Format check (FMTCHK) for delayed particle data sets and other thoughts

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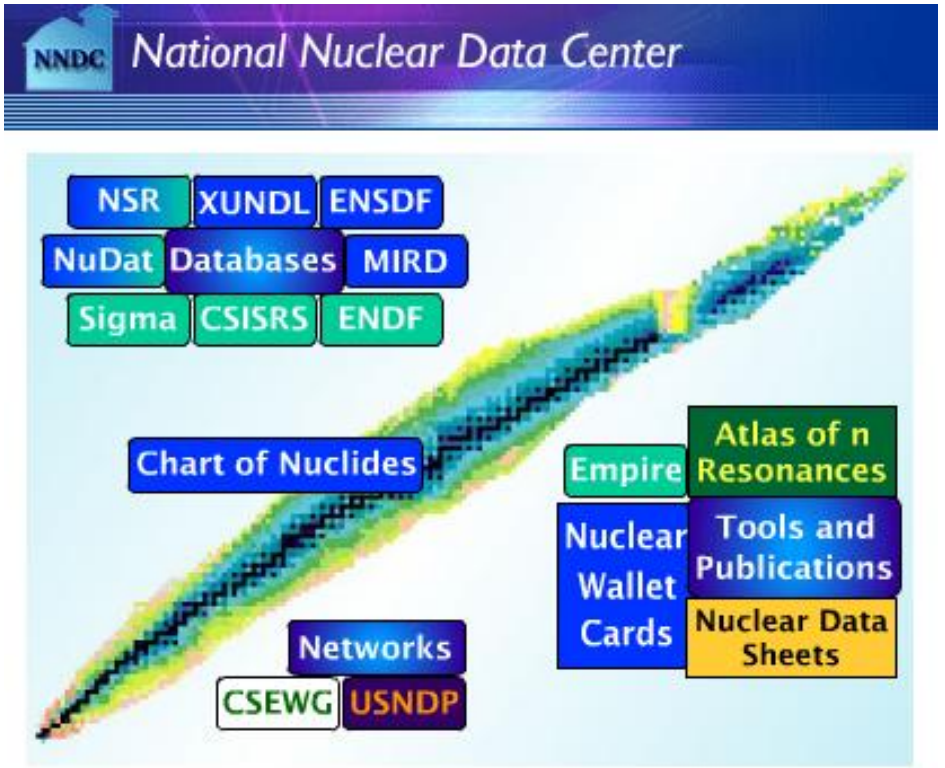
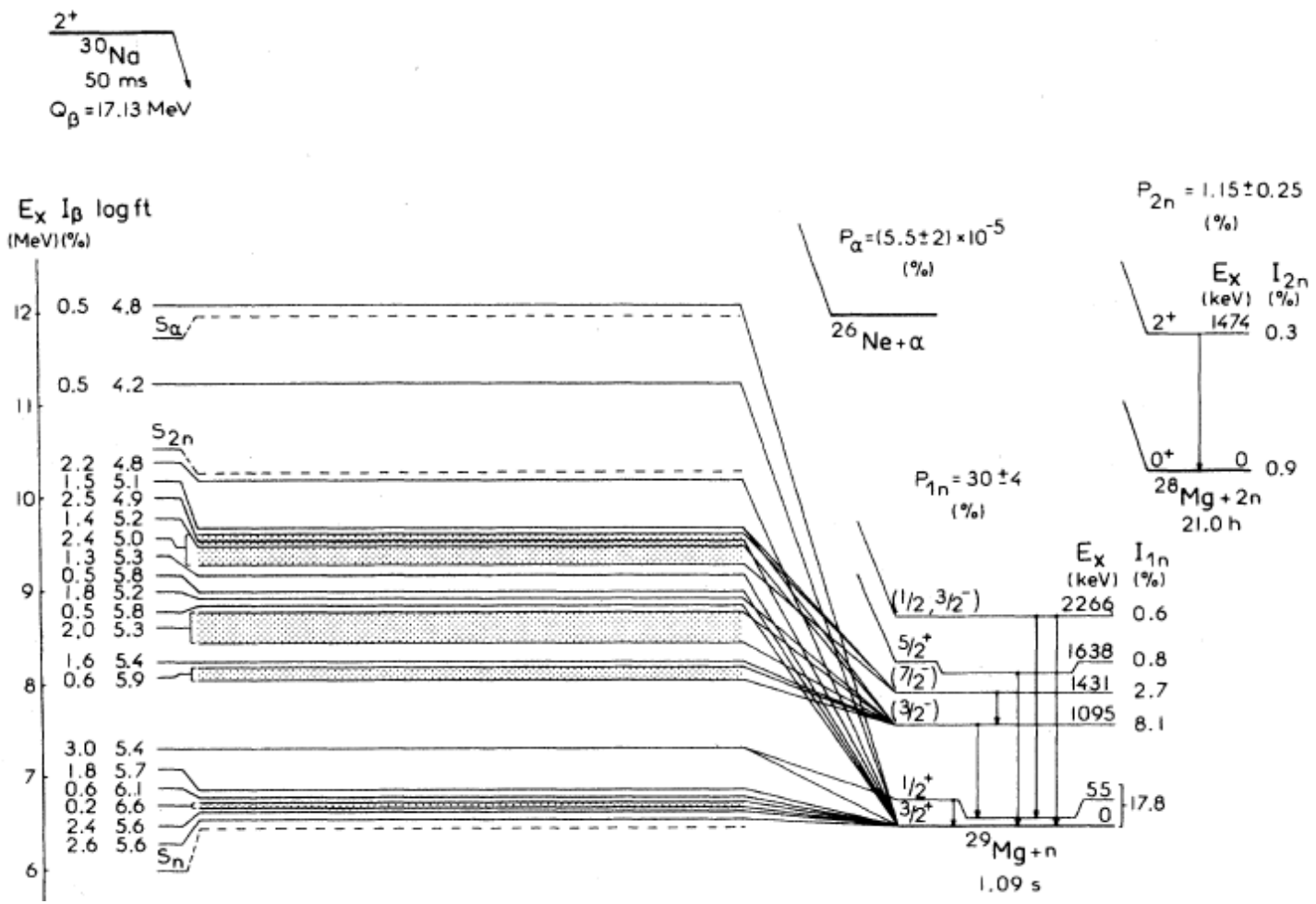
ENSDF evaluation

- Motivation
- Knowledge – wide range of experiments
- Supporting materials:
  - Manual
  - Guidelines for evaluators
  - Analysis and utility codes
  - Other documents



Delayed Particle Data sets

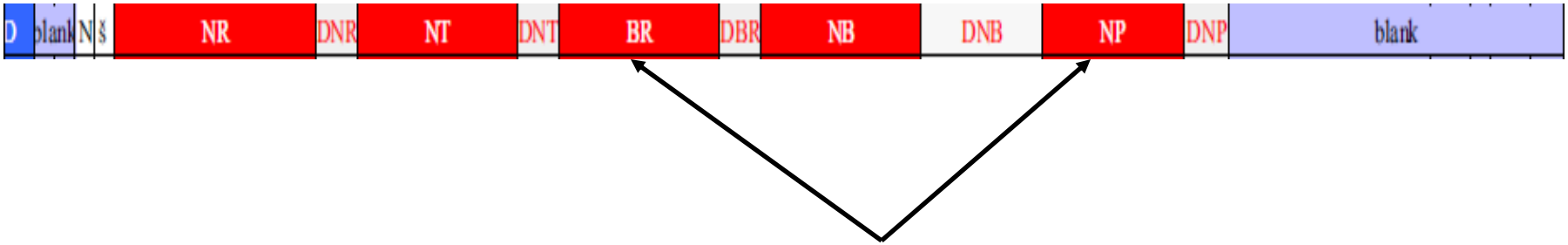


Direction in ENSDF Manual

- The (Delayed-) Particle Record
  - In column 22-29: IP: Intensity of (delayed) particles **in percent of the total (delayed-) particle emissions**

$$\sum I(n) = 100$$

- The Alpha Record
  - In column 22-29: IA: Intensity of α-decay branch **in percent of the total decay**



Nuclear Data Sheet/NNDC Web

^{30}Na β^-n Decay 1989Ba07

n Radiations

E_n	E_{level}	I_n[#]	$E_{daughter}$	E_n	E_{level}	I_n[#]	$E_{daughter}$
71	0.0	8.7 *13*	6515	≈1530	1430.6	8.0 *10*	9460
115	0.0	8.0 *13*	6561	1870 *60*	1095.1	4.7 *7*	9470
180 *40*	0.0	0.7 *3*	6632	2070 *80*	1095.1	5.0 *7*	9677
242	0.0	2.0 *3*	6692	2270 *90*	0.0	1.7 *3*	8792
375	0.0	6.0 *10*	6830	2.44×10^3 *10*	0.0	1.7 *3*	8962
570 *70*	1095.1	2.0 *3*	8124	2.66×10^3 *12*	0.0	4.3 *7*	9192
668	1095.1	5.4 *7*	8228	3.02×10^3 *14*	0.0	8.4 *13*	9562
795	54.6	10.0 *17*	7319	4.63×10^3 *30*	0.0	1.7 *3*	11230
847	0.0		7319	5464 *40*	0.0	1.7 *3*	12090
≈1050	1095.1	6.7 *10*	8600	3.62×10^4 *20*	0.0	7.4 *10*	10182
1267	1095.1	6.0 *10*	8848				

#For absolute intensity per 100 decays, multiply by 0.30 4.

Format check (FMTCHK)

```
 1.   29MG    30NA B-N DECAY                1989BA07                  98NP     200103
 2.   29MG C  Other: 1984La03
 3.   29MG  H TYP=FUL$AUT=M. S. BASUNIA$CUT=1-MAY-2009$CIT=ENSDF$
 4.   29MG  H TYP=FUL$AUT=P. M. ENDT, R.B. FIRESTONE$CIT=NP A633, 1 (1998)$
 5.   29MG2 H CUT=1-Jan-1999$
 6.   29MG C  1989BA07: 30NA was produced bombarding a uranium carbide target with
 7.   29MG2C  600 MeV protons from the ^CERN synchrocyclotron, mass separated in the
 8.   29MG3C  ^ISOLDE facility; NE213 scitillator, 2 HPGe detectors and one
 9.   29MG4C  neutron detector; Measured: EG, BI, GG COIN, G-N COIN.
10.   29MG  N 0.42       3          0.30   4              1.0
                                    ********              *******                  <E> BR .NE. NP
                                           **                    **                <E> DBR .NE. DNP
```

- Ignore FMTCHK error
- Modify FMTCHK to check both NB = NP and $\sum I(n)=100$
- Drop checking NB = NP
  - Note needed in the ENSDF manual

Other thoughts:

- Training New Evaluators
  - Evaluator's corner http://www.nndc.bnl.gov/nndc/evalcorner/
  - Workshops at BNL and ICTP – since 2001

ENSDF Evaluators' Workshops

Joint ICTP-IAEA Workshop on Nuclear Structure and Decay Data: Theory and Evaluation	ICTP, April 28-May 9, 2008 (Announcement)
Workshop on Nuclear Structure and Decay Data: Theory and Evaluation Manual Addendum - 2006	ICTP, February 20-March 3, 2006 (INDC(NDS)-496)
Workshop on Nuclear Structure and Decay Data: Theory and Evaluation Manual Addendum - 2005	ICTP, April 4-15, 2005 (INDC(NDS)-473)
Workshop on Nuclear Structure and Decay Data: Theory and Evaluation Manual - Part 1	ICTP, November 17-28, 2003 (INDC(NDS)-452)
Workshop on Nuclear Structure and Decay Data: Theory and Evaluation Manual - Part 2	ICTP, November 17-28, 2003 (INDC(NDS)-452)
Workshop on Nuclear Structure and Decay Data Evaluation	NDS, November 18-22, 2002 (INDC(NDS)-439. Summary Report)
ENSDF Evaluators' Training Workshop	NNDC, April 16-17, 2001 (Contributions)

Manuals

Evaluated Nuclear Structure Data File; A Manual for Preperation of Data Sets	Jagdish K. Tuli BNL-NCS-51655-01/02-Rev (Feb. 2001)
Procedures Manual for the Evaluated Nuclear Structure Data File	Edited by M.R. Bhat BNL-NCS-40503 (Oct. 1987)

Preprints

History of the Origin of the Chemical Elements and Their Discoverers	Norman E. Holden
Table of Magnetic Dipole Rotational Bands	Amita, Balraj Singh, and Priyanka Agarwal and Ashok K. Jain
Table of Nuclear Moments (2001 Preprint)	Nicholas Stone

Other thoughts: (Cont')

- Web base training:
  - Video clips
  - Recommended reading section at Evaluator's corner

    http://www.nndc.bnl.gov/nndc/evalcorner/
- Email communications (questions/answers)
  - Evaluators forum
- List of earlier evaluations for each mass chain
  - For quicker tracking

Thank You