³⁰Si(³He,pγ) 1972Fo12,1971Ad06

		History	
Туре	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 201,1 (2025)	31-Oct-2024

1972Fo12: E=8.02 MeV ³He beam was produced from the 4-MV Van de Graaff accelerator of the Institut de Physique Nucleaire at Orsay. Target was 200 μ g/cm² ³⁰Si on a gold backing. Protons were detected with a surface-barrier detector and γ rays were detected with Ge detectors. Measured E γ , I γ , p γ -coin. Deduced levels, γ -ray branching ratios. Comparisons with available data. 1972Fo12 also report data on (³He,p).

1971Ad06 (also 1977Ba50): E=10 MeV ³He beam was produced at the University of Pennsylvania. Target was a thin SiO on a Formvar backing. Protons were detected with a position-sensitive detector and γ rays were detected with an array of four NaI(Tl) detectors. Measured E γ , I γ , p γ -coin, p $\gamma(\theta)$. Deduced levels, J, π , γ -ray branching ratios.

³²P Levels

E(level) [†]	\mathbf{J}^{π}	Comments				
0						
78						
513						
1149						
1324						
1755						
2230						
4878						
5073.0 14	0	T=2				
		J^{π} : p3920 $\gamma(\theta)$ is isotropic (1977Ba50).				
5350						

[†] From 1972Fo12 based on E γ data. E γ values are not explicitly listed in 1972Fo12.

$\gamma(^{32}P)$

E _i (level)	\mathbf{J}_i^{π}	E_{γ}^{\dagger}	I_{γ}	E_f	Comments
513		513		0	
1149		636 [‡]	52 [‡]	513	
		1071 [‡]	40 [‡]	78	
		1149		0	I_{γ} : not reported in 1971Ad06; supposed to account for the missing branching of 8% in 1971Ad06.
1324		1246		78	
		1324		0	
1755		1677		78	
2230		2150 [‡]	95 [‡]	78	
		2230		0	I_{γ} : not reported in 1971Ad06; contribute to the missing branching of 5% in 1971Ad06.
4878		4365		513	
5073.0	0	2840 [‡]	6.1 [#] 8	2230	I_{γ} : 6.6 8 (1971Ad06) and 5.3 9 (1972Fo12). I(2840γ)/I(3920)γ=7.20 95/100, weighted average of 6.6 8/85.6 18 (1971Ad06) and 5.3 9/84.0 85 (1972Fo12).
		3920 [‡]	85.0 [#] 15	1149	I _y : 85.6 18 (1971Ad06) and 84.0 85 (1972Fo12).
		5070 [‡]	8.9 [#] 14	0	I_{γ} : 7.8 <i>14</i> (1971Ad06) and 10.7 <i>14</i> (1972Fo12). I(5070 γ)/I(3920) γ =10.5 <i>18</i> /100, weighted average of 7.8 <i>14</i> /85.6 <i>18</i> (1971Ad06) and 10.7 <i>14</i> /84.0 <i>85</i> (1972Fo12).
5350		4201		1149	

Continued on next page (footnotes at end of table)

 ${}^{32}_{15}P_{17}-1$

30 Si(3 He,p γ) 1972Fo12,1971Ad06 (continued)

$\gamma(^{32}P)$ (continued)

[†] Transitions seen in Fig.3 of 1972Fo12. Values from level-energy difference, unless otherwise noted.

[‡] From 1971Ad06. [#] From average intensity ratio relative to I(3920 γ)=100, obtained from branching ratios in 1971Ad06 and 1972Fo12 as given under comments.

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Level Scheme

Intensities: % photon branching from each level



 ${}^{32}_{15}P_{17}$