

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Alexandru Negret, Balraj Singh		NDS 124, 1 (2015)	30-Nov-2014

S(n)=13330 SY; S(p)=1080 SY; Q(α)=-1520 SY [2012Wa38](#)

ΔS(n)=500, ΔS(p)=300, ΔQ(α)=420 (syst,[2012Wa38](#)).

S(2p)=4860 420, Q(εp)=7690 300 (syst,[2012Wa38](#)). S(2n)=28220 (calculated,[1997Mo25](#)).

[1992Ye04](#): ⁸⁶Tc identified by in ⁵⁸Ni(⁹²Mo,X) E=70 MeV/nucleon reaction followed by measurement of fragment mass and charge using A1200 beam analysis device, tof=150 ns.

Additional information 1.

[2001Ga24](#), [1998Lo17](#) (also [1999Lo07](#)): ⁸⁶Tc produced in Ni(⁹²Mo,X) E=60 MeV/nucleon. Measured T_{1/2}.

[2001Ki13](#), [2002Fa13](#): ⁸⁶Tc produced in ⁹Be(¹¹²Sn,X) E=1 GeV/nucleon. The fragments were separated in FRS (fragment-recoil separator) and identified by measuring energy loss and time-of-flight. Measured T_{1/2}.

⁸⁶Tc Levels

Cross Reference (XREF) Flags

A ⁸⁶Tc IT decay (1.10 μs)

E(level)	J ^π †	T _{1/2}	XREF	Comments
0	(0 ⁺)	55 ms 7	A	%ε+%β ⁺ =100; %εp=? T=1 J ^π : possible (T=1,T _Z =0) analog of ⁸⁶ Mo g.s. (T=1). T _{1/2} : weighted average of 44 ms I2 (2001Ga24) and 59 ms +8-7 (2001Ki13 , 2002Fa13). Earlier value from the same group as 2001Ga24 was 47 ms I2 (1998Lo17 , 1999Lo07).
593	(2 ⁺)‡		A	T=1
1174	(3,4 ⁺)		A	T=1 J ^π : γ to (2 ⁺), no γ to 0 ⁺ .
1443	(4 ⁺)‡		A	T=1
1524	(6 ⁺)	1.10 μs I4	A	%IT=100 T=0 J ^π : from comparison with shell-model calculations (2008Ga04), a 6 ⁺ T=0 is predicted near this energy, whereas T=0, 5 ⁺ lies lower. Possible configuration=ν5/2[422]⊗π7/2[413], K ^π =6 ⁺ 2000Ch07 suggested 5 ⁺ from possible configuration=ν5/2[303]π5/2[422]. T _{1/2} : from γ(t) in ⁹ Be(¹⁰⁷ Ag,Xγ) (2008Ga04 and erratum), almost the same value of 1.11 μs 2I was obtained by 2000Ch07 .

† Comparison with shell-model predictions and systematics of odd-odd nuclei in this mass region ([2008Ga04](#)).

‡ Proximity of 595γ and 850γ with Eγ of yrast 2⁺ to 0⁺ and yrast 4⁺ to 2⁺, respectively, in ⁸⁶Mo suggests ([2000Ch07](#)) possible analogs of yrast 2⁺ and 4⁺ (T=0) states in ⁸⁶Mo. Similar pattern is observed in N=Z nuclides: ⁶²Ga, ⁶⁶As and ⁷⁴Rb.

Adopted Levels, Gammas (continued) $\gamma(^{86}\text{Tc})$

$E_i(\text{level})$	J_i^π	E_γ	E_f	J_f^π	Mult.	α^\dagger	Comments
593	(2 ⁺)	593	0	(0 ⁺)			
1174	(3,4 ⁺)	581	593	(2 ⁺)			
1443	(4 ⁺)	269	1174	(3,4 ⁺)			
1524	(6 ⁺)	81	1443	(4 ⁺)	(E2)	2.67	$\alpha(\text{K})=2.06\ 3$; $\alpha(\text{L})=0.503\ 7$; $\alpha(\text{M})=0.0932\ 13$; $\alpha(\text{N+..})=0.01397\ 20$ $\alpha(\text{N})=0.01361\ 19$; $\alpha(\text{O})=0.000360\ 5$ $\text{B}(\text{E}2)(\text{W.u.})=1.8\ 3$, assuming 100% branch for 81 γ . Mult.: from $\alpha(\text{exp})=3.5\ 8$ in $^9\text{Be}(^{107}\text{Ag},\text{X}\gamma)$ (2008Ga04).

[†] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ -ray energies, assigned multiplicities, and mixing ratios, unless otherwise specified.

Adopted Levels, GammasLevel Scheme