

Target isotope: $^{204}_{82}\text{Pb}$ $I^\pi_\circ = 0^+$ Abundance: 1.4(1) % $S_p = 3240.8(71)$ keV $^{205}_{83}\text{Bi(p)}$

E_\circ	$2J^\pi$	Γ_p	Γ	E^*_{analog}	E_{cm}	E^*	Ref.
[keV]		[keV]	[keV]	[keV]	[keV]	[keV]	
14970(10)	9^+	28	270		14897(10)	18138(12)	67Le04 68Le09

Systematics of parameters of the $2g_{9/2}$ resonances in the Bi isotopes is given, and the proximity of spectroscopic factors $S=1.1(2)$, $1.1(2)$, $1.0(2)$ in $^{205,207,209}\text{Bi}$ is noticed in [67Le04].

Target isotope: $^{206}_{82}\text{Pb}$ $I^\pi_\circ = 0^+$ Abundance: 24.1(1) % $S_p = 3557.2(21)$ keV $^{207}_{83}\text{Bi(p)}$

E_\circ	$2J^\pi$	Γ_p	Γ	Γ_{p1}	Γ_{p2}	Γ_{p3}	Γ_{p4}	Γ_{p5}	E^*_{analog}	E_{cm}	E^*	Ref.
[keV]		[keV]	[keV]	[keV]	[keV]	[keV]	[keV]	[keV]	[keV]	[keV]	[keV]	
12205(7)	1^-	20(2)	170(17)	7.5*	5.6	9.4	21.1	15.4	0.0	12146(7)	15703(7)	72Fl08 66Ka02 66RiZY
13100									894	13037	16594	66RiZY 66Ri0A
14970(11)	9^+	23	230						2740	14898(11)	18455	68Le09 66Ka02 66RiZY
15800									3600	15724	19281	66Ri0A 66RiZY

Additional data on this isotope can be found in [93Ma73, 81Di08, 68Au02, 68Ri11, 68St01, 66AdZZ, 66Ka02, 66Ri0A].

* Given Γ_{p_i} corresponds to inelastic proton scattering leaving ^{206}Pb at $E^*=803$ keV (2^+), $E^*=1170$ keV (0^+), $E^*=1340$ keV (3^+), $E^*=1470$ keV (2^+) and $E^*=1710$ keV (1^+), respectively [78Ba23].

Coulomb displacement energies in Pb–Bi isotopes ($A=205,207,208,209$) are compared in [68Le09].

Target isotope: $^{207}_{82}\text{Pb}$ $I^\pi_\circ = 1/2^-$ Abundance: 22.1(1) % $S_p = 3706.4(20)$ keV $^{208}_{83}\text{Bi(p)}$

E_\circ	J^π	Γ	E^*_{analog}	E_{cm}	E^*	Ref.
[keV]		[keV]	[keV]	[keV]	[keV]	
11514	$\langle 0^+ \rangle$	231(6)	0.0	11458(6)**	15165(6)	86Ma17
14160	3^-	166(47)	2615	14092	17798	79La09 86Ma17
14750	5^-	234(19)	3198	14679	18385	66Ri0A 67Le04 68Le09 79La09 86Ma17
15040	4^-	242(18)	3475	14968	18674	66Ri0A 67Le04 68Le09 79La09 86Ma17
15260	5^-	195(51)	3708	15187	18893	79La09 86Ma17
15470	4^-	245(67)	3919	15396	19102	79La09 86Ma17
15510	5^-	281(70)	3961	15435	19142	79La09 86Ma17
15540	6^-	285(85)	3995	15465	19172	79La09 86Ma17
15590	7^-	277(67)	4037	15515	19221	79La09 86Ma17
15600	3^-	339(54)	4054	15525	19231	79La09 86Ma17
15670	4^-	261(61)	4125	15595	19301	79La09 86Ma17
15730	5^-	303(56)	4180	15654	19361	79La09 86Ma17
15750	6^-	226(42)	4204	15674	19381	79La09 86Ma17
15780	2^-	336(72)	4231	15704	19410	79La09 86Ma17

(continued)

 $^{208}_{83}\text{Bi}(\text{p})$

E_{\circ}	J^{π}	I	E_{analog}^*	E_{cm}	E^*	Ref.	
[keV]		[keV]	[keV]	[keV]	[keV]		
15800	3^{-}	312(42)	4253	15724	19430	79La09	86Ma17
15810*	$\langle 4^{-} \rangle$		4258	15734	19440	79La09	
15850	5^{-}	289(51)	4296	15774	19480	79La09	86Ma17
15910	4^{-}	319(51)	4357	15834	19540	79La09	86Ma17
16030	6^{-}	329(78)	4480	15953	19659	79La09	86Ma17
16150	7^{+}		4602	16072	19779	79La09	86Ma17
16250	3^{-}	301(30)	4698	16172	19878	79La09	86Ma17
16390	7^{+}		4841	16311	20018	79La09	86Ma17
16520	2^{-}	247(12)	4973	16441	20147	79La09	86Ma17
16590	3^{-}	262(25)	5038	16510	20217	79La09	86Ma17
16680	2^{-}	318(16)	5127	16600	20306	79La09	86Ma17
16790	3^{-}	272(10)	5245	16709	20416	79La09	86Ma17
16830	1^{-}	285(19)	5281	16749	20455	79La09	86Ma17
16840*	$\langle 1^{-} \rangle$		5289	16759	20465	79La09	
16920	2^{-}	290(15)	5373	16839	20545	79La09	86Ma17
17030	5^{-}	225(51)	5477	16948	20654	79La09	86Ma17
17050	1^{-}	291(38)	5507	16968	20674	79La09	86Ma17
17150*	$\langle 3^{-} \rangle$		5599	17068	20774	79La09	
17190*	$\langle 2^{-} \rangle$		5646	17107	20814	79La09	
17250	5^{-}	328(76)	5698	17167	20873	79La09	86Ma17
17320	$\langle 2^{-} \rangle$	298(32)	5769	17237	20943	79La09	86Ma17
17350*	$\langle 3^{-} \rangle$		5804	17267	20973	79La09	
17420	3^{-}	281(20)	5870	17336	21043	79La09	86Ma17
17470	2^{-}	252(78)	5922	17386	21092	79La09	86Ma17
17490	1^{-}	268(19)	5948	17406	21112	79La09	86Ma17
17520	3^{-}		5966	17436	21142	79La09	86Ma17
17550	4^{-}		6000	17466	21172	79La09	86Ma17
17630	2^{-}		6082	17545	21252	79La09	86Ma17
17810	1^{-}		6261	17724	21431	79La09	86Ma17
17860	1^{-}		6305	17774	21480	79La09	86Ma17

Additional data on this isotope can be found in [98Co12, 96Ch12, 94Ak01, 94Ak03, 94Bo22, 94Co17, 87Ja03, 81Di08, 81Ga08, 79La09, 74Ra19, 73Bo23, 71Le38, 70Ha13, 69He14, 69Gr05, 68Vo02, 68Wh02, 66AdZZ, 66Br15, 66Ri0A].

* These expected IAR-resonances were not seen in the experiment [79La09].

** For this resonance $\Gamma_{\text{p1}}=29.5(40)$ keV and $\Gamma_{\text{p2}}=66.8(46)$ keV correspond to inelastic proton scattering leaving ^{207}Pb at the excitations $E^*=570$ keV ($5/2^{-}$) and $E^*=894$ keV ($3/2^{-}$) [78Ba23]. For the resonance at $E_{\circ}=11514$ keV $\Gamma_{\text{p}}=51.6(17)$ keV.

Target isotope: $^{208}_{82}\text{Pb}$ $I^\pi_\circ = 0^+$ Abundance: 52.4(1) % $S_\text{p} = 3798.30(80)$ keV

$^{209}_{83}\text{Bi}(\text{p})$

E_\circ	$2J^\pi$	Γ_p	Γ	E^*_{analog}	S_pp	E_cm	E^*	Ref.				
[keV]		[keV]	[keV]	[keV]		[keV]	[keV]					
14918(6)	9^+	21.9(6)	253(10)	0.0	0.98	14828(4)*	18645(15)	71Da18	68Le09	68Wh02	72Se07	
15716(10)	11^+	1.7(4)	224(20)	790		15583(26)	19439(18)	68Wh02	91Ma16			
16336(15)	15^-	0.85(80)	201(25)	1410		16296	20056(22)	68Wh02	91Ma16			
16496(8)	5^+	46(6)	308(8)	1566	0.88	16387(4)	20215(16)	70Ku13	72Se07	68Wh02	71Da18	
16965(14)	1^+	52.0(15)	319(15)	2032	0.90	16872(6)	20682(21)	68Wh02	71Da18	72Se07	91Ma16	
17430(10)	7^+	43(4)	288(20)	2491	0.84	17315(16)	21145(17)	68Wh02	71Da18	72Se07	91Ma16	
17476(10)	3^+	35(7)	279(20)	2538	0.86	17373(18)	21190(17)	68Wh02	71Da18	72Se07	91Ma16	
≈ 20000			≈ 3500			≈ 19904	≈ 23700	74Sn01				

Additional data on this isotope can be found in [91Ma16, 85Me01, 81Di08, 80Ho21, 77Ma34, 74Su01, 71Ho11, 71Ma79, 71Sn03, 71Ho11, 69Au04, 69Ta14, 68Ar05, 68Cr05, 68St01, 68St21, 68Vo02, 68Za01, 67Le04, 67Mo25, 67Ri13, 67Za03, 66AdZZ, 66Ka02, 66Mo13, 66Ri0A].

* Values E_cm are from the independent measurements of IAR parameters in [85Me01].

Analogue resonances in ^{210}Po at $E^*=14.95$ MeV in the reaction $^{209}\text{Bi}(\text{p},\text{p}')$ were observed in [72Co05, 74Cl06, 74Cl07].

Anomalies attributed to IAS were observed in the $^{208}\text{Pb}(\text{t},\text{p})$ reaction at ^{211}Bi -excitations $E^*=16000$, 16300 and 17000 keV [68Ar05].