Conclusions and Actions of the NRDC 2017 Meeting

Conclusions

General

C1   The next full NRDC meeting will be held in Bahadurgarh, India from 1 to 4 May 2018. (N.B. the 2018 WPEC meeting will be from 14 to 18 May.)

C2   The next technical NRDC meeting will be held in Vienna, Austria in the 2nd quarter of 2019.

C3   The NRDC congratulates on CNPD's 20 years of dedication to the NRDC activity through compilation of charged-particle induced reaction data as well as compilation software development.

EXFOR General

C4   Centres must check periodically the list of the outstanding articles maintained by NDS ("Article Allocation List"), and inform NDS necessary updates (e.g., assignment of an entry number, article not for compilation, article for compilation by another centre).

C5   CNPD, JAEA NDS and UkrNDC perform their responsibility for scanning of new publications regularly (WP2017-03).

C6   Centres must finalize preliminary tapes as soon as the required period for comments elapses (one month). In case of disagreement with the proposed corrections the centres shall try to clarify the situation and resolve the issues (WP2017-04).

Manuals and Dictionary

C7   Revisions of the EXFOR Formats Manual Chapter 7 "REFERENCE" proposed in CP-C/452=WP2017-08 and CP-D/920=WP2017-33 were approved.

C8   Revision of the EXFOR Formats Manual Chapter 7 "STATUS" proposed in CP-D/915 =WP2017-09 was approved.

C9   Revision of the EXFOR/CINDA Dictionary Manual "Dictionary 227" proposed in CP-D/917 =WP2017-10 was approved.

C10   A new facility code is not necessary for Pelletrons. Single ended and tandem types of Pelletrons will be coded by VDG and VDGT, respectively, as proposed in CP-D/922 = WP2017-12.

C11   The analysis code RFN (R-function formalism) will be obsolete. The R-function formalism is a special case of the Reich-Moore formalism as summarized in CP-D/931 = WP2017-13, and the resonance parameters derived from this formalism must be coded with RM (Reich-Moore formalism) in REACTION SF8.

C12   The branch code MAS (total mass) and the quantity codes having this branch code will be obsolete. The mass fission yield (MAS,FY) and secondary fission yield (SEC,FY) are the same quantity as discussed in CP-D/929=WP2017-14.

C13   An up-to-date Dictionary 3 (Institutes) could be useful to provide a list of nuclear physics institutions to the nuclear physics community (CP-C/455=WP2017-38).

C14   Centres are responsible to maintain the explanations of the institute codes belonging to their geographical areas up-to-date.

EXFOR Compilation Needs

C15   Centres are encouraged to scan the domestic journals published in their geographical areas in the past, and to submit a list of the articles missing in EXFOR as done by NDPCI for Indian journals (CP-D/910=WP2017-18).

C16   Compilation of data derived by other than the author (REACTION SF9=DEROT) could be useful as long as they are kept under a specialized area (e.g., area V) and the data are published with the procedure to obtain them.

EXFOR Quality Control

C17   The NRDC appreciates Emmeric Dupont for his systematic assessments of the outliers observed in the JANIS Book for photon and light charged-particle induced reaction cross sections in EXFOR presented in CP-D/926 (=WP2017-25).

C18   Compilers are reminded to keep all important alterations (History code A) under the HISTORY records of the affected data subentries.

EXFOR Coding Rule

C19   The reaction yield divided by areal density (4C-3/406=WP2017-29) will be coded by the quantity code ,SIG,,TTA.

C20   HM (half-maximum) will be deleted from the expansions of EN-RSL-HW and EN-RSL-FW and their derivatives, and their details will be explained in free text under INC-SPECT as proposed in CP-D/932 = WP2017-31.

C21 (1) If there is an INDC report number for a report coded under REFERENCE, it must be always coded. (2) When a report has two or more report numbers, the primary report number must be always coded. (3) Compilers should keep a uniform style within a series. Compilers are recommended to omit insignificant symbols such as distribution codes if these are not needed to identify a report (e.g., INDC reports).

C22 The parameter code TMP (temperature-dependent quantity) will be obsolete. Temperature dependent quantities will be indicated by the modifier TMP as proposed in CP-D/928=WP2017-35.

Evaluated Data Libraries

C23 The NRDC recommends NDS a future CRP for evaluation of fission yield data.

C24 The NRDC has received BROND-3.1 from CJD for dissemination. NRDC appreciate efforts of Marina Mikhailiukova and Dmitry Voitenkov.

Tools for Compilation and Dissemination

C25 An improved REACTION input window and updated floating decimal point number processing are implemented in the EXFOR-Editor Ver.3.1.

C26 A new tool for transformations of Web-ZVView outputs was developed for validation of data digitized from distorted figure images (WP2017-Z1).

C27 Centres should cooperate in EXFOR web dissemination and development (e.g., the EXFOR web system developed by NDS in close cooperation with NNDC.)

C28 The NRDC supports further collection of EXFOR pdf files.

C29 Centres are encouraged to make their library resources (e.g., laboratory reports) public. NDS will draft corresponding letters, if necessary.

C30 Centres are encouraged to publish numerical data received from the authors as an INDC report so that EXFOR users have access the materials provided by the authors.

C31 Submission of EXFOR promotion materials (booklet and poster) prepared by CNPD was appreciated by the NRDC.

C32 An EXFOR output (like the computational format) for directly measured and indirectly measured (e.g., by a surrogate reaction) fission yields could be useful.

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 Revise the initial draft of the table of contents for the EXFOR reference paper (WP2017-07) as per the comments from the centres.

A4 All Propose Otsuka by the end of 2017 (1) corrections and additions to the initial draft of the table of contents for the EXFOR reference paper (WP2017-07), and also (2) topics to which the centre will be responsible.

Manuals and Dictionaries

A5 Otsuka (Continuing action) Update Dictionaries every four months.

A6 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), (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, (7) "STATUS" (CP-D/915=WP2017-09), (8) "INC-SPECT" (CP-D/932=WP2017-31).

A7 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).

A8 Otsuka Revise the EXFOR/CINDA Dictionary Manual for the contents of the dictionary 227 (CP-D/917=WP2017-10).

A9 Otsuka Submit a revision of LEXFOR "Multilevel Resonance Parameters" to clarify the relation of the R-function formalism and Reich-Moore formalism (CP-D/931=WP2017-13).

A10 Otsuka Submit a revised EXFOR Formats "Reference" according to Conclusion 10 (Coding of INDC report number and primary report number etc. See also CP-D/912=WP2017-34).

A11	Otsuka	Check if all typical combinations of the fields and subfields are provided as examples in the EXFOR Formats Manual "REFERENCE".
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).
A13	Soppera	Check if there is a field or subfield which cannot be uniquely identified within the current coding rule described in the revised EXFOR Formats Manual "REFERENCE" (CP-D/920=WP2017-33).

CINDA

| A14 | 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.)

A15	Cabellos	(Continuing action) Compile articles published in JINR Rapid Communication (KSO) and Phys. Part. Nucl. Lett. (PPN/L) and listed in CP-D/858.
A16	Mikhailiukova	(Continuing action) Compile the thermal neutron-induced reaction data cited in Mughabghab's "Atlas of Neutron Resonances" and listed in 4C-4/212=WP2016-15.
A17	Pritychenko	(Continuing action) Compile with priority articles related to the neutron dosimetry cross sections listed in the second table of CP-D/838.
A18	Pritychenko	(Continuing action) Assess the articles reporting keV neutron capture cross section entries listed in CP-D/740, and add these articles with necessary revisions with priority.
A19	Pritychenko	Compile articles for thermal neutron constants listed in 4C-3/405=WP2017-19.
A20	Chen Ebata Pritychenko	(Continuing action) Compile with priority the neutron source spectra listed in CP-D/700 (Rev.3).
A21	Cabellos Ebata Pritychenko Taova	(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.

A22	Ebata 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.
A23	Cabellos Chen	(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.
A24	Cabellos Chen Taova	(Continuing action) Compile with priority the articles related to ion beam analysis application listed in CP-D/832 Rev.
A25	Cabellos Mikhailiukova Pritychenko	(Continuing action) Compile the thermal neutron-induced reaction data cited in Mughabghab's "Atlas of Neutron Resonances" and listed in 4C-3/395.
A26	Chen Pritychenko	(Continuing action) Compile with priority prompt fission neutron multiplicity distributions listed in CP-D/867.
A27	Cabellos Mikhailiukova Pritychenko	(Continuing action) Compile with priority prompt fission neutron multiplicities listed in CP-D/871.
A28	Cabellos Ebata Gritzay Pritychenko	(Continuing action) Compile articles presented in Reactor Dosimetry Symposia listed in 4C-3/400=WP2016-16.
A29	Cabellos Pritychenko	(Continuing action) Compile thermal neutron data cited by Axton and listed in 4C-3/402 =WP2016-18.
A30	Cabellos Mikhailiukova Pritychenko	(Continuing action) Compile thermal neutron scattering data listed in 4C-3/404= WP2016-19.
A31	Lalremruata	Compile old Indian articles published in Pramana and Ind. J. Pure and Applied Phys. listed in Memo CP-D/910=WP2017-18.
A32	Pritychenko	Compile Tables 1 and 2 of J.W. Meadows,C,70ANL,,129,1970 which supersedes EXFOR 10148.002 and 003 (4C-3/409=WP2017-20).
A33	Pritychenko	(Continuing action) Monitor availability of P.E. Koehler's time-of-flight spectra on DVDs received from ORELA in 2015 for EXFOR compilation.

A34	Pritychenko	Monitor availability of the $^{235}U(n,f)$ prompt fission neutron spectra in EXFOR 13982.002 (P. Staples) corrected for the sample size effect.
A35	Pritychenko	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.
A36	Semkova	Finalize the list of the journal articles for proton and alpha-induced reactions in NSR but not in EXFOR (WP2017-17). N.B. It was done for neutron induced reactions in Memo 4C-3/412.
A37	Cabellos Otsuka	Receive the experimental fission product yield data collected by Robert Mills. Identify the numerical data sets missing in EXFOR once they are received.
A38	Cabellos 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.
A39	Cabellos Mikhailiukova Pritychenko	(Continuing action) Summarize typographical mistakes of bibliography in Mughabghab's atlas, and send it to S. Mughabghab.
A40	Cabellos 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.
A41	Kenzebayev	(Continuing action) Scan domestic publications (*e.g.*, journals, laboratory reports) to identify articles for EXFOR compilation.
A42	Gritzay	(Continuing action) Consider compilation of neutron spectra for filtered neutrons published in the last 10 years.

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

A43	Mikhailiukova	(Continuing action) Add English translation information of Atomnaya Energiya under the keyword REFERENCE as listed in WP2011-26.
A44	Mikhailiukova	(Continuing action) Add English translation information of Yadernaya Fizika under the keyword REFERENCE as listed in WP2012-24.

A45	Mikhailiukova	(Continuing action) Add English translation information of Yadernye Konstanty under the keyword REFERENCE as listed in Tables 1 and 2 of CP-D/777.
A46	Mikhailiukova	(Continuing action) Add English translation information of Zhurnal Eksp. Teoret. Fiziki (incl. Pis'ma v Redaktsiyu) under the keyword REFERENCE as listed in CP-D/809.
A47	Mikhailiukova	(Continuing action) Add English translation information of Izvestiya Rossiiskoi Akademii Nauk, Seriya Fizicheskaya under the keyword REFERENCE as listed in CP-D/847.
A48	Mikhaliukova	Supersede 41013.003 by 41013.004. Also supersede 41013.004 by 22304.002 and 006 (4C-3/409=WP2017-20).
A49	Semkova	Supersede 30558.002 by 22304.002, and 30559.002 by 22304.006 (4C-3/409=WP2017-20).
A50	Pritychenko	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).
A51	Pritychenko	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).
A52	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.
A53	Pritychenko	Replace the data type code DERIV with DEROT in 14329.163 to 165. Move these subentries to an area Ventry, and submit its draft to NDS (see the coding sample in LEXFOR "Data Type").
A54	Cabellos	Correct data sets compiling neutron production cross sections measured at OKTAVIAN as summarized in Table 2 of 4C-3/408.
A55	Cabellos Mikhailiukova Pritychenko	(Continuing action) Add target thickness as coded information in the data sets listed in CP-D/878=WP2016-07.
A56	Ebata Mikhailiukova Pritychenko Semkova	(Continuing action) Correct half-lives and isomeric flags listed in Memo CP-D/888 =WP2016-25.

A57	Pritychenko Semkova Takács Taova	Correct data sets identified as outliers on JANIS Books for gamma and charged particle cross sections (CP-D/926=WP2017-25).
A58	Taova	(Continuing action) Delete EXFOR A0320 (all) and F0160 (all) which are duplicated entries summarized in WP2016-20.
A59	Pritychenko Semkova	Revise EXFOR entries compiling data sets from ORELA 40 m flight station listed in the Appendix of 4C-3/407=WP2017-30 by (1) addition of the corrigendum under REFERENCE of the common subentry, (2) addition of STATUS=OUTDT to each data subentry with the correction factor in free text.
A60	Cabellos Mikhailiukova	(Continuing action) Try to add numerical data which are not superseded (SPSDD) 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.
A61	Cabellos	(Continuing action) Assess if REACTION of 22077.014, 029 and 044 can be improved as proposed in the table of CP-D/813 (Rev.2).
A62	Cabellos Soppera	(Continuing action) Provide a list of erroneous and suspicious outliers by using various statistical approaches (c.f. WP2011-17, WP2013-19).
A63	Otsuka	Submit a revised Memo CP-D/933=WP2017-28 by addition of the remark to each subentry from Takács.
A64	All	Revise the REACTION codes of the thick target considering the changes proposed in Appendix of CP-D/933=WP2017-28 once the subentries for revisions are registered in the EXFOR Feedback List. Consult the proposed change with Takács when necessary. A draft of the revised entry is available from Otsuka.
A65	Cabellos	Check the p-n scattering data set in EXFOR 22207.002 (G. Fink) against G. Fink's thesis (e.g., reference frame – lab or c.m.).
A66	Cabellos	(Continuing action) Provide JANIS–TRANS Checker Log list on every preliminary TRANS-file. (+ bibliography checking and typo)
A67	Soppera	(Continuing action) Provide JANIS Import Log created from the EXFOR Master File to Otsuka on a regular basis.
A68	Otsuka	(Continuing action) Assess the JANIS Import Log provided by Soppera as above, and register important errors to the EXFOR Feedback System.

| A69 | Cabellos | (Continuing action) Inform Division of Nuclear Science of NEA the mistake in SINBAD NEA-1552/14 (CP-D/883=WP2016-24). |

EXFOR Coding Rule

A70	Mikhailiukova	(Continuing action) Submit a memo summarizing entries where the year of publication coded in the volume field must be deleted due to absence of the volume number in the journal <u>other than PTE</u>.
A71	Cabellos Mikhailiukova	(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.
A72	Otsuka	(Continuing action) Assess if coding rule of resonance parameters of reaction product is technically possible (CP-D/632=WP2016-27).
A73	Otsuka	Propose a revised rule for compilation of the data derived by other than the author not published in peer-reviewed journals.

Tools for Compilation and Dissemination

A74	Otsuka	(Continuing action) Provide EXFOR News for every EXFOR Master File.
A75	Soppera	(Continuing action) Continue development and testing of the JANIS –TRANS Checker in cooperation with NDS and the other centres.
A76	Zerkin	(Continuing action) Update ZCHEX based on comments from compilers (*e.g.*, WP2011-36).
A77	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.
A78	Zerkin	(Continuing action) Prepare examples of coding of covariance data for all EXFOR Entries having authors' covariances, and offer them to Data Centres according to Areas for finalizing and submitting to the database.
A79	All	(Continuing action) Finalize and submit EXFOR entries including covariance data provided by Zerkin (WP2017-Z3).

A80	Zerkin	(Continuing action) Continue development of the EXFOR upload web tool.
A81	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.
A82	Zerkin	(Continuing action) Distribute the program package including a standalone platform independent program to generate X4+ from a standalone EXFOR entry.
A83	All	(Continuing action) Consider to use the X4+ format for author approval, and also send feedback to Zerkin.
A84	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.
A85	Zerkin Pritychenko	(Continuing action) Continue translation from EXFOR to NSR.
A86	All	(Continuing action) Provide Zerkin a list of name aliases to improve the search of EXFOR entries by the author name (WP2014-53).
A87	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.
A88	Zerkin	Consider translation of fission yields in EXFOR to a C4-like format in consultation with A. Trkov and B. Pritychenko.
A89	JCPRG	(Continuing Action) Continue development and testing of GSYS in cooperation with NDS and other centres, taking into account compilers' remarks.
A90	All	(Continuing Action) Provide JCPRG feedback on GSYS.
A91	Otsuka	(Continuing Action) Support update of the Japanese editor (HENDEL) as time permits.
A92	CNPD	(Continuing Action) Continue development and testing of the EXFOR-Editor and InpGraph in cooperation with NDS and other data Centres, taking into account compilers' remarks.
A93	All	(Continuing Action) Provide CNPD feedback on EXFOR-Editor and InpGraph.

A94	Zerkin Pikulina Chen JCPRG	Study problems in 2D calibration of original pictures, and process of approval of results of digitizing using plotting facilities.
A95	All	Provide Taova feedback on the booklet for promotion of EXFOR prepared by CNPD by the end of 2017.
A96	Bhattacharyya	Demonstrate the EXFOR-I editor in the NRDC 2018 meeting.
A97	Cabellos	Make available on the NEA Data Bank web site the EANDC and NEANDC reports compiled in EXFOR and not available as INDC reports.