Conclusions and Actions of the NRDC 2014 Meeting

Conclusions

General

C1 The next technical NRDC meeting will be held in Vienna, Austria from 21 to 23 April 2015.

C2 The next full NRDC meeting will be held in Brookhaven, USA or Vienna, Austria in the 2nd quarter of 2016.

EXFOR General

C3 The next EXFOR Compilation Workshop will be held in Vienna, Austria from 6 to 10 October 2014.

C4 CAJaD discontinued. The participants appreciated the contribution of CAJaD to the NRDC activity for about 40 years.

C5 From May 2014, CNPD will be responsible for charged-particle nuclear reaction data measured in the countries of the former USSR (except for Ukraine) and also maintenance of the area A and F entries. NDS will be responsible for maintenance of the area B entries.

C6 The neutron, charged-particle and photonuclear data measured in Kazakhstan and Uzbekistan will be compiled by the Central Asian group (coordinated by Kazakh National University) with assistance of NDS for a trial period.

C7 Data Centres should put higher priority to correction of mistakes reported by EXFOR users than other mistakes.

C8 Compilers will inform Semkova when they find an article published in conference proceedings and the numerical data are not available from the author.

C9 Participants were informed about the existence of tabulated experimental nuclear data related to the various innovative nuclear techniques (*e.g.*, detection of internal conversion electrons and anti-neutrinos), and some of them (*e.g.*, nuclear resonance fluorescence, neutron multiplicity distribution) are being compiled in EXFOR.

Manuals and Dictionaries

C10 The revised Network Document (WP2014-09) was approved.

C11 The new transmission procedure and file naming convention related to the new NDS open area (WP2014-10) was approved.

C12 The revised NRDC Protocol (WP2014-11) was approved.
N.B. EPJ/A and YF will be added as journals scanned by CNPD in Appendix B (scanning responsibility) of the NRDC Protocol.

C13 The new LEXFOR chapter "Digitization" (WP2014-12) was approved.

C14 Revisions of LEXFOR and Formats Manual on covariance (WP2014-13) were approved.

C15 Change in the expansions of the data heading ERR-*i* (*i* = 1,2,...) and the usage of two headings ERR-S and ERR-SYS (WP2014-14) were approved.

CINDA

C16 The CINDA Master File is updated from the EXFOR and NSR database in an automatic way by NDS, and regularly transmitted to other centres.

EXFOR Compilation Needs

C17 Compilers are encouraged to request the author to provide required information by using the EXFOR template for time-of-flight spectra or lead slowing-down spectrometer data (Appendices of INDC(NDS)-0647), and include the information in the EXFOR entry.

C18 The revised LEXFOR chapter "Delayed-fission neutrons" (CP-C/429 in WP2014-23 Rev. and WP2014-41 Rev.) was approved. The delayed neutron energy spectrum from an individual precursor may be compiled in EXFOR.

C19 Compilers are encouraged to find data published in old literature and still missing in EXFOR.

EXFOR Quality Control

C20 Centres should use only new entry numbers (and not old "unallocated" entry numbers).

EXFOR Coding Rule

C21 The revised LEXFOR chapter "Sample" (WP2014-34) was approved. The sample thickness will be coded under the data heading THICKNESS if the quantity depends on the sample thickness (*e.g.*, transmission, reaction yield). Also this heading will not be used if the quantity does not depend on the thickness (*e.g.*, cross section).

C22 A list of data sets where repetition of values exists is available on the NDS web page (WP2014-35).

C23 The revised LEXFOR chapter “Neutron yields” (WP2014-36) was approved. NDS confirmed that all subentries listed in the working paper have already been corrected. See also Action 68 to Lee.

C24 The revised LEXFOR chapter “Fission yields” and related dictionary additions (WP2014-37 and WP2014-44) were approved.

C25 The revised LEXFOR chapter “Thermonuclear reaction rate” (WP2014-38) was approved. This quantity will be coded without the spectrum modifier `MXW`.

C26 The revised LEXFOR chapter “Production and emission cross sections” (WP2014-39) was approved. The new branch code `ICL` will be used when a data set is for an inclusive reaction and also depends on the excitation energy.

C27 The articles presented in ND2013 will be coded by `(J,NDS,,($paper #),2014)` before publication of the Conf. Proc. A new conference code `2013NYC` will be used for the data published in an abstract but not in the Conf. Proc.

C28 The revised LEXFOR chapter “History” (WP2014-42) was approved. All important alterations must be described in each affected data subentry in addition to a short summary (*e.g.*, subentry numbers) in the common (001) subentry.

C29 The revised LEXFOR chapter “Partial reactions” (WP2014-43) was approved.

C30 The following decisions were made for data sets corrected or derived by other than the author (WP2014-46): (1) Compilation of data sets renormalized by other than the author is not recommended. (2) Data sets corrected by other than the author should be compiled in another entry when the corrected data are well documented in a peer-reviewed journal with the correction procedure. (3) Data sets derived by other than the author are not for compilation in general, but may be compiled in another entry exceptionally when there is a strong need from EXFOR users and the derived data are well documented in a peer-reviewed journal with the derivation procedure.

Software and Dissemination

C31 The digitization error estimated by two methods (“standard derivation” and “quantization error”) presented in WP2014-48 are consistent if we introduce a factor 1/2 to the definition of the “quantization error”. This implies that both estimates are reasonable (when quantization is the main source of the digitization error).

Actions

EXFOR General

A1	All	(Standing action) Give the highest priority to compilation of new articles.
A2	Semkova	(Continuing action) Introduce a flag to the EXFOR Compilation Control System to indicate articles which are published in conference proceedings and the data are not available from the authors.
A3	Semkova	(Continuing action) Add the first author name to the EXFOR Compilation Control System as time permits.
A4	All	(Continuing action) Correct erroneous entries listed on the EXFOR Feedback System on the NRDC web page according to the indicated priorities. All urgent corrections must be done by the next meeting.
A5	Centre Heads	(Continuing action) Nominate participants from the Centres to the EXFOR working group coordinated by Zerkin, which will discuss the opportunity to use XML as a new exchange format.
A6	Otsuka Semkova	(Continuing action) Prepare a questionnaire about the usages of compilation tools, and send it to centres.
A7	All	(Continuing action) Respond to the questionnaire mentioned above.

Manuals and Dictionaries

A8	Otsuka Schwerer	Submit an update of LEXFOR for data corrected or derived by other than author (c.f. WP2014-46).
A9	Otsuka	Change "systematic" to "partial" in the expansions of the data heading code ERR-*i* (*i* = 1,2,...) in dictionary 24 (WP2014-14).
A10	Otsuka	Add the heading code TKE (total kinetic energy) to dictionary 24 (WP2014-44).
A11	Otsuka	(Continuing action) Revise the EXFOR Formats Manual for (a) short nuclide codes in REACTION SF7 (WP2011-28); (b) the keyword ERR-ANALYS (Conclusion 15 of NRDC 2012); (c) the keyword SAMPLE (Conclusion 17 of NRDC 2012); (d) reaction products (WP2013-24); (e) covariance (WP2014-13).

A12 Otsuka — Delete the following footnote in the LEXFOR entry "History": Compilers are urged to document all changes under HISTORY.

A13 Otsuka — (Continuing action) Revise LEXFOR for (a) TOF covariance (WP2011-27); (b) new branch code `ISP` (WP2011-29); (c) specific temperatures for prompt fission neutron spectrum averaged quantities (WP2011-30); (d) compilation of prompt fission neutron quantities (WP2011-31); (e) nuclear resonance fluorescence (WP2012-11); (f) additional reference compiled in another entry (WP2012-12); (g) probability for N particle emission (WP2013-20); (h) heading of energy range for unresolved resonance parameters (WP2013-21); (i) resonance parameters for light-nuclei reaction (WP2013-24); (j) partial reaction, reaction product, isomeric state (WP2013-25=CP-D/781rev + CP-C/417 item 3); (k) independent and cumulative data (WP2013-26); (l) irradiation time (WP2013-27); (m) thick target production yield (WP2013-28); (n) digitization (WP2014-12); Covariance (WP2014-13); (o) delayed fission neutron spectrum (WP2014-23 Rev.); (p) sample (WP2014-34); (q) neutron yields (WP2014-36); (r) fission yields (WP2014-37 and 44); (s) thermonuclear reaction rate (WP2014-38); (t) production and emission cross sections (WP2014-39); (u) delayed fission neutrons (WP2014-41 Rev.); (v) history (WP2014-42); (w) partial reactions (WP2014-43).

A14 Otsuka — Assess required corrections in dictionaries in order to treat the sample thickness as an independent variable (WP2014-34).

A15 Otsuka — (Continuing action) Consider revision of the NRDC Protocol for submission of transmission tapes specialized for corrections.

A16 Otsuka — (Continuing action) Update Dictionaries every four months.

CINDA

A17 Zerkin — Correct EXFOR entry numbers in CINDA: `4,EXFOR13906` → `4,EXFOR14016`; `4,EXFOR32505`→`4,EXFOR31504`; `4,EXFOR42423` → `4,EXFOR41423`.

A18 Zerkin — Document export from NSR to CINDA especially for information missing in NSR and required in CINDA.

A19 Zerkin — (Continuing action) Export EXFOR and NSR to CINDA, and distribute it to other Centres every 6 months.

EXFOR Compilation Needs

A20	Aikawa Chen Pritychenko Taova	(Continuing action) Compile the neutron source spectra listed in CP-D/700 (Rev.3).
A21	Aikawa Dupont Pritychenko Takács Taova	(Continuing action) Compile the proton-induced isotope production cross sections listed in CP-D/725 (=WP2012-19) with higher priority for articles listed in CP-D/793 (=WP2014-18). Notify Semkova if the assigned centre does not compile the high energy (E > 1 GeV) data in the list.
A22	Aikawa Dupont Otsuka Pritychenko Taova	(Continuing action) Compile the light charged-particle induced isotope production cross sections listed in CP-D/757 (=WP2013-12) with a high priority for articles listed in CP-D/793 (=WP2013-18). Notify Semkova if the assigned centre does not compile the high energy (E > 1 GeV) data in the list.
A23	Chen Dupont Otsuka Pritychenko Takács Taova Varlamov Yang	Compile 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 (=WP2014-20).
A24	Aikawa Chen Dupont Gritzay Semkova Pritychenko	Compile the articles related to ion beam analysis application listed in CP-D/832 Rev. (=WP2014-22).
A25	Otsuka Pritychenko	Compile the articles listed in the last page of WP2014-33 (articles compiled in CINDA but missing in EXFOR). N.B. The CINDA record for EXFOR 13906 is corresponding to the EXFOR entry 14016, and additional compilation is not necessary.
A26	Dupont Pritychenko	Compile the β-delayed neutron spectra published in the articles listed in the table of CP-D/837 (in WP2014-23 Rev.).
A27	Pritychenko	Compile articles related to the neutron dosimetry cross sections listed in the second table of CP-D/838 (=WP2014-21).

A28	Dupont Mikhaylyukova Pritychenko Semkova	Compile the thermal neutron-induced reaction data cited in Mughabghab's "Atlas of Neutron Resonances" and listed in 4C-3/395 (=WP2014-19).
A29	Dupont Pritychenko	(Continuing action) Assess the articles reporting keV neutron capture cross section entries listed in WP2012-31, and add these articles with necessary revisions.
A30	Pritychenko	(Continuing action) Assess neutron cross section data useful for standard evaluation listed in WP2011-15, and compile them when appropriate. N.B. Renner's thesis on ^{6}Li(n,α) is for addition to 10841.
A31	Mikhaylyukova	Check if ^{252}Cf (s.f.) prompt fission neutron spectrum published in the following article must be compiled: Yu.S. Zamyatnin et al., Proc. Int. Symp. on Californium-252 Utilizations, Paris (1976) p. IV-1 (= CONF-760436, Vol. II).
A32	Dupont Mikhaylyukova Pritychenko	(Continuing action) Perform EXFOR completeness checking for the list of articles received from NDS (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.
A33	Otsuka	Perform EXFOR completeness checking for the articles published in the conference proceedings in the past Symposia on Reactor Dosimetry (WP2014-21).
A34	Kenzebayev	Scan domestic publications (*e.g.*, journals, laboratory reports) to identify articles for EXFOR compilation.
A35	Gritzay	(Continuing action) Consider compilation of neutron spectra for filtered neutrons published in the last 10 years.
A36	Pritychenko	Establish a mechanism with ORNL to receive the time-of-flight spectra (transmission and reaction yield) measured at ORELA for inclusion to EXFOR.
A37	Dupont Simakov	Monitor CIELO mailing lists, and try to receive tabulated experimental data from evaluators who have their own internal database.
A38	Dupont Simakov	Assess whether the experimental spectrum averaged cross sections available in the SINBAD and ICSBEP databases are suitable for inclusion in EXFOR.

EXFOR Quality Control

A39	Otsuka	Delete B0116 to resolve intra-centre duplication (c.f. CP-D/751).
A40	Dupont Otsuka Pritychenko Taova	(Continuing action) Resolve inter-centre duplication listed in CP-D/762 (= first table of WP2014-25), and inform Otsuka about the conclusion.
A41	Dupont Taova	(Continuing action) Resolve the duplication pairs in entries listed in Memo CP-D/797 (=second table of WP2014-25).
A42	Dupont Taova	Resolve duplication of Michel's proton-induced reaction cross section data sets as summarized in Memo CP-D/805 (see also first table of WP2014-26).
A43	Taova	Delete Michel's alpha-induced reaction cross section data sets compiled in A0145.004 and A0529.002-013 (See CP-D/805=WP2014-26).
A44	Otsuka	(Continuing action) Summarize the duplication pairs in the EXFOR entries listed in the item 3b of WP2013-17 (D-T neutron activation cross sections from OKTAVIAN, Osaka Univ.).
A45	Mikhaylyukova	(Continuing action) Add English translation information of Atomnaya Energiya under the keyword `REFERENCE` as listed in WP2011-26 (also registered to the EXFOR Feedback System).
A46	Mikhaylyukova	(Continuing action) Add English translation information of Yadernaya Fizika under the keyword `REFERENCE` as listed in WP2012-24 (also registered to the EXFOR Feedback System).
A47	Mikhaylyukova Taova	(Continuing action) Add English translation information of Yadernye Konstanty under the keyword `REFERENCE` as listed in Tables 1 and 2 of CP-D/777(=WP2013-15, also registered to the EXFOR Feedback System).
A48	Mikhaylyukova Taova	Add English translation information of Zhurnal Eksp. Teoret. Fiziki (incl. Pis'ma v Redaktsiyu) under the keyword `REFERENCE` as listed in CP-D/809 (=WP2014-27, also registered to the EXFOR Feedback System).
A49	Dupont Mikhaylyukova Taova Varlamov	Add English translation information of Doklady Akademii Nauk under the keyword `REFERENCE` as listed in CP-D/842 (=WP2014-28, also registered to the EXFOR Feedback System).

A50	Taova Varlamov	Identify the bibliographies of the original Russian article published in Doklady for EXFOR 41257 and 41258, and notify them to Mikhaylyukova and Otsuka.
A51	Otsuka	(Continuing action) Provide a list of English translation information of Izvestiya Rossiiskoi Akademii Nauk, Seriya Fizicheskaya for addition to EXFOR entries.
A52	Dupont Mikhaylyukova Otsuka Pritychenko Taova Varlamov	Add English translation information of Izvestiya Rossiiskoi Akademii Nauk, Seriya Fizicheskaya under the keyword REFERENCE following the list prepared by Otsuka (A51).
A53	Mikhaylyukova Pritychenko	Look for the original data for the entries flagged by 1 in the table of WP2014-45. If the original data are no longer available, consider using free text instead of RNORM.
A54	Dupont Mikhaylyukova Otsuka	Correct entries coded with RNORM and flagged by 2, 3 or 4 in the table of CP-D/841 Rev.(=WP2014-45, also registered to the EXFOR Feedback System.)
A55	Dupont Mikhaylyukova Otsuka Taova	Assess the entries listed in Appendix C of WP2014-32. Re-compile the article based on the entry in the NDS EXFOR Archive and Update system when appropriate. If not, create only the common subentry with minimum keywords (*i.e.*, TITLE, AUTHOR, REFERENCE, FACILITY, HISTORY) as time permits.
A56	Dupont Mikhaylyukova Pritychenko	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.
A57	Taova	(Continuing action) Correct F0004.002 and 003 which are partial for secondary energies listed in CP-D/718 (=WP2012-22, also registered to the EXFOR Feedback System).
A58	Dupont Pritychenko	Correct inclusive reaction data coded as a function of the excitation energy listed in the last page of CP-D/813 Rev.2 (=WP2014-39, also registered to the EXFOR Feedback System.).
A59	Lalremruata	Compare ^{13}C(α,n)^{16}O data compiled in EXFOR D6089 and P0132, and make necessary corrections.
A60	Semkova	Check existing EXFOR data sets coded with ,PN against the original articles, and summarize the necessary corrections due to the new coding rule summarized in WP2014-41 Rev.

A61	Dupont	(Continuing action) Provide NDS with a list of erroneous and suspicious outliers by using the new statistical approach being developed (WP2011-17, WP2013-19) when available.
A62	Dupont	(Continuing action) Provide JANIS–TRANS Checker Log list on every preliminary TRANS-file.
A63	Soppera	(Continuing action) Provide JANIS Import Log created from the EXFOR Master File to Otsuka on a regular basis.
A64	Otsuka	(Continuing action) Assess the JANIS Import Log provided by Soppera as above, and register important errors to the EXFOR Feedback System.
A65	All	(Continuing action) Revise remaining upper case entries and other necessary corrections as time permits (WP2012-20).
A66	All	Search TRANS tapes missing in the NDS open area, and provide them to NDS.

EXFOR Coding Rule

A67	Otsuka	Send articles relevant to the change in the definition of the η value (WP2014-36) to Lee.
A68	Lee	Assess the articles received from Otsuka and check if the new definition of the η value proposed in WP2014-36 requires modifications.

Software and Dissemination

A69	Dupont	(Continuing action) Provide a sample file of quality scores (WP2013-19) to Zerkin.
A70	Zerkin Dupont	(Continuing action) Assess procedure for inclusion of the quality scores mentioned above to regular distribution with the EXFOR Master File.
A71	Otsuka	(Continuing action) Provide EXFOR News for every EXFOR Master File.
A72	Soppera	(Continuing action) Continue development and testing of the JANIS –TRANS Checker in cooperation with NDS and the other centres.
A73	Zerkin Simakov	Assess possibility to provide cross sections derived from the measured cross sections by the detailed-balance relation, and to add the functionality to the NDS web system.

A74	Zerkin	(Continuing action) Update ZCHEX based on comments from compilers (*e.g.*, WP2011-36) as time permits.
A75	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.
A76	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.
A77	Zerkin	(Continuing action) Continue development of the EXFOR upload web tool.
A78	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.
A79	Zerkin	(Continuing action) Continue development of X4+ (interpreted / extended EXFOR format).
A80	All	(Continuing action) Consider to use the X4+ format for author approval, and also send feedback to Zerkin.
A81	Zerkin	(Continuing action) Update and distribute the program package including a standalone platform independent program to generate X4+ from a standalone EXFOR entry.
A82	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.
A83	All	Provide Zerkin a list of name aliases to improve the search of EXFOR entries by the author name (WP2014-53).
A84	Zerkin Pritychenko	(Continuing action) Assess possibility of translation from EXFOR to NSR.
A85	JCPRG	(Continuing Action) Continue development and testing of GSYS in cooperation with NDS and other centres, taking into account compilers' remarks.
A86	All	(Continuing Action) Provide JCPRG feedback on GSYS.

A87	Otsuka	Support update of the Japanese editor (HENDEL) as time permits.
A88	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.
A89	All	(Continuing Action) Provide CNPD feedback on EXFOR-Editor and InpGraph.