

## Conclusions and Actions of the NRDC 2021 Meeting

### Conclusions

#### General

- C1 The next full NRDC meeting will be held in Vienna, Austria between 13 and 17 June 2022 (4 or 5 days).
- C2 The next technical NRDC meeting will be held in Vienna, Austria in the 2nd quarter of 2023.
- C3 The next EXFOR compilation workshop will be held in Vienna, Austria in the 4th quarter of 2022.

#### EXFOR Statistics and Coverage

- C4 The Network finalized 1227 new entries after the NRDC 2019 meeting (448 new entries between NRDC 2018 and 2019 meetings, and 521 new entries between NRDC 2017 and 2018 meetings).
- C5 The participants reviewed a revised NRDC Protocol Appendix B in WP021-05. CNPD will continue scan of PAN in addition to BAS.
- C6 The centres should inform NDS the result of journal scan for every issue even if there is no article for EXFOR compilation.
- C7 Exclusion of a problematic entry from the final tape is a good solution to avoid delay in finalization of the other entries transmitted in the same preliminary tape.

#### Manuals and Dictionary

- C8 The particle code EC (electron capture) will be used when
  - (1) detection of electron capture activity is mentioned by the author without further specification of the radiation type (e.g., X-ray, Auger electron), or
  - (2) the electron capture branching ratio is assumed by the author to determine the quantity measured.(See also CP-D/989 = WP2021-07).
- C9 Revisions of EXFOR Formats Manual in page 6.2 “Nuclide and compound symbol other than an elemental symbol”, page 7.11 “Trailing comma in code field of ERR-ANALYS” and page 7.2 “Presence of keywords” (CP-D/1011=WP2021-08) were approved. (Addendum: Two revisions were added to the memo and distributed as Memo CP-D/1011(Rev.) on 10 May 2021 without a comment from centres.)

- C10 A dummy facility code LCEXP (Location of experiment) will be added in Dictionary 18 (Facility). This code will be used to provide credit the facility hosting institution only when (1) the location of the experiment is coded in the Institute Field of FACILITY, (2) two or more codes are under INSTITUTE, and (3) no other facility code applies. The compilers are also reminded that there may still be cases where the keyword FACILITY need (should?) not to be used at all (e.g., with SF9=CALC, CRCTD, DEROT, EVAL).
- C11 When the REACTION SF6 indicates differentiation by the same parameter twice, (1) a particle combination must appear after the slash (e.g., DA/DA,N/N+FF rather than DA/DA,N+FF/N); (2) the heavier particle must appear after the lighter particle (e.g., DA/DA,N/P rather than DA/DA,P/N) as proposed in CP-D/1014=WP2021-10.
- C12 Revisions of EXFOR Formats Manual Chapter 6 “REACTION specification” and LEXFOR “Differential data” (CP-D/1014=WP2021-10) were approved. N.B. “lightest” is understood as “lowest Z, then the lowest A”.
- C13 Addition of the new information identifier ANG-SEC (secondary angle) and its description in the EXFOR Formats Manual proposed in CP-D/1014=WP2021-10 were approved.
- C14 The code AMP (parameter and new CINDA code) and L (reaction type and web quantity) will be expanded to “scattering length”. The scattering amplitude will be compiled with ,AMP,,MSC as proposed in 4C-3/416=WP2021-11.
- C15 Revisions of LEXFOR “Data type” and EXFOR Formats Manual Chapter 7 “ANALYSIS” proposed in CP-D/982=WP2021-12 were approved.
- C16 REACTION spelling for the quantities measured by Coulomb excitation require further discussion.
- C17 Addition to LEXFOR “Scattering” (partial scattering) proposed in CP-D/1002=WP2021-14 was approved.
- C18 The upper limit of the level energy of the reaction product for partial scattering can be coded only when the upper limit is mentioned by the author.
- C19 Revision of the LEXFOR “Fitting coefficients” (LEG/RS0 and LEG/RSD) proposed in CP-D/1007=WP2021-15 was approved.
- C20 An addition of particle code (e.g., N2) or nuclide code (e.g., 0-NN-2) is not done for compilation of the experimental works introduced in WP2021-16.
- C21 A new heading E-EXC-C-ER (Error in excitation energy of initial compound nucleus) proposed in CP-D/991=WP2021-26 was approved.
- C22 The name of the subfield for the observed radiation per decay will be renamed from “Abundance” to “Intensity”. (See also CP-D/1005=WP2021-33).

C23 Addition to LEXFOR “Decay data” proposed in CP-D/1005=WP2021-33 was approved.

### **EXFOR Compilation Needs**

C24 The gamma spectra measured in Baghdad and Moscow and published in “Baghdad Atlas” (GAMMAATLAS) will be kept in area 3 and 4 entries. NNDC may compile the gamma production cross sections derived from the measured gamma spectra by UC Berkley for area 1 as the “data derived by other than the author” following the instruction in LEXFOR “Data type”. The derivation is documented in A.M.Hurst et al., Nucl. Instrum. Meth. Phys. Res. A995(2021)165095. See also CP-C/0489 and 4C-3/0418 (=WP2021-21).

C25 Retroactive scanning was done by CNDC for the articles published in CST (Vol.1. No.1 to Vol. 54 No.8), CTNP (Vol. 1 No.1 to Vol.13 No.4) and CNPR (Vol.14 No.1 to Vol.37 No.2) as summarized in Memo CP-S/005=WP2021-22.

C26 All volumes of three Chinese journals (CST, CNPR and CTNP) were scanned by CNDC. All EXFOR related articles from this literature survey are summarized in CP-S/005 an 006 (=WP2021-22) and also added in the Article Allocation List.

C27 Institute of Nuclear Physics (Almaty) made the cross sections tabulated in three preprints published by the institute in 1970, 1990 and 1991 computer readable. Digitized data in seven area F entries were replaced with the tabulated data, and five area D entries were created from the tabulated data.

### **EXFOR Quality Control**

C28 The thick target yields compiled in EXFOR A0092.009 will be deleted (See also CP-D/0990=WP2021-25).

C29 The data heading E-EXC-C-ER (Error in excitation energy of initial compound nucleus) proposed in Memo CP-D/991=WP2021-26 was approved.

C30 The activation cross sections measured by the Karlsruhe renormalized with a new gold standard cross section are published as INDC(GER)-053 and the relevant EXFOR entries must be updated. See also CP-C/472=WP2021-27.

C31 Inclusion of preliminary entries (i.e., entries in preliminary tapes) in databases would be useful (e.g., for detailed comparison of the entry revised in the preliminary tape with the version in EXFOR Master File). The access to the preliminary entries must be restricted (e.g., by password protection).

C32 The subentry coded with STATUS=UNOBT may be deleted if the dataset is not suitable for digitization or optical character recognition (OCR) data recovery, and the source article was published before 2000.

C33 Compilers should check presence of the article (1) before compilation (e.g., by using the NDS “Coding and checking EXFOR Reference-codes”), and also (2) during finalization of the preliminary tape (e.g., by using the NDS “EXFOR Database Update Error Report”).

## EXFOR Coding Rule

- C34 The isomeric flags of  $^{102}\text{Nb}$ ,  $^{102}\text{Tc}$ ,  $^{108}\text{Rh}$ ,  $^{128}\text{Sb}$  and  $^{132}\text{Sb}$  proposed in CP-D/1009(Rev.)=WP2021-28 (taken from ENSDF/NUBASE) were approved.
- C35 The cross section of hydrogen in hydride molecule will be compiled with ,SIG,,HYD. A new modifier HYD (hydrogen part of the quantity) was approved. See also 4C-3/415 (Rev.)=WP2021-29.
- C36 Addition to LEXFOR “Thermal-neutron scattering” proposed in 4C-3/415 (Rev.)=WP2021-29 was approved.
- C37 Revision of LEXFOR by addition of the “General rule for compilation of reaction products” and “Reaction products that are unstable against prompt particle decay” in CP-D/646=WP2021-30 was approved. N.B. “unstable intermediate nucleus” is understood as a nucleus unstable against decay by emission of a light nuclide (e.g., n, p, d, t, h).
- C38 Revisions of LEXFOR “Fission yields” and “Reaction product” proposed in CP-D/984=WP2021-31 were approved.
- C39 Compilers should provide the source information under keyword STATUS. This must be done in the data subentries when the data in the entry are not from the same table or figure. This conclusion does not require retransmission of existing entries due to deviation from these rules. See also CP-D/1010 and CP-C/0490 (=WP2021-32).
- C40 Data source must be indicated under STATUS of each data subentry (not in the common subentry) when the data of the entry are from several sources (e.g., tables, figures).
- C41 The table or figure number under STATUS must be followed by the reference (e.g., “J. Nucl. Phys. 12(2021)345”) when there are two or more references under REFERENCE. Addition of reference is also recommended for an entry having a single reference. However, retransmission due to absence of the reference is not requested. The table/figure number and reference will be in free text.
- C42 The detection of 511 keV annihilation gamma-rays will be always coded with the particle code AR. If authors report the gamma-gamma coincidence intensity (i.e.,  $\beta^+$  intensity), the intensity value multiplied by two will be coded with mentioning it in free text. See also CP-D/1005=WP2021-33.
- C43 (1) A process \* followed by fission will be coded by \*+F in REACTION SF3 without SEQ in REACTION SF5. (2) A process \* following inelastic scattering will be coded by the code of the inelastically scattered particle rather than INL (e.g., N+F instead of INL+F). (3) The process code X will appear in the form of X+\* and not \*+X. See also Memo CP-D/993 (Rev.)=WP2021-34.

## Tools for Compilation and Dissemination

- C44 The new version of CNPD EXFOR-Editor (ExfData Ver. 4.01) supports the new keyword SUPPL-INF (supplemental information) and preparation of a TRANS tape from a set of EXFOR entries. See also WP2021-35.
- C45 The participants were reminded that the NRDC expressed its desire in the NRDC 1996 meeting that products “repackaging” data originally compiled by network accurately reflect the data taken from network sources and that those sources receive proper credit and reference as to version and date of the database from which the information was extracted (c.f. INDC(NDS)-360 p.14).

### **Other Business**

- C46 The participants were informed by the WPEC SG50 coordinators and monitor that (1) templates of expected measurement uncertainties will soon be submitted for many neutron-induced observable measurements, and (2) WPEC SG50 is planning to develop a database with a stringent and parsable format that will be able to store “subjective” corrections on EXFOR data.

## **Actions**

### **EXFOR Statistics and Coverage**

- 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 (Continuing action) Send transmission statistics and correction statistics to centres every four months.

### **Manuals and Dictionaries**

- A4 Otsuka (Continuing action) Update Dictionaries every six months.

- (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, CP-D/1014=WP2021-10, CP-D/993(Rev.)=WP2021-34),
  - (3) “LEVEL-PROP” (CP-D/882=WP2016-30),
  - (4) “ERR-ANALYS” (CP-D/894 Rev.=WP2016-32, CP-D/1011=WP2021-08),
  - (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),
  - (10) “SAMPLE” (CP-D/964=WP2019-08),
  - (11) “REACTION” and “SUPPL-INF” (CP-D/965 Rev.=WP2019-21).
  - (12) “DECAY-DATA”, “PART-DET” and “RAD-DET” (CP-C/393=WP2019-27),
  - (13) “Coding of nuclides and compounds” (CP-D/1011=WP2021-08),
  - (14) “Presence of keyword” (CP-D/1011=WP2021-08).
  - (15) “ANG-SEC” (CP-D/1014=WP2021-10),
  - (16) “ANALYSIS” (CP-D/982=WP2021-12).

- A6 Otsuka (Continuing action) Revise LEXFOR for
- (1) "Thermal Neutron Scattering" (4C-3/403 =WP2016-08, 4C-3/415(Rev.)=WP2021-29),
  - (2) "Fission Yields" (CP-D/895=WP2016-09, CP-D/974=WP2019-33, CP-D/984=WP2021-31),
  - (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),
  - (10) "Sums" (CP-D/964=WP2019-08),
  - (11) "Polarization" (CP-D/970=WP2019-09),
  - (12) "Kerma factor" (4C-4/219=WP2019-10),
  - (13) "Institute" (CP-D/976=WP2019-11),
  - (14) "Supplemental information" (CP-D/965 Rev.=WP2019-21).
  - (15) "Decay data" and "Outgoing particles" (CP-C/393=WP2019-27),
  - (16) "Independent and Cumulative data" (CP-D/977 Rev.=WP2019-29 Rev.),
  - (17) "Data type" and "Delayed fission neutrons" (4C-3/414 Rev.=WP2019-30 but removing SF5=IND, CP-D/982=WP2021-12),
  - (18) "Status" (CP-D/973=WP2019-32),
  - (19) "Ratios" (CP-D/974=WP2019-33),
  - (20) "Differential data" (CP-C/1014=WP2021-10),
  - (21) "Scattering" (CP-D/1002=WP2021-14),
  - (22) "Fitting coefficients" (CP-D/1007=WP2021-15),
  - (23) "Light-Nuclei Reactions ( $Z \leq 6$ )" (CP-D/646=WP2021-30),
  - (24) "Reaction product" (CP-D/984=WP2021-31),
  - (25) "Fission" (CP-D/993(Rev.)=WP2021-34),
  - (26) "Outgoing particles" (CP-D/993(Rev.)=WP2021-34).
- A7 Zerkin (Continuing action) Summarize the role of family flags (also known as family codes, c.f. EXFOR Formats Manual Chapter 6) in ZCHEX (c.f. WP2017-11).
- A8 Otsuka (Continuing action) Propose a revised NRDC Protocol Appendix B "Scanning responsibility" for elimination of journals assigned to a centre but also scanned by NDS (c.f. WP2021-05).
- A9 Zerkin  
Otsuka (Continuing action) Propose a numbering scheme for compound codes defined in Dictionary 209.
- A10 Otsuka Add the usage of the particle code EC (electron capture) in Dictionary 33 according to Conclusion 8.

- A11 Otsuka Update Dictionaries 2 and 236 as proposed in CP-D/1014=WP2021-10 (Combination of particle codes and their order in REACTION SF7)..
- A12 Otsuka Update Dictionaries 32, 45, 113, 213 and 236 as proposed in 4C-3/416=WP2021-11. (scattering length).
- A13 Otsuka Update Dictionary 34 and 236 as proposed in 4C-3/415 (Rev.)=WP2021-29 (cross section of hydrogen in hydride molecule).

## **CINDA**

- A14 Zerkin (Continuing action) Export EXFOR to CINDA, and distribute it to other Centres every month.
- A15 Zerkin Sublet Keep NRDC informed about the situation about import of NSR to CINDA.

## **EXFOR Compilation Needs**

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

- A16 Pritychenko (Continuing action) Compile with priority W.G. Alberts+,R,NUREG/CP-0029,433,1982 (neutron dosimetry cross sections) listed in the second table of CP-D/838.
- A17 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 Foligno (Continuing action) Compile G.N.Kim+,C,2002BRUSS,,613,2002 in 4C-3/400=WP2016-16.
- A19 Pritychenko (Continuing action) Compile F. Bischoff,R,RPI-328-87,146,1966 (thermal neutron scattering data) listed in 4C-3/404= WP2016-19.
- A20 Pritychenko (Continuing action) Compile P.L.Reeder+,J,PR/C,15,2108,1977 (Pn values adopted in Rudstam's review) listed in 4C-3/410=WP2018-20.
- A21 Pritychenko (Continuing action) Compile with priority R.G.Lanier+,R,UCAR-10062-89,71,1989 (proton-induced isotope production cross sections)-listed in CP-D/725 Rev. (~WP2012-19). Notify Okumura if the assigned centre does not compile the high energy ( $E > 1$  GeV) data in the list.
- A22 Pritychenko (Continuing action) Compile with priority T.Mo+,J,NP/A,198,153,1972 (ion beam analysis application) listed in CP-D/832 Rev.



- A23 Pritychenko (Continuing action) Compile with priority the light charged-particle induced isotope production cross sections listed in CP-D/757. Notify Okumura if the assigned centre does not compile the high energy ( $E > 1$  GeV) data in the list.  
Tada  
Taova
- A24 Pritychenko (Continuing action) Compile with priority the neutron source spectra listed in CP-D/700 (Rev.3).  
Tada
- A25 Foligno (Continuing action) Compile articles reporting experimental fission product yields and listed in CP-C/464, 465 and 466. Inform Okumura if an article in the lists is not for EXFOR compilation. Transmit EXFOR entries relevant to these lists (and WP2019-20) separately from other EXFOR entries.  
Gritzay  
Okumura  
Pritychenko  
Tada  
Varlamov
- A26 Foligno (Continuing action) Compile articles reporting experimental fission product yields and listed in WP2019-20. Inform Okumura if an article in the list is not for EXFOR compilation. New and revised EXFOR entries relevant to these lists must be transmitted separately from other EXFOR entries. Transmit EXFOR entries relevant to this list (and CP-C/464, 465 and 466) separately from other EXFOR entries.  
Mikhailiukova  
Okumura  
Pritychenko
- A27 Pritychenko (Continuing action) Compile deuteron-induced reaction data compiled by the Frascati group and listed in CP-D/758.
- A28 Gritzay (Continuing action) Compile B.A.Nemashkalo+,C,88BAKU,,593, 1988 published in the “Nuclear Spectroscopy and Structure” (Nucleus) conference proceedings and listed in CP-D/881 with J,SNP,55,69,1992.
- A29 Zholdybayev (Continuing action) Compile A.D.Duisebaev+,J,JEL,19,280,1974 listed in CP-D/952.
- A30 Gritzay (Continuing action) Compile data measured with filtered neutrons measured at the KINR research reactor with numerical neutron spectra.
- A31 Pritychenko (Continuing action) Monitor availability of P.E. Koehler’s time-of-flight spectra on DVDs received from ORELA in 2015 for EXFOR compilation.
- A32 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.
- A33 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.)

- A34 Pritychenko (Continuing action) Replace J,PR/C,65,014004,2001 with J,PR/C,65,014004,2002 in 13782.001 (Memo CP-N/148=WP2019-25).
- A35 Pritychenko (Continuing action) Replace REACTION SF3=A with EL in C0753.002 (CP-D/960=WP2019-31).
- A36 Okumura (Continuing action) Revise EXFOR entries having STATUS=NCHKD listed in CP-D/973=WP2019-32.
- A37 Foligno (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  $^1\text{H}$ ,  $^{16}\text{O}$ ,  $^{56}\text{Fe}$ ,  $^{235}\text{U}$ ,  $^{238}\text{U}$  and  $^{239}\text{Pu}$ .
- A38 Foligno (Continuing action) Provide a report on mistakes in bibliographies and spells on each preliminary tape.
- A39 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.
- A40 Taova Delete A0092.009. (Thick target yields without a clear definition.)
- A41 Soppera (Continuing action) Provide JANIS Import Log created from the EXFOR Master File to Otsuka on a regular basis.
- A42 Otsuka (Continuing action) Assess the JANIS Import Log provided by Soppera as above, and register important errors to the EXFOR Feedback System.
- A43 Okumura (Continuing action) Check if the usage of REACTION SF5=CUM/M- and (CUM)/M- in the EXFOR Master is consistent with CP-D/977 Rev.=WP2019-29 Rev.
- A44 Okumura Pritychenko Revise DECAY-DATA and DECAY-MON records including EC (electron capture) listed in CP-D/0989=WP2021-07.

<u>A45</u>	Foligno Okumura Pritychenko Tada Taova Wang	Revise REACTION SF3 and SF7 listed in Appendices 1, 2 and 3 of CP-D/1014=WP2021-10 (Combination of particle codes and their order in REACTION SF7).
<u>A46</u>	Foligno Mikhailiukova Pritychenko Taova Varlamov	Revise REACTION SF8 listed in Memo CP-D/1007=WP2021-15 (LEXFOR "Fitting Coefficients").
<u>A47</u>	Okumura Pritychenko	Revise REACTION code etc listed in Memo CP-D/991=WP2021-26 (Partial elastic scattering?)
A48	Foligno Pritychenko	Revise entries compiling activation cross sections from Karlsruhe based on INDC(GER)-0053. Use REACTION SF8=SPA with KT-DUMMY=25 keV for quasi-Maxwellian spectrum averaged cross section. See also CP-C/472=WP2021-27.
<u>A49</u>	Foligno Okumura Pritychenko Tada	Revise entries involving isomers of Nb-102, Tc-102, Rh-108, Sb-128 and Sb-132 according to Appendix of Memo CP-D/1009 (Rev.)=WP2021-28.
<u>A50</u>	Foligno Mikhailiukova Pritychenko	Revise entries involving several variable atomic and/or mass numbers listed in CP-D/0984 in WP2021-31.
<u>A51</u>	Foligno Mikhailiukova Pritychenko	Revise entries having repetition of ELEMENT and/or MASS listed in CP-D/1012 in WP2021-31.
<u>A52</u>	Foligno Okumura Pritychenko	Revise entries relevant to 511 keV gamma emission listed in CP-D/1005=WP2021-33.
<u>A53</u>	Foligno Okumura Pritychenko Varlamov Wang	Revise REACTION codes listed in CP-D/0993(Rev.)=WP2021-34 (Combination of process and other codes in REACTION SF3).

### **Tools for Compilation and Dissemination**

A54	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.
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- A55 Pikulina (Continuing action) Continue development and testing of the EXFOR-Editor and InpGraph in cooperation with NDS and other data Centres.
- A56 All (Continuing action) Provide Pikulina feedback on EXFOR-Editor and InpGraph.
- A57 Kimura (Continuing action) Continue development and testing of GSYS in cooperation with NDS and other centres.
- A58 All (Continuing action) Provide Kimura feedback on GSYS.
- A59 Soppera (Continuing action) Continue development and testing of the JANIS TRANS Checker in cooperation with NDS and the other centres.
- A60 All (Continuing action) Provide Soppera feedback on JANIS TRANS Checker.
- A61 Bhattacharyya (Continuing action) Keep centres informed about the progress in development of the EXFOR-I editor.
- A62 Nayak (Continuing action) Monitor progress in development of the EXFOR-I editor.
- A63 Otsuka (Continuing action) Provide EXFOR News every month and consider updates to the IAEA NDS website.
- A64 Otsuka (Continuing action) Support update of the Japanese editor (HENDEL) as time permits.
- A65 Zerkin (Continuing action) Update ZCHEX based on comments from compilers.
- A66 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.
- A67 Zerkin (Continuing action) Develop and distribute the program package including a standalone platform independent program to generate X4+ from a standalone EXFOR entry.
- A68 All (Continuing action) Consider to use the X4+ format for author approval, and also send feedback to Zerkin.
- A69 Zerkin (Continuing action) Continue development of the EXFOR upload web tool.

- A70 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.
- A71 Zerkin (Continuing action) Continue development of the additional database encompassing correction factors and relevant comments for suspect/erroneous data (X4-evaluated) presented in WP2010-19; keep NRDC informed about results, impact and usage statistics of the database.
- A72 Zerkin Pritychenko (Continuing action) Continue translation from EXFOR to NSR.
- A73 Jin Kimura Pikulina Zerkin (Continuing action) Study problems in 2D calibration of original pictures, and process of approval of results of digitizing using plotting facilities.
- A74 Fleming Okumura Pritychenko (Continuing action) Finalize and submit EXFOR entries including covariance data provided by Zerkin (WP2017-Z3).
- A75 Pritychenko (Standing action) Provide NSR database to Zerkin with the name aliases to improve the search of EXFOR entries by the author name (WP2014-53).
- A76 All Preparing for NRDC-2022 discussion about policy (methods/formats) of off-line dissemination of EXFOR data by NRDC members to external users' communities and conditions/requirements for further re-distribution ([Zerkin's presentation-3](#)).
- A77 All Investigate possibility for opening public Web access to lab reports of the institutes of EXFOR-Area responsibility.
- A78 Zerkin Submit a memo explaining how to use EXFOR Database Update Error Report and other tools to avoid duplication.
- A79 Pritychenko Zerkin Otsuka Investigate assignment of Digital Object Identifiers (DOI) for EXFOR data sets using DataCite and one of EXFOR formats. Start a pilot project and produce several DOI for EXFOR data sets. Report results at the next NRDC meeting in 2022.