

$^{45}\text{Sc}(p,d\gamma)$ **2022Ms01**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh		NDS 190,1 (2023)	20-Jun-2023

2022Ms01: E=27 MeV proton beam was the iThemba Laboratory accelerator. ^{45}Sc target. γ rays were detected with an array of 8 $\text{LaBr}_3:\text{Ce}$ detectors coupled to the AFRODITE array of 8 Compton-suppressed clover detectors. Measured E_γ , $\gamma\gamma$ -coin, $\gamma\gamma(t)$. Deduced $T_{1/2}$ from fast-timing. Comparisons with available data.

 ^{44}Sc Levels

E(level) [†]	J^π [†]	$T_{1/2}$ [‡]	Comments
0.0	2 ⁺		
67.9	1 ⁻		
234.8	2 ⁻	6.16 ns <i>8</i>	
349.9	4 ⁺	3.067 ns <i>14</i>	$T_{1/2}$: from fast-timing using RF- LaBr_3 , but a value of 2.499 ns <i>15</i> from fast-timing using LaBr_3 - LaBr_3 is significantly discrepant (2022Ms01).
424.8	3 ⁻	364 ps <i>10</i>	E(level): 428.8 in 2022Ms01 is probably a misprint.
631	4 ⁻	336 ps <i>15</i>	
1197.5	5 ⁻		
2210.6	(6 ⁻)	162 ps <i>9</i>	
2606.8	7 ⁻	180 ps <i>10</i>	
2989.2	8 ⁻		
3364.1	(8 ⁻)	164 ps <i>12</i>	
3829	9 ⁻		

[†] From the Adopted Levels. Energies are rounded values.

[‡] From $\gamma\gamma(t)$ with fast-timing (**2022Ms01**).

 $\gamma(^{44}\text{Sc})$

E_γ [†]	$E_i(\text{level})$	J_i^π	E_f	J_f^π
234.7	234.8	2 ⁻	0.0	2 ⁺
349.9	349.9	4 ⁺	0.0	2 ⁺
356.9	424.8	3 ⁻	67.9	1 ⁻
382	2989.2	8 ⁻	2606.8	7 ⁻
396	631	4 ⁻	234.8	2 ⁻
465	3829	9 ⁻	3364.1	(8 ⁻)
757	3364.1	(8 ⁻)	2606.8	7 ⁻
772.5	1197.5	5 ⁻	424.8	3 ⁻
1013	2210.6	(6 ⁻)	1197.5	5 ⁻
1409	2606.8	7 ⁻	1197.5	5 ⁻

[†] As given in **2022Ms01** used for $\gamma\gamma(t)$ measurement.

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Level Scheme

