

$^{148}\text{Sm}(\text{d},\text{p})$ **1965Ke09**

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

1965Ke09: E(d)=12 MeV from the Florida State University tandem. Measured proton spectra with a resolution of 0.1%. L-transfers based on cross section measurements at three angles.

Others:

1967Ve04: E(d)=12 MeV from the Niels Bohr Institute tandem. Measured proton spectra with FWHM=15 keV. Level reported up to 1940 keV, and σ data measured at two angles.

1967Jo04: E(d)=9.6 MeV from the Florida State University tandem. Authors refer to their unpublished work, and list seven levels: 0 with L=3, 380 with L=(1+3), 530 with L=1, 710 with L=1, 1030 with L=(1), 1170 with L=3 and 1490 with L=(1).

All data are from **1965Ke09**, unless otherwise stated.

 ^{149}Sm Levels

Cross section data from **1967Ve04** under comments are measured at 60°.

E(level)	L [‡]	Relative intensity (65°)	Comments
0	(3,4)	1.00	$d\sigma/d\Omega(\mu\text{b}/\text{sr})=1000$ (1967Ve04) for 0+20.
20 8		0.01	E(level): 20 (1967Ve04).
280 2		0.38 ^{&}	E(level): 275 (1967Ve04).
			$d\sigma/d\Omega(\mu\text{b}/\text{sr})=300$ (1967Ve04) for 275+288.
285 2	(≥3) [#]		E(level): 285 (1967Ve04).
350 2	(≤2)	0.23	E(level): 343 (1967Ve04).
			$d\sigma/d\Omega(\mu\text{b}/\text{sr})=230$ (1967Ve04).
398 3	(≤2)	0.19	E(level): 393 (1967Ve04).
			$d\sigma/d\Omega(\mu\text{b}/\text{sr})=170$ (1967Ve04).
535 3	(≤2)	1.31	E(level): 525 (1967Ve04).
566 3		0.04	E(level): 555 (1967Ve04).
588 [†] 4			$d\sigma/d\Omega(\mu\text{b}/\text{sr})=13$ (1967Ve04).
640 3	(3,4)	0.03	E(level): 631 (1967Ve04).
			$d\sigma/d\Omega(\mu\text{b}/\text{sr})=31$ (1967Ve04).
675 3	(≥3)	0.03	E(level): 660 (1967Ve04).
			$d\sigma/d\Omega(\mu\text{b}/\text{sr})=13$ (1967Ve04).
700 4		0.52 ^a	E(level): 693 (1967Ve04).
			$d\sigma/d\Omega(\mu\text{b}/\text{sr})=470$ (1967Ve04) for 693+710.
712 6			E(level): 710 (1967Ve04).
842 6	(≥3)	0.01	
881 5	(≥3)	0.16	E(level): 882 (1967Ve04).
			$d\sigma/d\Omega(\mu\text{b}/\text{sr})=110$ (1967Ve04).
928 7		0.05	E(level): 924 (1967Ve04).
			$d\sigma/d\Omega(\mu\text{b}/\text{sr})=49$ (1967Ve04).
956 5	(3,4)	0.09	E(level): 953 (1967Ve04).
			$d\sigma/d\Omega(\mu\text{b}/\text{sr})=70$ (1967Ve04).
1013 6	(≤2)	0.31	E(level): 1010 (1967Ve04).
1084 8		0.07	E(level): 1080 (1967Ve04).
1125 8		0.15	E(level): 1124 (1967Ve04).
			$d\sigma/d\Omega(\mu\text{b}/\text{sr})=120$ (1967Ve04).
1158 6		0.34	E(level): 1152 (1967Ve04).
			$d\sigma/d\Omega(\mu\text{b}/\text{sr})=310$ (1967Ve04).
1190 8	(3,4)	0.12	E(level): 1184 (1967Ve04).
			$d\sigma/d\Omega(\mu\text{b}/\text{sr})=83$ (1967Ve04).
1280 10	(3,4)	0.01	E(level): 1270 (1967Ve04).
			$d\sigma/d\Omega(\mu\text{b}/\text{sr})=8$ (1967Ve04).
1316 7	(3,4)	0.16	E(level): 1305 (1967Ve04).

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$^{148}\text{Sm}(\text{d,p})$ 1965Ke09 (continued) ^{149}Sm Levels (continued)

E(level)	L^{π}	Relative intensity (65°)	Comments
1351 [†] 10			$d\sigma/d\Omega(\mu\text{b/sr})=150$ (1967Ve04).
1385 10	(3,4)	0.07	$d\sigma/d\Omega(\mu\text{b/sr})=19$ (1967Ve04). E(level): 1365 (1967Ve04).
1465 6		0.39	$d\sigma/d\Omega(\mu\text{b/sr})=31$ (1967Ve04). E(level): 1450 (1967Ve04).
1484 9	(3,4)		$d\sigma/d\Omega(\mu\text{b/sr})=370$ (1967Ve04) for 1450+1470.
1556 6	(≥ 3)	0.10	E(level): 1470 (1967Ve04).
1579 8	(3,4)	0.08	E(level): 1549 (1967Ve04).
1621 9		0.03	E(level): 1569 (1967Ve04).
1662 9		0.24	E(level): 1657 (1967Ve04).
1678 15			$d\sigma/d\Omega(\mu\text{b/sr})=150$ (1967Ve04) for 1657+1670.
1705 13		0.03	E(level): 1670 (1967Ve04).
1752 10		0.36	E(level): 1706 (1967Ve04).
1782 10		0.17	$d\sigma/d\Omega(\mu\text{b/sr})\approx 15$ (1967Ve04). E(level): 1748 (1967Ve04).
1816 10		0.28	$d\sigma/d\Omega(\mu\text{b/sr})=250$ (1967Ve04). E(level): 1782 (1967Ve04).
1881 13	(≤ 2)	0.09	$d\sigma/d\Omega(\mu\text{b/sr})=120$ (1967Ve04). E(level): 1816 (1967Ve04).
1910 15		0.02	$d\sigma/d\Omega(\mu\text{b/sr})=190$ (1967Ve04).
1943 10		0.27	E(level): 1885 (1967Ve04).
1975 12		0.10	$d\sigma/d\Omega(\mu\text{b/sr})\approx 50$ (1967Ve04).
1999 12	(≥ 3)	0.10	E(level): 1940 (1967Ve04).
2024 12		0.09	$d\sigma/d\Omega(\mu\text{b/sr})=200$ (1967Ve04).
2059 10		0.24	
2101 10		0.23	
2137 12		0.10	
2159 15		0.04	
2191 15		0.06	
2210 10		0.14	
2242 10		0.19	
2264 15		0.09	
2280 15		0.07	
2295 15		0.07	
2332 15		0.06	
2358 13		0.11	
2377 15		0.05	
2387 10		0.19	
2418 11		0.10	
2443 11		0.15	
2494 11			
2508 11			
2534 11		0.17	
2568 11		0.16	
2590 11		0.26	
2622 11		0.12	
2640 11		0.18	
2671 11		0.14	
2711 11		0.12	
2723 15		0.09	
2737 12		0.14	
2762 12		0.24	

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$^{148}\text{Sm}(\text{d,p})$ [1965Ke09](#) (continued) ^{149}Sm Levels (continued)

<u>E(level)</u>	<u>Relative intensity (65°)</u>	<u>E(level)</u>	<u>Relative intensity (65°)</u>	<u>E(level)</u>	<u>Relative intensity (65°)</u>
2797 <i>12</i>	0.19	3194 <i>12</i>	0.13	3545 <i>15</i>	0.20
2830 <i>12</i>	0.13	3218 <i>12</i>	0.16	3575 <i>15</i>	0.22
2858 <i>12</i>		3257 <i>13</i>	2.71	3595 <i>15</i>	0.12
2891 <i>12</i>		3303 <i>13</i>	0.42	3623 <i>15</i>	
2923 <i>12</i>	0.13	3324 <i>13</i>	0.18	3636 [@] <i>15</i>	
2949 <i>12</i>	0.22	3377 <i>13</i>	0.17	3661 <i>15</i>	
2968 <i>12</i>	0.18	3393 <i>14</i>	0.17	3687 <i>15</i>	
2995 <i>12</i>	0.18	3419 <i>14</i>	0.10	3700 <i>15</i>	
3015 <i>12</i>	0.24	3436 <i>14</i>	0.20	3734 <i>15</i>	
3072 <i>12</i>	0.13	3461 <i>14</i>	0.15	3765 <i>15</i>	
3094 <i>12</i>	0.19	3478 <i>14</i>	0.13	3806 <i>15</i>	
3160 <i>12</i>	0.10	3533 <i>14</i>	0.21		

[†] From [1967Ve04](#) only.

[‡] Tentative values based on three-angle data only. These L-values were not used for J^π assignments in the Adopted Levels.

For 280, 285 levels.

@ Authors give 3336. From authors' listed Q values, one gets 3636. Based on authors' spectrum, the latter value is correct.

& For 280+285.

^a For 700+712.