^{128}Te(d,p),(pol d,p) 2003Wi02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Janos Timar and Zoltan Elekes, Balraj Singh	NDS 121, 143 (2014)	31-May-2014

2003Wi02: E(d)=24, 18 MeV. Measured protons using a long multiwire proportional counter at ten different angles and a Q3d spectrograph. Measurements done with unpolarized deuteron beam energy of 18 MeV and 24 MeV and polarized deuteron beam energy of 18 MeV. Analyzing powers determined from the cross sections with different polarizations. These analyzing powers were used for unambiguous spin assignment. FWHM= 4 keV at 18 MeV and 5 keV at 24 MeV. DWBA calculations.
2013Ka04: (d,p) E=15 MeV beam from Yale tandem accelerator of WNSL facility. Measured proton spectra, $\sigma(\theta)$ using a split-pole spectrograph. FWHM ≈ 30 keV for protons. Deduced levels, ground state configuration of ^{128}Te. DWBA analysis.
1967Mo22: E=7.5 MeV; magnetic spectrograph, $\sigma(\theta)$ θ=7.5°−172.5°, deduced spectroscopic factors; enriched target.
Other: 1964Jo12.
All data are from 2003Wi02. Results from 1967Mo22 agrees with those from 2003Wi02 but are less precise and incomplete.
Additional information 1.

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dσ/dΩ in mb/sr from (d,p) at E(d)=15 MeV (2013KaZZ)

Level	7°	18°	34°	42°
0	0.48	1.35	0.44	0.61
106	0.040	0.14	0.17	0.18
180	2.22	0.095	0.69	0.29
545		0.016		0.007
634		0.032		0.013
813		0.012	0.014	0.009
872		0.031	0.017	0.014
967	0.099	0.29	0.12	0.12
1217			0.018	0.018
1281			0.036	0.048
1302			0.045	0.018
1655		0.092		0.035
1752	0.052	0.050		0.038

The statistical uncertainties are less than 1% for strong states and less than 3% for weaker ones. There is additional systematic uncertainty of ≈7%.
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^{129}Te Levels

Cross sections (in μb/sr) in terms of maximum value of $\sigma(\theta)$ distribution are given under comments. For multiple values, first value is for 24 MeV, the second for 18 MeV.

E(level)[†]	Jπ[#]	L[#]	S_{lj}.[@]	Comments
0.0[‡]	3/2+	2	0.337	dσ/dΩ=2331 μb/sr.
105.2[‡] *4*	11/2−	5	0.188	dσ/dΩ=384 μb/sr. Additional information 2.
179.35[‡] *28*		0	0.202	dσ/dΩ=1021 μb/sr. Additional information 3.
544.06[‡] *9*	5/2+	2	0.003	dσ/dΩ=34 μb/sr. Additional information 4.
633.51[‡] *7*		2	0.007	dσ/dΩ=50 μb/sr. Additional information 5.

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^{128}Te(d,p),(pol d,p) 2003Wi02 (continued)

^{129}Te Levels (continued)

E(level)[†]	Jπ[#]	L[#]	S_{lj}.[@]	Comments
760.25 *5*	7/2⁻	3	0.012	dσ/dΩ=179 μb/sr. Additional information 6.
773.07 *14*		0	0.007	dσ/dΩ=40. Additional information 7.
812.93[‡] *8*	7/2⁺	4	0.008	dσ/dΩ=15. Additional information 8.
865.35 *12*	(7/2⁺)	(4)	(0.003)	dσ/dΩ=8. Additional information 9.
874.73[‡] *21*		2	0.004	dσ/dΩ=33. Additional information 10.
966.76[‡] *4*	5/2⁺	2	0.034	dσ/dΩ=405. Additional information 11.
1162.14 *15*		3	0.001	dσ/dΩ=8. Additional information 12.
1211.8[‡] *6*	7/2⁺	4	0.017	dσ/dΩ=33. E(level): 1212.7 *3* in (d,p) (2003Wi02), 1217 (2013Ka04,2013KaZZ). Jπ: 3/2⁺,5/2⁺ quoted by 2013Ka04, 2013KaZZ from earlier NDS (1996Te01).
1234.32 *17*		2	0.001	dσ/dΩ=7. Additional information 13.
1282.0[‡] *5*	5/2⁺	2	0.010	dσ/dΩ=126. Additional information 14.
1303.32[‡] *12*		0	0.011	dσ/dΩ=55. Additional information 15. E(level),Jπ: 1302 with J^π=7/2⁺,9/2⁺ given in 2013Ka04, which on the basis of J^π assignment seems to correspond to 1319 level here.
1319.01 *8*	7/2⁺	4	0.002	dσ/dΩ=4. Additional information 16.
1419.4 *8*	5/2⁺	2	0.002	dσ/dΩ=30. Additional information 17.
1483.56 *16*	7/2⁺	4	0.002	dσ/dΩ=5. Additional information 18.
1559.98 *23*		1	0.002	dσ/dΩ=12. Additional information 19.
1582.1 *4*	7/2⁺	4	0.001	dσ/dΩ=4. Additional information 20.
1599.65 *20*	5/2⁺	2	0.0003	dσ/dΩ=5. Additional information 21.
1655.72[‡] *22*	5/2⁺	2	0.009	dσ/dΩ=121. Additional information 22.
1752.68[‡] *9*		3	0.013	dσ/dΩ=146. E(level),Jπ: 1752 with J^π=5/2⁺ given in 2013Ka04, which on the basis of J^π assignment seems to correspond to 1779.9 level here.
1779.95 *13*	5/2⁺	2	0.003	dσ/dΩ=35. Additional information 23.
1812.80 *25*	7/2⁺	4	0.001	dσ/dΩ=9. Additional information 24.
1839.2 *4*				dσ/dΩ=6.
1852.9 *4*		3	0.006	dσ/dΩ=5.
1869.57 *6*		3	0.006	dσ/dΩ=67.
1992.44 *14*		(3)	0.001	dσ/dΩ=8.
2040.2 *6*	3/2⁻	1	0.008	dσ/dΩ=126,112. S_{lj}.: 0.00779. Additional information 25.
2072.43 *11*	7/2⁻	3	0.009	dσ/dΩ=153,70. S_{lj}.: 0.00850.

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^{128}Te(d,p),(pol d,p) 2003Wi02 (continued)

^{129}Te Levels (continued)

E(level)[†]	Jπ[#]	L[#]	S_{lj}.[@]	Comments
2106.60 *7*	7/2−	3	0.120	dσ/dΩ=2146,995. S_{lj}.: 0.11836. Additional information 26.
2132.69 *11*	7/2−	3	0.004	dσ/dΩ=70,35. S_{lj}.: 0.00383.
2221.28 *8*	7/2−	3	0.169	dσ/dΩ=3009,1361. S_{lj}.: 0.16329.
2232.23 *7*		3	0.029	dσ/dΩ=362,188. S_{lj}.: 0.03178.
2267.61 *17*	3/2−	1	0.010	dσ/dΩ=156,134. S_{lj}.: 0.00984.
2312.17 *12*	7/2−	3	0.003	dσ/dΩ=58,28. S_{lj}.: 0.00308.
2360.05 *6*	3/2−	1	0.092	dσ/dΩ=1302,1199. S_{lj}.: 0.09303.
2379.95 *8*	3/2−	1	0.050	dσ/dΩ=711,640. S_{lj}.: 0.05081.
2427.21 *13*	7/2−	3	0.002	dσ/dΩ=38,23. S_{lj}.: 0.00223.
2462.49 *14*	7/2−	3	0.003	dσ/dΩ=62,36. S_{lj}.: 0.00347.
2491.64 *10*	3/2−	1	0.002	dσ/dΩ=27,27. S_{lj}.: 0.00214.
2507.09 *13*		(3)	(0.002)	dσ/dΩ=27,24. S_{lj}.: (0.00270).
2511.04 *13*		(3)	(0.003)	dσ/dΩ=35,18. S_{lj}.: (0.00270).
2524.39 *32*	1/2−	1	0.004	dσ/dΩ=30,32. S_{lj}.: 0.00505.
2581.14 *9*	3/2−	1	0.003	dσ/dΩ=32,37. S_{lj}.: 0.00299.
2612.43 *10*		(3)	(0.001)	dσ/dΩ=7,5. S_{lj}.: (0.00065).
2641.3 *4*		(3)	(0.001)	dσ/dΩ=4,4. S_{lj}.: for 7/2−.
2705.76 *6*	1/2−	1	0.081	dσ/dΩ=610,614. S_{lj}.: 0.09764.
2728.21 *10*		1	0.003	dσ/dΩ=25,18. S_{lj}.: 0.00318.
2736.55 *15*	(3/2−)	(1)	(0.002)	dσ/dΩ=20,18. S_{lj}.: (0.00126).
2765.28 *13*		(3)	(0.002)	dσ/dΩ=33,8. S_{lj}.: (0.00154).
2811.67 *7*		(5)	(0.011)	dσ/dΩ=19,14. S_{lj}.: (0.01817).
2819.45 *12*		(3)	(0.006)	dσ/dΩ=96,49. S_{lj}.: (0.00617).
2835.22 *13*		(3)	(0.004)	dσ/dΩ=56,27. S_{lj}.: (0.00378).
2853.69 *7*		(3)	(0.007)	dσ/dΩ=102,49. S_{lj}.: (0.00676).
2859.54 *11*		(3)	(0.002)	dσ/dΩ=39,16. S_{lj}.: (0.00219).
2871.21 *7*	(5/2−)	(3)	(0.005)	dσ/dΩ=73,36. S_{lj}.: (0.00493).
2889.84 *9*		(3)	(0.003)	dσ/dΩ=44,26.

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^{128}Te(d,p),(pol d,p) 2003Wi02 (continued)

^{129}Te Levels (continued)

E(level)[†]	Jπ[#]	L[#]	S_{lj}.[@]	Comments
				S_{lj}.: (0.00291).
2899.90 *17*		5	0.004	dσ/dΩ=16,5.
				S_{lj}.: 0.00771.
2919.63 *9*	(5/2⁻)	3	0.007	dσ/dΩ=103,50.
				S_{lj}.: 0.00704.
2971.34 *10*	7/2⁻	3	0.003	dσ/dΩ=62,28.
				S_{lj}.: 0.00239.
2979.44 *6*	5/2⁻	3	0.046	dσ/dΩ=713,353.
				S_{lj}.: 0.04705.
2999.62 *27*				dσ/dΩ=6.
3009.43 *9*				dσ/dΩ=7.
3023.78 *26*				dσ/dΩ=3.
3029.07 *8*				dσ/dΩ=23.
3046.25 *8*				dσ/dΩ=15.
3056.36 *13*				dσ/dΩ=6.
3070.43 *3*				dσ/dΩ=6.
3089.26 *9*				dσ/dΩ=48.
3102.75 *9*				dσ/dΩ=40.
3128.47 *29*				dσ/dΩ=10.
3133.45 *6*				dσ/dΩ=35.
3150.71 *10*				dσ/dΩ=16.
3163.3 *4*				dσ/dΩ=3.
3182.02 *18*				dσ/dΩ=15.
3202.32 *26*				dσ/dΩ=7.
3211.79 *29*				dσ/dΩ=4.
3230.49 *13*				dσ/dΩ=61.
3246.07 *11*				dσ/dΩ=58.
3253.08 *10*				dσ/dΩ=23.
3260.88 *22*				dσ/dΩ=10.
3277.1 *5*				dσ/dΩ=12.
3281.58 *18*				dσ/dΩ=38.
3295.7 *5*				dσ/dΩ=3.
3306.39 *11*				dσ/dΩ=15.
3321.35 *12*				dσ/dΩ=34.
3326.60 *18*				dσ/dΩ=9.
3350.26 *17*				dσ/dΩ=7.
3355.63 *10*	3/2⁻	1	0.002	dσ/dΩ=27.
3361.46 *10*				dσ/dΩ=48.
3364.58 *9*				dσ/dΩ=98.
3371.62 *10*				dσ/dΩ=37.
3379.29 *9*				dσ/dΩ=14.
3384.75 *8*				dσ/dΩ=92.
3389.76 *29*				dσ/dΩ=12.
3405.79 *10*				dσ/dΩ=46.
3414.31 *15*				dσ/dΩ=27.
3419.88 *12*				dσ/dΩ=76.
3428.91 *10*	(3/2⁻)	1	0.011	dσ/dΩ=105.
3441.00 *9*				dσ/dΩ=87.
3452.75 *14*				dσ/dΩ=9.
3461.13 *8*				dσ/dΩ=126.
3474.79 *13*				dσ/dΩ=66.
3479.09 *21*				dσ/dΩ=32.
3489.57 *14*	1/2⁻	1	0.003	dσ/dΩ=19.
3503.37 *9*	(3/2⁻)	(1)	(0.018)	dσ/dΩ=202.
3511.99 *8*				dσ/dΩ=73.
3524.24 *15*				dσ/dΩ=36.
3527.74 *9*	(1/2⁻)	(1)	(0.007)	dσ/dΩ=46.

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^{128}Te(d,p),(pol d,p) 2003Wi02 (continued)

^{129}Te Levels (continued)

E(level)[†]	Jπ[#]	L[#]	S_{lj}.[@]	Comments
3545.82 *7*	(3/2⁻)	(1)	(0.010)	dσ/dΩ=102.
3559.29 *10*				dσ/dΩ=19.
3564.98 *10*	1/2⁻	1	0.012	dσ/dΩ=80.
3569.24 *10*				dσ/dΩ=53.
3579.66 *15*				dσ/dΩ=9.
3587.43 *6*				dσ/dΩ=176.
3593.73 *17*				dσ/dΩ=20.
3600.49 *7*	(3/2⁻)	1	0.003	dσ/dΩ=30.
3615.20 *7*				dσ/dΩ=77.
3622.88 *26*				dσ/dΩ=5.
3628.68 *29*				dσ/dΩ=5.
3634.19 *8*				dσ/dΩ=57.
3638.44 *6*	1/2⁻	1	0.014	dσ/dΩ=77.
3643.26 *5*				dσ/dΩ=56.
3648.97 *9*	1/2⁻	1	0.010	dσ/dΩ=57.
3655.05 *10*				dσ/dΩ=108.
3666.42 *19*				dσ/dΩ=6.
3671.50 *11*	3/2⁻	1	0.002	dσ/dΩ=19.
3677.85 *6*				dσ/dΩ=62.
3695.69 *8*				dσ/dΩ=147.
3707.67 *13*	1/2⁻	1	0.010	dσ/dΩ=58.
3713.78 *22*				dσ/dΩ=19.
3729.32 *19*				dσ/dΩ=21.
3737.13 *8*				dσ/dΩ=39.
3744.94 *9*	3/2⁻	1	0.003	dσ/dΩ=39.
3752.27 *18*				dσ/dΩ=16.
3764.98 *9*	(3/2⁻)	1	0.003	dσ/dΩ=36.
3769.94 *6*				dσ/dΩ=49.
3777.52 *14*				dσ/dΩ=30.
3784.59 *7*				dσ/dΩ=28.
3792.58 *6*	3/2⁻	1	0.040	dσ/dΩ=460.
3800.93 *16*				dσ/dΩ=24.
3811.7 *4*				dσ/dΩ=9.
3818.90 *11*				dσ/dΩ=18.
3826.71 *11*				dσ/dΩ=11.
3837.66 *6*				dσ/dΩ=38.
3851.94 *8*	3/2⁻	1	0.003	dσ/dΩ=35.
3859.62 *20*				dσ/dΩ=9.
3865.73 *4*	3/2⁻	1	0.008	dσ/dΩ=95.
3873.38 *10*				dσ/dΩ=182.
3884.50 *16*				dσ/dΩ=16.
3890.23 *13*				dσ/dΩ=165.
3899.34 *9*	3/2⁻	1	0.005	dσ/dΩ=51.
3906.92 *5*				dσ/dΩ=66.
3917.0 *4*				dσ/dΩ=11.
3921.60 *10*				dσ/dΩ=24.
3929.44 *23*				dσ/dΩ=6.
3938.45 *12*				dσ/dΩ=51.
3944.24 *16*				dσ/dΩ=31.
3948.09 *24*	(3/2⁻)	(1)	(0.002)	dσ/dΩ=22.
3952.81 *16*				dσ/dΩ=48.
3962.33 *15*				dσ/dΩ=12.
3969.35 *29*	(3/2⁻)	(1)	(0.002)	dσ/dΩ=20.
3974.29 *10*	3/2⁻	1	0.009	dσ/dΩ=95.
3986.75 *26*				dσ/dΩ=6.
3993.70 *17*				dσ/dΩ=21.

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^{128}Te(d,p),(pol d,p) 2003Wi02 (continued)

^{129}Te Levels (continued)

E(level)[†]	Jπ[#]	L[#]	S_{lj}.[@]	Comments
3997.60 *14*				dσ/dΩ=32.
4002.40 *28*				dσ/dΩ=28.
4005.76 *24*				dσ/dΩ=48.
4017.11 *11*				dσ/dΩ=42.
4024.93 *14*				dσ/dΩ=31.
4032.54 *10*	3/2$^-$	1	0.004	dσ/dΩ=37.
4043.32 *12*				dσ/dΩ=24.
4045.78 *16*				dσ/dΩ=52.
4053.70 *20*				dσ/dΩ=22.
4059.09 *9*	(1/2$^-$)	1	0.008	dσ/dΩ=44.
4067.78 *8*	3/2$^-$	1	0.009	dσ/dΩ=88.
4072.22 *21*				dσ/dΩ=36.
4082.23 *13*	3/2$^-$	1	0.005	dσ/dΩ=48.
4086.77 *9*	3/2$^-$	1	0.009	dσ/dΩ=99.
4092.48 *28*				dσ/dΩ=13.
4101.8 *4*				dσ/dΩ=16.
4106.1 *4*				dσ/dΩ=31.
4110.4 *4*				dσ/dΩ=32.
4122.07 *10*	1/2$^-$	1	0.015	dσ/dΩ=90.
4128.98 *12*				dσ/dΩ=41.
4132.81 *15*	3/2$^-$	1	0.013	dσ/dΩ=133.
4150.2 *4*				dσ/dΩ=5.
4161.1 *5*				dσ/dΩ=8.
4166.21 *10*				dσ/dΩ=47.
4175.10 *19*	(1/2$^-$)	1	0.006	dσ/dΩ=33.
4181.18 *9*	(3/2$^-$)	1	0.007	dσ/dΩ=70.
4200.84 *12*				dσ/dΩ=59.
4205.89 *6*	1/2$^-$	1	0.010	dσ/dΩ=47.
4212.43 *12*				dσ/dΩ=25.
4220.07 *19*	3/2$^-$	1	0.008	dσ/dΩ=85.
4229.10 *14*				dσ/dΩ=38.
4239.79 *9*	3/2$^-$	1	0.007	dσ/dΩ=73.
4251.2 *4*				dσ/dΩ=23.
4259.33 *23*				dσ/dΩ=25.
4267.41 *15*	(1/2$^-$)	1	0.003	dσ/dΩ=19.
4277.37 *10*	3/2$^-$	1	0.009	dσ/dΩ=105.
4291.21 *29*				dσ/dΩ=11.
4298.46 *22*	1/2$^-$	1	0.007	dσ/dΩ=42.
4306.73 *19*				dσ/dΩ=18.
4311.74 *9*	(1/2$^-$)	1	0.010	dσ/dΩ=53.
4317.05 *13*				dσ/dΩ=19.
4326.49 *8*				dσ/dΩ=85.
4336.16 *19*	(1/2$^-$)	1	0.006	dσ/dΩ=32.
4349.48 *12*				dσ/dΩ=43.
4356.27 *9*	1/2$^-$	1	0.021	dσ/dΩ=105.
4365.34 *11*	1/2$^-$	1	0.043	dσ/dΩ=238.
4372.60 *17*				dσ/dΩ=99.
4380.55 *12*				dσ/dΩ=65.
4389.09 *20*	1/2$^-$	1	0.033	dσ/dΩ=168.
4402.14 *22*				dσ/dΩ=47.
4410.53 *17*				dσ/dΩ=59.
4425.13 *10*	(3/2$^-$)	(1)	(0.005)	dσ/dΩ=65.
4433.07 *10*	3/2$^-$	1	0.014	dσ/dΩ=123.
4444.04 *15*				dσ/dΩ=67.
4456.37 *12*				dσ/dΩ=81.
4467.43 *15*	(1/2$^-$)	(1)	(0.024)	dσ/dΩ=106.

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^{128}Te(d,p),(pol d,p) 2003Wi02 (continued)

^{129}Te Levels (continued)

E(level)[†]	L[#]	S_{lj}.[@]	Comments
4474.7 *4*			dσ/dΩ=62.
4483.92 *16*			dσ/dΩ=99.
4496.75 *15*			dσ/dΩ=76.
4504.21 *17*			dσ/dΩ=40.
4511.76 *22*			dσ/dΩ=28.
4522.5 *5*			dσ/dΩ=53.
4543.28 *25*			dσ/dΩ=41.
4558.21 *29*			dσ/dΩ=77.
4572.69 *21*			dσ/dΩ=64.
4580.26 *23*			dσ/dΩ=62.
4589.16 *25*			dσ/dΩ=126.
4595.2 *5*			dσ/dΩ=67.
4608.4 *4*			dσ/dΩ=71.
4621.96 *21*			dσ/dΩ=52.
4634.7 *5*			dσ/dΩ=30.
4643.2 *4*	(1)	(0.010)	dσ/dΩ=47.
4652.9 *4*	(1)	(0.007)	dσ/dΩ=42.
4665.82 *18*	1	0.008	dσ/dΩ=39.
4682.0 *3*	1	0.004	dσ/dΩ=20.
4695.4 *5*			dσ/dΩ=21.
4711.80 *25*	1		dσ/dΩ=30.
4724.34 *20*			dσ/dΩ=32.
4743.5 *4*			dσ/dΩ=55.
4766.2 *5*			dσ/dΩ=18.
4777.9 *4*	(1)	(0.004)	dσ/dΩ=27.
4794.33 *24*			dσ/dΩ=42.
4807.86 *29*			dσ/dΩ=33.
4840.4 *4*			dσ/dΩ=112.
4849.6 *6*			dσ/dΩ=18.
4868.2 *5*			dσ/dΩ=57.
4879.66 *24*			dσ/dΩ=38.
4907.4 *5*			dσ/dΩ=96.
4917.0 *5*	(1)	(0.013)	dσ/dΩ=86.
4929.4 *5*			dσ/dΩ=112.
4946.8 *4*			dσ/dΩ=68.
4958.3 *3*			dσ/dΩ=88.
4975.3 *4*			dσ/dΩ=56.
5002.3 *4*			dσ/dΩ=44.
5013.3 *7*			dσ/dΩ=44.

[†] The values are weighted averages of all measurements at different angles with independent energy calibrations from ^{128}Te(d,p), ^{128}Te(pol d,p) and ^{130}Te(pol d,t). Quoted uncertainty is statistical; a systematic uncertainty of 0.5 keV should be added in quadrature (2003Wi02).

[‡] Precise cross section measured by 2013Ka04 (also 2013KaZZ).

[#] L from ^{128}Te(d,p), ^{128}Te(pol d,p) and/or ^{130}Te(pol d,t). J from L and analyzing power.

[@] Authors give too many significant digits, the values have been rounded by evaluators. Two values are given when spin is either L-1/2 or L+1/2; the value for the latter choice is given under comments.