

NuDat

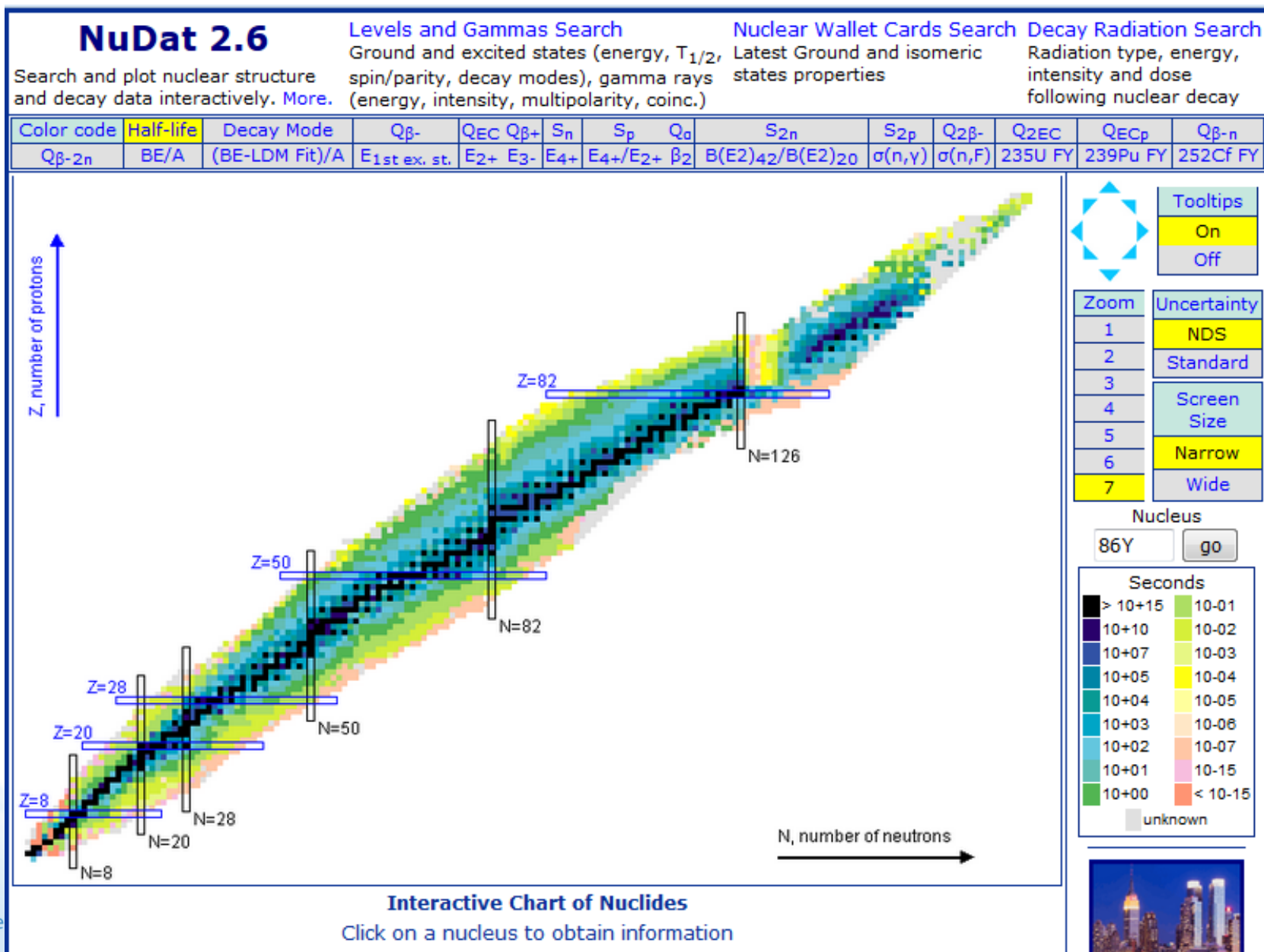
Developed by Alejandro Sonzogni
*National Nuclear Data Center
Brookhaven National Laboratory, NY USA*



U.S. DEPARTMENT OF
ENERGY

Office of
Science

The friendly face of ENSDF



Color code $Q_{\beta-2n}$	Half-life BE/A	Decay Mode (BE-LDM Fit)/A	$Q_{\beta-}$ $E_{1st\ ex. st.}$	Q_{EC} E_{2+}	$Q_{\beta+}$ E_{3-}	S_n E_{4+}	S_p E_{4+}/E_{2+}	Q_{α} β_2	S_{2n} $B(E2)_{42}/B(E2)_{20}$	S_{2p} $\sigma(n,\gamma)$	$Q_{2\beta-}$ $\sigma(n,F)$	Q_{2EC} 235U FY	Q_{ECp} 239Pu FY	$Q_{\beta-n}$ 252Cf FY
84Nb 9.8 S $\epsilon: 100.00\%$ ϵ_p	85Nb 20.5 S $\epsilon: 100.00\%$	86Nb 88 S $\epsilon: 100.00\%$	87Nb 3.75 M $\epsilon: 100.00\%$	88Nb 14.55 M $\epsilon: 100.00\%$	89Nb 2.03 H $\epsilon: 100.00\%$	90Nb 14.60 H $\epsilon: 100.00\%$	91Nb 6.8E+2 Y $\epsilon: 100.00\%$	92Nb 3.47E+7 Y $\epsilon: 100.00\%$ $\beta- < 0.05\%$						
83Zr 41.6 S $\epsilon: 100.00\%$ ϵ_p	84Zr 25.8 M $\epsilon: 100.00\%$	85Zr 7.86 M $\epsilon: 100.00\%$	86Zr 16.5 H $\epsilon: 100.00\%$	87Zr 1.68 H $\epsilon: 100.00\%$	88Zr 83.4 D $\epsilon: 100.00\%$	89Zr 78.41 H $\epsilon: 100.00\%$	90Zr STABLE 51.45%	91Zr STABLE 11.22%						
82Y 8.30 S $\epsilon: 100.00\%$	83Y 7.08 M $\epsilon: 100.00\%$	84Y 39.5 M $\epsilon: 100.00\%$	85Y 2.68 H $\epsilon: 100.00\%$	86Y 14.74 H $\epsilon: 100.00\%$	87Y 79.8 H $\epsilon: 100.00\%$	88Y 106.626 D $\epsilon: 100.00\%$	89Y STABLE 100%	90Y 64.053 H $\beta-: 100.00\%$						
81Sr 22.3 M $\epsilon: 100.00\%$	82Sr 25.34 D $\epsilon: 100.00\%$	83Sr 32.41 H $\epsilon: 100.00\%$	84Sr STABLE 0.56%	85Sr 64.850 D $\epsilon: 100.00\%$	86Sr STABLE 9.86%	87Sr STABLE 7.00%	88Sr STABLE 82.58%	89Sr 50.53 D $\beta-: 100.00\%$						
80Rb 33.4 S $\epsilon: 100.00\%$	81Rb 4.572 H $\epsilon: 100.00\%$	82Rb 1.2575 M $\epsilon: 100.00\%$	83Rb 86.2 D $\epsilon: 100.00\%$	84Rb 32.82 D $\epsilon: 96.10\%$ $\beta-: 3.90\%$	85Rb STABLE 72.17%	86Rb 18.642 D $\beta-: 99.99\%$ $\epsilon: 5.2E-3\%$	87Rb 4.81E+10 Y 27.83% $\beta-: 100.00\%$	88Rb 17.773 M $\beta-: 100.00\%$						
43	44	45	46	47	48	49	50	N						

Ground and isomeric state information for $^{86}_{39}\text{Y}$

E(level) (MeV)	J π	Δ (MeV)	T $_{1/2}$	Decay Modes
0.0	4-	-79.2832	14.74 h 2	$\epsilon: 100.00\%$
0.2183	(8+)	-79.0649	48 m 1	IT : 99.31 % $\epsilon: 0.69\%$

A list of levels, a level scheme and decay radiation information are available



Tooltips

On

Off

Zoom

Uncertainty

1

NDS

2

Standard

3

Screen
Size

4

5

Narrow

6

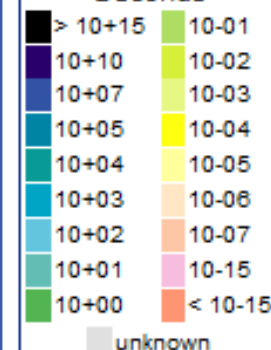
7

Wide

Nucleus

go

Seconds



ADOPTED LEVELS, GAMMAS for ^{86}Y

Authors: Alexandru Negret, Balraj Singh Citation: Nucl. Data Sheets 124, 1 (2015) Cutoff date: 30-Nov-2014

Full ENSDF file

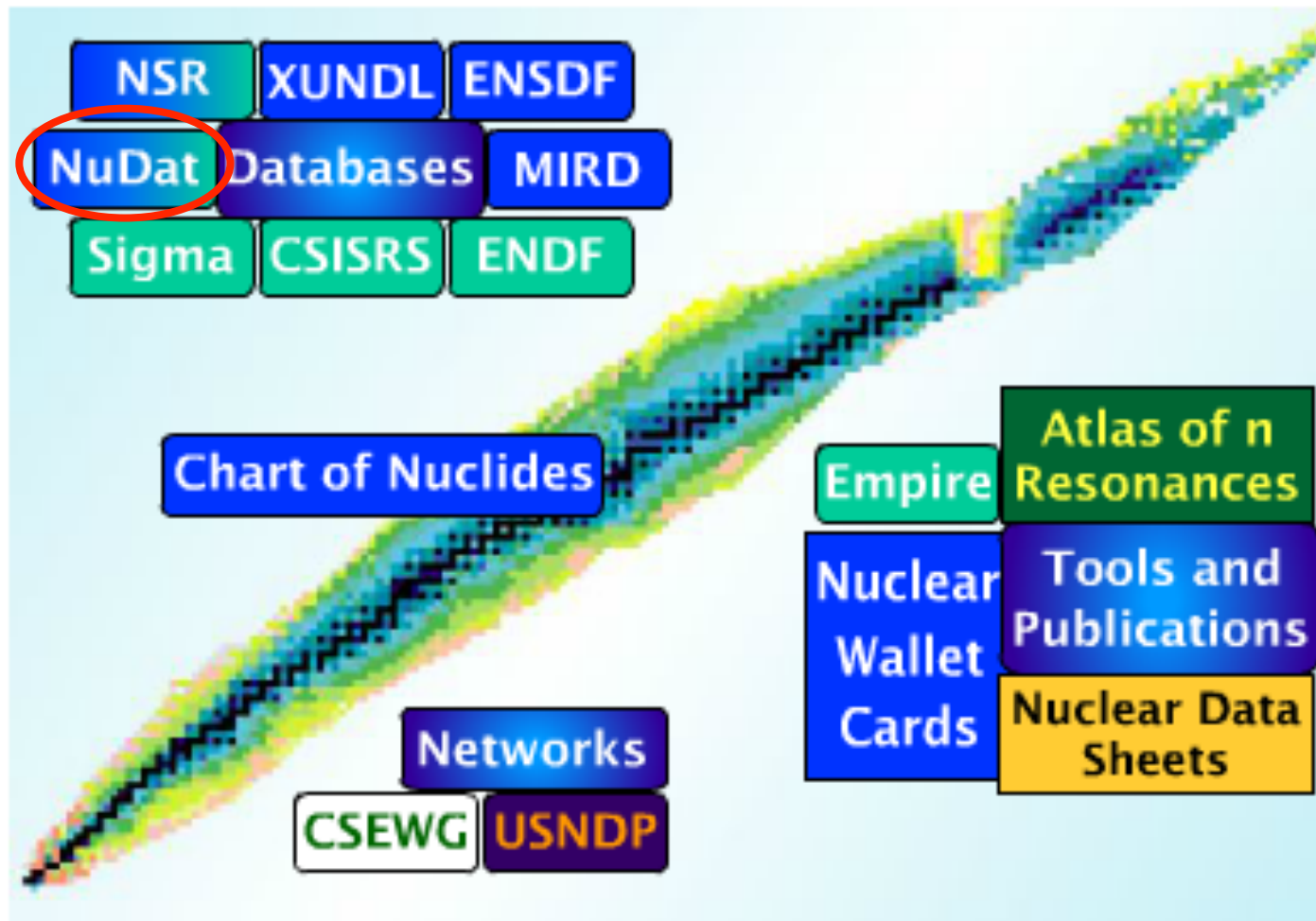
Q(β^-) = -1315 keV 15 S(n) = 9512 keV 24 S(p) = 5469 keV 14 Q(α) = -5520 keV 14 Reference: 2012WA38

References:

- A ^{86}Zr ϵ DECAY (16.5 H) B ^{86}Y IT DECAY (47.4 M)
 C ^{82}Cr (^{37}Cl , 2pn γ) D ^{76}Ge (^{14}N , 4n γ), ^{73}Ge (^{16}O , p2N)
 E ^{76}Ge (^{14}N , 4n γ), ^{86}Sr (d, 2n γ) F ^{85}Rb (α , 3n γ)
 G ^{86}Sr (^3He , t)

E(level) (keV)	XREF	Jn(level)	T _{1/2} (level)	E(γ) (keV)	I(γ)	M(γ)	Final level	
0.0	ABCDEFG	4-	14.74 h 2 % ϵ = 100					
208.04 7	BCDEFG	(5)-	70 ns 7	208.06 7	100	E2(+M1)	0.0	4-
218.21 9	ABCDE G	(8+)	47.4 m 4 % IT = 99.31 4 % ϵ = 0.69 4	10.22 8	100	(E3)	208.04	(5)-
242.80 10	A D	2-	28.6 ns 21	242.80 10	100	E2	0.0	4-
271.90 13	A G	1+	< 10 ns	29.1 1	100	E1	242.80	2-
302.18 9	CDEFG	(6+)	127 ns 4	84.0 1 94.11 7	17 8 100 17	[E2] (E1)	218.21 208.04	(8+) (5)-
303.13 11	CD	(7+)		85.00 7	100	D	218.21	(8+)
353 20	G	(3+, 4+)						
465 20	G	(5+, 6+) & (LE2)						
469.44 21	D			261.4 2	100		208.04	(5)-
475.98 22	D			173.8 2	100		302.18	(6+)
536 20	G	(3+, 4+)						
620.68 22	D			318.5 2	100		302.18	(6+)
643 20	G							
662.11 11	CD			359.82 16 662.00 17	100 25 44 17		302.18 0.0	(6+) 4-
671 20	G	(4-, 5-)						
741.98 22	D G	(4:7)		439.8 2	100		302.18	(6+)
850.33 11	CD			642.30 9	100		208.04	(5)-
883.90 13	A	1+		612.00 10 641.10 10	100		271.90 242.80	1+ 2-
886.20 12	CDE G	(9+)		668.00 9	100	D	218.21	(8+)
900.35 11	CD			238.20 7 597.9 2 692.20 14	100 16 40 22 78 16		662.11 303.13 208.04	(7+) (5)-
978 20	G	(1+, 2+)						
1058 20	G	(1+, 2+)						

Decay Data Searches



NuDat 2.6

Search and plot nuclear structure and decay data interactively. [More.](#)

Levels and Gammas Search

Ground and excited states (energy, $T_{1/2}$, spin/parity, decay modes), gamma rays (energy, intensity, multipolarity, coinc.)

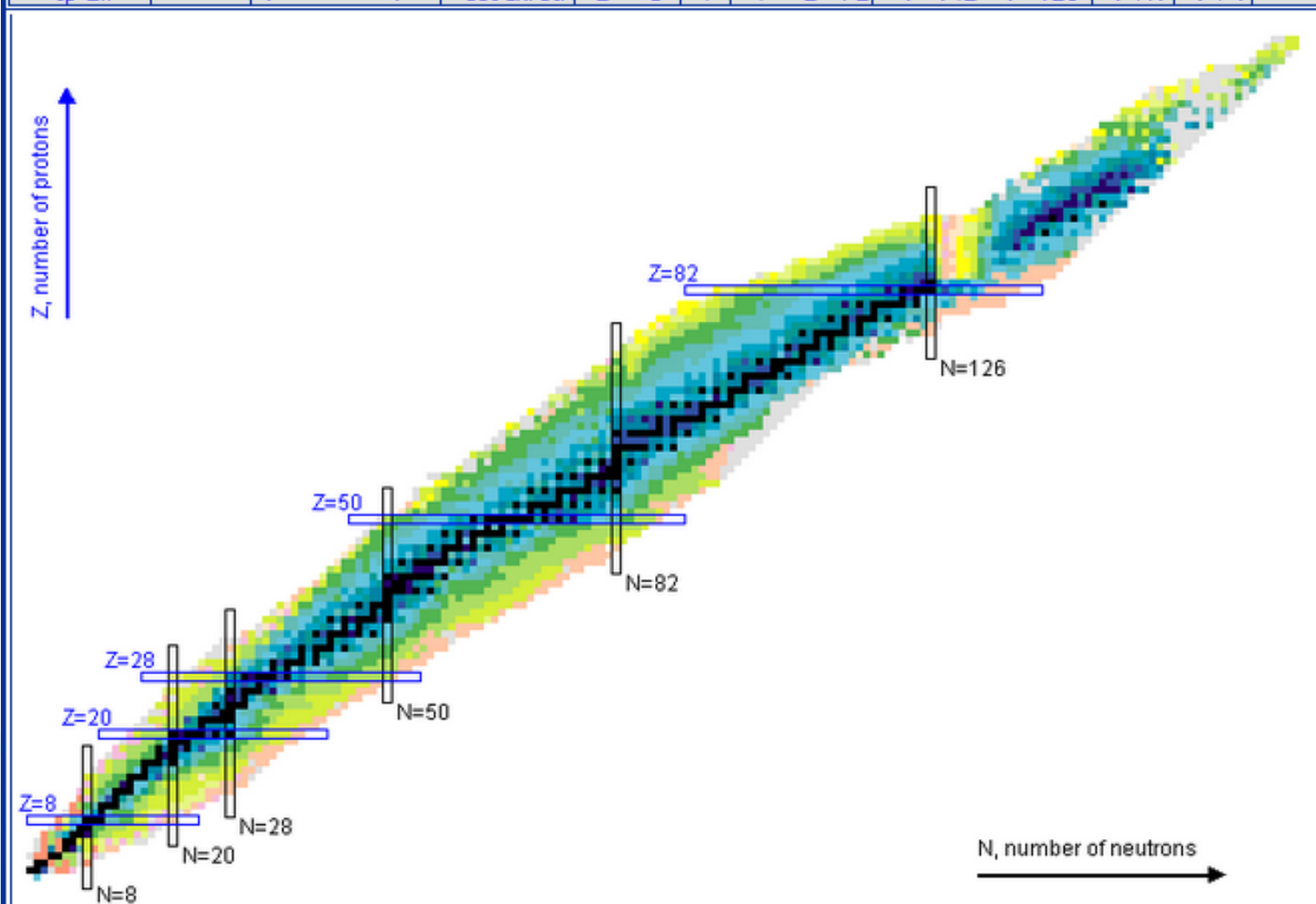
[Nuclear Wallet Cards Search](#)

Latest Ground and isomeric states properties

Decay Radiation Search

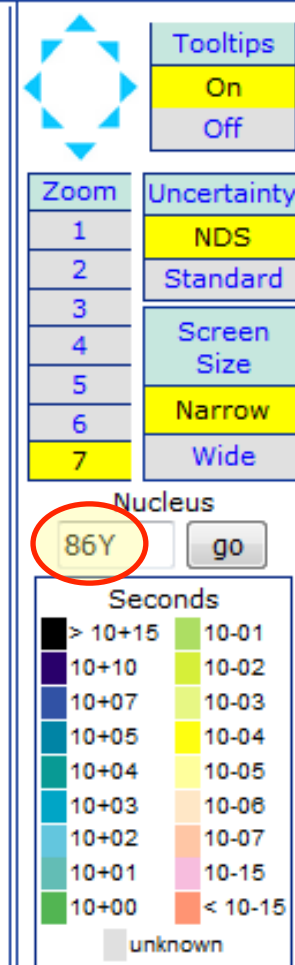
Radiation type, energy,
intensity and dose
following nuclear decay

Color code	Half-life	Decay Mode	Q_{β^-}	Q_{EC}	Q_{β^+}	S_n	S_p	Q_{α}	S_{2n}	S_{2p}	$Q_{2\beta^-}$	Q_{2EC}	Q_{ECp}	Q_{β^-n}
$Q_{\beta-2n}$	BE/A	(BE-LDM Fit)/A	$E_{1st\ ex.}\ st.$	E_{2+}	E_{3-}	E_{4+}	E_{4+}/E_{2+}	β_2	$B(E2)_{42}/B(E2)_{20}$	$\sigma(n,\gamma)$	$\sigma(n,F)$	235U FY	239Pu FY	252Cf FY



[Interactive Chart of Nuclides](#)

Click on a nucleus to obtain information



Color code $Q_{\beta-2n}$	Half-life BE/A	Decay Mode (BE-LDM Fit)/A	$Q_{\beta-}$ $E_{1st\ ex. \ st.}$	Q_{EC} E_{2+}	$Q_{\beta+}$ E_{3-}	S_n E_{4+}	S_p E_{4+}/E_{2+}	Q_{α} β_2	S_{2n} $B(E2)_{42}/B(E2)_{20}$	S_{2p} $\sigma(n,\gamma)$	$Q_{2\beta-}$ $\sigma(n,F)$	Q_{2EC} 235U FY	Q_{ECp} 239Pu FY	$Q_{\beta-n}$ 252Cf FY
84Nb 9.8 S ϵ : 100.00% ϵ_p	85Nb 20.5 S ϵ : 100.00%	86Nb 88 S ϵ : 100.00%	87Nb 3.75 M ϵ : 100.00%	88Nb 14.55 M ϵ : 100.00%	89Nb 2.03 H ϵ : 100.00%	90Nb 14.60 H ϵ : 100.00%	91Nb 6.8E+2 Y ϵ : 100.00%	92Nb 3.47E+7 Y ϵ : 100.00% β^- : < 0.05%						
83Zr 41.6 S ϵ : 100.00% ϵ_p	84Zr 25.8 M ϵ : 100.00%	85Zr 7.86 M ϵ : 100.00%	86Zr 16.5 H ϵ : 100.00%	87Zr 1.68 H ϵ : 100.00%	88Zr 83.4 D ϵ : 100.00%	89Zr 78.41 H ϵ : 100.00%	90Zr STABLE 51.45%	91Zr STABLE 11.22%						
82Y 8.30 S ϵ : 100.00%	83Y 7.08 M ϵ : 100.00%	84Y 39.5 M ϵ : 100.00%	85Y 2.68 H ϵ : 100.00%	86Y 14.74 H ϵ : 100.00%	87Y 79.8 H ϵ : 100.00%	88Y 106.626 D ϵ : 100.00%	89Y STABLE 100%	90Y 64.053 H β^- : 100.00%						
81Sr 22.3 M ϵ : 100.00%	82Sr 25.34 D ϵ : 100.00%	83Sr 32.41 H ϵ : 100.00%	84Sr STABLE 0.56%	85Sr 64.850 D ϵ : 100.00%	86Sr STABLE 9.86%	87Sr STABLE 7.00%	88Sr STABLE 82.58%	89Sr 50.53 D β^- : 100.00%						
80Rb 33.4 S ϵ : 100.00%	81Rb 4.572 H ϵ : 100.00%	82Rb 1.2575 M ϵ : 100.00%	83Rb 86.2 D ϵ : 100.00%	84Rb 32.82 D ϵ : 96.10% β^- : 3.90%	85Rb STABLE 72.17%	86Rb 18.642 D β^- : 99.99% ϵ : 5.2E-3%	87Rb 4.81E+10 Y 27.83% β^- : 100.00%	88Rb 17.773 M β^- : 100.00%						
43	44	45	46	47	48	49	50	N						

Ground and isomeric state information for $^{86}_{39}\text{Y}$

E(level) (MeV)	J π	Δ (MeV)	T $_{1/2}$	Decay Modes
0.0	4-	-79.2832	14.74 h 2	ϵ : 100.00 %
0.2183	(8+)	-79.0649	48 m 1	IT: 99.31 % ϵ : 0.69 %

A list of levels, a level scheme and decay radiation information are available



Tooltips

On

Off

Zoom

1

2

3

4

5

6

7

Uncertainty

NDS

Standard

Screen
Size

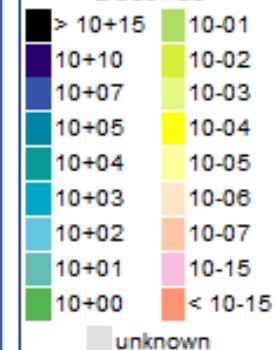
Narrow

Wide

Nucleus

go

Seconds



Search results

Authors: Alexandru Negret, Balraj Singh Citation: Nuclear Data Sheets 124, 1 (2015)

Parent Nucleus	Parent E(level)	Parent J π	Parent T $_{1/2}$	Decay Mode	GS-GS Q-value (keV)	Daughter Nucleus	Decay Scheme	ENSDF file
$^{86}_{39}\text{Y}$	0.0	4-	14.74 h 2	ϵ : 100 %	5240 14	$^{86}_{38}\text{Sr}$		

Beta+:

Energy (keV)	End-point energy (keV)	Intensity (%)	Dose (MeV/Bq-s)
114.3 60	249 14	0.0038 % 10	4.3E-6 12
125.5 60	275 14	0.0029 % 7	3.6E-6 9
132.6 60	292 14	0.035 % 7	4.6E-5 10
155.8 60	346 14	0.0035 % 6	5.5E-6 10
173.0 60	387 14	0.22 % 4	3.8E-4 7
196.9 60 ?	443 14	0.0110 % 20	2.2E-5 4
200.8 6			
234.6 6			
252.4 6			
374.7 6			
394.1 6			
405.6 6			
452.2 6			
509.4 6			
535.4 6			
588.6 6			
628.8 6			

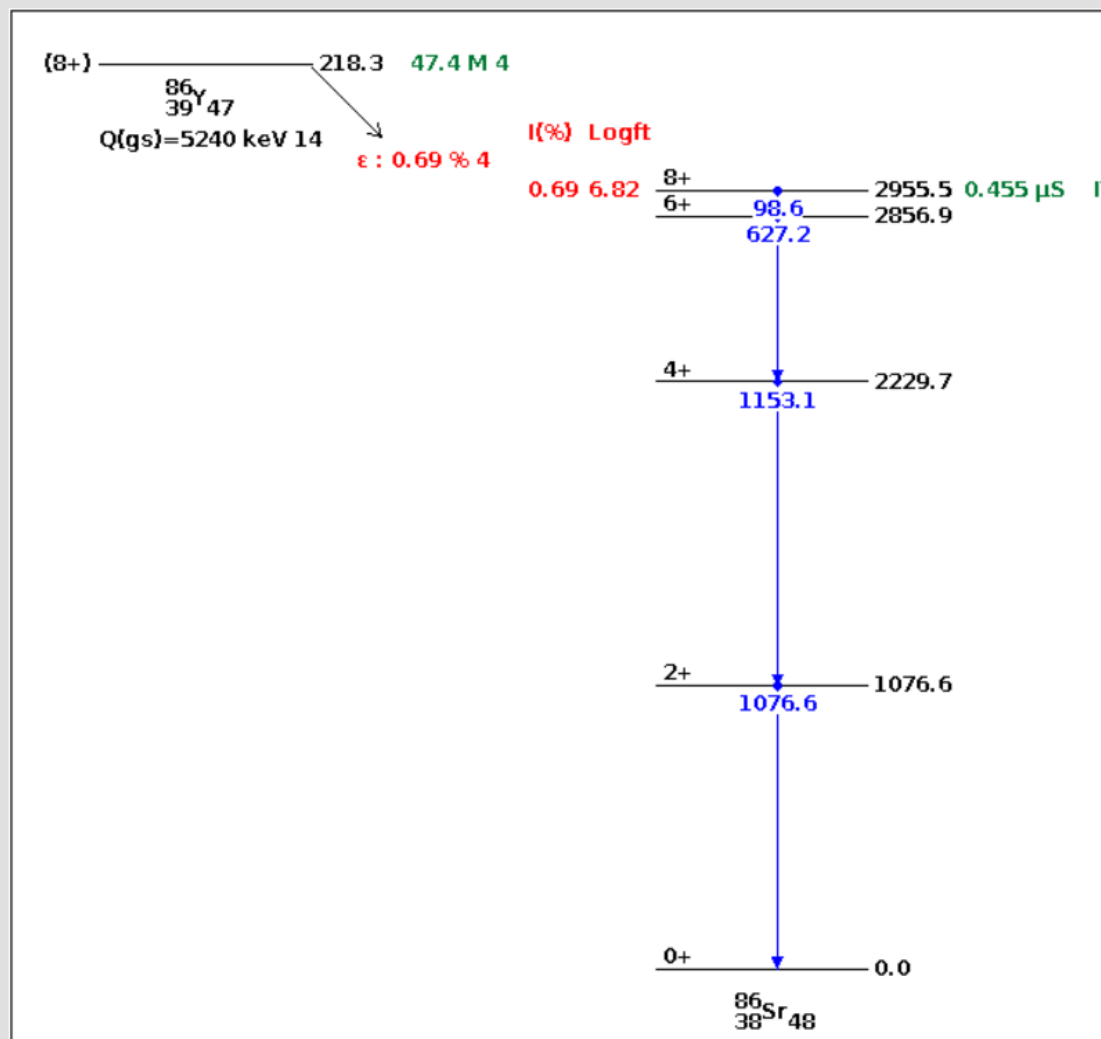


Gamma and X-ray radiation:

	Energy (keV)	Intensity (%)	Dose (MeV/Bq-s)
XR 1	1.81	1.91 % 7	3.47E-5 12
XR $k\alpha_2$	14.098	12.2 % 5	0.00171 7
XR $k\alpha_1$	14.165	23.4 % 10	0.00332 15
XR $k\beta_3$	15.825	1.74 % 7	2.76E-4 12
XR $k\beta_1$	15.836	3.37 % 15	5.34E-4 23
XR $k\beta_2$	16.085	0.60 % 3	9.6E-5 5
	132.34 10	0.165 % 8	2.18E-4 11
	144.5 3	0.031 % 3	4.5E-5 5
	182.34 20 ?	0.11 % 3	2.0E-4 6
	187.87 13	1.26 % 4	0.00237 8
	190.80 13	1.01 % 3	0.00194 6
	209.80 23 ?	0.396 % 17	8.3E-4 3
	235.37 23	0.396 % 17	9.3E-4 4
	237.9 3	0.132 % 25	3.1E-4 6
	252.05 13	0.371 % 17	9.4E-4 4
	256.4 4 ?	0.074 % 25	1.9E-4 6
	264.53 13	0.536 % 25	0.00142 7
	307.00 10	3.47 % 8	0.0106 3
	331.08 23	0.83 % 3	0.00276 8
	355.07 26	0.099 % 25	3.5E-4 9
	370.28 17	0.83 % 4	0.00305 15
	380.4 3	0.45 % 3	0.00173 13
	382.86 23	3.63 % 12	0.0139 4
	425.97 23	0.305 % 17	0.00130 7

Decay scheme plotting capabilities

0.0 < E(level) < 3251.0	<input checked="" type="checkbox"/> Level Energy	<input checked="" type="checkbox"/> Level T1/2	<input checked="" type="checkbox"/> Level Spin-parity	<input checked="" type="checkbox"/> Final Level
Highlight: <input type="text"/> Level <input type="button" value="v"/>	<input checked="" type="checkbox"/> Gamma Energy	<input type="checkbox"/> Gamma Intensity	<input type="checkbox"/> Gamma Multipolarity	<input checked="" type="checkbox"/> Decay Information
Image Height: 600	Level Width: 100	Band Spacing: 20	<input type="button" value="Plot"/>	<input type="button" value="Clear"/>



Recent Additions to NuDat

Enhanced features in NuDat

NuDat 2.7 β

Search and plot nuclear structure and decay data interactively. [More.](#)

Levels and Gammas Search

Ground and excited states (energy, $T_{1/2}$, spin/parity, decay modes), gamma rays (energy, intensity, multipolarity, coinc.)

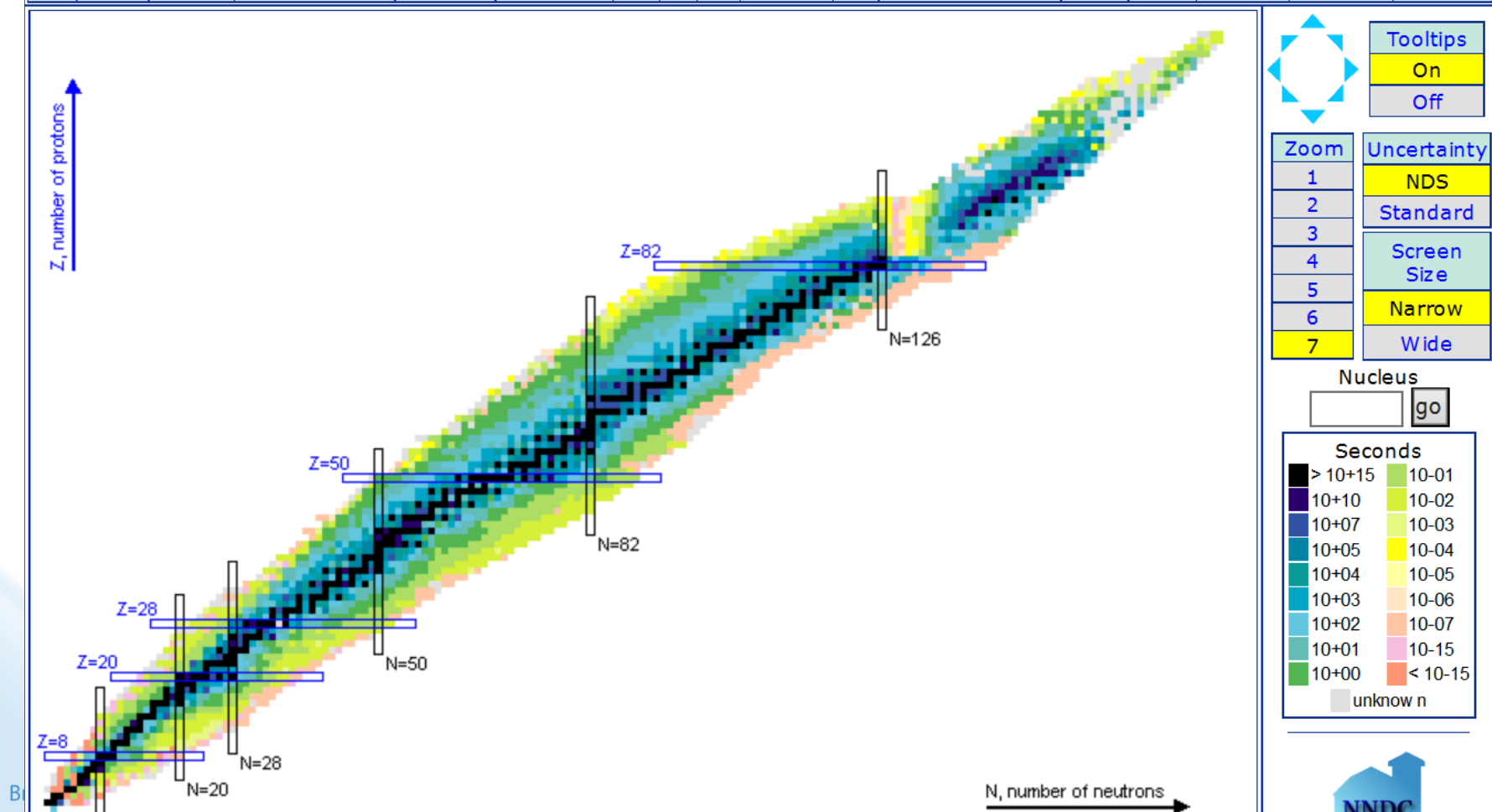
Nuclear Wallet Cards Search

Latest Ground and isomeric states properties

Decay Radiation Search

Radiation type, energy, intensity and dose following nuclear decay

Color code	Half-life	Decay Mode	Q_{β^-}	Q_{EC}	Q_{β^+}	S_n	S_p	Q_{α}	ΔQ_{α}	S_{2n}	S_{2p}	$Q_{2\beta^-}$	Q_{2EC}	Q_{ECp}	Q_{β^-n}
Q_{β^-2n}	BE/A	(BE-LDM Fit)/A	Pair. gap	$E_{1st\ ex. st.}$	E_{2+}	E_{3-}	E_{4+}	E_{4+}/E_{2+}	β_2	$B(E2)_{42}/B(E2)_{20}$	$\sigma(n,\gamma)$	$\sigma(n,F)$	235U FY	239Pu FY	252Cf FY



NuDat 2.7β

Search and plot nuclear structure and decay data interactively. [More.](#)

Levels and Gammas Search

Ground and excited states (energy, $T_{1/2}$, spin/parity, decay modes), gamma rays (energy, intensity, multipolarity, coinc.)

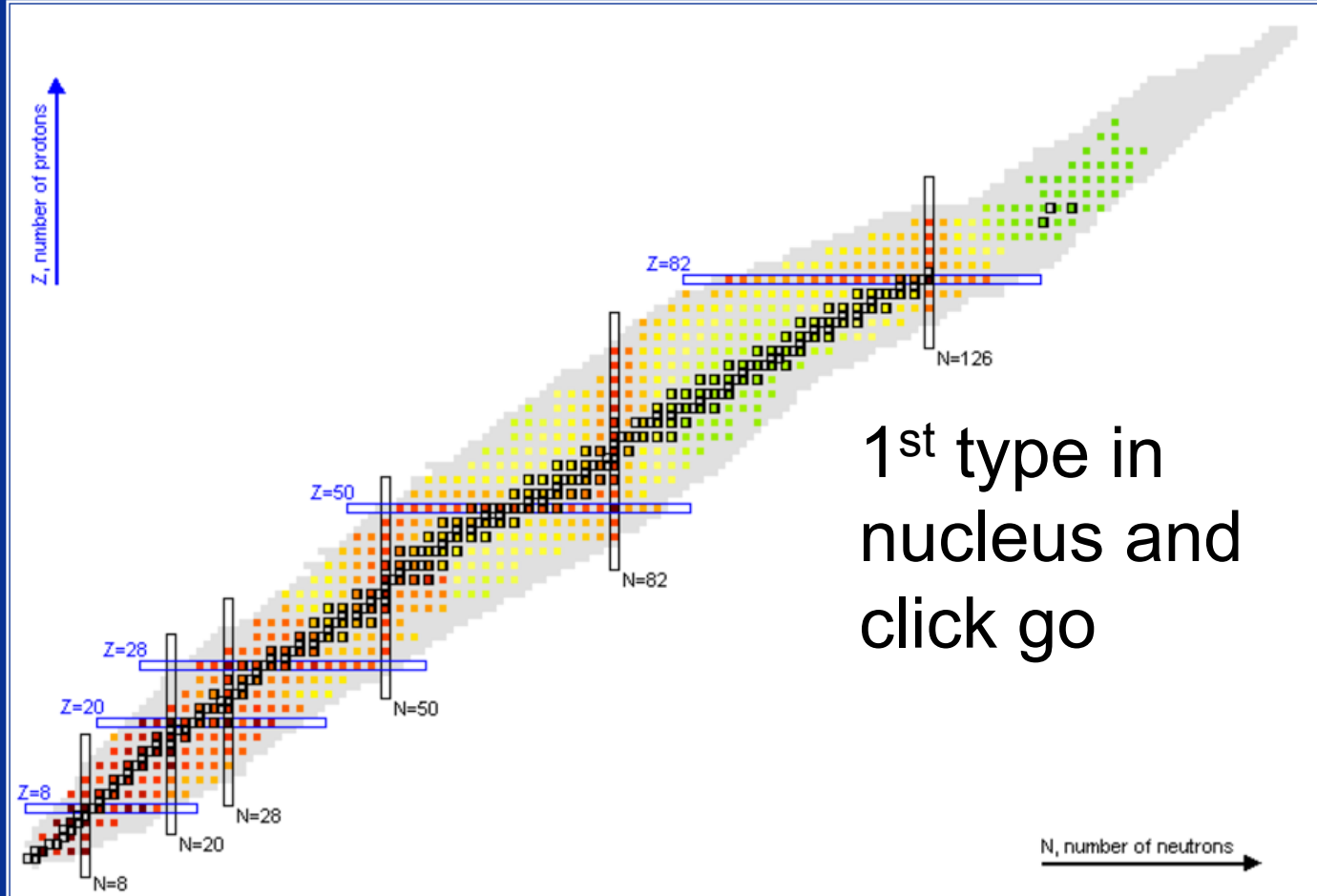
Nuclear Wallet Cards Search

Latest Ground and isomeric states properties

Decay Radiation Search

Radiation type, energy,
intensity and dose
following nuclear decay

Color code	Half-life	Decay Mode	Q_{β^-}	Q_{EC}	Q_{β^+}	S_n	S_p	Q_{α}	ΔQ_{α}	S_{2n}	S_{2p}	$Q_{2\beta^-}$	Q_{2EC}	Q_{ECp}	Q_{β^-n}
Q_{β^-2n}	BE/A	(BE-LDM Fit)/A	Pair. gap	$E_{1st\ ex.\ st.}$	E_{2+}	E_{3-}	E_{4+}	E_{4+}/E_{2+}	β_2	$B(E2)_{42}/B(E2)_{20}$	$\sigma(n,\gamma)$	$\sigma(n,F)$	235U FY	239Pu FY	252Cf FY



1st type in
nucleus and
click go

The screenshot shows the Nuclide Browser interface. At the top, there is a blue diamond icon. Below it, a table lists various options: Tooltips (On/Off), Zoom (1-7), Uncertainty (NDS/Standard), Screen Size (Narrow/Wide), and a search bar. The search bar contains the text "152Sm" and a "go" button. Below the search bar, a table displays a list of nuclides with their corresponding energy levels in keV. The nuclides are arranged in two columns, with the left column showing higher energy levels and the right column showing lower energy levels. The nuclides are color-coded by their half-life, with red indicating shorter half-lives and green indicating longer half-lives. The nuclide 152Sm is highlighted in the search bar.

Nucleus	
152Sm	go

keV

3.89E+4	1.16E+3
2.74E+4	8.22E+2
1.93E+4	5.78E+2
1.35E+4	4.07E+2
9.57E+3	2.87E+2
6.74E+3	2.02E+2
4.74E+3	1.42E+2
3.34E+3	1.00E+2
2.35E+3	7.05E+1
1.65E+3	4.97E+1
1.16E+3	3.50E+1

unknown

Interactive Chart of Nuclides

Click on a nucleus to obtain information

Brookhaven Science Associates



NuDat 2.7β

Search and plot nuclear structure and decay data interactively. [More.](#)

Levels and Gammas Search

Ground and excited states (energy, $T_{1/2}$, spin/parity, decay modes), gamma rays (energy, intensity, multipolarity, coinc.)

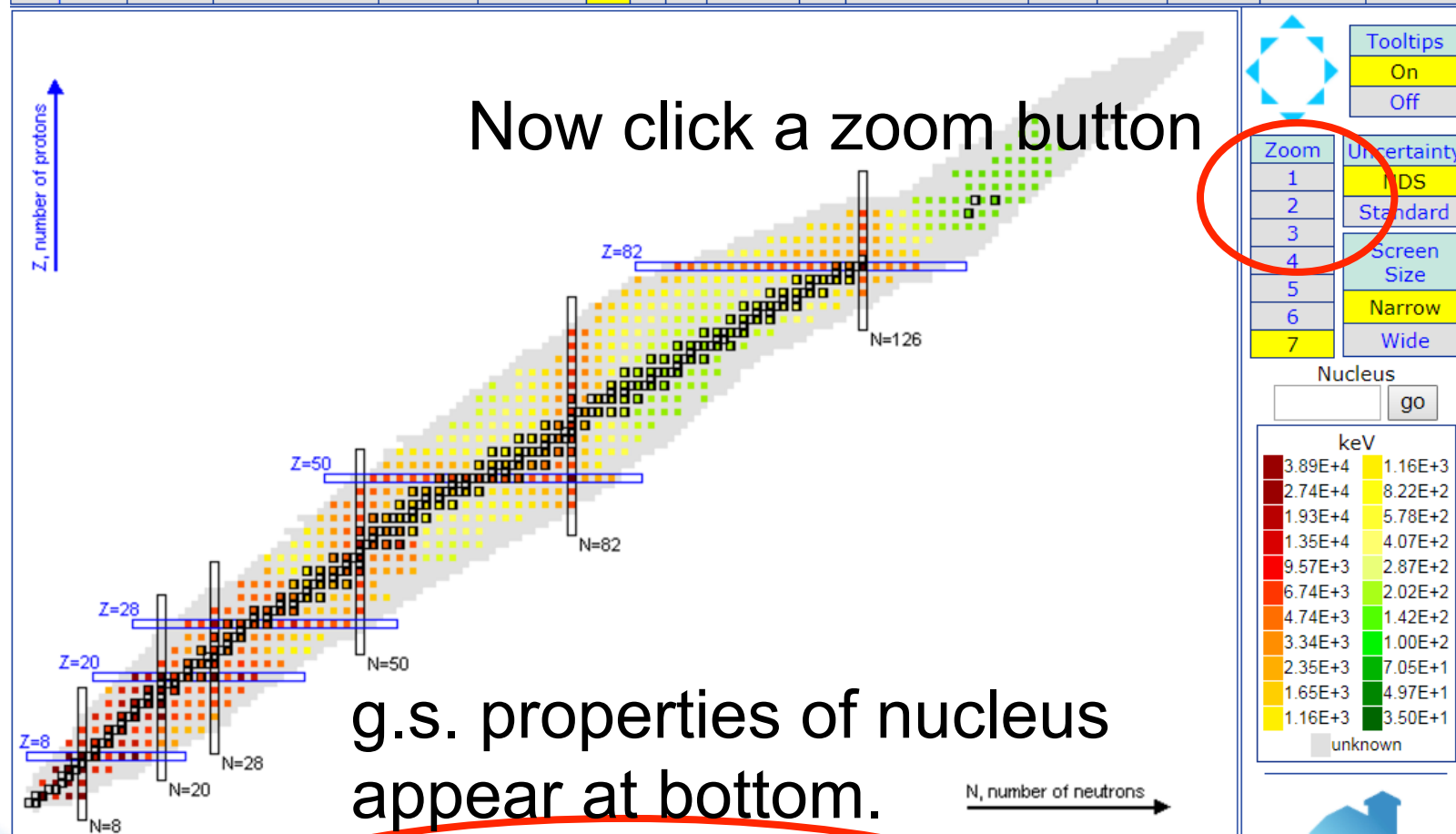
Nuclear Wallet Cards Search

Latest Ground and isomeric states properties

Decay Radiation Search

Radiation type, energy, intensity and dose following nuclear decay

Color code	Half-life	Decay Mode	Q_{β^-}	Q_{EC}	Q_{β^+}	S_n	S_p	Q_{α}	ΔQ_{α}	S_{2n}	S_{2p}	$Q_{2\beta^-}$	Q_{2EC}	Q_{ECp}	Q_{β^-n}
Q_{β^-2n}	BE/A	(BE-LDM Fit)/A	Pair. gap	$E_{1st\ ex. st.}$	E_{2+}	E_{3-}	E_{4+}	E_{4+}/E_{2+}	β_2	$B(E2)_{42}/B(E2)_{20}$	$\sigma(n,\gamma)$	$\sigma(n,F)$	235U FY	239Pu FY	252Cf FY



g.s. properties of nucleus appear at bottom.

Ground and isomeric state information for $^{152}_{62}\text{Sm}$

E(level) (MeV)	J π	Δ (MeV)	$T_{1/2}$	Abundance	Decay Modes	E_{2+} (keV)
0.0	0+	-74.7626	STABLE	26.75% 16		121.7818 3

A list of levels and a level scheme, a J vs E^* plot are available

Zoom

1

2

3

4

5

6

7

Uncertainty

1 DS

Standard

Screen Size

Narrow

Wide

Nucleus

keV

3.89E+4	1.16E+3
2.74E+4	8.22E+2
1.93E+4	5.78E+2
1.35E+4	4.07E+2
9.57E+3	2.87E+2
6.74E+3	2.02E+2
4.74E+3	1.42E+2
3.34E+3	1.00E+2
2.35E+3	7.05E+1
1.65E+3	4.97E+1
1.16E+3	3.50E+1
unknown	



NNDC ENSDF NSR
Nuclear Wallet Cards



NuDat 2.7β

Search and plot nuclear structure and decay data interactively. [More.](#)

Levels and Gammas Search

Ground and excited states (energy, $T_{1/2}$, spin/parity, decay modes), gamma rays (energy, intensity, multipolarity, coinc.)

Nuclear Wallet Cards Search

Latest Ground and isomeric states properties

Decay Radiation Search

Radiation type, energy, intensity and dose following nuclear decay

Color code	Half-life	Decay Mode	Q_{β^-}	Q_{EC}	Q_{β^+}	S_n	S_p	Q_{α}	ΔQ_{α}	S_{2n}	S_{2p}	$Q_{2\beta^-}$	Q_{2EC}	Q_{ECp}	$Q_{\beta-n}$		
$Q_{\beta-2n}$	BE/A	(BE-LDM Fit)/A	Pair. gap	$E_{1st\ ex. st.}$	E_{2+}	E_{3-}	E_{4+}	E_{4+}/E_{2+}	β_2	$B(E2)_{42}/B(E2)_{20}$	$\sigma(n,\gamma)$	$\sigma(n,F)$	235U FY	239Pu FY	252Cf FY		
Z	148Dy	149Dy	150Dy	151Dy	152Dy	153Dy	154Dy	155Dy	156Dy	157Dy	158Dy	159Dy	160Dy	161Dy	162Dy	163Dy	164Dy
	147Tb	148Tb	149Tb	150Tb	151Tb	152Tb	153Tb	154Tb	155Tb	156Tb	157Tb	158Tb	159Tb	160Tb	161Tb	162Tb	163Tb
64	146Gd	147Gd	148Gd	149Gd	150Gd	151Gd	152Gd	153Gd	154Gd	155Gd	156Gd	157Gd	158Gd	159Gd	160Gd	161Gd	162Gd
	145Eu	146Eu	147Eu	148Eu	149Eu	150Eu	151Eu	152Eu	153Eu	154Eu	155Eu	156Eu	157Eu	158Eu	159Eu	160Eu	161Eu
62	144Sm	145Sm	146Sm	147Sm	148Sm	149Sm	150Sm	151Sm	152Sm	153Sm	154Sm	155Sm	156Sm	157Sm	158Sm	159Sm	160Sm
	143Pm	144Pm	145Pm	146Pm	147Pm	148Pm	149Pm	150Pm	151Pm	152Pm	153Pm	154Pm	155Pm	156Pm	157Pm	158Pm	159Pm
60	142Nd	143Nd	144Nd	145Nd	146Nd	147Nd	148Nd	149Nd	150Nd	151Nd	152Nd	153Nd	154Nd	155Nd	156Nd	157Nd	158Nd
	141Pr	142Pr	143Pr	144Pr	145Pr	146Pr	147Pr	148Pr	149Pr	150Pr	151Pr	152Pr	153Pr	154Pr	155Pr	156Pr	157Pr
58	140Ce	141Ce	142Ce	143Ce	144Ce	145Ce	146Ce	147Ce	148Ce	149Ce	150Ce	151Ce	152Ce	153Ce	154Ce	155Ce	156Ce
	82	84	86	88	90	92	94	96	N								

Tooltips

On

Off

Zoom

1

2

3

4

5

6

7

Uncertainty

NDS

Standard

Screen Size

Narrow

Wide

Nucleus

go

keV

4.00E+3

2.00E+3

1.40E+3

1.00E+3

6.00E+2

3.00E+2

1.50E+2

7.50E+1

2.50E+1

3.00E+3

1.80E+3

1.20E+3

8.00E+2

4.00E+2

2.00E+2

1.00E+2

5.00E+1

0.0



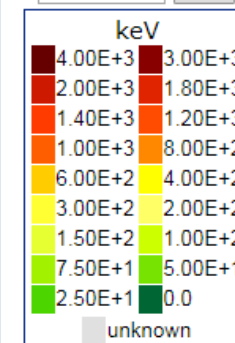
Tooltips
On
Off

Zoom
1
2
3
4
5
6
7

Uncertainty
NDS
Standard
Screen Size
Narrow
Wide

Nucleus

go



Scroll down to find more

for $^{152}_{62}\text{Sm}$

Decay Modes	E_{2+} (keV)
0.0	121.7818 3

A list of levels and a level scheme, a J vs E^* plot are available

The corresponding projections on the N and Z axis are found below. The data can be found [here](#).



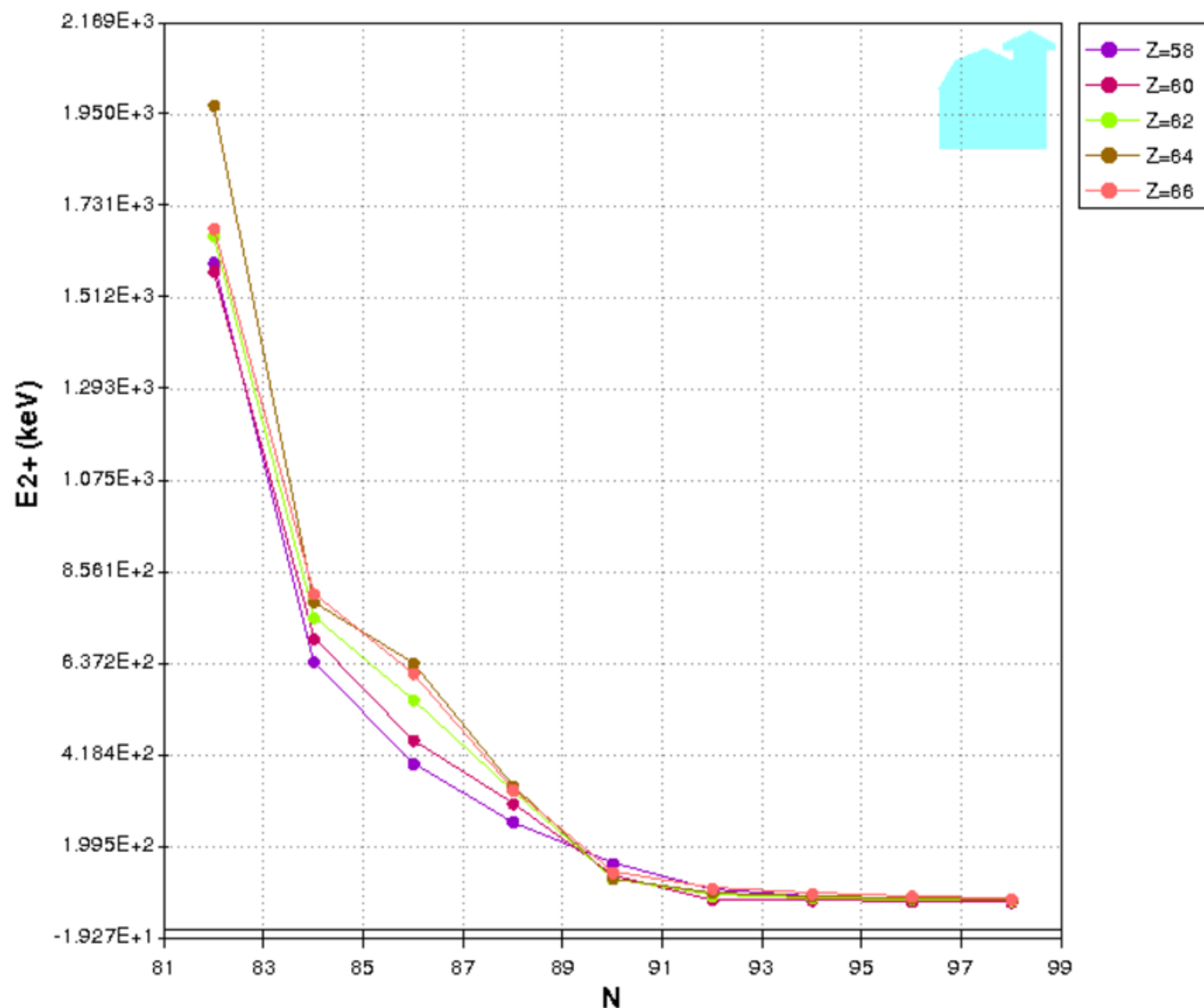
NNDC ENSDF NSR
Nuclear Wallet Cards

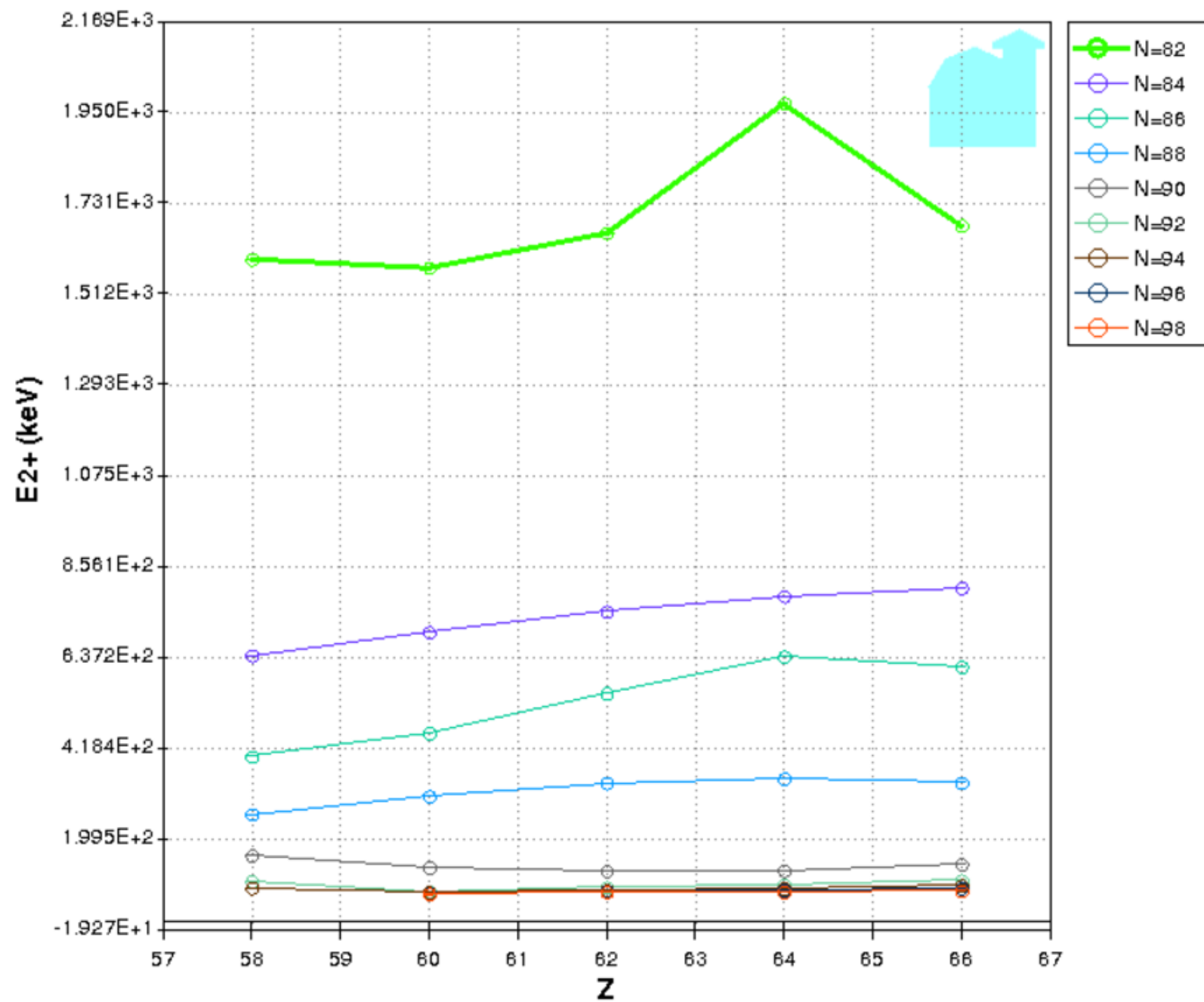
ENDRY

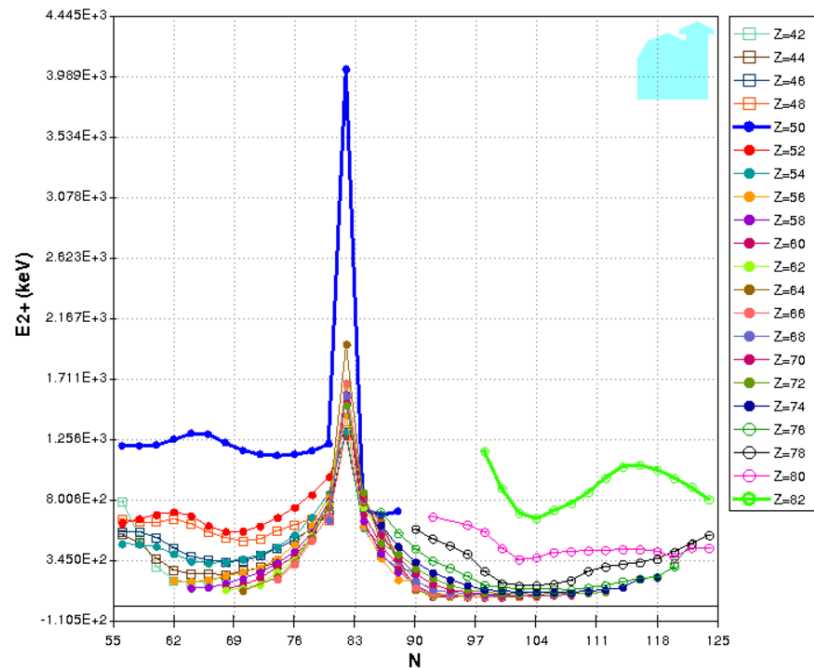
Scroll down even more to find even more

A [list of levels](#) and a [level scheme](#), a J vs E^* plot are available

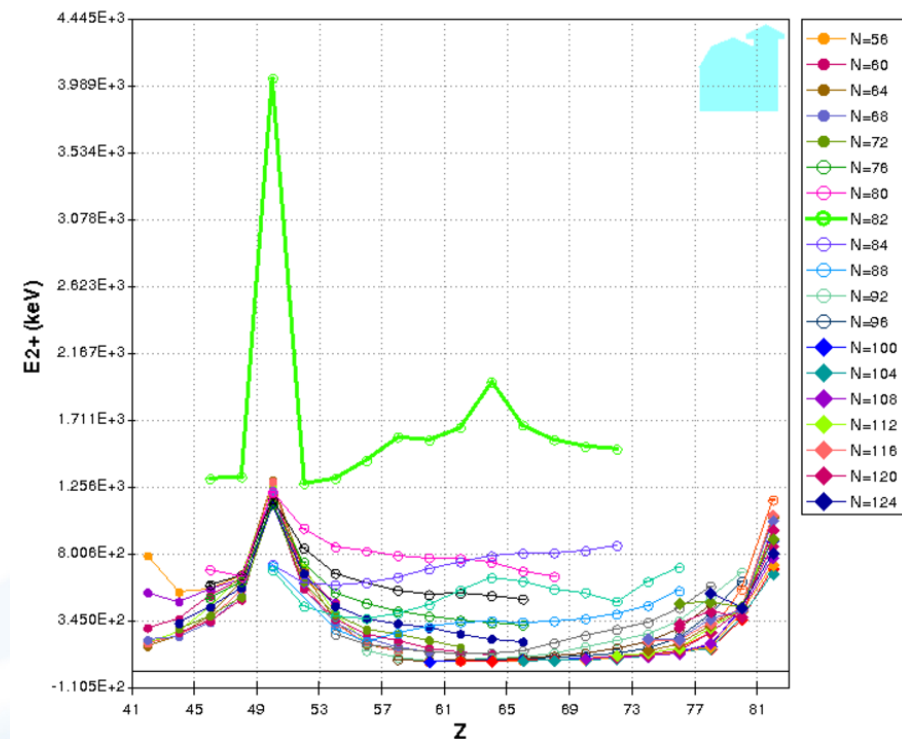
The corresponding projections on the N and Z axis are found below. The data can be found [here](#).







Adjusting the zoom will change the number of nuclei included in the plots



NuDat 2.7β

Search and plot nuclear structure and decay data interactively. [More.](#)

Levels and Gammas Search

Ground and excited states (energy, $T_{1/2}$, spin/parity, decay modes), gamma rays (energy, intensity, multipolarity, coinc.)

Color code	Half-life	Decay Mode				Q_{β^-}	Q_{EC}	Q_{β^+}	S_n	S_p	Q_{α}	ΔQ_{α}
$Q_{\beta-2n}$	BE/A	(BE-LDM Fit)/A				Pair. gap	$E_{1st\ ex.\ st.}$	E_{2+}	E_{3-}	E_{4+}	E_{4+}/E_{2+}	β_2
Z	148Dy	149Dy	150Dy	151Dy	152Dy	153Dy	154Dy	155Dy	156Dy	157Dy	158Dy	1
	147Tb	148Tb	149Tb	150Tb	151Tb	152Tb	153Tb	154Tb	155Tb	156Tb	157Tb	1
64	146Gd	147Gd	148Gd	149Gd	150Gd	151Gd	152Gd	153Gd	154Gd	155Gd	156Gd	1
	145Eu	146Eu	147Eu	148Eu	149Eu	150Eu	151Eu	152Eu	153Eu	154Eu	155Eu	1
62	144Sm	145Sm	146Sm	147Sm	148Sm	149Sm	150Sm	151Sm	152Sm	153Sm	154Sm	1
	143Pm	144Pm	145Pm	146Pm	147Pm	148Pm	149Pm	150Pm	151Pm	152Pm	153Pm	1
60	142Nd	143Nd	144Nd	145Nd	146Nd	147Nd	148Nd	149Nd	150Nd	151Nd	152Nd	1
	141Pr	142Pr	143Pr	144Pr	145Pr	146Pr	147Pr	148Pr	149Pr	150Pr	151Pr	1
58	140Ce	141Ce	142Ce	143Ce	144Ce	145Ce	146Ce	147Ce	148Ce	149Ce	150Ce	1
	82	84	86	88	90	92						

Z	N	Value	Uncertainty
66	82	1.67730E3	0.00000E0
64	82	1.97202E3	7.00000E-2
62	82	1.66003E3	1.00000E-2
60	82	1.57578E3	1.00000E-2
58	82	1.59624E3	2.50000E-2
66	84	8.03640E2	9.00000E-2
64	84	7.84433E2	1.50000E-2
62	84	7.47174E2	1.10000E-2
60	84	6.96561E2	1.00000E-2
58	84	6.41282E2	9.00000E-3
66	86	6.13830E2	5.00000E-2
64	86	6.38045E2	1.40000E-2
62	86	5.50255E2	8.00000E-3
60	86	4.53840E2	3.00000E-2
58	86	3.97441E2	9.00000E-3
66	88	3.34340E2	3.00000E-2
64	88	3.44279E2	1.20000E-3
62	88	3.33955E2	1.00000E-2
60	88	3.01705E2	1.60000E-2
58	88	2.58450E2	4.00000E-2
66	90	1.37770E2	8.00000E-2
64	90	1.23071E2	9.00000E-4
62	90	1.21782E2	3.00000E-4
60	90	1.30210E2	7.00000E-2
58	90	1.58467E2	5.00000E-3
66	92	9.89180E1	1.00000E-3
64	92	8.89700E1	1.00000E-3
62	92	8.19810E1	1.50000E-2
60	92	7.24000E1	5.00000E-2
58	92	9.70000E1	1.00000E-1
66	94	8.67878E1	3.00000E-4
64	94	7.95143E1	1.50000E-3

Scroll down to find more

for ¹⁵²Sm
62

Decay Modes	E_{2+} (keV)
	121.7818 3

A list of levels and a level scheme, a J vs E^* plot are available

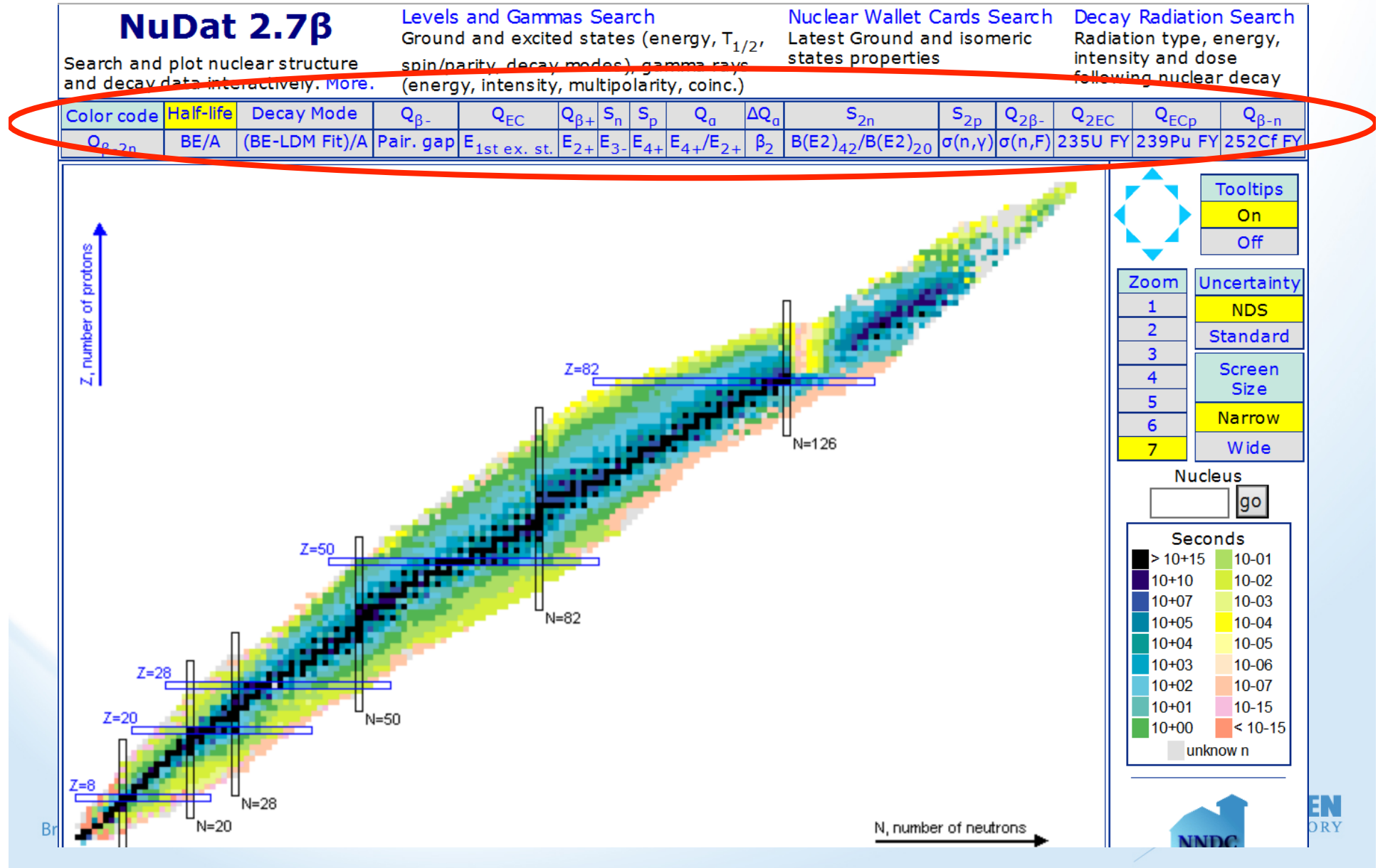
The corresponding projections on the N and Z axis are found below. The data can be found [here](#).



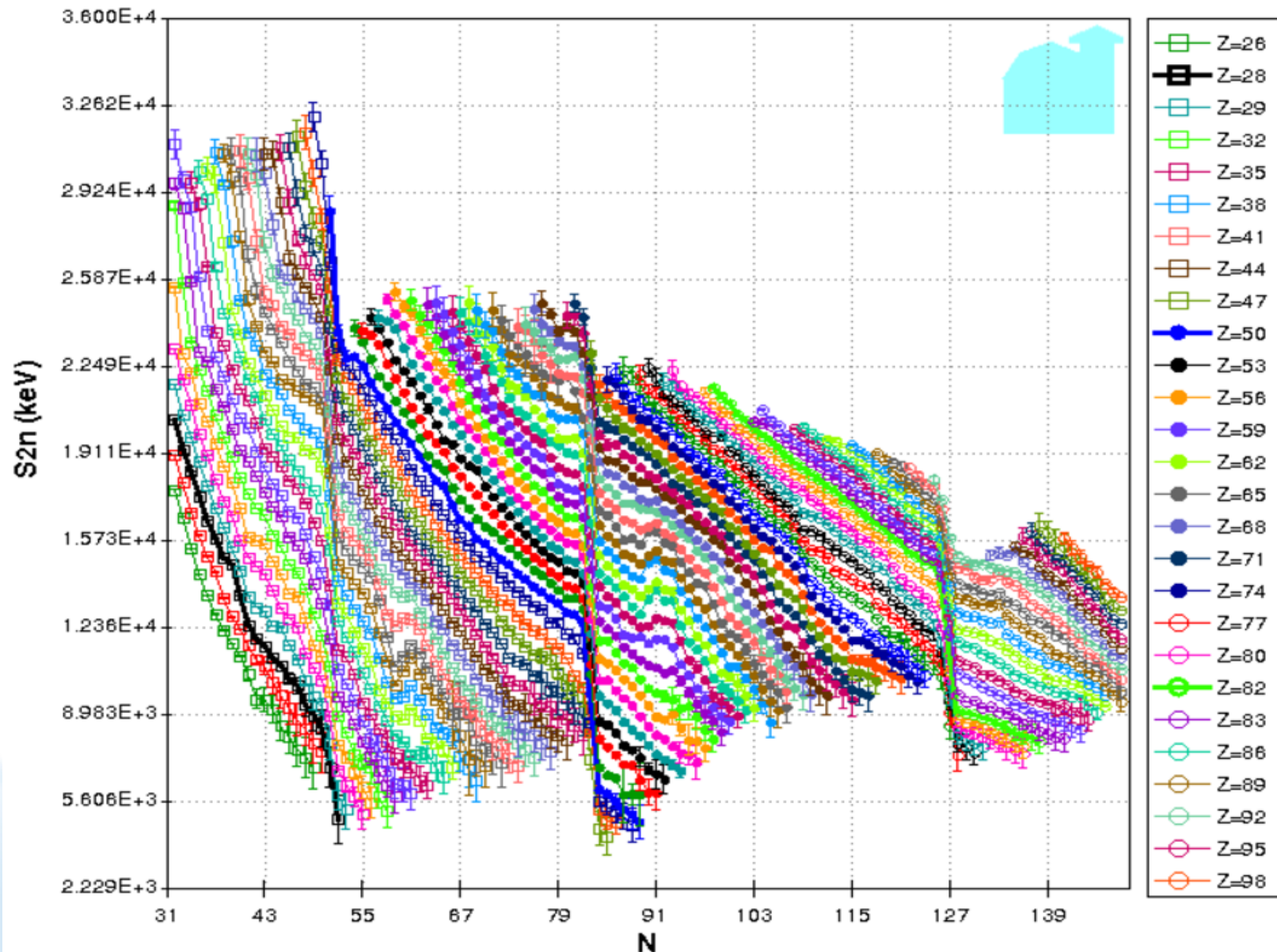
NNDC ENSDF NSR
Nuclear Wallet Cards

EN
DRY

Any of the quantities offered on the main panel, can be plotted



Two neutron separation energies



Search and plot nuclear structure and decay data interactively. [More.](#)

Ground and excited states (energy, $T_{1/2}$, spin/parity, decay modes), gamma rays (energy, intensity, multipolarity, coinc.)

Latest Ground and isomeric states properties

Radiation type, energy,
intensity and dose
following nuclear decay

Ground and isomeric state information for $^{178}_{72}\text{Hf}$

E(level) (MeV)	J π	Δ (MeV)	T $_{1/2}$	Abundance	Decay Modes	S $_{2n}$ (keV)
0.0	0+	-52.4352	STABLE	27.28% 7		14001.5 10
1.1474	8-	-51.2878	4.0 s 2		IT : 100.00 %	
2.4461	16+	-49.9891	31 y 1		IT : 100.00 %	

A list of levels and a level scheme, a J vs E^* plot are available

The corresponding projections on the N and Z axis are found below. The data can be found [here](#).

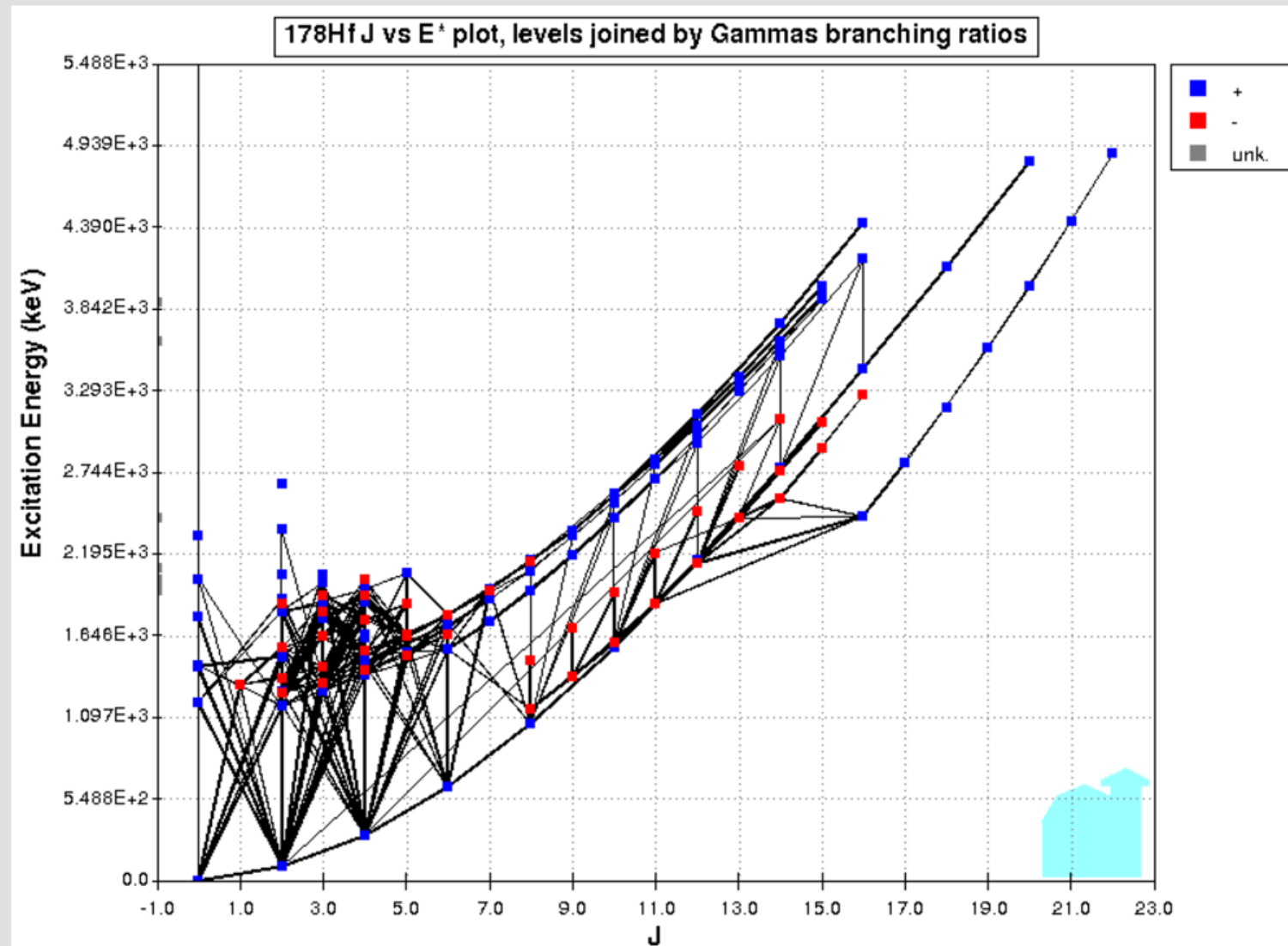


NNDC ENSDF NSR
 Nuclear Wallet Cards


RAVEN
 LABORATORY

Preliminary release

Max. Level Energy= 5488.60	X Axis: <input checked="" type="radio"/> J <input type="radio"/> J(J+1)	Levels joined by γ 's: <input checked="" type="radio"/> Branching Ratio <input type="radio"/> BE1(W.u) <input type="radio"/> BE2(W.u) <input type="radio"/> BE3(W.u) <input type="radio"/> BE5(W.u)
Min. Thickness= 1.00	Max. Thickness= 2.00	<input type="button" value="Plot"/> <input type="button" value="Reset"/>



Preliminary release

Max. Level Energy= 5488.60	X Axis: <input checked="" type="radio"/> J <input type="radio"/> J(J+1)	Levels joined by γ 's: <input type="radio"/> Branching Ratio <input type="radio"/> BE1(W.u) <input checked="" type="radio"/> BE2(W.u) <input type="radio"/> BE3(W.u)
Min. Thickness= 1.00	Max. Thickness= 2.00	<input type="button" value="Plot"/> <input type="button" value="Reset"/>

