^{208}Pb(^{50}Ti,nγ) 2010Be16,2009Qi04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 114, 1041 (2013)	1-Mar-2012

Additional information 1.

2010Be16: Experiments were performed at the 88-Inch Cyclotron of the Lawrence Berkeley National Laboratory using the Berkeley Gas-filled Separator (BGS). Beam energy: 238 MeV. Measured γ-ray energies using a high-purity germanium clover detector, alpha particles and conversion electrons with a silicon strip detector (DSSD).

2009Qi04: Experiments were performed at the ATLAS cyclotron from the Argonne National Laboratory using the Argonne Fragment Mass Analyzer. Beam energy: 233 MeV. Particles were detected using a silicon strip detector (DSSD) and a Parallel Grid Avalanch Counter (PGAC). γ rays were detected with high-purity germanium detectors. Measured γ rays, alpha-conversion electron correlated events. Others: 2008Dr05, 2005St16, 2002HeZS.

^{257}Rf Levels

E(level)†	Jπ#	$T_{1/2}$	Comments
0.0	(1/2+)	4.4 s *+6−5*	Possible configuration 1/2+[620]. $T_{1/2}$: From Adopted Levels.
≈75‡	(11/2−)	4.1 s *4*	$T_{1/2}$: From Adopted Levels. Possible configuration 11/2−[725]. E(level): From Eα(167)=8778 keV *20*, Eα(gs)=9016 keV *20* (2009Qi04), Eγ(167)=167.5 keV *5* (2011An13) in ^{253}No. Thus E(75)= (9016 *877878*)x 257/253 − 167.5 =75 keV.
148‡ *1*	(13/2−)		
234‡ *1*	(15/2−)		
334‡ *1*	(17/2−)		
446‡ *1*	(19/2−)		
572‡ *1*	(21/2−)		
711‡ *1*	(23/2−)		
1157 *1*	(21/2,23/2)	139.9 μs *77*	$T_{1/2}$: From 2010Be16. Other values: 160 μs *+42−31* (2009Qi04); 109 μs *13* (2009Je01). E(level): E≈1125 keV, measured with conversion electrons added to the energies of coincident γ rays, agrees with value from decay scheme.

† Deduced by evaluators from γ-ray energies. Uncertainties in the level energies are from γ-ray energies only. They do not include a systematic value of≈30 keV from the 75-keV level (2010Be16).

‡ Band(A): rotational band (11/2−[725]).

From Adopted Levels, Gammas.

γ(^{257}Rf)

Eγ†	Ei(level)	J_i^π	E_f	J_f^π	Eγ†	Ei(level)	J_i^π	E_f	J_f^π
73 *1*	148	(13/2−)	≈75	(11/2−)	186 *1*	334	(17/2−)	148	(13/2−)
86 *1*	234	(15/2−)	148	(13/2−)	212 *1*	446	(19/2−)	234	(15/2−)
100 *1*	334	(17/2−)	234	(15/2−)	238 *1*	572	(21/2−)	334	(17/2−)
112 *1*	446	(19/2−)	334	(17/2−)	265 *1*	711	(23/2−)	446	(19/2−)
126 *1*	572	(21/2−)	446	(19/2−)	446 *1*	1157	(21/2,23/2)	711	(23/2−)
139 *1*	711	(23/2−)	572	(21/2−)	585 *1*	1157	(21/2,23/2)	572	(21/2−)
159 *1*	234	(15/2−)	≈75	(11/2−)					

† From 2010Be16. ΔE=1 keV for all γ rays is an estimate.

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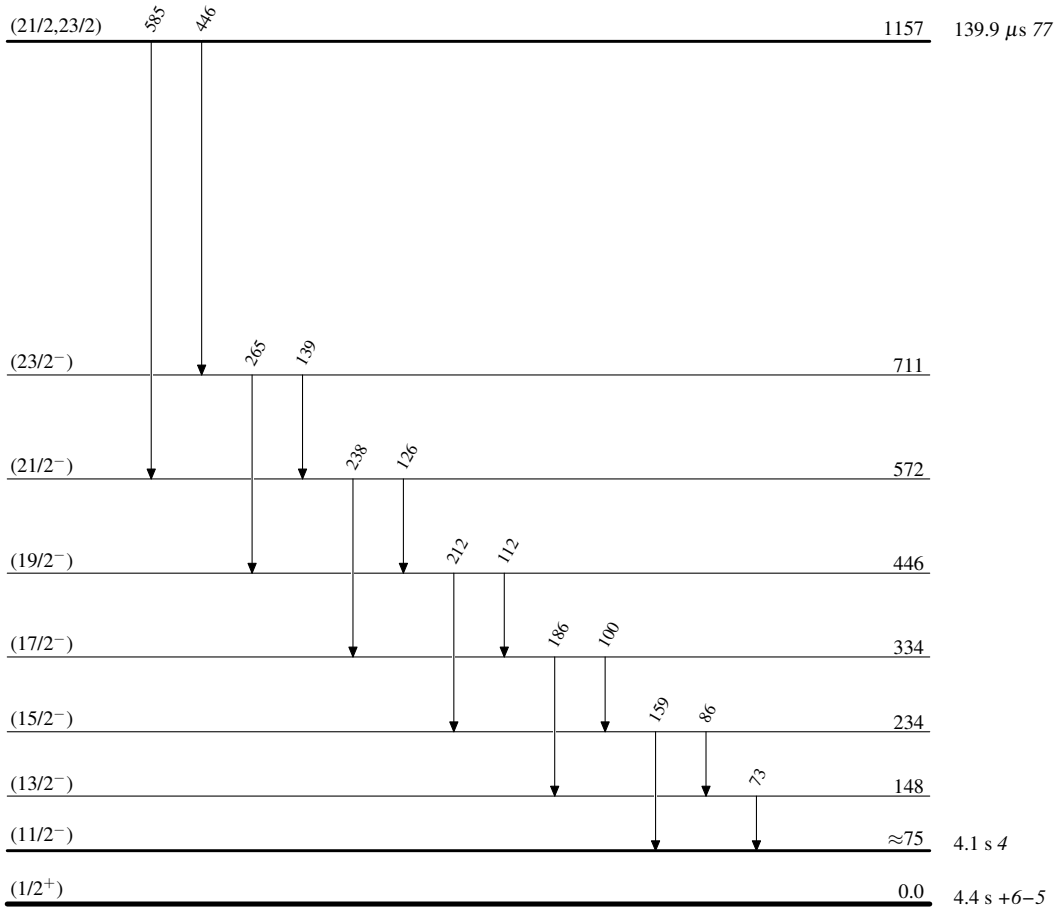
Level Scheme



$^{257}_{104}Rf_{153}$

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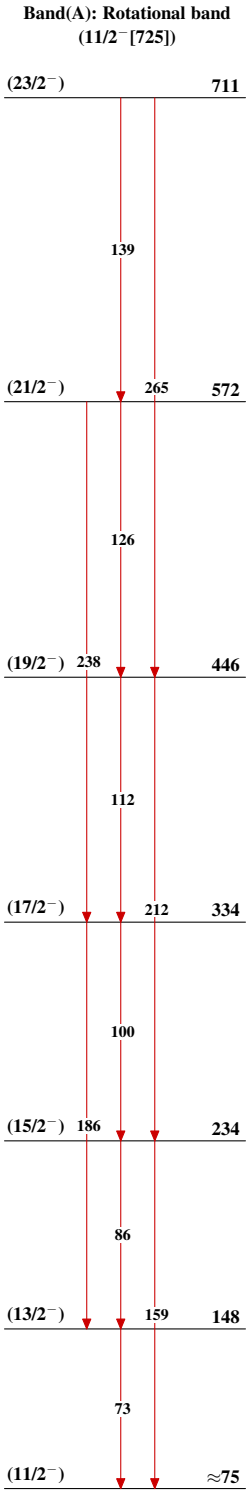

$^{257}_{104}Rf_{153}$