

$^{150}\text{Sm}(\text{d,t})$ 1975Lo04,1967Ve04

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen		NDS 185, 2 (2022)	23-Aug-2022

1975Lo04: E(d)=12 MeV from the McMaster University tandem accelerator. Measured $\sigma(\theta)$ data from 6° to 90° at 13 angles.

Absolute σ accurate to 25%. DWBA analysis.

1967Ve04: E(d)=12 MeV from the Niels Bohr Institute tandem. Measured triton spectra and cross sections at 60° and 90° .

FWHM=10 keV. Energy uncertainty is stated as 4 keV near the ground state to 10 keV at the highest energies.

All data are from 1975Lo04 unless otherwise stated.

 ^{149}Sm Levels

Cross section data from 1975Lo04 are at 90° , and those from 1967Ve04 are at 60° .

E(level)	J^π	$L^\oplus$	$S^\#$	Comments
0	$7/2^-$	3	1.41	L: for unresolved doublet at 0 and 22. $d\sigma/d\Omega(\mu\text{b/sr})=343$ (1975Lo04), 650 (1967Ve04).
22 2	$5/2^-$		≈ 0.04	E(level): 20 (1967Ve04). L: see comment for g.s.
277 2	$5/2^-$	(3)		$d\sigma/d\Omega(\mu\text{b/sr})\approx 9$ (1975Lo04), ≈ 20 (1967Ve04). E(level): 275 (1967Ve04). S: 0.19 for $J^\pi=7/2^-$. $d\sigma/d\Omega(\mu\text{b/sr})\approx 42$ (1975Lo04), ≈ 60 (1967Ve04). E(level): 277 and 285 form an unresolved doublet. L: data consistent with $L=3$ for 277 level and $L=5$ for 285 level.
285 2	$9/2^-$	(5) [†]	0.67	E(level): 288 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})\approx 24$ (1975Lo04), ≈ 25 (1967Ve04). See comments for 277 level.
350 2	$3/2^-$	1	0.23	E(level): 351 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=144$ (1975Lo04), 280 (1967Ve04).
399 2		≤ 3		E(level): 396 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=13$ (1975Lo04), 27 (1967Ve04).
529 2	$3/2^-$	1	0.18	E(level): 529 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=99$ (1975Lo04), 180 (1967Ve04).
559 2	$5/2^-$	3	0.14	E(level): 559 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=25$ (1975Lo04), 35 (1967Ve04).
592 2				$d\sigma/d\Omega(\mu\text{b/sr})\approx 2$ (1975Lo04).
636 2	$7/2^-$	3	0.45	E(level): 637 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=83$ (1975Lo04), 108 (1967Ve04).
665 2	$11/2^-$	5,4	0.40	E(level): 661 (1967Ve04). S: for $L=5$. $L=4$ choice not consistent with adopted J^π . $d\sigma/d\Omega(\mu\text{b/sr})=15$ (1975Lo04), 9 (1967Ve04).
697 2	$(3/2)^-$	1,2	0.07	E(level): 697 (1967Ve04). S: for $L=1$. $L=2$ choice not consistent with adopted J^π . $d\sigma/d\Omega(\mu\text{b/sr})=35$ (1975Lo04), 53 (1967Ve04).
710 2		2,1	0.07	E(level): 709 (1967Ve04). S: for $L=1$, $J^\pi=3/2^-$. $d\sigma/d\Omega(\mu\text{b/sr})=35$ (1975Lo04), 59 (1967Ve04).
878 2	$13/2^+$	6 [†]	0.95	E(level): 877 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=10$ (1975Lo04), 7 (1967Ve04).
922 2		(2) [†]	0.18	E(level): 921 (1967Ve04). S: for $J^\pi=3/2^+$. $d\sigma/d\Omega(\mu\text{b/sr})=39$ (1975Lo04), 53 (1967Ve04).
967 2		$\leq 3^\dagger$		E(level): 965 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})\approx 8$ (1975Lo04), 11 (1967Ve04).

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$^{150}\text{Sm}(\text{d,t})$ **1975Lo04,1967Ve04 (continued)** ^{149}Sm Levels (continued)

E(level)	J^π &	L @	S #	Comments
988 $^{\frac{3}{2}+}$ 10				E(level): 988 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=2$ (1967Ve04).
1011 2		$\leq 2^{\frac{1}{2}+}$		E(level): 1008 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=20$ (1975Lo04), 46 (1967Ve04).
1049 2	(3/2) $^{+}$	2	0.84	E(level): 1048 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=172$ (1975Lo04), 210 (1967Ve04).
1083 2		$\leq 3^{\frac{1}{2}+}$		E(level): 1080 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=6$ (1975Lo04), 8 (1967Ve04).
1117 $^{\frac{3}{2}+}$ 10				
1123 2		$\leq 3^{\frac{1}{2}+}$		E(level): 1122 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=5$ (1975Lo04), 6 for 1117+1122 (1967Ve04).
1154 2		$3, 2^{\frac{1}{2}+}$		E(level): 1151 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=12$ (1975Lo04), 16 (1967Ve04).
1195 2	$1/2^{+}$	0	1.48	E(level): 1191 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=390$ (1975Lo04), 500 (1967Ve04).
1236 2				E(level): 1232 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=5$ (1975Lo04), 5 (1967Ve04).
1304 $^{\frac{3}{2}+}$ 10				$d\sigma/d\Omega(\mu\text{b/sr})=12$ (1967Ve04).
1311 2	$11/2^{-}$	(5) $^{\frac{1}{2}+}$	1.89	E(level): 1309 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=42$ (1975Lo04), 12 (1967Ve04).
1353 2				E(level): 1347 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})\approx 2$ (1975Lo04), 3 (1967Ve04).
1379 2		(4,3) $^{\frac{1}{2}+}$		E(level): 1371 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=5$ (1975Lo04), 3 (1967Ve04).
1392 2				E(level): 1382 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=3$ (1975Lo04), 5 (1967Ve04).
1430 2		(2,1) $^{\frac{1}{2}+}$		E(level): 1422 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=15$ (1975Lo04), ≈ 11 (1967Ve04).
1442 2		$\leq 2^{\frac{1}{2}+}$		E(level): 1431 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=17$ (1975Lo04), ≈ 16 (1967Ve04).
1470 2				E(level): 1460 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=6$ (1975Lo04).
1483 2		(≤ 2) $^{\frac{1}{2}+}$		E(level): 1474 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=54$ (1975Lo04), 75 (1967Ve04).
1549 2				E(level): 1539 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=3$ (1975Lo04), ≈ 3 (1967Ve04).
1570 2		(5,4) $^{\frac{1}{2}+}$		$d\sigma/d\Omega(\mu\text{b/sr})=2$ (1975Lo04).
1586 2				$d\sigma/d\Omega(\mu\text{b/sr})=2$ (1975Lo04).
1617 2				E(level): 1606 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=8$ (1975Lo04), 7 (1967Ve04).
1641 2				E(level): 1630 (1967Ve04). $d\sigma/d\Omega(\mu\text{b/sr})=7$ (1975Lo04), 7 (1967Ve04).
1656 2				$d\sigma/d\Omega(\mu\text{b/sr})=2$ (1975Lo04).
1671 2				$d\sigma/d\Omega(\mu\text{b/sr})=3$ (1975Lo04).
1698 $^{\frac{3}{2}+}$ 10				$d\sigma/d\Omega(\mu\text{b/sr})=2$ (1967Ve04).
1751 $^{\frac{3}{2}+}$ 10				
1771 $^{\frac{3}{2}+}$ 10				
1978 $^{\frac{3}{2}+}$ 10				
2029 $^{\frac{3}{2}+}$ 10				
2039 $^{\frac{3}{2}+}$ 10				

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$^{150}\text{Sm}(\text{d,t})$ [1975Lo04,1967Ve04](#) (continued)

^{149}Sm Levels (continued)

† From $\sigma(\text{d,t})/\sigma(^3\text{He},\alpha)$.

‡ From [1967Ve04](#).

$\sigma(\text{exp})/(\text{N}\times\sigma(\text{DWBA}))$, where $\text{N}=3.0$.

@ From $\sigma(\theta)$, unless otherwise stated.

& From Adopted Levels.