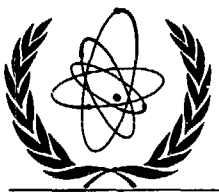
IAEA-NDS-114
Rev. 0



INTERNATIONAL ATOMIC ENERGY AGENCY

NUCLEAR DATA SERVICES

DOCUMENTATION SERIES OF THE IAEA NUCLEAR DATA SECTION

"ACTV-F/H"

NEUTRON ACTIVATION CROSS-SECTION LIBRARY FOR FUSION REACTOR DESIGN

Data from the Hanford REAC*2 Data Library

Abstract: This library contains 284 neutron reaction or capture cross sections for 58 nuclides important for fusion reactor design for neutron energies up to 20 MeV. The data are in ENDF-6 format. The library is available on magnetic tape or diskette from the IAEA Nuclear Data Section, costfree upon request.

V.G. Goulo

December 1989

IAEA NUCLEAR DATA SECTION, P.O. BOX 100, A-1400 VIENNA

NEUTRON ACTIVATION CROSS-SECTION LIBRARY FOR FUSION REACTOR DESIGN

Data from the Hanford REAC*2 Data Library

History

At the IAEA Specialists' Meeting on "Fusion Evaluated Nuclear Data Library (FENDL) and Benchmark Calculations" (8-10 May 1989, Vienna) the Working Group on Neutron Activation Data initiated an intercomparison of activation cross sections important for fusion reactor design. It was agreed that national nuclear data centers will send to the IAEA Nuclear Data Section (NDS) their contributions according to the list of reactions issued by the Harwell Laboratory (UK) selected on the basis of inventory calculations [1].

Source

The activation data library described here is a part of the library REAC*2 of the Hanford National Laboratory (USA) [2].

Content

It contains 284 reaction and capture cross sections for isotopes or 58 elements. The list of reactions presented on the next pages gives a description of the source of data or methods of data estimation as well as MAT numbers of the respective data files. The data were converted into ENDF-6 format at the IAEA Nuclear Data Section (NDS).

Plots

Plots were done using the code EVALPLOT [3]. They are presented here in four parts:

- plots of reaction cross sections into ground states;
- plots of capture cross sections into ground states;
- plots of reaction cross sections into isomeric states;
- plots of capture cross sections into isomeric states.

Availability

The library is available from the IAEA NDS on magnetic tape or diskettes costfree upon request.

References

1. Proc. of the IAEA Specialists' Meeting on Fusion Evaluated Nuclear Data Library (FENDL), INDC(NDS)-223, 1989.
2. F.M. Mann et al, REAC Nuclear Data Libraries, Proc. of the International Conf. on Nuclear Data for Science and Technology, Santa Fé, 13-17 May 1985, p.207.
3. D.E. Cullen, P.K. McLaughlin: The 1989 ENDF pre-processing codes. IAEA-NDS-39, Rev. 5, Dec. 1989.

Sources of data

The data were received at the IAEA from the Hanford file in 1989. The data were kept unchanged except that the file format was changed to ENDF-6.

In the following table the sources of the data are indicated. Most of the data have been calculated with the code THRESH. Some of them have been adjusted when entering in the activation data libraries of ENDF-B (see document IAEA-NDS-38 Rev. 1) or ACTL/Livermore (see document IAEA-NDS-55). Other comments on the source of the data in the following table are self-explanatory.

Size

The library, which has the NDS-internal name "ACTV-F/H", has 18652 records.

Table of MT numbers

MT		Reaction	MT		Reaction
16	=	(n,2n)	316	=	(n,2n)*
17	=	(n,3n)			
22	=	(n,nα)	322	=	(n,nα)*
28	=	(n,np)	328	=	(n,np)*
32	=	(n,nd)			
33	=	(n,nt)			
34	=	(n,nHe3)			
102	=	(n,γ)	402	=	(n,γ)*
103	=	(n,p)	403	=	(n,p)*
104	=	(n,d)	404	=	(n,d)*
105	=	(n,t)			
106	=	(n,He3)			
107	=	(n,α)	407	=	(n,α)*
111	=	(n,2p)			

Activation cross sections for fusion from REAC*2 library of 1989

Part 1. Reaction cross sections into ground state

REACTION	MAT NUMBER	PLOT PAGE	SOURCE OF DATA
B-11(n,np)	511	9	THRESH
C-13(n,a)	613		THRESH
C-14(n,na)	614		THRESH
N-14(n,np)	714		THRESH
N-14(n,p)	714	10	THRESH ENDF/B corrected
N-14(n,d)	714		THRESH ENDF/B corrected
O-16(n,a)	816		THRESH ENDF/B corrected
O-17(n,a)	817		THRESH ENDF/B corrected
O-17(n,na)	817		THRESH ENDF/B corrected
Ne-20(n,a)	1020	11	THRESH
Na-23(n,a)	1123		THRESH ENDF/B-5 corrected
Mg-24(n,p)	1224		THRESH ENDF/B corrected
Mg-24(n,na)	1224		THRESH
Al-27(n,2n)	1327	12	THRESH ENDF/B corrected
Al-27(n,a)	1327		THRESH
Al-27(n,na)	1327		THRESH
Si-28(n,na)	1428		THRESH
Si-28(n,np)	1428		THRESH
Si-28(n,d)	1428		THRESH
S-34(n,a)	1634	13	THRESH ACTL corrected
Cl-35(n,a)	1735		THRESH ACTL corrected
Cl-35(n,p)	1735		"
Ar-40(n,2n)	1840		THRESH ACTL corrected
K-39(n,p)	1939		"
K-39(n,a)	1939		"
K-41(n,p)	1941	14	"
Ca-40(n,a)	2040		"
Ca-40(n,2p)	2040		THRESH
Ca-40(n,np)	2040		THRESH ACTL corrected
Ca-40(n,d)	2040		THRESH
Ca-42(n,2n)	2042		THRESH ACTL corrected
Ca-42(n,a)	2042	15	"
Ca-43(n,2n)	2043		"
Ca-43(n,na)	2043		"
Ca-43(n,2p)	2043		THRESH
Ca-44(n,2n)	2044		THRESH ACTL corrected
Ca-44(n,na)	2044		THRESH
Ca-44(n,a)	2044	16	"
Ca-45(n,a)	2045		THRESH ACTL corrected
Ca-46(n,na)	2046		THRESH
Ca-48(n,2n)	2048		THRESH ACTL corrected
Sc-45(n,a)	2145	17	"
Sc-45(n,p)	2145		"
Ti-46(n,a)	2246		THRESH ACTL corrected
Ti-46(n,np)	2246		"
Ti-46(n,d)	2246		THRESH
Ti-46(n,2n)	2246		THRESH ACTL corrected
Ti-47(n,2n)	2247		THRESH

REACTION	MAT NUMBER	PLOT PAGE	SOURCE OF DATA
Ti-47(n,a)	2247	18	THRESH
Ti-48(n,a)	2248		"
Ti-49(n,a)	2249		"
V-49(n,a)	2349		"
V-51(n,a)	2351		THRESH ENDF/B corrected
V-51(n,na)	2351	19	THRESH ACTL corrected
Cr-50(n,a)	2450		THRESH A.Prince corrected
Cr-50(n,na)	2450		"
Cr-50(n,np)	2450		THRESH ACTL corrected
Cr-50(n,d)	2450		THRESH
Cr-52(n,a)	2452	20	THRESH A.Prince corrected
Mn-54(n,2n)	2554		THRESH ACTL corrected
Mn-55(n,2n)	2555		"
Fe-54(n,np)	2654		LANL special evaluation
Fe-54(n,d)	2654	21	THRESH
Fe-56(n,2n)	2656		LANL special evaluation
Co-60(n,p)	2760		THRESH ACTL corrected
Ni-58(n,2n)	2858		THRESH ENDF/B-5 corrected
Ni-58(n,np)	2858		THRESH ACTL corrected
Ni-58(n,p)	2858	22	THRESH ACTL corrected
Ni-58(n,d)	2858		THRESH
Ni-60(n,2n)	2860		THRESH ENDF/B-5 corrected
Ni-60(n,p)	2860	23	THRESH ACTL corrected
Ni-60(n,np)	2860		THRESH
Ni-60(n,d)	2860		"
Ni-62(n,a)	2862		THRESH ENDF/B-5 corrected
Ni-63(n,a)	2863		THRESH ACTL corrected
Ni-64(n,2n)	2864	24	"
Cu-63(n,p)	2963		THRESH ENDF corrected
Cu-63(n,a)	2963		THRESH ENDF corrected
Zn-64(n,2n)	3064		THRESH
Zn-64(n,p)	3064		"
Zn-64(n,na)	3064		"
Zn-64(n,2p)	3064		"
Zn-64(n,np)	3064		"
Zn-64(n,d)	3064		"
Zn-66(n,a)	3066	25	THRESH
Zn-66(n,2n)	3066		"
Zr-93(n,a)	4093		THRESH ACTL corrected
Zr-94(n,2n)	4094		" ENDF corrected
Zr-94(n,na)	4094		ACTL
Zr-96(n,2n)	4096	26	THRESH ENDF corrected
Nb-92(n,2n)	4192		THRESH
Nb-93(n,2n)	4193		THRESH ENDF/B-5 updated
Nb-93(n,p)	4193		"
Mo-92(n,2n)	4292	27	THRESH ACTL corrected
Mo-92(n,np)	4292		THRESH ACTL corrected
Mo-92(n,d)	4292		"
Mo-94(n,p)	4294		"
Mo-94(n,2n)	4294		THRESH ACTL corrected
Mo-95(n,np)	4295	28	THRESH
Mo-95(n,d)	4295		"

REACTION	MAT NUMBER	PLOT PAGE	SOURCE OF DATA
Mo-100(n,2n)	4299		THRESH ACTL corrected
Rh-103(n,na)	4503		THRESH
Ag-107(n,p)	4707	29	THRESH ACTL corrected
Ag-107(n,2n)	4707		THRESH ACTL corrected
Sn-112(n,a)	5012		THRESH
Sb-121(n,2n)	5121		THRESH
Sb-123(n,2n)	5123	30	THRESH
Ba-137(n,p)	5637		THRESH
La-139(n,a)	5739		"
La-139(n,He3)	5739		"
Ce-140(n,2n)	5840		"
Ce-140(n,a)	5840	31	"
Ce-142(n,2n)	5842		"
Ce-142(n,3n)	5842		"
Ce-142(n,na)	5842		"
Ce-142(n,np)	5842		"
Ce-142(n,nd)	5842		"
Ce-142(n,nt)	5842		"
Ce-142(n,nHe3)	5842		"
Ce-142(n,a)	5842		"
Ce-142(n,p)	5842		THRESH
Ce-142(n,d)	5842		"
Ce-142(n,t)	5842	32	"
Ce-142(n,h)	5842		"
Ce-142(n,2p)	5842		"
Nd-150(n,2n)	6050		THRESH
Sm-152(n,2n)	6052		THRESH
Eu-153(n,2n)	6353		THRESH ENDF/B updated
Gd-160(n,2n)	6460	33	THRESH
Tb-159(n,2n)	6559		"
Dy-158(n,p)	6658		"
Ho-165(n,2n)	6765		THRESH ACTL corrected
Er-164(n,2n)	6864	34	THRESH
Hf-178(n,2n)	7278		"
Ta-181(n,na)	7381		THRESH ACTL corrected
W-186(n,2n)	7480		THRESH ACTL corrected
W-186(n,na)	7486	35	THRESH
Os-188(n,p)	7688		THRESH
Os-190(n,a)	7690		THRESH
Os-192(n,2n)	7692		THRESH
Ir-191(n,na)	7791	36	"
Ir-191(n,2n)	7791		"
Pt-194(n,2n)	7894		THRESH
Au-197(n,a)	7997		THRESH ACTL corrected
Au-197(n,2n)	7997		THRESH ACTL corrected
Tl-203(n,2n)	8103	37	THRESH
Pb-204(n,p)	8204		"
Pb-204(n,t)	8204		"
Pb-204(n,2n)	8204		THRESH ACTL corrected
Pb-206(n,2n)	8206		"
Pb-206(n,a)	8206	38	THRESH ACTL corrected
Bi-208(n,2n)	8308		THRESH
Bi-209(n,2n)	8309		"

Part 2. Capture cross sections into ground state

REACTION	MAT NUMBER	PLOT PAGE	SOURCE OF DATA
C-13(n,g)	613	40	estimated from O-17(n,g)
C-14(n,g)	614		THRESH
N-14(n,g)	714		THRESH ENDF/B corrected
Mg-26(n,g)	1226		ACTL
Si-30(n,g)	1430	41	ACTL
P-31(n,g)	1531		ENDF/B-5
S-34(n,g)	1634		ACTL
Ar-40(n,g)	1840		ACTL
Ca-40(n,g)	2040	42	ACTL
Ca-44(n,g)	2044		ACTL
Ca-46(n,g)	2046		ACTL
Sc-45(n,g)	2145		ACTL
Cr-50(n,g)	2450	43	ACTL
Cr-54(n,g)	2454		"
Mn-55(n,g)	2555		ENDF/B-5
Fe-56(n,g)	2656		estim. using Fe-54(n,g)
Fe-57(n,g)	2657	44	estim. using Fe-55(n,g)
Fe-58(n,g)	2658		ENDF/B-5
Fe-59(n,g)	2659		estim. using Fe-55(n,g)
Co-59(n,g)	2759		ENDF/B-5 ACTL corrected
Co-60(n,g)	2760	45	ACTL
Ni-58(n,g)	2858		ENDF/B-5
Ni-61(n,g)	2861	46	estimated from Ni-59(n,g)
Ni-62(n,g)	2862		ENDF/B-5
Cu-63(n,g)	2963		ACTL
Zn-64(n,g)	3064		estimated from Ni-64(n,g)
Zr-92(n,g)	4092	47	ACTL
Zr-94(n,g)	4094		ACTL
Nb-93(n,g)	4193		ENDF/B-5
Mo-92(n,g)	4292		ACTL
Mo-98(n,g)	4298	48	ACTL
Rh-103(n,g)	4503		estimated Nb-93(n,g)
Pd-104(n,g)	4604		estimated from Mo-94(n,g)
Pd-105(n,g)	4605		estimated from Mo-95(n,g)
Pd-107(n,g)	4607	49	"
Pd-108(n,g)	4608		estimated Mo-94(n,g)
Cd-110(n,g)	4810		estimated from Mo-94(n,g)
Cd-111(n,g)	4811		estimated from Mo-95(n,g)
Sn-124(n,g)	5024	50	estimated from Mo-94(n,g)
Sb-121(n,g)	5121		estimated from Nb-93(n,g)
Sb-123(n,g)	5123	51	estimated from Nb-93(n,g)
Ce-142(n,g)	5842		estimated from Mo-94(n,g)
Nd-148(n,g)	6048		ENDF/B-5
Nd-150(n,g)	6050		estimated from Mo-94(n,g)
Sm-150(n,g)	6250	52	estimated from Mo-94(n,g)
Sm-151(n,g)	6251		estimated from Mo-95(n,g)
Sm-152(n,g)	6252		estimated from Mo-94(n,g)
Eu-151(n,g)	6351		ENDF/B-5
Eu-152(n,g)	6352	53	estim. from Ta-181(n,g)
Eu-153(n,g)	6353		ENDF/B-5
Eu-154(n,g)	6354		estim. from Ta-181(n,g)

REACTION	MAT NUMBER	PLOT PAGE	SOURCE OF DATA
Gd-158(n,g)	6458		estimated from W-182(n,g)
Hf-180(n,g)	7280	54	ACTL
Ta-181(n,g)	7381		ACTL
W-182(n,g)	7482		ENDF/B-5
W-183(n,g)	7483	55	"
W-184(n,g)	7484		THRESH ENDF/B-5 updated
W-186(n,g)	7486		THRESH ENDF/B-5 updated
Re-187(n,g)	7587		ENDF/B-5
Os-188(n,g)	7688	56	estimated from W-182(n,g)
Os-189(n,g)	7689		estimated from W-183(n,g)
Os-190(n,g)	7690		" " W-182(n,g)
Os-192(n,g)	7692		estimated from W-182(n,g)
Pt-192(n,g)	7892	57	estimated from W-182(n,g)
Pb-208(n,g)	8208		ACTL
Bi-209(n,g)	8309		estim. from Ta-181(n,g)

Part 3. Reaction cross sections into isomeric state

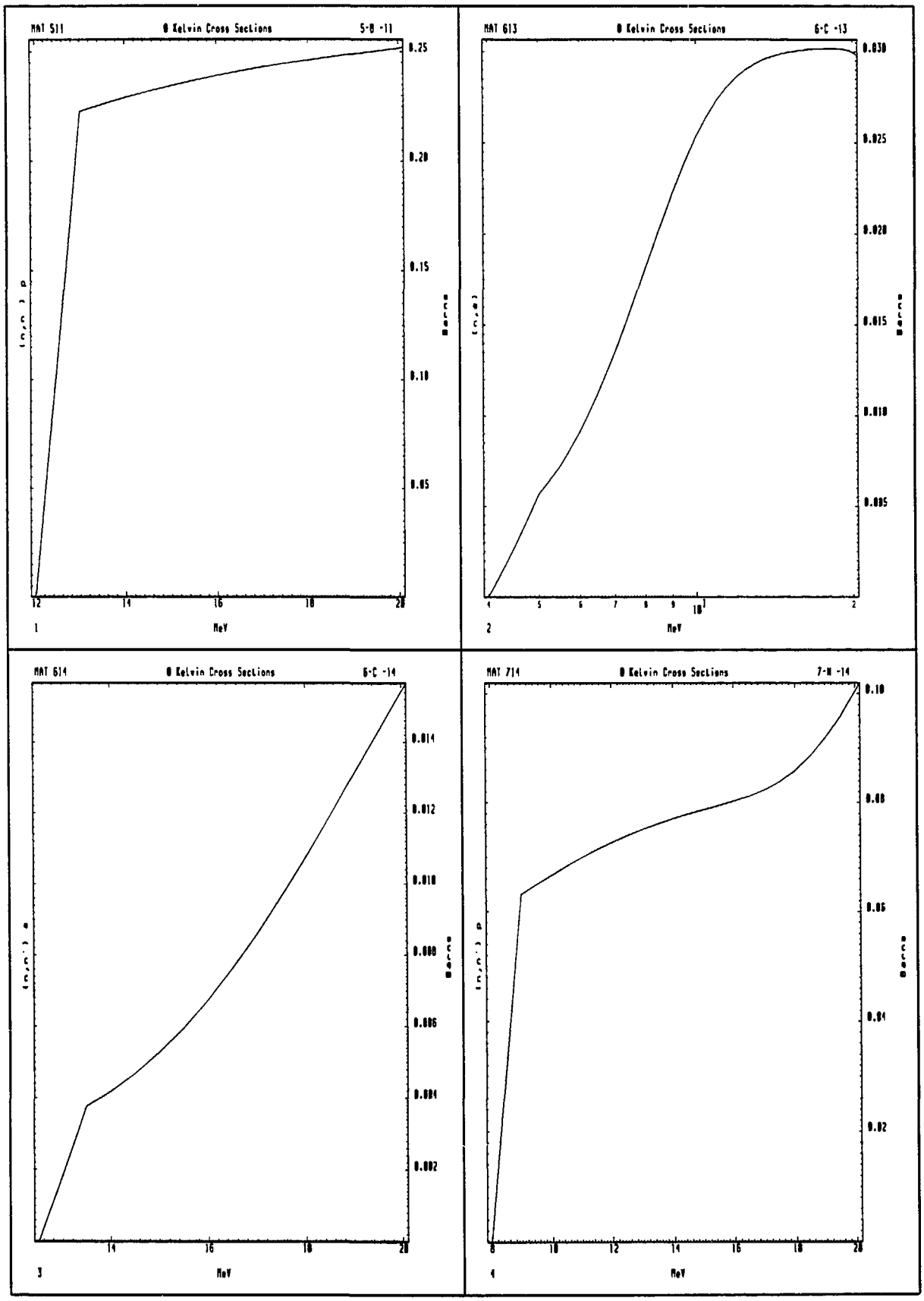
Al-27(n,2n)*	1327	59	estimated Al-27(n,2n)
V-49(n,a)*	2349		THRESH
Ni-58(n,p)*	2858		THRESH ACTL corrected
Ni-60(n,p)*	2860		THRESH ACTL corrected
Cu-63(n,a)*	2963	60	estimated Cu-63(n,a)
Nb-92(n,2n)*	4192		THRESH ACTL corrected
Nb-93(n,2n)*	4193		THRESH ENDF/B-V updated
Mo-92(n,2n)*	4292		estimated Mo-92(n,2n)
Mo-92(n,np)*	4292		THRESH ACTL corrected
Mo-92(n,d)*	4292	61	"
Mo-94(n,p)*	4294		estimated Mo-94(n,p)
Mo-94(n,2n)*	4294		THRESH ACTL corrected
Mo-95(n,np)*	4295		THRESH
Mo-95(n,d)*	4295	62	THRESH ACTL corrected
Rh-103(n,na)*	4503		THRESH
Ag-107(n,p)*	4707		THRESH
Ag-107(n,2n)*	4707		THRESH ACTL corrected
Ag-109(n,2n)*	4709	63	"
Sn-116(n,a)	5016	63a	"
Sb-121(n,p)*	5121	63	estimated from Nb-93(n,g)
Sb-123(n,2n)*	5123		THRESH
La-139(n,a)*	5739		"
Ce-140(n,2n)*	5840	64	"
Ce-140(n,a)*	5840		"
Eu-151(n,2n)*	6351		THRESH ENDF/B-6 updated
Tb-159(n,2n)*	6559		THRESH
Dy-158(n,p)*	6658	65	THRESH
Ho-165(n,2n)*	6765		THRESH ACTL corrected
Hf-178(n,2n)*	7278		THRESH
Ta-181(n,2n)*	7381		THRESH ACTL corrected
W-180(n,2n)*	7480	66	estim. from W-180(n,2n)
W-186(n,na)*	7486		THRESH
Re-187(n,2n)*	7587		THRESH ENDF/B-5 updated
Os-188(n,p)*	7688		THRESH

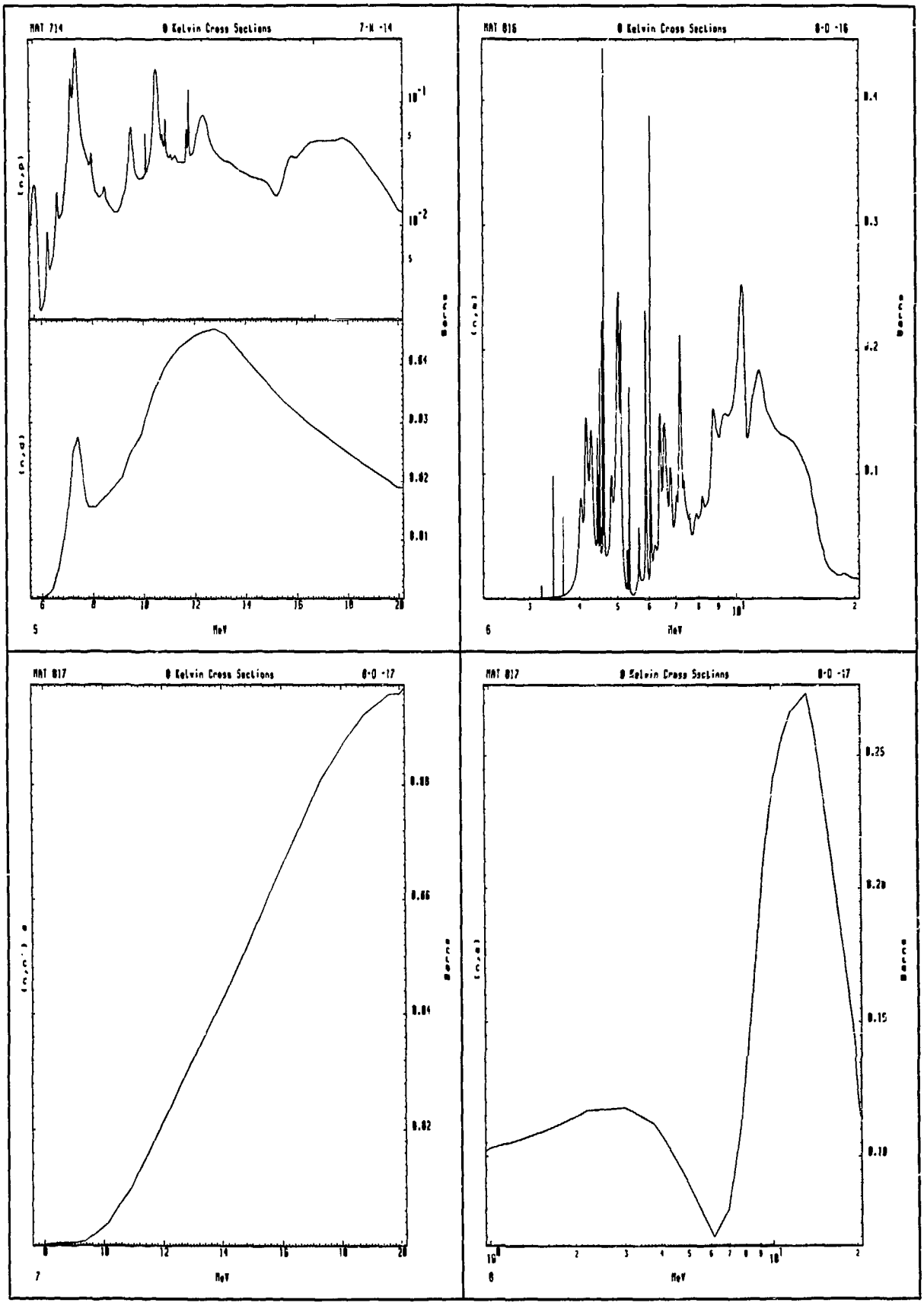
REACTION	MAT NUMBER	PLOT PAGE	SOURCE OF DATA
Os-192(n,2n)*	7692	67	THRESH
Ir-191(n,2n)*	7791		"
Pt-194(n,2n)*	7894		"
Au-197(n,2n)*	7997		"
Au-197(n,a)*	7997	68	THRESH
Hg-196(n,2n)*	8096		THRESH
Pb-204(n,2n)*	8204		THRESH ACTL corrected

Part 4. Capture cross sections into isomeric state

Co-59(n,g)*	2759	70	ENDF/B-5 ACTL corrected
Nb-93(n,g)*	4193		ENDF/B-5
Mo-92(n,g)*	4292		estimated from Mo-92(n,g)
Rh-103(n,g)*	4503		estimated from Nb-93(n,g)
Ag-107(n,g)*	4707	71	ACTL
Ag-109(n,g)*	4709		ACTL
Cd-110(n,g)*	4810		estimated from Mo-94(n,g)
Cd-112(n,g)*	4812		estimated from Mo-94(n,g)
Sn-120(n,g)*	5020	72	estimated from Mo-94(n,g)
Sn-122(n,g)*	5022		"
Sb-123(n,g)*	5123		estimated from Nb-93(n,g)
Te-122(n,g)*	5222		estimated from Mo-94(n,g)
Eu-151(n,g)*	6351	73	ENDF/B-5
Eu-153(n,g)*	6353		"
Ho-165(n,g)*	6765		ACTL
Ta-181(n,g)*	7381		"
W-182(n,g)*	7482	74	ENDF/B-5
W-184(n,g)*	7484		THRESH ENDF/B-5 updated
Re-185(n,g)*	7585		ENDF/B-5
Re-187(n,g)*	7587		ENDF/B-5
Os-188(n,g)*	7688	75	estimated from W-182(n,g)
Os-189(n,g)*	7689		estimated from W-183(n,g)
Os-190(n,g)*	7690		estimated from W-182(n,g)
Pt-192(n,g)*	7892		estimated from W-182(n,g)

PART 1. Plots of reaction cross sections into ground states.


MAT 511
0 Kelvin Cross Sections
5-B -11
0.25
0.20
0.15
0.10
0.05
12
14
16
18
20
1
MeV
MAT 613
0 Kelvin Cross Sections
6-C -13
0.030
0.025
0.020
0.015
0.010
0.005
4
5
6
7
8
9
10
2
2
MeV
MAT 614
0 Kelvin Cross Sections
6-C -14
0.014
0.012
0.010
0.008
0.006
0.004
0.002
14
16
18
20
3
MeV
MAT 714
0 Kelvin Cross Sections
7-N -14
0.10
0.08
0.06
0.04
0.02
8
10
12
14
16
18
20
4
MeV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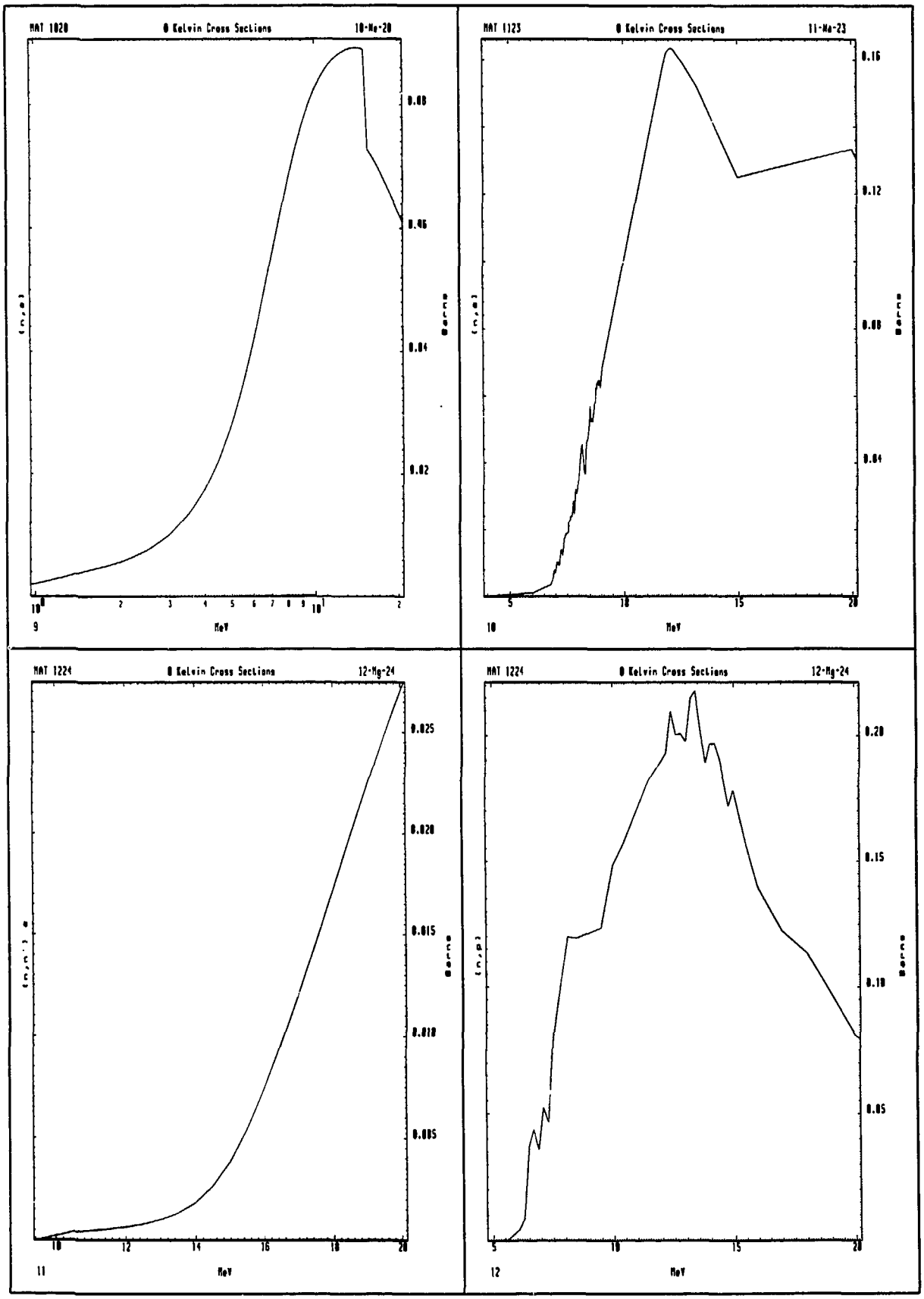
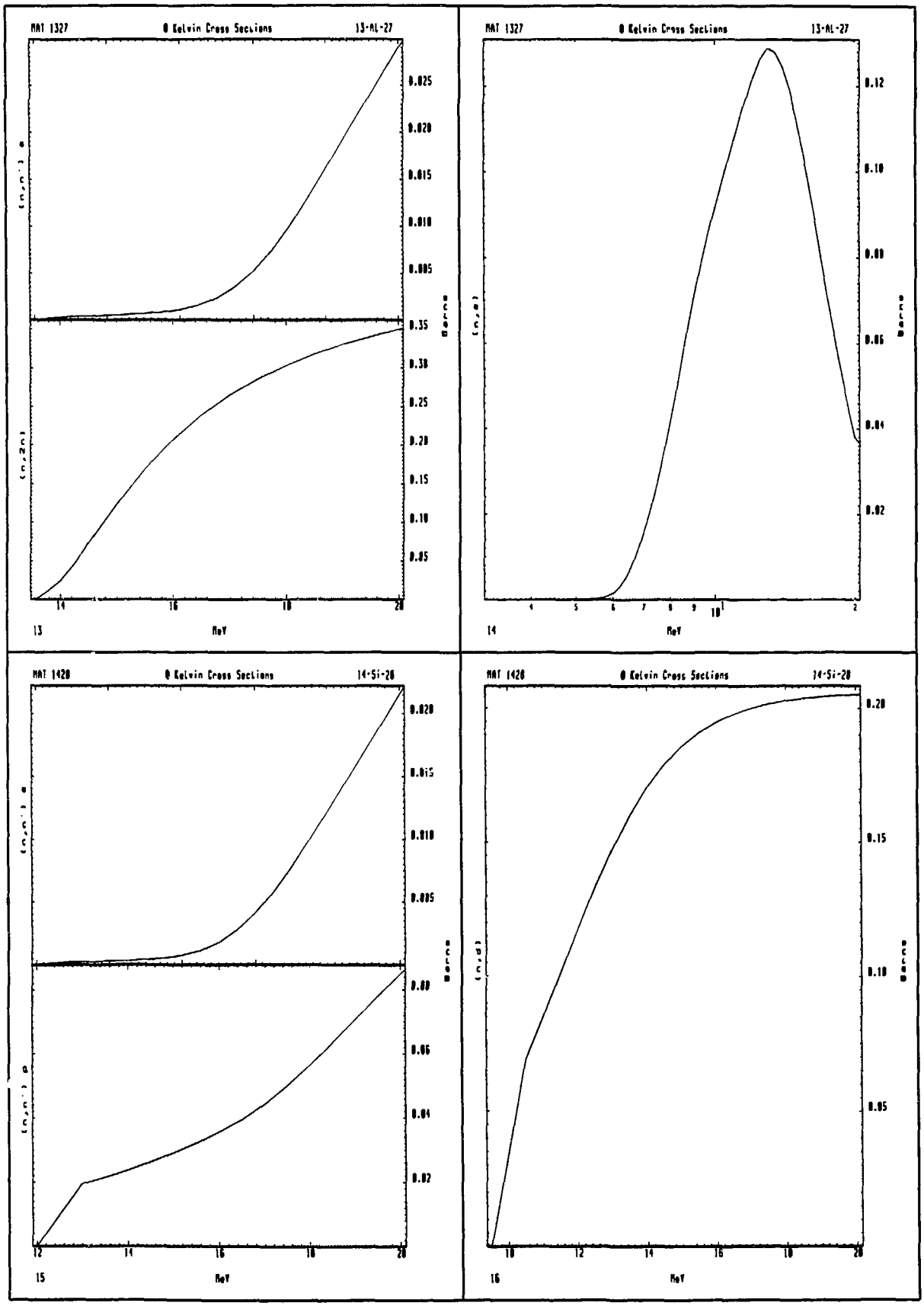
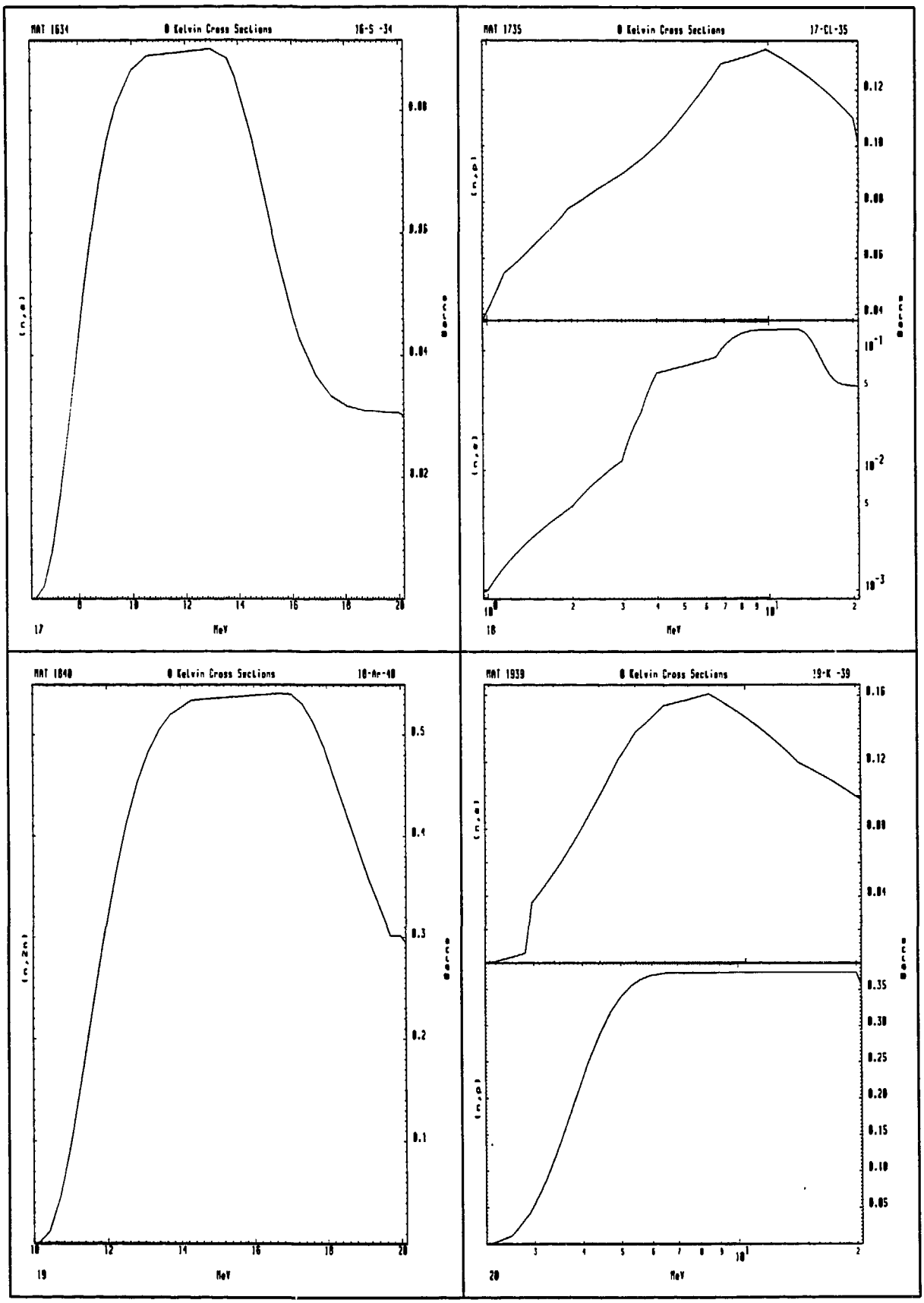
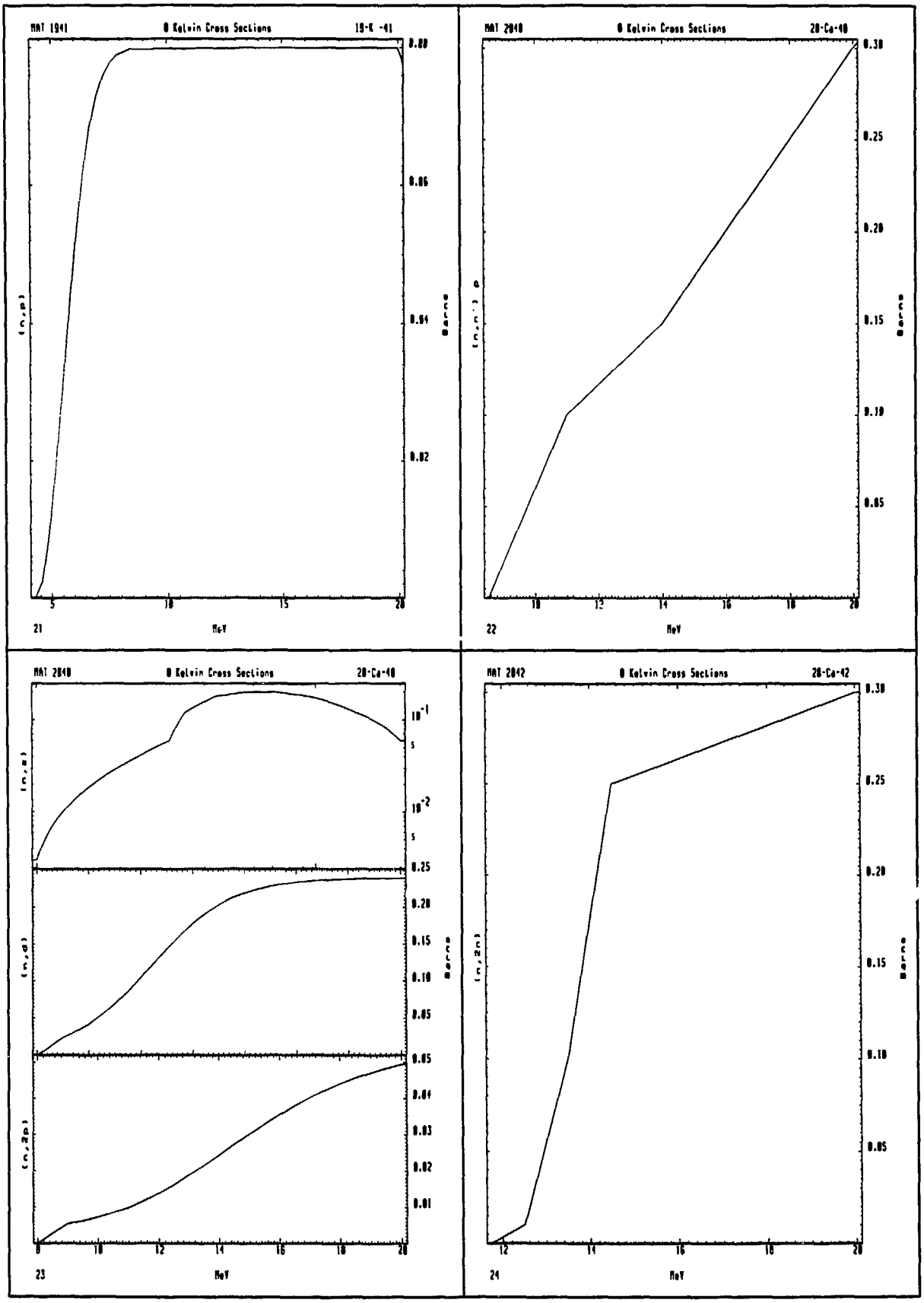
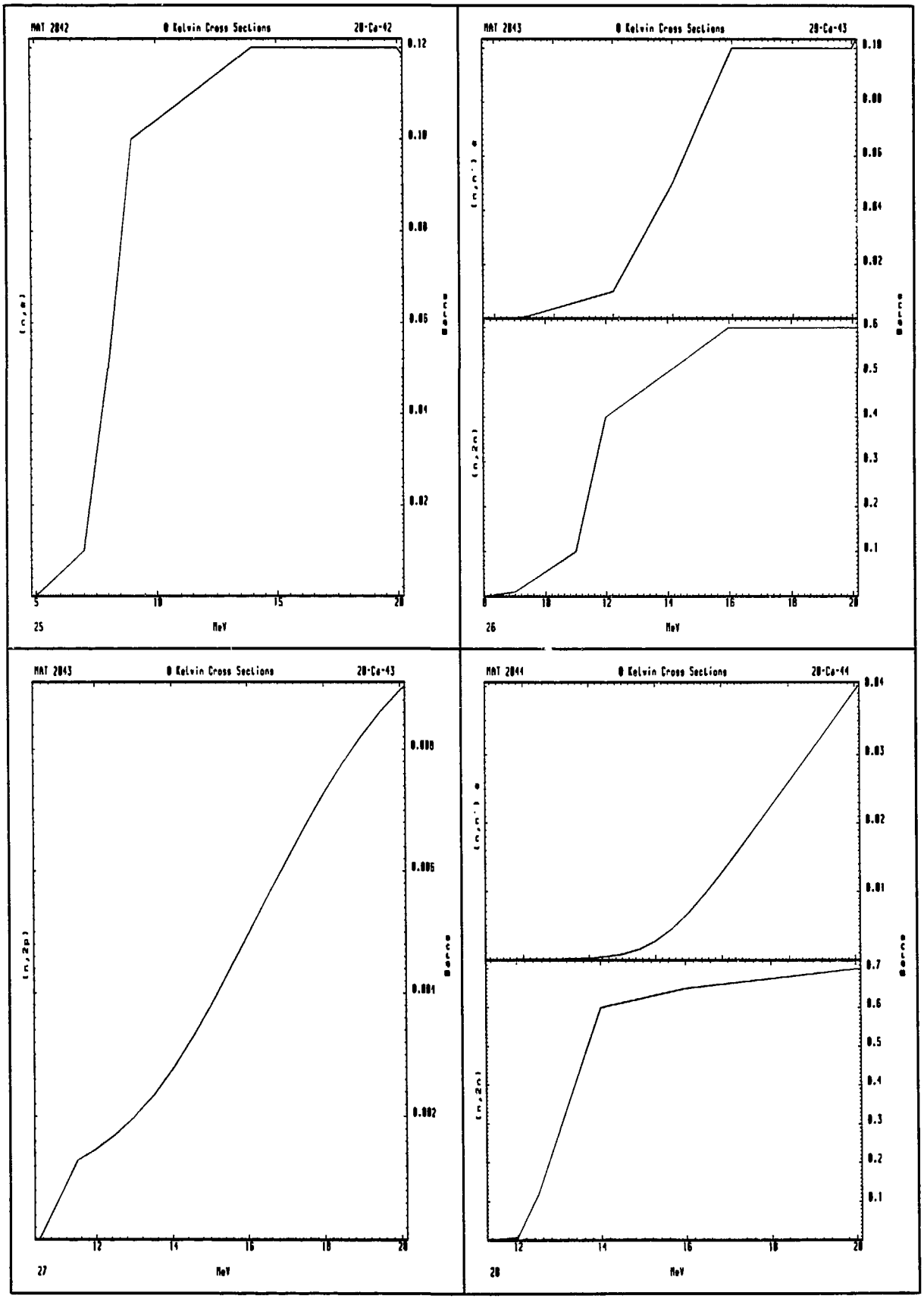
0 Kelvin Cross Sections
7-N -14
MAT 816
0 Kelvin Cross Sections
8-O -16
MAT 817
0 Kelvin Cross Sections
8-O -17
MAT 817
0 Kelvin Cross Sections
8-O -17
MeV
Barns

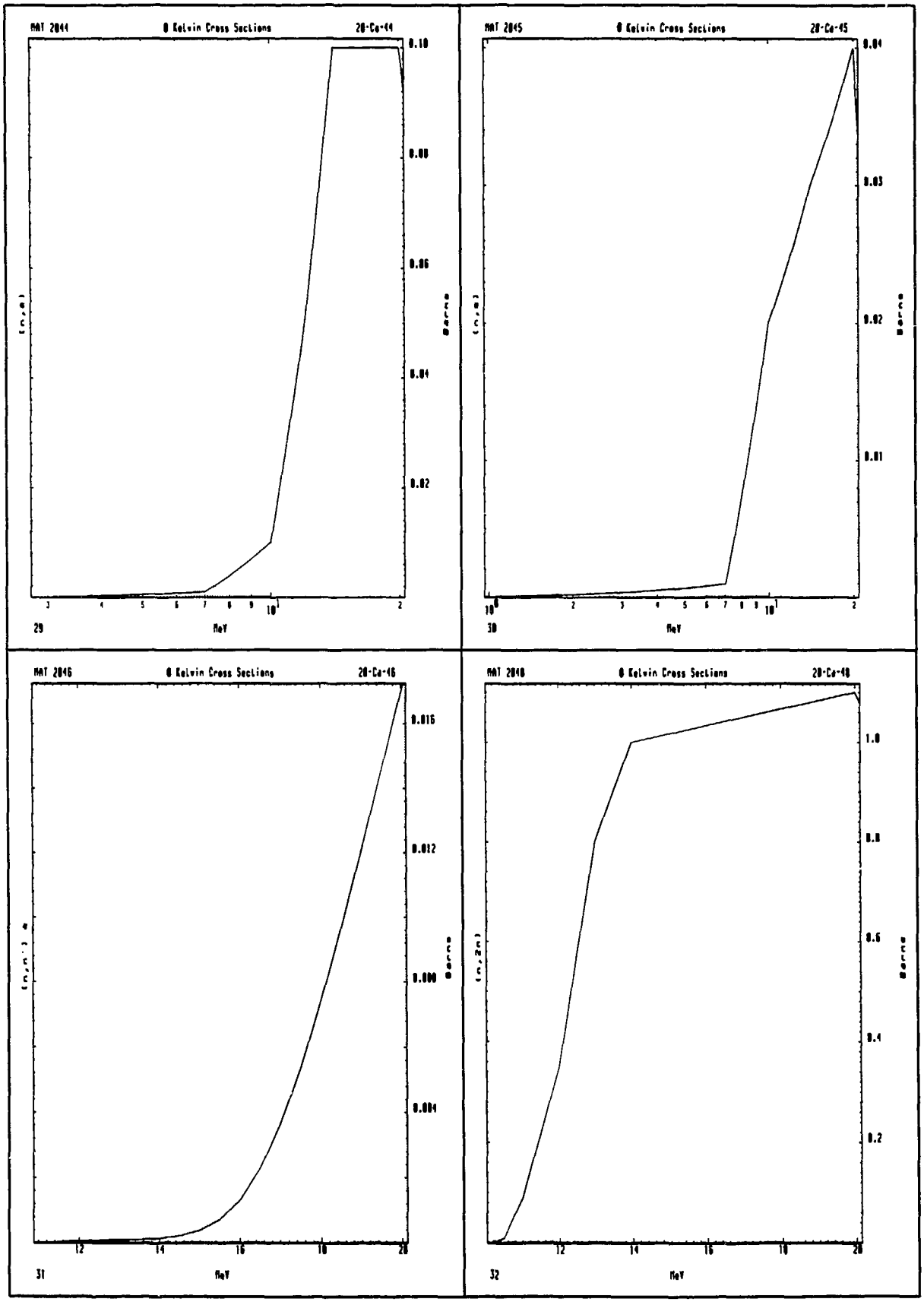

MAT 1020
0 Kelvin Cross Sections
10-Ne-20
0.08
0.06
0.04
0.02
9
MeV
MAT 1123
0 Kelvin Cross Sections
11-Na-23
0.16
0.12
0.08
0.04
10
MeV
MAT 1224
0 Kelvin Cross Sections
12-Mg-24
0.025
0.020
0.015
0.010
0.005
11
MeV
MAT 1224
0 Kelvin Cross Sections
12-Mg-24
0.20
0.15
0.10
0.05
12
MeV

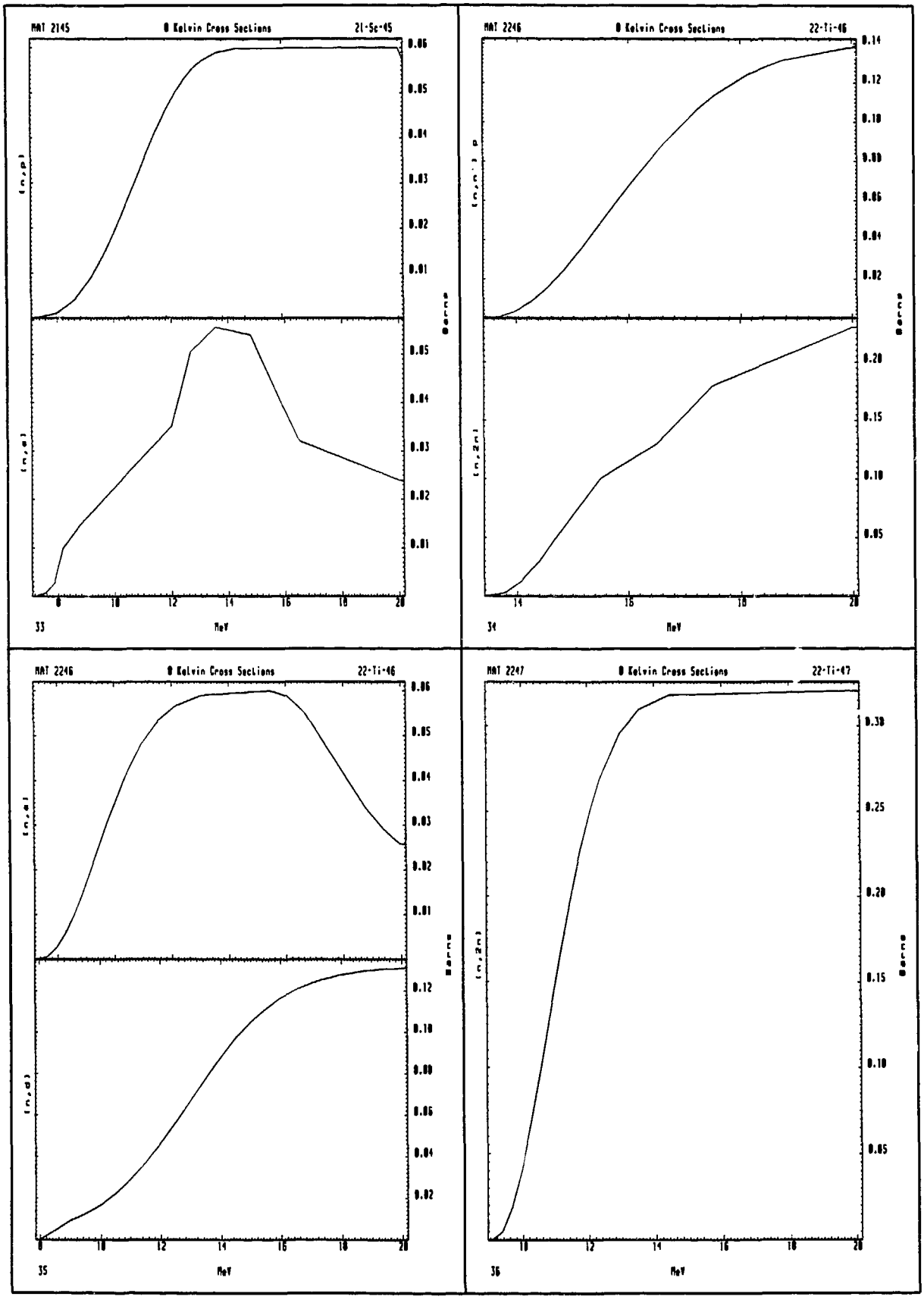

MAT 1327
0 Kelvin Cross Sections
13-AL-27
(n,n') a
(n,2n)
Barns
MeV
13
MAT 1327
0 Kelvin Cross Sections
13-AL-27
(n,g)
Barns
MeV
14
MAT 1428
0 Kelvin Cross Sections
14-Si-28
(n,n') a
(n,n') p
Barns
MeV
15
MAT 1428
0 Kelvin Cross Sections
14-Si-28
(n,p)
Barns
MeV
16

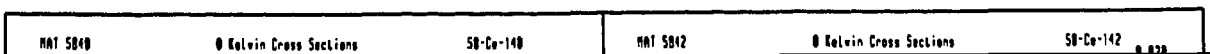

MAT 1634
0 Kelvin Cross Sections
16-S -34
(n,α)
barns
MeV
17
MAT 1735
0 Kelvin Cross Sections
17-Cl-35
(n,p)
(n,α)
barns
MeV
18
MAT 1840
0 Kelvin Cross Sections
18-Ar-40
(n,2n)
barns
MeV
19
MAT 1939
0 Kelvin Cross Sections
19-K -39
(n,α)
(n,p)
barns
MeV
20

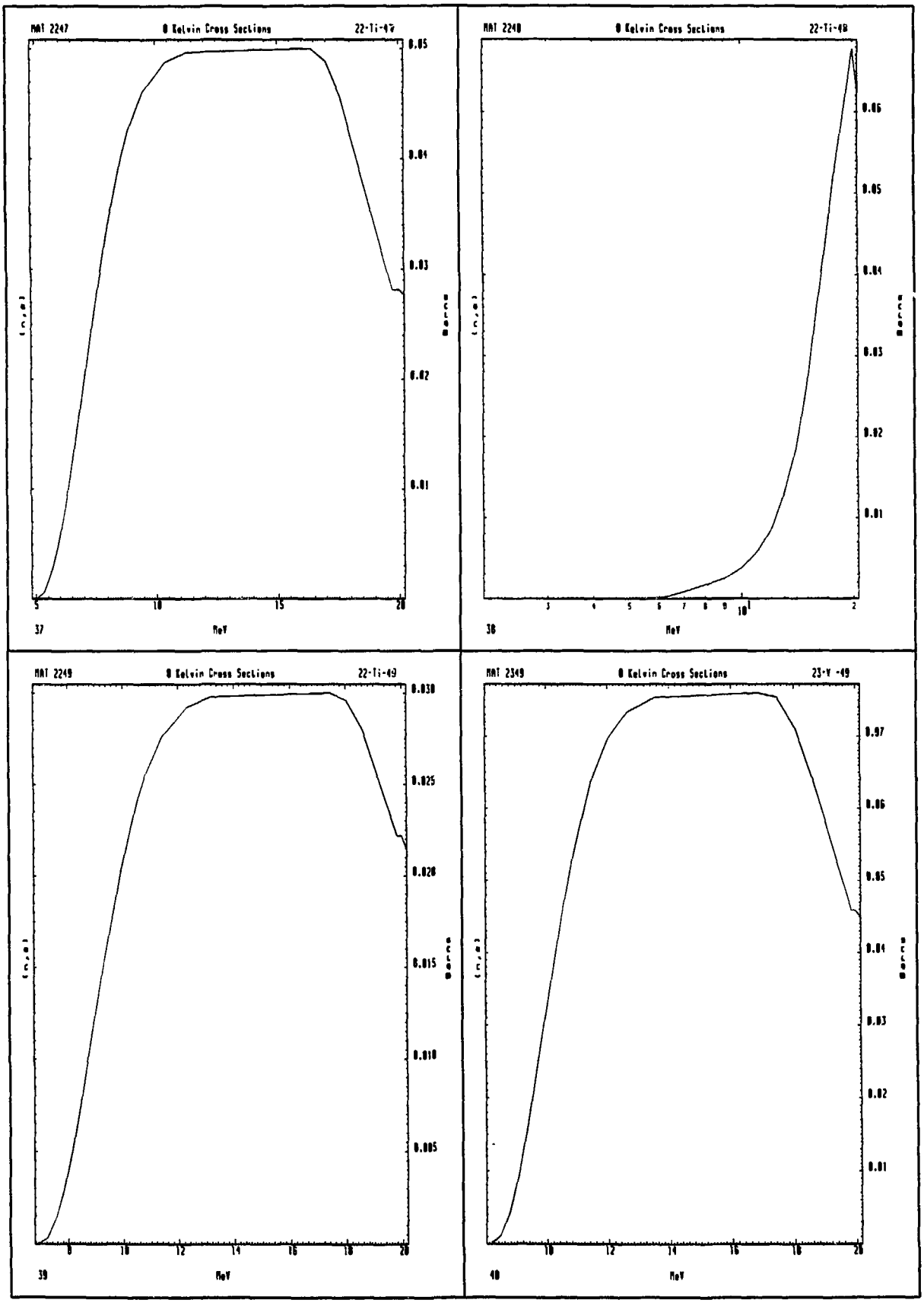

MAT 1941
0 Kelvin Cross Sections
19-K -41
(n,α)
0.08
0.06
0.04
0.02
5
10
15
20
21
MeV
MAT 2040
0 Kelvin Cross Sections
20-Ca-40
(n,n')
0.30
0.25
0.20
0.15
0.10
0.05
10
12
14
16
18
20
22
MeV
MAT 2040
0 Kelvin Cross Sections
20-Ca-40
(n,α)
(n,p)
(n,2n)
0
10
12
14
16
18
20
23
MeV
MAT 2042
0 Kelvin Cross Sections
20-Ca-42
(n,2n)
12
14
16
18
20
24
MeV

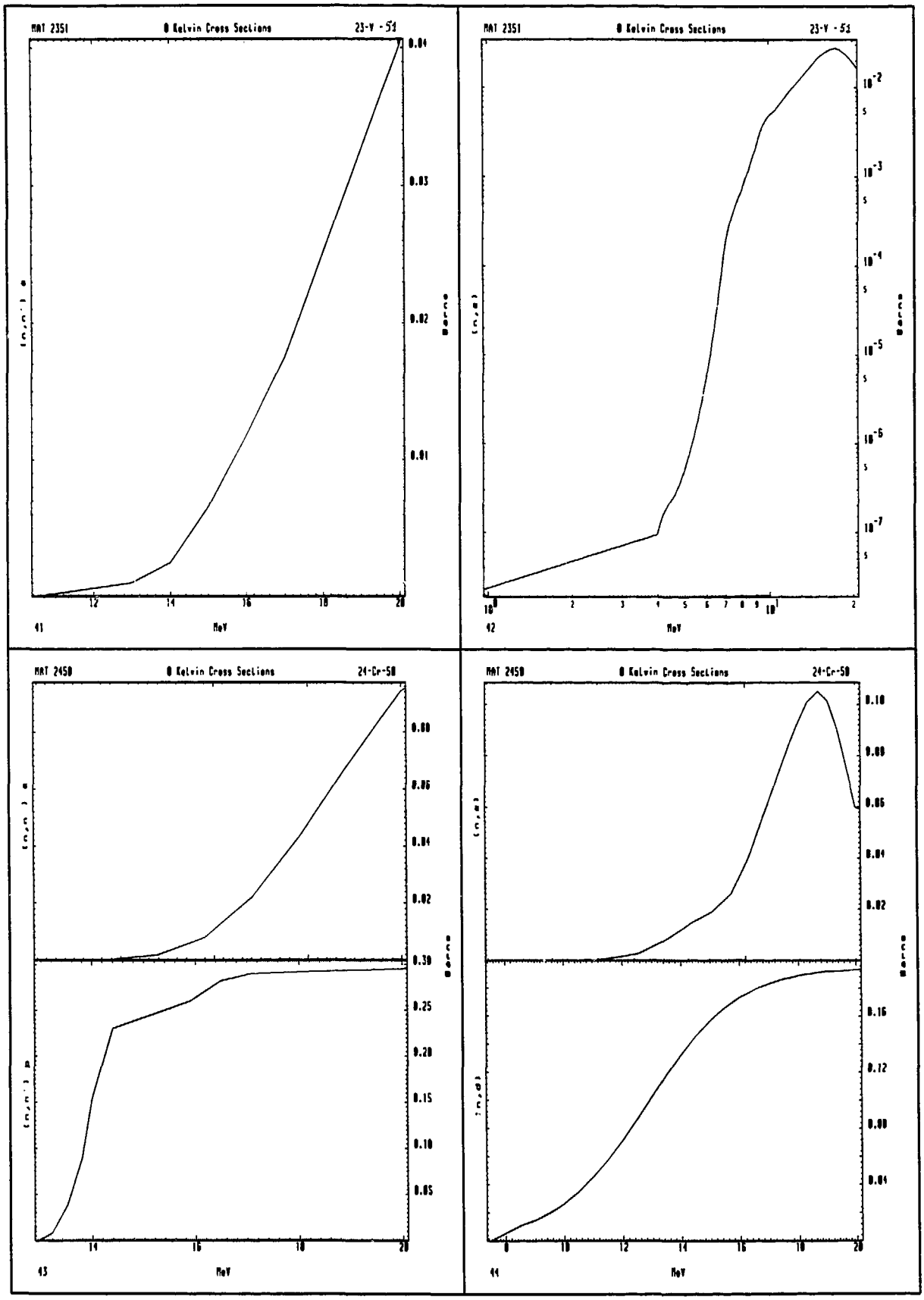

MAT 2042
0 Kelvin Cross Sections
28-Ca-42
(n,el)
Barns
MeV
25
MAT 2043
0 Kelvin Cross Sections
28-Ca-43
(n,n'1)
(n,2n)
Barns
MeV
26
MAT 2043
0 Kelvin Cross Sections
28-Ca-43
(n,2p)
Barns
MeV
27
MAT 2044
0 Kelvin Cross Sections
28-Ca-44
(n,n'1)
(n,2n)
Barns
MeV
28

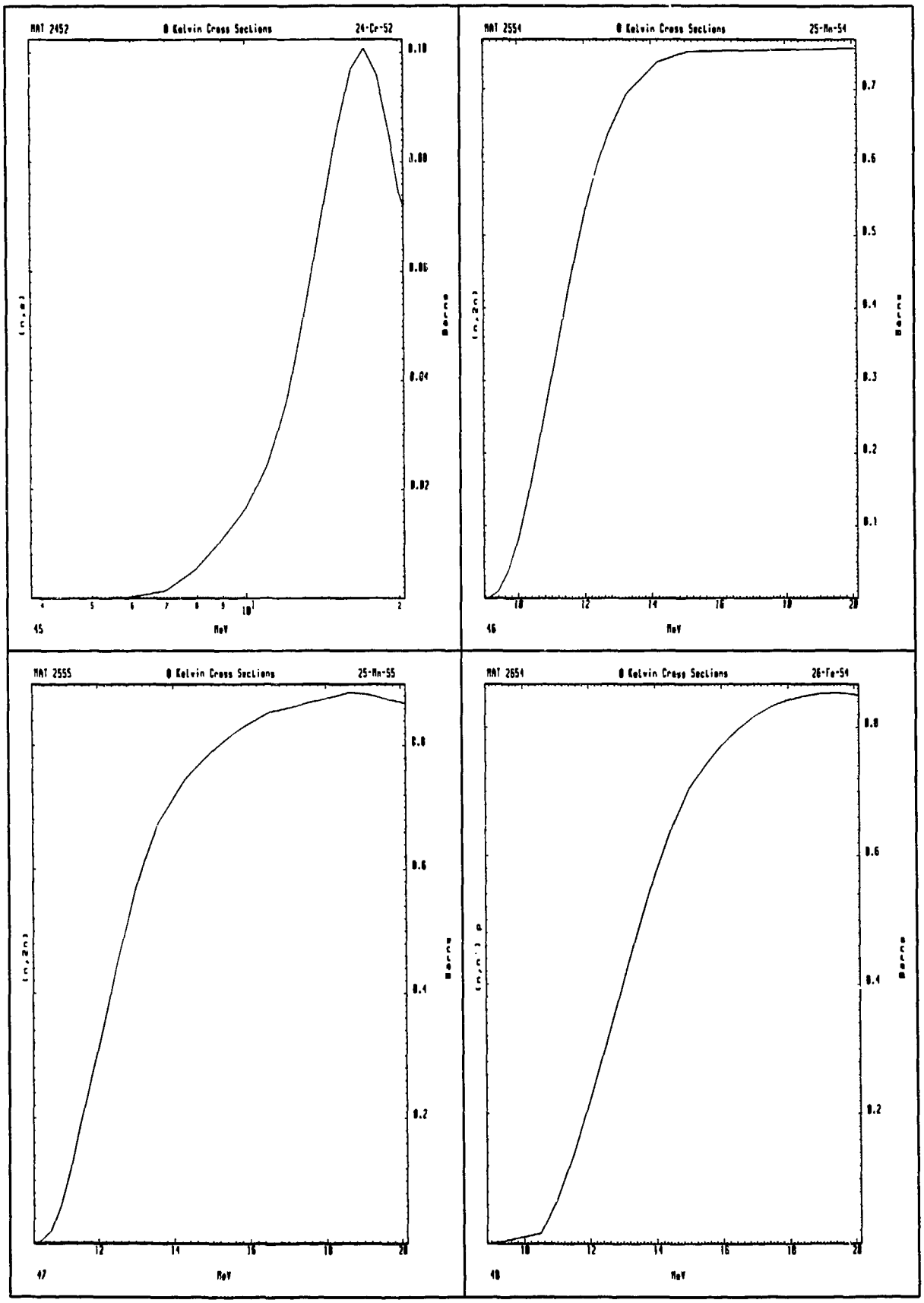

MAT 2044
0 Kelvin Cross Sections
20-Ca-44
(n,g)
Barns
0.10
0.08
0.06
0.04
0.02
3 4 5 6 7 8 9 10 2
29
MeV
MAT 2045
0 Kelvin Cross Sections
20-Ca-45
(n,g)
Barns
0.04
0.03
0.02
0.01
10 2 3 4 5 6 7 8 9 10 2
30
MeV
MAT 2046
0 Kelvin Cross Sections
20-Ca-46
(n,n'1) e
Barns
0.016
0.012
0.008
0.004
12 14 16 18 20
31
MeV
MAT 2048
0 Kelvin Cross Sections
20-Ca-48
(n,2n)
Barns
1.0
0.8
0.6
0.4
0.2
12 14 16 18 20
32
MeV

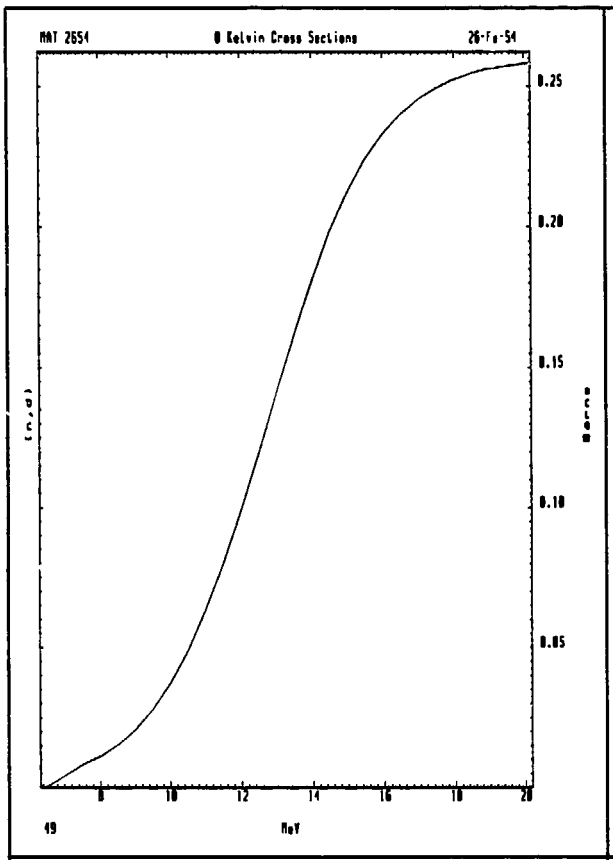

MAT 2145
0 Kelvin Cross Sections
21-Sc-45
(n,p)
(n,α)
Barns
MeV
33
MAT 2246
0 Kelvin Cross Sections
22-Ti-46
(n,n'p)
(n,2n)
Barns
MeV
34
MAT 2246
0 Kelvin Cross Sections
22-Ti-46
(n,α)
(n,d)
Barns
MeV
35
MAT 2247
0 Kelvin Cross Sections
22-Ti-47
(n,2n)
Barns
MeV
36

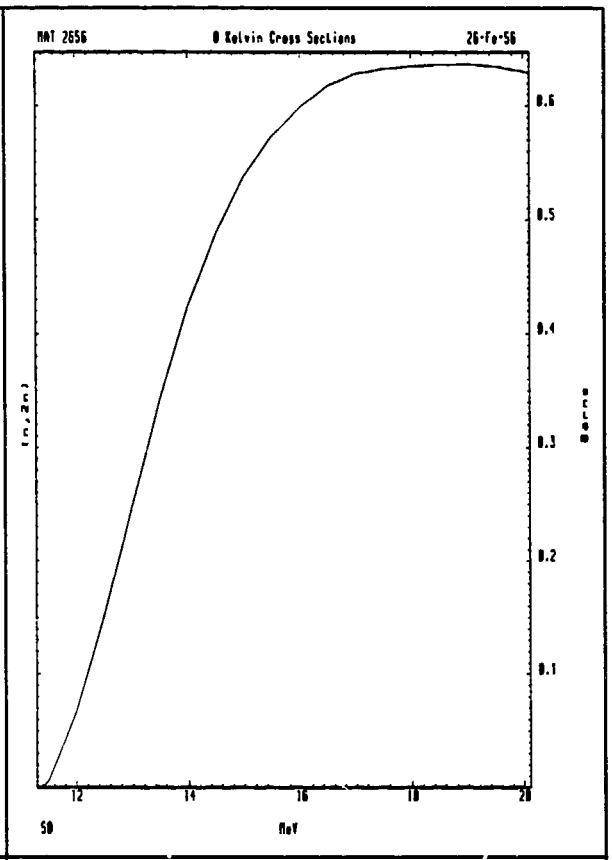

MAT 5840
0 Kelvin Cross Sections
58-Co-140
MAT 5842
0 Kelvin Cross Sections
58-Co-142

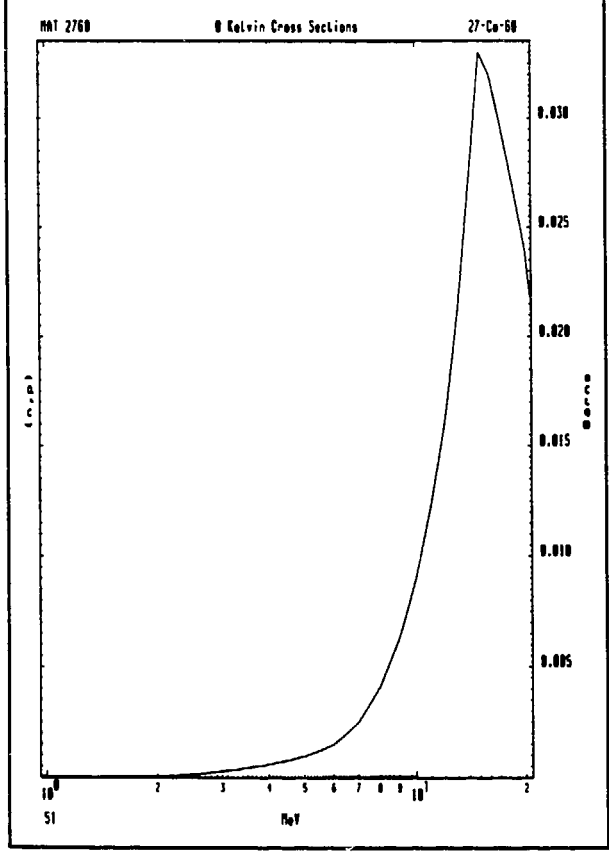

MAT 2247
0 Kelvin Cross Sections
22-Ti-47
0.05
0.04
0.03
0.02
0.01
5
10
15
20
37
MeV
MAT 2248
0 Kelvin Cross Sections
22-Ti-48
0.06
0.05
0.04
0.03
0.02
0.01
3
4
5
6
7
8
9
10
2
38
MeV
MAT 2249
0 Kelvin Cross Sections
22-Ti-49
0.030
0.025
0.020
0.015
0.010
0.005
8
10
12
14
16
18
20
39
MeV
MAT 2349
0 Kelvin Cross Sections
23-V -49
0.97
0.06
0.05
0.04
0.03
0.02
0.01
10
12
14
16
18
20
40
MeV

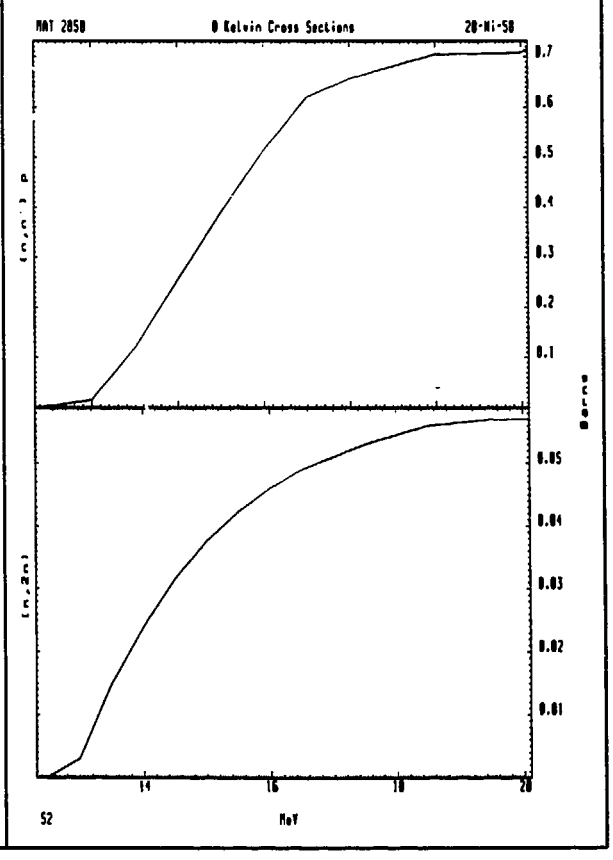

MAT 2351
0 Kelvin Cross Sections
23-V - 51
41
MeV
MAT 2351
0 Kelvin Cross Sections
23-V - 51
42
MeV
MAT 2450
0 Kelvin Cross Sections
24-Cr-50
43
MeV
MAT 2450
0 Kelvin Cross Sections
24-Cr-50
44
MeV

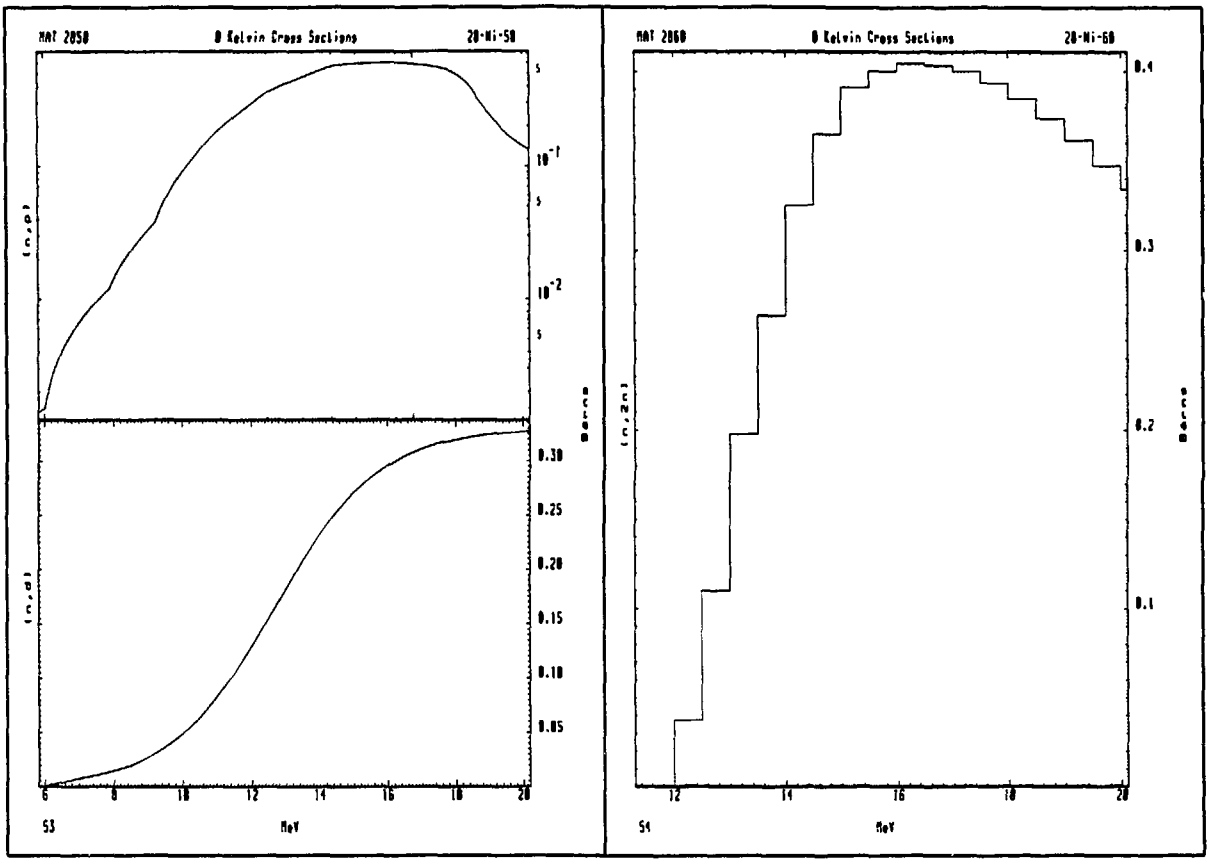

MAT 2452
0 Kelvin Cross Sections
24-Cr-52
(n,a)
Barns
0.10
0.08
0.06
0.04
0.02
4
5
6
7
8
9
10
2
45
MeV
MAT 2554
0 Kelvin Cross Sections
25-Mn-54
(n,2n)
Barns
0.7
0.6
0.5
0.4
0.3
0.2
0.1
10
12
14
16
18
20
46
MeV
MAT 2555
0 Kelvin Cross Sections
25-Mn-55
(n,2n)
Barns
0.8
0.6
0.4
0.2
12
14
16
18
20
47
MeV
MAT 2654
0 Kelvin Cross Sections
26-Fe-54
(n,p)
Barns
0.8
0.6
0.4
0.2
10
12
14
16
18
20
48
MeV


MAT 2654
0 Kelvin Cross Sections
26-Fe-54
(n,d)
barns
0.25
0.20
0.15
0.10
0.05
8
10
12
14
16
18
20
49
MeV

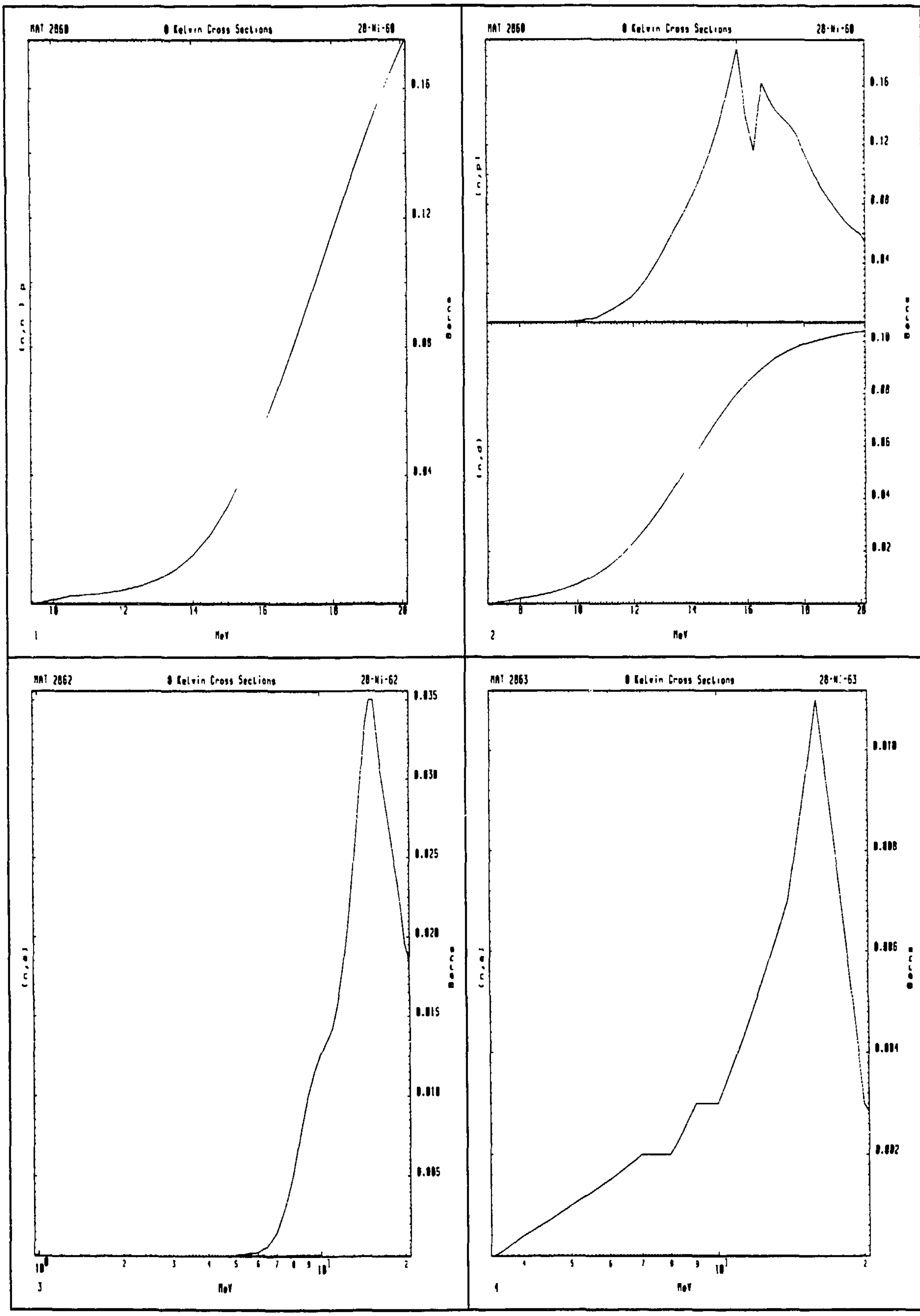

MAT 2656
0 Kelvin Cross Sections
26-Fe-56
(n,2n)
barns
0.6
0.5
0.4
0.3
0.2
0.1
12
14
16
18
20
50
MeV

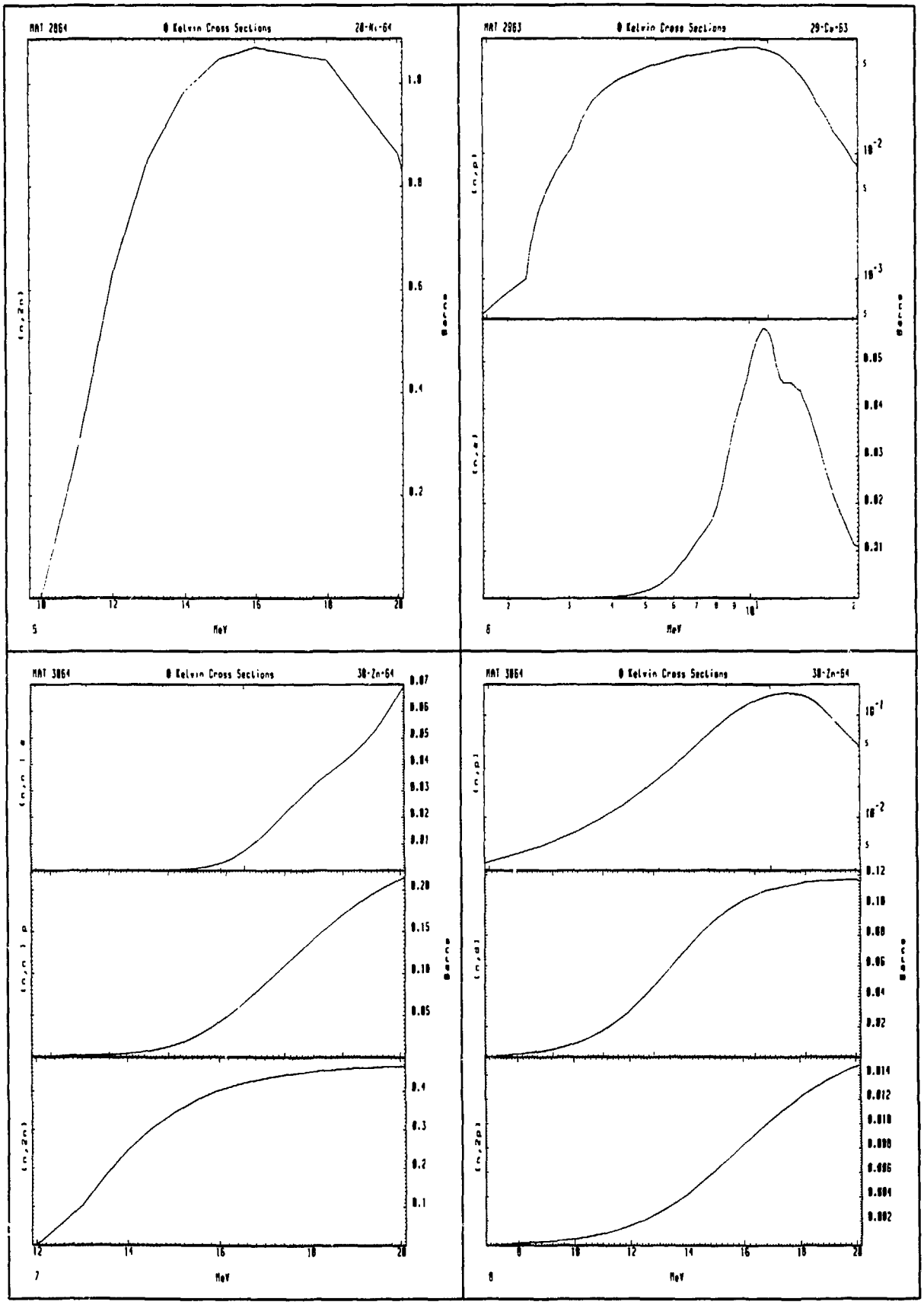

MAT 2760
0 Kelvin Cross Sections
27-Co-60
(n,p)
barns
0.030
0.025
0.020
0.015
0.010
0.005
10^0
2
3
4
5
6
7
8
9
10^1
2
51
MeV

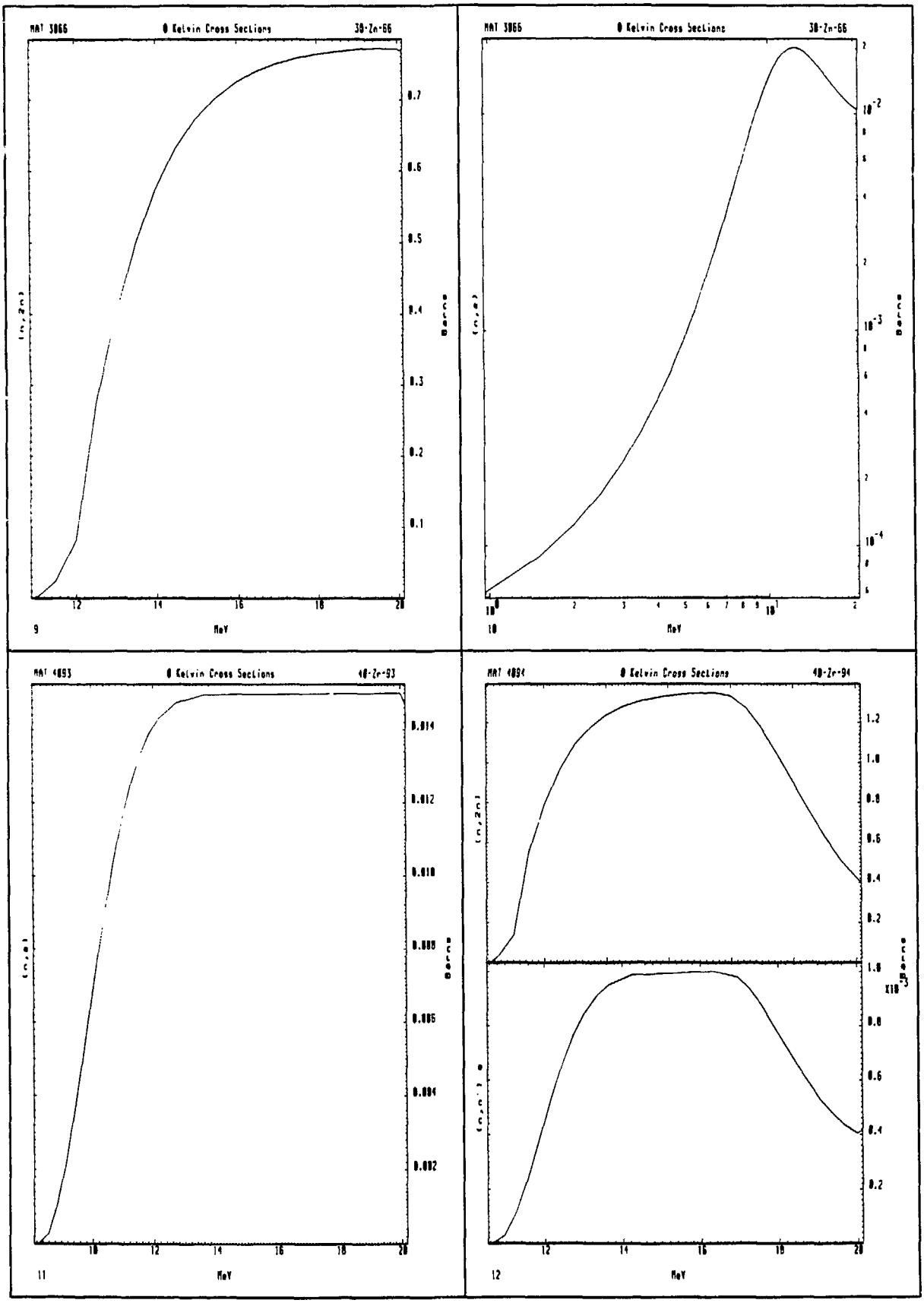

MAT 2850
0 Kelvin Cross Sections
28-Ni-58
(n,n'p)
(n,2n)
barns
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.04
0.03
0.02
0.01
14
16
18
20
52
MeV

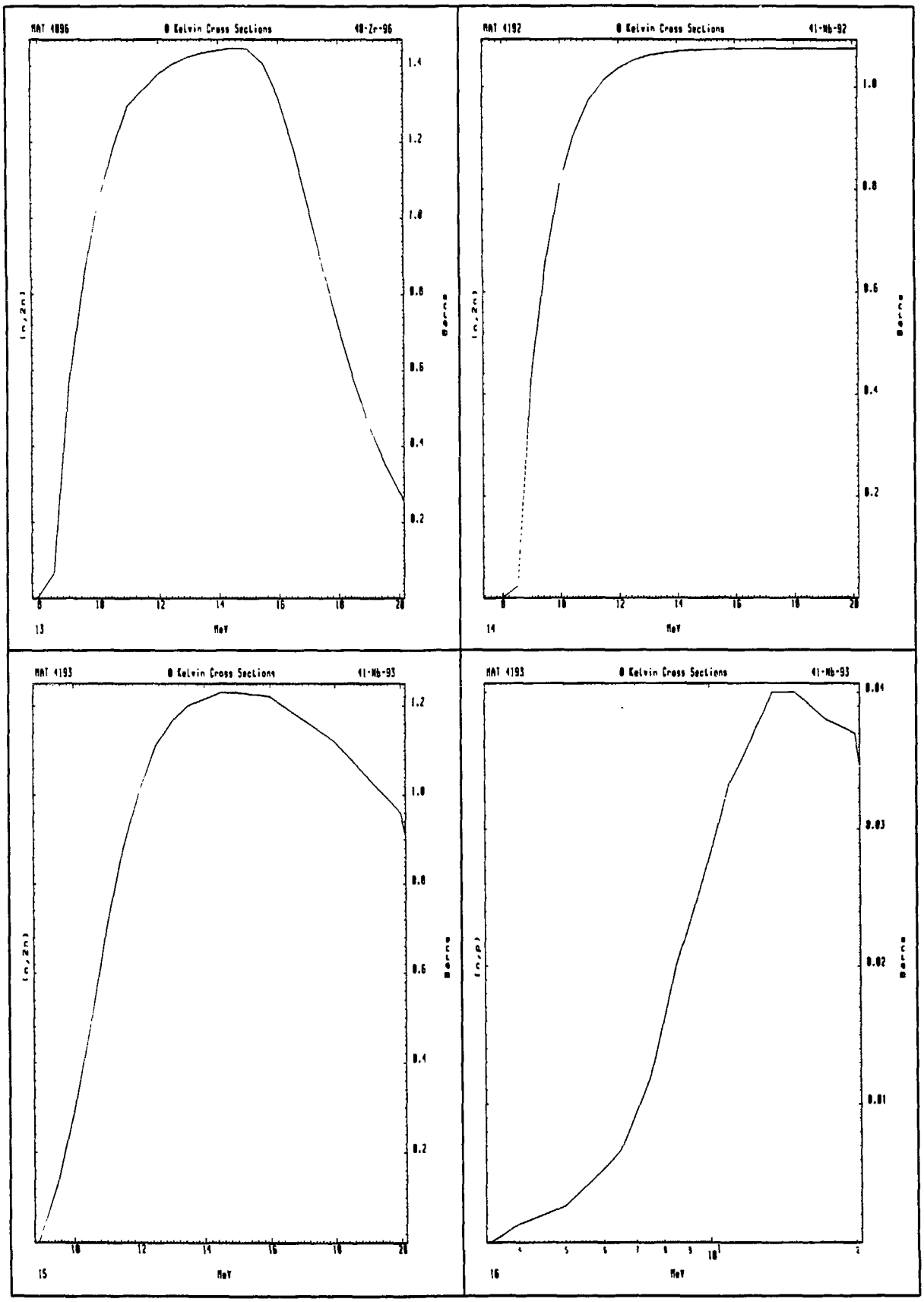

MAT 2850
0 Kelvin Cross Sections
28-Ni-58
(n,g)
(n,a)
barns
MeV
S3
MAT 2860
0 Kelvin Cross Sections
28-Ni-60
(n,2n)
barns
MeV
S4

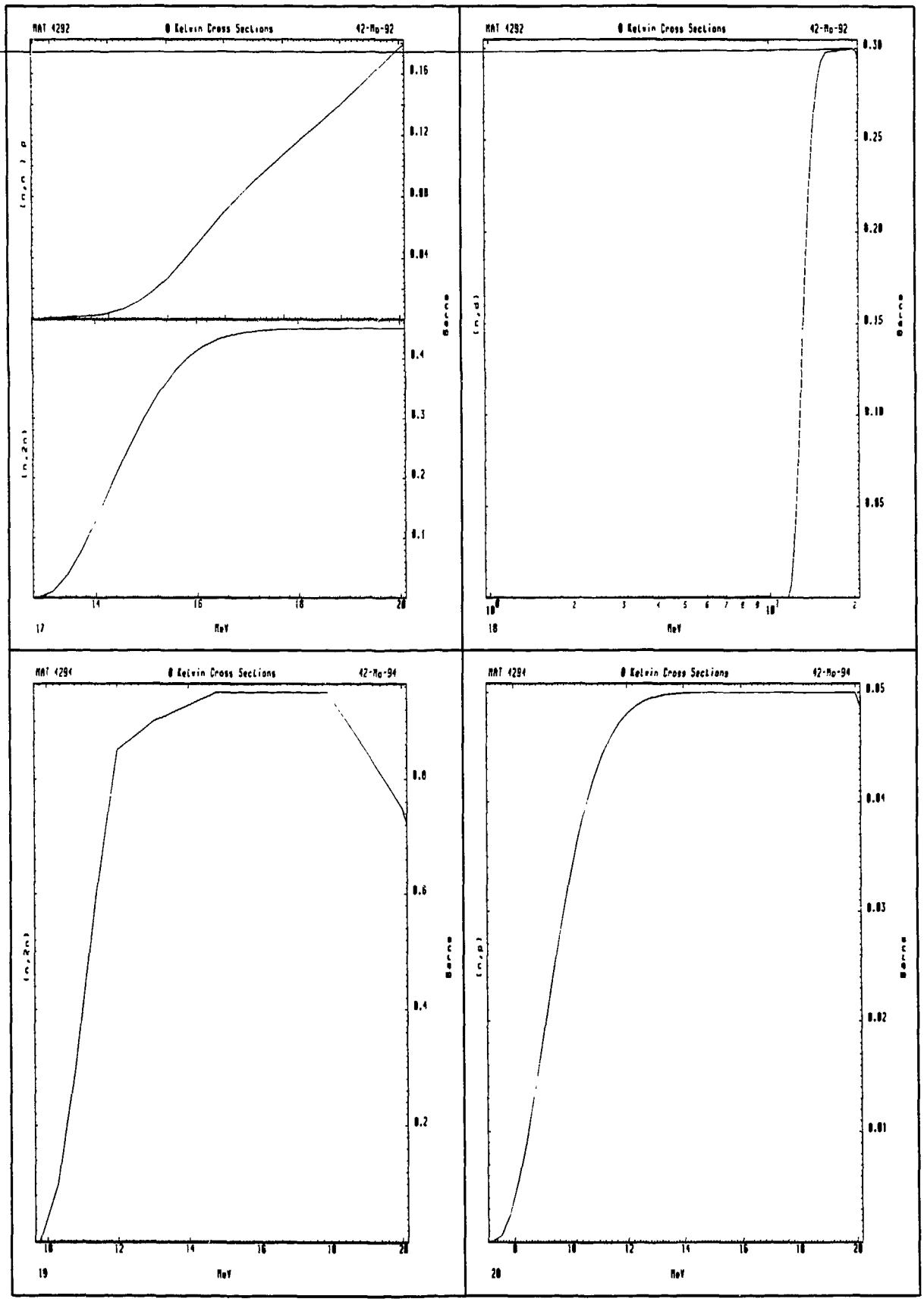

3
MeV
4
MeV

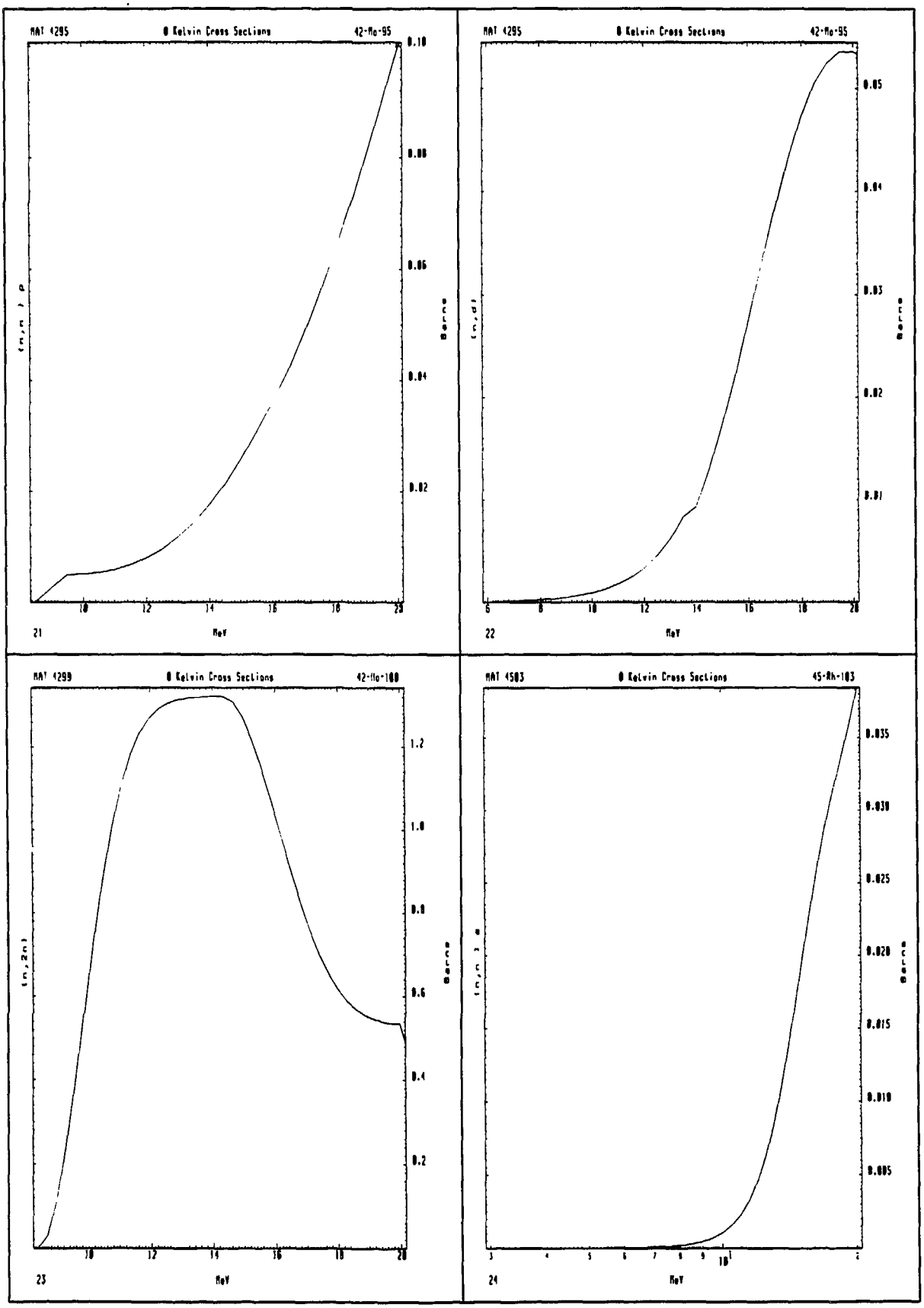

MAT 2860
0 Kelvin Cross Sections
28-Ni-60
(n,n p)
Barns
0.16
0.12
0.08
0.04
10
12
14
16
18
20
1
MeV
MAT 2860
0 Kelvin Cross Sections
28-Ni-60
(n,p)
(n,d)
Barns
0.16
0.12
0.08
0.04
0.10
0.08
0.06
0.04
0.02
8
10
12
14
16
18
20
2
MeV
MAT 2862
0 Kelvin Cross Sections
28-Ni-62
(n,a)
Barns
0.035
0.030
0.025
0.020
0.015
0.010
0.005
3
MeV
MAT 2863
0 Kelvin Cross Sections
28-Ni-63
(n,a)
Barns
0.010
0.008
0.006
0.004
0.002
4
MeV

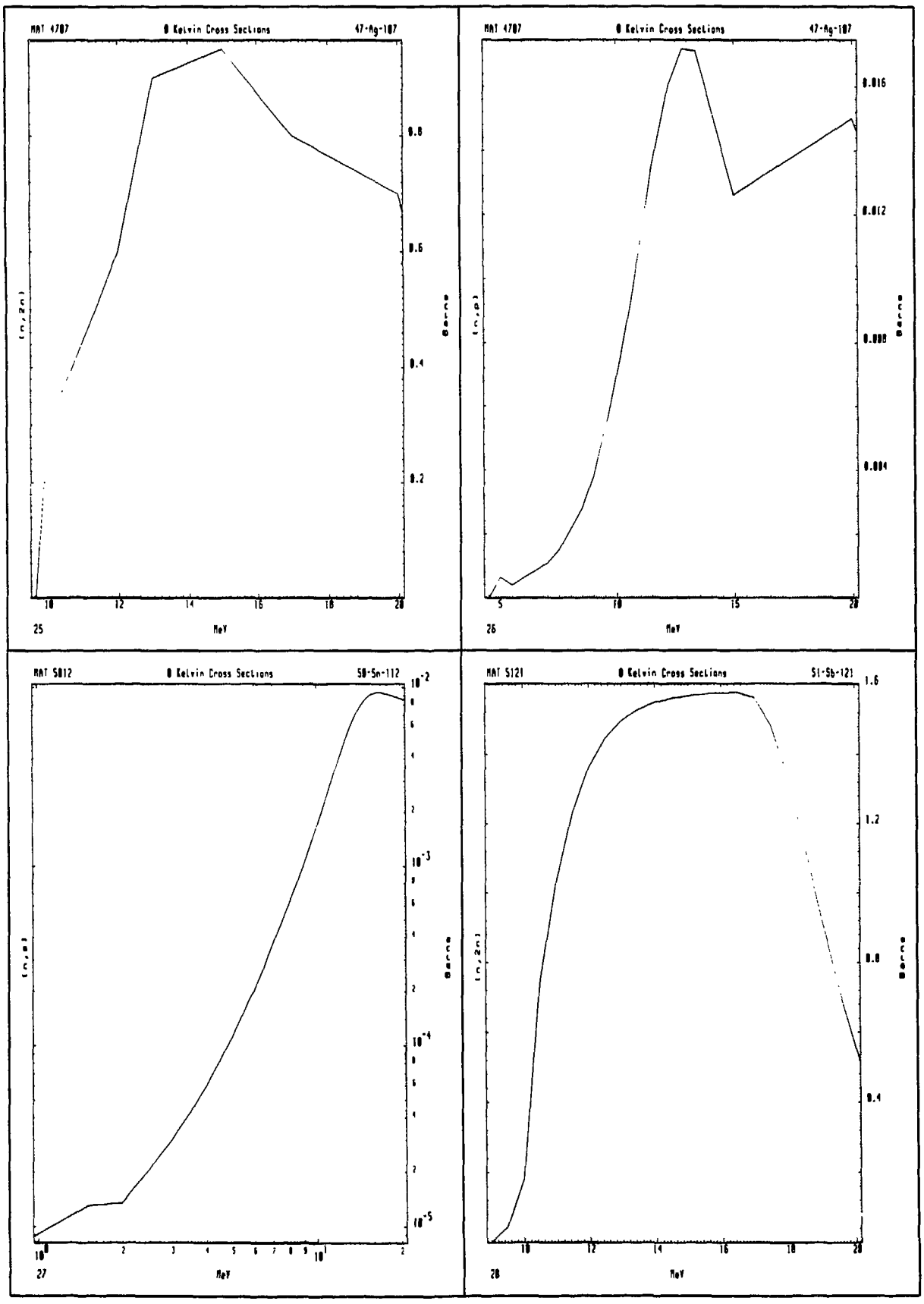

MAT 2864
0 Kelvin Cross Sections
28-Ni-64
(n,2n)
Barns
MeV
MAT 2963
0 Kelvin Cross Sections
29-Cu-63
(n,p)
(n,α)
Barns
MeV
MAT 3064
0 Kelvin Cross Sections
30-Zn-64
(n,n1α)
(n,n1p)
(n,2n)
Barns
MeV
MAT 3064
0 Kelvin Cross Sections
30-Zn-64
(n,p)
(n,α)
(n,2p)
Barns
MeV

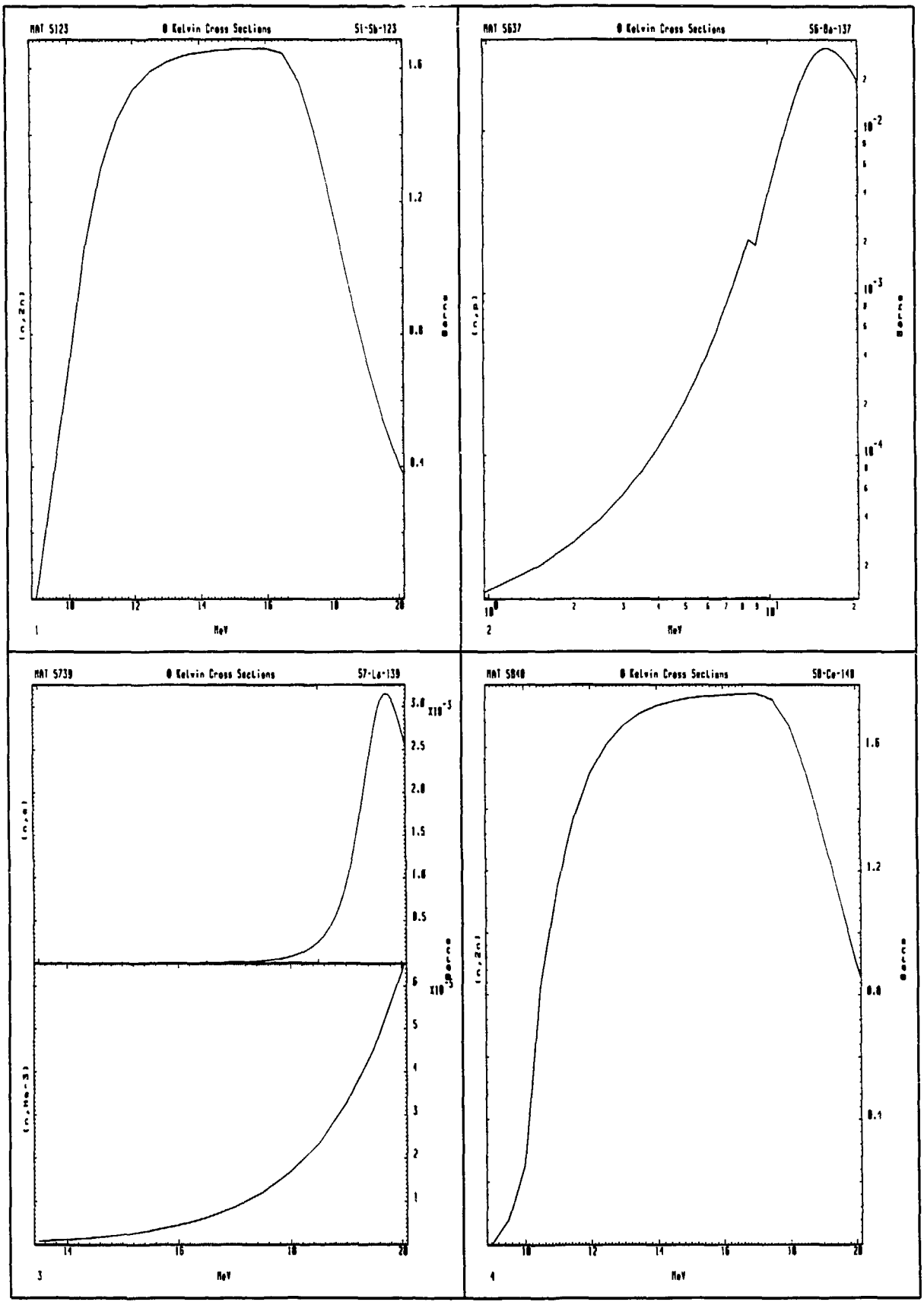

MAT 3066
0 Kelvin Cross Sections
30-Zn-66
(n,2n)
Barns
MeV
9
MAT 3066
0 Kelvin Cross Sections
30-Zn-66
(n,g)
Barns
MeV
10
MAT 4093
0 Kelvin Cross Sections
40-Zr-93
(n,a)
Barns
MeV
11
MAT 4094
0 Kelvin Cross Sections
40-Zr-94
(n,2n)
(n,p) + g
Barns
X10-3
MeV
12

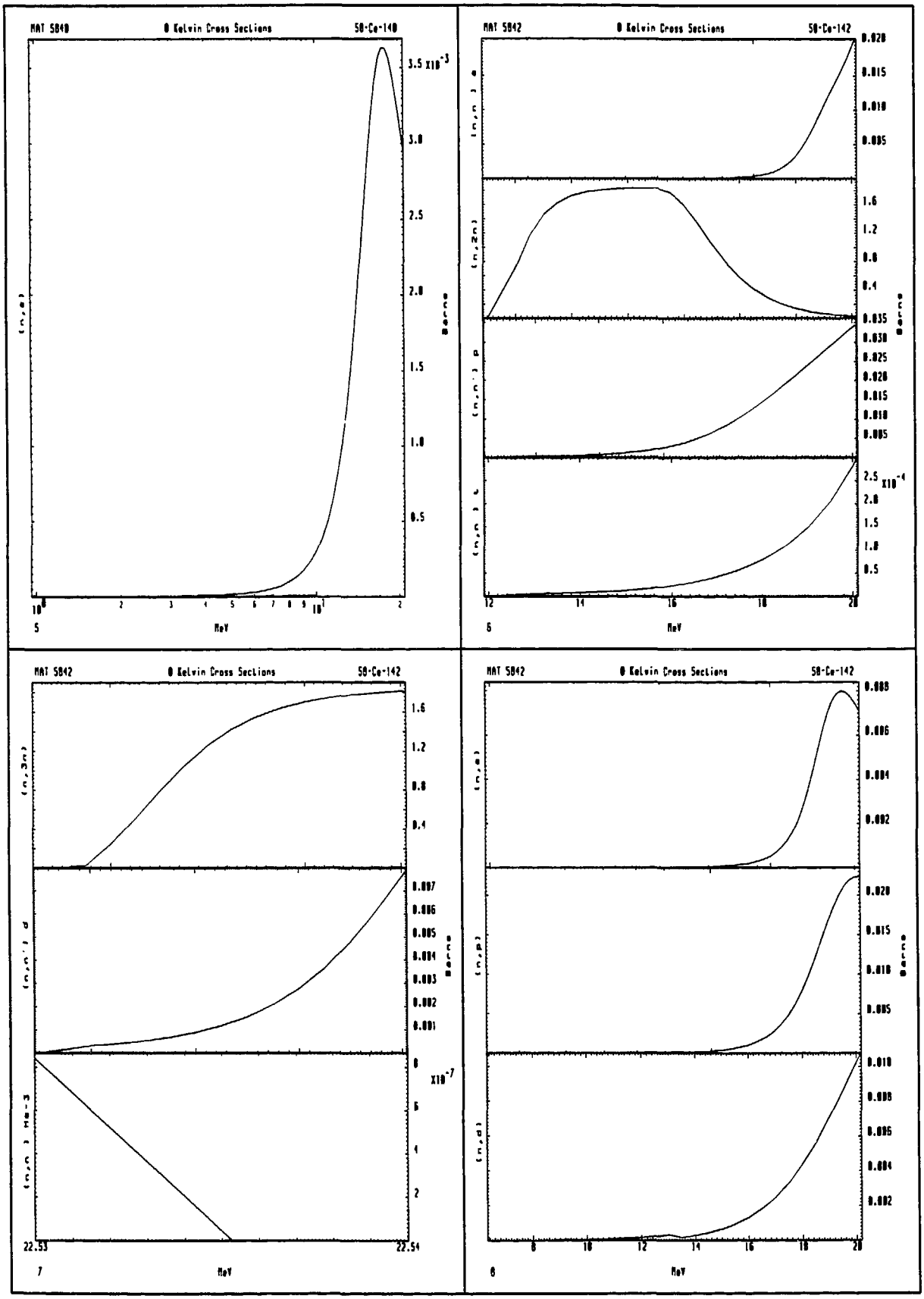

MAT 4096
0 Kelvin Cross Sections
40-Zr-96
(n,2n)
Barns
MeV
13
MAT 4192
0 Kelvin Cross Sections
41-Nb-92
(n,2n)
Barns
MeV
14
MAT 4193
0 Kelvin Cross Sections
41-Nb-93
(n,2n)
Barns
MeV
15
MAT 4193
0 Kelvin Cross Sections
41-Nb-93
(n,p)
Barns
MeV
16

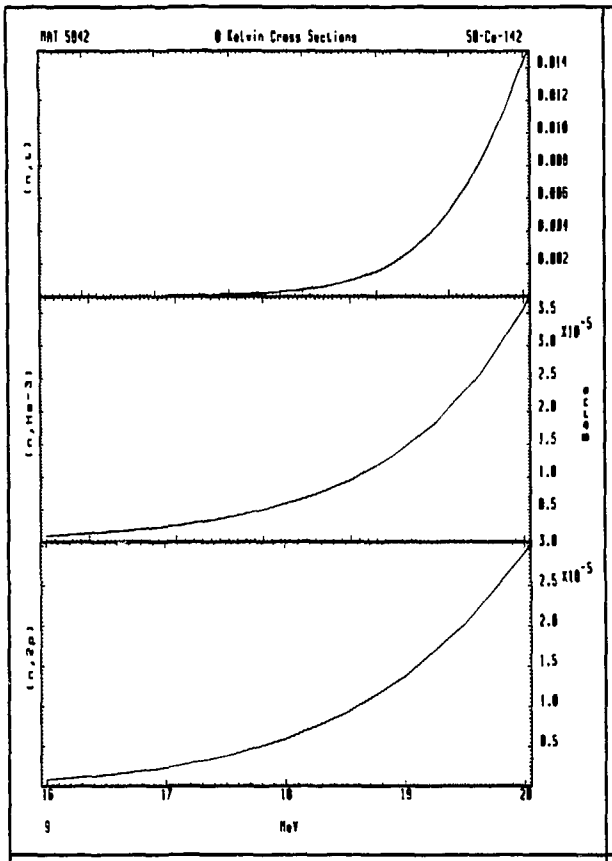

MAT 1292
0 Kelvin Cross Sections
42-Mo-92
(n,n') g
(n,2n)
Barns
MeV
17
MAT 1292
0 Kelvin Cross Sections
42-Mo-92
(n,d)
Barns
MeV
18
MAT 1294
0 Kelvin Cross Sections
42-Mo-94
(n,2n)
Barns
MeV
19
MAT 1294
0 Kelvin Cross Sections
42-Mo-94
(n,p)
Barns
MeV
20

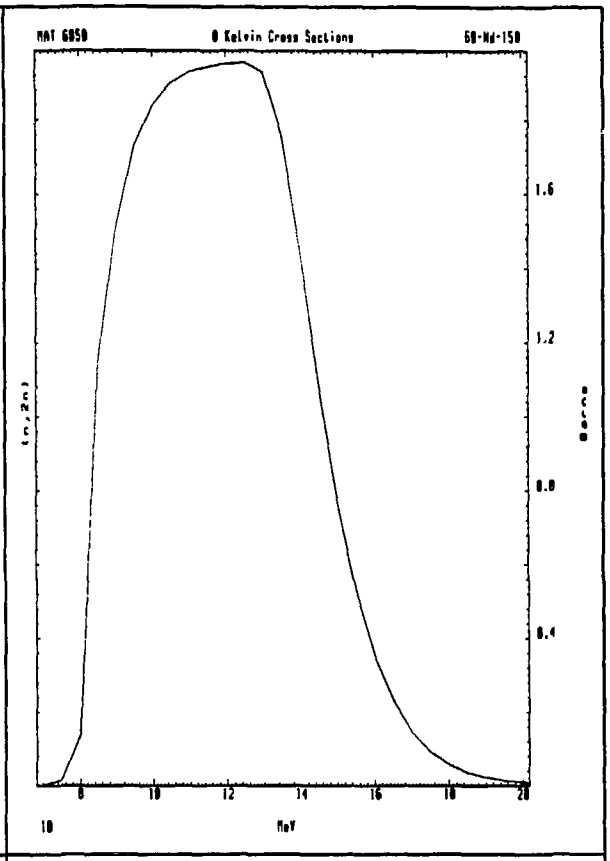

MAT 4295
0 Kelvin Cross Sections
42-Mo-95
(n,n') g
Barns
MeV
21
MAT 4295
0 Kelvin Cross Sections
42-Mo-95
(n,d)
Barns
MeV
22
MAT 4299
0 Kelvin Cross Sections
42-Mo-100
(n,2n)
Barns
MeV
23
MAT 4503
0 Kelvin Cross Sections
45-Rh-103
(n,n' g
Barns
MeV
24

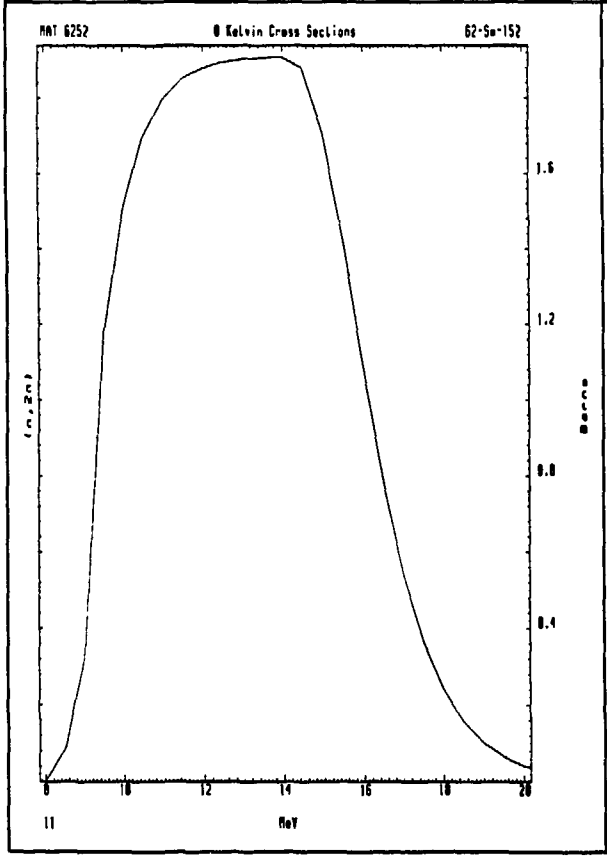

MAT 4707
0 Kelvin Cross Sections
47-Ag-107
(n,2n)
Barns
MeV
25
MAT 4707
0 Kelvin Cross Sections
47-Ag-107
(n,p)
Barns
MeV
26
MAT 5012
0 Kelvin Cross Sections
50-Sn-112
(n,p)
Barns
MeV
27
MAT 5121
0 Kelvin Cross Sections
51-Sb-121
(n,2n)
Barns
MeV
28

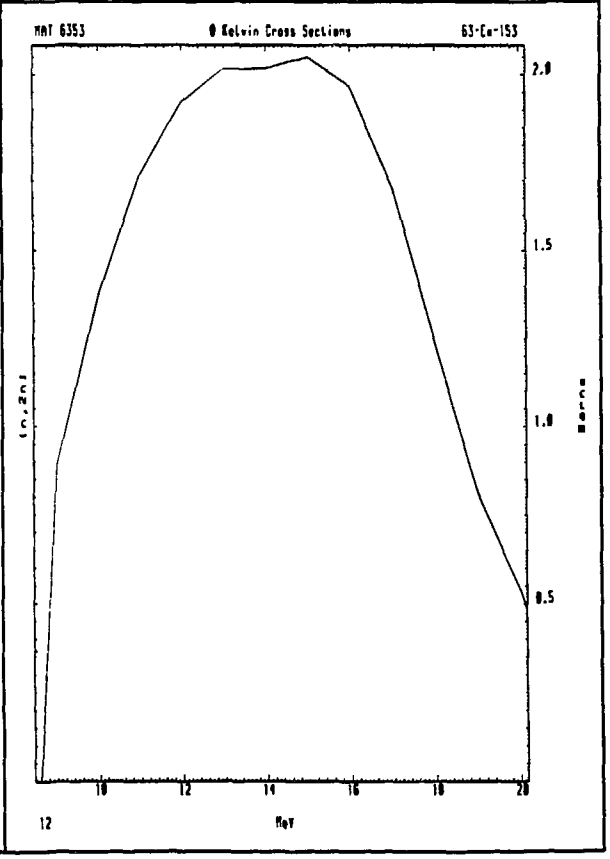

MAT 5123
0 Kelvin Cross Sections
51-Sb-123
(n,2n)
barns
MeV
1
MAT 5637
0 Kelvin Cross Sections
56-Ba-137
(n,p)
barns
MeV
2
MAT 5739
0 Kelvin Cross Sections
57-La-139
(n,g)
(n,Ma-3)
X10-3
barns
MeV
3
MAT 5840
0 Kelvin Cross Sections
58-Ce-140
(n,2n)
barns
MeV
4

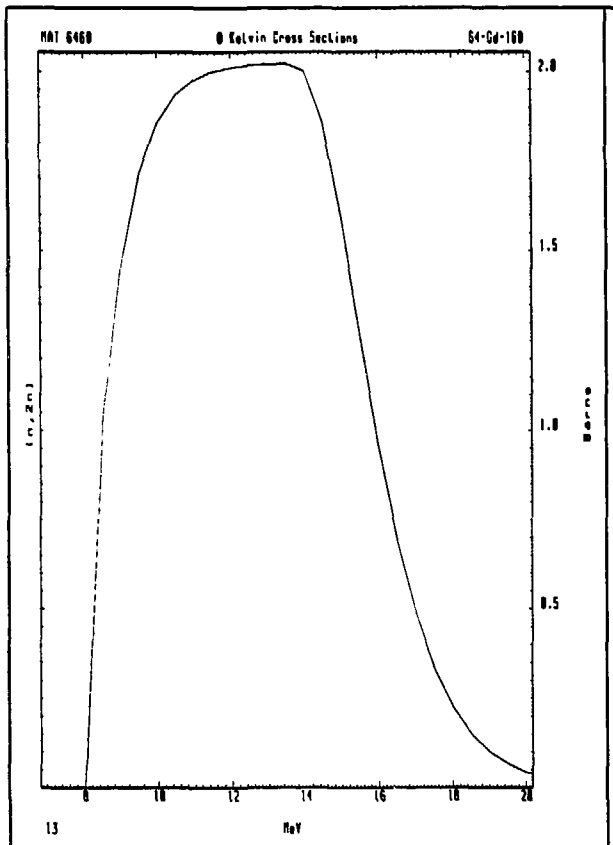

MAT 5840
0 Kelvin Cross Sections
58-Ce-140
(n,a)
barns
MeV
5
MAT 5842
0 Kelvin Cross Sections
58-Ce-142
(n,n')a
(n,2n)
(n,n')p
(n,g)
6
MAT 5842
0 Kelvin Cross Sections
58-Ce-142
(n,3n)
(n,n')d
(n,n') He-3
22.53
22.54
7
MAT 5842
0 Kelvin Cross Sections
58-Ce-142
(n,a)
(n,p)
(n,d)
8

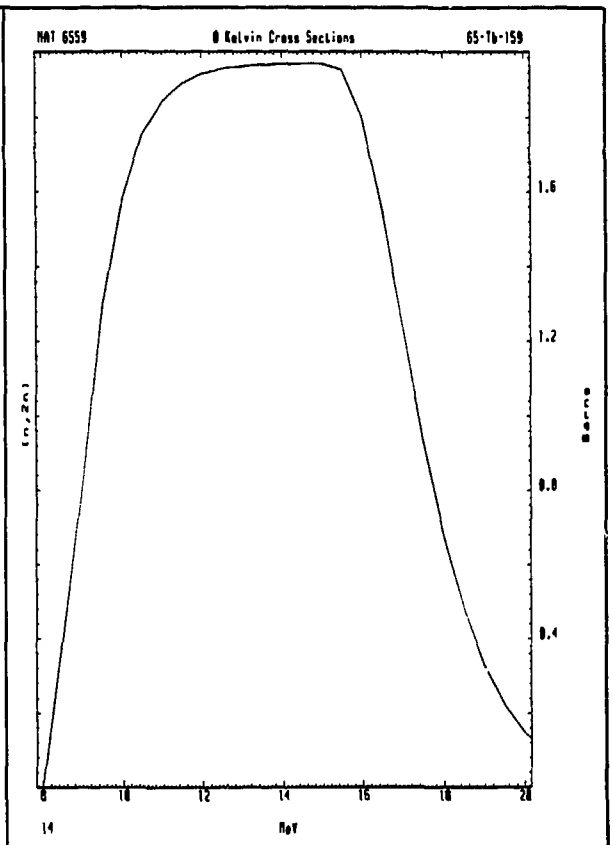

MAT 5842
0 Kelvin Cross Sections
50-Sn-142
(n,t)
(n,He-3)
(n,2n)
barns
MeV
9

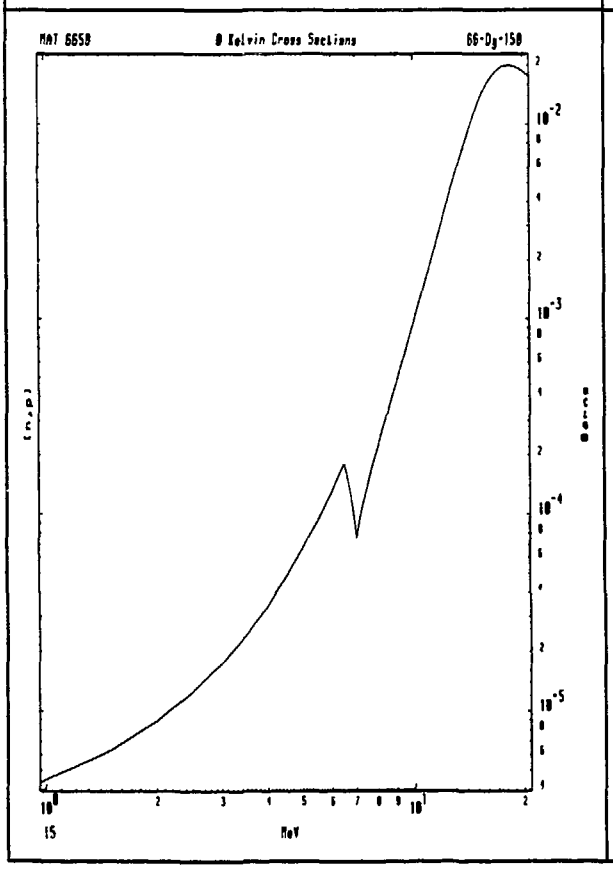

MAT 6850
0 Kelvin Cross Sections
60-Nd-150
(n,2n)
barns
MeV
10

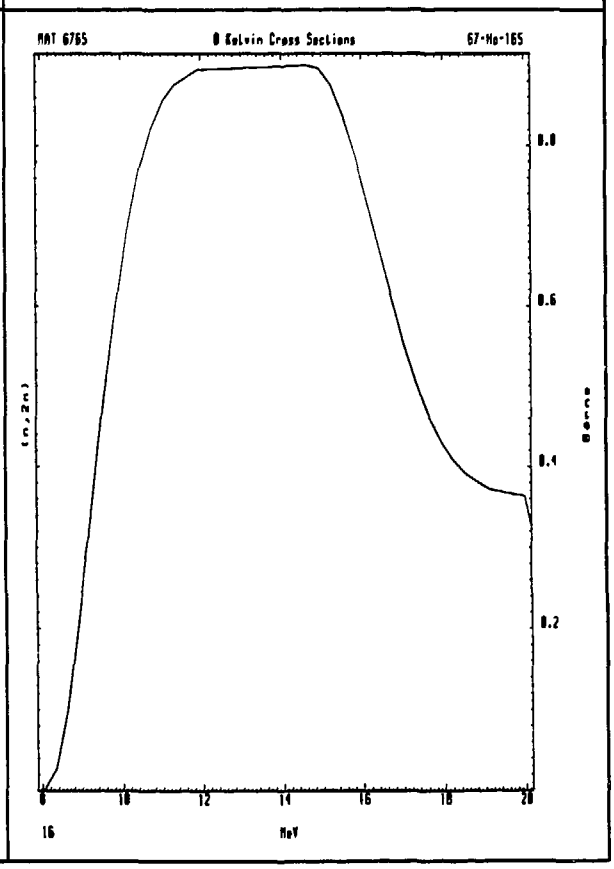

MAT 6252
0 Kelvin Cross Sections
62-Sm-152
(n,2n)
barns
MeV
11

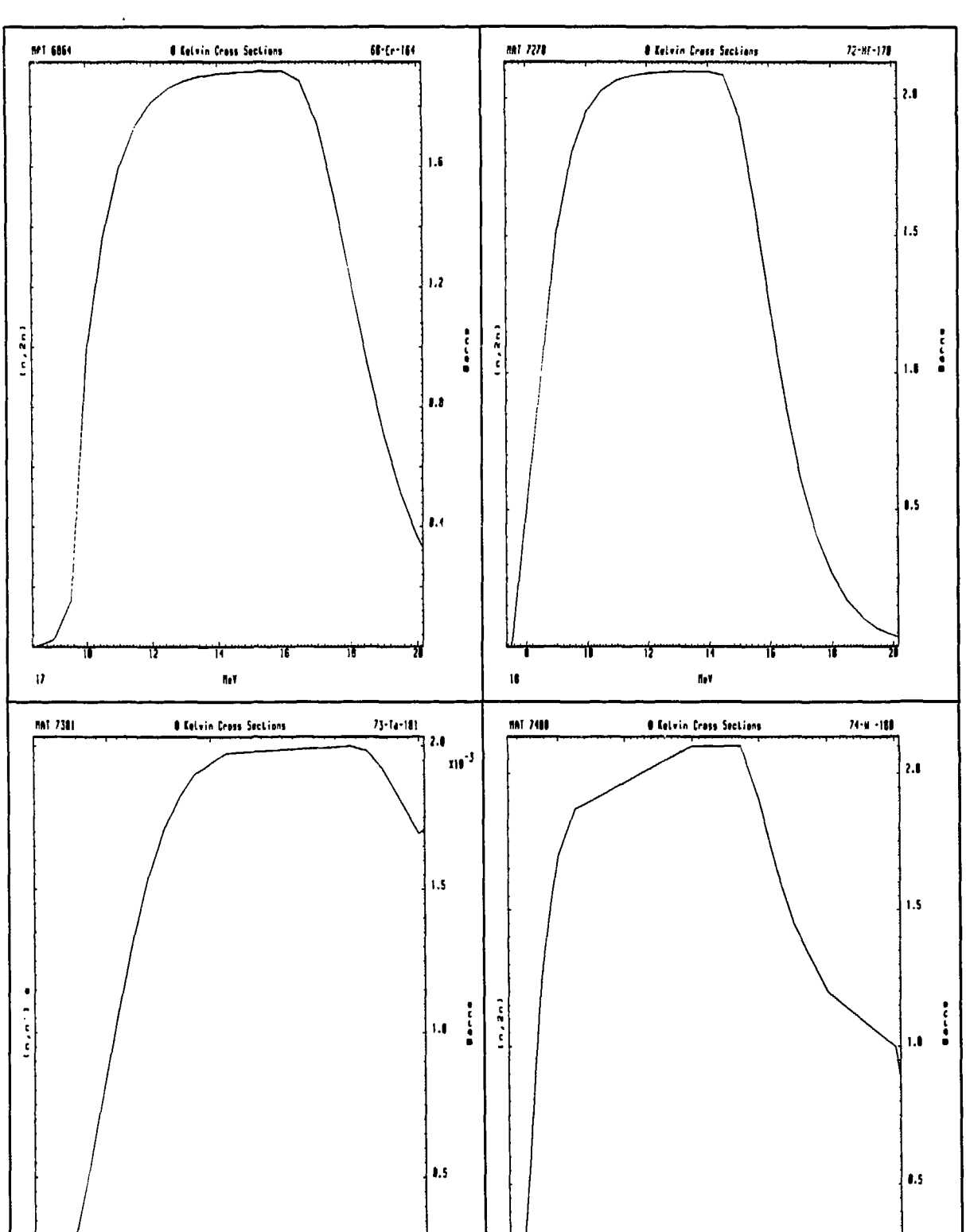

MAT 6353
0 Kelvin Cross Sections
63-Eu-153
(n,2n)
barns
MeV
12

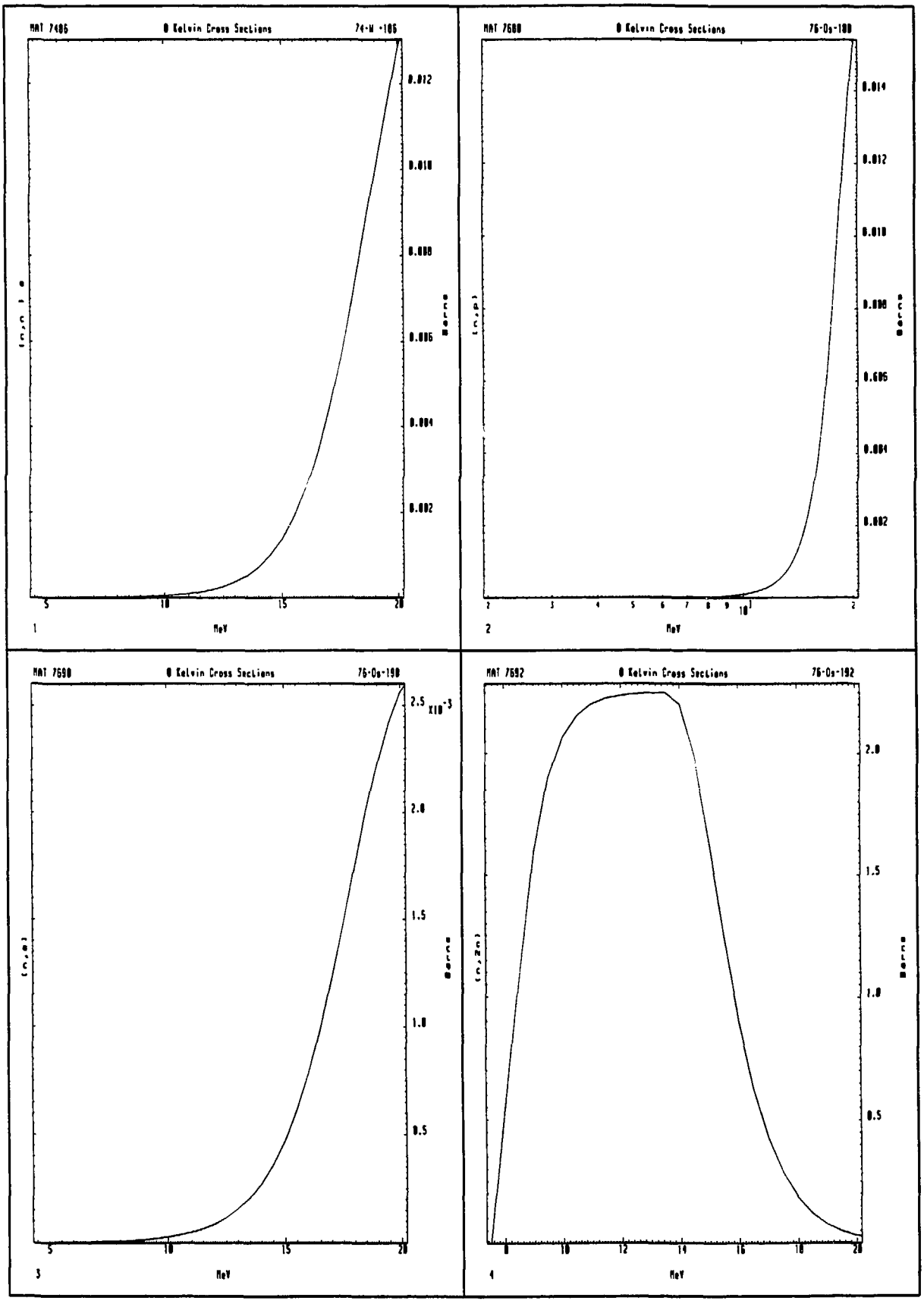

MAT 6460
0 Kelvin Cross Sections
64-Gd-160
(n,2n)
Barns
MeV
13

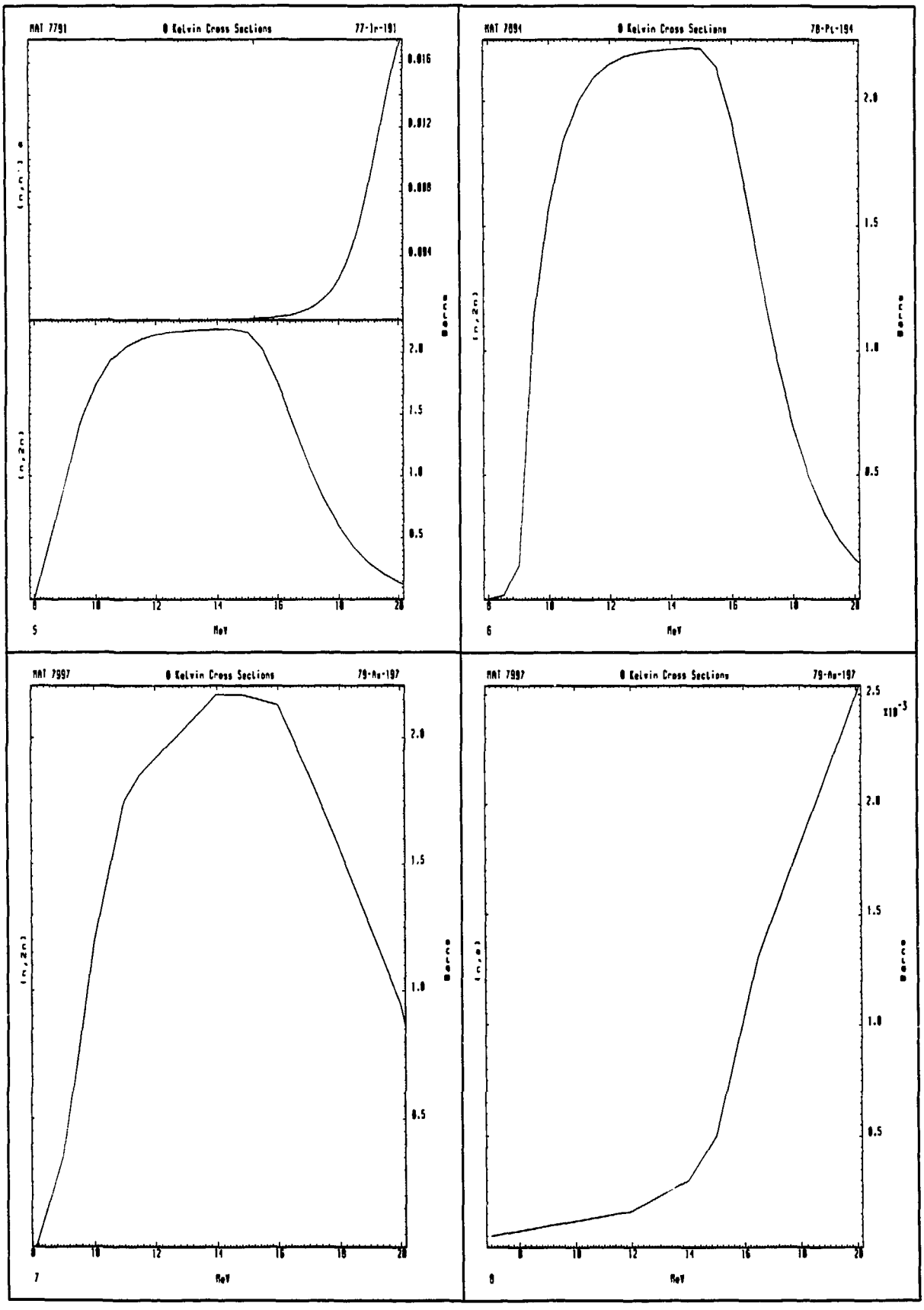

MAT 6559
0 Kelvin Cross Sections
65-Tb-159
(n,2n)
Barns
MeV
14

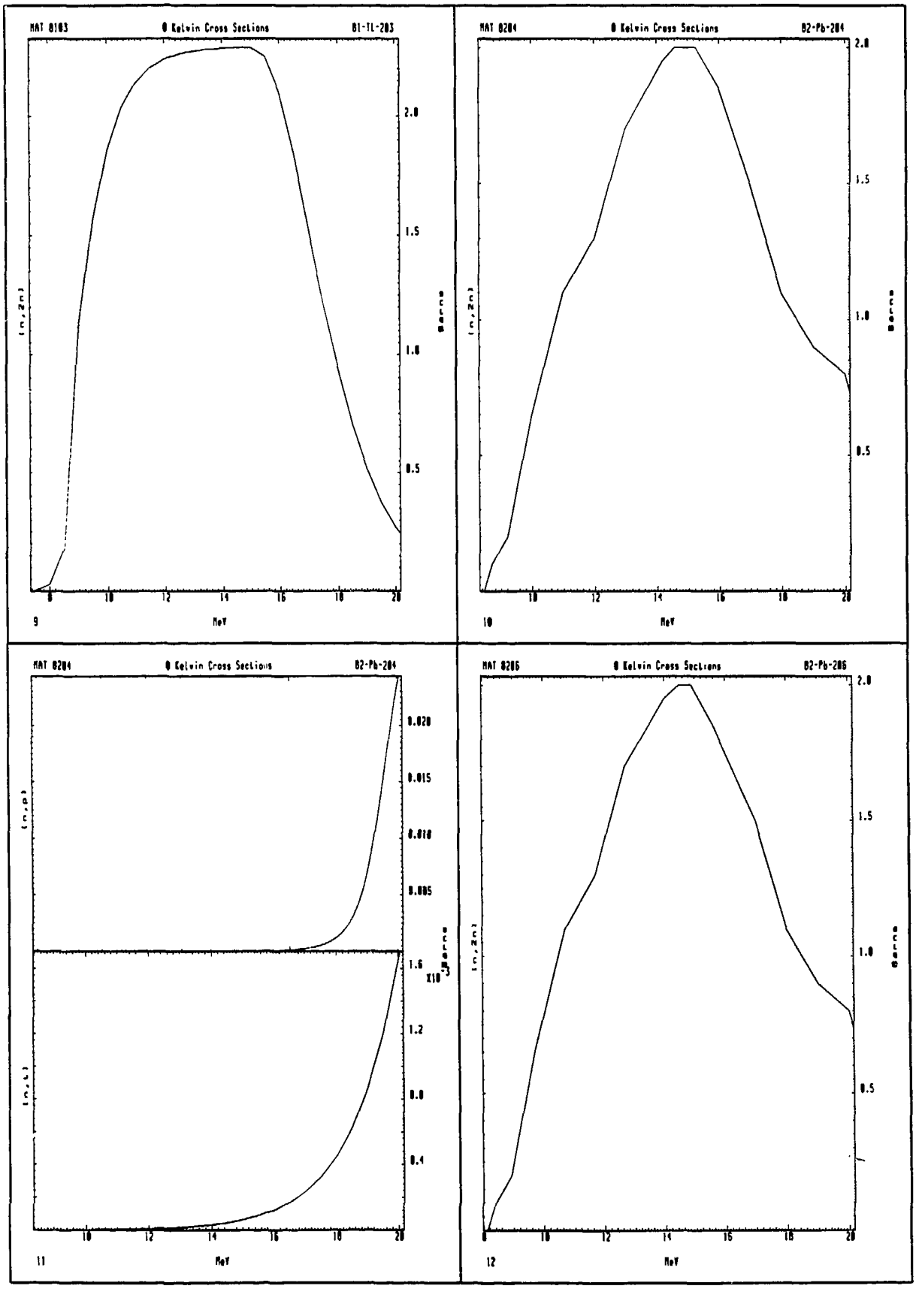

MAT 6658
0 Kelvin Cross Sections
66-Dy-158
(n,p)
Barns
MeV
15

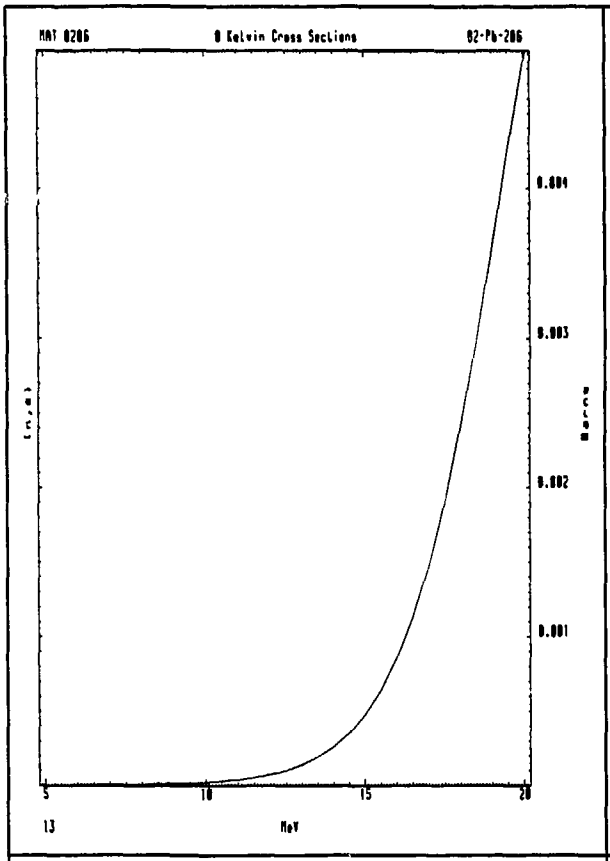

MAT 6765
0 Kelvin Cross Sections
67-Ho-165
(n,2n)
Barns
MeV
16

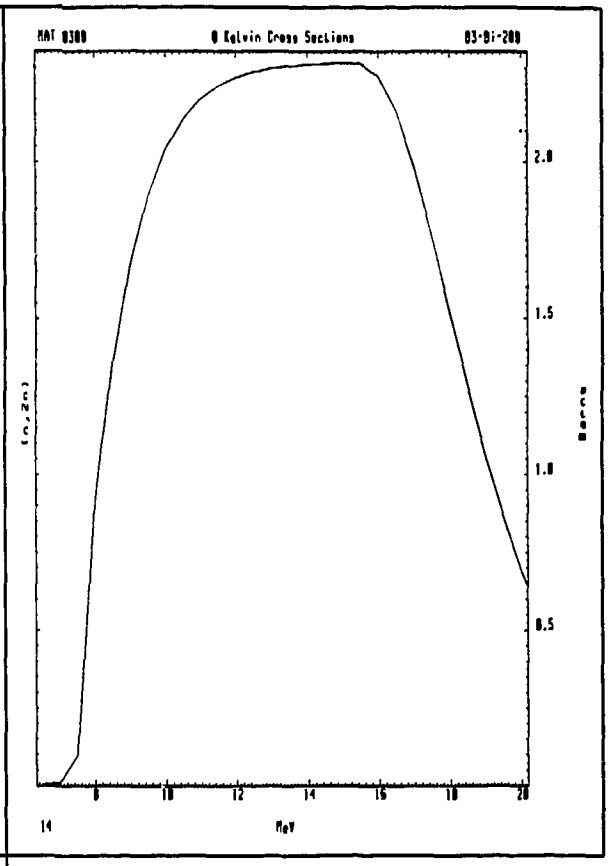

MAT 6864
0 Kelvin Cross Sections
68-Er-164
MAT 7270
0 Kelvin Cross Sections
72-Hf-178
MAT 7381
0 Kelvin Cross Sections
73-Ta-181
X10-3
MAT 7480
0 Kelvin Cross Sections
74-W -180
MeV
17
18
19
20

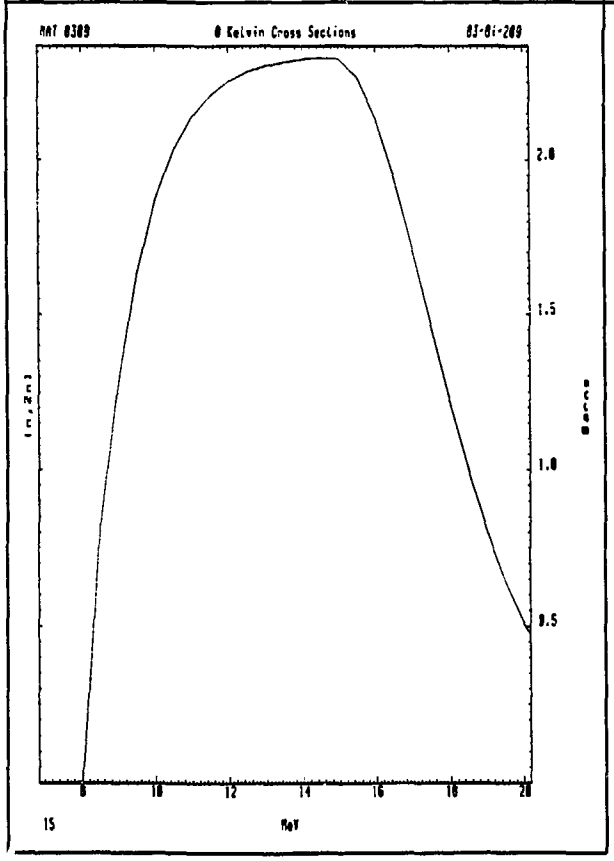

MAT 7486
0 Kelvin Cross Sections
74-W -186
0.012
0.010
0.008
0.006
0.004
0.002
5
10
15
20
MeV
1
MAT 7688
0 Kelvin Cross Sections
76-Os-188
0.014
0.012
0.010
0.008
0.006
0.004
0.002
2
3
4
5
6
7
8
9
10
MeV
2
MAT 7690
0 Kelvin Cross Sections
76-Os-190
2.5
X10-3
2.0
1.5
1.0
0.5
5
10
15
20
MeV
3
MAT 7692
0 Kelvin Cross Sections
76-Os-192
2.0
1.5
1.0
0.5
8
10
12
14
16
18
20
MeV
4


MAT 7791
0 Kelvin Cross Sections
77-Ir-191
(n,n')e
(n,2n)
Barns
MeV
5
MAT 7894
0 Kelvin Cross Sections
78-Pt-194
(n,2n)
Barns
MeV
6
MAT 7997
0 Kelvin Cross Sections
79-Au-197
(n,2n)
Barns
MeV
7
MAT 7997
0 Kelvin Cross Sections
79-Au-197
(n,el)
Barns
MeV
8

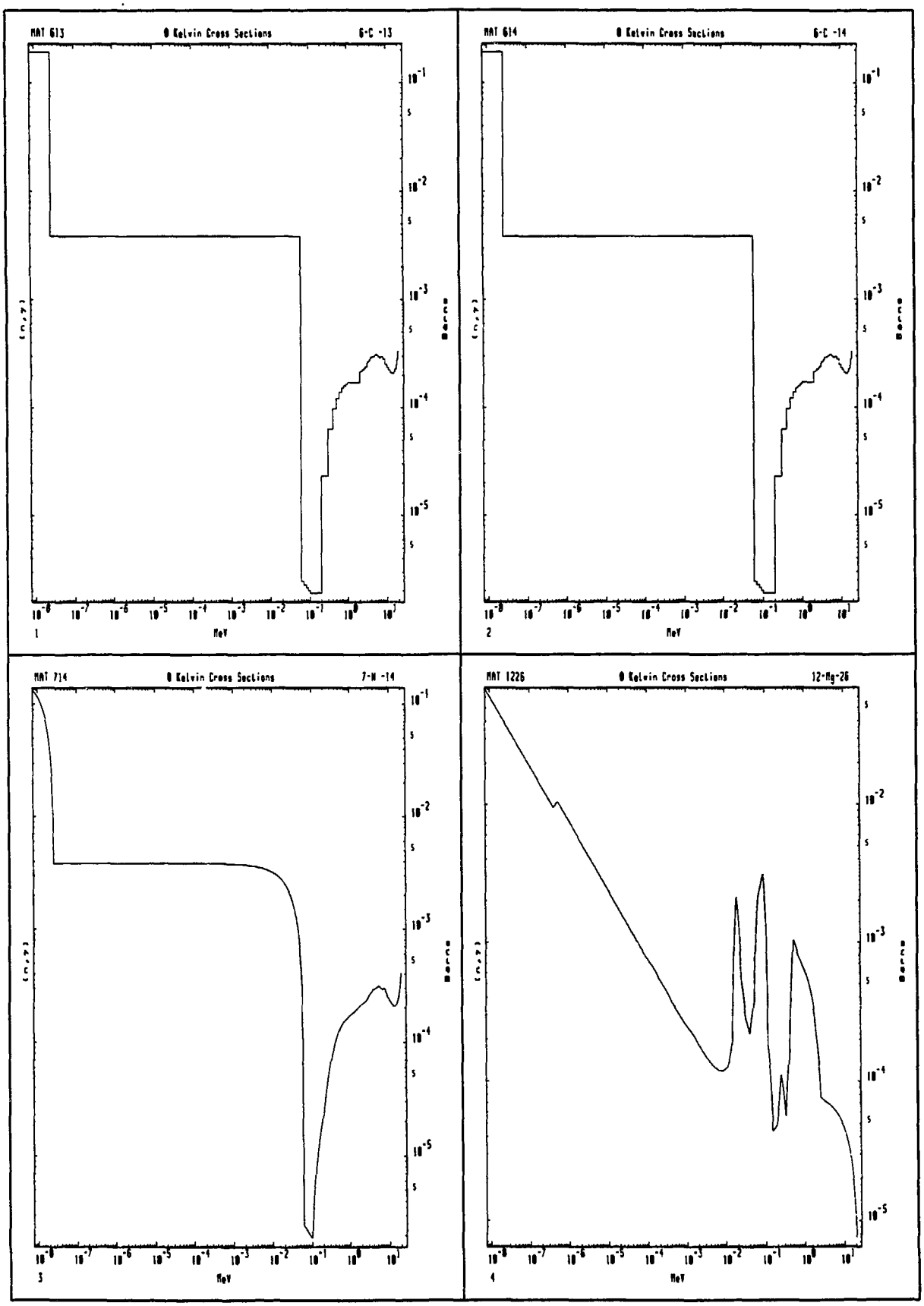

MAT 8103
0 Kelvin Cross Sections
81-Tl-203
(n,2n)
barns
2.0
1.5
1.0
0.5
8
10
12
14
16
18
20
MeV
9
MAT 8204
0 Kelvin Cross Sections
82-Pb-204
(n,2n)
barns
2.0
1.5
1.0
0.5
10
MeV
MAT 8204
0 Kelvin Cross Sections
82-Pb-204
(n,g)
barns
0.020
0.015
0.010
0.005
(n,t)
1.6
X10-3
1.2
0.8
0.4
11
MeV
MAT 8206
0 Kelvin Cross Sections
82-Pb-206
(n,2n)
barns
2.0
1.5
1.0
0.5
12
MeV

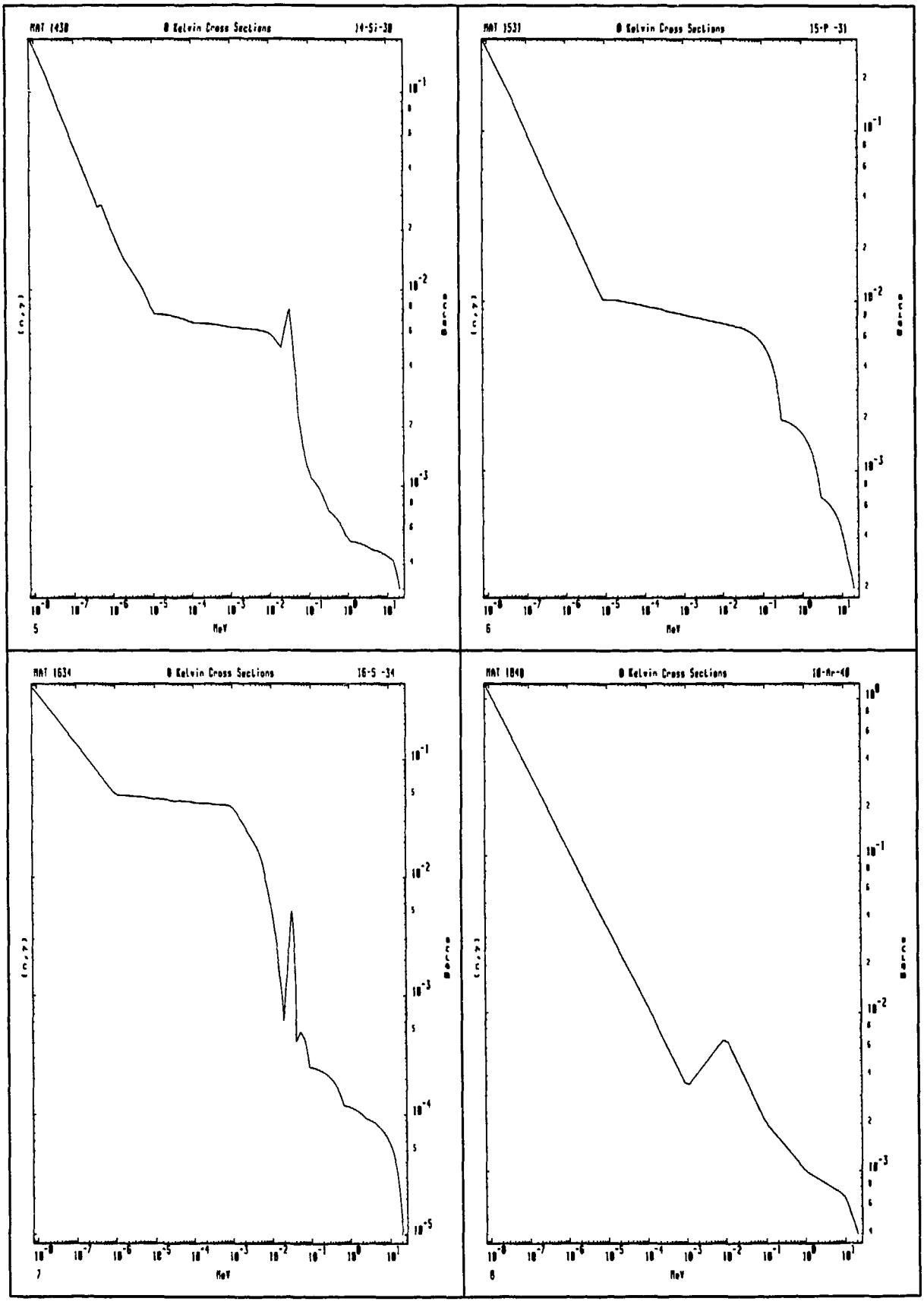

MAT 0206
0 Kelvin Cross Sections
82-Pb-206
0.004
0.003
0.002
0.001
5
10
15
20
13
MeV

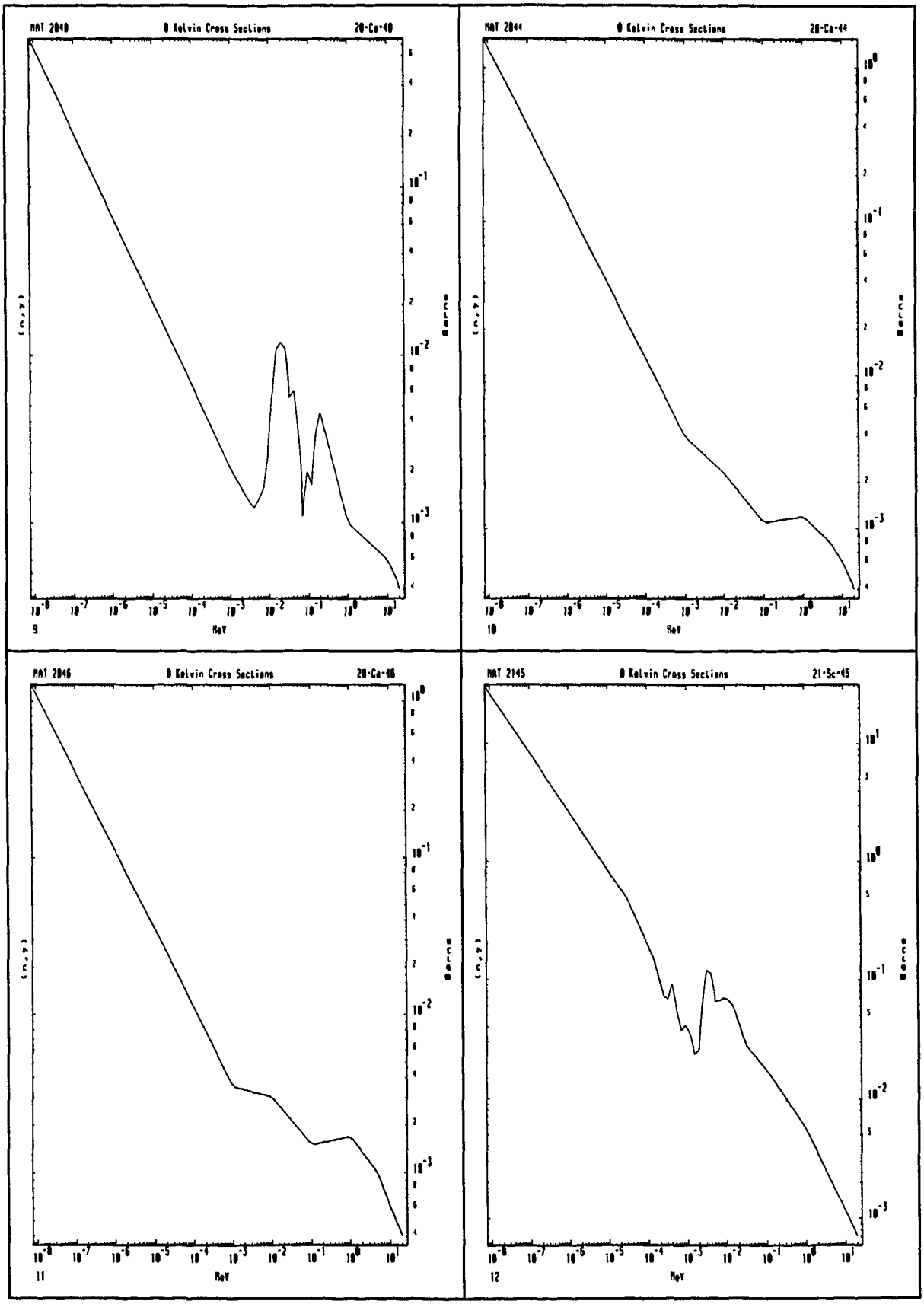

MAT 0309
0 Kelvin Cross Sections
83-Bi-209
2.0
1.5
1.0
0.5
8
10
12
14
16
18
20
14
MeV

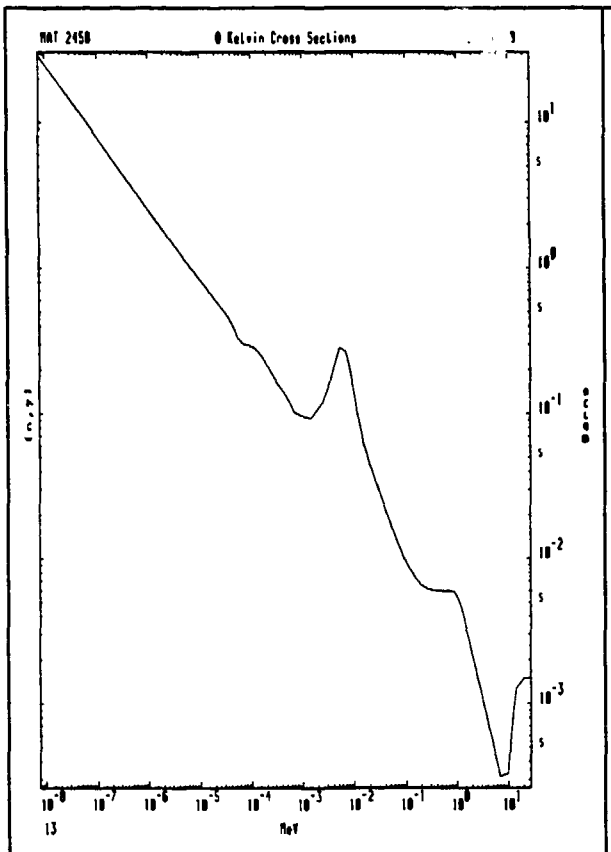

MAT 0309
0 Kelvin Cross Sections
83-Bi-209
2.0
1.5
1.0
0.5
8
10
12
14
16
18
20
15
MeV

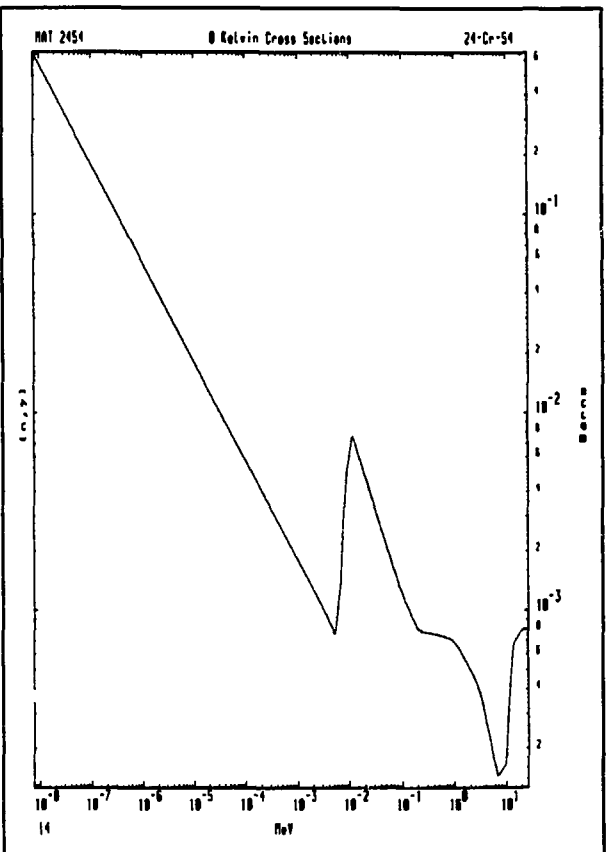
PART I. Plots of capture cross section into ground states.

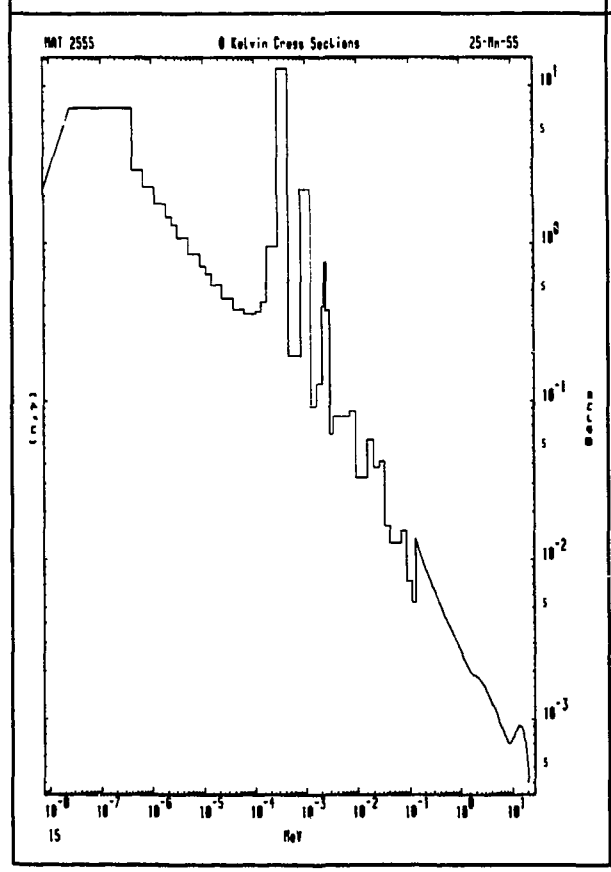

MAT 613
0 Kelvin Cross Sections
6-C -13
MAT 614
0 Kelvin Cross Sections
6-C -14
MAT 714
0 Kelvin Cross Sections
7-N -14
MAT 1226
0 Kelvin Cross Sections
12-Mg-26
(n,γ)
Barns
MeV
1
2
3
4

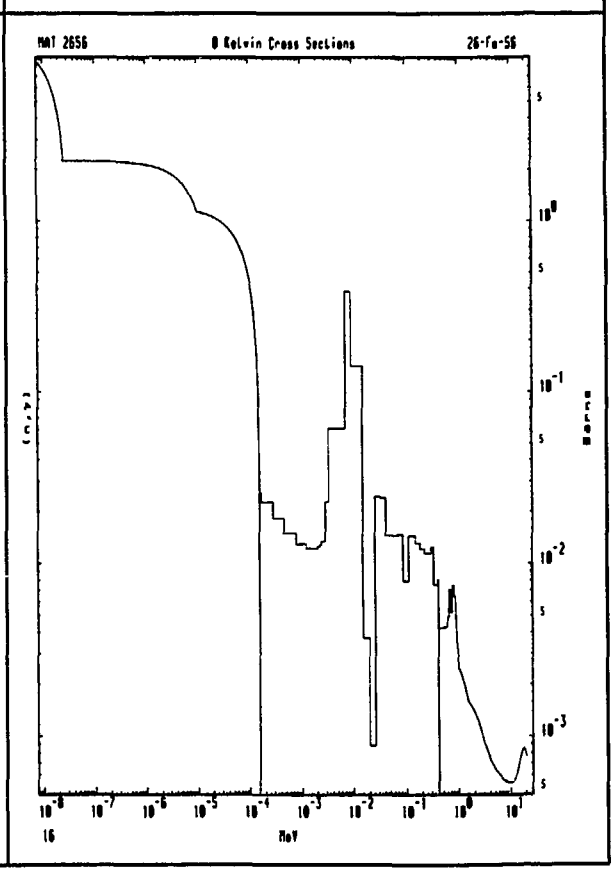

MAT 1430
0 Kelvin Cross Sections
14-Si-30
MAT 1531
0 Kelvin Cross Sections
15-P -31
MAT 1634
0 Kelvin Cross Sections
16-S -34
MAT 1840
0 Kelvin Cross Sections
18-Ar-40
(n,γ)
Barns
MeV
5
6
7
8

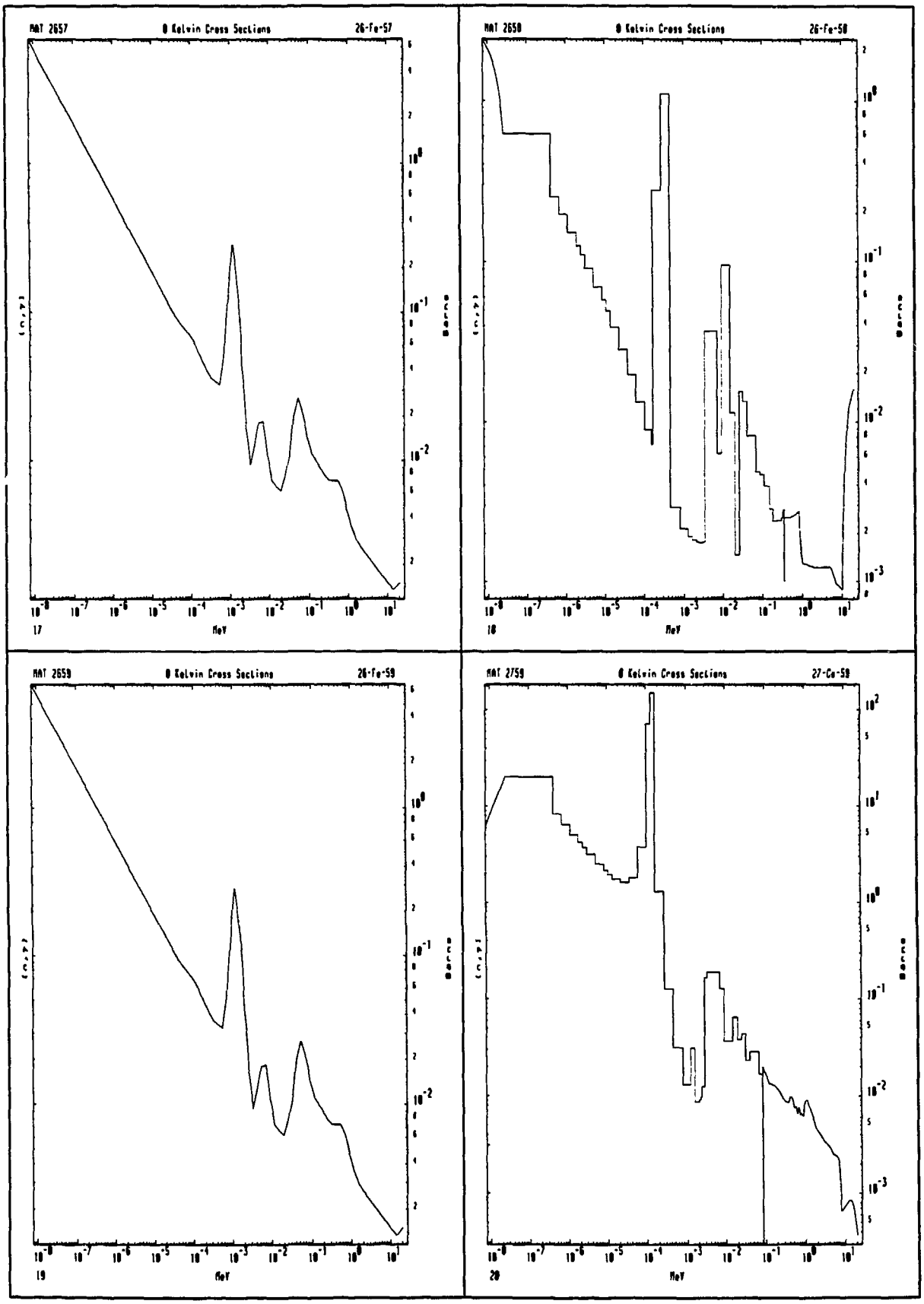

MAT 2040
0 Kelvin Cross Sections
20-Ca-40
(n,γ)
Barns
9
MeV
MAT 2044
0 Kelvin Cross Sections
20-Ca-44
(n,γ)
Barns
10
MeV
MAT 2046
0 Kelvin Cross Sections
20-Ca-46
(n,γ)
Barns
11
MeV
MAT 2145
0 Kelvin Cross Sections
21-Sc-45
(n,γ)
Barns
12
MeV

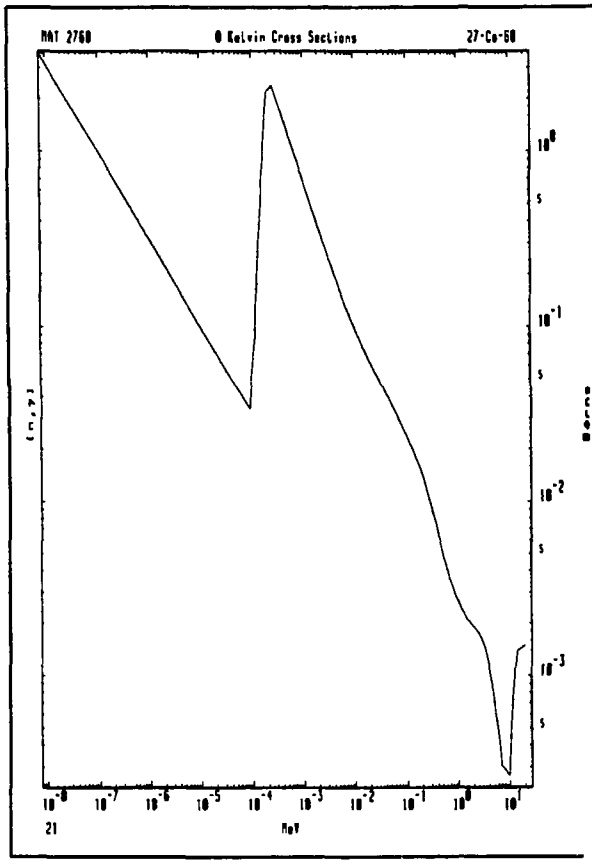

MAT 2458
0 Kelvin Cross Sections
(n,γ)
Barns
13
MeV

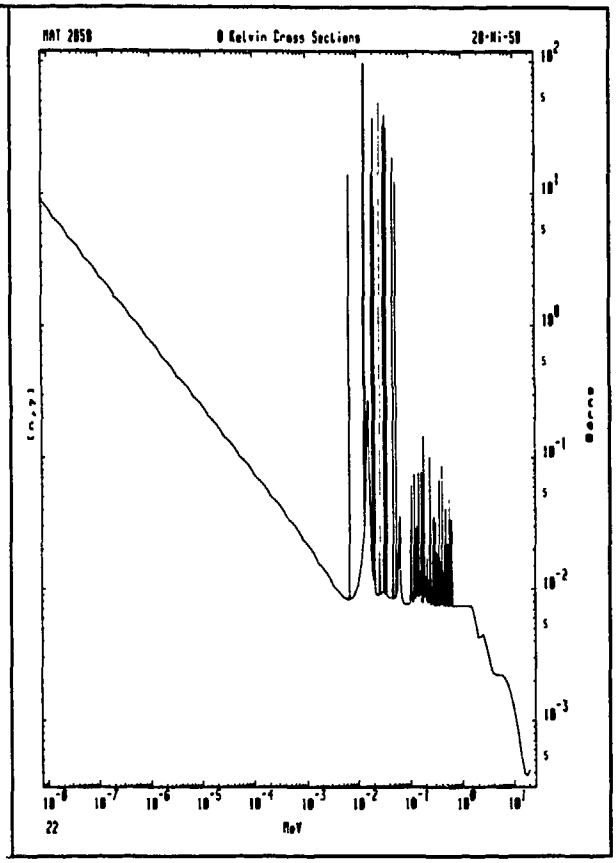

MAT 2454
0 Kelvin Cross Sections
24-Cr-54
(n,γ)
Barns
14
MeV

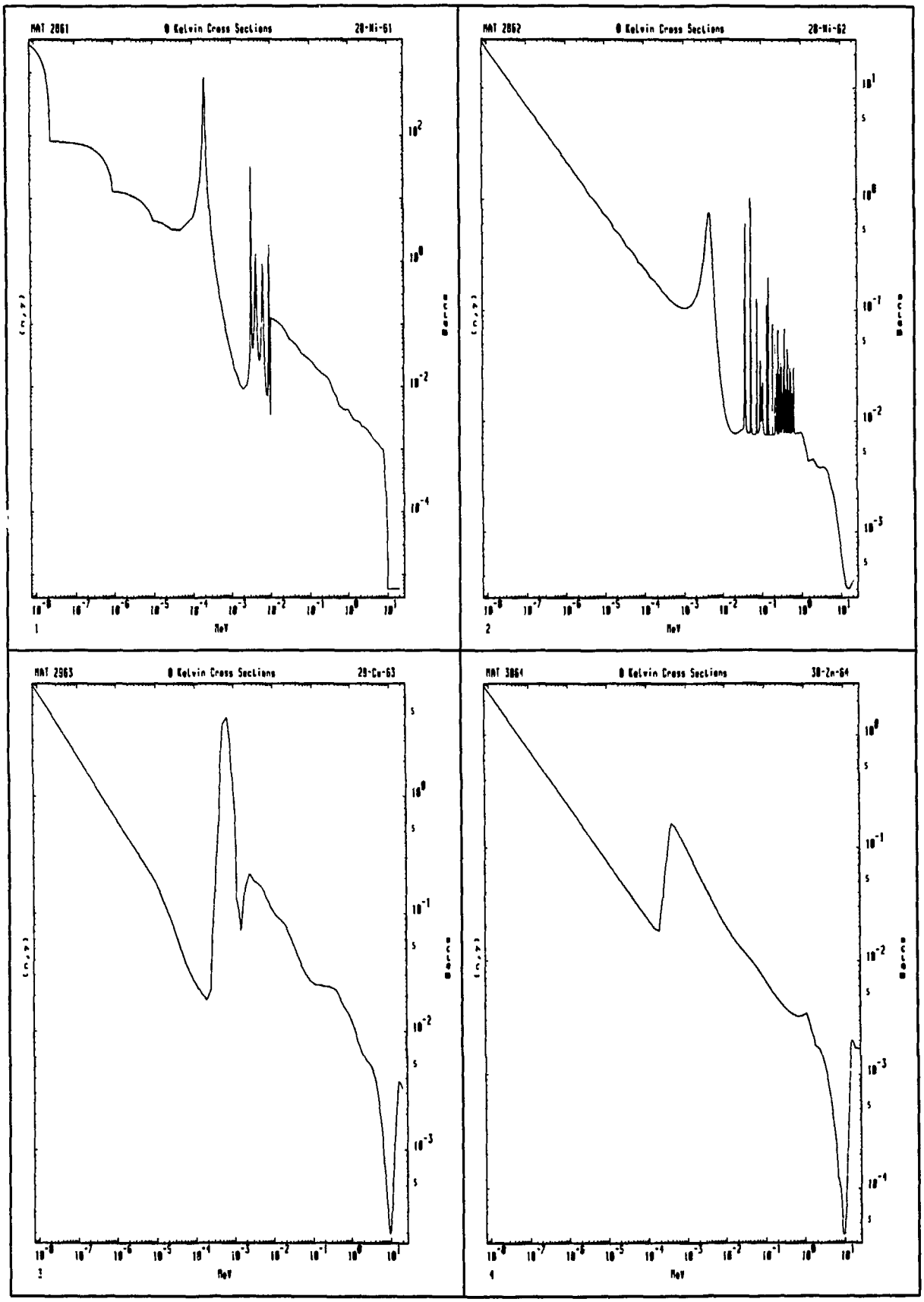

MAT 2555
0 Kelvin Cross Sections
25-Mn-55
(n,γ)
Barns
15
MeV

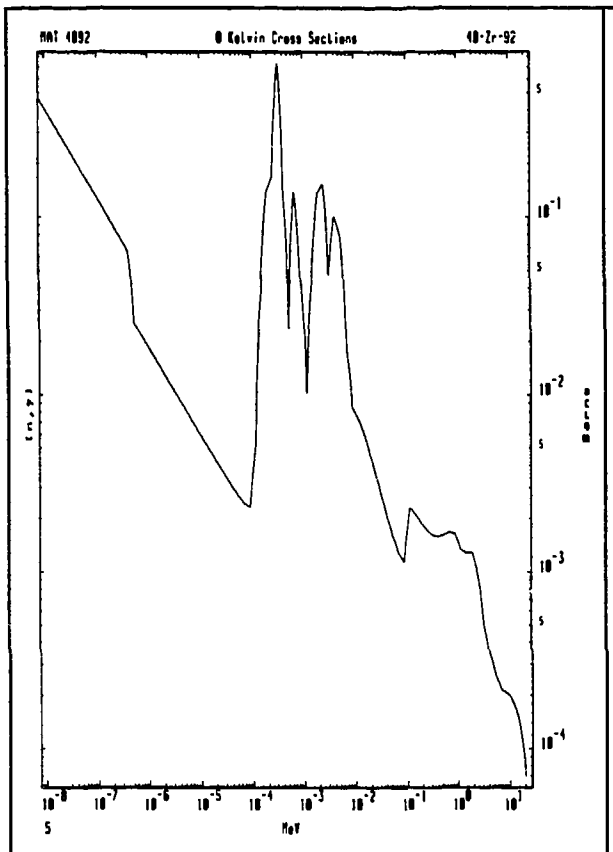

MAT 2656
0 Kelvin Cross Sections
26-Fe-56
(n,γ)
Barns
16
MeV

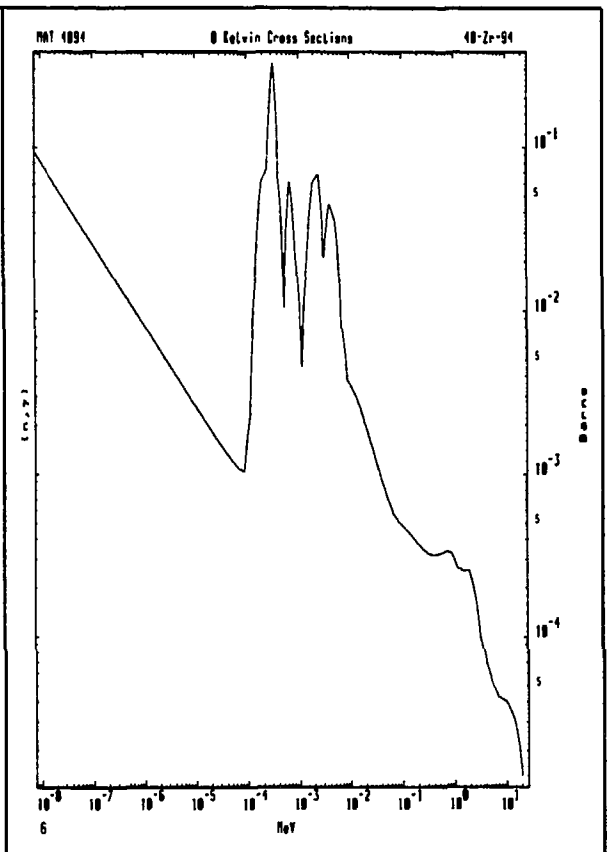

MAT 2657
0 Kelvin Cross Sections
26-Fe-57
MAT 2658
0 Kelvin Cross Sections
26-Fe-58
MAT 2659
0 Kelvin Cross Sections
26-Fe-59
MAT 2759
0 Kelvin Cross Sections
27-Co-59
MeV
Barns

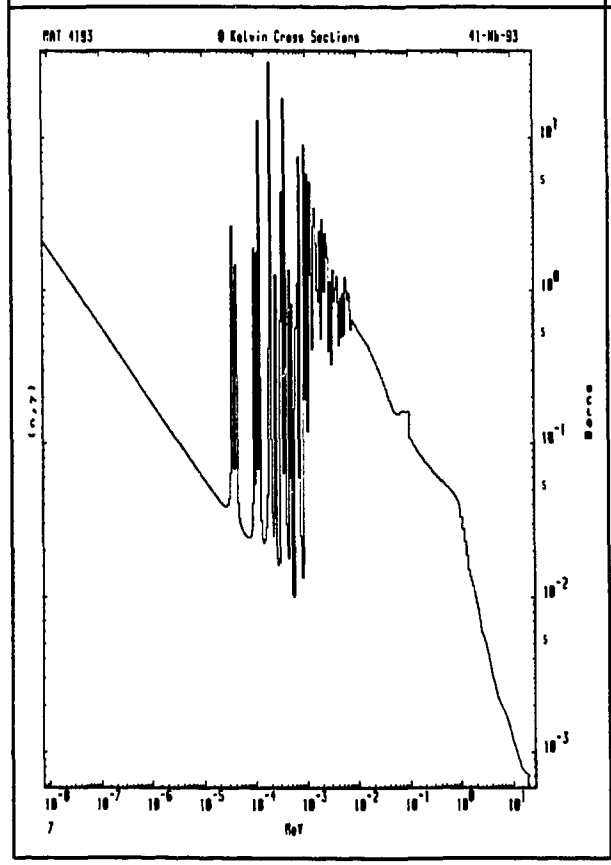

MAT 2760
0 Kelvin Cross Sections
27-Co-60
21
MeV

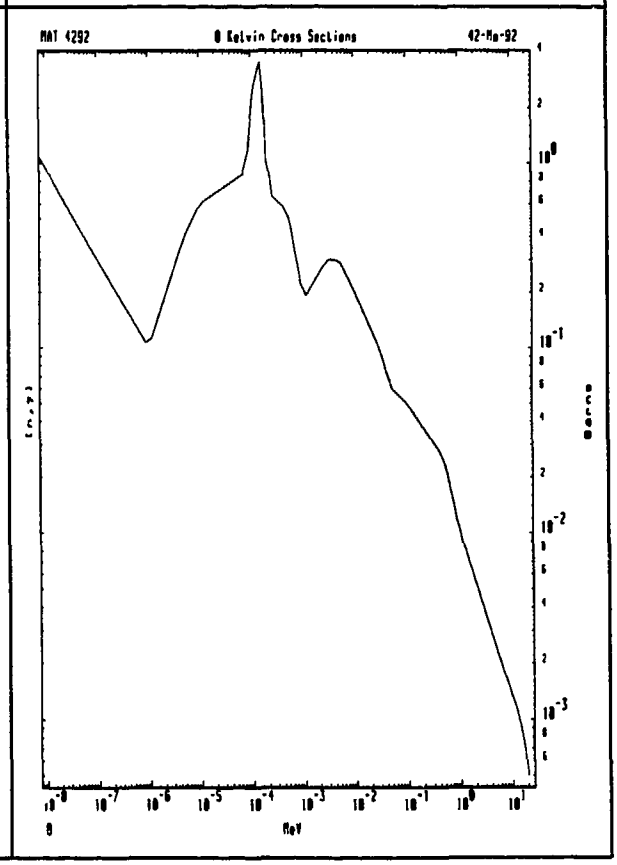

MAT 2850
0 Kelvin Cross Sections
28-Ni-58
22
MeV

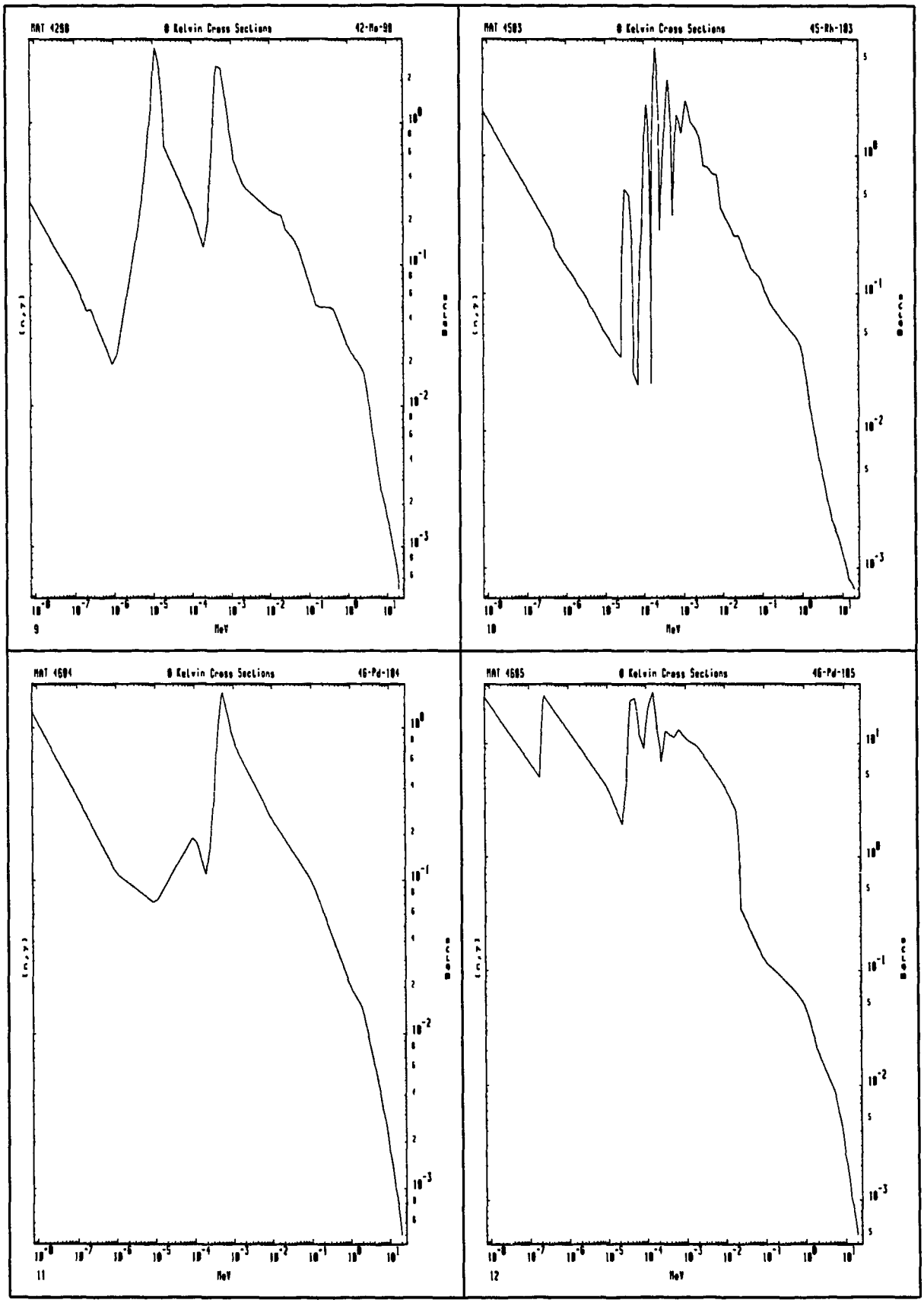

MAT 2861
0 Kelvin Cross Sections
28-Ni-61
MAT 2862
0 Kelvin Cross Sections
28-Ni-62
MAT 2963
0 Kelvin Cross Sections
29-Cu-63
MAT 3864
0 Kelvin Cross Sections
30-Zn-64
MeV
MeV
MeV
MeV

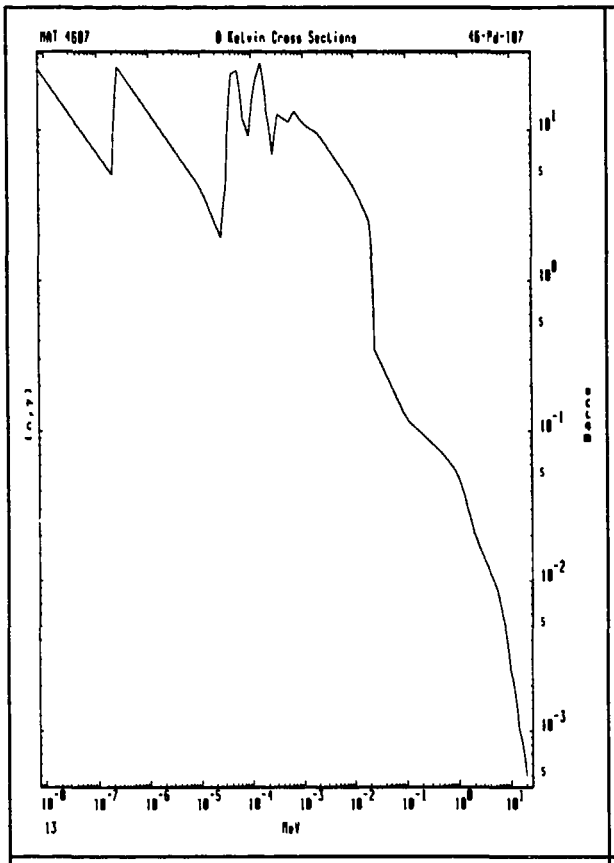

MAT 1092
0 Kelvin Cross Sections
40-Zr-92
(n,γ)
Barns
MeV
5

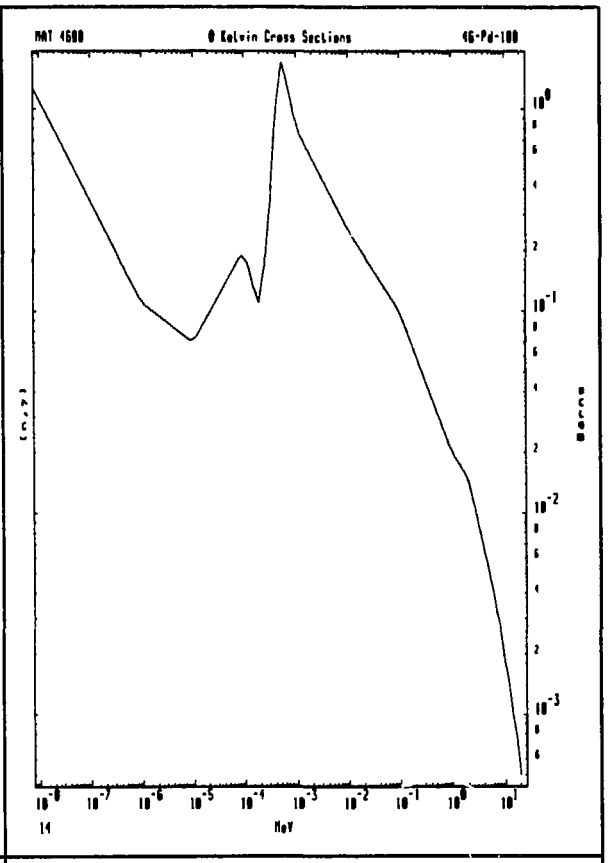

MAT 1094
0 Kelvin Cross Sections
40-Zr-94
(n,γ)
Barns
MeV
6

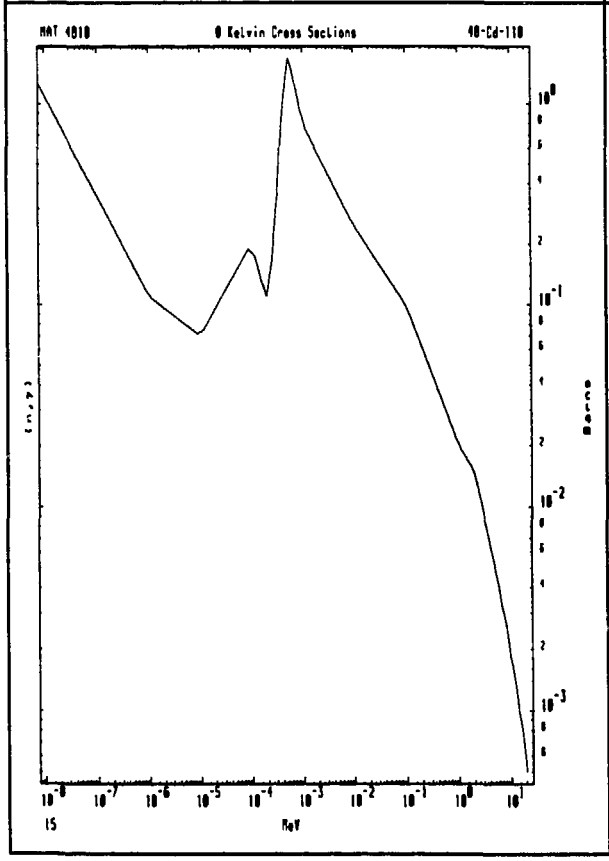

MAT 4193
0 Kelvin Cross Sections
41-Nb-93
(n,γ)
Barns
MeV
7

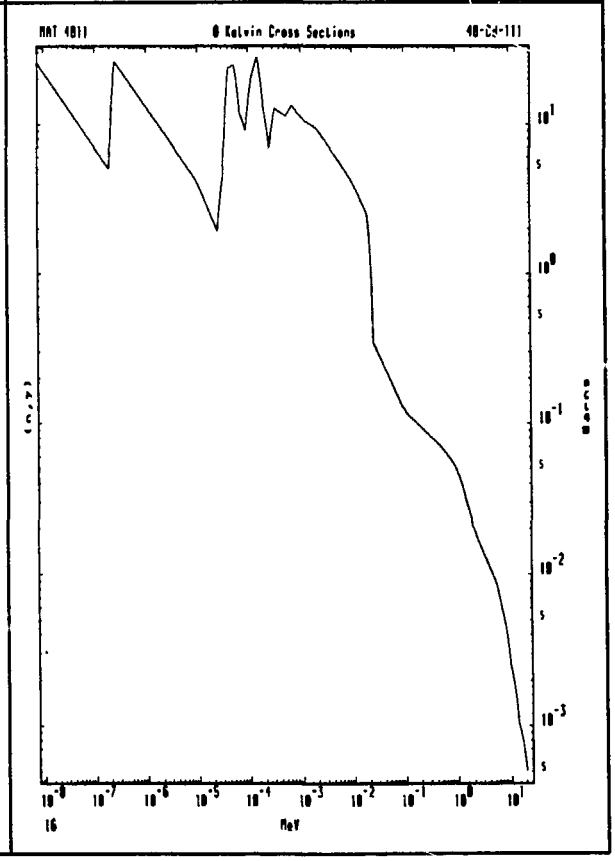

MAT 4292
0 Kelvin Cross Sections
42-Mo-92
(n,γ)
Barns
MeV
8

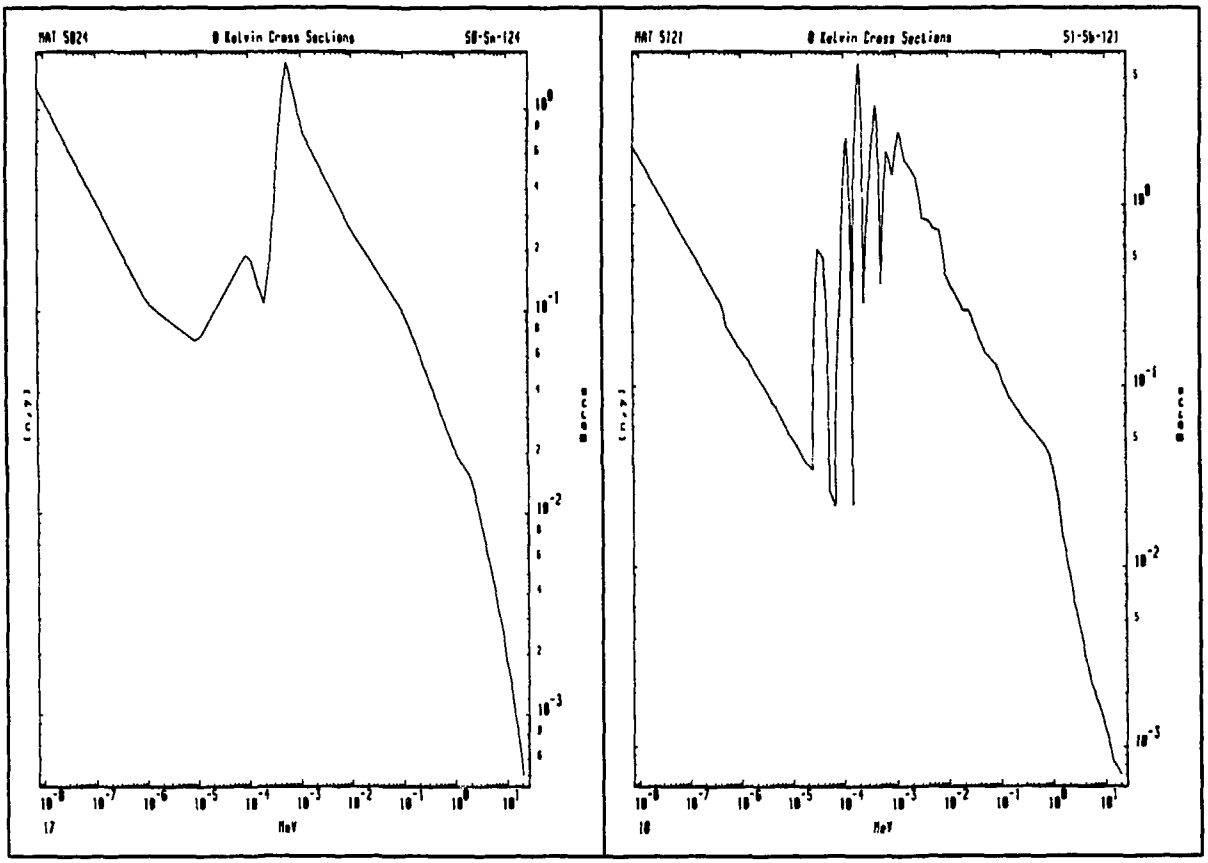

MAT 4298
0 Kelvin Cross Sections
42-Mo-98
MAT 4503
0 Kelvin Cross Sections
45-Rh-103
MAT 4604
0 Kelvin Cross Sections
46-Pd-104
MAT 4605
0 Kelvin Cross Sections
46-Pd-105
(n,γ)
Barns
MeV
9
10
11
12

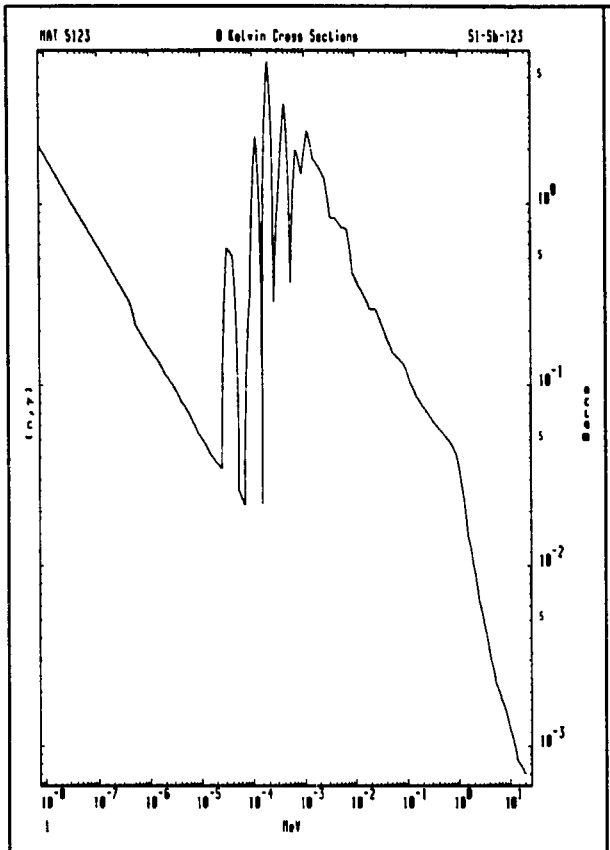

MAT 4607
0 Kelvin Cross Sections
46-Pd-107
(n,γ)
Barns
MeV
13

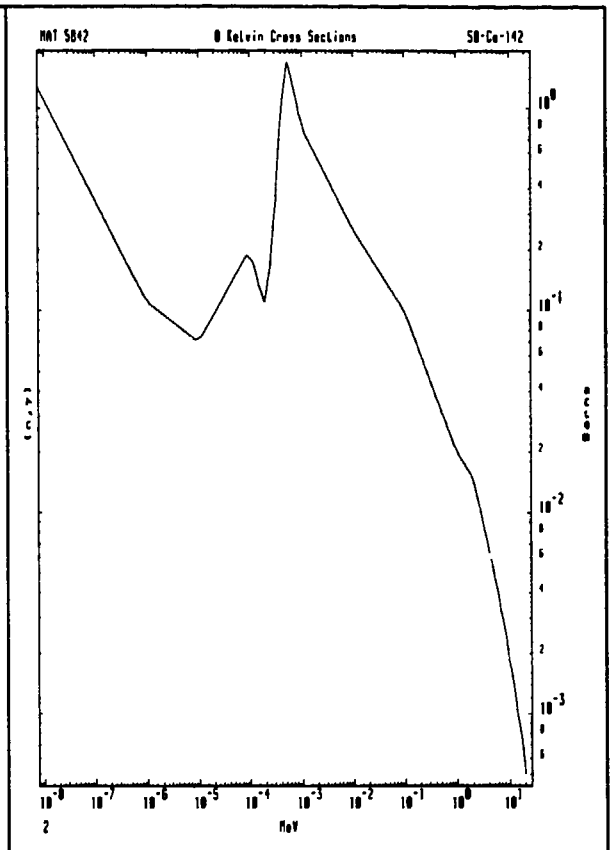

MAT 4608
0 Kelvin Cross Sections
46-Pd-108
(n,γ)
Barns
MeV
14

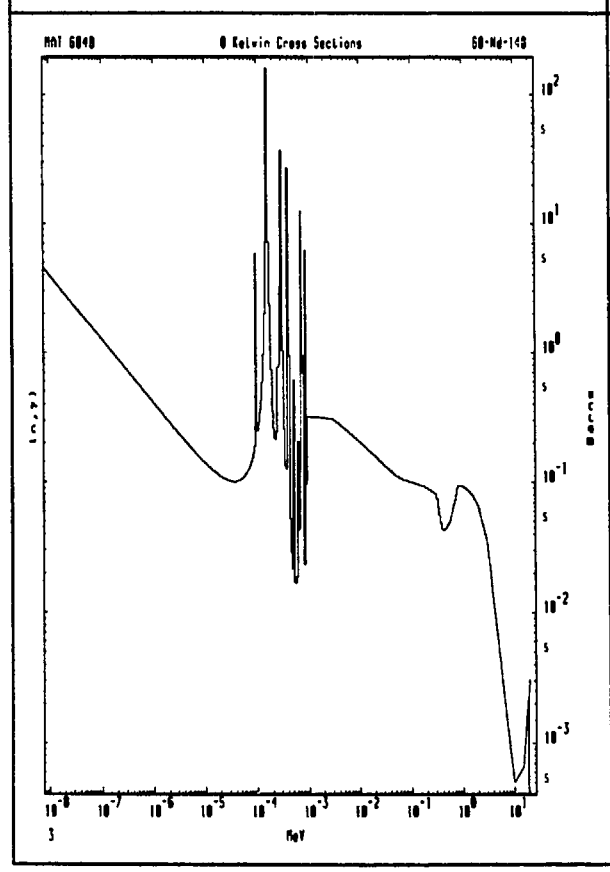

MAT 4810
0 Kelvin Cross Sections
48-Cd-110
(n,γ)
Barns
MeV
15

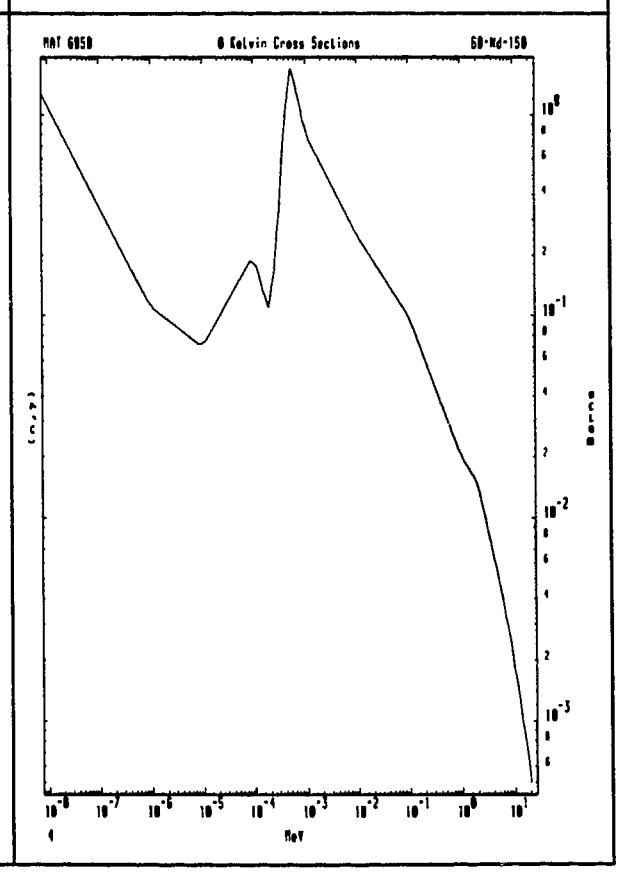

MAT 4811
0 Kelvin Cross Sections
48-Cd-111
(n,γ)
Barns
MeV
16

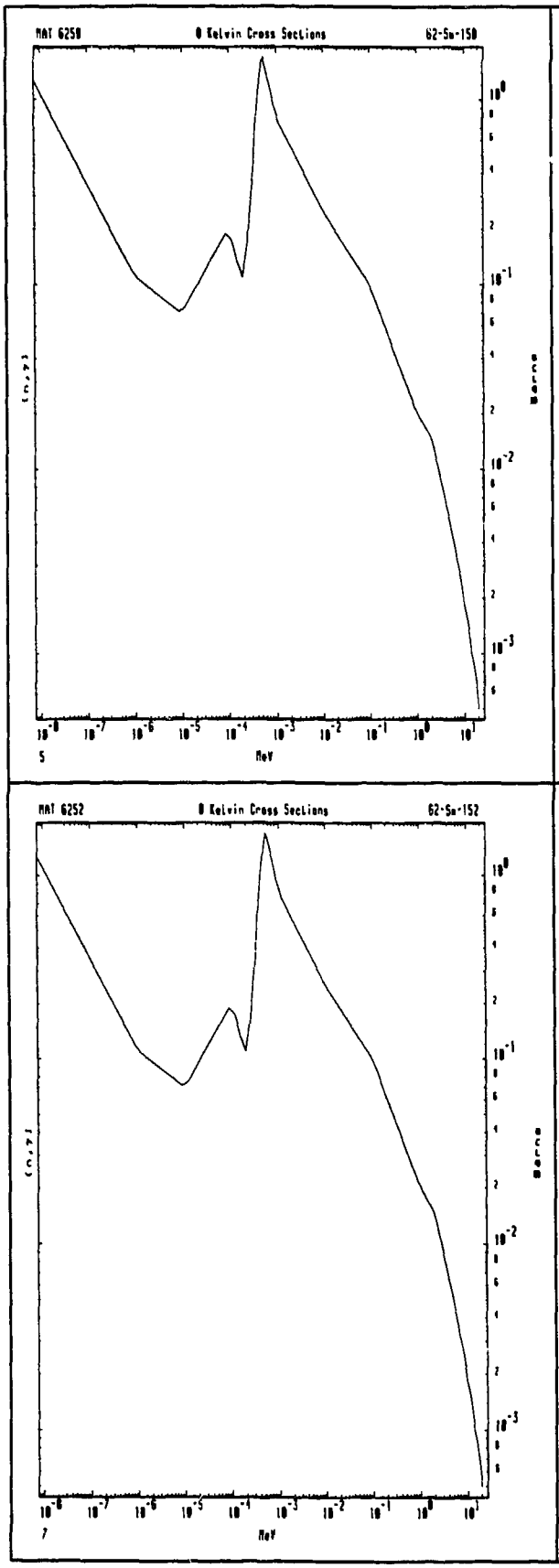

MAT 5824
0 Kelvin Cross Sections
58-Sm-124
MeV
MAT 5121
0 Kelvin Cross Sections
51-Sb-121
MeV

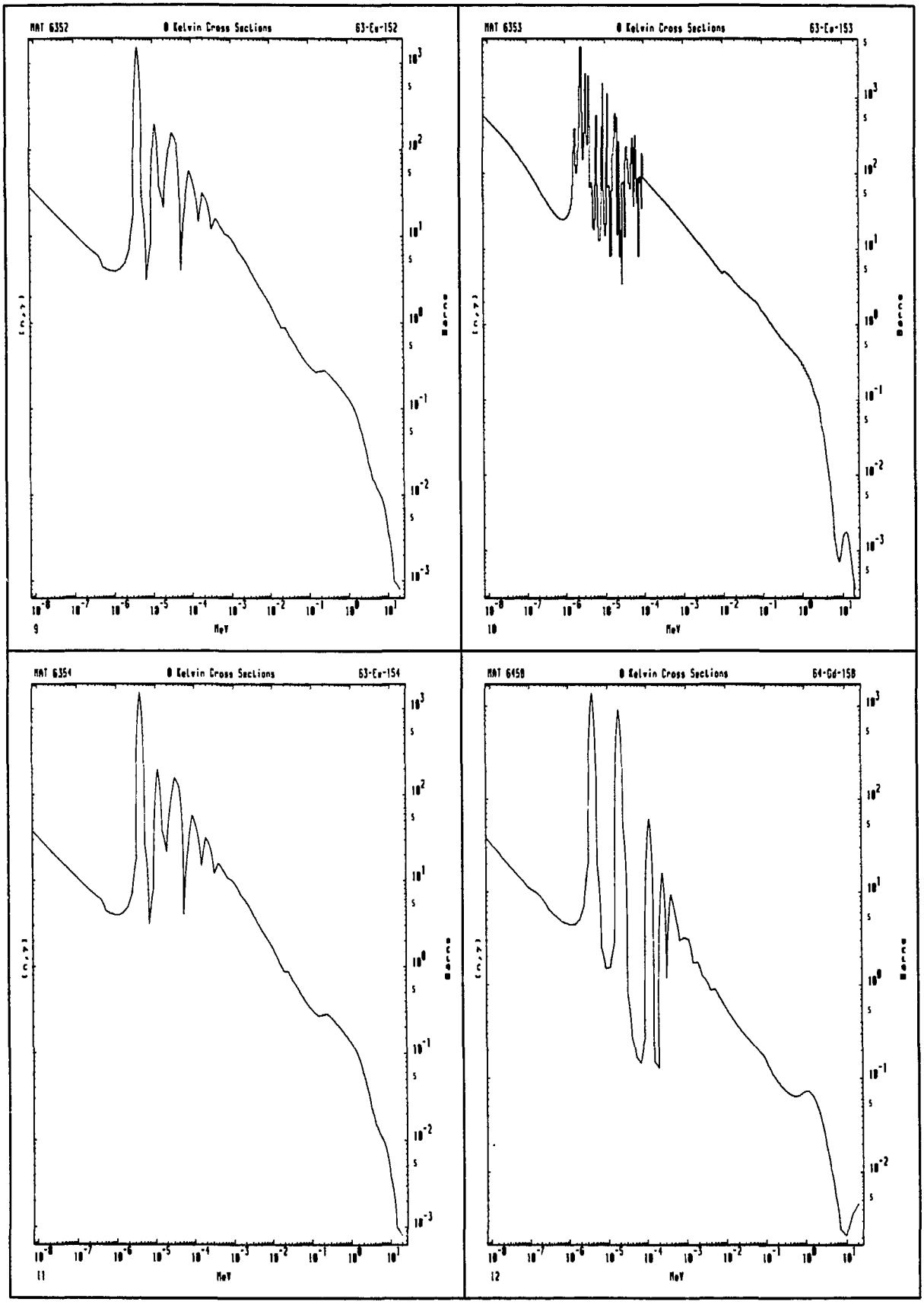

MAT 5123
0 Kelvin Cross Sections
51-Sb-123
(n,γ)
Barns
MeV
1


MAT 5842
0 Kelvin Cross Sections
58-Ce-142
(n,γ)
Barns
MeV
2

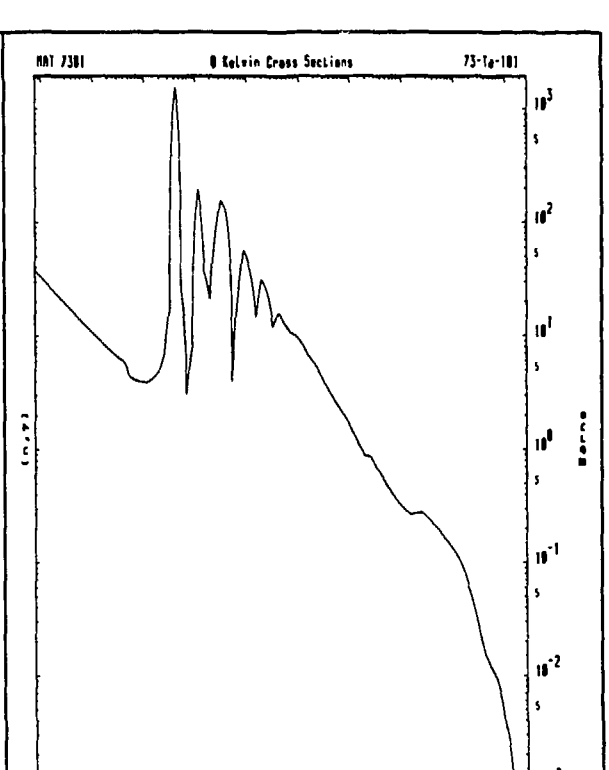

MAT 6040
0 Kelvin Cross Sections
60-Nd-148
(n,γ)
Barns
MeV
3

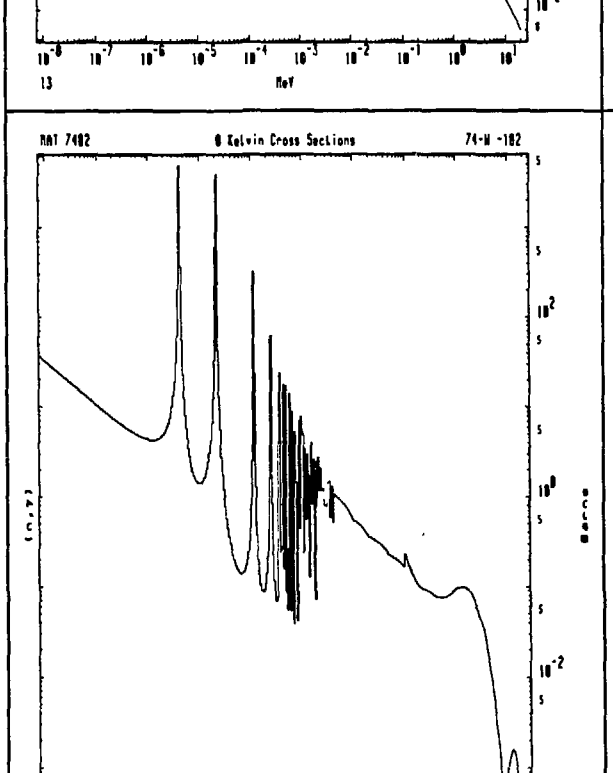

MAT 6050
0 Kelvin Cross Sections
60-Nd-150
(n,γ)
Barns
MeV
4

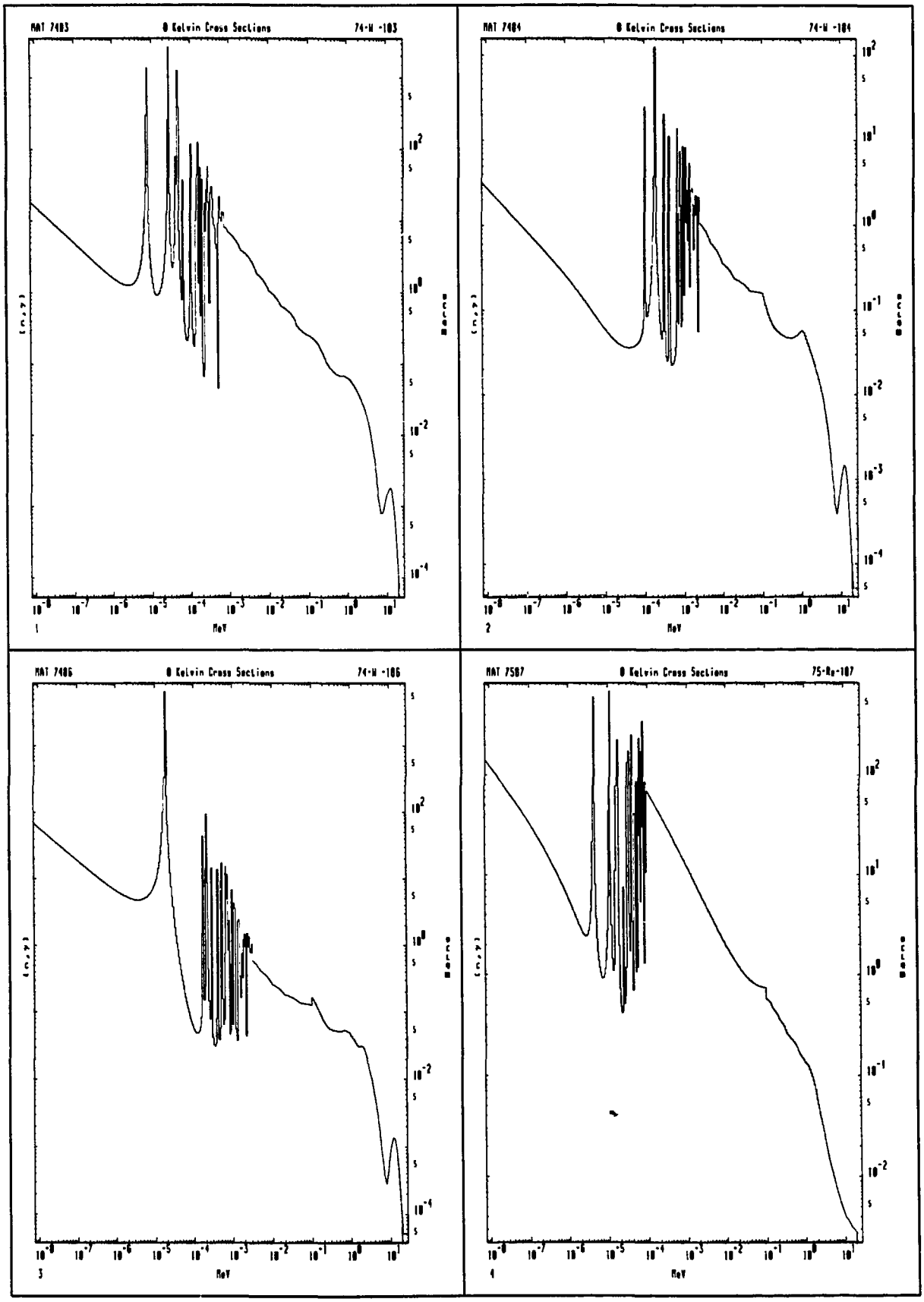

MAT 6250
0 Kelvin Cross Sections
62-Sm-150
MAT 6251
0 Kelvin Cross Sections
62-Sm-151
MAT 6252
0 Kelvin Cross Sections
62-Sm-152
MAT 6351
0 Kelvin Cross Sections
63-Eu-151
MeV
Barns

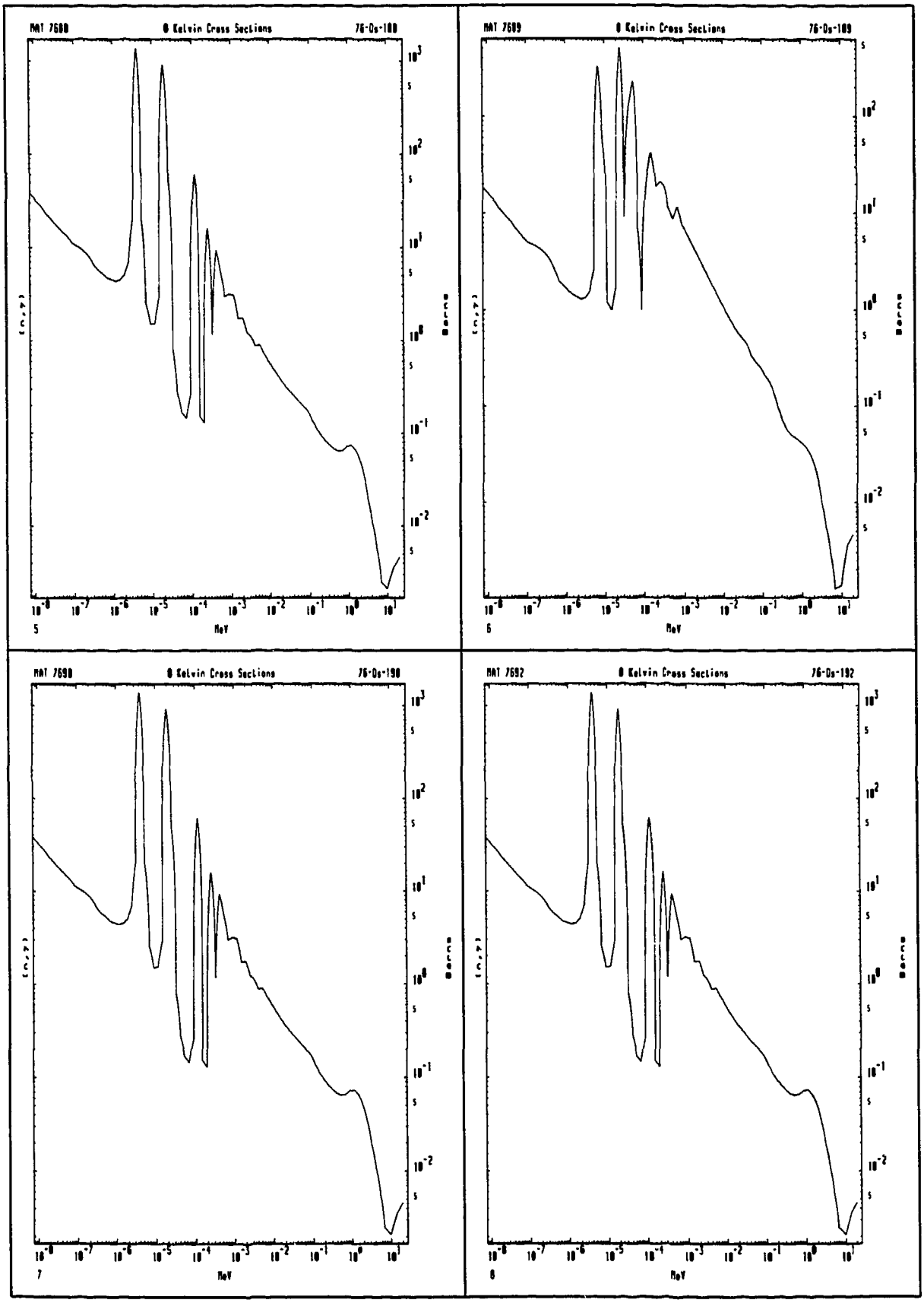

MAT 6352
0 Kelvin Cross Sections
63-Eu-152
MAT 6353
0 Kelvin Cross Sections
63-Eu-153
MAT 6354
0 Kelvin Cross Sections
63-Eu-154
MAT 6458
0 Kelvin Cross Sections
64-Gd-158
MeV
9
10
11
12

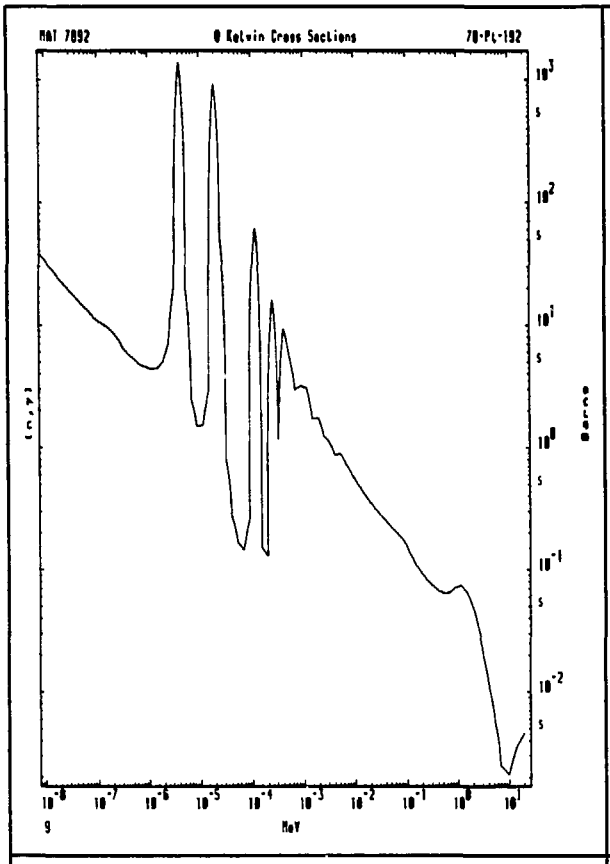

MAT 7280
0 Kelvin Cross Sections
72-Hf-180
(n,γ)
Barns
13
MeV

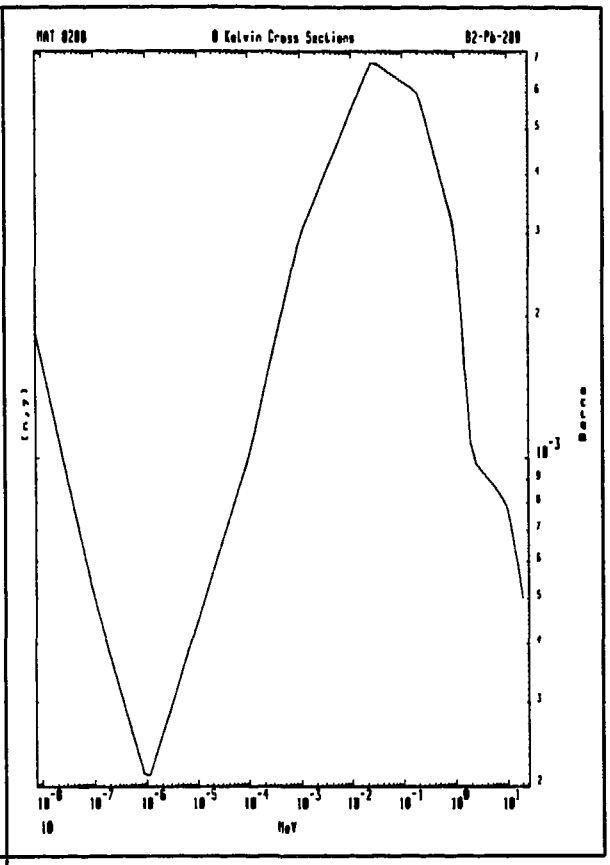

MAT 7381
0 Kelvin Cross Sections
73-Ta-181
(n,γ)
Barns
14
MeV

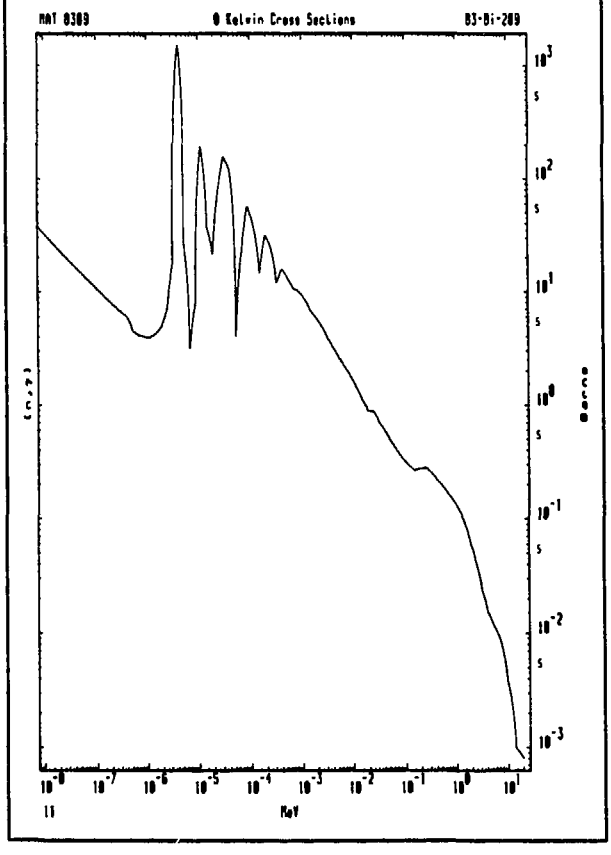

MAT 7482
0 Kelvin Cross Sections
74-W -182
(n,γ)
Barns
15
MeV


MAT 7483
0 Kelvin Cross Sections
74-W -183
MAT 7484
0 Kelvin Cross Sections
74-W -184
MAT 7486
0 Kelvin Cross Sections
74-W -186
MAT 7587
0 Kelvin Cross Sections
75-Re-187
(n,γ)
Barns
MeV
1
2
3
4

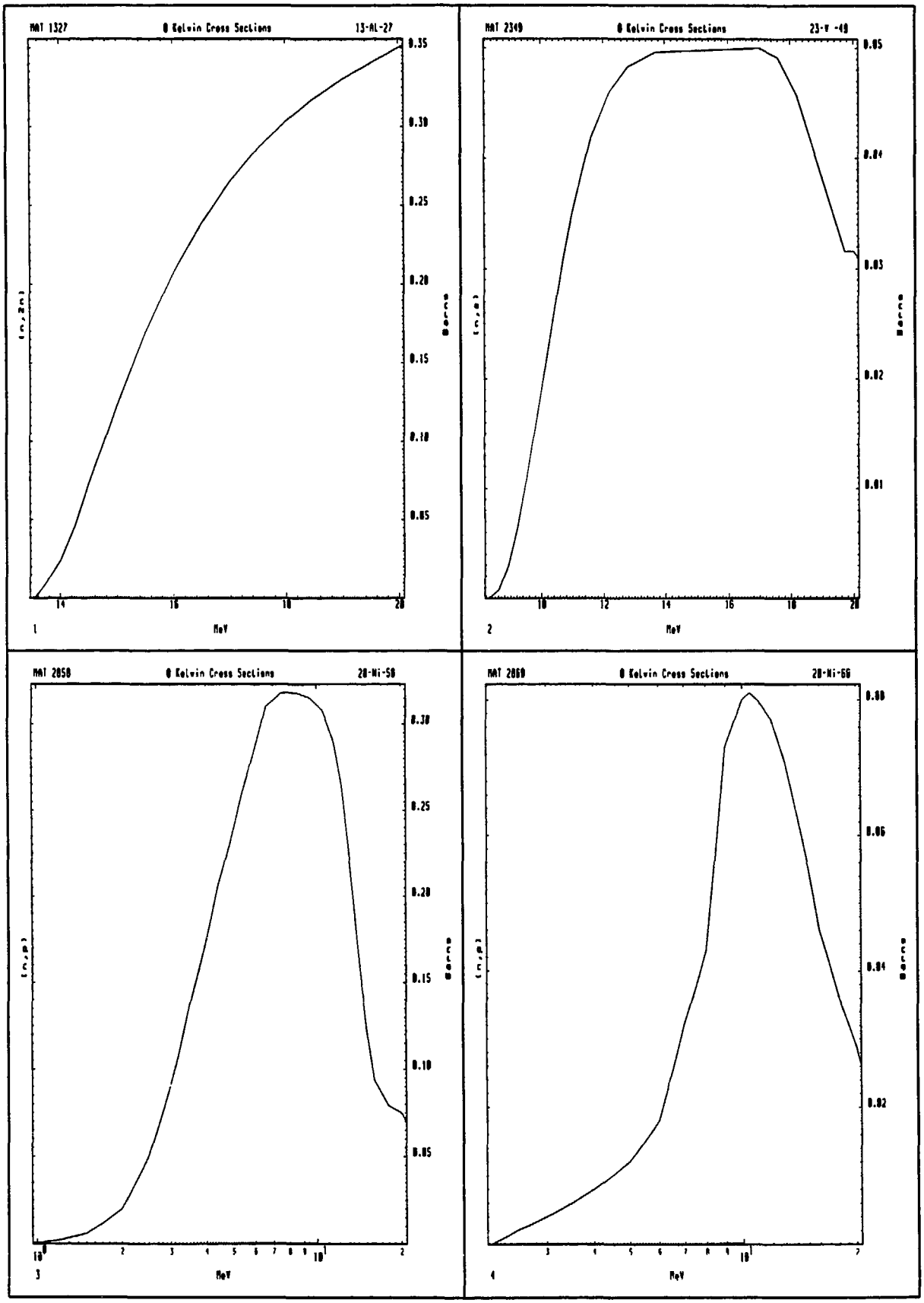

MAT 7688
0 Kelvin Cross Sections
76-Dec-188
MAT 7689
0 Kelvin Cross Sections
76-Dec-189
MAT 7690
0 Kelvin Cross Sections
76-Dec-190
MAT 7692
0 Kelvin Cross Sections
76-Dec-192
(n,γ)
Barns
MeV
5
6
7
8

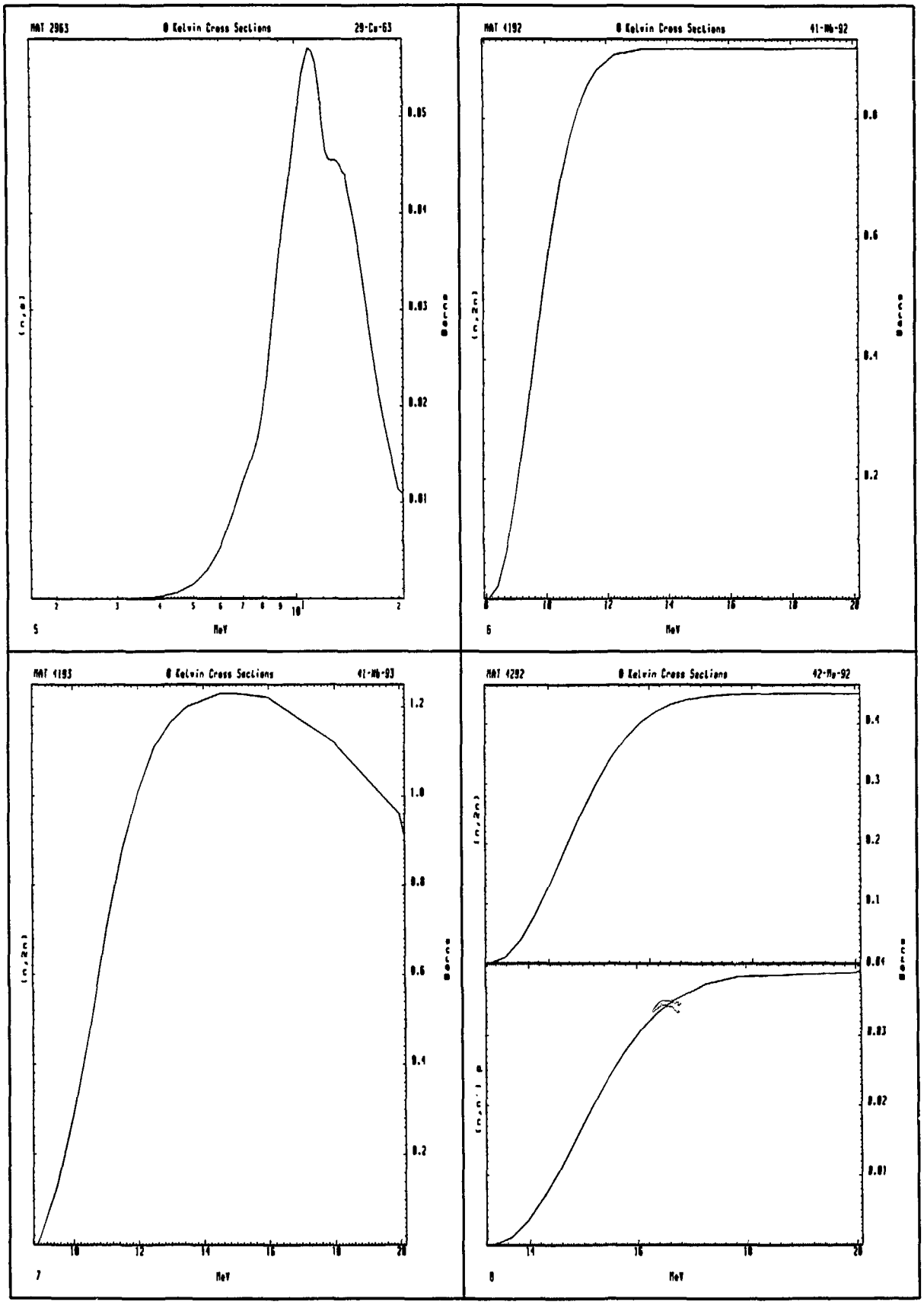

MAT 7892
0 Kelvin Cross Sections
78-Pt-192
(n,γ)
Barns
MeV
9

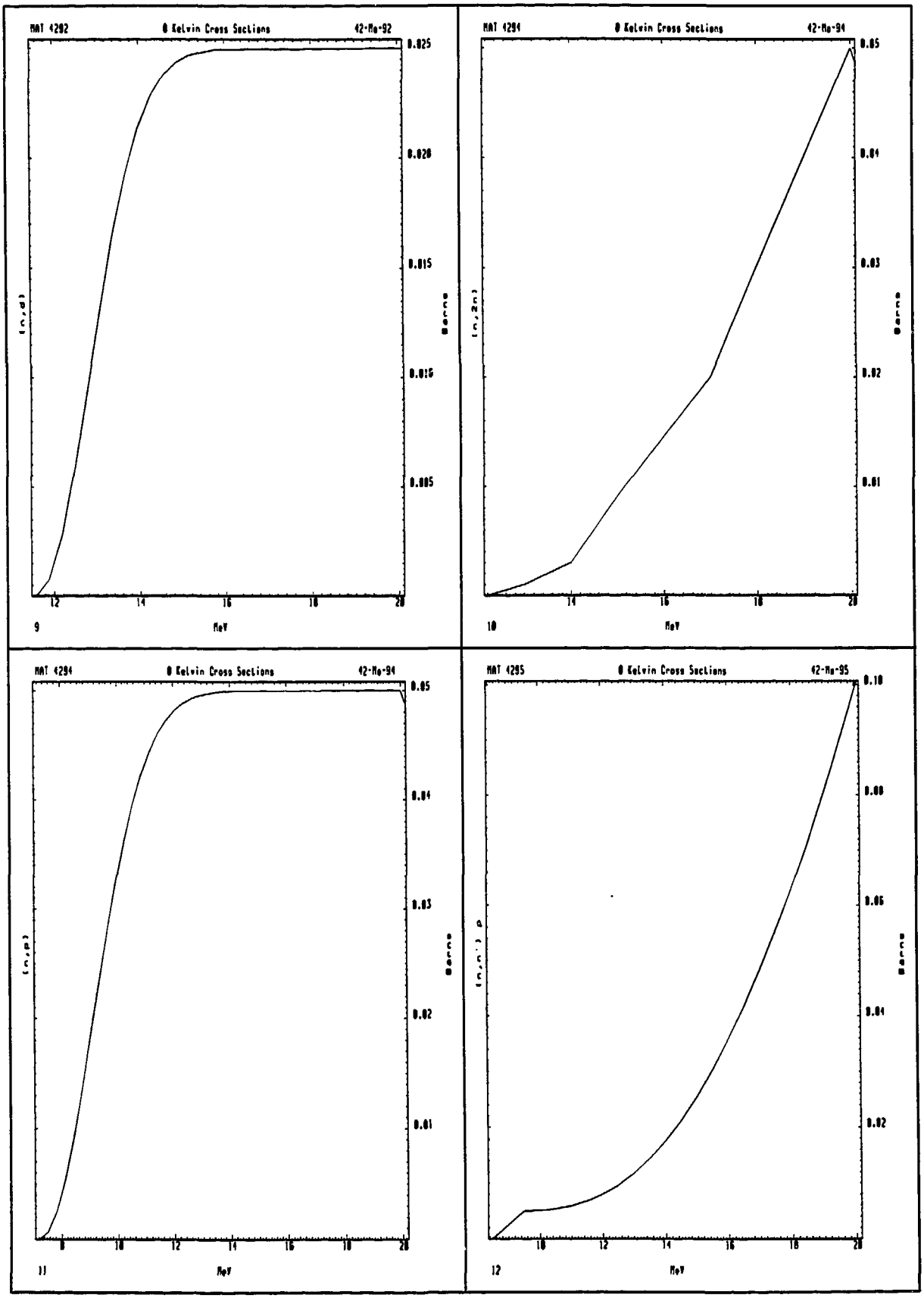

MAT 8288
0 Kelvin Cross Sections
82-Pb-208
(n,γ)
Barns
MeV
10

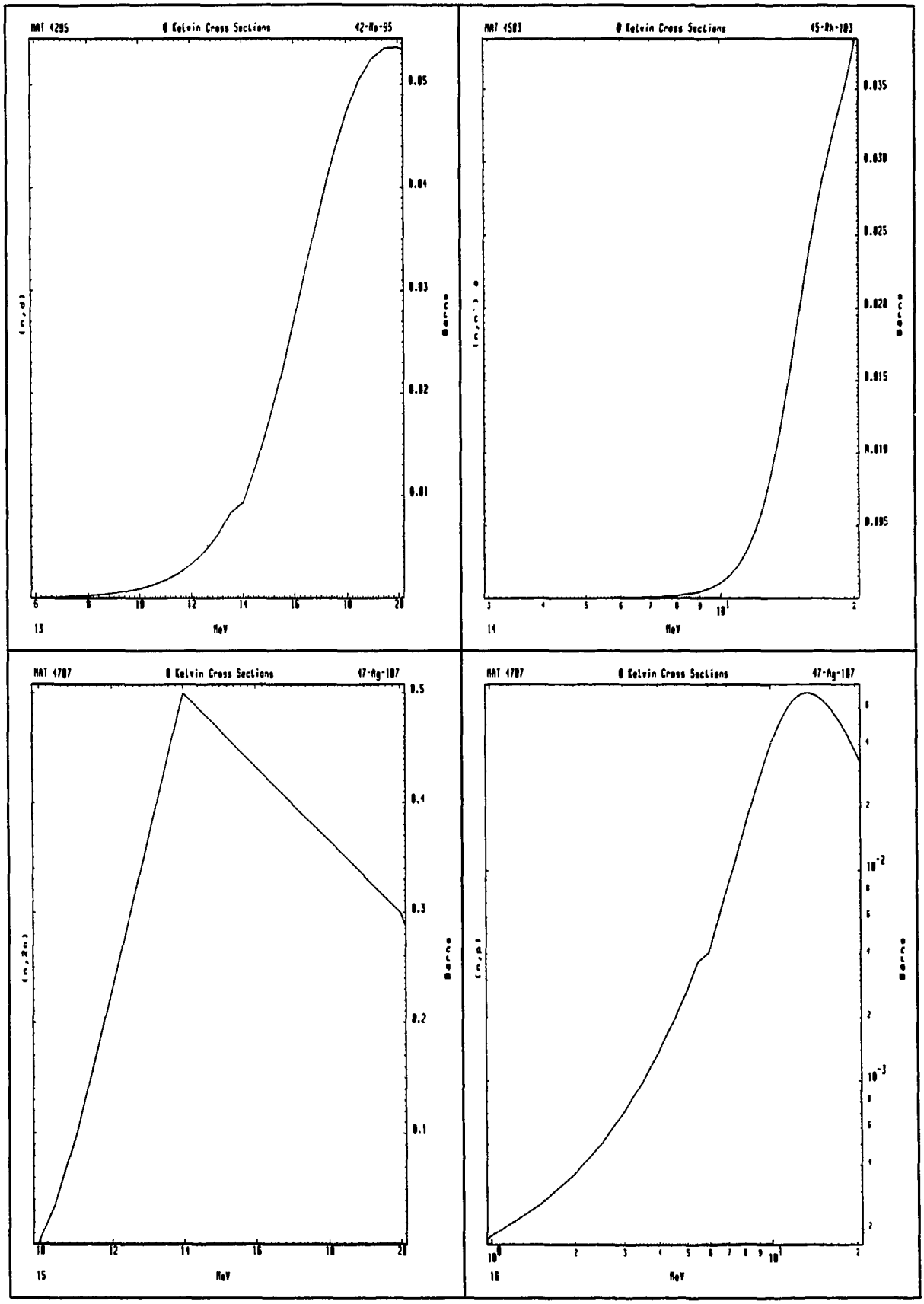

MAT 8389
0 Kelvin Cross Sections
83-Bi-209
(n,γ)
Barns
MeV
11

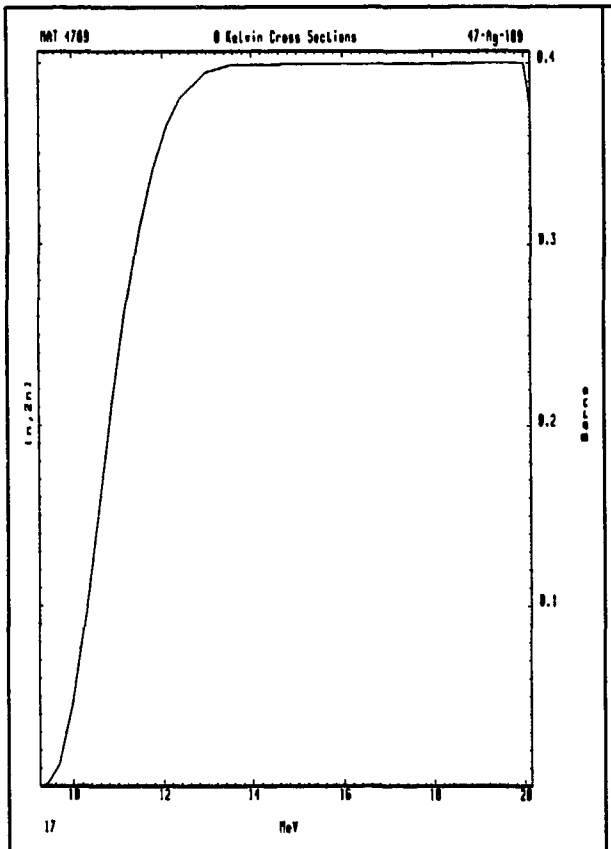
PART 3. Plots of reaction cross sections into isomeric states.

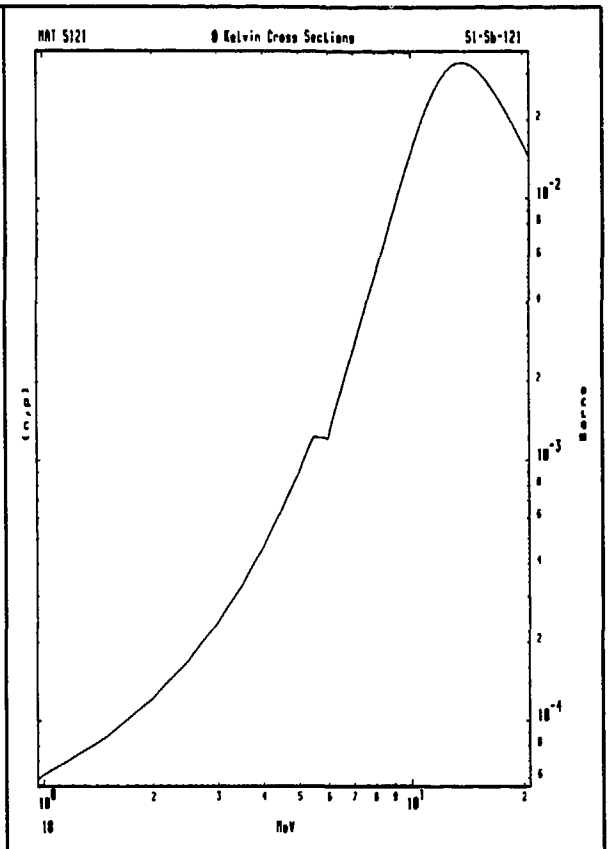

MAT 1327
0 Kelvin Cross Sections
13-AL-27
(n,2n)
Barns
0.35
0.30
0.25
0.20
0.15
0.10
0.05
14
16
18
20
1
MeV
MAT 2349
0 Kelvin Cross Sections
23-V -49
(n,p)
Barns
0.05
0.04
0.03
0.02
0.01
10
12
14
16
18
20
2
MeV
MAT 2850
0 Kelvin Cross Sections
28-Ni-58
(n,p)
Barns
0.30
0.25
0.20
0.15
0.10
0.05
10
2
3
4
5
6
7
8
9
10
2
3
MeV
MAT 2860
0 Kelvin Cross Sections
28-Ni-60
(n,p)
Barns
0.08
0.06
0.04
0.02
3
4
5
6
7
8
9
10
7
4
MeV

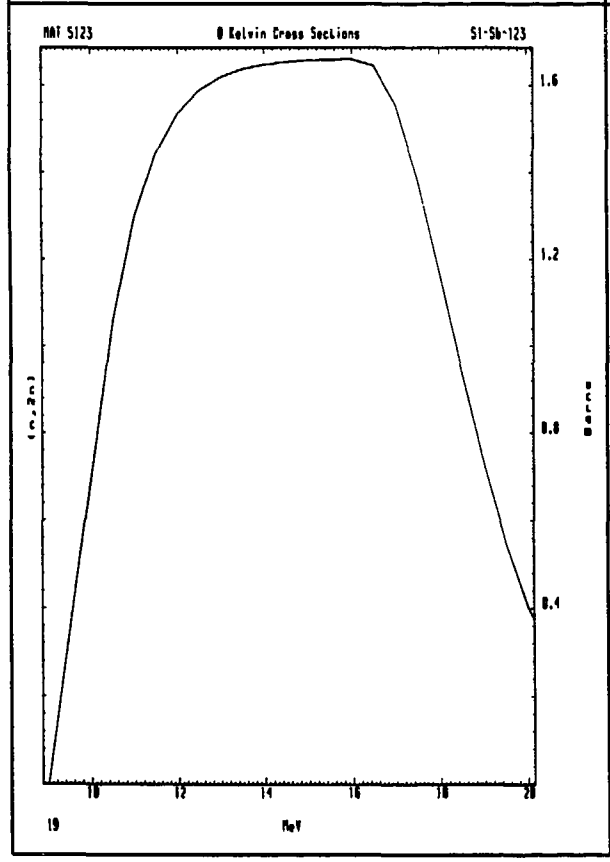

MAT 2963
0 Kelvin Cross Sections
29-Cu-63
(n,α)
Barns
0.05
0.04
0.03
0.02
0.01
2
3
4
5
6
7
8
9
10
2
5
MeV
MAT 4192
0 Kelvin Cross Sections
41-Nb-92
(n,2n)
Barns
0.8
0.6
0.4
0.2
8
10
12
14
16
18
20
6
MeV
MAT 4193
0 Kelvin Cross Sections
41-Nb-93
(n,2n)
Barns
1.2
1.0
0.8
0.6
0.4
0.2
10
12
14
16
18
20
7
MeV
MAT 4292
0 Kelvin Cross Sections
42-Mo-92
(n,2n)
(n,n'1)
Barns
0.4
0.3
0.2
0.1
0.04
0.03
0.02
0.01
14
16
18
20
8
MeV

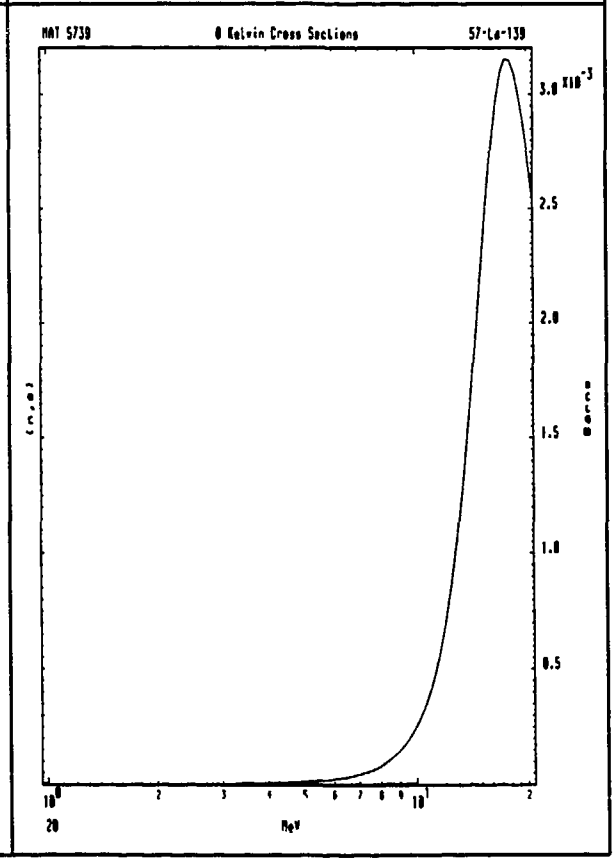

MAT 4292
0 Kelvin Cross Sections
42-Mo-92
(n,d)
Barns
0.025
0.020
0.015
0.010
0.005
12
14
16
18
20
9
MeV
MAT 4294
0 Kelvin Cross Sections
42-Mo-94
(n,2n)
Barns
0.05
0.04
0.03
0.02
0.01
14
16
18
20
10
MeV
MAT 4294
0 Kelvin Cross Sections
42-Mo-94
(n,p)
Barns
0.05
0.04
0.03
0.02
0.01
8
10
12
14
16
18
20
11
MeV
MAT 4295
0 Kelvin Cross Sections
42-Mo-95
(n,n')
Barns
0.10
0.08
0.06
0.04
0.02
10
12
14
16
18
20
12
MeV

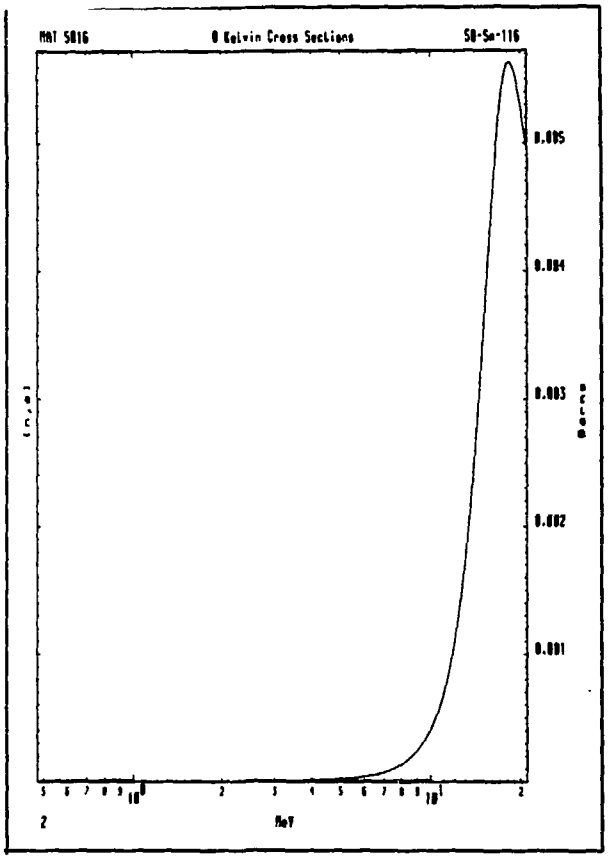

MAT 4295
0 Kelvin Cross Sections
42-Mo-95
0.05
0.04
0.03
0.02
0.01
Barns
13
MeV
MAT 4583
0 Kelvin Cross Sections
45-Rh-103
0.035
0.030
0.025
0.020
0.015
0.010
0.005
Barns
14
MeV
MAT 4707
0 Kelvin Cross Sections
47-Ag-107
0.5
0.4
0.3
0.2
0.1
Barns
15
MeV
MAT 4707
0 Kelvin Cross Sections
47-Ag-107
Barns
16
MeV

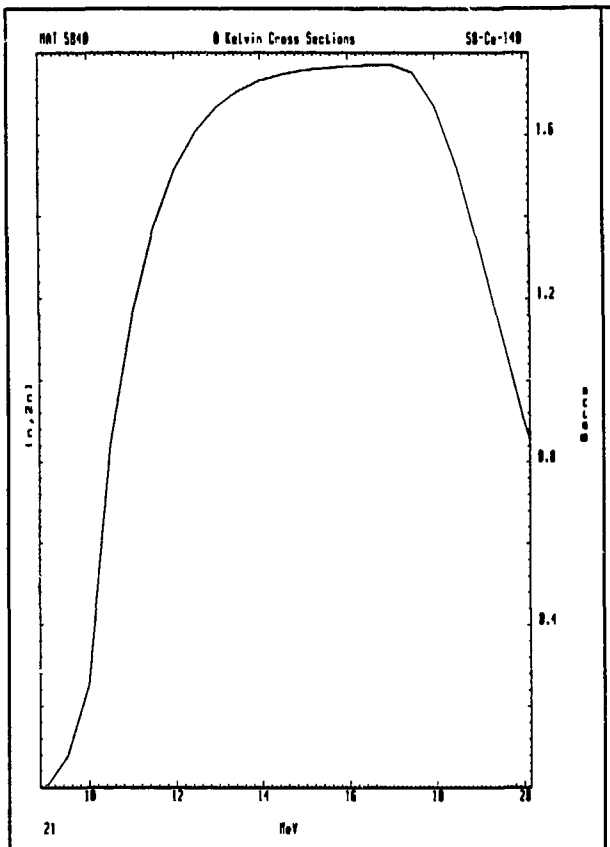

MAT 4709
0 Kelvin Cross Sections
47-Ag-109
(n,2n)
Barns
0.4
0.3
0.2
0.1
10
12
14
16
18
20
17
MeV

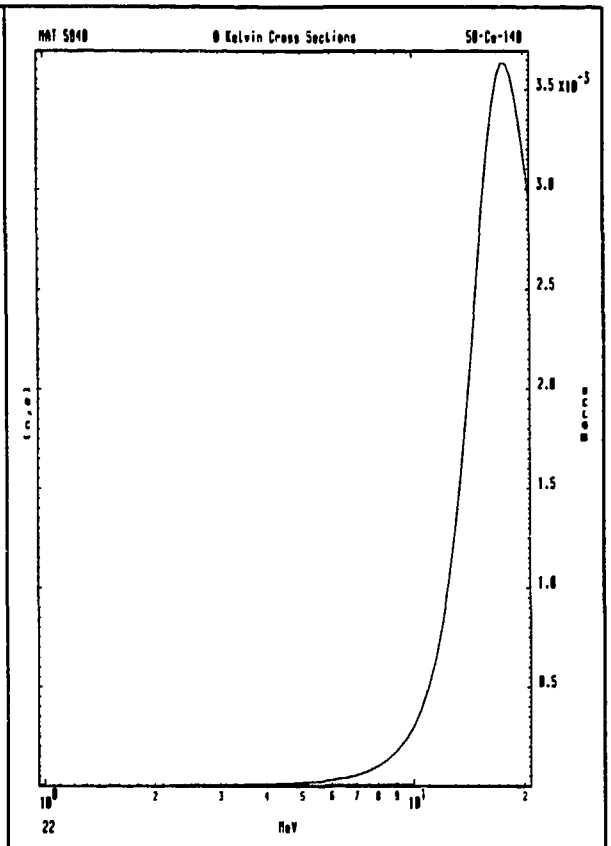

MAT 5121
0 Kelvin Cross Sections
51-Sb-121
(n,p)
Barns
10^{-2}
10^{-3}
10^{-4}
10^{0}
10^{1}
2
3
4
5
6
7
8
9
18
MeV

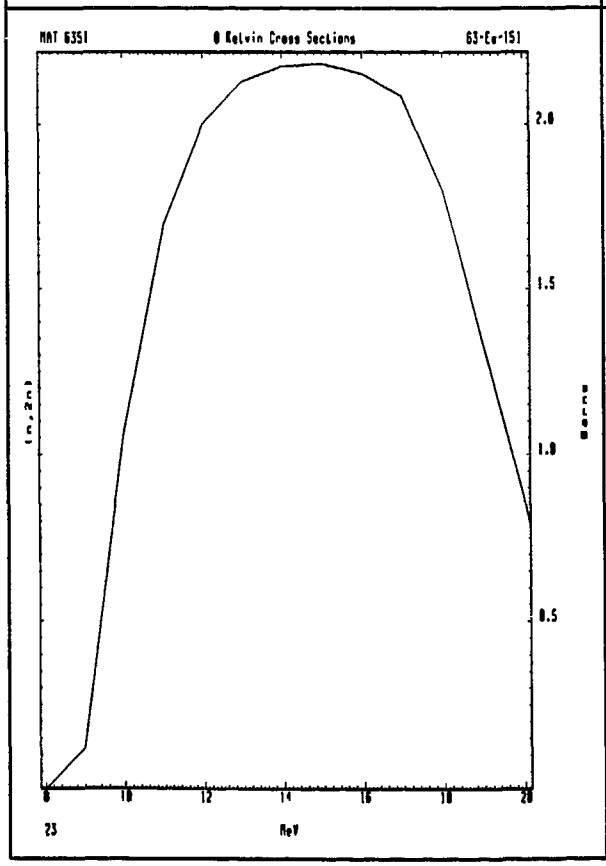

MAT 5123
0 Kelvin Cross Sections
51-Sb-123
(n,2n)
Barns
1.6
1.2
0.8
0.4
10
12
14
16
18
20
19
MeV

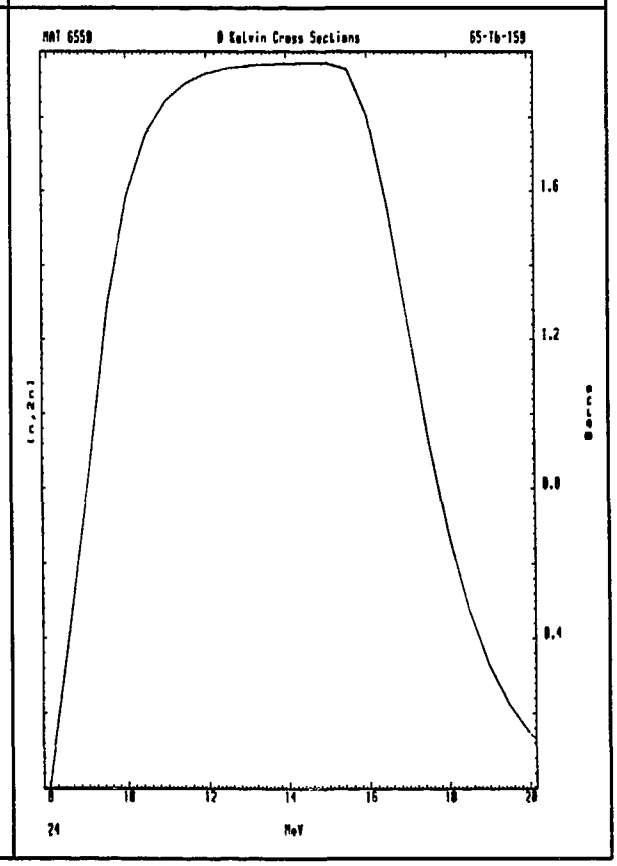

MAT 5739
0 Kelvin Cross Sections
57-La-139
(n,g)
Barns
X10^{-3}
3.0
2.5
2.0
1.5
1.0
0.5
10^{0}
10^{1}
2
3
4
5
6
7
8
9
20
MeV

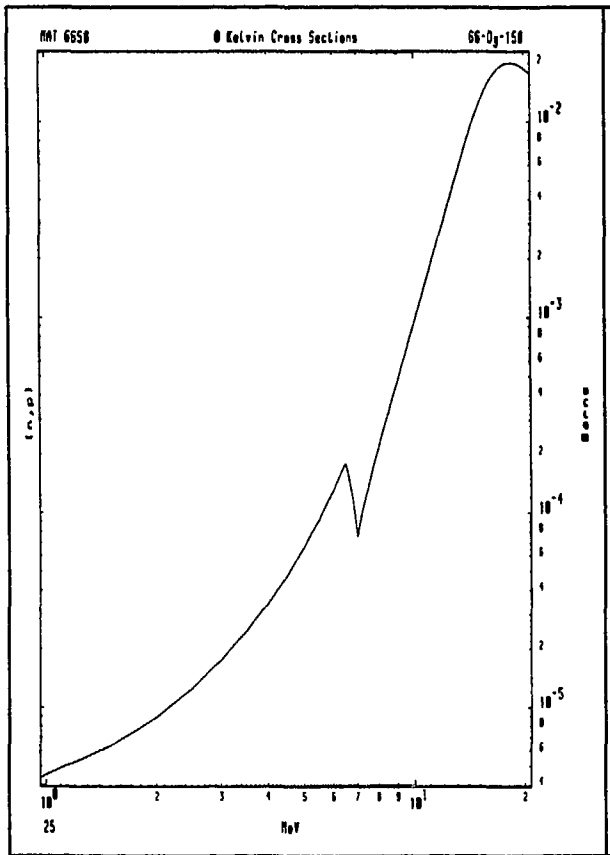

MAT 5816
0 Kelvin Cross Sections
50-Sn-116
0.005
0.004
0.003
0.002
0.001
(n,el)
barns
2
MeV

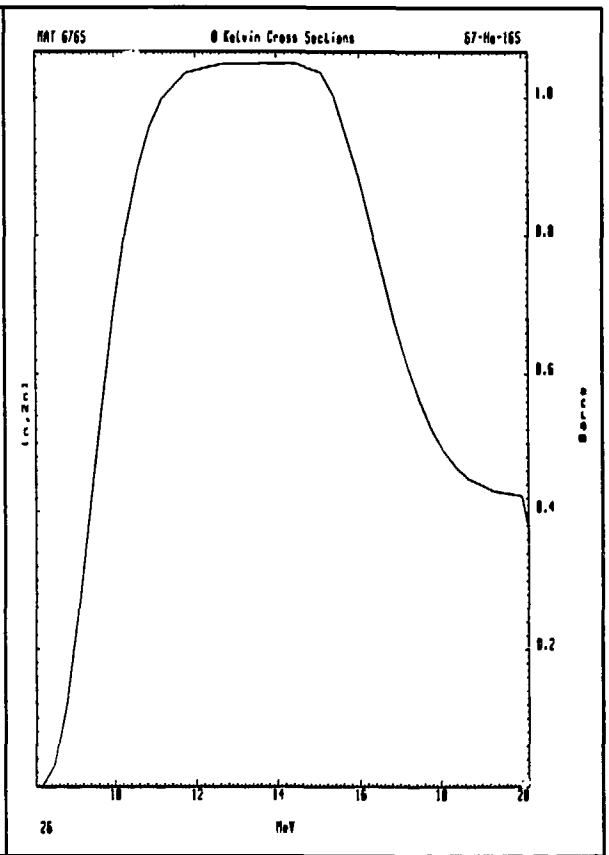

MAT 5840
0 Kelvin Cross Sections
50-Sn-140
(n,2n)
Barns
1.6
1.2
0.8
0.4
10
12
14
16
18
20
21
MeV

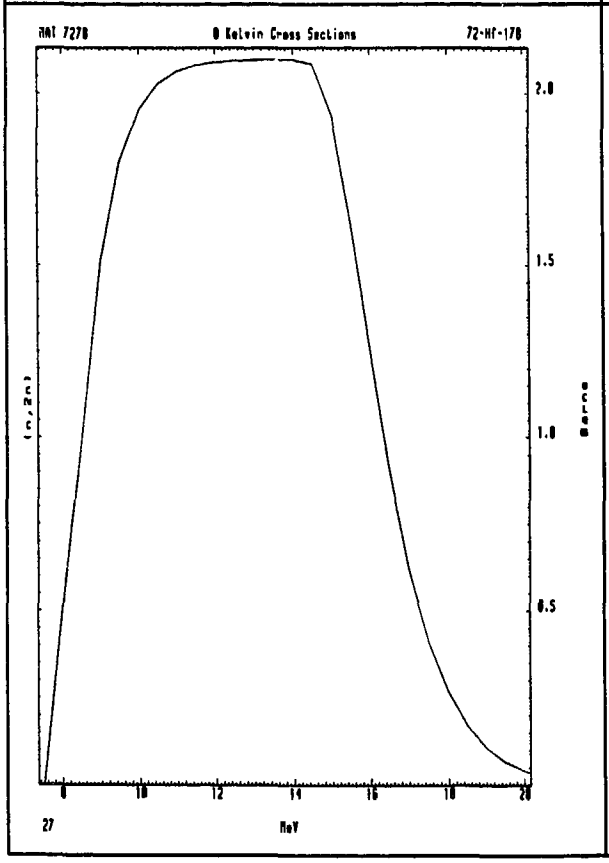

MAT 5840
0 Kelvin Cross Sections
50-Sn-140
(n,g)
Barns
3.5 x10-3
3.0
2.5
2.0
1.5
1.0
0.5
10
2
3
4
5
6
7
8
9
10
2
22
MeV

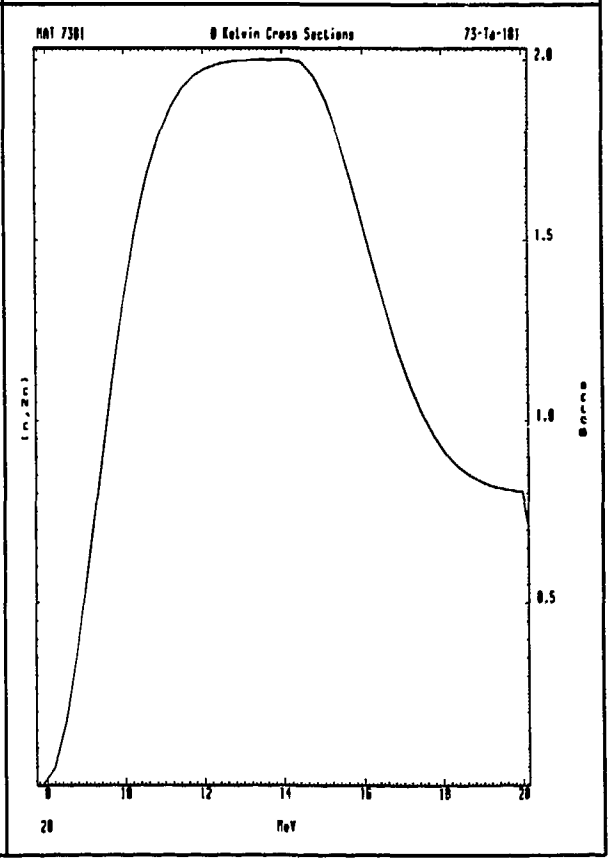

MAT 6351
0 Kelvin Cross Sections
63-Eu-151
(n,2n)
Barns
2.0
1.5
1.0
0.5
10
12
14
16
18
20
23
MeV

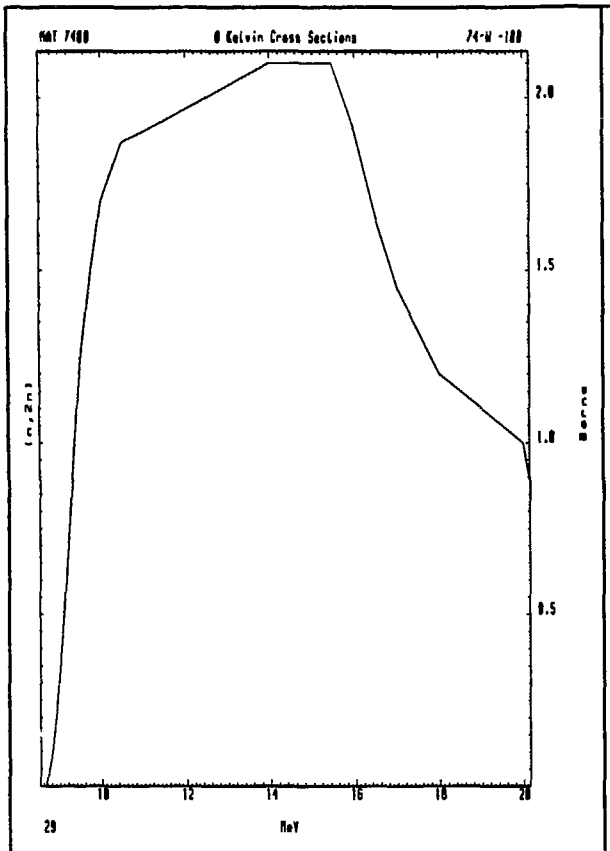

MAT 6550
0 Kelvin Cross Sections
65-Tb-159
(n,2n)
Barns
1.6
1.2
0.8
0.4
10
12
14
16
18
20
24
MeV

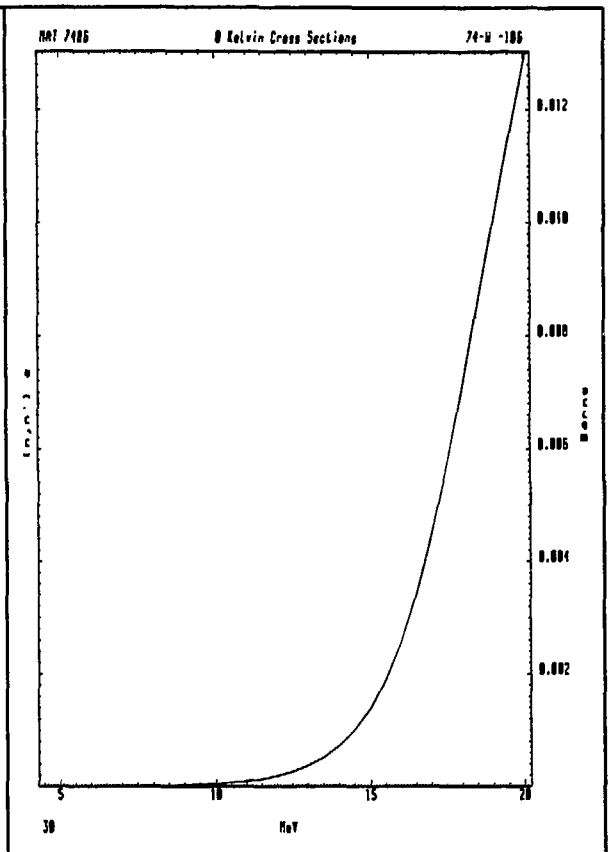

MAT 6658
0 Kelvin Cross Sections
66-Dy-158
(n,g)
Barns
MeV
25

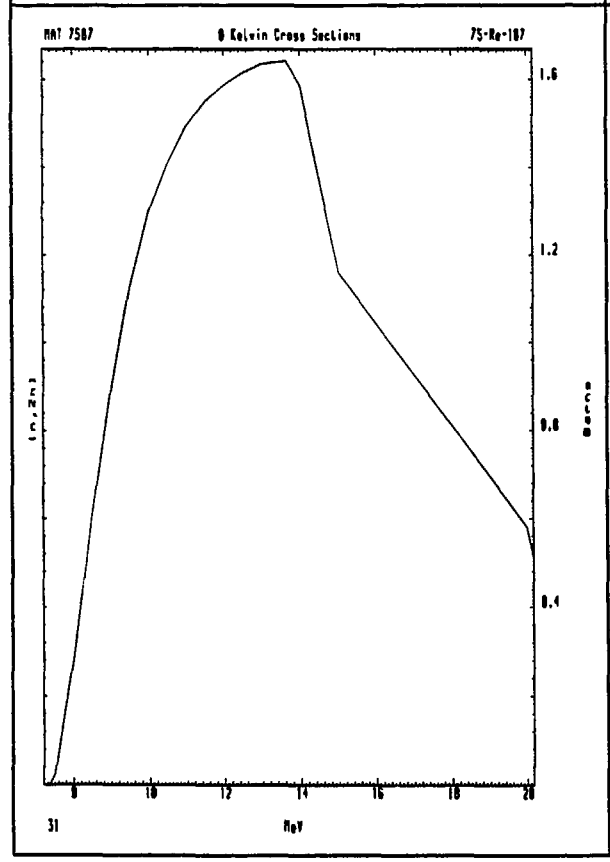

MAT 6765
0 Kelvin Cross Sections
67-Ho-165
(n,2n)
Barns
MeV
26

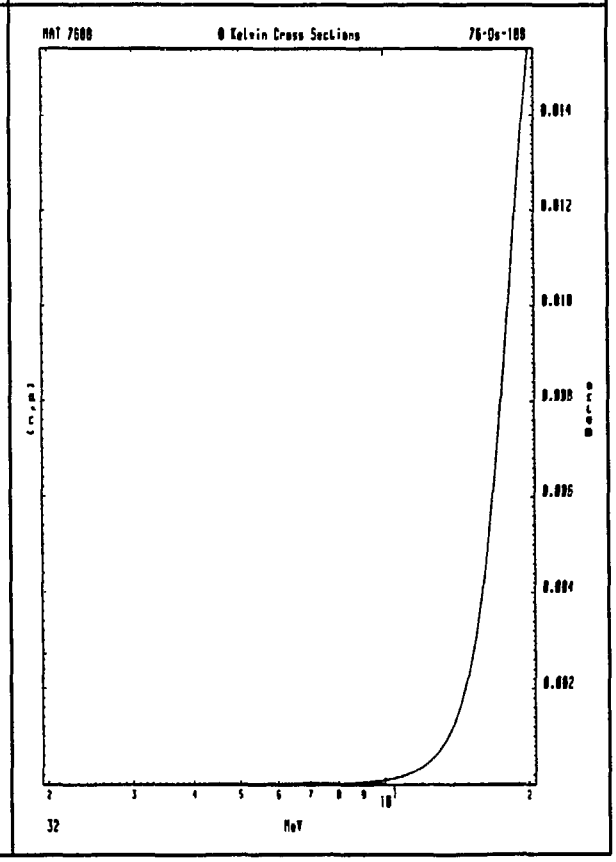

MAT 7278
0 Kelvin Cross Sections
72-Hf-178
(n,2n)
Barns
MeV
27

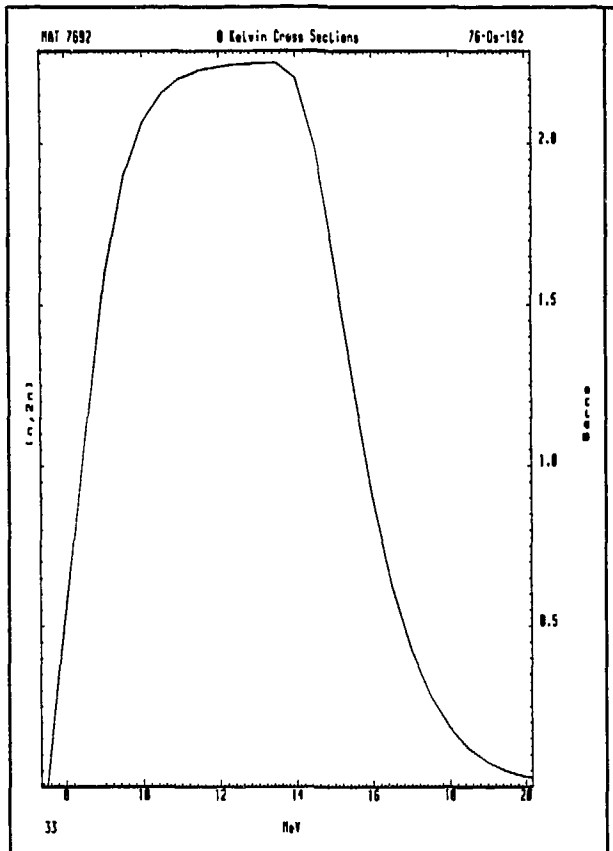

MAT 7381
0 Kelvin Cross Sections
73-Ta-181
(n,2n)
Barns
MeV
28

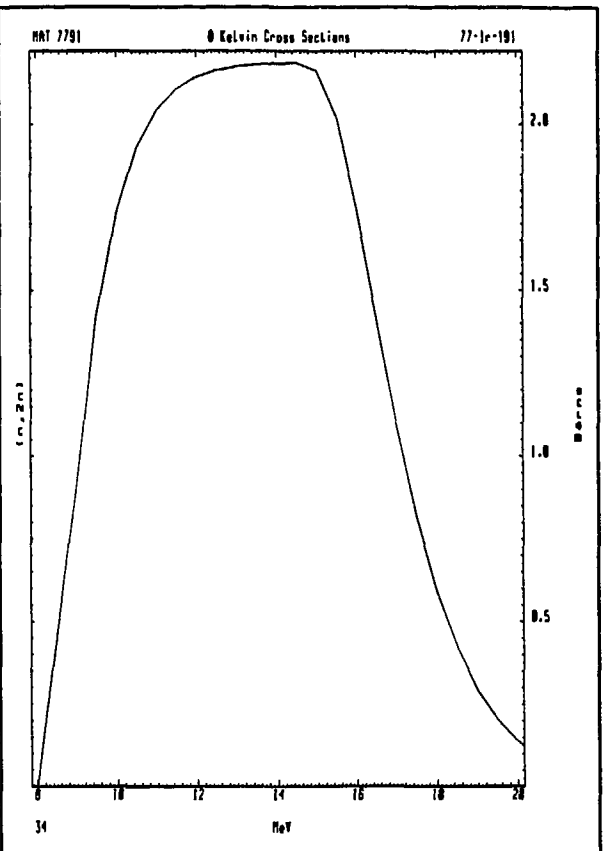

MAT 7488
0 Kelvin Cross Sections
74-W -188
(n,2n)
Barns
2.0
1.5
1.0
0.5
10
12
14
16
18
20
29
MeV

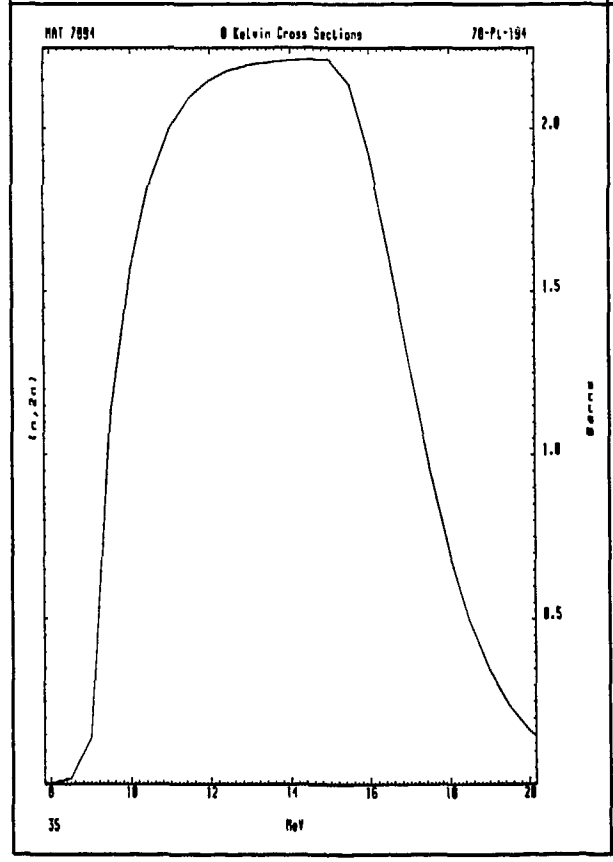

MAT 7486
0 Kelvin Cross Sections
74-W -186
(n,n') e
Barns
0.012
0.010
0.008
0.006
0.004
0.002
5
10
15
20
30
MeV

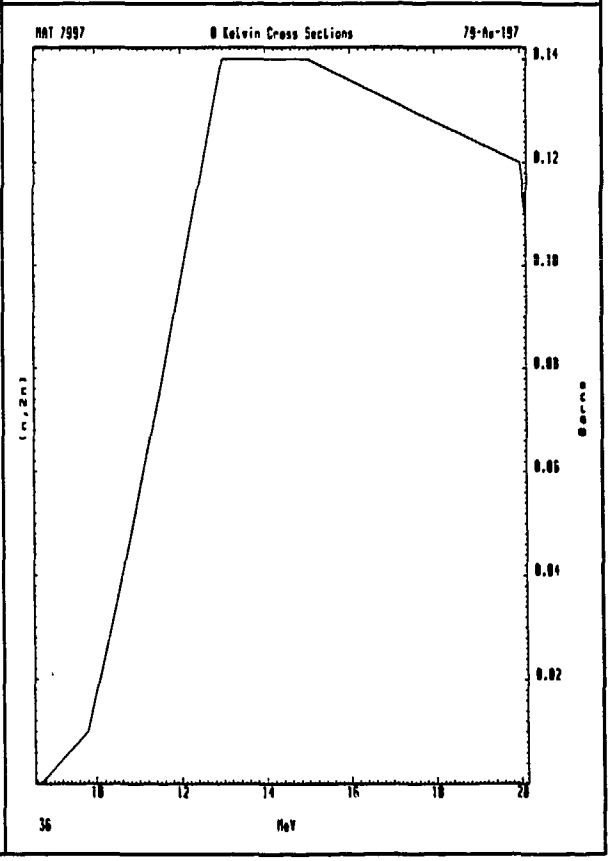

MAT 7587
0 Kelvin Cross Sections
75-Re-187
(n,2n)
Barns
1.6
1.2
0.8
0.4
8
10
12
14
16
18
20
31
MeV

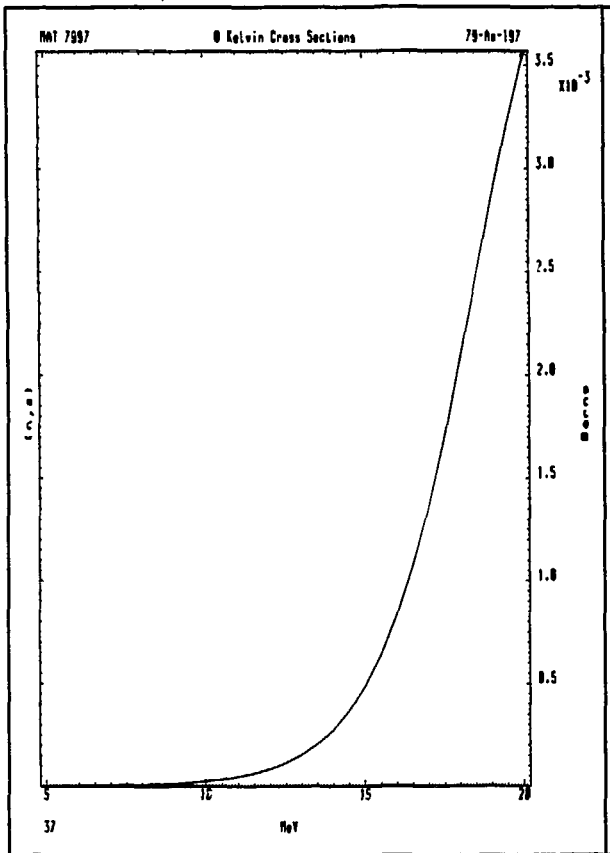

MAT 7688
0 Kelvin Cross Sections
76-Os-188
(n,p)
Barns
0.014
0.012
0.010
0.008
0.006
0.004
0.002
2
3
4
5
6
7
8
9
10
2
32
MeV

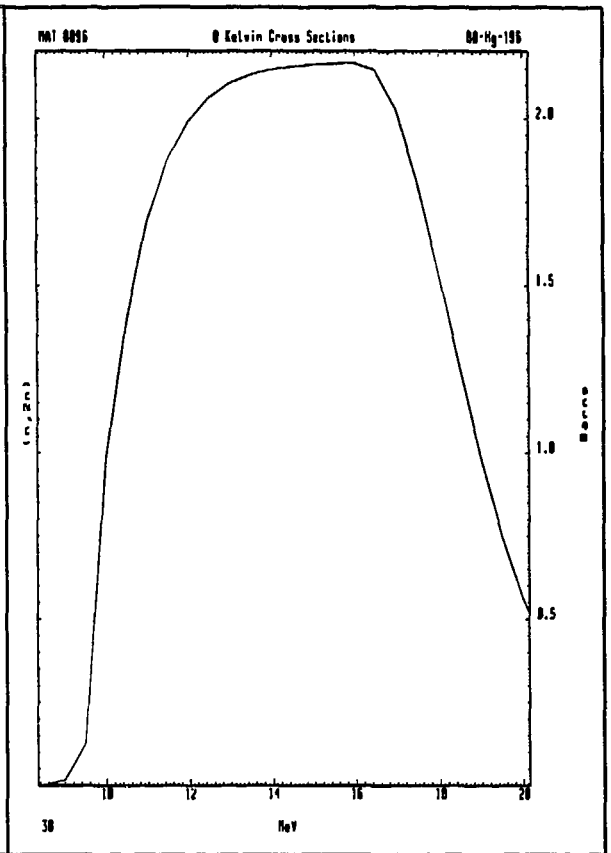

MAT 7692
0 Kelvin Cross Sections
76-Os-192
(n,2n)
Barns
2.0
1.5
1.0
0.5
8
10
12
14
16
18
20
33
MeV

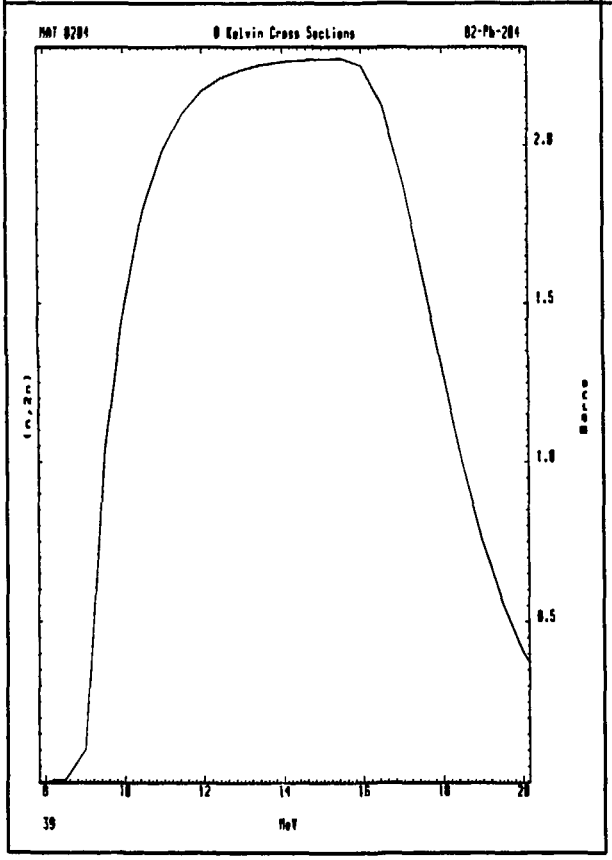

MAT 7791
0 Kelvin Cross Sections
77-Ir-191
(n,2n)
Barns
2.0
1.5
1.0
0.5
8
10
12
14
16
18
20
34
MeV


MAT 7894
0 Kelvin Cross Sections
78-Pt-194
(n,2n)
Barns
2.0
1.5
1.0
0.5
8
10
12
14
16
18
20
35
MeV

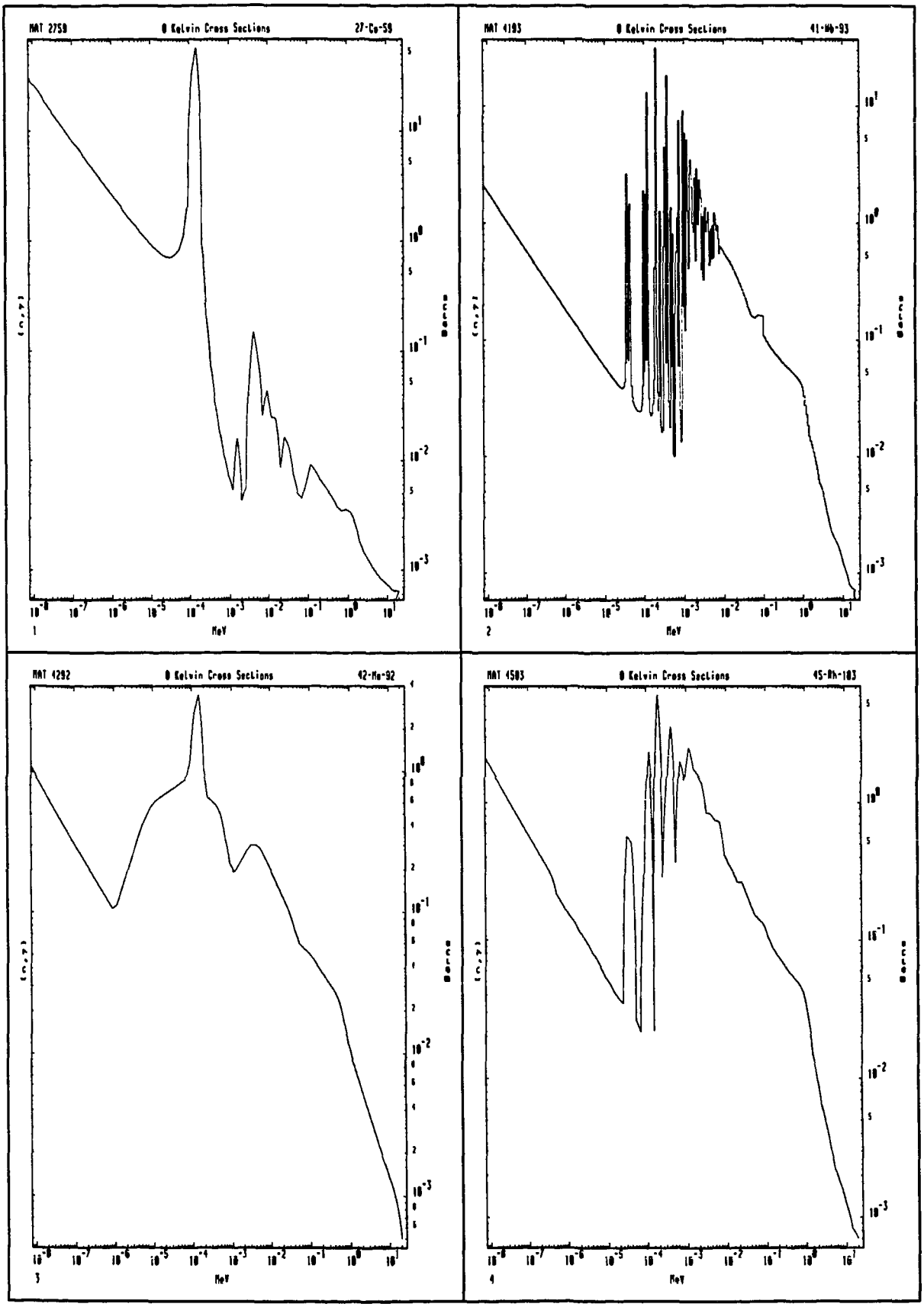

MAT 7997
0 Kelvin Cross Sections
79-Au-197
(n,2n)
Barns
0.14
0.12
0.10
0.08
0.06
0.04
0.02
10
12
14
16
18
20
36
MeV

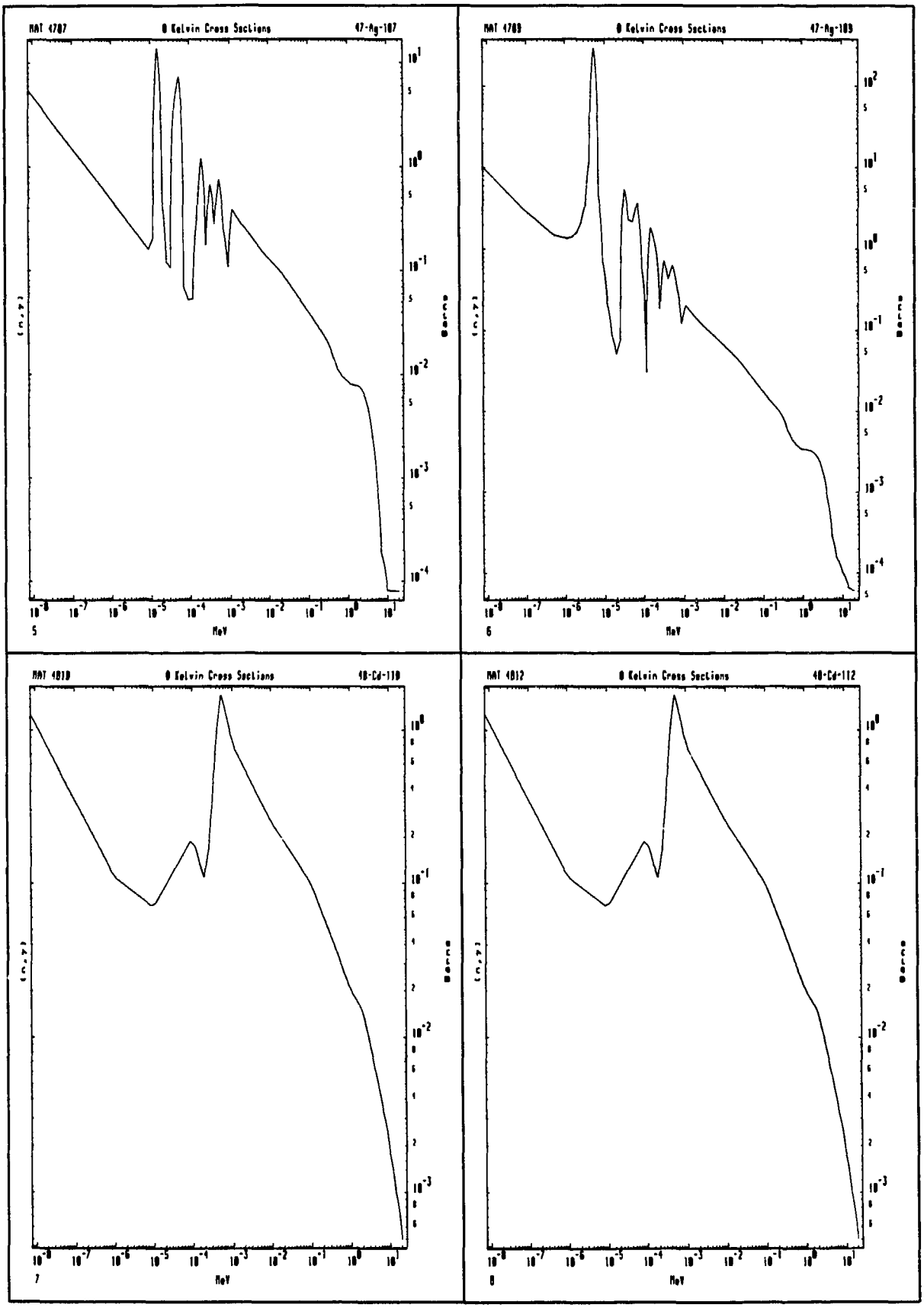

MAT 7997
0 Kelvin Cross Sections
79-Au-197
(n,g)
Barns
X10**-3
3.5
3.0
2.5
2.0
1.5
1.0
0.5
5
10
15
20
37
MeV

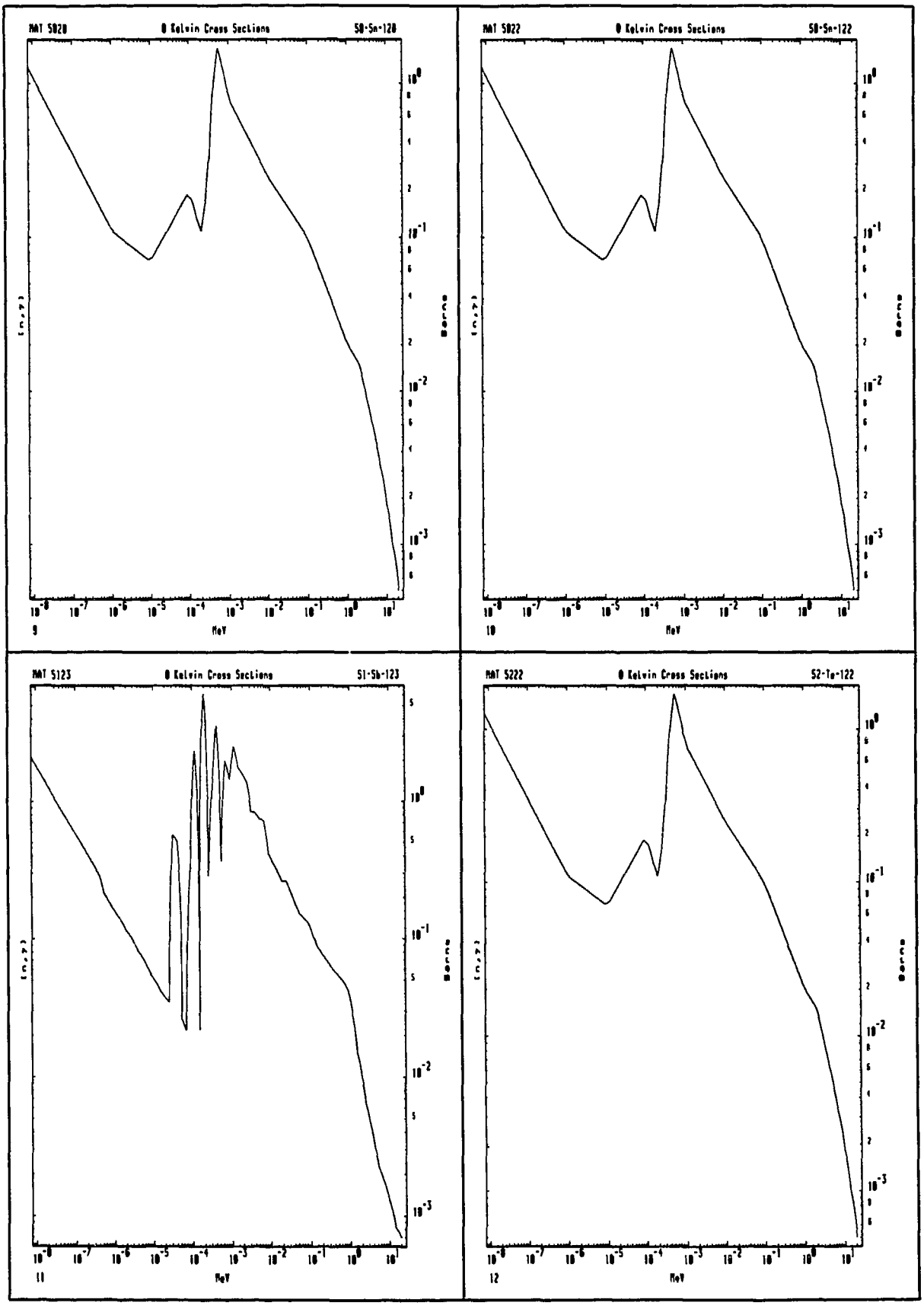

MAT 8096
0 Kelvin Cross Sections
80-Hg-196
(n,2n)
Barns
2.0
1.5
1.0
0.5
10
12
14
16
18
20
38
MeV

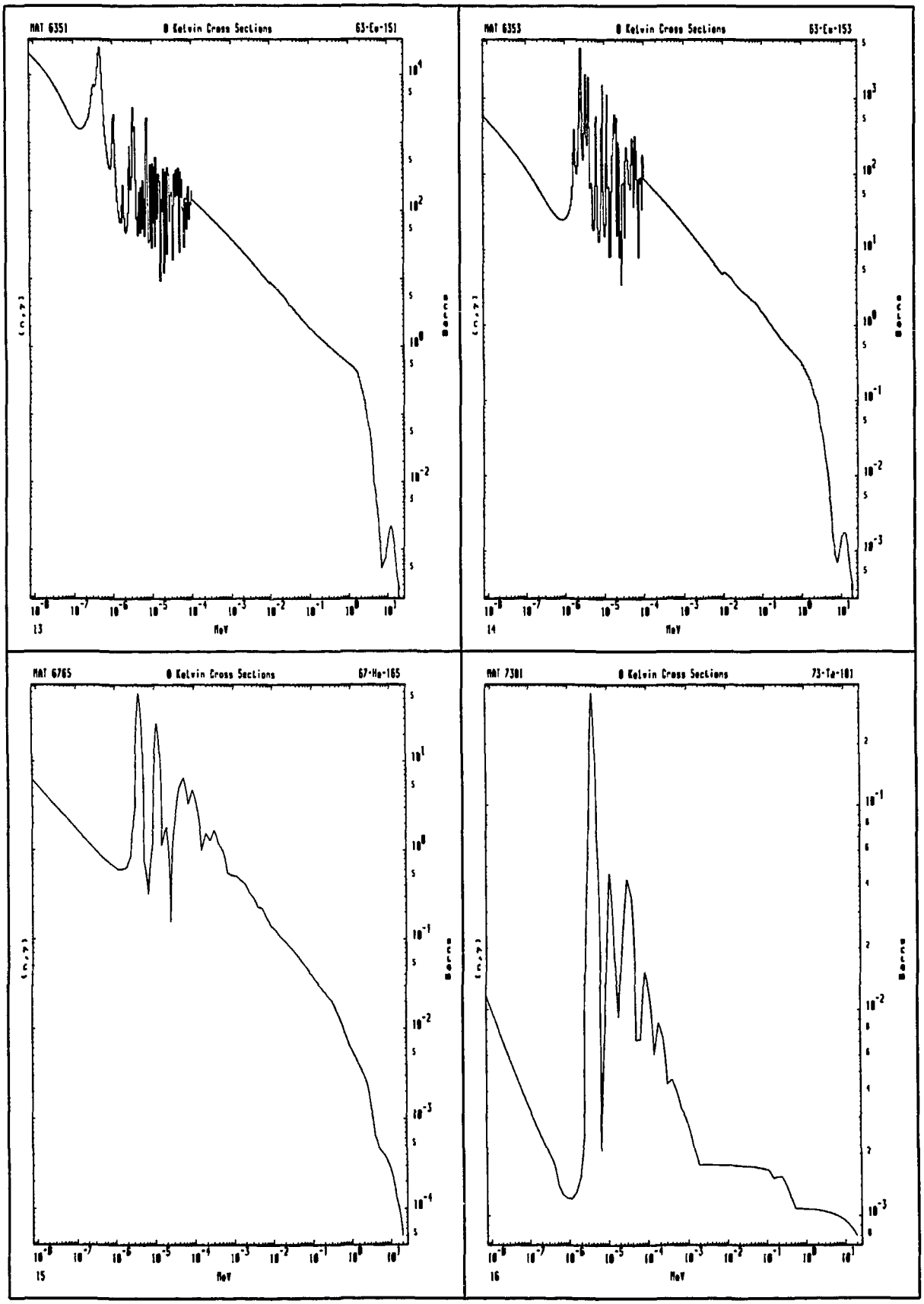

MAT 8284
0 Kelvin Cross Sections
82-Pb-204
(n,2n)
Barns
2.0
1.5
1.0
0.5
8
10
12
14
16
18
20
39
MeV

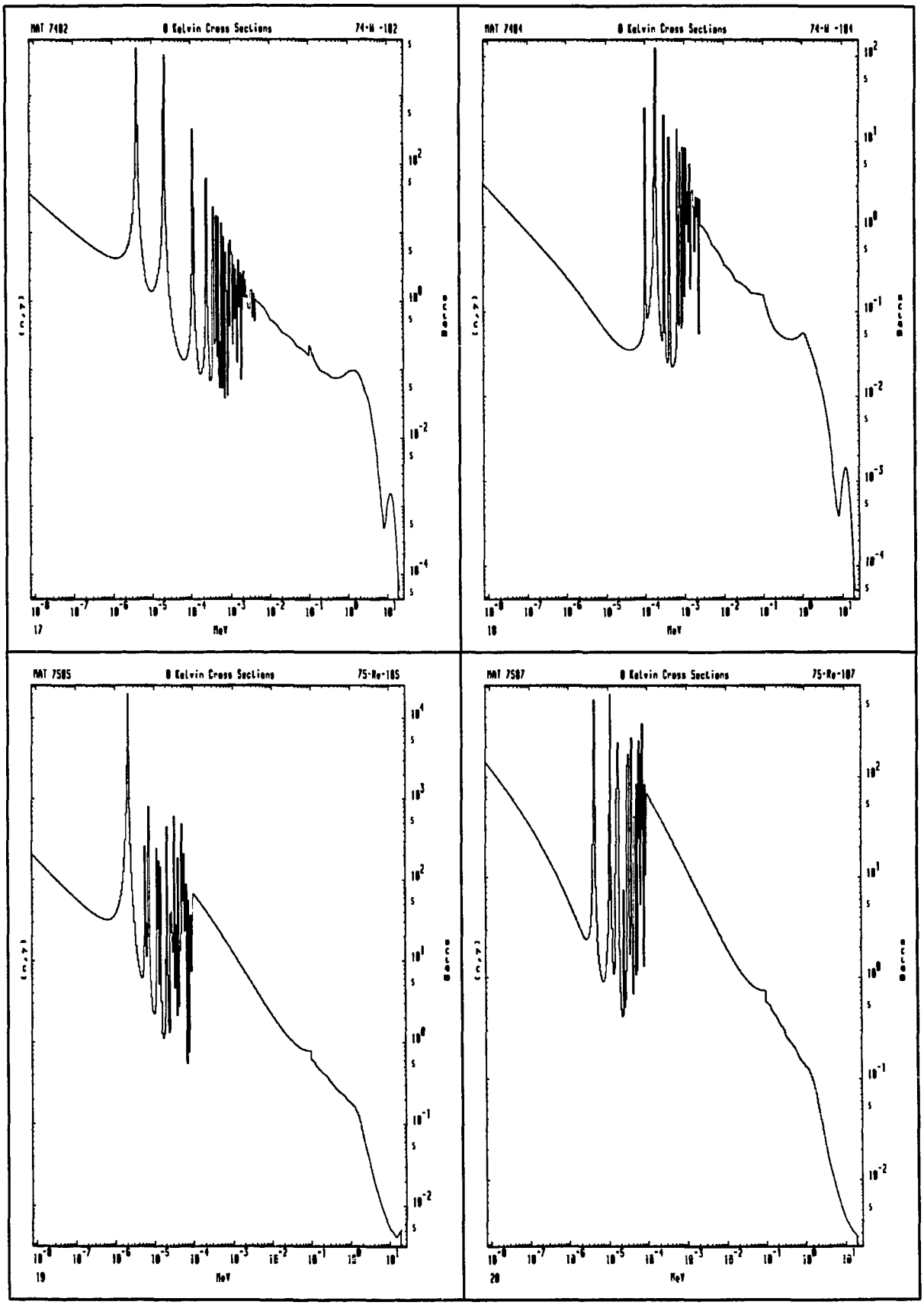
PART 4. Plots of capture cross sections into isomeric states.

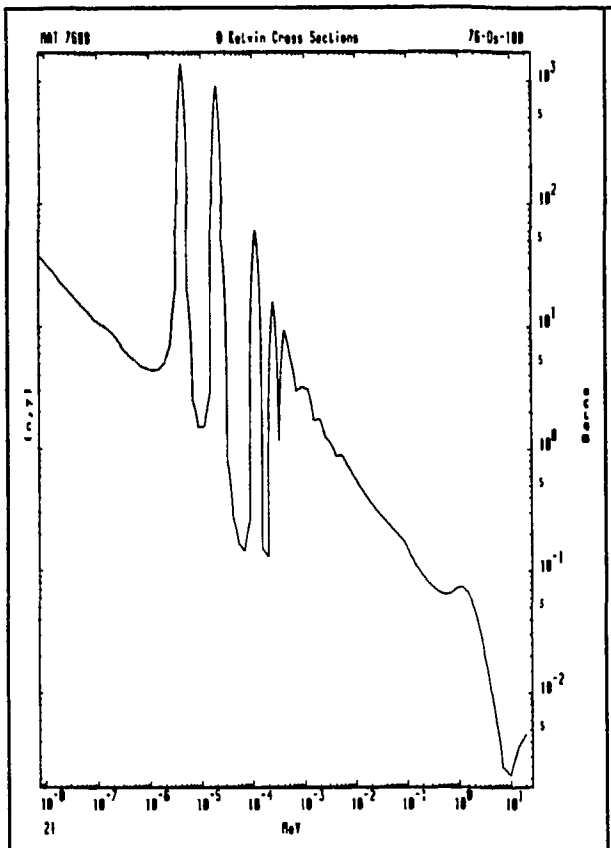

MAT 2759
0 Kelvin Cross Sections
27-Co-59
MAT 4193
0 Kelvin Cross Sections
41-Nb-93
MAT 4292
0 Kelvin Cross Sections
42-Mo-92
MAT 4503
0 Kelvin Cross Sections
45-Rh-103
(n,γ)
Barns
MeV
1
2
3
4

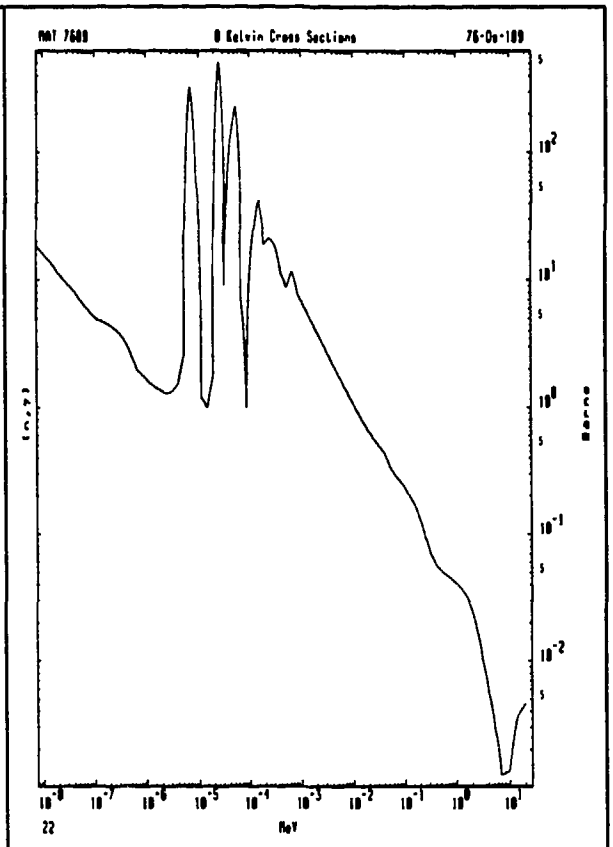

MAT 4707
0 Kelvin Cross Sections
47-Ag-107
(n,γ)
Barns
MeV
5
MAT 4709
0 Kelvin Cross Sections
47-Ag-109
(n,γ)
Barns
MeV
6
MAT 4810
0 Kelvin Cross Sections
48-Cd-110
(n,γ)
Barns
MeV
7
MAT 4812
0 Kelvin Cross Sections
48-Cd-112
(n,γ)
Barns
MeV
8

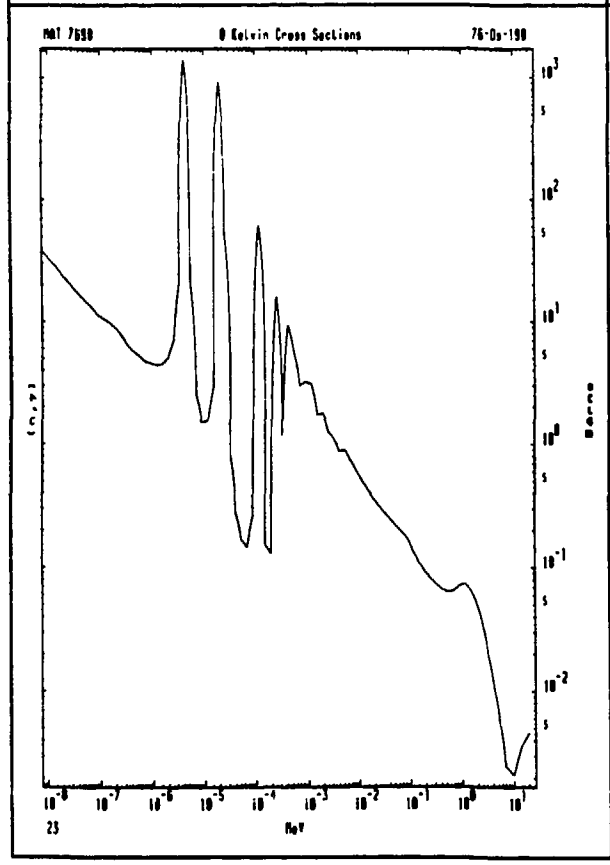

MAT 5020
0 Kelvin Cross Sections
50-Sn-120
MAT 5022
0 Kelvin Cross Sections
50-Sn-122
MAT 5123
0 Kelvin Cross Sections
51-Sb-123
MAT 5222
0 Kelvin Cross Sections
52-Te-122
MeV
barns

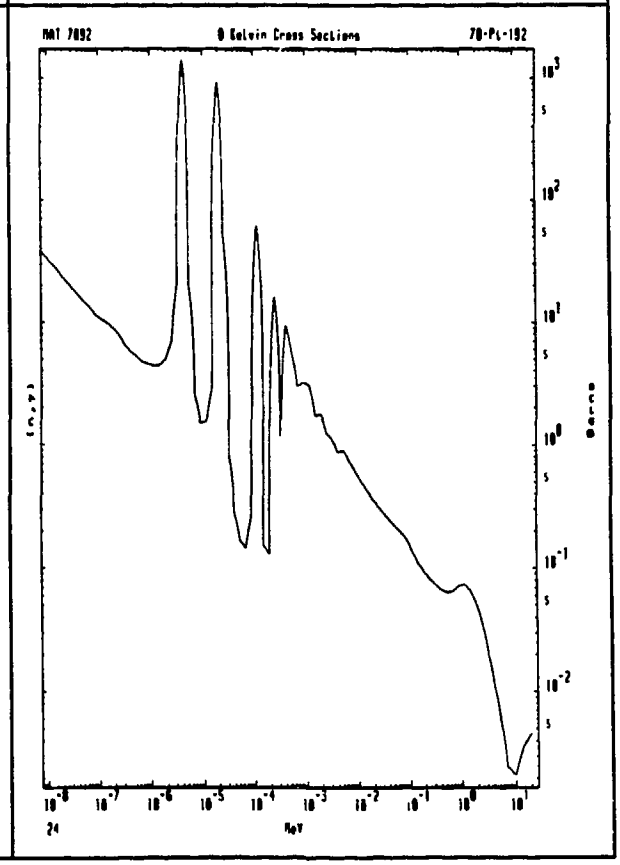

MAT 6351
0 Kelvin Cross Sections
63-Eu-151
(n,γ)
Barns
13
MeV
MAT 6353
0 Kelvin Cross Sections
63-Eu-153
(n,γ)
Barns
14
MeV
MAT 6765
0 Kelvin Cross Sections
67-Ho-165
(n,γ)
Barns
15
MeV
MAT 7301
0 Kelvin Cross Sections
73-Ta-181
(n,γ)
Barns
16
MeV


MAT 7482
0 Kelvin Cross Sections
74-W -182
MAT 7484
0 Kelvin Cross Sections
74-W -184
MAT 7585
0 Kelvin Cross Sections
75-Re-185
MAT 7587
0 Kelvin Cross Sections
75-Re-187
MeV
Barns


MAT 7688
0 Kelvin Cross Sections
76-Os-188
(n,γ)
Barns
21
MeV


MAT 7689
0 Kelvin Cross Sections
76-Os-189
(n,γ)
Barns
22
MeV


MAT 7690
0 Kelvin Cross Sections
76-Os-190
(n,γ)
Barns
23
MeV


MAT 7892
0 Kelvin Cross Sections
78-Pt-192
(n,γ)
Barns
24
MeV