsuka
Optimization of numeric data processing by the InpGraph 3.4	G. Pikulina
Recent development of EXFOR-ENDF-CINDA, X4-NSR PDF databases, Web tools and software	V. Zerkin
Compilation of experimental nuclear reaction data measured in Central Asia region	T. Zholdybayev
Existing and upcoming particle accelerators in India	A. Saxena
Technical aspects of compilation and dissemination of the U.S. and Canadian experimental nuclear reaction data	B. Pritychenko
Perspectives on basic nuclear cross section measurements for nuclear reactor applications	U. Kannan

Note: These presentations are available online: http://www-nds.iaea.org/nrdc/nrdc_2018/.