Program EVALPLOT
(Version 2017-1)
by
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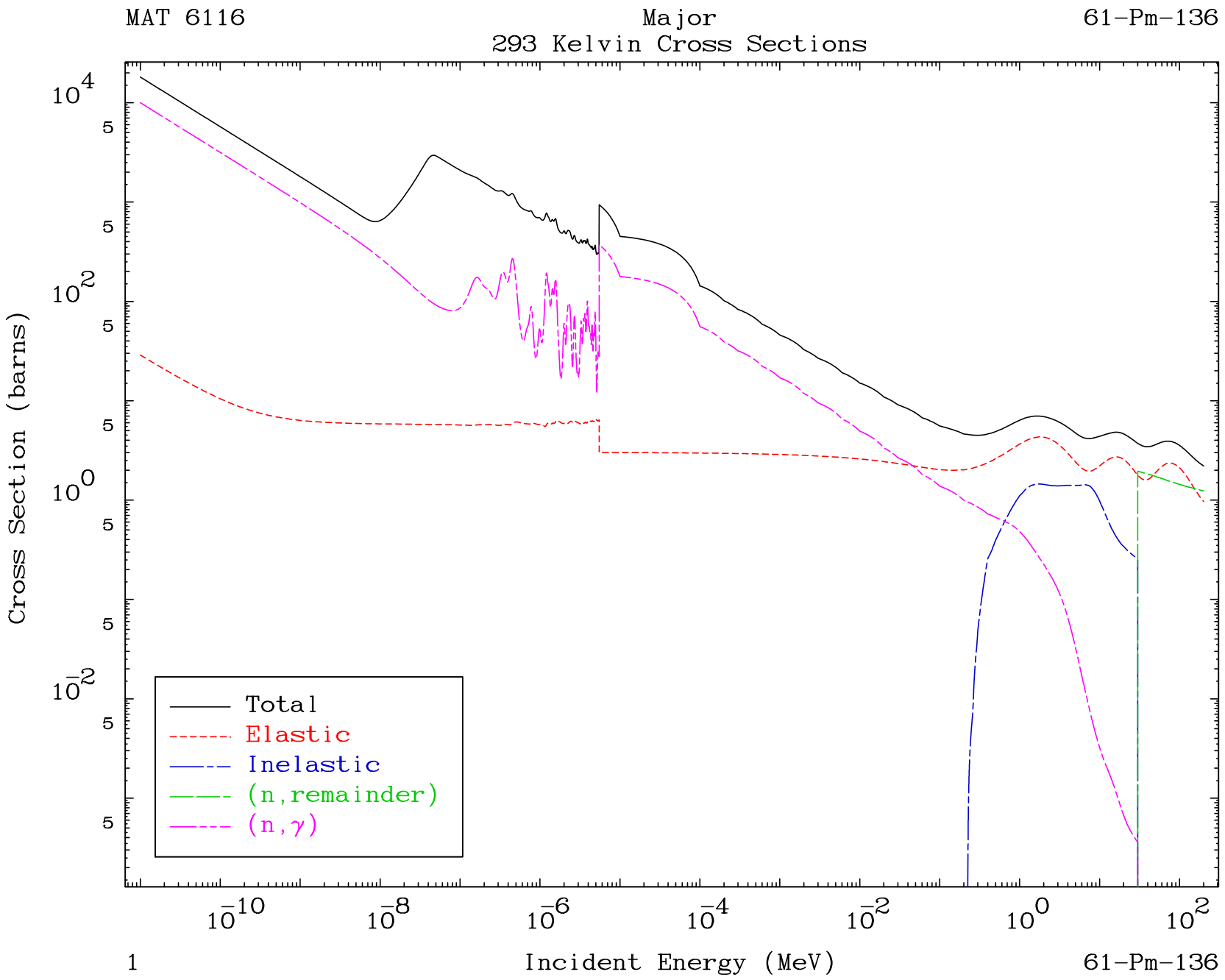
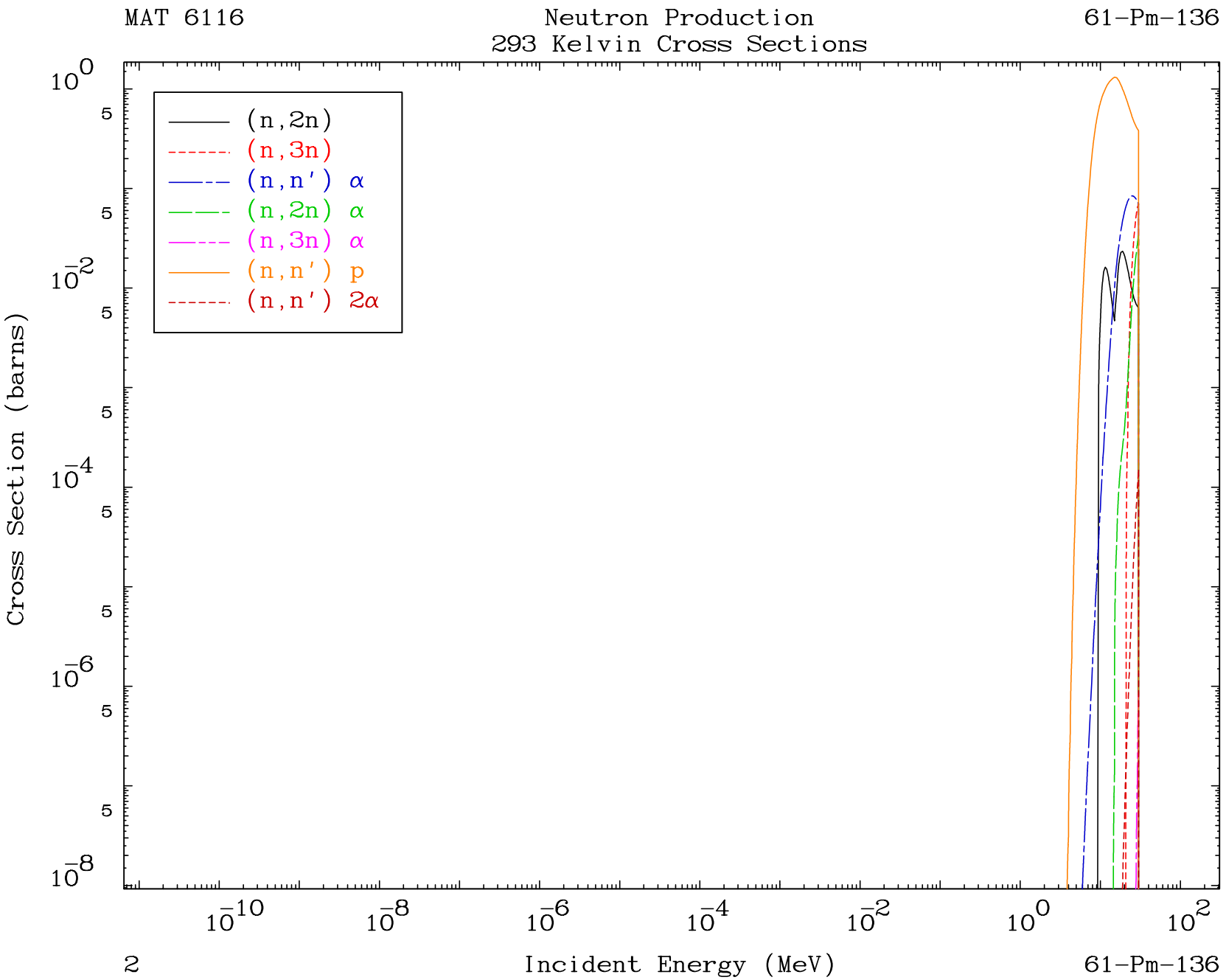
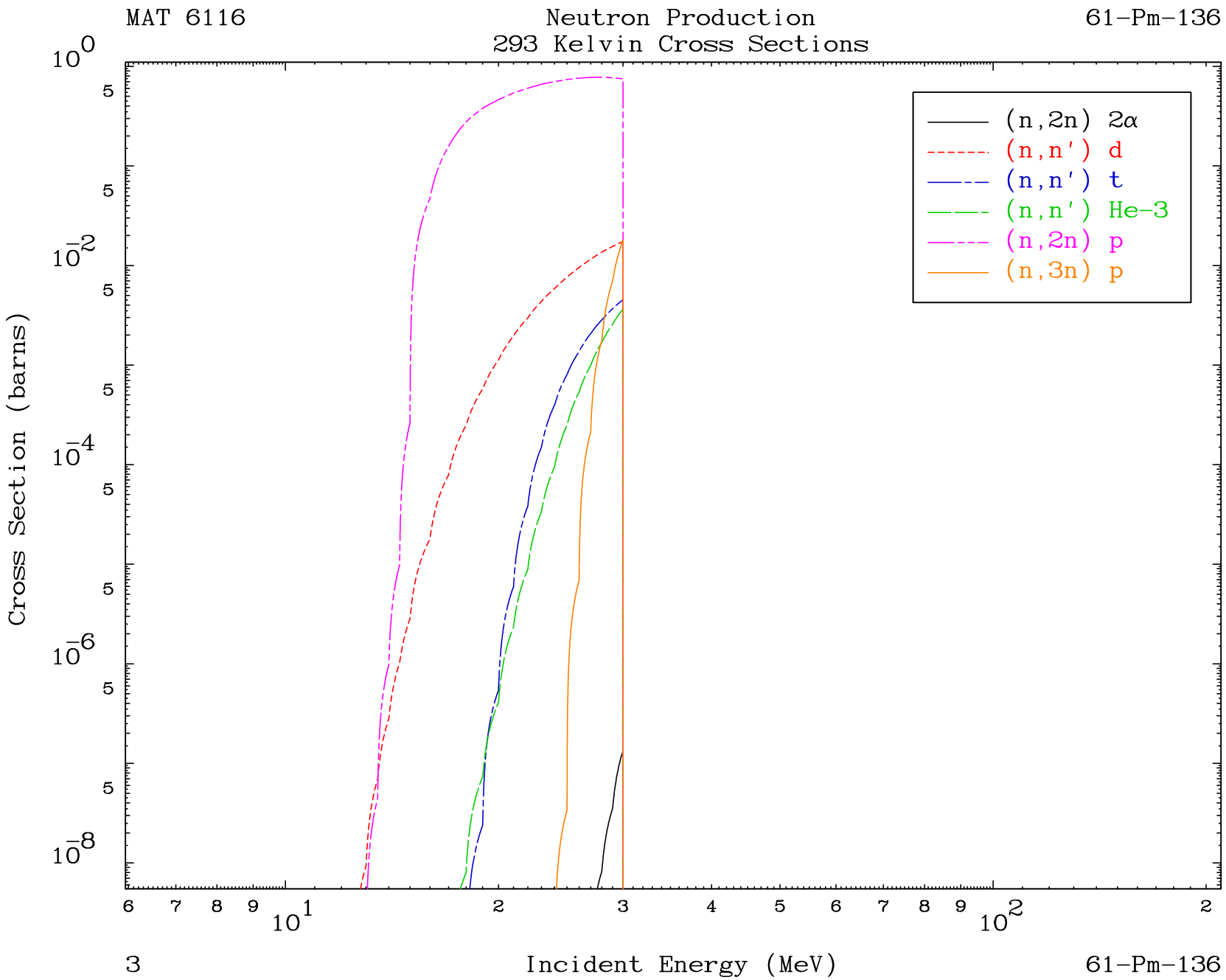
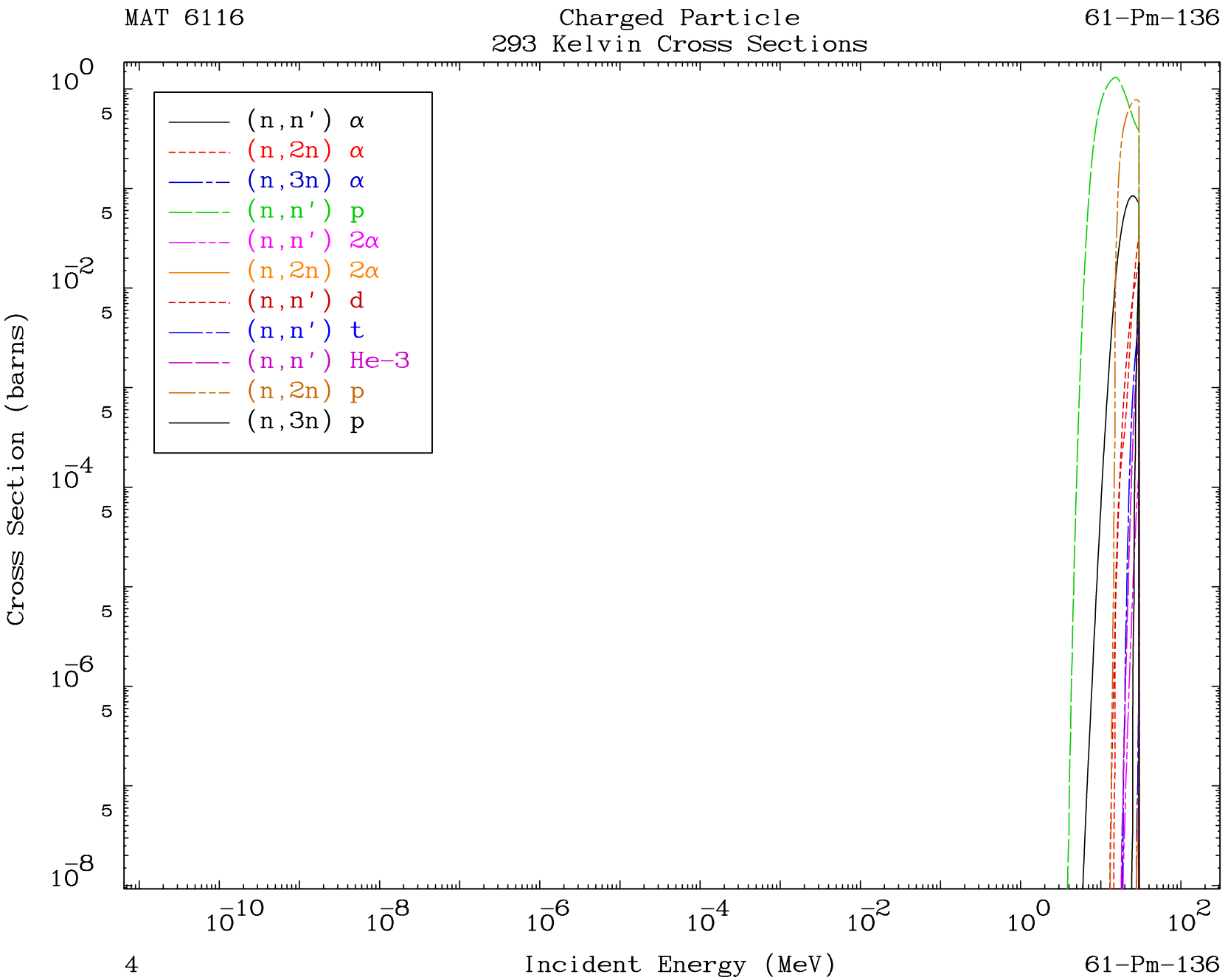
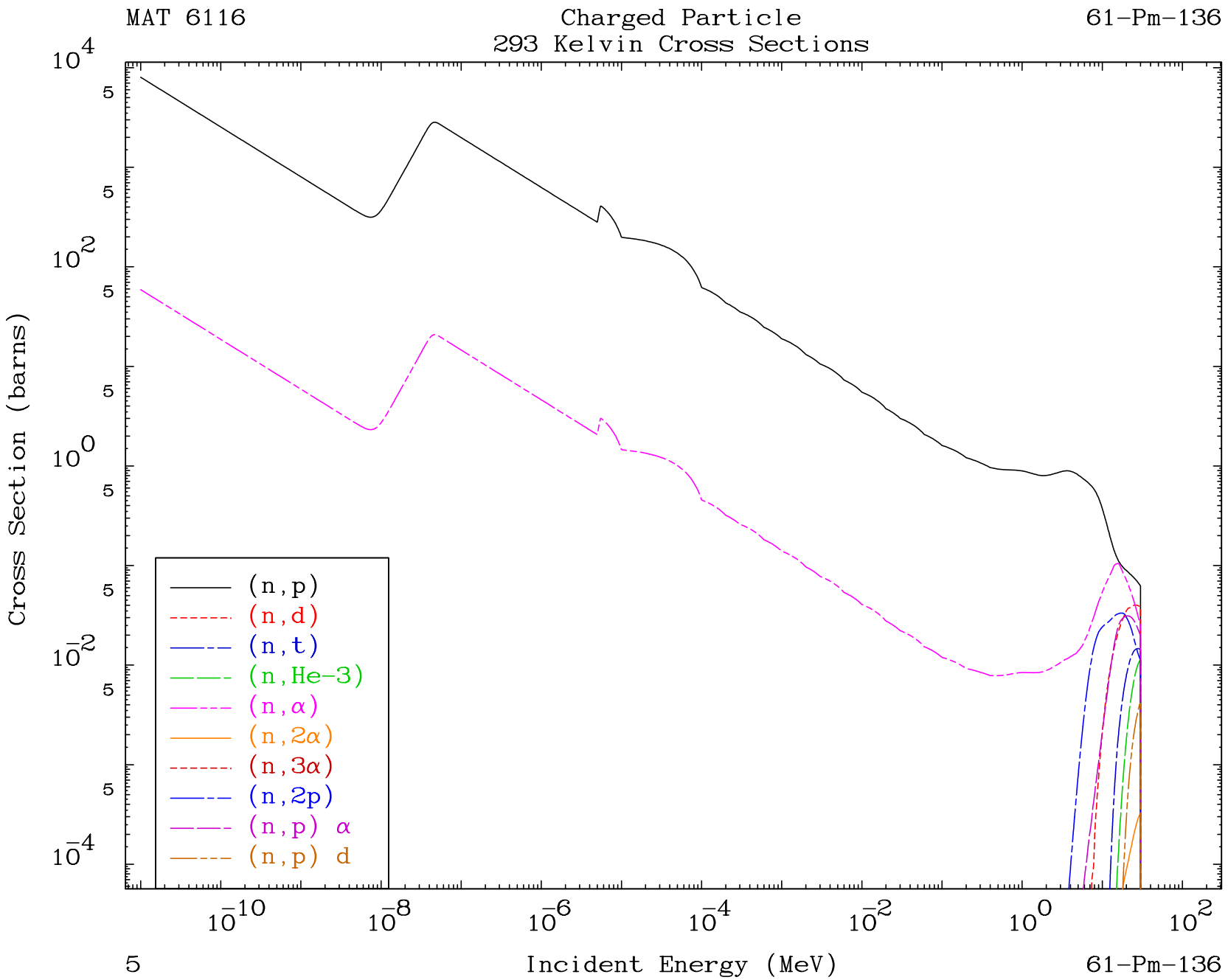
Press Mouse Button to Start

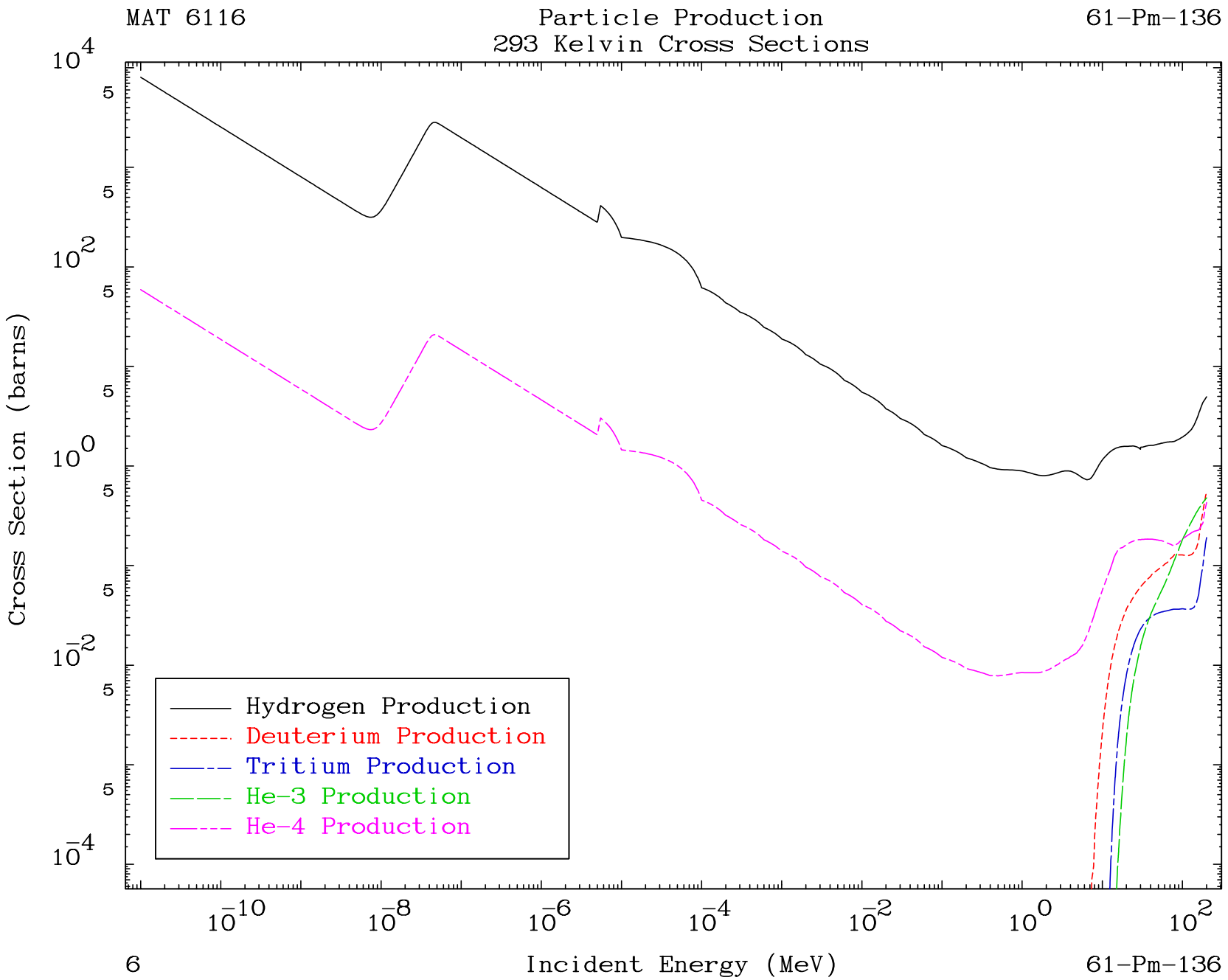

MAT 6116
Major
61-Pm-136
293 Kelvin Cross Sections
Cross Section (barns)
Incident Energy (MeV)
Total
Elastic
Inelastic
(n,remainder)
(n,γ)
1
61-Pm-136

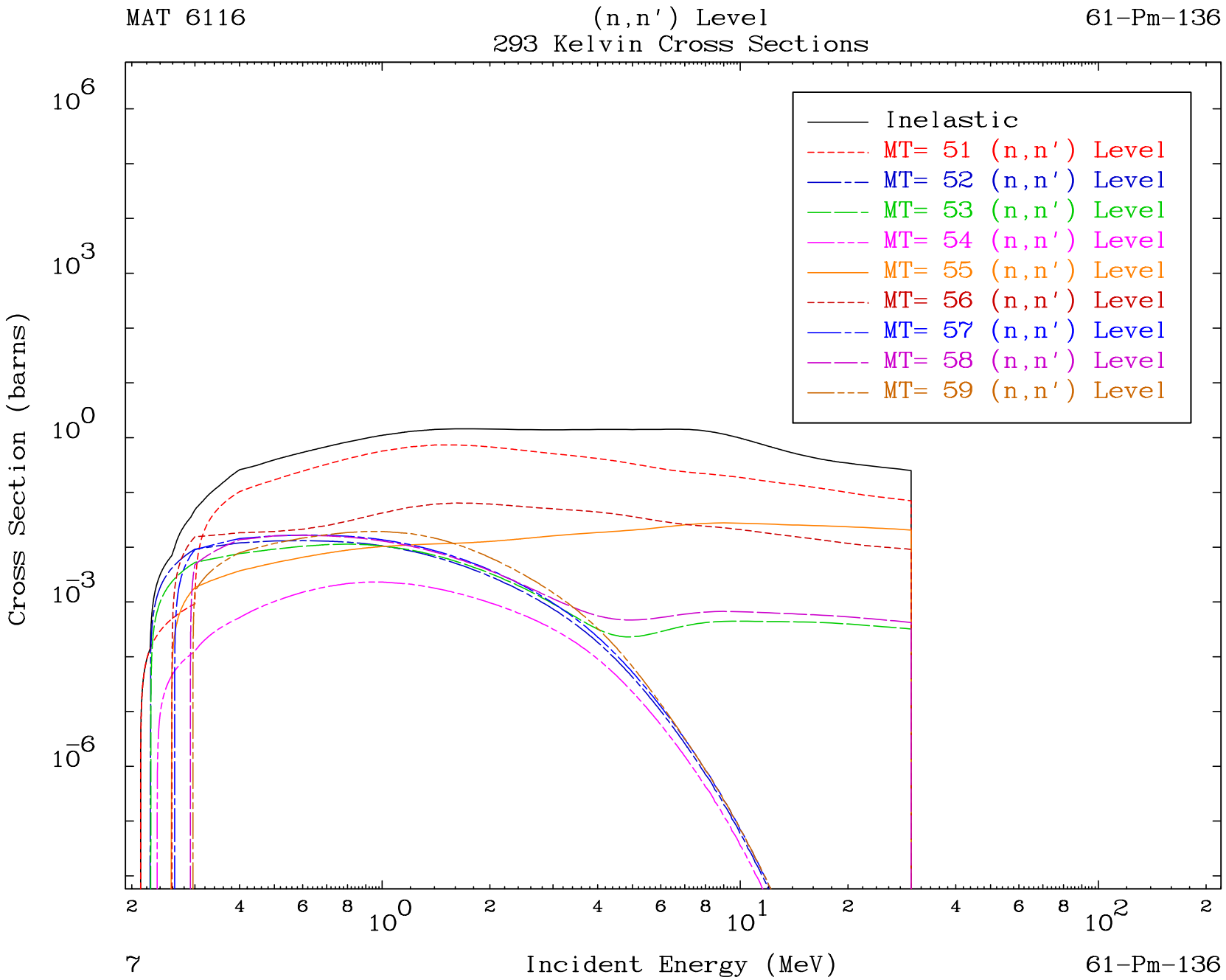

MAT 6116
Neutron Production
293 Kelvin Cross Sections
61-Pm-136
(n,2n)
(n,3n)
(n,n') α
(n,2n) α
(n,3n) α
(n,n') p
(n,n') 2α
Cross Section (barns)
Incident Energy (MeV)
2
61-Pm-136

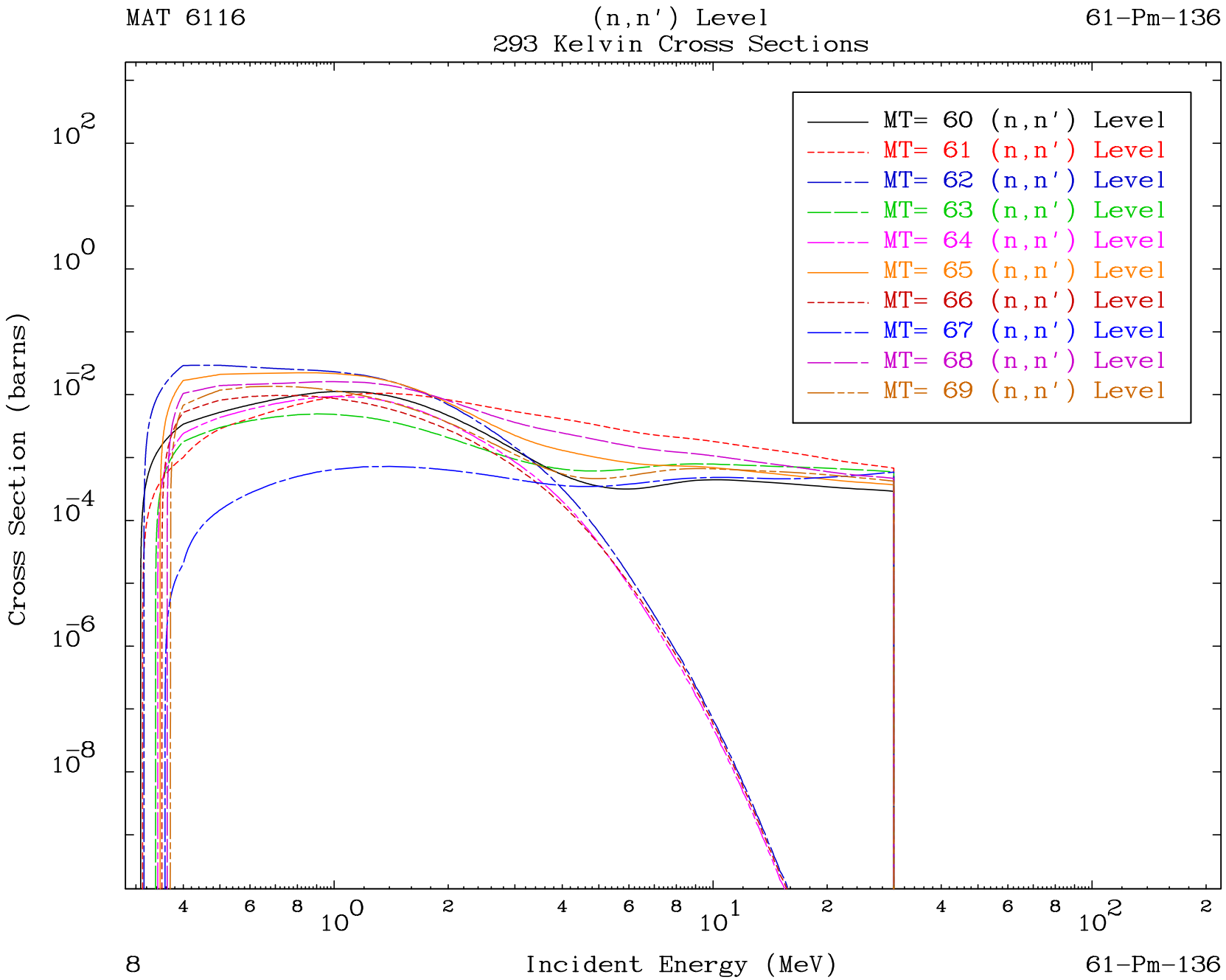

MAT 6116
Neutron Production
293 Kelvin Cross Sections
61-Pm-136
(n,2n) 2α
(n,n') d
(n,n') t
(n,n') He-3
(n,2n) p
(n,3n) p
Cross Section (barns)
Incident Energy (MeV)
61-Pm-136
3

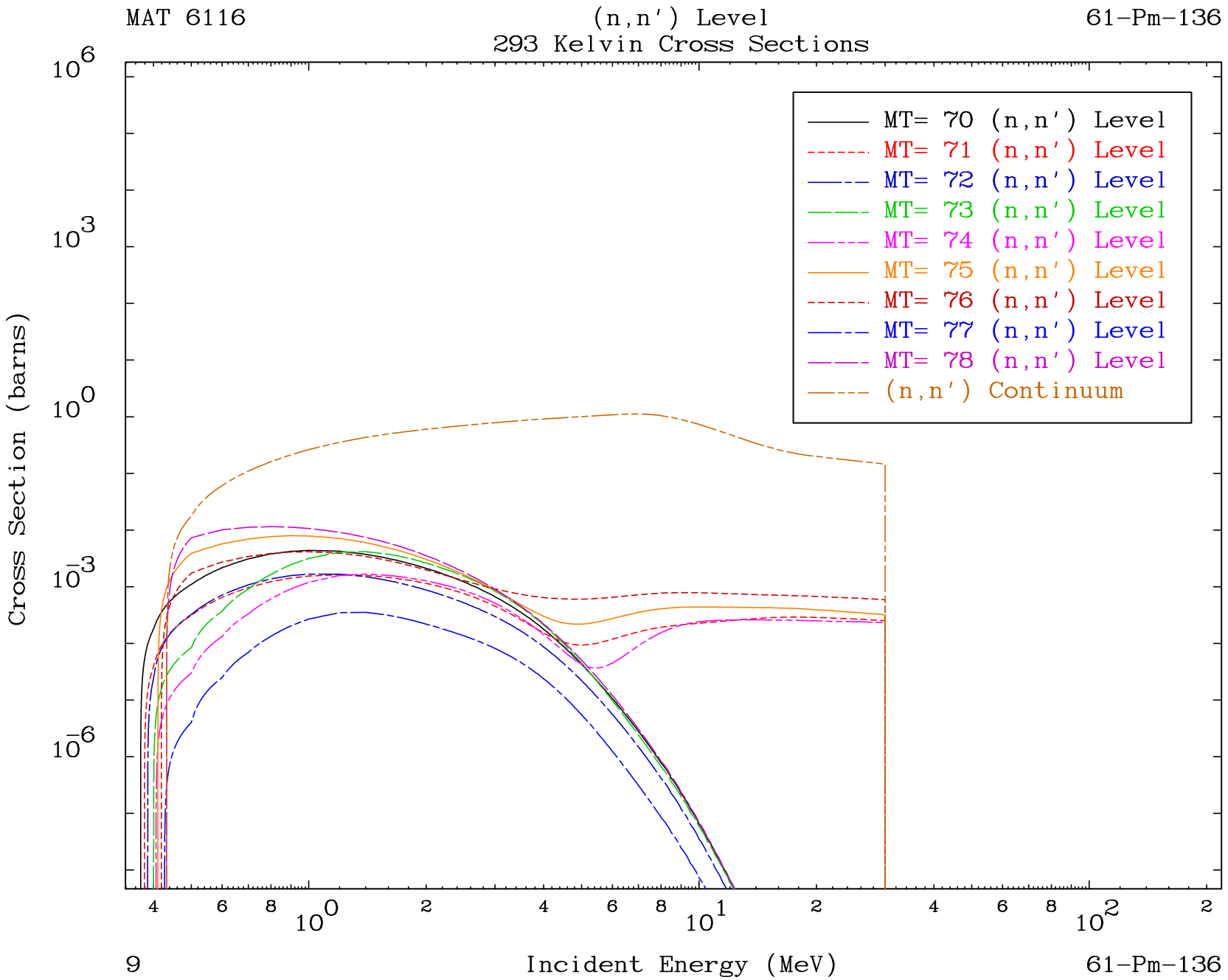

MAT 6116
Charged Particle
61-Pm-136
293 Kelvin Cross Sections
(n,n') α
(n,2n) α
(n,3n) α
(n,n') p
(n,n') 2α
(n,2n) 2α
(n,n') d
(n,n') t
(n,n') He-3
(n,2n) p
(n,3n) p
Cross Section (barns)
Incident Energy (MeV)
4
61-Pm-136

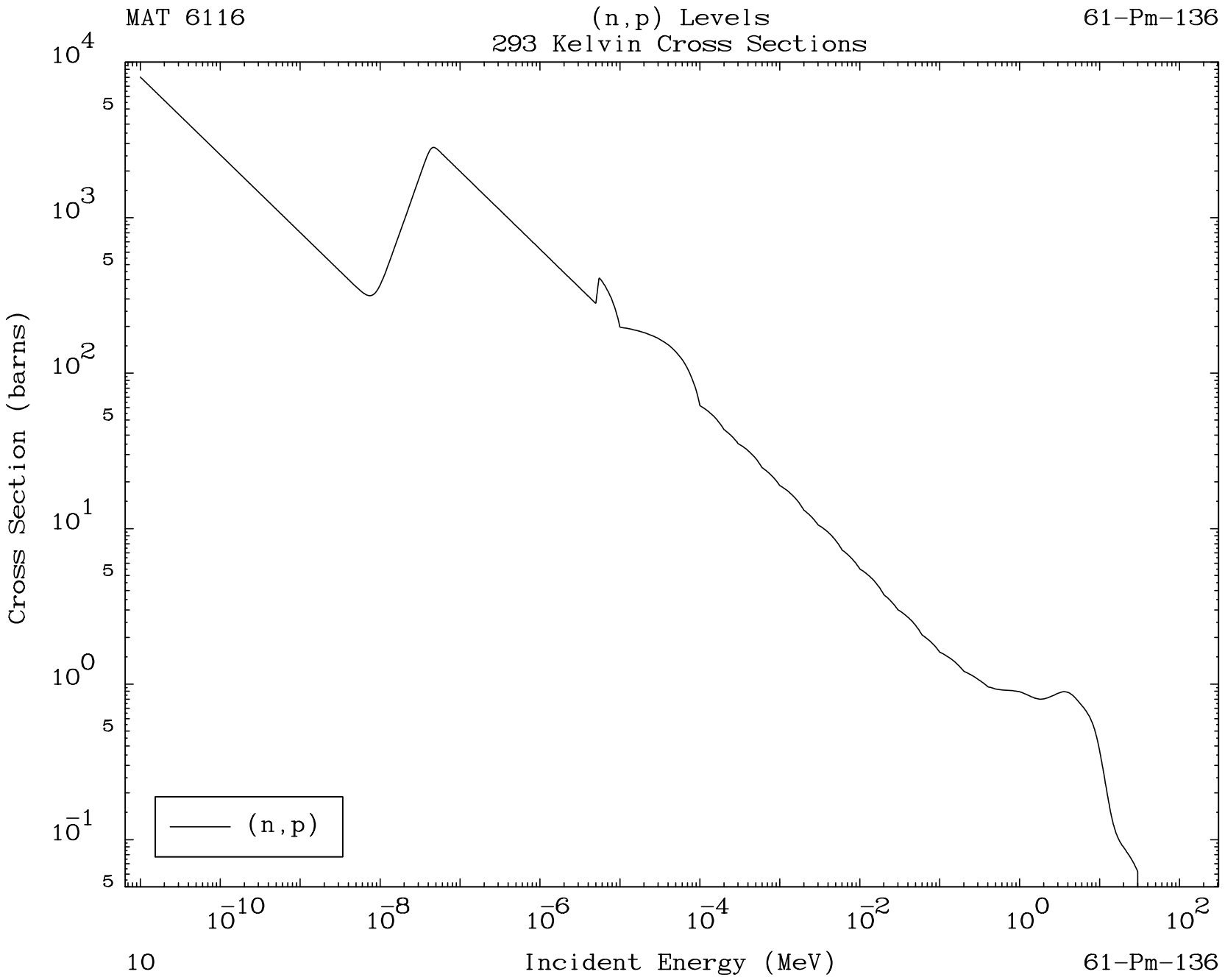

MAT 6116
Charged Particle
293 Kelvin Cross Sections
61-Pm-136
Cross Section (barns)
Incident Energy (MeV)
61-Pm-136
(n,p)
(n,d)
(n,t)
(n,He-3)
(n,α)
(n,2α)
(n,3α)
(n,2p)
(n,p) α
(n,p) d

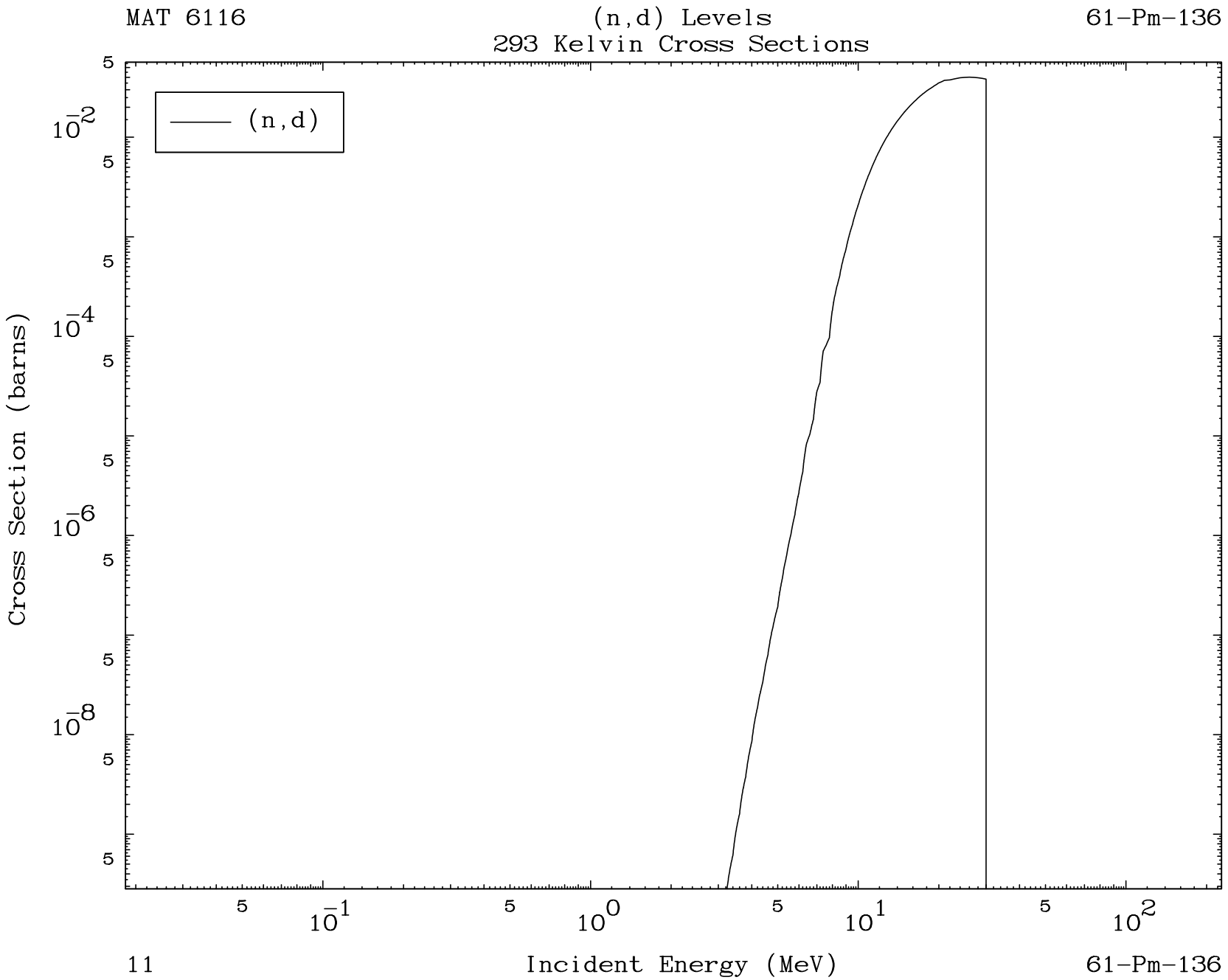

MAT 6116
Particle Production
293 Kelvin Cross Sections
61-Pm-136
Cross Section (barns)
Incident Energy (MeV)
Hydrogen Production
Deuterium Production
Tritium Production
He-3 Production
He-4 Production
6
61-Pm-136

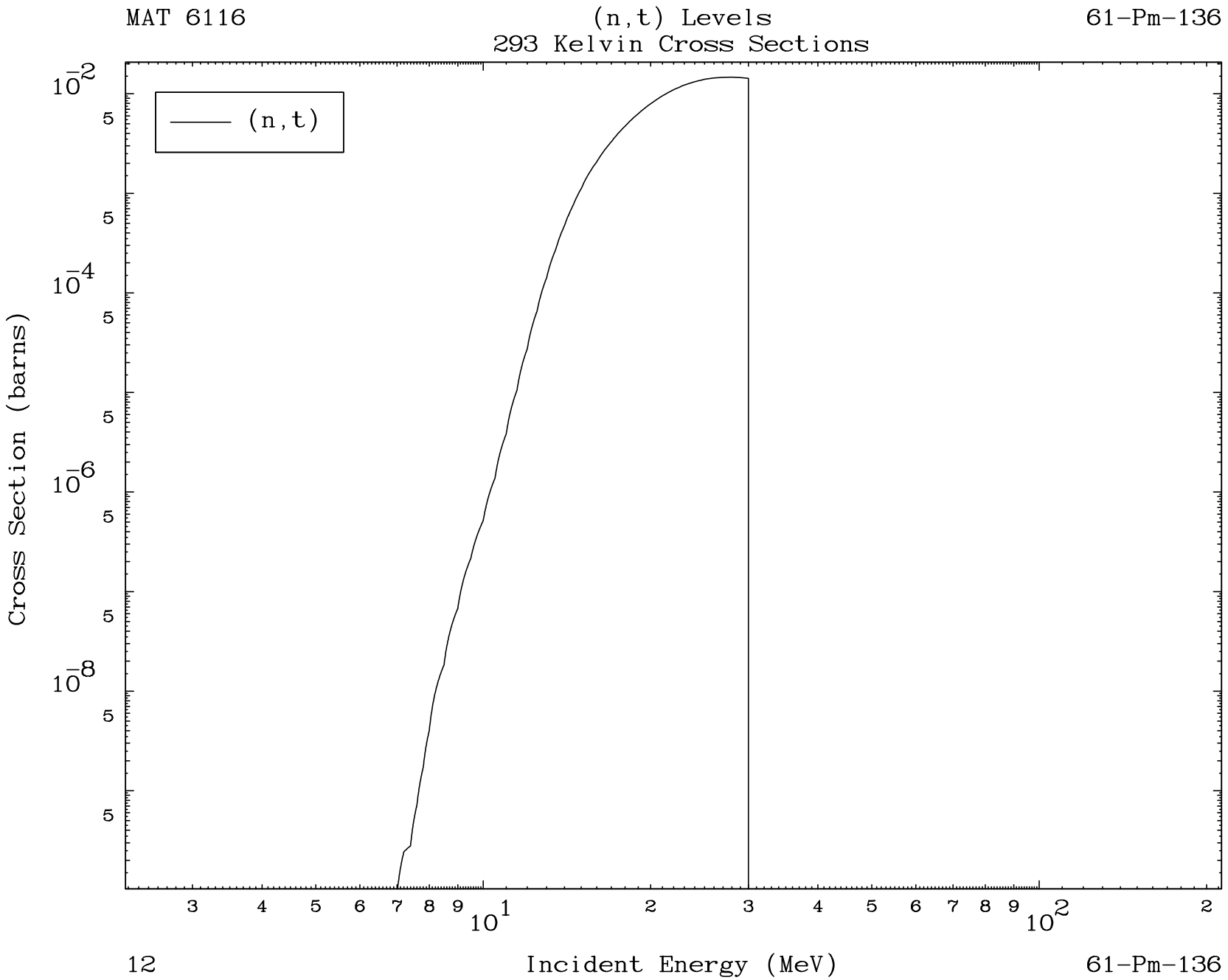

MAT 6116
(n,n') Level
61-Pm-136
293 Kelvin Cross Sections
Inelastic
MT= 51 (n,n') Level
MT= 52 (n,n') Level
MT= 53 (n,n') Level
MT= 54 (n,n') Level
MT= 55 (n,n') Level
MT= 56 (n,n') Level
MT= 57 (n,n') Level
MT= 58 (n,n') Level
MT= 59 (n,n') Level
Cross Section (barns)
Incident Energy (MeV)
61-Pm-136
7

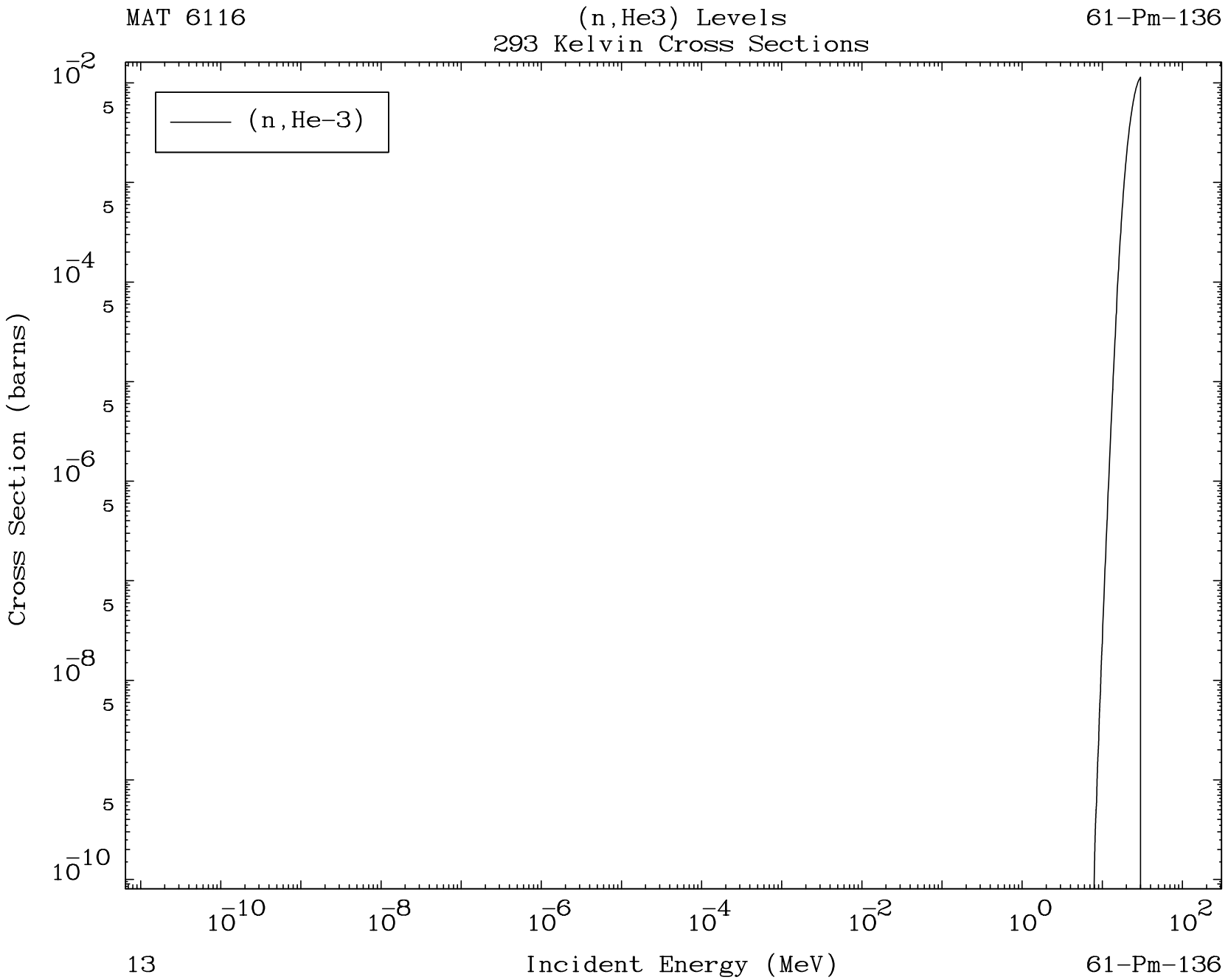

MAT 6116
(n,n') Level
61-Pm-136
293 Kelvin Cross Sections
MT= 60 (n,n') Level
MT= 61 (n,n') Level
MT= 62 (n,n') Level
MT= 63 (n,n') Level
MT= 64 (n,n') Level
MT= 65 (n,n') Level
MT= 66 (n,n') Level
MT= 67 (n,n') Level
MT= 68 (n,n') Level
MT= 69 (n,n') Level
Cross Section (barns)
Incident Energy (MeV)
8
61-Pm-136

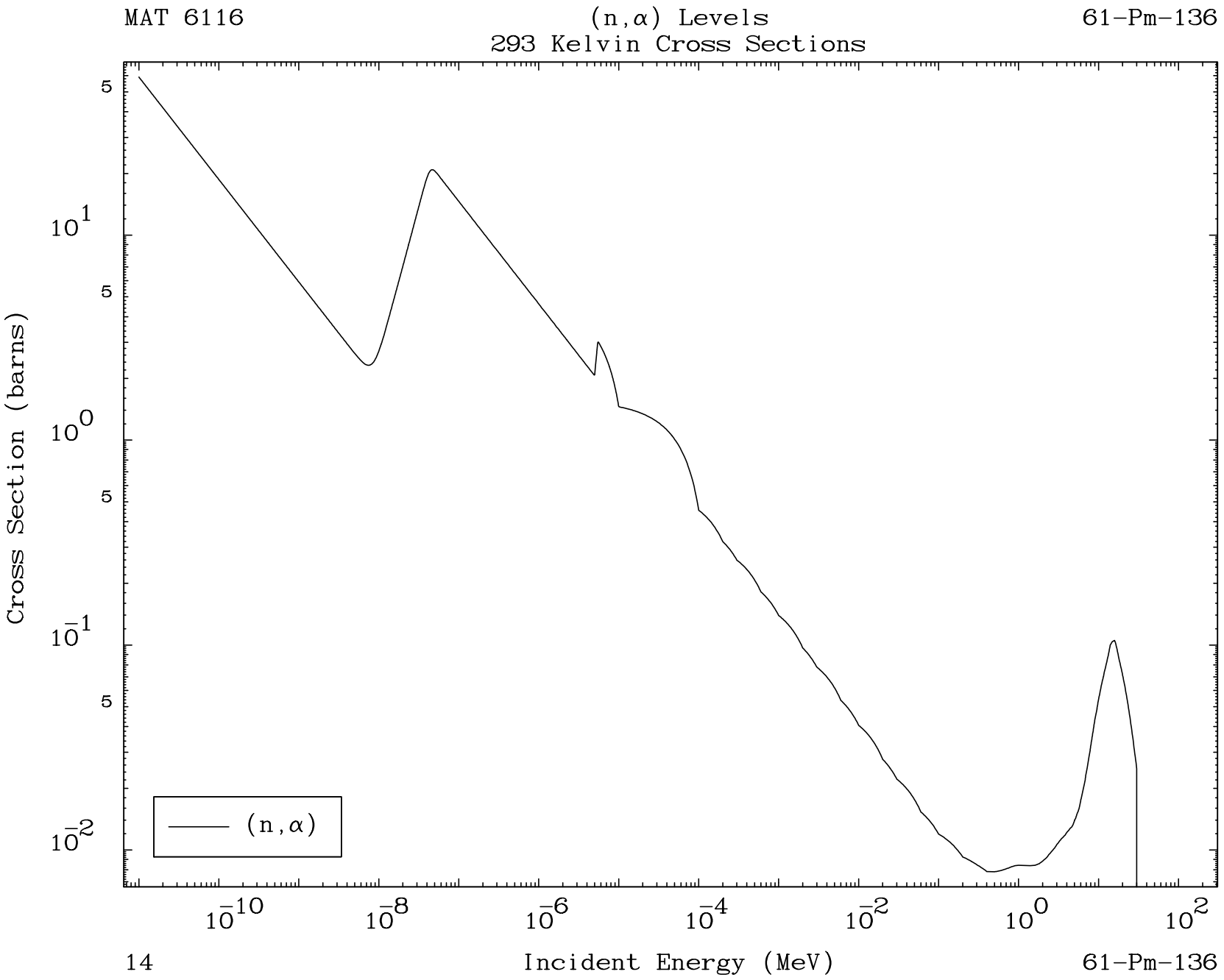

MAT 6116
(n,n') Level
293 Kelvin Cross Sections
61-Pm-136
MT= 70 (n,n') Level
MT= 71 (n,n') Level
MT= 72 (n,n') Level
MT= 73 (n,n') Level
MT= 74 (n,n') Level
MT= 75 (n,n') Level
MT= 76 (n,n') Level
MT= 77 (n,n') Level
MT= 78 (n,n') Level
(n,n') Continuum
Cross Section (barns)
Incident Energy (MeV)
9
61-Pm-136

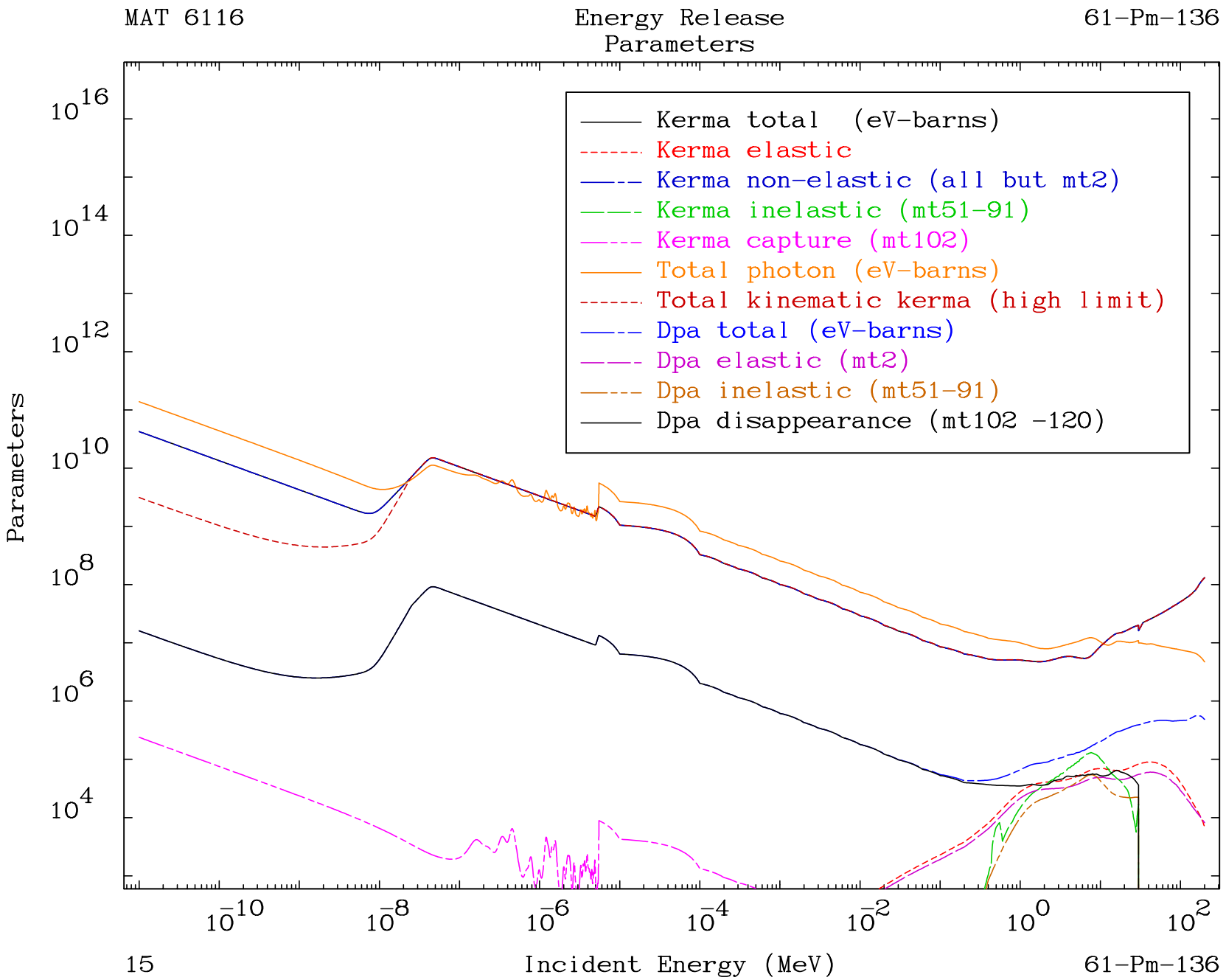

MAT 6116
(n,p) Levels
61-Pm-136
293 Kelvin Cross Sections
Cross Section (barns)
10^4
5
10^3
5
10^2
5
10^1
5
10^0
5
10^-1
5
(n,p)
10^-10
10^-8
10^-6
10^-4
10^-2
10^0
10^2
10
Incident Energy (MeV)
61-Pm-136

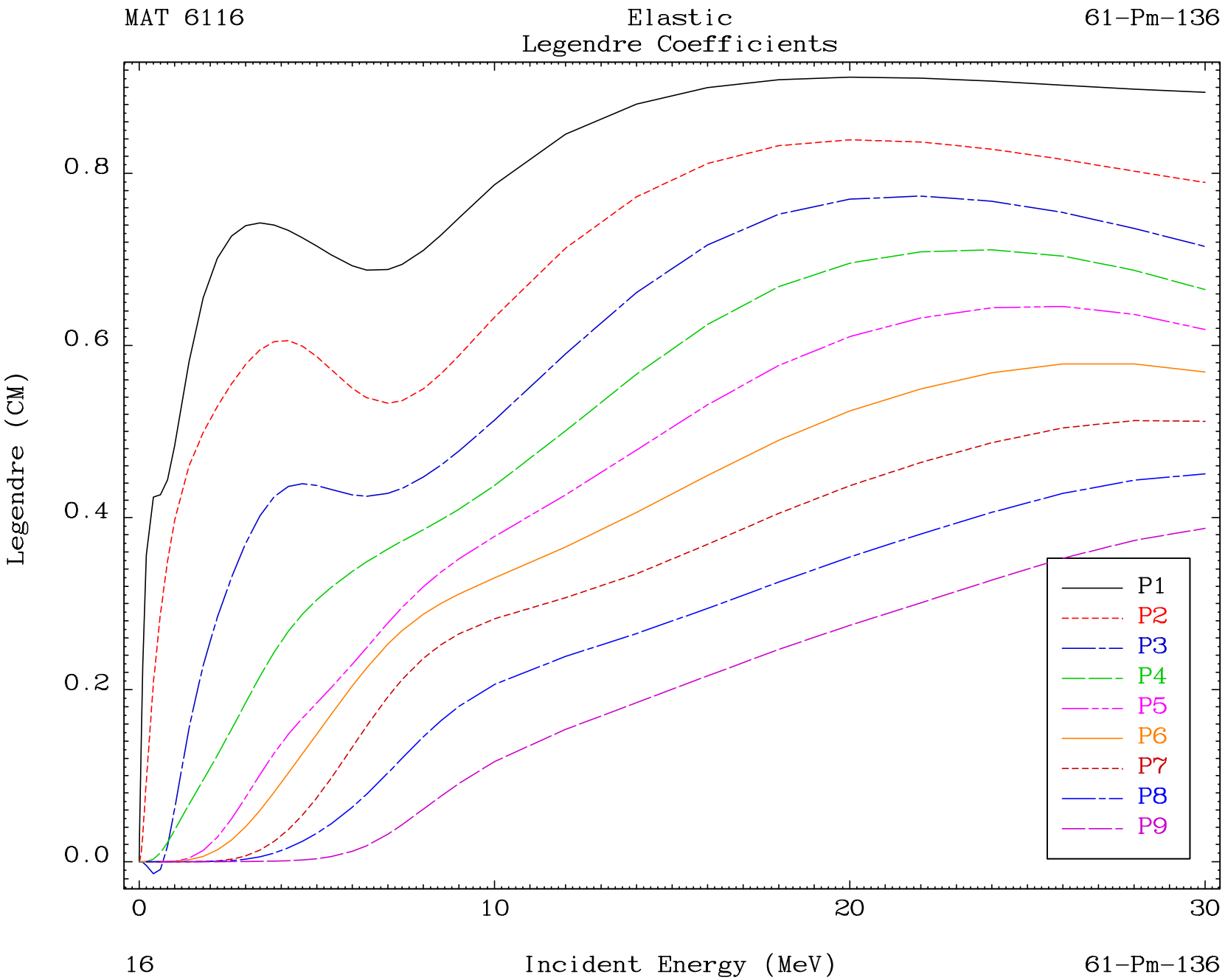

MAT 6116
(n,d) Levels
61-Pm-136
293 Kelvin Cross Sections
(n,d)
Cross Section (barns)
Incident Energy (MeV)
11
61-Pm-136

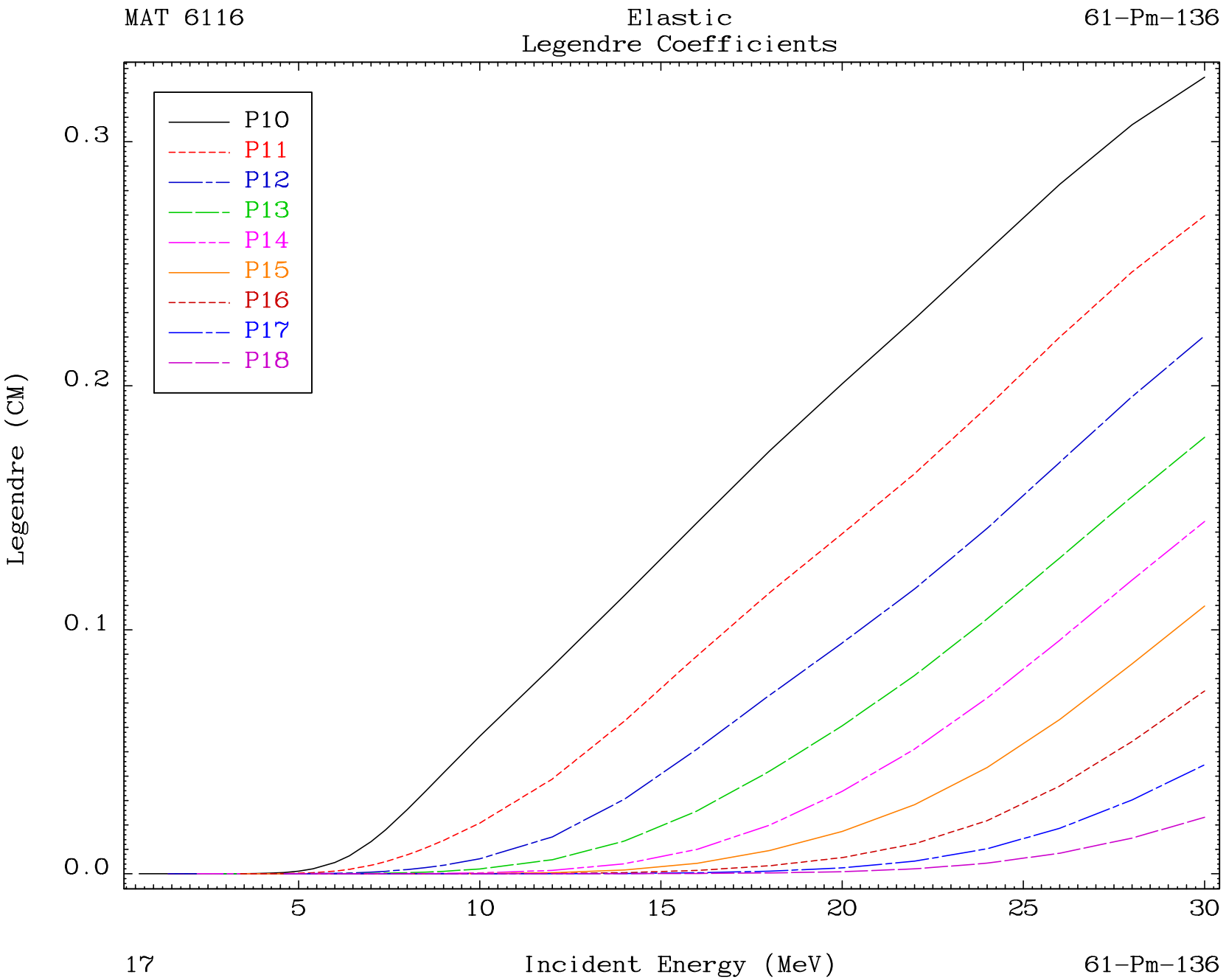

MAT 6116
(n,t) Levels
61-Pm-136
293 Kelvin Cross Sections
(n,t)
Cross Section (barns)
Incident Energy (MeV)
12
61-Pm-136

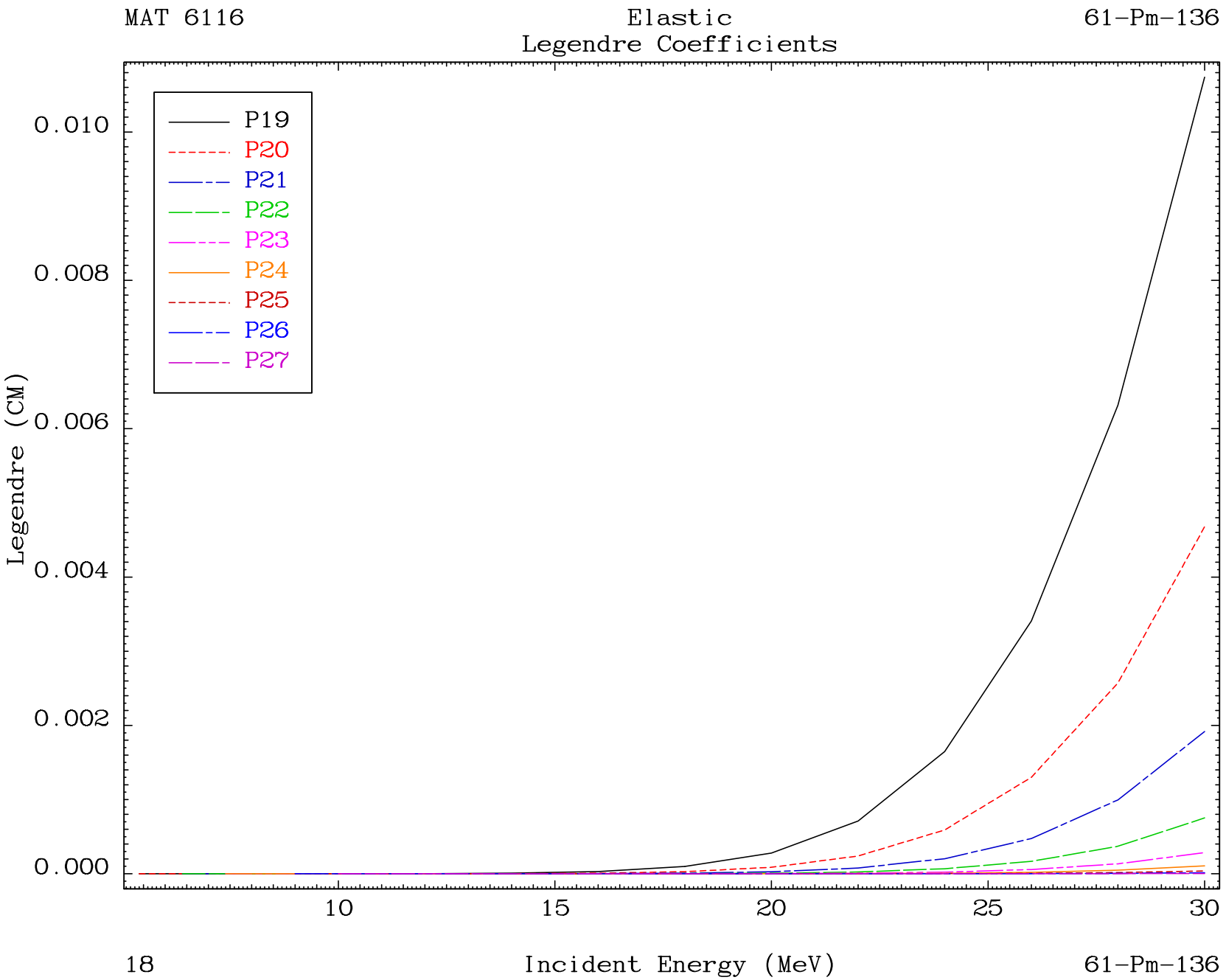

MAT 6116
(n,He3) Levels
61-Pm-136
293 Kelvin Cross Sections
(n,He-3)
Cross Section (barns)
Incident Energy (MeV)
13
61-Pm-136

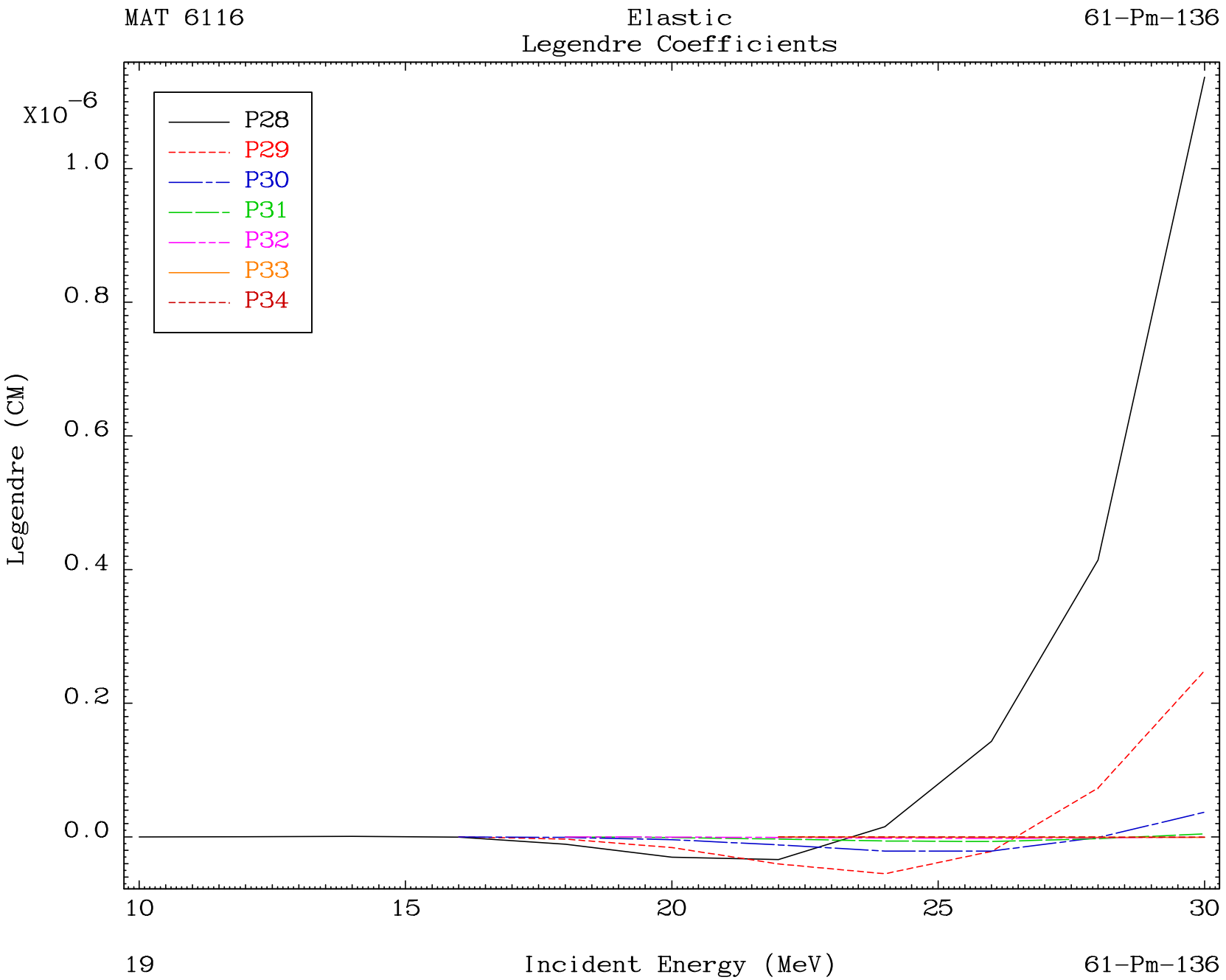

MAT 6116
(n,α) Levels
61-Pm-136
293 Kelvin Cross Sections
Cross Section (barns)
10^1
10^0
10^-1
10^-2
5
(n,α)
10^-10
10^-8
10^-6
10^-4
10^-2
10^0
10^2
14
Incident Energy (MeV)
61-Pm-136

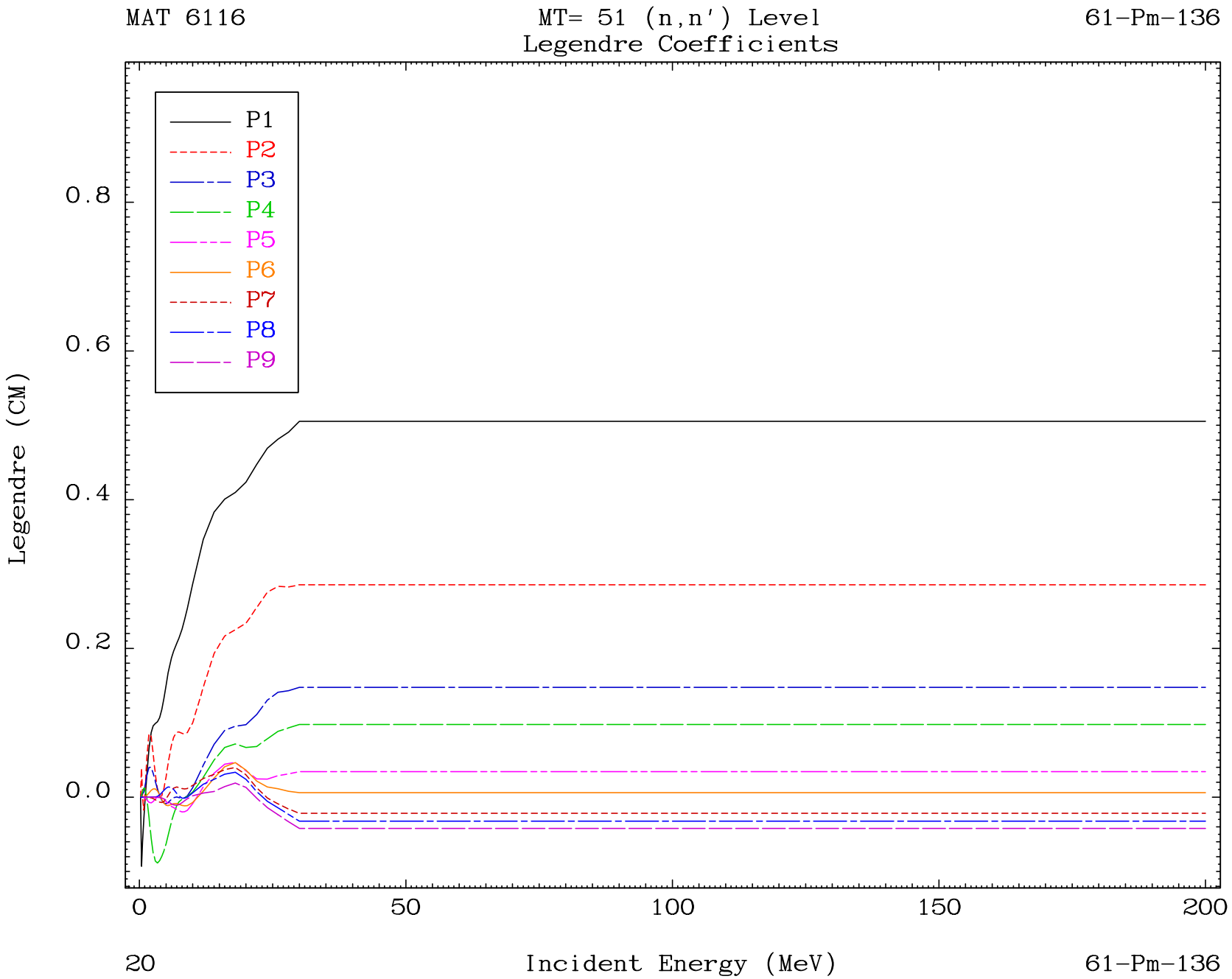

MAT 6116
Energy Release
Parameters
61-Pm-136
Kerma total (eV-barns)
Kerma elastic
Kerma non-elastic (all but mt2)
Kerma inelastic (mt51-91)
Kerma capture (mt102)
Total photon (eV-barns)
Total kinematic kerma (high limit)
Dpa total (eV-barns)
Dpa elastic (mt2)
Dpa inelastic (mt51-91)
Dpa disappearance (mt102 -120)
Parameters
10^{16}
10^{14}
10^{12}
10^{10}
10^{8}
10^{6}
10^{4}
10^{-10}
10^{-8}
10^{-6}
10^{-4}
10^{-2}
10^{0}
10^{2}
Incident Energy (MeV)
15
61-Pm-136

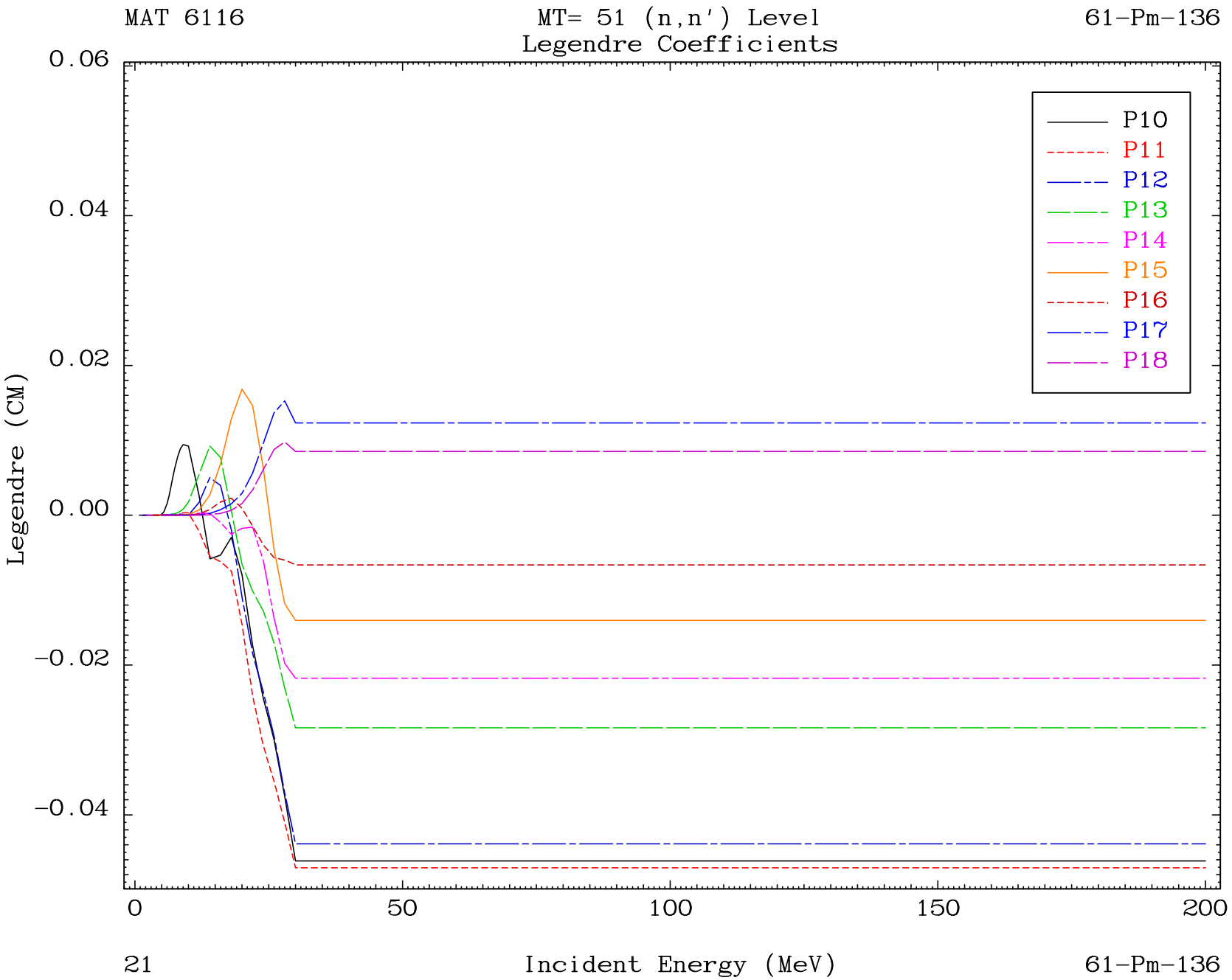

MAT 6116
Elastic
Legendre Coefficients
61-Pm-136
Legendre (CM)
0.0
0.2
0.4
0.6
0.8
0
10
20
30
16
Incident Energy (MeV)
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9

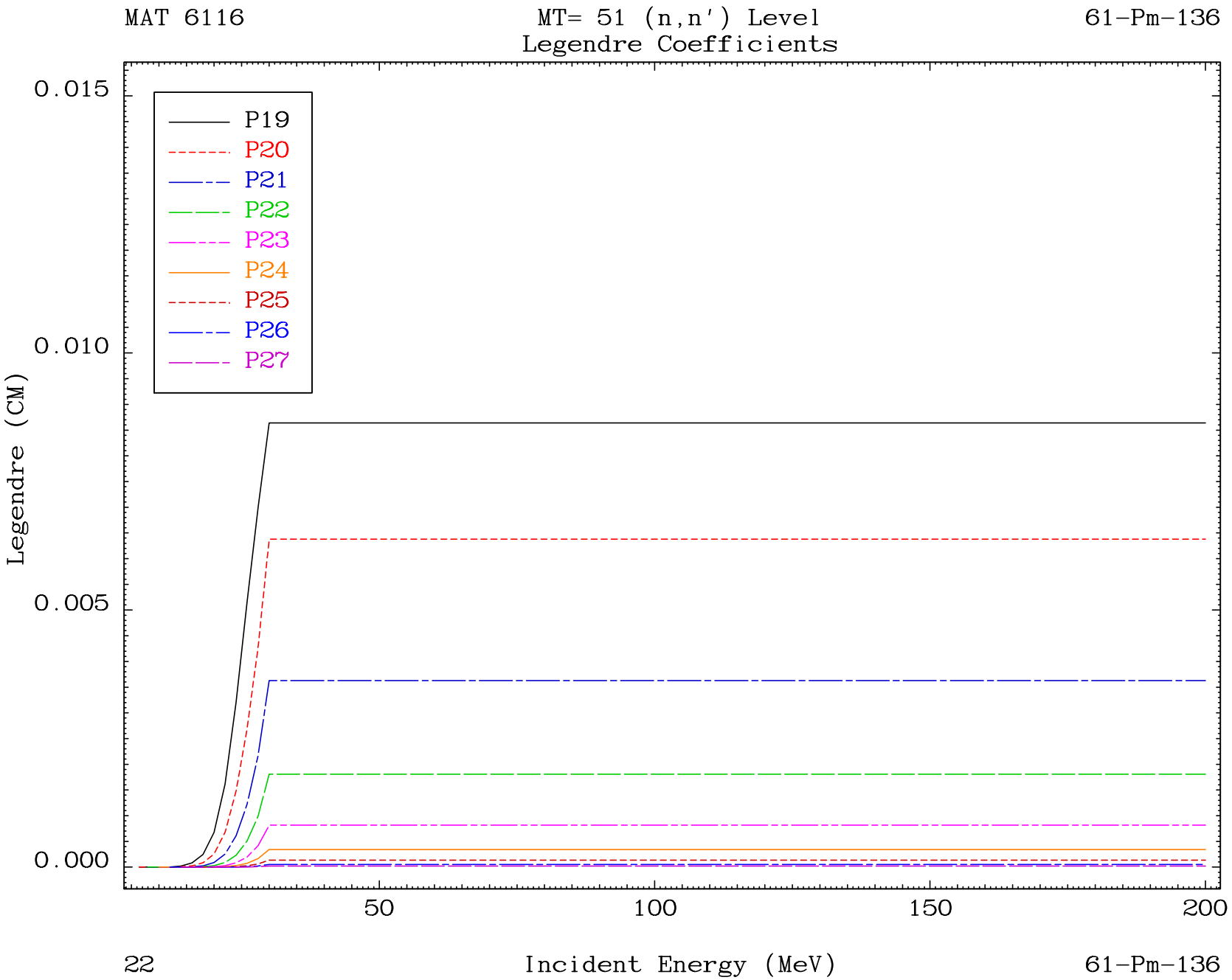

MAT 6116
Elastic
Legendre Coefficients
61-Pm-136
P10
P11
P12
P13
P14
P15
P16
P17
P18
Legendre (CM)
0.0
0.1
0.2
0.3
5
10
15
20
25
30
17
Incident Energy (MeV)
61-Pm-136

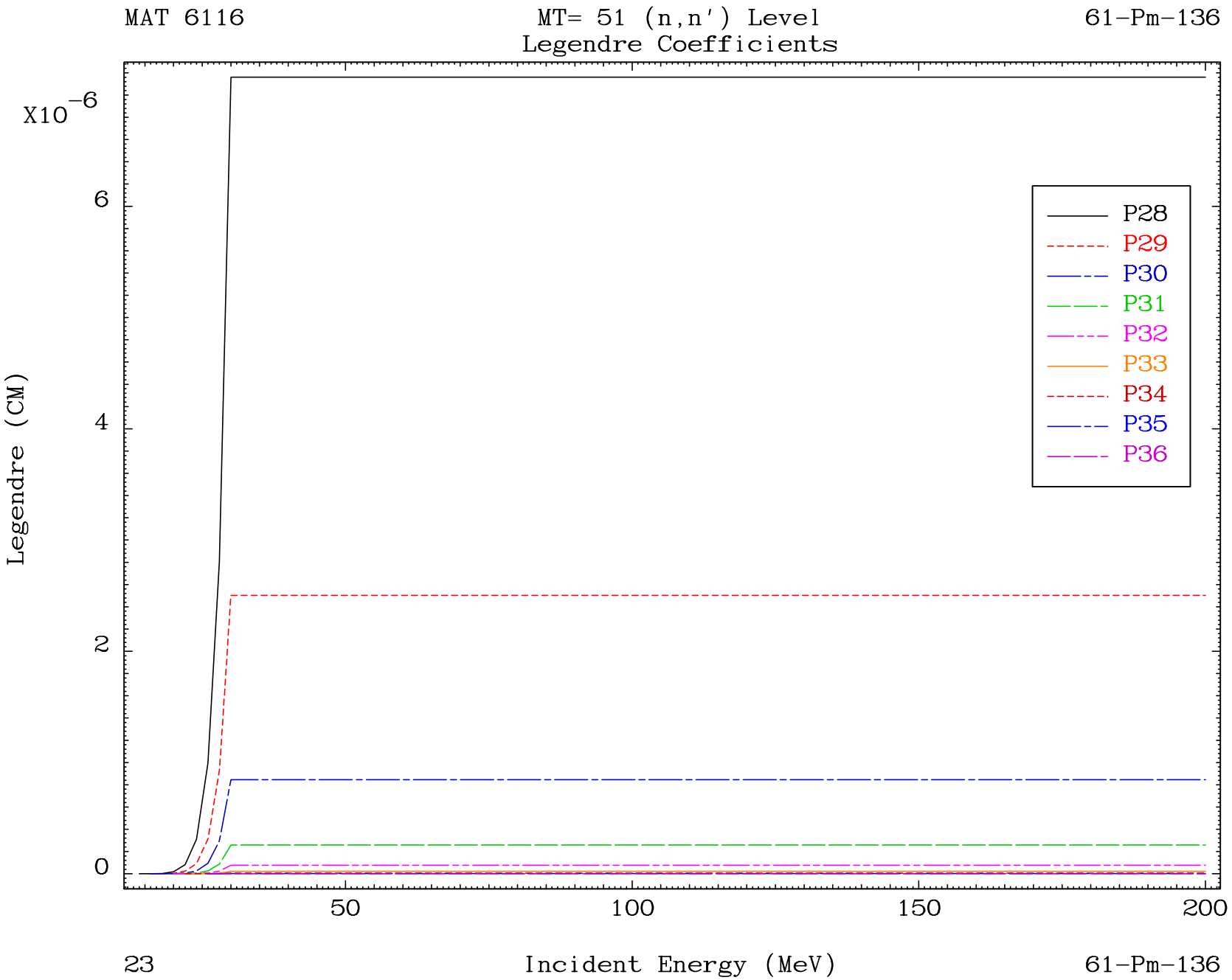

MAT 6116
Elastic
Legendre Coefficients
61-Pm-136
P19
P20
P21
P22
P23
P24
P25
P26
P27
0.010
0.008
0.006
0.004
0.002
0.000
Legendre (CM)
10
15
20
25
30
18
Incident Energy (MeV)
61-Pm-136

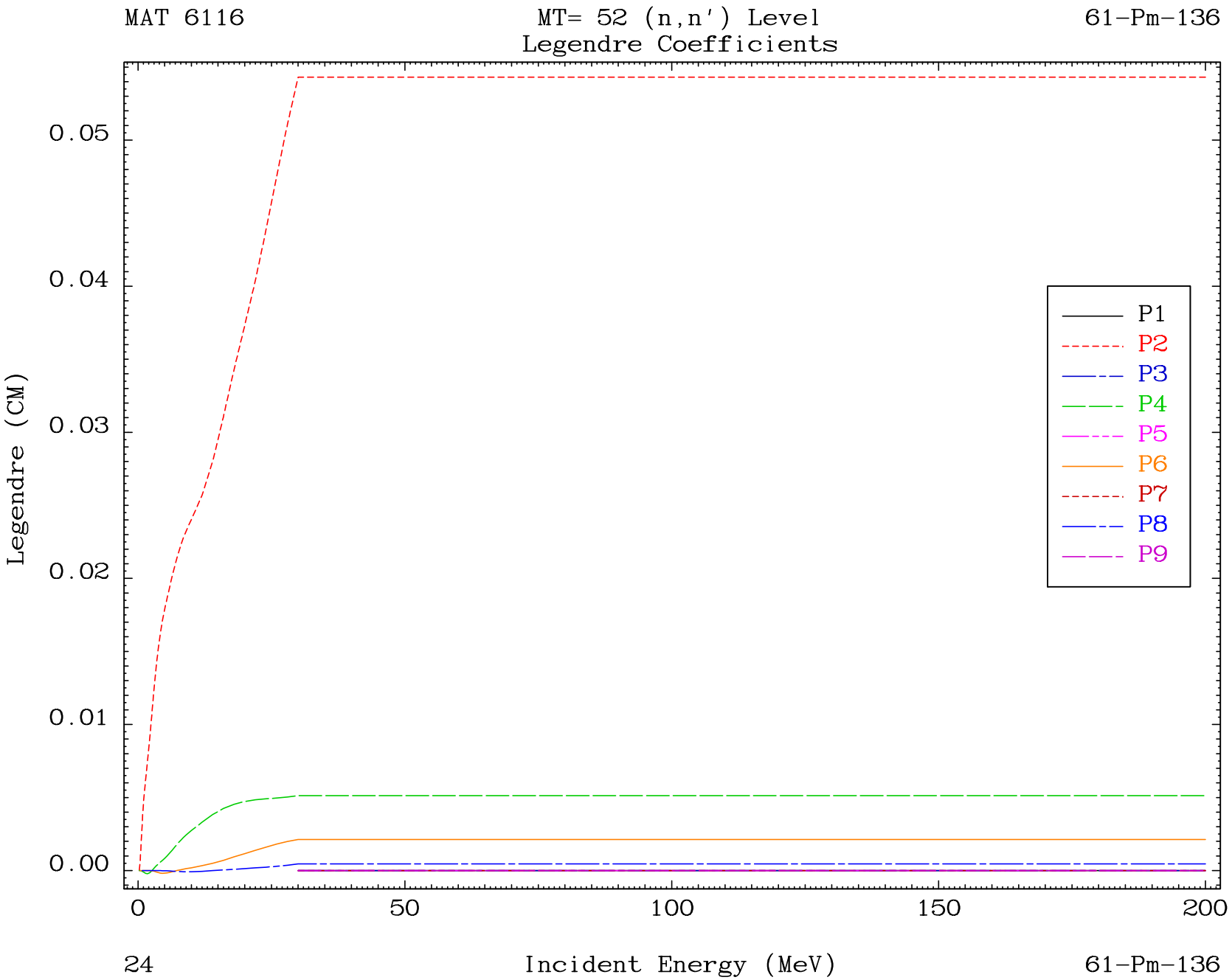

MAT 6116
Elastic
Legendre Coefficients
61-Pm-136
X10^-6
1.0
0.8
0.6
0.4
0.2
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
10
15
20
25
30
19
Incident Energy (MeV)
61-Pm-136

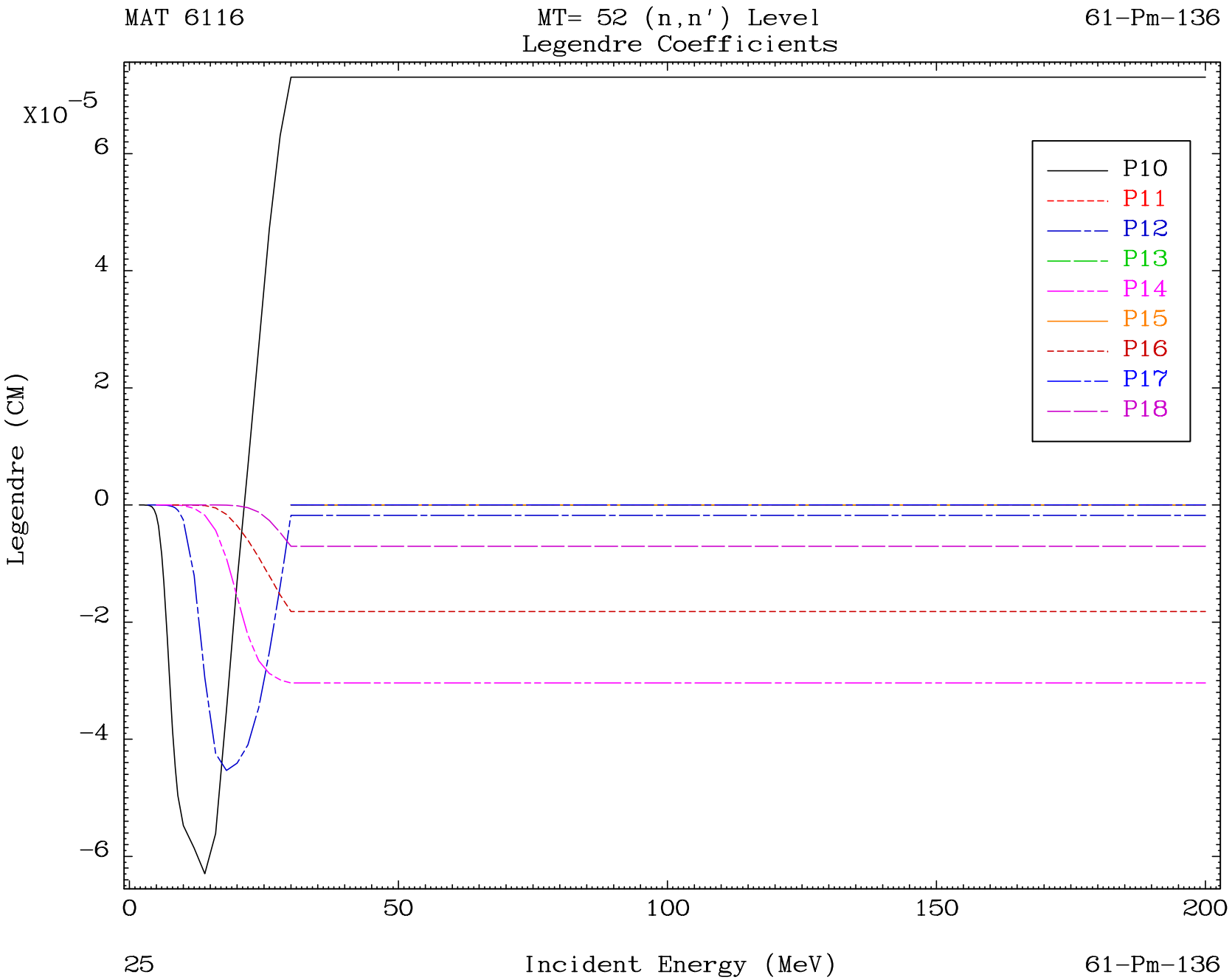

MAT 6116
MT= 51 (n,n') Level
Legendre Coefficients
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9
Legendre (CM)
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200
20
Incident Energy (MeV)
61-Pm-136

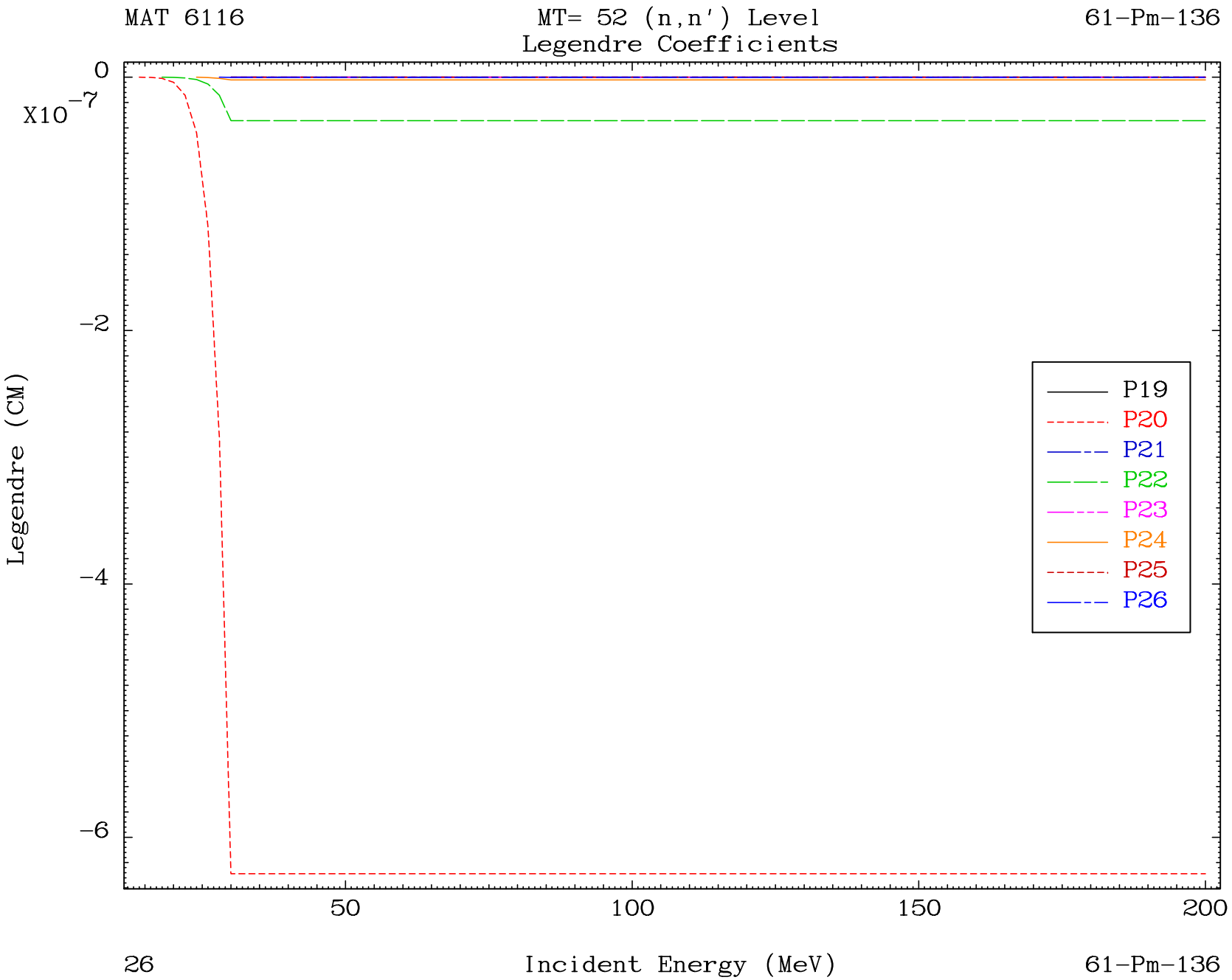

MAT 6116
MT= 51 (n,n') Level
Legendre Coefficients
61-Pm-136
0.06
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
21
Incident Energy (MeV)
61-Pm-136

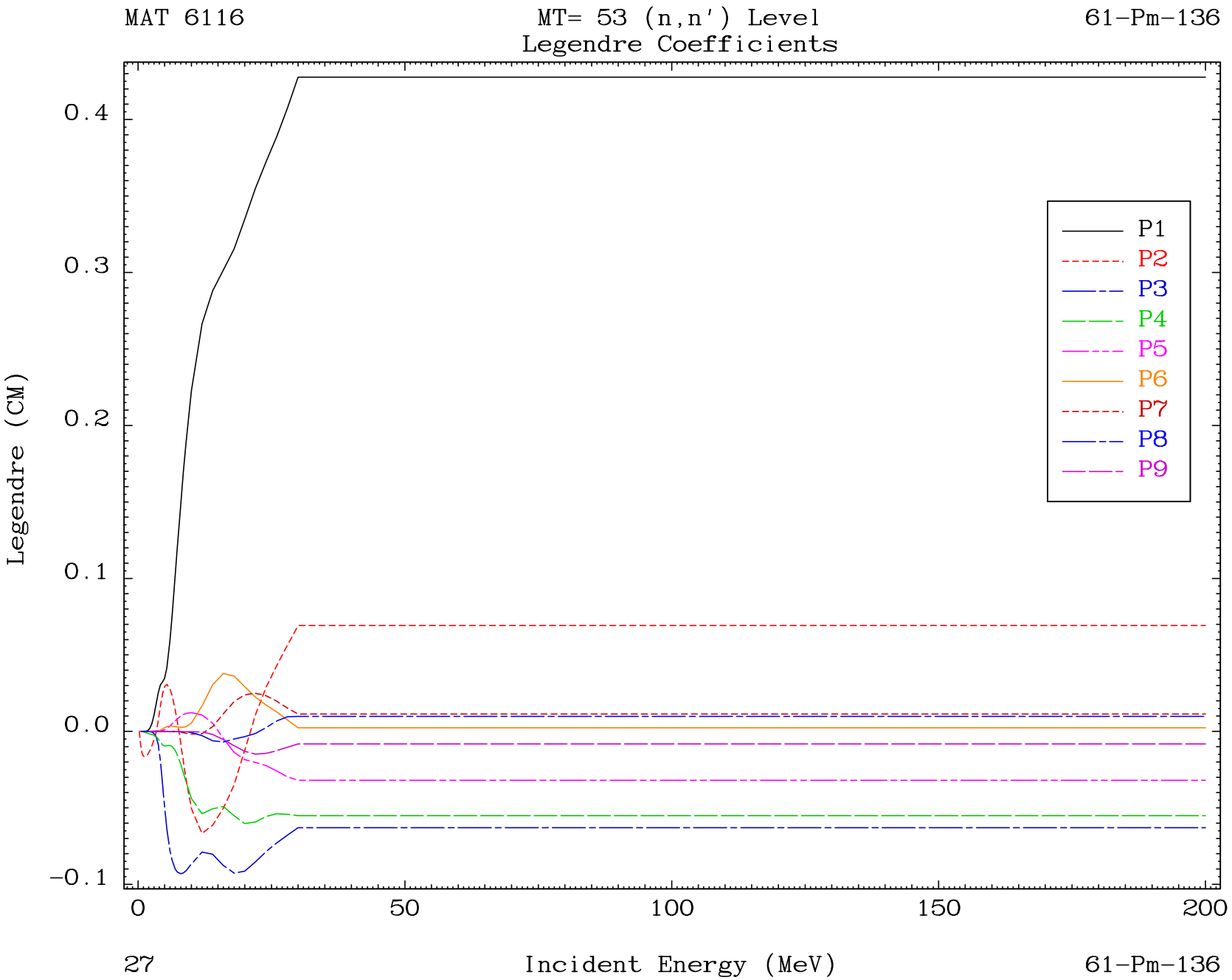

MAT 6116
MT= 51 (n,n') Level
Legendre Coefficients
61-Pm-136
P19
P20
P21
P22
P23
P24
P25
P26
P27
0.015
0.010
0.005
0.000
Legendre (CM)
50
100
150
200
22
Incident Energy (MeV)
61-Pm-136

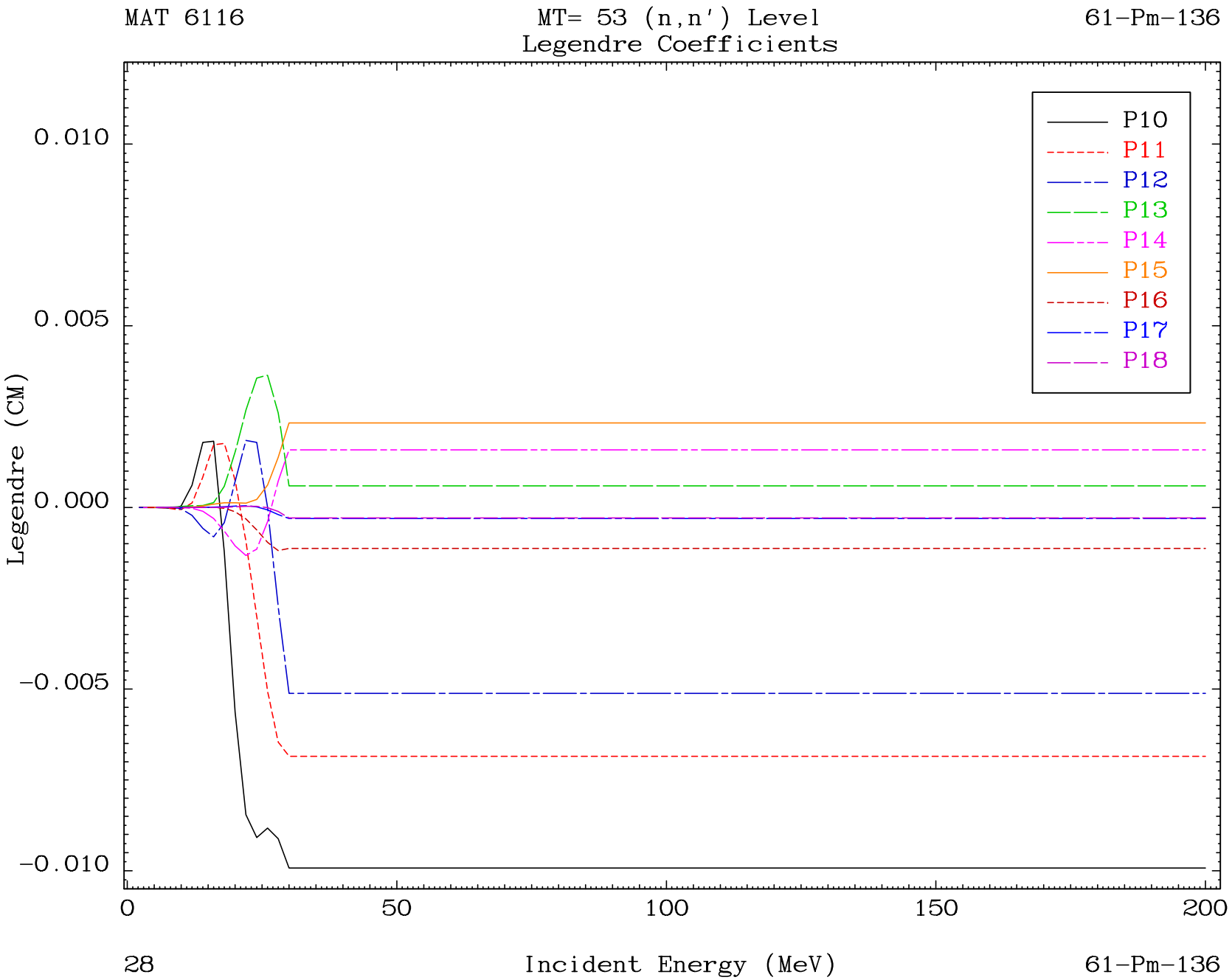

MAT 6116
MT= 51 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-6
6
4
2
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
P35
P36
50
100
150
200
23
Incident Energy (MeV)
61-Pm-136

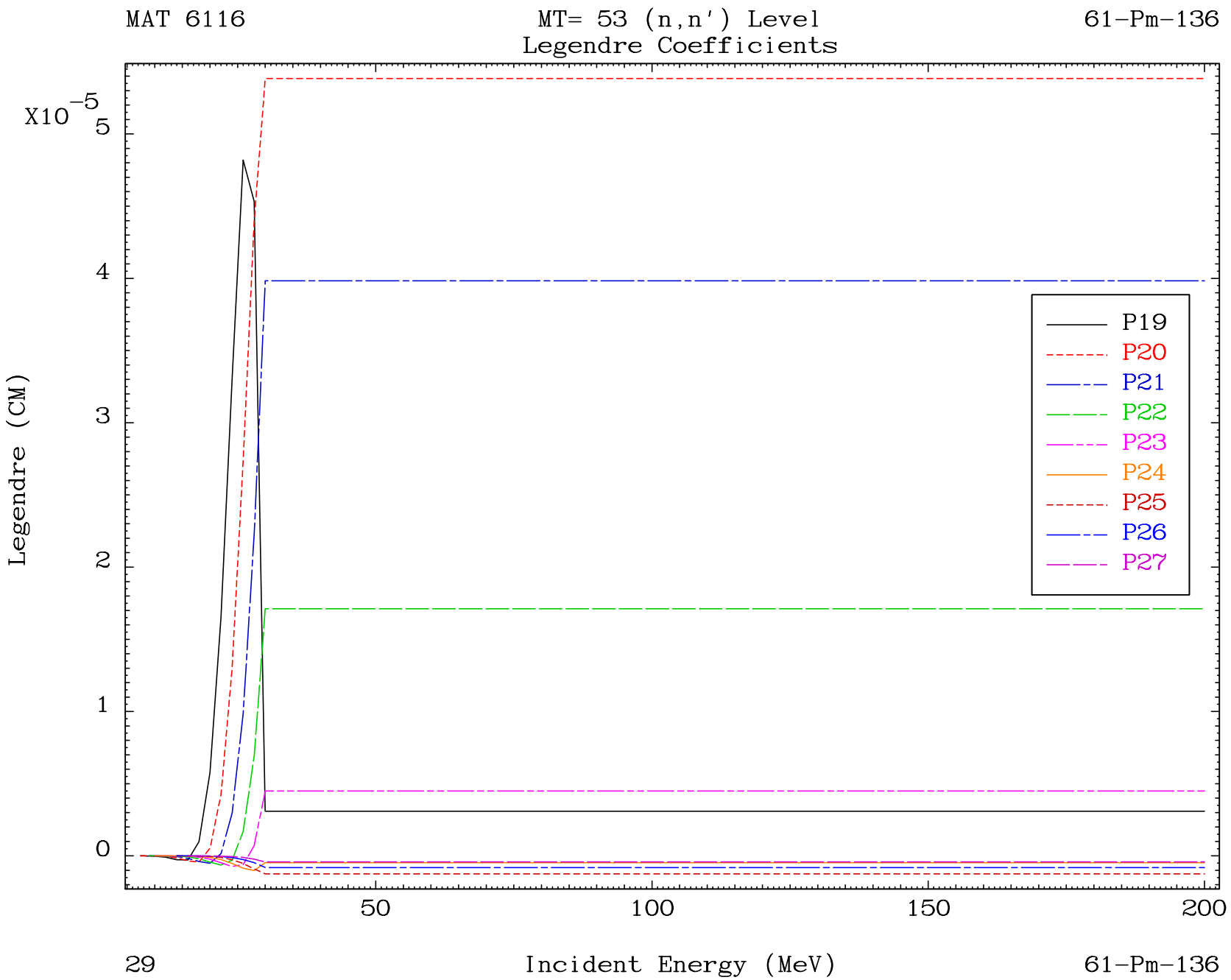

MAT 6116
MT= 52 (n,n') Level
Legendre Coefficients
61-Pm-136
Legendre (CM)
0.05
0.04
0.03
0.02
0.01
0.00
0
50
100
150
200
Incident Energy (MeV)
24
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9

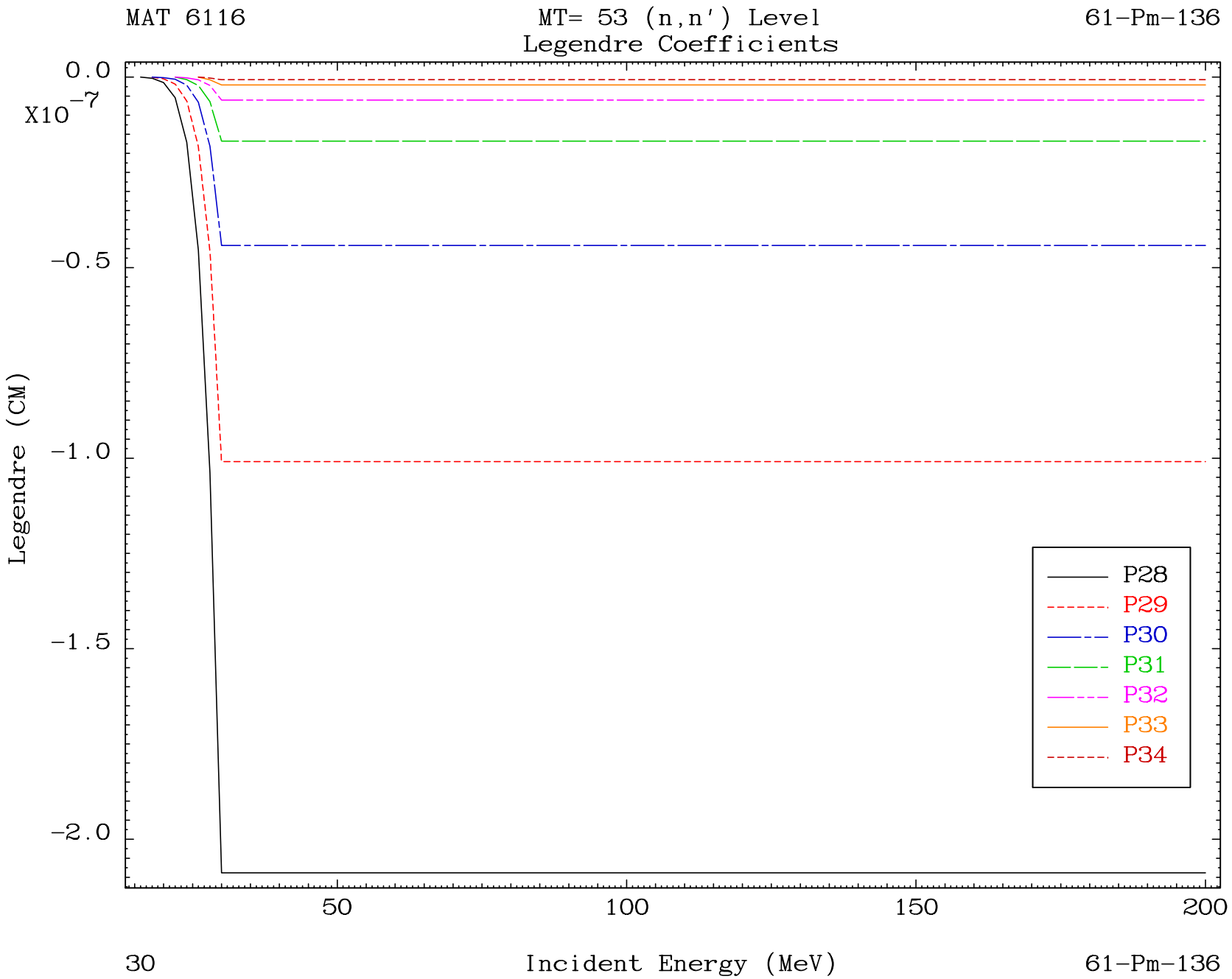

MAT 6116
MT= 52 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-5
6
4
2
0
-2
-4
-6
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
25
Incident Energy (MeV)
61-Pm-136

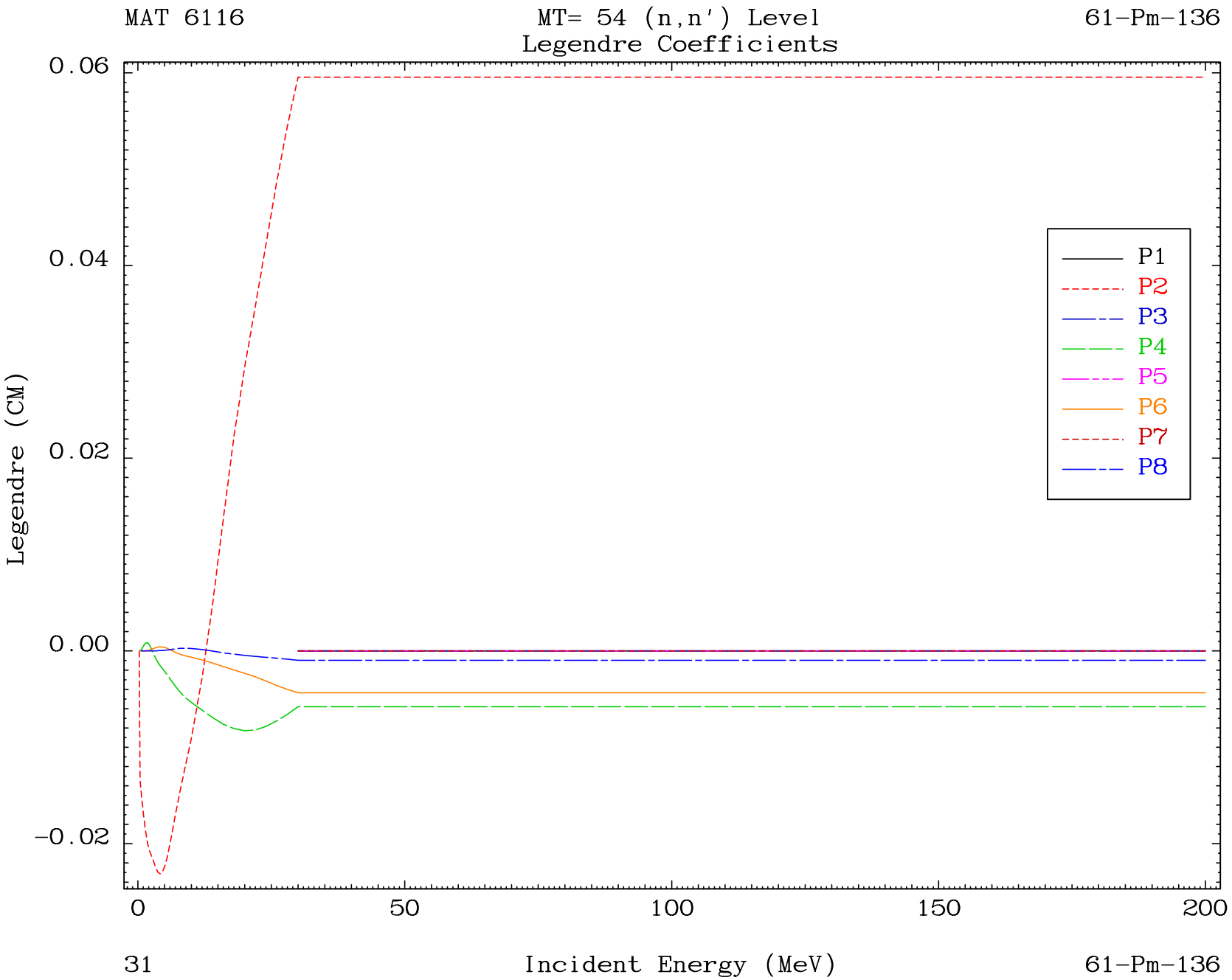

MAT 6116
MT= 52 (n,n') Level
Legendre Coefficients
61-Pm-136
0
X10-7
-2
-4
-6
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
50
100
150
200
26
Incident Energy (MeV)
61-Pm-136

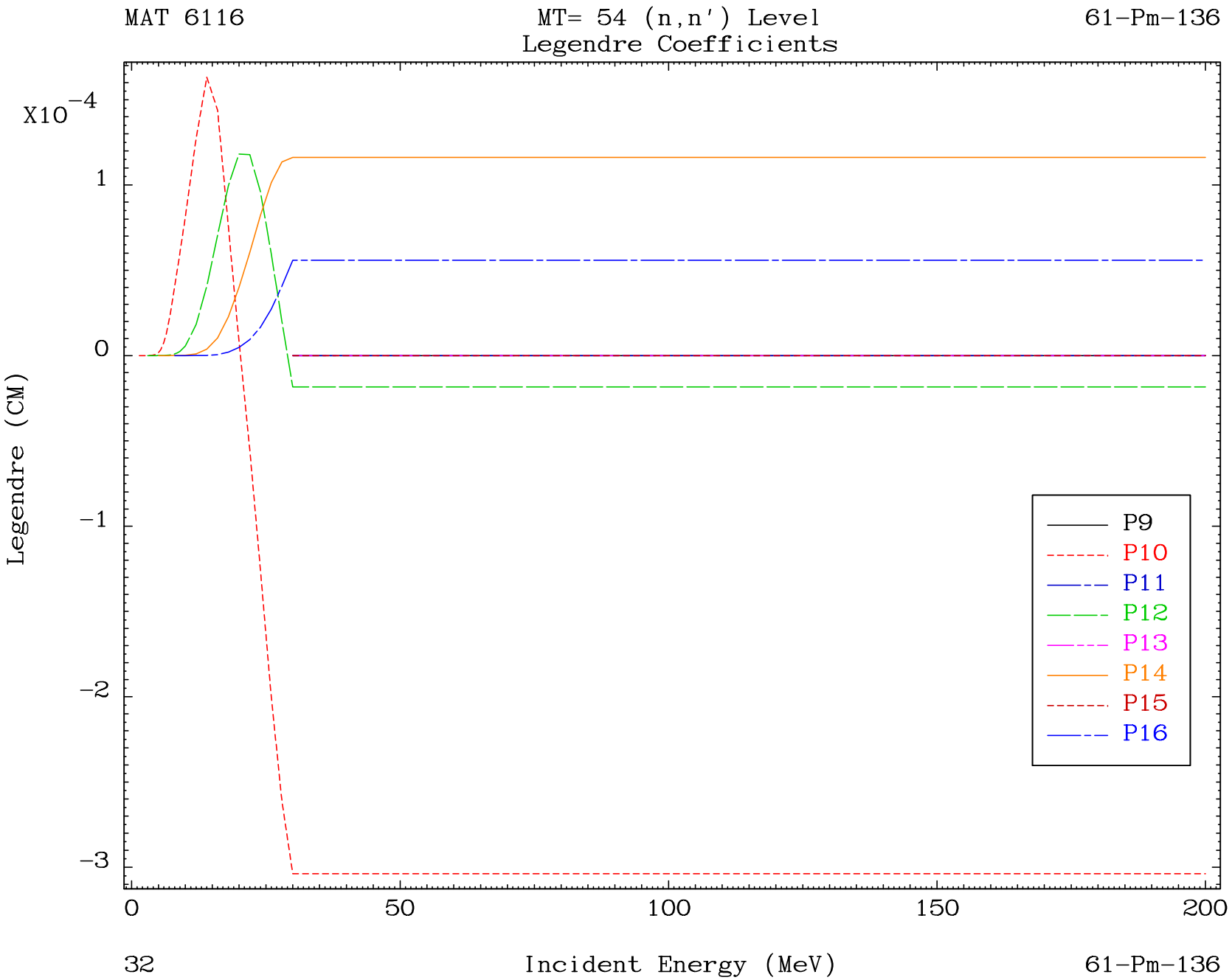

MAT 6116
MT= 53 (n,n') Level
Legendre Coefficients
61-Pm-136
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
Incident Energy (MeV)
27
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9

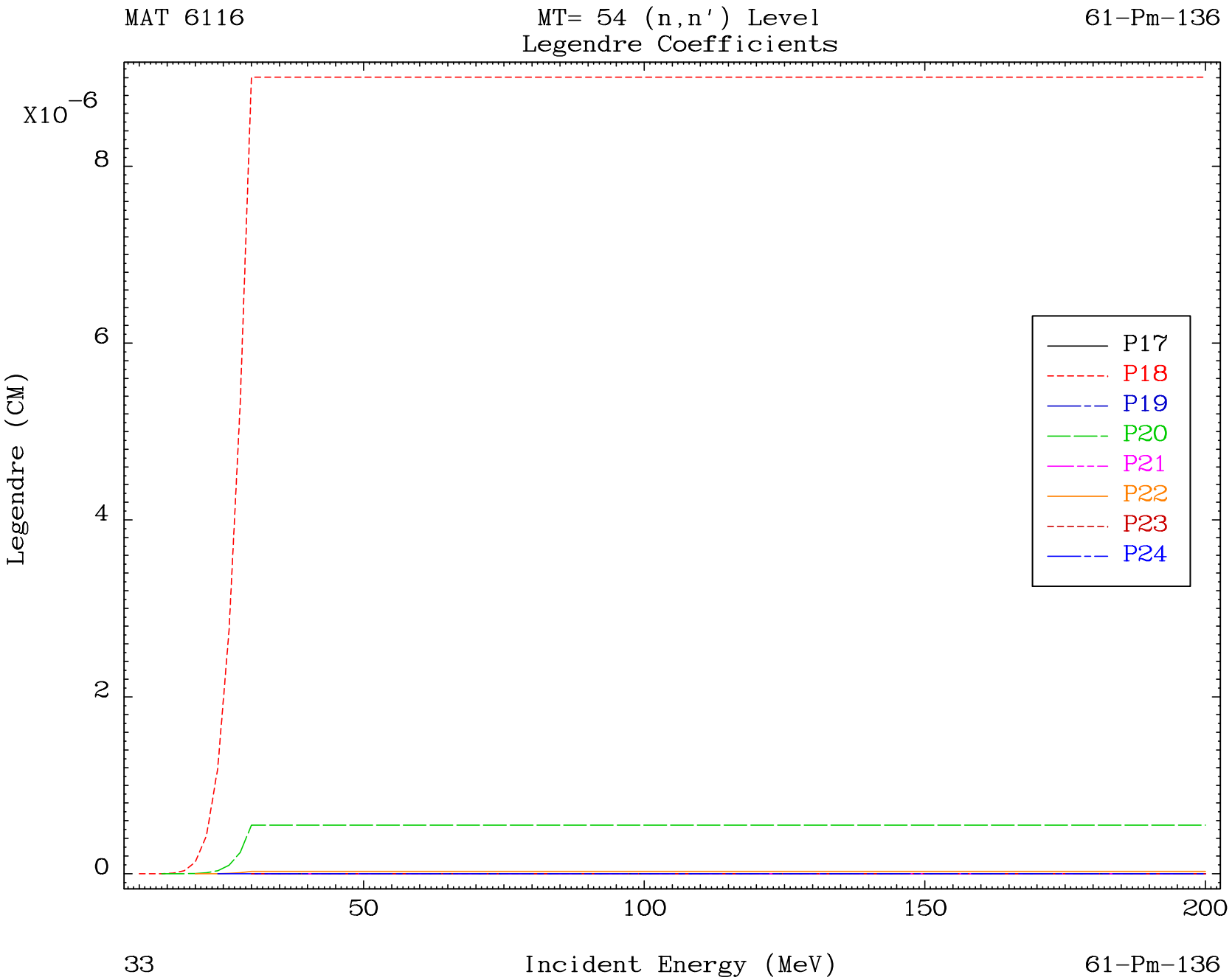

MAT 6116
MT= 53 (n,n') Level
Legendre Coefficients
61-Pm-136
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.010
0.005
0.000
-0.005
-0.010
Legendre (CM)
0
50
100
150
200
28
Incident Energy (MeV)
61-Pm-136

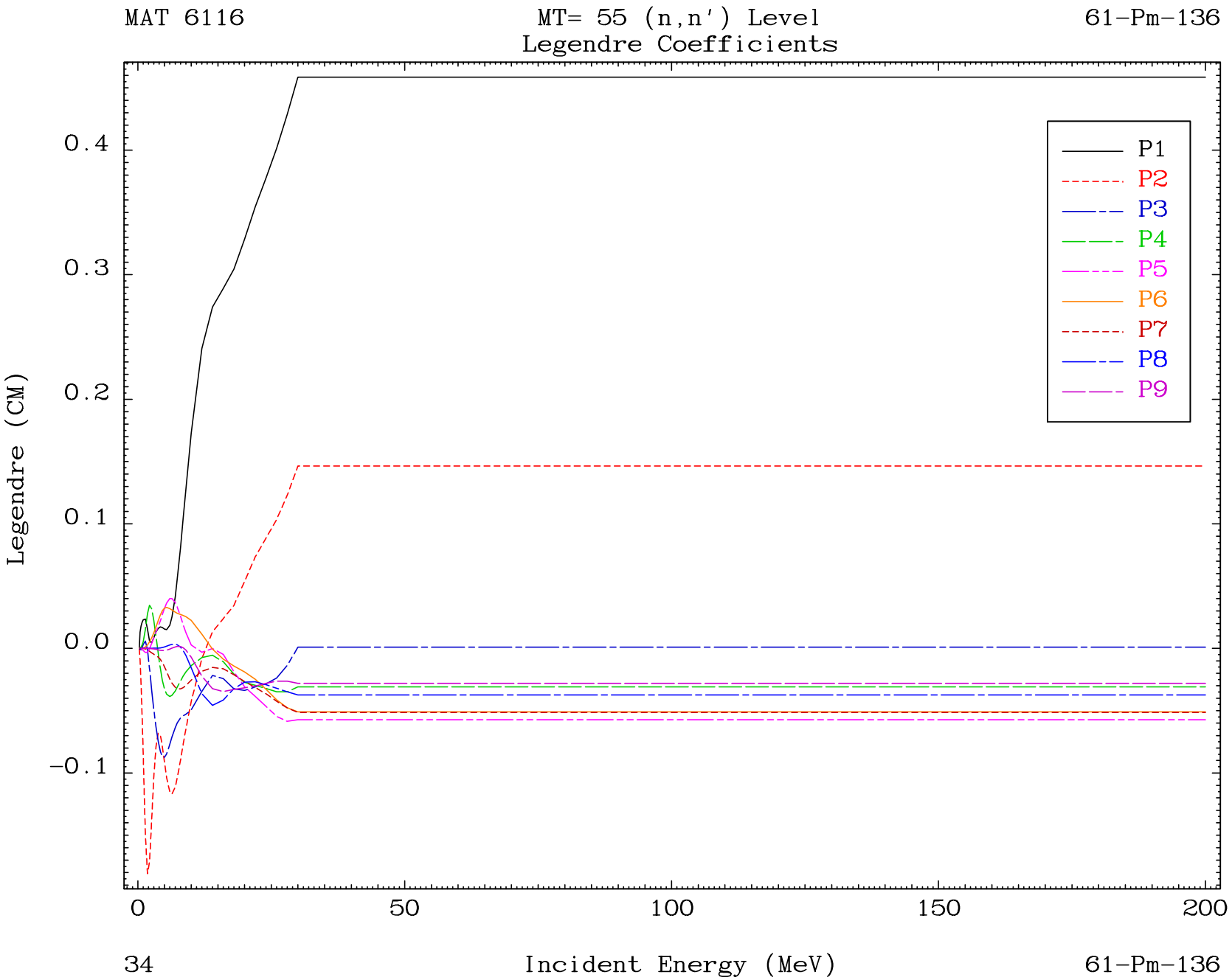

MAT 6116
MT= 53 (n,n') Level
Legendre Coefficients
61-Pm-136
X10 -5
5
4
3
2
1
0
Legendre (CM)
50
100
150
200
29
Incident Energy (MeV)
61-Pm-136
P19
P20
P21
P22
P23
P24
P25
P26
P27

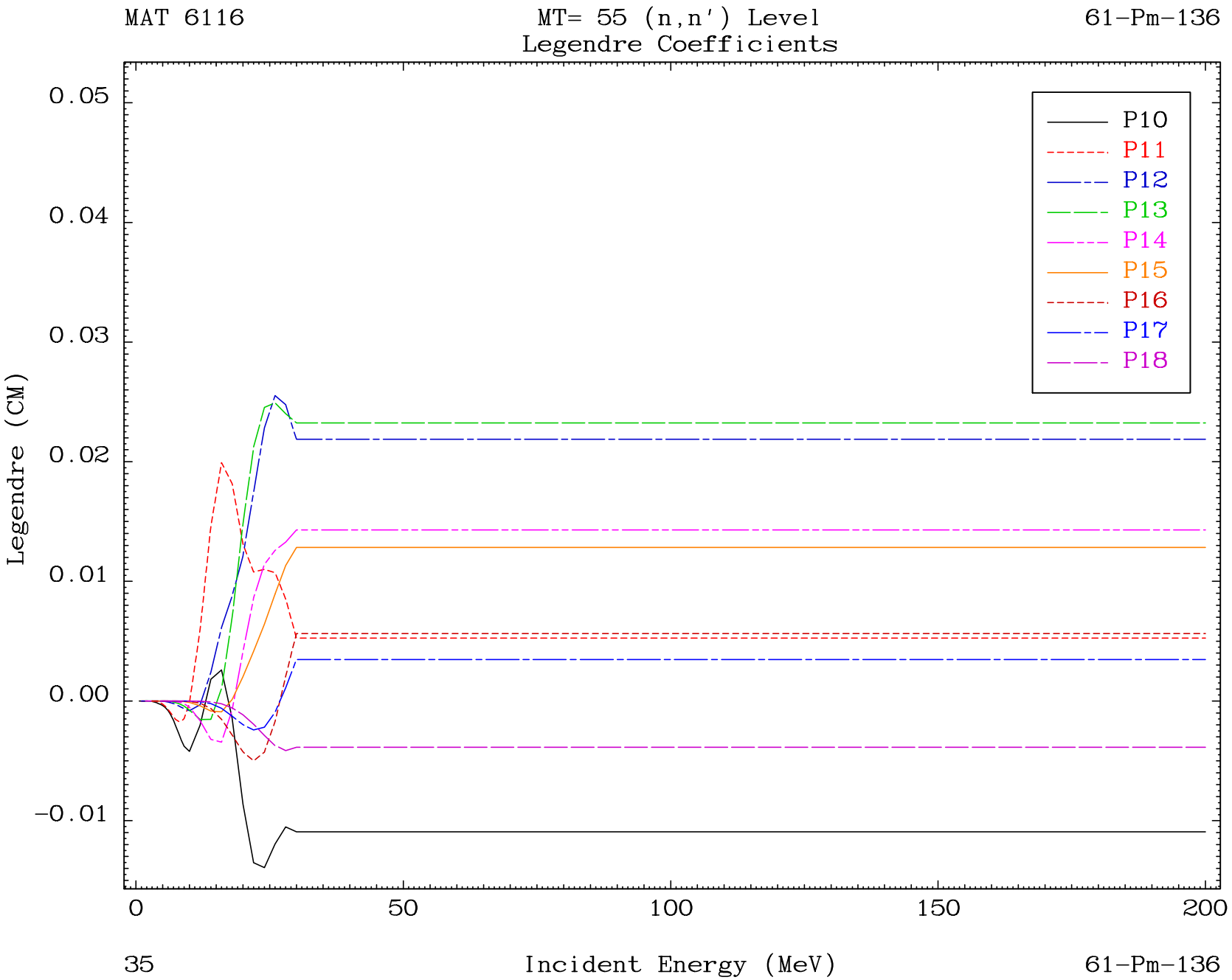

MAT 6116
MT= 53 (n,n') Level
Legendre Coefficients
61-Pm-136
0.0
X10-7
-0.5
-1.0
-1.5
-2.0
Legendre (CM)
50
100
150
200
30
Incident Energy (MeV)
61-Pm-136
P28
P29
P30
P31
P32
P33
P34

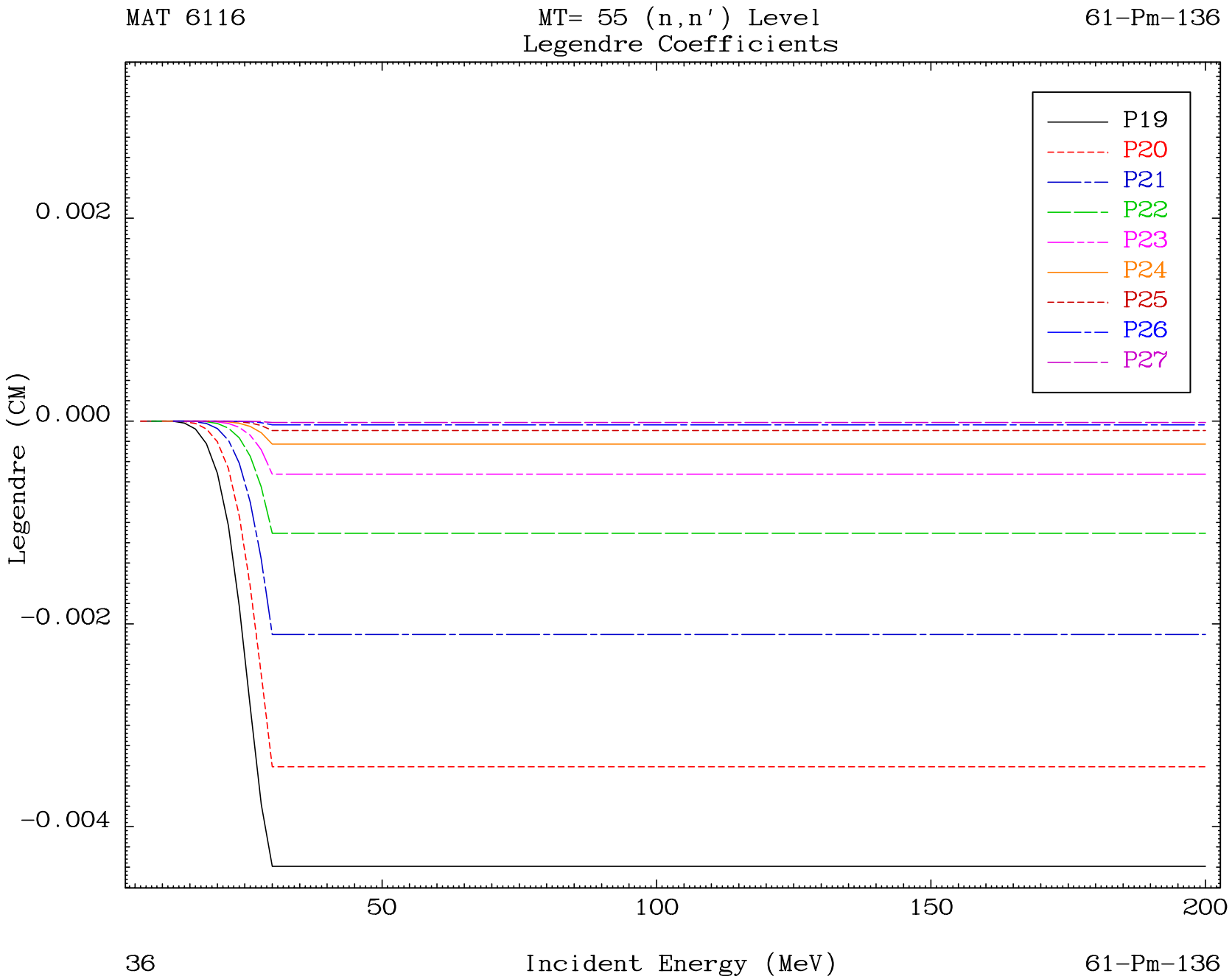

MAT 6116
MT= 54 (n,n') Level
Legendre Coefficients
61-Pm-136
0.06
0.04
0.02
0.00
-0.02
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
0
50
100
150
200
31
Incident Energy (MeV)
61-Pm-136

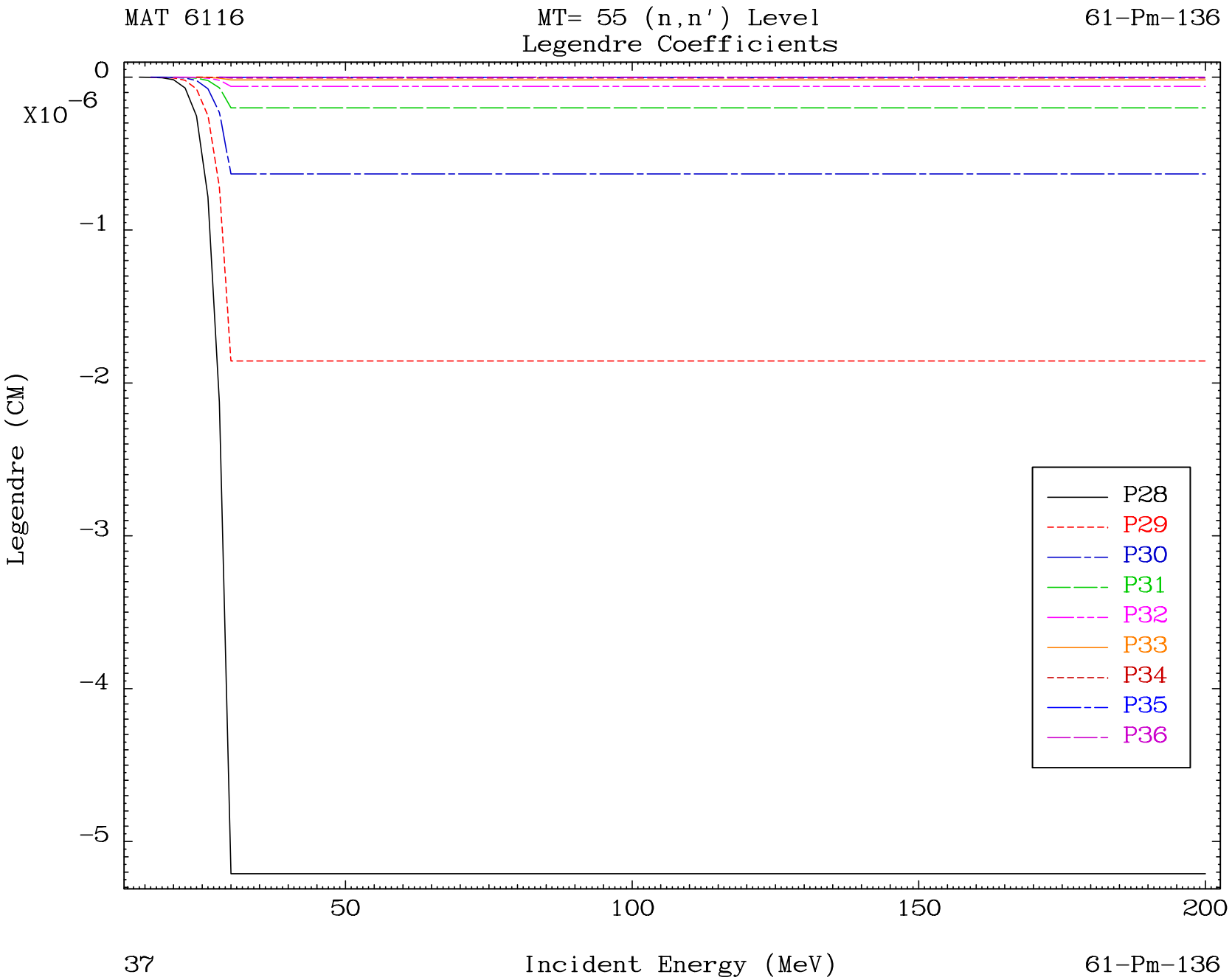

MAT 6116
MT= 54 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-4
1
0
-1
-2
-3
Legendre (CM)
0
50
100
150
200
32
Incident Energy (MeV)
61-Pm-136
P9
P10
P11
P12
P13
P14
P15
P16

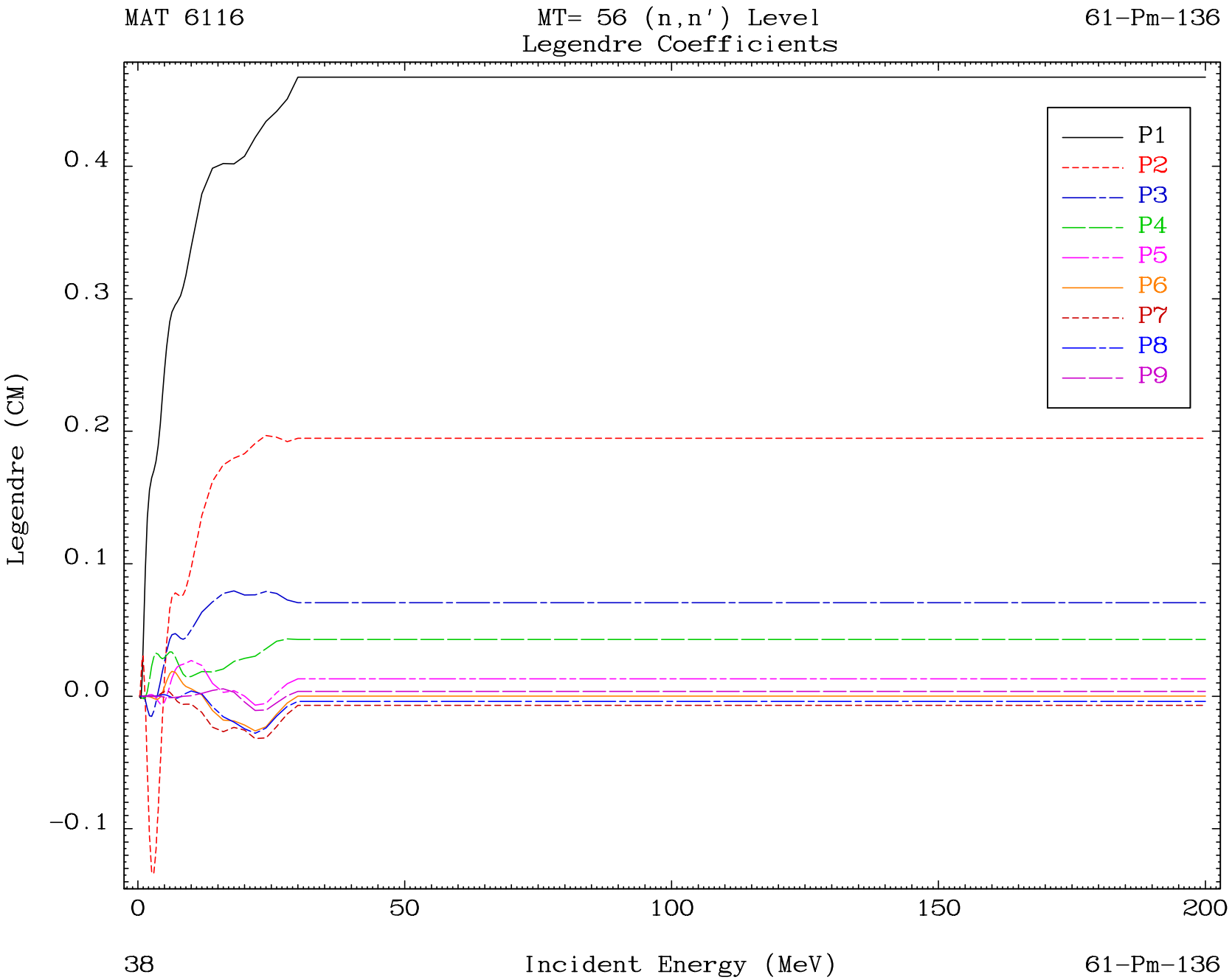

MAT 6116
MT= 54 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-6
8
6
4
2
0
Legendre (CM)
50
100
150
200
33
Incident Energy (MeV)
61-Pm-136
P17
P18
P19
P20
P21
P22
P23
P24

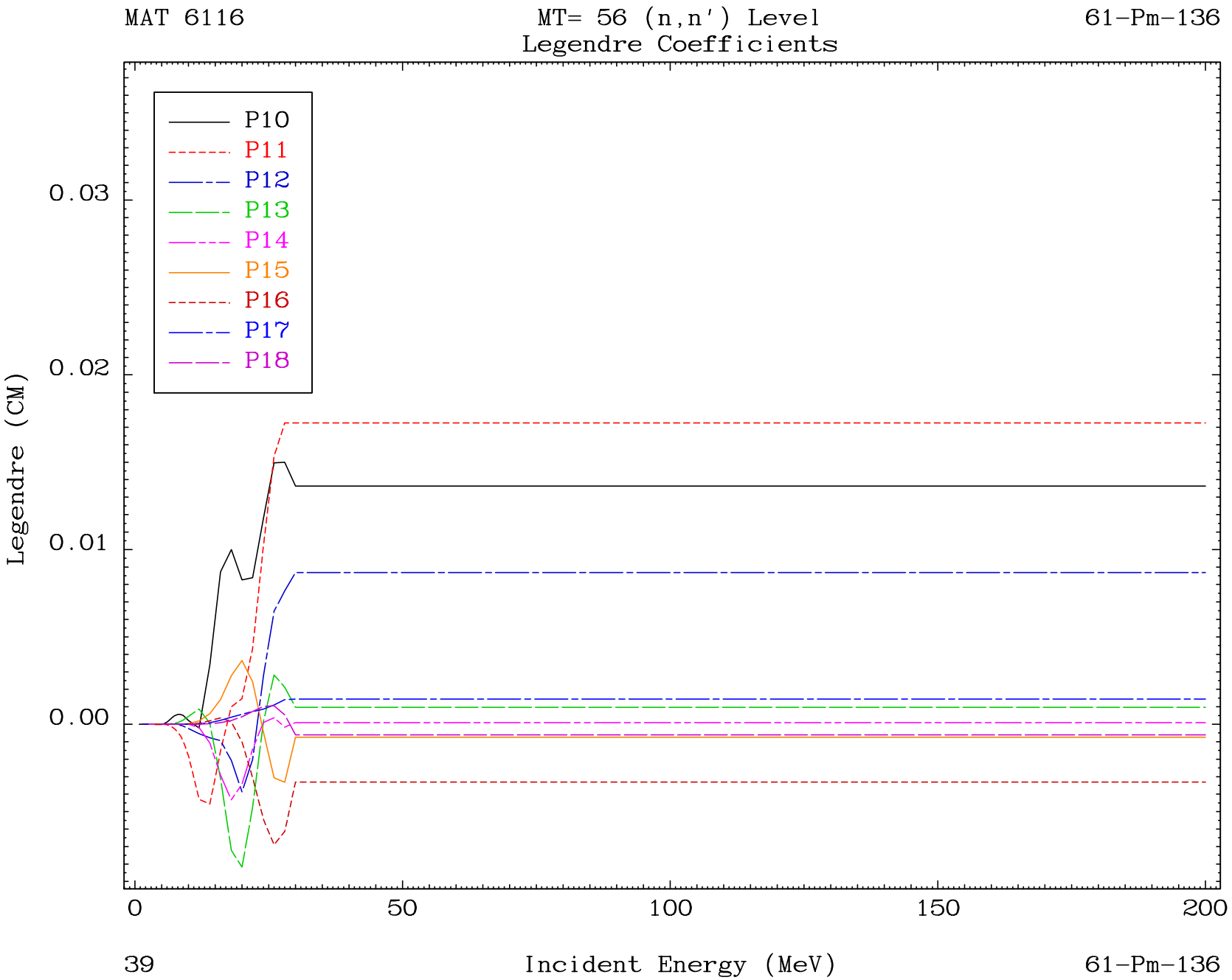

MAT 6116
MT= 55 (n,n') Level
Legendre Coefficients
61-Pm-136
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
Incident Energy (MeV)
34
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9

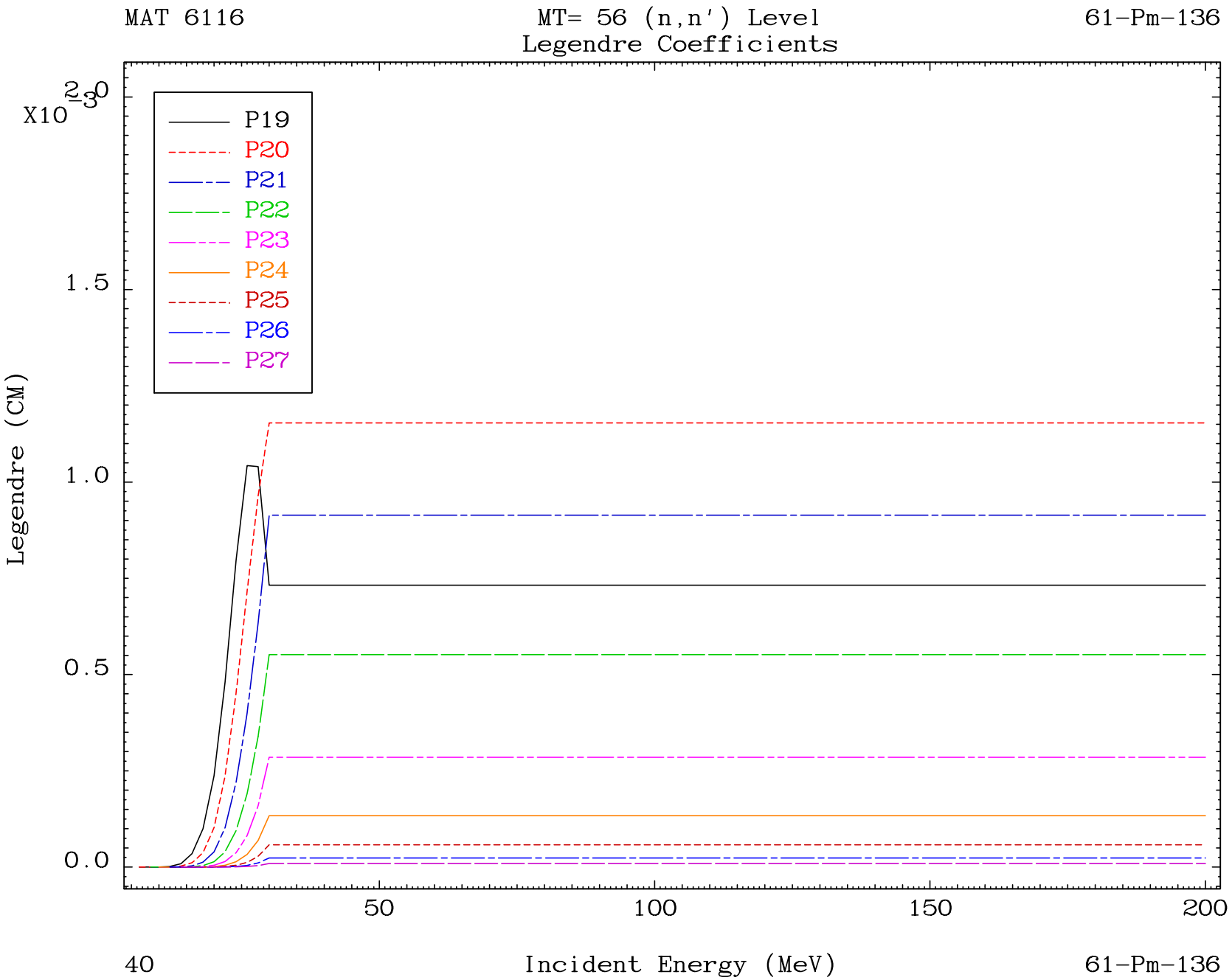

MAT 6116
MT= 55 (n,n') Level
Legendre Coefficients
61-Pm-136
0.05
0.04
0.03
0.02
0.01
0.00
-0.01
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
35
Incident Energy (MeV)
61-Pm-136

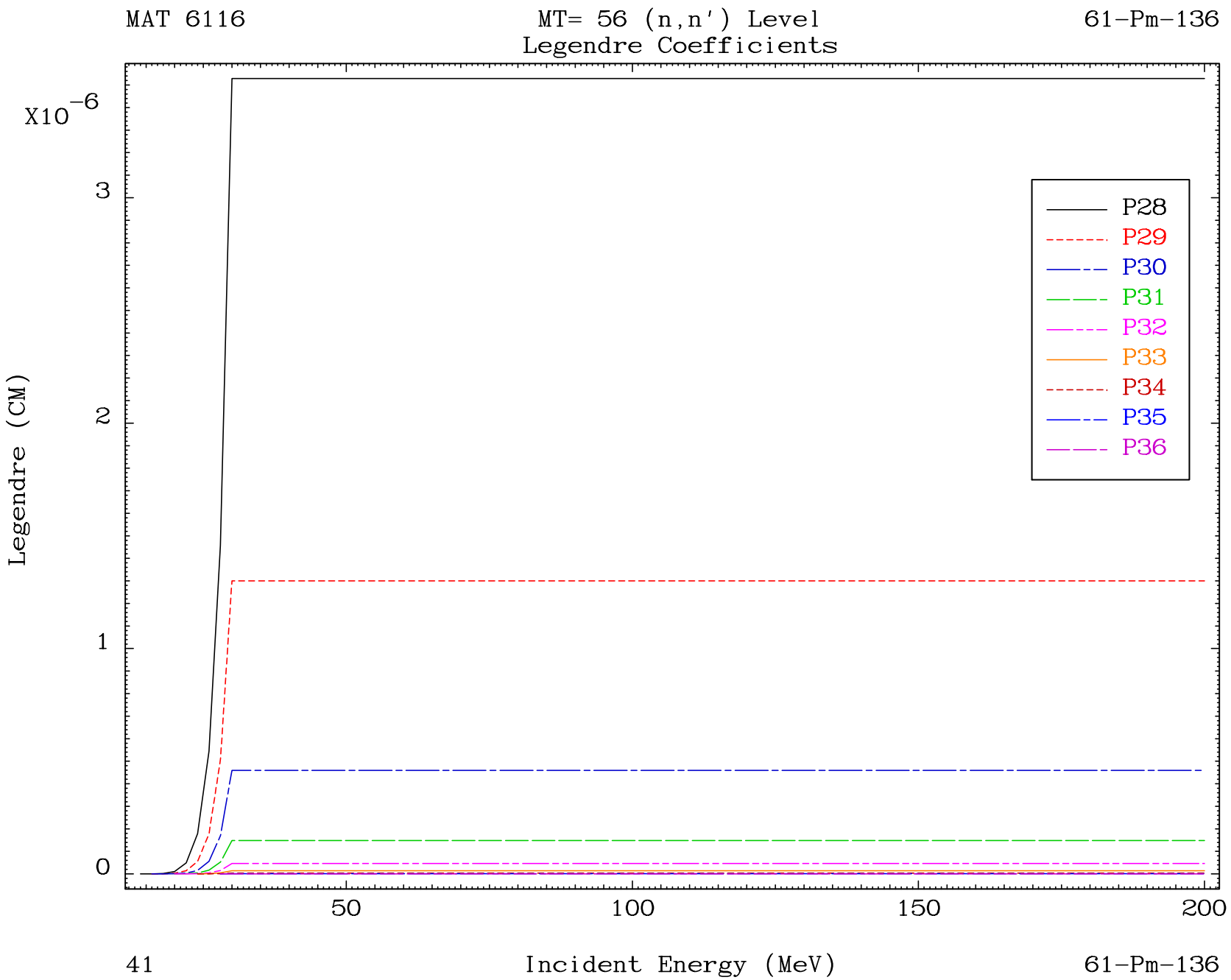

MAT 6116
MT= 55 (n,n') Level
Legendre Coefficients
61-Pm-136
P19
P20
P21
P22
P23
P24
P25
P26
P27
0.002
0.000
-0.002
-0.004
Legendre (CM)
50
100
150
200
36
Incident Energy (MeV)
61-Pm-136

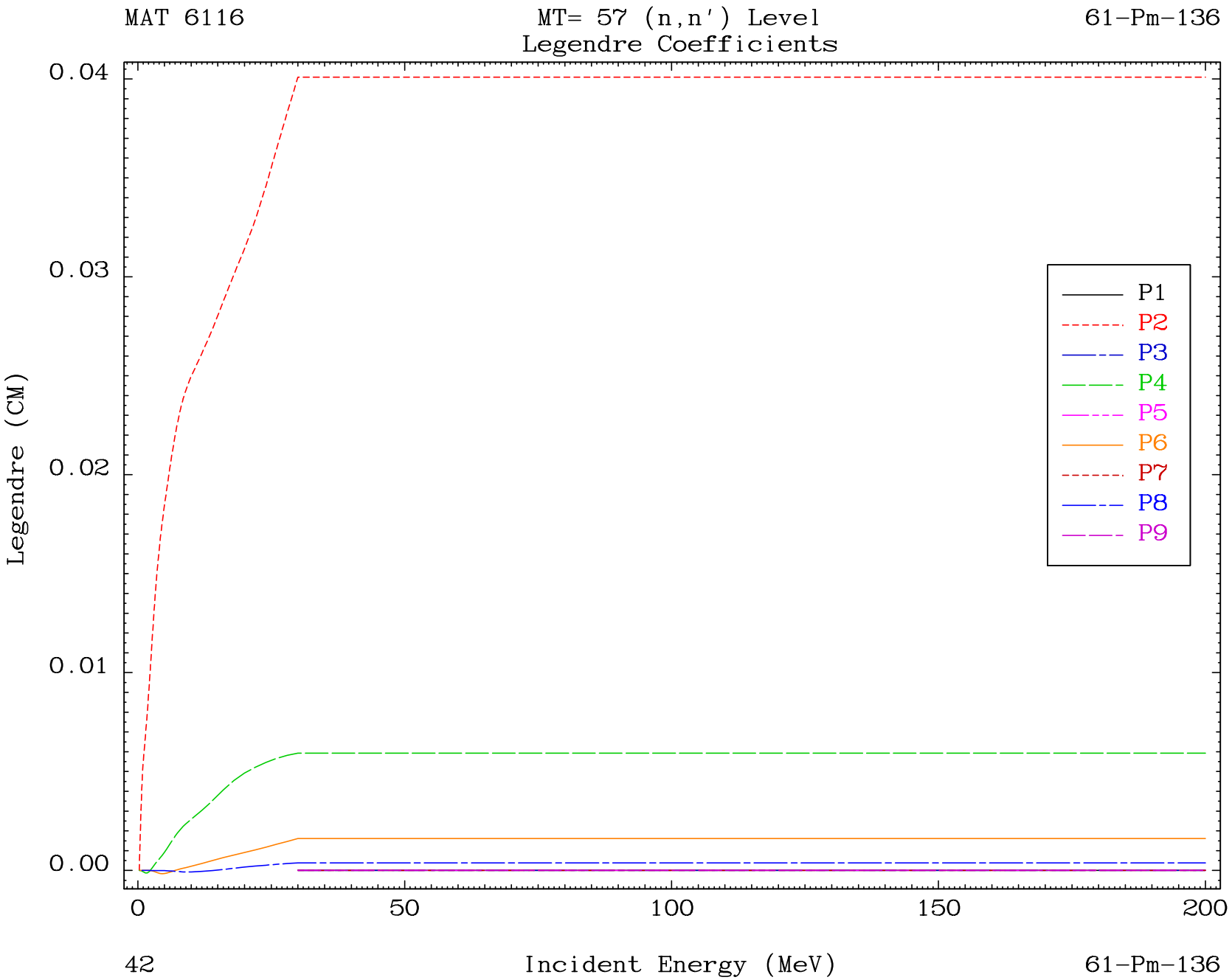

MAT 6116
MT= 55 (n,n') Level
Legendre Coefficients
61-Pm-136
0
X10−6
−1
−2
−3
−4
−5
Legendre (CM)
50
100
150
200
37
Incident Energy (MeV)
61-Pm-136
P28
P29
P30
P31
P32
P33
P34
P35
P36

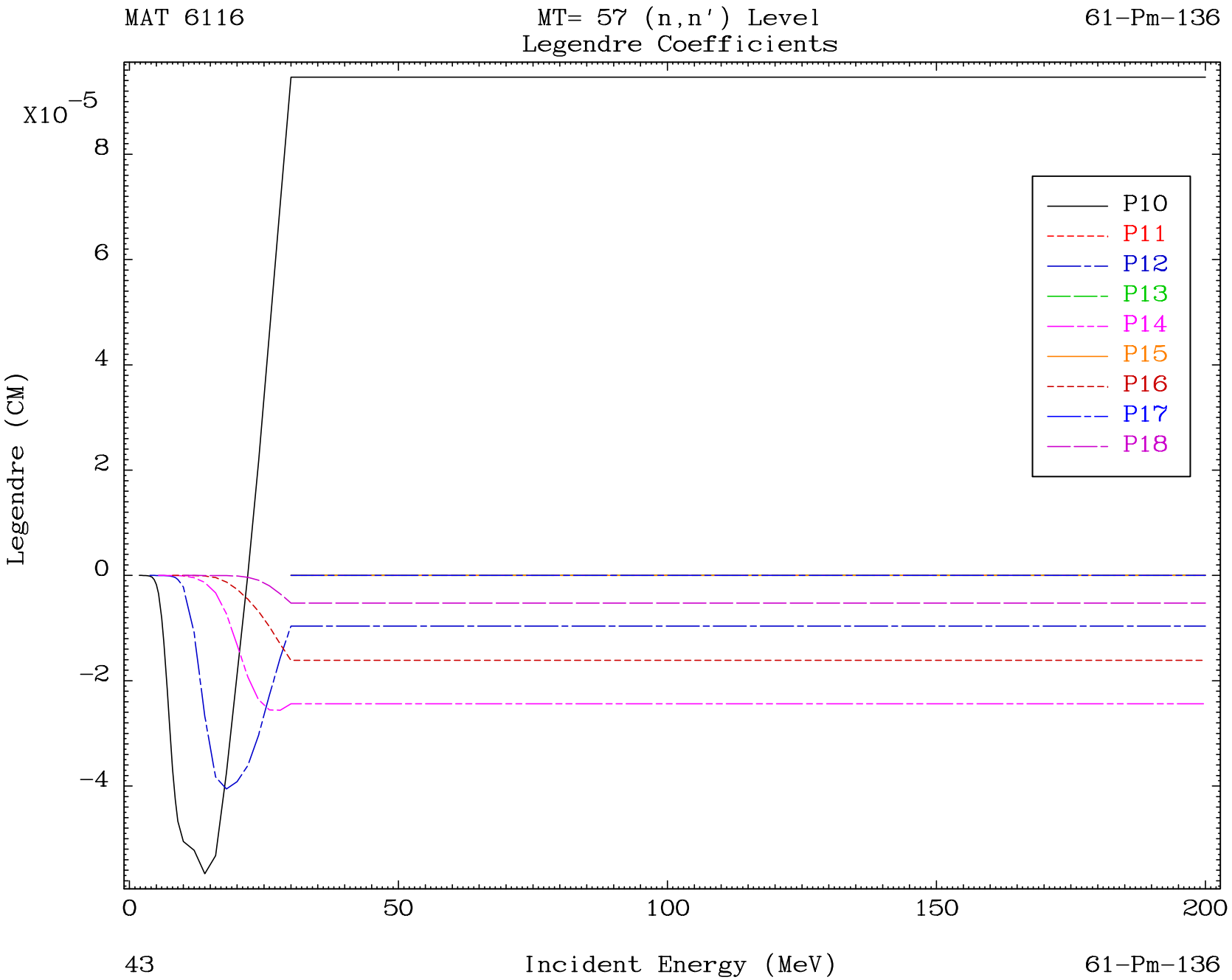

MAT 6116
MT= 56 (n,n') Level
Legendre Coefficients
61-Pm-136
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
Incident Energy (MeV)
38
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9

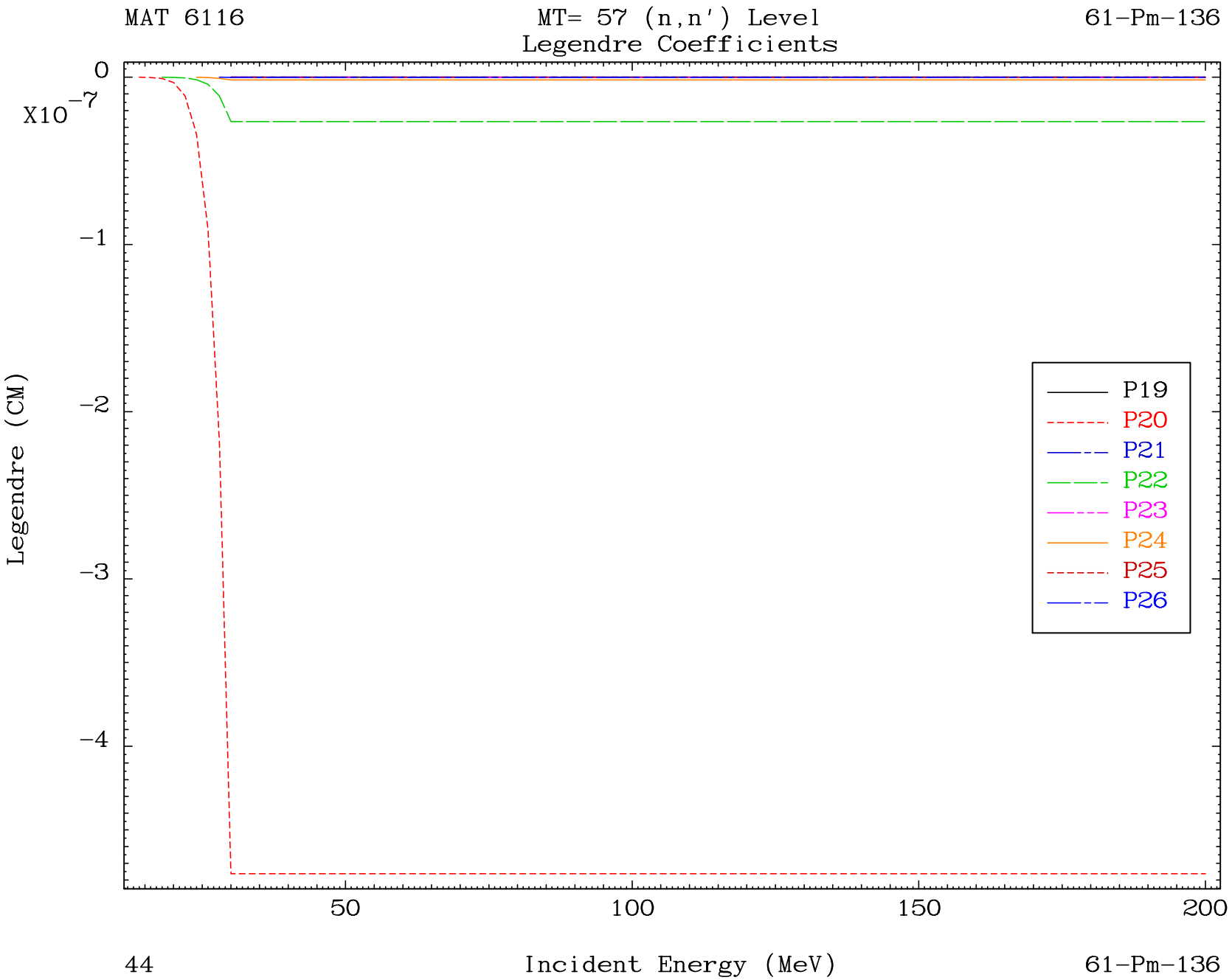

MAT 6116
MT= 56 (n,n') Level
Legendre Coefficients
61-Pm-136
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.03
0.02
0.01
0.00
Legendre (CM)
0
50
100
150
200
39
Incident Energy (MeV)
61-Pm-136

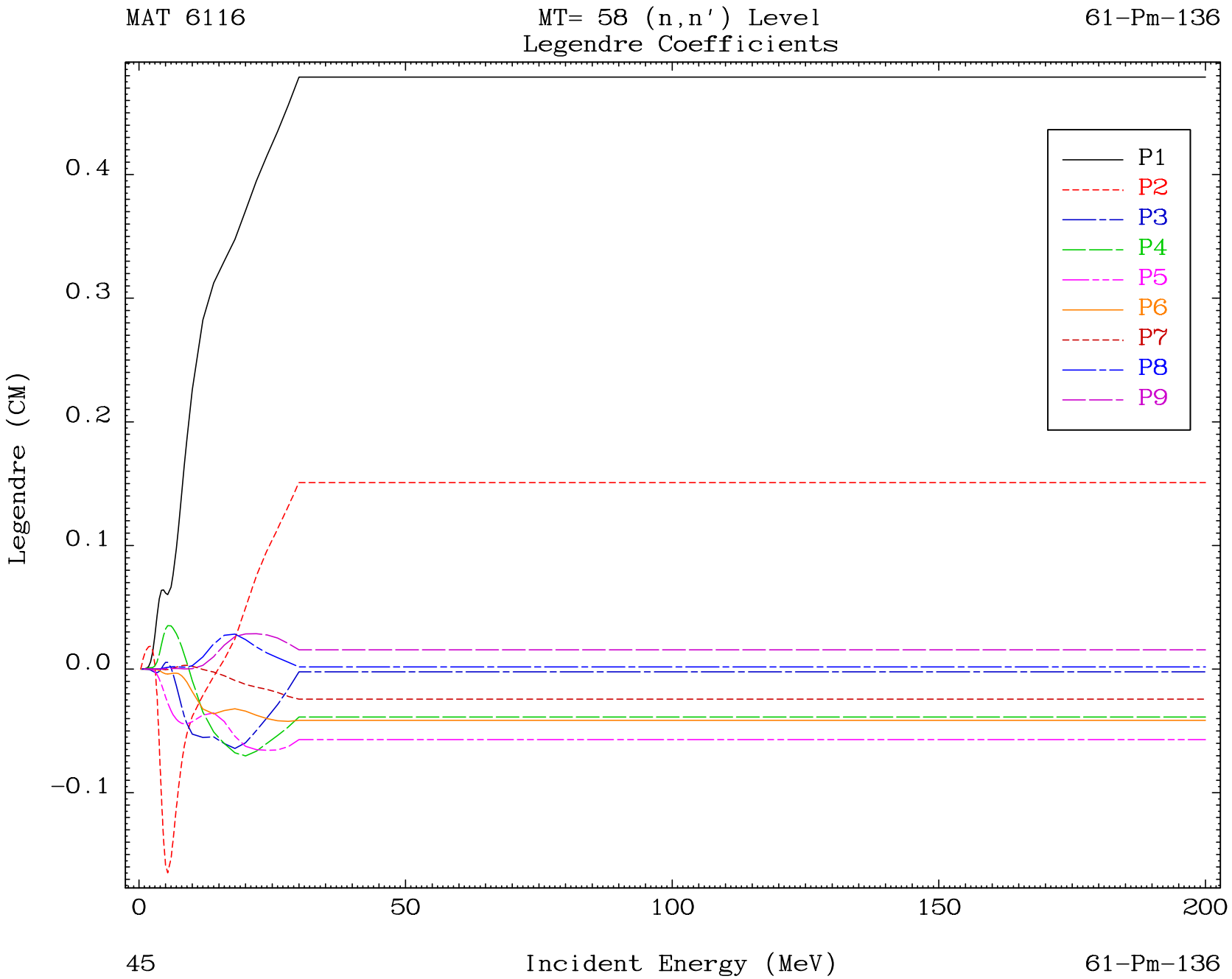

MAT 6116
MT= 56 (n,n') Level
Legendre Coefficients
61-Pm-136
X10-3
2.0
1.5
1.0
0.5
0.0
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
40
50
100
150
200
Incident Energy (MeV)
61-Pm-136

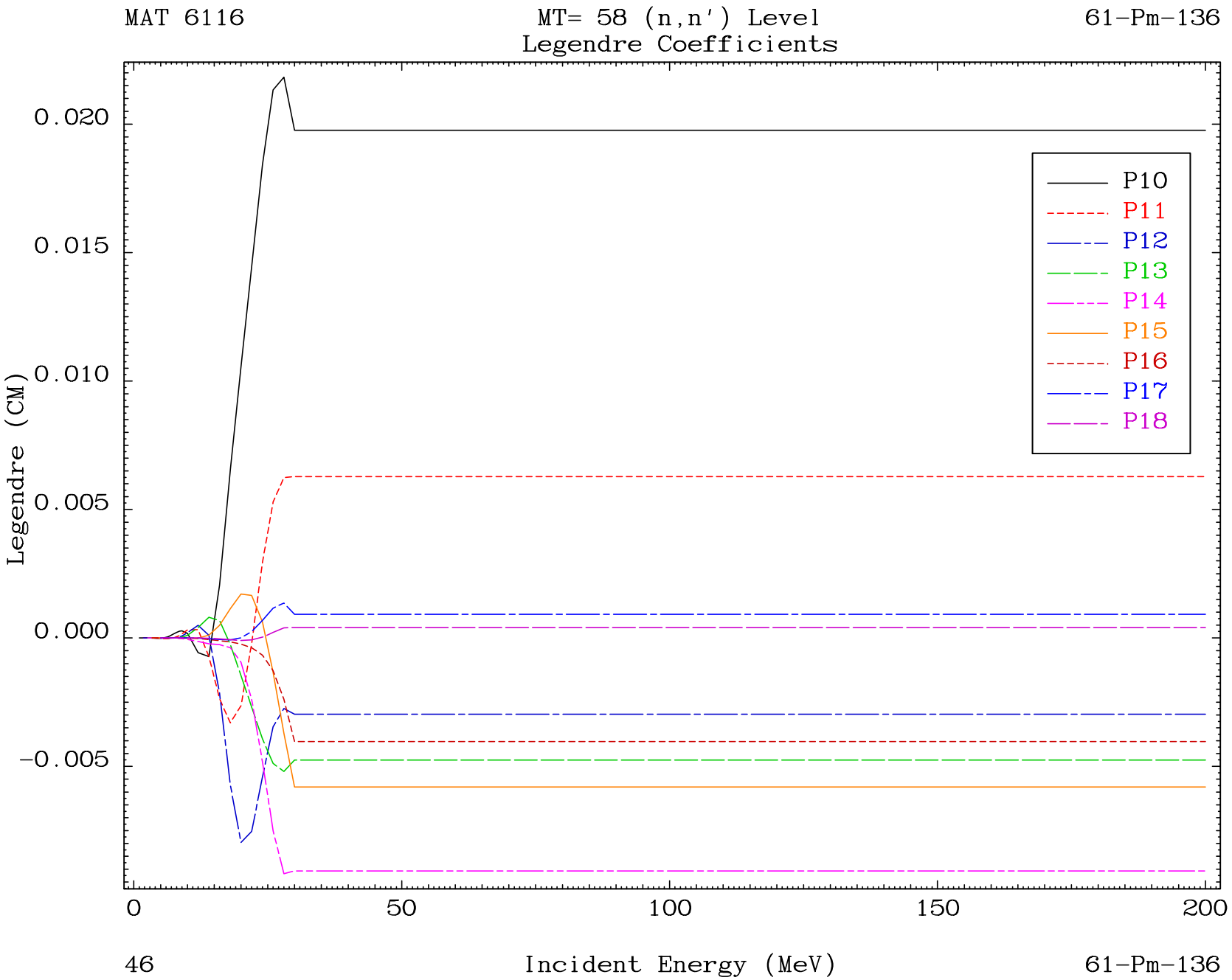

MAT 6116
MT= 56 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-6
3
2
1
0
Legendre (CM)
50
100
150
200
Incident Energy (MeV)
41
61-Pm-136
P28
P29
P30
P31
P32
P33
P34
P35
P36

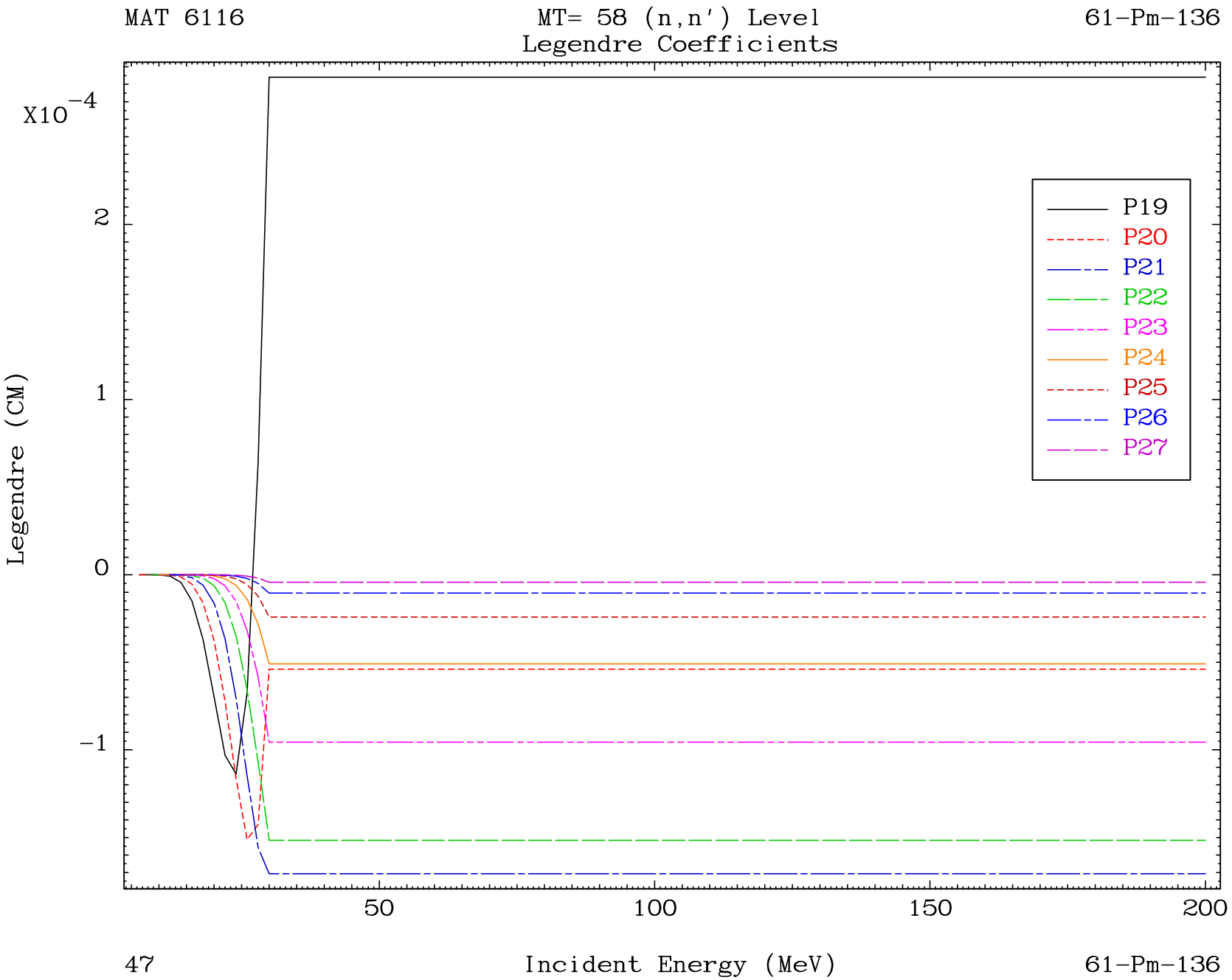

MAT 6116
MT= 57 (n,n') Level
Legendre Coefficients
61-Pm-136
0.04
0.03
0.02
0.01
0.00
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
42
Incident Energy (MeV)
61-Pm-136

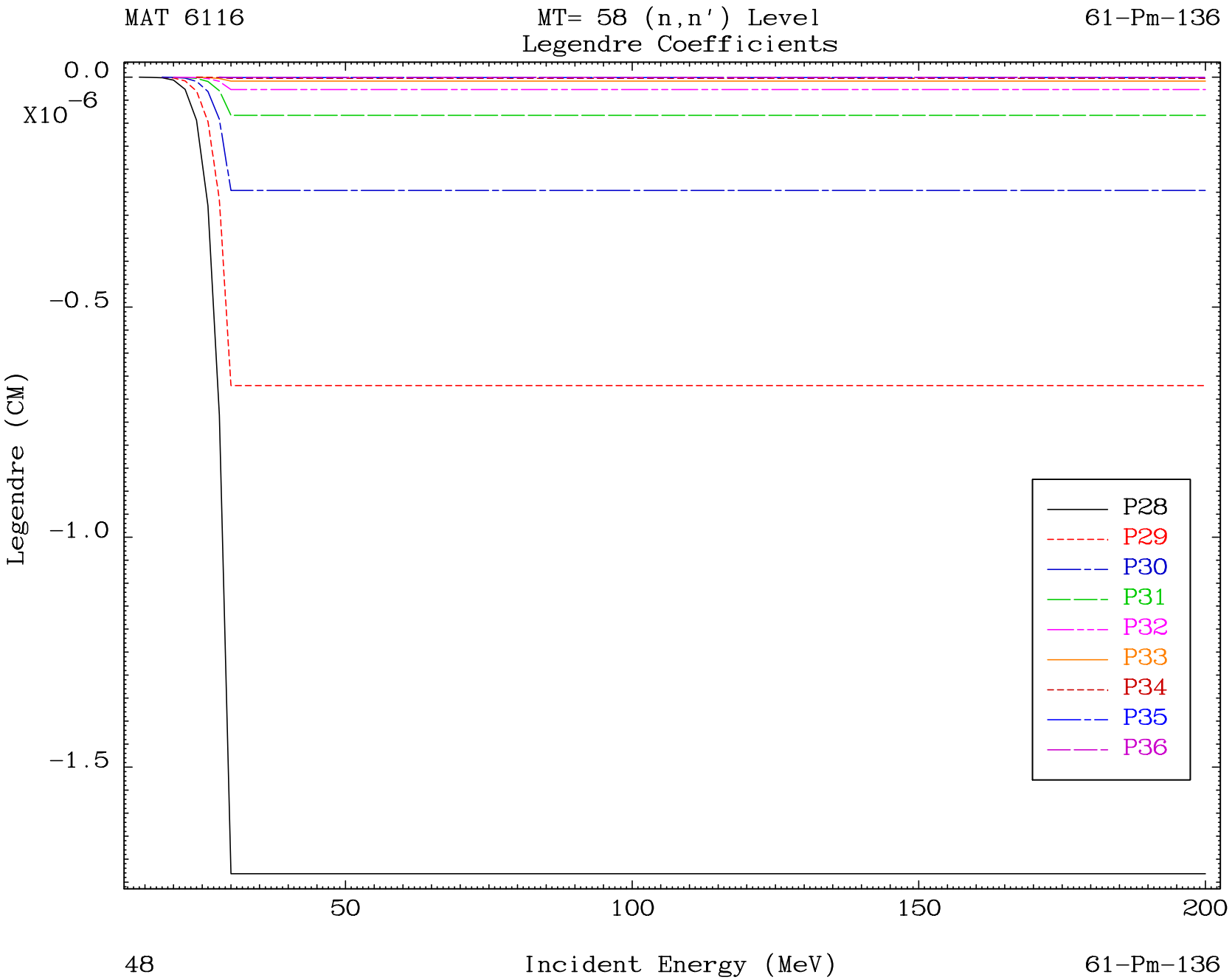

MAT 6116
MT= 57 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-5
8
6
4
2
0
-2
-4
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
43
Incident Energy (MeV)
61-Pm-136

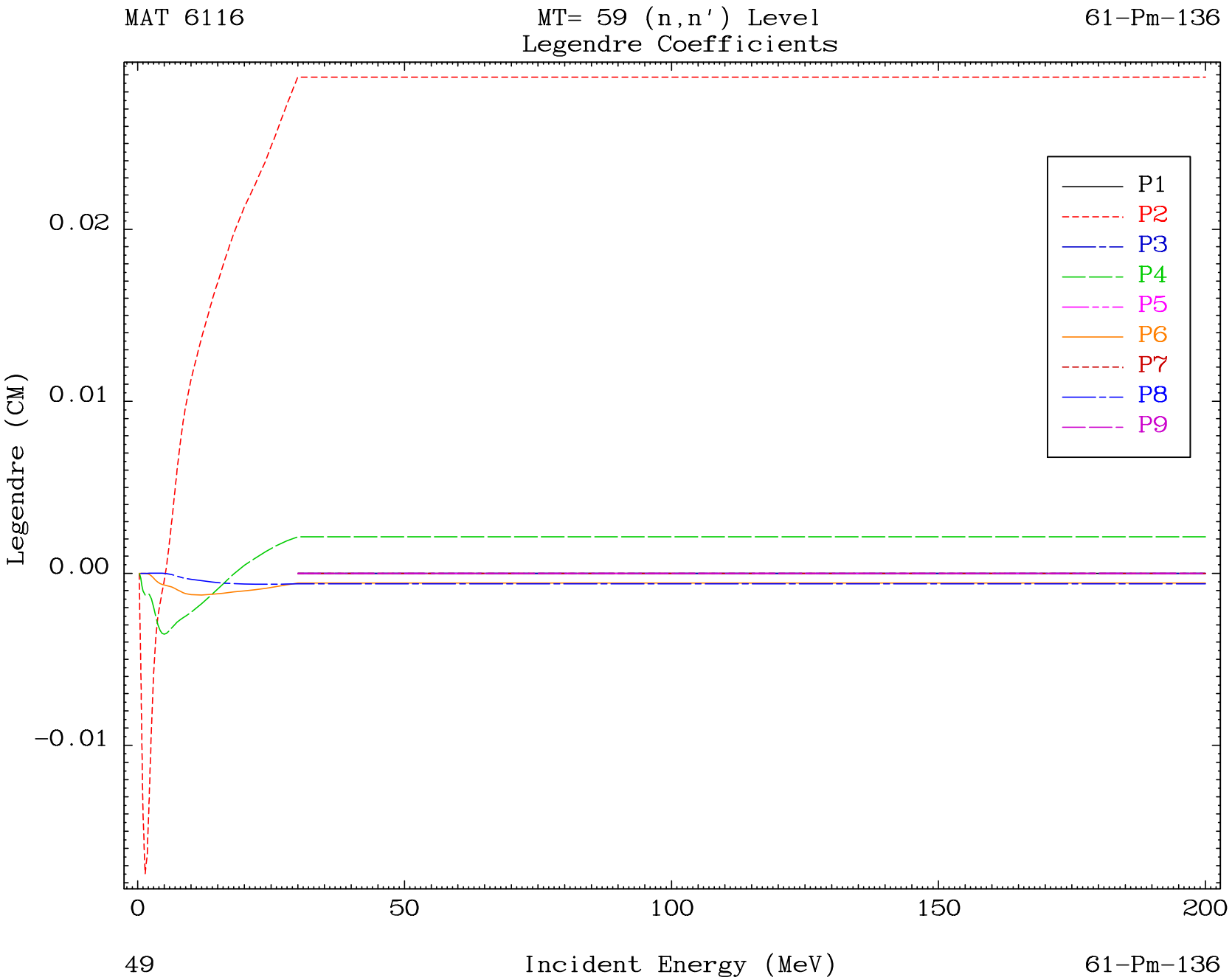

MAT 6116
MT= 57 (n,n') Level
Legendre Coefficients
61-Pm-136
0
X10-7
-1
-2
-3
-4
Legendre (CM)
50
100
150
200
P19
P20
P21
P22
P23
P24
P25
P26
44
Incident Energy (MeV)
61-Pm-136

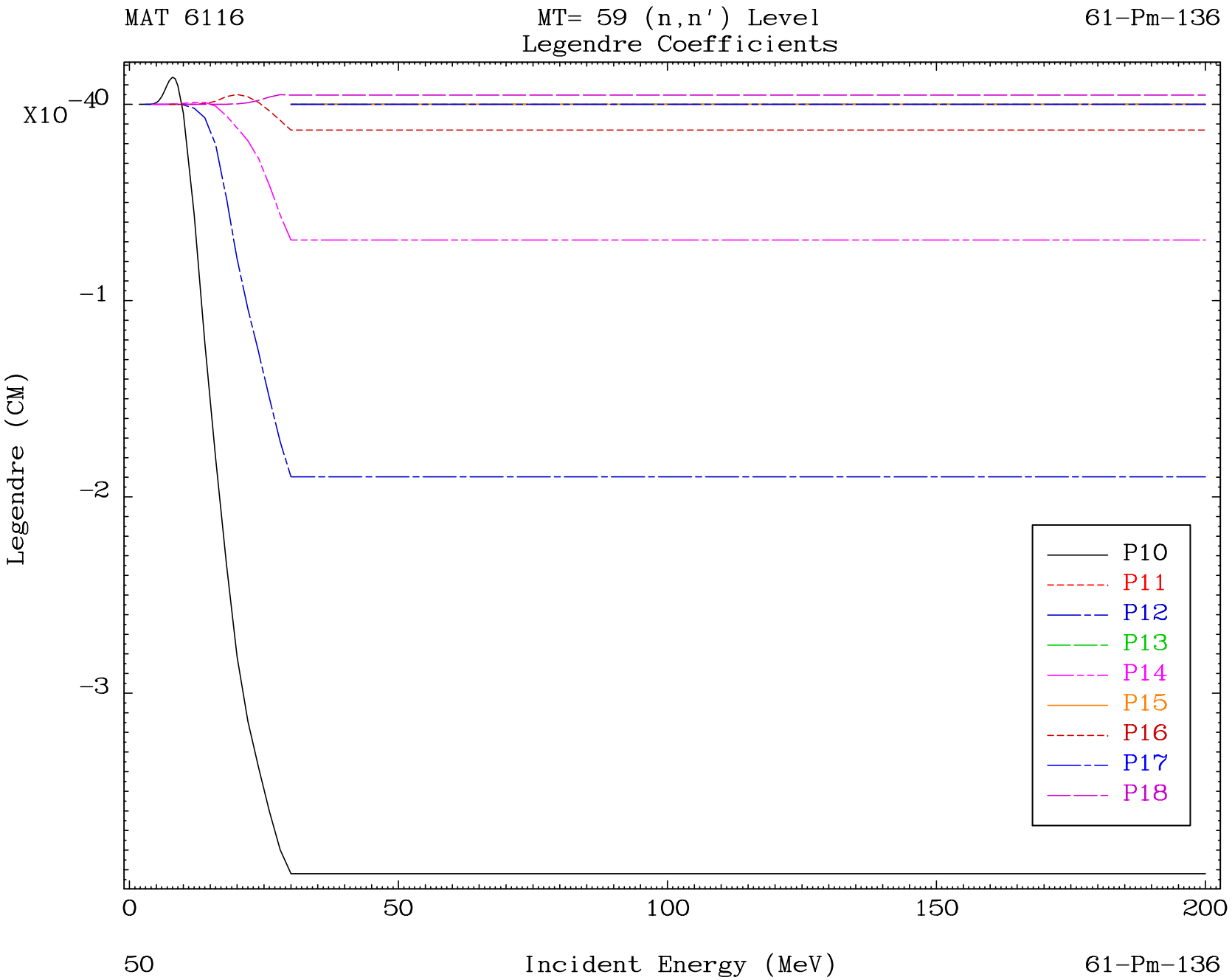

MAT 6116
MT= 58 (n,n') Level
Legendre Coefficients
61-Pm-136
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
45
Incident Energy (MeV)
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9

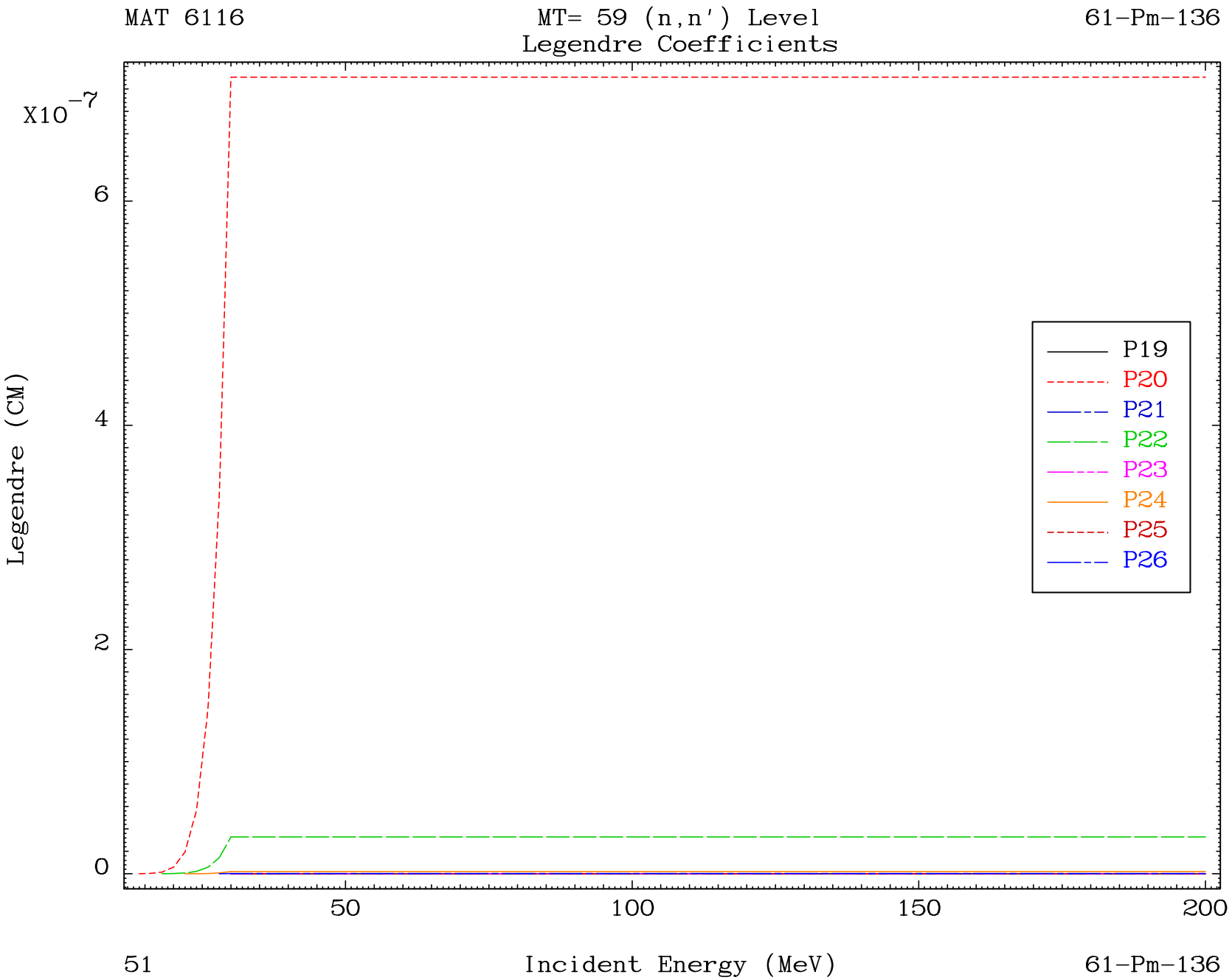

MAT 6116
MT= 58 (n,n') Level
Legendre Coefficients
61-Pm-136
0.020
0.015
0.010
0.005
0.000
-0.005
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
46
Incident Energy (MeV)
61-Pm-136

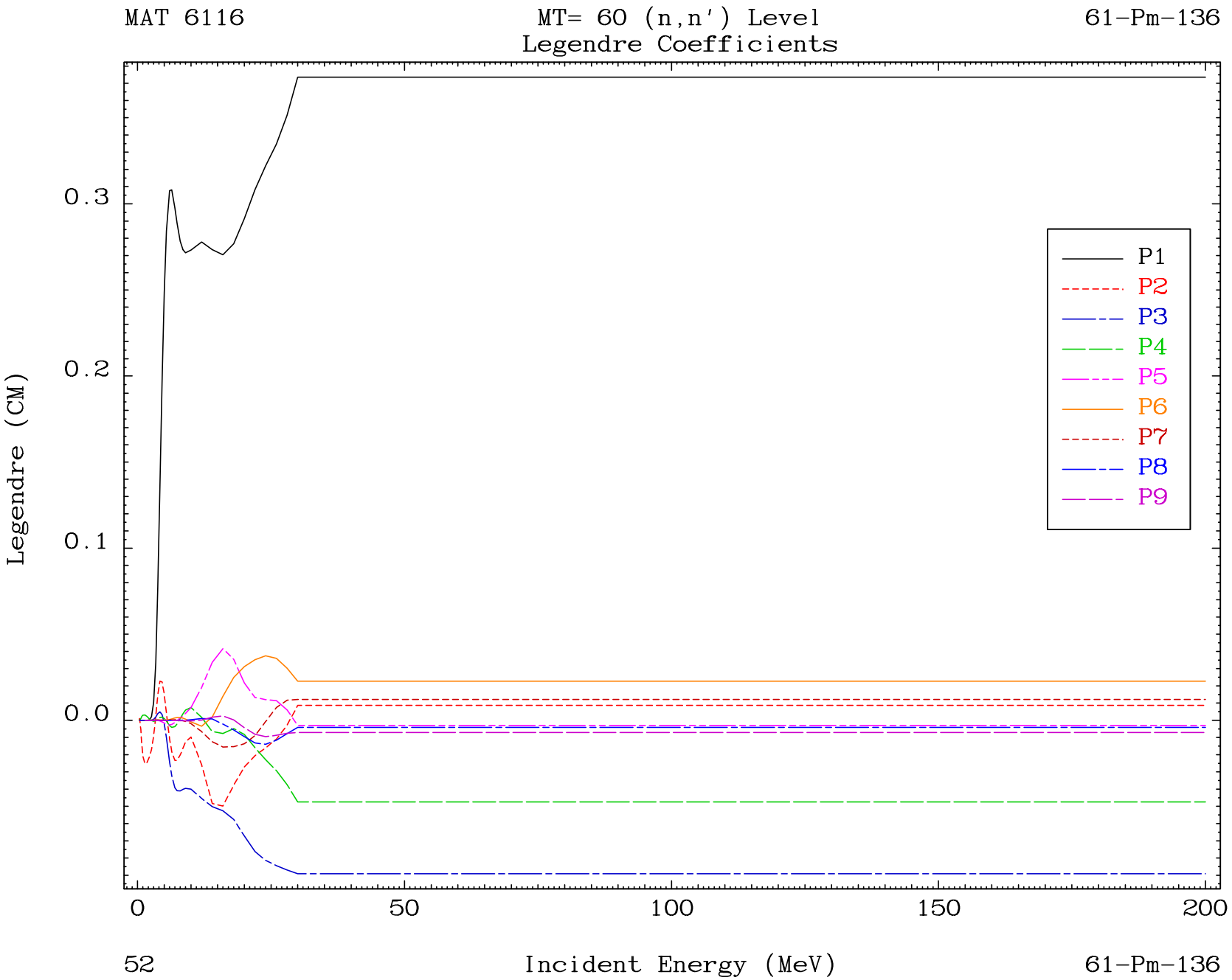

MAT 6116
MT= 58 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-4
2
1
0
-1
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
47
Incident Energy (MeV)
61-Pm-136

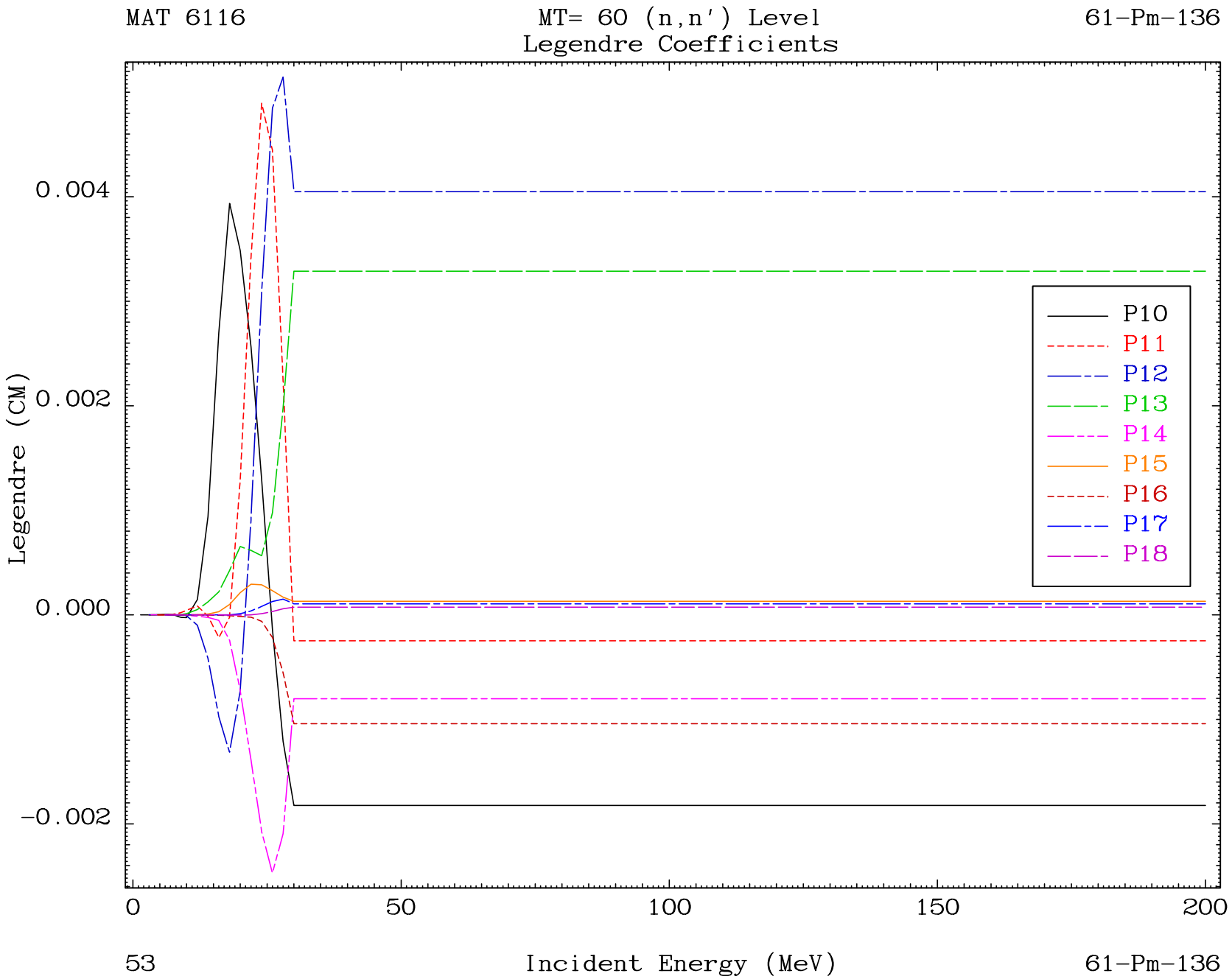

MAT 6116
MT= 58 (n,n') Level
Legendre Coefficients
61-Pm-136
0.0
X10−6
−0.5
−1.0
−1.5
Legendre (CM)
50
100
150
200
48
Incident Energy (MeV)
61-Pm-136
P28
P29
P30
P31
P32
P33
P34
P35
P36

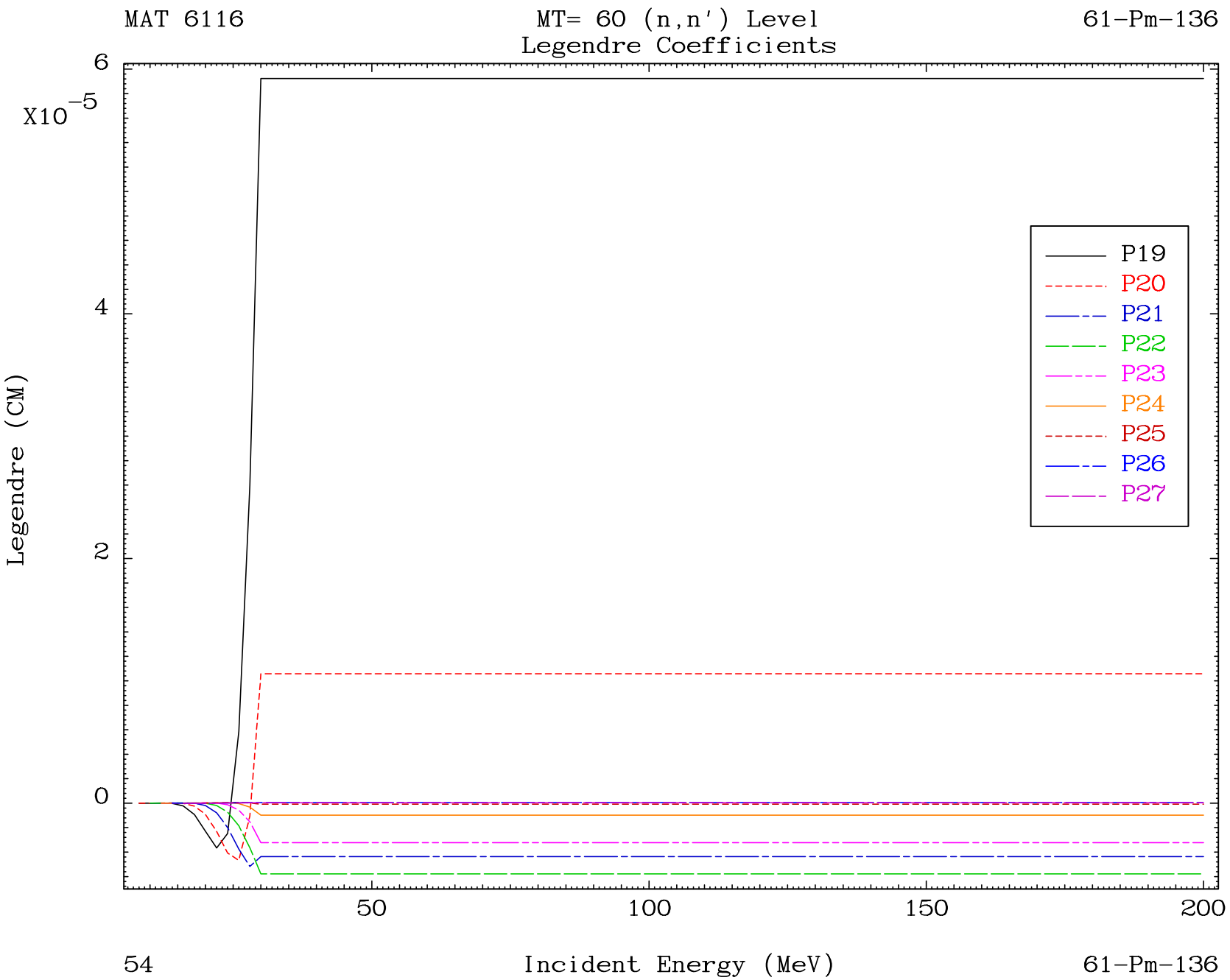

MAT 6116
MT= 59 (n,n') Level
Legendre Coefficients
61-Pm-136
0.02
0.01
0.00
-0.01
Legendre (CM)
0
50
100
150
200
49
Incident Energy (MeV)
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9

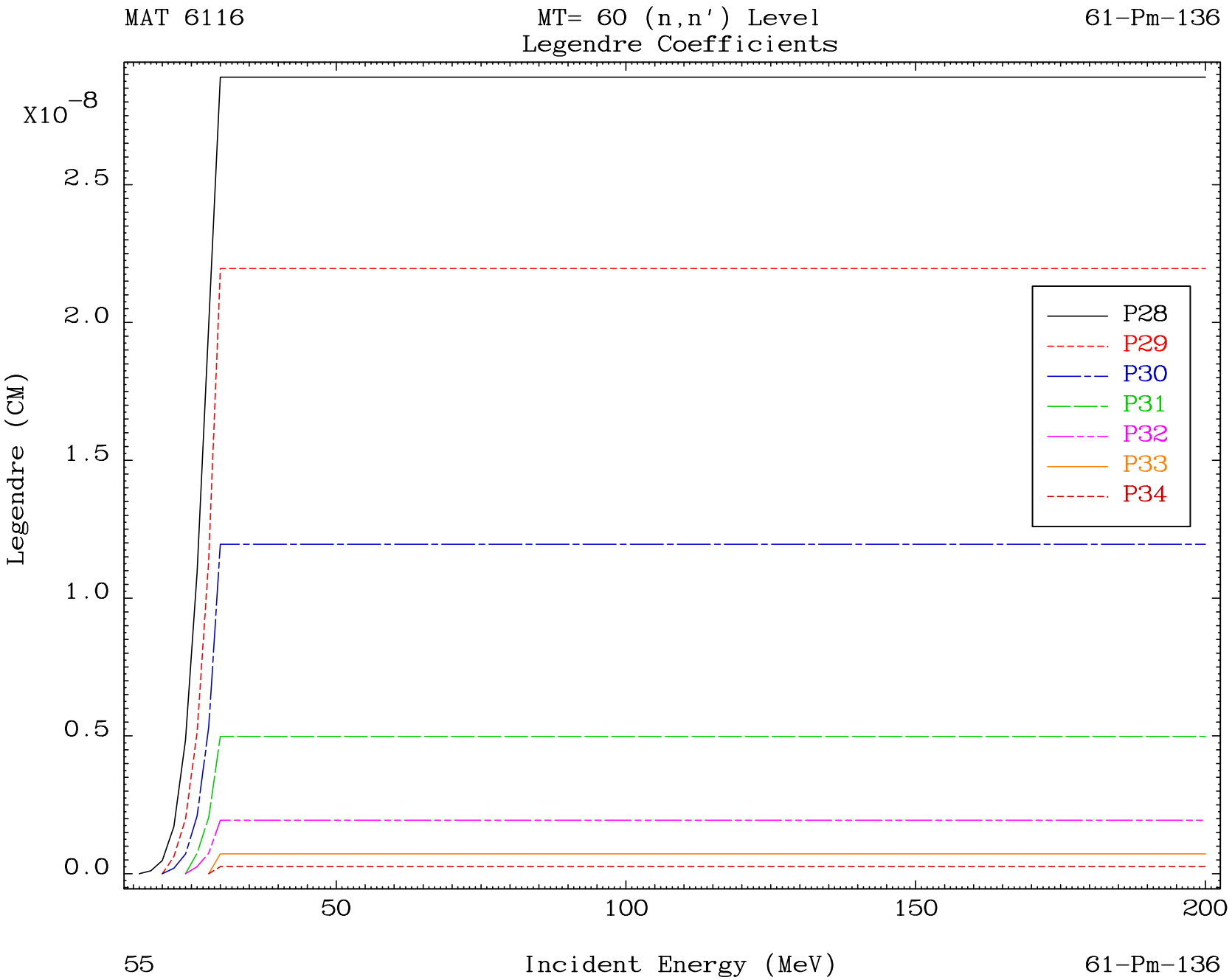

MAT 6116
MT= 59 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-40
-1
-2
-3
Legendre (CM)
0
50
100
150
200
50
Incident Energy (MeV)
61-Pm-136
P10
P11
P12
P13
P14
P15
P16
P17
P18

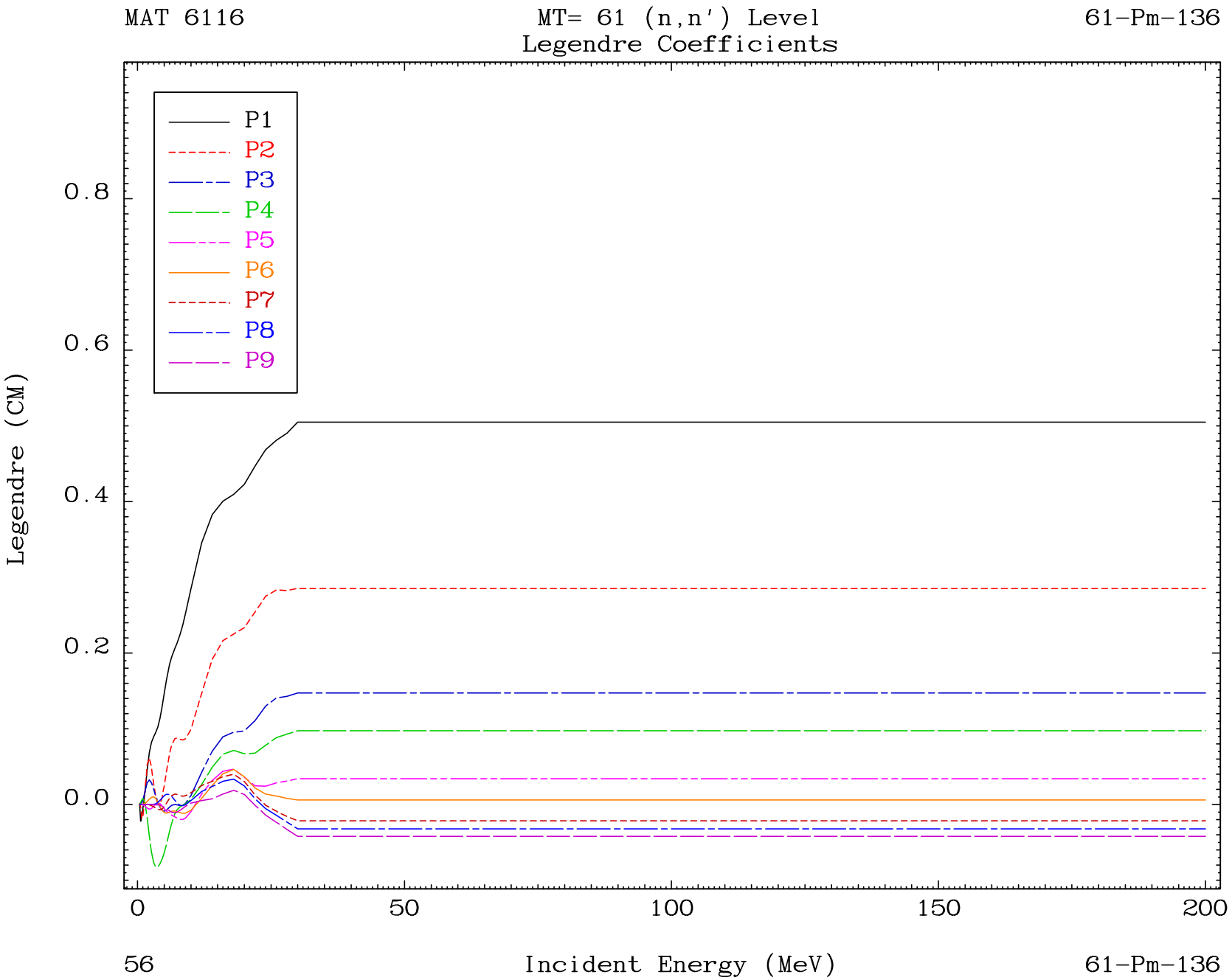

MAT 6116
MT= 59 (n,n') Level
Legendre Coefficients
61-Pm-136
X10-7
6
4
2
0
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
50
100
150
200
51
Incident Energy (MeV)
61-Pm-136

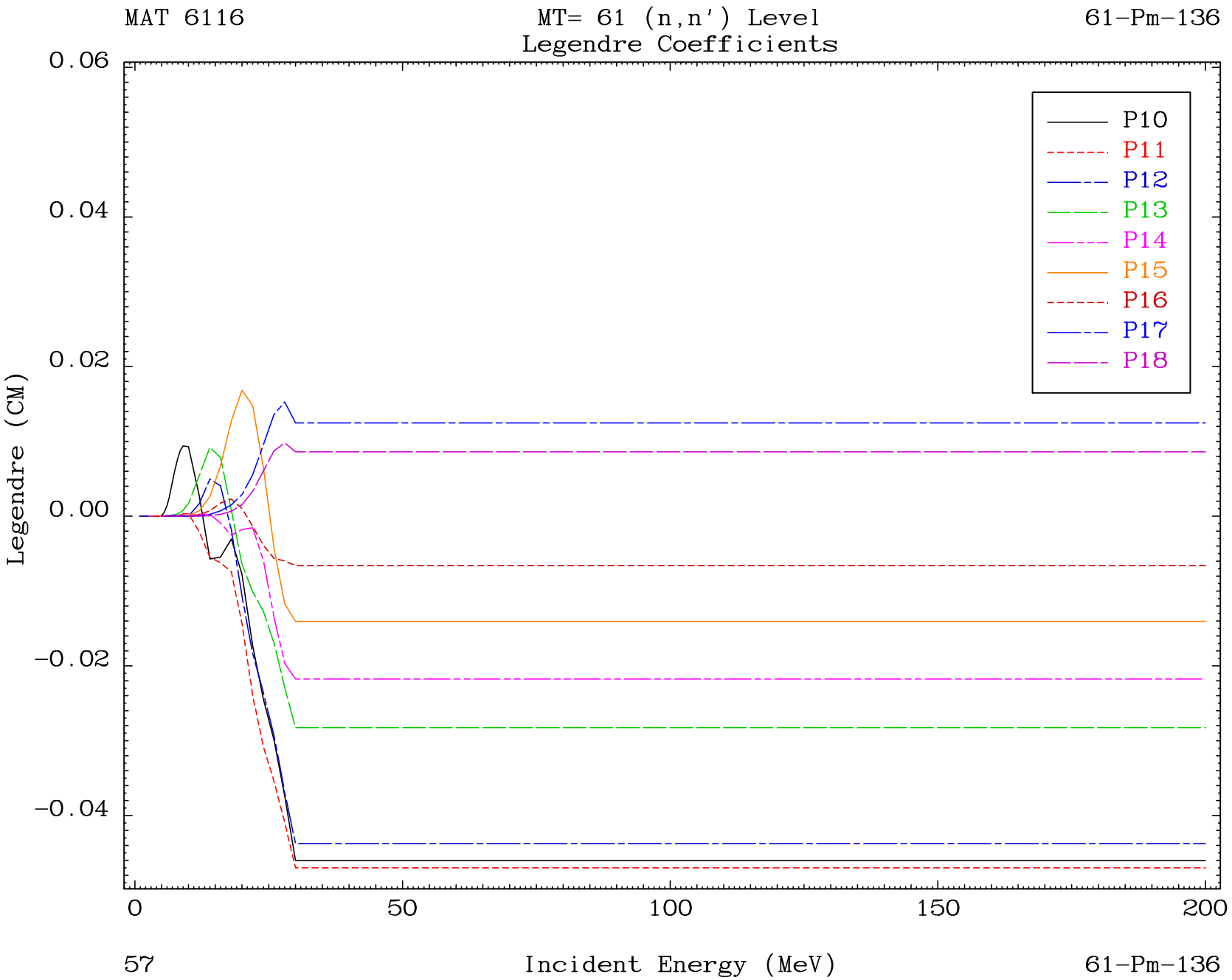

MAT 6116
MT= 60 (n,n') Level
Legendre Coefficients
61-Pm-136
Legendre (CM)
0.3
0.2
0.1
0.0
0
50
100
150
200
Incident Energy (MeV)
52
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9

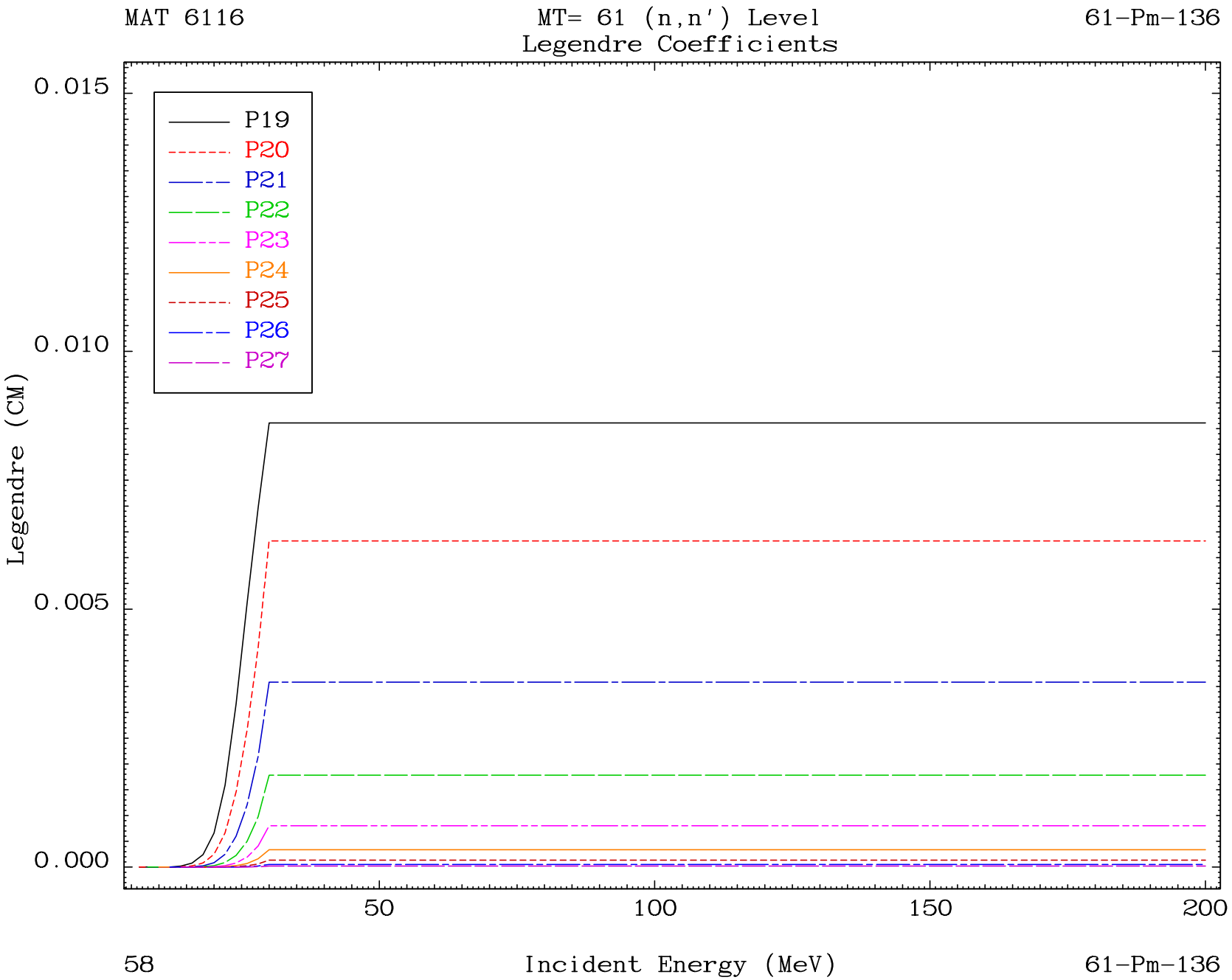

MAT 6116
MT= 60 (n,n') Level
Legendre Coefficients
61-Pm-136
0.004
0.002
0.000
-0.002
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
53
Incident Energy (MeV)
61-Pm-136

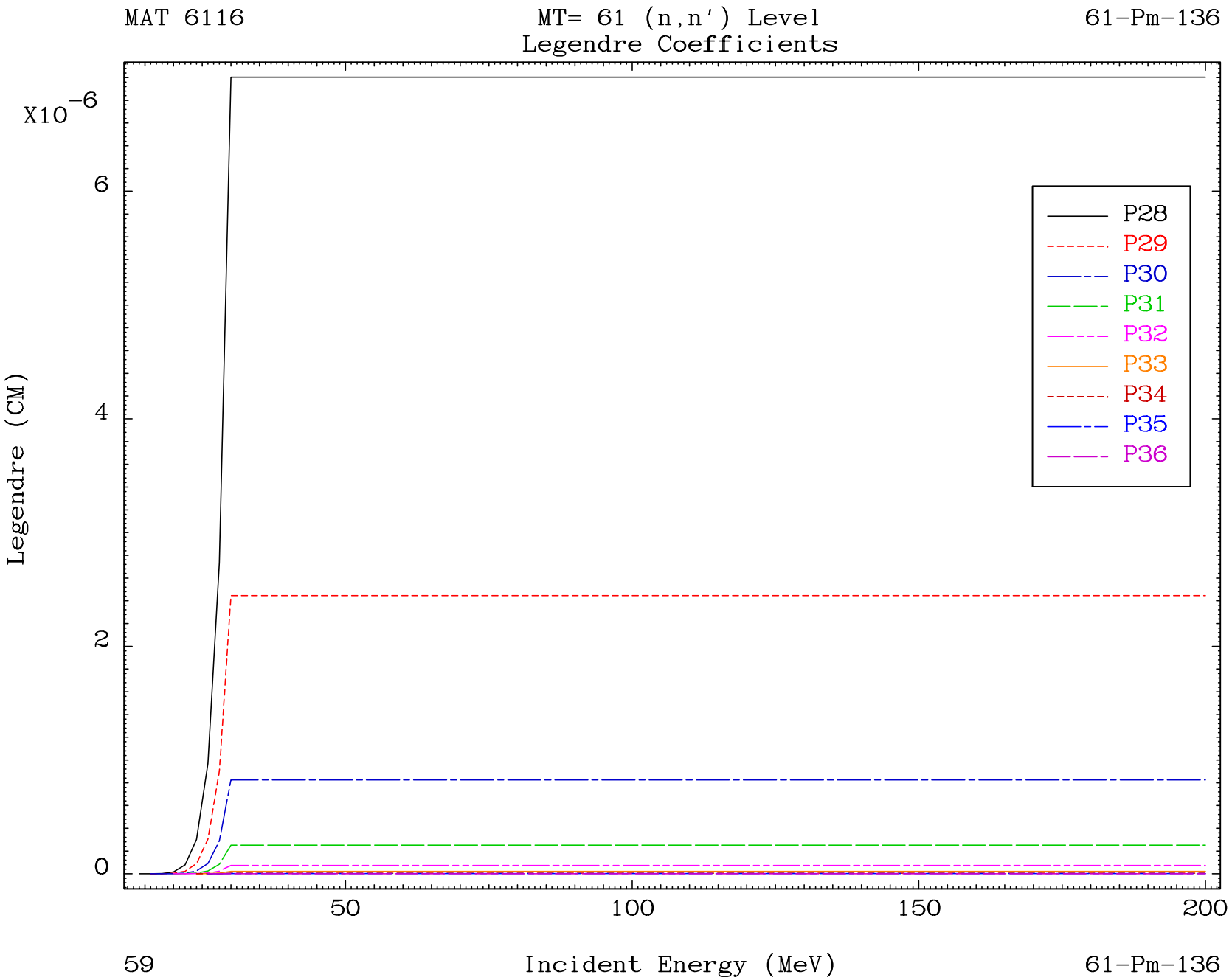

MAT 6116
MT= 60 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-5
6
4
2
0
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
54
Incident Energy (MeV)
61-Pm-136

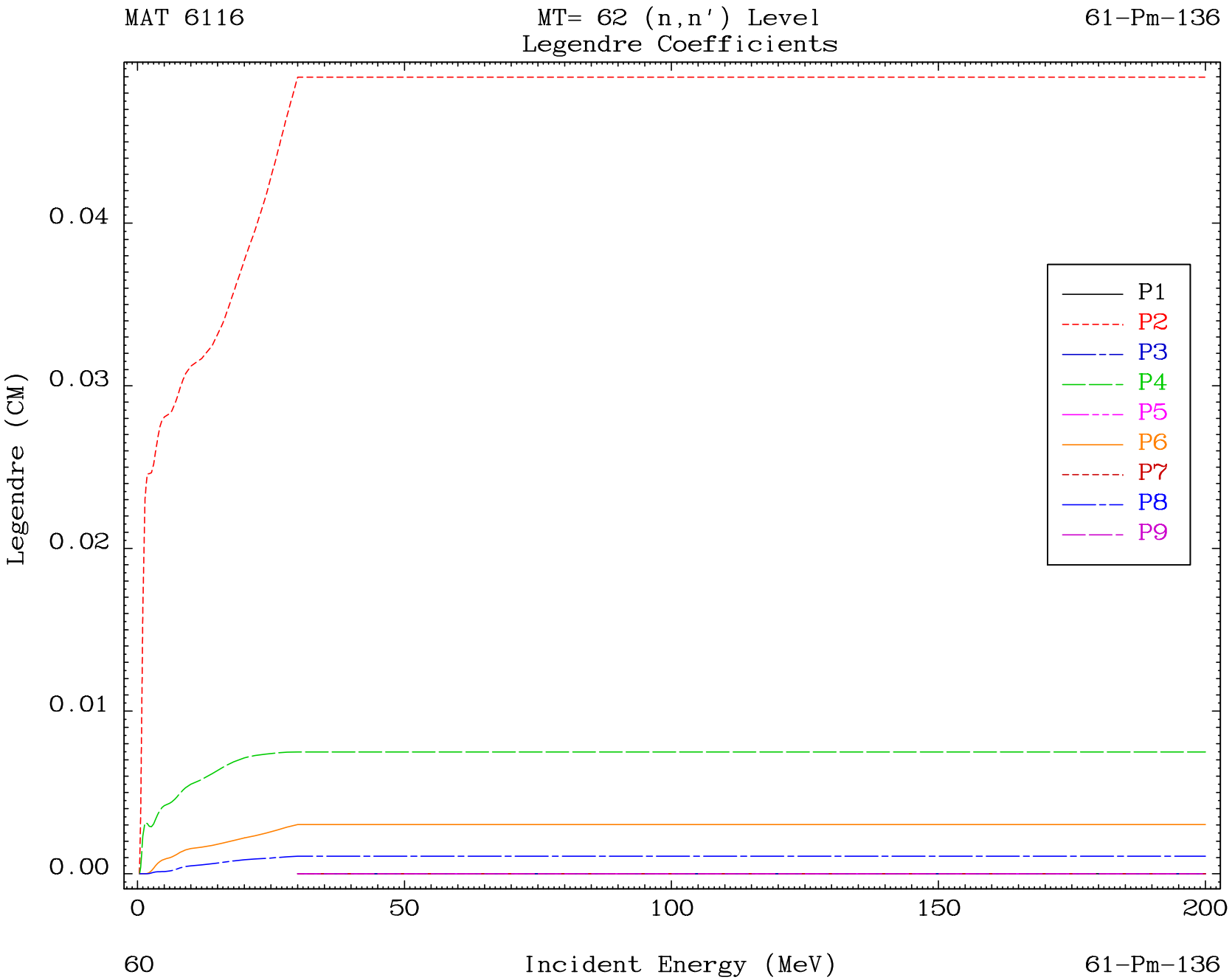

MAT 6116
MT= 60 (n,n') Level
Legendre Coefficients
61-Pm-136
X10-8
2.5
2.0
1.5
1.0
0.5
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
55
Incident Energy (MeV)
61-Pm-136

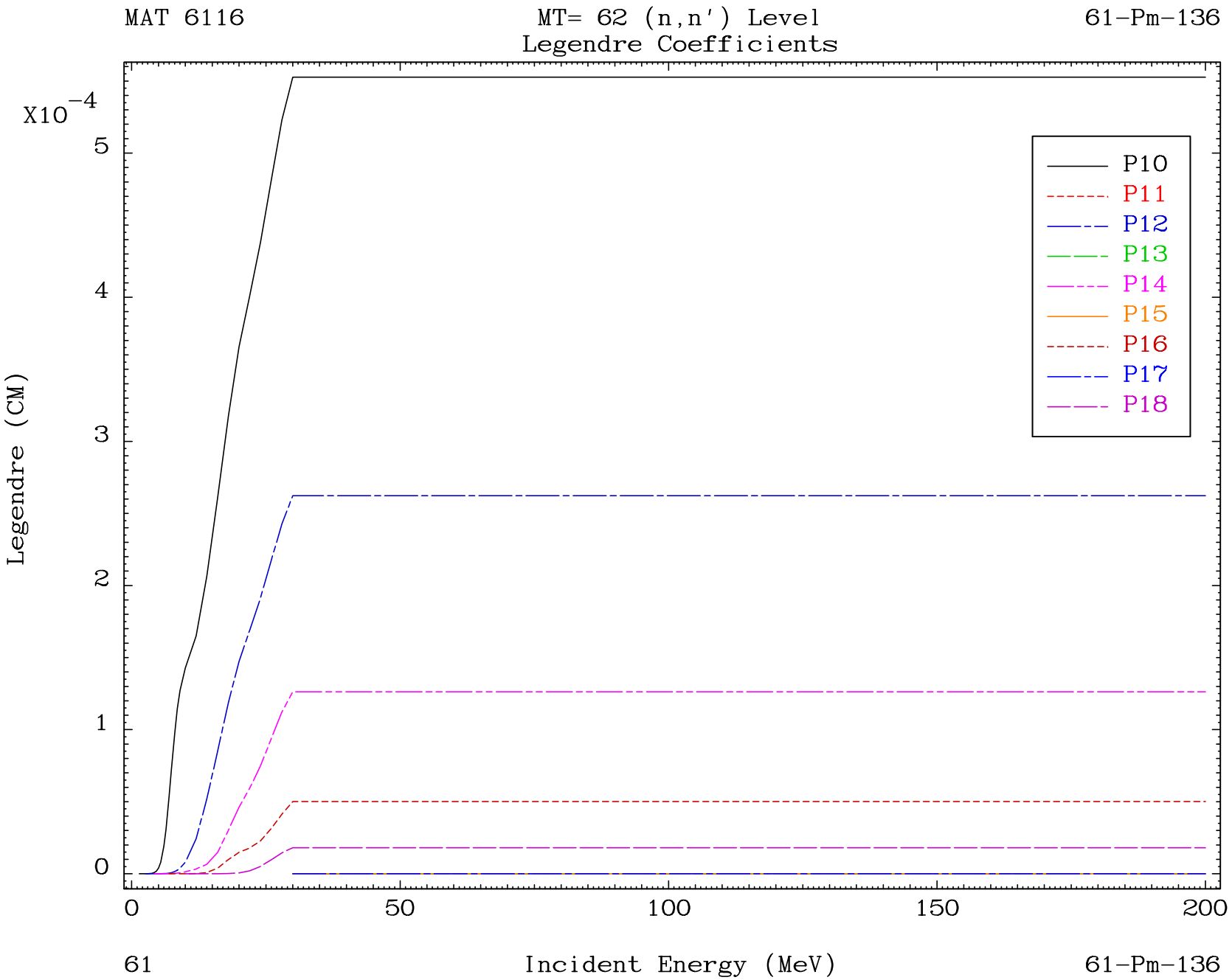

MAT 6116
MT= 61 (n,n') Level
Legendre Coefficients
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9
Legendre (CM)
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200
56
Incident Energy (MeV)
61-Pm-136

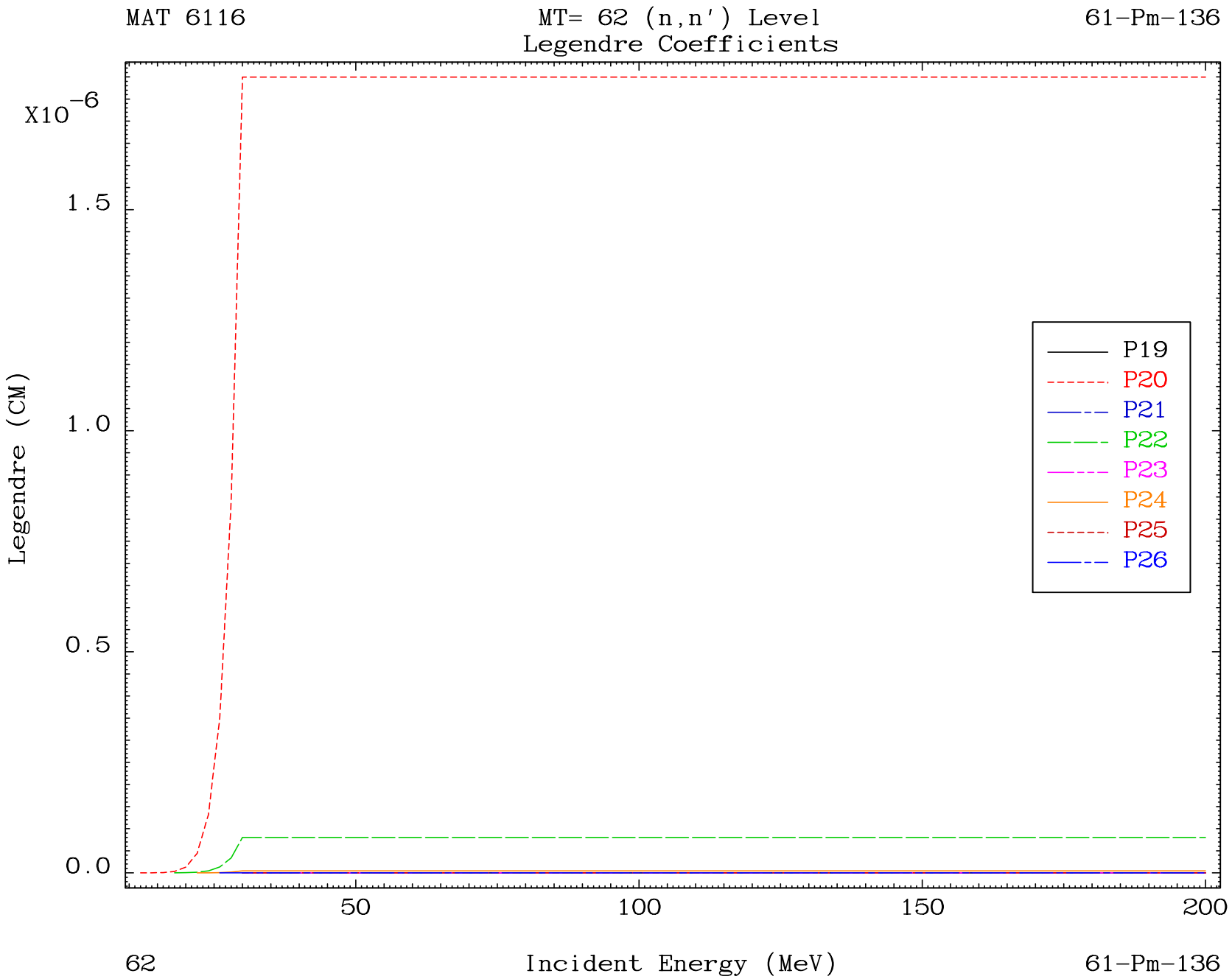

MAT 6116
MT= 61 (n,n') Level
Legendre Coefficients
61-Pm-136
0.06
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
57
Incident Energy (MeV)
61-Pm-136

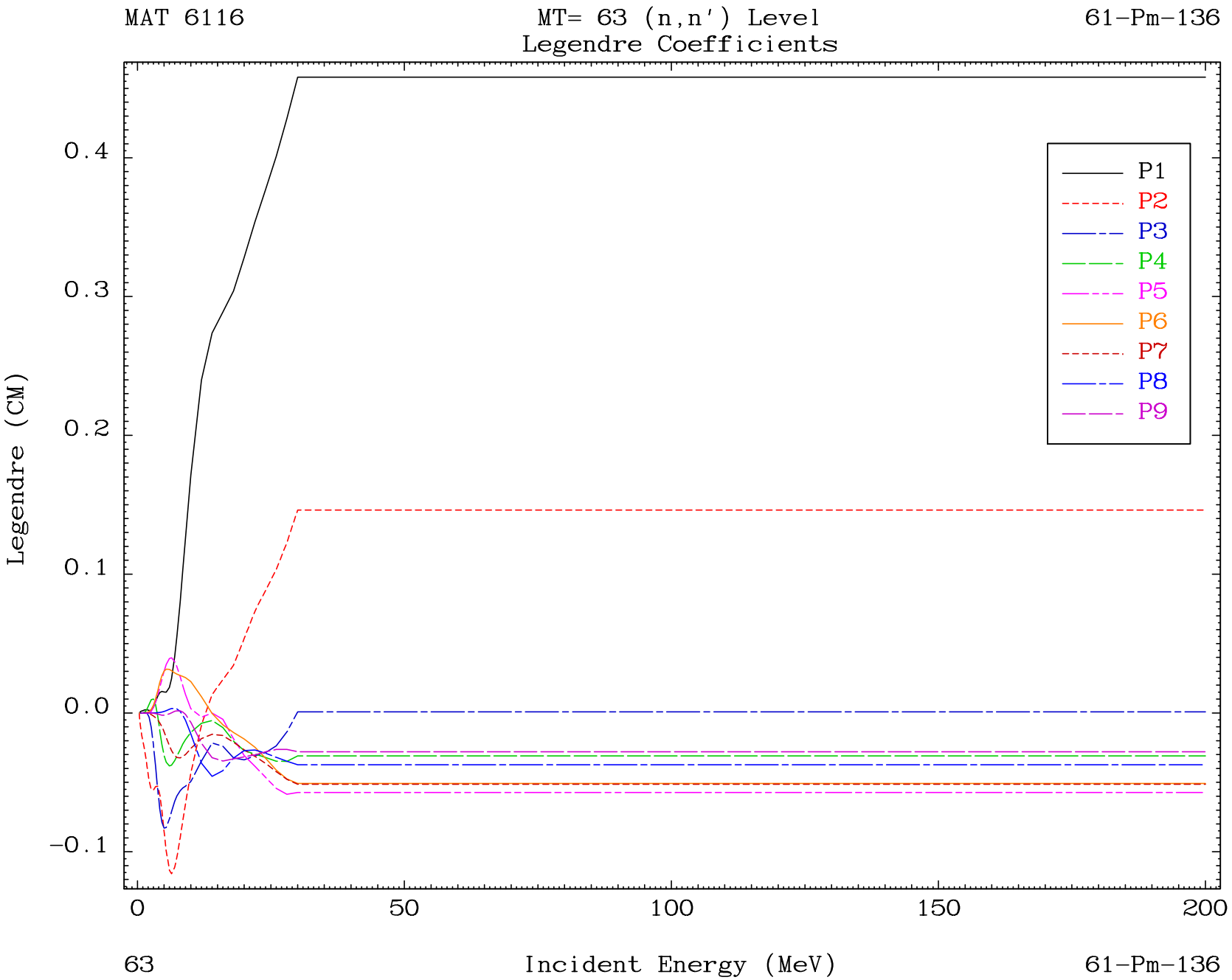

MAT 6116
MT= 61 (n,n') Level
Legendre Coefficients
61-Pm-136
P19
P20
P21
P22
P23
P24
P25
P26
P27
0.015
0.010
0.005
0.000
Legendre (CM)
50
100
150
200
58
Incident Energy (MeV)
61-Pm-136

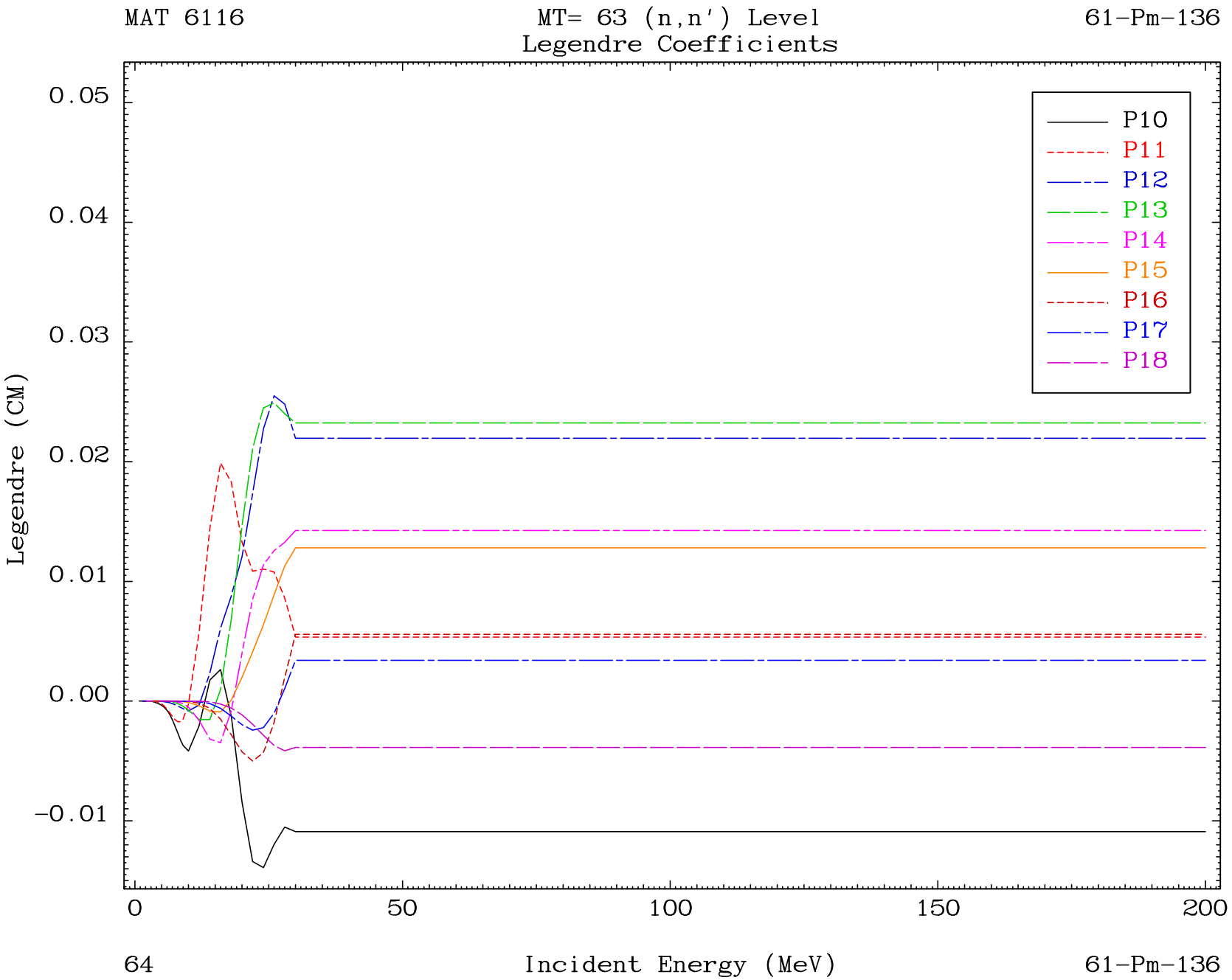

MAT 6116
MT= 61 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-6
6
4
2
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
P35
P36
50
100
150
200
59
Incident Energy (MeV)
61-Pm-136

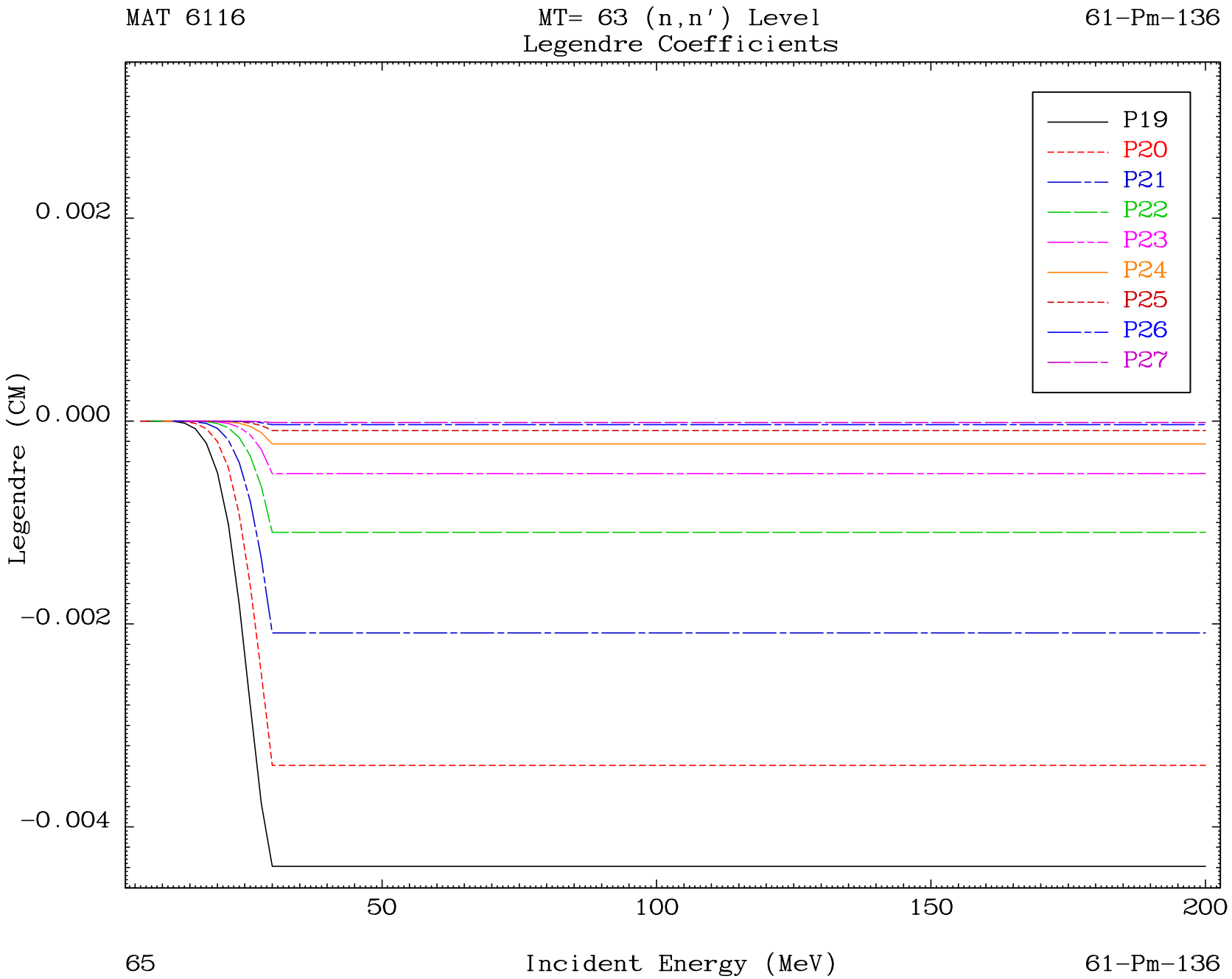

MAT 6116
MT= 62 (n,n') Level
Legendre Coefficients
61-Pm-136
Legendre (CM)
0.04
0.03
0.02
0.01
0.00
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
60
Incident Energy (MeV)
61-Pm-136

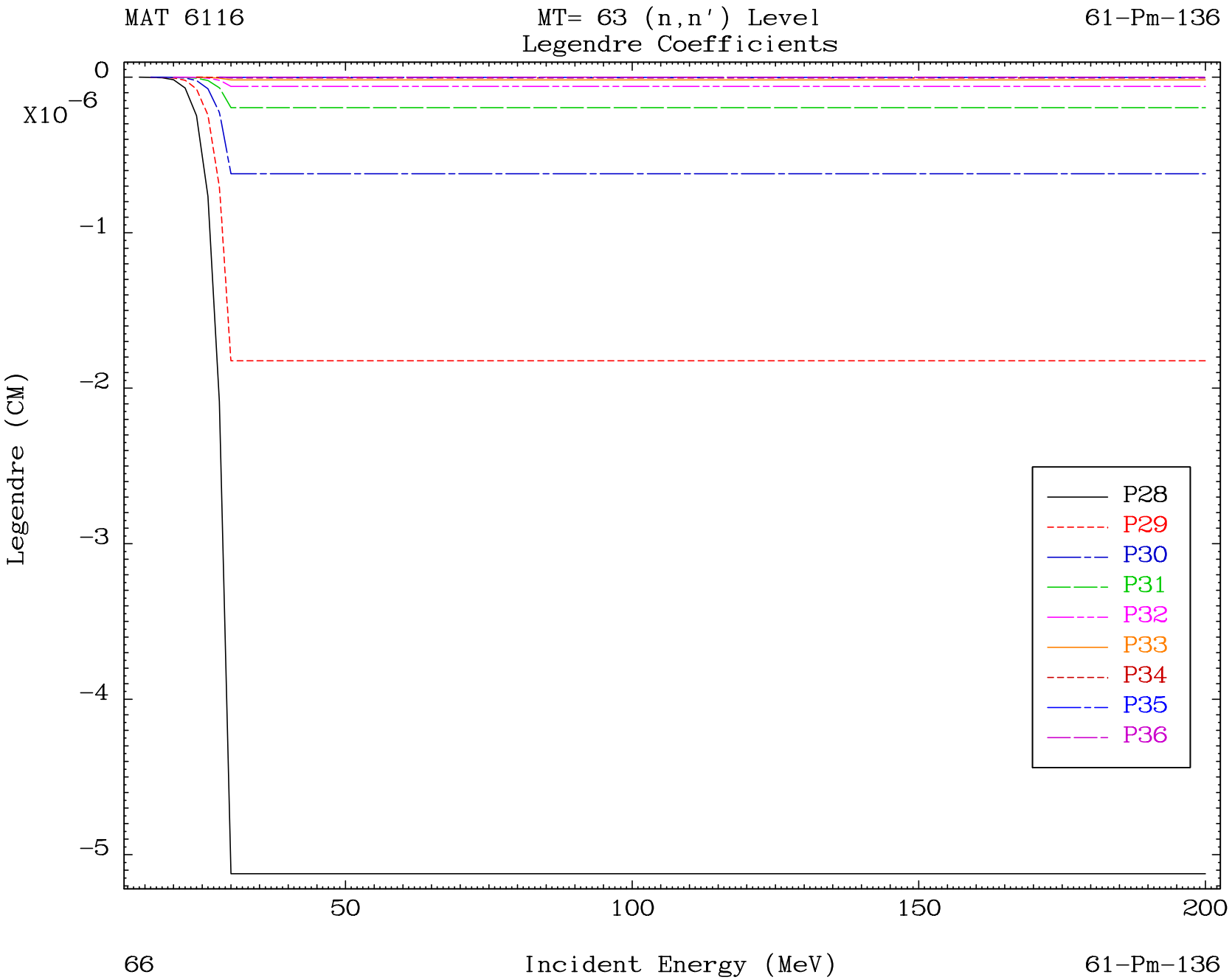

MAT 6116
MT= 62 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-4
5
4
3
2
1
0
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
61
Incident Energy (MeV)
61-Pm-136

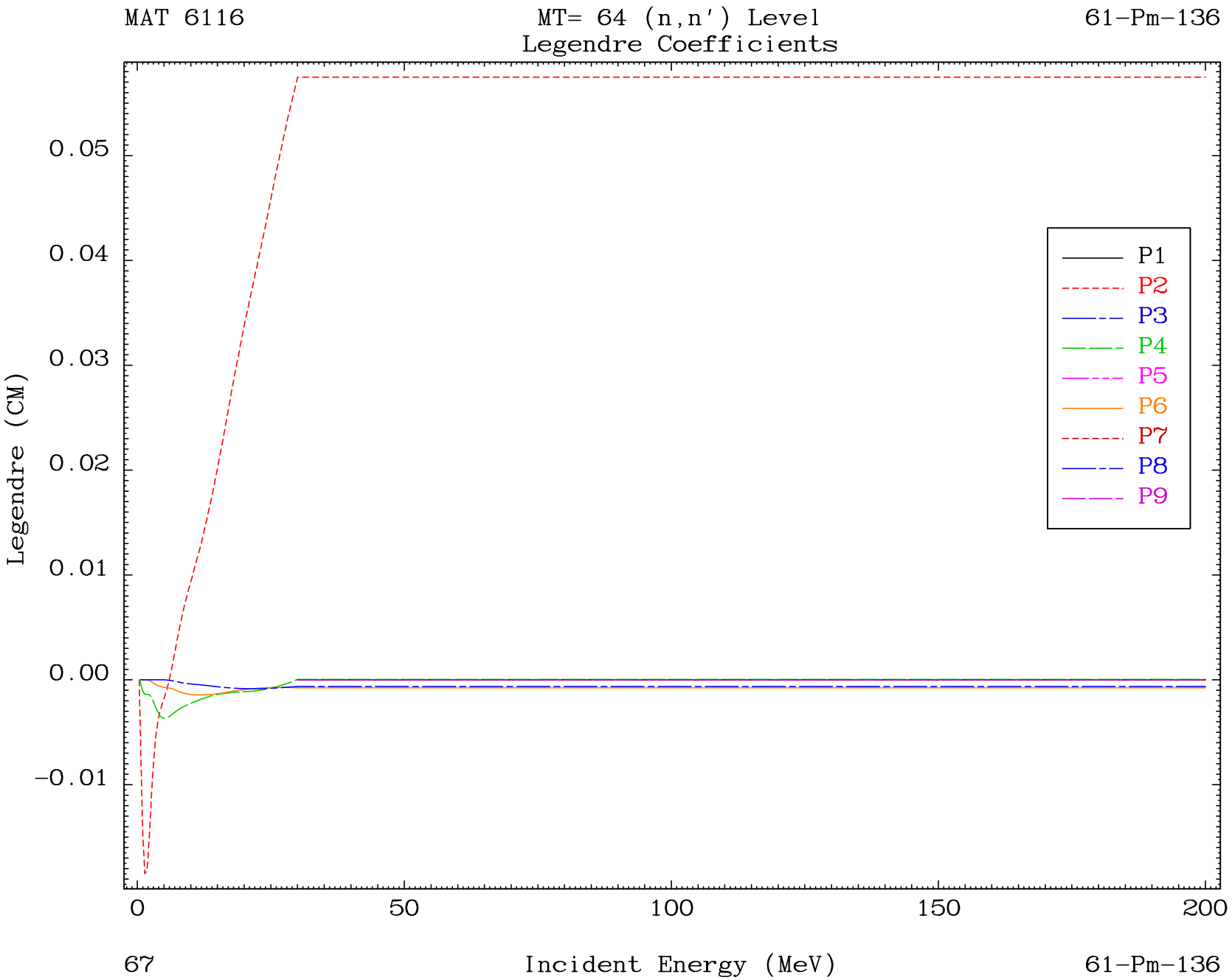

MAT 6116
MT= 62 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-6
1.5
1.0
0.5
0.0
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
50
100
150
200
62
Incident Energy (MeV)
61-Pm-136

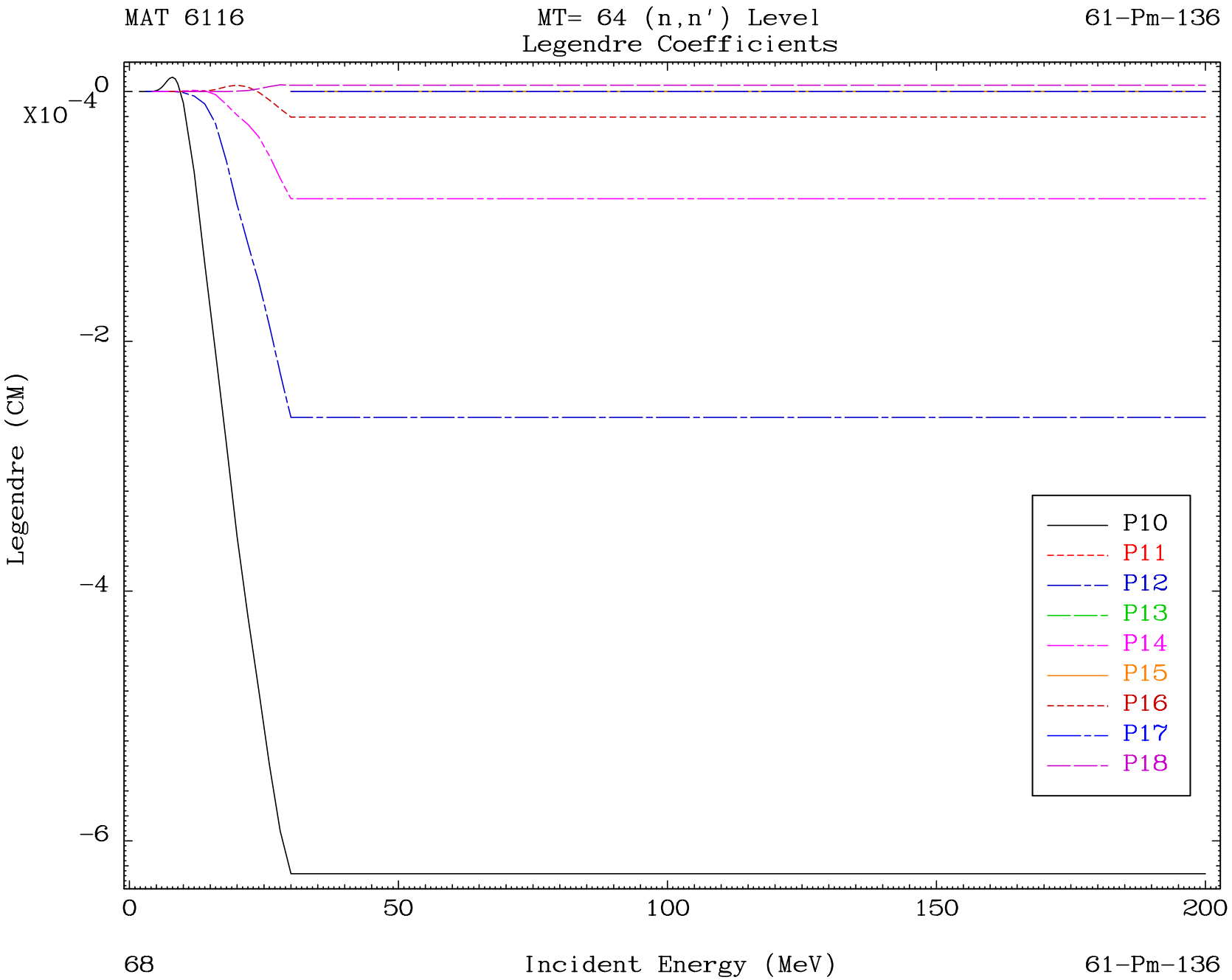

MAT 6116
MT= 63 (n,n') Level
Legendre Coefficients
61-Pm-136
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
63
Incident Energy (MeV)
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9

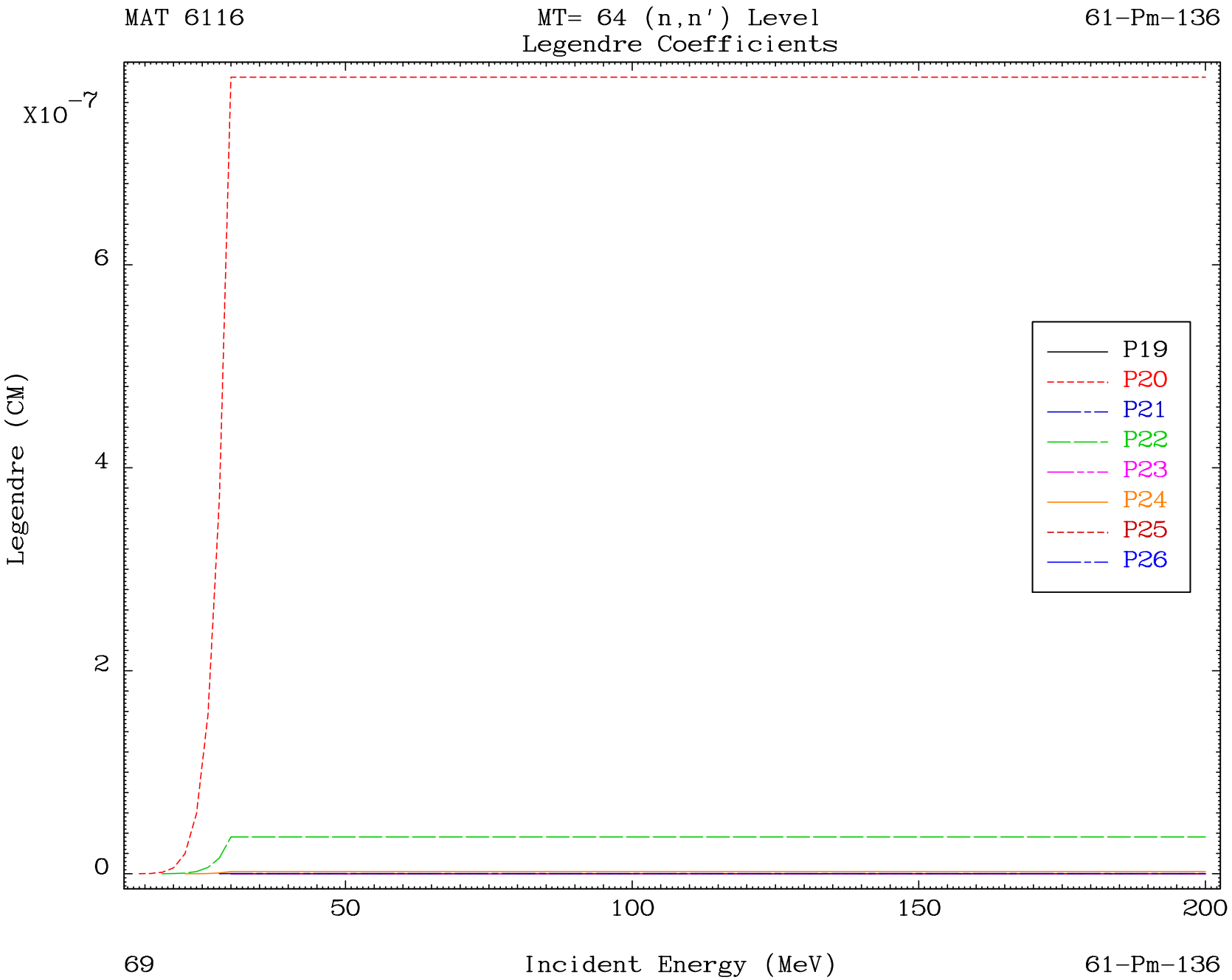

MAT 6116
MT= 63 (n,n') Level
Legendre Coefficients
61-Pm-136
0.05
0.04
0.03
0.02
0.01
0.00
-0.01
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
64
Incident Energy (MeV)
61-Pm-136

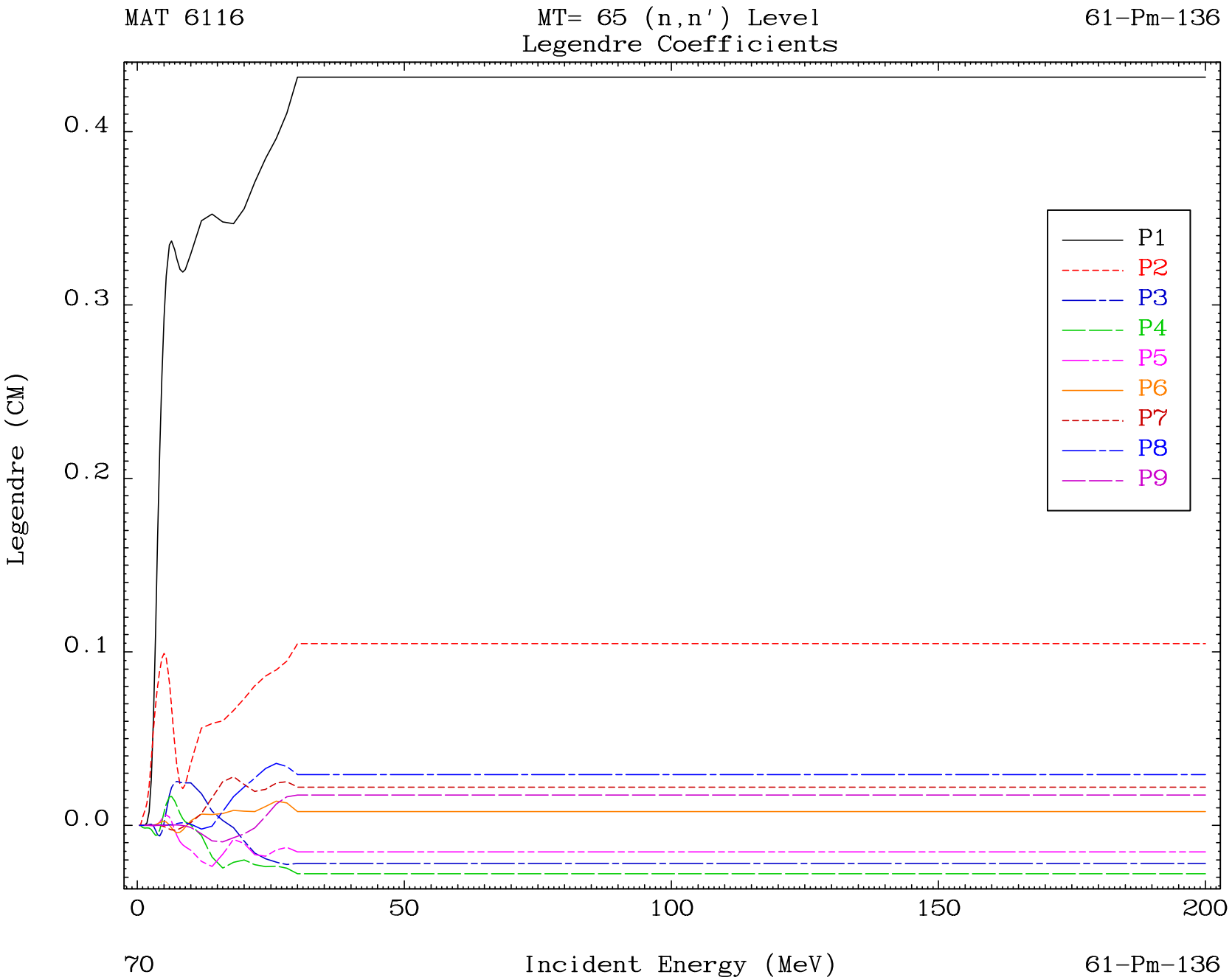

MAT 6116
MT= 63 (n,n') Level
Legendre Coefficients
61-Pm-136
P19
P20
P21
P22
P23
P24
P25
P26
P27
0.002
0.000
-0.002
-0.004
Legendre (CM)
50
100
150
200
65
Incident Energy (MeV)
61-Pm-136

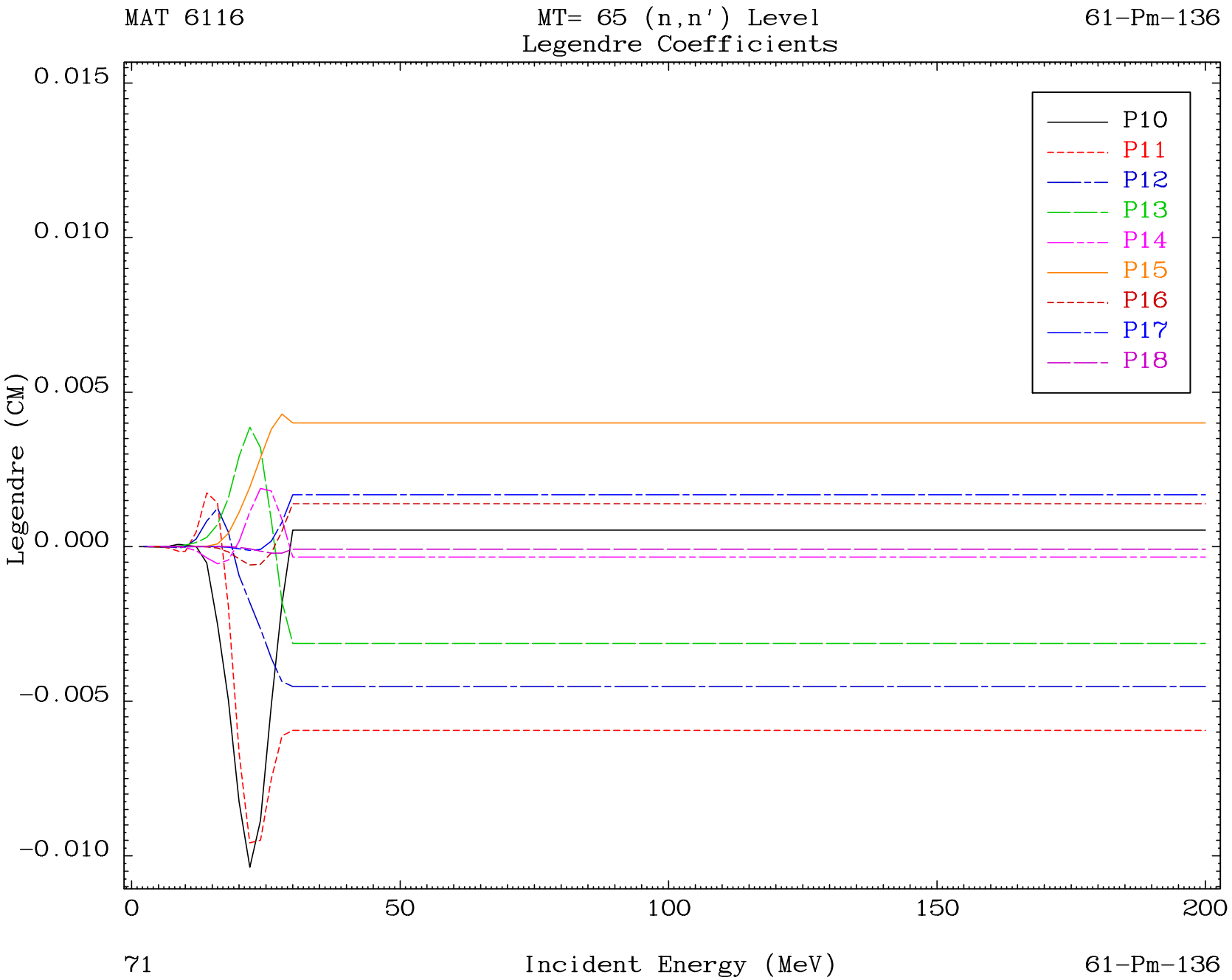

MAT 6116
MT= 63 (n,n') Level
Legendre Coefficients
61-Pm-136
0
X10 −6
−1
−2
−3
−4
−5
Legendre (CM)
50
100
150
200
66
Incident Energy (MeV)
61-Pm-136
P28
P29
P30
P31
P32
P33
P34
P35
P36

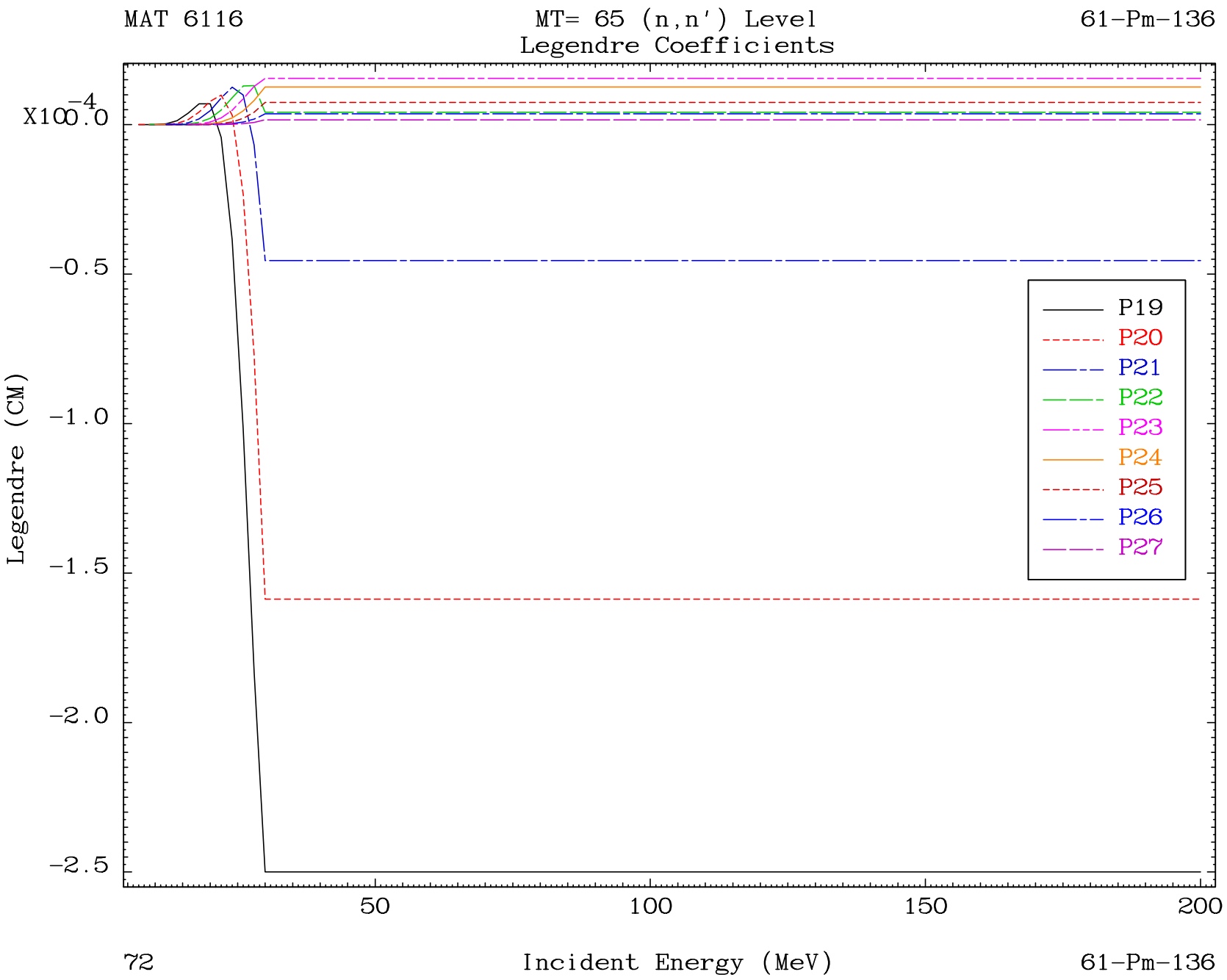

MAT 6116
MT= 64 (n,n') Level
Legendre Coefficients
61-Pm-136
0.05
0.04
0.03
0.02
0.01
0.00
-0.01
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
67
Incident Energy (MeV)
61-Pm-136

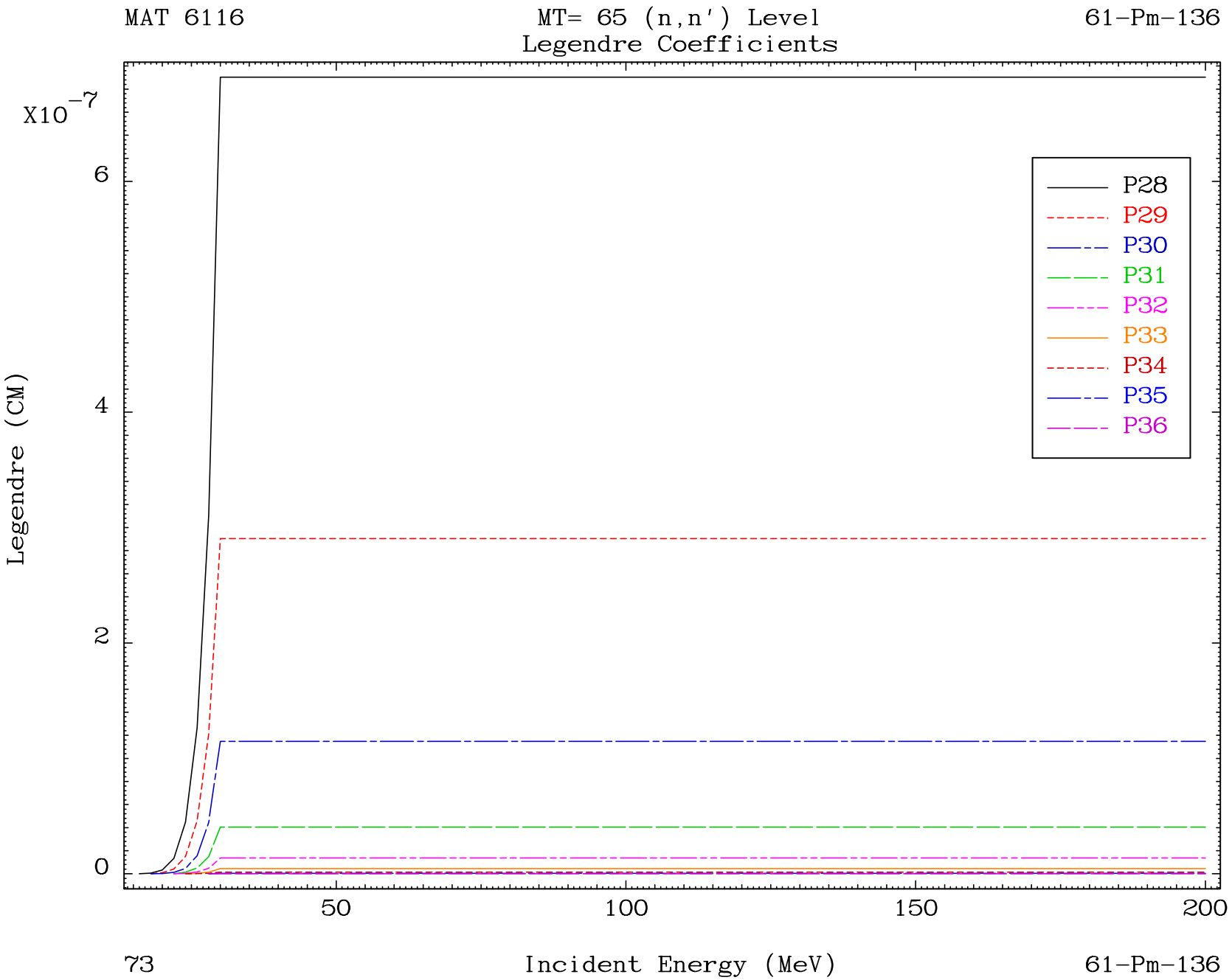

MAT 6116
MT= 64 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-4
0
-2
-4
-6
Legendre (CM)
0
50
100
150
200
68
Incident Energy (MeV)
61-Pm-136
P10
P11
P12
P13
P14
P15
P16
P17
P18

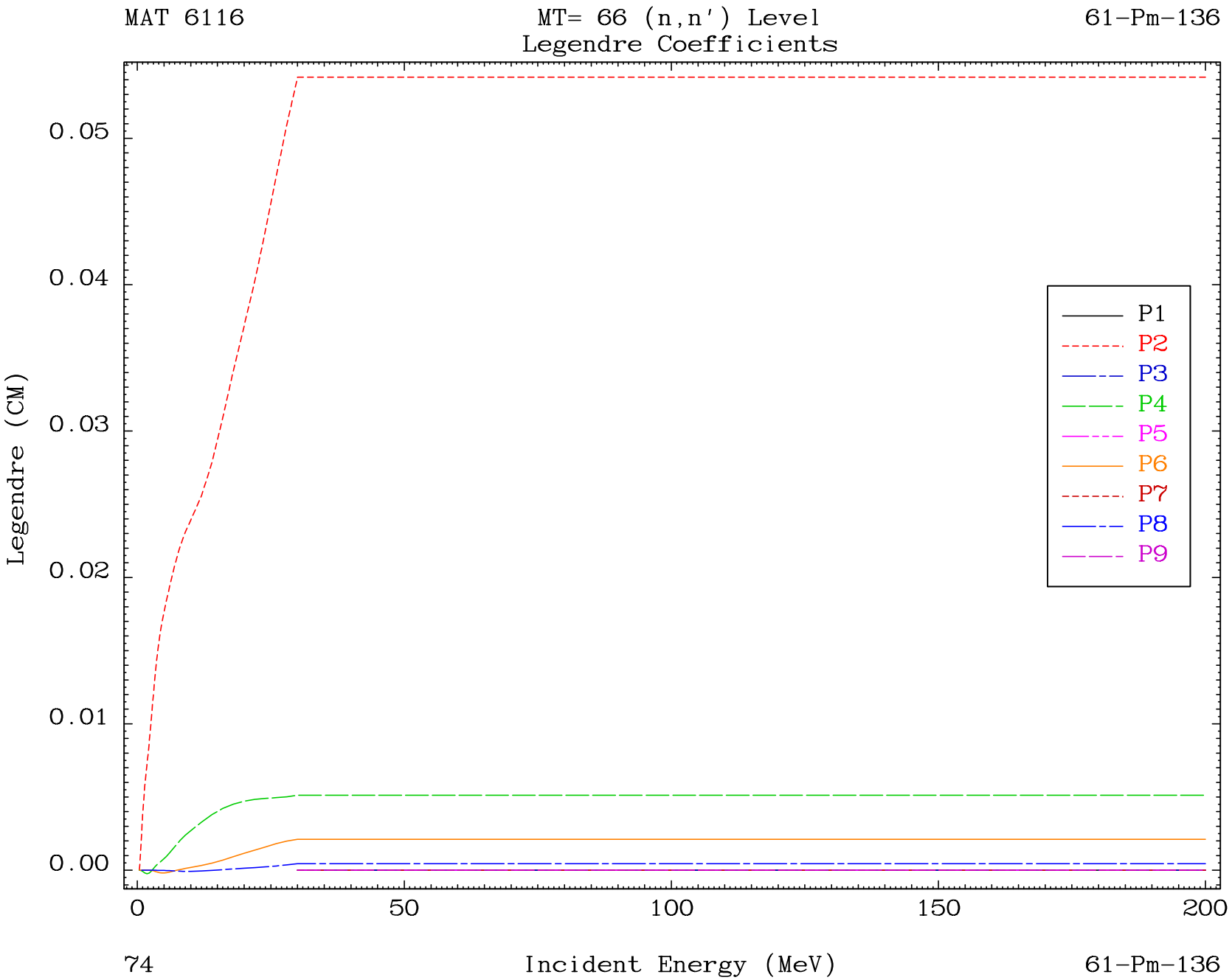

MAT 6116
MT= 64 (n,n') Level
Legendre Coefficients
61-Pm-136
X10-7
6
4
2
0
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
50
100
150
200
69
Incident Energy (MeV)
61-Pm-136

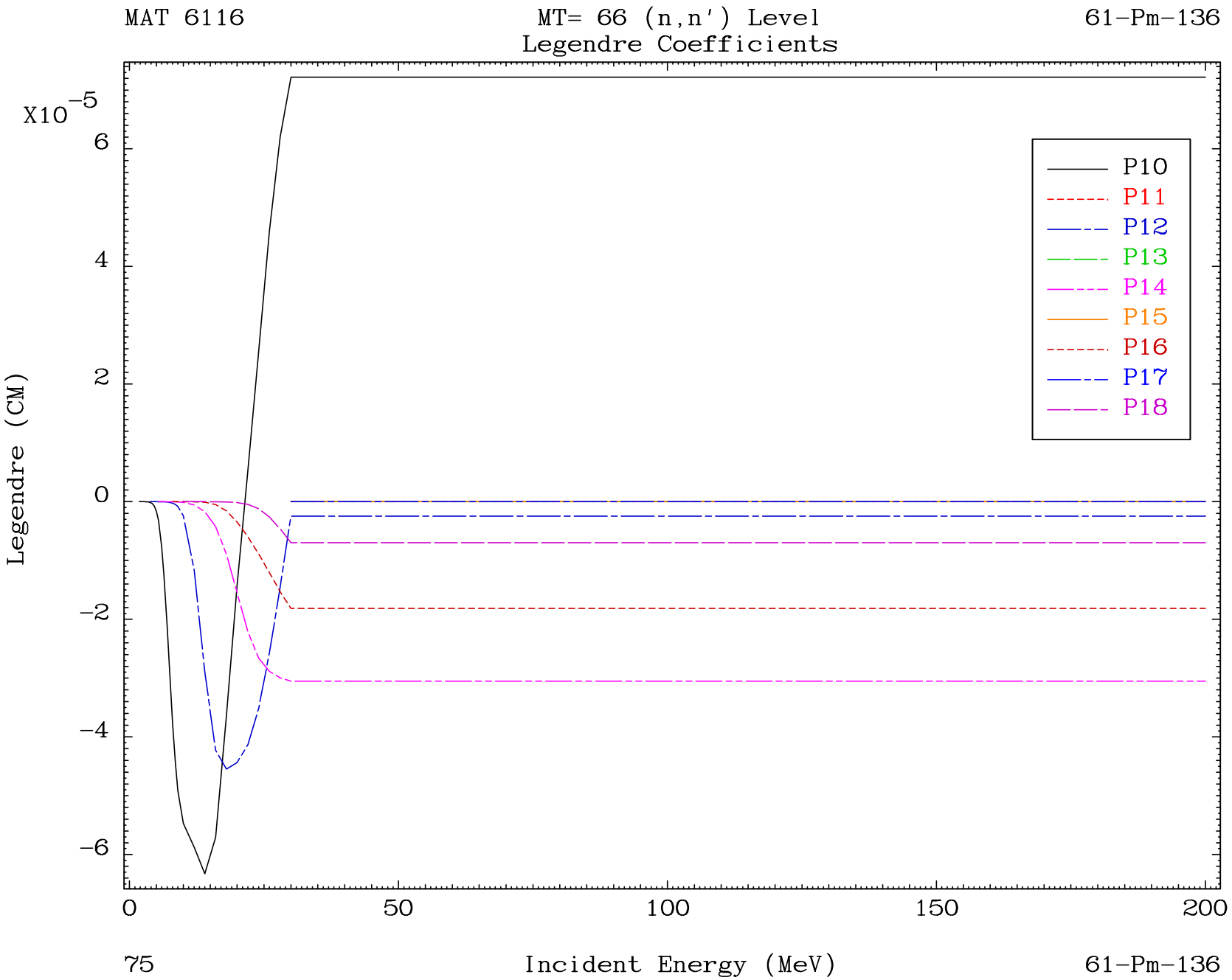

MAT 6116
MT= 65 (n,n') Level
Legendre Coefficients
61-Pm-136
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
P1
P2
P3
P4
P5
P6
P7
P8
P9
70
Incident Energy (MeV)
61-Pm-136

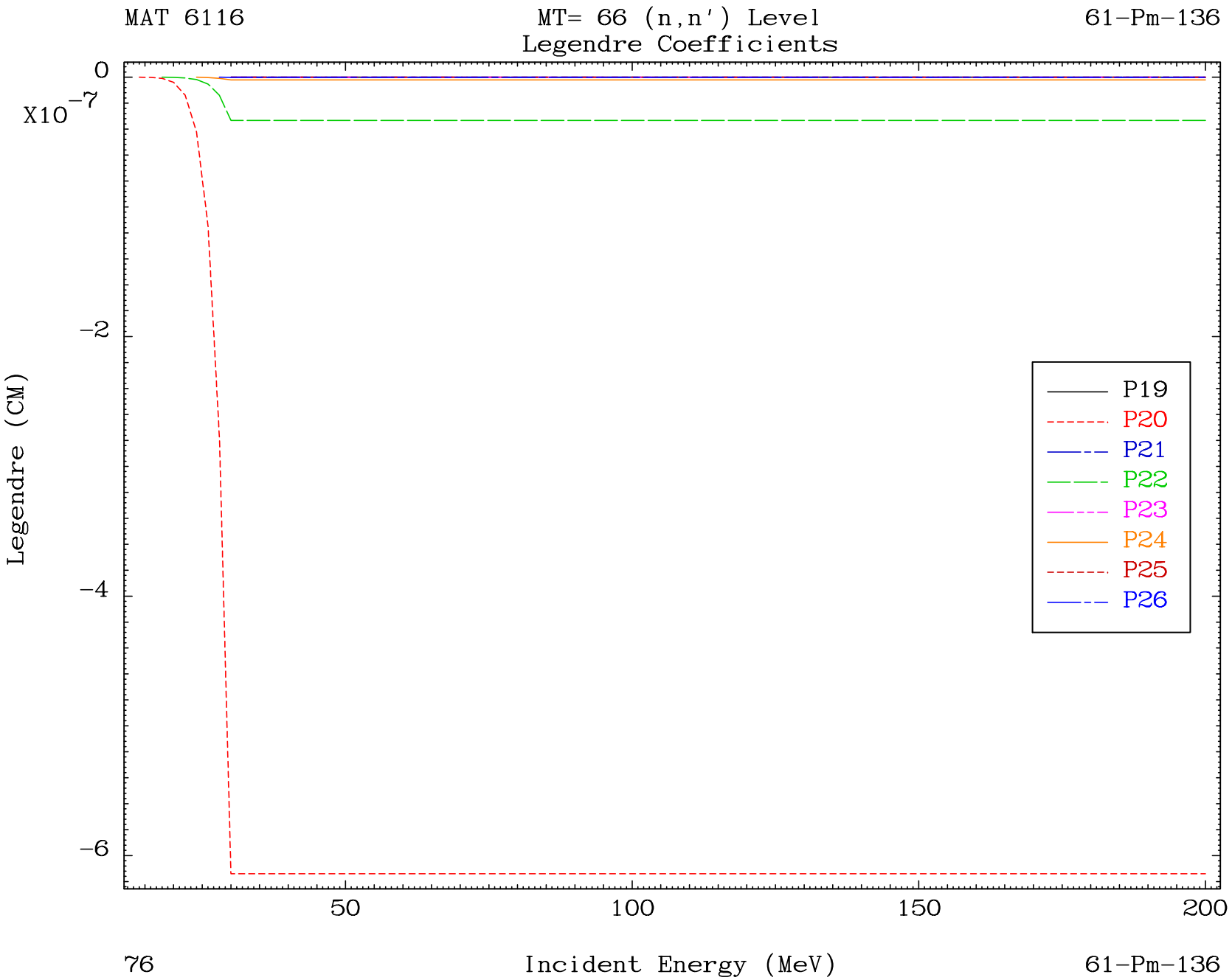

MAT 6116
MT= 65 (n,n') Level
Legendre Coefficients
61-Pm-136
0.015
0.010
0.005
0.000
-0.005
-0.010
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
71
Incident Energy (MeV)
61-Pm-136

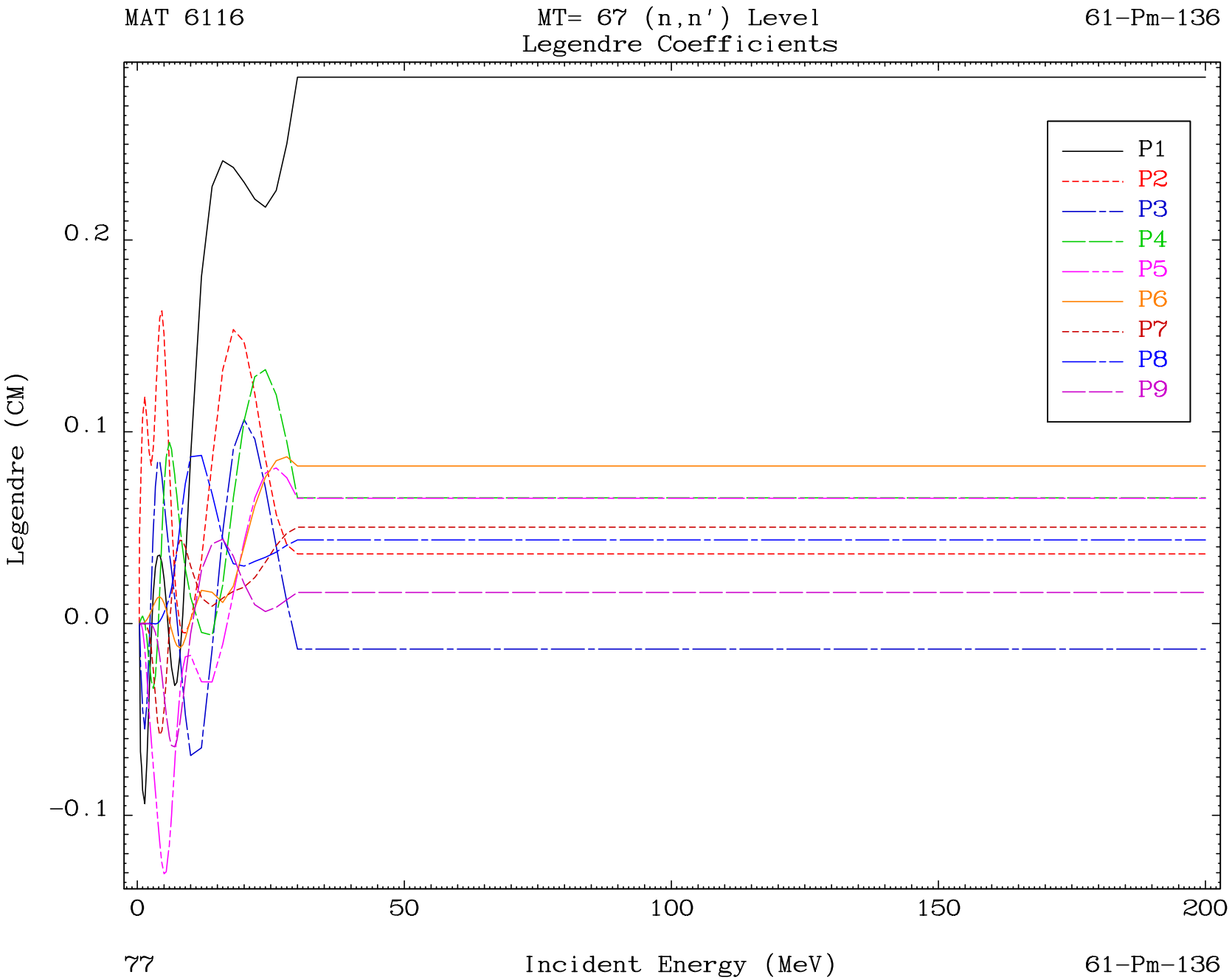

MAT 6116
MT= 65 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-4
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
Legendre (CM)
50
100
150
200
72
Incident Energy (MeV)
61-Pm-136
P19
P20
P21
P22
P23
P24
P25
P26
P27

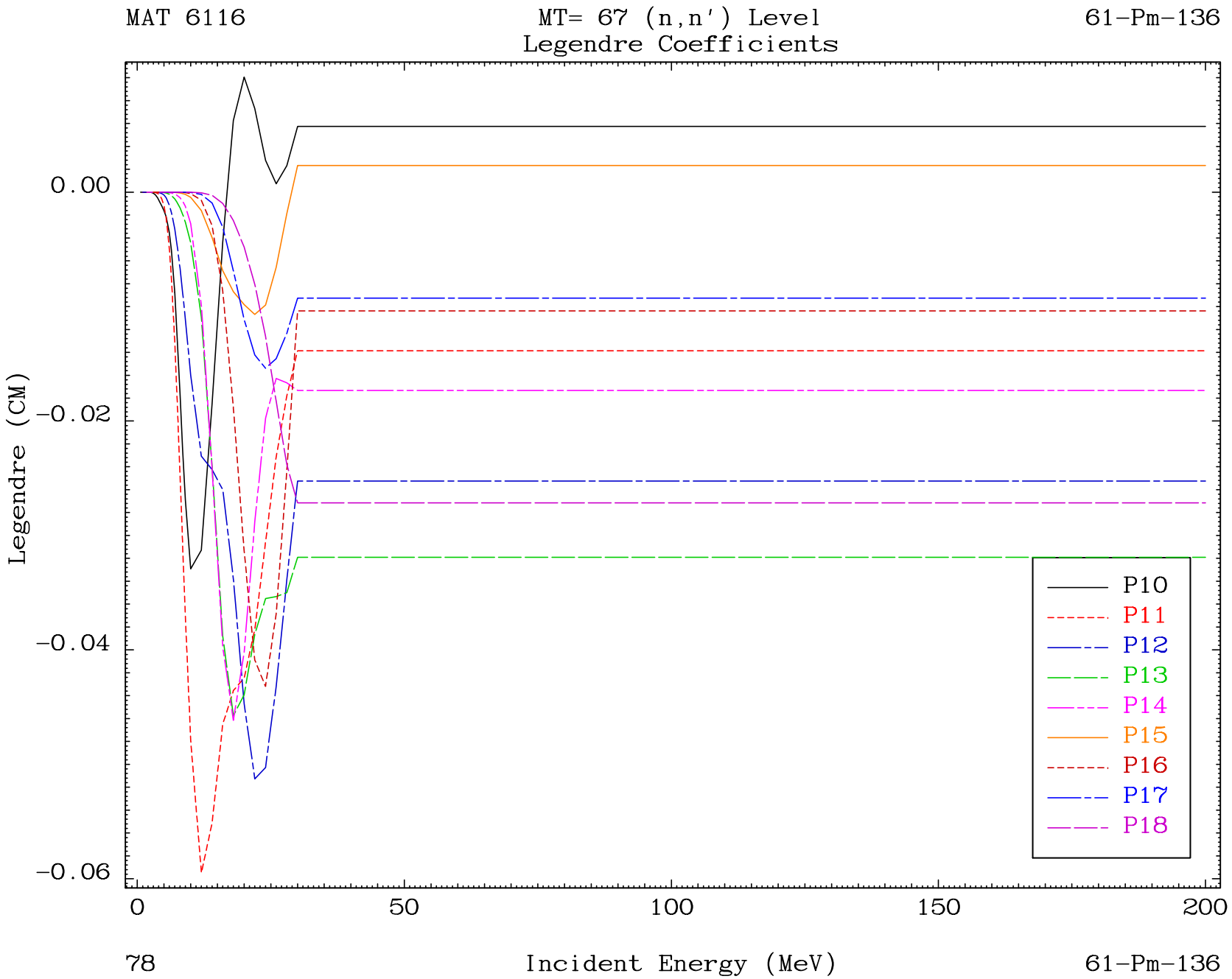

MAT 6116
MT= 65 (n,n') Level
Legendre Coefficients
61-Pm-136
X10-7
6
4
2
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
P35
P36
50
100
150
200
73
Incident Energy (MeV)
61-Pm-136

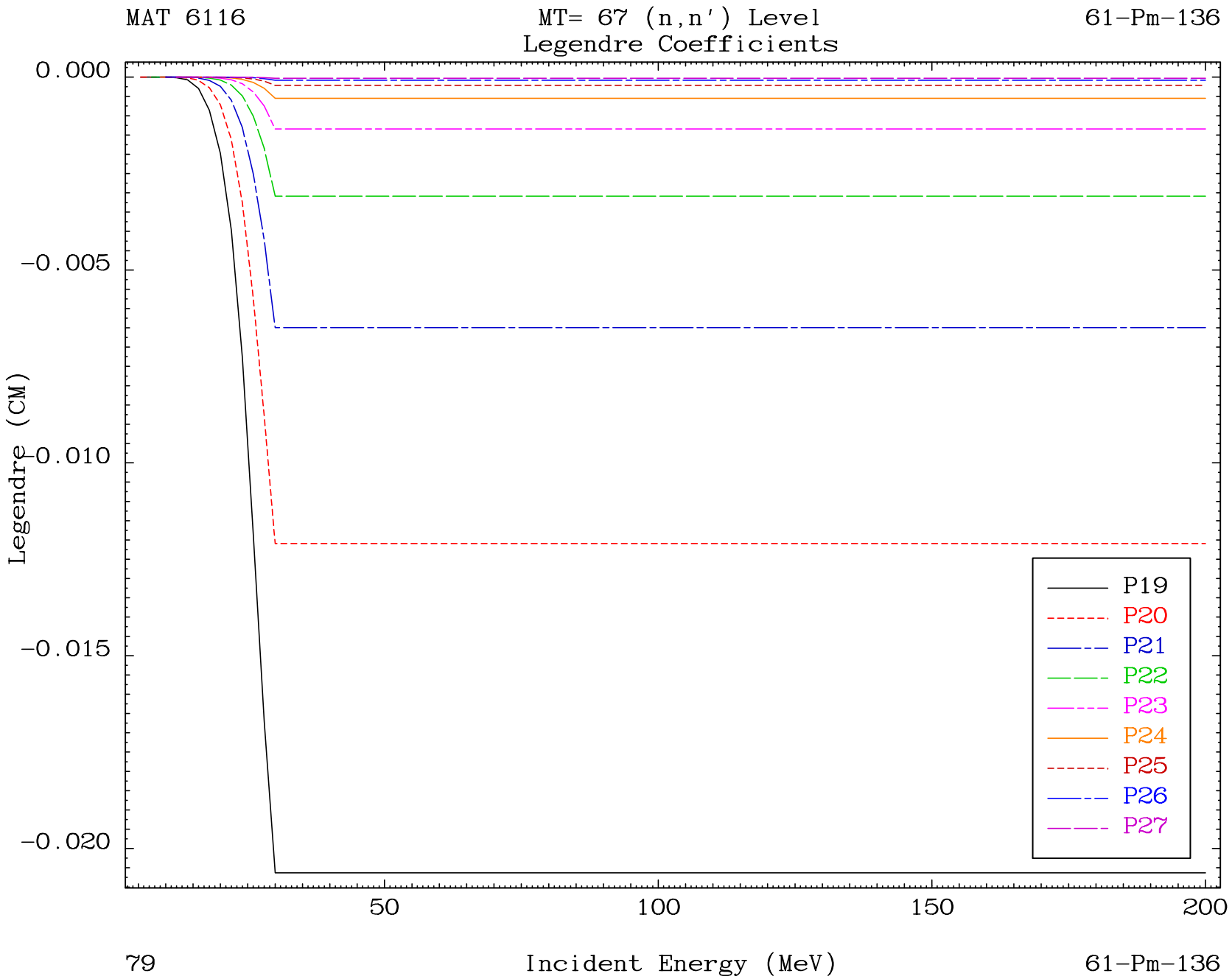

MAT 6116
MT= 66 (n,n') Level
Legendre Coefficients
61-Pm-136
Legendre (CM)
0.05
0.04
0.03
0.02
0.01
0.00
0
50
100
150
200
Incident Energy (MeV)
74
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9

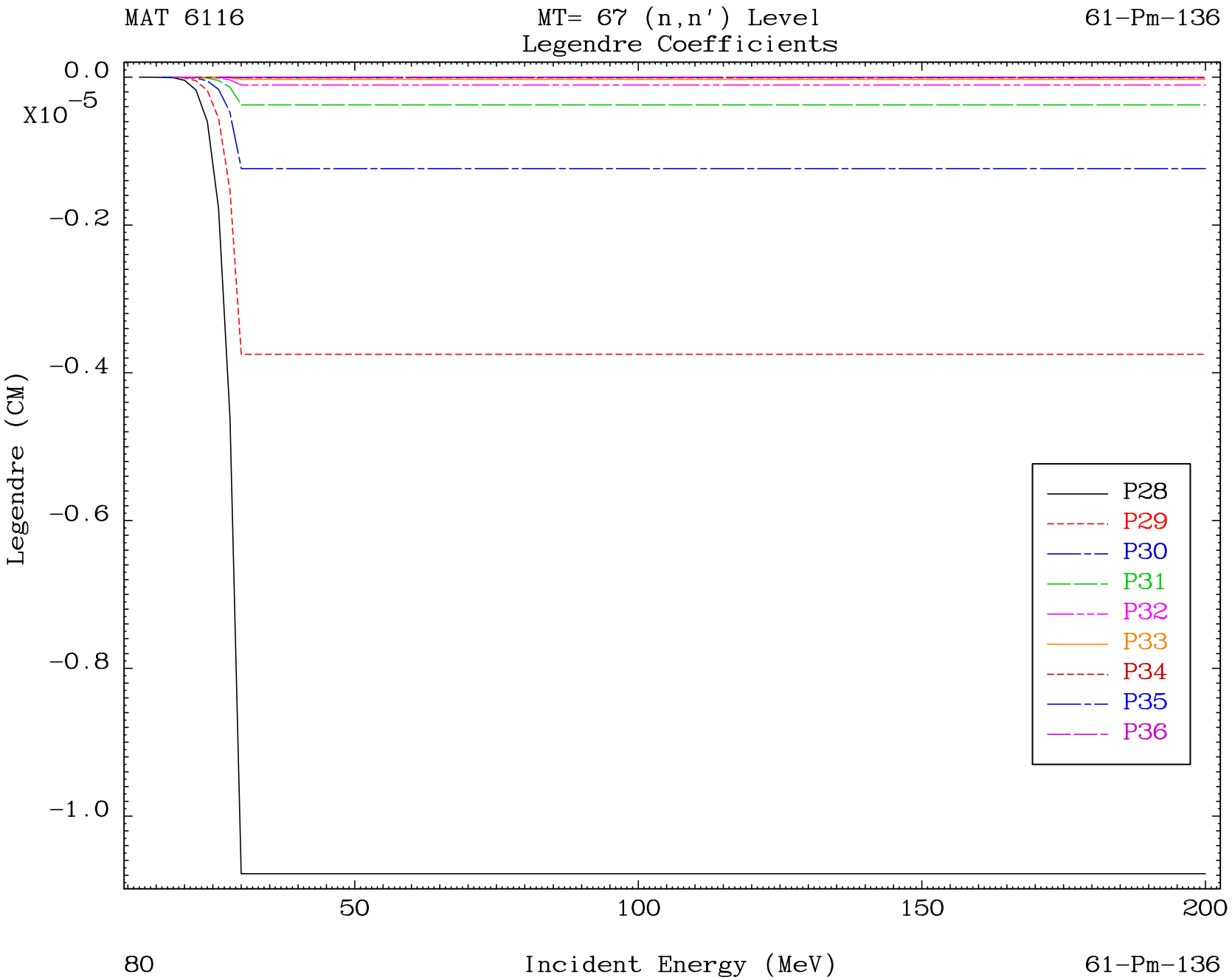

MAT 6116
MT= 66 (n,n') Level
Legendre Coefficients
61-Pm-136
X10-5
6
4
2
0
-2
-4
-6
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
75
Incident Energy (MeV)
61-Pm-136

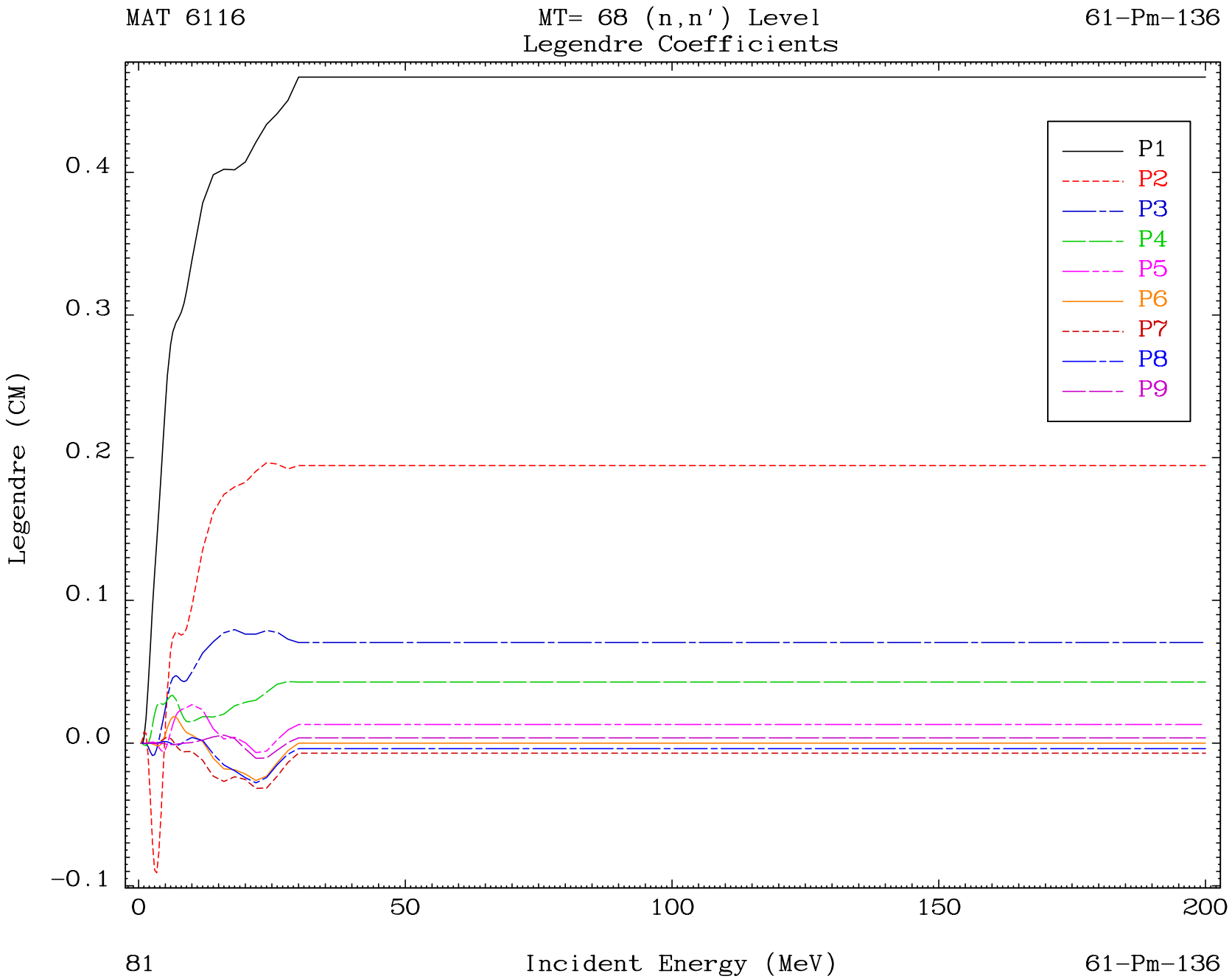

MAT 6116
MT= 66 (n,n') Level
Legendre Coefficients
61-Pm-136
0
X10-7
-2
-4
-6
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
50
100
150
200
76
Incident Energy (MeV)
61-Pm-136

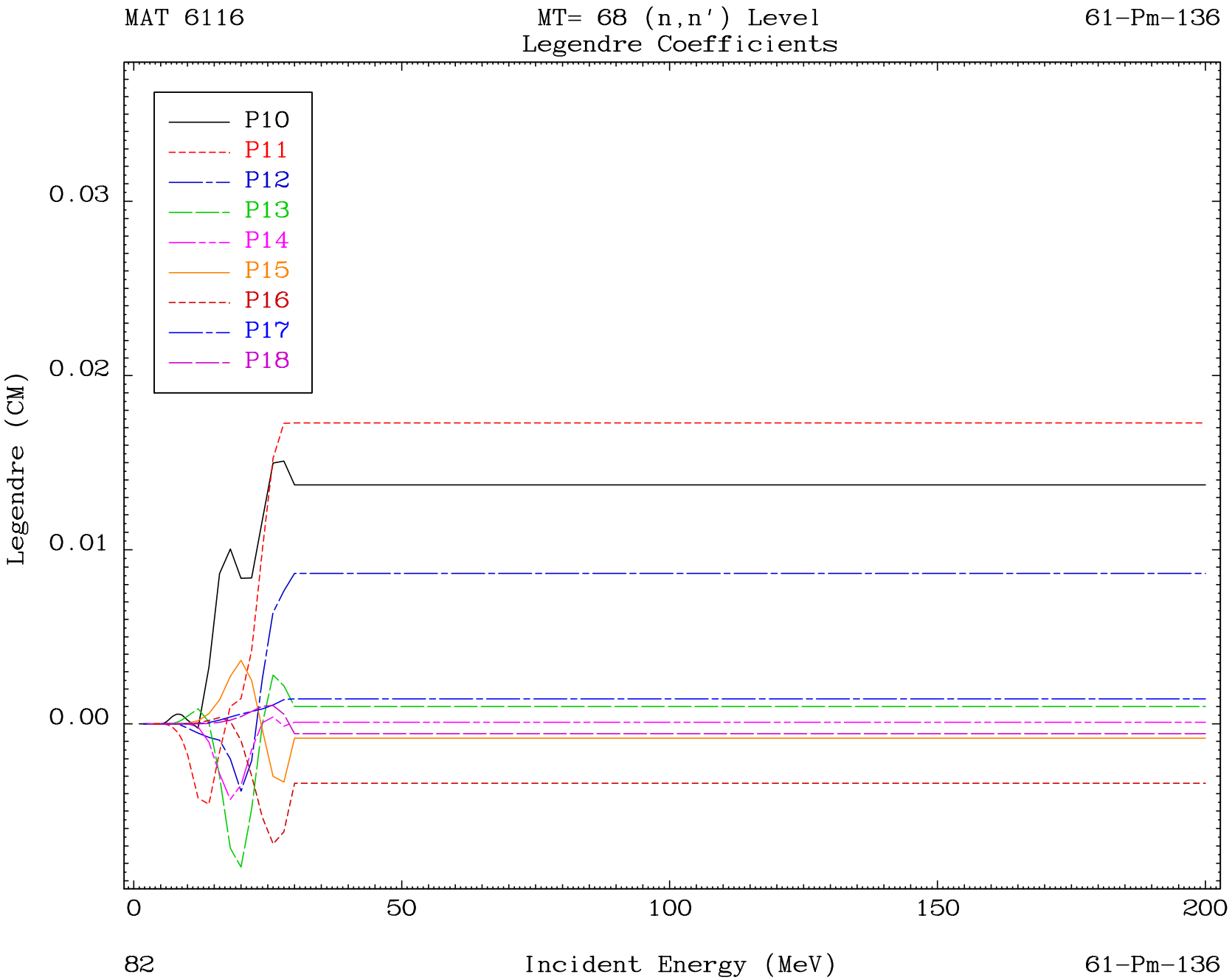

MAT 6116
MT= 67 (n,n') Level
Legendre Coefficients
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9
0.2
0.1
0.0
-0.1
Legendre (CM)
0
50
100
150
200
77
Incident Energy (MeV)
61-Pm-136

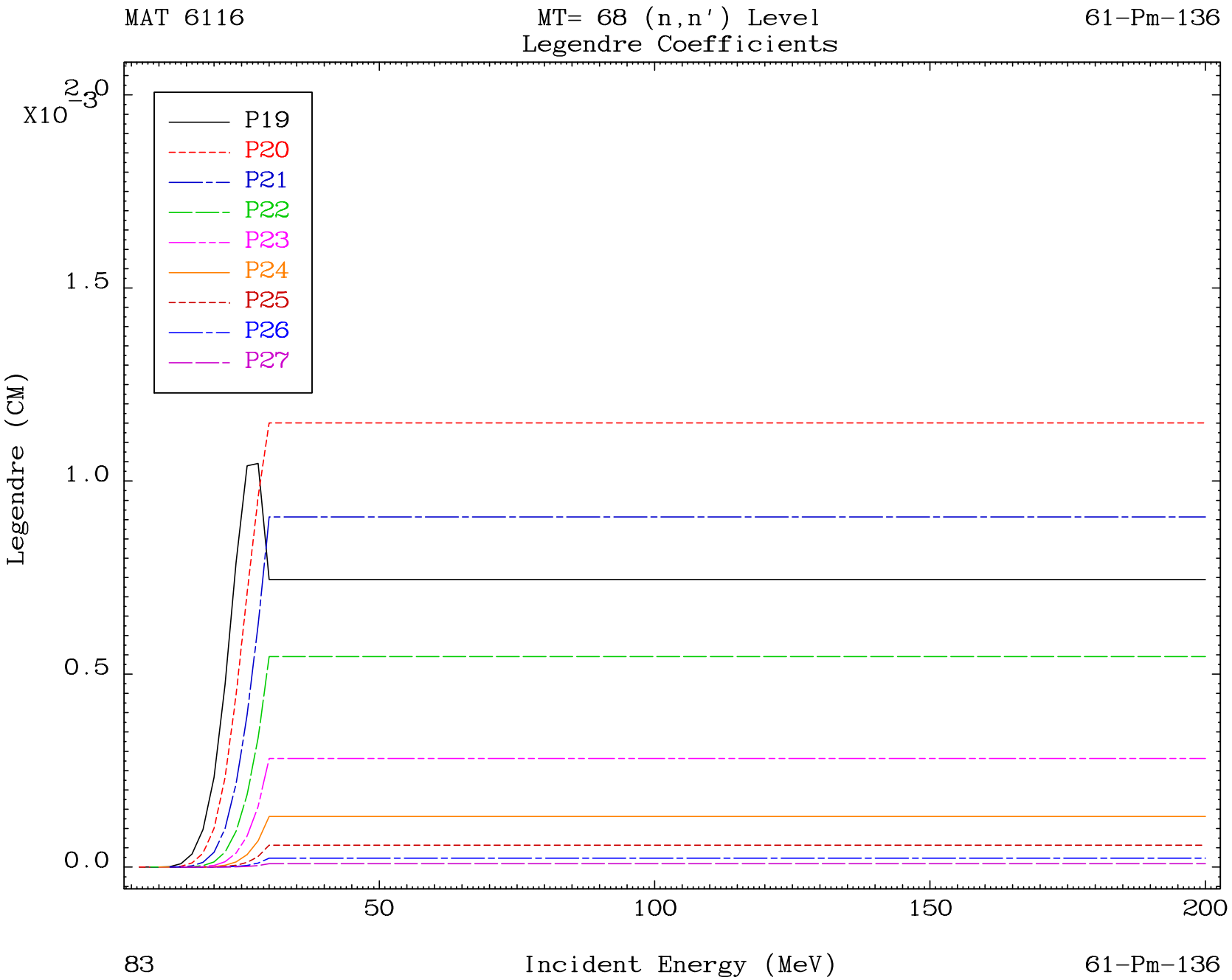

MAT 6116
MT= 67 (n,n') Level
Legendre Coefficients
61-Pm-136
0.00
-0.02
-0.04
-0.06
Legendre (CM)
0
50
100
150
200
78
Incident Energy (MeV)
61-Pm-136
P10
P11
P12
P13
P14
P15
P16
P17
P18

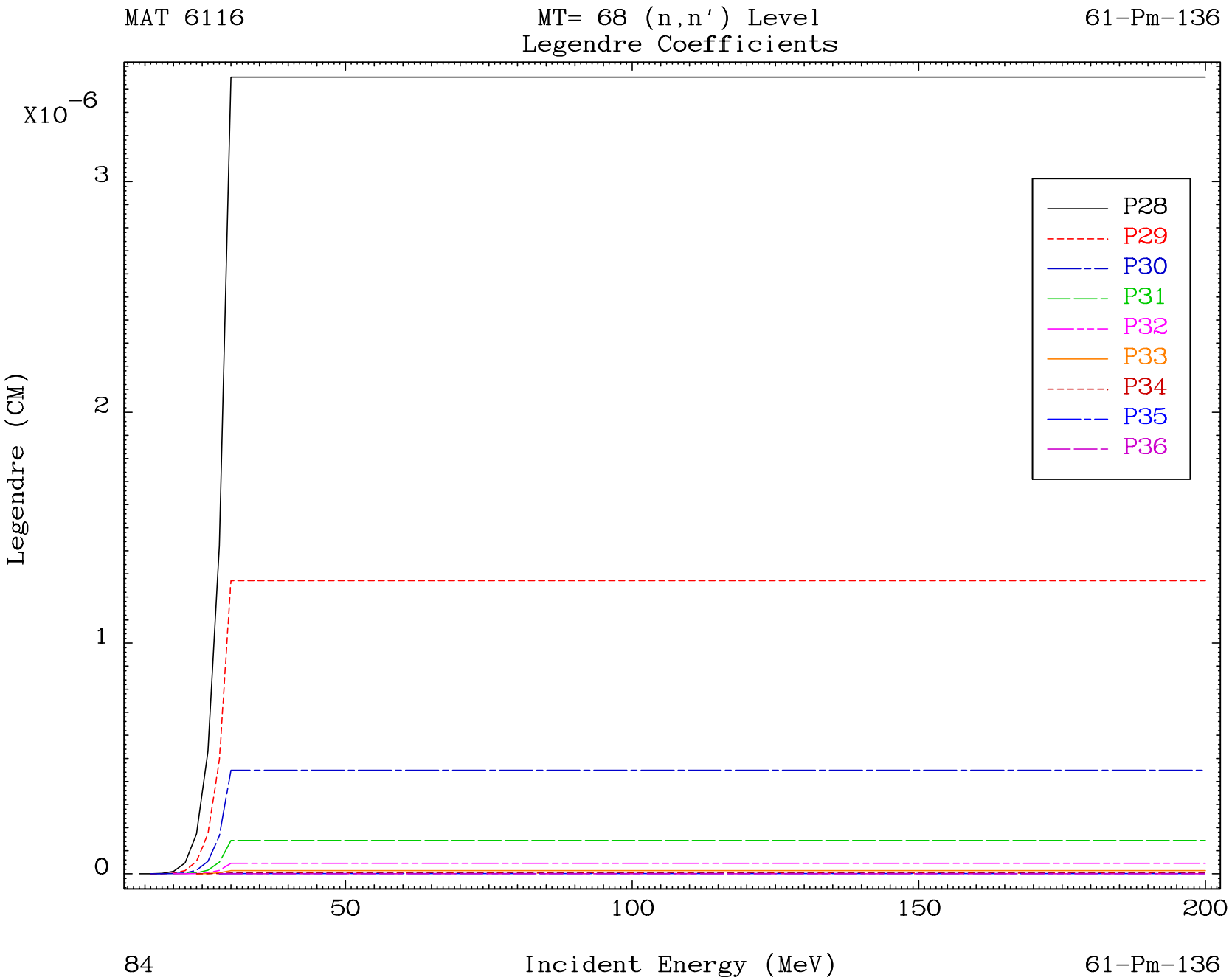

MAT 6116
MT= 67 (n,n') Level
Legendre Coefficients
61-Pm-136
0.000
-0.005
-0.010
-0.015
-0.020
Legendre (CM)
50
100
150
200
79
Incident Energy (MeV)
61-Pm-136
P19
P20
P21
P22
P23
P24
P25
P26
P27

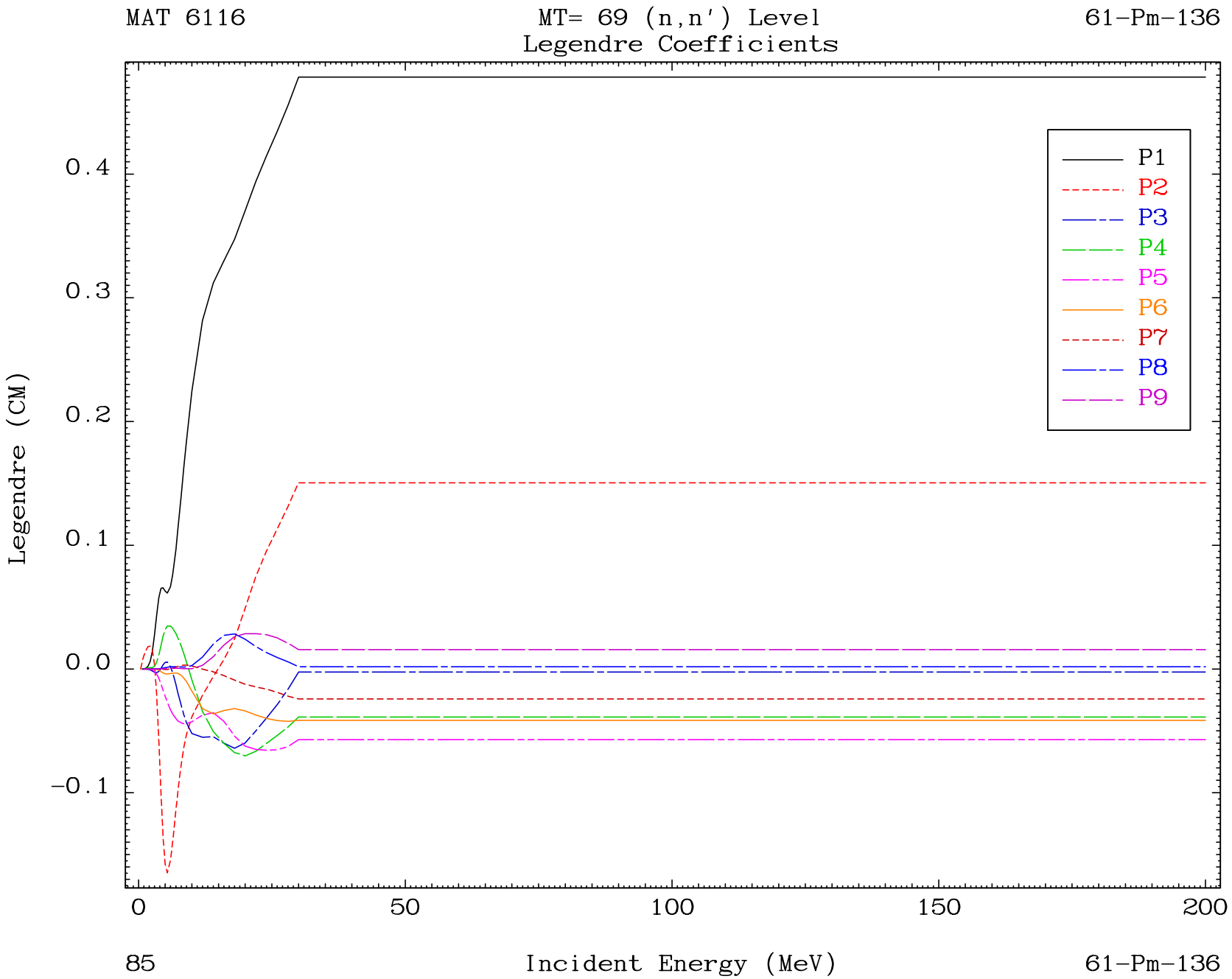

MAT 6116
MT= 67 (n,n') Level
Legendre Coefficients
61-Pm-136
0.0
X10^-5
-0.2
-0.4
-0.6
-0.8
-1.0
Legendre (CM)
50
100
150
200
80
Incident Energy (MeV)
61-Pm-136
P28
P29
P30
P31
P32
P33
P34
P35
P36

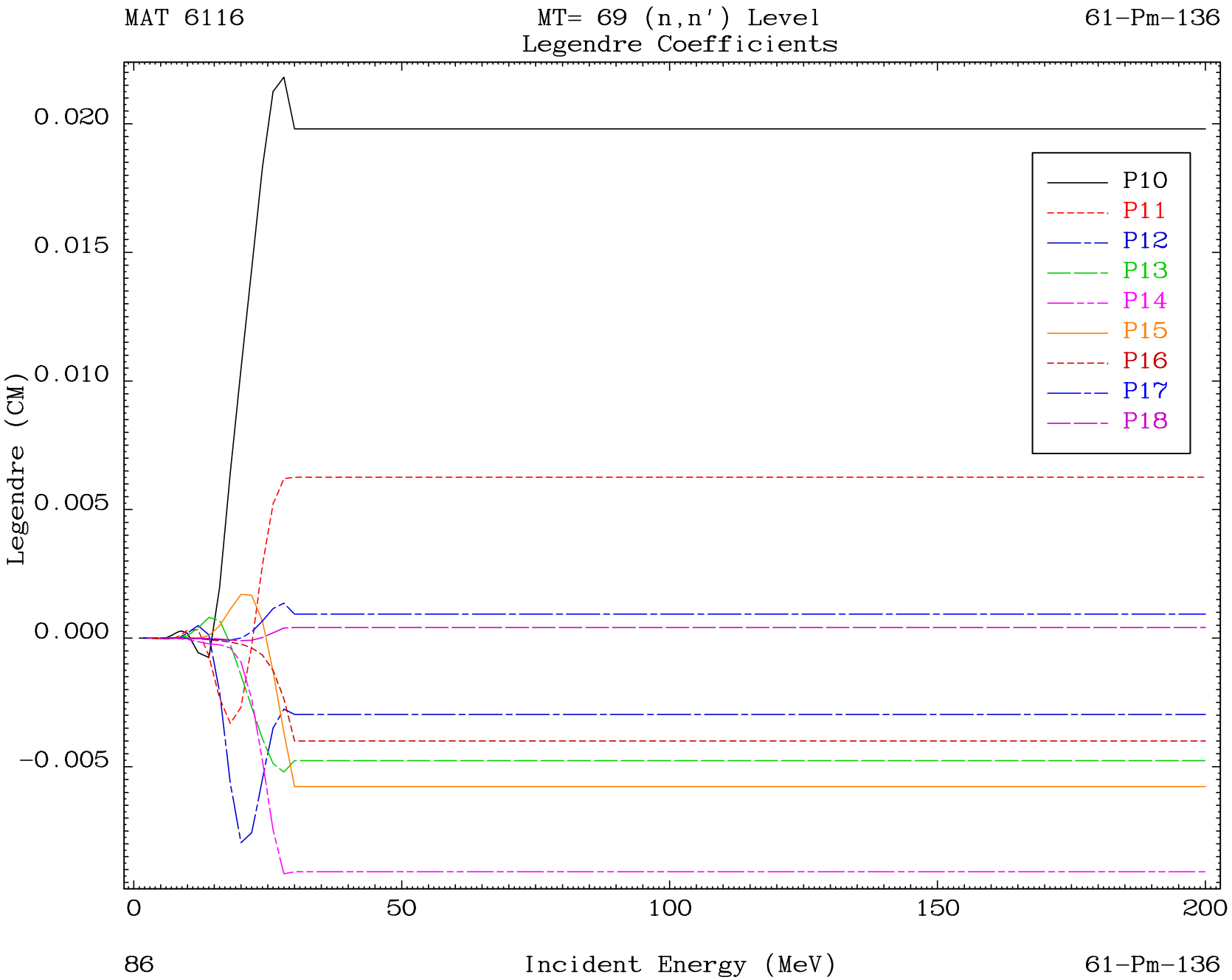

MAT 6116
MT= 68 (n,n') Level
Legendre Coefficients
61-Pm-136
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
Incident Energy (MeV)
81
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9

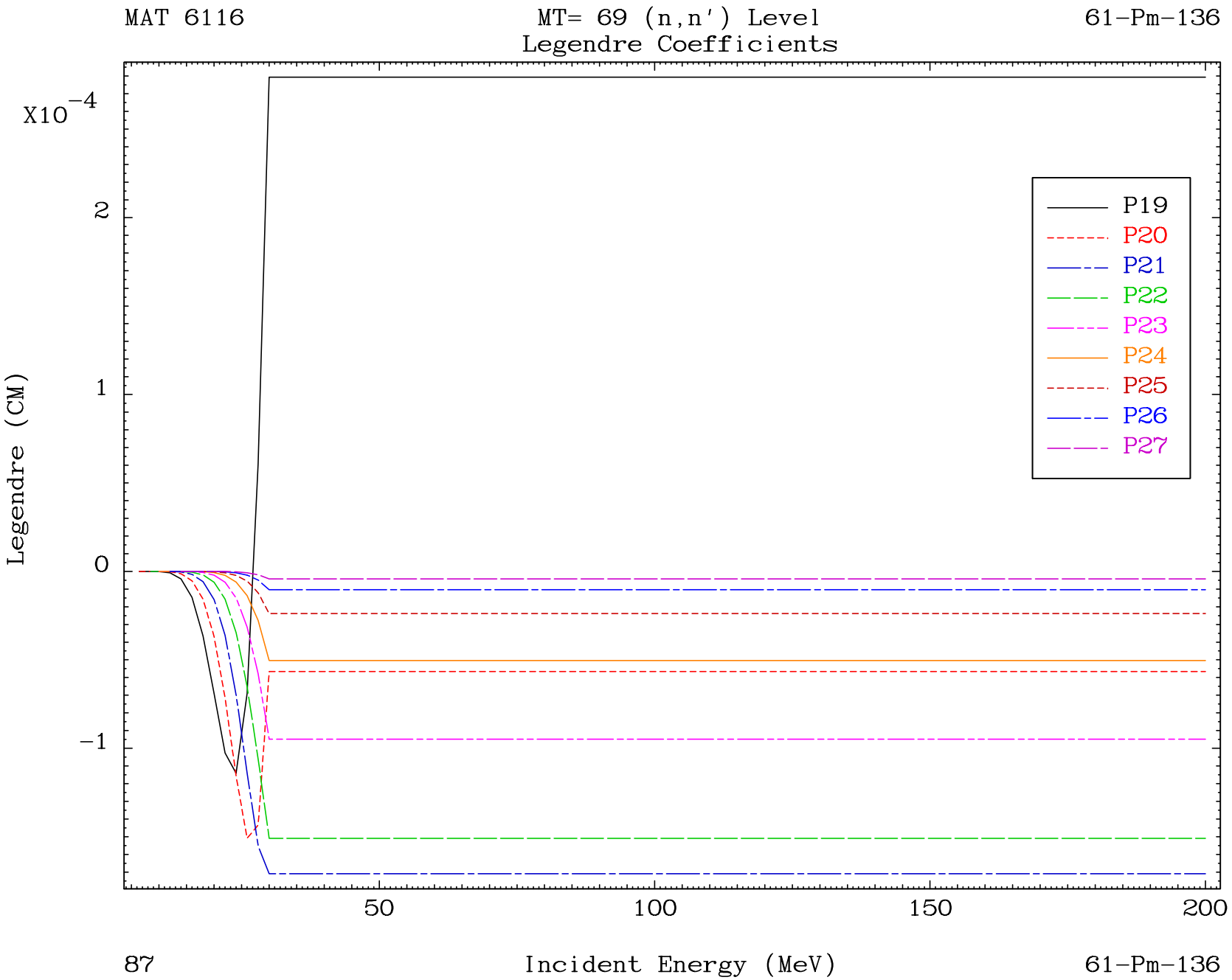

MAT 6116
MT= 68 (n,n') Level
Legendre Coefficients
61-Pm-136
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.03
0.02
0.01
0.00
Legendre (CM)
0
50
100
150
200
82
Incident Energy (MeV)
61-Pm-136

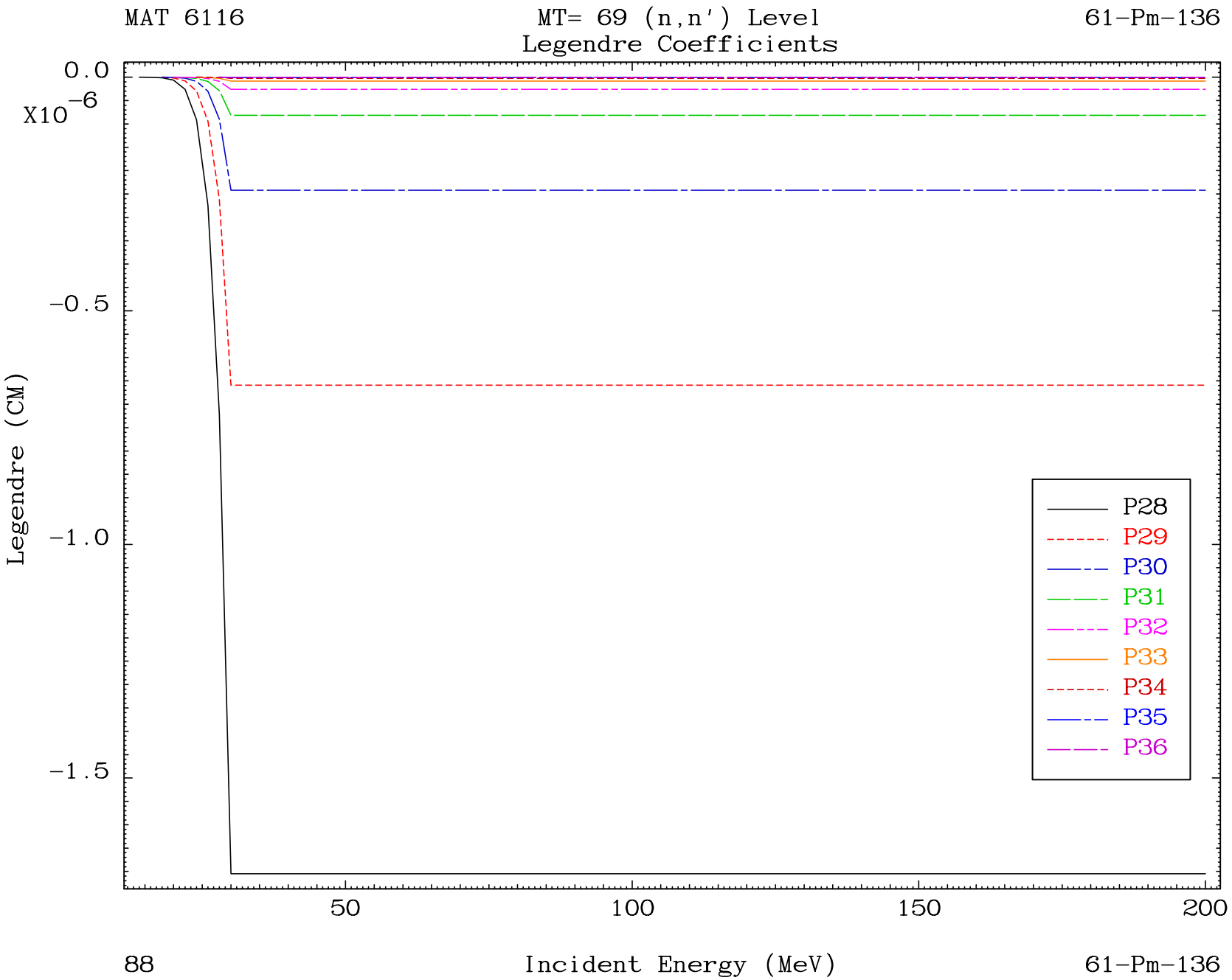

MAT 6116
MT= 68 (n,n') Level
Legendre Coefficients
61-Pm-136
X10-3
2.0
1.5
1.0
0.5
0.0
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
83
Incident Energy (MeV)
61-Pm-136

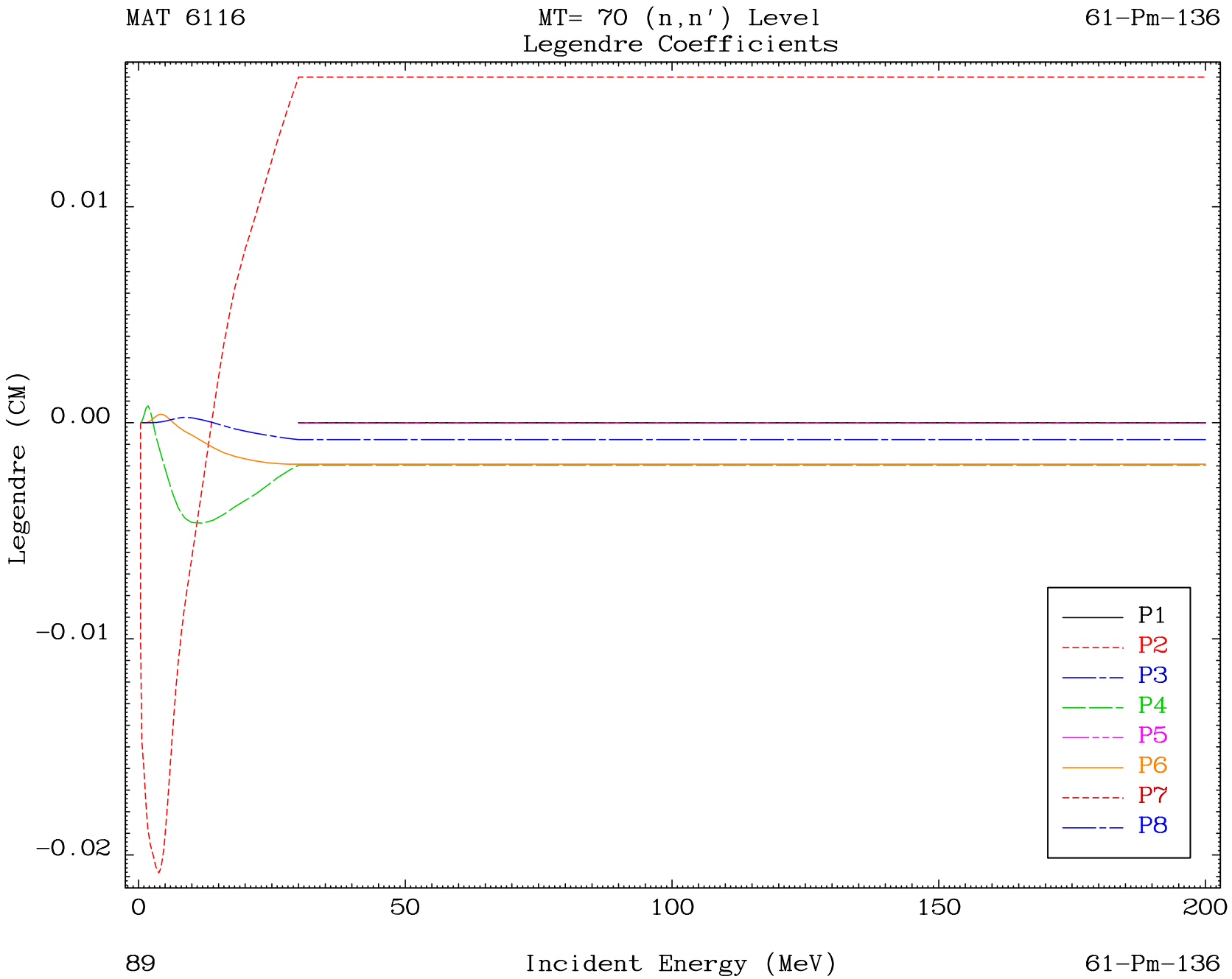

MAT 6116
MT= 68 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-6
3
2
1
0
Legendre (CM)
50
100
150
200
84
Incident Energy (MeV)
61-Pm-136
P28
P29
P30
P31
P32
P33
P34
P35
P36

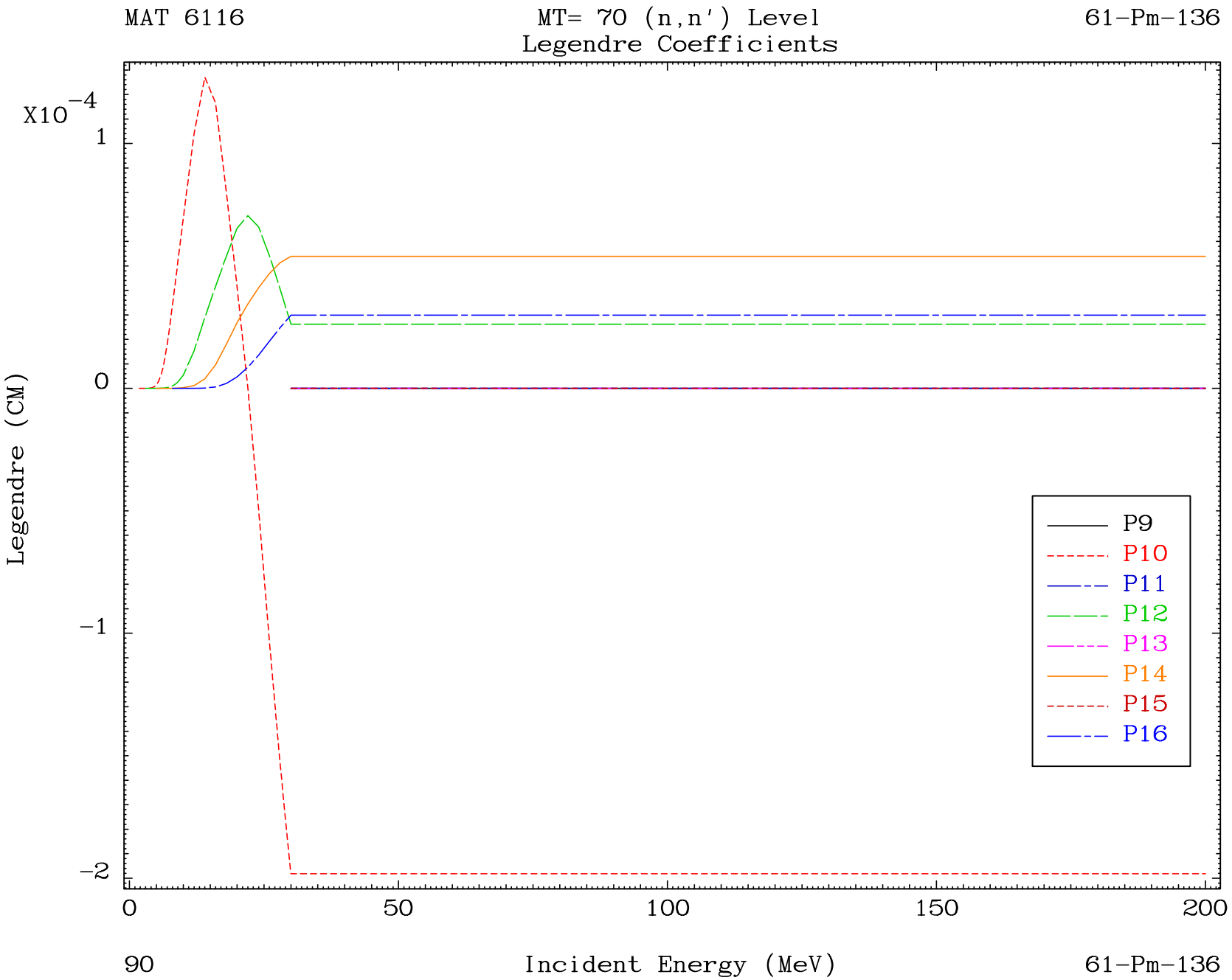

MAT 6116
MT= 69 (n,n') Level
Legendre Coefficients
61-Pm-136
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
85
Incident Energy (MeV)
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9

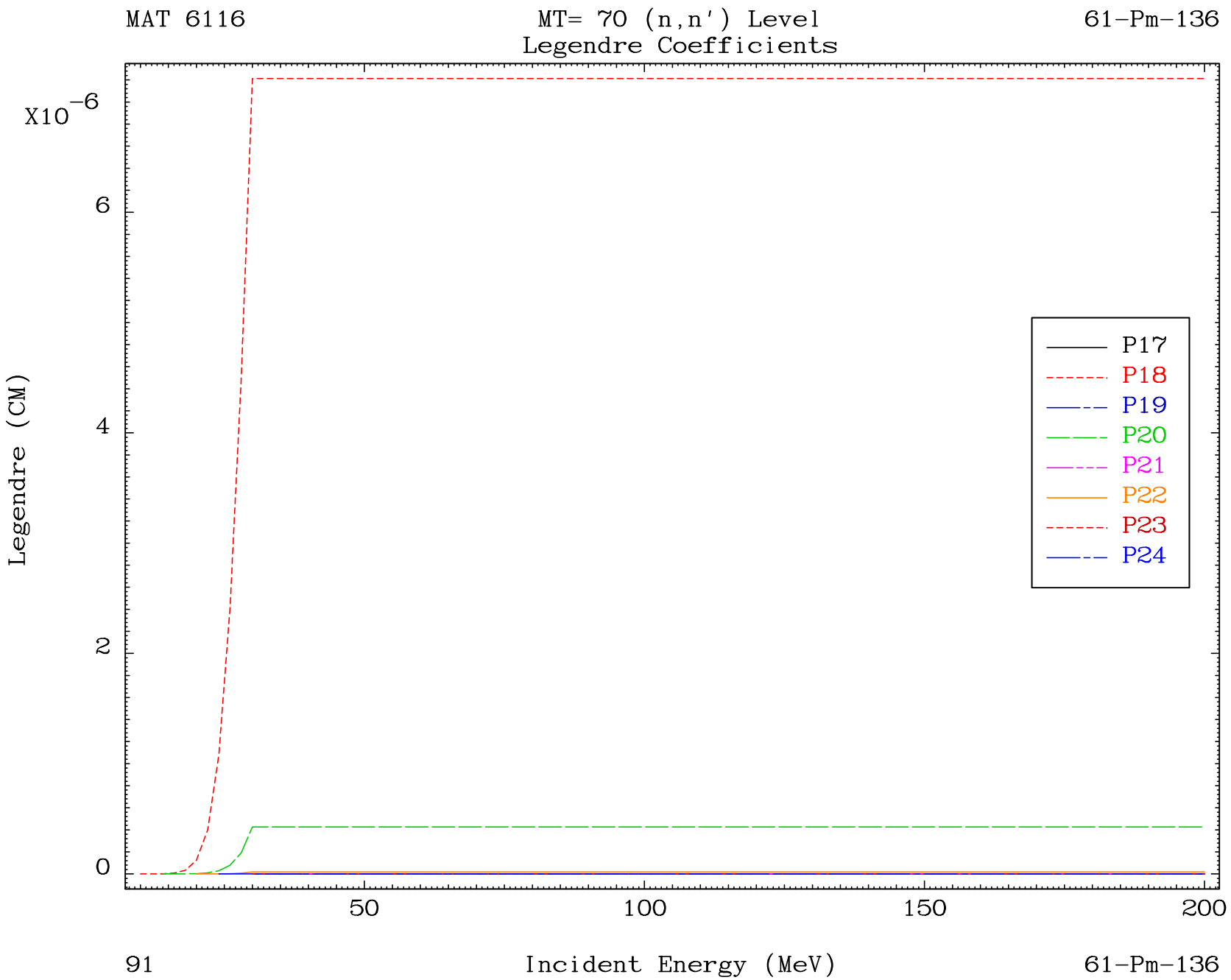

MAT 6116
MT= 69 (n,n') Level
Legendre Coefficients
61-Pm-136
0.020
0.015
0.010
0.005
0.000
-0.005
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
86
Incident Energy (MeV)
61-Pm-136

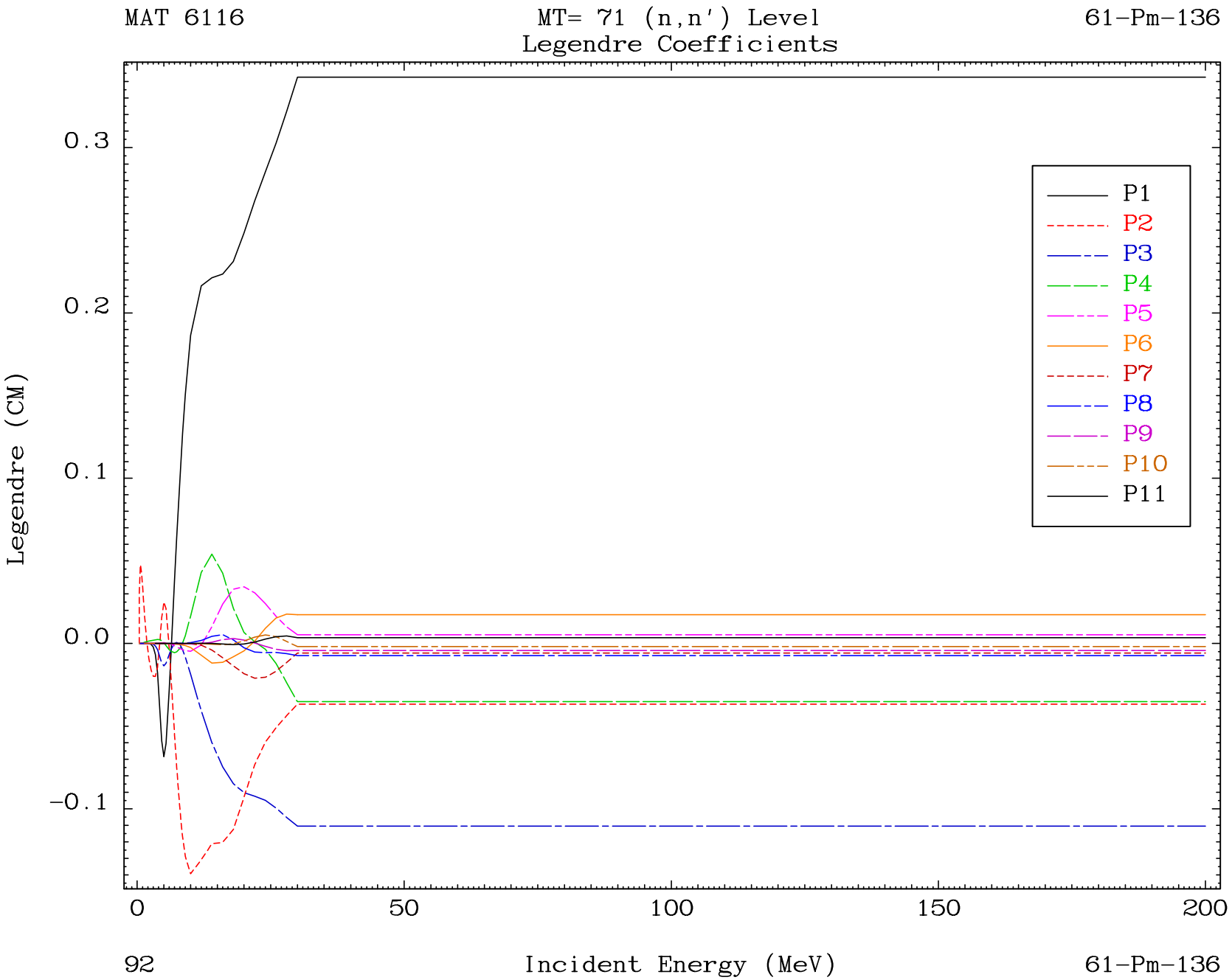

MAT 6116
MT= 69 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-4
2
1
0
-1
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
87
Incident Energy (MeV)
61-Pm-136

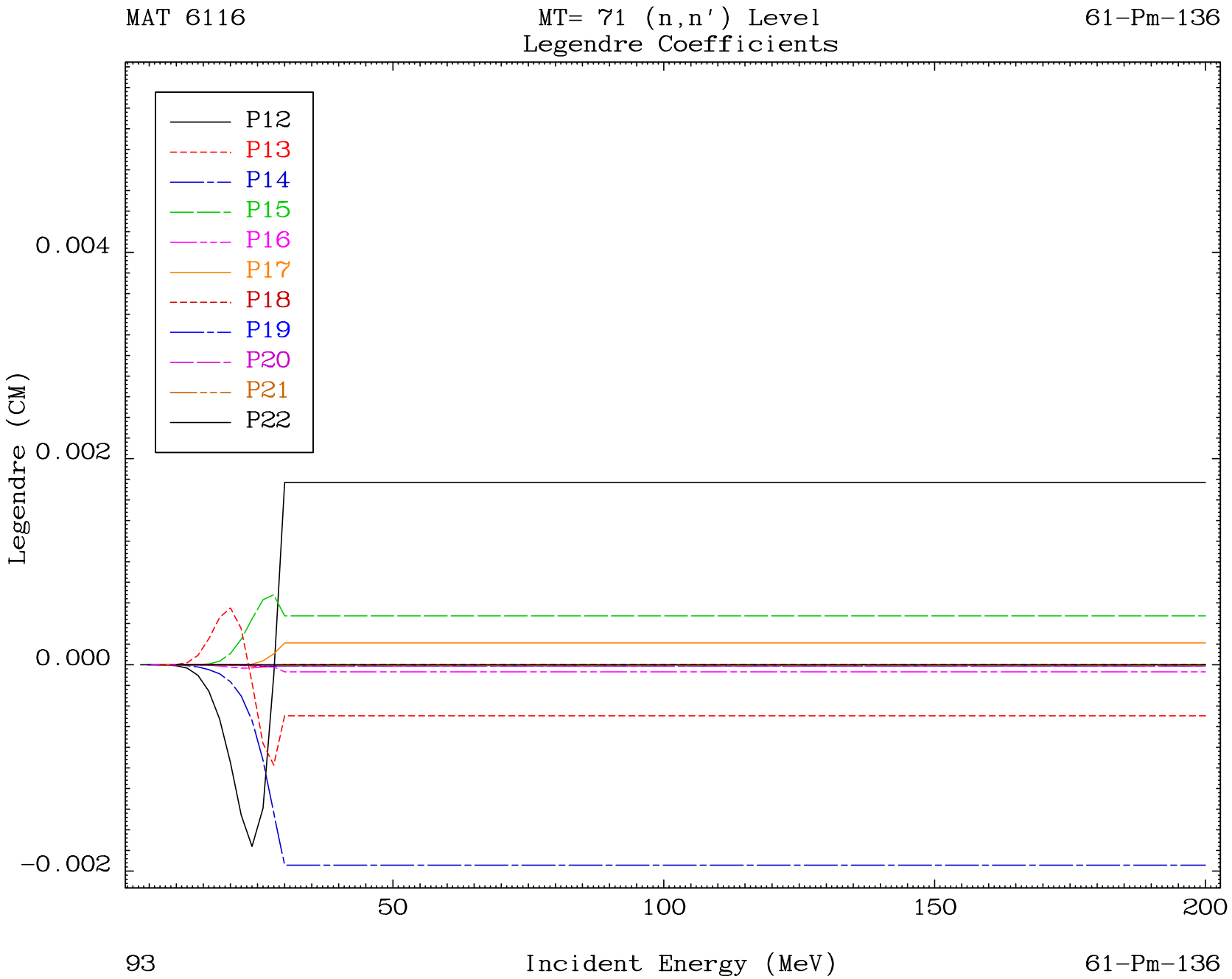

MAT 6116
MT= 69 (n,n') Level
Legendre Coefficients
61-Pm-136
0.0
X10^-6
-0.5
-1.0
-1.5
Legendre (CM)
50
100
150
200
88
Incident Energy (MeV)
61-Pm-136
P28
P29
P30
P31
P32
P33
P34
P35
P36

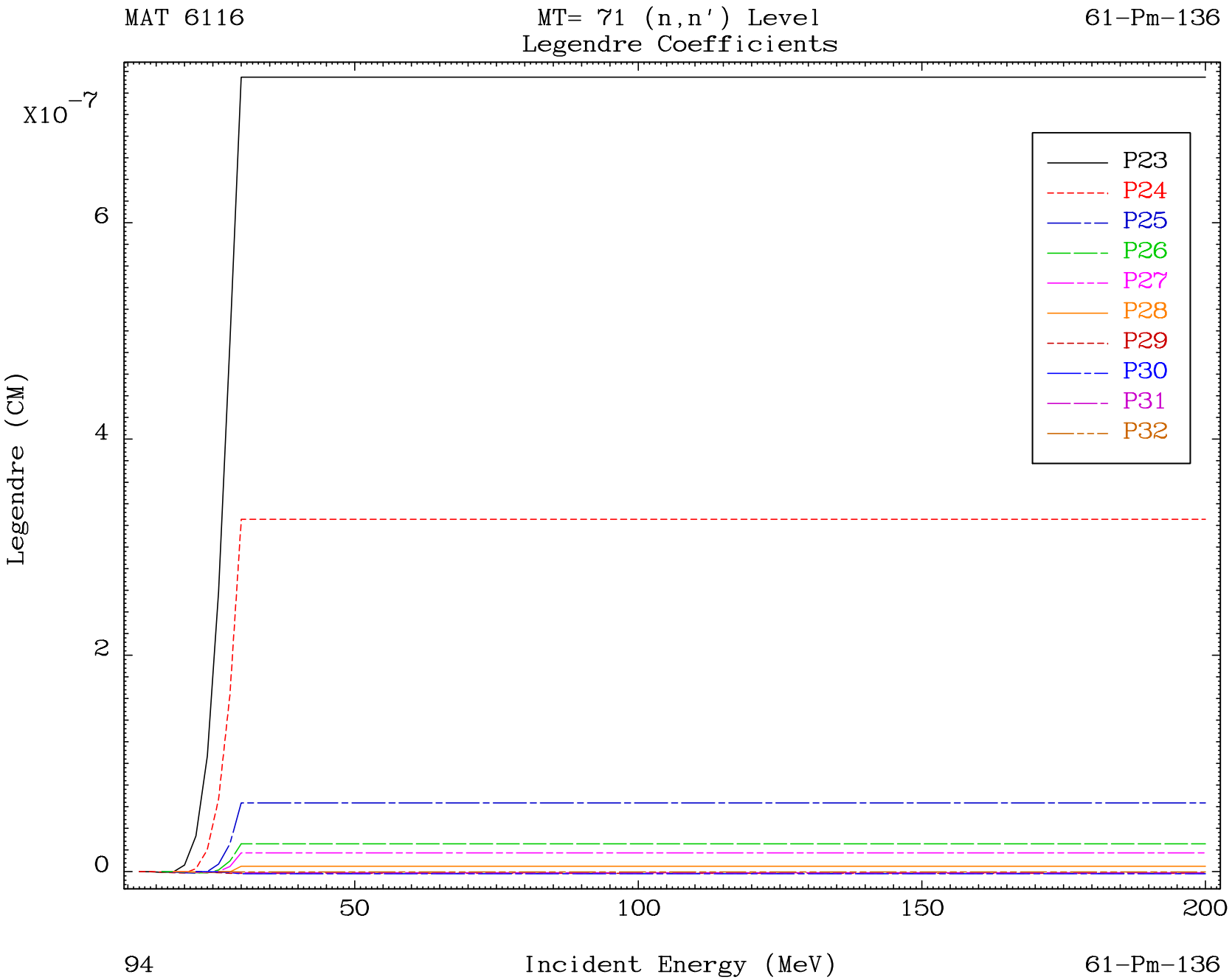

MAT 6116
MT= 70 (n,n') Level
Legendre Coefficients
61-Pm-136
0.01
0.00
-0.01
-0.02
Legendre (CM)
0
50
100
150
200
Incident Energy (MeV)
89
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8

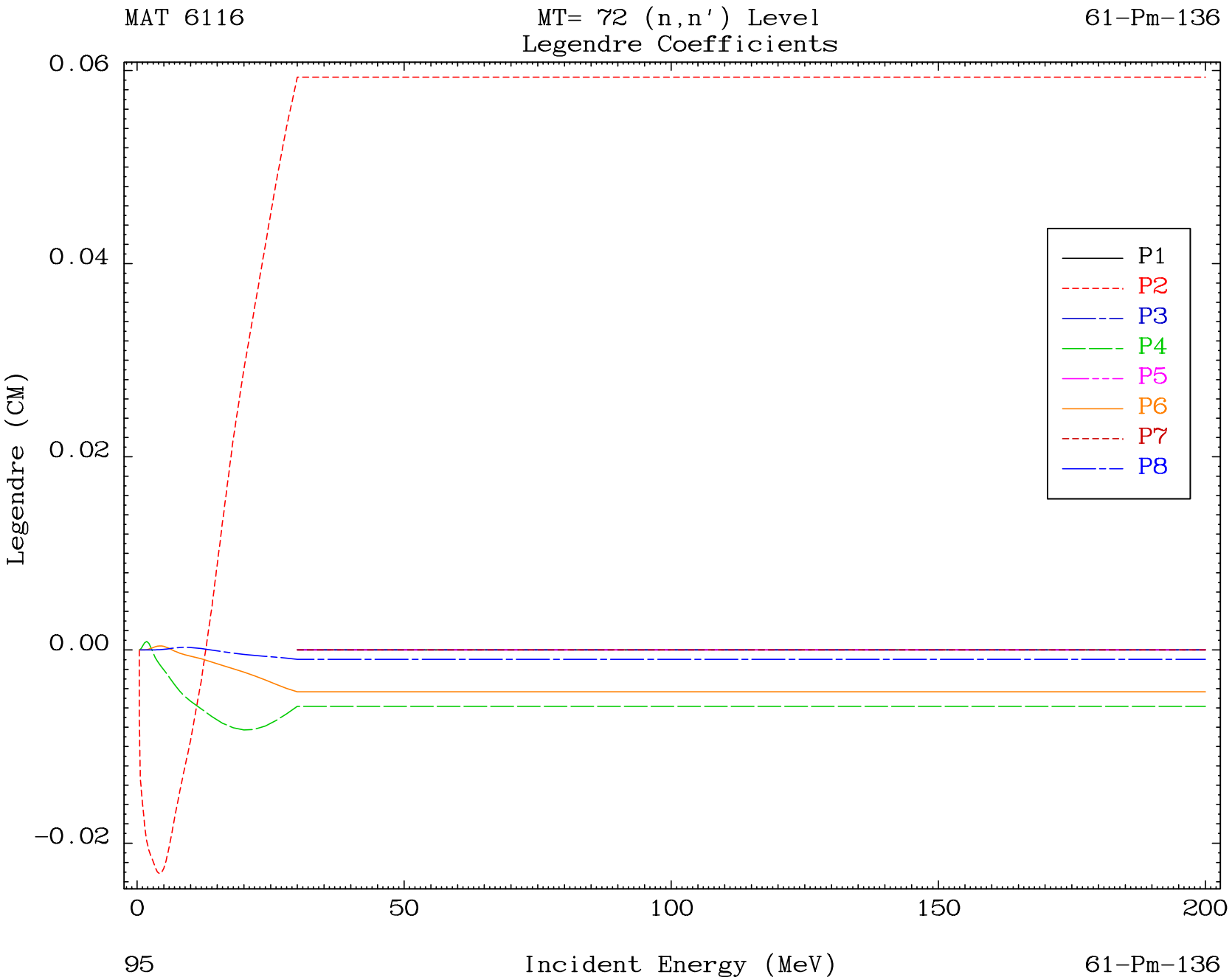

MAT 6116
MT= 70 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-4
1
0
-1
-2
Legendre (CM)
0
50
100
150
200
90
Incident Energy (MeV)
61-Pm-136
P9
P10
P11
P12
P13
P14
P15
P16

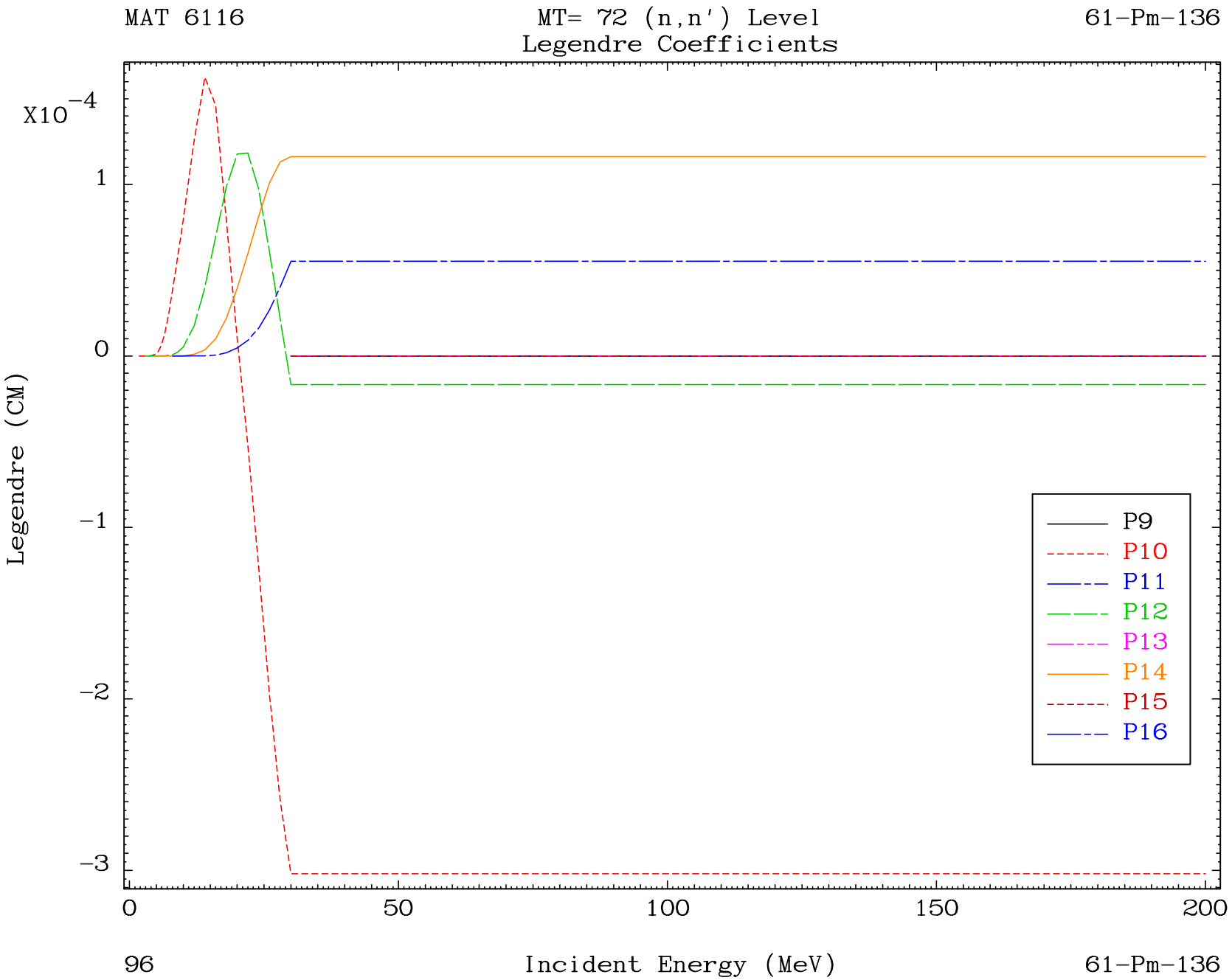

MAT 6116
MT= 70 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-6
6
4
2
0
Legendre (CM)
50
100
150
200
P17
P18
P19
P20
P21
P22
P23
P24
91
Incident Energy (MeV)
61-Pm-136

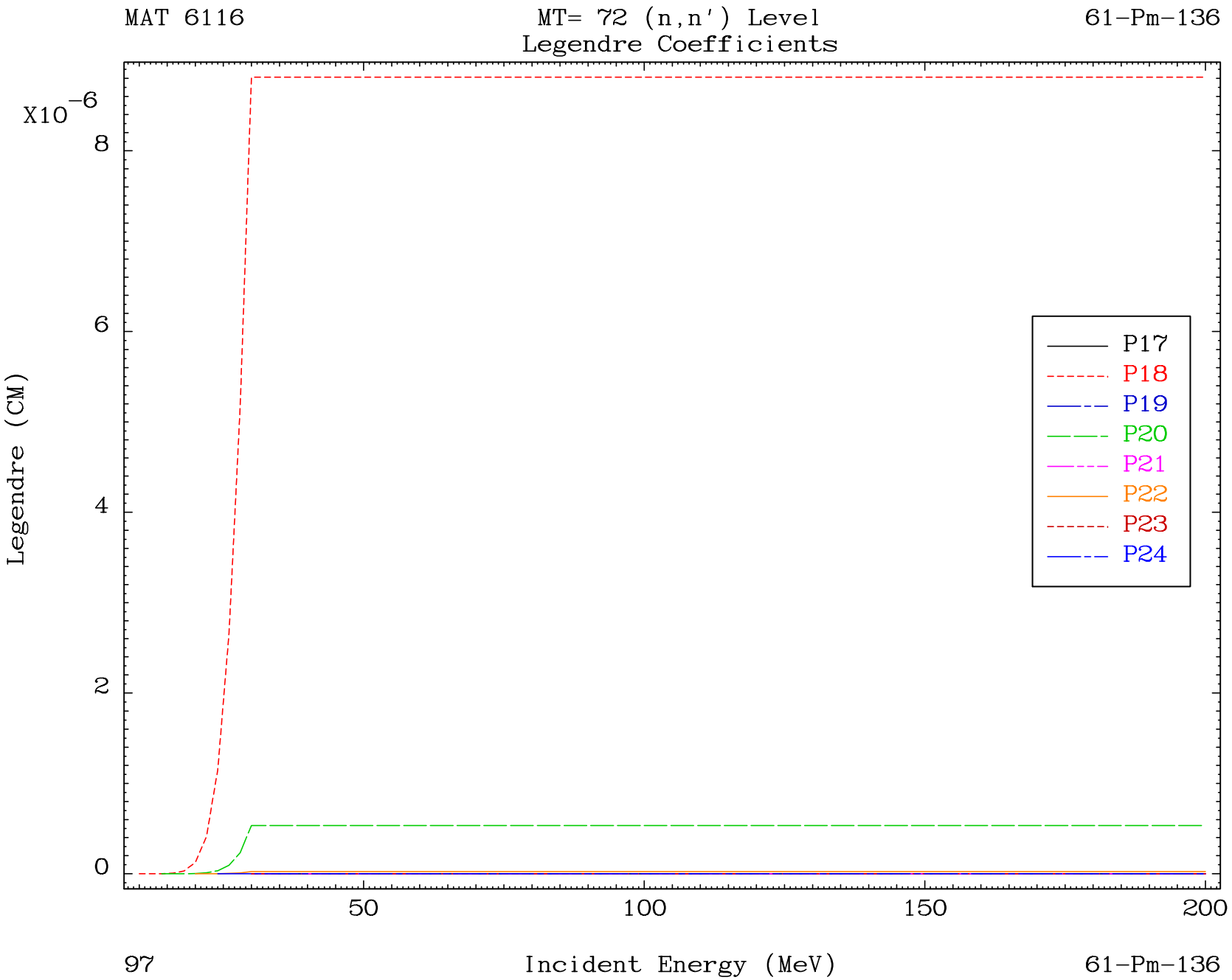

MAT 6116
MT= 71 (n,n') Level
Legendre Coefficients
61-Pm-136
Legendre (CM)
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
92
Incident Energy (MeV)
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
P11

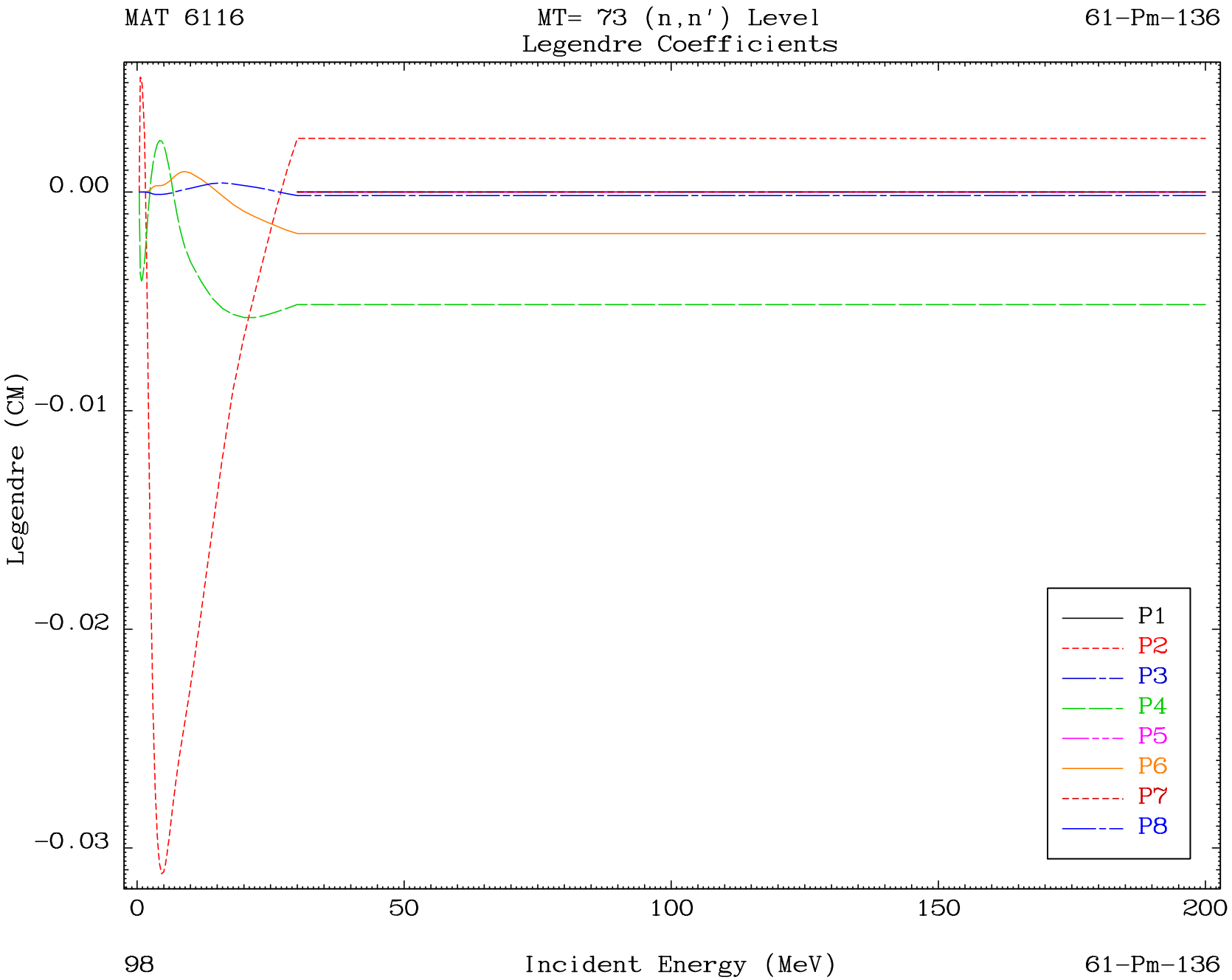

MAT 6116
MT= 71 (n,n') Level
Legendre Coefficients
61-Pm-136
P12
P13
P14
P15
P16
P17
P18
P19
P20
P21
P22
0.004
0.002
0.000
-0.002
Legendre (CM)
50
100
150
200
93
Incident Energy (MeV)
61-Pm-136

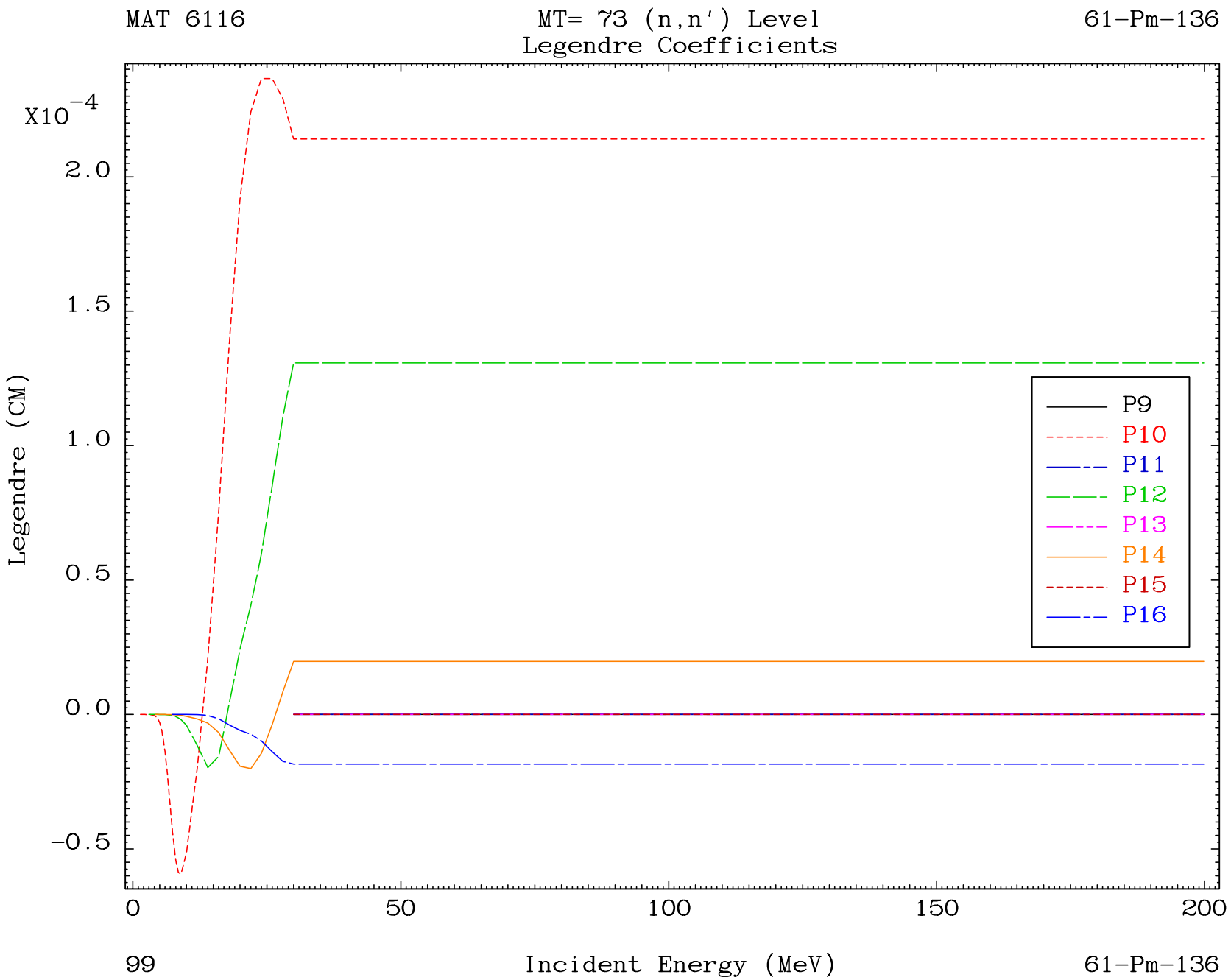

MAT 6116
MT= 71 (n,n') Level
Legendre Coefficients
61-Pm-136
X10-7
6
4
2
0
Legendre (CM)
P23
P24
P25
P26
P27
P28
P29
P30
P31
P32
50
100
150
200
94
Incident Energy (MeV)
61-Pm-136

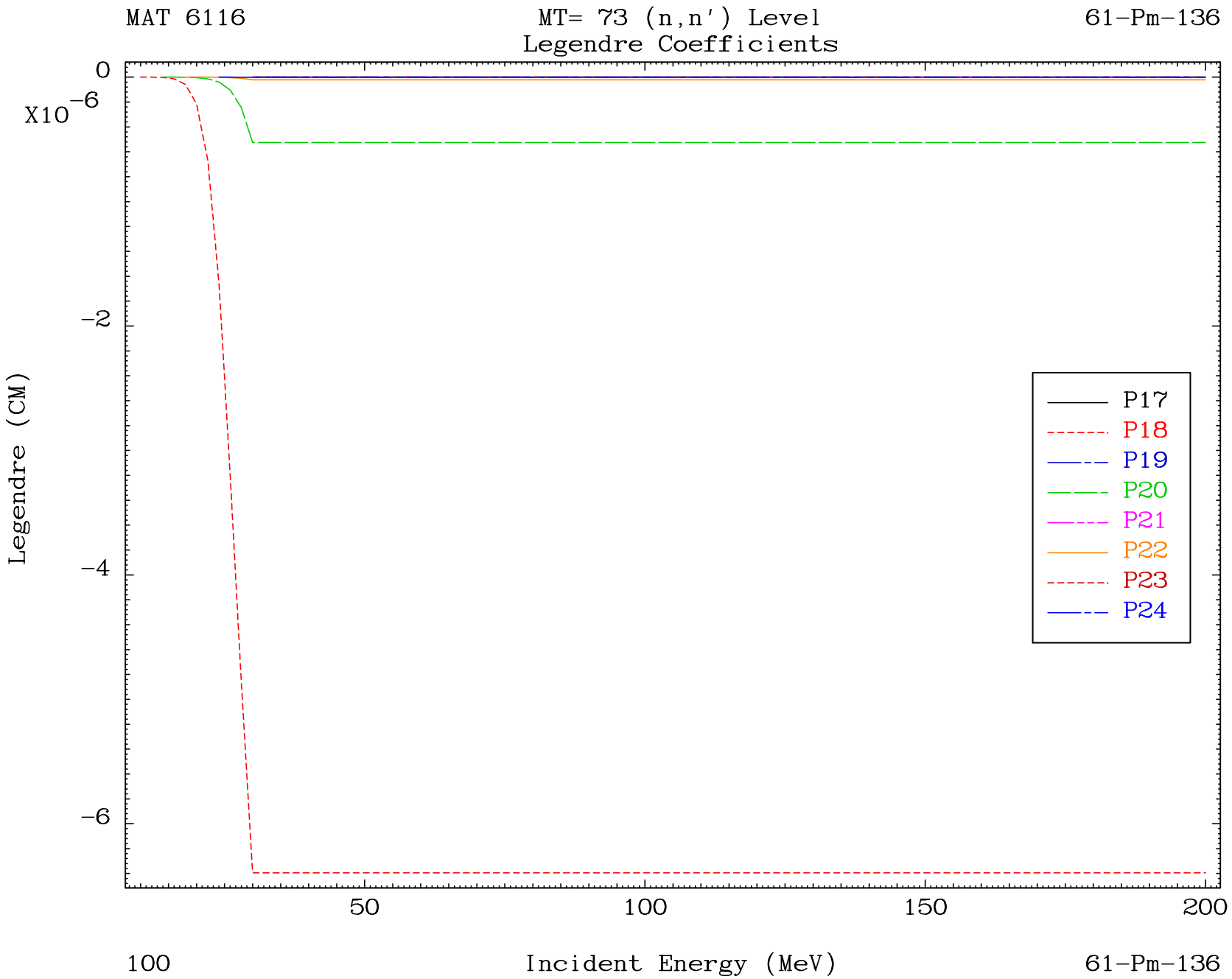

MAT 6116
MT= 72 (n,n') Level
Legendre Coefficients
61-Pm-136
0.06
0.04
0.02
0.00
-0.02
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
0
50
100
150
200
95
Incident Energy (MeV)
61-Pm-136

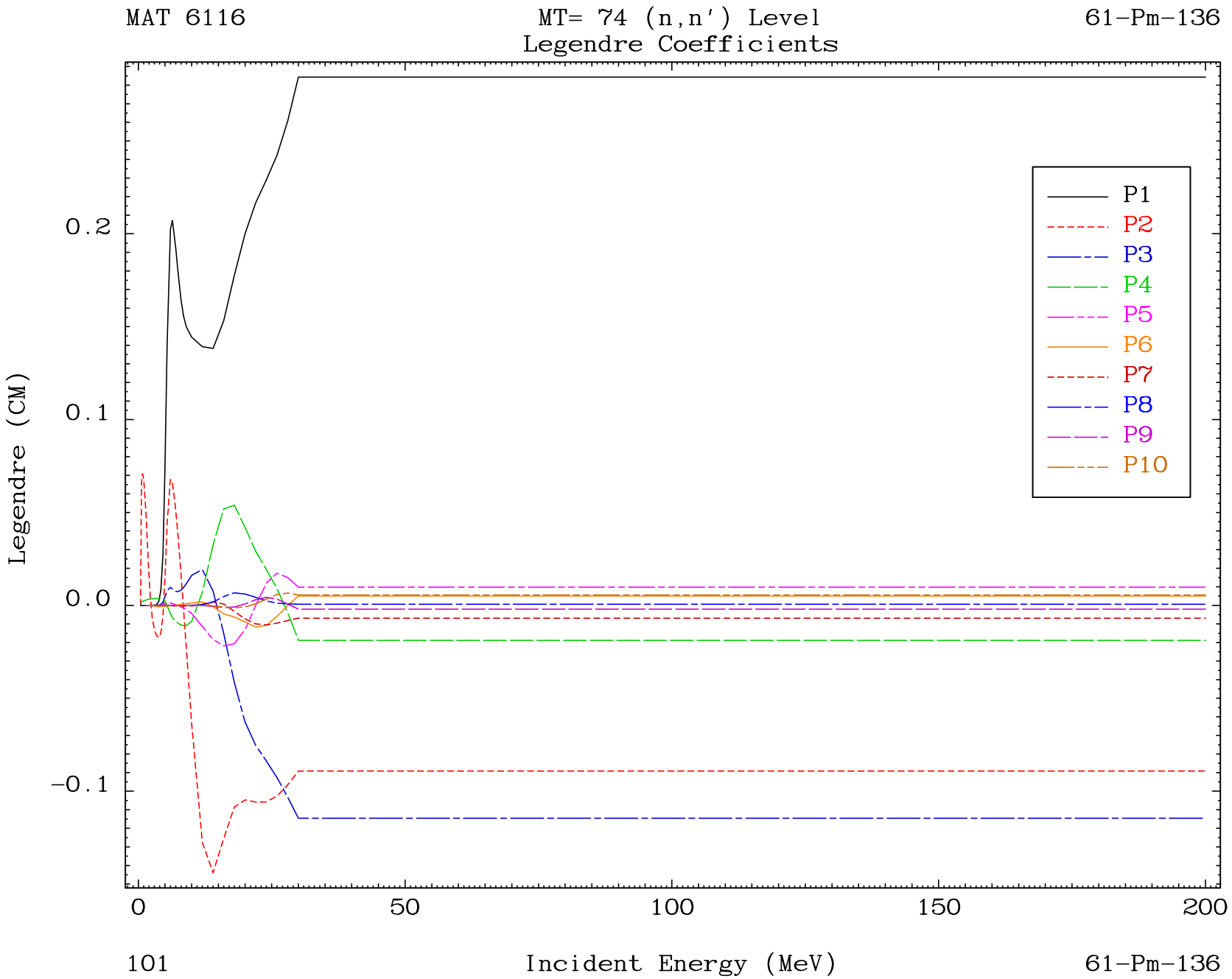

MAT 6116
MT= 72 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-4
1
0
-1
-2
-3
Legendre (CM)
0
50
100
150
200
96
Incident Energy (MeV)
61-Pm-136
P9
P10
P11
P12
P13
P14
P15
P16

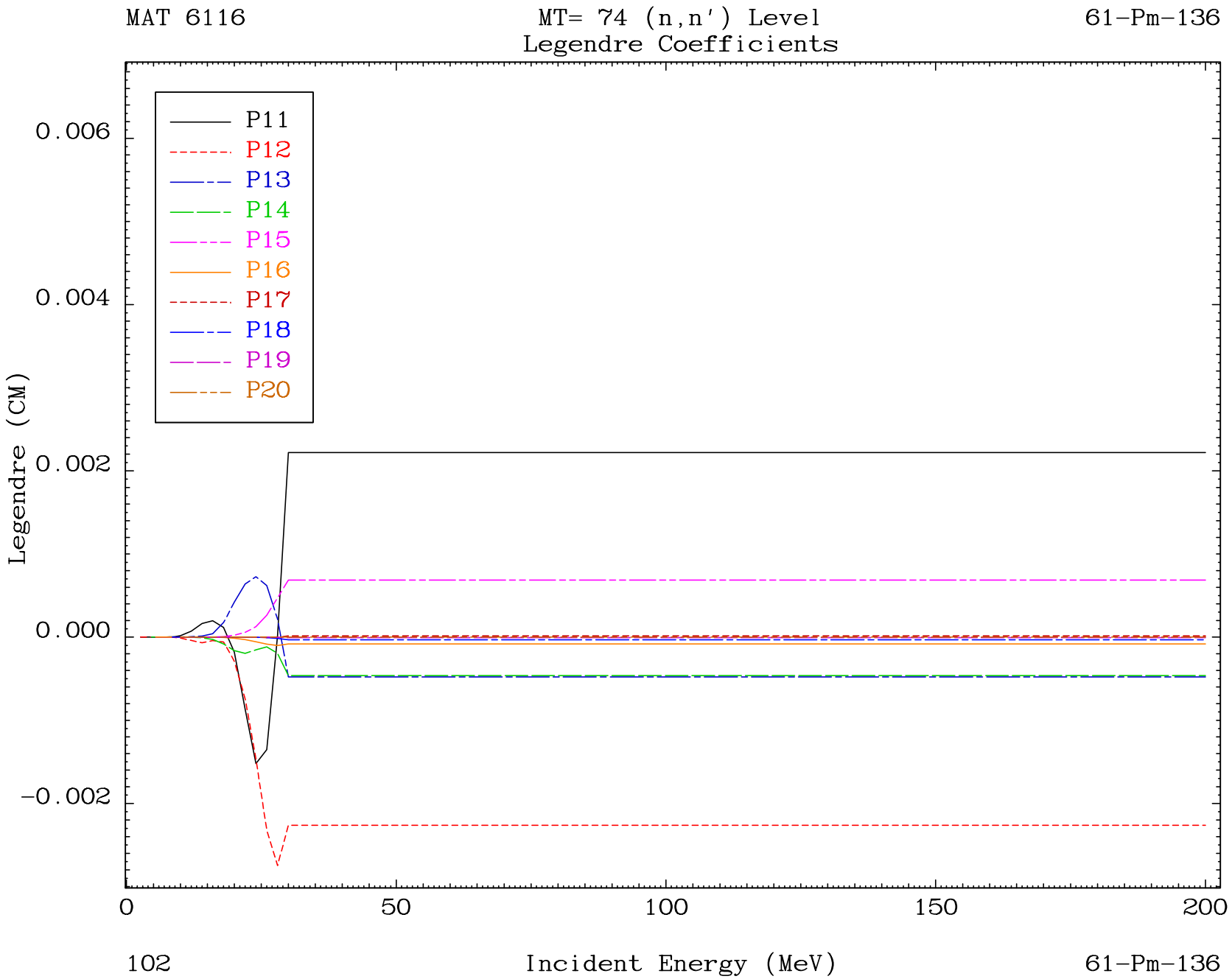

MAT 6116
MT= 72 (n,n') Level
Legendre Coefficients
61-Pm-136
X10 −6
8
6
4
2
0
Legendre (CM)
50
100
150
200
97
Incident Energy (MeV)
61-Pm-136
P17
P18
P19
P20
P21
P22
P23
P24

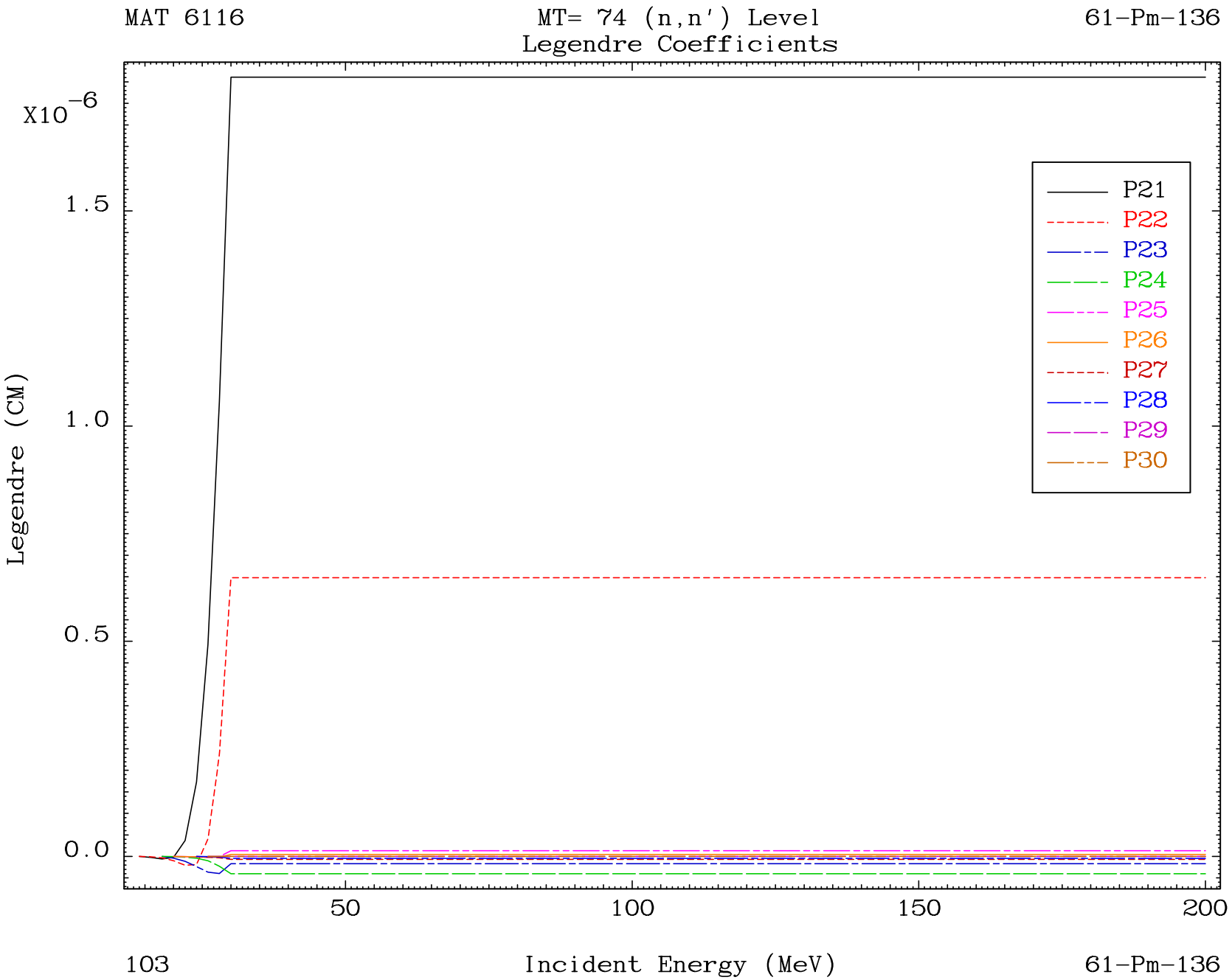

MAT 6116
MT= 73 (n,n') Level
Legendre Coefficients
61-Pm-136
0.00
-0.01
-0.02
-0.03
Legendre (CM)
0
50
100
150
200
98
Incident Energy (MeV)
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8

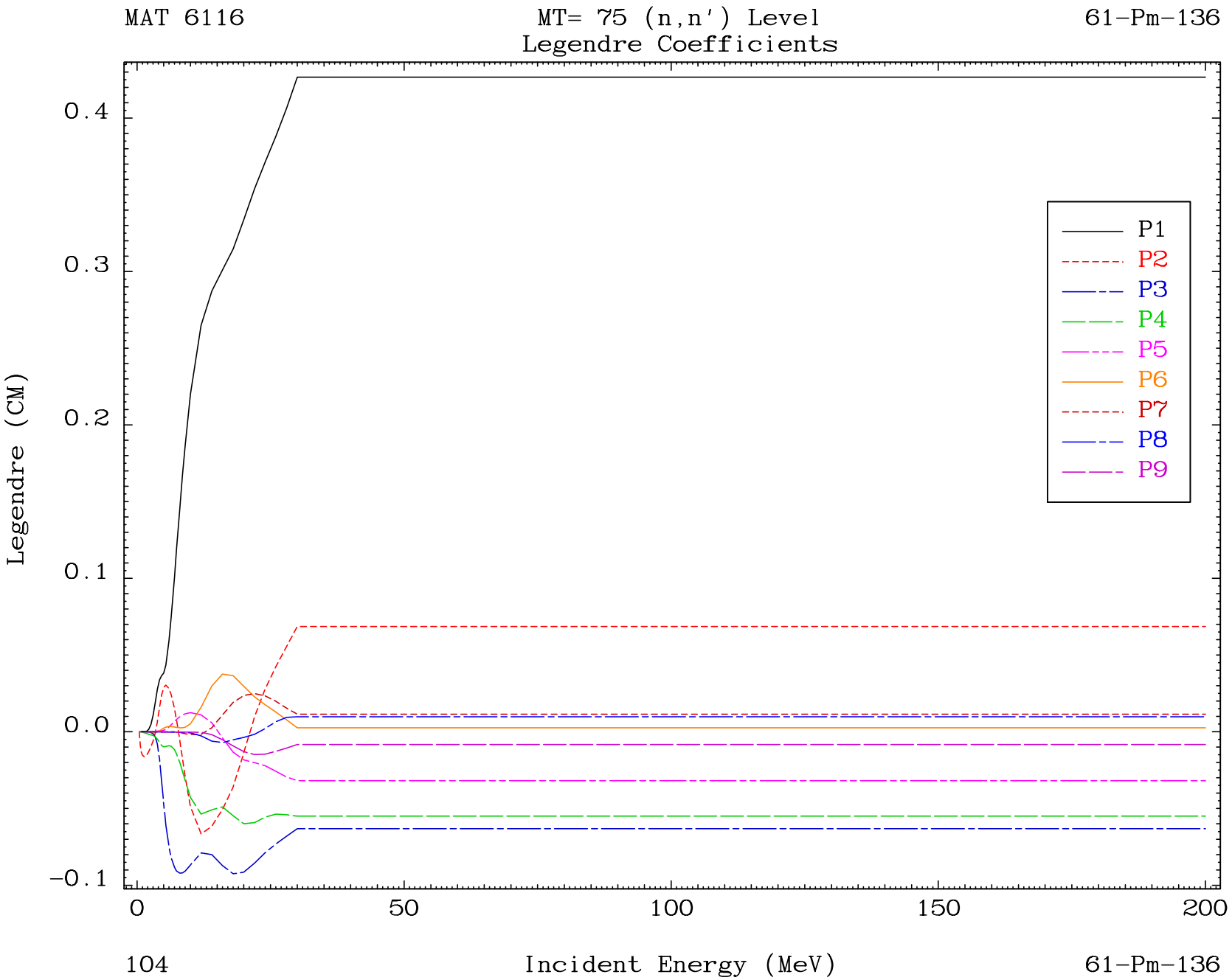

MAT 6116
MT= 73 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-4
2.0
1.5
1.0
0.5
0.0
-0.5
Legendre (CM)
P9
P10
P11
P12
P13
P14
P15
P16
0
50
100
150
200
99
Incident Energy (MeV)
61-Pm-136

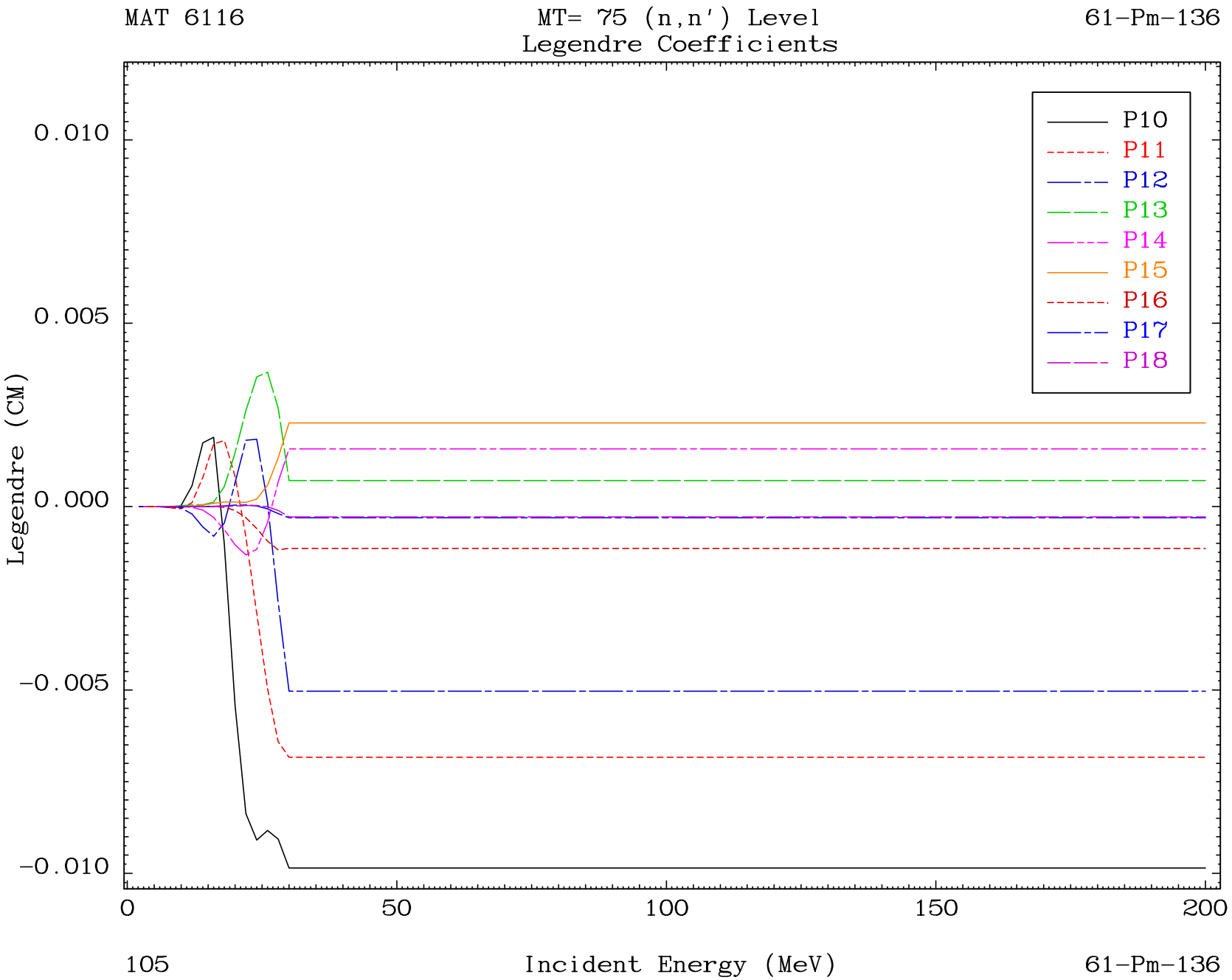

MAT 6116
MT= 73 (n,n') Level
Legendre Coefficients
61-Pm-136
0
X10^-6
-2
-4
-6
Legendre (CM)
P17
P18
P19
P20
P21
P22
P23
P24
50
100
150
200
100
Incident Energy (MeV)
61-Pm-136

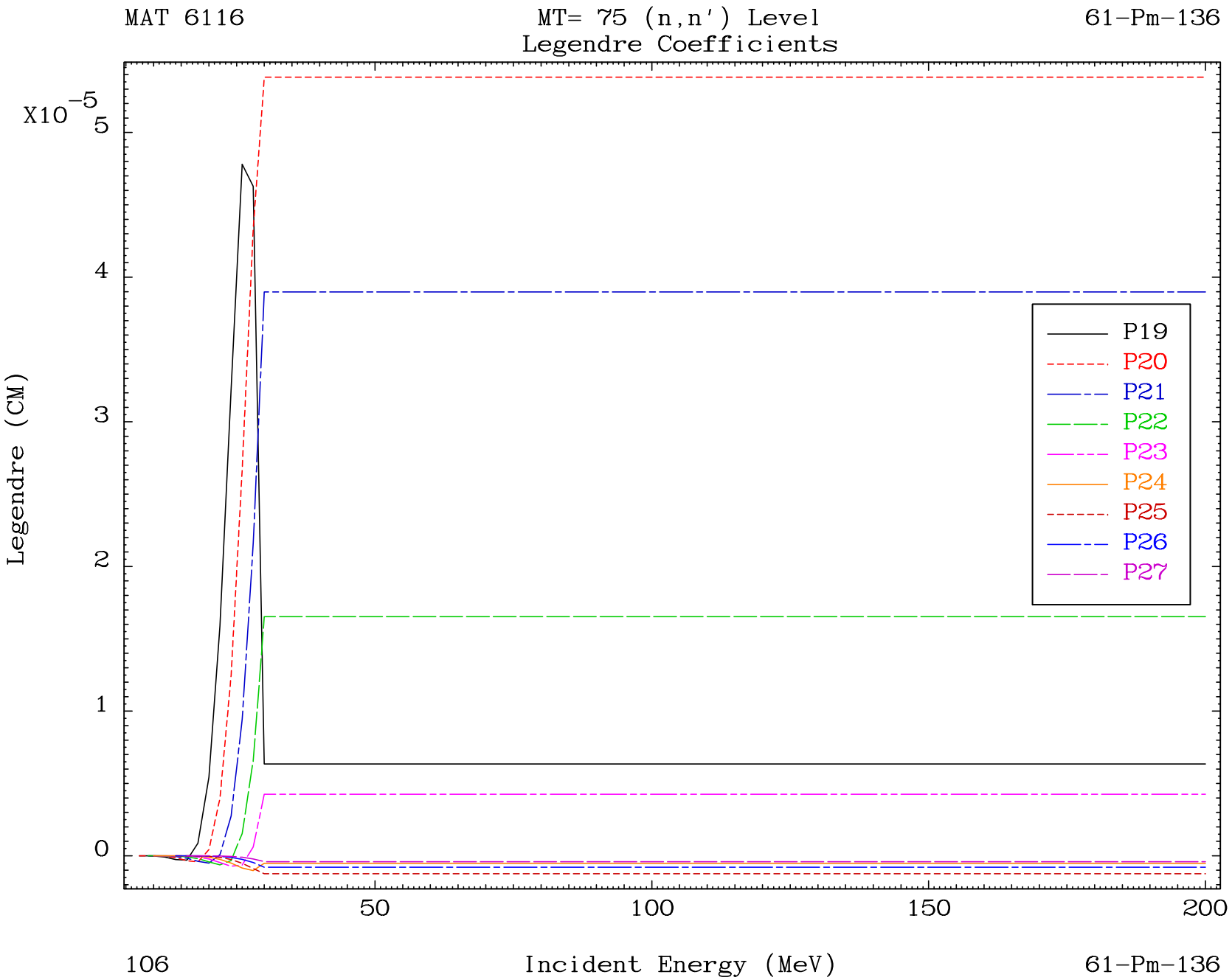

MAT 6116
MT= 74 (n,n') Level
Legendre Coefficients
61-Pm-136
Legendre (CM)
0.2
0.1
0.0
-0.1
0
50
100
150
200
101
Incident Energy (MeV)
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10

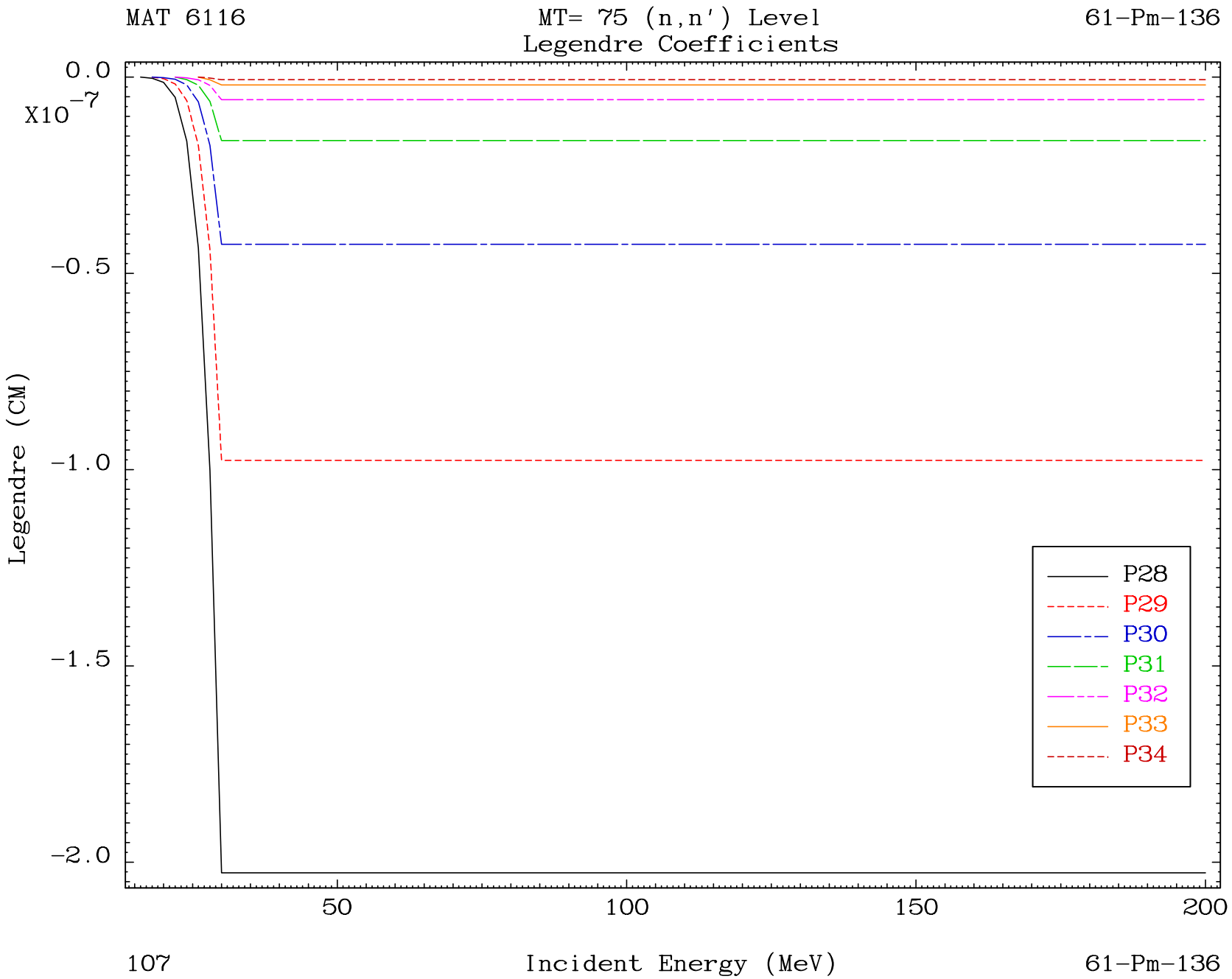

MAT 6116
MT= 74 (n,n') Level
Legendre Coefficients
61-Pm-136
P11
P12
P13
P14
P15
P16
P17
P18
P19
P20
0.006
0.004
0.002
0.000
-0.002
Legendre (CM)
0
50
100
150
200
102
Incident Energy (MeV)
61-Pm-136

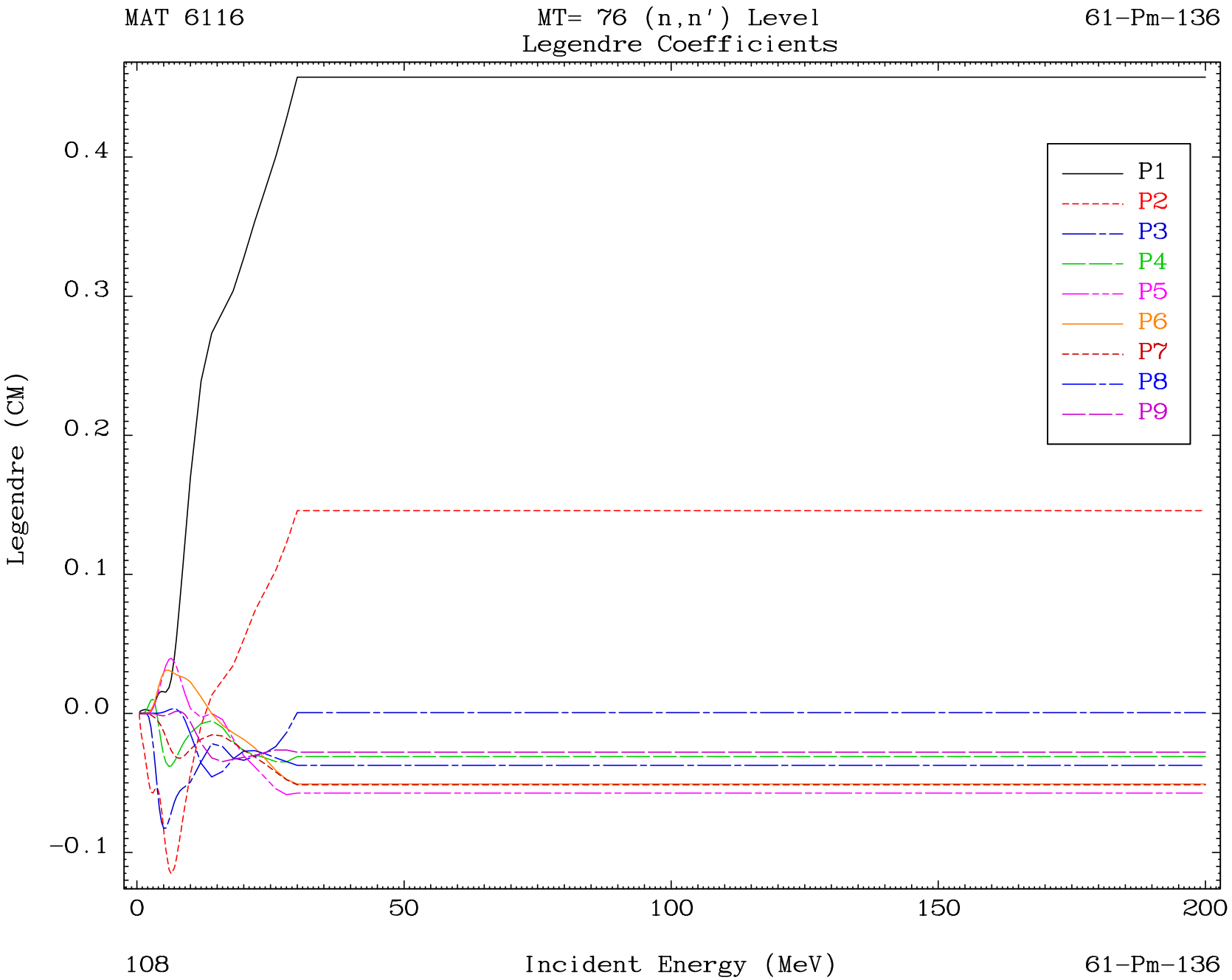

MAT 6116
MT= 74 (n,n') Level
Legendre Coefficients
61-Pm-136
X10−6
1.5
1.0
0.5
0.0
Legendre (CM)
P21
P22
P23
P24
P25
P26
P27
P28
P29
P30
50
100
150
200
103
Incident Energy (MeV)
61-Pm-136

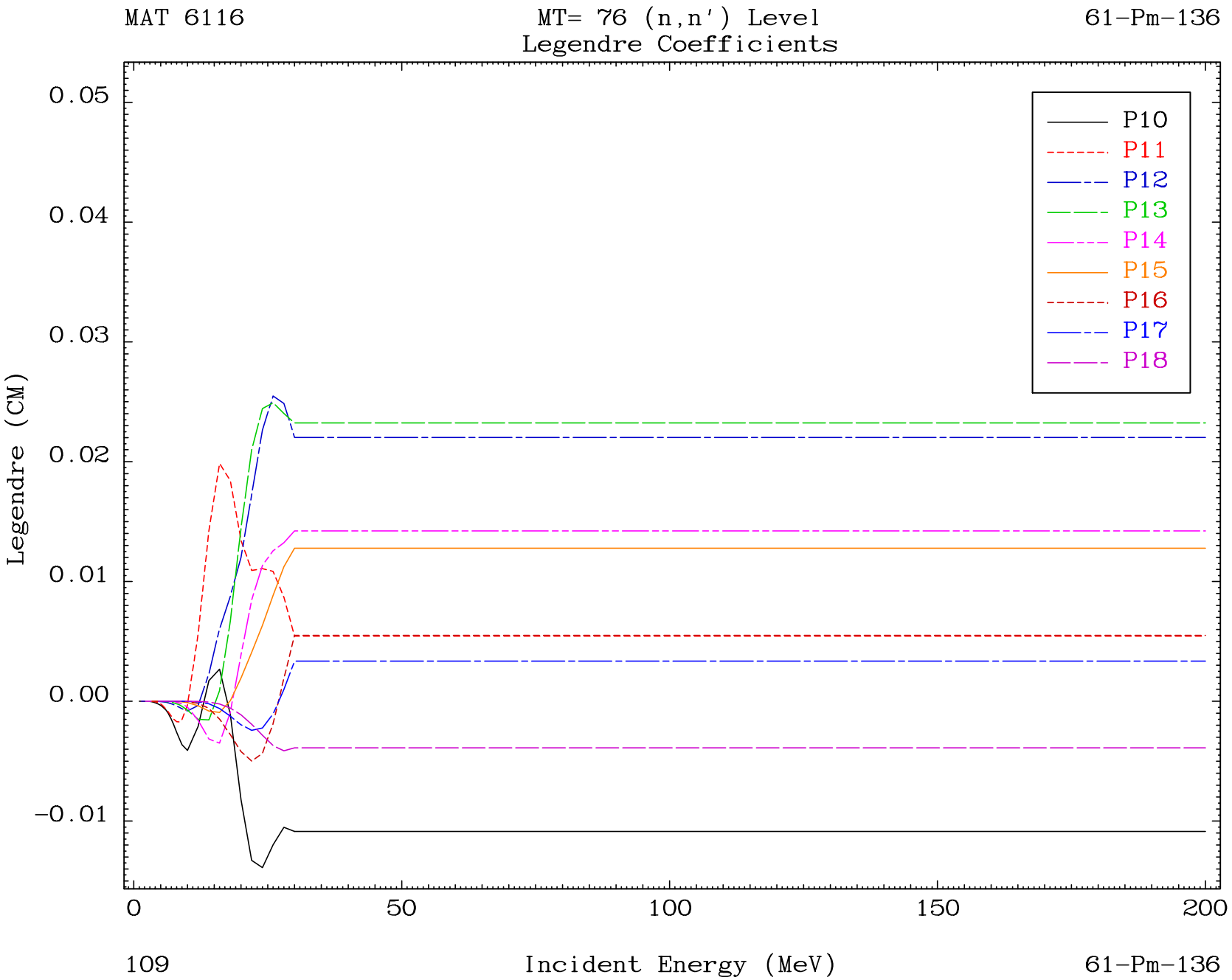

MAT 6116
MT= 75 (n,n') Level
Legendre Coefficients
61-Pm-136
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
Incident Energy (MeV)
104
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9

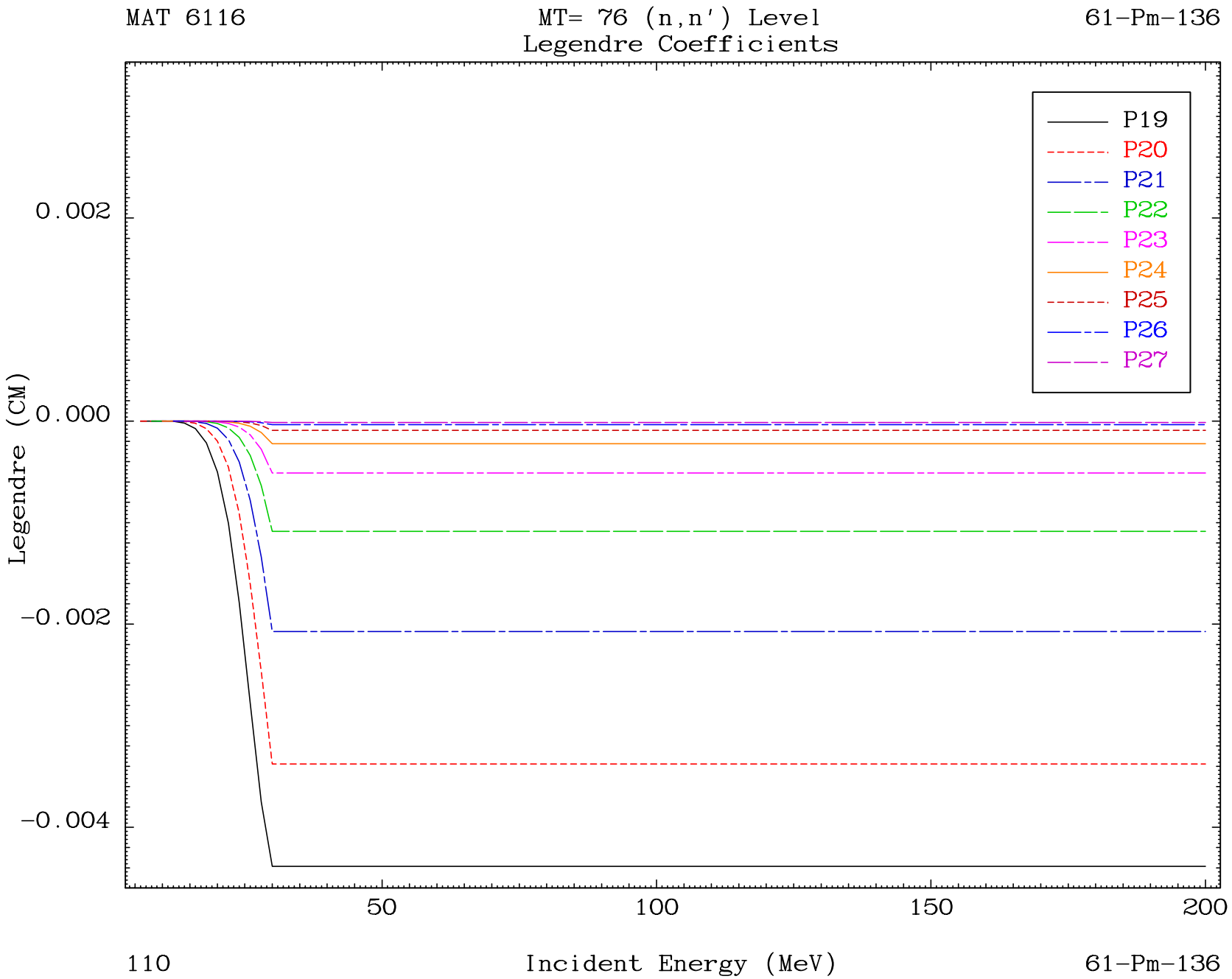

MAT 6116
MT= 75 (n,n') Level
Legendre Coefficients
61-Pm-136
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.010
0.005
0.000
-0.005
-0.010
Legendre (CM)
0
50
100
150
200
105
Incident Energy (MeV)
61-Pm-136

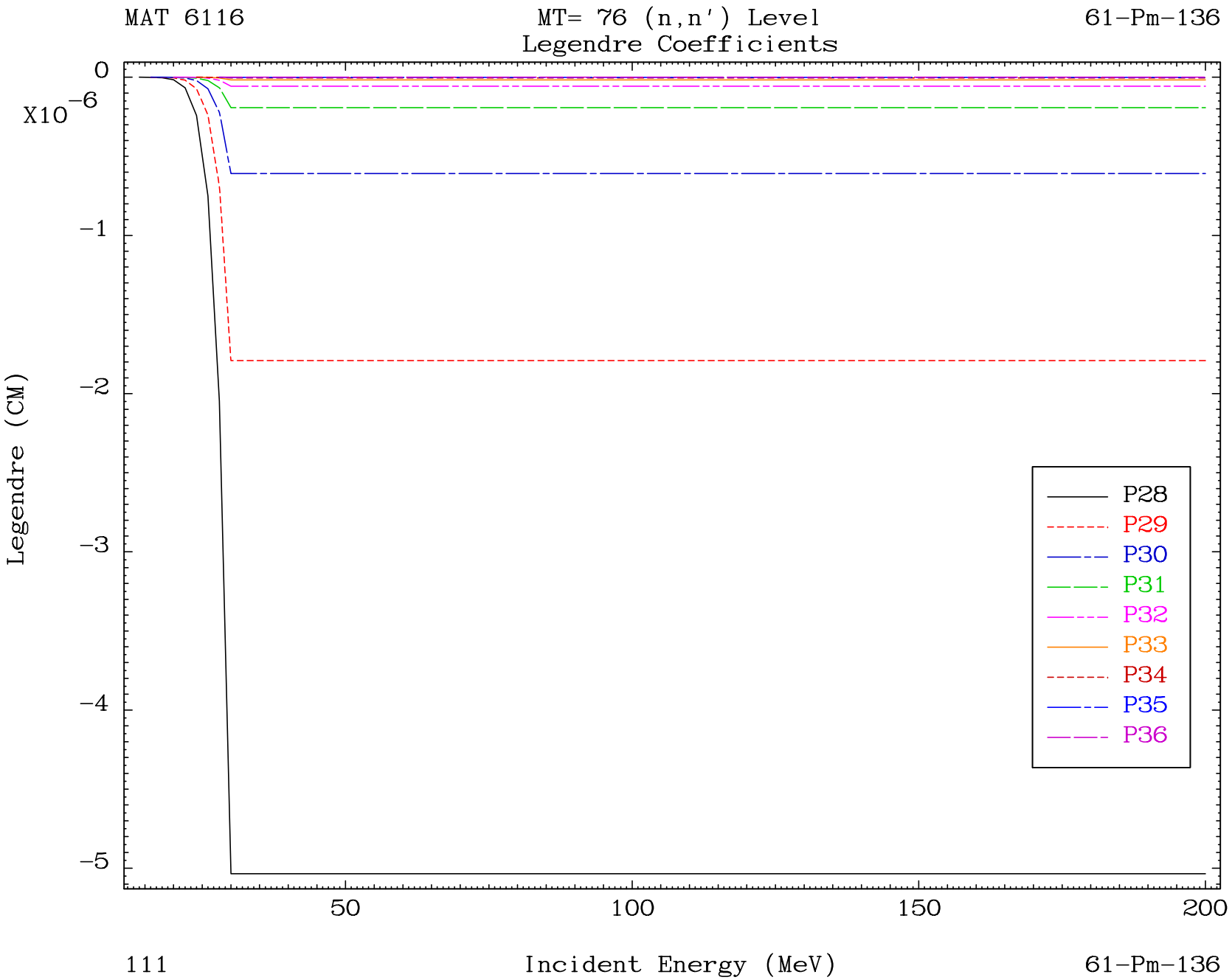

MAT 6116
MT= 75 (n,n') Level
Legendre Coefficients
61-Pm-136
X10 -5
5
4
3
2
1
0
Legendre (CM)
50
100
150
200
106
Incident Energy (MeV)
61-Pm-136
P19
P20
P21
P22
P23
P24
P25
P26
P27

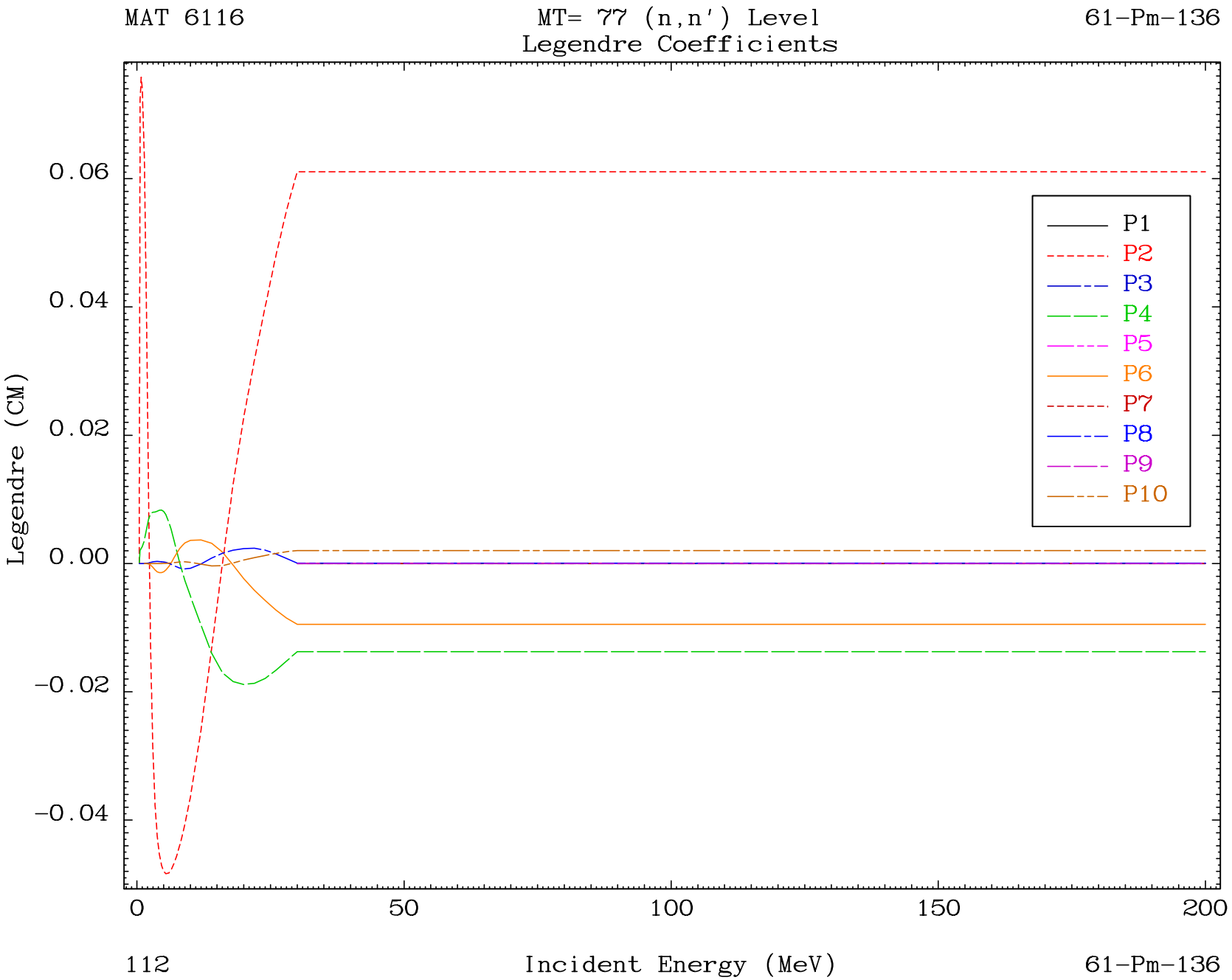

MAT 6116
MT= 75 (n,n') Level
Legendre Coefficients
61-Pm-136
0.0
X10^-7
-0.5
-1.0
-1.5
-2.0
Legendre (CM)
50
100
150
200
107
Incident Energy (MeV)
61-Pm-136
P28
P29
P30
P31
P32
P33
P34

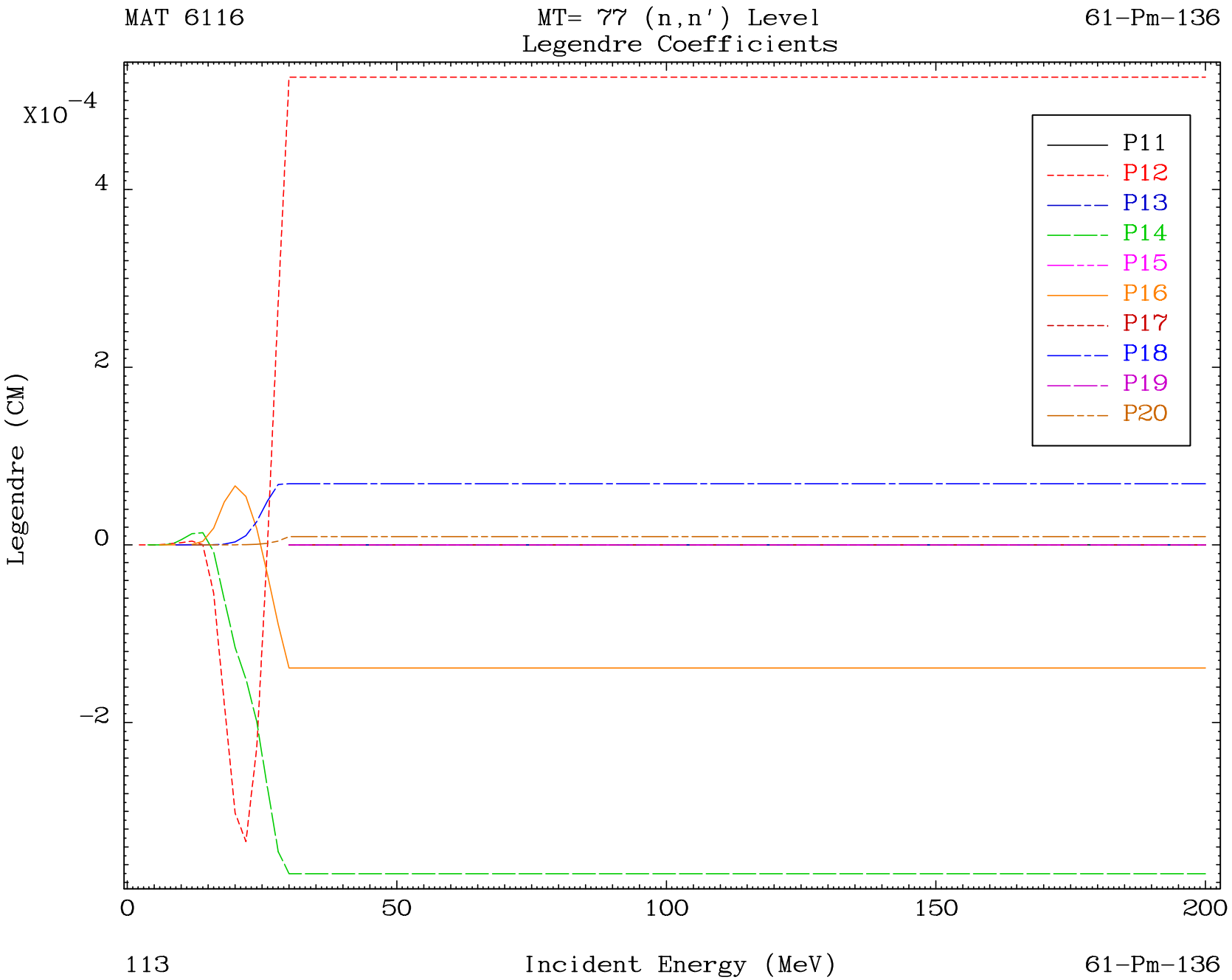

MAT 6116
MT= 76 (n,n') Level
Legendre Coefficients
61-Pm-136
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
P1
P2
P3
P4
P5
P6
P7
P8
P9
108
Incident Energy (MeV)
61-Pm-136

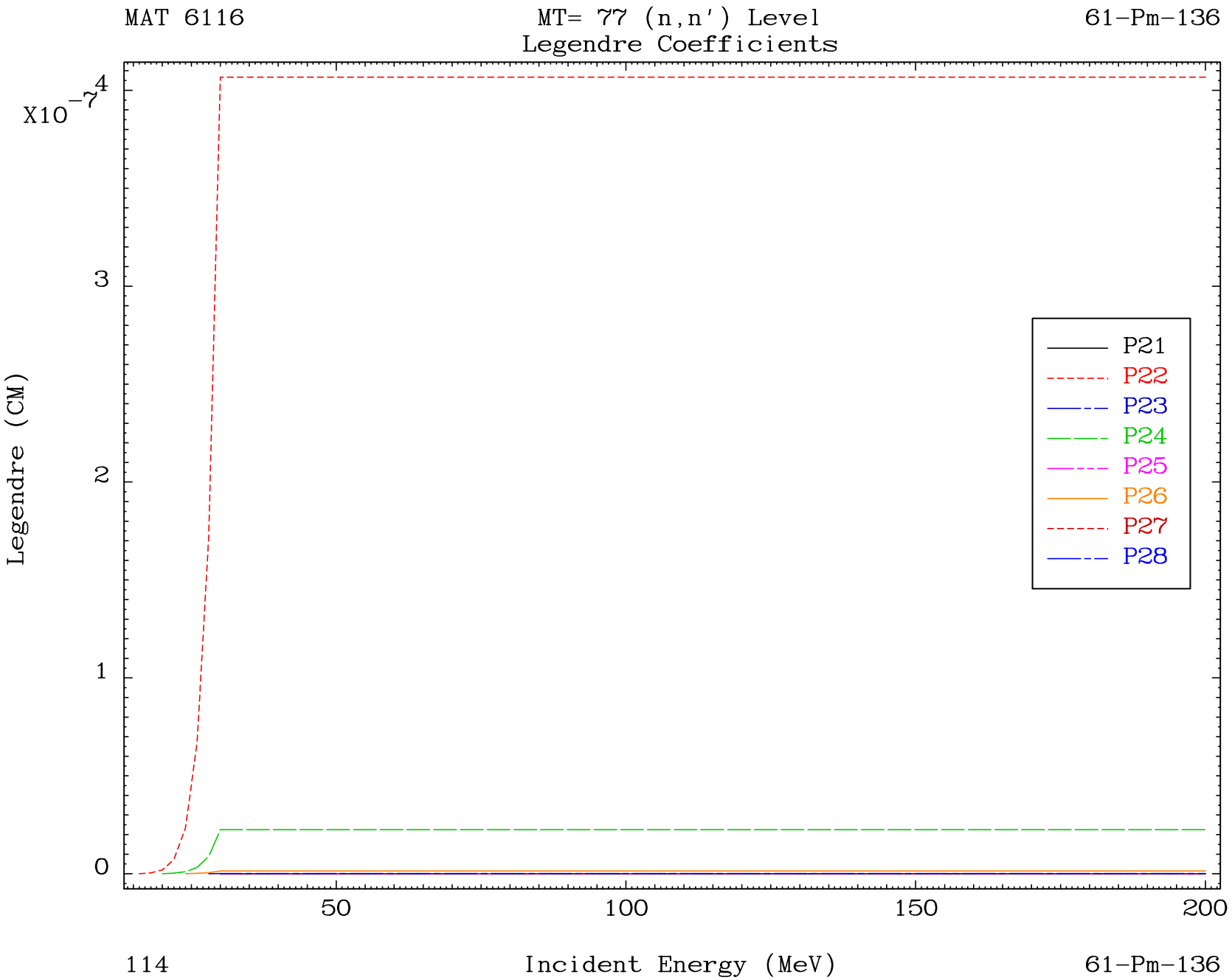

MAT 6116
MT= 76 (n,n') Level
Legendre Coefficients
61-Pm-136
0.05
0.04
0.03
0.02
0.01
0.00
-0.01
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
109
Incident Energy (MeV)
61-Pm-136

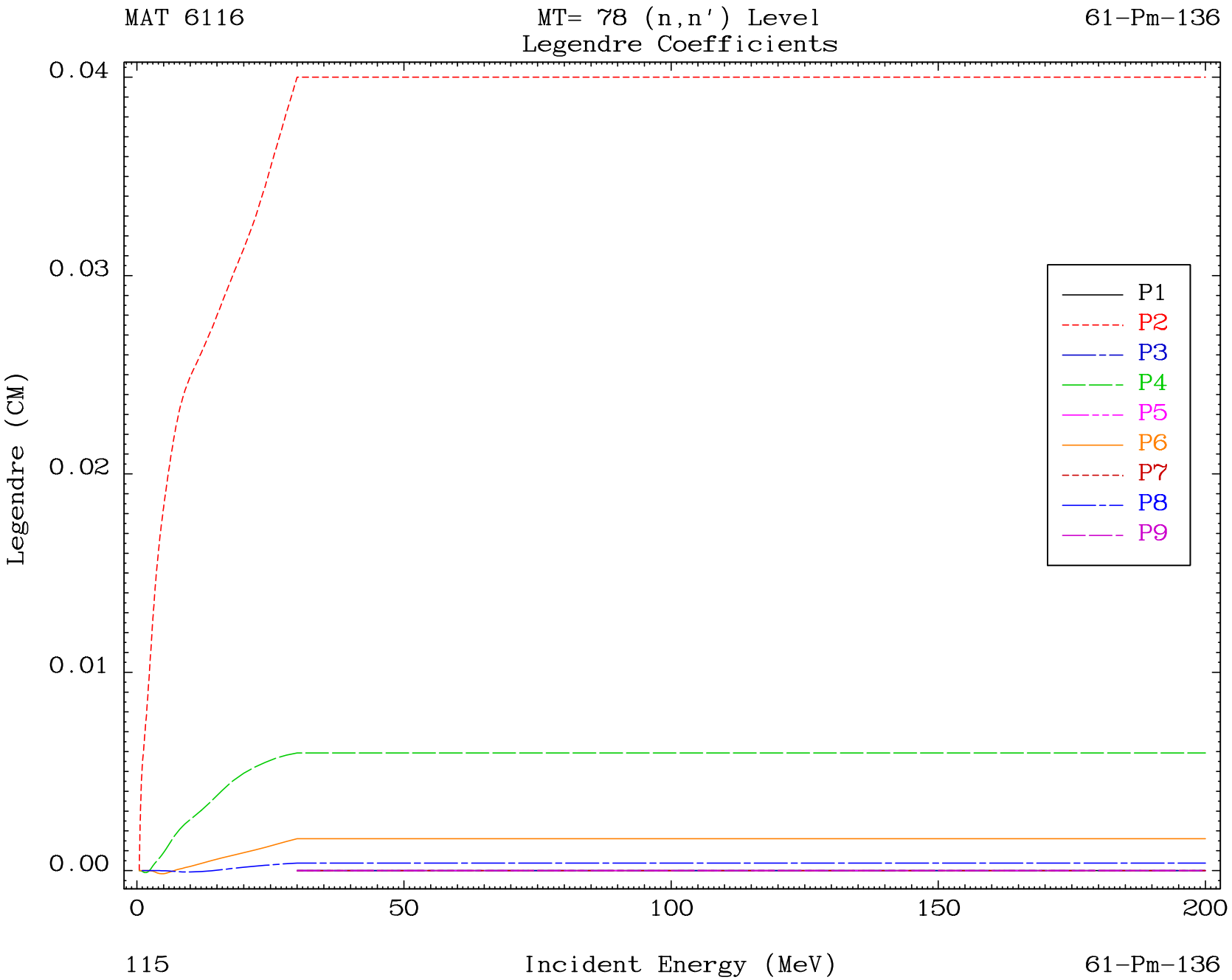

MAT 6116
MT= 76 (n,n') Level
Legendre Coefficients
61-Pm-136
P19
P20
P21
P22
P23
P24
P25
P26
P27
0.002
0.000
-0.002
-0.004
Legendre (CM)
50
100
150
200
110
Incident Energy (MeV)
61-Pm-136

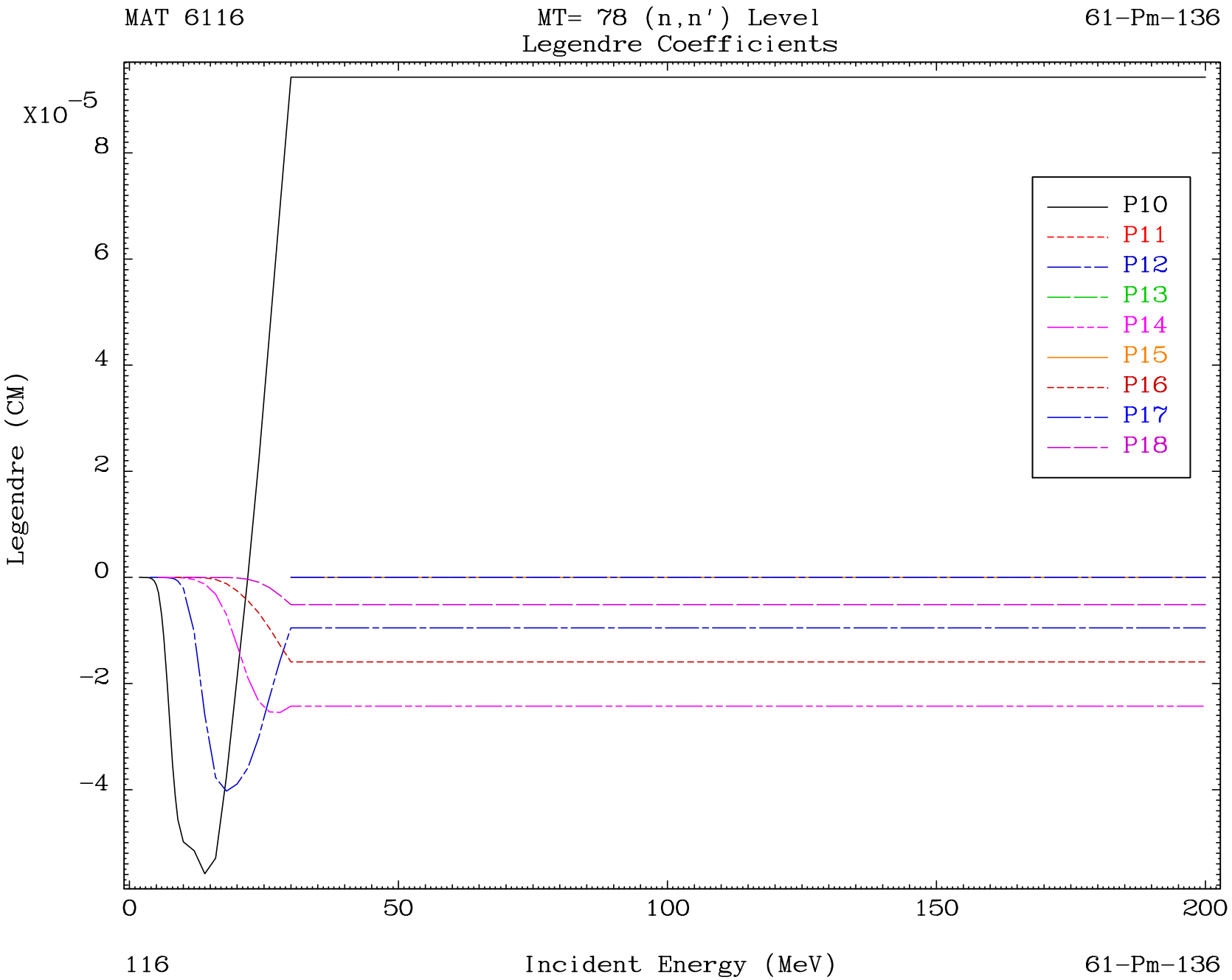

MAT 6116
MT= 76 (n,n') Level
Legendre Coefficients
61-Pm-136
X10−6
0
−1
−2
−3
−4
−5
Legendre (CM)
50
100
150
200
111
Incident Energy (MeV)
61-Pm-136
P28
P29
P30
P31
P32
P33
P34
P35
P36

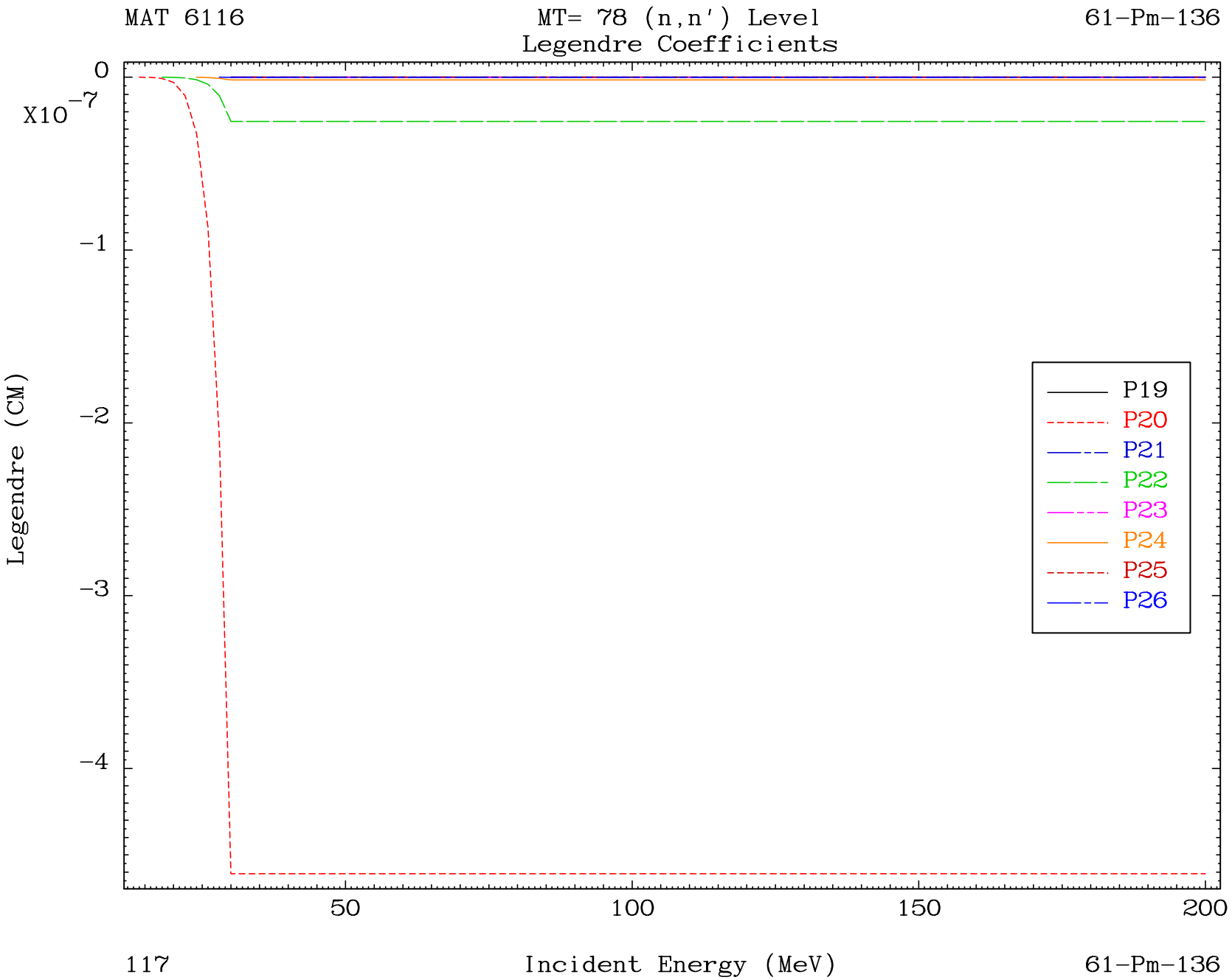

MAT 6116
MT= 77 (n,n') Level
Legendre Coefficients
61-Pm-136
0.06
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
0
50
100
150
200
112
Incident Energy (MeV)
61-Pm-136

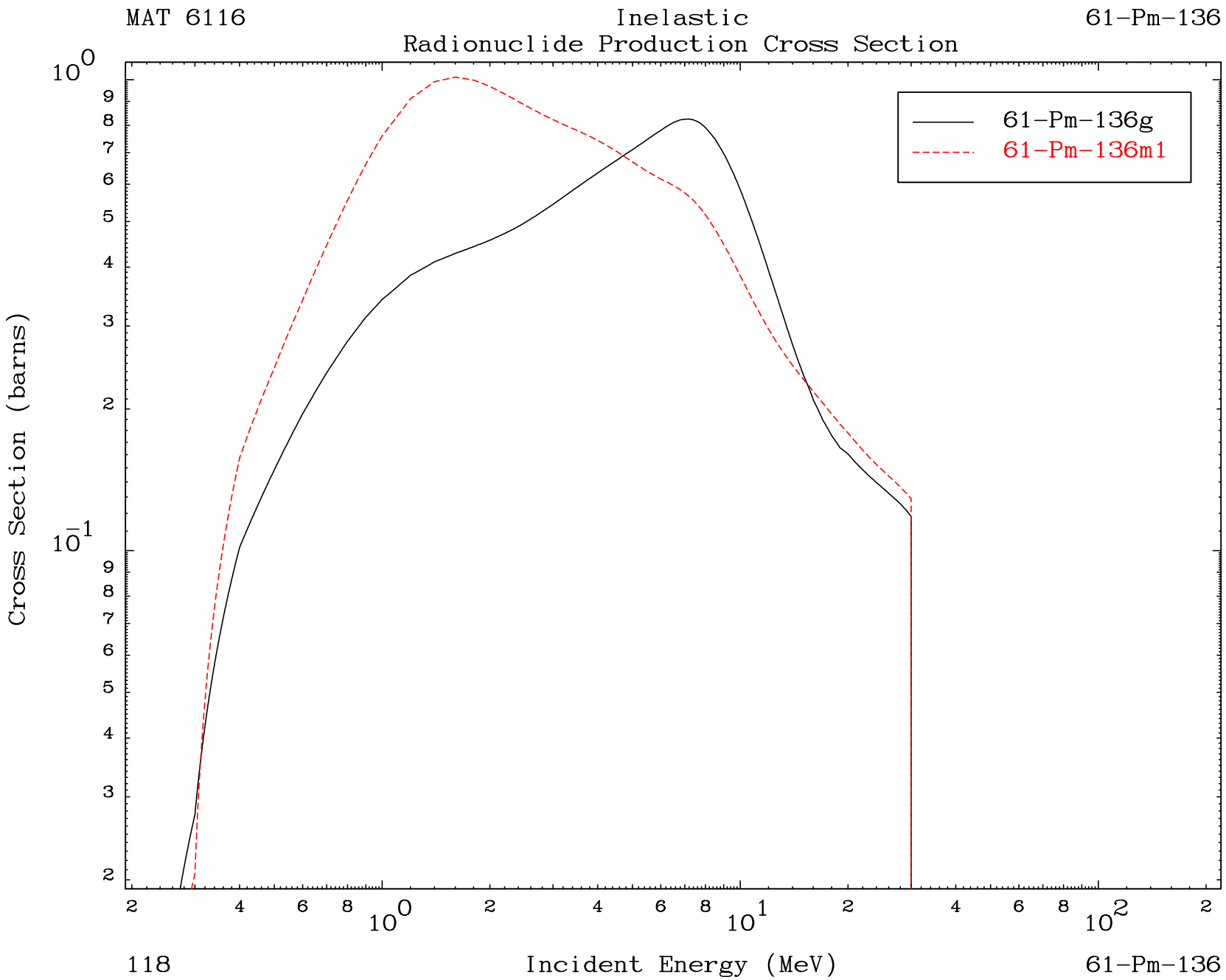

MAT 6116
MT= 77 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-4
4
2
0
-2
Legendre (CM)
P11
P12
P13
P14
P15
P16
P17
P18
P19
P20
0
50
100
150
200
113
Incident Energy (MeV)
61-Pm-136

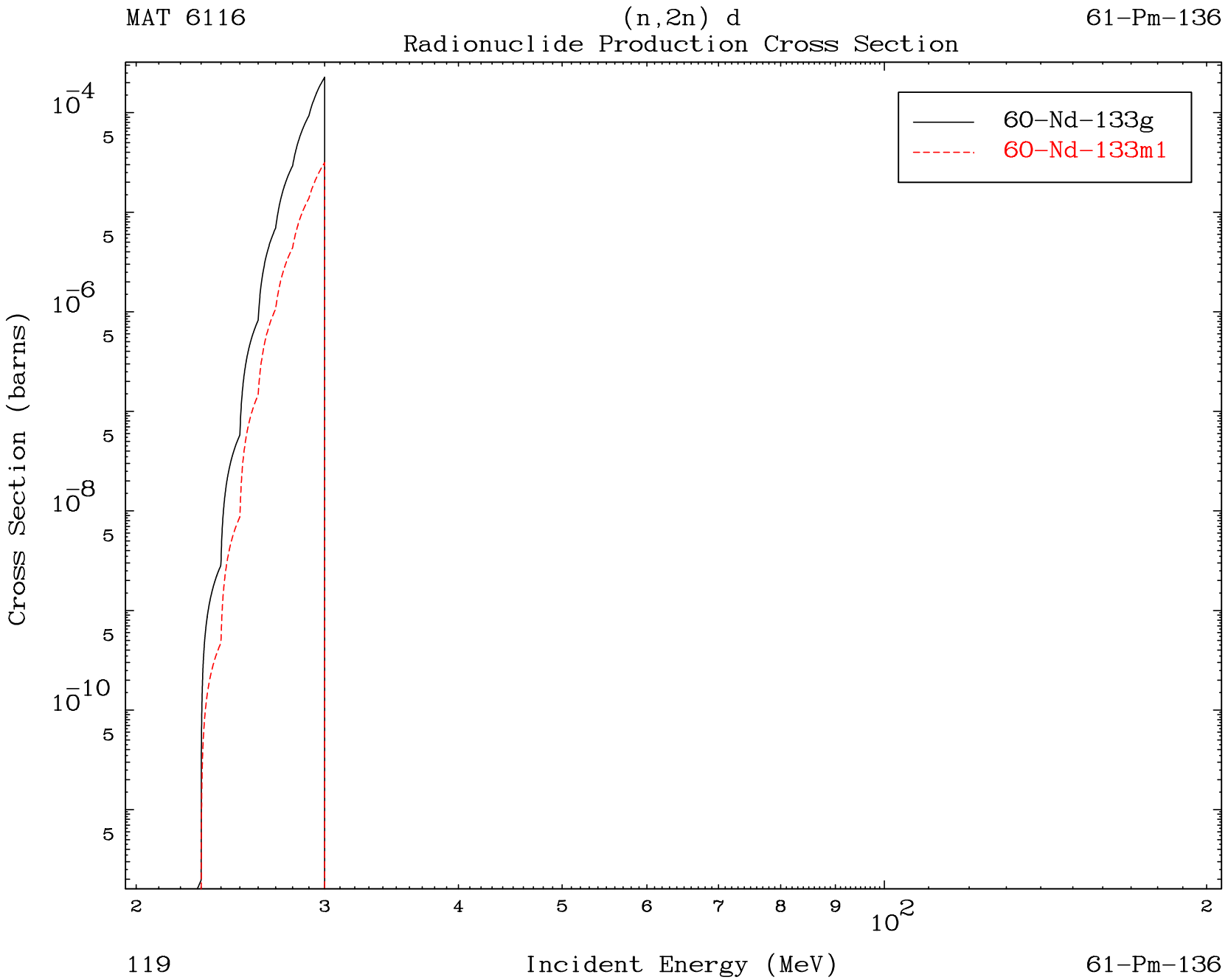

MAT 6116
MT= 77 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-4
4
3
2
1
0
Legendre (CM)
P21
P22
P23
P24
P25
P26
P27
P28
50
100
150
200
114
Incident Energy (MeV)
61-Pm-136

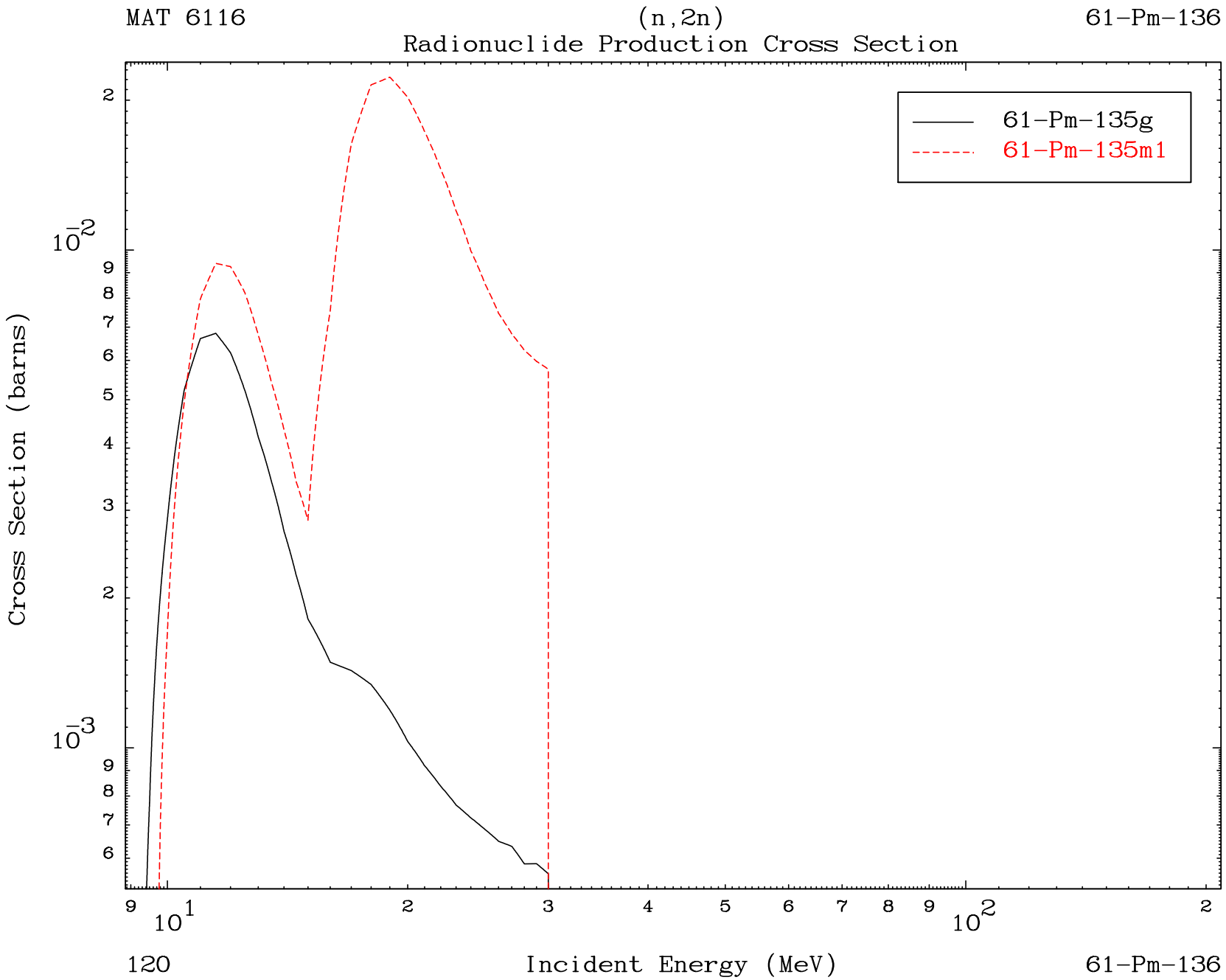

MAT 6116
MT= 78 (n,n') Level
Legendre Coefficients
61-Pm-136
0.04
0.03
0.02
0.01
0.00
Legendre (CM)
0
50
100
150
200
115
Incident Energy (MeV)
61-Pm-136
P1
P2
P3
P4
P5
P6
P7
P8
P9

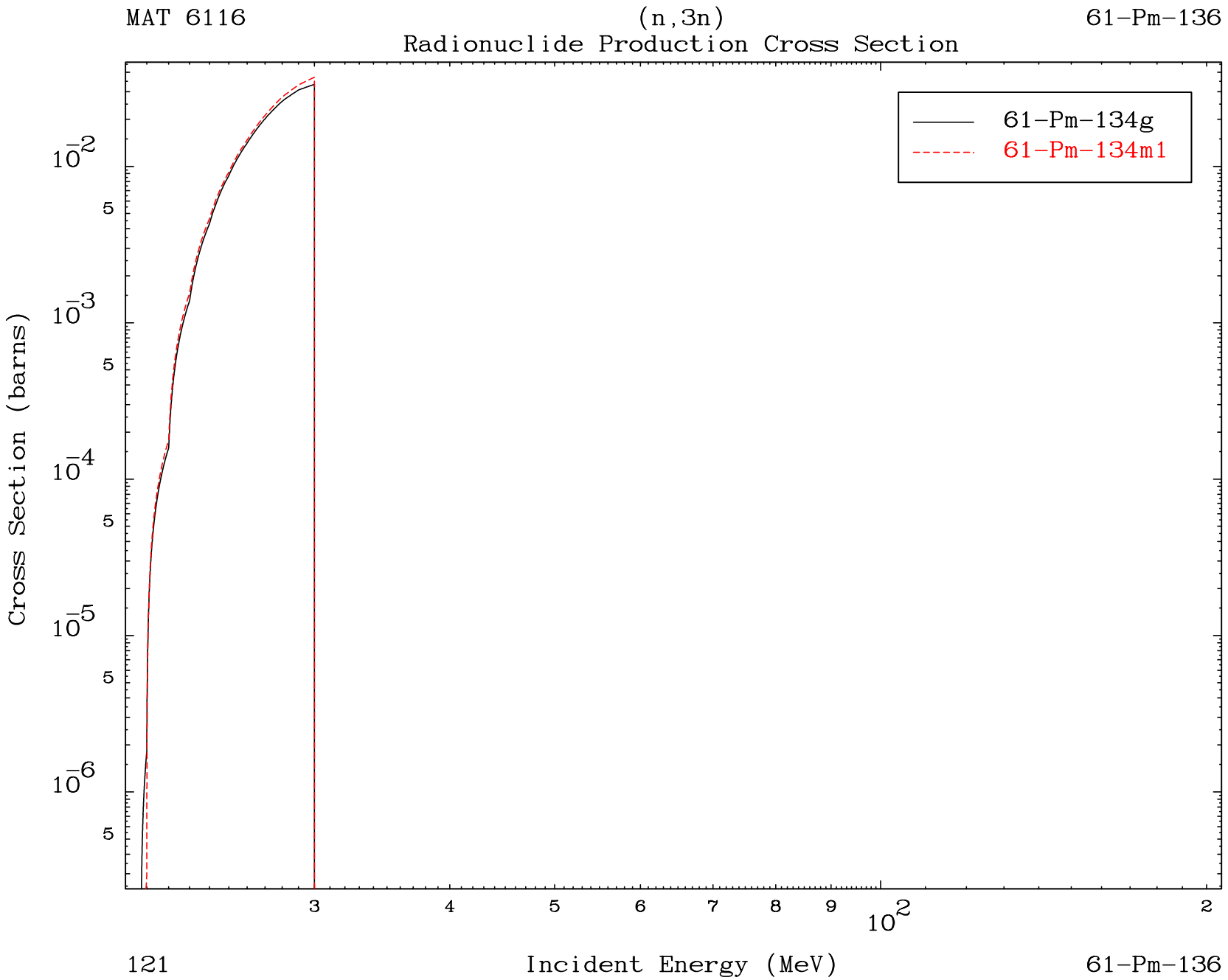

MAT 6116
MT= 78 (n,n') Level
Legendre Coefficients
61-Pm-136
X10^-5
8
6
4
2
0
-2
-4
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
116
Incident Energy (MeV)
61-Pm-136

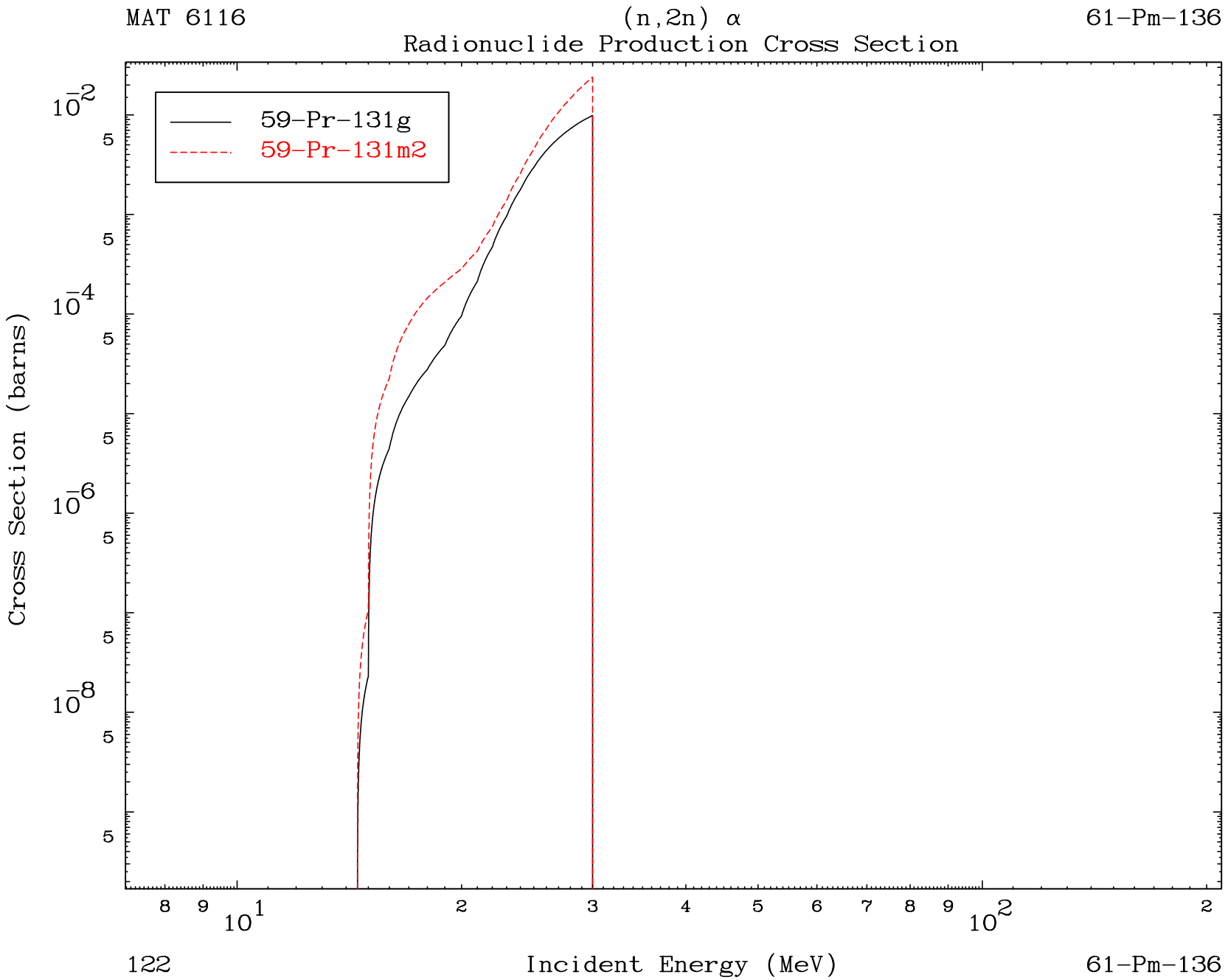

MAT 6116
MT= 78 (n,n') Level
Legendre Coefficients
61-Pm-136
0
X10-7
-1
-2
-3
-4
Legendre (CM)
50
100
150
200
P19
P20
P21
P22
P23
P24
P25
P26
117
Incident Energy (MeV)
61-Pm-136

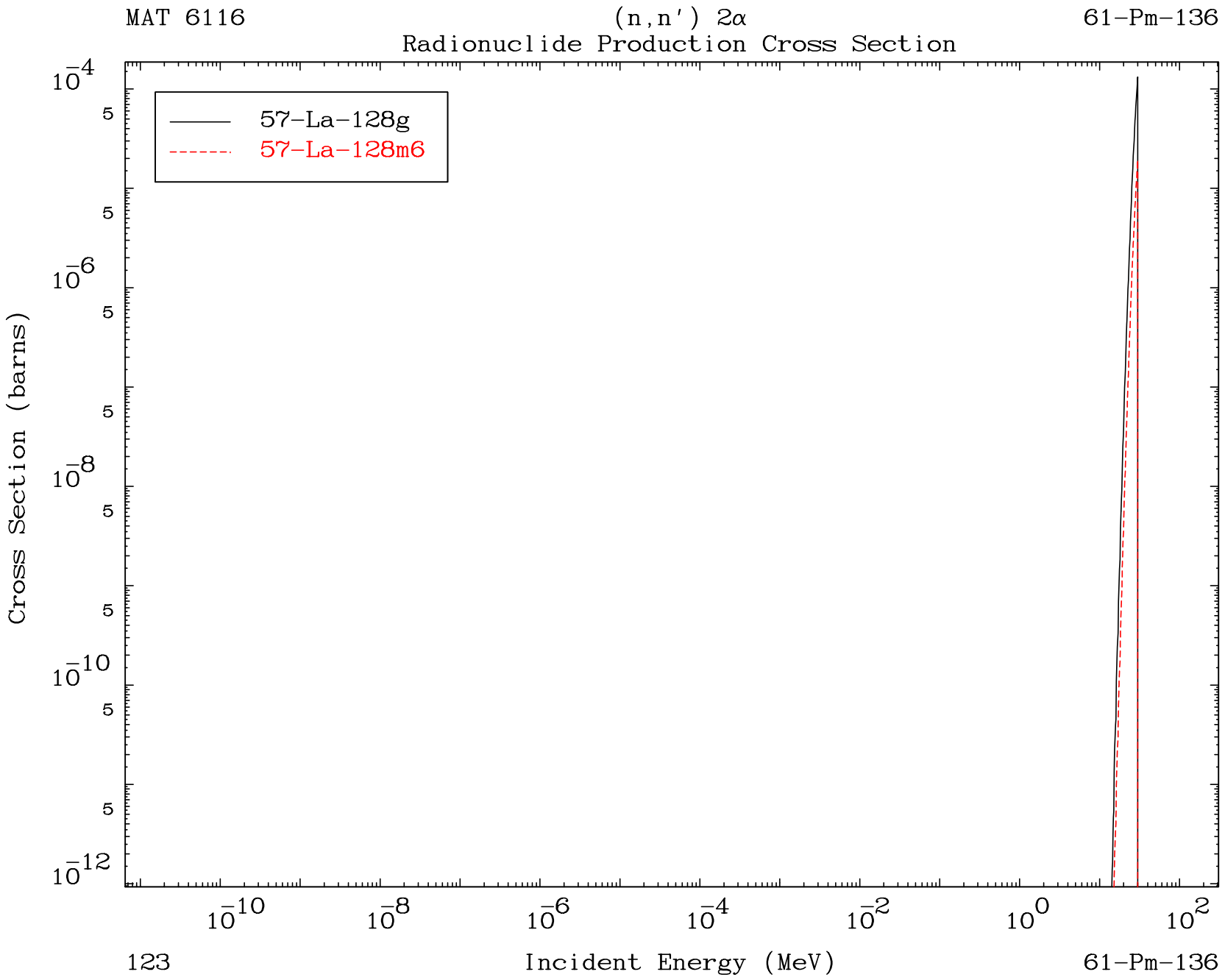

MAT 6116
Inelastic
61-Pm-136
Radionuclide Production Cross Section
61-Pm-136g
61-Pm-136m1
Cross Section (barns)
Incident Energy (MeV)
118
61-Pm-136

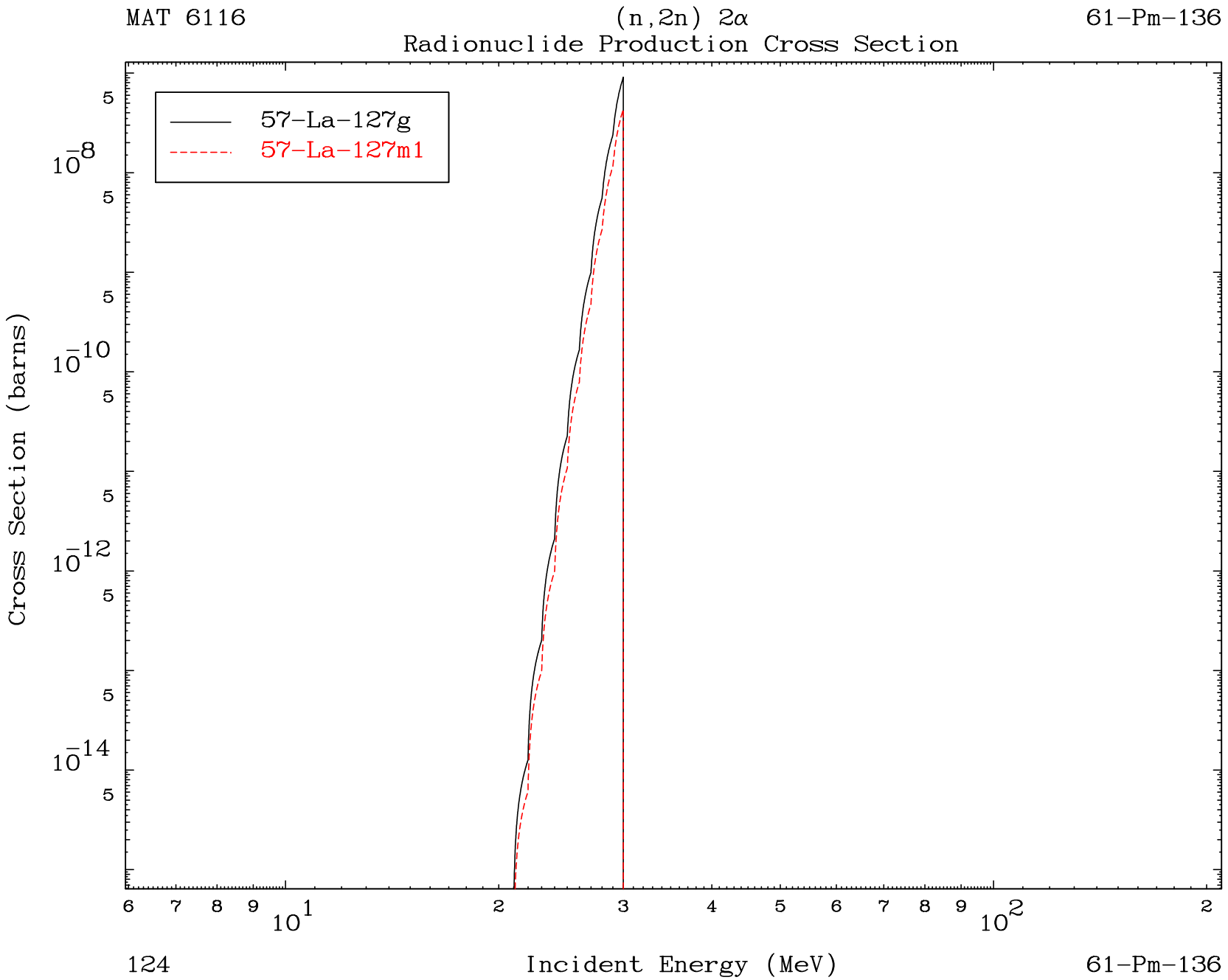

MAT 6116
(n,2n) d
61-Pm-136
Radionuclide Production Cross Section
60-Nd-133g
60-Nd-133m1
Cross Section (barns)
10-4
10-6
10-8
10-10
Incident Energy (MeV)
2
3
4
5
6
7
8
9
10 2
119
61-Pm-136

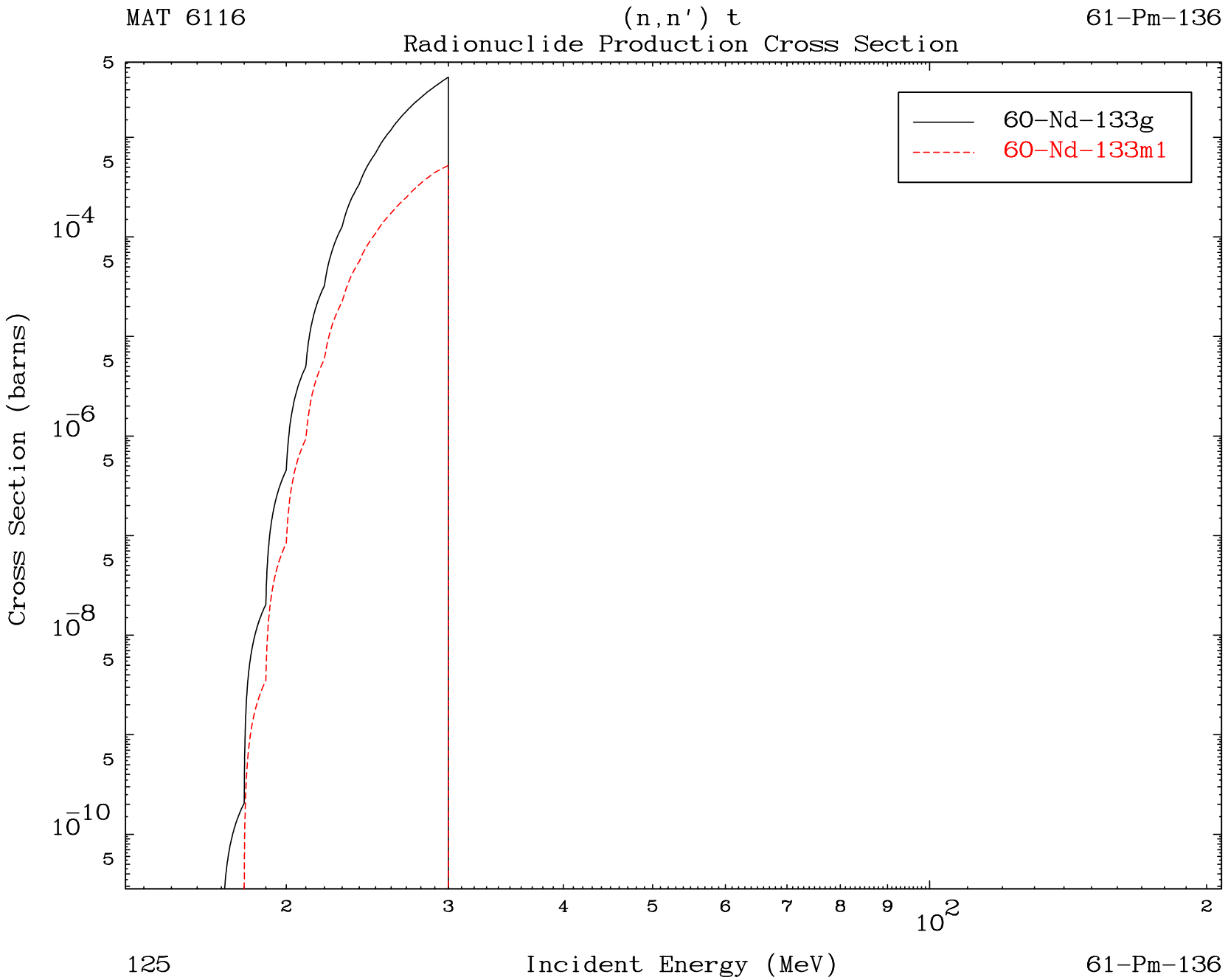

MAT 6116
(n,2n)
61-Pm-136
Radionuclide Production Cross Section
61-Pm-135g
61-Pm-135m1
Cross Section (barns)
Incident Energy (MeV)
120
61-Pm-136

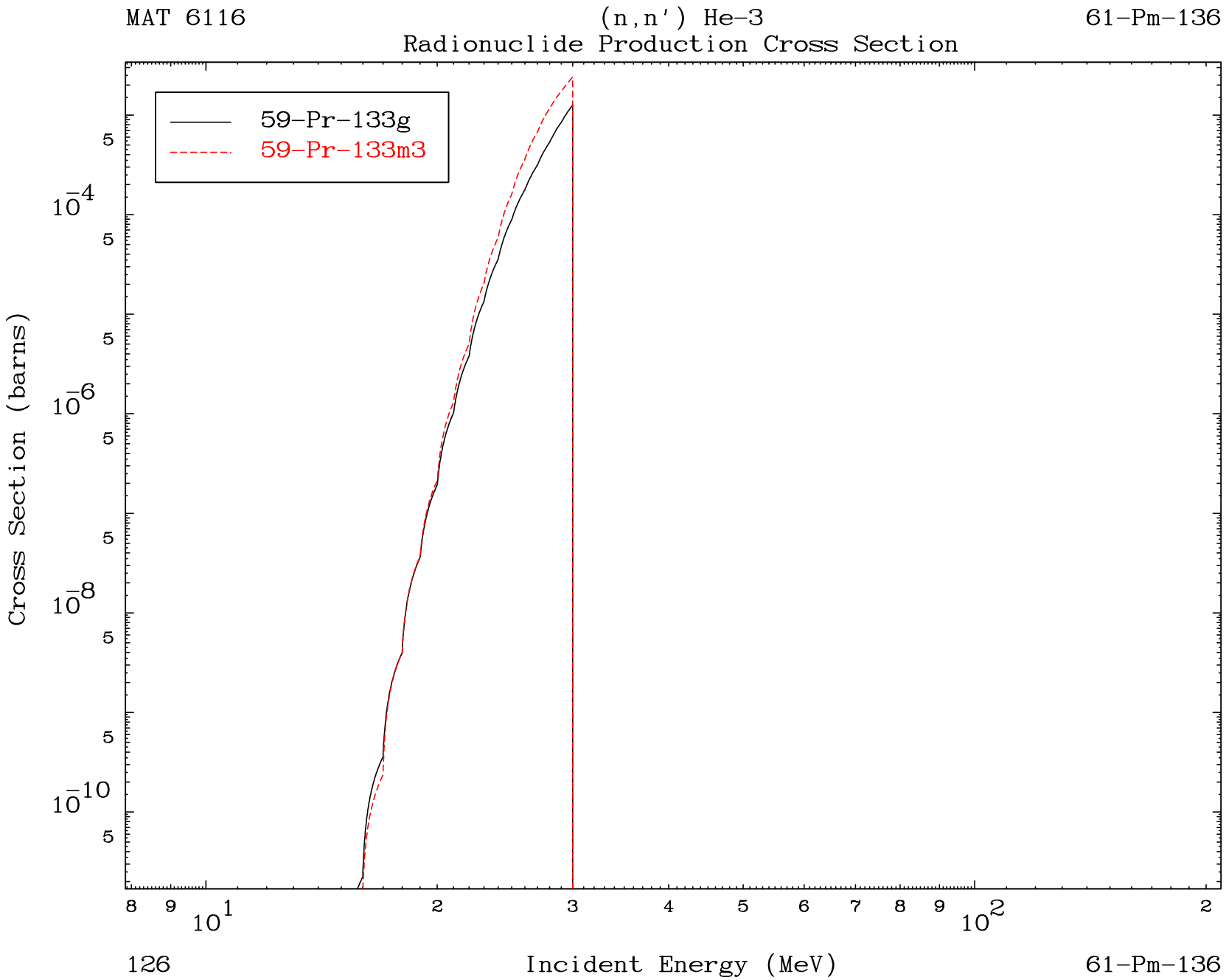

MAT 6116
(n,3n)
61-Pm-136
Radionuclide Production Cross Section
61-Pm-134g
61-Pm-134m1
Cross Section (barns)
10-2
10-3
10-4
10-5
10-6
5
3
4
5
6
7
8
9
10 2
2
121
Incident Energy (MeV)
61-Pm-136

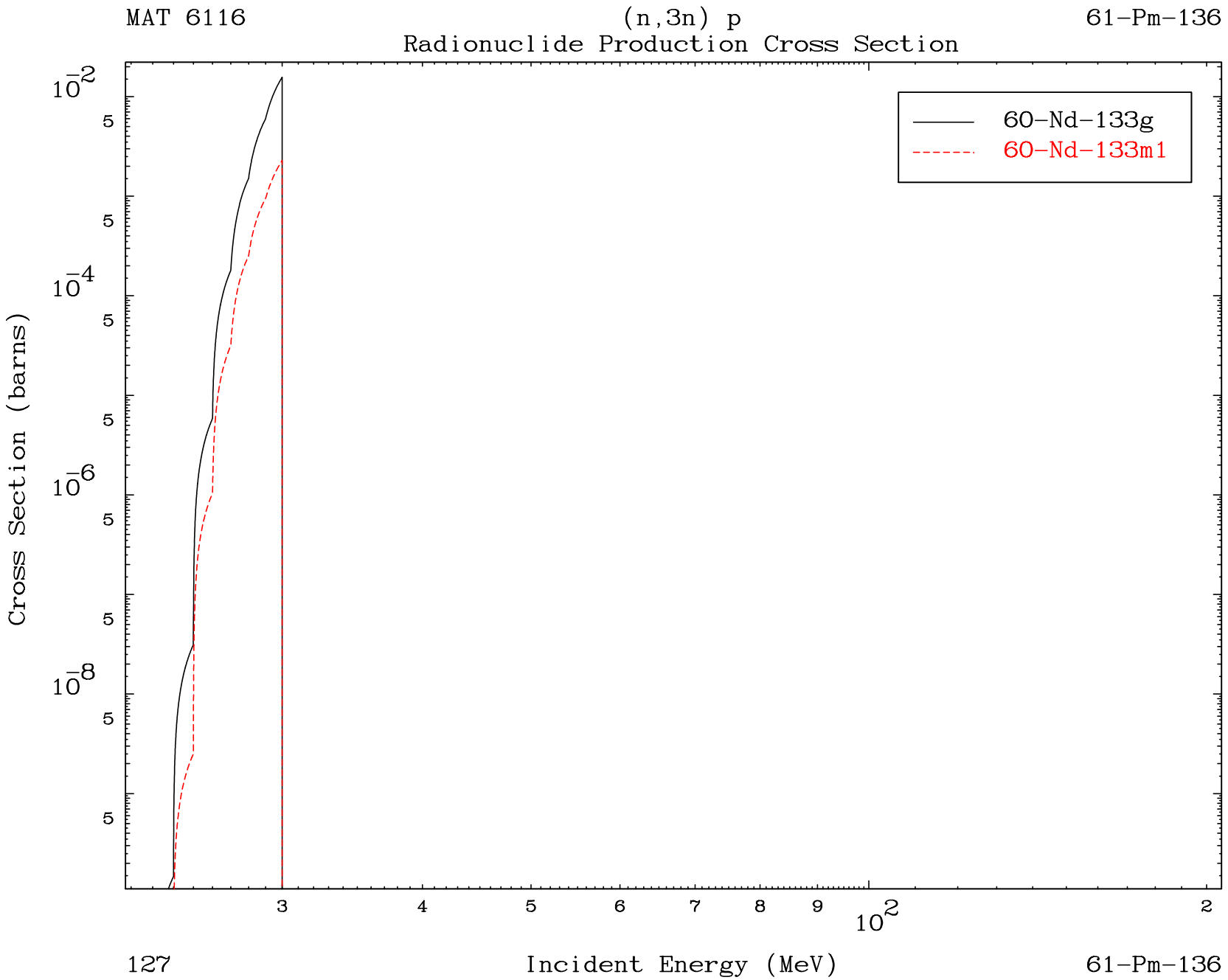

MAT 6116
(n,2n) α
61-Pm-136
Radionuclide Production Cross Section
59-Pr-131g
59-Pr-131m2
Cross Section (barns)
Incident Energy (MeV)
122
61-Pm-136

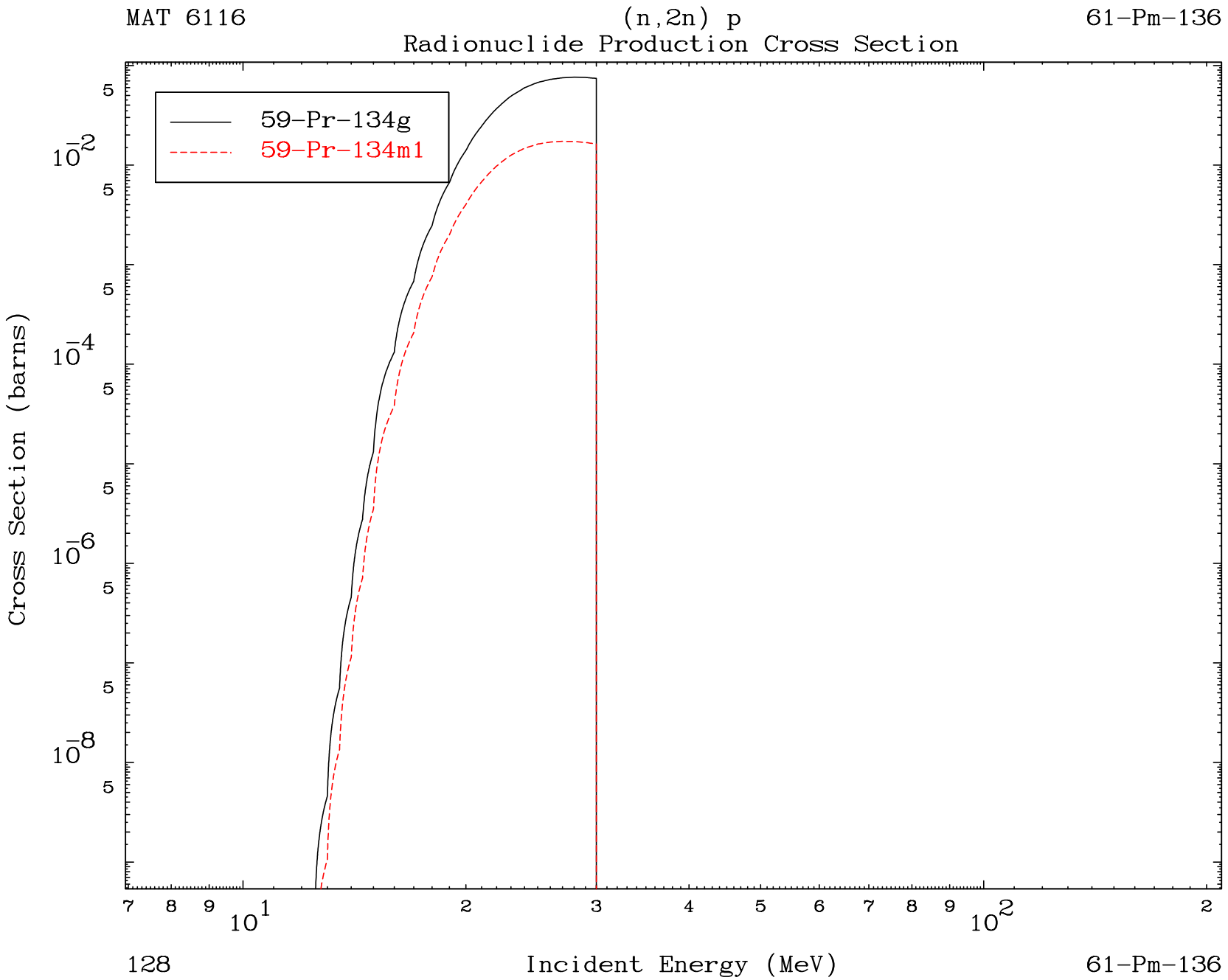

MAT 6116
(n,n') 2α
61-Pm-136
Radionuclide Production Cross Section
57-La-128g
57-La-128m6
Cross Section (barns)
10^-4
10^-6
10^-8
10^-10
10^-12
5
10^-10
10^-8
10^-6
10^-4
10^-2
10^0
10^2
123
Incident Energy (MeV)
61-Pm-136

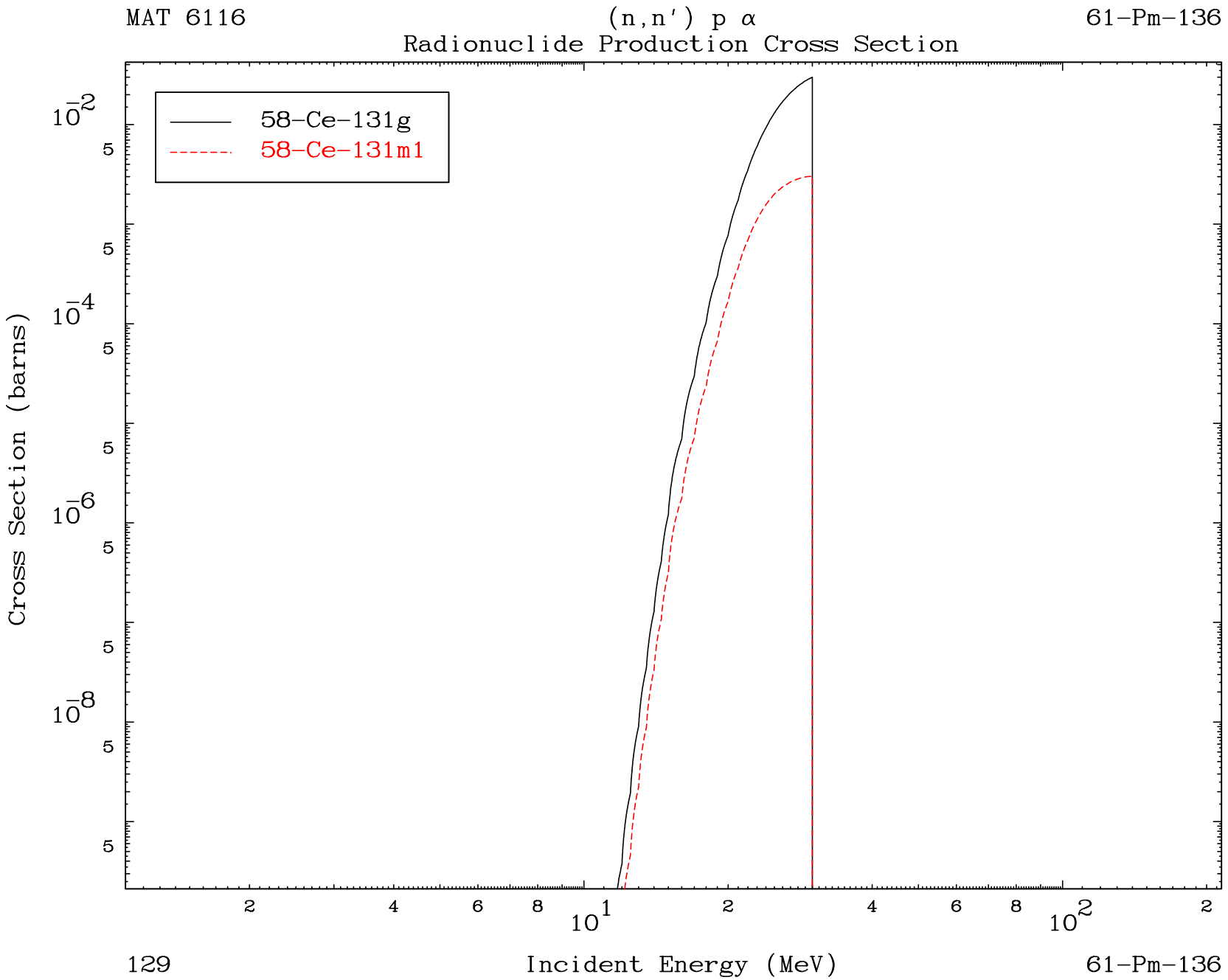

MAT 6116
(n,2n) 2α
61-Pm-136
Radionuclide Production Cross Section
57-La-127g
57-La-127m1
Cross Section (barns)
10^-8
10^-10
10^-12
10^-14
5
6 7 8 9 10^1 2 3 4 5 6 7 8 9 10^2 2
124
Incident Energy (MeV)
61-Pm-136

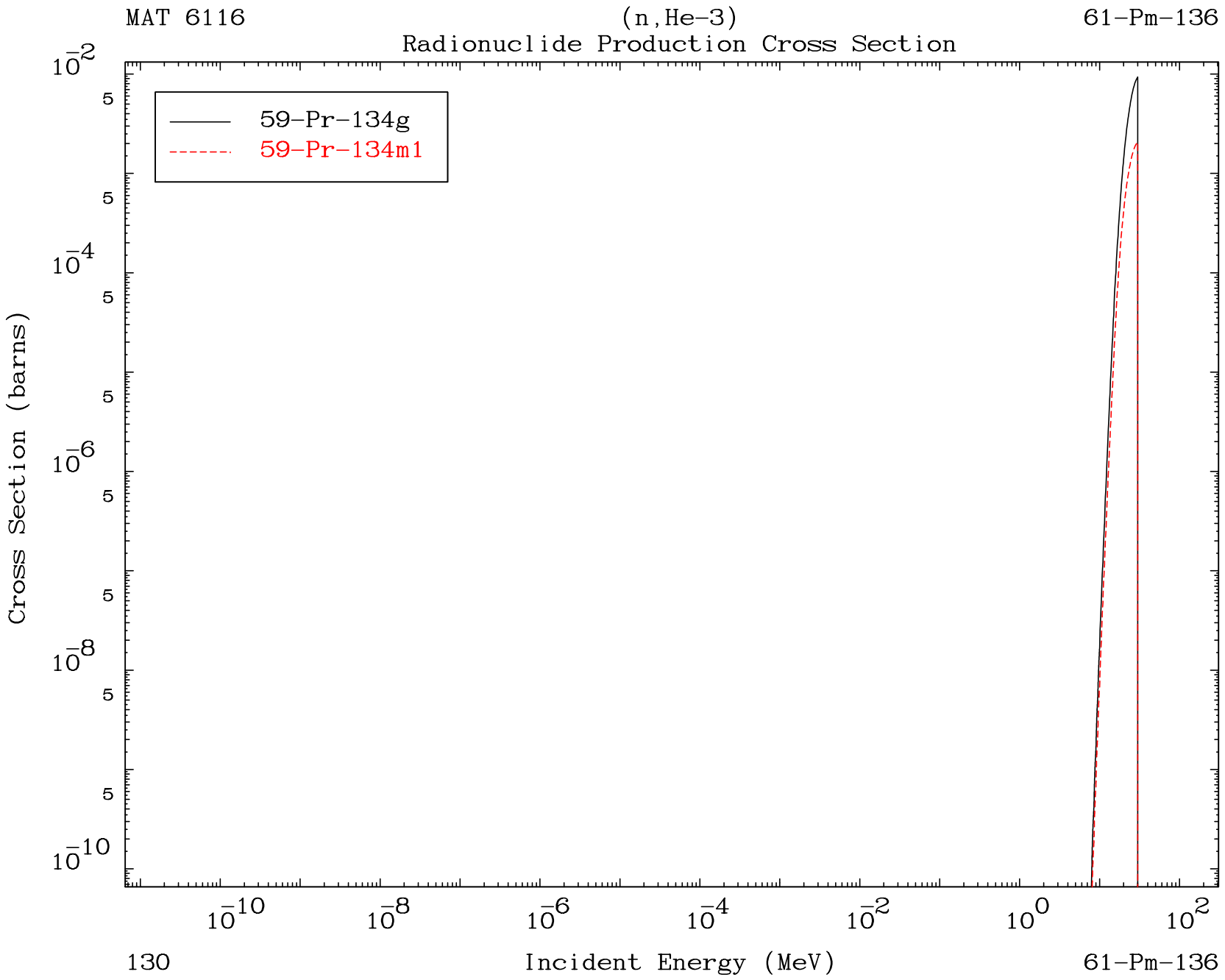

MAT 6116
(n,n') t
61-Pm-136
Radionuclide Production Cross Section
60-Nd-133g
60-Nd-133m1
Cross Section (barns)
Incident Energy (MeV)
125
61-Pm-136

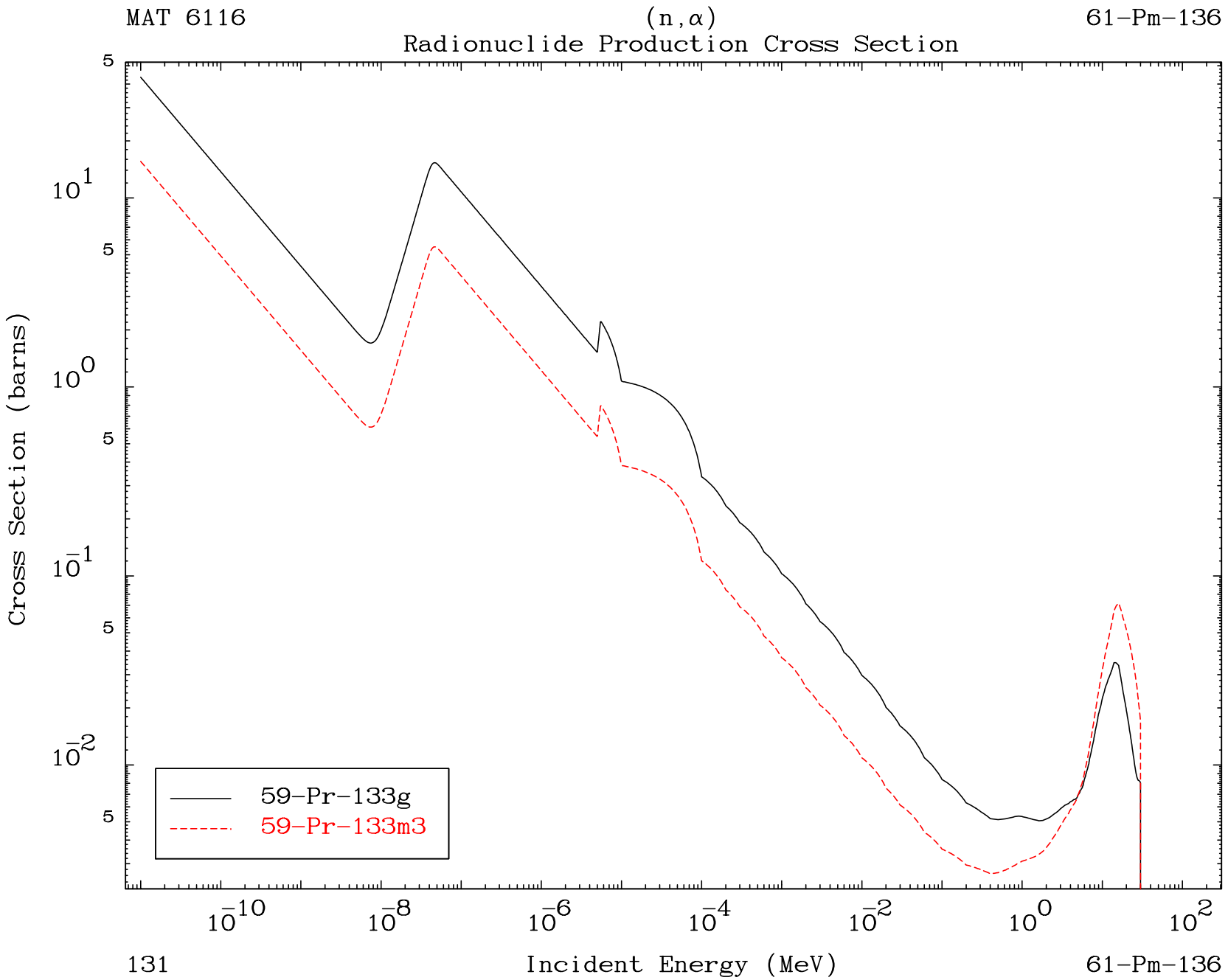

MAT 6116
(n,n') He-3
61-Pm-136
Radionuclide Production Cross Section
59-Pr-133g
59-Pr-133m3
Cross Section (barns)
10^-4
10^-6
10^-8
10^-10
5
8 9 10^1 2 3 4 5 6 7 8 9 10^2 2
126
Incident Energy (MeV)
61-Pm-136

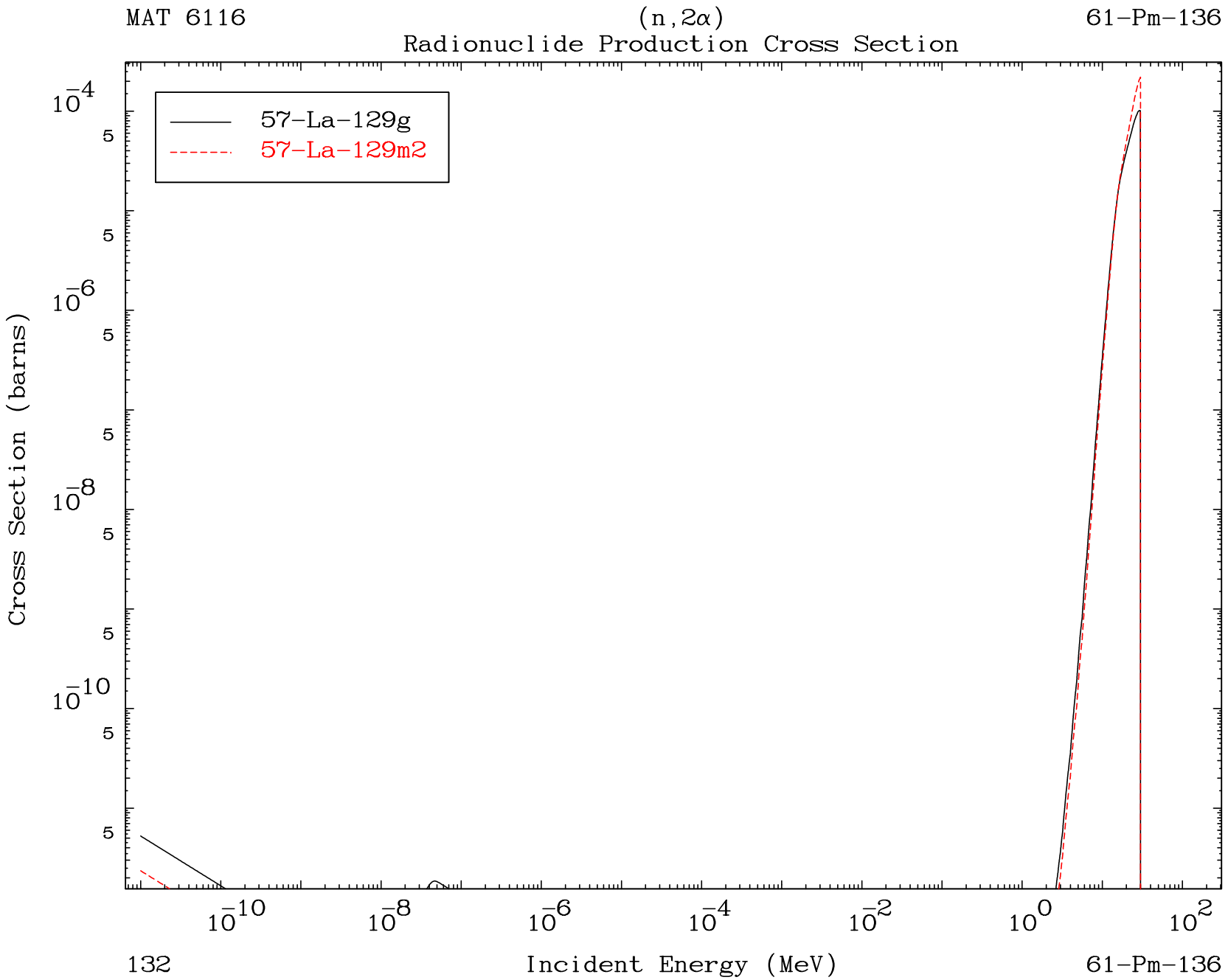

MAT 6116
(n,3n) p
61-Pm-136
Radionuclide Production Cross Section
60-Nd-133g
60-Nd-133m1
Cross Section (barns)
Incident Energy (MeV)
127
61-Pm-136

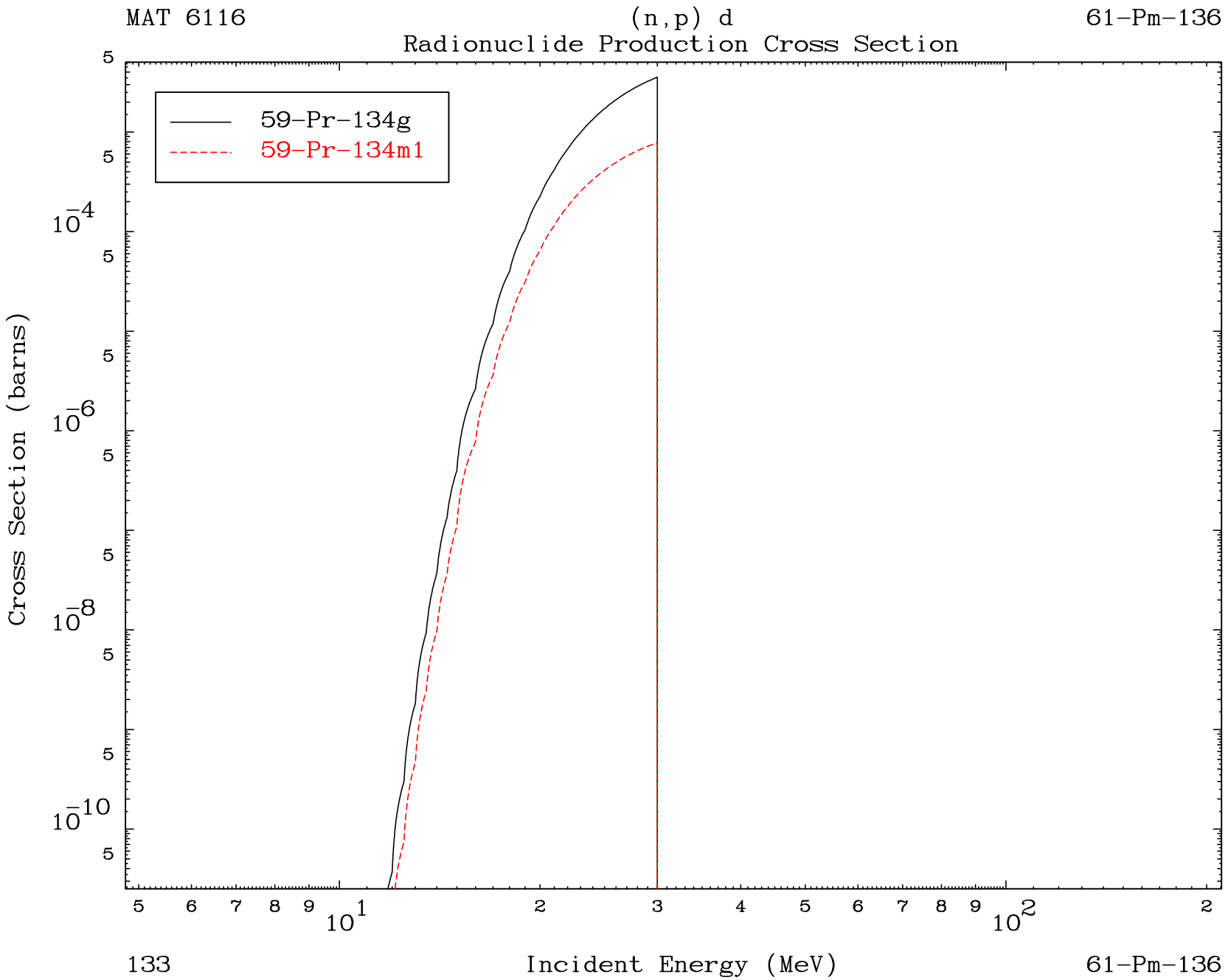

MAT 6116
(n,2n) p
61-Pm-136
Radionuclide Production Cross Section
59-Pr-134g
59-Pr-134m1
Cross Section (barns)
10-2
10-4
10-6
10-8
5
7 8 9 10 1 2 3 4 5 6 7 8 9 10 2 2
Incident Energy (MeV)
128
61-Pm-136

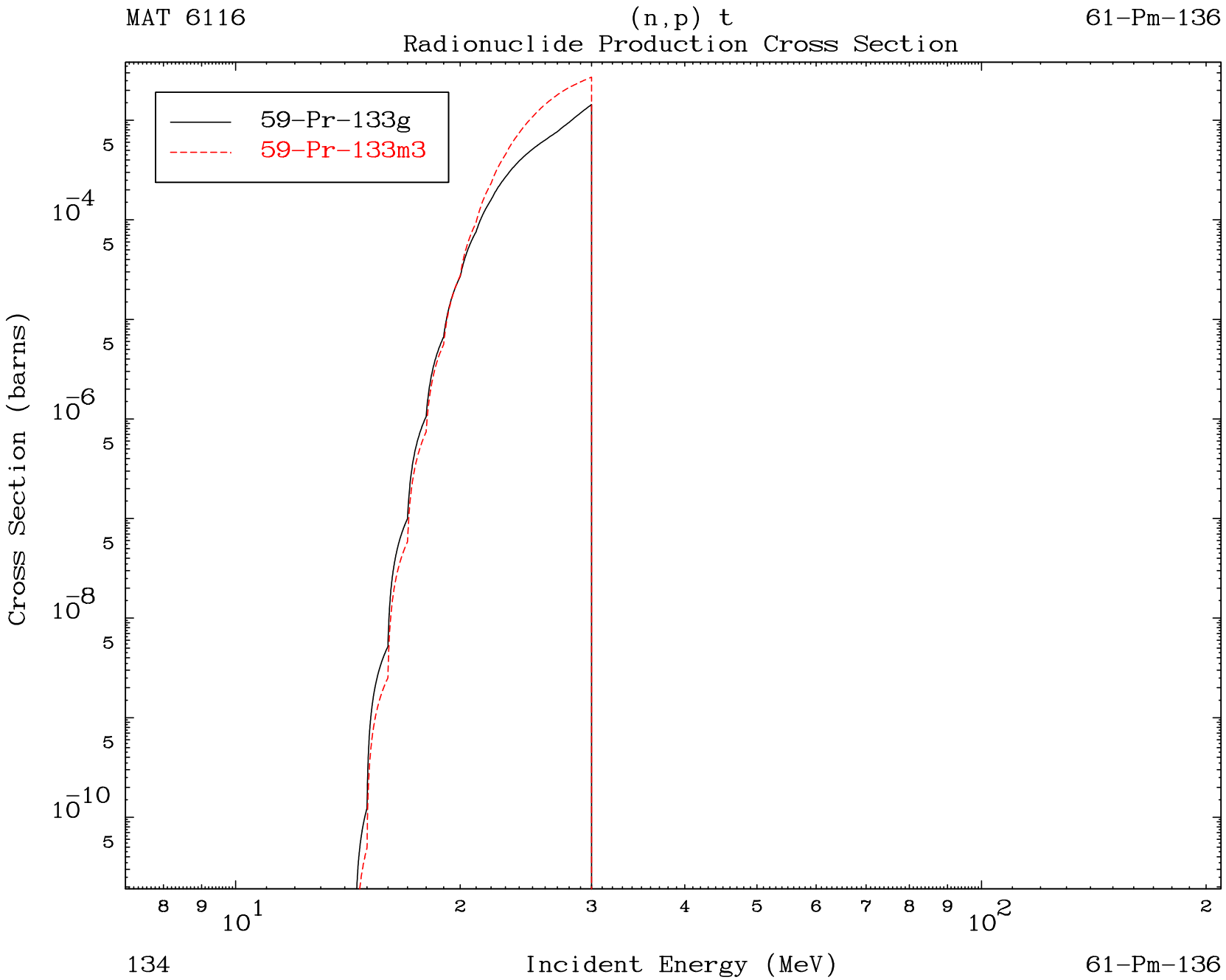

MAT 6116
(n,n') p α
61-Pm-136
Radionuclide Production Cross Section
58-Ce-131g
58-Ce-131m1
Cross Section (barns)
10^-2
10^-4
10^-6
10^-8
5
2
4
6
8
10^1
10^2
129
Incident Energy (MeV)
61-Pm-136

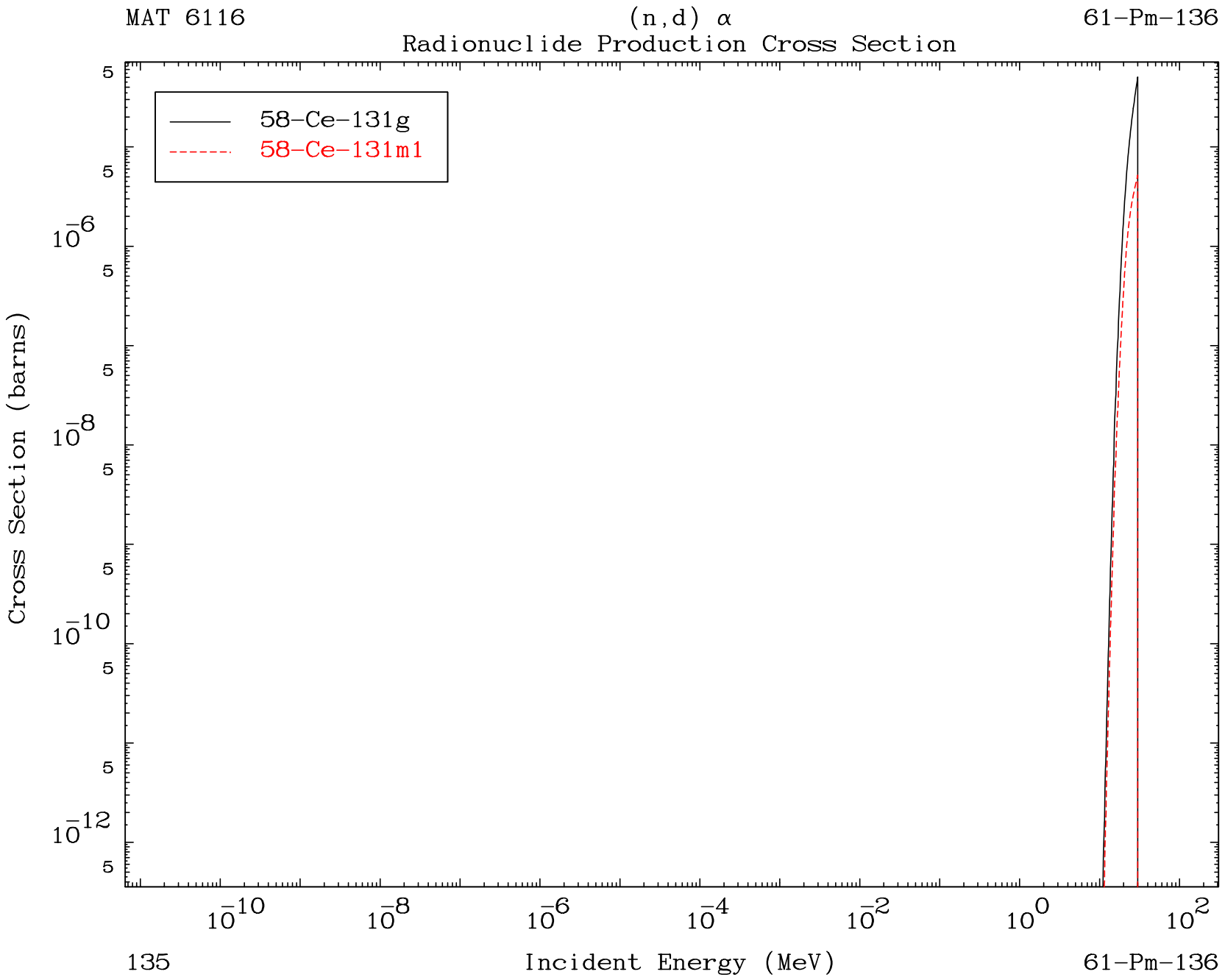

MAT 6116
(n,He-3)
61-Pm-136
Radionuclide Production Cross Section
59-Pr-134g
59-Pr-134m1
Cross Section (barns)
Incident Energy (MeV)
130
61-Pm-136


MAT 6116
(n,α)
61-Pm-136
Radionuclide Production Cross Section
Cross Section (barns)
5
10^1
5
10^0
5
10^-1
5
10^-2
5
59-Pr-133g
59-Pr-133m3
10^-10
10^-8
10^-6
10^-4
10^-2
10^0
10^2
131
Incident Energy (MeV)
61-Pm-136


MAT 6116
(n,2α)
61-Pm-136
Radionuclide Production Cross Section
57-La-129g
57-La-129m2
Cross Section (barns)
10^-4
10^-6
10^-8
10^-10
5
10^-10
10^-8
10^-6
10^-4
10^-2
10^0
10^2
132
Incident Energy (MeV)
61-Pm-136


MAT 6116
(n,p) d
61-Pm-136
Radionuclide Production Cross Section
59-Pr-134g
59-Pr-134m1
Cross Section (barns)
Incident Energy (MeV)
133
61-Pm-136


MAT 6116
(n,p) t
61-Pm-136
Radionuclide Production Cross Section
59-Pr-133g
59-Pr-133m3
Cross Section (barns)
Incident Energy (MeV)
134
61-Pm-136


MAT 6116
(n,d) α
61-Pm-136
Radionuclide Production Cross Section
58-Ce-131g
58-Ce-131m1
Cross Section (barns)
Incident Energy (MeV)
135
61-Pm-136