

⁴⁵Sc(γ,γ),(γ,γ') res **1975Me09,1973Ar04**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	T. W. Burrows	NDS 109, 171 (2008)	30-Oct-2007

1973Ar04: simultaneous comparison method to obtain absolute flux determination. W(125°) was assumed to Be 1 In the derivation of $\Gamma(0)$. For $J^\pi(^{45}\text{Sc g.s.})=7/2^-$, $0.95 \leq W(125^\circ) \leq 1.0$ except for $\delta^2 > 2$ for the $7/2^- \rightarrow 9/2^- \rightarrow 7/2^-$ transitions.

1975Me09: $\theta=98^\circ$ and 127° .

Other: **1971Ru10**.

⁴⁵Sc Levels

The following states were looked for but not observed **1973Ar04:**

Ex	Upper Limit $gW\Gamma_0^2/\Gamma$ (meV)	Ex	Upper Limit $gW\Gamma_0^2/\Gamma$ (meV)
1434	0.2	2223	0.5
1474	0.2	2303	0.5
1577	0.2	2351	0.5
1897	1.0	2531	2
2031	0.5	2562	2
2106	0.5		

S(A)	TV	Average $gW(125^\circ)\Gamma_0^2/\Gamma$, meV based on:	1973Ar04	1975Me09
E_x	E_x	E_x		
720	1.58 16	1.50 20 Weighted	1663 3.2 3	2.8 3 Weighted
1237	0.38 2	0.35 7 Weighted	2095 47 2	40 4 Unweighted
1409	1.36 11	1.27 12 Weighted		

E(level)	J^π^\dagger	Γ^\ddagger	$gW(125^\circ)\Gamma_0^2/\Gamma$, meV [#]	Comments
0.0	7/2 ⁻			
12.40 5	3/2 ⁺			E(level): from the Adopted Levels. Energy held fixed In least-squares adjustment.
543.2 15	5/2 ⁺	8.6×10 ⁻⁵ eV 24	0.011 3	$gW(125^\circ)\Gamma_0\Gamma_1/\Gamma=0.019$ meV 4.
720.0 10	5/2 ⁻	2.22×10 ⁻³ eV 18	1.55 12	
974.2 15	7/2 ⁺	2.33×10 ⁻⁴ eV 30	0.08 1	$gW(125^\circ)\Gamma_0\Gamma_1/\Gamma=0.062$ meV 9.
1237.0 20	11/2 ⁻	2.53×10 ⁻⁴ eV 13	0.38 2	J^π : $g\Gamma(0)\approx g\Gamma(0)(E2)$ lends support to 11/2 ⁻ assignment (1973Ar04).
1409.0 10	(7/2) ⁻		1.32 8	Γ : 2.20 meV 14 if J=5/2; 1.65 meV 10 if J=7/2. See comment In Adopted Levels.
1663.0 20	9/2 ⁻	5.0×10 ⁻³ eV 6	3.00 20	
1798.0 20	5/2 ⁺	2.0×10 ⁻² eV 6	0.22 5	
2093.1 20	5/2	8.5×10 ⁻² eV 9	44 4	
2291 @ 3	@		1.28 8	
2341.1 20	(7/2 ⁻)		16 1	$\Gamma\approx 0.00166$ eV 11 Γ : J=7/2. Others: ≈ 3.33 meV 21 if J=3/2 and ≈ 2.22 meV 14 if J=5/2.
2592.1 20	3/2 ⁻ , 5/2, 7/2 ⁻		8.9 5	

[†] From the Adopted Levels.

[‡] From $gW(125^\circ)\Gamma_0^2/\Gamma$ using the adopted spins.

[#] From **1973Ar04**, except As noted.

@ May correspond to 2288.5 keV, (7/2⁻, 9/2), or 2303.8 keV, (5/2⁻).

${}^{45}\text{Sc}(\gamma,\gamma),(\gamma,\gamma')$ res **1975Me09,1973Ar04** (continued) $\gamma({}^{45}\text{Sc})$

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\ddagger	E_f	J_f^π	$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\ddagger	E_f	J_f^π
543.2	$5/2^+$	531 2	58.7 4	12.40	$3/2^+$	1663.0	$9/2^-$	1663 2	69 3	0.0	$7/2^-$
		543 2	41.3 4	0.0	$7/2^-$	1798.0	$5/2^+$	1798 2	12.0 12	0.0	$7/2^-$
720.0	$5/2^-$	720 1	96.5 5	0.0	$7/2^-$	2093.1	$5/2$	2093 2	83 2	0.0	$7/2^-$
974.2	$7/2^+$	962 2	31.6 4	12.40	$3/2^+$	2291		2291 3	41 4	0.0	$7/2^-$
		974 2	58.6 6	0.0	$7/2^-$	2341.1	$(7/2^-)$	2341 2	≈ 31	0.0	$7/2^-$
1237.0	$11/2^-$	1237 2	100	0.0	$7/2^-$	2592.1	$3/2^-,5/2,7/2^-$	2592 2	19 8	0.0	$7/2^-$
1409.0	$(7/2)^-$	1409 1	89.0 10	0.0	$7/2^-$						

† From **1973Ar04**, except As noted.

‡ From the Adopted Gammas, except As noted. % photon branching ratio from each level.

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Level Scheme

Intensities: % photon branching from each level

