JANIS Book

of helion-induced cross-sections

Comparison of evaluated and experimental data from

TENDL-2011 and EXFOR

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OECD NEA Data Bank

Introduction

This document compares evaluated cross-sections below 200 MeV with corresponding experimental data from the EXFOR database for a number of evaluated libraries (Table 1), nuclear reactions and associated reaction products (Table 2). This document was produced using tools based on the NEA Java-based nuclear information software (JANIS) and associated databases [1].

Caveat: When studying plots, please take into account that the energy resolution of experimental data is not always comparable with the resolution of the evaluated data.

Graphical comparison of nuclear data

Experimental data sets are identified by their EXFOR entry number. All experimental data are plotted on the graph but the legend will ignore all of them if there are more than 20 data sets.

Evaluated data are plotted with full lines for exclusive cross-sections explicitly defined by a MT number, whereas dashed lines indicate residual production cross-sections given in MT5. A star '*' after the name of the library indicates additional operations performed by JANIS, e.g. summation over the ground and metastable yields, reconstruction of residual production cross-sections over the whole energy range.

The data are plotted in log-log scale (on the left hand side) and lin-log scale (on the right hand side). The best representation depends on the Q value of the reaction and/or the magnitude of the variation in the cross-section values.

Table of reactions and Q values

In order to identify individual contributions in residual production cross-sections, reactions leading to the same product are listed along with their associated Q values. The latter are calculated using mass excess from the 2003 Nubase and Atomic Mass Evaluation [2].

Navigation in this document

The data are sorted by element, then by isotope and finally by reaction. In order to facilitate access to the information, two navigation modes are available in addition to the usual bookmark. At the top of each page, on the first row, the previous (<<) and next (>>) "Isotope links" allow the reader to move from one isotope to another while staying on the same MT reaction. On the second row, the "MT links" allow scanning all reactions of a given isotope. The latter navigation mode is actually similar to the use of the page up and page down keys.

References

[1] N. Soppera *et al.*, *Journal of the Korean Physical Society*, 59 (2011) 1329. See also www.oecd-nea.org/janis.

[2] G. Audi, A.H. Wapstra, *et al.*, *Nuclear Physics* A 729 (2003) 3-676.

Table 1: list of databases used in the inter-comparison

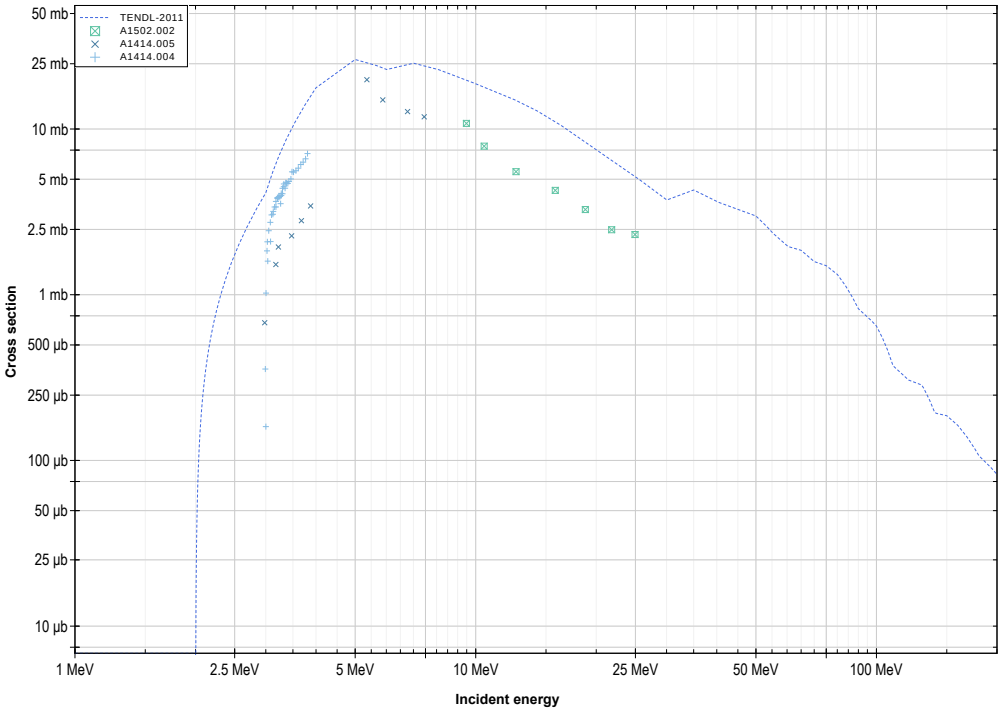
Library	Release date
TENDL-2011	December 2011
EXFOR	May 2012

Table 2: list of exclusive reactions used in the inter-comparison

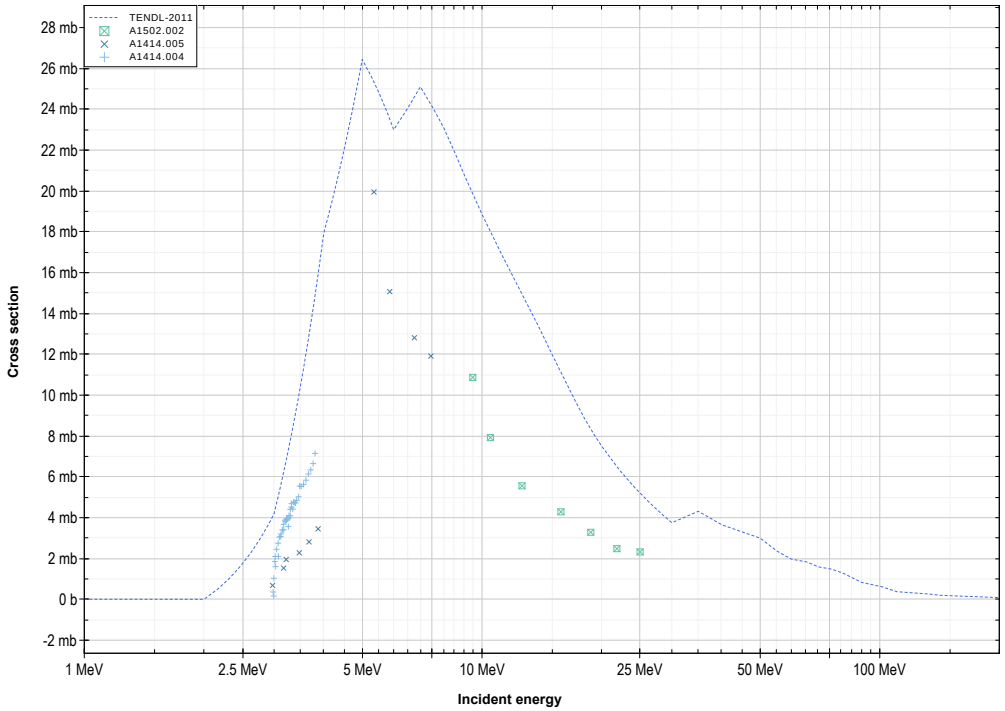
MT	Reaction	MT	Reaction	MT	Reaction	MT	Reaction
4	n	102	gamma	159	2n+p+a	181	3n+p+a
11	2n+d	103	p	160	7n	182	d+t
16	2n	104	d	161	8n	183	n+p+d
17	3n	105	t	162	5n+p	184	n+p+t
18	fission	106	h	163	6n+p	185	n+d+t
22	n+a	107	a	164	7n+p	186	n+p+h
23	n+3a	108	2a	165	4n+a	187	n+d+h
24	2n+a	109	3a	166	5n+a	188	n+t+h
25	3n+a	111	2p	167	6n+a	189	n+t+a
28	n+p	112	p+a	168	7n+a	190	2n+2p
29	n+2a	113	t+2a	169	4n+d	191	p+h
30	2n+2a	114	d+2a	170	5n+d	192	d+h
32	n+d	115	p+d	171	6n+d	193	h+a
33	n+t	116	p+t	172	3n+t	194	4n+2p
34	n+h	117	d+a	173	4n+t	195	4n+2a
35	n+d+2a	152	5n	174	5n+t	196	4n+p+a
36	n+t+2a	153	6n	175	6n+t	197	3p
37	4n	154	2n+t	176	2n+h	198	n+3p
41	2n+p	155	t+a	177	3n+h	199	3n+2p+a
42	3n+p	156	4n+p	178	4n+h	200	5n+2p
44	n+2p	157	3n+d	179	3n+2p		
45	n+p+a	158	n+d+a	180	3n+2a		

	3-Li-6	4-Be-9 >>
	MT4 (³He,n) or MT5 (B8 production)	MT104 (³He,d) >>

Li6 (³He,n) log-log



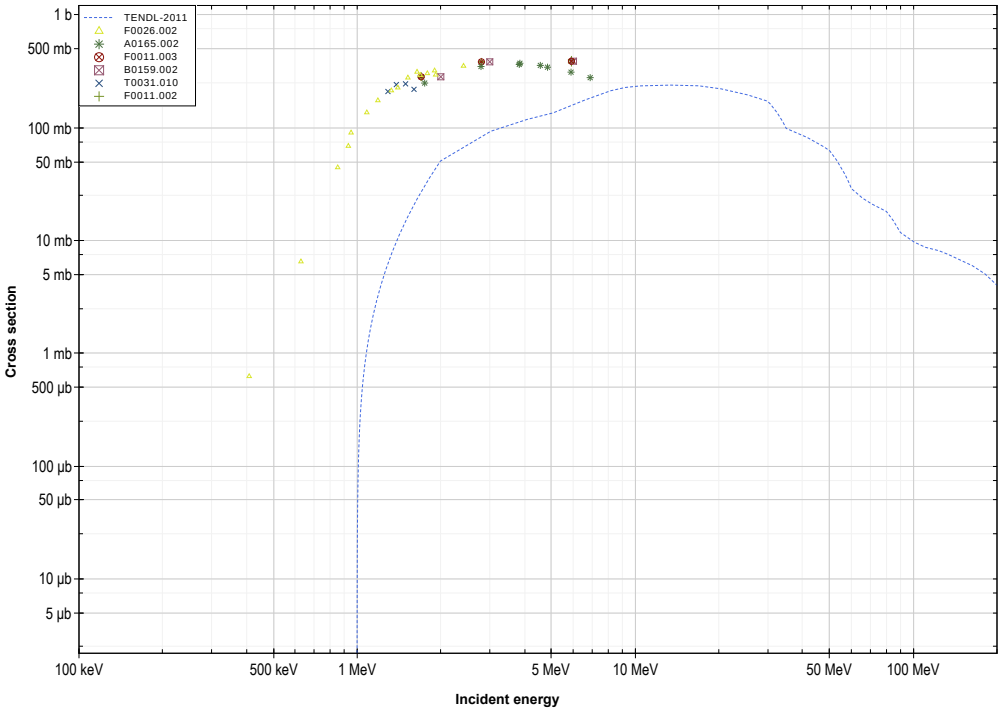
Li6 (³He,n) lin-log



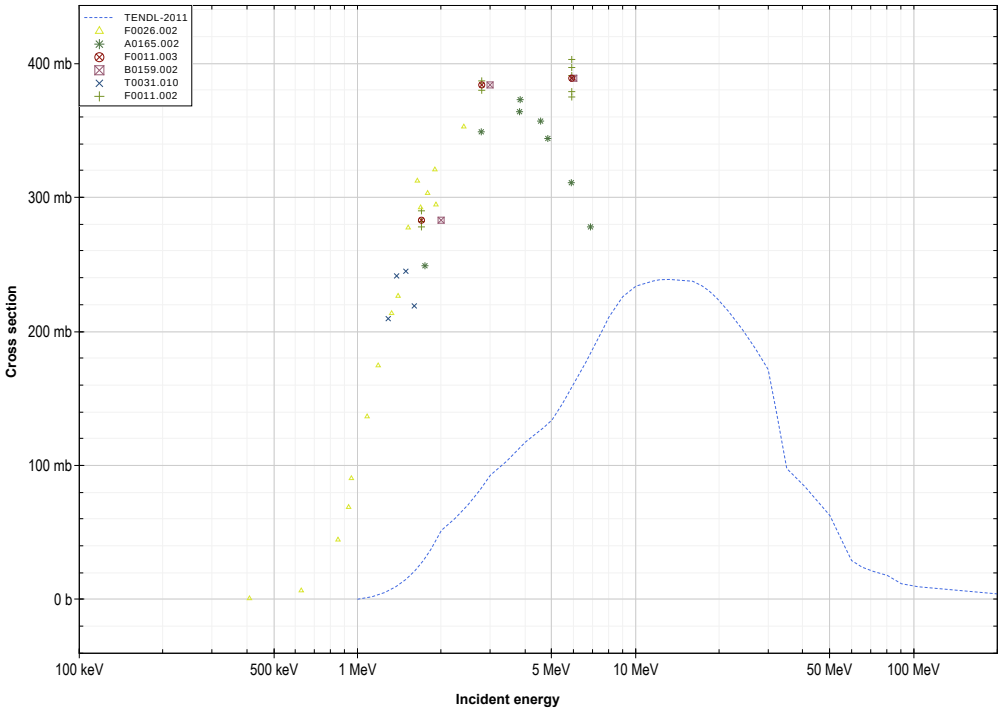
Reaction	Q-Value
Li6(He3,n)B8	-1974.81 keV

	3-Li-6	5-B-10 >>
<< MT4 (³He,n)	**MT104 (³He,d) or MT5 (Be7 production)**	MT112 (³He,p+α) >>

Li6 (³He,d) log-log



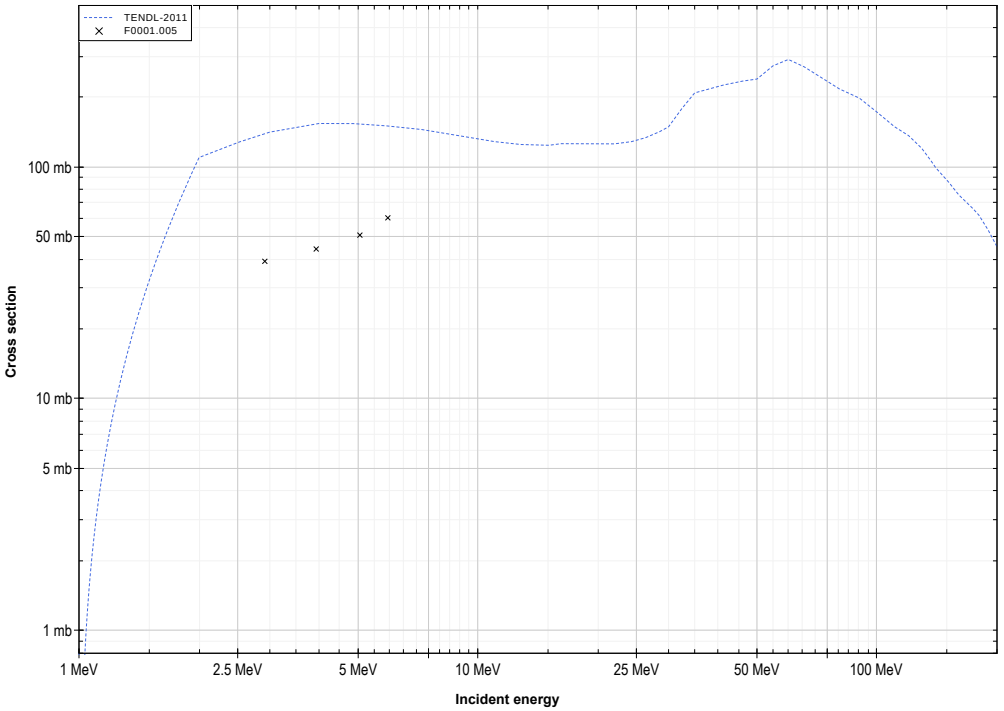
Li6 (³He,d) lin-log



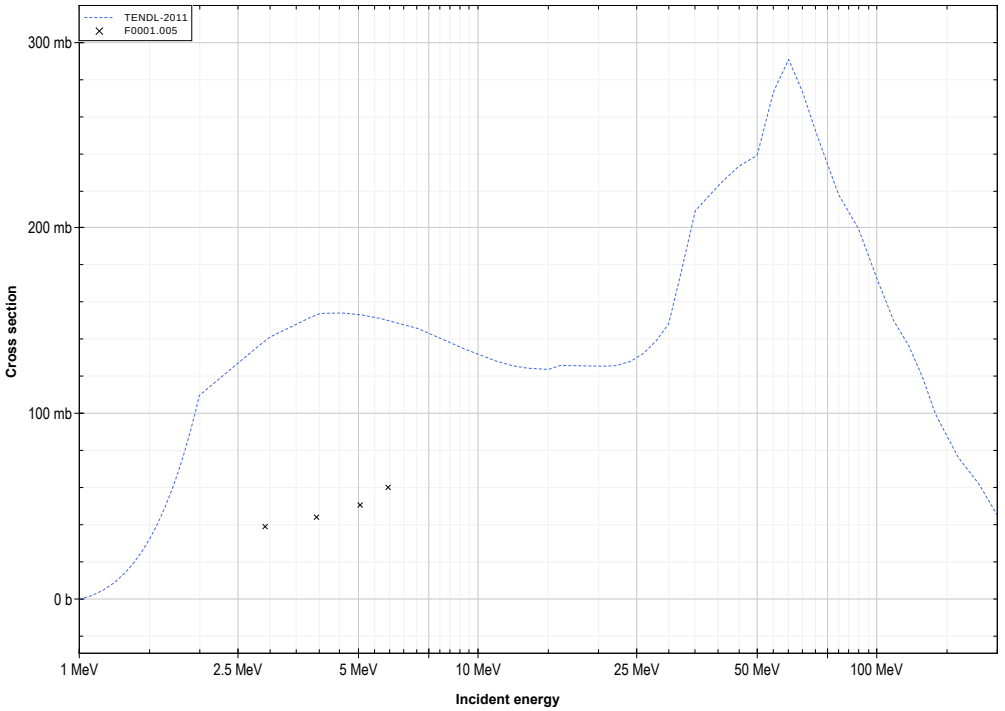
Reaction	Q-Value
Li6(He3,d)Be7	112.26 keV
Li6(He3,n+p)Be7	-2112.31 keV

	3-Li-6	44-Ru-101 >>
<< MT104 (³He,d)	**MT112 (³He,p+α) or MT5 (He4 production)**	MT105 (³He,t) >>

Li6 (³He,p+α) log-log



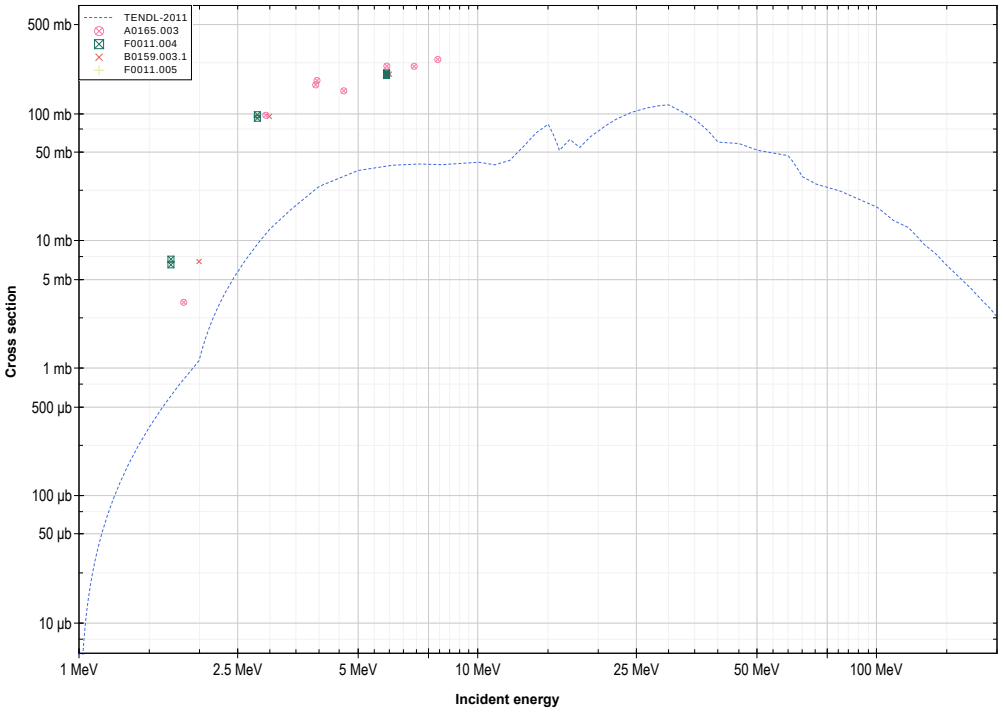
Li6 (³He,p+α) lin-log



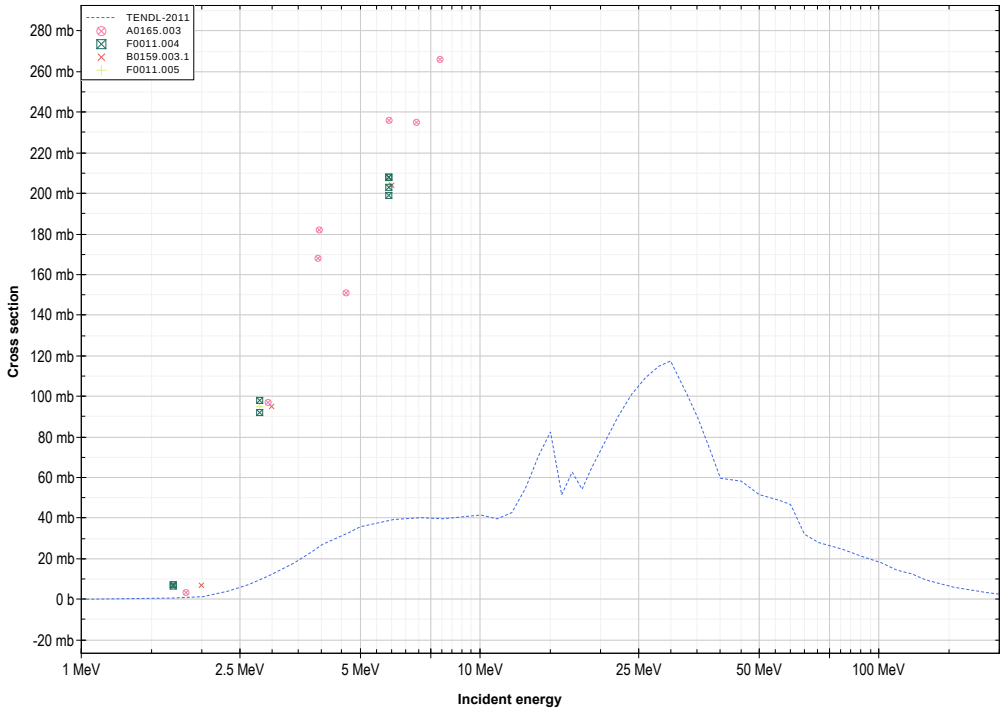
Reaction	Q-Value
Li6(He3,p+α)He4	16879.21 keV
Li6(He3,d+He3)He4	-1473.84 keV
Li6(He3,2p+t)He4	-2934.65 keV
Li6(He3,n+p+He3)He4	-3698.41 keV
Li6(He3,p+2d)He4	-6967.32 keV
Li6(He3,n+2p+d)He4	-9191.89 keV
Li6(He3,2n+3p)He4	-11416.45 keV

	3-Li-7	5-B-10 >>
<< MT112 (^{3}He,p+α)	**MT105 (^{3}He,t) or MT5 (Be7 production)**	MT4 (^{3}He,n) >>

Li7 (^{3}He,t) log-log



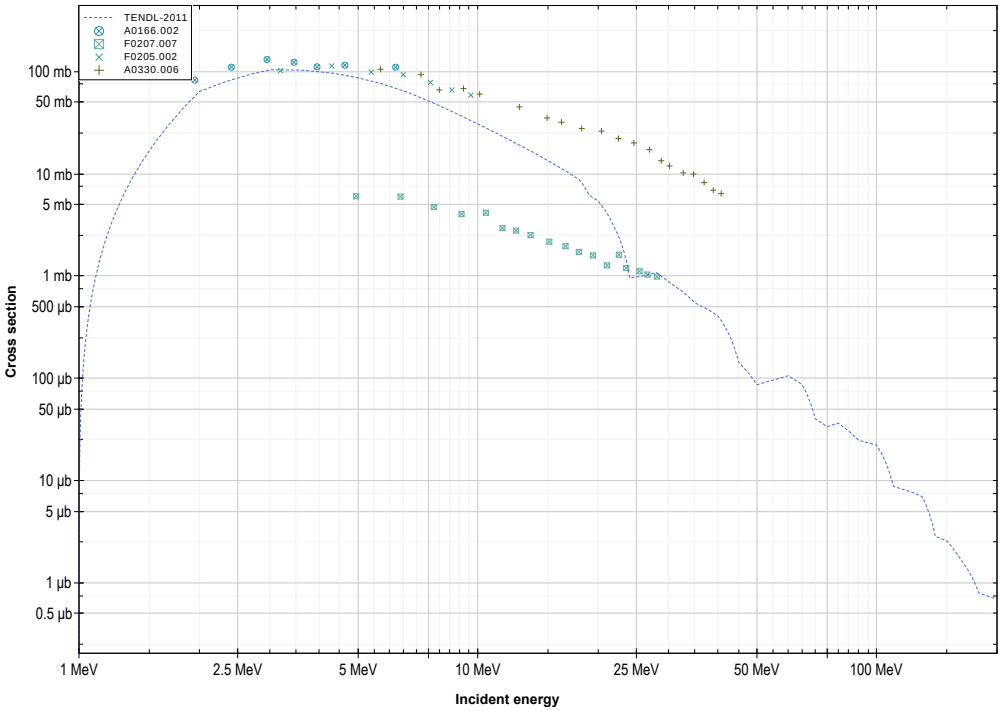
Li7 (^{3}He,t) lin-log



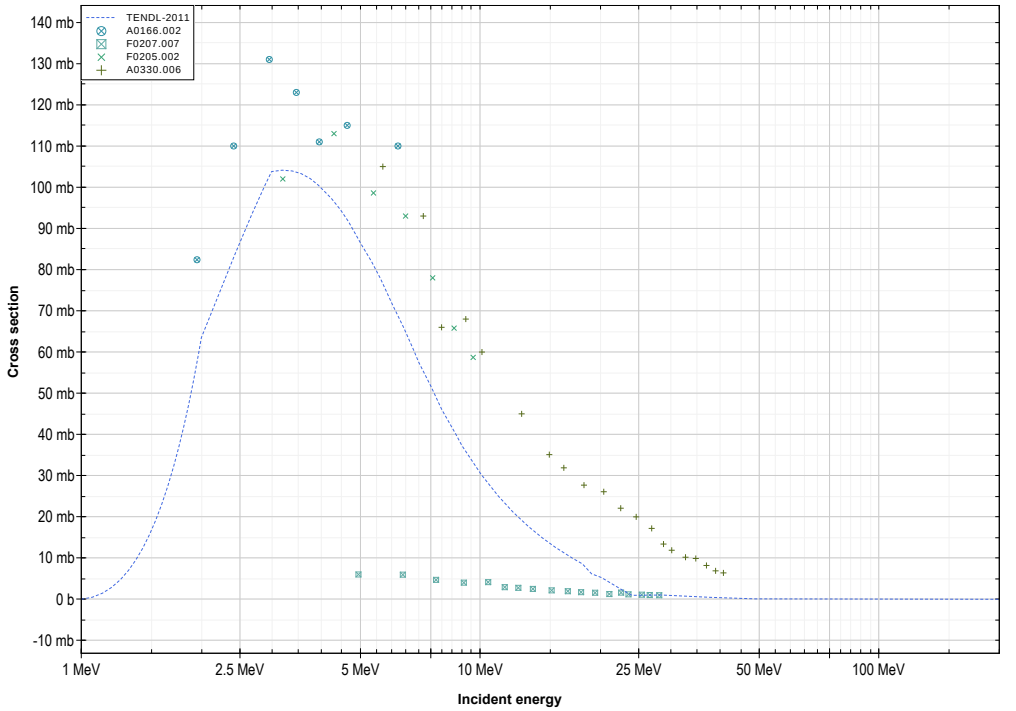
Reaction	Q-Value
Li7(He3,t)Be7	-880.48 keV
Li7(He3,n+d)Be7	-7137.71 keV
Li7(He3,2n+p)Be7	-9362.28 keV

<< 3-Li-6	**4-Be-9**	5-B-10 >>
<< MT105 (^{3}He,t)	**MT4 (^{3}He,n) or MT5 (C11 production)**	MT16 (^{3}He,2n) >>

Be9 (^{3}He,n) log-log



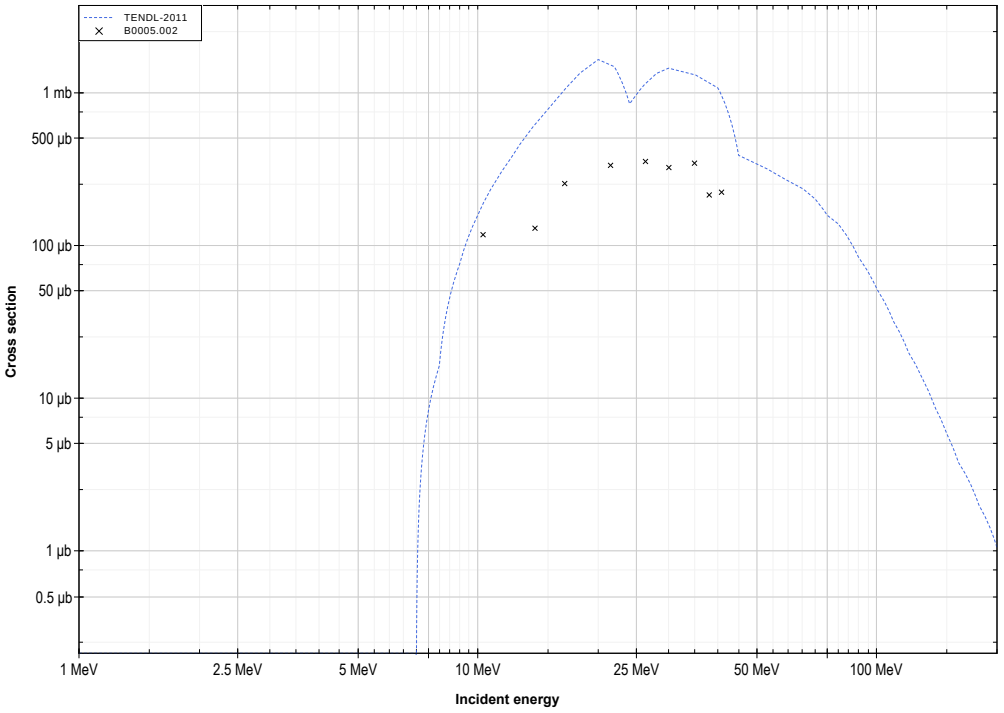
Be9 (^{3}He,n) lin-log



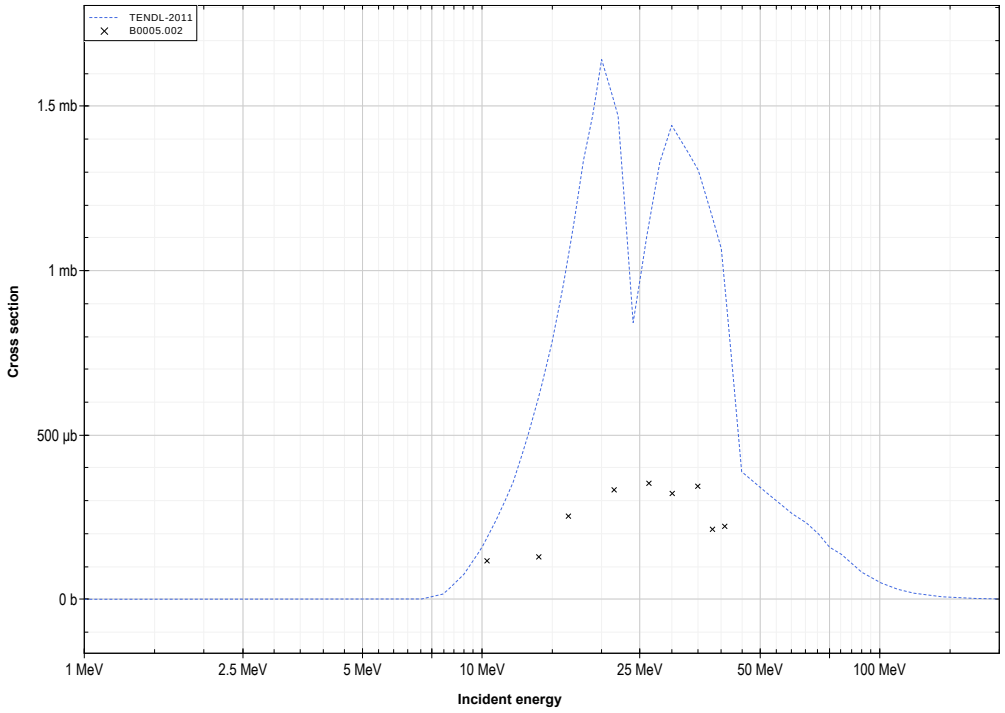
Reaction	Q-Value
Be9(He3,n)C11	7557.20 keV

	4-Be-9	12-Mg-24 >>
<< MT4 (^{3}He,n)	**MT16 (^{3}He,2n) or MT5 (C10 production)**	MT22 (^{3}He,n+α) >>

Be9 (^{3}He,2n) log-log



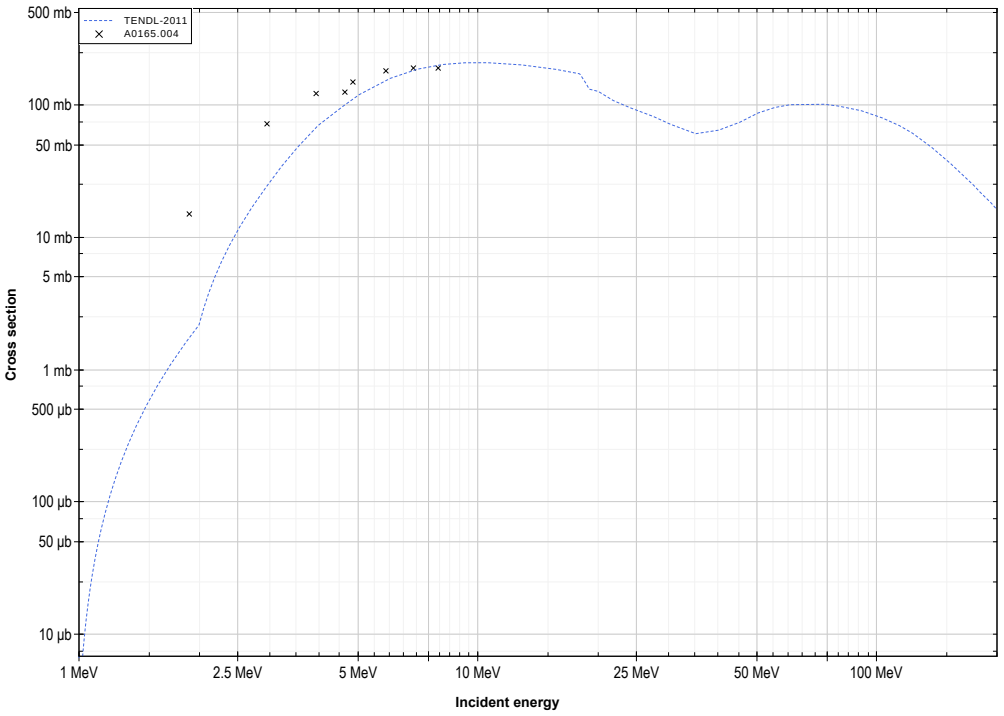
Be9 (^{3}He,2n) lin-log



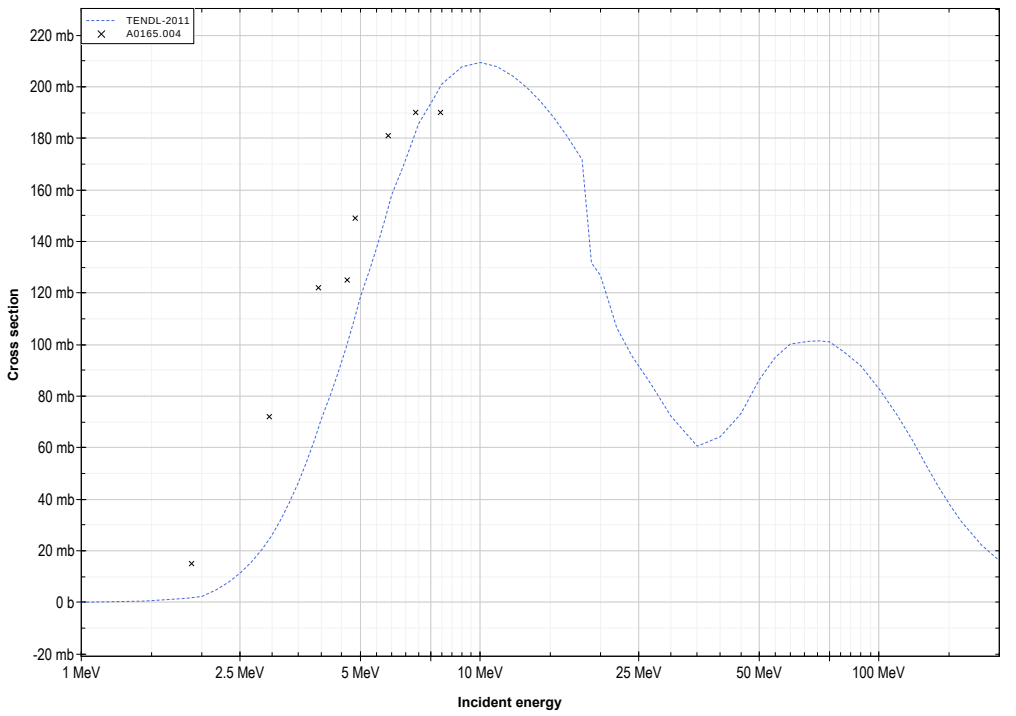
Reaction	Q-Value
Be9(He3,2n)C10	-5562.52 keV

	4-Be-9	9-F-19 >>
<< MT16 (³He,2n)	**MT22 (³He,n+α) or MT5 (Be7 production)**	MT4 (³He,n) >>

Be9 (³He,n+α) log-log



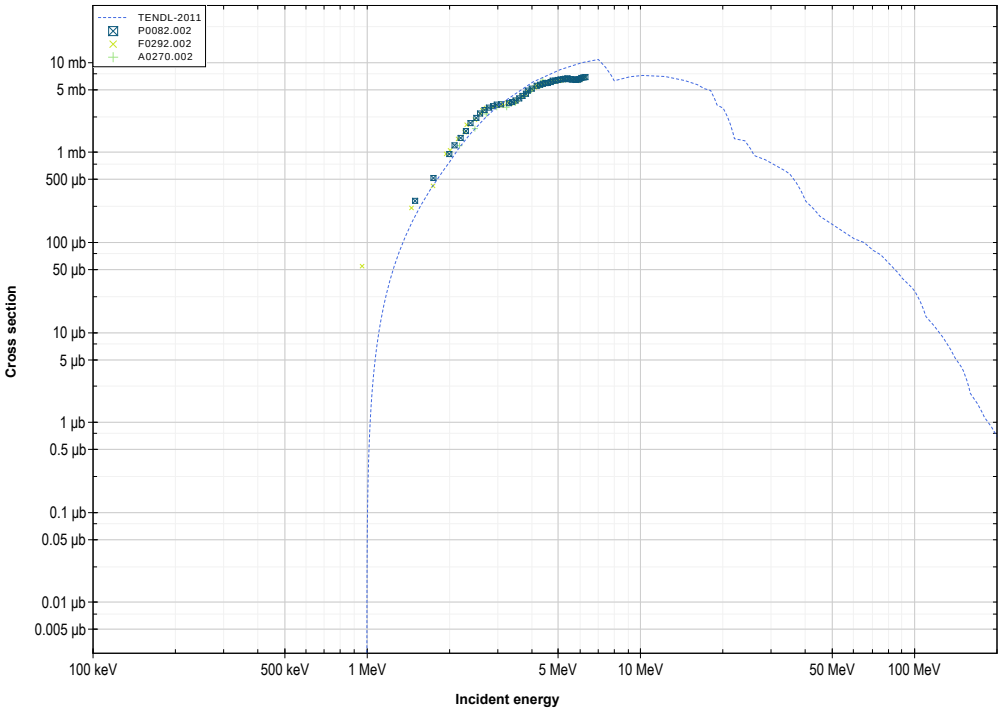
Be9 (³He,n+α) lin-log



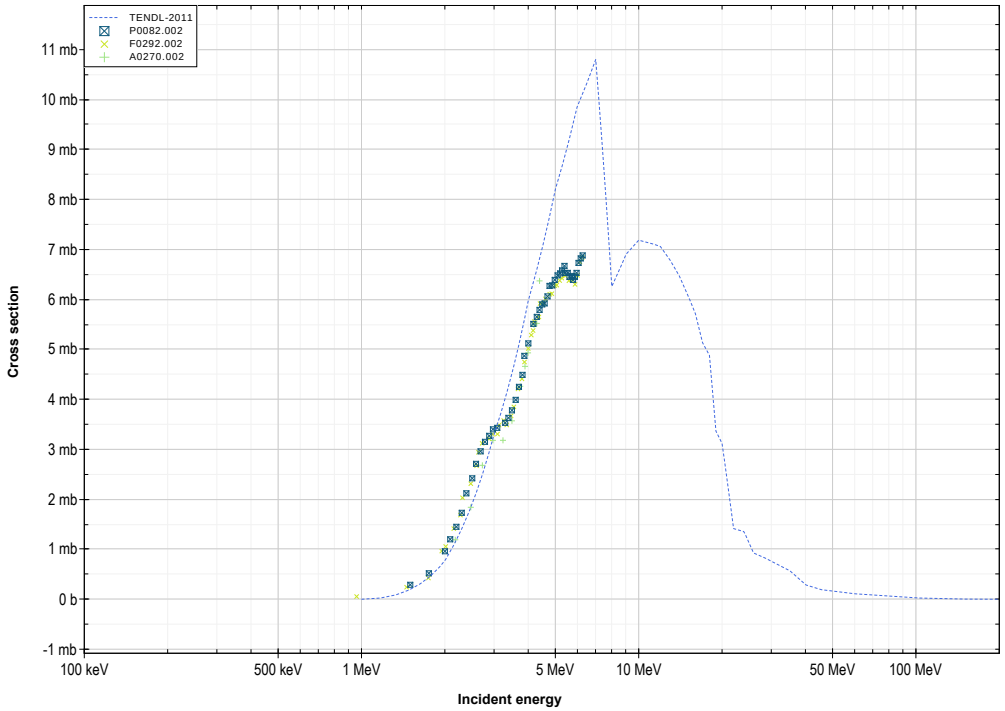
Reaction	Q-Value
Be9(He3,n+α)Be7	12.55 keV
Be9(He3,d+t)Be7	-17576.74 keV
Be9(He3,n+p+t)Be7	-19801.31 keV
Be9(He3,2n+He3)Be7	-20565.06 keV
Be9(He3,n+2d)Be7	-23833.98 keV
Be9(He3,2n+p+d)Be7	-26058.54 keV
Be9(He3,3n+2p)Be7	-28283.11 keV

<< 4-Be-9	**5-B-10**	6-C-12 >>
<< MT22 (^{3}He,n+α)	**MT4 (^{3}He,n) or MT5 (N12 production)**	MT104 (^{3}He,d) >>

B10 (^{3}He,n) log-log



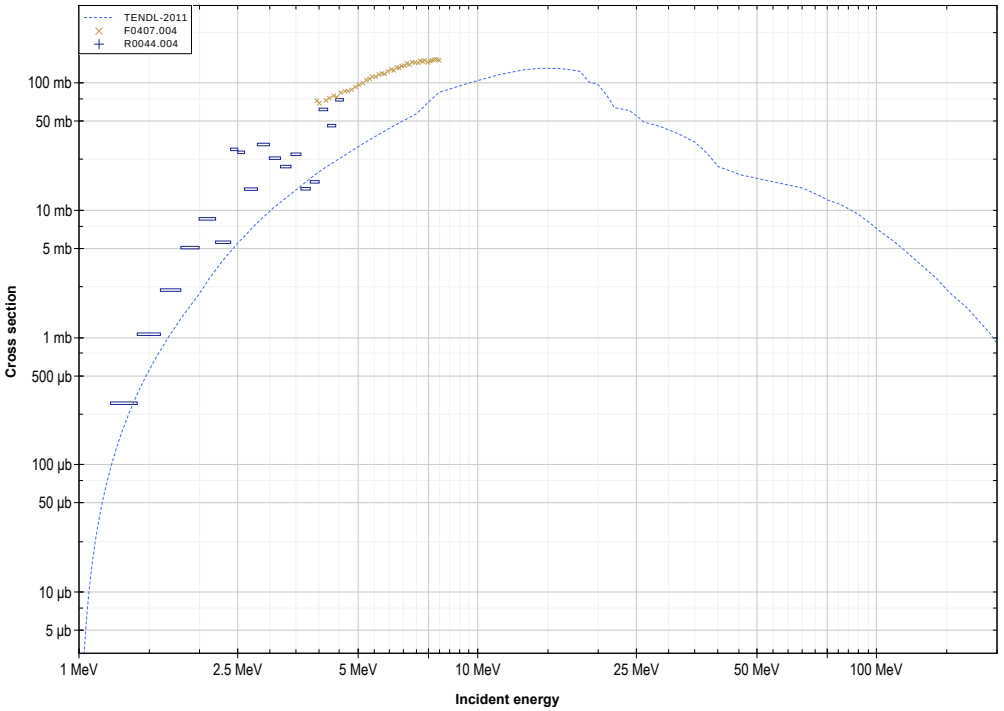
B10 (^{3}He,n) lin-log



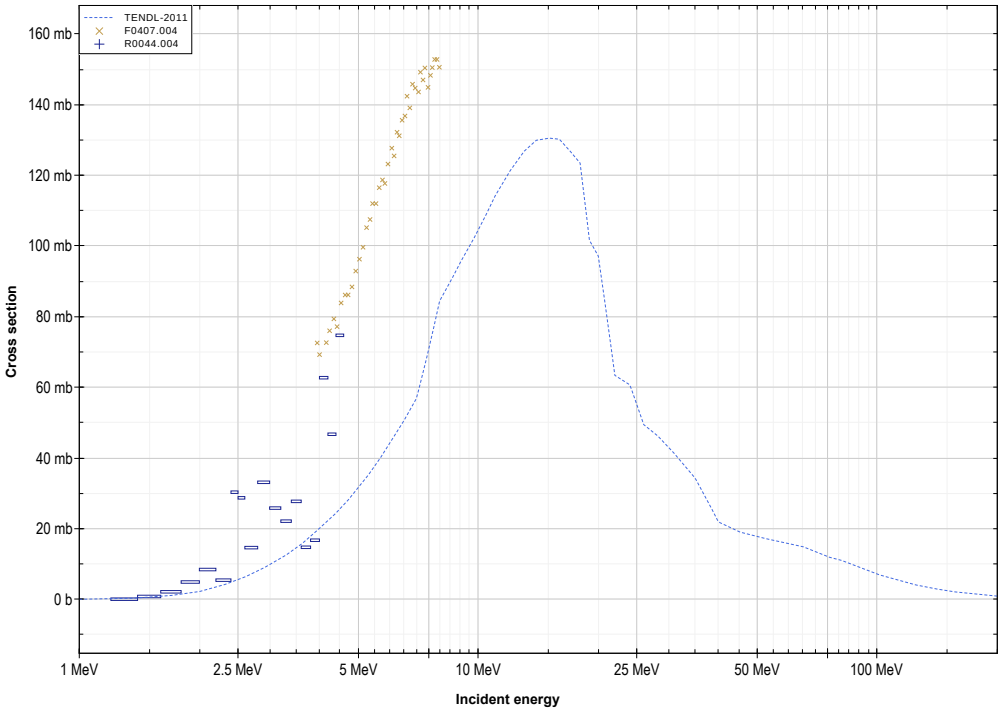
Reaction	Q-Value
B10(He3,n)N12	1572.50 keV

<< 3-Li-6	**5-B-10**	6-C-12 >>
<< MT4 (³He,n)	**MT104 (³He,d) or MT5 (C11 production)**	MT105 (³He,t) >>

B10 (³He,d) log-log



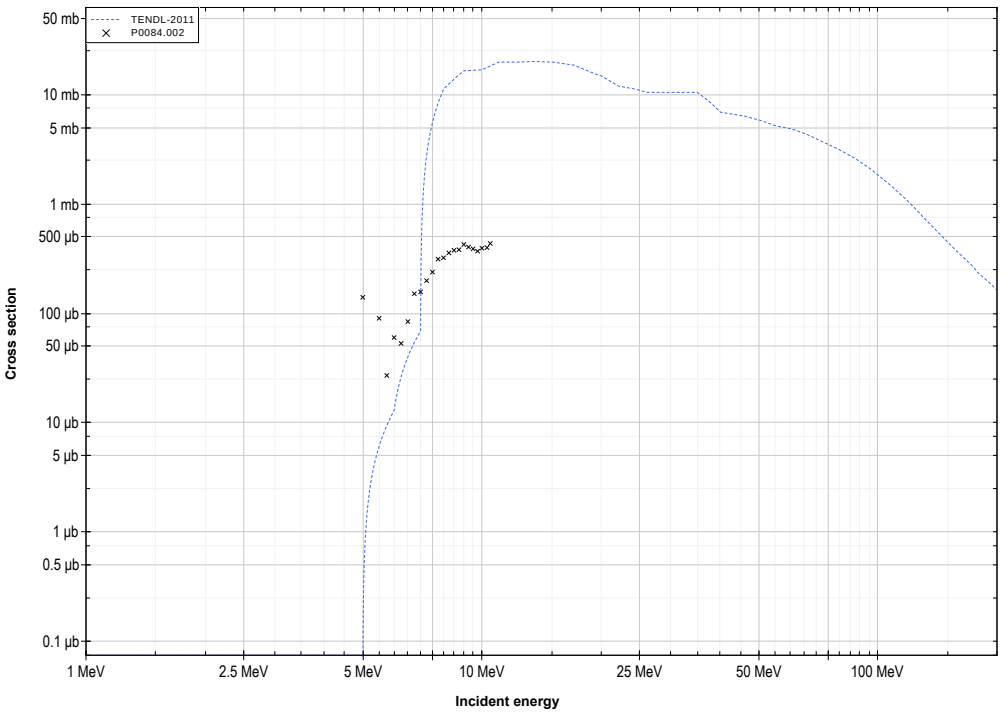
B10 (³He,d) lin-log



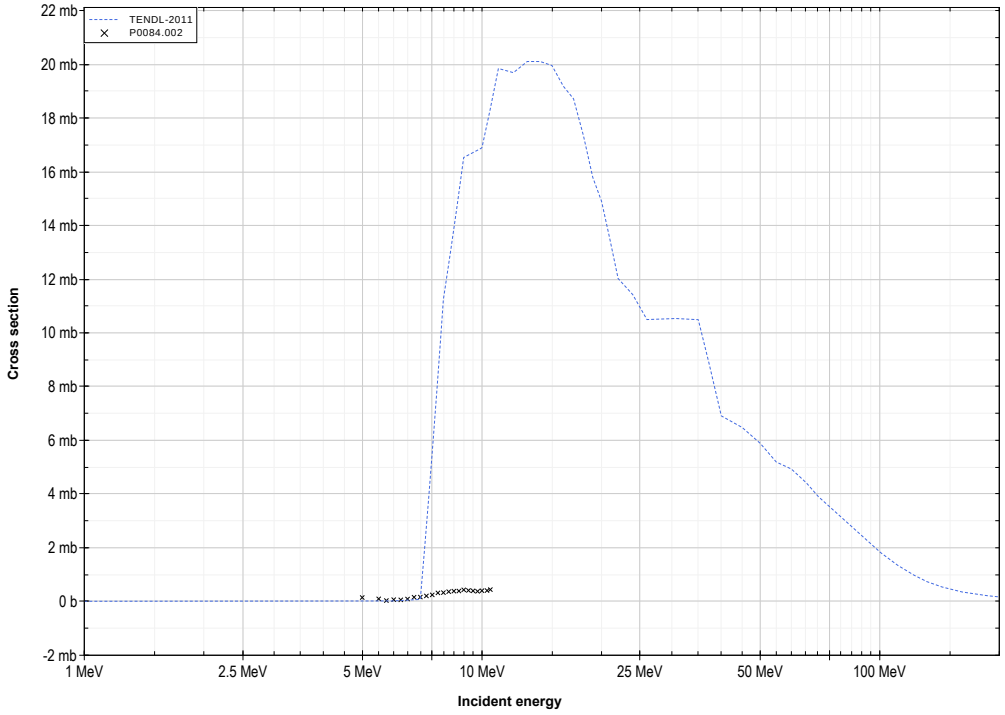
Reaction	Q-Value
B10(He3,d)C11	3195.89 keV
B10(He3,n+p)C11	971.33 keV

<< 3-Li-7	**5-B-10**	5-B-11 >>
<< MT104 (^{3}He,d)	**MT105 (^{3}He,t) or MT5 (C10 production)**	MT105 (^{3}He,t) >>

B10 (^{3}He,t) log-log



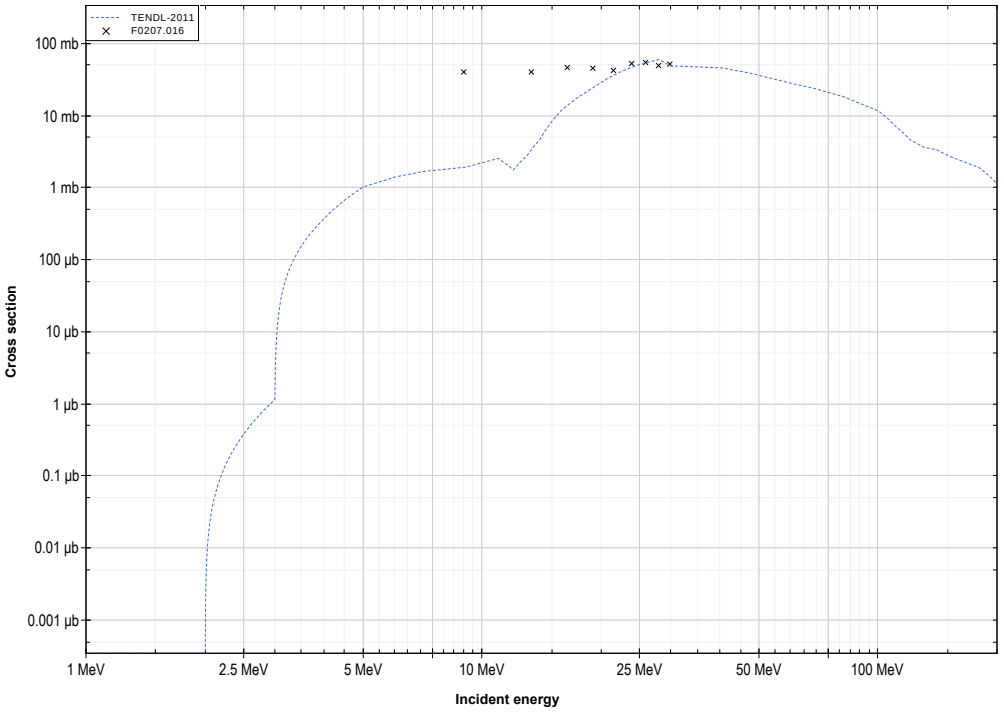
B10 (^{3}He,t) lin-log



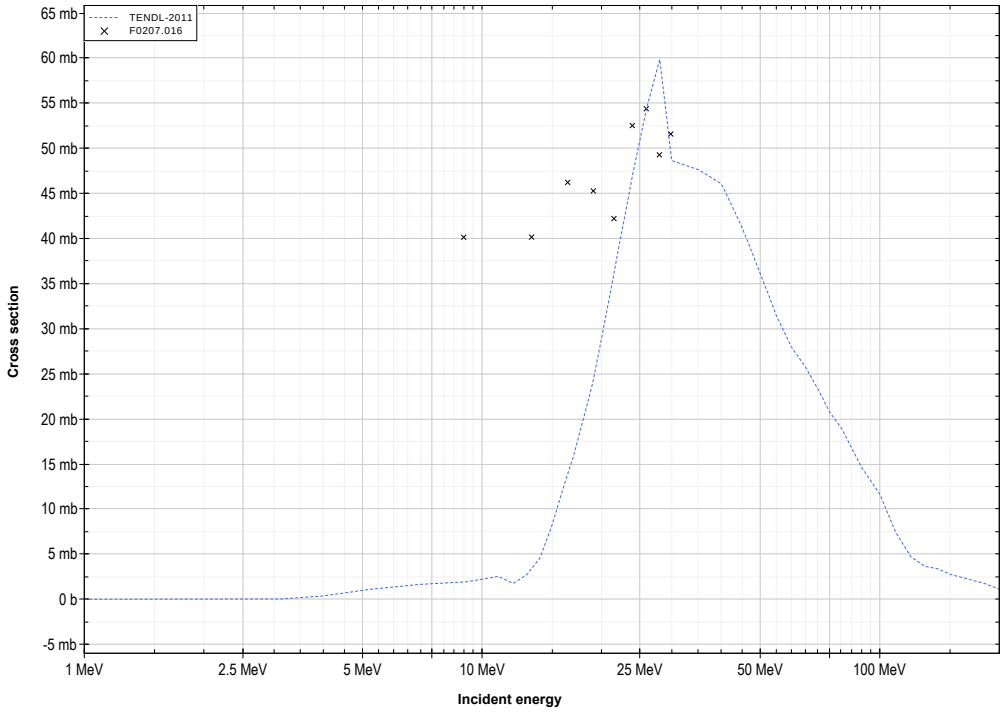
Reaction	Q-Value
B10(He3,t)C10	-3666.59 keV
B10(He3,n+d)C10	-9923.82 keV
B10(He3,2n+p)C10	-12148.39 keV

<< 5-B-10	**5-B-11**	
<< MT105 (³He,t)	**MT105 (³He,t) or MT5 (C11 production)**	MT4 (³He,n) >>

B11 (³He,t) log-log

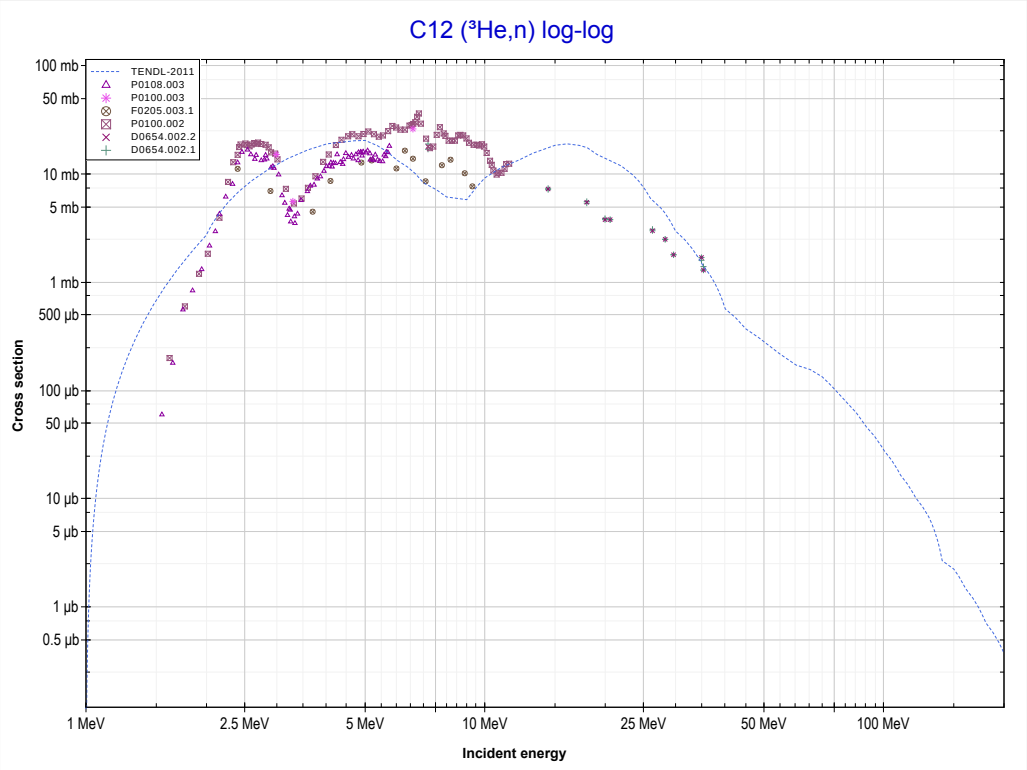


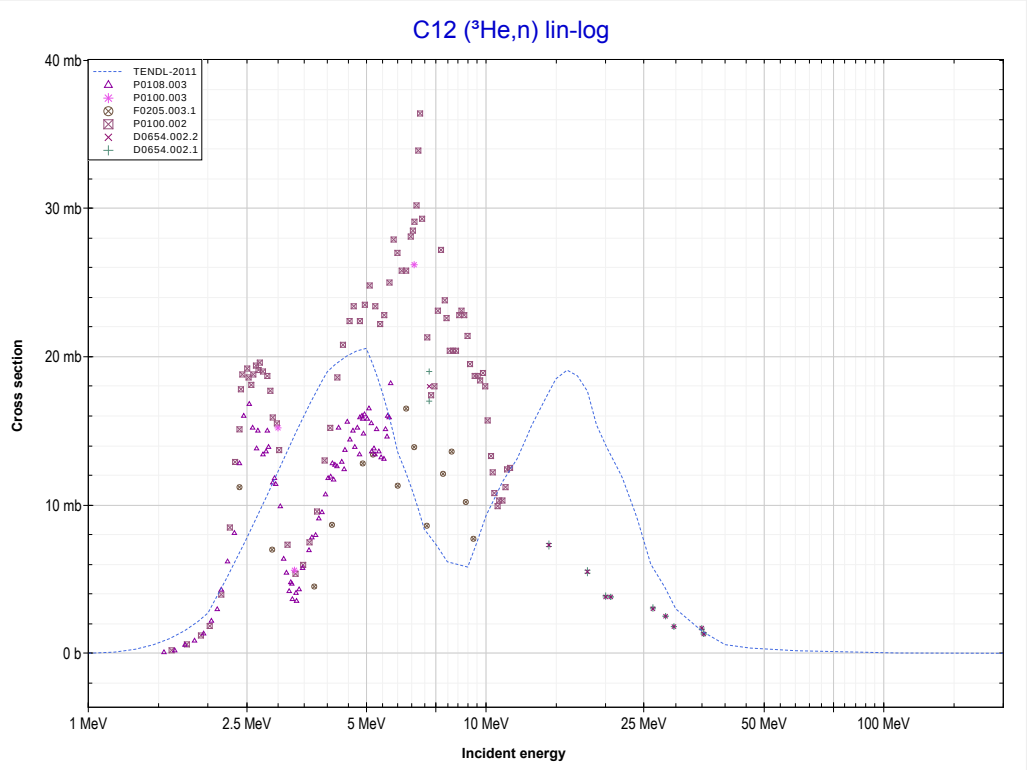
B11 (³He,t) lin-log



Reaction	Q-Value
B11(He3,t)C11	-2000.99 keV
B11(He3,n+d)C11	-8258.22 keV
B11(He3,2n+p)C11	-10482.79 keV

<< 5-B-10	**6-C-12**	8-O-16 >>
<< MT105 (^{3}He,t)	**MT4 (^{3}He,n) or MT5 (O14 production)**	MT104 (^{3}He,d) >>

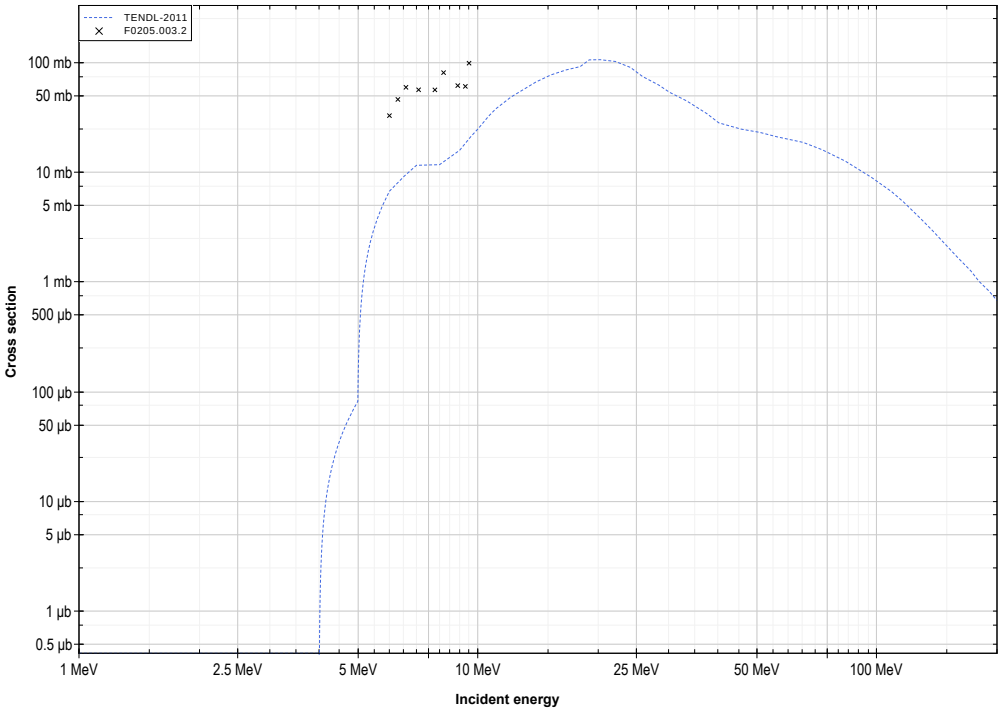




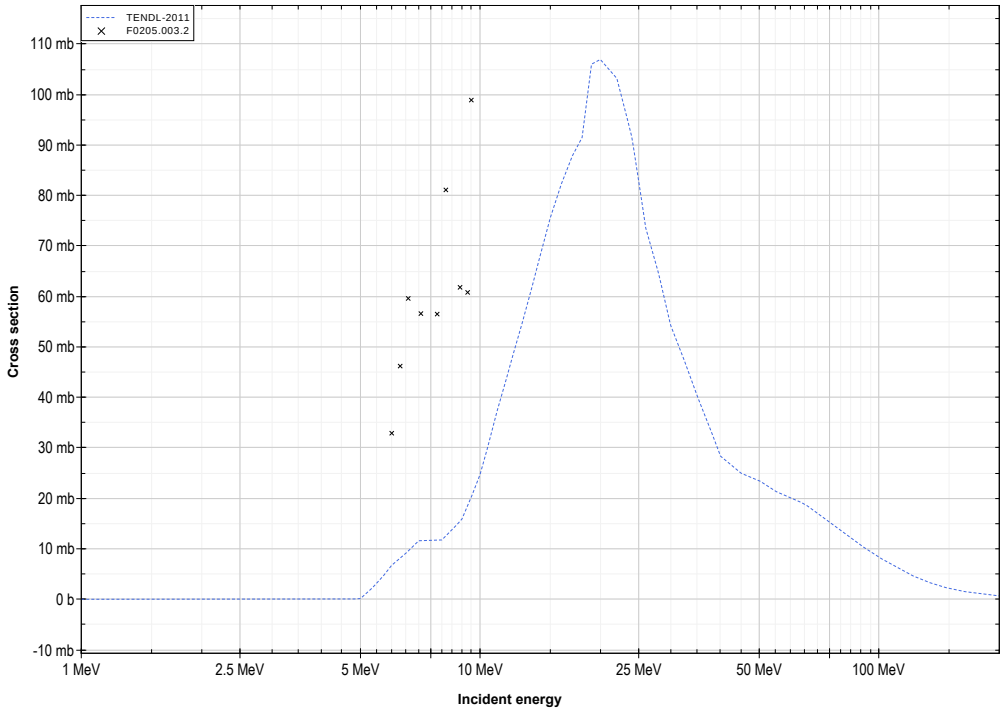
Reaction	Q-Value
C12(He3,n)O14	-1147.46 keV

<< 5-B-10	**6-C-12**	
<< MT4 (^{3}He,n)	**MT104 (^{3}He,d) or MT5 (N13 production)**	MT107 (^{3}He,α) >>

C12 (^{3}He,d) log-log



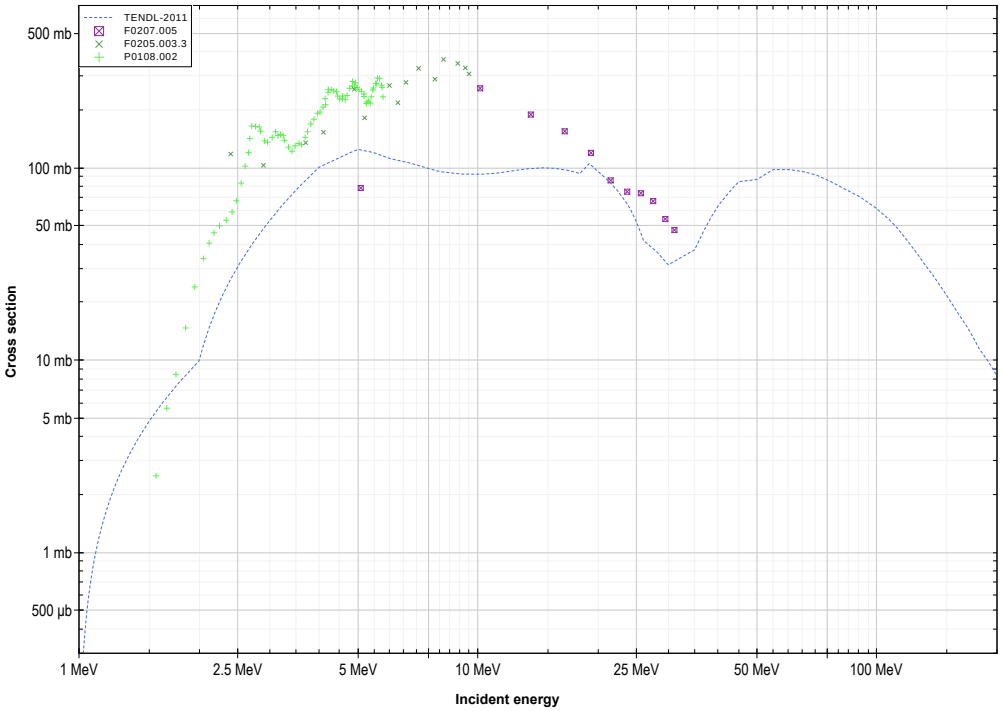
C12 (^{3}He,d) lin-log



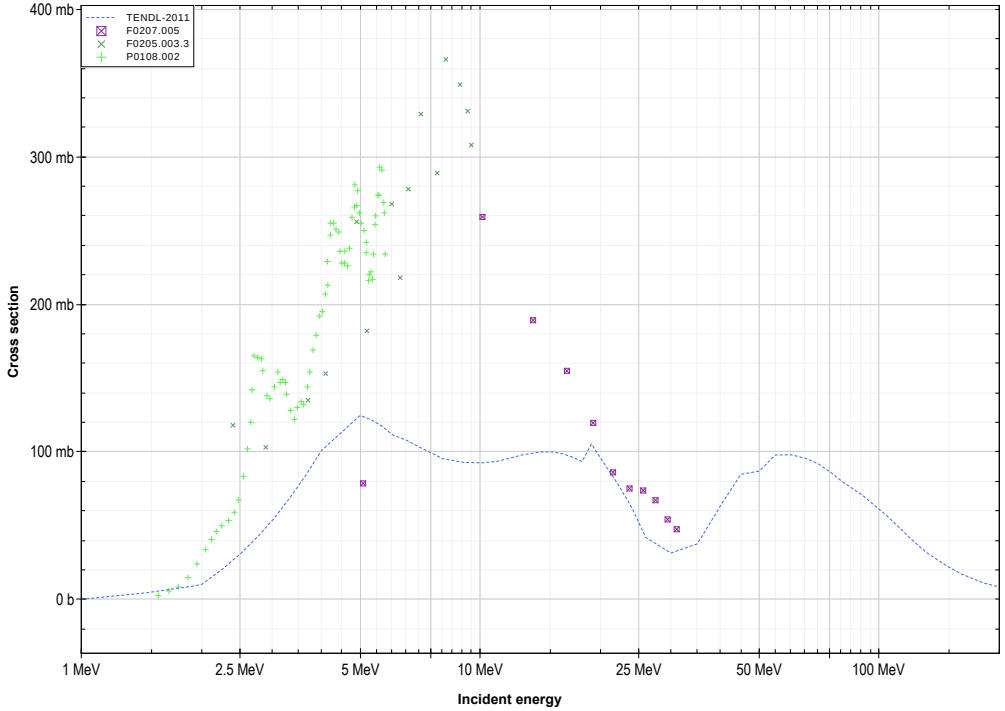
Reaction	Q-Value
C12(He3,d)N13	-3549.99 keV
C12(He3,n+p)N13	-5774.55 keV

	6-C-12	7-N-14 >>
<< MT104 (³He,d)	**MT107 (³He,α) or MT5 (C11 production)**	MT107 (³He,α) >>

C12 (³He,α) log-log



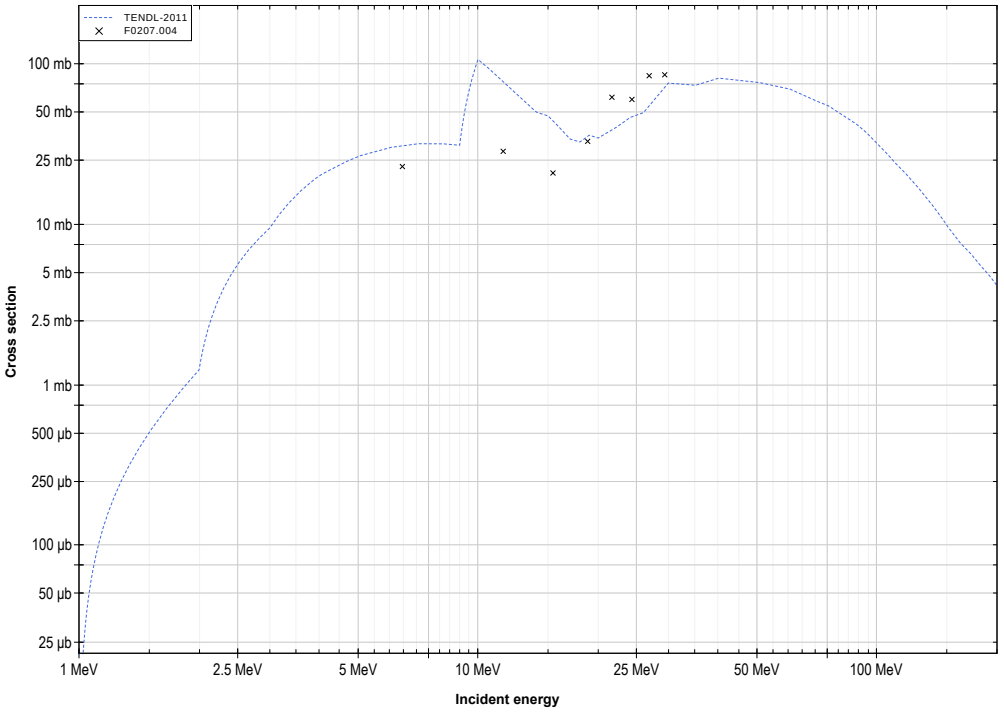
C12 (³He,α) lin-log



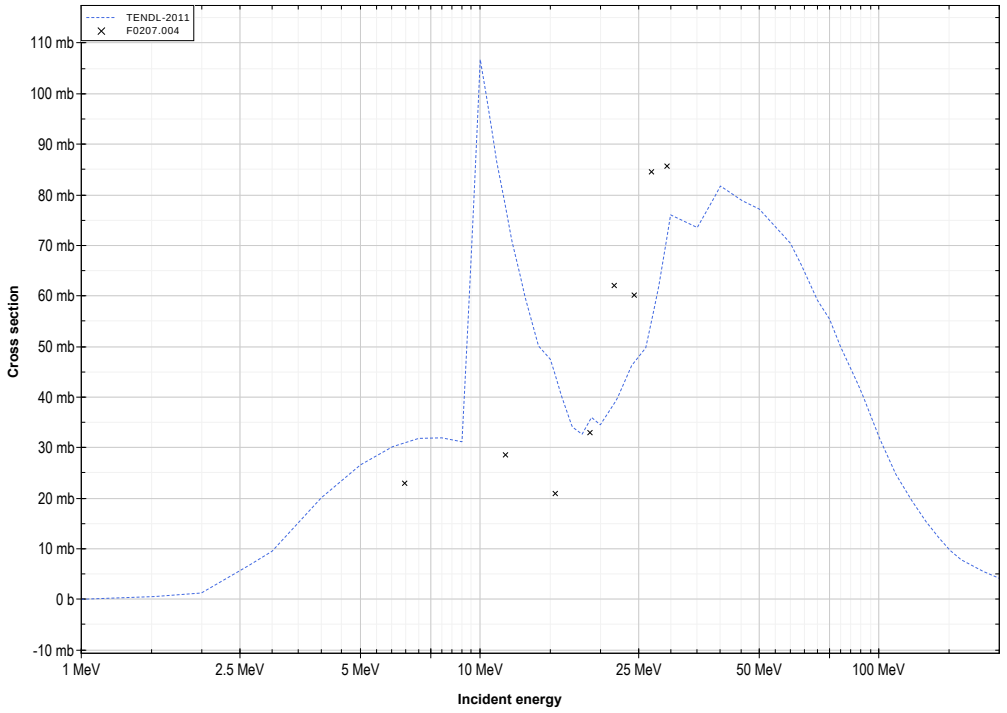
Reaction	Q-Value
C12(He3,α)C11	1856.00 keV
C12(He3,p+t)C11	-17957.86 keV
C12(He3,n+He3)C11	-18721.62 keV
C12(He3,2d)C11	-21990.53 keV
C12(He3,n+p+d)C11	-24215.09 keV
C12(He3,2n+2p)C11	-26439.66 keV

<< 6-C-12	**7-N-14**	8-O-16 >>
<< MT107 (³He,α)	**MT107 (³He,α) or MT5 (N13 production)**	MT4 (³He,n) >>

N14 (³He,α) log-log



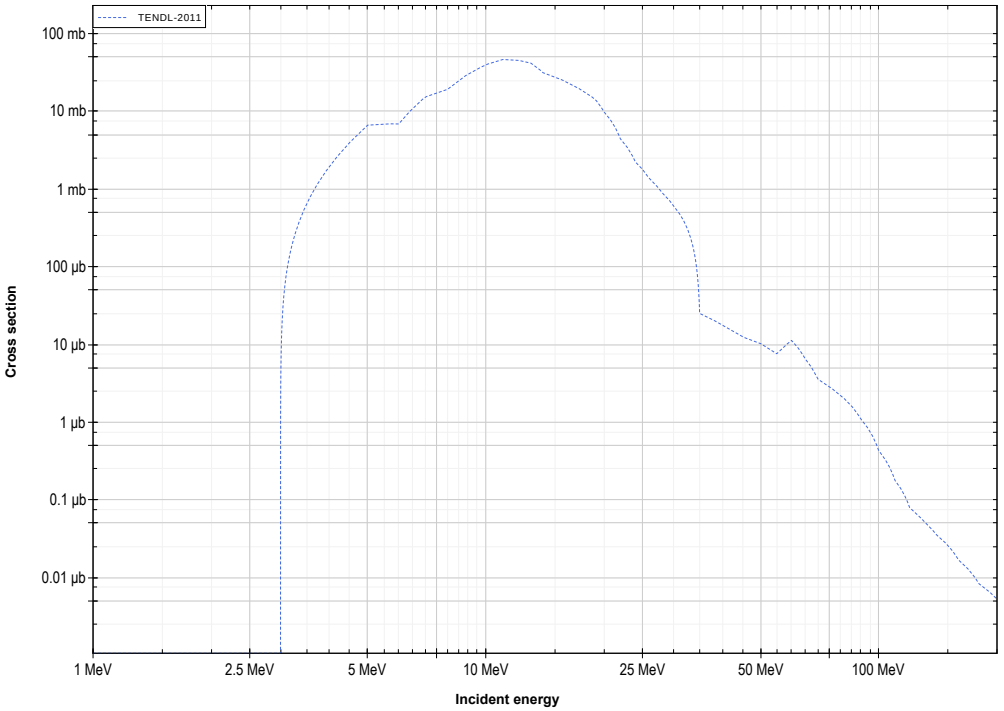
N14 (³He,α) lin-log



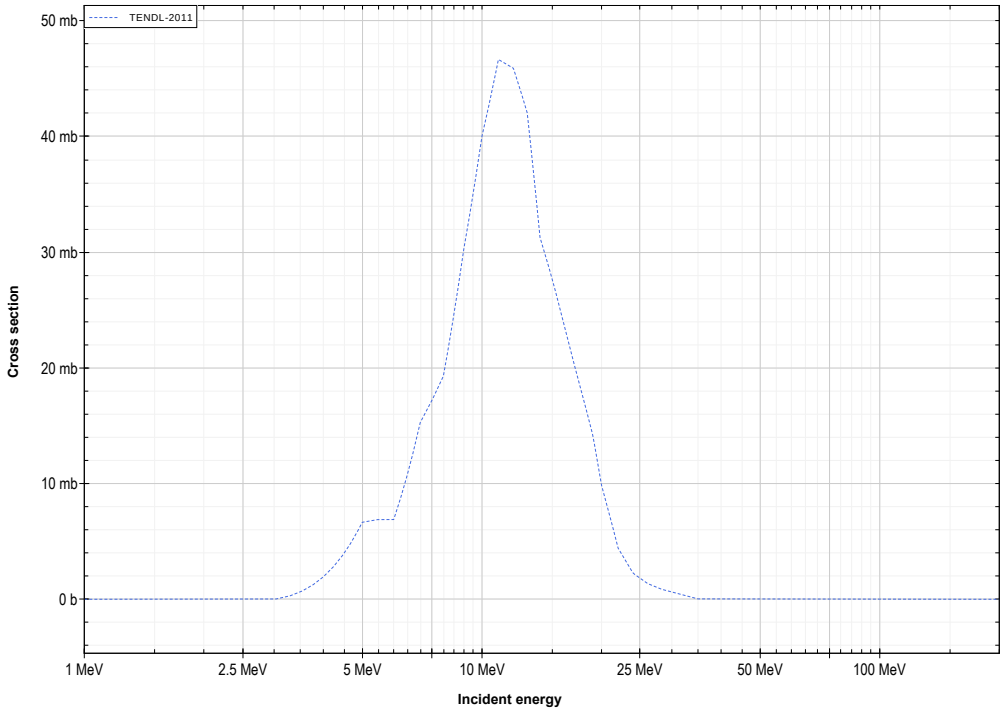
Reaction	Q-Value
N14(He3,α)N13	10024.24 keV
N14(He3,p+t)N13	-9789.62 keV
N14(He3,n+He3)N13	-10553.38 keV
N14(He3,2d)N13	-13822.29 keV
N14(He3,n+p+d)N13	-16046.86 keV
N14(He3,2n+2p)N13	-18271.42 keV

<< 6-C-12	**8-O-16**	12-Mg-24 >>
<< MT107 (³He,α)	**MT4 (³He,n) or MT5 (Ne18 production)**	MT103 (³He,p) >>

O16 (³He,n) log-log



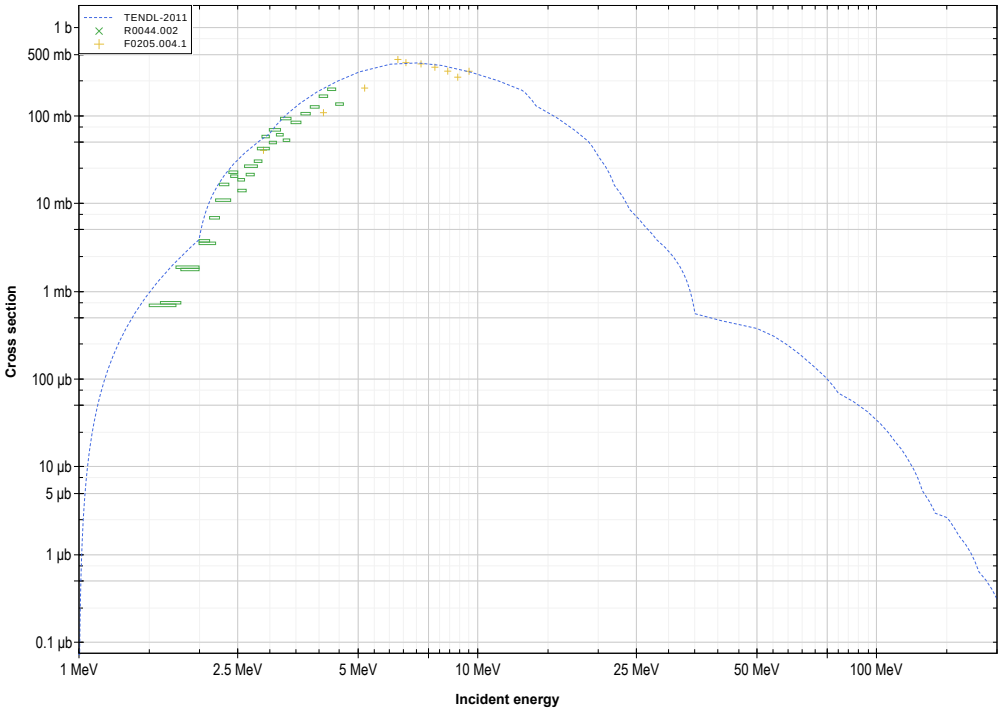
O16 (³He,n) lin-log



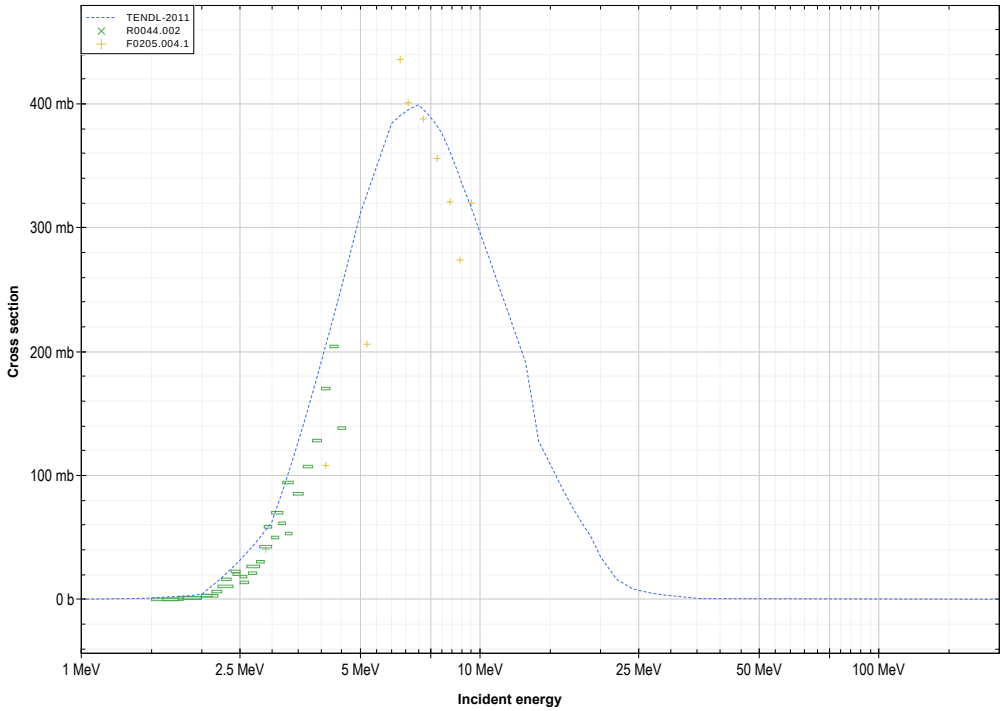
Reaction	Q-Value
O16(He3,n)Ne18	-3194.27 keV

	8-O-16	12-Mg-24 >>
<< MT4 (^{3}He,n)	**MT103 (^{3}He,p) or MT5 (F18 production)**	MT107 (^{3}He,α) >>

O16 (^{3}He,p) log-log



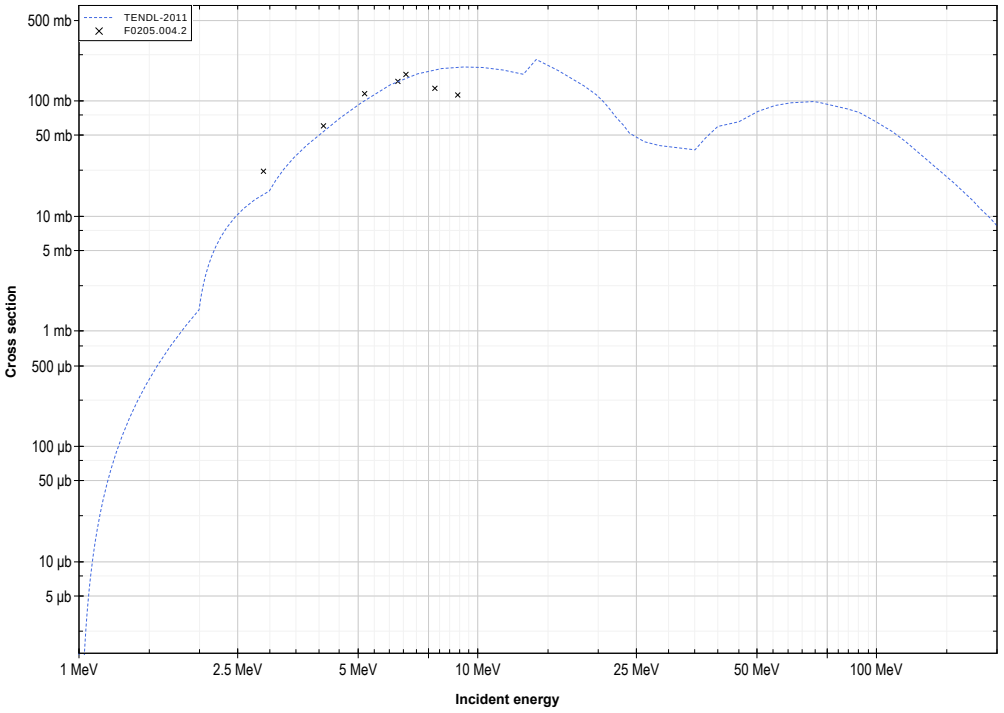
O16 (^{3}He,p) lin-log



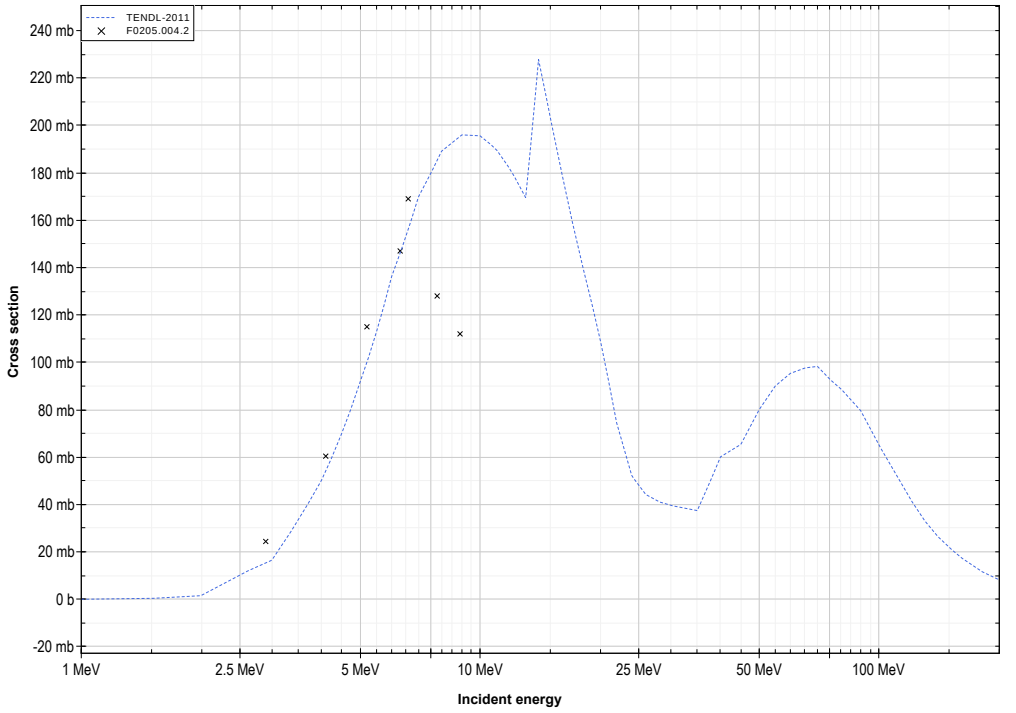
Reaction	Q-Value
O16(He3,p)F18	2031.54 keV

<< 7-N-14	**8-O-16**	9-F-19 >>
<< MT103 (^{3}He,p)	**MT107 (^{3}He,α) or MT5 (O15 production)**	MT108 (^{3}He,2α) >>

O16 (^{3}He,α) log-log



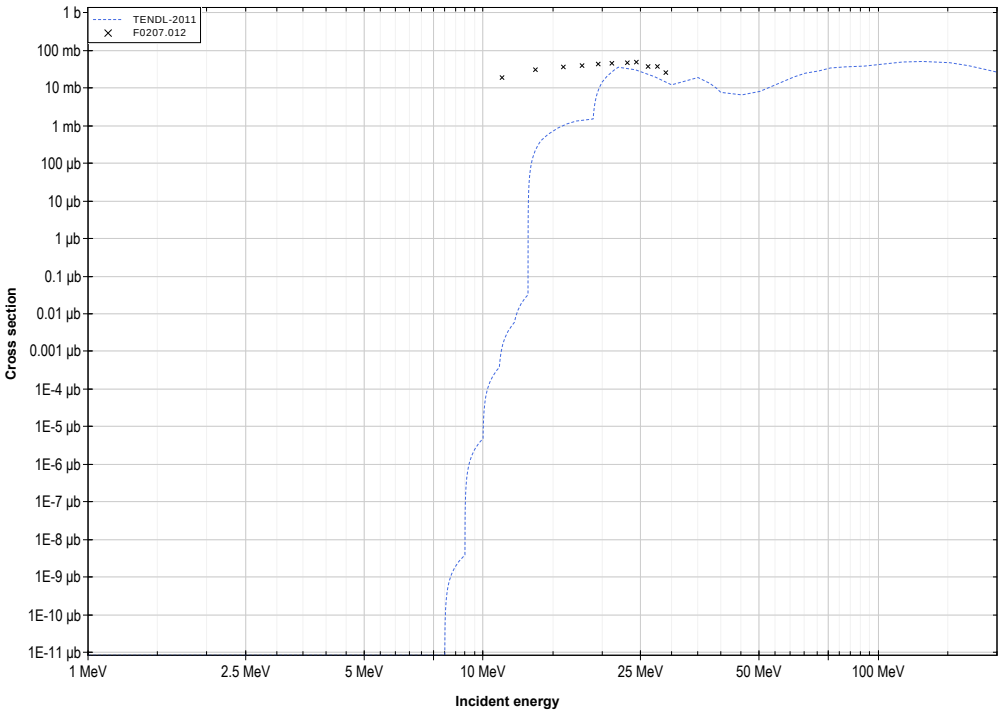
O16 (^{3}He,α) lin-log



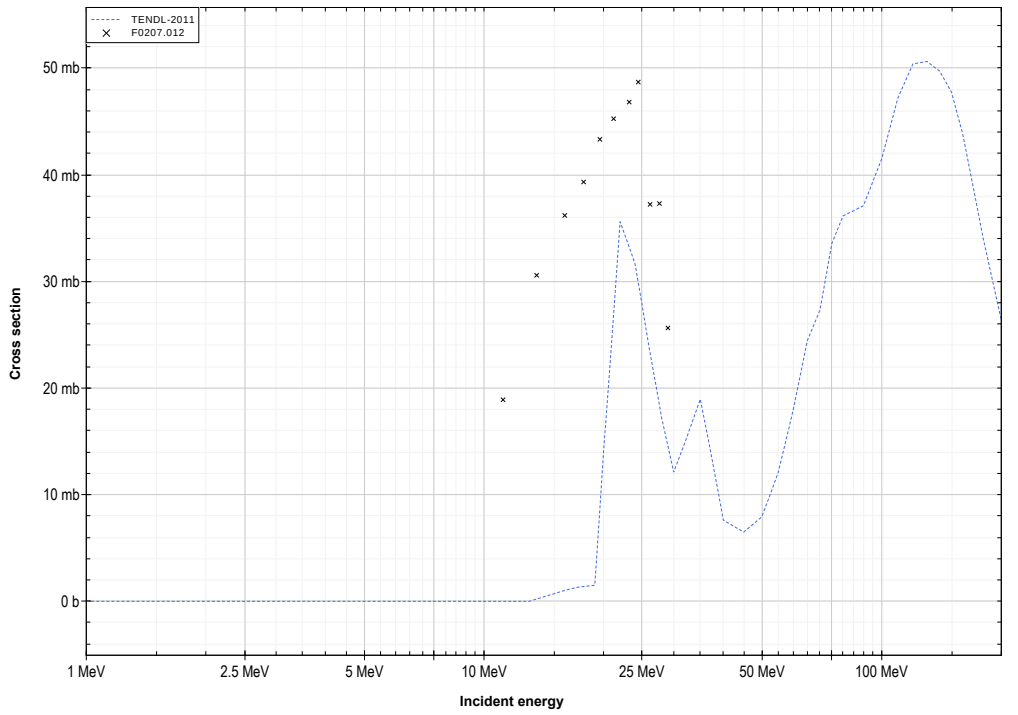
Reaction	Q-Value
O16(He3,α)O15	4913.70 keV
O16(He3,p+t)O15	-14900.16 keV
O16(He3,n+He3)O15	-15663.92 keV
O16(He3,2d)O15	-18932.83 keV
O16(He3,n+p+d)O15	-21157.40 keV
O16(He3,2n+2p)O15	-23381.96 keV

	8-O-16	13-Al-27 >>
<< MT107 (³He,α)	**MT108 (³He,2α) or MT5 (C11 production)**	MT22 (³He,n+α) >>

O16 (³He,2α) log-log



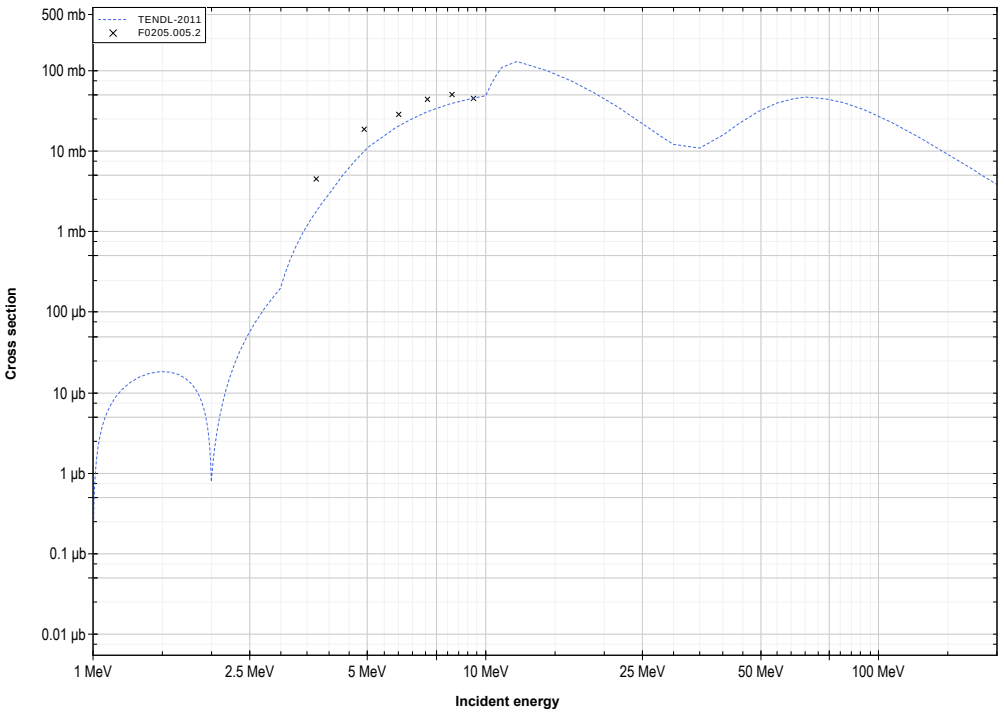
O16 (³He,2α) lin-log



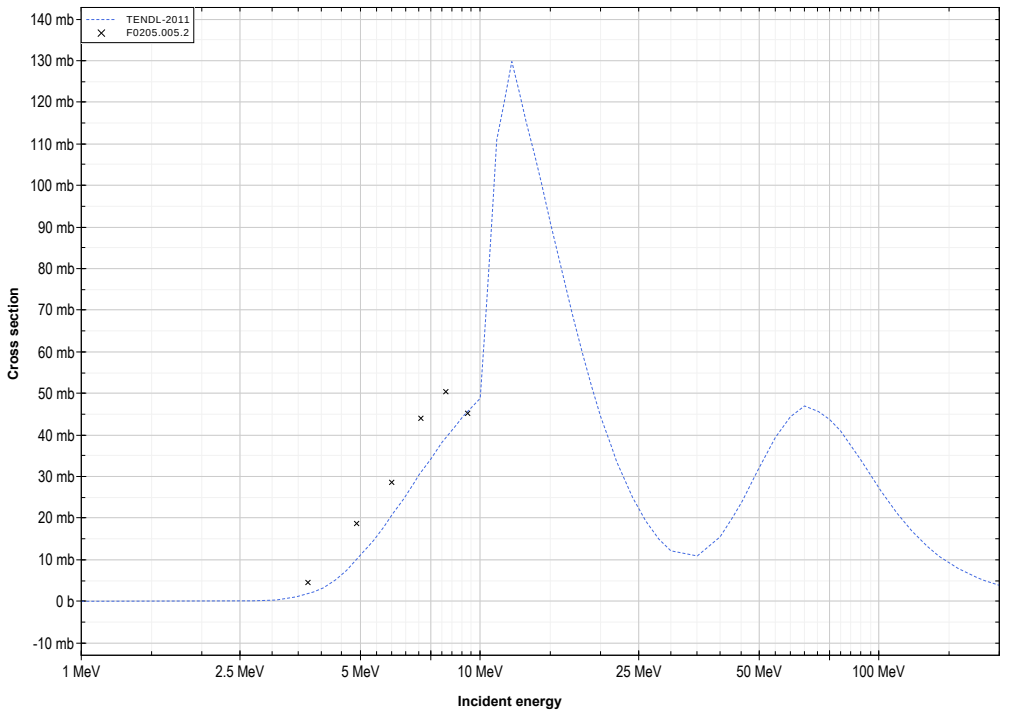
Reaction	Q-Value	Reaction	Q-Value
O16(He3,2α)C11	-5305.92 keV	O16(He3,n+p+t+He3)C11	-45697.39 keV
O16(He3,p+t+α)C11	-25119.78 keV	O16(He3,2n+2He3)C11	-46461.15 keV
O16(He3,n+He3+α)C11	-25883.53 keV	O16(He3,p+2d+t)C11	-48966.31 keV
O16(He3,2d+α)C11	-29152.45 keV	O16(He3,n+2d+He3)C11	-49730.06 keV
O16(He3,n+p+d+α)C11	-31377.01 keV	O16(He3,n+2p+d+t)C11	-51190.87 keV
O16(He3,2n+2p+α)C11	-33601.58 keV	O16(He3,2n+p+d+He3)C11	-51954.63 keV
O16(He3,d+t+He3)C11	-43472.83 keV	O16(He3,4d)C11	-52998.97 keV
O16(He3,2p+2t)C11	-44933.64 keV	O16(He3,2n+3p+t)C11	-53415.44 keV

<< 4-Be-9	**9-F-19**	23-V-51 >>
<< MT108 (³He,2α)	**MT22 (³He,n+α) or MT5 (F17 production)**	MT107 (³He,α) >>

F19 (³He,n+α) log-log



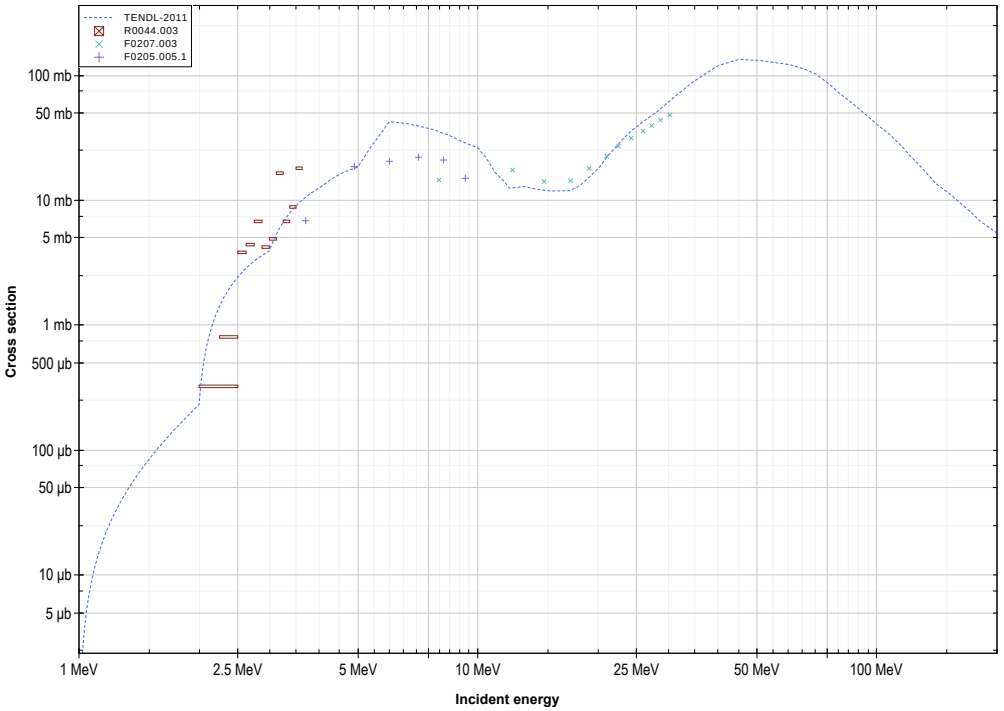
F19 (³He,n+α) lin-log



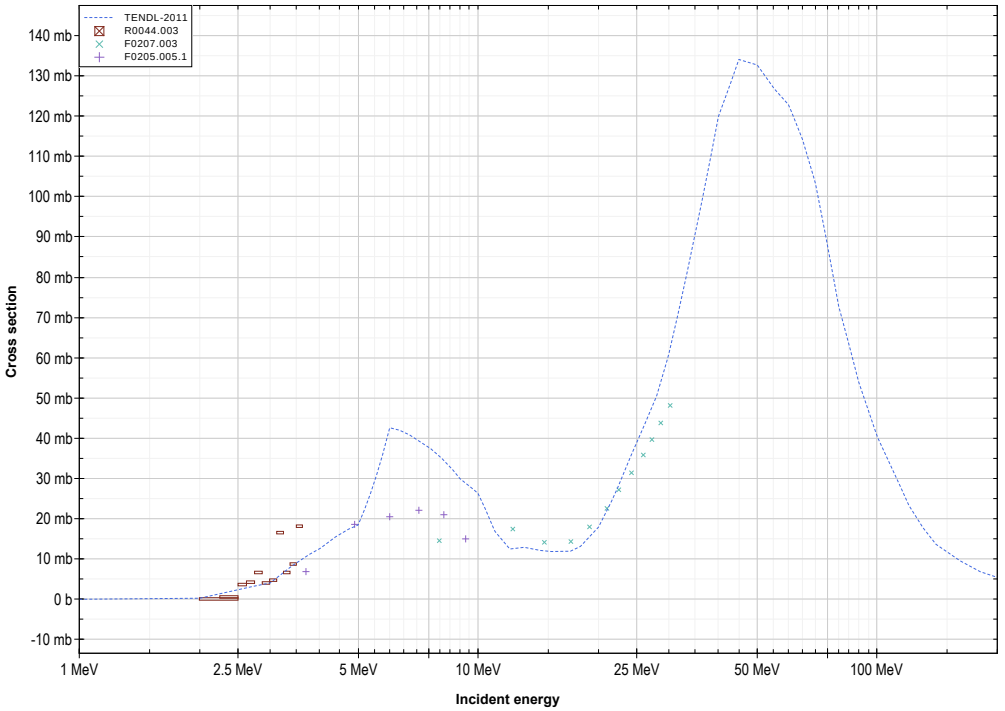
Reaction	Q-Value
F19(He3,n+α)F17	995.89 keV
F19(He3,d+t)F17	-16593.40 keV
F19(He3,n+p+t)F17	-18817.97 keV
F19(He3,2n+He3)F17	-19581.72 keV
F19(He3,n+2d)F17	-22850.64 keV
F19(He3,2n+p+d)F17	-25075.20 keV
F19(He3,3n+2p)F17	-27299.77 keV

<< 8-O-16	**9-F-19**	19-K-39 >>
<< MT22 (³He,n+α)	**MT107 (³He,α) or MT5 (F18 production)**	MT4 (³He,n) >>

F19 (³He,α) log-log



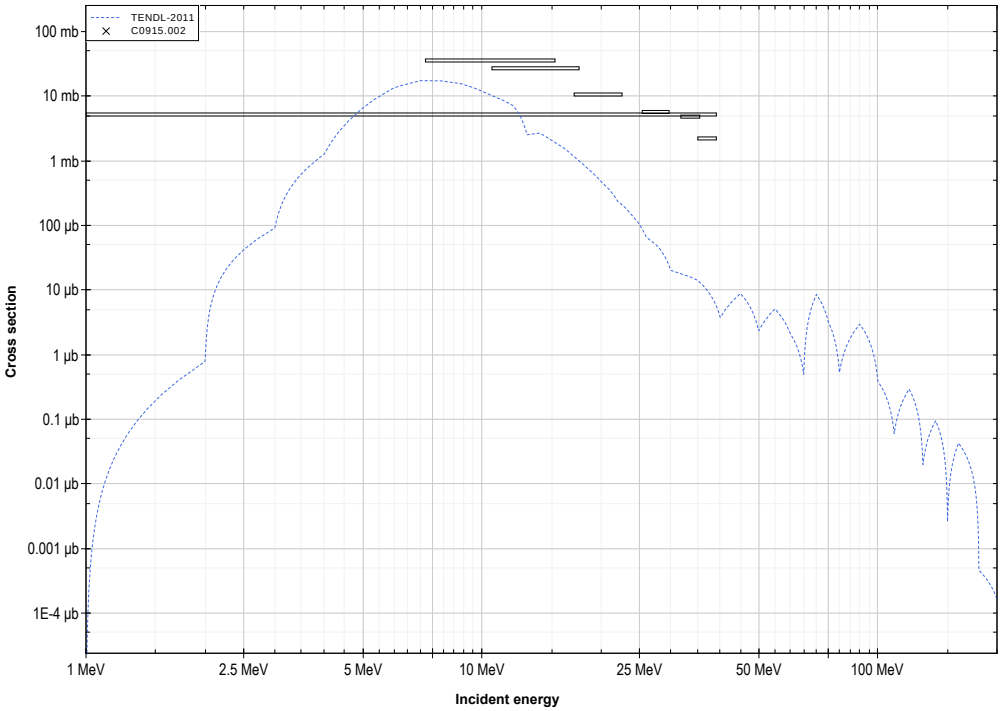
F19 (³He,α) lin-log



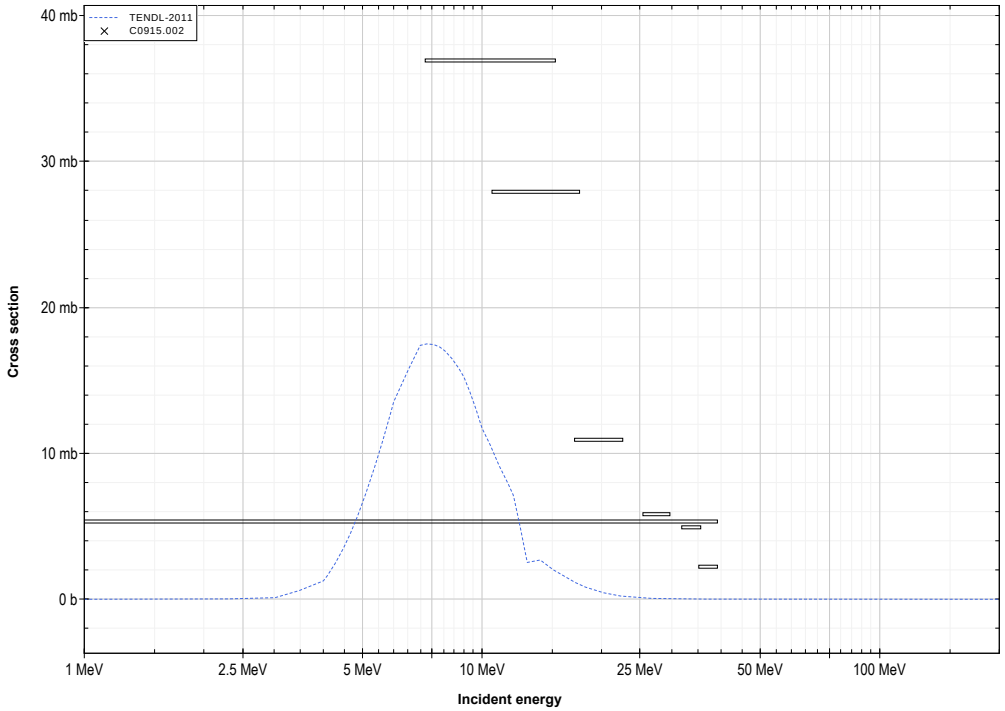
Reaction	Q-Value
F19(He3,α)F18	10145.21 keV
F19(He3,p+t)F18	-9668.65 keV
F19(He3,n+He3)F18	-10432.41 keV
F19(He3,2d)F18	-13701.32 keV
F19(He3,n+p+d)F18	-15925.88 keV
F19(He3,2n+2p)F18	-18150.45 keV

<< 8-O-16	**12-Mg-24**	13-Al-27 >>
<< MT107 (^{3}He,α)	**MT4 (^{3}He,n) or MT5 (Si26 production)**	MT16 (^{3}He,2n) >>

Mg24 (^{3}He,n) log-log



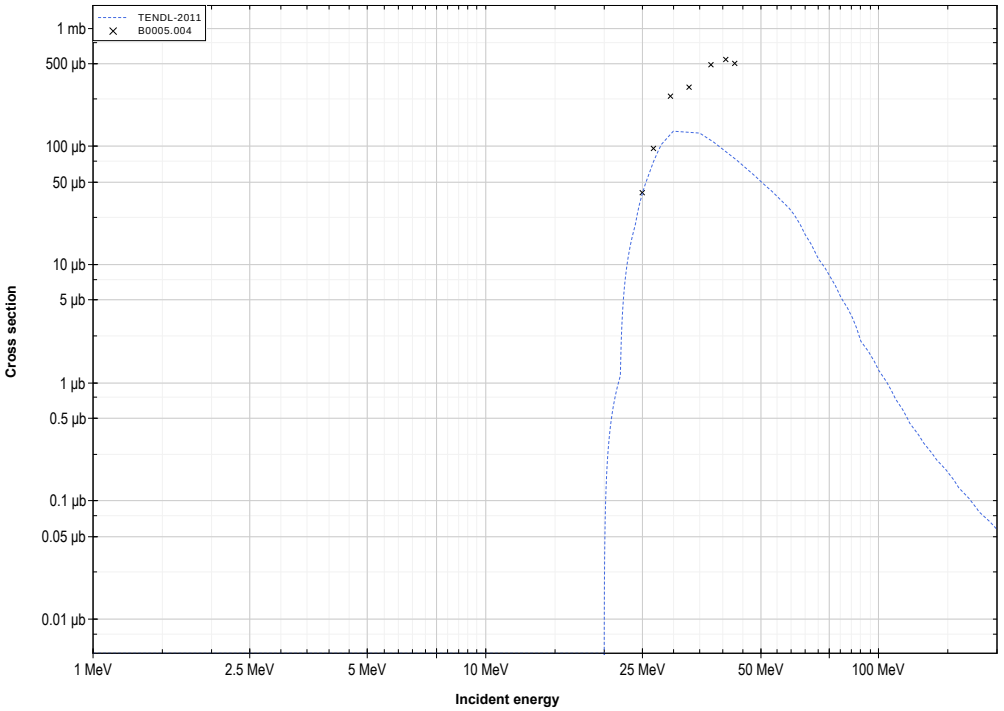
Mg24 (^{3}He,n) lin-log



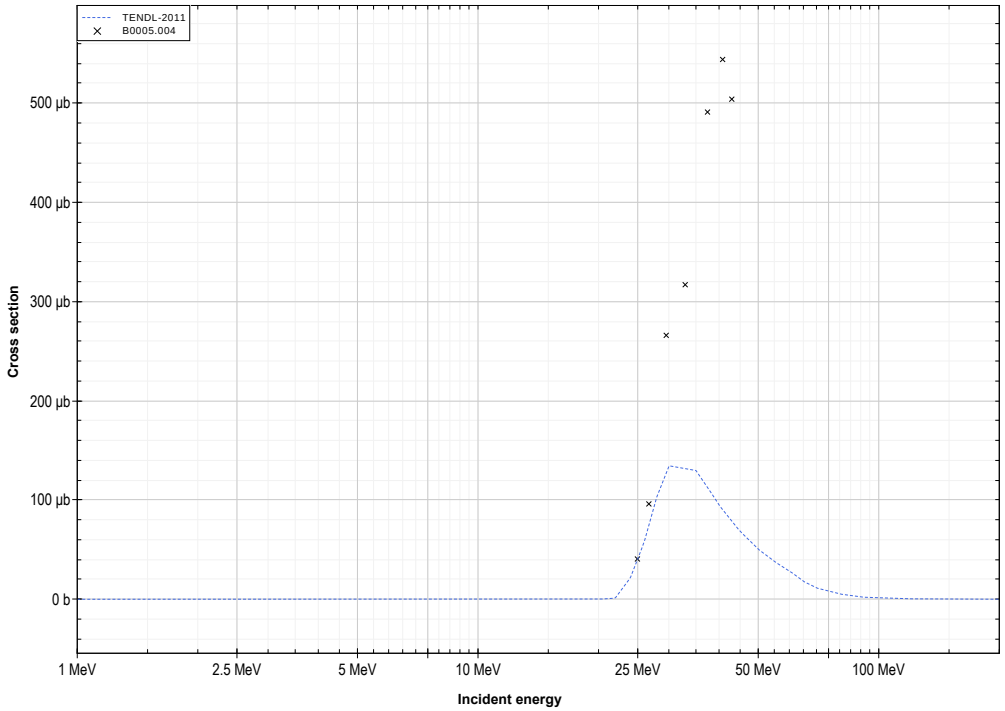
Reaction	Q-Value
Mg24(He3,n)Si26	71.33 keV

<< 4-Be-9	**12-Mg-24**	13-Al-27 >>
<< MT4 (^{3}He,n)	**MT16 (^{3}He,2n) or MT5 (Si25 production)**	MT102 (^{3}He,γ) >>

Mg24 (^{3}He,2n) log-log



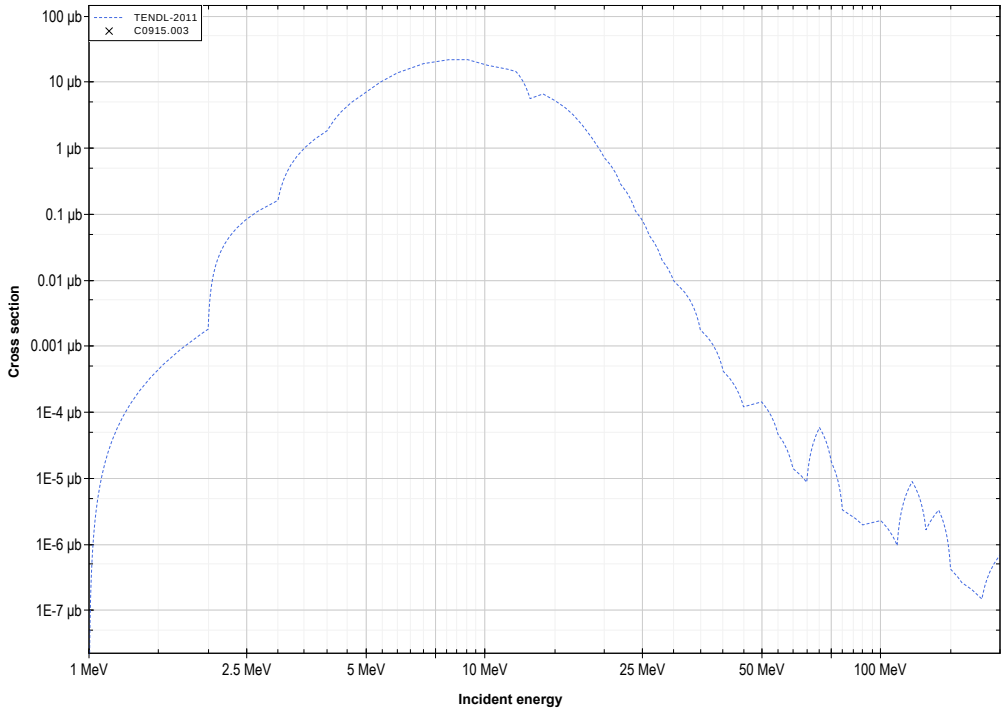
Mg24 (^{3}He,2n) lin-log



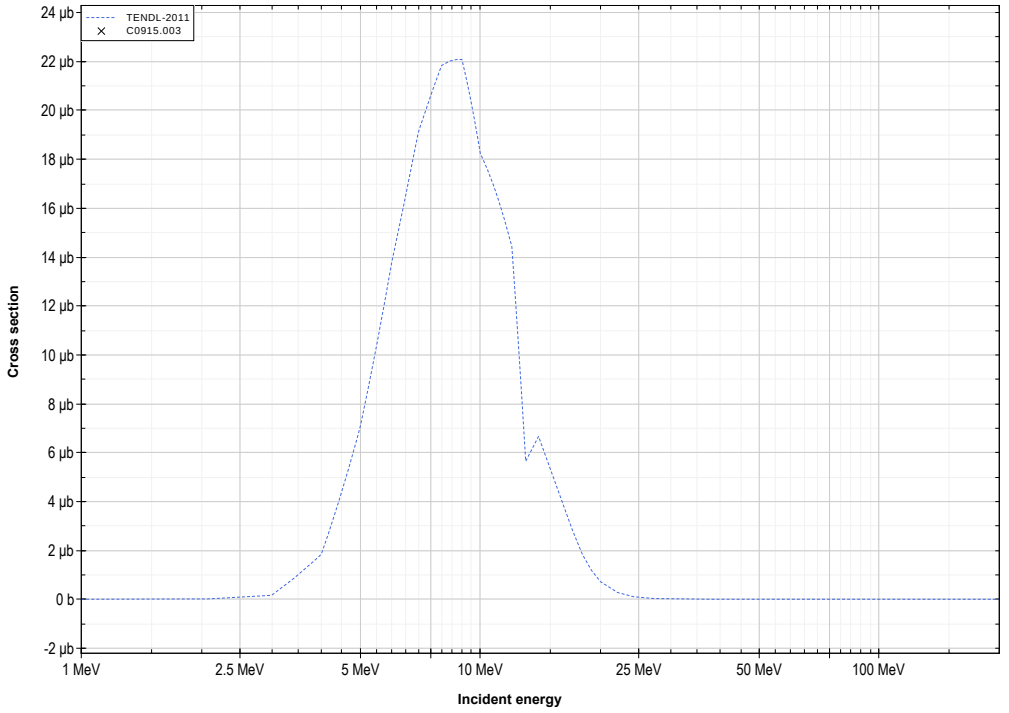
Reaction	Q-Value
Mg24(He3,2n)Si25	-18968.99 keV

	12-Mg-24	13-Al-27 >>
<< MT16 (³He,2n)	**MT102 (³He,γ) or MT5 (Si27 production)**	MT103 (³He,p) >>

Mg24 (³He,γ) log-log



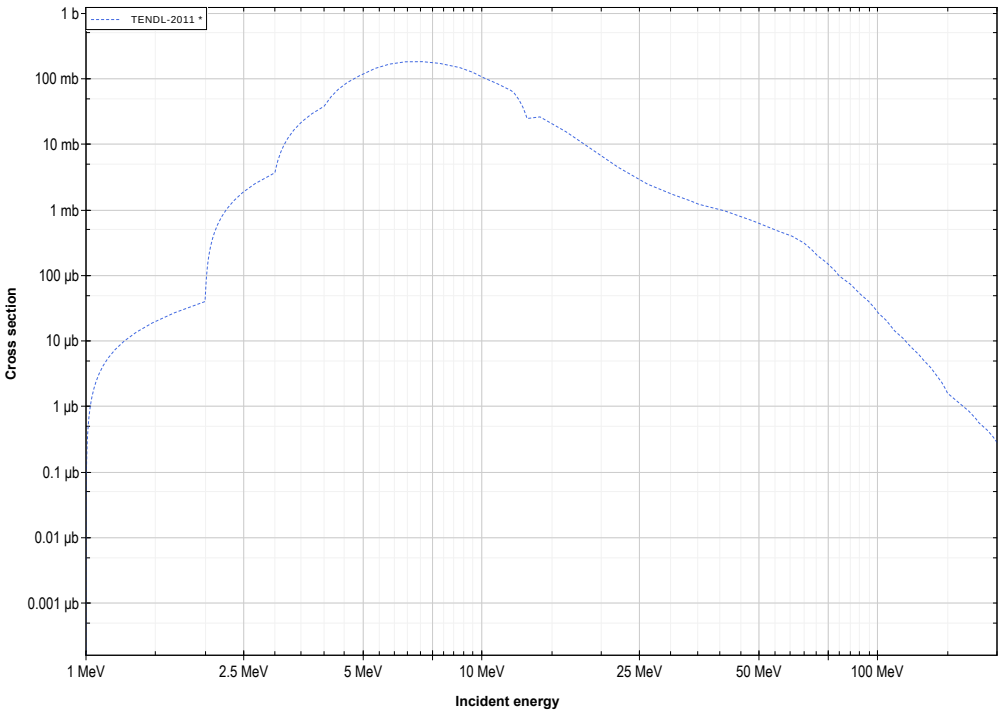
Mg24 (³He,γ) lin-log



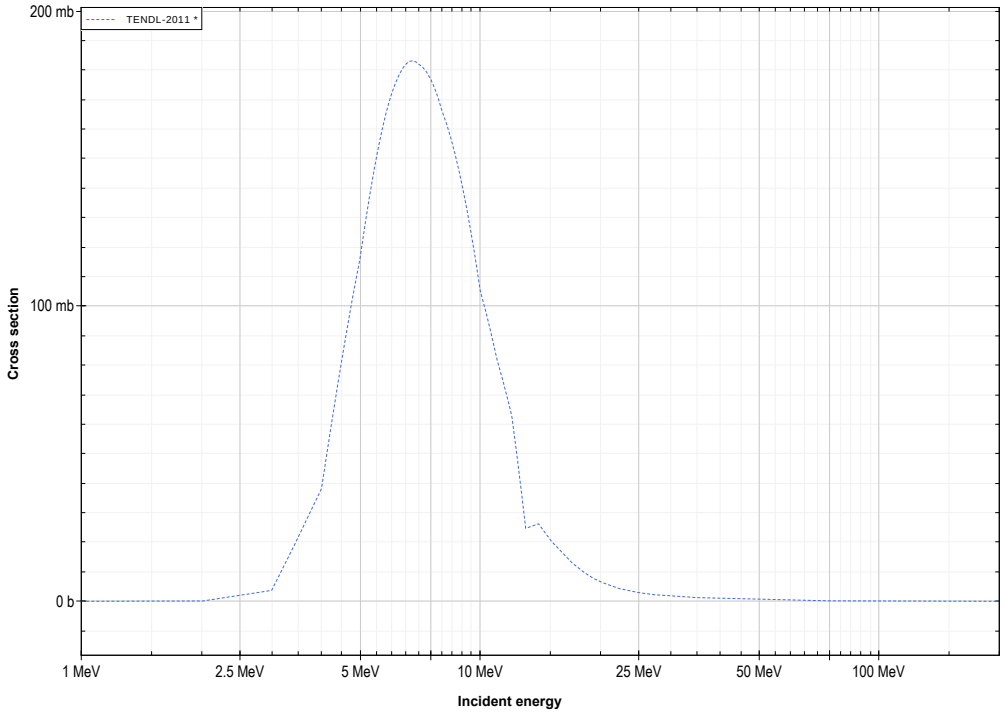
Reaction	Q-Value
Mg24(He3,γ)Si27	13381.95 keV

<< 8-O-16	**12-Mg-24**	12-Mg-26 >>
<< MT102 (^{3}He,γ)	**MT103 (^{3}He,p) or MT5 (Al26 production)**	MT103 (^{3}He,p) >>

Mg24 (^{3}He,p) log-log



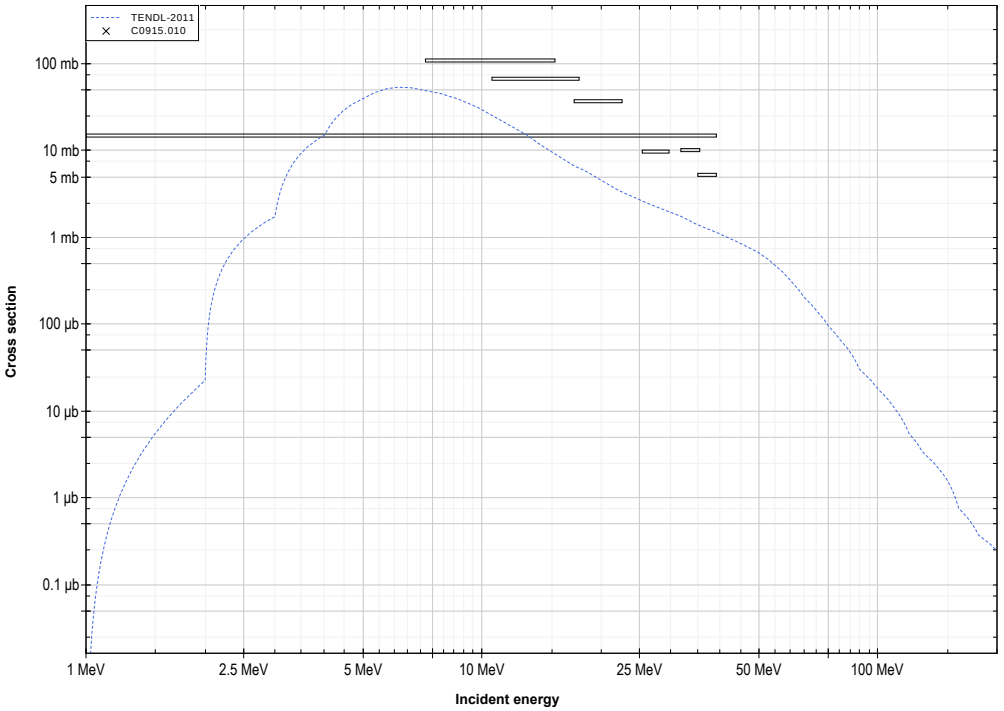
Mg24 (^{3}He,p) lin-log



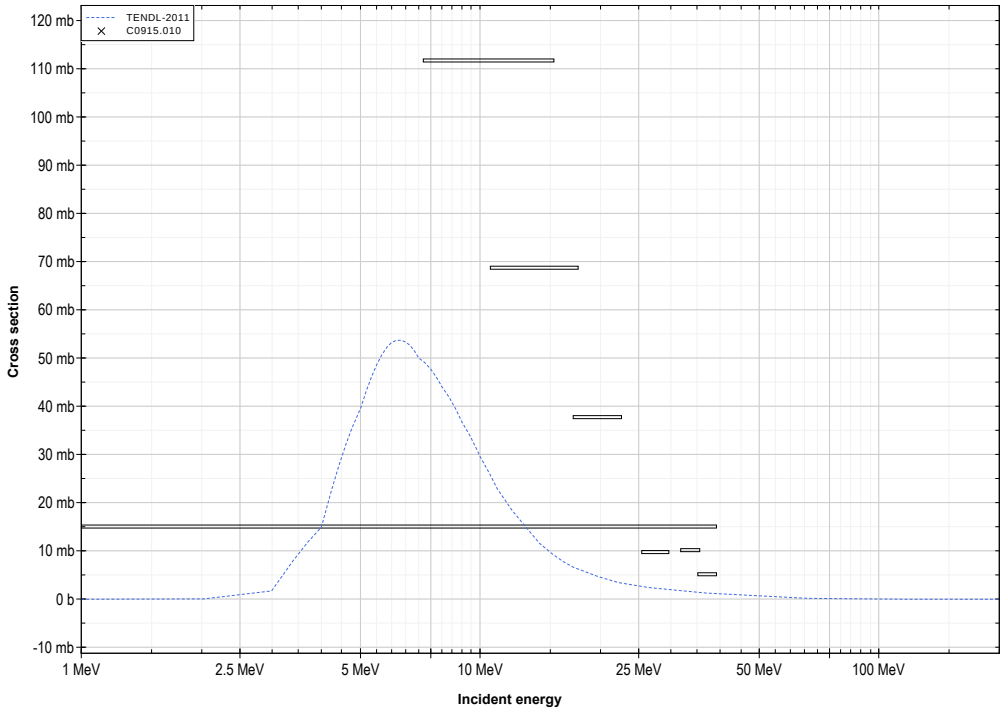
Reaction	Q-Value
Mg24(He3,p)Al26	5918.99 keV

<< 12-Mg-24	**12-Mg-26**	14-Si-28 >>
<< MT103 (³He,p)	**MT103 (³He,p) or MT5 (Al28 production)**	MT4 (³He,n) >>

Mg26 (³He,p) log-log

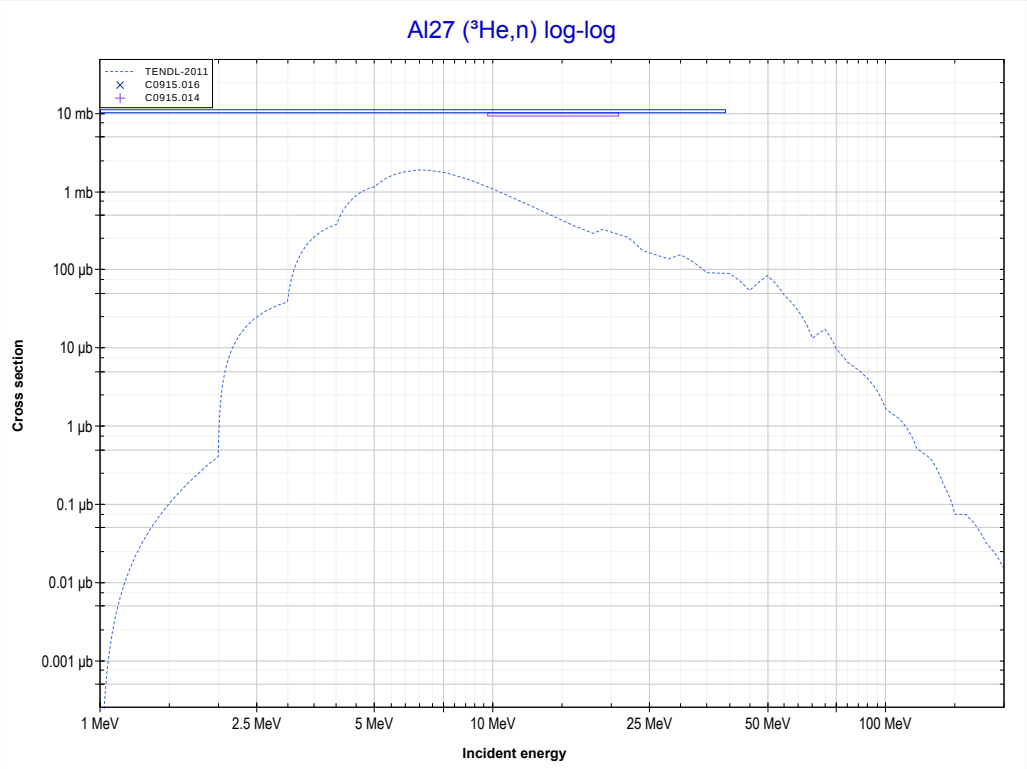


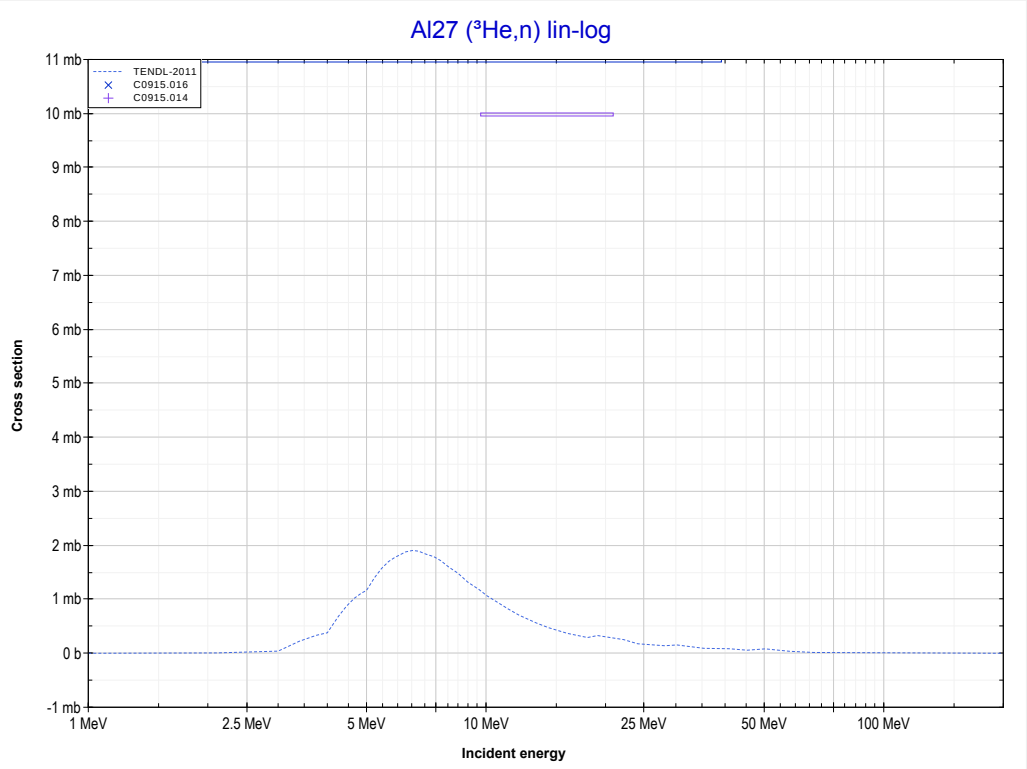
Mg26 (³He,p) lin-log



Reaction	Q-Value
Mg26(He3,p)Al28	8278.10 keV

<< 12-Mg-24	**13-Al-27**	14-Si-28 >>
<< MT103 (³He,p)	**MT4 (³He,n) or MT5 (P29 production)**	MT16 (³He,2n) >>

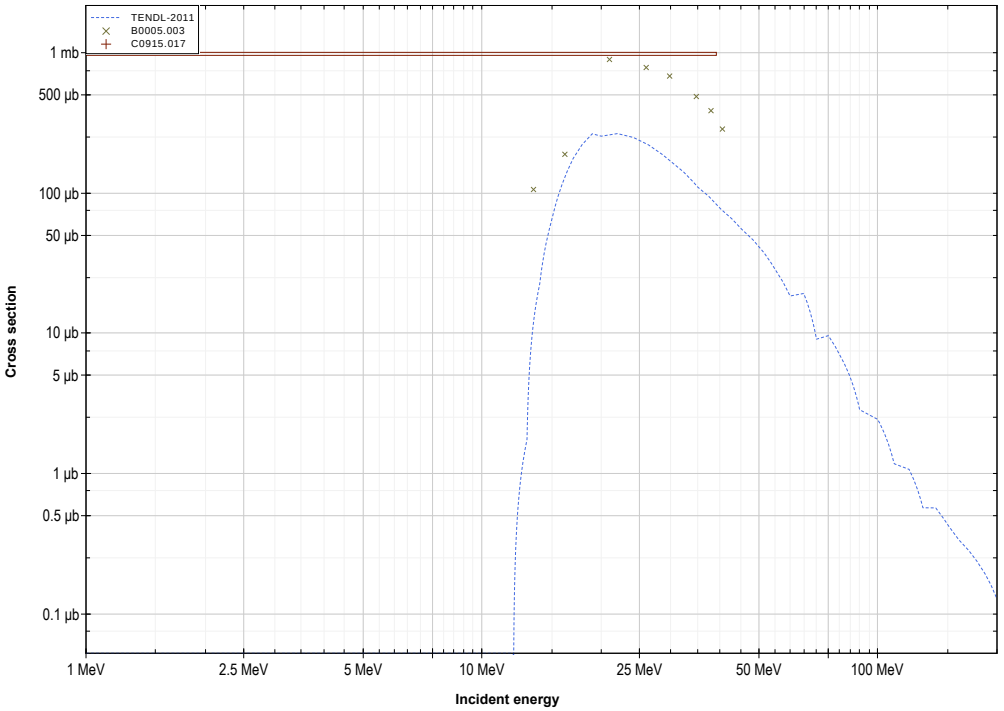




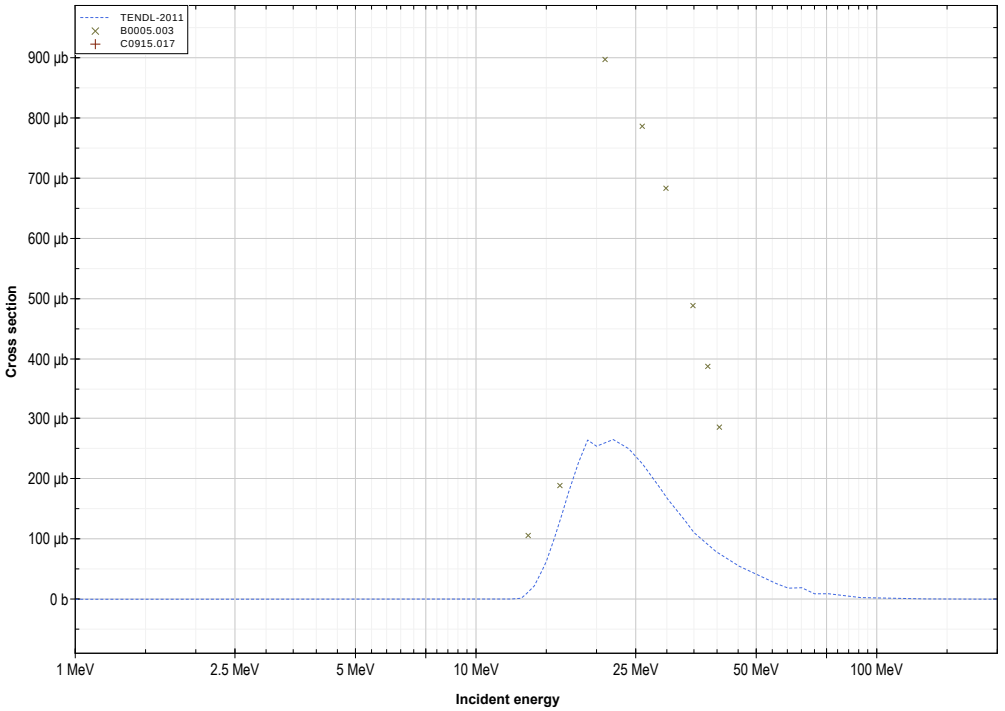
Reaction	Q-Value
Al27(He3,n)P29	6615.84 keV

<< 12-Mg-24	**13-Al-27**	24-Cr-50 >>
<< MT4 (^{3}He,n)	**MT16 (^{3}He,2n) or MT5 (P28 production)**	MT102 (^{3}He,γ) >>

Al27 (^{3}He,2n) log-log



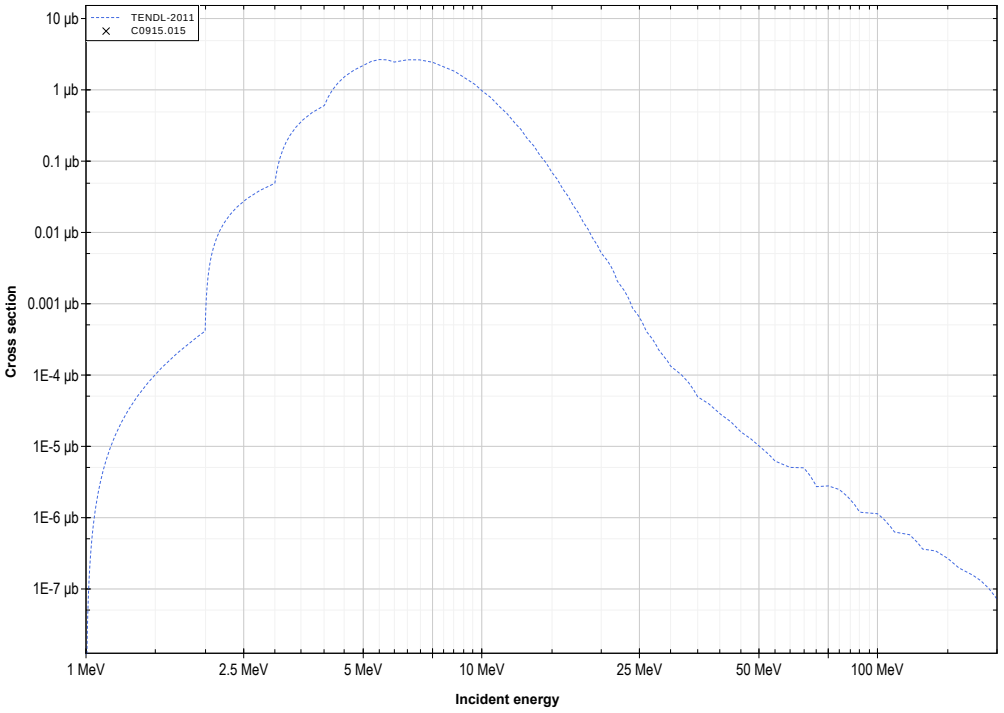
Al27 (^{3}He,2n) lin-log



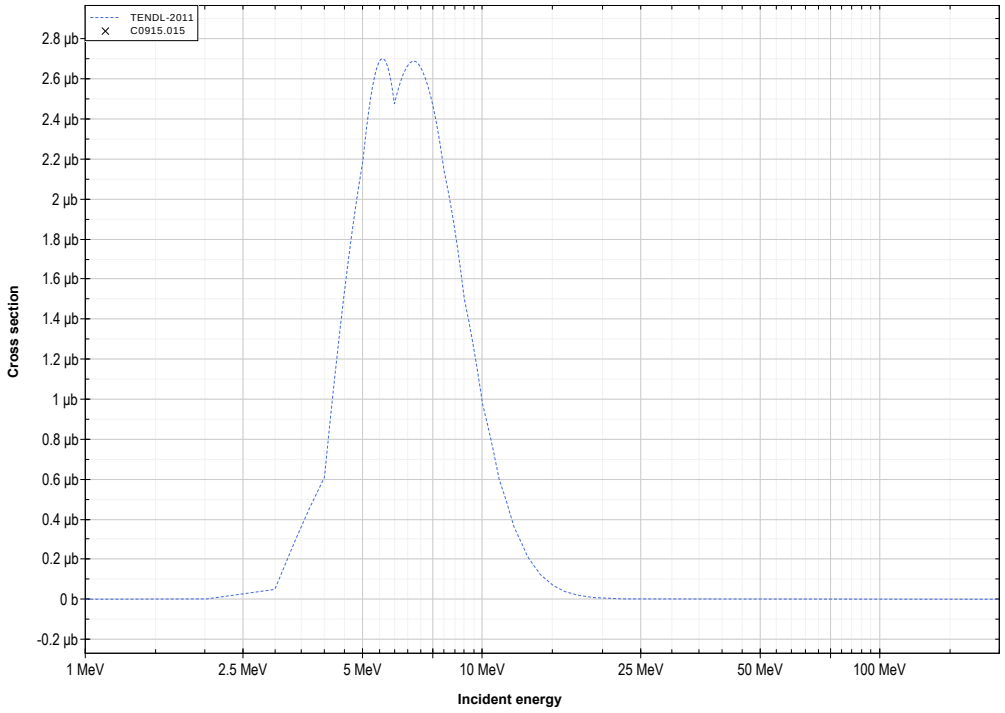
Reaction	Q-Value
Al27(He3,2n)P28	-11249.08 keV

<< 12-Mg-24	**13-Al-27**	14-Si-28 >>
<< MT16 (^{3}He,2n)	**MT102 (^{3}He,γ) or MT5 (P30 production)**	MT108 (^{3}He,2α) >>

Al27 (^{3}He,γ) log-log



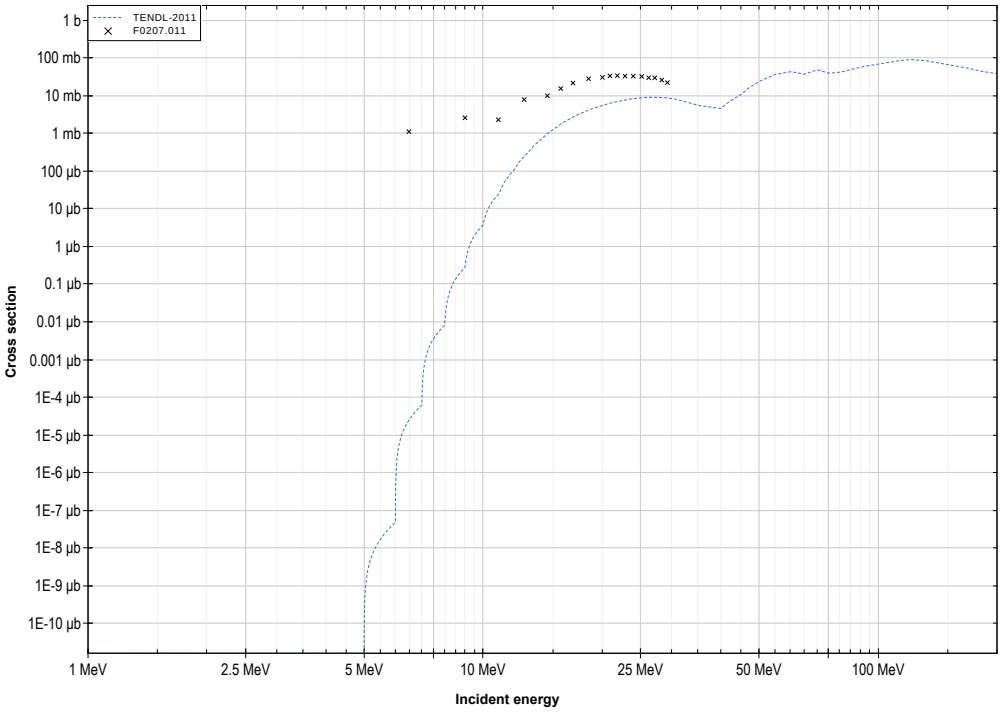
Al27 (^{3}He,γ) lin-log



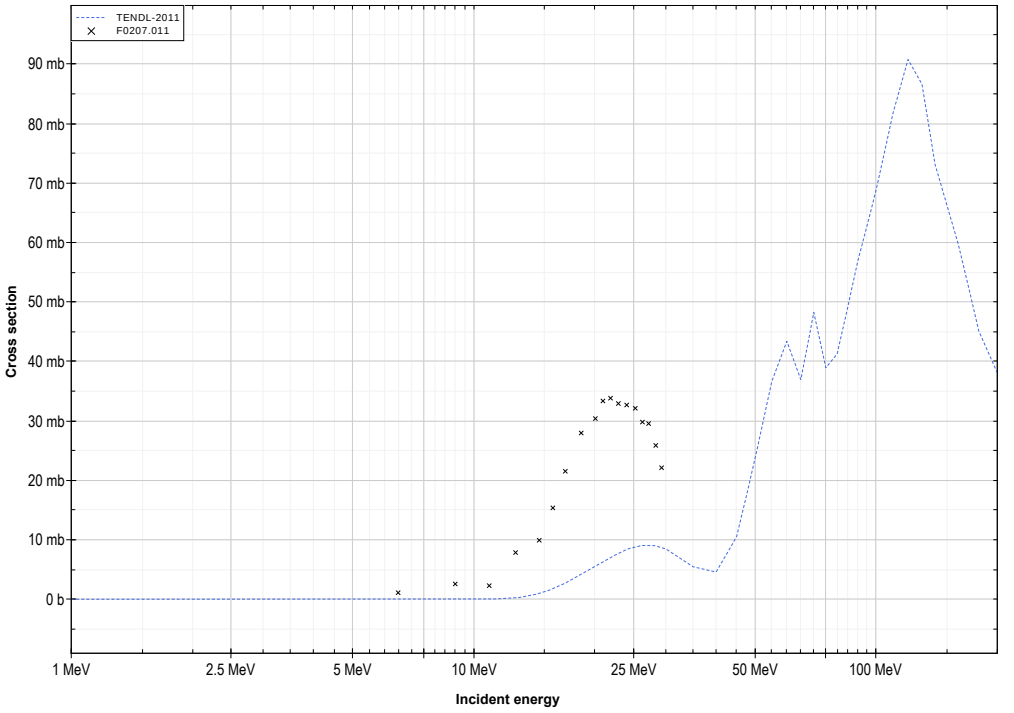
Reaction	Q-Value
Al27(He3,γ)P30	17935.15 keV

<< 8-O-16	**13-Al-27**	19-K-39 >>
<< MT102 (³He,γ)	**MT108 (³He,2α) or MT5 (Na22 production)**	MT111 (³He,2p) >>

Al27 (³He,2α) log-log



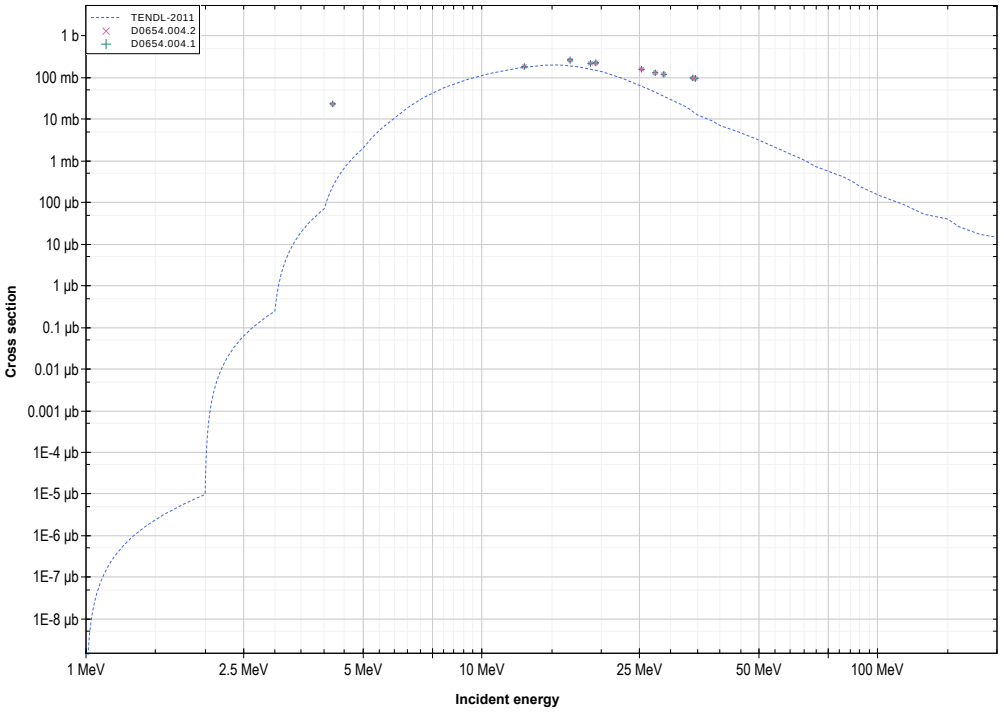
Al27 (³He,2α) lin-log



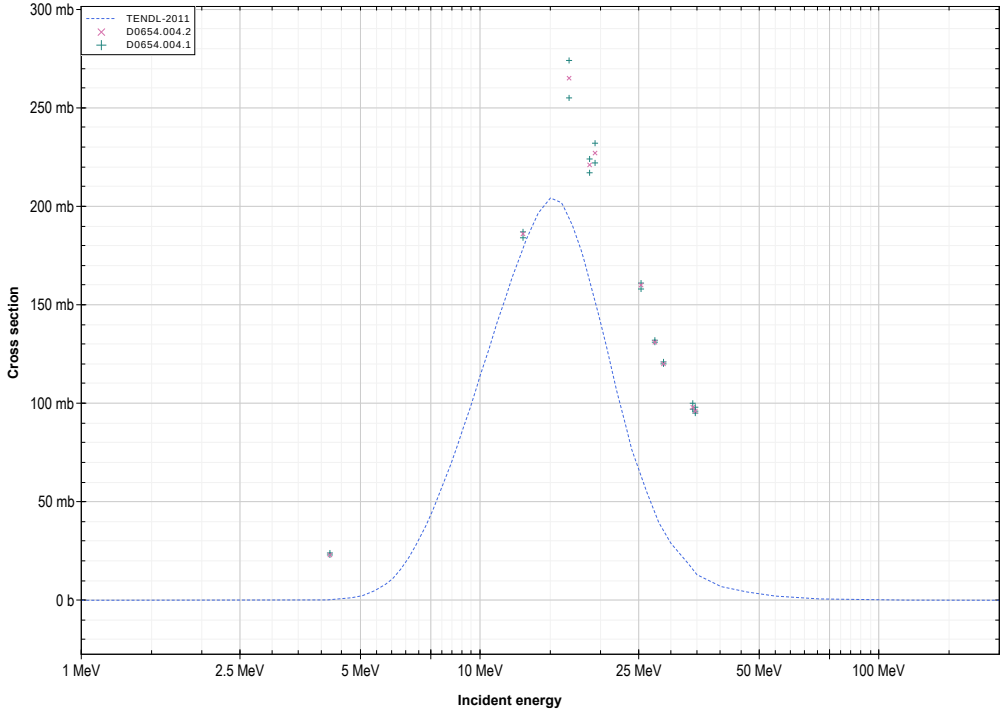
Reaction	Q-Value	Reaction	Q-Value
Al27(He3,2α)Na22	-1932.88 keV	Al27(He3,n+p+t+He3)Na22	-42324.35 keV
Al27(He3,p+t+α)Na22	-21746.74 keV	Al27(He3,2n+2He3)Na22	-43088.11 keV
Al27(He3,n+He3+α)Na22	-22510.49 keV	Al27(He3,p+2d+t)Na22	-45593.26 keV
Al27(He3,2d+α)Na22	-25779.40 keV	Al27(He3,n+2d+He3)Na22	-46357.02 keV
Al27(He3,n+p+d+α)Na22	-28003.97 keV	Al27(He3,n+2p+d+t)Na22	-47817.83 keV
Al27(He3,2n+2p+α)Na22	-30228.54 keV	Al27(He3,2n+p+d+He3)Na22	-48581.59 keV
Al27(He3,d+t+He3)Na22	-40099.79 keV	Al27(He3,4d)Na22	-49625.93 keV
Al27(He3,2p+2t)Na22	-41560.60 keV	Al27(He3,2n+3p+t)Na22	-50042.40 keV

	13-Al-27	25-Mn-55 >>
<< MT108 (³He,2α)	**MT111 (³He,2p) or MT5 (Al28 production)**	MT197 (³He,3p) >>

Al27 (³He,2p) log-log



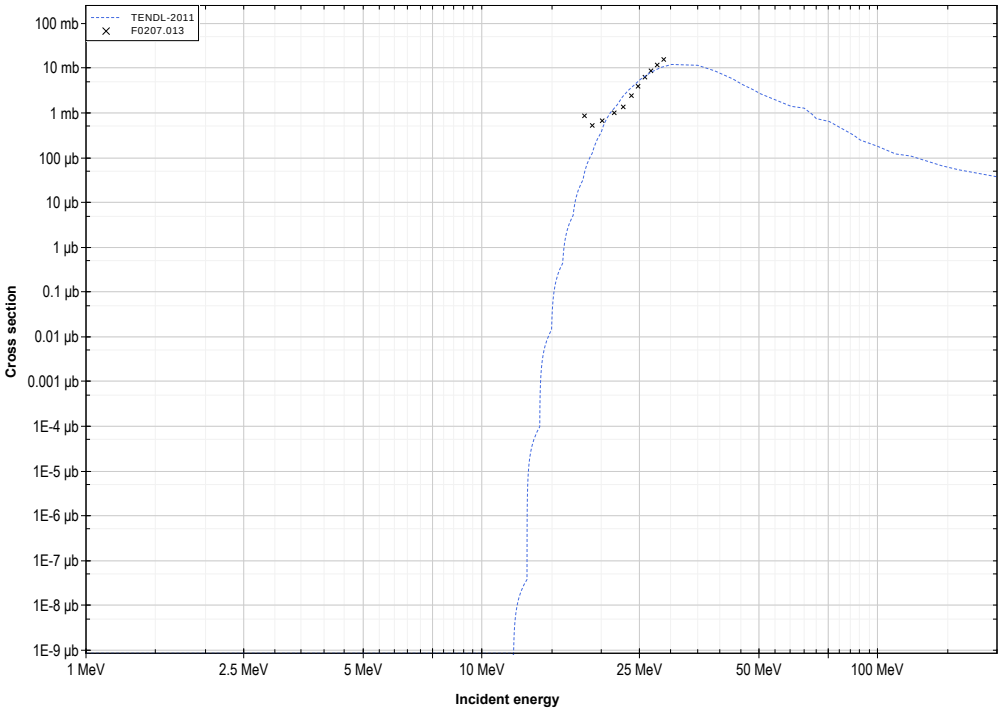
Al27 (³He,2p) lin-log



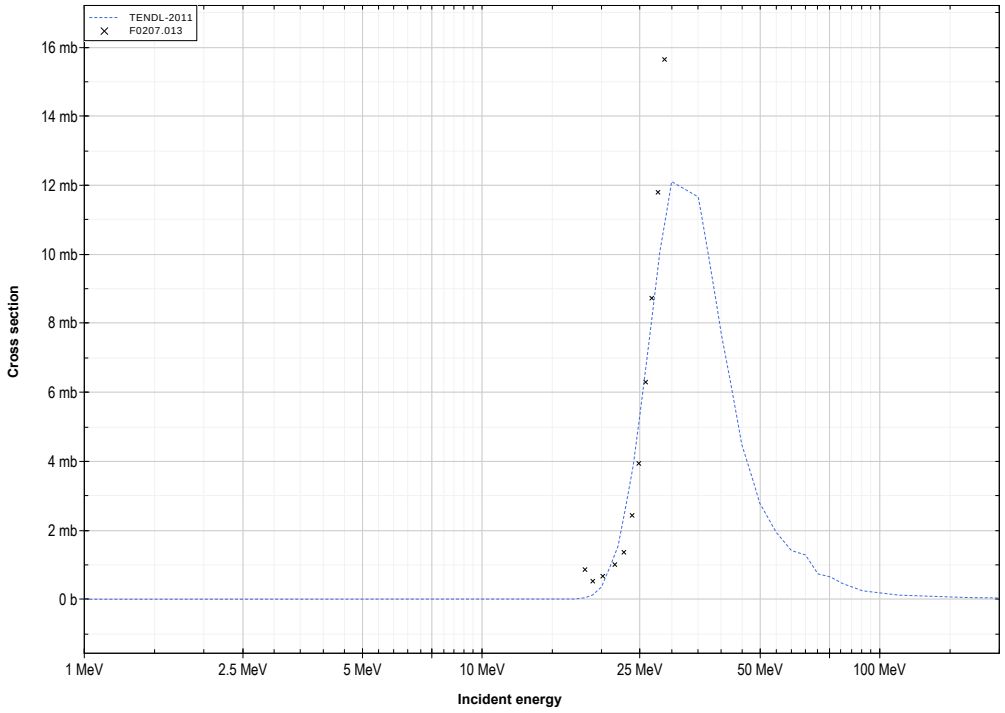
Reaction	Q-Value
Al27(He3,2p)Al28	7.05 keV

	13-Al-27	27-Co-59 >>
<< MT111 (³He,2p)	**MT197 (³He,3p) or MT5 (Mg27 production)**	MT4 (³He,n) >>

Al27 (³He,3p) log-log



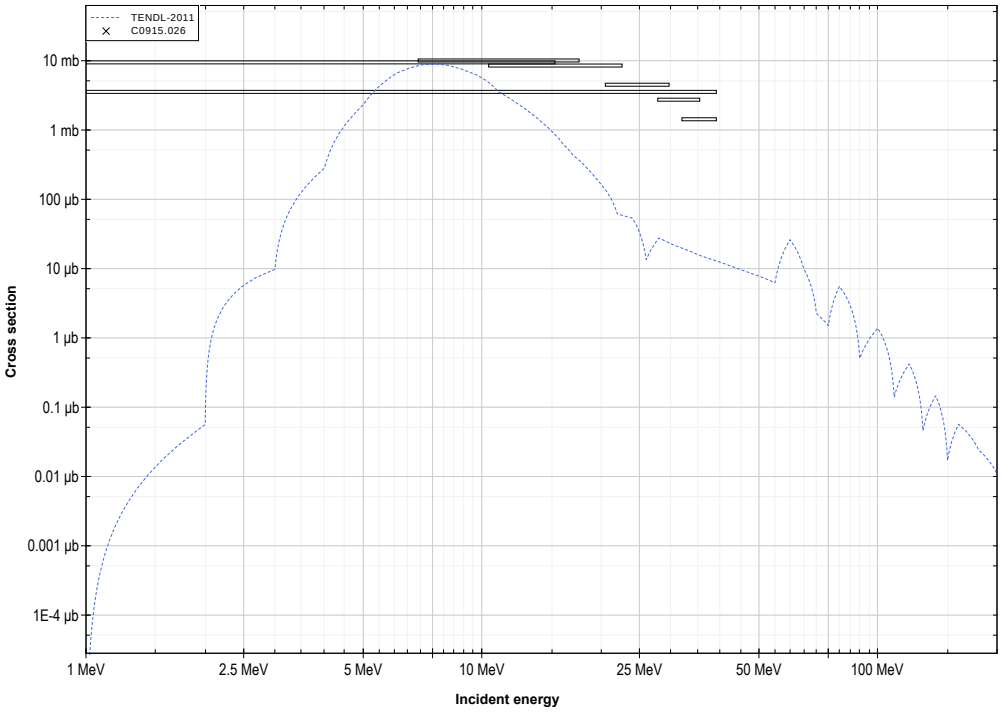
Al27 (³He,3p) lin-log



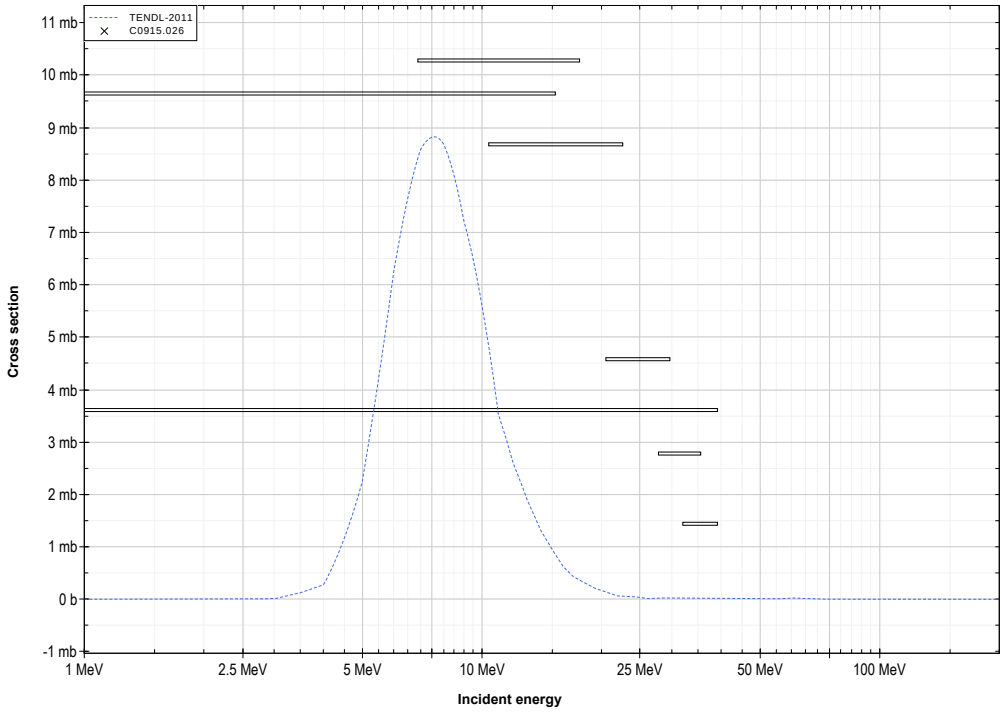
Reaction	Q-Value
Al27(He3,3p)Mg27	-9545.71 keV

<< 13-Al-27	**14-Si-28**	25-Mn-55 >>
<< MT197 (^{3}He,3p)	**MT4 (^{3}He,n) or MT5 (S30 production)**	MT102 (^{3}He,γ) >>

Si28 (^{3}He,n) log-log



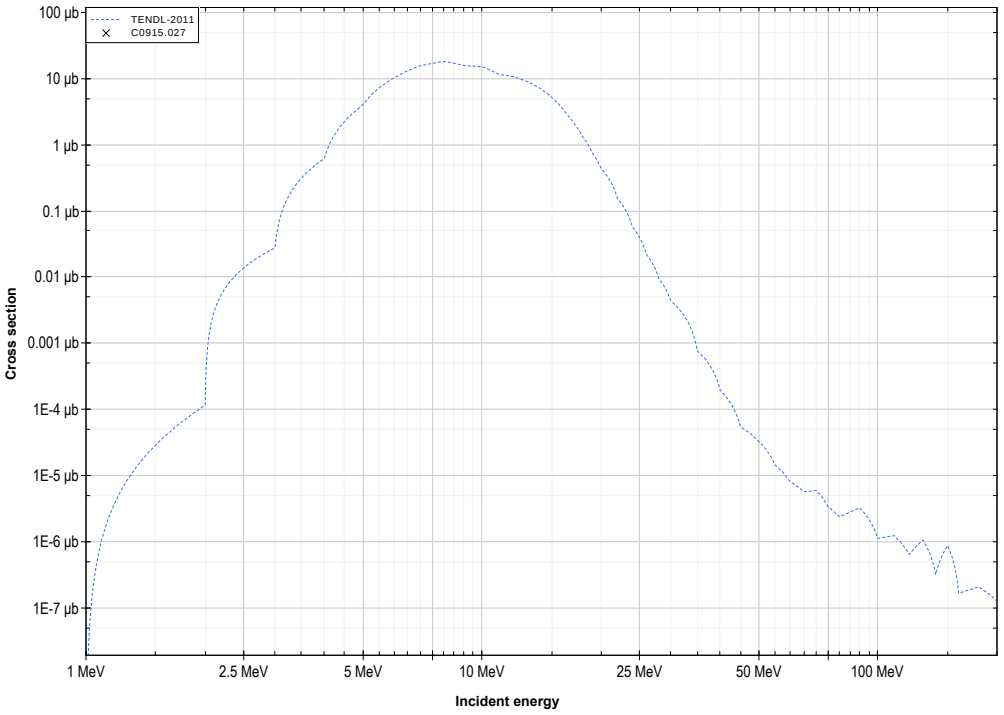
Si28 (^{3}He,n) lin-log



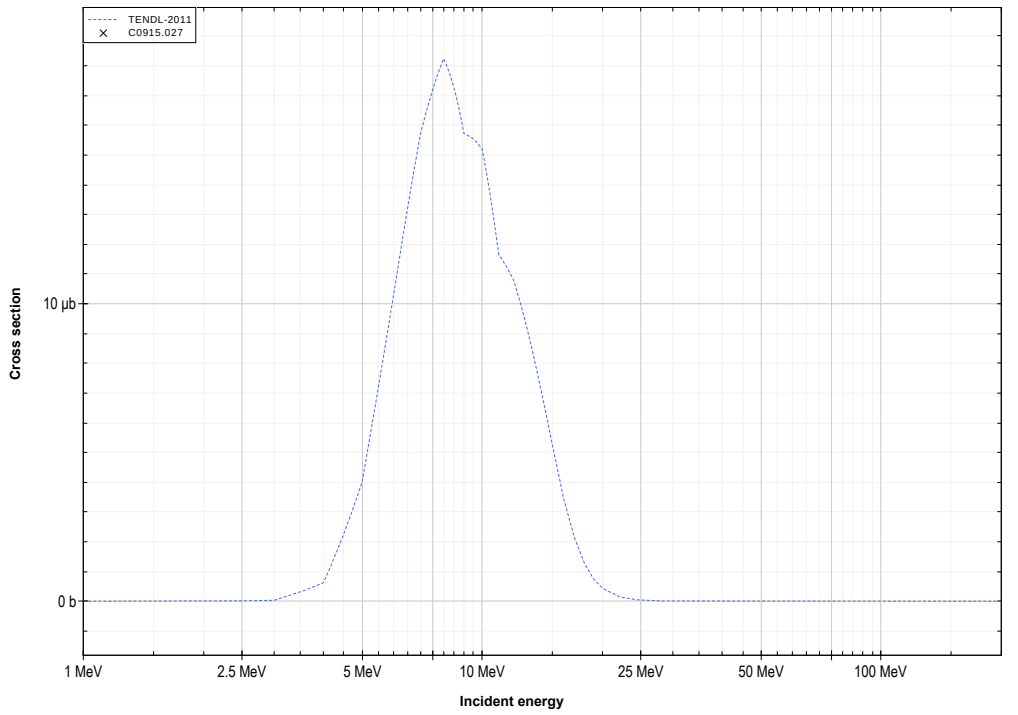
Reaction	Q-Value
Si28(He3,n)S30	-569.90 keV

<< 13-Al-27	**14-Si-28**	19-K-41 >>
<< MT4 (^{3}He,n)	**MT102 (^{3}He,γ) or MT5 (S31 production)**	MT103 (^{3}He,p) >>

Si28 (^{3}He,γ) log-log



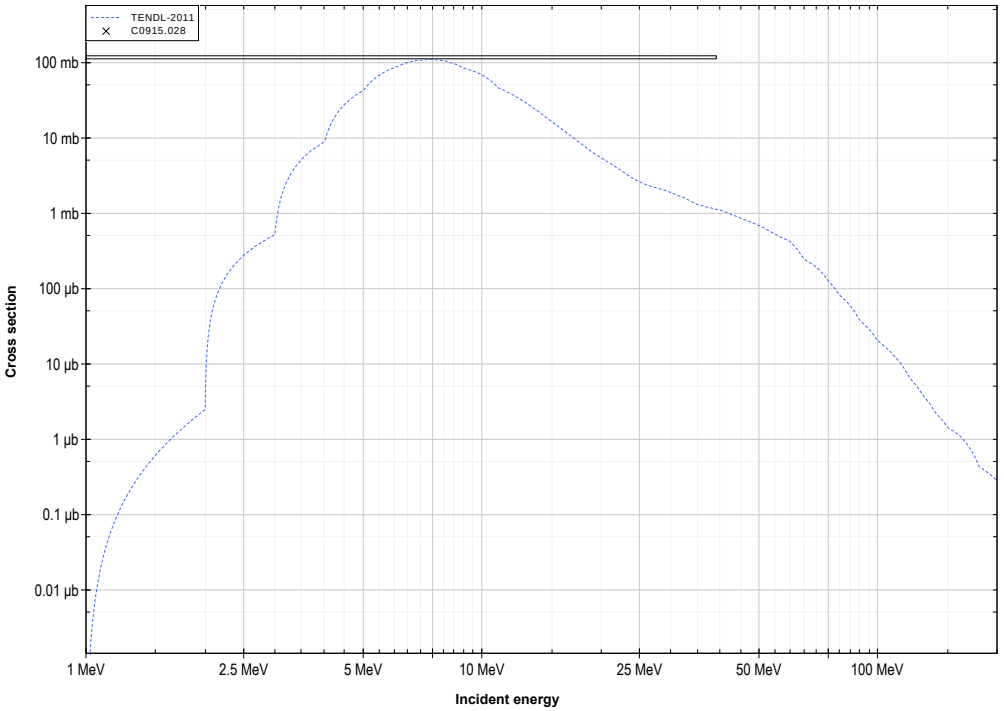
Si28 (^{3}He,γ) lin-log



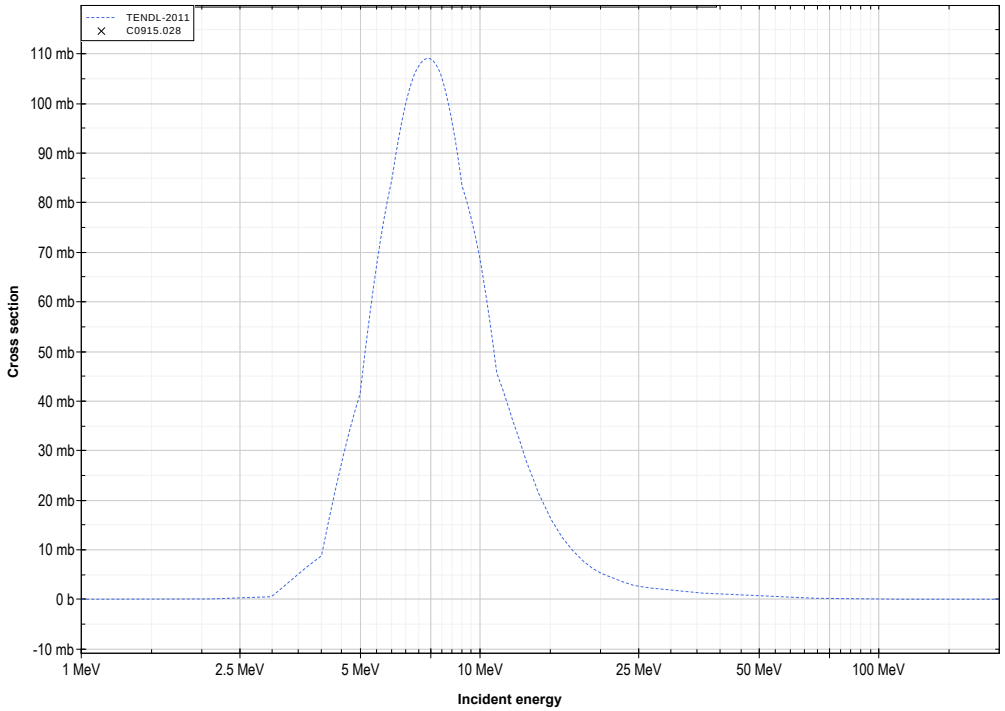
Reaction	Q-Value
Si28(He3,γ)S31	12483.02 keV

<< 12-Mg-26	**14-Si-28**	29-Cu-63 >>
<< MT102 (^{3}He,γ)	**MT103 (^{3}He,p) or MT5 (P30 production)**	MT107 (^{3}He,α) >>

Si28 (^{3}He,p) log-log



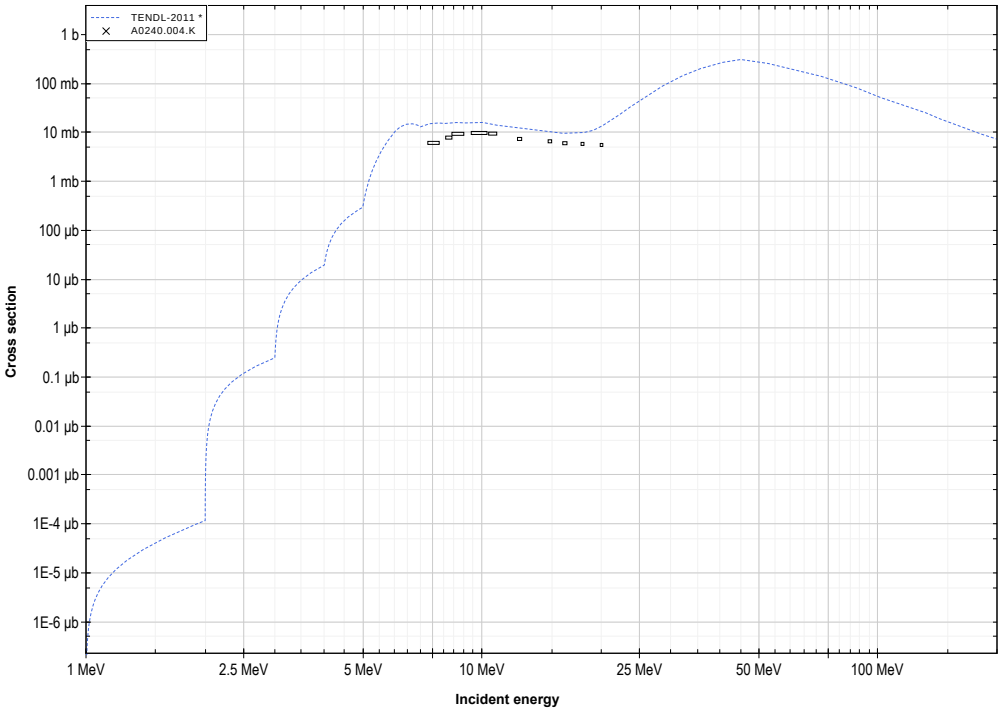
Si28 (^{3}He,p) lin-log



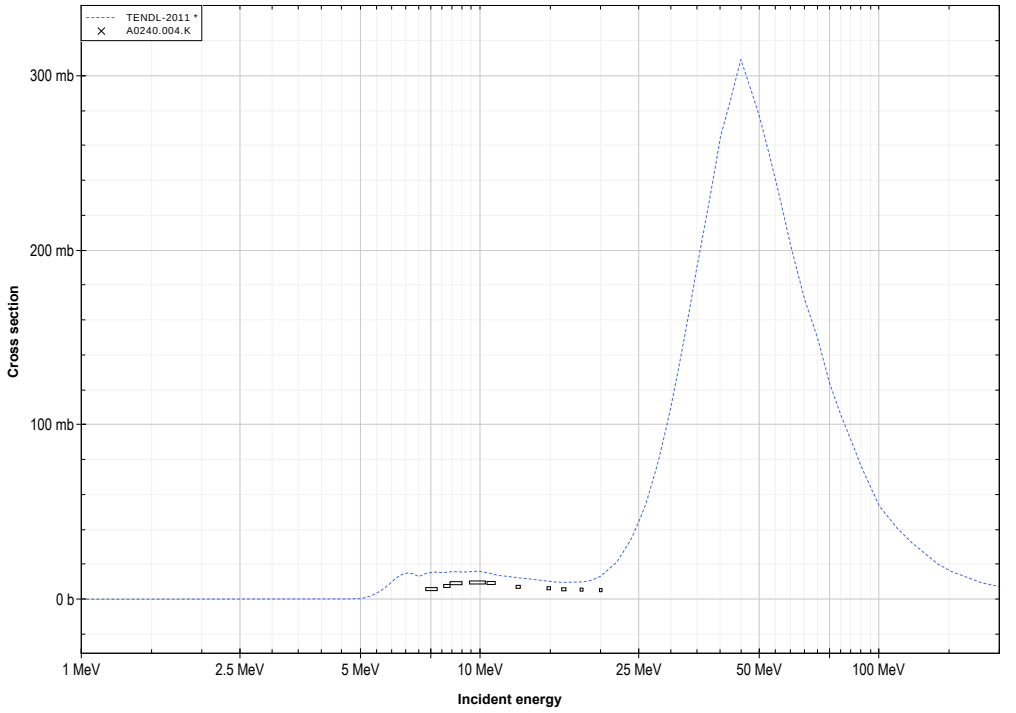
Reaction	Q-Value
Si28(He3,p)P30	6350.05 keV

<< 9-F-19	**19-K-39**	30-Zn-64 >>
<< MT103 (³He,p)	**MT107 (³He,α) or MT5 (K38 production)**	MT108 (³He,2α) >>

K39 (³He,α) log-log



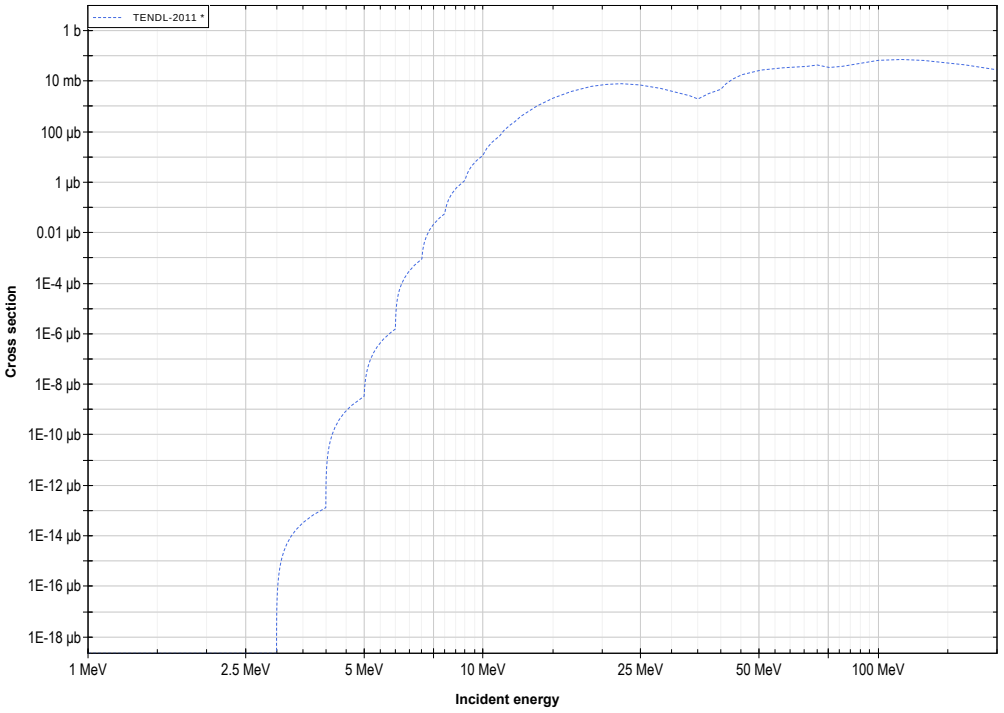
K39 (³He,α) lin-log



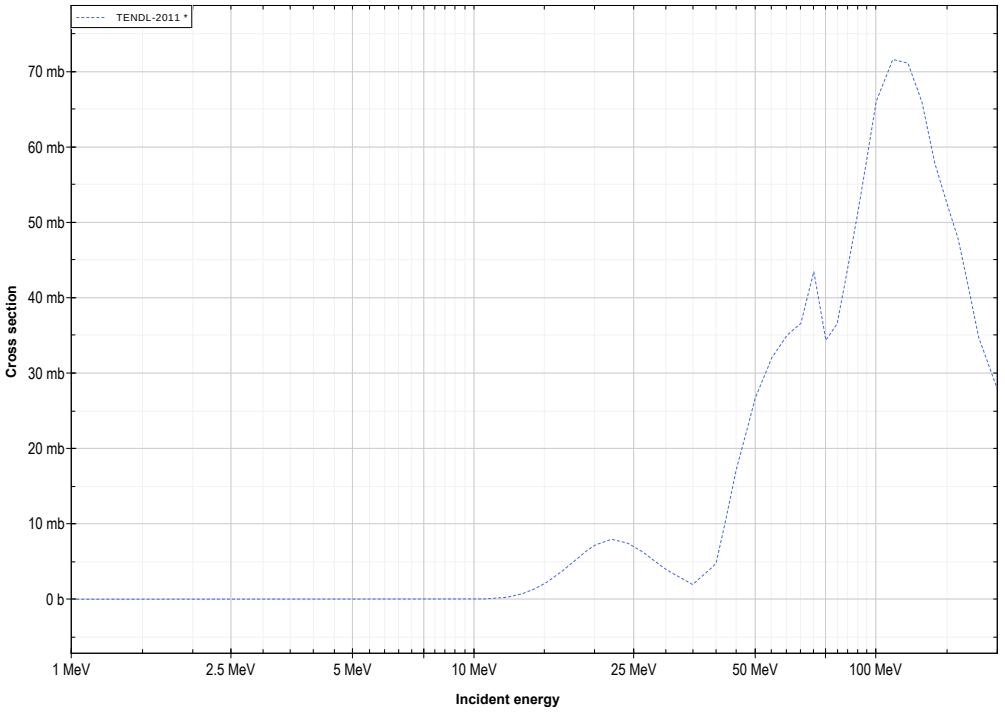
Reaction	Q-Value
K39(He3,α)K38	7499.99 keV
K39(He3,p+t)K38	-12313.87 keV
K39(He3,n+He3)K38	-13077.63 keV
K39(He3,2d)K38	-16346.54 keV
K39(He3,n+p+d)K38	-18571.10 keV
K39(He3,2n+2p)K38	-20795.67 keV

<< 13-Al-27	**19-K-39**	29-Cu-63 >>
<< MT107 (^{3}He,α)	**MT108 (^{3}He,2α) or MT5 (Cl34 production)**	MT102 (^{3}He,γ) >>

K39 (^{3}He,2α) log-log



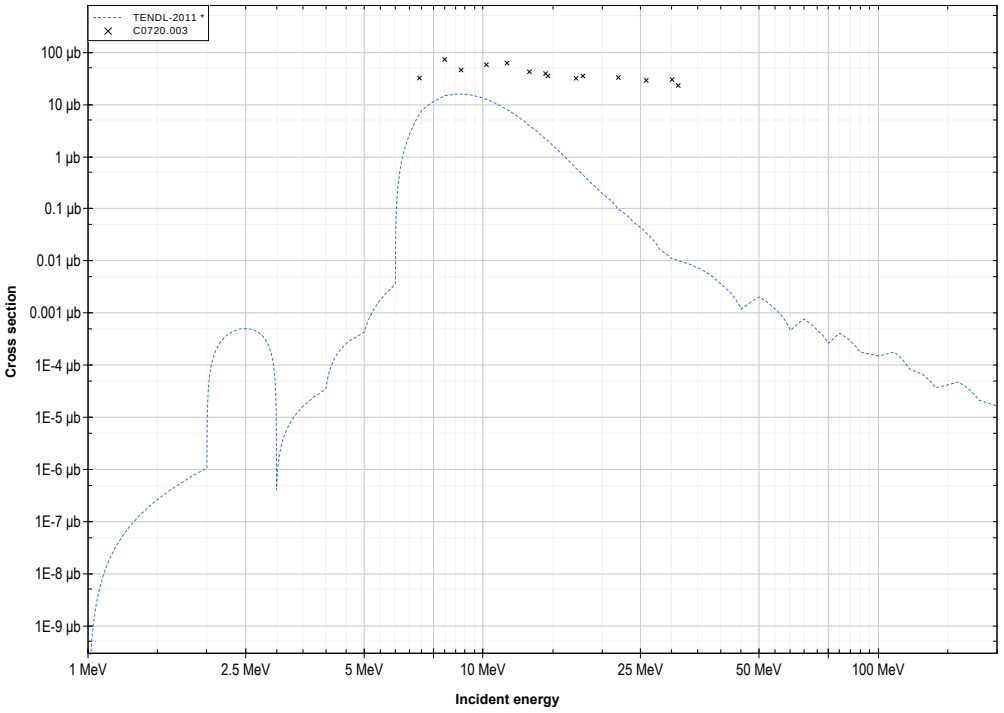
K39 (^{3}He,2α) lin-log



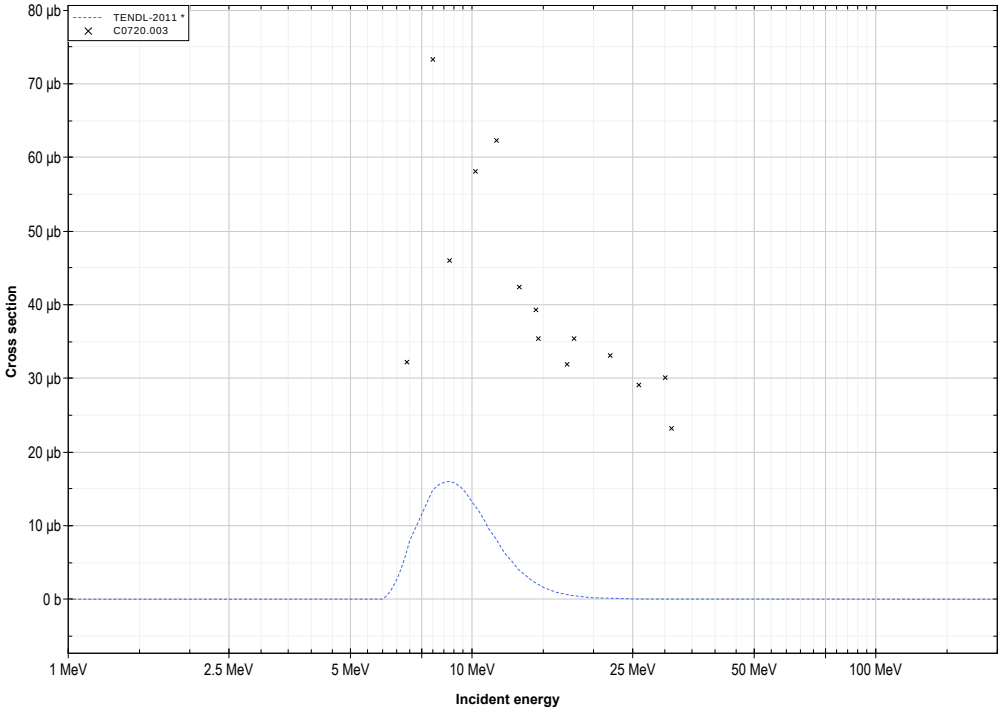
Reaction	Q-Value	Reaction	Q-Value
K39(He3,2α)Cl34	714.15 keV	K39(He3,n+p+t+He3)Cl34	-39677.32 keV
K39(He3,p+t+α)Cl34	-19099.71 keV	K39(He3,2n+2He3)Cl34	-40441.08 keV
K39(He3,n+He3+α)Cl34	-19863.46 keV	K39(He3,p+2d+t)Cl34	-42946.23 keV
K39(He3,2d+α)Cl34	-23132.37 keV	K39(He3,n+2d+He3)Cl34	-43709.99 keV
K39(He3,n+p+d+α)Cl34	-25356.94 keV	K39(He3,n+2p+d+t)Cl34	-45170.80 keV
K39(He3,2n+2p+α)Cl34	-27581.51 keV	K39(He3,2n+p+d+He3)Cl34	-45934.56 keV
K39(He3,d+t+He3)Cl34	-37452.76 keV	K39(He3,4d)Cl34	-46978.90 keV
K39(He3,2p+2t)Cl34	-38913.57 keV	K39(He3,2n+3p+t)Cl34	-47395.37 keV

<< 14-Si-28	**19-K-41**	21-Sc-45 >>
<< MT108 (^{3}He,2α)	**MT102 (^{3}He,γ) or MT5 (Sc44 production)**	MT102 (^{3}He,γ) >>

K41 (^{3}He,γ) log-log



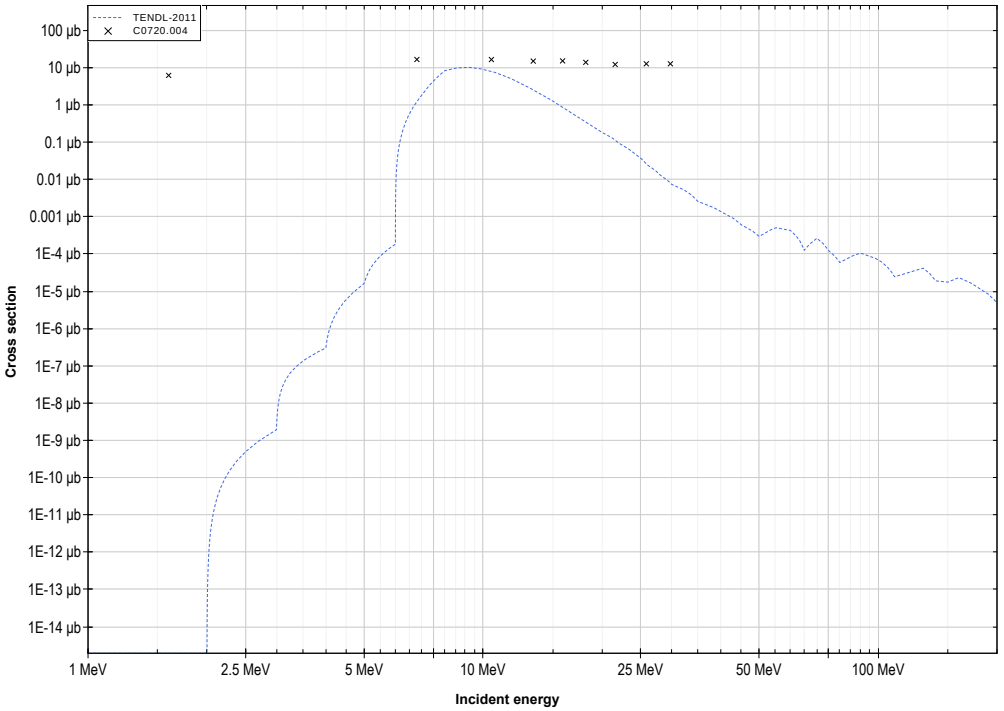
K41 (^{3}He,γ) lin-log



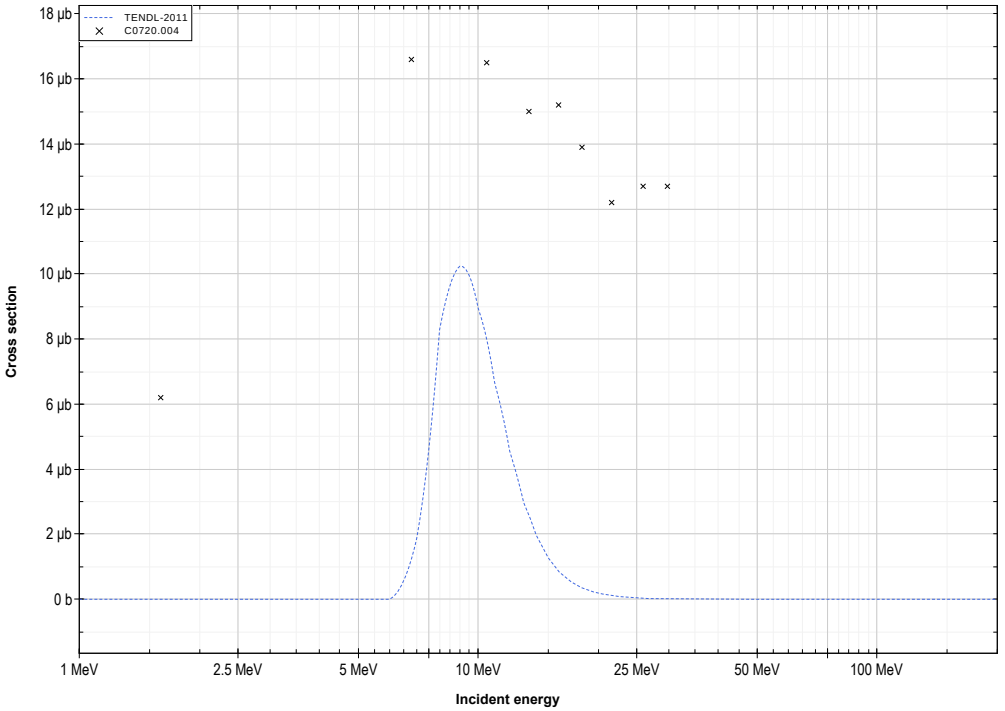
Reaction	Q-Value
K41(He3,γ)Sc44	17188.24 keV

<< 19-K-41	**21-Sc-45**	31-Ga-71 >>
<< MT102 (^{3}He,γ)	**MT102 (^{3}He,γ) or MT5 (V48 production)**	MT22 (^{3}He,n+α) >>

Sc45 (^{3}He,γ) log-log



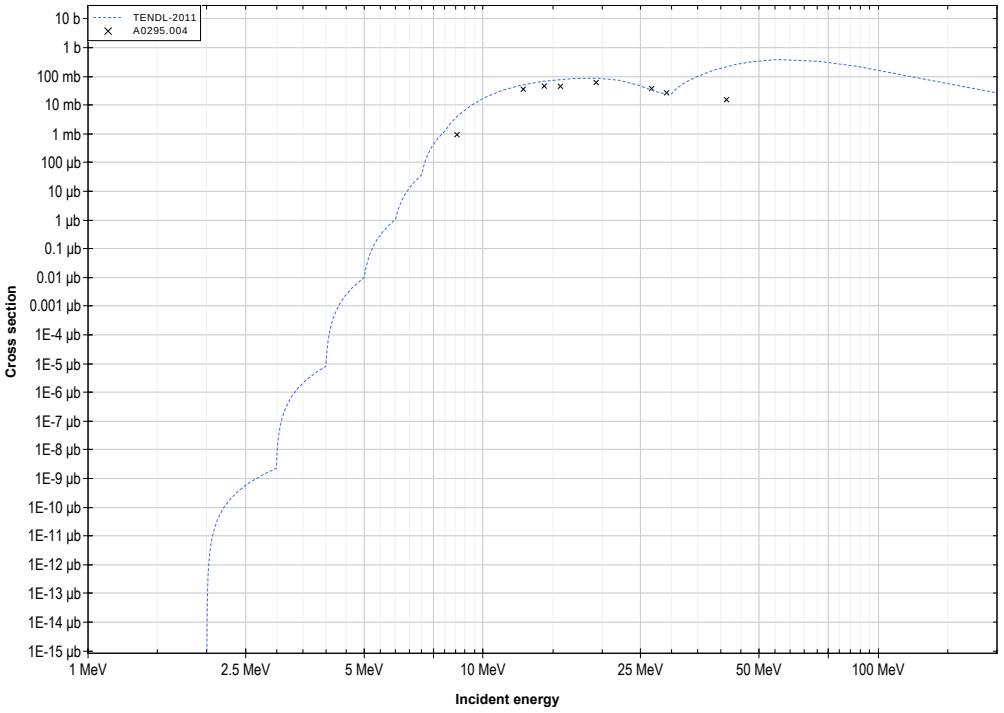
Sc45 (^{3}He,γ) lin-log



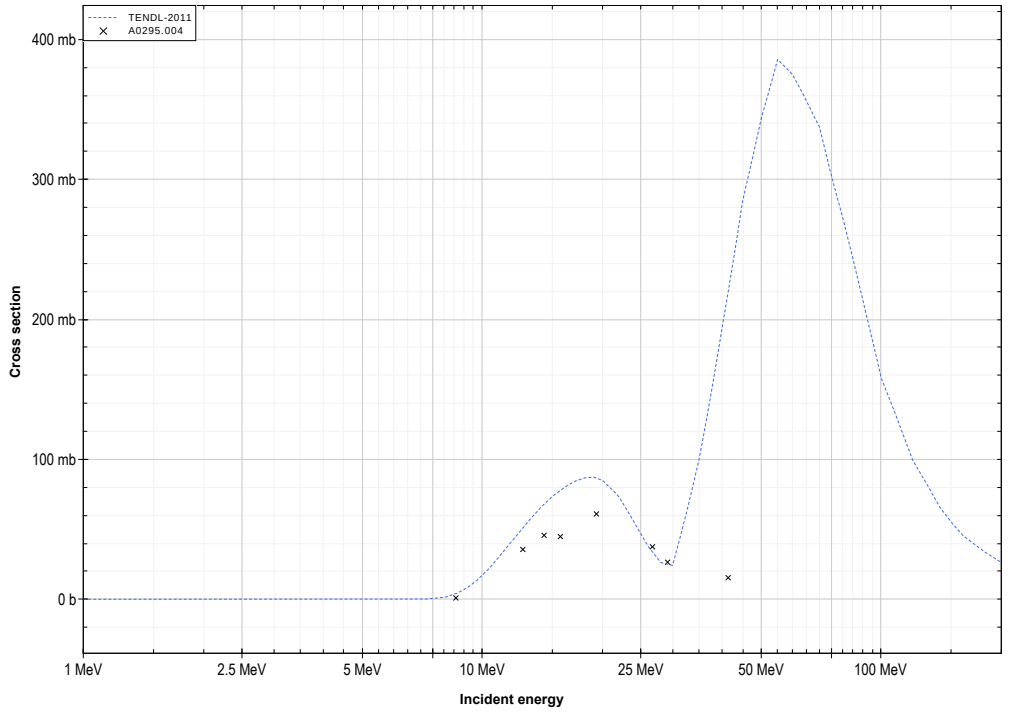
Reaction	Q-Value
Sc45(He3,γ)V48	18338.81 keV

<< 9-F-19	**23-V-51**	27-Co-59 >>
<< MT102 (³He,γ)	**MT22 (³He,n+α) or MT5 (V49 production)**	MT16 (³He,2n) >>

V51 (³He,n+α) log-log



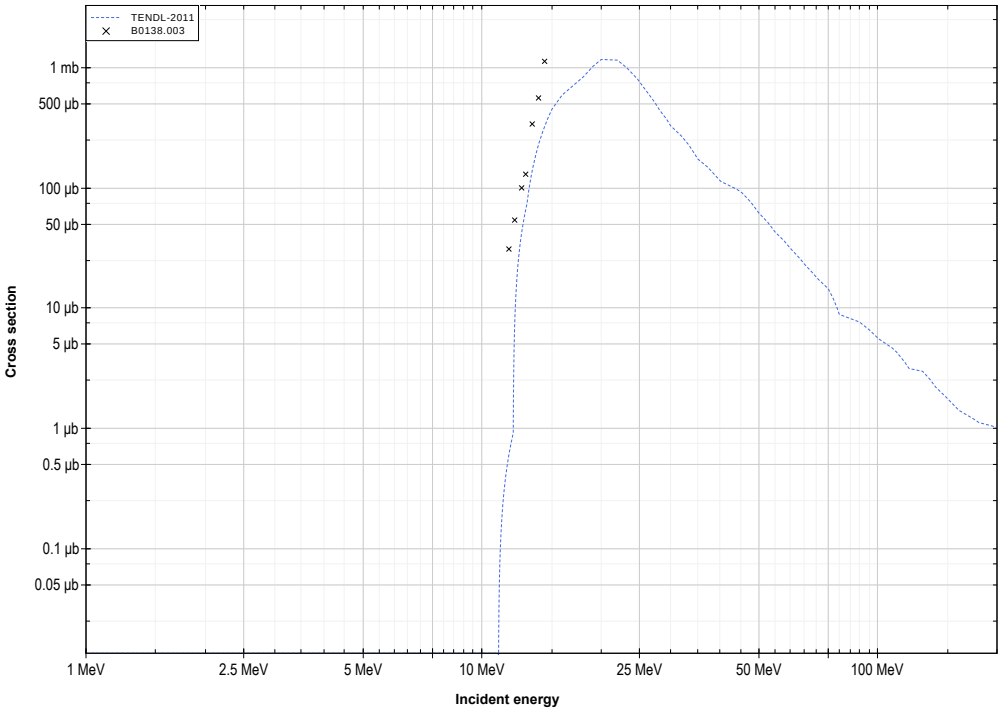
V51 (³He,n+α) lin-log



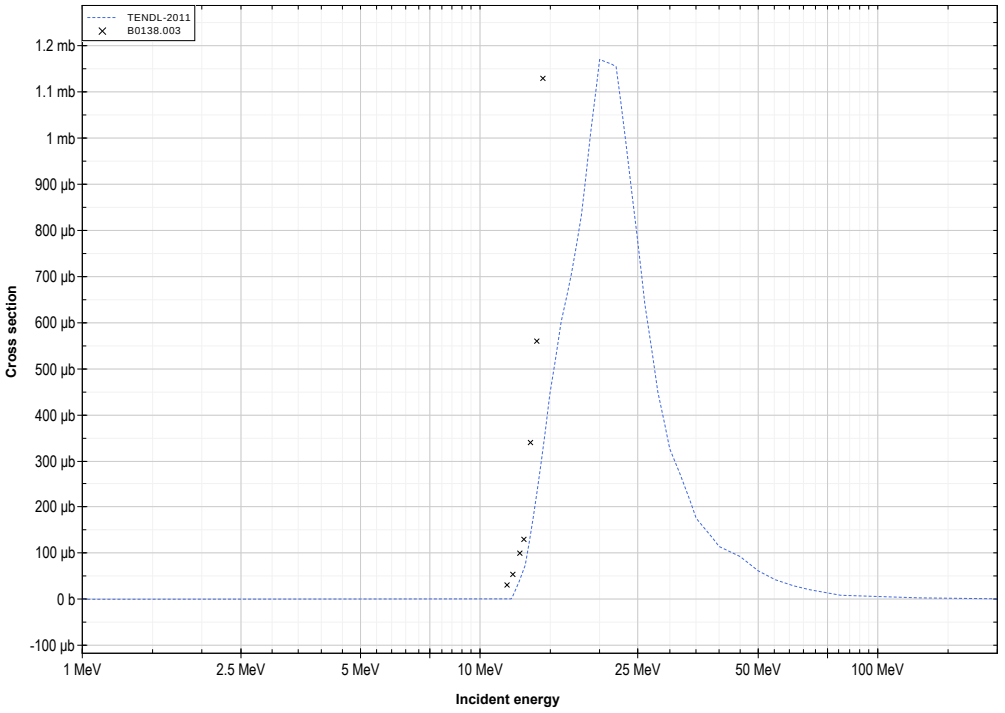
Reaction	Q-Value
V51(He3,n+α)V49	190.48 keV
V51(He3,d+t)V49	-17398.81 keV
V51(He3,n+p+t)V49	-19623.38 keV
V51(He3,2n+He3)V49	-20387.13 keV
V51(He3,n+2d)V49	-23656.05 keV
V51(He3,2n+p+d)V49	-25880.61 keV
V51(He3,3n+2p)V49	-28105.18 keV

<< 13-Al-27	**24-Cr-50**	25-Mn-55 >>
<< MT22 (³He,n+α)	**MT16 (³He,2n) or MT5 (Fe51 production)**	MT4 (³He,n) >>

Cr50 (³He,2n) log-log



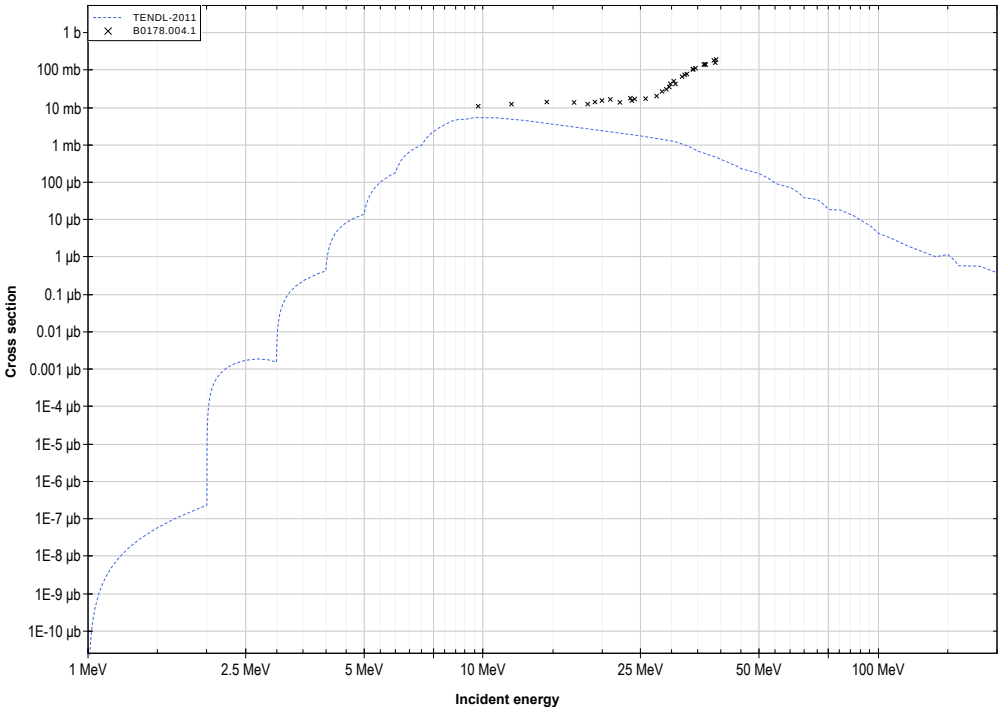
Cr50 (³He,2n) lin-log



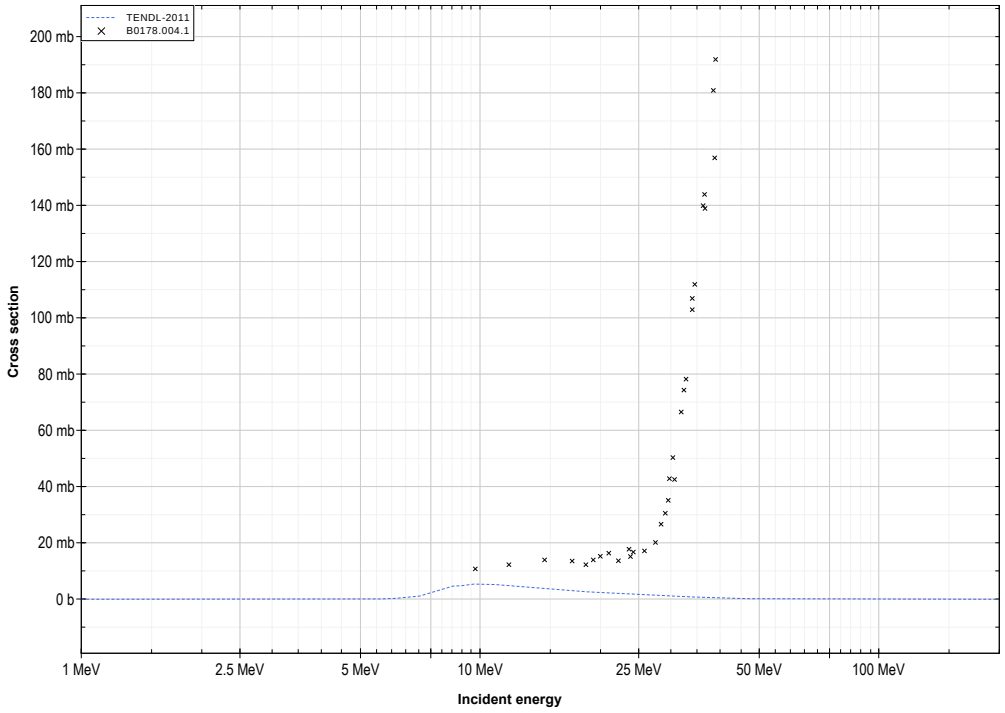
Reaction	Q-Value
Cr50(He3,2n)Fe51	-11248.92 keV

<< 14-Si-28	**25-Mn-55**	27-Co-59 >>
<< MT16 (³He,2n)	**MT4 (³He,n) or MT5 (Co57 production)**	MT16 (³He,2n) >>

Mn55 (³He,n) log-log



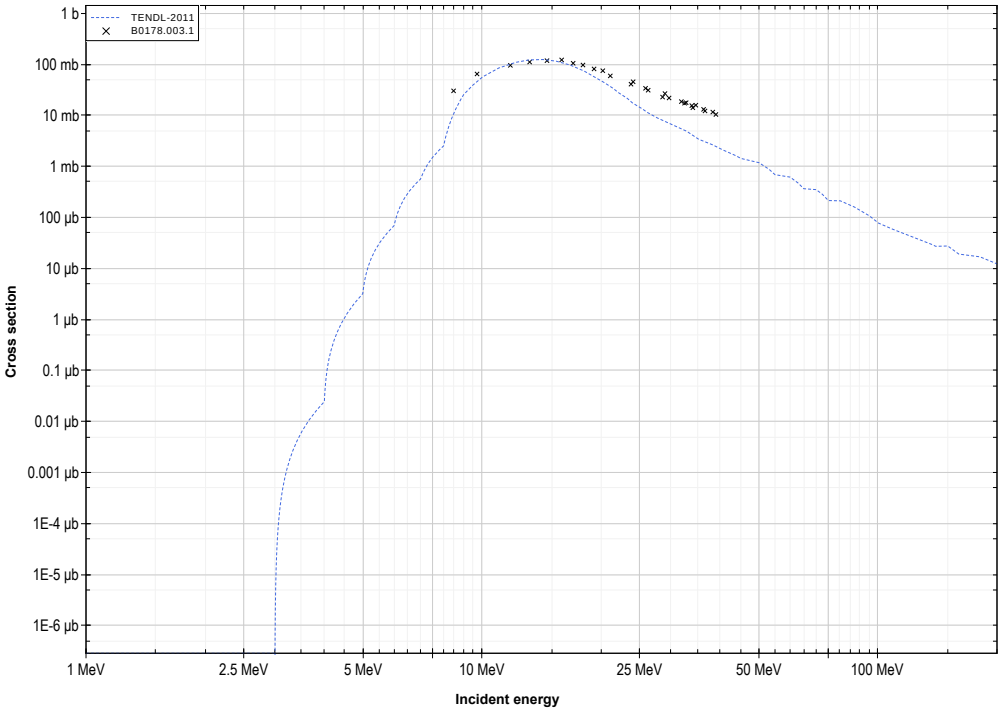
Mn55 (³He,n) lin-log



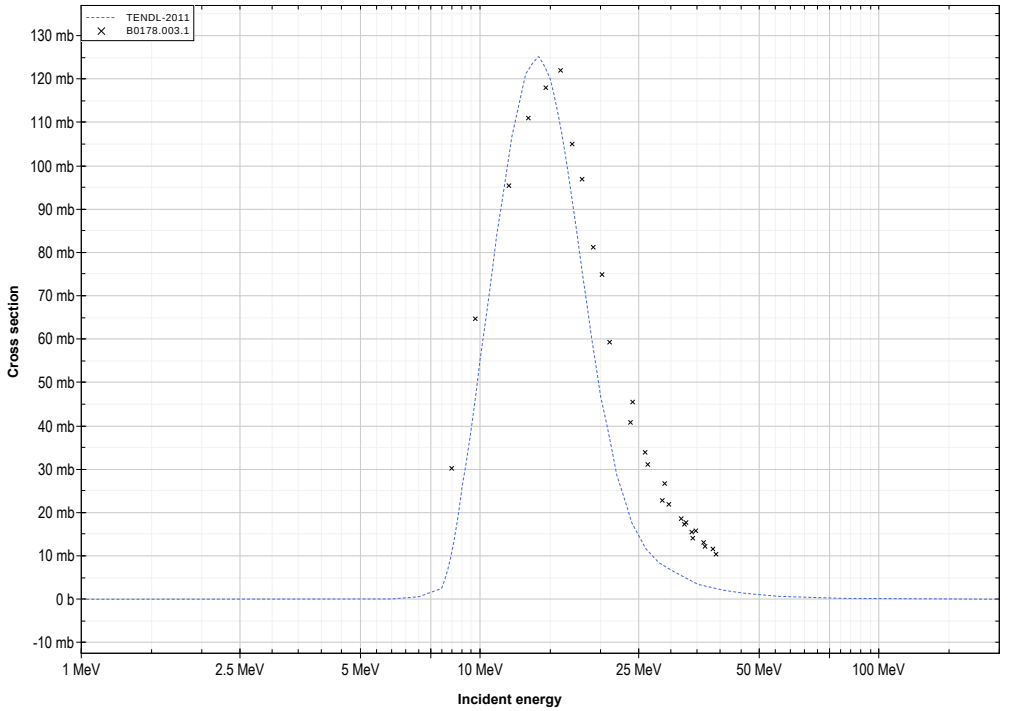
Reaction	Q-Value
Mn55(He3,n)Co57	8493.50 keV

<< 24-Cr-50	**25-Mn-55**	26-Fe-54 >>
<< MT4 (^{3}He,n)	**MT16 (^{3}He,2n) or MT5 (Co56 production)**	MT17 (^{3}He,3n) >>

Mn55 (^{3}He,2n) log-log



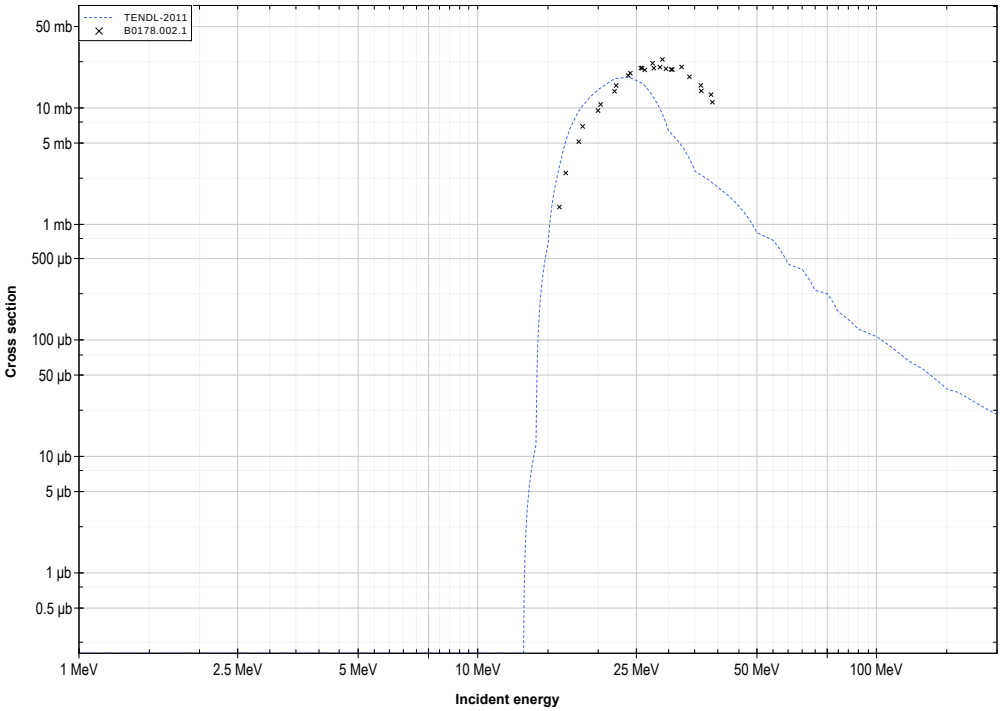
Mn55 (^{3}He,2n) lin-log



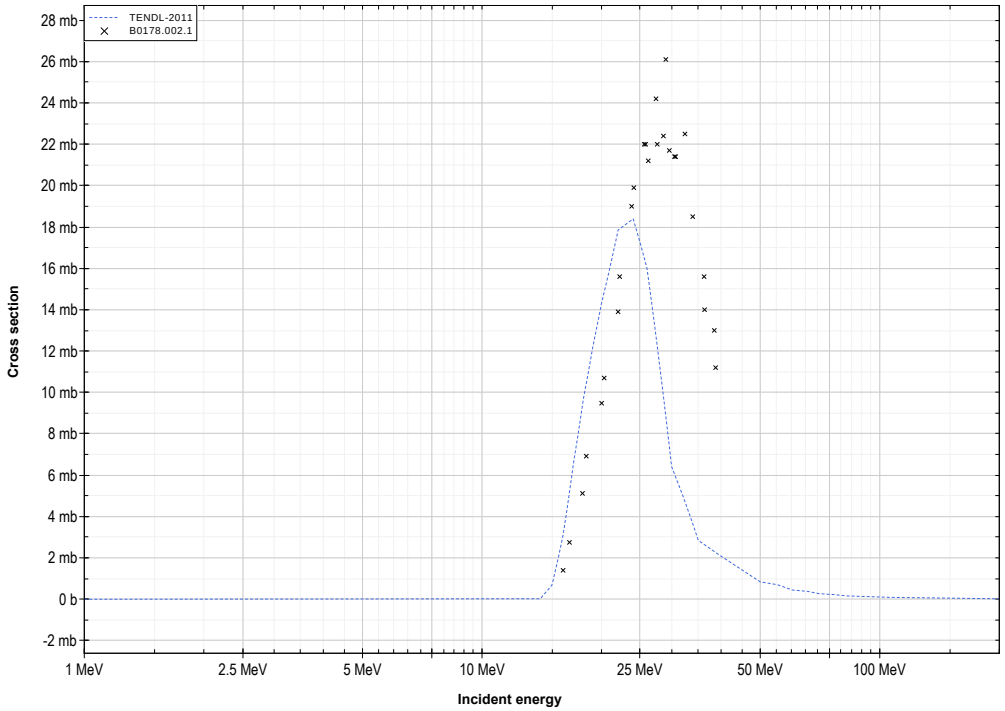
Reaction	Q-Value
Mn55(He3,2n)Co56	-2882.62 keV

	25-Mn-55	29-Cu-65 >>
<< MT16 (^{3}He,2n)	**MT17 (^{3}He,3n) or MT5 (Co55 production)**	MT111 (^{3}He,2p) >>

Mn55 (^{3}He,3n) log-log



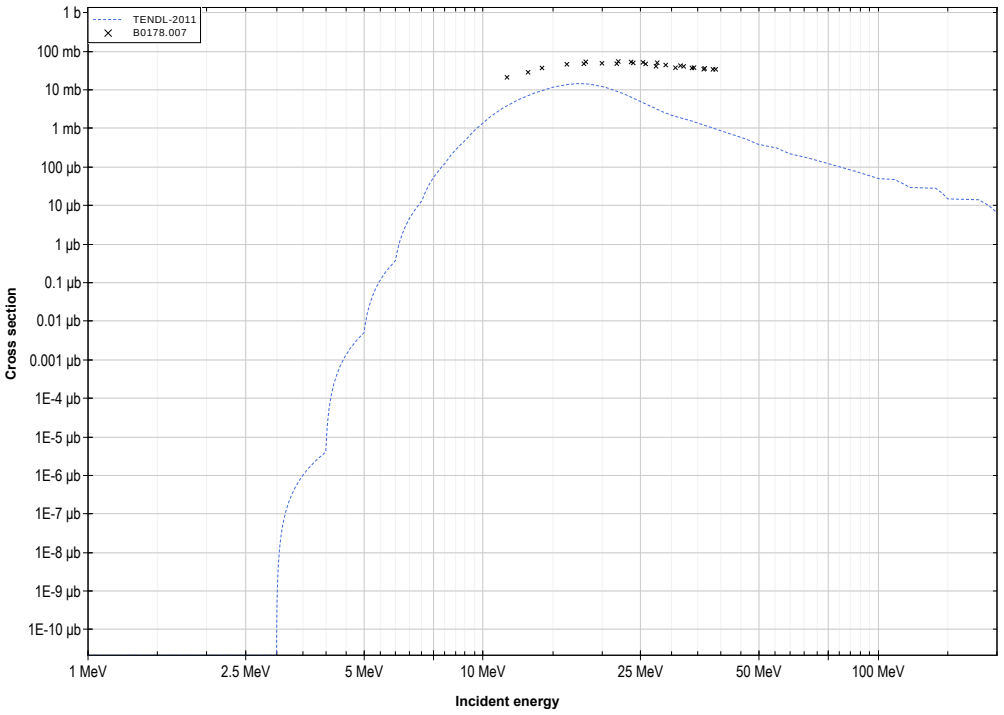
Mn55 (^{3}He,3n) lin-log



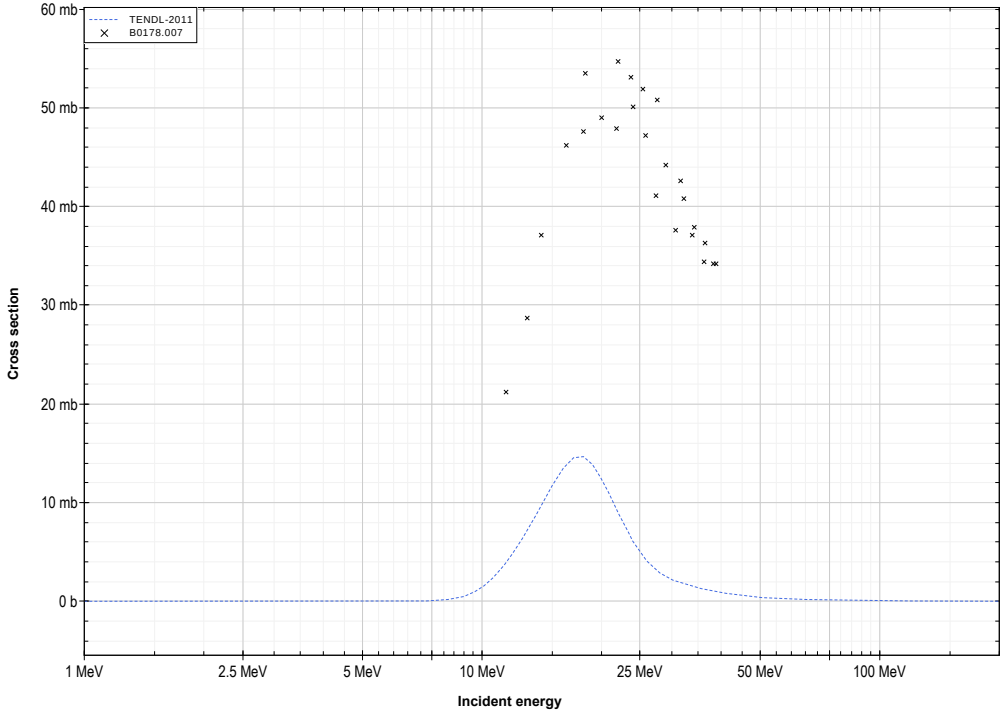
Reaction	Q-Value
Mn55(He3,3n)Co55	-12965.74 keV

<< 13-Al-27	**25-Mn-55**	27-Co-59 >>
<< MT17 (^{3}He,3n)	**MT111 (^{3}He,2p) or MT5 (Mn56 production)**	MT16 (^{3}He,2n) >>

Mn55 (^{3}He,2p) log-log



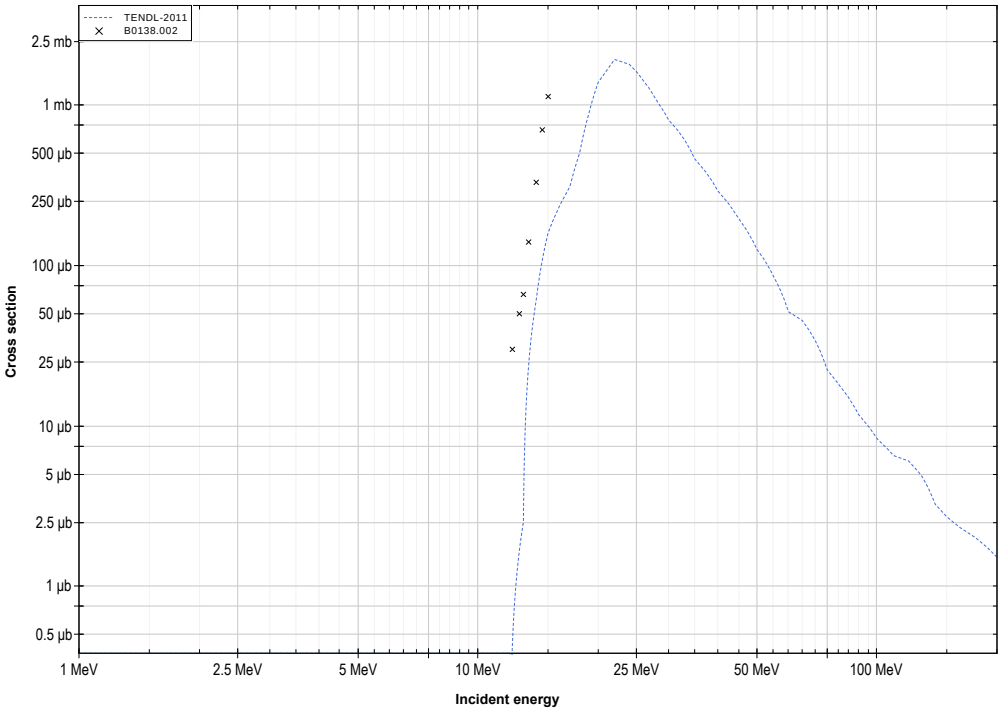
Mn55 (^{3}He,2p) lin-log



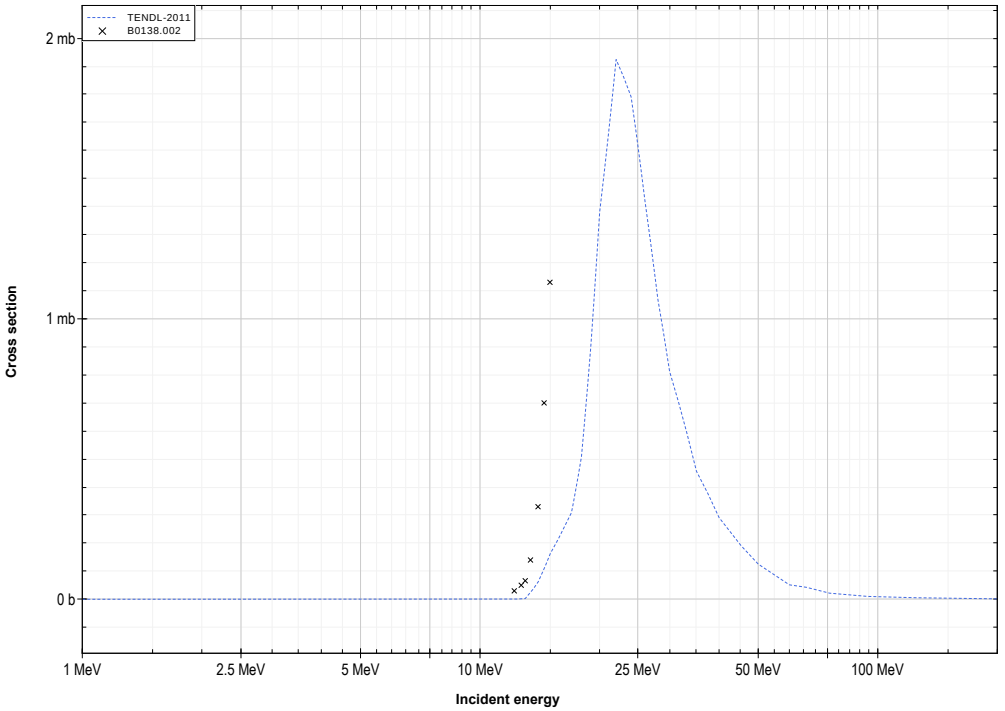
Reaction	Q-Value
Mn55(He3,2p)Mn56	-447.63 keV

<< 25-Mn-55	**26-Fe-54**	27-Co-59 >>
<< MT111 (³He,2p)	**MT16 (³He,2n) or MT5 (Ni55 production)**	MT4 (³He,n) >>

Fe54 (³He,2n) log-log



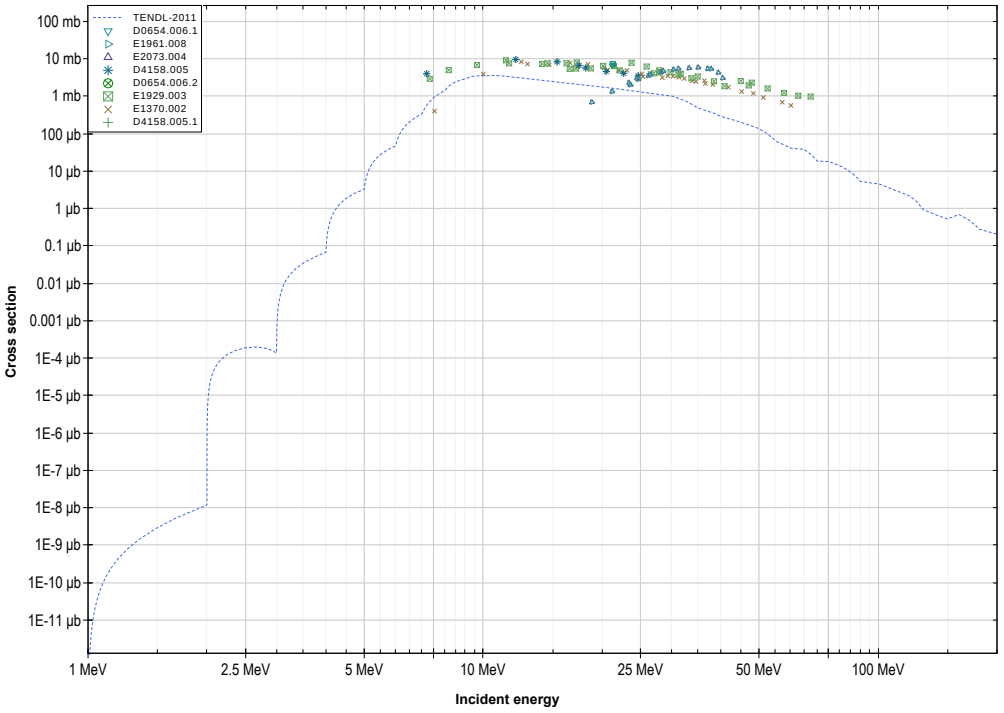
Fe54 (³He,2n) lin-log



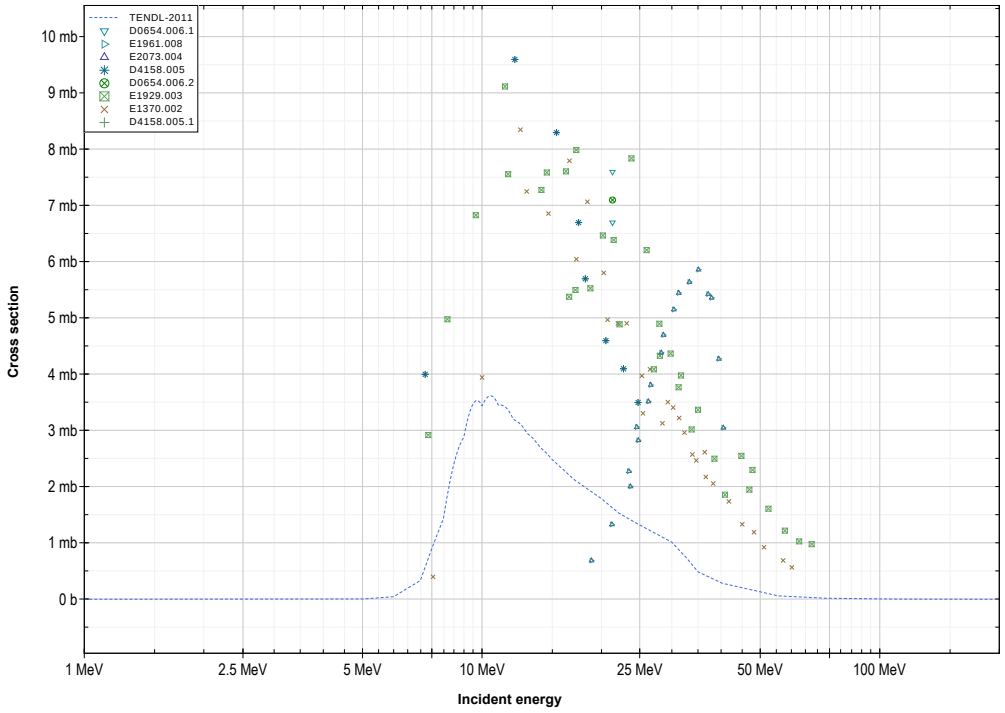
Reaction	Q-Value
Fe54(He3,2n)Ni55	-12127.92 keV

<< 25-Mn-55	**27-Co-59**	29-Cu-63 >>
<< MT16 (^{3}He,2n)	**MT4 (^{3}He,n) or MT5 (Cu61 production)**	MT16 (^{3}He,2n) >>

Co59 (^{3}He,n) log-log



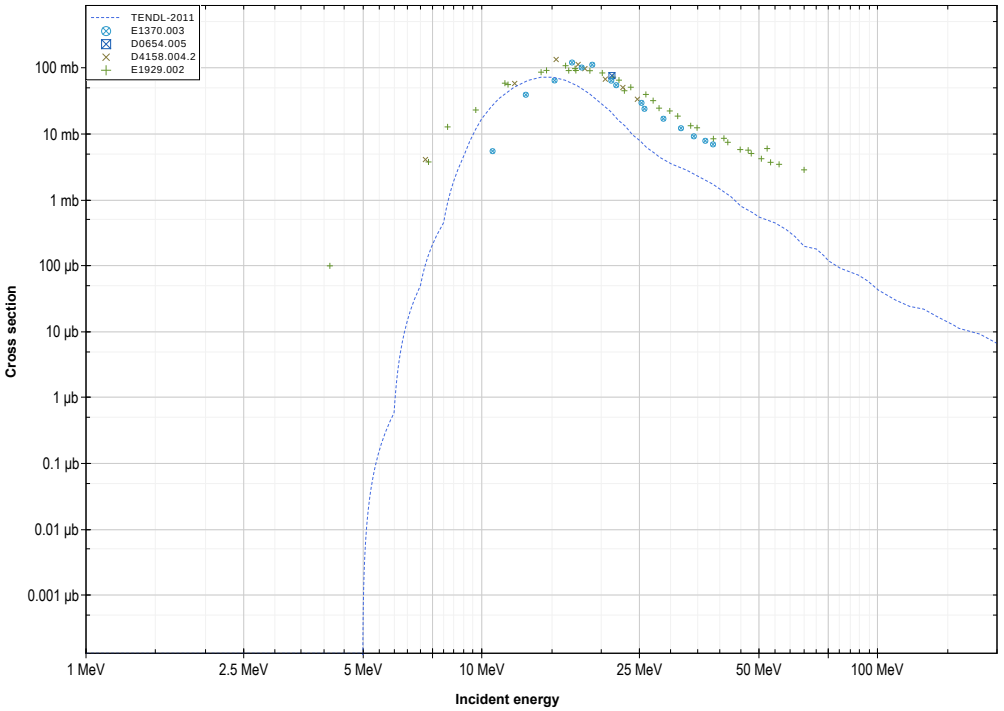
Co59 (^{3}He,n) lin-log



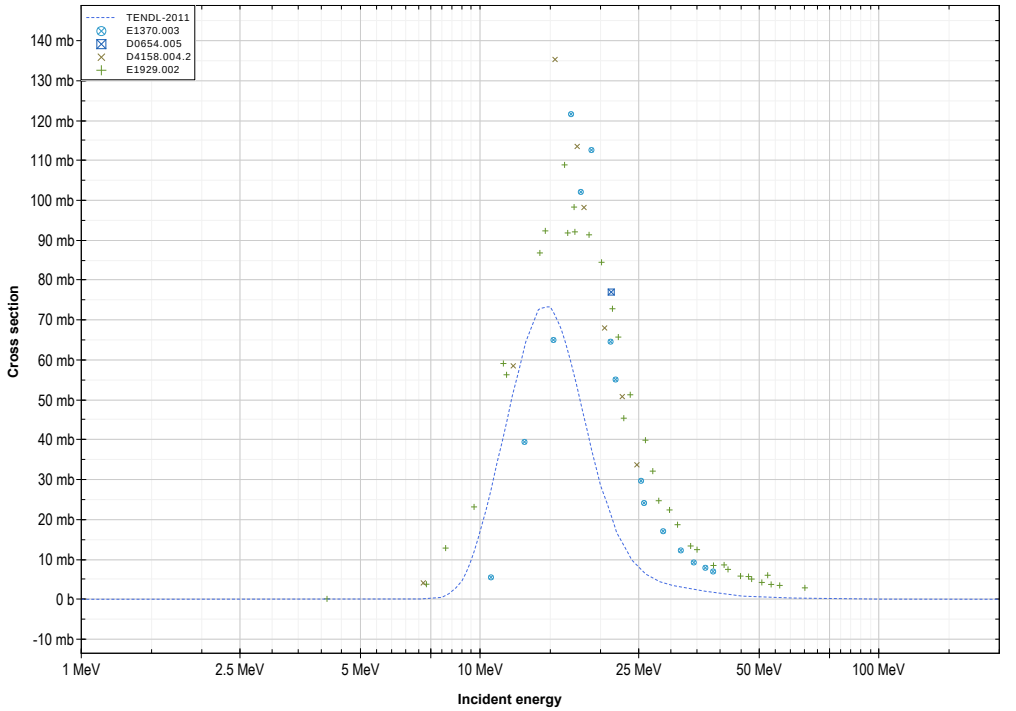
Reaction	Q-Value
Co59(He3,n)Cu61	6615.10 keV

<< 26-Fe-54	**27-Co-59**	29-Cu-63 >>
<< MT4 (^{3}He,n)	**MT16 (^{3}He,2n) or MT5 (Cu60 production)**	MT22 (^{3}He,n+α) >>

Co59 (^{3}He,2n) log-log



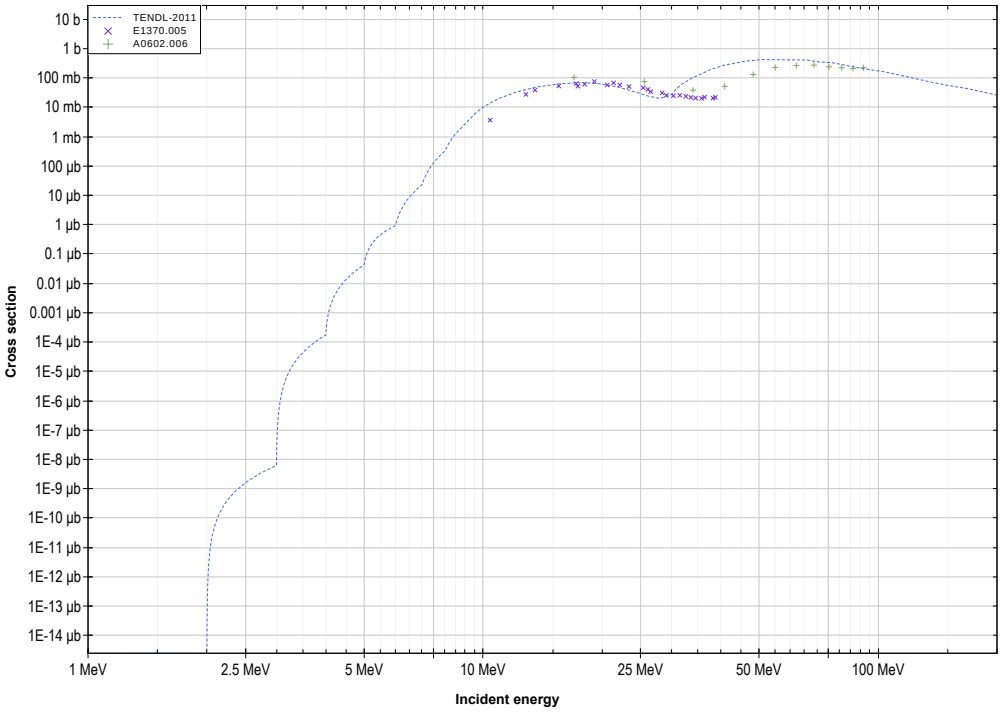
Co59 (^{3}He,2n) lin-log



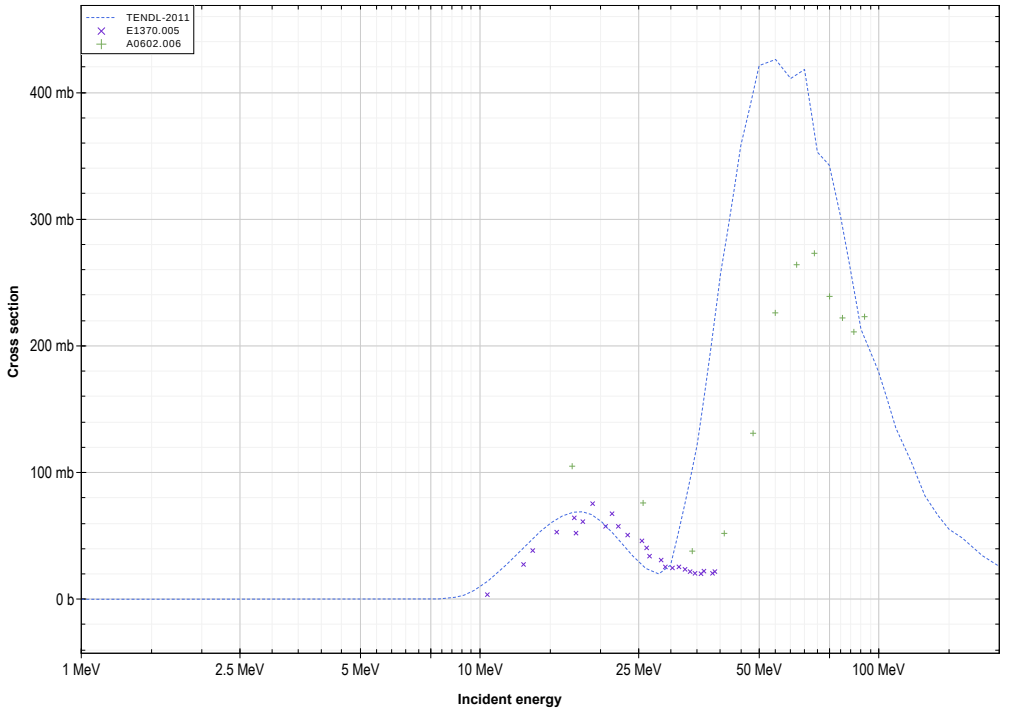
Reaction	Q-Value
Co59(He3,2n)Cu60	-5095.72 keV

<< 23-V-51	**27-Co-59**	29-Cu-63 >>
<< MT16 (³He,2n)	**MT22 (³He,n+α) or MT5 (Co57 production)**	MT24 (³He,2n+α) >>

Co59 (³He,n+α) log-log



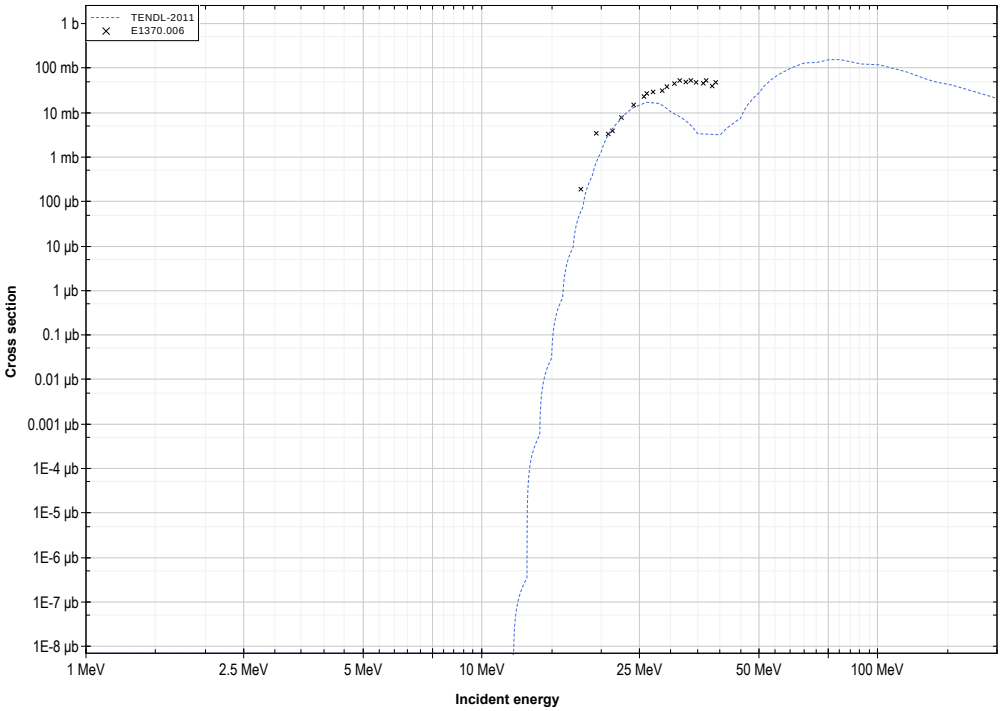
Co59 (³He,n+α) lin-log



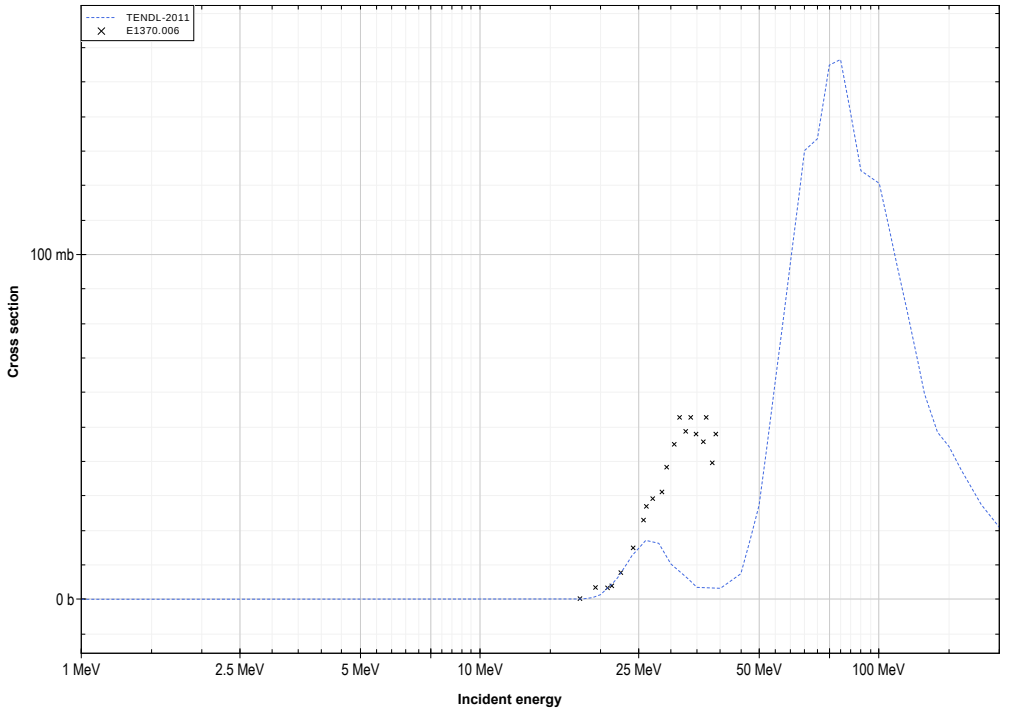
Reaction	Q-Value
Co59(He3,n+α)Co57	1550.78 keV
Co59(He3,d+t)Co57	-16038.51 keV
Co59(He3,n+p+t)Co57	-18263.08 keV
Co59(He3,2n+He3)Co57	-19026.83 keV
Co59(He3,n+2d)Co57	-22295.75 keV
Co59(He3,2n+p+d)Co57	-24520.31 keV
Co59(He3,3n+2p)Co57	-26744.88 keV

	27-Co-59	47-Ag-107 >>
<< MT22 (^{3}He,n+α)	**MT24 (^{3}He,2n+α) or MT5 (Co56 production)**	MT111 (^{3}He,2p) >>

Co59 (^{3}He,2n+α) log-log



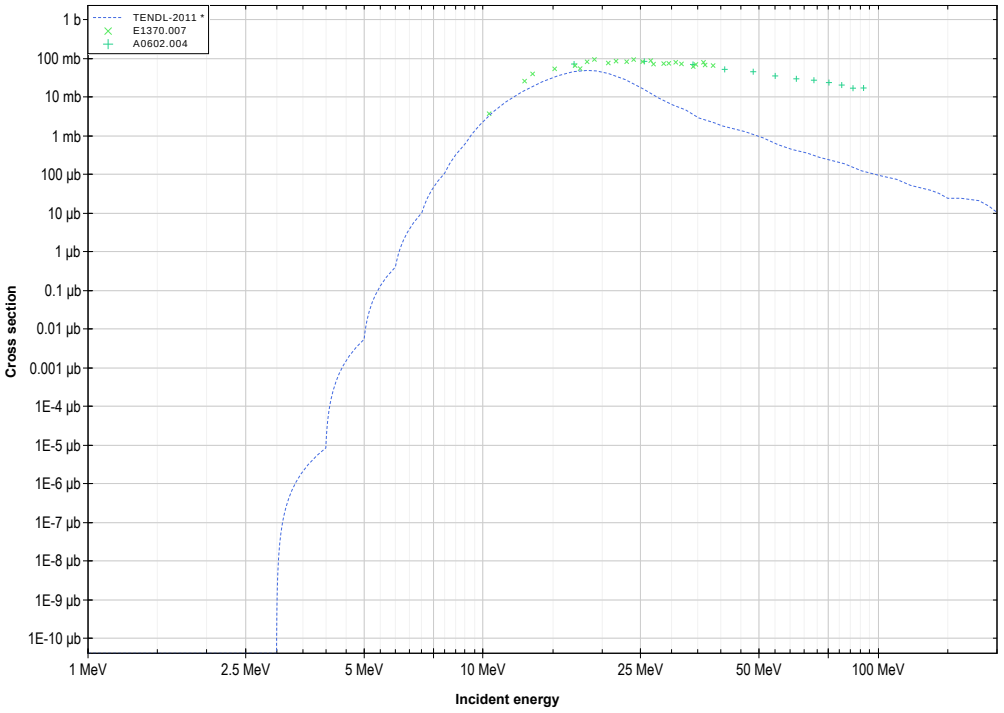
Co59 (^{3}He,2n+α) lin-log



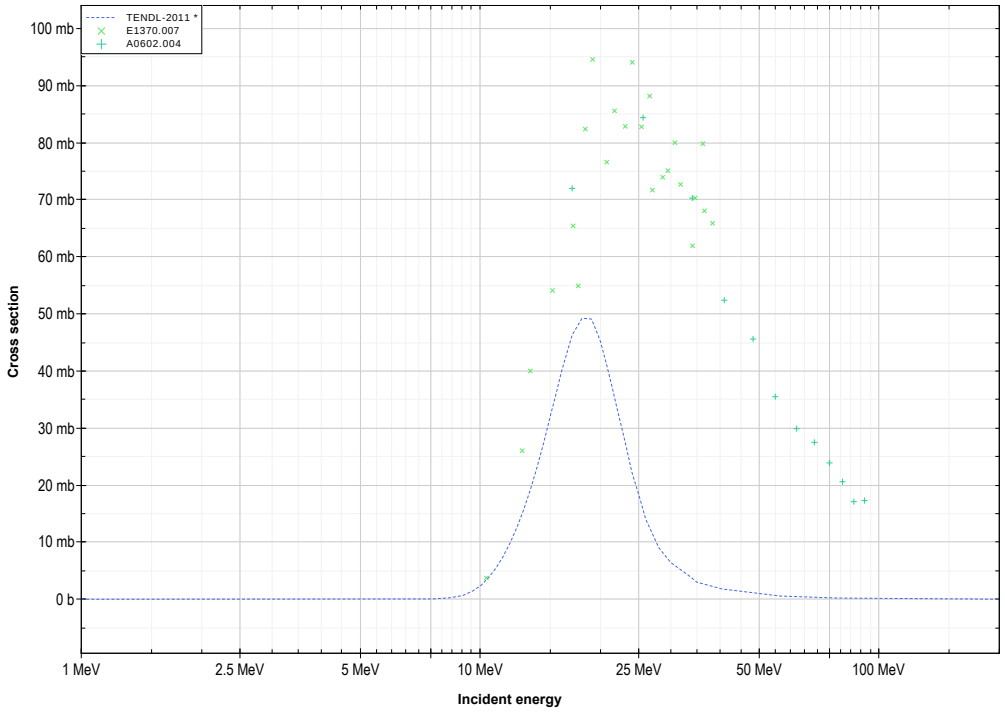
Reaction	Q-Value
Co59(He3,2n+α)Co56	-9825.33 keV
Co59(He3,2t)Co56	-21157.40 keV
Co59(He3,n+d+t)Co56	-27414.63 keV
Co59(He3,2n+p+t)Co56	-29639.20 keV
Co59(He3,3n+He3)Co56	-30402.95 keV
Co59(He3,2n+2d)Co56	-33671.86 keV
Co59(He3,3n+p+d)Co56	-35896.43 keV
Co59(He3,4n+2p)Co56	-38120.99 keV

<< 25-Mn-55	**27-Co-59**	29-Cu-63 >>
<< MT24 (^{3}He,2n+α)	**MT111 (^{3}He,2p) or MT5 (Co60 production)**	MT190 (^{3}He,2n+2p) >>

Co59 (^{3}He,2p) log-log



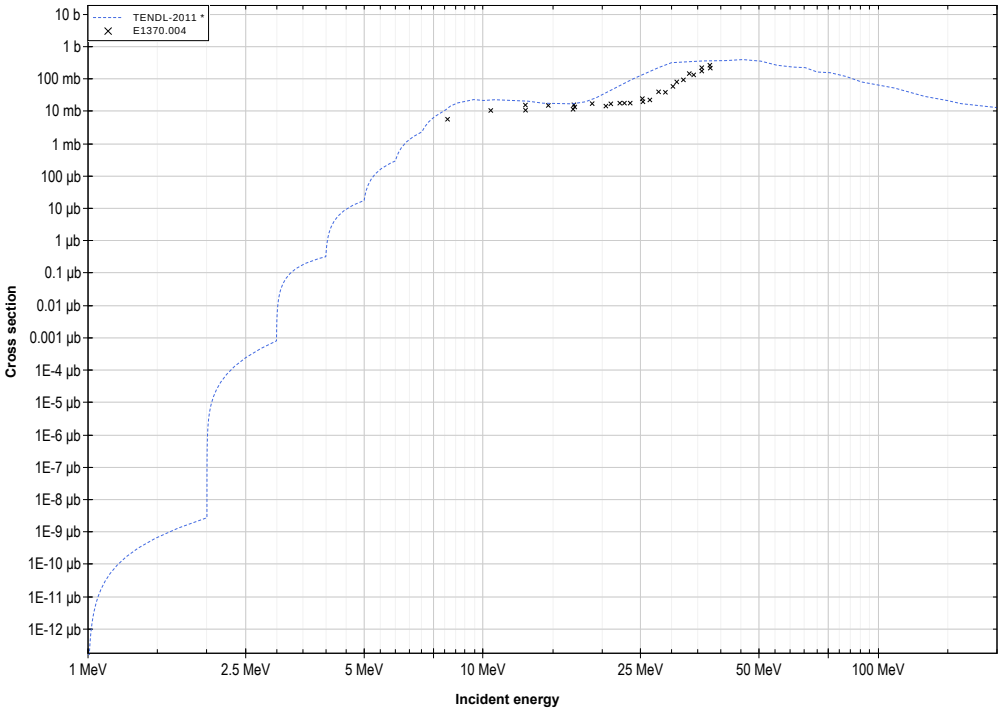
Co59 (^{3}He,2p) lin-log



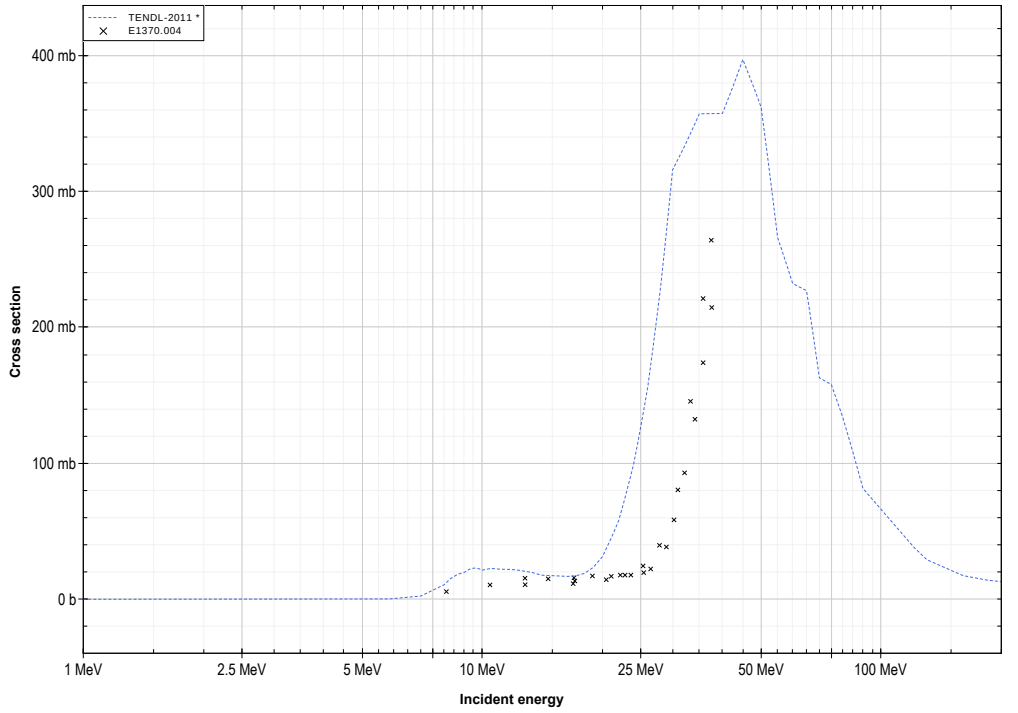
Reaction	Q-Value
Co59(He3,2p)Co60	-226.13 keV

	27-Co-59	
<< MT111 (³He,2p)	**MT190 (³He,2n+2p) or MT5 (Co58 production)**	MT197 (³He,3p) >>

Co59 (³He,2n+2p) log-log



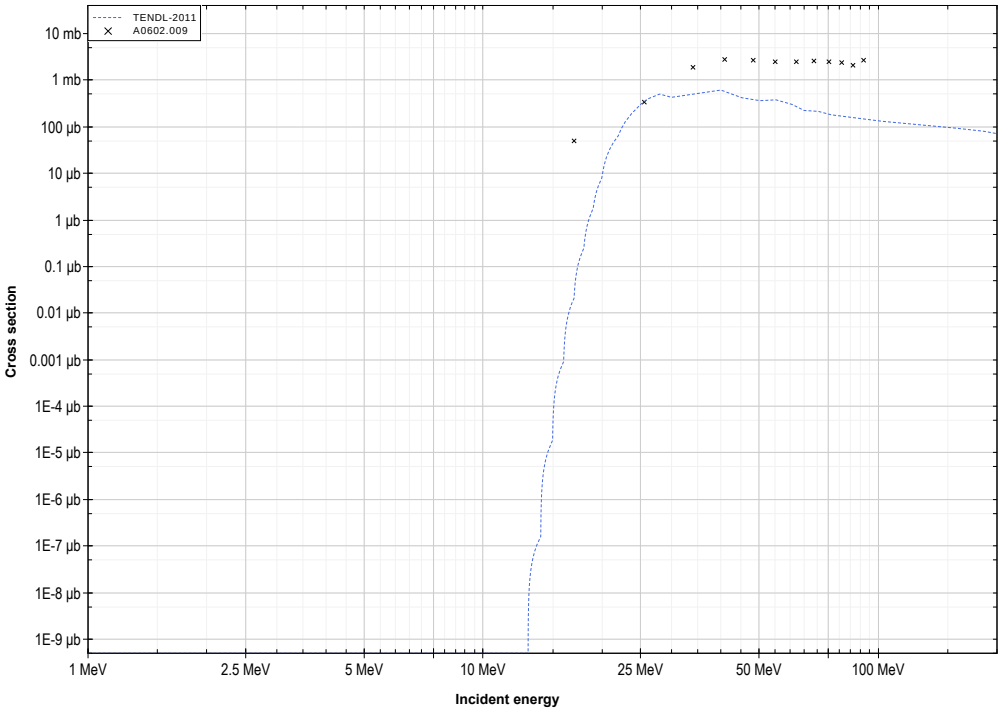
Co59 (³He,2n+2p) lin-log



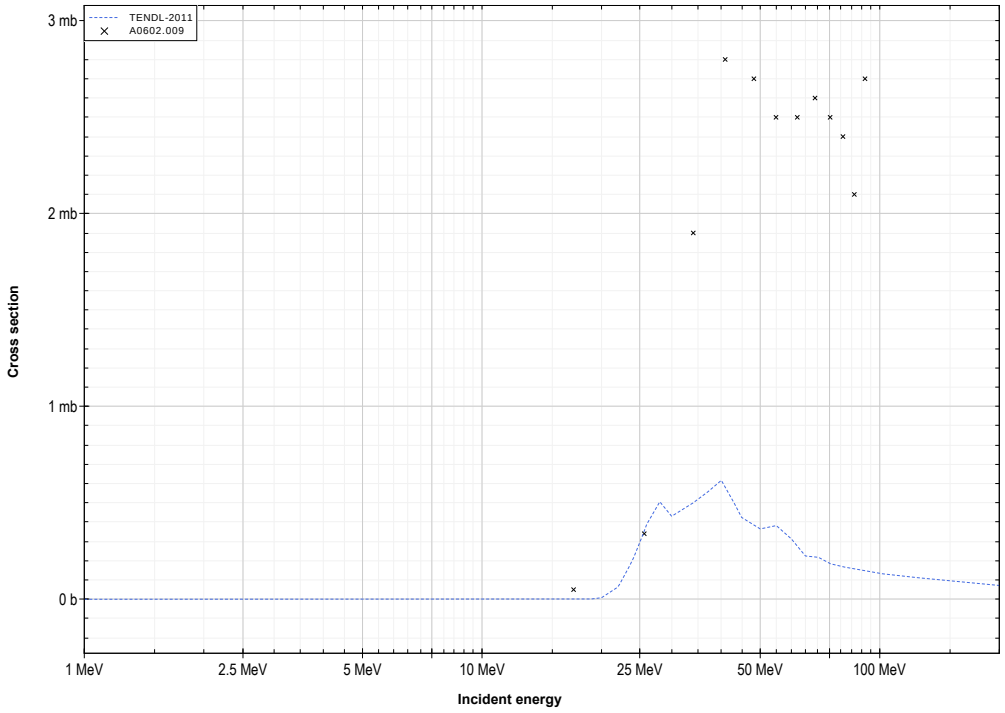
Reaction	Q-Value
Co59(He3,α)Co58	10123.80 keV
Co59(He3,p+t)Co58	-9690.06 keV
Co59(He3,n+He3)Co58	-10453.82 keV
Co59(He3,2d)Co58	-13722.73 keV
Co59(He3,n+p+d)Co58	-15947.29 keV
Co59(He3,2n+2p)Co58	-18171.86 keV

<< 13-Al-27	**27-Co-59**	29-Cu-65 >>
<< MT190 (^{3}He,2n+2p)	**MT197 (^{3}He,3p) or MT5 (Fe59 production)**	MT4 (^{3}He,n) >>

Co59 (^{3}He,3p) log-log



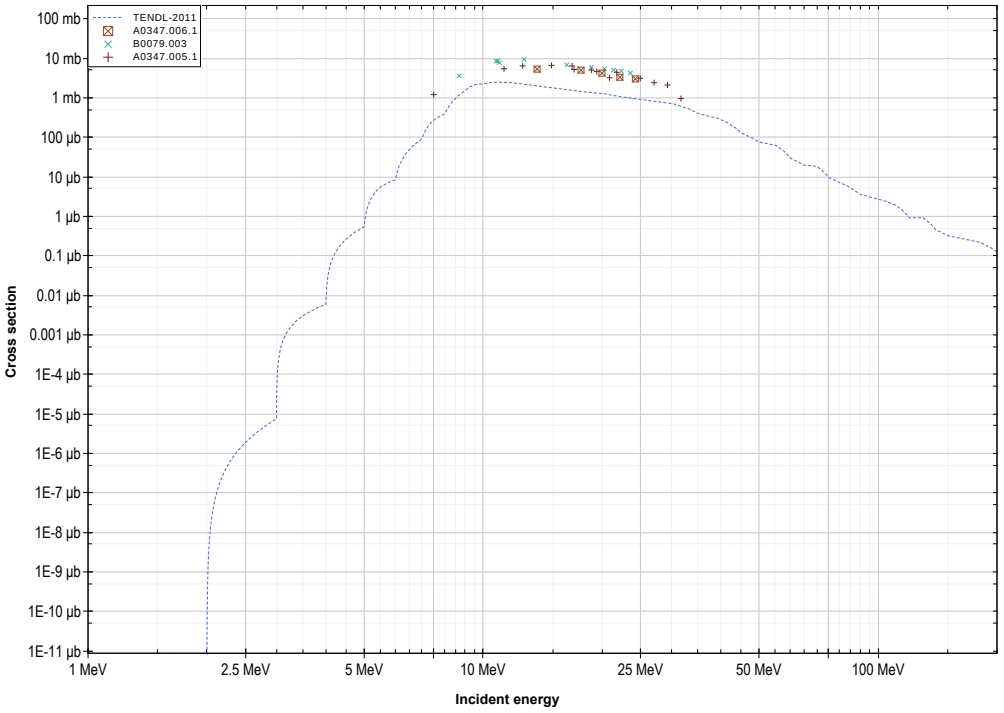
Co59 (^{3}He,3p) lin-log



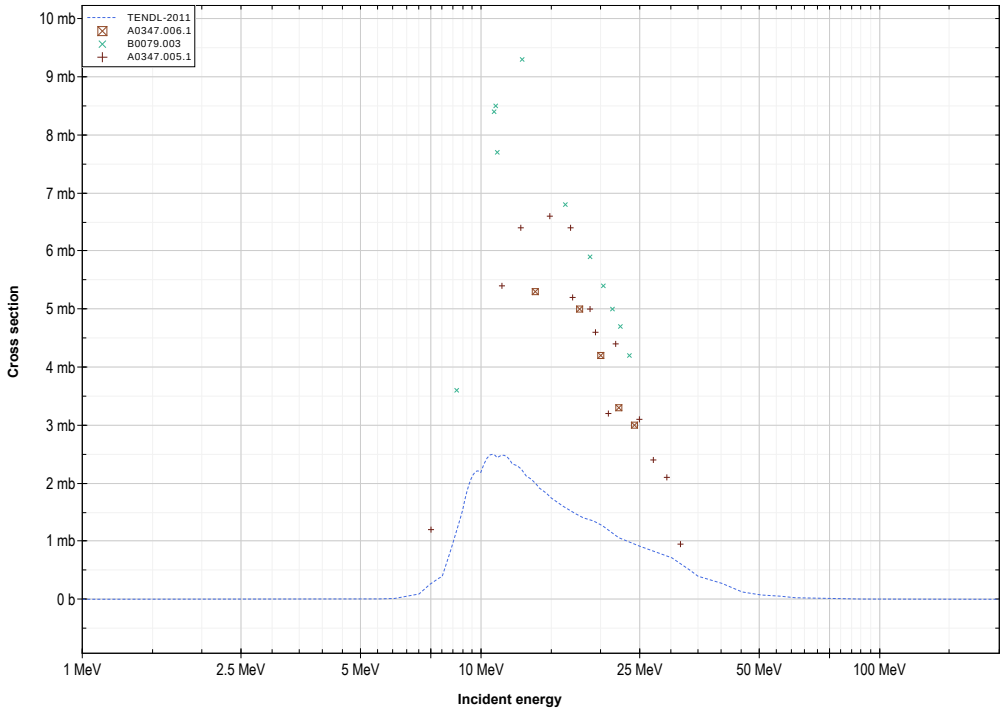
Reaction	Q-Value
Co59(He3,3p)Fe59	-8501.00 keV

<< 27-Co-59	**29-Cu-63**	29-Cu-65 >>
<< MT197 (^{3}He,3p)	**MT4 (^{3}He,n) or MT5 (Ga65 production)**	MT16 (^{3}He,2n) >>

Cu63 (^{3}He,n) log-log



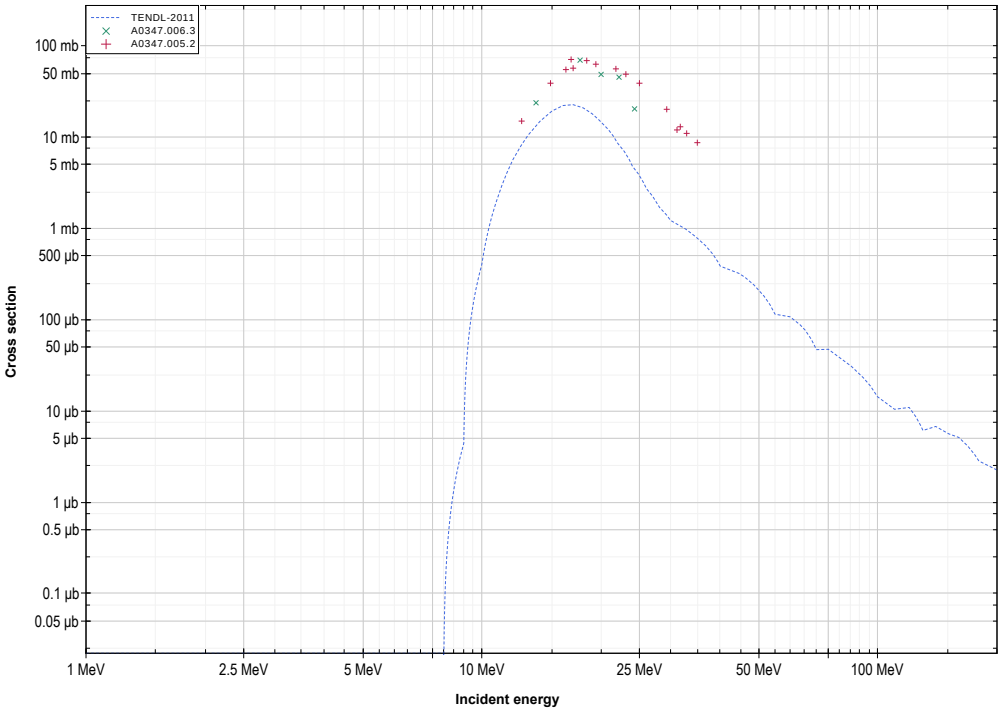
Cu63 (^{3}He,n) lin-log



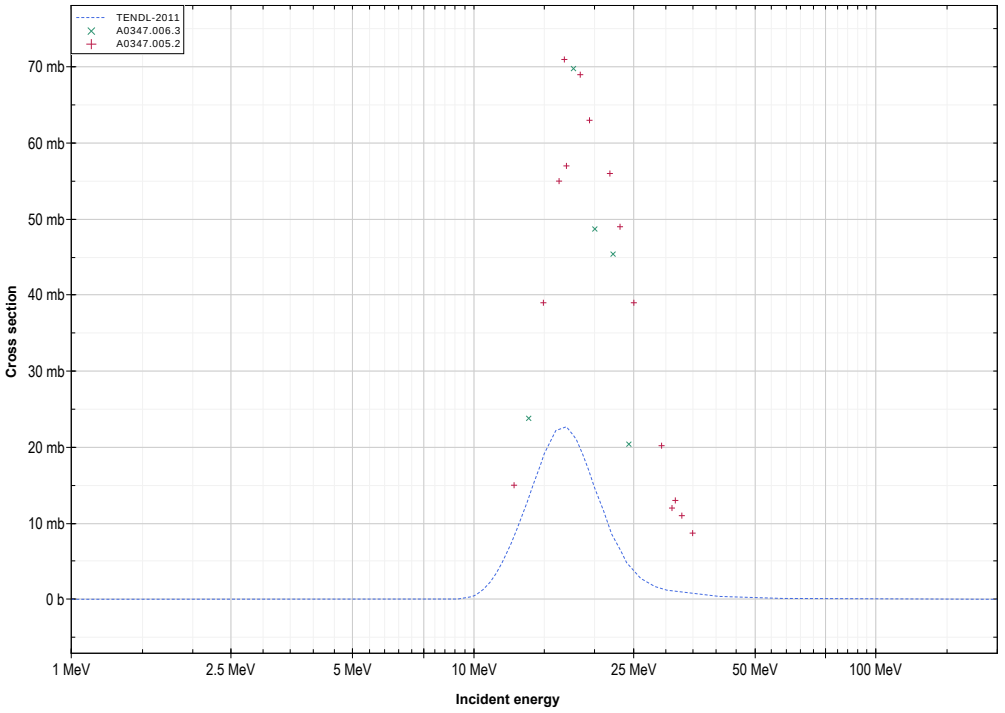
Reaction	Q-Value
Cu63(He3,n)Ga65	3937.60 keV

<< 27-Co-59	**29-Cu-63**	29-Cu-65 >>
<< MT4 (³He,n)	**MT16 (³He,2n) or MT5 (Ga64 production)**	MT22 (³He,n+α) >>

Cu63 (³He,2n) log-log



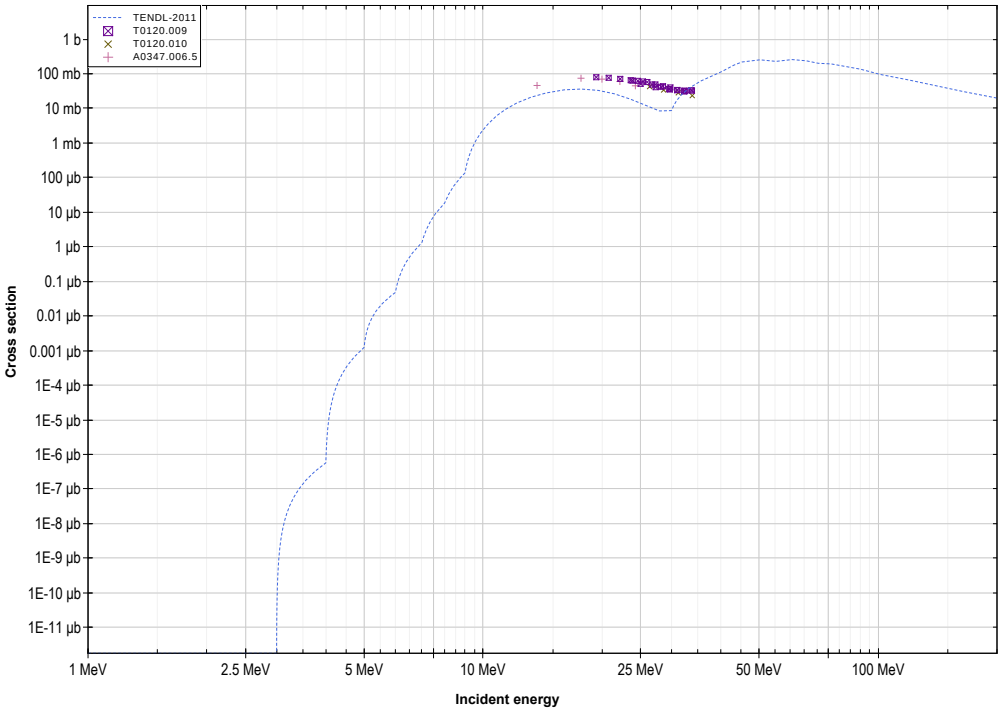
Cu63 (³He,2n) lin-log



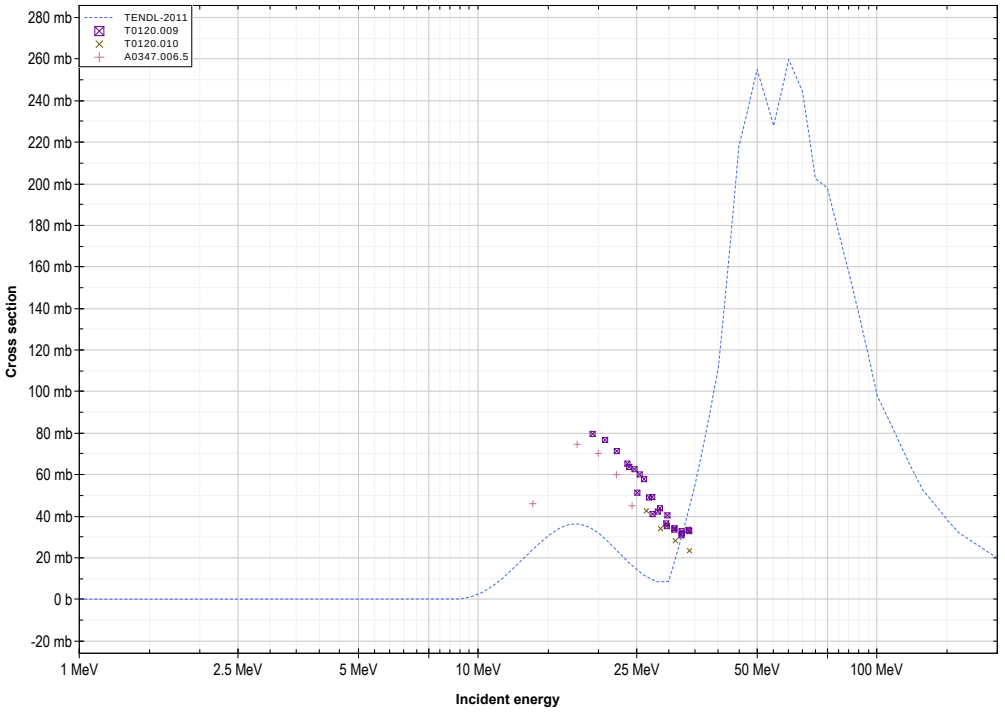
Reaction	Q-Value
Cu63(He3,2n)Ga64	-7956.62 keV

<< 27-Co-59	**29-Cu-63**	30-Zn-64 >>
<< MT16 (³He,2n)	**MT22 (³He,n+α) or MT5 (Cu61 production)**	MT42 (³He,3n+p) >>

Cu63 (³He,n+α) log-log



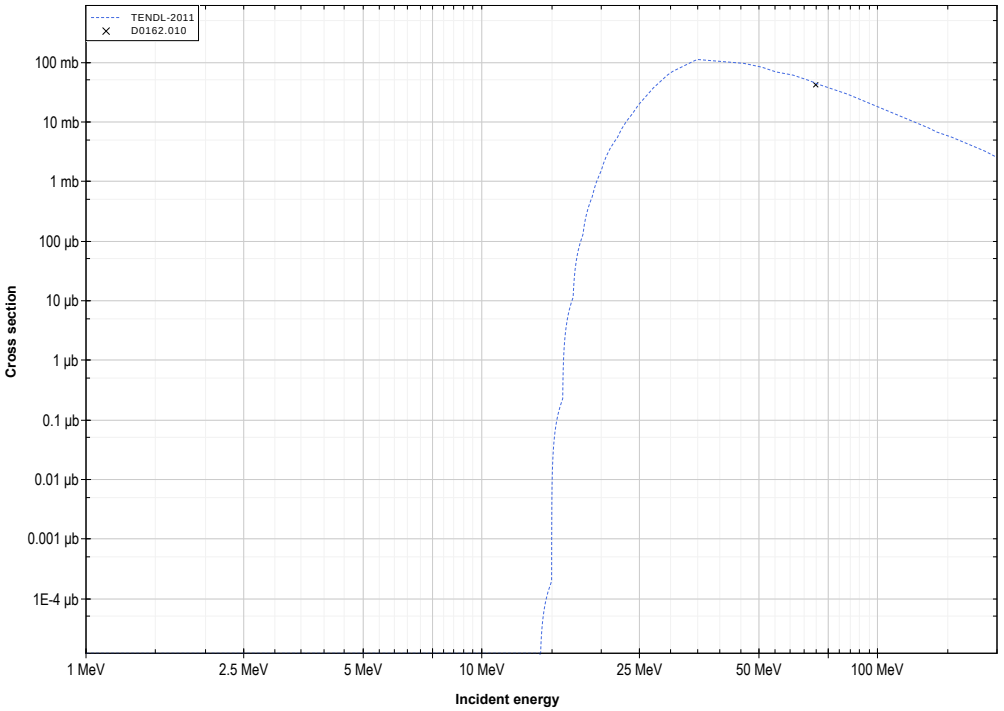
Cu63 (³He,n+α) lin-log



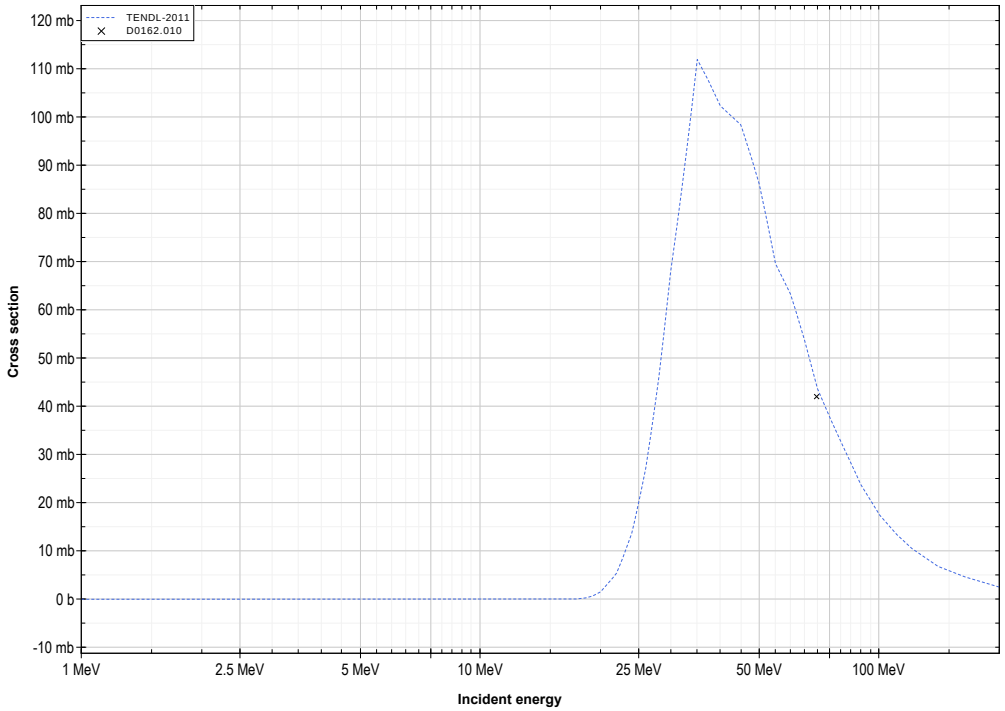
Reaction	Q-Value
Cu63(He3,n+α)Cu61	839.08 keV
Cu63(He3,d+t)Cu61	-16750.21 keV
Cu63(He3,n+p+t)Cu61	-18974.78 keV
Cu63(He3,2n+He3)Cu61	-19738.53 keV
Cu63(He3,n+2d)Cu61	-23007.45 keV
Cu63(He3,2n+p+d)Cu61	-25232.01 keV
Cu63(He3,3n+2p)Cu61	-27456.58 keV

	29-Cu-63	34-Se-76 >>
<< MT22 (^{3}He,n+α)	**MT42 (^{3}He,3n+p) or MT5 (Zn62 production)**	MT103 (^{3}He,p) >>

Cu63 (^{3}He,3n+p) log-log



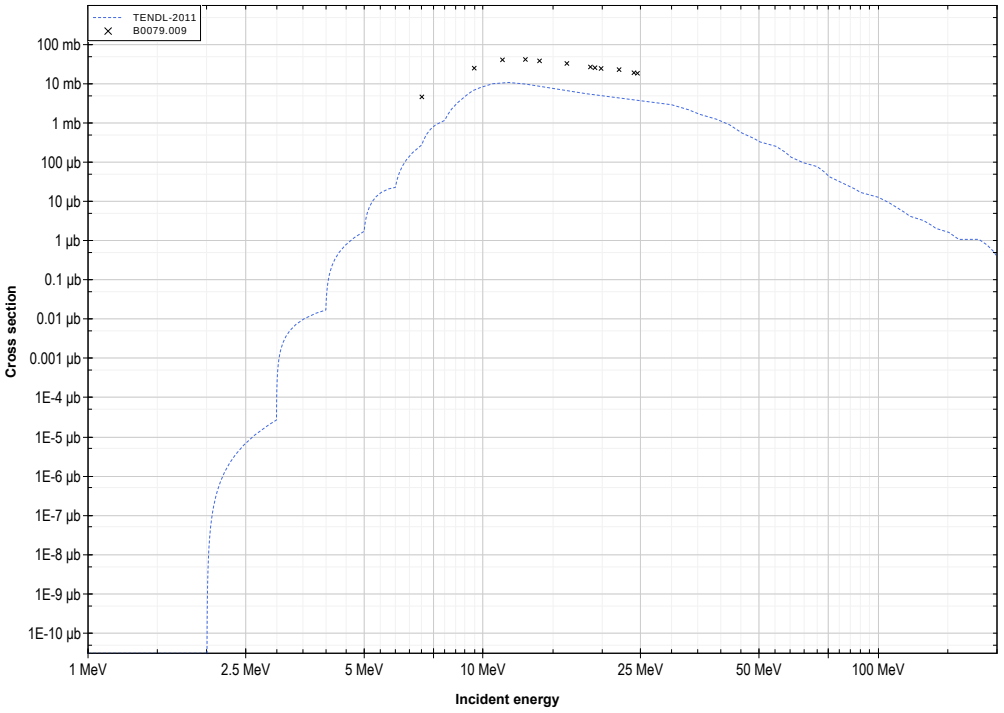
Cu63 (^{3}He,3n+p) lin-log



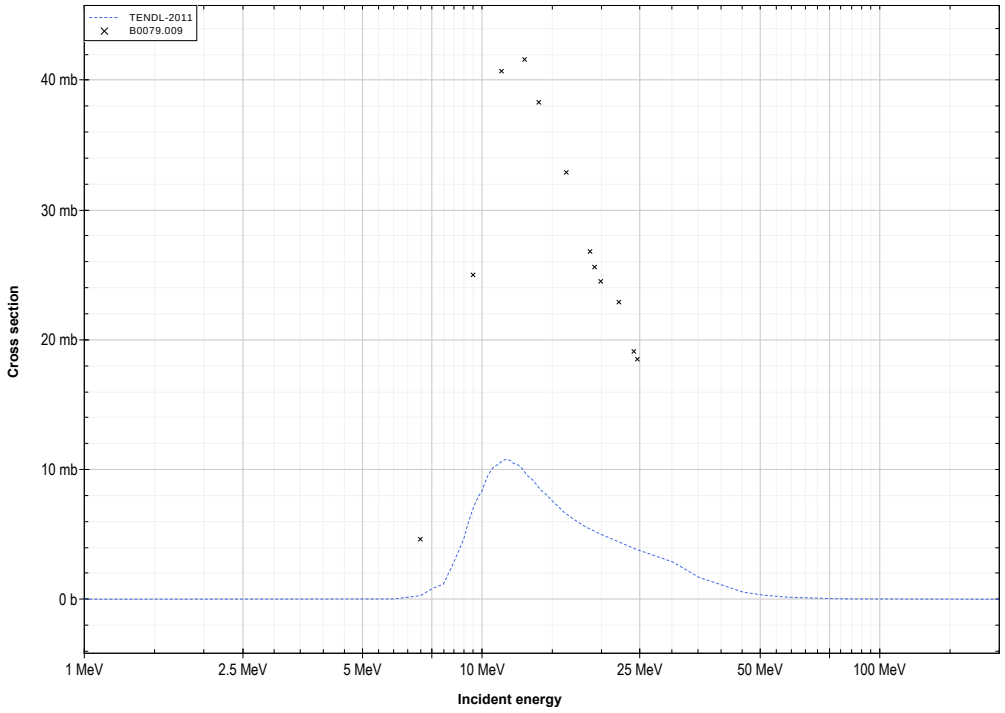
Reaction	Q-Value
Cu63(He3,n+t)Zn62	-12498.41 keV
Cu63(He3,2n+d)Zn62	-18755.64 keV
Cu63(He3,3n+p)Zn62	-20980.21 keV

<< 14-Si-28	**29-Cu-63**	30-Zn-64 >>
<< MT42 (^{3}He,3n+p)	**MT103 (^{3}He,p) or MT5 (Zn65 production)**	MT108 (^{3}He,2α) >>

Cu63 (^{3}He,p) log-log



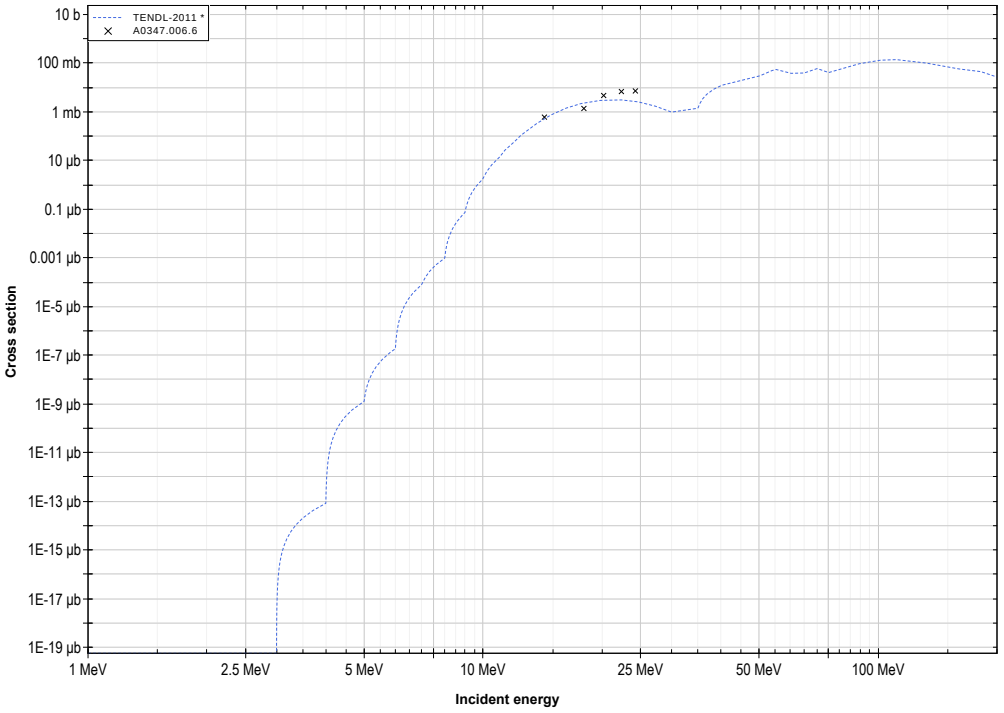
Cu63 (^{3}He,p) lin-log



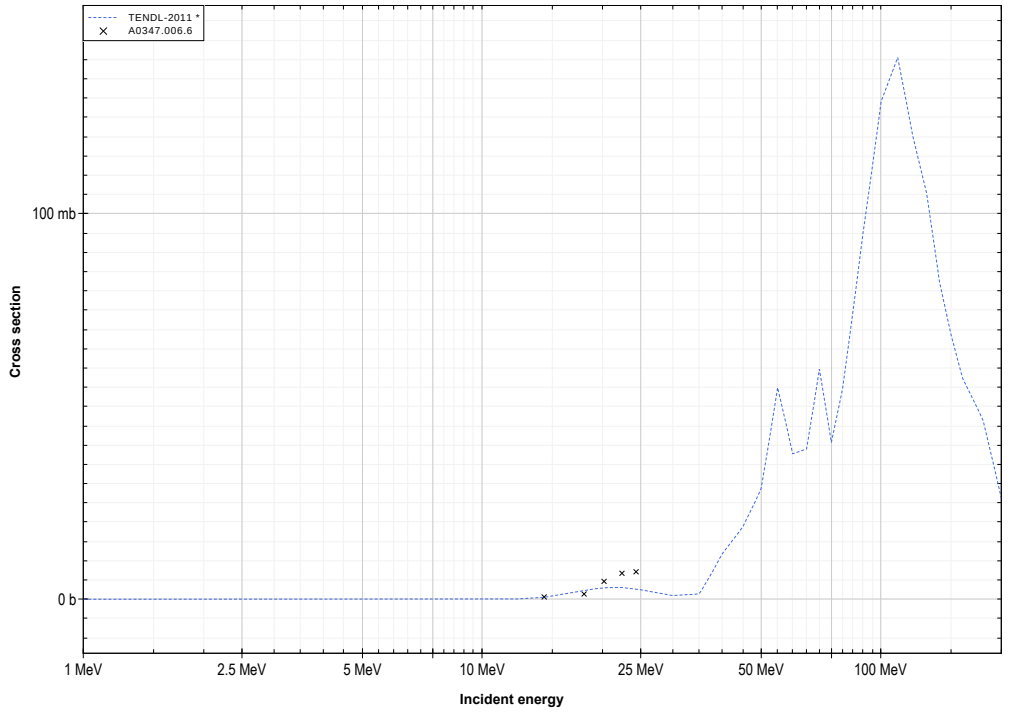
Reaction	Q-Value
Cu63(He3,p)Zn65	7974.34 keV

<< 19-K-39	**29-Cu-63**	29-Cu-65 >>
<< MT103 (³He,p)	**MT108 (³He,2α) or MT5 (Co58 production)**	MT111 (³He,2p) >>

Cu63 (³He,2α) log-log



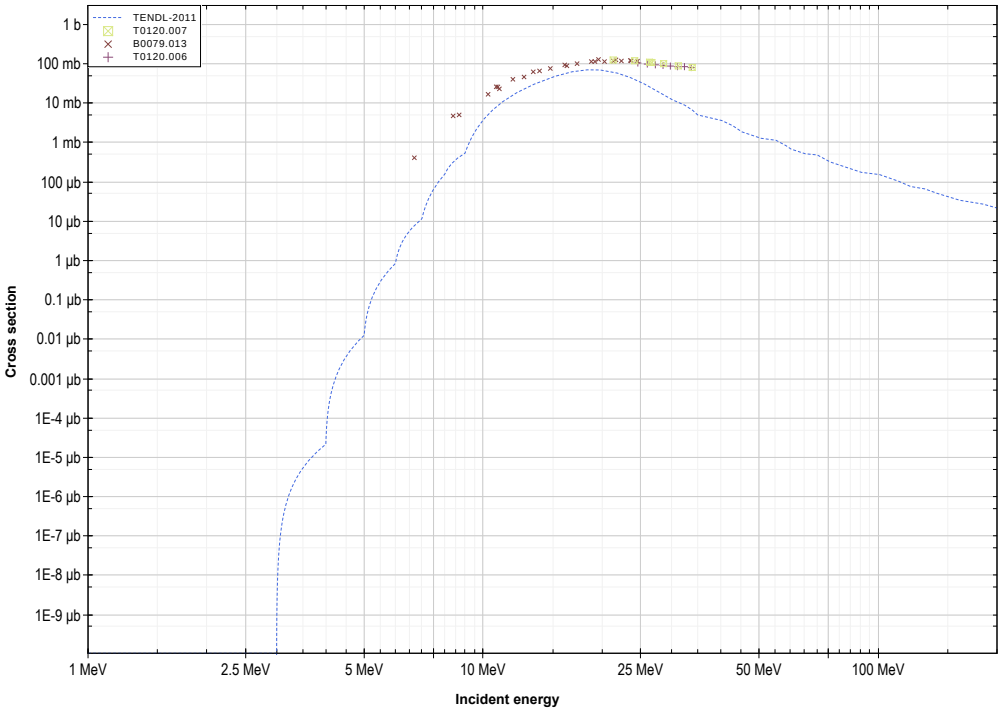
Cu63 (³He,2α) lin-log



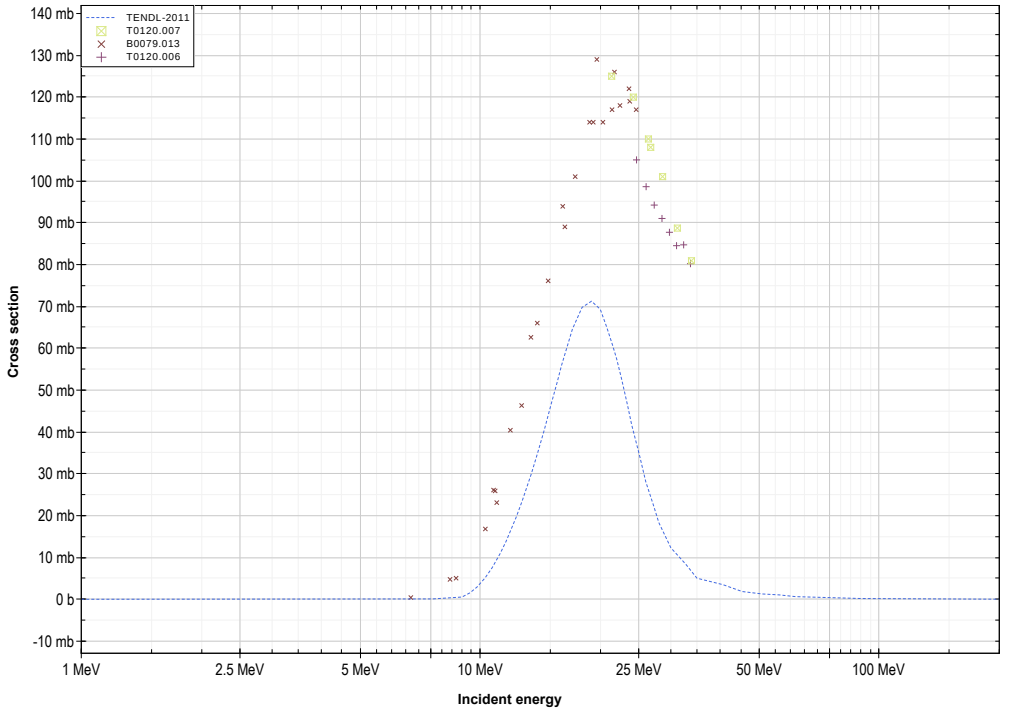
Reaction	Q-Value	Reaction	Q-Value
Cu63(He3,2α)Co58	4347.78 keV	Cu63(He3,n+p+t+He3)Co58	-36043.69 keV
Cu63(He3,p+t+α)Co58	-15466.08 keV	Cu63(He3,2n+2He3)Co58	-36807.45 keV
Cu63(He3,n+He3+α)Co58	-16229.83 keV	Cu63(He3,p+2d+t)Co58	-39312.60 keV
Cu63(He3,2d+α)Co58	-19498.74 keV	Cu63(He3,n+2d+He3)Co58	-40076.36 keV
Cu63(He3,n+p+d+α)Co58	-21723.31 keV	Cu63(He3,n+2p+d+t)Co58	-41537.17 keV
Cu63(He3,2n+2p+α)Co58	-23947.88 keV	Cu63(He3,2n+p+d+He3)Co58	-42300.93 keV
Cu63(He3,d+t+He3)Co58	-33819.13 keV	Cu63(He3,4d)Co58	-43345.27 keV
Cu63(He3,2p+2t)Co58	-35279.94 keV	Cu63(He3,2n+3p+t)Co58	-43761.74 keV

<< 27-Co-59	**29-Cu-63**	30-Zn-64 >>
<< MT108 (³He,2α)	**MT111 (³He,2p) or MT5 (Cu64 production)**	MT4 (³He,n) >>

Cu63 (³He,2p) log-log



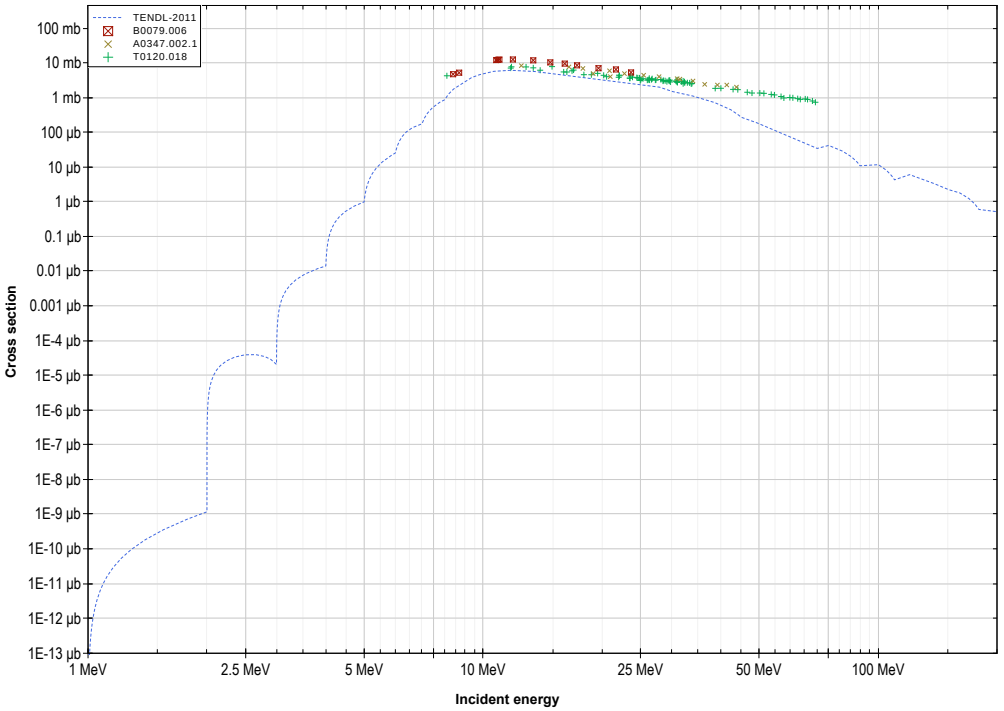
Cu63 (³He,2p) lin-log



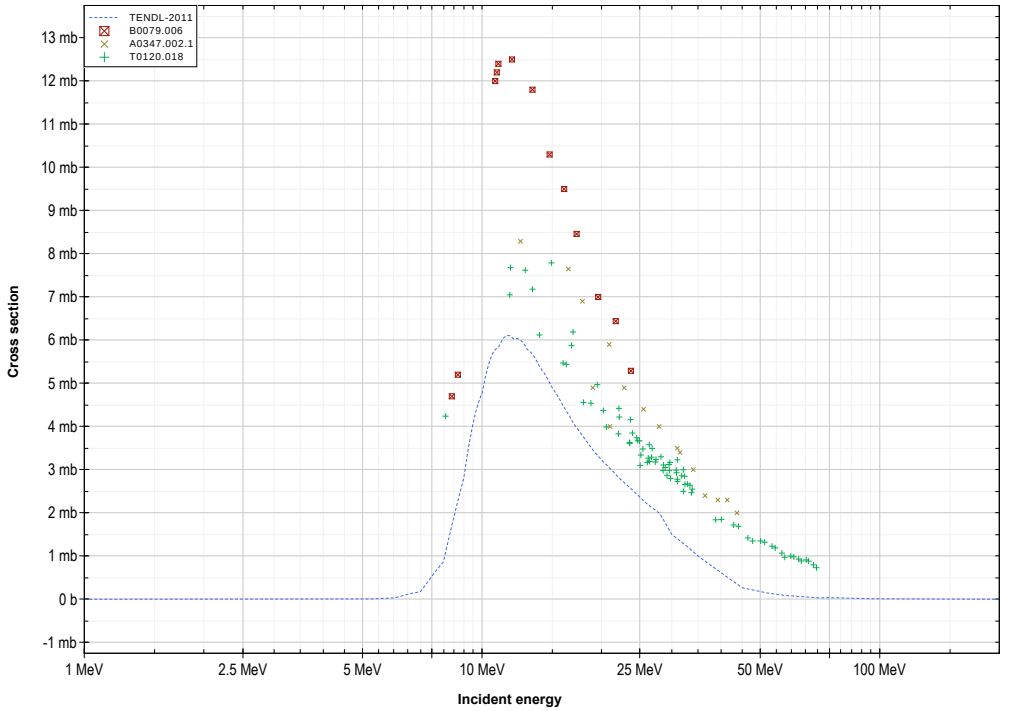
Reaction	Q-Value
Cu63(He3,2p)Cu64	197.97 keV

<< 29-Cu-63	**29-Cu-65**	30-Zn-64 >>
<< MT111 (^{3}He,2p)	**MT4 (^{3}He,n) or MT5 (Ga67 production)**	MT16 (^{3}He,2n) >>

Cu65 (^{3}He,n) log-log



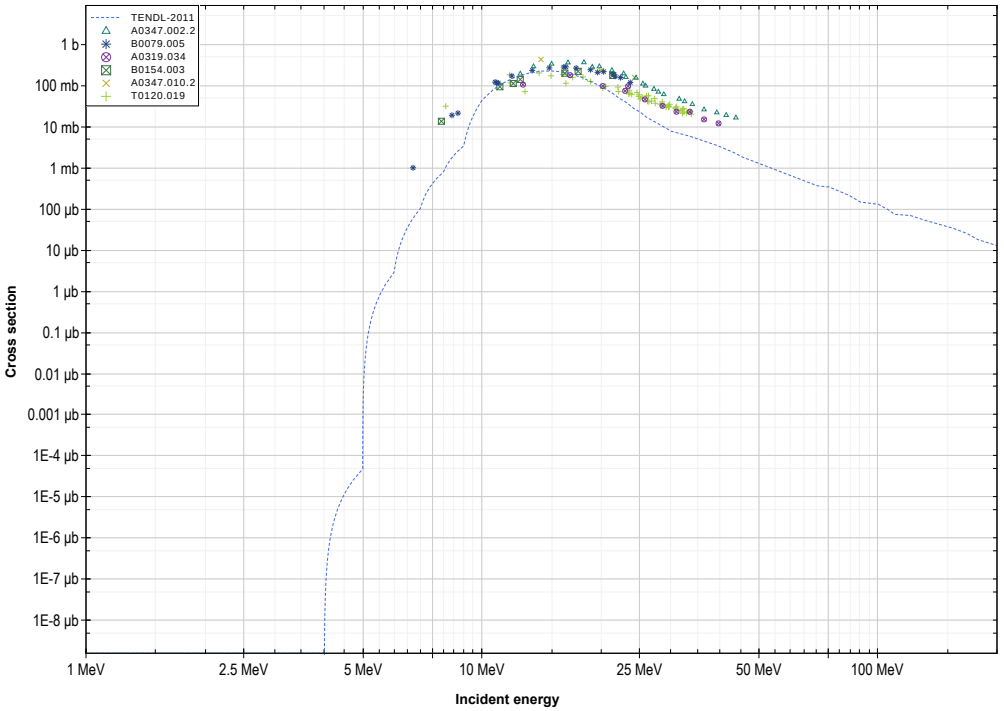
Cu65 (^{3}He,n) lin-log



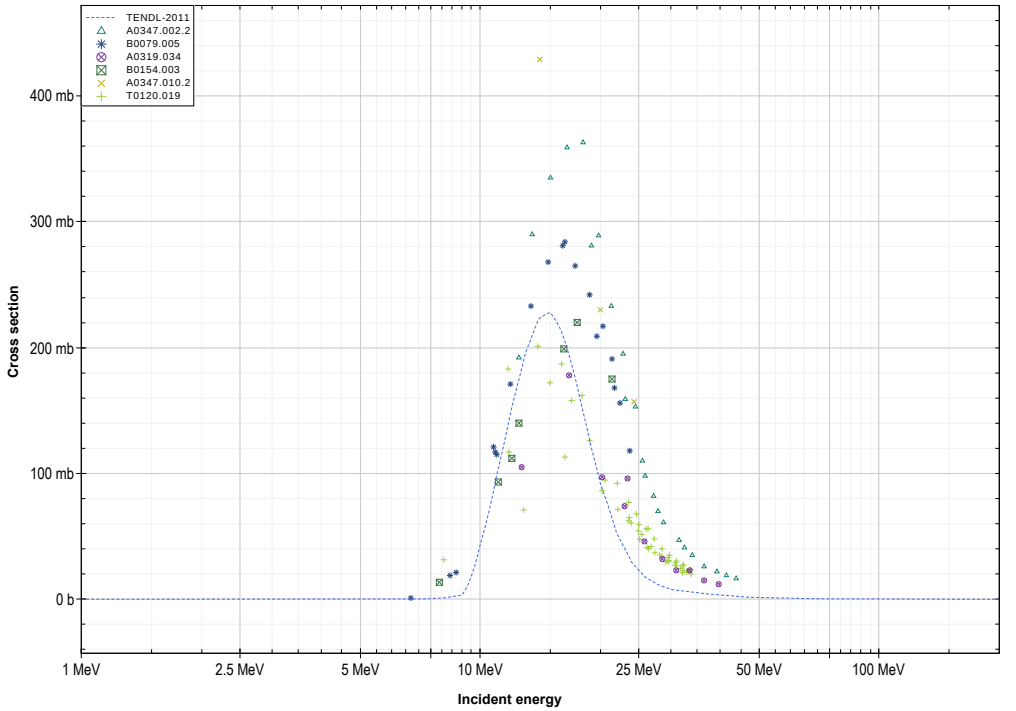
Reaction	Q-Value
Cu65(He3,n)Ga67	6475.90 keV

<< 29-Cu-63	**29-Cu-65**	30-Zn-66 >>
<< MT4 (^{3}He,n)	**MT16 (^{3}He,2n) or MT5 (Ga66 production)**	MT17 (^{3}He,3n) >>

Cu65 (^{3}He,2n) log-log



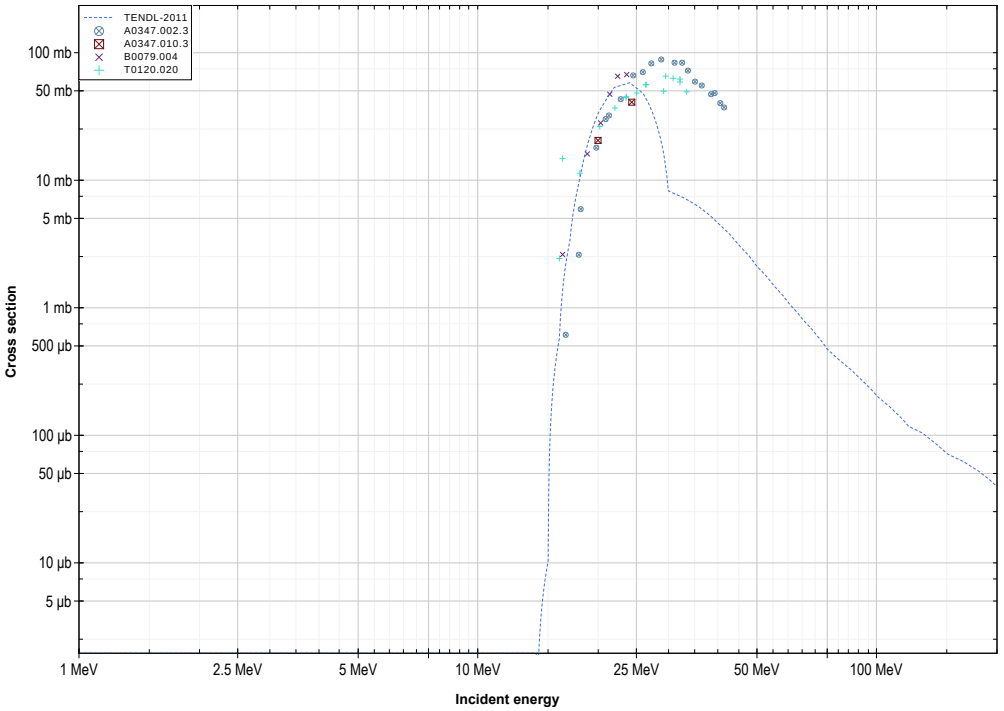
Cu65 (^{3}He,2n) lin-log



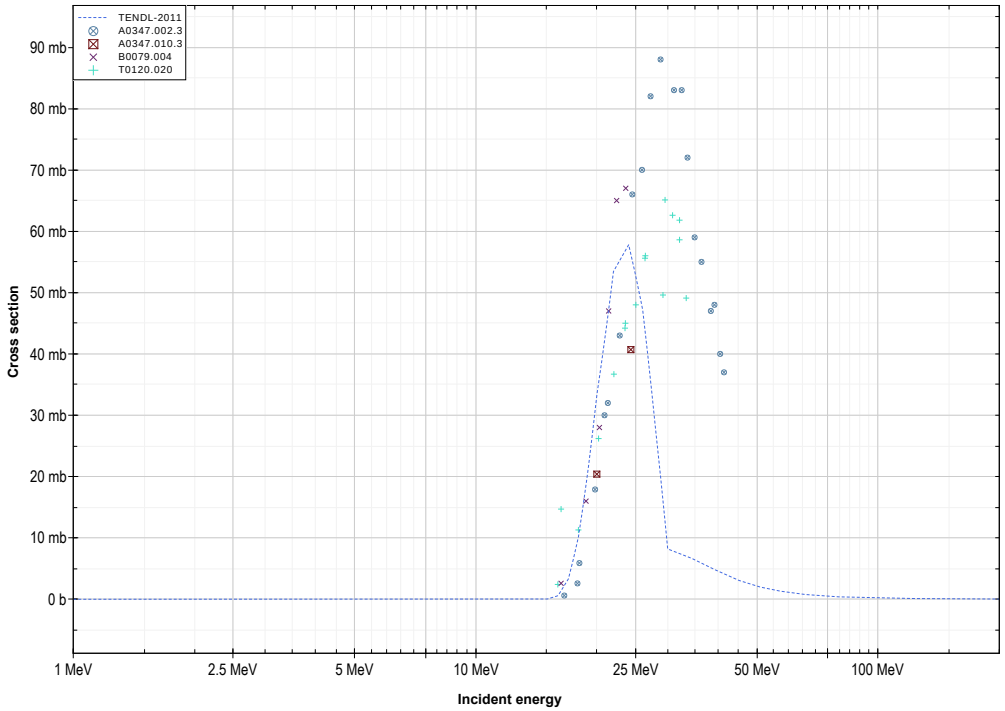
Reaction	Q-Value
Cu65(He3,2n)Ga66	-4751.12 keV

<< 25-Mn-55	**29-Cu-65**	30-Zn-68 >>
<< MT16 (^{3}He,2n)	**MT17 (^{3}He,3n) or MT5 (Ga65 production)**	MT37 (^{3}He,4n) >>

Cu65 (^{3}He,3n) log-log



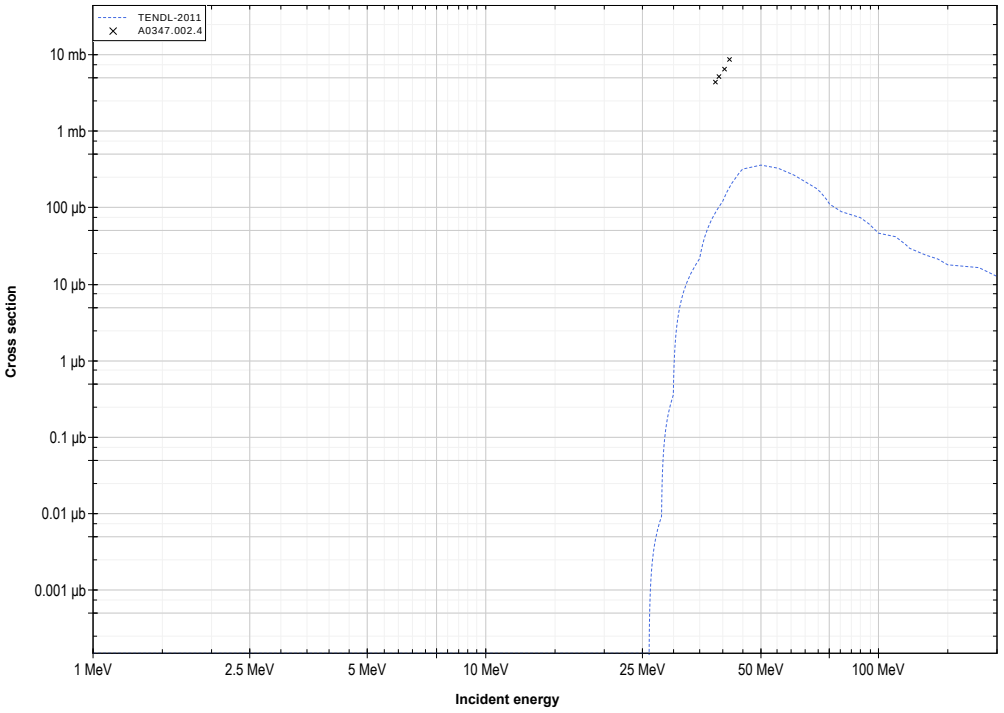
Cu65 (^{3}He,3n) lin-log



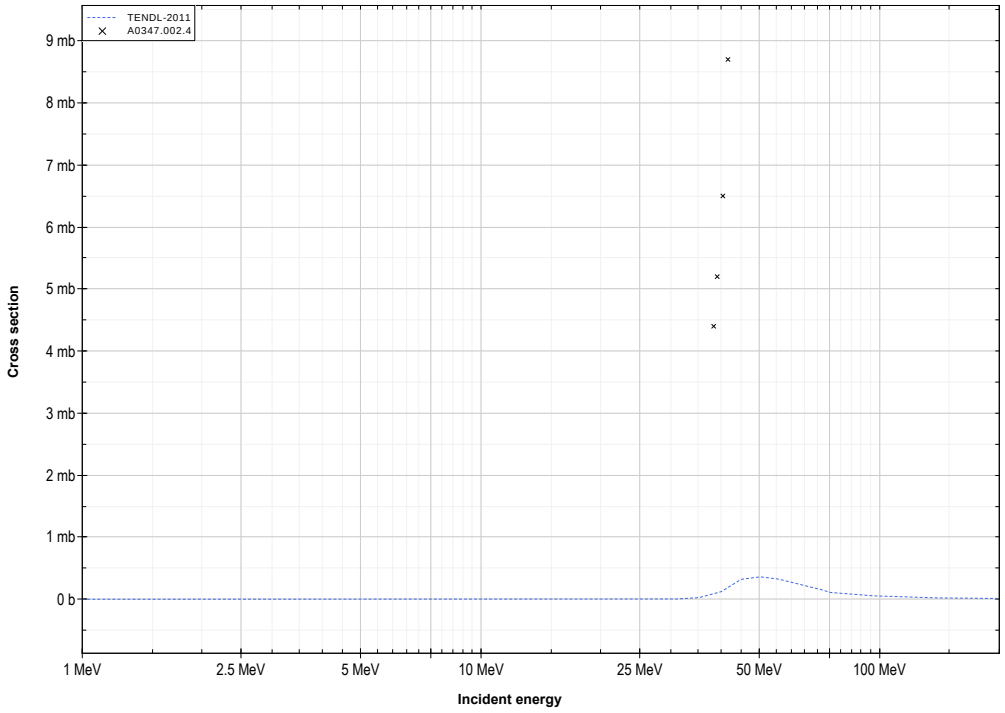
Reaction	Q-Value
Cu65(He3,3n)Ga65	-13889.24 keV

	29-Cu-65	33-As-75 >>
<< MT17 (^{3}He,3n)	**MT37 (^{3}He,4n) or MT5 (Ga64 production)**	MT108 (^{3}He,2α) >>

Cu65 (^{3}He,4n) log-log



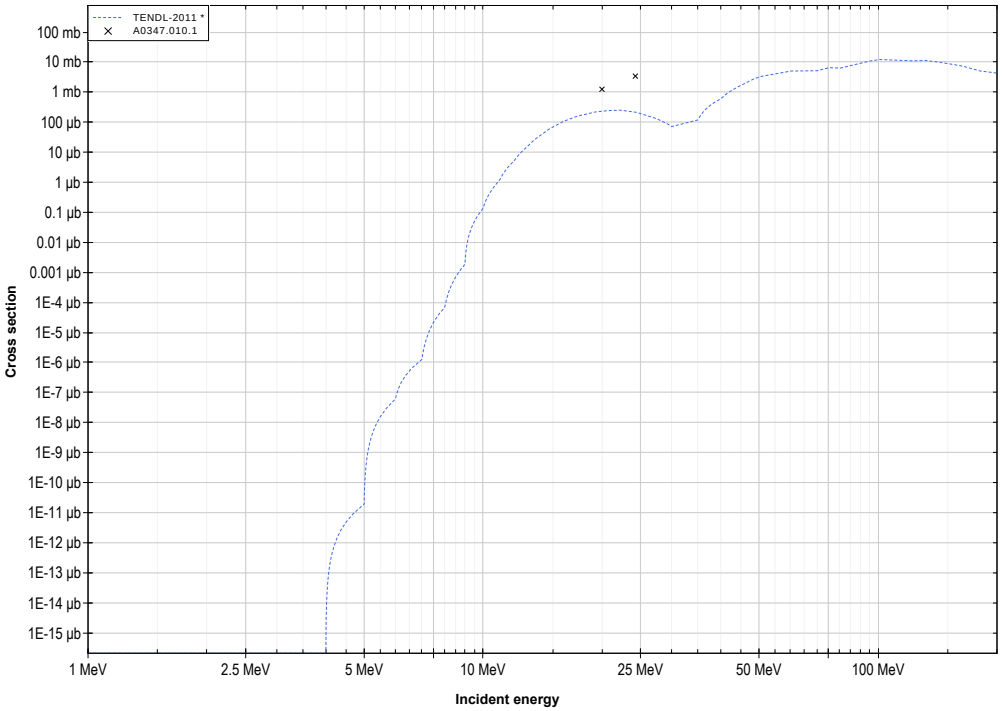
Cu65 (^{3}He,4n) lin-log



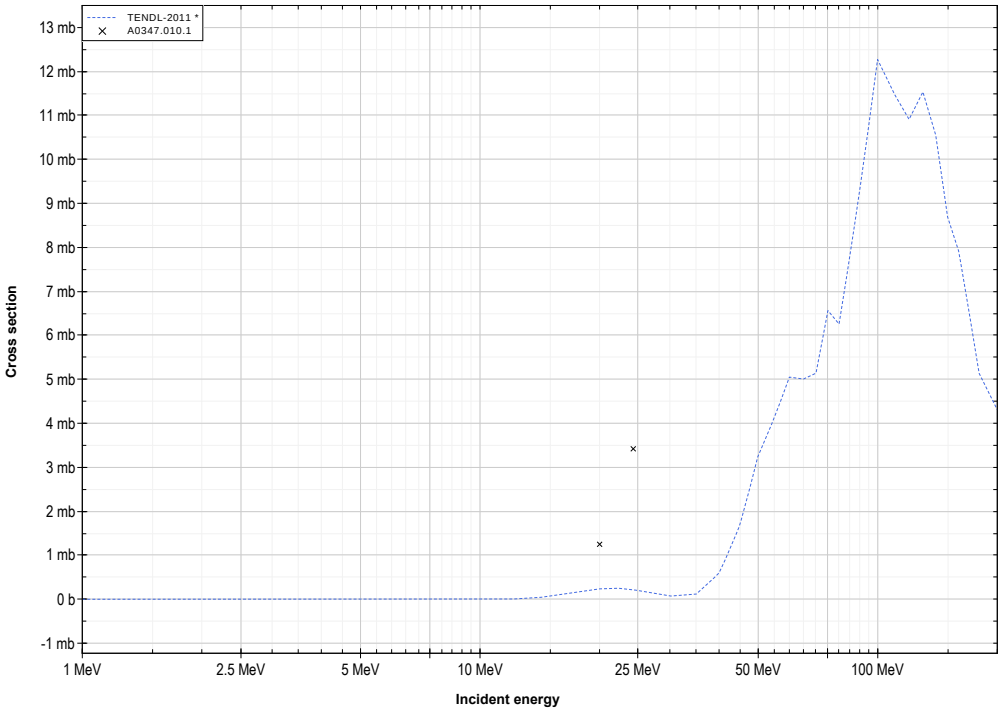
Reaction	Q-Value
Cu65(He3,4n)Ga64	-25783.45 keV

<< 29-Cu-63	**29-Cu-65**	
<< MT37 (³He,4n)	**MT108 (³He,2α) or MT5 (Co60 production)**	MT197 (³He,3p) >>

Cu65 (³He,2α) log-log



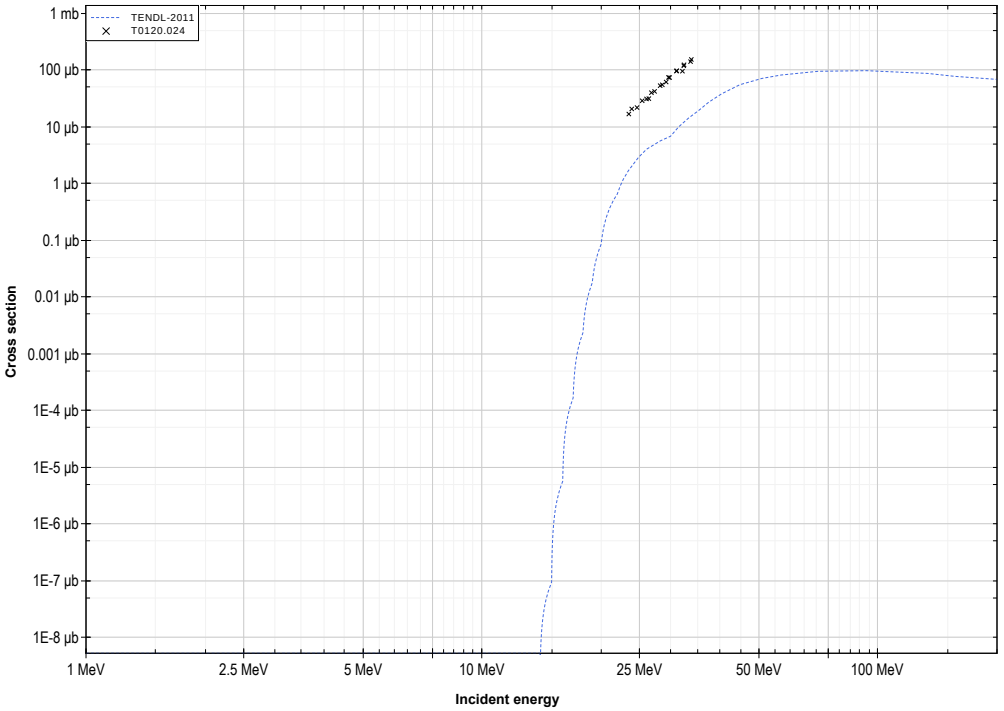
Cu65 (³He,2α) lin-log



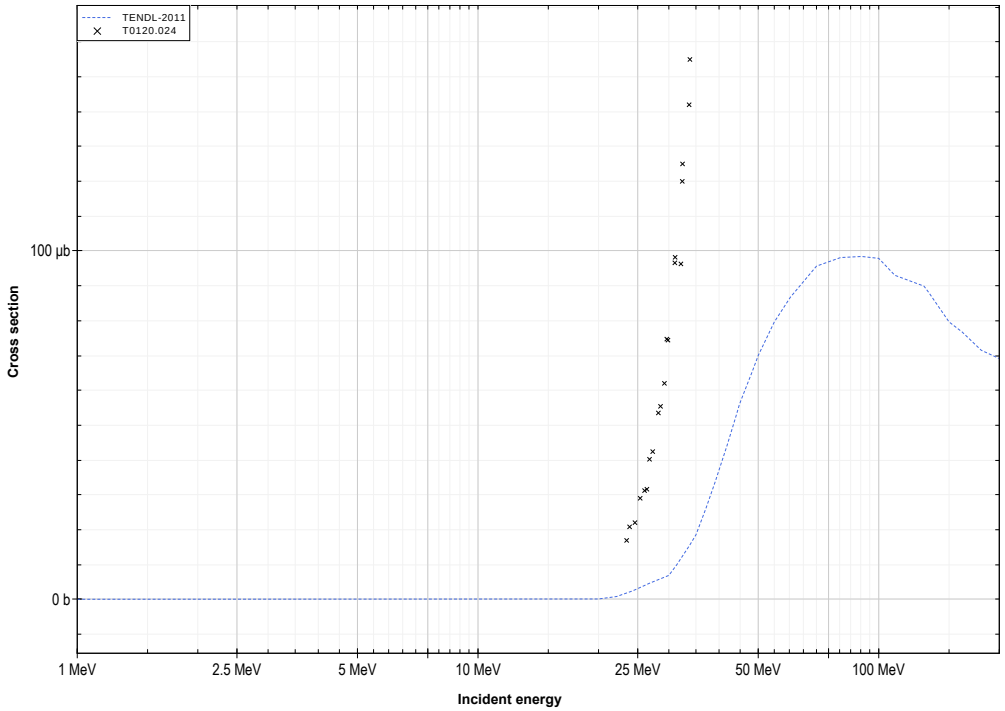
Reaction	Q-Value	Reaction	Q-Value
Cu65(He3,2α)Co60	4466.68 keV	Cu65(He3,n+p+t+He3)Co60	-35924.79 keV
Cu65(He3,p+t+α)Co60	-15347.18 keV	Cu65(He3,2n+2He3)Co60	-36688.55 keV
Cu65(He3,n+He3+α)Co60	-16110.93 keV	Cu65(He3,p+2d+t)Co60	-39193.70 keV
Cu65(He3,2d+α)Co60	-19379.84 keV	Cu65(He3,n+2d+He3)Co60	-39957.46 keV
Cu65(He3,n+p+d+α)Co60	-21604.41 keV	Cu65(He3,n+2p+d+t)Co60	-41418.27 keV
Cu65(He3,2n+2p+α)Co60	-23828.98 keV	Cu65(He3,2n+p+d+He3)Co60	-42182.03 keV
Cu65(He3,d+t+He3)Co60	-33700.23 keV	Cu65(He3,4d)Co60	-43226.37 keV
Cu65(He3,2p+2t)Co60	-35161.04 keV	Cu65(He3,2n+3p+t)Co60	-43642.84 keV

<< 27-Co-59	**29-Cu-65**	30-Zn-64 >>
<< MT108 (^{3}He,2α)	**MT197 (^{3}He,3p) or MT5 (Ni65 production)**	MT4 (^{3}He,n) >>

Cu65 (^{3}He,3p) log-log



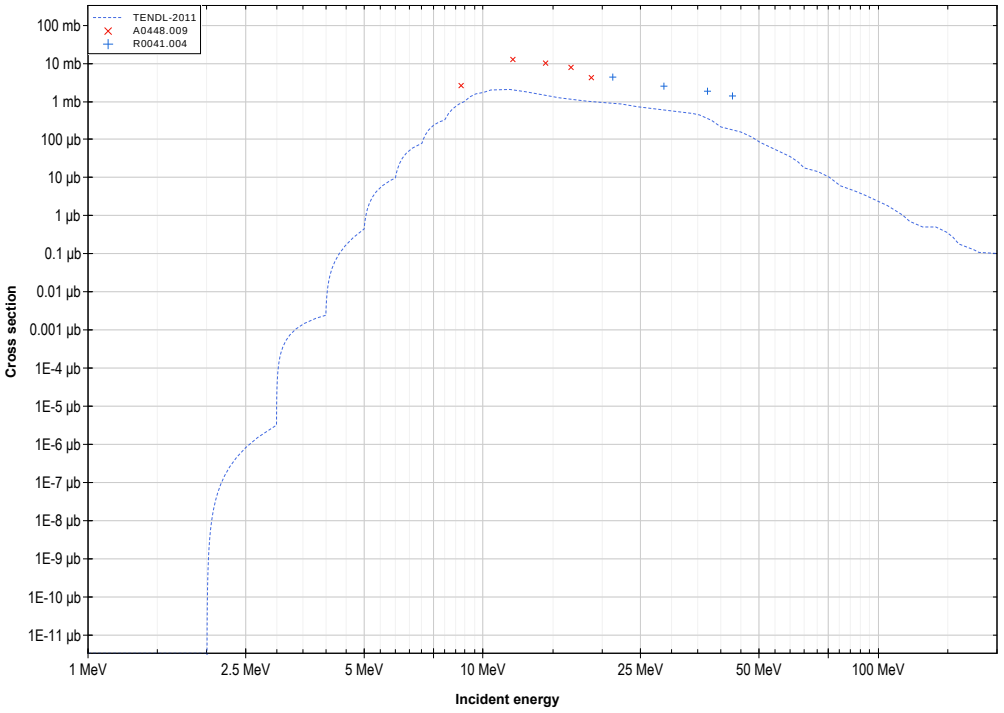
Cu65 (^{3}He,3p) lin-log



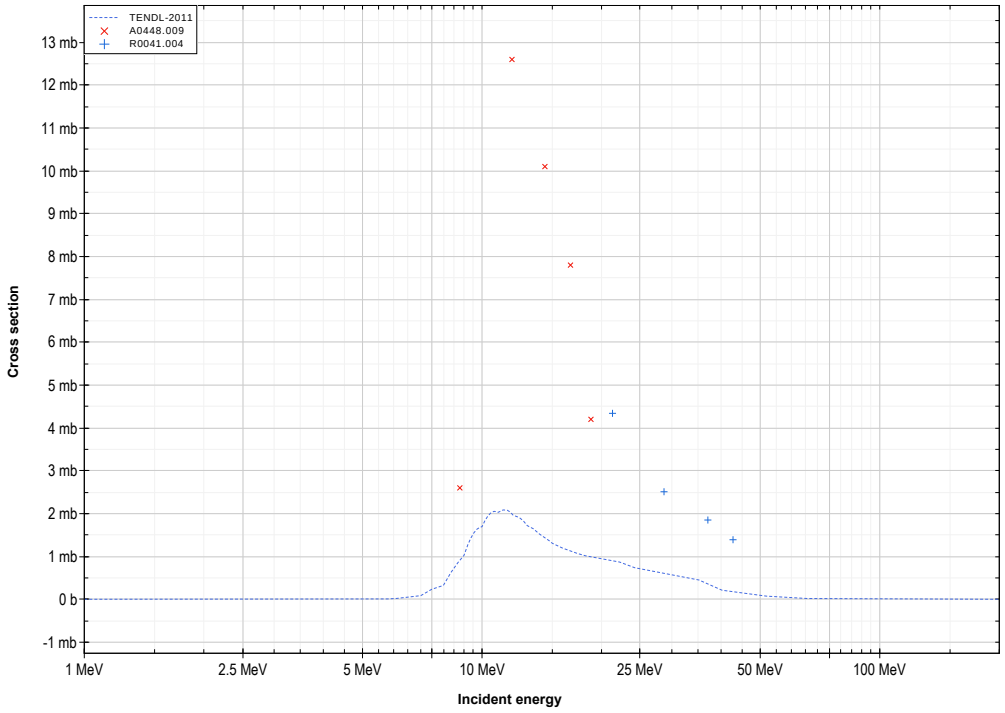
Reaction	Q-Value
Cu65(He3,3p)Ni65	-9073.30 keV

<< 29-Cu-65	**30-Zn-64**	31-Ga-69 >>
<< MT197 (^{3}He,3p)	**MT4 (^{3}He,n) or MT5 (Ge66 production)**	MT22 (^{3}He,n+α) >>

Zn64 (^{3}He,n) log-log



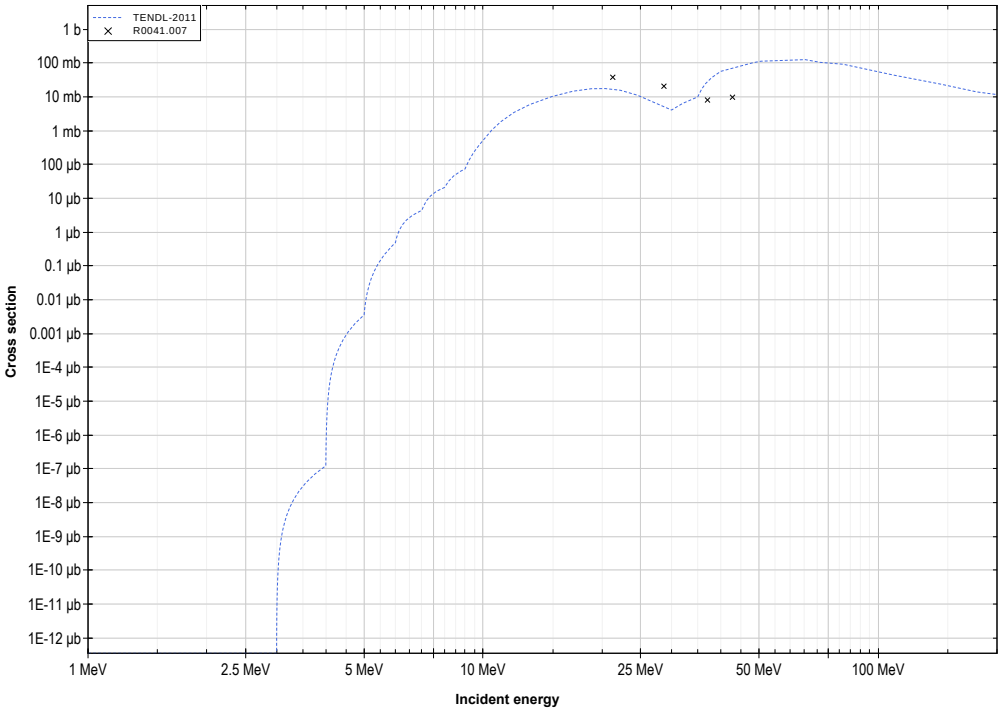
Zn64 (^{3}He,n) lin-log



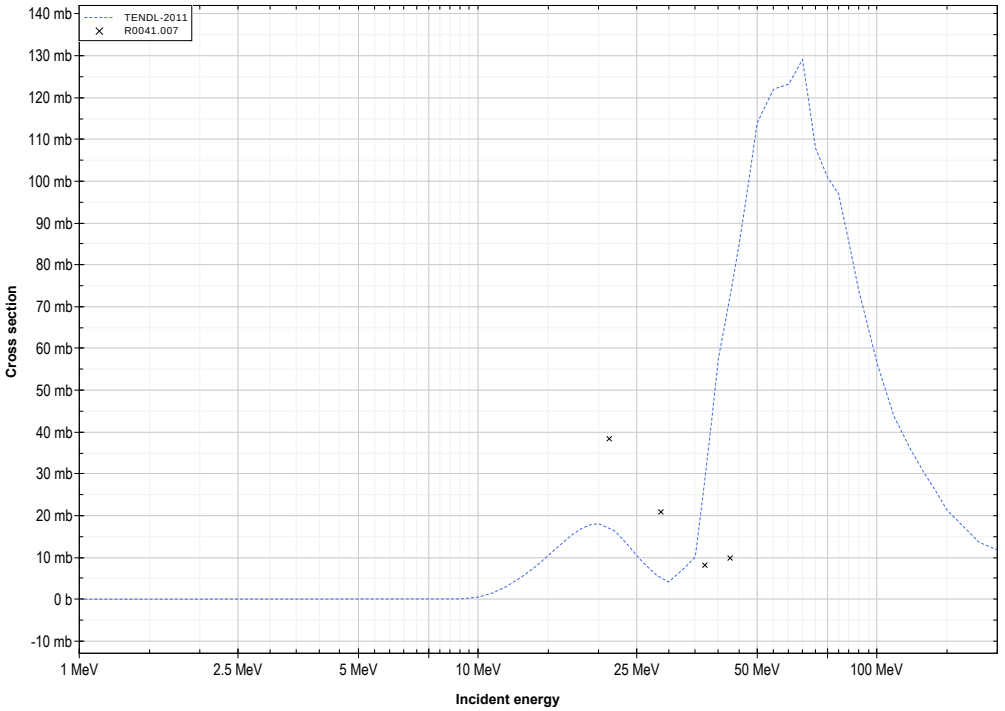
Reaction	Q-Value
Zn64(He3,n)Ge66	2476.30 keV

<< 29-Cu-63	**30-Zn-64**	31-Ga-69 >>
<< MT4 (^{3}He,n)	**MT22 (^{3}He,n+α) or MT5 (Zn62 production)**	MT103 (^{3}He,p) >>

Zn64 (^{3}He,n+α) log-log



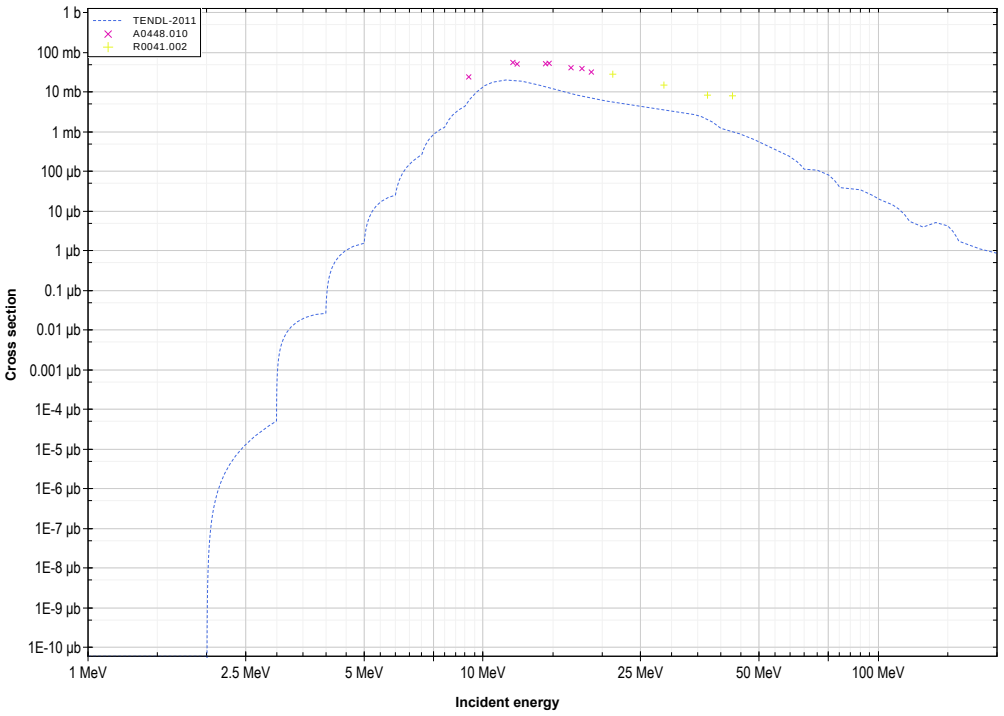
Zn64 (^{3}He,n+α) lin-log



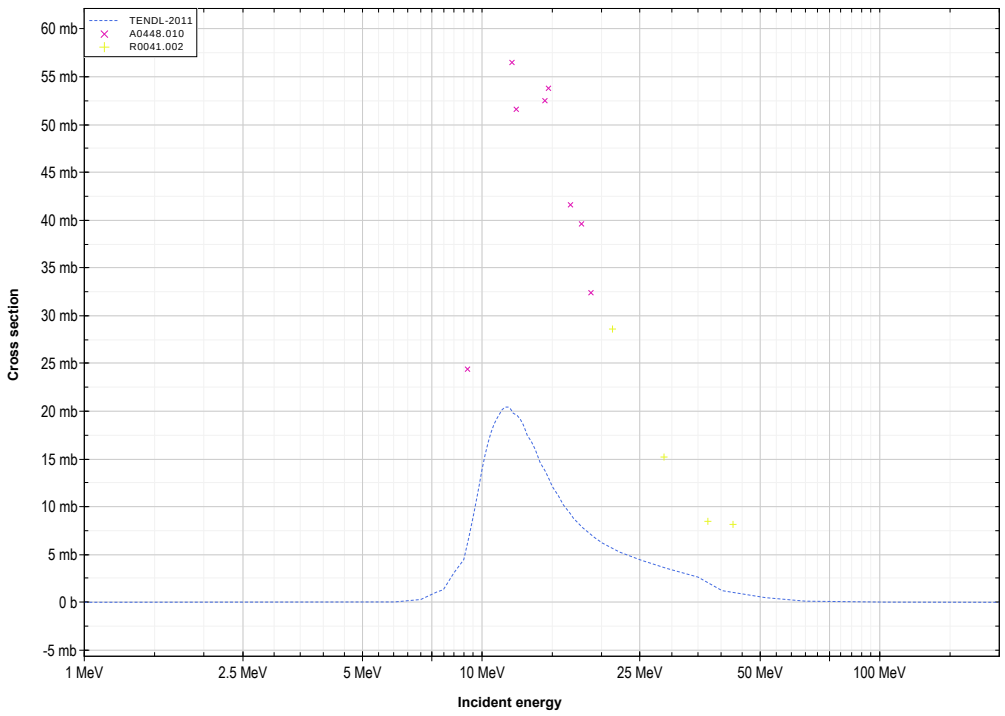
Reaction	Q-Value
Zn64(He3,n+α)Zn62	-397.62 keV
Zn64(He3,d+t)Zn62	-17986.91 keV
Zn64(He3,n+p+t)Zn62	-20211.48 keV
Zn64(He3,2n+He3)Zn62	-20975.23 keV
Zn64(He3,n+2d)Zn62	-24244.15 keV
Zn64(He3,2n+p+d)Zn62	-26468.71 keV
Zn64(He3,3n+2p)Zn62	-28693.28 keV

<< 29-Cu-63	**30-Zn-64**	74-W-186 >>
<< MT22 (³He,n+α)	**MT103 (³He,p) or MT5 (Ga66 production)**	MT107 (³He,α) >>

Zn64 (³He,p) log-log



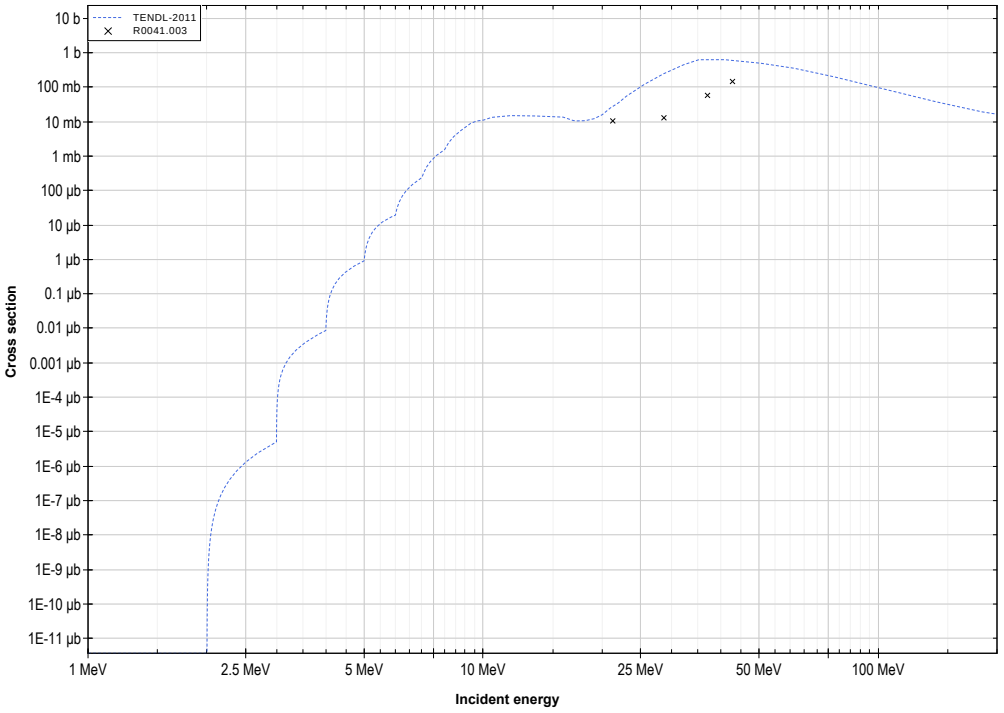
Zn64 (³He,p) lin-log



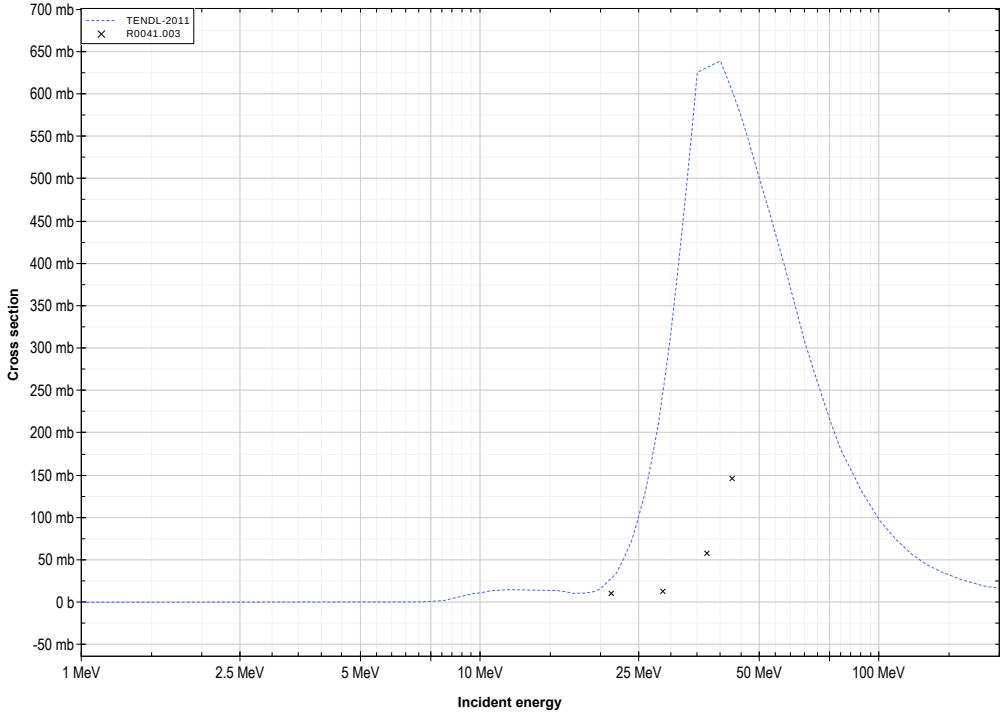
Reaction	Q-Value
Zn64(He3,p)Ga66	5362.64 keV

<< 19-K-39	**30-Zn-64**	31-Ga-69 >>
<< MT103 (³He,p)	**MT107 (³He,α) or MT5 (Zn63 production)**	MT111 (³He,2p) >>

Zn64 (³He,α) log-log



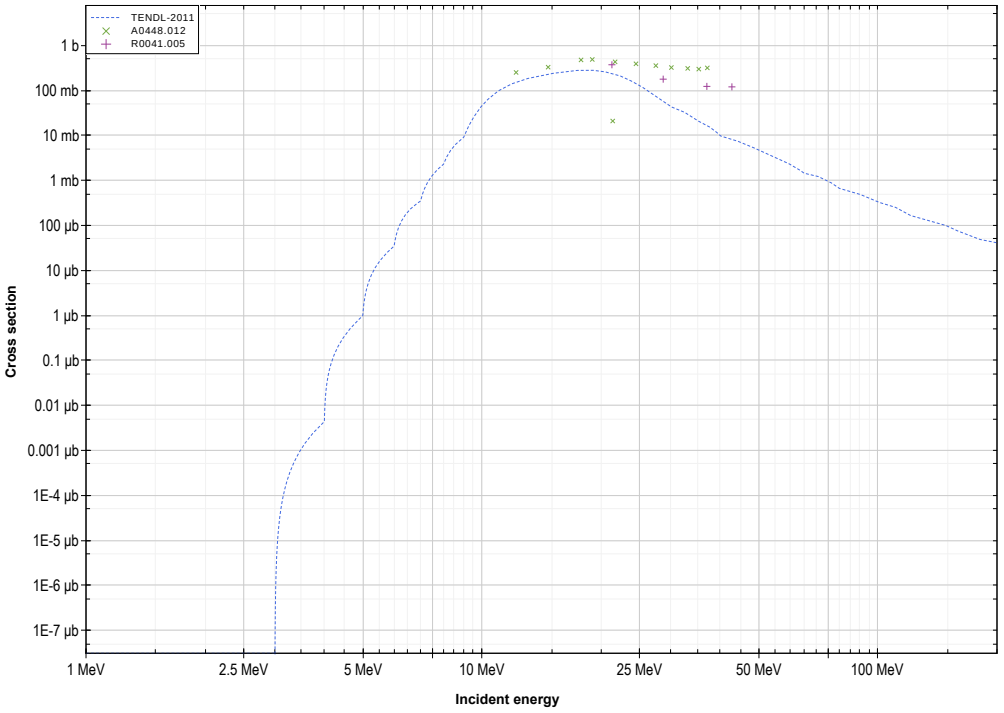
Zn64 (³He,α) lin-log



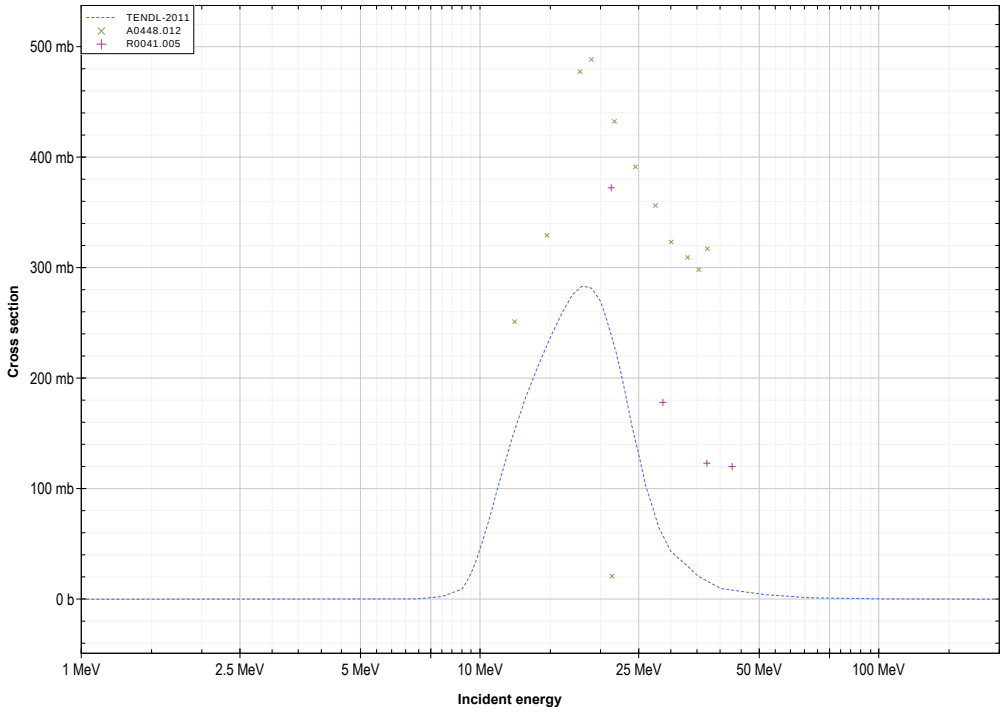
Reaction	Q-Value
Zn64(He3,α)Zn63	8715.70 keV
Zn64(He3,p+t)Zn63	-11098.16 keV
Zn64(He3,n+He3)Zn63	-11861.92 keV
Zn64(He3,2d)Zn63	-15130.83 keV
Zn64(He3,n+p+d)Zn63	-17355.39 keV
Zn64(He3,2n+2p)Zn63	-19579.96 keV

<< 29-Cu-63	**30-Zn-64**	30-Zn-68 >>
<< MT107 (³He,α)	**MT111 (³He,2p) or MT5 (Zn65 production)**	MT197 (³He,3p) >>

Zn64 (³He,2p) log-log



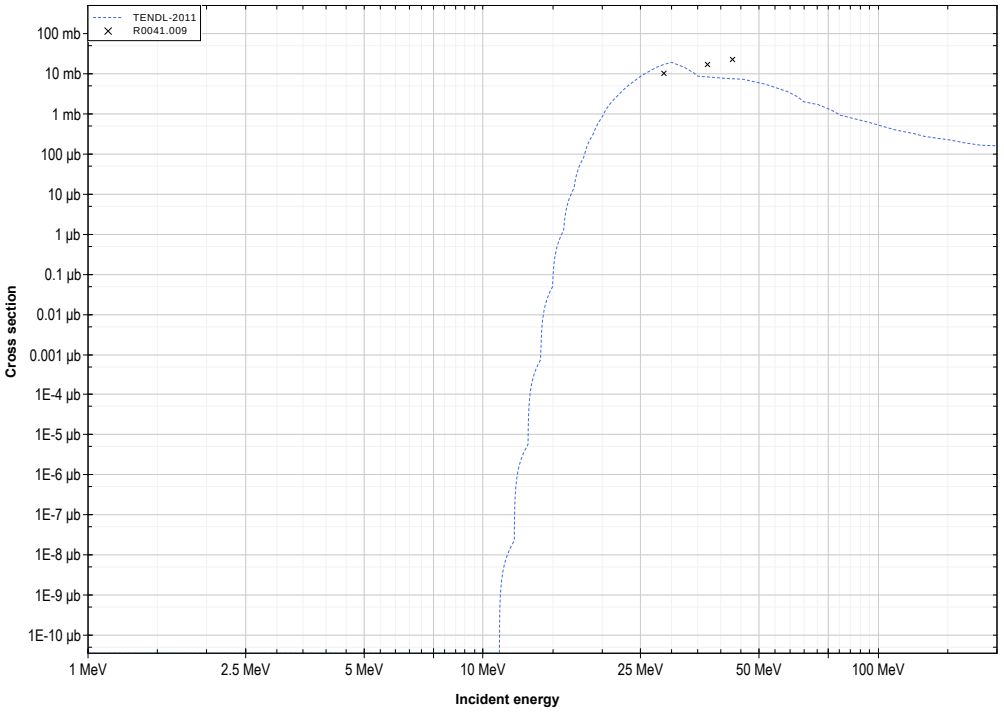
Zn64 (³He,2p) lin-log



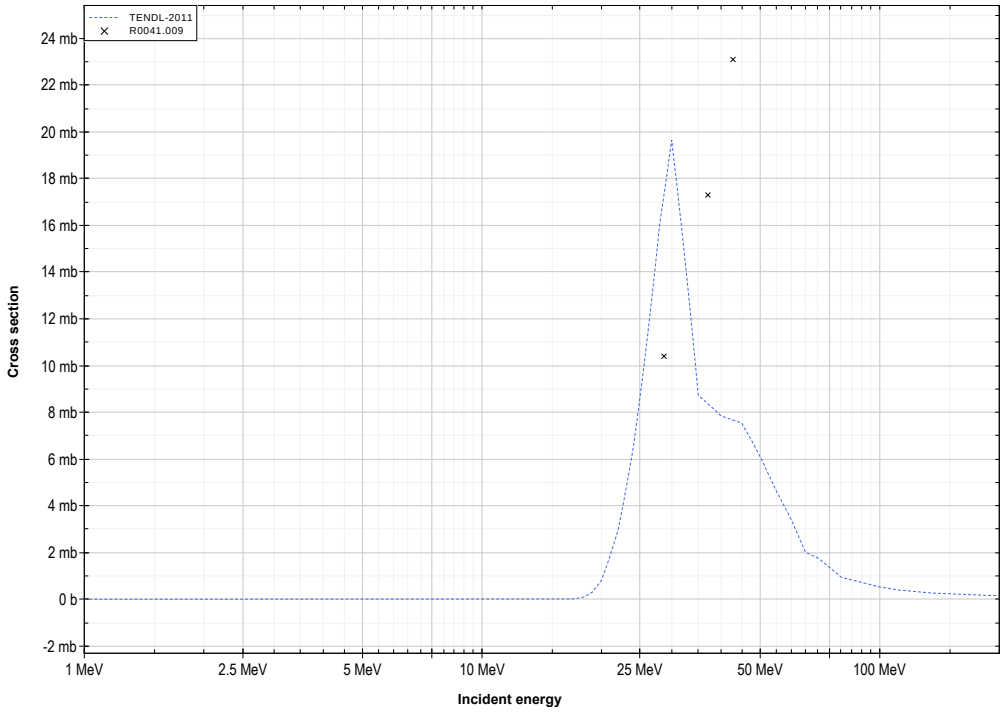
Reaction	Q-Value
Zn64(He3,2p)Zn65	261.27 keV

<< 29-Cu-65	**30-Zn-64**	
<< MT111 (³He,2p)	**MT197 (³He,3p) or MT5 (Cu64 production)**	MT16 (³He,2n) >>

Zn64 (³He,3p) log-log



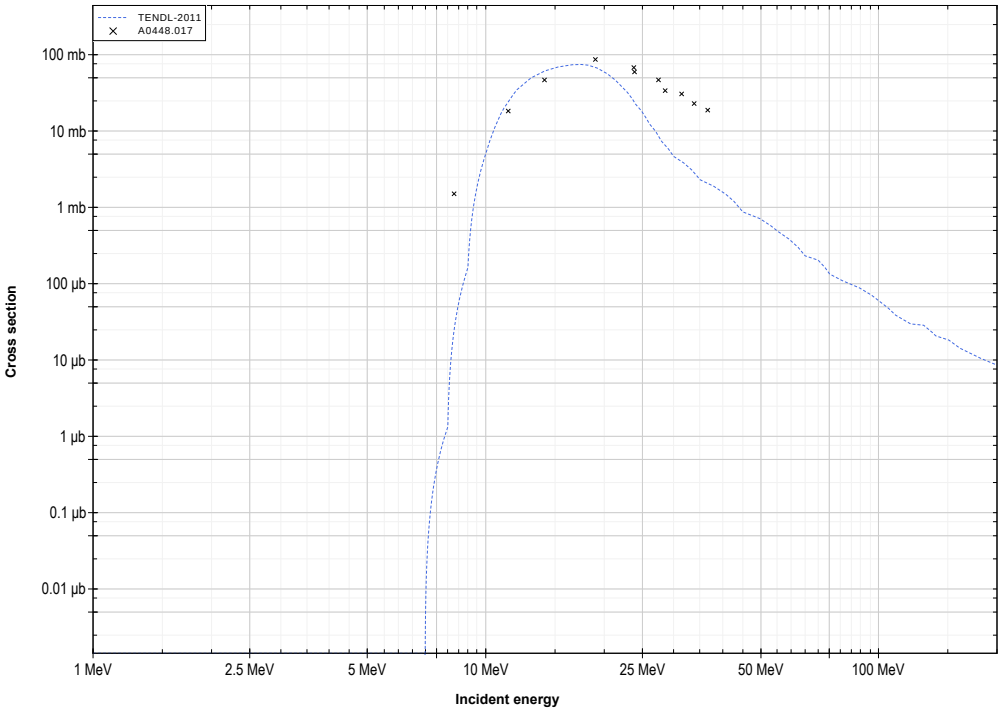
Zn64 (³He,3p) lin-log



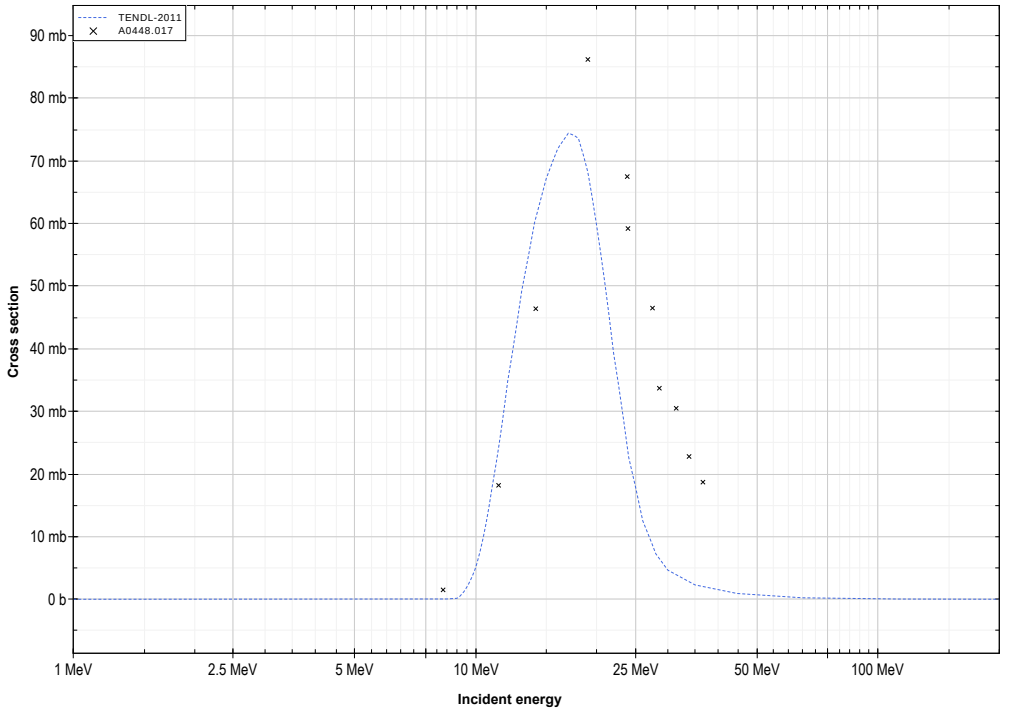
Reaction	Q-Value
Zn64(He3,3p)Cu64	-7515.10 keV

<< 29-Cu-65	**30-Zn-66**	30-Zn-68 >>
<< MT197 (^{3}He,3p)	**MT16 (^{3}He,2n) or MT5 (Ge67 production)**	MT28 (^{3}He,n+p) >>

Zn66 (^{3}He,2n) log-log



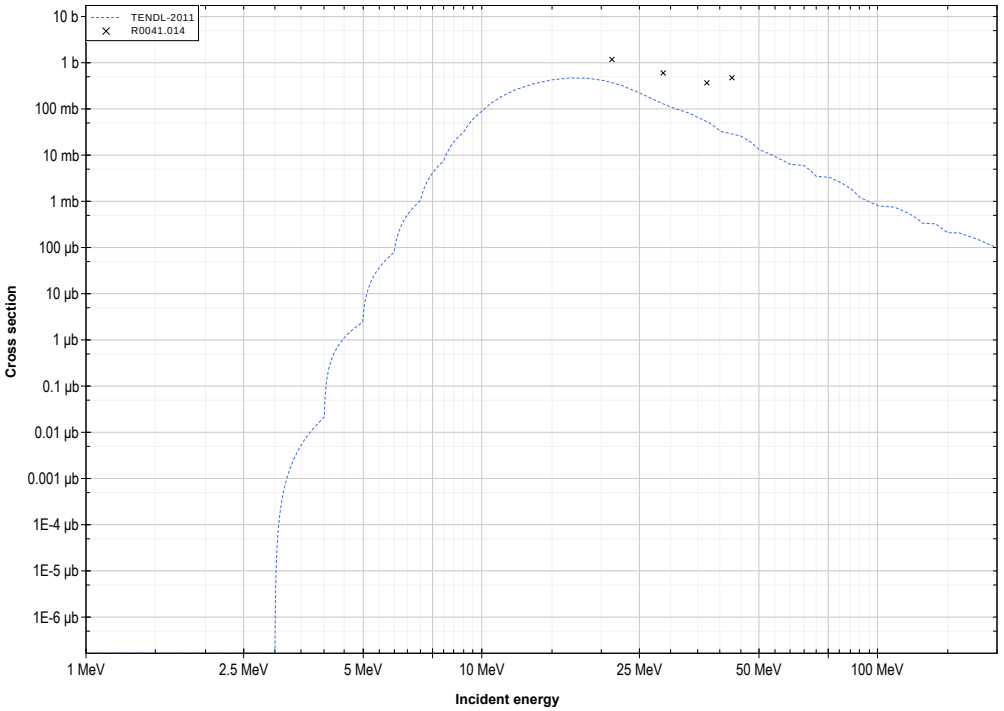
Zn66 (^{3}He,2n) lin-log



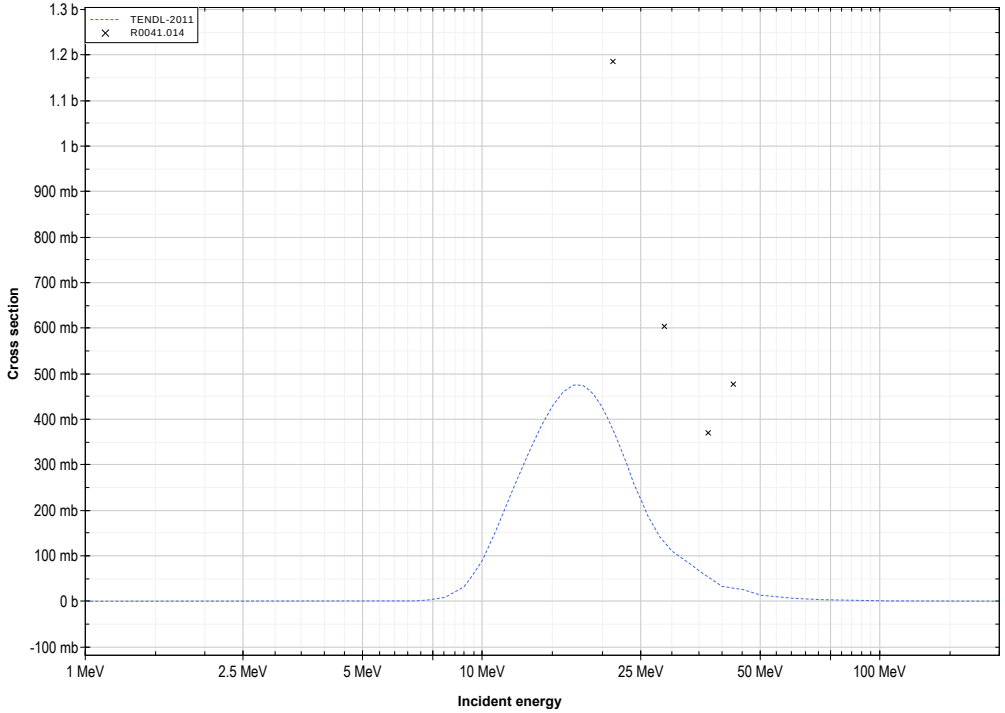
Reaction	Q-Value
Zn66(He3,2n)Ge67	-7452.82 keV

	30-Zn-66	34-Se-76 >>
<< MT16 (^{3}He,2n)	**MT28 (^{3}He,n+p) or MT5 (Ga67 production)**	MT16 (^{3}He,2n) >>

Zn66 (^{3}He,n+p) log-log

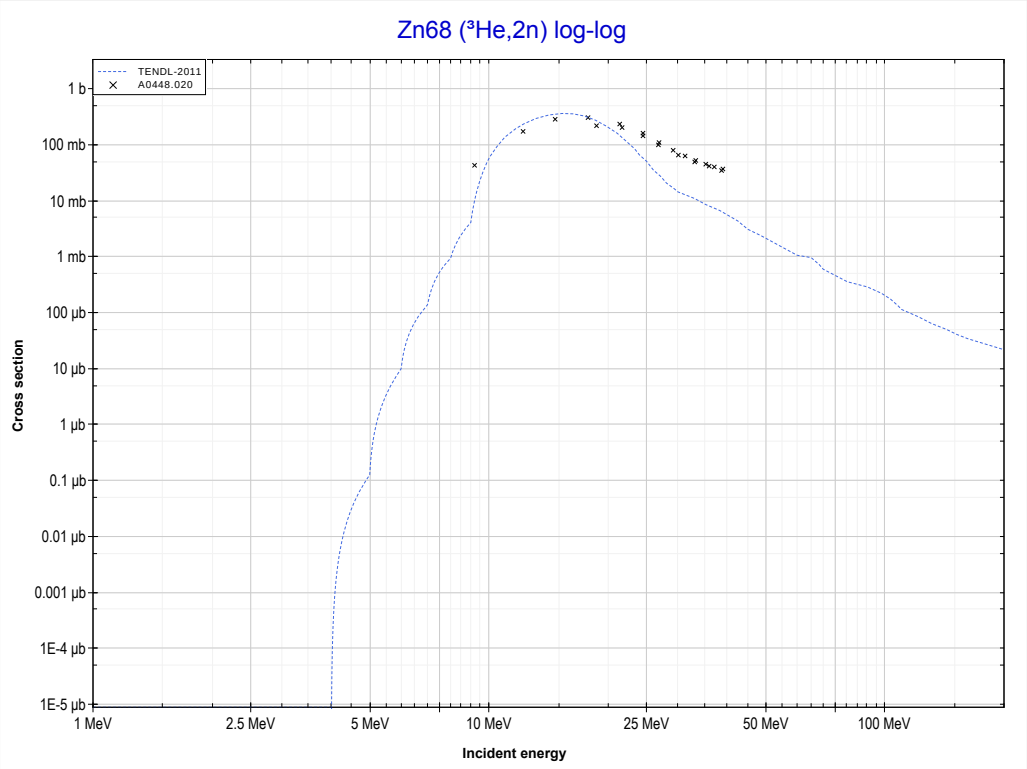


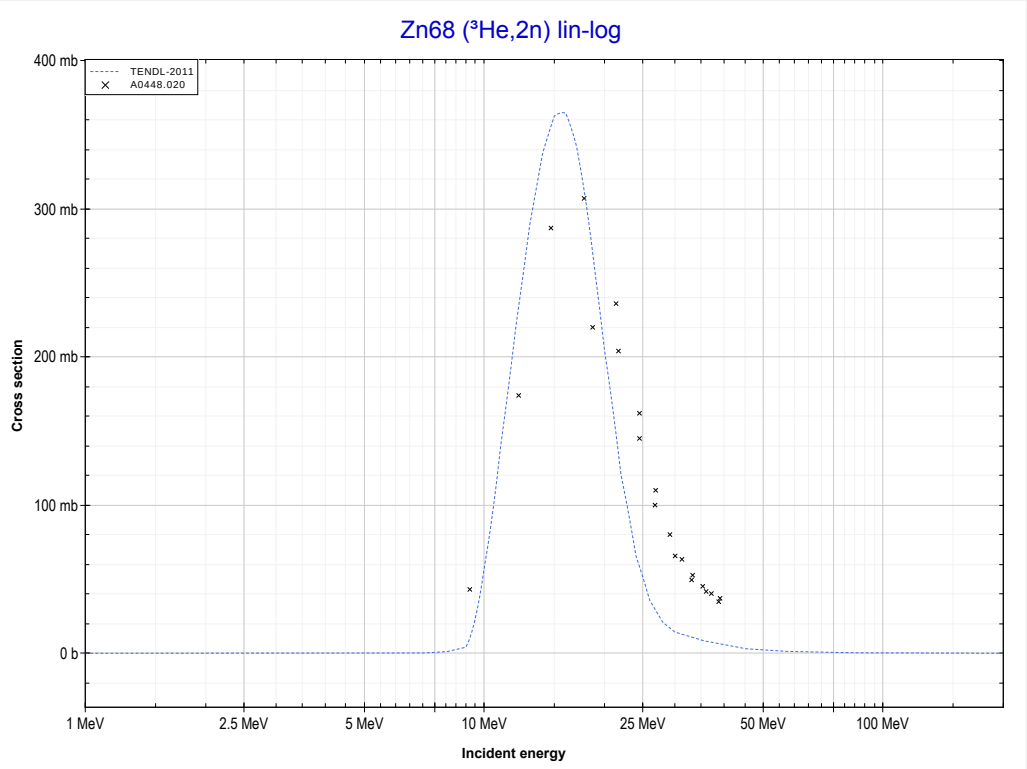
Zn66 (^{3}He,n+p) lin-log



Reaction	Q-Value
Zn66(He3,d)Ga67	-224.21 keV
Zn66(He3,n+p)Ga67	-2448.77 keV

<< 30-Zn-66	**30-Zn-68**	31-Ga-69 >>
<< MT28 (^{3}He,n+p)	**MT16 (^{3}He,2n) or MT5 (Ge69 production)**	MT17 (^{3}He,3n) >>

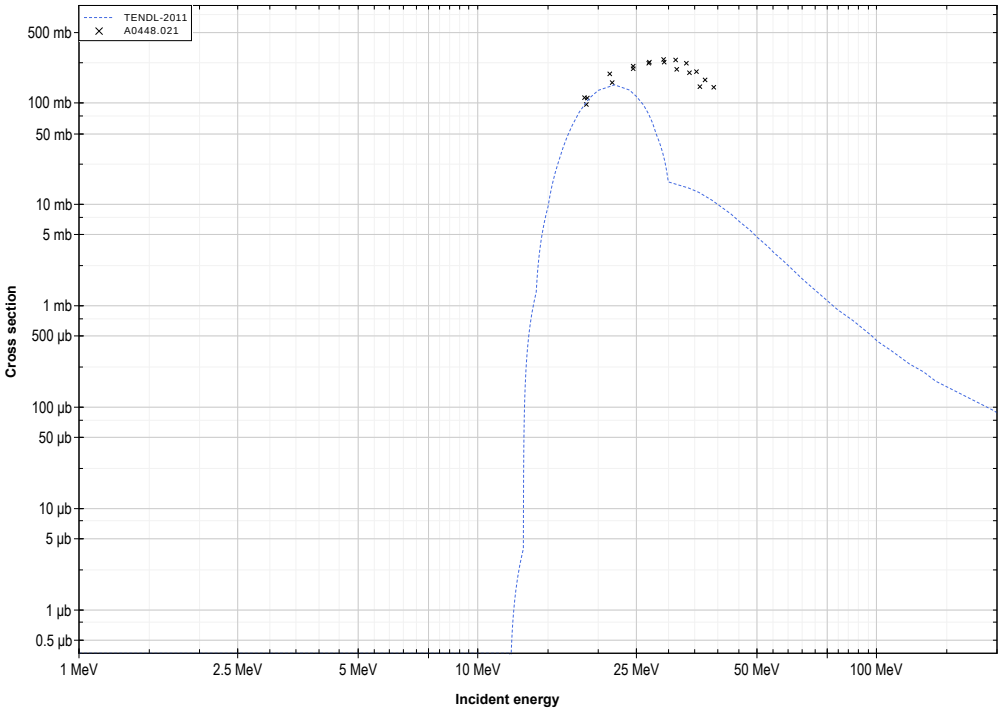




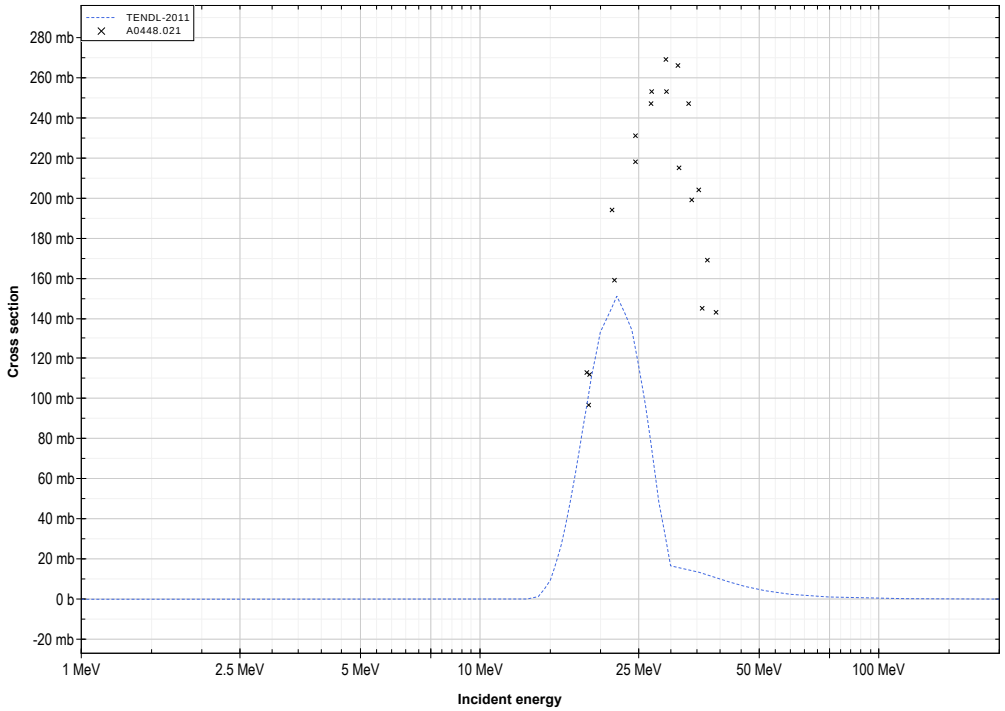
Reaction	Q-Value
Zn68(He3,2n)Ge69	-4118.02 keV

<< 29-Cu-65	**30-Zn-68**	33-As-75 >>
<< MT16 (³He,2n)	**MT17 (³He,3n) or MT5 (Ge68 production)**	MT111 (³He,2p) >>

Zn68 (³He,3n) log-log



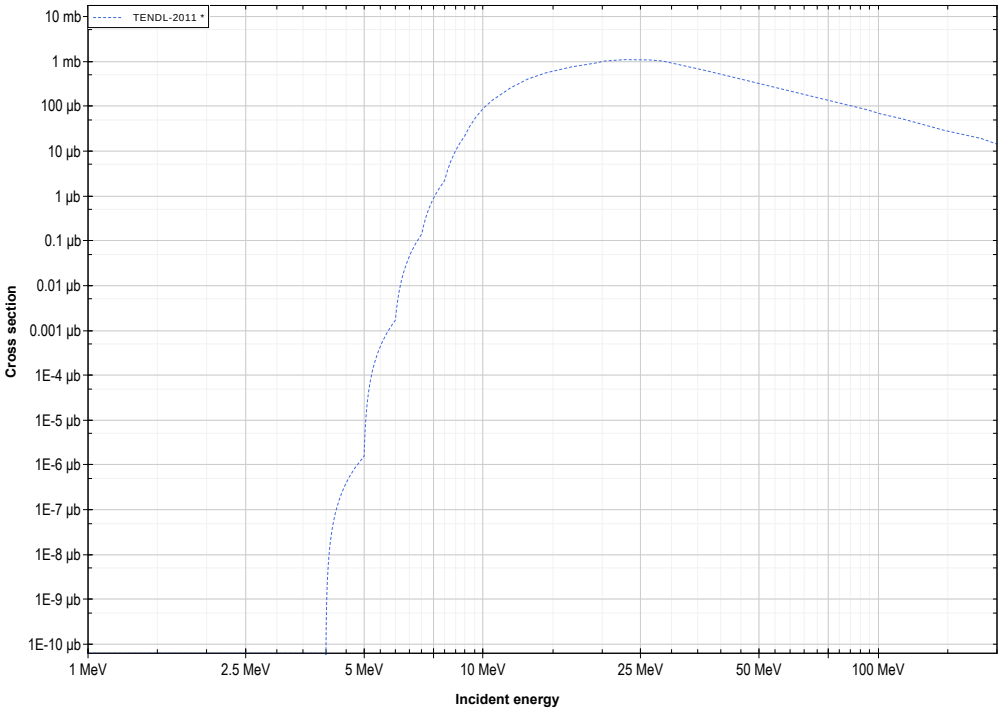
Zn68 (³He,3n) lin-log



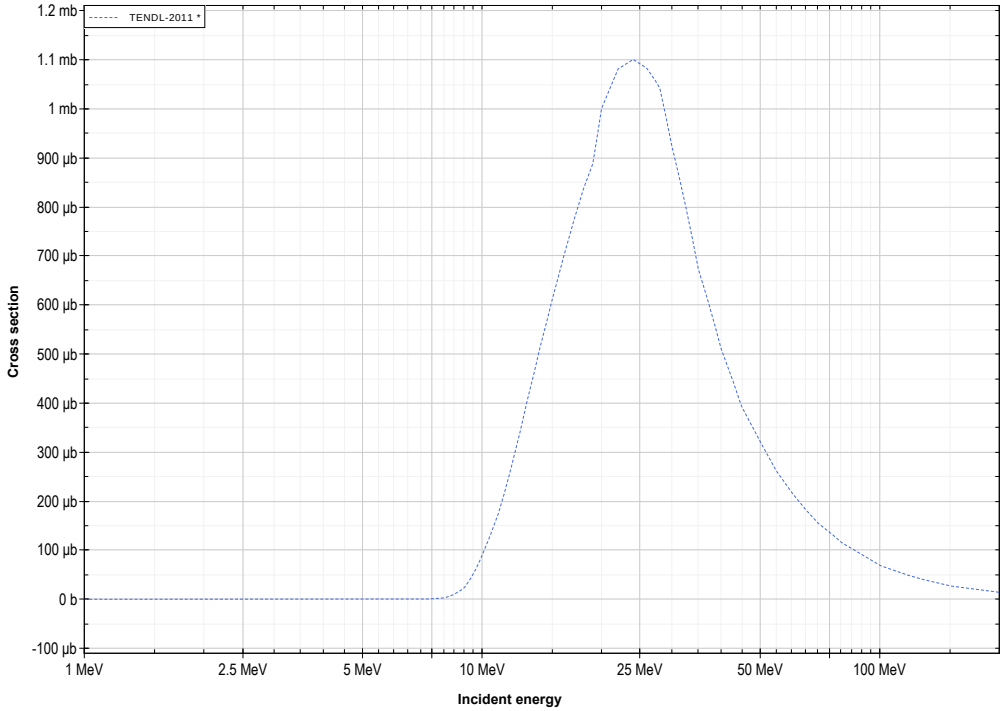
Reaction	Q-Value
Zn68(He3,3n)Ge68	-12309.94 keV

<< 30-Zn-64	**30-Zn-68**	31-Ga-71 >>
<< MT17 (^{3}He,3n)	**MT111 (^{3}He,2p) or MT5 (Zn69 production)**	MT4 (^{3}He,n) >>

Zn68 (^{3}He,2p) log-log



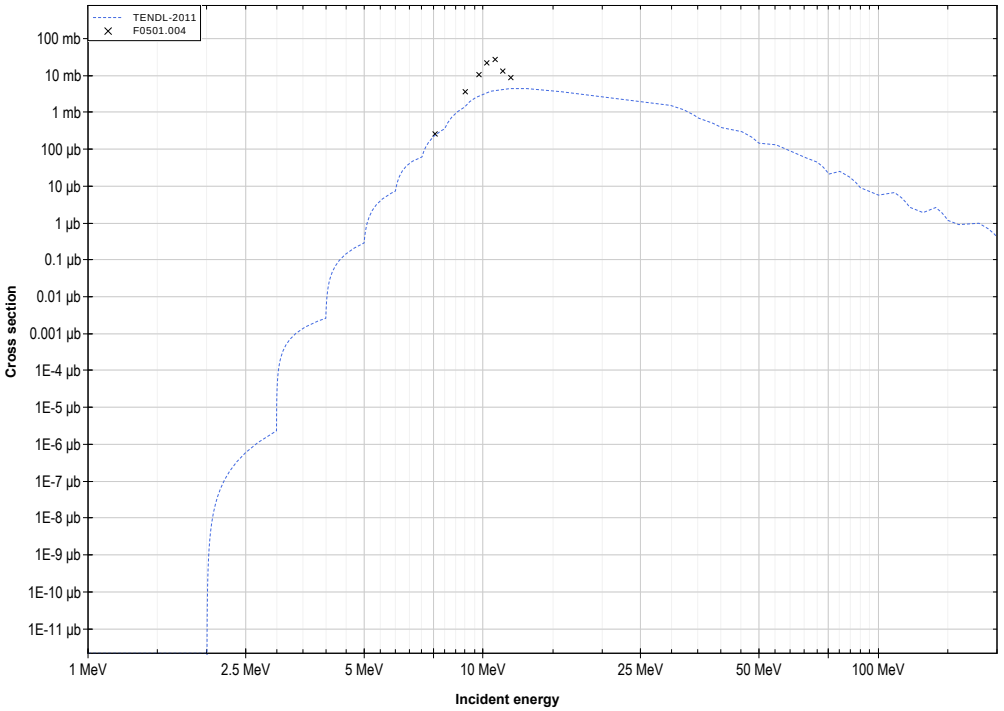
Zn68 (^{3}He,2p) lin-log



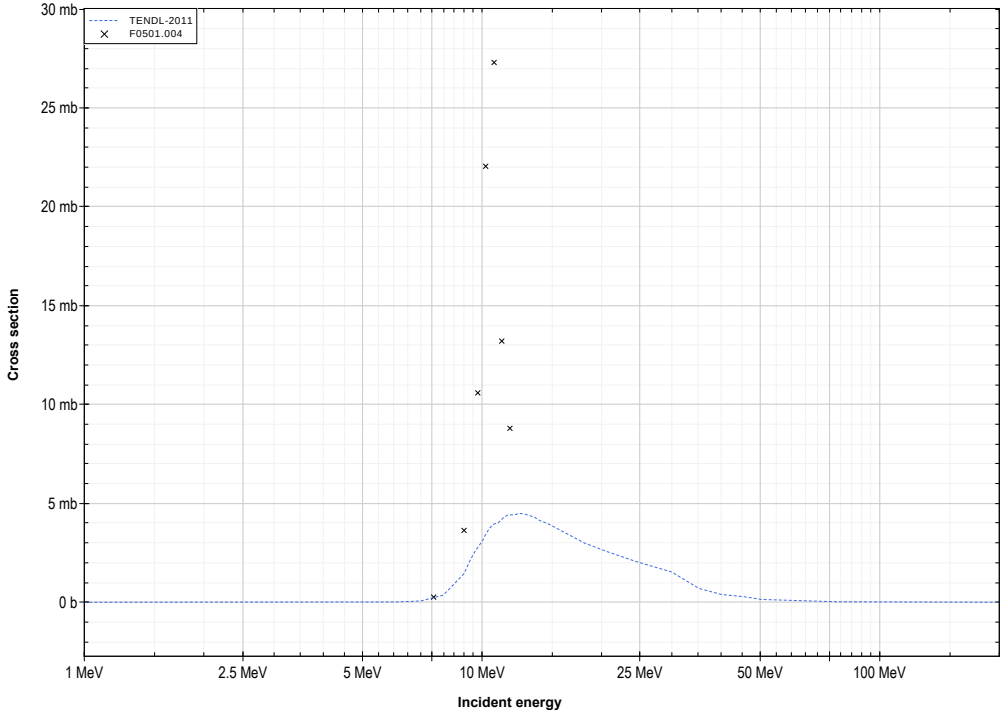
Reaction	Q-Value
Zn68(He3,2p)Zn69	-1235.93 keV

<< 30-Zn-64	**31-Ga-69**	33-As-75 >>
<< MT111 (^{3}He,2p)	**MT4 (^{3}He,n) or MT5 (As71 production)**	MT16 (^{3}He,2n) >>

Ga69 (^{3}He,n) log-log



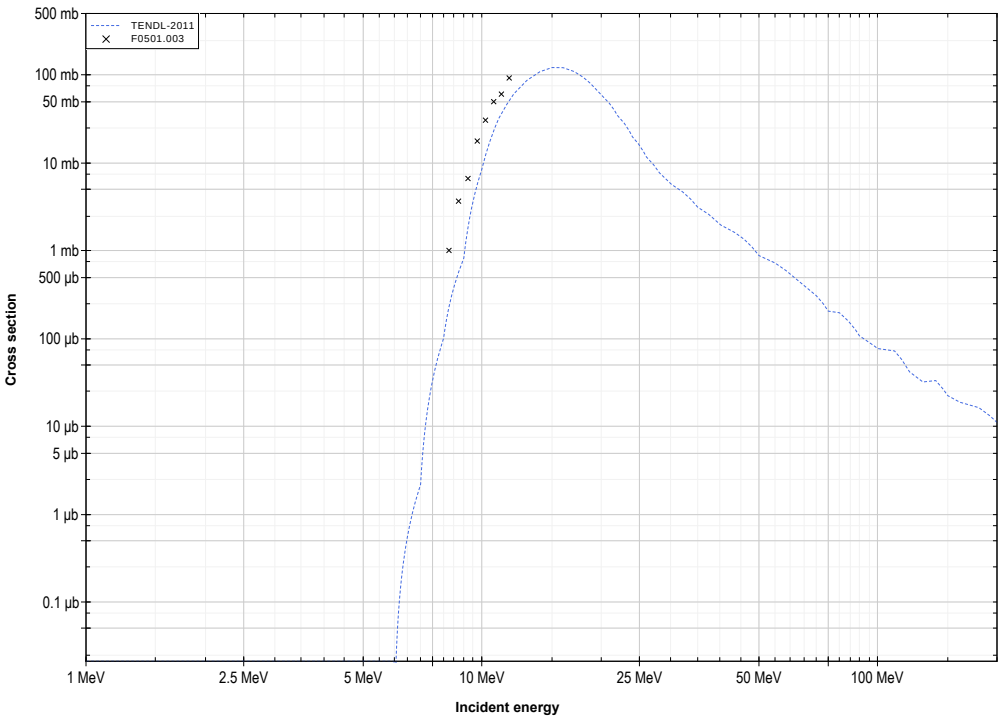
Ga69 (^{3}He,n) lin-log



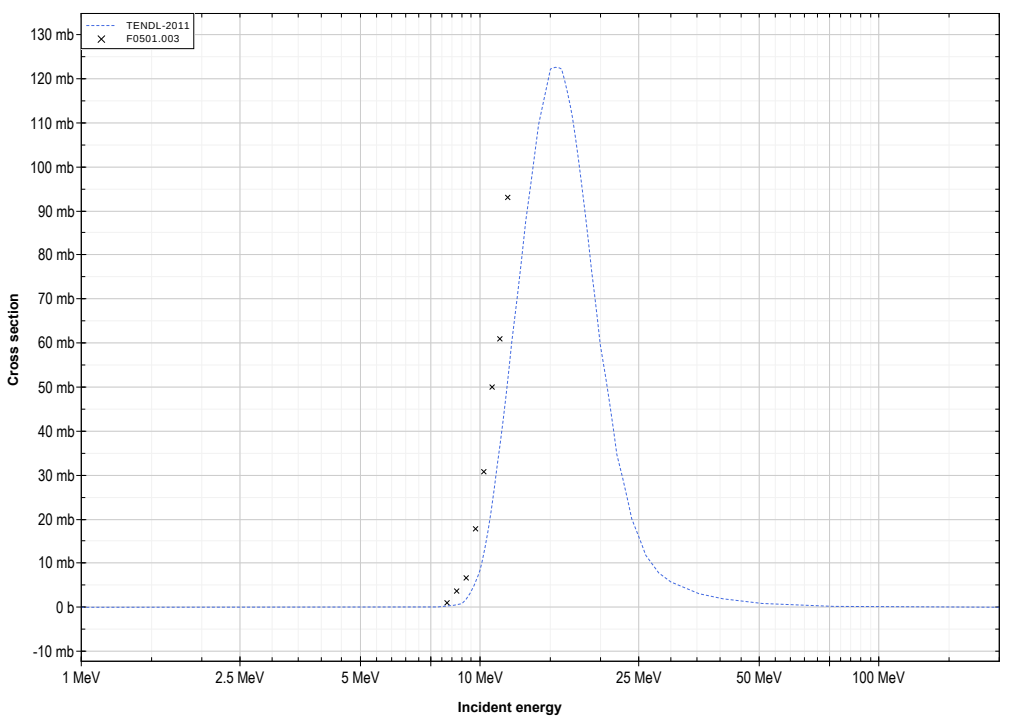
Reaction	Q-Value
Ga69(He3,n)As71	5426.10 keV

<< 30-Zn-68	**31-Ga-69**	31-Ga-71 >>
<< MT4 (^{3}He,n)	**MT16 (^{3}He,2n) or MT5 (As70 production)**	MT22 (^{3}He,n+α) >>

Ga69 (^{3}He,2n) log-log



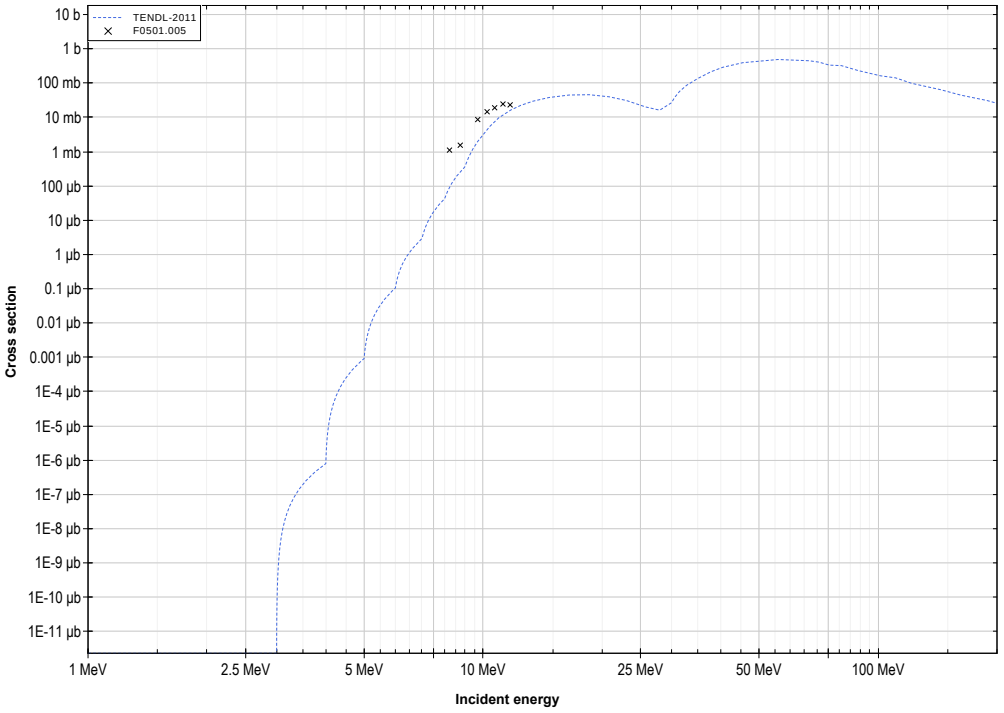
Ga69 (^{3}He,2n) lin-log



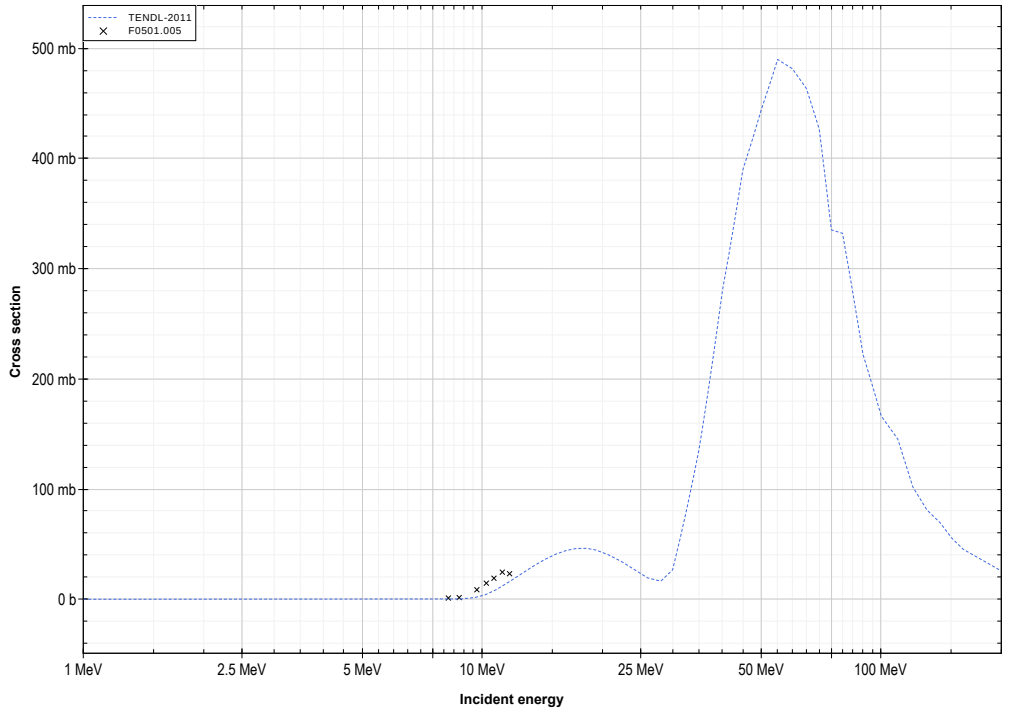
Reaction	Q-Value
Ga69(He3,2n)As70	-6199.22 keV

<< 30-Zn-64	**31-Ga-69**	34-Se-77 >>
<< MT16 (³He,2n)	**MT22 (³He,n+α) or MT5 (Ga67 production)**	MT107 (³He,α) >>

Ga69 (³He,n+α) log-log



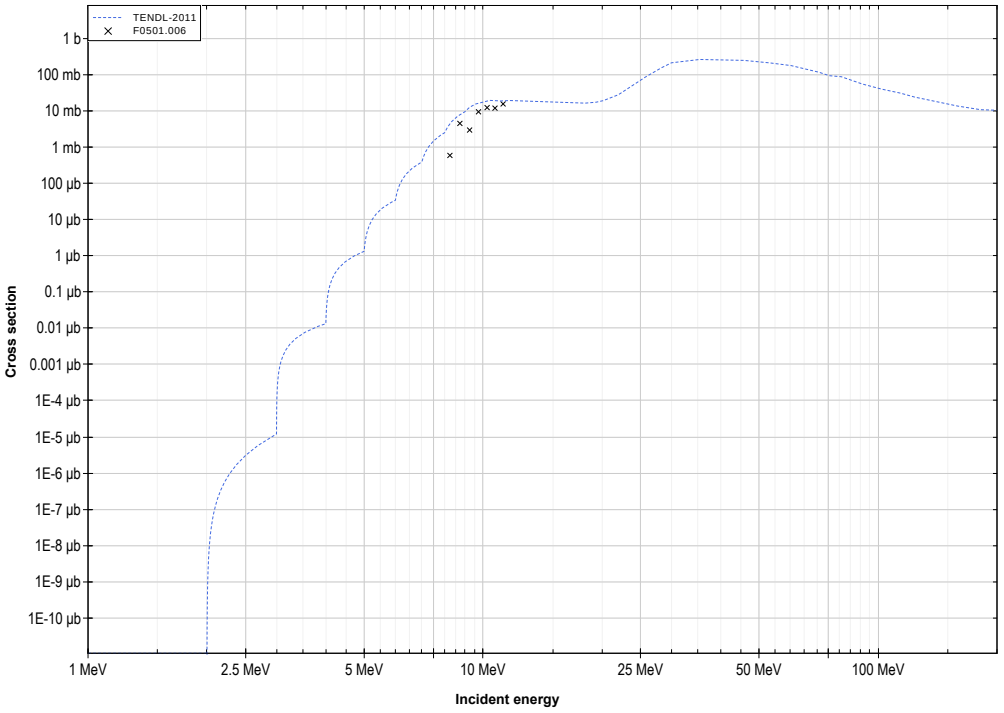
Ga69 (³He,n+α) lin-log



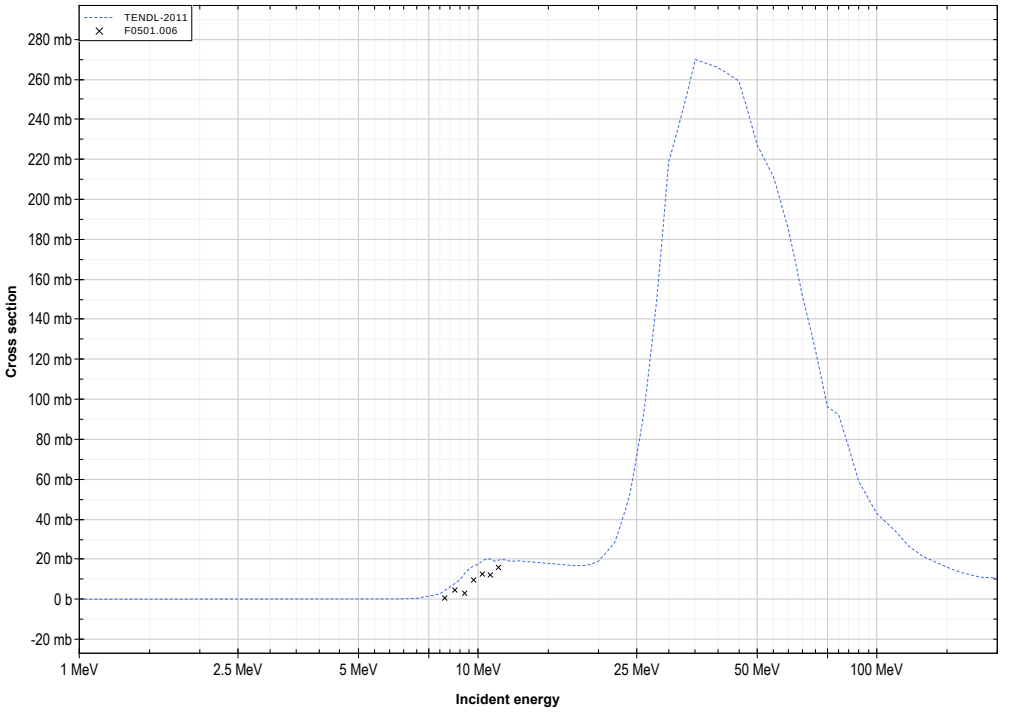
Reaction	Q-Value
Ga69(He3,n+α)Ga67	1986.88 keV
Ga69(He3,d+t)Ga67	-15602.41 keV
Ga69(He3,n+p+t)Ga67	-17826.98 keV
Ga69(He3,2n+He3)Ga67	-18590.73 keV
Ga69(He3,n+2d)Ga67	-21859.65 keV
Ga69(He3,2n+p+d)Ga67	-24084.21 keV
Ga69(He3,3n+2p)Ga67	-26308.78 keV

<< 30-Zn-64	**31-Ga-69**	34-Se-76 >>
<< MT22 (^{3}He,n+α)	**MT107 (^{3}He,α) or MT5 (Ga68 production)**	MT16 (^{3}He,2n) >>

Ga69 (^{3}He,α) log-log



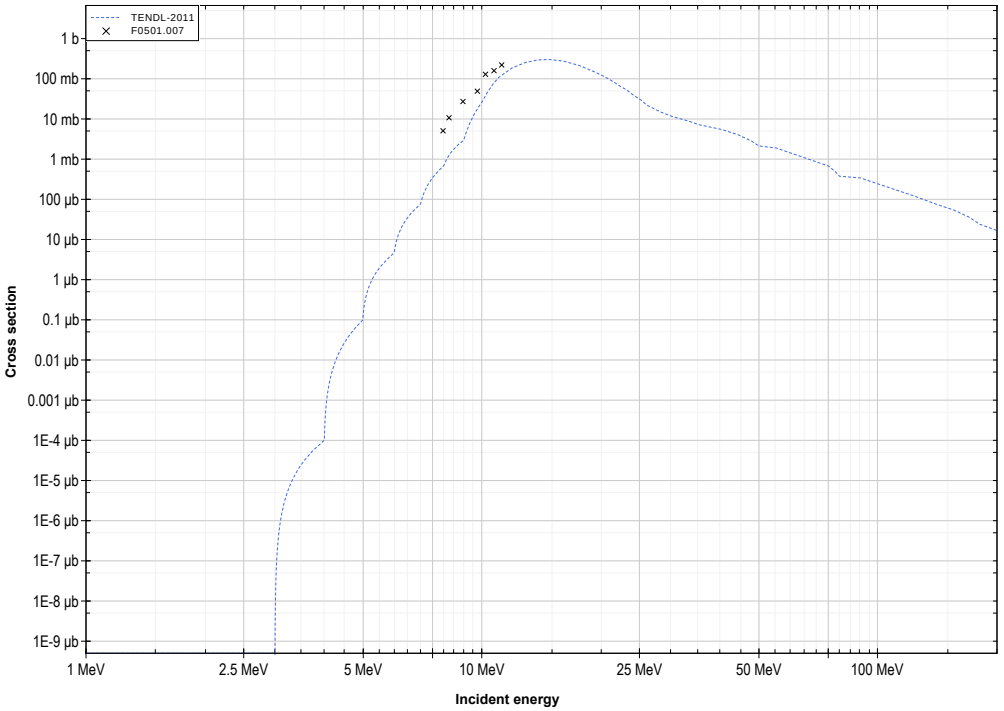
Ga69 (^{3}He,α) lin-log



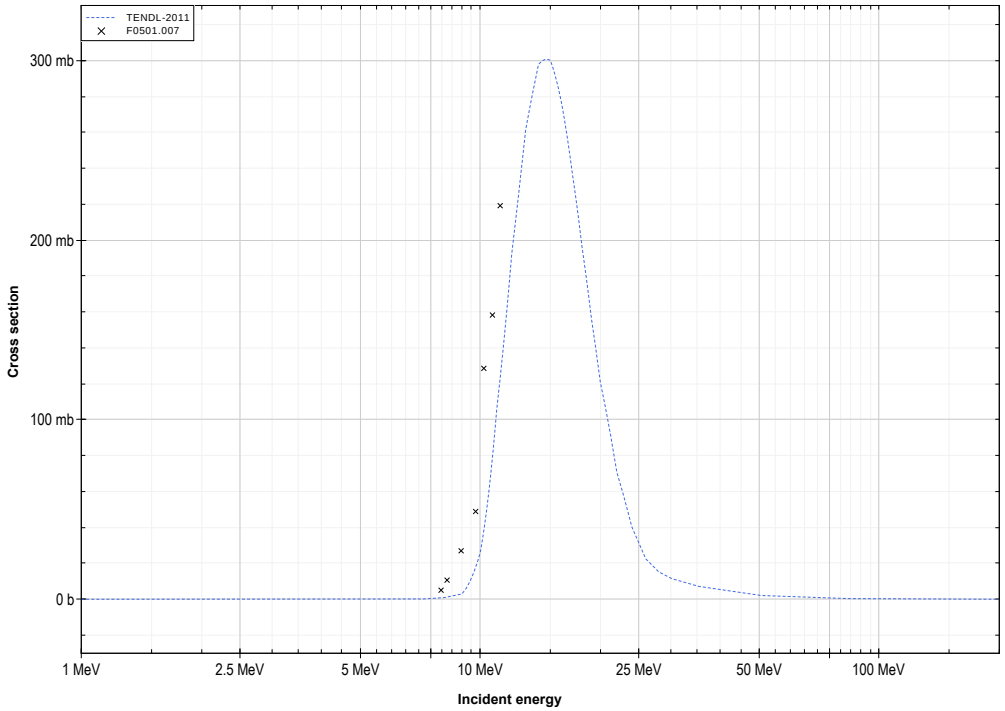
Reaction	Q-Value
Ga69(He3,α)Ga68	10264.60 keV
Ga69(He3,p+t)Ga68	-9549.26 keV
Ga69(He3,n+He3)Ga68	-10313.02 keV
Ga69(He3,2d)Ga68	-13581.93 keV
Ga69(He3,n+p+d)Ga68	-15806.49 keV
Ga69(He3,2n+2p)Ga68	-18031.06 keV

<< 31-Ga-69	**31-Ga-71**	33-As-75 >>
<< MT107 (^{3}He,α)	**MT16 (^{3}He,2n) or MT5 (As72 production)**	MT102 (^{3}He,γ) >>

Ga71 (^{3}He,2n) log-log



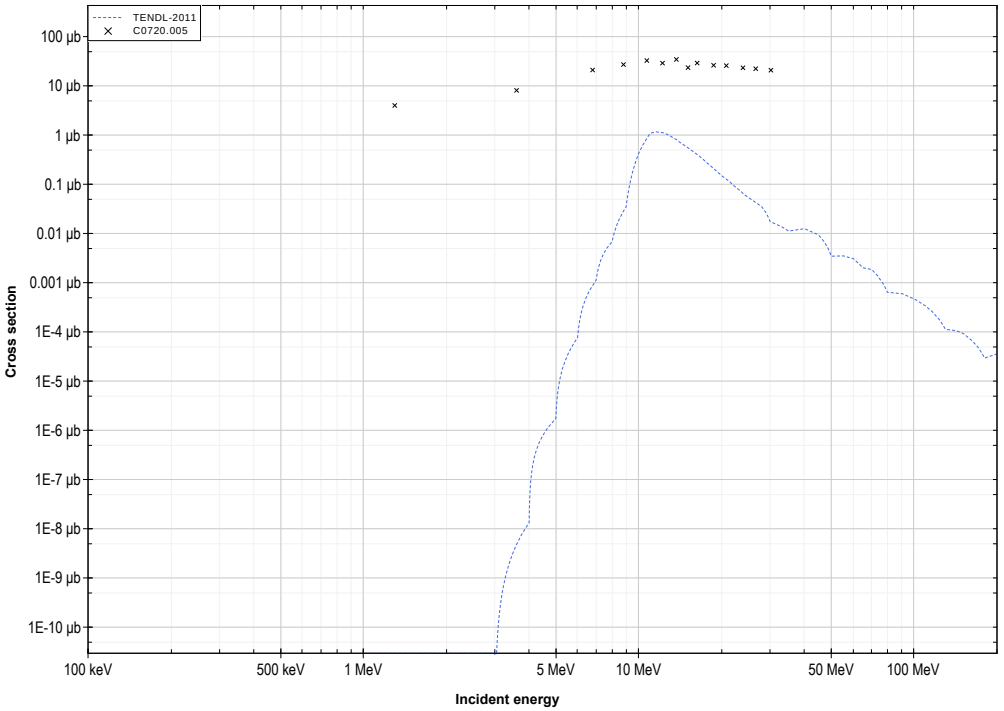
Ga71 (^{3}He,2n) lin-log



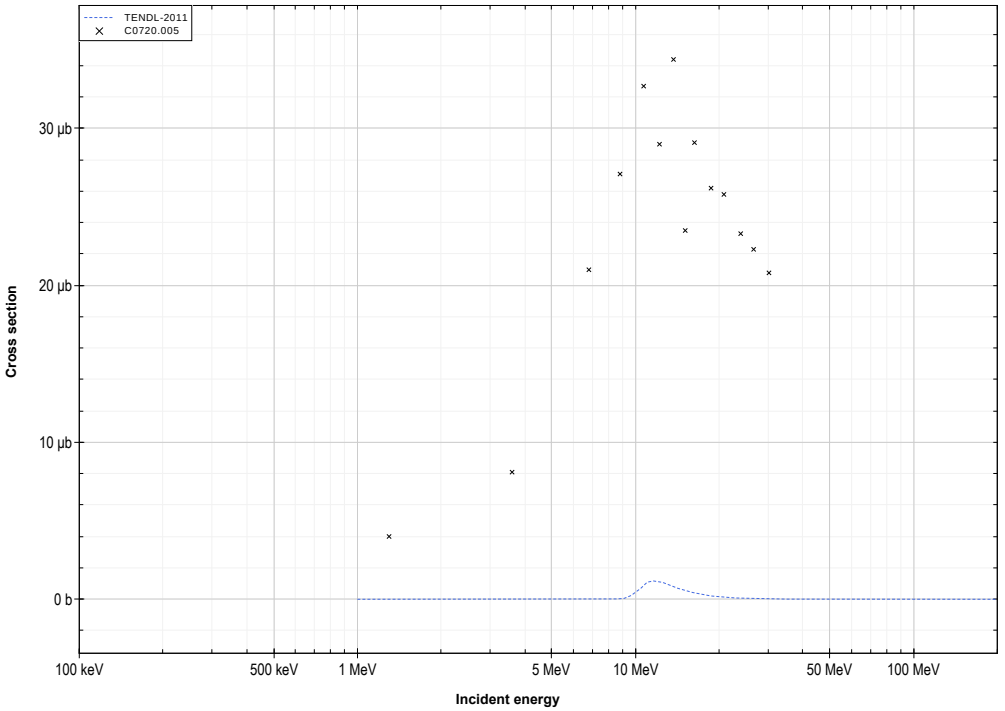
Reaction	Q-Value
Ga71(He3,2n)As72	-3121.62 keV

<< 21-Sc-45	**31-Ga-71**	41-Nb-93 >>
<< MT16 (³He,2n)	**MT102 (³He,γ) or MT5 (As74 production)**	MT111 (³He,2p) >>

Ga71 (³He,γ) log-log



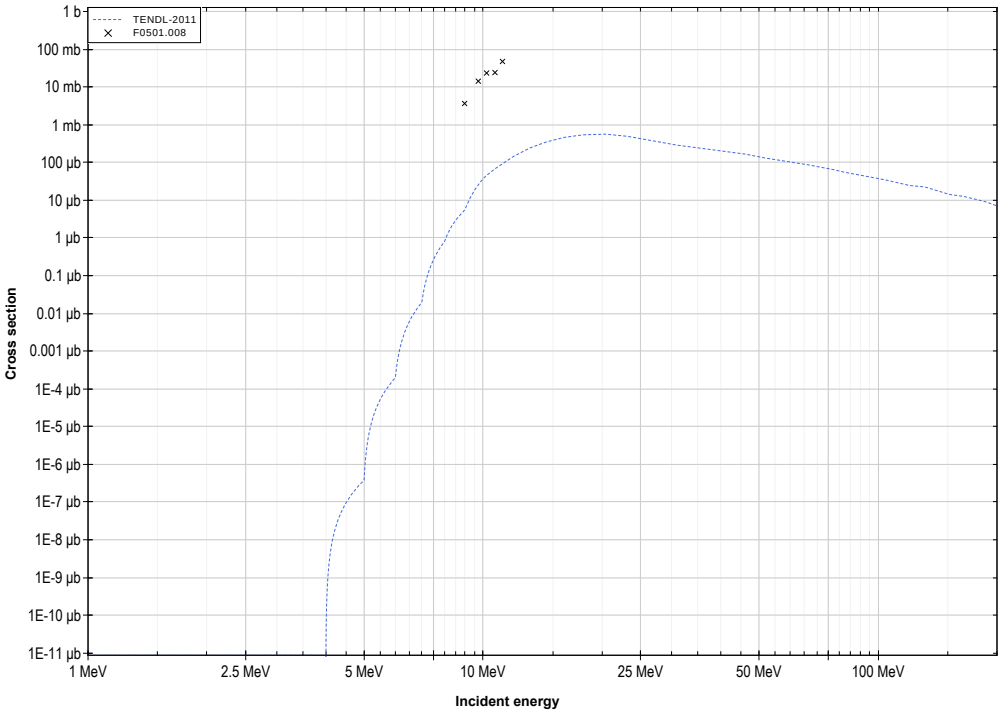
Ga71 (³He,γ) lin-log



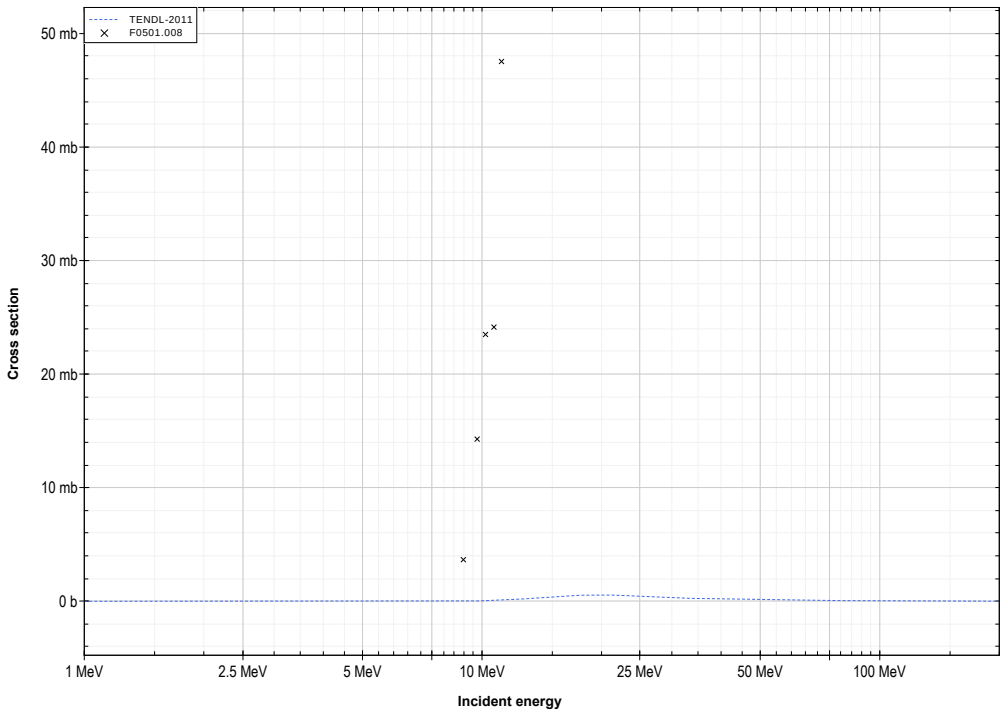
Reaction	Q-Value
Ga71(He3,γ)As74	15651.01 keV

<< 30-Zn-68	**31-Ga-71**	44-Ru-102 >>
<< MT102 (³He,γ)	**MT111 (³He,2p) or MT5 (Ga72 production)**	MT4 (³He,n) >>

Ga71 (³He,2p) log-log



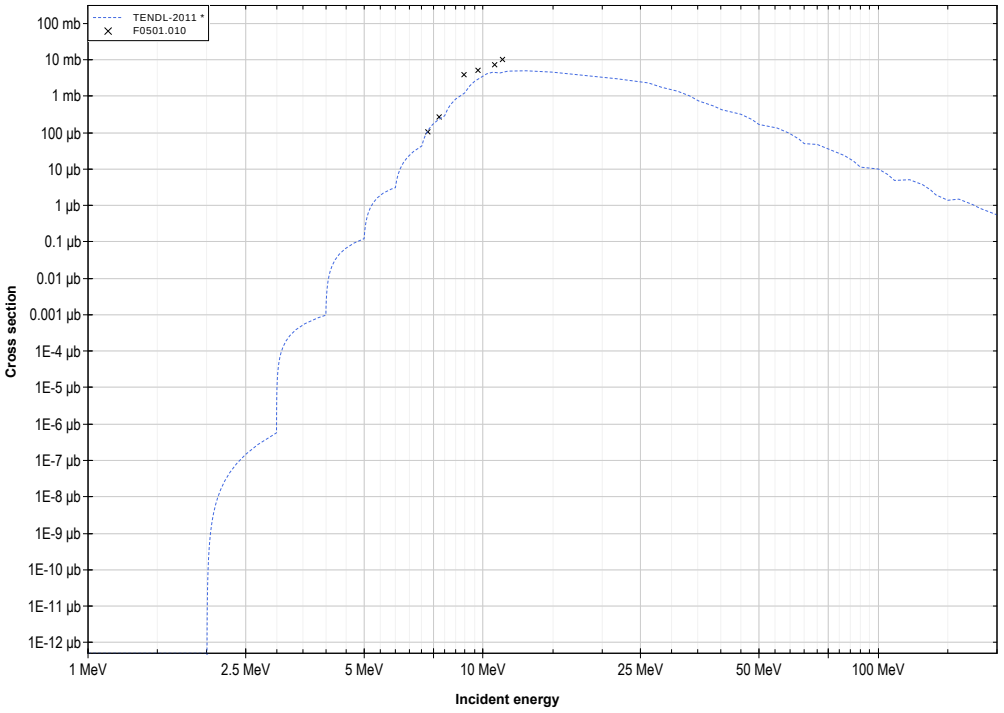
Ga71 (³He,2p) lin-log



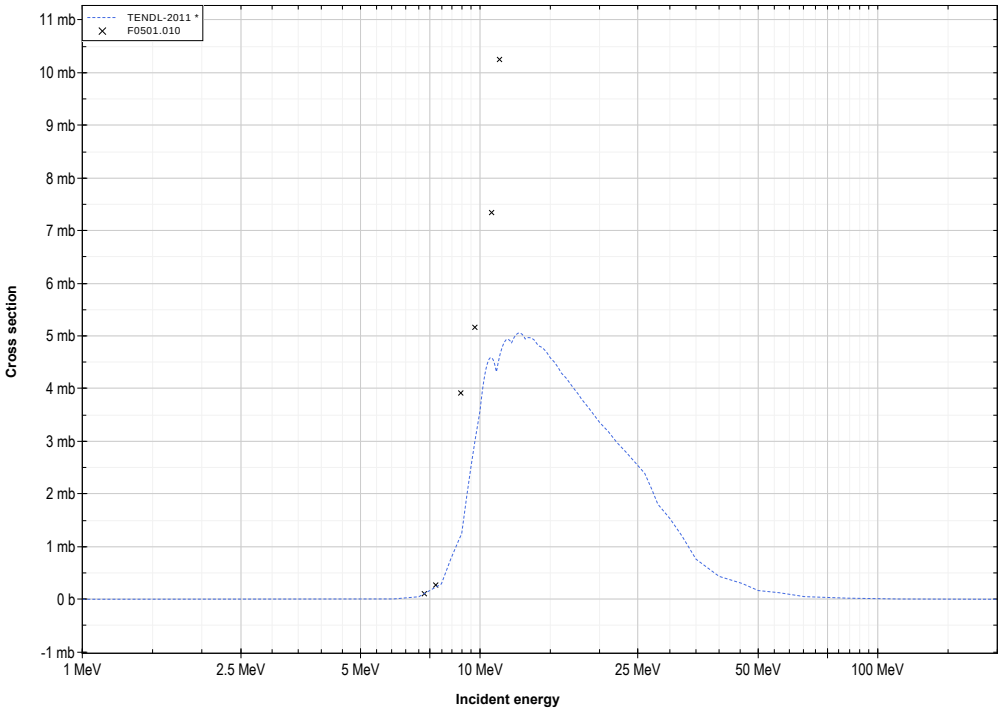
Reaction	Q-Value
Ga71(He3,2p)Ga72	-1197.53 keV

<< 31-Ga-69	**33-As-75**	34-Se-77 >>
<< MT111 (^{3}He,2p)	**MT4 (^{3}He,n) or MT5 (Br77 production)**	MT16 (^{3}He,2n) >>

As75 (^{3}He,n) log-log



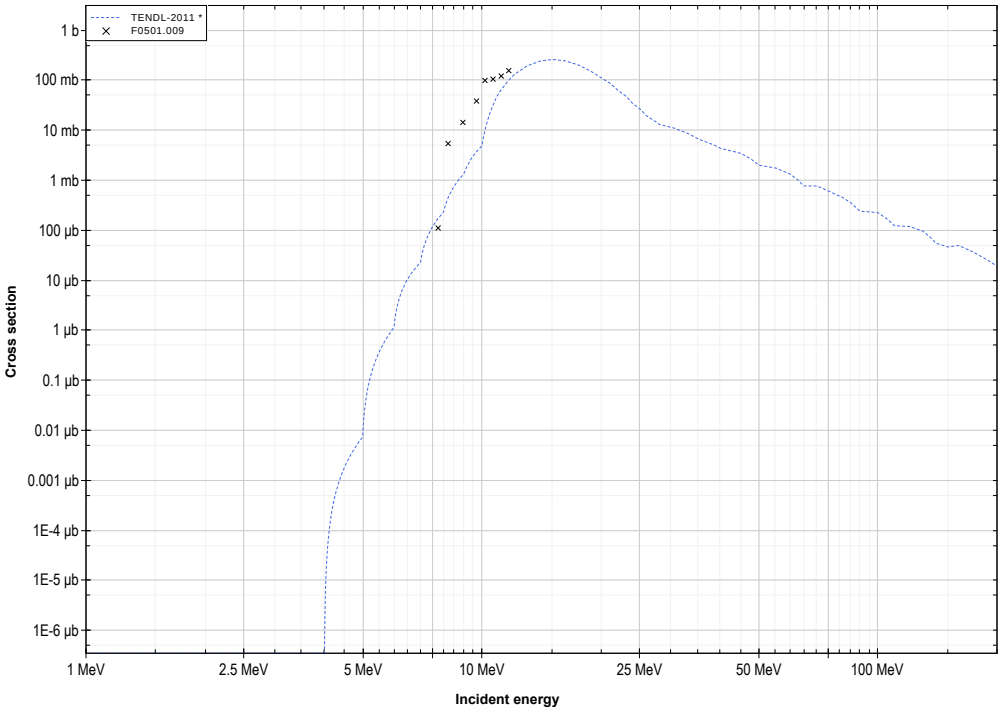
As75 (^{3}He,n) lin-log



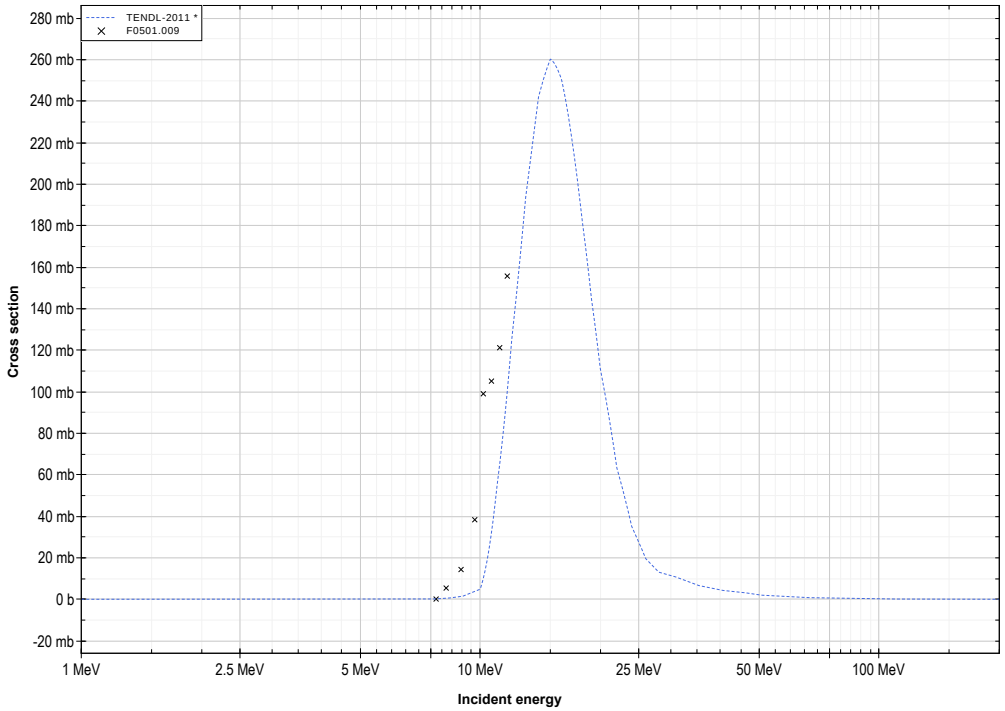
Reaction	Q-Value
As75(He3,n)Br77	7062.50 keV

<< 31-Ga-71	**33-As-75**	34-Se-76 >>
<< MT4 (^{3}He,n)	**MT16 (^{3}He,2n) or MT5 (Br76 production)**	MT17 (^{3}He,3n) >>

As75 (^{3}He,2n) log-log



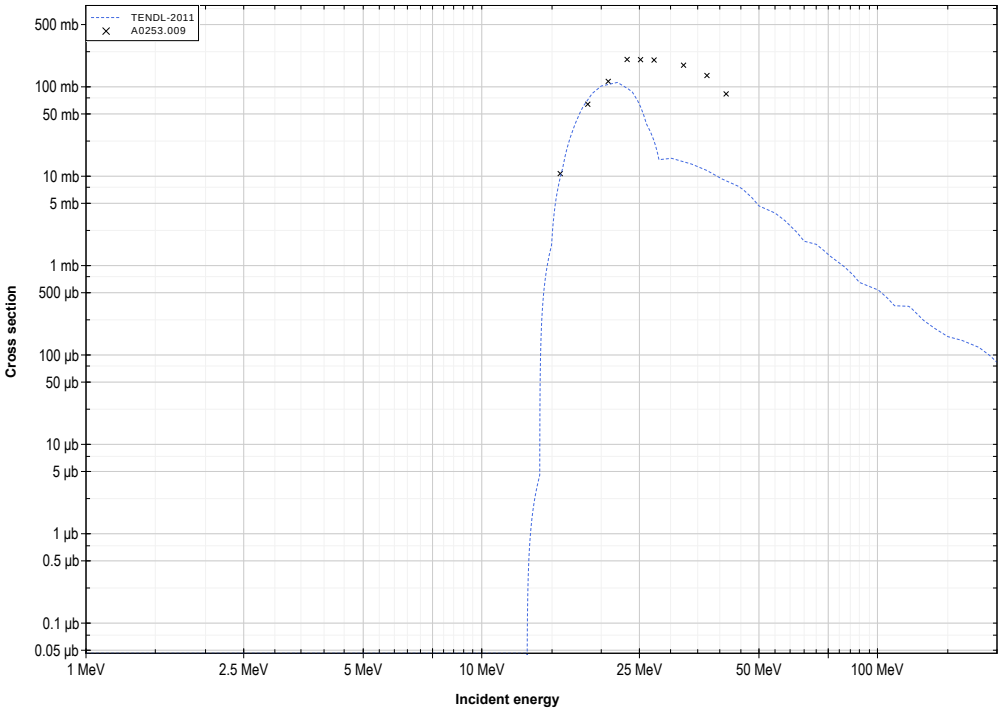
As75 (^{3}He,2n) lin-log



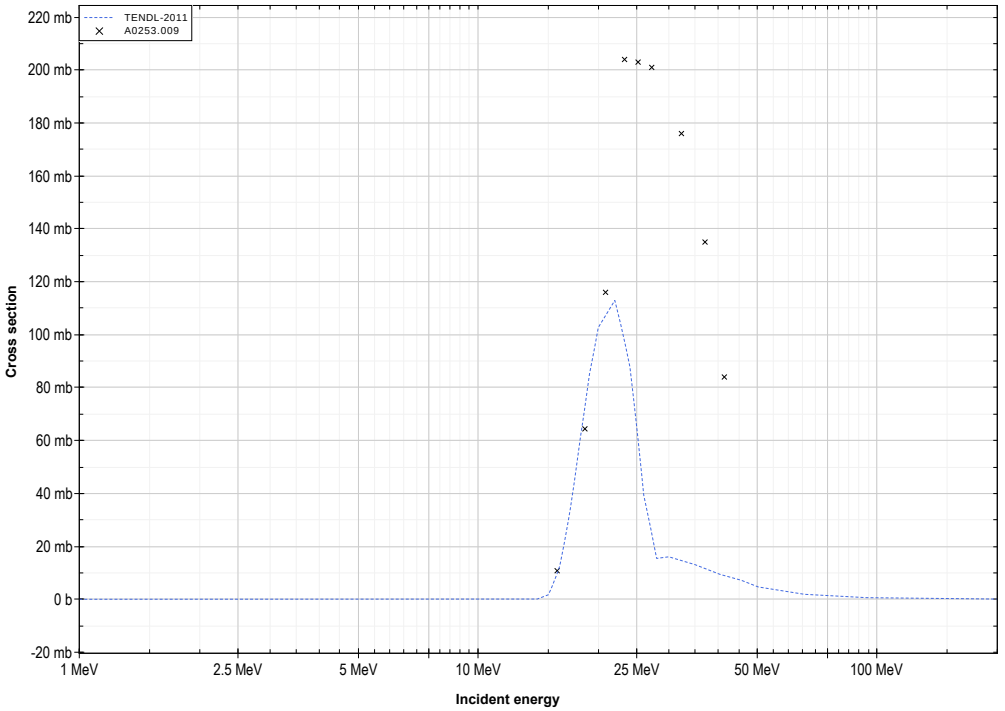
Reaction	Q-Value
As75(He3,2n)Br76	-3954.82 keV

<< 30-Zn-68	**33-As-75**	34-Se-76 >>
<< MT16 (^{3}He,2n)	**MT17 (^{3}He,3n) or MT5 (Br75 production)**	MT37 (^{3}He,4n) >>

As75 (^{3}He,3n) log-log



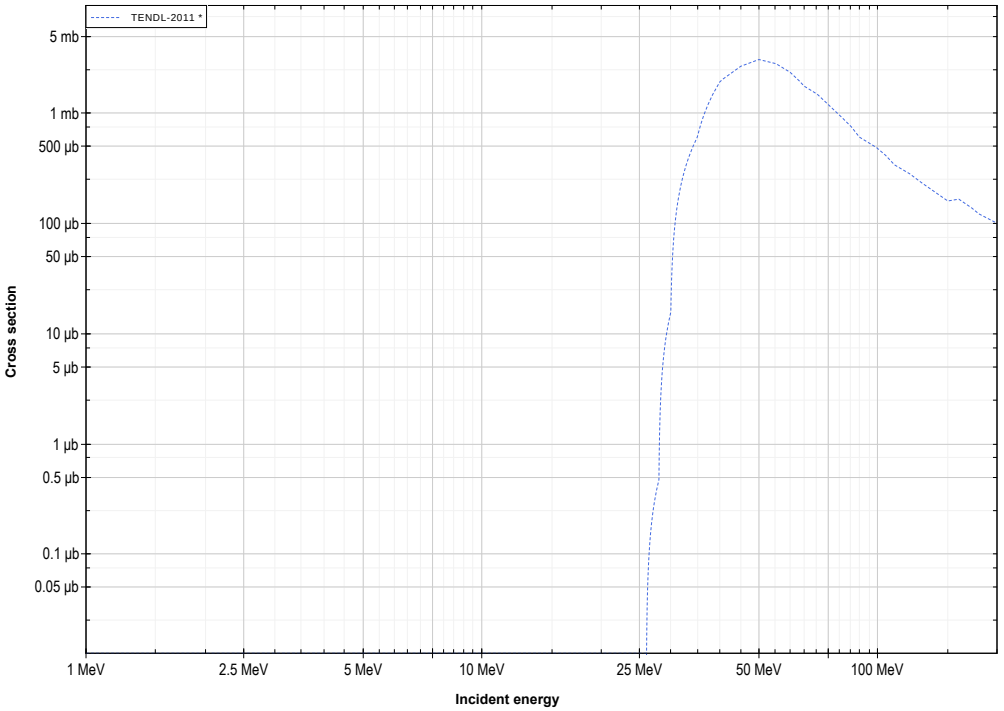
As75 (^{3}He,3n) lin-log



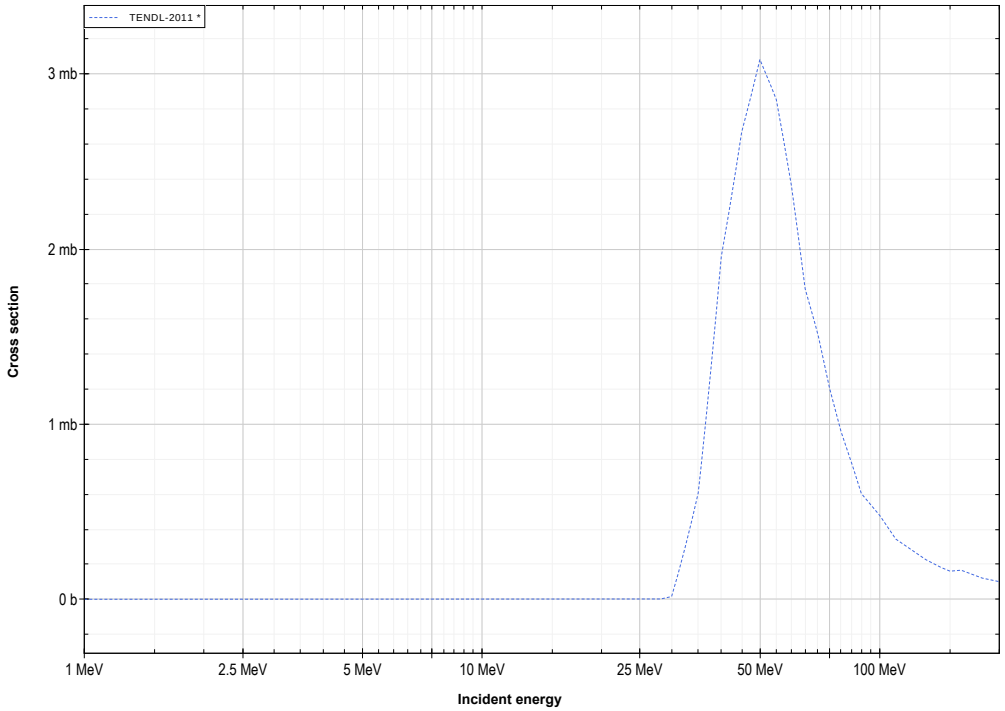
Reaction	Q-Value
As75(He3,3n)Br75	-13176.14 keV

<< 29-Cu-65	**33-As-75**	34-Se-77 >>
<< MT17 (^{3}He,3n)	**MT37 (^{3}He,4n) or MT5 (Br74 production)**	MT16 (^{3}He,2n) >>

As75 (^{3}He,4n) log-log



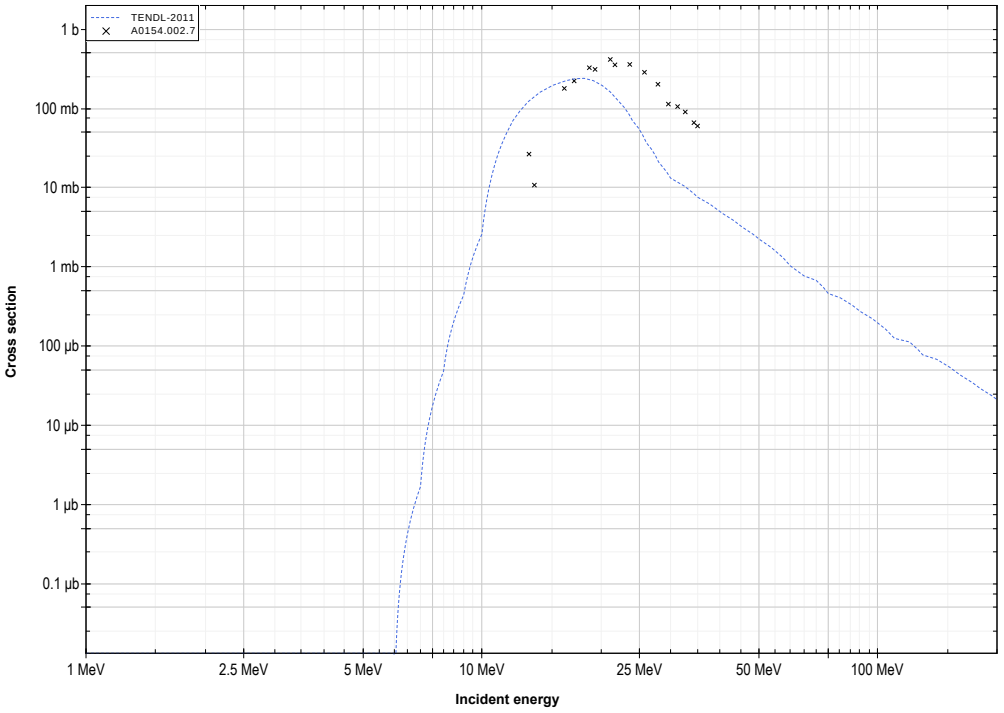
As75 (^{3}He,4n) lin-log



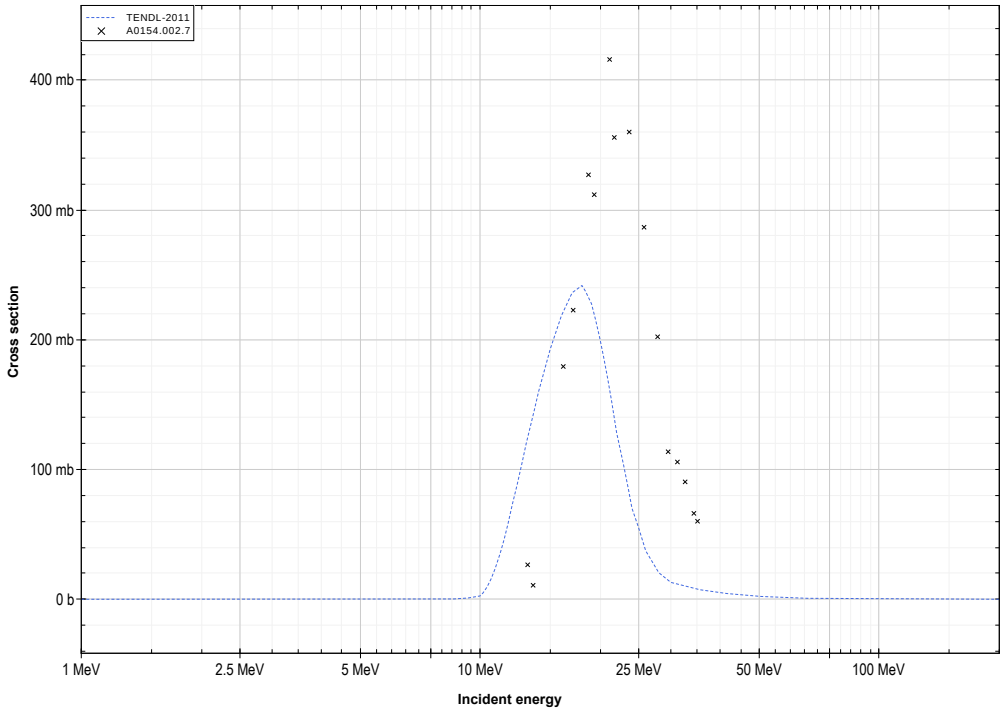
Reaction	Q-Value
As75(He3,4n)Br74	-25080.45 keV

<< 33-As-75	**34-Se-76**	35-Br-81 >>
<< MT37 (³He,4n)	**MT16 (³He,2n) or MT5 (Kr77 production)**	MT17 (³He,3n) >>

Se76 (³He,2n) log-log



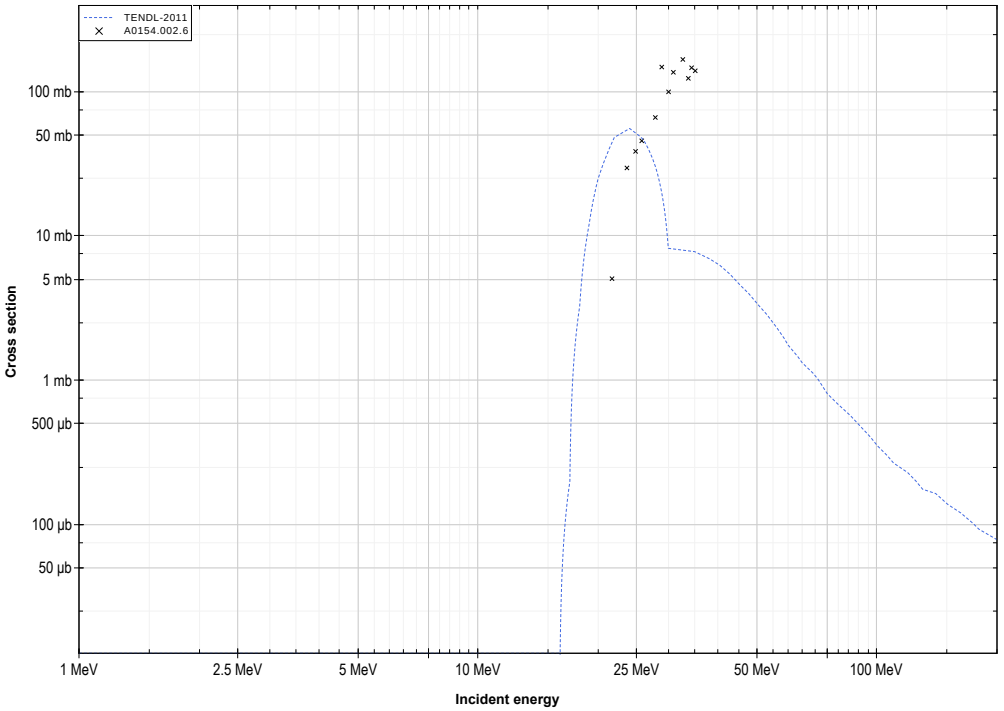
Se76 (³He,2n) lin-log



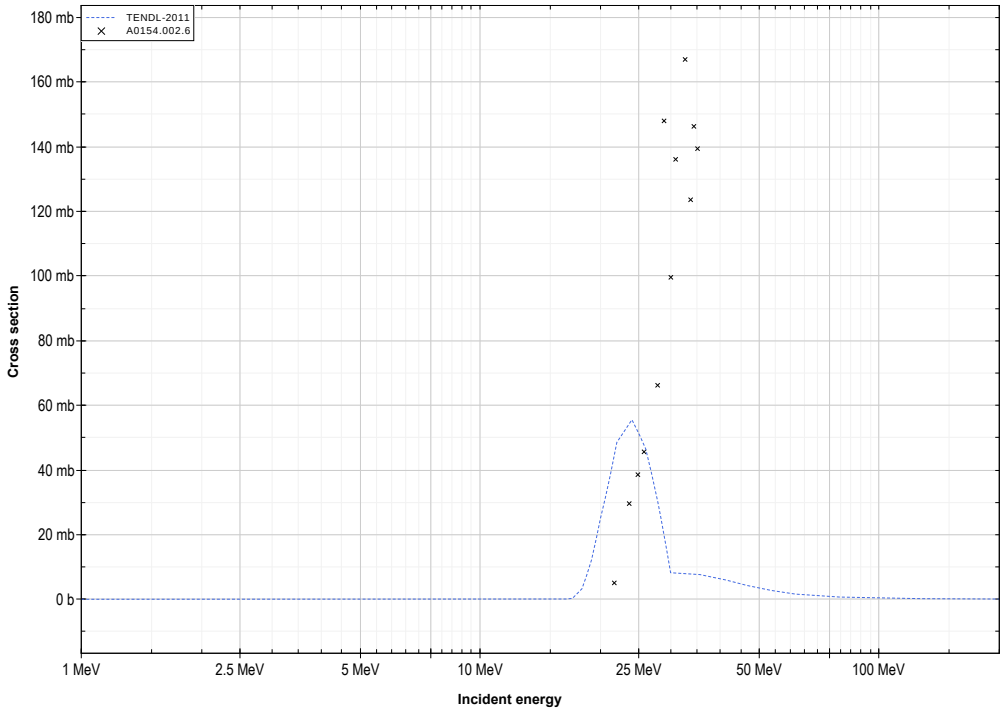
Reaction	Q-Value
Se76(He3,2n)Kr77	-6294.12 keV

<< 33-As-75	**34-Se-76**	34-Se-77 >>
<< MT16 (³He,2n)	**MT17 (³He,3n) or MT5 (Kr76 production)**	MT28 (³He,n+p) >>

Se76 (³He,3n) log-log



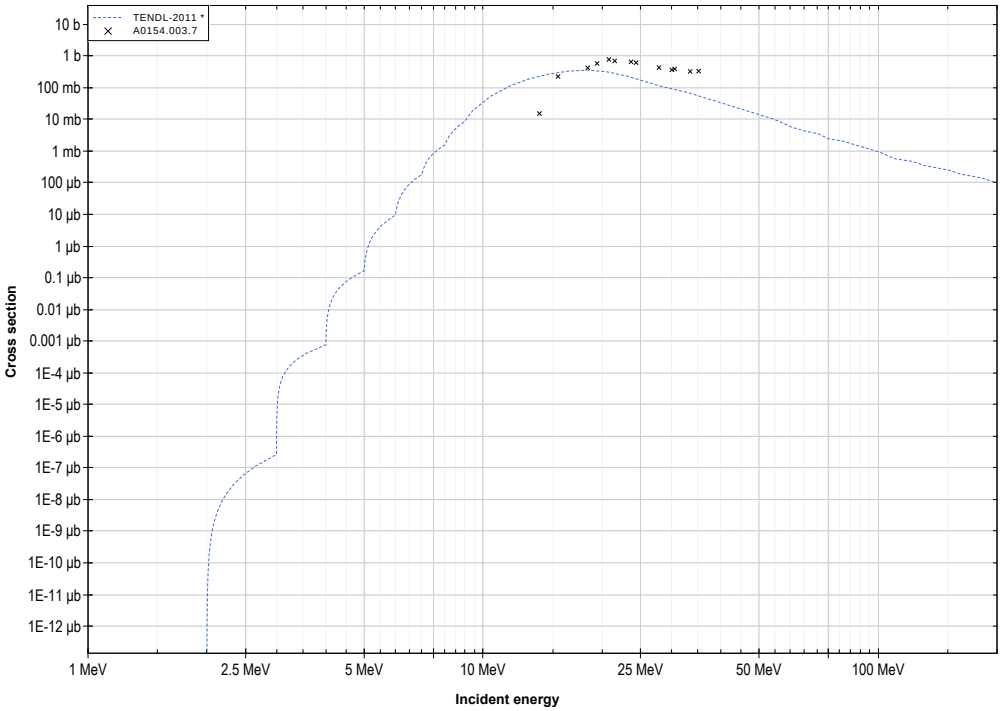
Se76 (³He,3n) lin-log



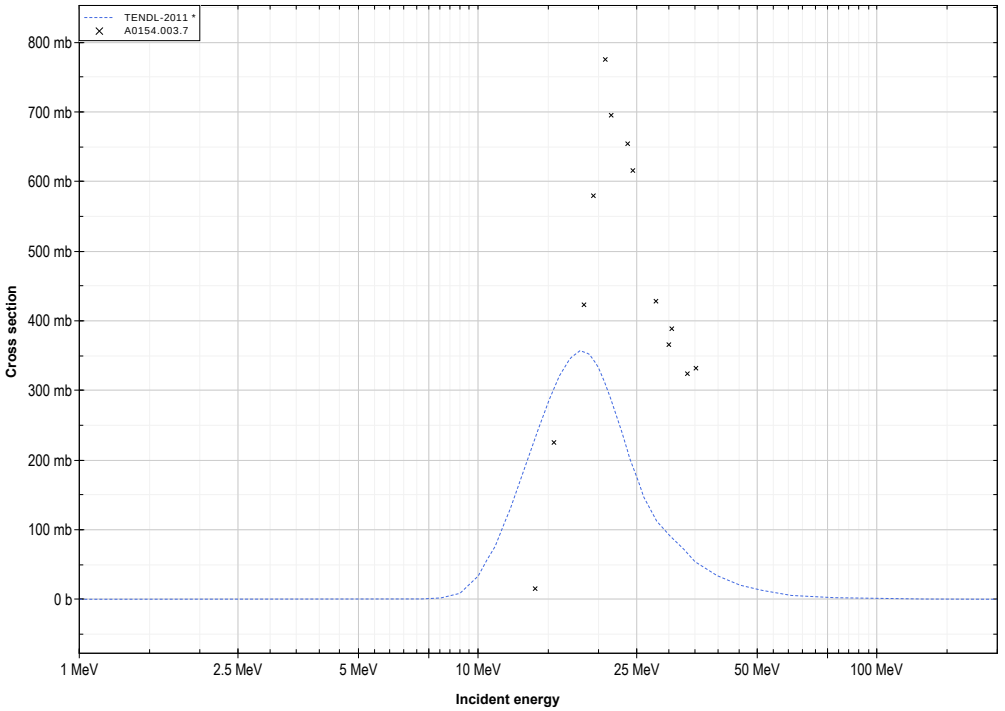
Reaction	Q-Value
Se76(He3,3n)Kr76	-15520.84 keV

<< 30-Zn-66	**34-Se-76**	34-Se-77 >>
<< MT17 (^{3}He,3n)	**MT28 (^{3}He,n+p) or MT5 (Br77 production)**	MT41 (^{3}He,2n+p) >>

Se76 (^{3}He,n+p) log-log



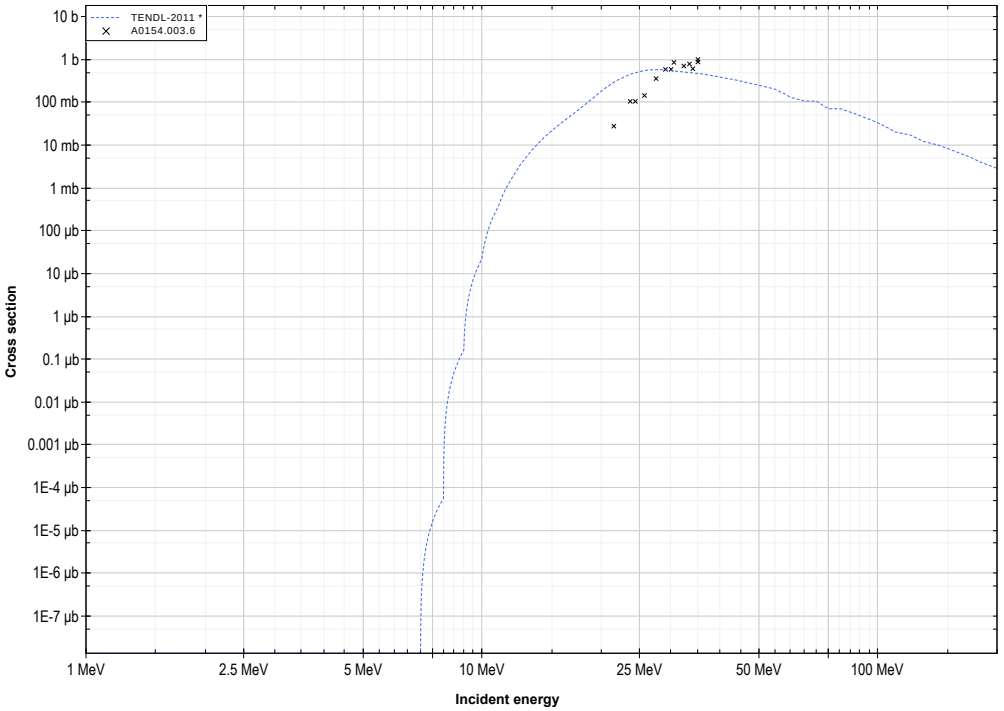
Se76 (^{3}He,n+p) lin-log



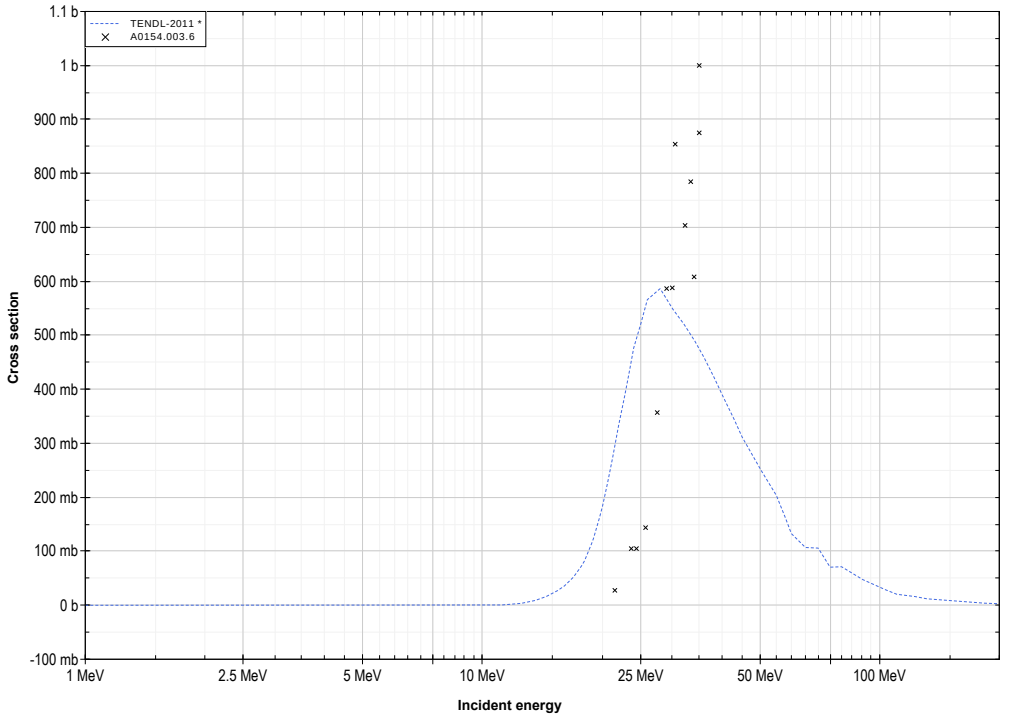
Reaction	Q-Value
Se76(He3,d)Br77	-221.61 keV
Se76(He3,n+p)Br77	-2446.17 keV

	34-Se-76	34-Se-77 >>
<< MT28 (^{3}He,n+p)	**MT41 (^{3}He,2n+p) or MT5 (Br76 production)**	MT42 (^{3}He,3n+p) >>

Se76 (^{3}He,2n+p) log-log



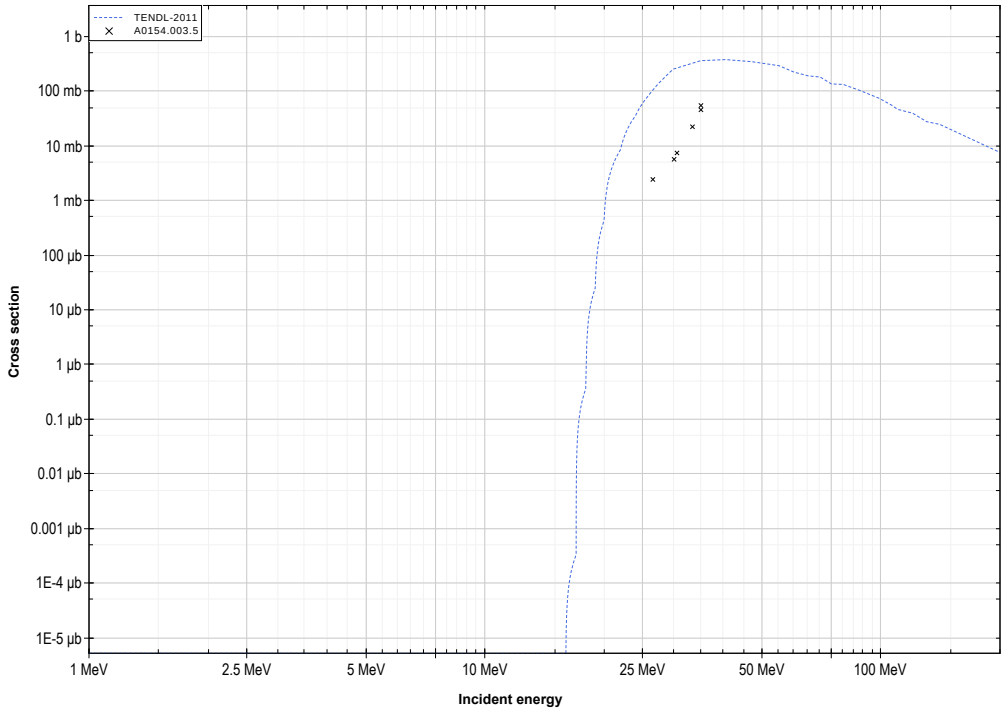
Se76 (^{3}He,2n+p) lin-log



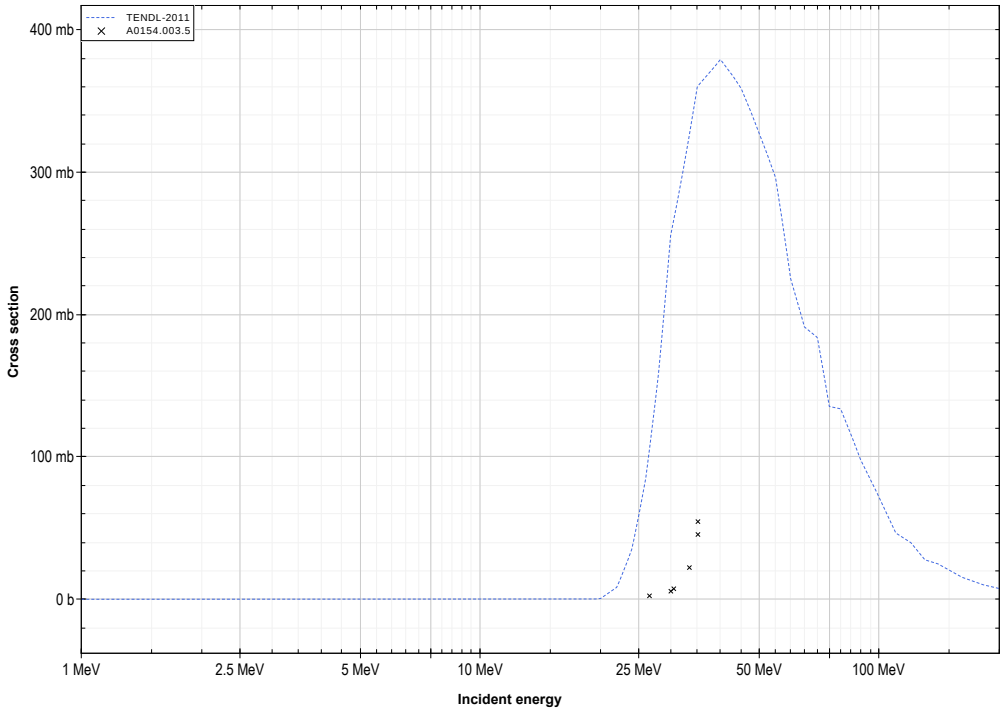
Reaction	Q-Value
Se76(He3,t)Br76	-4981.69 keV
Se76(He3,n+d)Br76	-11238.92 keV
Se76(He3,2n+p)Br76	-13463.49 keV

<< 29-Cu-63	**34-Se-76**	34-Se-77 >>
<< MT41 (³He,2n+p)	**MT42 (³He,3n+p) or MT5 (Br75 production)**	MT107 (³He,α) >>

Se76 (³He,3n+p) log-log



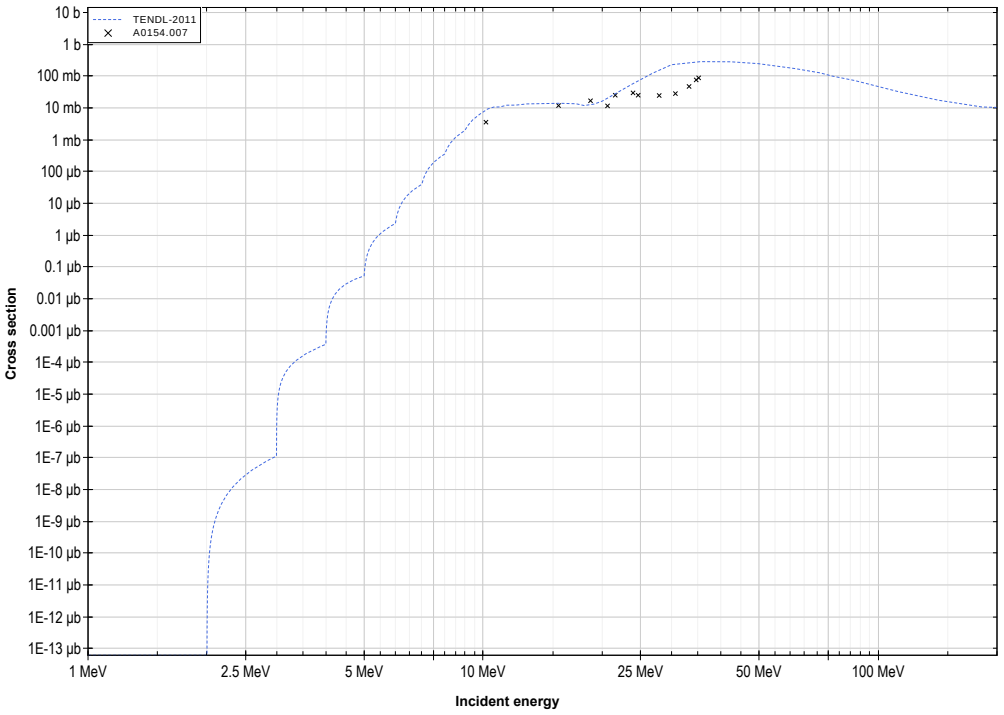
Se76 (³He,3n+p) lin-log



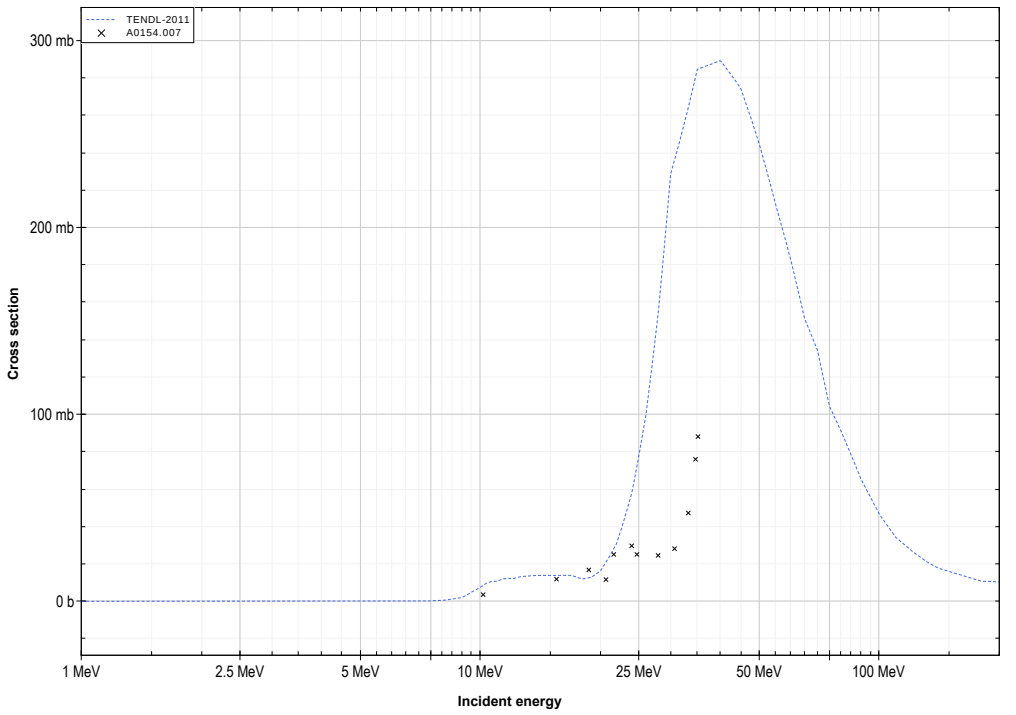
Reaction	Q-Value
Se76(He3,n+t)Br75	-14203.01 keV
Se76(He3,2n+d)Br75	-20460.24 keV
Se76(He3,3n+p)Br75	-22684.81 keV

<< 31-Ga-69	**34-Se-76**	40-Zr-90 >>
<< MT42 (³He,3n+p)	**MT107 (³He,α) or MT5 (Se75 production)**	MT4 (³He,n) >>

Se76 (³He,α) log-log



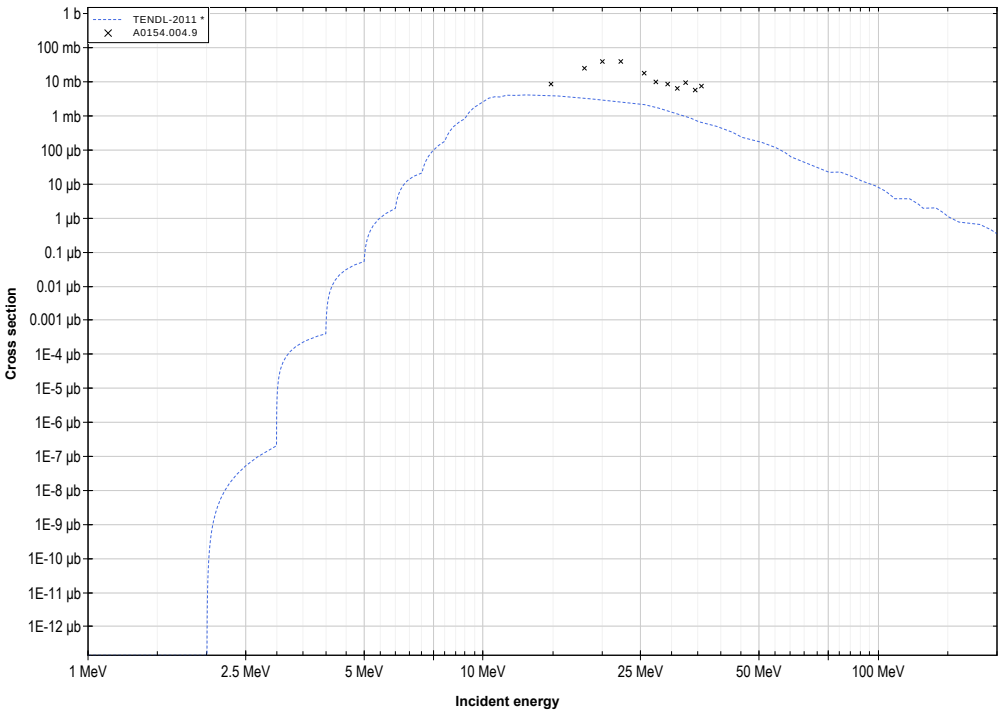
Se76 (³He,α) lin-log



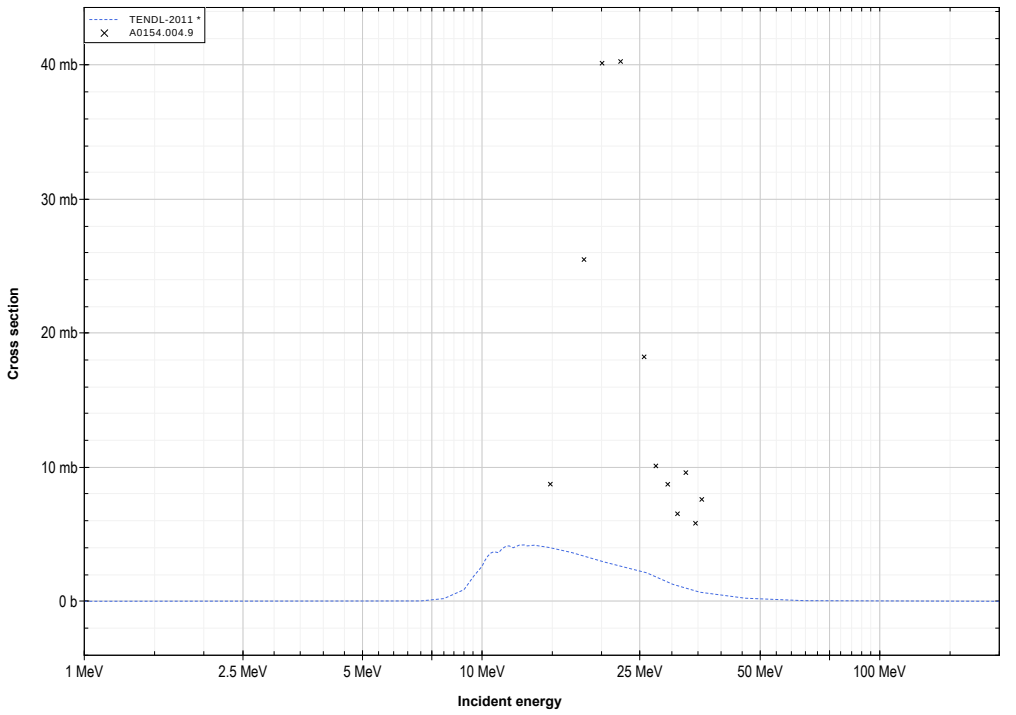
Reaction	Q-Value
Se76(He3,α)Se75	9423.20 keV
Se76(He3,p+t)Se75	-10390.66 keV
Se76(He3,n+He3)Se75	-11154.42 keV
Se76(He3,2d)Se75	-14423.33 keV
Se76(He3,n+p+d)Se75	-16647.89 keV
Se76(He3,2n+2p)Se75	-18872.46 keV

<< 33-As-75	**34-Se-77**	41-Nb-93 >>
<< MT107 (³He,α)	**MT4 (³He,n) or MT5 (Kr79 production)**	MT17 (³He,3n) >>

Se77 (³He,n) log-log



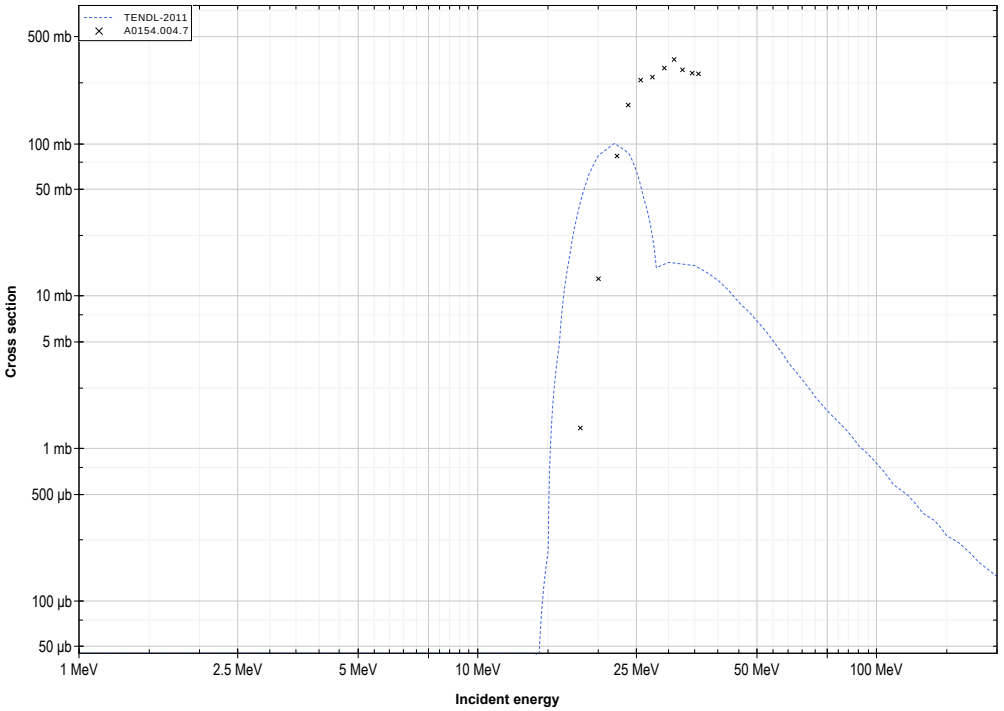
Se77 (³He,n) lin-log



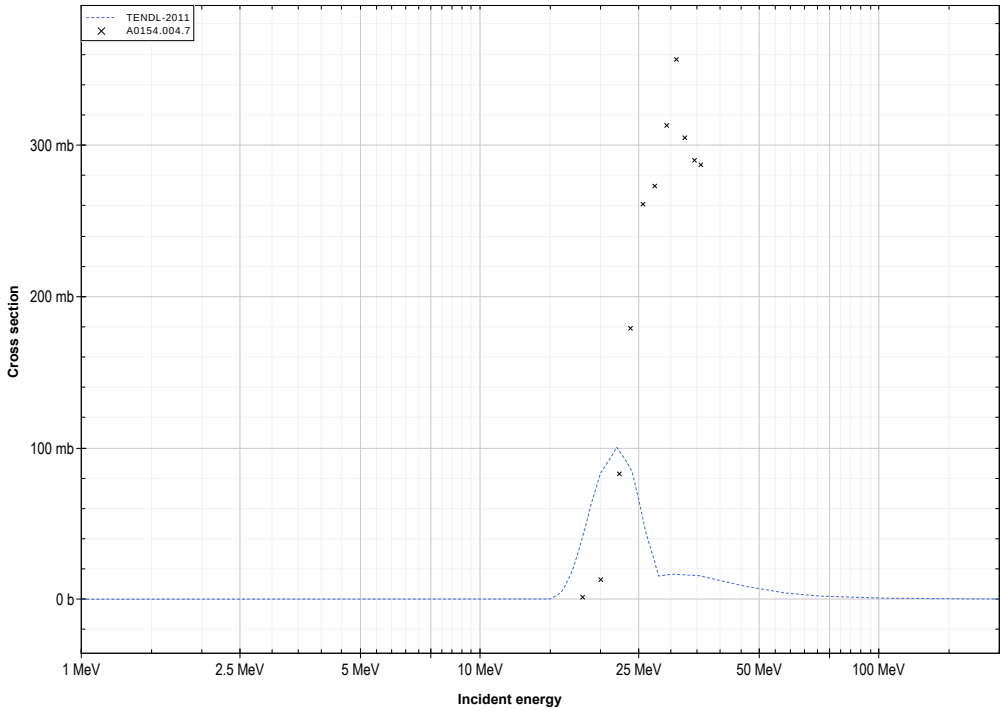
Reaction	Q-Value
Se77(He3,n)Kr79	6703.30 keV

<< 34-Se-76	**34-Se-77**	36-Kr-82 >>
<< MT4 (^{3}He,n)	**MT17 (^{3}He,3n) or MT5 (Kr77 production)**	MT22 (^{3}He,n+α) >>

Se77 (^{3}He,3n) log-log



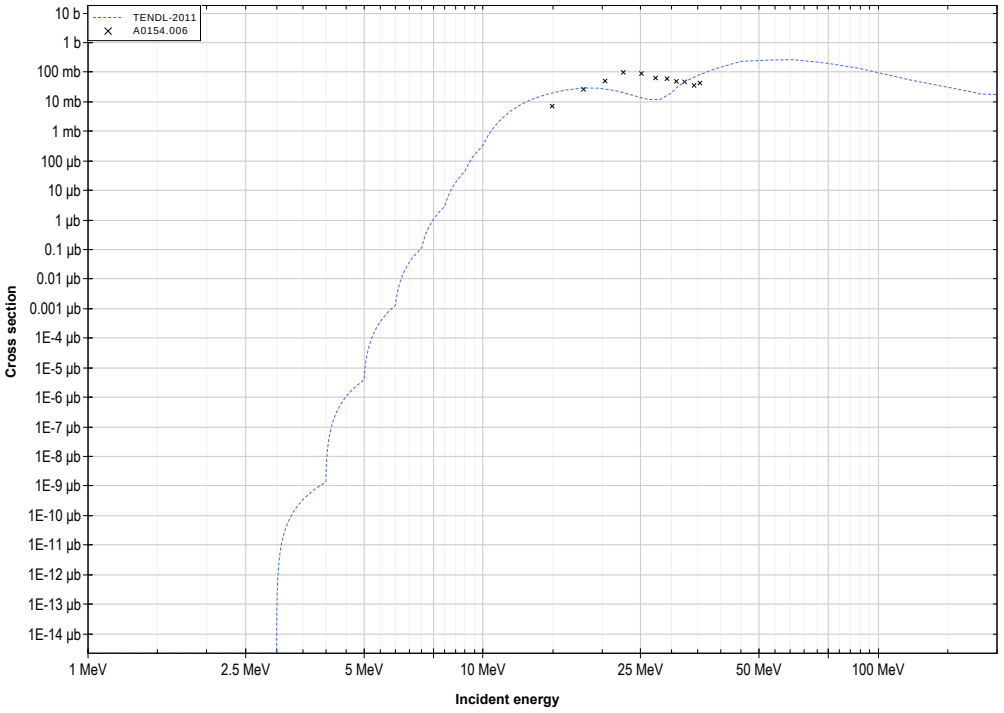
Se77 (^{3}He,3n) lin-log



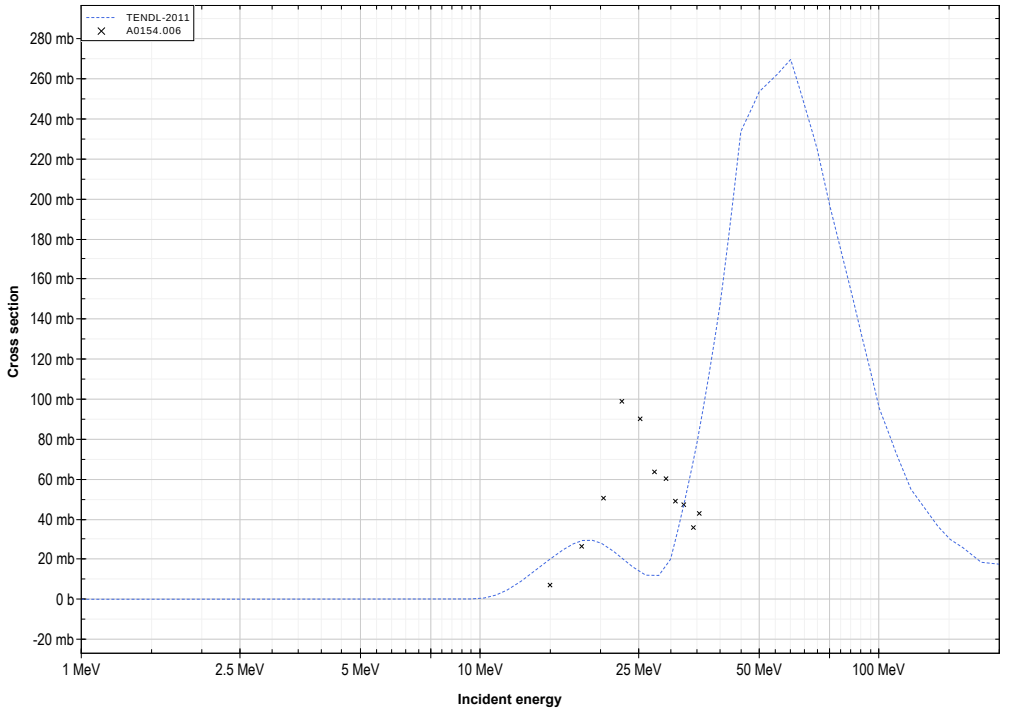
Reaction	Q-Value
Se77(He3,3n)Kr77	-13712.94 keV

<< 31-Ga-69	**34-Se-77**	
<< MT17 (³He,3n)	**MT22 (³He,n+α) or MT5 (Se75 production)**	MT28 (³He,n+p) >>

Se77 (³He,n+α) log-log



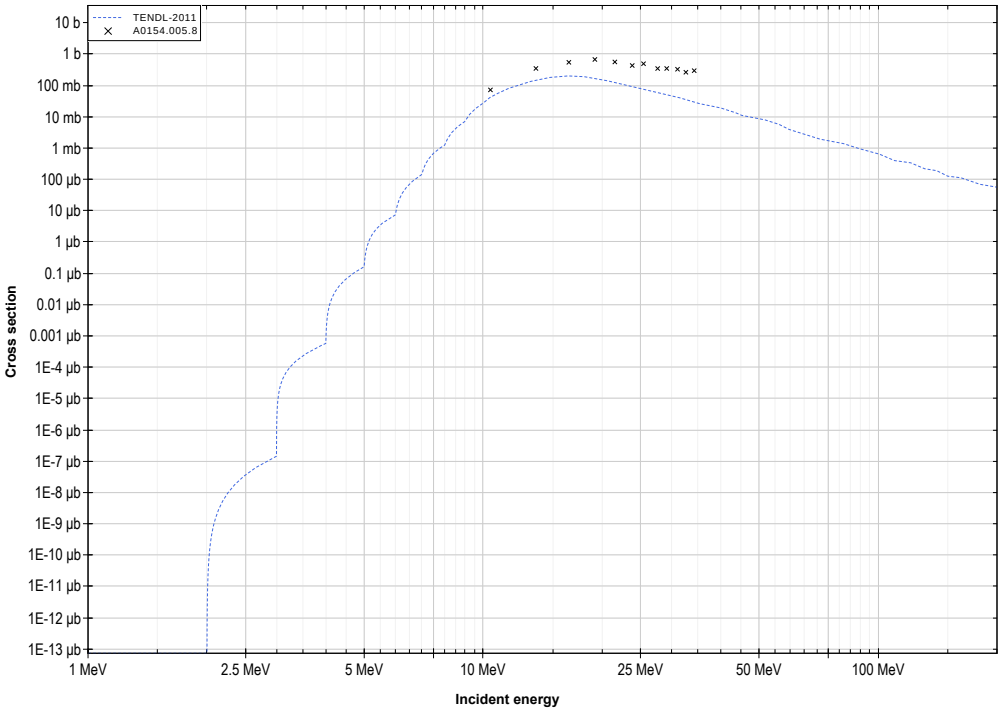
Se77 (³He,n+α) lin-log



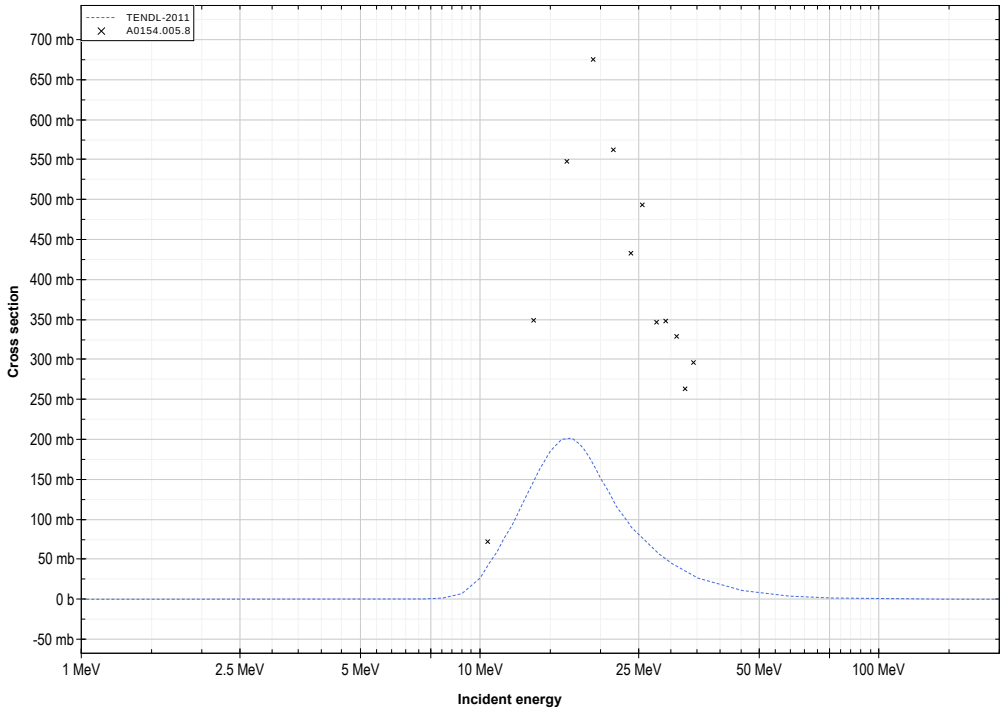
Reaction	Q-Value
Se77(He3,n+α)Se75	2004.38 keV
Se77(He3,d+t)Se75	-15584.91 keV
Se77(He3,n+p+t)Se75	-17809.48 keV
Se77(He3,2n+He3)Se75	-18573.23 keV
Se77(He3,n+2d)Se75	-21842.15 keV
Se77(He3,2n+p+d)Se75	-24066.71 keV
Se77(He3,3n+2p)Se75	-26291.28 keV

<< 34-Se-76	**34-Se-77**	62-Sm-147 >>
<< MT22 (^{3}He,n+α)	**MT28 (^{3}He,n+p) or MT5 (Br78 production)**	MT37 (^{3}He,4n) >>

Se77 (^{3}He,n+p) log-log



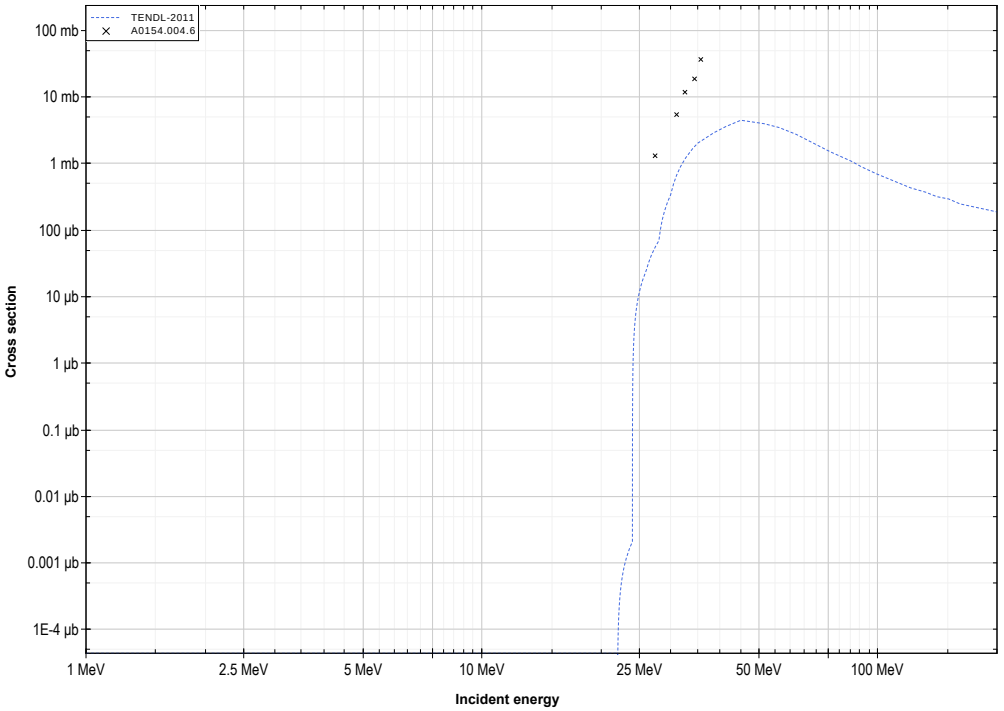
Se77 (^{3}He,n+p) lin-log



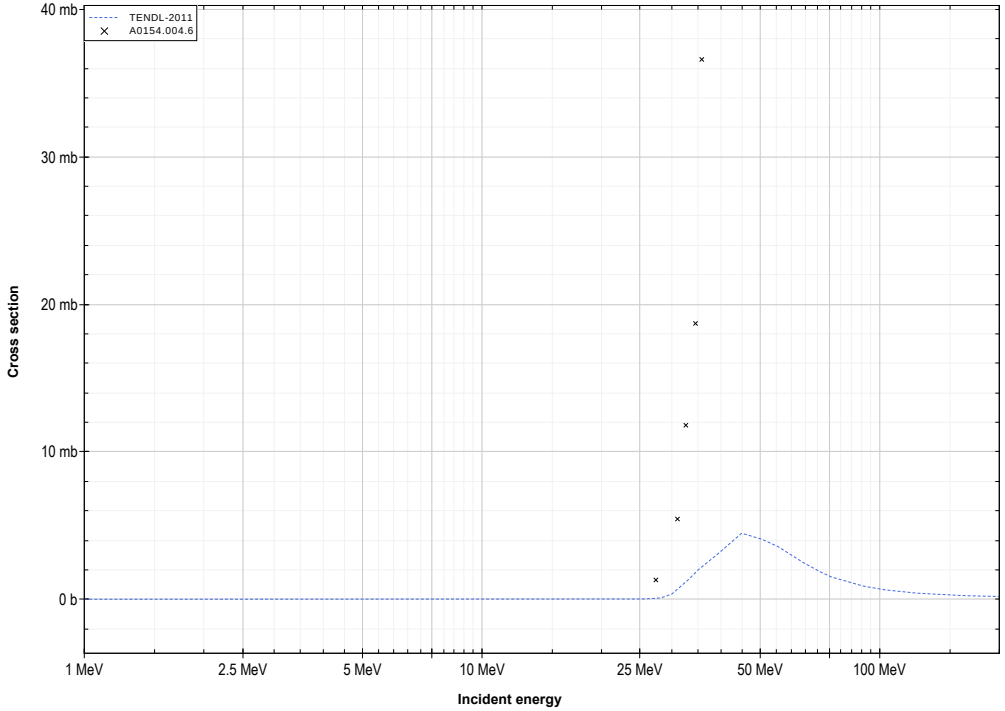
Reaction	Q-Value
Se77(He3,d)Br78	647.89 keV
Se77(He3,n+p)Br78	-1576.67 keV

<< 33-As-75	**34-Se-77**	36-Kr-83 >>
<< MT28 (^{3}He,n+p)	**MT37 (^{3}He,4n) or MT5 (Kr76 production)**	MT41 (^{3}He,2n+p) >>

Se77 (^{3}He,4n) log-log



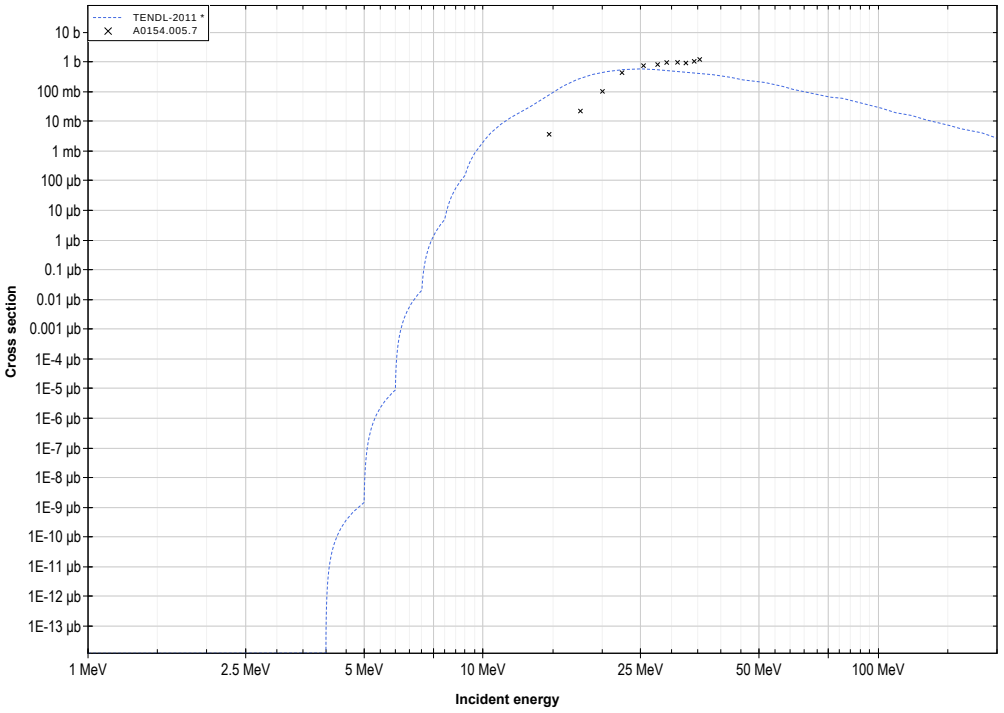
Se77 (^{3}He,4n) lin-log



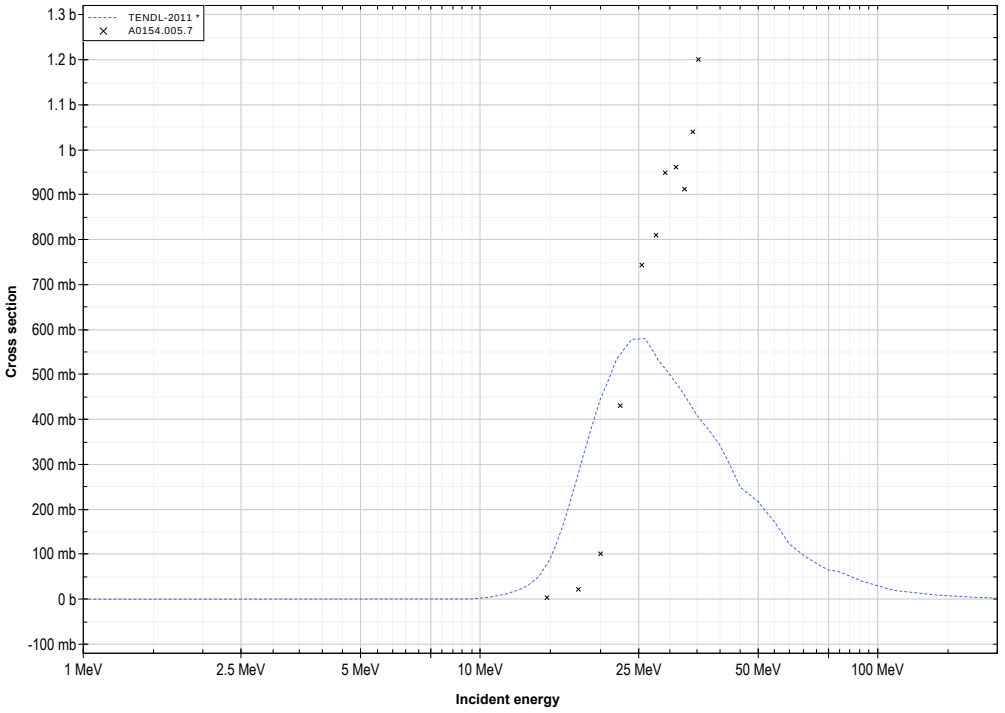
Reaction	Q-Value
Se77(He3,4n)Kr76	-22939.65 keV

<< 34-Se-76	**34-Se-77**	47-Ag-109 >>
<< MT37 (^{3}He,4n)	**MT41 (^{3}He,2n+p) or MT5 (Br77 production)**	MT42 (^{3}He,3n+p) >>

Se77 (^{3}He,2n+p) log-log



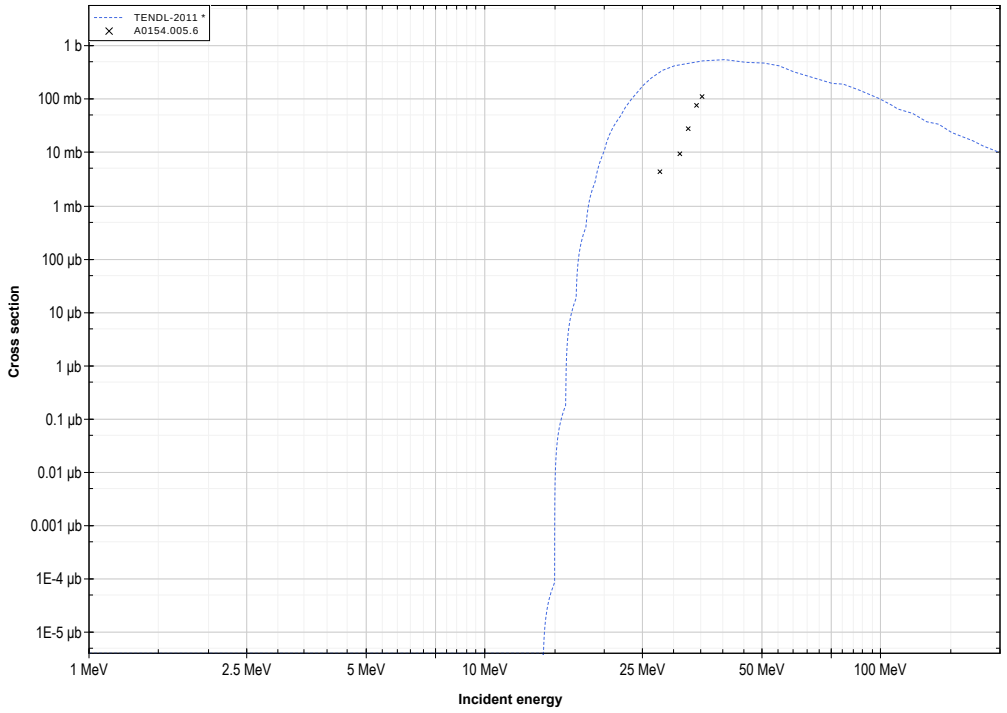
Se77 (^{3}He,2n+p) lin-log



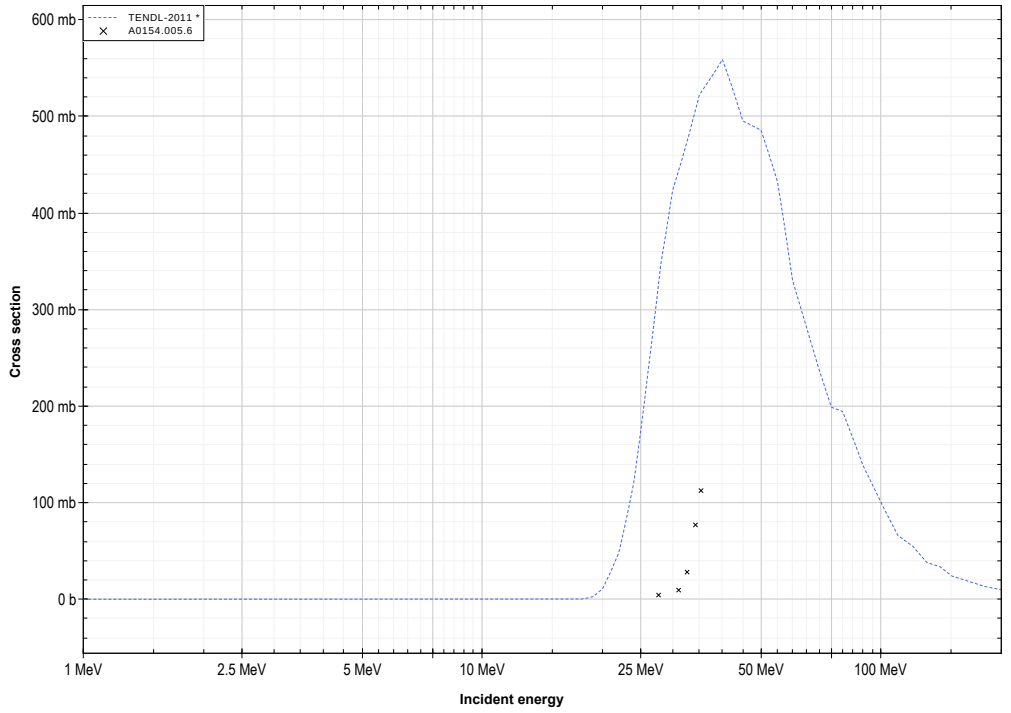
Reaction	Q-Value
Se77(He3,t)Br77	-1383.19 keV
Se77(He3,n+d)Br77	-7640.42 keV
Se77(He3,2n+p)Br77	-9864.99 keV

<< 34-Se-76	**34-Se-77**	
<< MT41 (³He,2n+p)	**MT42 (³He,3n+p) or MT5 (Br76 production)**	MT16 (³He,2n) >>

Se77 (³He,3n+p) log-log



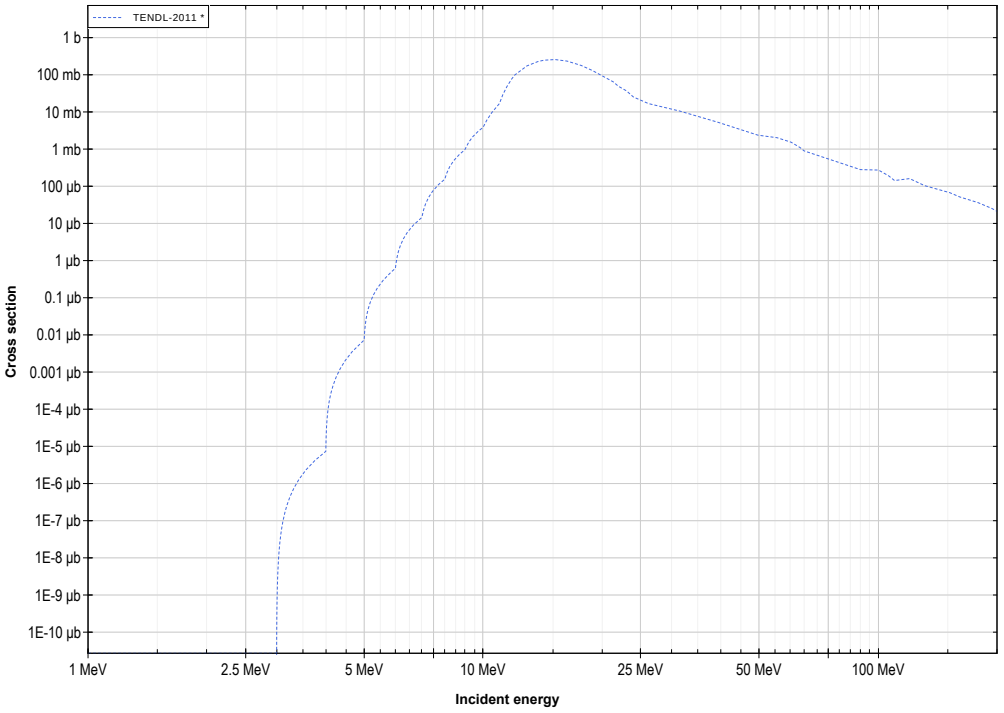
Se77 (³He,3n+p) lin-log



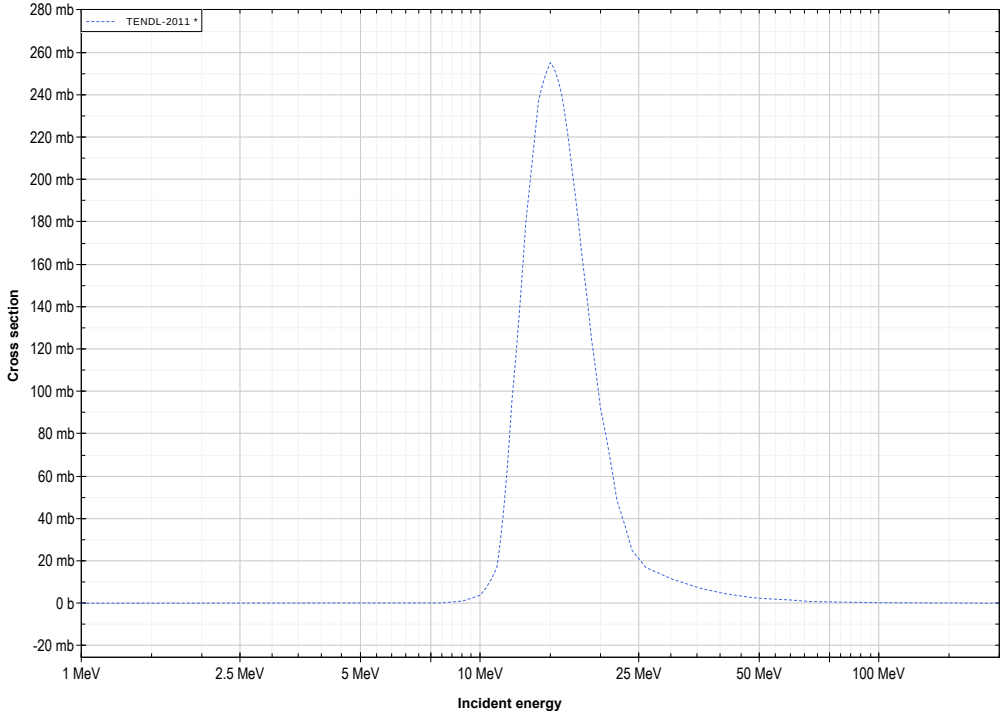
Reaction	Q-Value
Se77(He3,n+t)Br76	-12400.51 keV
Se77(He3,2n+d)Br76	-18657.74 keV
Se77(He3,3n+p)Br76	-20882.31 keV

<< 34-Se-76	**35-Br-81**	36-Kr-82 >>
<< MT42 (^{3}He,3n+p)	**MT16 (^{3}He,2n) or MT5 (Rb82 production)**	MT16 (^{3}He,2n) >>

Br81 (^{3}He,2n) log-log



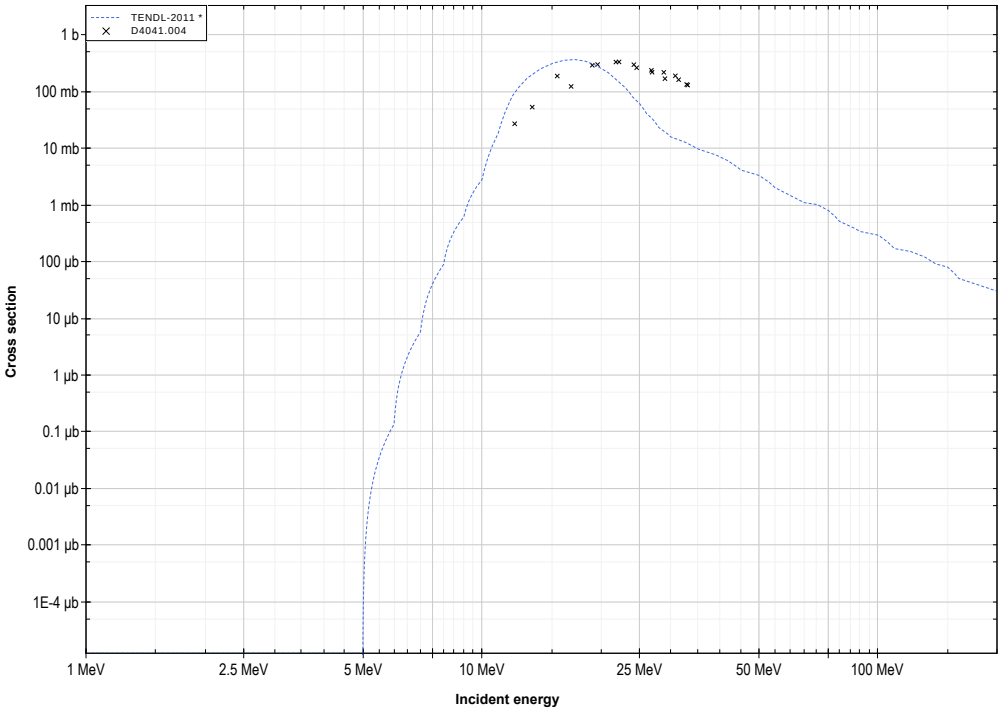
Br81 (^{3}He,2n) lin-log



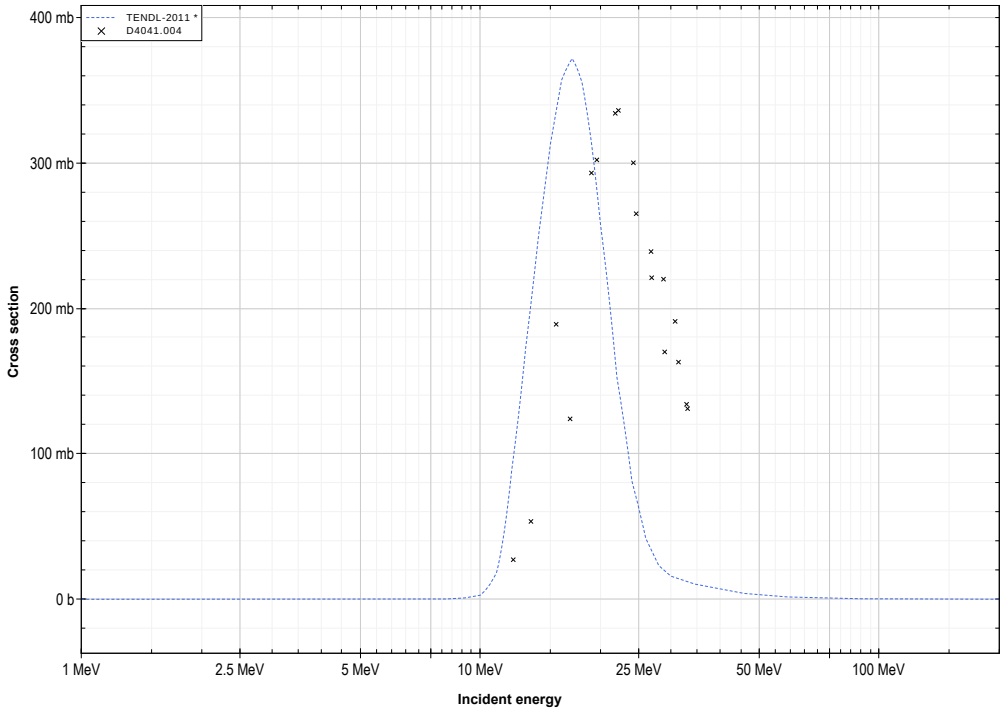
Reaction	Q-Value
Br81(He3,2n)Rb82	-2998.02 keV

<< 35-Br-81	**36-Kr-82**	41-Nb-93 >>
<< MT16 (^{3}He,2n)	**MT16 (^{3}He,2n) or MT5 (Sr83 production)**	MT17 (^{3}He,3n) >>

Kr82 (^{3}He,2n) log-log



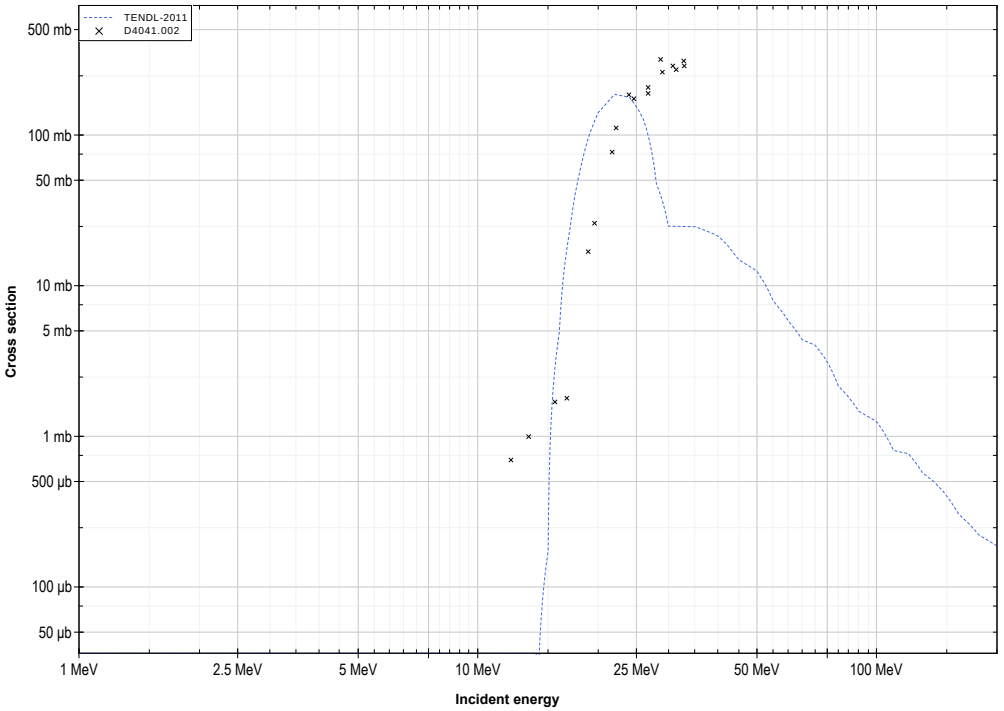
Kr82 (^{3}He,2n) lin-log



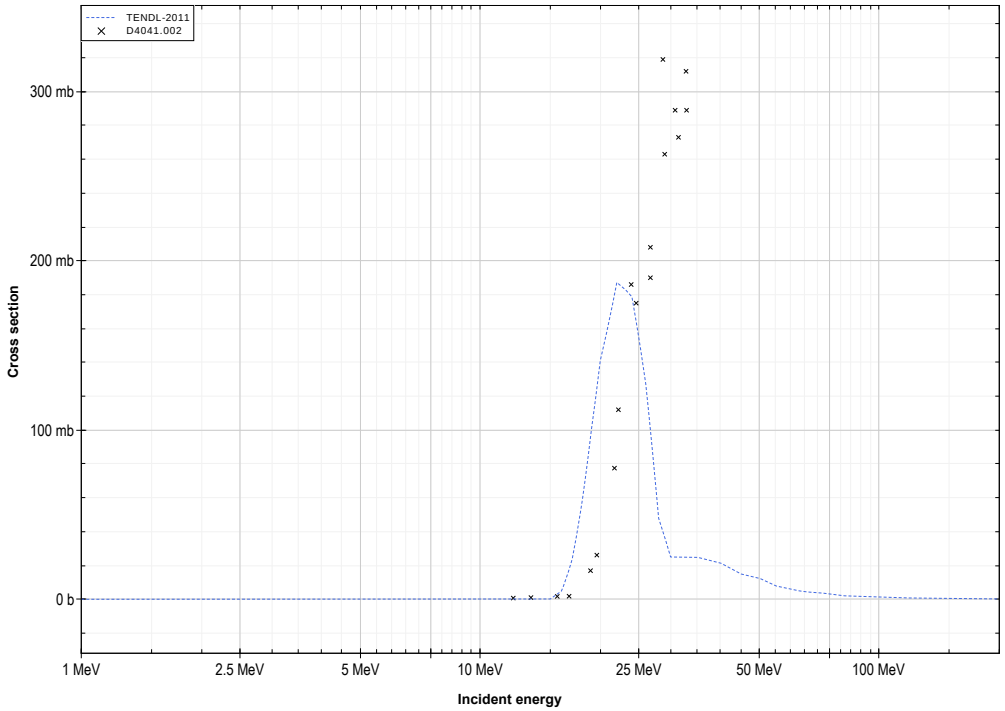
Reaction	Q-Value
Kr82(He3,2n)Sr83	-5005.92 keV

<< 34-Se-77	**36-Kr-82**	36-Kr-83 >>
<< MT16 (^{3}He,2n)	**MT17 (^{3}He,3n) or MT5 (Sr82 production)**	MT17 (^{3}He,3n) >>

Kr82 (^{3}He,3n) log-log



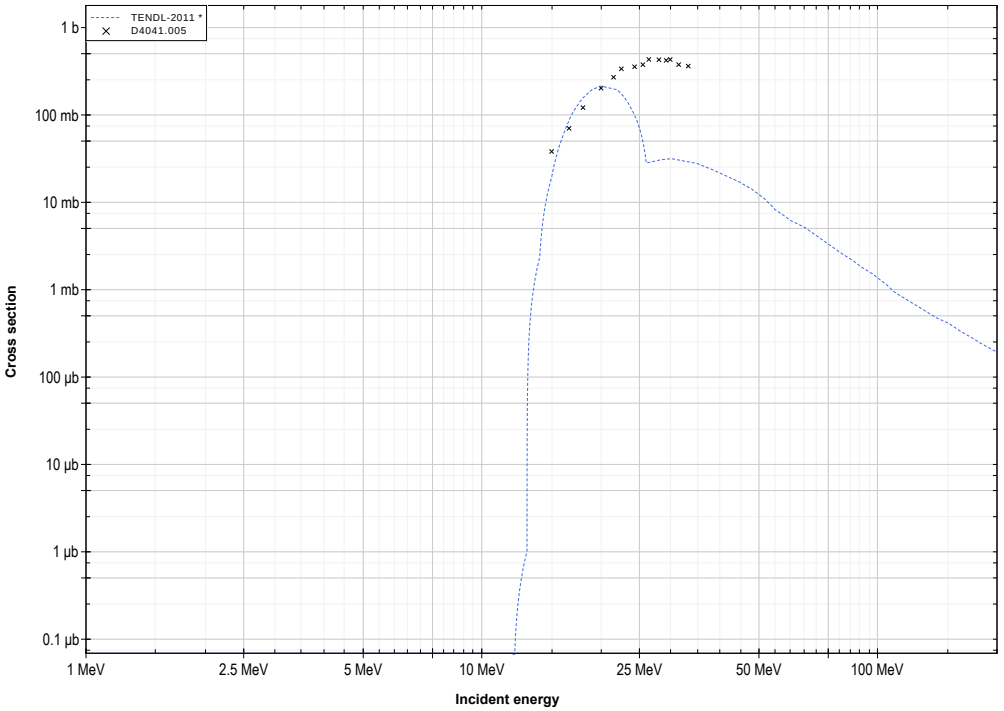
Kr82 (^{3}He,3n) lin-log



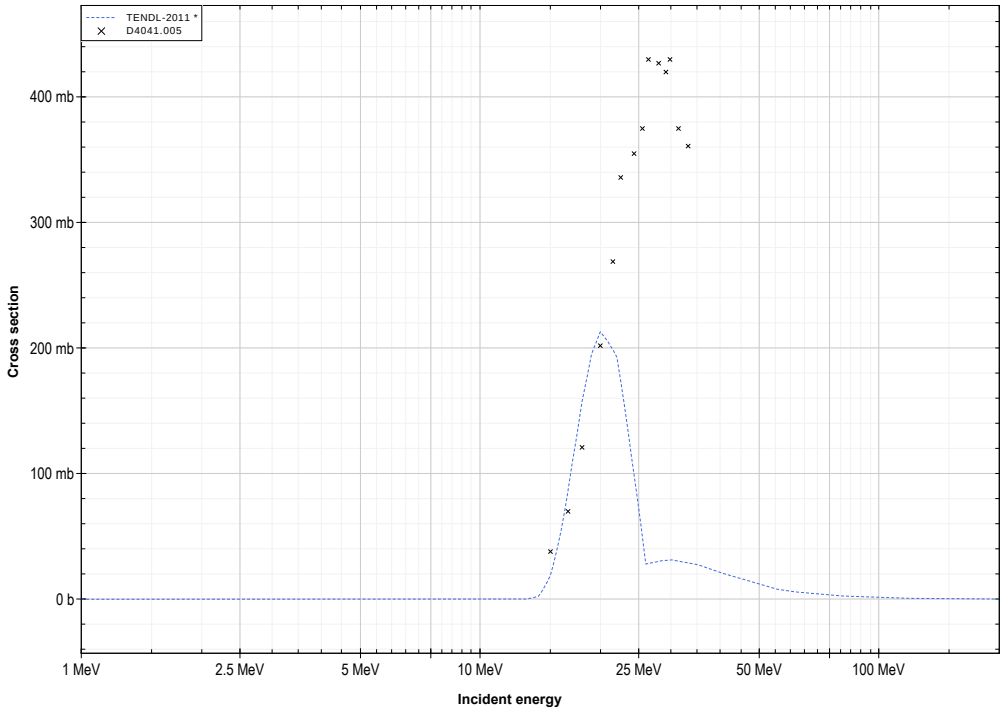
Reaction	Q-Value
Kr82(He3,3n)Sr82	-13864.24 keV

<< 36-Kr-82	**36-Kr-83**	41-Nb-93 >>
<< MT17 (^{3}He,3n)	**MT17 (^{3}He,3n) or MT5 (Sr83 production)**	MT37 (^{3}He,4n) >>

Kr83 (^{3}He,3n) log-log



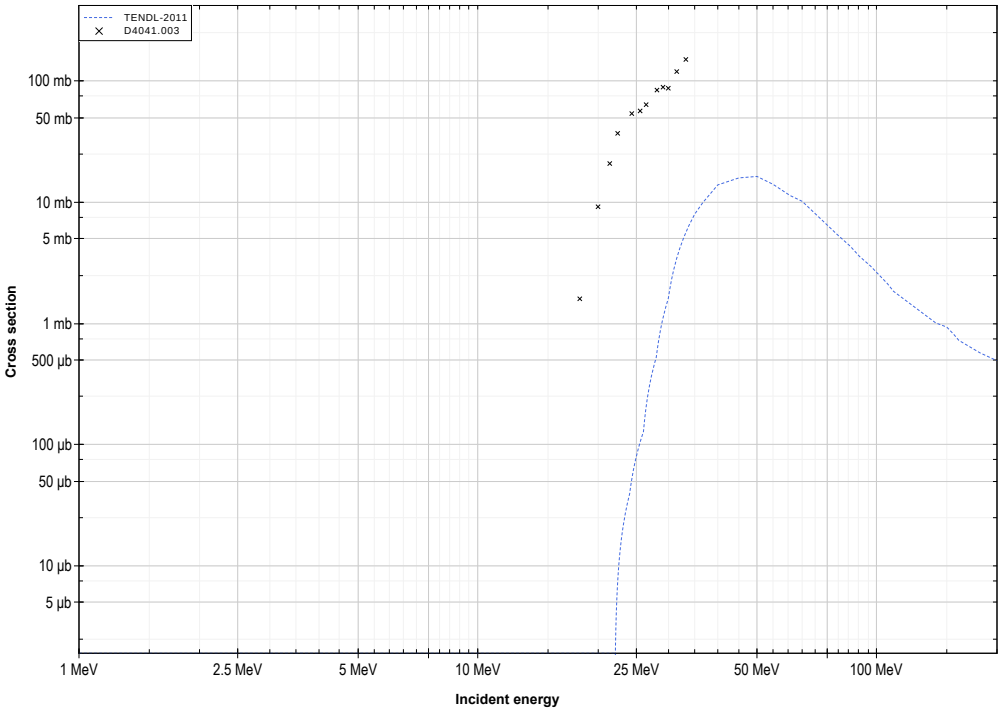
Kr83 (^{3}He,3n) lin-log



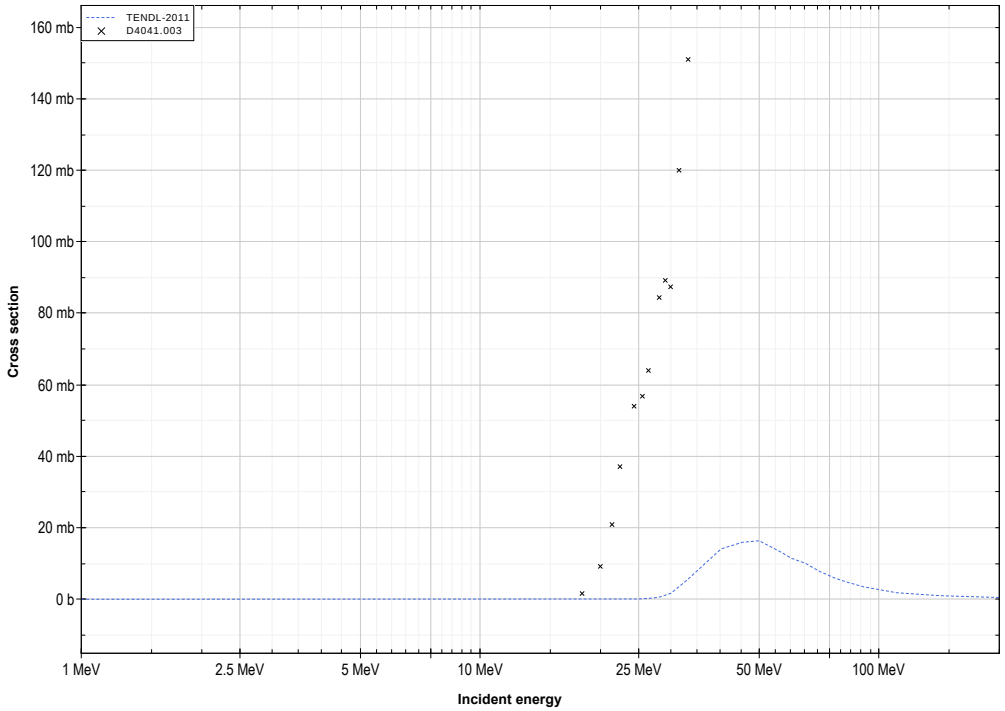
Reaction	Q-Value
Kr83(He3,3n)Sr83	-12469.44 keV

<< 34-Se-77	**36-Kr-83**	41-Nb-93 >>
<< MT17 (^{3}He,3n)	**MT37 (^{3}He,4n) or MT5 (Sr82 production)**	MT107 (^{3}He,α) >>

Kr83 (^{3}He,4n) log-log



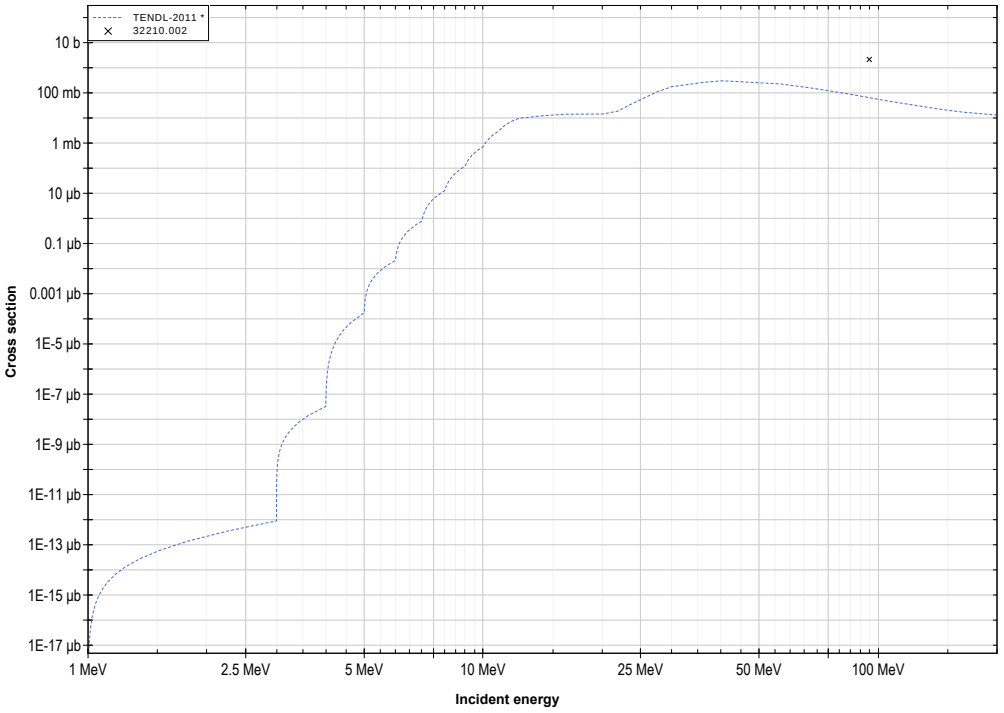
Kr83 (^{3}He,4n) lin-log



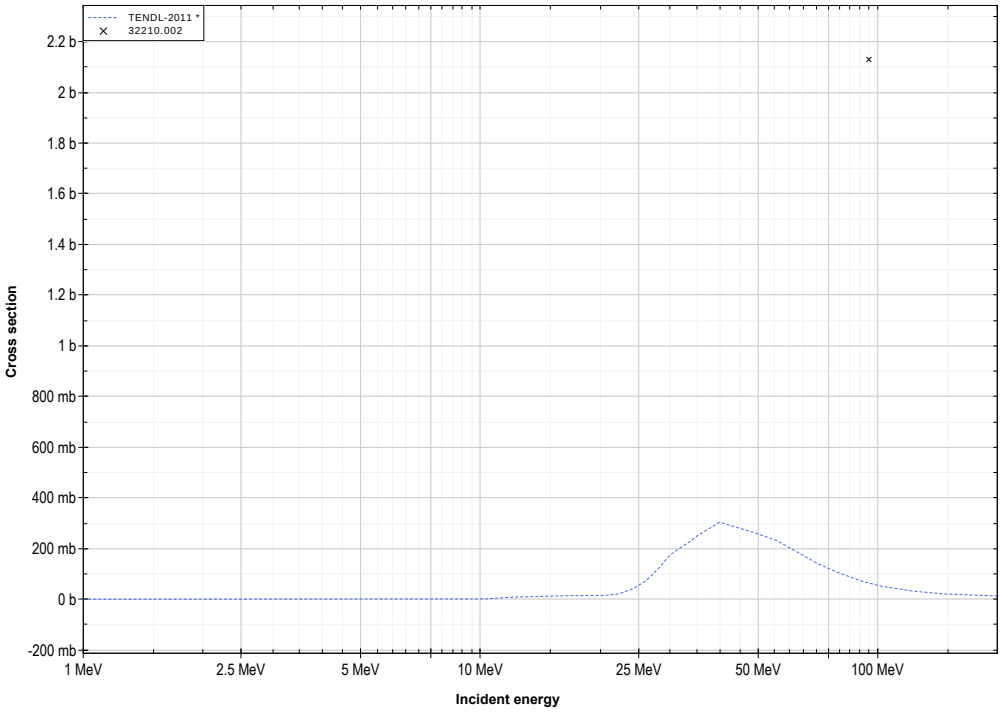
Reaction	Q-Value
Kr83(He3,4n)Sr82	-21327.75 keV

<< 34-Se-76	**40-Zr-90**	47-Ag-107 >>
<< MT37 (³He,4n)	**MT107 (³He,α) or MT5 (Zr89 production)**	MT4 (³He,n) >>

Zr90 (³He,α) log-log



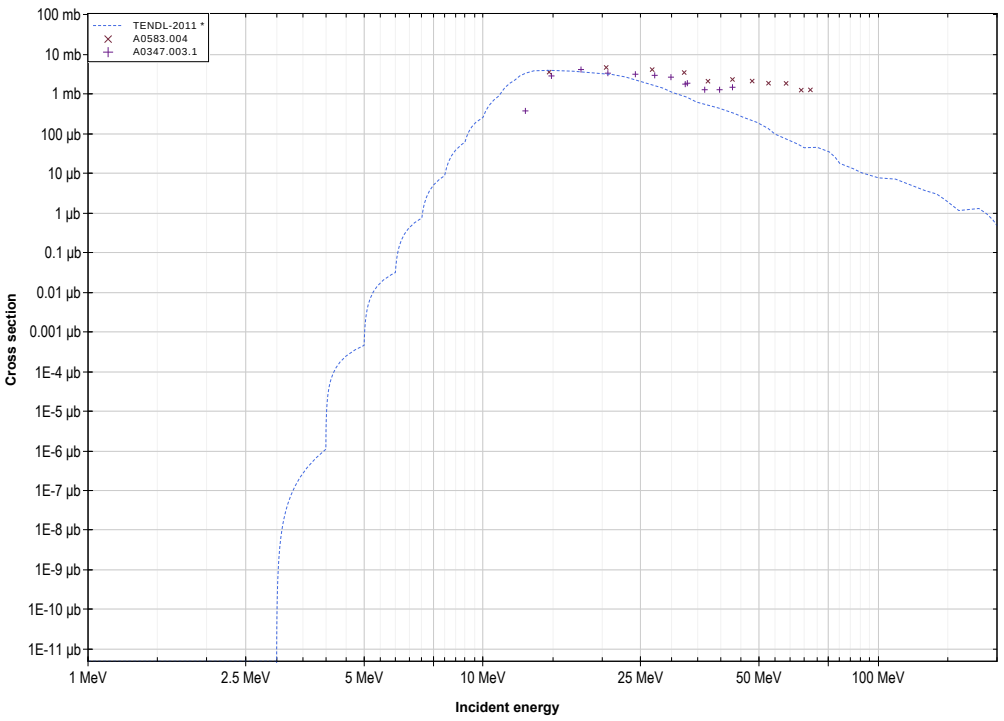
Zr90 (³He,α) lin-log



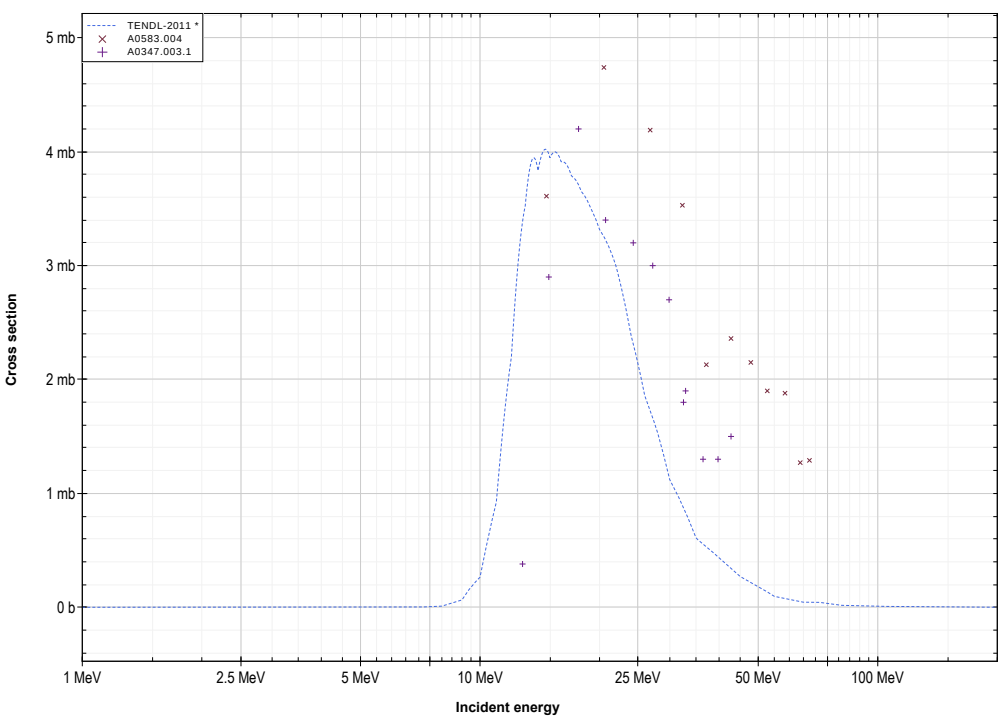
Reaction	Q-Value
Zr90(He3,α)Zr89	8608.00 keV
Zr90(He3,p+t)Zr89	-11205.86 keV
Zr90(He3,n+He3)Zr89	-11969.62 keV
Zr90(He3,2d)Zr89	-15238.53 keV
Zr90(He3,n+p+d)Zr89	-17463.09 keV
Zr90(He3,2n+2p)Zr89	-19687.66 keV

<< 34-Se-77	**41-Nb-93**	44-Ru-101 >>
<< MT107 (³He,α)	**MT4 (³He,n) or MT5 (Tc95 production)**	MT16 (³He,2n) >>

Nb93 (³He,n) log-log



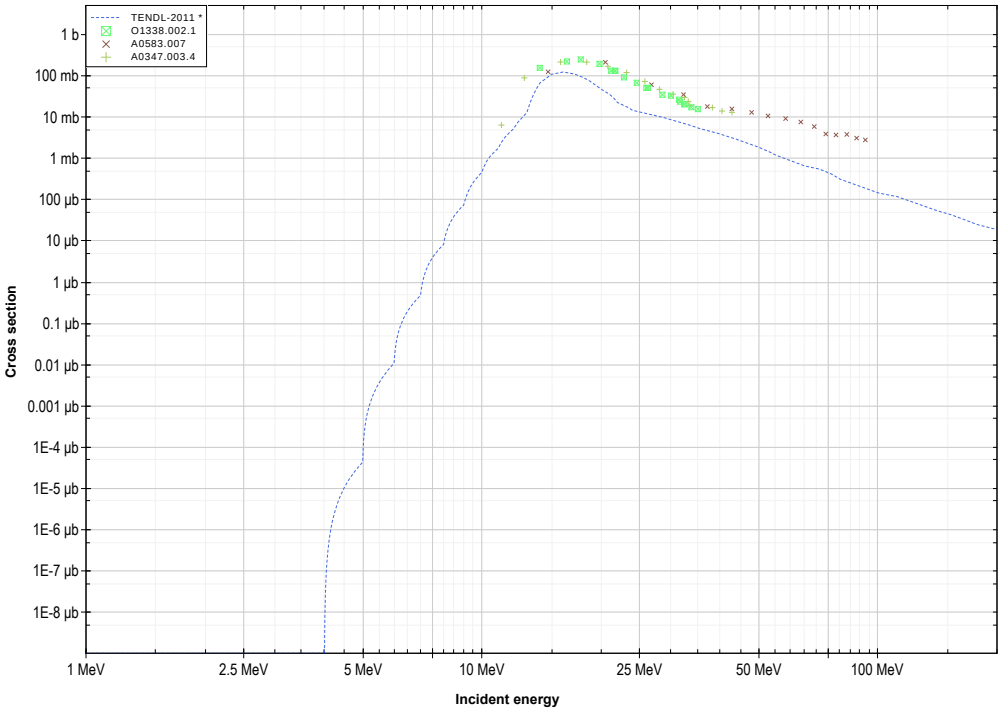
Nb93 (³He,n) lin-log



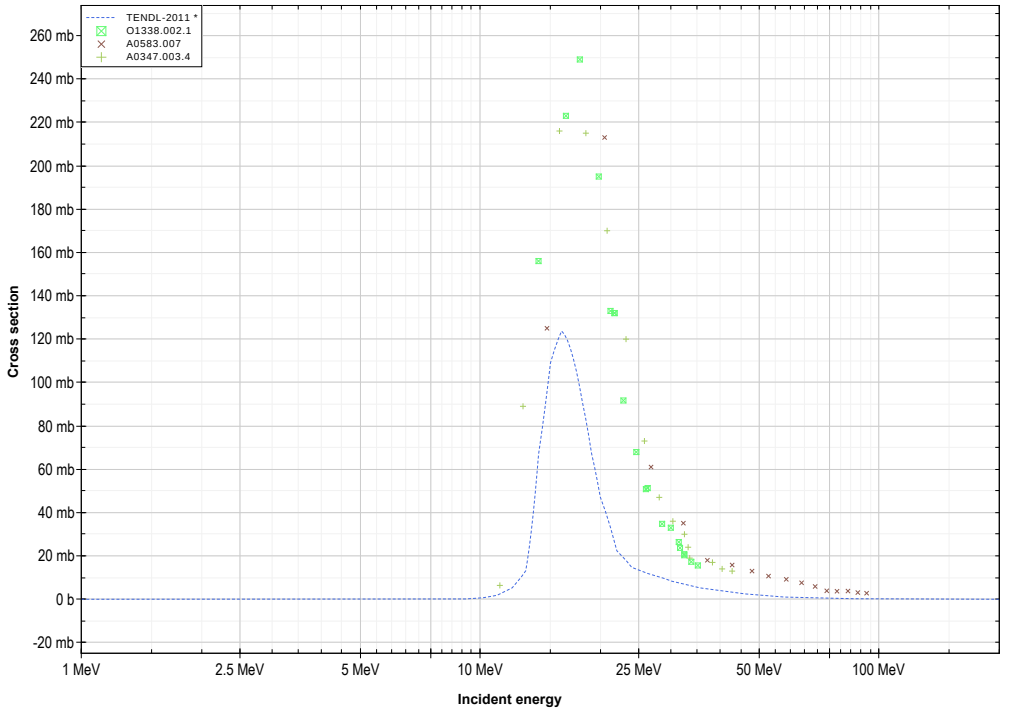
Reaction	Q-Value
Nb93(He3,n)Tc95	5668.60 keV

<< 36-Kr-82	**41-Nb-93**	44-Ru-102 >>
<< MT4 (^{3}He,n)	**MT16 (^{3}He,2n) or MT5 (Tc94 production)**	MT17 (^{3}He,3n) >>

Nb93 (^{3}He,2n) log-log



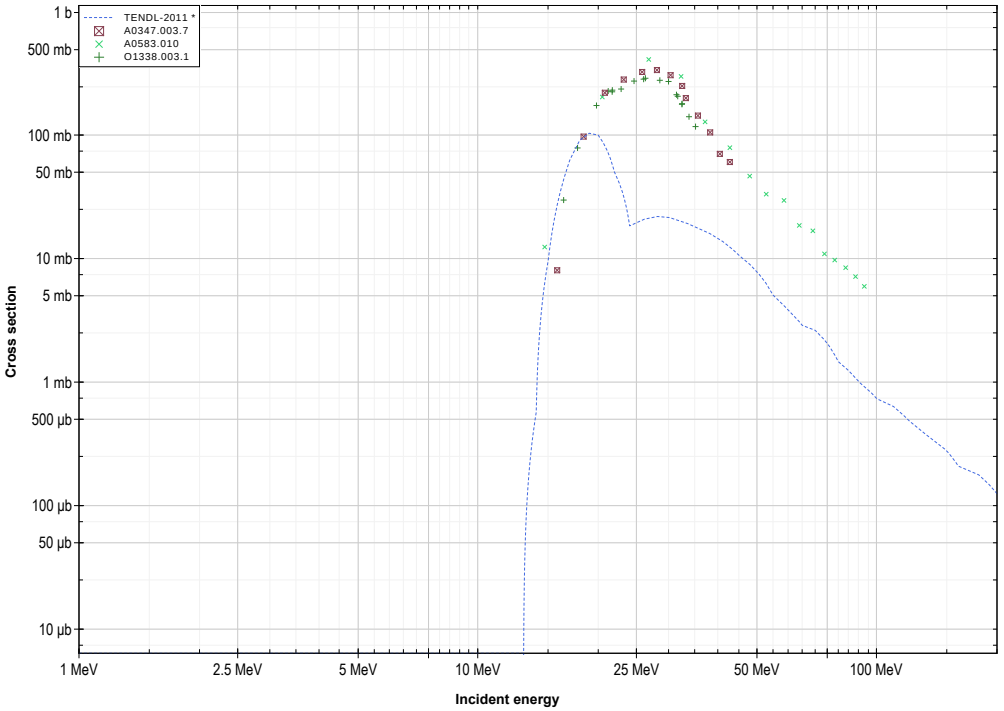
Nb93 (^{3}He,2n) lin-log



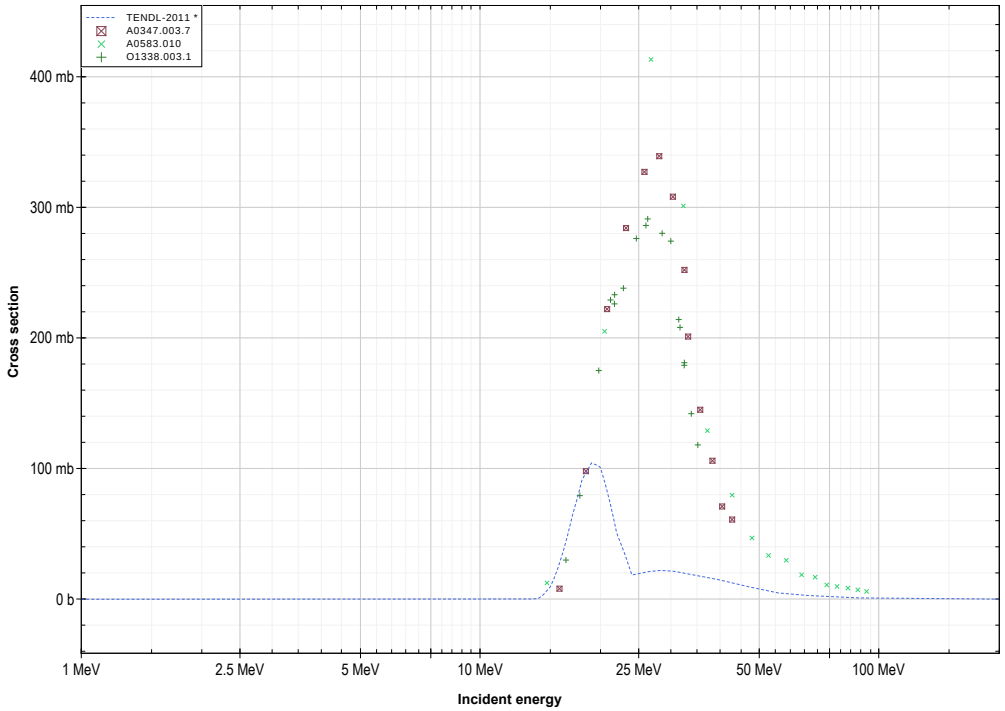
Reaction	Q-Value
Nb93(He3,2n)Tc94	-4265.72 keV

<< 36-Kr-83	**41-Nb-93**	44-Ru-101 >>
<< MT16 (^{3}He,2n)	**MT17 (^{3}He,3n) or MT5 (Tc93 production)**	MT37 (^{3}He,4n) >>

Nb93 (^{3}He,3n) log-log



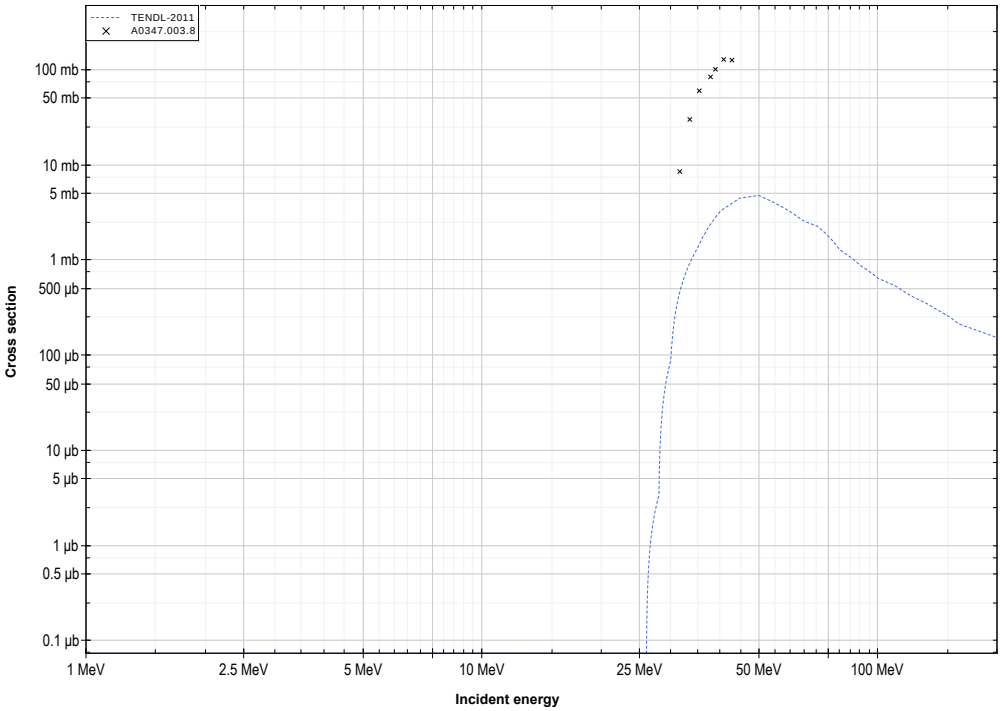
Nb93 (^{3}He,3n) lin-log



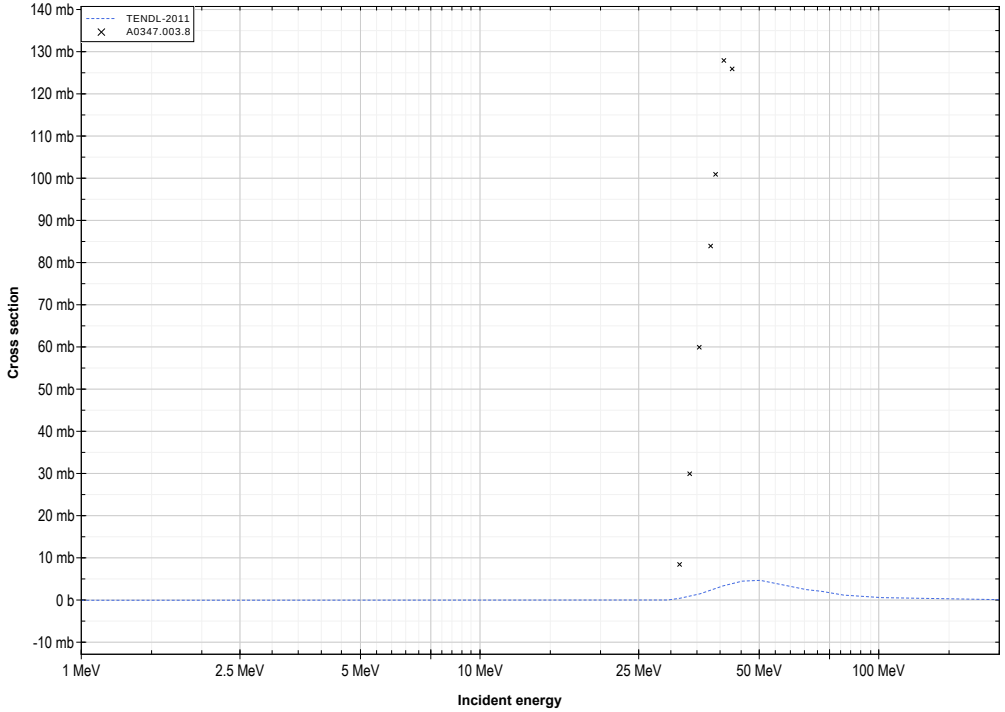
Reaction	Q-Value
Nb93(He3,3n)Tc93	-12888.04 keV

<< 36-Kr-83	**41-Nb-93**	44-Ru-101 >>
<< MT17 (^{3}He,3n)	**MT37 (^{3}He,4n) or MT5 (Tc92 production)**	MT102 (^{3}He,γ) >>

Nb93 (^{3}He,4n) log-log



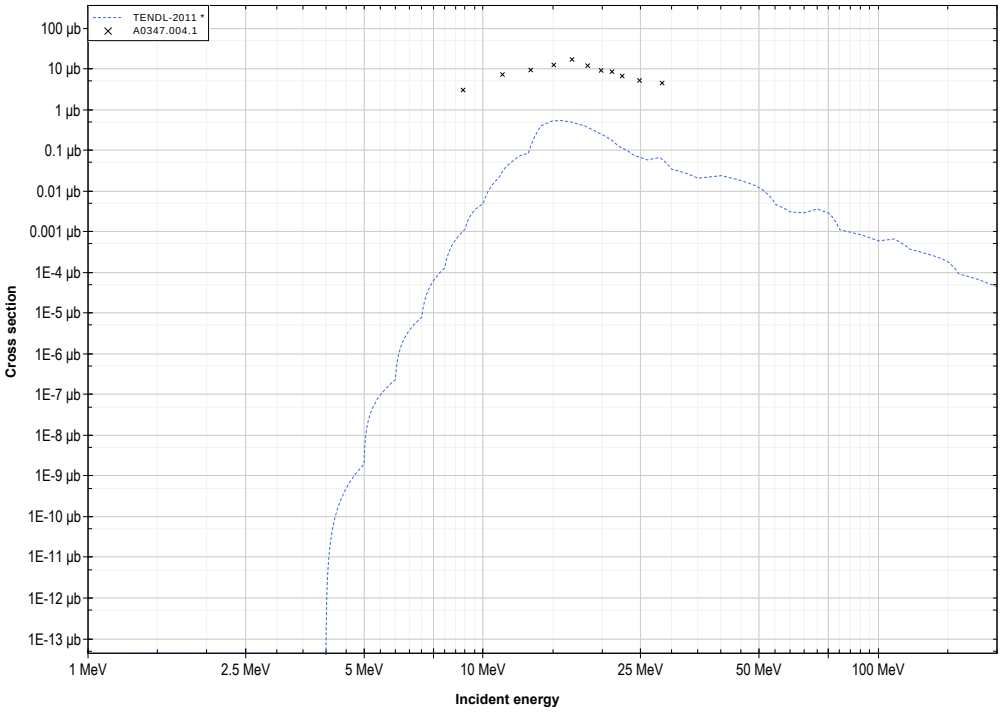
Nb93 (^{3}He,4n) lin-log



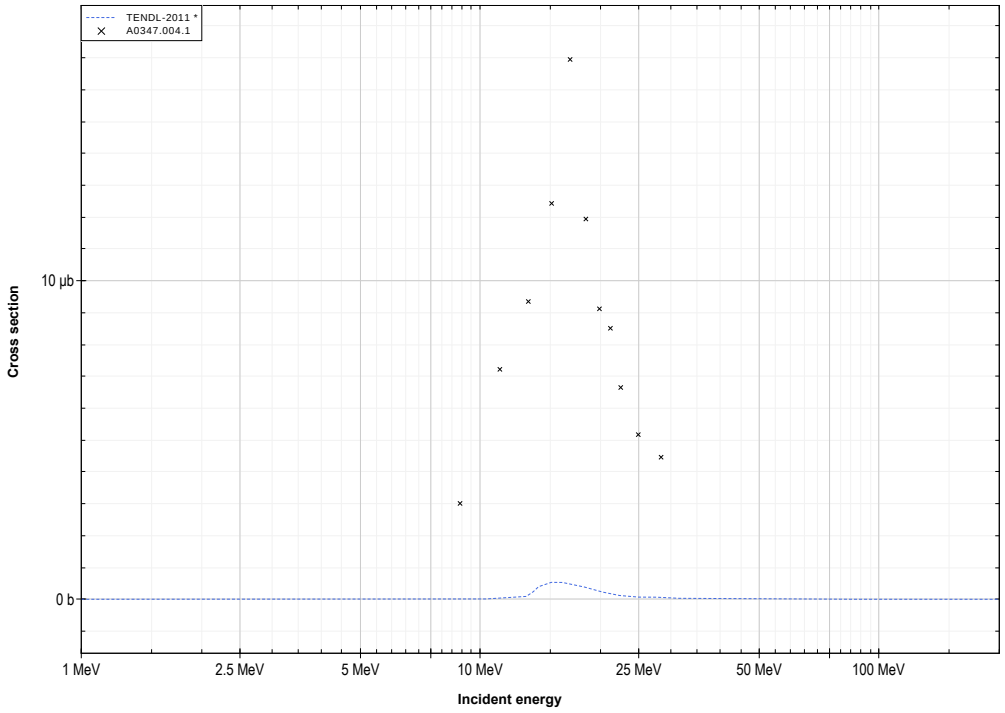
Reaction	Q-Value
Nb93(He3,4n)Tc92	-25627.35 keV

<< 31-Ga-71	**41-Nb-93**	
<< MT37 (³He,4n)	**MT102 (³He,γ) or MT5 (Tc96 production)**	MT4 (³He,n) >>

Nb93 (³He,γ) log-log

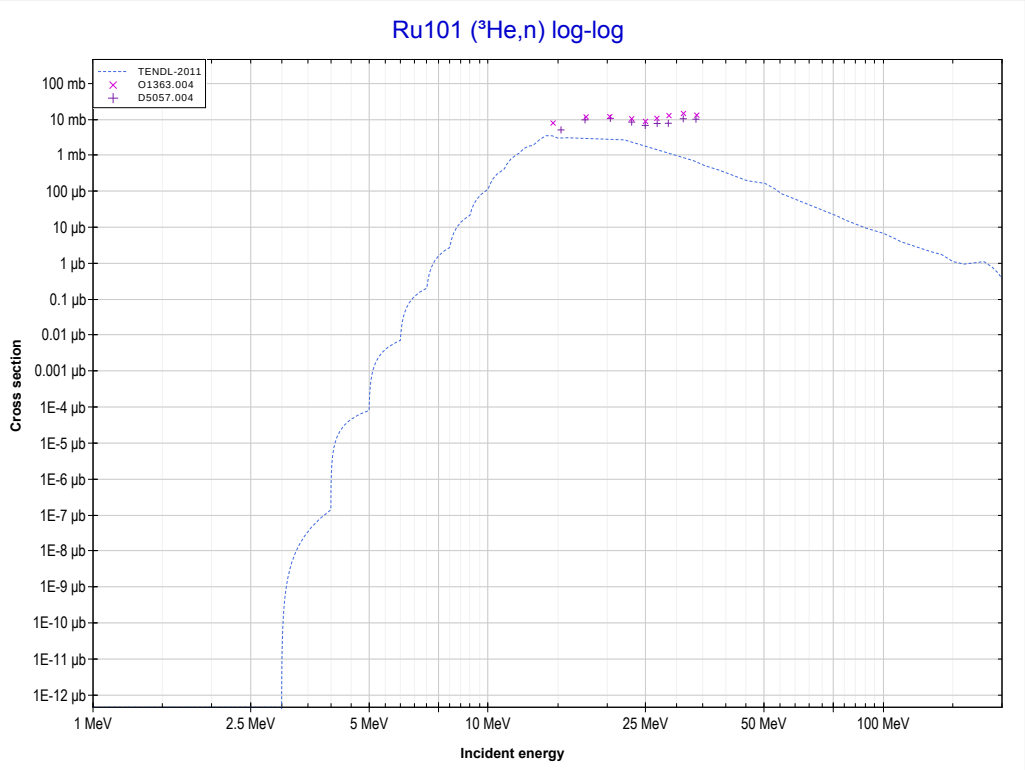


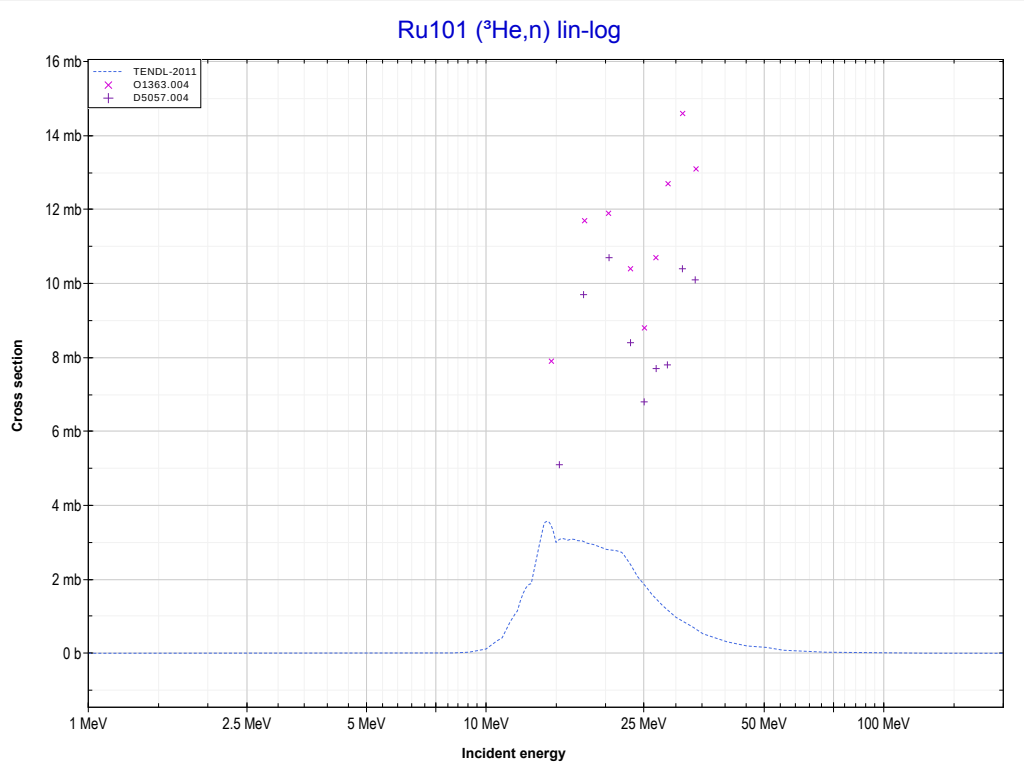
Nb93 (³He,γ) lin-log



Reaction	Q-Value
Nb93(He3,γ)Tc96	13539.91 keV

<< 41-Nb-93	**44-Ru-101**	47-Ag-109 >>
<< MT102 (³He,γ)	**MT4 (³He,n) or MT5 (Pd103 production)**	MT17 (³He,3n) >>

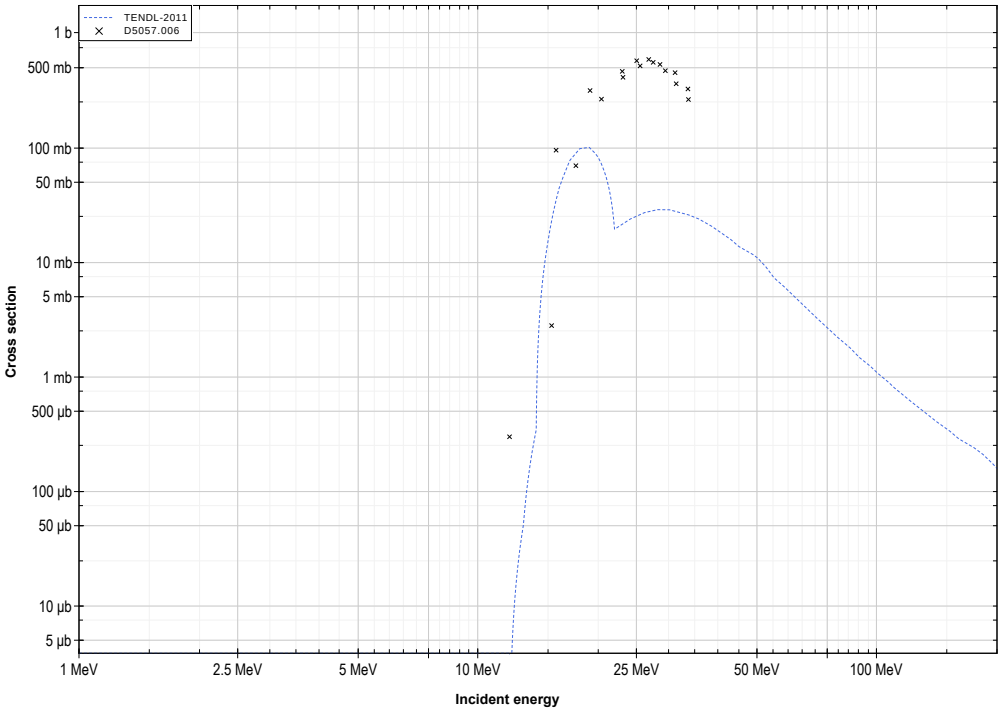




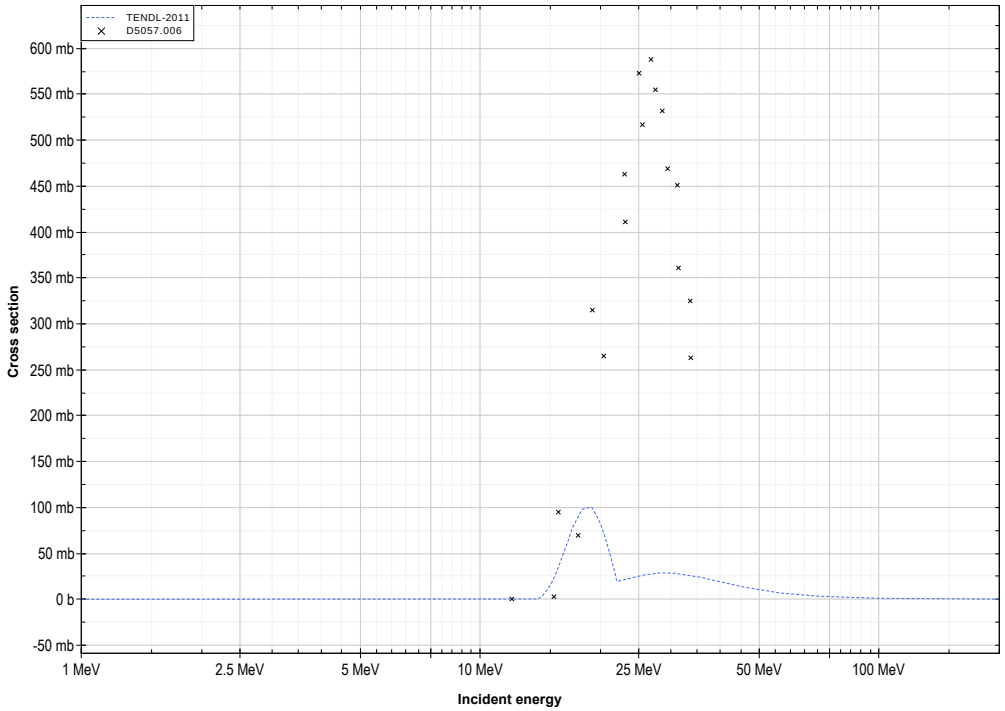
Reaction	Q-Value
Ru101(He3,n)Pd103	6389.30 keV

<< 41-Nb-93	**44-Ru-101**	47-Ag-109 >>
<< MT4 (³He,n)	**MT17 (³He,3n) or MT5 (Pd101 production)**	MT25 (³He,3n+α) >>

Ru101 (³He,3n) log-log



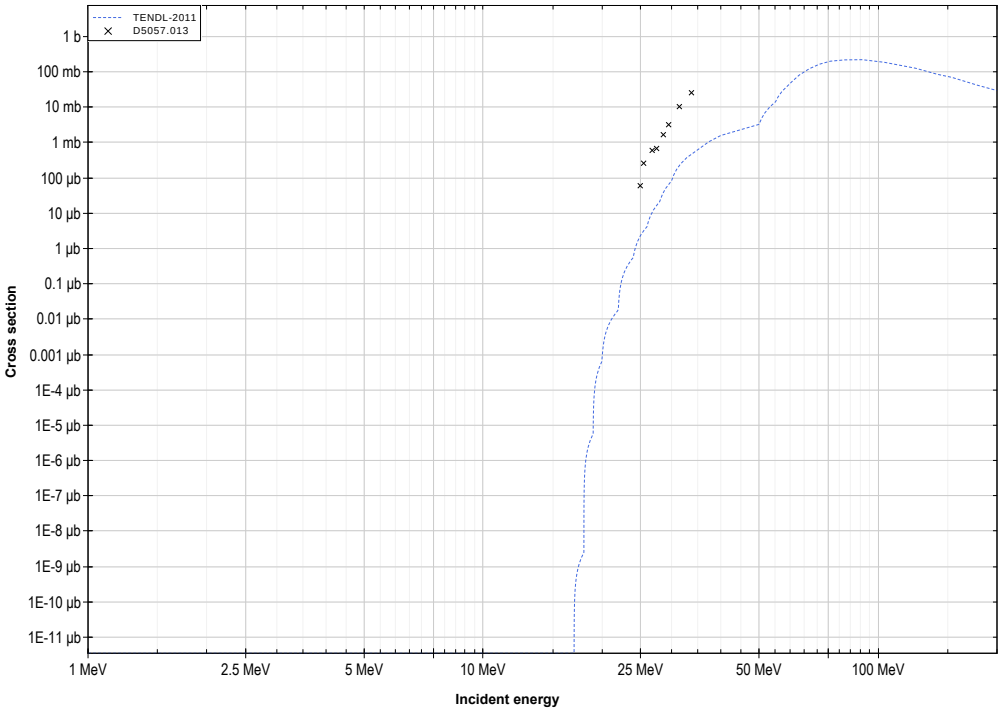
Ru101 (³He,3n) lin-log



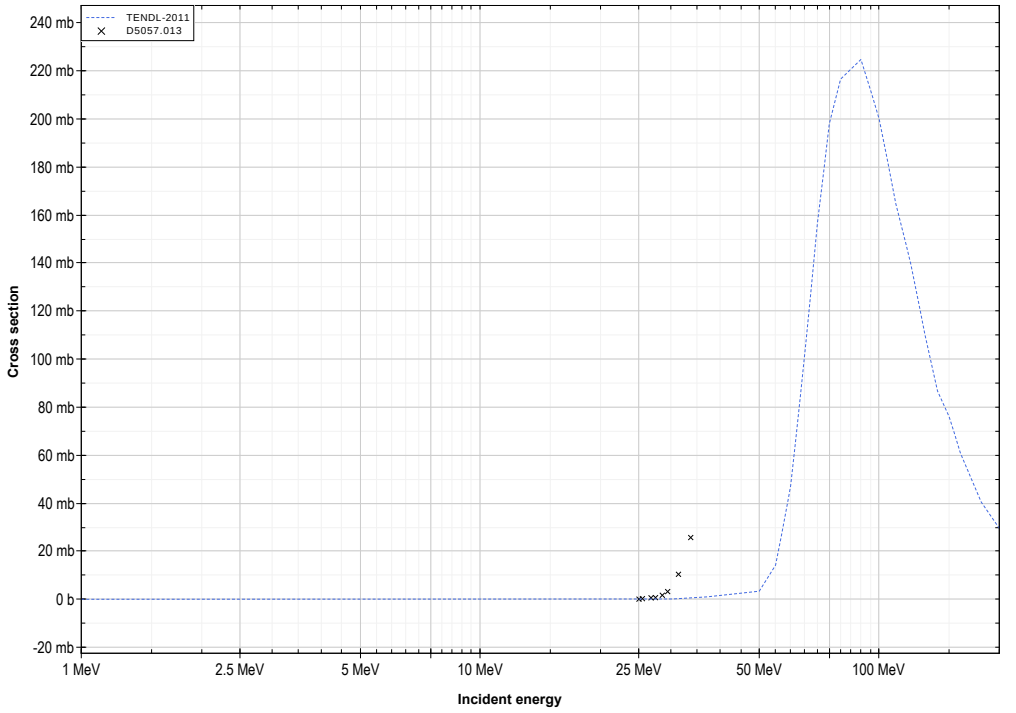
Reaction	Q-Value
Ru101(He3,3n)Pd101	-11804.44 keV

	44-Ru-101	
<< MT17 (³He,3n)	**MT25 (³He,3n+α) or MT5 (Ru97 production)**	MT37 (³He,4n) >>

Ru101 (³He,3n+α) log-log



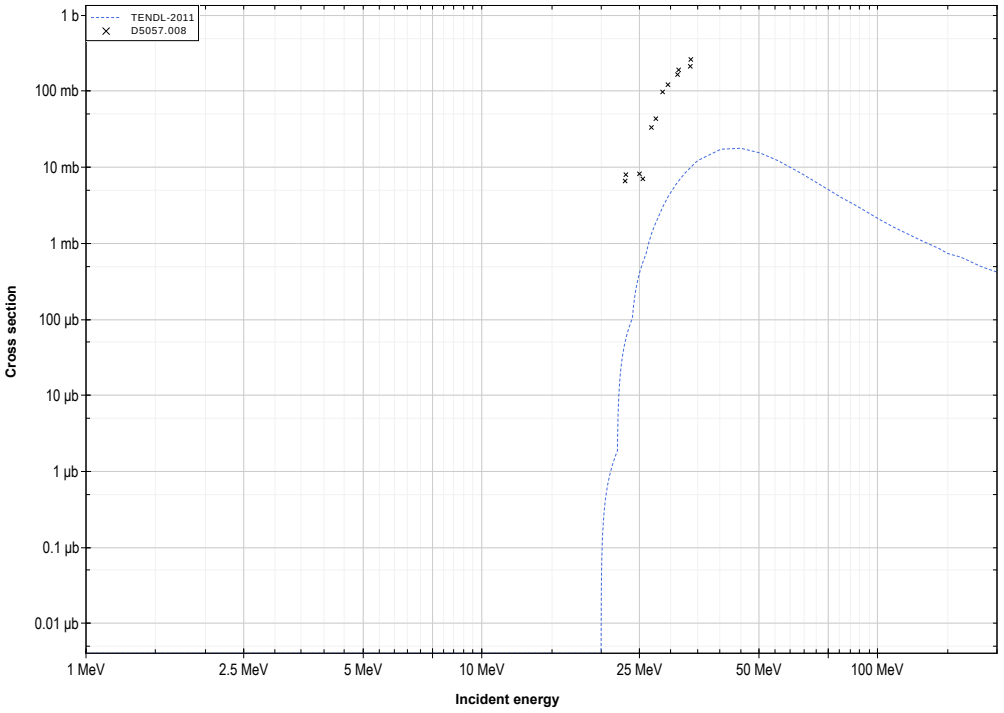
Ru101 (³He,3n+α) lin-log



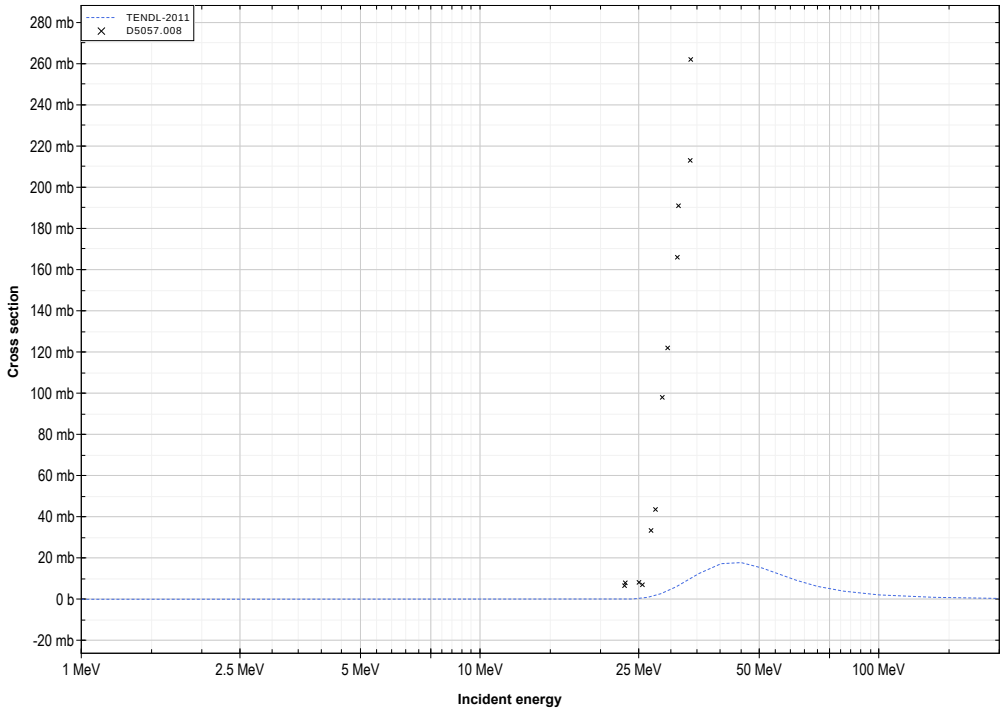
Reaction	Q-Value
Ru101(He3,3n+α)Ru97	-13545.35 keV
Ru101(He3,n+2t)Ru97	-24877.41 keV
Ru101(He3,2n+d+t)Ru97	-31134.65 keV
Ru101(He3,3n+p+t)Ru97	-33359.21 keV
Ru101(He3,4n+He3)Ru97	-34122.97 keV
Ru101(He3,3n+2d)Ru97	-37391.88 keV
Ru101(He3,4n+p+d)Ru97	-39616.45 keV
Ru101(He3,5n+2p)Ru97	-41841.01 keV

<< 41-Nb-93	**44-Ru-101**	44-Ru-102 >>
<< MT25 (³He,3n+α)	**MT37 (³He,4n) or MT5 (Pd100 production)**	MT112 (³He,p+α) >>

Ru101 (³He,4n) log-log



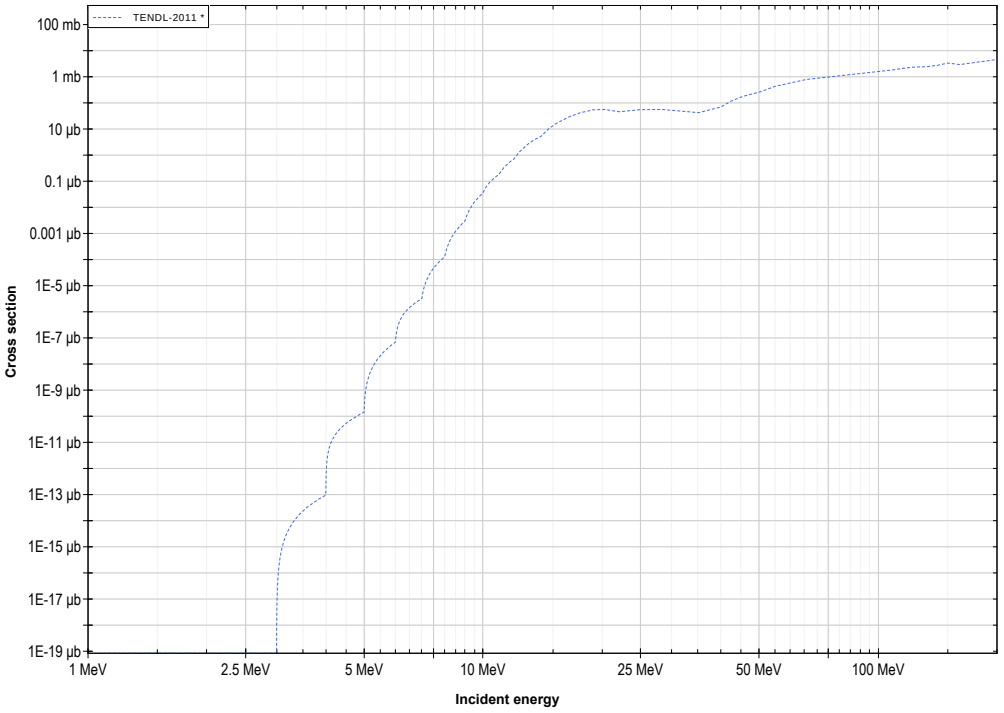
Ru101 (³He,4n) lin-log



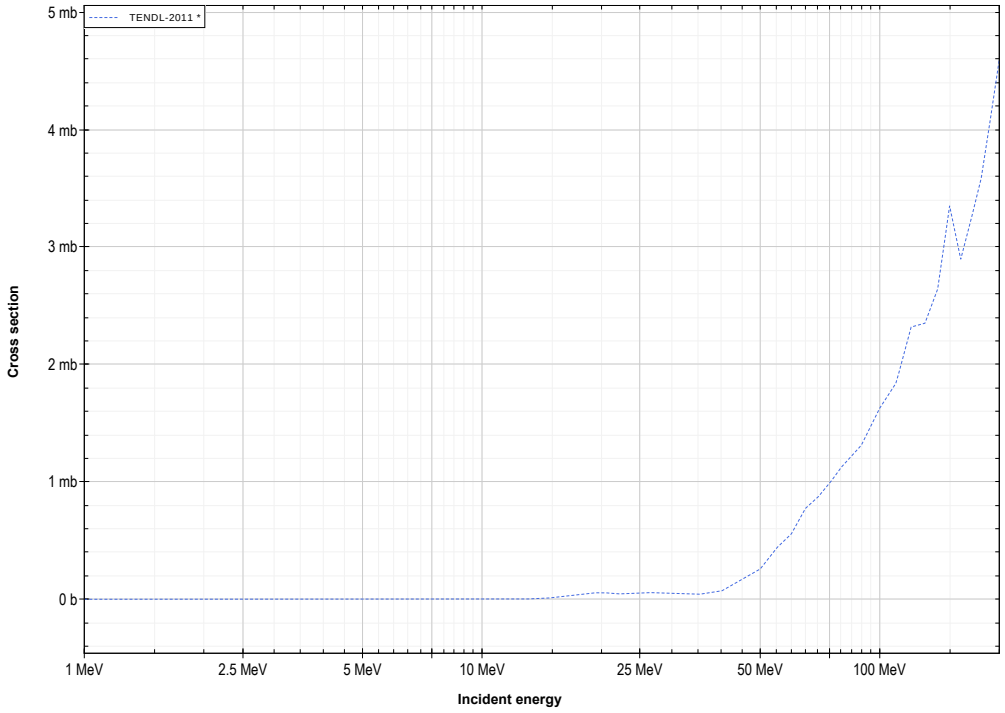
Reaction	Q-Value
Ru101(He3,4n)Pd100	-20077.75 keV

<< 3-Li-6	**44-Ru-101**	
<< MT37 (³He,4n)	**MT112 (³He,p+α) or MT5 (Tc99 production)**	MT16 (³He,2n) >>

Ru101 (³He,p+α) log-log



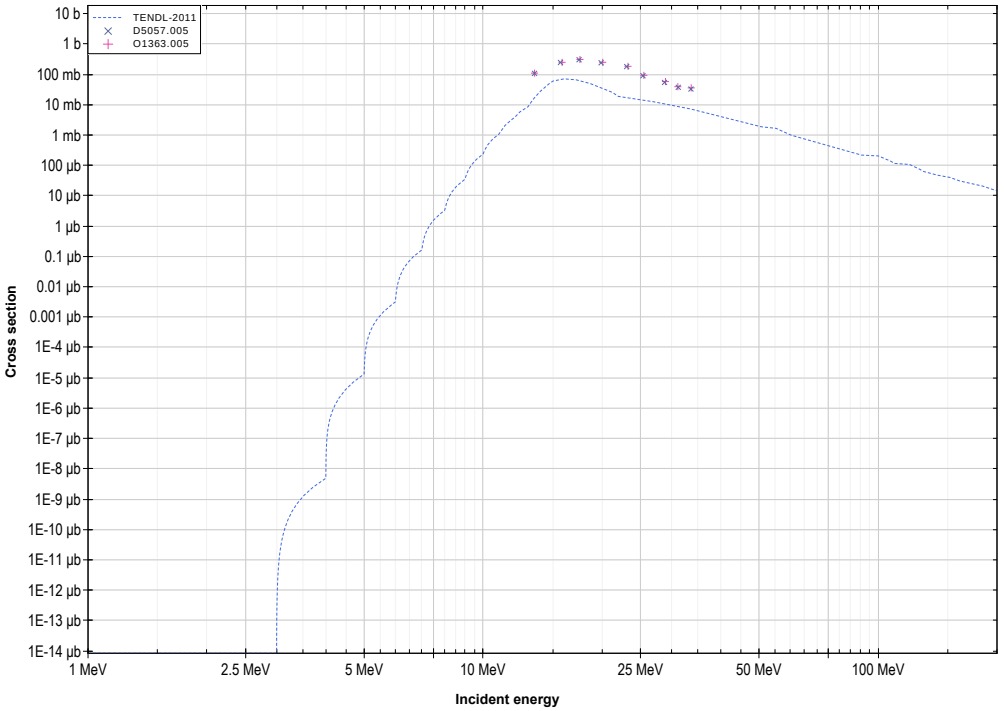
Ru101 (³He,p+α) lin-log



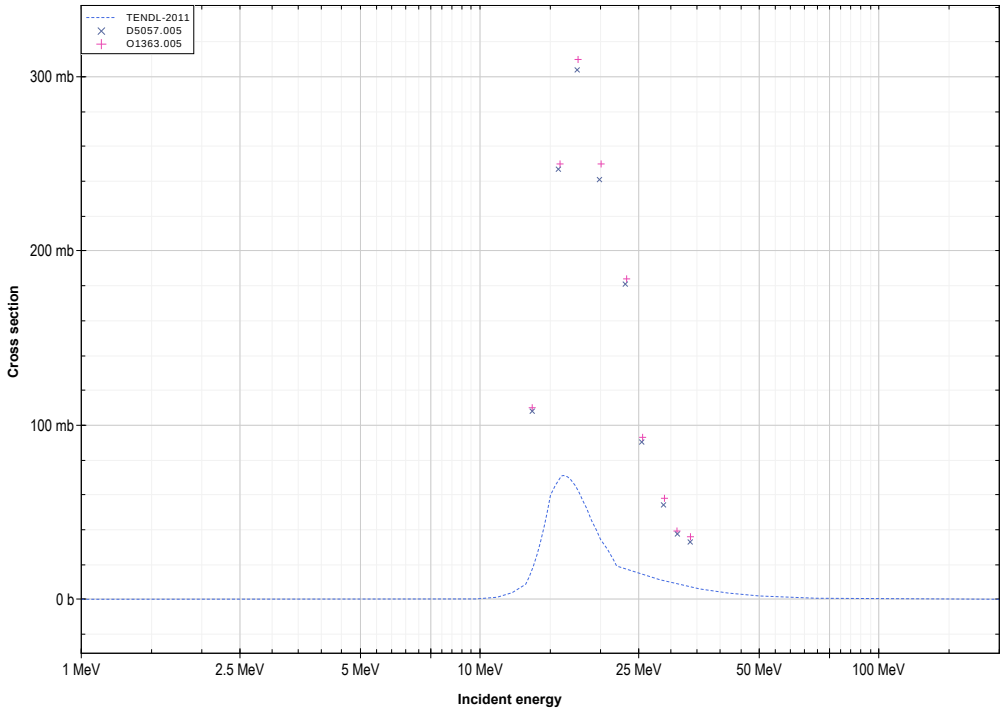
Reaction	Q-Value
Ru101(He3,p+α)Tc99	4590.73 keV
Ru101(He3,d+He3)Tc99	-13762.32 keV
Ru101(He3,2p+t)Tc99	-15223.13 keV
Ru101(He3,n+p+He3)Tc99	-15986.89 keV
Ru101(He3,p+2d)Tc99	-19255.80 keV
Ru101(He3,n+2p+d)Tc99	-21480.36 keV
Ru101(He3,2n+3p)Tc99	-23704.93 keV

<< 41-Nb-93	**44-Ru-102**	47-Ag-107 >>
<< MT112 (^{3}He,p+α)	**MT16 (^{3}He,2n) or MT5 (Pd103 production)**	MT37 (^{3}He,4n) >>

Ru102 (^{3}He,2n) log-log



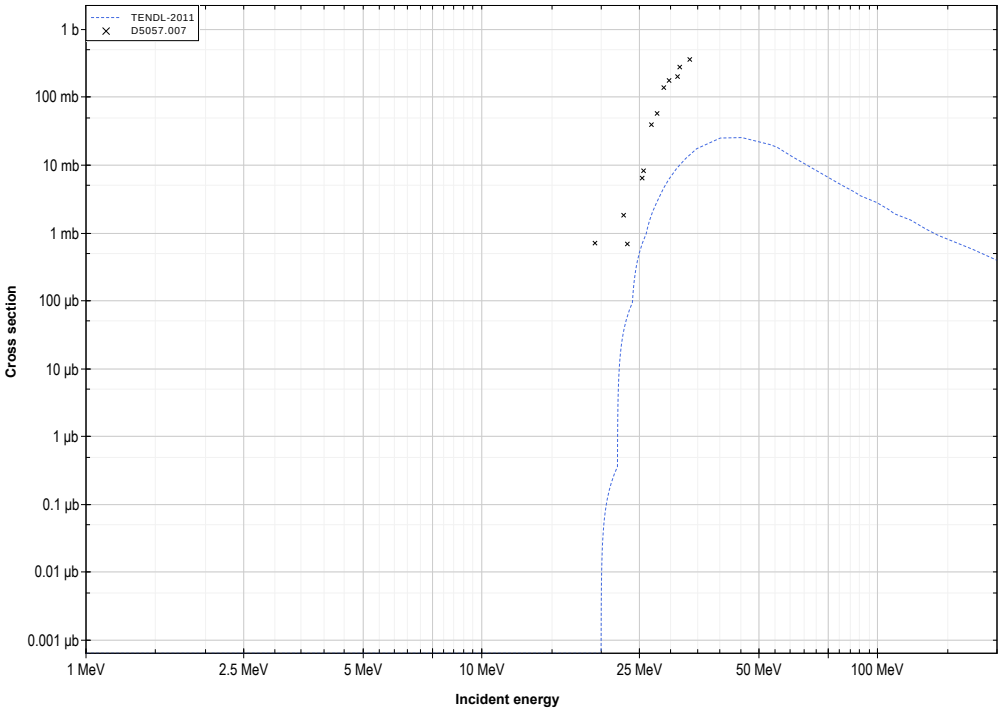
Ru102 (^{3}He,2n) lin-log



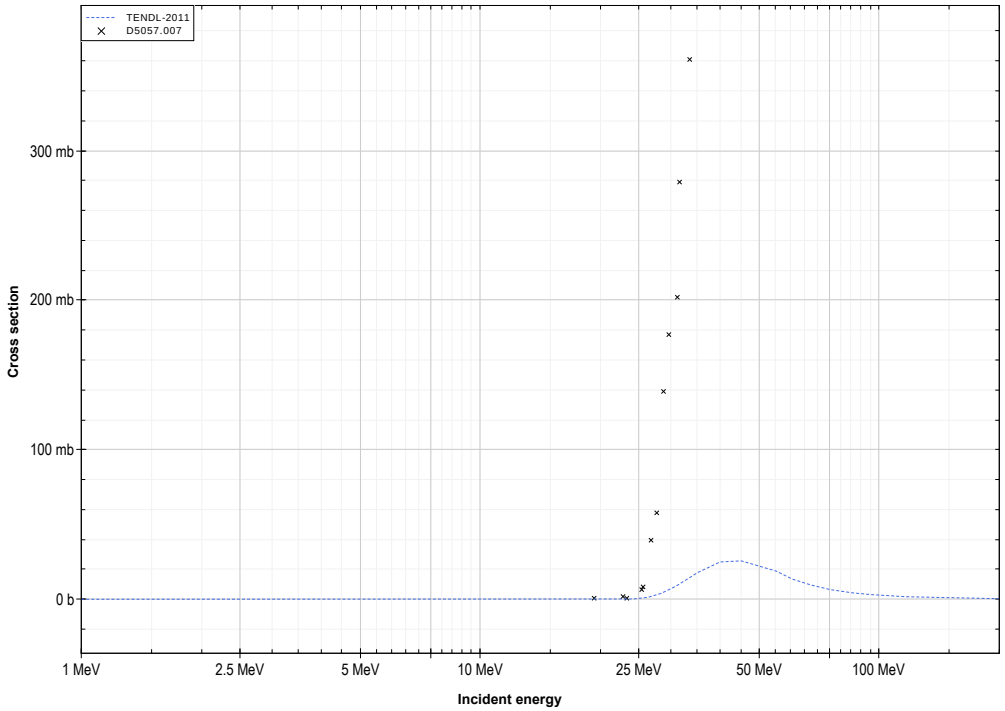
Reaction	Q-Value
Ru102(He3,2n)Pd103	-2830.32 keV

<< 44-Ru-101	**44-Ru-102**	47-Ag-107 >>
<< MT16 (^{3}He,2n)	**MT37 (^{3}He,4n) or MT5 (Pd101 production)**	MT111 (^{3}He,2p) >>

Ru102 (^{3}He,4n) log-log



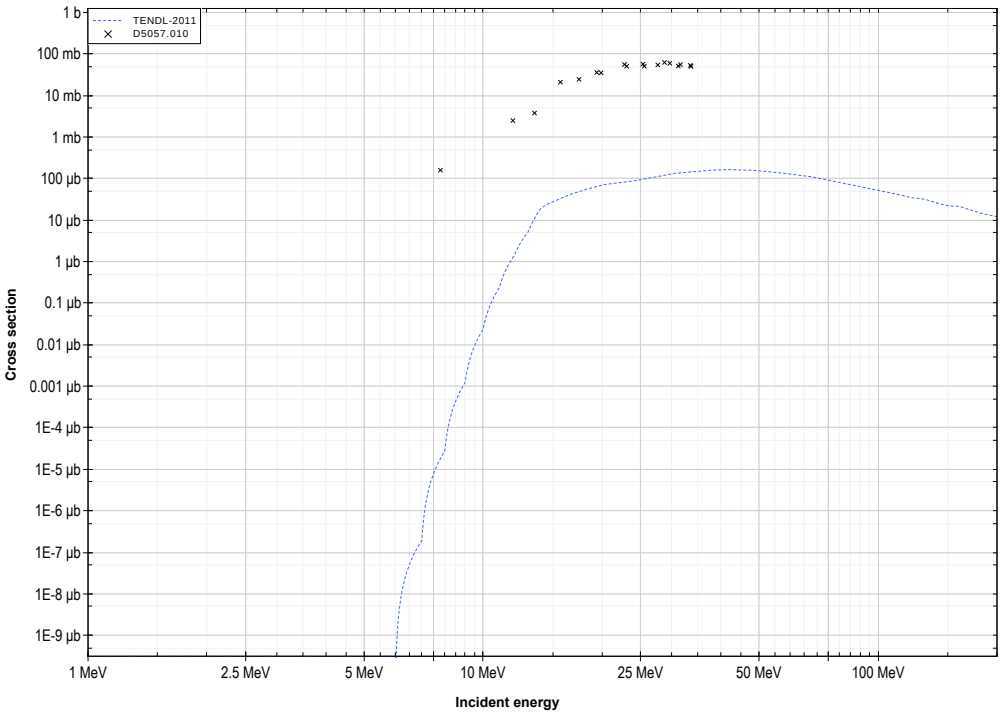
Ru102 (^{3}He,4n) lin-log



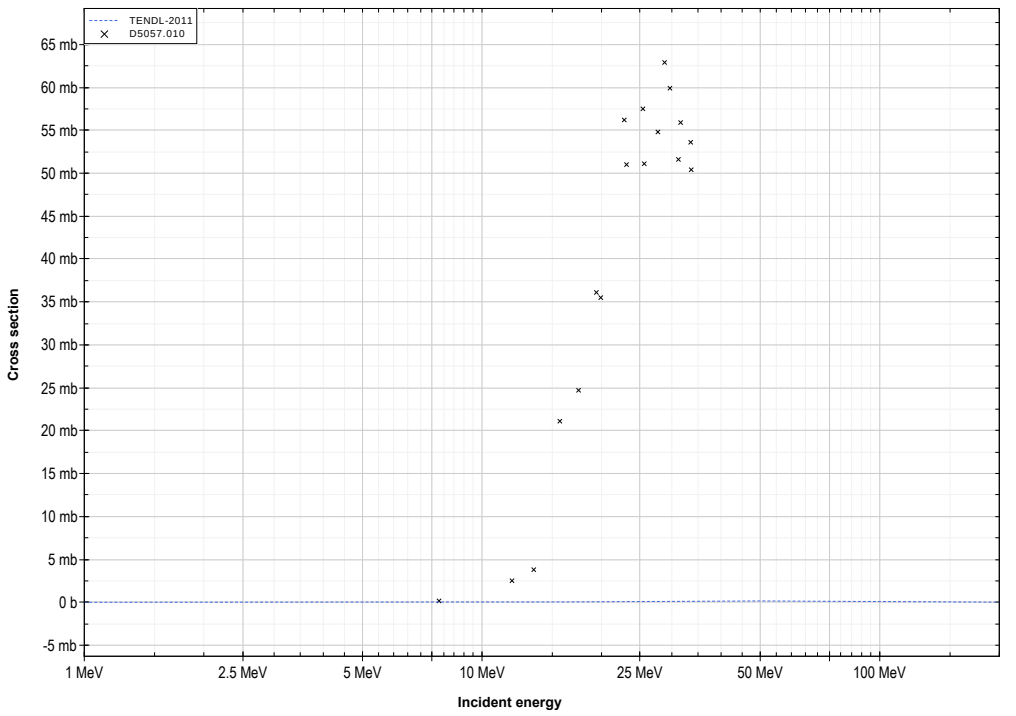
Reaction	Q-Value
Ru102(He3,4n)Pd101	-21024.05 keV

<< 31-Ga-71	**44-Ru-102**	47-Ag-109 >>
<< MT37 (^{3}He,4n)	**MT111 (^{3}He,2p) or MT5 (Ru103 production)**	MT16 (^{3}He,2n) >>

Ru102 (^{3}He,2p) log-log

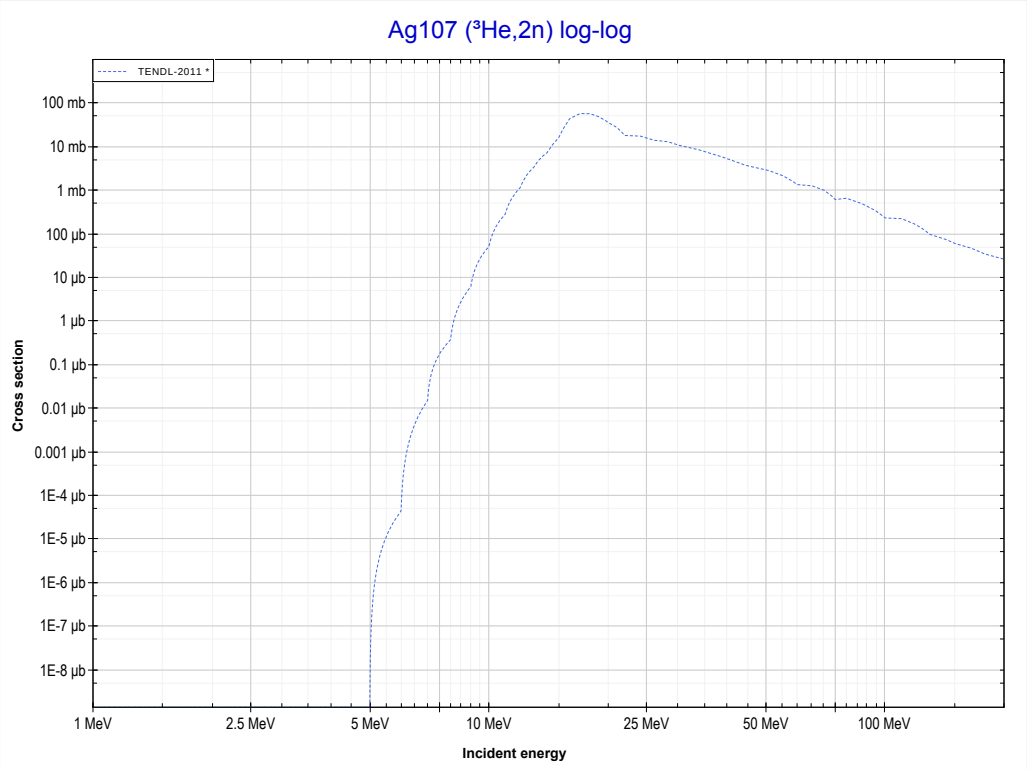


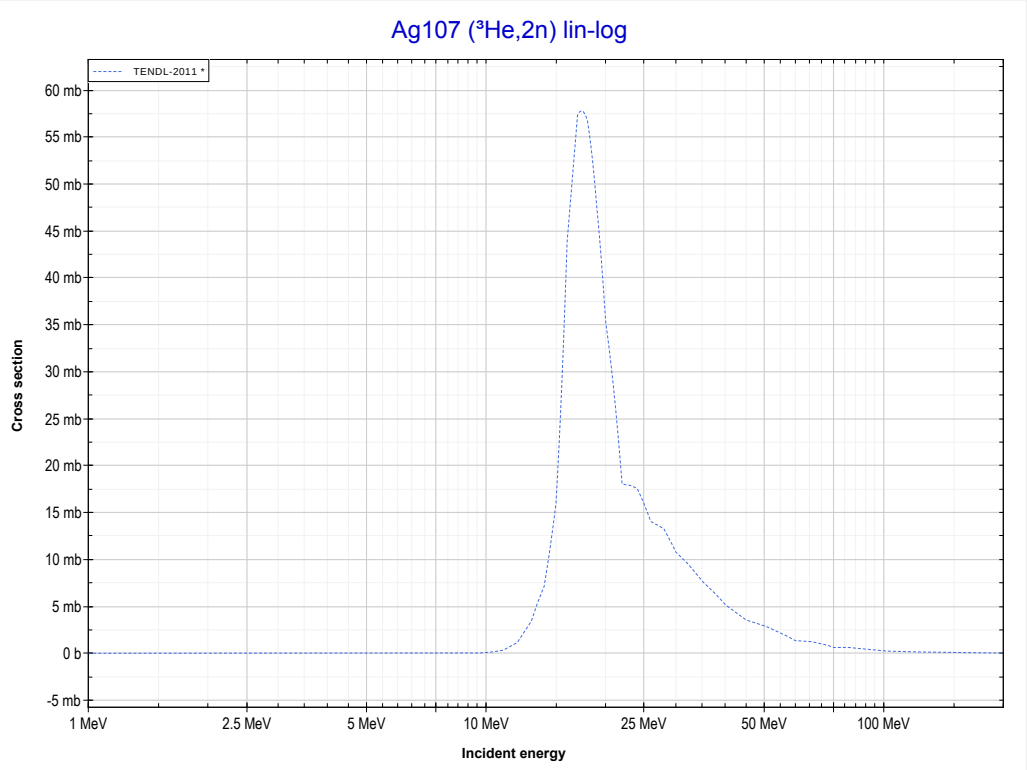
Ru102 (^{3}He,2p) lin-log



Reaction	Q-Value
Ru102(He3,2p)Ru103	-1485.93 keV

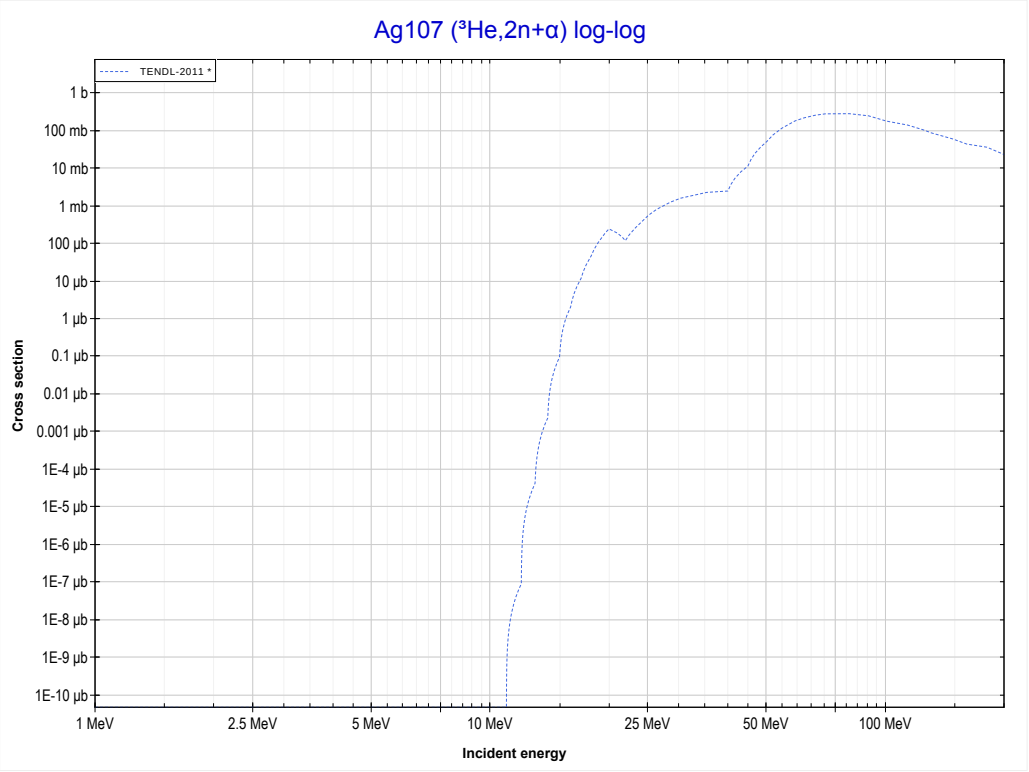
<< 44-Ru-102	**47-Ag-107**	47-Ag-109 >>
<< MT111 (^{3}He,2p)	**MT16 (^{3}He,2n) or MT5 (In108 production)**	MT24 (^{3}He,2n+α) >>

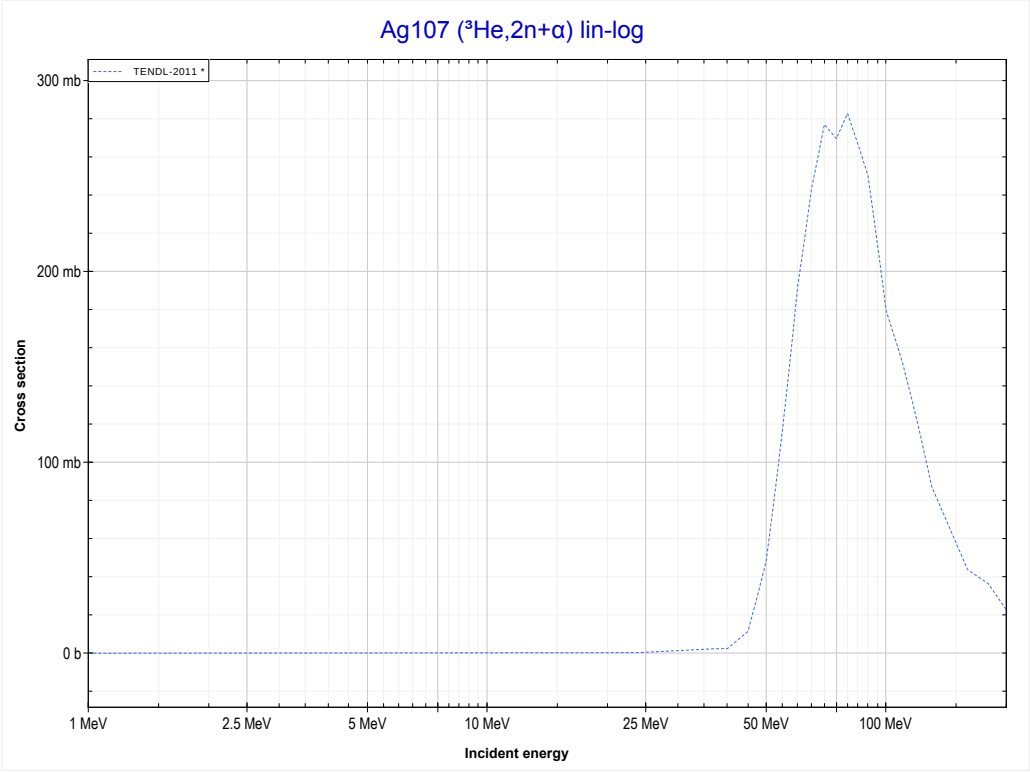




Reaction	Q-Value
Ag107(He3,2n)In108	-5497.42 keV

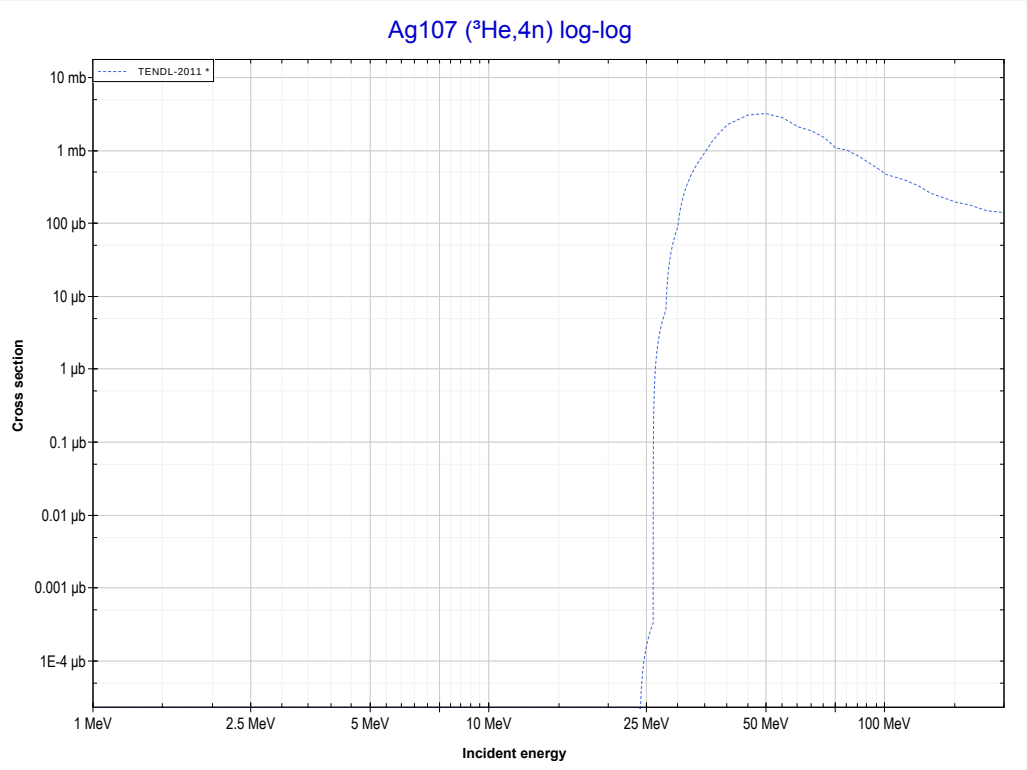
<< 27-Co-59	**47-Ag-107**	47-Ag-109 >>
<< MT16 (³He,2n)	**MT24 (³He,2n+α) or MT5 (Ag104 production)**	MT37 (³He,4n) >>

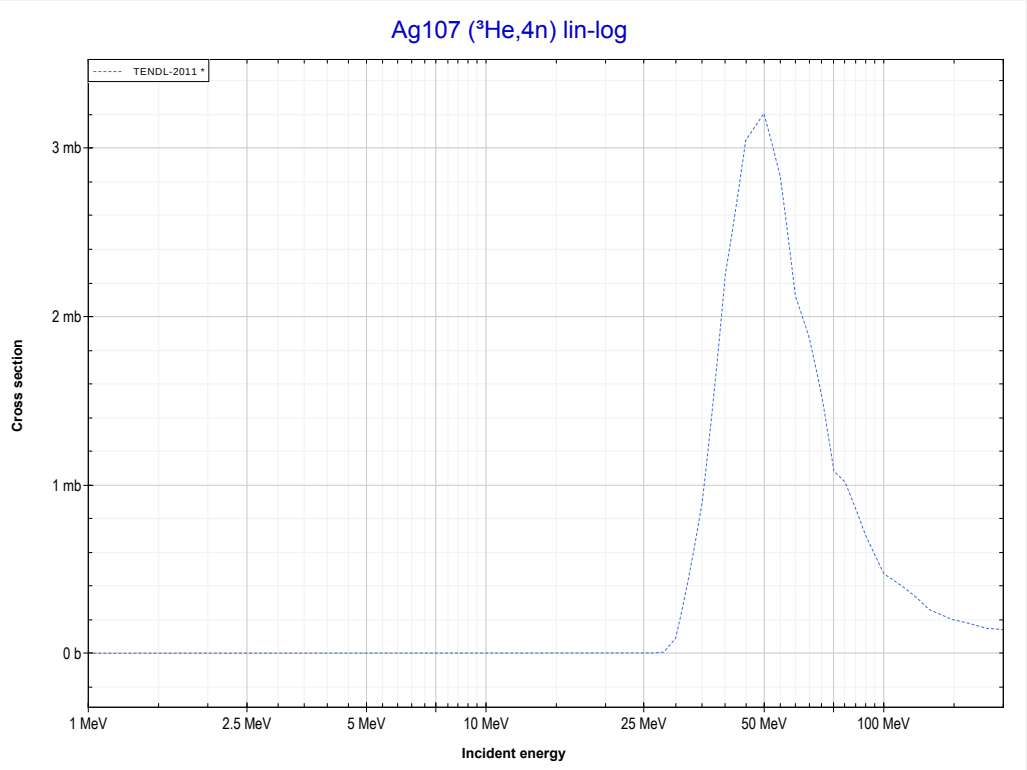




Reaction	Q-Value
Ag107(He3,2n+α)Ag104	-6927.34 keV
Ag107(He3,2t)Ag104	-18259.40 keV
Ag107(He3,n+d+t)Ag104	-24516.63 keV
Ag107(He3,2n+p+t)Ag104	-26741.20 keV
Ag107(He3,3n+He3)Ag104	-27504.95 keV
Ag107(He3,2n+2d)Ag104	-30773.86 keV
Ag107(He3,3n+p+d)Ag104	-32998.43 keV
Ag107(He3,4n+2p)Ag104	-35222.99 keV

<< 44-Ru-102	**47-Ag-107**	47-Ag-109 >>
<< MT24 (³He,2n+α)	**MT37 (³He,4n) or MT5 (In106 production)**	MT107 (³He,α) >>

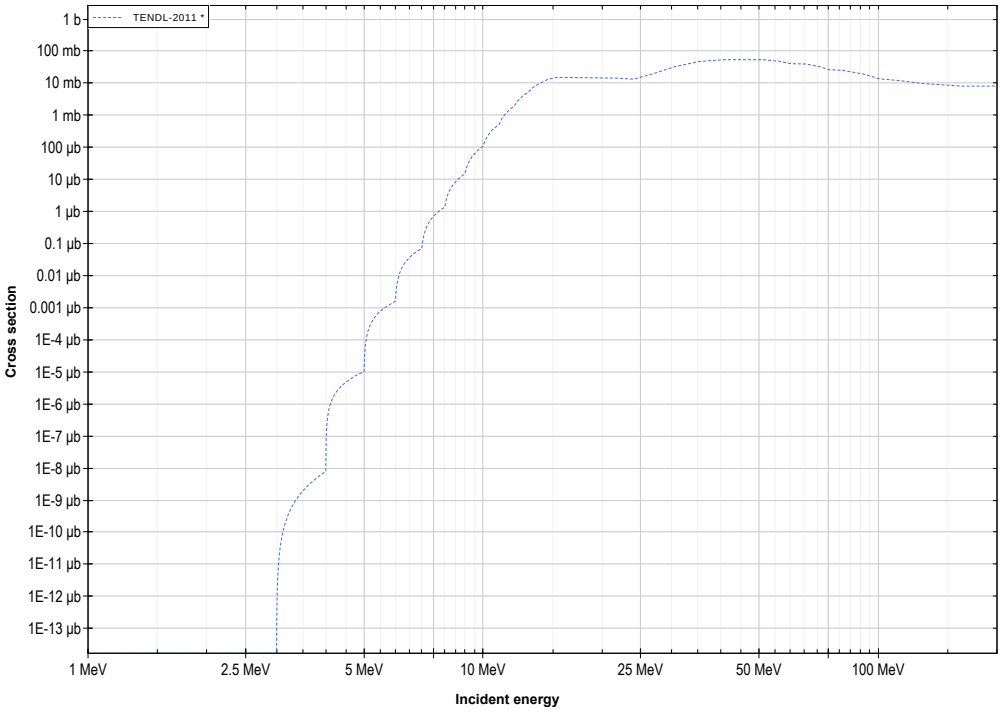




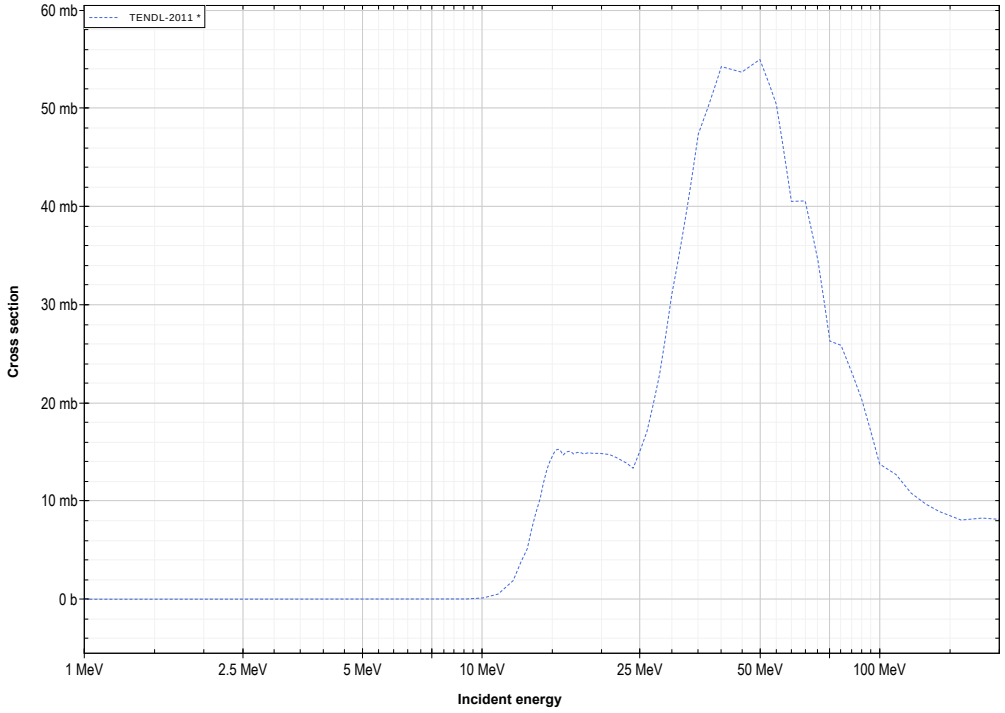
Reaction	Q-Value
Ag107(He3,4n)In106	-25150.05 keV

<< 40-Zr-90	**47-Ag-107**	48-Cd-116 >>
<< MT37 (³He,4n)	**MT107 (³He,α) or MT5 (Ag106 production)**	MT4 (³He,n) >>

Ag107 (³He,α) log-log



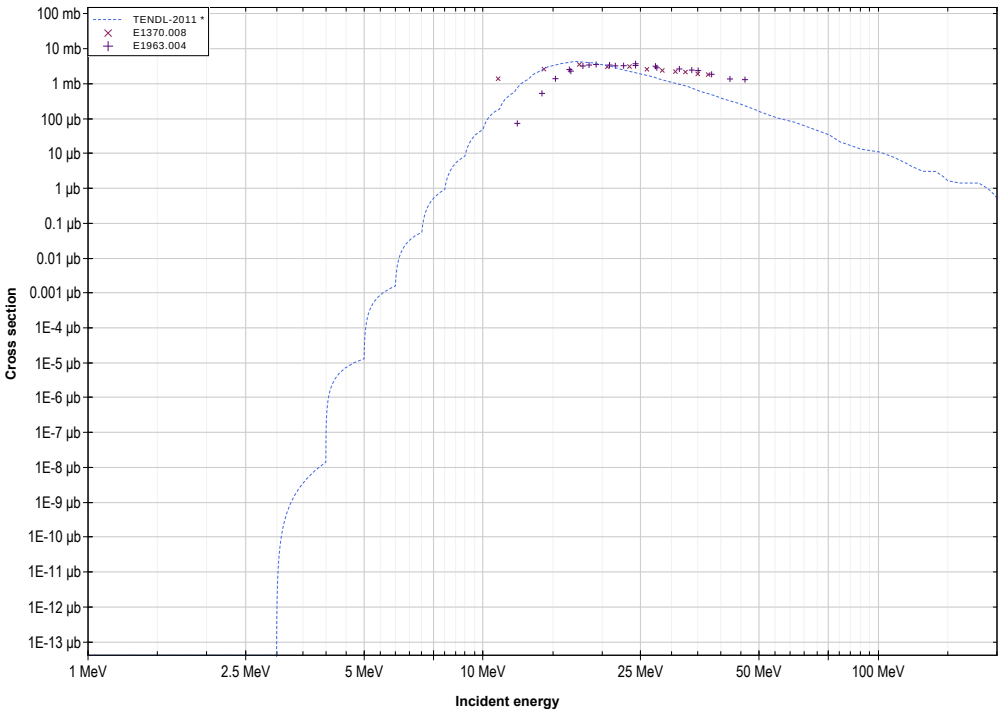
Ag107 (³He,α) lin-log



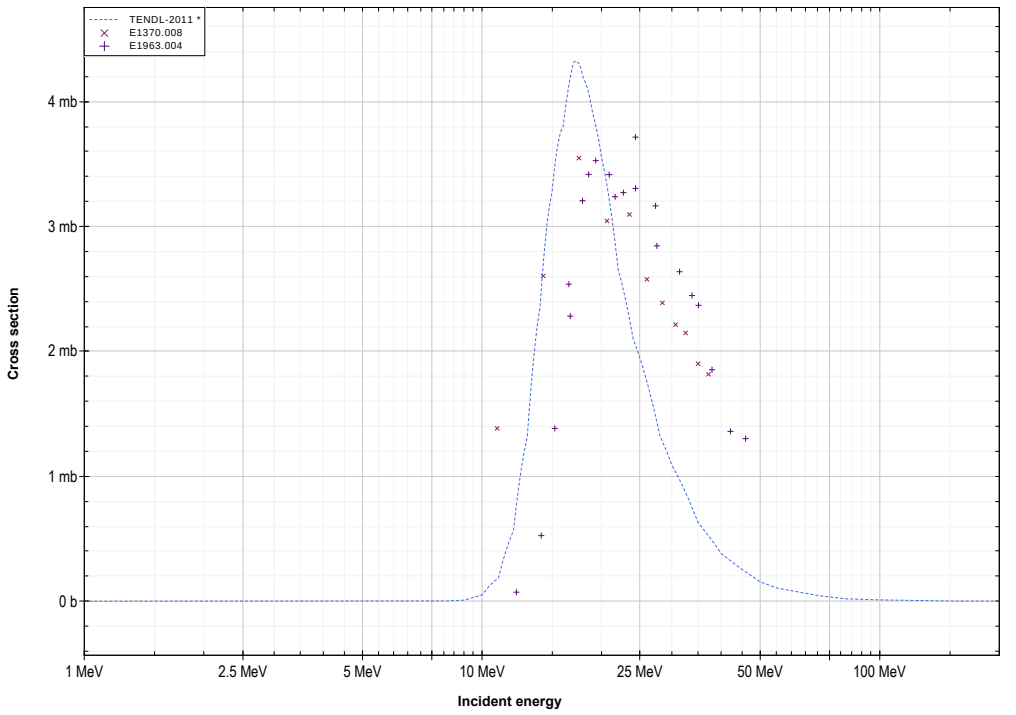
Reaction	Q-Value
Ag107(He3,α)Ag106	11041.30 keV
Ag107(He3,p+t)Ag106	-8772.56 keV
Ag107(He3,n+He3)Ag106	-9536.32 keV
Ag107(He3,2d)Ag106	-12805.23 keV
Ag107(He3,n+p+d)Ag106	-15029.79 keV
Ag107(He3,2n+2p)Ag106	-17254.36 keV

<< 44-Ru-101	**47-Ag-109**	62-Sm-147 >>
<< MT107 (³He,α)	**MT4 (³He,n) or MT5 (In111 production)**	MT16 (³He,2n) >>

Ag109 (³He,n) log-log



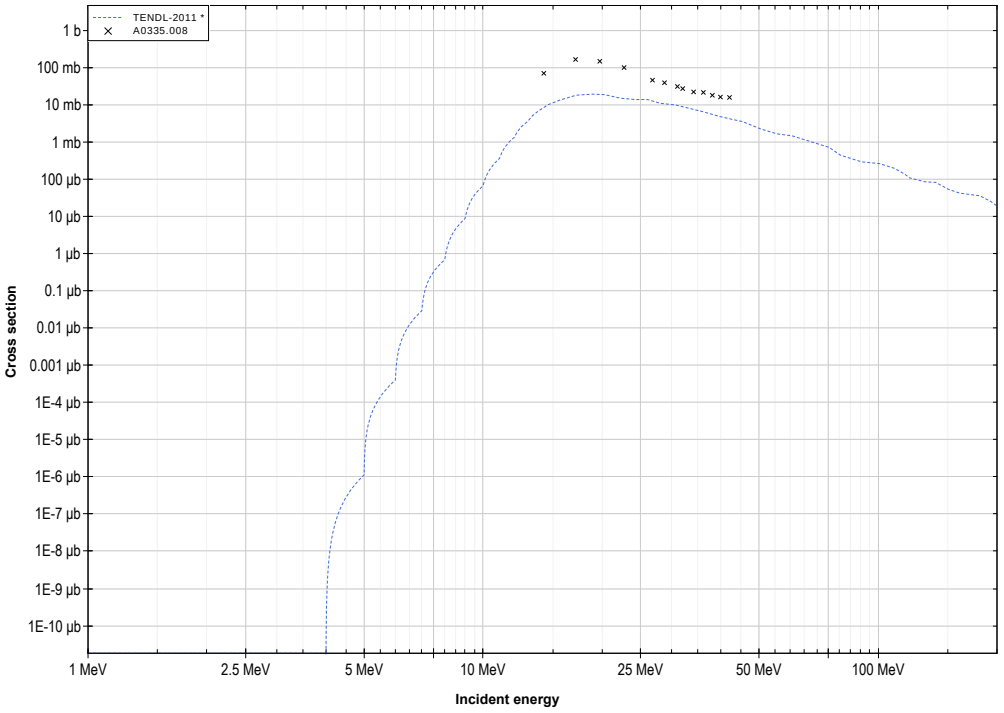
Ag109 (³He,n) lin-log



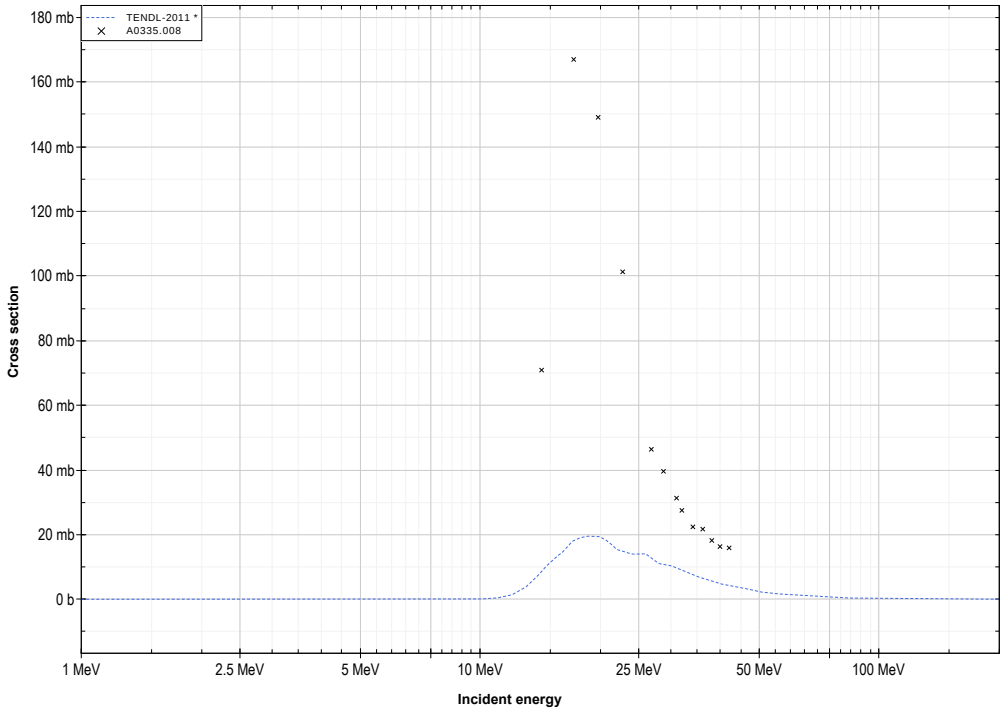
Reaction	Q-Value
Ag109(He3,n)In111	6533.20 keV

<< 47-Ag-107	**47-Ag-109**	48-Cd-116 >>
<< MT4 (^{3}He,n)	**MT16 (^{3}He,2n) or MT5 (In110 production)**	MT17 (^{3}He,3n) >>

Ag109 (^{3}He,2n) log-log



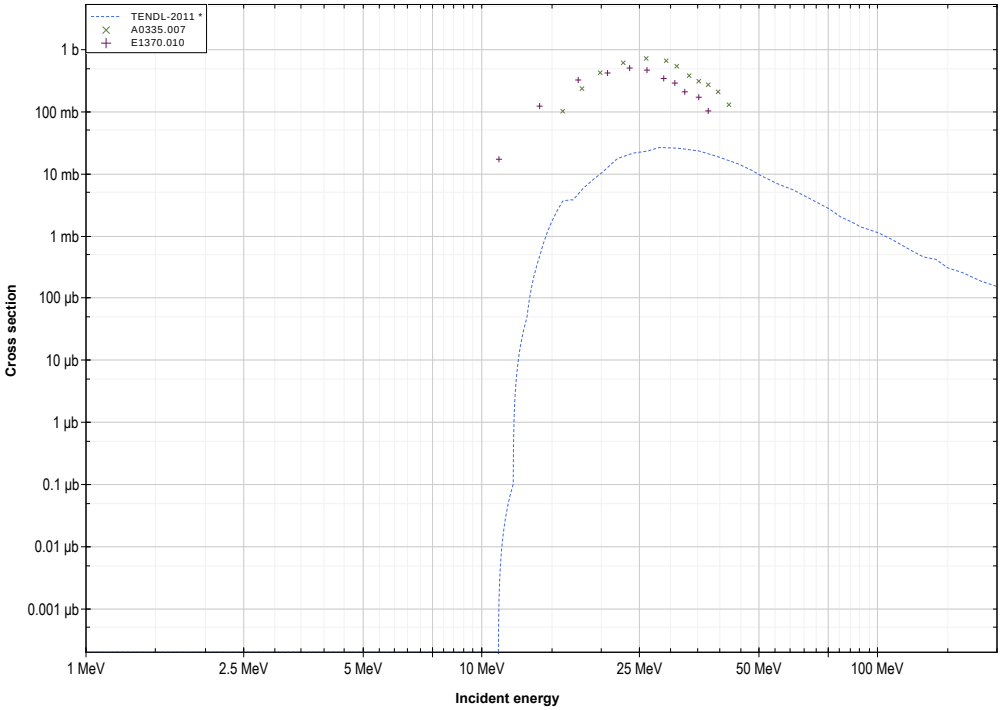
Ag109 (^{3}He,2n) lin-log



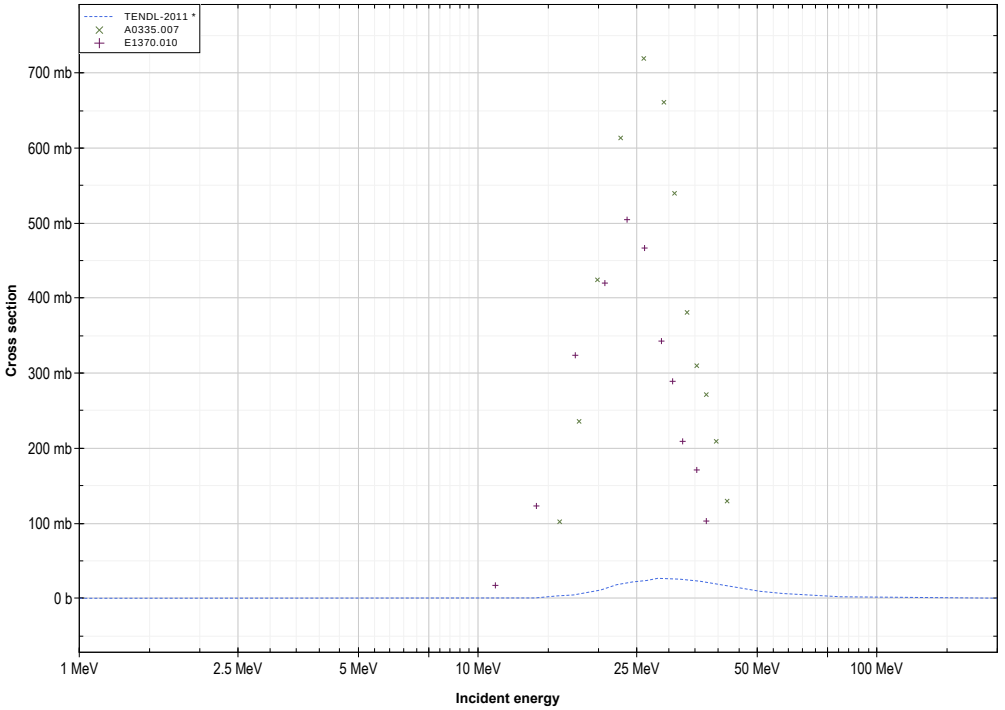
Reaction	Q-Value
Ag109(He3,2n)In110	-3459.12 keV

<< 44-Ru-101	**47-Ag-109**	51-Sb-123 >>
<< MT16 (³He,2n)	**MT17 (³He,3n) or MT5 (In109 production)**	MT24 (³He,2n+α) >>

Ag109 (³He,3n) log-log



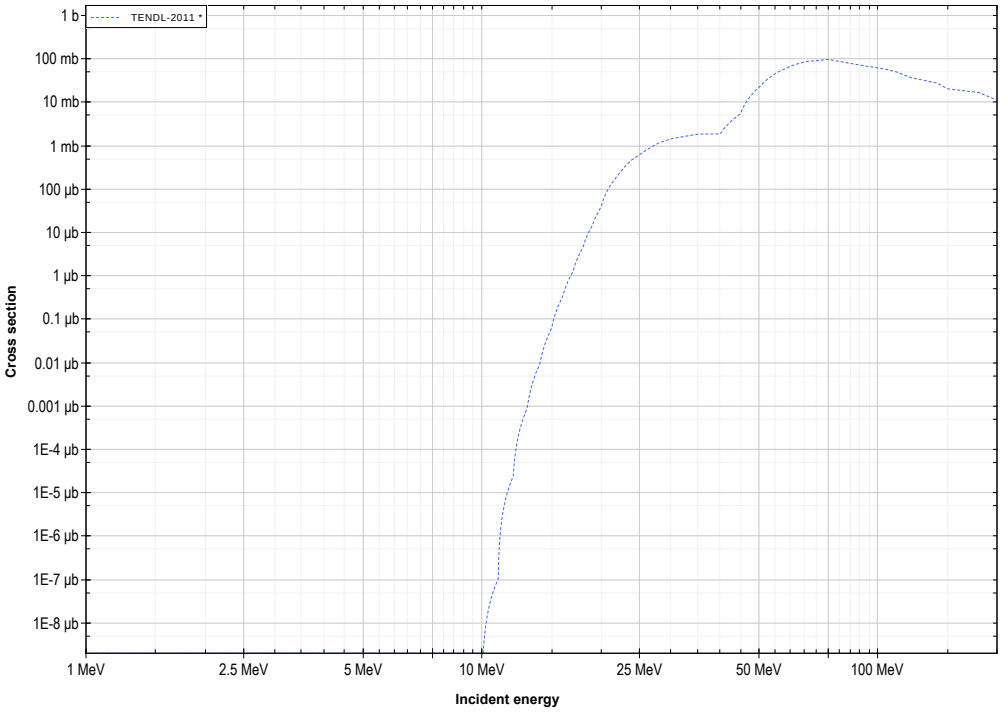
Ag109 (³He,3n) lin-log



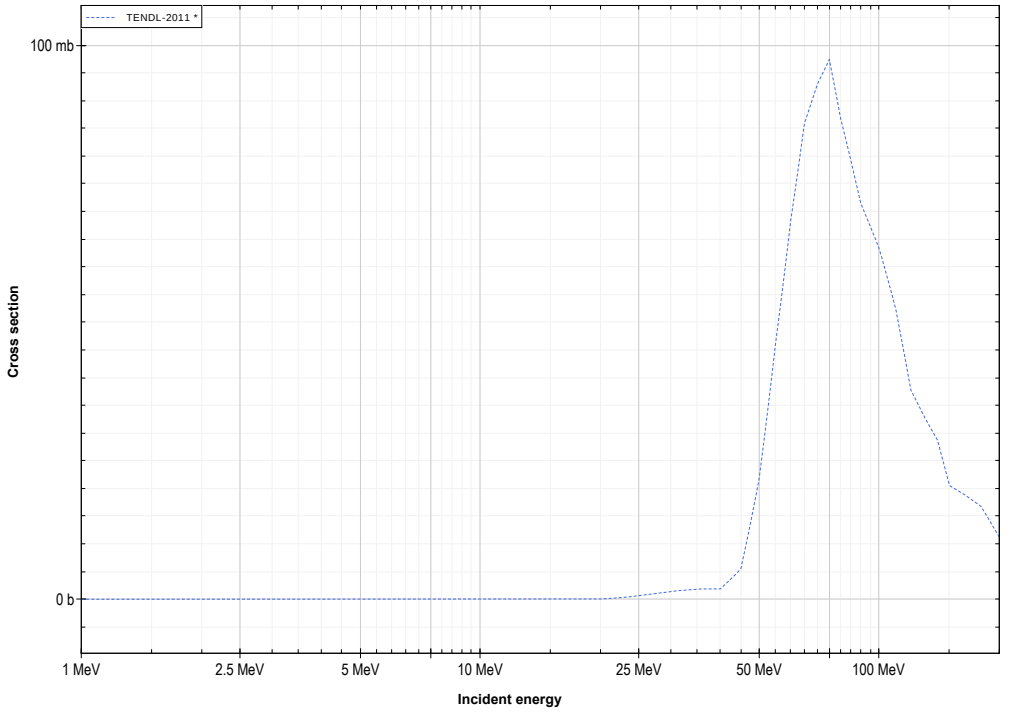
Reaction	Q-Value
Ag109(He3,3n)In109	-11516.44 keV

<< 47-Ag-107	**47-Ag-109**	73-Ta-181 >>
<< MT17 (³He,3n)	**MT24 (³He,2n+α) or MT5 (Ag106 production)**	MT37 (³He,4n) >>

Ag109 (³He,2n+α) log-log



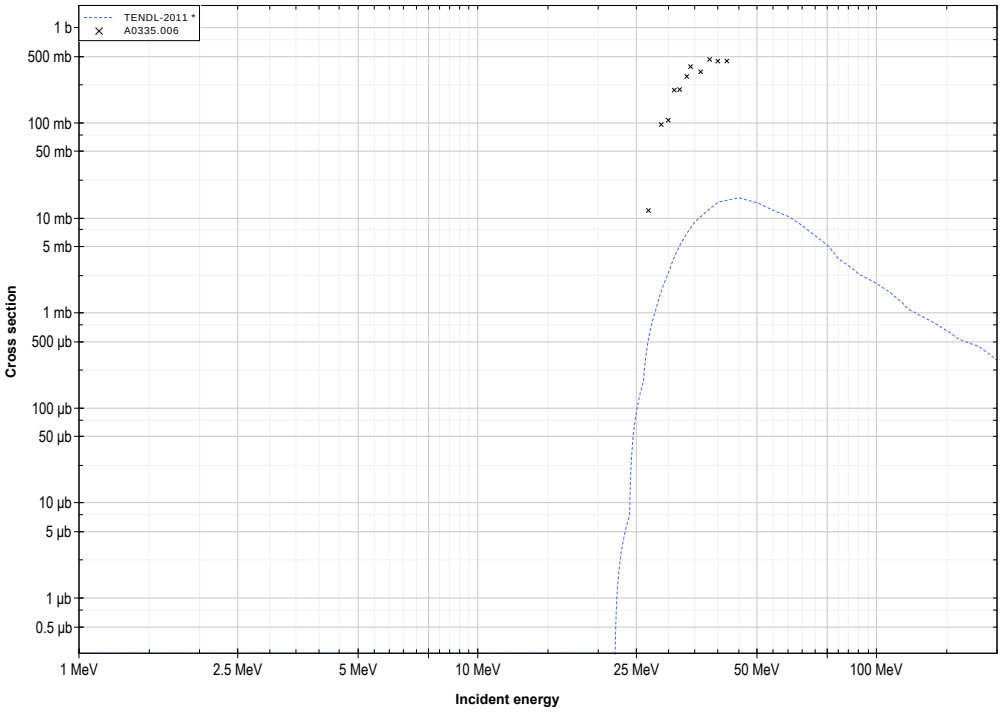
Ag109 (³He,2n+α) lin-log



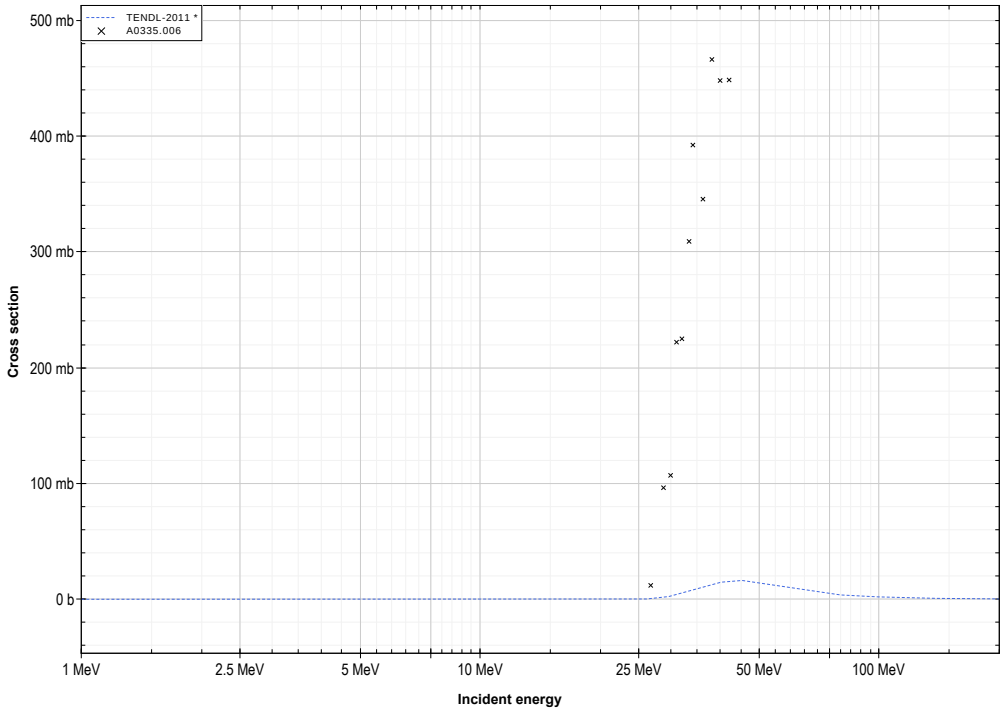
Reaction	Q-Value
Ag109(He3,2n+α)Ag106	-5422.03 keV
Ag109(He3,2t)Ag106	-16754.10 keV
Ag109(He3,n+d+t)Ag106	-23011.33 keV
Ag109(He3,2n+p+t)Ag106	-25235.90 keV
Ag109(He3,3n+He3)Ag106	-25999.65 keV
Ag109(He3,2n+2d)Ag106	-29268.56 keV
Ag109(He3,3n+p+d)Ag106	-31493.13 keV
Ag109(He3,4n+2p)Ag106	-33717.69 keV

<< 47-Ag-107	**47-Ag-109**	62-Sm-147 >>
<< MT24 (^{3}He,2n+α)	**MT37 (^{3}He,4n) or MT5 (In108 production)**	MT41 (^{3}He,2n+p) >>

Ag109 (^{3}He,4n) log-log

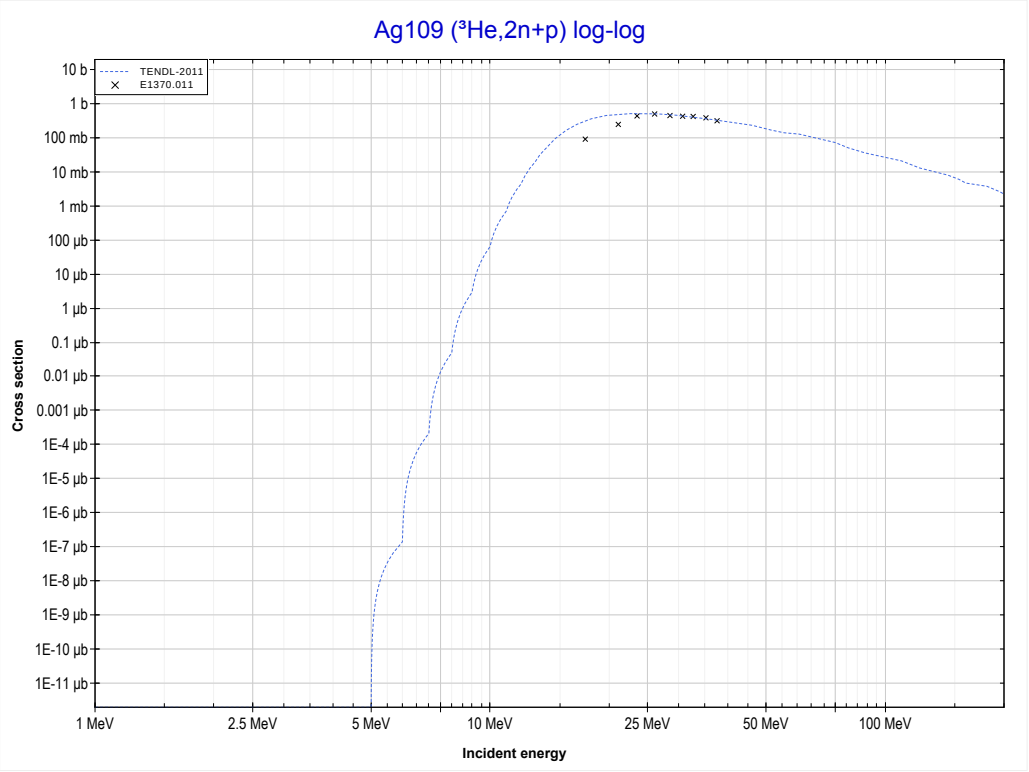


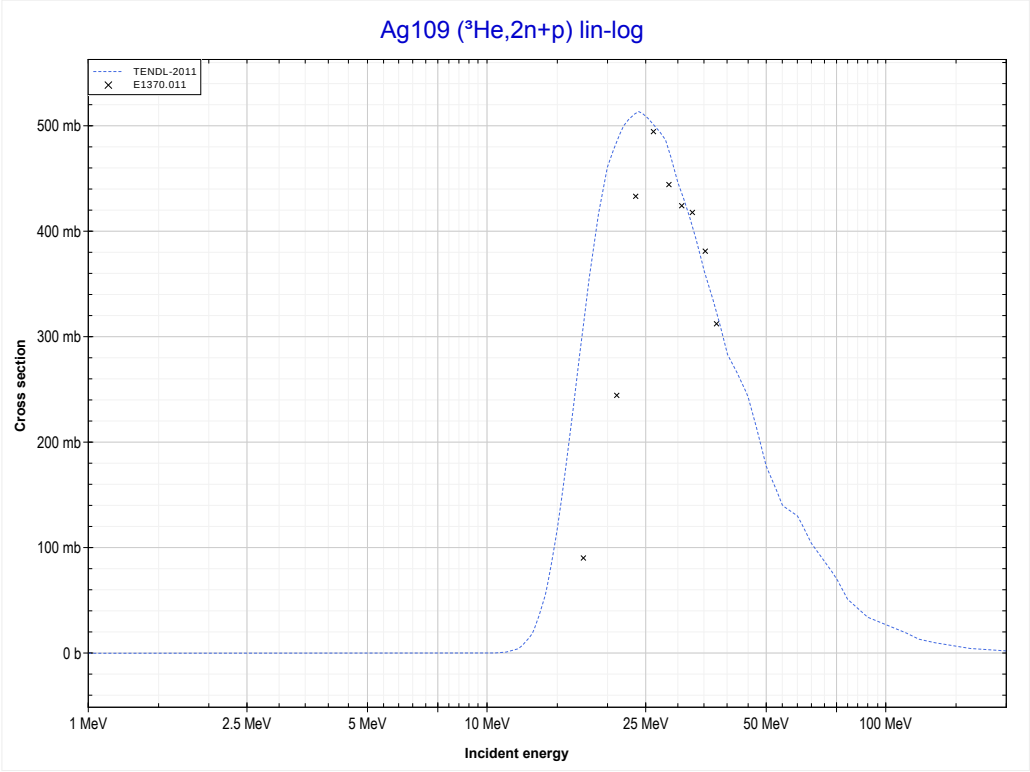
Ag109 (^{3}He,4n) lin-log



Reaction	Q-Value
Ag109(He3,4n)In108	-21960.75 keV

<< 34-Se-77	**47-Ag-109**	74-W-186 >>
<< MT37 (^{3}He,4n)	**MT41 (^{3}He,2n+p) or MT5 (Cd109 production)**	MT111 (^{3}He,2p) >>

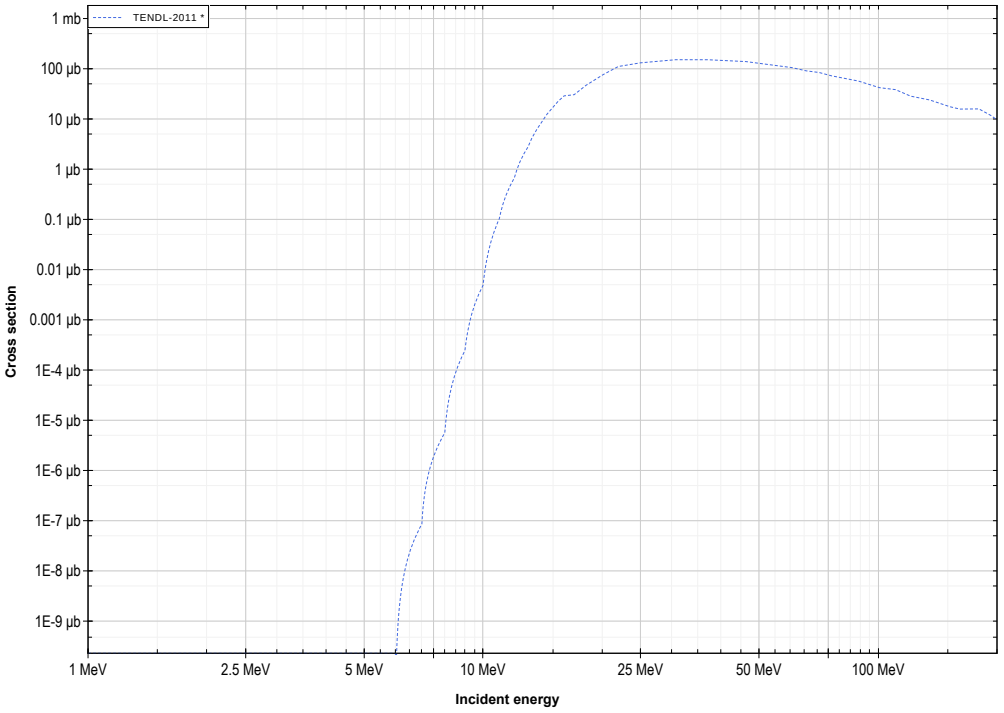




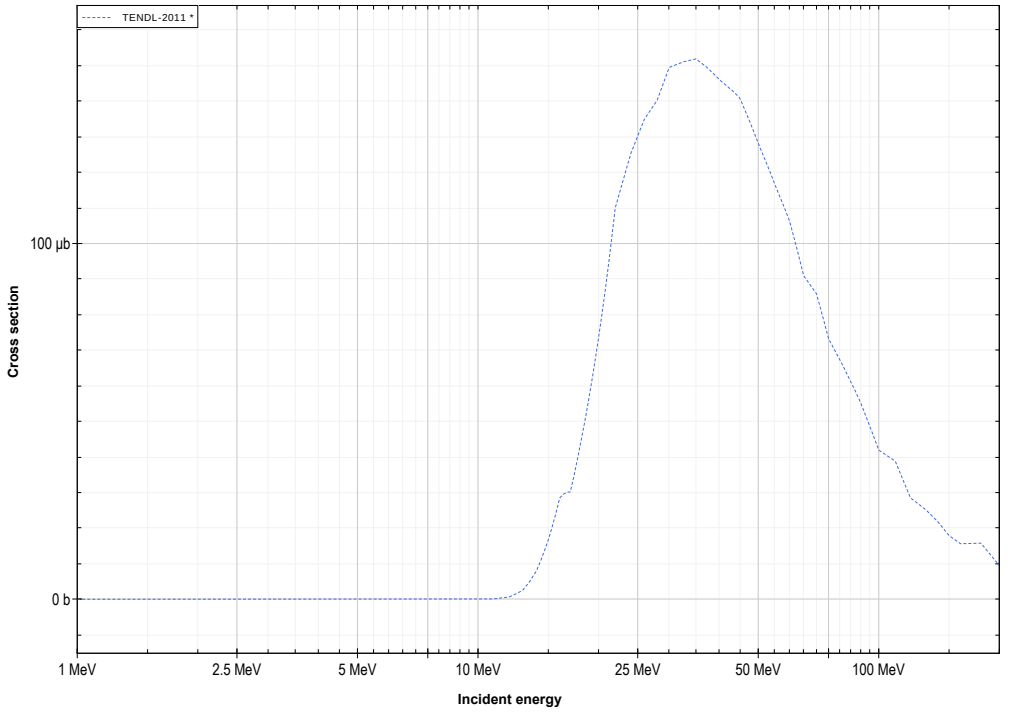
Reaction	Q-Value
Ag109(He3,t)Cd109	-233.29 keV
Ag109(He3,n+d)Cd109	-6490.52 keV
Ag109(He3,2n+p)Cd109	-8715.09 keV

<< 44-Ru-102	**47-Ag-109**	74-W-186 >>
<< MT41 (³He,2n+p)	**MT111 (³He,2p) or MT5 (Ag110 production)**	MT16 (³He,2n) >>

Ag109 (³He,2p) log-log



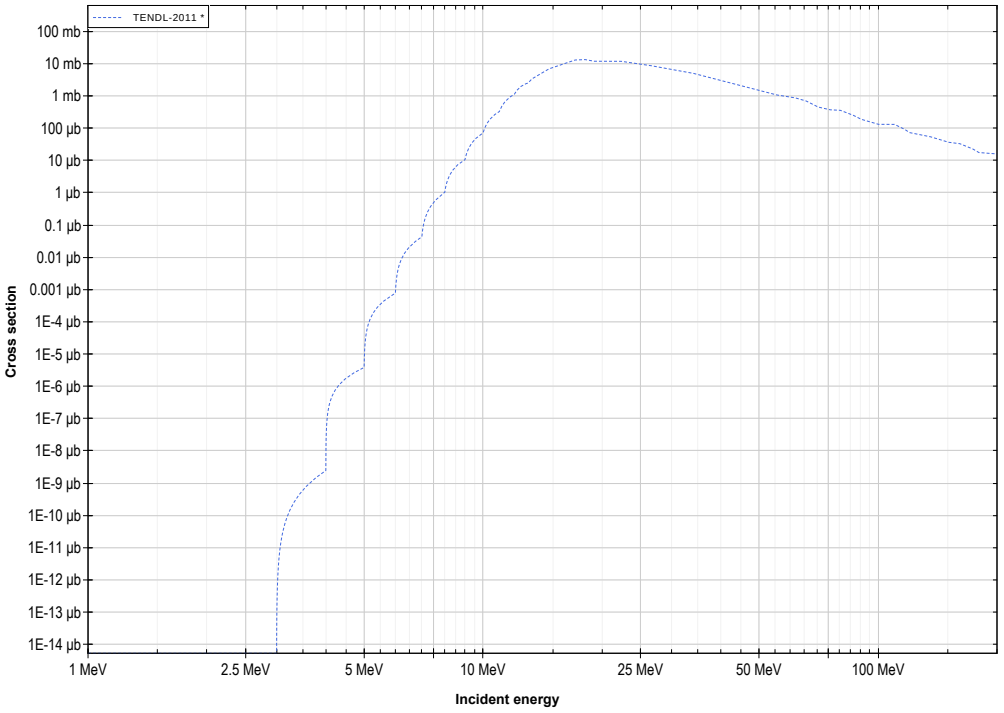
Ag109 (³He,2p) lin-log



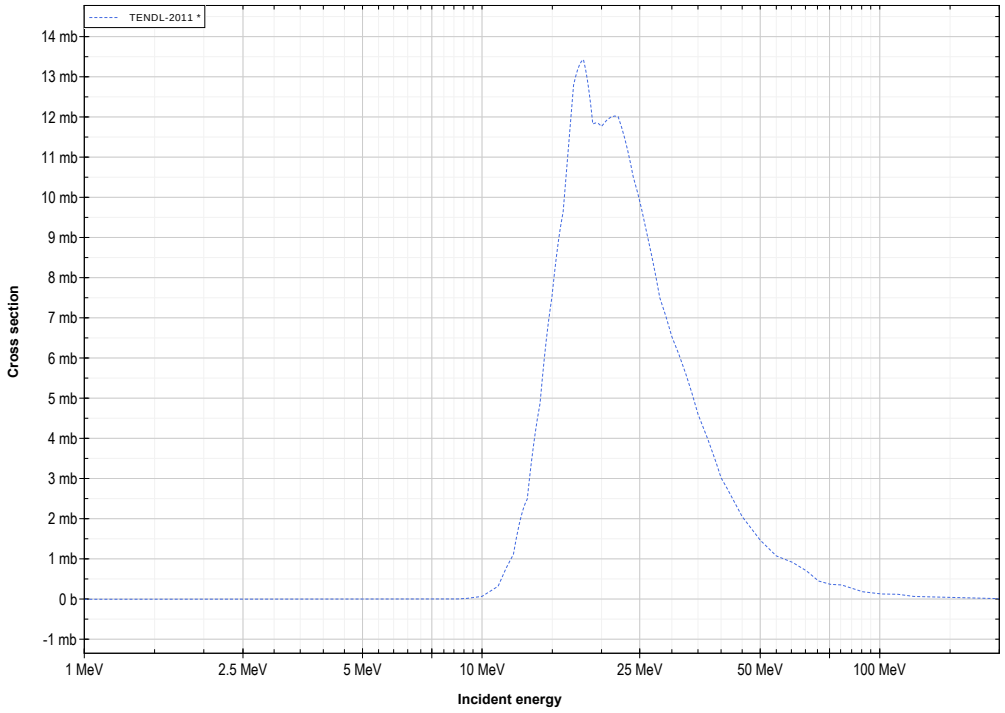
Reaction	Q-Value
Ag109(He3,2p)Ag110	-908.83 keV

<< 47-Ag-109	**48-Cd-116**	51-Sb-123 >>
<< MT111 (^{3}He,2p)	**MT16 (^{3}He,2n) or MT5 (Sn117 production)**	MT107 (^{3}He,α) >>

Cd116 (^{3}He,2n) log-log



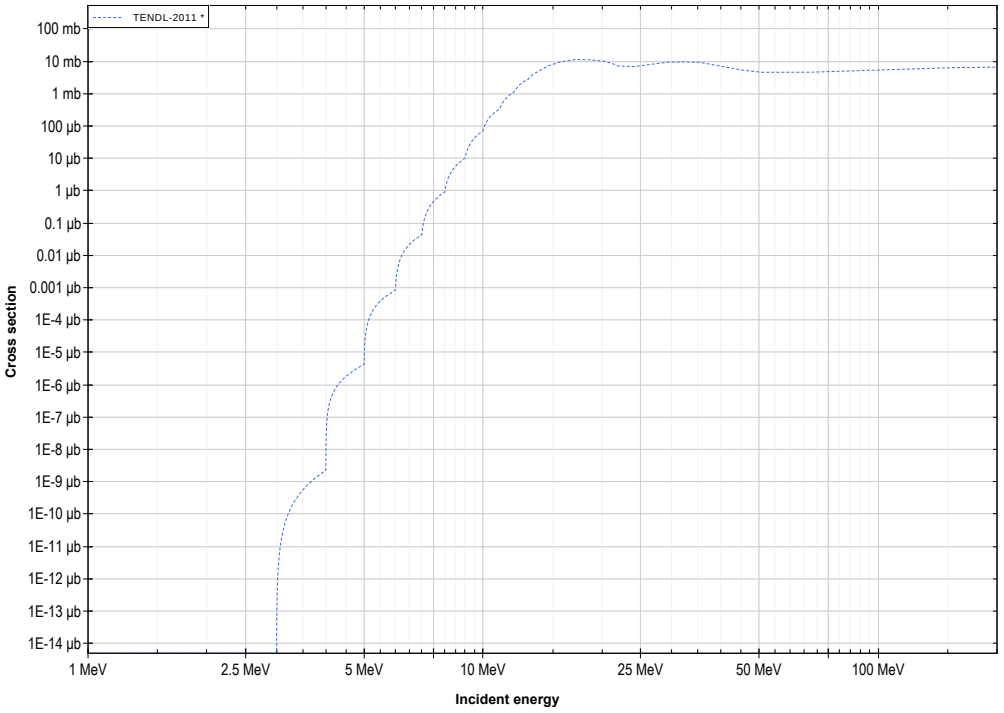
Cd116 (^{3}He,2n) lin-log



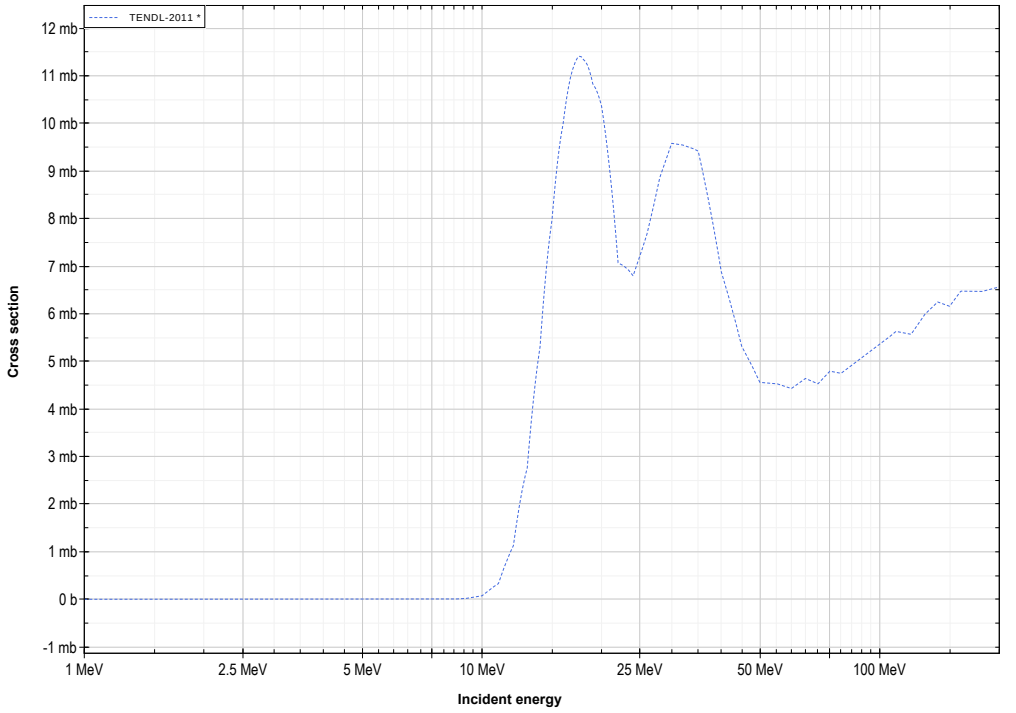
Reaction	Q-Value
Cd116(He3,2n)Sn117	469.58 keV

<< 47-Ag-107	**48-Cd-116**	73-Ta-181 >>
<< MT16 (^{3}He,2n)	**MT107 (^{3}He,α) or MT5 (Cd115 production)**	MT16 (^{3}He,2n) >>

Cd116 (^{3}He,α) log-log



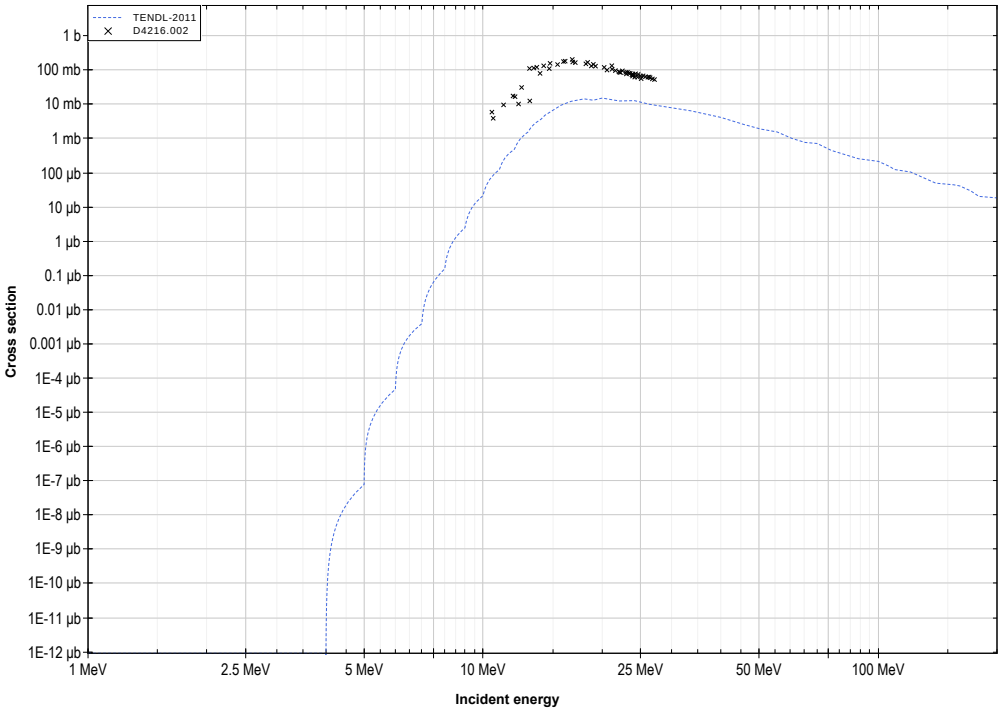
Cd116 (^{3}He,α) lin-log



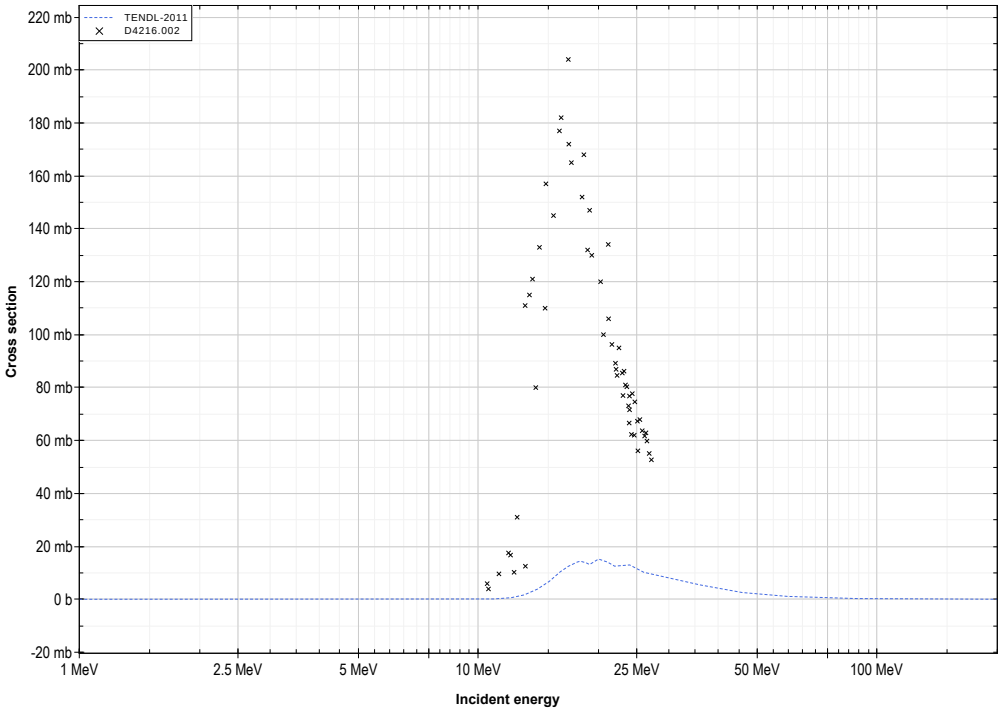
Reaction	Q-Value
Cd116(He3,α)Cd115	11877.80 keV
Cd116(He3,p+t)Cd115	-7936.06 keV
Cd116(He3,n+He3)Cd115	-8699.82 keV
Cd116(He3,2d)Cd115	-11968.73 keV
Cd116(He3,n+p+d)Cd115	-14193.29 keV
Cd116(He3,2n+2p)Cd115	-16417.86 keV

<< 48-Cd-116	**51-Sb-123**	73-Ta-181 >>
<< MT107 (³He,α)	**MT16 (³He,2n) or MT5 (I124 production)**	MT17 (³He,3n) >>

Sb123 (³He,2n) log-log



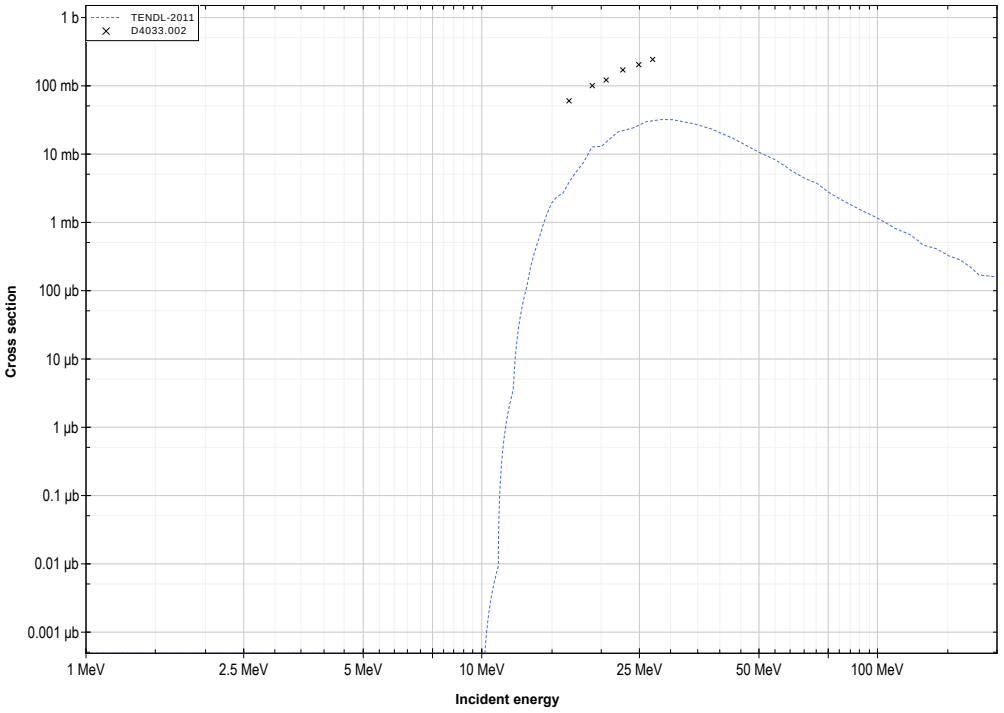
Sb123 (³He,2n) lin-log



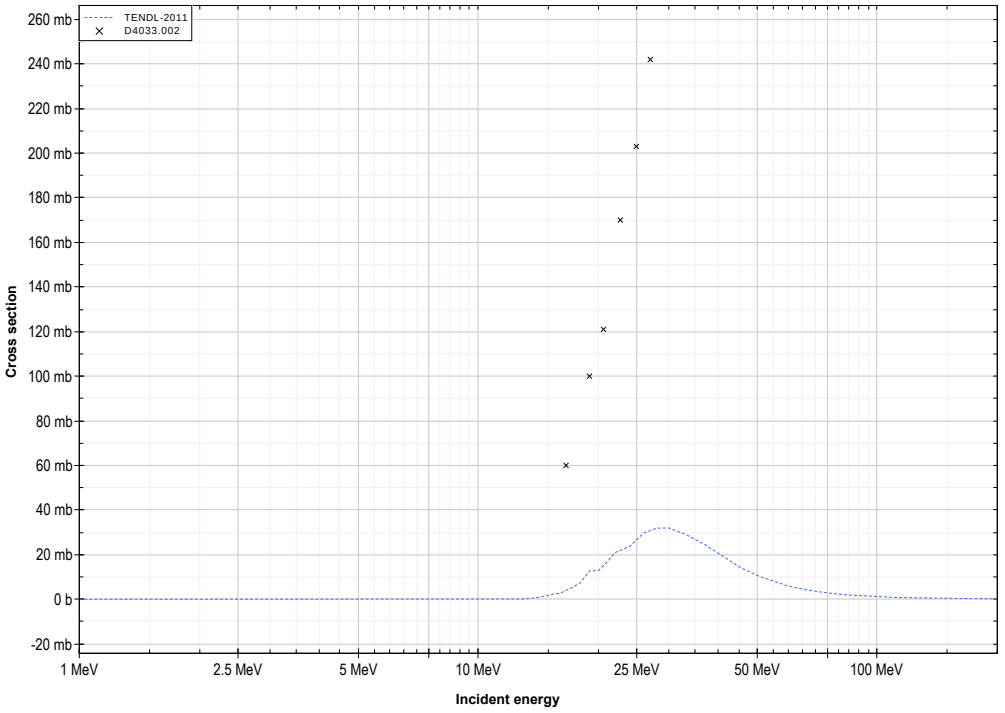
Reaction	Q-Value
Sb123(He3,2n)I124	-3070.52 keV

<< 47-Ag-109	**51-Sb-123**	62-Sm-147 >>
<< MT16 (³He,2n)	**MT17 (³He,3n) or MT5 (I123 production)**	MT4 (³He,n) >>

Sb123 (³He,3n) log-log



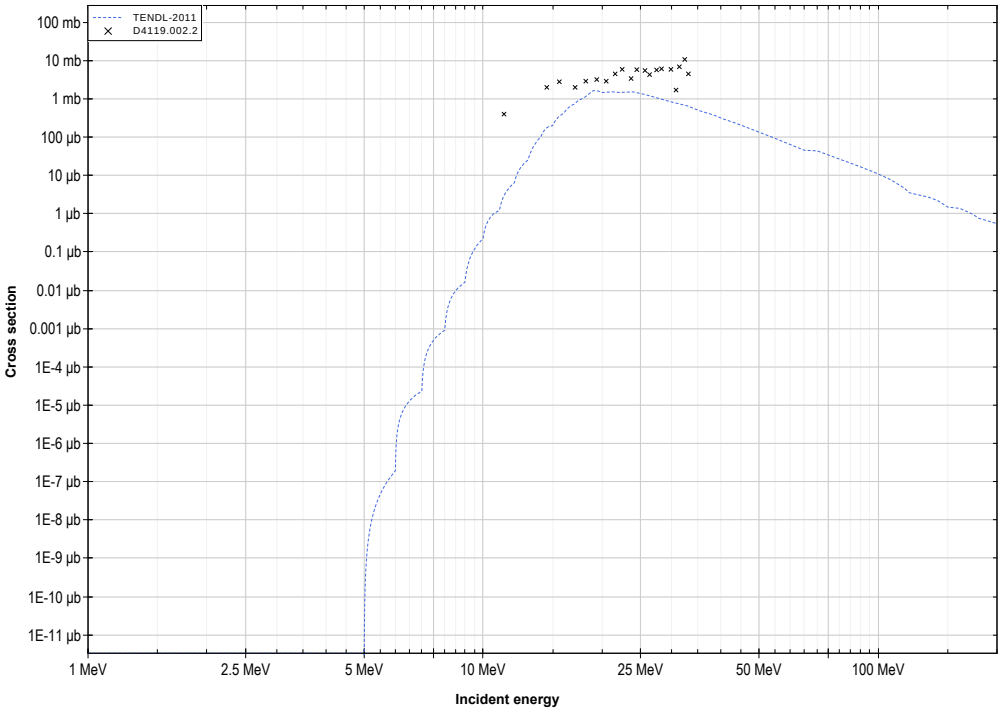
Sb123 (³He,3n) lin-log



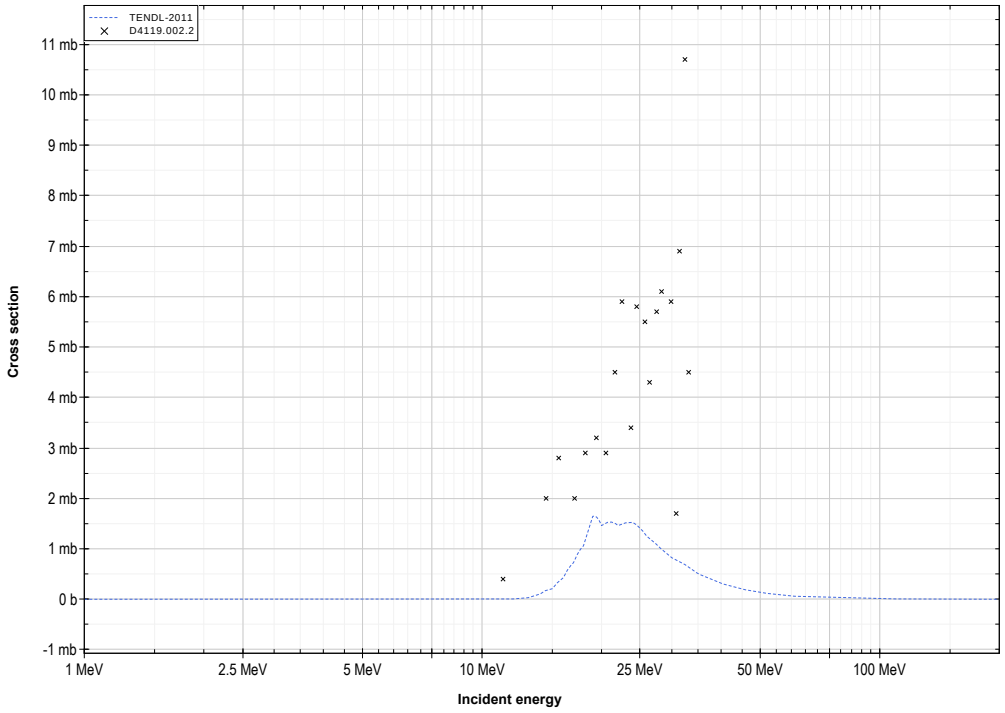
Reaction	Q-Value
Sb123(He3,3n)I123	-10563.84 keV

<< 47-Ag-109	**62-Sm-147**	73-Ta-181 >>
<< MT17 (^{3}He,3n)	**MT4 (^{3}He,n) or MT5 (Gd149 production)**	MT17 (^{3}He,3n) >>

Sm147 (^{3}He,n) log-log



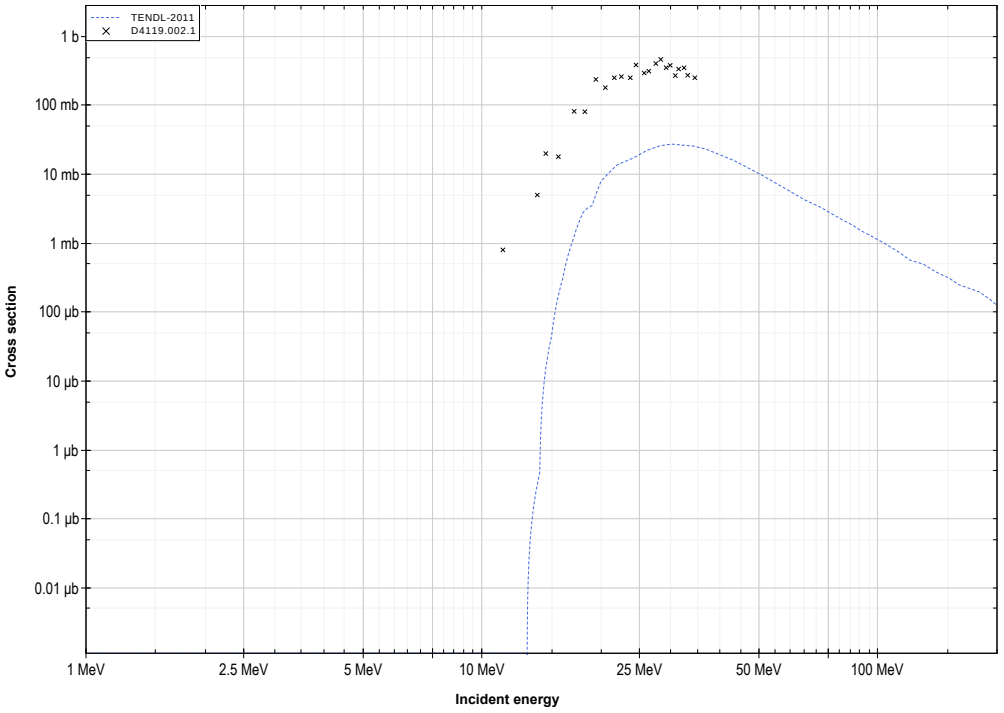
Sm147 (^{3}He,n) lin-log



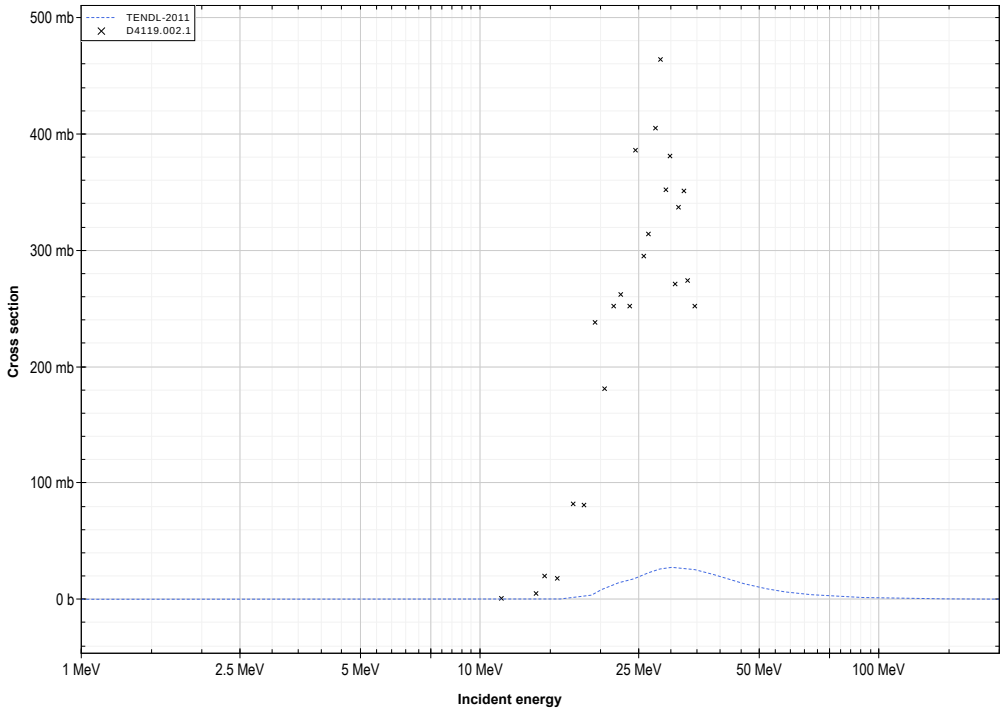
Reaction	Q-Value
Sm147(He3,n)Gd149	2720.80 keV

<< 51-Sb-123	**62-Sm-147**	73-Ta-181 >>
<< MT4 (^{3}He,n)	**MT17 (^{3}He,3n) or MT5 (Gd147 production)**	MT28 (^{3}He,n+p) >>

Sm147 (^{3}He,3n) log-log



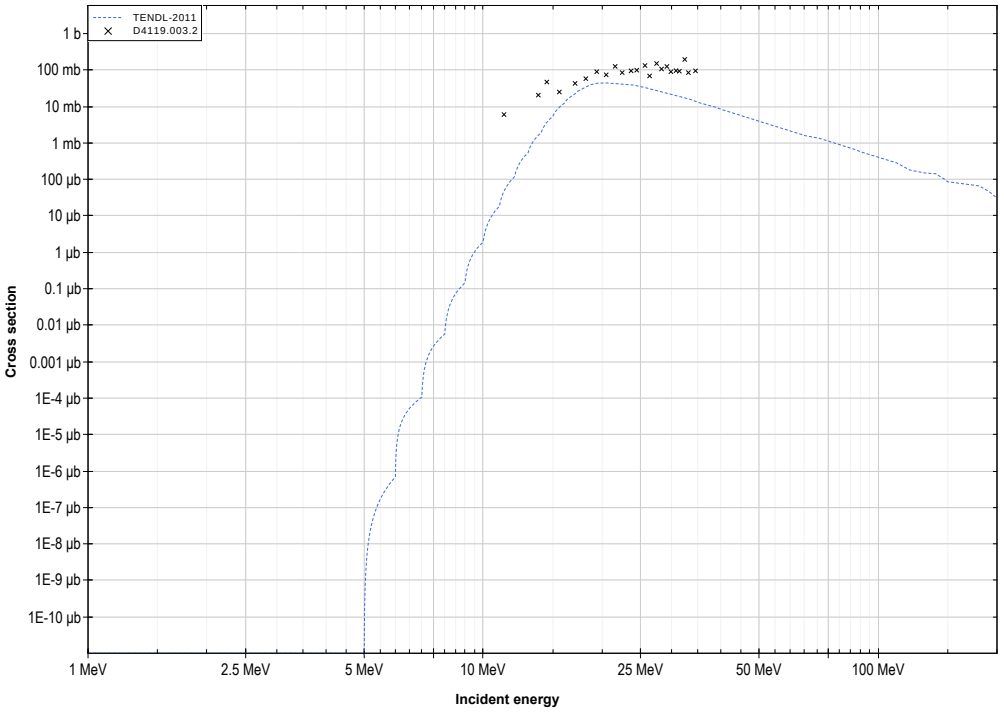
Sm147 (^{3}He,3n) lin-log



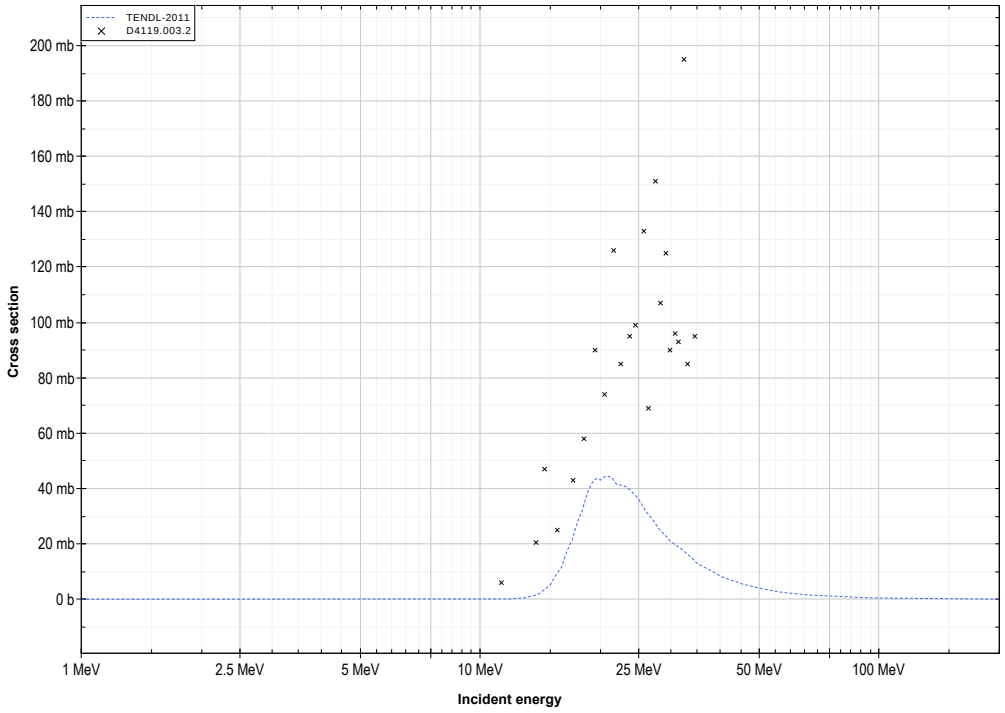
Reaction	Q-Value
Sm147(He3,3n)Gd147	-13191.84 keV

<< 34-Se-77	**62-Sm-147**	74-W-183 >>
<< MT17 (^{3}He,3n)	**MT28 (^{3}He,n+p) or MT5 (Eu148 production)**	MT37 (^{3}He,4n) >>

Sm147 (^{3}He,n+p) log-log



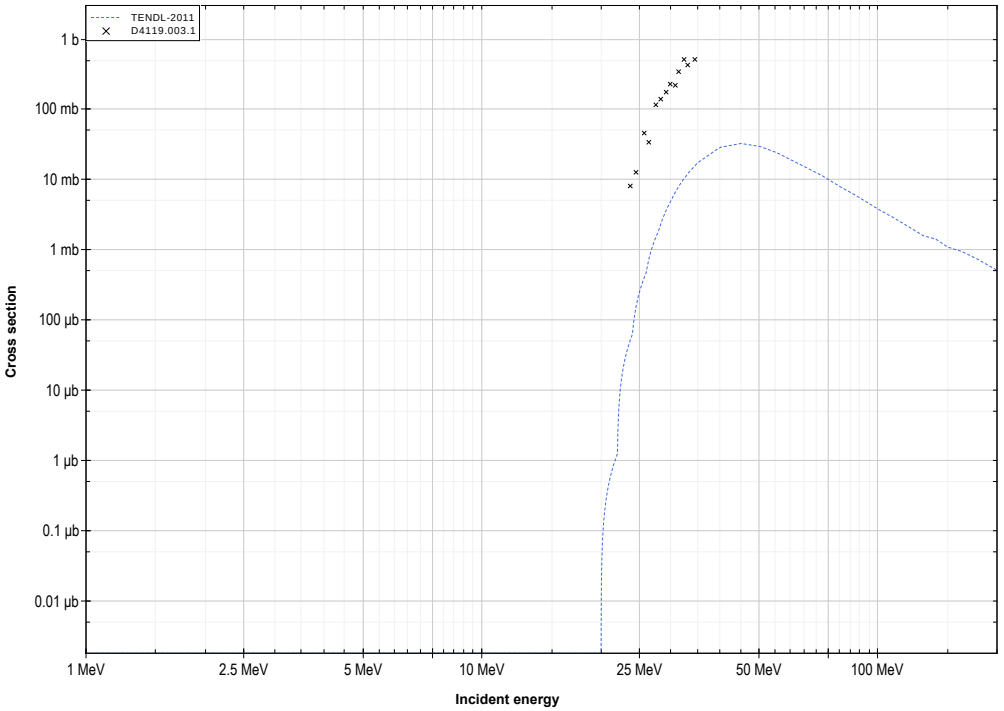
Sm147 (^{3}He,n+p) lin-log



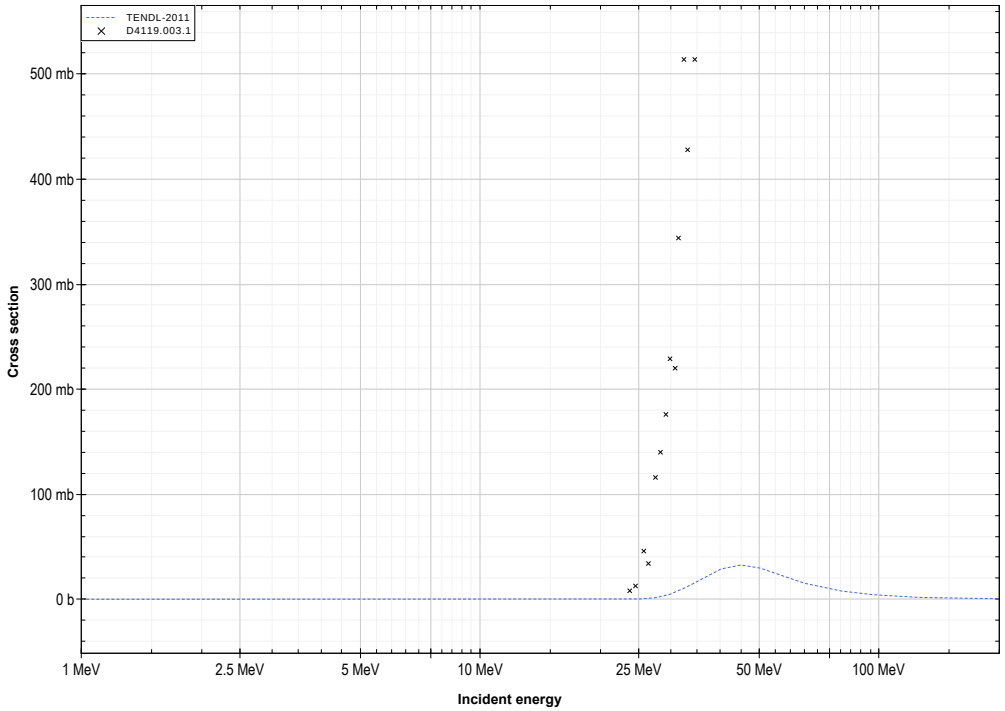
Reaction	Q-Value
Sm147(He3,d)Eu148	-1174.61 keV
Sm147(He3,n+p)Eu148	-3399.17 keV

<< 47-Ag-109	**62-Sm-147**	73-Ta-181 >>
<< MT28 (^{3}He,n+p)	**MT37 (^{3}He,4n) or MT5 (Gd146 production)**	MT4 (^{3}He,n) >>

Sm147 (^{3}He,4n) log-log



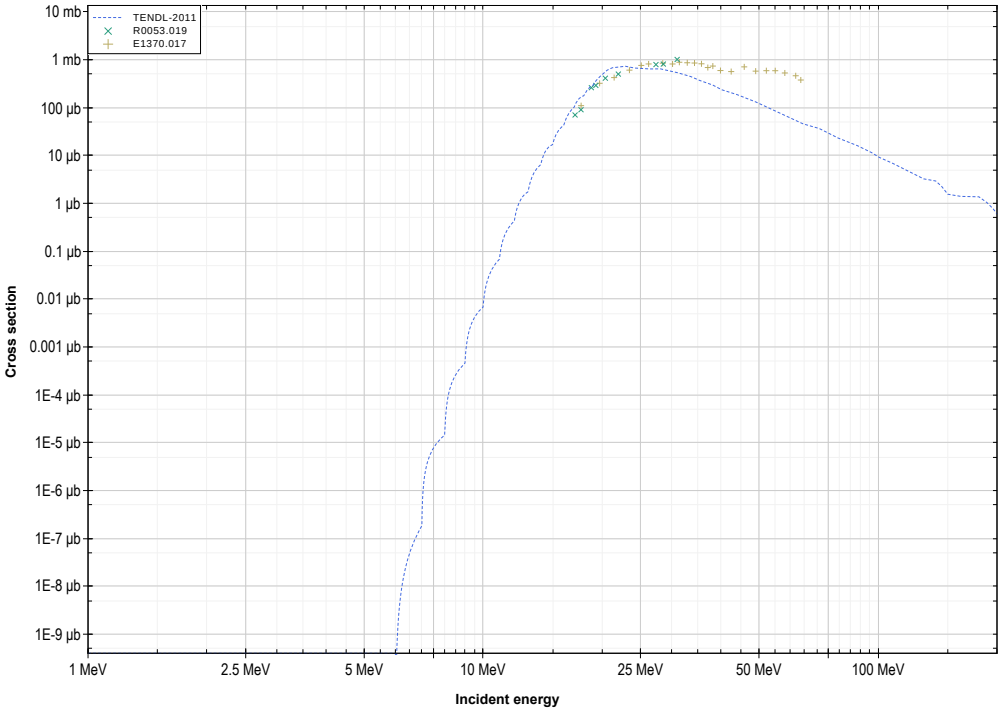
Sm147 (^{3}He,4n) lin-log



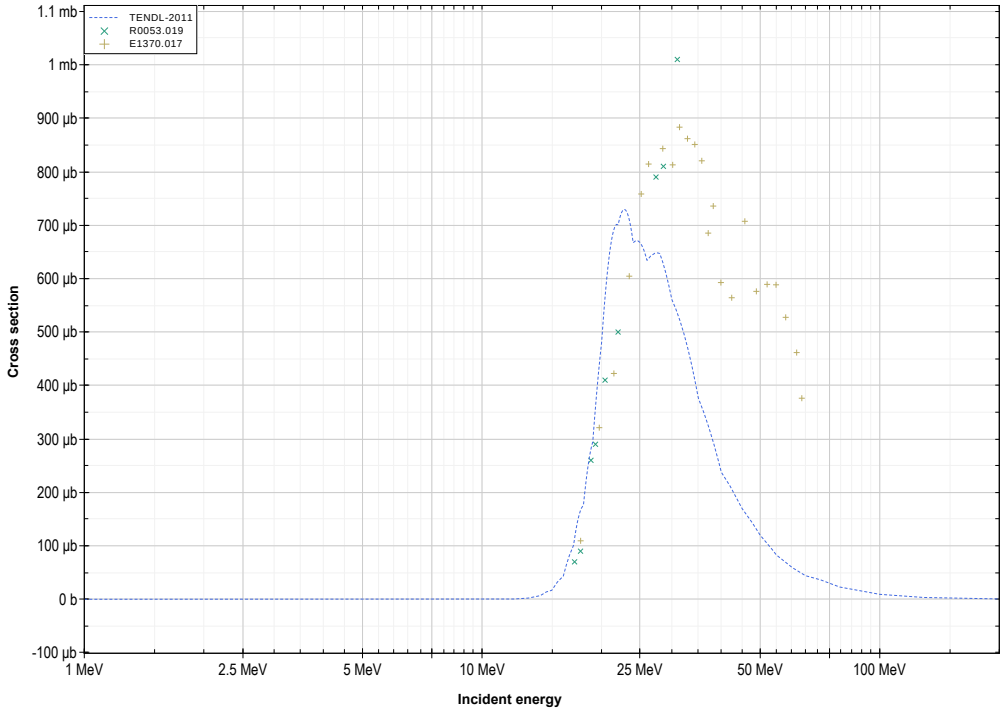
Reaction	Q-Value
Sm147(He3,4n)Gd146	-20533.15 keV

<< 62-Sm-147	**73-Ta-181**	82-Pb-208 >>
<< MT37 (³He,4n)	**MT4 (³He,n) or MT5 (Re183 production)**	MT16 (³He,2n) >>

Ta181 (³He,n) log-log



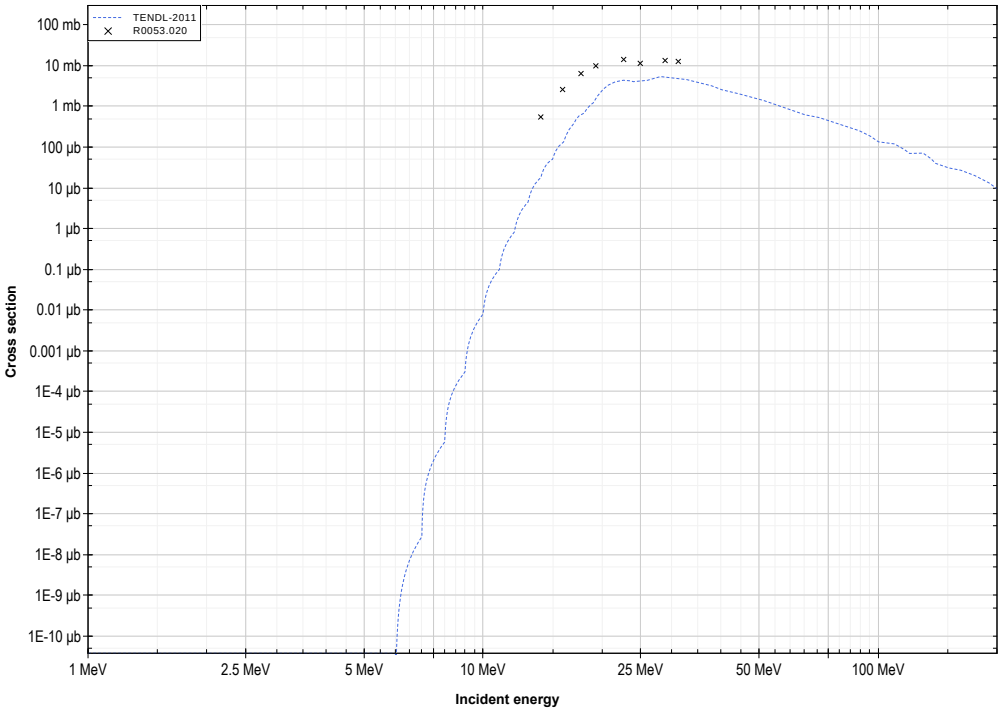
Ta181 (³He,n) lin-log



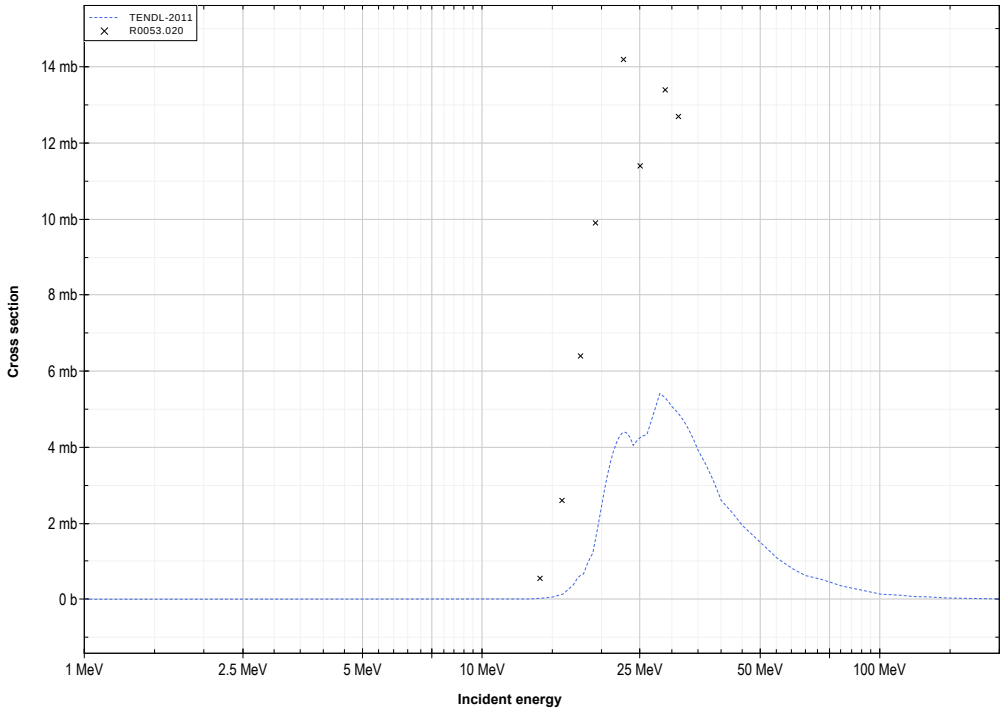
Reaction	Q-Value
Ta181(He3,n)Re183	4229.30 keV

<< 51-Sb-123	**73-Ta-181**	79-Au-197 >>
<< MT4 (^{3}He,n)	**MT16 (^{3}He,2n) or MT5 (Re182 production)**	MT17 (^{3}He,3n) >>

Ta181 (^{3}He,2n) log-log



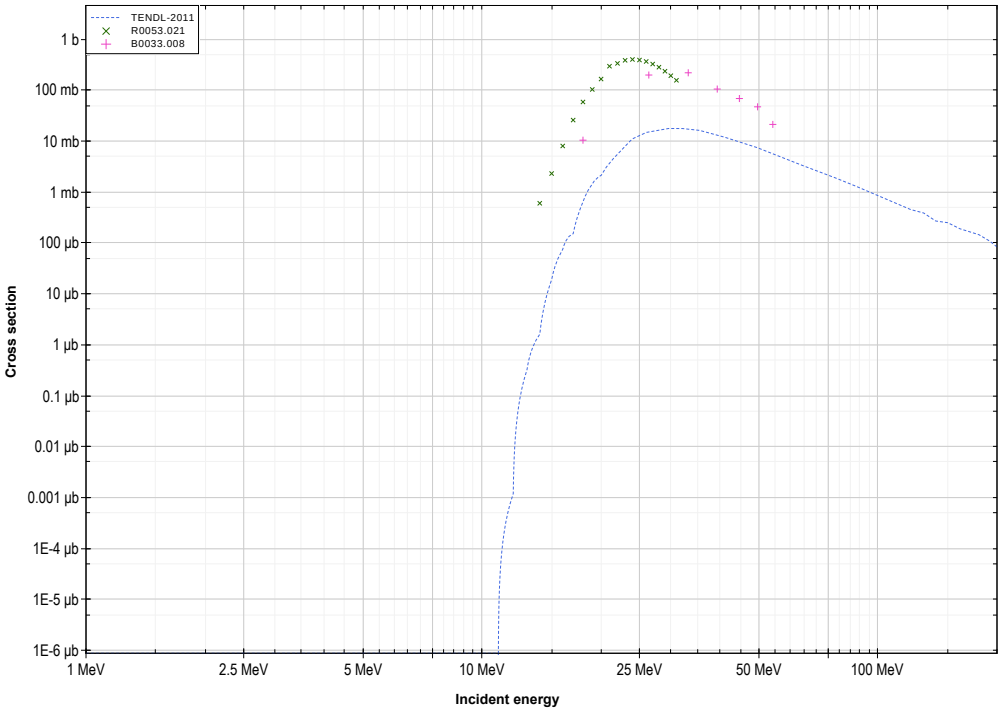
Ta181 (^{3}He,2n) lin-log



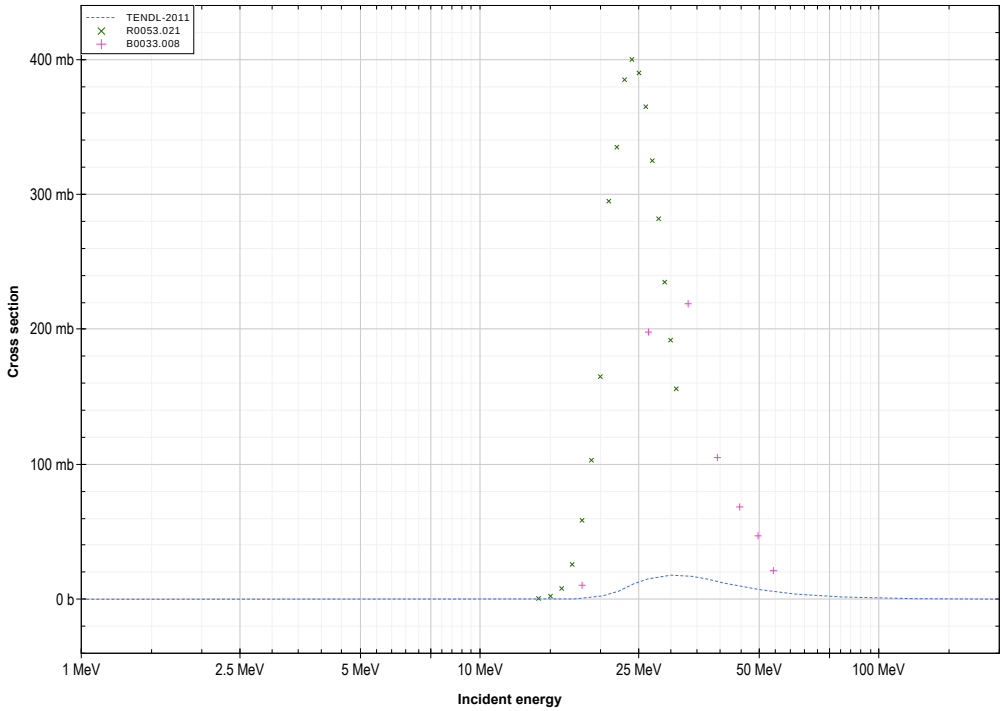
Reaction	Q-Value
Ta181(He3,2n)Re182	-4203.02 keV

<< 62-Sm-147	**73-Ta-181**	75-Re-187 >>
<< MT16 (³He,2n)	**MT17 (³He,3n) or MT5 (Re181 production)**	MT24 (³He,2n+α) >>

Ta181 (³He,3n) log-log



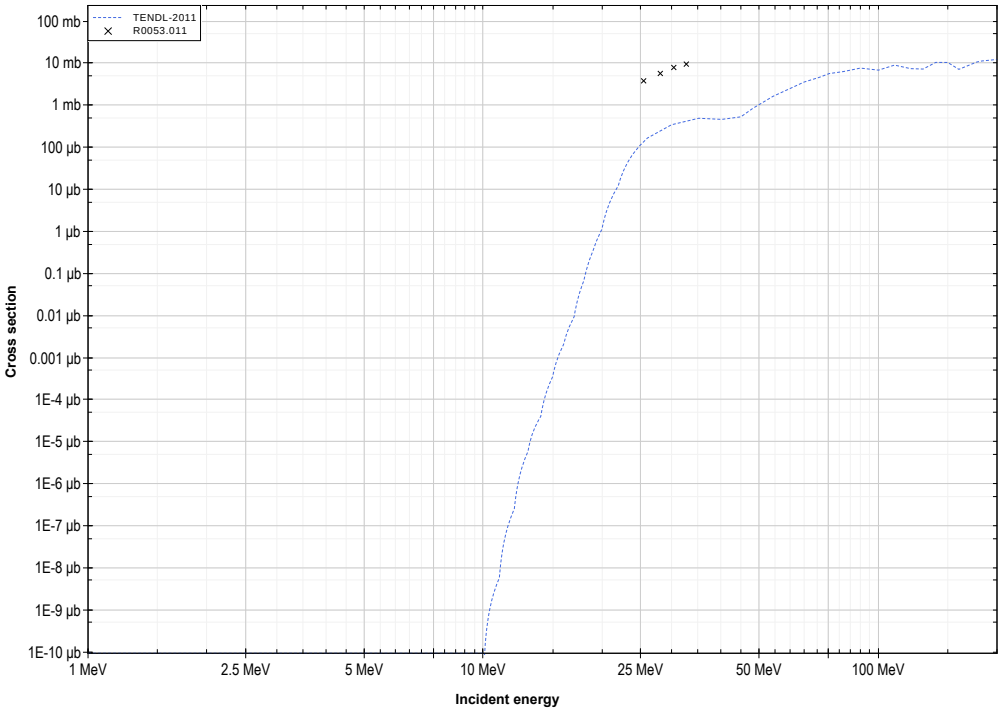
Ta181 (³He,3n) lin-log



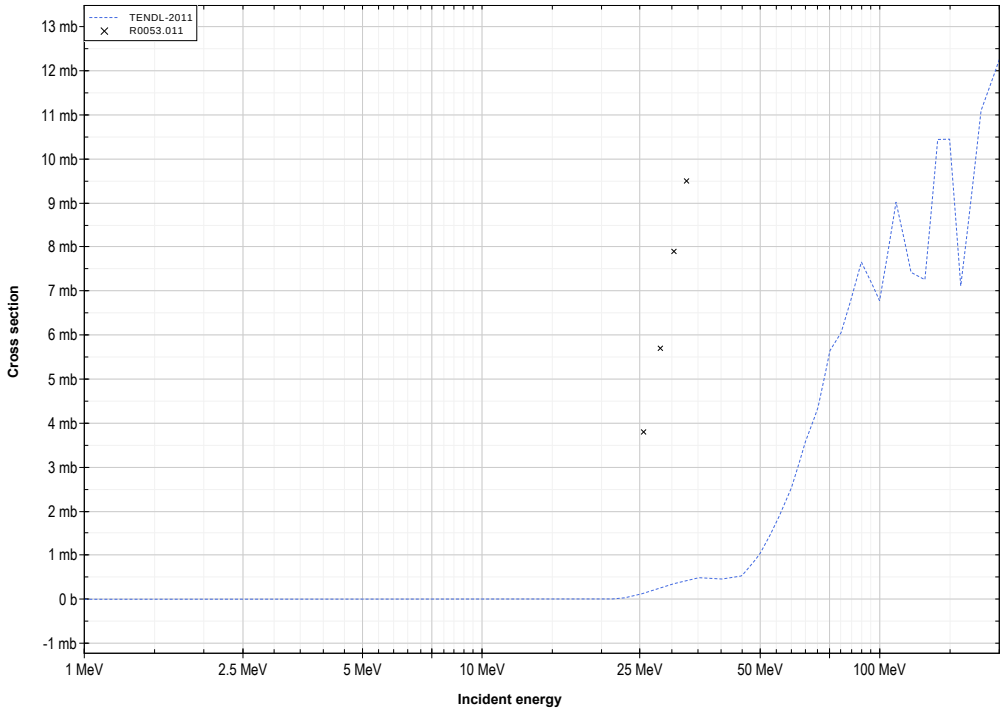
Reaction	Q-Value
Ta181(He3,3n)Re181	-11213.34 keV

<< 47-Ag-109	**73-Ta-181**	83-Bi-209 >>
<< MT17 (³He,3n)	**MT24 (³He,2n+α) or MT5 (Ta178 production)**	MT37 (³He,4n) >>

Ta181 (³He,2n+α) log-log



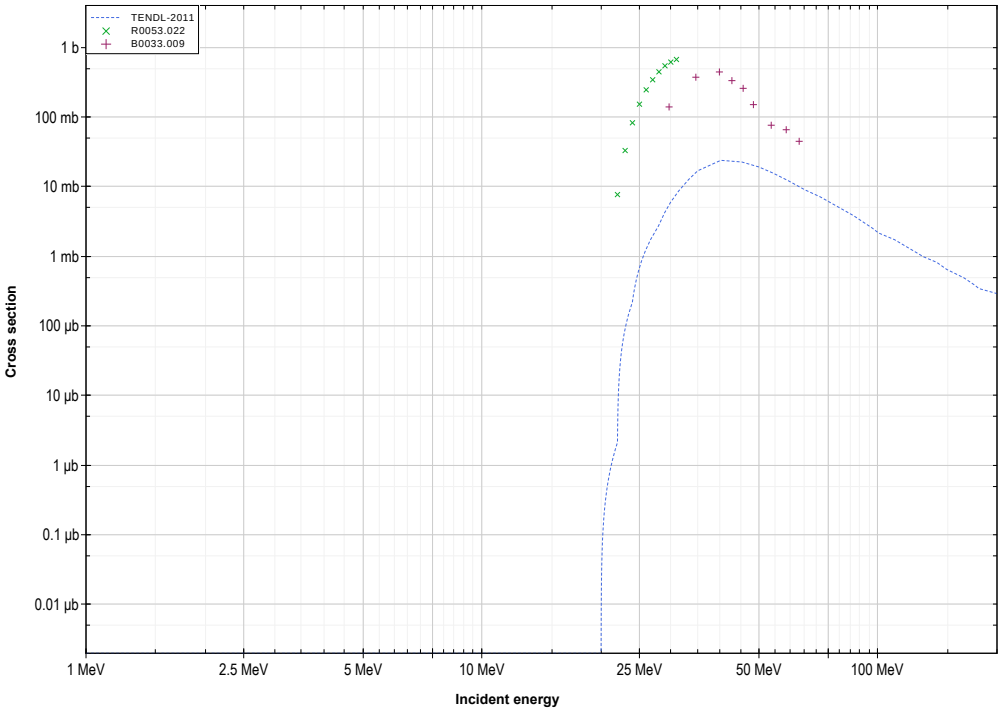
Ta181 (³He,2n+α) lin-log



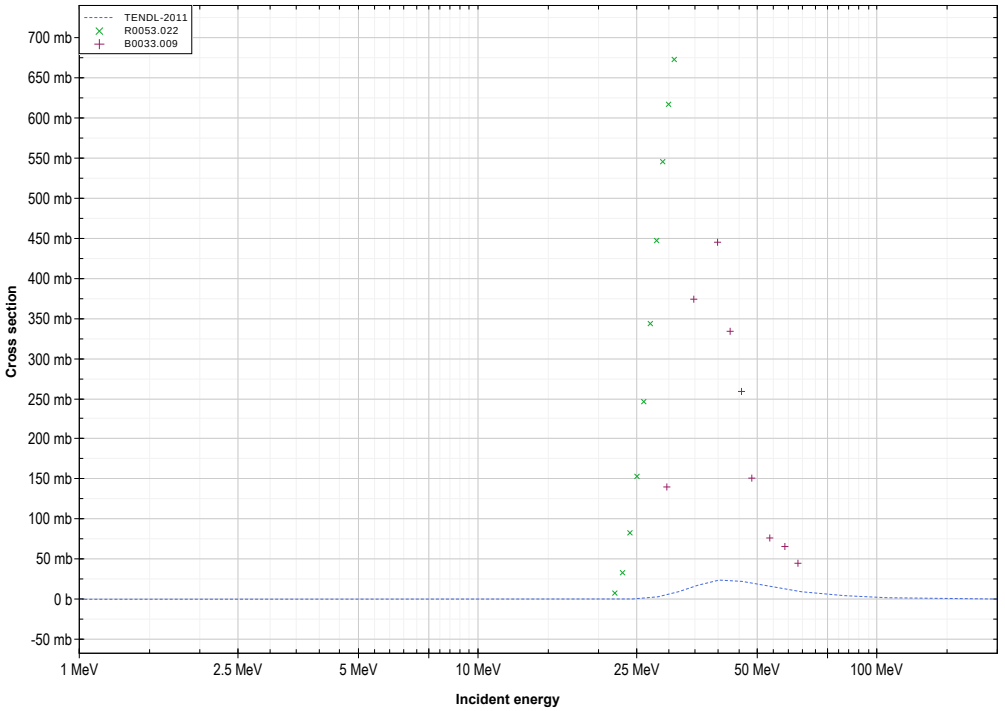
Reaction	Q-Value
Ta181(He3,2n+α)Ta178	-1570.93 keV
Ta181(He3,2t)Ta178	-12903.00 keV
Ta181(He3,n+d+t)Ta178	-19160.23 keV
Ta181(He3,2n+p+t)Ta178	-21384.80 keV
Ta181(He3,3n+He3)Ta178	-22148.55 keV
Ta181(He3,2n+2d)Ta178	-25417.46 keV
Ta181(He3,3n+p+d)Ta178	-27642.03 keV
Ta181(He3,4n+2p)Ta178	-29866.59 keV

<< 62-Sm-147	**73-Ta-181**	75-Re-187 >>
<< MT24 (³He,2n+α)	**MT37 (³He,4n) or MT5 (Re180 production)**	MT107 (³He,α) >>

Ta181 (³He,4n) log-log



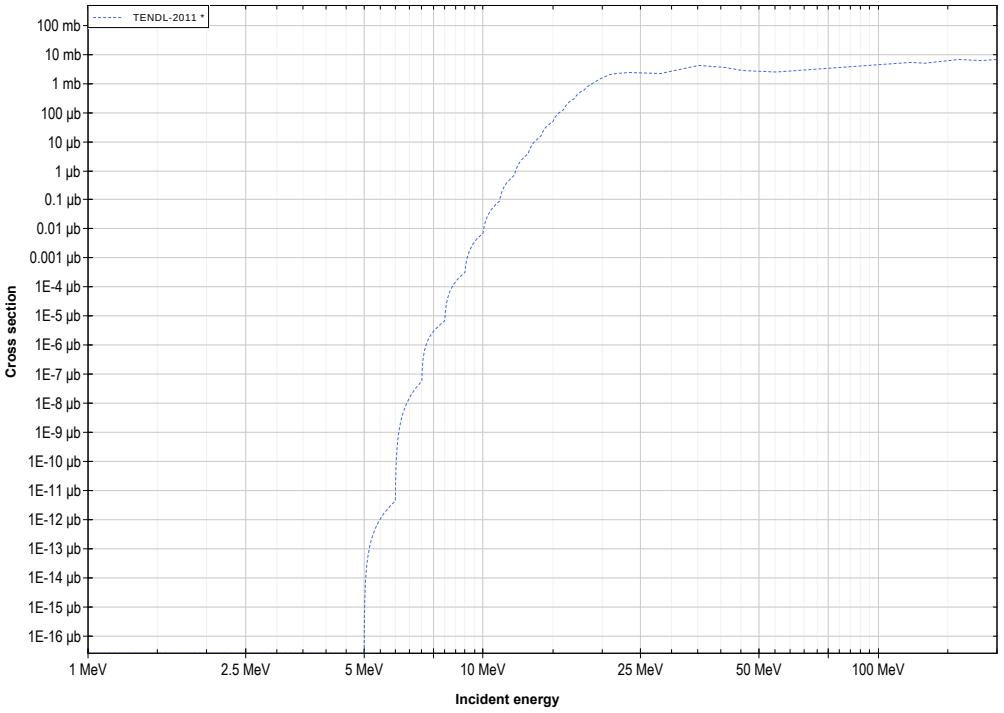
Ta181 (³He,4n) lin-log



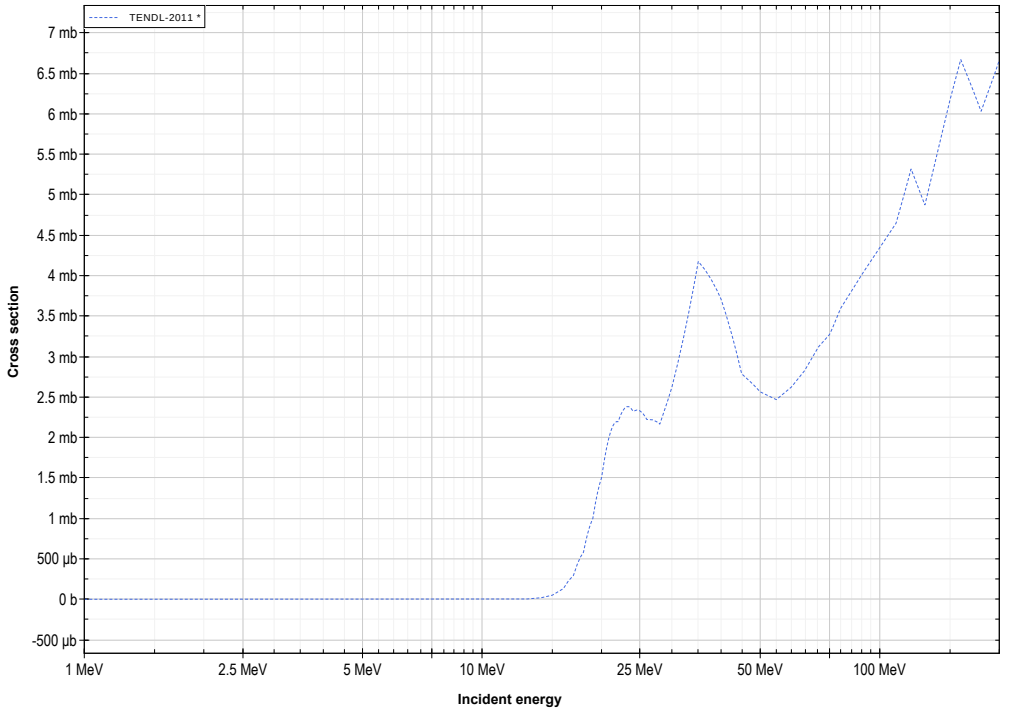
Reaction	Q-Value
Ta181(He3,4n)Re180	-19955.65 keV

<< 48-Cd-116	**73-Ta-181**	75-Re-185 >>
<< MT37 (^{3}He,4n)	**MT107 (^{3}He,α) or MT5 (Ta180 production)**	MT152 (^{3}He,5n) >>

Ta181 (^{3}He,α) log-log



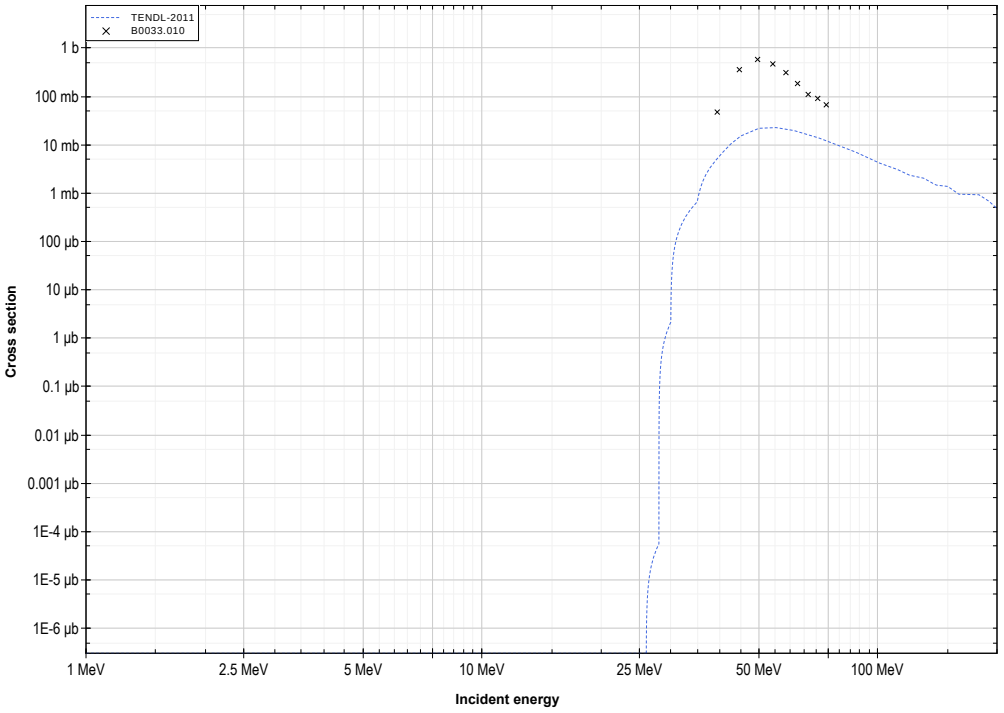
Ta181 (^{3}He,α) lin-log



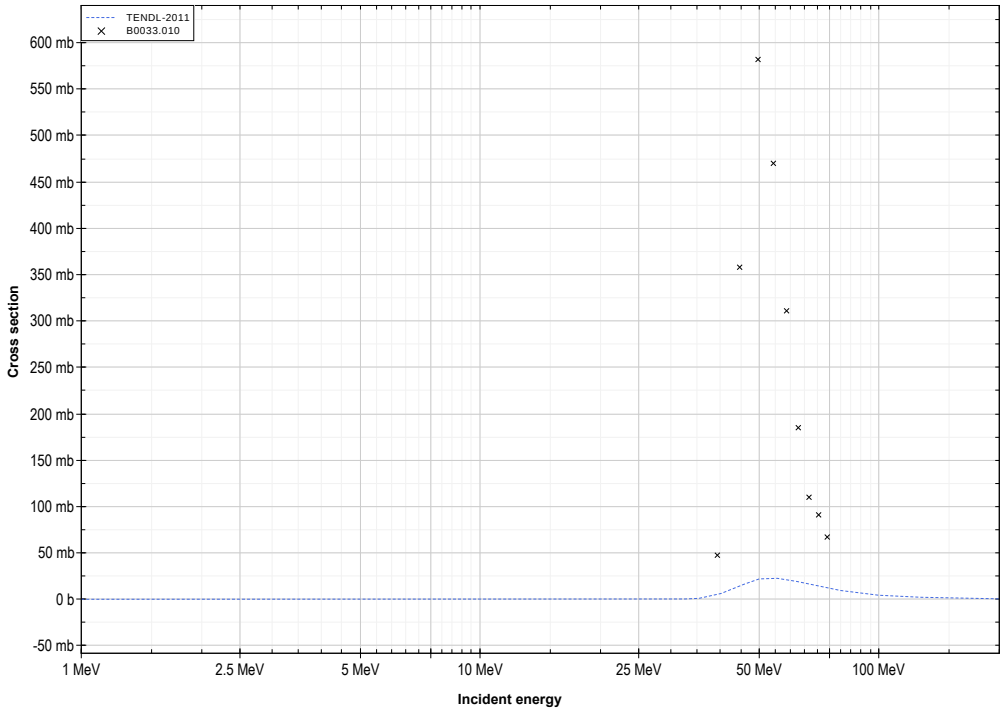
Reaction	Q-Value
Ta181(He3,α)Ta180	13000.90 keV
Ta181(He3,p+t)Ta180	-6812.96 keV
Ta181(He3,n+He3)Ta180	-7576.72 keV
Ta181(He3,2d)Ta180	-10845.63 keV
Ta181(He3,n+p+d)Ta180	-13070.19 keV
Ta181(He3,2n+2p)Ta180	-15294.76 keV

	73-Ta-181	75-Re-187 >>
<< MT107 (^{3}He,α)	**MT152 (^{3}He,5n) or MT5 (Re179 production)**	MT153 (^{3}He,6n) >>

Ta181 (^{3}He,5n) log-log



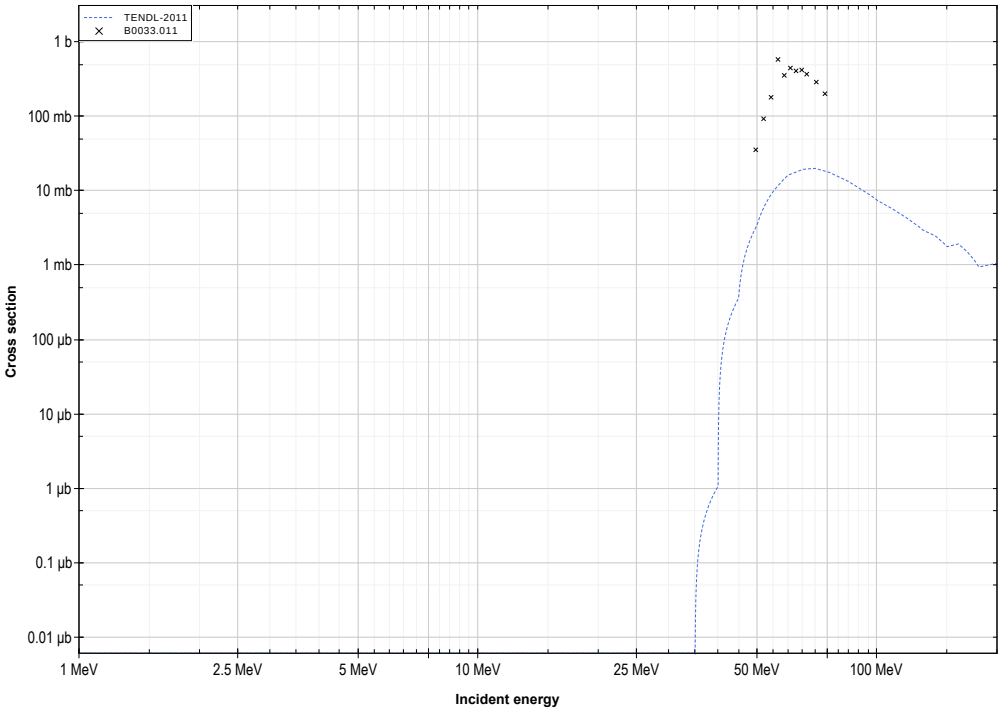
Ta181 (^{3}He,5n) lin-log



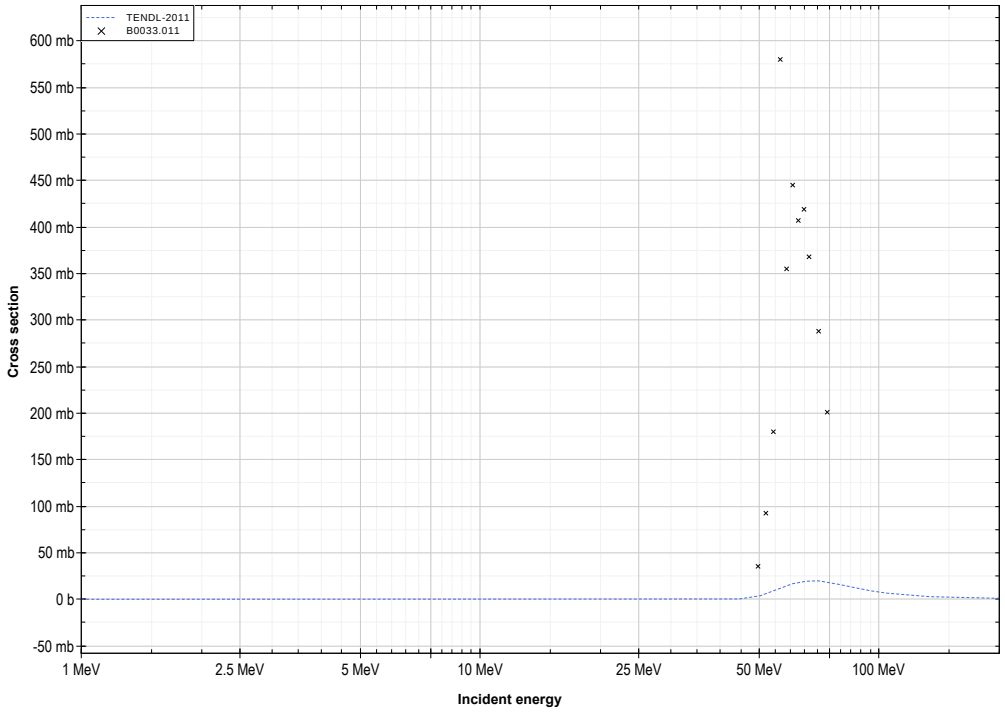
Reaction	Q-Value
Ta181(He3,5n)Re179	-27280.97 keV

	73-Ta-181	75-Re-187 >>
<< MT152 (^{3}He,5n)	**MT153 (^{3}He,6n) or MT5 (Re178 production)**	MT160 (^{3}He,7n) >>

Ta181 (^{3}He,6n) log-log



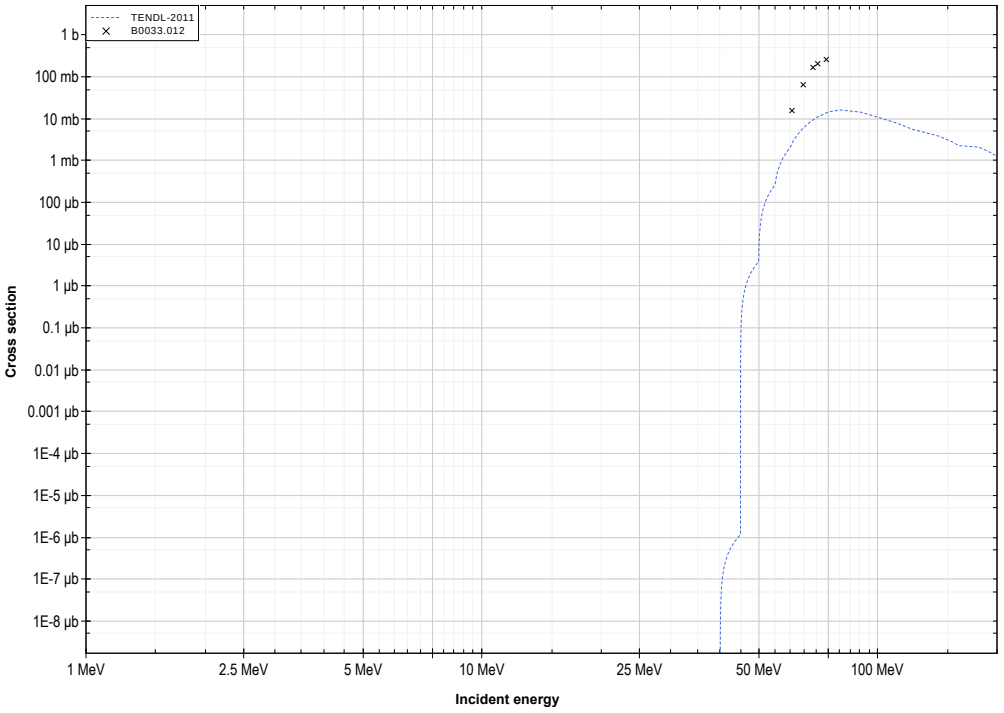
Ta181 (^{3}He,6n) lin-log



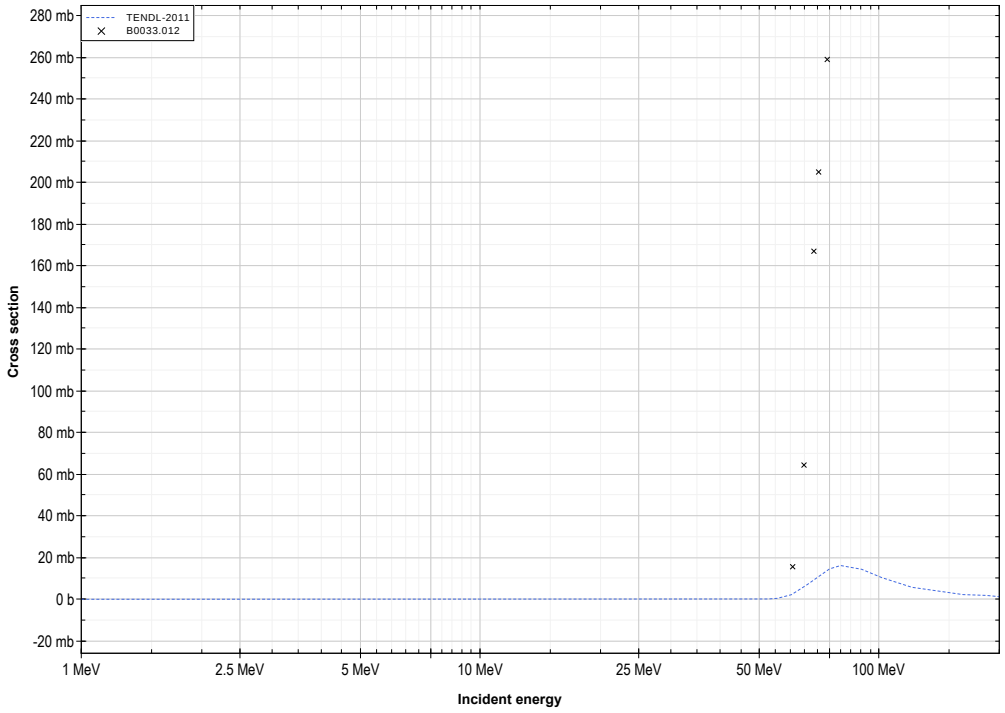
Reaction	Q-Value
Ta181(He3,6n)Re178	-36285.29 keV

	73-Ta-181	83-Bi-209 >>
<< MT153 (^{3}He,6n)	**MT160 (^{3}He,7n) or MT5 (Re177 production)**	MT28 (^{3}He,n+p) >>

Ta181 (^{3}He,7n) log-log



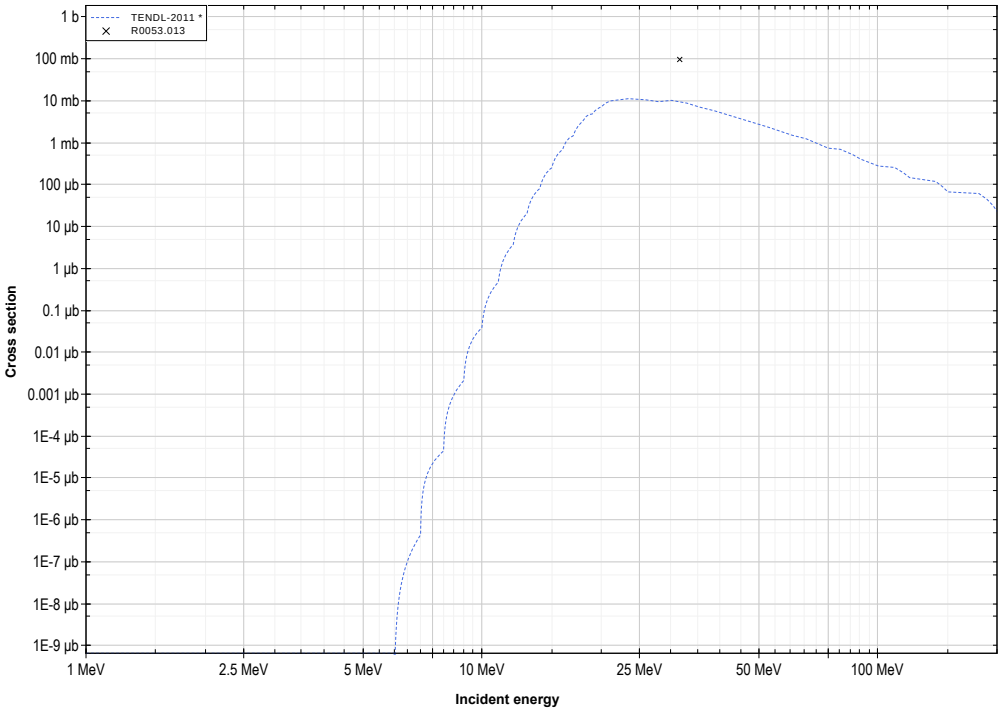
Ta181 (^{3}He,7n) lin-log



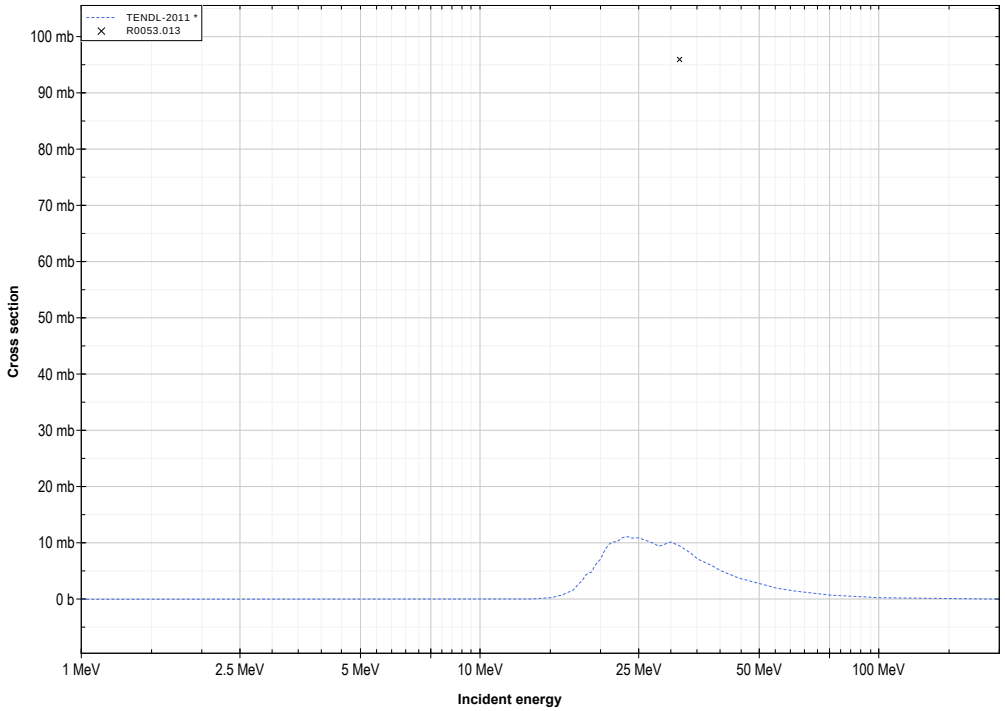
Reaction	Q-Value
Ta181(He3,7n)Re177	-43740.60 keV

<< 62-Sm-147	**74-W-183**	83-Bi-209 >>
<< MT160 (^{3}He,7n)	**MT28 (^{3}He,n+p) or MT5 (Re184 production)**	MT41 (^{3}He,2n+p) >>

W183 (^{3}He,n+p) log-log



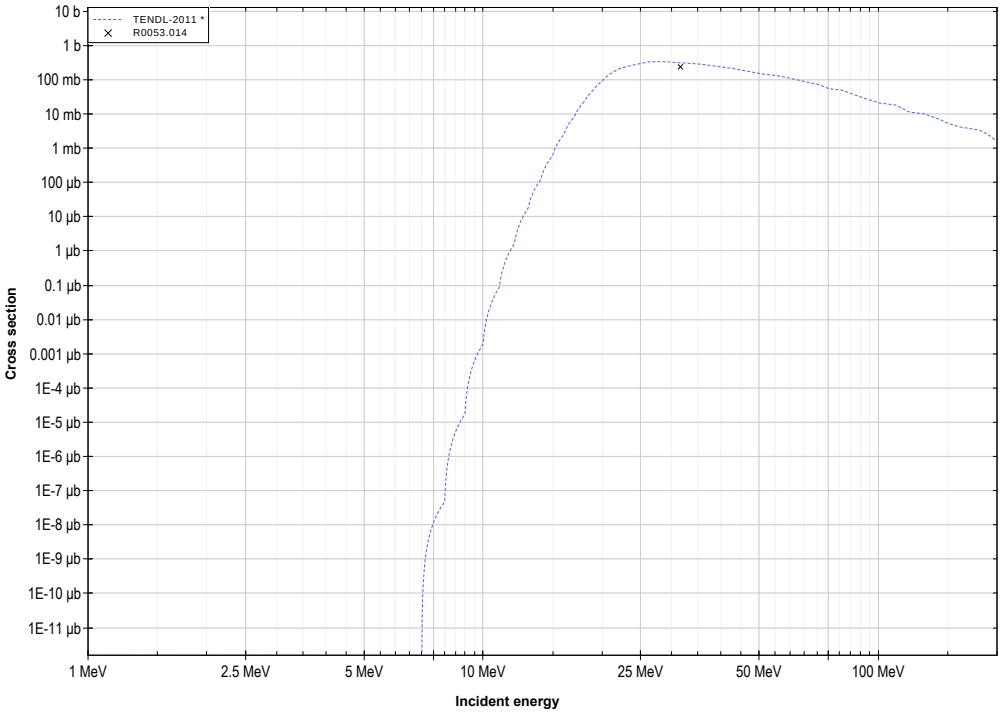
W183 (^{3}He,n+p) lin-log



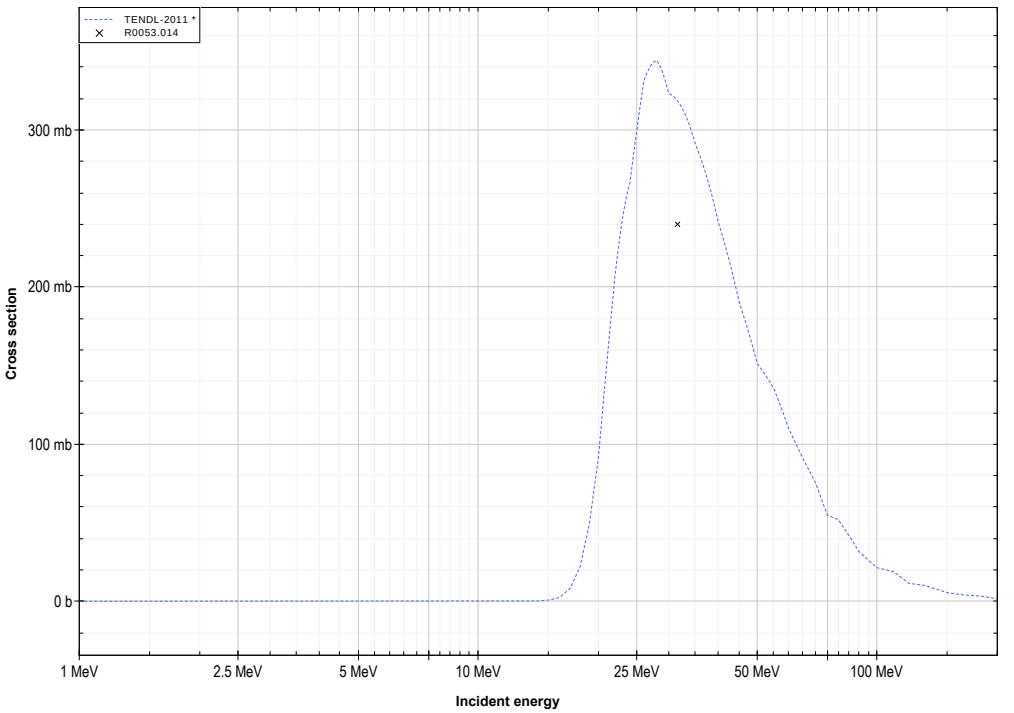
Reaction	Q-Value
W183(He3,d)Re184	-344.51 keV
W183(He3,n+p)Re184	-2569.07 keV

<< 47-Ag-109	**74-W-186**	
<< MT28 (^{3}He,n+p)	**MT41 (^{3}He,2n+p) or MT5 (Re186 production)**	MT103 (^{3}He,p) >>

W186 (^{3}He,2n+p) log-log



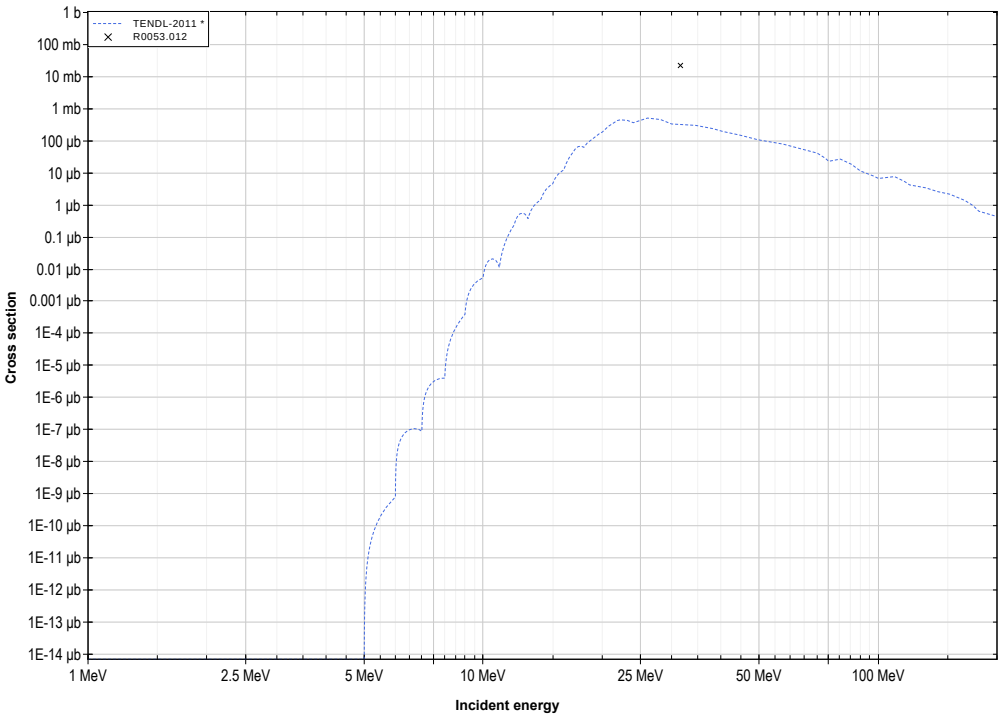
W186 (^{3}He,2n+p) lin-log



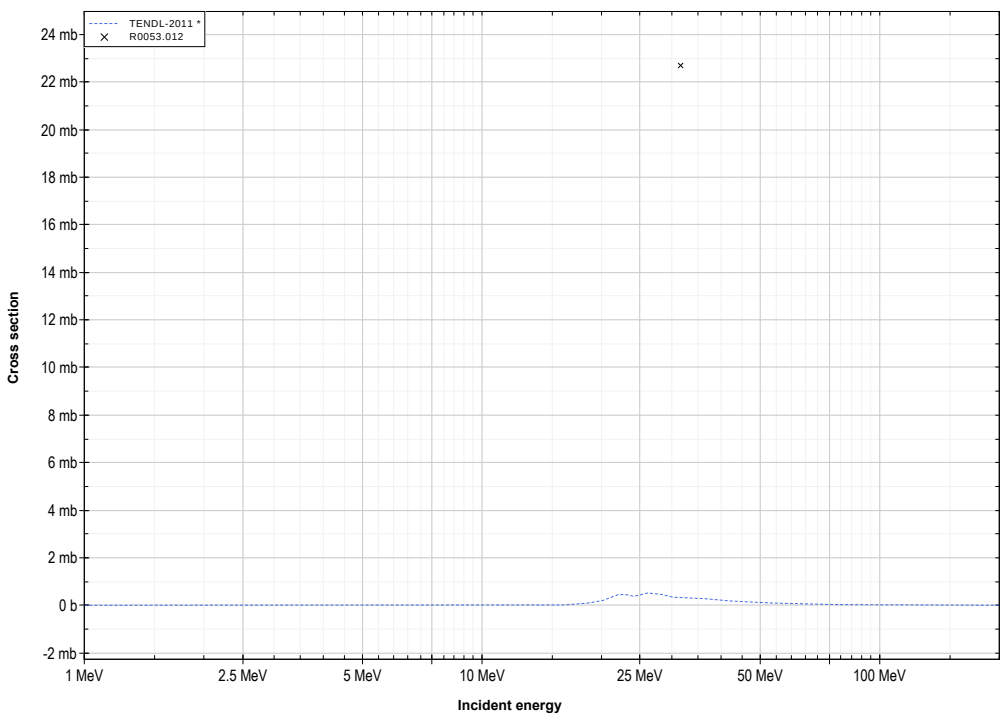
Reaction	Q-Value
W186(He3,t)Re186	-597.89 keV
W186(He3,n+d)Re186	-6855.12 keV
W186(He3,2n+p)Re186	-9079.69 keV

<< 30-Zn-64	**74-W-186**	
<< MT41 (³He,2n+p)	**MT103 (³He,p) or MT5 (Re188 production)**	MT111 (³He,2p) >>

W186 (³He,p) log-log



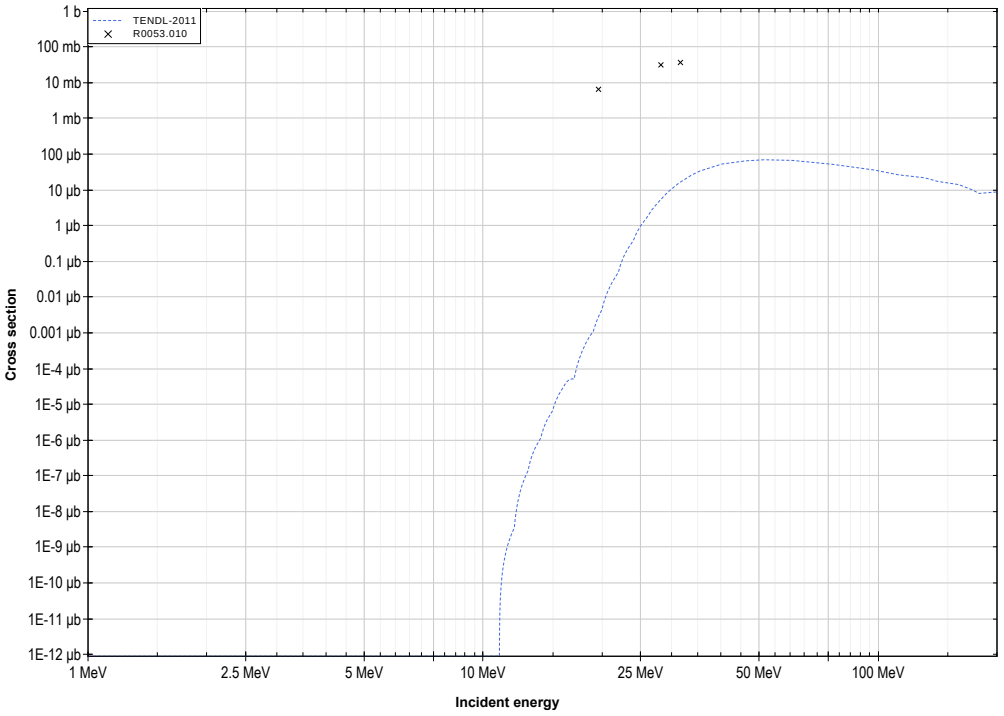
W186 (³He,p) lin-log



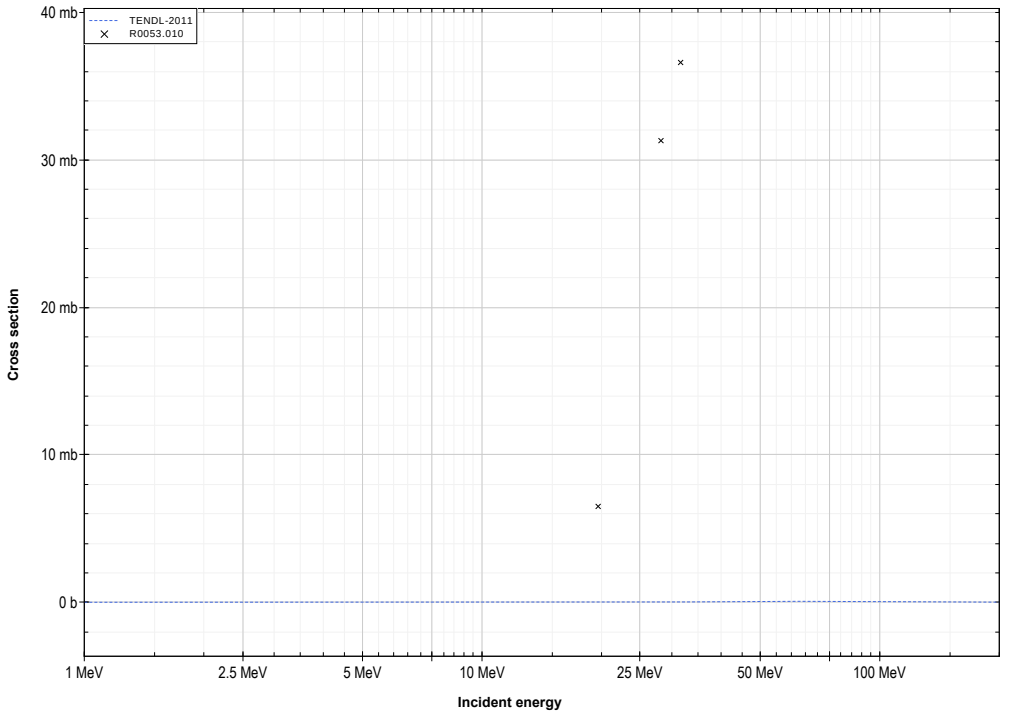
Reaction	Q-Value
W186(He3,p)Re188	4148.84 keV

<< 47-Ag-109	**74-W-186**	75-Re-185 >>
<< MT103 (^{3}He,p)	**MT111 (^{3}He,2p) or MT5 (W187 production)**	MT107 (^{3}He,α) >>

W186 (^{3}He,2p) log-log



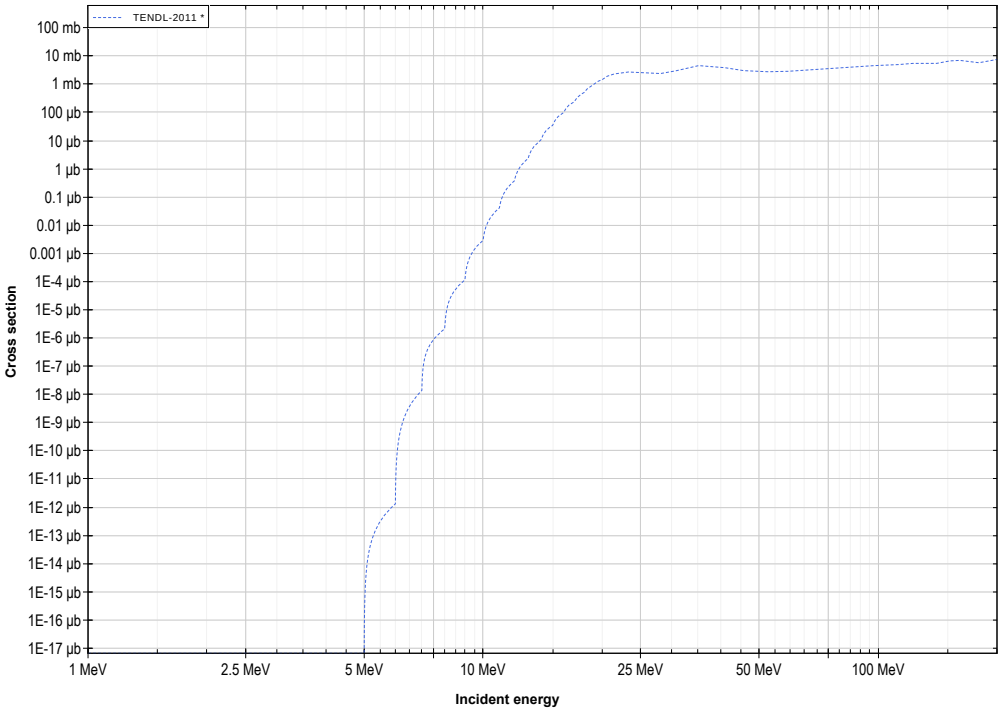
W186 (^{3}He,2p) lin-log



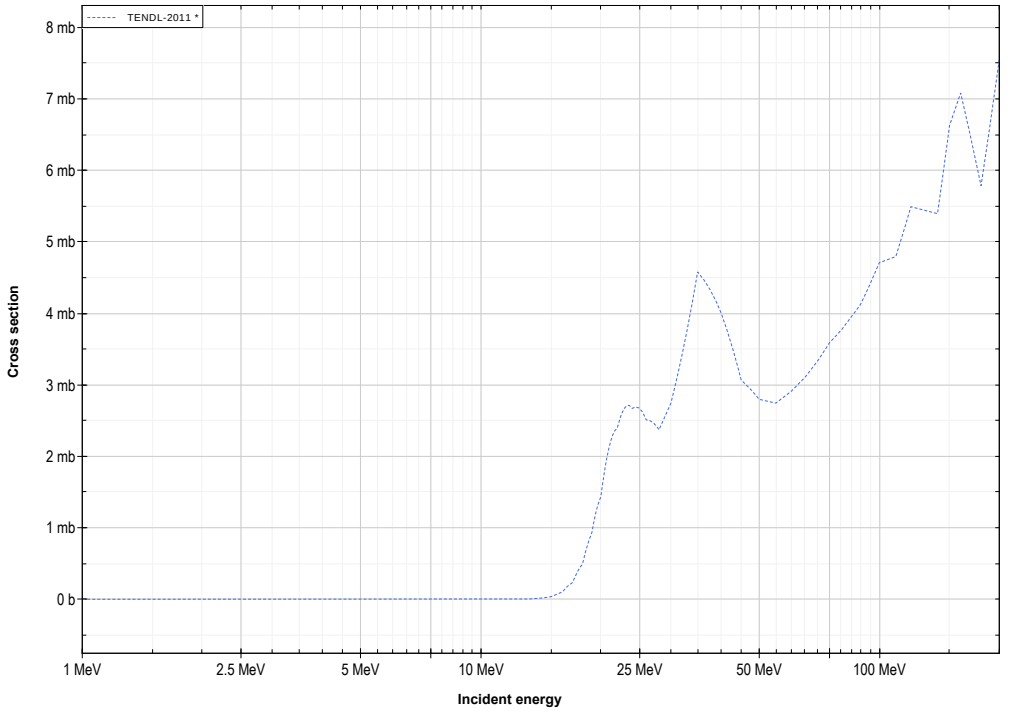
Reaction	Q-Value
W186(He3,2p)W187	-2251.43 keV

<< 73-Ta-181	**75-Re-185**	75-Re-187 >>
<< MT111 (^{3}He,2p)	**MT107 (^{3}He,α) or MT5 (Re184 production)**	MT111 (^{3}He,2p) >>

Re185 (^{3}He,α) log-log



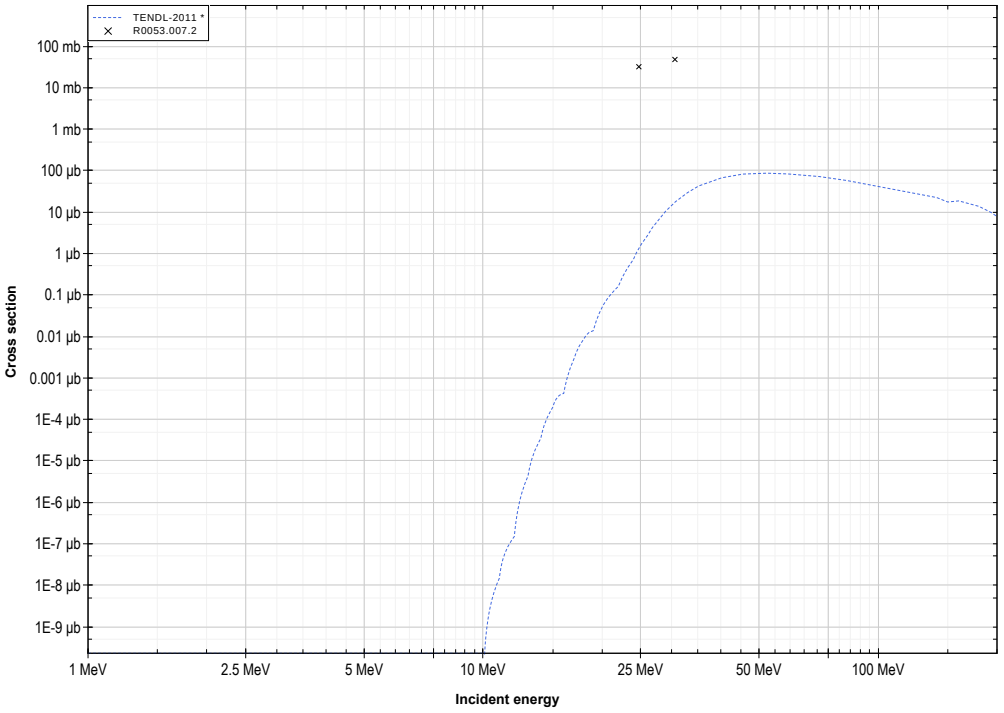
Re185 (^{3}He,α) lin-log



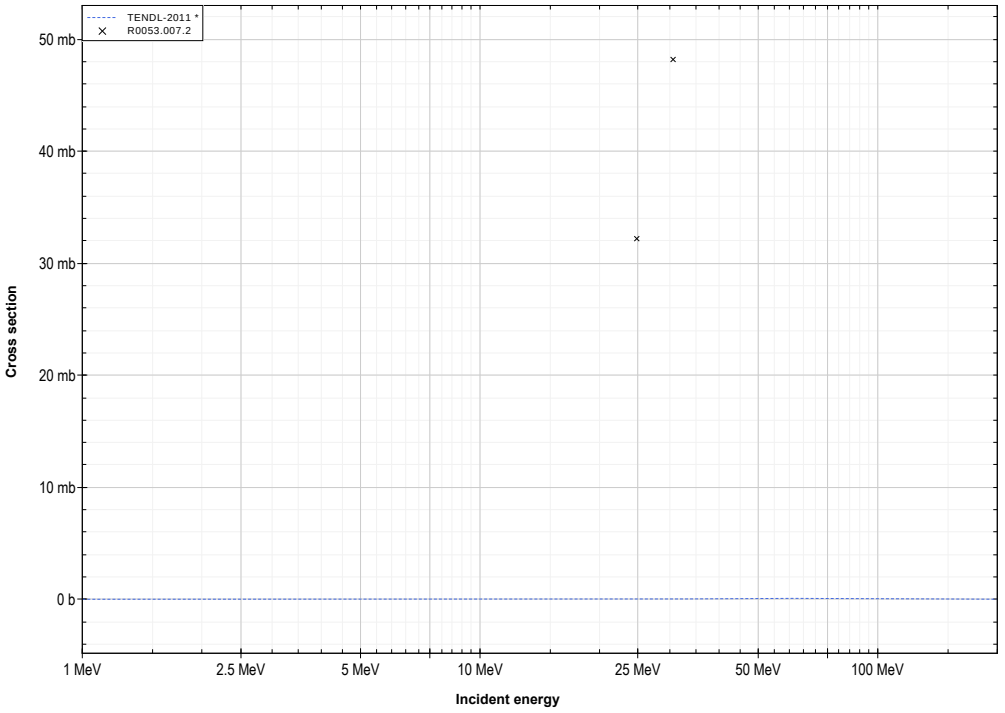
Reaction	Q-Value
Re185(He3,α)Re184	12911.10 keV
Re185(He3,p+t)Re184	-6902.76 keV
Re185(He3,n+He3)Re184	-7666.52 keV
Re185(He3,2d)Re184	-10935.43 keV
Re185(He3,n+p+d)Re184	-13159.99 keV
Re185(He3,2n+2p)Re184	-15384.56 keV

<< 74-W-186	**75-Re-185**	79-Au-197 >>
<< MT107 (^{3}He,α)	**MT111 (^{3}He,2p) or MT5 (Re186 production)**	MT17 (^{3}He,3n) >>

Re185 (^{3}He,2p) log-log



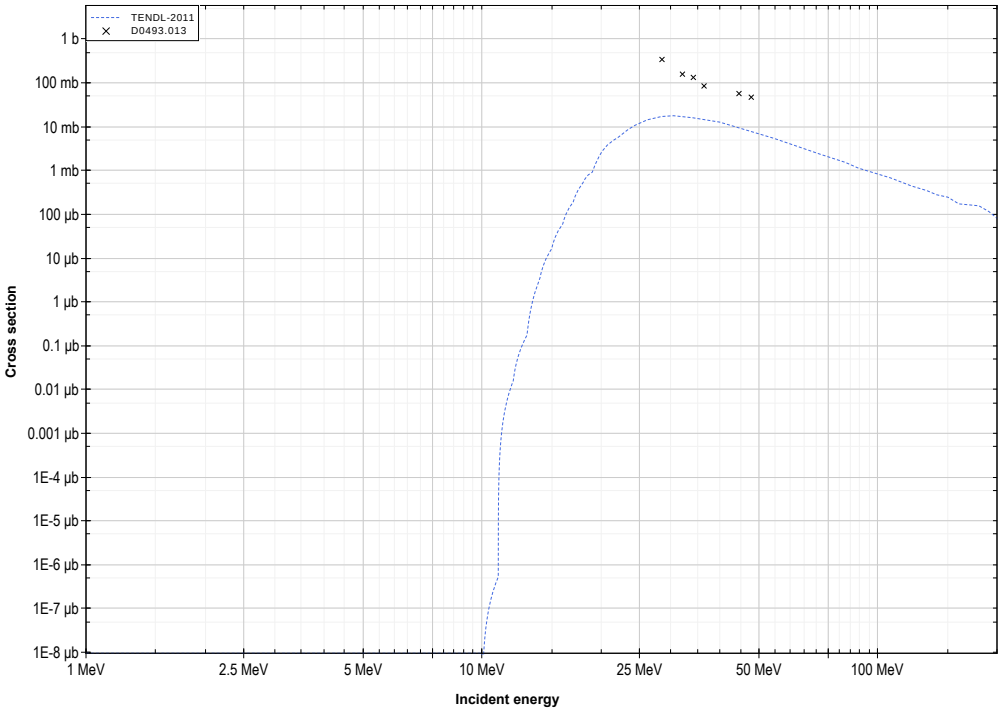
Re185 (^{3}He,2p) lin-log



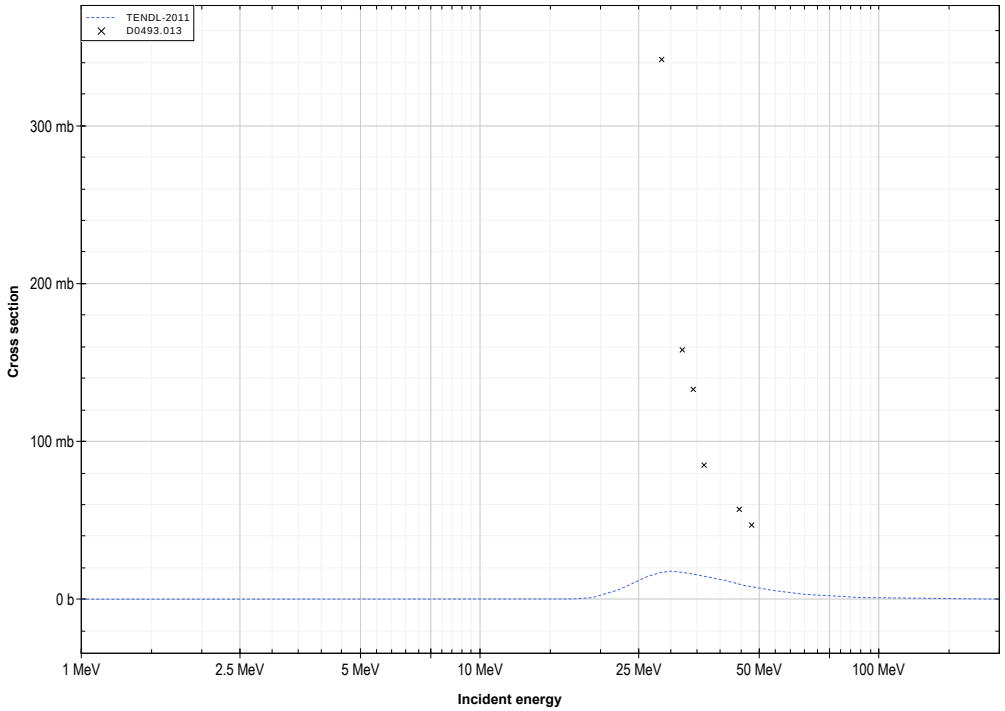
Reaction	Q-Value
Re185(He3,2p)Re186	-1538.73 keV

<< 73-Ta-181	**75-Re-187**	79-Au-197 >>
<< MT111 (^{3}He,2p)	**MT17 (^{3}He,3n) or MT5 (Ir187 production)**	MT37 (^{3}He,4n) >>

Re187 (^{3}He,3n) log-log



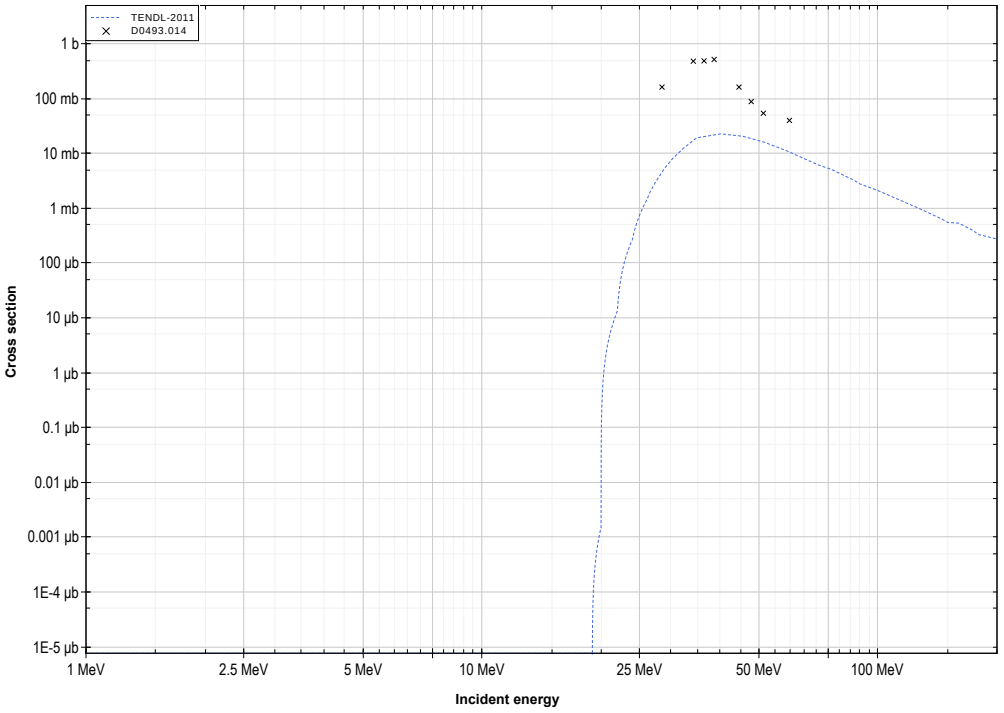
Re187 (^{3}He,3n) lin-log



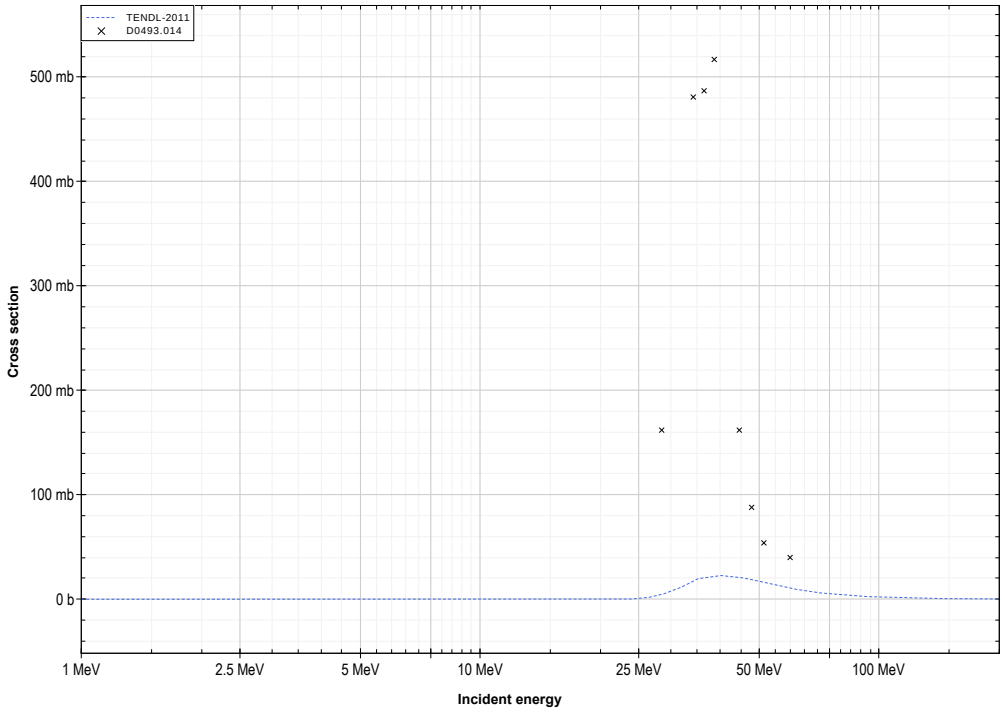
Reaction	Q-Value
Re187(He3,3n)Ir187	-10782.44 keV

<< 73-Ta-181	**75-Re-187**	76-Os-192 >>
<< MT17 (^{3}He,3n)	**MT37 (^{3}He,4n) or MT5 (Ir186 production)**	MT107 (^{3}He,α) >>

Re187 (^{3}He,4n) log-log



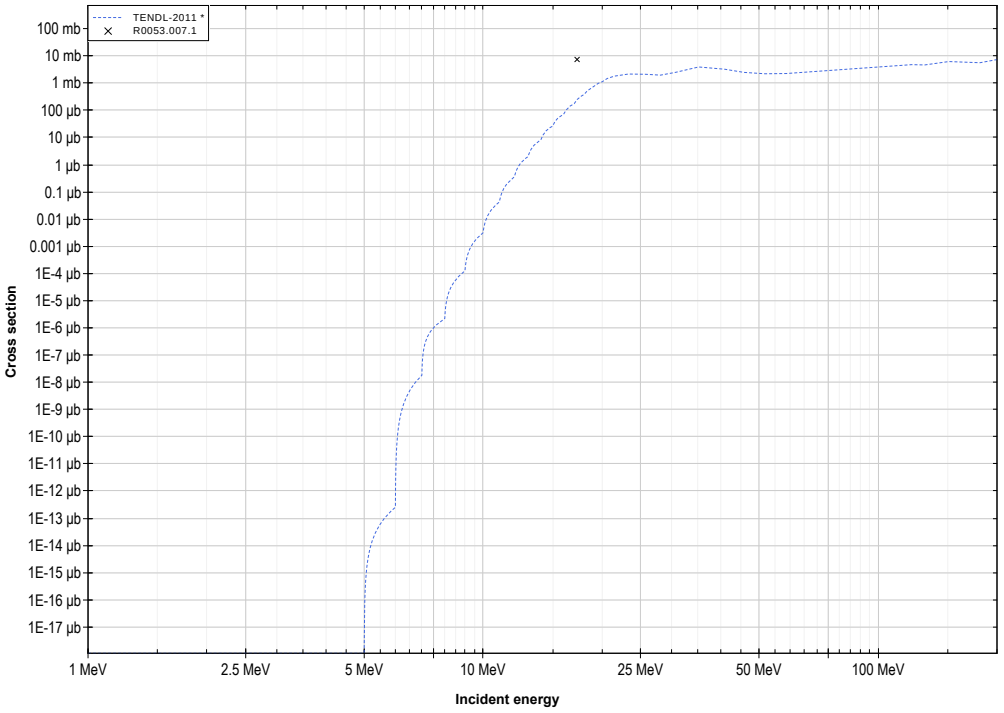
Re187 (^{3}He,4n) lin-log



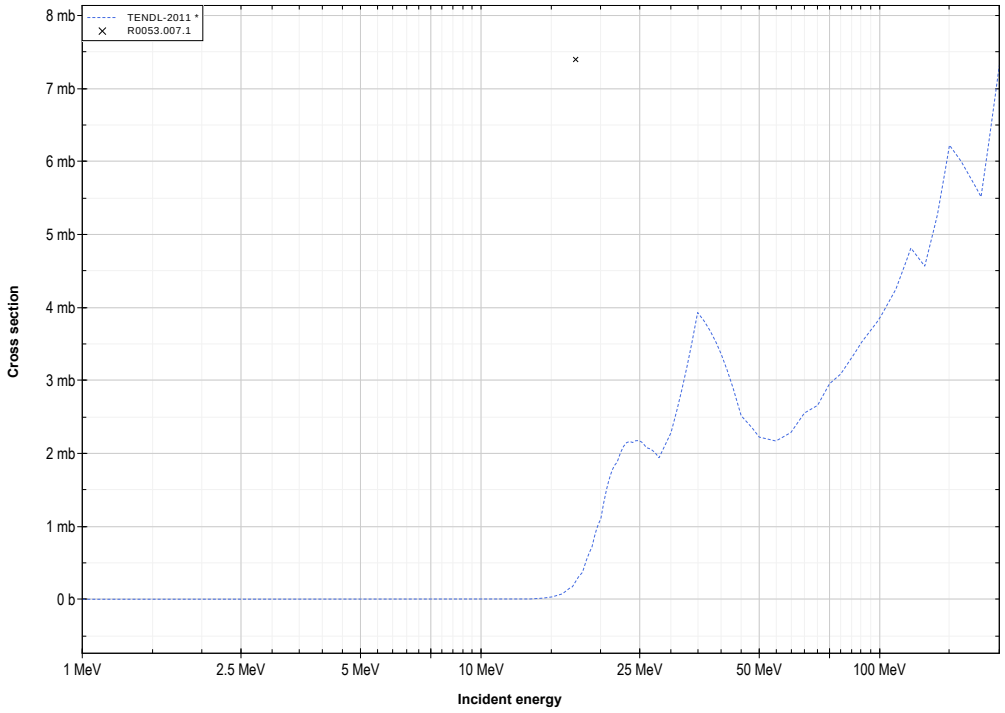
Reaction	Q-Value
Re187(He3,4n)Ir186	-19396.75 keV

<< 75-Re-185	**75-Re-187**	79-Au-197 >>
<< MT37 (^{3}He,4n)	**MT107 (^{3}He,α) or MT5 (Re186 production)**	MT152 (^{3}He,5n) >>

Re187 (^{3}He,α) log-log



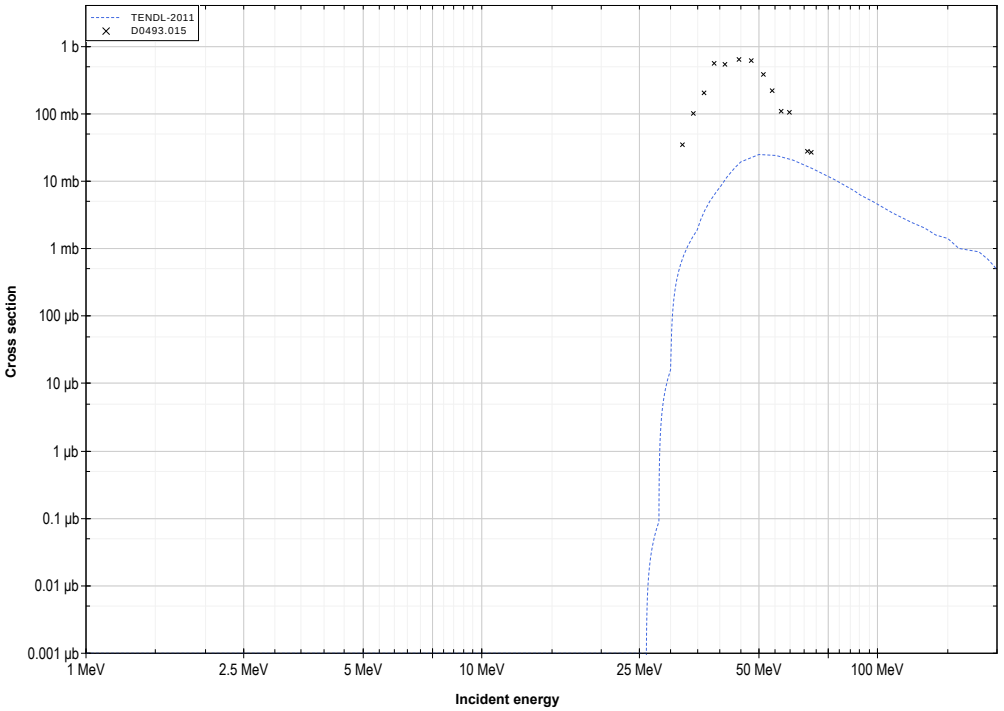
Re187 (^{3}He,α) lin-log



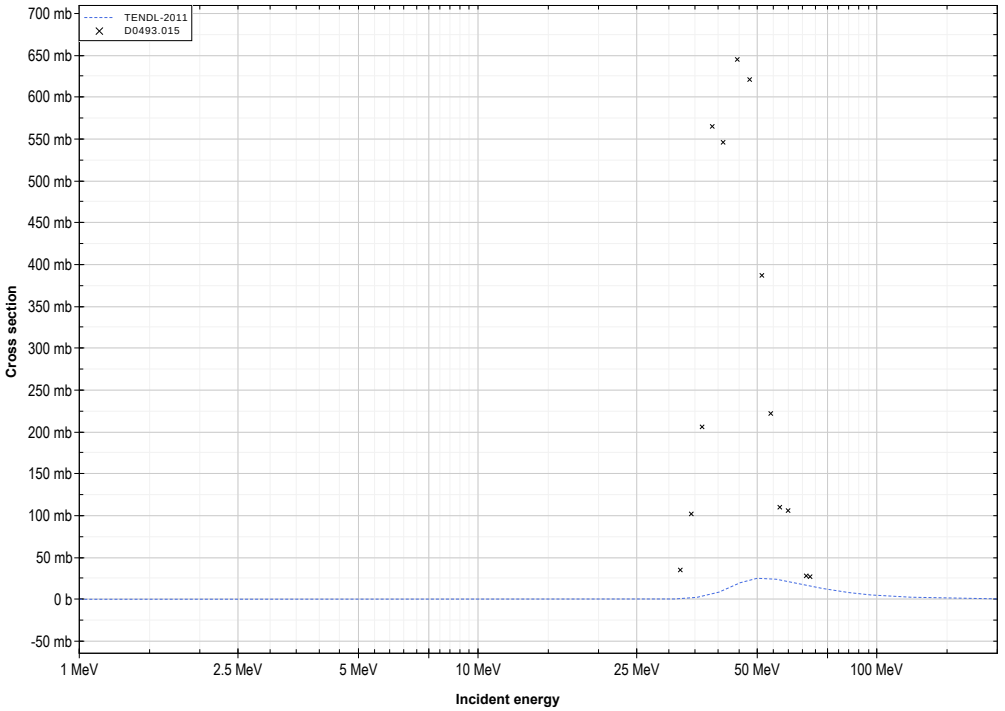
Reaction	Q-Value
Re187(He3,α)Re186	13220.80 keV
Re187(He3,p+t)Re186	-6593.06 keV
Re187(He3,n+He3)Re186	-7356.82 keV
Re187(He3,2d)Re186	-10625.73 keV
Re187(He3,n+p+d)Re186	-12850.29 keV
Re187(He3,2n+2p)Re186	-15074.86 keV

<< 73-Ta-181	**75-Re-187**	79-Au-197 >>
<< MT107 (^{3}He,α)	**MT152 (^{3}He,5n) or MT5 (Ir185 production)**	MT153 (^{3}He,6n) >>

Re187 (^{3}He,5n) log-log



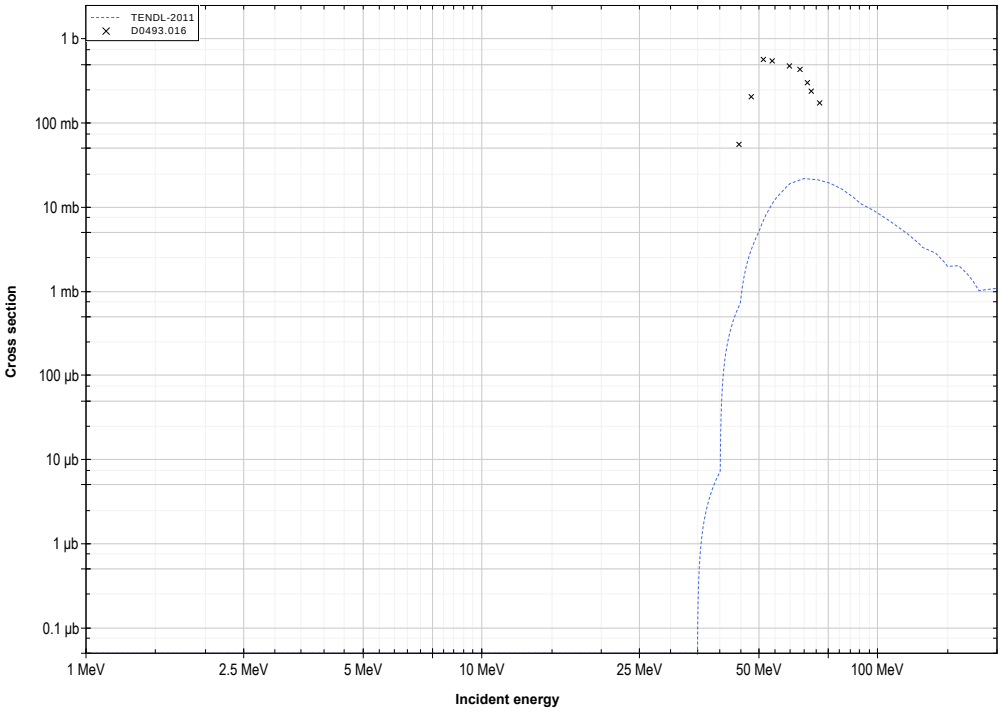
Re187 (^{3}He,5n) lin-log



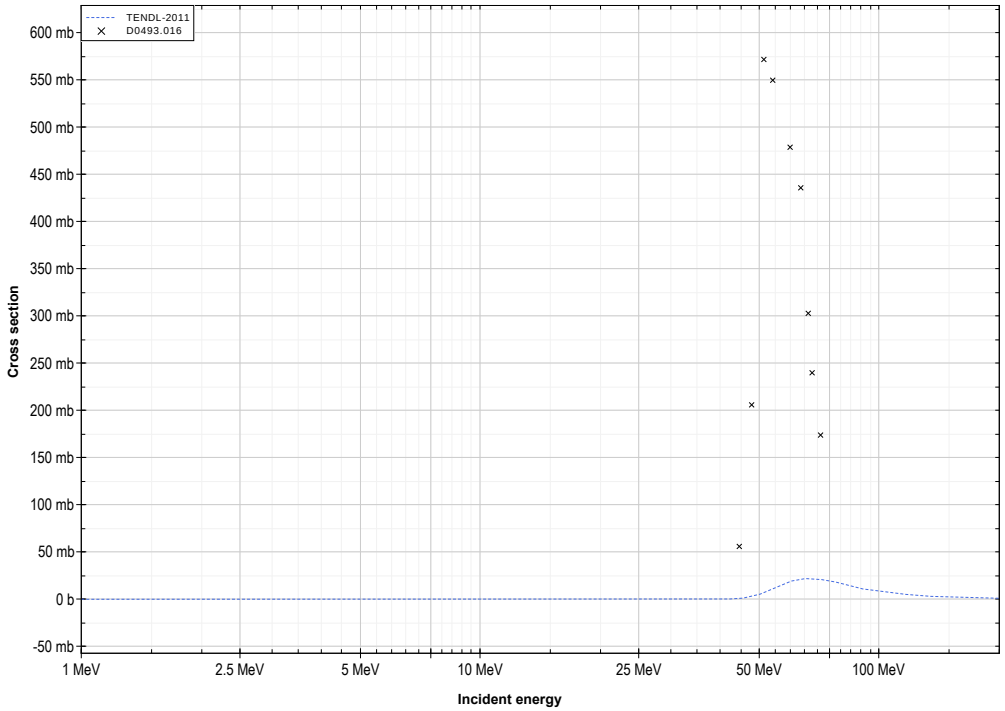
Reaction	Q-Value
Re187(He3,5n)Ir185	-26305.07 keV

<< 73-Ta-181	**75-Re-187**	79-Au-197 >>
<< MT152 (^{3}He,5n)	**MT153 (^{3}He,6n) or MT5 (Ir184 production)**	MT37 (^{3}He,4n) >>

Re187 (^{3}He,6n) log-log



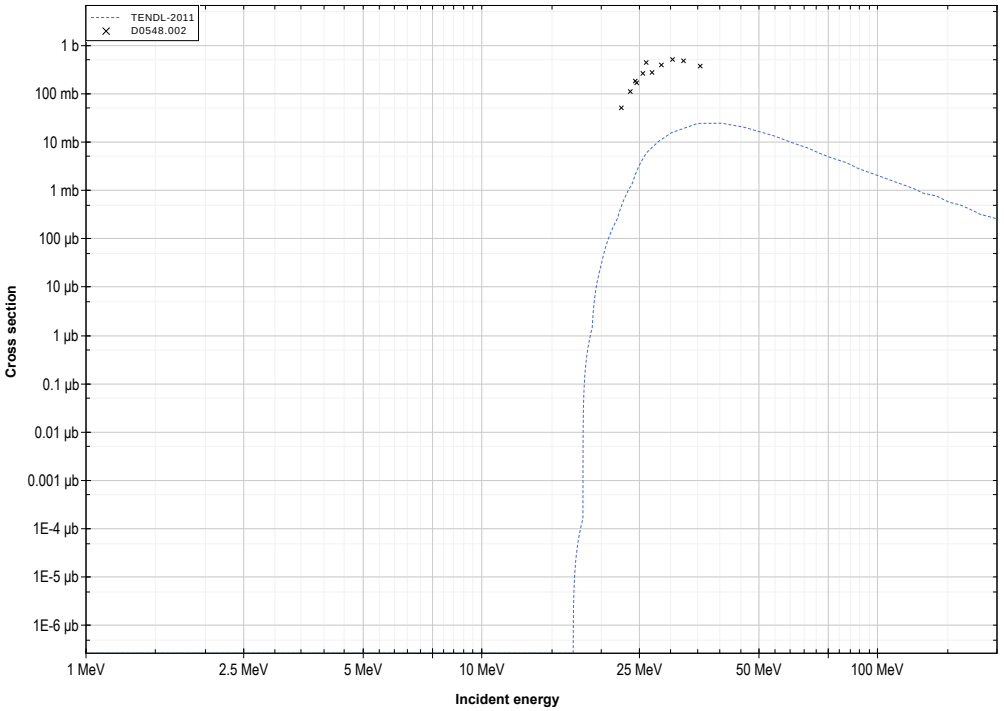
Re187 (^{3}He,6n) lin-log



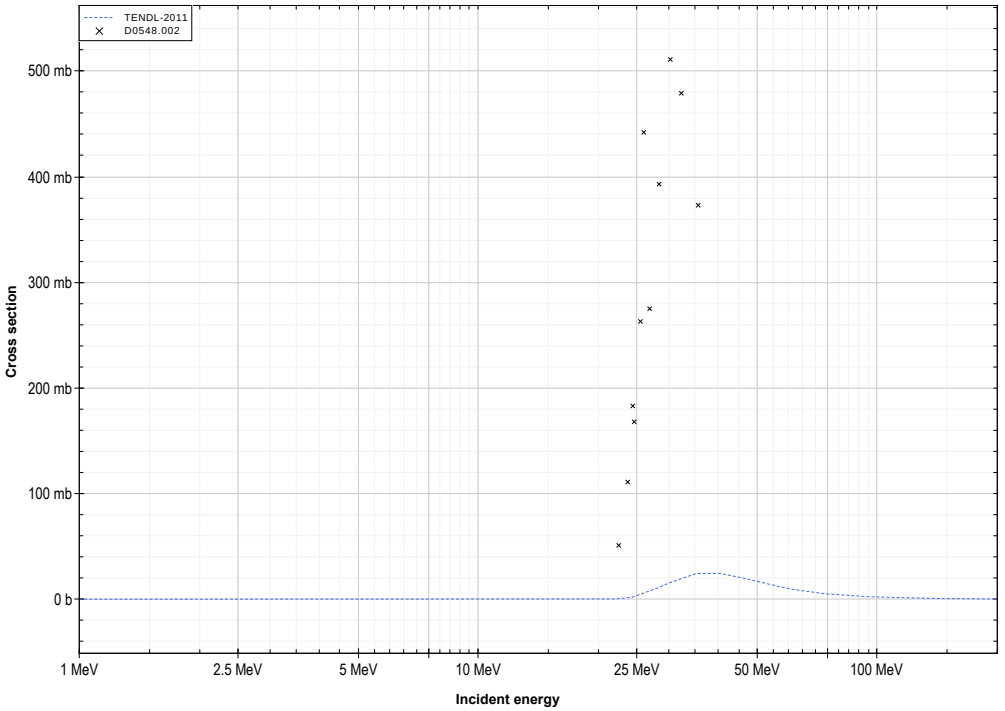
Reaction	Q-Value
Re187(He3,6n)Ir184	-35101.39 keV

<< 75-Re-187	**76-Os-192**	79-Au-197 >>
<< MT153 (^{3}He,6n)	**MT37 (^{3}He,4n) or MT5 (Pt191 production)**	MT16 (^{3}He,2n) >>

Os192 (^{3}He,4n) log-log



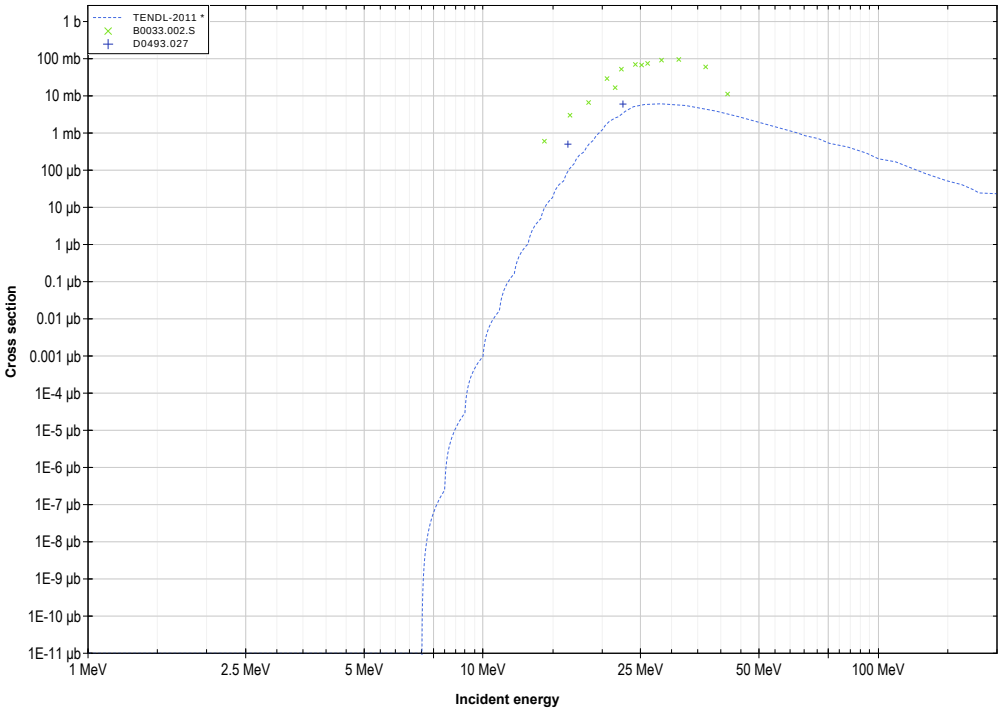
Os192 (^{3}He,4n) lin-log



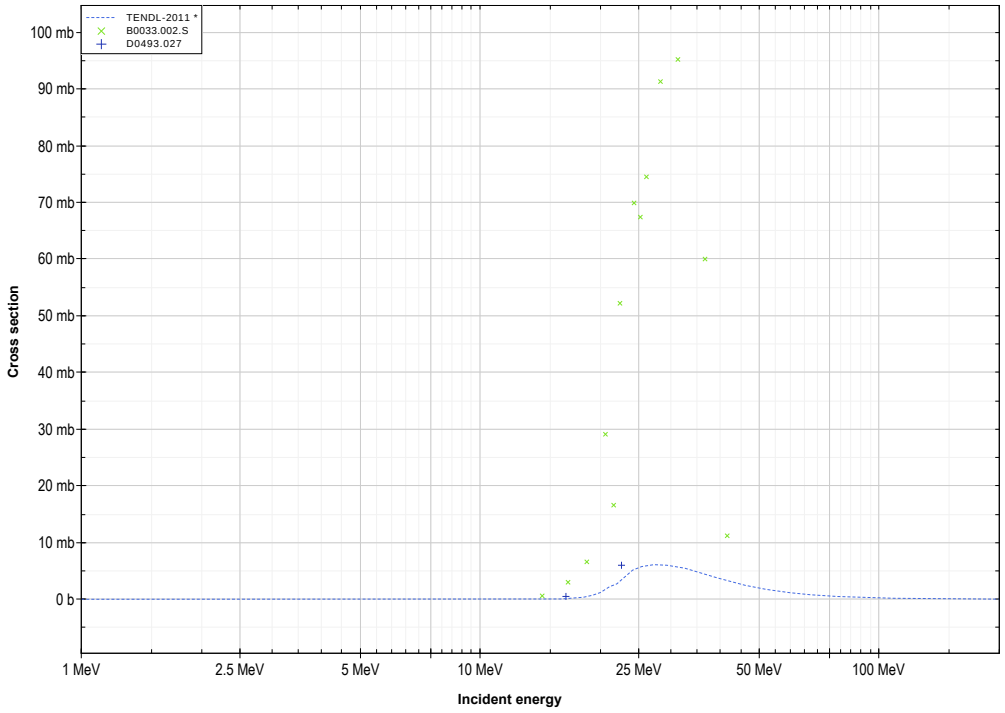
Reaction	Q-Value
Os192(He3,4n)Pt191	-17536.55 keV

<< 73-Ta-181	**79-Au-197**	82-Pb-207 >>
<< MT37 (^{3}He,4n)	**MT16 (^{3}He,2n) or MT5 (Tl198 production)**	MT17 (^{3}He,3n) >>

Au197 (^{3}He,2n) log-log



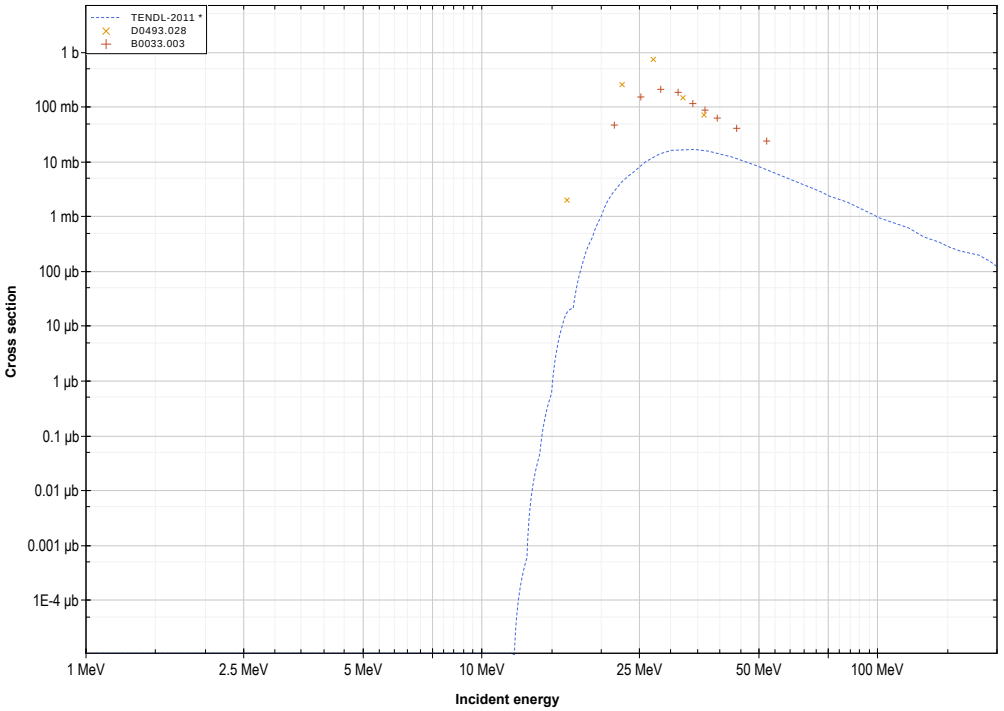
Au197 (^{3}He,2n) lin-log



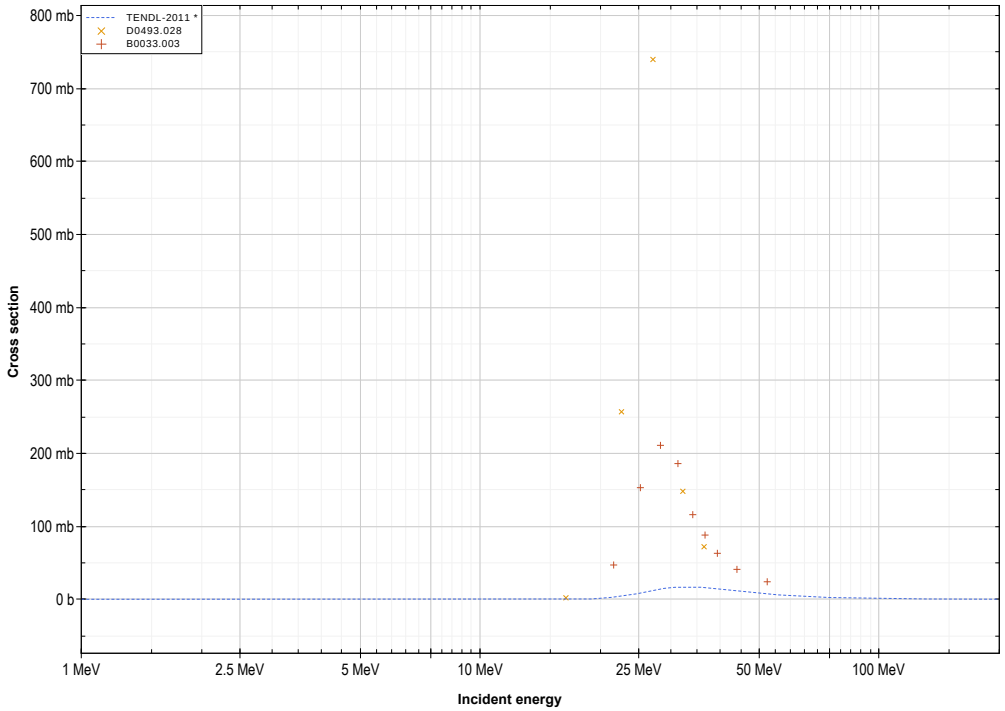
Reaction	Q-Value
Au197(He3,2n)Tl198	-4862.52 keV

<< 75-Re-187	**79-Au-197**	82-Pb-207 >>
<< MT16 (^{3}He,2n)	**MT17 (^{3}He,3n) or MT5 (Tl197 production)**	MT37 (^{3}He,4n) >>

Au197 (^{3}He,3n) log-log



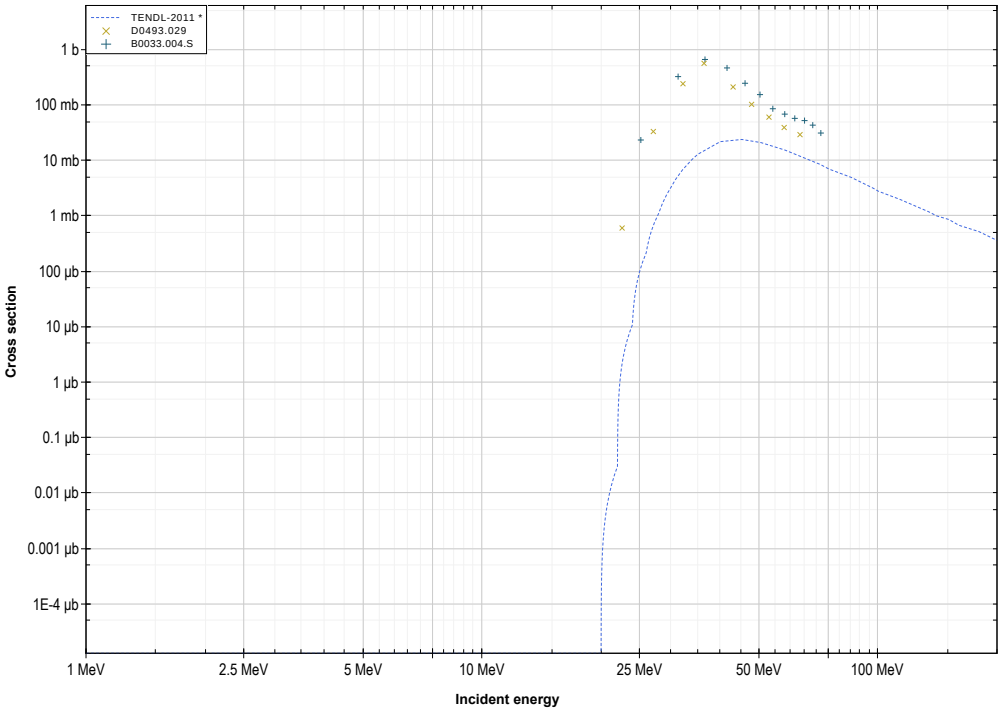
Au197 (^{3}He,3n) lin-log



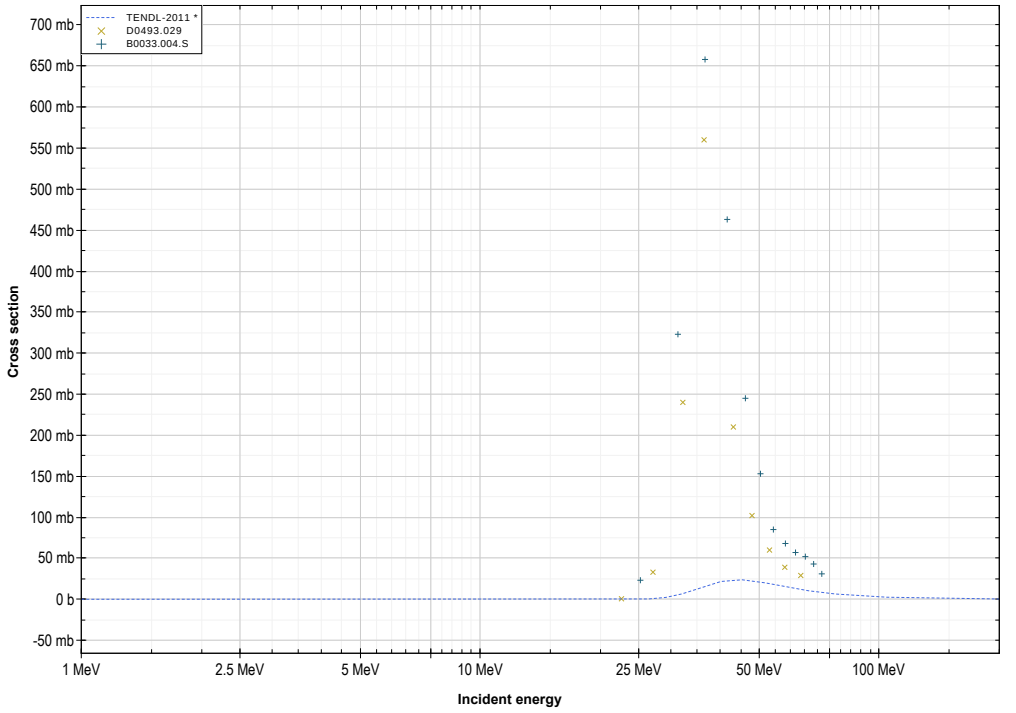
Reaction	Q-Value
Au197(He3,3n)Tl197	-12082.84 keV

<< 76-Os-192	**79-Au-197**	82-Pb-207 >>
<< MT17 (^{3}He,3n)	**MT37 (^{3}He,4n) or MT5 (Tl196 production)**	MT107 (^{3}He,α) >>

Au197 (^{3}He,4n) log-log



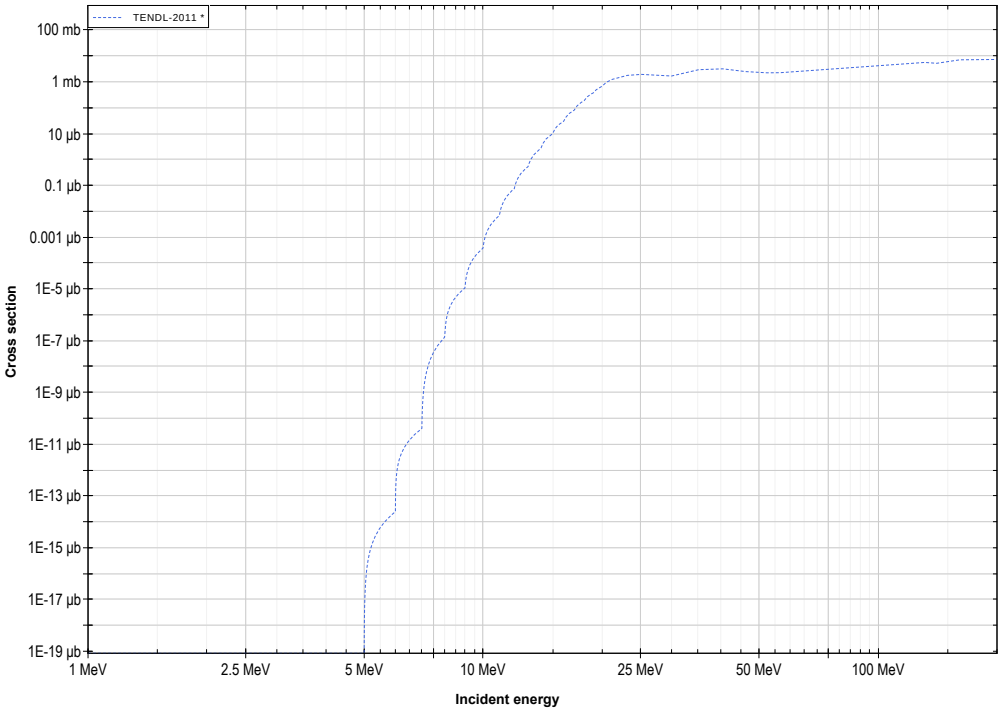
Au197 (^{3}He,4n) lin-log



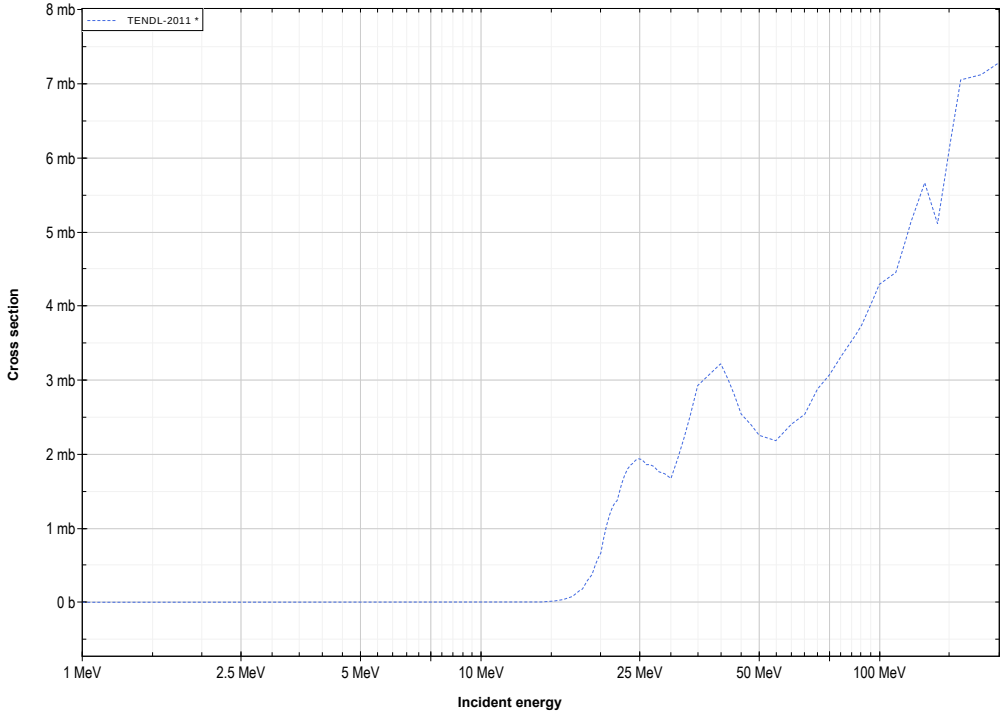
Reaction	Q-Value
Au197(He3,4n)Tl196	-20998.15 keV

<< 75-Re-187	**79-Au-197**	
<< MT37 (^{3}He,4n)	**MT107 (^{3}He,α) or MT5 (Au196 production)**	MT111 (^{3}He,2p) >>

Au197 (^{3}He,α) log-log



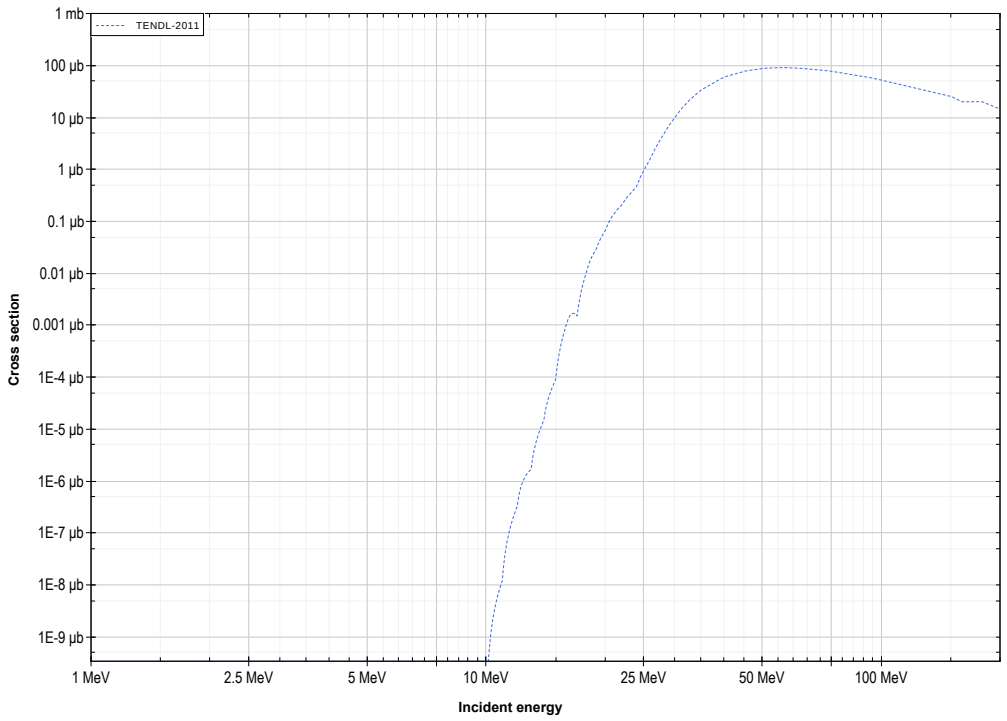
Au197 (^{3}He,α) lin-log



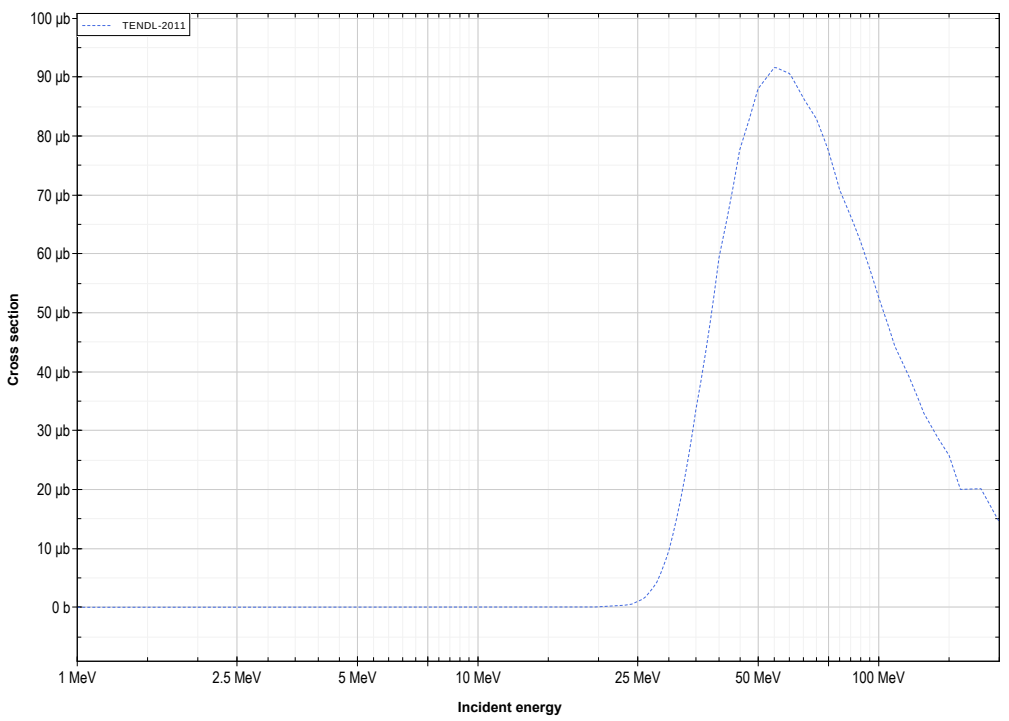
Reaction	Q-Value
Au197(He3,α)Au196	12505.20 keV
Au197(He3,p+t)Au196	-7308.66 keV
Au197(He3,n+He3)Au196	-8072.42 keV
Au197(He3,2d)Au196	-11341.33 keV
Au197(He3,n+p+d)Au196	-13565.89 keV
Au197(He3,2n+2p)Au196	-15790.46 keV

<< 75-Re-185	**79-Au-197**	93-Np-237 >>
<< MT107 (³He,α)	**MT111 (³He,2p) or MT5 (Au198 production)**	MT152 (³He,5n) >>

Au197 (³He,2p) log-log



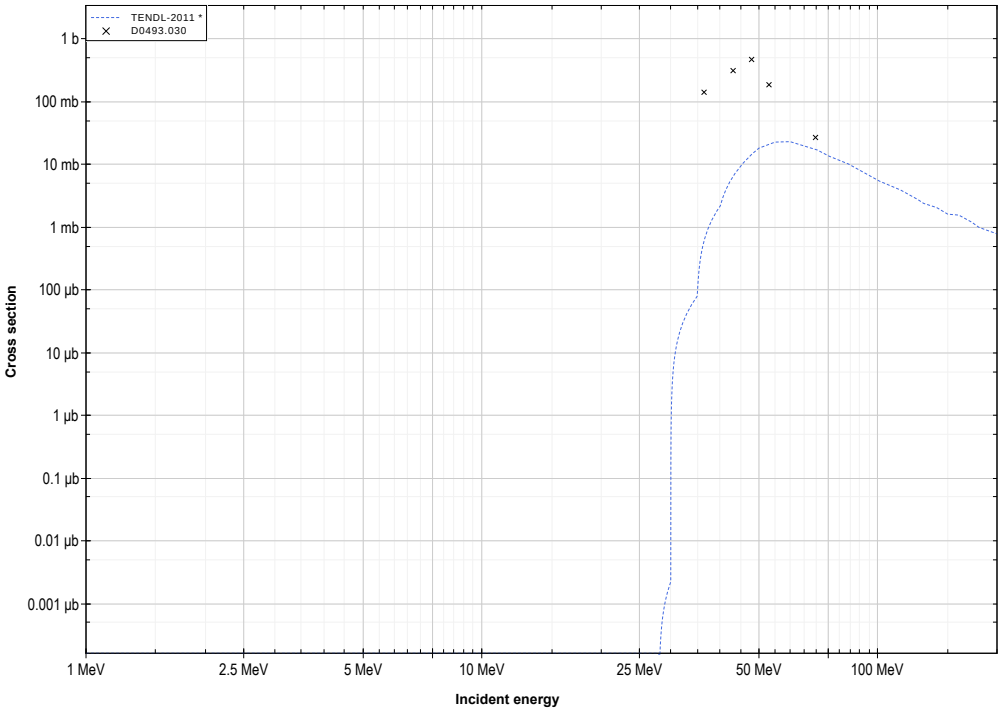
Au197 (³He,2p) lin-log



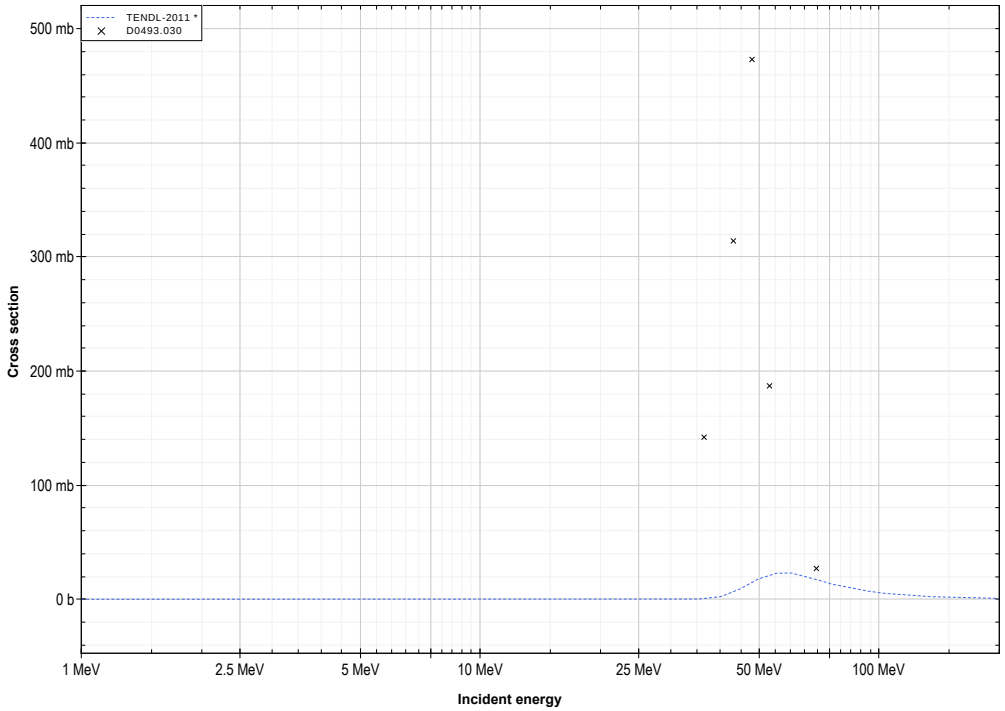
Reaction	Q-Value
Au197(He3,2p)Au198	-1205.73 keV

<< 75-Re-187	**79-Au-197**	83-Bi-209 >>
<< MT111 (^{3}He,2p)	**MT152 (^{3}He,5n) or MT5 (Tl195 production)**	MT153 (^{3}He,6n) >>

Au197 (^{3}He,5n) log-log



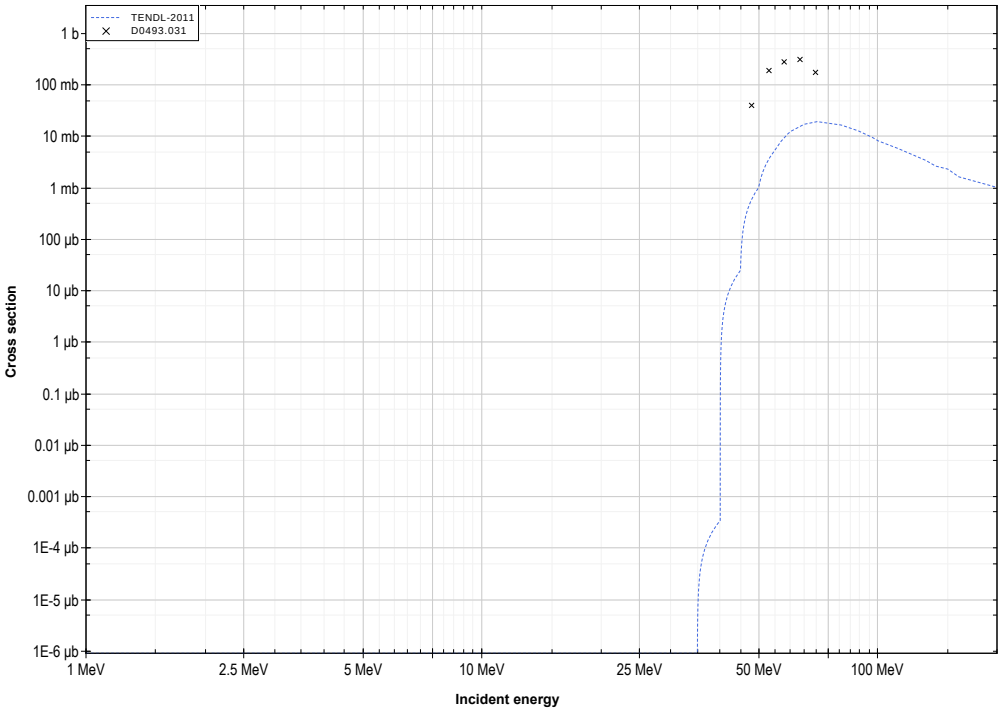
Au197 (^{3}He,5n) lin-log



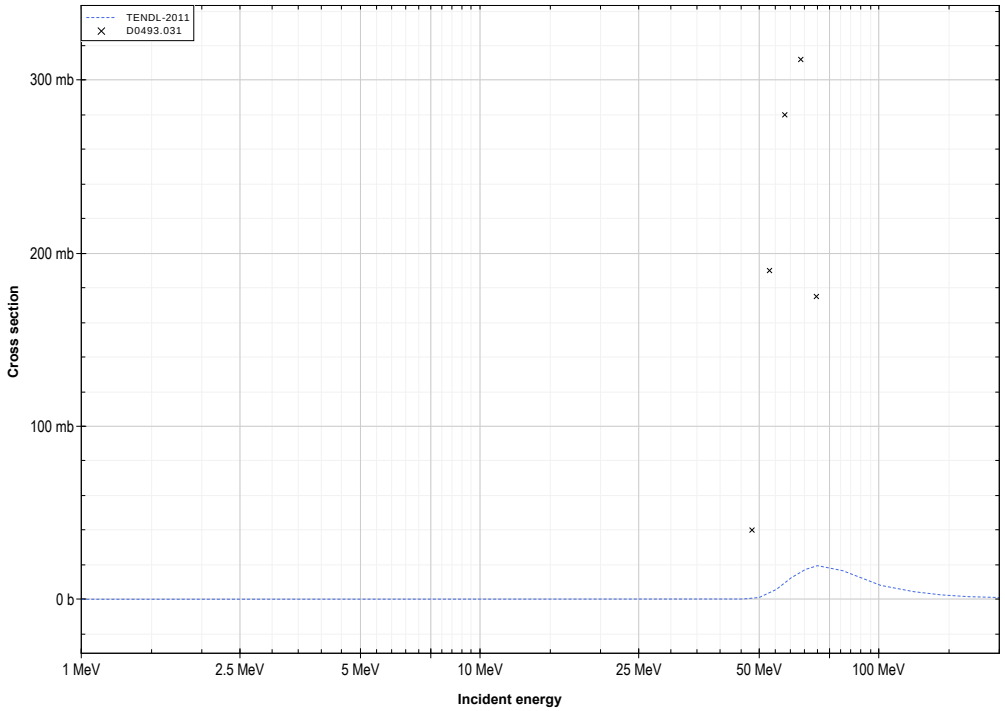
Reaction	Q-Value
Au197(He3,5n)Tl195	-28411.47 keV

<< 75-Re-187	**79-Au-197**	83-Bi-209 >>
<< MT152 (^{3}He,5n)	**MT153 (^{3}He,6n) or MT5 (Tl194 production)**	MT16 (^{3}He,2n) >>

Au197 (^{3}He,6n) log-log



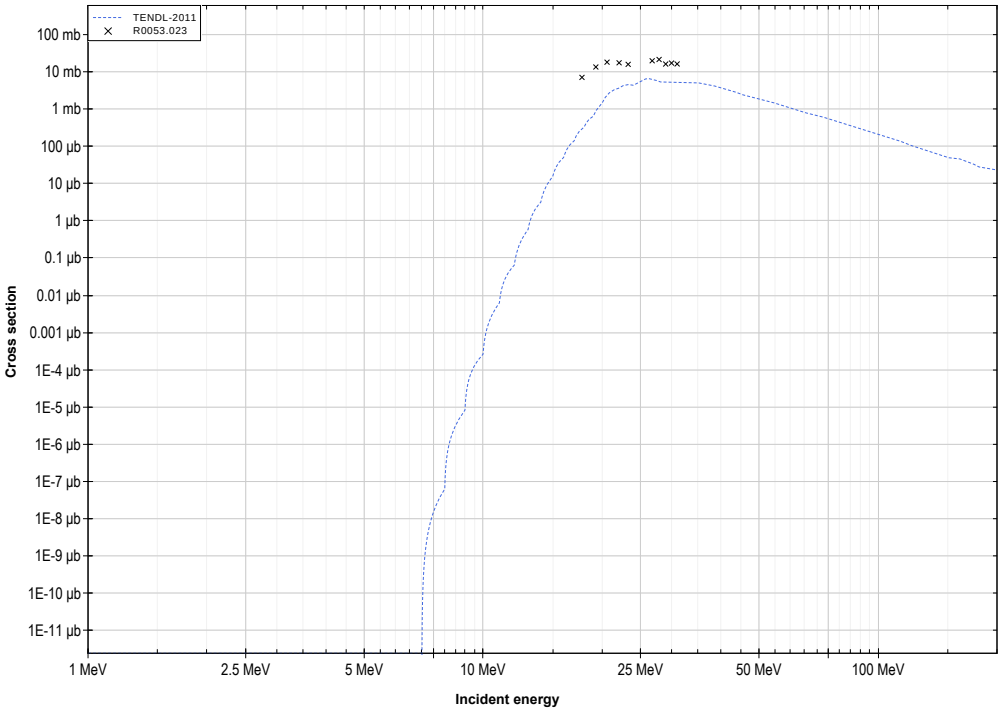
Au197 (^{3}He,6n) lin-log



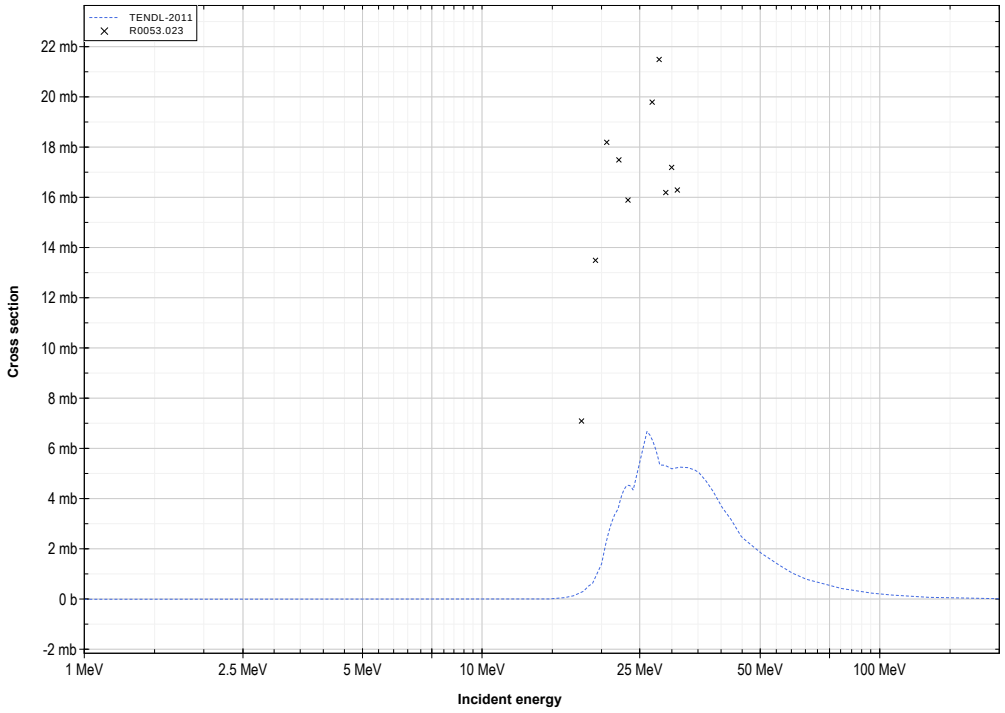
Reaction	Q-Value
Au197(He3,6n)Tl194	-37807.79 keV

<< 79-Au-197	**82-Pb-207**	83-Bi-209 >>
<< MT153 (^{3}He,6n)	**MT16 (^{3}He,2n) or MT5 (Po208 production)**	MT17 (^{3}He,3n) >>

Pb207 (^{3}He,2n) log-log



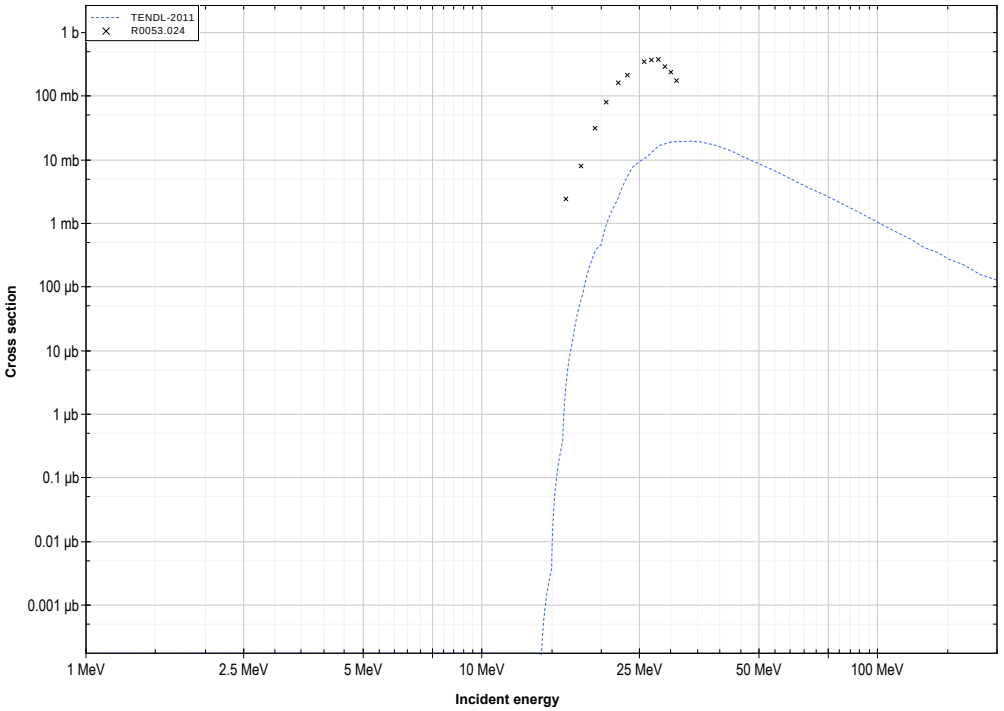
Pb207 (^{3}He,2n) lin-log



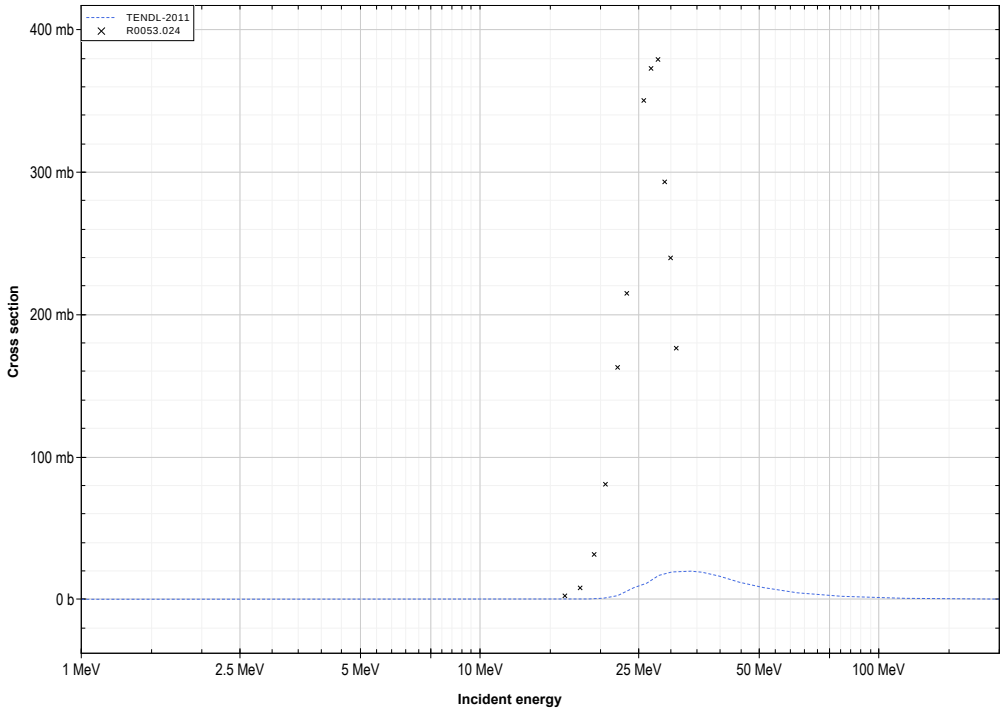
Reaction	Q-Value
Pb207(He3,2n)Po208	-6193.82 keV

<< 79-Au-197	**82-Pb-207**	82-Pb-208 >>
<< MT16 (^{3}He,2n)	**MT17 (^{3}He,3n) or MT5 (Po207 production)**	MT37 (^{3}He,4n) >>

Pb207 (^{3}He,3n) log-log



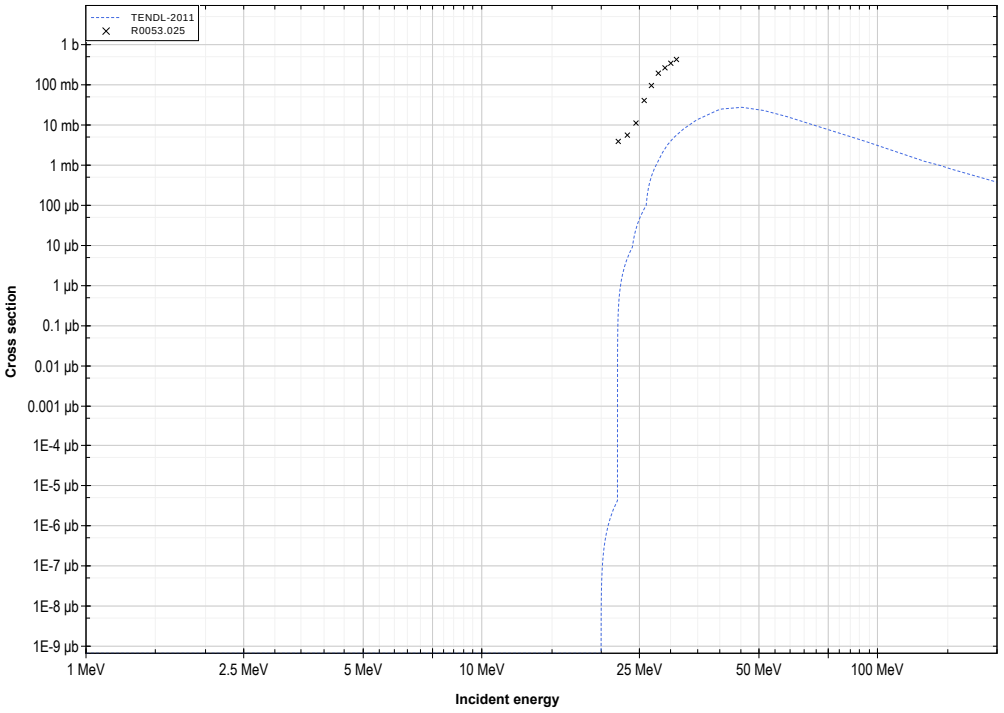
Pb207 (^{3}He,3n) lin-log



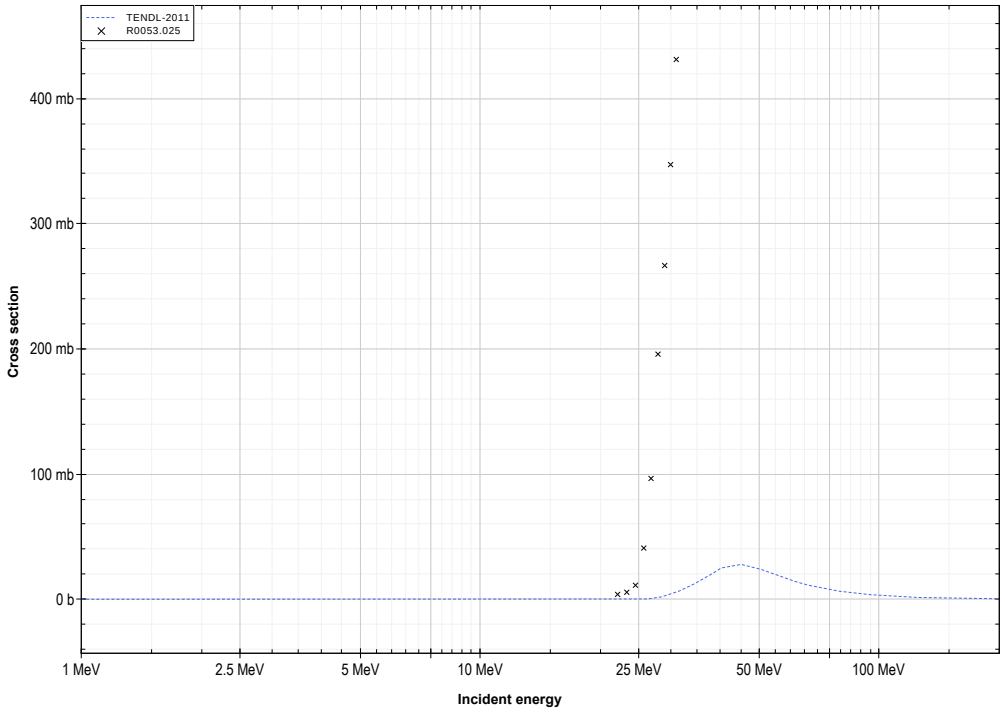
Reaction	Q-Value
Pb207(He3,3n)Po207	-14588.64 keV

<< 79-Au-197	**82-Pb-207**	82-Pb-208 >>
<< MT17 (³He,3n)	**MT37 (³He,4n) or MT5 (Po206 production)**	MT4 (³He,n) >>

Pb207 (³He,4n) log-log



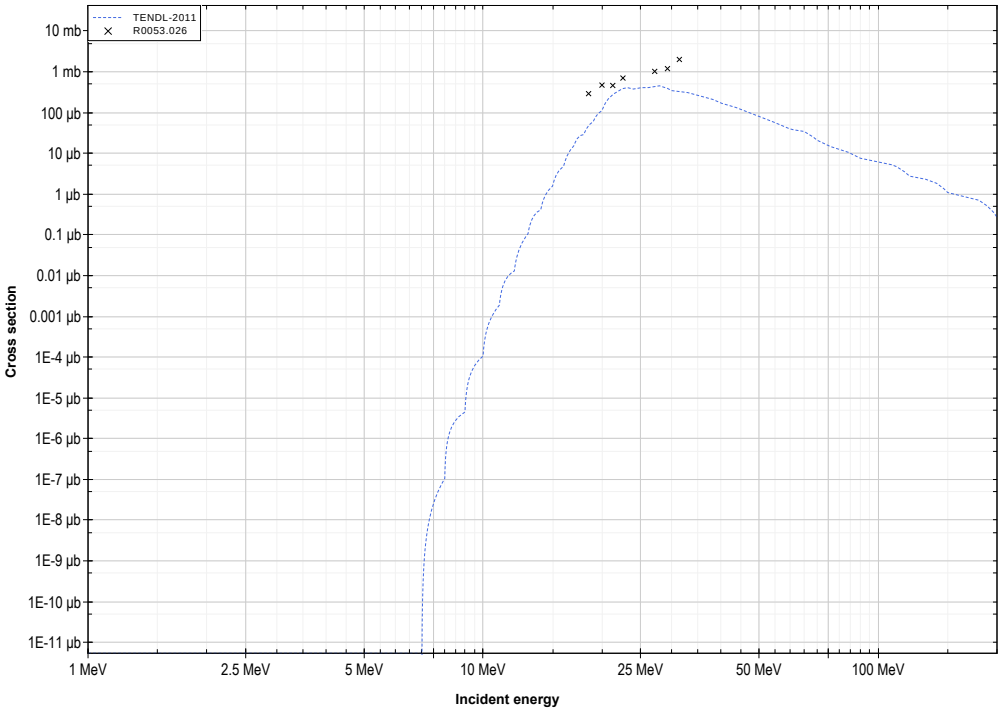
Pb207 (³He,4n) lin-log



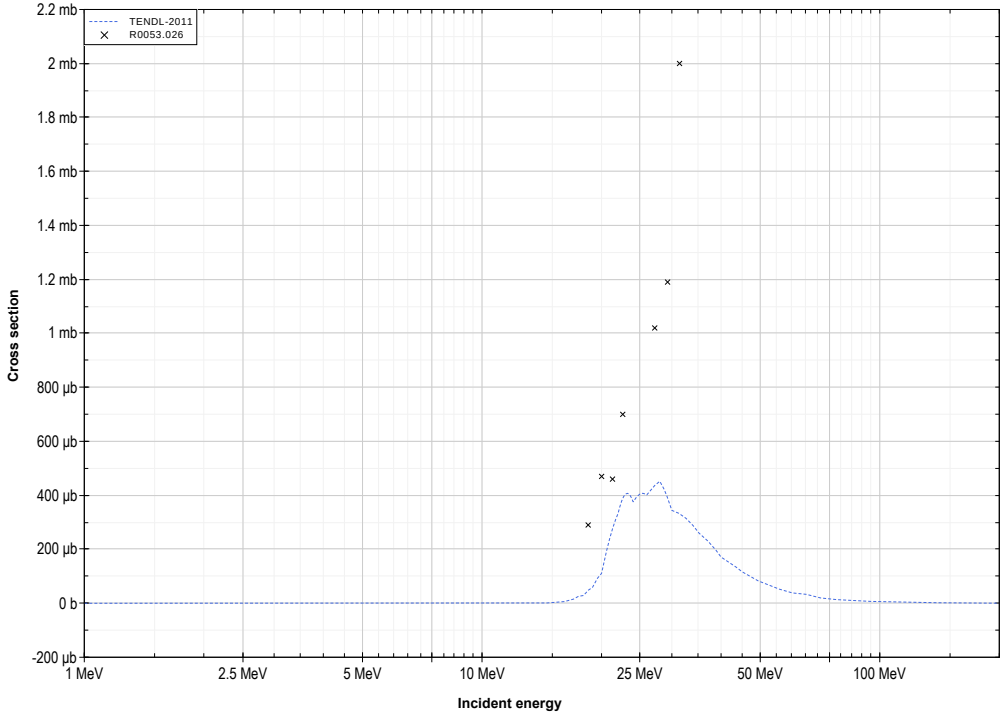
Reaction	Q-Value
Pb207(He3,4n)Po206	-21623.95 keV

<< 73-Ta-181	**82-Pb-208**	83-Bi-209 >>
<< MT37 (^{3}He,4n)	**MT4 (^{3}He,n) or MT5 (Po210 production)**	MT17 (^{3}He,3n) >>

Pb208 (^{3}He,n) log-log



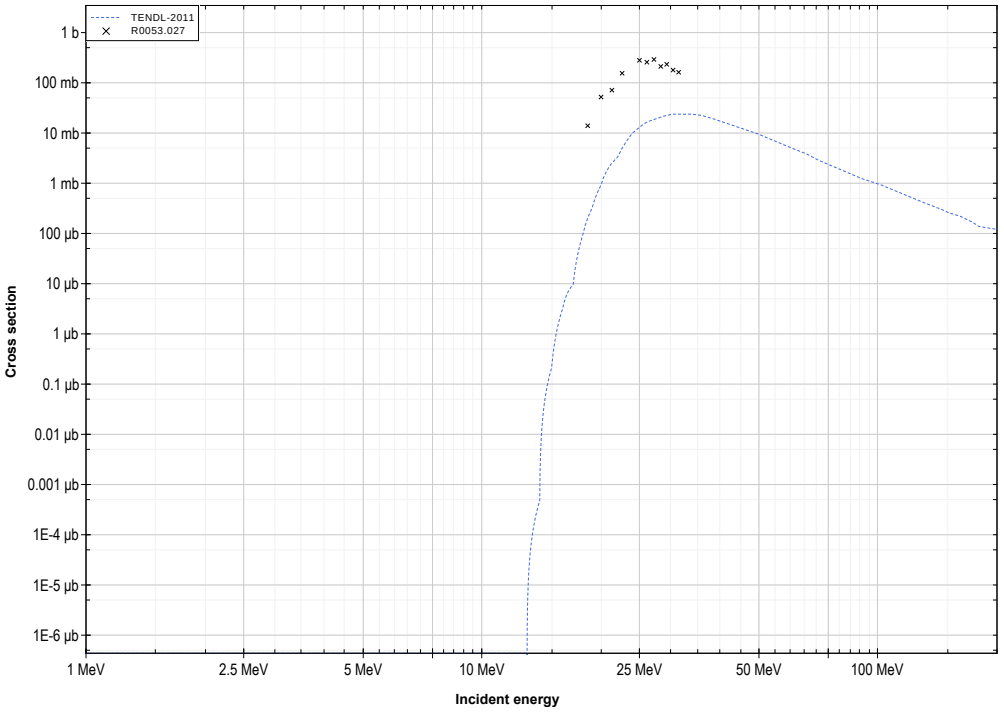
Pb208 (^{3}He,n) lin-log



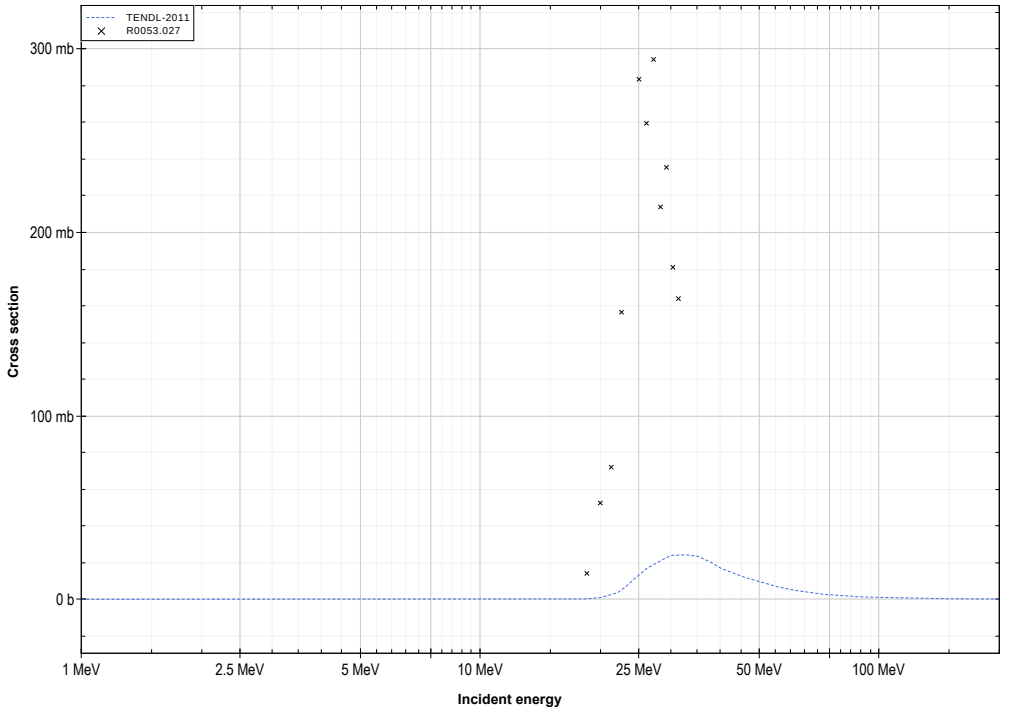
Reaction	Q-Value
Pb208(He3,n)Po210	1064.50 keV

<< 82-Pb-207	**82-Pb-208**	83-Bi-209 >>
<< MT4 (^{3}He,n)	**MT17 (^{3}He,3n) or MT5 (Po208 production)**	MT37 (^{3}He,4n) >>

Pb208 (^{3}He,3n) log-log



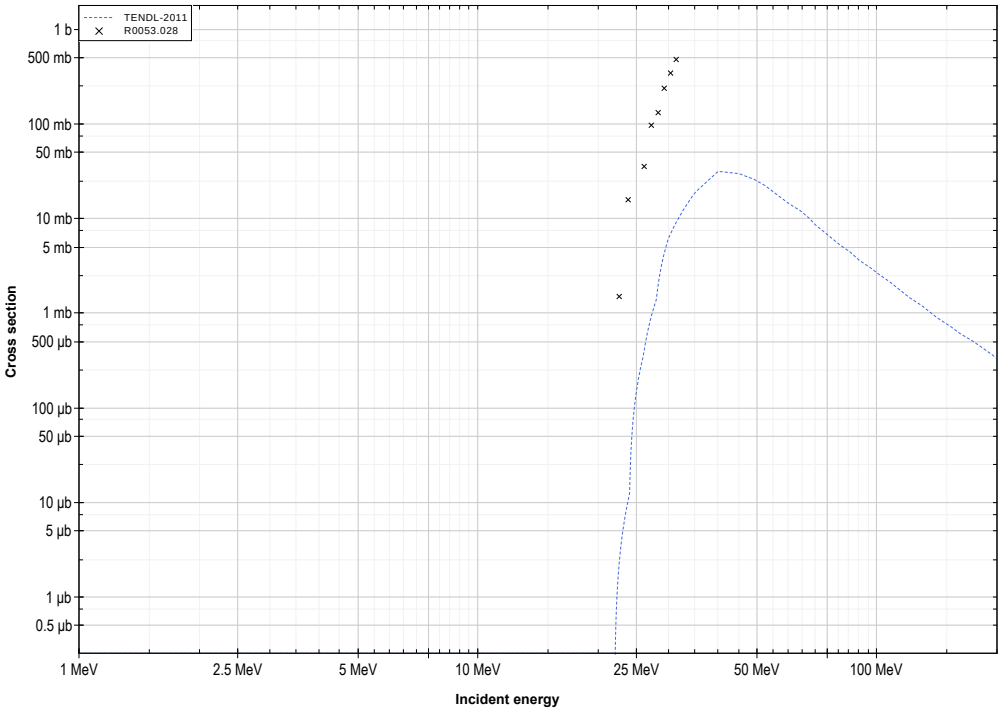
Pb208 (^{3}He,3n) lin-log



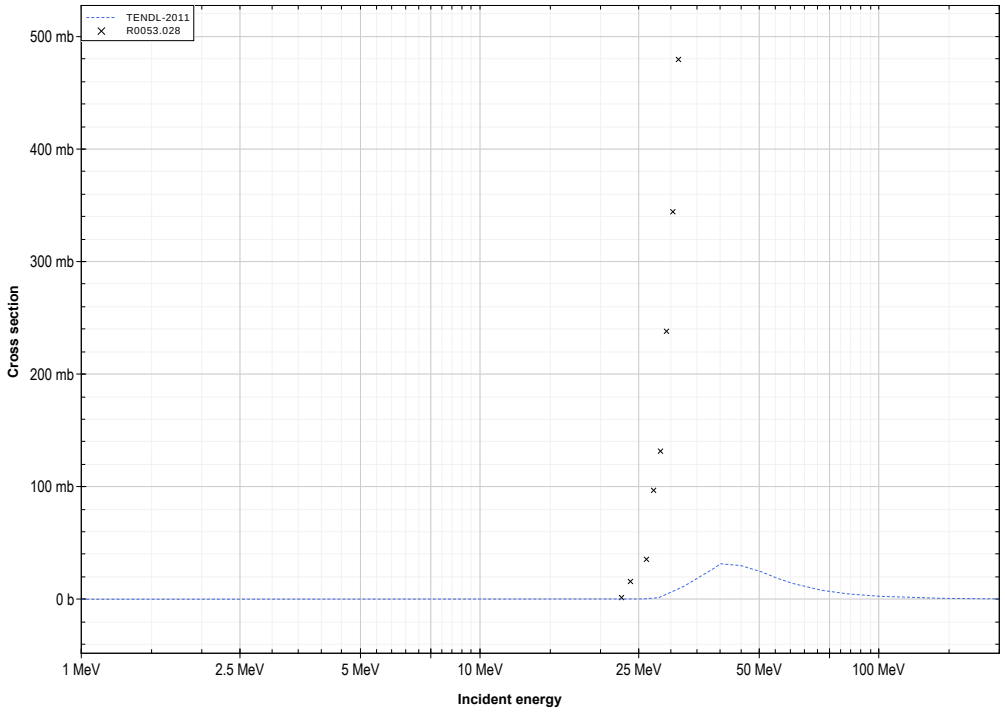
Reaction	Q-Value
Pb208(He3,3n)Po208	-13561.74 keV

<< 82-Pb-207	**82-Pb-208**	83-Bi-209 >>
<< MT17 (³He,3n)	**MT37 (³He,4n) or MT5 (Po207 production)**	MT4 (³He,n) >>

Pb208 (³He,4n) log-log



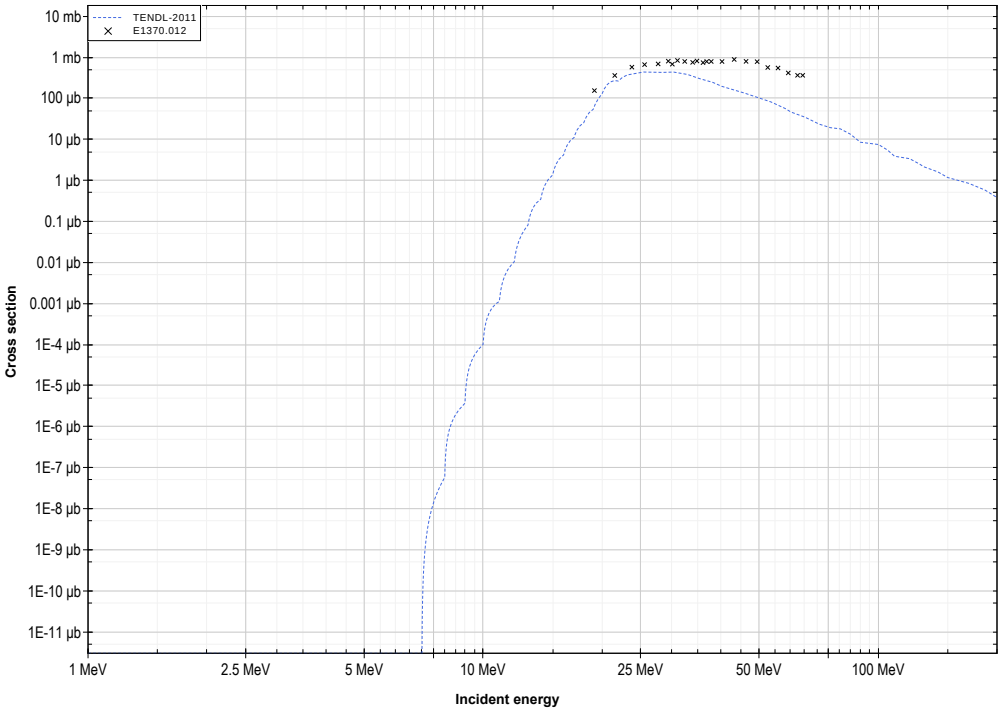
Pb208 (³He,4n) lin-log



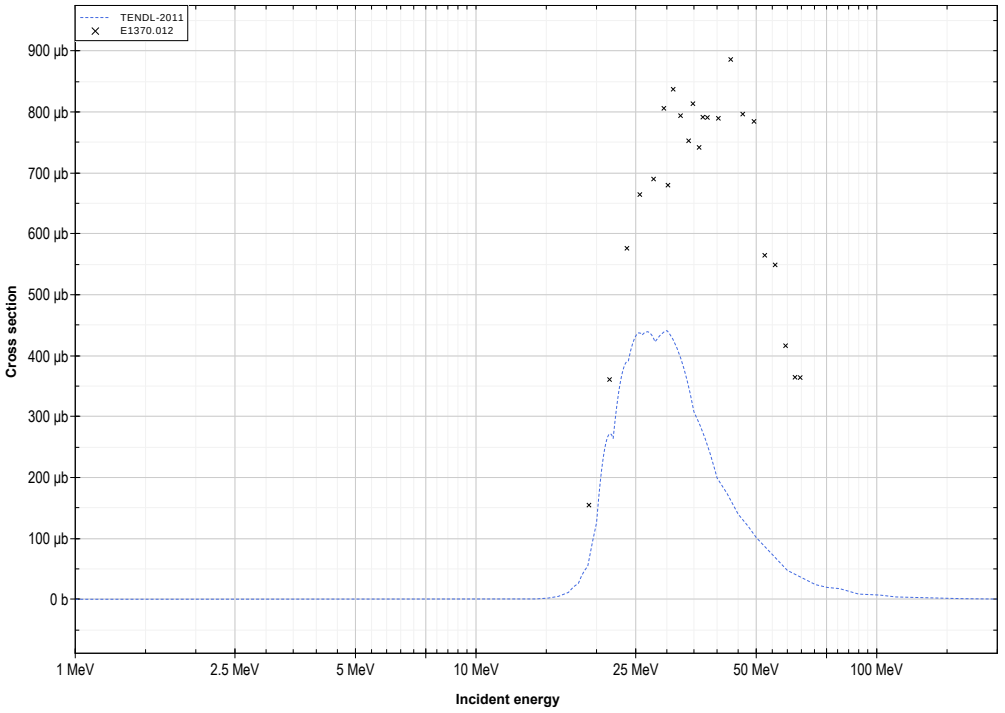
Reaction	Q-Value
Pb208(He3,4n)Po207	-21956.55 keV

<< 82-Pb-208	**83-Bi-209**	93-Np-237 >>
<< MT37 (³He,4n)	**MT4 (³He,n) or MT5 (At211 production)**	MT16 (³He,2n) >>

Bi209 (³He,n) log-log



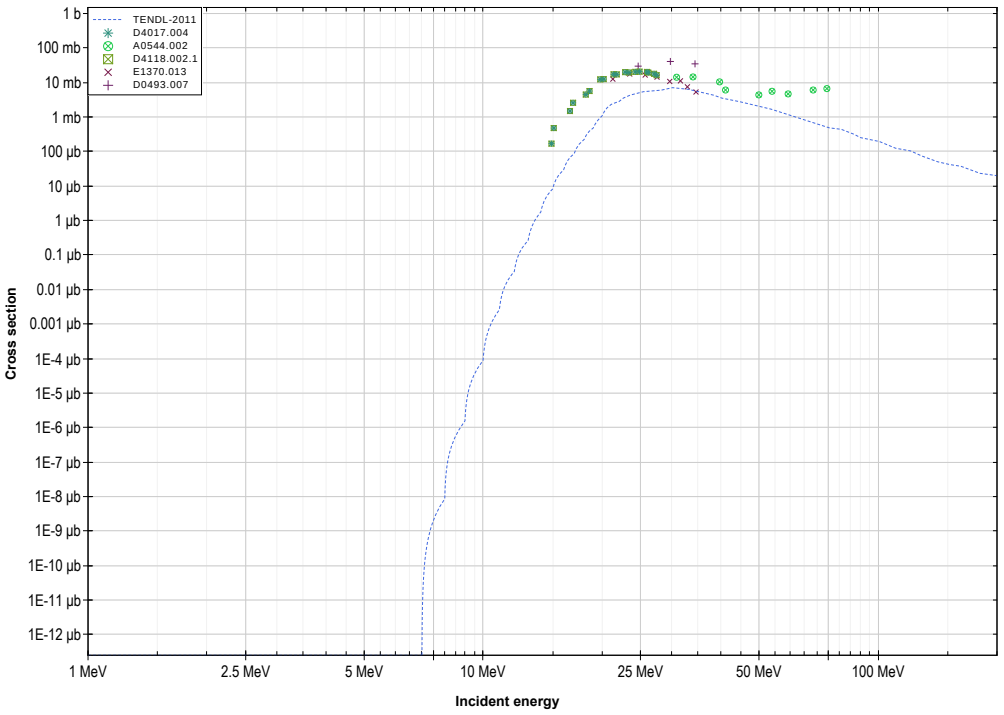
Bi209 (³He,n) lin-log



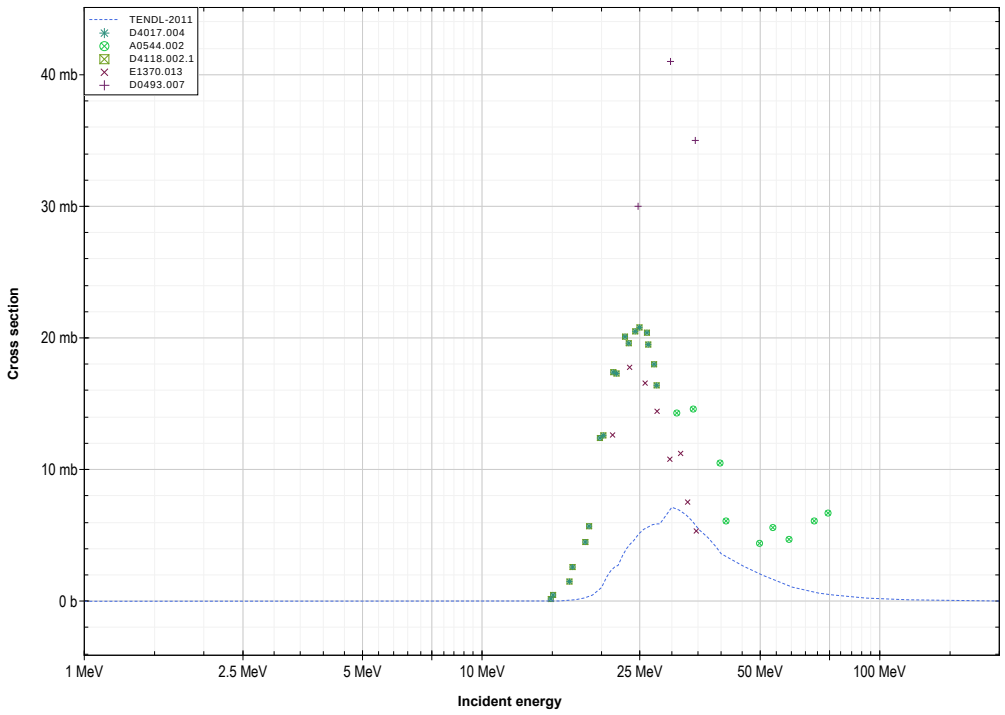
Reaction	Q-Value
Bi209(He3,n)At211	248.50 keV

<< 82-Pb-207	**83-Bi-209**	92-U-236 >>
<< MT4 (^{3}He,n)	**MT16 (^{3}He,2n) or MT5 (At210 production)**	MT17 (^{3}He,3n) >>

Bi209 (^{3}He,2n) log-log



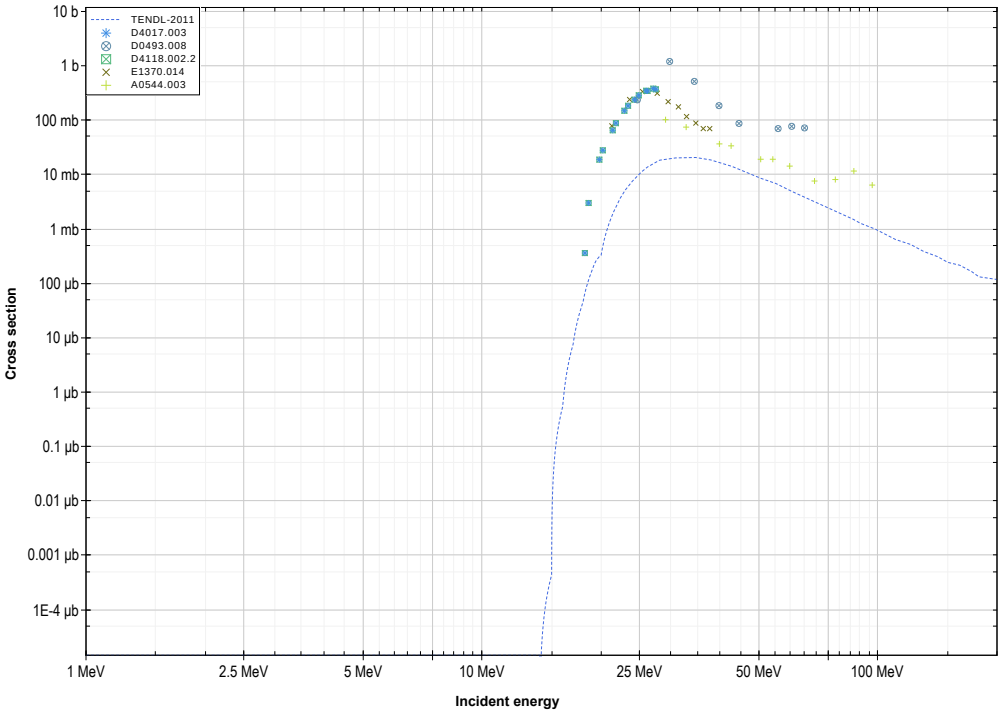
Bi209 (^{3}He,2n) lin-log



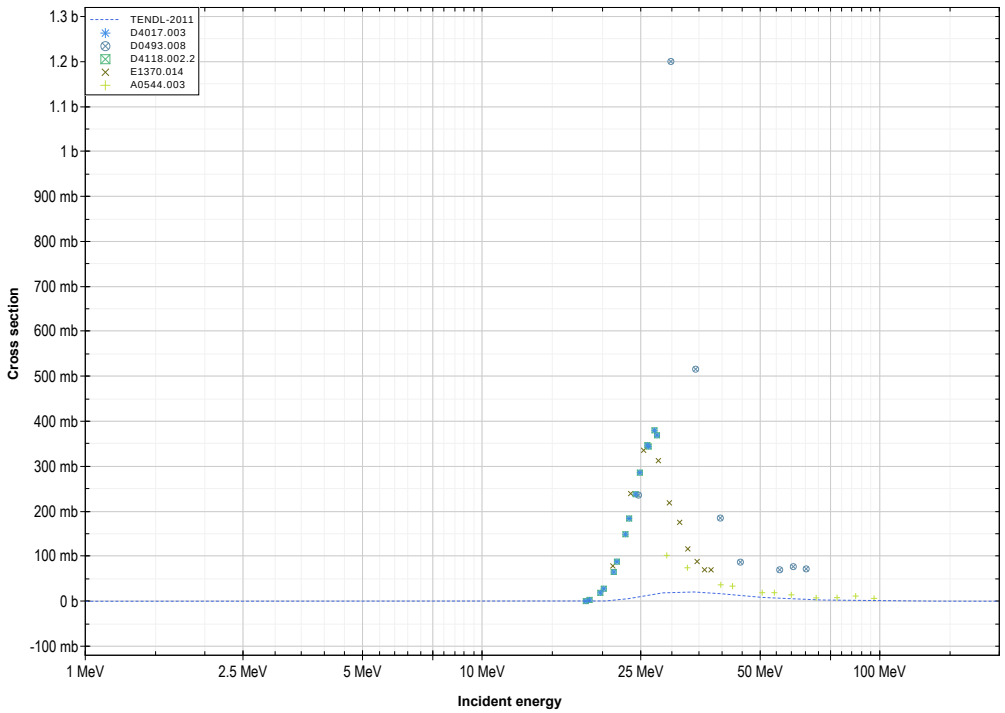
Reaction	Q-Value
Bi209(He3,2n)At210	-7497.92 keV

<< 82-Pb-208	**83-Bi-209**	93-Np-237 >>
<< MT16 (³He,2n)	**MT17 (³He,3n) or MT5 (At209 production)**	MT24 (³He,2n+α) >>

Bi209 (³He,3n) log-log



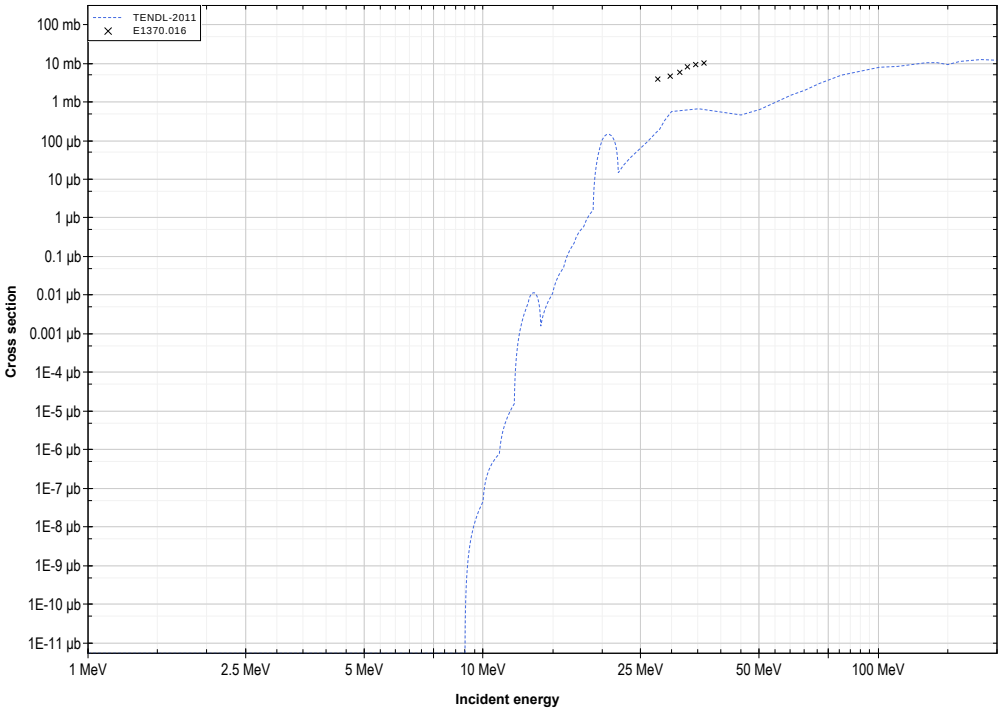
Bi209 (³He,3n) lin-log



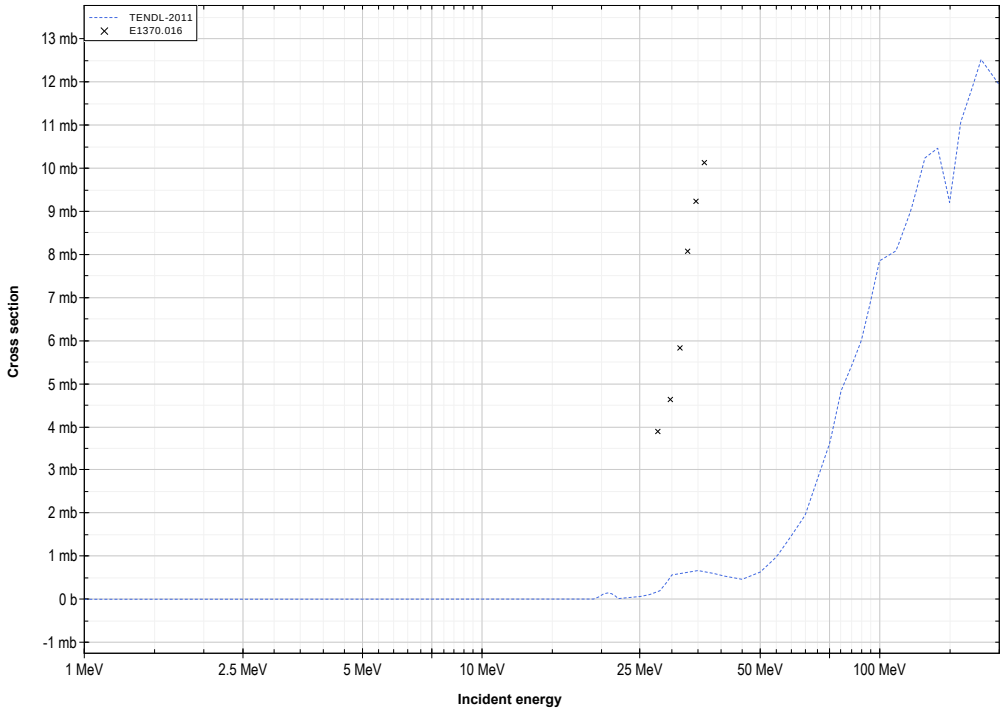
Reaction	Q-Value
Bi209(He3,3n)At209	-14661.24 keV

<< 73-Ta-181	**83-Bi-209**	
<< MT17 (³He,3n)	**MT24 (³He,2n+α) or MT5 (Bi206 production)**	MT28 (³He,n+p) >>

Bi209 (³He,2n+α) log-log



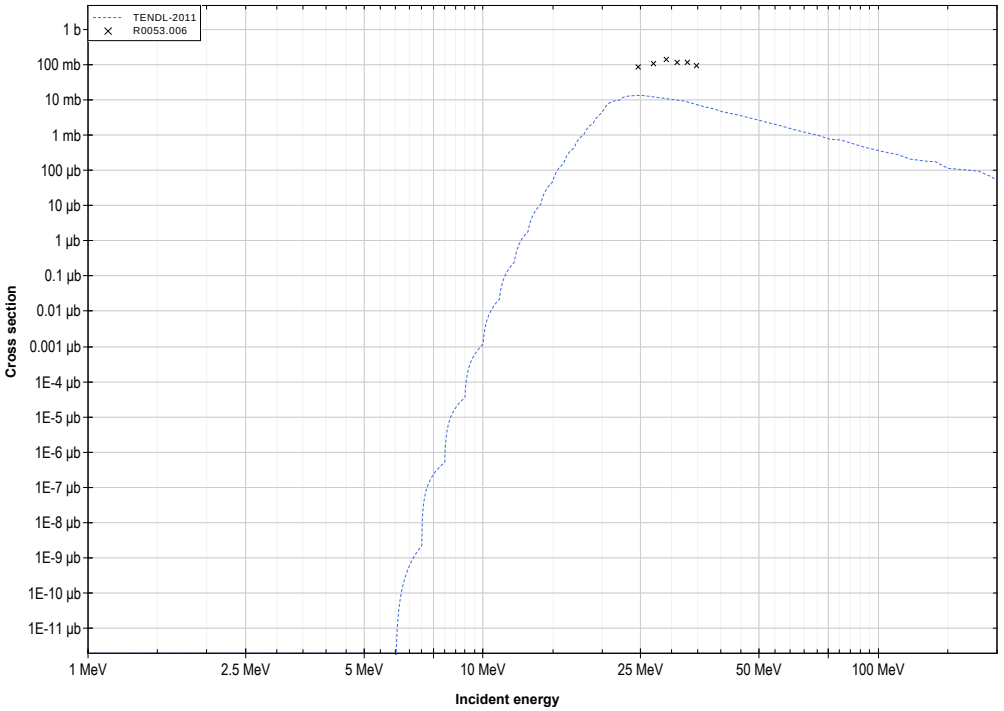
Bi209 (³He,2n+α) lin-log



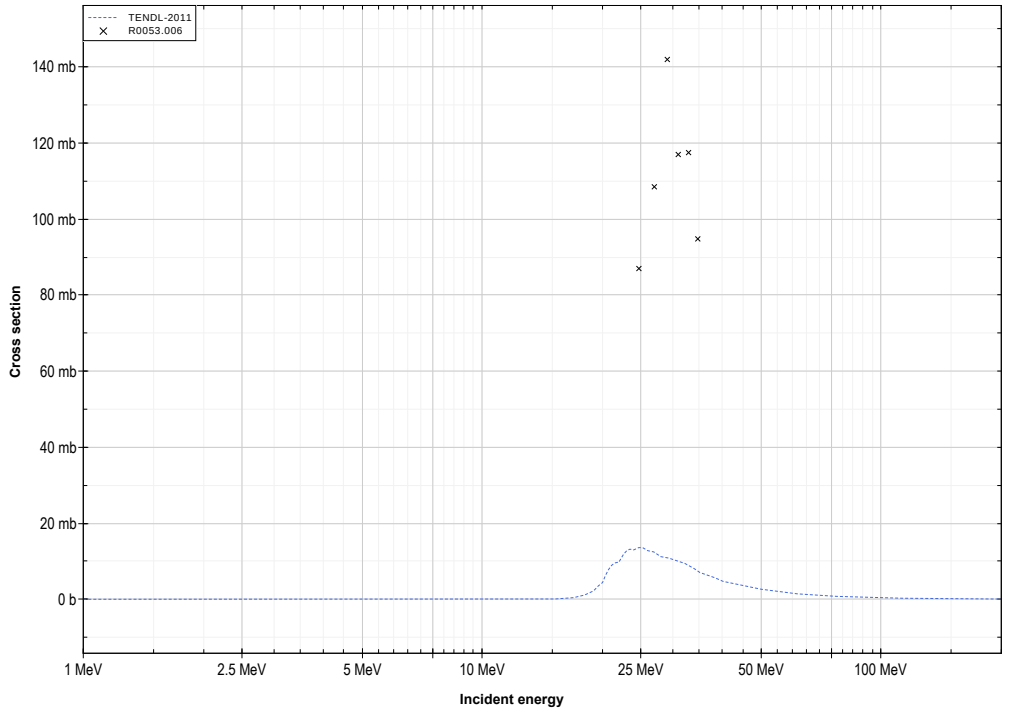
Reaction	Q-Value
Bi209(He3,2n+α)Bi206	-1866.83 keV
Bi209(He3,2t)Bi206	-13198.90 keV
Bi209(He3,n+d+t)Bi206	-19456.13 keV
Bi209(He3,2n+p+t)Bi206	-21680.70 keV
Bi209(He3,3n+He3)Bi206	-22444.45 keV
Bi209(He3,2n+2d)Bi206	-25713.36 keV
Bi209(He3,3n+p+d)Bi206	-27937.93 keV
Bi209(He3,4n+2p)Bi206	-30162.49 keV

<< 74-W-183	**83-Bi-209**	
<< MT24 (^{3}He,2n+α)	**MT28 (^{3}He,n+p) or MT5 (Po210 production)**	MT37 (^{3}He,4n) >>

Bi209 (^{3}He,n+p) log-log



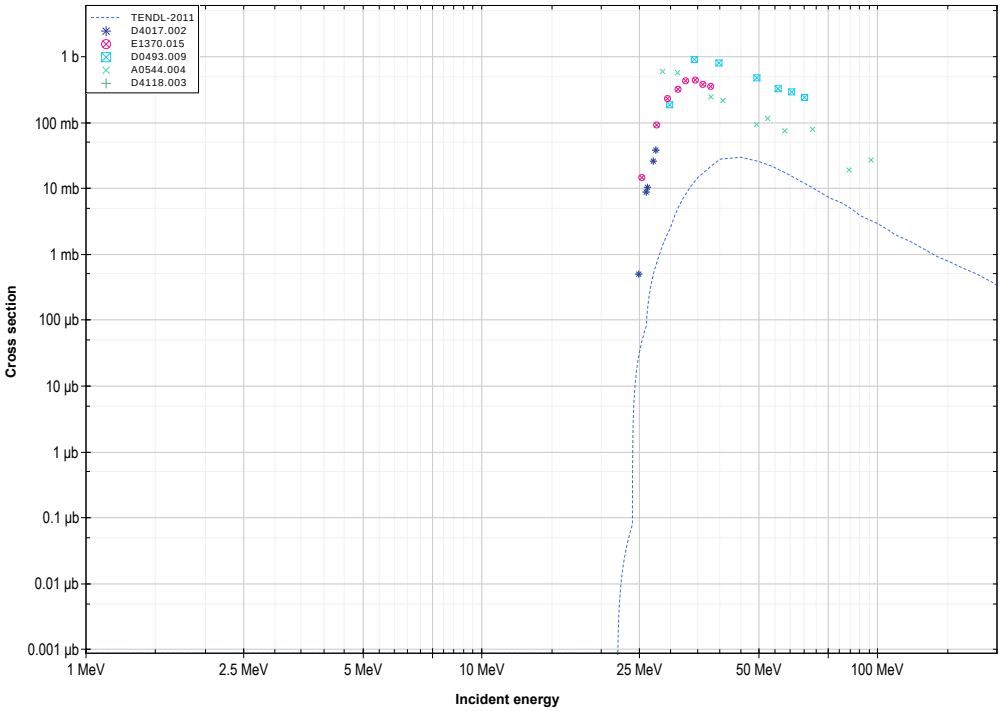
Bi209 (^{3}He,n+p) lin-log



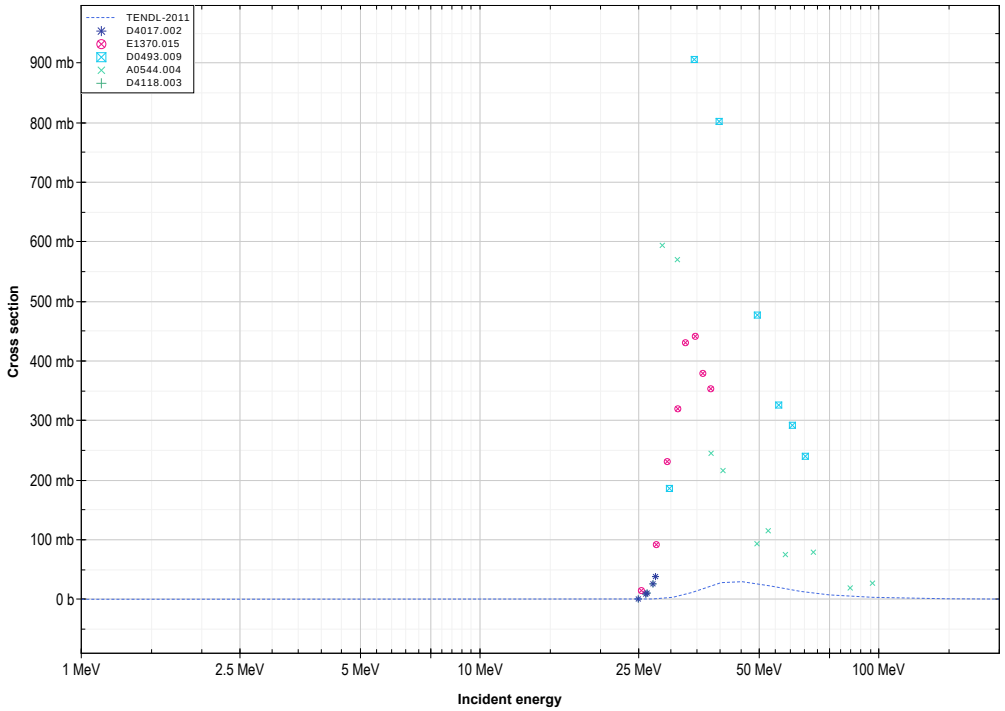
Reaction	Q-Value
Bi209(He3,d)Po210	-509.91 keV
Bi209(He3,n+p)Po210	-2734.47 keV

<< 82-Pb-208	**83-Bi-209**	
<< MT28 (^{3}He,n+p)	**MT37 (^{3}He,4n) or MT5 (At208 production)**	MT152 (^{3}He,5n) >>

Bi209 (^{3}He,4n) log-log



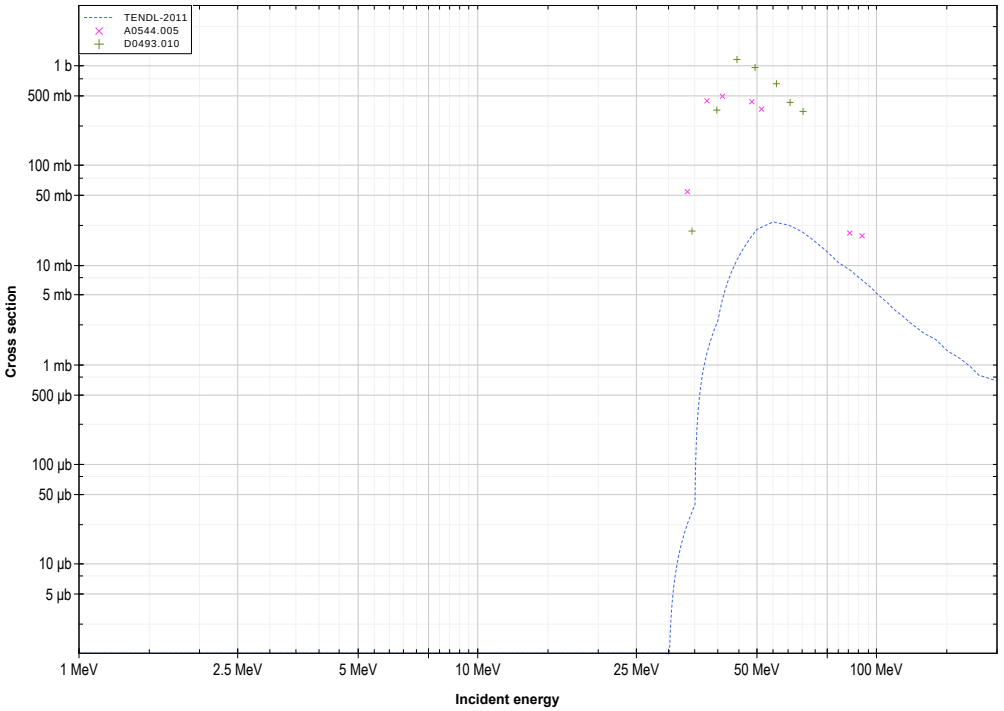
Bi209 (^{3}He,4n) lin-log



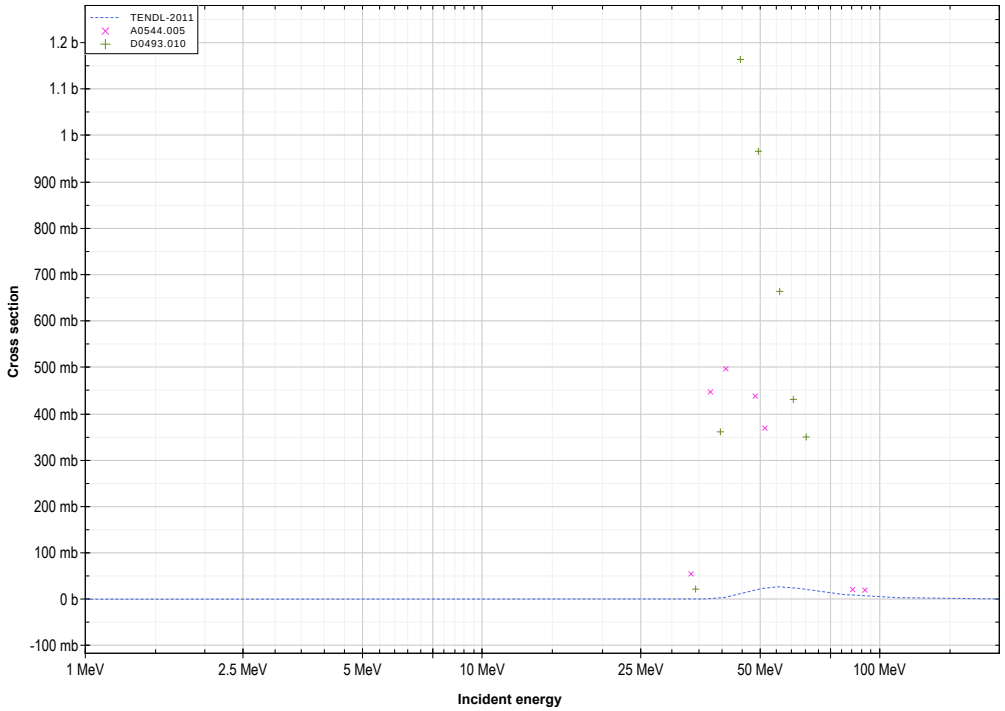
Reaction	Q-Value
Bi209(He3,4n)At208	-23121.55 keV

<< 79-Au-197	**83-Bi-209**	
<< MT37 (^{3}He,4n)	**MT152 (^{3}He,5n) or MT5 (At207 production)**	MT153 (^{3}He,6n) >>

Bi209 (^{3}He,5n) log-log



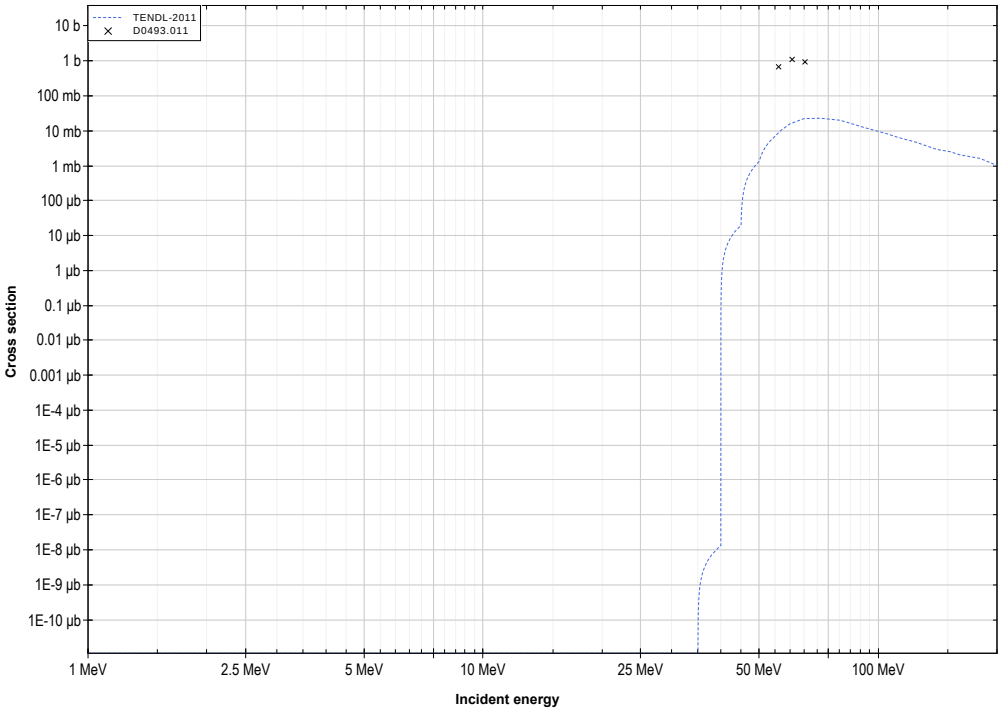
Bi209 (^{3}He,5n) lin-log



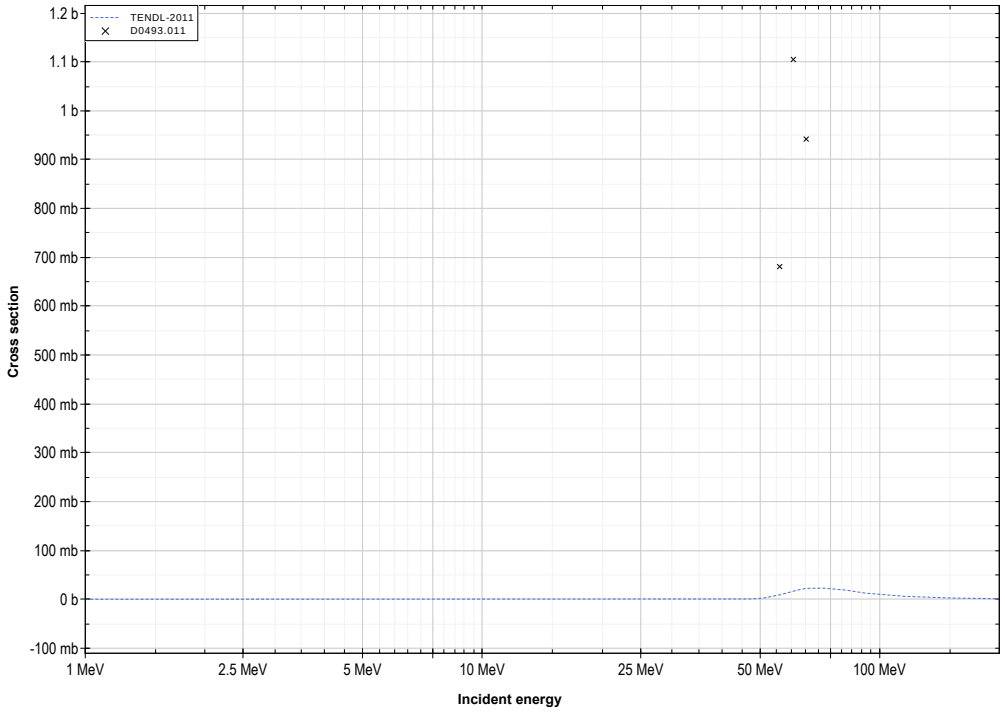
Reaction	Q-Value
Bi209(He3,5n)At207	-30440.87 keV

<< 79-Au-197	**83-Bi-209**	
<< MT152 (^{3}He,5n)	**MT153 (^{3}He,6n) or MT5 (At206 production)**	MT160 (^{3}He,7n) >>

Bi209 (^{3}He,6n) log-log



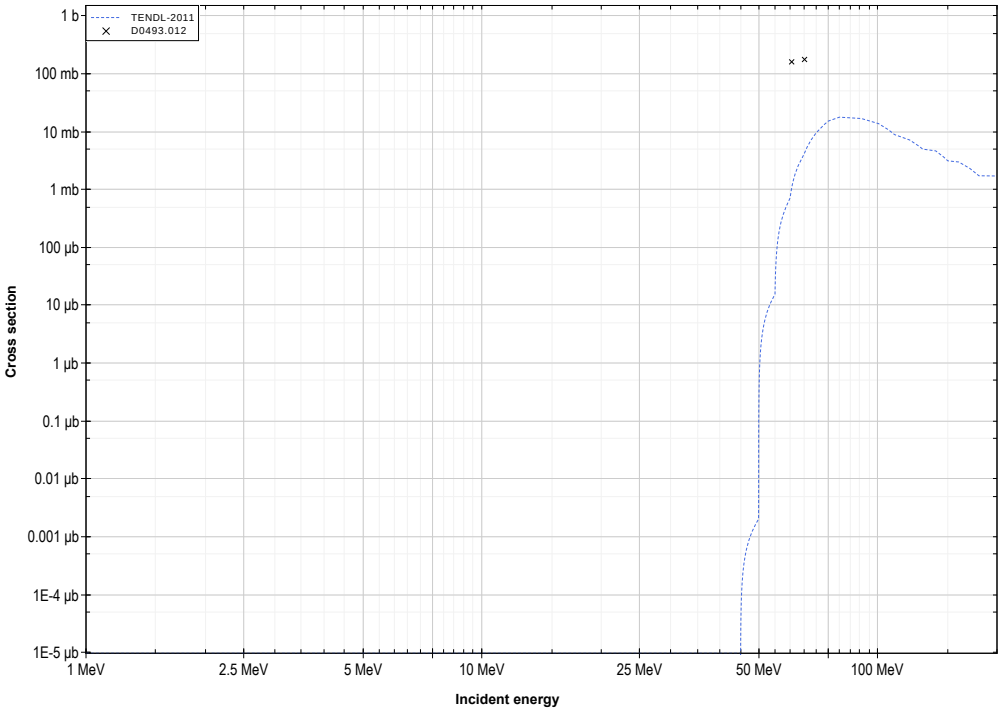
Bi209 (^{3}He,6n) lin-log



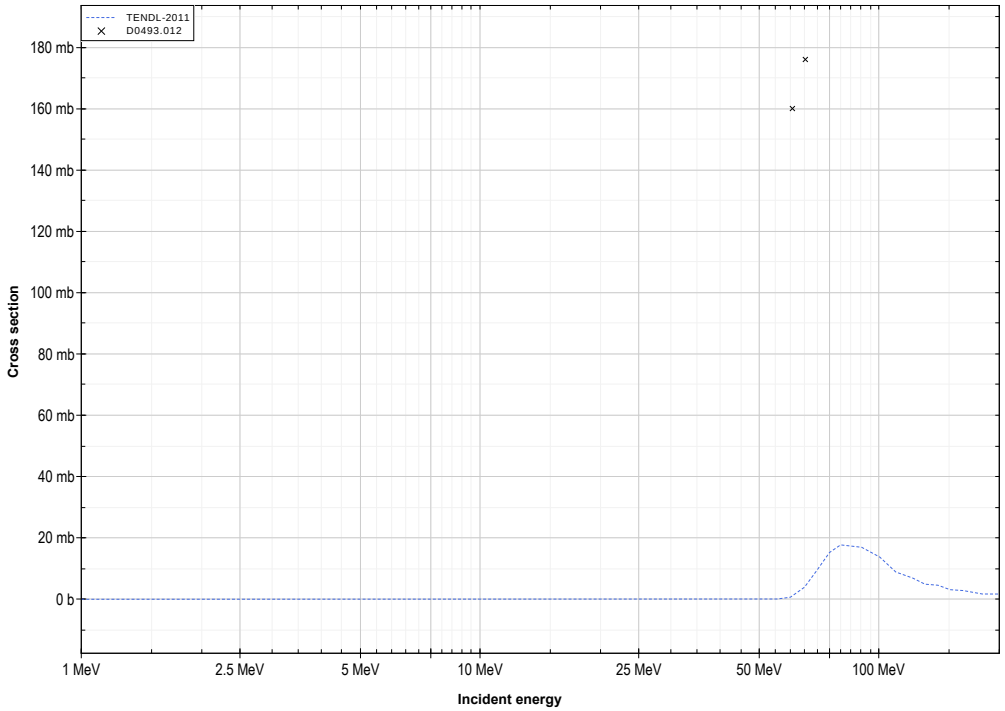
Reaction	Q-Value
Bi209(He3,6n)At206	-39335.19 keV

<< 73-Ta-181	**83-Bi-209**	
<< MT153 (^{3}He,6n)	**MT160 (^{3}He,7n) or MT5 (At205 production)**	MT16 (^{3}He,2n) >>

Bi209 (^{3}He,7n) log-log



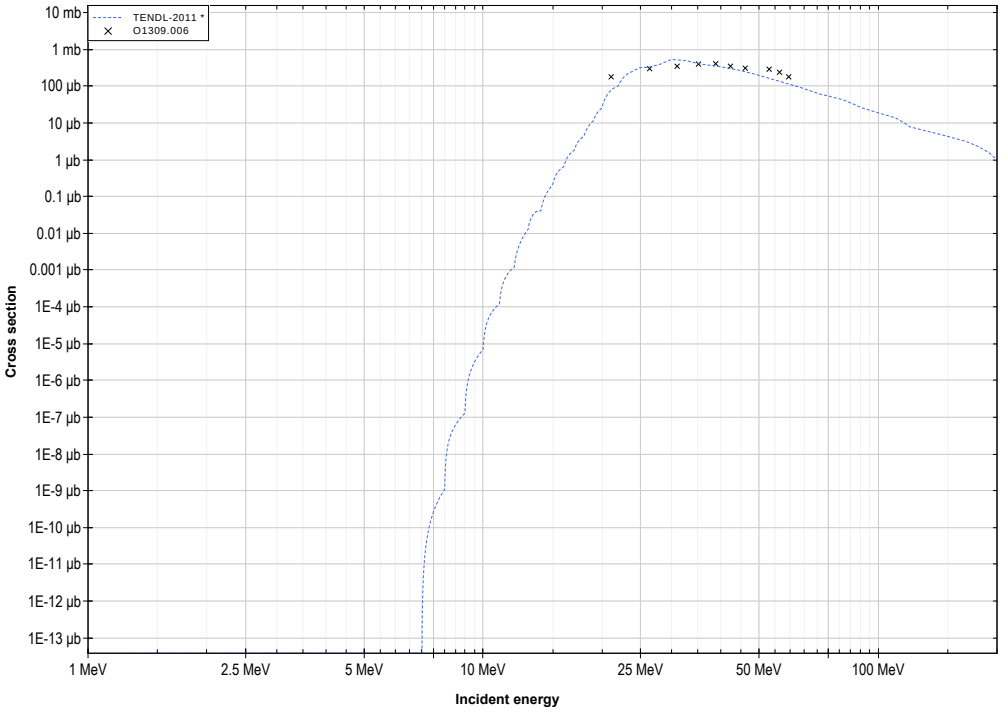
Bi209 (^{3}He,7n) lin-log



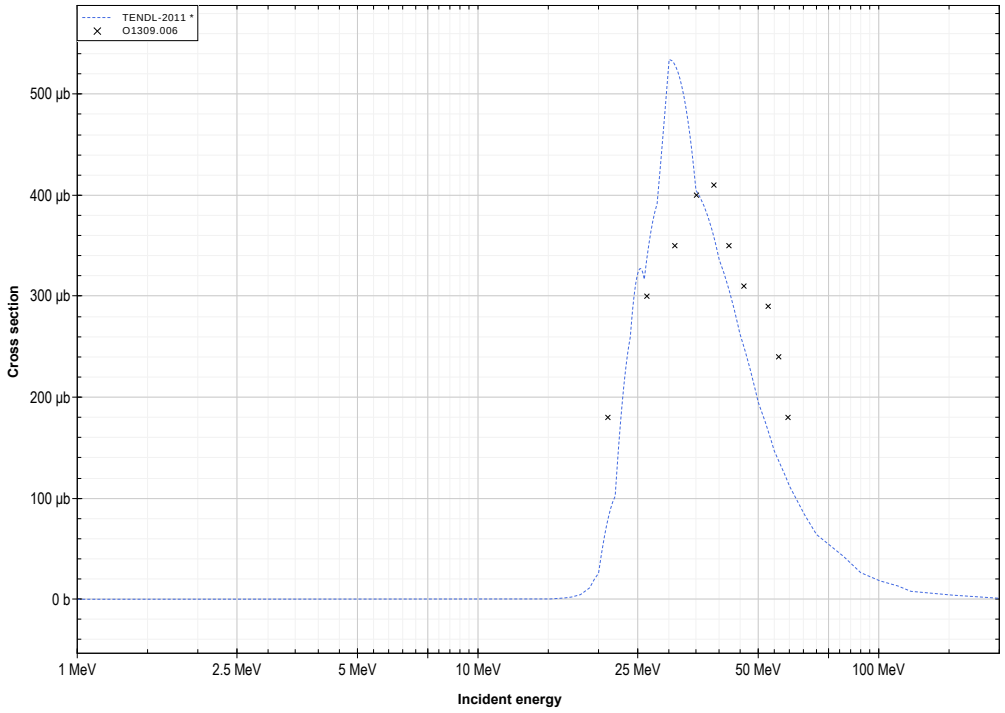
Reaction	Q-Value
Bi209(He3,7n)At205	-46854.50 keV

<< 83-Bi-209	**92-U-236**	
<< MT160 (^{3}He,7n)	**MT16 (^{3}He,2n) or MT5 (Pu237 production)**	MT4 (^{3}He,n) >>

U236 (^{3}He,2n) log-log



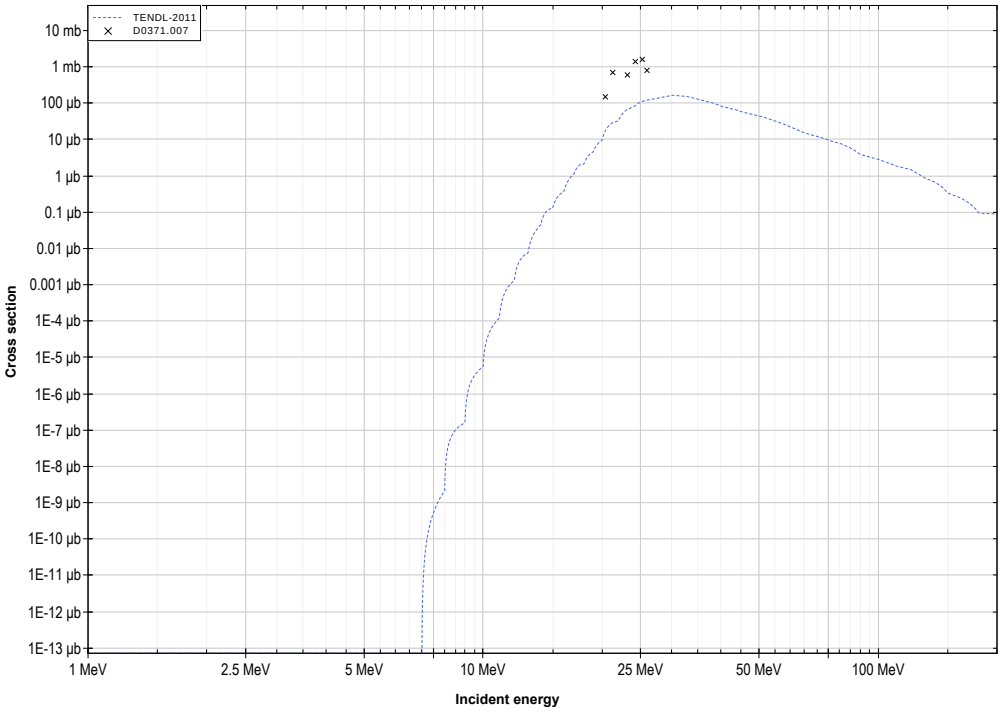
U236 (^{3}He,2n) lin-log



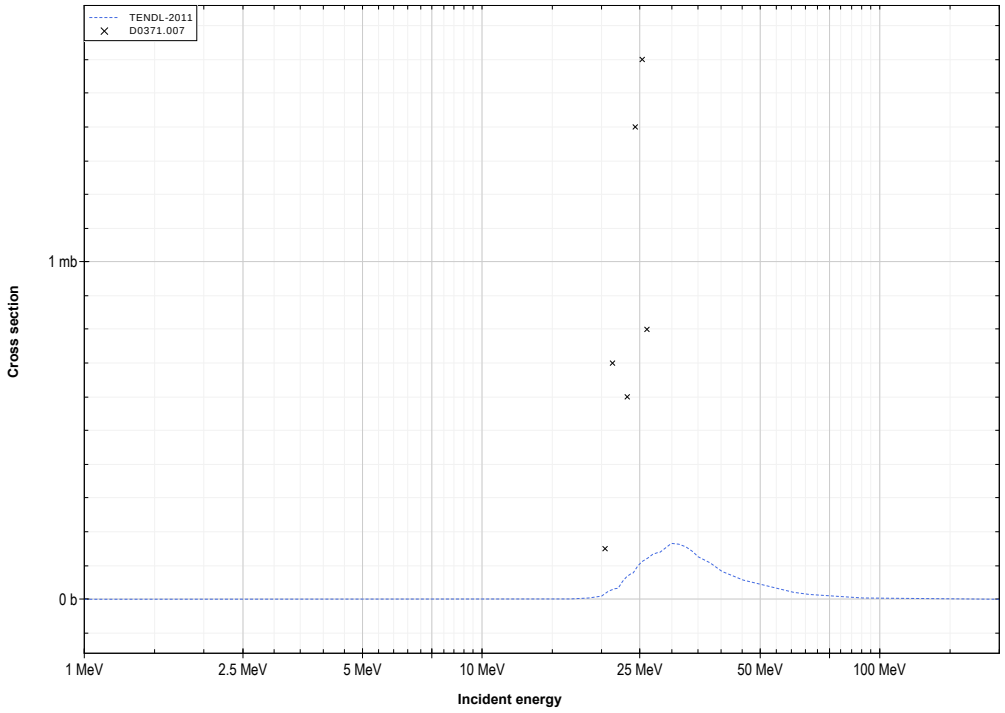
Reaction	Q-Value
U236(He3,2n)Pu237	-3858.42 keV

<< 83-Bi-209	**93-Np-237**	
<< MT16 (³He,2n)	**MT4 (³He,n) or MT5 (Am239 production)**	MT17 (³He,3n) >>

Np237 (³He,n) log-log



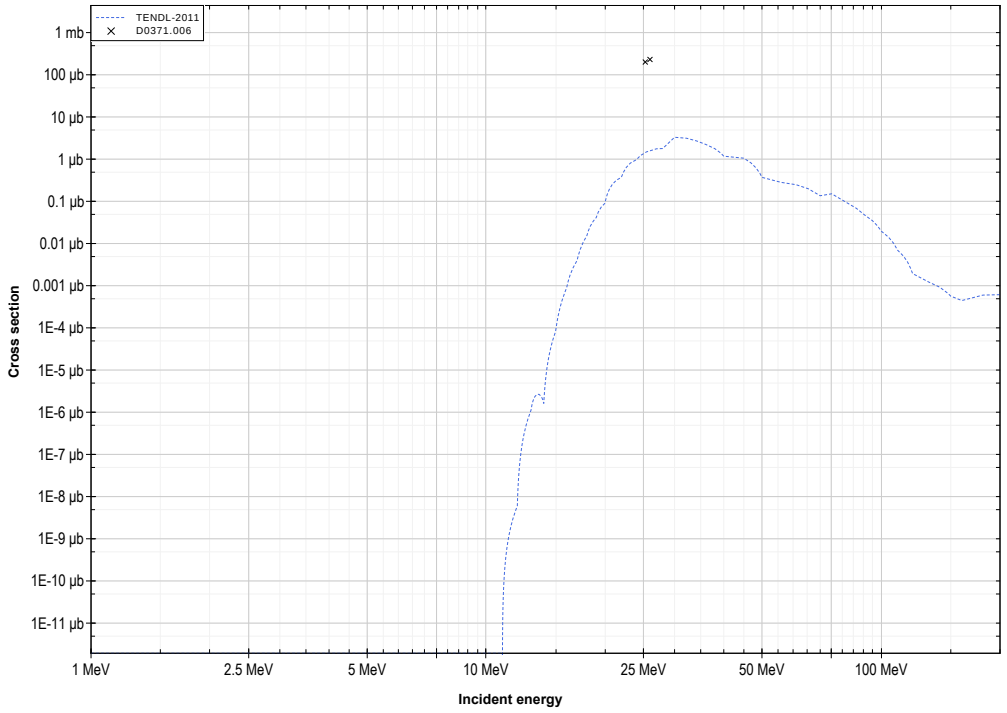
Np237 (³He,n) lin-log



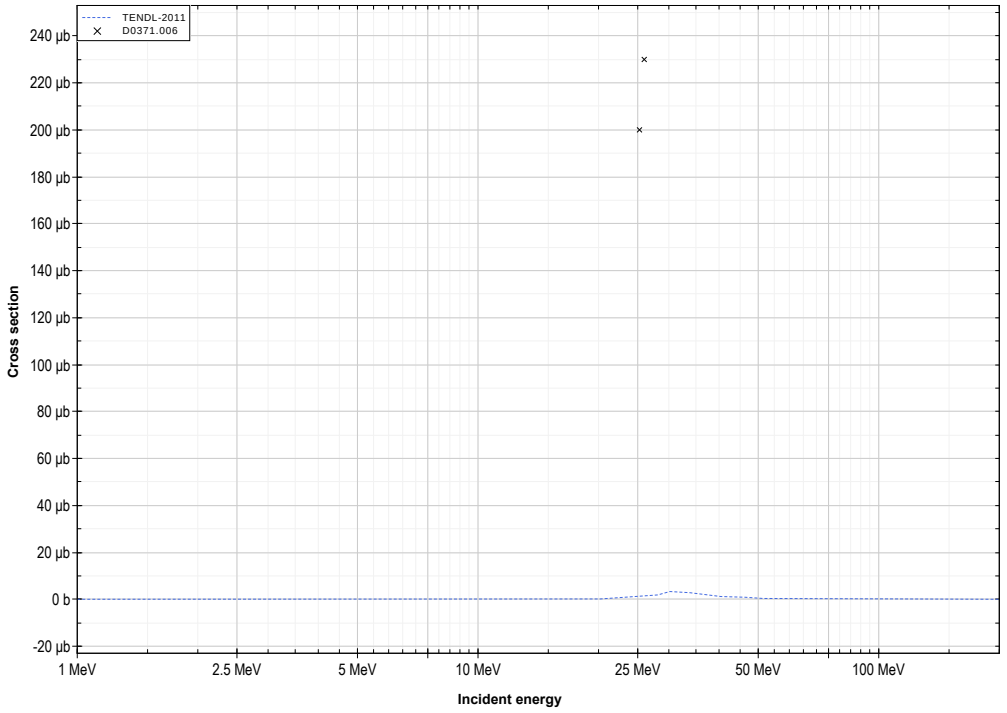
Reaction	Q-Value
Np237(He3,n)Am239	2341.20 keV

<< 83-Bi-209	**93-Np-237**	
<< MT4 (^{3}He,n)	**MT17 (^{3}He,3n) or MT5 (Am237 production)**	MT111 (^{3}He,2p) >>

Np237 (^{3}He,3n) log-log



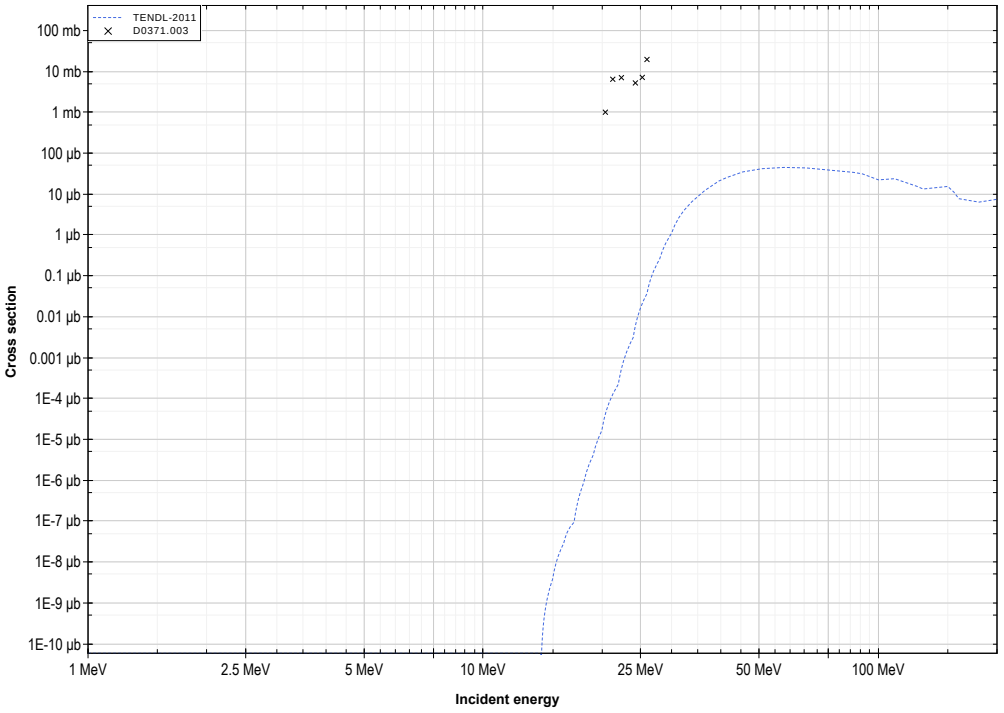
Np237 (^{3}He,3n) lin-log



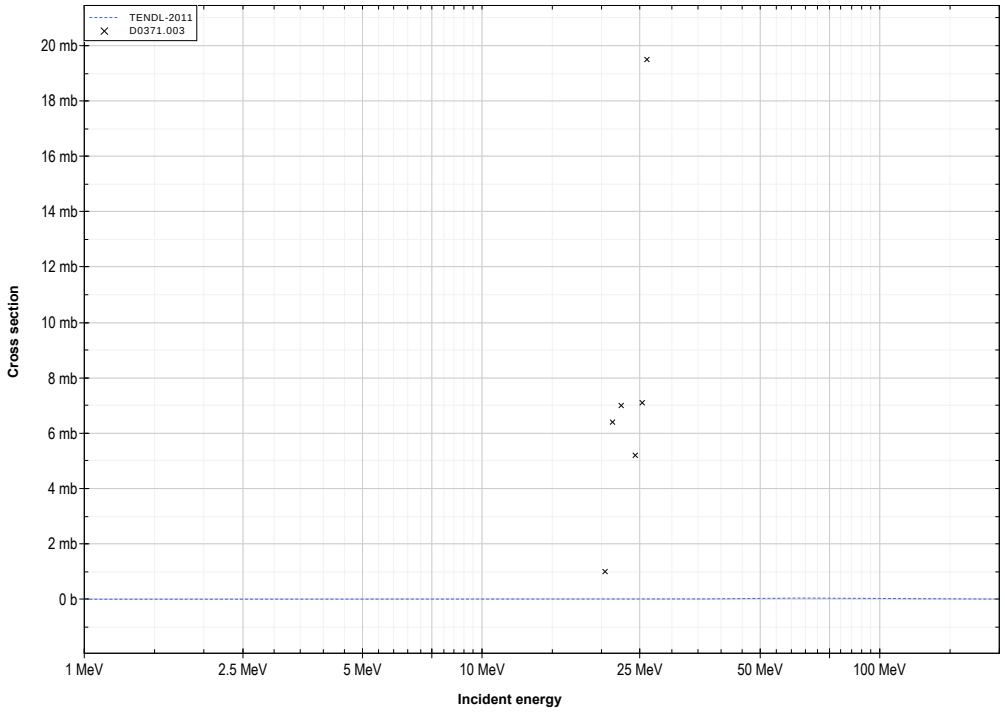
Reaction	Q-Value
Np237(He3,3n)Am237	-10979.44 keV

<< 79-Au-197	**93-Np-237**	
<< MT17 (^{3}He,3n)	**MT111 (^{3}He,2p) or MT5 (Np238 production)**	

Np237 (^{3}He,2p) log-log



Np237 (^{3}He,2p) lin-log



Reaction	Q-Value
Np237(He3,2p)Np238	-2229.73 keV