Conclusions and Actions of the NRDC 2016 Meeting

Conclusions

General

C1   The next NRDC meeting will be held in Vienna, Austria from 23 to 26 May 2017. (N.B. the 2017 WPEC meeting will be from 15 to 19 May).

C2   The next full NRDC meeting will be held in the 2nd quarter of 2018.

C3   The next EXFOR compilation workshop will be held in Vienna, Austria from 24 to 28 October 2016.

EXFOR General

C4   Progress in dissemination of n_TOF energy dependent data through EXFOR (coordinated by Emmeric Dupont) is notable.

Manuals and Dictionaries

C5   Revision of LEXFOR "Thermal Neutron Scattering" (4C-3/403=WP2016-08) was approved.

C6   Revision of the definition of the R-value in LEXFOR "Fission Yields" (CP-D/895 =WP2016-09) was approved.

C7   Two modifiers `DAM` and `RAB` were not approved as general quantity modifiers (CP-D/905=WP2016-10).

C8   The new heading code `VEL` was not approved (CP-D/906=WP2016-11).

EXFOR Quality Control

C9   EXFOR has been compared with CENDL-3.1, EAF-2001, ENDF/B-VII.1, IRDFF-1.0, JEFF-3.2, JENDL-4.0 and TENDL-2015, and to a large extent reviewed by Arjan Koning, for all neutron-induced cross sections except for (n,tot), (n,el), (n,non), (n,f). The subentry scoring table obtained from this work is useful, and should be available for EXFOR users.

C10   The entry number D2001 and area characters H and Q are free.

C11   Resonance integrals in EXFOR were checked against those obtained by integration of cross sections in the evaluated libraries by NEA Data Bank. Various mistakes in EXFOR (*e.g.*, wrong boundary for integration) were summarized. A final report will be prepared by the end of 2016.

EXFOR Coding Rule

C12   Revision of the EXFOR Formats Manual "DECAY-DATA" and "RAD-DET" proposed in CP-D/874=WP2016-28 was approved.

C13   Revision of the EXFOR Formats Manual Chapter 6 in CP-D/880 (Rev.) =WP2016-29 was approved.

C14   The reaction type of the scattering radius (`,RAD`) will be changed from NQ (nuclear quantity) to L (amplitude or length).

C15   Revision of the EXFOR Formats Manual "LEVEL-PROP" proposed in CP-D/882 =WP2016-30 was approved.

C16   Revision of LEXFOR "Thick- and thin-target yields" proposed in CP-D/893 =WP2016-31 was approved.

C17   Revision of the EXFOR Formats Manual "ERR-ANALYS" proposed in CP-D/894 Rev.=WP2016-32 was approved.

C18   Free text providing expansion of the data heading (*e.g.*, "Angle error" for ANG-ERR) is not recommended under the keyword ERR-ANALYS. (CP-D/894(Rev.) =WP2016-32)

C19   Addition to LEXFOR "Isomeric flag" proposed in CP-D/896=WP2016-33 was approved.

C20   Revision of the EXFOR Formats Manual "FACILITY" proposed in CP-D/899 =WP2016-34 was approved.

C21   The new status code `LOST` for the lost data sets proposed in CP-C/443=WP2016-36 was not approved. The status code `UNOBT` will be kept for this purpose.

C22   The volume field will be absent under the keyword REFERENCE when the volume number of the journal does not exist. The absence of the field must be indicated by including the separating comma.

Tools for Compilation and Dissemination

C23   "EXFOR Booklet" prepared by CNPD is useful for promotion of the EXFOR format, library and system. It is available from CNPD.

C24   EXFOR users can upload their data to the NDS EXFOR web retrieval system for various operation, for example comparing with EXFOR and ENDF data, plotting, constructing covariance matrix, calculating inverse reaction data (WP2016-Z1).

C25   Centres are encouraged to promote NRDC's effort on EXFOR compilation by various means (e.g., conferences, posters, leaflets)

Actions

EXFOR General

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

A2   All   (Continuing 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   Zerkin   (Continuing action) Coordinate a working group to discuss the opportunity to use XML as a new exchange format.

A4   Otsuka   Prepare an initial draft of the table of content for an EXFOR reference paper.

A5   All   Send ideas of contents of the EXFOR reference paper to Otsuka by the end of 2016. (N.B. April 2018 is the deadline if the paper is published in the next issue of Nuclear Data Sheets available for the paper.)

Manuals and Dictionaries

A6   Otsuka   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).

A7   Otsuka   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).

A8   Otsuka   Change the reaction type of `,RAD` (scattering radius) from `NQ` (nuclear quantity) to `L` (amplitude or length) in dictionary 236. (CP-D/880 Rev.=WP2016-29).

A9   Otsuka   Update dictionaries 32, 34 and 236 for the physical thick target yields differential with respect to incident energy as summarized in CP-D/893=WP2016-31.

A10   Otsuka   (Continuing action) Update Dictionaries every four months.

A11   Zerkin   (Continuing action) Summarize the role of family flags (also known as family codes, c.f. EXFOR Formats Manual Chapter 6) in systems.

CINDA

A12   Zerkin   (Continuing action) Export EXFOR and NSR to CINDA, and distribute it to other Centres every 6 months.

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

A13   Chen   (Continuing action) Compile with priority the neutron source
      Ebata   spectra listed in CP-D/700 (Rev.3).
      Pritychenko

A14   Ebata   (Continuing action) Compile with priority the proton-induced
      Pritychenko   isotope production cross sections listed in CP-D/725 Rev.
      Taova   (~WP2012-19). Notify Semkova if the assigned centre does not
                     compile the high energy (E > 1 GeV) data in the list.

A15   Ebata   (Continuing action) Compile with priority the light charged-particle
      Pritychenko   induced isotope production cross sections listed in CP-D/757.
      Taova   Notify Semkova if the assigned centre does not compile the high
                     energy (E > 1 GeV) data in the list.

A16   Chen   (Continuing action) Compile with priority the articles cited in the
      Cabellos   NACRE II (an update and extension of European Compilation of
      Pritychenko   Reaction Rates for Astrophysics) listed in Tables 1 and 2 of CP-
      Varlamov   D/833.
      Yang

A17   Chen   (Continuing action) Compile with priority the articles related to ion
      Cabellos   beam analysis application listed in CP-D/832 Rev.
      Gritzay
      Pritychenko
      Taova

A18   Cabellos   (Continuing action) Compile with priority the β-delayed neutron
                     spectra published in the articles listed in the table of CP-D/837.

A19   Pritychenko   (Continuing action) Compile with priority articles related to the
                     neutron dosimetry cross sections listed in the second table of CP-
                     D/838.

A20   Cabellos   (Continuing action) Assess the articles reporting keV neutron
      Pritychenko   capture cross section entries listed in CP-D/740, and add these
                     articles with necessary revisions with priority.

A21   Pritychenko   (Continuing action) Compile articles compiled in CINDA but
                     missing in EXFOR listed in CP-D/907=WP2016-14.

A22	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.
A23	Cabellos Mikhailiukova Pritychenko Semkova	Compile the thermal neutron-induced reaction data cited in Mughabghab's "Atlas of Neutron Resonances" and listed in 4C-4/212=WP2016-15.
A24	Chen Pritychenko	(Continuing action) Compile with priority prompt fission neutron multiplicity distributions listed in CP-D/867.
A25	Cabellos Mikhailiukova Pritychenko	(Continuing action) Compile with priority prompt fission neutron multiplicities listed in CP-D/871.
A26	Cabellos Ebata Gritzay Pritychenko	Compile articles presented in Reactor Dosimetry Symposia listed in 4C-3/400=WP2016-16.
A27	Cabellos Pritychenko	Compile thermal neutron data cited by Axton and listed in 4C-3/402 =WP2016-18.
A28	Cabellos Mikhailiukova Pritychenko	Compile thermal neutron scattering data listed in 4C-3/404= WP2016-19.
A29	Cabellos Ebata Taova Varlamov	(Continuing action) Compile articles published in JINR Rapid Communication (KSO) and Phys. Part. Nucl. Lett. (PPN/L) and listed in CP-D/858.
A30	Pritychenko	(Continuing action) Assess neutron cross section data useful for standard evaluation listed in CP-D/699, and compile them if appropriate. N.B. Renner's thesis on ^{6}Li(n,α) is for addition to 10841.
A31	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 for by a memo.
A32	Cabellos Mikhailiukova Pritychenko	Summarize typographical mistakes of bibliography in Mughabghab's atlas, and send it to S. Mughabghab.

A33	Kenzebayev	(Continuing action) Scan domestic publications (*e.g.*, journals, laboratory reports) to identify articles for EXFOR compilation.
A34	Gritzay	(Continuing action) Consider compilation of neutron spectra for filtered neutrons published in the last 10 years.
A35	Pritychenko	Monitor availability of P.E. Koehler's time-of-flight spectra on DVDs received from ORELA in 2015 for EXFOR compilation.
A36	Cabellos	(Continuing action) Monitor CIELO mailing lists, and try to receive tabulated experimental data from evaluators who have their own internal database.
A37	Simakov	(1) 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.); (2) Monitor availability of the ^{235}U(n,f) prompt fission neutron spectra in EXFOR 13982.002 (P. Staples) corrected for the sample size effect.

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

A38	Mikhailiukova	(Continuing action) Add English translation information of Atomnaya Energiya under the keyword REFERENCE as listed in WP2011-26.
A39	Mikhailiukova	(Continuing action) Add English translation information of Yadernaya Fizika under the keyword REFERENCE as listed in WP2012-24.
A40	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.
A41	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.
A42	Mikhailiukova Pritychenko Taova	(Continuing action) Add English translation information of Izvestiya Rossiiskoi Akademii Nauk, Seriya Fizicheskaya under the keyword REFERENCE as listed in CP-D/847.
A43	Ebata	(Continuing action) Consider to use `6-C-12(PIP,KP)6-C-12,PAR,IPA,,MSC` for the $^{12}_{\Lambda}$C hyper-nucleus production cross sections compiled in J1601.003.
A44	Taova Varlamov	(Continuing action) Identify the bibliographies of the original Russian article published in Doklady for EXFOR 41257 and 41258, and notify them to Mikhailiukova and Otsuka.

A45	Pritychenko	(Continuing action) Look for the original data for the four data sets flagged by 1 in the table of CP-D/841(Rev.). If the original data are no longer available, consider using free text instead of RNORM.
A46	Cabellos Taova	(Continuing action) Assess the entries listed in CP-D/907 =WP2016-23. Re-compile the article based on the entry in the "EXFOR updates and archive" maintained by NDS when appropriate. If not, create only a common subentry with minimum keywords (*i.e.*, TITLE, AUTHOR, REFERENCE, FACILITY, HISTORY) as time permits.
A47	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.
A48	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).
A49	Pritychenko	(Continuing action) Explain availability of the neutron spectra of ISNF, Sig-Sig, CFRMF and YAYOI facility compiled in the IRDF-2002 library under the keyword COMMENT of entries summarized in WP2015-17 as compiler's comments.
A50	Cabellos Mikhailiukova Otsuka Pritychenko	Add target thickness as coded information in the data sets listed in CP-D/878=WP2016-07.
A51	Cabellos Pritychenko Taova	Delete EXFOR 14382.017, 40296.002, 40296.003, A0320 (all), F0055 (all), F0160 (all), F0341 (all), O0452 (all), C1221.002-011, T0010.013 (duplicated entries summarized in WP2016-20).
A52	Otsuka	Check V1001.532, V1002.082, V1002.126, V1002.173 and V1002.572 against Mughabghab's Atlas (c.f. slide #23 of Cabellos's presentation "Provide a list of erroneous and suspicious outliers by using various statistical approaches").
A53	Cabellos Ebata Mikhailiukova Pritychenko Semkova Taova	Correct half-lives and isomeric flags listed in Memo CP-D/888 =WP2016-25.
A54	Cabellos Semkova Taova	Correct isomeric flags of the entries summarized in CP-D/896 =WP2016-33.

<u>A55</u>	Cabellos Mikhailiukova Pritychenko Taova	Correct the unit of incident energy in entries summarized in CP-D/901=WP2016-26.
A56	Cabellos Soppera	(Continuing action) Provide a list of erroneous and suspicious outliers by using various statistical approaches (c.f. WP2011-17, WP2013-19).
A57	Cabellos	(Continuing action) Provide JANIS–TRANS Checker Log list on every preliminary TRANS-file.
A58	Soppera	(Continuing action) Provide JANIS Import Log created from the EXFOR Master File to Otsuka on a regular basis.
A59	Otsuka	(Continuing action) Assess the JANIS Import Log provided by Soppera as above, and register important errors to the EXFOR Feedback System.
A60	Ebata	(Continuing action) Resolve duplication between E2049, E2125 and E2430 (WP2015-18).
A61	Otsuka	Check the situation of duplication of double differential cross sections measured at OKTAVIAN by Takahashi.
A62	Cabellos	Inform Division of Nuclear Science of NEA the mistake in SINBAD NEA-1552/14 (CP-D/883=WP2016-24).

EXFOR Coding Rule

A63	Cabellos Mikhailiukova	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.
A64	Mikhailiukova	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.
A65	Otsuka	Submit a memo summarizing revision of the EXFOR Formats Manual "REFERENCE" to indicate possible absence of the volume field of the journal article explicitly.
A66	Otsuka	Assess if coding rule of resonance parameters of reaction product is technically possible (CP-D/632=WP2016-27).
A67	Cabellos Mikhailiukova Pritychenko	Assess the entries listed in CP-D/880 Rev.=WP2016-29, and inform Otsuka by the end of 2016 if the quantity code `,RAD` cannot be replaced with `POT,RAD`.

Tools for Compilation and Dissemination

A68   Otsuka   (Continuing action) Provide EXFOR News for every EXFOR Master File.

A69   Soppera   (Continuing action) Continue development and testing of the JANIS –TRANS Checker in cooperation with NDS and the other centres.

A70   Zerkin   (Continuing action) Update ZCHEX based on comments from compilers (*e.g.*, WP2011-36).

A71   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.

A72   Zerkin   (Continuing action) Prepare 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.

A73   All   (Continuing action) Finalize and submit EXFOR entries including covariance data provided by Zerkin.

A74   Zerkin   (Continuing action) Continue development of the EXFOR upload web tool.

A75   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.

A76   Zerkin   (Continuing action) Distribute the program package including a standalone platform independent program to generate X4+ from a standalone EXFOR entry.

A77   All   (Continuing action) Consider to use the X4+ format for author approval, and also send feedback to Zerkin.

A78   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.

A79   Zerkin Pritychenko   (Continuing action) Continue translation from EXFOR to NSR.

A80 All   (Continuing action) Provide Zerkin a list of name aliases to improve the search of EXFOR entries by the author name (WP2014-53).

A81 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.

A82 JCPRG   (Continuing Action) Continue development and testing of GSYS in cooperation with NDS and other centres, taking into account compilers' remarks.

A83 All   (Continuing Action) Provide JCPRG feedback on GSYS.

A84 Otsuka   (Continuing Action) Support update of the Japanese editor (HENDEL) as time permits.

A85 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.

A86 All   (Continuing Action) Provide CNPD feedback on EXFOR-Editor and InpGraph.

A87 Zerkin   Consider demonstration of the "Light EXFOR and NSR Web Editors" (WP2016-Z2) in the 2016 EXFOR Compilation Workshop.

A88 All   Provide feedback on the "EXFOR booklet" prepared by CNPD.