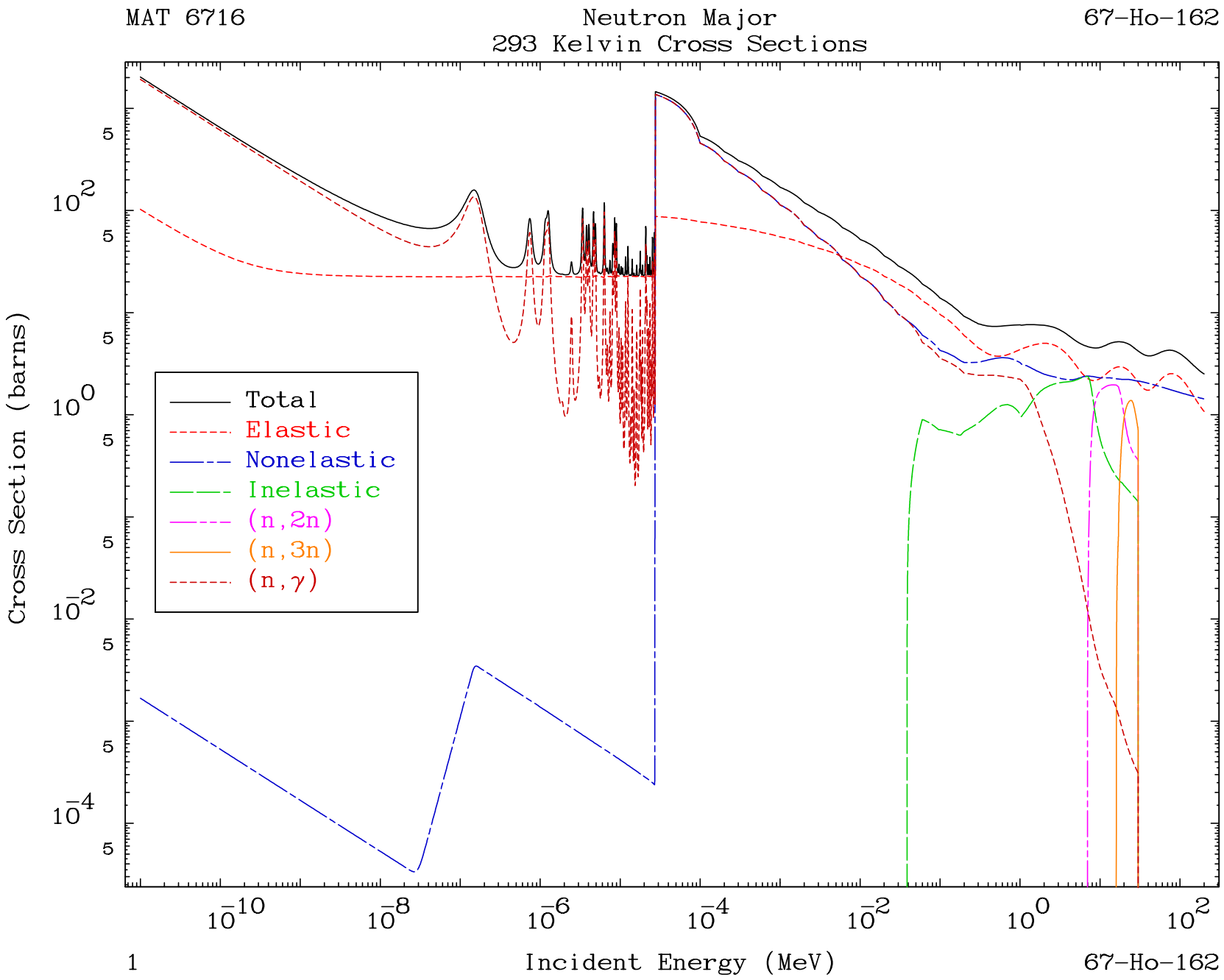
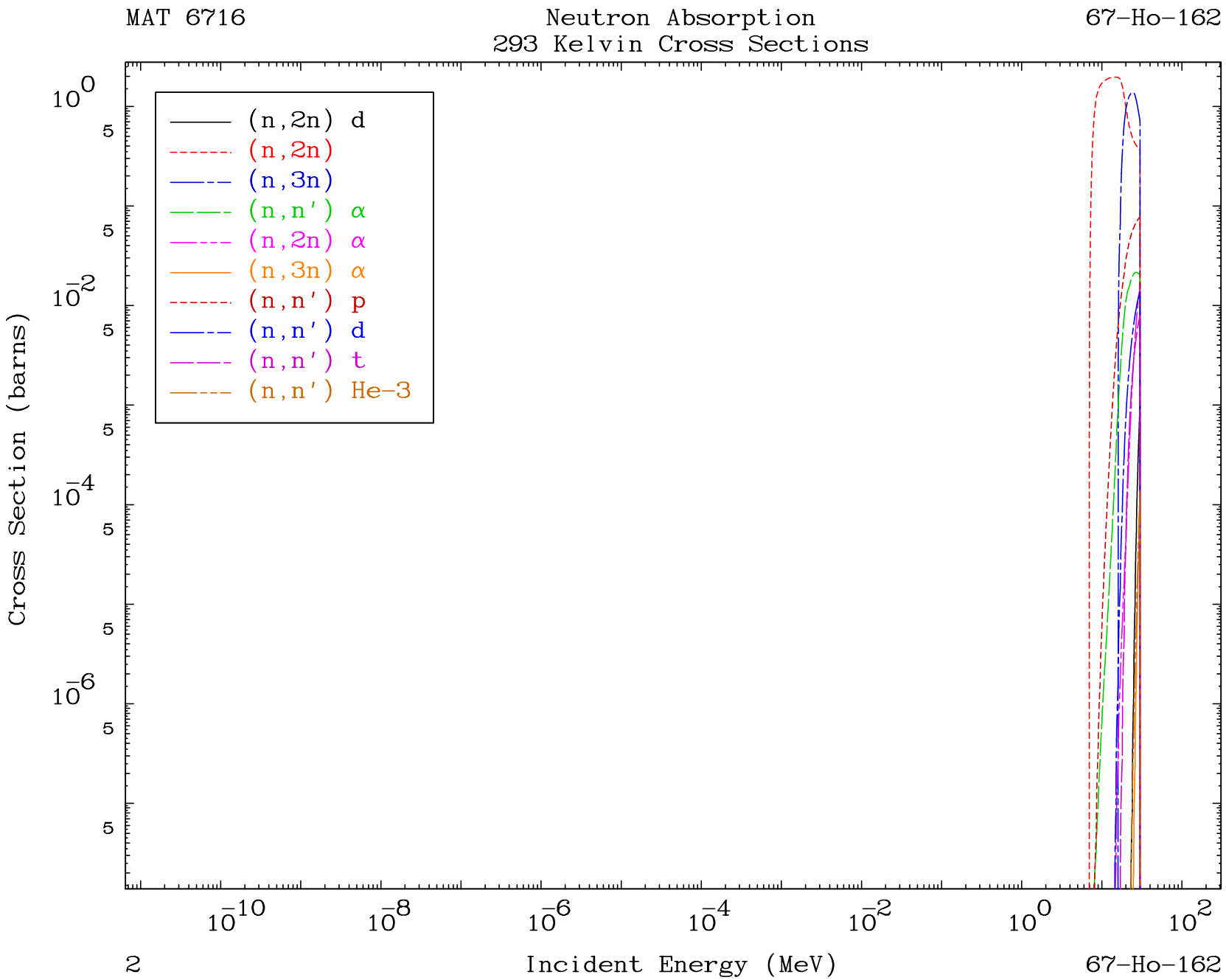
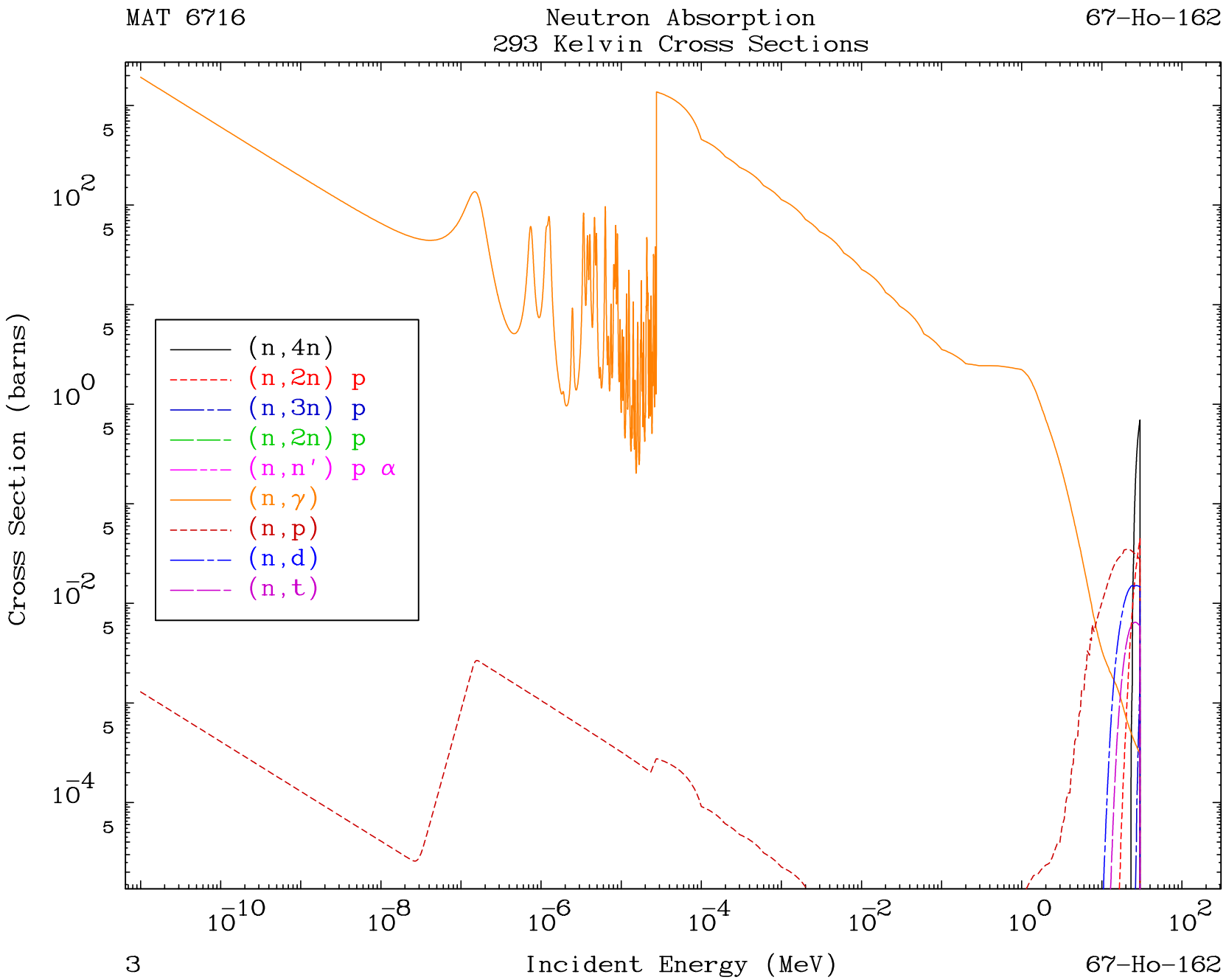
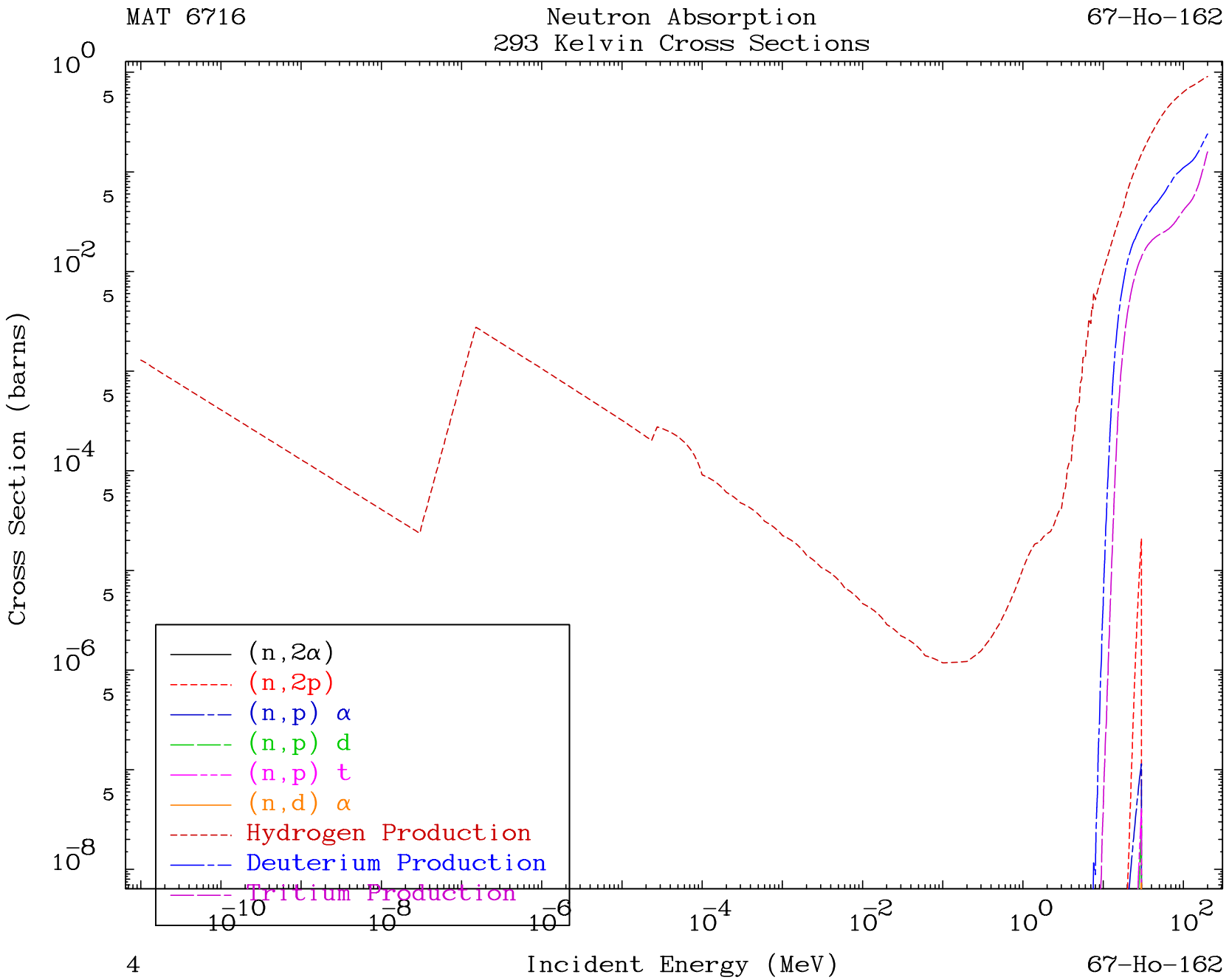
Program EVALPLOT
(Version 2021-1)
by
Dermott E. Cullen
(Present Contact Information)
Dermott E. Cullen
1466 Hudson Way
Livermore, CA 94550
U.S.A.
Tele: 925-443-1911
E.Mail:redcullen1@comcast.net
Web:redcullen1.net/HOMEPAGE.NEW

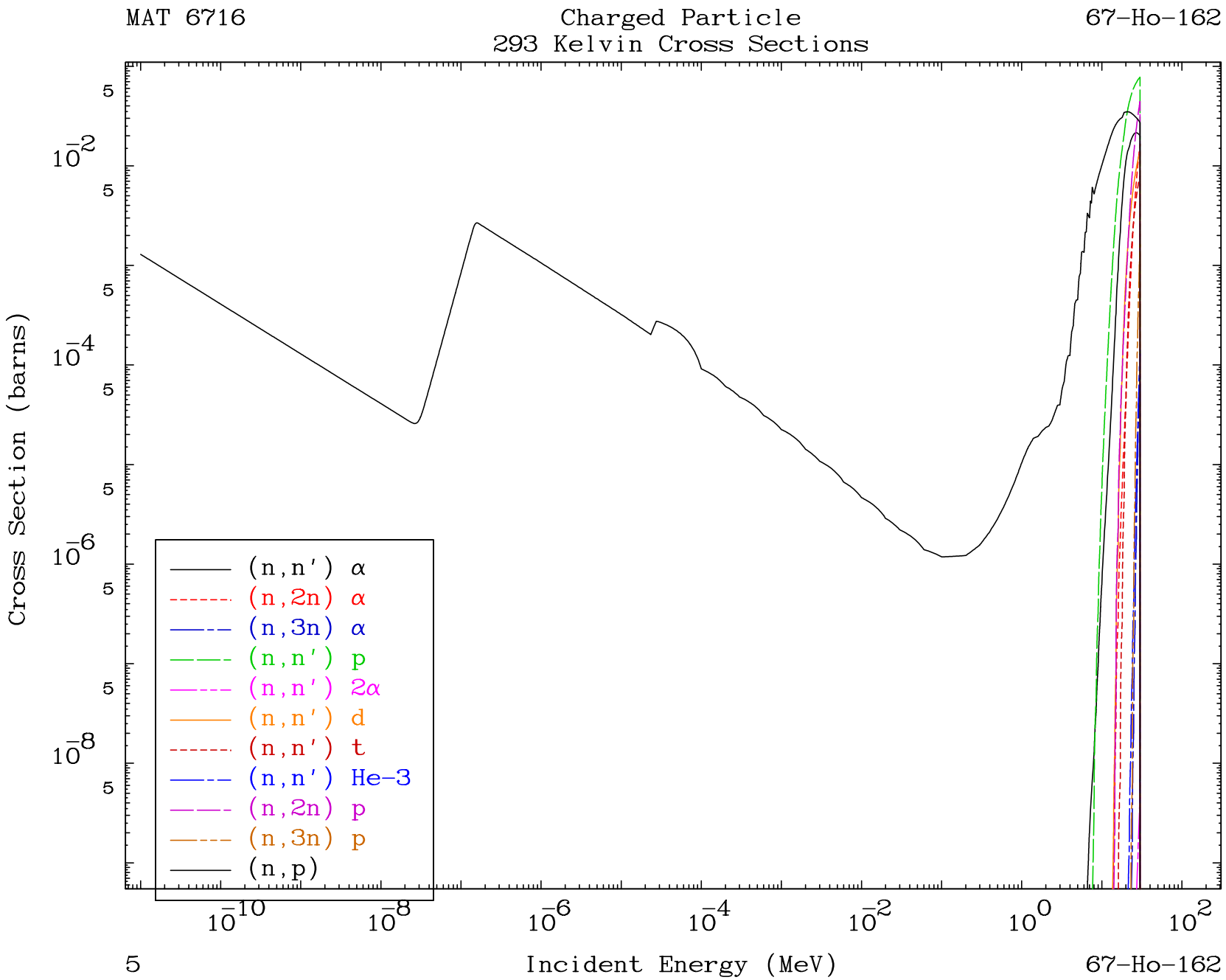
Press Mouse Button to Start

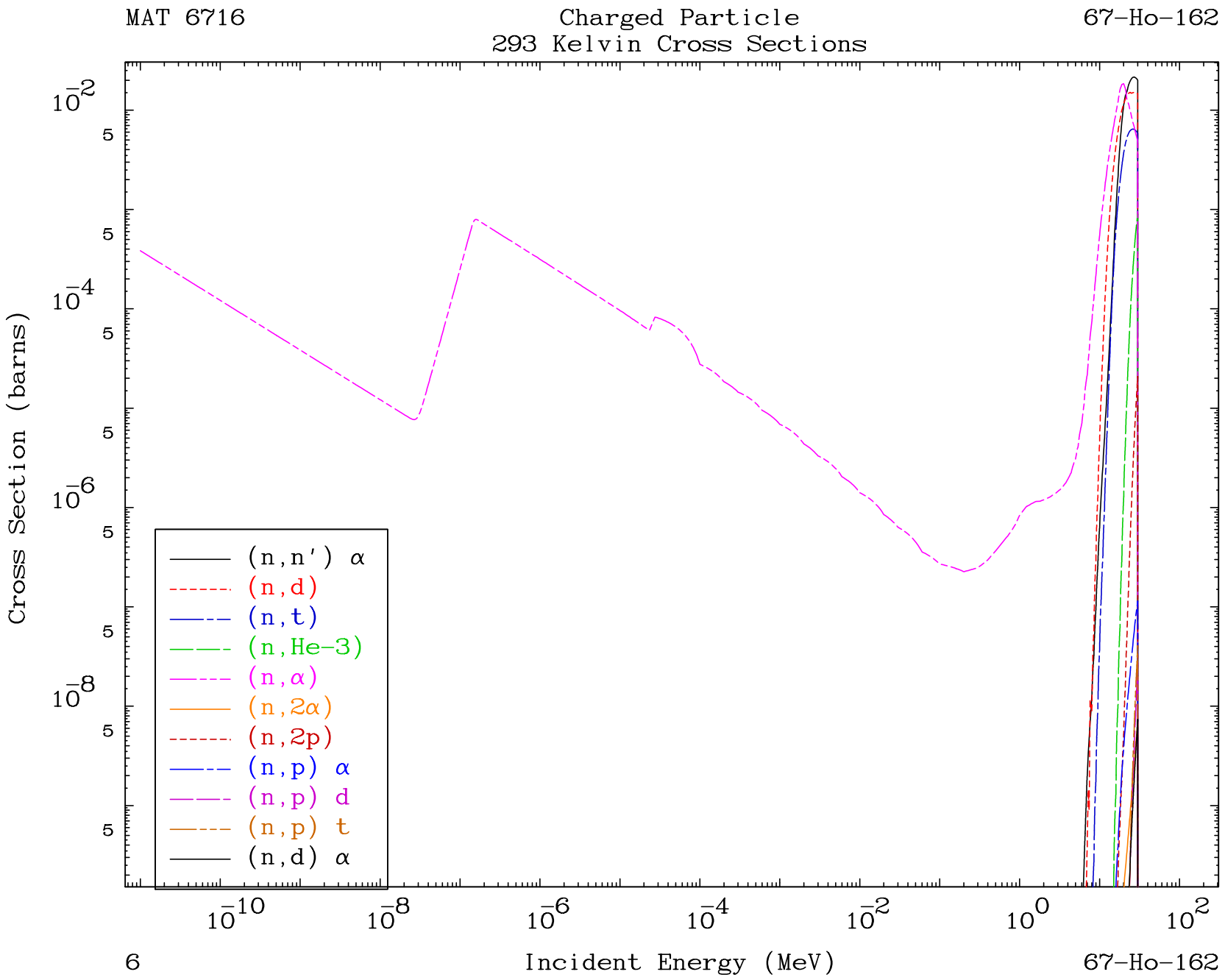

MAT 6716
Neutron Major
293 Kelvin Cross Sections
67-Ho-162
Cross Section (barns)
Total
Elastic
Nonelastic
Inelastic
(n,2n)
(n,3n)
(n,γ)
Incident Energy (MeV)
67-Ho-162
1

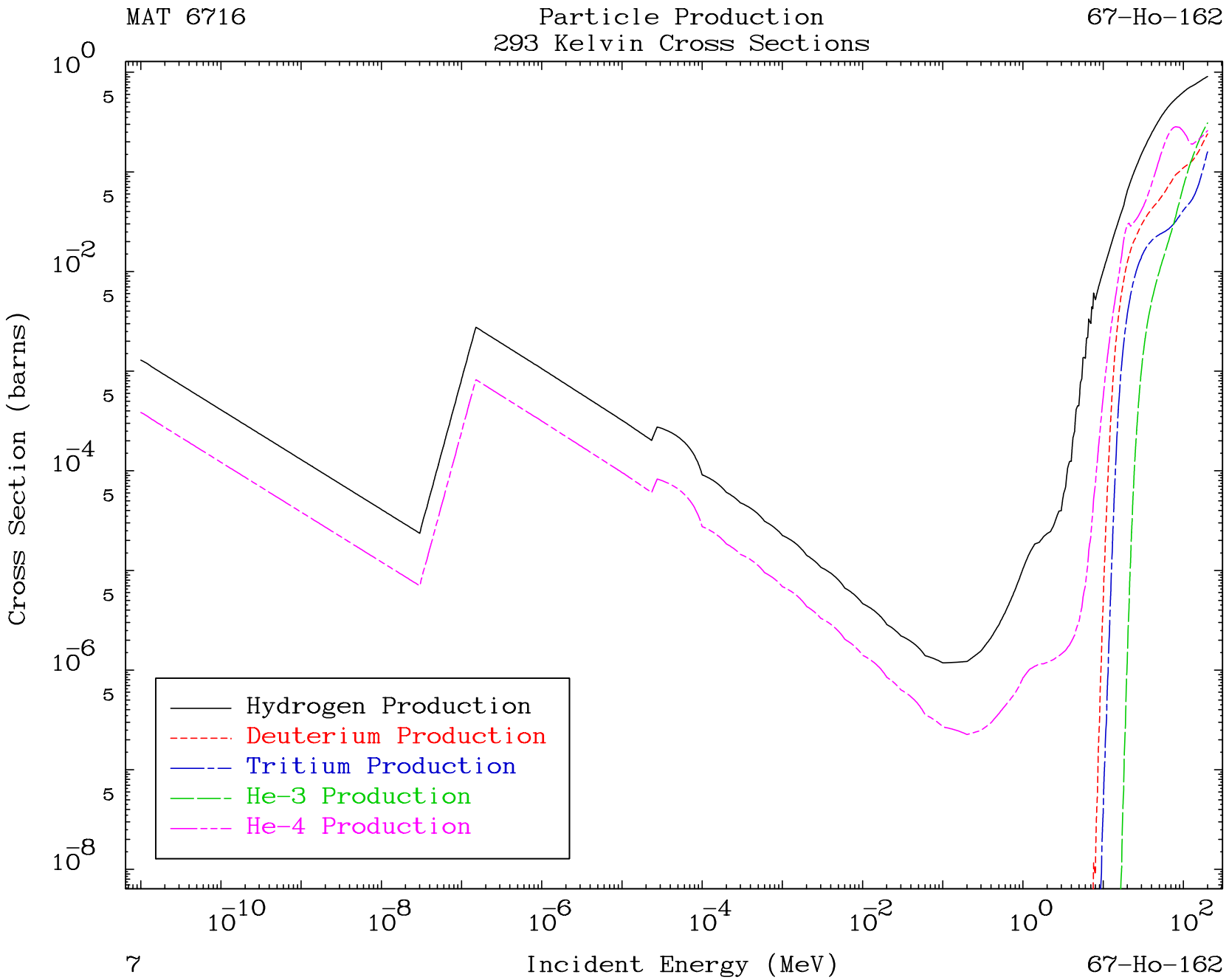

MAT 6716
Neutron Absorption
293 Kelvin Cross Sections
67-Ho-162
(n,2n) d
(n,2n)
(n,3n)
(n,n') α
(n,2n) α
(n,3n) α
(n,n') p
(n,n') d
(n,n') t
(n,n') He-3
Cross Section (barns)
Incident Energy (MeV)
2
67-Ho-162

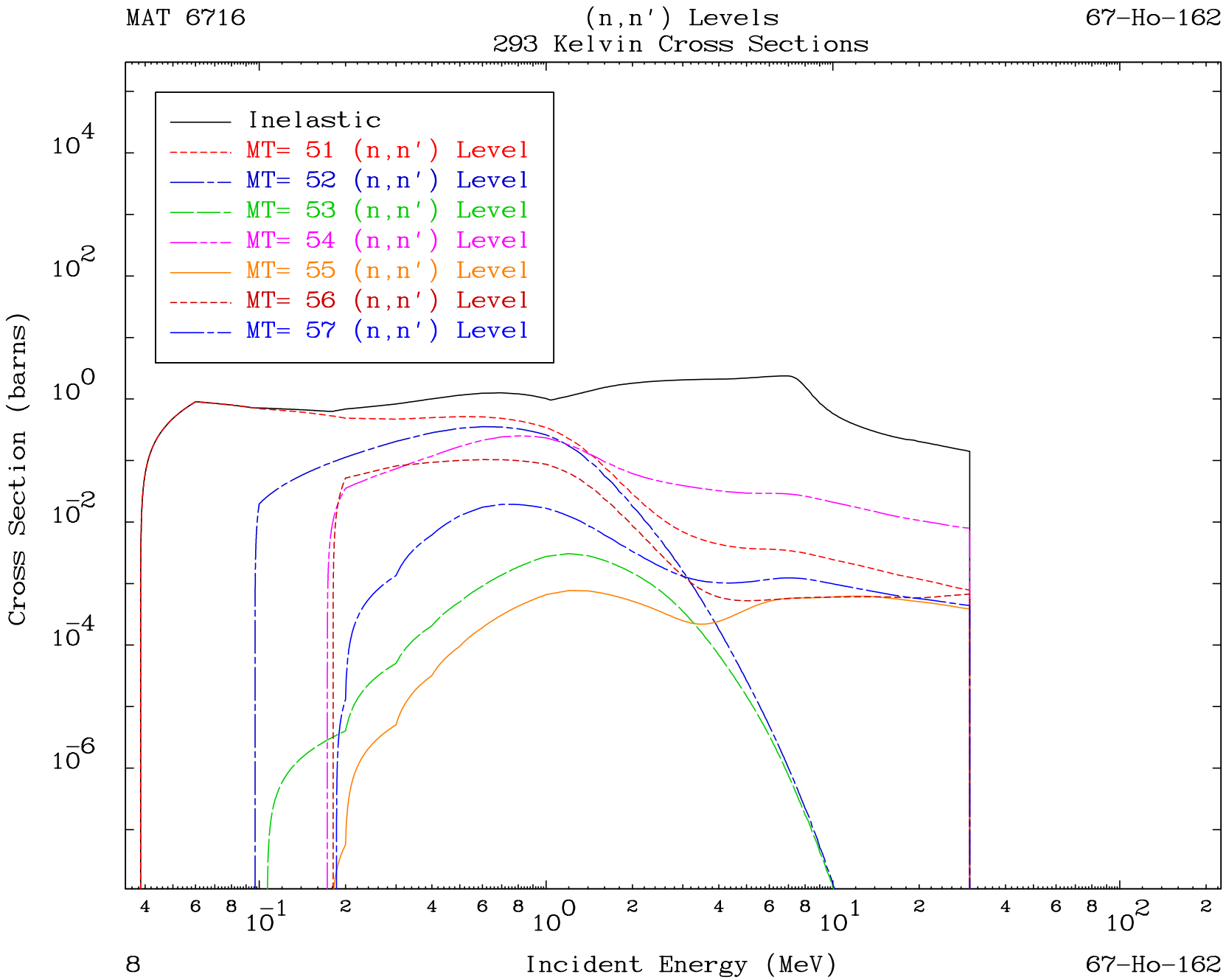

MAT 6716
Neutron Absorption
293 Kelvin Cross Sections
67-Ho-162
Cross Section (barns)
Incident Energy (MeV)
(n,4n)
(n,2n) p
(n,3n) p
(n,2n) p
(n,n') p α
(n,γ)
(n,p)
(n,d)
(n,t)
3
67-Ho-162

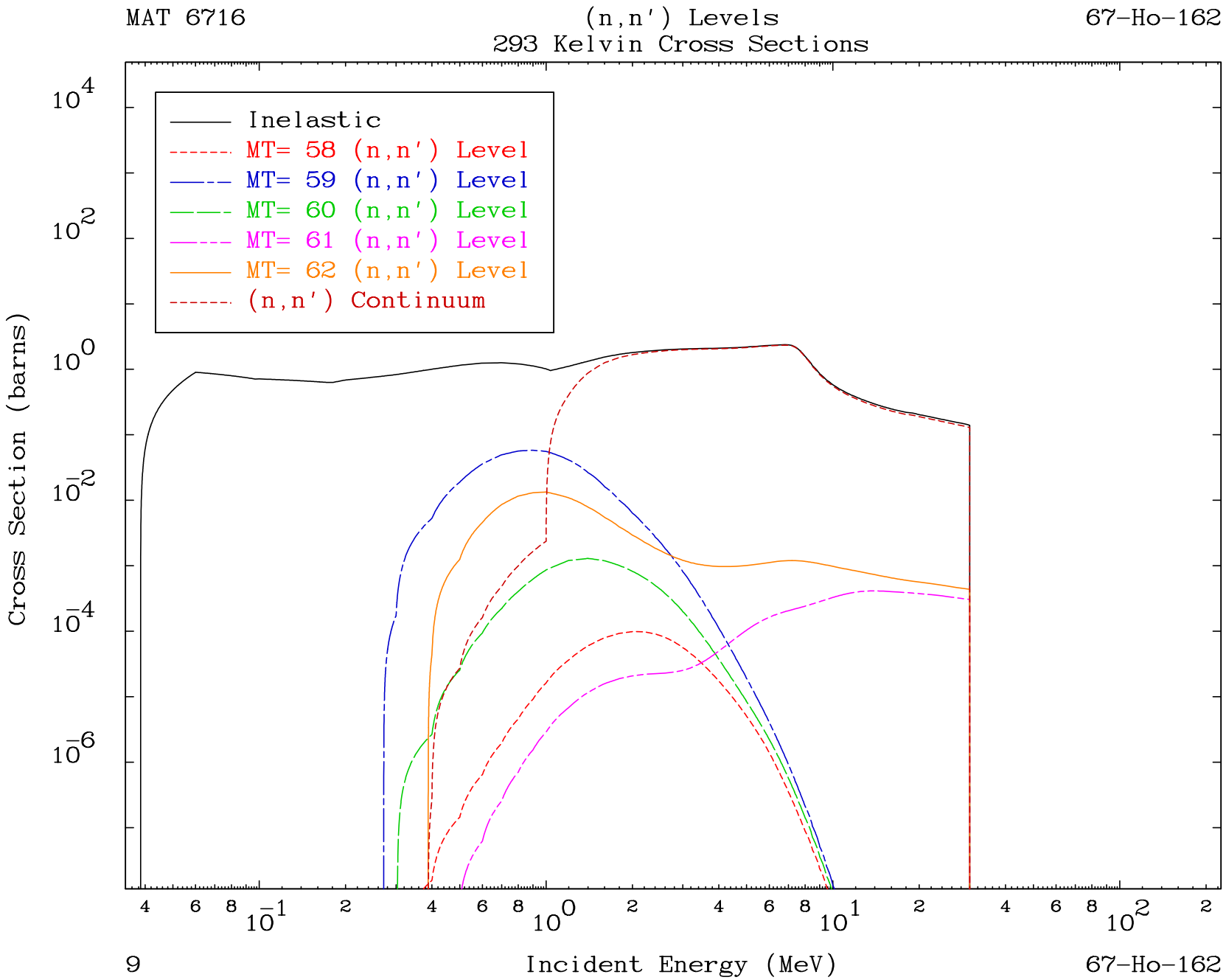

MAT 6716
Neutron Absorption
293 Kelvin Cross Sections
67-Ho-162
Cross Section (barns)
Incident Energy (MeV)
67-Ho-162
4
(n,2α)
(n,2p)
(n,p) α
(n,p) d
(n,p) t
(n,d) α
Hydrogen Production
Deuterium Production
Tritium Production

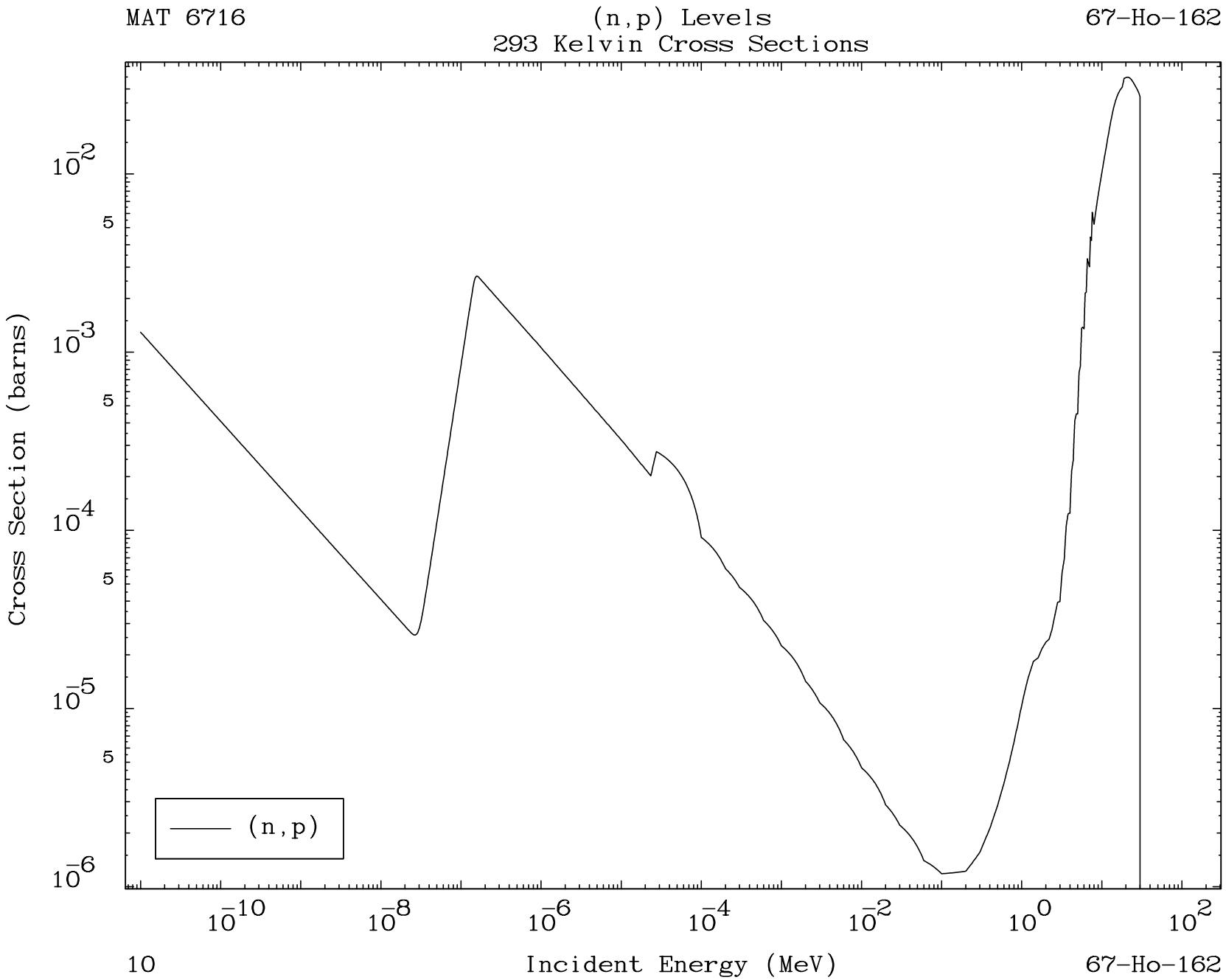

MAT 6716
Charged Particle
293 Kelvin Cross Sections
67-Ho-162
Cross Section (barns)
Incident Energy (MeV)
67-Ho-162
(n,n') α
(n,2n) α
(n,3n) α
(n,n') p
(n,n') 2α
(n,n') d
(n,n') t
(n,n') He-3
(n,2n) p
(n,3n) p
(n,p)

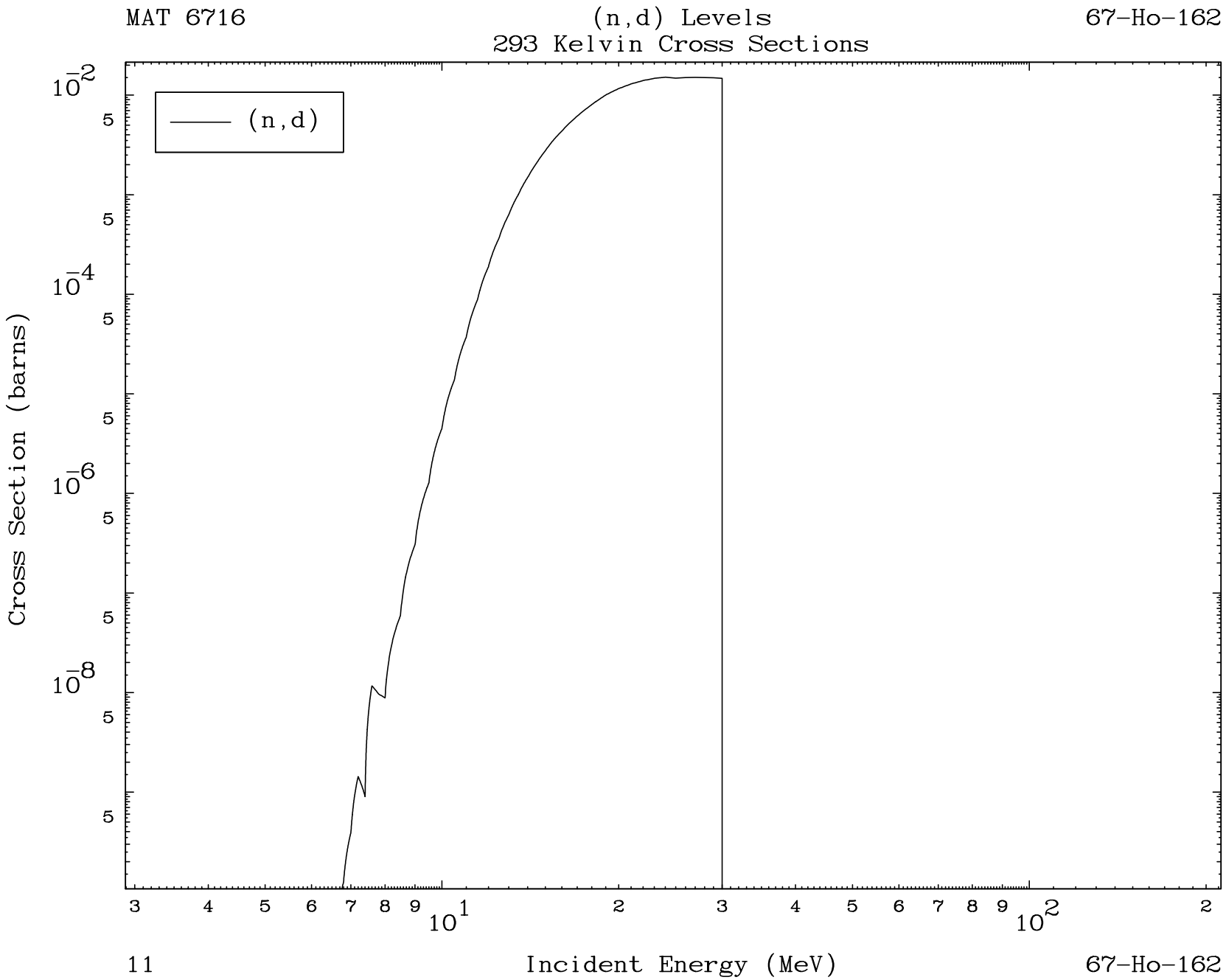

MAT 6716
Charged Particle
293 Kelvin Cross Sections
67-Ho-162
Cross Section (barns)
Incident Energy (MeV)
(n,n') α
(n,d)
(n,t)
(n,He-3)
(n,α)
(n,2α)
(n,2p)
(n,p) α
(n,p) d
(n,p) t
(n,d) α
6
67-Ho-162

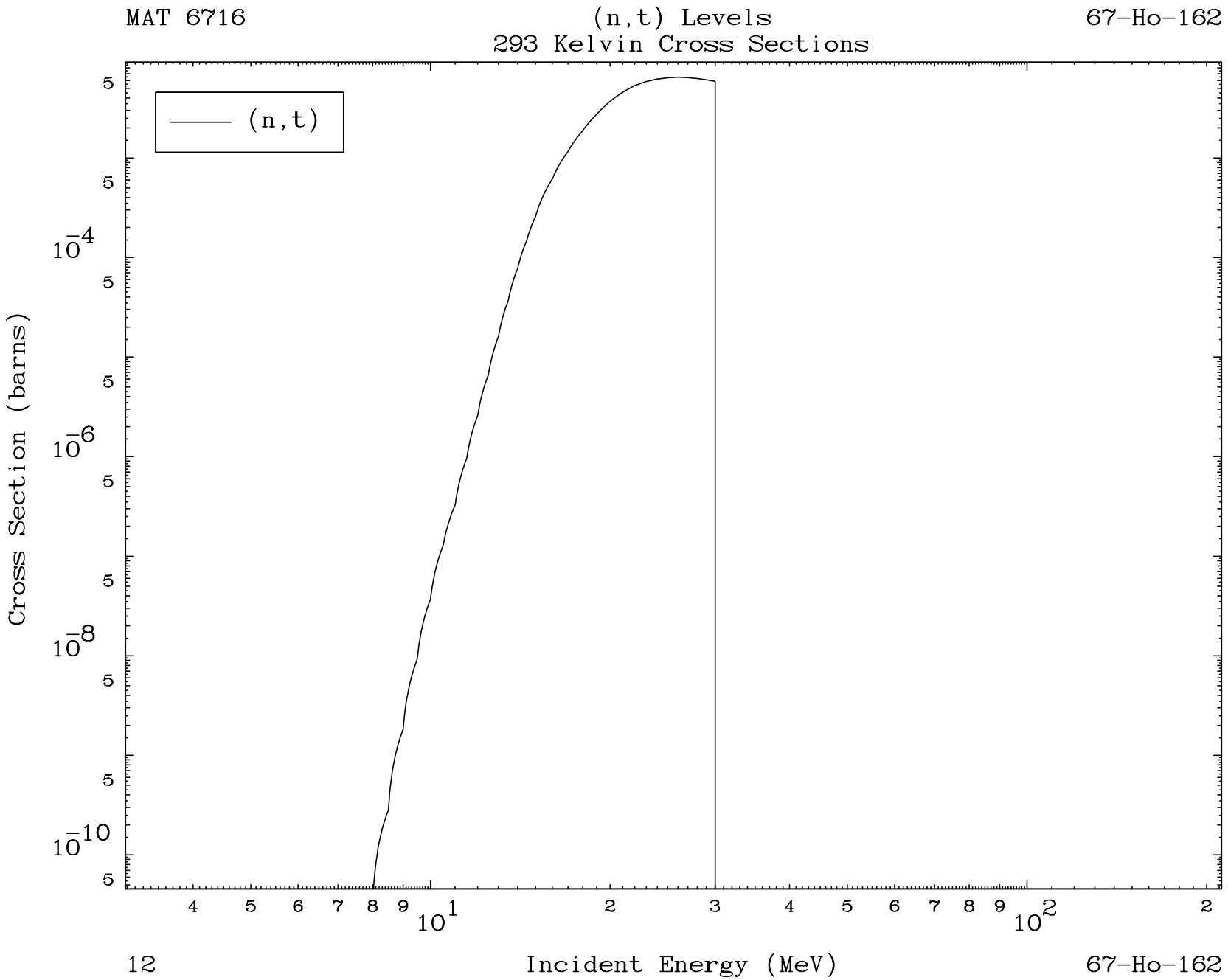

MAT 6716
Particle Production
293 Kelvin Cross Sections
67-Ho-162
Cross Section (barns)
Incident Energy (MeV)
Hydrogen Production
Deuterium Production
Tritium Production
He-3 Production
He-4 Production
7
67-Ho-162

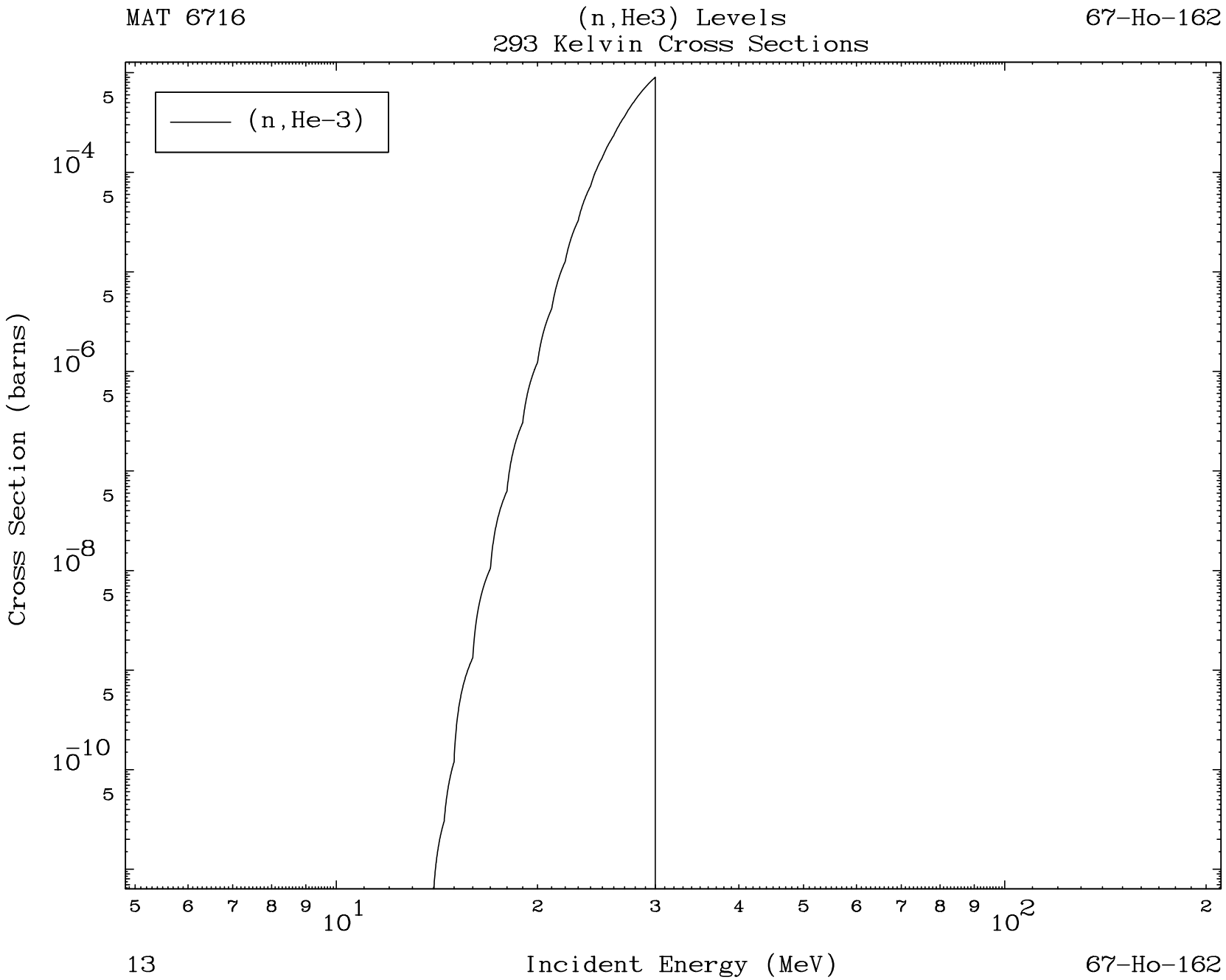

MAT 6716
(n,n') Levels
293 Kelvin Cross Sections
67-Ho-162
Inelastic
MT= 51 (n,n') Level
MT= 52 (n,n') Level
MT= 53 (n,n') Level
MT= 54 (n,n') Level
MT= 55 (n,n') Level
MT= 56 (n,n') Level
MT= 57 (n,n') Level
Cross Section (barns)
10^4
10^2
10^0
10^-2
10^-4
10^-6
4 6 8 10^-1 2 4 6 8 10^0 2 4 6 8 10^1 2 4 6 8 10^2 2
Incident Energy (MeV)
8
67-Ho-162

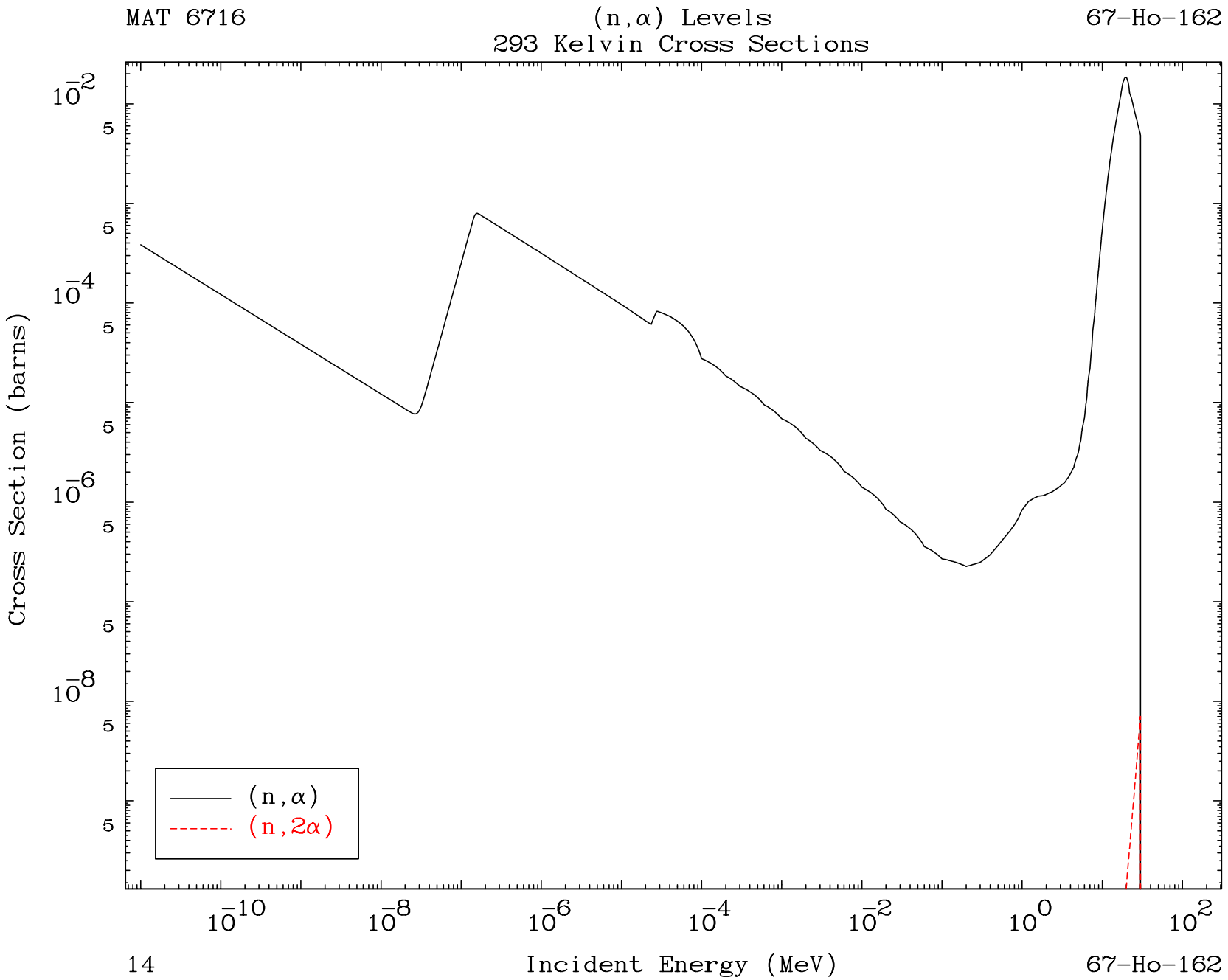

MAT 6716
(n,n') Levels
67-Ho-162
293 Kelvin Cross Sections
Inelastic
MT= 58 (n,n') Level
MT= 59 (n,n') Level
MT= 60 (n,n') Level
MT= 61 (n,n') Level
MT= 62 (n,n') Level
(n,n') Continuum
Cross Section (barns)
Incident Energy (MeV)
9
67-Ho-162

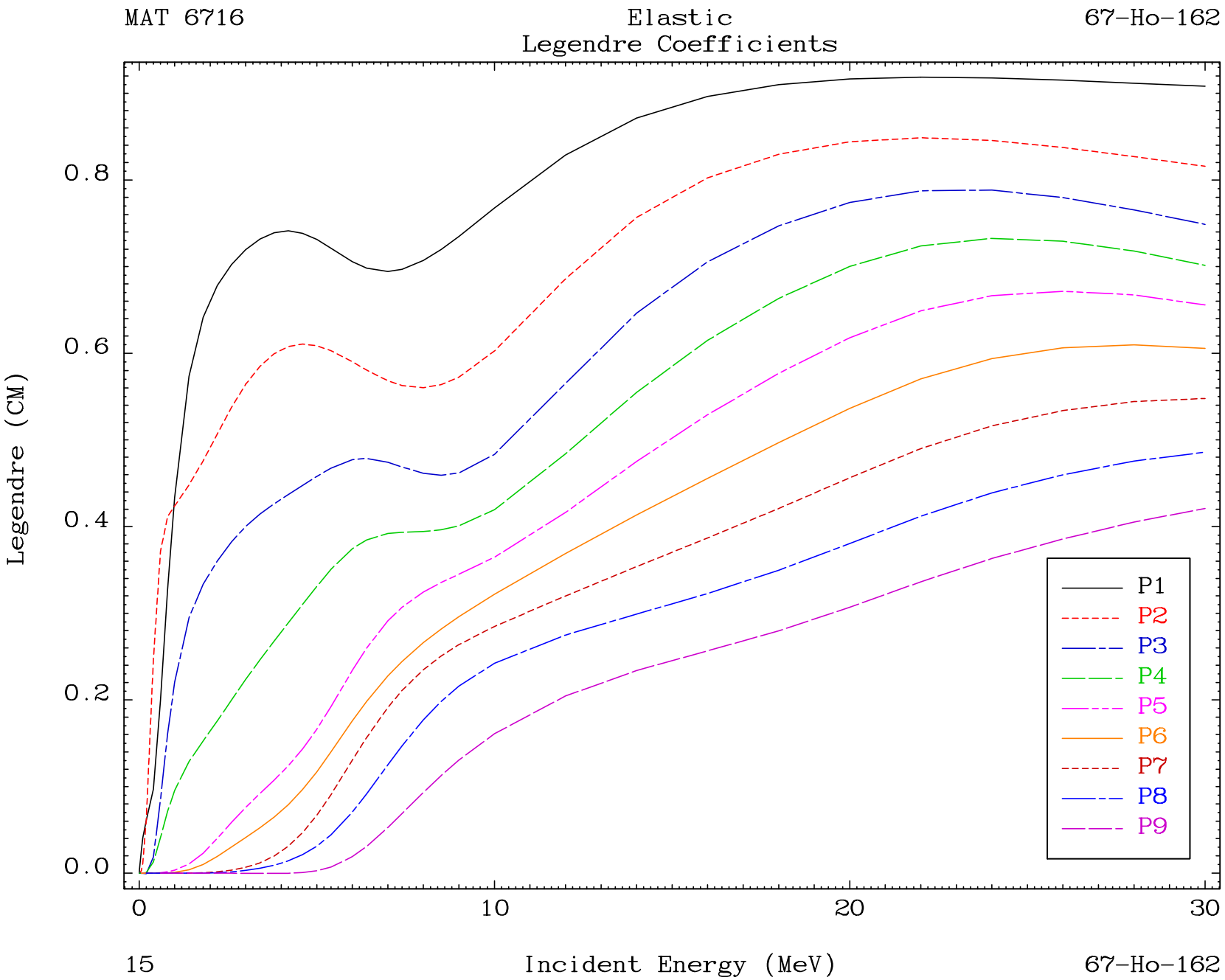

MAT 6716
(n,p) Levels
67-Ho-162
293 Kelvin Cross Sections
Cross Section (barns)
10^-2
5
10^-3
5
10^-4
5
10^-5
5
10^-6
(n,p)
10^-10
10^-8
10^-6
10^-4
10^-2
10^0
10^2
10
Incident Energy (MeV)
67-Ho-162

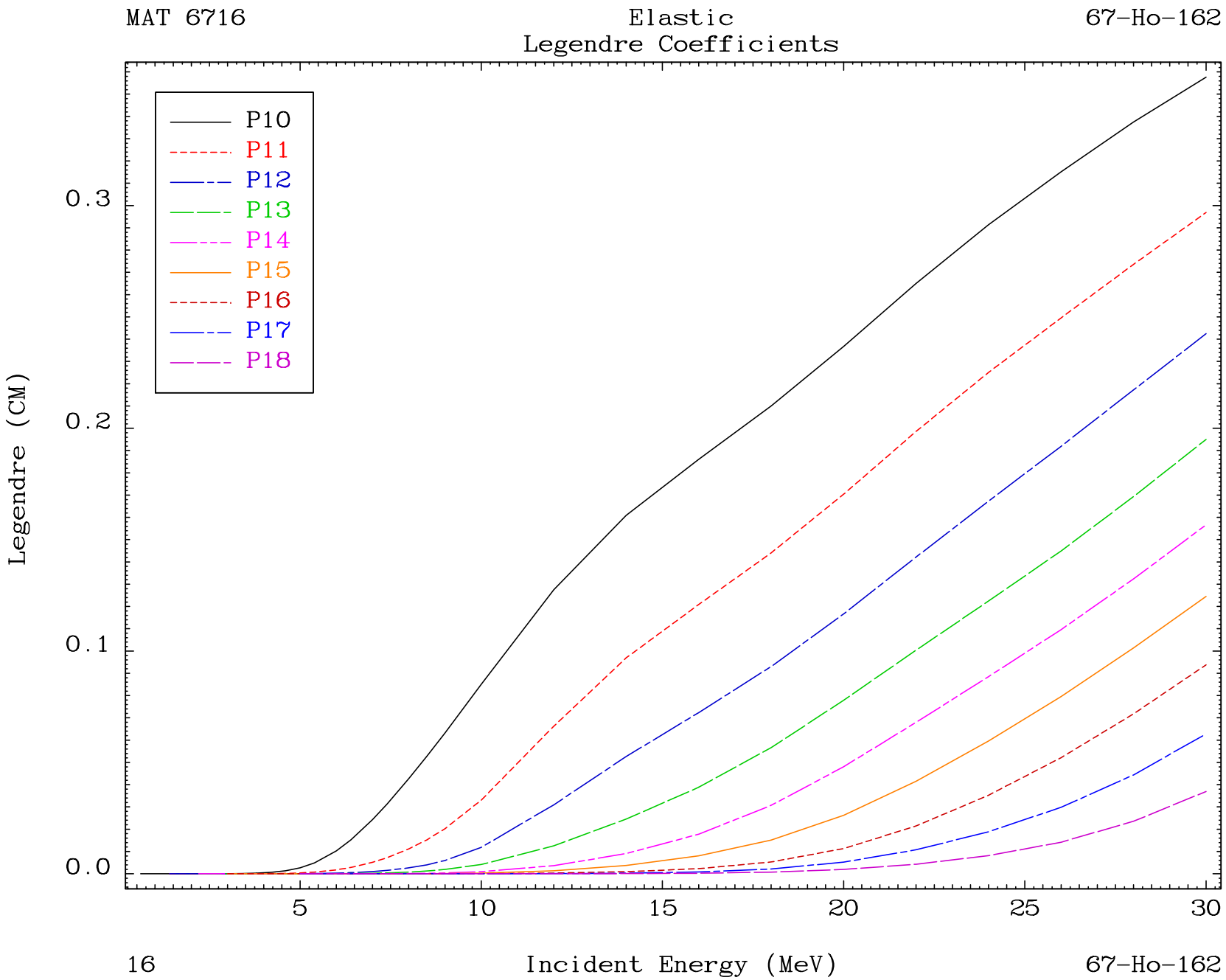

MAT 6716
(n,d) Levels
67-Ho-162
293 Kelvin Cross Sections
(n,d)
Cross Section (barns)
Incident Energy (MeV)
11
67-Ho-162

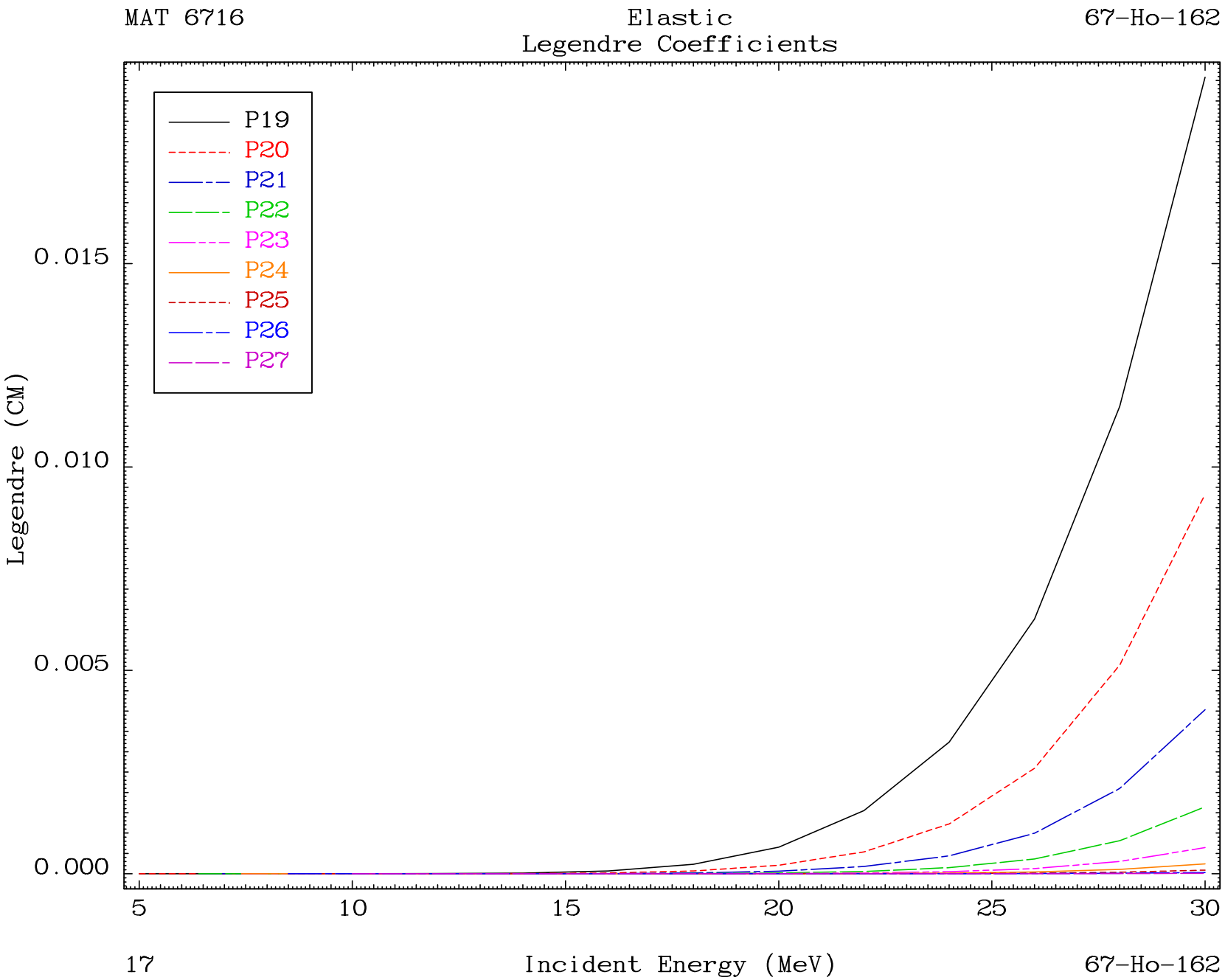

MAT 6716
(n,t) Levels
67-Ho-162
293 Kelvin Cross Sections
(n,t)
Cross Section (barns)
Incident Energy (MeV)
12
67-Ho-162

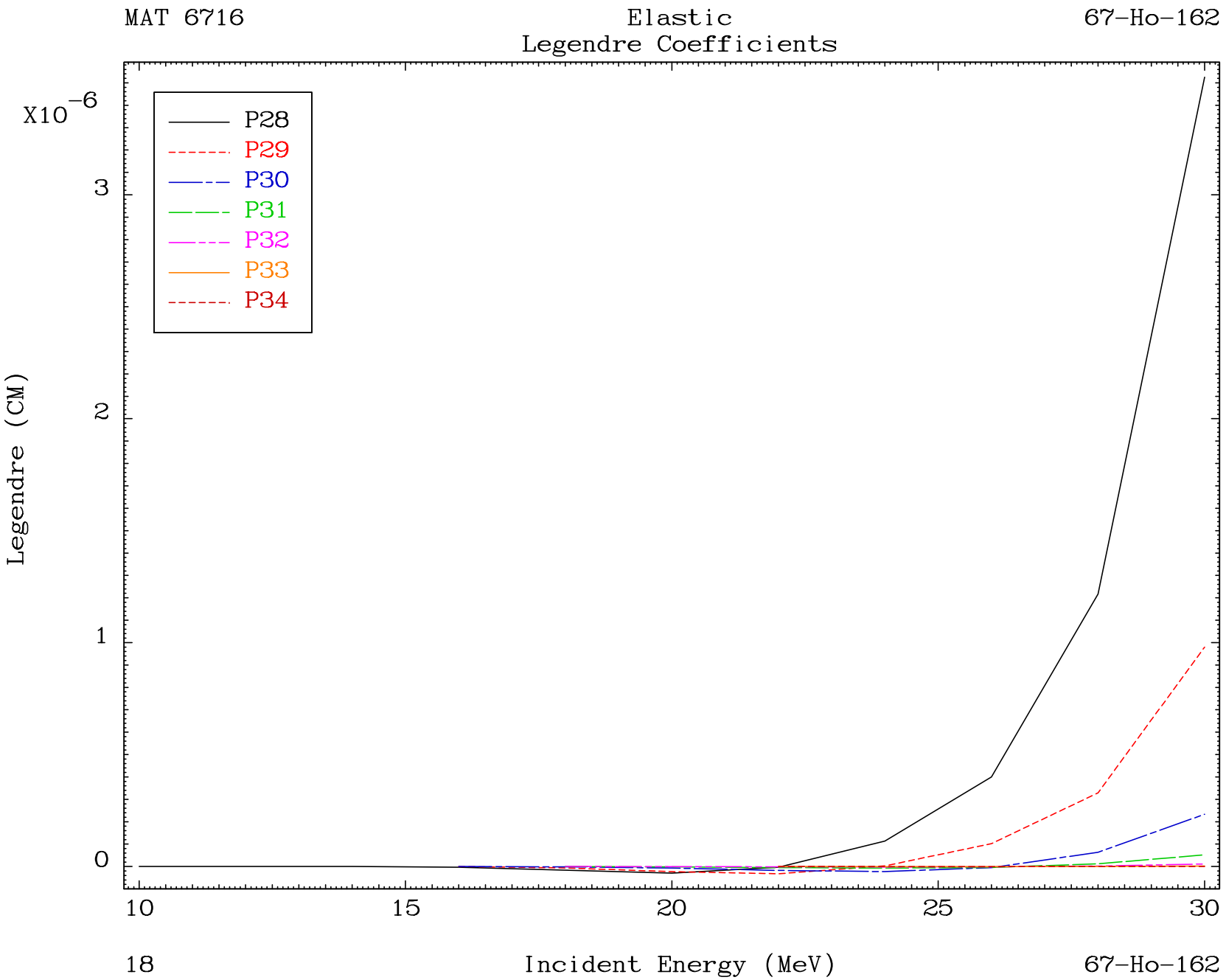

MAT 6716
(n,He3) Levels
67-Ho-162
293 Kelvin Cross Sections
(n,He-3)
Cross Section (barns)
10^-4
10^-6
10^-8
10^-10
5
6
7
8
9
10^1
2
3
4
5
6
7
8
9
10^2
2
13
Incident Energy (MeV)
67-Ho-162

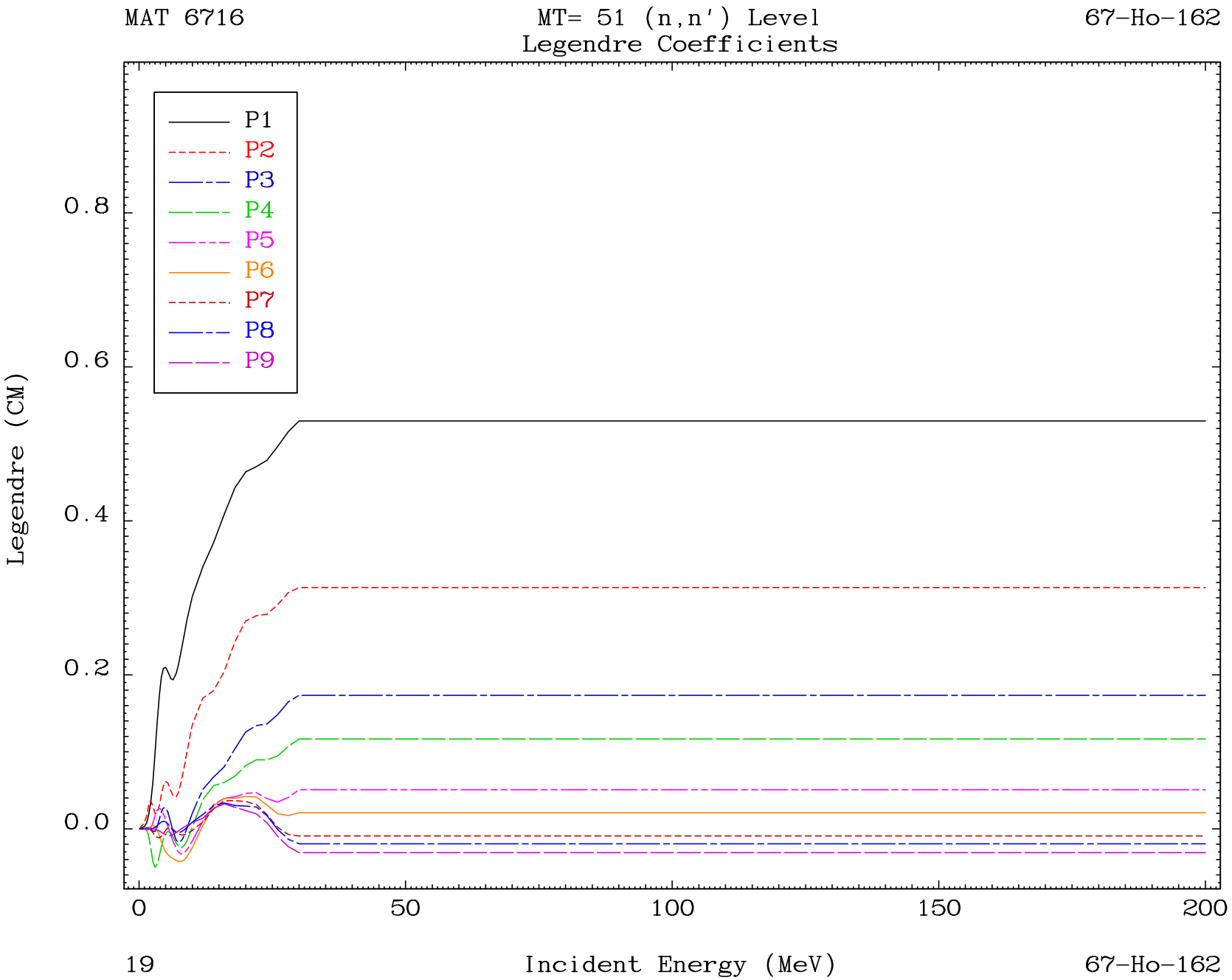

MAT 6716
(n,α) Levels
293 Kelvin Cross Sections
67-Ho-162
Cross Section (barns)
10-2
5
10-4
5
10-6
5
10-8
5
(n,α)
(n,2α)
10-10
10-8
10-6
10-4
10-2
100
102
Incident Energy (MeV)
14
67-Ho-162

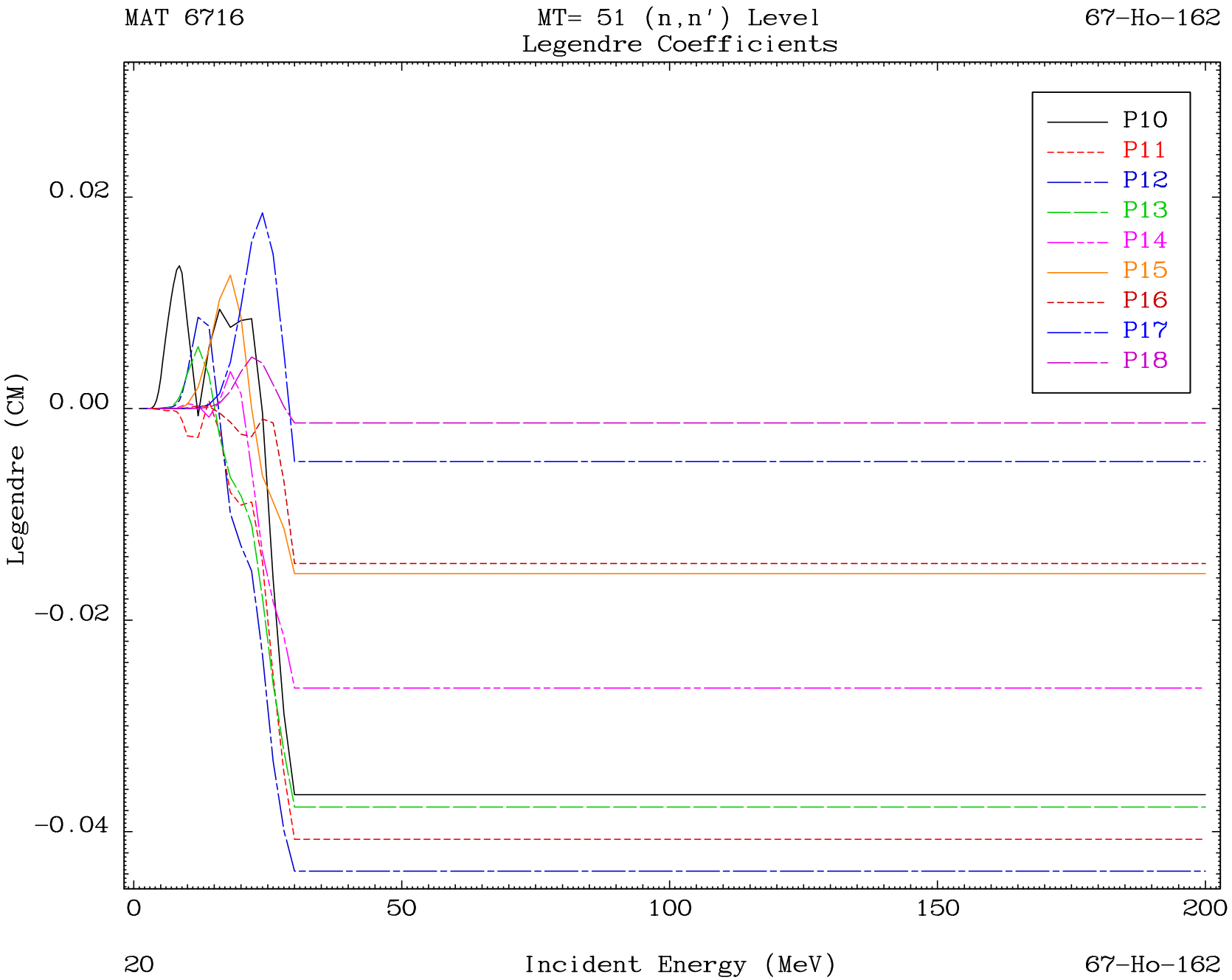

MAT 6716
Elastic
Legendre Coefficients
67-Ho-162
Legendre (CM)
0.0
0.2
0.4
0.6
0.8
0
10
20
30
15
Incident Energy (MeV)
67-Ho-162
P1
P2
P3
P4
P5
P6
P7
P8
P9

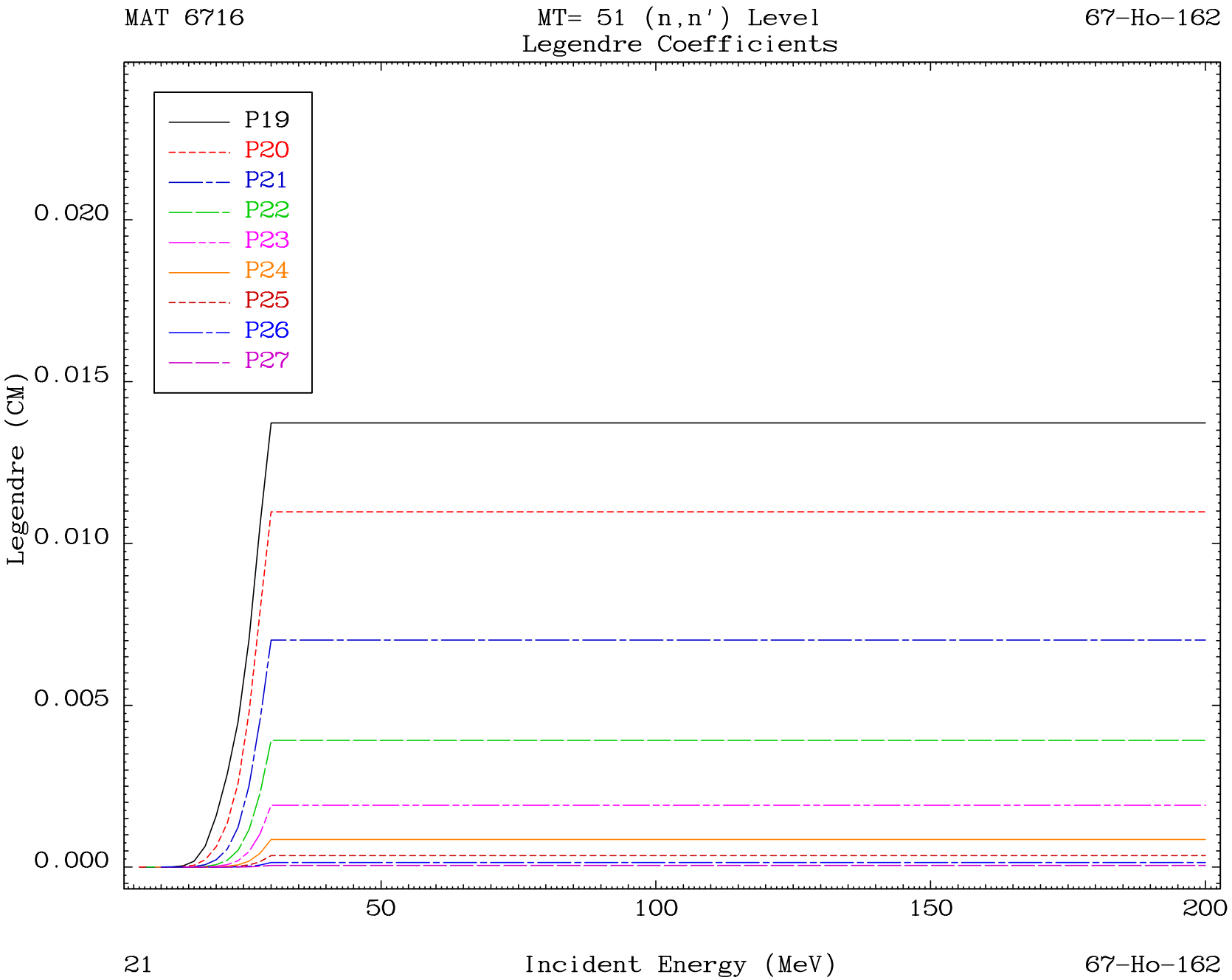

MAT 6716
Elastic
Legendre Coefficients
67-Ho-162
P10
P11
P12
P13
P14
P15
P16
P17
P18
Legendre (CM)
0.0
0.1
0.2
0.3
5
10
15
20
25
30
16
Incident Energy (MeV)
67-Ho-162

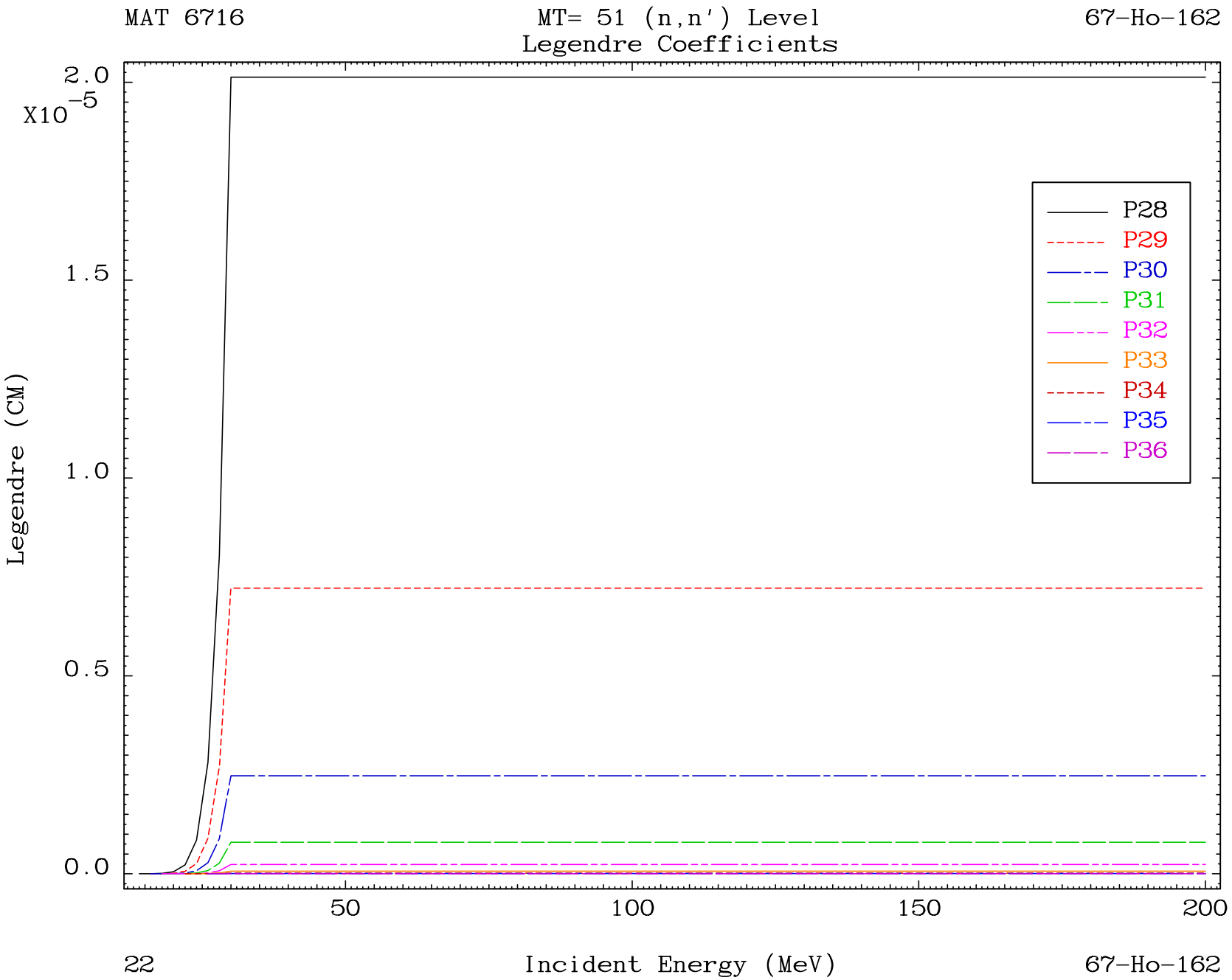

MAT 6716
Elastic
Legendre Coefficients
67-Ho-162
P19
P20
P21
P22
P23
P24
P25
P26
P27
0.015
0.010
0.005
0.000
Legendre (CM)
5
10
15
20
25
30
17
Incident Energy (MeV)
67-Ho-162

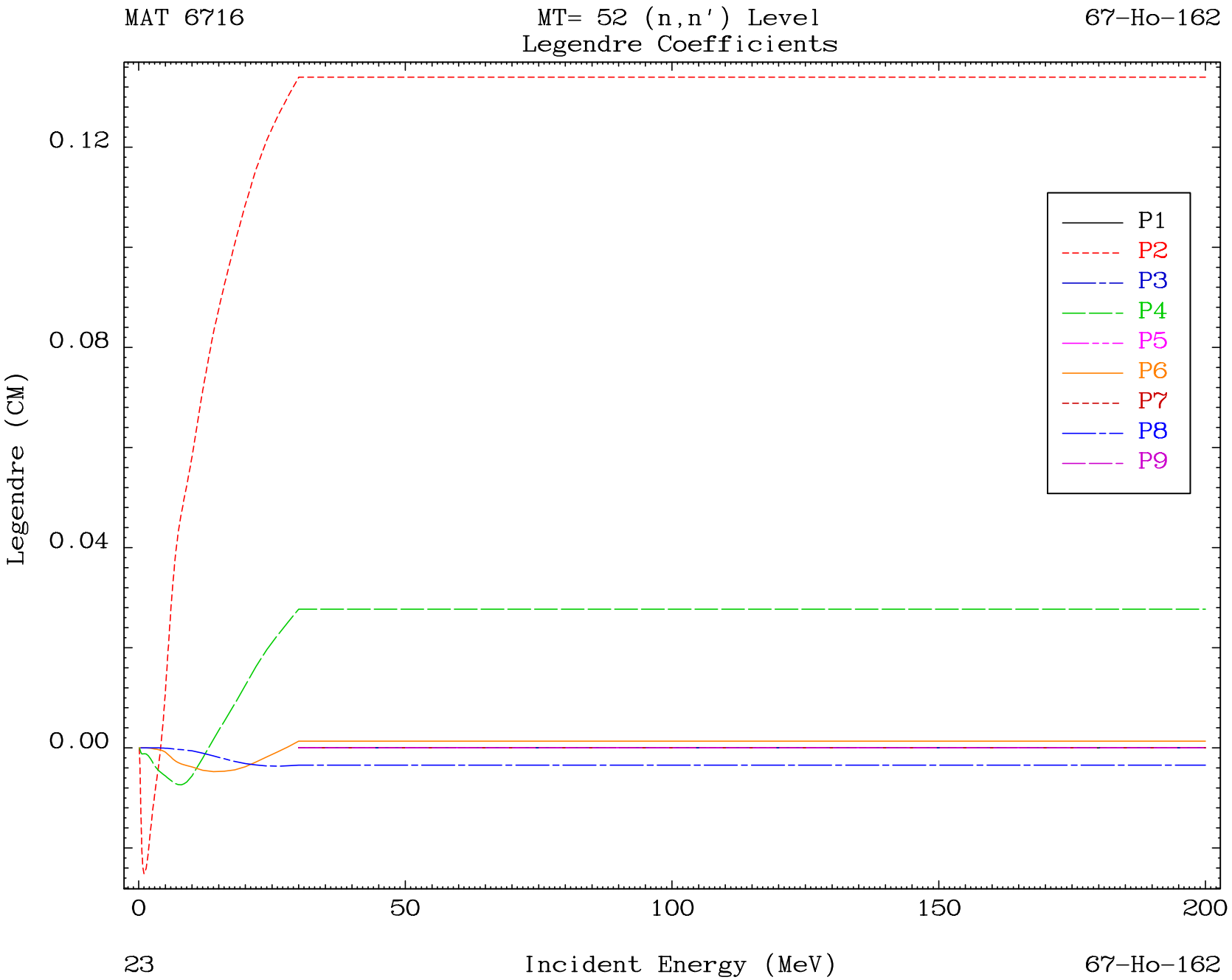

MAT 6716
Elastic
Legendre Coefficients
67-Ho-162
X10 −6
3
2
1
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
10
15
20
25
30
18
Incident Energy (MeV)
67-Ho-162

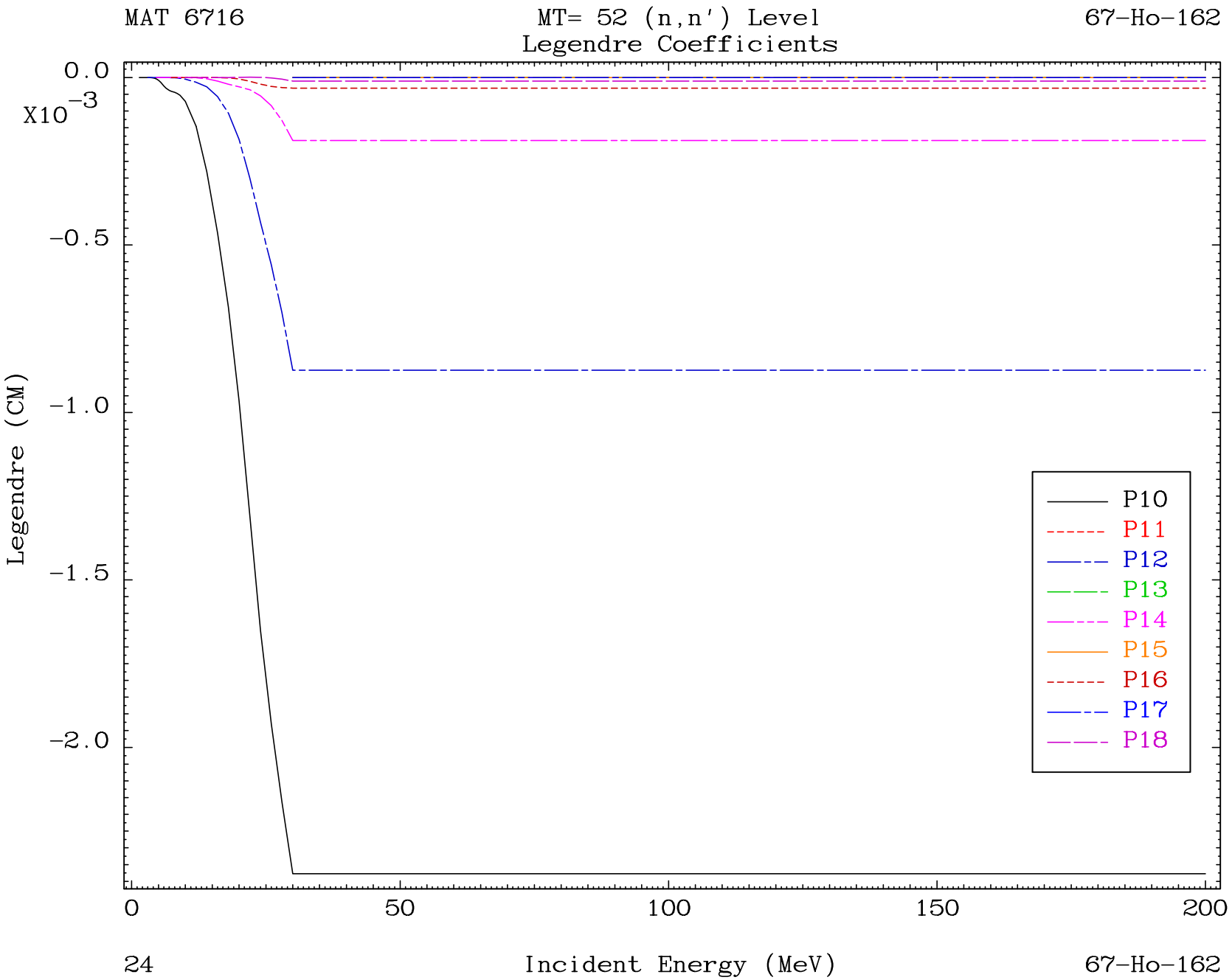

MAT 6716
MT= 51 (n,n') Level
Legendre Coefficients
67-Ho-162
P1
P2
P3
P4
P5
P6
P7
P8
P9
Legendre (CM)
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200
19
Incident Energy (MeV)
67-Ho-162

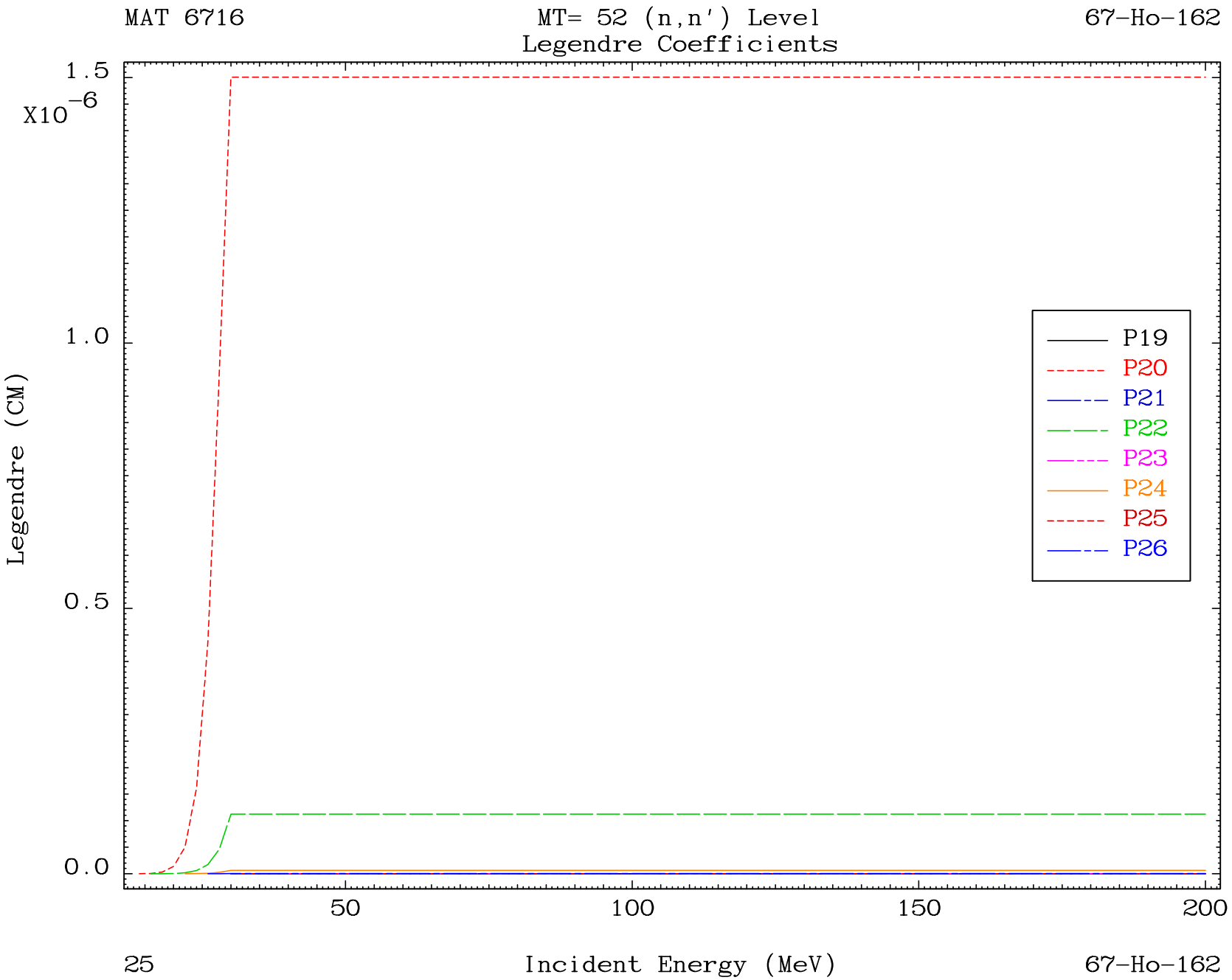

MAT 6716
MT= 51 (n,n') Level
Legendre Coefficients
67-Ho-162
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
20
Incident Energy (MeV)
67-Ho-162

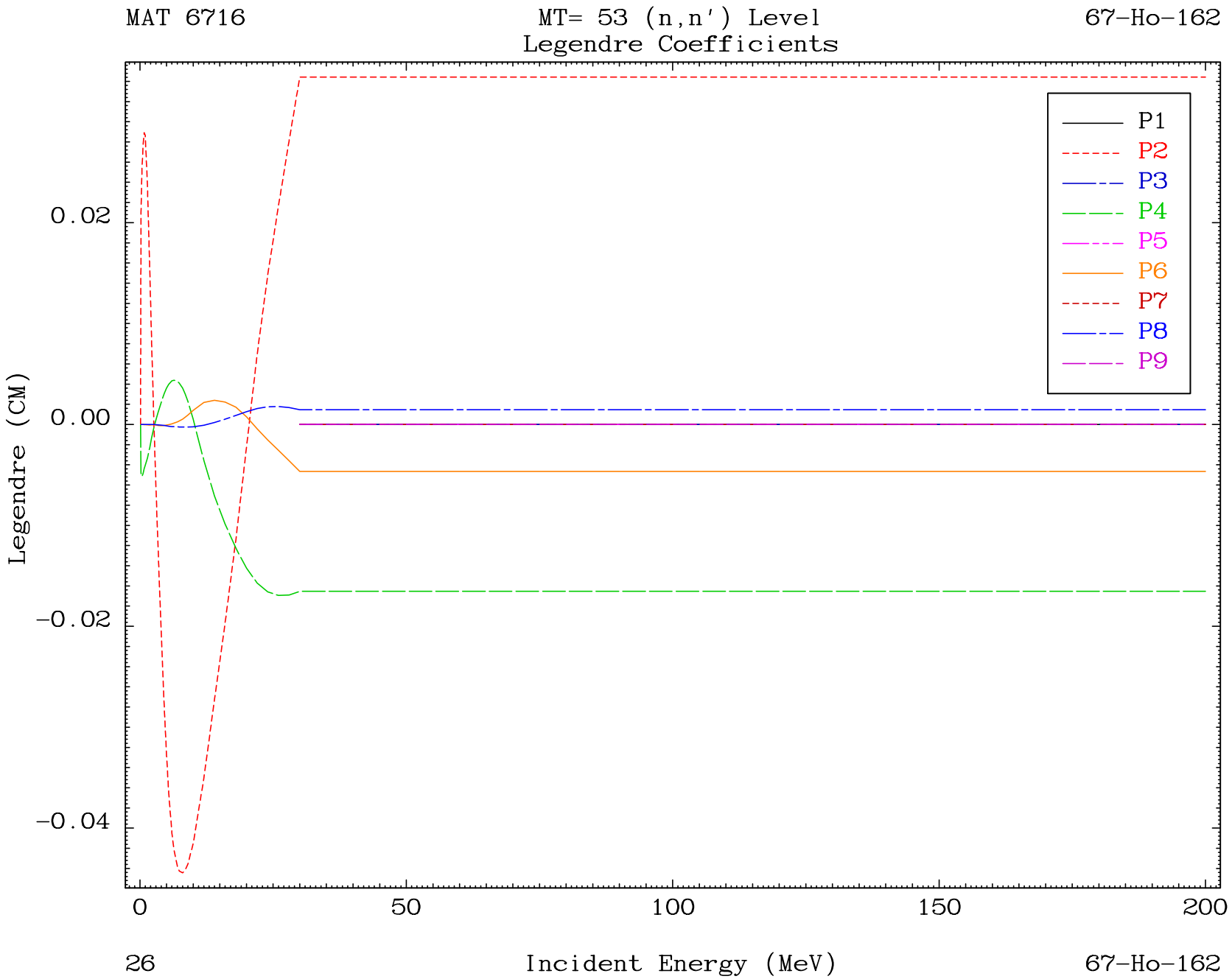

MAT 6716
MT= 51 (n,n') Level
Legendre Coefficients
67-Ho-162
P19
P20
P21
P22
P23
P24
P25
P26
P27
0.020
0.015
0.010
0.005
0.000
Legendre (CM)
50
100
150
200
21
Incident Energy (MeV)
67-Ho-162

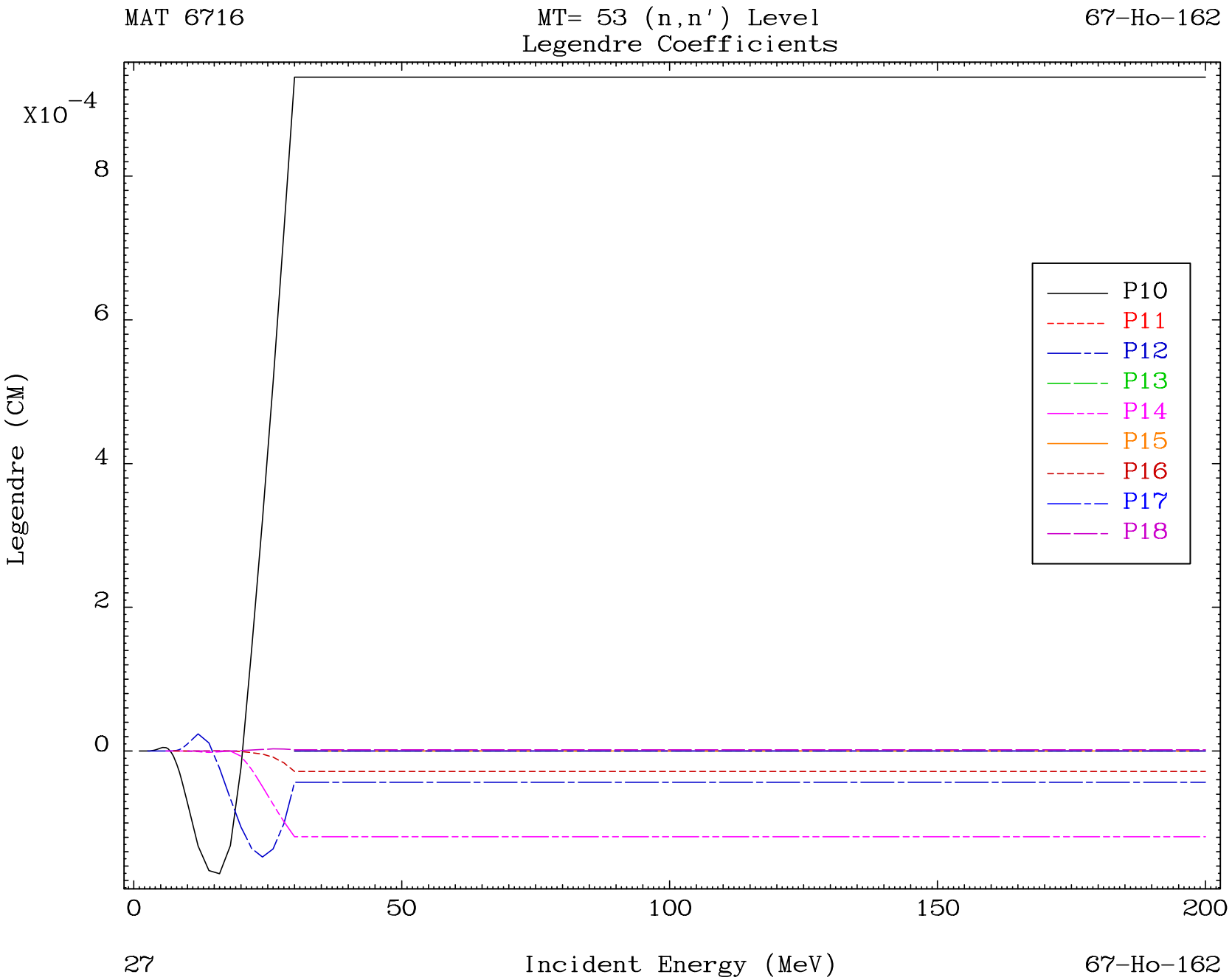

MAT 6716
MT= 51 (n,n') Level
Legendre Coefficients
67-Ho-162
X10 -5
2.0
1.5
1.0
0.5
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
P35
P36
50
100
150
200
22
Incident Energy (MeV)
67-Ho-162

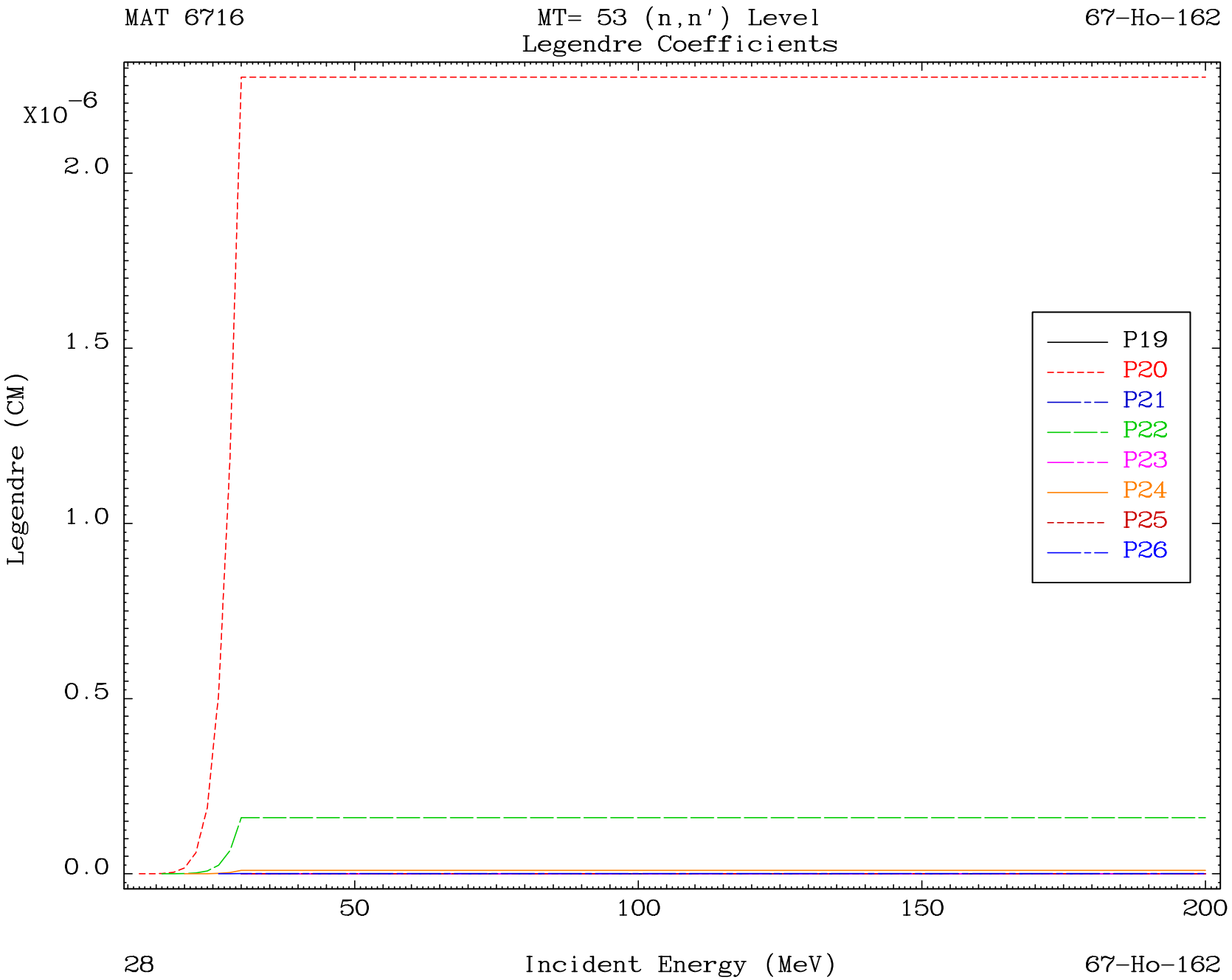

MAT 6716
MT= 52 (n,n') Level
Legendre Coefficients
67-Ho-162
0.12
0.08
0.04
0.00
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
23
Incident Energy (MeV)
67-Ho-162

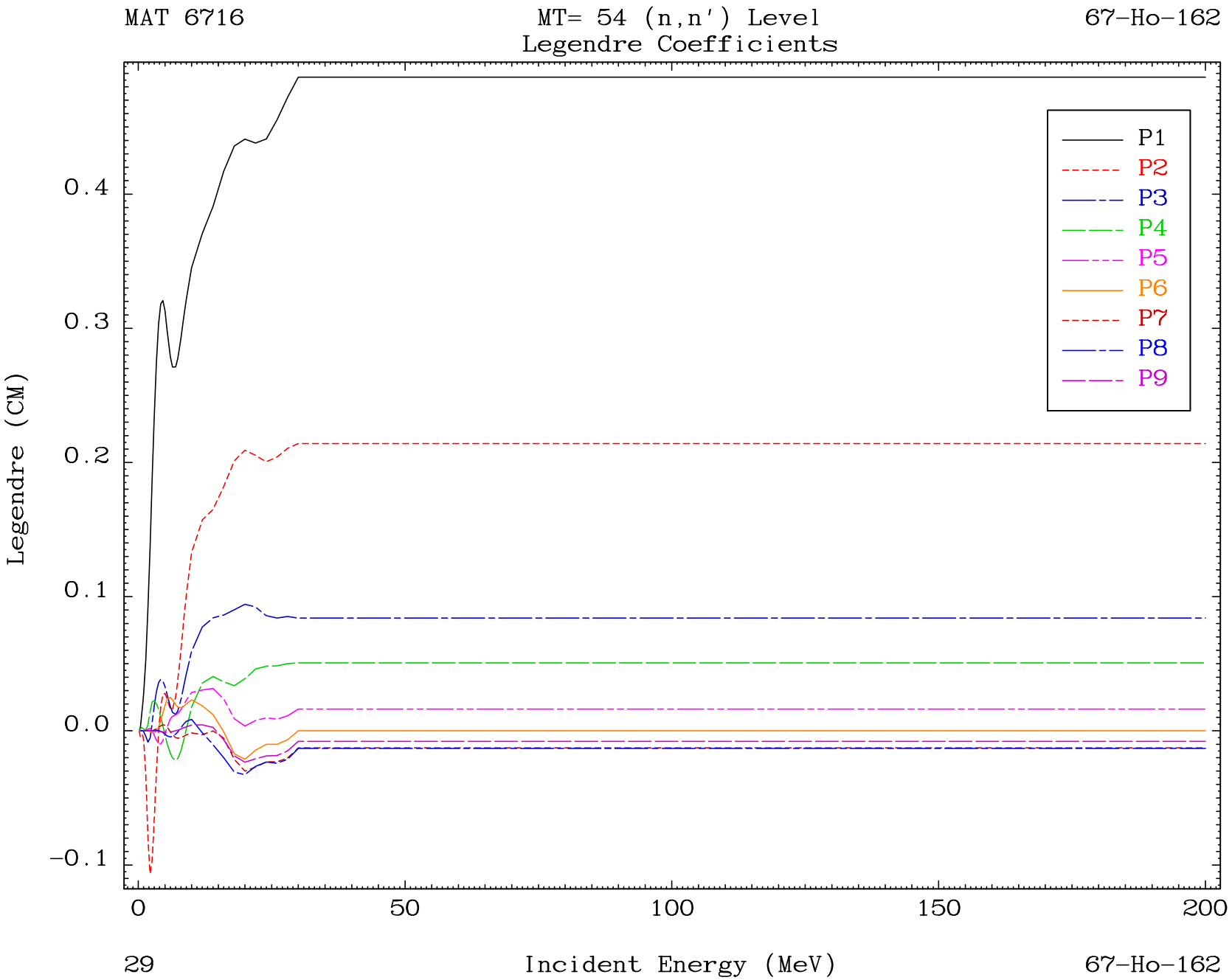

MAT 6716
MT= 52 (n,n') Level
Legendre Coefficients
67-Ho-162
0.0
X10^-3
-0.5
-1.0
-1.5
-2.0
Legendre (CM)
0
50
100
150
200
Incident Energy (MeV)
24
67-Ho-162
P10
P11
P12
P13
P14
P15
P16
P17
P18

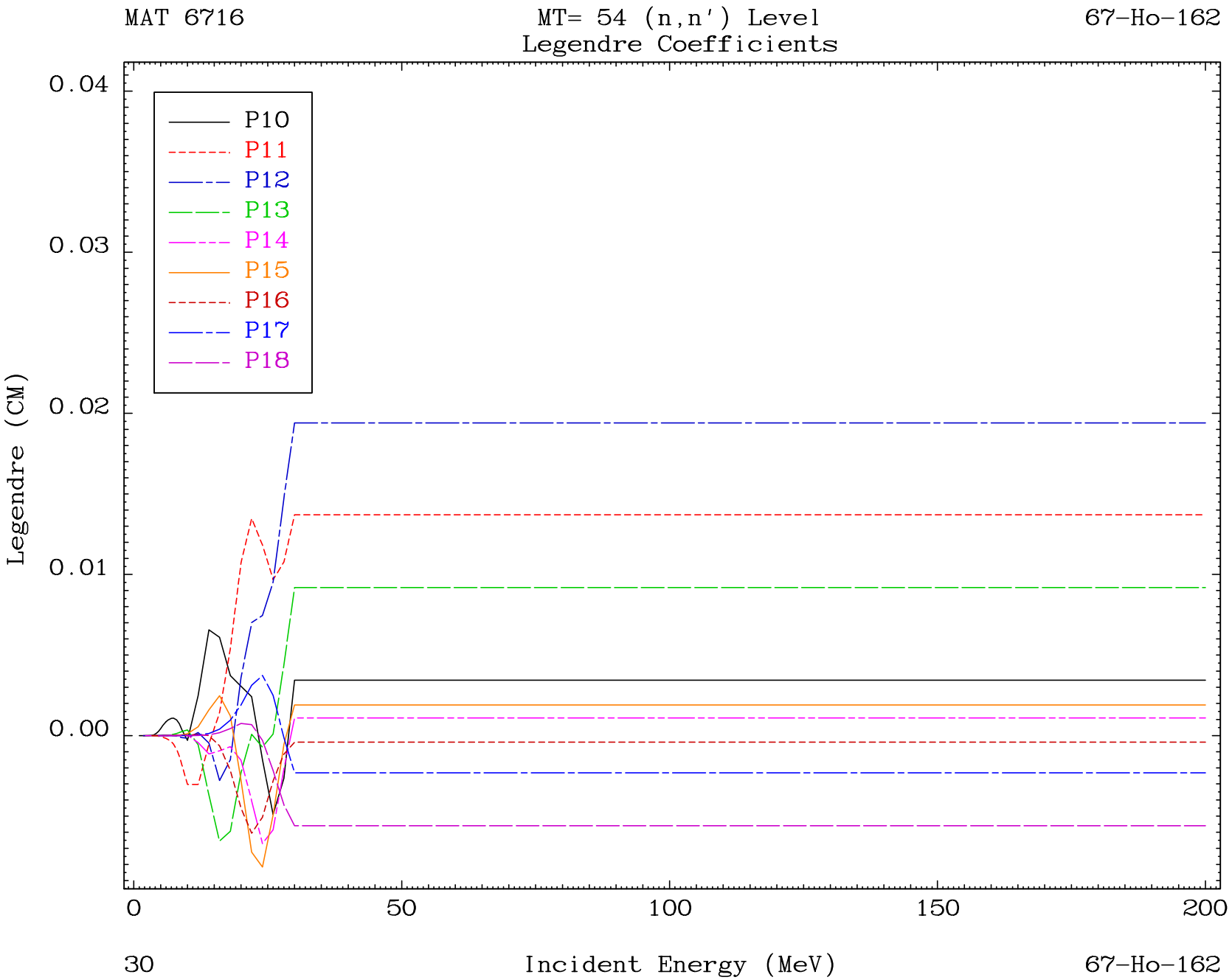

MAT 6716
MT= 52 (n,n') Level
Legendre Coefficients
67-Ho-162
1.5
X10 −6
1.0
0.5
0.0
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
50
100
150
200
25
Incident Energy (MeV)
67-Ho-162

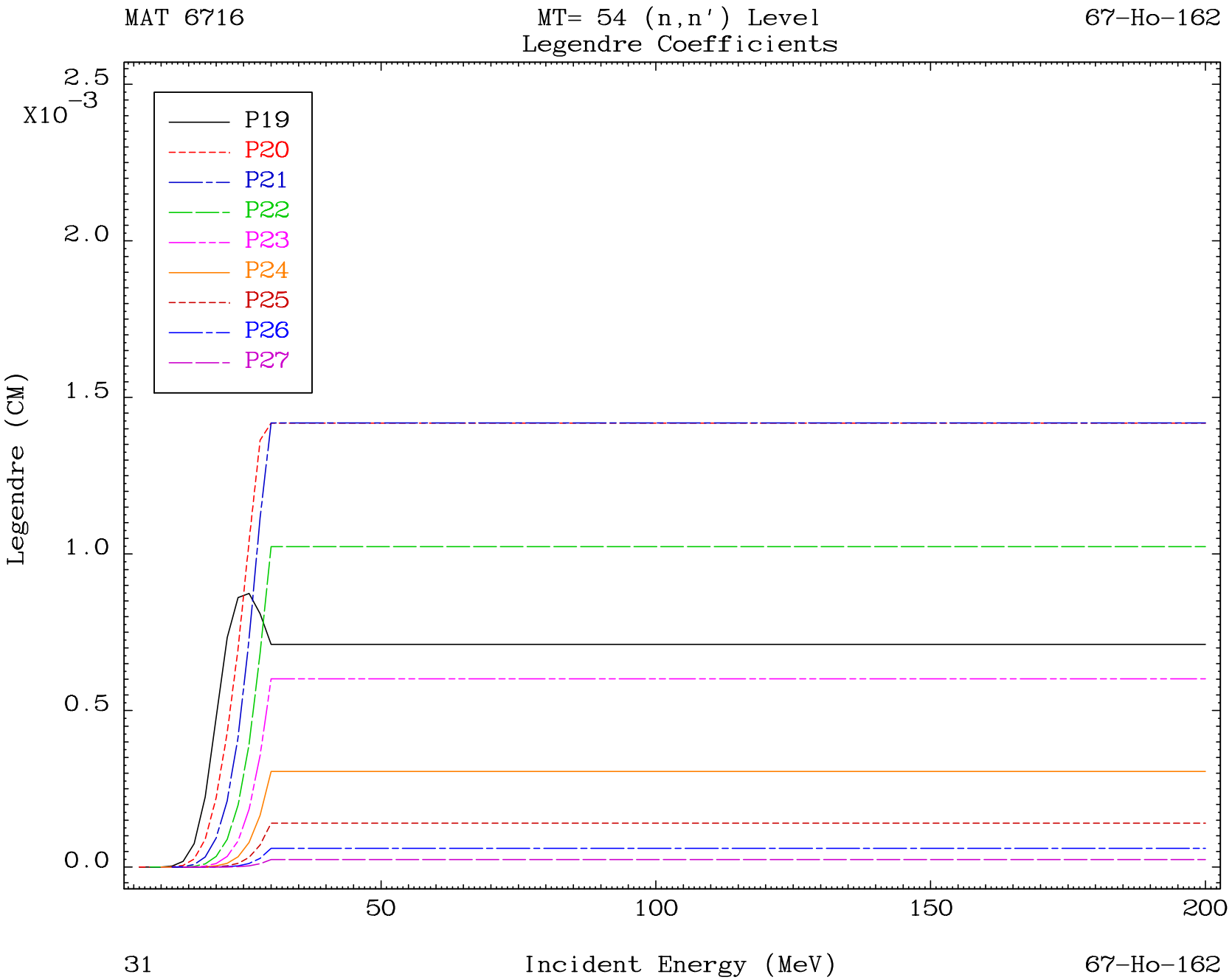

MAT 6716
MT= 53 (n,n') Level
Legendre Coefficients
67-Ho-162
P1
P2
P3
P4
P5
P6
P7
P8
P9
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
26
Incident Energy (MeV)
67-Ho-162

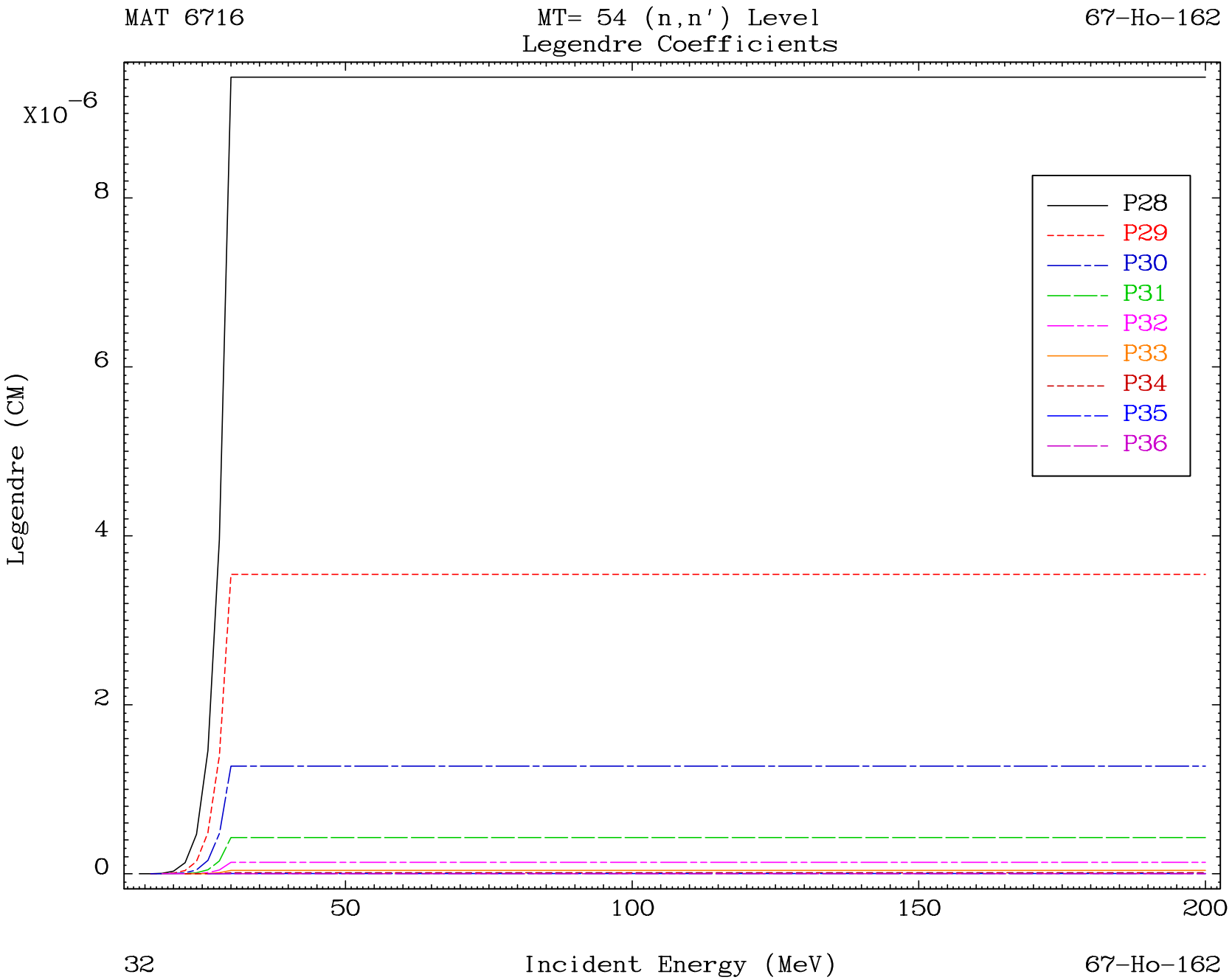

MAT 6716
MT= 53 (n,n') Level
Legendre Coefficients
67-Ho-162
X10^-4
8
6
4
2
0
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
27
Incident Energy (MeV)
67-Ho-162

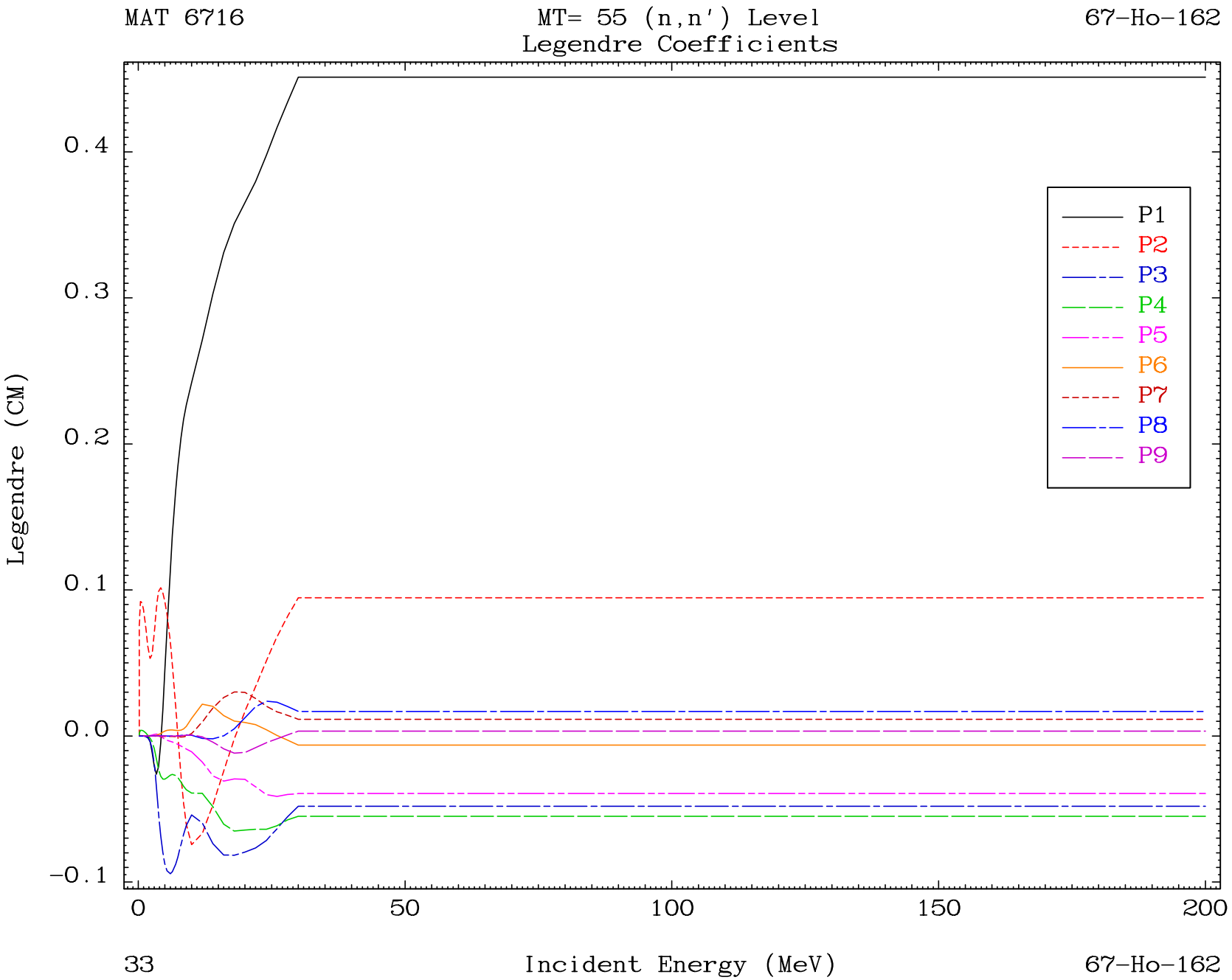

MAT 6716
MT= 53 (n,n') Level
Legendre Coefficients
67-Ho-162
X10^-6
2.0
1.5
1.0
0.5
0.0
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
50
100
150
200
28
Incident Energy (MeV)
67-Ho-162

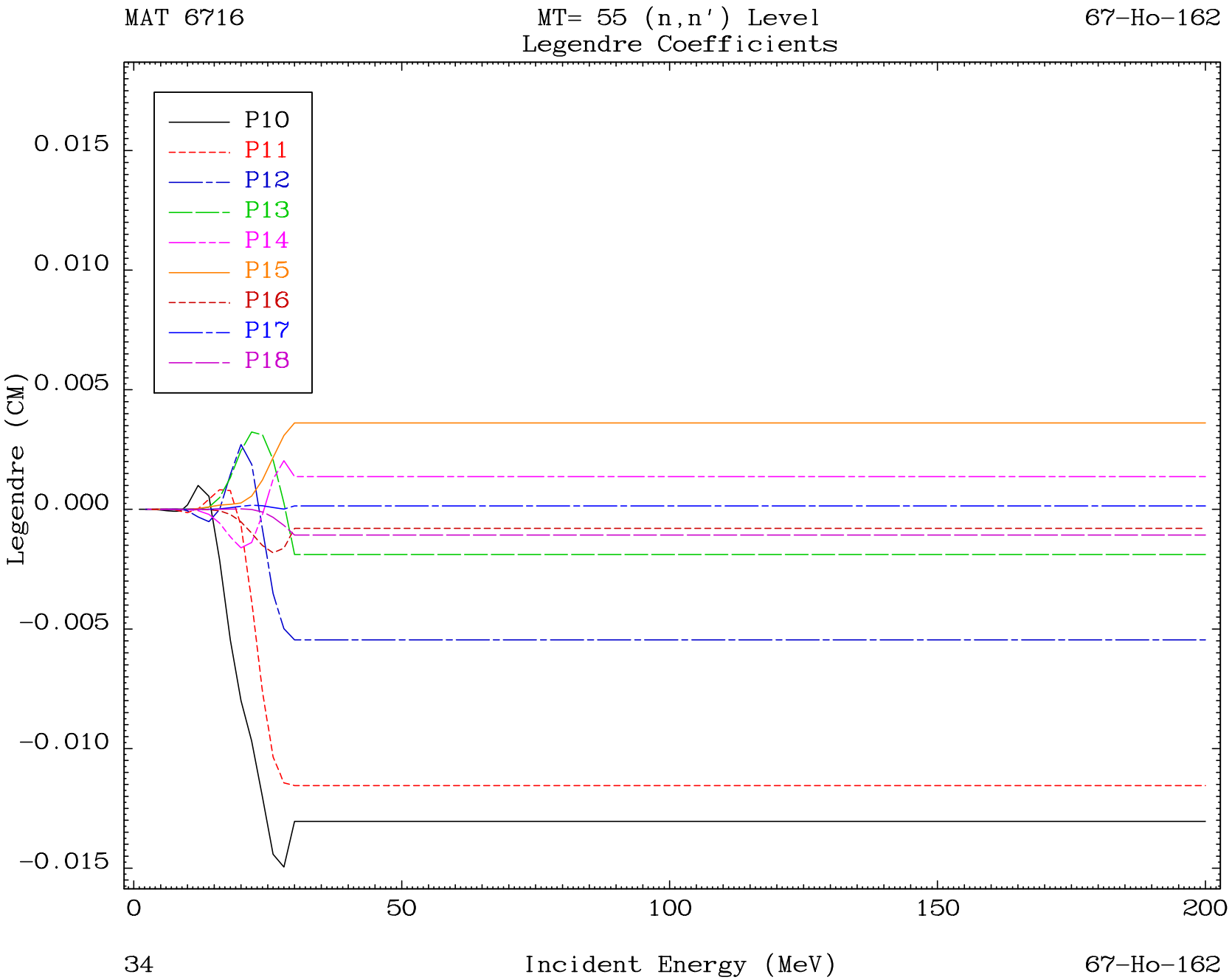

MAT 6716
MT= 54 (n,n') Level
Legendre Coefficients
67-Ho-162
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
29
Incident Energy (MeV)
67-Ho-162
P1
P2
P3
P4
P5
P6
P7
P8
P9

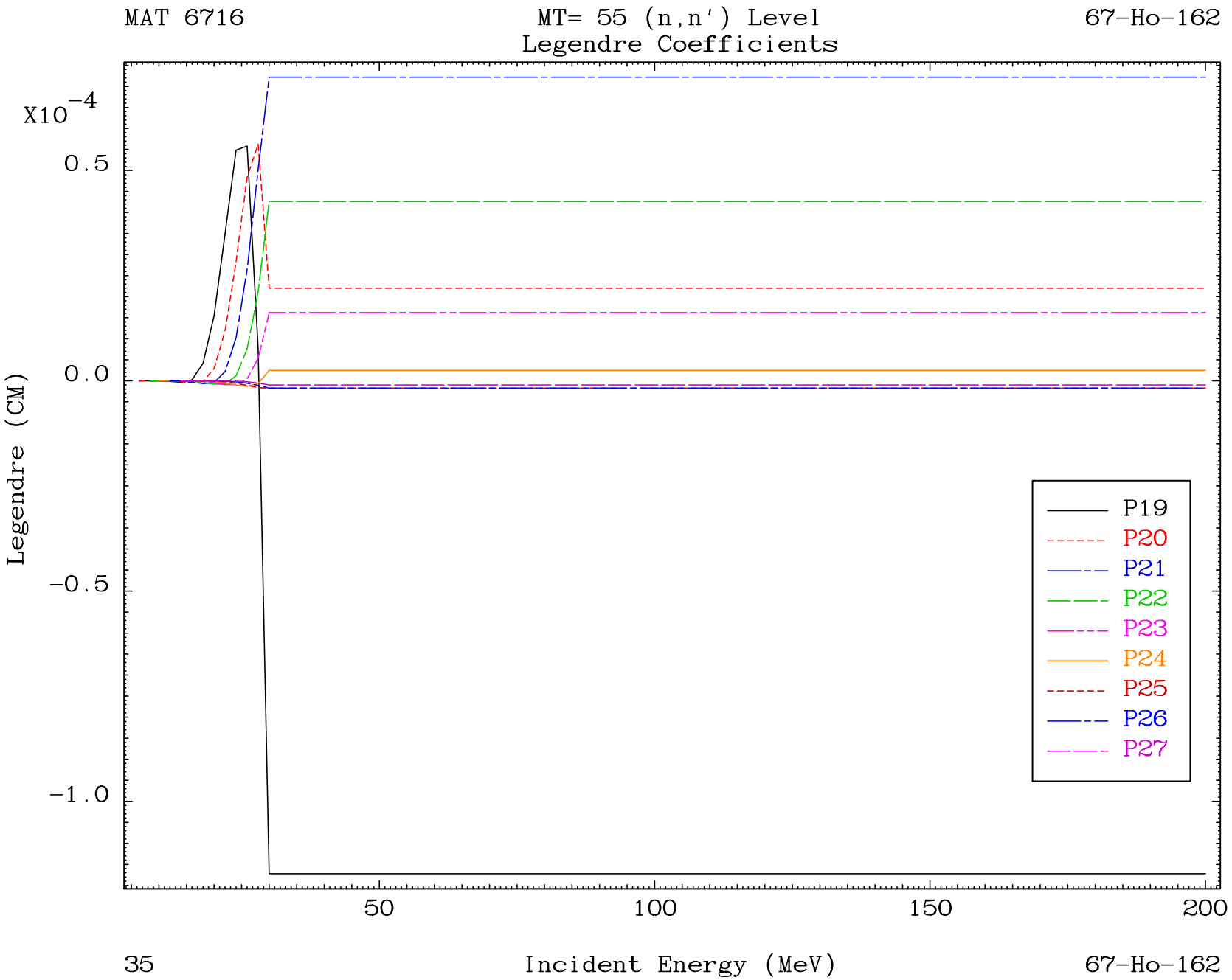

MAT 6716
MT= 54 (n,n') Level
Legendre Coefficients
67-Ho-162
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.03
0.02
0.01
0.00
Legendre (CM)
0
50
100
150
200
30
Incident Energy (MeV)
67-Ho-162

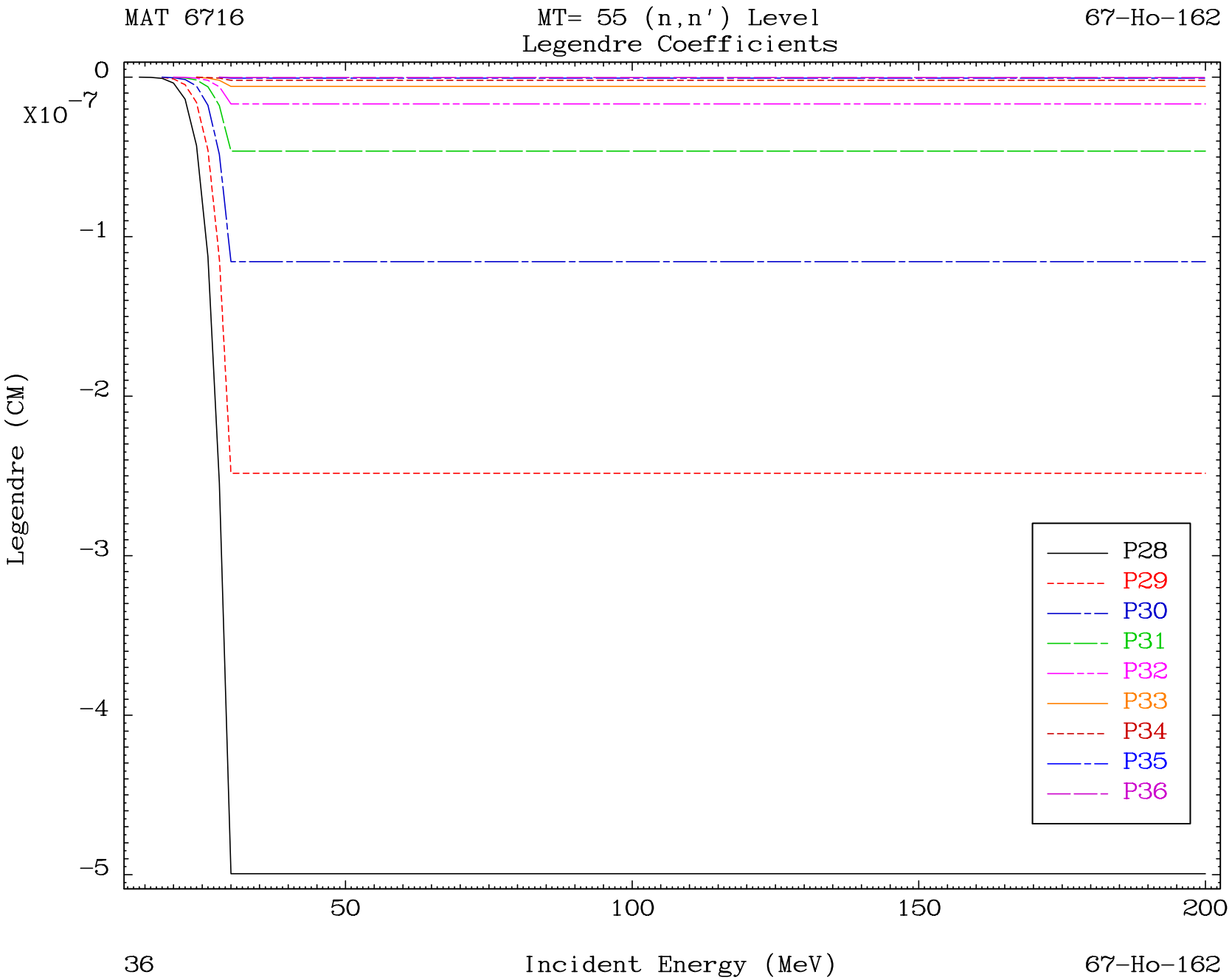

MAT 6716
MT= 54 (n,n') Level
Legendre Coefficients
67-Ho-162
X10 -3
2.5
2.0
1.5
1.0
0.5
0.0
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
31
Incident Energy (MeV)
67-Ho-162

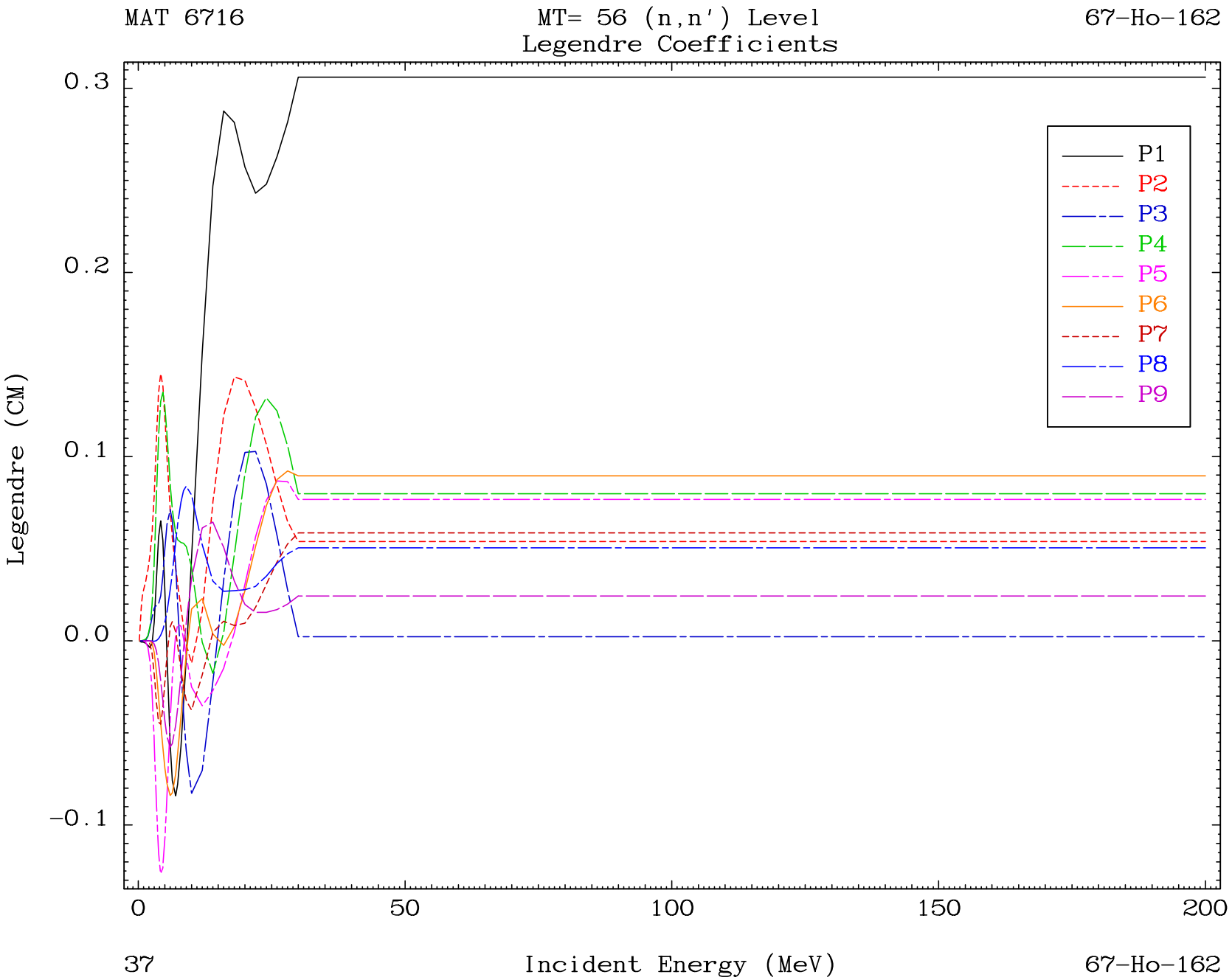

MAT 6716
MT= 54 (n,n') Level
Legendre Coefficients
67-Ho-162
X10^-6
8
6
4
2
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
P35
P36
50
100
150
200
32
Incident Energy (MeV)
67-Ho-162

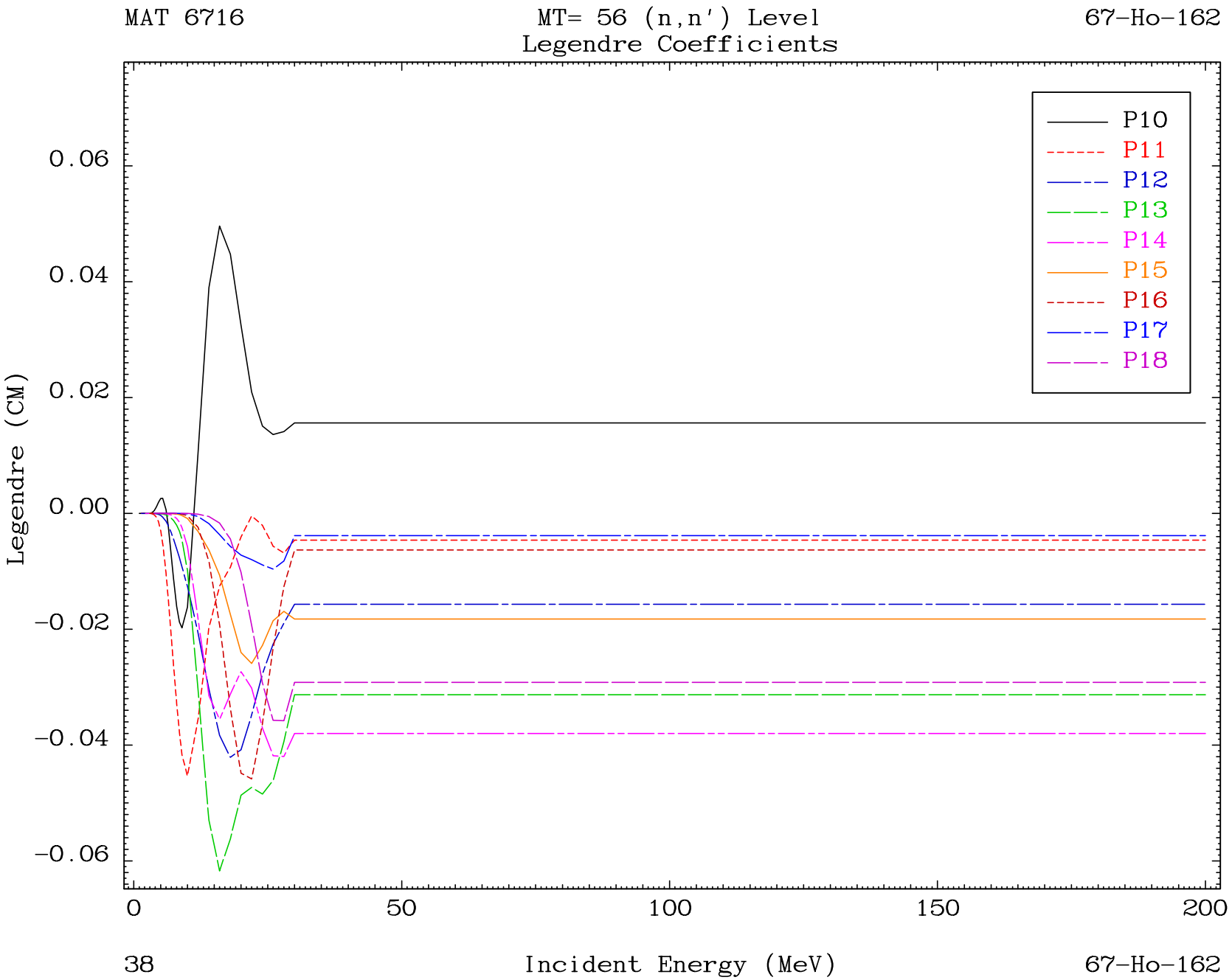

MAT 6716
MT= 55 (n,n') Level
Legendre Coefficients
67-Ho-162
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
Incident Energy (MeV)
33
67-Ho-162
P1
P2
P3
P4
P5
P6
P7
P8
P9

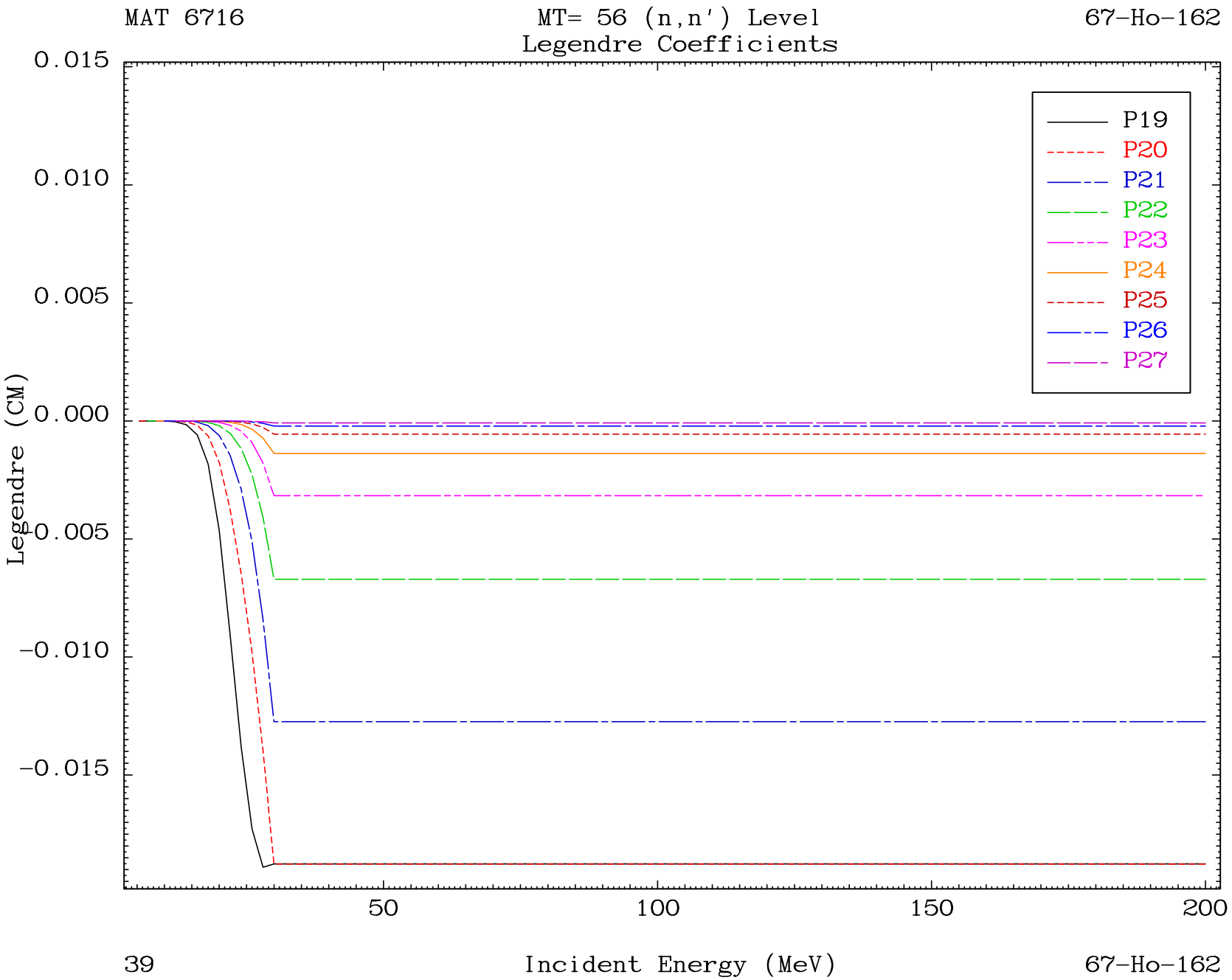

MAT 6716
MT= 55 (n,n') Level
Legendre Coefficients
67-Ho-162
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.015
0.010
0.005
0.000
-0.005
-0.010
-0.015
Legendre (CM)
0
50
100
150
200
34
Incident Energy (MeV)
67-Ho-162

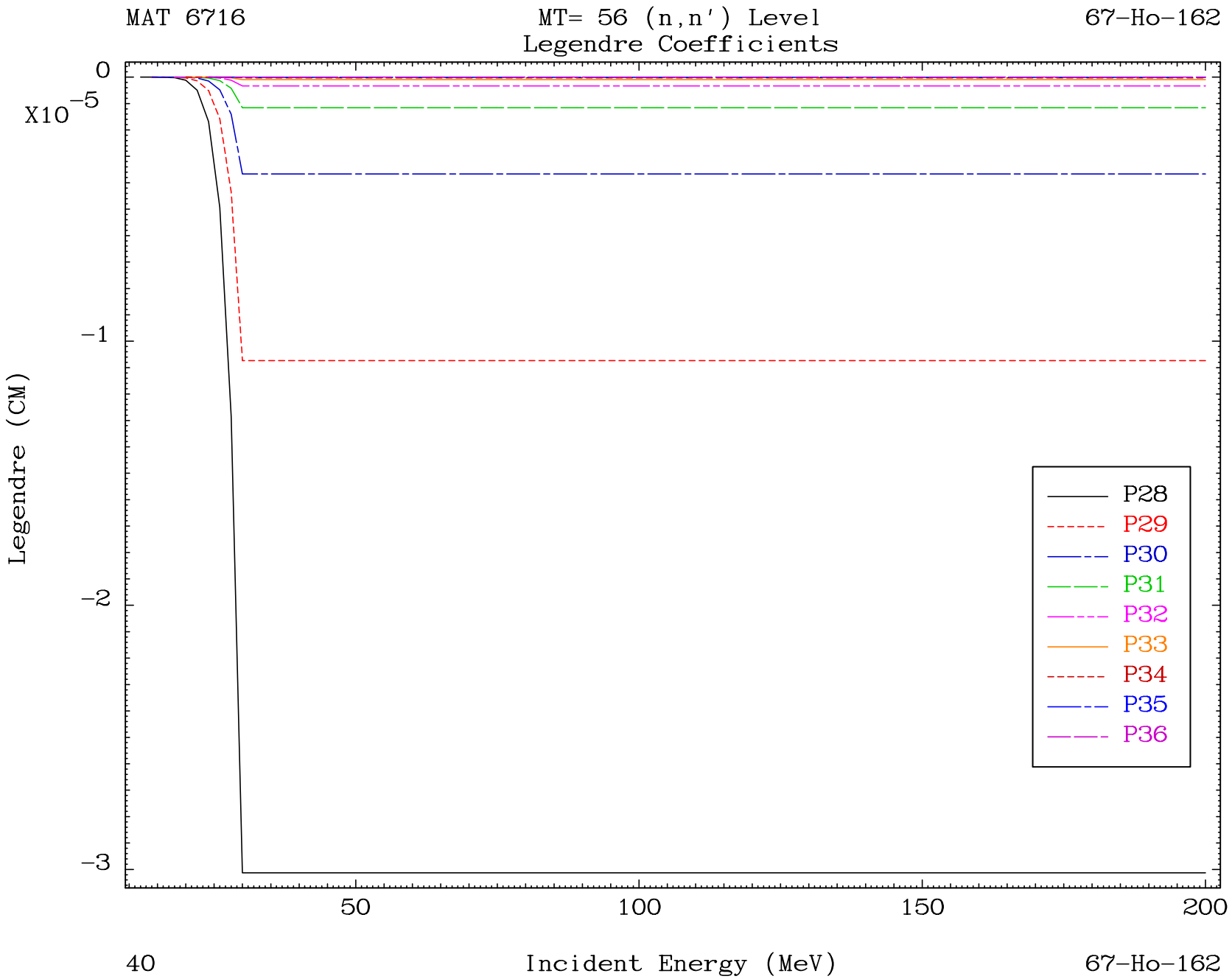

MAT 6716
MT= 55 (n,n') Level
Legendre Coefficients
67-Ho-162
X10^-4
0.5
0.0
-0.5
-1.0
Legendre (CM)
50
100
150
200
35
Incident Energy (MeV)
67-Ho-162
P19
P20
P21
P22
P23
P24
P25
P26
P27

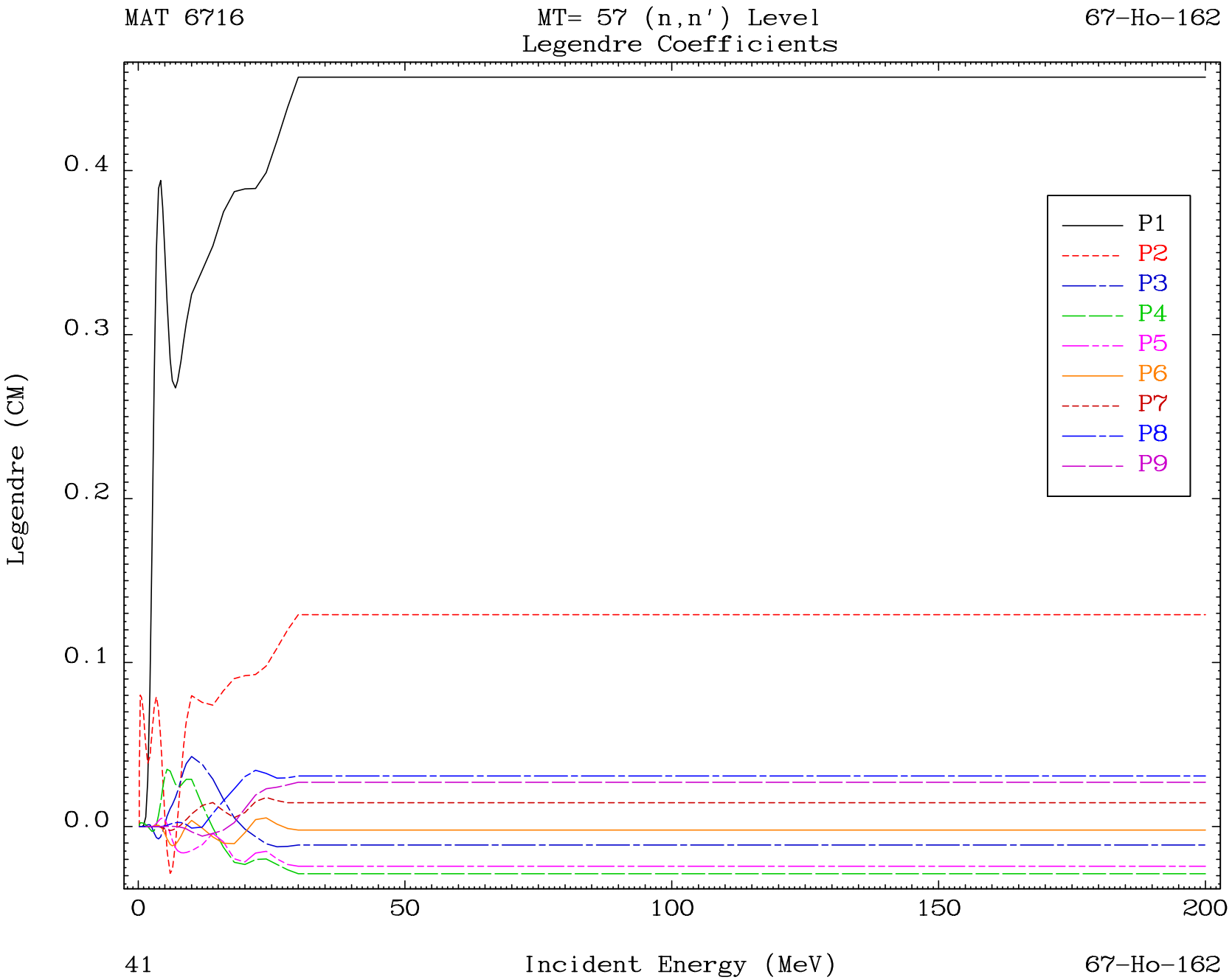

MAT 6716
MT= 55 (n,n') Level
Legendre Coefficients
67-Ho-162
X10-7
0
-1
-2
-3
-4
-5
Legendre (CM)
50
100
150
200
36
Incident Energy (MeV)
67-Ho-162
P28
P29
P30
P31
P32
P33
P34
P35
P36

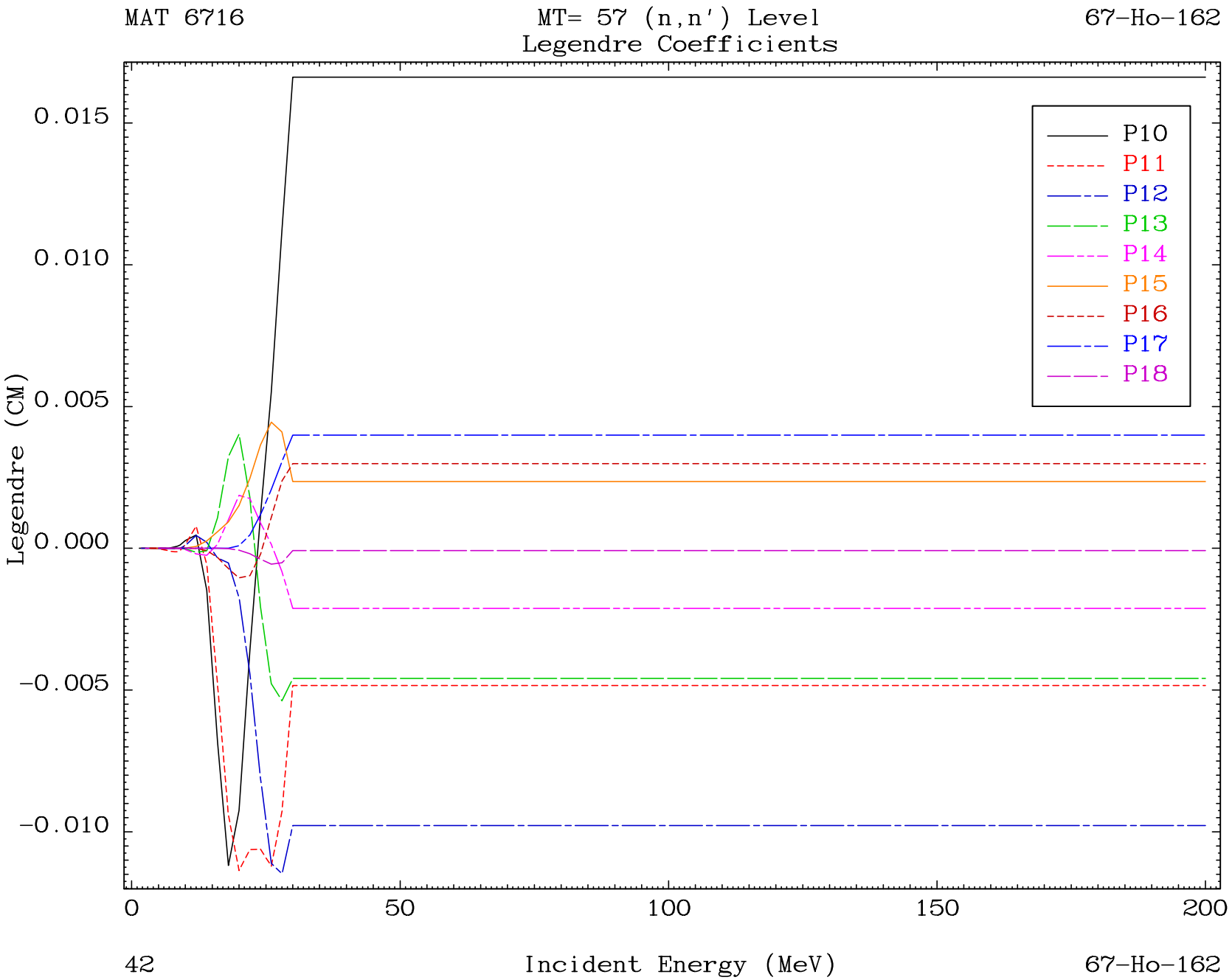

MAT 6716
MT= 56 (n,n') Level
Legendre Coefficients
67-Ho-162
0.3
0.2
0.1
0.0
-0.1
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
37
Incident Energy (MeV)
67-Ho-162

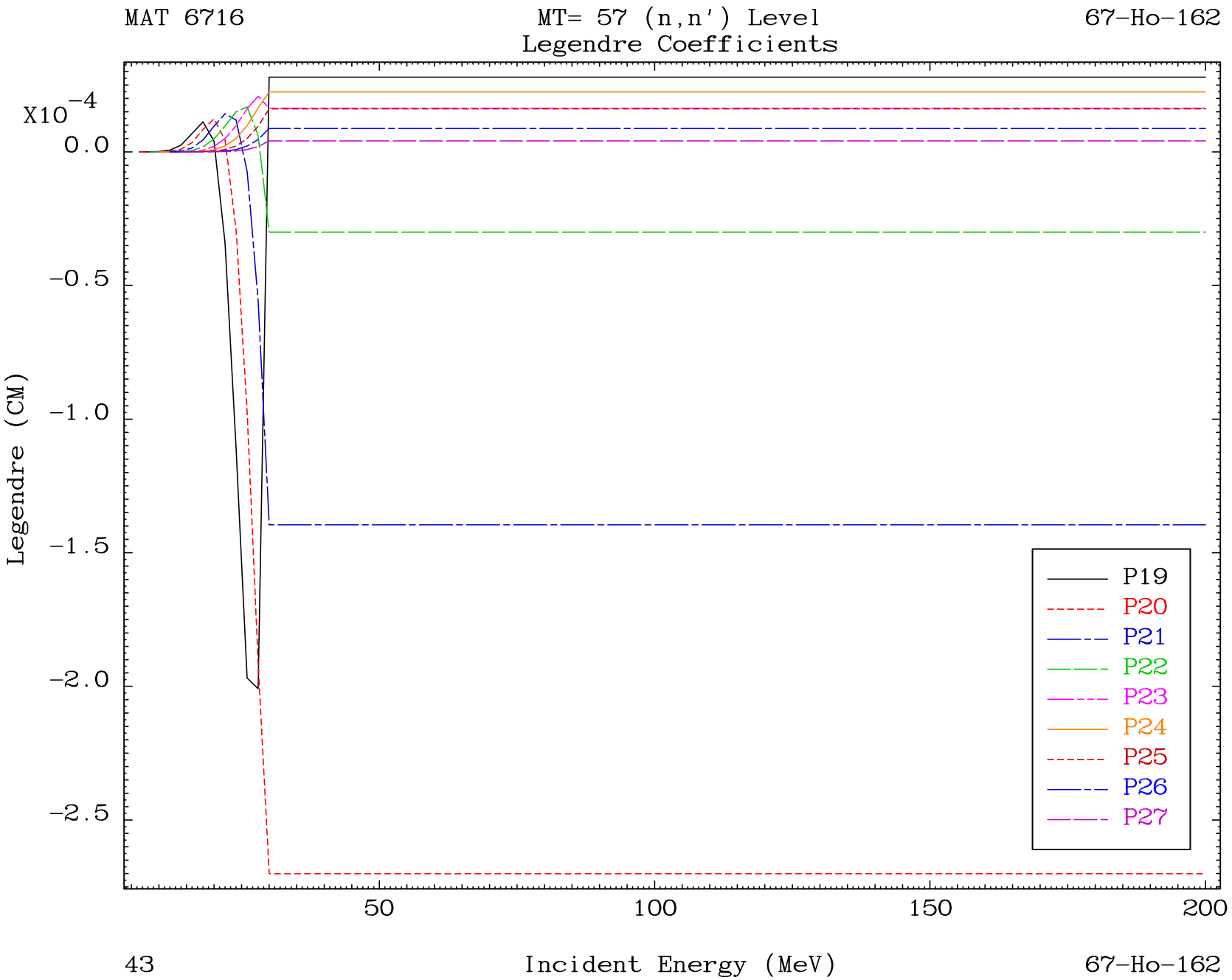

MAT 6716
MT= 56 (n,n') Level
Legendre Coefficients
67-Ho-162
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
Legendre (CM)
0
50
100
150
200
38
Incident Energy (MeV)
67-Ho-162

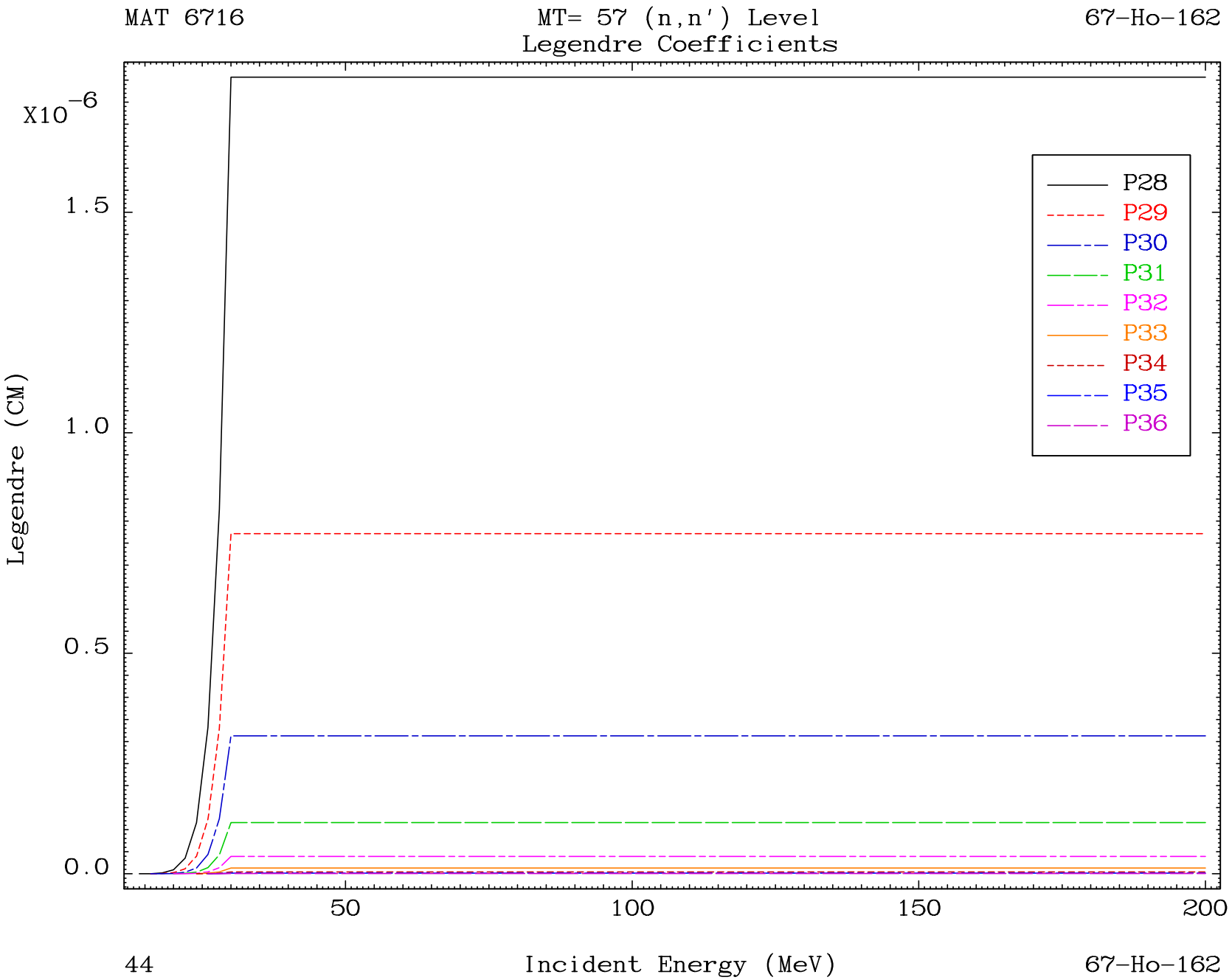

MAT 6716
MT= 56 (n,n') Level
Legendre Coefficients
67-Ho-162
0.015
0.010
0.005
0.000
-0.005
-0.010
-0.015
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
39
Incident Energy (MeV)
67-Ho-162

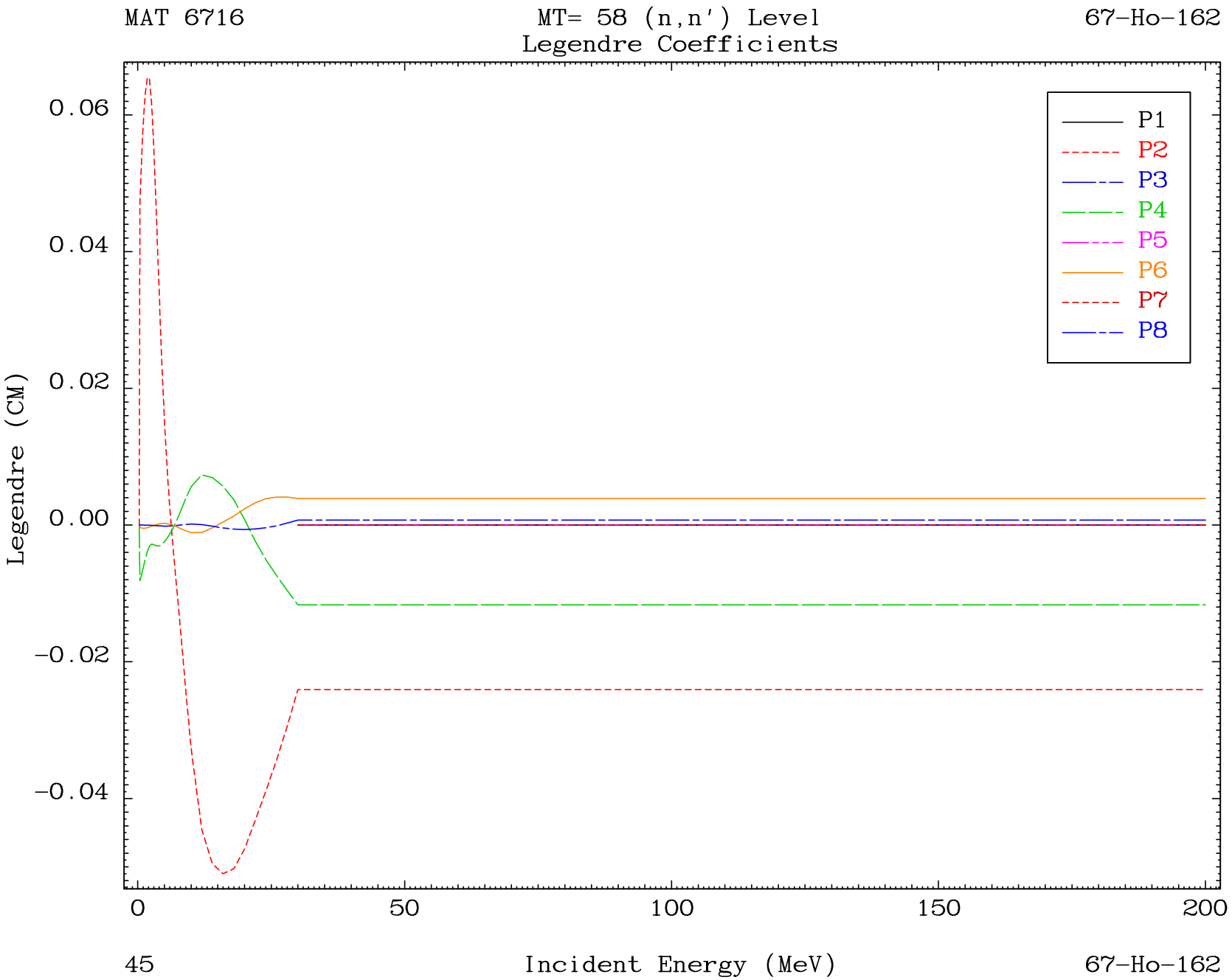

MAT 6716
MT= 56 (n,n') Level
Legendre Coefficients
67-Ho-162
0
X10 −5
−1
−2
−3
Legendre (CM)
50
100
150
200
40
Incident Energy (MeV)
67-Ho-162
P28
P29
P30
P31
P32
P33
P34
P35
P36

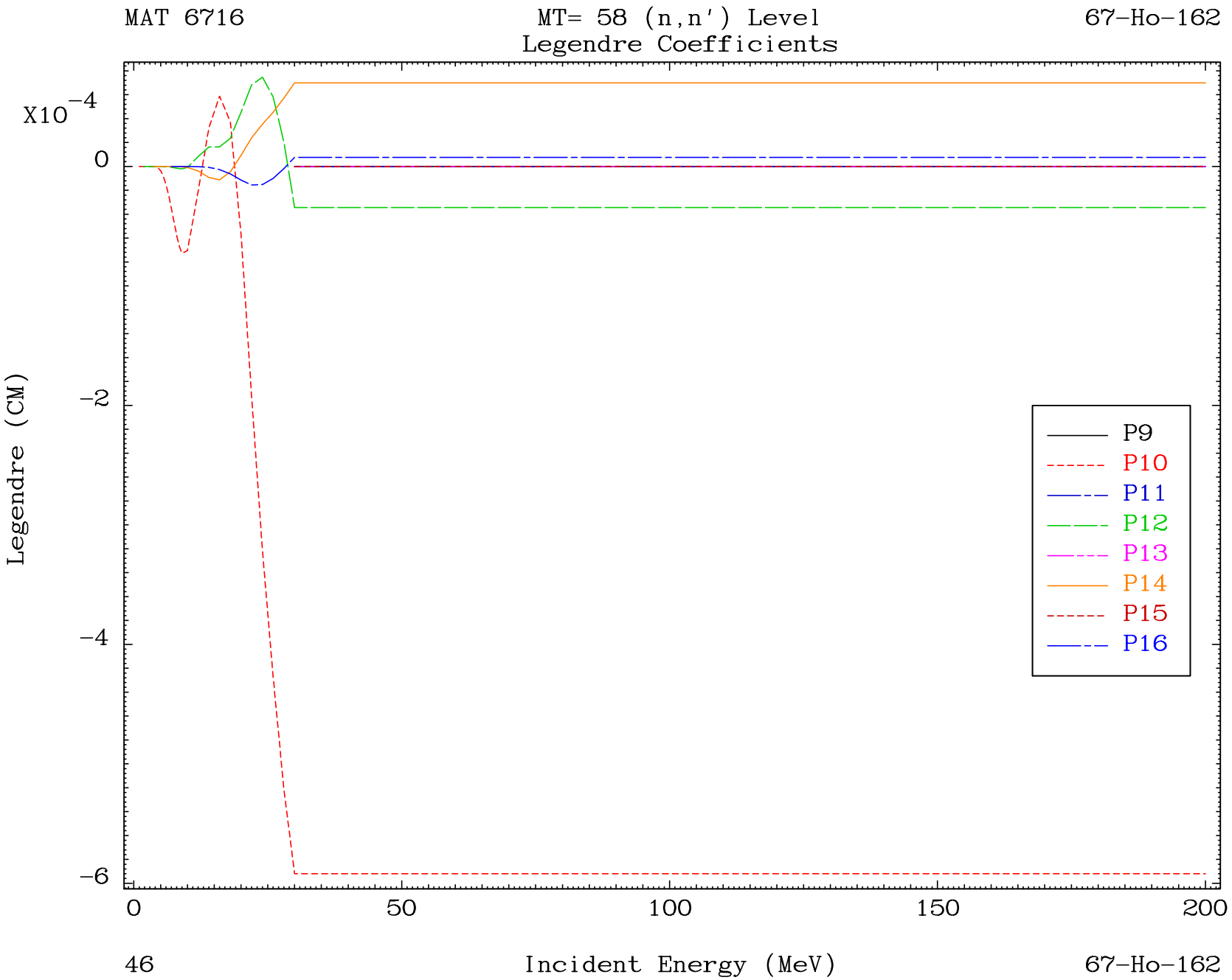

MAT 6716
MT= 57 (n,n') Level
Legendre Coefficients
67-Ho-162
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
41
Incident Energy (MeV)
67-Ho-162
P1
P2
P3
P4
P5
P6
P7
P8
P9

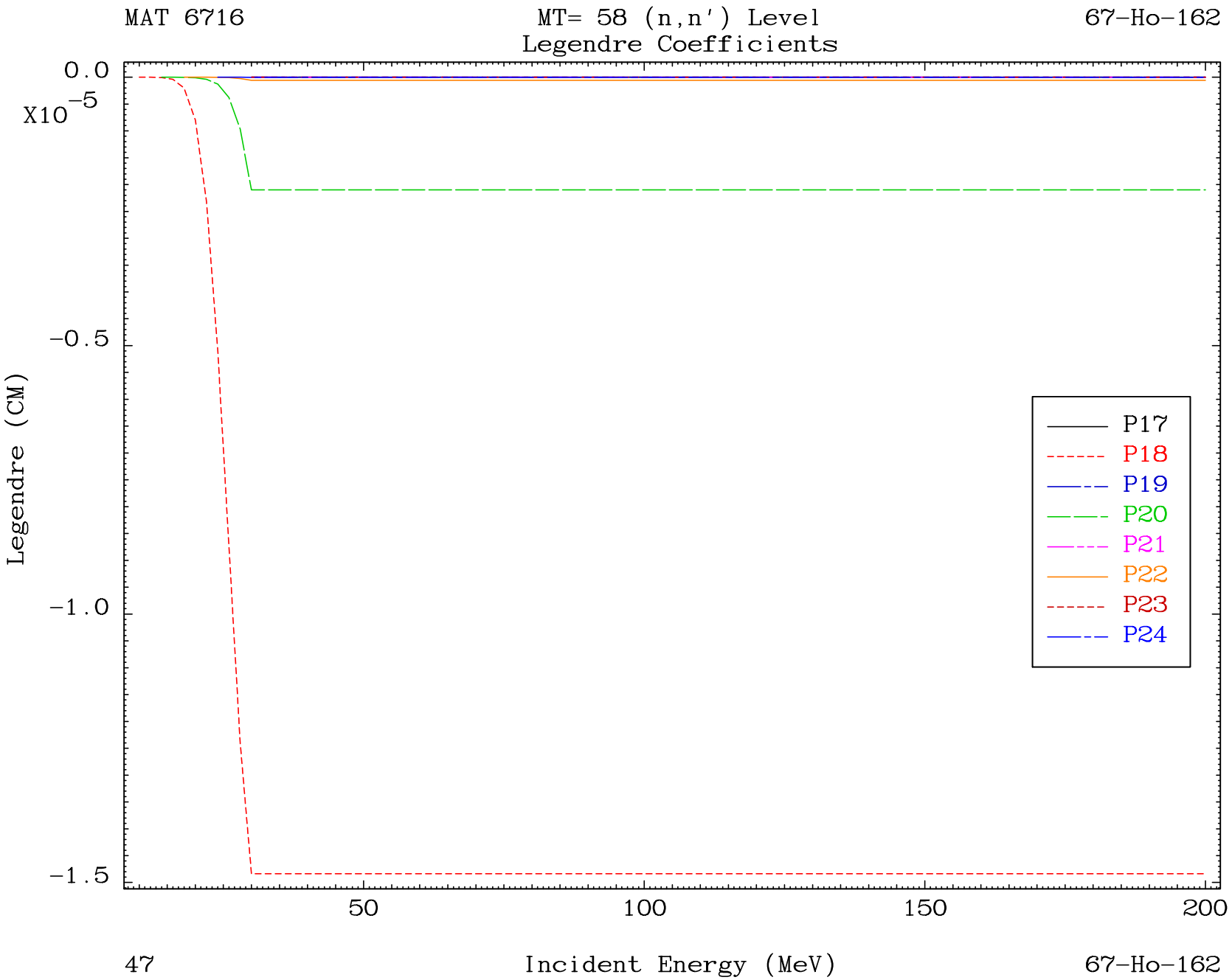

MAT 6716
MT= 57 (n,n') Level
Legendre Coefficients
67-Ho-162
0.015
0.010
0.005
0.000
-0.005
-0.010
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
42
Incident Energy (MeV)
67-Ho-162

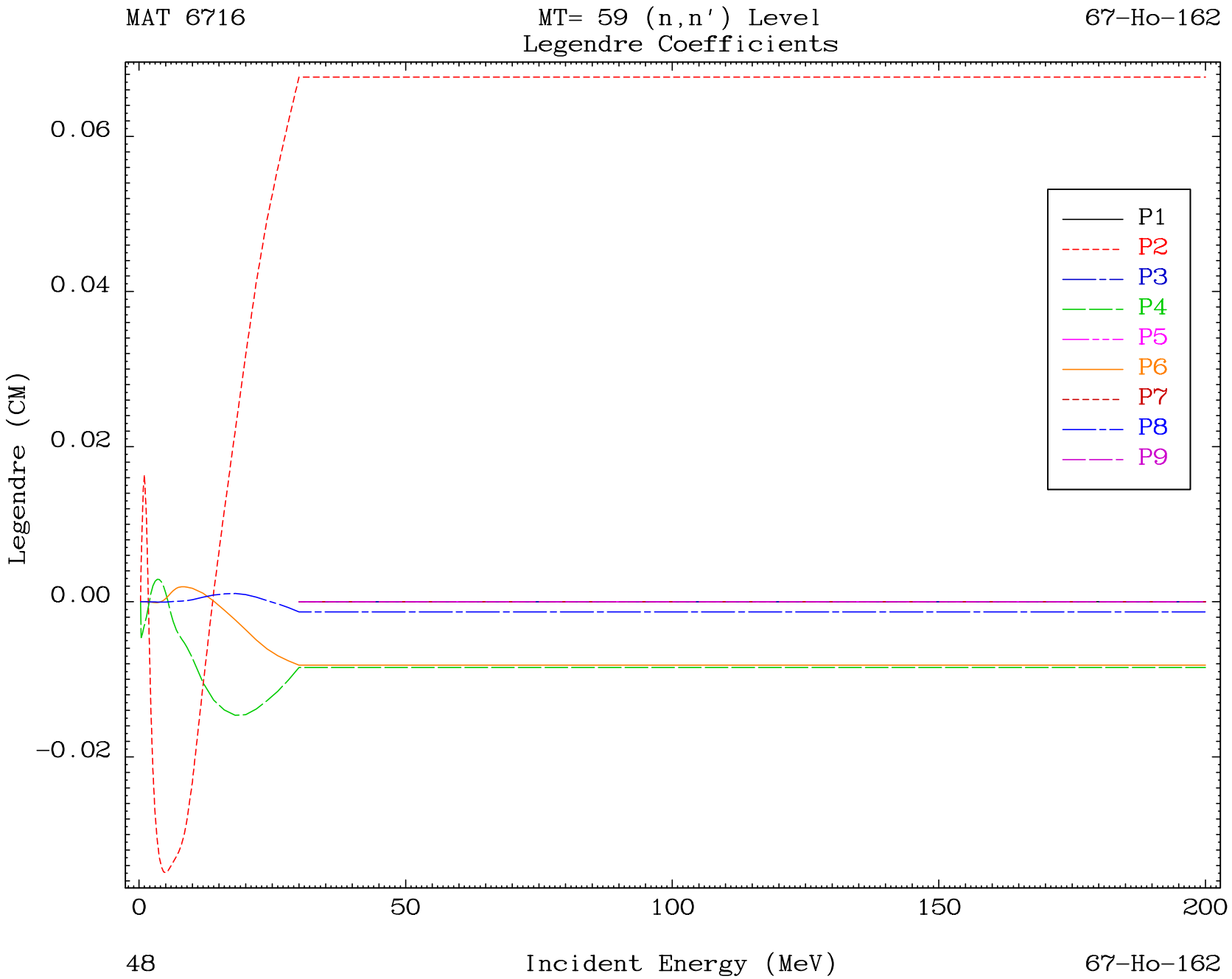

MAT 6716
MT= 57 (n,n') Level
Legendre Coefficients
67-Ho-162
X10^-4
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
Legendre (CM)
50
100
150
200
43
Incident Energy (MeV)
67-Ho-162
P19
P20
P21
P22
P23
P24
P25
P26
P27

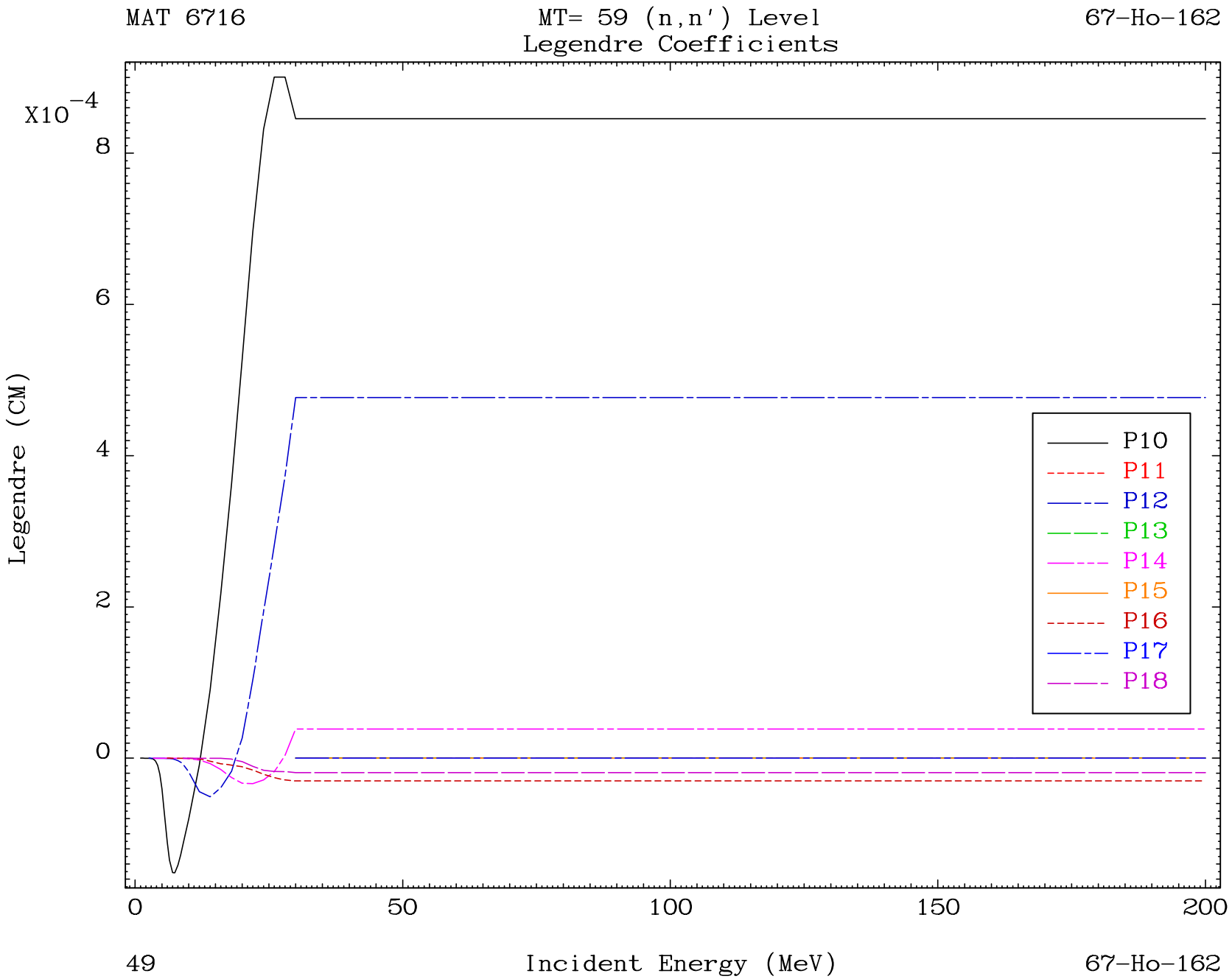

MAT 6716
MT= 57 (n,n') Level
Legendre Coefficients
67-Ho-162
X10−6
1.5
1.0
0.5
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
P35
P36
50
100
150
200
44
Incident Energy (MeV)
67-Ho-162

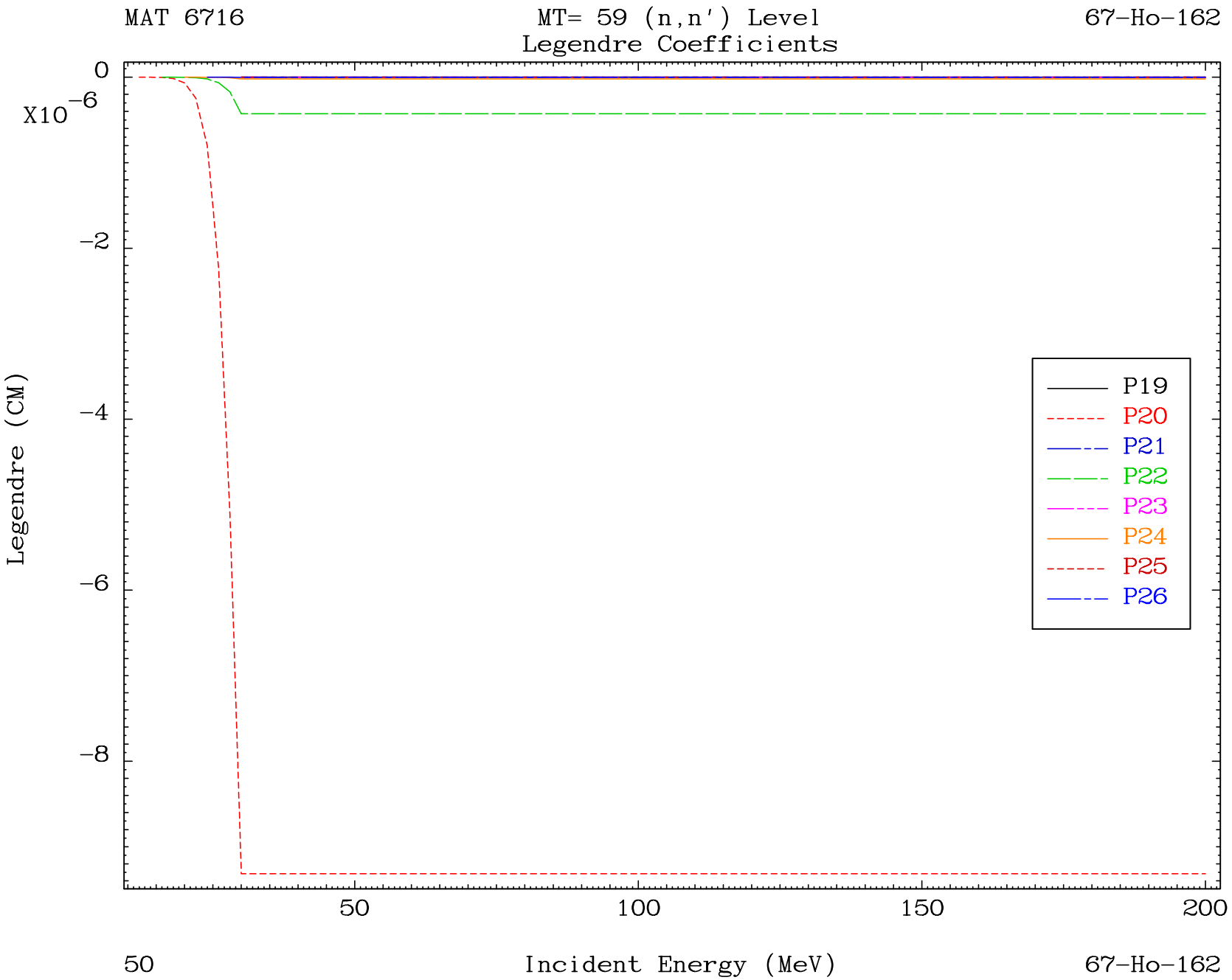

MAT 6716
MT= 58 (n,n') Level
Legendre Coefficients
67-Ho-162
0.06
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
0
50
100
150
200
45
Incident Energy (MeV)
67-Ho-162

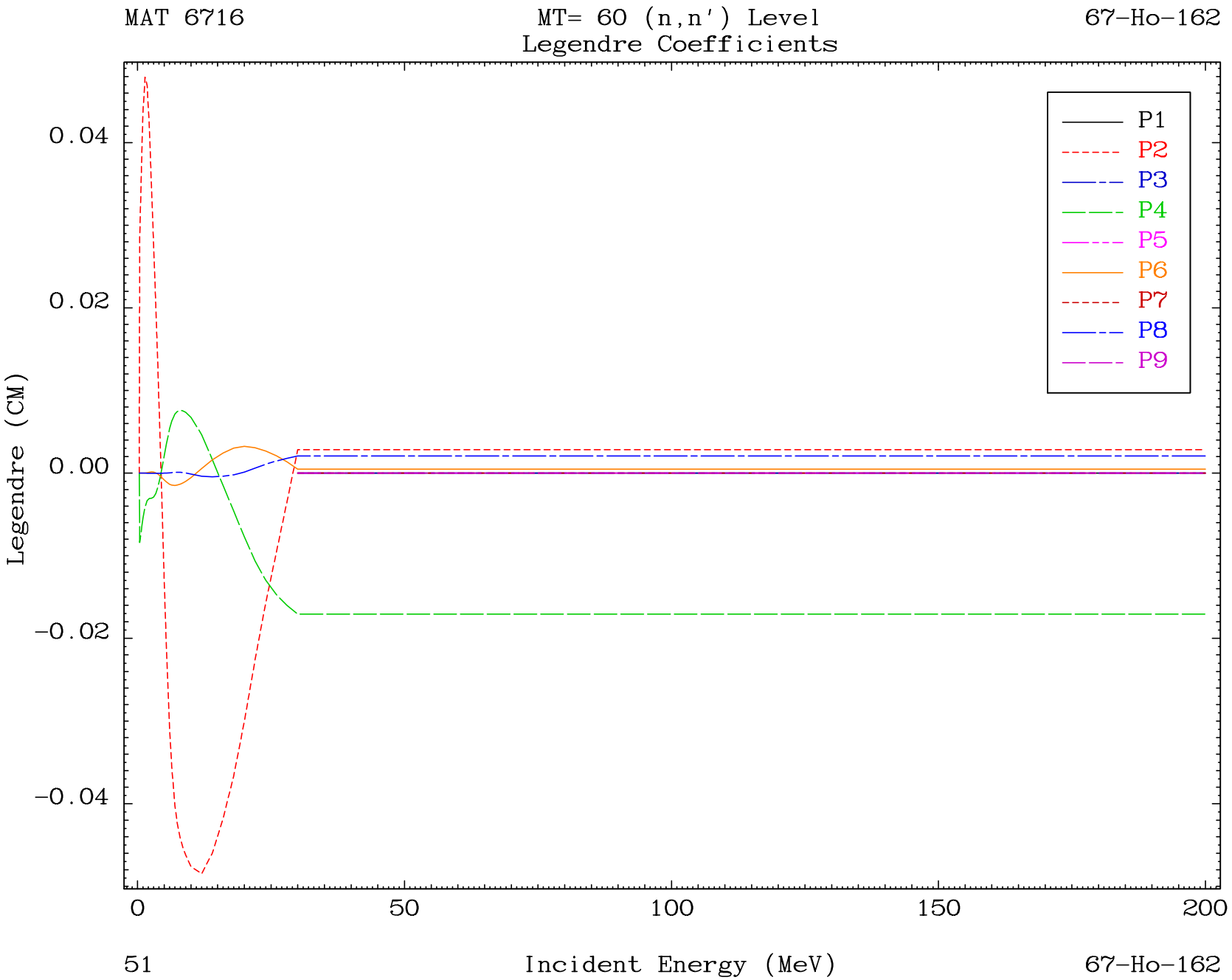

MAT 6716
MT= 58 (n,n') Level
Legendre Coefficients
67-Ho-162
X10^-4
0
-2
-4
-6
Legendre (CM)
0
50
100
150
200
Incident Energy (MeV)
P9
P10
P11
P12
P13
P14
P15
P16
46
67-Ho-162

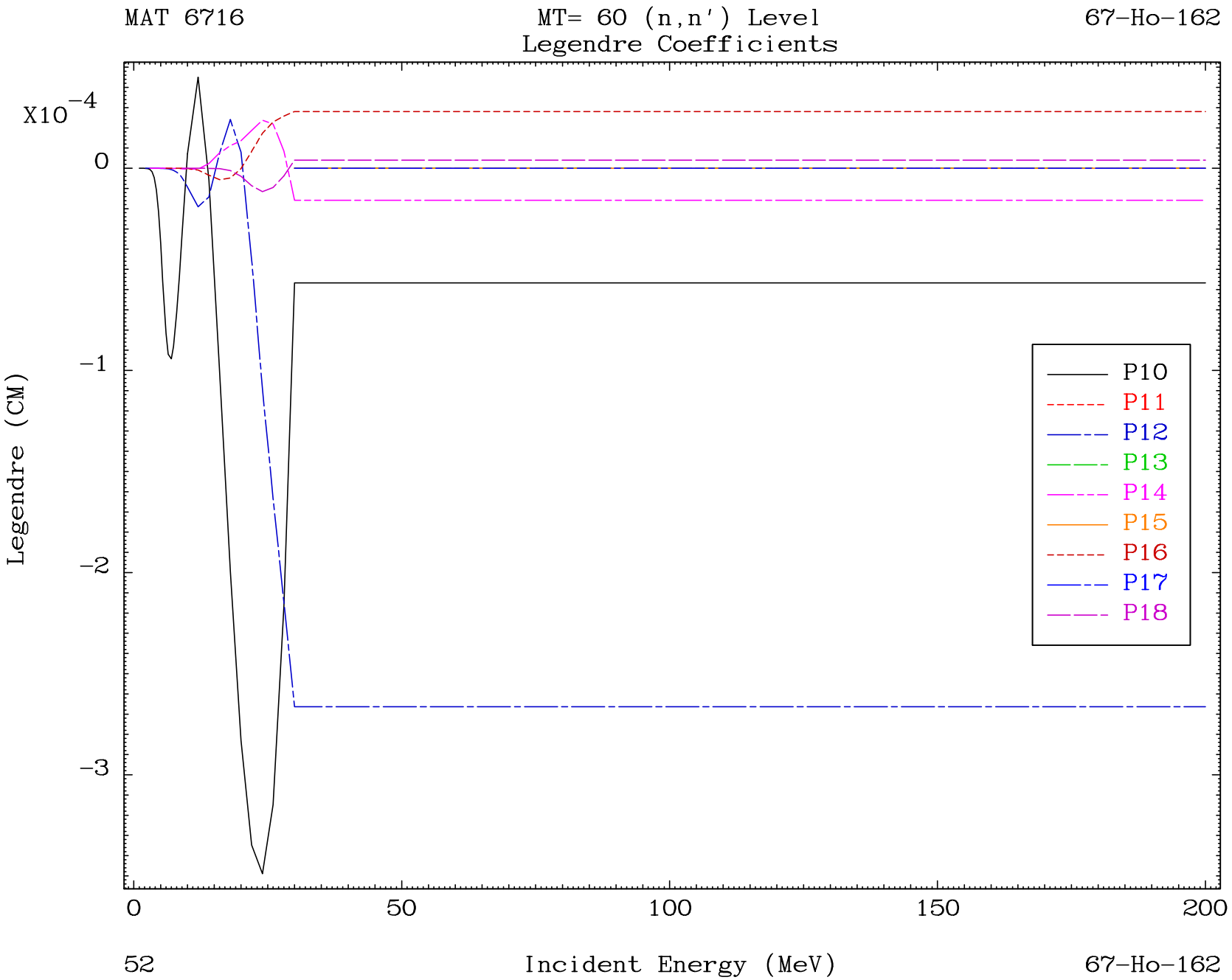

MAT 6716
MT= 58 (n,n') Level
Legendre Coefficients
67-Ho-162
0.0
X10^-5
-0.5
-1.0
-1.5
Legendre (CM)
50
100
150
200
47
Incident Energy (MeV)
67-Ho-162
P17
P18
P19
P20
P21
P22
P23
P24

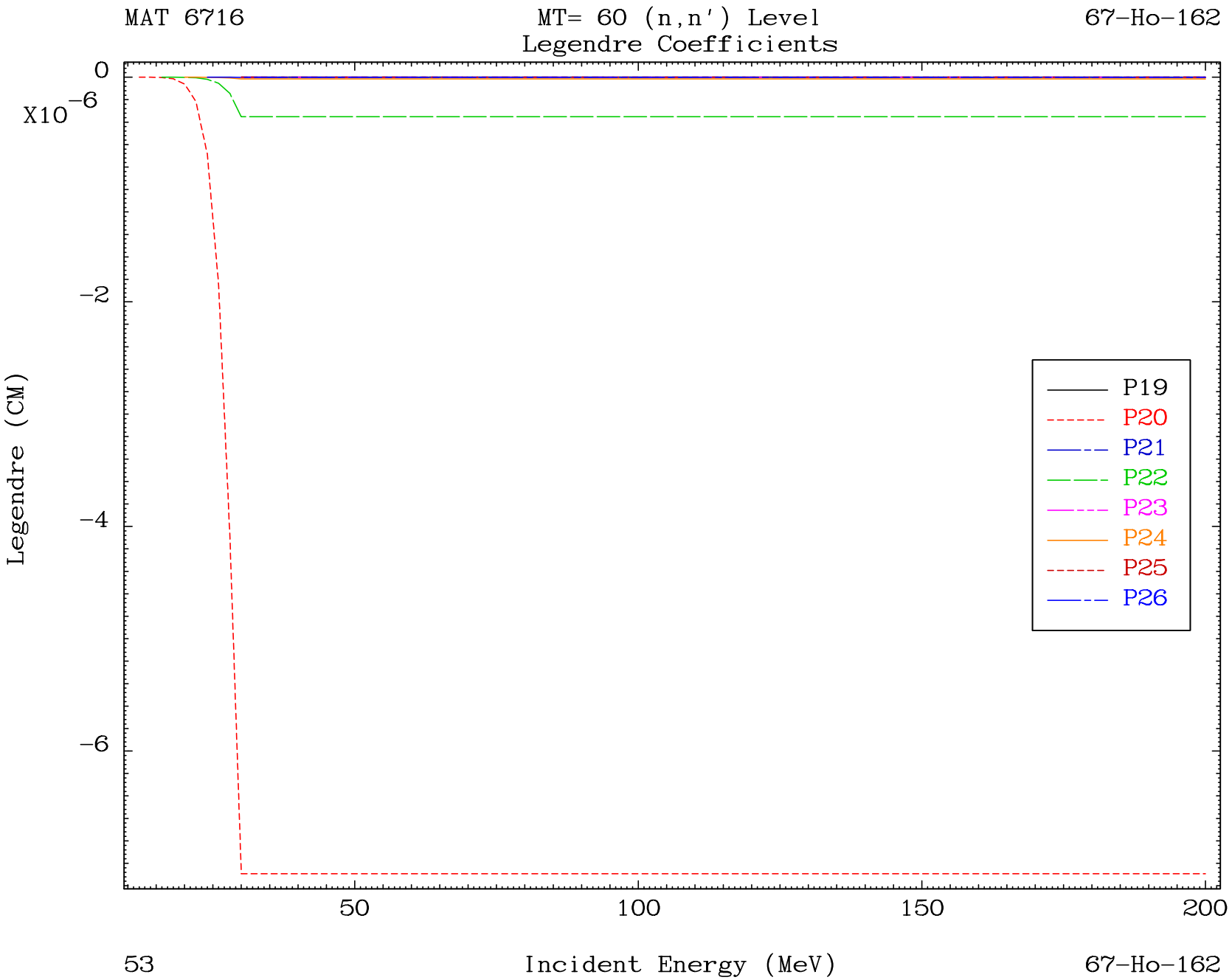

MAT 6716
MT= 59 (n,n') Level
Legendre Coefficients
67-Ho-162
0.06
0.04
0.02
0.00
-0.02
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
48
Incident Energy (MeV)
67-Ho-162

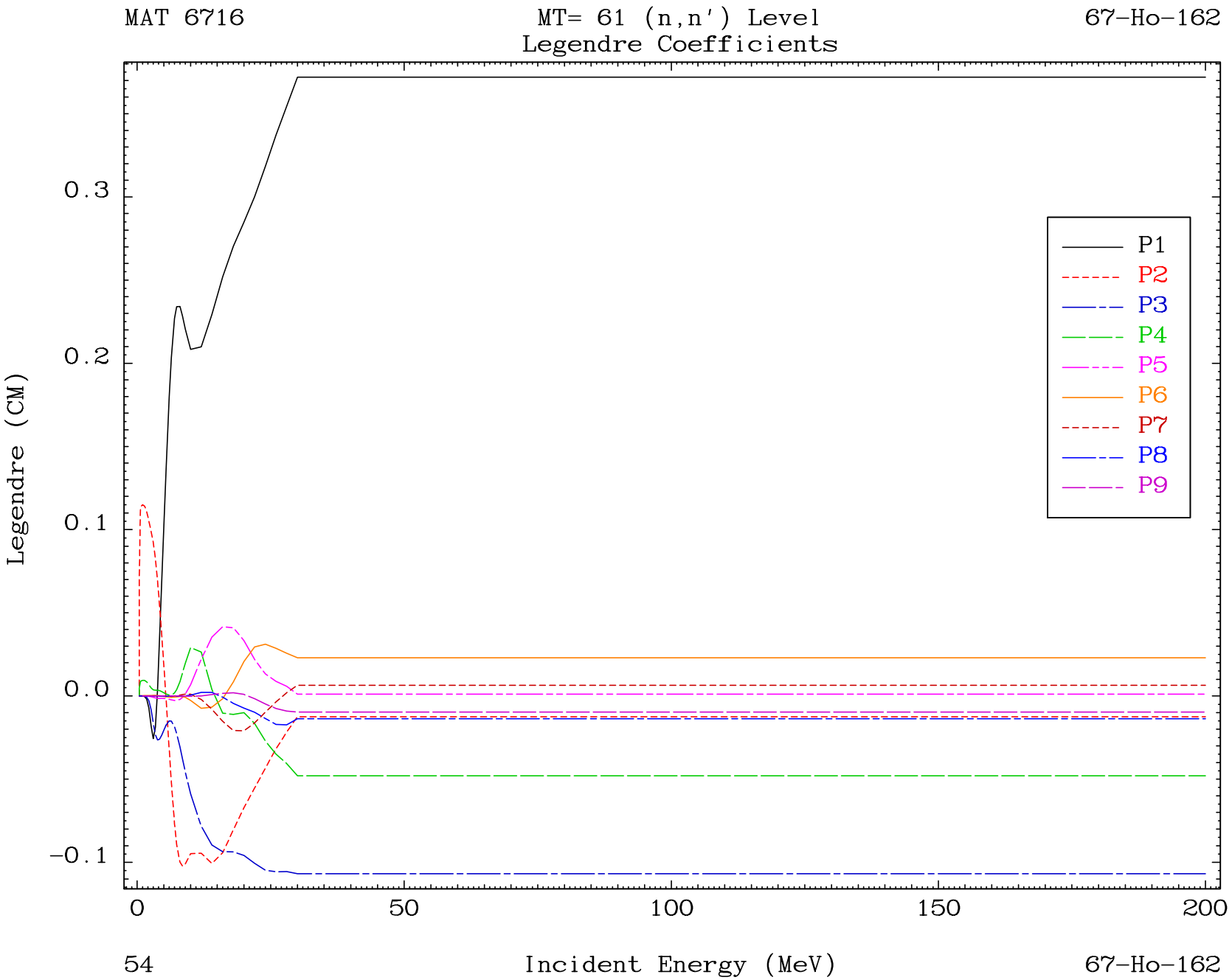

MAT 6716
MT= 59 (n,n') Level
Legendre Coefficients
67-Ho-162
X10^-4
8
6
4
2
0
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
49
Incident Energy (MeV)
67-Ho-162

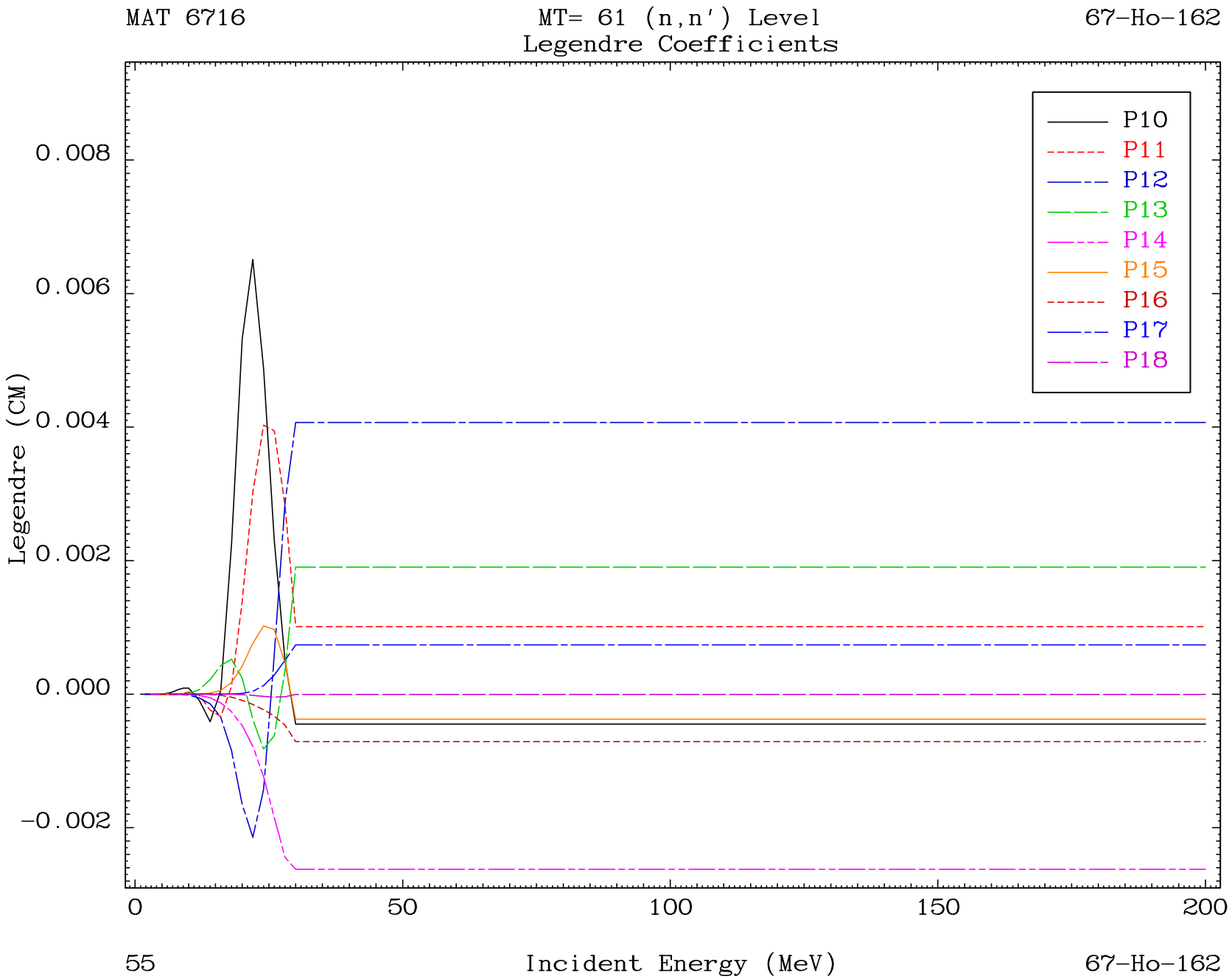

MAT 6716
MT= 59 (n,n') Level
Legendre Coefficients
67-Ho-162
0
X10 −6
−2
−4
−6
−8
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
50
100
150
200
50
Incident Energy (MeV)
67-Ho-162

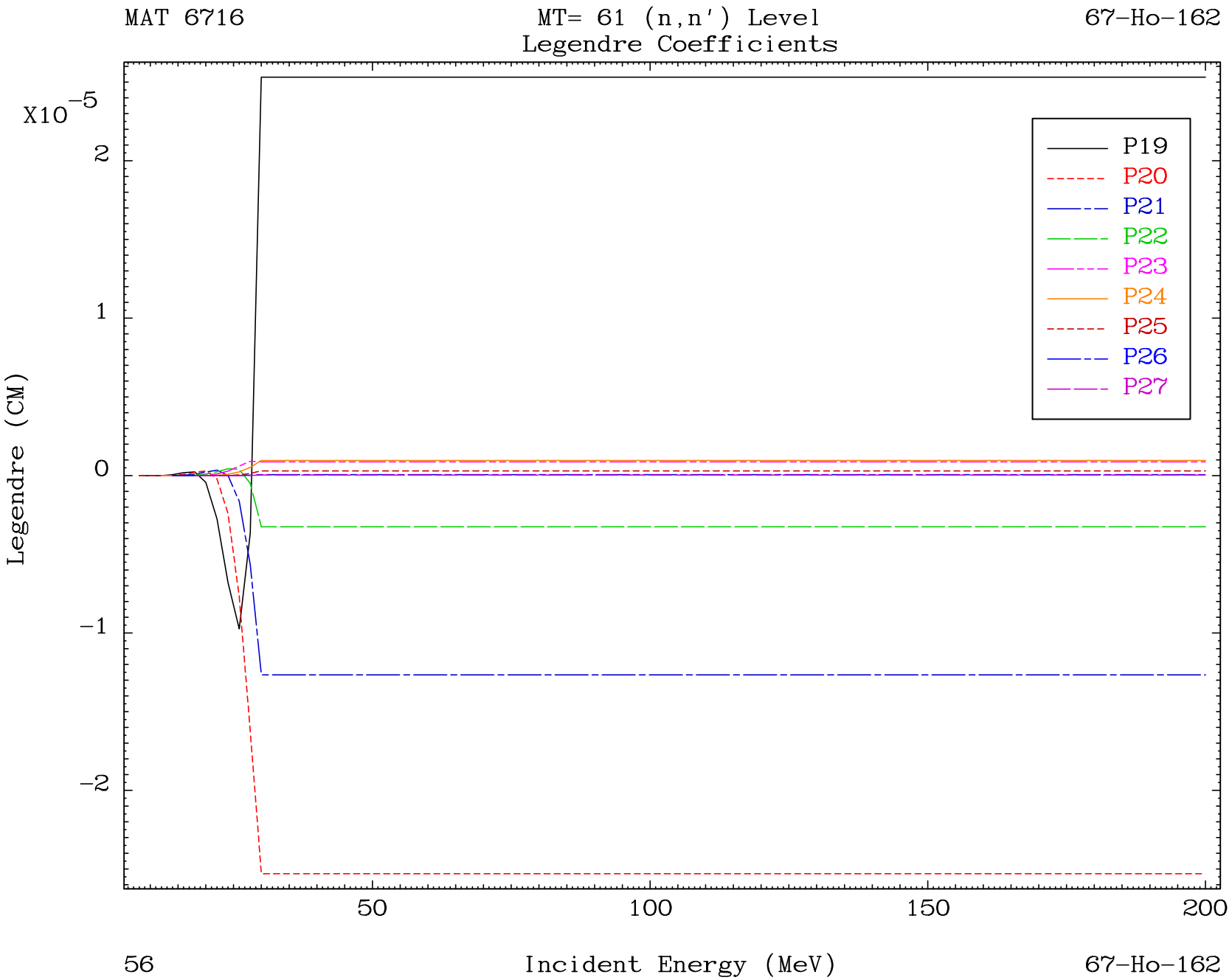

MAT 6716
MT= 60 (n,n') Level
Legendre Coefficients
67-Ho-162
P1
P2
P3
P4
P5
P6
P7
P8
P9
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
51
Incident Energy (MeV)
67-Ho-162

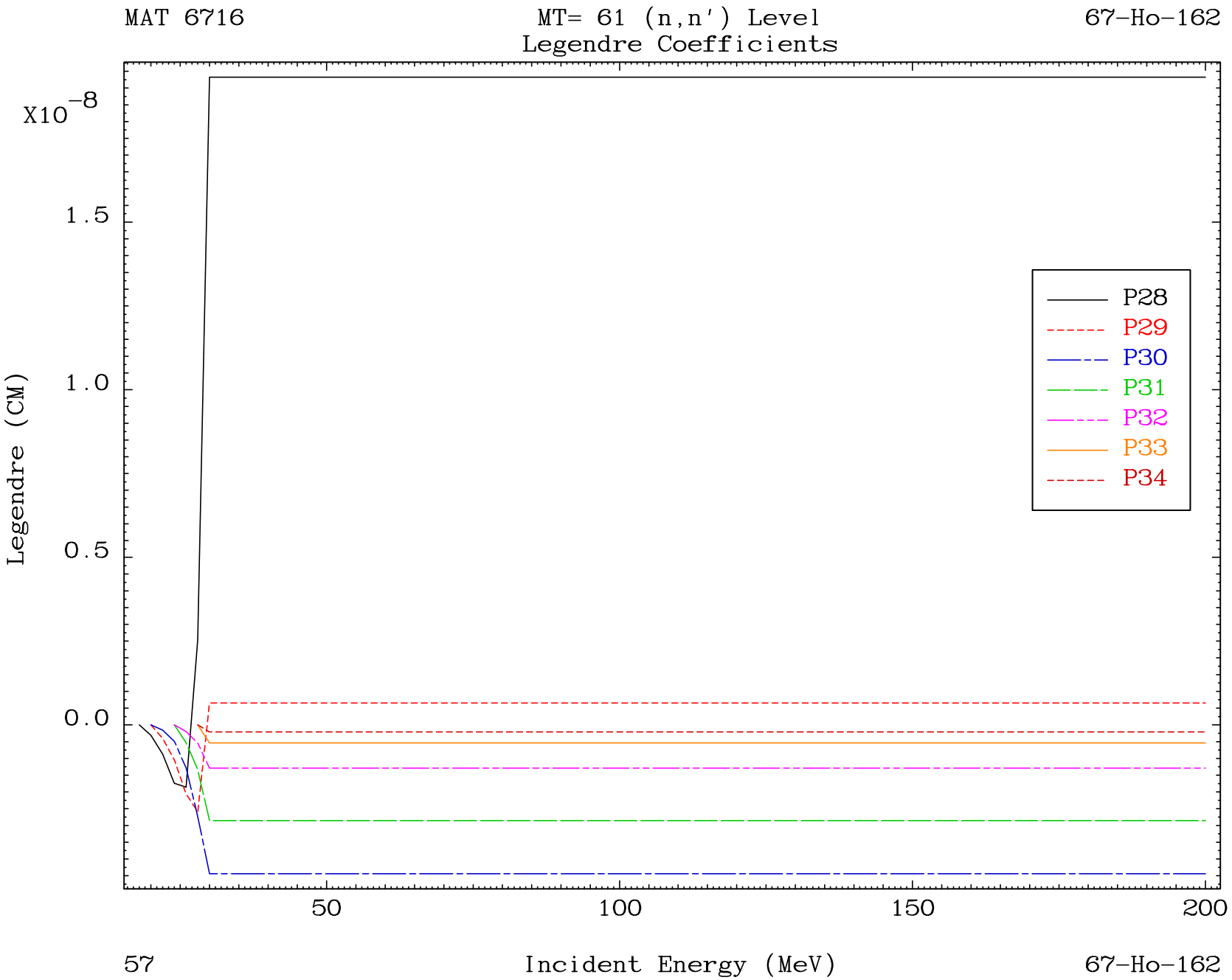

MAT 6716
MT= 60 (n,n') Level
Legendre Coefficients
67-Ho-162
X10^-4
0
-1
-2
-3
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
52
Incident Energy (MeV)
67-Ho-162

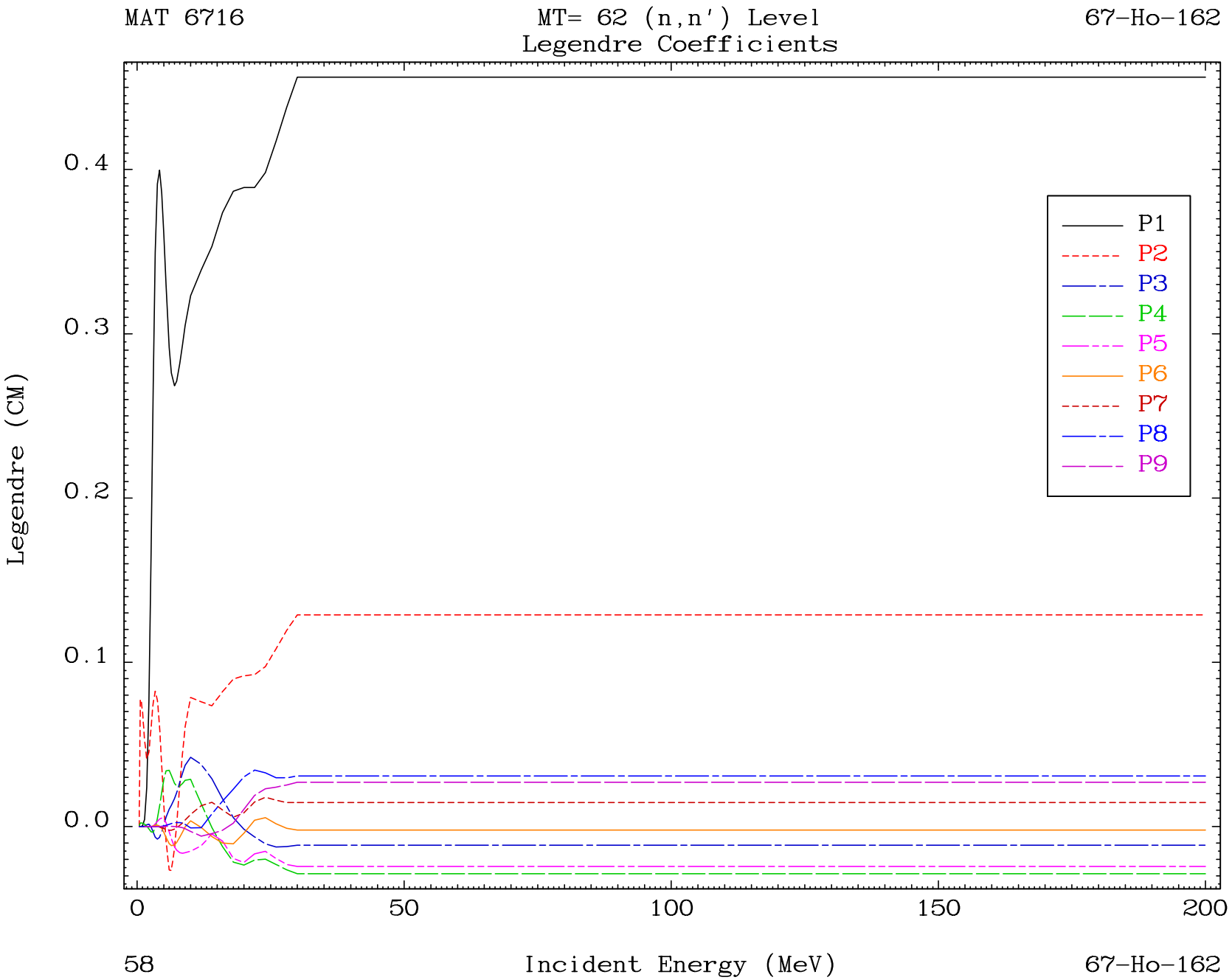

MAT 6716
MT= 60 (n,n') Level
Legendre Coefficients
67-Ho-162
0
X10^-6
-2
-4
-6
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
50
100
150
200
53
Incident Energy (MeV)
67-Ho-162

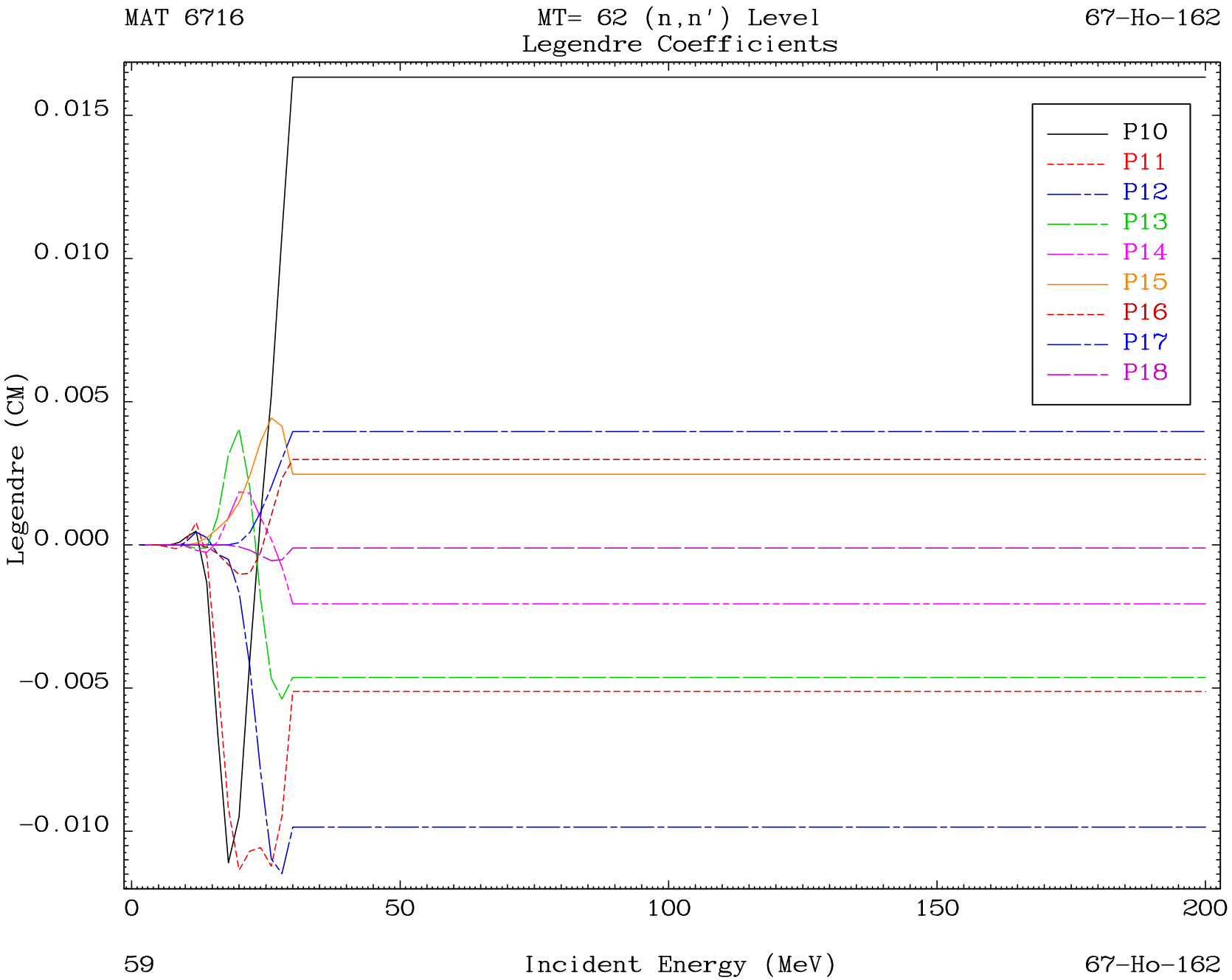

MAT 6716
MT= 61 (n,n') Level
Legendre Coefficients
67-Ho-162
Legendre (CM)
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
Incident Energy (MeV)
54
67-Ho-162
P1
P2
P3
P4
P5
P6
P7
P8
P9

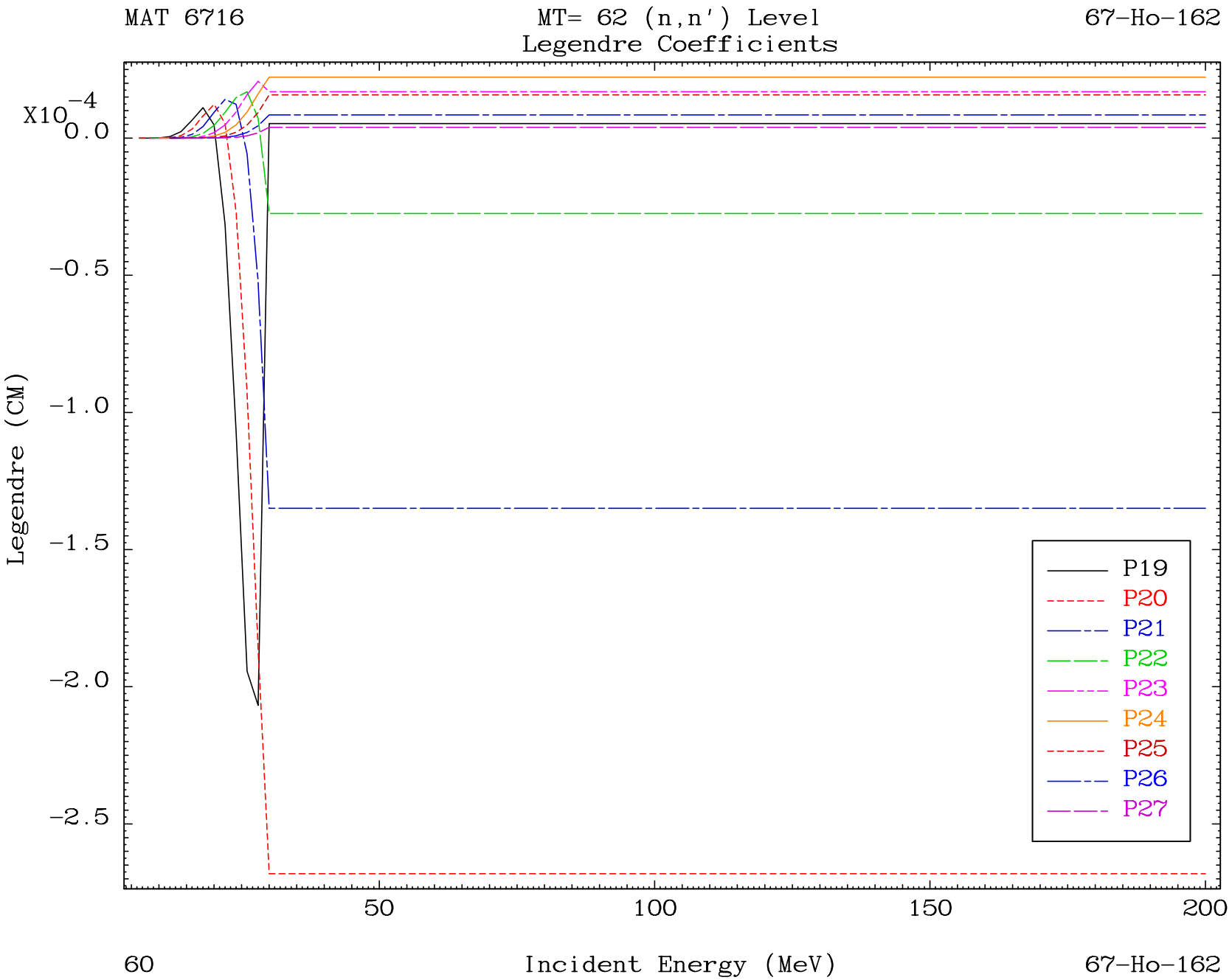

MAT 6716
MT= 61 (n,n') Level
Legendre Coefficients
67-Ho-162
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.008
0.006
0.004
0.002
0.000
-0.002
Legendre (CM)
0
50
100
150
200
55
Incident Energy (MeV)
67-Ho-162

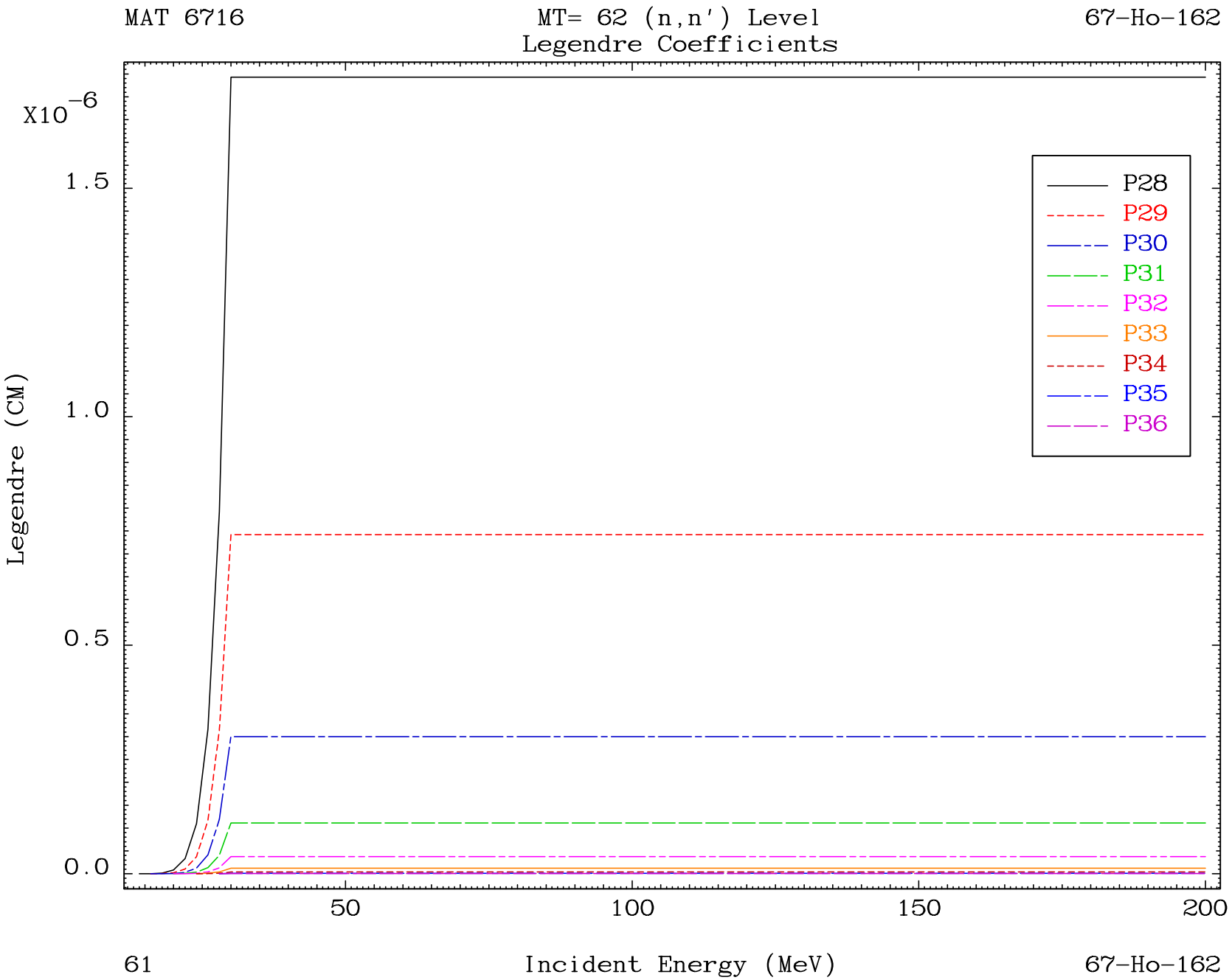

MAT 6716
MT= 61 (n,n') Level
Legendre Coefficients
67-Ho-162
X10−5
2
1
0
−1
−2
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
56
Incident Energy (MeV)
67-Ho-162

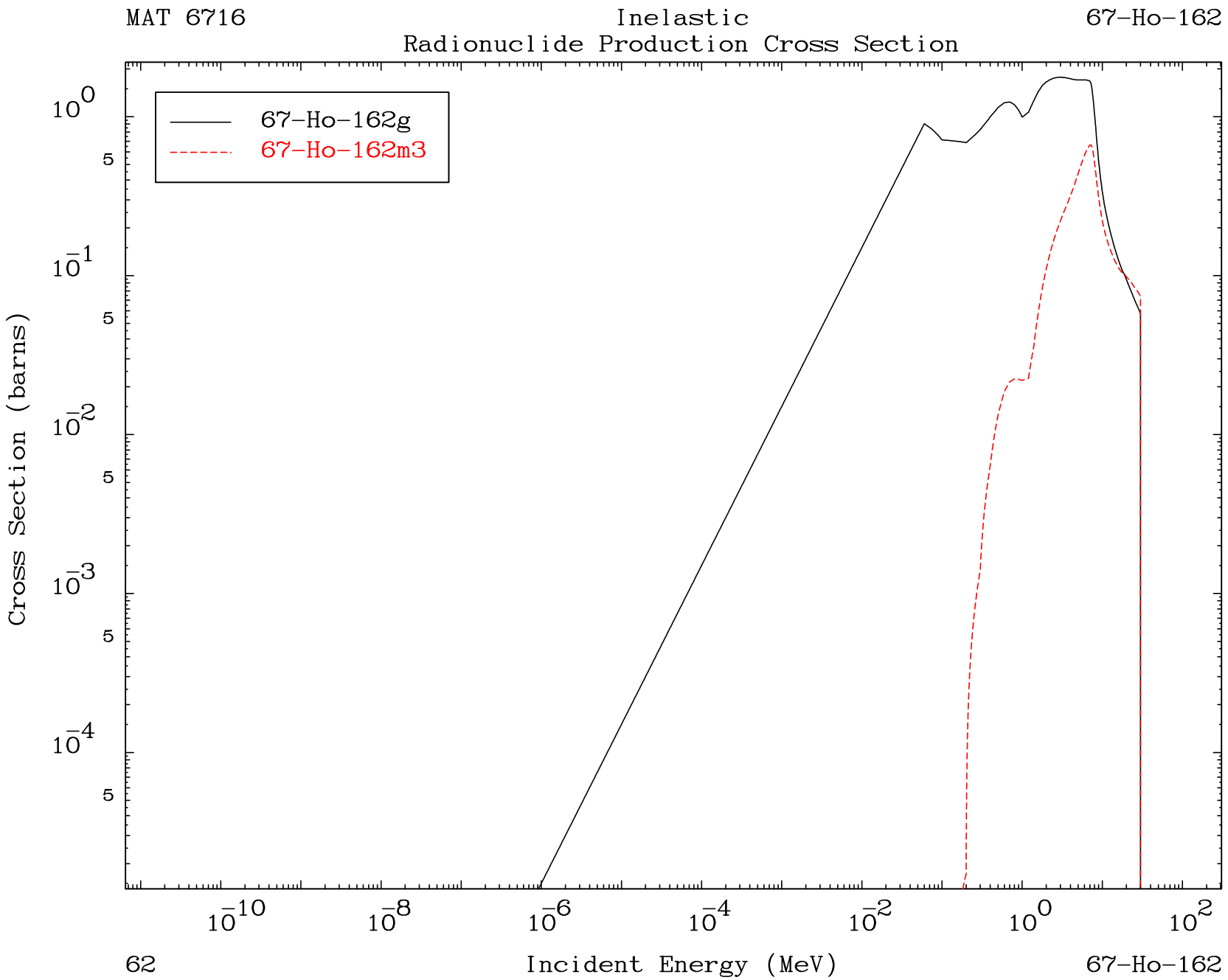

MAT 6716
MT= 61 (n,n') Level
Legendre Coefficients
67-Ho-162
X10-8
1.5
1.0
0.5
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
57
Incident Energy (MeV)
67-Ho-162

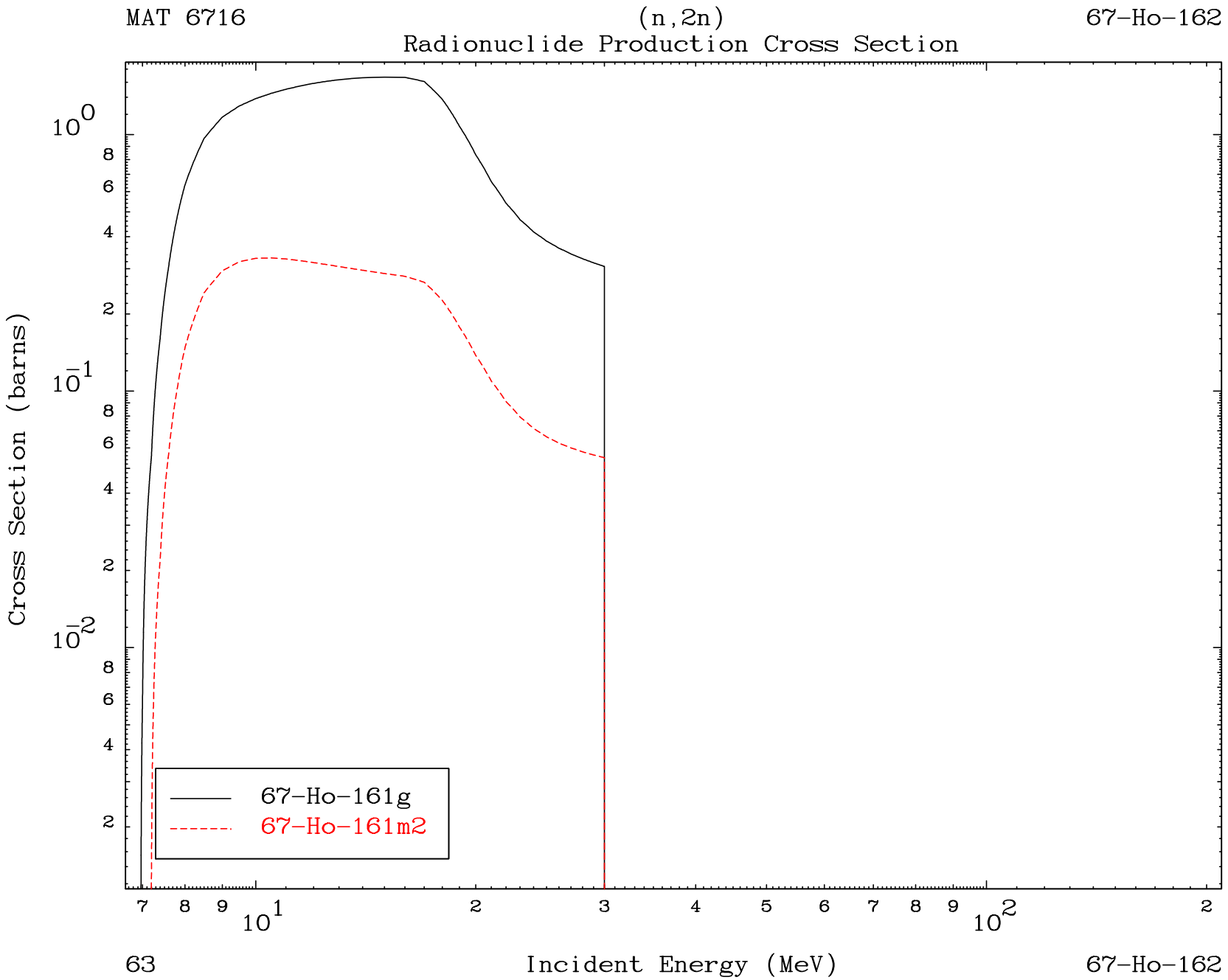

MAT 6716
MT= 62 (n,n') Level
Legendre Coefficients
67-Ho-162
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
P1
P2
P3
P4
P5
P6
P7
P8
P9
58
Incident Energy (MeV)
67-Ho-162

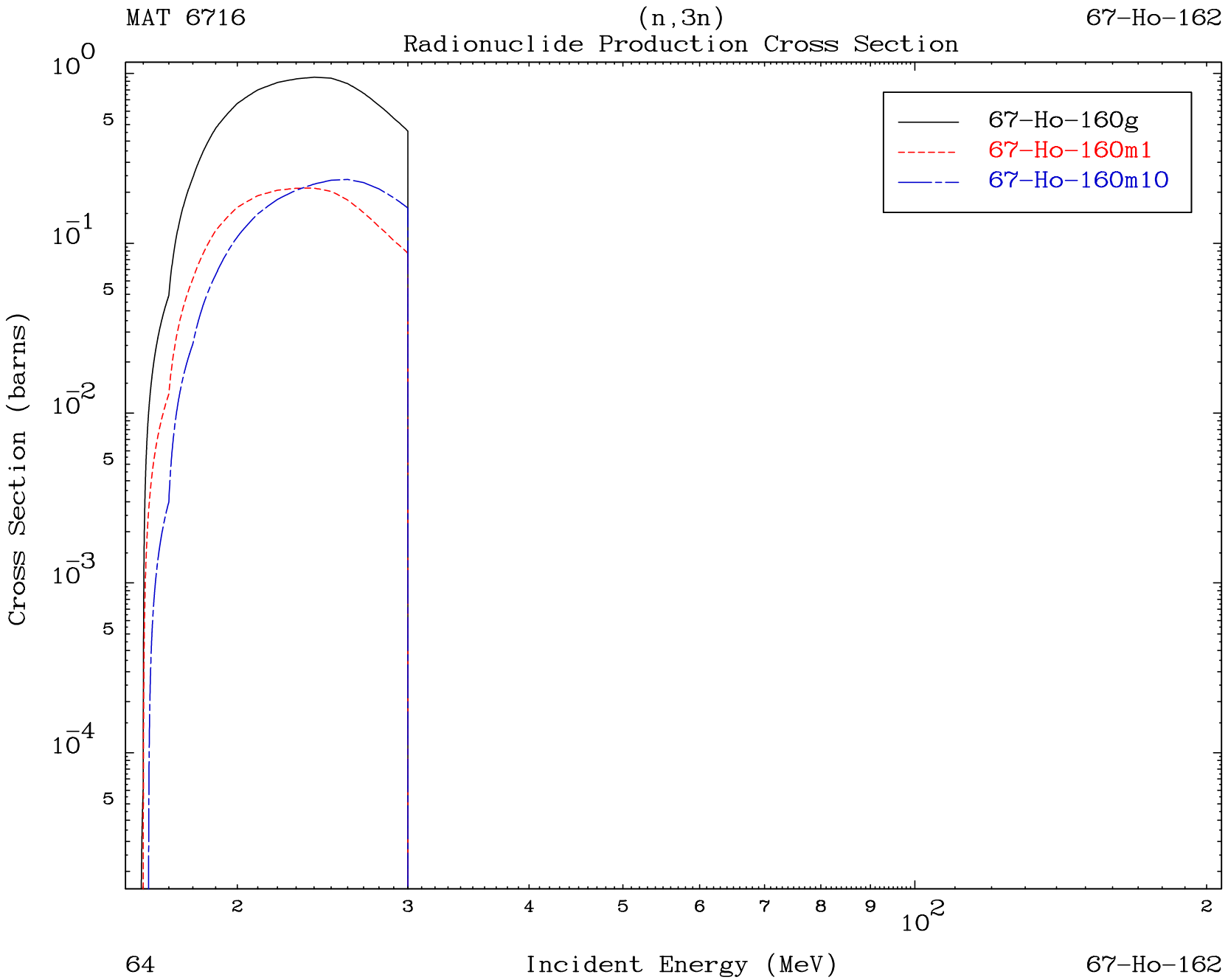

MAT 6716
MT= 62 (n,n') Level
Legendre Coefficients
67-Ho-162
0.015
0.010
0.005
0.000
-0.005
-0.010
Legendre (CM)
0
50
100
150
200
59
Incident Energy (MeV)
67-Ho-162
P10
P11
P12
P13
P14
P15
P16
P17
P18

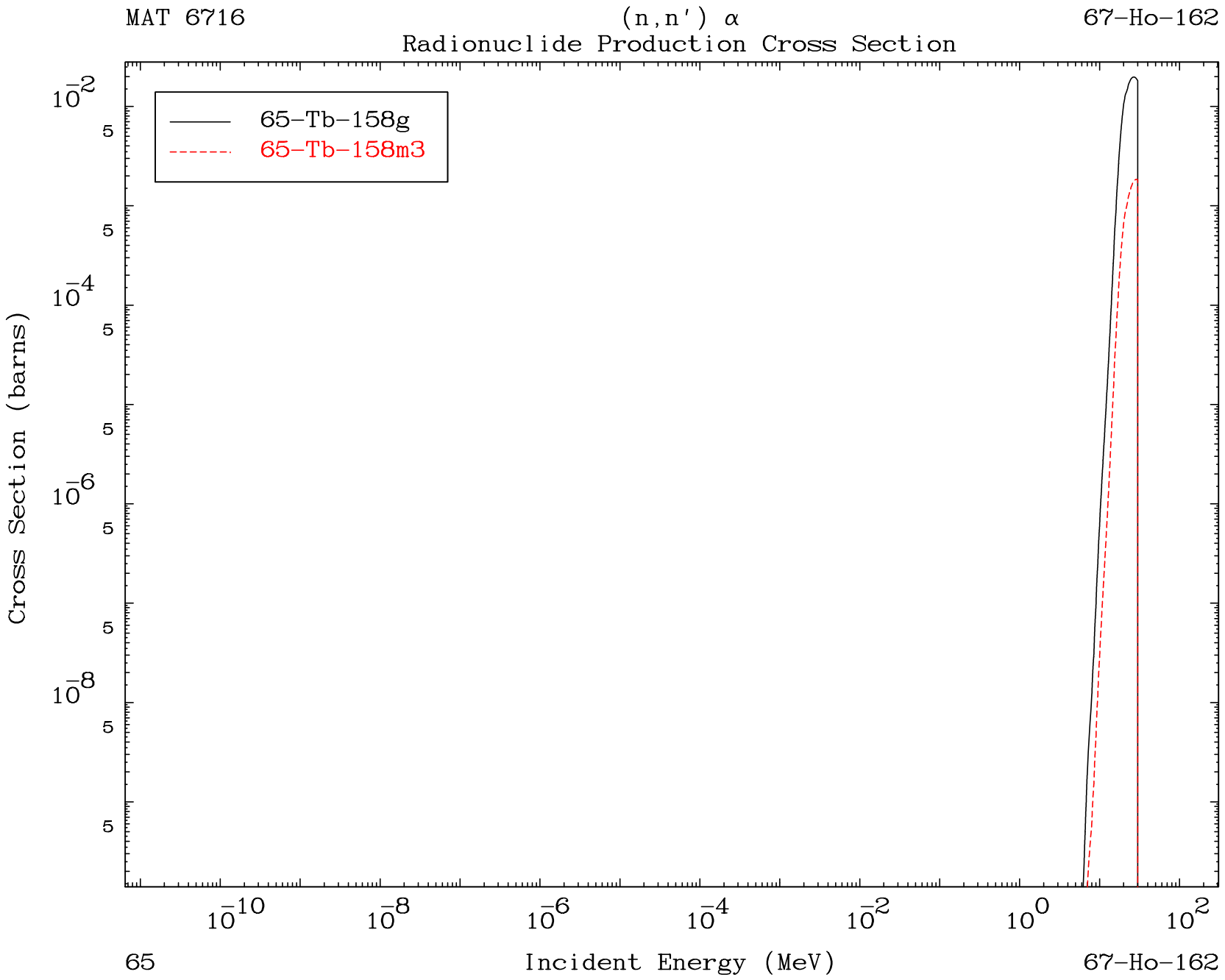

MAT 6716
MT= 62 (n,n') Level
Legendre Coefficients
67-Ho-162
X10^-4
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
Legendre (CM)
50
100
150
200
60
Incident Energy (MeV)
67-Ho-162
P19
P20
P21
P22
P23
P24
P25
P26
P27

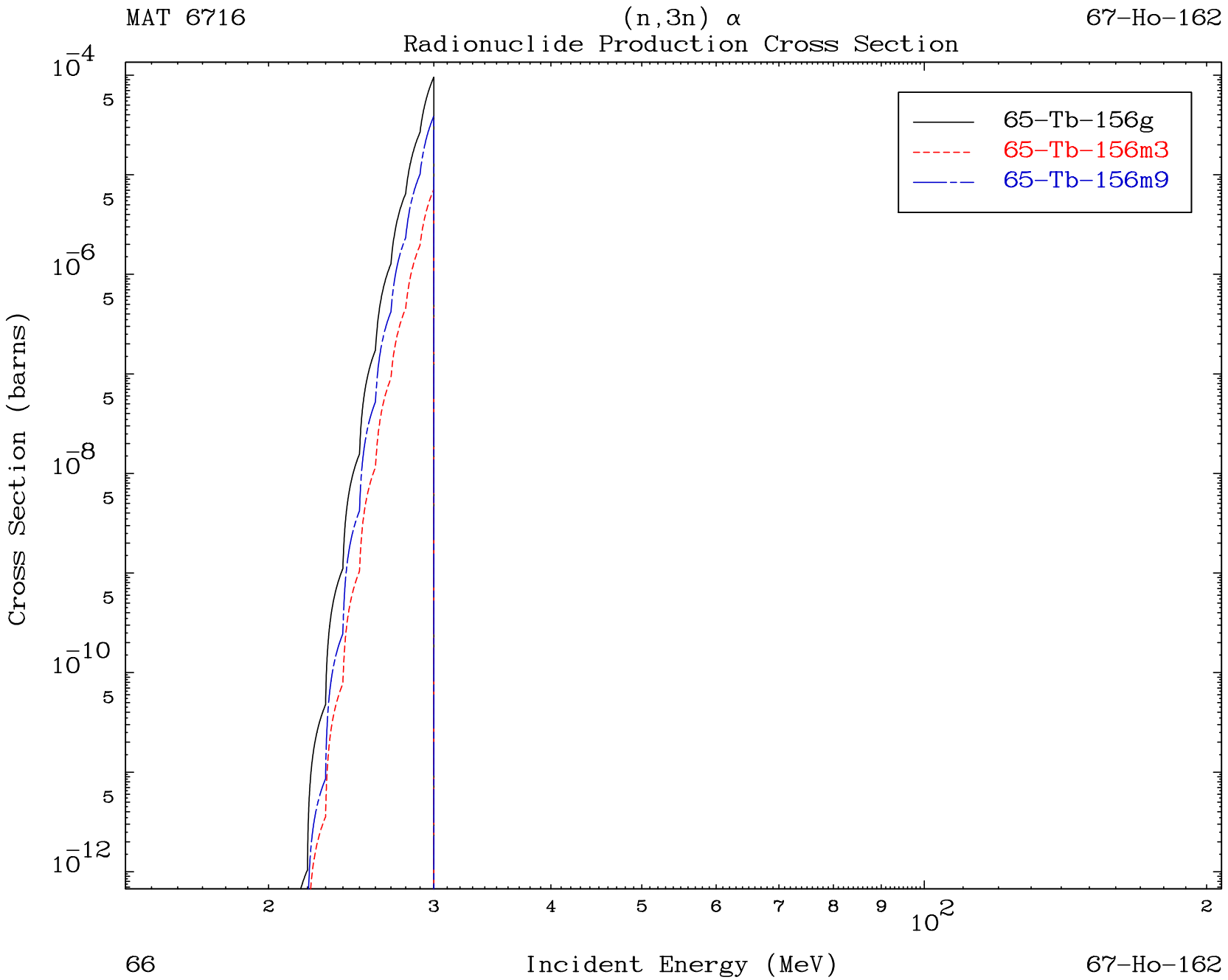

MAT 6716
MT= 62 (n,n') Level
Legendre Coefficients
67-Ho-162
X10^-6
1.5
1.0
0.5
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
P35
P36
50
100
150
200
61
Incident Energy (MeV)
67-Ho-162

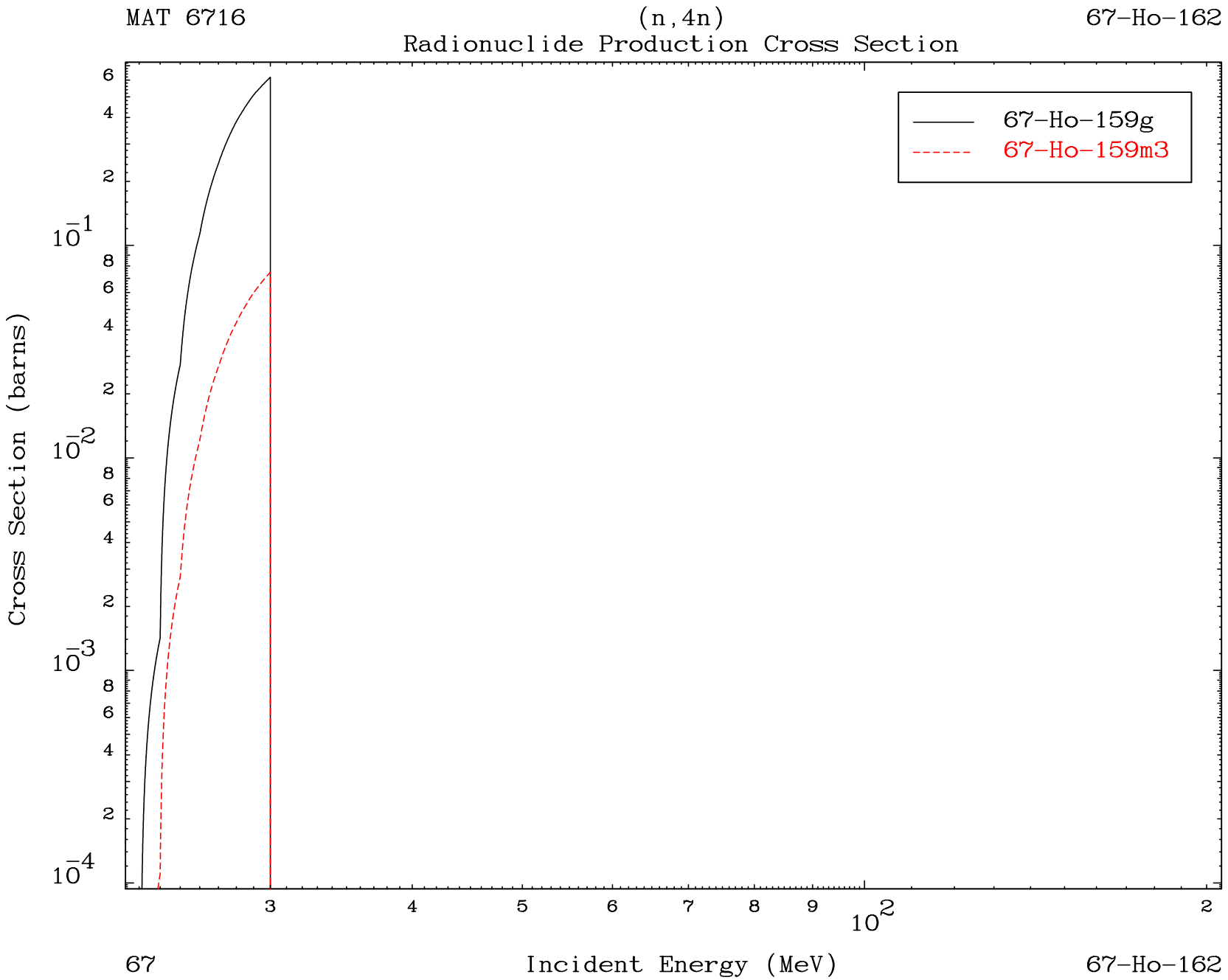

MAT 6716
Inelastic
67-Ho-162
Radionuclide Production Cross Section
67-Ho-162g
67-Ho-162m3
Cross Section (barns)
Incident Energy (MeV)
62
67-Ho-162

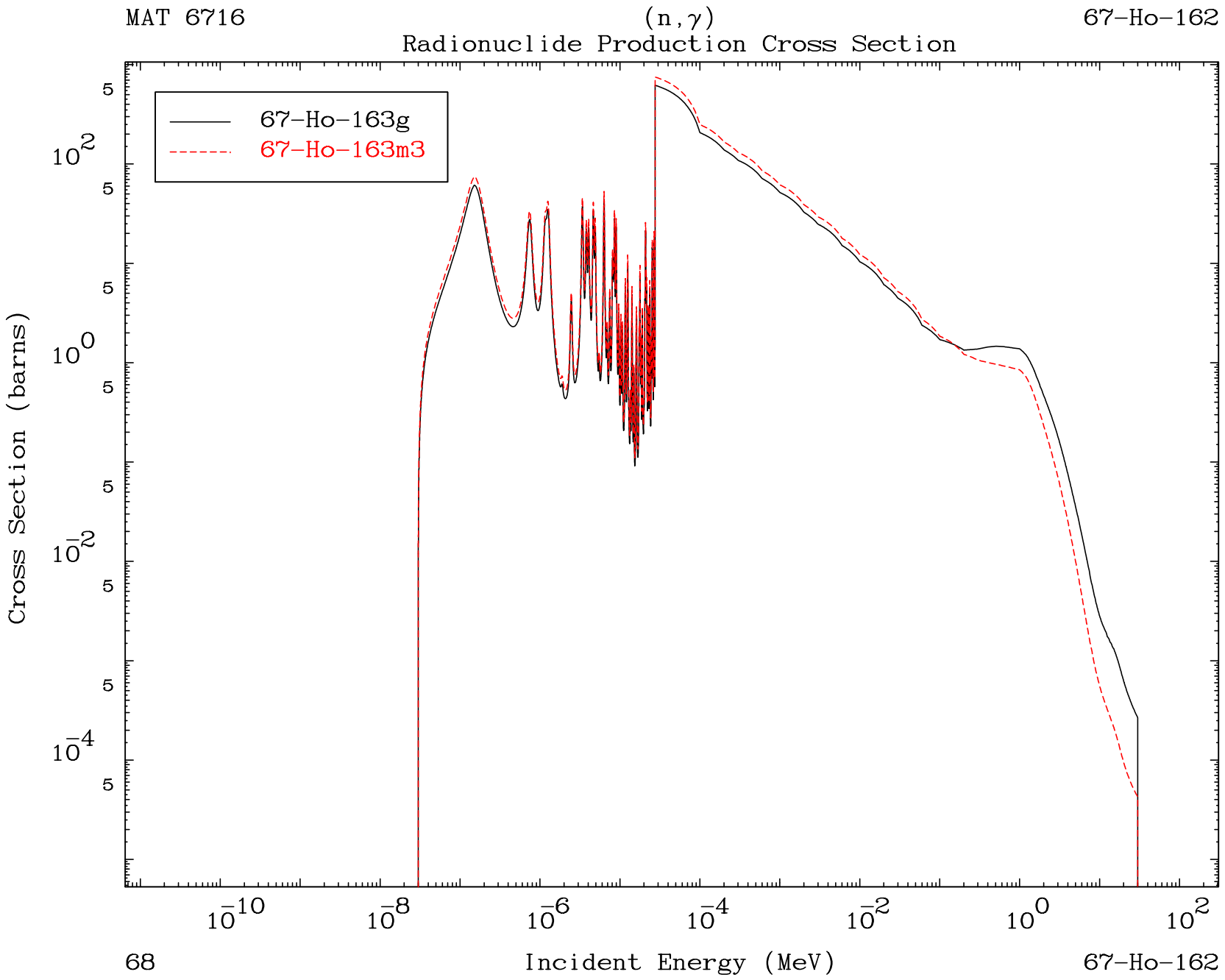

MAT 6716
(n,2n)
67-Ho-162
Radionuclide Production Cross Section
Cross Section (barns)
10^0
10^-1
10^-2
67-Ho-161g
67-Ho-161m2
10^1
10^2
Incident Energy (MeV)
63
67-Ho-162


MAT 6716
(n,3n)
67-Ho-162
Radionuclide Production Cross Section
67-Ho-160g
67-Ho-160m1
67-Ho-160m10
Cross Section (barns)
Incident Energy (MeV)
64
67-Ho-162


MAT 6716
(n,n') α
67-Ho-162
Radionuclide Production Cross Section
65-Tb-158g
65-Tb-158m3
Cross Section (barns)
Incident Energy (MeV)
65
67-Ho-162


MAT 6716
(n,3n) α
67-Ho-162
Radionuclide Production Cross Section
65-Tb-156g
65-Tb-156m3
65-Tb-156m9
Cross Section (barns)
Incident Energy (MeV)
66
67-Ho-162


MAT 6716
(n,4n)
67-Ho-162
Radionuclide Production Cross Section
67-Ho-159g
67-Ho-159m3
Cross Section (barns)
Incident Energy (MeV)
67
67-Ho-162


MAT 6716
(n,γ)
67-Ho-162
Radionuclide Production Cross Section
67-Ho-163g
67-Ho-163m3
Cross Section (barns)
Incident Energy (MeV)
68
67-Ho-162