^{86}Kr(γ,γ') 2013Sc03

History

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

2013Sc03: Gamma beams produced by bremsstrahlung at the ELBE linac (electron energies of 7.9 and 11.2 MeV) and by Compton backscattering at HIγS (polarized monoenergetic gamma of 10 energies in the range 4.7-9.3 MeV). Four Compton suppressed HPGe detectors were used in the ELBE experiment to determine relative gamma intensities at 90° and 127°. Two HPGe detectors were used at HIγS placed at 90° in the horizontal and vertical planes.

^{86}Kr Levels

E(level)	J$^\pi$	E(level)	J$^\pi$	E(level)	J$^\pi$	E(level)	J$^\pi$
0.0	0^+	5924.1 *4*	1^-	7304.2 *5*	1^-	8650.8 *3*	1^-
1564.8 *1*	2^+†	6160.0 *2*	1^-	7314.3 *3*	1^-	8802.0 *6*	1
2349.4 *2*	2^+†	6213.1 *18*	1	7569.6 *4*	1^-	8841.1 *8*	1^-
3782.7 *4*		6328.6 *3*	1^-	7675.3 *4*	1	9013.9 *6*	1^-
4038.5 *3*		6431.9 *2*	1^-	7745.4 *4*	1	9067.6 *10*	1
4400.7 *1*	1	6462.9 *3*	1^-	7797.5 *4*	1^-	9085.6 *8*	1^-
4867.4 *6*	$1^{(-)}$	6531.7 *2*	1^-	7846.2 *5*	1^-	9452.3 *5*	1
4932.4 *2*		6678.6 *5*	1	7873.8 *7*	1^-	9477.4 *18*	
5517.5 *2*	1^-	6818.3 *4*	1^-	7958.0 *4*	1^-	10115.6 *8*	1
5571.0 *12*	1	7028.1 *4*	1^-	8428.2 *4*	1^-		
5788.2 *3*	(1)	7234.3 *4*	(1)	8621.2 *8*	1^-		

† From Adopted Levels.

γ(^{86}Kr)

E$_i$(level)	J$_i^\pi$	E$_\gamma$	I$_\gamma$	E$_f$	J$_f^\pi$	Mult.†	I$_s$(eV b)‡	Comments
1564.8	2^+	1564.8 *1*	100	0.0	0^+			I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=1.07 *7*.
2349.4	2^+	2349.4 *2*	100	0.0	0^+			I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=1.08 *9*.
3782.7		3782.7 *4*	100	0.0	0^+			I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.92 *19*.
4038.5		4038.5 *3*	100	0.0	0^+			I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=1.0 *2*.
4400.7	1	4400.7 *1*	100	0.0	0^+	D		I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.79 *6*.
4867.4	$1^{(-)}$	4867.4 *6*	100	0.0	0^+	(E1)		I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.75 *12*; A=−0.87 *15*.
4932.4		4932.4 *2*	100	0.0	0^+			I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.91 *9*.
5517.5	1^-	5517.5 *2*	100	0.0	0^+	E1	154 *9*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.72 *8*; A=−0.84 *5*.
5571.0	1	5571.0 *12*	100	0.0	0^+	D	20 *60*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.72 *5*.
5788.2	(1)	5788.2 *3*	100	0.0	0^+	(D)	56 *5*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.86 *12*.
5924.1	1^-	5924.1 *4*	100	0.0	0^+	E1	129 *8*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.83 *7*; A=−0.98 *2*.
6160.0	1^-	6160.0 *2*	100	0.0	0^+	E1	149 *10*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.81 *10*; A=−0.93 *7*.
6213.1	1	6213.1 *18*	100	0.0	0^+	D	49 *9*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.5 *2*.
6328.6	1^-	6328.6 *3*	100	0.0	0^+	E1	117 *8*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.65 *9*; A=−0.95 *6*.
6431.9	1^-	6431.9 *2*	100	0.0	0^+	E1	199 *11*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.85 *7*; A=−0.98 *3*.
6462.9	1^-	6462.9 *3*	100	0.0	0^+	E1	166 *10*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.75 *7*; A=−0.94 *4*.
6531.7	1^-	6531.7 *2*	100	0.0	0^+	E1	454 *23*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.74 *6*; A=−0.95 *2*.
6678.6	1	6678.6 *5*	100	0.0	0^+	D	57 *6*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.53 *16*.
6818.3	1^-	6818.3 *4*	100	0.0	0^+	E1	138 *9*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.76 *8*; A=−0.99 *9*.
7028.1	1^-	7028.1 *4*	100	0.0	0^+	E1	103 *13*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.81 *13*; A=−0.99 *2*.
7234.3	(1)	7234.3 *4*	100	0.0	0^+	(D)	119 *15*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.87 *13*.
7304.2	1^-	7304.2 *5*	100	0.0	0^+	E1	95 *11*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.62 *8*; A=−0.75 *31*.
7314.3	1^-	7314.3 *3*	100	0.0	0^+	E1	260 *30*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.79 *10*; A=−0.96 *4*.
7569.6	1^-	7569.6 *4*	100	0.0	0^+	E1	156 *20*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.73 *12*; A=−0.95 *6*.
7675.3	1	7675.3 *4*	100	0.0	0^+	D	105 *16*	I$_\gamma$(90 DEG)/I$_\gamma$(127 DEG)=0.68 *15*.

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^{86}Kr(γ,γ') 2013Sc03 (continued)

$\gamma(^{86}Kr)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[†]	I_s(eV b)[‡]	Comments
7745.4	1	7745.4 *4*	100	0.0	0^+	D	220 *31*	I_γ(90 DEG)/I_γ(127 DEG)=0.79 *15*.
7797.5	1^-	7797.5 *4*	100	0.0	0^+	E1	211 *30*	I_γ(90 DEG)/I_γ(127 DEG)=0.63 *13*; A=−0.90 *10*.
7846.2	1^-	7846.2 *5*	100	0.0	0^+	E1	107 *16*	I_γ(90 DEG)/I_γ(127 DEG)=0.79 *18*; A=−0.94 *8*.
7873.8	1^-	7873.8 *7*	100	0.0	0^+	E1	89 *14*	I_γ(90 DEG)/I_γ(127 DEG)=0.71 *16*; A=−0.84 *12*.
7958.0	1^-	7958.0 *4*	100	0.0	0^+	E1	219 *29*	I_γ(90 DEG)/I_γ(127 DEG)=0.72 *13*; A=−1.00 *1*.
8428.2	1^-	8428.2 *4*	100	0.0	0^+	E1	216 *32*	I_γ(90 DEG)/I_γ(127 DEG)=0.74 *16*; A=−0.99 *1*.
8621.2	1^-	8621.2 *8*	100	0.0	0^+	E1	148 *25*	I_γ(90 DEG)/I_γ(127 DEG)=0.8 *2*; A=−0.98 *3*.
8650.8	1^-	8650.8 *3*	100	0.0	0^+	E1	336 *42*	I_γ(90 DEG)/I_γ(127 DEG)=0.65 *9*; A=−0.82 *6*.
8802.0	1	8802.0 *6*	100	0.0	0^+	D	246 *48*	I_γ(90 DEG)/I_γ(127 DEG)=0.66 *15*.
8841.1	1^-	8841.1 *8*	100	0.0	0^+	E1	214 *54*	I_γ(90 DEG)/I_γ(127 DEG)=1.0 *5*; A=−0.90 *15*.
9013.9	1^-	9013.9 *6*	100	0.0	0^+	E1	172 *24*	I_γ(90 DEG)/I_γ(127 DEG)=1.05 *19*; A=−0.77 *24*.
9067.6	1	9067.6 *10*	100	0.0	0^+	D	84 *17*	I_γ(90 DEG)/I_γ(127 DEG)=0.6 *2*.
9085.6	1^-	9085.6 *8*	100	0.0	0^+	E1	118 *19*	I_γ(90 DEG)/I_γ(127 DEG)=0.59 *14*; A=−0.93 *9*.
9452.3	1	9452.3 *5*	100	0.0	0^+	D	265 *40*	I_γ(90 DEG)/I_γ(127 DEG)=0.83 *12*.
9477.4		9477.4 *18*	100	0.0	0^+		157 *30*	I_γ(90 DEG)/I_γ(127 DEG)=1.3 *5*.
10115.6	1	10115.6 *8*	100	0.0	0^+	D	233 *31*	I_γ(90 DEG)/I_γ(127 DEG)=0.77 *14*.

[†] I_γ(90 DEG)/I_γ(127 DEG) measured in the ELBE experiment should be 0.74 for an elastic dipole transition and 2.15 for an elastic quadrupole transition. The azimuthal asymmetry A=($I_{\gamma H}-I_{\gamma V}$)/($I_{\gamma H}+I_{\gamma V}$) measured at HI$\gamma$S is negative for an E1 radiation and positive for an M1/E2 radiation (2013Sc03).

[‡] Energy-integrated scattering cross section (2013Sc03).

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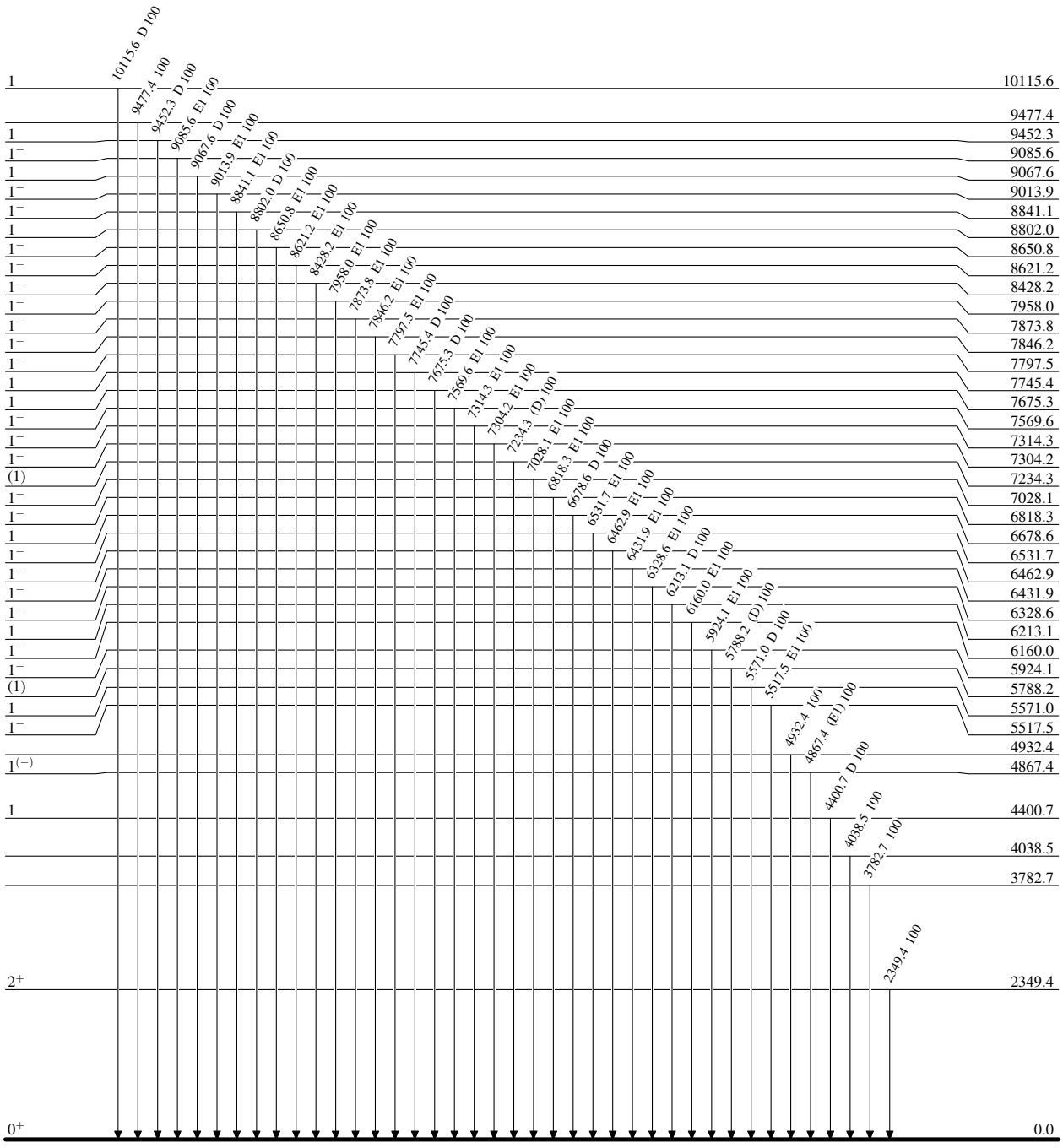
Level Scheme

Intensities: Relative photon branching from each level



$^{86}_{36}Kr_{50}$