



NuDat

www.nndc.bnl.gov/nudat2

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NuDat 2.3

Released in
March 2007

Most important
change:
Uncertainties in
NDS and
standard style

Long standing
request by users

It required large
amounts of
programming

57	135La 19.5 H ε: 100.00%	136La 9.87 M ε: 100.00%	137La 6E+4 Y ε: 100.00%	138La 1.02E+11 Y 0.090% ε: 65.60% β-: 34.40%	139La STABLE 99.910%	140La 1.6781 D β-: 100.00%	141La 3.92 H β-: 100.00%	142La 91.1 M β-: 100.00%	143La 14.2 M β-: 100.00%
	134Ba STABLE 2.417%	135Ba STABLE 6.592%	136Ba STABLE 7.854%	137Ba STABLE 11.232%	138Ba STABLE 71.698%	139Ba 83.06 M β-: 100.00%	140Ba 12.752 D β-: 100.00%	141Ba 18.27 M β-: 100.00%	142Ba 10.6 M β-: 100.00% β-η: 0.09%
	133Cs STABLE 100%	134Cs 2.0652 Y β-: 100.00% ε: 3.0E-4%	135Cs 2.3E+6 Y β-: 100.00%	136Cs 13.04 D β-: 100.00%	137Cs 30.03 Y β-: 100.00%	138Cs 33.41 M β-: 100.00%	139Cs 9.27 M β-: 100.00%	140Cs 63.7 s β-: 100.00%	141Cs 24.84 s β-: 100.00% β-η: 0.04%
55	132Xe STABLE 26.909%	133Xe 5.243 D β-: 100.00%	134Xe >5.8E+22 Y 10.436% 2β- ≥ 0.00%	135Xe 9.14 H β-: 100.00%	136Xe >2.4E+21 Y 8.857% 2β-	137Xe 3.818 M β-: 100.00%	138Xe 14.08 M β-: 100.00%	139Xe 39.68 s β-: 100.00%	140Xe 13.60 s β-: 100.00%
53	131I 8.0252 D β-: 100.00%	132I 2.295 H β-: 100.00%	133I 20.8 H β-: 100.00%	134I 52.5 M β-: 100.00%	135I 6.57 H β-: 100.00%	136I 83.4 s β-: 100.00%	137I 24.5 s β-: 100.00% β-η: 6.97%	138I 6.23 s β-: 100.00% β-η: 5.56%	139I 2.260 s β-: 100.00% β-η: 10.00%
	78	80	82	84	86				

Ground and isomeric state information for ¹³⁷55Cs

E(level) (MeV)	Jπ	Δ(MeV)	T _{1/2}	Decay Modes
0.0	7/2+	-86.5455	30.03 y 0.05	β-: 100.00 %

A [list of levels](#), a [level scheme](#) and [decay radiation](#) information are available

Nucleus: go

Color code	Tooltips
Half-life	On
Decay Mode	Off
Uncertainties style	N E W
NDS	Standard

- > 10+15 s
- 10+10 s
- 10+07 s
- 10+05 s
- 10+04 s
- 10+03 s
- 10+02 s
- 10+01 s
- 10+00 s
- 10-01 s
- 10-02 s
- 10-03 s
- 10-04 s
- 10-05 s
- 10-06 s
- 10-07 s
- 10-15 s
- < 10-15 s
- unknown

NNDc ENSDF NSR
Nuclear Wallet Cards

Keep the presentation as clean as possible
Minimize the amount of unnecessary information

NuDat 2.4

Released in
September 2007

Search for $BE_{\lambda}/BM_{\lambda}$
in Weisskopf units
(Cyrus Baktash
request)

Provide direct
access to ENSDF
files (Many users
had requested it)

Nuclear Levels and Gammas Search

([Help](#))

Specify Nuclei : Nucleus: Ex: 232TH or th232 or 232-Th or th-232 or
 Z / Element: A: N:
 ≤ Z ≤ ≤ A ≤ ≤ N ≤
Any Z Any A Any N

E(level) condition: enabled disabled 0 ≤ E_{level}(keV) ≤ 40000

Decay Mode condition: enabled disabled Decay Mode ANY

Jn(level) condition: enabled disabled J = Order : ALL Parity : ANY

T_{1/2}(level) condition: enabled disabled 0 fs ≤ T_{1/2} ≤ 1E10 Gy
 No Upper/Lower limit values

γ condition #1: enabled disabled 0 ≤ E_γ(keV) ≤ 40000 Multipolarity: ANY Not mixed

γ condition #2: enabled disabled 0 ≤ E_γ(keV) ≤ 40000 Multipolarity: ANY Not mixed

γ condition #3: enabled disabled 0 ≤ E_γ(keV) ≤ 40000 Multipolarity: ANY Not mixed

γ coincidence condition : any coincident Coincidence gate ≤ 1 us

γ reduced transition probability: enabled disabled 0 ≤ B(M_λ,E_λ)(Weisskopf units) ≤ 40000 **NEW**

Ordering: Z, A, E(level),E(gamma) Output: Web Page Formatted File

Uncertainties: Nuclear Data Sheets style Standard style

Levels and Gammas database version of 11/5/2007

NuDat 2.4

ADOPTED LEVELS, GAMMAS for ¹⁴⁴Sm

Author: A.A. Sonzogni Citation: Nuclear Data Sheets 93, 599 (2001)

[Full ENSDF file](#)

Q(β⁻)=6315 keV 17 S_n= 10520.0 keV 24 S_p= 6295 keV 3 Q_α= 76 keV 19

References:

A: 144EU ε DECAF
 B: 144SM(G,G')
 C: 144SM(N,N'G)
 D: 144SM(P,P')
 E: 146SM(P,T)
 F: COULOMB EXCITATION
 G: 142ND(A,2NG),144ND(A,4NG)
 H: 142ND(16O,14C)
 I: (HI,XNG)
 J: 144SM(P,P'G)
 K: 142ND(A,2NG)

E _{level} (keV)	XREF	J _π	T _{1/2}	E _γ (keV)	I _γ	γ mult.
0.0	ABCDEFGH I	0+	STABLE			
1660.027 10	ABCDEFGHIJK	2+	84.4 fs 25	1660.01 1	100	E2
1810.172 25	CDEFGHIJK	3-	25 ps 4	150.21 10 1810.3 3	100.0 2 7.0 6	E1

ENSDF file for 144SM

- ADOPTED LEVELS, GAMMAS
- 144EU EC DECAF
- 142ND(A,2NG),144ND(A,4NG)
- 142ND(A,2NG)
- 142ND(16O,14C)
- 144SM(G,G')
- 144SM(N,N'G)
- 144SM(P,P')
- 144SM(P,P'G)
- COULOMB EXCITATION
- 146SM(P,T)
- (HI,XNG)
- 148GD A DECAF

Retrieve selected datasets

Retrieve all datasets

Very basic page. Plan to add more features to it, such as PDF/HTML output and plots.

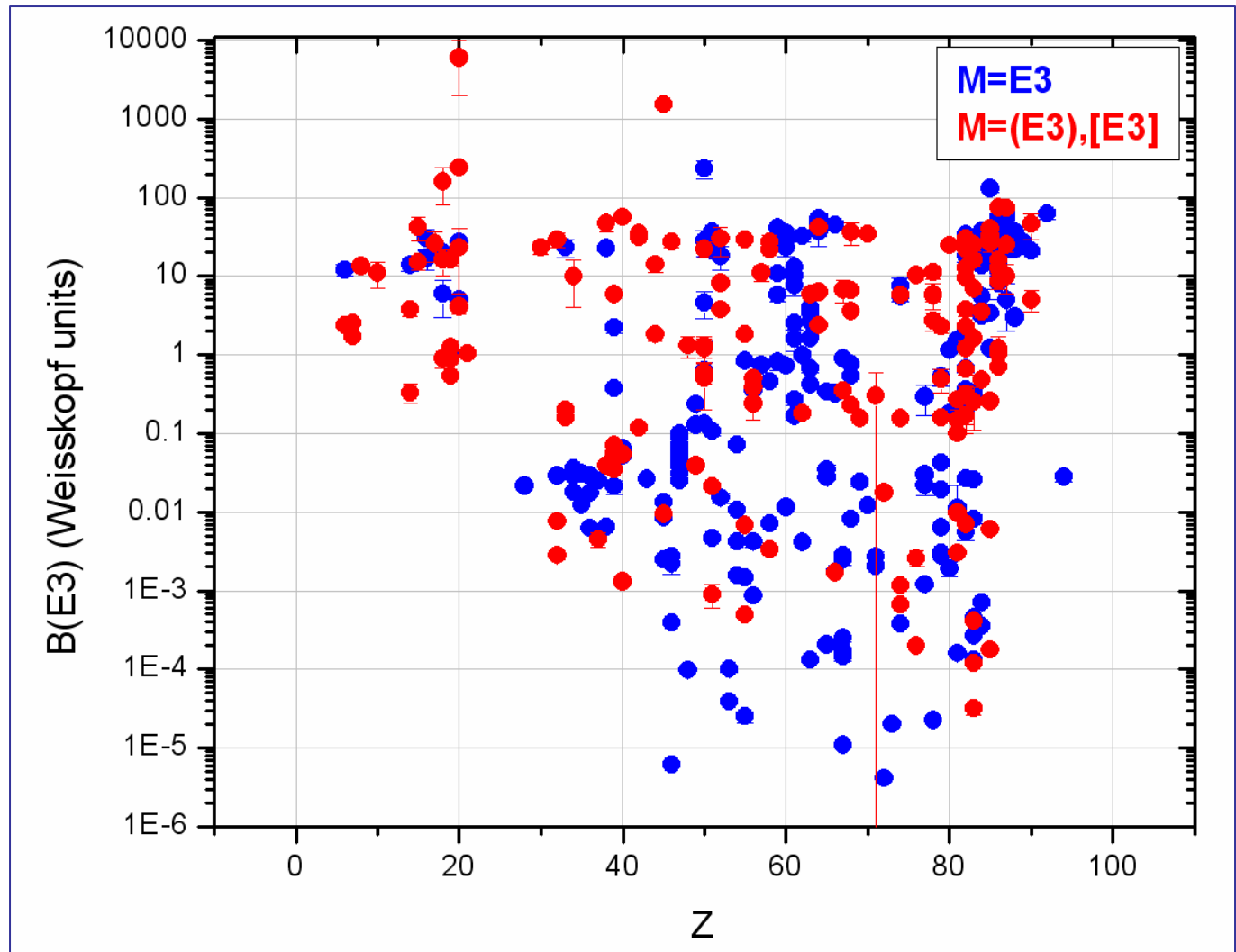
NuDat 2.4

Example

B(E3) in ENSDF

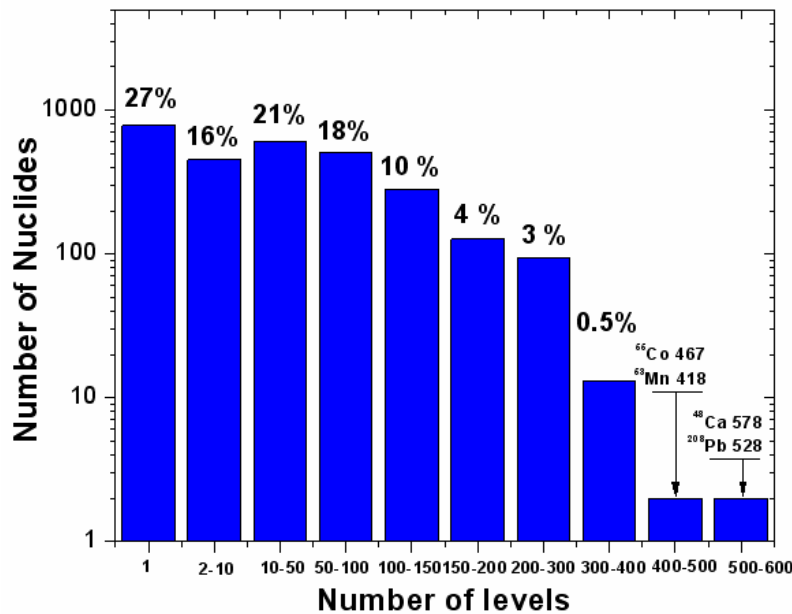
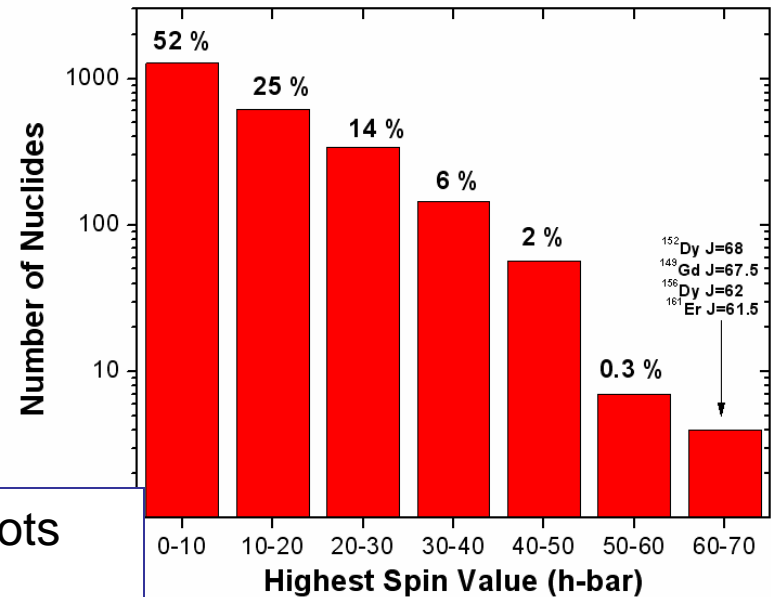
Recommendation:

Run Ruler
throughout
ENSDF and make
sure values are
compatible with
systematics

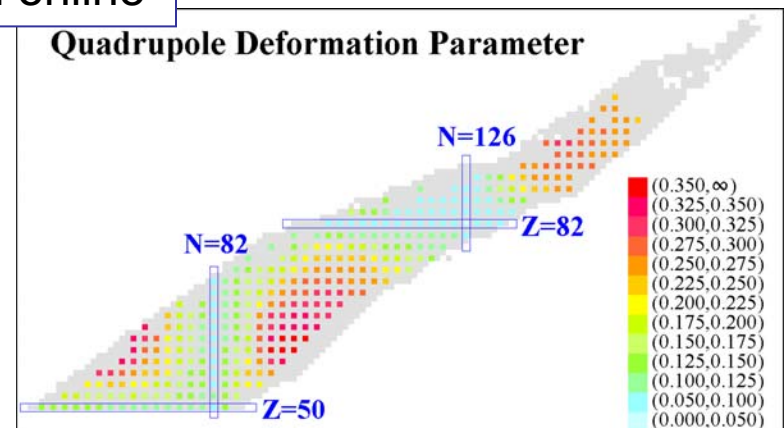


NuDat 2.3 - Contents

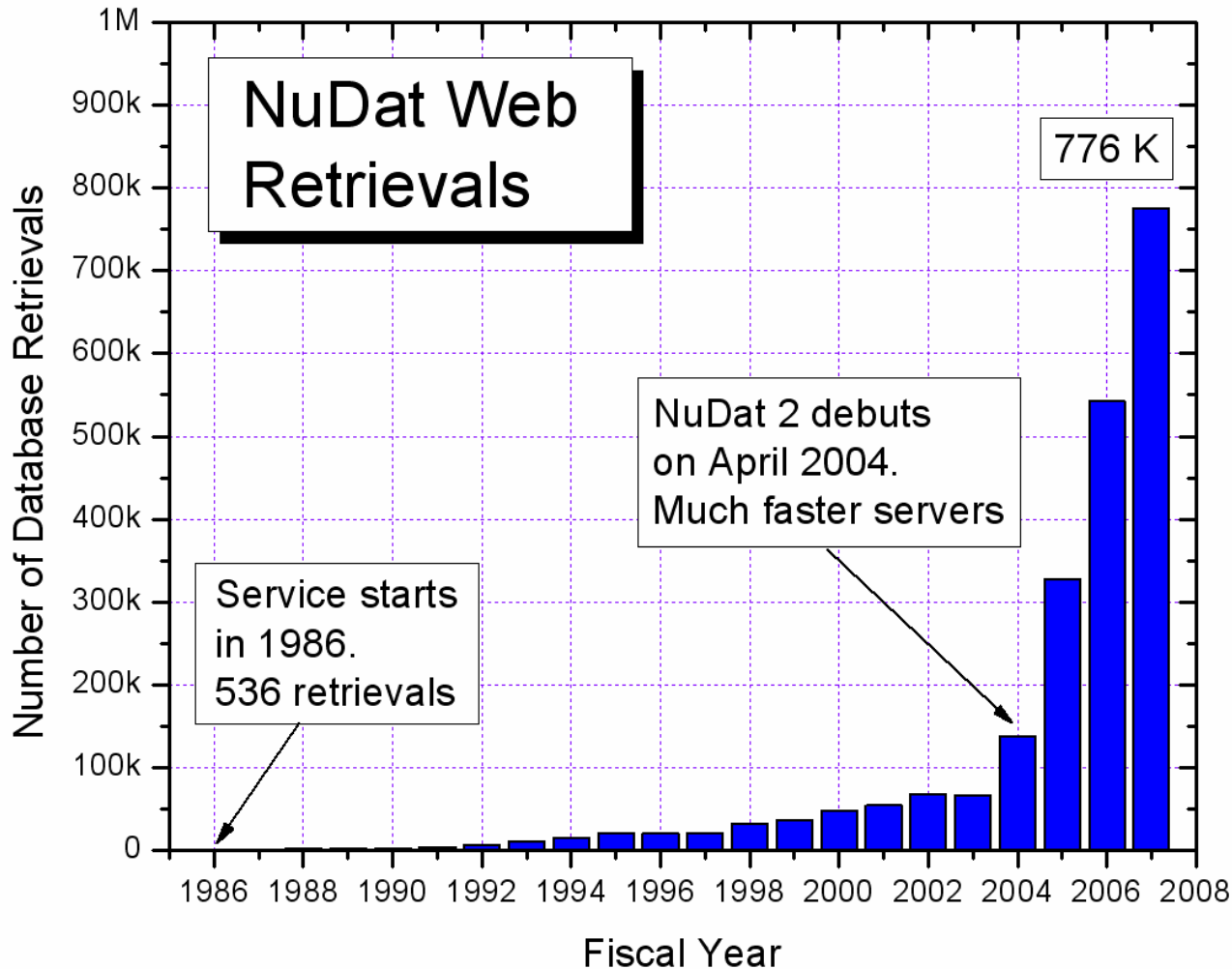
Number of nuclides	3,166
Number of levels	148,800
Number of levels with $T_{1/2}$	21,817
Number of levels with $J\pi$	110,672
Number of gamma-rays	220,320
Number of γ - γ coincidences	2,691,970



These plots can be created online



NuDat 2 - Dissemination



22 years of electronic access.

On average, 10 monthly e-mails from non-NSDD users.

56 % of all NNDC retrievals.

Used in

- National Labs
- Research organizations
- Tool for nuclear physics education

NuDat 2

Summary

- ❑ NuDat 2.3 released in March 2007.
- ❑ NuDat 2.4 in September 2007.
- ❑ Search of $B(E\lambda, M\lambda)$ values
- ❑ Direct access to ENSDF -> likely to do more work in this area
- ❑ Important increase in NuDat statistics. Large interest in nuclear structure and decay data.