

Decay for spin conserved transitions

Hybrid spin 0

Hybrid nL_J	E MeV	Charm n'L'	E' MeV	Decay Δ MeV	Δ (Δ)	C^2	INT<irf> 1/GeV	Δ/m	<H r S>Δ E	<H r S> GeV	<f r f> GeV	ΔcalV/m	ΔGamma MeV	errorE	alpha	multip	cornell	rel.1	rel.2	d(G%)	error	
2p_0S	4917	1S1s	3068	1849	0.30	0.33	0.51	1.26	0.54	0.29		2.06	1.00	37	0.25	0.32	0.007	0.67	0.099	0.12	0.80	29
3p_0S	5315	1S1s	3068	2247	0.28	0.33	0.20	1.53	0.26	0.12		2.06	1.27	9	0.21	0.29	0.002	0.55	0.146	0.16	0.69	6
		2S2s	3674	1641	0.32	0.33	0.51	1.12	0.48	0.29		3.84	1.38	27	0.28	0.35	0.006	1.46	0.078	0.17	1.54	41
		1D1d	3762	1553	0.32	0.67	-0.16	1.06	0.21	0.13		4.05	1.41	5	0.30	0.36	0.001	1.63	0.070	0.18	1.70	8
Hybrid		Bottom		Decay																		
2p_0S	11261	1S1s	9551	1710	0.31	0.33	0.47	0.35	0.46	0.27		1.21	0.19	25	0.08	0.34	0.005	0.41	0.008	0.02	0.54	13
3p_0S	11525	1S1s	9551	1974	0.29	0.33	0.25	0.40	0.29	0.15		1.21	0.24	11	0.07	0.31	0.002	0.35	0.010	0.03	0.48	5
		2S2s	10017	1508	0.33	0.33	0.61	0.31	0.53	0.35		2.45	0.26	31	0.09	0.37	0.007	0.99	0.006	0.03	1.06	33
		1D1d	10106	1419	0.34	0.67	-0.30	0.29	0.35	0.24		2.62	0.27	13	0.10	0.39	0.001	1.13	0.005	0.03	1.20	15

Hybrid nL_J	E/(E) MeV	Charm n'L'	E' MeV	Decay Δ MeV	a (Δ)	C^2	INT<irf> 1/GeV	Δ/m	<H r S>Δ E	<H r S> GeV	<f r f> GeV	calV/m	Gamma MeV										
														errorE	alpha	multip	cornell	rel.1	rel.2	d G%	error		
\$2p_1\$	4556	\$1s\$	3068	1488	0.330	0.333	0.816	1.012	<b>0.701</b>	0.471		2.06	0.750	<b>54</b>	0.31	0.37	0.012	0.83	0.064	0.09	0.97	<b>52</b>	
\$3p_1\$	4912	\$1s\$	3068	1844	0.300	0.333	0.396	1.254	<b>0.422</b>	0.229		2.06	0.992	<b>22</b>	0.25	0.32	0.004	0.67	0.098	0.12	0.80	<b>18</b>	
		\$2s\$	3674	1238	0.361	0.333	0.988	0.842	<b>0.707</b>	0.571		3.84	1.107	<b>50</b>	0.38	0.44	0.012	<b>1.93</b>	0.044	0.14	<b>2.02</b>	<b>100</b>	
		\$1d\$	3762	1150	0.375	0.667	-0.462	0.782	<b>0.434</b>	0.377		4.05	1.134	<b>18</b>	0.41	0.47	0.002	<b>2.20</b>	0.038	0.14	<b>2.29</b>	<b>41</b>	
Hybrid		Bottom		Decay																			
\$1p_1\$	10772	\$1s\$	9551	1221	0.364	0.333	1.027	0.250	<b>0.724</b>	0.593		1.21	0.155	<b>52</b>	0.11	0.44	0.013	0.57	0.004	0.02	0.73	<b>38</b>	
\$2p_1\$	10995	\$1s\$	9551	1444	0.334	0.333	0.659	0.296	<b>0.550</b>	0.381		1.21	0.256	<b>32</b>	0.10	0.38	0.008	0.48	0.005	0.03	0.62	<b>20</b>	
		\$2s\$	10017	978	0.412	0.333	0.459	0.200	0.259	0.265		2.45	0.413	<b>6</b>	0.14	0.57	0.002	<b>1.53</b>	0.003	0.05	<b>1.64</b>	<b>10</b>	
\$3p_1\$		\$1d\$	10106	889	0.438	0.667	-0.175	0.182	0.127	0.143		2.62	0.595	<b>14</b>	0.16	0.65	0.000	<b>1.81</b>	0.002	0.07	<b>1.93</b>	<b>27</b>	
	11209	\$1s\$	9551	1658	0.314	0.333	0.412	0.340	<b>0.394</b>	0.238		1.21	0.384	<b>18</b>	0.08	0.35	0.004	0.42	0.007	0.05	0.55	<b>10</b>	
		\$2s\$	10017	1192	0.368	0.333	0.605	0.244	0.416	0.349		2.45	0.408	<b>17</b>	0.12	0.45	0.004	<b>1.25</b>	0.004	0.05	<b>1.34</b>	<b>23</b>	
		\$3s\$	10355	854	0.450	0.333	0.123	0.175	0.061	0.071		3.43	1.039	<b>0.3</b>	0.16	0.70	0.000	<b>2.49</b>	0.002	0.13	<b>2.60</b>	<b>0.8</b>	
		\$1d\$	10106	1103	0.384	0.667	-0.285	0.226	0.256	0.232		2.62	0.502	<b>6</b>	0.13	0.49	0.001	<b>1.46</b>	0.003	0.06	<b>1.54</b>	<b>10</b>	

Hybrid nL_J	E/(E)	Bottom n'L'	E' MeV	Decay \\D E MeV	\\a \\D E	C+	C-	INT+<irf> 1/GeV	INT-<irf> 1/GeV	\\Delta/m	<H r S>\\D E	<H r S> GeV	<f r f> GeV	\\calV/m	\\Gamma MeV	errorE	alpha	multip	cornell	rel.1	rel.2	d\\G%	error
\$2(s/d)_1\$	10905	\$1p\$	9879	1026	0.400	0.4	1.0	0.680	0.022	0.214	0.464	0.452	1.985	0.130	18	0.14	0.53	0.004	<b>1.17</b>	0.003	0.02	<b>1.29</b>	<b>23</b>
\$2(s/d)_1\$	10885	\$1p\$	9899	986	0.410	0.4	1.0	0.680	0.022	0.205	0.446	0.452	1.985	0.130	16	<b>0.00</b>	0.56	0.004	<b>1.21</b>	0.003	0.02	<b>1.34</b>	<b>22</b>
\$3(s/d)_1\$	11103	\$1p\$	9879	1224	0.363	0.4	1.0	1.485	-0.194	0.255	0.911	0.745	1.985	0.170	136	0.11	0.44	0.021	0.98	0.004	0.02	<b>1.08</b>	<b>147</b>
\$3(s/d)_1\$	11100	\$1p\$	9899	1201	0.367	0.4	1.0	1.485	-0.194	0.250	0.894	0.745	1.985	0.174	130	<b>0.00</b>	0.45	0.020	<b>1.00</b>	0.004	0.02	<b>1.09</b>	<b>142</b>
\$3(s/d)_1\$	11103	\$2p\$	10234	869	0.444	0.4	1.0	-0.924	0.938	0.181	0.307	0.353	3.030	0.188	79	0.16	0.68	0.000	<b>2.15</b>	0.002	0.02	<b>2.26</b>	<b>179</b>
\$3(s/d)_1\$	11000	\$2p\$	10260	740	0.499	0.4	1.0	-0.924	0.938	0.154	0.262	0.353	3.030	0.172	55	<b>0.00</b>	0.67	0.000	<b>2.53</b>	0.001	0.02	<b>2.62</b>	<b>143</b>

Decay for spin flipped transitions

Hybrid spin 0

Hybrid nL_J	E/(E) MeV	Charm n'L'	E' MeV	Decay D E MeV	$\backslash a \backslash (D E)$	K^*2	INT< i f > 1/GeV	INT< i r f >	< H S > \ D E / m	< i   r   f > \ D E	< i r f > GeV	< r f > GeV	\calV/m	\Gamma MeV	errorE	alpha	multip	cornell	rel.1	rel.2	d\G%	error
\$2p_05	4917	\$1p5	3457	1460	0.333	3	0.135	-0.562	0.233	0.820	0.562	3.141	1.074	6	0.32	0.38	0.028	1.33	0.062	0.22	1.44	8
\$3p_05	5315	\$1p5	3457	1858	0.299	3	0.050	-0.202	0.109	0.375	0.202	3.141	1.345	1.5	0.25	0.32	0.006	1.05	0.100	0.28	1.16	1.7
	\$2p5		3958	1357	0.345	3	0.113	-0.908	0.181	1.233	0.908	4.658	1.447	3	0.34	0.40	0.063	2.15	0.053	0.30	2.24	8
Hybrid		Bottom		Decay																		
\$2p_05	11261	\$1p5	9879	1382	0.341	3	0.242	-0.056	0.119	0.078	0.056	1.985	0.203	1.5	0.10	0.40	0.000	0.87	0.005	0.04	0.96	1.4
\$3p_05	11525	\$1p5	9879	1646	0.315	3	0.110	-0.112	0.064	0.185	0.112	1.985	0.257	0.5	0.09	0.35	0.001	0.73	0.007	0.05	0.81	0.4
	\$2p5		10234	1291	0.353	3	0.295	0.051	0.135	0.066	0.051	3.030	0.275	2	0.11	0.42	0.000	1.45	0.004	0.06	1.51	2.8

Hybrid nL_J	E/(E) MeV	Charm n'L'	E' MeV	Decay D E MeV	$\backslash a \backslash (D E)$	K^*2	INT< i f > 1/GeV	INT< i r f >	< H S > \ D E / m	< i   r   f > \ D E	< i r f > GeV	< r f > GeV	\calV/m	\Gamma MeV	errorE	alpha	multip	cornell	rel.1	rel.2	d\G%	error
\$2p_15	4556	\$1p5	3457	1099	0.385	3	0.291	0.118	0.376	0.129	0.118	3.141	0.829	13	0.42	0.49	0.001	1.77	0.035	0.17	1.89	25
\$3p_15	4912	\$1p5	3457	1455	0.333	3	0.124	-0.123	0.213	0.178	0.123	3.141	1.071	5	0.32	0.38	0.001	1.33	0.061	0.22	1.44	7
	\$2p5		3958	954	0.418	3	0.326	0.314	0.366	0.300	0.314	4.658	1.173	12	0.49	0.59	0.004	3.06	0.026	0.24	3.16	38
Hybrid		Bottom		Decay																		
\$1p_15	10772	\$1p5	9879	893	0.436	3	0.847	2.029	0.269	1.812	2.029	3.141	0.042	6	0.16	0.65	0.137	2.17	0.002	0.01	2.28	14
\$2p_15	10995	\$1p5	9879	1116	0.382	3	0.438	0.553	0.173	0.617	0.553	3.141	0.088	3	0.13	0.48	0.016	1.74	0.003	0.02	1.81	5
\$3p_15	11209	\$1p5	9879	1330	0.348	3	0.235	0.126	0.111	0.168	0.126	3.141	0.132	1.3	0.11	0.41	0.001	1.46	0.005	0.03	1.52	1.9
	\$2p5		10234	975	0.413	3	0.441	0.838	0.153	0.818	0.838	4.658	0.133	2.1	0.14	0.57	0.028	3.00	0.002	0.03	3.05	6.4

Hybrid nL_J	E/(E) MeV	Charm n'L'	E' MeV	Decay D E MeV	$\backslash a \backslash (D E)$	K^*2	INT< i f > 1/GeV	INT< i r f > 1/GeV	INT< i r f >+	INT< i r f >-	< H S > \ D E / m	< i   r   f > \ D E	< i r f > GeV	< r f > GeV	\calV/m	\Gamma MeV	errorE	alpha	multip	cornell	rel.1	rel.2	d\G%	error
\$2(s/d)_15	4394	\$1s5	3068	1326	0.35	3		-0.36		-0.25	0.56	0.33	0.246	2.06	0.640	33	0.35	0.41	0.004	0.94	0.051	0.13	1.09	36
\$2(s/d)_15	4374	\$1s5	3097	1277	0.36	3		-0.36		-0.25	0.54	0.31	0.246	2.06	0.646	30	0.00	0.42	0.004	0.97	0.047	0.13	1.07	32
\$2(s/d)_15	4415	\$1s5	3097	1318	0.35	3		-0.36		-0.25	0.56	0.32	0.246	2.06	0.674	32	0.00	0.41	0.004	0.94	0.050	0.14	1.04	33
\$3(s/d)_15	4678	\$1s5	3068	1610	0.32	3		-0.03		-0.35	0.05	0.57	0.354	2.06	0.833	0.3	0.29	0.35	0.014	0.77	0.075	0.17	0.92	0.31
\$3(s/d)_15	4623	\$1s5	3097	1526	0.33	3		-0.03		-0.35	0.05	0.54	0.354	2.06	0.816	0.3	0.00	0.37	0.012	0.81	0.067	0.17	0.91	0.27
	\$2s5		3674	1004	0.41	3		0.40		1.89	0.48	1.90	1.891	3.84	0.948	21	0.46	0.55	0.150	2.38	0.029	0.20	2.50	52
Hybrid		Bottom		Decay																				
\$1(s/d)_15	10704	\$1s5	9551	1153	0.37	3		-0.77		-1.24	0.32	1.43	1.238	1.21	0.071	10	0.12	0.47	0.085	0.60	0.003	0.01	0.78	7
\$1(s/d)_15	10753	\$1s5	9460	1293	0.35	3		-0.77		-1.24	0.36	1.60	1.238	1.21	0.063	13	0.00	0.42	0.107	0.54	0.004	0.01	0.69	9
\$2(s/d)_15	10905	\$1s5	9551	1354	0.34	3		-0.49		-0.48	0.24	0.65	0.481	1.21	0.112	6	0.10	0.40	0.018	0.51	0.005	0.02	0.66	4
\$2(s/d)_15	10885	\$1s5	9460	1425	0.34	3		-0.49		-0.48	0.25	0.69	0.481	1.21	0.090	7	0.00	0.39	0.020	0.49	0.005	0.02	0.62	4
	\$2s5		10017	888	0.44	3		-0.41		-1.23	0.13	1.09	1.232	2.45	0.133	1	0.16	0.65	0.050	1.68	0.002	0.03	1.81	2.6
\$3(s/d)_15	11103	\$1s5	9551	1552	0.32	3		-0.18		-0.17	0.10	0.26	0.167	1.21	0.153	1	0.09	0.36	0.003	0.45	0.006	0.03	0.58	0.6
\$3(s/d)_15	11000	\$1s5	9460	1540	0.32	3		-0.18		-0.17	0.10	0.26	0.167	1.21	0.113	1	0.00	0.36	0.003	0.45	0.006	0.02	0.58	0.6
	\$2s5		10017	888	0.44	3		-0.02		0.28	0.01	0.25	0.277	2.45	0.133	0.005	0.16	0.65	0.003	1.68	0.002	0.03	1.81	0.008
	\$1d5		10106	799	0.47	3	0.70		1.79		0.20	1.43	1.789	2.62	0.142	3	0.18	0.72	0.085	2.01	0.002	0.03	2.14	7

Decay for spin flipped transitions

Hybrid spin 1

Hybrid nL_J	E/[E] MeV	Charm n'L'	E' MeV	Decay D E MeV	$\langle a \rangle \langle D E \rangle$	$K^2$	INT<irf> 1/GeV	int<irf>	$\langle H S \rangle \langle D E \rangle / m$	$\langle i r f \rangle \langle D E \rangle$	$\langle i r f \rangle$ GeV	$\langle f r f \rangle$ GeV	$\langle calV \rangle / m$	$\langle Gamma \rangle$ MeV	errorE	alpha	multipl	cornell	rel.1	rel.2	d\G%	error
\$2p_0\$	4917	\$1p\$	3457	1460	0.333	1	0.135	-0.562	0.135	0.820	0.562	3.141	1.074	2.0	0.32	0.38	0.028	1.33	0.062	0.22	1.44	3
\$3p_0\$	5315	\$1p\$	3457	1858	0.299	1	0.050	-0.202	0.063	0.375	0.202	3.141	1.345	0.5	0.25	0.32	0.006	1.05	0.100	0.28	1.16	0.6
		\$2p\$	3958	1357	0.345	1	0.113	-0.908	0.105	1.233	0.908	4.658	1.447	1.1	0.34	0.40	0.063	2.15	0.053	0.30	2.24	3
Hybrid Bottom				Decay																		
\$2p_0\$	11261	\$1p\$	9879	1382	0.341	1	0.242	-0.056	0.069	0.078	0.056	1.985	0.203	0.5	0.10	0.40	0.000	0.87	0.005	0.04	0.96	0.5
\$3p_0\$	11525	\$1p\$	9879	1646	0.315	1	0.110	-0.112	0.037	0.185	0.112	1.985	0.257	0.2	0.09	0.35	0.001	0.73	0.007	0.05	0.81	0.1
		\$2p\$	10234	1291	0.353	1	0.295	0.051	0.078	0.066	0.051	3.030	0.275	0.6	0.11	0.42	0.000	1.45	0.004	0.06	1.51	0.9

Hybrid nL_J	E/[E] MeV	Charm n'L'	E' MeV	Decay D E MeV	$\langle a \rangle \langle D E \rangle$	$K^2$	INT<irf> 1/GeV	int<irf>	$\langle H S \rangle \langle D E \rangle / m$	$\langle i r f \rangle \langle D E \rangle$	$\langle i r f \rangle$ GeV	$\langle f r f \rangle$ GeV	$\langle calV \rangle / m$	$\langle Gamma \rangle$ MeV	errorE	alpha	multipl	cornell	rel.1	rel.2	d\G%	error
\$1p_1\$	4171	\$1p\$	3457	714	0.513	1	0.944	3.318	0.459	2.369	3.318	3.141	0.567	17	0.65	0.65	0.234	2.72	0.015	0.12	2.88	49
\$2p_1\$	4556	\$1p\$	3457	1099	0.385	1	0.291	0.118	0.217	0.129	0.118	3.141	0.829	4	0.42	0.49	0.001	1.77	0.035	0.17	1.89	8
\$3p_1\$	4912	\$1p\$	3457	1455	0.333	1	0.124	-0.123	0.123	0.178	0.123	3.141	1.071	1.6	0.32	0.38	0.001	1.33	0.061	0.22	1.44	2.3
		\$2p\$	3958	954	0.418	1	0.326	0.314	0.211	0.300	0.314	4.658	1.173	4	0.49	0.59	0.004	3.06	0.026	0.24	3.16	13
Hybrid	Bottom			Decay																		
\$1p_1\$	10772	\$1p\$	9879	893	0.436	1	0.847	2.029	0.155	1.812	2.029	1.985	0.102	2.1	0.16	0.65	0.137	1.34	0.002	0.02	1.50	3.1
\$2p_1\$	10995	\$1p\$	9879	1116	0.382	1	0.438	0.553	0.100	0.617	0.553	1.985	0.148	0.9	0.13	0.48	0.016	1.07	0.003	0.03	1.18	1.1
\$3p_1\$	11209	\$1p\$	9879	1330	0.348	1	0.235	0.126	0.064	0.168	0.126	1.985	0.192	0.4	0.11	0.41	0.001	0.90	0.005	0.04	0.99	0.4
		\$2p\$	10234	975	0.413	1	0.441	0.838	0.088	0.818	0.838	3.030	0.210	0.7	0.14	0.57	0.028	1.92	0.002	0.04	2.01	1.4

Hybrid nL_J	E/[E] MeV	Charm n'L'	E' MeV	Decay D E MeV	$\langle a \rangle \langle D E \rangle$	$K^2$	INT<+cfr> 1/GeV	INT<-cfr> 1/GeV	int<irf>+	int<irf>-	$\langle H S \rangle \langle D E \rangle / m$	$\langle i r f \rangle \langle D E \rangle / m$	$\langle i r f \rangle$ GeV	$\langle f r f \rangle$ GeV	$\langle calV \rangle / m$	$\langle Gamma \rangle$ MeV	errorE	alpha	multipl	cornell	rel.1	rel.2	d\G%	error
\$2(s/d)_1\$	4394	\$1s\$	3068	1326	0.35	1		-0.36		-0.25	0.33	0.33	0.246	2.06	0.640	11	0.35	0.41	0.004	0.94	0.051	0.13	1.08	12
\$2(s/d)_1\$	4351	\$1s\$	2984	1367	0.34	1		-0.36		-0.25	0.34	0.34	0.246	2.06	0.554	12	0.00	0.40	0.005	0.91	0.054	0.12	0.99	12
\$3(s/d)_1\$	4678	\$1s\$	3068	1610	0.32	1		-0.03		-0.35	0.03	0.57	0.354	2.06	0.833	0.11	0.29	0.35	0.014	0.77	0.075	0.17	0.90	0.10
\$3(s/d)_1\$	4626	\$1s\$	2984	1642	0.32	1		-0.03		-0.35	0.03	0.58	0.354	2.06	0.741	0.12	0.00	0.35	0.014	0.76	0.078	0.15	0.83	0.10
		\$2s\$	3674	1004	0.41	1		0.40		1.89	0.28	1.90	1.891	3.84	0.948	7	0.46	0.55	0.150	2.38	0.029	0.20	2.49	17
Hybrid Bottom				Decay																				
\$1(s/d)_1\$	10704	\$1s\$	9551	1153	0.375	1		-0.774		-1.238	0.183	1.428	1.238	1.21	0.071	3.2	0.12	0.47	0.085	0.60	0.003	0.01	0.78	2.5
\$2(s/d)_1\$	10905	\$1s\$	9551	1354	0.345	1		-0.489		-0.481	0.136	0.651	0.481	1.21	0.112	2	0.10	0.40	0.018	0.51	0.005	0.02	0.66	1
		\$2s\$	10017	888	0.438	1		-0.408		-1.232	0.074	1.094	1.232	2.45	0.133	0.5	0.16	0.65	0.050	1.68	0.002	0.03	1.81	0.9
\$3(s/d)_1\$	11103	\$1s\$	9551	1552	0.323	1		-0.175		-0.167	0.056	0.259	0.167	1.21	0.153	0.3	0.09	0.36	0.003	0.45	0.006	0.03	0.58	0.2
		\$2s\$	10017	1086	0.387	1		-0.023		0.277	0.005	0.300	0.277	2.45	0.173	0.0	0.13	0.50	0.004	1.38	0.003	0.04	1.47	0.0
		\$1d\$	10106	997	0.407	1	0.702		1.789		0.143	1.784	1.789	2.62	0.183	1.9	0.14	0.55	0.133	1.61	0.003	0.04	1.71	3.2

## Decay for spin conserved transitions

Hybrid nL_J	Charm		Decay										
	E	n'L'	E'	\D E	\a (\D E)	C^2	INT	\Delta/mq	<H r S>\DE	<H r S>	<f r f>	\calV /m	\Gamma
	MeV		MeV	MeV			1/GeV			GeV^-1	GeV^-1		MeV
\$1p_0\$	4455	\$1s\$	3068	1387	0.34	0.33	2.20	0.94	1.76	1.27	2.06	0.68	325
		\$2s\$	3674	781	0.48	0.33	-2.91	0.53	1.31	1.68	3.84	0.80	144
		\$3s\$	4149	306	1.00	0.33	0.51	0.21	0.09	0.29	5.27	0.90	1
		\$4s\$	4562										
		\$1d\$	3762	693	0.53	0.67	3.66	0.47	2.07	2.99	4.05	0.82	347
		\$2d\$	4209	246	1.00	0.67	-0.28	0.17	0.06	0.22	5.41	0.92	0
		\$3d\$	4608										
		\$4d\$	4974										
\$2p_0\$	4917	\$1s\$	3068	1849	0.30	0.33	0.51	1.26	0.54	0.29	2.06	1.00	37
		\$2s\$	3674	1243	0.36	0.33	2.95	0.85	2.12	1.70	3.84	1.11	445
		\$3s\$	4149	768	0.48	0.33	-4.23	0.52	1.88	2.44	5.27	1.21	291
		\$4s\$	4562	355	1.00	0.33	0.40	0.24	0.08	0.23	6.53	1.30	1
		\$1d\$	3762	1155	0.37	0.67	-2.08	0.79	1.96	1.70	4.05	1.14	371
		\$2d\$	4209	708	0.52	0.67	4.76	0.48	2.75	3.89	5.41	1.23	615
		\$3d\$	4608	309	1.00	0.67	-0.25	0.21	0.06	0.20	6.63	1.32	0
		\$4d\$	4974										
\$3p_0\$	5315	\$1s\$	3068	2247	0.28	0.33	0.20	1.53	0.26	0.12	2.06	1.27	9
		\$2s\$	3674	1641	0.32	0.33	0.51	1.12	0.48	0.29	3.84	1.38	27
		\$3s\$	4149	1166	0.37	0.33	3.73	0.79	2.51	2.15	5.27	1.48	609
		\$4s\$	4562	753	0.49	0.33	-5.77	0.51	2.51	3.33	6.53	1.57	519
		\$1d\$	3762	1553	0.32	0.67	-0.16	1.06	0.21	0.13	4.05	1.41	5
		\$2d\$	4209	1106	0.38	0.67	-3.20	0.75	2.89	2.62	5.41	1.50	789
		\$3d\$	4608	707	0.52	0.67	6.14	0.48	3.54	5.01	6.63	1.59	1020
		\$4d\$	4974	341	1.00	0.67	-0.96	0.23	0.27	0.79	7.76	1.67	5

## Decay for spin conserved transitions

Hybrid nL_J	E/{E} MeV	Bottom		Decay		C^2	INT	\Delta/mq	<irf>	\Delta E	<H r S>	<f r f>	\calv/m	\Gamma
		n'L'	E'	\Delta E	\a (\Delta E)						GeV^-1	GeV^-1		
\$1p_0\$	10977	\$1s\$	9551	1426	0.34	0.33	1.22	0.29	1.00	0.70	1.21	0.13	107	
		\$2s\$	10017	960	0.42	0.33	-2.16	0.20	1.19	1.24	2.45	0.15	127	
		\$3s\$	10355	622	0.58	0.33	0.60	0.13	0.21	0.34	3.43	0.17	4	
		\$4s\$	10643	334	1.00	0.33	0.05	0.07	0.01	0.03	4.29	0.19	0	
		\$1d\$	10106	871	0.44	0.67	2.50	0.18	1.78	2.04	2.62	0.16	271	
		\$2d\$	10416	561	0.64	0.67	-0.50	0.11	0.23	0.41	3.55	0.17	4	
		\$3d\$	10689	288	1.00	0.67	-0.06	0.06	0.01	0.05	4.38	0.19	0	
		\$4d\$	10939	38	0.00	0.67	-0.02	0.01	0.00	0.02	5.14	0.21	0	
\$2p_0\$	11261	\$1s\$	9551	1710	0.31	0.33	0.47	0.35	0.46	0.27	1.21	0.19	25	
		\$2s\$	10017	1244	0.36	0.33	1.39	0.25	1.00	0.80	2.45	0.21	99	
		\$3s\$	10355	906	0.43	0.33	-3.25	0.19	1.70	1.88	3.43	0.23	252	
		\$4s\$	10643	618	0.58	0.33	0.99	0.13	0.35	0.57	4.29	0.24	10	
		\$1d\$	10106	1155	0.37	0.67	-1.06	0.24	1.00	0.86	2.62	0.22	95	
		\$2d\$	10416	845	0.45	0.67	3.45	0.17	2.38	2.82	3.55	0.23	482	
		\$3d\$	10689	572	0.63	0.67	-0.83	0.12	0.39	0.68	4.38	0.25	12	
		\$4d\$	10939	322	1.00	0.67	-0.17	0.07	0.04	0.14	5.14	0.27	0	
\$3p_0\$	11525	\$1s\$	9551	1974	0.29	0.33	0.25	0.40	0.29	0.15	1.21	0.24	11	
		\$2s\$	10017	1508	0.33	0.33	0.61	0.31	0.53	0.35	2.45	0.26	31	
		\$3s\$	10355	1170	0.37	0.33	1.56	0.24	1.06	0.90	3.43	0.28	108	
		\$4s\$	10643	882	0.44	0.33	-3.99	0.18	2.03	2.30	4.29	0.30	356	
		\$1d\$	10106	1419	0.34	0.67	-0.30	0.29	0.35	0.24	2.62	0.27	13	
		\$2d\$	10416	1109	0.38	0.67	-1.44	0.23	1.30	1.17	3.55	0.29	159	
		\$3d\$	10689	836	0.46	0.67	4.12	0.17	2.82	3.37	4.38	0.30	672	
		\$4d\$	10939	586	0.61	0.67	-0.70	0.12	0.34	0.57	5.14	0.32	9	





Decay for spin flipped transition Hybrid spin 0				green: $\backslash D E > 800$ &		$\langle i   f \rangle \backslash D E < 1$ &		$\langle i   r   f \rangle \backslash D E < 2$						
Hybrid	Charm	Decay												
nL_J	E/{E}	n'L'	E'	$\backslash D E$	$\backslash a (\backslash D E f K^2$	INT<>	INT<r>	$\langle H S \rangle \backslash D E / m$	$\langle i   r   f \rangle \backslash D E$	$\langle i r f \rangle$	$\langle f r f \rangle$	$\backslash cal V / m$	$\backslash Gamma$	
	MeV		MeV	MeV		1/GeV				GeV $^{\wedge}-1$	GeV $^{\wedge}-1$		MeV	
\$1p_0\$	4455	\$1p\$	3457	998	0.407	0.33	0.988	3.269	0.387	3.262	3.269	3.141	0.760	14
		\$1p\$	3457	998	0.407	1.00	0.988	3.269	0.671	3.262	3.269	3.141	0.760	41
		\$1p\$	3457	998	0.407	1.67	0.988	3.269	0.866	3.262	3.269	3.141	0.760	68
		\$2p\$	3958	497	0.744	3	-0.143		0.084			4.658	0.862	1
		\$3p\$	4388	67	0.000	3	-0.035		0.003			5.969	0.955	0
		\$4p\$	4774											
\$2p_0\$	4917	\$1p\$	3457	1460	0.333	3	0.135	-0.562	0.233	0.820	0.562	3.141	1.074	6
		\$2p\$	3958	959	0.417	0.33	0.977	4.637	0.368	4.447	4.637	4.658	1.176	12
		\$2p\$	3958	959	0.417	1.00	0.977	4.637	0.637	4.447	4.637	4.658	1.176	36
		\$2p\$	3958	959	0.417	1.67	0.977	4.637	0.823	4.447	4.637	4.658	1.176	60
		\$3p\$	4388	529	0.688	3	-0.133		0.083		0.000	5.969	1.269	1
		\$4p\$	4774	143	1.000	3	-0.032		0.005		0.000	7.153	1.354	0
\$3p_0\$	5315	\$1p\$	3457	1858	0.299	3	0.050	-0.202	0.109	0.375	0.202	3.141	1.345	1.5
		\$2p\$	3958	1357	0.345	3	0.113	-0.908	0.181	1.233	0.908	4.658	1.447	3
		\$3p\$	4388	927	0.426	0.33	0.962	5.995	0.350	5.558	5.995	5.969	1.540	11
		\$3p\$	4388	927	0.426	1.00	0.962	5.995	0.606	5.558	5.995	5.969	1.540	32
		\$3p\$	4388	927	0.426	1.67	0.962	5.995	0.783	5.558	5.995	5.969	1.540	54
		\$4p\$	4774	541	0.670	3	-0.222		0.141		0.000	7.153	1.625	2

Decay for spin flipped transition Hybrid spin 0				green: $\backslash D E > 800$ &				$\langle i   f \rangle \backslash D E < 1$ &		$\langle i   r   f \rangle \backslash D E < 2$				
Hybrid	Bottom	Decay												
nL_J	E/{E}	n'L'	E'	$\backslash D E$	$\backslash a (\backslash D E f K^2$	INT	INT<r>	$\langle H S \rangle \backslash D E / m$	$\langle i   r   f \rangle \backslash D E$	$\langle i r f \rangle$	$\langle f r f \rangle$	$\backslash cal V / m$	$\backslash Gamma$	
	MeV		MeV	MeV		1/GeV				GeV $^{\wedge-1}$	GeV $^{\wedge-1}$		MeV	
\$1p_0\$	10977	\$1p\$	9879	1098	0.385	3	0.960	2.101	0.374	2.307	2.101	1.985	0.144	13
		\$2p\$	10234	743	0.497	3	-0.274		0.072		0.000	3.030	0.162	0
		\$3p\$	10532	445	0.874	3	-0.032		0.005		0.000	3.923	0.180	0
		\$4p\$	10798	179	1.000	3	-0.018		0.001		0.000	4.725	0.198	0
\$2p_0\$	11261	\$1p\$	9879	1382	0.341	3	0.242	-0.056	0.119	0.078	0.056	1.985	0.203	1.5
		\$2p\$	10234	1027	0.400	3	0.896	2.927	0.327	3.006	2.927	3.030	0.221	10
		\$3p\$	10532	729	0.505	3	-0.357		0.092		0.000	3.923	0.239	1
		\$4p\$	10798	463	0.822	3	-0.047		0.008		0.000	4.725	0.256	0
\$3p_0\$	11525	\$1p\$	9879	1646	0.315	3	0.110	-0.112	0.064	0.185	0.112	1.985	0.257	0.5
		\$2p\$	10234	1291	0.353	3	0.295	0.051	0.135	0.066	0.051	3.030	0.275	2
		\$3p\$	10532	993	0.408	3	0.875	3.579	0.308	3.554	3.579	3.923	0.293	9
		\$4p\$	10798	727	0.506	3	-0.332		0.086		0.000	4.725	0.310	1

Decay for spin flipped transitio Hybrid spin 0														green: $\backslash D E > 800$ & $\langle i   f \rangle \backslash D E < 1$ & $\langle i   r   f \rangle \backslash D E < 2$	
Hybrid	Charm	Decay													
nL_J	E/{E}	n'L'	E'	\D E	\a (\D E)	K^2	INT<>	iNT<r>	<H S>\D E/m	<i r f>\DE	<i r f>	<f r f>	\calV/m	\Gamma	MeV
	MeV		MeV	MeV			1/GeV				GeV^-1	GeV^-1			
\$1p_1\$	4171	\$1p\$	3457	714	0.513	0.33	0.944	3.318	0.265	2.369	3.318	3.141	0.567		6
		\$1p\$	3457	714	0.513	1.00	0.944	3.318	0.459	2.369	3.318	3.141	0.567		17
		\$1p\$	3457	714	0.513	1.67	0.944	3.318	0.592	2.369	3.318	3.141	0.567		29
		\$2p\$	3958	213	1.000	3	-0.326		0.082		0.000	4.658	0.669		0
		\$3p\$	4388												
		\$4p\$	4774												
\$2p_1\$	4556	\$1p\$	3457	1099	0.385	3	0.291	0.118	0.376	0.129	0.118	3.141	0.829		13
		\$2p\$	3958	598	0.601	3	0.864		0.609		0.000	4.658	0.931		30
		\$3p\$	4388	168	1.000	3	-0.402		0.080		0.000	5.969	1.024		0
		\$4p\$	4774												
\$3p_1\$	4912	\$1p\$	3457	1455	0.333	3	0.124	-0.123	0.213	0.178	0.123	3.141	1.071		5
		\$2p\$	3958	954	0.418	3	0.326	0.314	0.366	0.300	0.314	4.658	1.173		12
		\$3p\$	4388	524	0.695	3	0.819		0.505		0.000	5.969	1.266		21
		\$4p\$	4774	138	1.000	3	-0.443		0.072		0.000	7.153	1.351		0

Decay for spin flipped transitio Hybrid spin 0														green: $\backslash D E > 800$ & $\langle i   f \rangle \backslash D E < 1$ & $\langle i   r   f \rangle \backslash D E < 2$	
Hybrid	Bottom	Decay													
nL_J	E/{E}	n'L'	E'	\D E	\a (\D E)	K^2	INT	iNT<r>	<H S>\D E/m	<i r f>\DE	<i r f>	<f r f>	\calV/m	\Gamma	MeV
	MeV		MeV	MeV			1/GeV				GeV^-1	GeV^-1			
\$1p_1\$	10772	\$1p\$	9879	893	0.436	3	0.847	2.029	0.269	1.812	2.029	3.141	0.042		6
		\$2p\$	10234	538	0.674	3	-0.525		0.100		0.000	4.658	0.043		1
		\$3p\$	10532	240	1.000	3	0.063		0.005		0.000	5.969	0.044		0
		\$4p\$	10798												
\$2p_1\$	10995	\$1p\$	9879	1116	0.382	3	0.438	0.553	0.173	0.617	0.553	3.141	0.088		3
		\$2p\$	10234	761	0.488	3	0.630		0.170		0.000	4.658	0.089		2
		\$3p\$	10532	463	0.822	3	-0.630		0.104		0.000	5.969	0.090		1
		\$4p\$	10798	197	1.000	3	0.087		0.006		0.000	7.153	0.091		0
\$3p_1\$	11209	\$1p\$	9879	1330	0.348	3	0.235	0.126	0.111	0.168	0.126	3.141	0.132		1.3
		\$2p\$	10234	975	0.413	3	0.441	0.838	0.153	0.818	0.838	4.658	0.133		2.1
		\$3p\$	10532	677	0.536	3	0.512		0.123		0.000	5.969	0.134		1
		\$4p\$	10798	411	1.000	3	-0.681		0.099		0.000	7.153	0.135		1

Decay for spin flipped transitions				Hybrid spin 0		green: \D E>800 & <i f>\DE<1 &				<i r f>\DE<2					
Hybrid	Charm	Decay													
nL_J	E/{E}	n'L'	E'	\D E	\a (\D f K^2	INT+	INT-	INT<r>	INT<r>-	<H S>\D E/m	<i r f>\DE	<irf>	<frf>	\calV/m	\Gamma
	MeV		MeV	MeV		1/GeV	1/GeV					GeV^-1	GeV^-1		MeV
\$1(s/d)_1\$	4028	\$1s\$	3068	960	0.42 3.00		-0.91		-2.21	1.03	2.12	2.207	2.06	0.391	94
		\$2s\$	3674	354	1.00 3.00		0.37			0.15		0.000	3.84	0.506	2
		\$3s\$	4149												
		\$4s\$	4562												
		\$1d\$	3762	266	1.00 3.00	-0.19				0.06		0.000	4.05	0.533	0
		\$2d\$	4209												
		\$3d\$	4608												
		\$4d\$	4974												
\$2(s/d)_1\$	4394	\$1s\$	3068	1326	0.35 3.00		-0.36		-0.25	0.56	0.33	0.246	2.06	0.640	33
		\$2s\$	3674	720	0.51 3.00		-0.69			0.59		0.000	3.84	0.755	28
		\$3s\$	4149	245	1.00 3.00		0.39			0.11		0.000	5.27	0.857	1
		\$4s\$	4562												
		\$1d\$	3762	632	0.57 3.00	0.42				0.31		0.000	4.05	0.782	8
		\$2d\$	4209	185	1.00 3.00	-0.24				0.05		0.000	5.41	0.876	0
		\$3d\$	4608												
		\$4d\$	4974												
\$3(s/d)_1\$	4678	\$1s\$	3068	1610	0.32 3.00		-0.03		-0.35	0.05	0.57	0.354	2.06	0.833	0.3
		\$2s\$	3674	1004	0.41 3.00		0.40		1.89	0.48	1.90	1.891	3.84	0.948	21
		\$3s\$	4149	529	0.69 3.00		-0.24			0.15		0.000	5.27	1.050	2
		\$4s\$	4562	116	1.00 3.00		0.03			0.00		0.000	6.53	1.141	0
		\$1d\$	3762	916	0.43 0.60	0.88		3.54		0.42	3.24	3.537	4.05	0.975	16
		\$1d\$	3762	916	0.43 1.00	0.88		3.54		0.55	3.24	3.537	4.05	0.975	26
		\$1d\$	3762	916	0.43 1.40	0.88		3.54		0.65	3.24	3.537	4.05	0.975	37
		\$2d\$	4209	469	0.81 3.00	0.03				0.02		0.000	5.41	1.069	0
		\$3d\$	4608	70	0.00 3.00	-0.06				0.01		0.000	6.63	1.157	0
		\$4d\$	4974												

Decay for spin flipped transitions				Hybrid spin 0		green: $\backslash D E > 800$ &		$\langle i   f \rangle \backslash D E < 1$ &		$\langle i   r   f \rangle \backslash D E < 2$					
Hybrid	Bottom	Decay													
nL_J	E/[E]	n'L'	E'	\D E	\a (\D f K^2	INT+	INT-	INT<r>	INT<r>	<H S>\D E/m	<i r f>\DE	<irf>	<frf>	\calV/m	\Gamma
	MeV		MeV	MeV		1/GeV	1/GeV					GeV^-1	GeV^-1		MeV
\$1(s/d)_1\$	10704	\$1s\$	9551	1153	0.37 3.00		-0.77		-1.24	0.32	1.43	1.238	1.21	0.071	9.65
		\$2s\$	10017	687	0.53 3.00		0.58			0.14		0.000	2.45	0.091	1.61
		\$3s\$	10355	349	1.00 3.00		-0.07			0.01		0.000	3.43	0.112	0.01
		\$4s\$	10643	61	0.00 3.00		0.02			0.00		0.000	4.29	0.130	0.00
		\$1d\$	10106	598	0.60 3.00	-0.23				0.05		0.000	2.62	0.101	0.20
		\$2d\$	10416	288	1.00 3.00	0.07				0.01		0.000	3.55	0.119	0.00
		\$3d\$	10689	15	0.00 3.00	0.00				0.00		0.000	4.38	0.135	0.00
		\$4d\$	10939												
\$2(s/d)_1\$	10905	\$1s\$	9551	1354	0.34 3.00		-0.49		-0.48	0.24	0.65	0.481	1.21	0.112	5.74
		\$2s\$	10017	888	0.44 3.00		-0.41		-1.23	0.13	1.09	1.232	2.45	0.133	1.43
		\$3s\$	10355	550	0.66 3.00		0.59			0.12		0.000	3.43	0.153	1.07
		\$4s\$	10643	262	1.00 3.00		-0.08			0.01		0.000	4.29	0.171	0.00
		\$1d\$	10106	799	0.47 3.00	0.35				0.10		0.000	2.62	0.142	0.82
		\$2d\$	10416	489	0.76 3.00	-0.33				0.06		0.000	3.55	0.160	0.26
		\$3d\$	10689	216	1.00 3.00	0.07				0.01		0.000	4.38	0.177	0.00
		\$4d\$	10939												
\$3(s/d)_1\$	11103	\$1s\$	9551	1552	0.32 3.00		-0.18		-0.17	0.10	0.26	0.167	1.21	0.153	1.04
		\$2s\$	10017	1086	0.39 3.00		-0.02		0.28	0.01	0.30	0.277	2.45	0.173	0.007
		\$3s\$	10355	748	0.49 3.00		-0.40			0.11		0.000	3.43	0.194	0.95
		\$4s\$	10643	460	0.83 3.00		0.45			0.07		0.000	4.29	0.212	0.46
		\$1d\$	10106	997	0.41 3.00	0.70		1.79		0.25	1.78	1.789	2.62	0.183	5.56
		\$2d\$	10416	687	0.53 3.00	0.13				0.03		0.000	3.55	0.200	0.08
		\$3d\$	10689	414	0.99 3.00	-0.29				0.04		0.000	4.38	0.217	0.16
		\$4d\$	10939	164	1.00 3.00	0.04				0.00		0.000	5.14	0.233	0.00

Decay for spin flipped transitions				Hybrid spin 1				green: $\backslash D E > 800$ &		$\langle i   f \rangle \backslash D E < 1$ &		$\langle i   r   f \rangle \backslash D E < 2$			
Hybrid		Charm		Decay											
nL_J	E/{E}	n'L'	E'	\D E	\a (\D E)	K^2	INT	int<r>	<H S>\D E/m	<i r f>\DE	<i r f>	<f r f>	\calV/m	\Gamma	
	MeV		MeV	MeV			1/GeV				GeV^-1	GeV^-1		MeV	
\$1p_0\$	4455	\$1p\$	3457	998	0.407	1	0.988	3.269	0.671	3.262	3.269	3.141	0.760		41
		\$2p\$	3958	497	0.744	1	-0.143			0.000	4.658	0.862			
		\$3p\$	4388	67	0.000	1	-0.035			0.000	5.969	0.955			
		\$4p\$	4774												
\$2p_0\$	4917	\$1p\$	3457	1460	0.333	1	0.135	-0.562	0.135	0.820	0.562	3.141	1.074		2.0
		\$2p\$	3958	959	0.417	1	0.977	4.637	0.637	4.447	4.637	4.658	1.176		
		\$3p\$	4388	529	0.688	1	-0.133			0.000	5.969	1.269			
		\$4p\$	4774	143	1.000	1	-0.032			0.000	7.153	1.354			
\$3p_0\$	5315	\$1p\$	3457	1858	0.299	1	0.050	-0.202	0.063	0.375	0.202	3.141	1.345		0.5
		\$2p\$	3958	1357	0.345	1	0.113	-0.908	0.105	1.233	0.908	4.658	1.447		
		\$3p\$	4388	927	0.426	1	0.962	5.995	0.606	5.558	5.995	5.969	1.540		
		\$4p\$	4774	541	0.670	1	-0.222		0.082	0.000	7.153	1.625			

Decay for spin flipped transitions				Hybrid spin 1		green: $\backslash D E > 800$ &		$\langle i   f \rangle \backslash D E < 1$ &		$\langle i   r   f \rangle \backslash D E < 2$				
Hybrid		Bottom		Decay										
nL_J	E/{E}	n'L'	E'	\D E	\a (\D E)	K^2	INT	int<r>	<H S>\D E/m	<i r f>\DE	<i r f>	<f r f>	\calV/m	\Gamma
	MeV		MeV	MeV			1/GeV				GeV^-1	GeV^-1		MeV
\$1p_0\$	10977	\$1p\$	9879	1098	0.385	1	0.960	2.101	0.216	2.307	2.101	1.985	0.144	4.4
		\$2p\$	10234	743	0.497	1	-0.274	-1.438	0.042	1.068	1.438	3.030	0.162	0.1
		\$3p\$	10532	445	0.874	1	-0.032				0.000	3.923	0.180	
		\$4p\$	10798	179	1.000	1	-0.018				0.000	4.725	0.198	
\$2p_0\$	11261	\$1p\$	9879	1382	0.341	1	0.242	-0.056	0.069	0.078	0.056	1.985	0.203	0.5
		\$2p\$	10234	1027	0.400	1	0.896	2.927	0.189	3.006	2.927	3.030	0.221	3.2
		\$3p\$	10532	729	0.505	1	-0.357	-2.268	0.053	1.653	2.268	3.923	0.239	0.2
		\$4p\$	10798	463	0.822	1	-0.047				0.000	4.725	0.256	
\$3p_0\$	11525	\$1p\$	9879	1646	0.315	1	0.110	-0.112	0.037	0.185	0.112	1.985	0.257	0.2
		\$2p\$	10234	1291	0.353	1	0.295	0.051	0.078	0.066	0.051	3.030	0.275	0.6
		\$3p\$	10532	993	0.408	1	0.875	3.579	0.178	3.554	3.579	3.923	0.293	2.9
		\$4p\$	10798	727	0.506	1	-0.332				0.000	4.725	0.310	

Decay for spin flipped transitiior Hybrid spin 1														
green: $\backslash D E > 800$ & $\langle i   f \rangle \backslash D E < 1$ & $\langle i   r   f \rangle \backslash D E < 2$														
Hybrid	Charm	Decay												
nL_J	E/{E}	n'L'	E'	\D E	\a (\D E)	K^2	INT	int<r>	<H S>\D E/m	<i r f>\DE	<i r f>	<f r f>	\calV/m	\Gamma
	MeV		MeV	MeV			1/GeV				GeV^-1	GeV^-1		MeV
\$1p_1\$	4171	\$1p\$	3457	714	0.513	1	0.944	3.318	0.459	2.369	3.318	3.141	0.567	17
		\$2p\$	3958	213	1.000	1	-0.326		0.047		0.000	4.658	0.669	0
		\$3p\$	4388											
		\$4p\$	4774											
\$2p_1\$	4556	\$1p\$	3457	1099	0.385	1	0.291	0.118	0.217	0.129	0.118	3.141	0.829	4
		\$2p\$	3958	598	0.601	1	0.864		0.352		0.000	4.658	0.931	10
		\$3p\$	4388	168	1.000	1	-0.402		0.046		0.000	5.969	1.024	0
		\$4p\$	4774											
\$3p_1\$	4912	\$1p\$	3457	1455	0.333	1	0.124	-0.123	0.123	0.178	0.123	3.141	1.071	1.6
		\$2p\$	3958	954	0.418	1	0.326	0.314	0.211	0.300	0.314	4.658	1.173	4
		\$3p\$	4388	524	0.695	1	0.819		0.292		0.000	5.969	1.266	7
		\$4p\$	4774	138	1.000	1	-0.443		0.042		0.000	7.153	1.351	0

Decay for spin flipped transitiior Hybrid spin 1														
green: $\backslash D E > 800$ & $\langle i   f \rangle \backslash D E < 1$ & $\langle i   r   f \rangle \backslash D E < 2$														
Hybrid	Bottom	Decay												
nL_J	E/{E}	n'L'	E'	\D E	\a (\D E)	K^2	INT	int<r>	<H S>\D E/m	<i r f>\DE	<i r f>	<f r f>	\calV/m	\Gamma
	MeV		MeV	MeV			1/GeV				GeV^-1	GeV^-1		MeV
\$1p_1\$	10772	\$1p\$	9879	893	0.436	1	0.847	2.029	0.155	1.812	2.029	1.985	0.102	2.1
		\$2p\$	10234	538	0.674	1	-0.525		0.058		0.000	3.030	0.120	0.3
		\$3p\$	10532	240	1.000	1	0.063		0.003		0.000	3.923	0.138	0.0
		\$4p\$	10798											
\$2p_1\$	10995	\$1p\$	9879	1116	0.382	1	0.438	0.553	0.100	0.617	0.553	1.985	0.148	0.9
		\$2p\$	10234	761	0.488	1	0.630		0.098		0.000	3.030	0.166	0.8
		\$3p\$	10532	463	0.822	1	-0.630		0.060		0.000	3.923	0.184	0.3
		\$4p\$	10798	197	1.000	1	0.087		0.004		0.000	4.725	0.201	0.0
\$3p_1\$	11209	\$1p\$	9879	1330	0.348	1	0.235	0.126	0.064	0.168	0.126	1.985	0.192	0.4
		\$2p\$	10234	975	0.413	1	0.441	0.838	0.088	0.818	0.838	3.030	0.210	0.7
		\$3p\$	10532	677	0.536	1	0.512		0.071		0.000	3.923	0.228	0.4
		\$4p\$	10798	411	1.000	1	-0.681		0.057		0.000	4.725	0.245	0.3

Decay for spin fliped transitions				Hybrid spin 1				green: $\backslash D E > 800$	&	$\langle i   f \rangle \backslash DE < 1$	&	$\langle i   r   f \rangle \backslash DE < 2$			
Hybrid	Charm	Decay													
nL_J	E/{E}	n'L'	E'	\D E	\a \D E k^2	INT+	INT-	int<r>+	int<r>-	<H S>\D E/m	<i r f>\DE	<irf>	<frf>	\calV/m	\Gamma
	MeV		MeV	MeV		1/GeV	1/GeV					GeV^-1	GeV^-1		MeV
\$1(s/d)_1\$	4028	\$1s\$	3068	960	0.42	1	-0.91		-2.21	0.59	2.12	2.207	2.06	0.391	31
		\$2s\$	3674	354	1.00	1	0.37			0.09		0.000	3.84	0.506	1
		\$3s\$	4149												
		\$4s\$	4562												
		\$1d\$	3762	266	1.00	1	-0.19			0.04		0.000	4.05	0.533	0
		\$2d\$	4209												
		\$3d\$	4608												
		\$4d\$	4974												
\$2(s/d)_1\$	4394	\$1s\$	3068	1326	0.35	1	-0.36		-0.25	0.33	0.33	0.246	2.06	0.640	11
		\$2s\$	3674	720	0.51	1	-0.69			0.34		0.000	3.84	0.755	9
		\$3s\$	4149	245	1.00	1	0.39			0.06		0.000	5.27	0.857	0
		\$4s\$	4562												
		\$1d\$	3762	632	0.57	1	0.42			0.18		0.000	4.05	0.782	3
		\$2d\$	4209	185	1.00	1	-0.24			0.03		0.000	5.41	0.876	0
		\$3d\$	4608												
		\$4d\$	4974												
\$3(s/d)_1\$	4678	\$1s\$	3068	1610	0.32	1	-0.03		-0.35	0.03	0.57	0.354	2.06	0.833	0.11
		\$2s\$	3674	1004	0.41	1	0.40		1.89	0.28	1.90	1.891	3.84	0.948	7
		\$3s\$	4149	529	0.69	1	-0.24			0.09		0.000	5.27	1.050	1
		\$4s\$	4562	116	1.00	1	0.03			0.00		0.000	6.53	1.141	0
		\$1d\$	3762	916	0.43	1	0.88		3.54	0.55	3.24	3.537	4.05	0.975	26
		\$2d\$	4209	469	0.81	1	0.03			0.01		0.000	5.41	1.069	0
		\$3d\$	4608	70	0.00	1	-0.06			0.00		0.000	6.63	1.157	0
		\$4d\$	4974												

Decay for spin fliped transitions				Hybrid spin 1				green: $\backslash D E > 800$	&	$\langle i   f \rangle \backslash DE < 1$	&	$\langle i   r   f \rangle \backslash DE < 2$			
Hybrid	Bottom	Decay													
nL_J	E/{E}	n'L'	E'	\D E	\a \D E k^2	INT+	INT-	int<r>+	int<r>-	<H S>\D E/m	<i r f>\DE	<irf>	<frf>	\calV	\Gamma
	MeV		MeV	MeV		1/GeV	1/GeV					GeV	GeV	GeV	MeV
\$1(s/d)_1\$	10704	\$1s\$	9551	1153	0.375	1	-0.774		-1.238	0.183	1.428	1.238	1.21	0.071	3.2
		\$2s\$	10017	687	0.530	1	0.578			0.081		0.000	2.45	0.091	0.5
		\$3s\$	10355	349	1.000	1	-0.068			0.005		0.000	3.43	0.112	0.0
		\$4s\$	10643	61	0.000	1	0.018			0.000		0.000	4.29	0.130	0.0
		\$1d\$	10106	598	0.601	1	-0.233			0.029		0.000	2.62	0.101	0.1
		\$2d\$	10416	288	1.000	1	0.066			0.004		0.000	3.55	0.119	0.0
		\$3d\$	10689	15	0.000	1	0.005			0.000		0.000	4.38	0.135	0.0
		\$4d\$	10939												
\$2(s/d)_1\$	10905	\$1s\$	9551	1354	0.345	1	-0.489		-0.481	0.136	0.651	0.481	1.21	0.112	1.9
		\$2s\$	10017	888	0.438	1	-0.408		-1.232	0.074	1.094	1.232	2.45	0.133	0.5
		\$3s\$	10355	550	0.657	1	0.593			0.067		0.000	3.43	0.153	0.4
		\$4s\$	10643	262	1.000	1	-0.084			0.004		0.000	4.29	0.171	0.0
		\$1d\$	10106	799	0.471	1	0.348			0.057		0.000	2.62	0.142	0.3
		\$2d\$	10416	489	0.760	1	-0.325			0.033		0.000	3.55	0.160	0.1
		\$3d\$	10689	216	1.000	1	0.066			0.003		0.000	4.38	0.177	0.0
		\$4d\$	10939												
\$3(s/d)_1\$	11103	\$1s\$	9551	1552	0.323	1	-0.175		-0.167	0.056	0.259	0.167	1.21	0.153	0.3
		\$2s\$	10017	1086	0.387	1	-0.023		0.277	0.005	0.300	0.277	2.45	0.173	0.0
		\$3s\$	10355	748	0.495	1	-0.405			0.062		0.000	3.43	0.194	0.3
		\$4s\$	10643	460	0.830	1	0.449			0.042		0.000	4.29	0.212	0.2
		\$1d\$	10106	997	0.407	1	0.702		1.789	0.143	1.784	1.789	2.62	0.183	1.9
		\$2d\$	10416	687	0.530	1	0.131			0.018		0.000	3.55	0.200	0.0
		\$3d\$	10689	414	0.989	1	-0.286			0.024		0.000	4.38	0.217	0.1
		\$4d\$	10939	164	1.000	1	0.042			0.001		0.000	5.14	0.233	0.0

```

Function als(x As Double) As Double
' Calculates the alphasB formula for given x, clamped between 0 and 1
Dim val As Double

' Original formula
val = 0.175082 - 0.000774928 / x ^ 6 + 0.0128554 / x ^ 5 - 0.0479785 / x ^ 4 + _
    0.111682 / x ^ 3 - 0.120244 / x ^ 2 + 0.278722 / x - 0.00282622 * x

' Clamp the result between 0 and 1
If val < 0 Then
    als = 0.0001
Elseif val > 1 Then
    als = 1
Else
    als = val
End If
End Function

```

```

Function das(x As Double) As Double
das = (als(x / 2) - als(2 * x)) / 2
End Function

```

```

Function VgC(x As Double) As Double
sigma = 0.215
kappa = 0.240
Egc = -0.028-0.428
mc = 1.47
VgC = sigma * x - kappa / x + 2 * mc + Egc
End Function

```

```

Function VgB(x As Double) As Double
sigma = 0.215
kappa = 0.240
Egc = -0.028-0.423
mb = 4.88
VgB = sigma * x - kappa / x + 2 * mb + Egc
End Function

```

### 1. Activa la pestanya Desenvolupador

Ves a **Fitxer** → **Opcions** → **Personalitza la cinta d'opcions**.

A la llista de la dreta, marca **Desenvolupador**.

Prem **D'acord** → ara et sortirà la pestanya **Desenvolupador** a la cinta de menús.

### 2. Obre l'editor de VBA

A la pestanya **Desenvolupador**, fes clic a **Visual Basic**.

### 3. Crear un mòdul nou

A l'editor de VBA, ves al menú **Inserir** → **Mòdul**.

→ Et sortirà un full en blanc on pots escriure codi.

### 4. Notes importants

Desa el fitxer ctrl+s

Ves a la pestanya **Fórmules**

A la part dreta hi ha el grup **Opcions de càlcul** → fes clic a **Calcula ara** (*Calculate Now*)

→ això és el mateix que F9.