

Appendices

Appendix A:

Comparative Analysis of (n, p), (n, α) and (n, 2n) Cross-Sections at 14.5 MeV

A comparison between the cross-sections calculated using various systematics, experimental data, and present formulas at a neutron energy of 14.5 MeV is presented in Tables [1](#) through [5](#).

Table 1: Comparison of measured (n, p) reaction cross-sections at 14.5 MeV for nuclei with $Z \leq 45$, including data from this study and previous literature.

Nuclide		Measured Data $\sigma^{\text{exp}} \pm \Delta\sigma^{\text{exp}}$ mb	Present work σ^{cal} mb	Literature (mb)							
Z	Z			Levkovski [1]	Forrest [2]	Ait-Tahar [3]	Kasugai et al. [4]	Doczi et al. [5]	Habbani et al. [6]	Broeders and Konobeye [7]	J. Luo [8]
18	40	25±2	32.15	33.40	53.12	23.80	18.59	43.02	15.91	25.55	39.25
19	39	114±3.88	153.25	406.98	336.17	298.37	231.34	211.10	189.10	229.52	502.05
19	41	81.2±32.48	54.32	83.77	77.96	62.08	53.47	79.64	47.68	58.49	100.19
20	42	168±9.8	95.01	201.17	146.10	154.77	135.63	139.58	103.28	131.53	244.65
20	43	88.8±7.7	59.68	96.33	80.09	74.41	66.07	87.94	54.04	67.94	115.47
20	44	38.1±1.8	39.88	47.71	53.99	36.99	31.58	55.61	24.73	35.61	56.41
21	45	57.1±4.1	65.16	109.53	82.13	87.86	80.11	96.33	60.63	78.63	131.56
22	47	120±12	70.74	123.31	84.05	102.39	95.57	104.79	67.44	90.70	148.39
22	48	67±3	48.21	64.49	55.40	53.66	49.12	69.01	35.85	48.74	76.63
22	49	35±4	34.45	34.64	42.73	28.88	25.13	45.61	22.30	26.52	40.66
22	50	17±3	25.69	19.08	37.89	15.93	12.93	30.27	10.66	14.60	22.13
23	51	37±7	37.79	40.50	42.59	34.80	31.43	51.07	25.63	31.19	47.66
24	52	77.7±10.88	57.02	83.52	56.97	73.76	71.37	82.99	49.27	65.80	99.66
24	53	47±4	41.25	46.83	42.58	41.38	38.66	56.71	29.18	36.56	55.24
24	54	21.6±1.43	30.98	26.83	35.99	23.72	20.97	38.88	15.87	20.53	31.31
25	55	25±0	44.83	53.62	42.67	48.64	46.85	62.51	32.92	42.71	63.40
26	56	107±8	66.24	104.58	58.51	97.20	98.31	97.38	64.91	87.87	125.22
26	57	75±3	48.51	60.86	42.82	56.55	56.00	68.46	36.86	49.76	72.11
27	59	80±23	52.29	68.54	43.02	65.14	66.14	74.54	40.99	57.82	81.36
28	61	83±8	56.17	76.63	43.24	74.38	77.26	80.73	45.29	67.02	91.14
28	62	39±6	42.87	46.86	34.43	45.44	45.75	58.29	30.37	38.95	55.20
29	63	70±13	60.13	85.13	43.48	84.27	89.38	87.02	49.75	77.53	101.41
29	65	24.01±13	36.24	33.23	29.41	32.81	32.54	46.46	21.92	26.81	38.86
30	66	69.8±7.3	49.39	59.07	34.18	59.48	62.95	68.87	39.75	52.82	69.85
30	67	44.9±2.1	38.95	37.65	28.97	37.85	38.62	50.88	24.49	31.41	44.12
30	68	29.3±10.4	31.42	24.31	26.43	24.41	23.75	37.67	16.33	18.81	28.25
31	71	20.5±2.5	27.81	18.29	24.70	18.64	17.76	31.03	13.08	13.44	21.12
32	72	41±3	36.11	31.27	25.15	32.44	33.47	45.31	21.69	25.98	36.49
32	73	24.4±3.3	29.81	20.87	23.77	21.62	21.26	34.22	14.72	15.87	24.17
32	74	10.8±1.51	25.04	14.09	23.79	14.56	13.58	25.91	9.75	9.75	16.19
33	75	31.2±4.2	31.87	23.67	22.99	24.88	25.21	37.56	16.45	18.69	27.46
34	76	49±5	41.11	39.23	24.24	41.90	45.48	53.46	28.01	35.57	45.95
34	77	37±6	34.01	26.67	22.32	28.43	29.63	41.01	18.30	21.97	31.01
34	78	20±3	28.61	18.32	21.67	19.49	19.37	31.52	13.04	13.65	21.14
34	80	11.1±1.41	21.17	8.89	23.58	9.42	8.41	18.74	6.31	5.36	10.12
36	82	23±4	32.42	23.25	20.13	25.38	26.70	37.62	16.98	18.95	26.94
37	87	9.62±0.85	22.33	9.49	20.66	10.41	9.75	19.90	7.48	5.77	10.80
38	86	34.9±8.4	36.47	28.90	18.98	32.30	35.72	44.17	21.60	26.11	33.62
38	88	17.7±3.54	27.01	14.84	18.50	16.51	16.75	27.62	11.05	10.65	17.04
39	89	24±1.7	33.02	23.00	17.73	25.92	28.21	37.82	16.23	19.57	26.62
40	90	46.4±2.3	40.75	35.28	18.08	40.28	46.56	51.13	26.93	35.75	41.17
40	91	29±4	34.9	25.51	17.16	29.06	32.39	40.84	17.80	22.98	29.59
40	92	19±0	30.24	18.58	16.91	21.11	22.60	32.68	14.13	14.84	21.41
40	94	10.6±4.24	23.45	10.06	18.17	11.38	11.12	21.01	7.62	6.27	11.45
42	94	57.2±5.72	45.25	42.39	17.38	49.35	59.34	58.46	32.99	48.66	49.62
42	95	41±5.5	38.82	31.02	16.22	36.02	41.97	47.17	21.18	31.55	36.09
42	96	20±2.7	33.66	22.86	15.68	26.47	29.74	38.12	17.71	20.54	26.43
42	97	16.7±1.4	29.49	16.94	15.66	19.58	21.14	30.84	12.51	13.43	19.48
43	99	14.9±1.07	31.06	18.78	15.01	21.89	24.21	33.30	13.70	15.82	21.63
44	100	33±8	37.27	27.68	14.71	32.63	38.29	43.91	21.83	28.26	32.11
44	101	18.9±2.6	32.67	20.73	14.43	24.38	27.59	35.85	14.96	18.62	23.91
44	104	5.2±0.8	23.21	9.01	16.12	10.52	10.52	19.64	7.04	5.44	10.22
45	103	21.2±1.21	34.33	22.80	13.92	27.04	31.28	38.48	16.28	21.87	26.35

Table 2: Comparison of measured (n, p) reaction cross-sections at 14.5 MeV for nuclei with $Z > 45$, including data from this study and previous literature.

Nuclide		Measured Data $\sigma^{\text{exp}} \pm \Delta\sigma^{\text{exp}}$ mb	Present work σ^{cal} mb	Literature (mb)							
Z	Z			Levkovski	Forrest	Ait-Tahar	Kasugai et al.	Doczi et al.	Habbani et al.	Broeders and Konobeye	J. Luo
				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
46	108	13.5±1.34	9.89	11.15	14.23	13.23	13.95	23.12	8.86	9.91	12.70
47	109	12.5±1.87	12.86	16.00	12.99	19.18	21.54	30.12	11.99	14.06	18.35
48	114	5±1.3	7.88	8.26	14.36	9.91	10.12	18.66	6.64	7.64	9.35
48	116	2.5±0.3	5.25	5.11	17.50	6.09	5.73	13.01	4.08	4.30	5.73
49	115	10.1±2.17	10.32	11.67	12.65	14.12	15.39	24.13	9.14	11.08	13.30
50	117	9.6±2.1	11.1	12.83	11.99	15.64	17.44	25.93	9.94	12.38	14.65
50	118	6.61±0.57	9.27	10.09	12.63	12.27	13.17	21.76	8.22	9.82	11.46
50	120	4.52±0.34	6.34	6.32	14.84	7.65	7.59	15.37	5.12	5.87	7.11
50	122	1.06±0.15	4.24	4.02	18.66	4.84	4.42	10.90	3.25	3.19	4.48
51	123	4.6±1.5	5.7	5.58	15.17	6.79	6.64	14.04	4.82	5.13	6.27
52	124	8.62±0.63	7.52	7.72	12.82	9.46	9.87	17.95	6.34	7.70	8.72
52	126	3.31±0.29	5.15	4.97	15.57	6.06	5.85	12.88	4.06	4.47	5.56
52	128	2.16±0.13	3.46	3.24	20.07	3.93	3.50	9.28	2.64	2.34	3.60
52	130	1.69±0.13	2.28	2.14	27.30	2.59	2.12	6.71	1.74	1.03	2.36
54	131	5.3±0.6	5.11	4.91	14.68	6.05	5.91	12.83	4.33	4.56	5.50
56	134	6±2	7.23	7.31	11.46	9.13	9.72	17.41	6.12	7.79	8.24
56	137	5±1	4.22	3.99	15.52	4.94	4.71	10.99	3.62	3.48	4.44
56	138	2.76±0.19	3.5	3.28	17.61	4.05	3.72	9.45	2.72	2.53	3.64
57	139	3.81±0.08	4.62	4.39	14.21	5.48	5.35	11.87	3.94	4.08	4.90
58	140	7.05±0.43	6	5.86	11.83	7.37	7.65	14.82	4.94	6.16	6.58
59	141	9.65±0.43	7.67	7.79	10.15	9.87	10.84	18.40	6.51	8.81	8.79
60	142	13.5±2.7	9.64	10.32	8.96	13.16	15.25	22.72	8.81	12.11	11.71
60	145	7.5±1.6	5.95	5.78	11.18	7.32	7.68	14.74	5.03	6.24	6.48
60	146	4.58±0.42	5.02	4.79	12.33	6.06	6.14	12.78	4.06	4.84	5.36
60	148	3.5±0.8	3.54	3.32	15.47	4.17	3.94	9.62	2.80	2.72	3.68
62	149	7.7±0.8	6.92	6.87	9.71	8.78	9.62	16.85	5.85	7.97	7.72
62	150	7.19±1.01	5.89	5.71	10.57	7.29	7.73	14.67	4.88	6.33	6.40
63	153	7.4±0.74	5.42	5.20	10.76	6.64	6.96	13.68	4.60	5.65	5.81
64	156	5.6±0.5	4.99	4.74	10.97	6.08	6.30	12.78	4.08	5.04	5.30
64	158	3.5±0.1	3.59	3.36	13.62	4.29	4.17	9.80	2.88	2.92	3.73
65	159	4.8±0.5	4.6	4.35	11.21	5.58	5.73	11.98	3.94	4.48	4.84
66	158	7.6±0.4	7.85	7.91	8.09	10.27	11.82	18.91	6.88	9.97	8.92
66	160	7±1.2	5.81	5.60	9.45	7.24	7.83	14.57	4.85	6.51	6.27
66	161	5.6±0.5	4.98	4.73	10.36	6.10	6.39	12.80	4.25	5.14	5.27
66	162	4.05±0.24	4.25	4.00	11.46	5.14	5.22	11.25	3.45	3.99	4.44
66	163	3.17±0.57	3.62	3.39	12.78	4.35	4.28	9.90	3.18	3.02	3.75
66	164	2.63±0.82	3.08	2.88	14.38	3.69	3.51	8.71	2.47	2.24	3.18
67	165	4.07±0.27	3.93	3.69	11.72	4.76	4.78	10.59	3.42	3.53	4.09
68	167	4.1±0.4	4.26	4.01	10.79	5.19	5.33	11.31	3.69	4.09	4.45
68	168	4.2±0.8	3.65	3.41	12.00	4.41	4.39	9.99	2.96	3.13	3.78
70	172	5.2±0.6	4.28	4.02	10.16	5.23	5.43	11.38	3.51	4.20	4.46
70	173	3.7±0.3	3.67	3.44	11.28	4.47	4.50	10.08	3.23	3.23	3.81
70	174	2.7±0.16	3.15	2.95	12.60	3.82	3.74	8.94	2.56	2.43	3.25
70	176	2.3±0.76	2.3	2.18	16.06	2.81	2.59	7.04	1.89	1.26	2.39
71	175	3.42±0.51	3.98	3.72	10.38	4.86	5.00	10.75	3.47	3.74	4.13
72	180	1.65±0.48	2.74	2.57	13.24	3.35	3.22	8.06	2.25	1.87	2.83
73	181	4±0.3	3.45	3.23	10.83	4.22	4.27	9.65	3.07	2.96	3.57
74	182	4.08±0.2	4.31	4.04	9.03	5.32	5.64	11.51	3.57	4.41	4.49
74	183	5±0.4	3.73	3.49	9.96	4.58	4.72	10.27	3.29	3.44	3.86
74	184	4.75±0.95	3.22	3.02	11.07	3.95	3.96	9.17	2.65	2.63	3.33
74	186	2.9±0.58	2.39	2.26	13.91	2.96	2.80	7.31	1.98	1.42	2.49
75	187	3.93±0.39	3.01	2.82	11.31	3.71	3.68	8.72	2.74	2.32	3.12

Table 3: Comparison of measured (n, α) reaction cross sections at 14.5 MeV for $26 \leq A \leq 181$, including data from this study and previous literature.

Nuclide		Measured Data	Present work	Literature (mb)							
Z	A	$\sigma^{\text{exp}} \pm \Delta\sigma^{\text{exp}}$ mb	σ^{cal} mb	Levkovski	Forrest	Ait-Tahar	Kasugai et al.	Konobeyev et al.	Csikai et al.	Habbani et al.	J. Luo
				[1]	[2]	[3]	[4]	[9]	[10]	[6]	[8]
27	59	32±5	35.4	128.8	28.32	27.12	28.19	32.35	40.2	34.29	26.47
31	71	60±4	8.7	81.45	11.44	8.3	10	6.22	15.03	7.76	6.8
32	74	40±8	6.6	74.53	9.48	6.58	8.14	4.14	12.39	9.14	5.2
33	75	10±0.7	11.41	91.75	11.91	10.94	11.82	8.69	18.42	10.31	8.86
33	75	26±2.6	11.41	91.75	11.91	10.94	11.82	8.69	18.42	10.31	8.86
33	75	13.6±1.6	11.41	91.75	11.91	10.94	11.82	8.69	18.42	10.31	8.86
34	78	2.7±0.3	8.69	84.05	9.88	8.68	9.65	5.95	15.23	10.62	6.81
34	80	4.6±0.5	4.04	63.82	6.74	4.36	5.64	1.88	8.82	6.09	3.24
39	89	1.78±0.06	11.01	95.98	8.71	11.43	10.81	7.52	18.42	9.88	8.58
40	90	7.2±0.3	17.31	113.95	10.51	17.37	14.71	12.91	25.56	15.47	13.31
42	92	2.1±0.5	41.55	158.86	15.27	39.09	26.69	30.39	48.22	28.13	31.14
42	92	2.48±0.3	41.55	158.86	15.27	39.09	26.69	30.39	48.22	28.13	31.14
42	92	24±6	41.55	158.86	15.27	39.09	26.69	30.39	48.22	28.13	31.14
40	94	5.4±1.1	4.58	70.66	5.28	5.24	5.79	2.06	9.89	5.94	3.67
45	103	80±7	10.86	100.42	6.39	11.94	10.14	6.58	18.66	9.7	8.49
47	109	38±9.5	7.45	89.06	4.72	8.63	7.65	3.75	14.36	6.51	5.89
47	109	12±3	7.45	89.06	4.72	8.63	7.65	3.75	14.36	6.51	5.89
52	124	3.65±2	3.43	69.88	5.2	4.43	4.27	3.93	8.39	4.19	2.78
52	126	0.55±0.3	2.15	59.09	4.1	2.9	3.07	2.26	6.02	3	1.77
52	128	0.39±0	1.37	50.24	3.26	1.93	2.24	1.16	4.36	2.17	1.14
52	130	0.94±0.28	0.88	42.94	2.61	1.29	1.64	0.51	3.2	1.59	0.75
56	138	0.5±0.05	1.38	51.77	2.91	1.99	2.19	1.17	4.45	2.12	1.15
56	138	0.52±0.05	1.38	51.77	2.91	1.99	2.19	1.17	4.45	2.12	1.15
56	138	2.21±0.25	1.38	51.77	2.91	1.99	2.19	1.17	4.45	2.12	1.15
56	138	2.36±0.31	1.38	51.77	2.91	1.99	2.19	1.17	4.45	2.12	1.15
57	139	2.57±0.12	1.88	58.22	3.32	2.64	2.7	1.88	5.56	1.51	1.56
58	142	6±1	1.7	56.44	3.05	2.42	2.49	1.61	5.18	2.43	1.41
60	144	9±1.7	3.08	70.73	3.91	4.19	3.74	3.52	7.95	3.66	2.51
63	151	19.1±3.6	3.29	73.7	3.71	4.5	3.84	3.81	8.4	2.72	2.68
64	156	8.5±1.3	2.04	62.41	2.8	2.93	2.73	2.08	5.98	2.67	1.68
64	158	2.4±0.4	1.42	54.77	2.32	2.1	2.11	1.19	4.62	2.06	1.18
64	158	2.1±0.4	1.42	54.77	2.32	2.1	2.11	1.19	4.62	2.06	1.18
67	165	1.2±0.4	1.56	57.63	2.23	2.32	2.22	1.38	4.98	1.23	1.3
70	174	1.12±0.11	1.23	53.75	1.79	1.89	1.84	0.9	4.23	1.81	1.03
70	176	0.56±0.05	0.89	47.92	1.51	1.41	1.47	0.45	3.37	1.45	0.76
73	181	1.8±0.3	1.35	56.46	1.71	2.08	1.94	1.06	4.56	1.06	1.13

Table 4: Comparison of measured (n, 2n) reaction cross-sections at 14.5 MeV for even-A nuclei, including data from this study and previous literature.

Nuclide		Measured Data $\sigma^{\text{exp}} \pm \Delta\sigma^{\text{exp}}$ mb	Present work σ^{cal} mb	Literature (mb)					
Z	A			Chatterjee et al. [11]	Lu and Fink [12]	Bychkov et al. [13]	Konobeyev and Korovin [14]	Habbani et al. [6]	J. Luo [8]
20	48	920±184	974	895.85	948.98	986.42	974.93	904.93	974.57
24	52	351±15	341	801.62	390.70	691.07	873.37	669.39	294.94
26	56	410±33	312	825.78	278.60	680.32	833.69	678.31	242.15
28	64	958±64	863	971.28	993.54	962.00	1125.66	883.19	1005.29
30	64	224±45	268	873.05	17.52	662.87	661.58	698.22	166.81
30	66	618±20	519	931.58	704.33	827.27	1017.57	788.40	544.60
30	70	1307±130	1069	1050.49	1111.36	1060.96	1202.06	985.93	1172.60
32	70	489±76	483	952.92	640.67	820.57	992.48	795.30	477.67
32	72	740±45	767	1010.28	967.79	952.02	1153.60	887.01	898.47
34	74	365±37	452	974.08	567.31	814.59	950.26	802.93	418.16
34	76	833±77	722	1029.80	942.89	947.65	1155.83	890.89	833.06
34	78	978±72	994	1086.02	1121.26	1056.81	1248.67	983.62	1149.35
34	80	1074±79	1203	1142.70	1213.88	1147.81	1297.58	1081.03	1279.34
34	82	1363±196	1302	1199.77	1267.66	1224.81	1321.75	1183.05	1290.85
38	86	852±47	908	1121.97	1107.66	1053.20	1272.76	987.15	1067.74
39	88	1140±50	887	1130.98	1100.58	1052.40	1275.01	988.71	1041.52
40	88	467±23	607	1087.96	822.56	936.91	1103.64	907.73	636.02
40	90	768±23	866	1139.98	1092.04	1051.65	1275.62	990.48	1013.82
42	92	190±29	575	1107.15	768.23	934.07	1061.46	914.57	576.86
42	94	550±136	825	1157.98	1070.62	1050.27	1271.60	994.63	955.39
42	100	1377±86	1420	1312.62	1394.38	1310.85	1475.62	1255.70	1450.67
44	96	478±91	546	1126.22	707.34	931.56	1003.38	921.85	522.45
44	98	1169±96	786	1175.95	1043.51	1049.07	1259.92	999.46	894.98
44	104	1440±80	1416	1327.19	1410.84	1315.12	1502.51	1251.88	1481.43
46	110	1392±199	1512	1391.88	1476.66	1389.23	1559.47	1336.92	1525.83
48	108	1164±85	957	1259.77	1206.79	1151.28	1387.13	1086.97	1120.35
48	110	1226±79	1188	1308.15	1347.20	1242.49	1485.74	1166.07	1376.11
48	116	1634±116	1576	1454.94	1535.37	1459.27	1611.17	1420.40	1558.03
50	114	1084±42	1151	1324.08	1344.43	1244.63	1493.81	1168.09	1346.30
50	120	1444±210	1596	1468.05	1555.11	1466.30	1640.50	1414.85	1597.06
50	124	1862±212	1564	1565.16	1616.32	1580.67	1665.35	1592.46	1599.42
52	120	1189±68	1325	1386.89	1448.51	1330.46	1578.57	1248.19	1508.06
52	122	1590±94	1494	1434.00	1521.87	1405.44	1631.46	1328.12	1606.02
52	128	1390±0	1629	1576.67	1639.90	1590.44	1702.62	1582.87	1625.32
56	130	1499±95	1450	1462.70	1540.15	1415.30	1666.11	1327.14	1618.82
56	132	1720±120	1597	1508.41	1603.00	1485.85	1712.91	1405.20	1687.35
58	136	1330±57	1583	1522.11	1614.99	1491.93	1732.35	1403.87	1704.54
58	138	1916±188	1694	1567.28	1665.15	1557.55	1769.54	1482.10	1734.13
58	140	1766±67	1749	1612.63	1703.03	1617.75	1795.41	1562.46	1731.68
58	142	1979±81	1747	1658.16	1732.93	1673.24	1811.89	1644.93	1725.55
60	142	1690±100	1691	1580.36	1680.02	1564.77	1791.56	1479.61	1761.68
60	144	1763±133	1767	1624.99	1721.37	1626.26	1821.51	1557.95	1767.80
60	146	1937±148	1788	1669.80	1753.71	1683.02	1841.95	1638.30	1760.11
60	148	1789±147	1757	1714.77	1780.09	1735.66	1853.84	1720.65	1762.39
60	150	1679±118	1681	1759.89	1802.46	1784.69	1856.80	1804.96	1795.05
62	144	1452±0	1541	1549.78	1632.74	1503.56	1764.38	1403.44	1717.06
62	148	1112±59	1776	1637.50	1738.28	1634.52	1845.59	1554.39	1801.29
62	150	1931±143	1819	1681.62	1773.32	1692.51	1869.77	1632.76	1796.11
62	152	1760±138	1810	1725.90	1801.61	1746.34	1885.58	1713.05	1791.41
62	154	225±90	1755	1770.32	1825.34	1796.52	1893.24	1795.23	1807.20
64	152	1867±233	1778	1650.13	1753.73	1642.54	1867.78	1551.67	1831.01
64	154	1855±140	1840	1693.59	1791.71	1701.73	1895.60	1628.19	1831.76
64	156	1819±140	1853	1737.21	1822.11	1756.72	1914.98	1706.55	1824.30
64	158	1846±145	1818	1780.98	1847.35	1808.03	1926.65	1786.73	1828.43
64	160	1470±809	1743	1824.89	1869.04	1856.07	1930.30	1868.70	1861.36
66	156	1943±194	1774	1662.86	1767.67	1650.35	1888.16	1549.71	1856.11
66	158	1940±120	1854	1705.70	1808.84	1710.69	1919.60	1624.50	1865.64
66	160	2015±120	1886	1748.70	1841.56	1766.82	1942.35	1701.05	1859.03
68	162	1927±130	1860	1717.93	1824.68	1719.42	1941.88	1621.59	1896.67
68	164	2040±430	1910	1760.33	1859.93	1776.65	1967.89	1696.44	1893.96
70	168	1913±217	1927	1772.08	1877.18	1786.22	1991.77	1692.65	1927.82
70	170	1945±100	1950	1814.05	1907.98	1840.75	2013.29	1767.52	1920.62

Continued on next page ...

Nuclide		Measured Data $\sigma^{\text{exp}} \pm \Delta\sigma^{\text{exp}}$ mb	Present work σ^{cal} mb	Literature (mb)					
Z	A			Chatterjee et al. [11]	Lu and Fink [12]	Bychkov et al. [13]	Konobeyev and Korovin [14]	Habbani et al. [6]	J. Luo [8]
70	176	2226±152	1785	1940.73	1975.52	1985.59	2036.64	2001.68	1988.59
72	176	2000±100	1976	1866.92	1953.67	1903.28	2056.20	1837.73	1948.84
74	180	1866±176	2012	1877.83	1972.75	1914.38	2082.72	1832.33	1981.03
74	182	2110±75	1990	1918.98	1997.48	1964.46	2096.95	1907.11	1980.83
74	184	1910±147	1932	1960.24	2019.00	2011.81	2105.05	1983.37	2000.02
74	186	1985±90	1845	2001.61	2038.18	2056.69	2106.50	2061.07	2050.19
76	186	2004±120	2035	1929.51	2017.14	1976.24	2124.65	1900.98	2009.38
76	192	2406±105	1822	2052.09	2077.86	2113.74	2139.08	2129.28	2120.10
78	190	2187±164	2073	1940.17	2036.03	1987.75	2150.78	1895.62	2040.35
78	192	2047±97	2047	1980.43	2059.86	2036.88	2164.59	1968.85	2041.55
80	196	2220±170	2093	1990.74	2079.26	2049.02	2191.79	1962.82	2068.86
80	198	2010±180	2049	2030.64	2101.19	2096.48	2202.73	2035.96	2078.78
80	204	1942±174	1767	2150.92	2154.90	2225.82	2199.09	2263.19	2288.53
82	208	2010±158	1856	2159.53	2176.67	2240.88	2238.16	2252.17	2254.66
82	204	2161±172	2044	2080.16	2141.36	2155.15	2239.22	2102.33	2121.93
82	206	2028±155	1961	2119.80	2159.77	2198.98	2241.89	2176.63	2169.89
90	232	1400±280	1737	2348.64	2323.25	2460.57	2346.16	2508.91	2652.33

Table 5: Comparison of measured (n, 2n) reaction cross-sections at 14.5 MeV for odd-A nuclei, including data from this study and previous literature.

Nuclide		Measured Data $\sigma^{\text{exp}} \pm \Delta\sigma^{\text{exp}}$ mb	Present work σ^{cal} mb	Literature (mb)					
Z	A			Chatterjee et al. [11]	Lu and Fink [12]	Bychkov et al. [13]	Konobeyev and Korovin [14]	Habbani et al. [6]	J. Luo [8]
21	45	316±8	403	730.34	132.07	608.08	794.55	617.01	172.05
25	55	638±320	642	845.60	639.32	772.45	960.93	746.14	494.33
27	59	683±64	613	868.42	568.64	762.71	947.38	757.86	422.04
29	63	565±40	588	891.02	485.57	754.10	916.16	770.11	359.55
29	65	937±37	850	950.85	888.57	898.88	1091.26	864.67	802.02
31	69	866±62	821	971.32	856.49	892.71	1093.16	873.44	730.49
31	71	1135±105	1047	1029.85	1059.06	1009.80	1188.25	969.09	1079.60
33	75	1027±75	1025	1048.50	1053.09	1006.41	1204.41	974.75	1038.79
37	85	1205±69	1175	1140.12	1180.72	1103.25	1307.21	1077.98	1215.43
37	87	1307±140	1310	1194.73	1268.92	1190.45	1357.50	1170.90	1337.85
39	89	972±16	1157	1157.45	1178.50	1102.63	1321.21	1083.01	1184.72
41	93	1150±300	1136	1174.84	1171.12	1102.09	1329.97	1088.84	1143.48
45	103	773±155	1277	1259.37	1293.03	1196.29	1432.13	1183.92	1315.17
47	107	1523±70	1259	1275.73	1289.03	1197.66	1440.38	1189.19	1282.10
49	113	1527±237	1402	1340.18	1398.12	1285.47	1526.68	1274.72	1453.46
49	115	1805±218	1519	1388.51	1473.78	1362.28	1579.42	1356.92	1555.11
51	121	1370±140	1602	1450.76	1542.04	1437.14	1639.35	1441.34	1612.18
51	123	1245±311	1634	1498.65	1583.45	1500.73	1665.88	1525.99	1612.42
55	133	1900±100	1705	1571.14	1657.33	1575.99	1743.52	1606.13	1680.00
59	141	2060±721	1759	1596.28	1693.88	1592.25	1796.04	1603.35	1752.05
63	151	1644±122	1831	1665.67	1765.51	1668.42	1871.04	1680.40	1817.25
63	153	1819±71	1838	1709.54	1798.06	1724.85	1892.73	1758.74	1809.97
64	155	1864±152	1856	1715.38	1807.68	1729.72	1906.27	1757.56	1827.74
64	157	1872±157	1835	1759.08	1835.26	1782.81	1921.78	1836.67	1823.80
65	159	1932±82	1858	1764.64	1845.56	1788.17	1936.58	1834.81	1839.49
67	165	2042±303	1870	1818.80	1890.94	1849.91	1977.97	1909.84	1873.61
69	169	1939±29	1919	1829.62	1911.45	1861.20	2007.45	1905.93	1902.48
71	175	1860±190	1929	1882.48	1955.58	1922.32	2047.98	1979.16	1936.80
73	181	1910±154	1932	1934.52	1998.19	1982.24	2086.50	2051.46	1977.20
74	183	1910±166	1960	1939.59	2008.58	1988.46	2101.78	2049.06	1987.27
75	185	2116±169	1986	1944.71	2018.80	1994.61	2116.58	2046.86	1998.72
75	187	1675±168	1929	1985.77	2039.52	2041.14	2123.15	2122.85	2024.69
77	191	1902±98	1989	1995.62	2060.42	2054.11	2154.47	2117.57	2038.99
77	193	2040±100	1922	2036.29	2079.79	2099.13	2158.05	2193.36	2079.92
79	197	1833±140	1986	2045.81	2100.89	2112.66	2190.64	2187.45	2085.89
81	203	1895±76	1979	2095.30	2140.36	2170.39	2225.19	2256.51	2140.00
81	205	1895±143	1898	2135.22	2157.67	2212.85	2222.93	2331.84	2215.36
82	207	1945±156	1934	2139.66	2168.38	2220.16	2240.90	2328.21	2207.02
83	209	2279±173	1969	2144.14	2178.98	2227.40	2258.21	2324.78	2201.73

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