

²⁸Si(μ^- , ν p2n γ) 2007Me18

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia, Anagha Chakraborty		NDS 205,1 (2025)	31-May-2025

Adapted/Edited the XUNDL dataset compiled by S. Geraedts and B. Singh (McMaster): Oct 10, 2007.
The μ^- beam obtained from decay of π^- beam at 90 MeV/c. Measured γ -ray yields using two HPGe detectors at TRIUMF facility.

Muonic Lyman (or K) series for Silicon		
μ x-ray	Energy	Intensity (in% per capture)
2p-1s	400.177 a)	80.3 8
3p-1s	476.80 5	7.40 20
4p-1s	503.58 10	4.27 20
5p-1s	515.97 10	3.83 20
6p-1s	522.74 10	2.29 10
(7p to ∞ p)-1s		1.87 20
a): 400.177-keV x ray used for calibration		

²⁵Mg Levels

<u>E(level)[†]</u>	<u>Jπ[†]</u>
0.0	5/2 ⁺
585.042	1/2 ⁺
974.746	3/2 ⁺
1611.767	7/2 ⁺
1964.615	5/2 ⁺
2563.40	1/2 ⁺

[†] From Adopted Levels.

$\gamma(^{25}\text{Mg})$

<u>Eγ[†]</u>	<u>Iγ[‡]</u>	<u>E_i(level)</u>	<u>Jπ_i</u>	<u>E_f</u>	<u>Jπ_f</u>
389.710	0.22 6	974.746	3/2 ⁺	585.042	1/2 ⁺
585.028	1.00 8	585.042	1/2 ⁺	0.0	5/2 ⁺
974.742	0.30 6	974.746	3/2 ⁺	0.0	5/2 ⁺
989.865	0.06 6	1964.615	5/2 ⁺	974.746	3/2 ⁺
1379.543	0.04 4	1964.615	5/2 ⁺	585.042	1/2 ⁺
1611.712	0.07 7	1611.767	7/2 ⁺	0.0	5/2 ⁺
1964.501	0.04 4	1964.615	5/2 ⁺	0.0	5/2 ⁺
1978.25	<0.1	2563.40	1/2 ⁺	585.042	1/2 ⁺

[†] From Adopted Gammas.

[‡] Percent yield per muon capture.

$^{28}\text{Si}(\mu^-, \nu p 2n \gamma)$ 2007Me18

Level Scheme

Intensities: Percent γ -ray yield/muon capture

Legend

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

