

$^{70}\text{Ge}(\alpha, \alpha')$ 1987Sc31

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	G. Gürdal, E. A. Mccutchan		NDS 136, 1 (2016)	1-Jul-2016

1989Ro12: $E_{\alpha}=36$ MeV provided by Orsay tandem MP. 96.2% enriched ^{70}Ge . The split-pole magnetic spectrometer was used.

Measured $\sigma(\theta)$; coupled channel analysis in the framework of harmonic and anharmonic vibrations and asymmetric rotor model and deduced deformation parameters.

1988Ba70: $E_{\alpha}=25$ MeV provided by Radial Ridge Cyclotron at University of Birmingham. 98.84% enriched ^{70}Ge target.

FWHM=100-200 keV for the first 2^{+} and 3^{-} levels, but was poorer for higher levels. Measured $\sigma(\theta)$; coupled channel analysis based on asymmetric rotor and vibrational model and deduced deformation parameters.

1987Sc31: $E_{\alpha}=31.5$ MeV provided by Van de Graaff at Heidelberg. The scattered α -particles were momentum analyzed with a

Q3D spectrograph. Measured angular distribution of scattered α -particles. Deduced $\sigma(\theta)$; DWBA analysis with vibrational model form factors and deduced deformation parameters.

 ^{70}Ge Levels

E(level) [†]	L [‡]	Comments
0		
1040 10	2	
1214 10	0	
1707 10	2	
2153 10	2+4	
2555 10	3	
2800 10	3	
2942 10	(2)	
3063 10	4	
3130 10	(3)	E(level): this level is possibly the 3139 level in ^{74}Ge present as a 3.4% impurity in the ^{70}Ge target.
3185 10	2	
3200 10	(5)	
3323 10	1	
3427 10	5	
3440 10	3	
3575 10	4	
3637 10	0	
3679 10	4	
3777 10	3	
3870 10	3	
3908 [#] 10		
3955 10	7	
3975 10	2	
4005 10		
4040 10	(4)	
4092 10	3	
4148 10	1	
4268 10	5	
4304 10	7	
4336 10	(3+5)	
4373 10	(3)	
4418 10	4	
4455 10		
4485 10	(3+5)	
4532 10	(4)	
4635 10	(4)	
4657 [#] 10		
4717 [#] 10		
4775 10	(4)	

Continued on next page (footnotes at end of table)

 $^{70}\text{Ge}(\alpha, \alpha')$ **1987Sc31** (continued) ^{70}Ge Levels (continued)

<u>E(level)[†]</u>	<u>L[‡]</u>	<u>E(level)[†]</u>	<u>L[‡]</u>	<u>E(level)[†]</u>	<u>L[‡]</u>	<u>E(level)[†]</u>	<u>L[‡]</u>
4810 <i>10</i>	3	4940 <i>10</i>	3	5088 <i>10</i>	(4)	5195 <i>10</i>	(4)
4893 <i>10</i>	3	5010 <i>10</i>	(3)	5113 <i>10</i>	(3)	5227 <i>10</i>	(3)
4915 <i>10</i>		5040 <i>10</i>	(3)	5155 <i>10</i>	(3)		

[†] From **1987Sc31**.

[‡] From the angular distributions of scattered α -particles.

$\sigma(\theta)$ smooth indicating a probable multiplet.