^{45}Cr β^+ decay: partial 1974Ja10,2007Do17

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	T. W. Burrows	NDS 109, 171 (2008)	30-Oct-2007

Parent: ^{45}Cr: E=0.0; J^π=(7/2$^-$); $T_{1/2}$=60.9 ms *4*; Q(β^+)=1.291×10^4 *50*; %β^+ decay=100.0

^{45}Cr-E,J^π,$T_{1/2}$: From the ^{45}Cr Adopted Levels.

^{45}Cr-Q(β^+): From 2003Au03.

^{45}Cr-%β^+ decay: %β^+p=34.4 *8* from ^{45}Cr Adopted Levels.

1974Ja10: ^{32}S(^{16}O,3n) E=50-82 MeV. Surface-barrier counter telescope. A crude excitation curve indicated a maximum $\sigma\approx$0.3 microbarn In the production of the activity near 75 MeV and a threshold below 65 MeV which is consistent with the 53-MeV threshold for (^{16}O,3n) but not with the 74-MeV threshold for (^{16}O,4n). The observed spectrum and $T_{1/2}$ were not compatible with those of any other delayed-particle emitter compiled by 1973Ha77.

2007Do17: Ni(^{58}Ni,X) E=74.5 MeV/nucleon. ALPHA-LISE3 fragment separator. Fragment identification by energy loss, residual energy and tof measurements using two micro-channel plate (MCP) detectors and Si detectors. Double-sided silicon-strip detectors (DSSSD) and a thick Si(Li) detector were used to detect implanted events, charged particles and β particles. γ's detected by four Ge detectors. Coincidences measured between charged particles and γ's.

^{45}V Levels

E(level)	J^π[†]	$T_{1/2}$	Comments
0.0	7/2$^-$	547 ms *6*	%ε+%β^+=100 $T_{1/2}$,%ε+%β^+: from the Adopted Levels.
1322.7 *3*	(9/2$^-$)		
4800 *53*	(7/2$^-$)		%p≈100 T=(3/2) E(level): from E(p)(c.m.)=2.10 MeV *5* to ^{44}Ti 1082.99 *9* state (1974Ja10) and S(p)(^{45}V)=1617 *17*. Other: 4803 *28* from Coulomb energy prediction for the mass of the ^{45}V analog state. J^π,T: from syst of J=7/2$^-$, T=3/2 f7/2 quadruplets.

[†] From the Adopted Levels, except As noted.

ε,β^+ radiations

E(decay)	E(level)	Iβ^+[†#]	Iε[†#]	Log *ft*[†]	I($\varepsilon+\beta^+$)[‡#]	Comments
(8.1×10^3 *5*)	4800	19.6 *15*	0.014 *4*	3.68 *16*	19.6 *15*	av Eβ=3.34×10^3 *25*; εK=0.00064 *16*; εL=6.5×10^{-5} *16*; εM+=1.1×10^{-5} *3*

[†] Calculated from I($\beta+\varepsilon$) (evaluator). I$\beta\approx$40 assuming log *ft*=3.3 (superallowed from systematics of 1965Ha31) somewhat inconsistent.

[‡] From 2007Do17.

[#] Absolute intensity per 100 decays.

$\gamma(^{45}V)$

E_γ[†]	I_γ[†‡]	E_i(level)	J_i^π	E_f	J_f^π
1322.7 *3*	11 *2*	1322.7	(9/2$^-$)	0.0	7/2$^-$

[†] From 2007Do17.

[‡] Absolute intensity per 100 decays.

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Decay Scheme

Intensities: I_γ per 100 parent decays