

hw14

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0.1 This Jupyter notebook answers HW13 questions for PHY 981 Nuclear Structure.

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0.1.1 HW14 question 3

For 20Ne in the (0d5/2; 1s1/2) model space the proton OBTD for 0+₁ to 2+₁ are

0.376 for 0d5/2-0d5/2

0.351 for 1s1/2-0d5/2

0.309 for 0d5/2-1s1/2

What is the B(E2) using $e_p = 1.5$ and $e_n = 0.5$? Use $\hbar\omega = 14$ MeV.

The E2 operator is written:

$$O(E2) = r^2 Y^2(\hat{r}) e_q e.$$

The B(E2), in a n particle wave function basis with total angular momentum J is:

$$B(E2) = \frac{|\langle J_f || O(E2) || J_i \rangle|^2}{2J_i + 1}$$

The matrix element $\langle J_f || O(E2) || J_i \rangle$ can be written as a sum over products of the one-body transition densities and corresponding O(E2) matrix elements in the single particle basis. That is,

$$\langle J_f || O(E2) || J_i \rangle = \sum_{k_\alpha k_\beta} OBTD(f i k_\alpha k_\beta \lambda) \langle k_\alpha || O(E2) k_\beta \rangle$$

.

Therefore, to find the B(E2) for the J transition 0+₁ to 2+₁, we must compute the allowed single particle transitions and their corresponding one-body transition densities.

$$\langle 0d5/2 || O(E2) || 0d5/2 \rangle = -2.58544 * \frac{41.1}{14} = -7.59011$$

$$\langle 1s1/2 || O(E2) || 0d5/2 \rangle = -2.18510 * \frac{41.1}{14} = -6.41482$$

$$\langle 0d5/2 || O(E2) || 1s1/2 \rangle = -2.18510 * \frac{41.1}{14} = -6.41482$$

$$M_p = 1.5 * (0.376 * -7.59011 + 0.351 * -6.41482 + 0.309 * -6.41482) + 0.5 * (0.376 * -7.59011 + 0.351 * -6.41482 + 0.309 * -6.41482)$$

$$B(E2) = (-14.17532512)^2 / (1) = 200.93984$$

0.1.2 HW14 question 4

How does the result of the previous problem compare with that obtained in the full sd model space with the USDB Hamiltonian and $e_p = 1.5$ and $e_n = 0.5$?

Here is the result for the full sd model space with USDB interaction to compute transition densities, and the B(E2) computed in a harmonic oscillator basis with $\hbar\omega = 14\text{MeV}$.

this is from `shell`.

““

gamma decay for ne200b.deo BR greater than 0.000

! model space = sd 20 10

! interaction = usdb bb24.gse bb24.gse

! e_p = 1.360 e_n = 0.450 E2 B(E2) in units of [e^2 fm^4]

! g_sp = 5.000 g_sn = -3.440 M1 spin B(M1) in units of [(u_N)^2]

! g_lp = 1.174 g_ln = -0.110 M1 orbital

! g_pp = 0.240 g_pn = -0.160 M1 tensor

Ei (MeV)	Ji	ni	T_(1/2) (psec)	width (eV)	M1 moment (u_N)	Q moment (e^2 fm^2)	A_p	A_n
1.746	2+	1	0.707982	0.6442E-03	0.000	0.00 ---	0.000	0.000
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)
	0.000	0+	1	100.0000	1.746	999.00	0.0000E+00	0.4924E+02
	...						8.671	8.671

Using the A_p and A_n from the .deo file gives B(E2) = 300.74496. This is calculated using the full sd model space, so the difference makes sense.

0.1.3 HW14 question 5

We get the experiment B(E2) from `bem`, with a $T_{1/2}$ input of 0.73 ps. The B(E2) = 66.41 which corresponds to gamma decay $2+ \rightarrow 0+$. Multiplying this value by 5 gives us the transition $0+ \rightarrow 2+$ and comes out to 332.05, which is close to the result for the full sd model space.

0.1.4 HW14 question 6

Calculate the gamma-decay scheme for ^{21}Ne in the sd model space and the USDB Hamiltonian for $J=1/2$ to $9/2$.

Full scheme

gamma decay for ne210b.deo BR greater than 0.000

! model space = sd 21 10

! interaction = usdb bb25.gse bb25.gse

! e_p = 1.360 e_n = 0.450 E2 B(E2) in units of [e^2 fm^4]

! g_sp = 5.000 g_sn = -3.440 M1 spin B(M1) in inits of [(u_N)^2]
! g_lp = 1.174 g_ln = -0.110 M1 orbital
! g_pp = 0.240 g_pn = -0.160 M1 tensor

Ei (MeV)	Ji	ni	T_(1/2) (psec)		width (eV)		M1 moment (u_N)		Q moment (e^2 fm^2)		A_p	
0.000	3/2+	1	0.000000		-0.0000E+00		-0.720		10.15 ---		7.565	8
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)				
0.266	5/2+	1	13.837160		0.3296E-04		-0.549		-2.15 ---		-0.764	-3
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)				
	0.000	3/2+	1	100.0000	0.266	-0.05	0.1508E+00	0.7611E+02			-11.291	-13
1.756	7/2+	1	0.035299		0.1292E-01		0.527		-8.93 ---		-6.116	-7
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)				
	0.000	3/2+	1	3.3637	1.756	999.00	0.0000E+00	0.3228E+02			-8.529	-9
	0.266	5/2+	1	96.6363	1.490	-0.16	0.3172E+00	0.5581E+02			11.499	12
2.831	9/2+	1	0.044556		0.1024E-01		0.650		-12.54 ---		-8.414	-12
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)				
	0.266	5/2+	1	37.6584	2.565	999.00	0.0000E+00	0.4306E+02			-11.220	-12
	1.756	7/2+	1	62.3416	1.075	-0.07	0.4410E+00	0.3014E+02			-9.658	-9
2.859	1/2+	1	0.004236		0.1077E+00		-1.514		0.00 ---		0.000	0
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)				
	0.000	3/2+	1	99.9959	2.859	0.06	0.3964E+00	0.2209E+01			-0.936	-1
	0.266	5/2+	1	0.0041	2.593	999.00	0.0000E+00	0.4706E-01			1.336	-3
3.718	5/2+	2	0.000786		0.5806E+00		-0.554		7.49 ---		4.524	7
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)				
	0.000	3/2+	1	85.1146	3.718	-0.08	0.8244E+00	0.5887E+01			4.053	0
	0.266	5/2+	1	11.4639	3.452	-0.30	0.1283E+00	0.1375E+02			5.878	2
	1.756	7/2+	1	3.4204	1.962	-0.00	0.2270E+00	0.3670E-04			1.880	-5
	2.831	9/2+	1	0.0000	0.887	999.00	0.0000E+00	0.1915E+00			0.534	0
	2.859	1/2+	1	0.0011	0.859	999.00	0.0000E+00	0.1768E+02			-5.217	-7
4.627	5/2+	3	0.000676		0.6749E+00		0.303		-6.66 ---		-4.655	-5
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)				
	0.000	3/2+	1	19.0681	4.627	-0.24	0.1060E+00	0.4125E+01			3.258	1
	0.266	5/2+	1	76.0043	4.361	-0.03	0.5334E+00	0.3665E+00			1.998	-2

	1.756	7/2+	1	4.8277	2.871	0.07	0.1183E+00	0.9680E+00	0.902	2
	2.831	9/2+	1	0.0012	1.796	999.00	0.0000E+00	0.5157E+00	-2.688	4
	2.859	1/2+	1	0.0520	1.768	999.00	0.0000E+00	0.2521E+02	7.333	5
	3.718	5/2+	2	0.0467	0.909	0.23	0.3437E-01	0.3197E+02	7.725	7
4.913	3/2+	2		0.000492	0.9263E+00		1.689	-9.29 ---	-6.862	-8
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	35.4059	4.913	-0.01	0.2387E+00	0.2584E-01	0.703	-2
	0.266	5/2+	1	63.3658	4.647	-0.04	0.5041E+00	0.5278E+00	-0.289	-2
	1.756	7/2+	1	0.0893	3.157	999.00	0.0000E+00	0.3271E+01	1.885	2
	2.859	1/2+	1	1.1182	2.054	0.29	0.9505E-01	0.2767E+02	5.424	6
	3.718	5/2+	2	0.0101	1.195	-0.20	0.4570E-02	0.1800E+01	-1.996	0
	4.627	5/2+	3	0.0107	0.286	-0.02	0.3660E+00	0.1743E+02	4.214	5
5.393	7/2+	2		0.000459	0.9937E+00		1.445	0.37 ---	0.172	0
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	0.7471	5.393	999.00	0.0000E+00	0.2018E+01	-3.247	0
	0.266	5/2+	1	65.6225	5.127	0.05	0.4168E+00	0.4846E+00	-1.009	-1
	1.756	7/2+	1	24.7028	3.637	-0.07	0.4385E+00	0.2090E+01	-3.305	0
	2.831	9/2+	1	6.8524	2.562	-0.09	0.3465E+00	0.6554E+01	5.418	-0
	3.718	5/2+	2	1.8444	1.675	-0.14	0.3305E+00	0.3156E+02	-9.133	-7
	4.627	5/2+	3	0.2309	0.766	-0.04	0.4399E+00	0.1910E+02	-6.537	-7
	4.913	3/2+	2	0.0000	0.480	999.00	0.0000E+00	0.9200E+00	0.639	4
5.528	3/2+	3		0.010704	0.4261E-01		2.018	-8.59 ---	-6.747	-6
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	14.8262	5.528	1.19	0.1342E-02	0.8864E+00	1.975	-1
	0.266	5/2+	1	1.2193	5.262	0.82	0.1843E-03	0.6408E-01	-0.221	1
	1.756	7/2+	1	1.6934	3.772	999.00	0.0000E+00	0.1172E+01	0.131	-5
	2.859	1/2+	1	30.4226	2.669	-0.37	0.5169E-01	0.1445E+02	5.059	1
	3.718	5/2+	2	28.6251	1.810	0.01	0.1775E+00	0.6641E-01	-0.621	3
	4.627	5/2+	3	22.6245	0.901	-0.01	0.1137E+01	0.4467E+01	2.401	2
	4.913	3/2+	2	0.5889	0.615	-0.00	0.9312E-01	0.5726E-01	-0.575	0
	5.393	7/2+	2	0.0000	0.135	999.00	0.0000E+00	0.1823E+01	-1.916	-0
5.962	1/2+	2		0.000193	0.2367E+01		0.002	0.00 ---	0.000	0
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	96.7653	5.962	0.05	0.9302E+00	0.1092E+01	0.131	2
	0.266	5/2+	1	0.5805	5.696	999.00	0.0000E+00	0.2842E+01	-1.124	-1
	2.859	1/2+	1	2.5546	3.103	0.00	0.1747E+00	0.0000E+00	0.000	0
	3.718	5/2+	2	0.0001	2.244	999.00	0.0000E+00	0.3699E-01	0.167	0
	4.627	5/2+	3	0.0013	1.335	999.00	0.0000E+00	0.9163E+01	-1.878	-3
	4.913	3/2+	2	0.0977	1.049	0.12	0.1704E+00	0.3289E+02	-4.594	-4
	5.528	3/2+	3	0.0006	0.434	0.14	0.1378E-01	0.2019E+02	3.098	4

6.115	9/2+	2		0.000709	0.6436E+00	3.111	-4.86	---	-4.514	-0
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.266	5/2+	1	1.2075	5.849	999.00	0.0000E+00	0.1408E+01	3.023	-0
	1.756	7/2+	1	71.1149	4.359	-0.00	0.4770E+00	0.4182E-02	-0.370	1
	2.831	9/2+	1	27.2126	3.284	-0.01	0.4268E+00	0.1454E-01	1.070	-2
	3.718	5/2+	2	0.0189	2.397	999.00	0.0000E+00	0.1902E+01	-2.209	-3
	4.627	5/2+	3	0.0063	1.488	999.00	0.0000E+00	0.6857E+01	-5.110	-2
	5.393	7/2+	2	0.4399	0.722	-0.04	0.6482E+00	0.2843E+02	8.865	10
6.168	7/2+	3		0.005514	0.8272E-01	2.589	7.56	---	3.838	10
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	9.4031	6.168	999.00	0.0000E+00	0.1080E+01	1.849	0
	0.266	5/2+	1	6.6388	5.902	0.91	0.1265E-02	0.4292E+00	1.627	-0
	1.756	7/2+	1	16.1832	4.412	0.07	0.1338E-01	0.5325E-01	-0.571	0
	2.831	9/2+	1	3.9916	3.337	-0.72	0.5050E-02	0.3380E+01	2.349	4
	3.718	5/2+	2	59.9527	2.450	-0.00	0.2911E+00	0.9357E-02	0.234	-0
	4.627	5/2+	3	2.4741	1.541	0.05	0.4817E-01	0.6089E+00	-1.655	0
	4.913	3/2+	2	0.0032	1.255	999.00	0.0000E+00	0.1059E+01	1.100	3
	5.393	7/2+	2	1.3513	0.775	0.03	0.2070E+00	0.5753E+01	-2.700	-6
	5.528	3/2+	3	0.0010	0.640	999.00	0.0000E+00	0.9610E+01	-4.887	-4
	6.115	9/2+	2	0.0009	0.053	0.00	0.4255E+00	0.6426E+01	-3.249	-6
6.255	9/2+	3		0.002706	0.1685E+00	0.711	-9.39	---	-7.848	-4
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.266	5/2+	1	0.6482	5.989	999.00	0.0000E+00	0.1758E+00	-0.998	0
	1.756	7/2+	1	95.1709	4.499	-0.01	0.1520E+00	0.6027E-02	-0.318	0
	2.831	9/2+	1	2.7143	3.424	1.05	0.4670E-02	0.6331E+01	-3.987	-5
	3.718	5/2+	2	1.3165	2.537	999.00	0.0000E+00	0.2618E+02	8.984	8
	4.627	5/2+	3	0.1141	1.628	999.00	0.0000E+00	0.2085E+02	-8.068	-7
	5.393	7/2+	2	0.0336	0.862	-0.24	0.7215E-02	0.7980E+01	-4.339	-6
	6.115	9/2+	2	0.0016	0.140	-0.00	0.8630E-01	0.1724E+00	-0.619	-1
	6.168	7/2+	3	0.0008	0.087	0.00	0.1672E+00	0.2809E+01	-2.137	-5
6.739	3/2+	4		0.000311	0.1468E+01	0.466	-3.69	---	-2.906	-2
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	8.0302	6.739	0.56	0.2527E-01	0.2523E+01	-2.034	-0
	0.266	5/2+	1	88.9033	6.473	-0.05	0.4141E+00	0.4083E+00	0.553	1
	1.756	7/2+	1	0.1125	4.983	999.00	0.0000E+00	0.6667E+00	1.029	0
	2.859	1/2+	1	1.9477	3.880	-0.05	0.4215E-01	0.9248E-01	-0.135	-0
	3.718	5/2+	2	0.0545	3.021	-1.89	0.5501E-03	0.3078E+01	-2.037	-1
	4.627	5/2+	3	0.4828	2.112	-0.04	0.6482E-01	0.3387E+00	0.685	0
	4.913	3/2+	2	0.4506	1.826	-0.03	0.9367E-01	0.3745E+00	0.451	1
	5.393	7/2+	2	0.0001	1.346	999.00	0.0000E+00	0.2485E+00	-0.709	-0

	5.528	3/2+	3	0.0005	1.211	0.89	0.1824E-03	0.1407E+01	-0.850	-2
	5.962	1/2+	2	0.0178	0.777	0.07	0.4776E-01	0.5490E+01	2.443	3
	6.168	7/2+	3	0.0000	0.571	999.00	0.0000E+00	0.1884E+01	1.680	1
7.070	1/2+	3		0.000462	0.9865E+00	-0.957		0.00 ---	0.000	0
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	81.0422	7.070	-0.07	0.1944E+00	0.2433E+00	0.194	0
	0.266	5/2+	1	2.6634	6.804	999.00	0.0000E+00	0.2234E+01	1.995	-1
	2.859	1/2+	1	7.8933	4.211	0.00	0.9002E-01	0.0000E+00	0.000	0
	3.718	5/2+	2	0.0007	3.352	999.00	0.0000E+00	0.2107E-01	-0.332	0
	4.627	5/2+	3	0.0147	2.443	999.00	0.0000E+00	0.2065E+01	1.430	0
	4.913	3/2+	2	5.3189	2.157	0.03	0.4510E+00	0.1101E+01	-0.699	-1
	5.528	3/2+	3	2.9675	1.542	0.07	0.6856E+00	0.2171E+02	3.200	4
	5.962	1/2+	2	0.0901	1.108	0.00	0.5638E-01	0.0000E+00	0.000	0
	6.739	3/2+	4	0.0093	0.331	-0.01	0.2173E+00	0.2030E+01	1.991	-1
7.076	7/2+	4		0.000518	0.8805E+00	3.422		-13.45 ---	-9.925	-9
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	0.2092	7.076	999.00	0.0000E+00	0.1288E+00	0.071	2
	0.266	5/2+	1	22.0232	6.810	0.01	0.5299E-01	0.3164E-02	1.241	-3
	1.756	7/2+	1	46.8818	5.320	0.05	0.2360E+00	0.3411E+00	1.961	-2
	2.831	9/2+	1	26.7823	4.245	-0.05	0.2654E+00	0.6023E+00	-1.854	0
	3.718	5/2+	2	0.3531	3.358	-1.48	0.2214E-02	0.6209E+01	3.847	4
	4.627	5/2+	3	1.2157	2.449	0.05	0.6273E-01	0.4352E+00	-1.820	1
	4.913	3/2+	2	0.1381	2.163	999.00	0.0000E+00	0.3184E+02	-9.110	-7
	5.393	7/2+	2	1.7101	1.683	-0.03	0.2723E+00	0.1684E+01	-1.300	-4
	5.528	3/2+	3	0.0073	1.548	999.00	0.0000E+00	0.8915E+01	-4.197	-6
	6.115	9/2+	2	0.3545	0.961	-0.02	0.3034E+00	0.2616E+01	1.515	5
	6.168	7/2+	3	0.0018	0.908	-0.41	0.1602E-02	0.4705E+01	-3.246	-3
	6.255	9/2+	3	0.3229	0.821	-0.02	0.4432E+00	0.4935E+01	3.963	1
	6.739	3/2+	4	0.0000	0.337	999.00	0.0000E+00	0.8154E+00	1.129	2
7.285	5/2+	4		0.000419	0.1089E+01	0.014		-0.32 ---	0.481	-2
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	12.9718	7.285	0.74	0.2037E-01	0.3022E+01	-2.192	-2
	0.266	5/2+	1	13.9884	7.019	0.26	0.3560E-01	0.7038E+00	1.069	1
	1.756	7/2+	1	69.4402	5.529	-0.19	0.3730E+00	0.6165E+01	4.029	1
	2.831	9/2+	1	0.0573	4.454	999.00	0.0000E+00	0.4412E+00	-0.782	-1
	2.859	1/2+	1	0.1067	4.426	999.00	0.0000E+00	0.8483E+00	-1.333	-0
	3.718	5/2+	2	0.1457	3.567	0.17	0.2930E-02	0.9800E-01	0.289	0
	4.627	5/2+	3	1.4684	2.658	-0.22	0.7020E-01	0.6687E+01	3.919	2
	4.913	3/2+	2	1.3916	2.372	-0.01	0.9800E-01	0.1370E-01	-0.209	-0
	5.393	7/2+	2	0.1038	1.892	-0.22	0.1375E-01	0.2656E+01	-2.334	-1
	5.528	3/2+	3	0.2423	1.757	-0.07	0.4177E-01	0.9809E+00	-1.554	-0
	5.962	1/2+	2	0.0033	1.323	999.00	0.0000E+00	0.1087E+02	4.022	5

	6.115	9/2+	2	0.0001	1.170	999.00	0.0000E+00	0.5521E+00	-1.484	0
	6.168	7/2+	3	0.0760	1.117	-0.08	0.5088E-01	0.4087E+01	-3.109	-1
	6.255	9/2+	3	0.0000	1.030	999.00	0.0000E+00	0.8501E-01	-0.627	0
	6.739	3/2+	4	0.0031	0.546	0.17	0.1729E-01	0.2301E+02	5.631	9
	7.070	1/2+	3	0.0000	0.215	999.00	0.0000E+00	0.2751E+01	-1.993	-3
	7.076	7/2+	4	0.0015	0.209	0.01	0.1511E+00	0.1381E+01	1.204	2
7.324	7/2+	5		0.000457	0.9985E+00	2.397		-9.99 ---	-7.069	-7
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	0.8206	7.324	999.00	0.0000E+00	0.4822E+00	1.315	0
	0.266	5/2+	1	1.5986	7.058	-0.51	0.3113E-02	0.2326E+00	-1.056	0
	1.756	7/2+	1	66.6555	5.568	-0.10	0.3297E+00	0.1464E+01	1.976	1
	2.831	9/2+	1	28.3081	4.493	-0.01	0.2690E+00	0.7224E-02	-1.380	4
	3.718	5/2+	2	0.6331	3.606	-0.68	0.7938E-02	0.4088E+01	3.451	2
	4.627	5/2+	3	0.3809	2.697	0.39	0.1450E-01	0.4410E+01	2.394	5
	4.913	3/2+	2	0.0797	2.411	999.00	0.0000E+00	0.1211E+02	4.722	7
	5.393	7/2+	2	0.8809	1.931	-0.06	0.1051E+00	0.1244E+01	-1.267	-3
	5.528	3/2+	3	0.0265	1.796	999.00	0.0000E+00	0.1755E+02	-6.968	-5
	6.115	9/2+	2	0.1010	1.209	-0.01	0.4925E-01	0.4120E-01	-0.813	1
	6.168	7/2+	3	0.0151	1.156	0.56	0.6424E-02	0.2165E+02	-6.693	-9
	6.255	9/2+	3	0.4996	1.069	-0.02	0.3524E+00	0.1871E+01	2.182	2
	6.739	3/2+	4	0.0001	0.585	999.00	0.0000E+00	0.1040E+02	-5.144	-4
	7.076	7/2+	4	0.0004	0.248	-0.03	0.2133E-01	0.3123E+01	1.897	5
	7.285	5/2+	4	0.0000	0.039	-0.00	0.4129E-03	0.5732E-01	-0.464	-0
7.795	9/2+	4		0.005556	0.8209E-01	2.688		-2.08 ---	-1.782	-0
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.266	5/2+	1	21.4453	7.529	999.00	0.0000E+00	0.9024E+00	-1.810	-1
	1.756	7/2+	1	38.1918	6.039	-2.69	0.1493E-02	0.4252E+01	-3.856	-2
	2.831	9/2+	1	15.6925	4.964	-0.77	0.5688E-02	0.1984E+01	-3.310	0
	3.718	5/2+	2	0.0094	4.077	999.00	0.0000E+00	0.8521E-02	-0.363	0
	4.627	5/2+	3	2.4484	3.168	999.00	0.0000E+00	0.7811E+01	5.115	4
	5.393	7/2+	2	1.0941	2.402	-0.04	0.5584E-02	0.2676E-01	0.097	0
	6.115	9/2+	2	14.4072	1.680	0.09	0.2137E+00	0.7964E+01	4.345	6
	6.168	7/2+	3	0.2278	1.627	1.95	0.7807E-03	0.1610E+02	-6.426	-8
	6.255	9/2+	3	2.6701	1.540	-0.17	0.5038E-01	0.8629E+01	5.588	3
	7.076	7/2+	4	3.7059	0.719	-0.00	0.7065E+00	0.4365E-01	-0.101	-1
	7.285	5/2+	4	0.0003	0.510	999.00	0.0000E+00	0.9197E+01	-4.922	-6
	7.324	7/2+	5	0.1072	0.471	0.03	0.7259E-01	0.5504E+01	3.139	7
7.845	3/2+	5		0.000095	0.4790E+01	2.289		-1.64 ---	-1.016	-2
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	57.7942	7.845	-0.01	0.4949E+00	0.4122E-02	-0.310	1
	0.266	5/2+	1	39.9145	7.579	0.10	0.3752E+00	0.9821E+00	-1.641	0
	1.756	7/2+	1	0.0766	6.089	999.00	0.0000E+00	0.5439E+00	-1.189	0

	2.859	1/2+	1	0.0510	4.986	-2.67	0.2085E-03	0.8621E+00	1.332	0	
	3.718	5/2+	2	0.3649	4.127	0.26	0.2008E-01	0.1171E+01	0.888	2	
	4.627	5/2+	3	0.0296	3.218	-0.35	0.3278E-02	0.5483E+00	-0.764	-0	
	4.913	3/2+	2	1.4746	2.932	0.01	0.2419E+00	0.4318E-01	0.338	-0	
	5.393	7/2+	2	0.0001	2.452	999.00	0.0000E+00	0.6123E-01	0.249	0	
	5.528	3/2+	3	0.1881	2.317	-0.08	0.6218E-01	0.9516E+00	0.612	2	
	5.962	1/2+	2	0.0020	1.883	66.54	0.2756E-06	0.4944E+01	2.243	3	
	6.168	7/2+	3	0.0003	1.677	999.00	0.0000E+00	0.1285E+01	-1.561	-0	
	6.739	3/2+	4	0.0081	1.106	0.19	0.2398E-01	0.9897E+01	-2.728	-5	
	7.070	1/2+	3	0.0953	0.775	0.02	0.8464E+00	0.1181E+02	-3.208	-5	
	7.076	7/2+	4	0.0000	0.769	999.00	0.0000E+00	0.3147E+01	2.255	1	
	7.285	5/2+	4	0.0006	0.560	-0.05	0.1404E-01	0.1932E+01	-0.900	-3	
	7.324	7/2+	5	0.0000	0.521	999.00	0.0000E+00	0.3452E+00	-0.787	-0	
7.908	5/2+	5		0.000329	0.1388E+01		1.212	-5.13	---	-3.890	-2
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)			
	0.000	3/2+	1	17.7559	7.908	-0.18	0.4167E-01	0.3087E+00	1.665	-2	
	0.266	5/2+	1	31.1888	7.642	0.12	0.8260E-01	0.2739E+00	0.532	1	
	1.756	7/2+	1	41.0058	6.152	0.01	0.2109E+00	0.1367E-01	-0.084	-0	
	2.831	9/2+	1	0.0203	5.077	999.00	0.0000E+00	0.1036E+00	0.015	1	
	2.859	1/2+	1	0.2363	5.049	999.00	0.0000E+00	0.1239E+01	1.593	1	
	3.718	5/2+	2	0.0432	4.190	-0.11	0.6945E-03	0.7148E-02	0.571	-2	
	4.627	5/2+	3	1.6402	3.281	-0.08	0.5530E-01	0.4461E+00	0.487	2	
	4.913	3/2+	2	4.7754	2.995	0.09	0.2113E+00	0.2599E+01	-2.523	-1	
	5.393	7/2+	2	0.0302	2.515	1.80	0.5379E-03	0.3951E+01	-2.628	-2	
	5.528	3/2+	3	2.9686	2.380	-0.09	0.2617E+00	0.5379E+01	2.409	5	
	5.962	1/2+	2	0.0244	1.946	999.00	0.0000E+00	0.1504E+02	5.119	5	
	6.115	9/2+	2	0.0036	1.793	999.00	0.0000E+00	0.3342E+01	-2.421	-2	
	6.168	7/2+	3	0.0164	1.740	-0.41	0.3188E-02	0.2517E+01	2.203	1	
	6.255	9/2+	3	0.0003	1.653	999.00	0.0000E+00	0.3765E+00	0.856	0	
	6.739	3/2+	4	0.2848	1.169	-0.00	0.2136E+00	0.2181E-02	0.350	-1	
	7.070	1/2+	3	0.0000	0.838	999.00	0.0000E+00	0.7386E-01	-0.269	-0	
	7.076	7/2+	4	0.0045	0.832	-0.01	0.9338E-02	0.9560E-02	0.584	-1	
	7.285	5/2+	4	0.0011	0.623	0.01	0.5346E-02	0.6627E-02	0.130	0	
	7.324	7/2+	5	0.0001	0.584	0.19	0.7914E-03	0.1170E+01	-2.299	1	
	7.795	9/2+	4	0.0000	0.113	999.00	0.0000E+00	0.2011E+01	1.800	2	
	7.845	3/2+	5	0.0000	0.063	-0.01	0.4150E-01	0.3835E+01	2.326	3	
8.152	5/2+	6		0.000757	0.6029E+00		2.966	-7.70	---	-5.394	-5
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)			
	0.000	3/2+	1	0.5911	8.152	0.92	0.3064E-03	0.5651E-01	0.298	-2	
	0.266	5/2+	1	4.3457	7.886	-0.02	0.4609E-02	0.4873E-03	-0.593	1	
	1.756	7/2+	1	1.1229	6.396	-2.63	0.2815E-03	0.6855E+00	-1.606	0	
	2.831	9/2+	1	1.1031	5.321	999.00	0.0000E+00	0.1933E+01	-2.752	0	
	2.859	1/2+	1	0.0055	5.293	999.00	0.0000E+00	0.9825E-02	-0.438	1	
	3.718	5/2+	2	40.0022	4.434	-0.00	0.2388E+00	0.2654E-02	0.231	-0	

	4.627	5/2+	3	24.0959	3.525	0.03	0.2860E+00	0.3216E+00	-0.598	-1	
	4.913	3/2+	2	15.5980	3.239	0.04	0.2384E+00	0.6567E+00	-1.559	0	
	5.393	7/2+	2	3.5025	2.759	-0.11	0.8568E-01	0.2091E+01	-1.649	-2	
	5.528	3/2+	3	7.5417	2.624	0.08	0.2158E+00	0.2901E+01	2.331	2	
	5.962	1/2+	2	0.0036	2.190	999.00	0.0000E+00	0.5376E+00	0.723	1	
	6.115	9/2+	2	0.0578	2.037	999.00	0.0000E+00	0.1233E+02	4.774	4	
	6.168	7/2+	3	0.4328	1.984	0.14	0.2829E-01	0.2014E+01	-2.153	-1	
	6.255	9/2+	3	0.0000	1.897	999.00	0.0000E+00	0.7637E-03	-0.903	2	
	6.739	3/2+	4	1.4299	1.413	-0.00	0.2638E+00	0.2868E-01	0.438	-0	
	7.070	1/2+	3	0.0010	1.082	999.00	0.0000E+00	0.5156E+01	3.247	2	
	7.076	7/2+	4	0.0042	1.076	-0.15	0.1717E-02	0.4919E+00	-0.398	-2	
	7.285	5/2+	4	0.1582	0.867	0.01	0.1264E+00	0.1637E+00	-0.392	-1	
	7.324	7/2+	5	0.0002	0.828	0.88	0.7964E-04	0.1290E+01	-2.039	-0	
	7.795	9/2+	4	0.0000	0.357	999.00	0.0000E+00	0.1731E+00	-0.420	-0	
	7.845	3/2+	5	0.0002	0.307	-0.03	0.4277E-02	0.7357E+00	0.960	1	
	7.908	5/2+	5	0.0034	0.244	-0.00	0.1217E+00	0.4936E-01	0.149	-1	
8.698	5/2+	7		0.000054	0.8470E+01		2.238	-12.10	---	-8.204	-9
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)			
	0.000	3/2+	1	5.4695	8.698	0.20	0.5837E-01	0.4560E+00	-1.818	1	
	0.266	5/2+	1	48.0534	8.432	0.07	0.5834E+00	0.5322E+00	1.964	-1	
	1.756	7/2+	1	38.6397	6.942	-0.00	0.8445E+00	0.5947E-04	0.021	-0	
	2.831	9/2+	1	0.0438	5.867	999.00	0.0000E+00	0.6620E+00	2.190	-2	
	2.859	1/2+	1	0.0073	5.839	999.00	0.0000E+00	0.1135E+00	0.907	-0	
	3.718	5/2+	2	0.2251	4.980	-0.05	0.1330E-01	0.1607E-01	0.341	-0	
	4.627	5/2+	3	1.5730	4.071	0.03	0.1704E+00	0.1000E+00	-0.851	0	
	4.913	3/2+	2	2.7850	3.785	-0.01	0.3755E+00	0.2762E-01	0.447	-0	
	5.393	7/2+	2	0.7208	3.305	-0.01	0.1460E+00	0.1166E-01	0.291	-0	
	5.528	3/2+	3	1.7535	3.170	0.00	0.4025E+00	0.3332E-02	0.155	-0	
	5.962	1/2+	2	0.0000	2.736	999.00	0.0000E+00	0.7329E-02	-0.230	0	
	6.115	9/2+	2	0.0009	2.583	999.00	0.0000E+00	0.8408E+00	-2.468	2	
	6.168	7/2+	3	0.4925	2.530	0.01	0.2223E+00	0.8153E-01	-0.769	0	
	6.255	9/2+	3	0.0000	2.443	999.00	0.0000E+00	0.1785E-02	0.114	-0	
	6.739	3/2+	4	0.0528	1.959	0.02	0.5132E-01	0.9551E-01	-0.832	0	
	7.070	1/2+	3	0.0000	1.628	999.00	0.0000E+00	0.1453E+00	-1.026	1	
	7.076	7/2+	4	0.0022	1.622	-0.05	0.3750E-02	0.4182E-01	-0.550	0	
	7.285	5/2+	4	0.0554	1.413	0.00	0.1436E+00	0.5281E-02	-0.196	0	
	7.324	7/2+	5	0.0282	1.374	0.01	0.7942E-01	0.2237E-01	-0.403	0	
	7.795	9/2+	4	0.0000	0.903	999.00	0.0000E+00	0.6667E+00	2.197	-2	
	7.845	3/2+	5	0.0557	0.853	-0.00	0.6567E+00	0.3484E-01	0.502	-0	
	7.908	5/2+	5	0.0357	0.790	-0.00	0.5298E+00	0.6708E-03	-0.070	0	
	8.152	5/2+	6	0.0053	0.546	0.00	0.2376E+00	0.3531E-01	0.506	-0	
8.746	3/2+	6		0.000631	0.7223E+00		2.360	4.51	---	2.738	5
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)			
	0.000	3/2+	1	11.8908	8.746	0.33	0.9990E-02	0.2051E+00	-0.847	0	

	0.266	5/2+	1	0.5878	8.480	1.67	0.1588E-03	0.8836E-01	0.604	-0
	1.756	7/2+	1	0.3704	6.990	999.00	0.0000E+00	0.1988E+00	-0.392	-0
	2.859	1/2+	1	6.0134	5.887	-0.29	0.1695E-01	0.5906E+00	0.325	2
	3.718	5/2+	2	66.2135	5.028	0.04	0.3243E+00	0.2576E+00	0.113	1
	4.627	5/2+	3	11.5531	4.119	-0.01	0.1031E+00	0.2216E-02	0.009	-0
	4.913	3/2+	2	0.4074	3.833	-0.60	0.3312E-02	0.1172E+01	1.130	1
	5.393	7/2+	2	0.0195	3.353	999.00	0.0000E+00	0.4122E+00	-0.737	-0
	5.528	3/2+	3	0.2347	3.218	0.19	0.4245E-02	0.2044E+00	-1.153	1
	5.962	1/2+	2	0.4827	2.784	-0.50	0.1117E-01	0.5142E+01	2.551	2
	6.168	7/2+	3	0.0219	2.578	999.00	0.0000E+00	0.1721E+01	1.552	1
	6.739	3/2+	4	1.6745	2.007	-0.06	0.1287E+00	0.1575E+01	-1.450	-1
	7.070	1/2+	3	0.4156	1.676	0.05	0.5492E-01	0.6068E+00	-0.945	-0
	7.076	7/2+	4	0.0023	1.670	999.00	0.0000E+00	0.1593E+01	0.943	2
	7.285	5/2+	4	0.0143	1.461	-0.02	0.2868E-02	0.9341E-02	-0.328	1
	7.324	7/2+	5	0.0009	1.422	999.00	0.0000E+00	0.1413E+01	-0.841	-2
	7.845	3/2+	5	0.0532	0.901	0.02	0.4533E-01	0.2298E+00	-0.692	-0
	7.908	5/2+	5	0.0376	0.838	0.10	0.3938E-01	0.8582E+01	-2.823	-4
	8.152	5/2+	6	0.0064	0.594	0.14	0.1856E-01	0.1398E+02	-3.981	-4
	8.698	5/2+	7	0.0001	0.048	-0.00	0.7310E+00	0.2709E+00	1.144	-1
8.790	5/2+	8		0.000375	0.1217E+01	1.649		-6.38 ---	-4.422	-4
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	9.2308	8.790	-0.71	0.9496E-02	0.8893E+00	1.094	1
	0.266	5/2+	1	14.6034	8.524	0.29	0.2290E-01	0.3695E+00	-0.447	-1
	1.756	7/2+	1	62.6747	7.034	0.05	0.1887E+00	0.1504E+00	0.695	0
	2.831	9/2+	1	0.1466	5.959	999.00	0.0000E+00	0.2944E+00	-0.379	-1
	2.859	1/2+	1	0.0249	5.931	999.00	0.0000E+00	0.5112E-01	-0.492	0
	3.718	5/2+	2	0.4666	5.072	-0.53	0.2939E-02	0.4565E+00	-0.017	3
	4.627	5/2+	3	3.0516	4.163	-0.12	0.4384E-01	0.4919E+00	1.102	0
	4.913	3/2+	2	5.6077	3.877	0.14	0.9910E-01	0.1909E+01	1.854	1
	5.393	7/2+	2	0.0351	3.397	-1.04	0.4500E-03	0.6106E+00	-1.701	0
	5.528	3/2+	3	0.8034	3.262	-0.33	0.2194E-01	0.3213E+01	-2.150	-3
	5.962	1/2+	2	0.0907	2.828	999.00	0.0000E+00	0.7571E+01	-3.491	-4
	6.115	9/2+	2	0.0010	2.675	999.00	0.0000E+00	0.1121E+00	0.682	-0
	6.168	7/2+	3	0.8065	2.622	0.12	0.4632E-01	0.1420E+01	1.502	1
	6.255	9/2+	3	0.0014	2.535	999.00	0.0000E+00	0.1948E+00	0.621	0
	6.739	3/2+	4	1.2086	2.051	-0.01	0.1471E+00	0.1065E+00	-0.587	-0
	7.070	1/2+	3	0.0068	1.720	999.00	0.0000E+00	0.6857E+01	-3.213	-4
	7.076	7/2+	4	0.0958	1.714	0.08	0.1986E-01	0.6312E+00	-1.246	-0
	7.285	5/2+	4	0.8277	1.505	-0.07	0.2538E+00	0.8317E+01	4.333	2
	7.324	7/2+	5	0.2245	1.466	0.08	0.7444E-01	0.2912E+01	2.501	1
	7.795	9/2+	4	0.0000	0.995	999.00	0.0000E+00	0.1852E+00	-0.924	0
	7.845	3/2+	5	0.0043	0.945	-0.08	0.5269E-02	0.5093E+00	1.130	0
	7.908	5/2+	5	0.0243	0.882	0.04	0.3721E-01	0.1381E+01	1.579	1
	8.152	5/2+	6	0.0629	0.638	0.01	0.2546E+00	0.7441E+00	1.189	1
	8.698	5/2+	7	0.0007	0.092	-0.00	0.9346E+00	0.7571E-01	-0.741	0
	8.746	3/2+	6	0.0000	0.044	0.01	0.1257E-01	0.3527E+01	-1.446	-5

8.942	3/2+	7	0.000117	0.3905E+01	2.021	0.12	---	0.664	-1
Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
0.000	3/2+	1	0.1887	8.942	-9.92	0.8940E-05	0.1582E+00	0.296	0
0.266	5/2+	1	87.9078	8.676	-0.02	0.4536E+00	0.3211E-01	-0.028	0
1.756	7/2+	1	0.0017	7.186	999.00	0.0000E+00	0.4422E-02	-0.091	0
2.859	1/2+	1	0.7911	6.083	-0.00	0.1185E-01	0.1047E-03	0.921	-2
3.718	5/2+	2	5.4718	5.224	0.08	0.1285E+00	0.4550E+00	-0.993	0
4.627	5/2+	3	0.6480	4.315	-0.27	0.2528E-01	0.1473E+01	1.122	2
4.913	3/2+	2	2.5129	4.029	-0.04	0.1293E+00	0.2192E+00	-0.842	0
5.393	7/2+	2	0.0008	3.549	999.00	0.0000E+00	0.6515E-01	-0.705	0
5.528	3/2+	3	1.1577	3.414	0.11	0.9697E-01	0.1369E+01	-0.814	-2
5.962	1/2+	2	0.6186	2.980	0.04	0.7868E-01	0.1904E+00	0.065	-2
6.168	7/2+	3	0.0000	2.774	999.00	0.0000E+00	0.3358E-02	-0.344	1
6.739	3/2+	4	0.0119	2.203	1.79	0.8907E-03	0.8427E+01	3.274	3
7.070	1/2+	3	0.4247	1.872	0.03	0.2180E+00	0.9082E+00	-1.426	0
7.076	7/2+	4	0.0001	1.866	999.00	0.0000E+00	0.3164E+00	-0.584	-0
7.285	5/2+	4	0.1072	1.657	0.05	0.7927E-01	0.1027E+01	1.054	1
7.324	7/2+	5	0.0006	1.618	999.00	0.0000E+00	0.2721E+01	-2.212	-0
7.845	3/2+	5	0.0727	1.097	-0.07	0.1849E+00	0.1039E+02	-3.422	-3
7.908	5/2+	5	0.0596	1.034	-0.02	0.1817E+00	0.8482E+00	1.500	-0
8.152	5/2+	6	0.0173	0.790	0.01	0.1182E+00	0.5921E+00	-0.790	-1
8.698	5/2+	7	0.0062	0.244	-0.00	0.1448E+01	0.5142E-01	0.498	-0
8.746	3/2+	6	0.0001	0.196	-0.01	0.4642E-01	0.8372E+00	-1.584	0
8.790	5/2+	8	0.0003	0.152	0.01	0.3295E+00	0.7734E+01	-2.852	-3
8.973	9/2+	5	0.000548	0.8330E+00	1.697	-4.83	---	-3.457	-4
Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
0.266	5/2+	1	4.5184	8.707	999.00	0.0000E+00	0.9327E+00	1.834	1
1.756	7/2+	1	1.9122	7.217	0.31	0.3338E-02	0.8823E-01	1.089	-1
2.831	9/2+	1	69.9705	6.142	-0.03	0.2170E+00	0.6354E-01	-1.159	1
3.718	5/2+	2	0.0038	5.255	999.00	0.0000E+00	0.9759E-02	-0.515	0
4.627	5/2+	3	0.2703	4.346	999.00	0.0000E+00	0.1801E+01	2.250	2
5.393	7/2+	2	4.8612	3.580	0.01	0.7618E-01	0.4418E-02	0.183	-1
6.115	9/2+	2	11.9324	2.858	0.07	0.3656E+00	0.3440E+01	-3.254	-3
6.168	7/2+	3	0.1779	2.805	-0.16	0.5655E-02	0.2563E+00	1.402	-0
6.255	9/2+	3	5.3660	2.718	-0.09	0.1904E+00	0.3337E+01	3.279	2
7.076	7/2+	4	0.2465	1.897	0.02	0.2595E-01	0.5623E-01	-1.173	1
7.285	5/2+	4	0.0017	1.688	999.00	0.0000E+00	0.1285E+01	-2.312	-0
7.324	7/2+	5	0.6080	1.649	0.03	0.9742E-01	0.4012E+00	1.009	1
7.795	9/2+	4	0.1301	1.178	-0.06	0.5702E-01	0.2010E+01	2.465	2
7.908	5/2+	5	0.0010	1.065	999.00	0.0000E+00	0.7579E+01	-3.995	-7
8.152	5/2+	6	0.0001	0.821	999.00	0.0000E+00	0.2692E+01	-2.351	-4
8.698	5/2+	7	0.0000	0.275	999.00	0.0000E+00	0.4875E+00	-2.427	2
8.790	5/2+	8	0.0000	0.183	999.00	0.0000E+00	0.2186E+01	-2.046	-4

9.013	1/2+	4	0.000043	0.1062E+02	1.092	0.00	---	0.000	0
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)	
	0.000	3/2+	1	90.8402	9.013	0.07	0.1133E+01	0.9522E+00	-1.516 1
	0.266	5/2+	1	0.3174	8.747	999.00	0.0000E+00	0.8166E+00	1.404 -1
	2.859	1/2+	1	4.4545	6.154	0.00	0.1753E+00	0.0000E+00	0.000 0
	3.718	5/2+	2	0.0007	5.295	999.00	0.0000E+00	0.2245E-01	-0.233 0
	4.627	5/2+	3	0.0030	4.386	999.00	0.0000E+00	0.2447E+00	-0.769 0
	4.913	3/2+	2	0.6080	4.100	-0.07	0.8048E-01	0.3627E+00	-0.936 0
	5.528	3/2+	3	2.5104	3.485	-0.01	0.5439E+00	0.3968E-01	0.310 -0
	5.962	1/2+	2	0.0169	3.051	0.00	0.5460E-02	0.0000E+00	0.000 0
	6.739	3/2+	4	0.0074	2.274	-0.01	0.5735E-02	0.2587E-02	-0.079 0
	7.070	1/2+	3	0.9820	1.943	0.00	0.1228E+01	0.0000E+00	0.000 0
	7.285	5/2+	4	0.0000	1.728	999.00	0.0000E+00	0.1234E+00	0.546 -0
	7.845	3/2+	5	0.2567	1.168	0.00	0.1477E+01	0.9032E-02	0.148 -0
	7.908	5/2+	5	0.0000	1.105	999.00	0.0000E+00	0.1521E+01	-1.917 1
	8.152	5/2+	6	0.0000	0.861	999.00	0.0000E+00	0.1593E+01	1.962 -1
	8.698	5/2+	7	0.0000	0.315	999.00	0.0000E+00	0.8128E+02	-6.568 -8
	8.746	3/2+	6	0.0029	0.267	0.00	0.1384E+01	0.3094E-02	-0.087 0
	8.790	5/2+	8	0.0000	0.223	999.00	0.0000E+00	0.4355E+00	-1.026 1
	8.942	3/2+	7	0.0000	0.071	0.00	0.1982E-01	0.1976E+00	-0.691 0
9.109	7/2+	6	0.000234	0.1950E+01	4.459	-11.51	---	-7.671	-10
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)	
	0.000	3/2+	1	0.1819	9.109	999.00	0.0000E+00	0.7014E-01	0.442 0
	0.266	5/2+	1	34.9441	8.843	-0.11	0.8409E-01	0.1779E+00	0.622 0
	1.756	7/2+	1	53.2871	7.353	-0.03	0.2255E+00	0.4313E-01	-0.014 1
	2.831	9/2+	1	6.7680	6.278	0.17	0.4478E-01	0.4613E+00	-1.374 -0
	3.718	5/2+	2	0.1159	5.391	1.25	0.4848E-03	0.3758E+00	1.367 -0
	4.627	5/2+	3	1.7499	4.482	-0.10	0.3240E-01	0.2265E+00	0.402 1
	4.913	3/2+	2	0.0181	4.196	999.00	0.0000E+00	0.3370E+00	-0.844 -1
	5.393	7/2+	2	0.0921	3.716	-0.01	0.3023E-02	0.2170E-03	0.190 -0
	5.528	3/2+	3	0.0150	3.581	999.00	0.0000E+00	0.6149E+00	1.228 1
	6.115	9/2+	2	1.3212	2.994	-0.06	0.8254E-01	0.5146E+00	1.262 0
	6.168	7/2+	3	1.2584	2.941	-0.01	0.8325E-01	0.2248E-01	-0.111 1
	6.255	9/2+	3	0.0675	2.854	0.27	0.4555E-02	0.5913E+00	-0.778 -2
	6.739	3/2+	4	0.0032	2.370	999.00	0.0000E+00	0.1025E+01	1.266 2
	7.076	7/2+	4	0.0004	2.033	-1.15	0.3354E-04	0.1532E+00	0.430 1
	7.285	5/2+	4	0.0679	1.824	0.06	0.1875E-01	0.3124E+00	0.401 2
	7.324	7/2+	5	0.0373	1.785	-0.04	0.1103E-01	0.6475E-01	0.122 1
	7.795	9/2+	4	0.0141	1.314	-0.17	0.1017E-01	0.2557E+01	2.260 3
	7.845	3/2+	5	0.0016	1.264	999.00	0.0000E+00	0.1191E+02	-4.755 -7
	7.908	5/2+	5	0.0076	1.201	0.03	0.7405E-02	0.5511E-01	-0.464 -0
	8.152	5/2+	6	0.0433	0.957	-0.04	0.8311E-01	0.1803E+01	-1.526 -3
	8.698	5/2+	7	0.0051	0.411	-0.00	0.1236E+00	0.9374E-01	-0.952 0
	8.746	3/2+	6	0.0000	0.363	999.00	0.0000E+00	0.8528E+00	1.324 1
	8.790	5/2+	8	0.0003	0.319	-0.02	0.1459E-01	0.4666E+00	-1.213 -0

	8.942	3/2+	7	0.0000	0.167	999.00	0.0000E+00	0.8798E+00	-1.115	-2
	8.973	9/2+	5	0.0000	0.136	0.01	0.8805E-02	0.2705E+00	-0.715	-1
9.139	7/2+	7		0.000222	0.2054E+01		2.022	-3.05	---	-1.824 -3
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	1.6425	9.139	999.00	0.0000E+00	0.6561E+00	1.314	1
	0.266	5/2+	1	0.3200	8.873	-6.73	0.1752E-04	0.1450E+00	-0.478	-0
	1.756	7/2+	1	55.3254	7.383	0.13	0.2398E+00	0.1032E+01	1.967	0
	2.831	9/2+	1	27.8881	6.308	0.04	0.1966E+00	0.1402E+00	1.045	-0
	3.718	5/2+	2	2.2479	5.421	-0.24	0.2366E-01	0.6590E+00	1.493	0
	4.627	5/2+	3	1.6919	4.512	0.02	0.3264E-01	0.7033E-02	0.168	-1
	4.913	3/2+	2	0.0000	4.226	999.00	0.0000E+00	0.5630E-03	0.720	-2
	5.393	7/2+	2	0.7787	3.746	0.33	0.2369E-01	0.2636E+01	2.629	2
	5.528	3/2+	3	0.0000	3.611	999.00	0.0000E+00	0.1477E-02	0.378	-0
	6.115	9/2+	2	1.9459	3.024	0.01	0.1247E+00	0.1410E-01	-0.430	0
	6.168	7/2+	3	5.3913	2.971	0.05	0.3634E+00	0.1700E+01	-2.397	-0
	6.255	9/2+	3	0.3435	2.884	0.02	0.2538E-01	0.1053E-01	0.040	-0
	6.739	3/2+	4	0.0068	2.400	999.00	0.0000E+00	0.2160E+01	2.747	0
	7.076	7/2+	4	0.9935	2.063	-0.03	0.2003E+00	0.7925E+00	1.112	2
	7.285	5/2+	4	0.7402	1.854	-0.06	0.2051E+00	0.3199E+01	-2.655	-3
	7.324	7/2+	5	0.3199	1.815	0.10	0.9398E-01	0.3799E+01	2.840	3
	7.795	9/2+	4	0.2645	1.344	-0.04	0.1928E+00	0.2437E+01	1.576	5
	7.845	3/2+	5	0.0017	1.294	999.00	0.0000E+00	0.1218E+02	4.725	7
	7.908	5/2+	5	0.0075	1.231	0.41	0.6133E-02	0.9632E+01	4.268	6
	8.152	5/2+	6	0.0457	0.987	0.06	0.8391E-01	0.3755E+01	-2.561	-4
	8.698	5/2+	7	0.0403	0.441	0.00	0.8333E+00	0.6509E+00	-2.508	2
	8.746	3/2+	6	0.0000	0.393	999.00	0.0000E+00	0.8653E+00	-1.368	-1
	8.790	5/2+	8	0.0044	0.349	-0.00	0.1836E+00	0.4896E-02	-0.379	0
	8.942	3/2+	7	0.0000	0.197	999.00	0.0000E+00	0.2022E-01	0.146	0
	8.973	9/2+	5	0.0002	0.166	-0.01	0.9329E-01	0.1064E+02	-4.698	-6
	9.109	7/2+	6	0.0000	0.030	-0.02	0.2129E-03	0.1082E+01	1.160	3
9.145	1/2+	5		0.000211	0.2157E+01		-0.349	0.00	---	0.000 0
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	51.1270	9.145	-0.02	0.1244E+00	0.1212E-01	0.481	-1
	0.266	5/2+	1	3.0481	8.879	999.00	0.0000E+00	0.1477E+01	-1.273	0
	2.859	1/2+	1	20.8946	6.286	0.00	0.1566E+00	0.0000E+00	0.000	0
	3.718	5/2+	2	0.0840	5.427	999.00	0.0000E+00	0.4773E+00	0.749	-0
	4.627	5/2+	3	0.1064	4.518	999.00	0.0000E+00	0.1512E+01	0.468	2
	4.913	3/2+	2	10.2146	4.232	-0.10	0.2484E+00	0.2052E+01	1.799	-0
	5.528	3/2+	3	3.7639	3.617	-0.10	0.1465E+00	0.1756E+01	-1.047	-1
	5.962	1/2+	2	8.6772	3.183	0.00	0.5010E+00	0.0000E+00	0.000	0
	6.739	3/2+	4	0.8276	2.406	-0.00	0.1106E+00	0.1363E-03	-0.196	0
	7.070	1/2+	3	0.9555	2.075	0.00	0.1991E+00	0.0000E+00	0.000	0
	7.285	5/2+	4	0.0009	1.860	999.00	0.0000E+00	0.1128E+01	0.650	1
	7.845	3/2+	5	0.2128	1.300	-0.04	0.1800E+00	0.2982E+01	-1.001	-2

	7.908	5/2+	5	0.0003	1.237	999.00	0.0000E+00	0.2346E+01	-0.574	-3
	8.152	5/2+	6	0.0013	0.993	999.00	0.0000E+00	0.3665E+02	-4.682	-4
	8.698	5/2+	7	0.0000	0.447	999.00	0.0000E+00	0.2062E+00	0.706	-0
	8.746	3/2+	6	0.0792	0.399	-0.00	0.2322E+01	0.4994E+00	0.342	1
	8.790	5/2+	8	0.0000	0.355	999.00	0.0000E+00	0.5692E+00	-0.479	-0
	8.942	3/2+	7	0.0060	0.203	0.00	0.1333E+01	0.1147E+02	-2.239	-3
	9.013	1/2+	4	0.0006	0.132	0.00	0.5090E+00	0.0000E+00	0.000	0
9.319	5/2+	9		0.000491	0.9290E+00		0.520	4.12	---	3.072 2
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	13.8889	9.319	-0.04	0.1374E-01	0.4213E-02	0.280	-0
	0.266	5/2+	1	61.5475	9.053	-0.09	0.6598E-01	0.9538E-01	0.993	-1
	1.756	7/2+	1	11.9826	7.563	0.02	0.2220E-01	0.2485E-02	0.496	-1
	2.831	9/2+	1	0.0245	6.488	999.00	0.0000E+00	0.2456E-01	-0.712	1
	2.859	1/2+	1	0.0002	6.460	999.00	0.0000E+00	0.2147E-03	-0.052	0
	3.718	5/2+	2	0.6547	5.601	-1.74	0.7408E-03	0.1029E+01	-1.660	-0
	4.627	5/2+	3	2.5725	4.692	0.38	0.1741E-01	0.1673E+01	1.819	1
	4.913	3/2+	2	0.3105	4.406	-0.36	0.2575E-02	0.2489E+00	-0.408	-1
	5.393	7/2+	2	0.0467	3.926	-2.89	0.6607E-04	0.5157E+00	-1.228	-0
	5.528	3/2+	3	1.9401	3.791	-0.15	0.2793E-01	0.6234E+00	-1.133	-0
	5.962	1/2+	2	0.0066	3.357	999.00	0.0000E+00	0.1772E+00	-0.391	-1
	6.115	9/2+	2	0.0004	3.204	999.00	0.0000E+00	0.1244E-01	-0.290	0
	6.168	7/2+	3	4.1066	3.151	-0.05	0.1050E+00	0.4374E+00	0.549	1
	6.255	9/2+	3	0.0006	3.064	999.00	0.0000E+00	0.2495E-01	0.811	-1
	6.739	3/2+	4	0.7775	2.580	0.17	0.3525E-01	0.2284E+01	-1.817	-2
	7.070	1/2+	3	0.0042	2.249	999.00	0.0000E+00	0.8348E+00	-1.026	-1
	7.076	7/2+	4	0.1592	2.243	-0.12	0.1115E-01	0.4609E+00	-1.317	0
	7.285	5/2+	4	0.1794	2.034	-0.12	0.1684E-01	0.8817E+00	0.736	2
	7.324	7/2+	5	0.4871	1.995	0.06	0.4903E-01	0.5922E+00	0.995	1
	7.795	9/2+	4	0.0022	1.524	999.00	0.0000E+00	0.3131E+01	-1.973	-3
	7.845	3/2+	5	1.2603	1.474	0.04	0.3151E+00	0.3259E+01	-2.239	-3
	7.908	5/2+	5	0.0102	1.411	1.54	0.8614E-03	0.1477E+02	4.882	6
	8.152	5/2+	6	0.0036	1.167	-0.38	0.1602E-02	0.2391E+01	-1.390	-4
	8.698	5/2+	7	0.0003	0.621	0.00	0.9744E-03	0.3337E-04	-0.015	0
	8.746	3/2+	6	0.0088	0.573	-0.01	0.3734E-01	0.2567E+00	0.607	0
	8.790	5/2+	8	0.0041	0.529	-0.01	0.2196E-01	0.6143E-01	-0.204	1
	8.942	3/2+	7	0.0179	0.377	0.00	0.2680E+00	0.5612E+00	0.965	1
	8.973	9/2+	5	0.0000	0.346	999.00	0.0000E+00	0.9110E+00	1.726	-0
	9.013	1/2+	4	0.0000	0.306	999.00	0.0000E+00	0.1220E+00	0.940	-0
	9.109	7/2+	6	0.0028	0.210	0.00	0.2388E+00	0.8103E+00	1.046	1
	9.139	7/2+	7	0.0000	0.180	-0.02	0.6344E-02	0.1575E+01	-2.456	0
	9.145	1/2+	5	0.0000	0.174	999.00	0.0000E+00	0.4328E-01	0.109	0
9.603	9/2+	6		0.000738	0.6179E+00		3.648	-8.66	---	-6.418 -6
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.266	5/2+	1	1.0622	9.337	999.00	0.0000E+00	0.1147E+00	0.776	0

1.756	7/2+	1	8.1406	7.847	3.20	0.7982E-03	0.1911E+01	2.635	1
2.831	9/2+	1	59.4787	6.772	0.04	0.1020E+00	0.4724E-01	-0.197	-0
3.718	5/2+	2	0.2508	5.885	999.00	0.0000E+00	0.2722E+00	0.902	0
4.627	5/2+	3	0.9527	4.976	999.00	0.0000E+00	0.2393E+01	-2.460	-3
5.393	7/2+	2	3.2631	4.210	0.10	0.2312E-01	0.1703E+00	0.797	0
6.115	9/2+	2	0.0120	3.488	-0.13	0.1485E-03	0.3179E-02	-0.265	0
6.168	7/2+	3	1.3308	3.435	-0.04	0.1749E-01	0.3152E-01	-0.386	-0
6.255	9/2+	3	18.6104	3.348	0.07	0.2631E+00	0.1846E+01	-2.759	-1
7.076	7/2+	4	0.9762	2.527	-0.09	0.3200E-01	0.6047E+00	1.234	1
7.285	5/2+	4	0.0998	2.318	999.00	0.0000E+00	0.1143E+02	5.696	6
7.324	7/2+	5	0.3876	2.279	0.09	0.1731E-01	0.4277E+00	1.702	-0
7.795	9/2+	4	5.3834	1.808	0.02	0.4858E+00	0.5513E+00	1.366	1
7.908	5/2+	5	0.0000	1.695	999.00	0.0000E+00	0.4550E-02	-0.252	0
8.152	5/2+	6	0.0075	1.451	999.00	0.0000E+00	0.8921E+01	-4.463	-7
8.698	5/2+	7	0.0000	0.905	999.00	0.0000E+00	0.3446E-03	-0.065	0
8.790	5/2+	8	0.0002	0.813	999.00	0.0000E+00	0.4425E+01	-3.496	-4
8.973	9/2+	5	0.0383	0.630	-0.01	0.8169E-01	0.3386E+00	-1.090	-0
9.109	7/2+	6	0.0040	0.494	-0.10	0.1742E-01	0.1024E+02	4.687	8
9.139	7/2+	7	0.0016	0.464	0.05	0.8750E-02	0.1462E+01	1.979	2
9.319	5/2+	9	0.0000	0.284	999.00	0.0000E+00	0.6448E-01	0.289	0
9.657	3/2+	8	0.000130	0.3505E+01	0.716	4.35	---	2.887	4

Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
0.000	3/2+	1	68.7825	9.657	-0.03	0.2309E+00	0.3353E-01	-0.042	-0
0.266	5/2+	1	1.9662	9.391	0.33	0.6496E-02	0.1120E+00	-0.437	-0
1.756	7/2+	1	0.0891	7.901	999.00	0.0000E+00	0.1258E+00	-0.784	0
2.859	1/2+	1	6.8652	6.798	0.04	0.6602E-01	0.3124E-01	0.266	-1
3.718	5/2+	2	15.9461	5.939	-0.02	0.2303E+00	0.3186E-01	0.804	-1
4.627	5/2+	3	0.0128	5.030	-0.48	0.2471E-03	0.3253E-01	-1.234	2
4.913	3/2+	2	0.7611	4.744	-0.46	0.1782E-01	0.2392E+01	-2.160	-0
5.393	7/2+	2	0.0004	4.264	999.00	0.0000E+00	0.1303E-01	0.258	-0
5.528	3/2+	3	1.2608	4.129	0.04	0.5413E-01	0.5859E-01	0.669	-0
5.962	1/2+	2	1.3081	3.695	-0.05	0.7823E-01	0.2396E+00	-0.538	-0
6.168	7/2+	3	0.0079	3.489	999.00	0.0000E+00	0.6602E+00	0.610	1
6.739	3/2+	4	1.6219	2.918	-0.02	0.1974E+00	0.1930E+00	-0.181	-1
7.070	1/2+	3	0.0042	2.587	-1.26	0.2853E-03	0.9771E+00	-0.916	-1
7.076	7/2+	4	0.0000	2.581	999.00	0.0000E+00	0.1350E-01	0.105	0
7.285	5/2+	4	0.2028	2.372	0.11	0.4539E-01	0.1508E+01	-0.711	-3
7.324	7/2+	5	0.0023	2.333	999.00	0.0000E+00	0.1465E+01	1.337	1
7.845	3/2+	5	0.9973	1.812	-0.06	0.5055E+00	0.7472E+01	2.982	3
7.908	5/2+	5	0.0964	1.749	-0.13	0.5364E-01	0.4070E+01	2.271	2
8.152	5/2+	6	0.0355	1.505	-0.16	0.3077E-01	0.4739E+01	-2.114	-3
8.698	5/2+	7	0.0178	0.959	-0.00	0.6106E-01	0.1211E-01	-0.242	0
8.746	3/2+	6	0.0089	0.911	-0.04	0.3542E-01	0.1115E+01	-1.168	-1
8.790	5/2+	8	0.0034	0.867	-0.14	0.1541E-01	0.5537E+01	-2.340	-3
8.942	3/2+	7	0.0031	0.715	0.12	0.2498E-01	0.9324E+01	3.342	3
9.013	1/2+	4	0.0013	0.644	-0.01	0.1485E-01	0.3491E-01	0.410	-0

	9.109	7/2+	6	0.0000	0.548	999.00	0.0000E+00	0.6113E+01	2.448	3
	9.139	7/2+	7	0.0000	0.518	999.00	0.0000E+00	0.2440E+01	1.849	1
	9.145	1/2+	5	0.0034	0.512	-0.04	0.7629E-01	0.6388E+01	2.546	3
	9.319	5/2+	9	0.0015	0.338	0.01	0.1206E+00	0.4597E+00	-0.404	-1
9.834	1/2+	6		0.000157	0.2911E+01	-0.060		0.00 ---	0.000	0
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	82.1421	9.834	-0.04	0.2167E+00	0.4348E-01	-0.230	0
	0.266	5/2+	1	0.0506	9.568	999.00	0.0000E+00	0.2279E-01	-0.310	0
	2.859	1/2+	1	0.1151	6.975	0.00	0.8524E-03	0.0000E+00	0.000	0
	3.718	5/2+	2	0.0089	6.116	999.00	0.0000E+00	0.3768E-01	-0.199	-0
	4.627	5/2+	3	0.2349	5.207	999.00	0.0000E+00	0.2216E+01	1.652	-0
	4.913	3/2+	2	3.7979	4.921	0.09	0.7940E-01	0.4044E+00	0.509	0
	5.528	3/2+	3	1.4646	4.306	-0.06	0.4593E-01	0.1256E+00	0.307	0
	5.962	1/2+	2	5.8853	3.872	0.00	0.2548E+00	0.0000E+00	0.000	0
	6.739	3/2+	4	0.3112	3.095	0.69	0.1782E-01	0.1283E+02	2.712	3
	7.070	1/2+	3	4.1891	2.764	0.00	0.4985E+00	0.0000E+00	0.000	0
	7.285	5/2+	4	0.0000	2.549	999.00	0.0000E+00	0.5377E-06	0.188	-0
	7.845	3/2+	5	1.6487	1.989	0.06	0.5243E+00	0.8012E+01	2.362	1
	7.908	5/2+	5	0.0020	1.926	999.00	0.0000E+00	0.2700E+01	1.039	2
	8.152	5/2+	6	0.0006	1.682	999.00	0.0000E+00	0.1653E+01	-0.522	-2
	8.698	5/2+	7	0.0000	1.136	999.00	0.0000E+00	0.1643E-01	-0.199	0
	8.746	3/2+	6	0.0154	1.088	-0.01	0.2996E-01	0.3118E-01	0.217	-0
	8.790	5/2+	8	0.0000	1.044	999.00	0.0000E+00	0.4394E+00	-0.460	-0
	8.942	3/2+	7	0.0164	0.892	0.03	0.5804E-01	0.8039E+00	0.523	1
	9.013	1/2+	4	0.0719	0.821	0.00	0.3264E+00	0.0000E+00	0.000	0
	9.145	1/2+	5	0.0450	0.689	0.00	0.3457E+00	0.0000E+00	0.000	0
	9.319	5/2+	9	0.0000	0.515	999.00	0.0000E+00	0.3274E+02	-4.555	-4
	9.657	3/2+	8	0.0003	0.177	-0.00	0.1394E+00	0.4361E+00	0.831	-0
9.871	7/2+	8		0.000311	0.1468E+01	2.840		-2.60 ---	-2.732	0
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	0.7406	9.871	999.00	0.0000E+00	0.1439E+00	-0.476	-0
	0.266	5/2+	1	44.4023	9.605	-0.07	0.6319E-01	0.5086E-01	-0.357	-0
	1.756	7/2+	1	7.0244	8.115	-0.09	0.1652E-01	0.3168E-01	0.494	-2
	2.831	9/2+	1	25.6574	7.040	0.02	0.9316E-01	0.1474E-01	-0.047	0
	3.718	5/2+	2	2.1595	6.153	-0.35	0.1046E-01	0.4891E+00	-1.868	1
	4.627	5/2+	3	5.8649	5.244	-0.14	0.5061E-01	0.4925E+00	-0.895	-1
	4.913	3/2+	2	0.2923	4.958	999.00	0.0000E+00	0.1777E+01	-2.256	-1
	5.393	7/2+	2	0.0684	4.478	-0.78	0.6024E-03	0.2599E+00	-0.894	-0
	5.528	3/2+	3	0.0109	4.343	999.00	0.0000E+00	0.1288E+00	-0.063	-2
	6.115	9/2+	2	1.0011	3.756	-0.45	0.1990E-01	0.4121E+01	-3.318	-2
	6.168	7/2+	3	7.4865	3.703	-0.05	0.1864E+00	0.5639E+00	-1.179	-1
	6.255	9/2+	3	0.2061	3.616	-0.19	0.5341E-02	0.2032E+00	-0.725	-0
	6.739	3/2+	4	0.0001	3.132	999.00	0.0000E+00	0.7351E-02	-0.292	0
	7.076	7/2+	4	0.2946	2.795	0.15	0.1673E-01	0.6886E+00	-1.353	-1

7.285	5/2+	4	0.7203	2.586	0.06	0.5259E-01	0.4522E+00	1.255	0
7.324	7/2+	5	0.1351	2.547	-0.14	0.1015E-01	0.4637E+00	0.745	2
7.795	9/2+	4	2.5289	2.076	0.00	0.3583E+00	0.2075E-01	-0.274	1
7.845	3/2+	5	0.0027	2.026	999.00	0.0000E+00	0.1448E+01	1.404	3
7.908	5/2+	5	0.0119	1.963	-0.47	0.1630E-02	0.1369E+01	1.955	1
8.152	5/2+	6	0.2164	1.719	-0.03	0.5392E-01	0.3204E+00	0.714	1
8.698	5/2+	7	1.1126	1.173	-0.00	0.8738E+00	0.8431E-02	0.285	-0
8.746	3/2+	6	0.0000	1.125	999.00	0.0000E+00	0.6478E-03	0.241	-0
8.790	5/2+	8	0.0084	1.081	0.11	0.8359E-02	0.1183E+01	1.011	3
8.942	3/2+	7	0.0001	0.929	999.00	0.0000E+00	0.1732E+01	1.927	2
8.973	9/2+	5	0.0210	0.898	-0.10	0.3644E-01	0.5908E+01	3.491	4
9.109	7/2+	6	0.0269	0.762	-0.01	0.7713E-01	0.1189E+00	-0.221	-1
9.139	7/2+	7	0.0028	0.732	-0.12	0.8911E-02	0.3358E+01	-2.190	-4
9.319	5/2+	9	0.0032	0.552	0.05	0.2387E-01	0.3194E+01	2.821	2
9.603	9/2+	6	0.0006	0.268	0.02	0.3834E-01	0.2511E+01	2.430	2
9.657	3/2+	8	0.0000	0.214	999.00	0.0000E+00	0.1762E+01	2.726	0
9.888	5/2+	10	0.000208	0.2194E+01		0.463	-0.20 ---	-0.256	0
Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
0.000	3/2+	1	4.4507	9.888	0.12	0.8596E-02	0.1814E-01	-0.165	1
0.266	5/2+	1	43.0914	9.622	0.18	0.8877E-01	0.4417E+00	0.732	1
1.756	7/2+	1	4.2698	8.132	0.34	0.1344E-01	0.3466E+00	0.818	0
2.831	9/2+	1	0.1023	7.057	999.00	0.0000E+00	0.1591E+00	0.988	-0
2.859	1/2+	1	0.0373	7.029	999.00	0.0000E+00	0.5918E-01	0.415	0
3.718	5/2+	2	5.5752	6.170	-0.08	0.4463E-01	0.1209E+00	0.425	0
4.627	5/2+	3	0.5140	5.261	0.06	0.6660E-02	0.1327E-01	0.469	-2
4.913	3/2+	2	0.6209	4.975	0.05	0.9528E-02	0.1318E-01	-0.301	0
5.393	7/2+	2	3.0499	4.495	0.06	0.6335E-01	0.1827E+00	-0.720	-0
5.528	3/2+	3	0.6982	4.360	-0.03	0.1594E-01	0.7783E-02	0.449	-1
5.962	1/2+	2	0.0004	3.926	999.00	0.0000E+00	0.1058E-01	-0.319	0
6.115	9/2+	2	0.0414	3.773	999.00	0.0000E+00	0.1474E+01	1.114	3
6.168	7/2+	3	35.4278	3.720	-0.02	0.1303E+01	0.5122E+00	-0.684	-1
6.255	9/2+	3	0.0025	3.633	999.00	0.0000E+00	0.1082E+00	0.433	0
6.739	3/2+	4	0.0455	3.149	57.85	0.8236E-06	0.3994E+01	-2.801	-2
7.070	1/2+	3	0.0374	2.818	999.00	0.0000E+00	0.5727E+01	-2.714	-4
7.076	7/2+	4	0.0037	2.812	-1.30	0.1189E-03	0.3626E+00	0.411	2
7.285	5/2+	4	0.8152	2.603	-0.03	0.8748E-01	0.1276E+00	0.696	-0
7.324	7/2+	5	0.0870	2.564	-0.18	0.9449E-02	0.7052E+00	1.170	1
7.795	9/2+	4	0.0012	2.093	999.00	0.0000E+00	0.7994E+00	1.229	1
7.845	3/2+	5	0.2470	2.043	-0.03	0.5482E-01	0.1276E+00	-0.051	2
7.908	5/2+	5	0.2641	1.980	0.01	0.6444E-01	0.1081E-01	0.133	-0
8.152	5/2+	6	0.2849	1.736	0.02	0.1031E+00	0.1664E+00	0.421	0
8.698	5/2+	7	0.0647	1.190	-0.01	0.7275E-01	0.7562E-01	0.740	-0
8.746	3/2+	6	0.0005	1.142	0.50	0.5158E-03	0.1422E+01	1.531	1
8.790	5/2+	8	0.0483	1.098	-0.03	0.6902E-01	0.7569E+00	1.142	1
8.942	3/2+	7	0.0028	0.946	0.10	0.6118E-02	0.1031E+01	-1.297	-1
8.973	9/2+	5	0.0001	0.915	999.00	0.0000E+00	0.3450E+01	-2.899	-1

	9.013	1/2+	4	0.0000	0.875	999.00	0.0000E+00	0.1128E-01	-0.286	0	
	9.109	7/2+	6	0.2097	0.779	0.01	0.8400E+00	0.1400E+01	-1.108	-3	
	9.139	7/2+	7	0.0041	0.749	-0.07	0.1825E-01	0.2053E+01	1.494	3	
	9.145	1/2+	5	0.0000	0.743	999.00	0.0000E+00	0.1618E+01	-2.062	-0	
	9.319	5/2+	9	0.0010	0.569	-0.01	0.9825E-02	0.6581E-01	-0.585	0	
	9.603	9/2+	6	0.0000	0.285	999.00	0.0000E+00	0.1211E+01	1.896	0	
	9.657	3/2+	8	0.0010	0.231	0.01	0.1516E+00	0.1511E+01	-2.148	-0	
	9.834	1/2+	6	0.0000	0.054	999.00	0.0000E+00	0.1335E+01	-1.567	-1	
	9.871	7/2+	8	0.0000	0.017	-0.00	0.6002E-01	0.1040E+02	-4.359	-4	
10.176	7/2+	9		0.000813	0.5610E+00		2.314	-7.30	---	-5.813	-3
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)			
	0.000	3/2+	1	0.1234	10.176	999.00	0.0000E+00	0.7869E-02	-0.025	-0	
	0.266	5/2+	1	50.8792	9.910	0.09	0.2513E-01	0.2667E-01	0.219	0	
	1.756	7/2+	1	0.6076	8.420	-2.06	0.9426E-04	0.8078E-01	0.727	-0	
	2.831	9/2+	1	24.0620	7.345	0.01	0.2940E-01	0.4086E-03	-0.356	1	
	3.718	5/2+	2	0.9327	6.458	-0.55	0.1285E-02	0.1349E+00	-0.510	-0	
	4.627	5/2+	3	1.6340	5.549	0.48	0.3763E-02	0.4050E+00	0.978	1	
	4.913	3/2+	2	1.4271	5.263	999.00	0.0000E+00	0.2459E+01	2.446	2	
	5.393	7/2+	2	0.8803	4.783	0.13	0.3828E-02	0.4252E-01	-0.888	1	
	5.528	3/2+	3	0.3746	4.648	999.00	0.0000E+00	0.1201E+01	2.086	0	
	6.115	9/2+	2	1.4823	4.061	0.01	0.1072E-01	0.1030E-02	0.460	-1	
	6.168	7/2+	3	0.4156	4.008	-2.15	0.5561E-03	0.2298E+01	-2.256	-2	
	6.255	9/2+	3	4.4770	3.921	-0.06	0.3583E-01	0.1228E+00	-1.084	1	
	6.739	3/2+	4	0.5054	3.437	999.00	0.0000E+00	0.7331E+01	4.471	3	
	7.076	7/2+	4	1.6729	3.100	-0.04	0.2716E-01	0.5442E-01	0.629	-0	
	7.285	5/2+	4	0.9073	2.891	0.13	0.1789E-01	0.5040E+00	0.959	1	
	7.324	7/2+	5	4.0815	2.852	-0.10	0.8438E-01	0.1448E+01	1.820	2	
	7.795	9/2+	4	3.0188	2.381	0.05	0.1080E+00	0.7638E+00	1.067	2	
	7.845	3/2+	5	0.0202	2.331	999.00	0.0000E+00	0.2046E+01	2.111	2	
	7.908	5/2+	5	0.3105	2.268	0.03	0.1288E-01	0.2753E-01	0.148	0	
	8.152	5/2+	6	0.1934	2.024	-0.12	0.1112E-01	0.6017E+00	-0.815	-2	
	8.698	5/2+	7	1.0965	1.478	0.00	0.1645E+00	0.7638E-02	0.272	-0	
	8.746	3/2+	6	0.0037	1.430	999.00	0.0000E+00	0.4323E+01	2.856	4	
	8.790	5/2+	8	0.1759	1.386	0.00	0.3199E-01	0.7617E-03	0.532	-1	
	8.942	3/2+	7	0.0001	1.234	999.00	0.0000E+00	0.1776E+00	-1.125	0	
	8.973	9/2+	5	0.3338	1.203	-0.05	0.9256E-01	0.2778E+01	2.203	3	
	9.109	7/2+	6	0.0820	1.067	0.00	0.3269E-01	0.5592E-02	-0.272	0	
	9.139	7/2+	7	0.0504	1.037	-0.03	0.2187E-01	0.2019E+00	-1.030	0	
	9.319	5/2+	9	0.0167	0.857	0.08	0.1274E-01	0.1648E+01	1.359	3	
	9.603	9/2+	6	0.2129	0.573	0.00	0.5481E+00	0.2657E+00	0.203	2	
	9.657	3/2+	8	0.0000	0.519	999.00	0.0000E+00	0.1399E+00	0.675	0	
	9.871	7/2+	8	0.0050	0.305	-0.02	0.8557E-01	0.4091E+01	2.768	4	
	9.888	5/2+	10	0.0170	0.288	-0.01	0.3436E+00	0.3058E+01	-3.282	-1	
10.345	9/2+	7		0.000576	0.7925E+00		1.876	-7.04	---	-5.702	-3

Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
0.266	5/2+	1	3.3648	10.079	999.00	0.0000E+00	0.3179E+00	1.030	0
1.756	7/2+	1	1.7909	8.589	0.79	0.1190E-02	0.1447E+00	-1.074	0
2.831	9/2+	1	49.9698	7.514	-0.08	0.8012E-01	0.1151E+00	1.009	-0
3.718	5/2+	2	1.2099	6.627	999.00	0.0000E+00	0.9302E+00	-1.805	-1
4.627	5/2+	3	3.1046	5.718	999.00	0.0000E+00	0.4991E+01	-4.077	-3
5.393	7/2+	2	25.1232	4.952	-0.34	0.1266E+00	0.8765E+01	5.187	5
6.115	9/2+	2	0.2130	4.230	-0.03	0.1924E-02	0.1313E-02	-0.309	1
6.168	7/2+	3	0.0601	4.177	1.33	0.2048E-03	0.2962E+00	1.340	-0
6.255	9/2+	3	0.3031	4.090	0.06	0.3021E-02	0.8248E-02	1.152	-4
7.076	7/2+	4	2.5997	3.269	-0.04	0.5082E-01	0.1117E+00	-0.451	-0
7.285	5/2+	4	0.0296	3.060	999.00	0.0000E+00	0.1083E+01	-1.538	-2
7.324	7/2+	5	3.2798	3.021	-0.20	0.7823E-01	0.4942E+01	-3.575	-4
7.795	9/2+	4	8.5921	2.550	-0.03	0.3542E+00	0.6022E+00	1.688	0
7.908	5/2+	5	0.0425	2.437	999.00	0.0000E+00	0.4857E+01	3.460	5
8.152	5/2+	6	0.0007	2.193	999.00	0.0000E+00	0.1266E+00	-0.840	0
8.698	5/2+	7	0.0000	1.647	999.00	0.0000E+00	0.1249E-01	0.388	-0
8.790	5/2+	8	0.0071	1.555	999.00	0.0000E+00	0.7686E+01	-5.307	-3
8.973	9/2+	5	0.1181	1.372	0.19	0.3015E-01	0.8567E+01	4.385	7
9.109	7/2+	6	0.1603	1.236	-0.07	0.5781E-01	0.2380E+01	-2.420	-3
9.139	7/2+	7	0.0011	1.206	-0.19	0.4328E-03	0.1467E+00	-0.305	-1
9.319	5/2+	9	0.0001	1.026	999.00	0.0000E+00	0.6843E+00	-0.873	-3
9.603	9/2+	6	0.0267	0.742	-0.03	0.4473E-01	0.1168E+01	-1.788	-2
9.871	7/2+	8	0.0029	0.474	-0.07	0.1845E-01	0.6584E+01	3.810	6
9.888	5/2+	10	0.0000	0.457	999.00	0.0000E+00	0.1354E+01	-1.647	-3
10.176	7/2+	9	0.0000	0.169	-0.47	0.3651E-05	0.4036E+00	-1.424	-0

10.365 3/2+ 9 0.000302 0.1511E+01 1.810 6.20 --- 4.855 4

Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
0.000	3/2+	1	22.8789	10.365	-0.15	0.2623E-01	0.7532E-01	-0.182	-0
0.266	5/2+	1	1.3756	10.099	-0.26	0.1627E-02	0.1609E-01	-0.069	0
1.756	7/2+	1	0.2119	8.609	999.00	0.0000E+00	0.8396E-01	-0.697	0
2.859	1/2+	1	0.1901	7.506	0.24	0.5553E-03	0.7894E-02	-0.109	-0
3.718	5/2+	2	41.0471	6.647	-0.01	0.1822E+00	0.2320E-02	0.007	0
4.627	5/2+	3	9.0083	5.738	0.11	0.6148E-01	0.3042E+00	-1.178	1
4.913	3/2+	2	5.6596	5.452	-0.08	0.4522E-01	0.1539E+00	0.607	-0
5.393	7/2+	2	0.0023	4.972	999.00	0.0000E+00	0.1414E-01	0.500	-0
5.528	3/2+	3	0.3279	4.837	1.63	0.1037E-02	0.1684E+01	1.499	1
5.962	1/2+	2	0.0413	4.403	0.03	0.6298E-03	0.3031E-03	-0.033	0
6.168	7/2+	3	0.0085	4.197	999.00	0.0000E+00	0.1229E+00	0.103	-1
6.739	3/2+	4	4.7502	3.626	-0.15	0.1271E+00	0.3057E+01	2.886	-0
7.070	1/2+	3	0.1277	3.295	-0.44	0.3906E-02	0.9900E+00	-0.980	-1
7.076	7/2+	4	0.0009	3.289	999.00	0.0000E+00	0.4469E-01	0.089	0
7.285	5/2+	4	9.0341	3.080	-0.06	0.4020E+00	0.1850E+01	1.956	0
7.324	7/2+	5	0.0047	3.041	999.00	0.0000E+00	0.3370E+00	0.284	1
7.845	3/2+	5	0.5587	2.520	0.13	0.4473E-01	0.1794E+01	1.686	0
7.908	5/2+	5	1.4875	2.457	0.08	0.1299E+00	0.2089E+01	-1.475	-1

	8.152	5/2+	6	1.5662	2.213	0.05	0.1879E+00	0.1653E+01	1.371	1
	8.698	5/2+	7	0.3321	1.667	-0.03	0.9339E-01	0.5170E+00	1.579	-1
	8.746	3/2+	6	0.1657	1.619	-0.04	0.5083E-01	0.5558E+00	-0.858	-0
	8.790	5/2+	8	0.0507	1.575	0.09	0.1678E-01	0.8163E+00	-0.821	-1
	8.942	3/2+	7	0.0001	1.423	0.51	0.4754E-04	0.8877E-01	-0.142	1
	9.013	1/2+	4	0.6072	1.352	0.00	0.3204E+00	0.1409E-01	-0.257	0
	9.109	7/2+	6	0.0000	1.256	999.00	0.0000E+00	0.7200E-04	-0.037	0
	9.139	7/2+	7	0.0006	1.226	999.00	0.0000E+00	0.4153E+01	-1.845	-3
	9.145	1/2+	5	0.0380	1.220	-0.07	0.2716E-01	0.1290E+01	1.187	1
	9.319	5/2+	9	0.5006	1.046	0.02	0.5700E+00	0.4582E+01	-2.930	-0
	9.657	3/2+	8	0.0041	0.708	-0.02	0.1493E-01	0.1009E+00	-0.485	0
	9.834	1/2+	6	0.0137	0.531	-0.04	0.1189E+00	0.9622E+01	-3.229	-4
	9.871	7/2+	8	0.0000	0.494	999.00	0.0000E+00	0.2596E-04	-0.208	0
	9.888	5/2+	10	0.0055	0.477	-0.02	0.6546E-01	0.1957E+01	-1.467	-1
	10.176	7/2+	9	0.0000	0.189	999.00	0.0000E+00	0.4284E+00	-0.815	-0
10.420	1/2+	7		0.000148	0.3081E+01	-0.318		0.00 ---	0.000	0
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	64.7124	10.420	0.10	0.1507E+00	0.1857E+00	-0.356	-0
	0.266	5/2+	1	1.2470	10.154	999.00	0.0000E+00	0.4413E+00	0.692	-0
	2.859	1/2+	1	4.0999	7.561	0.00	0.2522E-01	0.0000E+00	0.000	0
	3.718	5/2+	2	0.4754	6.702	999.00	0.0000E+00	0.1343E+01	-1.432	0
	4.627	5/2+	3	0.0089	5.793	999.00	0.0000E+00	0.5197E-01	-0.307	0
	4.913	3/2+	2	0.1618	5.507	0.67	0.1784E-02	0.3754E+00	0.171	1
	5.528	3/2+	3	6.3993	4.892	-0.03	0.1452E+00	0.8866E-01	-0.528	0
	5.962	1/2+	2	2.3077	4.458	0.00	0.6927E-01	0.0000E+00	0.000	0
	6.739	3/2+	4	10.8472	3.681	-0.03	0.5778E+00	0.5534E+00	-0.751	-0
	7.070	1/2+	3	0.3079	3.350	0.00	0.2178E-01	0.0000E+00	0.000	0
	7.285	5/2+	4	0.0000	3.135	999.00	0.0000E+00	0.1837E-02	0.529	-1
	7.845	3/2+	5	4.9633	2.575	0.05	0.7713E+00	0.3779E+01	-1.454	-1
	7.908	5/2+	5	0.0013	2.512	999.00	0.0000E+00	0.5030E+00	-0.874	0
	8.152	5/2+	6	0.0026	2.268	999.00	0.0000E+00	0.1671E+01	1.108	0
	8.698	5/2+	7	0.0003	1.722	999.00	0.0000E+00	0.7750E+00	-1.368	1
	8.746	3/2+	6	0.5853	1.674	-0.05	0.3310E+00	0.4237E+01	-1.563	-1
	8.790	5/2+	8	0.0057	1.630	999.00	0.0000E+00	0.1907E+02	3.421	3
	8.942	3/2+	7	0.7132	1.478	0.04	0.5864E+00	0.6552E+01	-1.690	-2
	9.013	1/2+	4	2.9441	1.407	0.00	0.2811E+01	0.0000E+00	0.000	0
	9.145	1/2+	5	0.0941	1.275	0.00	0.1207E+00	0.0000E+00	0.000	0
	9.319	5/2+	9	0.0001	1.101	999.00	0.0000E+00	0.1566E+01	-0.926	-1
	9.657	3/2+	8	0.1213	0.763	0.01	0.7260E+00	0.3650E+01	1.329	1
	9.834	1/2+	6	0.0011	0.586	0.00	0.1479E-01	0.0000E+00	0.000	0
	9.888	5/2+	10	0.0000	0.532	999.00	0.0000E+00	0.2367E+01	-1.654	0
	10.365	3/2+	9	0.0000	0.055	-0.00	0.1202E+00	0.1760E+01	-1.209	-0
10.448	9/2+	8		0.000096	0.4730E+01	2.783		-14.99 ---	-10.398	-13
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		

0.266	5/2+	1	0.1176	10.182	999.00	0.0000E+00	0.6304E-01	-0.873	0
1.756	7/2+	1	7.9311	8.692	0.16	0.4807E-01	0.2365E+00	-1.691	1
2.831	9/2+	1	85.5718	7.617	0.03	0.7896E+00	0.2384E+00	1.697	-1
3.718	5/2+	2	0.0006	6.730	999.00	0.0000E+00	0.2509E-02	0.174	-0
4.627	5/2+	3	0.0085	5.821	999.00	0.0000E+00	0.7458E-01	-0.949	0
5.393	7/2+	2	0.6456	5.055	0.05	0.2036E-01	0.2721E-01	0.573	-0
6.115	9/2+	2	1.7512	4.333	0.00	0.8789E-01	0.9480E-04	0.034	-0
6.168	7/2+	3	1.6112	4.280	0.01	0.8389E-01	0.1308E-01	0.397	-0
6.255	9/2+	3	0.3990	4.193	0.03	0.2207E-01	0.2156E-01	-0.510	0
7.076	7/2+	4	0.3262	3.372	0.01	0.3473E-01	0.6300E-02	0.276	-0
7.285	5/2+	4	0.0000	3.163	999.00	0.0000E+00	0.5389E-03	0.081	-0
7.324	7/2+	5	0.7693	3.124	0.00	0.1030E+00	0.8945E-03	0.104	-0
7.795	9/2+	4	0.0260	2.653	-0.02	0.5674E-02	0.4293E-02	-0.228	0
7.908	5/2+	5	0.0002	2.540	999.00	0.0000E+00	0.1316E+00	1.261	-1
8.152	5/2+	6	0.0001	2.296	999.00	0.0000E+00	0.6550E-01	-0.889	0
8.698	5/2+	7	0.0076	1.750	999.00	0.0000E+00	0.2719E+02	-8.144	-12
8.790	5/2+	8	0.0001	1.658	999.00	0.0000E+00	0.2897E+00	1.870	-1
8.973	9/2+	5	0.3947	1.475	0.00	0.5022E+00	0.4946E-01	0.773	-0
9.109	7/2+	6	0.3996	1.339	-0.00	0.6796E+00	0.8981E-01	1.041	-1
9.139	7/2+	7	0.0008	1.309	-0.10	0.1457E-02	0.1130E+00	1.169	-1
9.319	5/2+	9	0.0000	1.129	999.00	0.0000E+00	0.6967E-01	-0.917	0
9.603	9/2+	6	0.0331	0.845	-0.01	0.2238E+00	0.2509E+00	-1.741	1
9.871	7/2+	8	0.0014	0.577	-0.01	0.3057E-01	0.1109E+00	1.157	-1
9.888	5/2+	10	0.0000	0.560	999.00	0.0000E+00	0.3236E+00	-1.977	1
10.176	7/2+	9	0.0041	0.272	-0.00	0.8341E+00	0.2319E-01	-0.529	0
10.345	9/2+	7	0.0000	0.103	-0.00	0.1348E+00	0.8050E-01	0.986	-0

10.502 3/2+ 10 0.000057 0.7968E+01 0.893 -1.64 --- -1.604 -0

Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
0.000	3/2+	1	45.1966	10.502	0.06	0.2673E+00	0.1432E+00	0.832	-0
0.266	5/2+	1	11.6107	10.236	-0.20	0.7161E-01	0.3913E+00	-1.376	1
1.756	7/2+	1	0.3389	8.746	999.00	0.0000E+00	0.6545E+00	1.778	-1
2.859	1/2+	1	0.8323	7.643	-0.12	0.1265E-01	0.4349E-01	-0.458	0
3.718	5/2+	2	28.4487	6.784	0.02	0.6265E+00	0.7981E-01	-0.621	0
4.627	5/2+	3	0.4313	5.875	-0.07	0.1456E-01	0.3040E-01	0.383	-0
4.913	3/2+	2	0.8462	5.589	-0.14	0.3274E-01	0.2746E+00	1.150	-1
5.393	7/2+	2	0.0080	5.109	999.00	0.0000E+00	0.2280E+00	1.049	-1
5.528	3/2+	3	0.1777	4.974	0.16	0.9673E-02	0.1503E+00	-0.854	0
5.962	1/2+	2	1.6482	4.540	0.02	0.1211E+00	0.3265E-01	-0.399	0
6.168	7/2+	3	0.0039	4.334	999.00	0.0000E+00	0.2500E+00	-1.098	1
6.739	3/2+	4	1.0798	3.763	0.02	0.1394E+00	0.3531E-01	0.413	-0
7.070	1/2+	3	5.2544	3.432	-0.01	0.8940E+00	0.7579E-01	0.608	-0
7.076	7/2+	4	0.0001	3.426	999.00	0.0000E+00	0.1212E-01	0.243	-0
7.285	5/2+	4	0.8290	3.217	0.03	0.1711E+00	0.2804E+00	1.161	-1
7.324	7/2+	5	0.0005	3.178	999.00	0.0000E+00	0.1466E+00	-0.841	0
7.845	3/2+	5	0.8604	2.657	-0.03	0.3153E+00	0.4290E+00	1.440	-1
7.908	5/2+	5	0.6454	2.594	-0.04	0.2540E+00	0.6914E+00	-1.827	1

8.152	5/2+	6	1.2688	2.350	-0.01	0.6724E+00	0.1069E+00	0.724	-0
8.698	5/2+	7	0.2082	1.804	0.09	0.2421E+00	0.8317E+01	-2.522	-5
8.746	3/2+	6	0.0037	1.756	-0.02	0.4692E-02	0.1271E-01	0.249	-0
8.790	5/2+	8	0.0684	1.712	-0.01	0.9379E-01	0.4884E-01	-0.485	0
8.942	3/2+	7	0.0449	1.560	-0.00	0.8131E-01	0.6806E-04	0.020	-0
9.013	1/2+	4	0.0532	1.489	-0.19	0.1070E+00	0.2535E+02	5.259	6
9.109	7/2+	6	0.0000	1.393	999.00	0.0000E+00	0.4389E+00	-1.459	1
9.139	7/2+	7	0.0000	1.363	999.00	0.0000E+00	0.2751E+00	-1.152	1
9.145	1/2+	5	0.1241	1.357	0.01	0.3416E+00	0.7412E-01	-0.600	0
9.319	5/2+	9	0.0007	1.183	0.10	0.2688E-02	0.2965E+00	1.195	-1
9.657	3/2+	8	0.0008	0.845	0.04	0.8770E-02	0.3075E+00	1.221	-1
9.834	1/2+	6	0.0104	0.668	-0.01	0.2394E+00	0.2678E+00	-1.138	1
9.871	7/2+	8	0.0000	0.631	999.00	0.0000E+00	0.1017E+00	0.695	-0
9.888	5/2+	10	0.0047	0.614	0.01	0.1403E+00	0.5860E+00	1.684	-1
10.176	7/2+	9	0.0000	0.326	999.00	0.0000E+00	0.1231E+00	-0.768	0
10.365	3/2+	9	0.0000	0.137	0.00	0.7277E-01	0.4610E+00	-1.500	1
10.420	1/2+	7	0.0000	0.082	0.00	0.2727E-01	0.1490E+00	-0.850	0

10.589 1/2+ 8 0.000573 0.7956E+00 -0.026 0.00 --- 0.000 0

Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
0.000	3/2+	1	16.4866	10.589	-0.00	0.9536E-02	0.3039E-04	-0.010	0
0.266	5/2+	1	3.9452	10.323	999.00	0.0000E+00	0.3320E+00	-0.673	0
2.859	1/2+	1	1.8901	7.730	0.00	0.2810E-02	0.0000E+00	0.000	0
3.718	5/2+	2	1.0069	6.871	999.00	0.0000E+00	0.6487E+00	-0.811	-0
4.627	5/2+	3	0.8913	5.962	999.00	0.0000E+00	0.1167E+01	1.302	-0
4.913	3/2+	2	18.6579	5.676	-0.06	0.6983E-01	0.1093E+00	-0.484	0
5.528	3/2+	3	16.3722	5.061	-0.20	0.8352E-01	0.1805E+01	1.109	0
5.962	1/2+	2	2.9516	4.627	0.00	0.2046E-01	0.0000E+00	0.000	0
6.739	3/2+	4	23.9247	3.850	-0.12	0.2839E+00	0.3912E+01	-2.237	0
7.070	1/2+	3	4.9527	3.519	0.00	0.7805E-01	0.0000E+00	0.000	0
7.285	5/2+	4	0.0006	3.304	999.00	0.0000E+00	0.1581E-01	0.770	-1
7.845	3/2+	5	1.3490	2.744	-0.16	0.4366E-01	0.2251E+01	-1.692	0
7.908	5/2+	5	0.0258	2.681	999.00	0.0000E+00	0.1836E+01	-0.742	-2
8.152	5/2+	6	0.0025	2.437	999.00	0.0000E+00	0.2922E+00	0.337	0
8.698	5/2+	7	0.0007	1.891	999.00	0.0000E+00	0.2825E+00	0.826	-0
8.746	3/2+	6	2.3535	1.843	0.00	0.2582E+00	0.2971E-02	-0.075	0
8.790	5/2+	8	0.0074	1.799	999.00	0.0000E+00	0.3886E+01	-1.155	-2
8.942	3/2+	7	0.0252	1.647	-0.95	0.2029E-02	0.9768E+01	2.924	0
9.013	1/2+	4	3.8747	1.576	0.00	0.6798E+00	0.0000E+00	0.000	0
9.145	1/2+	5	0.1244	1.444	0.00	0.2837E-01	0.0000E+00	0.000	0
9.319	5/2+	9	0.0005	1.270	999.00	0.0000E+00	0.1516E+01	-1.252	-0
9.657	3/2+	8	0.6452	0.932	0.02	0.5471E+00	0.4087E+01	-1.739	-1
9.834	1/2+	6	0.5046	0.755	0.00	0.8052E+00	0.0000E+00	0.000	0
9.888	5/2+	10	0.0000	0.701	999.00	0.0000E+00	0.2153E+01	1.576	-0
10.365	3/2+	9	0.0025	0.224	-0.00	0.1531E+00	0.2849E-01	-0.161	1
10.420	1/2+	7	0.0041	0.169	0.00	0.5897E+00	0.0000E+00	0.000	0
10.502	3/2+	10	0.0000	0.087	0.00	0.3992E-02	0.1157E+00	0.526	-0

10.648	7/2+	10	0.000427	0.1069E+01	1.903	-2.01	---	-1.205	-2
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Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
0.000	3/2+	1	0.5805	10.648	999.00	0.0000E+00	0.5621E-01	-0.528	0
0.266	5/2+	1	8.2563	10.382	0.20	0.6555E-02	0.3362E-01	-0.303	-0
1.756	7/2+	1	25.7569	8.892	0.03	0.3376E-01	0.7260E-02	-0.383	0
2.831	9/2+	1	33.9907	7.817	0.02	0.6563E-01	0.5935E-02	-0.197	0
3.718	5/2+	2	8.4369	6.930	-0.16	0.2281E-01	0.1726E+00	-0.662	-0
4.627	5/2+	3	5.9650	6.021	0.27	0.2356E-01	0.6572E+00	-1.787	0
4.913	3/2+	2	0.0008	5.735	999.00	0.0000E+00	0.1812E-02	-0.139	0
5.393	7/2+	2	3.1913	5.255	-0.16	0.1981E-01	0.2496E+00	-1.087	0
5.528	3/2+	3	0.0556	5.120	999.00	0.0000E+00	0.2093E+00	0.296	1
6.115	9/2+	2	0.8084	4.533	0.14	0.7856E-02	0.1057E+00	-0.533	-0
6.168	7/2+	3	0.7774	4.480	0.04	0.7963E-02	0.9821E-02	0.001	0
6.255	9/2+	3	0.1279	4.393	-1.29	0.5202E-03	0.6487E+00	1.463	0
6.739	3/2+	4	0.2624	3.909	999.00	0.0000E+00	0.3810E+01	-3.074	-2
7.076	7/2+	4	1.0563	3.572	-0.04	0.2134E-01	0.4751E-01	0.842	-1
7.285	5/2+	4	2.1224	3.363	-0.24	0.4877E-01	0.3455E+01	-2.836	-3
7.324	7/2+	5	2.6550	3.324	0.03	0.6663E-01	0.8738E-01	-0.082	-1
7.795	9/2+	4	1.0889	2.853	-0.03	0.4323E-01	0.5028E-01	-0.120	1
7.845	3/2+	5	0.0001	2.803	999.00	0.0000E+00	0.8509E-02	0.391	-0
7.908	5/2+	5	0.1273	2.740	-0.20	0.5497E-02	0.4073E+00	0.517	2
8.152	5/2+	6	0.8172	2.496	-0.14	0.4757E-01	0.2110E+01	-1.945	-3
8.698	5/2+	7	2.0947	1.950	0.00	0.2606E+00	0.8205E-03	0.089	-0
8.746	3/2+	6	0.0165	1.902	999.00	0.0000E+00	0.8791E+01	4.573	4
8.790	5/2+	8	0.0589	1.858	-0.05	0.8457E-02	0.7970E-01	0.192	-2
8.942	3/2+	7	0.0019	1.706	999.00	0.0000E+00	0.1780E+01	-1.663	-3
8.973	9/2+	5	1.0156	1.675	0.00	0.1994E+00	0.2271E-01	-0.695	3
9.109	7/2+	6	0.1876	1.539	-0.09	0.4712E-01	0.2139E+01	-2.263	-2
9.139	7/2+	7	0.3863	1.509	0.01	0.1037E+00	0.1243E+00	-0.266	-1
9.319	5/2+	9	0.0297	1.329	-0.00	0.1167E-01	0.5989E-05	0.357	-1
9.603	9/2+	6	0.0841	1.045	0.01	0.6799E-01	0.8946E-01	-0.649	0
9.657	3/2+	8	0.0002	0.991	999.00	0.0000E+00	0.3424E+01	2.243	4
9.871	7/2+	8	0.0065	0.777	-0.13	0.1254E-01	0.4844E+01	2.654	5
9.888	5/2+	10	0.0043	0.760	0.10	0.9052E-02	0.2133E+01	2.216	2
10.176	7/2+	9	0.0341	0.472	0.01	0.2992E+00	0.2753E+01	2.050	4
10.345	9/2+	7	0.0023	0.303	-0.01	0.7498E-01	0.2241E+01	1.863	3
10.365	3/2+	9	0.0000	0.283	999.00	0.0000E+00	0.4915E+00	-1.375	-0
10.448	9/2+	8	0.0000	0.200	0.07	0.6624E-04	0.1102E+00	-1.031	1
10.502	3/2+	10	0.0000	0.146	999.00	0.0000E+00	0.7892E-01	0.880	-0

10.857	9/2+	9	0.000481	0.9475E+00	1.557	-4.80	---	-3.702	-3
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Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
0.266	5/2+	1	1.1180	10.591	999.00	0.0000E+00	0.9859E-01	-0.164	-1
1.756	7/2+	1	34.3934	9.101	0.15	0.3654E-01	0.1343E+00	-0.163	-2
2.831	9/2+	1	24.5447	8.026	0.02	0.3881E-01	0.3549E-02	0.168	-0

	3.718	5/2+	2	0.4081	7.139	999.00	0.0000E+00	0.2586E+00	0.575	1	
	4.627	5/2+	3	0.1994	6.230	999.00	0.0000E+00	0.2496E+00	-0.933	-0	
	5.393	7/2+	2	10.3014	5.464	0.15	0.5044E-01	0.5823E+00	1.651	0	
	6.115	9/2+	2	0.8764	4.742	-0.22	0.6421E-02	0.1921E+00	-0.683	-1	
	6.168	7/2+	3	4.6145	4.689	-0.42	0.3107E-01	0.3619E+01	2.339	6	
	6.255	9/2+	3	19.2689	4.602	-0.06	0.1610E+00	0.4503E+00	0.621	2	
	7.076	7/2+	4	2.0636	3.781	0.07	0.3109E-01	0.1341E+00	-1.190	1	
	7.285	5/2+	4	0.2845	3.572	999.00	0.0000E+00	0.5749E+01	-3.822	-5	
	7.324	7/2+	5	0.1237	3.533	0.18	0.2220E-02	0.8455E-01	0.273	1	
	7.795	9/2+	4	0.6557	3.062	-0.14	0.1830E-01	0.5827E+00	-0.386	-4	
	7.908	5/2+	5	0.2045	2.949	999.00	0.0000E+00	0.1077E+02	-5.317	-6	
	8.152	5/2+	6	0.0341	2.705	999.00	0.0000E+00	0.2767E+01	-2.872	-3	
	8.698	5/2+	7	0.0000	2.159	999.00	0.0000E+00	0.1266E-02	0.124	-0	
	8.790	5/2+	8	0.0049	2.067	999.00	0.0000E+00	0.1528E+01	1.952	2	
	8.973	9/2+	5	0.5106	1.884	0.03	0.6238E-01	0.2914E+00	1.074	0	
	9.109	7/2+	6	0.0065	1.748	0.19	0.9641E-03	0.1595E+00	0.557	1	
	9.139	7/2+	7	0.3245	1.718	-0.01	0.5233E-01	0.3281E-01	0.355	0	
	9.319	5/2+	9	0.0001	1.538	999.00	0.0000E+00	0.1831E+00	1.122	-0	
	9.603	9/2+	6	0.0443	1.254	-0.02	0.1838E-01	0.8645E-01	-0.426	-0	
	9.871	7/2+	8	0.0003	0.986	-0.70	0.1956E-03	0.1416E+01	-2.528	-0	
	9.888	5/2+	10	0.0001	0.969	999.00	0.0000E+00	0.1730E+01	2.781	0	
	10.176	7/2+	9	0.0073	0.681	-0.08	0.1871E-01	0.3993E+01	-3.096	-4	
	10.345	9/2+	7	0.0072	0.512	-0.00	0.4388E-01	0.5379E-01	1.088	-1	
	10.448	9/2+	8	0.0029	0.409	0.00	0.3495E-01	0.2773E-01	-0.579	0	
	10.648	7/2+	10	0.0002	0.209	-0.03	0.2065E-01	0.7249E+01	5.064	3	
11.561	9/2+	10		0.000327	0.1393E+01		1.642	-2.00	---	-1.227	-2
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)			
	0.266	5/2+	1	0.3453	11.295	999.00	0.0000E+00	0.3244E-01	-0.551	0	
	1.756	7/2+	1	24.6485	9.805	0.04	0.3139E-01	0.6315E-02	-0.558	1	
	2.831	9/2+	1	33.6555	8.730	0.14	0.5961E-01	0.2259E+00	-0.604	-1	
	3.718	5/2+	2	0.1834	7.843	999.00	0.0000E+00	0.1067E+00	-0.775	0	
	4.627	5/2+	3	0.0000	6.934	999.00	0.0000E+00	0.3218E-04	0.065	-0	
	5.393	7/2+	2	5.3355	6.168	0.09	0.2709E-01	0.9174E-01	-0.883	0	
	6.115	9/2+	2	10.5865	5.446	0.15	0.7695E-01	0.8946E+00	-1.056	-3	
	6.168	7/2+	3	16.9611	5.393	-0.02	0.1300E+00	0.1950E-01	0.616	-0	
	6.255	9/2+	3	0.0153	5.306	-1.11	0.5485E-04	0.3476E-01	1.552	-3	
	7.076	7/2+	4	5.5210	4.485	-0.15	0.7205E-01	0.1089E+01	-1.068	-4	
	7.285	5/2+	4	0.0393	4.276	999.00	0.0000E+00	0.4744E+00	1.226	1	
	7.324	7/2+	5	0.8842	4.237	0.66	0.9747E-02	0.3384E+01	-3.236	-3	
	7.795	9/2+	4	0.2595	3.766	0.20	0.5622E-02	0.2229E+00	1.530	-1	
	7.908	5/2+	5	0.1210	3.653	999.00	0.0000E+00	0.3211E+01	3.325	2	
	8.152	5/2+	6	0.0475	3.409	999.00	0.0000E+00	0.1781E+01	1.958	3	
	8.698	5/2+	7	0.0004	2.863	999.00	0.0000E+00	0.3341E-01	-0.636	0	
	8.790	5/2+	8	0.0441	2.771	999.00	0.0000E+00	0.4666E+01	-2.850	-6	
	8.973	9/2+	5	0.6623	2.588	-0.10	0.4550E-01	0.9486E+00	2.322	-0	
	9.109	7/2+	6	0.0937	2.452	-0.29	0.7054E-02	0.1404E+01	1.906	2	

	9.139	7/2+	7	0.0162	2.422	0.41	0.1177E-02	0.4774E+00	1.214	1
	9.319	5/2+	9	0.0005	2.242	999.00	0.0000E+00	0.1378E+00	-0.227	-1
	9.603	9/2+	6	0.4107	1.958	-0.03	0.6571E-01	0.2487E+00	-0.804	-1
	9.871	7/2+	8	0.0701	1.690	-0.07	0.1736E-01	0.4452E+00	1.060	1
	9.888	5/2+	10	0.0001	1.673	999.00	0.0000E+00	0.1940E+00	-1.434	1
	10.176	7/2+	9	0.0468	1.385	0.10	0.2099E-01	0.1570E+01	-2.194	-2
	10.345	9/2+	7	0.0055	1.216	0.08	0.3679E-02	0.2307E+00	0.406	2
	10.448	9/2+	8	0.0287	1.113	0.02	0.2505E-01	0.1149E+00	-1.177	1
	10.648	7/2+	10	0.0000	0.913	0.42	0.1176E-05	0.3557E-02	-0.166	0
	10.857	9/2+	9	0.0173	0.704	-0.07	0.5915E-01	0.9278E+01	5.503	4
12.713	1/2+	9		0.000112	0.4087E+01		0.333	0.00 ---	0.000	0
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	14.3469	12.713	-0.06	0.2455E-01	0.7320E-02	-0.133	0
	0.266	5/2+	1	0.4341	12.447	999.00	0.0000E+00	0.7365E-01	-0.422	0
	2.859	1/2+	1	10.9138	9.854	0.00	0.4024E-01	0.0000E+00	0.000	0
	3.718	5/2+	2	0.3601	8.995	999.00	0.0000E+00	0.3100E+00	0.865	-0
	4.627	5/2+	3	0.1468	8.086	999.00	0.0000E+00	0.2152E+00	0.721	-0
	4.913	3/2+	2	2.6112	7.800	0.05	0.1937E-01	0.1143E-01	-0.166	0
	5.528	3/2+	3	10.6234	7.185	0.10	0.9995E-01	0.3062E+00	0.860	-0
	5.962	1/2+	2	8.1337	6.751	0.00	0.9327E-01	0.0000E+00	0.000	0
	6.739	3/2+	4	0.2574	5.974	3.29	0.3599E-03	0.1570E+01	-1.947	1
	7.070	1/2+	3	19.0054	5.643	0.00	0.3732E+00	0.0000E+00	0.000	0
	7.285	5/2+	4	0.0025	5.428	999.00	0.0000E+00	0.2707E-01	-0.256	0
	7.845	3/2+	5	1.6916	4.868	-0.10	0.5120E-01	0.3246E+00	0.885	-0
	7.908	5/2+	5	0.0066	4.805	999.00	0.0000E+00	0.1308E+00	-0.562	0
	8.152	5/2+	6	0.0014	4.561	999.00	0.0000E+00	0.3650E-01	-0.297	0
	8.698	5/2+	7	0.0975	4.015	999.00	0.0000E+00	0.4737E+01	2.021	0
	8.746	3/2+	6	6.7031	3.967	-0.01	0.3788E+00	0.2352E-01	-0.238	0
	8.790	5/2+	8	0.0247	3.923	999.00	0.0000E+00	0.1346E+01	-1.803	1
	8.942	3/2+	7	3.6547	3.771	-0.05	0.2399E+00	0.5418E+00	1.144	-1
	9.013	1/2+	4	0.3181	3.700	0.00	0.2216E-01	0.0000E+00	0.000	0
	9.145	1/2+	5	9.1771	3.568	0.00	0.7128E+00	0.0000E+00	0.000	0
	9.319	5/2+	9	0.0001	3.394	999.00	0.0000E+00	0.1613E-01	0.197	-0
	9.657	3/2+	8	8.7758	3.056	0.00	0.1085E+01	0.8978E-02	0.147	-0
	9.834	1/2+	6	0.0777	2.879	0.00	0.1149E-01	0.0000E+00	0.000	0
	9.888	5/2+	10	0.0006	2.825	999.00	0.0000E+00	0.1801E+00	0.659	-0
	10.365	3/2+	9	0.0121	2.348	-0.08	0.3275E-02	0.6045E-01	-0.385	0
	10.420	1/2+	7	1.7637	2.293	0.00	0.5161E+00	0.0000E+00	0.000	0
	10.502	3/2+	10	0.8590	2.211	-0.07	0.2789E+00	0.4337E+01	1.749	1
	10.589	1/2+	8	0.0008	2.124	0.00	0.2811E-03	0.0000E+00	0.000	0
13.167	1/2+	10		0.000341	0.1338E+01		-0.470	0.00 ---	0.000	0
	Ef	Jf	nf	BR	Eg	del	B(1)	B(2)		
	0.000	3/2+	1	11.1409	13.167	0.06	0.5618E-02	0.1584E-02	0.081	-0
	0.266	5/2+	1	0.1439	12.901	999.00	0.0000E+00	0.6682E-02	0.105	-0

2.859	1/2+	1	18.1213	10.308	0.00	0.1911E-01	0.0000E+00	0.000	0
3.718	5/2+	2	0.0323	9.449	999.00	0.0000E+00	0.7116E-02	0.014	0
4.627	5/2+	3	0.0668	8.540	999.00	0.0000E+00	0.2440E-01	0.165	-0
4.913	3/2+	2	18.3369	8.254	0.20	0.3623E-01	0.3016E+00	0.549	0
5.528	3/2+	3	1.1055	7.639	1.03	0.1391E-02	0.3627E+00	-0.593	-0
5.962	1/2+	2	3.6966	7.205	0.00	0.1142E-01	0.0000E+00	0.000	0
6.739	3/2+	4	3.2311	6.428	0.25	0.1325E-01	0.2780E+00	0.388	0
7.070	1/2+	3	3.7230	6.097	0.00	0.1897E-01	0.0000E+00	0.000	0
7.285	5/2+	4	0.0024	5.882	999.00	0.0000E+00	0.5650E-02	-0.190	0
7.845	3/2+	5	6.2789	5.322	0.07	0.4786E-01	0.1259E+00	-0.155	-0
7.908	5/2+	5	0.0794	5.259	999.00	0.0000E+00	0.3274E+00	0.946	-1
8.152	5/2+	6	0.0197	5.015	999.00	0.0000E+00	0.1031E+00	-0.134	1
8.698	5/2+	7	0.0095	4.469	999.00	0.0000E+00	0.8824E-01	0.461	-0
8.746	3/2+	6	9.2352	4.421	0.02	0.1234E+00	0.3128E-01	-0.073	-0
8.790	5/2+	8	0.2689	4.377	999.00	0.0000E+00	0.2778E+01	1.416	0
8.942	3/2+	7	3.6475	4.225	0.22	0.5324E-01	0.2114E+01	1.121	1
9.013	1/2+	4	2.5292	4.154	0.00	0.4076E-01	0.0000E+00	0.000	0
9.145	1/2+	5	0.1488	4.022	0.00	0.2642E-02	0.0000E+00	0.000	0
9.319	5/2+	9	0.0048	3.848	999.00	0.0000E+00	0.9387E-01	-0.369	0
9.657	3/2+	8	0.1187	3.510	-0.24	0.2991E-02	0.2089E+00	-0.133	-1
9.834	1/2+	6	0.0090	3.333	0.00	0.2799E-03	0.0000E+00	0.000	0
9.888	5/2+	10	0.0038	3.279	999.00	0.0000E+00	0.1642E+00	-0.377	-0
10.365	3/2+	9	0.5290	2.802	-0.03	0.2775E-01	0.3900E-01	-0.042	0
10.420	1/2+	7	3.9753	2.747	0.00	0.2215E+00	0.0000E+00	0.000	0
10.502	3/2+	10	11.0070	2.665	0.01	0.6716E+00	0.1259E+00	-0.552	0
10.589	1/2+	8	2.4326	2.578	0.00	0.1640E+00	0.0000E+00	0.000	0
12.713	1/2+	9	0.1021	0.454	0.00	0.1261E+01	0.0000E+00	0.000	0

0.1.5 HW14 question 7

How to the calculated lifetimes of the first 5 levels compare to experiment?

Initial Jpi	Calculated $T_{1/2}$	Experiment $T_{1/2}$ NNDC
5/2+	13.837 ps	7.13 ps
7/2+	35.299 fs	52 fs
9/2+	44.556 fs	40 fs
1/2+	4.236 fs	5.5 fs
5/2+	0.786 fs	<10 fs

Experiment theory are in reasonable agreement

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