

Continuous Data in ENSDF Format

Proposal from A. Sonzogni and X. Mougeot

NSDD Meeting 2019 | Xavier Mougeot

list
cea tech



LABORATOIRE
NATIONAL
DE MÉTROLOGIE
ET D'ESSAIS



INSTITUT
CARNOT
CEA LIST



université
PARIS-SACLAY



Additional beta continuation record – December proposal

```

63CU    63NI B- DECAY (98.7 Y)
63CU H TYP=FUL$AUT=K.B.LEE$CUT=28-SEP-2009$
63CU C References:1950Wi**, 1951Br**, 1956Mc**, 1957Pr**, 1962Ho**, 1966Hs01,
63CU2C 1971Ba89, 1987He14, 1992Ka29, 1993Oh02, 1996Co25, 1996Sc33, 1999Ho09,
63CU3C 2003Au03
63NI P 0.0          1/2-          98.7 Y    24          66.980    15
63CU N 1.0          1.0          1          1.0
63CU L 0           3/2-          STABLE
63CU B 66.980      15100          6.932    11
63CUS B EAV=17.1872 41
63CUX B C1=1213.5 $C2=-232.01 $C3=-1517.2 $C4=532.69
63CU CB C(W) = 1 + 1213.49*W - 232.009/W - 1517.16*W^2 + 532.69*W^3
  
```

'X' for
experimental

Parameters
(with uncertainties)

Comment for the
correct use

Additional beta continuation record – April update

```

63CU    63NI B- DECAY (98.7 Y)
63CU H TYP=FUL$AUT=K.B.LEE$CUT=28-SEP-2009$
63CU C References:1950Wi**, 1951Br**, 1956Mc**, 1957Pr**, 1962Ho**, 1966Hs01,
63CU2C 1971Ba89, 1987He14, 1992Ka29, 1993Oh02, 1996Co25, 1996Sc33, 1999Ho09,
63CU3C 2003Au03
63NI P 0.0          1/2-          98.7 Y    24          66.980    15
63CU N 1.0          1.0          1          1.0
63CU L 0           3/2-          STABLE
63CU B 66.980      15100          6.932    11
63CUS B EAV=17.1872 41
63CU2 B C1=1213.5 $C2=-232.01 $C3=-1517.2 $C4=532.69 (2012LE**)
63CU CB $C(W) = 1 + C1*W + C2/W + C3*W^2 + C4*W^3
  
```

Change
to '2'

NSR
reference

\$ added for first
comment line

Parameters instead of numbers;
correct use of the shape factor

Parameters
(with uncertainties)

Continuous data in ENSDF format – December proposal

Total beta spectrum and mean energy

1	210PB	210TL B- DECAY (1.30 M)		
2	210PB	H TYP=FUL\$AUT=V.CHISTE\$CUT=31-AUG-2007\$		
3	210TL	CB Total beta - spectrum	\$BIN=358	
4	210TL	CB EAV=1.17E3 36		
5	210TL	CB E (keV)	dNtot/dE b-	unc.
6	210TL	TB 0	3.35959e-04	1.87719e-05
7	210TL	TB 4	3.43013e-04	1.91778e-05
8	210TL	TB 8	3.49082e-04	1.95320e-05
9	210TL	TB 12	3.54169e-04	1.98346e-05
10	210TL	TB 16	3.58383e-04	2.00853e-05
11	210TL	TB 20	3.62045e-04	2.03004e-05

Number of bins

Total mean energy

⋮

Beta spectrum and mean energy for each transition

362	210TL	TB 4374	3.03406e-09	1.19774e-09		
363	210TL	TB 4386	0.00000e+00	0.00000e+00		
364	210TL	P 0.0	(5)+	1.30 M	3	5482 12
365	210PB	N 1.0	1.0	1	1.0	
366	210PB	L 0	0+	22.23 Y	12	
367	210PB	L 799.6	3 2+	17 PS	5	
368	210PB	L 1096	3 4+	0.6 NS	1	
369	210PB	B 4386	1213	7.429	11	
370	210PBS	B EAV=1771 5				
371	210PB	CB From theory (2015MO10)	\$BIN=315	\$NORM=0.13		
372	210PB	CB E (keV)	dN/dE calc.	unc.		
373	210PB	TB 0	1.28258e-05	7.33575e-08		
374	210PB	TB 14	1.35042e-05	7.70220e-08		
375	210PB	TB 28	1.41187e-05	8.03015e-08		
376	210PB	TB 42	1.46692e-05	8.31960e-08		
377	210PB	TB 56	1.51975e-05	8.59443e-08		
378	210PB	TB 70	1.57149e-05	8.86109e-08		

Mean energy

Number of bins and normalization

Continuous data in ENSDF format – April update

Total beta spectrum, total mean energy, unc., norm and number of bins removed

```

210PB 210TL B- DECAY (1.30 M)
210PB H TYP=FUL$AUT=V.CHISTE$CUT=31-AUG-2007$
210TL P 0.0 (5)+ 1.30 M 3 5482 12
210PB N 1.0 1.0 1 1.0
210PB L 0 0+ 22.23 Y 12
210PB L 799.6 3 2+ 17 PS 5
210PB L 1096 3 4+ 0.6 NS 1
210PB B 4386 1213 7.429 11
210PBS B EAV=1771 5
210PB CBe E ← dN/dE from theory (2015MO10)
210PB TBe 0 9.86600e-05
210PB TBe 14 1.03878e-04
210PB TBe 28 1.08605e-04
210PB TBe 42 1.12840e-04
210PB TBe 56 1.16904e-04
210PB TBe 70 1.20884e-04
210PB TBe 84 1.24818e-04
  
```

Mean energy

keV
assumed

From theory or
experiment if C_{exp}
available, with NSR ref.

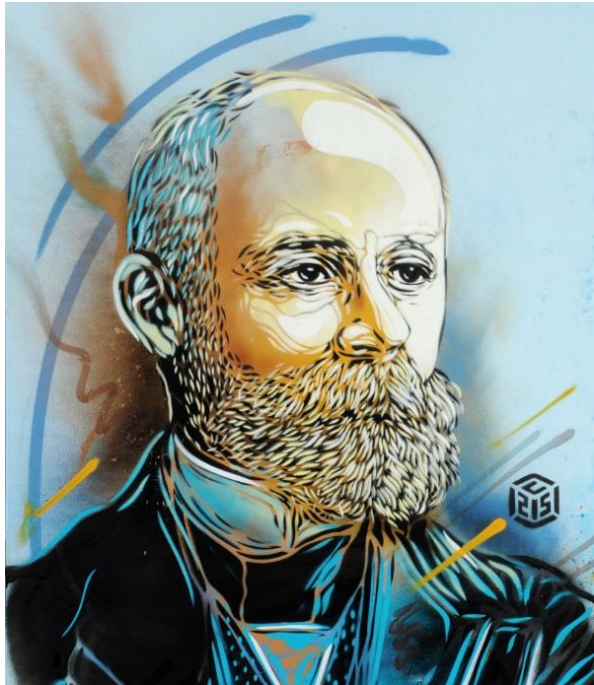
Spectrum
normalized to unity

Format

Continuous data in ENSDF format – Proposal

As discussed in December at TM for NSDD codes

1	2	3	4	5	6	7	8
1234567890123456789012345678901234567890123456789012345678901234567890							
210PB	TBe	electrons					
210PB	TEp	positrons					
210PB	TBn	anti-neutrinos					
210PB	TEn	neutrinos					
210PB	TBg	gammas					
210PB	TEg	gammas					
210PB	TBN	neutrons					
210PB	TBA	alpha					
210PB	TEA	alpha					
210PB	TEP	protons					



Thank you for your attention

Commissariat à l'énergie atomique et aux énergies alternatives
Institut List | CEA SACLAY NANO-INNOV | BAT. 861 – PC142
91191 Gif-sur-Yvette Cedex - FRANCE
www-list.cea.fr

Établissement public à caractère industriel et commercial | RCS Paris B 775 685 019