

<sup>71</sup>Ge IT decay (20.41 ms)

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Khalifeh Abusaleem, Balraj Singh		NDS 112, 133 (2011)	30-Nov-2010

Parent: <sup>71</sup>Ge: E=198.367 10; J<sup>π</sup>=9/2<sup>+</sup>; T<sub>1/2</sub>=20.41 ms 18; %IT decay=100.0

The 198-keV 20-ms isomer was produced and studied with pulsed beams, except as noted, by the following reactions:

- 1971Go21: <sup>68</sup>Zn(α,n), <sup>70</sup>Zn(α,3n), <sup>69</sup>Ga(α,pn); E=34.8 MeV.
- 1972Br53: <sup>70</sup>Ge(n,γ); E=th, fast pneumatic tube.
- 1966Me02, 1963Al32, 1959G156: <sup>70</sup>Ge(n,γ); E=14.5 MeV.
- 1980Jo11, 1971Mu14, 1961Sc11: <sup>70</sup>Ge(d,p); E=6, 8.4, 4 MeV respectively.
- 1962Mo19, 1961Mo06: <sup>71</sup>Ga(p,n); E=19.2 MeV.
- 1976Ga33, 1974Bu14, 1970Ru08, 1969Ru10: <sup>72</sup>Ge(n,2n); E=14.7, 14.8 MeV.
- 1962Re09: <sup>72</sup>Ge(p,pn); E ≈ 20 MeV.

<sup>71</sup>Ge Levels

E(level) <sup>†</sup>	J <sup>π</sup> <sup>†</sup>	T <sub>1/2</sub>	Comments
0.0	1/2 <sup>-</sup>	11.43 d 3	T <sub>1/2</sub> : from Adopted Levels.
174.949 4	5/2 <sup>-</sup>		
198.367 10	9/2 <sup>+</sup>	20.40 ms 17	T <sub>1/2</sub> : from the decay of 175γ in NaI detectors, except as noted. Value is weighted average of results listed as follows: 20.48 ms 18 (Ge(Li) with NaI anti-Compton,1980Jo11); 20.4 ms 4 (1976Ga33); 21.5 ms 4 (neutron activation of Ge(Li) detector,1974Bu14); 22.2 ms 10 (1971Mu14); 21.5 ms 10 (1971Go21) 20.4 ms 10 (1970Ru08,1969Ru10); 21.2 ms 12 (1966Me02); 20.0 ms 6 (1963Al32); 19.5 ms 5 (also conversion electron detection in anthracene detector,1962Re09); 20 ms 1 (1962Mo19); 19.4 ms 4 (1961Mo06); 20.3 ms 3 (1961Sc11). Values of 21.87 ms 7 (1972Br53) and 16 ms 1 (1959G156) were not included in the averaging procedure.

<sup>†</sup> From Adopted Levels.

γ(<sup>71</sup>Ge)

E <sub>γ</sub> <sup>‡</sup>	I <sub>γ</sub> <sup>#</sup>	E <sub>i</sub> (level)	J <sub>i</sub> <sup>π</sup>	E <sub>f</sub>	J <sub>f</sub> <sup>π</sup>	Mult. <sup>‡</sup>	α <sup>†</sup>	Comments
23.438 15	1	198.367	9/2 <sup>+</sup>	174.949	5/2 <sup>-</sup>	M2	208	α(exp)=208 40 α(K)=169.5 25; α(L)=32.7 5; α(M)=5.03 8; α(N+..)=0.265 4 α(N)=0.265 4 α(exp): From I <sub>γ</sub> (175)/I <sub>γ</sub> (23)=190 37 and the requirement of an intensity balance at the 175 level(1971Mu14); α(exp)=206 40 from 1971Mu14 who use α(175γ)=0.086.
174.954 5	190 37	174.949	5/2 <sup>-</sup>	0.0	1/2 <sup>-</sup>	E2	0.0915	Mult.: M2 from α(exp) and T <sub>1/2</sub> (1971Mu14). α(K)=0.0808 12; α(L)=0.00924 13; α(M)=0.001369 20; α(N+..)=7.91×10 <sup>-5</sup> 11 α(N)=7.91×10 <sup>-5</sup> 11

<sup>†</sup> Additional information 1.

<sup>‡</sup> From Adopted Gammas.

<sup>#</sup> For absolute intensity per 100 decays, multiply by 0.48 9.

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## Decay Scheme

Intensities:  $I_{(\gamma+ce)}$  per 100 parent decays  
%IT=100.0

## Legend

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

