	History							
Туре	Author	Citation	Literature Cutoff Date					
Full Evaluation	Jun Chen and Balraj Singh	NDS 199,1 (2025)	30-Sep-2024					

2000Pr09 (also 2002Gl01): ¹⁹⁷Au(³³Si,³³Si' γ) E=40.8 MeV/nucleon ³³Si beam was produced by fragmentation of a 90 MeV/nucleon ⁴⁰Ar primary beam from the NSCL K1200 cyclotron hitting a 564 mg/cm² ⁹Be production target. Fragments were separated by A1200 fragment separator. The secondary target was ¹⁹⁷Au. Scattered particles were stopped and detected in a cylindrical fast/slow plastic phoswich detector and identified using time-of-flight method. γ rays were detected with an array of NaI(TI) detectors surrounding the target. Measured E γ , I γ , γ -ray yields. Deduced levels, γ -ray transition strengths. Comparisons with sd-shell calculations with the USD interaction.

³³Si Levels

E(level) [†]	$J^{\pi \ddagger}$	Comments				
0 1010 7 4300		B(E2)↑=0.00165 <i>32</i> (2000Pr09) B(E2)↑=0.0069 <i>13</i> (2000Pr09)				

[†] From $E\gamma$ data.

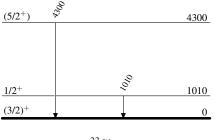
[‡] From the Adopted Levels.

$\gamma(^{33}\text{Si})$

Eγ	E _i (level)	\mathbf{J}_i^{π}	E_f	\mathbf{J}_f^{π}	Comments
1010 7	1010	$1/2^{+}$	0	$(3/2)^+$	σ =4.1 mb 8 (2000Pr09).
4300	4300	$(5/2^+)$	0	$(3/2)^+$	E_{γ} : may also include 4231 γ from ³² Si (2000Pr09).
					$\sigma = 11.6 \text{ mb } 22 \ (2000 \text{Pr} 09).$

Coulomb excitation 2000Pr09

Level Scheme



 $^{33}_{14}{\rm Si}_{19}$

³³₁₄Si₁₉