



International Atomic Energy Agency

The 8th DAE-BRNS Theme Meeting on

EXFOR Compilation of Nuclear Data

Department of Physics, The M.S. University, Vadodara, India

12–16 November 2019

EXFOR Entry Checking Tools

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Why we have to follow format and dictionary?

EXFOR files are read not only by humans but also computer codes. Must be *computer readable*.

```
ENTRY      D6339001  20190805  20191010  20191009  D122
SUBENT     D6339001  20190805  20191010  20191009  D122
BIB        9      19
TITLE      Neutron emission in 19F-induced reactions
AUTHOR     (J.Acharya, S.Mukherjee, A.Chatterjee, N.L.Singh,
            K.Ramachandran, P.C.Rout, K.Mahata, V.Desai,
            E.T.Mirgule, S.V.Suryanarayana, B.K.Nayak, A.Saxena,
            G.F.Steyn)
INSTITUTE  (3INDBDA, 3INDTRM, 3SAFITH)
FACILITY   # (3INDBDA M.S. University of Baroda, Baroda, India
            #, 3INDTRM Bhabha Atomic Research Centre, Trombay, Mumbai, India
            #, 3SAFITH) iThemba LABS, Somerset West, South Africa, Rep.
            (VDGT, 3INDTRM) Pelletron-LINAC, BARC-TIFR.
REFERENCE  # (VDGT Tandem van de Graaff
            #, 3INDTRM) Bhabha Atomic Research Centre, Trombay, Mumbai, India
            (J, PR/C, 97, 034607, 2018)
            # (J, PR/C, 97, 034607, 2018) Jour: Physical Review, Part C, Nuclear Physics, Vol.97, p.034607 (2018), USA
            #+ #URL=http://dx.doi.org/10.1103/PhysRevC.97.034607
            #+ #NSR=2018AC05 #DOI=10.1103/PhysRevC.97.034607
            #+ #Title=Neutron emission in 19F-induced reactions
            #+ #Authors=Ja.Acharya, S.Mukherjee, A.Chatterjee, N.L.Singh, K.Ramachandran, P.C.Rout, K.Mahata, V.D.
SAMPLE     All the targets (51V, 89Y and 181Ta) were rolled from
            spectroscopic grade material to thicknesses in the
            range 1.5-1.8 mg/cm2.
DETECTOR   (SCIN) Fourteen liquid scintillator neutron detectors
            (NE213) were used to cover the angular range 25 to 143
```

Annotation added
by a computer
program
(X4+ output)

Two Checking Programs – JANIS and ZCHEX

1. JANIS Trans Checker

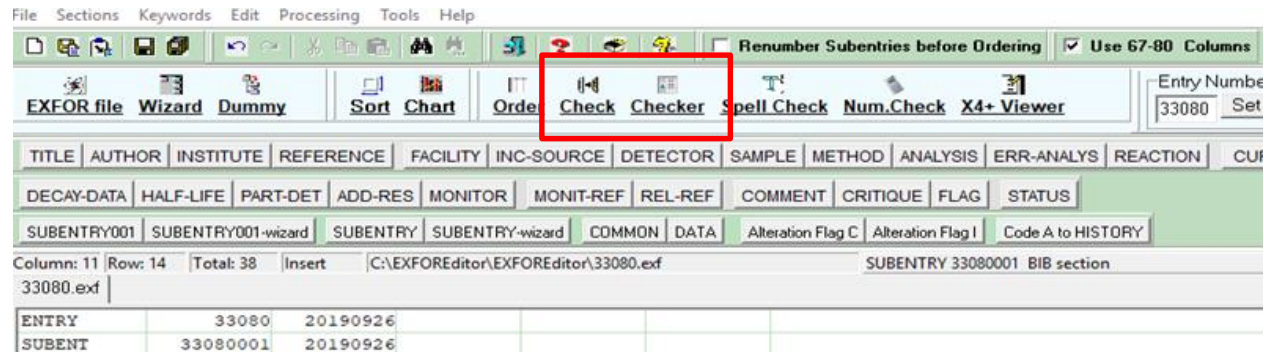
- Developed by OECD Nuclear Energy Agency.
- Written in Java.
- Strict and accurate checking for formatting and codes.
- No physics checking.

2. (Z)CHEX

- Initially developed by US National Nuclear Data Center.
- Now maintained by IAEA Nuclear Data Section.
- Written in Fortran.
- Physics checking in addition to formatting and code.
- Sometimes gives a false alarm....

How to run JANIS and ZCHEX?

- Push “Check” (CHEX) and “Checker” (JANIS) on the EXFOR editor.



- Upload your EXFOR draft to the “EXFOR Compilation Tool” (<http://www.jcprg.org/exfor/tool/>).



What does the checking tool complain?

- It is not always easy to understand the error message.

Example: “*Nonmonotonic data field*”.

EN	DATA	DATA-ERR
MEV	MB	MB
13.73	15.6	1.5
14.07	17.	1.6
14.68	20.4	1.7
14.42	18.6	1.6
14.77	22.	1.7

These two data lines must be swapped to keep the incident energy (EN) in increasing order.

- Don't hesitate to ask Dr. Vidya or me when you cannot understand the meaning of an error message!

Submit an error-free entry!

- Eliminate all error messages from your entry before its submission to Dr. Vidya.
- If the message is not understandable, please resolve it with Dr. Vidya or me before submission.

Exercise

- Download EXFOR file “Entry of the Common article for checking and correction” from
<https://www-nds.iaea.org/nrdc/india/ws2019/>
- Check the EXFOR file with ZCHEX and JANIS. Repeat correction and checking until all messages disappear (Visit the Common article and Format Manual to solve some errors.)
- Open “List of corrections” on the website if you cannot eliminate some error messages.