Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 113,1871 (2012)	15-Jun-2012

Q(β^-)=4.30×10^3 *8*; S(n)=5.31×10^3 *8*; S(p)=7.70×10^3 *9*; Q(α)=−4.0×10^2 *11* 2012Wa38

Note: Current evaluation has used the following Q record 4.11E3 SY5.49E3 SY7950 syst −5.3E2 syst 2003Au03,2011AuZZ. ΔQ(β)=200, ΔS(n)=200, ΔS(p)=280, ΔQ(α)=280 (2003Au03).

Identification: excitation functions for neutrons on ^{192}Os, observation of known ^{192}Os transitions in (n,p) product (1979KaYT). Also produced in fragmentation of 1 GeV/nucleon ^{208}Pb by a ^{9}Be target (2012Al05, 2011St21, 2008StZY, 2005Ca02, 2001Ca13) and fragmentation of 950 MeV/nucleon ^{197}Au by a Be target (1999Be63).

^{192}Re Levels

The presence of a long-lived, low-energy isomer could arise from a spin trap resulting from the proximity of states formed from parallel and antiparallel coupling of high Ω orbitals. Calculations indicate a possible K^π=8$^+$ ν11/2[615]+π5/2[402] g.s. with a K^π=3$^+$ ν11/2[615]-π5/2[402] state near 250 keV; alternatively, the g.s. could be K^π=2$^-$ ν9/2[505]-π5/2[402] with various high-J states nearby arising from coupling a 9/2[505], 3/2[512] or 11/2[615] proton with a 5/2[402] or 9/2[514] neutron (2012ReZZ). Another possibility is the coexistence of oblate and prolate shapes; total Routhian surface calculations predict a γ-soft prolate-centered g.s. with a possible oblate state nearby created by the addition of a small amount of collective angular momentum (2012ReZZ).

For cranked Woods-Saxon-Stutinsky calculation of shape of Re, see 2006Wa31; oblate rotation predicted to coexist with high-K prolate rotation in ^{192}Re.

Cross Reference (XREF) Flags

A ^{192}Re IT decay (85 μs)
B ^{192}Re IT decay (61 s)
C ^{9}Be(^{208}Pb,X)

E(level)†	$T_{1/2}$	XREF	Comments
0.0	16 s *1*	ABC	%β^-=100 $T_{1/2}$: from 1979KaYT. Other: 16 s *2* from ion-β correlations (2012Al05) in ^{9}Be(^{208}Pb,X).
160.1? *2*		A	
160.1+x?	85 μs *10*	A	%IT=100 E(level): x ≤50 keV; upper limit based on energy threshold for experimental arrangement used by 2005Ca02 in IT decay. $T_{1/2}$: from K x ray(t) and 160γ(t) (2008StZY) in IT decay (85 μs). Others: 120 μs *+210−50* (2005Ca02) and 93 μs *15* (2009Al30) from decay-time spectra of delayed (3-350 μs) events in ^{192}Re IT decay (85 μs). The weighted average of data from 2008StZY and 2009Al30 is 87 μs *8*.
267 *10*	61 s *+40−20*	B	%IT=100 E(level),$T_{1/2}$: from 2012ReZZ in IT decay (61 s).

† From Eγ, except as noted.

Adopted Levels, Gammas (continued)

$\gamma(^{192}Re)$

E_i(level)	E_γ[†]	I_γ	E_f	Mult.[†]	α[‡]	Comments
160.1?	160.1 *2*	100	0.0	(M1)	1.353	
160.1+x?	(x)	100	160.1?			E_γ: x ≤50 keV; see comment on level energy. Mult.: possibly E1 (2005Ca02). I(x, ^{192}Re) too low for transition to be M2 (2011St21).
267	267 *10*	100	0.0			E_γ: from level-energy difference; γ to g.s. reported in ^{192}Re IT decay (61 s), but Eγ unstated by authors.

[†] From IT decay (85 μs), except as noted.
[‡] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

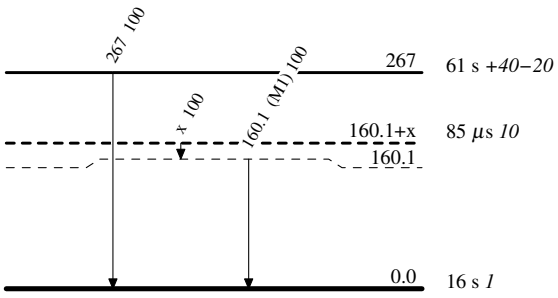
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



$^{192}_{75}Re_{117}$