

$^{87}\text{Sr}(\text{d,p})$ 1987Wi15,1987Li02,1968Co20

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. A. McCutchan and A. A. Sonzogni		NDS 115, 135 (2014)	1-Nov-2013

$J^\pi(\text{target})=9/2^+$.

1987Wi15: E(d)=20 MeV. Measured Ep using Q3D spectrometer and multiwire proportional counter (FWHM=3-4.5 keV). The spectrometer is calibrated with a set of precise (n, γ) level energies from **1968Co20** and **1974Se10**, and five contamination lines from $^{88}\text{Sr}(\text{d,p})$.

1987Li02: E(d)=18 MeV. Measured $\sigma(\theta)$ using Enge split-pole spectrograph and helix focal plane detector (FWHM=16 keV); DWBA analysis.

1974Se10: E(d)=12.0 MeV. Measured $\sigma(\theta)$ using scattering chamber and Si detectors (FWHM=40 keV) and a broad range spectrograph and photographic plates (FWHM=20 keV); DWBA analysis.

1968Co20: E(d)=7.5 MeV. Measured $\sigma(\theta)$ using multi-gap spectrograph and nuclear emulsions; DWBA analysis. See also **1975Se08**.

 ^{88}Sr Levels

E(level) [†]	L [‡]	[(2J _f +1)/(2J _i +1)]S [#]	Comments
0	4	0.83	$d\sigma/d\Omega_{\text{max}}=180 \mu\text{b/sr}$ (1987Li02).
1836.1 5	2	0.084	$d\sigma/d\Omega_{\text{max}}=218 \mu\text{b/sr}$ (1987Li02).
2734.2 5	(1)	0.031	$d\sigma/d\Omega_{\text{max}}=101 \mu\text{b/sr}$ (1987Li02).
3218.6 5	2	0.027	$d\sigma/d\Omega_{\text{max}}=80 \mu\text{b/sr}$ (1987Li02).
3584.8 5			
3635.2 5			
4039.1 5	2	0.29	$d\sigma/d\Omega_{\text{max}}=960 \mu\text{b/sr}$ (1987Li02).
4299.4 5	2(+0)	0.38+0.013	L: 2 from 1974Se10 and 1968Co20 .
4414.4 5	2(+0)	0.82+0.06	$d\sigma/d\Omega_{\text{max}}=432 \mu\text{b/sr}$ for L=(0) component and 1283 for L=2 component (1987Li02). L: 2 from 1974Se10 and 1968Co20 .
4455 & 4	2(+0)	0.02+0.003	$d\sigma/d\Omega_{\text{max}}=2030 \mu\text{b/sr}$ for L=(0) component and 2790 for L=2 component (1987Li02). L: 2 from 1968Co20 .
4514.6 5	2	1.01	$d\sigma/d\Omega_{\text{max}}=98 \mu\text{b/sr}$ for L=(0) component and 68 for L=2 component (1987Li02).
4556 & 3	2	0.031	$d\sigma/d\Omega_{\text{max}}=3500 \mu\text{b/sr}$ (1987Li02).
4613.8 6			
4632.0 6	2	0.54	$d\sigma/d\Omega_{\text{max}}=106 \mu\text{b/sr}$ (1987Li02).
4744? 5	(2)		$d\sigma/d\Omega_{\text{max}}=1900 \mu\text{b/sr}$ (1987Li02). E(level): from 1974Se10 . Other: 4748 5 (1968Co20). Both 1974Se10 and 1968Co20 note the presence of an overlapping contaminant transition from ^{89}Sr .
4761.8 14	2(+0)	0.071+0.024	$d\sigma/d\Omega_{\text{max}}=811 \mu\text{b/sr}$ for L=(0) component and 258 for L=2 component (1987Li02).
4789? @ 8			
4843 & 5	(1)	0.046	$d\sigma/d\Omega_{\text{max}}=215 \mu\text{b/sr}$ (1987Li02).
4873 3	0+2	0.13+0.082	L: 0 from 1974Se10 and 1968Co20 . $d\sigma/d\Omega_{\text{max}}=4280 \mu\text{b/sr}$ for L=0 component and 291 for L=2 component (1987Li02).
4920 @ 8			
4983 3			
5076 3			
5093 3	2	1.09	$d\sigma/d\Omega_{\text{max}}=4100 \mu\text{b/sr}$ (1987Li02).
5137 & 4	2	0.025	$d\sigma/d\Omega_{\text{max}}=94 \mu\text{b/sr}$ (1987Li02).
5157? @ 8			
5199? @ 8			
5308? 3			
5416 3	0(+2)	0.08+0.017	L: 0 from 1974Se10 and 1968Co20 . $d\sigma/d\Omega_{\text{max}}=2570 \mu\text{b/sr}$ for L=0 component and 64 for L=(2) component (1987Li02).
5465 3	0	0.32	$d\sigma/d\Omega_{\text{max}}=10300 \mu\text{b/sr}$ (1987Li02).
5486? 3			
5518 3	0	0.015	L: from 1968Co20 . L=(0) from 1987Li02 at 5504 3.

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$^{87}\text{Sr}(\text{d,p})$ **1987Wi15,1987Li02,1968Co20 (continued)** ^{88}Sr Levels (continued)

E(level) [†]	L [‡]	$[(2J_f+1)/(2J_i+1)]S^{\#}$	Comments
5529 3			$d\sigma/d\Omega_{\text{max}}=480 \mu\text{b/sr}$ (1987Li02).
5652 3			
5674 3	2(+0)	0.034+0.006	$d\sigma/d\Omega_{\text{max}}=181 \mu\text{b/sr}$ for L=(0) component and 140 for L=2 component (1987Li02).
5689 3			
5707 3			
5729 3	0	0.59	$d\sigma/d\Omega_{\text{max}}=19000 \mu\text{b/sr}$ (1987Li02).
5738 3			
5775? 5	0		E(level),L: from 1968Co20. Authors note that a contaminant exists at a similar energy.
5813 3			
5836 3			
5859 3	2(+0)	0.014+0.006	$d\sigma/d\Omega_{\text{max}}=171 \mu\text{b/sr}$ for L=(0) component and 59 for L=2 component (1987Li02).
5876? @ 8			
5996 3	0(+2)	0.009+0.007	L: 2 from 1968Co20 for 6008 8. $d\sigma/d\Omega_{\text{max}}=274 \mu\text{b/sr}$ for L=0 component and 31 for L=(2) component (1987Li02).
6022 3	2	0.043	$d\sigma/d\Omega_{\text{max}}=184 \mu\text{b/sr}$ (1987Li02).
6047 3	2(+0)	0.081+0.015	$d\sigma/d\Omega_{\text{max}}=468 \mu\text{b/sr}$ for L=(0) component and 346 for L=2 component (1987Li02).
6066 3	2+0	0.021+0.017	$d\sigma/d\Omega_{\text{max}}=534 \mu\text{b/sr}$ for L=0 component and 91 for L=2 component (1987Li02).
6074? 3			
6140 3	2	0.081	$d\sigma/d\Omega_{\text{max}}=350 \mu\text{b/sr}$ (1987Li02).
6173 3			
6188 3			
6216 & 4	0	0.025	L: from 1968Co20. L=(0) from 1987Li02. $d\sigma/d\Omega_{\text{max}}=770 \mu\text{b/sr}$ (1987Li02).
6234 3	(1)	0.127	L, $[(2J_f+1)/(2J_i+1)]S$: from 1968Co20.
6242 3			
6248 3			
6258 3	2	0.068	$d\sigma/d\Omega_{\text{max}}=300 \mu\text{b/sr}$ (1987Li02).
6283 3			
6293? 3			
6302 3			
6351 3	2	0.054	$d\sigma/d\Omega_{\text{max}}=247 \mu\text{b/sr}$ (1987Li02).
6378 3	(2)	0.055	$d\sigma/d\Omega_{\text{max}}=252 \mu\text{b/sr}$ (1987Li02).
6398 3			
6417 3	2	0.18	$d\sigma/d\Omega_{\text{max}}=820 \mu\text{b/sr}$ (1987Li02).
6431 3			
6462 3	2		L: 2 from 1968Co20 for 6465 8. Could also correspond to the 6471-keV level.
6471 3	(2)	0.56	$d\sigma/d\Omega_{\text{max}}=2450 \mu\text{b/sr}$ (1987Li02).
6508 3	(0)	0.09	$d\sigma/d\Omega_{\text{max}}=2500 \mu\text{b/sr}$ (1987Li02).
6519 3	(2)	0.10	$d\sigma/d\Omega_{\text{max}}=550 \mu\text{b/sr}$ (1987Li02).
6543 3			
6552 3			
6566 3	2		L: 2 from 1968Co20 for 6564 8.
6575 3	2	0.27	$d\sigma/d\Omega_{\text{max}}=1290 \mu\text{b/sr}$ (1987Li02).
6618 3	2	0.058	$d\sigma/d\Omega_{\text{max}}=280 \mu\text{b/sr}$ (1987Li02).
6623 3			
6627 3			
6635 3	2	0.042	$d\sigma/d\Omega_{\text{max}}=204 \mu\text{b/sr}$ (1987Li02).
6666? 3			
6672 3			
6692 3			
6709 3			
6739 & 5	2	0.26	$d\sigma/d\Omega_{\text{max}}=1300 \mu\text{b/sr}$ (1987Li02).
6783 3	2	0.068	$d\sigma/d\Omega_{\text{max}}=330 \mu\text{b/sr}$ (1987Li02).
6798 3			
6807 3			

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$^{87}\text{Sr}(\text{d,p})$ **1987Wi15,1987Li02,1968Co20** (continued) ^{88}Sr Levels (continued)

E(level) [†]	L [‡]	[(2J _f +1)/(2J _i +1)]S [#]	Comments
6815 3			
6832 3	2	0.17	L: from 1968Co20 for 6828 10. L=(2) from 1987Li02 . $d\sigma/d\Omega_{\text{max}}=840 \mu\text{b/sr}$ (1987Li02).
6854 3			
6911 3			
6917 3			
6939 3	2	0.25	$d\sigma/d\Omega_{\text{max}}=1250 \mu\text{b/sr}$ (1987Li02).
6962 3	2	0.31	$d\sigma/d\Omega_{\text{max}}=1560 \mu\text{b/sr}$ (1987Li02).
7011 3			
7023 3			
7061 3	(2)	0.08	$d\sigma/d\Omega_{\text{max}}=420 \mu\text{b/sr}$ (1987Li02).
7072 3			
7103 3			
7139 3	(2)	0.25	$d\sigma/d\Omega_{\text{max}}=1300 \mu\text{b/sr}$ (1987Li02).
7195 3	(2)		L: from 1968Co20 . Authors note a contaminant peak at a similar energy.
7223& 5	(2)	0.19	$d\sigma/d\Omega_{\text{max}}=1080 \mu\text{b/sr}$ (1987Li02).
7251@ 10			
7337@ 10			
7426@ 10	4		L: from 1968Co20 .
7561@ 10			
7594@ 10			
7640@ 10			
7674@ 10			
7742@ 10			
7839@ 10			
7889@ 10			
7967@ 10			
8003@ 10			
8103@ 10			
8142@ 10			
8450@ 10			
8493@ 10			
8516@ 10			

[†] From [1987Wi15](#), except where noted. Level energies given in Table 2 of [1987Wi15](#) appear to be only statistical. Uncertainties are assigned according to a general statement that ΔE is better than 1 keV for $E < 5$ MeV and around 3 keV for $E > 5$ MeV.

[‡] From DWBA analysis of [1987Li02](#), except where noted.

[#] From DWBA ([1987Li02](#)). L=2 assumes $2d_{5/2}$ neutron transfer, L=4 assumes $1g_{9/2}$ neutron transfer and the L=1 assumes $2p_{1/2}$ neutron transfer. See [1968Co20](#) and [1974Se10](#) for their sets of spectroscopic strengths.

@ From [1968Co20](#). ΔE reported to vary from 5 keV for the lowest to 10 keV for the highest excited states. Individual uncertainties assigned by the evaluators.

& From [1987Li02](#).