

(Hl,xn γ):SDB 1995Mu11

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	T. D. Johnson, D. Symochko(a), M. Fadil(b), and J. K. Tuli		NDS 112, 1949 (2011)	1-Jun-2010

1995Mu11: $^{120}\text{Sn}(^{27}\text{Al},5n\gamma)$ E=152 MeV. Deduced SD band from $\gamma\gamma$ data.

1994At01: $^{110}\text{Pd}(^{37}\text{Cl},5n\gamma)$ E=160 MeV. Deduced SD band from $\gamma\gamma$ data with 29-detector array.

Theory, calculations: 1997Pa41, 1996Af02.

 ^{142}Eu Levels

E(level)	J^π	Comments
$u^\dagger$	J	Additional information 1. J^π : J=(27,29) from 1995Mu11.
699.7+u † 3	J+2	
1461.6+u † 5	J+4	
2284.4+u † 6	J+6	
3170.7+u † 6	J+8	
4117.8+u † 7	J+10	
5126.1+u † 8	J+12	
6195.5+u † 8	J+14	
7324.9+u † 9	J+16	
8512.0+u † 11	J+18	
9759.9+u † 13	J+20	
11067.8+u † 16	J+22	
12436.1+u † 20	J+24	
13864+u † 3	J+26	
15351+u † 4	J+28	
16899.2+u †	J+30	

† Band(A): SD band from 1995Mu11. Percent population=1.2 2 (1995Mu11). Possible particle structures (1995Mu11) are: configuration= $((\pi 6)^{+1}(\nu 6)^{+3})$ ($\alpha=+1$, $\pi=+$). This configuration assumes hole in the N=6 neutron orbital. Another possibility is a hole in the $3/2[532]$ ($\alpha=-1/2$) neutron orbital which would give negative parity for the SD band. The SD band reported by 1994At01 with the following (very different) transitions in the cascade was not seen by 1995Mu11: 821, 880, 940, 995, 1053, 1113, 1174, 1237, 1298, 1360, 1422, 1486, 1551, 1616, 1681. The SD band seen by 1994At01 (percent population=0.3) probably belongs to some other nuclide.

 $\gamma(^{142}\text{Eu})$

E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
699.7 3	699.7+u	J+2	u	J	1187.1 6	8512.0+u	J+18	7324.9+u	J+16
761.9 3	1461.6+u	J+4	699.7+u	J+2	1247.9 6	9759.9+u	J+20	8512.0+u	J+18
822.8 3	2284.4+u	J+6	1461.6+u	J+4	1307.9 10	11067.8+u	J+22	9759.9+u	J+20
886.3 3	3170.7+u	J+8	2284.4+u	J+6	1368.2 12	12436.1+u	J+24	11067.8+u	J+22
947.1 3	4117.8+u	J+10	3170.7+u	J+8	1428.4 18	13864+u	J+26	12436.1+u	J+24
1008.3 3	5126.1+u	J+12	4117.8+u	J+10	1486.8 20	15351+u	J+28	13864+u	J+26
1069.4 3	6195.5+u	J+14	5126.1+u	J+12	1548 †	16899.2+u?	J+30	15351+u	J+28
1129.4 4	7324.9+u	J+16	6195.5+u	J+14					

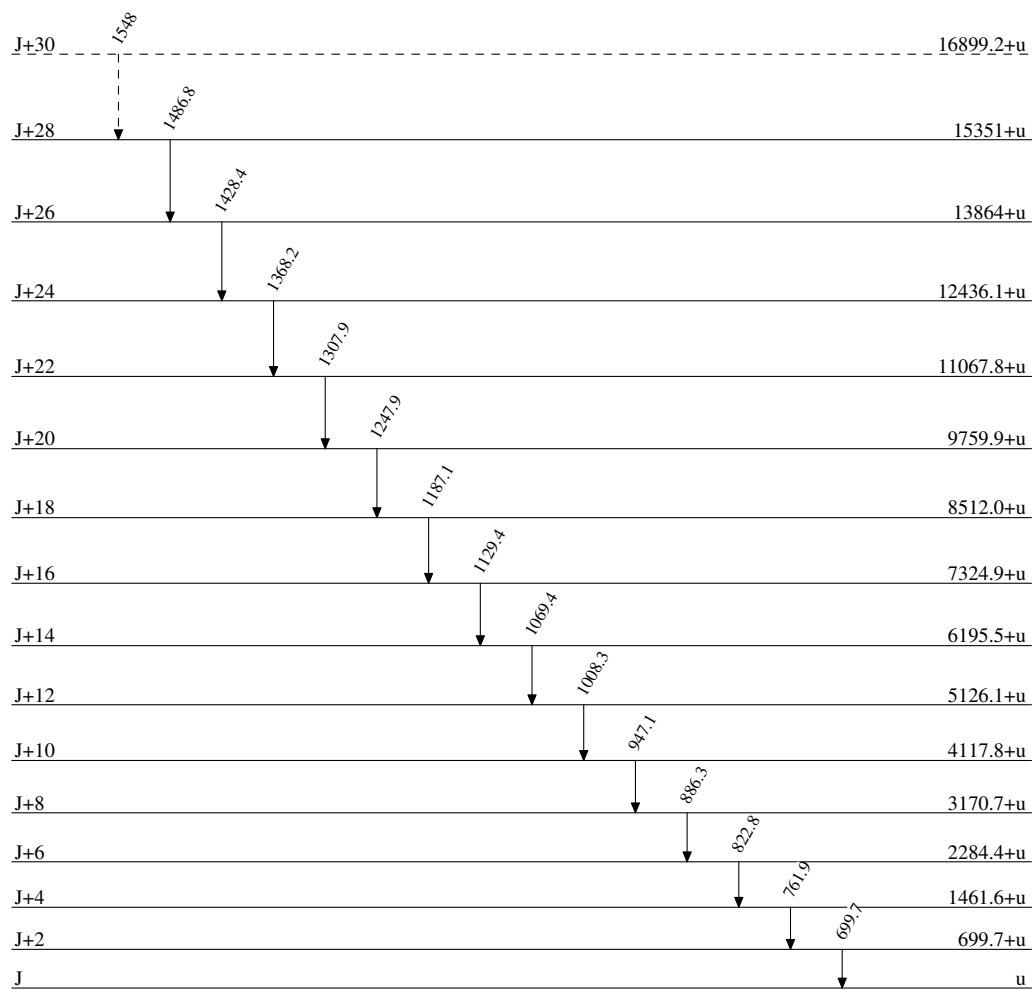
† Placement of transition in the level scheme is uncertain.

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Legend

Level Scheme

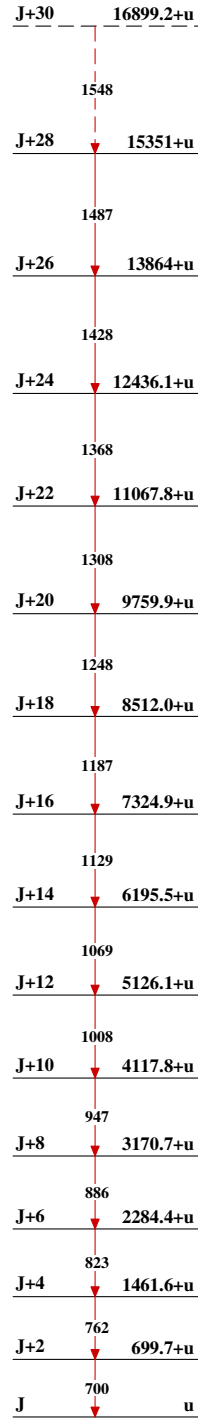
-----> γ Decay (Uncertain)



$^{142}_{63}\text{Eu}_{79}$

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Band(A): SD band from
1995Mu11

 $^{142}_{63}\text{Eu}_{79}$