Coulomb excitation 1967Bi10

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	S. -c. Wu	NDS 106, 619 (2005)	1-Nov-2005

^{185}Re(p,p′) E=4.2 MeV scin γ (1957Wo32), E=4.0 MeV scin γ (1958Mc02), E=4.0 MeV scin γ (1959De29).
^{185}Re(α,α') E=14-20 MeV scin α', scin γ (1960Na13), E=16.6 MeV s α' (1967Bi10).
Other measurements: 1955Mc44, 1956Da40, 1956Go47, 1956Hu49, 1957Be56, 1958Ch36, 1969Da17.
125γ,158$\gamma(\theta)$: consistent with J(g.s.)=5/2, J(125 level)=7/2, and adopted δ(125γ)=+0.18 *1*.
286$\gamma(\theta)$: A_2=+0.15 *4* consistent with J(286 level)=9/2 and J(g.s.)=5/2 (1959De29).
Pulsed p, ce(K)(t): $T_{1/2}$(125 level)≤8.3 ps (1963Bl12).

^{185}Re Levels

E(level)†	J$^\pi$‡	$T_{1/2}$#	Comments
0.0	5/2$^+$		
125	7/2$^+$	10.2 ps *15*	B(E2)=1.96 *19* from $\varepsilon(\gamma)$B(E2)=0.52 *5* (1958Mc02). Measured B(E2)′s (α(125γ)=2.76 *2* is used): B(E2)=1.2 *3* from $\varepsilon(\gamma)$B(E2)=0.33 *7* (1957Wo32), B(E2)=2.9 *6* from $\varepsilon(\gamma)$B(E2)=0.76 *16* (1959De29), B(E2)=1.37 *7* from α' spectrum at θ=90° (1967Bi10).
283	9/2$^+$	5.6 ps *15*	B(E2)=0.67 *7* (1958Mc02). Deduced B(E2) values (corrected for adopted α's): B(E2)=0.52 *10* (1957Wo32), B(E2)=0.76 *35* (1959De29), B(E2)=0.52 *7* (1967Bi10).
646	1/2$^+$	4.5 ps *9*	B(E2)=0.037 *7* (1967Bi10). $\varepsilon(\gamma)$B(E2)=0.03 was measured by 1960Na13.
717	3/2$^+$	2.6 ps *8*	B(E2)=0.039 *10* (1967Bi10).
768	(5/2$^+$)		B(E2)=0.030 *10* (1967Bi10). ε(750γ)B(E2)=0.03 was measured by 1960Na13; B(E2)=0.11 *2* was obtained by 1967Bi10 for the 646, 717, and 769 levels with relative probabilities 1:1.0 *8*:0.8 *2* from a spectrum at θ=90°. This gives B(E2)(768)=0.030 *10*, B(E2)(717)=0.039 *10*, and B(E2)(646)=0.037 *7*.
966	(9/2)$^+$		B(E2)=0.082 *13* (1967Bi10).

† From 1967Bi10.
‡ From Adopted Levels.
# From B(E2) and adopted γ properties.

γ(^{185}Re)

See 1959De29 and 1958Mc02 for $\gamma(\theta)$.

E$_\gamma$†	I$_\gamma$‡	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	δ	α#	Comments
125.4		125	7/2$^+$	0.0	5/2$^+$	M1+E2	+0.18 *1*	2.76 *2*	δ: from adopted gammas. Other value: +0.176 *17* from ^{185}Re(p,p′γ) (1966As02). E$_\gamma$: from ^{185}Os ε decay. Eγ′s measured in Coulomb excitation: 126 *1* (1957Wo32), 128 *2* (1958Mc02), 128 *1* (1959De29).
158.9	41.5	283	9/2$^+$	125	7/2$^+$	M1+E2	+0.142 *15*	1.407 *3*	δ: from from ^{185}Re(p,p′γ) (1966As02). Other values: +0.16 *4* (1958Mc02), +0.188 *6* (1959De29). E$_\gamma$: from ^{186}W(d,3nγ) reaction. Eγ′s measured in Coulomb excitation: 160 *2* (1957Wo32), 159 *2* (1958Mc02), 159 *2* (1959De29).
284.1	8.1 *27*	283	9/2$^+$	0.0	5/2$^+$	[E2]		0.1048	E$_\gamma$: from ^{186}W(d,3nγ) reaction. Eγ′s

Continued on next page (footnotes at end of table)

Coulomb excitation 1967Bi10 (continued)

$\gamma(^{185}Re)$ (continued)

E_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α #	Comments
							measured in Coulomb excitation: 286 *3* (1957Wo32), 287 *4* (1958Mc02), 287 *4* (1959De29).
646.1	646	$1/2^+$	0.0	$5/2^+$	E2	0.01204	Eγ and multipolarity from ^{185}Os ε decay. Eγ=645 *15* was measured by 1960Na13 in Coulomb excitation.
(768.9)	768	$(5/2^+)$	0.0	$5/2^+$			A 750±25-keV γ, probably corresponding to 717γ+769γ was observed by 1960Na13.

† From adopted gammas, round to the nearest 0.1 keV.
‡ From Iγ(159γ)/Iγ(284γ)=4.5 *12* (1958Mc02). Others: 1957Wo32, 1959De29.
# 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.

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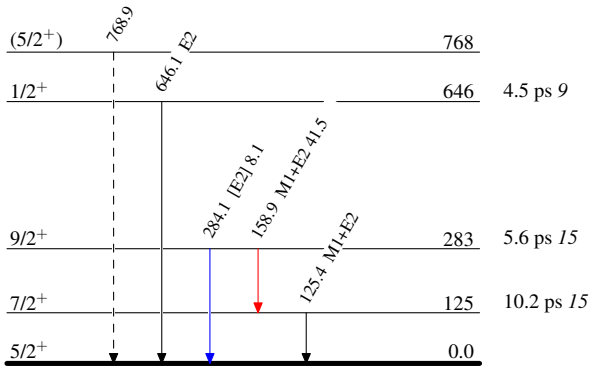
Level Scheme

Intensities: Relative I_γ

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{185}_{75}Re_{110}$