^{144}Sm(γ,γ')

	Type	Author	History Citation	Literature Cutoff Date
	Full Evaluation	A. A. Sonzogni	NDS 93, 599 (2001)	1-Dec-2000

References: 1973Sz02, 1972Ar15, 1976Me17, 1978Me08.

Studied resonance fluorescence of 8998 level by using nickel capture γ's (1973Sz02,1972Ar15).

1976Me17 and 1978Me08 studied the resonant scattering using electron bremsstrahlung E(e)=1.2-3.8 MeV (1976Me17), 2.0 MeV≤E(e)≤5.2 MeV (1978Me08).

Eγ, Iγ values of 1972Ar15 are given. Iγ of 1973Sz02 are quite different.

^{144}Sm Levels

E(level)	$J^{\pi\dagger}$	$T_{1/2}^{\ddagger}$	$\Gamma_{\gamma 0}^2/\Gamma$ (MeV)	Comments
0.0	0^+			
1660 *1*	2	89 fs *21*	5.1 *12*	
2120? *7*				
2167? *7*				
2423 *1*	2	29 fs *4*	14 *2*	
2478 *4*				
2799 *2*	(2)	97 fs *19*	4.7 *9*	
2882? *9*				
2976? *9*				
3225 *1*	1^-	1.94 fs *26*	220 *20*	
3546? *9*				
3734? *9*				
3818 *3*	1,2		11 *3*	
3891 *2*	$1^{(-)}$		210 *30*	
3905 *3*	(1)		25 *8*	
3966 *2*	$1^{(+)}$		70 *10*	
4262 *2*	1		170 *30*	
5015 *5*	(1)		140 *40*	
5103 *3*	1,2		140 *40*	
5151 *3*	(1)		290 *60*	
8998 *3*	1			$\Gamma_{\gamma 0}^2/\Gamma$ (MeV): $\Gamma_{\gamma 0}$=0.033 eV *7* (1973Sz02). J^π: from angular distribution in (γ,γ) (1973Sz02).

$\dagger$ From I$\gamma(\theta$=126°)/I$\gamma(\theta$=96°); π from mult of deexciting γ's.

$\ddagger$ From $\Gamma_{\gamma 0}^2/\Gamma$ using adopted branching ratios.

$\gamma(^{144}$Sm)

E_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	E_γ	$I_\gamma^{\dagger}$	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡
1660 *1*	1660	2	0.0	0^+	Q	5151 *3*		5151	(1)	0.0	0^+	(D)
2423 *1*	2423	2	0.0	0^+	Q	5264$^{\&}$ *8*	10 *5*	8998	1	3734?		
2799 *2*	2799	(2)	0.0	0^+	(Q)	5452$^{\&}$ *8*	17 *9*	8998	1	3546?		
3225 *1*	3225	1^-	0.0	0^+	E1$^{@}$	6022$^{\&}$ *8*	28 *7*	8998	1	2976?		
3818 *3*	3818	1,2	0.0	0^+	D,Q	6116$^{\&}$ *8*	9 *5*	8998	1	2882?		
3891 *2*	3891	$1^{(-)}$	0.0	0^+	(E1)$^{@}$	6199 *3*	24 *7*	8998	1	2799	(2)	D$^{\#}$
3905 *3*	3905	(1)	0.0	0^+	(D)	6520 *3*	91 *8*	8998	1	2478		D$^{\#}$
3966 *2*	3966	$1^{(+)}$	0.0	0^+	(M1)$^{@}$	6574 *3*	58 *7*	8998	1	2423	2	D$^{\#}$
4262 *2*	4262	1	0.0	0^+	D$^{@}$	6831$^{\&}$ *6*	19 *2*	8998	1	2167?		D$^{\#}$
5015 *5*	5015	(1)	0.0	0^+	(D)	6878$^{\&}$ *6*	20 *5*	8998	1	2120?		
5103	5103	1,2	0.0	0^+	D,Q	7337 *3*	70 *6*	8998	1	1660	2	D$^{\#}$
						8998 *3*	100 *7*	8998	1	0.0	0^+	D$^{\#}$

^{144}Sm(γ,γ') (continued)

$\gamma(^{144}$Sm) (continued)

† Relative photon branching ratio.
‡ Unless given otherwise, multipolarities are from 1978Me08 based upon $\gamma(126°)/\gamma(96°)$.
# From $\gamma(\theta)$, $\theta=90°$, 135° (1973Sz02).
@ From linear polarization measurement (1978Me08).
& Placement of transition in the level scheme is uncertain.

$^{144}\text{Sm}(\gamma,\gamma')$

Level Scheme

Intensities: Type not specified

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)

8998 D 100
7337 D 70
6878 20
6831 D 19
6574 D 58
6520 D 91
6199 D 24
6116 9
6022 28
5452 17
5264 10

5151 (D)
5103 D,Q
5015 (D)
4262 D
3966 (M1)
3905 (D)
3891 (E1)
3818 D,Q
3225 E1
2799 (Q)
2423 Q
1660 Q

Level	Energy	
1	8998	
(1)	5151	
1,2	5103	
(1)	5015	
1	4262	
1(+)	3966	
(1)	3905	
1(−)	3891	
1,2	3818	
	3734	
	3546	
1−	3225	1.94 fs 26
	2976	
	2882	
(2)	2799	97 fs 19
	2478	
2	2423	29 fs 4
	2167	
	2120	
2	1660	89 fs 21
0+	0.0	

$^{144}_{62}\text{Sm}_{82}$