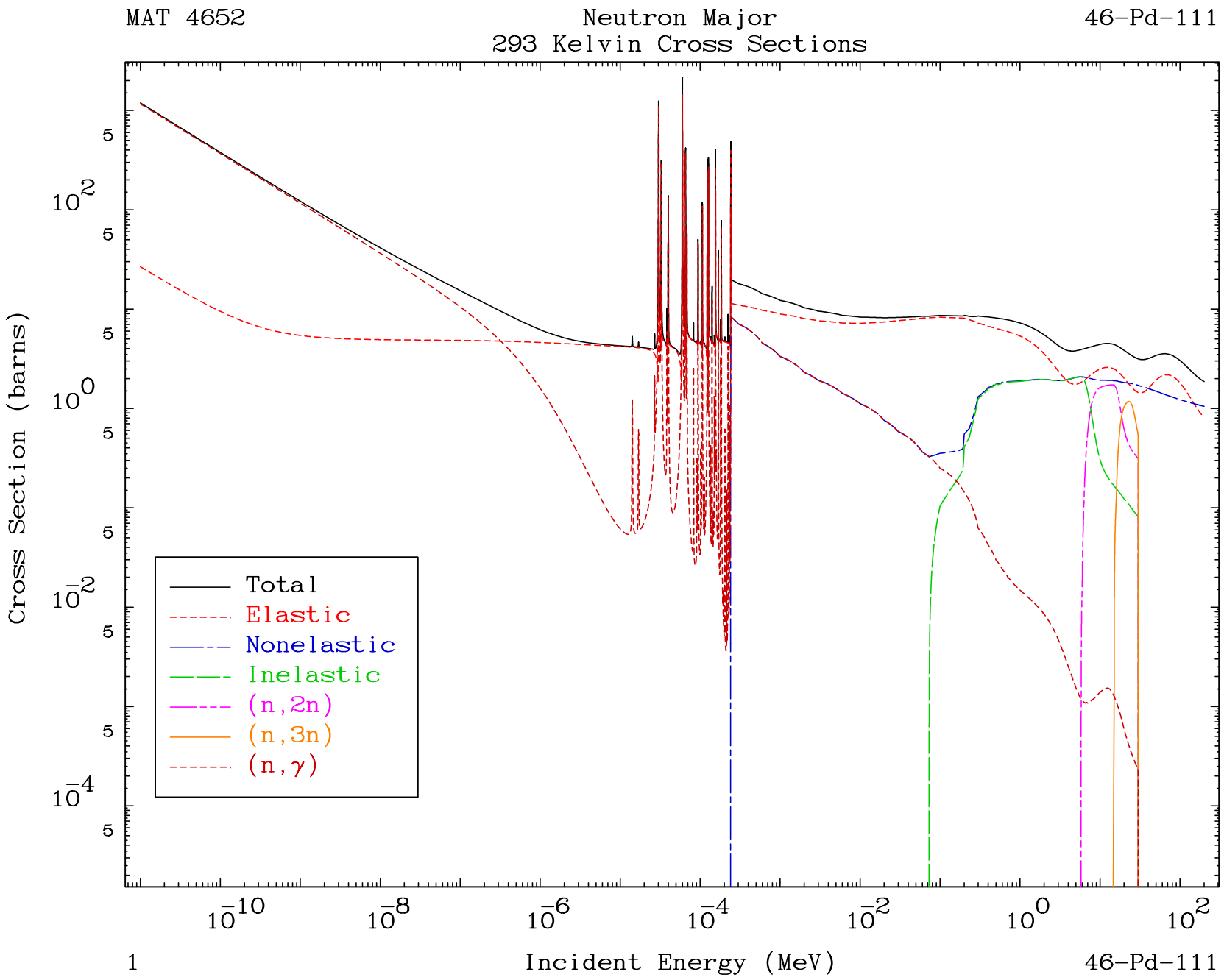
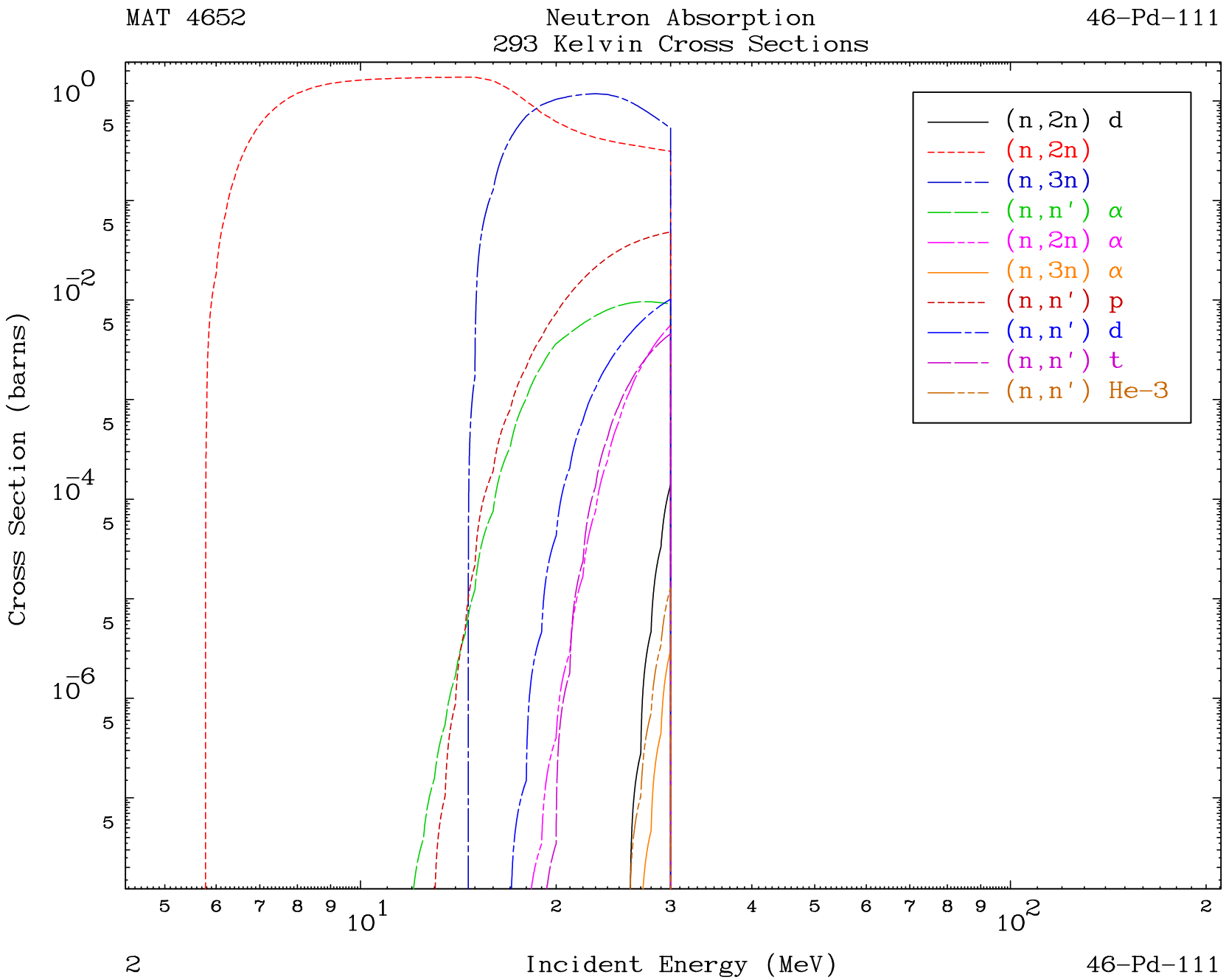
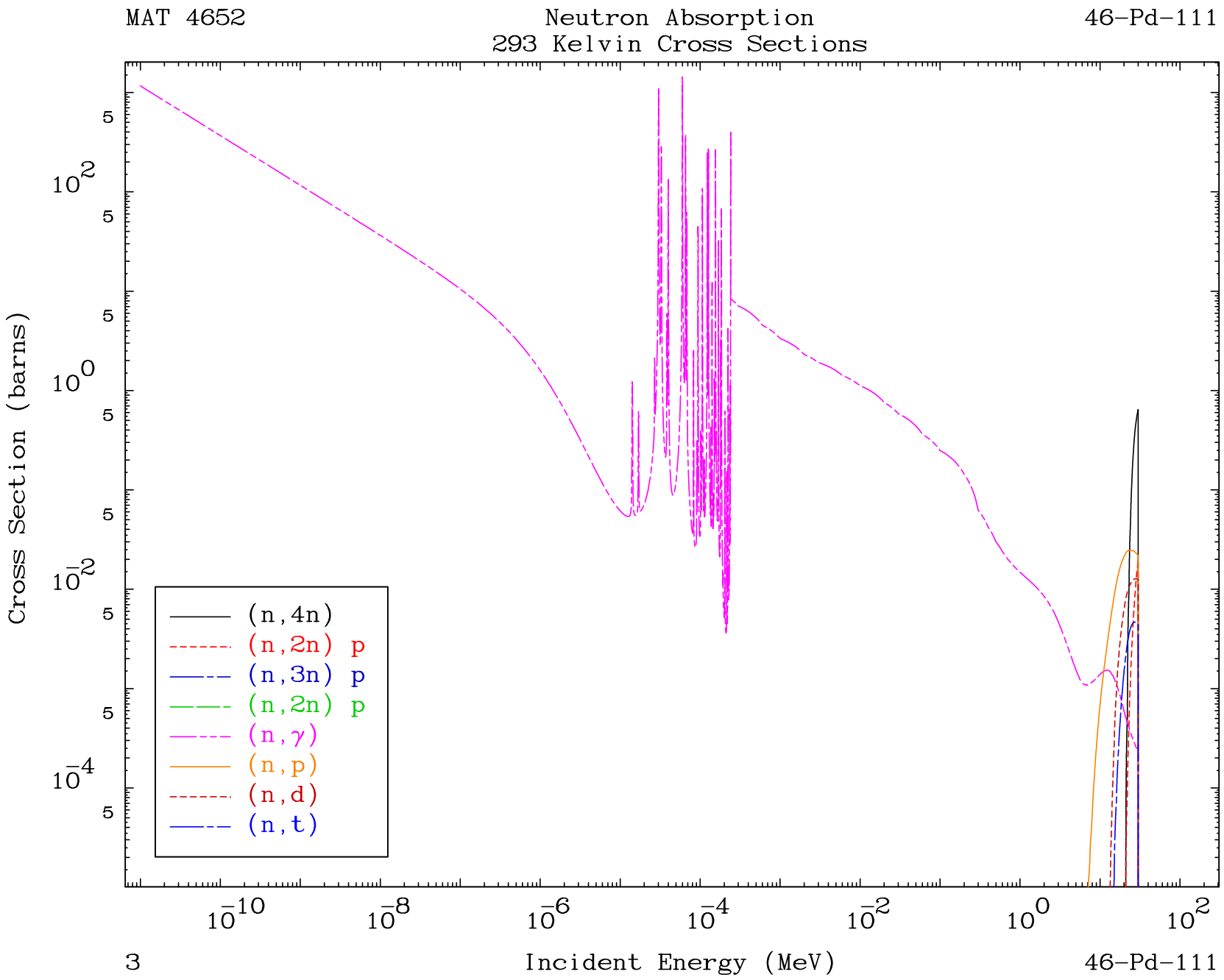
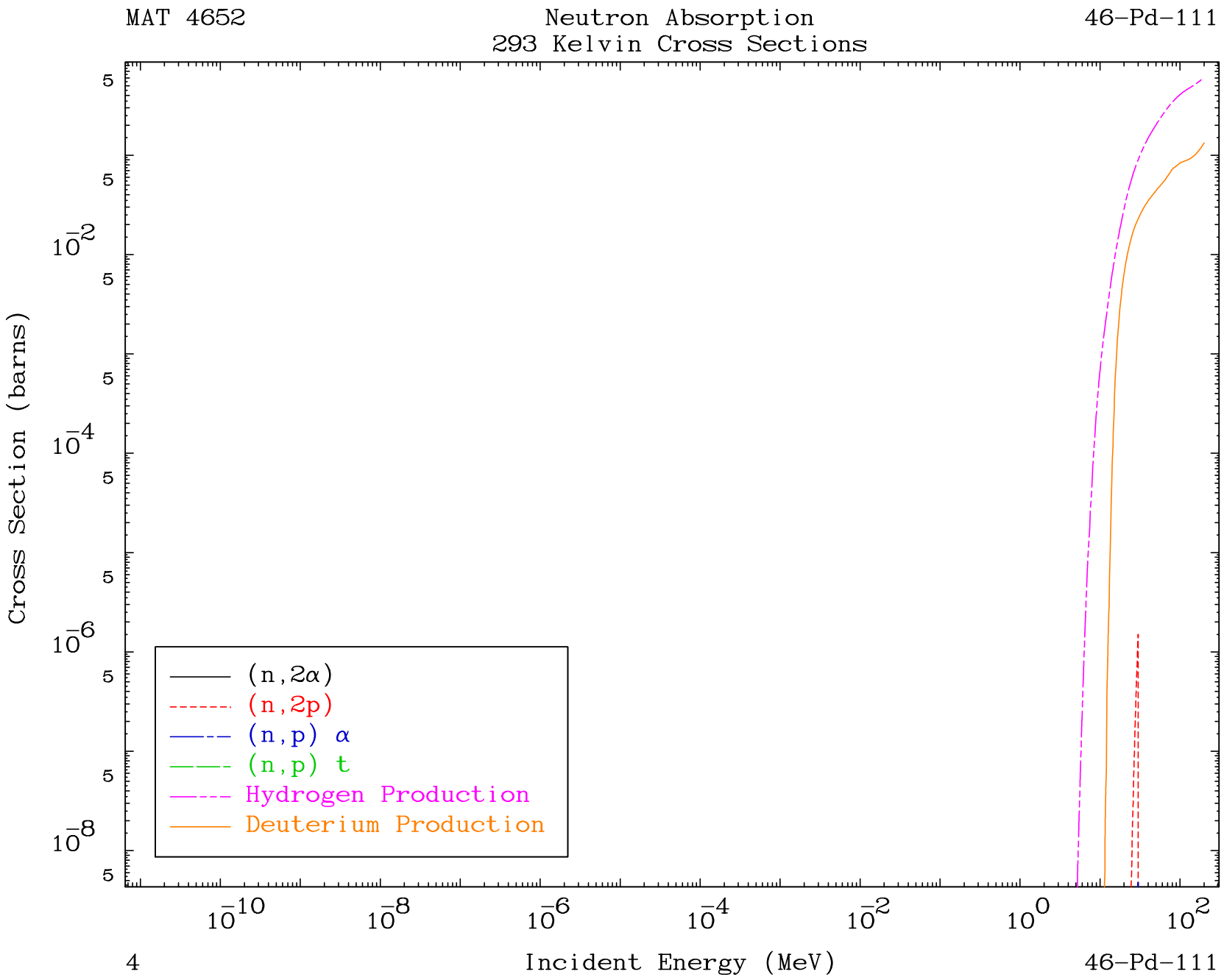
Program EVALPLOT
(Version 2021-1)
by
Dermott E. Cullen
(Present Contact Information)
Dermott E. Cullen
1466 Hudson Way
Livermore, CA 94550
U.S.A.
Tele: 925-443-1911
E.Mail:redcullen1@comcast.net
Web:redcullen1.net/HOMEPAGE.NEW

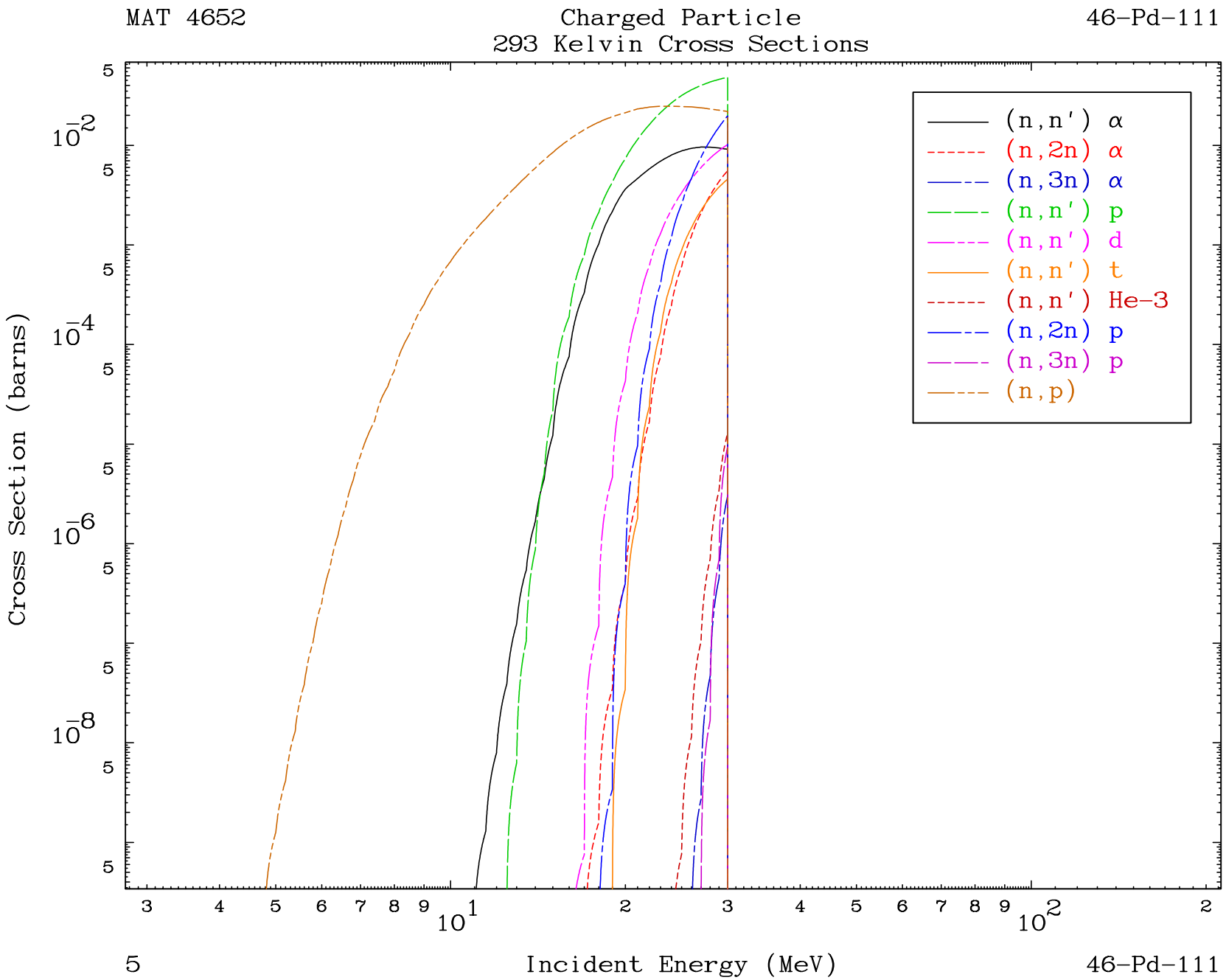
Press Mouse Button to Start

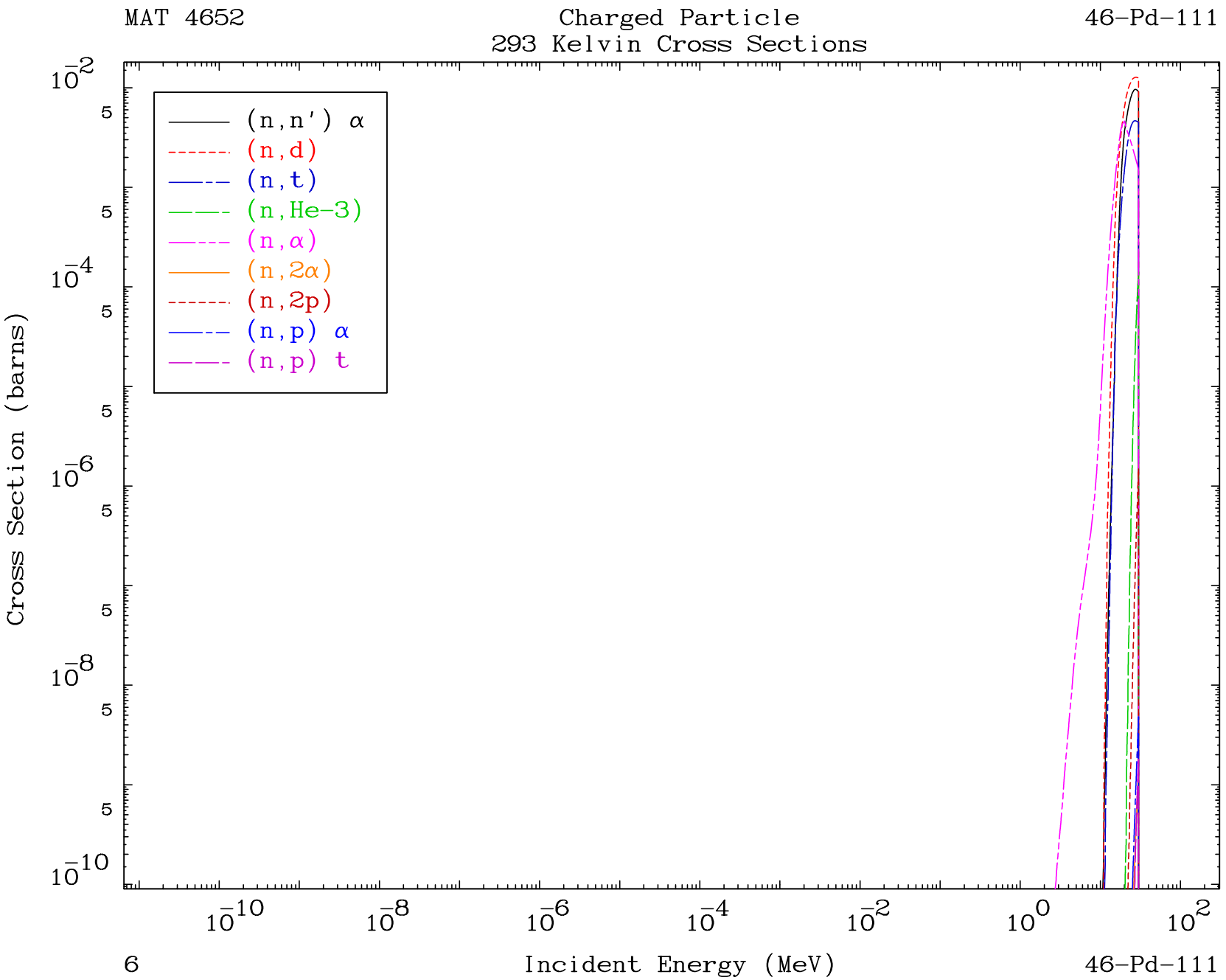

MAT 4652
Neutron Major
293 Kelvin Cross Sections
46-Pd-111
Cross Section (barns)
Incident Energy (MeV)
Total
Elastic
Nonelastic
Inelastic
(n,2n)
(n,3n)
(n,γ)
1
46-Pd-111

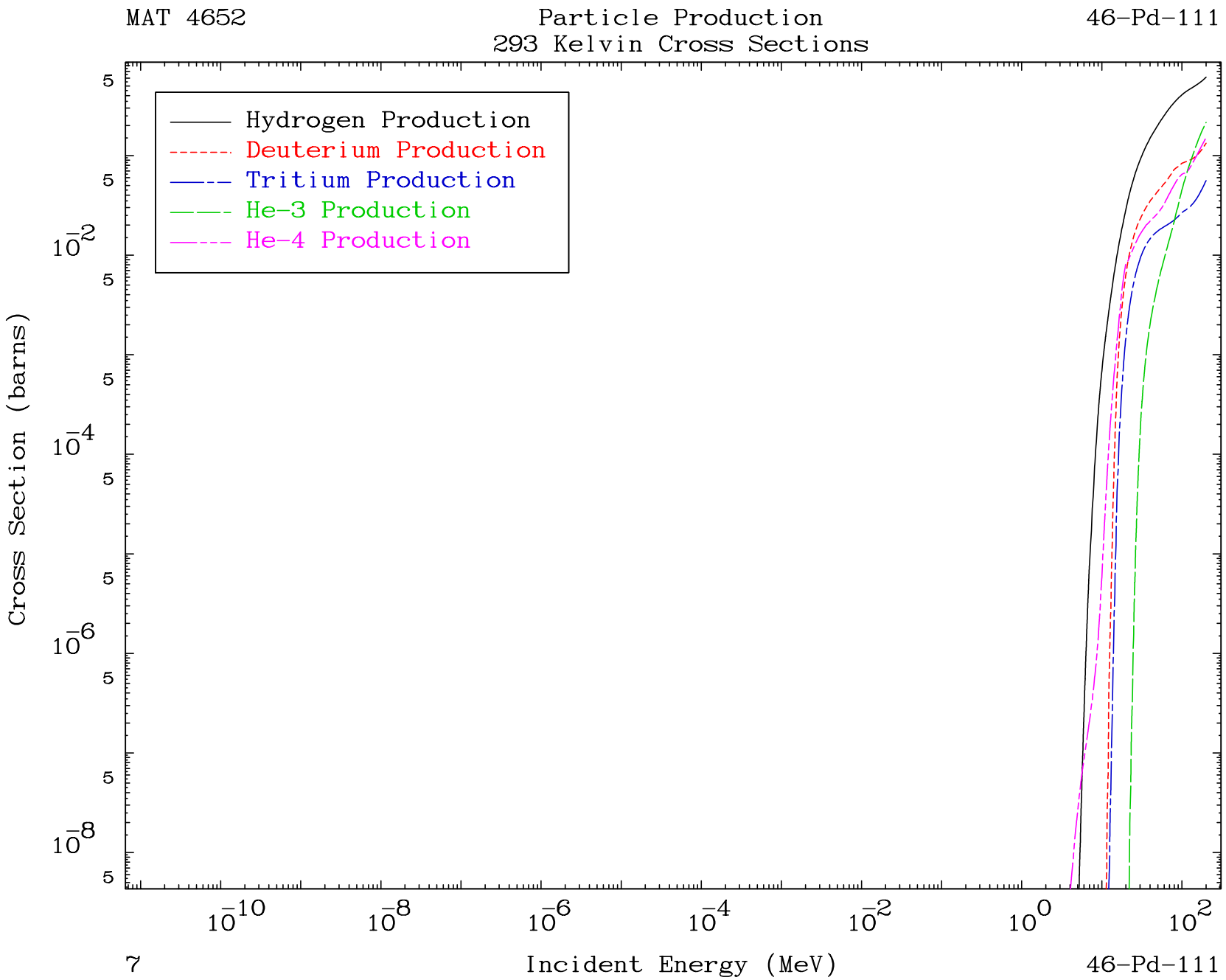

MAT 4652
Neutron Absorption
293 Kelvin Cross Sections
46-Pd-111
Cross Section (barns)
Incident Energy (MeV)
(n,2n) d
(n,2n)
(n,3n)
(n,n') α
(n,2n) α
(n,3n) α
(n,n') p
(n,n') d
(n,n') t
(n,n') He-3
46-Pd-111

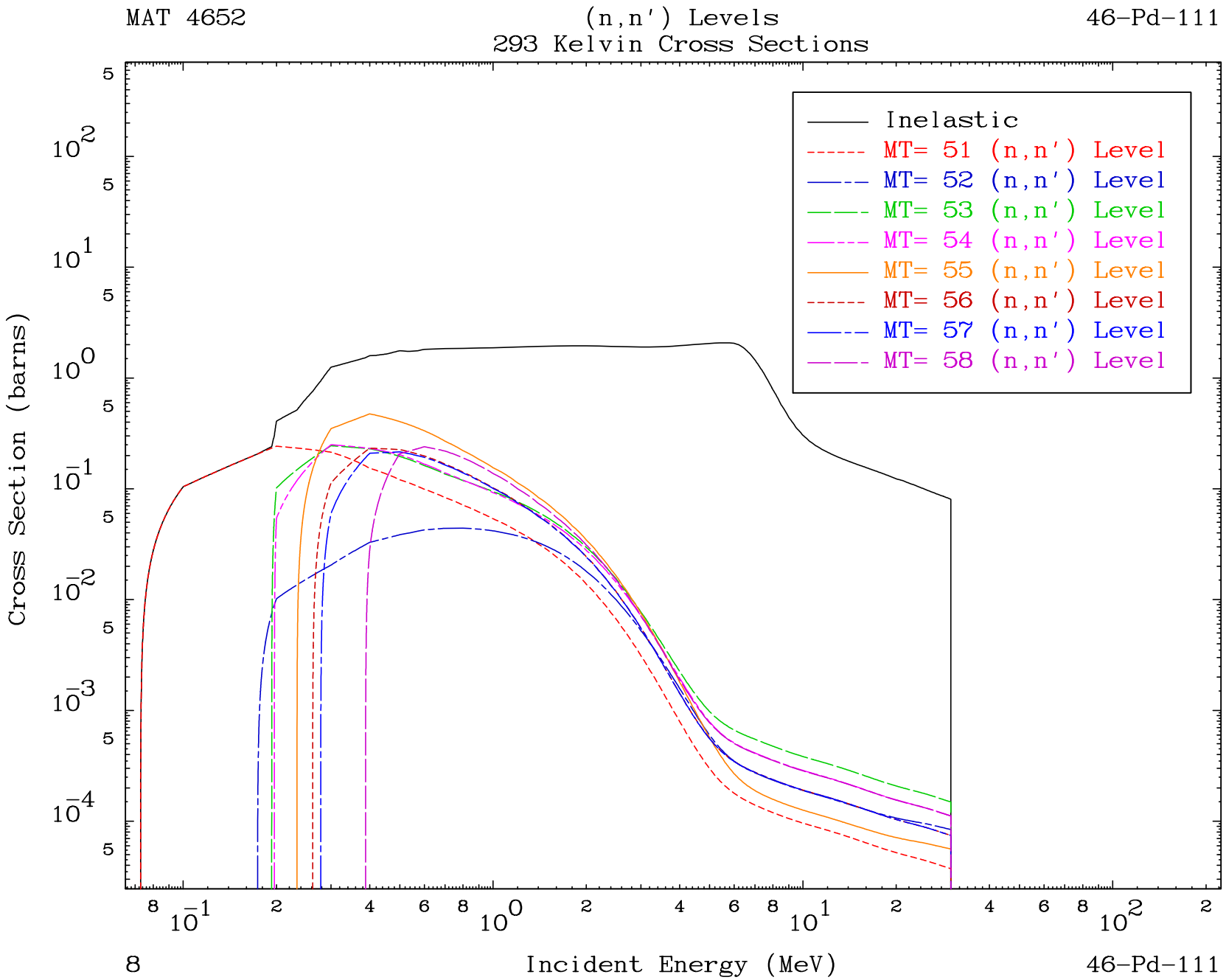

MAT 4652
Neutron Absorption
293 Kelvin Cross Sections
46-Pd-111
Cross Section (barns)
Incident Energy (MeV)
(n,4n)
(n,2n) p
(n,3n) p
(n,2n) p
(n,γ)
(n,p)
(n,d)
(n,t)
3
46-Pd-111

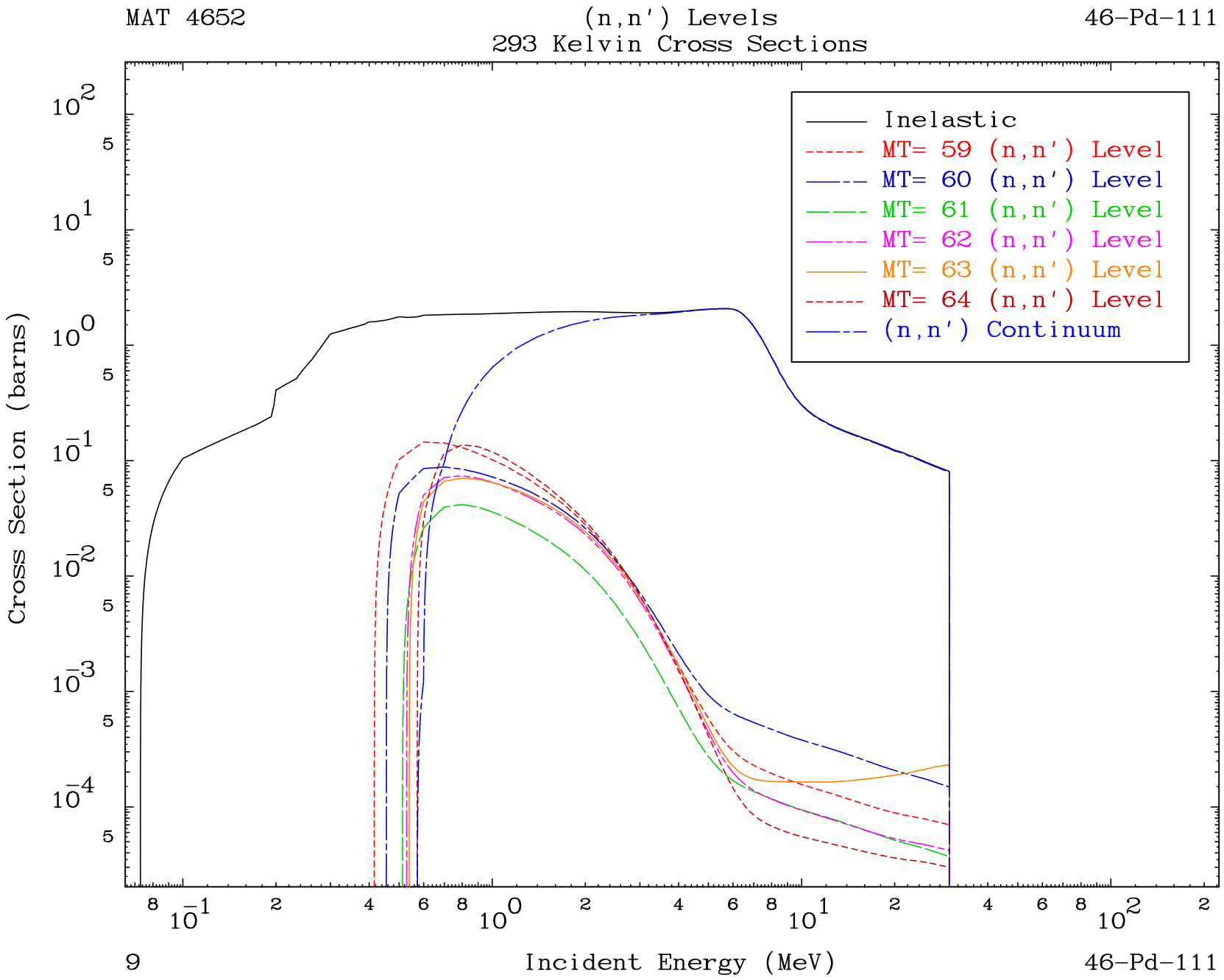

MAT 4652
Neutron Absorption
293 Kelvin Cross Sections
46-Pd-111
Cross Section (barns)
Incident Energy (MeV)
(n,2α)
(n,2p)
(n,p) α
(n,p) t
Hydrogen Production
Deuterium Production
4
46-Pd-111

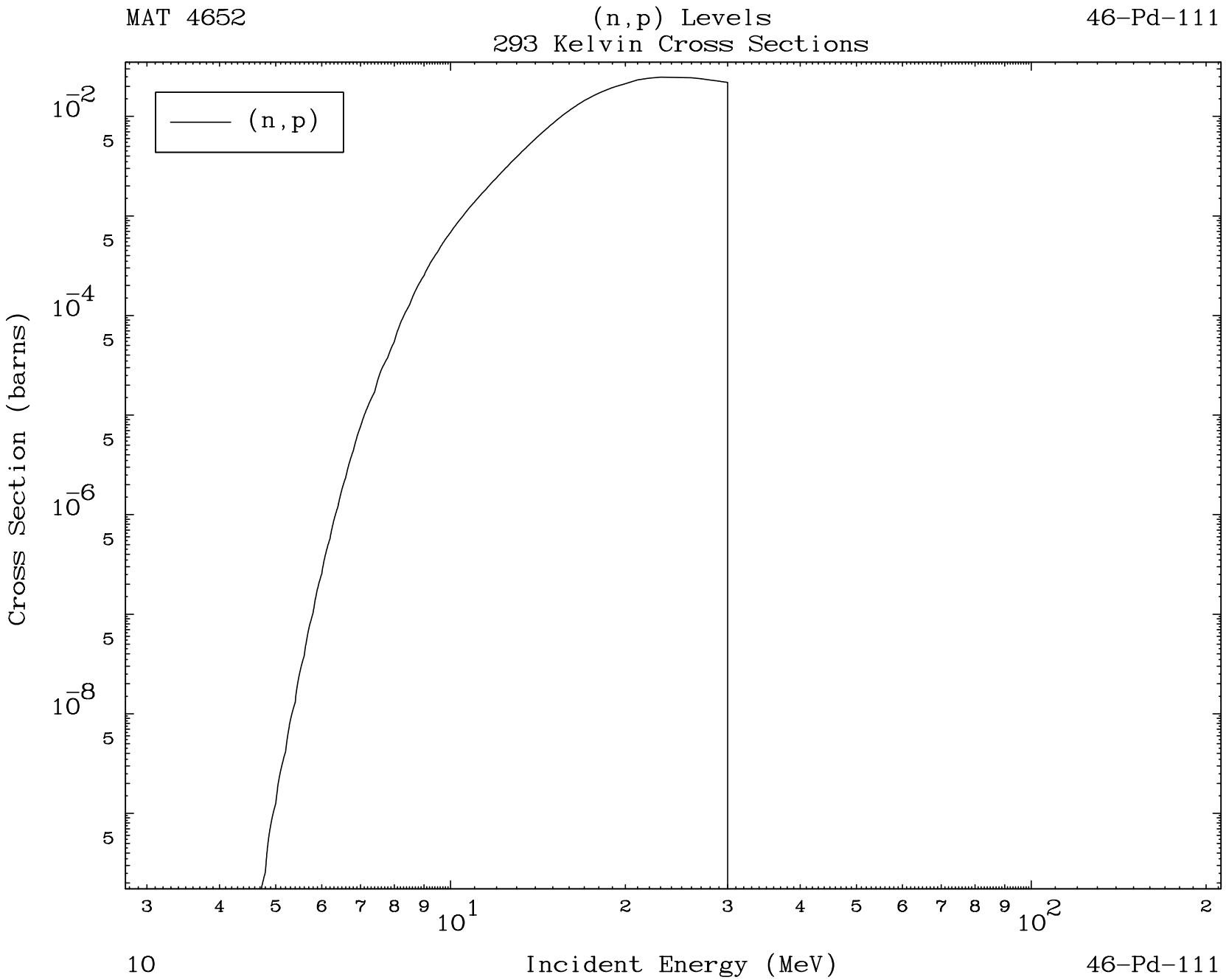

MAT 4652
Charged Particle
46-Pd-111
293 Kelvin Cross Sections
Cross Section (barns)
Incident Energy (MeV)
46-Pd-111
(n,n') α
(n,2n) α
(n,3n) α
(n,n') p
(n,n') d
(n,n') t
(n,n') He-3
(n,2n) p
(n,3n) p
(n,p)

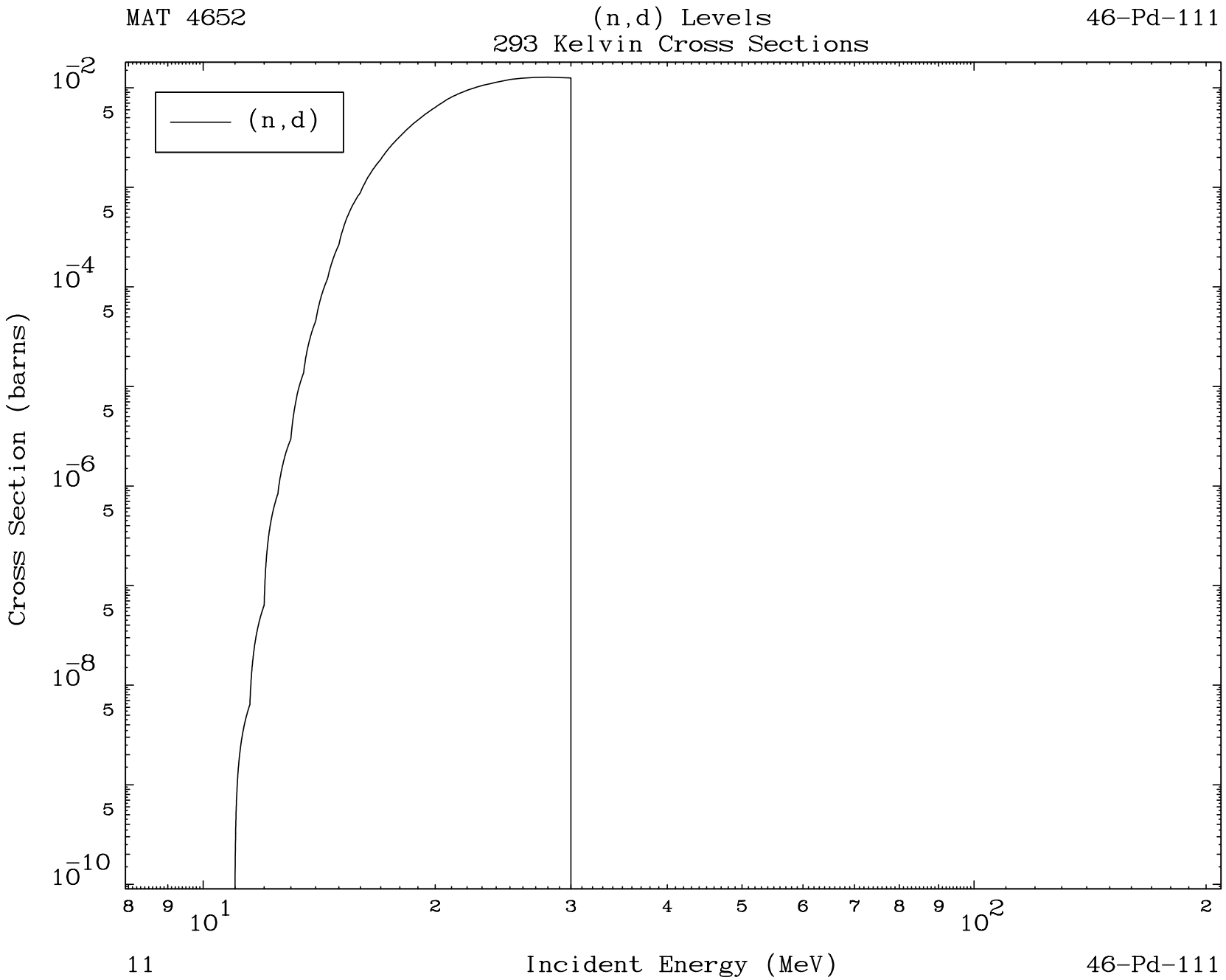

MAT 4652
Charged Particle
293 Kelvin Cross Sections
46-Pd-111
(n,n') α
(n,d)
(n,t)
(n,He-3)
(n,α)
(n,2α)
(n,2p)
(n,p) α
(n,p) t
Cross Section (barns)
Incident Energy (MeV)
6
46-Pd-111


MAT 4652
Particle Production
293 Kelvin Cross Sections
46-Pd-111
Hydrogen Production
Deuterium Production
Tritium Production
He-3 Production
He-4 Production
Cross Section (barns)
Incident Energy (MeV)
7
46-Pd-111

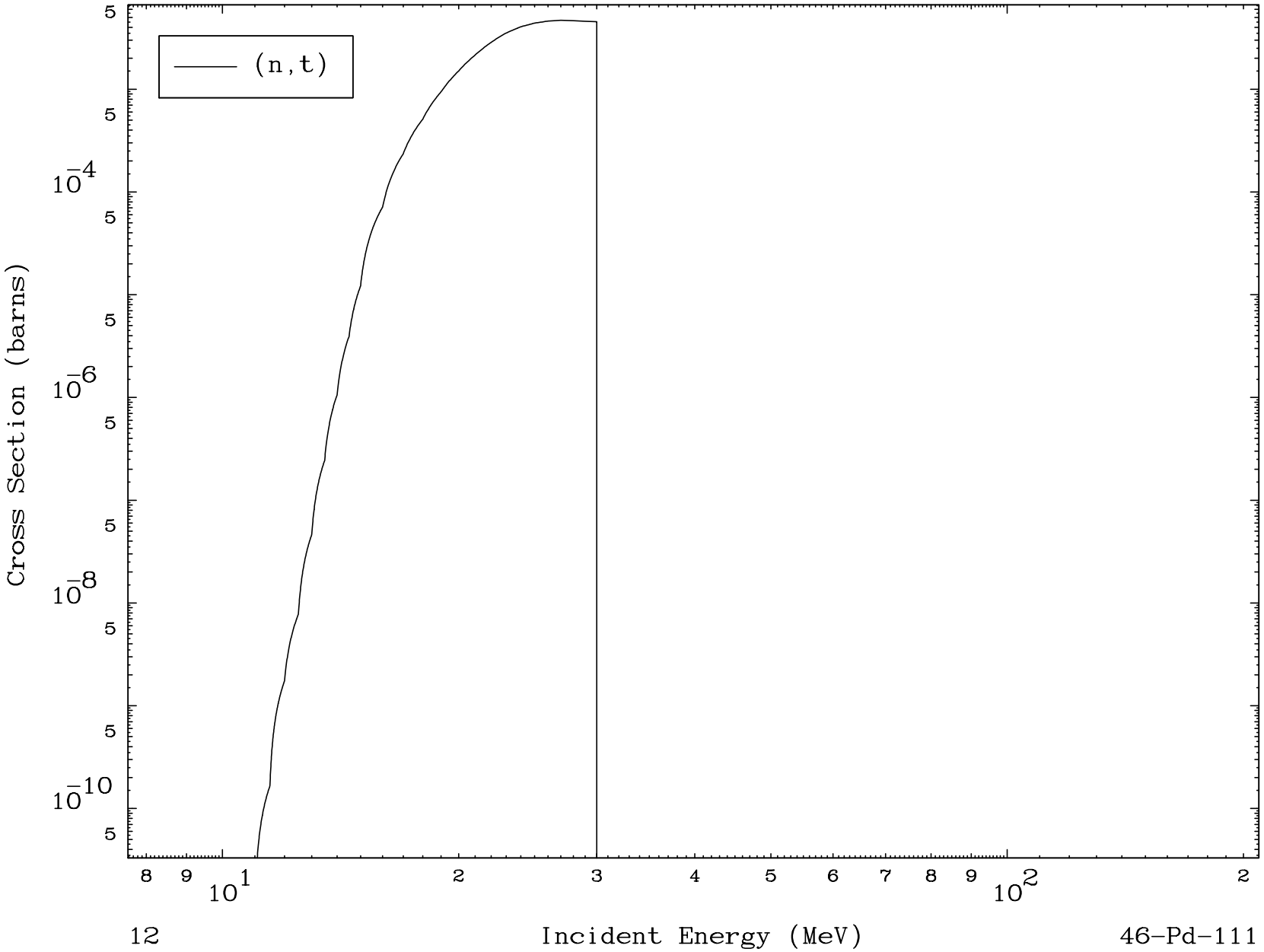

MAT 4652
(n,n') Levels
293 Kelvin Cross Sections
46-Pd-111
Inelastic
MT= 51 (n,n') Level
MT= 52 (n,n') Level
MT= 53 (n,n') Level
MT= 54 (n,n') Level
MT= 55 (n,n') Level
MT= 56 (n,n') Level
MT= 57 (n,n') Level
MT= 58 (n,n') Level
Cross Section (barns)
Incident Energy (MeV)
8
46-Pd-111

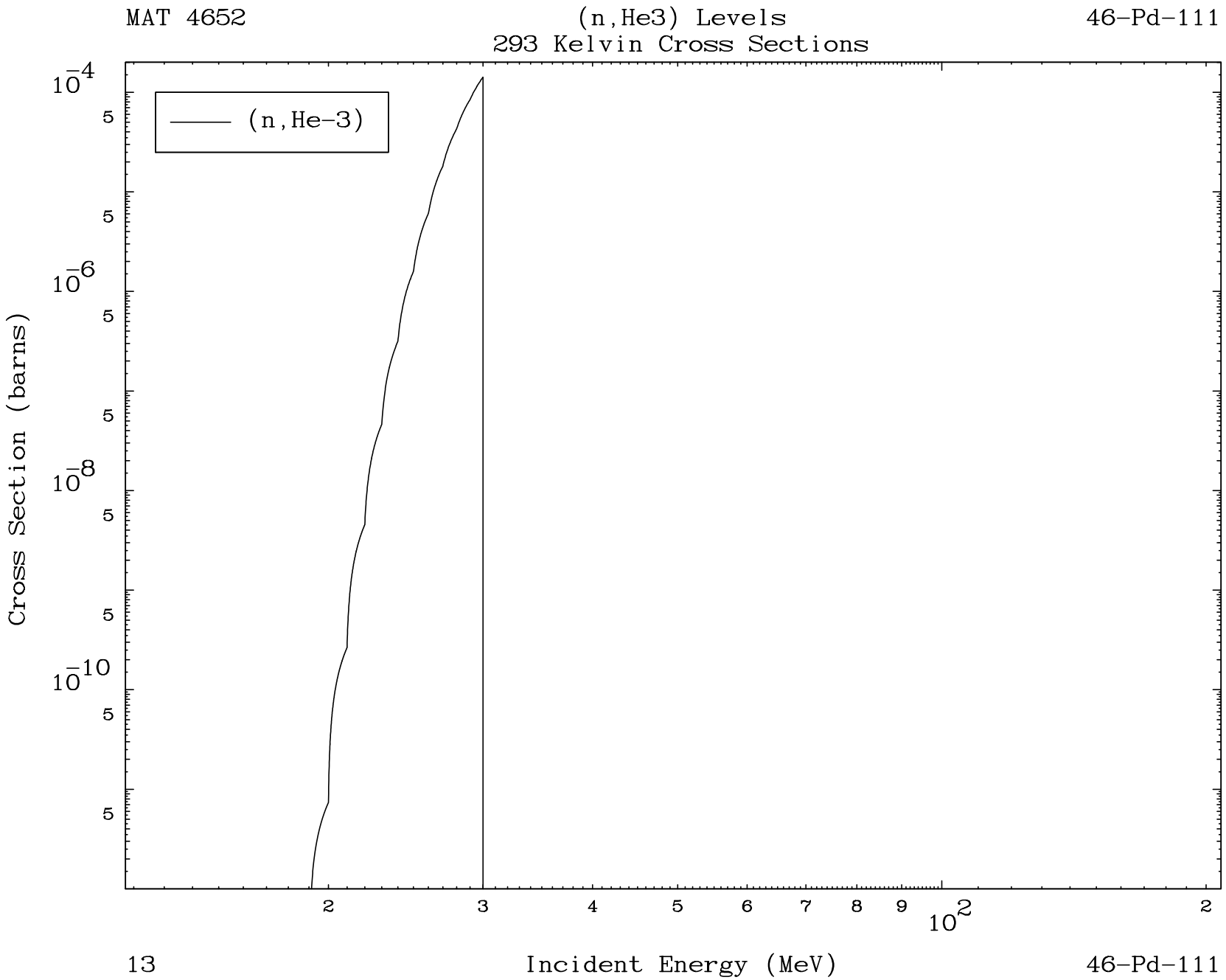

MAT 4652
(n,n') Levels
293 Kelvin Cross Sections
46-Pd-111
Inelastic
MT= 59 (n,n') Level
MT= 60 (n,n') Level
MT= 61 (n,n') Level
MT= 62 (n,n') Level
MT= 63 (n,n') Level
MT= 64 (n,n') Level
(n,n') Continuum
Cross Section (barns)
Incident Energy (MeV)
9
46-Pd-111

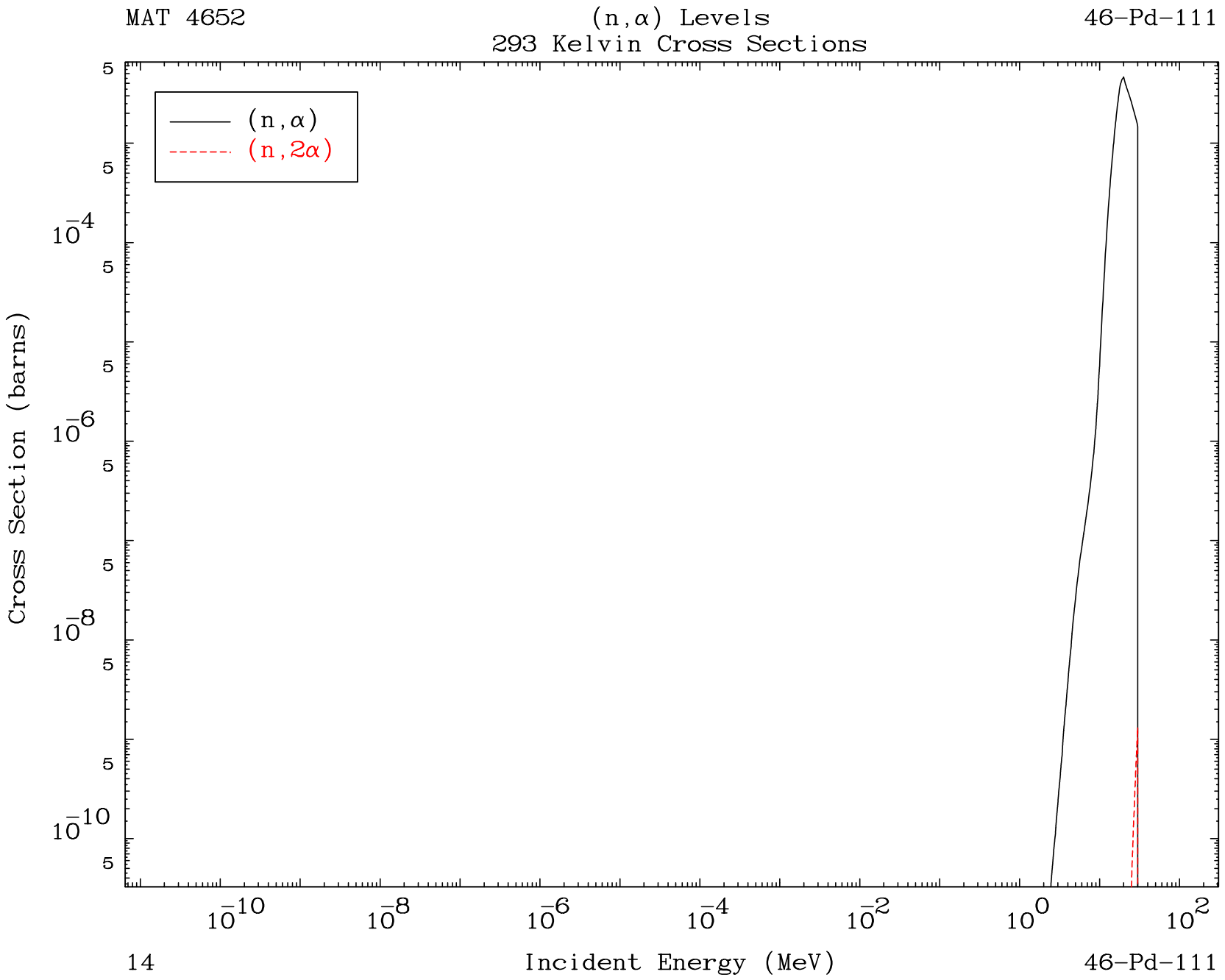

MAT 4652
(n,p) Levels
46-Pd-111
293 Kelvin Cross Sections
(n,p)
Cross Section (barns)
Incident Energy (MeV)
46-Pd-111

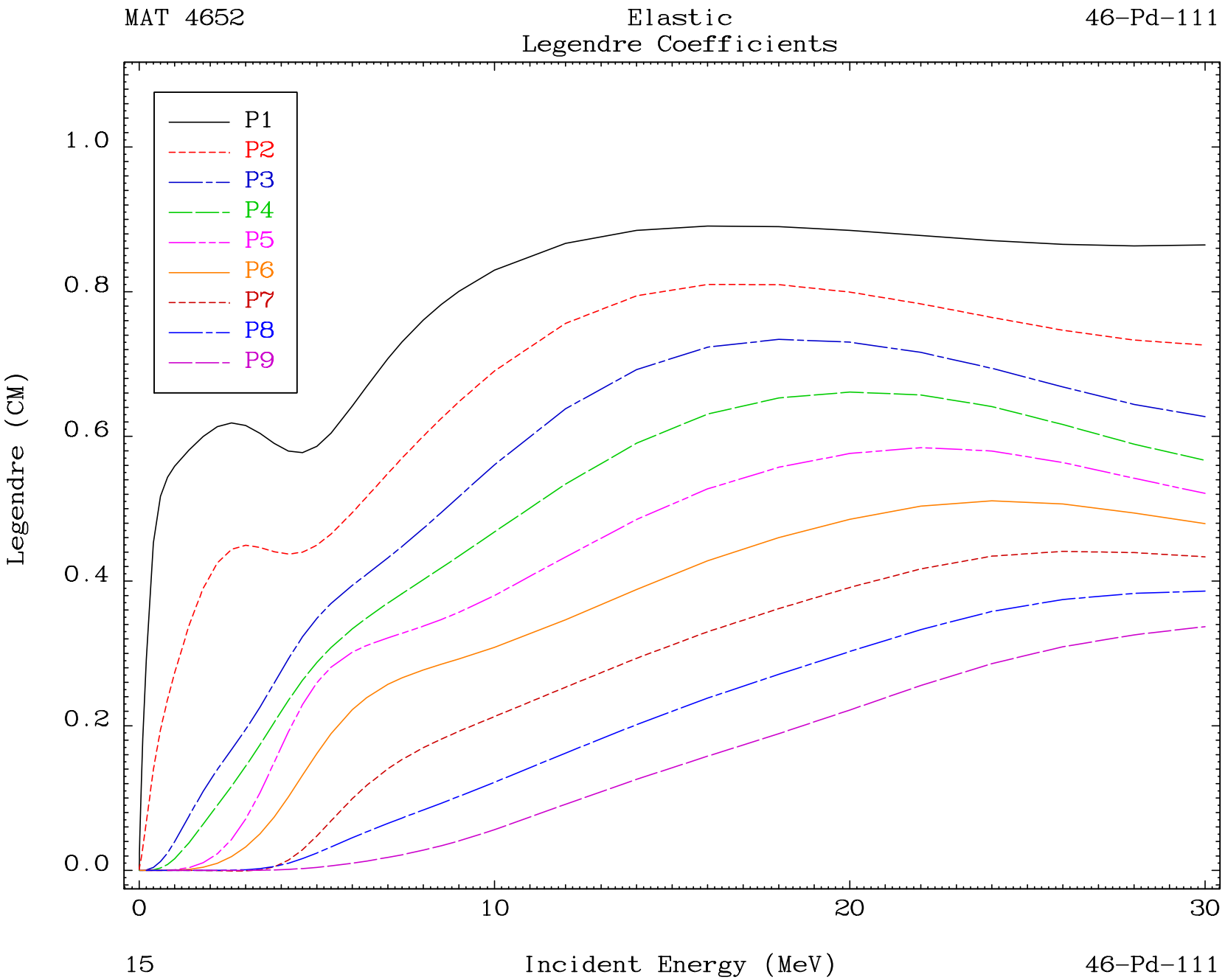

MAT 4652
(n,d) Levels
46-Pd-111
293 Kelvin Cross Sections
(n,d)
Cross Section (barns)
Incident Energy (MeV)
11
46-Pd-111

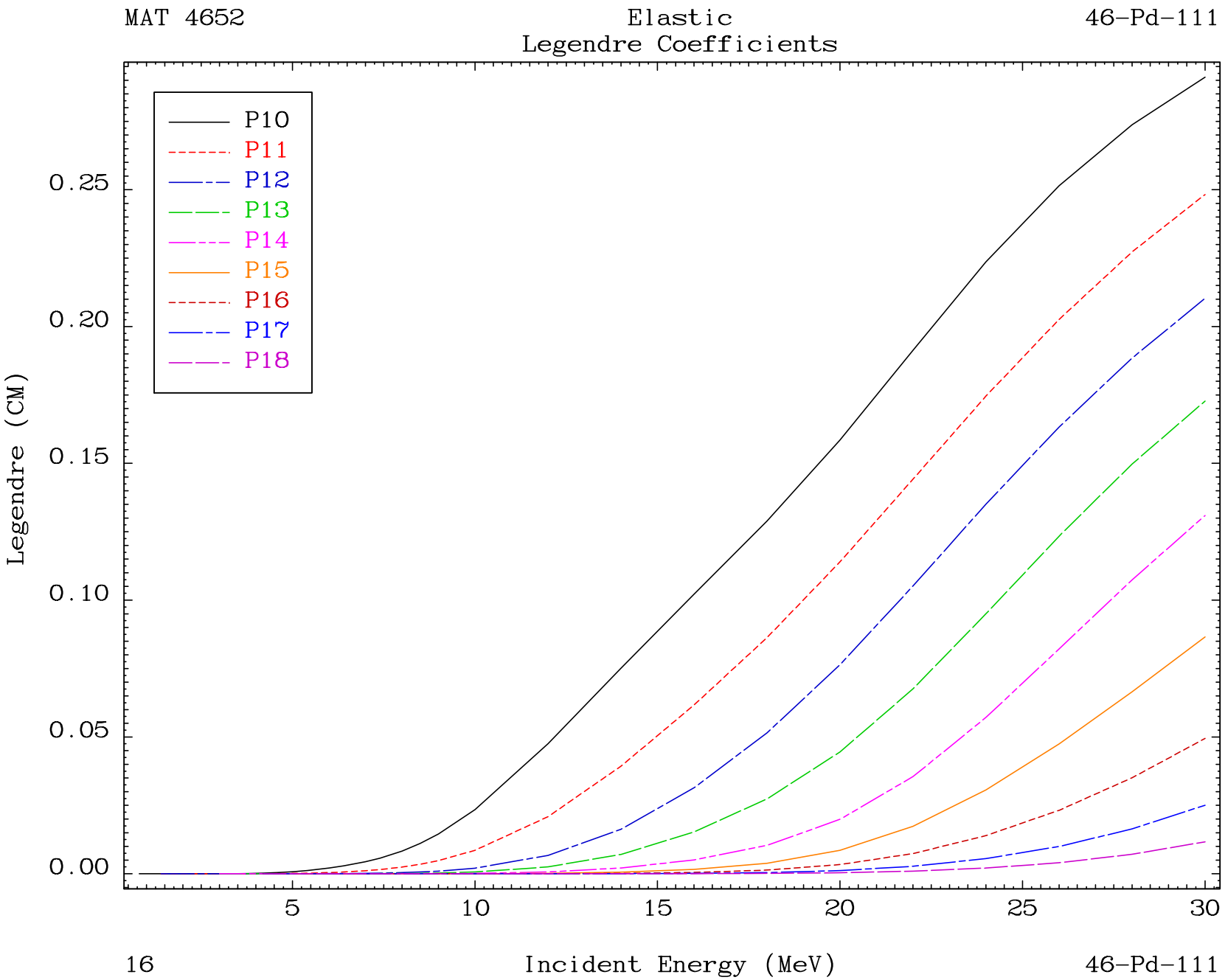
293 Kelvin Cross Sections

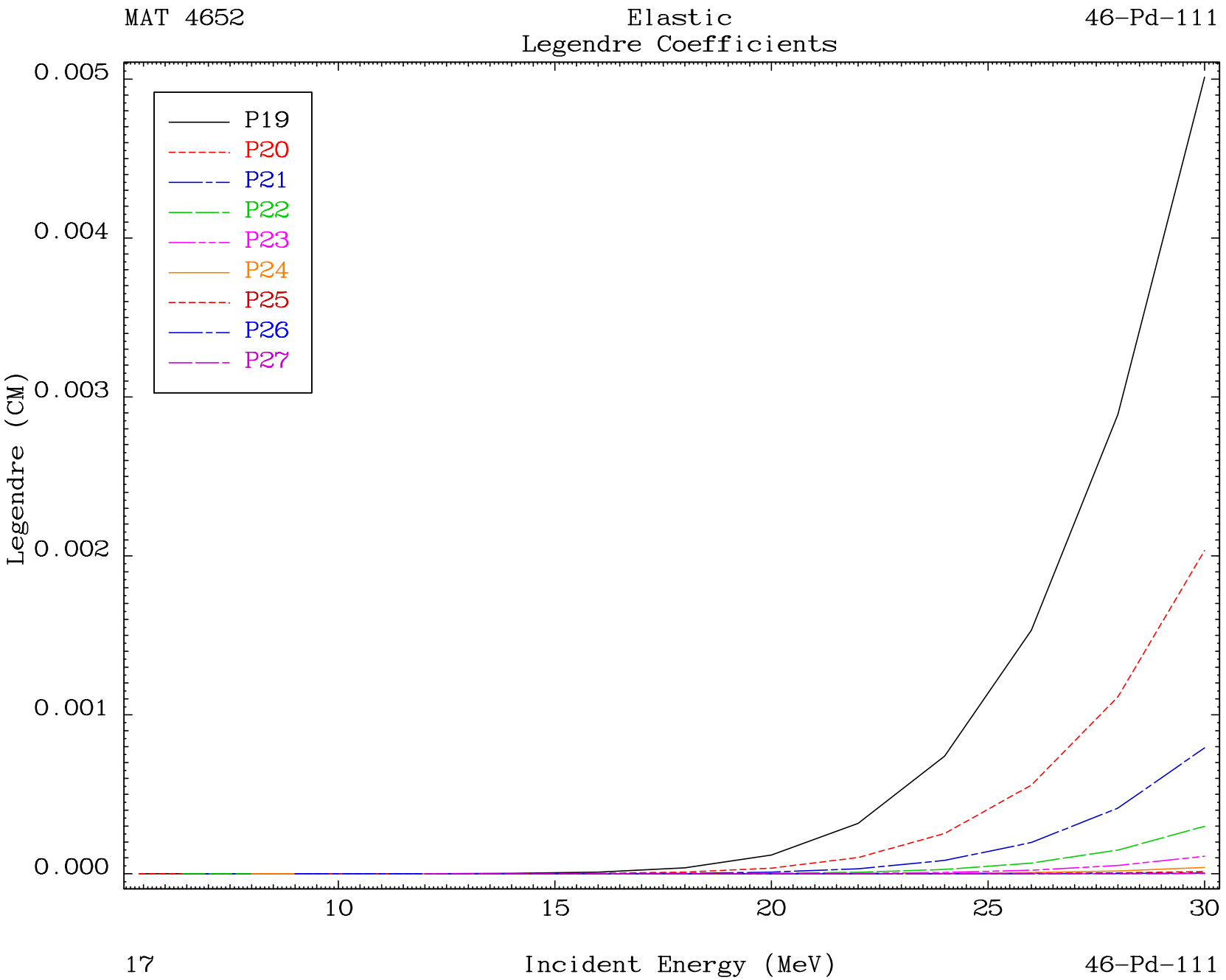


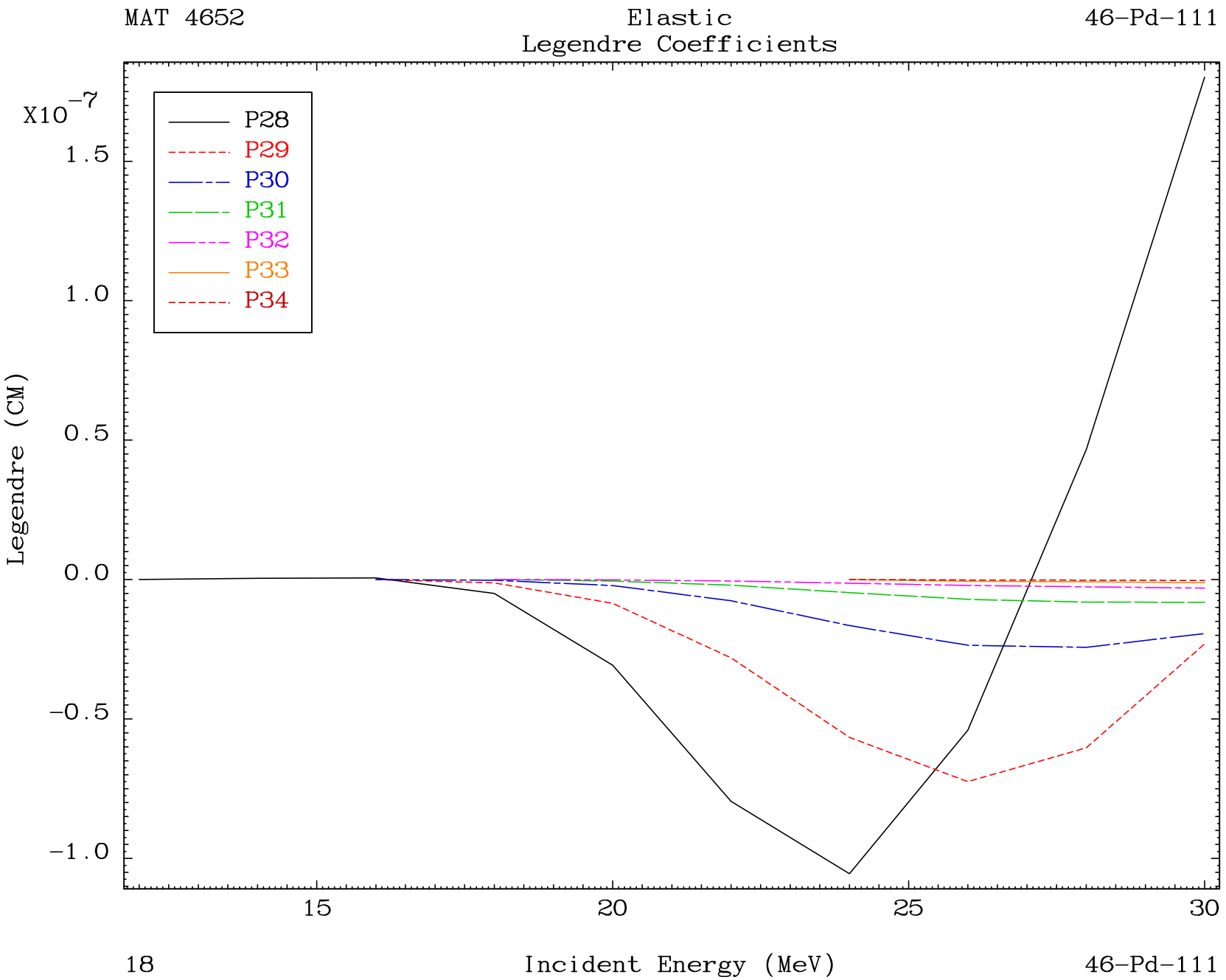

MAT 4652
(n,He3) Levels
46-Pd-111
293 Kelvin Cross Sections
(n,He-3)
Cross Section (barns)
10^-4
10^-6
10^-8
10^-10
5
2
3
4
5
6
7
8
9
10^2
2
13
Incident Energy (MeV)
46-Pd-111

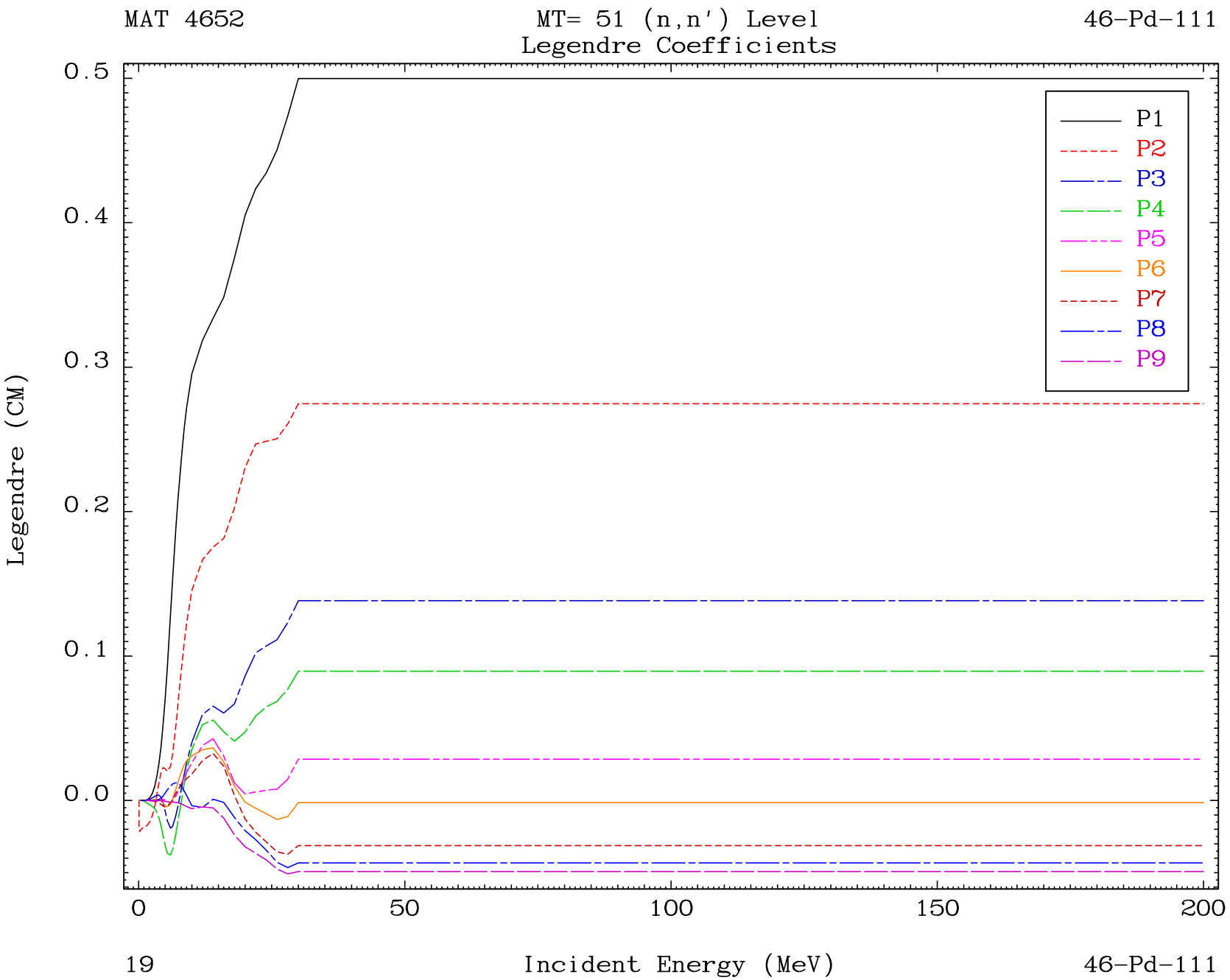

MAT 4652
(n,α) Levels
46-Pd-111
293 Kelvin Cross Sections
(n,α)
(n,2α)
Cross Section (barns)
Incident Energy (MeV)
14
46-Pd-111

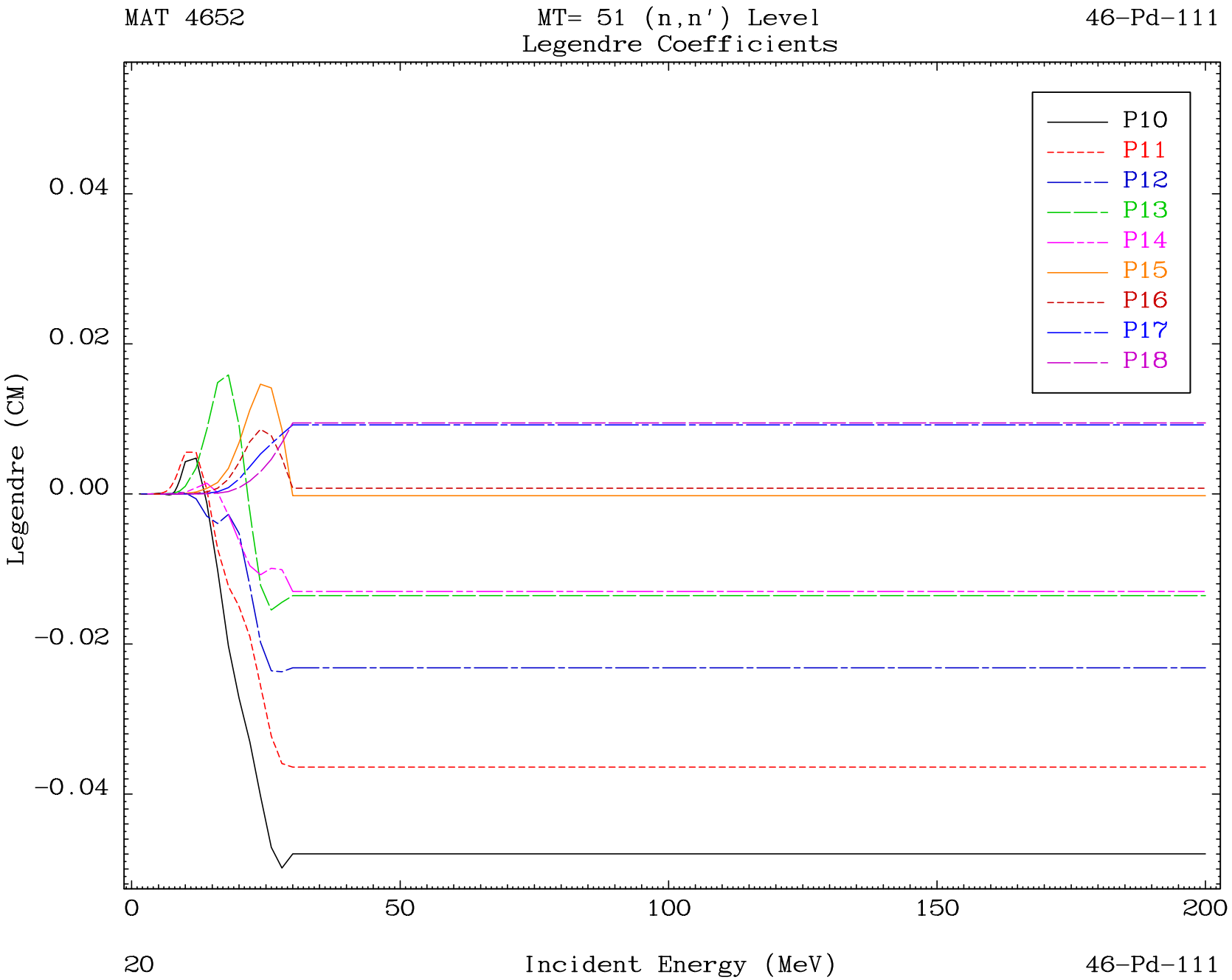

MAT 4652
Elastic
Legendre Coefficients
46-Pd-111
P1
P2
P3
P4
P5
P6
P7
P8
P9
1.0
0.8
0.6
0.4
0.2
0.0
Legendre (CM)
0
10
20
30
15
Incident Energy (MeV)
46-Pd-111

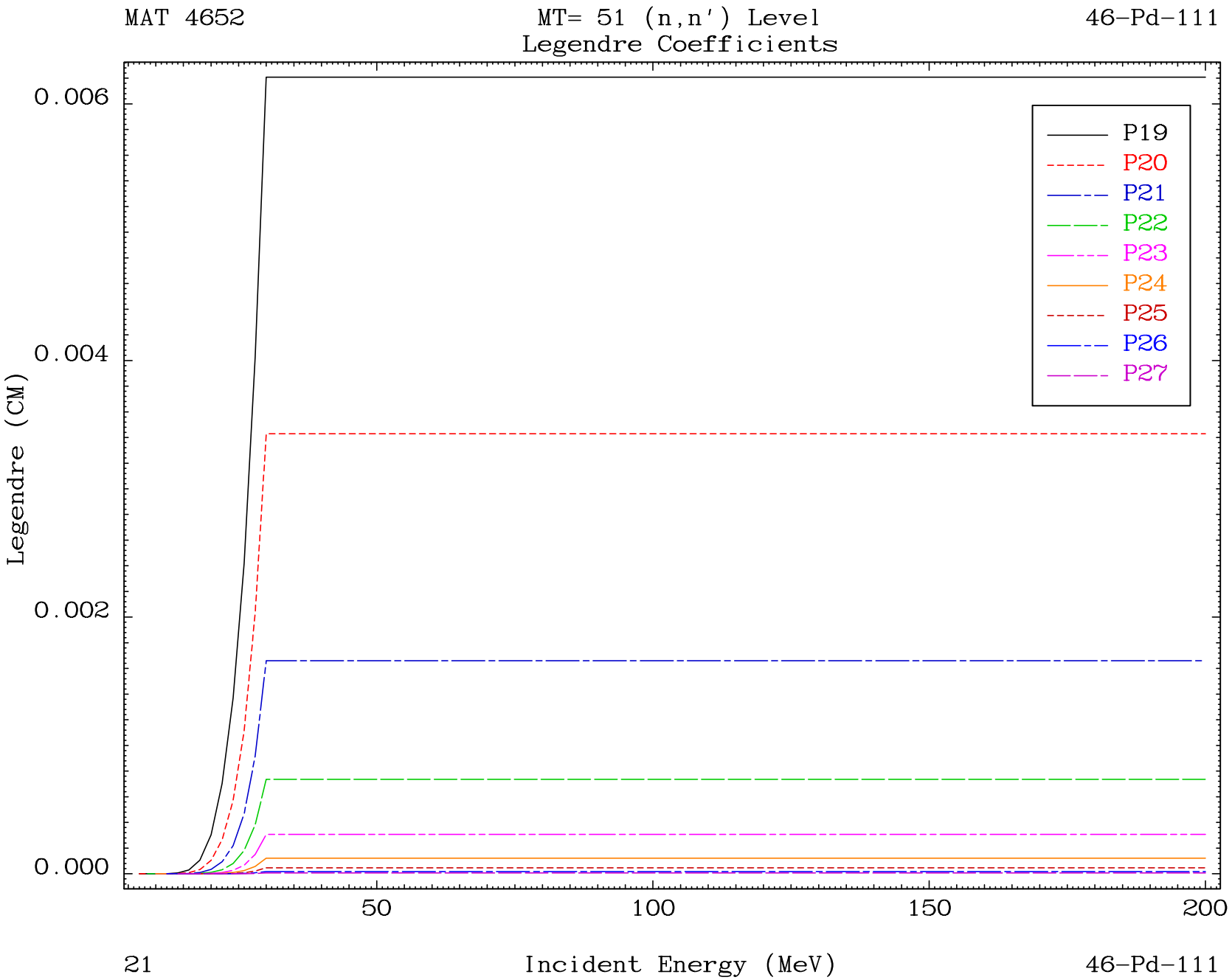

MAT 4652
Elastic
Legendre Coefficients
46-Pd-111
P10
P11
P12
P13
P14
P15
P16
P17
P18
Legendre (CM)
0.25
0.20
0.15
0.10
0.05
0.00
5
10
15
20
25
30
16
Incident Energy (MeV)
46-Pd-111

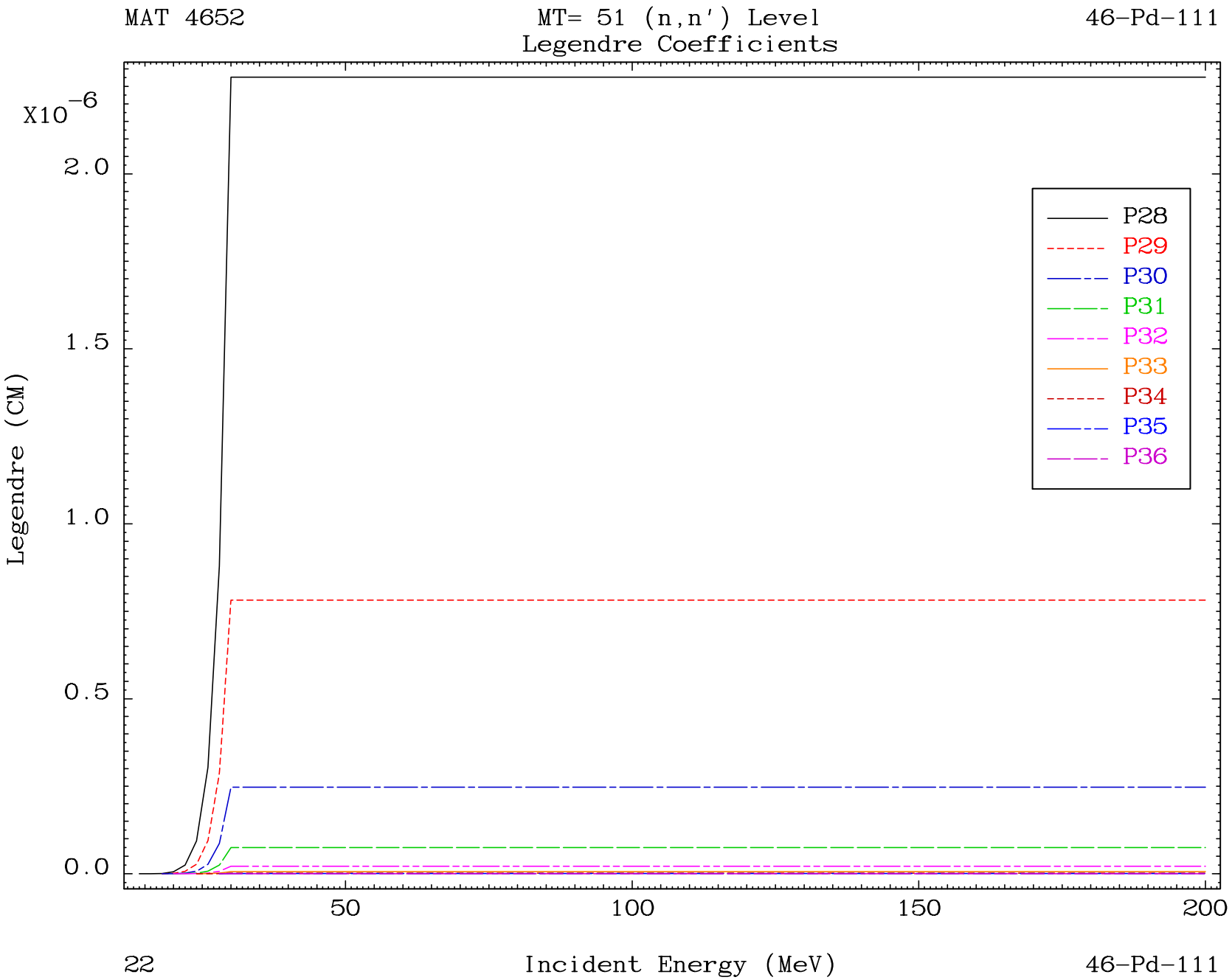

MAT 4652
Elastic
Legendre Coefficients
46-Pd-111
P19
P20
P21
P22
P23
P24
P25
P26
P27
0.005
0.004
0.003
0.002
0.001
0.000
Legendre (CM)
10
15
20
25
30
17
Incident Energy (MeV)
46-Pd-111

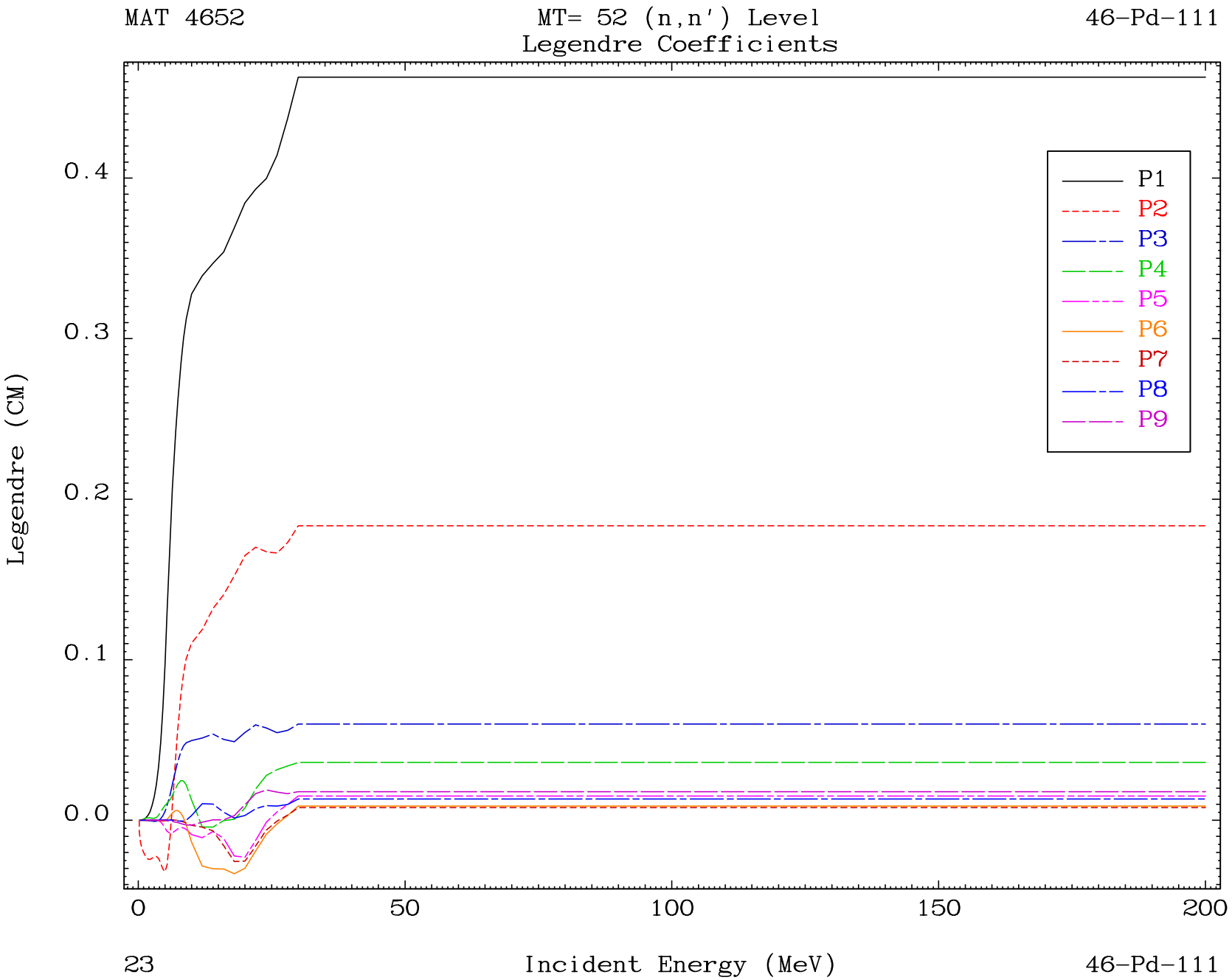

MAT 4652
Elastic
Legendre Coefficients
46-Pd-111
X10^-7
1.5
1.0
0.5
0.0
-0.5
-1.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
15
20
25
30
18
Incident Energy (MeV)
46-Pd-111

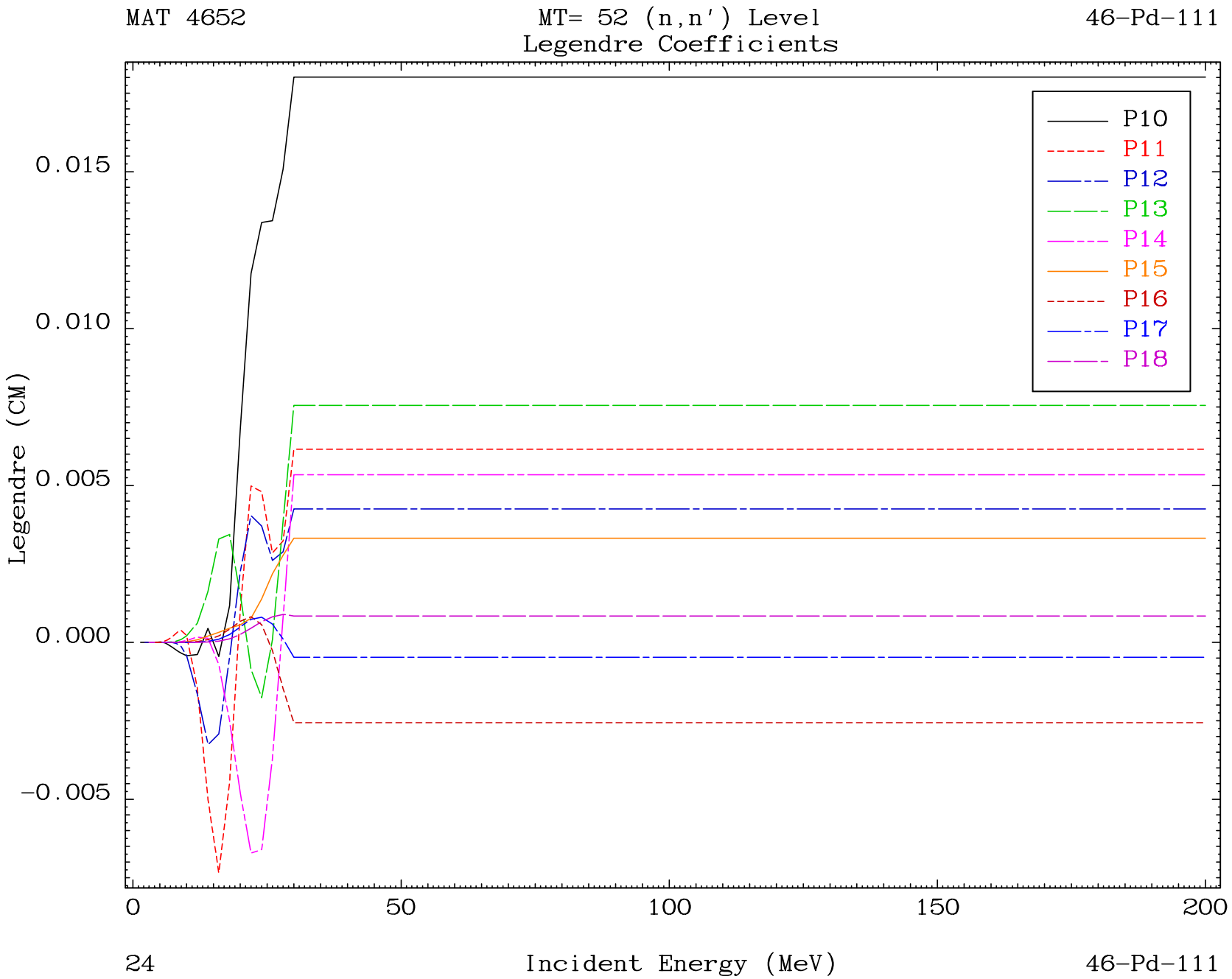

MAT 4652
MT= 51 (n,n') Level
Legendre Coefficients
46-Pd-111
Legendre (CM)
0.5
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
P1
P2
P3
P4
P5
P6
P7
P8
P9
19
Incident Energy (MeV)
46-Pd-111

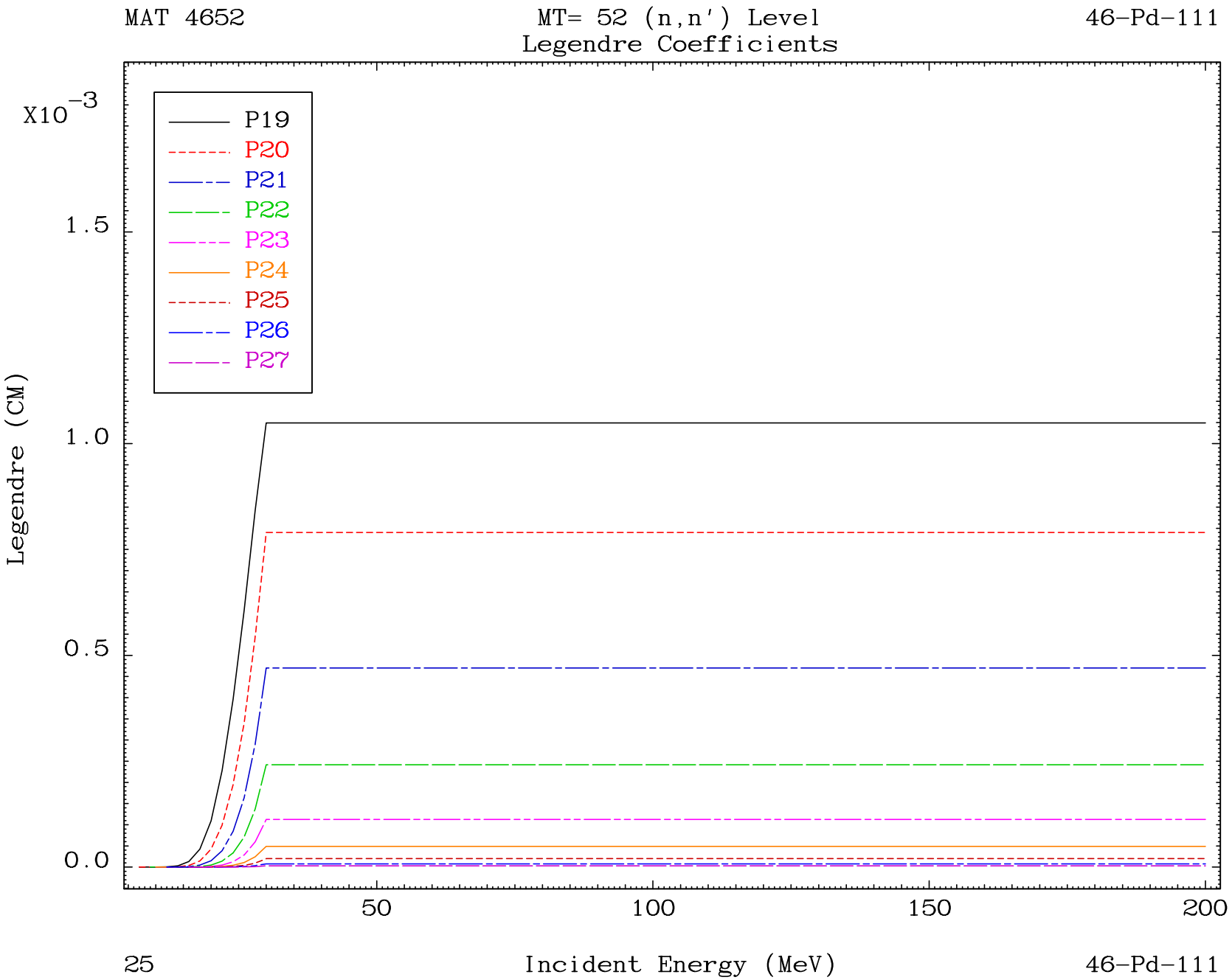

MAT 4652
MT= 51 (n,n') Level
Legendre Coefficients
46-Pd-111
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
20
Incident Energy (MeV)
46-Pd-111

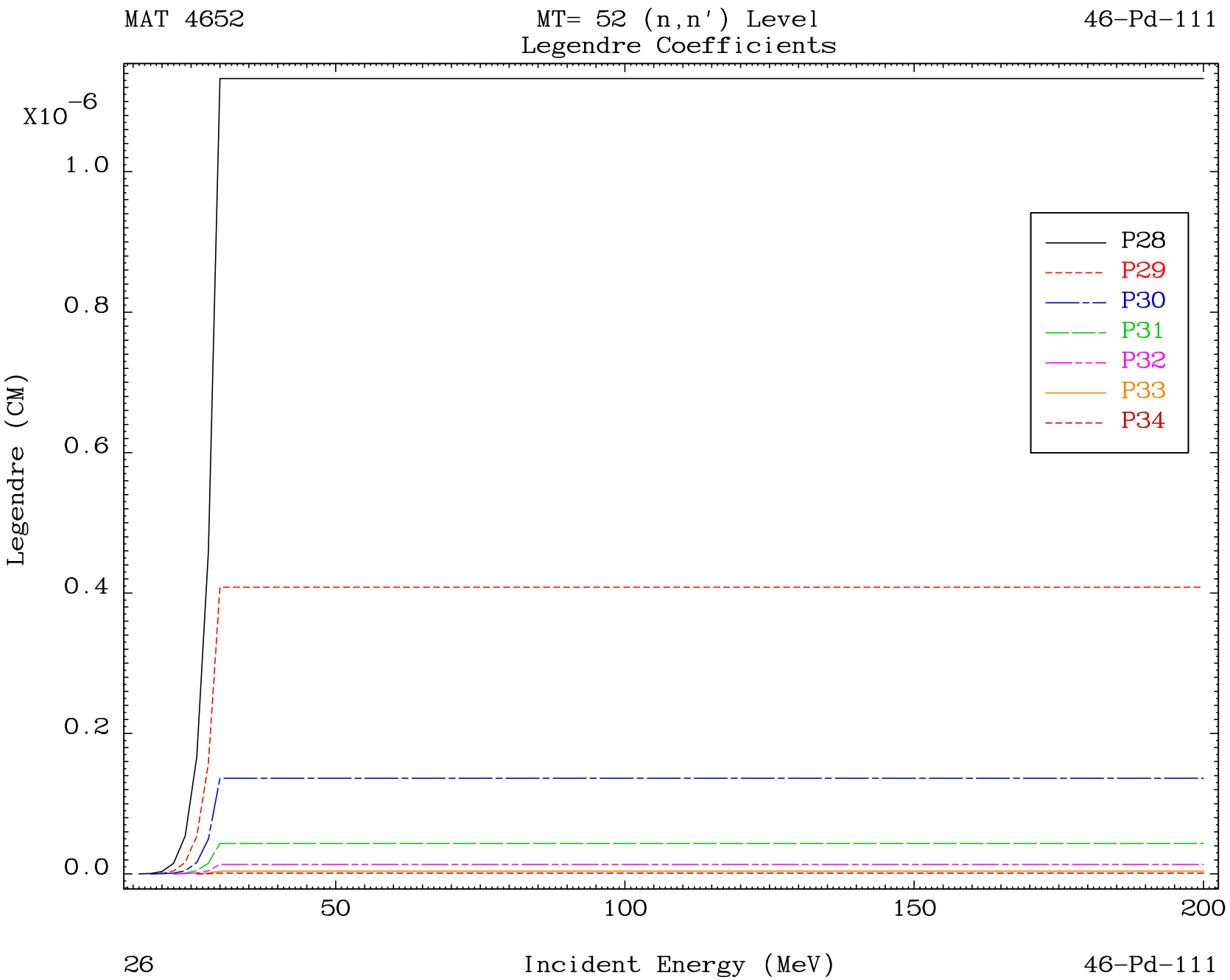

MAT 4652
MT= 51 (n,n') Level
Legendre Coefficients
46-Pd-111
0.006
0.004
0.002
0.000
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
21
Incident Energy (MeV)
46-Pd-111

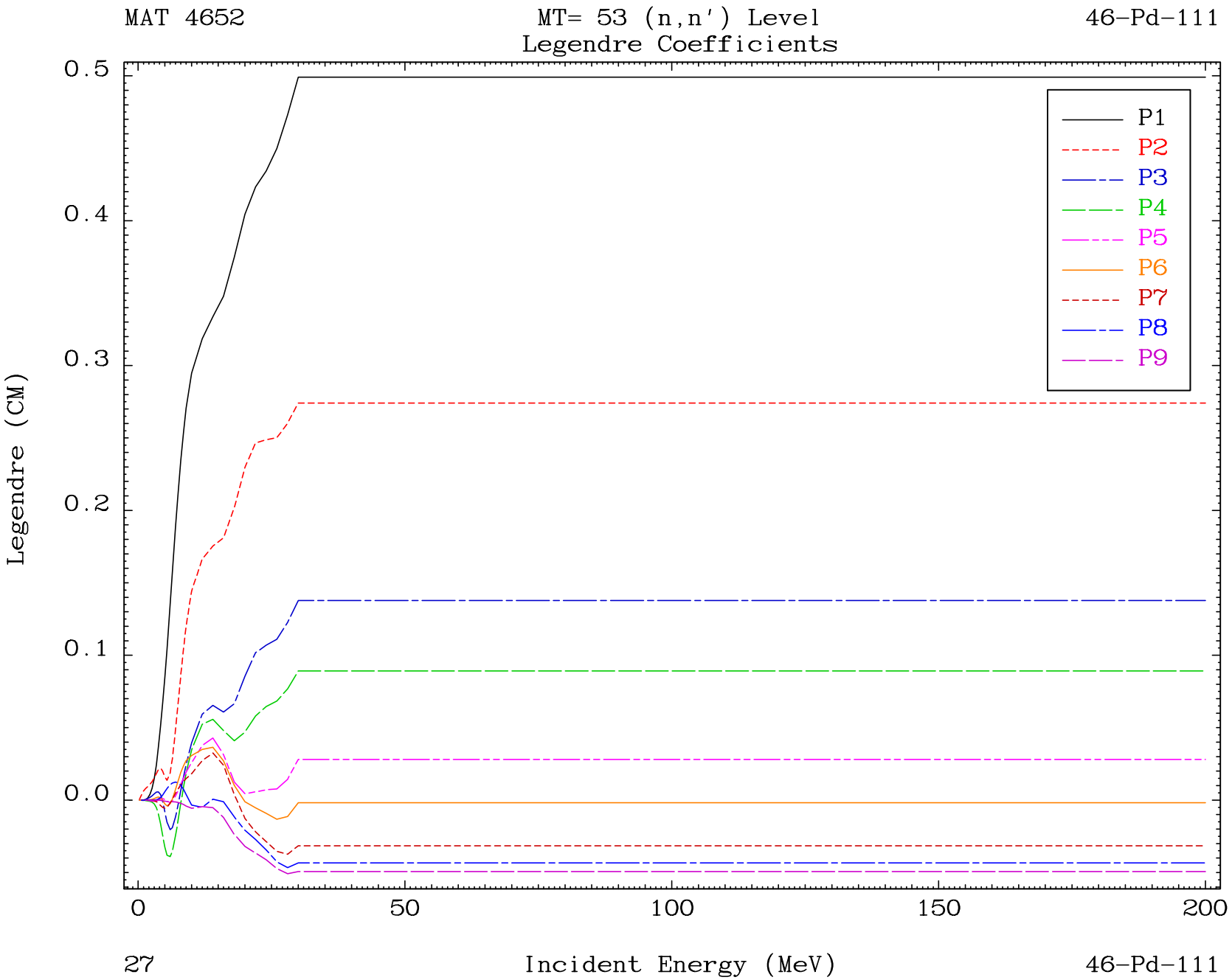

MAT 4652
MT= 51 (n,n') Level
Legendre Coefficients
46-Pd-111
X10^-6
2.0
1.5
1.0
0.5
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
P35
P36
50
100
150
200
22
Incident Energy (MeV)
46-Pd-111

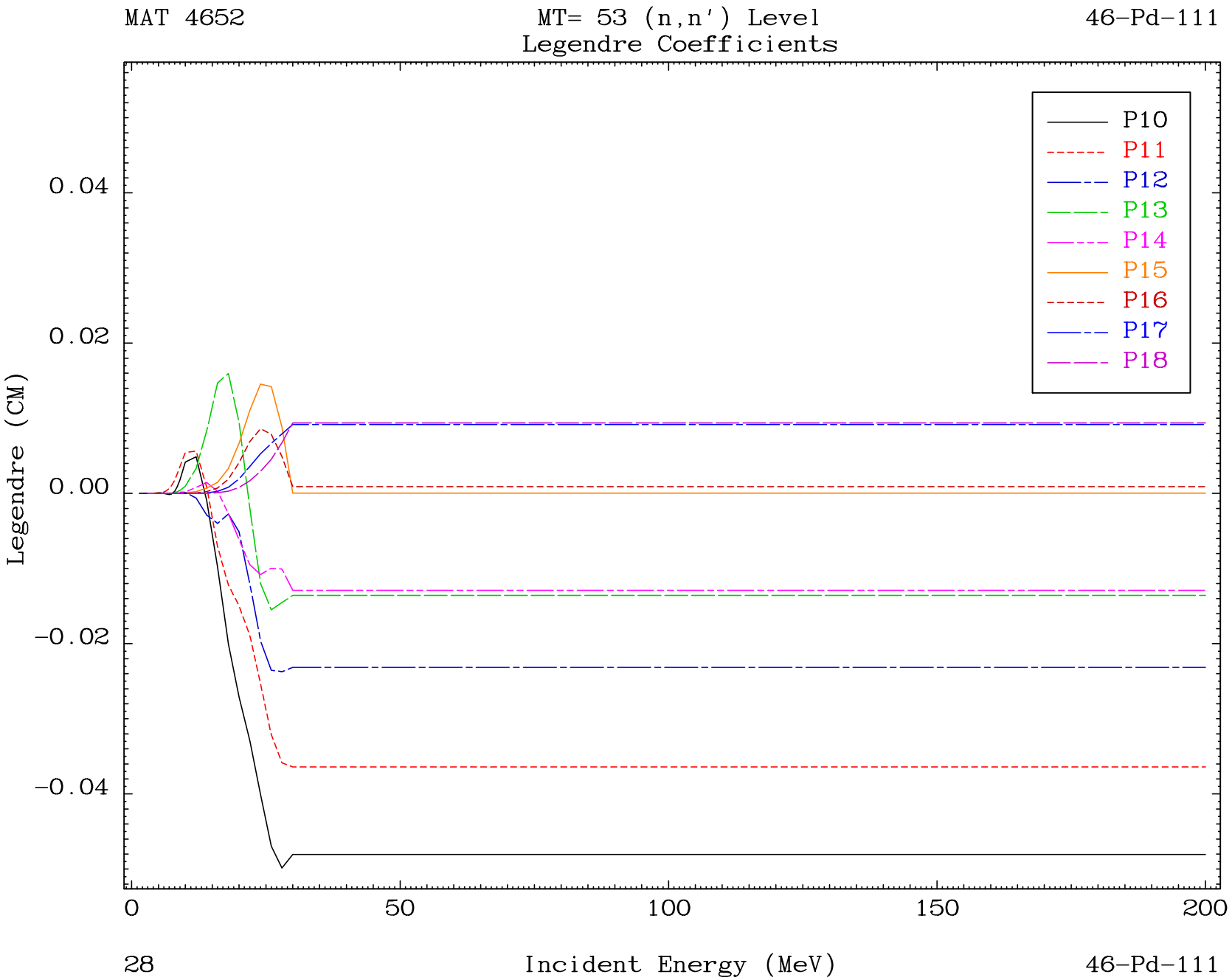

MAT 4652
MT= 52 (n,n') Level
Legendre Coefficients
46-Pd-111
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
P1
P2
P3
P4
P5
P6
P7
P8
P9
23
Incident Energy (MeV)
46-Pd-111

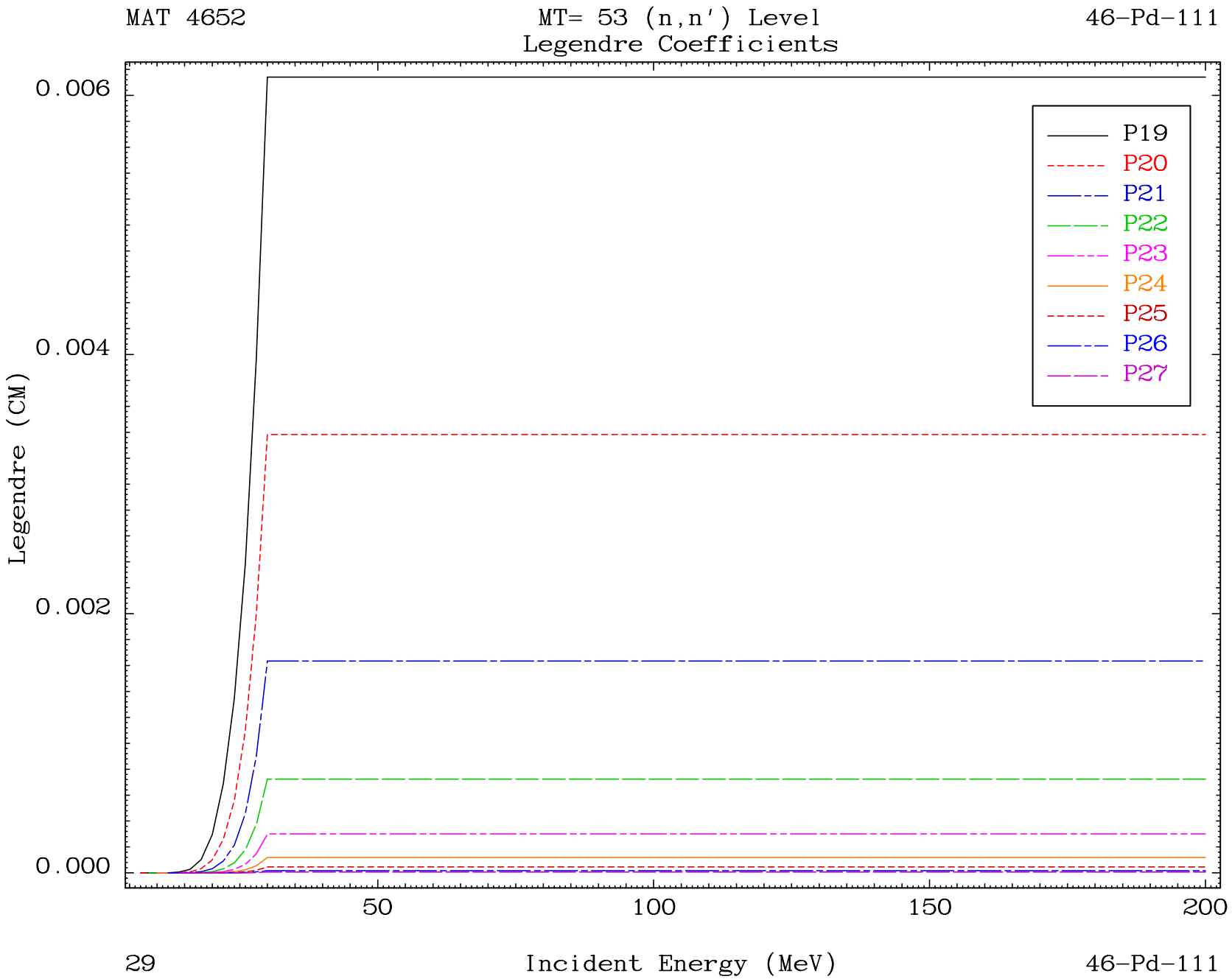

MAT 4652
MT= 52 (n,n') Level
Legendre Coefficients
46-Pd-111
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.015
0.010
0.005
0.000
-0.005
Legendre (CM)
0
50
100
150
200
24
Incident Energy (MeV)
46-Pd-111

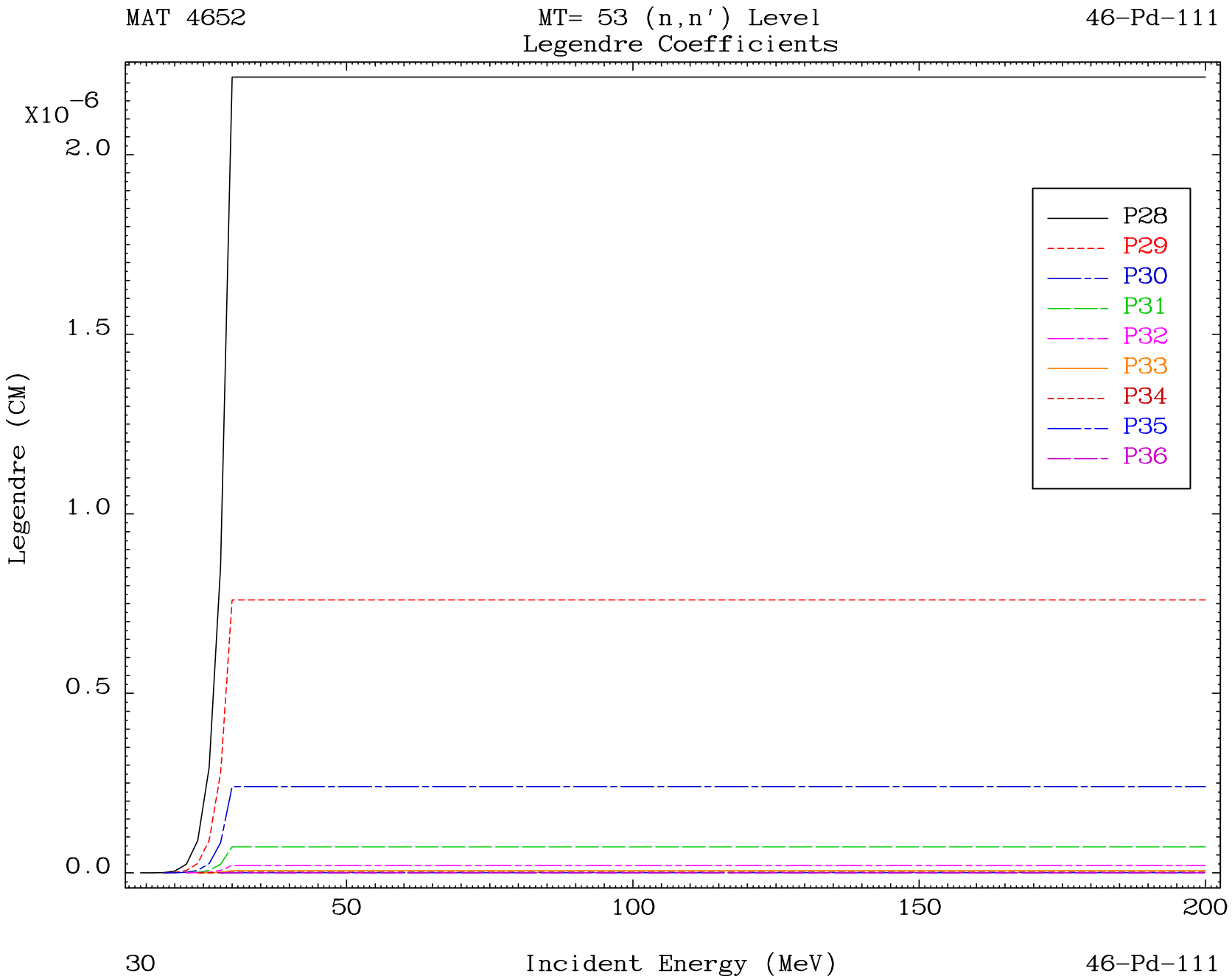

MAT 4652
MT= 52 (n,n') Level
Legendre Coefficients
46-Pd-111
X10-3
1.5
1.0
0.5
0.0
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
25
Incident Energy (MeV)
46-Pd-111

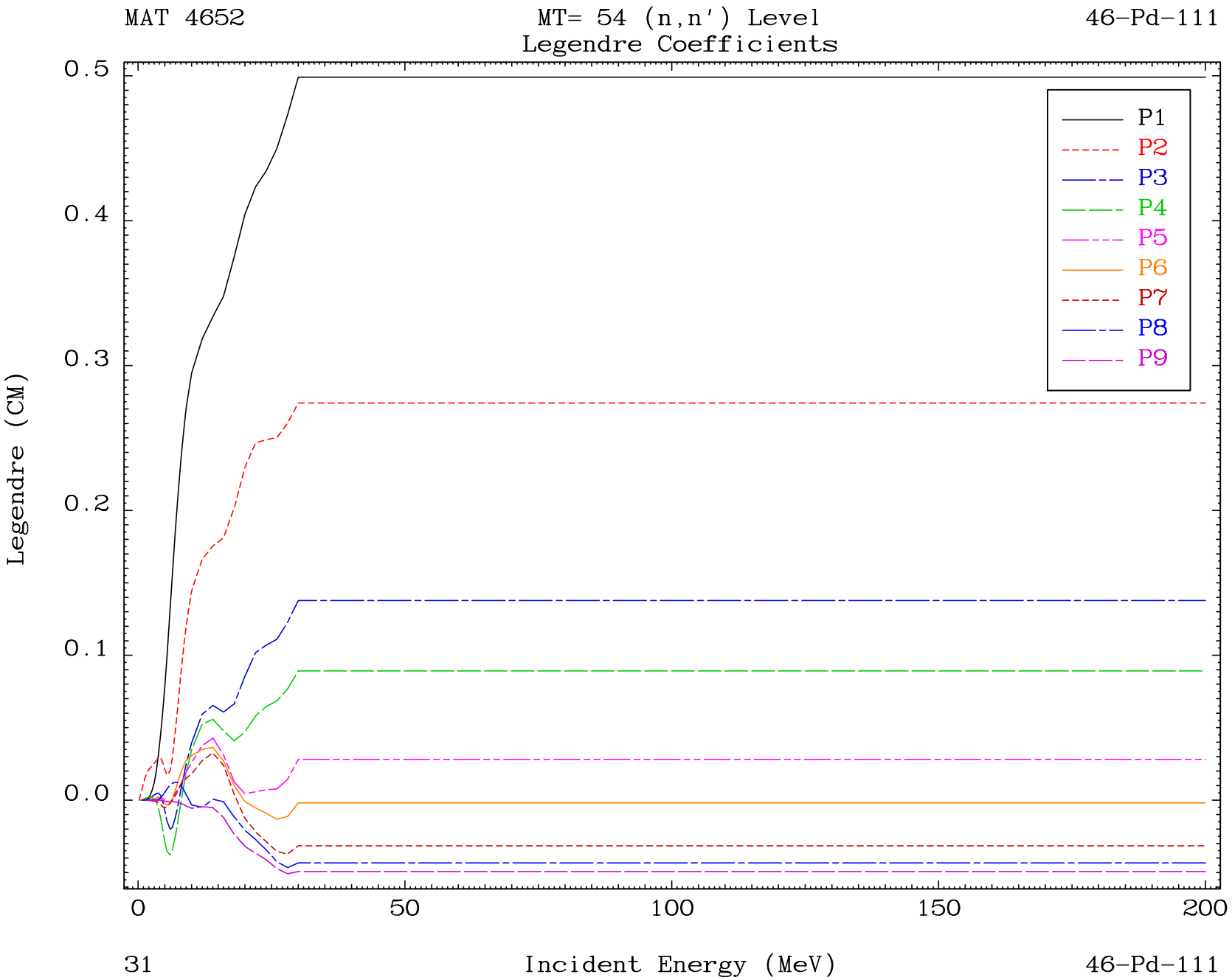

MAT 4652
MT= 52 (n,n') Level
Legendre Coefficients
46-Pd-111
X10^-6
1.0
0.8
0.6
0.4
0.2
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
26
Incident Energy (MeV)
46-Pd-111

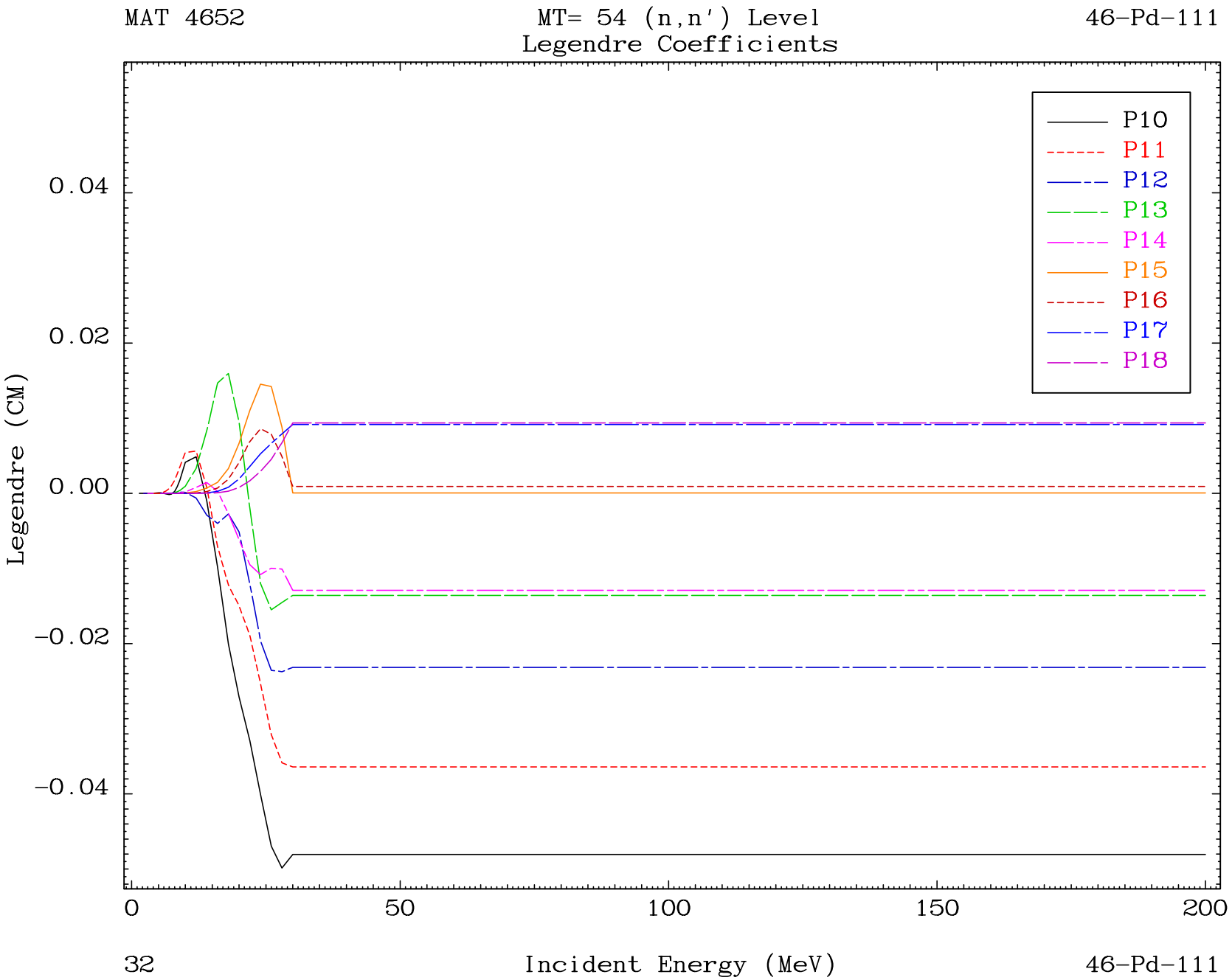

MAT 4652
MT= 53 (n,n') Level
Legendre Coefficients
46-Pd-111
0.5
0.4
0.3
0.2
0.1
0.0
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
27
Incident Energy (MeV)
46-Pd-111

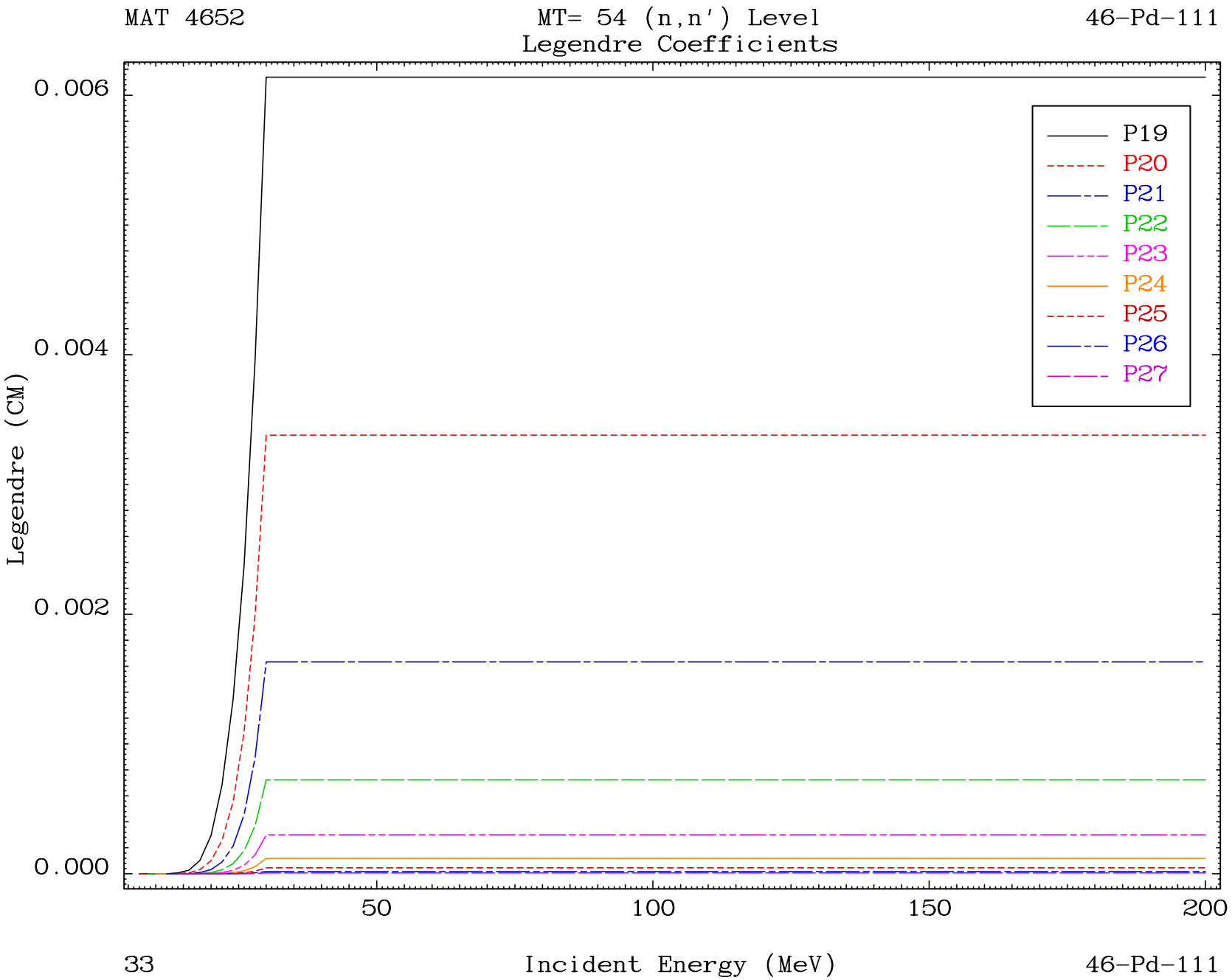

MAT 4652
MT= 53 (n,n') Level
Legendre Coefficients
46-Pd-111
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
28
Incident Energy (MeV)
46-Pd-111

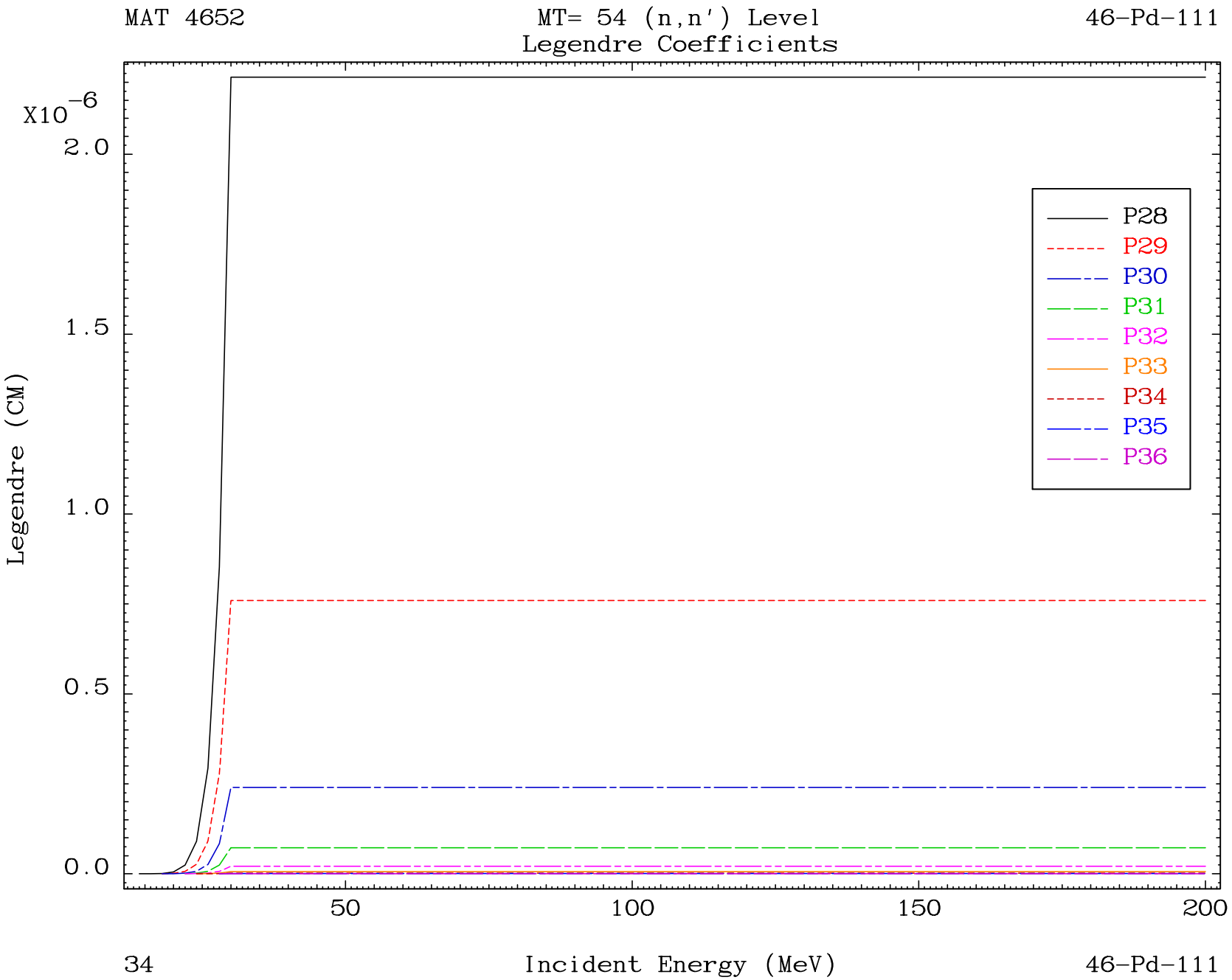

MAT 4652
MT= 53 (n,n') Level
Legendre Coefficients
46-Pd-111
0.006
0.004
0.002
0.000
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
29
Incident Energy (MeV)
46-Pd-111

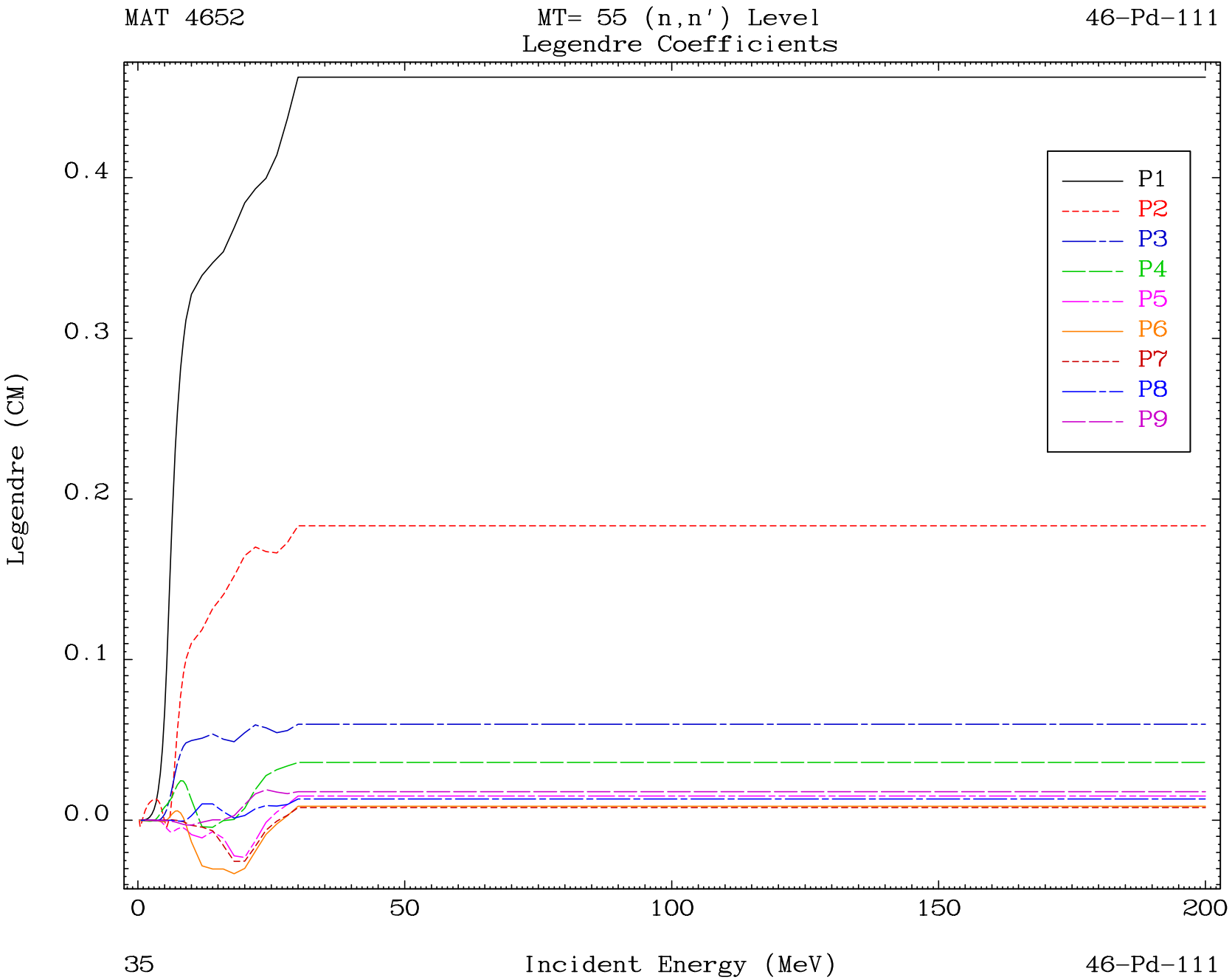

MAT 4652
MT= 53 (n,n') Level
Legendre Coefficients
46-Pd-111
X10^-6
2.0
1.5
1.0
0.5
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
P35
P36
50
100
150
200
30
Incident Energy (MeV)
46-Pd-111

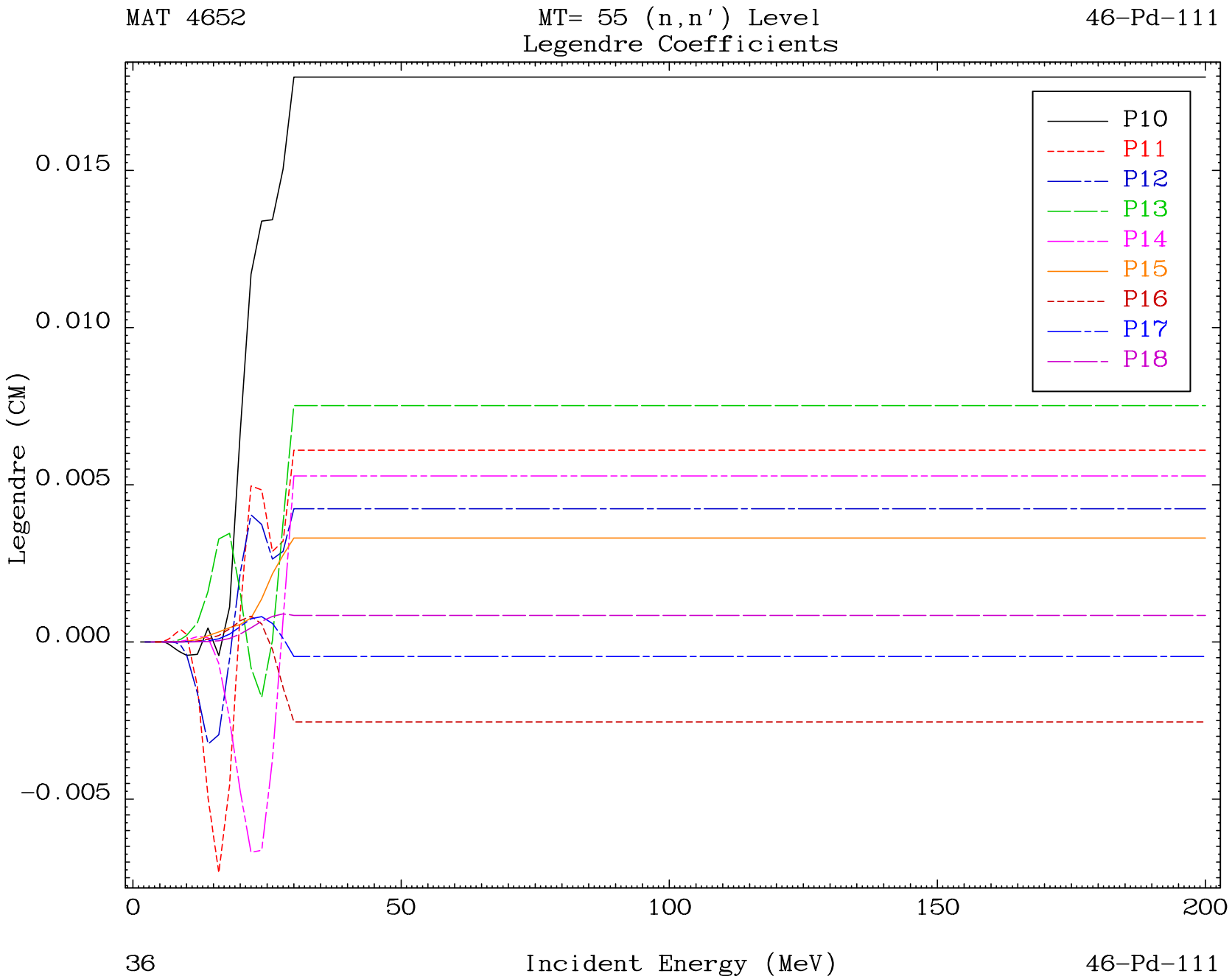

MAT 4652
MT= 54 (n,n') Level
Legendre Coefficients
46-Pd-111
0.5
0.4
0.3
0.2
0.1
0.0
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
31
Incident Energy (MeV)
46-Pd-111

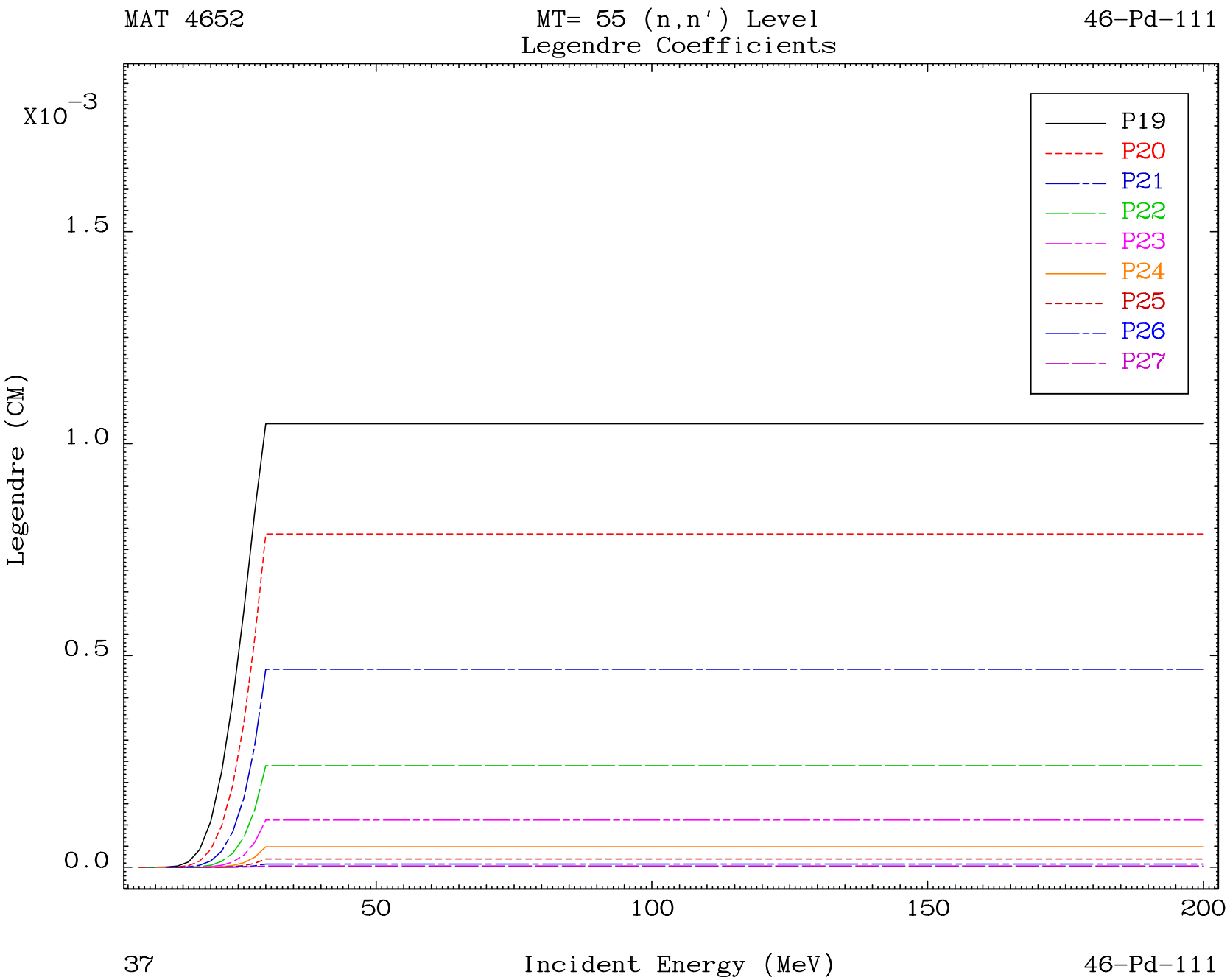

MAT 4652
MT= 54 (n,n') Level
Legendre Coefficients
46-Pd-111
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
32
Incident Energy (MeV)
46-Pd-111

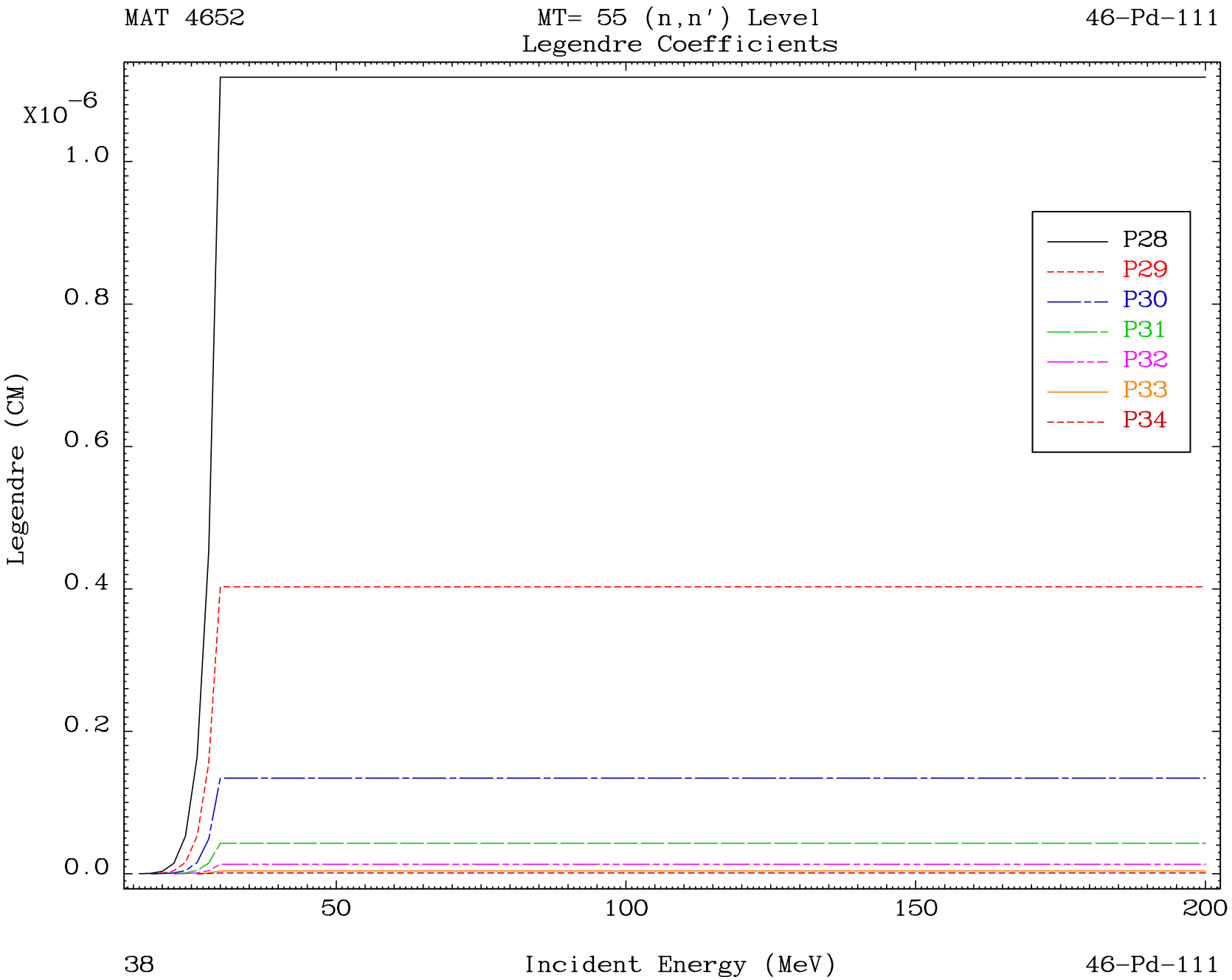

MAT 4652
MT= 54 (n,n') Level
Legendre Coefficients
46-Pd-111
0.006
0.004
0.002
0.000
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
33
Incident Energy (MeV)
46-Pd-111

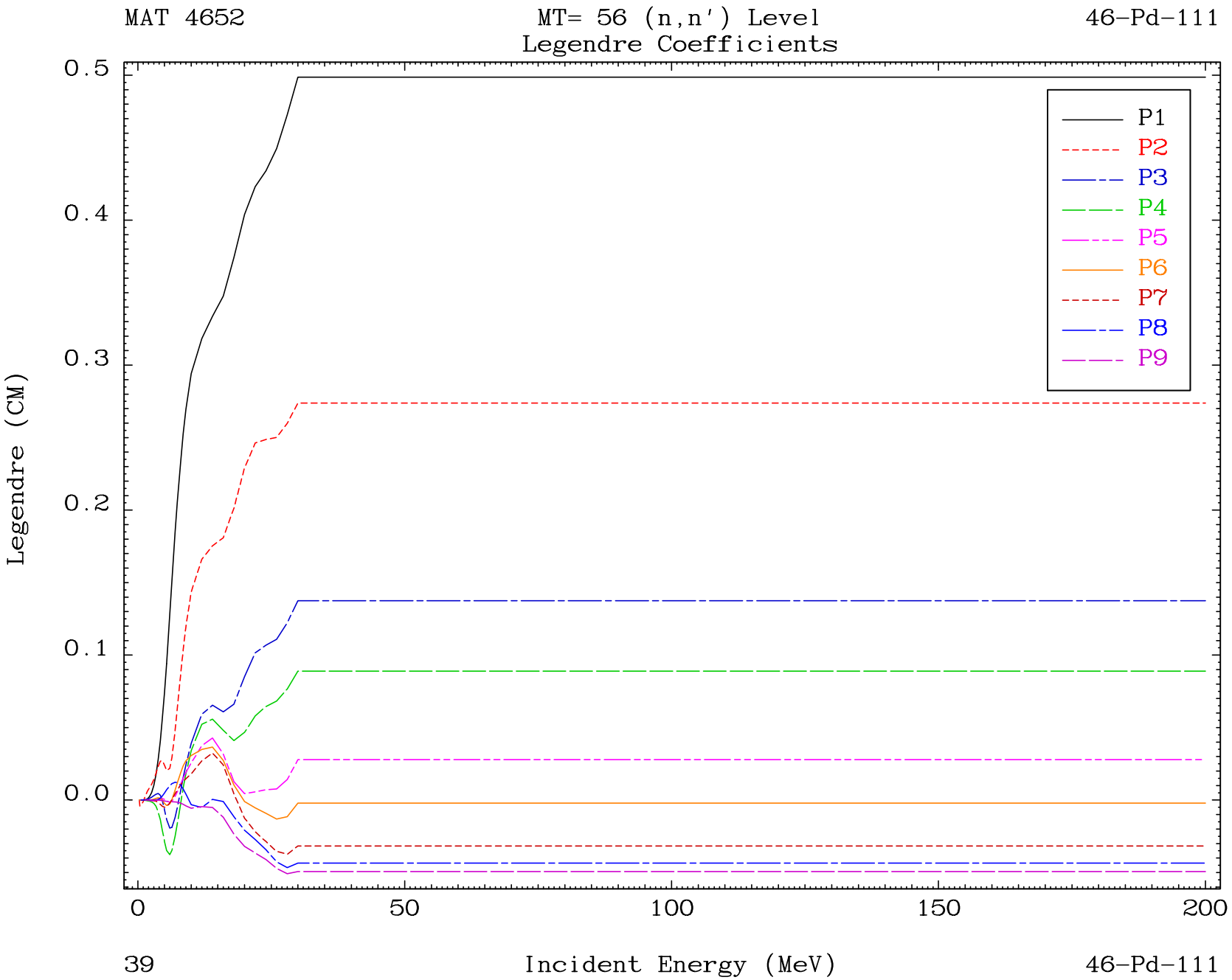

MAT 4652
MT= 54 (n,n') Level
Legendre Coefficients
46-Pd-111
X10^-6
2.0
1.5
1.0
0.5
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
P35
P36
50
100
150
200
34
Incident Energy (MeV)
46-Pd-111

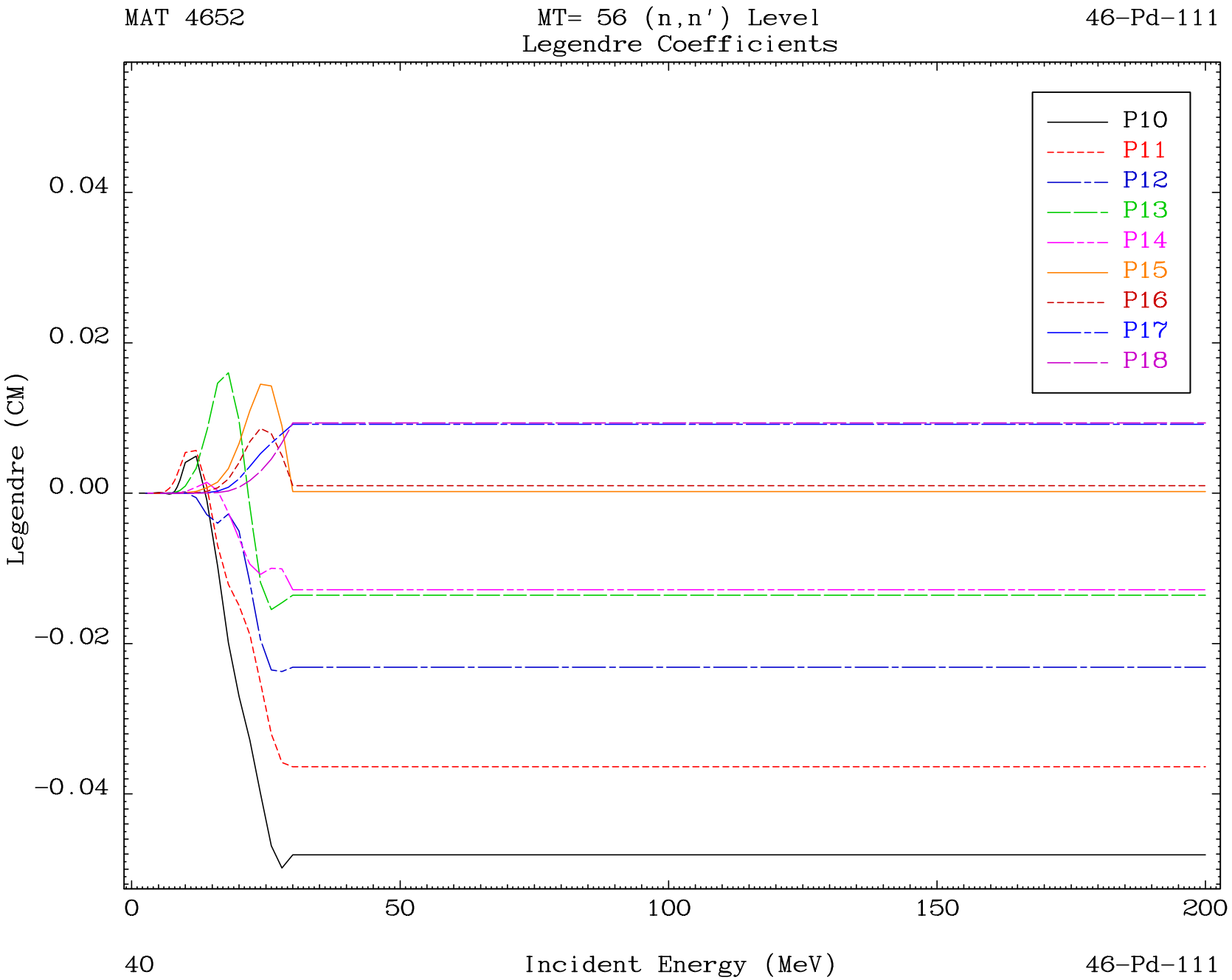

MAT 4652
MT= 55 (n,n') Level
Legendre Coefficients
46-Pd-111
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
35
Incident Energy (MeV)
46-Pd-111
P1
P2
P3
P4
P5
P6
P7
P8
P9

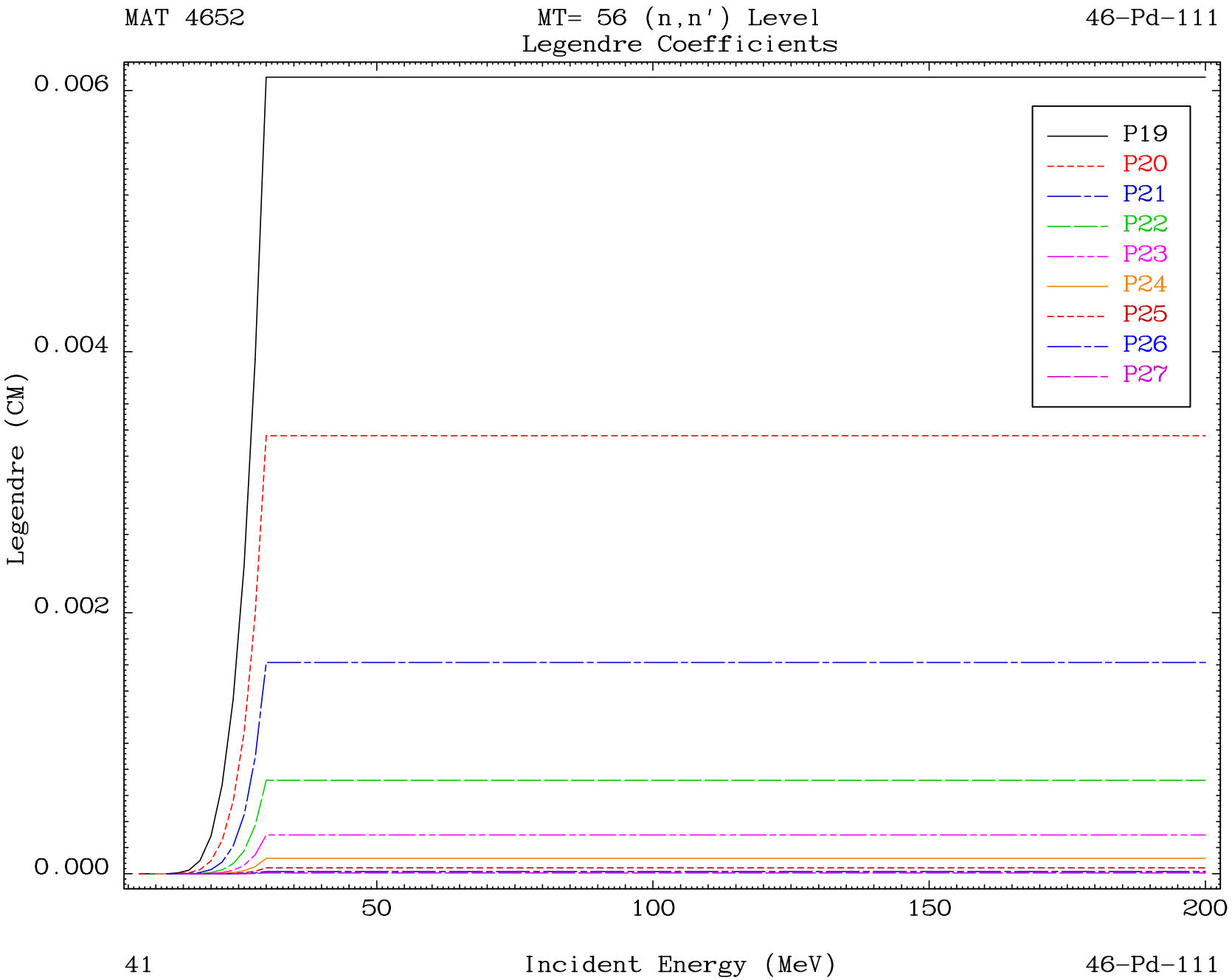

MAT 4652
MT= 55 (n,n') Level
Legendre Coefficients
46-Pd-111
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.015
0.010
0.005
0.000
-0.005
Legendre (CM)
0
50
100
150
200
36
Incident Energy (MeV)
46-Pd-111

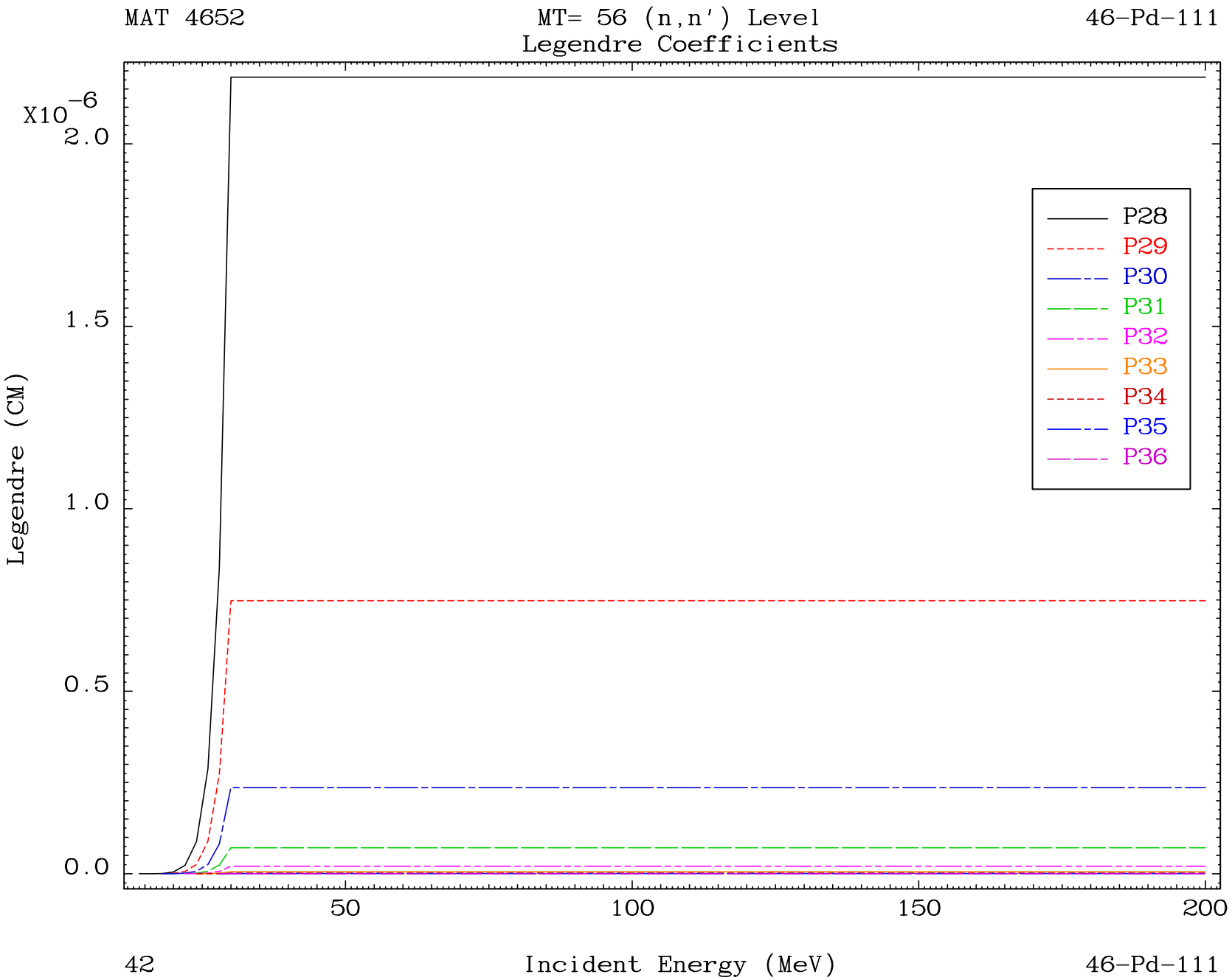

MAT 4652
MT= 55 (n,n') Level
Legendre Coefficients
46-Pd-111
X10-3
1.5
1.0
0.5
0.0
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
37
Incident Energy (MeV)
46-Pd-111

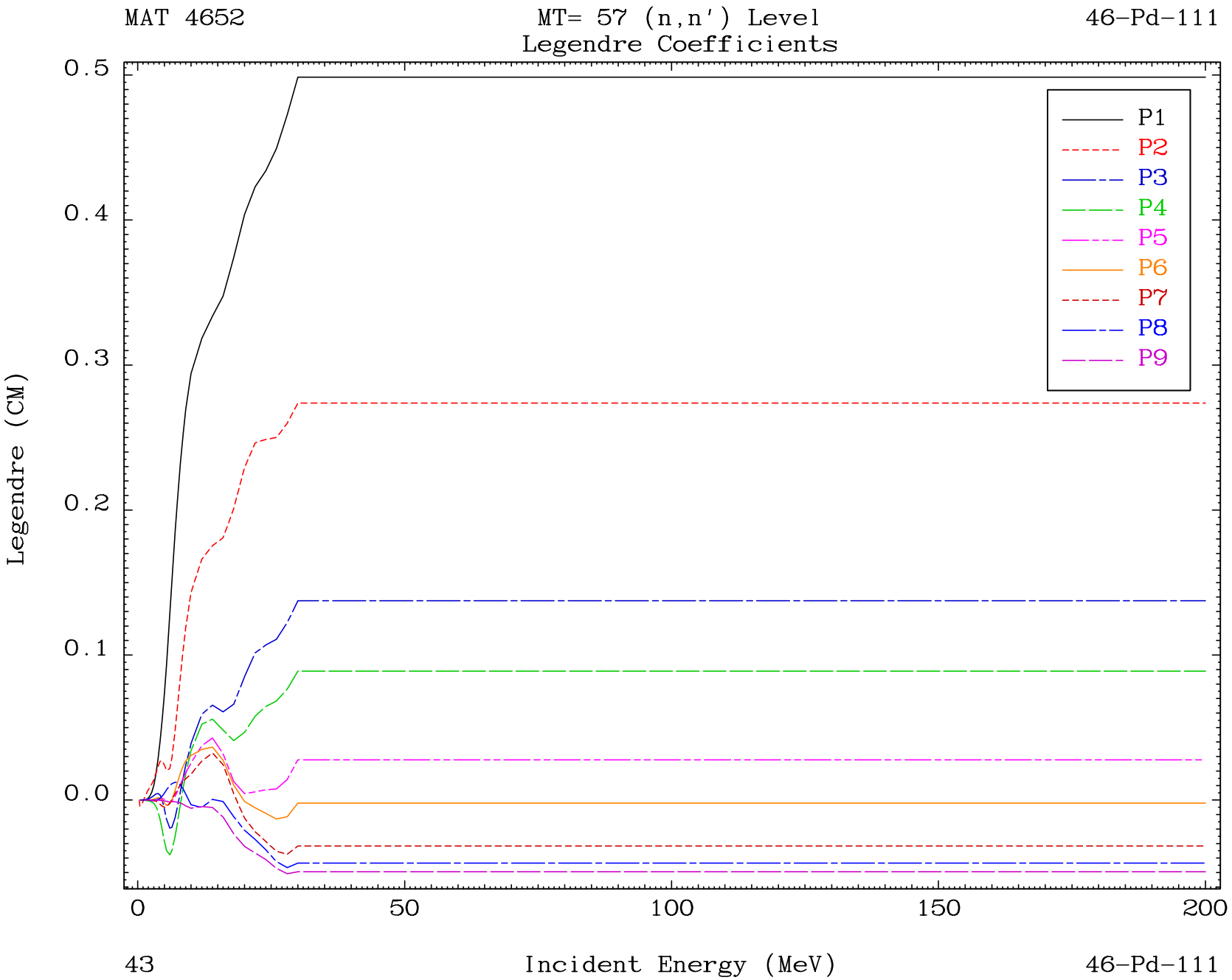

MAT 4652
MT= 55 (n,n') Level
Legendre Coefficients
46-Pd-111
X10 −6
1.0
0.8
0.6
0.4
0.2
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
38
Incident Energy (MeV)
46-Pd-111

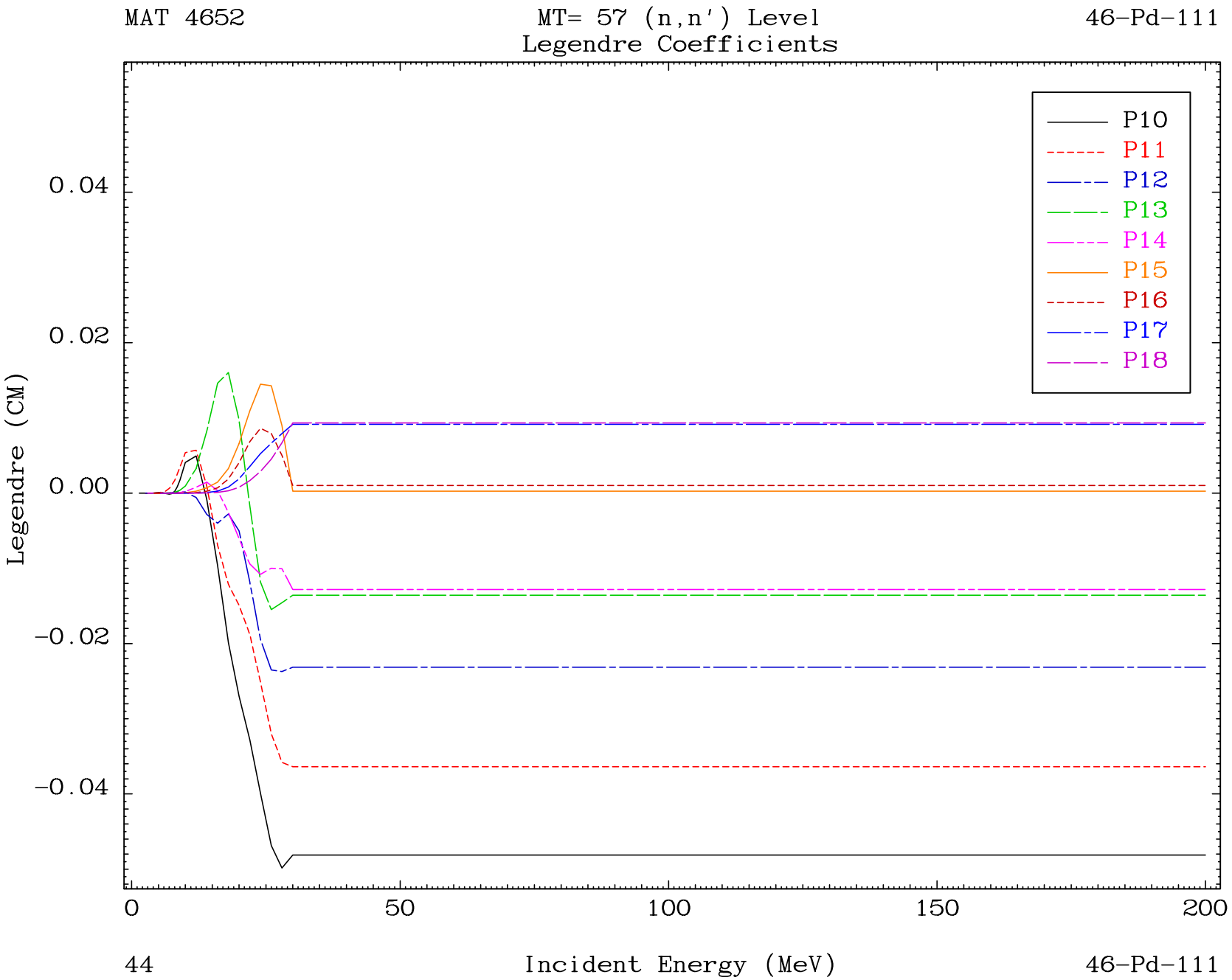

MAT 4652
MT= 56 (n,n') Level
Legendre Coefficients
46-Pd-111
0.5
0.4
0.3
0.2
0.1
0.0
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
39
Incident Energy (MeV)
46-Pd-111

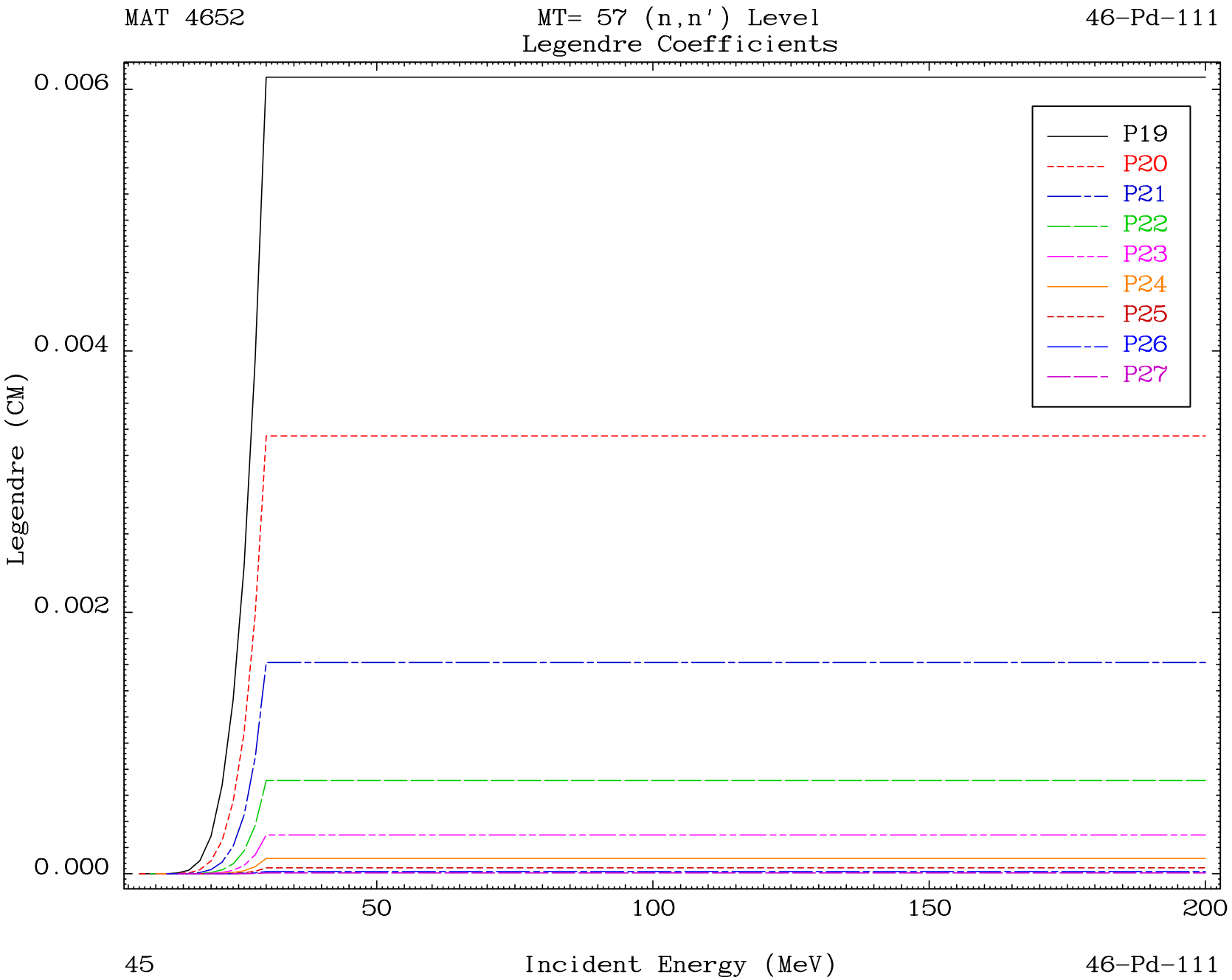

MAT 4652
MT= 56 (n,n') Level
Legendre Coefficients
46-Pd-111
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
40
Incident Energy (MeV)
46-Pd-111

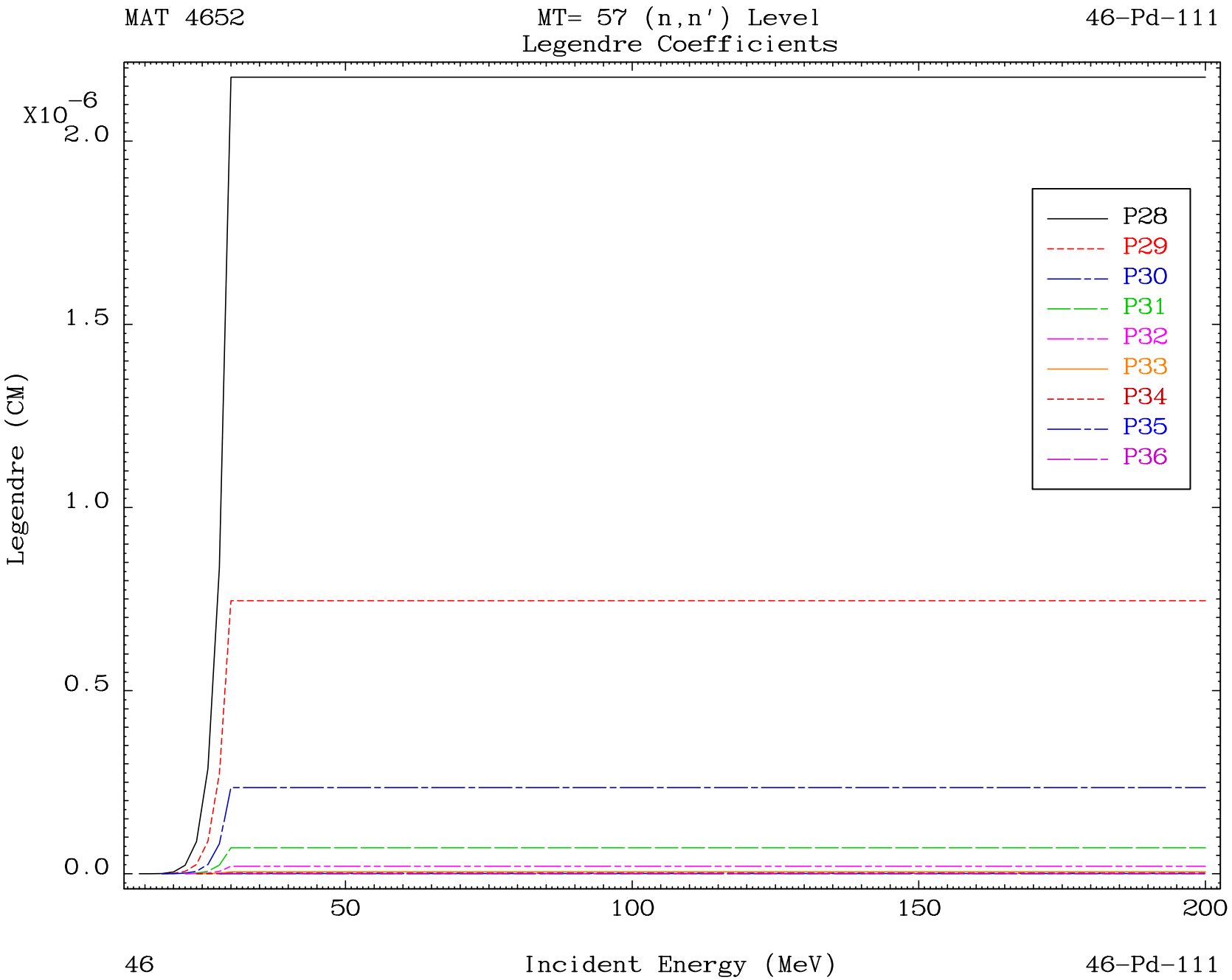

MAT 4652
MT= 56 (n,n') Level
Legendre Coefficients
46-Pd-111
0.006
0.004
0.002
0.000
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
41
Incident Energy (MeV)
46-Pd-111

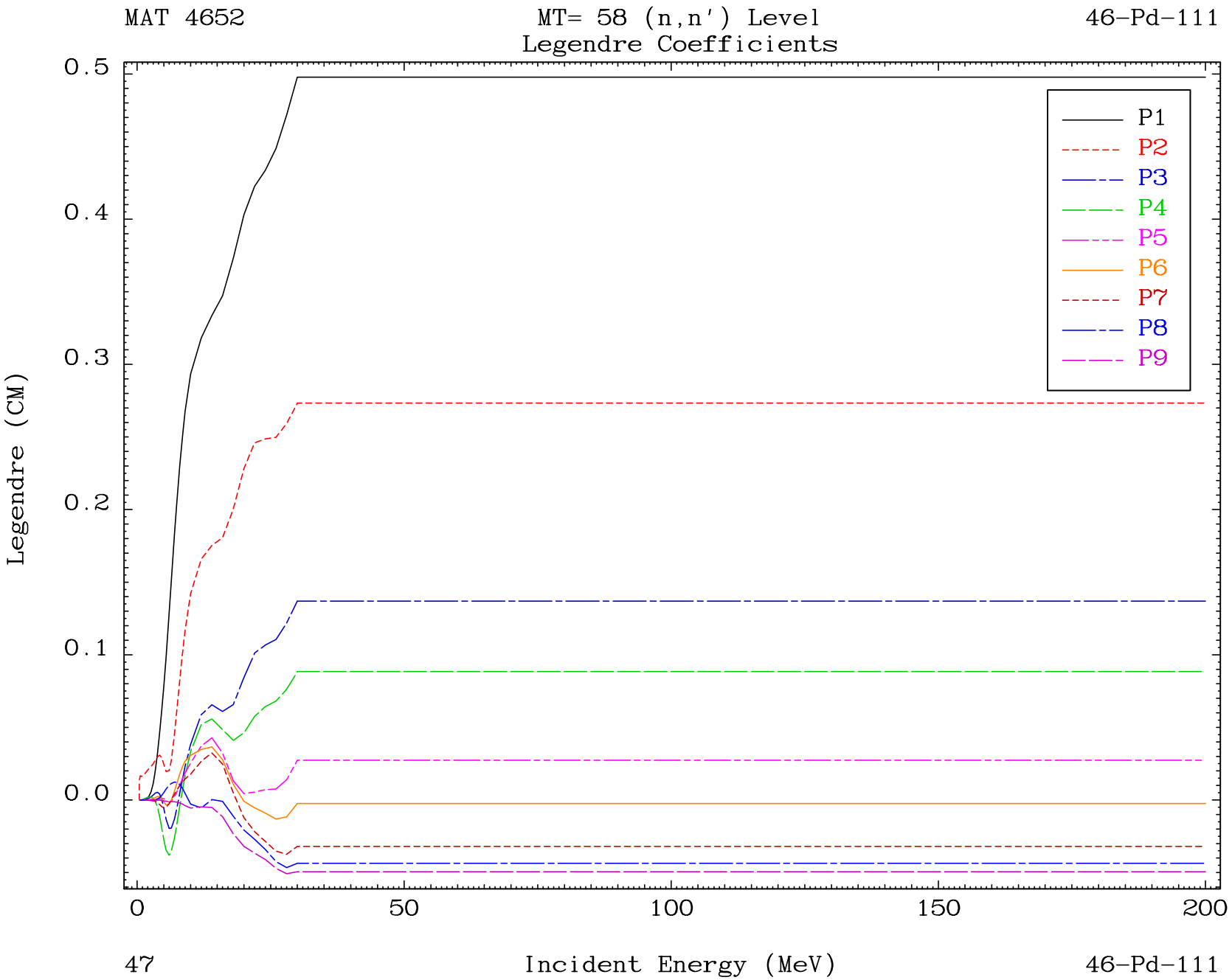

MAT 4652
MT= 56 (n,n') Level
Legendre Coefficients
46-Pd-111
X10^-6
2.0
1.5
1.0
0.5
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
P35
P36
50
100
150
200
42
Incident Energy (MeV)
46-Pd-111

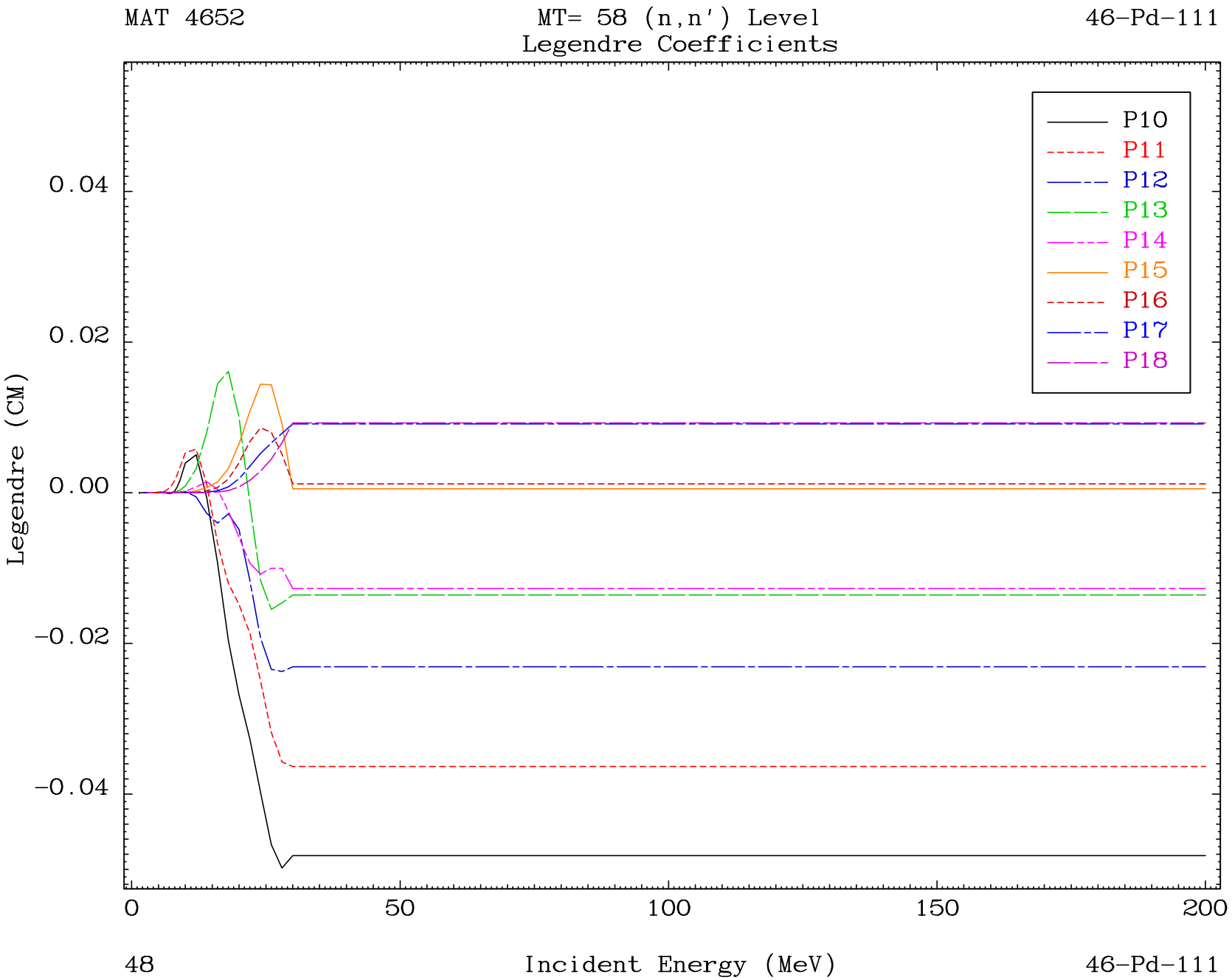

MAT 4652
MT= 57 (n,n') Level
Legendre Coefficients
46-Pd-111
0.5
0.4
0.3
0.2
0.1
0.0
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
43
Incident Energy (MeV)
46-Pd-111

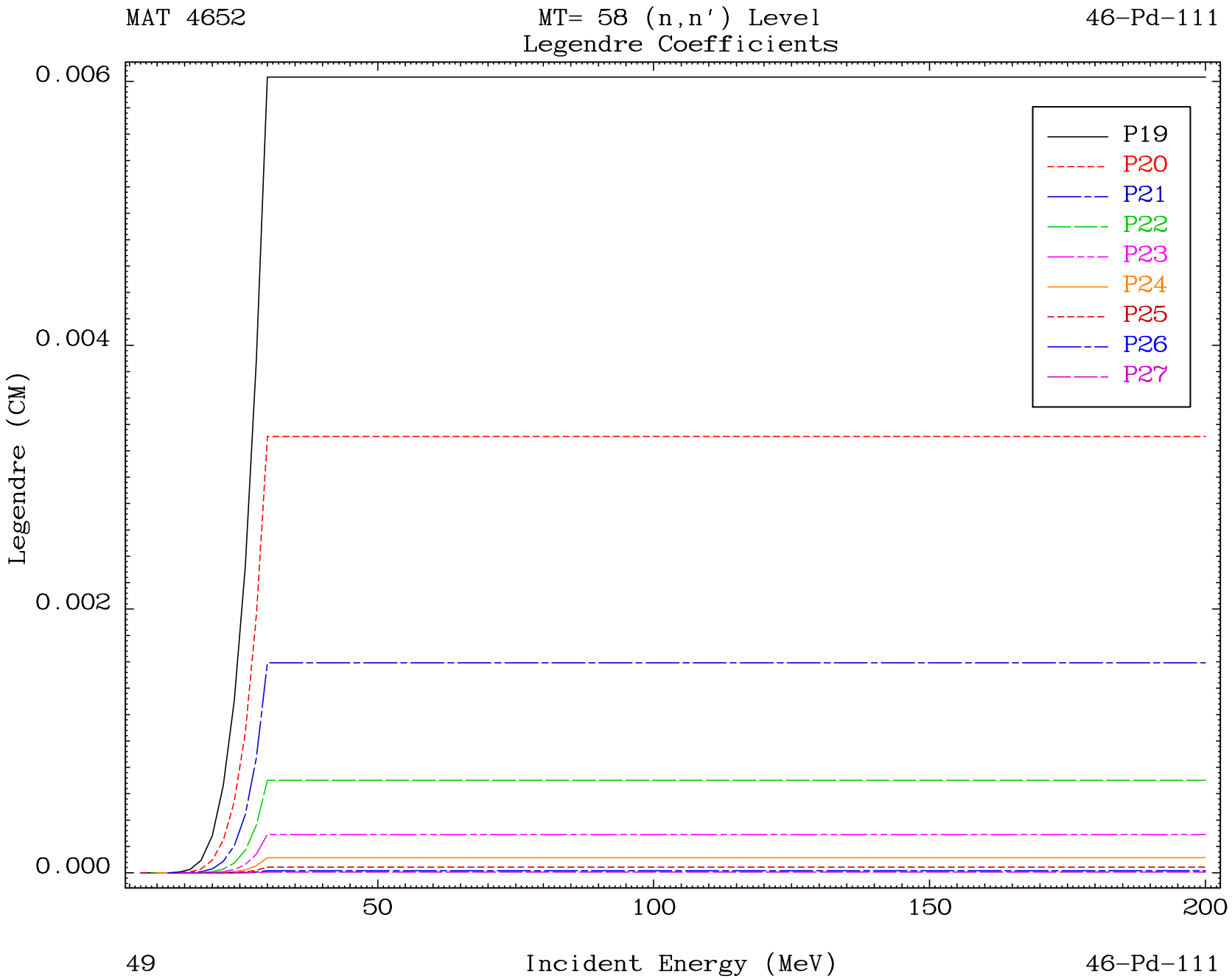

MAT 4652
MT= 57 (n,n') Level
Legendre Coefficients
46-Pd-111
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
44
Incident Energy (MeV)
46-Pd-111

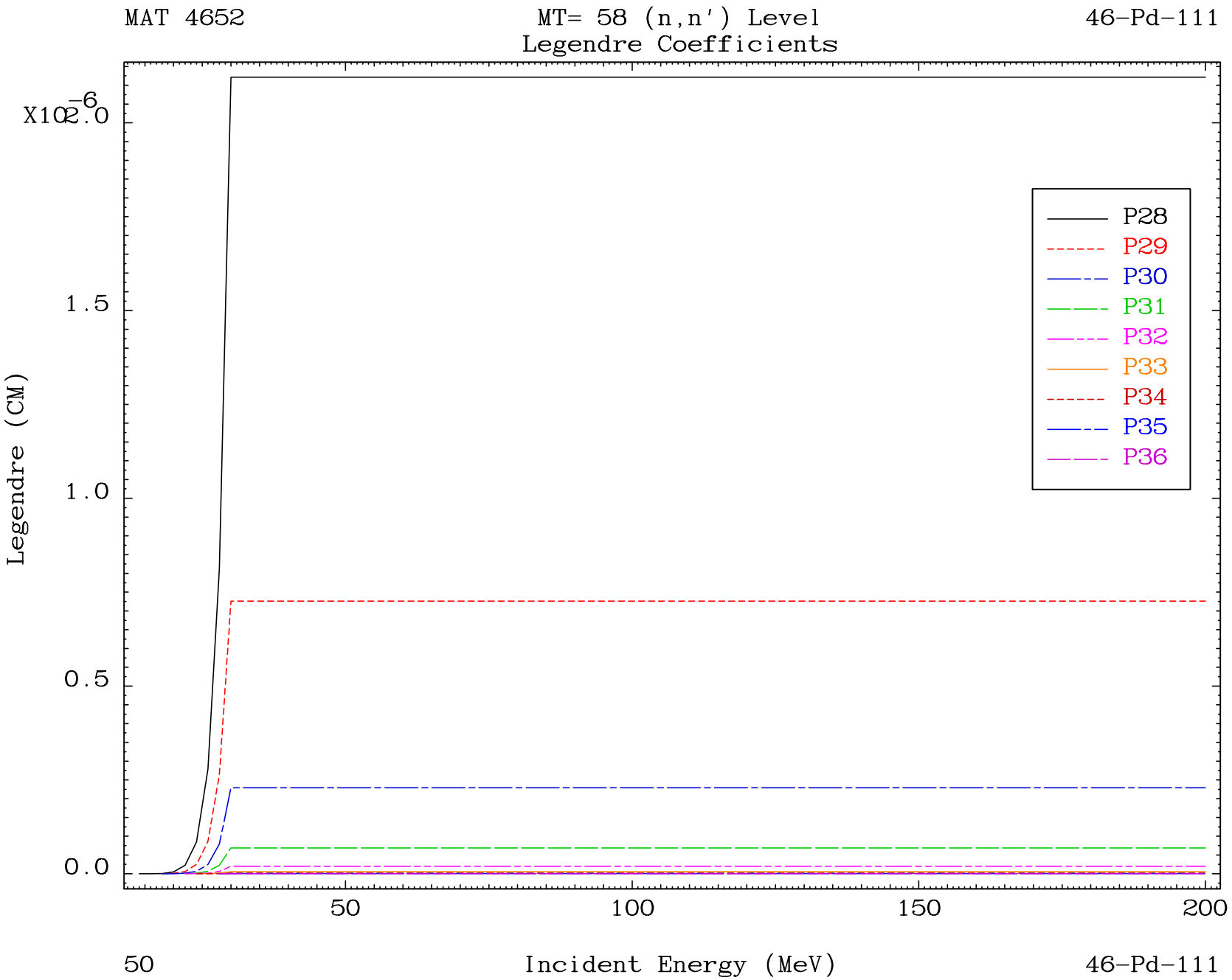

MAT 4652
MT= 57 (n,n') Level
Legendre Coefficients
46-Pd-111
0.006
0.004
0.002
0.000
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
45
Incident Energy (MeV)
46-Pd-111

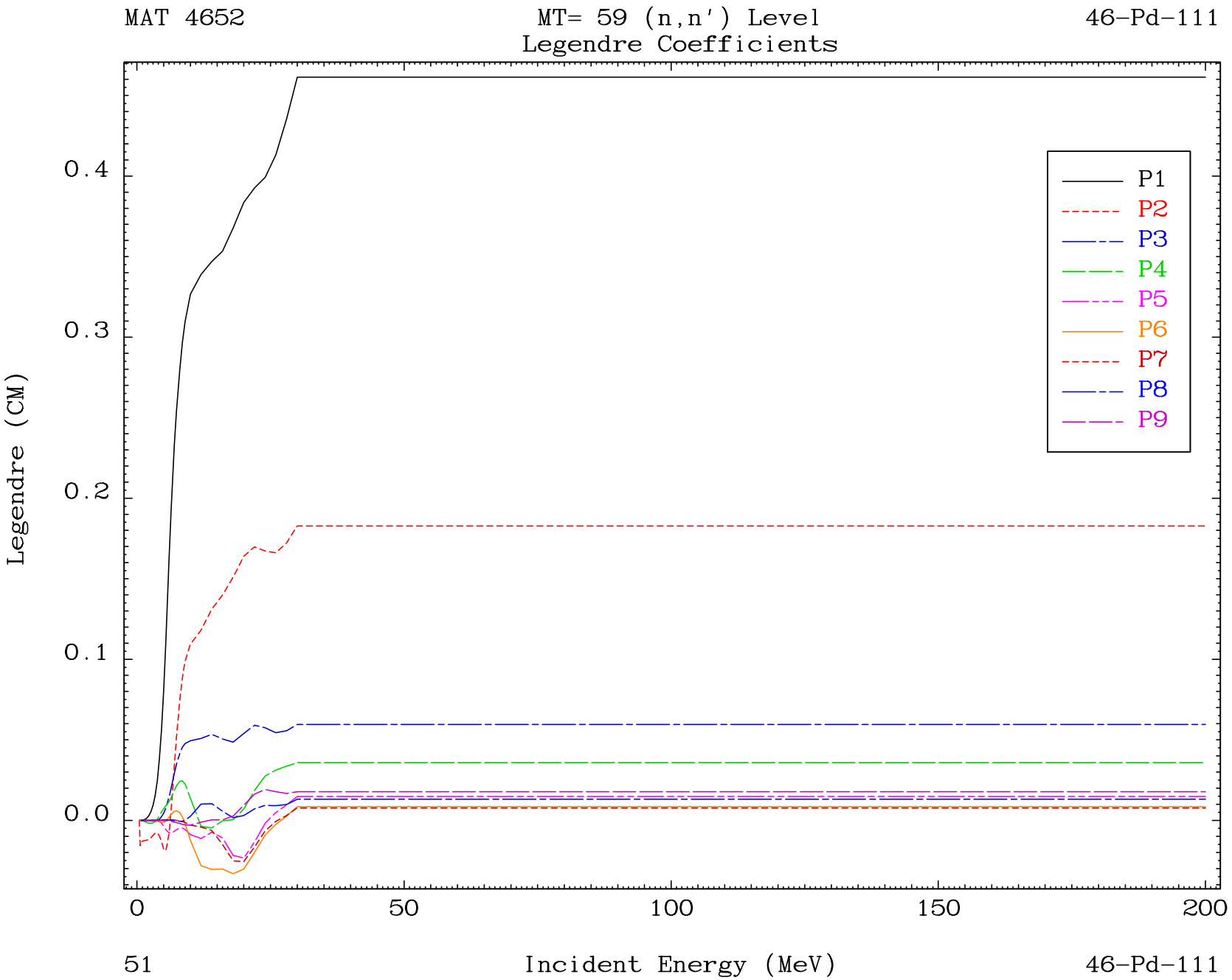

MAT 4652
MT= 57 (n,n') Level
Legendre Coefficients
46-Pd-111
X10^-6
2.0
1.5
1.0
0.5
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
P35
P36
50
100
150
200
46
Incident Energy (MeV)
46-Pd-111

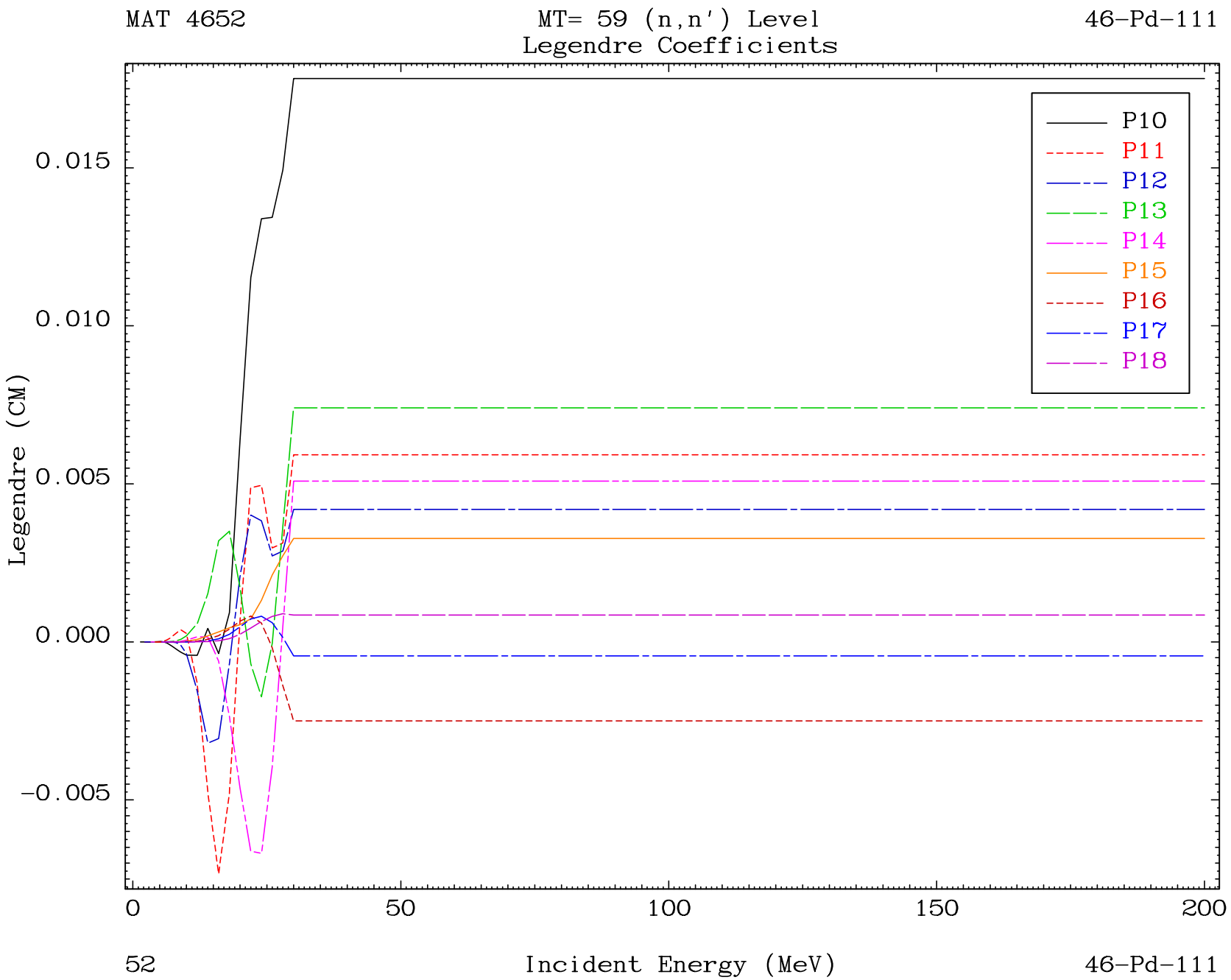

MAT 4652
MT= 58 (n,n') Level
Legendre Coefficients
46-Pd-111
0.5
0.4
0.3
0.2
0.1
0.0
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
47
Incident Energy (MeV)
46-Pd-111

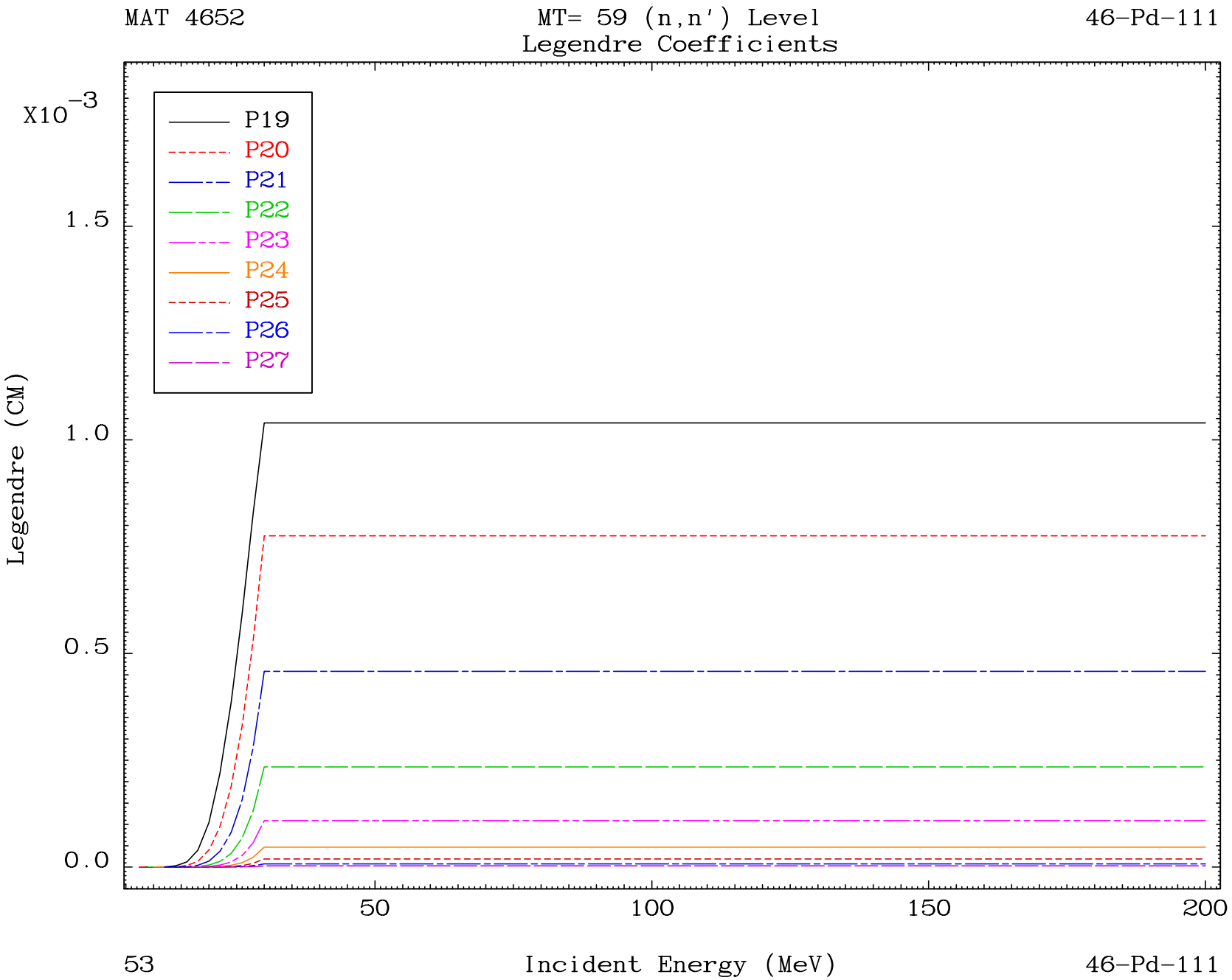

MAT 4652
MT= 58 (n,n') Level
Legendre Coefficients
46-Pd-111
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
48
Incident Energy (MeV)
46-Pd-111

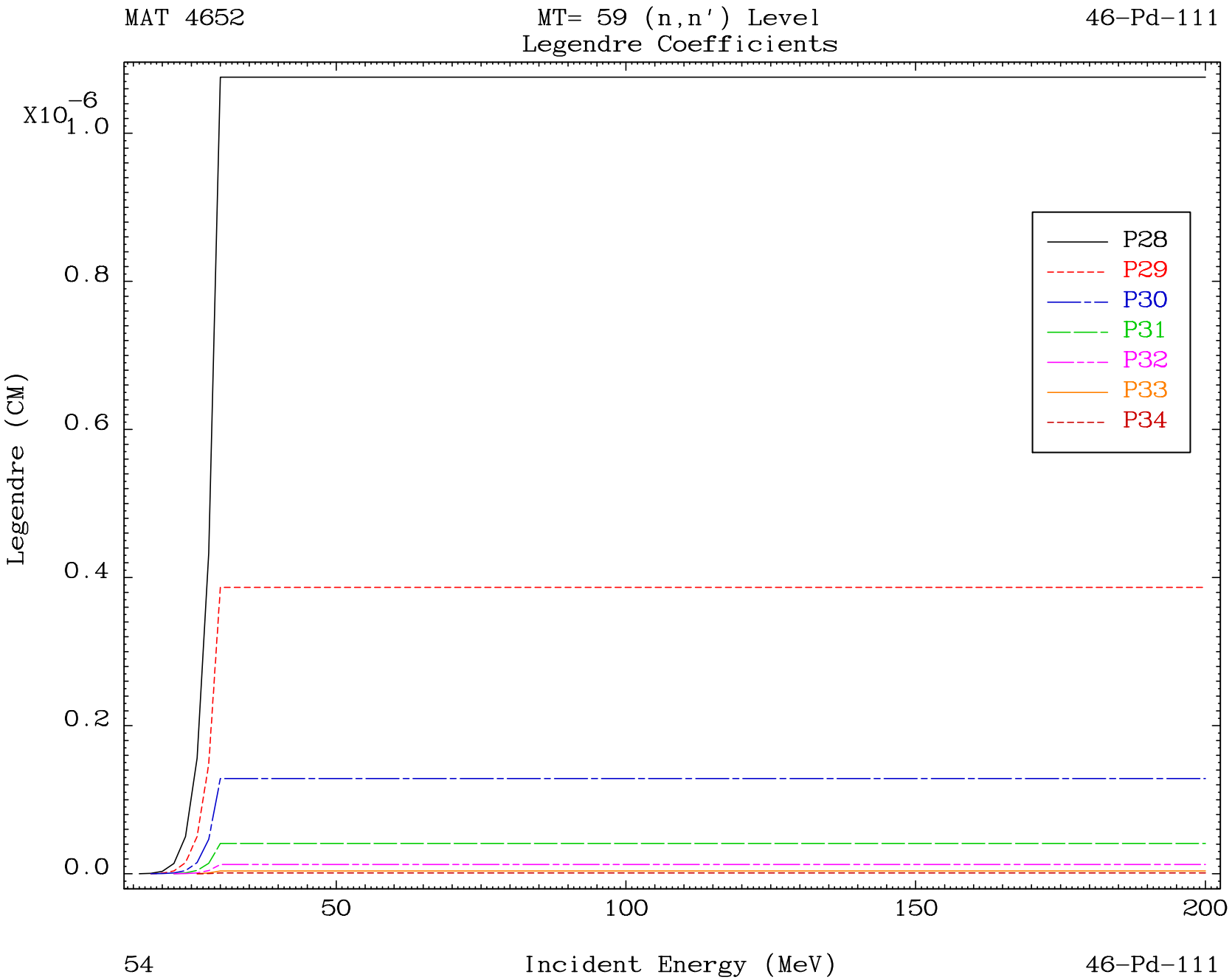

MAT 4652
MT= 58 (n,n') Level
Legendre Coefficients
46-Pd-111
0.006
0.004
0.002
0.000
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
49
Incident Energy (MeV)
46-Pd-111

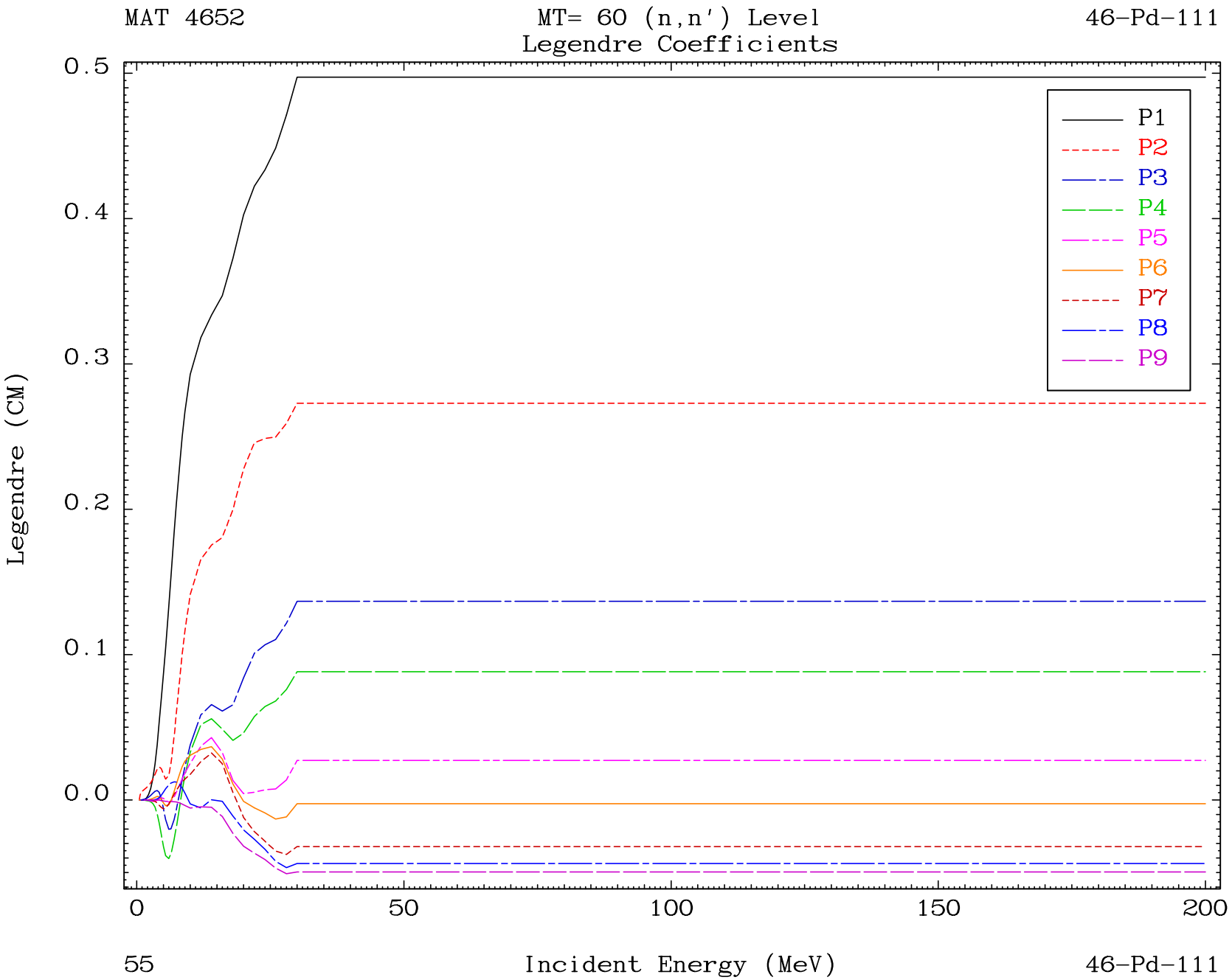

MAT 4652
MT= 58 (n,n') Level
Legendre Coefficients
46-Pd-111
X10-6
2.0
1.5
1.0
0.5
0.0
Legendre (CM)
50
100
150
200
50
Incident Energy (MeV)
46-Pd-111
P28
P29
P30
P31
P32
P33
P34
P35
P36

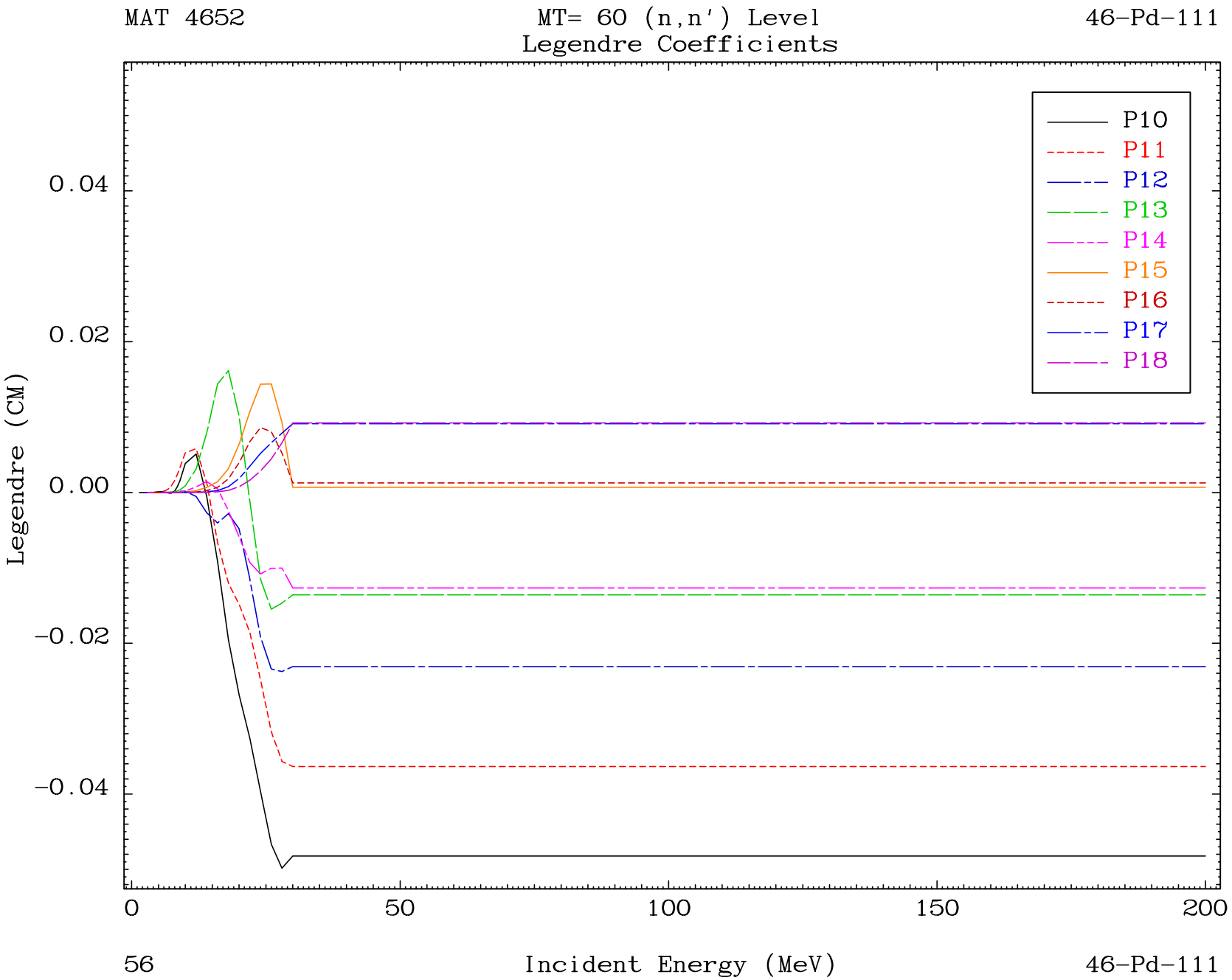

MAT 4652
MT= 59 (n,n') Level
Legendre Coefficients
46-Pd-111
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
P1
P2
P3
P4
P5
P6
P7
P8
P9
51
Incident Energy (MeV)
46-Pd-111

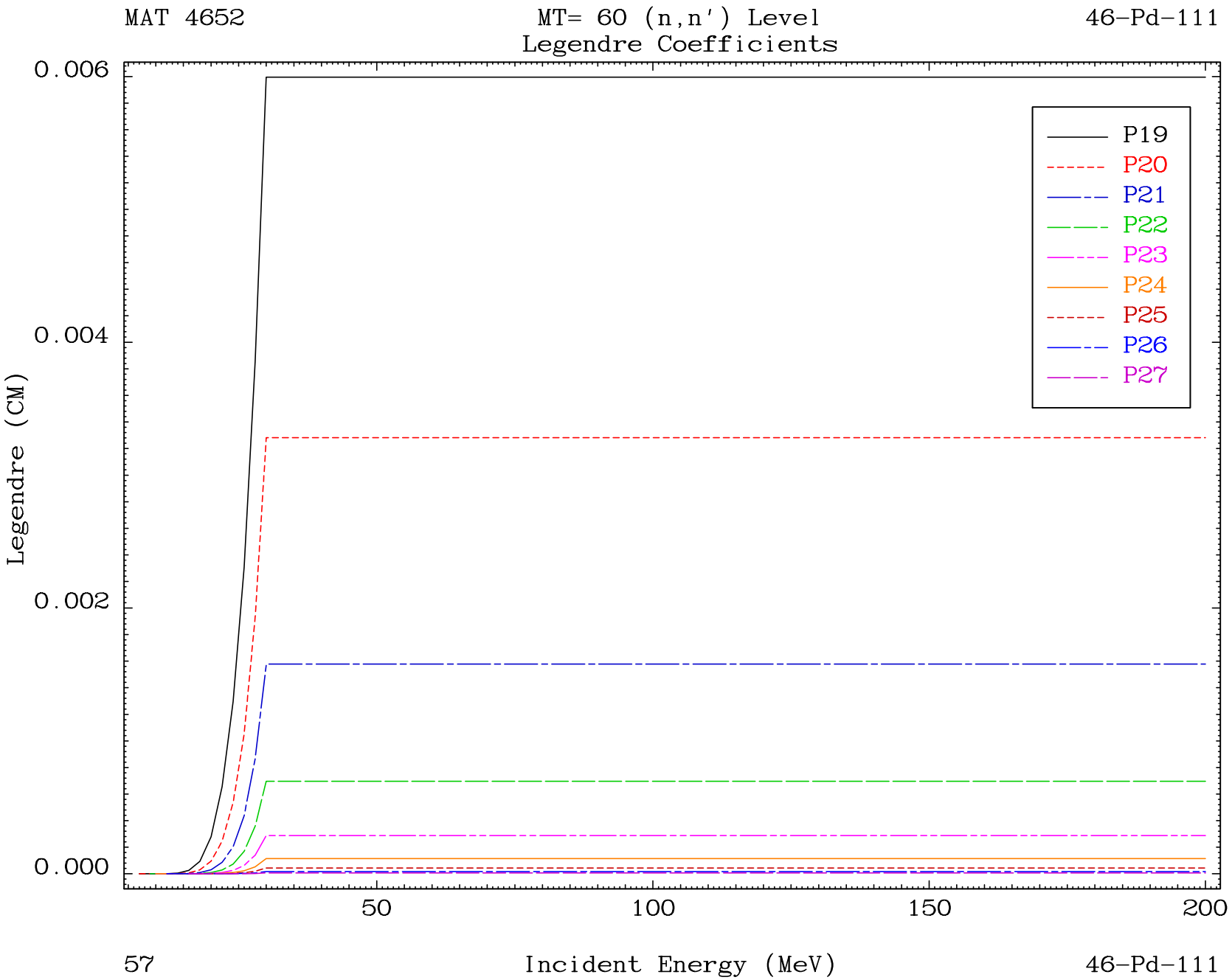

MAT 4652
MT= 59 (n,n') Level
Legendre Coefficients
46-Pd-111
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.015
0.010
0.005
0.000
-0.005
Legendre (CM)
0
50
100
150
200
52
Incident Energy (MeV)
46-Pd-111

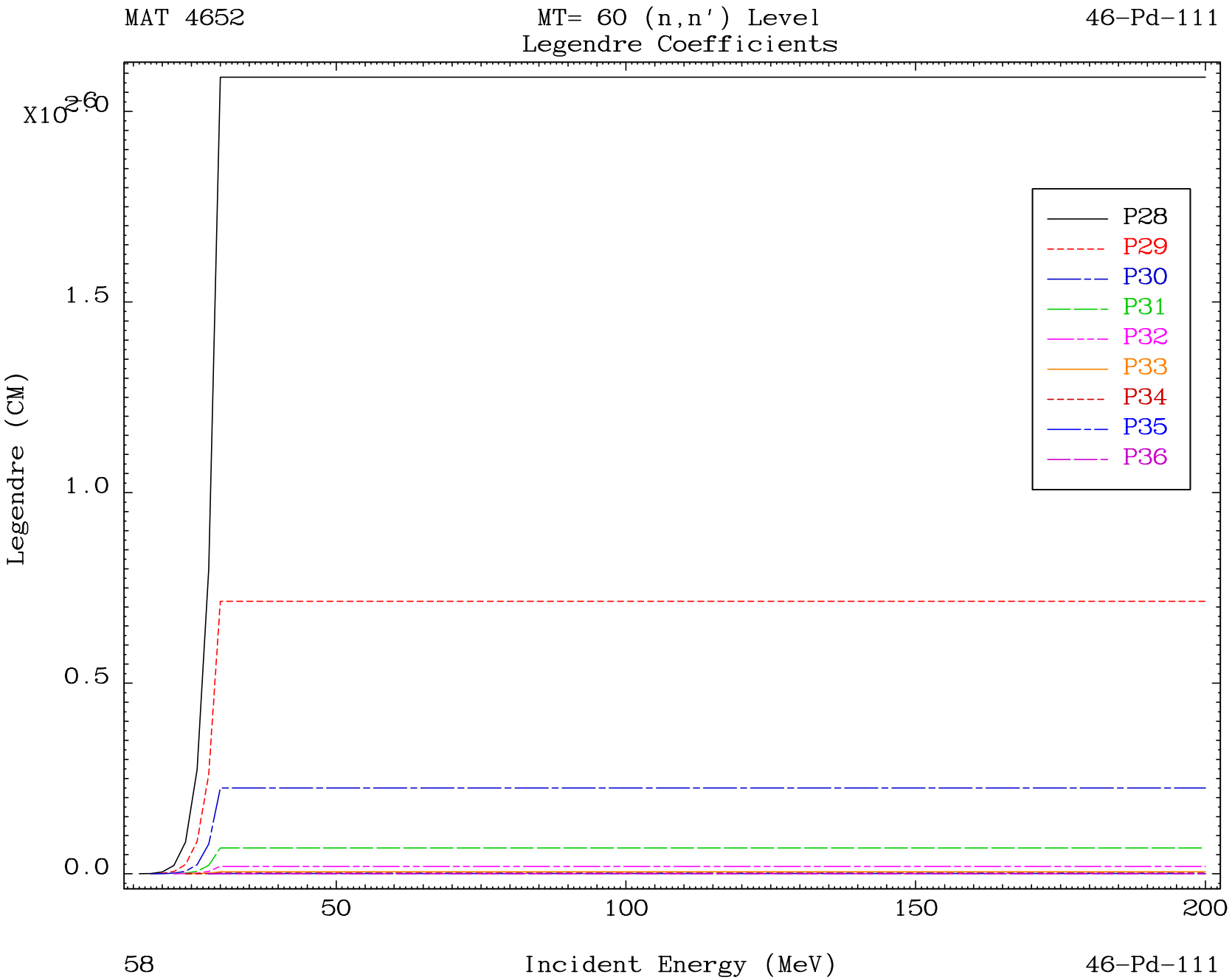

MAT 4652
MT= 59 (n,n') Level
Legendre Coefficients
46-Pd-111
X10-3
1.5
1.0
0.5
0.0
P19
P20
P21
P22
P23
P24
P25
P26
P27
Legendre (CM)
50
100
150
200
53
Incident Energy (MeV)
46-Pd-111

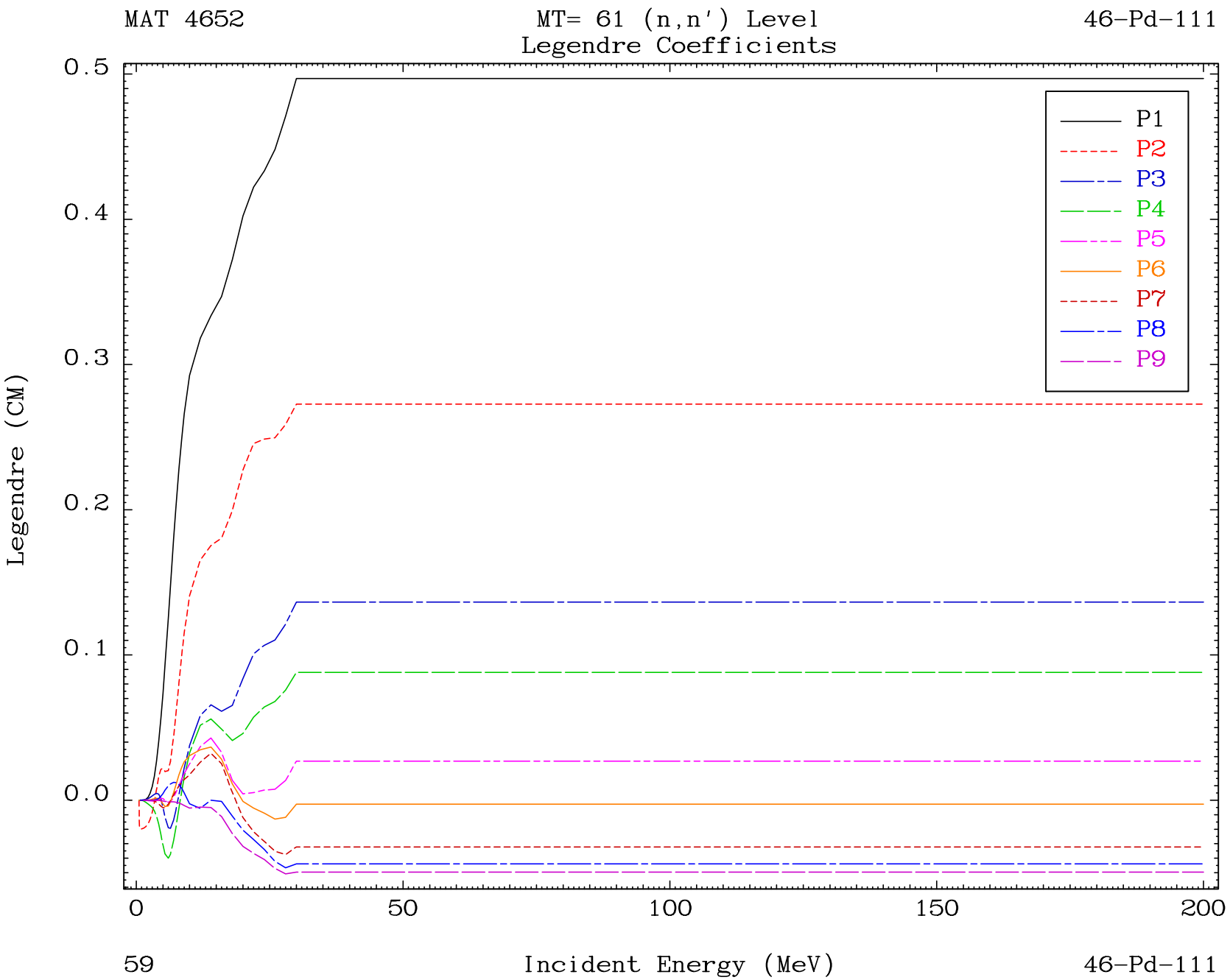

MAT 4652
MT= 59 (n,n') Level
Legendre Coefficients
46-Pd-111
X10^-6
1.0
0.8
0.6
0.4
0.2
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
54
Incident Energy (MeV)
46-Pd-111

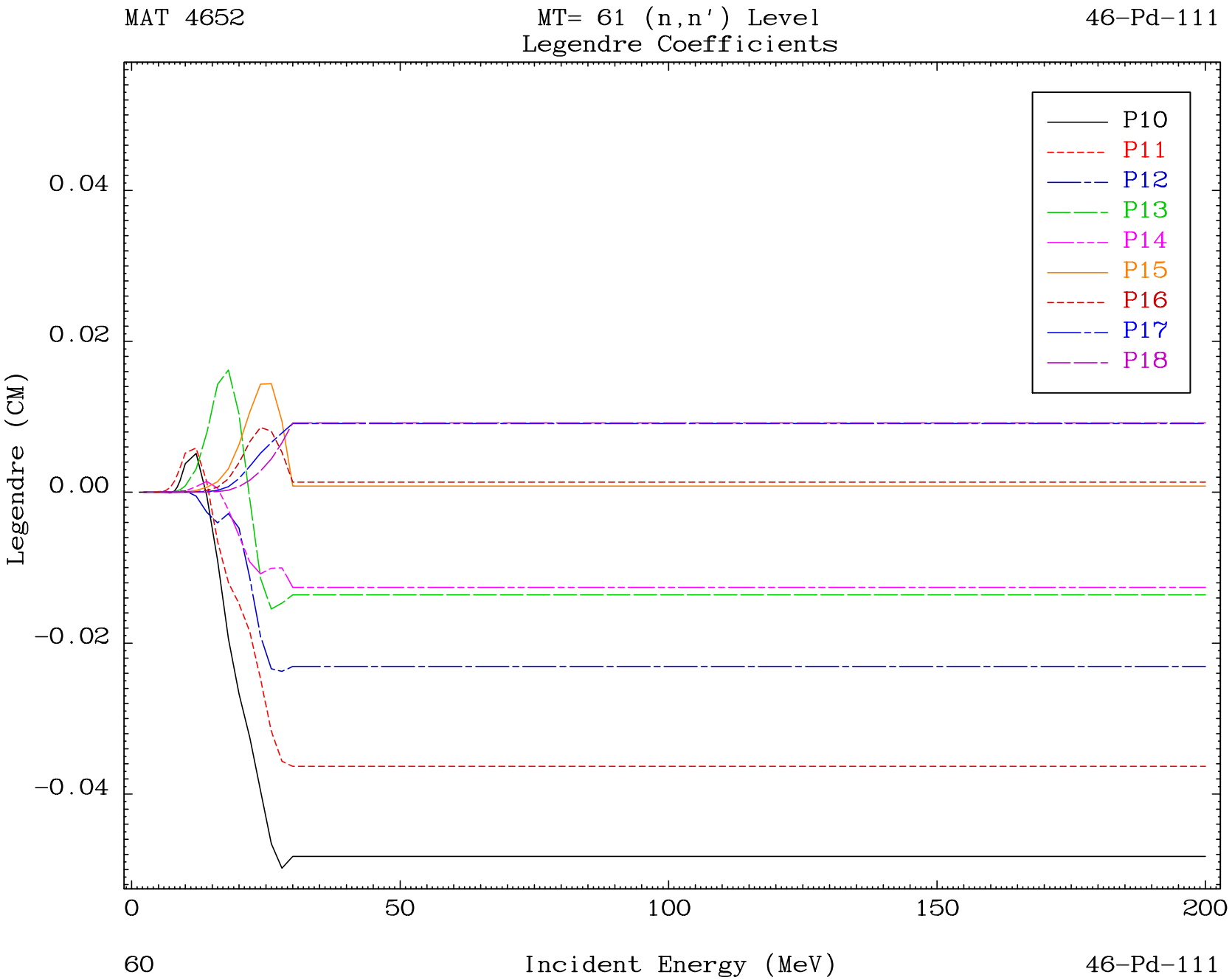

MAT 4652
MT= 60 (n,n') Level
Legendre Coefficients
46-Pd-111
0.5
0.4
0.3
0.2
0.1
0.0
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
55
Incident Energy (MeV)
46-Pd-111

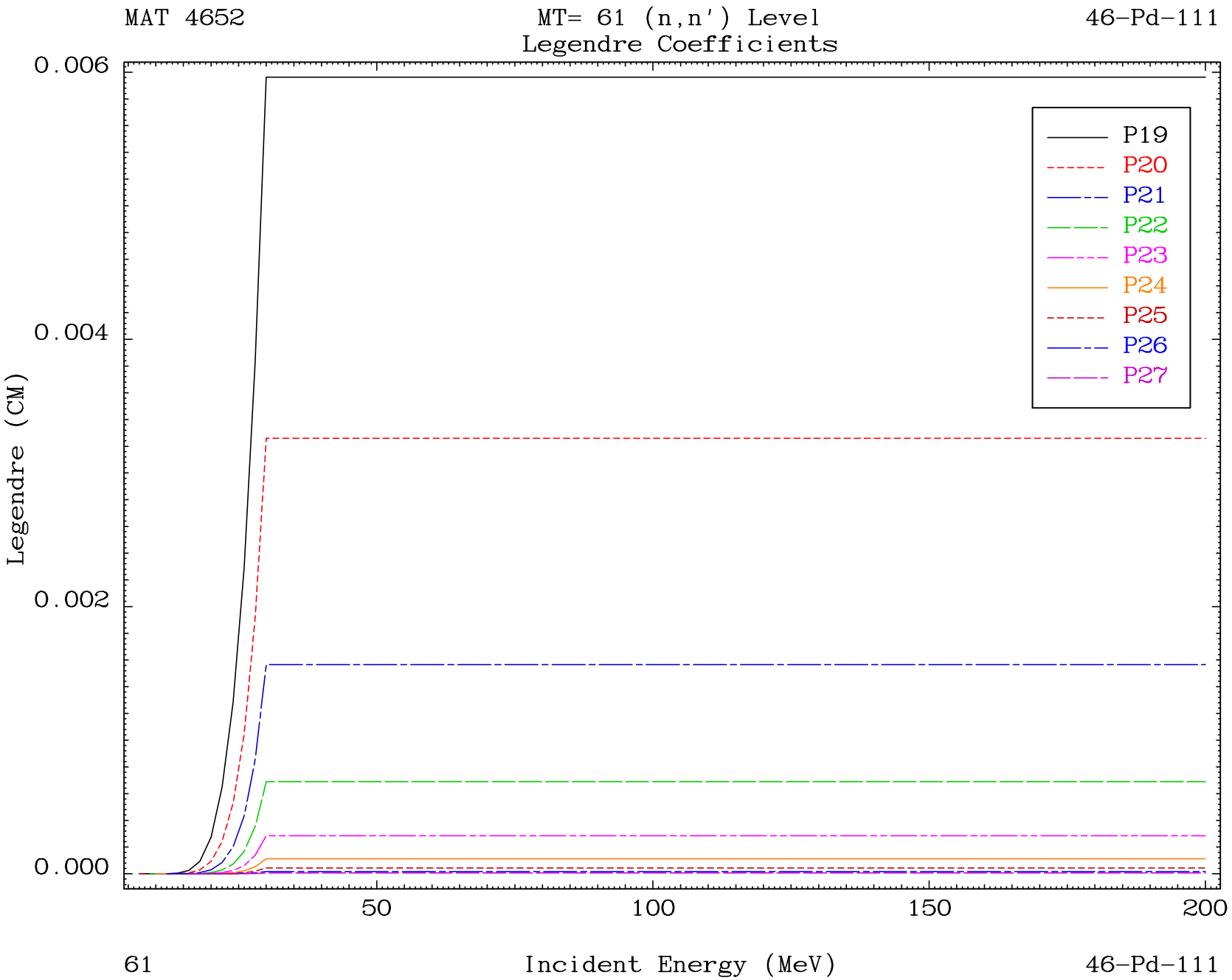

MAT 4652
MT= 60 (n,n') Level
Legendre Coefficients
46-Pd-111
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
56
Incident Energy (MeV)
46-Pd-111

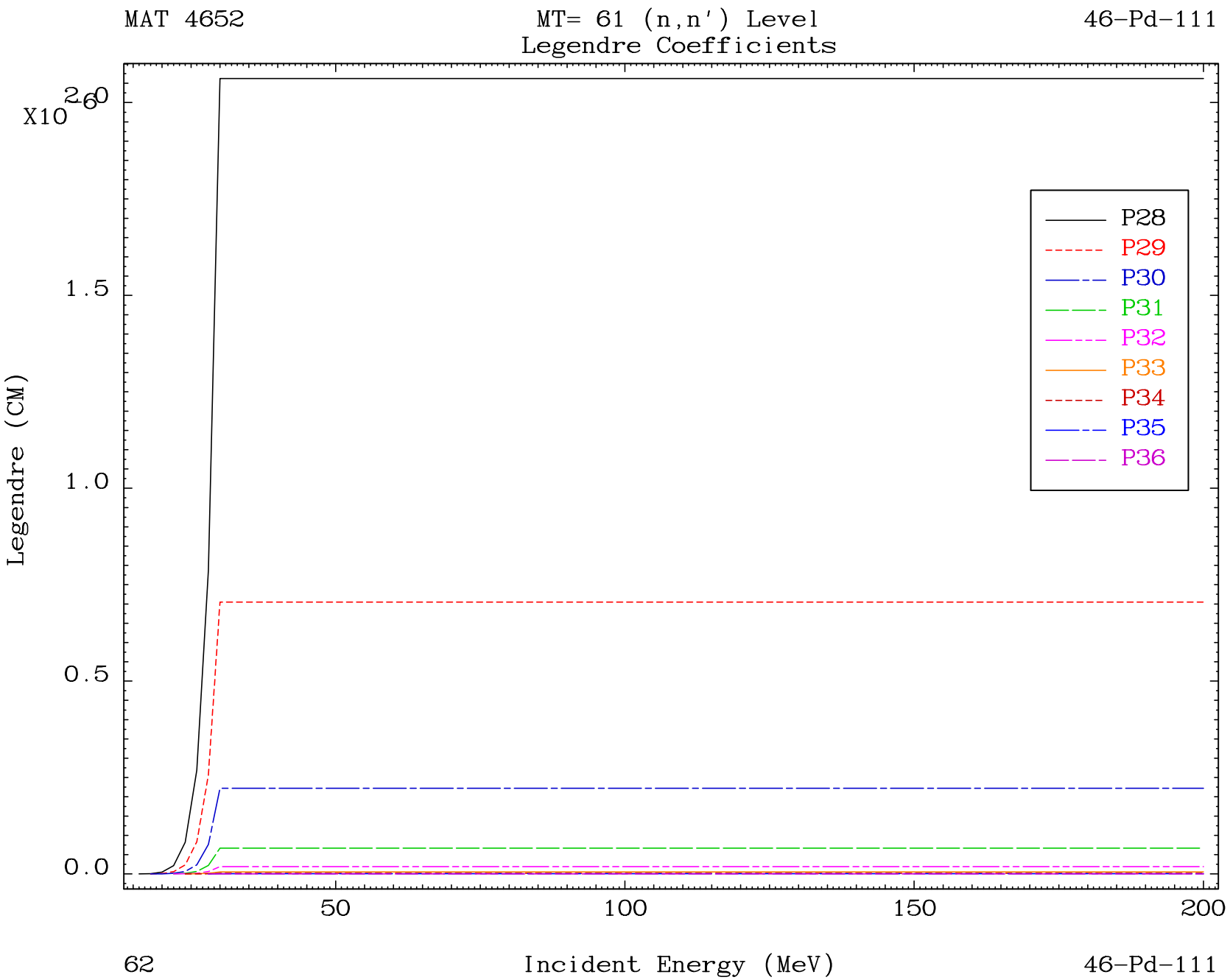

MAT 4652
MT= 60 (n,n') Level
Legendre Coefficients
46-Pd-111
0.006
0.004
0.002
0.000
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
57
Incident Energy (MeV)
46-Pd-111

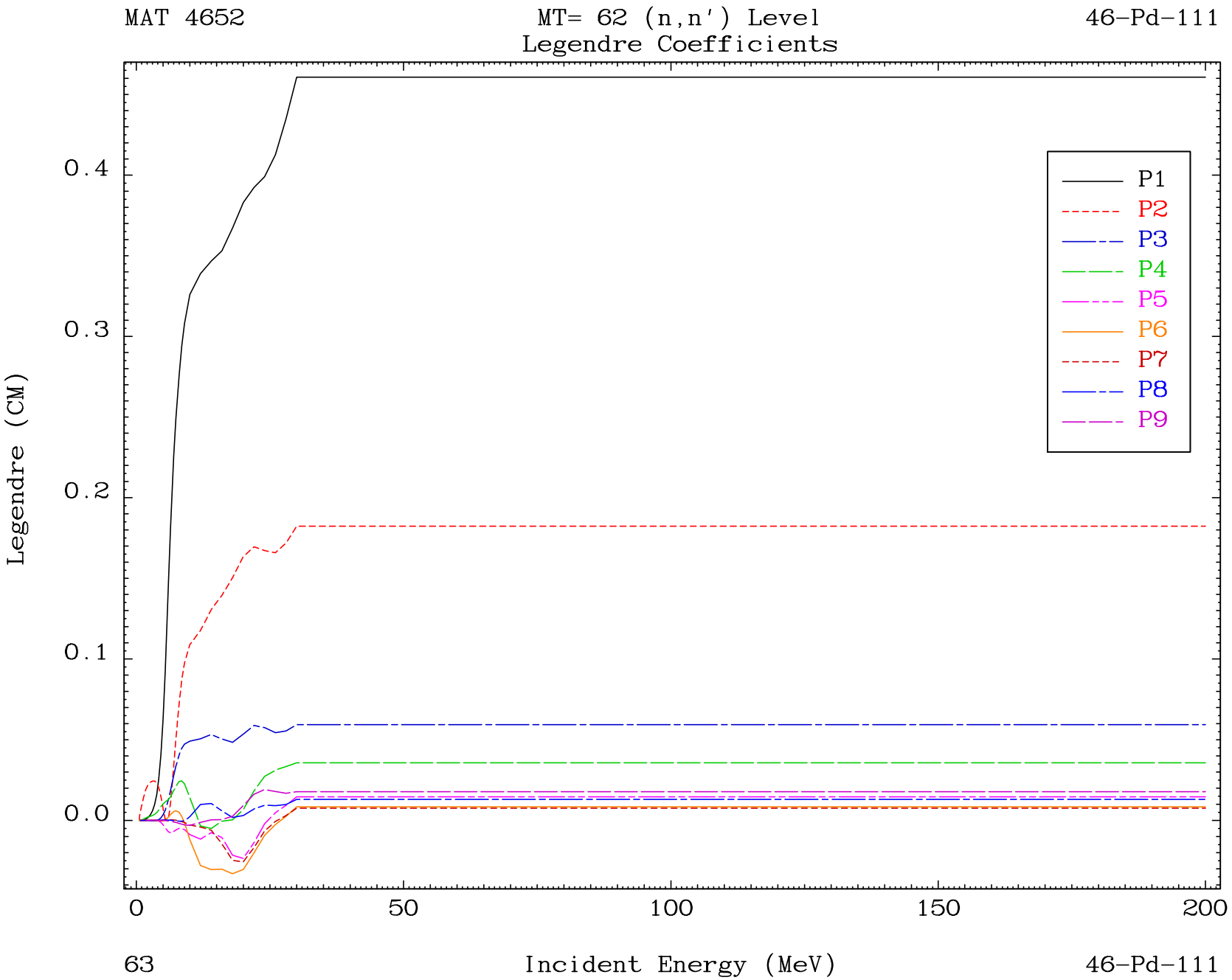

MAT 4652
MT= 60 (n,n') Level
Legendre Coefficients
46-Pd-111
X10-2
2.0
1.5
1.0
0.5
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
P35
P36
50
100
150
200
58
Incident Energy (MeV)
46-Pd-111

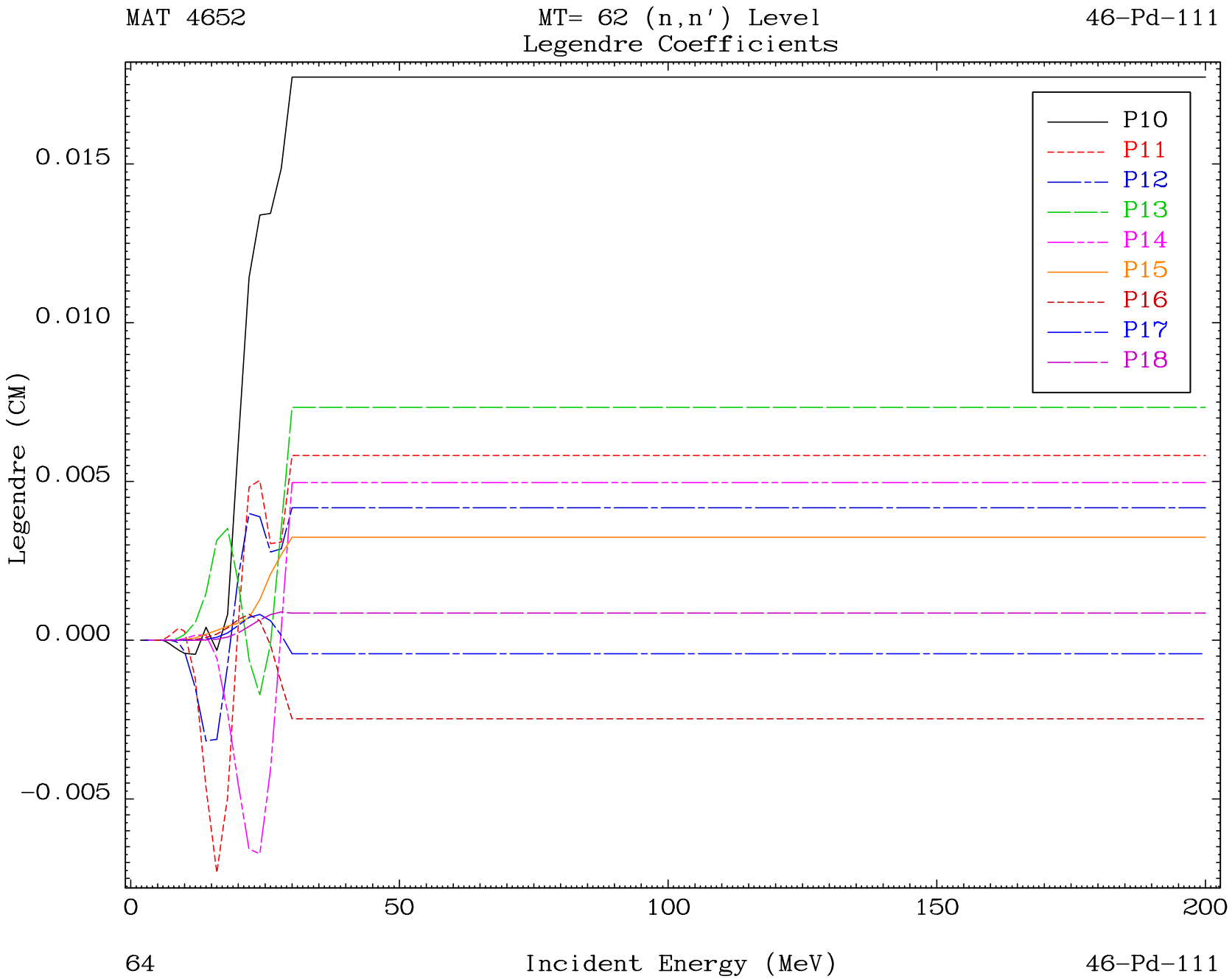

MAT 4652
MT= 61 (n,n') Level
Legendre Coefficients
46-Pd-111
0.5
0.4
0.3
0.2
0.1
0.0
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
59
Incident Energy (MeV)
46-Pd-111

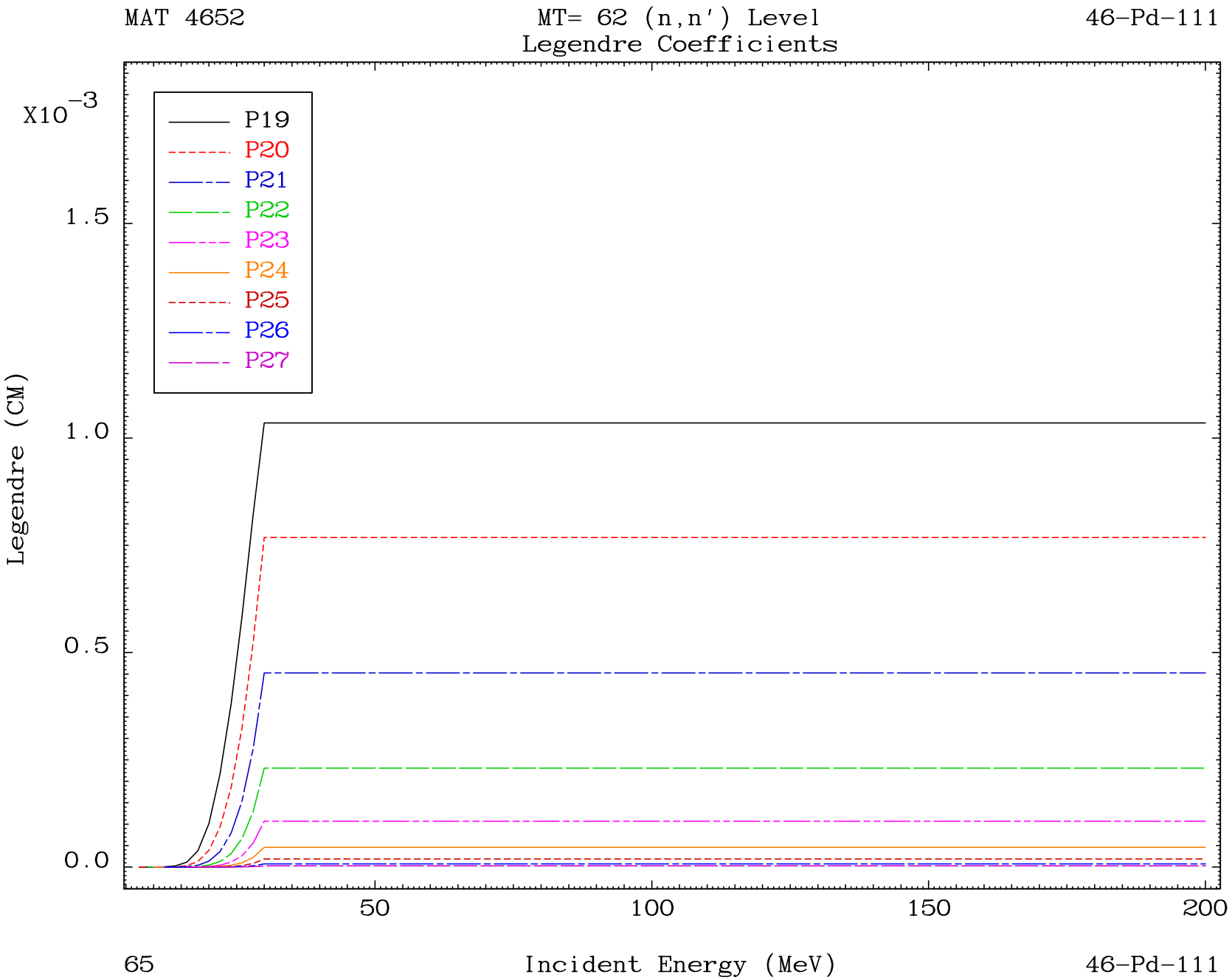

MAT 4652
MT= 61 (n,n') Level
Legendre Coefficients
46-Pd-111
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
60
Incident Energy (MeV)
46-Pd-111

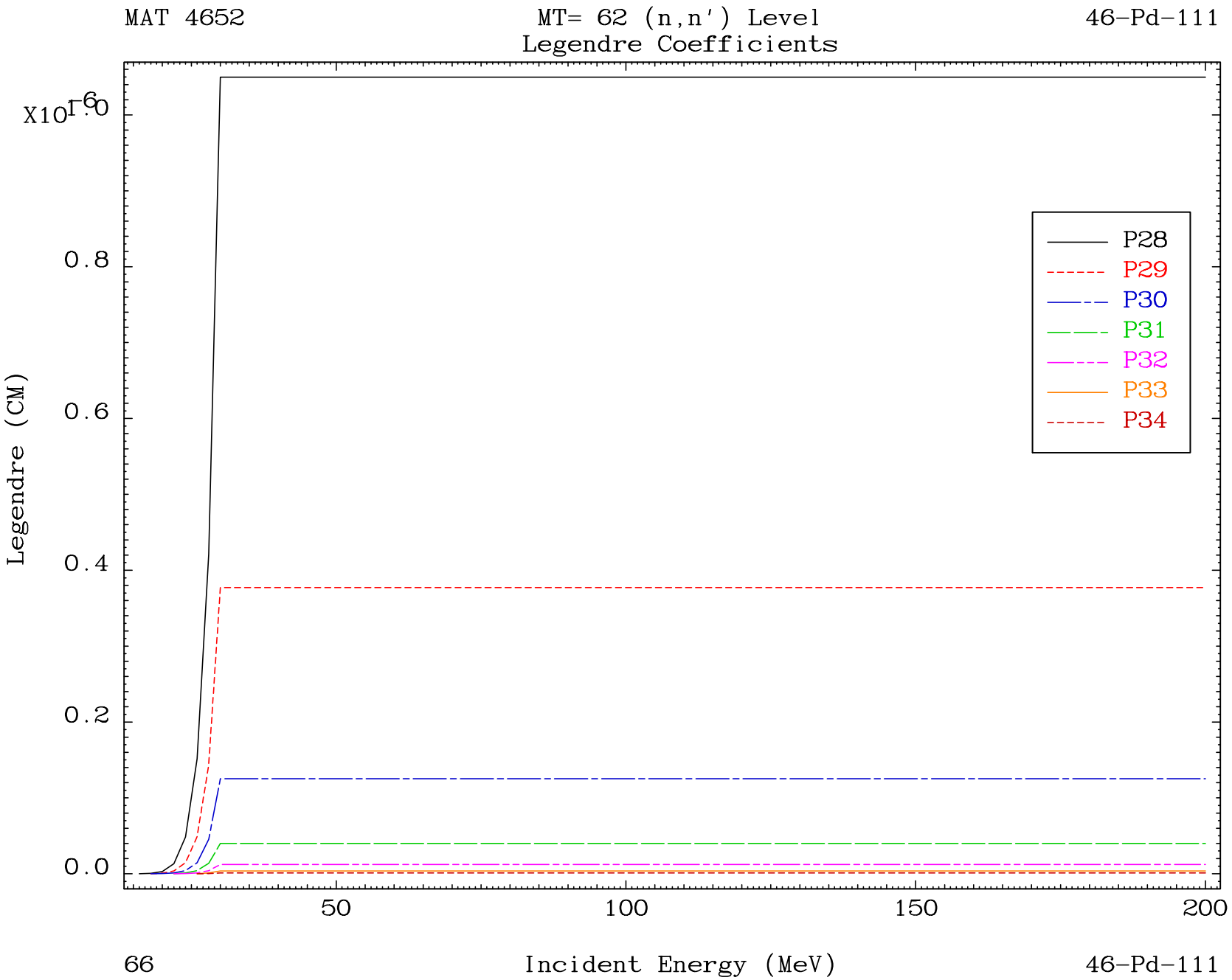

MAT 4652
MT= 61 (n,n') Level
Legendre Coefficients
46-Pd-111
0.006
0.004
0.002
0.000
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
61
Incident Energy (MeV)
46-Pd-111

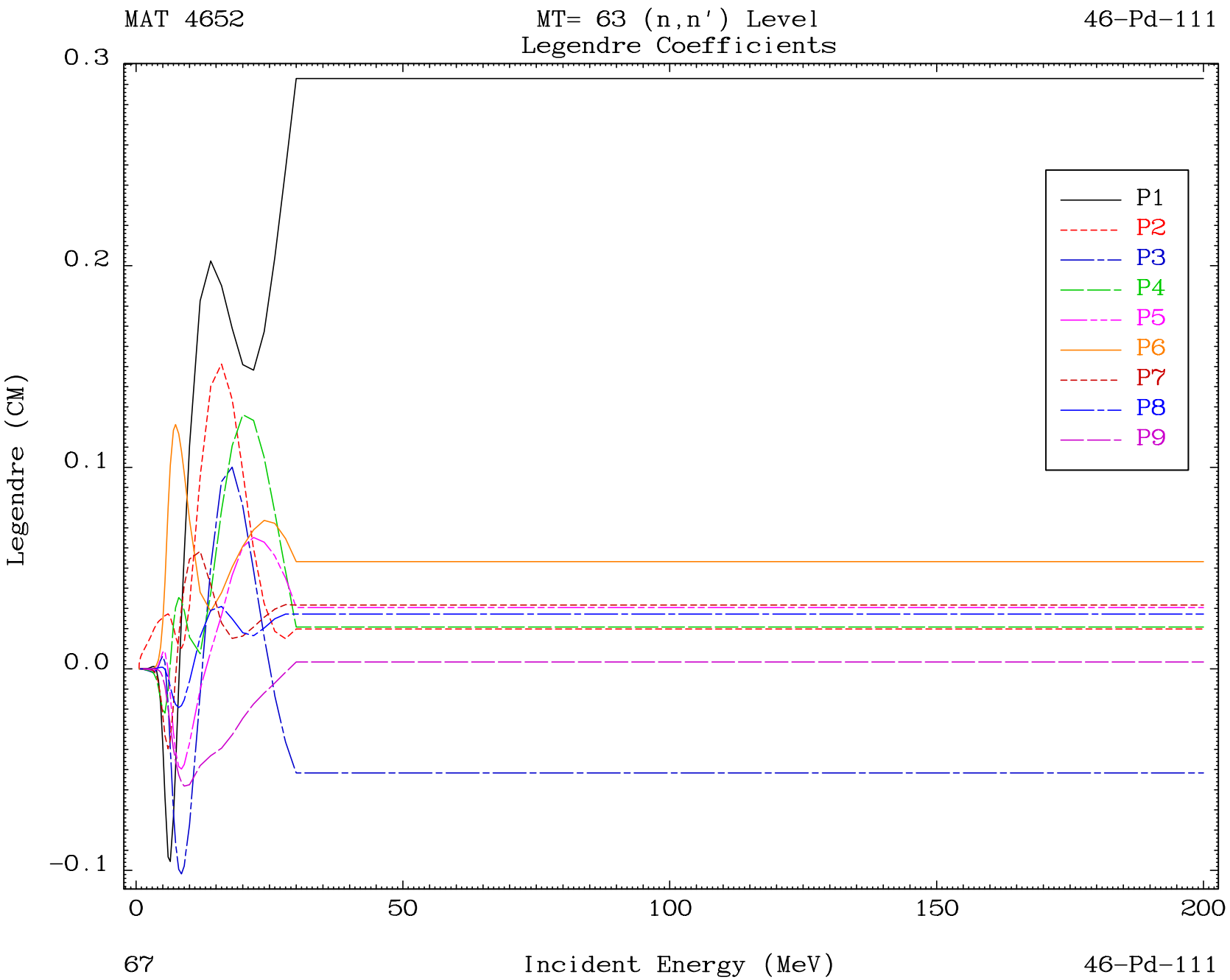

MAT 4652
MT= 61 (n,n') Level
Legendre Coefficients
46-Pd-111
X10 2.0
1.5
1.0
0.5
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
P35
P36
50
100
150
200
62
Incident Energy (MeV)
46-Pd-111

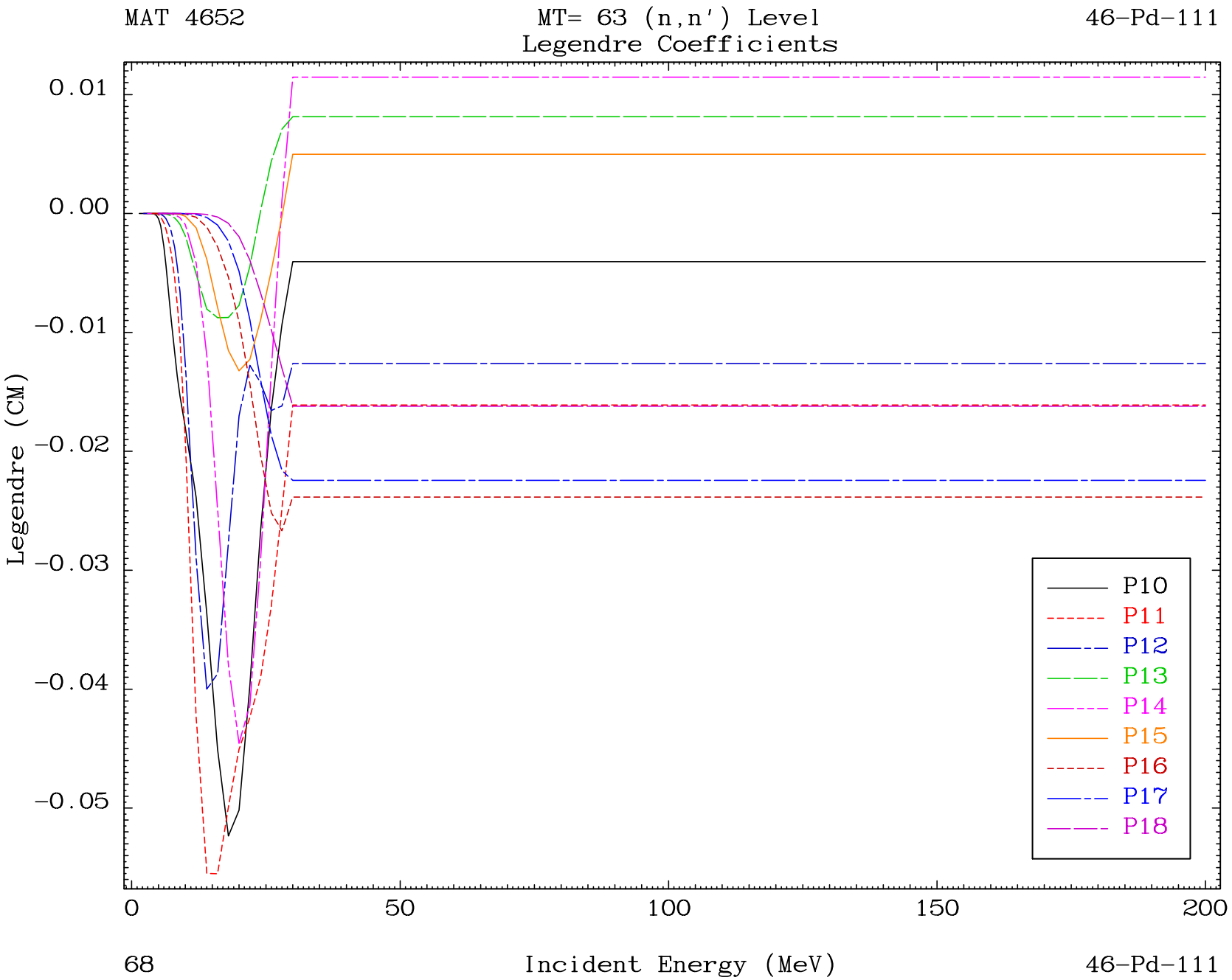

MAT 4652
MT= 62 (n,n') Level
Legendre Coefficients
46-Pd-111
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
63
Incident Energy (MeV)
46-Pd-111
P1
P2
P3
P4
P5
P6
P7
P8
P9

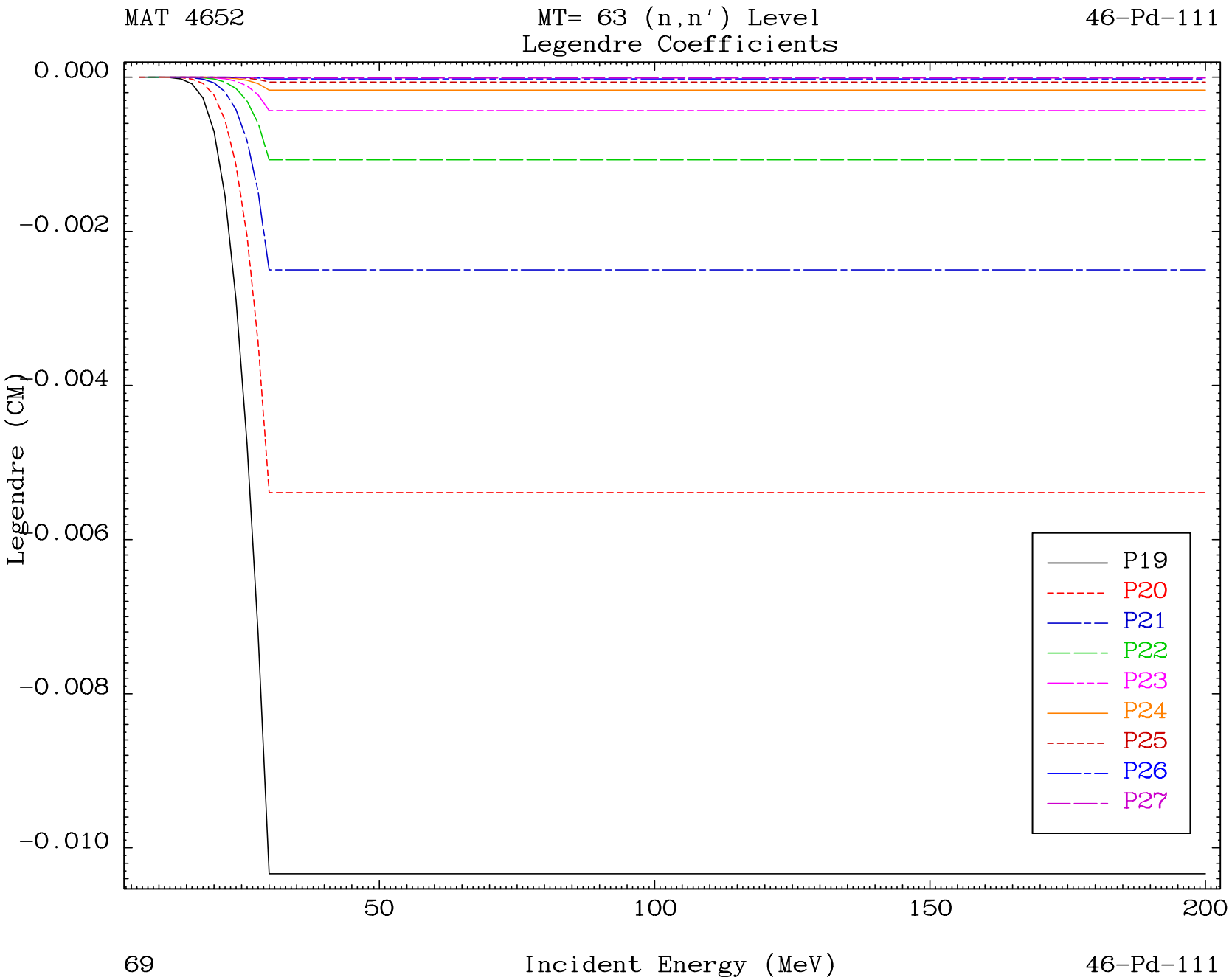

MAT 4652
MT= 62 (n,n') Level
Legendre Coefficients
46-Pd-111
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.015
0.010
0.005
0.000
-0.005
Legendre (CM)
0
50
100
150
200
64
Incident Energy (MeV)
46-Pd-111

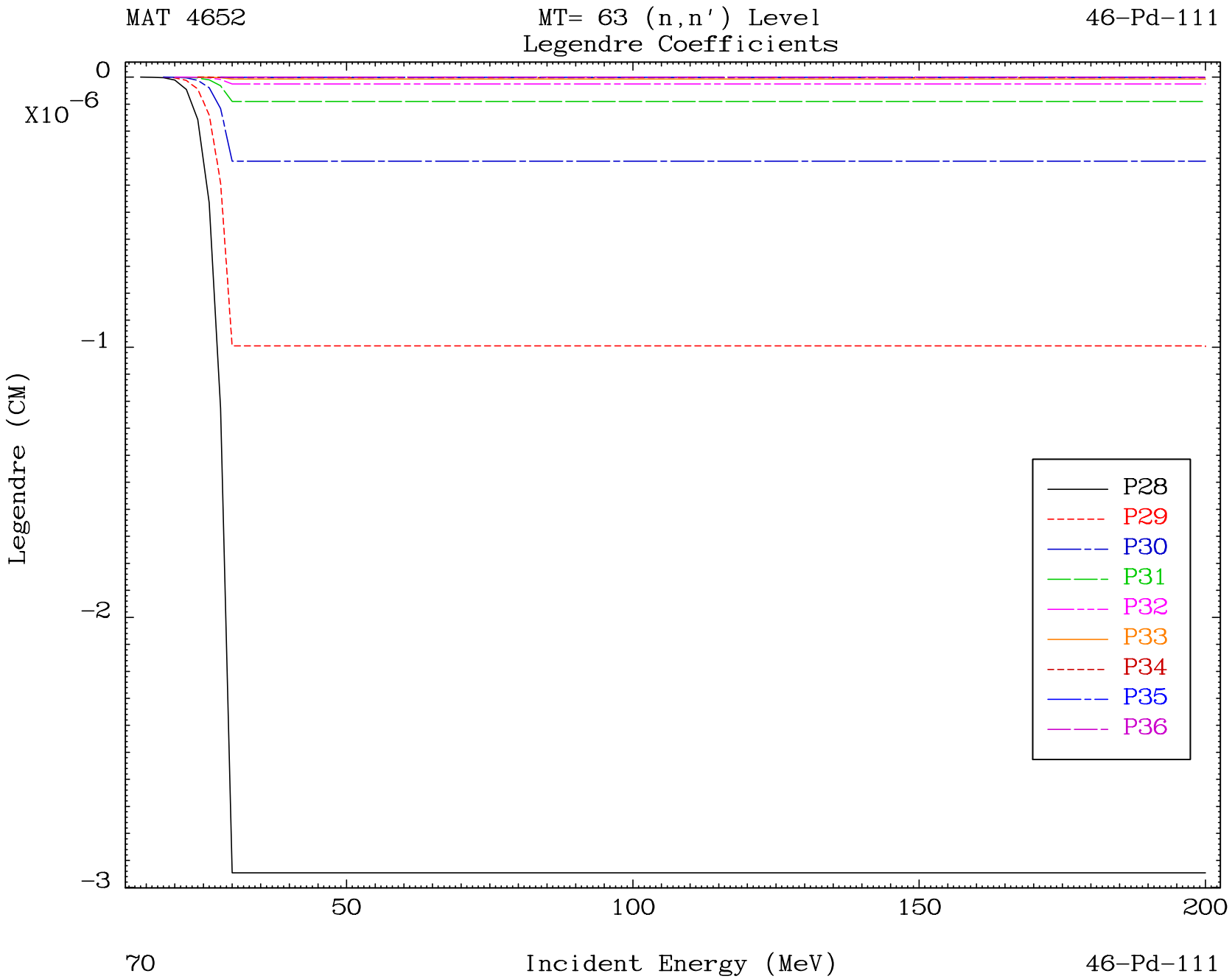

MAT 4652
MT= 62 (n,n') Level
Legendre Coefficients
46-Pd-111
X10-3
1.5
1.0
0.5
0.0
P19
P20
P21
P22
P23
P24
P25
P26
P27
Legendre (CM)
50
100
150
200
65
Incident Energy (MeV)
46-Pd-111

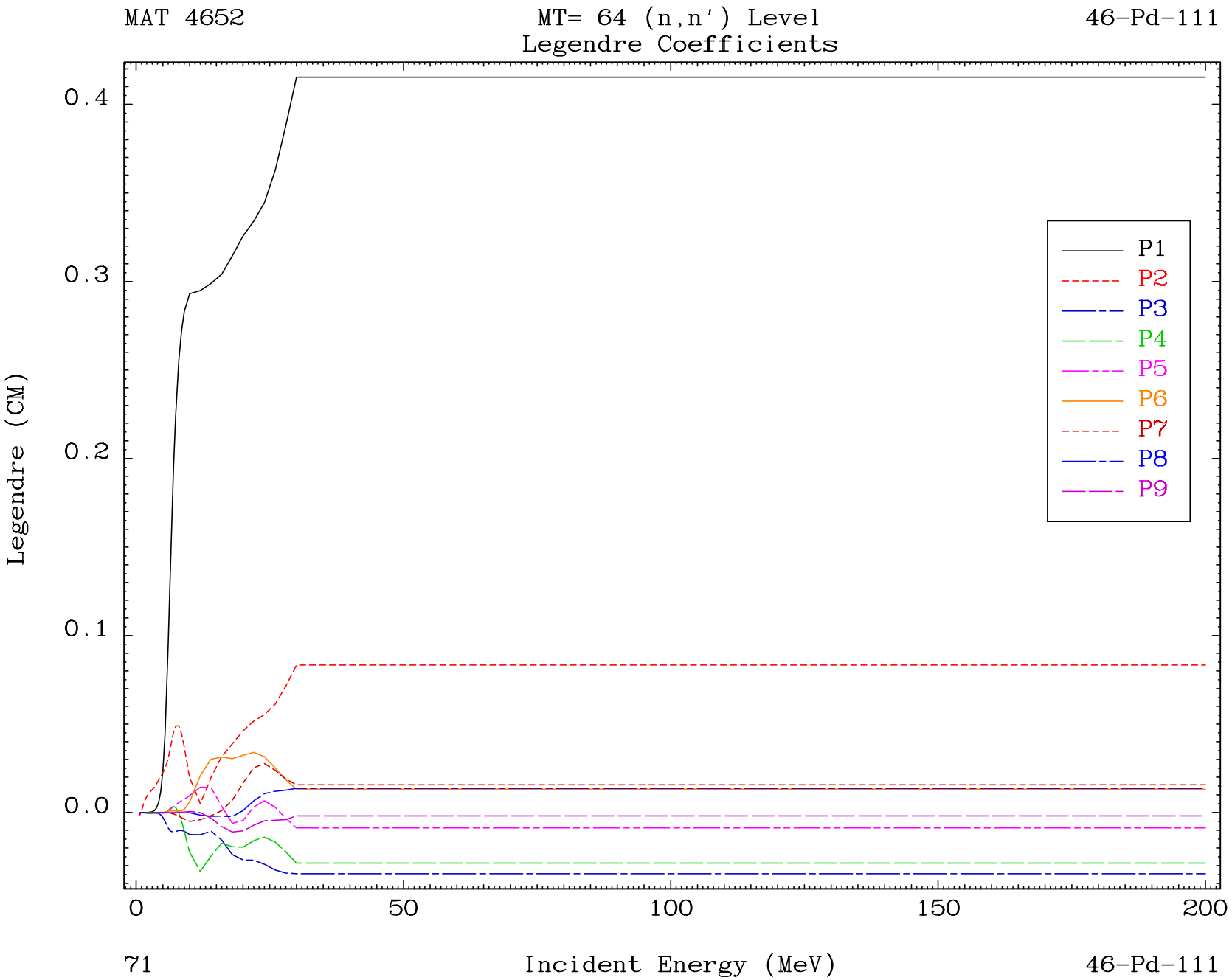

MAT 4652
MT= 62 (n,n') Level
Legendre Coefficients
46-Pd-111
X10-6
1.0
0.8
0.6
0.4
0.2
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
66
Incident Energy (MeV)
46-Pd-111

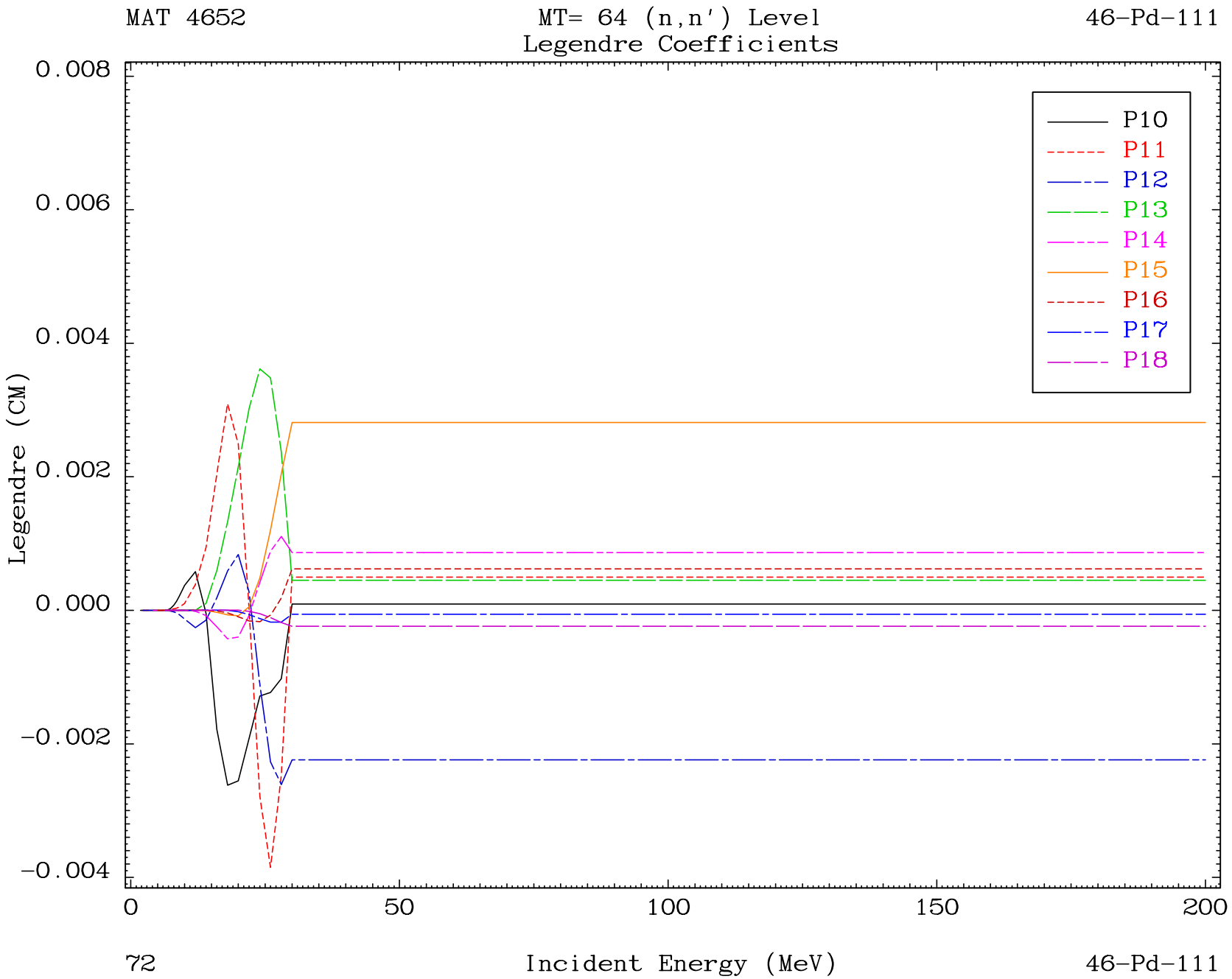

MAT 4652
MT= 63 (n,n') Level
Legendre Coefficients
46-Pd-111
0.3
0.2
0.1
0.0
-0.1
Legendre (CM)
0
50
100
150
200
67
Incident Energy (MeV)
46-Pd-111
P1
P2
P3
P4
P5
P6
P7
P8
P9

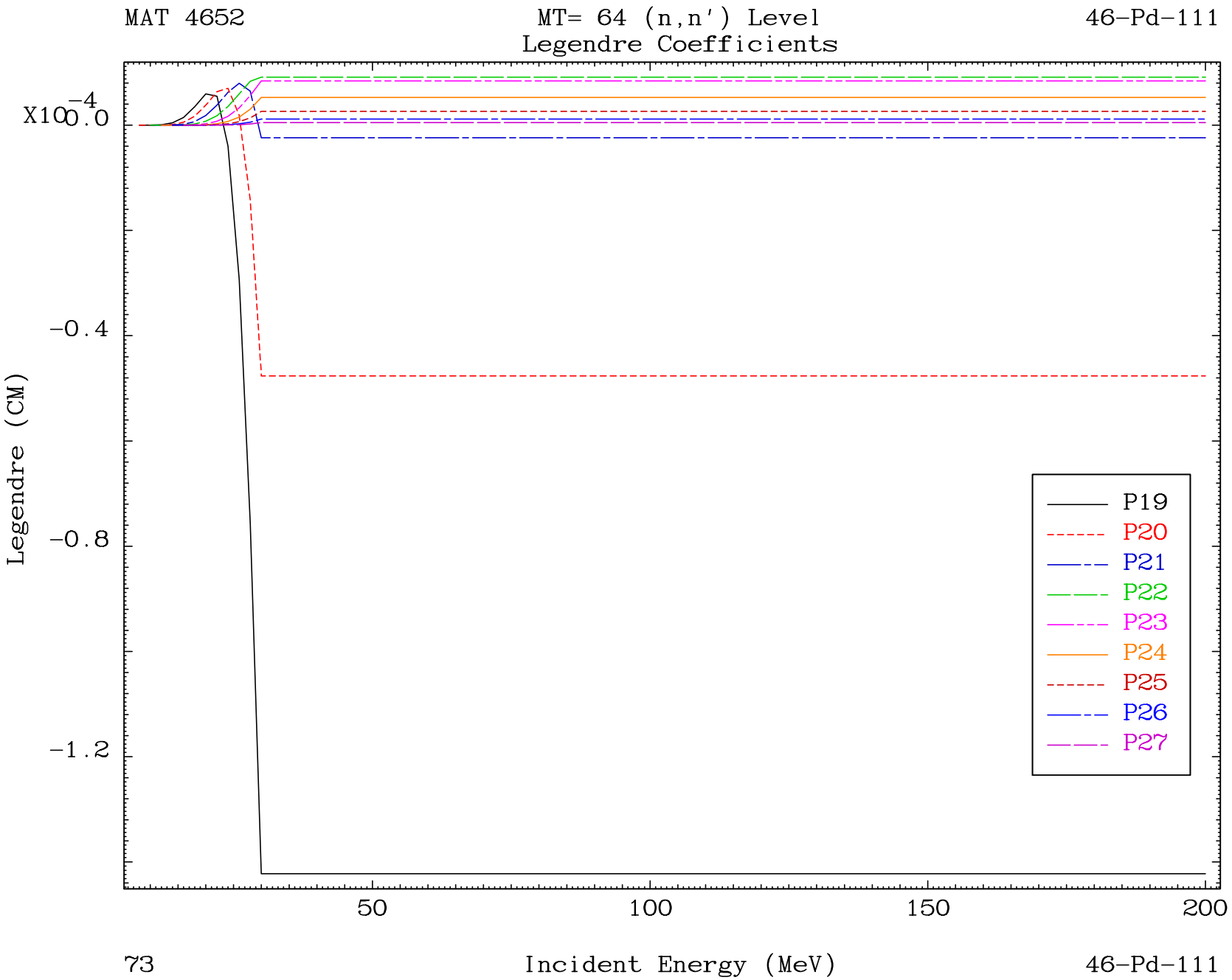

MAT 4652
MT= 63 (n,n') Level
Legendre Coefficients
46-Pd-111
0.01
0.00
-0.01
-0.02
-0.03
-0.04
-0.05
Legendre (CM)
0
50
100
150
200
68
Incident Energy (MeV)
46-Pd-111
P10
P11
P12
P13
P14
P15
P16
P17
P18

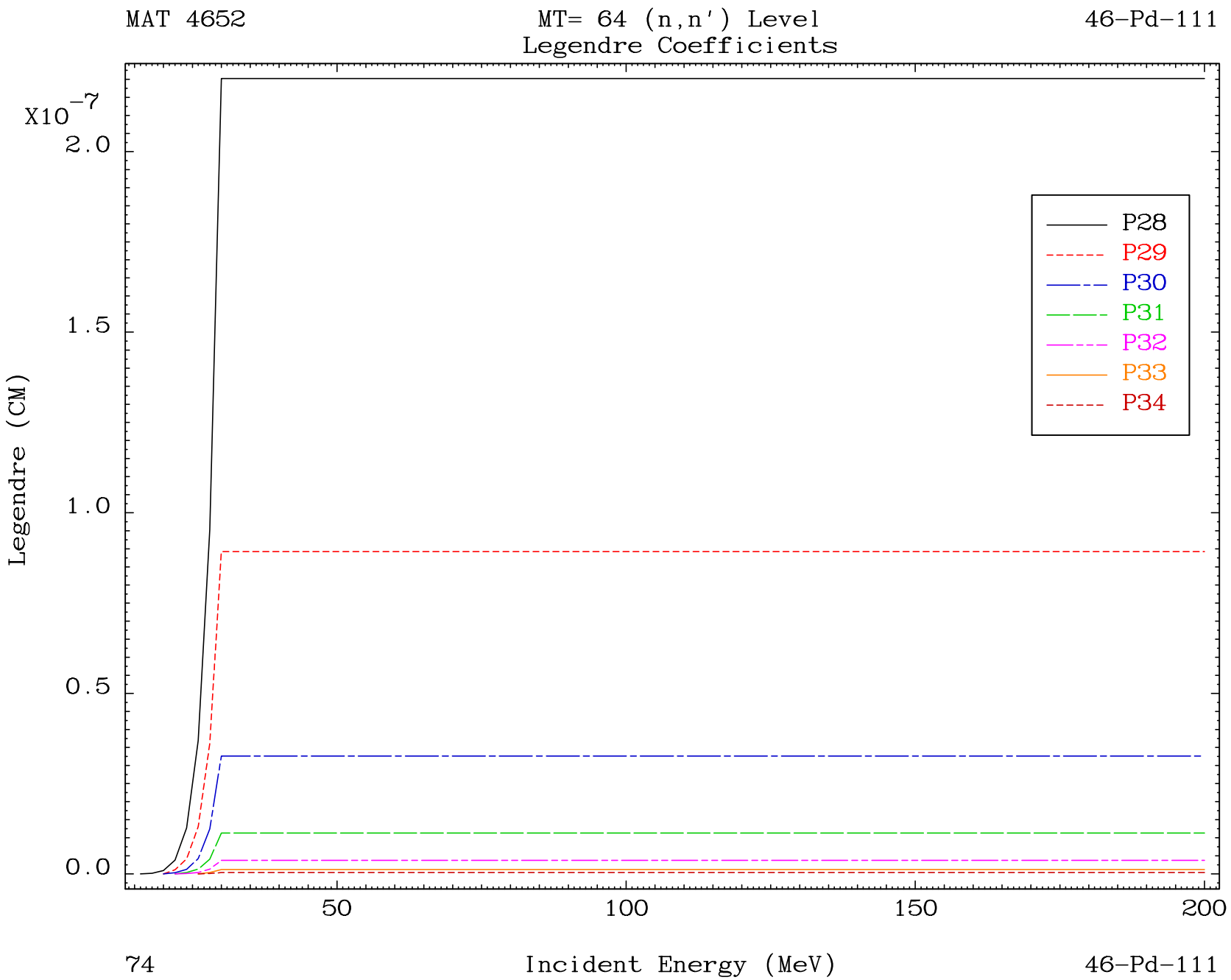

MAT 4652
MT= 63 (n,n') Level
Legendre Coefficients
46-Pd-111
0.000
-0.002
-0.004
-0.006
-0.008
-0.010
Legendre (CM)
50
100
150
200
69
Incident Energy (MeV)
46-Pd-111
P19
P20
P21
P22
P23
P24
P25
P26
P27

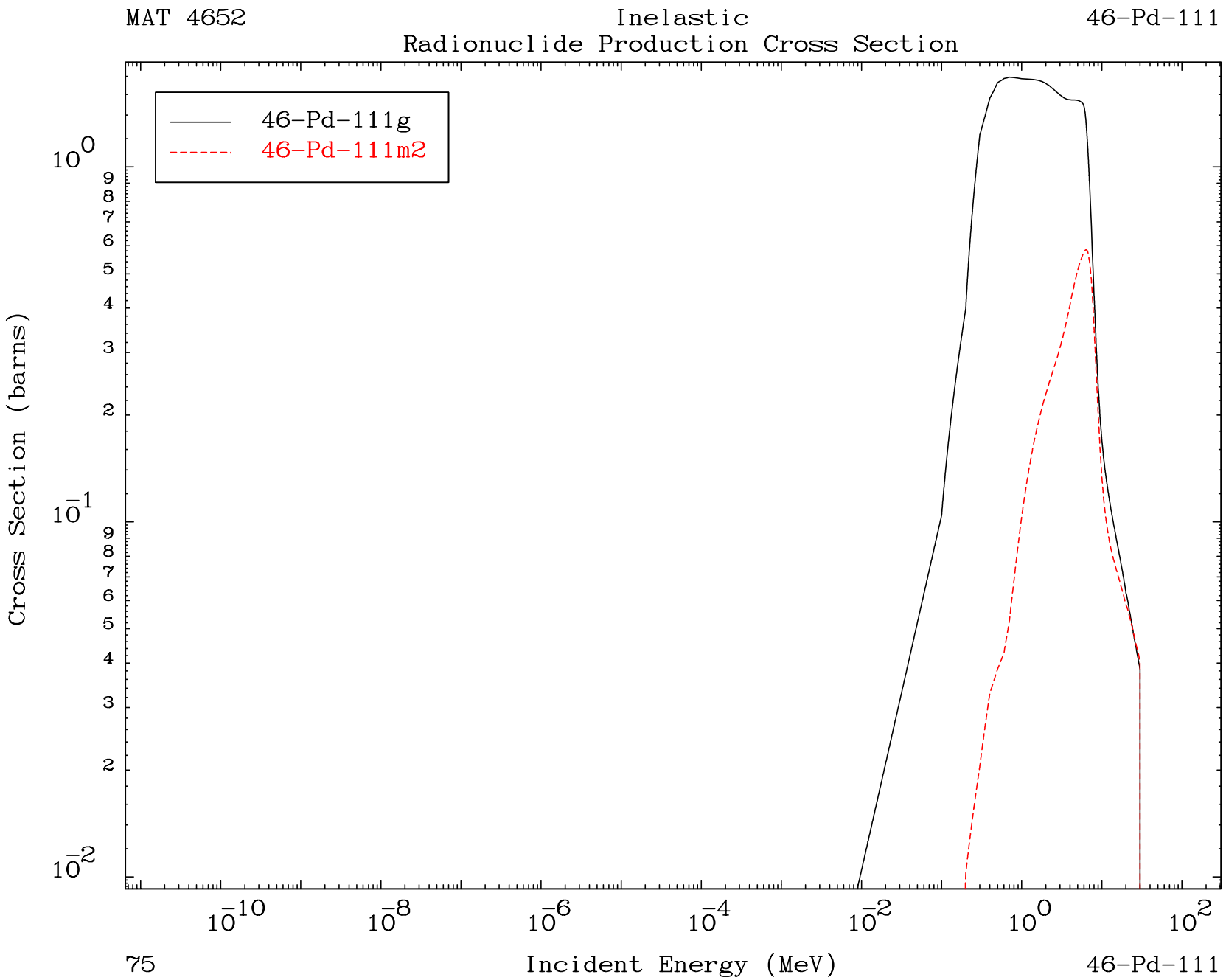

MAT 4652
MT= 63 (n,n') Level
Legendre Coefficients
46-Pd-111
0
X10^-6
-1
-2
-3
Legendre (CM)
50
100
150
200
70
Incident Energy (MeV)
46-Pd-111
P28
P29
P30
P31
P32
P33
P34
P35
P36

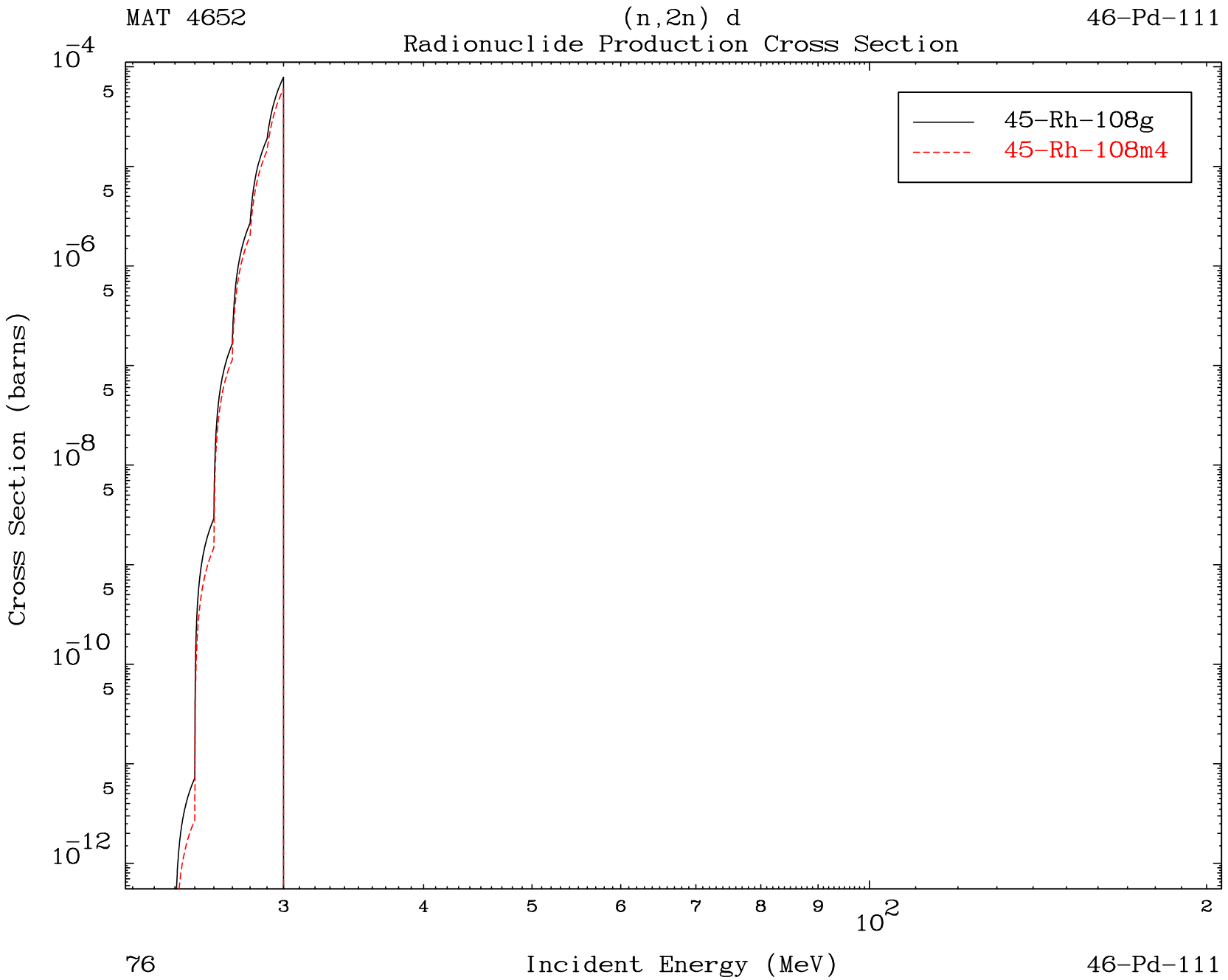

MAT 4652
MT= 64 (n,n') Level
Legendre Coefficients
46-Pd-111
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
71
Incident Energy (MeV)
46-Pd-111
P1
P2
P3
P4
P5
P6
P7
P8
P9

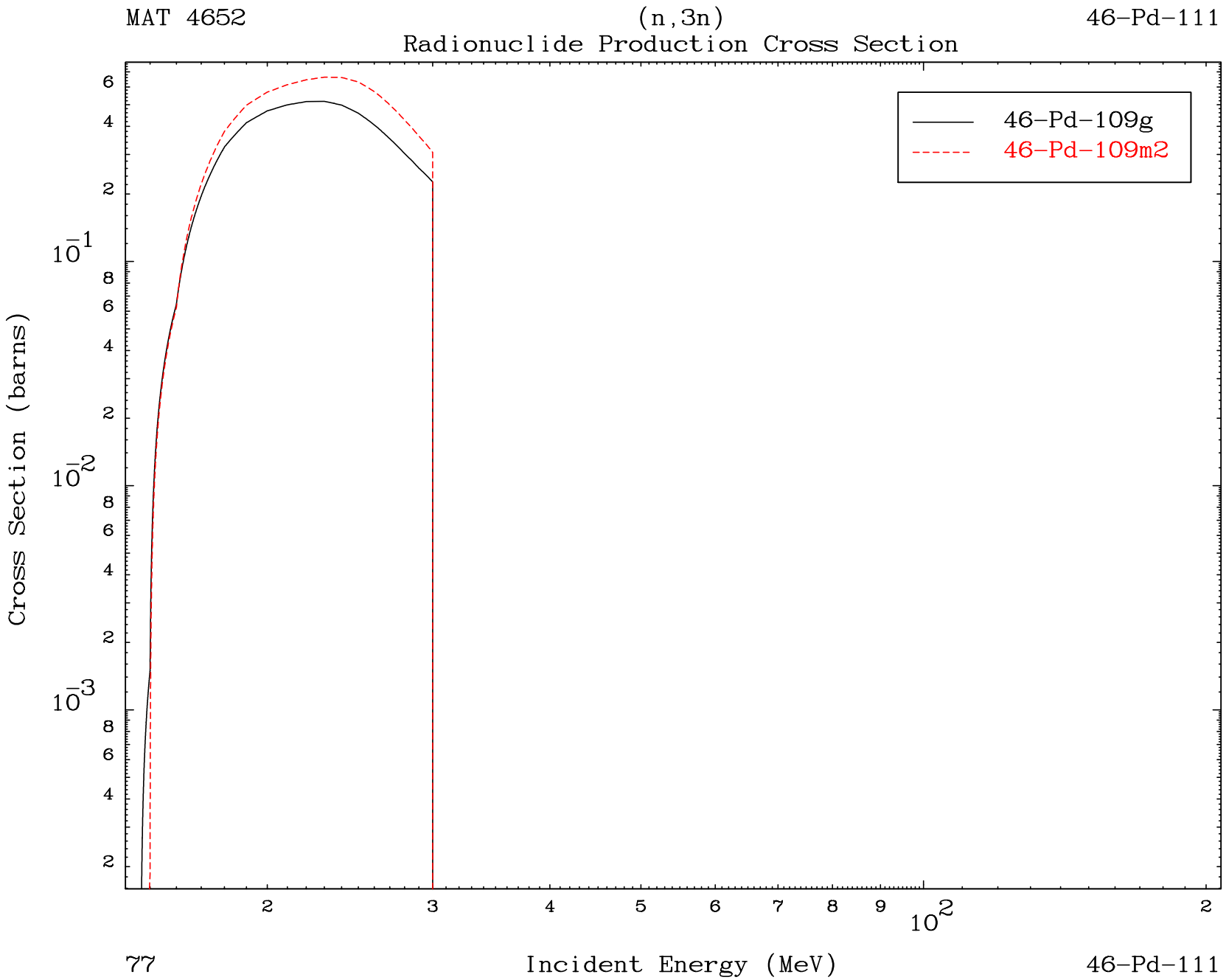

MAT 4652
MT= 64 (n,n') Level
Legendre Coefficients
46-Pd-111
0.008
0.006
0.004
0.002
0.000
-0.002
-0.004
Legendre (CM)
0
50
100
150
200
Incident Energy (MeV)
72
46-Pd-111
P10
P11
P12
P13
P14
P15
P16
P17
P18

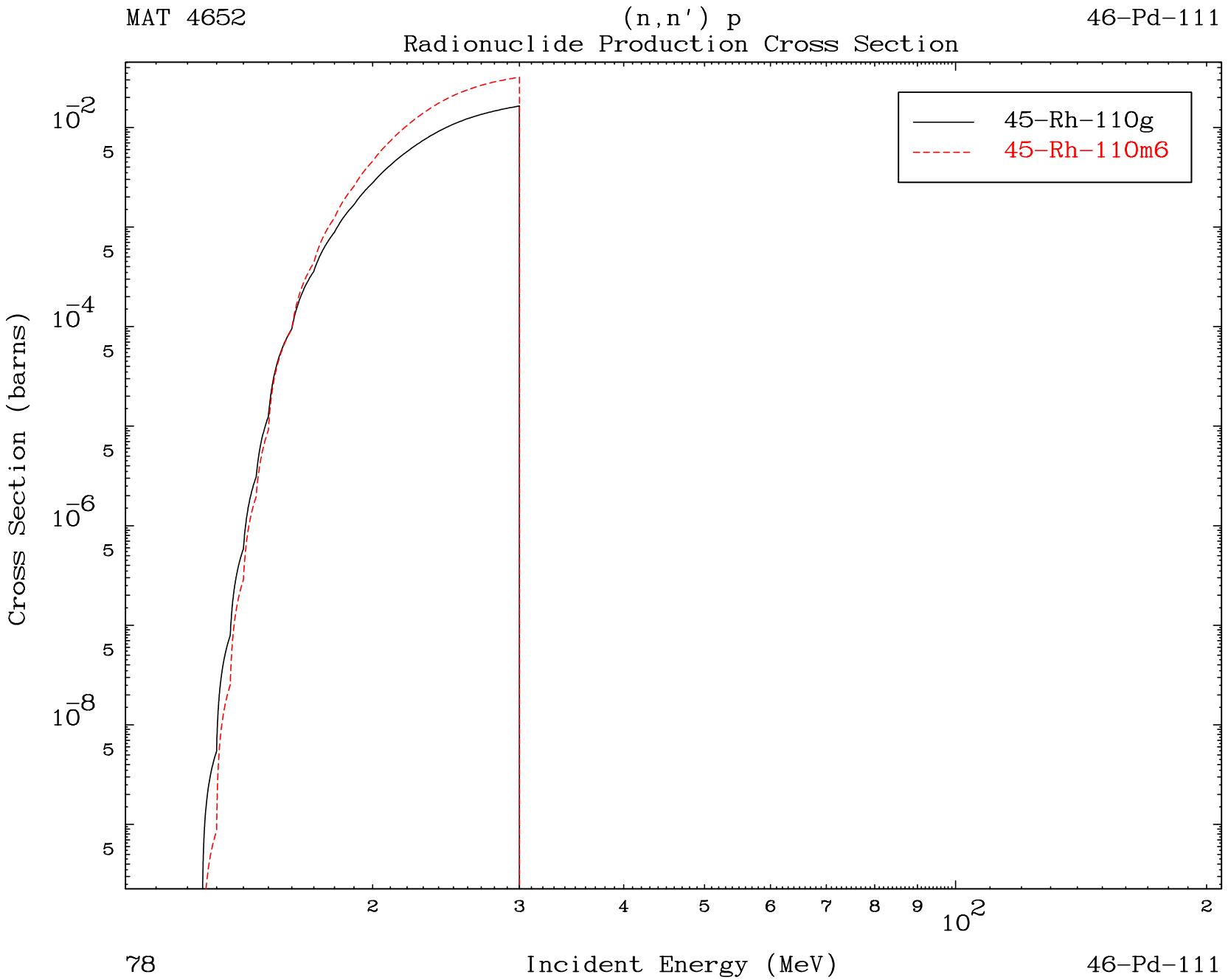

MAT 4652
MT= 64 (n,n') Level
Legendre Coefficients
46-Pd-111
X10^-4
0.0
-0.4
-0.8
-1.2
Legendre (CM)
50
100
150
200
Incident Energy (MeV)
73
46-Pd-111
P19
P20
P21
P22
P23
P24
P25
P26
P27

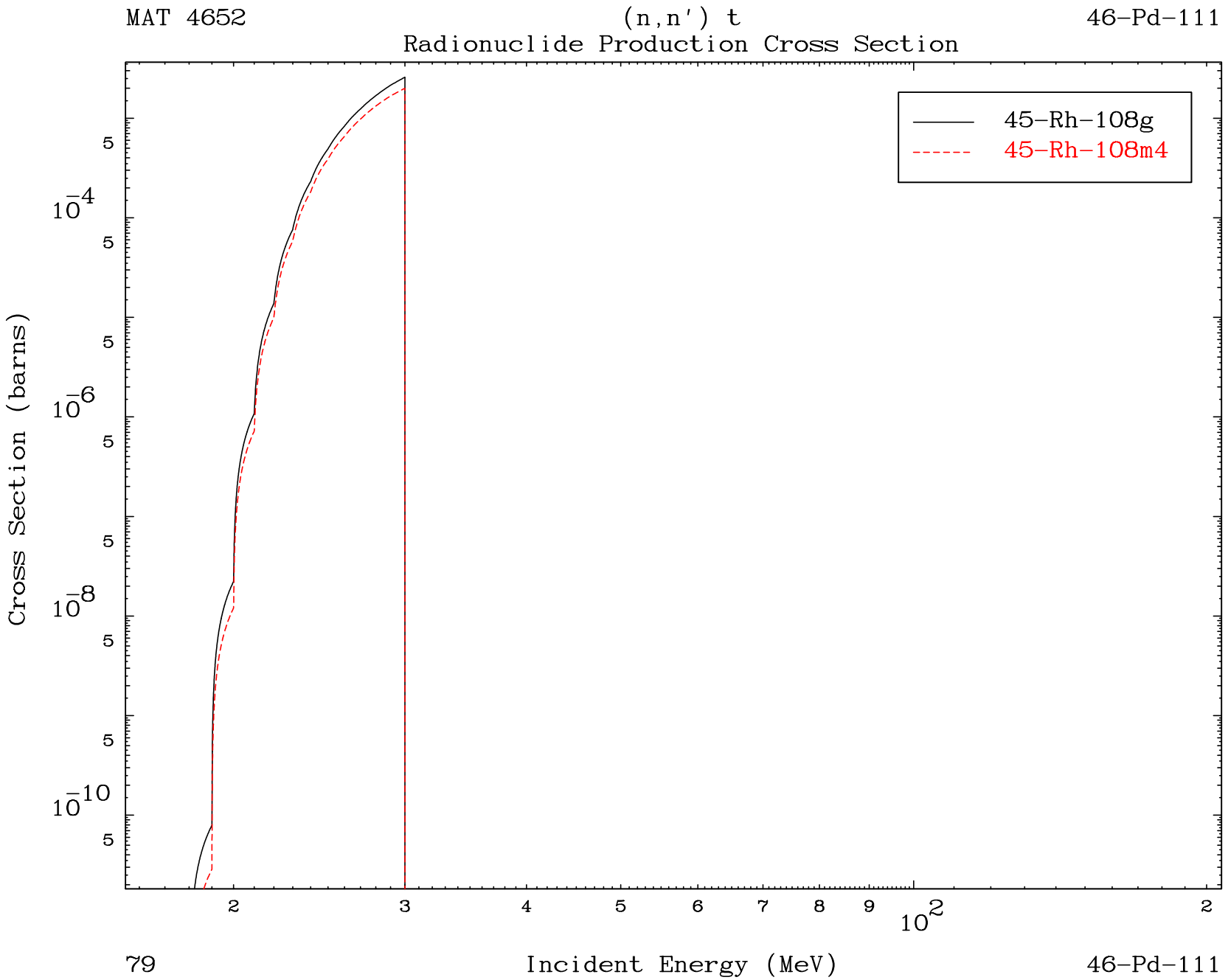

MAT 4652
MT= 64 (n,n') Level
Legendre Coefficients
46-Pd-111
X10^-7
2.0
1.5
1.0
0.5
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
74
Incident Energy (MeV)
46-Pd-111

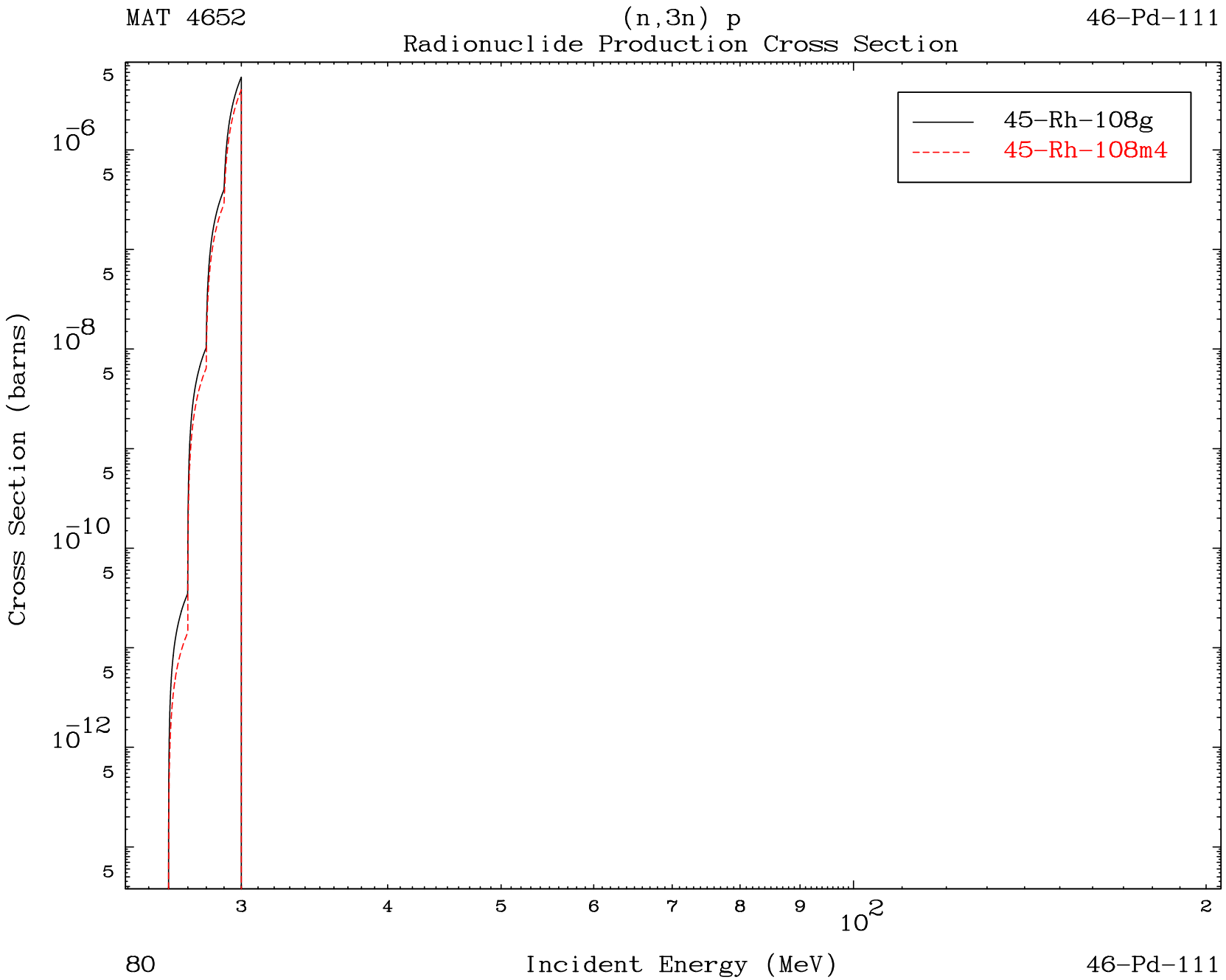

MAT 4652
Inelastic
46-Pd-111
Radionuclide Production Cross Section
46-Pd-111g
46-Pd-111m2
Cross Section (barns)
Incident Energy (MeV)
75
46-Pd-111

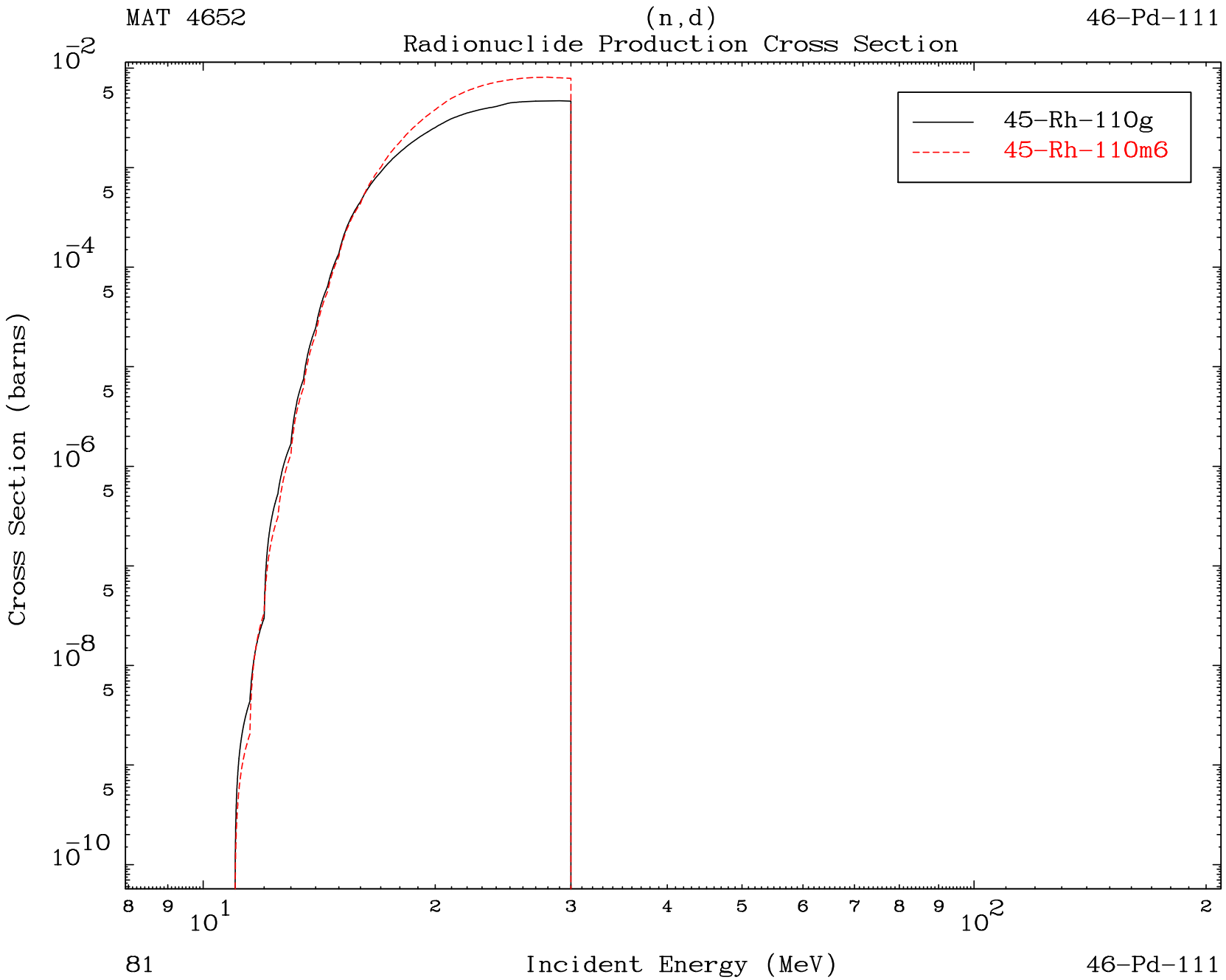

MAT 4652
(n,2n) d
46-Pd-111
Radionuclide Production Cross Section
45-Rh-108g
45-Rh-108m4
Cross Section (barns)
Incident Energy (MeV)
76
46-Pd-111


MAT 4652
(n,3n)
46-Pd-111
Radionuclide Production Cross Section
46-Pd-109g
46-Pd-109m2
Cross Section (barns)
Incident Energy (MeV)
77
46-Pd-111


MAT 4652
(n,n') p
46-Pd-111
Radionuclide Production Cross Section
45-Rh-110g
45-Rh-110m6
Cross Section (barns)
10-2
10-4
10-6
10-8
5
2
3
4
5
6
7
8
9
10 2
2
78
Incident Energy (MeV)
46-Pd-111


MAT 4652
(n,n') t
46-Pd-111
Radionuclide Production Cross Section
45-Rh-108g
45-Rh-108m4
Cross Section (barns)
10^-4
10^-6
10^-8
10^-10
2
3
4
5
6
7
8
9
10^2
2
79
Incident Energy (MeV)
46-Pd-111


MAT 4652
(n,3n) p
46-Pd-111
Radionuclide Production Cross Section
45-Rh-108g
45-Rh-108m4
Cross Section (barns)
10^-6
10^-8
10^-10
10^-12
5
3
4
5
6
7
8
9
10^2
2
80
Incident Energy (MeV)
46-Pd-111


MAT 4652
(n,d)
46-Pd-111
Radionuclide Production Cross Section
45-Rh-110g
45-Rh-110m6
Cross Section (barns)
Incident Energy (MeV)
81
46-Pd-111