

$^{202}\text{Hg}(\text{p,t})$ **2013Be21**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 192,1 (2023)	1-Aug-2023

2013Be21: E(p)=25 MeV beam provided by the tandem accelerator at Munich MLL facility. Target=50 $\mu\text{g}/\text{cm}^2$ thick ^{202}HgS on 10 $\mu\text{g}/\text{cm}^2$ thick carbon backing; 97.58% enriched ^{202}Hg target. Measured triton spectra, $\sigma(\theta)$ using Q3D magnetic spectrograph and high-resolution focal-plane detector. FWHM=3-5 keV. Deduced levels, J, π .

Others: [1990Ve13](#), [1983VeZY](#), [1980Se05](#).

 ^{200}Hg Levels

Measured cross sections in **2013Be21** have additional 10% systematic uncertainty due to beam-current normalization.

E(level)	J π	d σ /d Ω mb/sr [#]	Comments
0.0 [†]	0 ⁺ [‡]	0.484 49	d σ /d Ω =0.982 mb/sr 99 at 5°, 0.0731 mb/sr 75 at 17.5°.
367.94 [†] 1		0.104 11	d σ /d Ω =0.0713 mb/sr 74 at 5°, 0.208 mb/sr 21 at 17.5°.
947.7 [†] 1		0.0043 6	d σ /d Ω =0.0123 mb/sr 15 at 5°, 0.0079 mb/sr 10 at 17.5°.
1029.3 [†] 1	0 ⁺ [‡]	0.0711 73	d σ /d Ω =0.122 mb/sr 13 at 5°, 0.0256 mb/sr 28 at 17.5°.
1253.9 [†] 1		0.0261 28	d σ /d Ω =0.0137 mb/sr 16 at 5°, 0.0485 mb/sr 51 at 17.5°.
1353.4 7		0.0001 1	d σ /d Ω =0.0005 mb/sr 2 at 5°, 0.0001 mb/sr 1 at 17.5°.
1503.5 5		0.0008 2	d σ /d Ω =0.0012 mb/sr 2 at 17.5°.
1515.5 [†] 3	0 ⁺ [‡]	0.0062 8	d σ /d Ω =0.0202 mb/sr 22 at 5°, 0.0019 mb/sr 3 at 17.5°.
1573.9 1		0.0695 71	d σ /d Ω =0.0483 mb/sr 50 at 5°, 0.142 mb/sr 14 at 17.5°.
1593.3 5			d σ /d Ω =0.0012 mb/sr 3 at 5°, 0.0011 mb/sr 2 at 17.5°.
1619.7 10			d σ /d Ω =0.0004 mb/sr 2 at 5°, 0.0001 mb/sr 1 at 17.5°.
1641.5 4		0.0010 2	d σ /d Ω =0.0022 mb/sr 4 at 5°, 0.0014 mb/sr 2 at 17.5°.
1659.01 [†] 2		0.100 10	d σ /d Ω =0.0972 mb/sr 99 at 5°, 0.0863 mb/sr 87 at 17.5°.
1706.3 1		0.0082 10	d σ /d Ω =0.0019 mb/sr 4 at 5°, 0.0060 mb/sr 7 at 17.5°.
1730.8 3		0.0017 3	d σ /d Ω =0.0069 mb/sr 9 at 5°, 0.0035 mb/sr 4 at 17.5°.
1775.5 5			d σ /d Ω =0.0005 mb/sr 2 at 5°, 0.0011 mb/sr 2 at 17.5°.
1851.0 1		0.0364 39	d σ /d Ω =0.0166 mb/sr 19 at 5°, 0.0352 mb/sr 37 at 17.5°.
1856.6 2	0 ⁺ [‡]	0.0050 10	d σ /d Ω =0.0218 mb/sr 24 at 5°, 0.0027 mb/sr 8 at 17.5°.
1882.9 [†] 2		0.0026 4	d σ /d Ω =0.0018 mb/sr 5 at 5°, 0.0068 mb/sr 8 at 17.5°.
1919.4 12			d σ /d Ω =0.0002 mb/sr 1 at 17.5°.
1961.9 2		0.0016 3	d σ /d Ω =0.0010 mb/sr 3 at 5°, 0.0014 mb/sr 2 at 17.5°.
1971.6 3		0.0012 3	d σ /d Ω =0.0012 mb/sr 3 at 5°, 0.0017 mb/sr 3 at 17.5°.
1978.4 1		0.0194 21	d σ /d Ω =0.0162 mb/sr 18 at 5°, 0.0165 mb/sr 17 at 17.5°.
2000.9 6		0.0005 2	d σ /d Ω =0.0007 mb/sr 2 at 17.5°.
2048.0 7		0.0007 2	
2060.9 3		0.0007 2	d σ /d Ω =0.0011 mb/sr 3 at 5°, 0.0011 mb/sr 2 at 17.5°.
2074.6 [†] 2		0.0103 12	d σ /d Ω =0.0098 mb/sr 12 at 5°, 0.0085 mb/sr 9 at 17.5°.
2099.0 1		0.0194 21	d σ /d Ω =0.0099 mb/sr 12 at 5°, 0.0147 mb/sr 16 at 17.5°.
2116.7 2		0.0009 2	J π : previous 0 ⁺ assignment is inconsistent with $\sigma(5^\circ)/\sigma(17.5^\circ)$ ratio in and lack of forward peaking for L=0 transfer (2013Be21). d σ /d Ω =0.0011 mb/sr 3 at 5°, 0.0019 mb/sr 3 at 17.5°.
2127.3 3		0.0008 2	d σ /d Ω =0.0010 mb/sr 3 at 5°, 0.0013 mb/sr 2 at 17.5°.
2143.3 1		0.0072 9	d σ /d Ω =0.0026 mb/sr 5 at 5°, 0.0047 mb/sr 6 at 17.5°.
2151.0 1		0.0068 9	d σ /d Ω =0.0091 mb/sr 11 at 5°, 0.0094 mb/sr 10 at 17.5°.
2180.1 3		0.0011 3	d σ /d Ω =0.0010 mb/sr 2 at 17.5°.
2190.8 9		0.0006 2	d σ /d Ω =0.0016 mb/sr 3 at 5°, 0.0020 mb/sr 3 at 17.5°.
2222.7 2		0.0030 5	d σ /d Ω =0.0011 mb/sr 3 at 5°, 0.0015 mb/sr 2 at 17.5°.
2228.6 5			d σ /d Ω =0.0008 mb/sr 3 at 5°, 0.0006 mb/sr 2 at 17.5°.
2246.1 2	0 ⁺ [‡]	0.0024 4	d σ /d Ω =0.0082 mb/sr 10 at 5°, 0.0016 mb/sr 3 at 17.5°.
2258.1 5		0.0010 2	

Continued on next page (footnotes at end of table)

$^{202}\text{Hg}(\text{p},\text{t})$ **2013Be21** (continued) ^{200}Hg Levels (continued)

E(level)	J^π	$d\sigma/d\Omega$ mb/sr [#]	Comments
2274.2 [†] 1		0.0045 6	$d\sigma/d\Omega=0.0077$ mb/sr 10 at 5°, 0.0048 mb/sr 6 at 17.5°.
2289.1 1		0.0101 12	$d\sigma/d\Omega=0.0108$ mb/sr 13 at 5°, 0.0180 mb/sr 19 at 17.5°.
2298.6 1		0.0066 8	$d\sigma/d\Omega=0.0036$ mb/sr 6 at 5°, 0.0045 mb/sr 6 at 17.5°.
2307.8 2		0.0038 5	$d\sigma/d\Omega=0.0009$ mb/sr 3 at 5°, 0.0026 mb/sr 4 at 17.5°.
2321.6 2		0.0038 5	$d\sigma/d\Omega=0.0030$ mb/sr 5 at 5°, 0.0034 mb/sr 4 at 17.5°.
2331.8 3	(0 ⁺) [‡]		$d\sigma/d\Omega=0.0020$ mb/sr 4 at 5°, 0.0006 mb/sr 2 at 17.5°.
2343.7 2		0.0048 6	$d\sigma/d\Omega=0.0038$ mb/sr 6 at 5°, 0.0107 mb/sr 12 at 17.5°.
2377.2 1		0.0187 20	$d\sigma/d\Omega=0.0112$ mb/sr 13 at 5°, 0.0134 mb/sr 14 at 17.5°.
2388.7 [†] 1		0.0274 29	$d\sigma/d\Omega=0.0218$ mb/sr 24 at 5°, 0.0633 mb/sr 64 at 17.5°.
2414.1 9		0.0096 11	$d\sigma/d\Omega=0.0020$ mb/sr 4 at 5°, 0.0047 mb/sr 6 at 17.5°.
2463.7 4		0.0009 3	$d\sigma/d\Omega=0.0005$ mb/sr 2 at 5°, 0.0008 mb/sr 2 at 17.5°.
2475.2 1	0 ⁺ [‡]	0.0072 9	$d\sigma/d\Omega=0.0163$ mb/sr 19 at 5°, 0.0037 mb/sr 5 at 17.5°.
2480.3 1		0.0076 10	$d\sigma/d\Omega=0.0051$ mb/sr 9 at 5°, 0.0055 mb/sr 7 at 17.5°.
2485.7 2		0.0040 7	$d\sigma/d\Omega=0.0017$ mb/sr 4 at 5°, 0.0036 mb/sr 5 at 17.5°.
2490.9 4		0.0003 3	$d\sigma/d\Omega=0.0014$ mb/sr 3 at 5°, 0.0007 mb/sr 2 at 17.5°.
2514.0 4		0.0008 3	$d\sigma/d\Omega=0.0003$ mb/sr 1 at 17.5°.
2524.6 7		0.0007 2	
2548.1 2		0.0022 4	$d\sigma/d\Omega=0.0034$ mb/sr 5 at 5°, 0.0024 mb/sr 4 at 17.5°.
2565.6 1		0.0094 12	$d\sigma/d\Omega=0.0074$ mb/sr 9 at 5°, 0.0078 mb/sr 9 at 17.5°.
2610.4 1		0.0060 8	$d\sigma/d\Omega=0.0070$ mb/sr 9 at 5°, 0.0076 mb/sr 9 at 17.5°.
2621.1 6		0.0009 3	
2643.7 2		0.0014 3	$d\sigma/d\Omega=0.0021$ mb/sr 4 at 5°, 0.0009 mb/sr 2 at 17.5°.
2661.9 1		0.0158 18	$d\sigma/d\Omega=0.0109$ mb/sr 13 at 5°, 0.0119 mb/sr 13 at 17.5°.
2679.8 2		0.0030 5	$d\sigma/d\Omega=0.0011$ mb/sr 3 at 5°, 0.0027 mb/sr 4 at 17.5°.
2691.7 4			$d\sigma/d\Omega=0.0036$ mb/sr 6 at 5°, 0.0094 mb/sr 11 at 17.5°.
2697.5 1		0.0088 11	$d\sigma/d\Omega=0.0070$ mb/sr 9 at 5°, 0.0092 mb/sr 11 at 17.5°.
2715.4 5		0.0010 3	$d\sigma/d\Omega=0.0009$ mb/sr 2 at 17.5°.
2729.9 4		0.0113 13	$d\sigma/d\Omega=0.0034$ mb/sr 5 at 5°, 0.0063 mb/sr 8 at 17.5°.
2736.8 2		0.0061 9	$d\sigma/d\Omega=0.0042$ mb/sr 6 at 5°, 0.0132 mb/sr 15 at 17.5°.
2762.8 [†] 3		0.0020 3	$d\sigma/d\Omega=0.0016$ mb/sr 3 at 5°, 0.0018 mb/sr 3 at 17.5°.
2773.5 4		0.0022 4	$d\sigma/d\Omega=0.0033$ mb/sr 5 at 5°, 0.0030 mb/sr 4 at 17.5°.
2786.7 23		0.0011 3	$d\sigma/d\Omega=0.0011$ mb/sr 3 at 5°, 0.0007 mb/sr 4 at 17.5°.
2793.5 8		0.0009 2	$d\sigma/d\Omega=0.0026$ mb/sr 4 at 5°, 0.0022 mb/sr 4 at 17.5°.
2828.2 3		0.0015 3	$d\sigma/d\Omega=0.0012$ mb/sr 3 at 5°, 0.0014 mb/sr 2 at 17.5°.
2841.9 2		0.0028 4	$d\sigma/d\Omega=0.0019$ mb/sr 4 at 5°, 0.0030 mb/sr 4 at 17.5°.
2862.9 2		0.0068 9	$d\sigma/d\Omega=0.0068$ mb/sr 9 at 5°, 0.0089 mb/sr 10 at 17.5°.
2880.6 2		0.0091 11	$d\sigma/d\Omega=0.0137$ mb/sr 16 at 5°, 0.0115 mb/sr 13 at 17.5°.
2907.6 21		0.0007 2	$d\sigma/d\Omega=0.0015$ mb/sr 3 at 17.5°.

[†] From 2004Ko42, used for calibration of the triton spectrum.[‡] 0⁺ confirmed or newly assigned (firm for 2246 and 2475 levels, tentative for 2332 level) from $\sigma(5^\circ)/\sigma(17.5^\circ)$ data.[#] At 30°.