^{137}Sm ε decay (45 s) 1986Re11,1989BrZM

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 108,2173 (2007)	1-Oct-2006

Parent: ^{137}Sm: E=0.0; $J^\pi=(9/2^-)$; $T_{1/2}$=45 s *1*; Q(ε)=6054 *40*; %ε+%$β^+$ decay=100.0

Additional information 1.

Measured: γ, γγ, Xγ (1986Re11,1985BrZX), γ (1983AlZO).

Decay scheme is from 1989BrZM, 1986Re11.

1989BrZM: measured γ, ce, γγ(t), γce(t). In a private communication the authors have indicated new work giving a detailed level scheme.

^{137}Pm Levels

E(level)	J^π †	Comments
0.0	$11/2^-$	
163.7 *3*	$7/2^-$	
337.1 *2*	$15/2^-$	
344.1		
380.5	$(9/2)^-$	
559.0		
694.9		
761.7		E(level): level from 1989BrZM.
789.0	$(7/2,9/2,11/2)^-$	
864.4		
977.0		

† Adopted values.

γ(^{137}Pm)

Unplaced γ rays are from 1983AlZO. Iγ values are normalized to I(380γ)=100.

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	α@	Comments
163.7 *3*	85 *9*	163.7	$7/2^-$	0.0	$11/2^-$	E2	0.399 *7*	α(K)=0.275 *5*; α(L)=0.0966 *16*; α(M)=0.0219 *4*; α(N+..)=0.00544 *9* α(N)=0.00479 *8*; α(O)=0.000633 *10*; α(P)=1.320×10^{-5} *20*
x169 *1*	13							
180.4 *3*	13 *2*	344.1		163.7	$7/2^-$			
188.0 *3*	32 *3*	977.0		789.0	$(7/2,9/2,11/2)^-$			
x192.9 *3*	17							
202.2		761.7		559.0				
216.7 *3*	36 *4*	380.5	$(9/2)^-$	163.7	$7/2^-$	M1	0.178	α(K)=0.1514 *22*; α(L)=0.0210 *3*; α(M)=0.00447 *7*; α(N+..)=0.001170 *17* α(N)=0.001008 *15*; α(O)=0.0001523 *22*; α(P)=9.68×10^{-6} *14*
337.1‡ *2*		337.1	$15/2^-$	0.0	$11/2^-$			
380.5 *3*	100 *10*	380.5	$(9/2)^-$	0.0	$11/2^-$	M1	0.0399	α(K)=0.0340 *5*; α(L)=0.00463 *7*; α(M)=0.000986 *14*; α(N+..)=0.000258 *4* α(N)=0.000222 *4*; α(O)=3.37×10^{-5} *5*; α(P)=2.16×10^{-6} *3*
380.6		761.7		380.5	$(9/2)^-$			

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^{137}Sm ε decay (45 s) 1986Re11,1989BrZM (continued)

γ(^{137}Pm) (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	α [@]	Comments
408.3 *3*	40 *4*	789.0	(7/2,9/2,11/2)$^-$	380.5	(9/2)$^-$	M1	0.0333	α(K)=0.0284 *4*; α(L)=0.00385 *6*; α(M)=0.000820 *12*; α(N+..)=0.000215 *3* α(N)=0.000185 *3*; α(O)=2.80×10^{-5} *4*; α(P)=1.80×10^{-6} *3*
484.3		864.4		380.5	(9/2)$^-$			
531.2 *3*	37 *4*	694.9		163.7	7/2$^-$			
559.0 *3*	28 *3*	559.0		0.0	11/2$^-$			
625.2		789.0	(7/2,9/2,11/2)$^-$	163.7	7/2$^-$			
695.3		694.9		0.0	11/2$^-$			
700.7		864.4		163.7	7/2$^-$			
761.7		761.7		0.0	11/2$^-$			

[†] Unless noted otherwise, Eγ, Iγ are from 1986Re11 where both are given. Where only Eγ energies are given values are from 1989BrZM.

[‡] From 1983AlZO, Iγ=82. 1986Re11 state that this transition from in-beam work was not seen in ^{137}Sm ε decay. Intensity suggested by 1983AlZO seems too large from the 15/2$^-$ state if it was seen at all in the 9/2$^-$ ^{137}Sm ε decay.

[#] From 1989BrZM based on α(K)exp (value given only for 163.7γ).

[@] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

[x] γ ray not placed in level scheme.

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Decay Scheme

Intensities: Relative I_γ

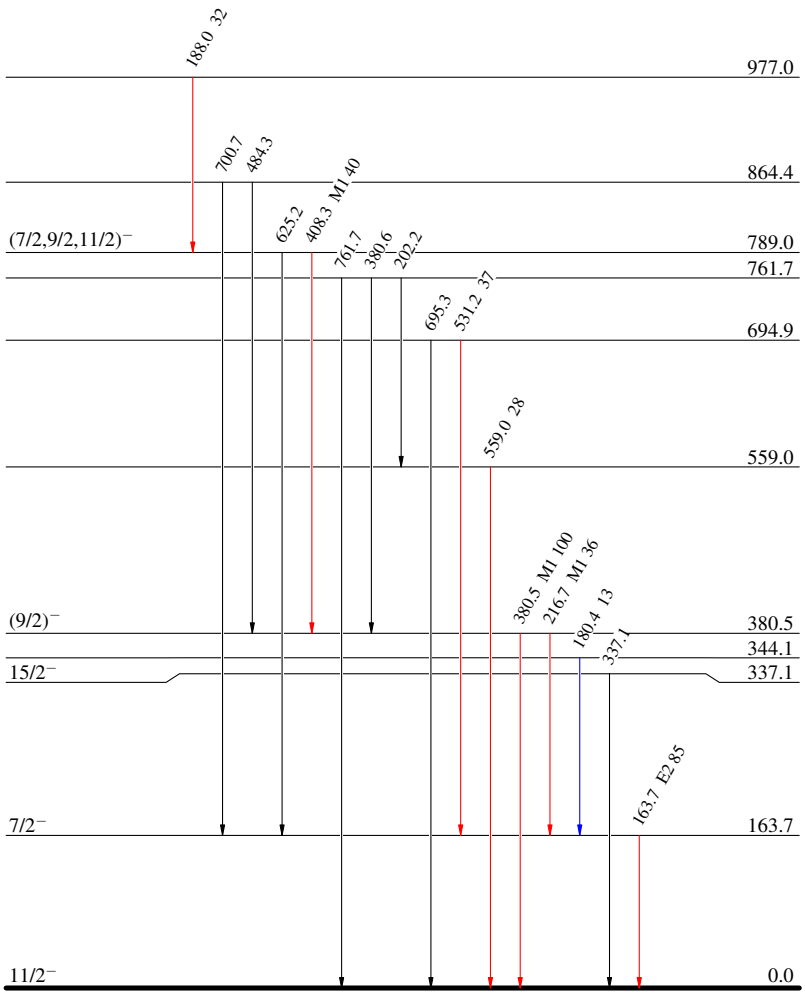
Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$

(9/2⁻) 0.0 45 s *1*

%ε + %β⁺=100 Qε=6054 *40*

$^{137}_{62}Sm_{75}$



$^{137}_{61}Pm_{76}$