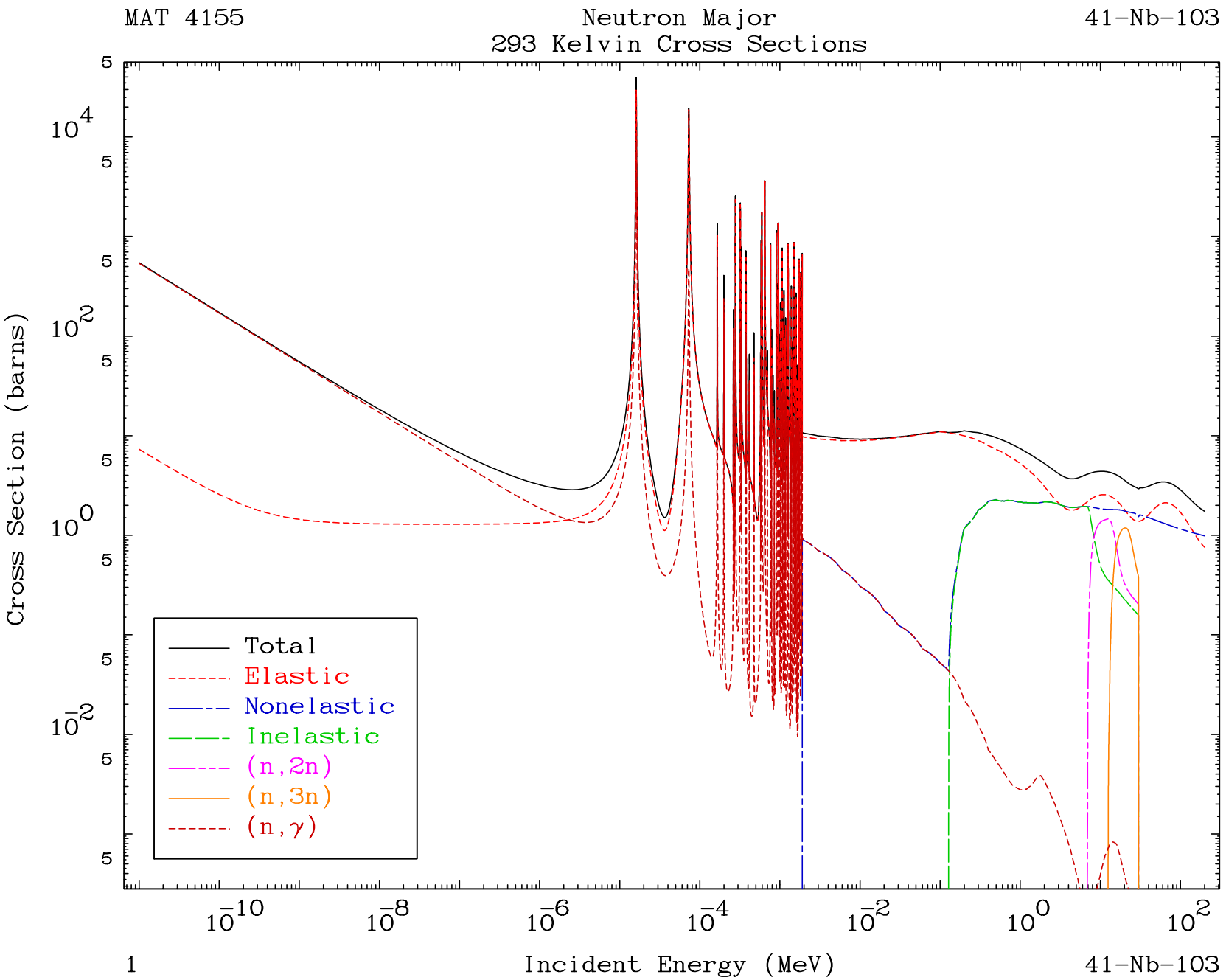
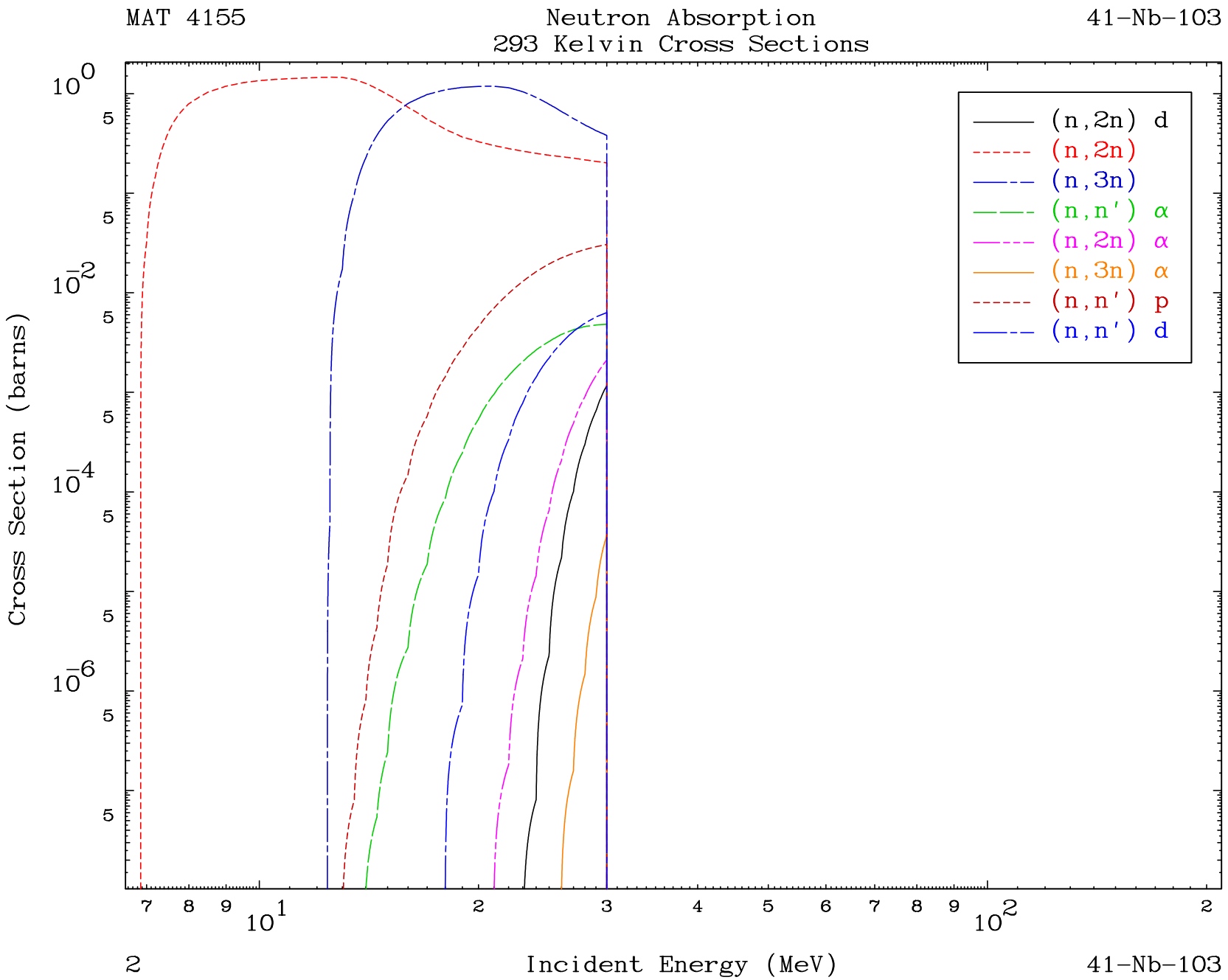
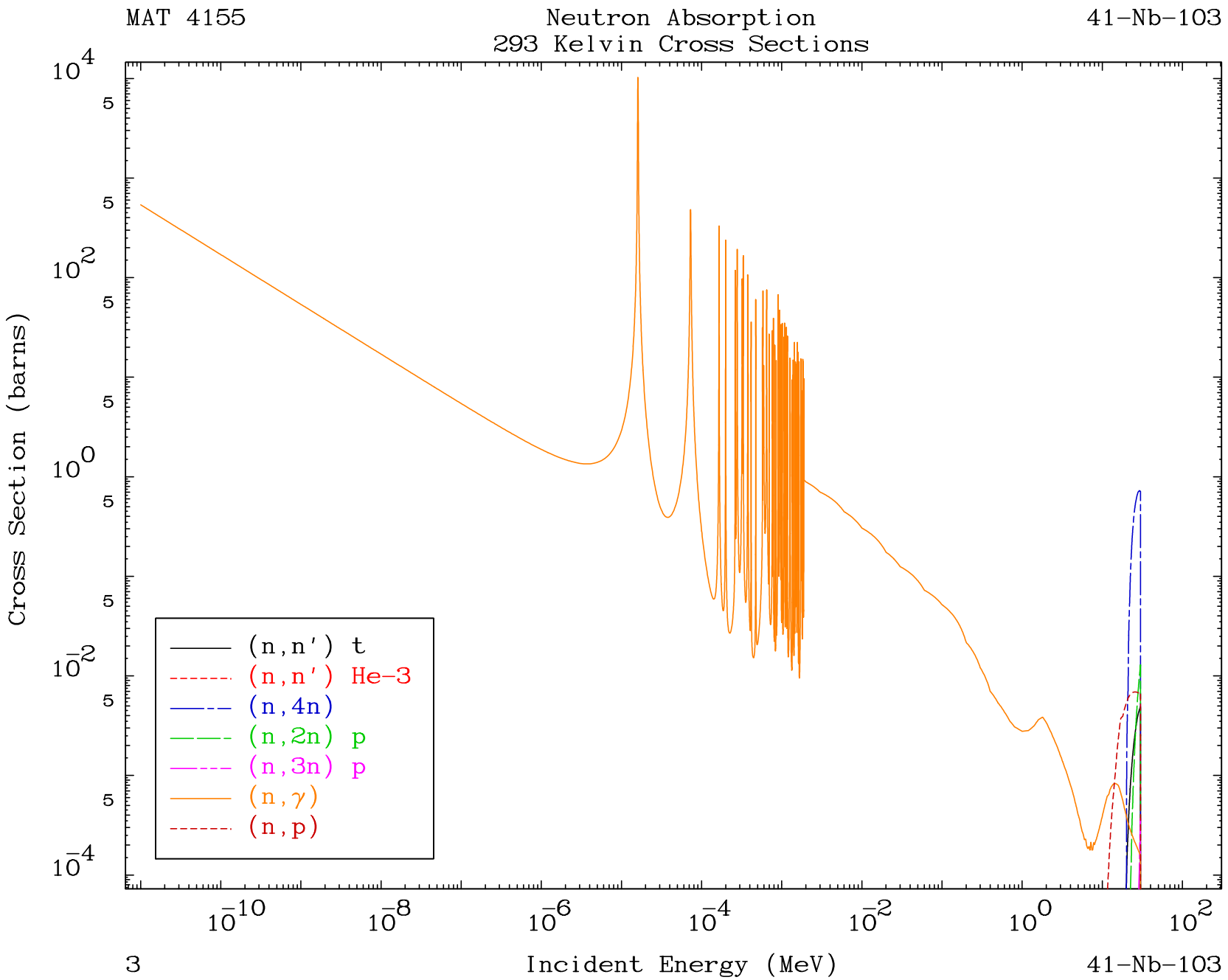
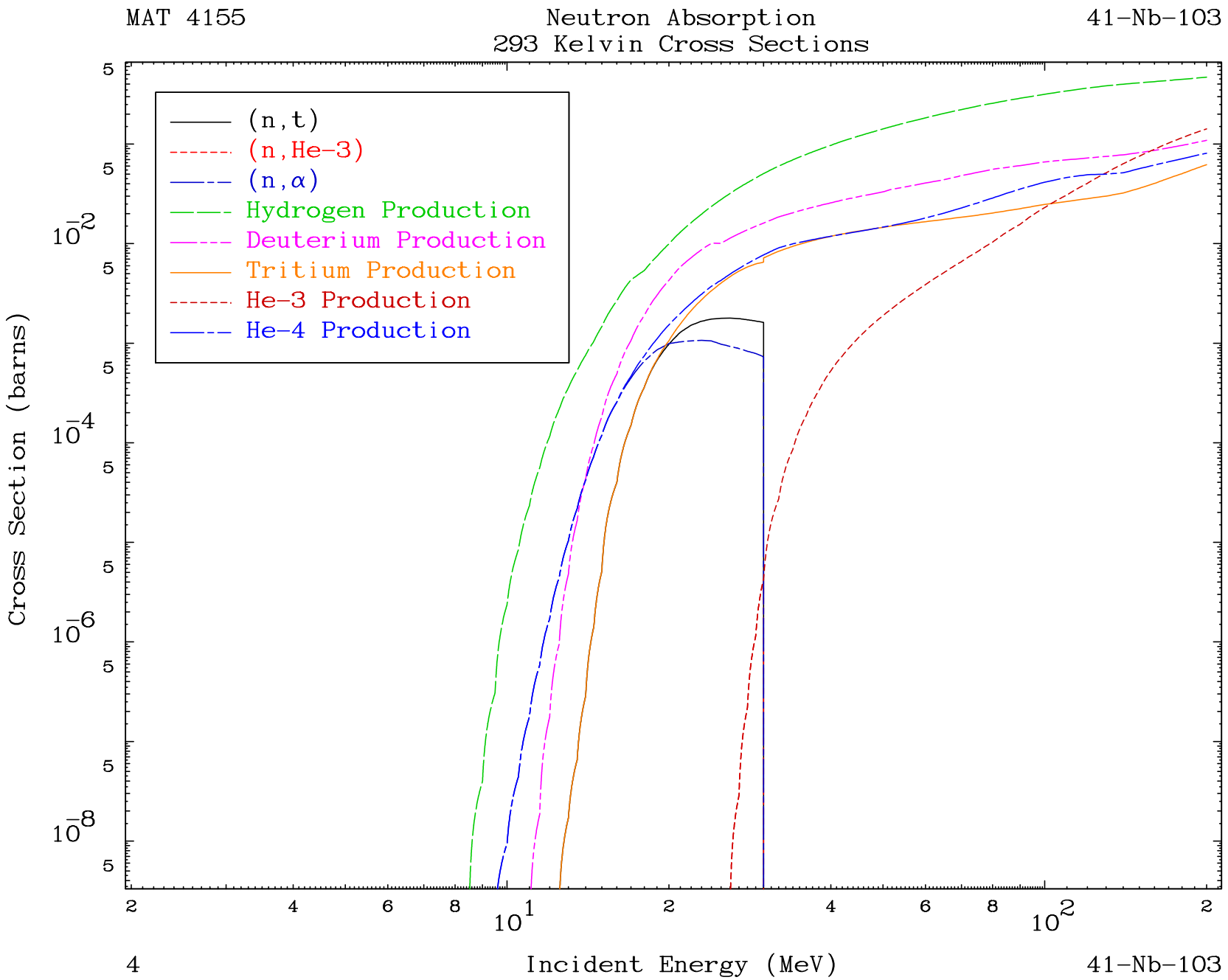
Program EVALPLOT
(Version 2021-1)
by
Dermott E. Cullen
(Present Contact Information)
Dermott E. Cullen
1466 Hudson Way
Livermore, CA 94550
U.S.A.
Tele: 925-443-1911
E.Mail:redcullen1@comcast.net
Web:redcullen1.net/HOMEPAGE.NEW

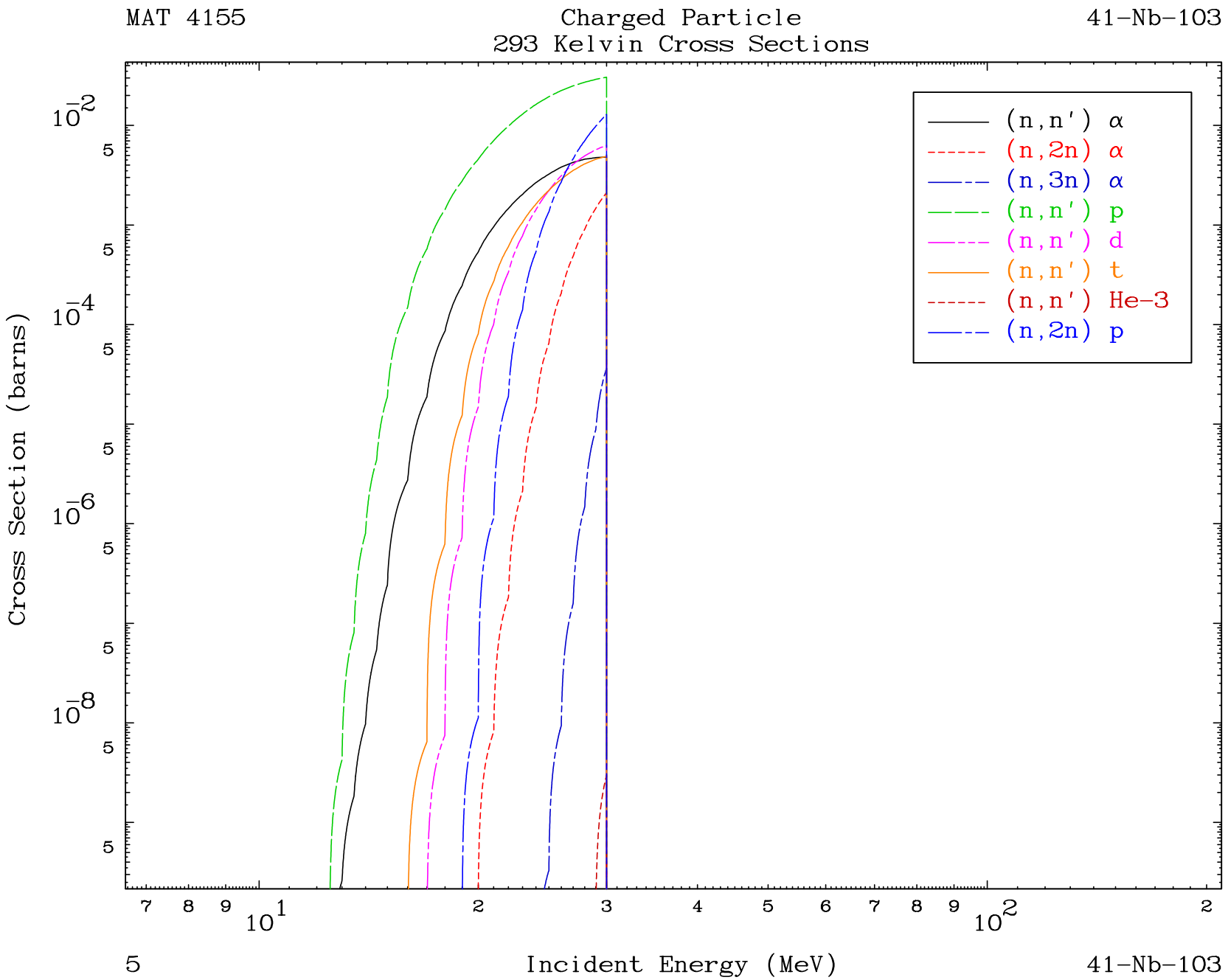
Press Mouse Button to Start

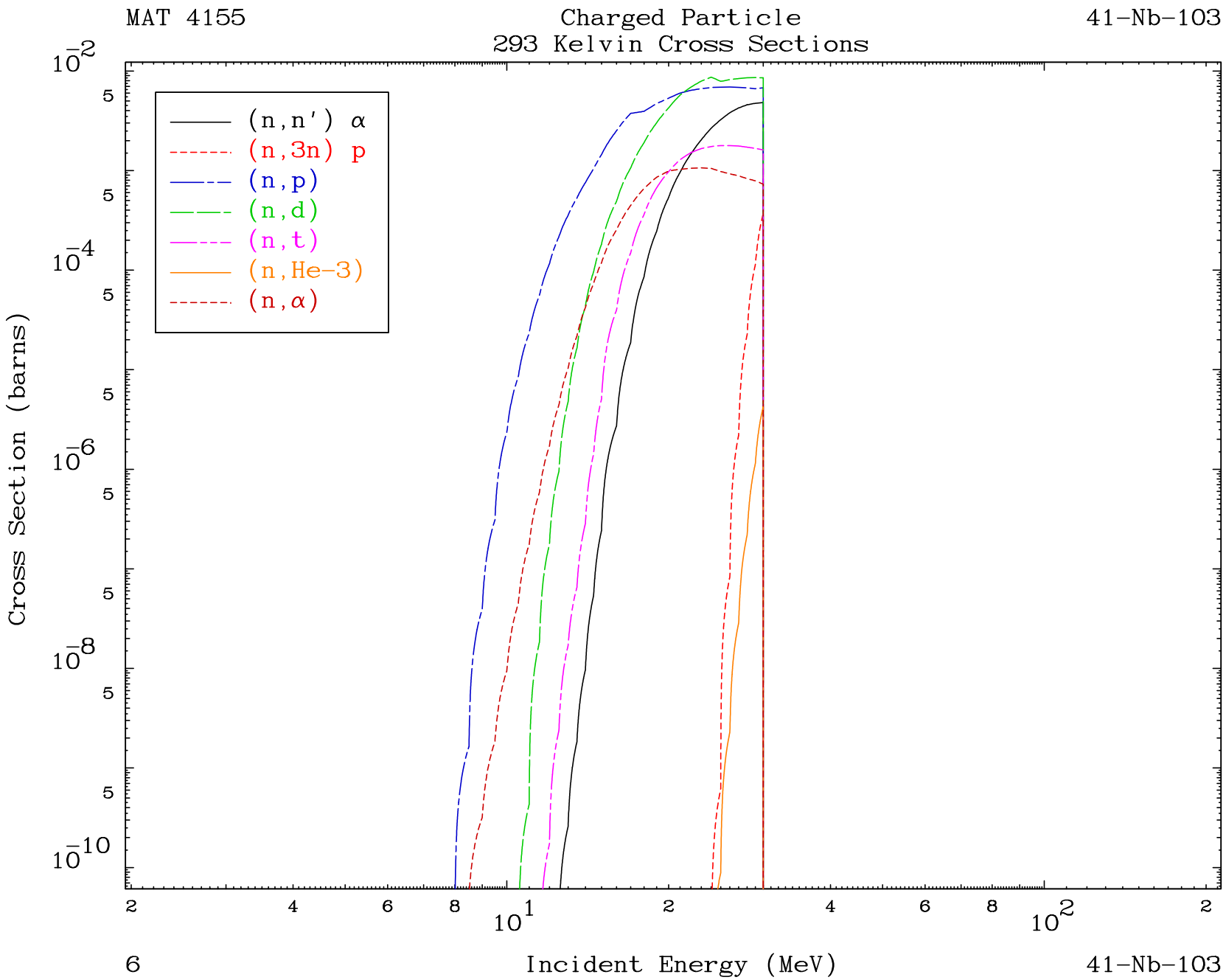

MAT 4155
Neutron Major
41-Nb-103
293 Kelvin Cross Sections
Cross Section (barns)
Incident Energy (MeV)
41-Nb-103
1
Total
Elastic
Nonelastic
Inelastic
(n,2n)
(n,3n)
(n,γ)

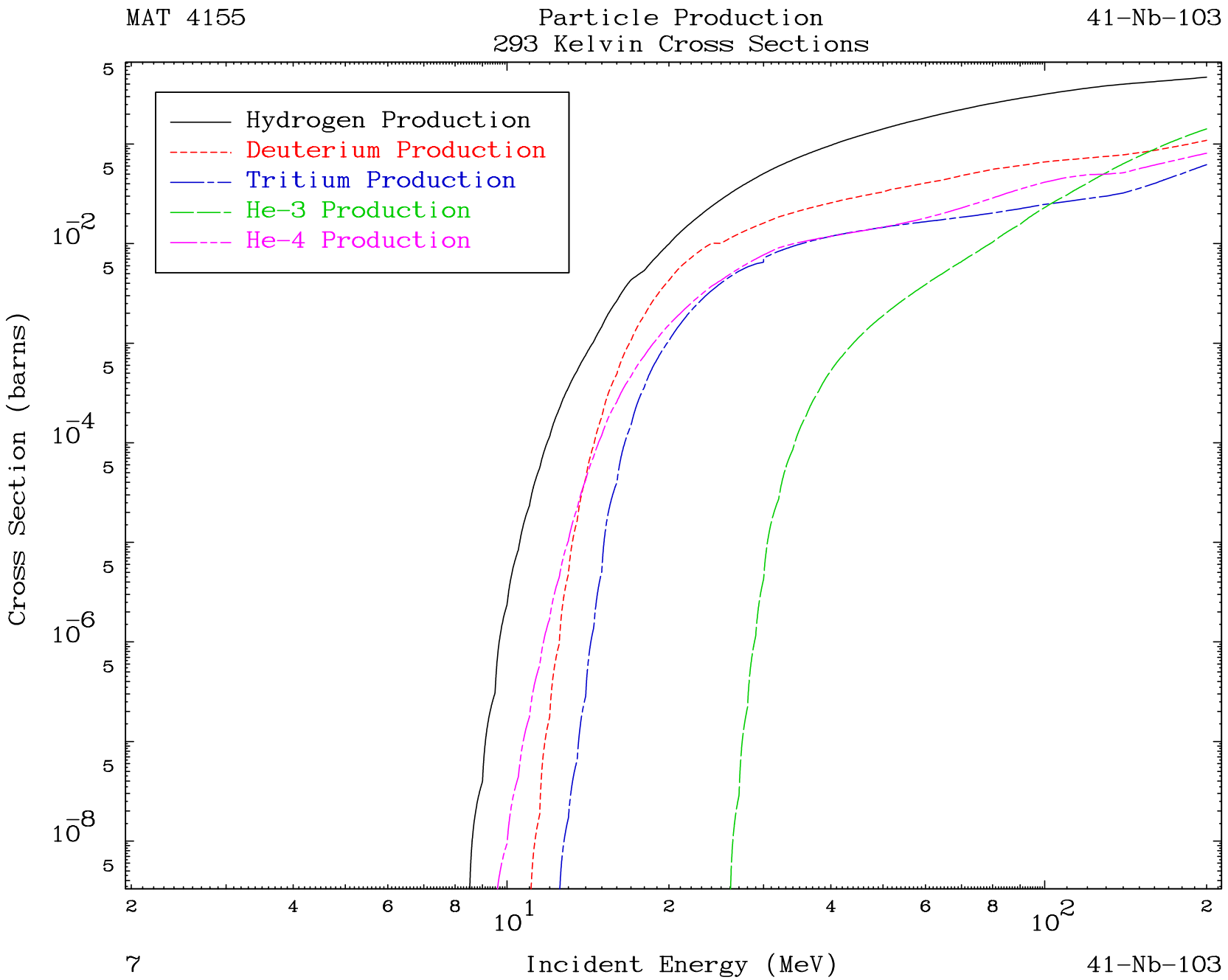

MAT 4155
Neutron Absorption
293 Kelvin Cross Sections
41-Nb-103
Cross Section (barns)
Incident Energy (MeV)
41-Nb-103
(n,2n) d
(n,2n)
(n,3n)
(n,n') α
(n,2n) α
(n,3n) α
(n,n') p
(n,n') d

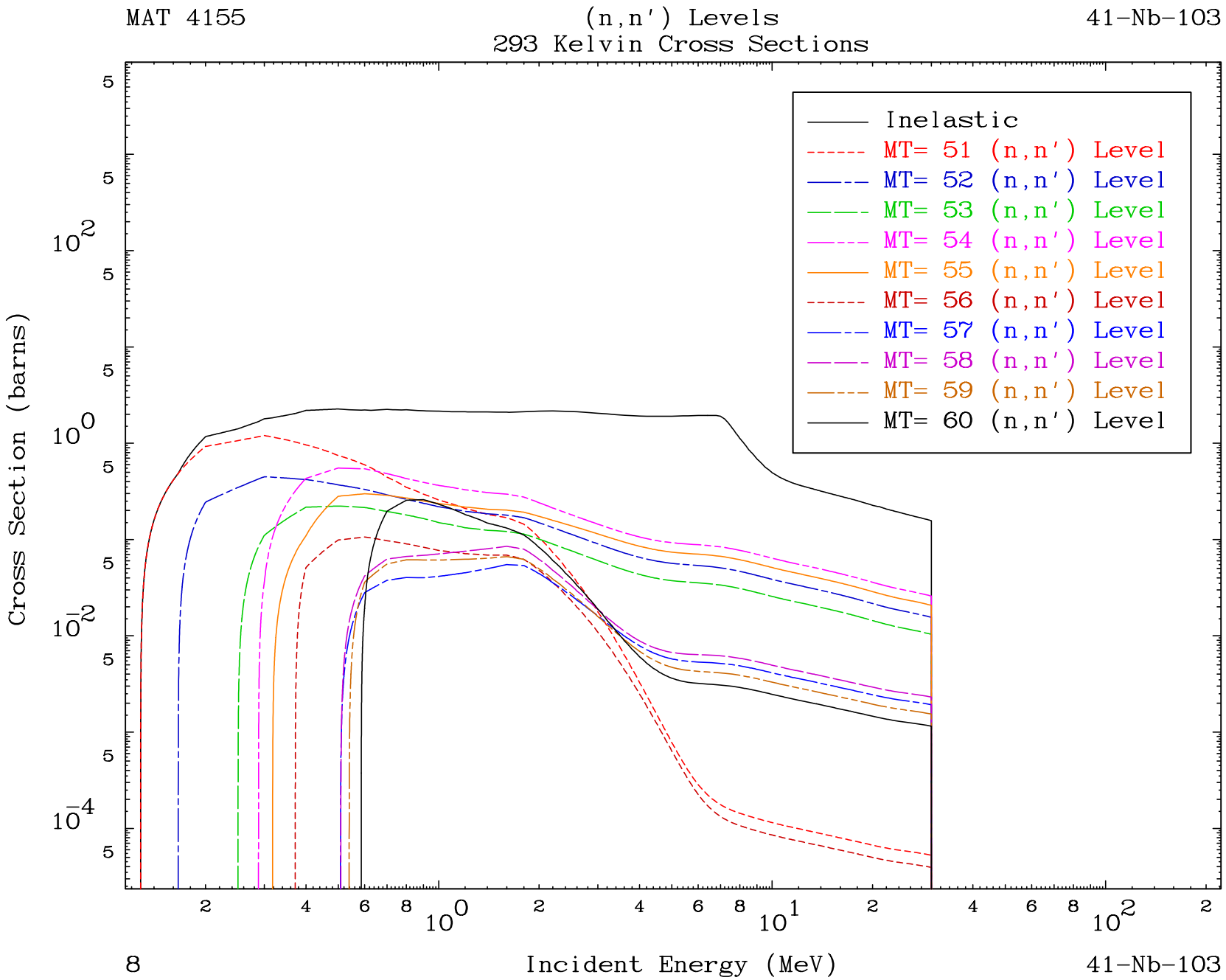

MAT 4155
Neutron Absorption
293 Kelvin Cross Sections
41-Nb-103
Cross Section (barns)
Incident Energy (MeV)
(n,n') t
(n,n') He-3
(n,4n)
(n,2n) p
(n,3n) p
(n,γ)
(n,p)
3
41-Nb-103

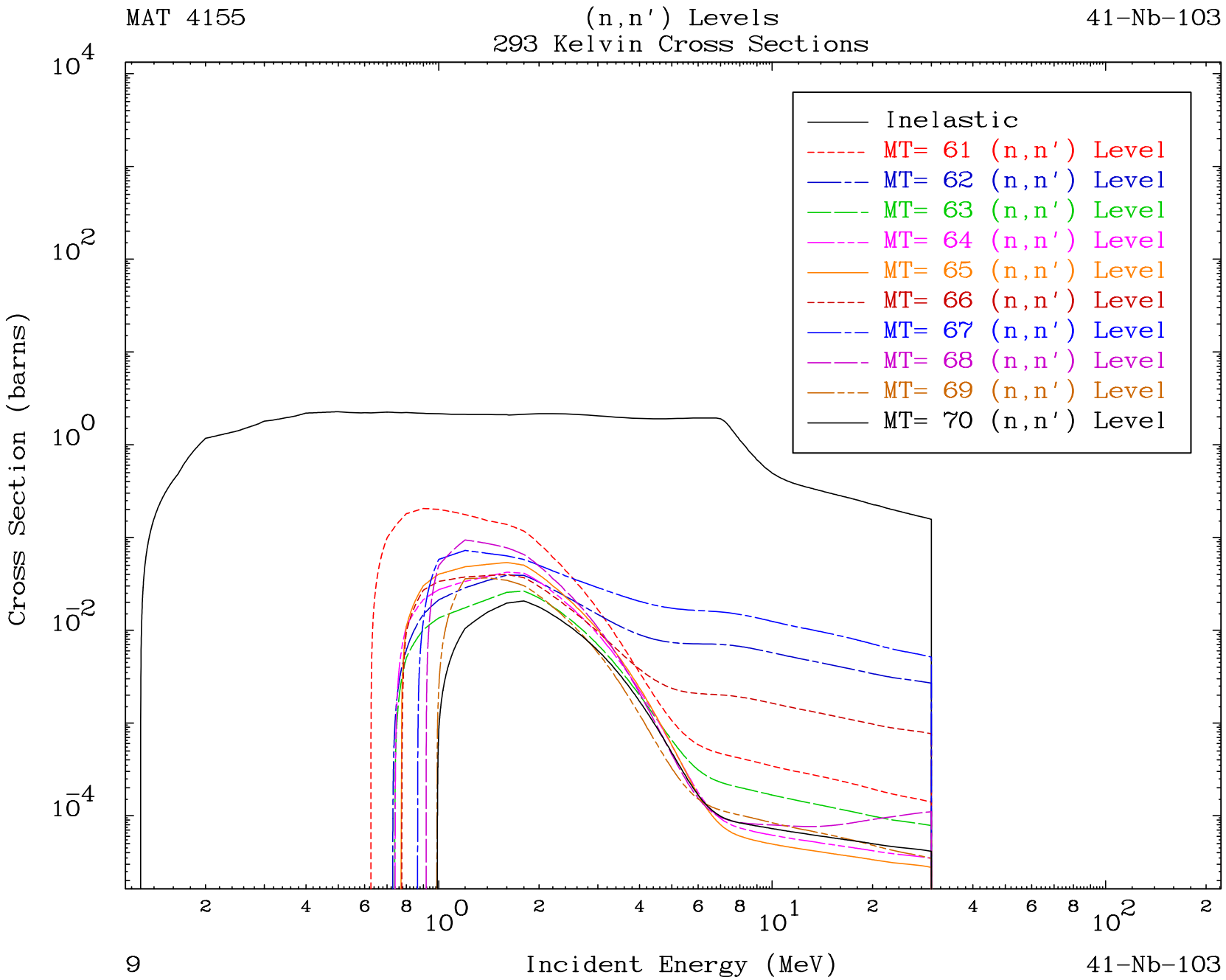

MAT 4155
Neutron Absorption
293 Kelvin Cross Sections
41-Nb-103
(n,t)
(n,He-3)
(n,α)
Hydrogen Production
Deuterium Production
Tritium Production
He-3 Production
He-4 Production
Cross Section (barns)
Incident Energy (MeV)
41-Nb-103
4

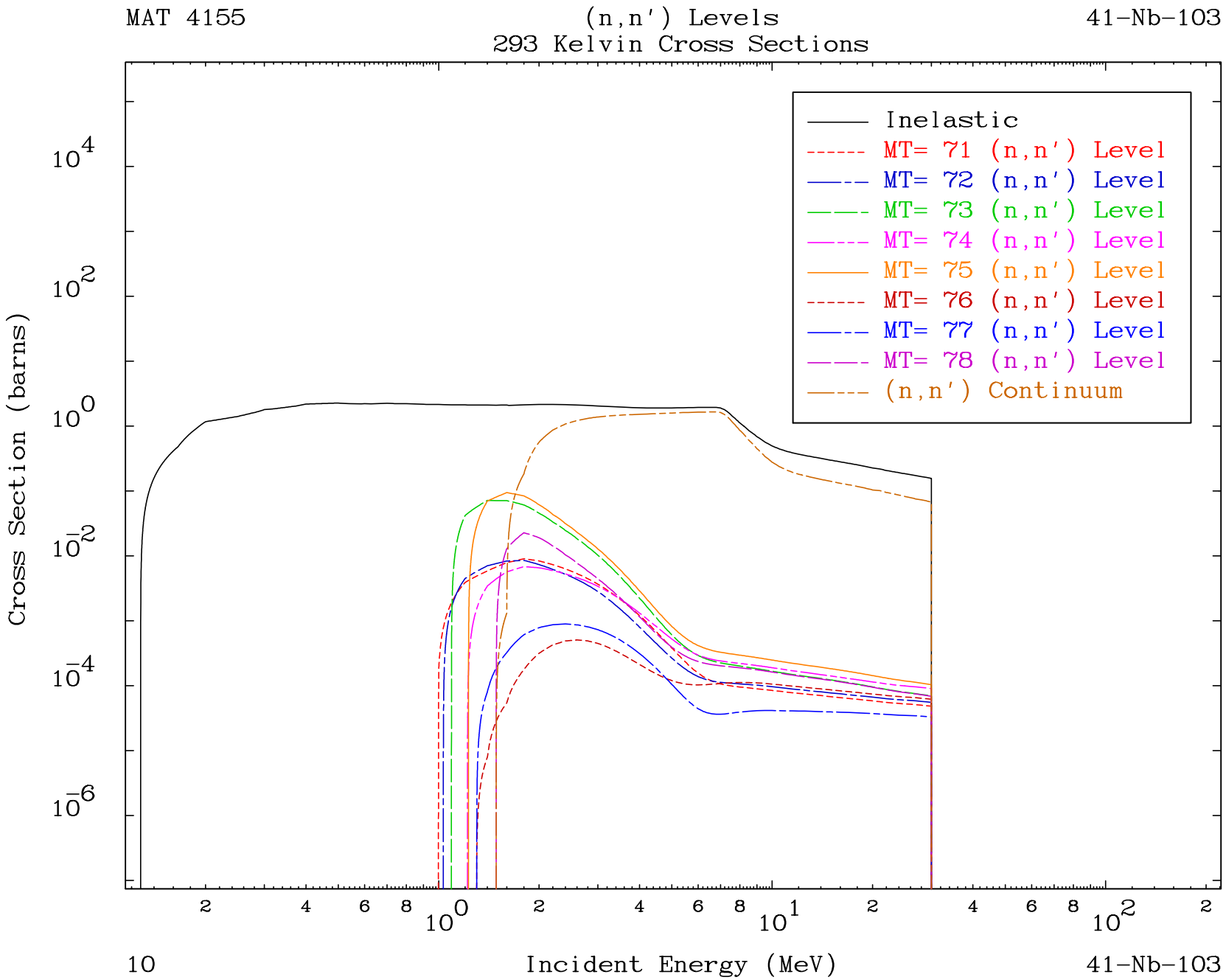

MAT 4155
Charged Particle
293 Kelvin Cross Sections
41-Nb-103
Cross Section (barns)
10-2
10-4
10-6
10-8
5
7 8 9 10 1 2 3 4 5 6 7 8 9 10 2 2
Incident Energy (MeV)
41-Nb-103
(n,n') α
(n,2n) α
(n,3n) α
(n,n') p
(n,n') d
(n,n') t
(n,n') He-3
(n,2n) p

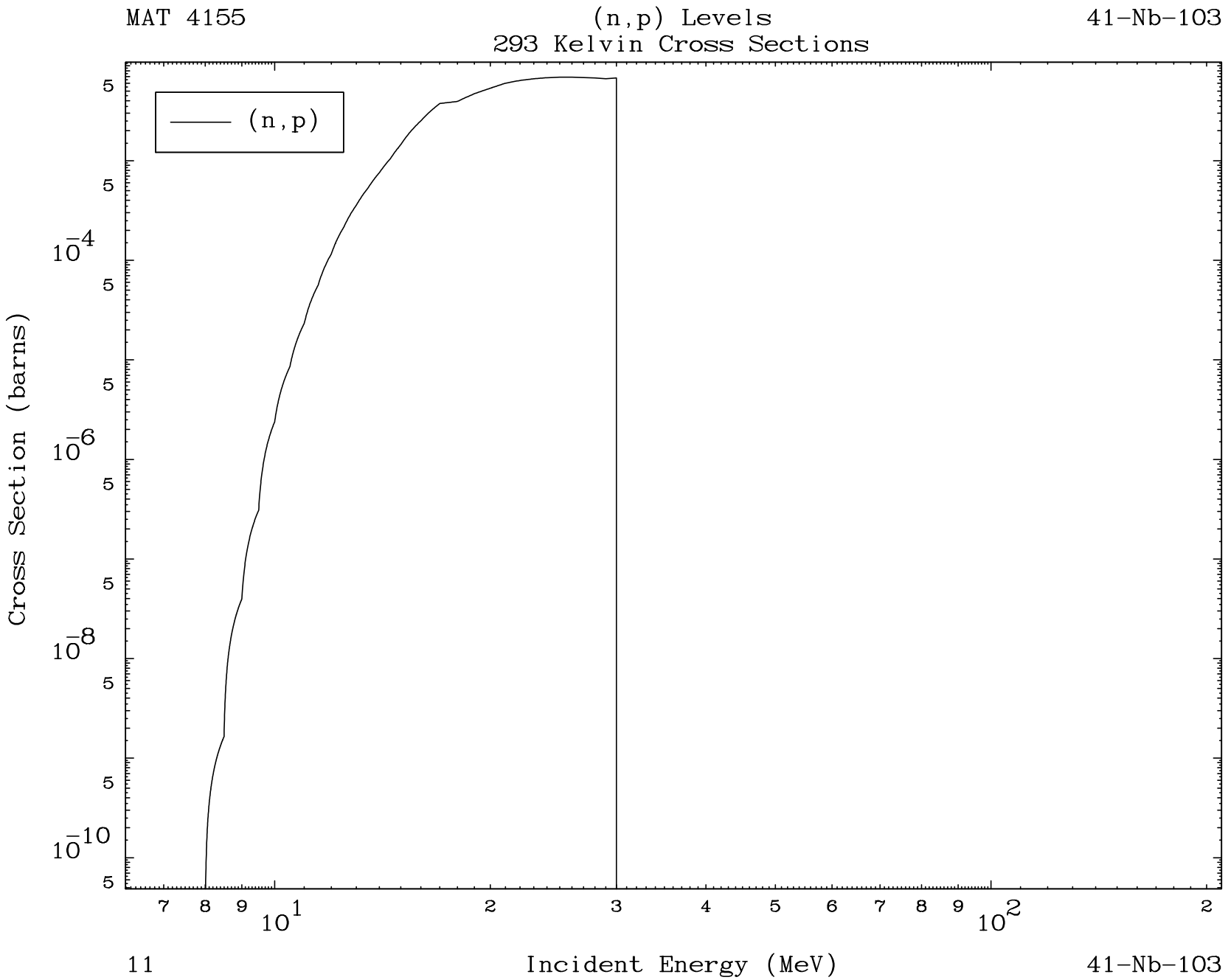

MAT 4155
Charged Particle
293 Kelvin Cross Sections
41-Nb-103
(n,n') α
(n,3n) p
(n,p)
(n,d)
(n,t)
(n,He-3)
(n,α)
Cross Section (barns)
Incident Energy (MeV)
41-Nb-103
6

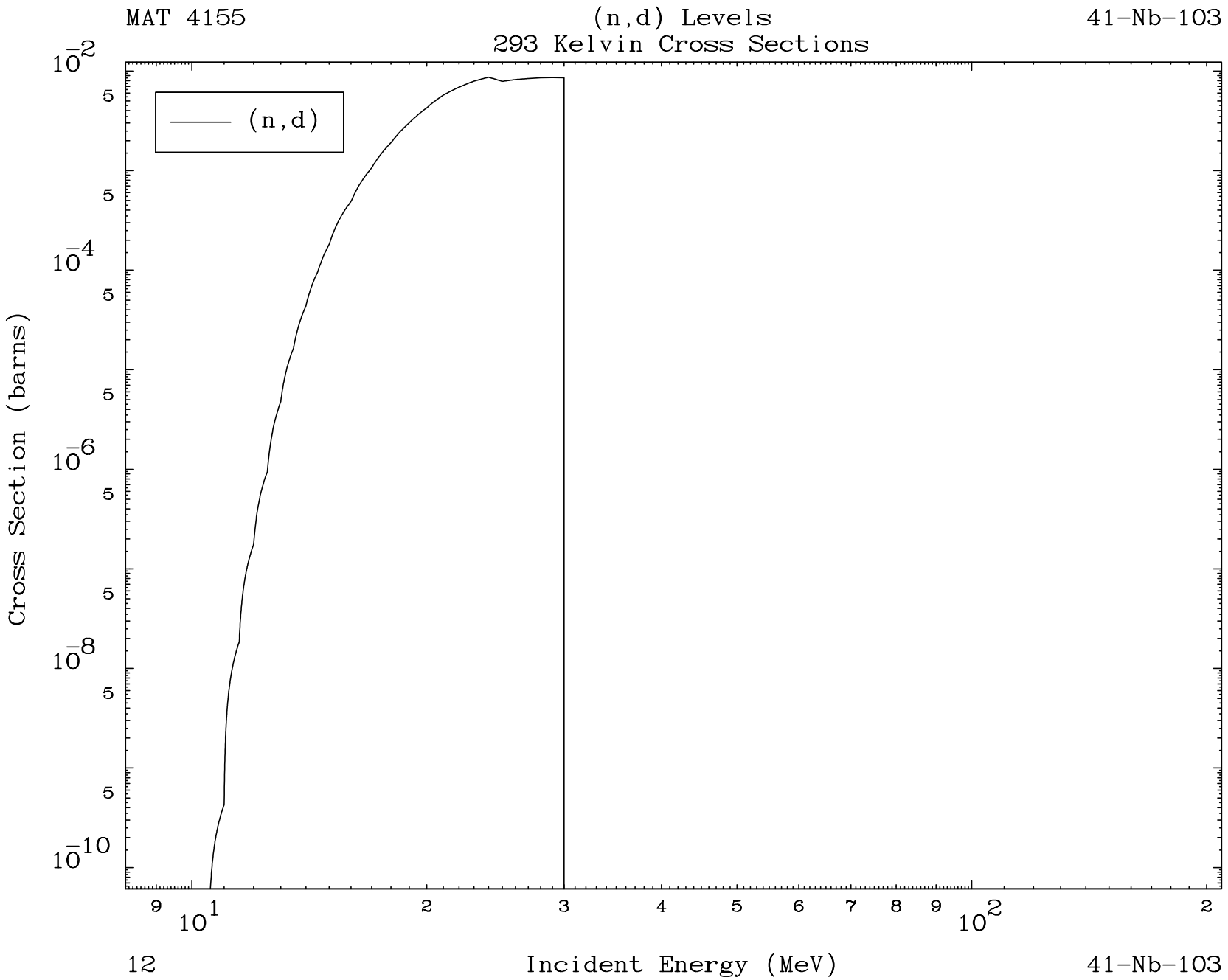

MAT 4155
Particle Production
293 Kelvin Cross Sections
41-Nb-103
Hydrogen Production
Deuterium Production
Tritium Production
He-3 Production
He-4 Production
Cross Section (barns)
10-2
10-4
10-6
10-8
2
4
6
8
10 1
2
4
6
8
10 2
2
Incident Energy (MeV)
7
41-Nb-103

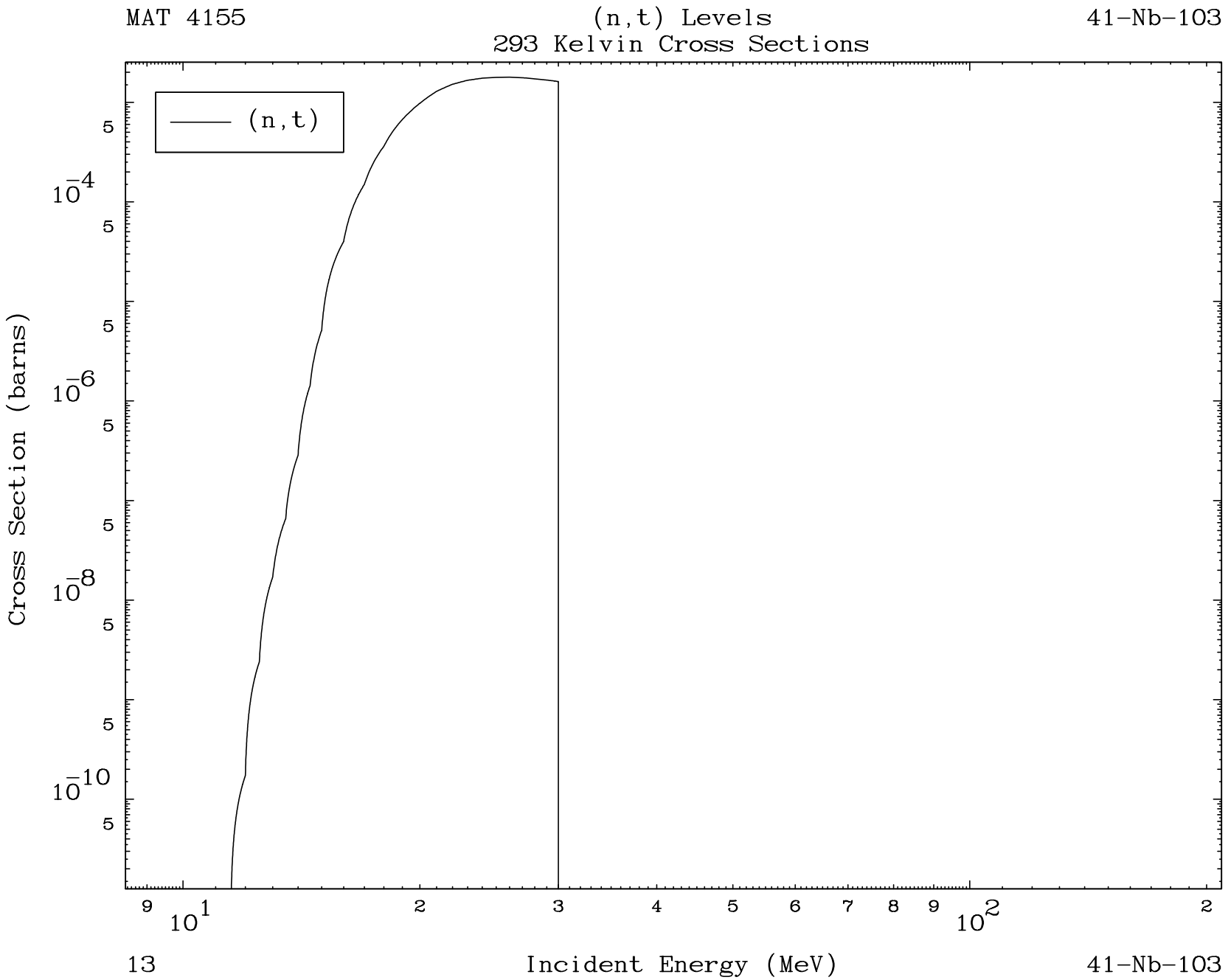

MAT 4155
(n,n') Levels
293 Kelvin Cross Sections
41-Nb-103
Inelastic
MT= 51 (n,n') Level
MT= 52 (n,n') Level
MT= 53 (n,n') Level
MT= 54 (n,n') Level
MT= 55 (n,n') Level
MT= 56 (n,n') Level
MT= 57 (n,n') Level
MT= 58 (n,n') Level
MT= 59 (n,n') Level
MT= 60 (n,n') Level
Cross Section (barns)
Incident Energy (MeV)
8
41-Nb-103

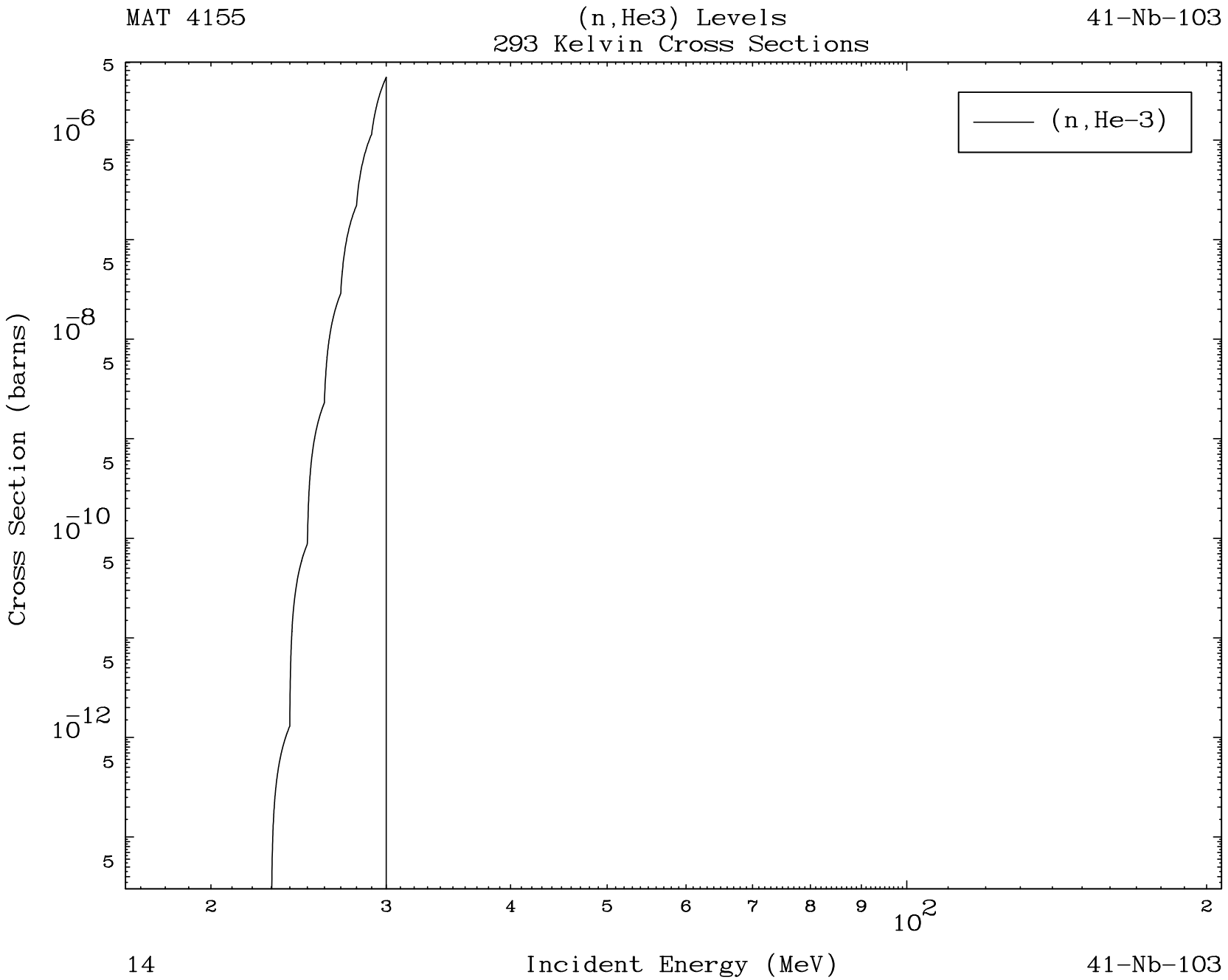

MAT 4155
(n,n') Levels
293 Kelvin Cross Sections
41-Nb-103
Cross Section (barns)
Incident Energy (MeV)
Inelastic
MT= 61 (n,n') Level
MT= 62 (n,n') Level
MT= 63 (n,n') Level
MT= 64 (n,n') Level
MT= 65 (n,n') Level
MT= 66 (n,n') Level
MT= 67 (n,n') Level
MT= 68 (n,n') Level
MT= 69 (n,n') Level
MT= 70 (n,n') Level
9
41-Nb-103

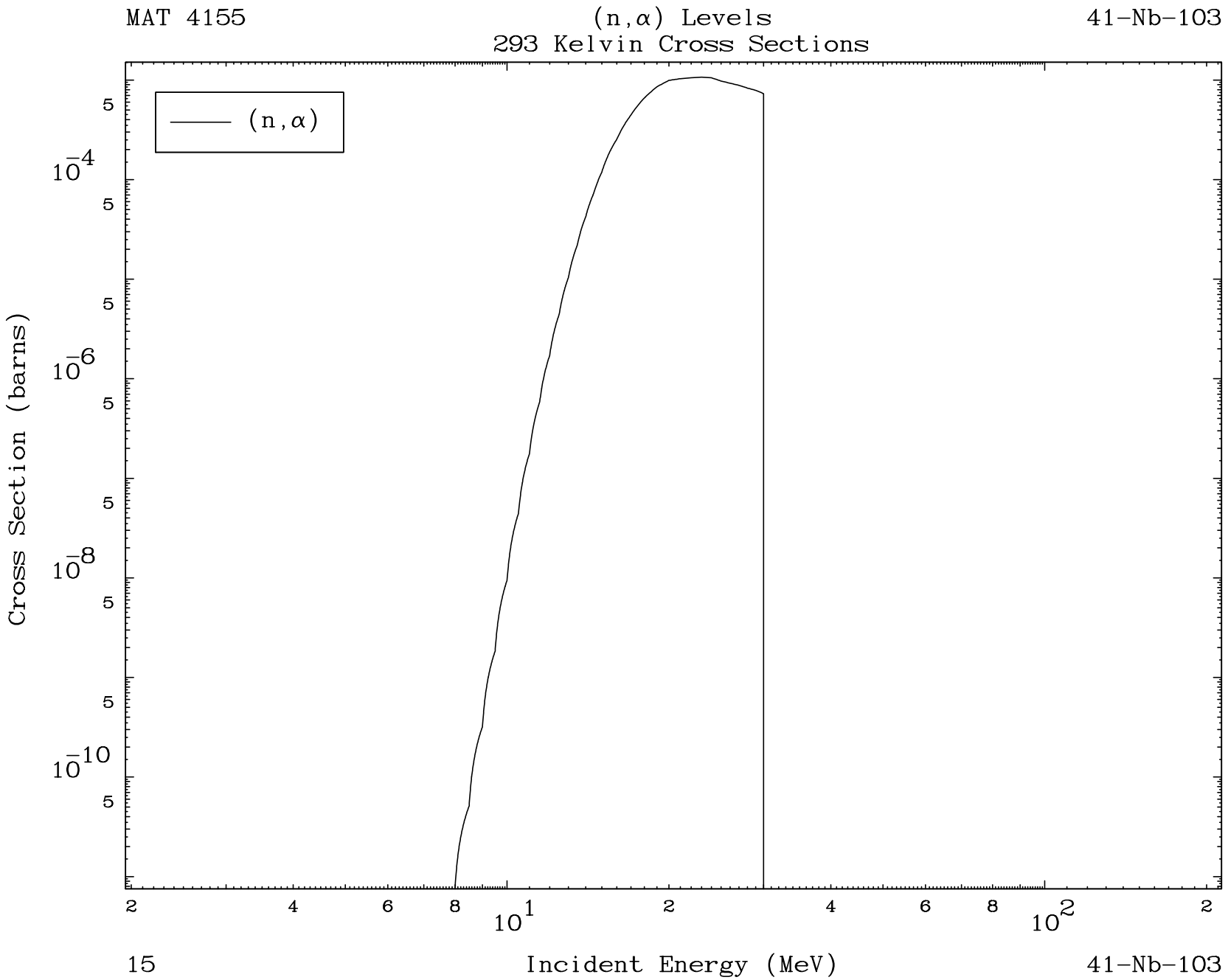

MAT 4155
(n,n') Levels
293 Kelvin Cross Sections
41-Nb-103
Inelastic
MT= 71 (n,n') Level
MT= 72 (n,n') Level
MT= 73 (n,n') Level
MT= 74 (n,n') Level
MT= 75 (n,n') Level
MT= 76 (n,n') Level
MT= 77 (n,n') Level
MT= 78 (n,n') Level
(n,n') Continuum
Cross Section (barns)
Incident Energy (MeV)
10
41-Nb-103

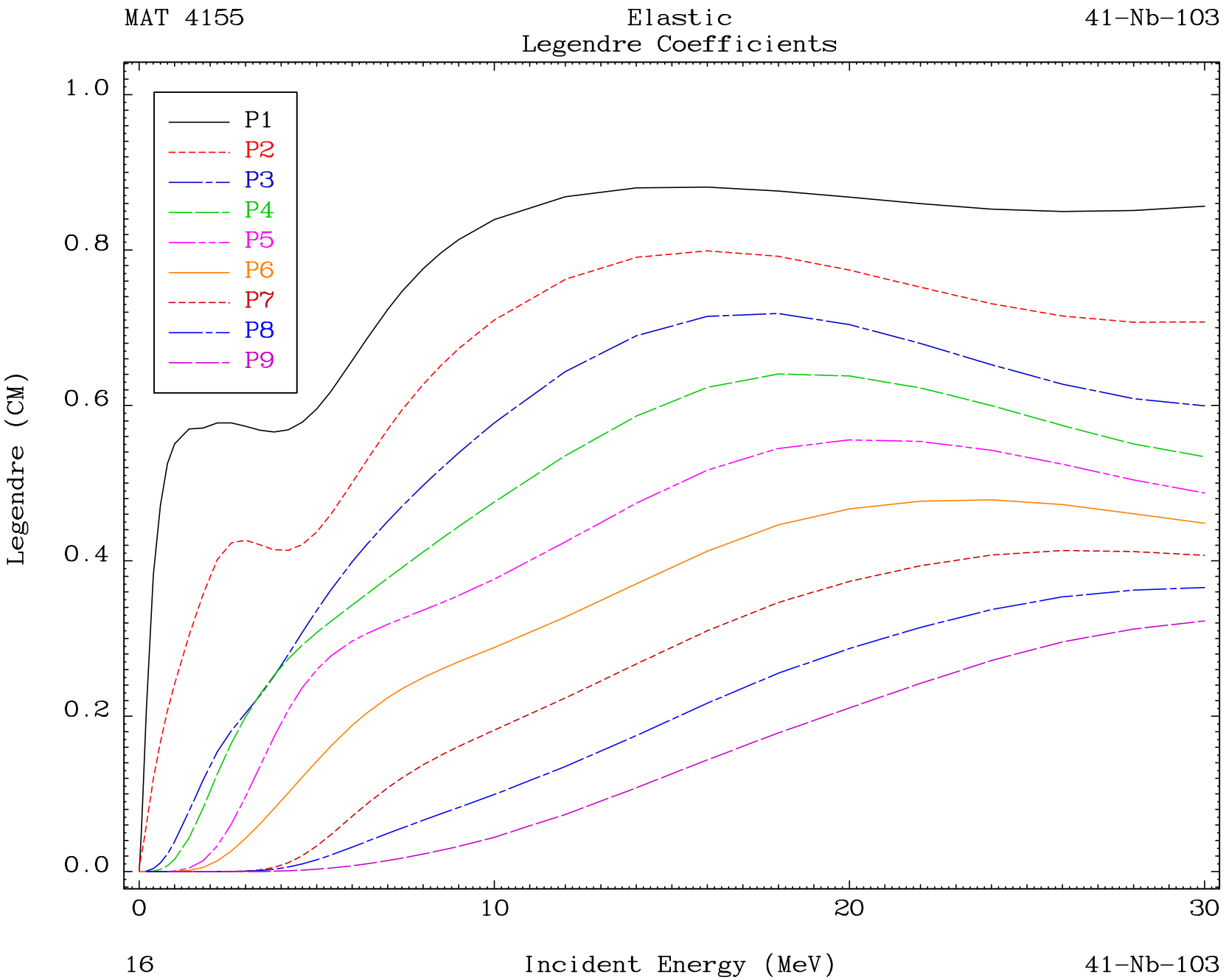

MAT 4155
(n,p) Levels
41-Nb-103
293 Kelvin Cross Sections
(n,p)
Cross Section (barns)
Incident Energy (MeV)
11
41-Nb-103

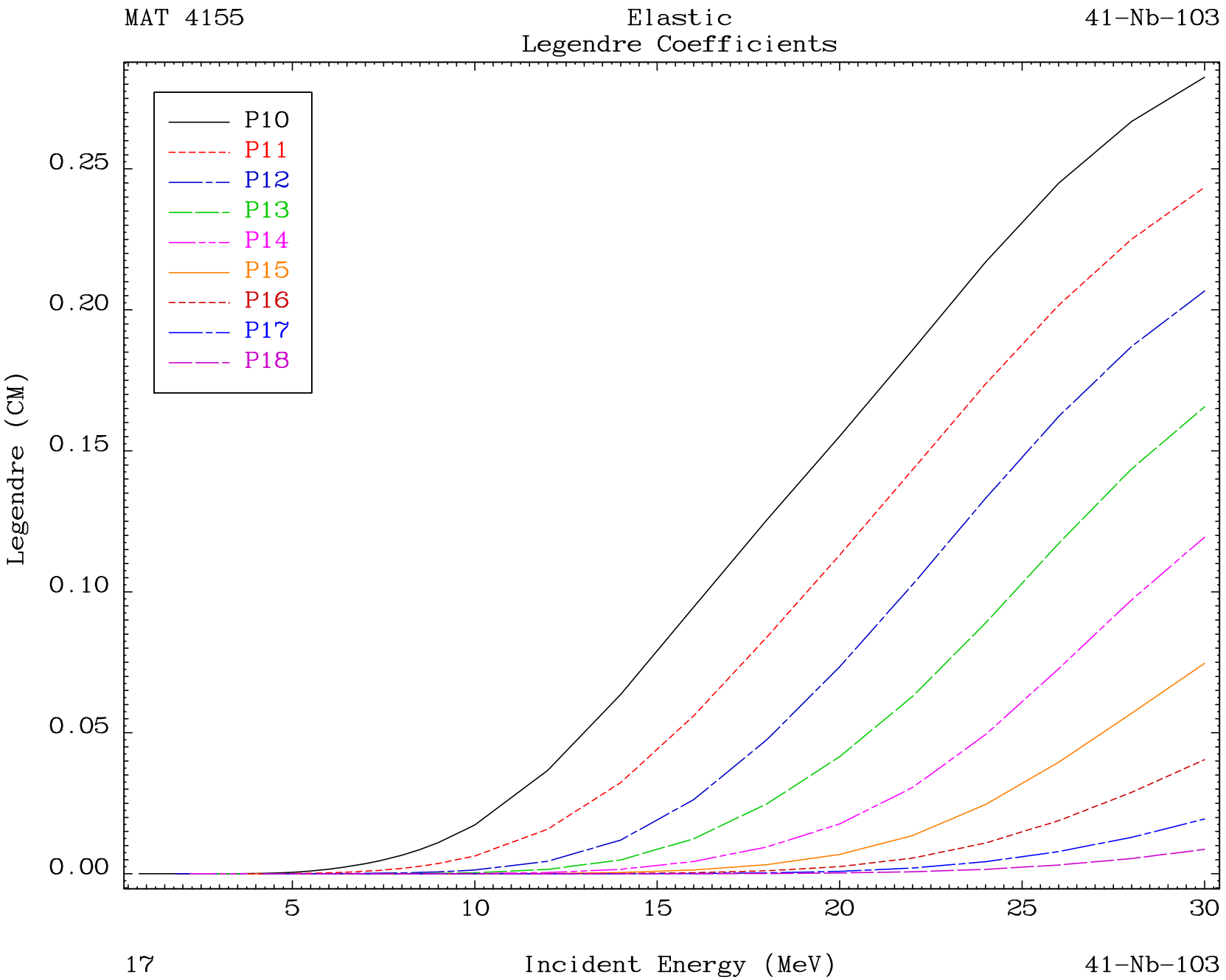

MAT 4155
(n,d) Levels
41-Nb-103
293 Kelvin Cross Sections
(n,d)
Cross Section (barns)
Incident Energy (MeV)
12
41-Nb-103

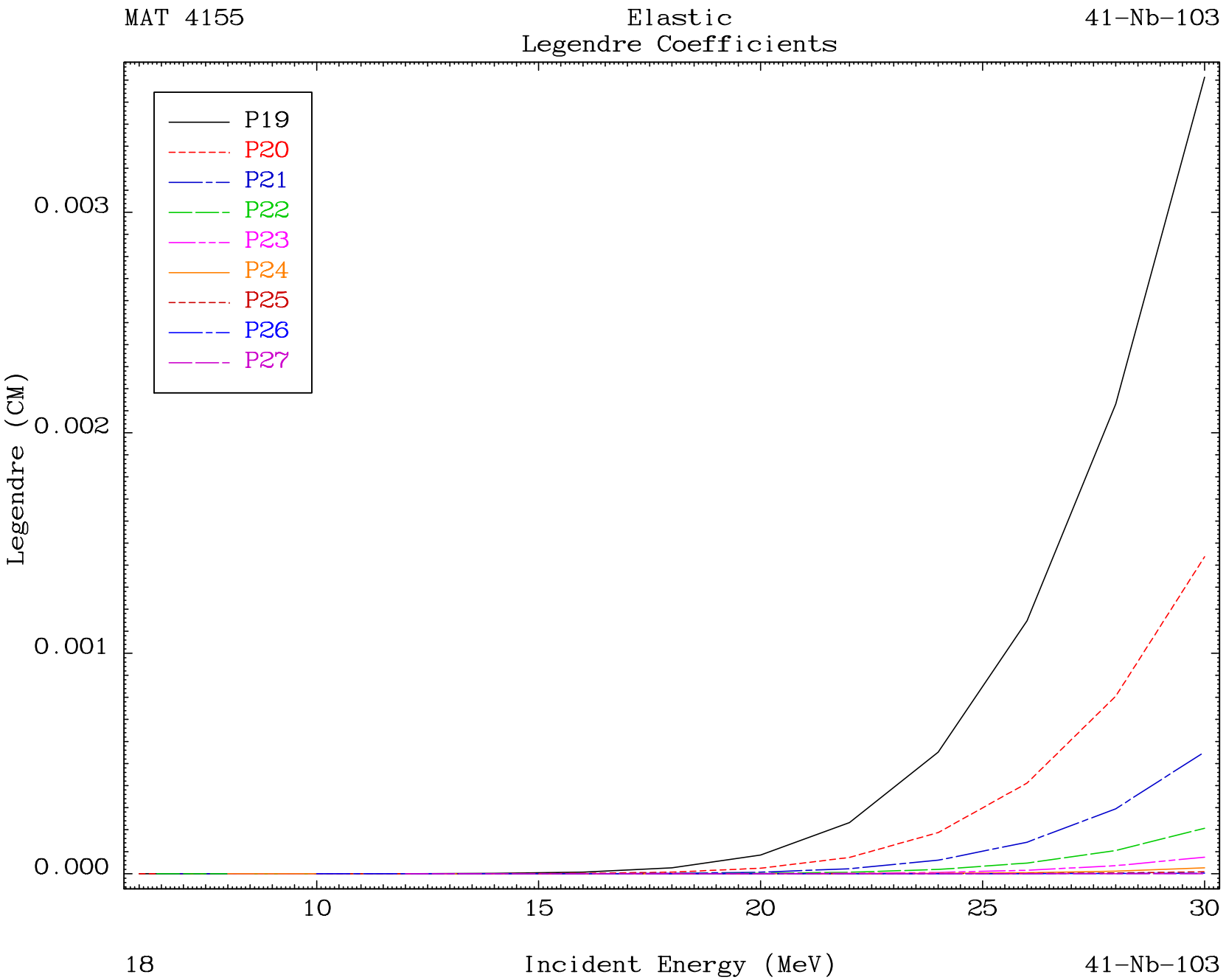

MAT 4155
(n,t) Levels
41-Nb-103
293 Kelvin Cross Sections
(n,t)
Cross Section (barns)
10^-4
10^-6
10^-8
10^-10
10^1
10^2
Incident Energy (MeV)
13
41-Nb-103

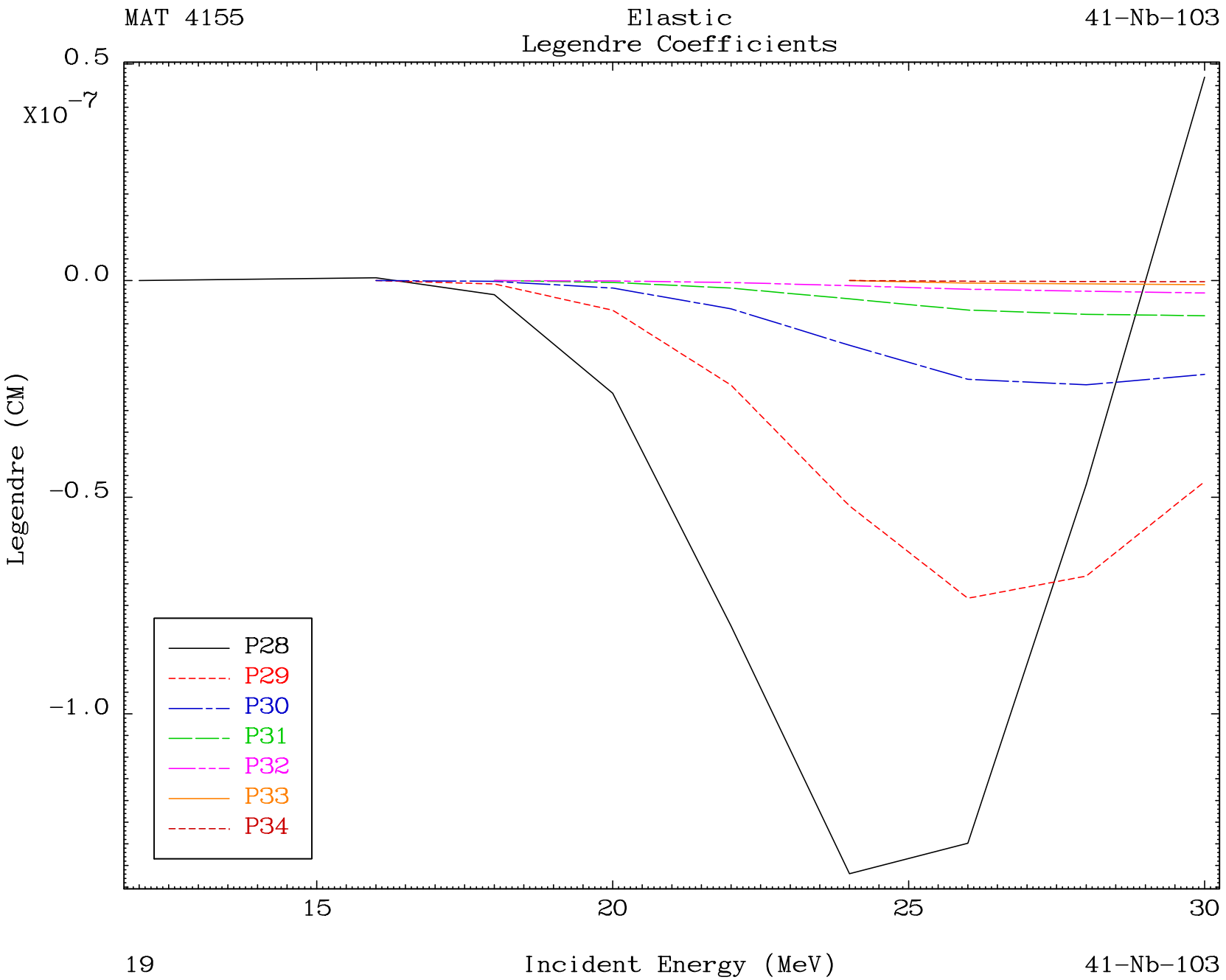

MAT 4155
(n,He3) Levels
41-Nb-103
293 Kelvin Cross Sections
(n,He-3)
Cross Section (barns)
10^-6
10^-8
10^-10
10^-12
5
2
3
4
5
6
7
8
9
10^2
2
14
Incident Energy (MeV)
41-Nb-103

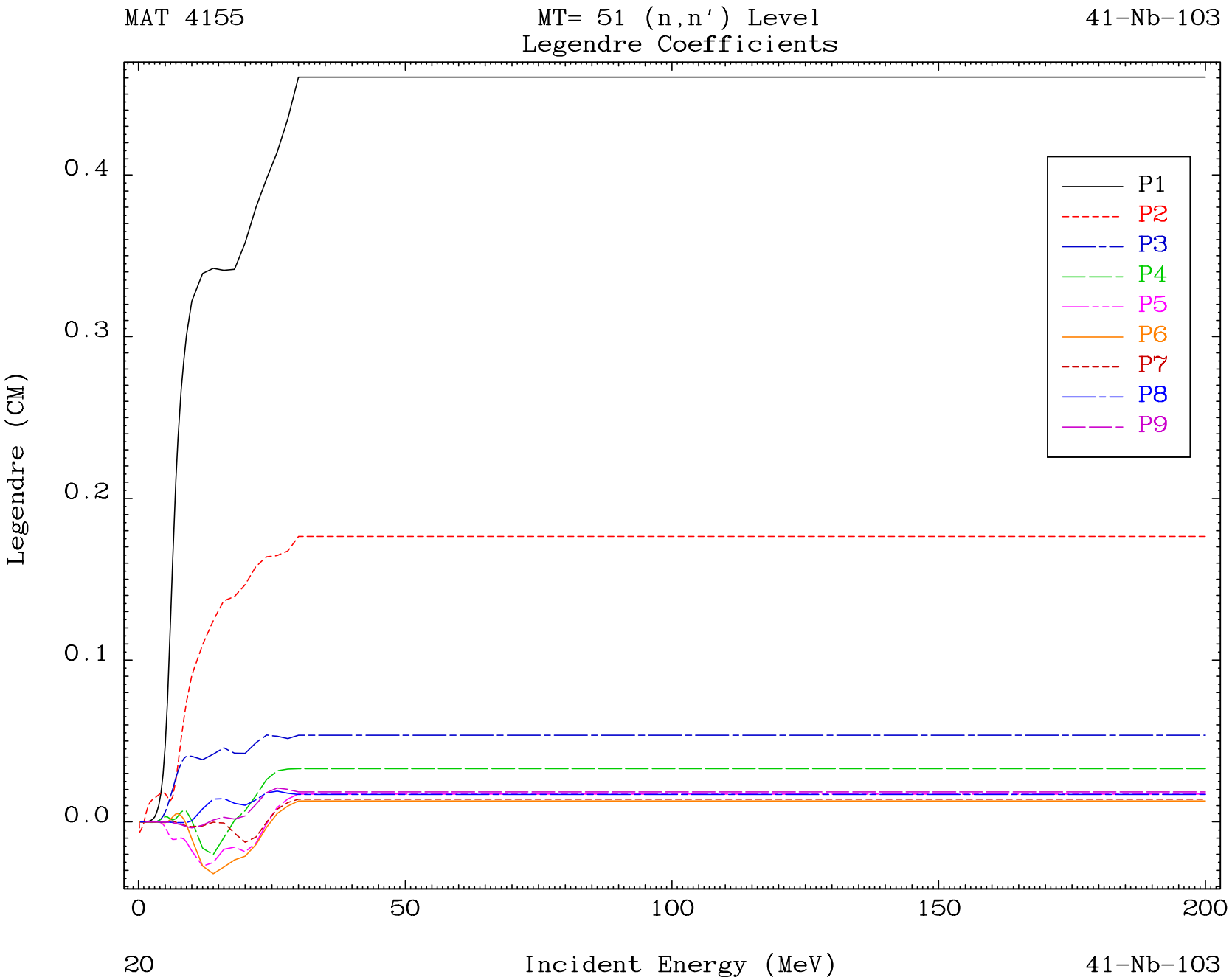

MAT 4155
(n,α) Levels
41-Nb-103
293 Kelvin Cross Sections
(n,α)
Cross Section (barns)
10^-4
10^-6
10^-8
10^-10
2
4
6
8
10^1
2
4
6
8
10^2
2
15
Incident Energy (MeV)
41-Nb-103

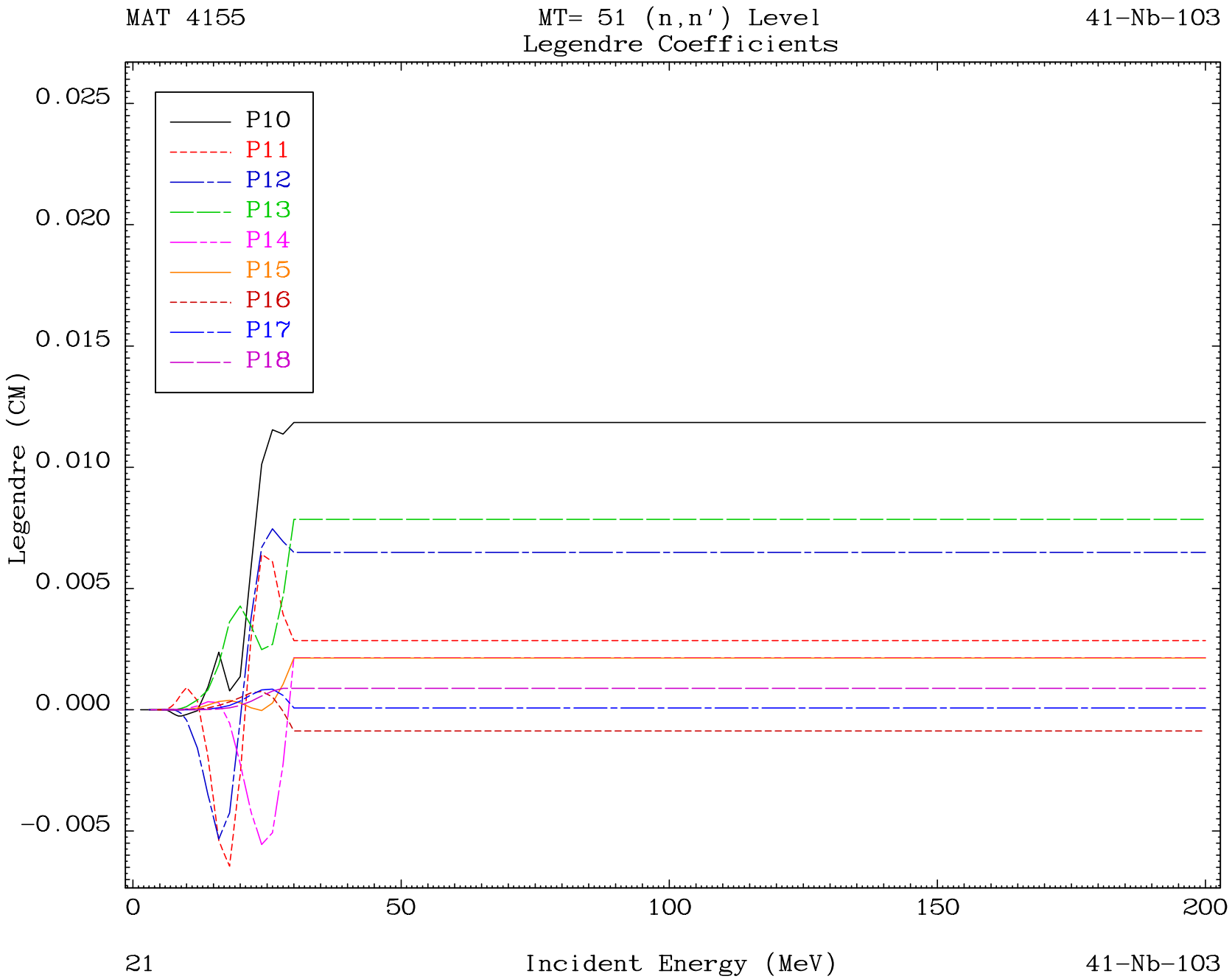

MAT 4155
Elastic
Legendre Coefficients
41-Nb-103
P1
P2
P3
P4
P5
P6
P7
P8
P9
Legendre (CM)
1.0
0.8
0.6
0.4
0.2
0.0
0
10
20
30
16
Incident Energy (MeV)
41-Nb-103

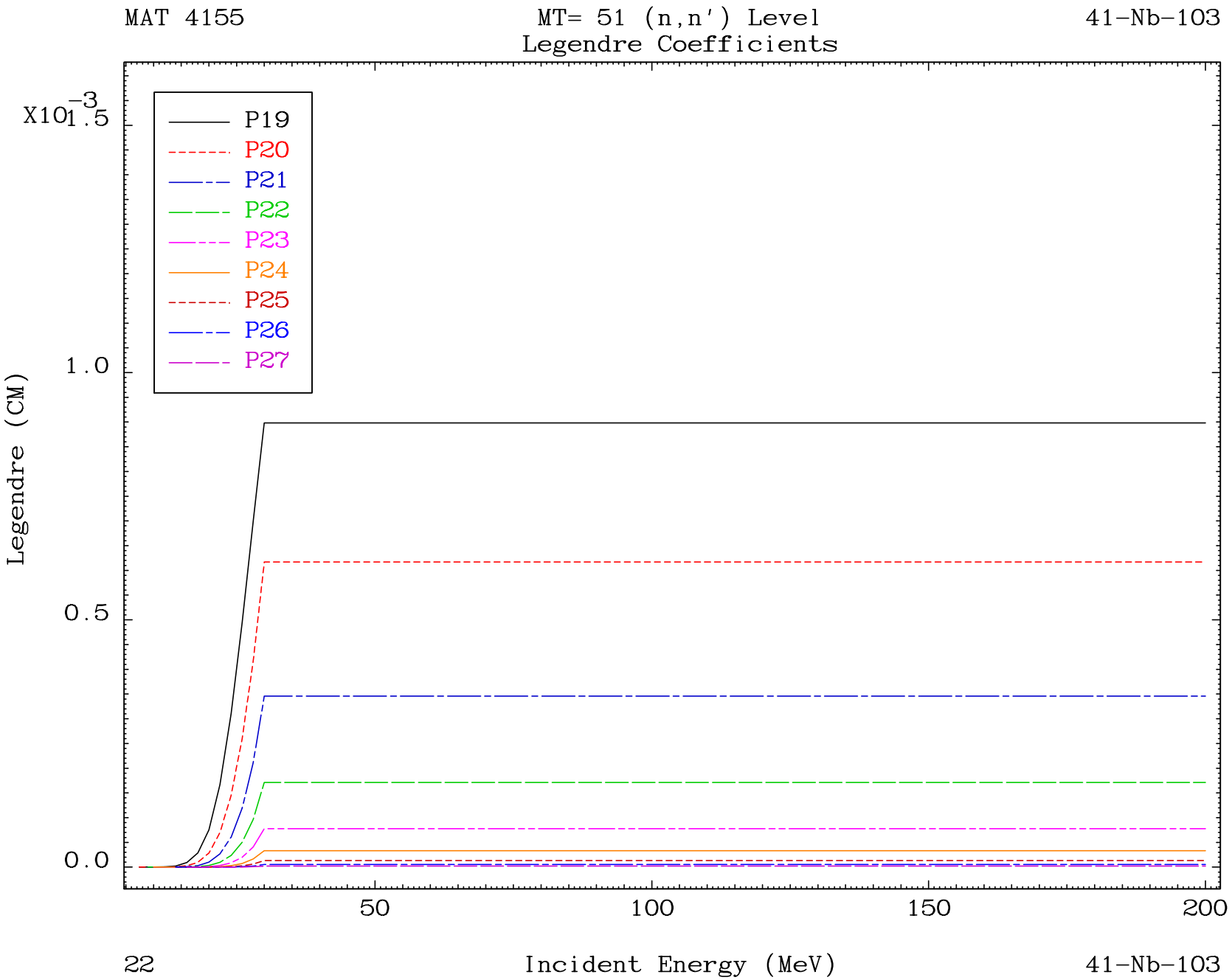

MAT 4155
Elastic
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
Legendre (CM)
0.25
0.20
0.15
0.10
0.05
0.00
5
10
15
20
25
30
17
Incident Energy (MeV)
41-Nb-103

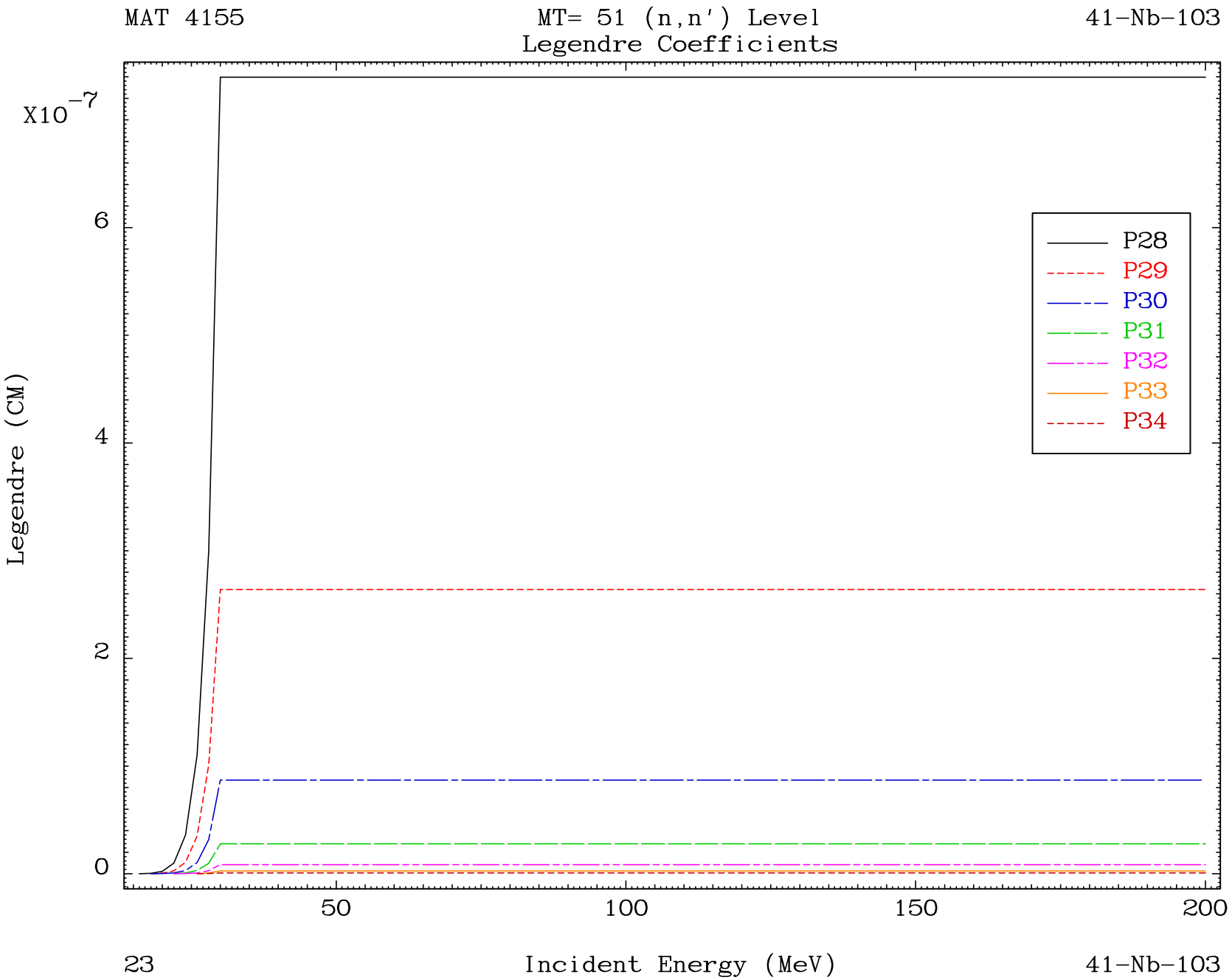

MAT 4155
Elastic
Legendre Coefficients
41-Nb-103
P19
P20
P21
P22
P23
P24
P25
P26
P27
0.003
0.002
0.001
0.000
Legendre (CM)
10
15
20
25
30
18
Incident Energy (MeV)
41-Nb-103

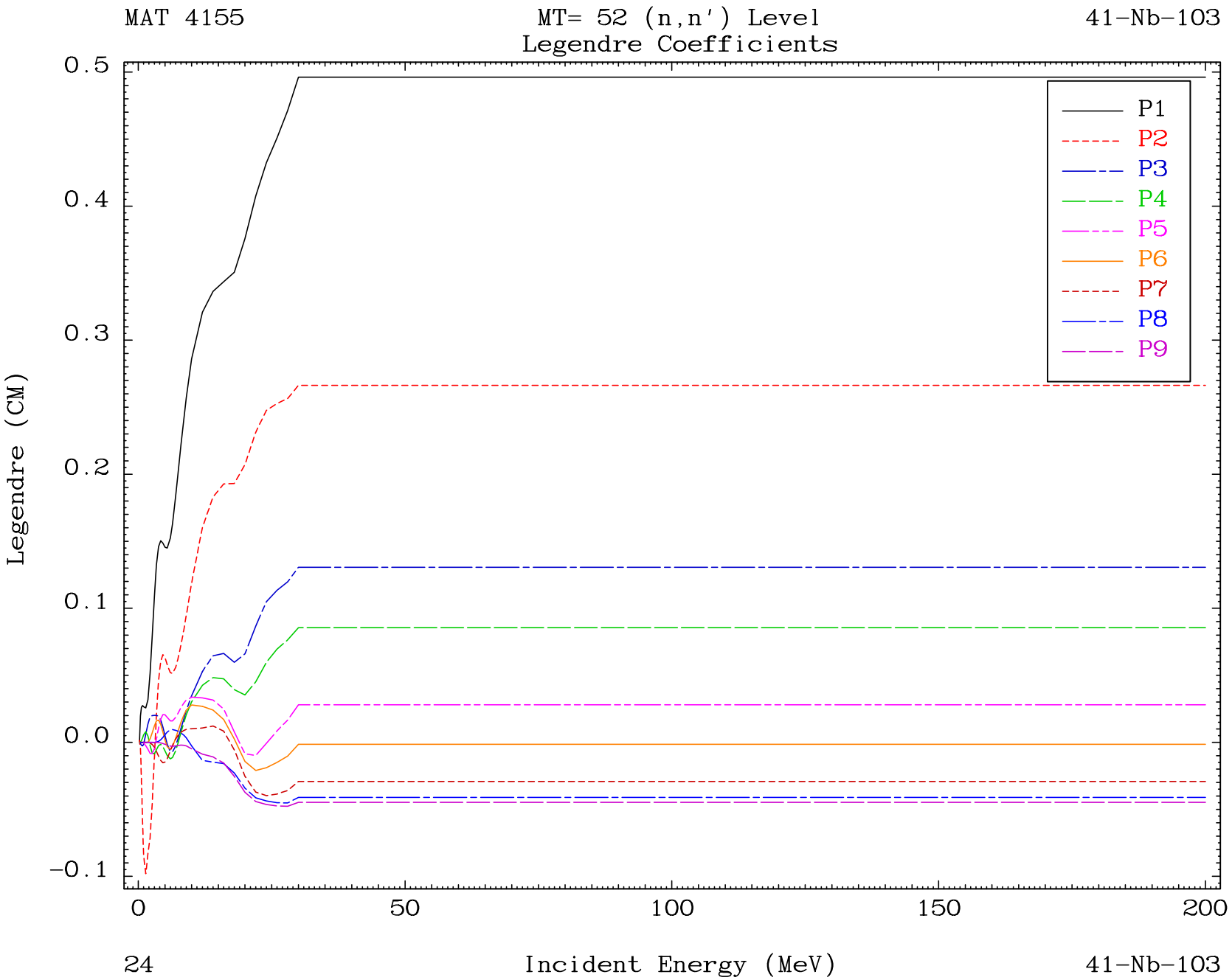

MAT 4155
Elastic
Legendre Coefficients
41-Nb-103
0.5
X10^-7
0.0
-0.5
-1.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
15
20
25
30
19
Incident Energy (MeV)
41-Nb-103

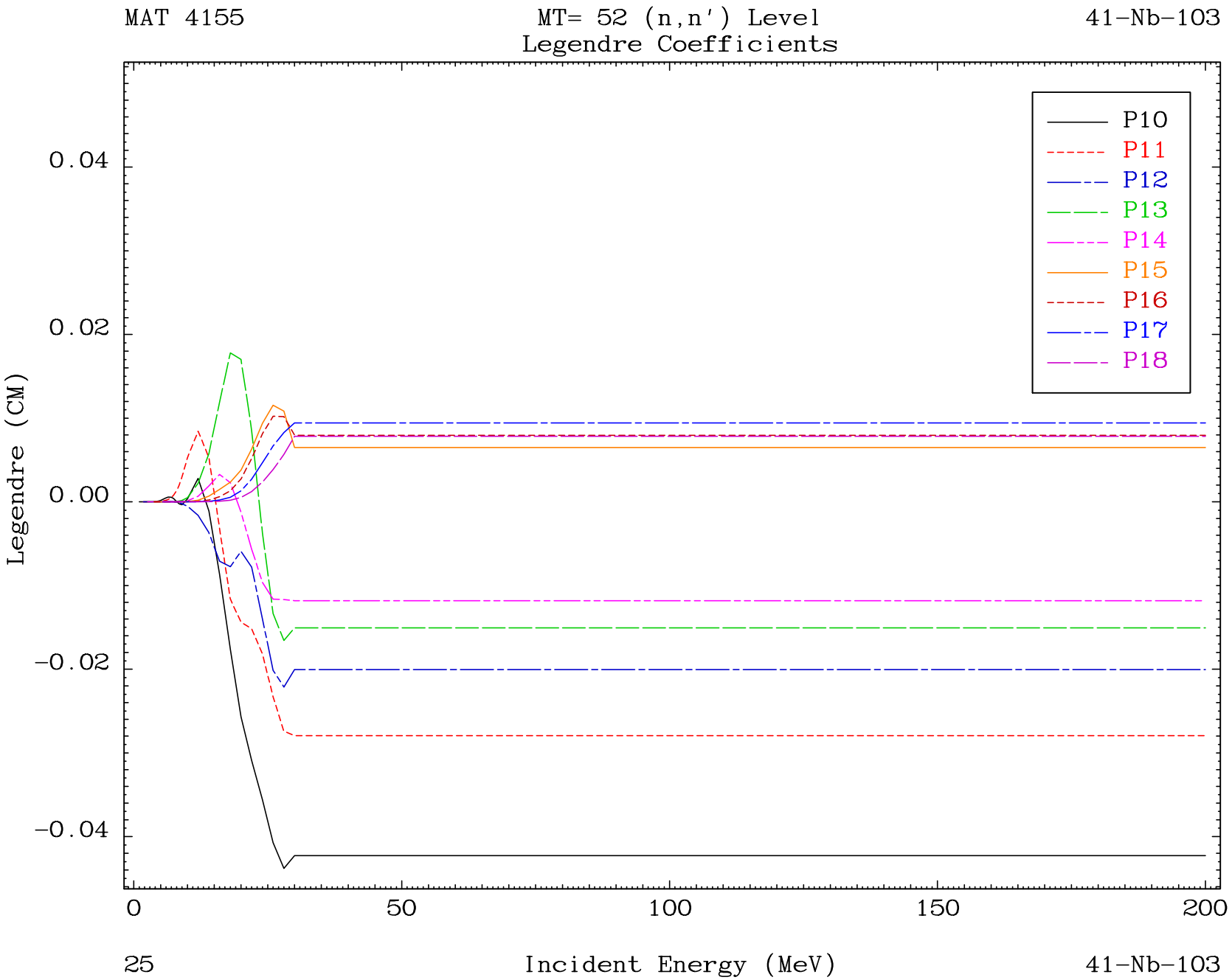

MAT 4155
MT= 51 (n,n') Level
Legendre Coefficients
41-Nb-103
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
20
Incident Energy (MeV)
41-Nb-103
P1
P2
P3
P4
P5
P6
P7
P8
P9

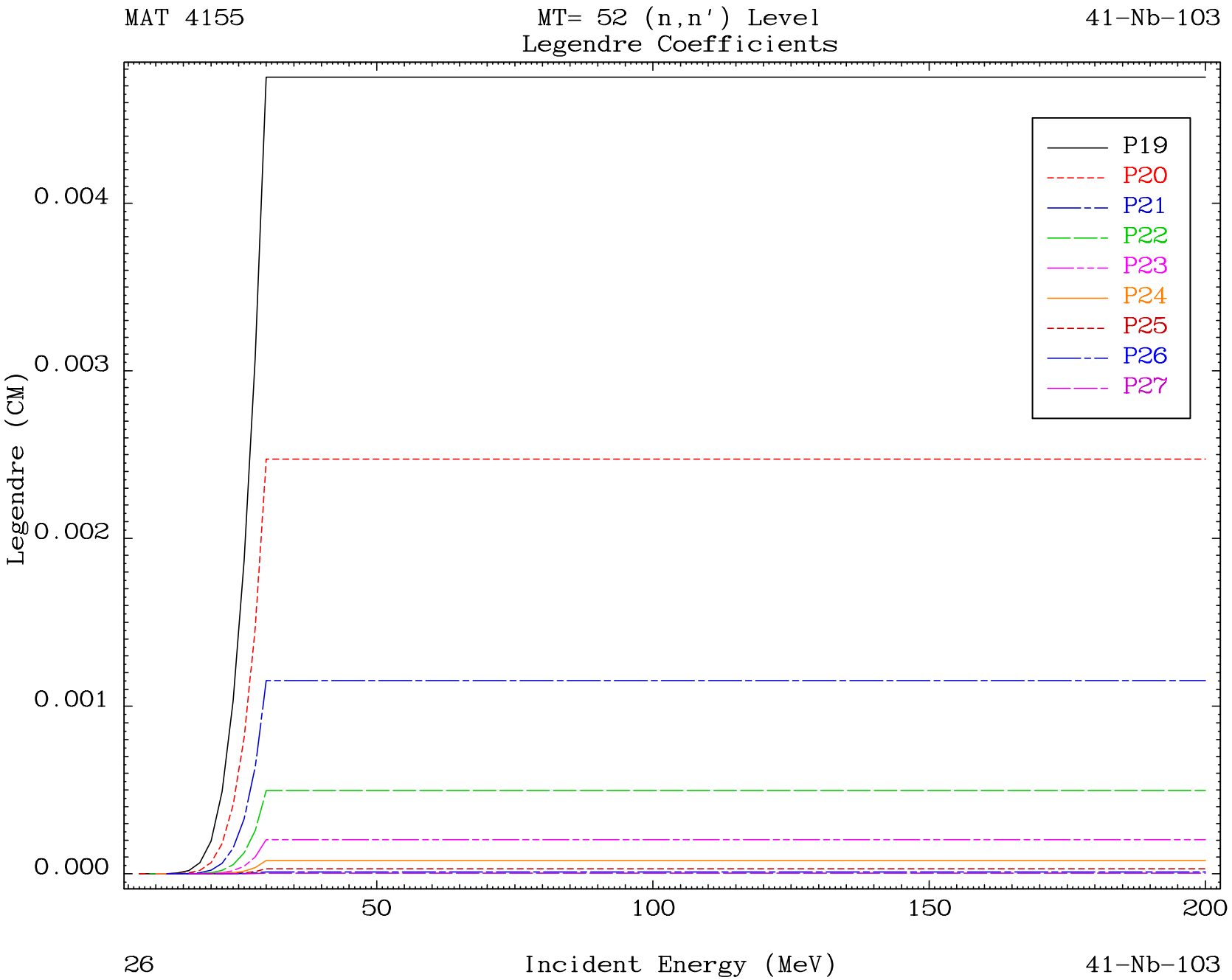

MAT 4155
MT= 51 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
Legendre (CM)
0
50
100
150
200
21
Incident Energy (MeV)
41-Nb-103

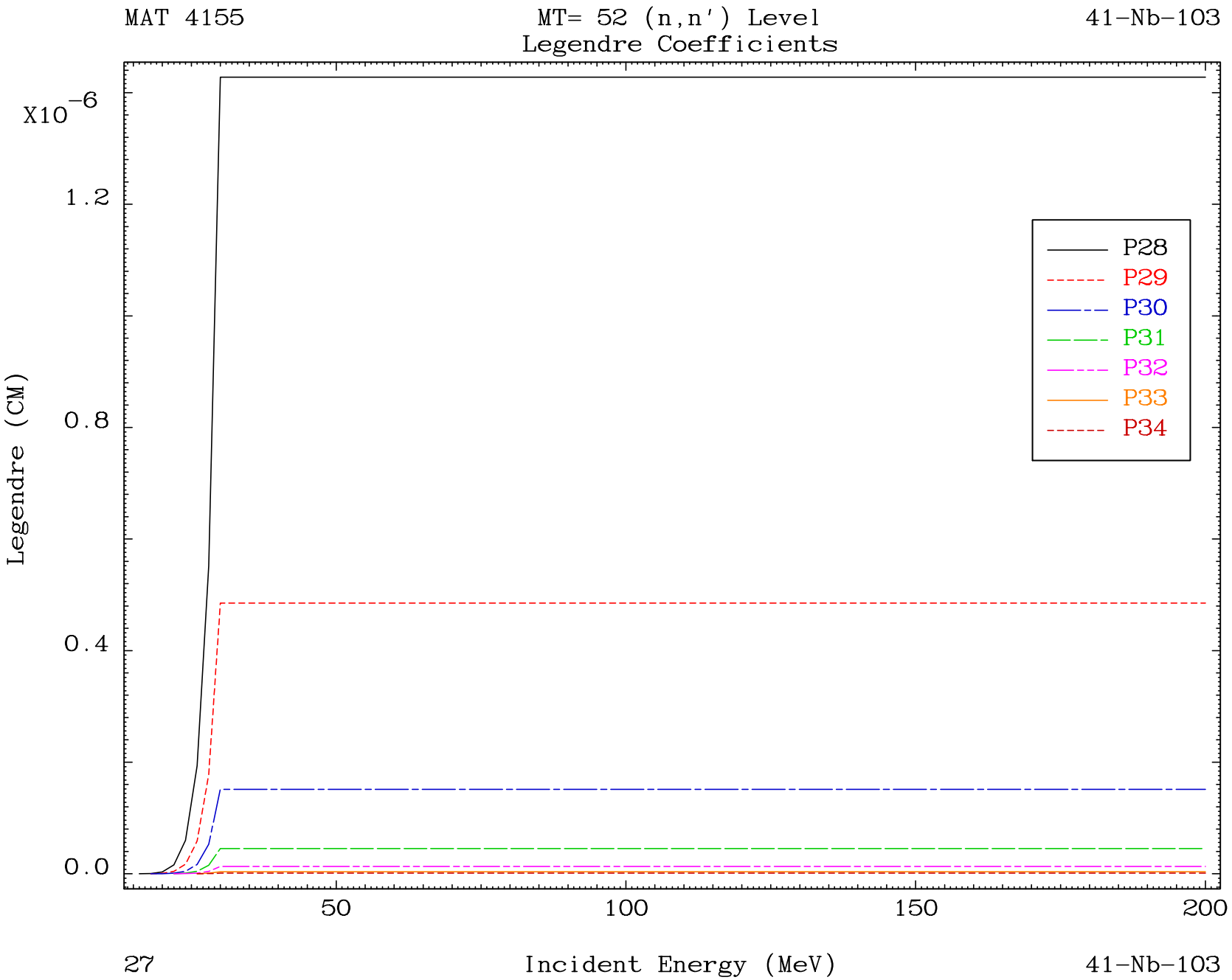

MAT 4155
MT= 51 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-3
1.5
1.0
0.5
0.0
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
22
Incident Energy (MeV)
41-Nb-103

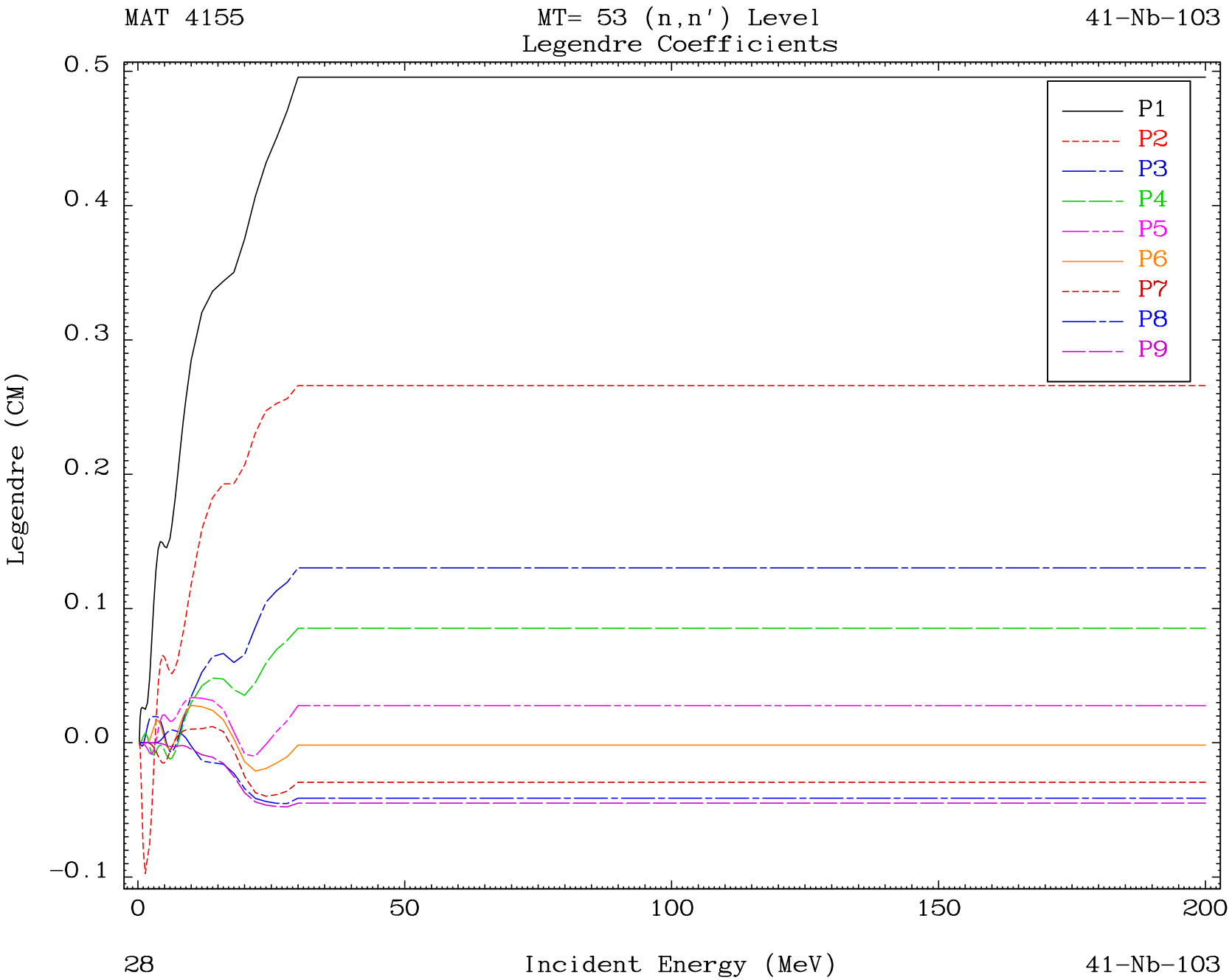

MAT 4155
MT= 51 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-7
6
4
2
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
23
Incident Energy (MeV)
41-Nb-103

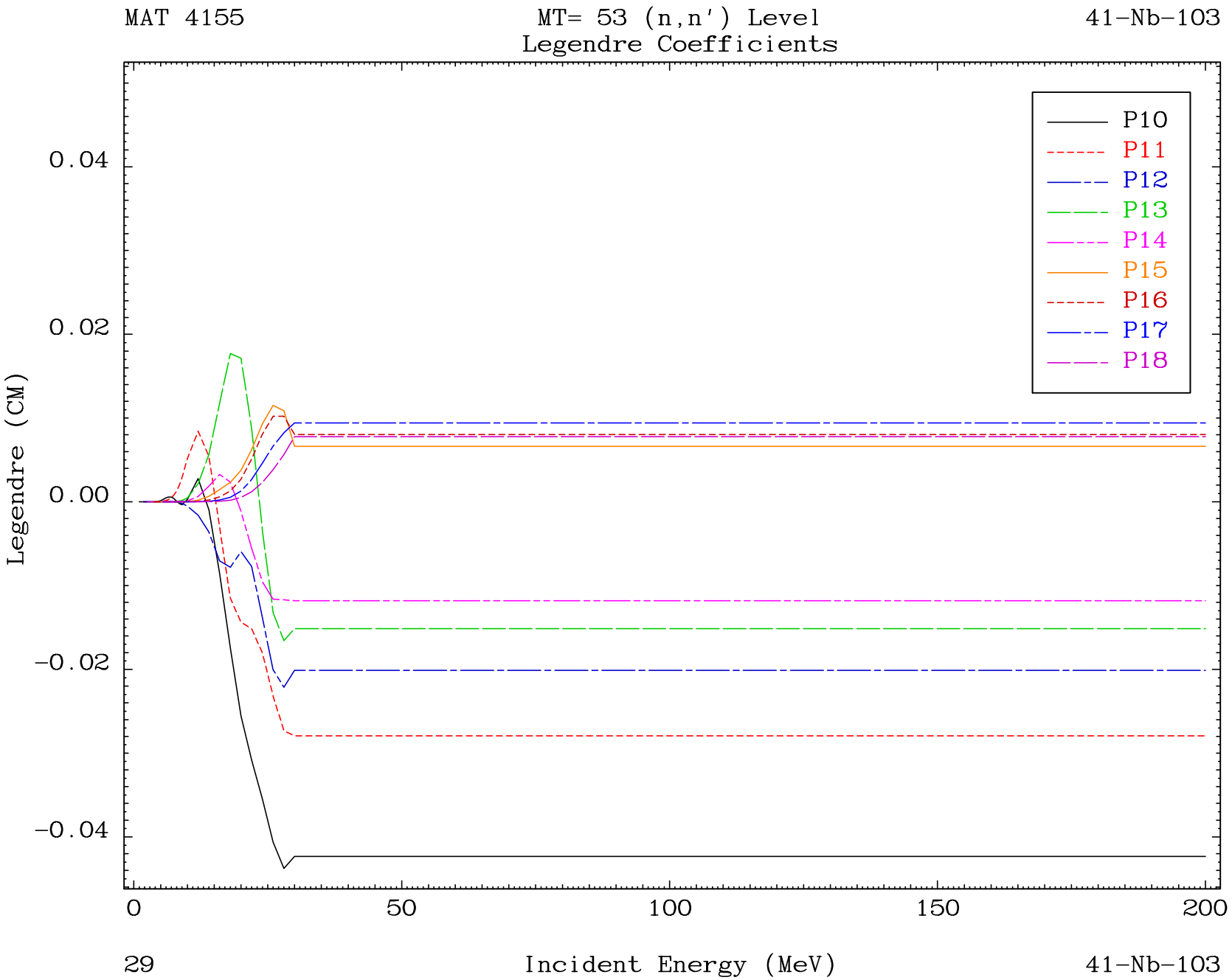

MAT 4155
MT= 52 (n,n') Level
Legendre Coefficients
41-Nb-103
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
24
Incident Energy (MeV)
41-Nb-103

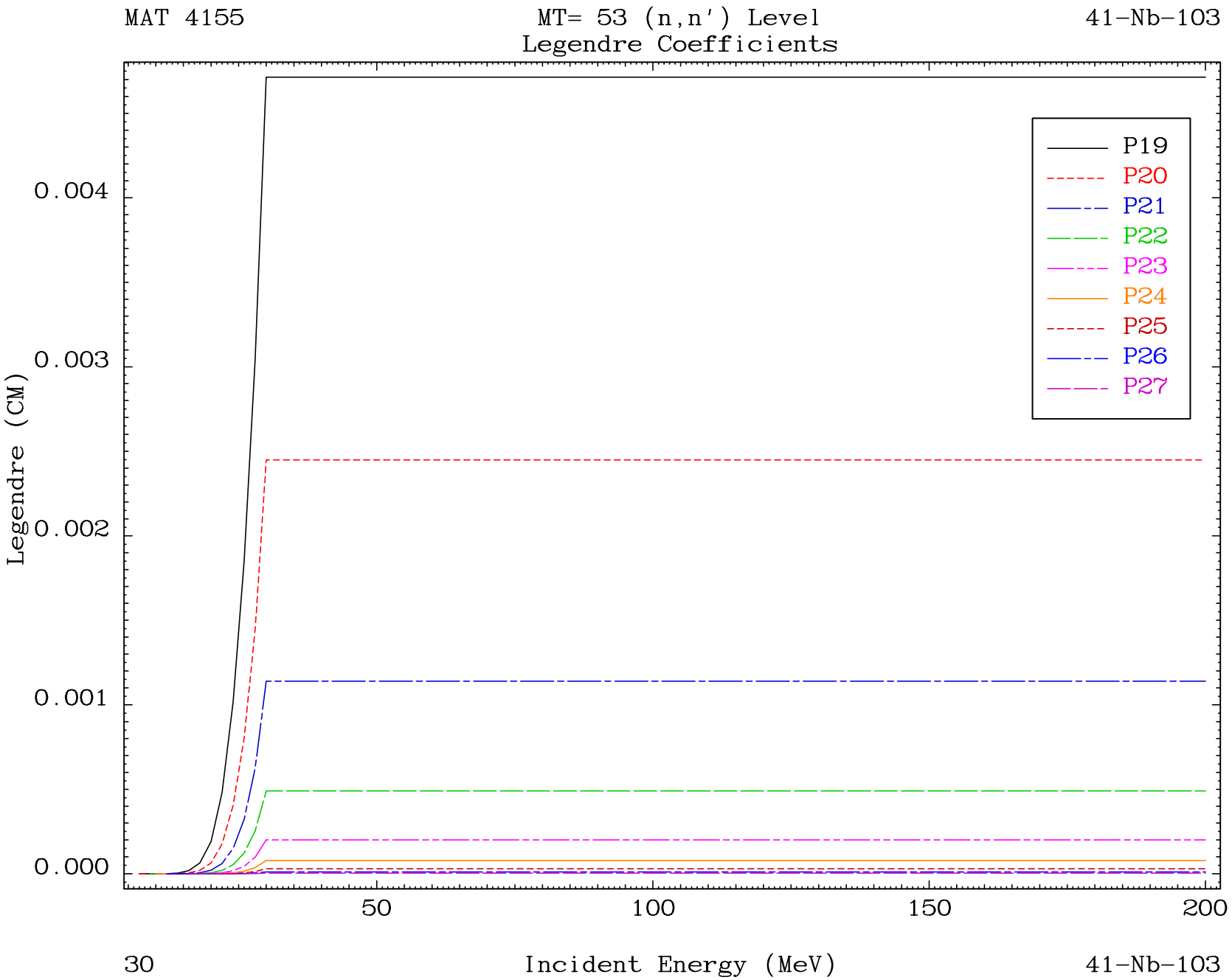

MAT 4155
MT= 52 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
25
Incident Energy (MeV)
41-Nb-103

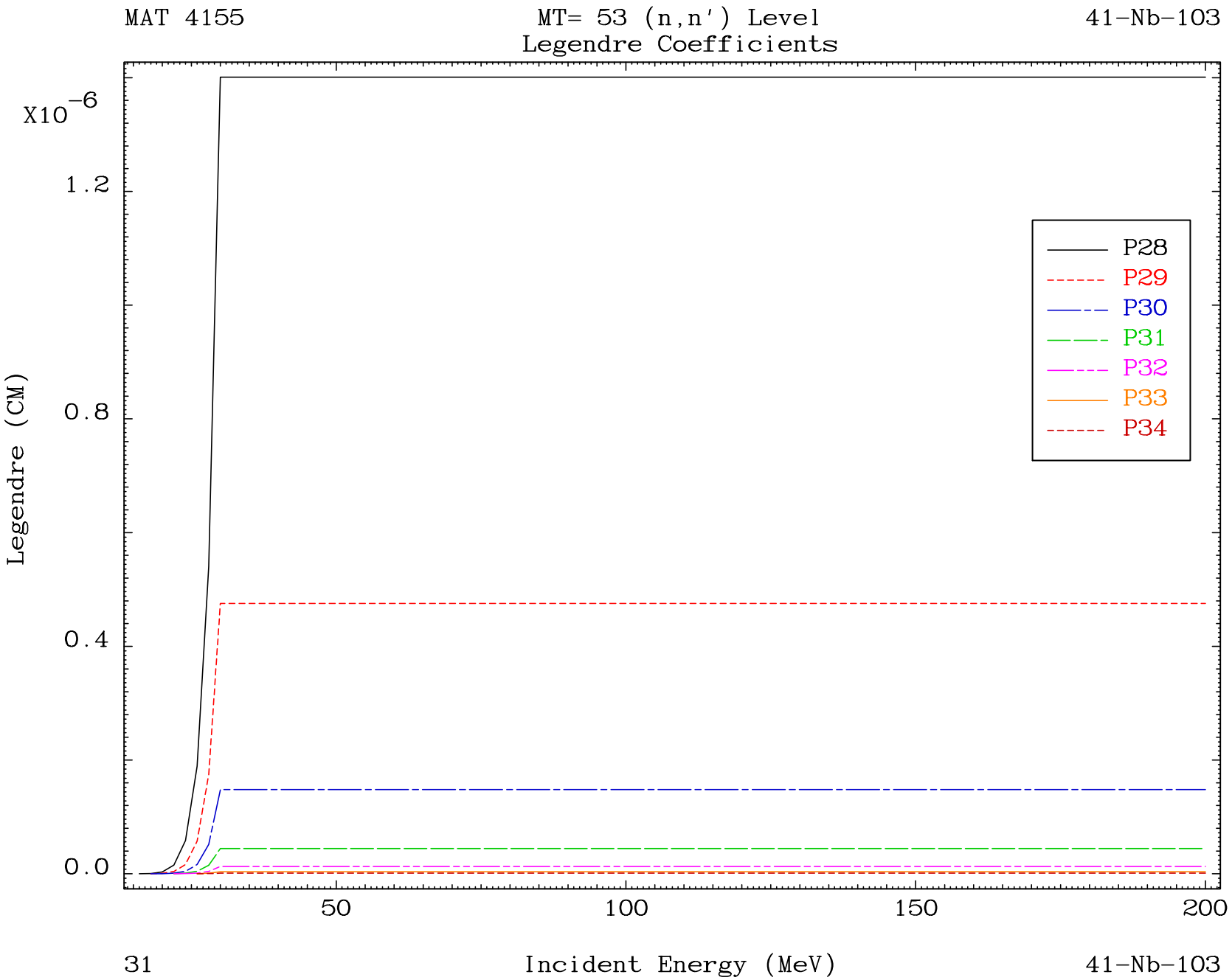

MAT 4155
MT= 52 (n,n') Level
Legendre Coefficients
41-Nb-103
P19
P20
P21
P22
P23
P24
P25
P26
P27
0.004
0.003
0.002
0.001
0.000
Legendre (CM)
50
100
150
200
26
Incident Energy (MeV)
41-Nb-103

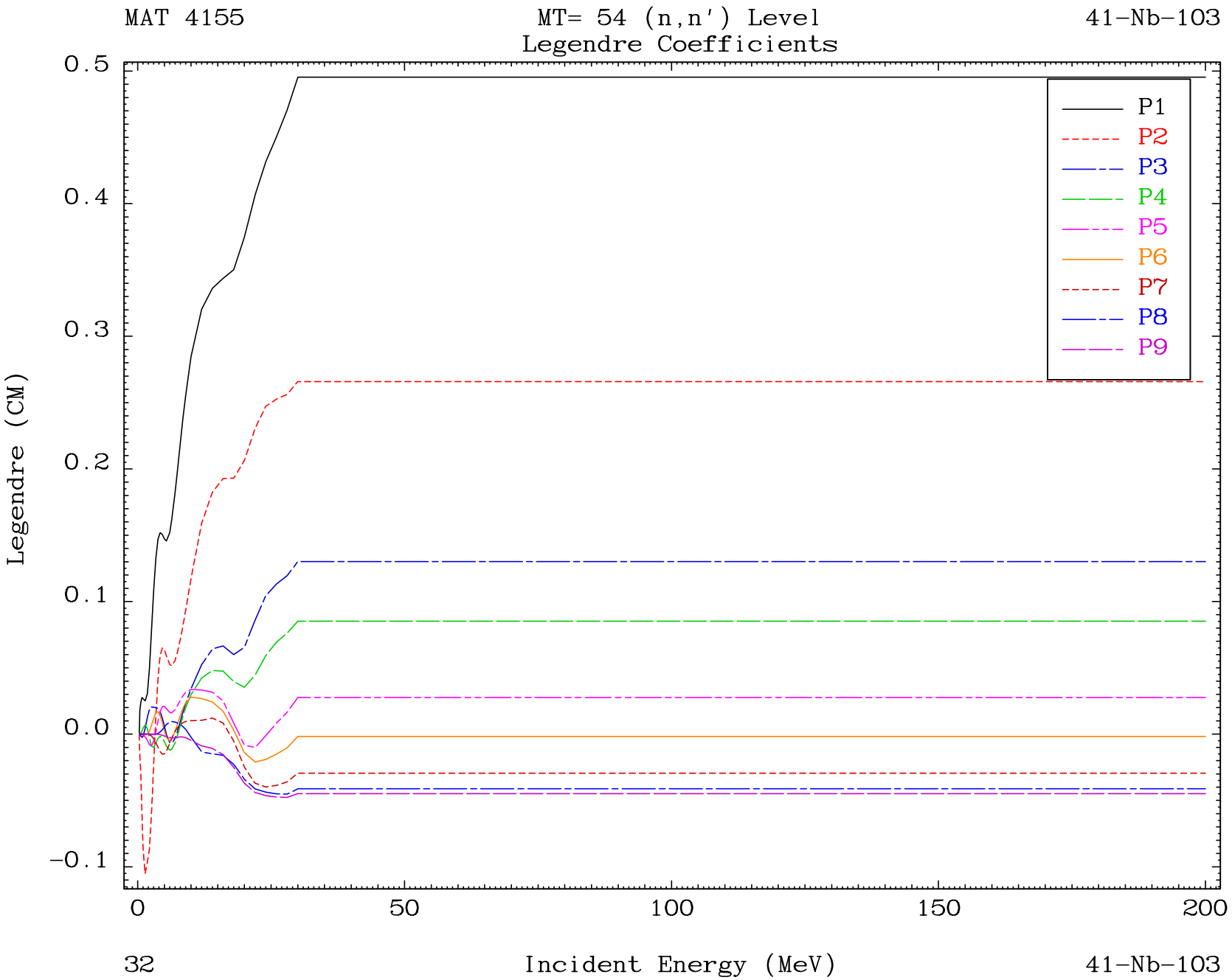

MAT 4155
MT= 52 (n,n') Level
Legendre Coefficients
41-Nb-103
X10^-6
1.2
0.8
0.4
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
27
Incident Energy (MeV)
41-Nb-103

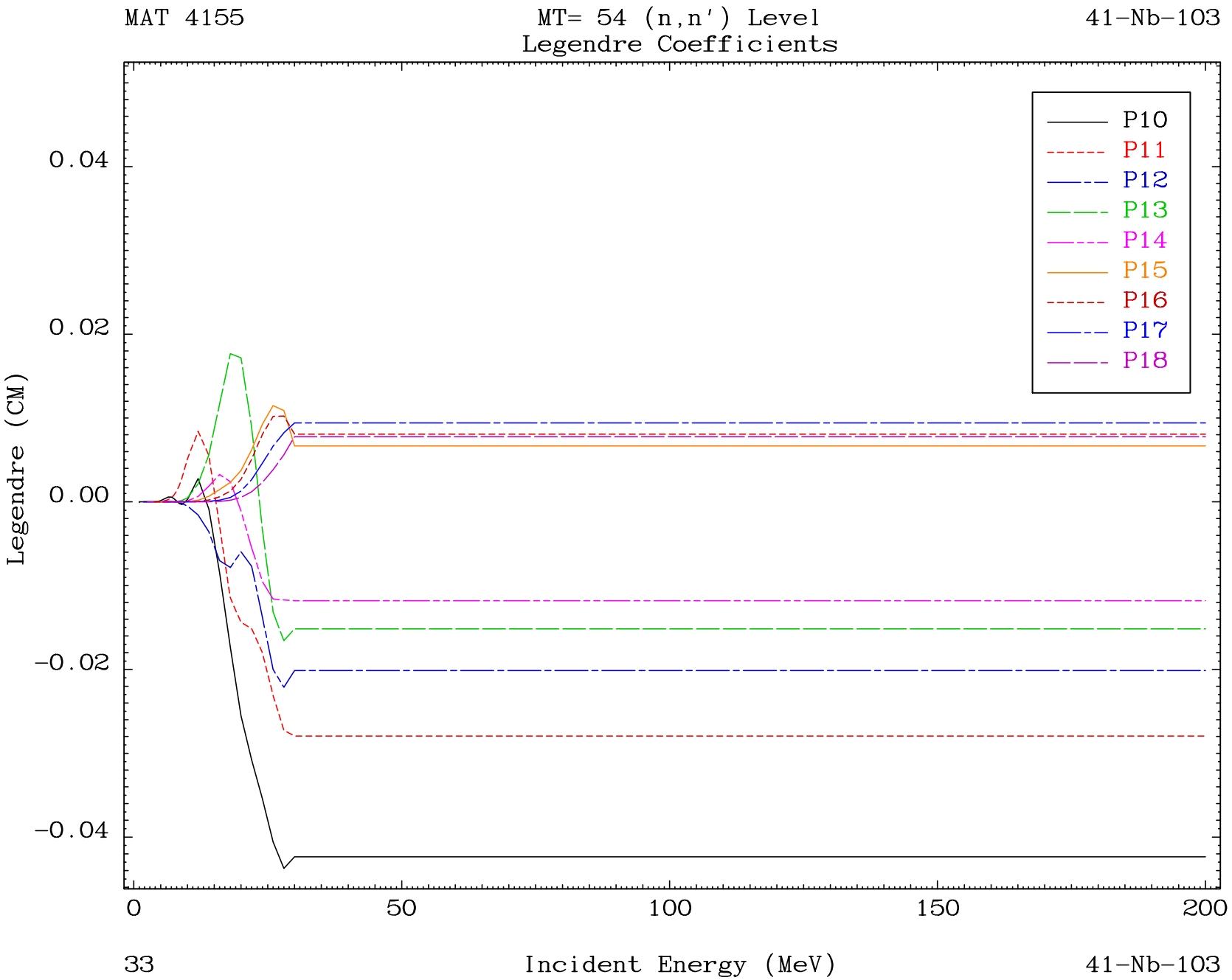

MAT 4155
MT= 53 (n,n') Level
Legendre Coefficients
41-Nb-103
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
Legendre (CM)
0
50
100
150
200
28
Incident Energy (MeV)
41-Nb-103
P1
P2
P3
P4
P5
P6
P7
P8
P9

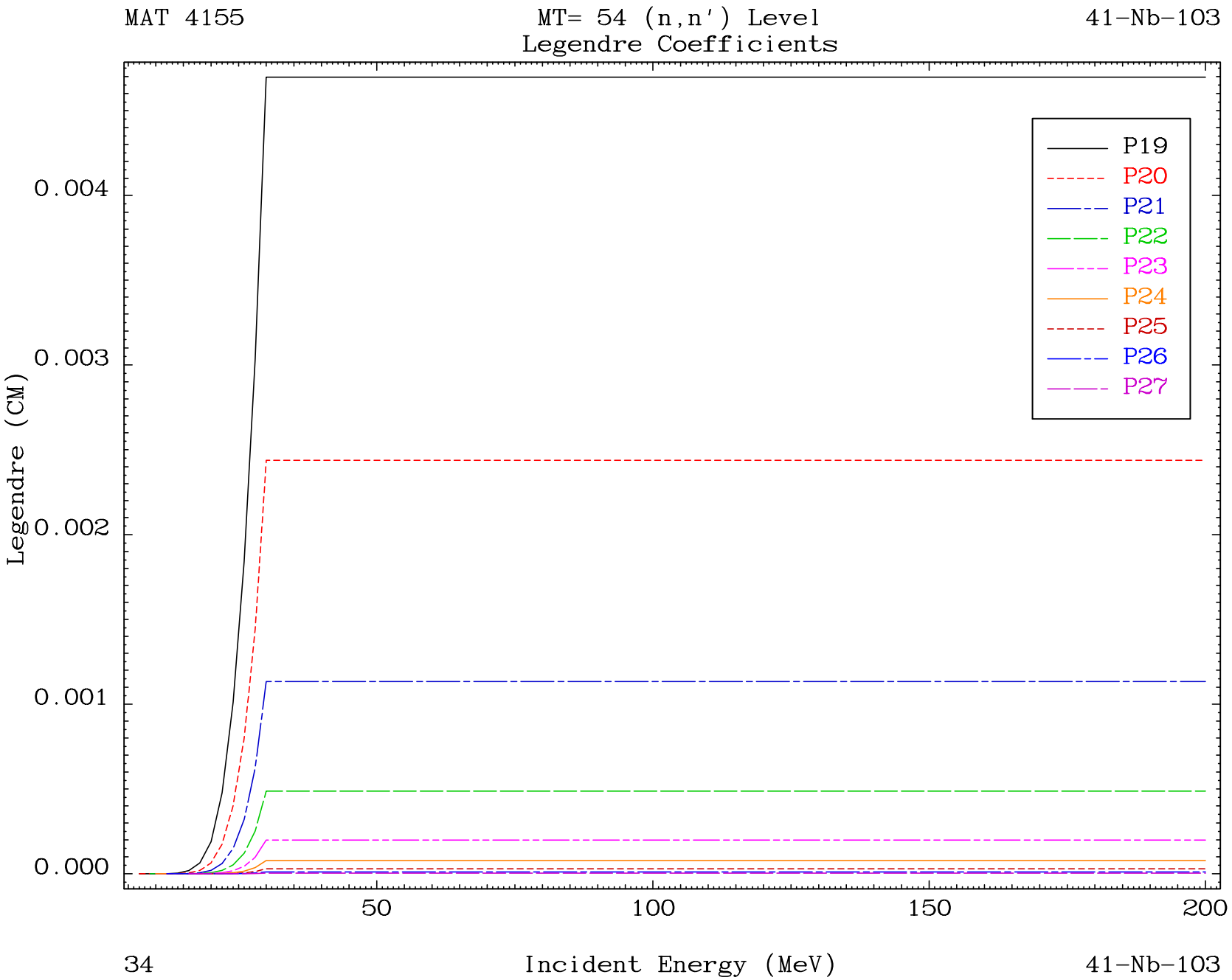

MAT 4155
MT= 53 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
29
Incident Energy (MeV)
41-Nb-103

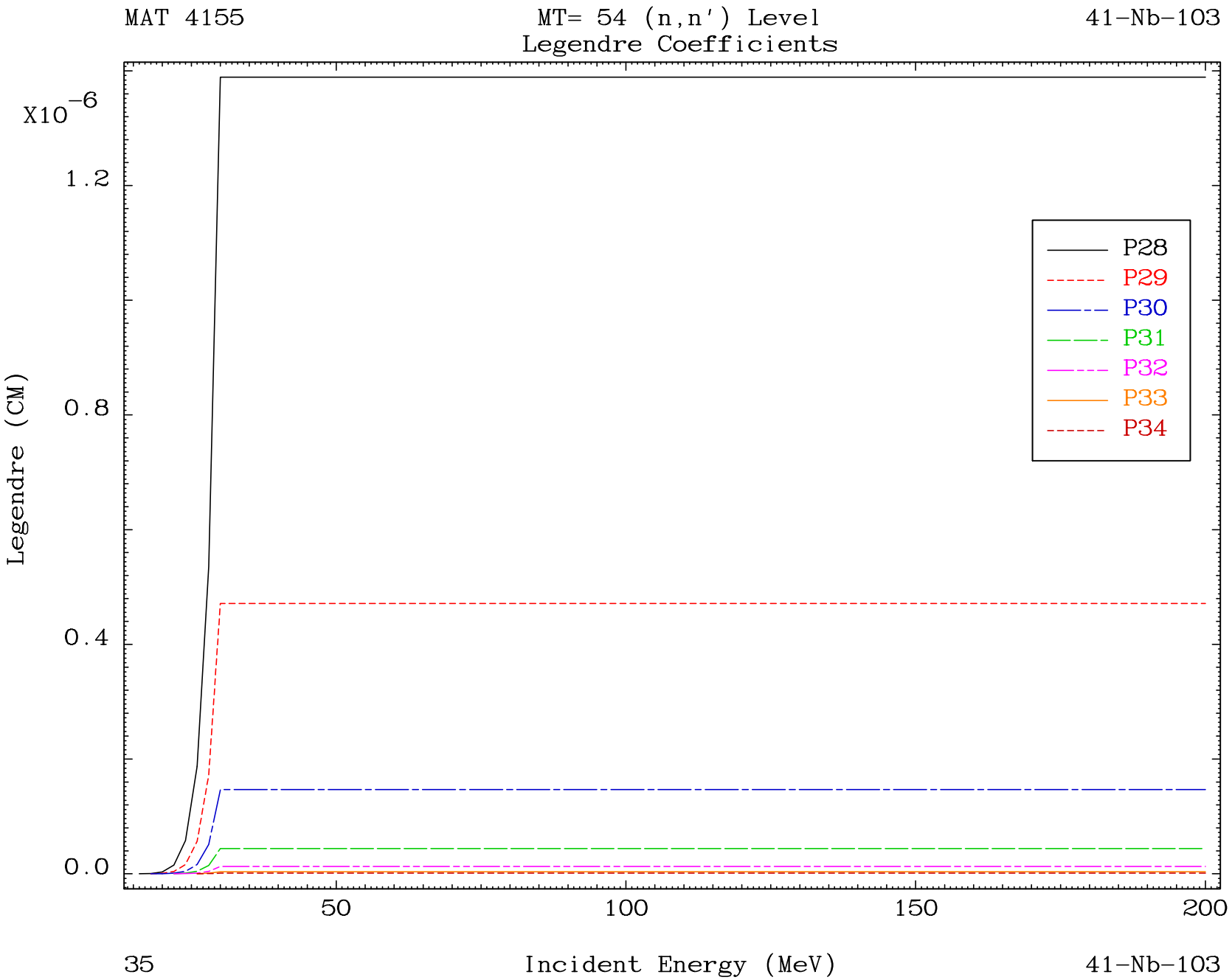

MAT 4155
MT= 53 (n,n') Level
Legendre Coefficients
41-Nb-103
P19
P20
P21
P22
P23
P24
P25
P26
P27
0.004
0.003
0.002
0.001
0.000
Legendre (CM)
50
100
150
200
30
Incident Energy (MeV)
41-Nb-103

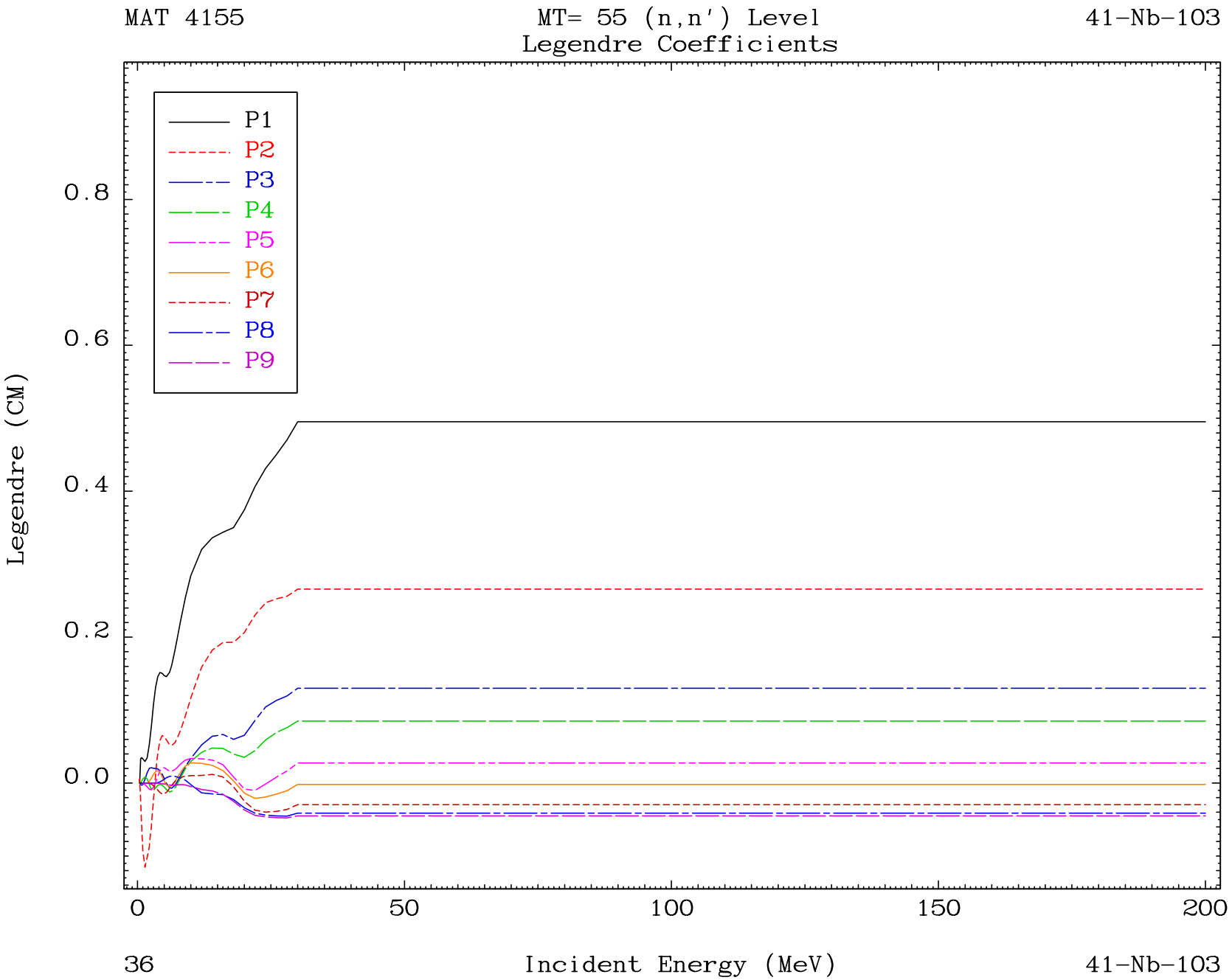

MAT 4155
MT= 53 (n,n') Level
Legendre Coefficients
41-Nb-103
X10^-6
1.2
0.8
0.4
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
31
Incident Energy (MeV)
41-Nb-103

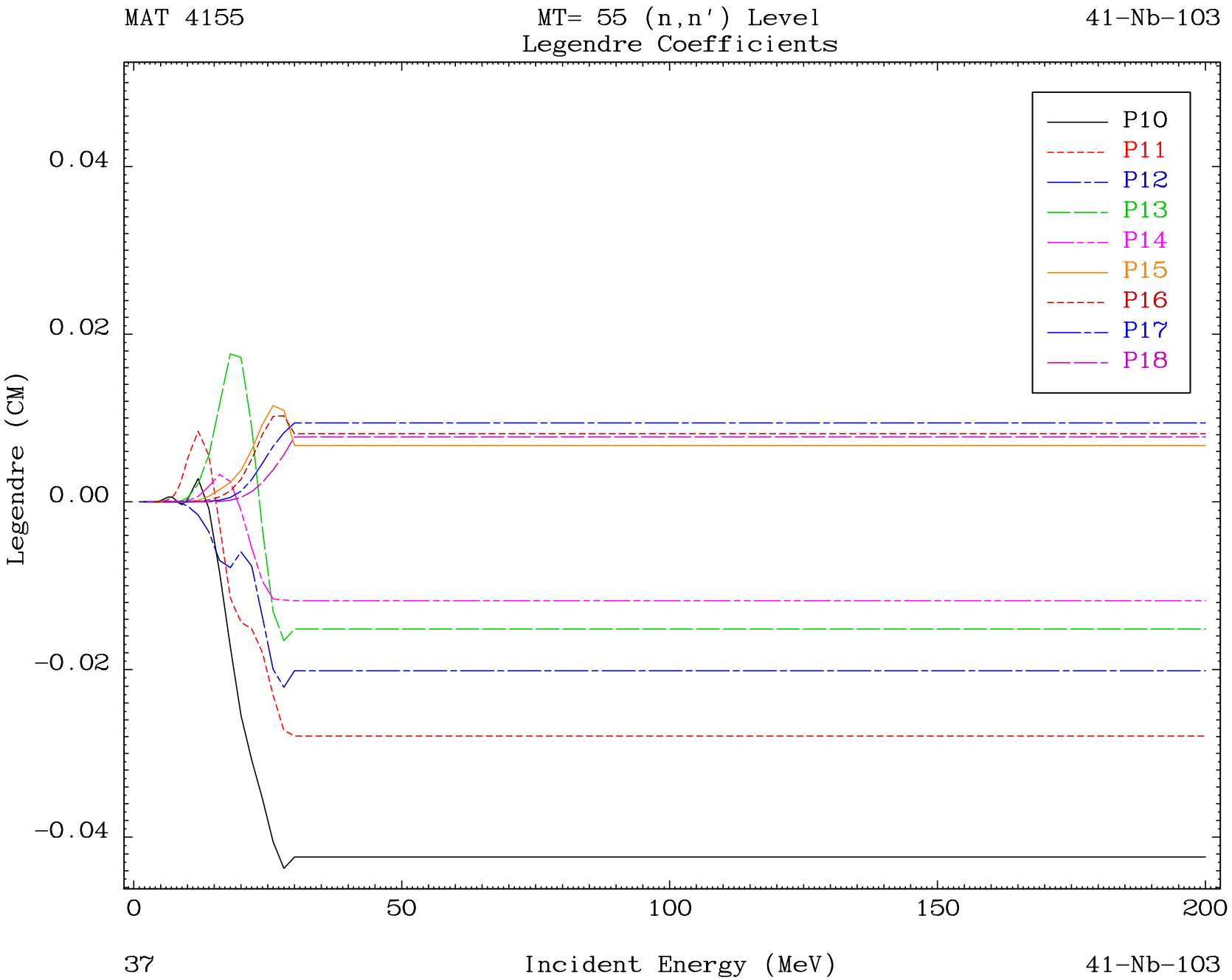

MAT 4155
MT= 54 (n,n') Level
Legendre Coefficients
41-Nb-103
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
32
Incident Energy (MeV)
41-Nb-103

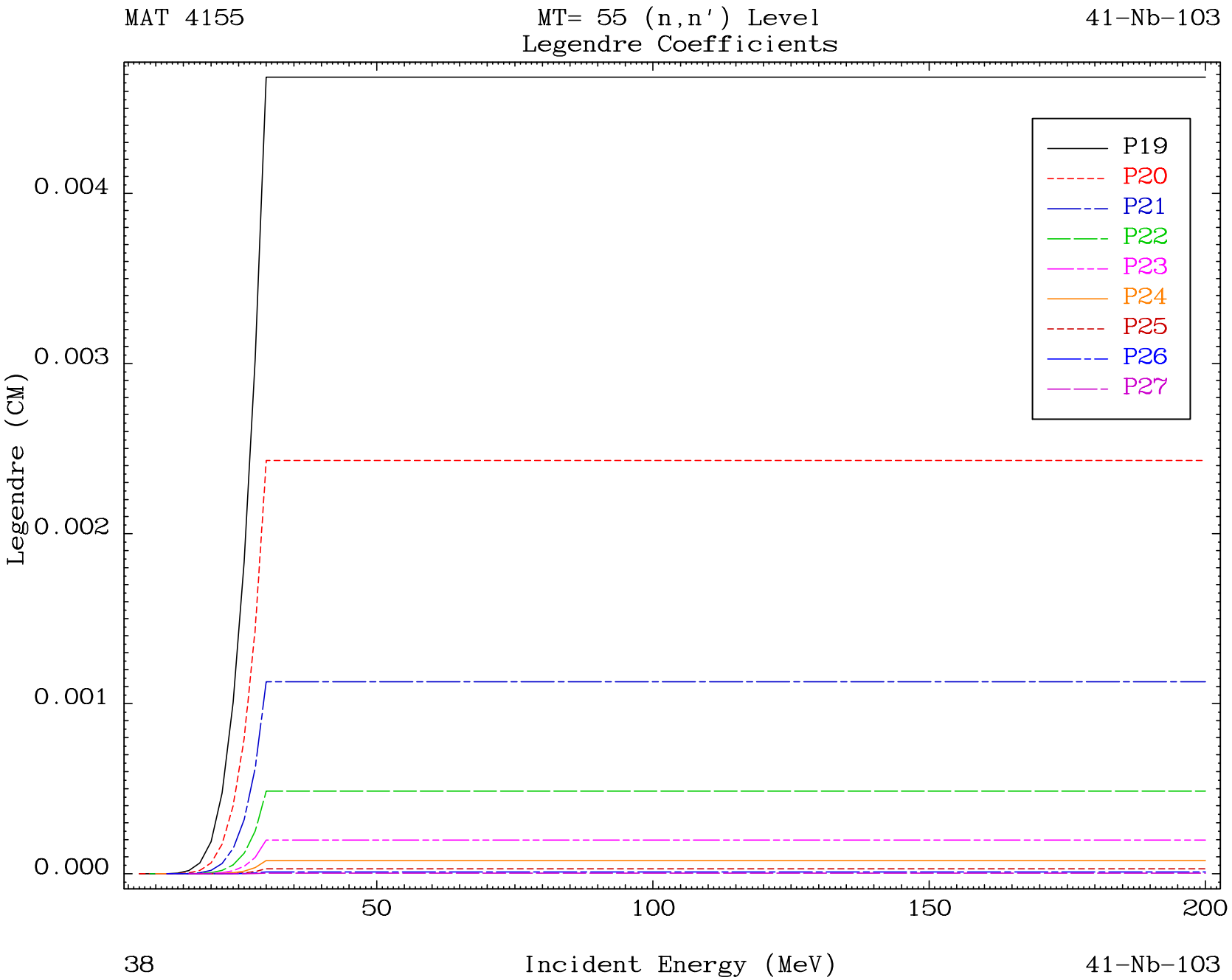

MAT 4155
MT= 54 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
33
Incident Energy (MeV)
41-Nb-103

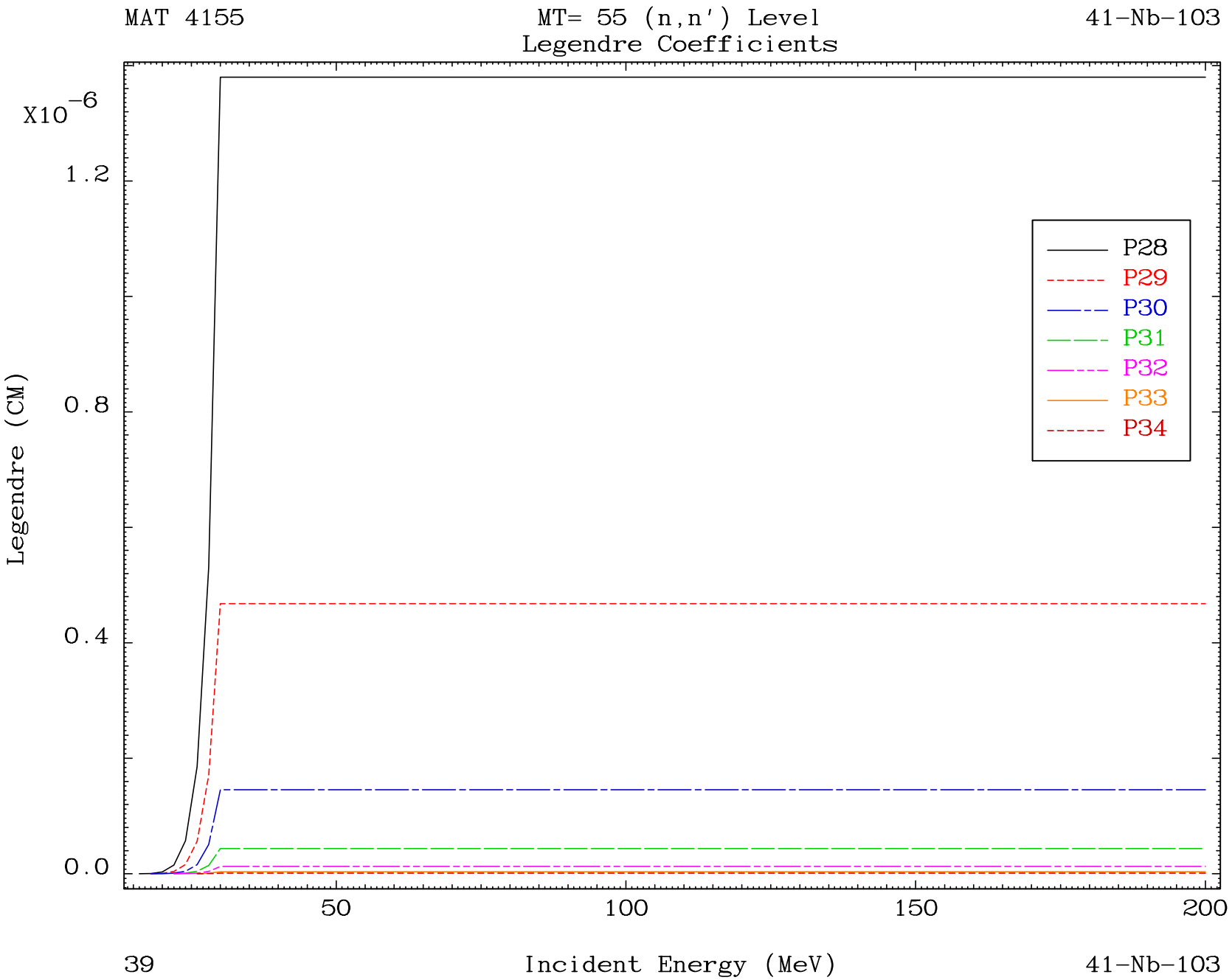

MAT 4155
MT= 54 (n,n') Level
Legendre Coefficients
41-Nb-103
P19
P20
P21
P22
P23
P24
P25
P26
P27
0.004
0.003
0.002
0.001
0.000
Legendre (CM)
50
100
150
200
34
Incident Energy (MeV)
41-Nb-103

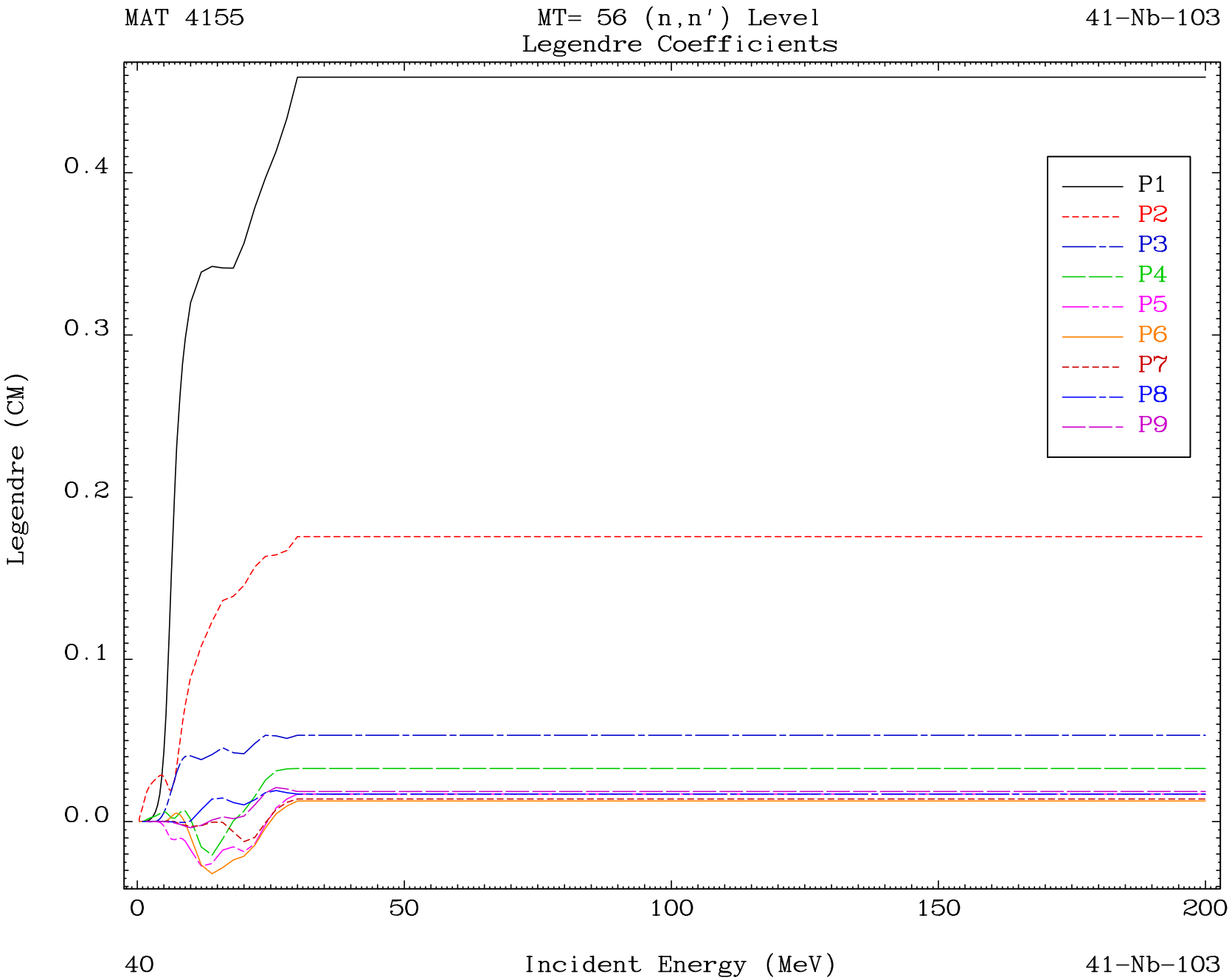

MAT 4155
MT= 54 (n,n') Level
Legendre Coefficients
41-Nb-103
X10^-6
1.2
0.8
0.4
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
35
Incident Energy (MeV)
41-Nb-103

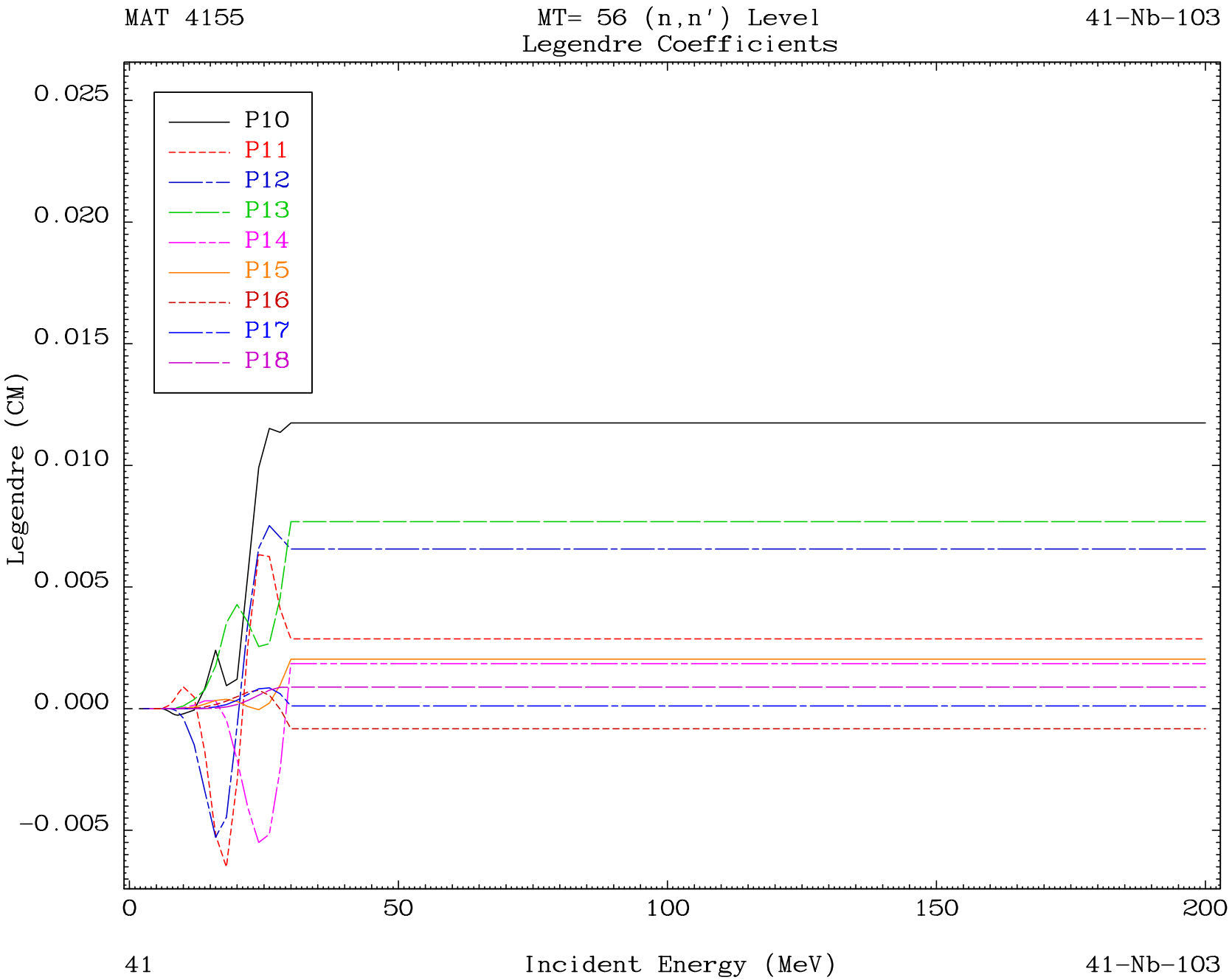

MAT 4155
MT= 55 (n,n') Level
Legendre Coefficients
41-Nb-103
P1
P2
P3
P4
P5
P6
P7
P8
P9
Legendre (CM)
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200
36
Incident Energy (MeV)
41-Nb-103

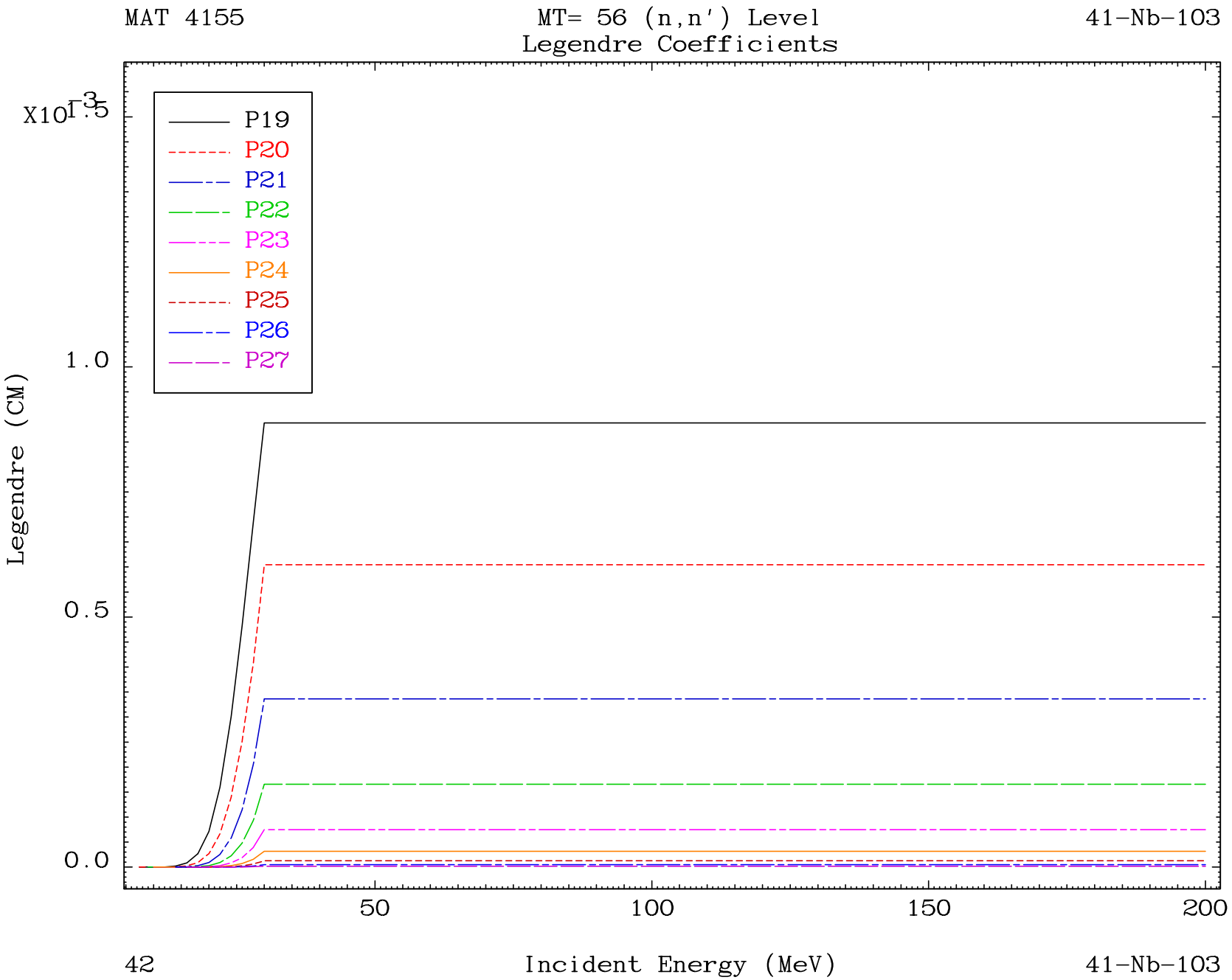

MAT 4155
MT= 55 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
37
Incident Energy (MeV)
41-Nb-103

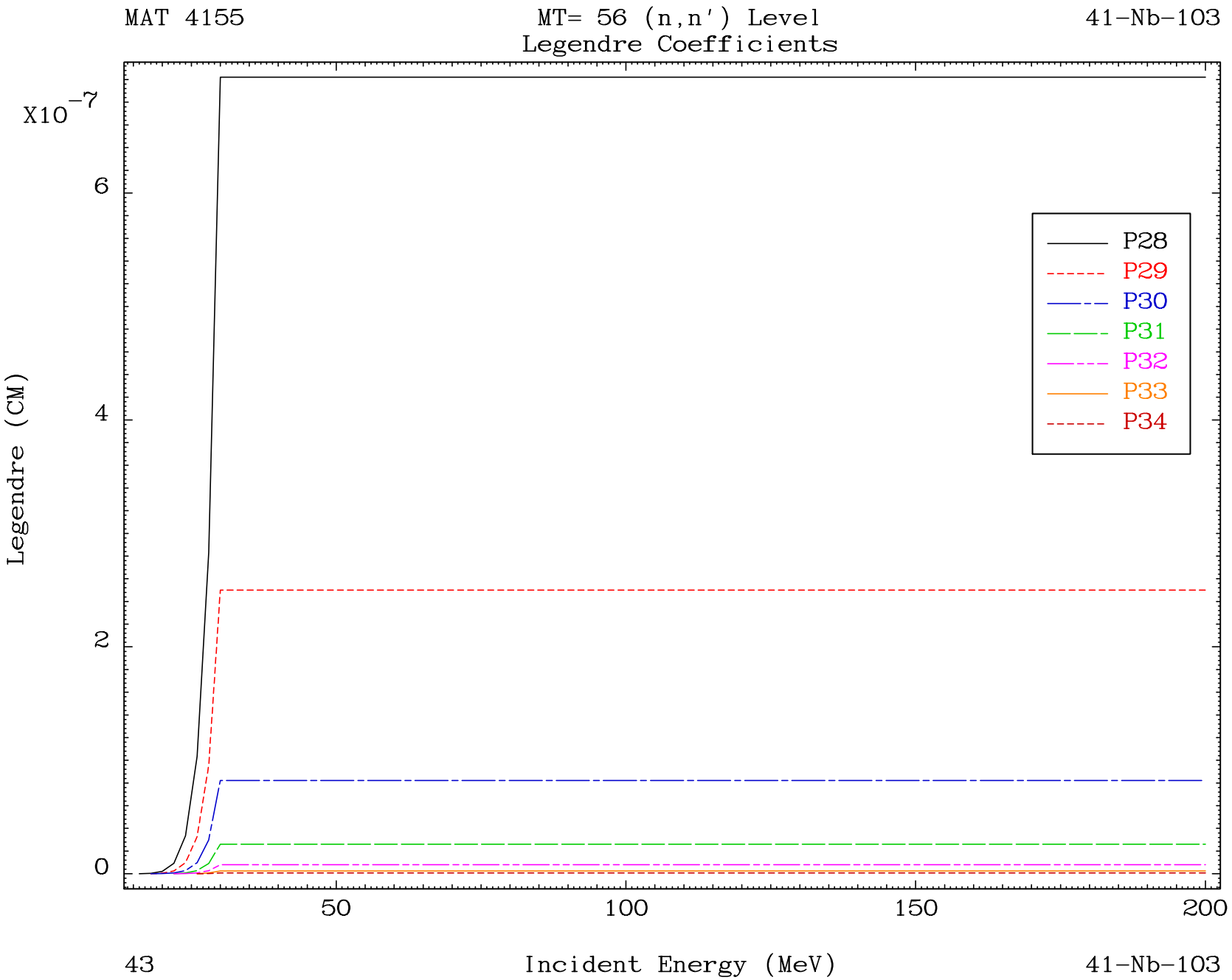

MAT 4155
MT= 55 (n,n') Level
Legendre Coefficients
41-Nb-103
P19
P20
P21
P22
P23
P24
P25
P26
P27
0.004
0.003
0.002
0.001
0.000
Legendre (CM)
50
100
150
200
38
Incident Energy (MeV)
41-Nb-103

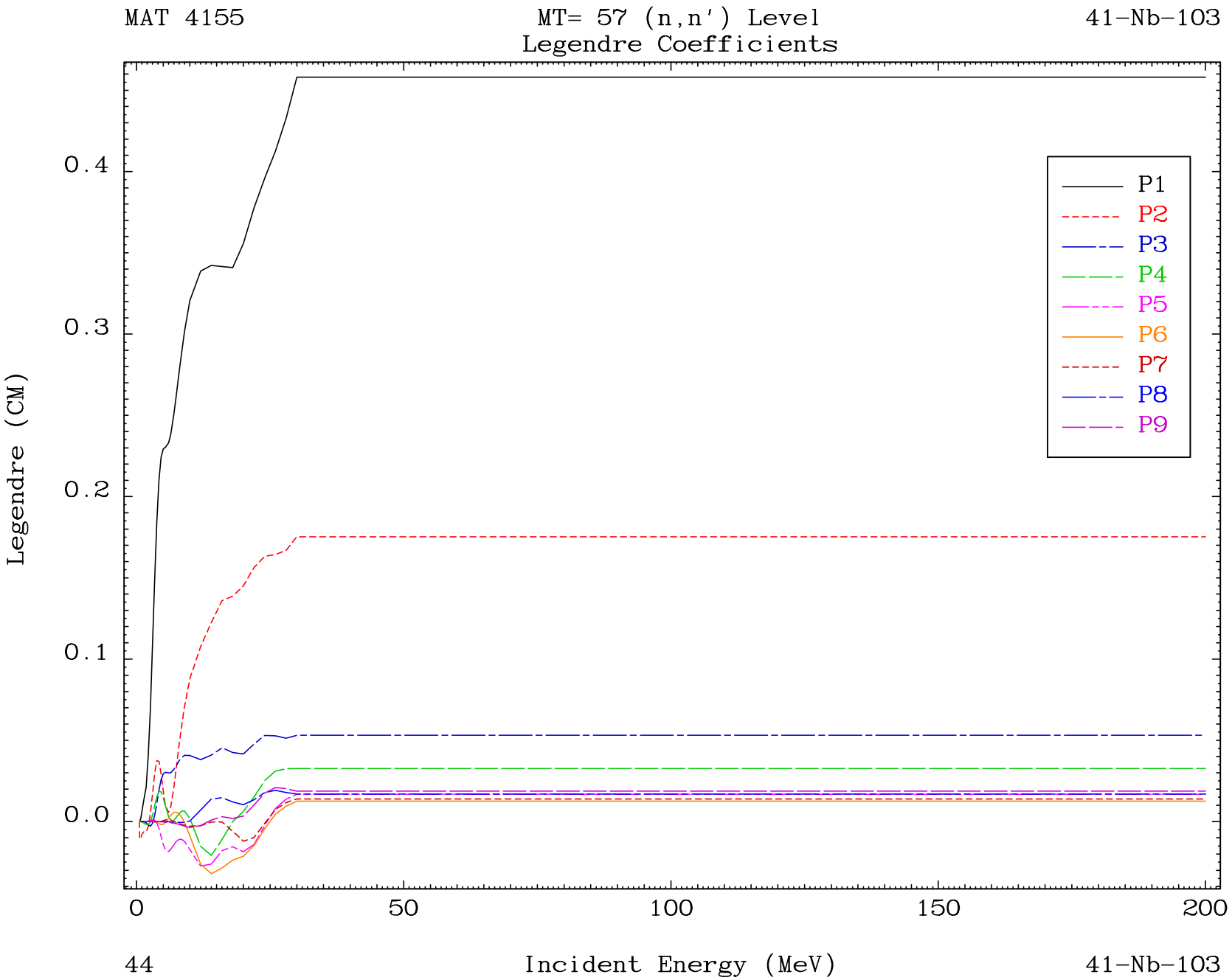

MAT 4155
MT= 55 (n,n') Level
Legendre Coefficients
41-Nb-103
X10^-6
1.2
0.8
0.4
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
39
Incident Energy (MeV)
41-Nb-103

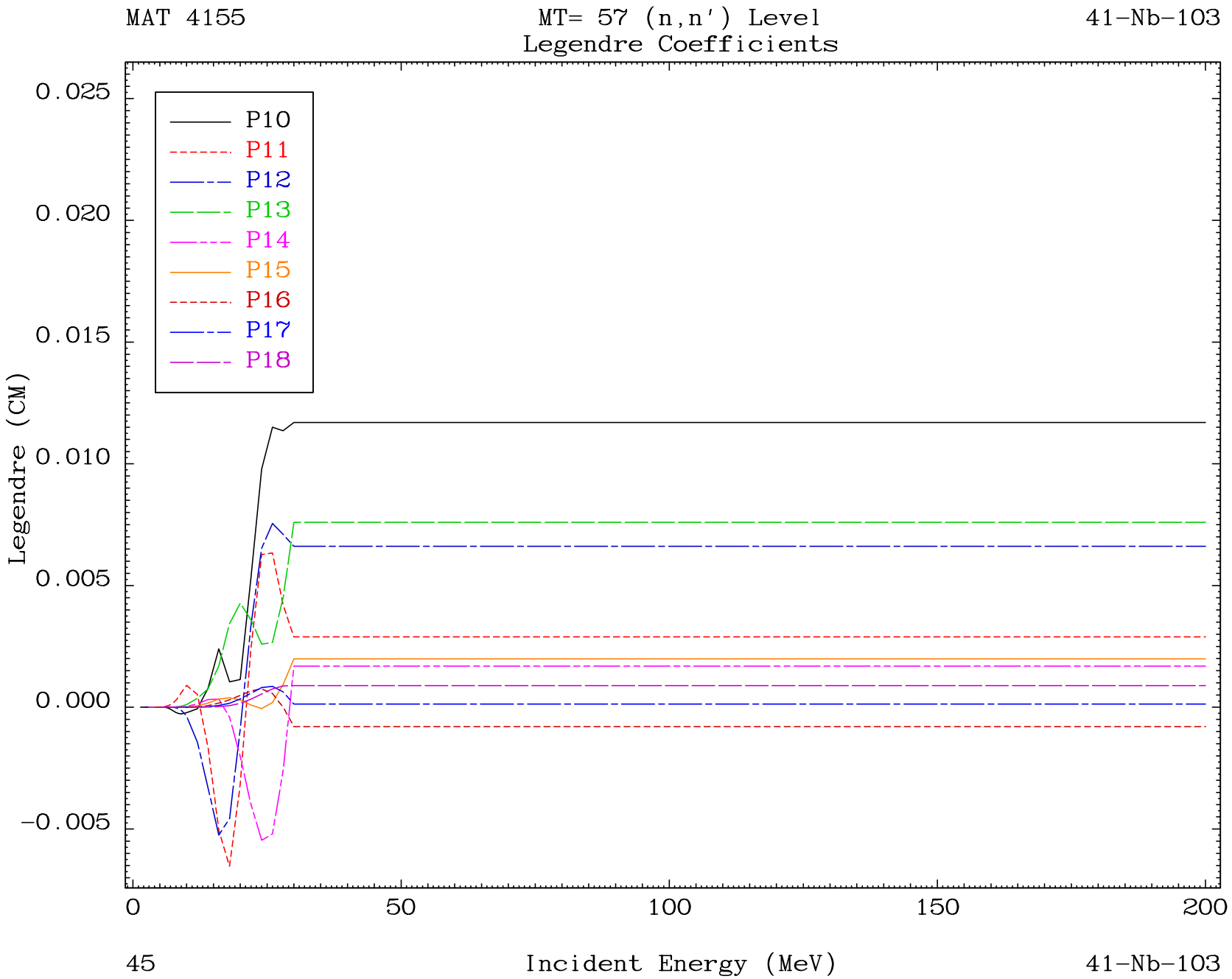

MAT 4155
MT= 56 (n,n') Level
Legendre Coefficients
41-Nb-103
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
40
Incident Energy (MeV)
41-Nb-103

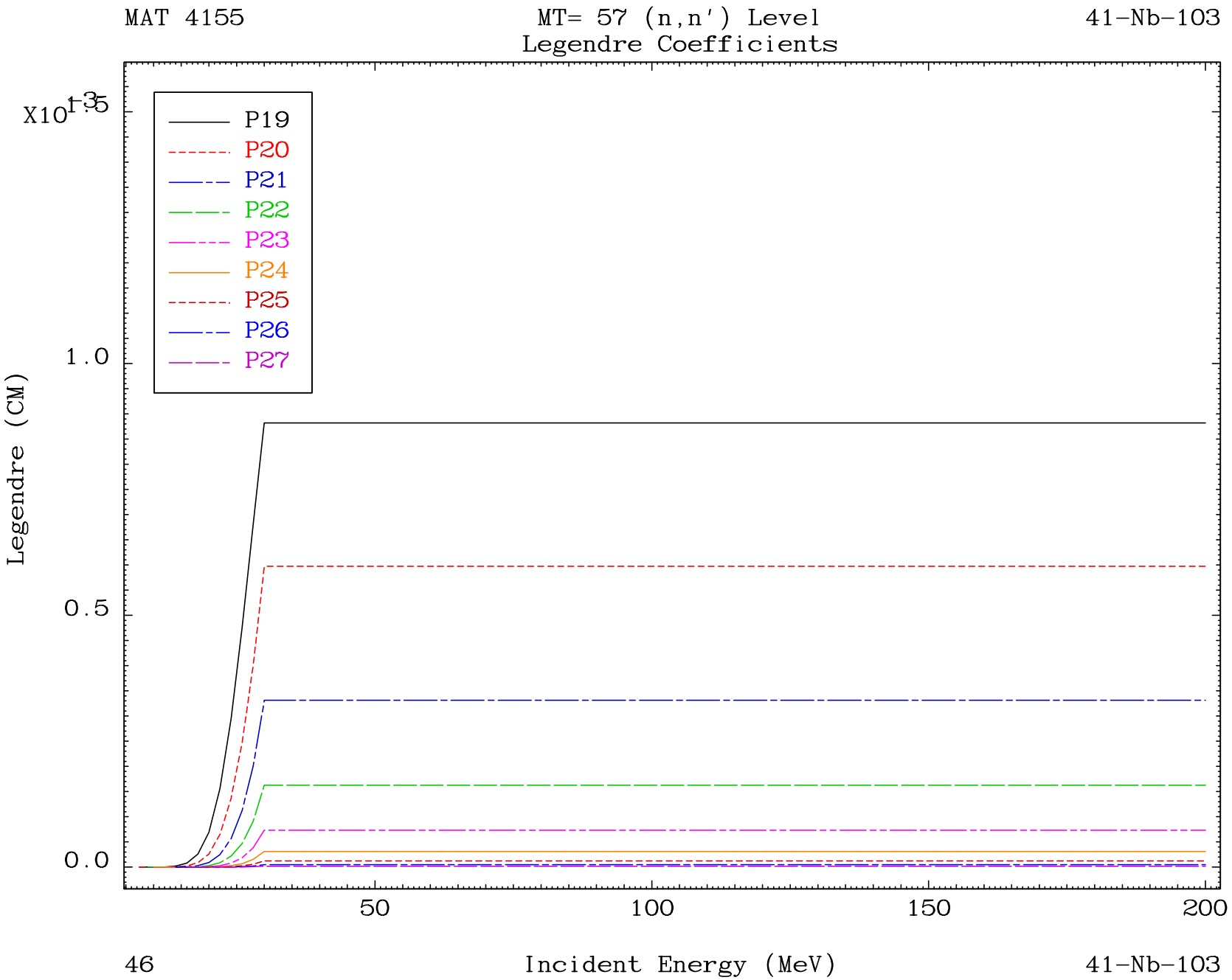

MAT 4155
MT= 56 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
Legendre (CM)
0
50
100
150
200
41
Incident Energy (MeV)
41-Nb-103

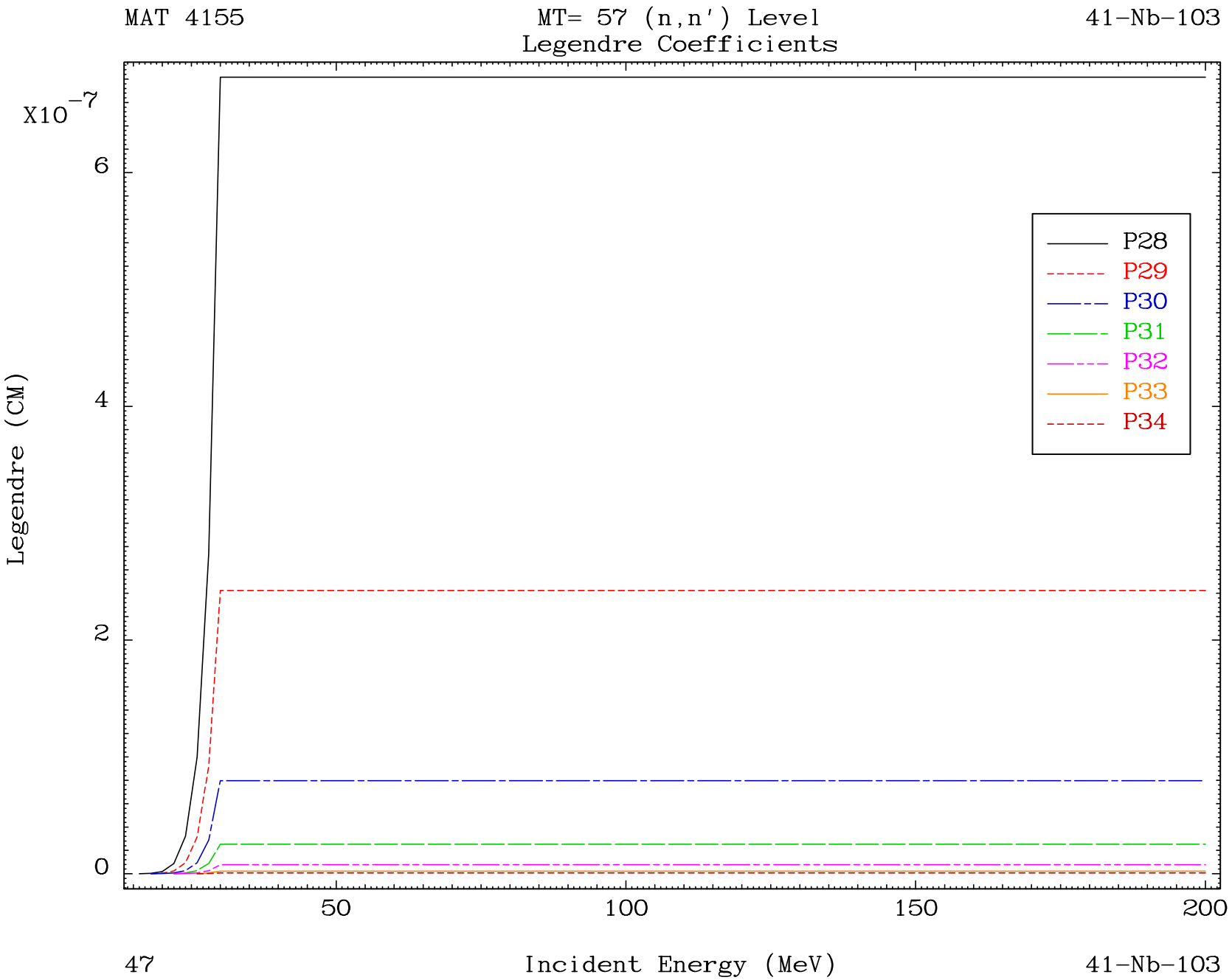

MAT 4155
MT= 56 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-3
1.5
1.0
0.5
0.0
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
42
Incident Energy (MeV)
41-Nb-103

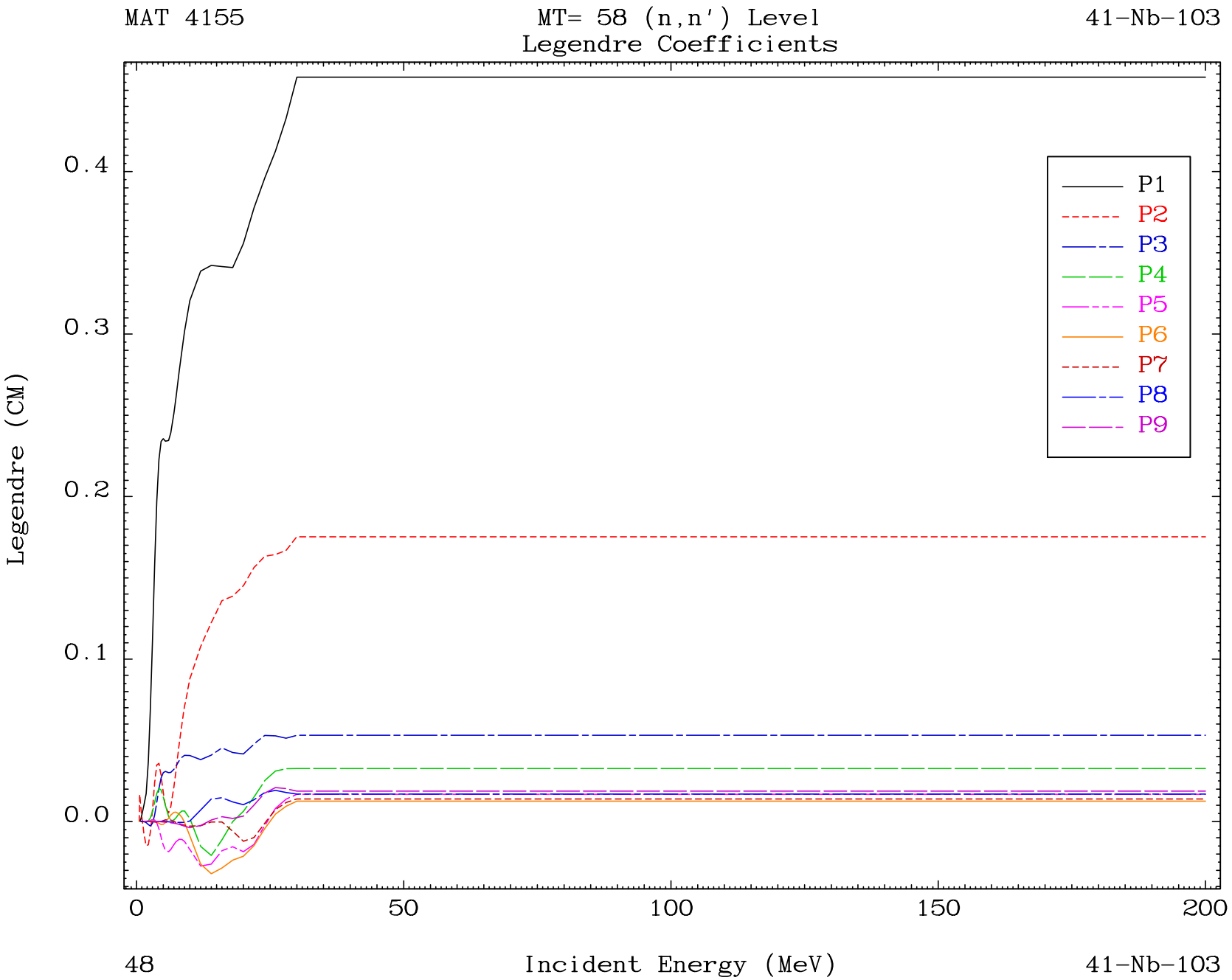

MAT 4155
MT= 56 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-7
6
4
2
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
43
Incident Energy (MeV)
41-Nb-103

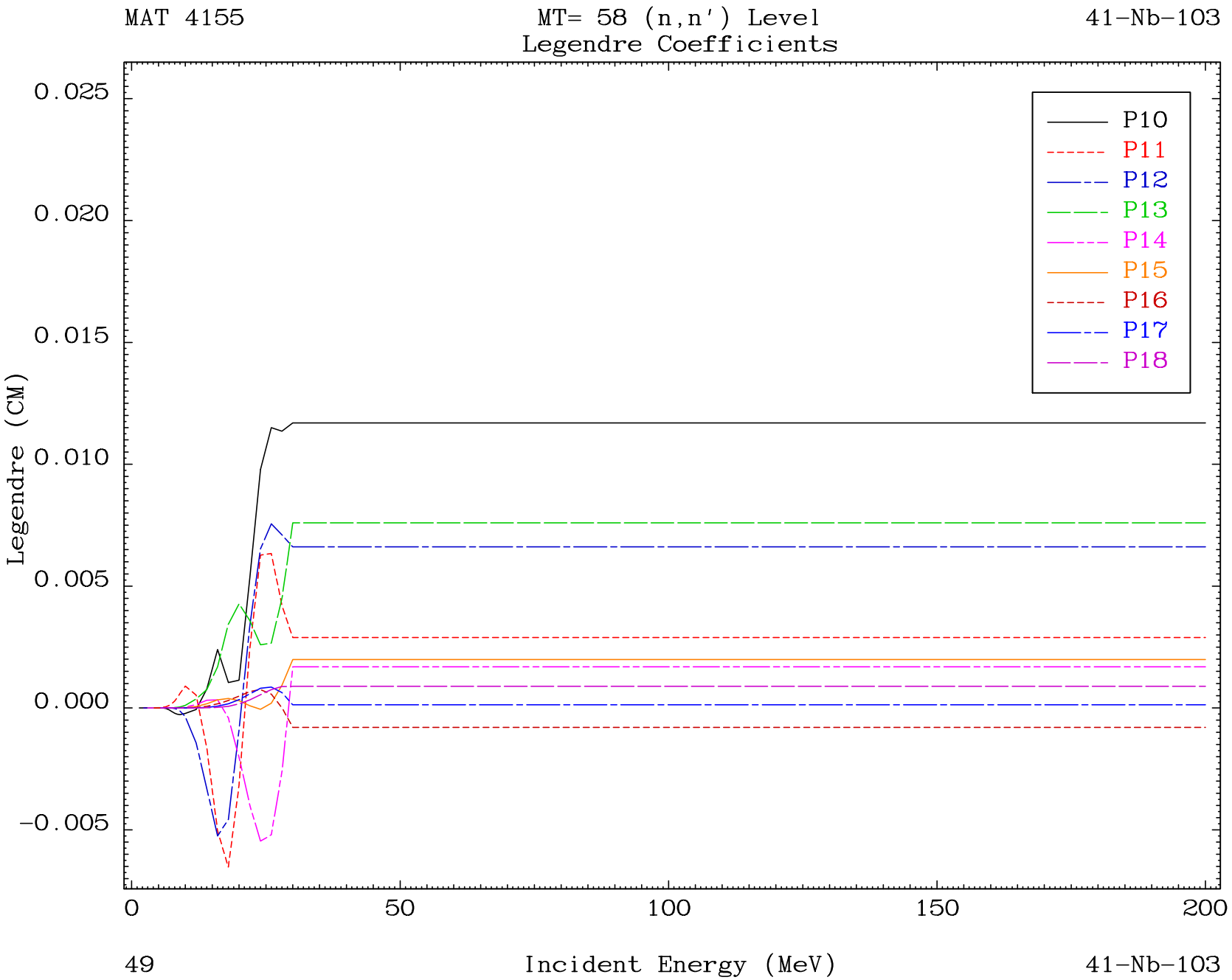

MAT 4155
MT= 57 (n,n') Level
Legendre Coefficients
41-Nb-103
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
P1
P2
P3
P4
P5
P6
P7
P8
P9
44
Incident Energy (MeV)
41-Nb-103

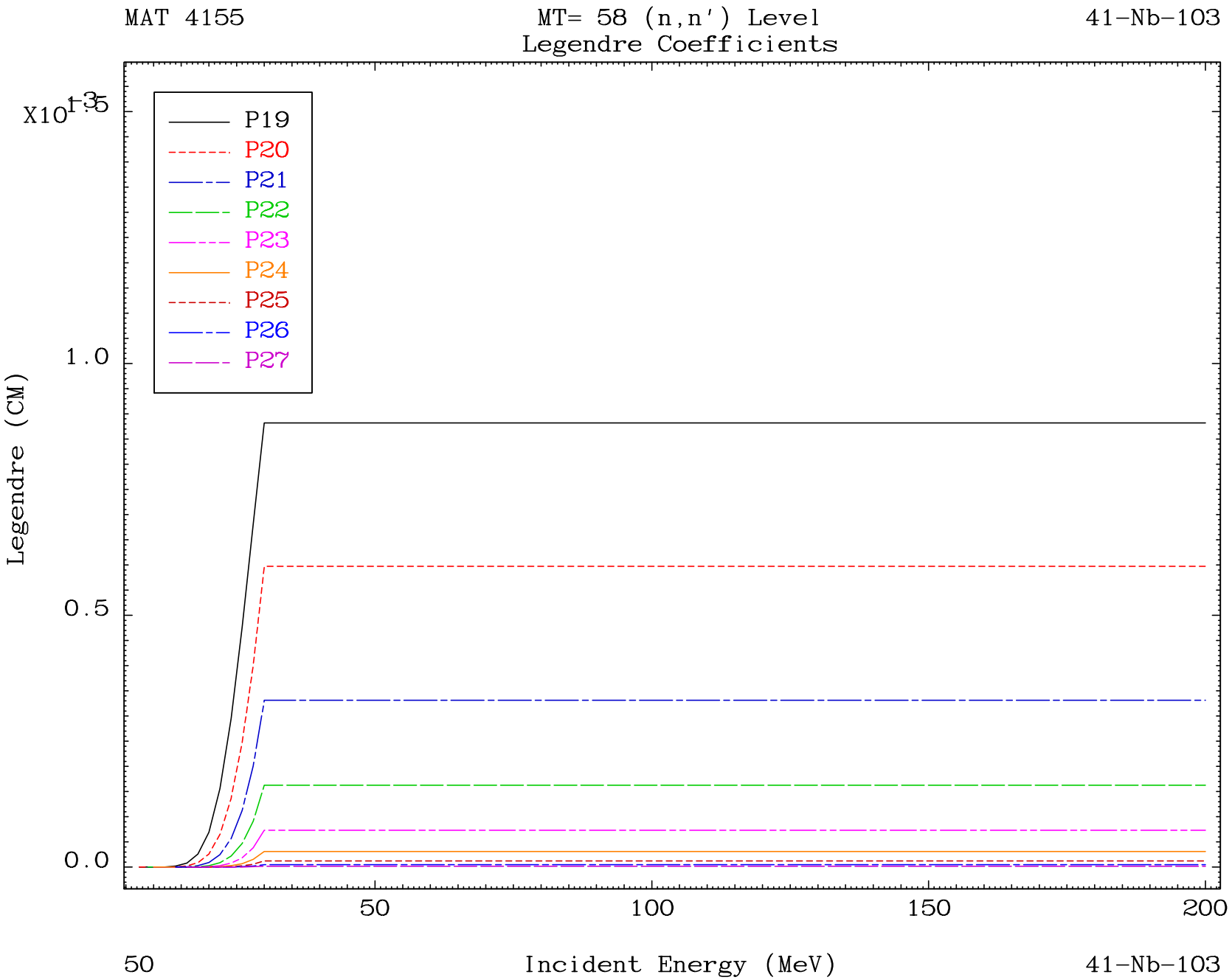

MAT 4155
MT= 57 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
Legendre (CM)
0
50
100
150
200
45
Incident Energy (MeV)
41-Nb-103

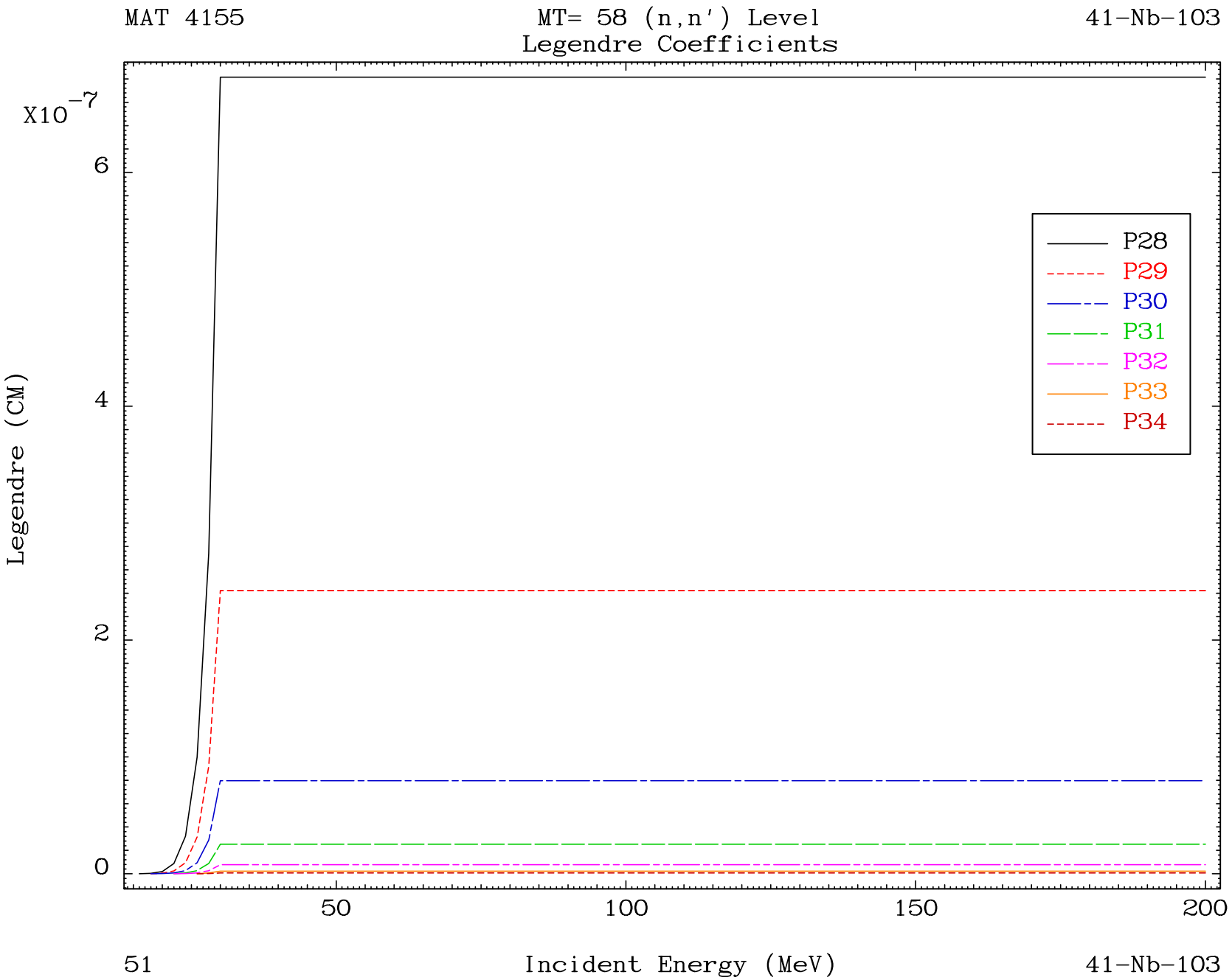

MAT 4155
MT= 57 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-3
1.5
1.0
0.5
0.0
P19
P20
P21
P22
P23
P24
P25
P26
P27
Legendre (CM)
50
100
150
200
46
Incident Energy (MeV)
41-Nb-103

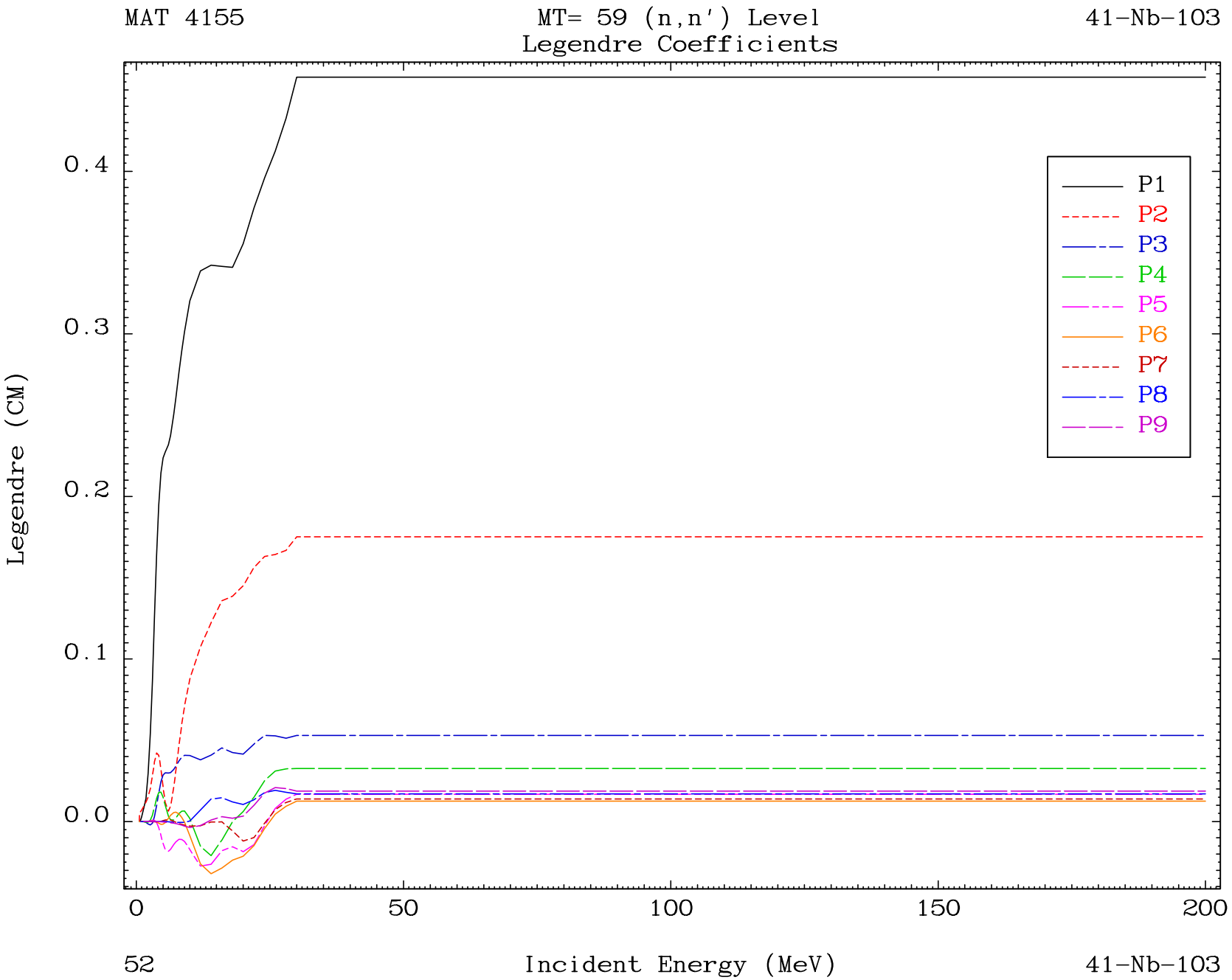

MAT 4155
MT= 57 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-7
6
4
2
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
47
Incident Energy (MeV)
41-Nb-103

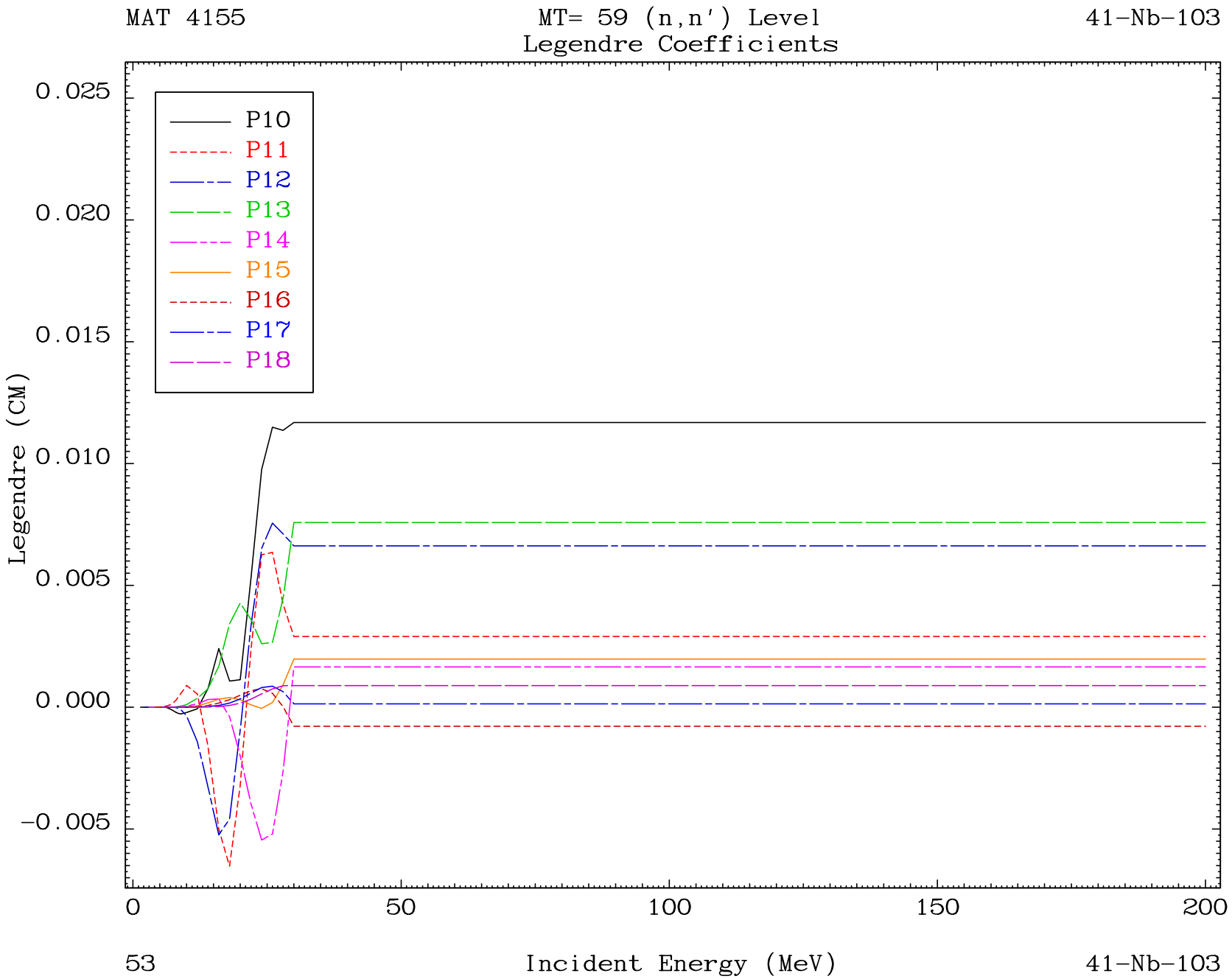

MAT 4155
MT= 58 (n,n') Level
Legendre Coefficients
41-Nb-103
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
48
Incident Energy (MeV)
41-Nb-103

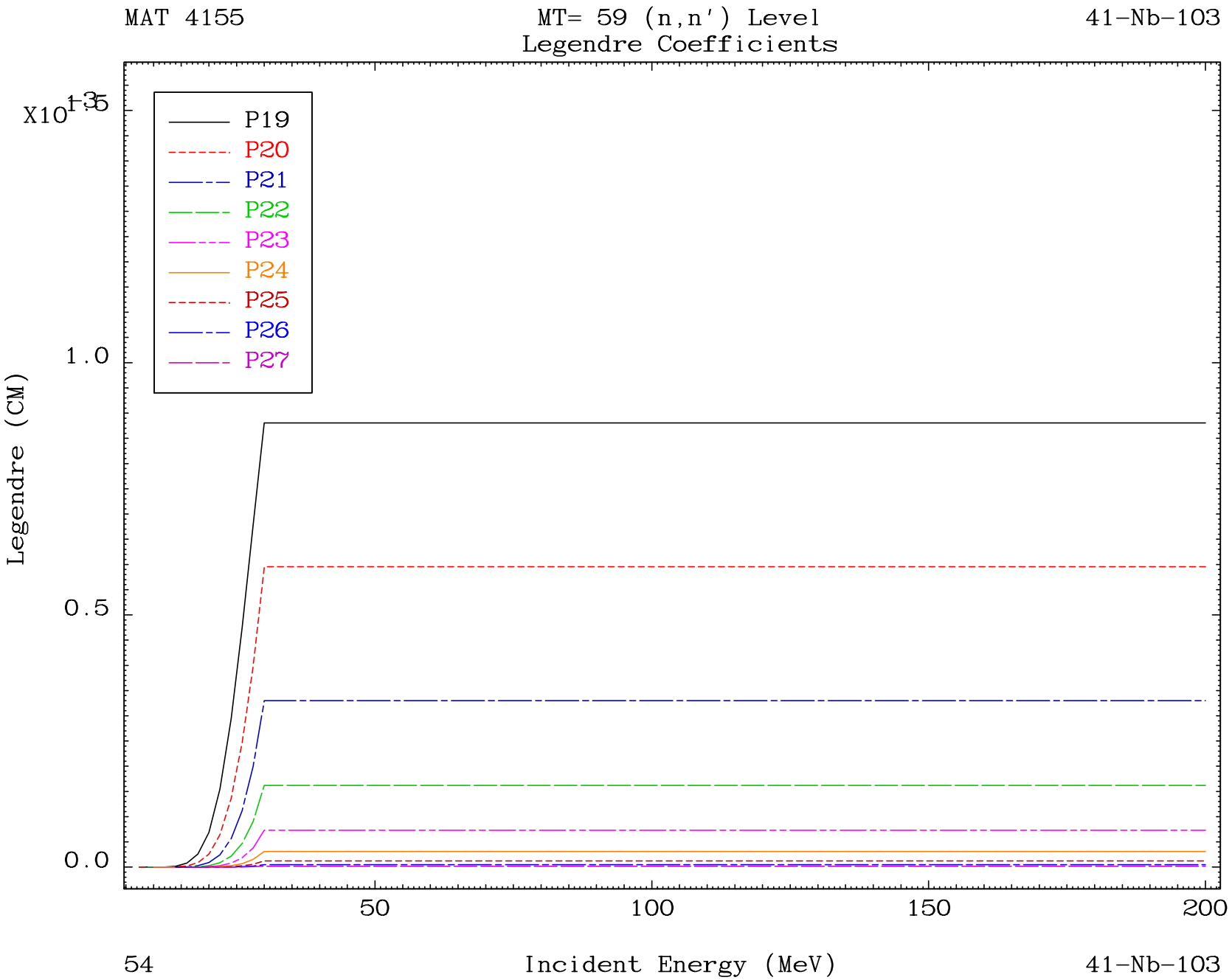

MAT 4155
MT= 58 (n,n') Level
Legendre Coefficients
41-Nb-103
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
49
Incident Energy (MeV)
41-Nb-103

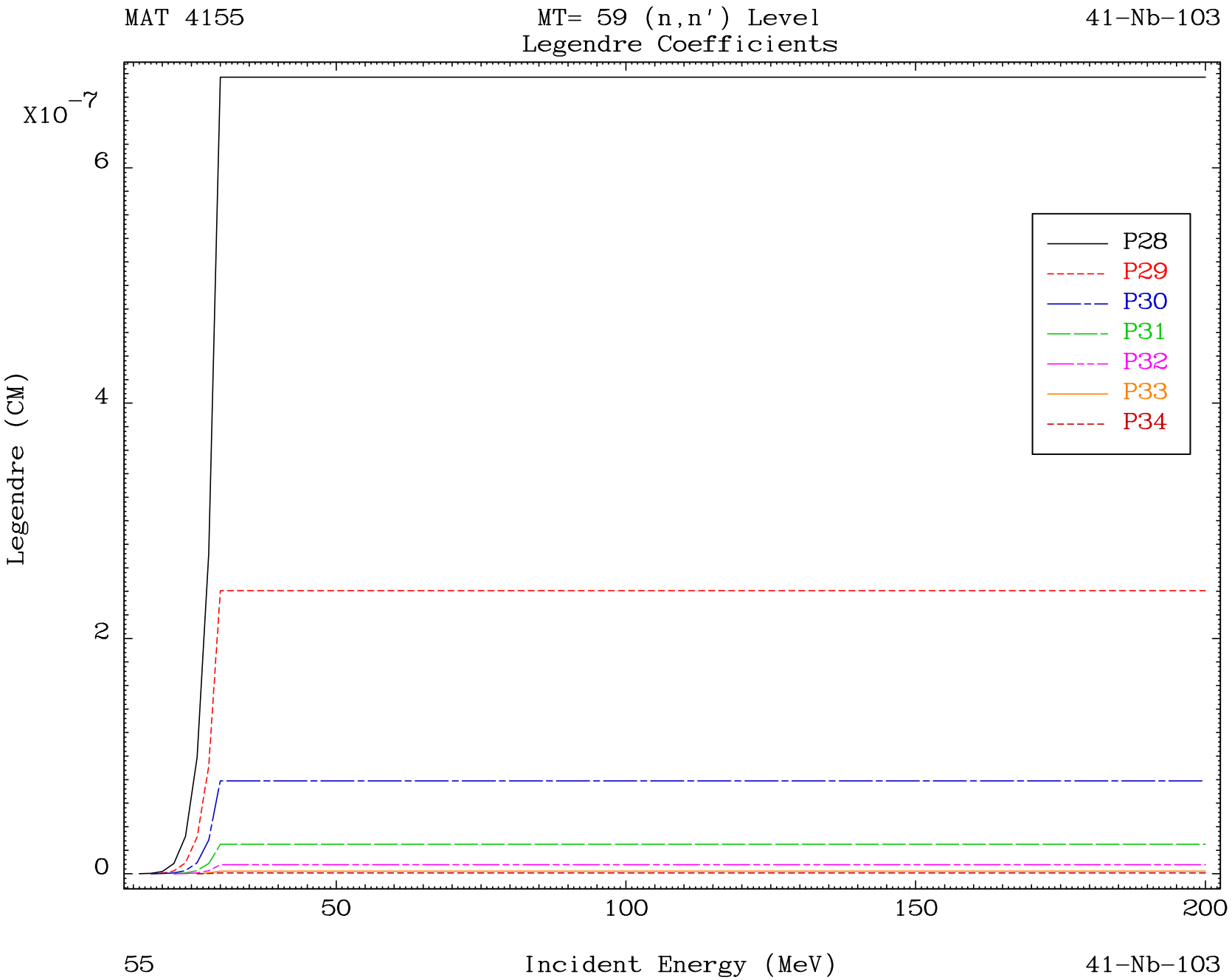

MAT 4155
MT= 58 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-3
P19
P20
P21
P22
P23
P24
P25
P26
P27
1.5
1.0
0.5
0.0
Legendre (CM)
50
100
150
200
50
Incident Energy (MeV)
41-Nb-103

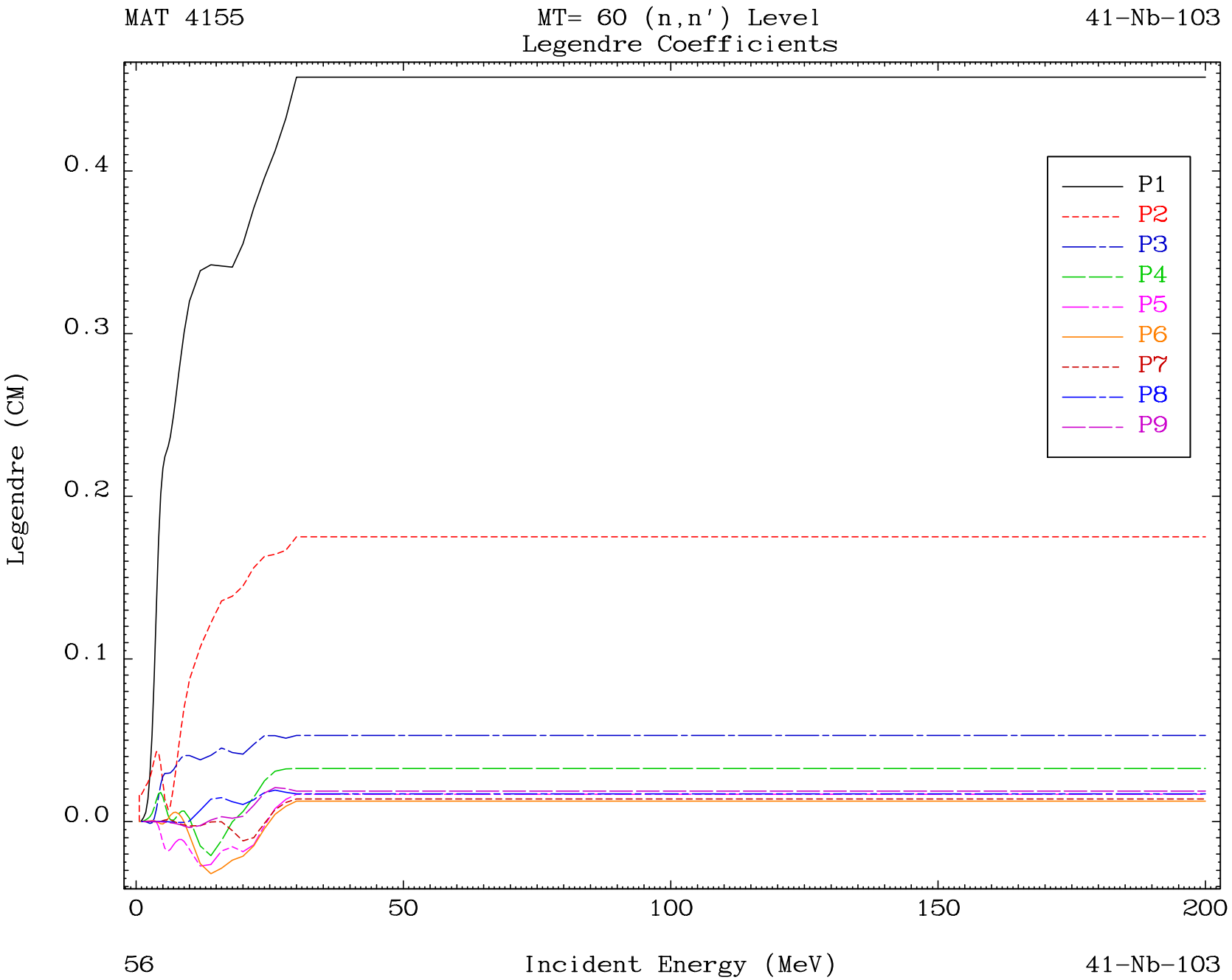

MAT 4155
MT= 58 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-7
6
4
2
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
51
Incident Energy (MeV)
41-Nb-103

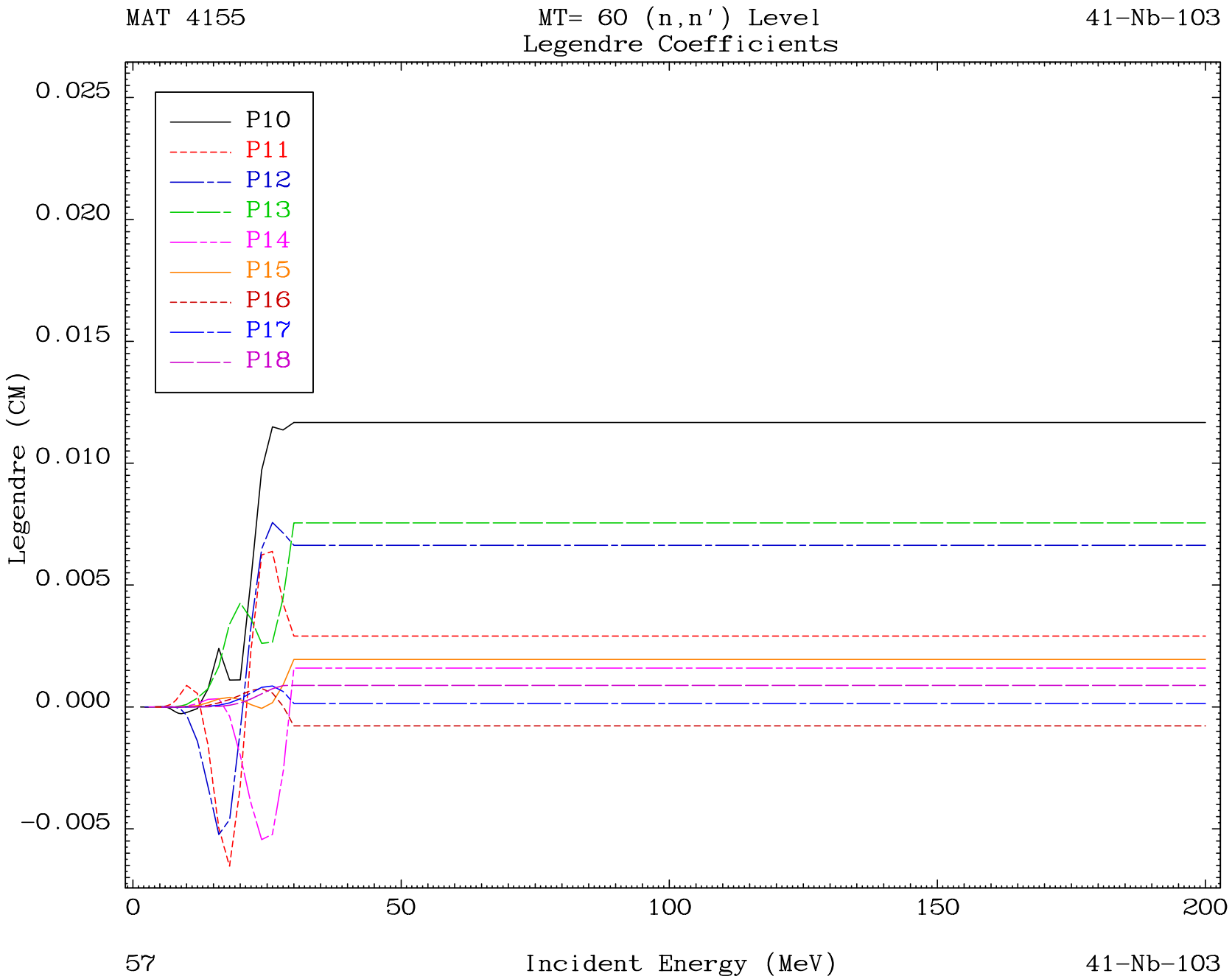

MAT 4155
MT= 59 (n,n') Level
Legendre Coefficients
41-Nb-103
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
P1
P2
P3
P4
P5
P6
P7
P8
P9
52
Incident Energy (MeV)
41-Nb-103

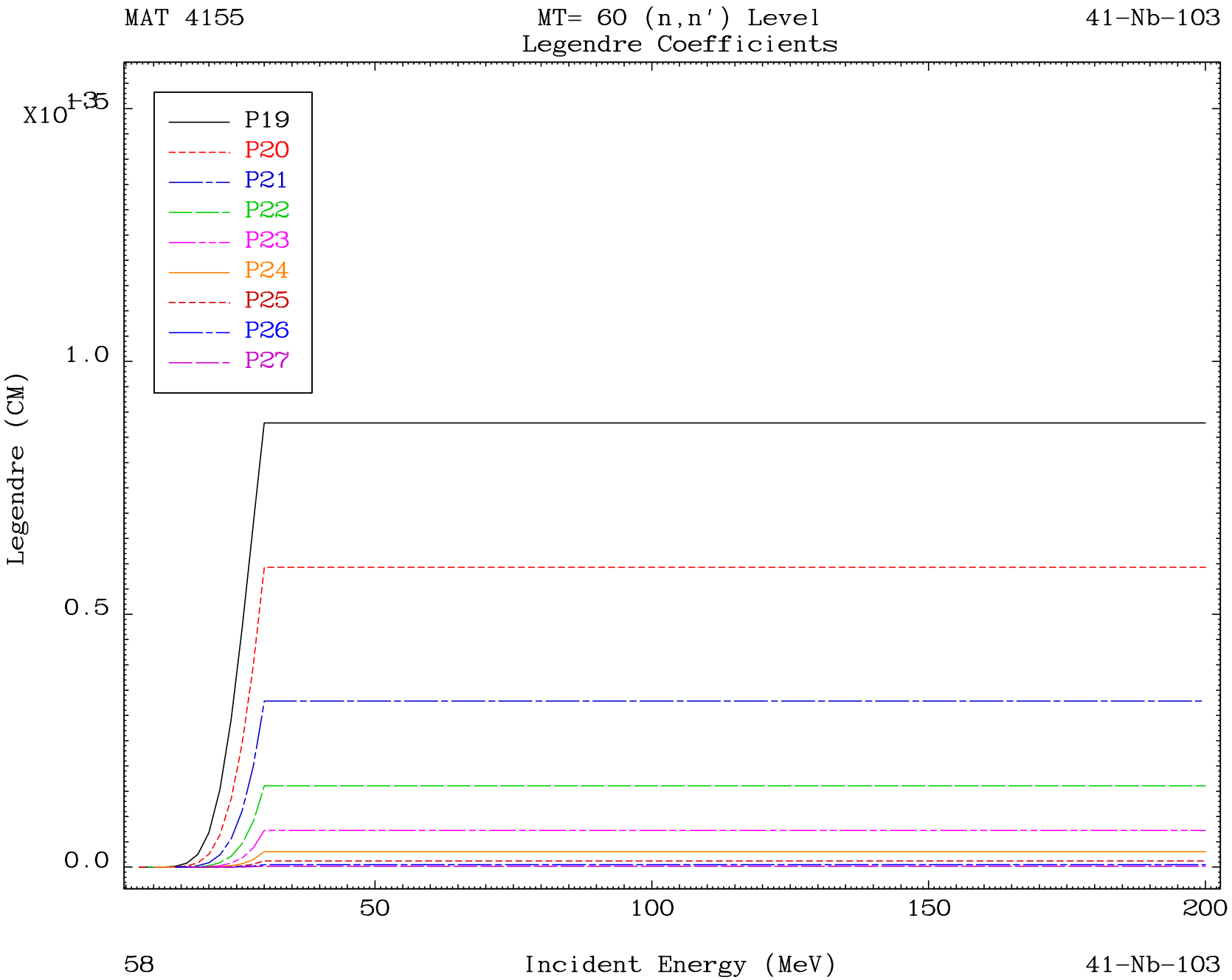

MAT 4155
MT= 59 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
Legendre (CM)
0
50
100
150
200
53
Incident Energy (MeV)
41-Nb-103

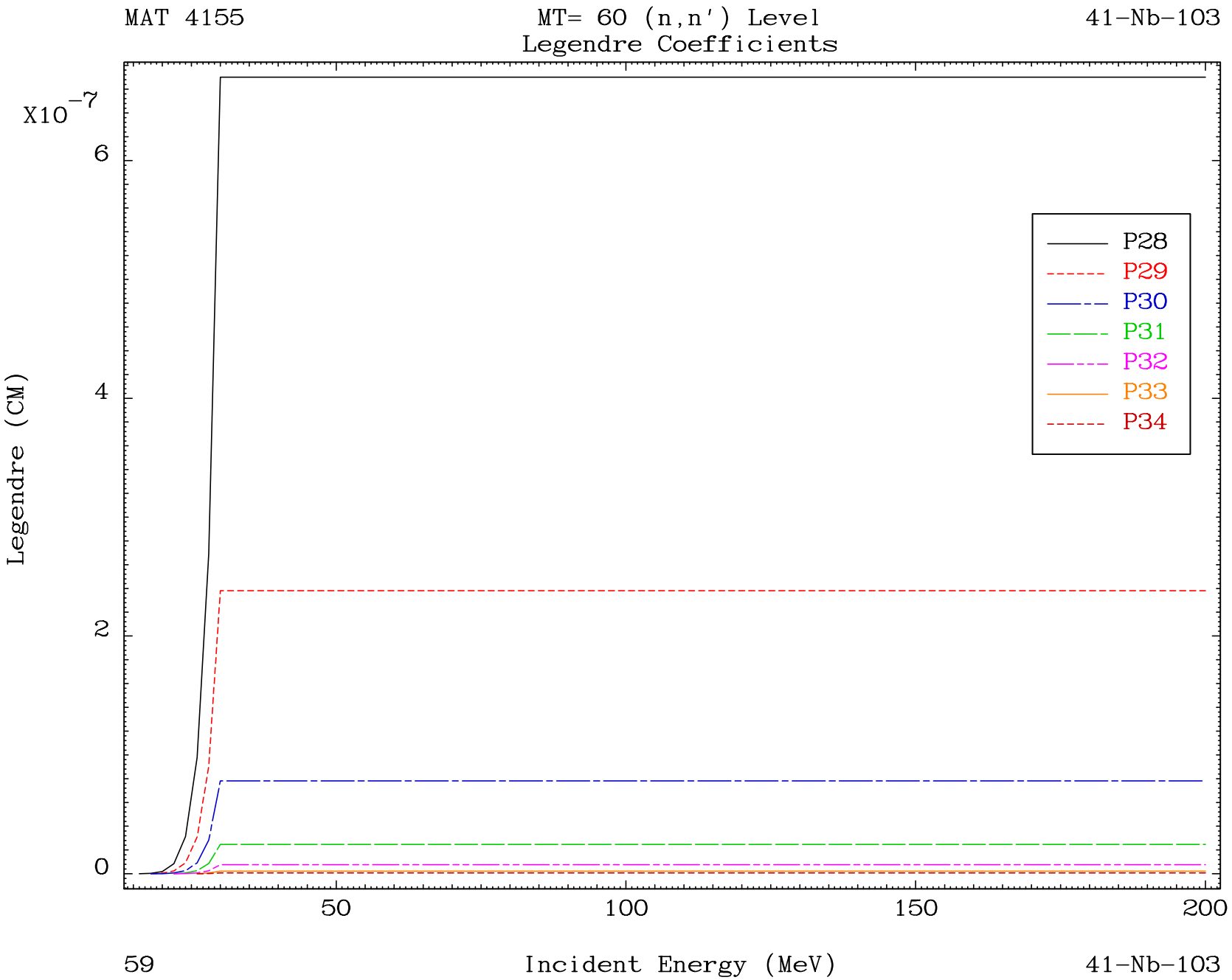

MAT 4155
MT= 59 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-35
P19
P20
P21
P22
P23
P24
P25
P26
P27
1.0
0.5
0.0
Legendre (CM)
50
100
150
200
54
Incident Energy (MeV)
41-Nb-103

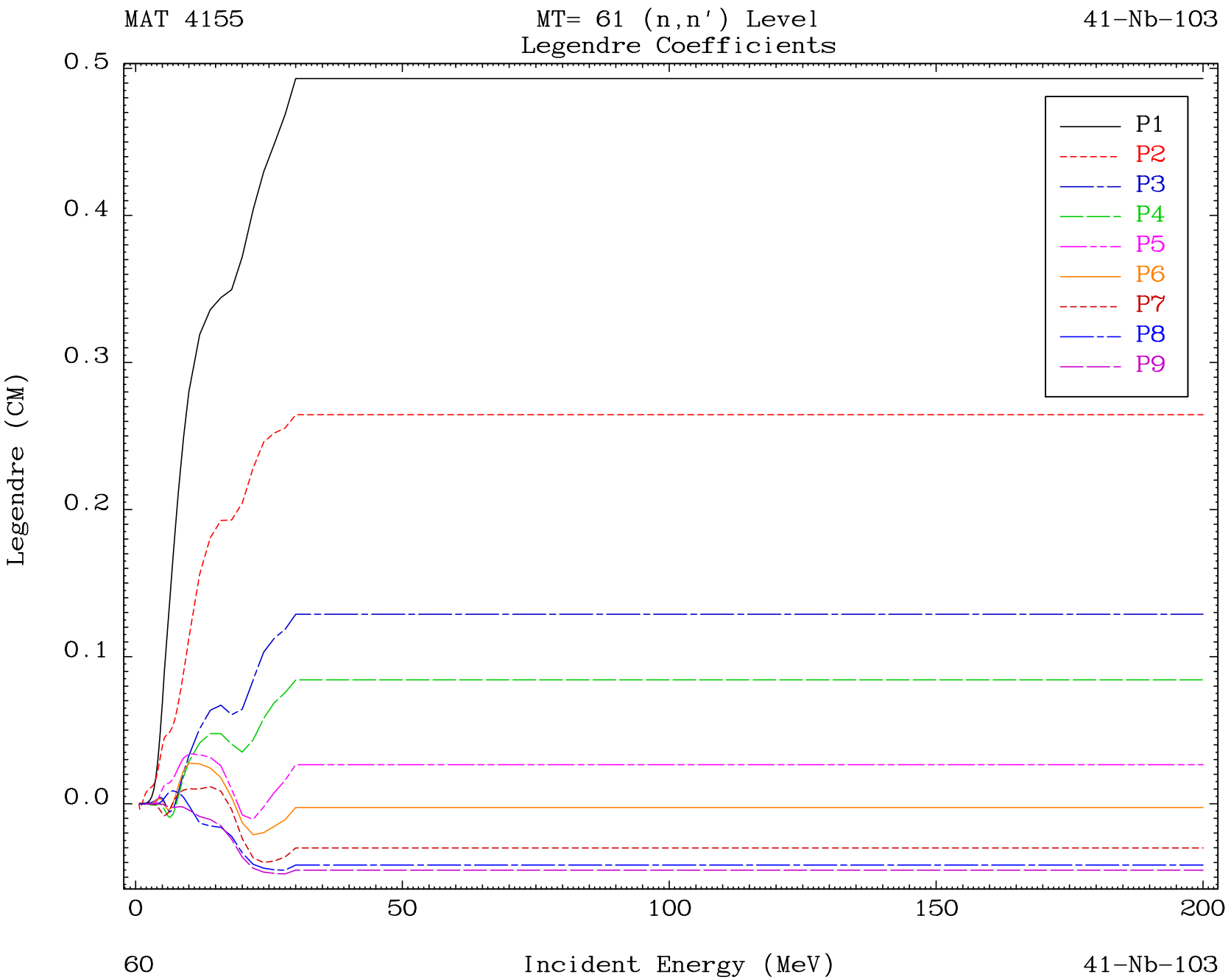

MAT 4155
MT= 59 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-7
6
4
2
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
55
Incident Energy (MeV)
41-Nb-103

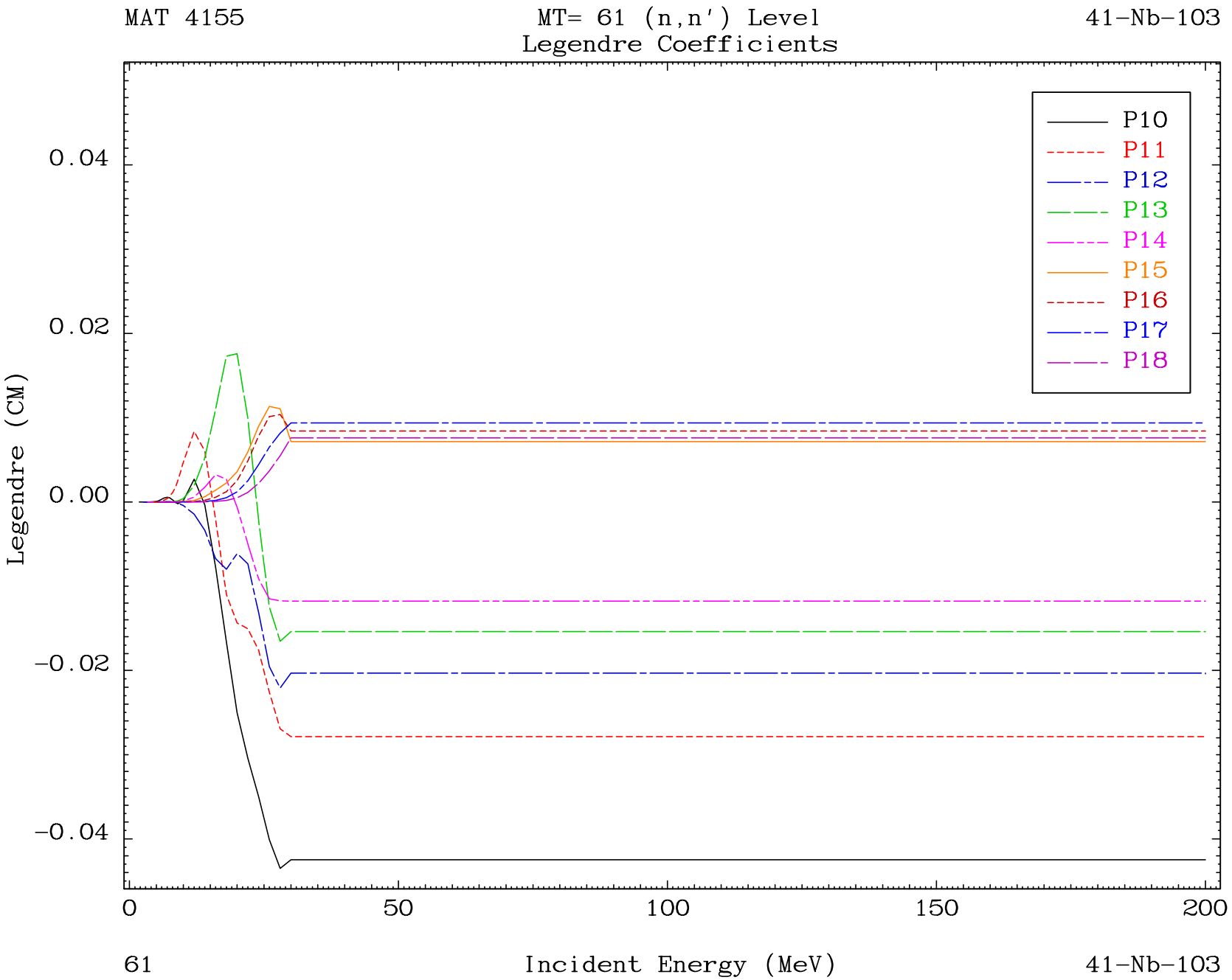

MAT 4155
MT= 60 (n,n') Level
Legendre Coefficients
41-Nb-103
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
P1
P2
P3
P4
P5
P6
P7
P8
P9
56
Incident Energy (MeV)
41-Nb-103

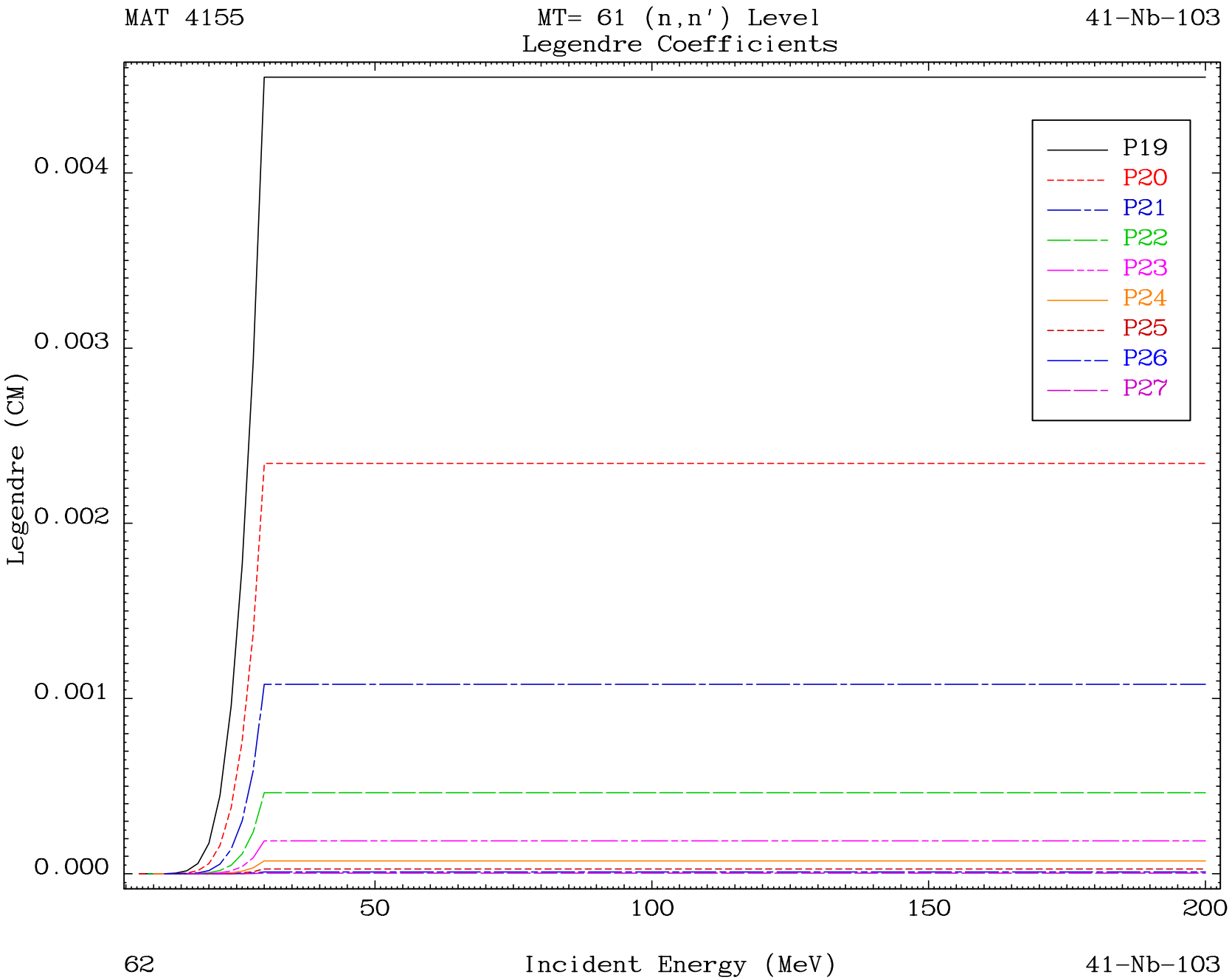

MAT 4155
MT= 60 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
Legendre (CM)
0
50
100
150
200
57
Incident Energy (MeV)
41-Nb-103

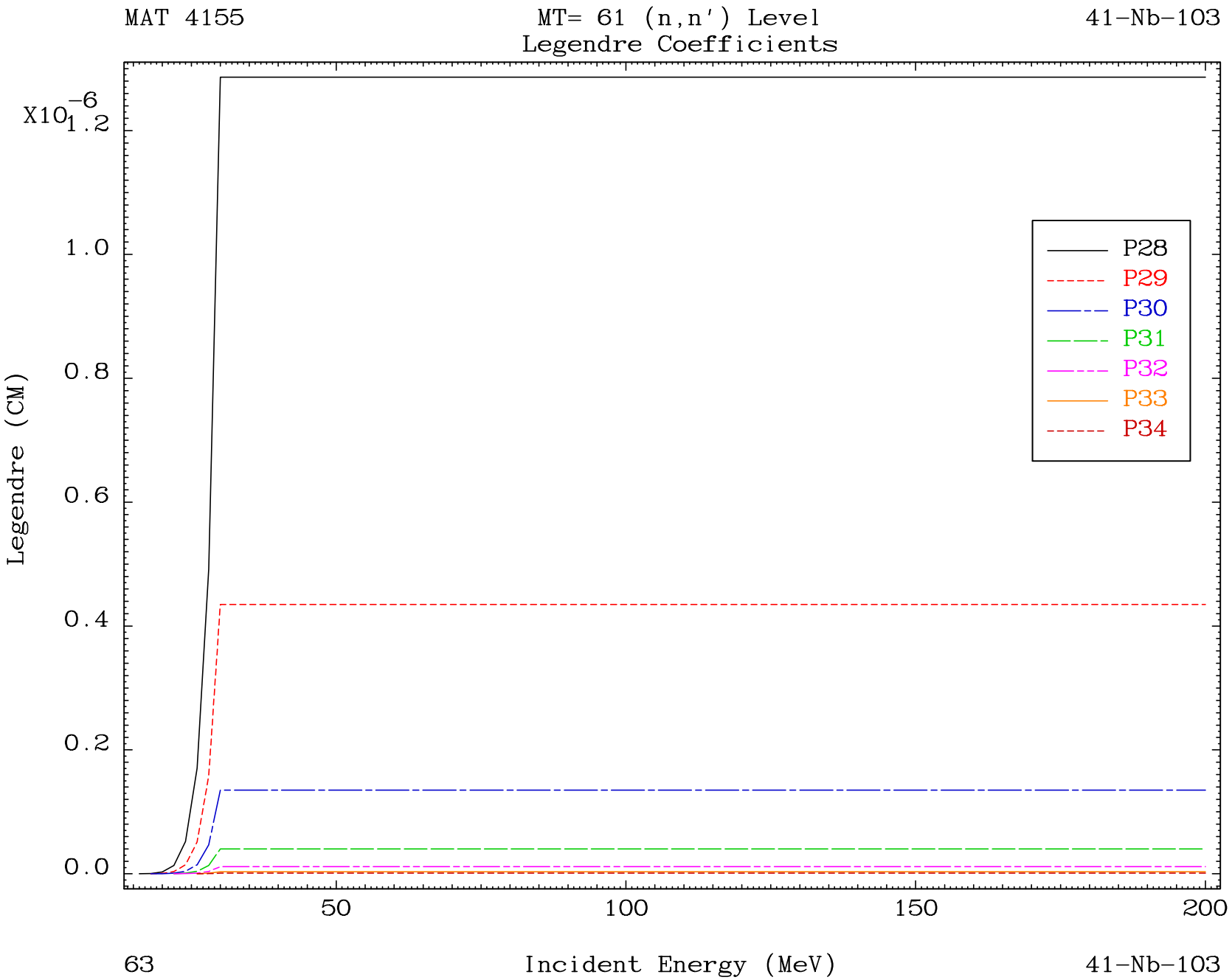

MAT 4155
MT= 60 (n,n') Level
Legendre Coefficients
41-Nb-103
X10+35
P19
P20
P21
P22
P23
P24
P25
P26
P27
1.0
0.5
0.0
Legendre (CM)
50
100
150
200
58
Incident Energy (MeV)
41-Nb-103

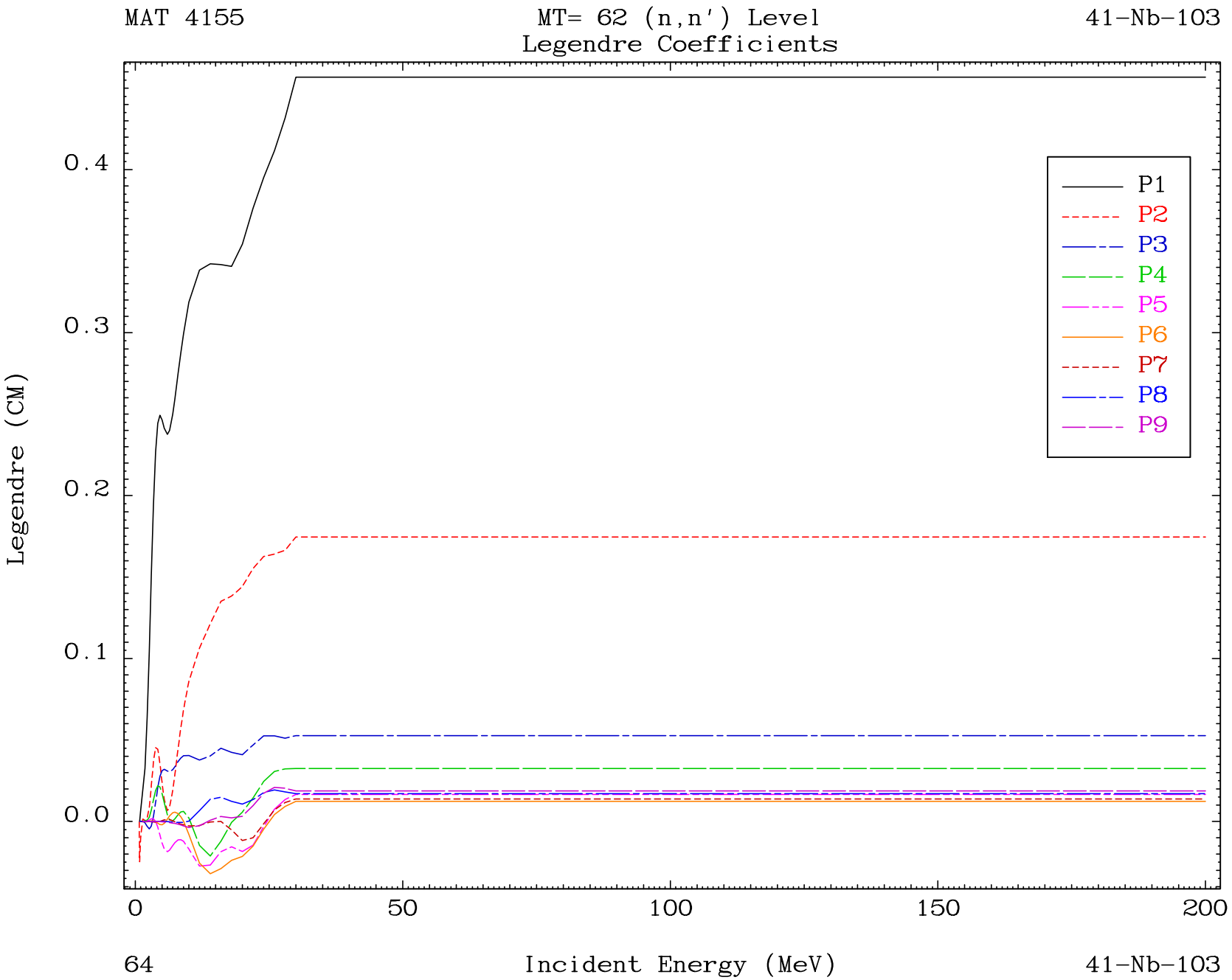

MAT 4155
MT= 60 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-7
6
4
2
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
59
Incident Energy (MeV)
41-Nb-103

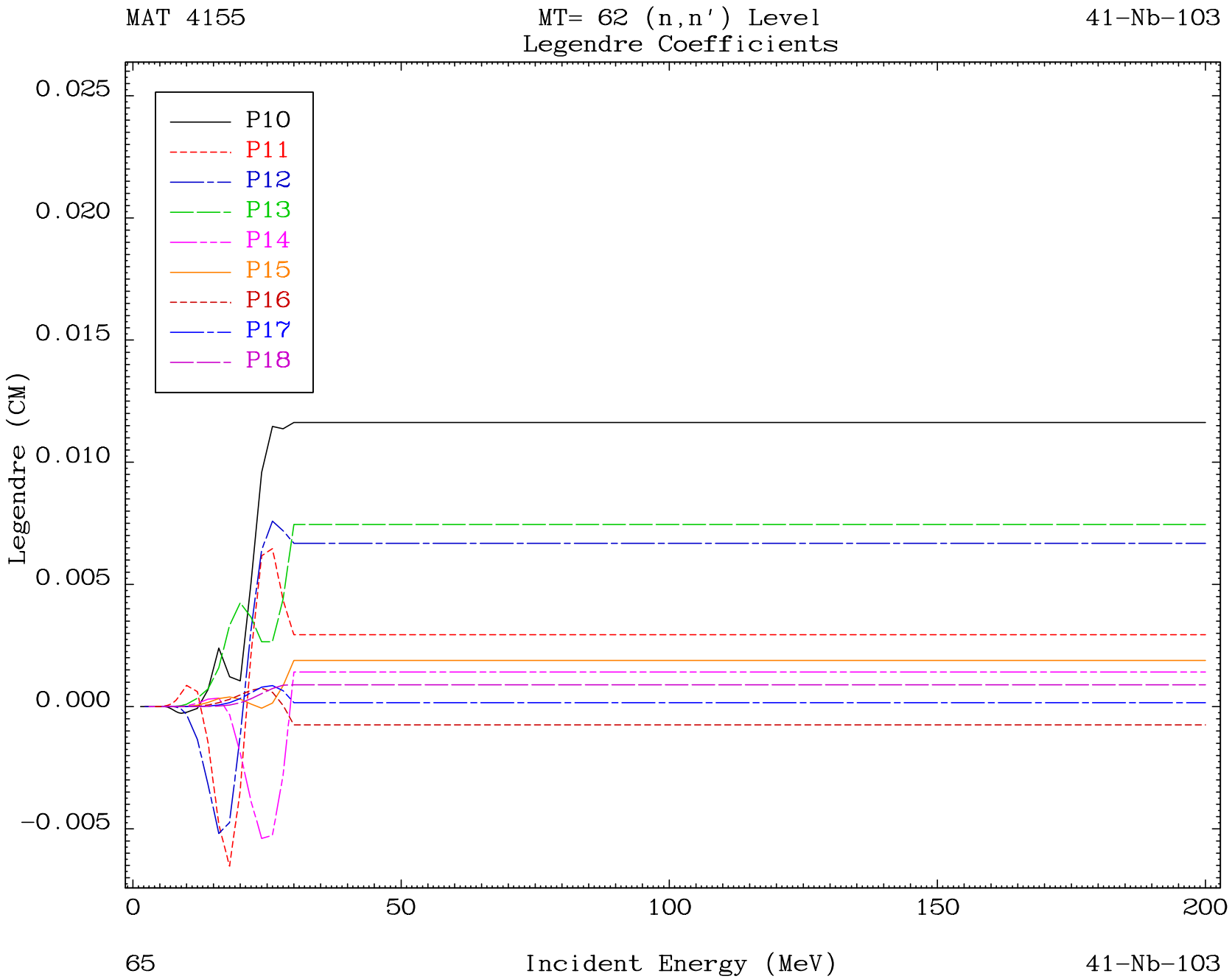

MAT 4155
MT= 61 (n,n') Level
Legendre Coefficients
41-Nb-103
0.5
0.4
0.3
0.2
0.1
0.0
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
60
Incident Energy (MeV)
41-Nb-103

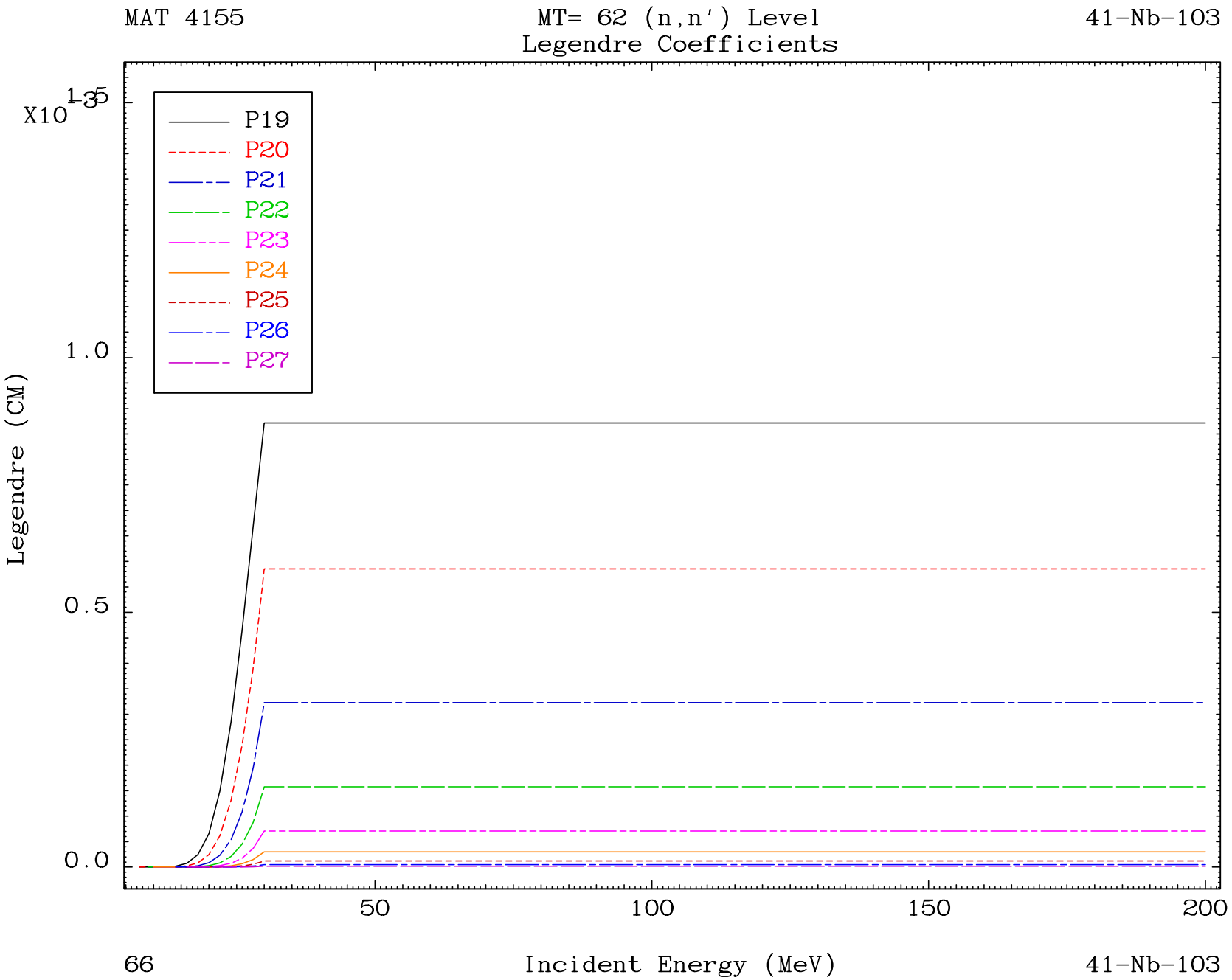

MAT 4155
MT= 61 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
61
Incident Energy (MeV)
41-Nb-103

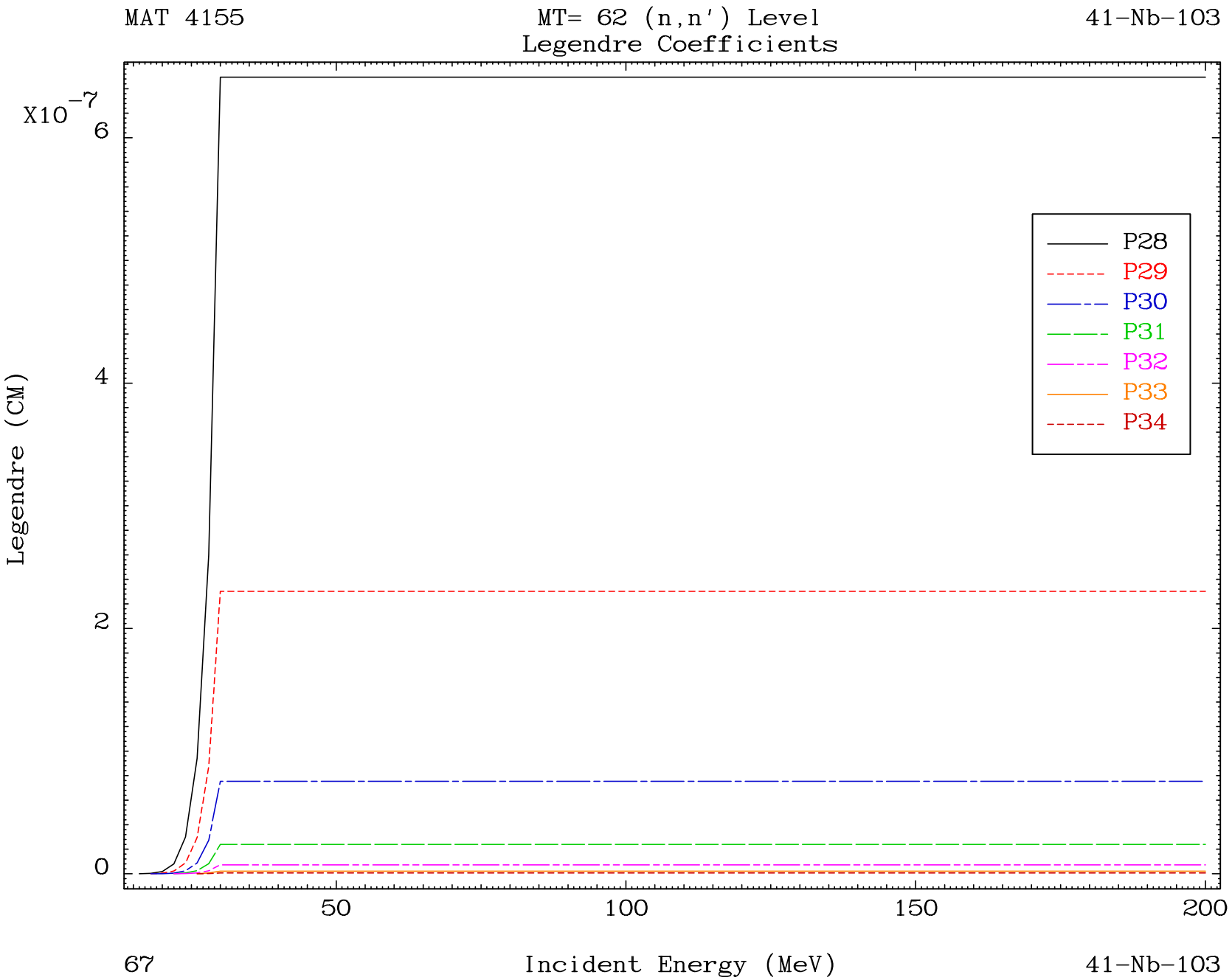

MAT 4155
MT= 61 (n,n') Level
Legendre Coefficients
41-Nb-103
P19
P20
P21
P22
P23
P24
P25
P26
P27
0.004
0.003
0.002
0.001
0.000
Legendre (CM)
50
100
150
200
62
Incident Energy (MeV)
41-Nb-103

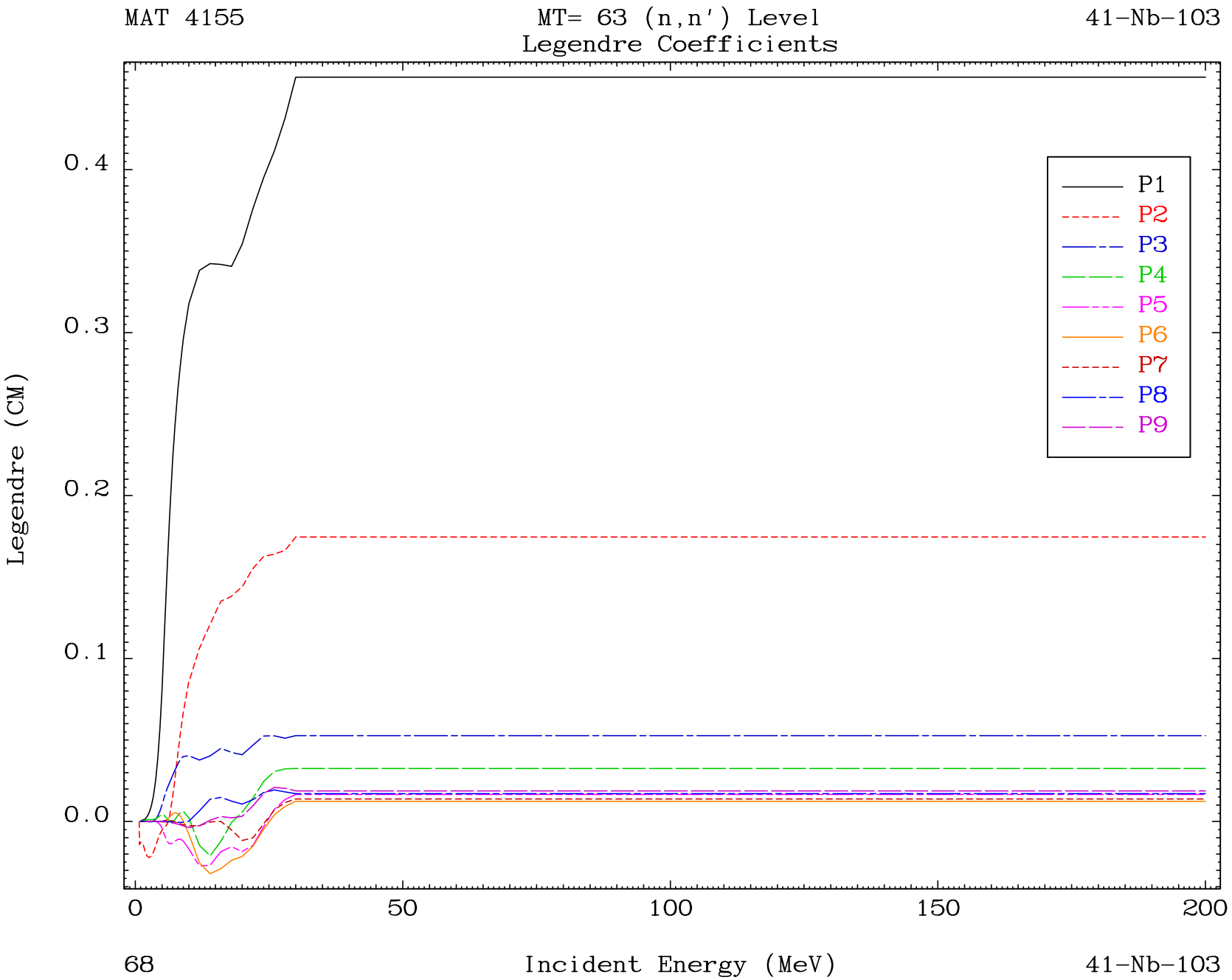

MAT 4155
MT= 61 (n,n') Level
Legendre Coefficients
41-Nb-103
X10^-6
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
63
Incident Energy (MeV)
41-Nb-103

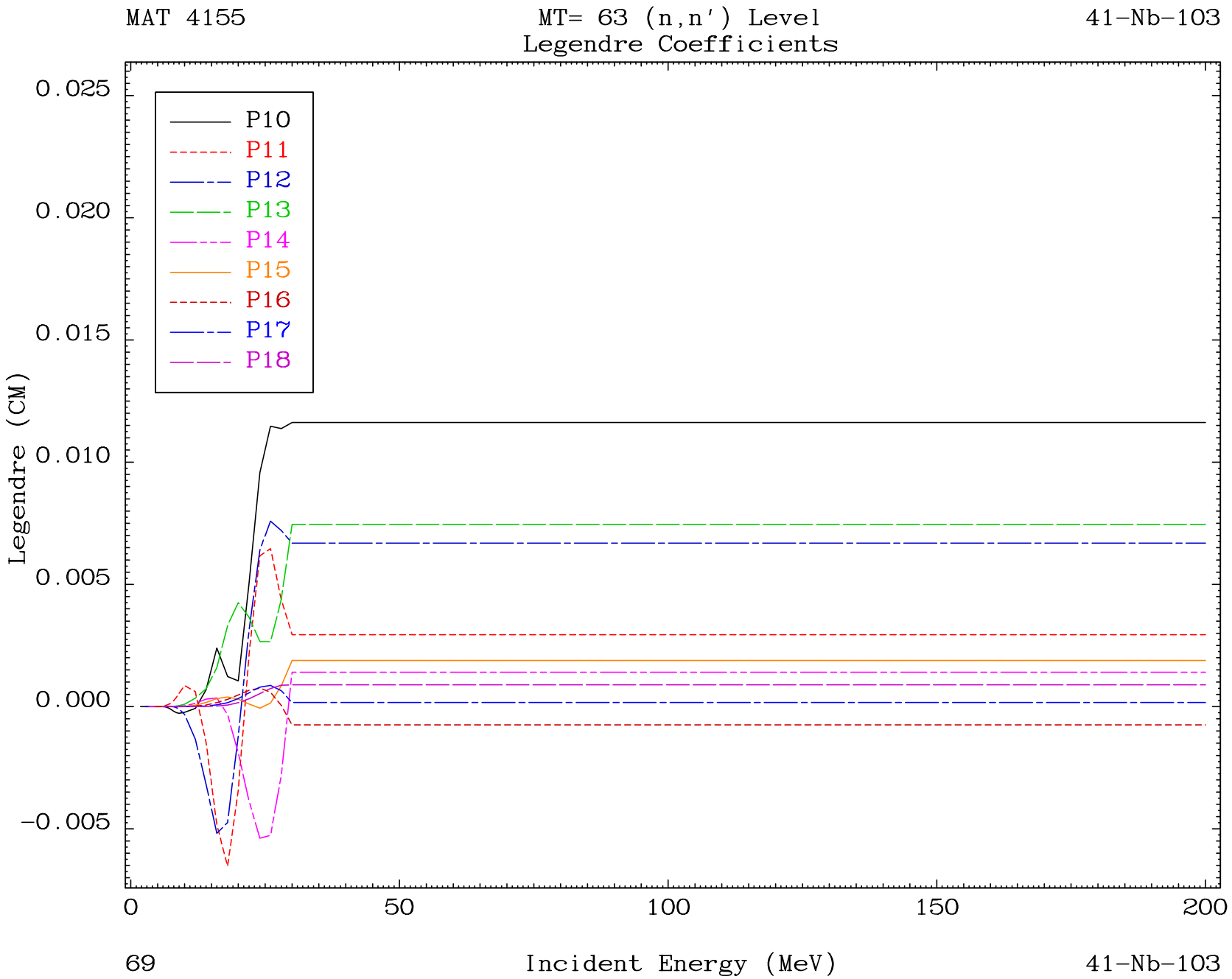

MAT 4155
MT= 62 (n,n') Level
Legendre Coefficients
41-Nb-103
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
P1
P2
P3
P4
P5
P6
P7
P8
P9
64
Incident Energy (MeV)
41-Nb-103

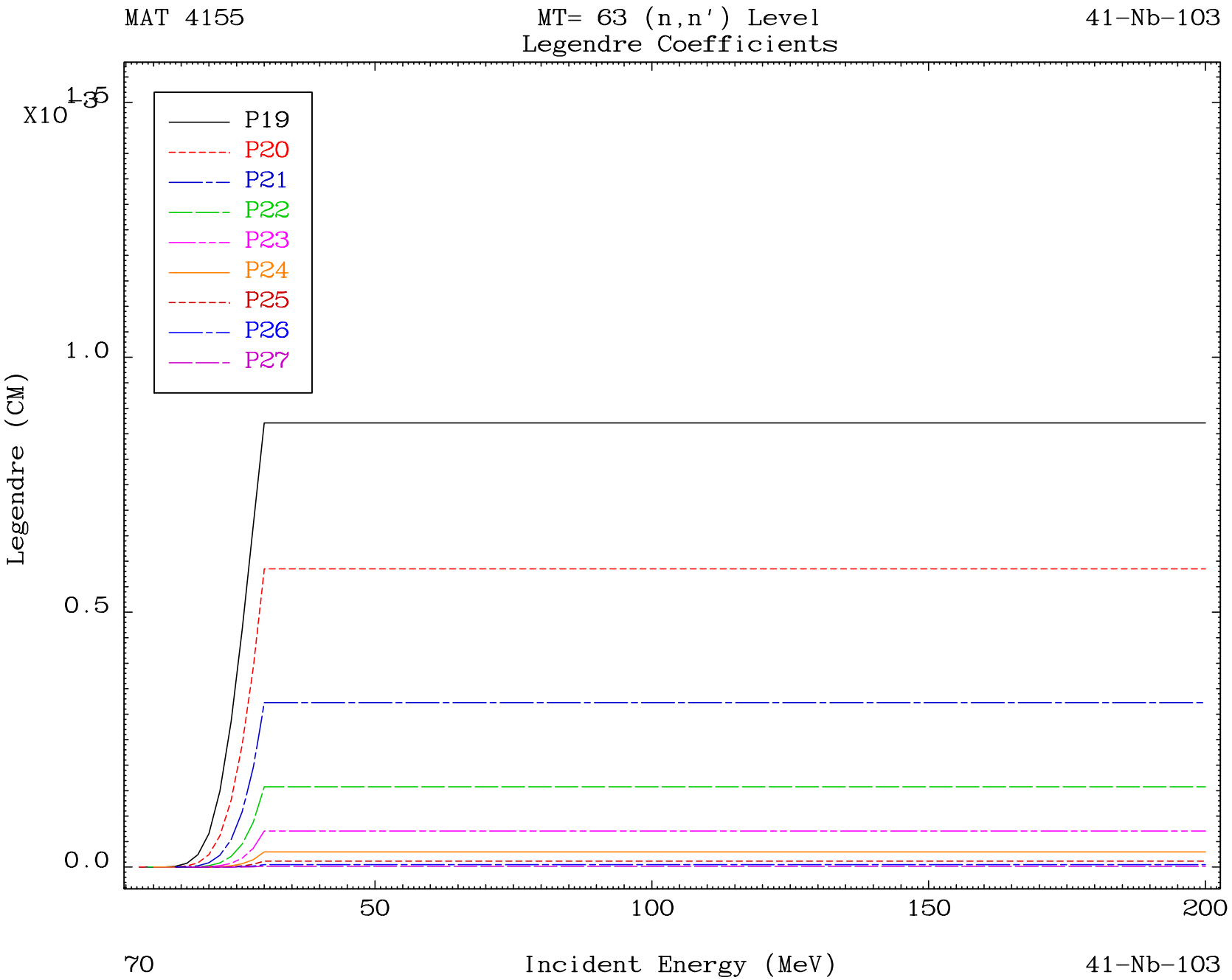

MAT 4155
MT= 62 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
Legendre (CM)
0
50
100
150
200
65
Incident Energy (MeV)
41-Nb-103

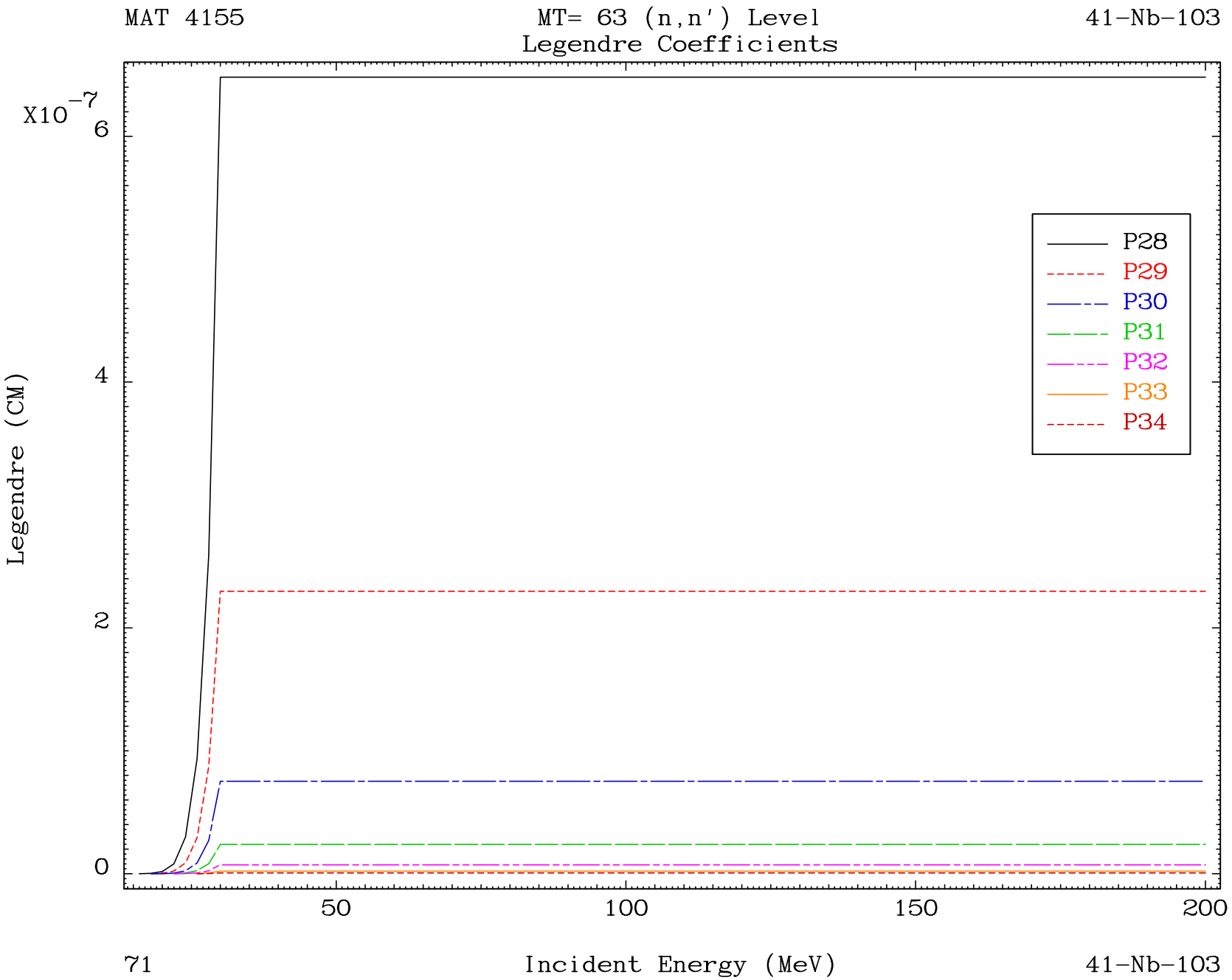

MAT 4155
MT= 62 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-3
1.5
1.0
0.5
0.0
P19
P20
P21
P22
P23
P24
P25
P26
P27
Legendre (CM)
50
100
150
200
66
Incident Energy (MeV)
41-Nb-103

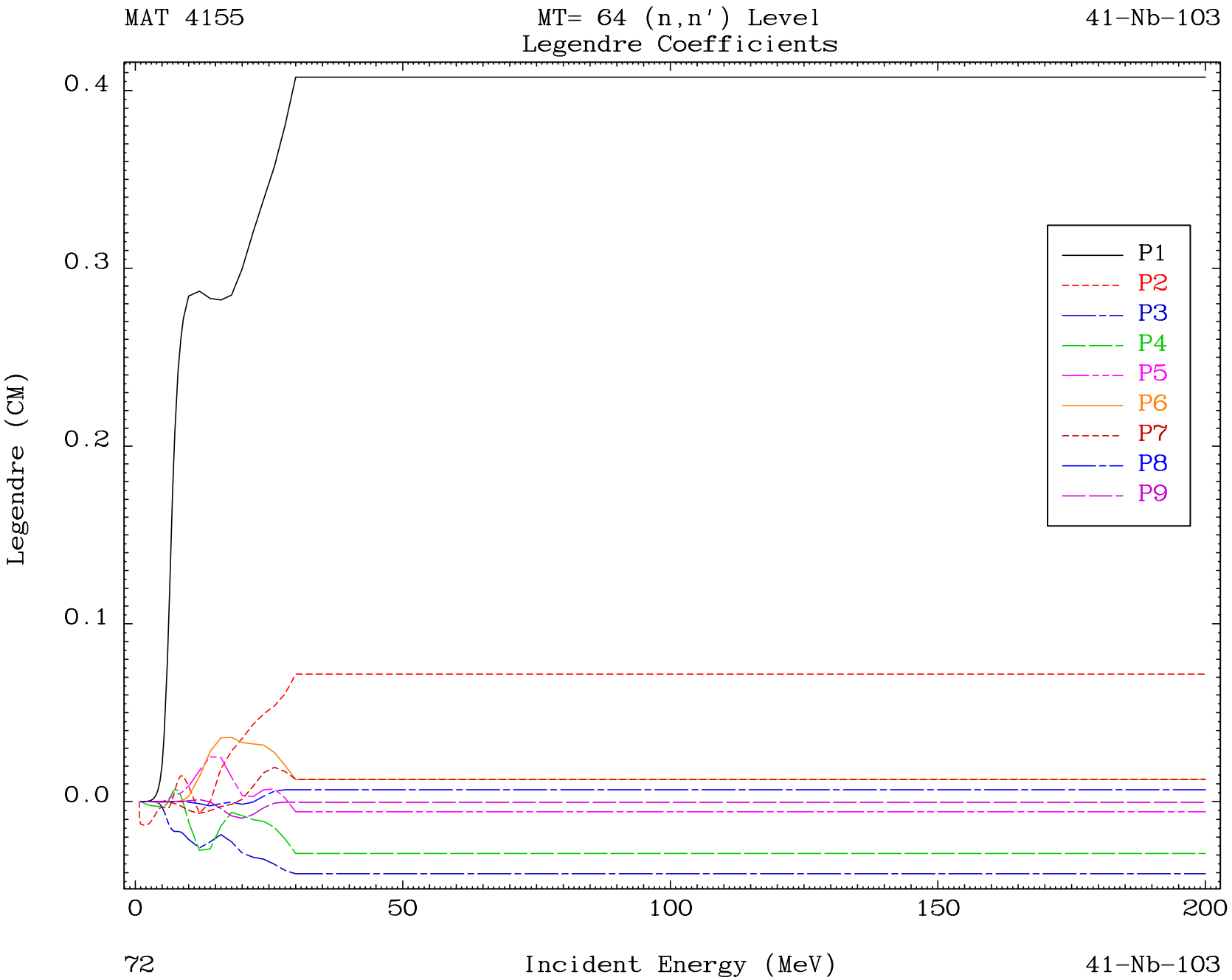

MAT 4155
MT= 62 (n,n') Level
Legendre Coefficients
41-Nb-103
X10^-7
6
4
2
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
67
Incident Energy (MeV)
41-Nb-103

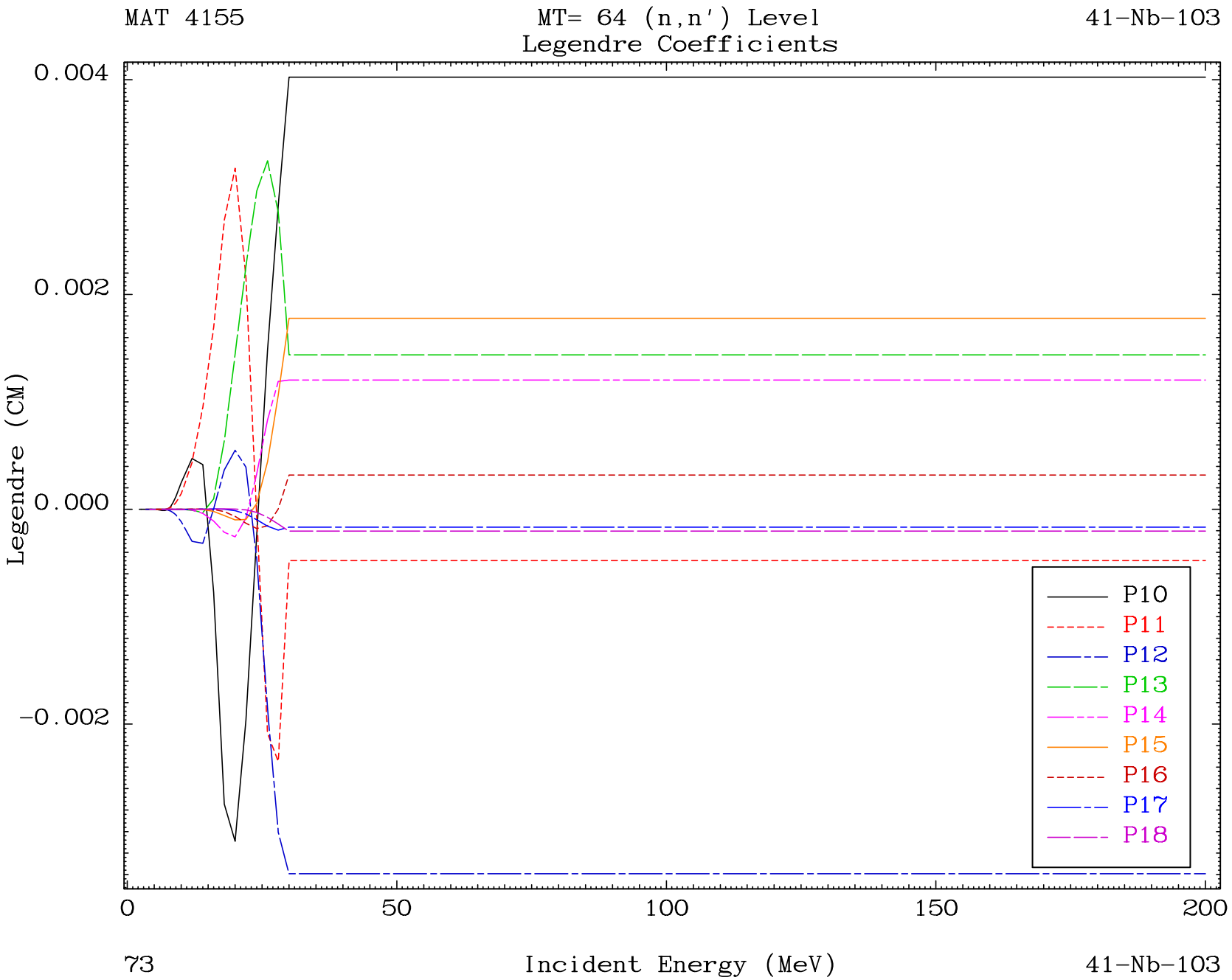

MAT 4155
MT= 63 (n,n') Level
Legendre Coefficients
41-Nb-103
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
P1
P2
P3
P4
P5
P6
P7
P8
P9
68
Incident Energy (MeV)
41-Nb-103

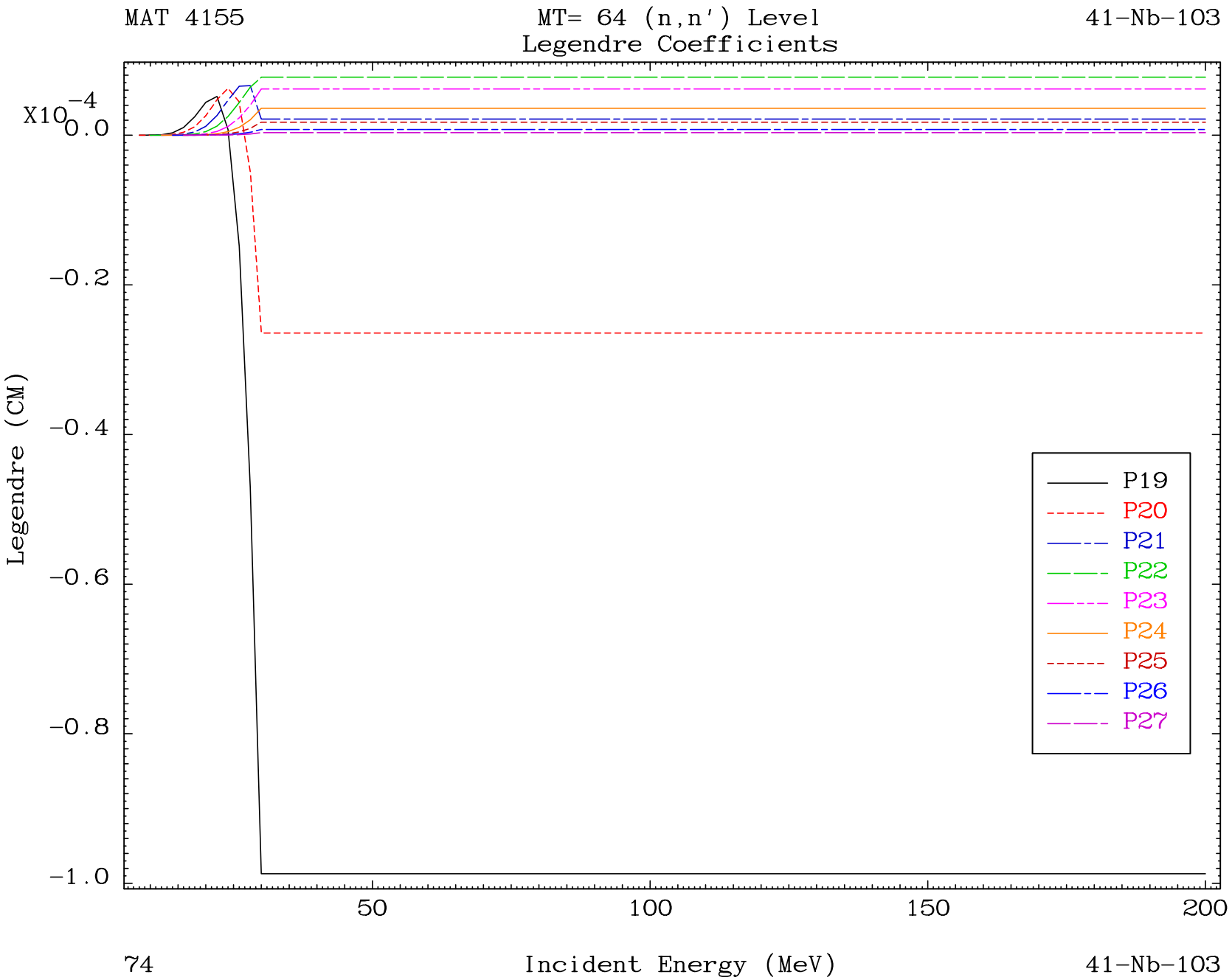

MAT 4155
MT= 63 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
Legendre (CM)
0
50
100
150
200
69
Incident Energy (MeV)
41-Nb-103

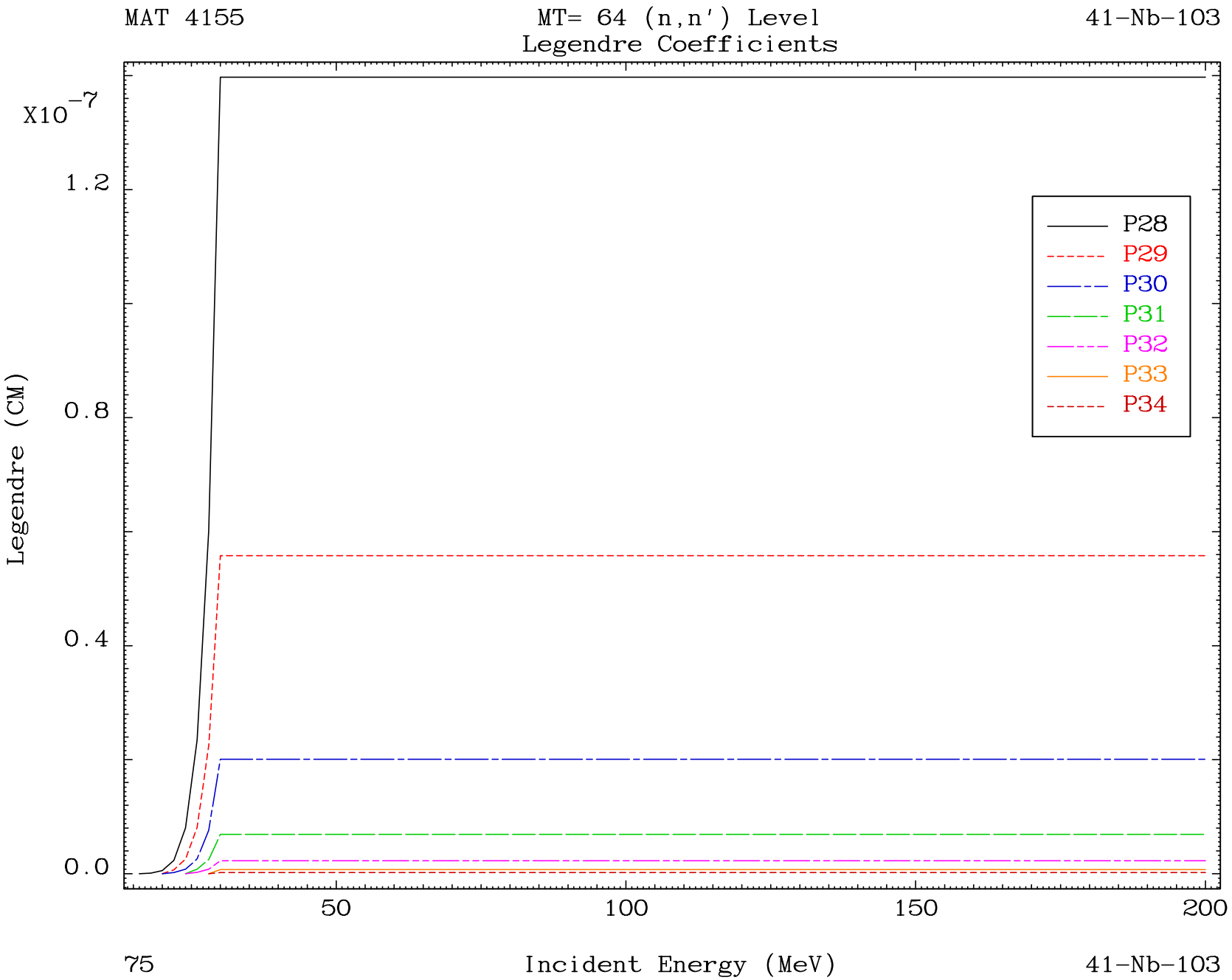

MAT 4155
MT= 63 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-3
1.5
1.0
0.5
0.0
P19
P20
P21
P22
P23
P24
P25
P26
P27
Legendre (CM)
50
100
150
200
70
Incident Energy (MeV)
41-Nb-103

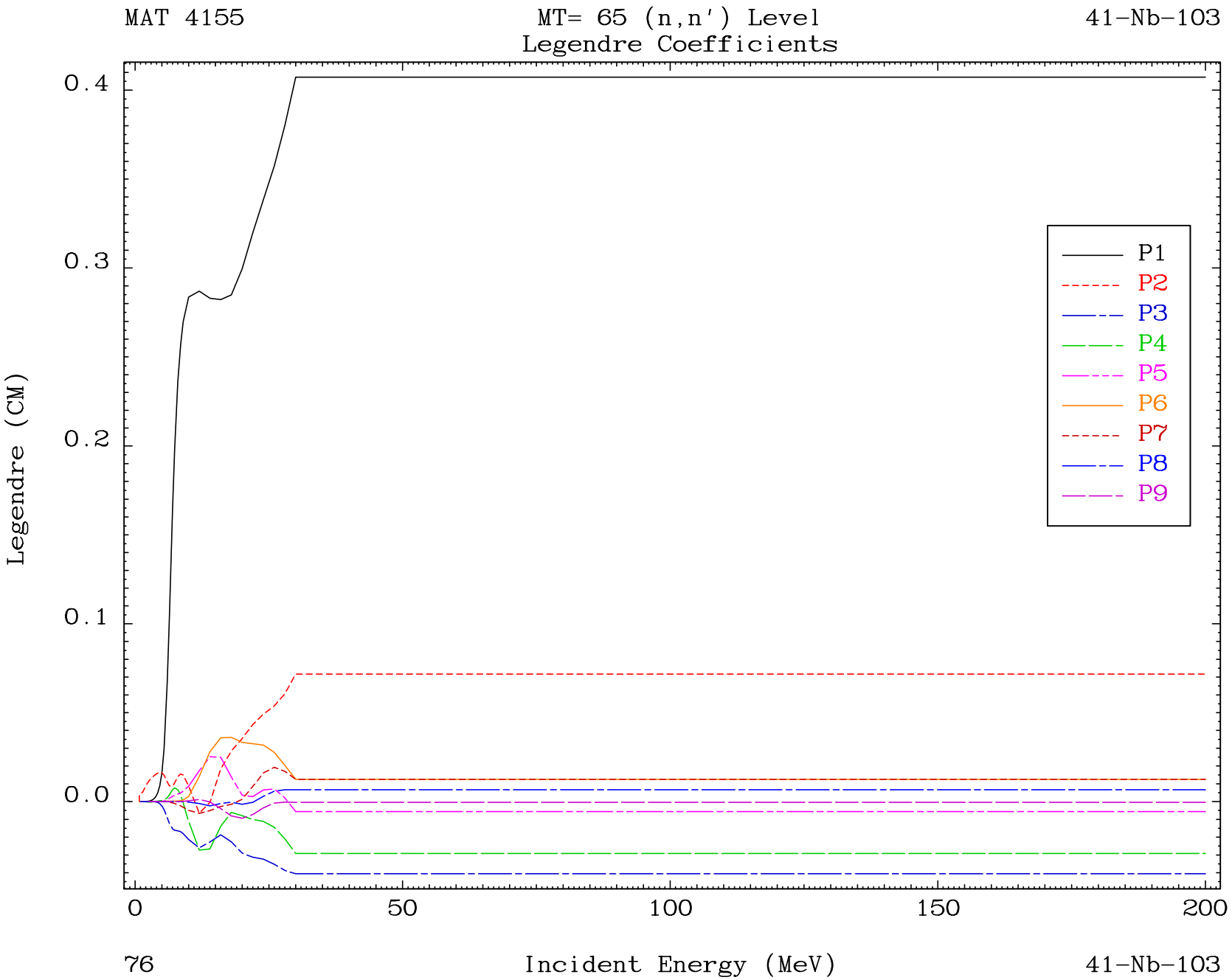

MAT 4155
MT= 63 (n,n') Level
Legendre Coefficients
41-Nb-103
X10^-7
6
4
2
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
71
Incident Energy (MeV)
41-Nb-103

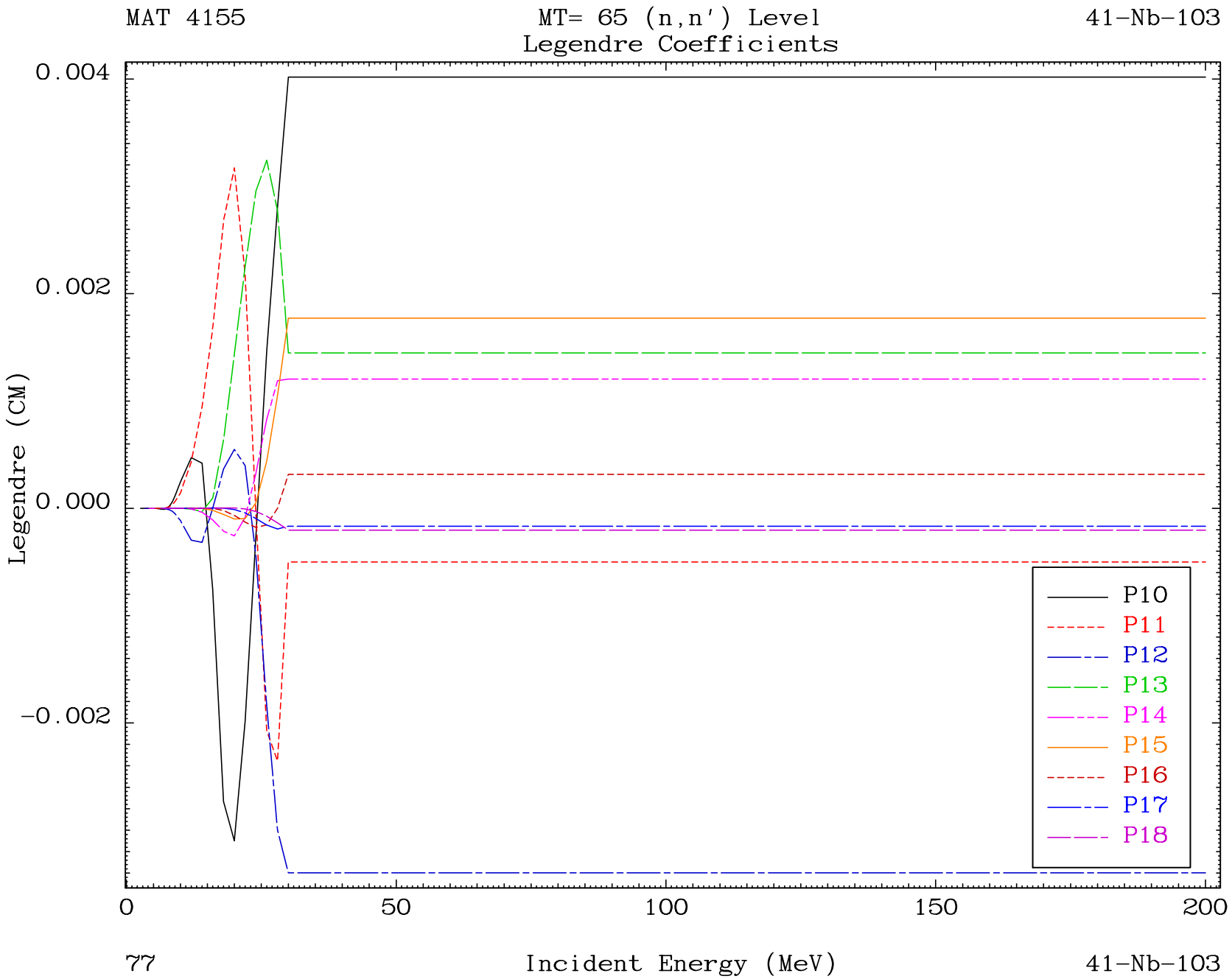

MAT 4155
MT= 64 (n,n') Level
Legendre Coefficients
41-Nb-103
0.4
0.3
0.2
0.1
0.0
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
72
Incident Energy (MeV)
41-Nb-103

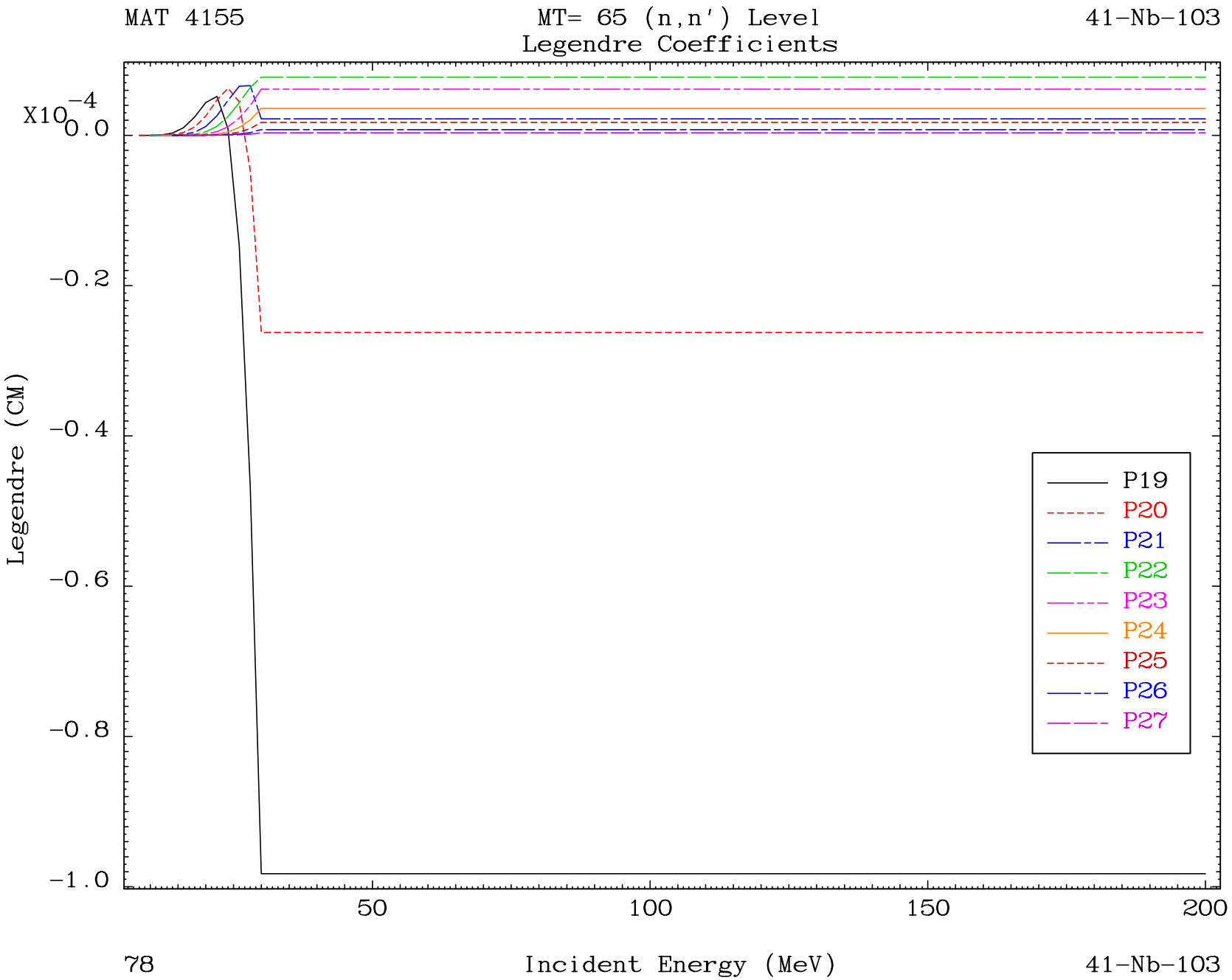

MAT 4155
MT= 64 (n,n') Level
Legendre Coefficients
41-Nb-103
0.004
0.002
0.000
-0.002
Legendre (CM)
0
50
100
150
200
73
Incident Energy (MeV)
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18

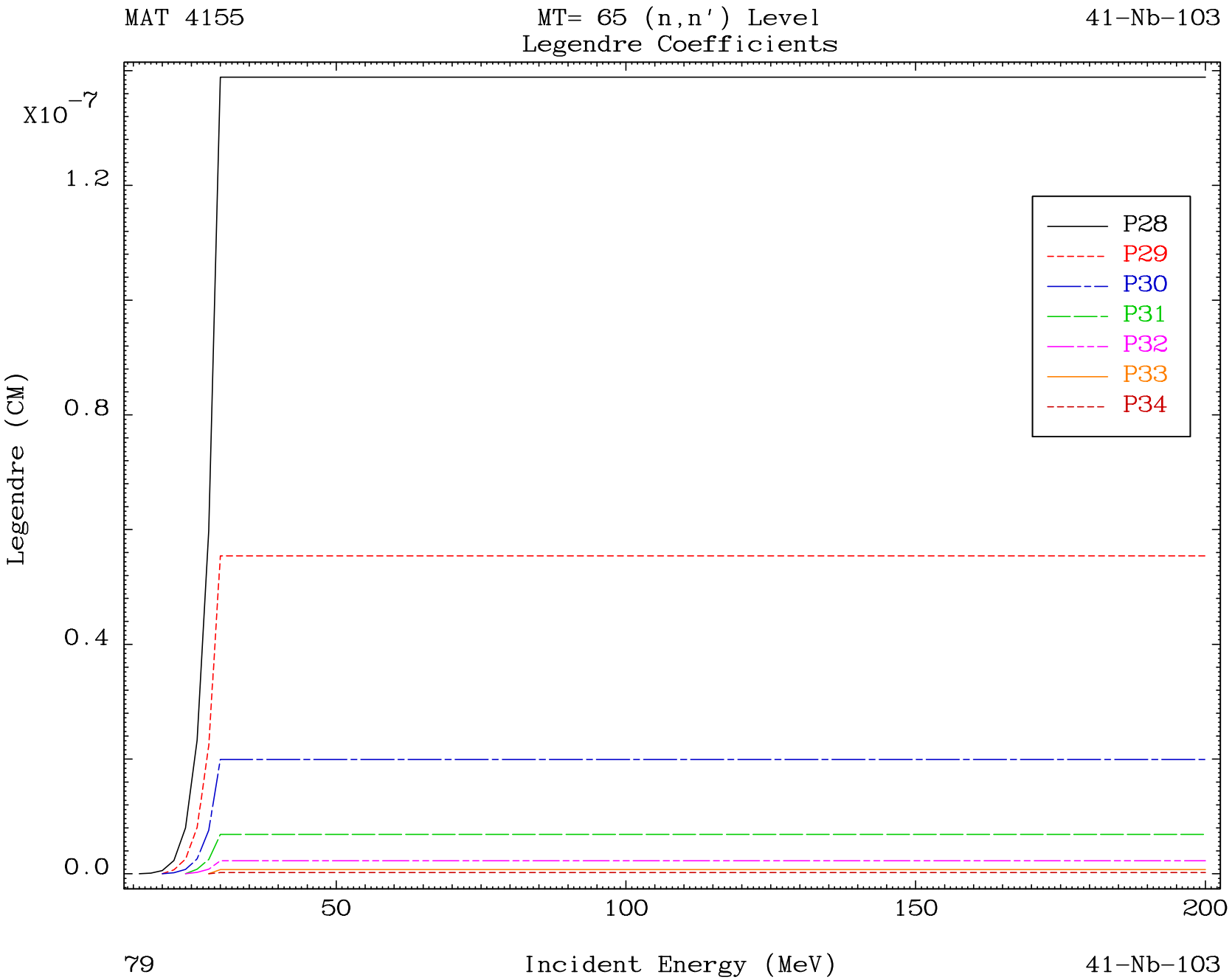

MAT 4155
MT= 64 (n,n') Level
Legendre Coefficients
41-Nb-103
X10^-4
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
Legendre (CM)
50
100
150
200
74
Incident Energy (MeV)
41-Nb-103
P19
P20
P21
P22
P23
P24
P25
P26
P27

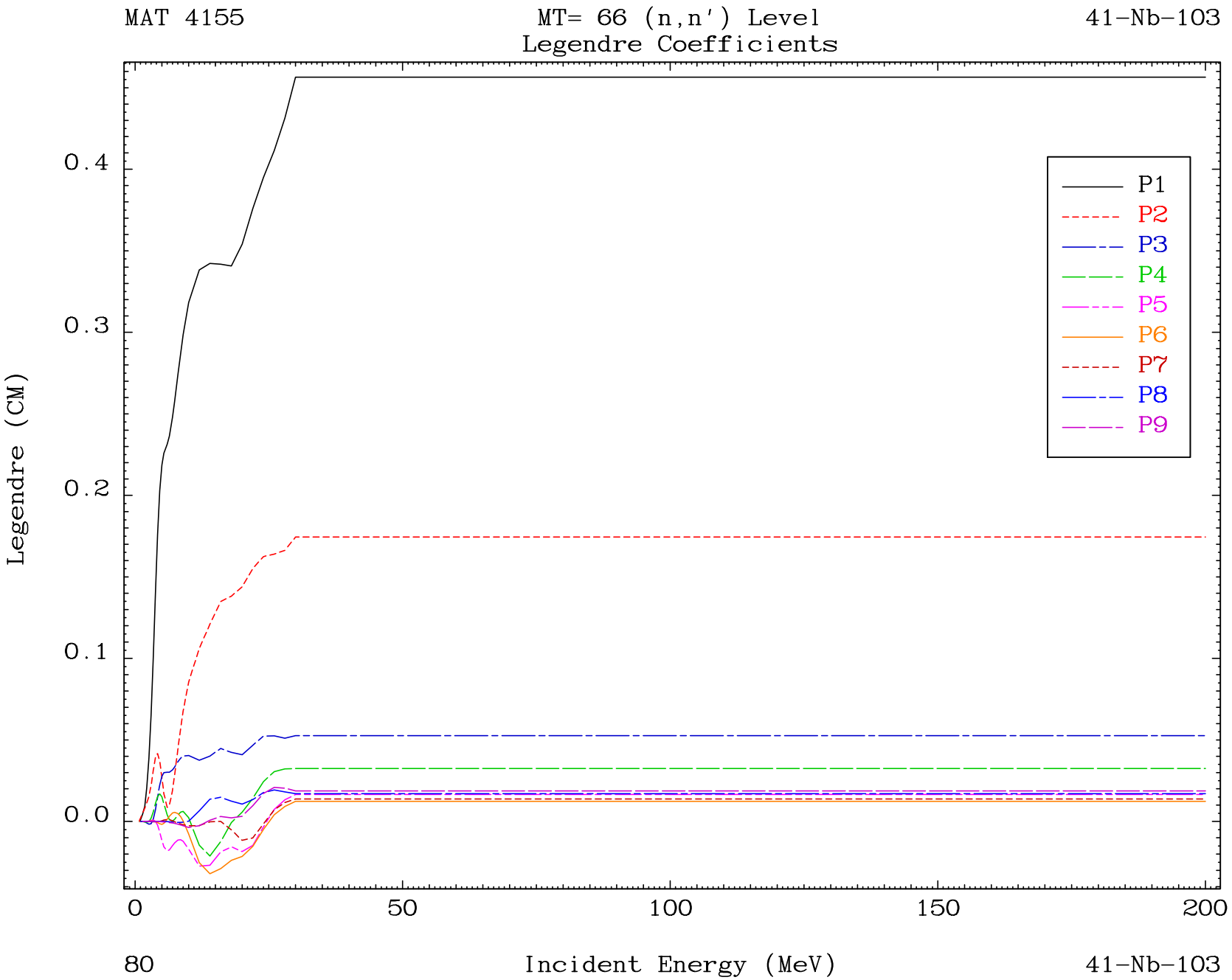

MAT 4155
MT= 64 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-7
1.2
0.8
0.4
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
75
Incident Energy (MeV)
41-Nb-103

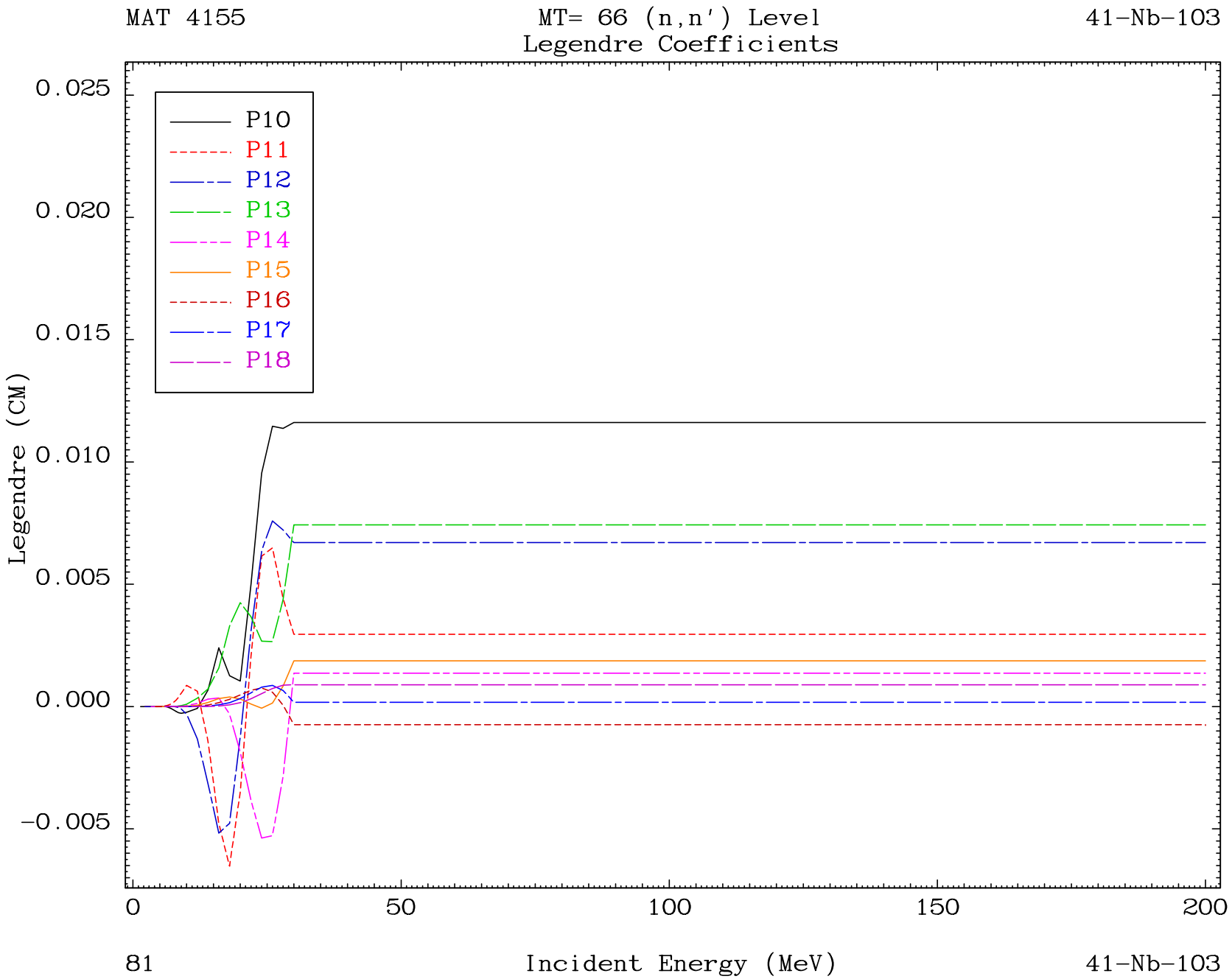

MAT 4155
MT= 65 (n,n') Level
Legendre Coefficients
41-Nb-103
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
Incident Energy (MeV)
76
41-Nb-103
P1
P2
P3
P4
P5
P6
P7
P8
P9

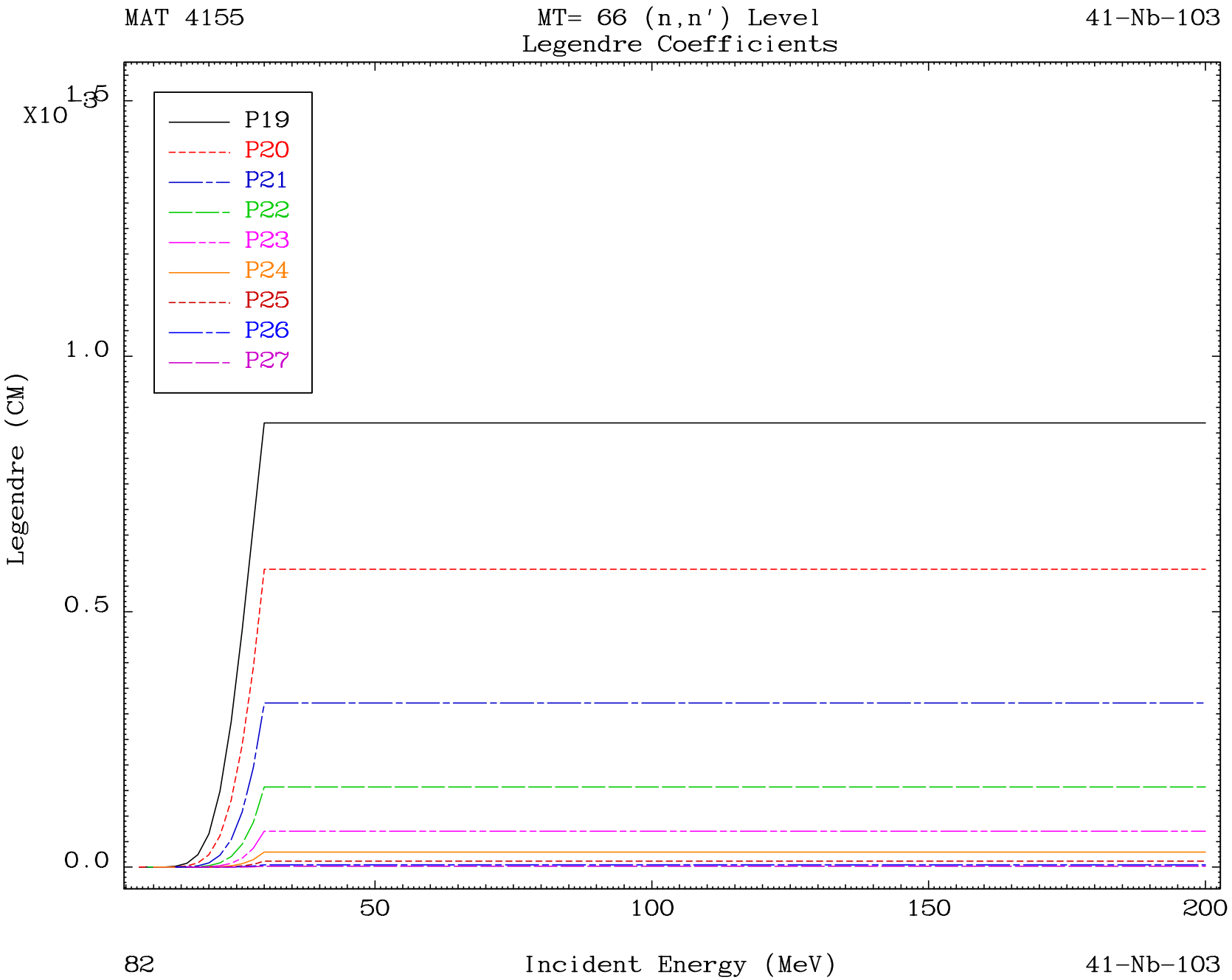

MAT 4155
MT= 65 (n,n') Level
Legendre Coefficients
41-Nb-103
0.004
0.002
0.000
-0.002
Legendre (CM)
0
50
100
150
200
77
Incident Energy (MeV)
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18

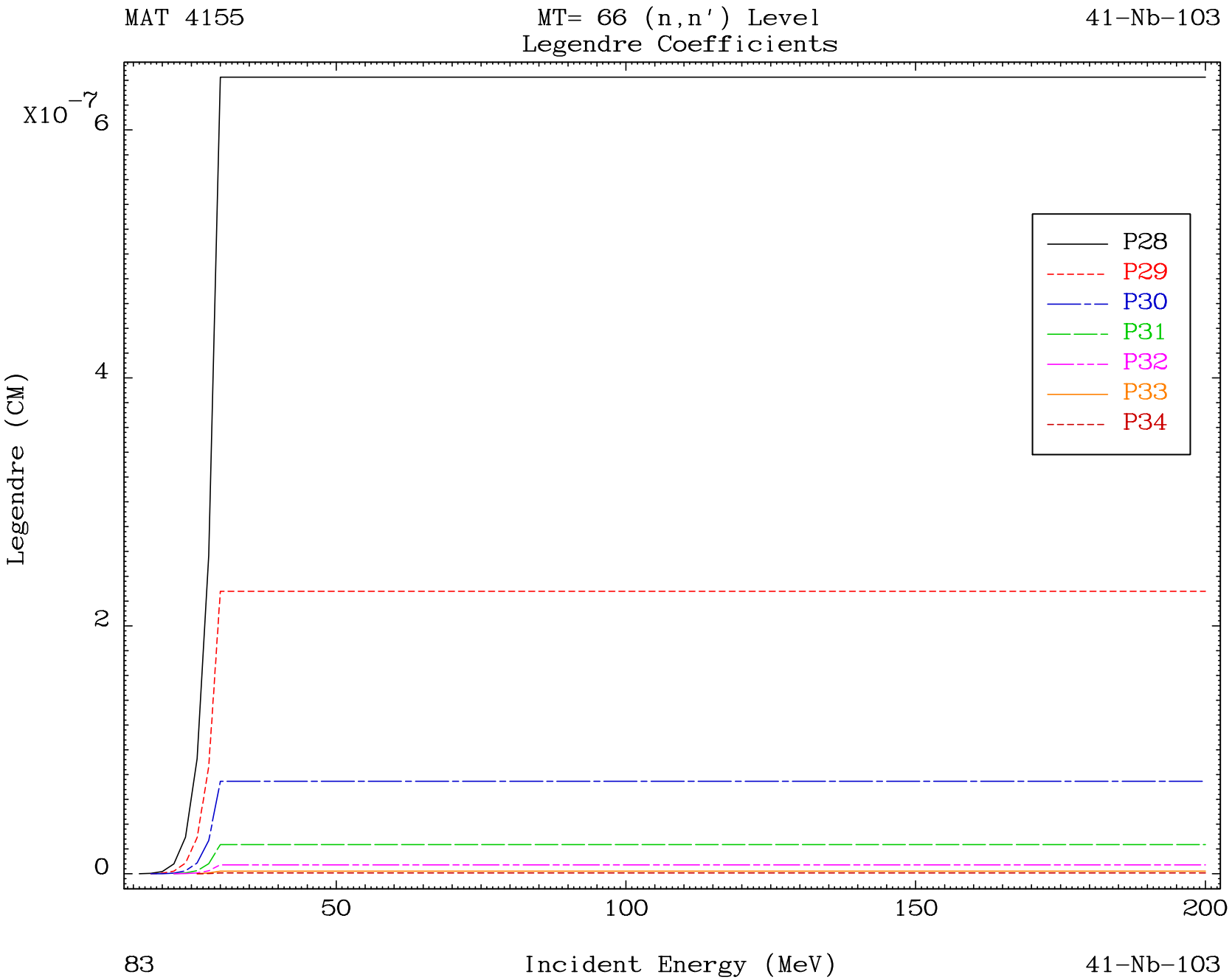

MAT 4155
MT= 65 (n,n') Level
Legendre Coefficients
41-Nb-103
X10^-4
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
Legendre (CM)
50
100
150
200
78
Incident Energy (MeV)
41-Nb-103
P19
P20
P21
P22
P23
P24
P25
P26
P27

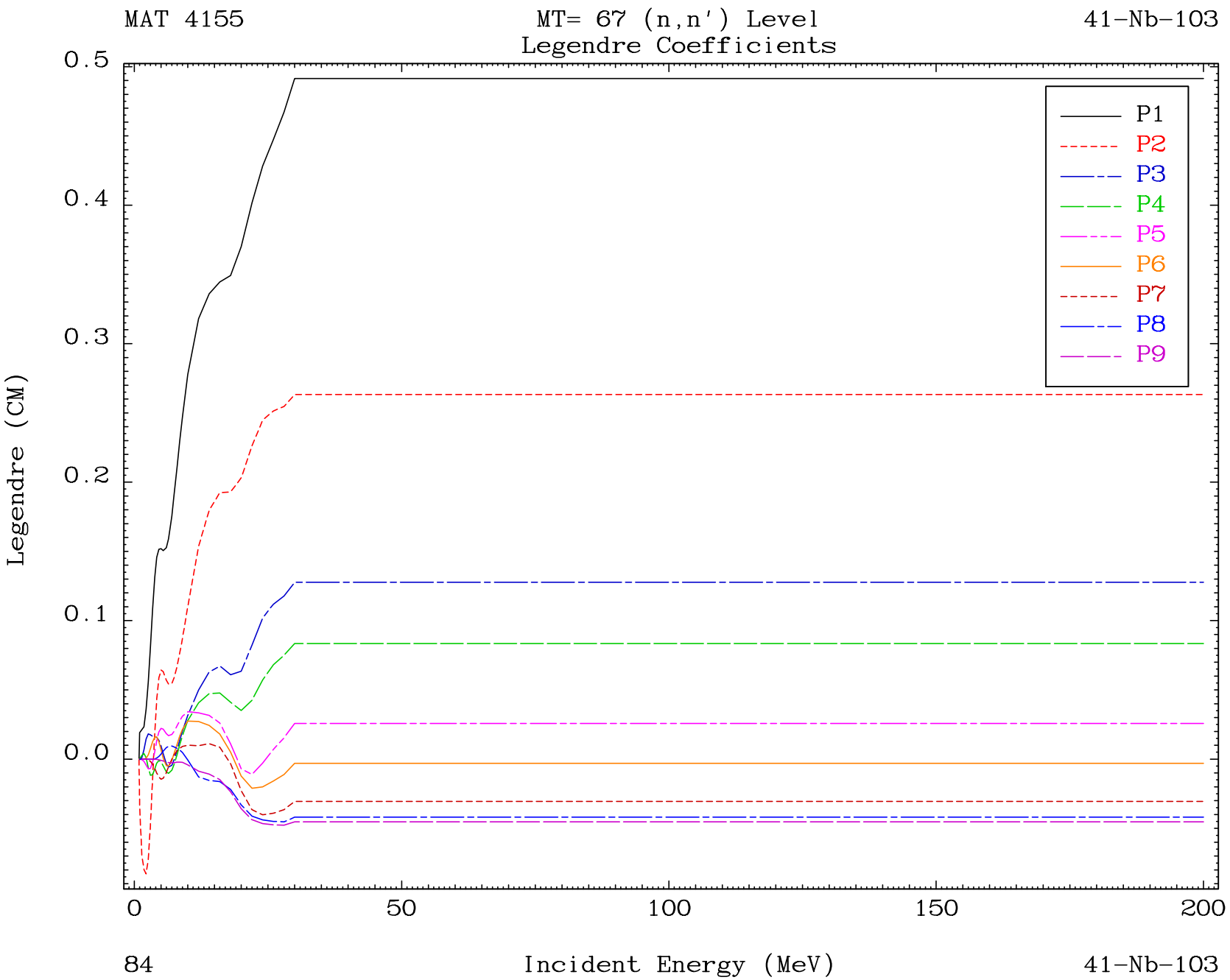

MAT 4155
MT= 65 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-7
1.2
0.8
0.4
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
79
Incident Energy (MeV)
41-Nb-103

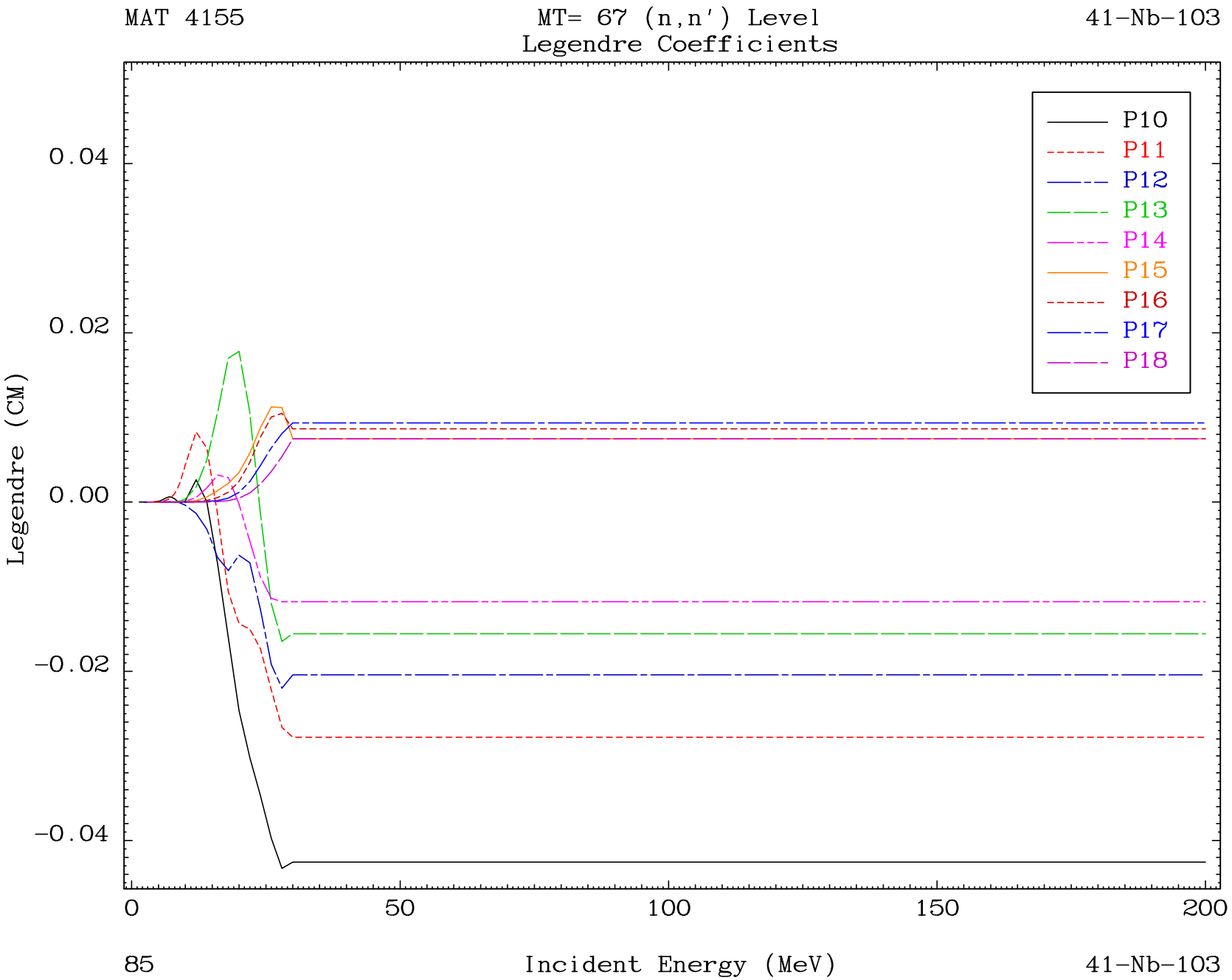

MAT 4155
MT= 66 (n,n') Level
Legendre Coefficients
41-Nb-103
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
80
Incident Energy (MeV)
41-Nb-103

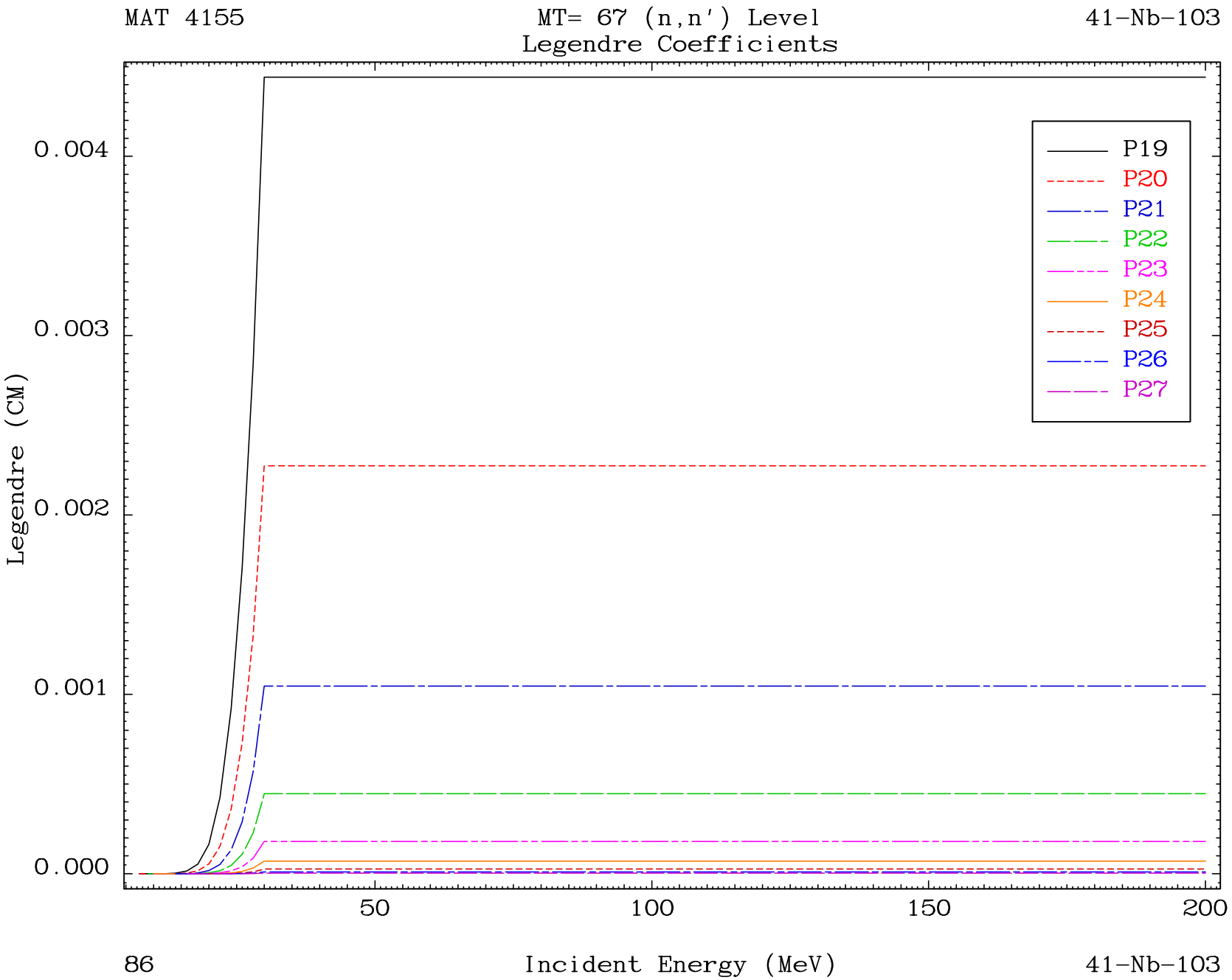

MAT 4155
MT= 66 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
Legendre (CM)
0
50
100
150
200
81
Incident Energy (MeV)
41-Nb-103

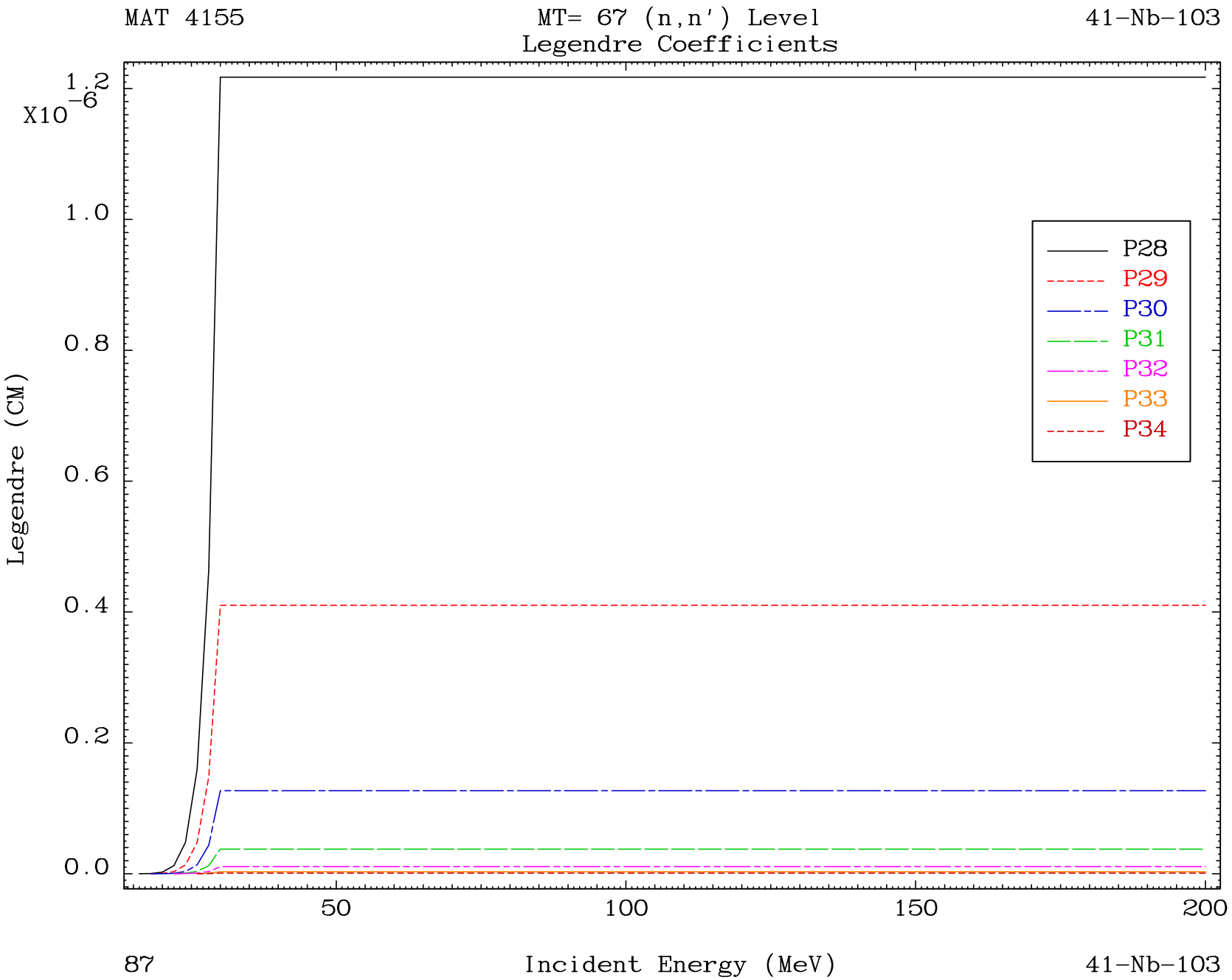

MAT 4155
MT= 66 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-3
1.5
1.0
0.5
0.0
P19
P20
P21
P22
P23
P24
P25
P26
P27
Legendre (CM)
50
100
150
200
82
Incident Energy (MeV)
41-Nb-103

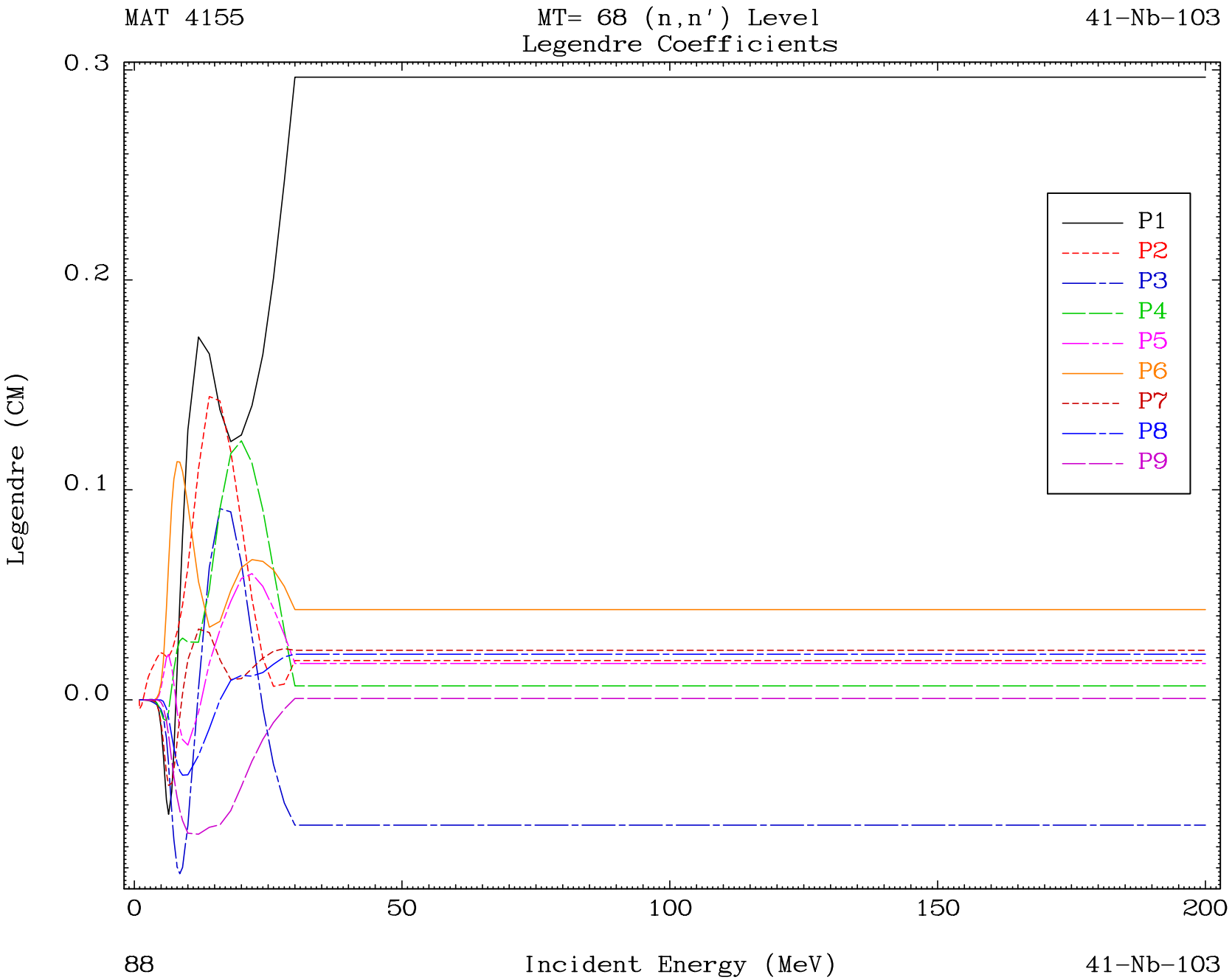

MAT 4155
MT= 66 (n,n') Level
Legendre Coefficients
41-Nb-103
X10 -7
6
4
2
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
83
Incident Energy (MeV)
41-Nb-103

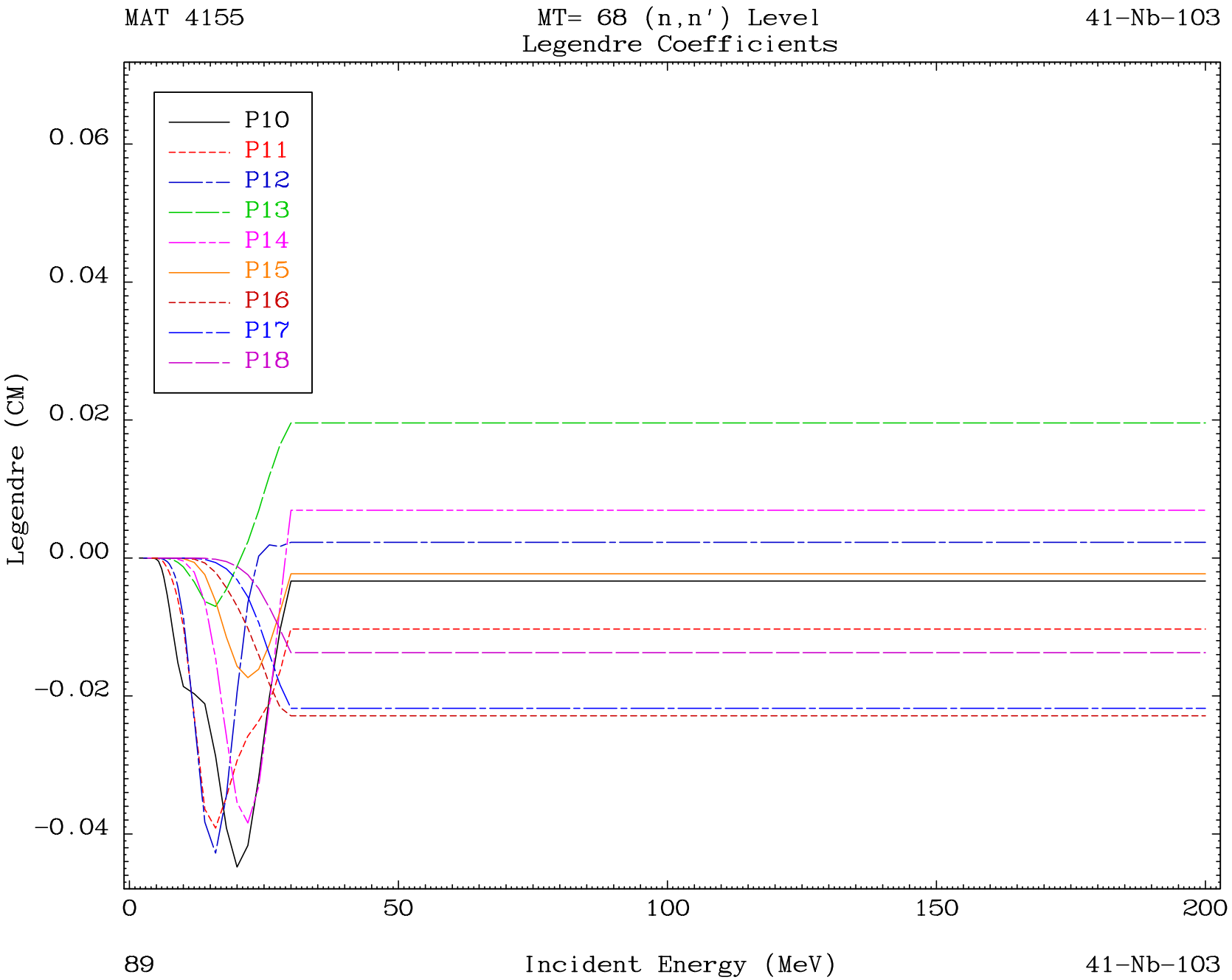

MAT 4155
MT= 67 (n,n') Level
Legendre Coefficients
41-Nb-103
0.5
0.4
0.3
0.2
0.1
0.0
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
84
Incident Energy (MeV)
41-Nb-103

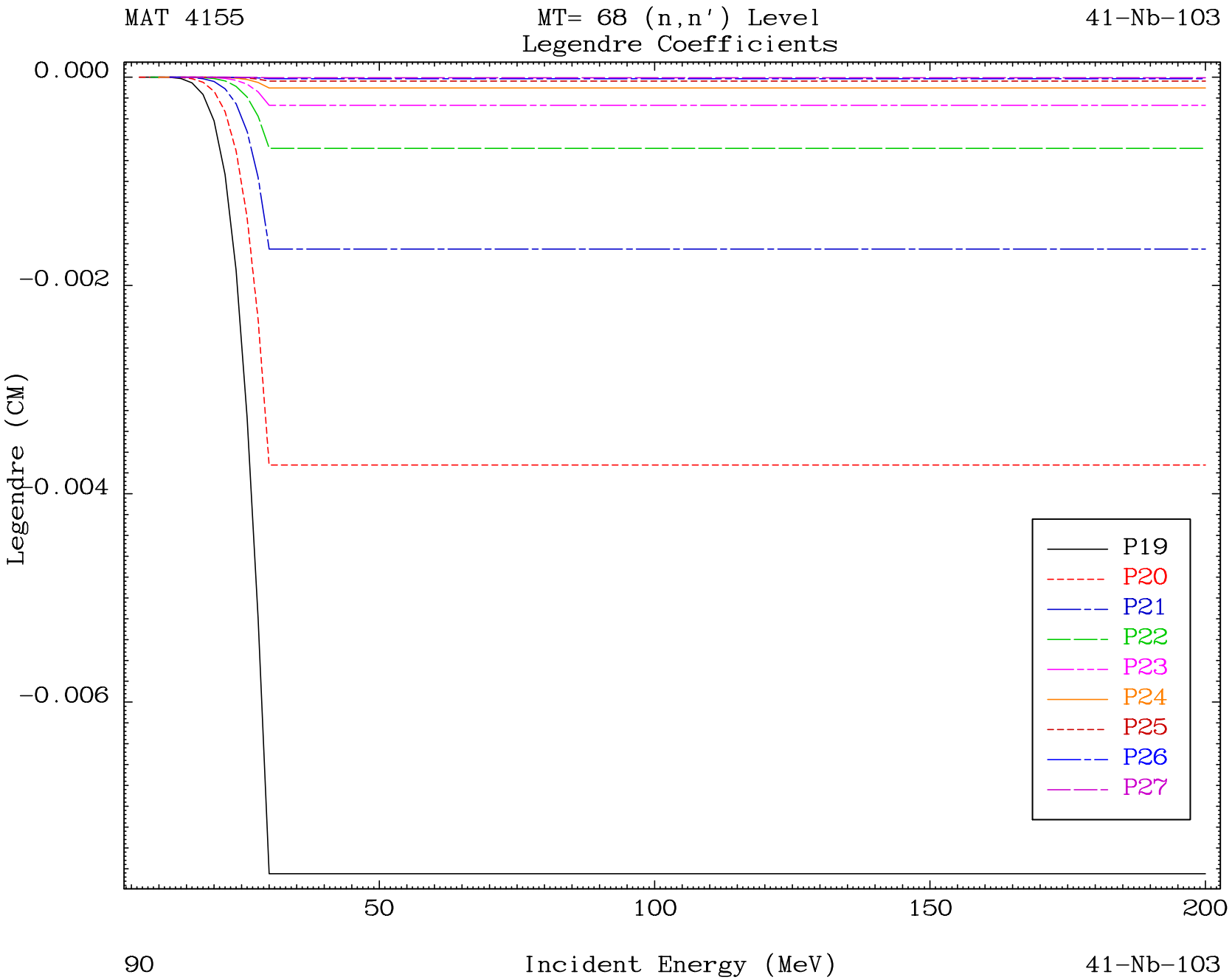

MAT 4155
MT= 67 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
85
Incident Energy (MeV)
41-Nb-103

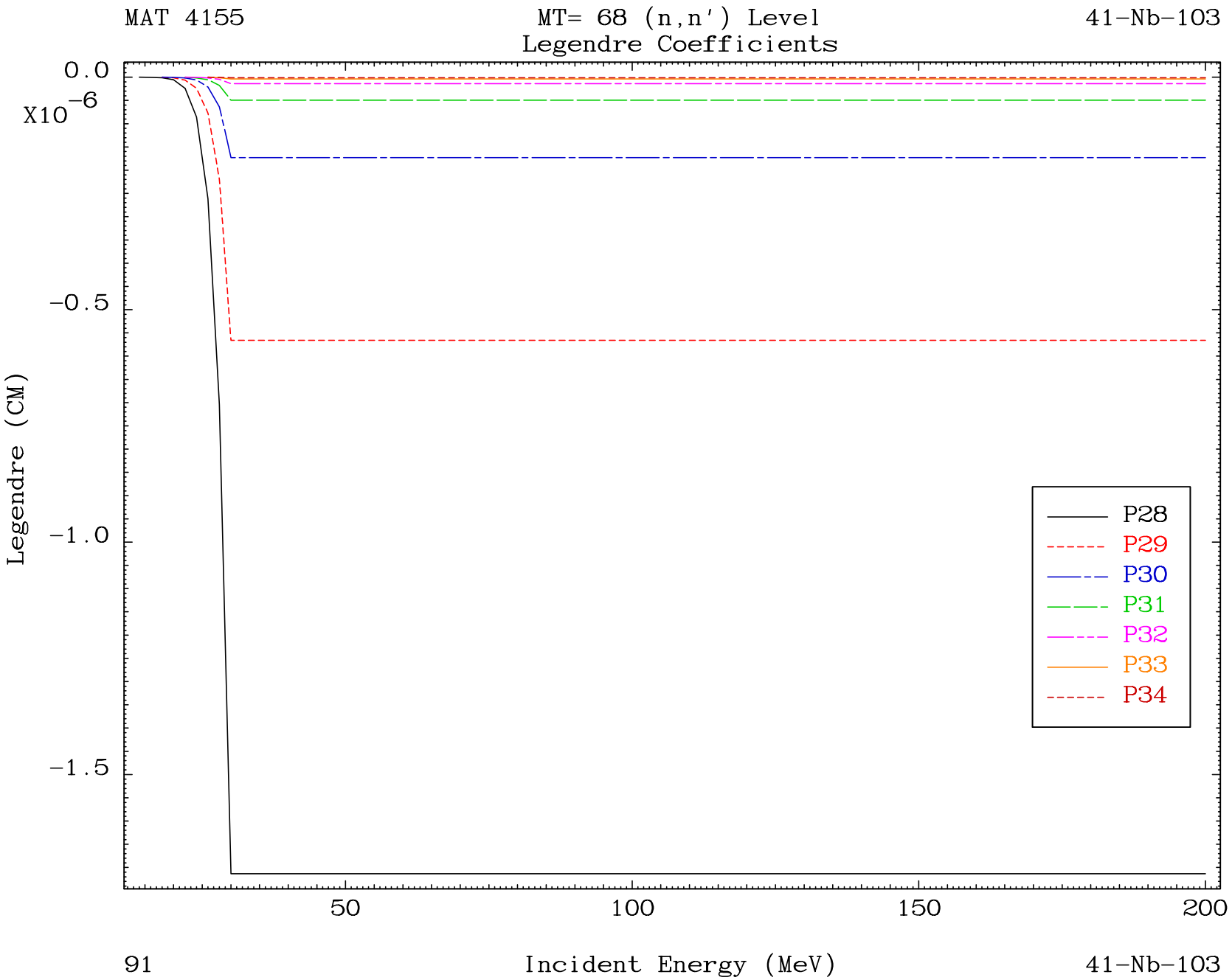

MAT 4155
MT= 67 (n,n') Level
Legendre Coefficients
41-Nb-103
0.004
0.003
0.002
0.001
0.000
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
86
Incident Energy (MeV)
41-Nb-103

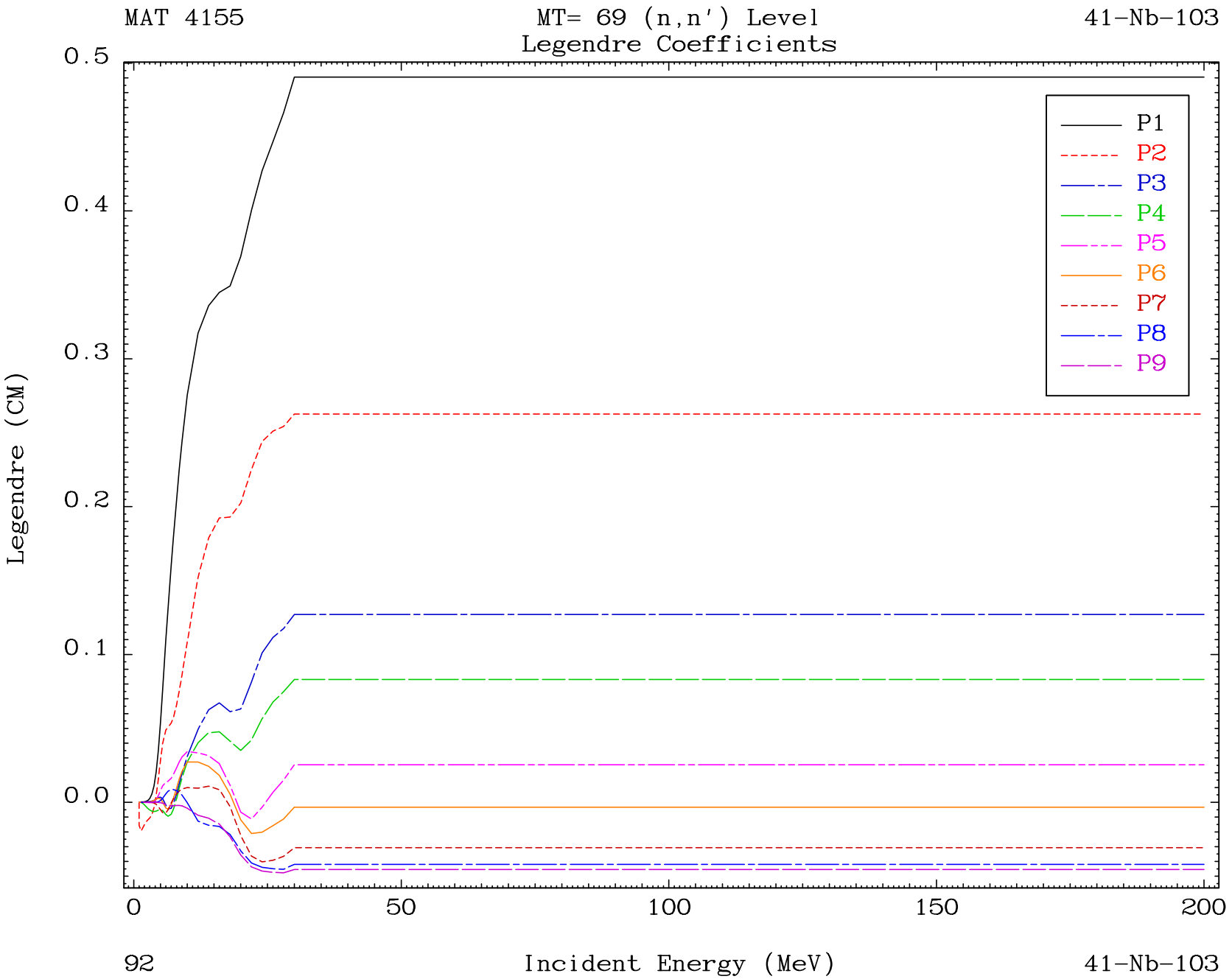

MAT 4155
MT= 67 (n,n') Level
Legendre Coefficients
41-Nb-103
X10 -6
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
87
Incident Energy (MeV)
41-Nb-103

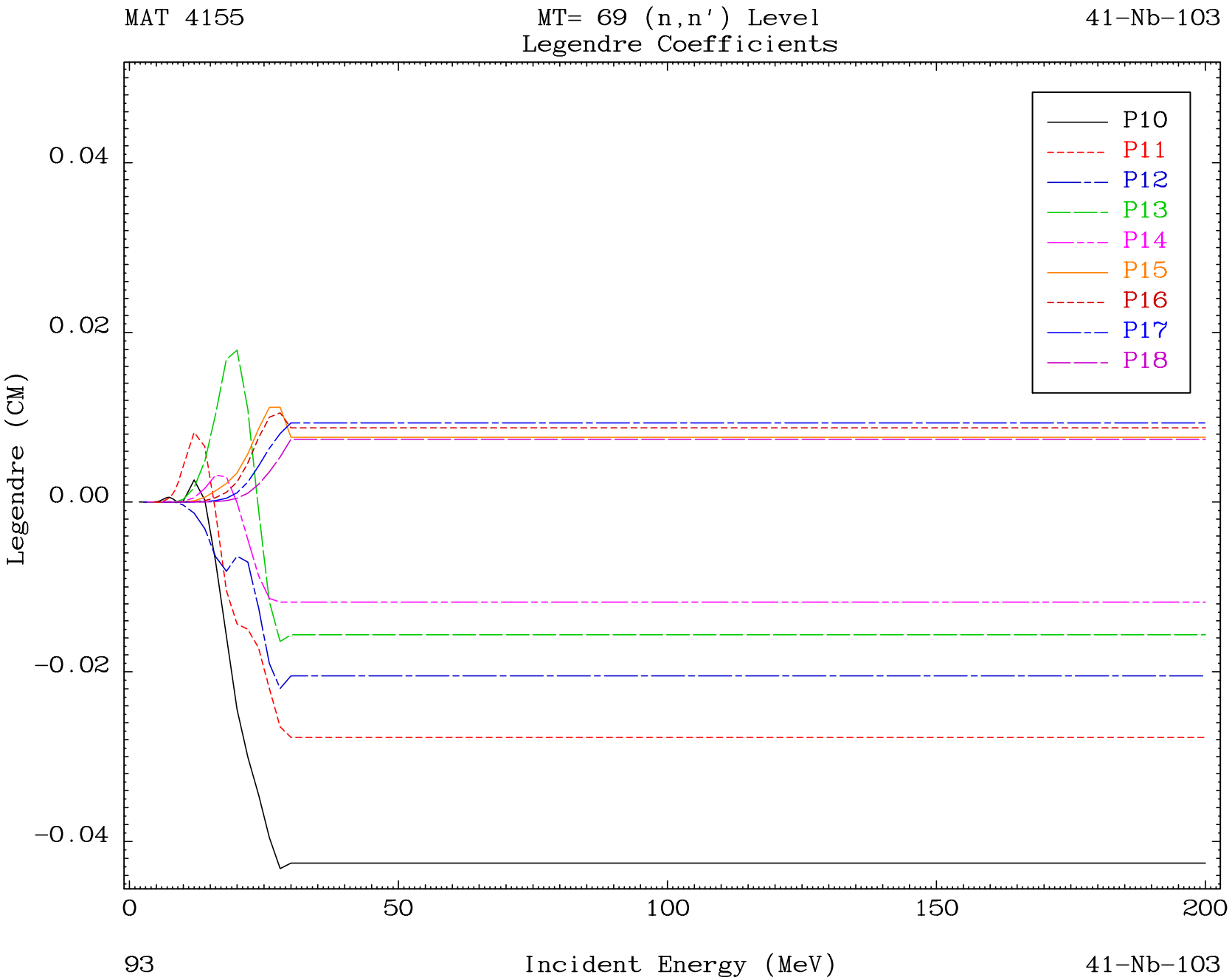

MAT 4155
MT= 68 (n,n') Level
Legendre Coefficients
41-Nb-103
0.3
0.2
0.1
0.0
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
88
Incident Energy (MeV)
41-Nb-103

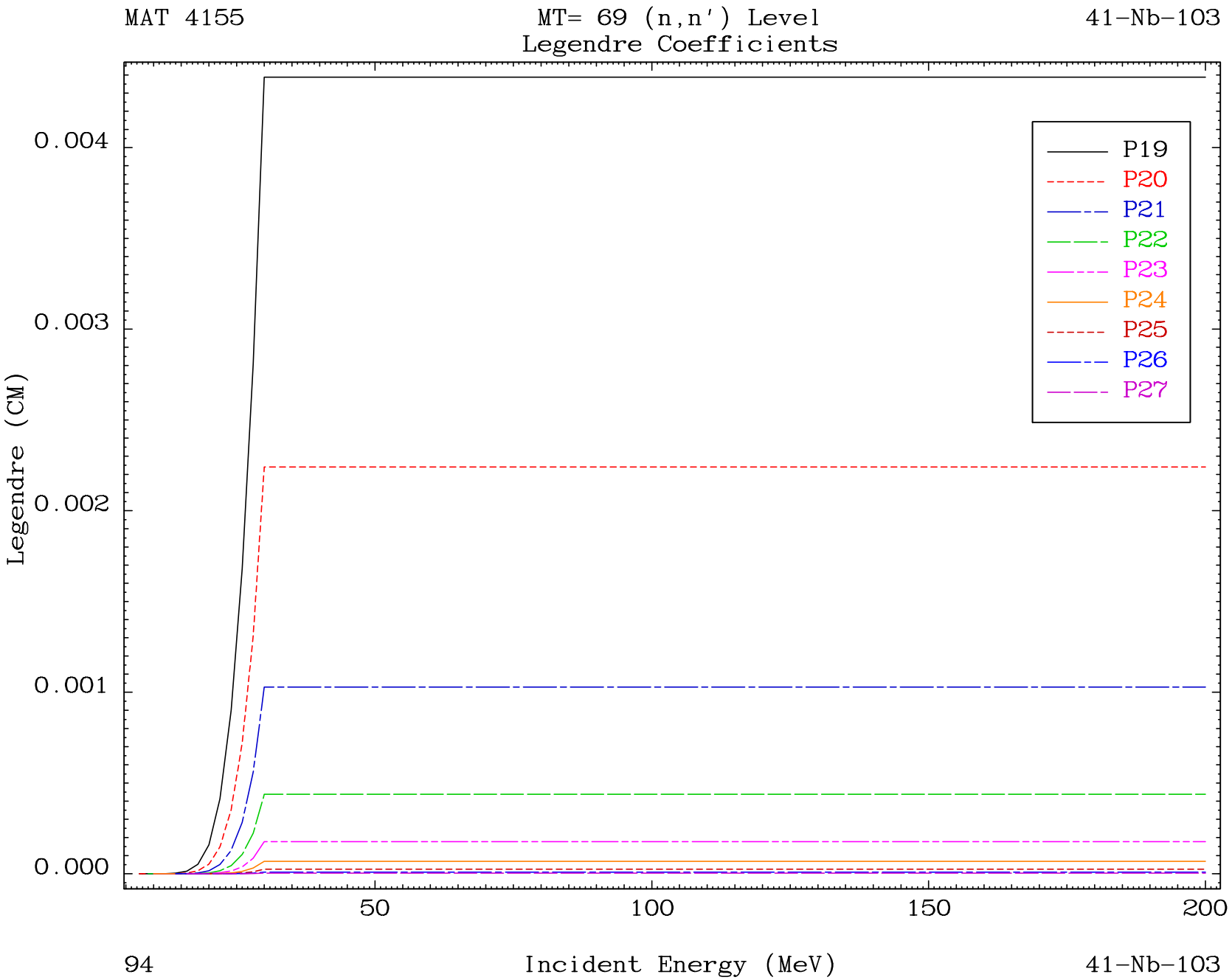

MAT 4155
MT= 68 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.06
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
89
Incident Energy (MeV)
41-Nb-103

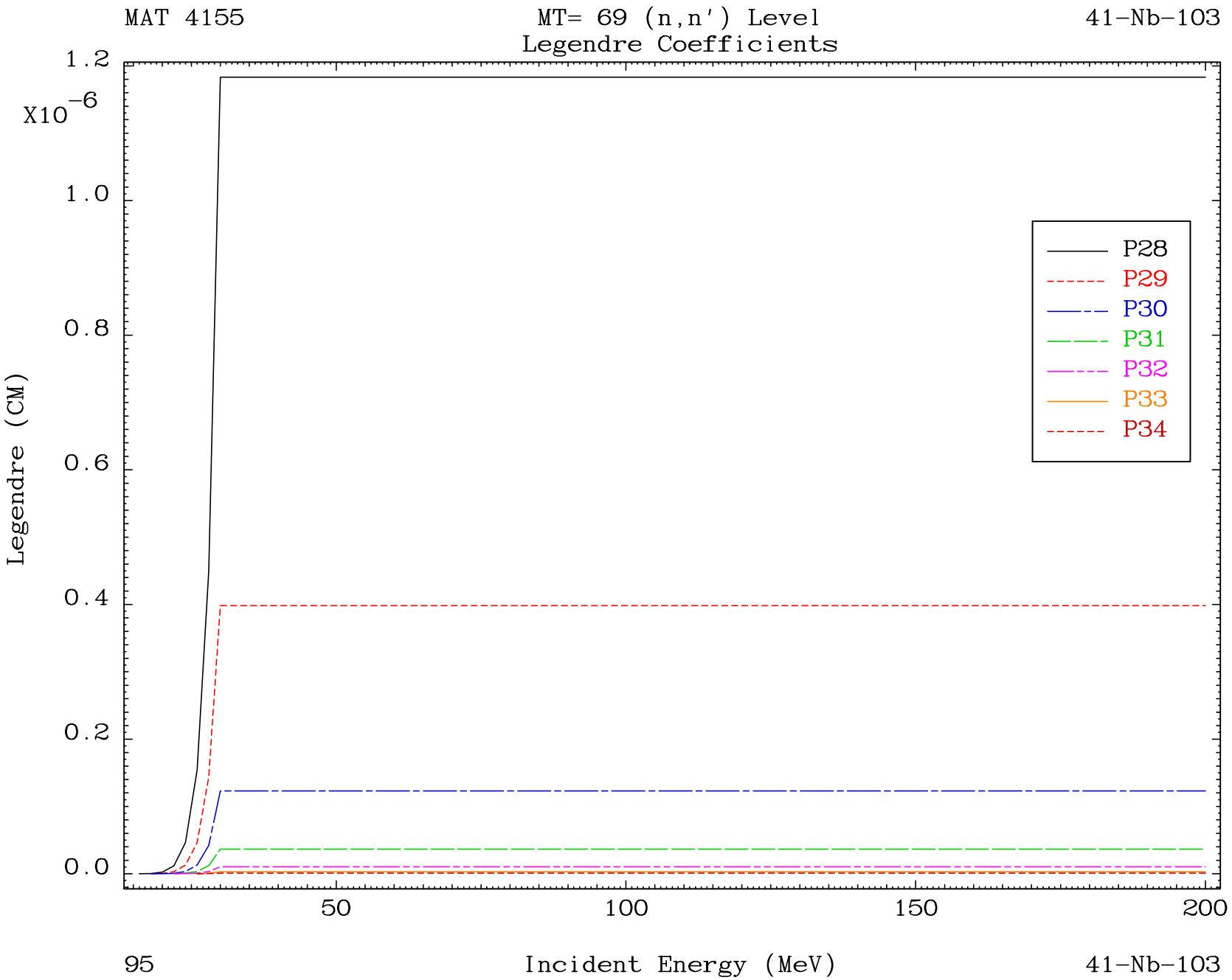

MAT 4155
MT= 68 (n,n') Level
Legendre Coefficients
41-Nb-103
0.000
-0.002
-0.004
-0.006
Legendre (CM)
50
100
150
200
90
Incident Energy (MeV)
41-Nb-103
P19
P20
P21
P22
P23
P24
P25
P26
P27

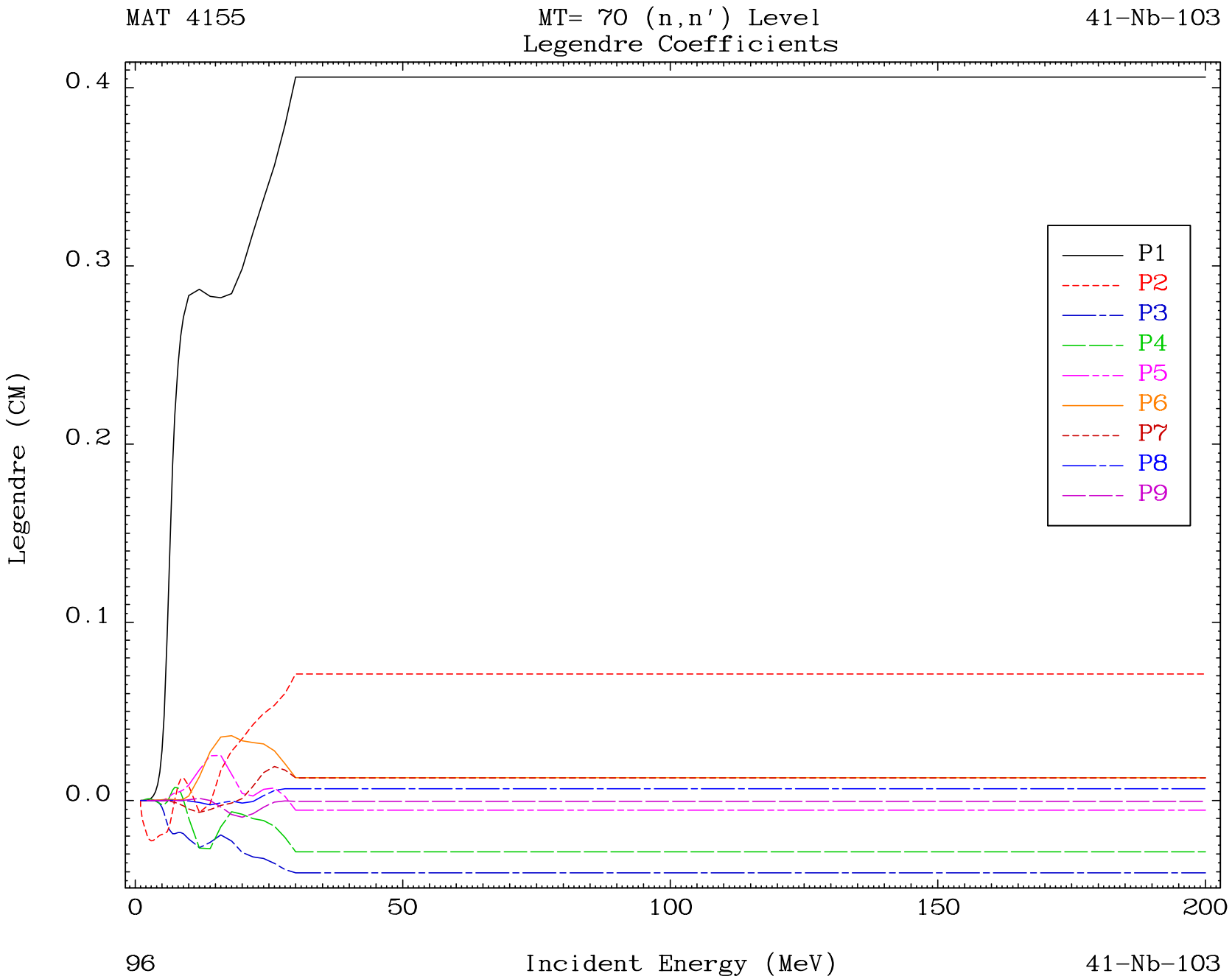

MAT 4155
MT= 68 (n,n') Level
Legendre Coefficients
41-Nb-103
0.0
X10^-6
-0.5
-1.0
-1.5
Legendre (CM)
50
100
150
200
91
Incident Energy (MeV)
41-Nb-103
P28
P29
P30
P31
P32
P33
P34

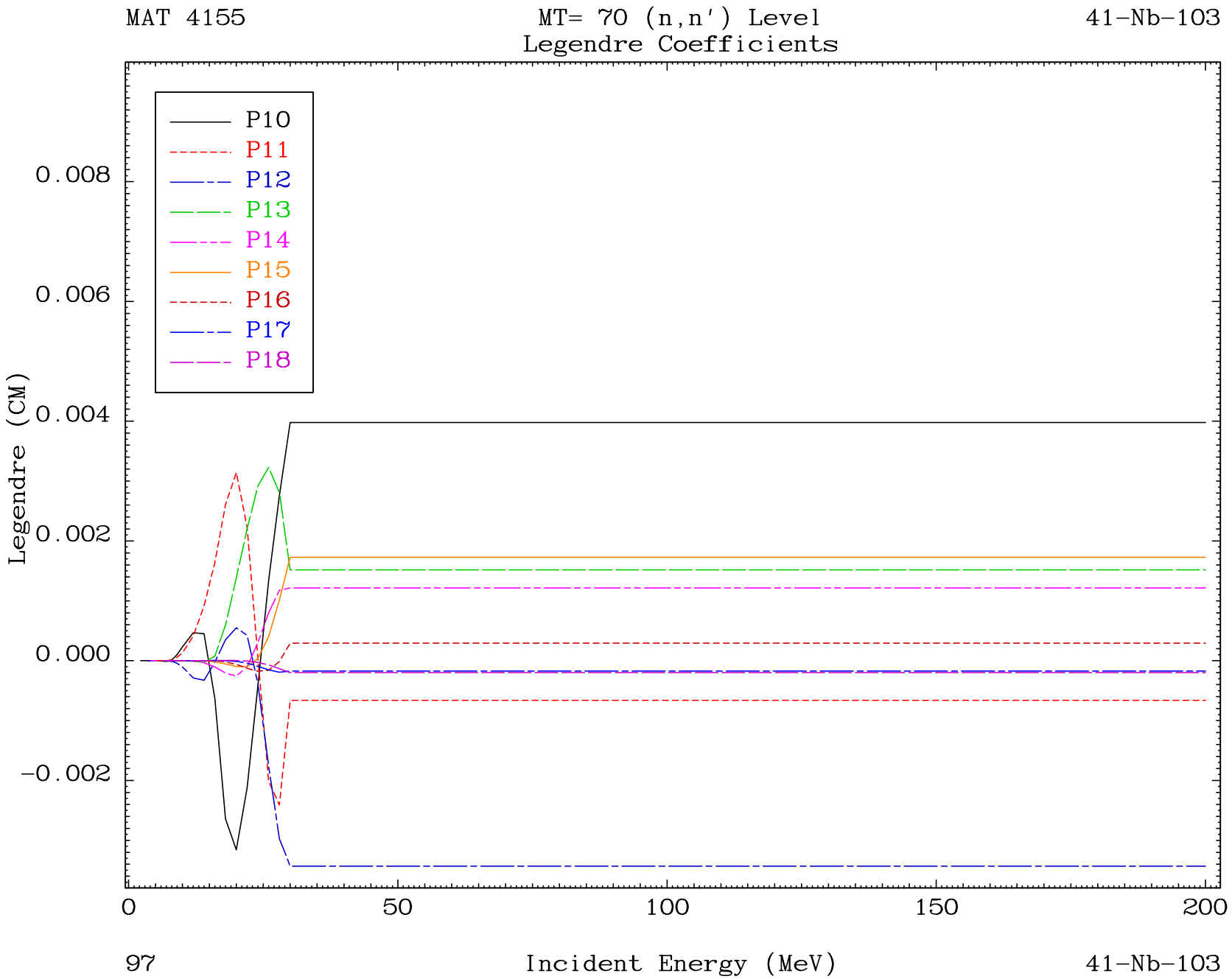

MAT 4155
MT= 69 (n,n') Level
Legendre Coefficients
41-Nb-103
0.5
0.4
0.3
0.2
0.1
0.0
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
92
Incident Energy (MeV)
41-Nb-103

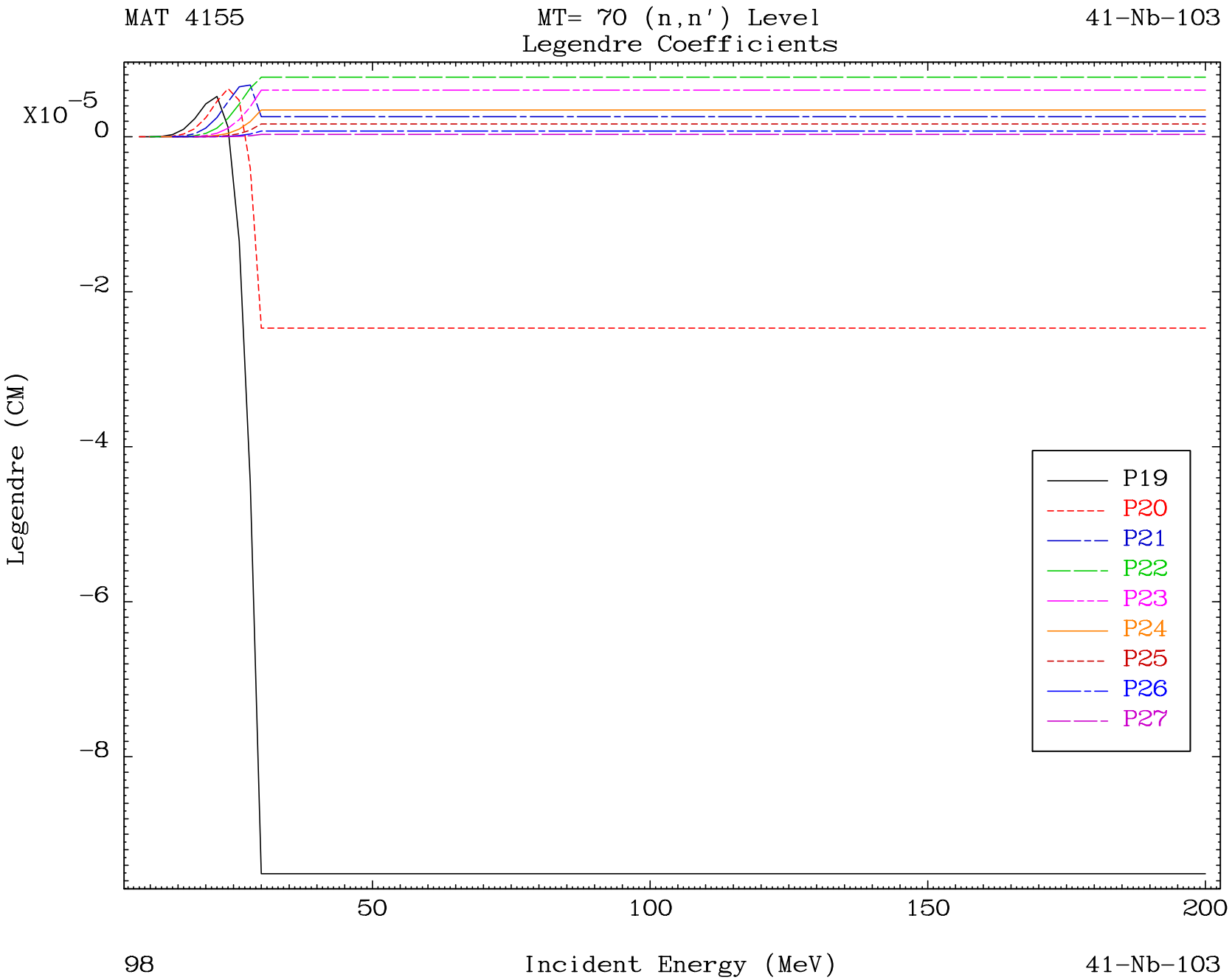

MAT 4155
MT= 69 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
93
Incident Energy (MeV)
41-Nb-103

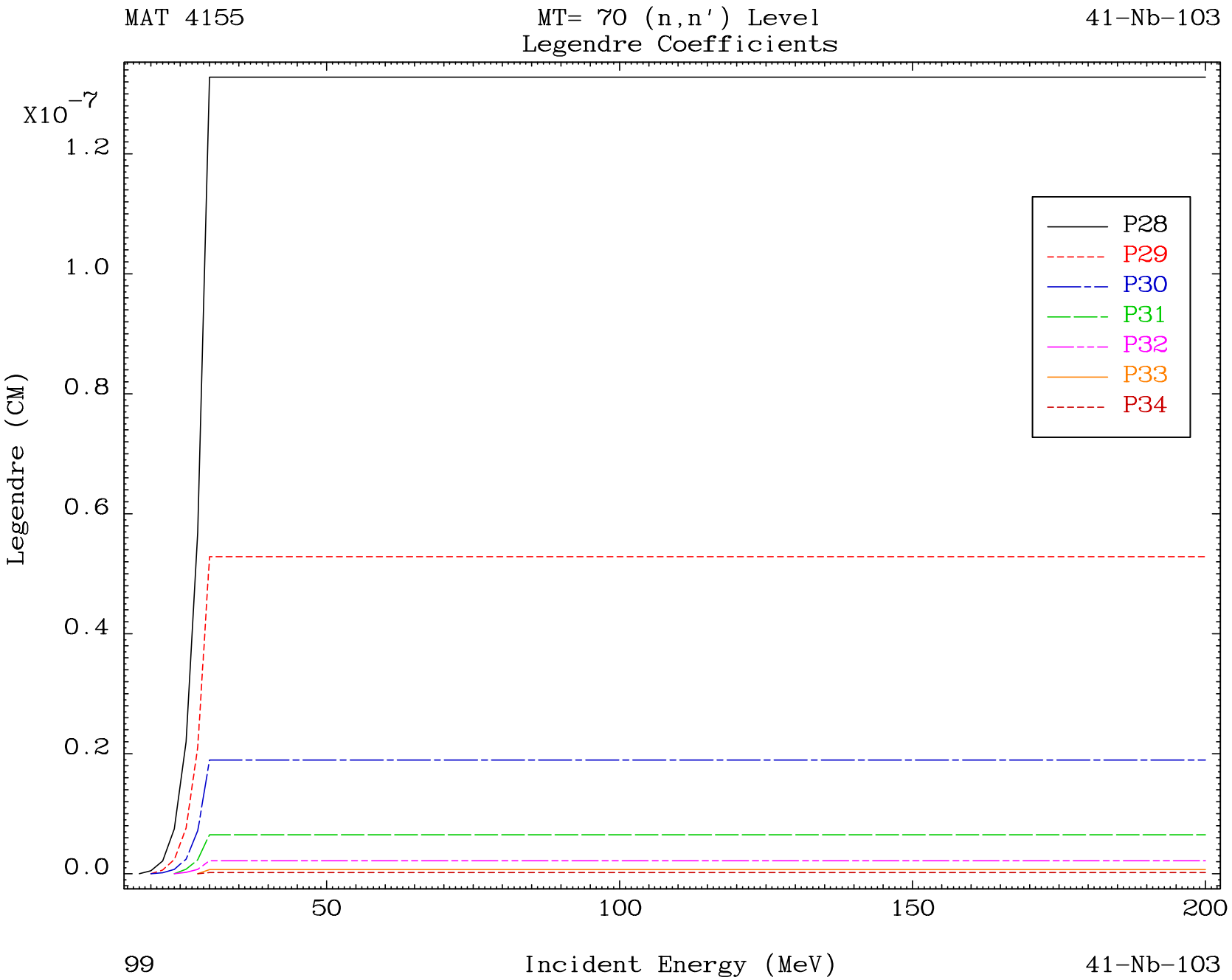

MAT 4155
MT= 69 (n,n') Level
Legendre Coefficients
41-Nb-103
0.004
0.003
0.002
0.001
0.000
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
94
Incident Energy (MeV)
41-Nb-103

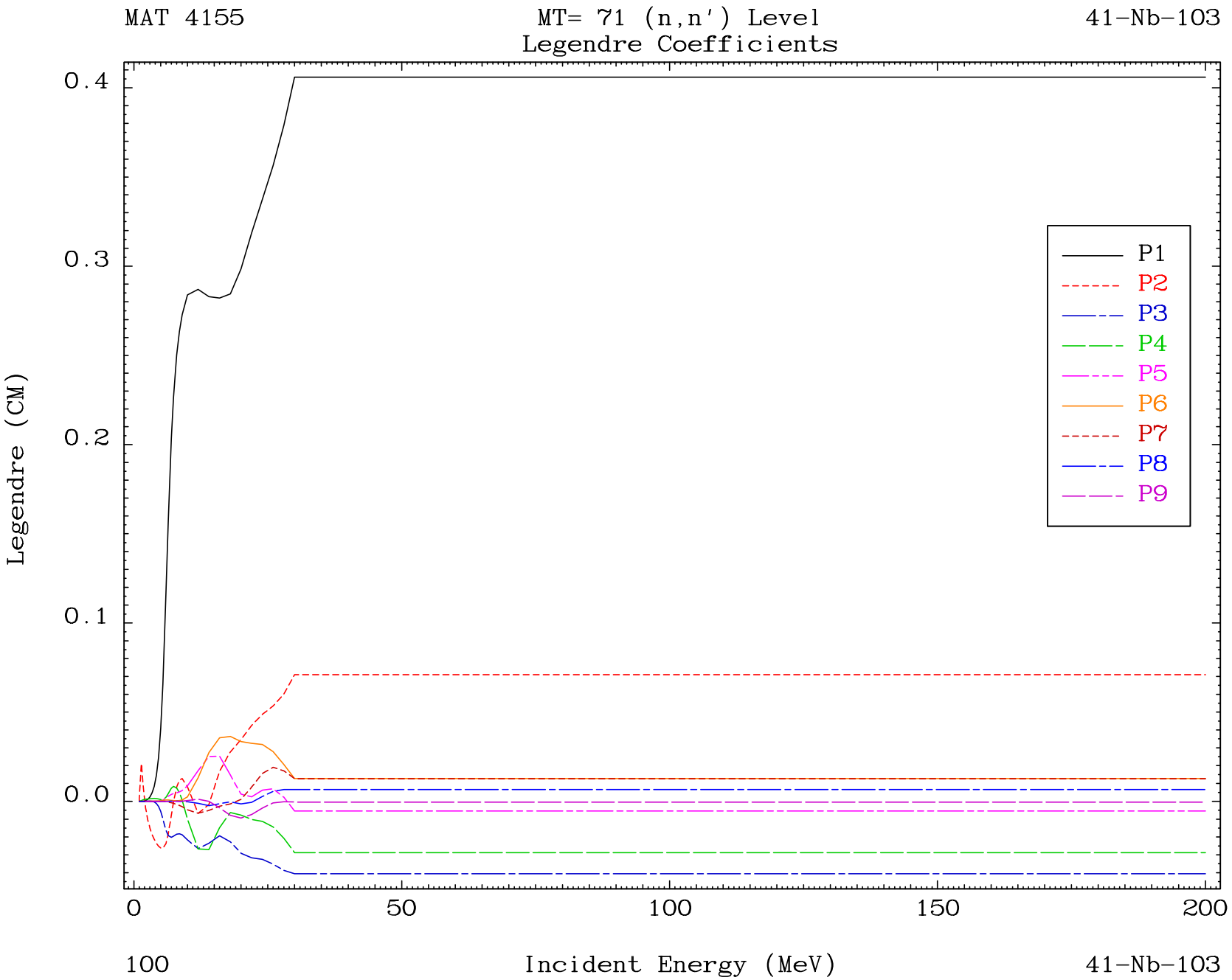

MAT 4155
MT= 69 (n,n') Level
Legendre Coefficients
41-Nb-103
X10^-6
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
95
Incident Energy (MeV)
41-Nb-103

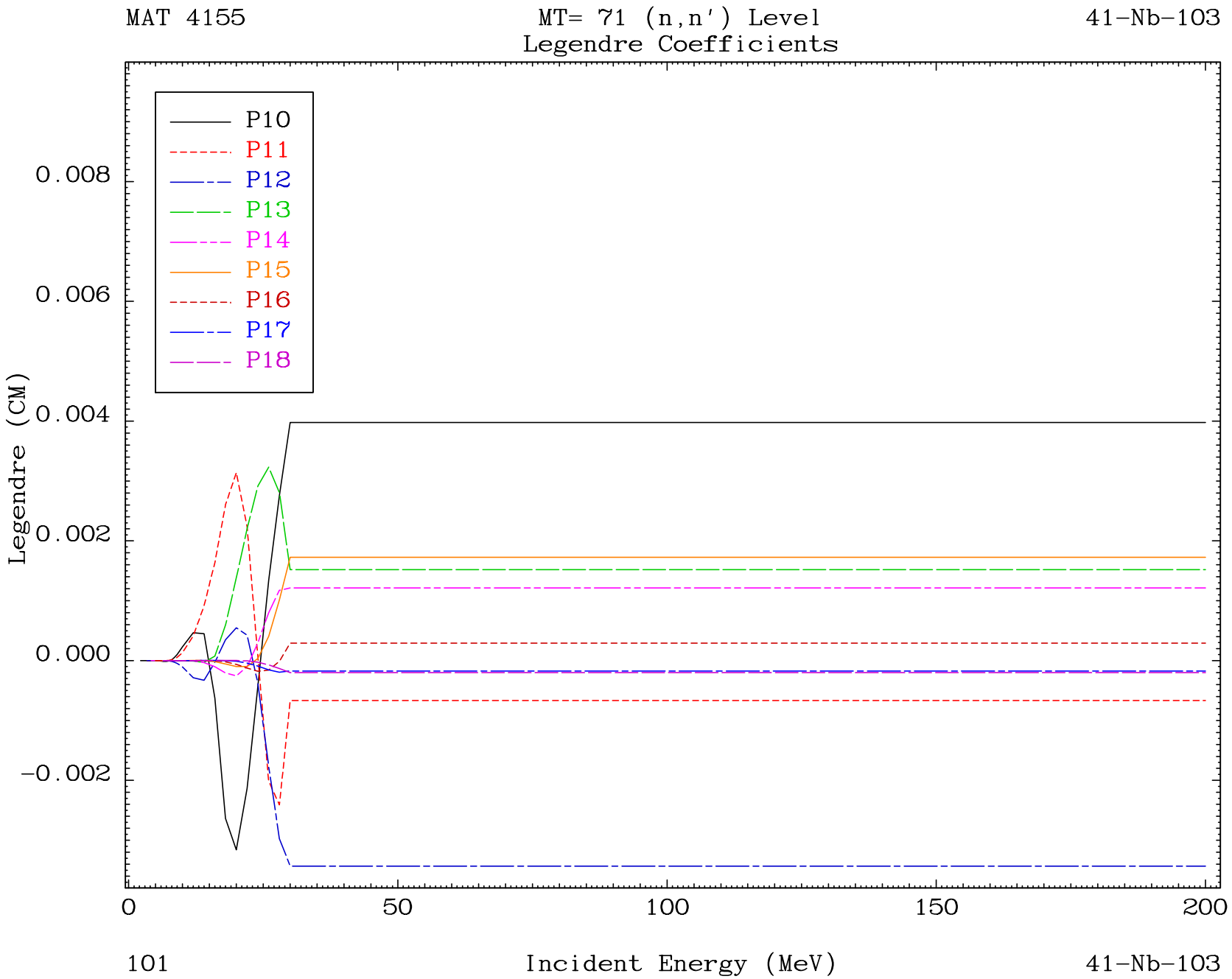

MAT 4155
MT= 70 (n,n') Level
Legendre Coefficients
41-Nb-103
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
P1
P2
P3
P4
P5
P6
P7
P8
P9
96
Incident Energy (MeV)
41-Nb-103

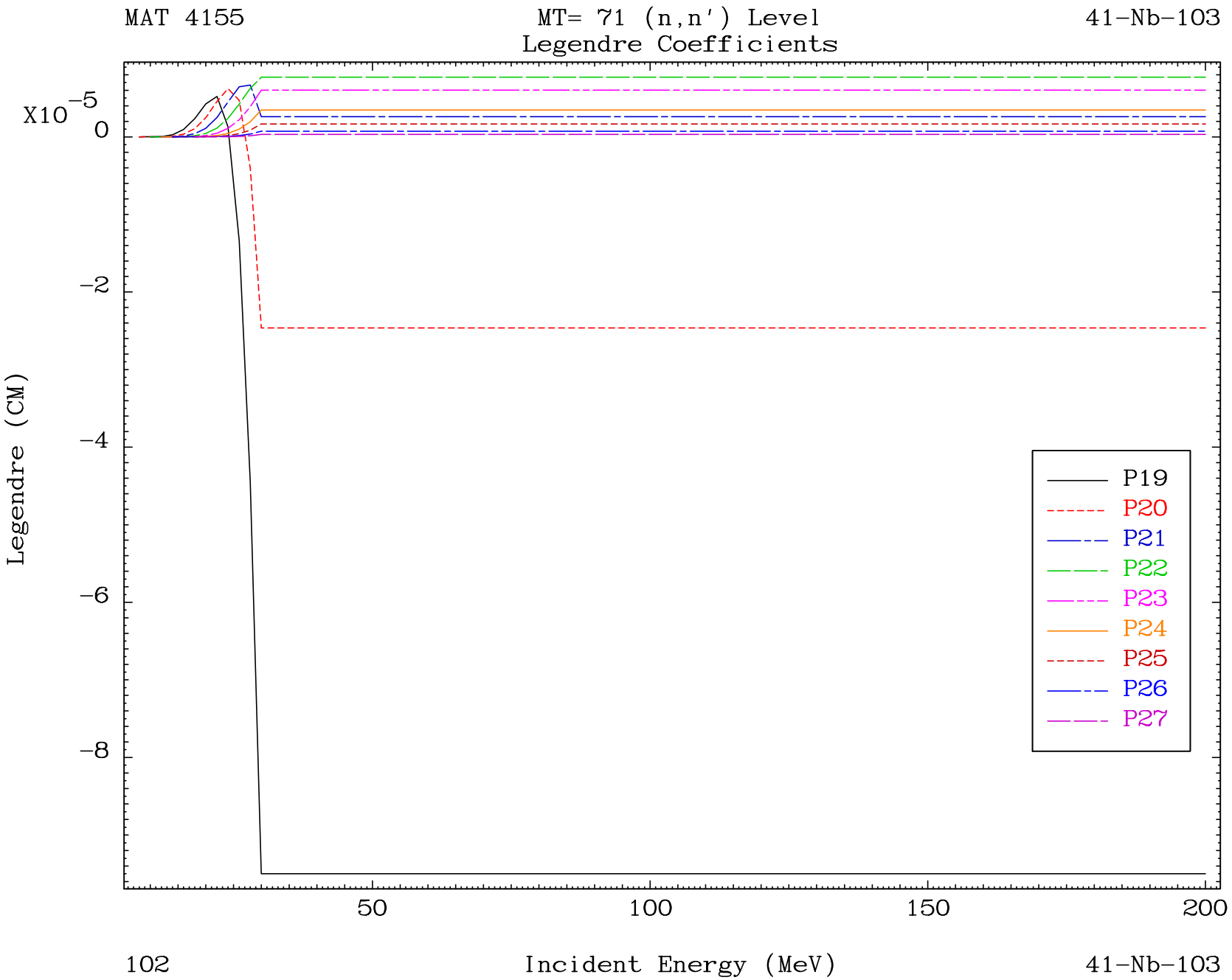

MAT 4155
MT= 70 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.008
0.006
0.004
0.002
0.000
-0.002
Legendre (CM)
0
50
100
150
200
97
Incident Energy (MeV)
41-Nb-103

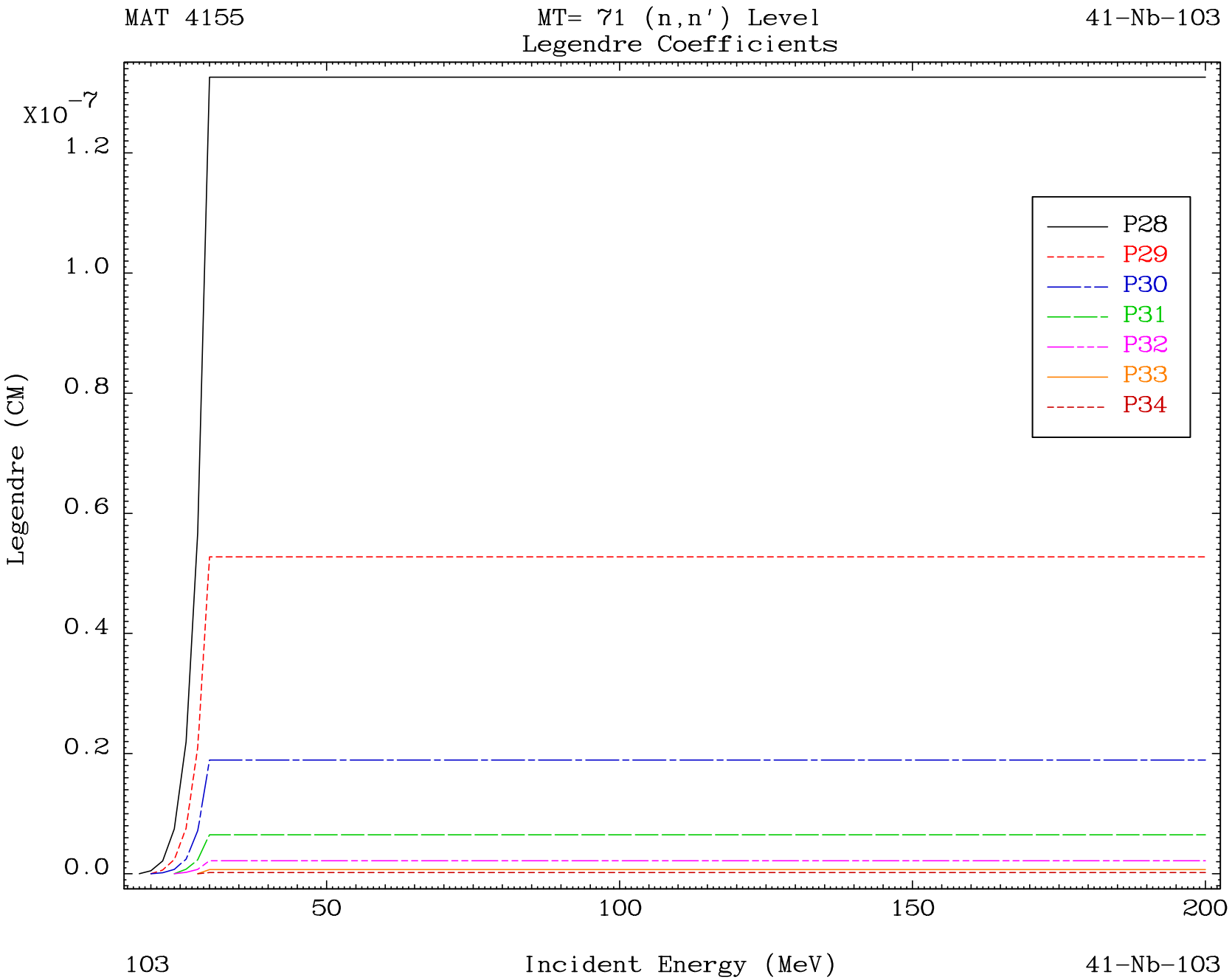

MAT 4155
MT= 70 (n,n') Level
Legendre Coefficients
41-Nb-103
X10 −5
0
−2
−4
−6
−8
Legendre (CM)
50
100
150
200
98
Incident Energy (MeV)
41-Nb-103
P19
P20
P21
P22
P23
P24
P25
P26
P27

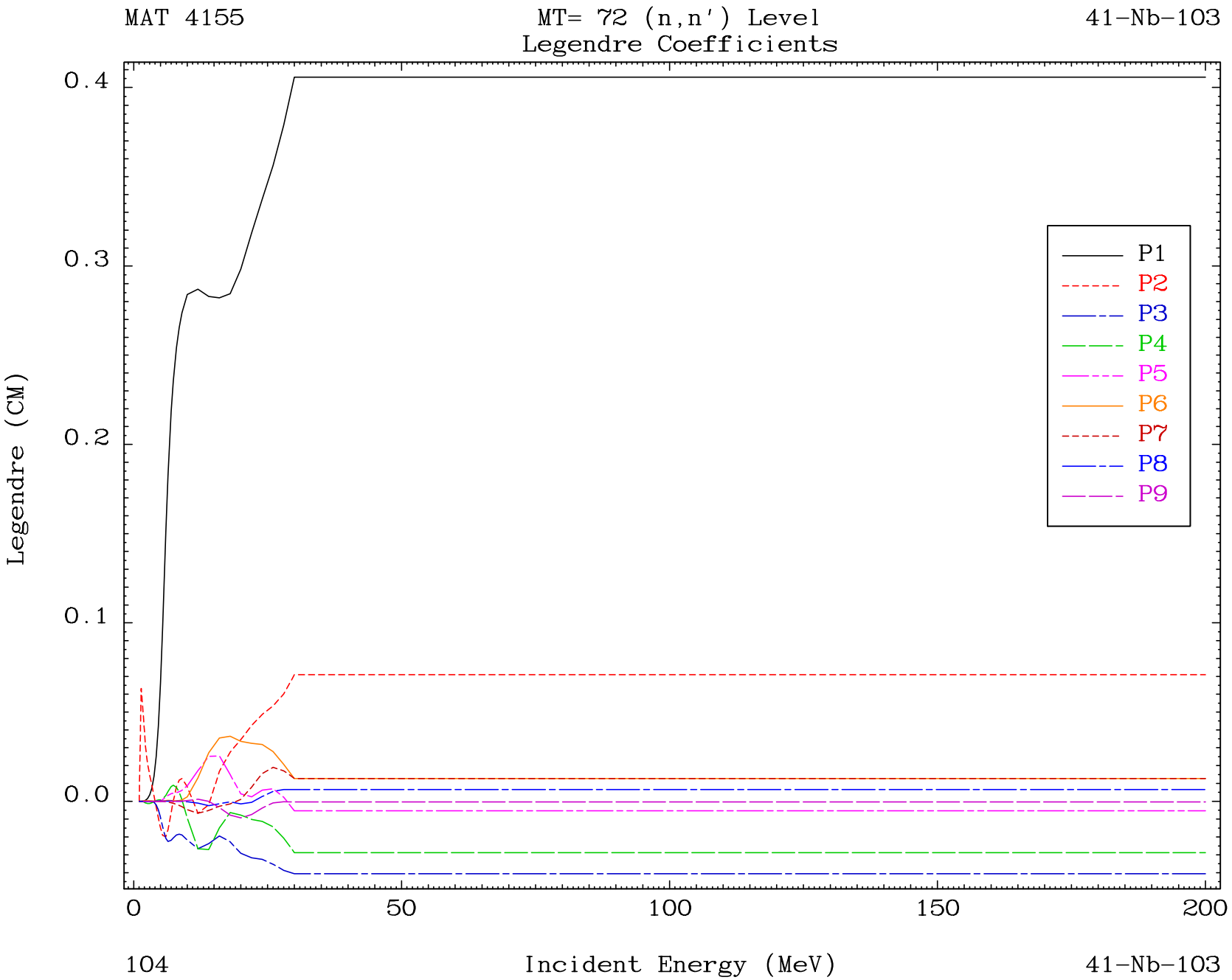

MAT 4155
MT= 70 (n,n') Level
Legendre Coefficients
41-Nb-103
X10^-7
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
99
Incident Energy (MeV)
41-Nb-103

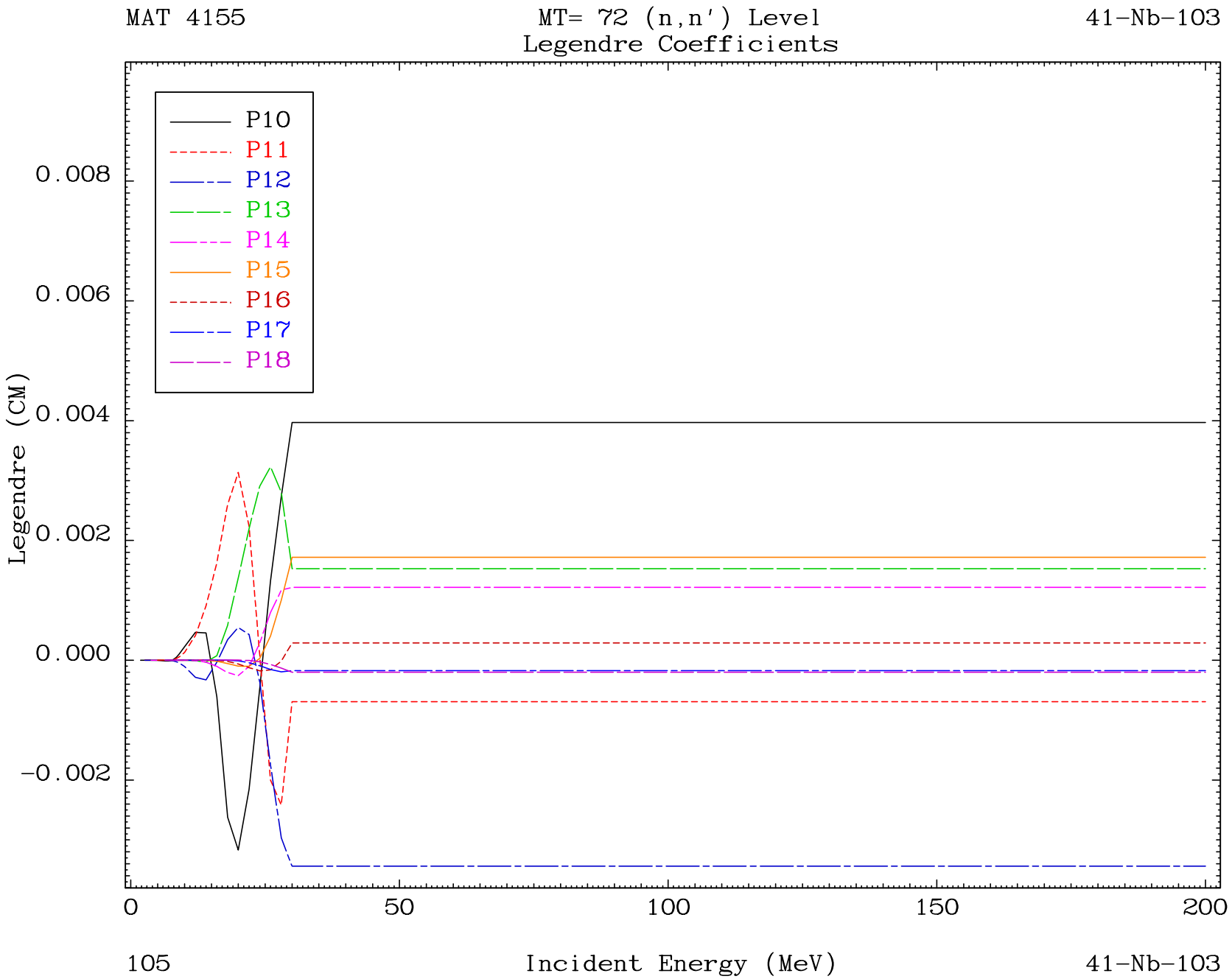

MAT 4155
MT= 71 (n,n') Level
Legendre Coefficients
41-Nb-103
0.4
0.3
0.2
0.1
0.0
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
100
Incident Energy (MeV)
41-Nb-103

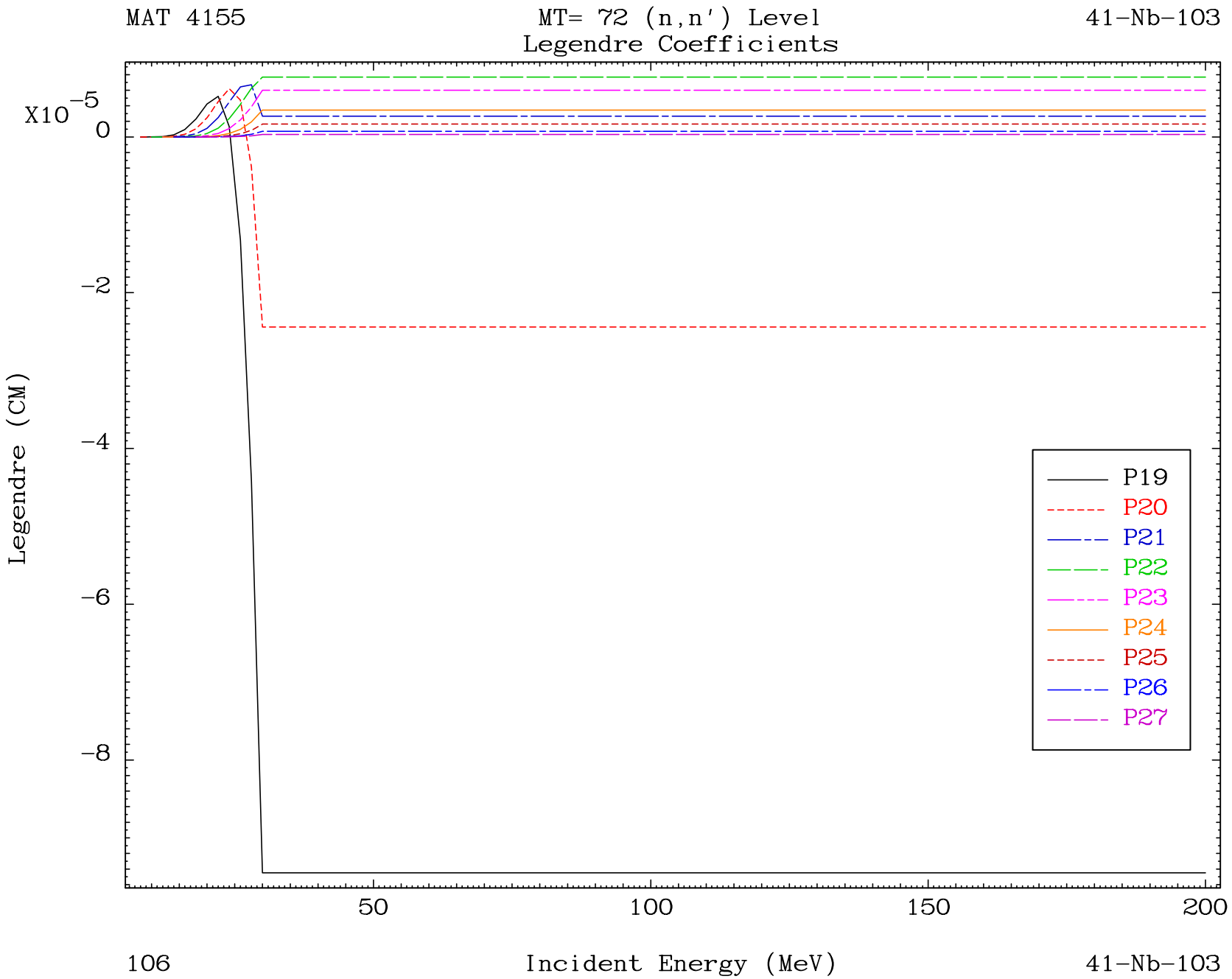

MAT 4155
MT= 71 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.008
0.006
0.004
0.002
0.000
-0.002
Legendre (CM)
0
50
100
150
200
101
Incident Energy (MeV)
41-Nb-103

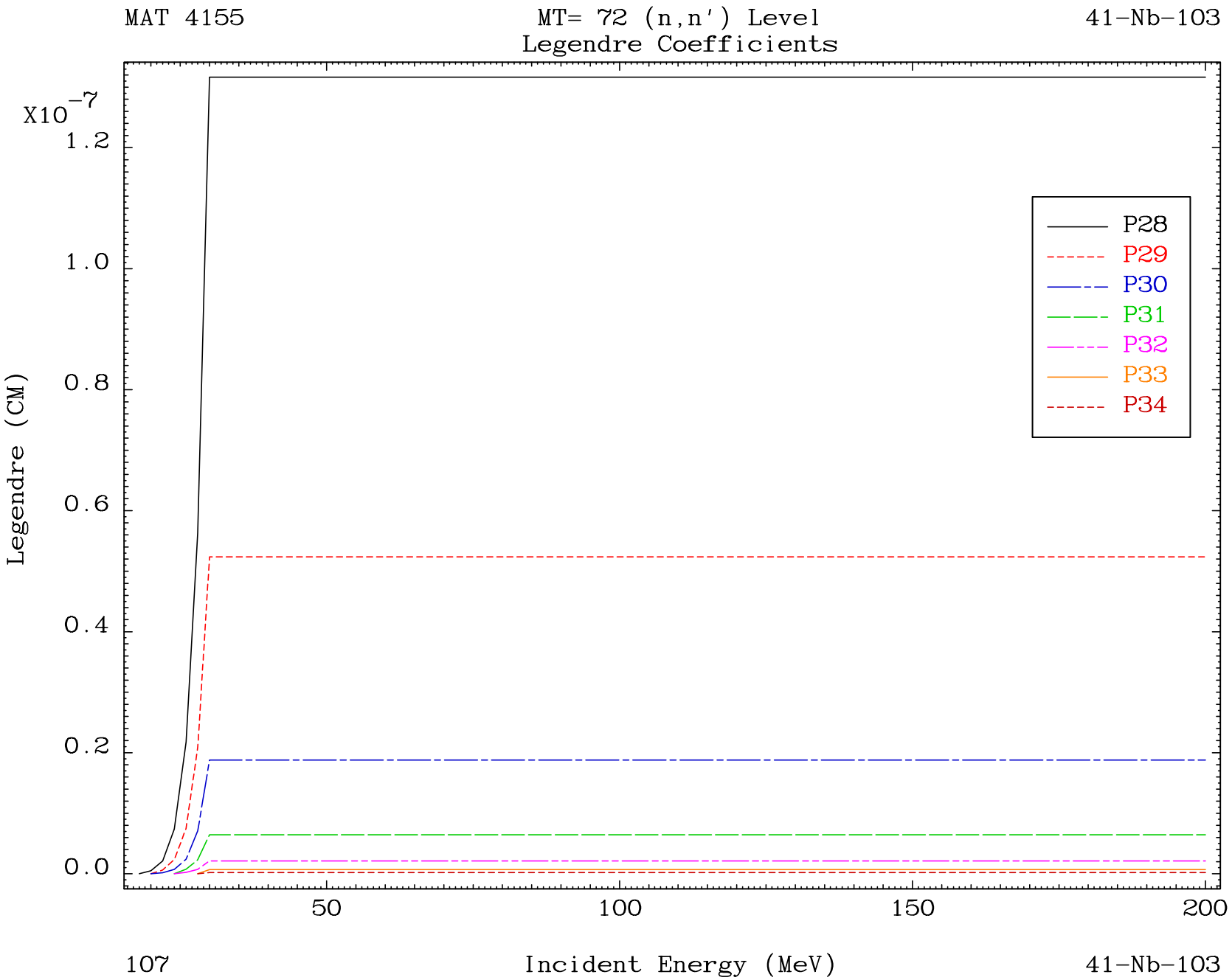

MAT 4155
MT= 71 (n,n') Level
Legendre Coefficients
41-Nb-103
X10 −5
0
−2
−4
−6
−8
Legendre (CM)
50
100
150
200
102
Incident Energy (MeV)
41-Nb-103
P19
P20
P21
P22
P23
P24
P25
P26
P27

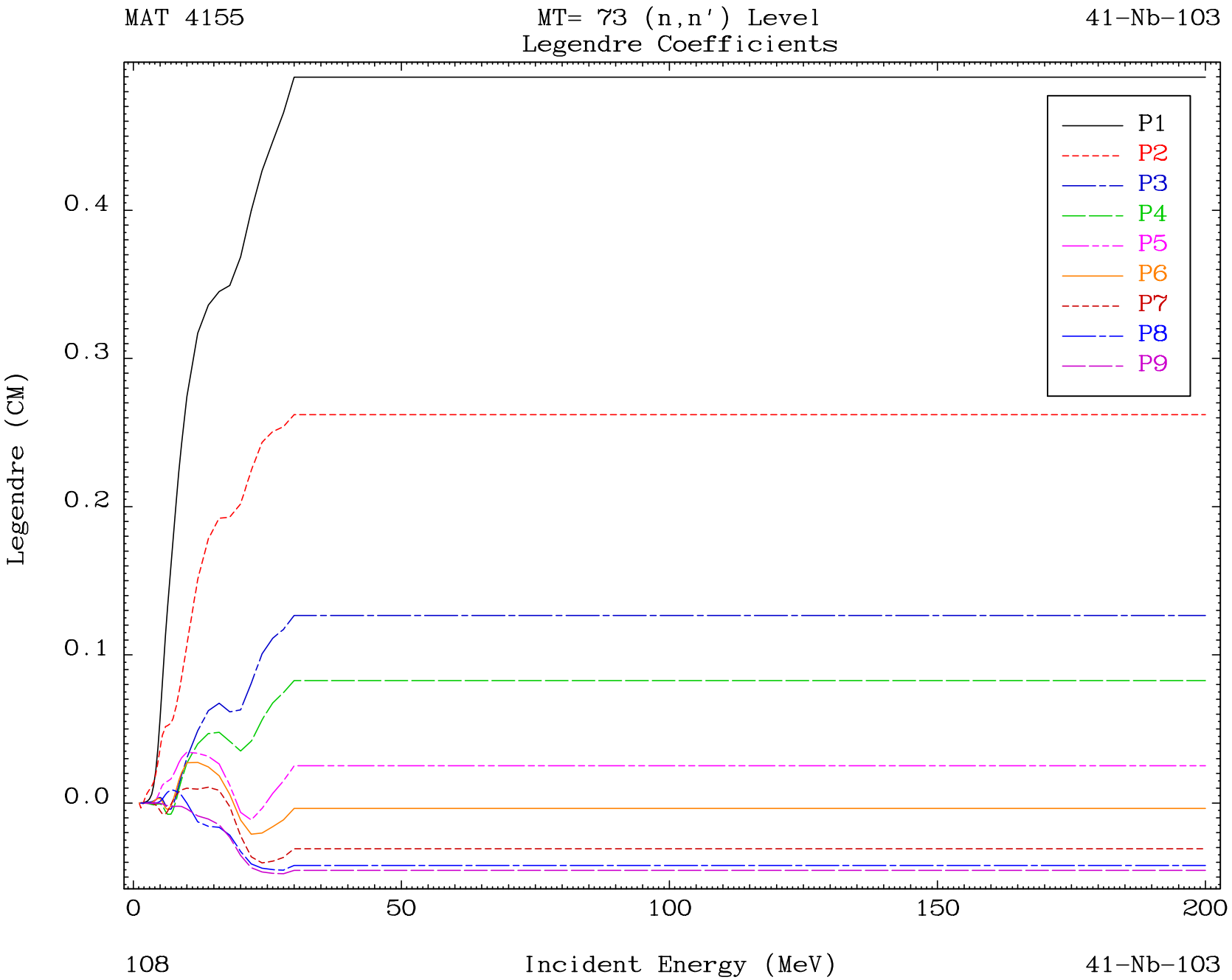

MAT 4155
MT= 71 (n,n') Level
Legendre Coefficients
41-Nb-103
X10^-7
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
103
Incident Energy (MeV)
41-Nb-103

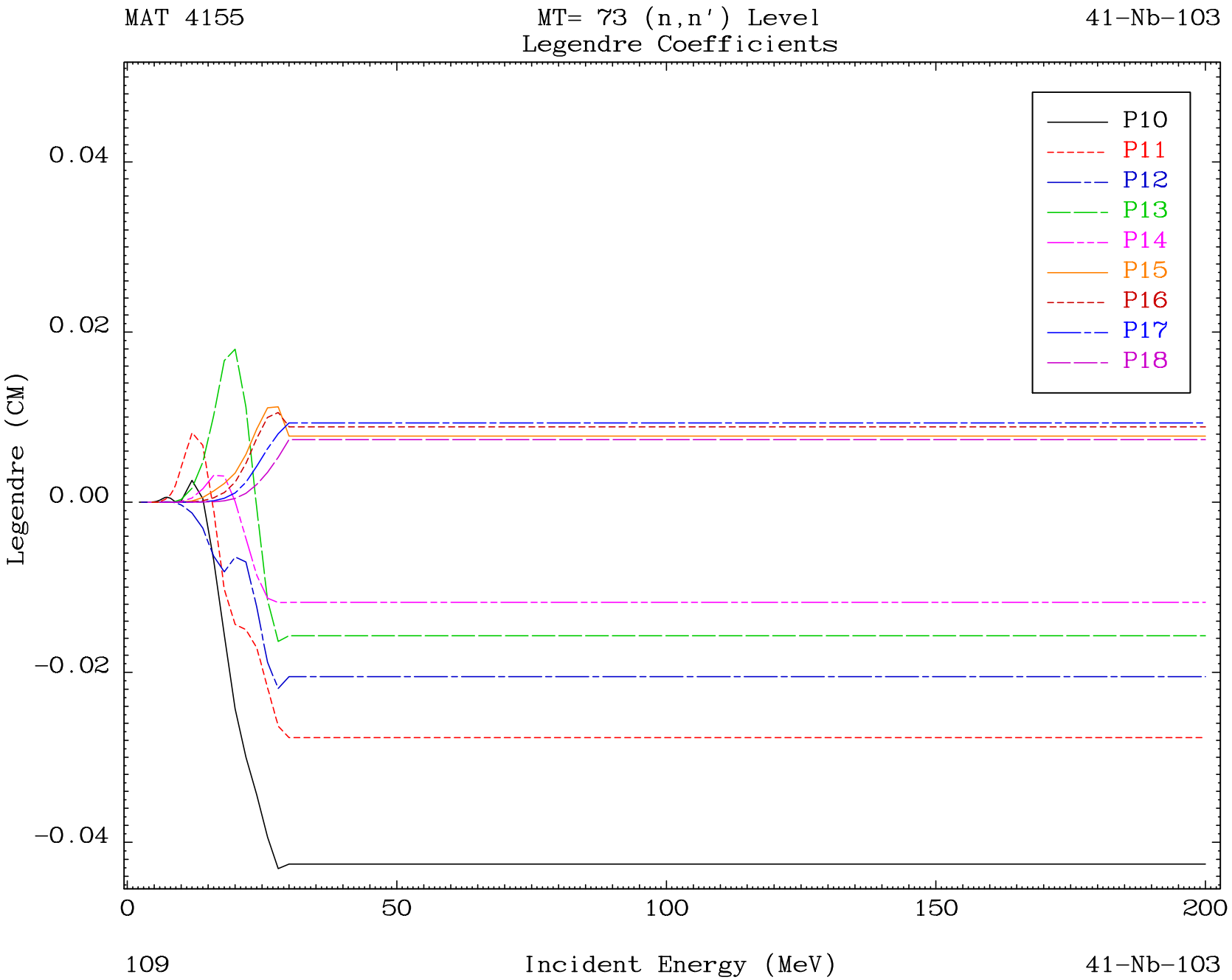

MAT 4155
MT= 72 (n,n') Level
Legendre Coefficients
41-Nb-103
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
P1
P2
P3
P4
P5
P6
P7
P8
P9
104
Incident Energy (MeV)
41-Nb-103

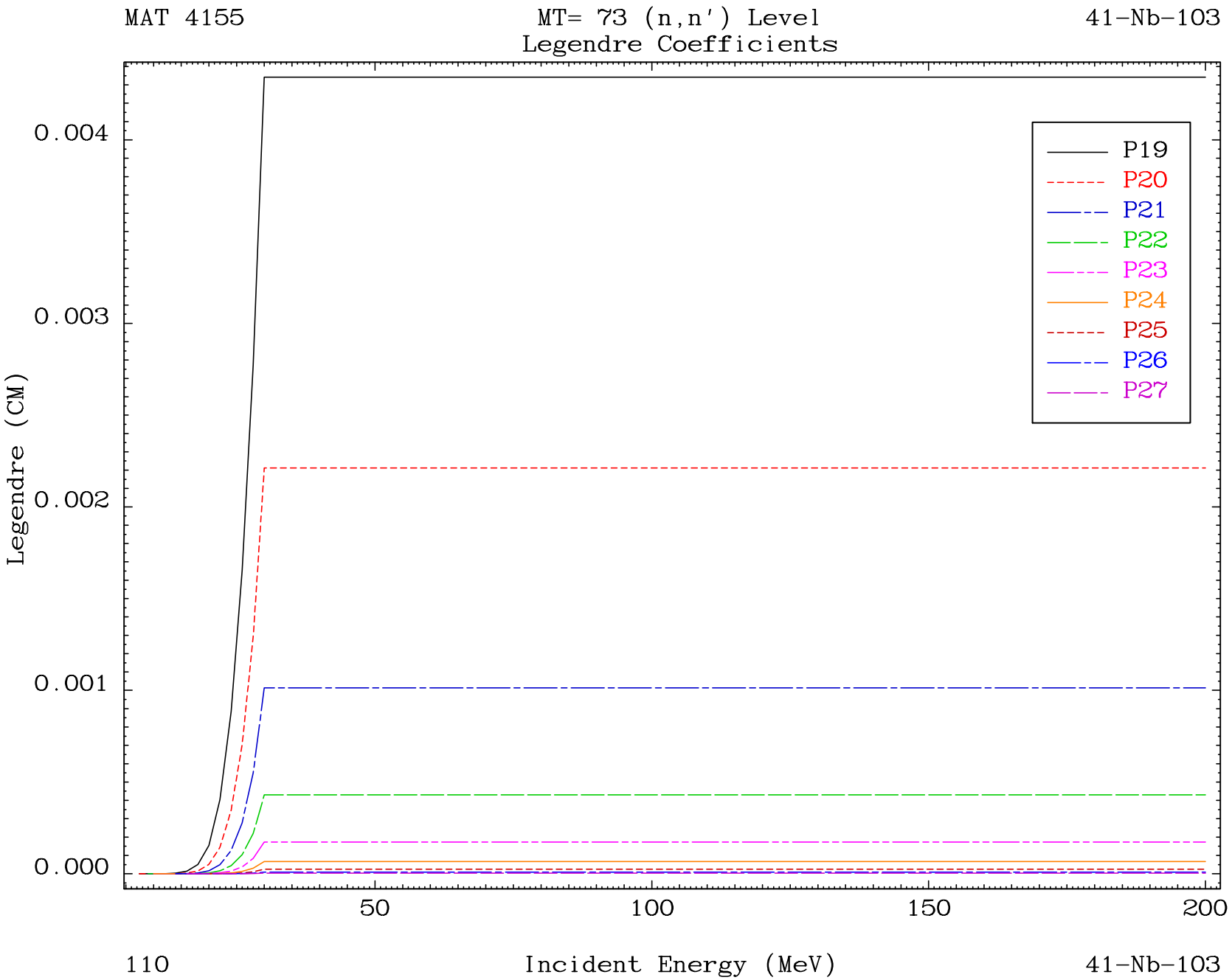

MAT 4155
MT= 72 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.008
0.006
0.004
0.002
0.000
-0.002
Legendre (CM)
0
50
100
150
200
105
Incident Energy (MeV)
41-Nb-103

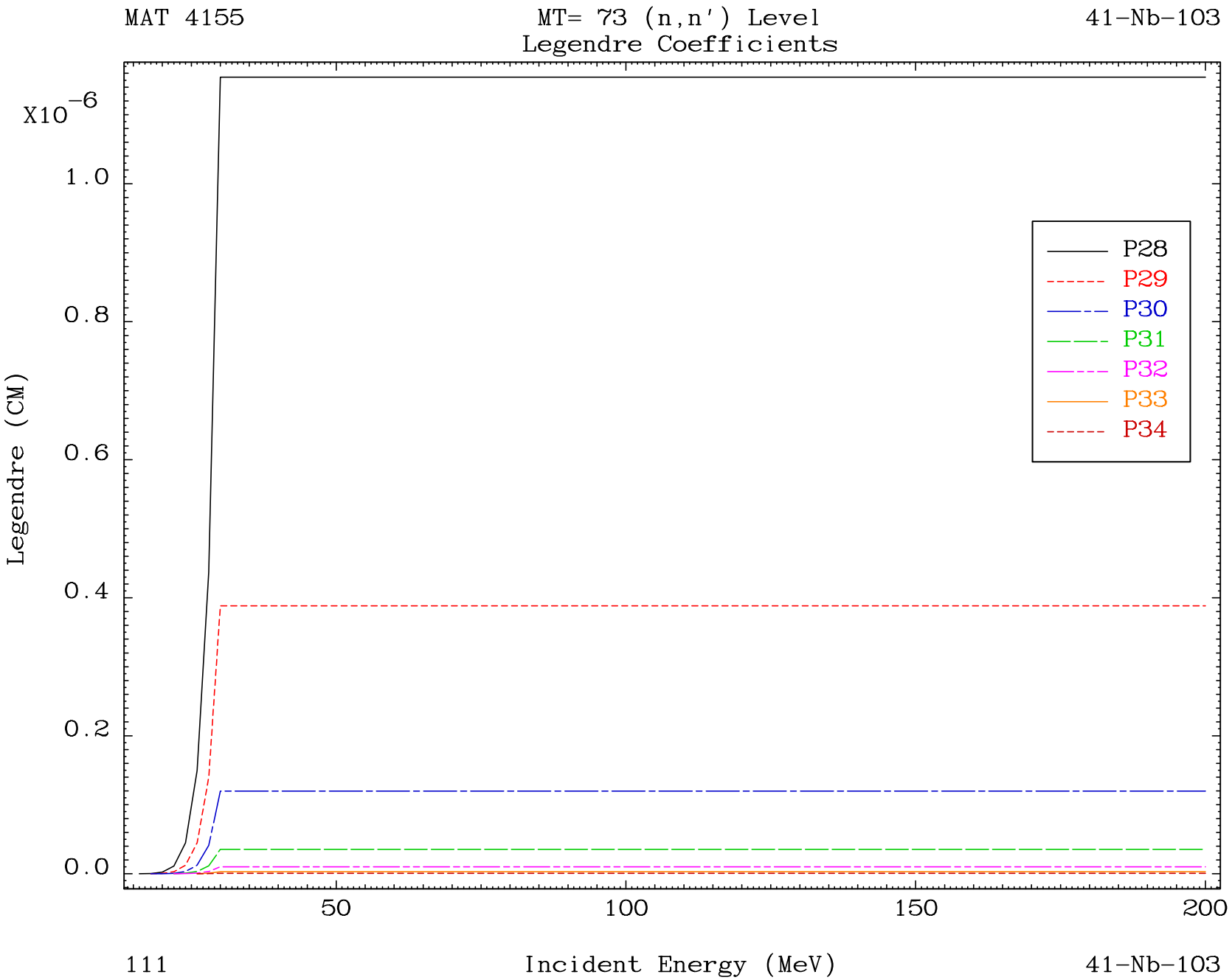

MAT 4155
MT= 72 (n,n') Level
Legendre Coefficients
41-Nb-103
X10^-5
0
-2
-4
-6
-8
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
106
Incident Energy (MeV)
41-Nb-103

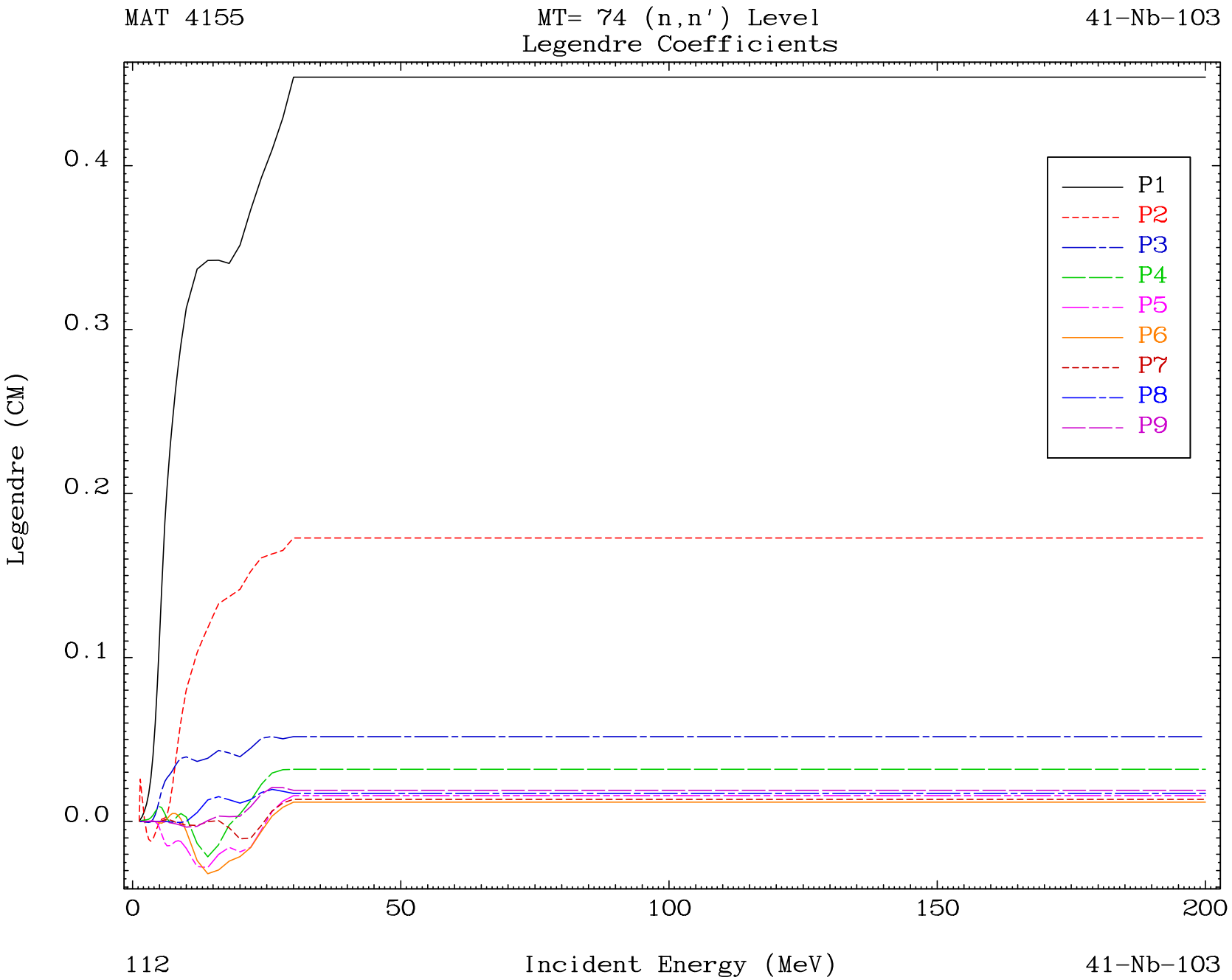

MAT 4155
MT= 72 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-7
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
107
Incident Energy (MeV)
41-Nb-103

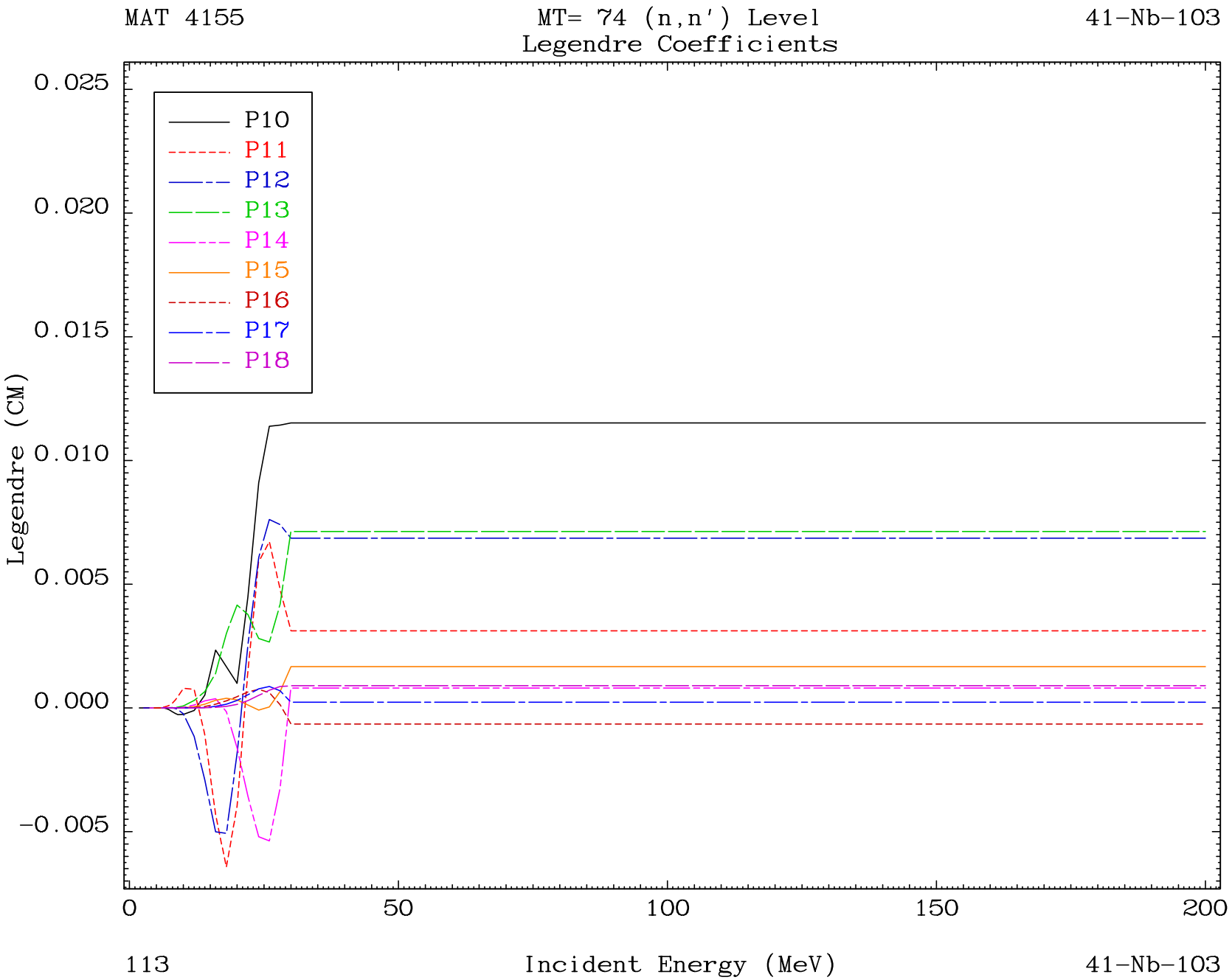

MAT 4155
MT= 73 (n,n') Level
Legendre Coefficients
41-Nb-103
P1
P2
P3
P4
P5
P6
P7
P8
P9
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
108
Incident Energy (MeV)
41-Nb-103

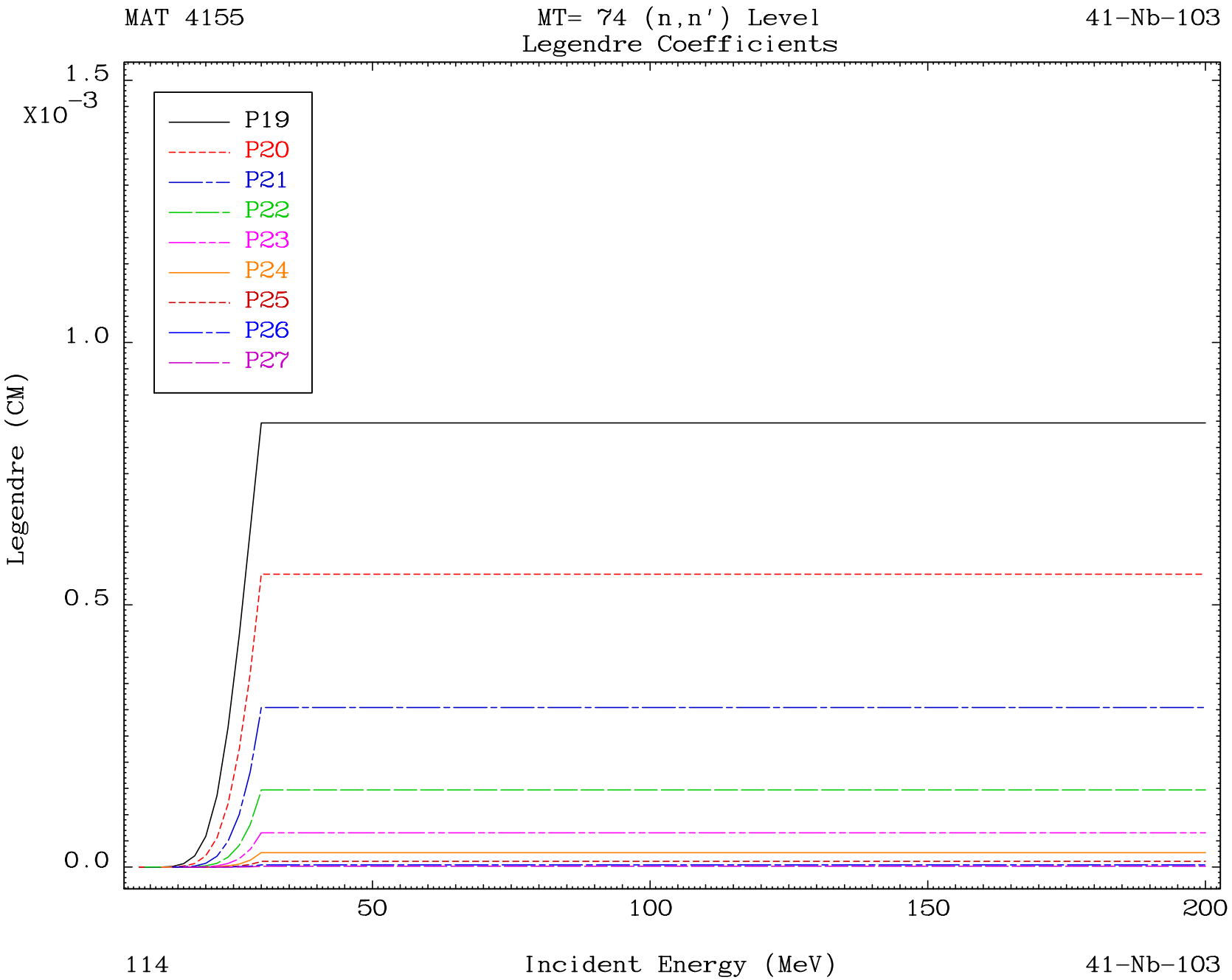

MAT 4155
MT= 73 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
109
Incident Energy (MeV)
41-Nb-103

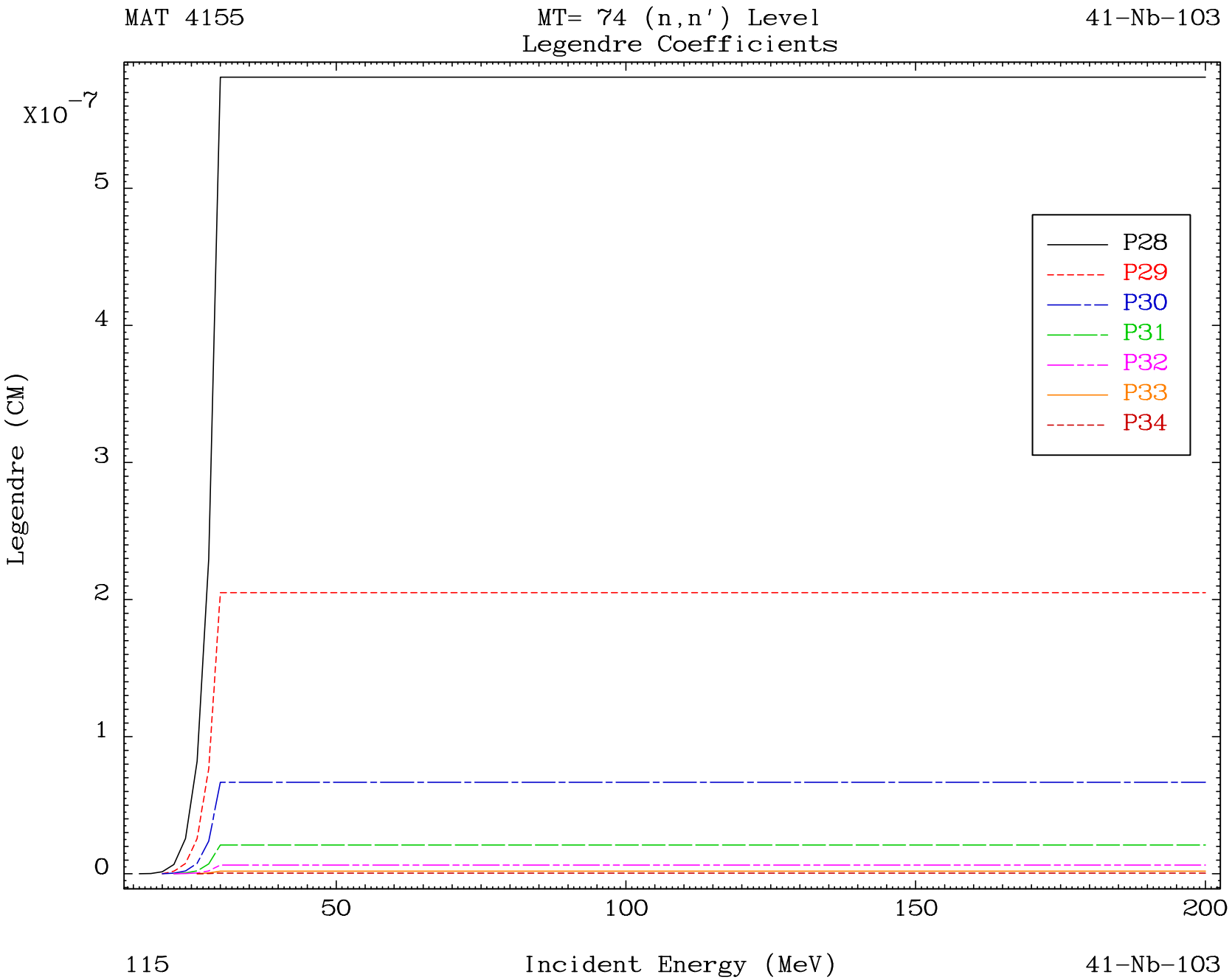

MAT 4155
MT= 73 (n,n') Level
Legendre Coefficients
41-Nb-103
0.004
0.003
0.002
0.001
0.000
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
110
Incident Energy (MeV)
41-Nb-103

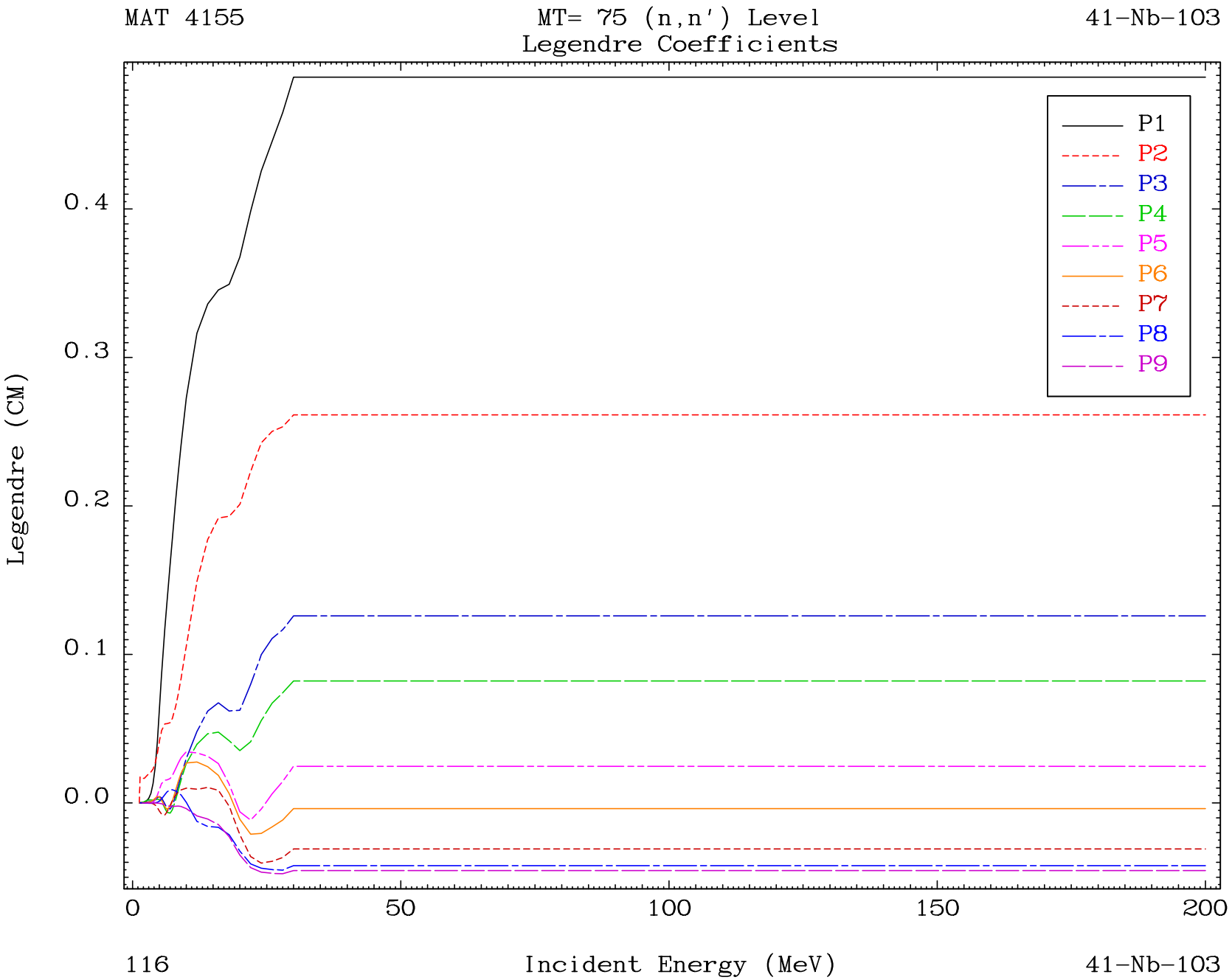

MAT 4155
MT= 73 (n,n') Level
Legendre Coefficients
41-Nb-103
X10^-6
1.0
0.8
0.6
0.4
0.2
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
111
Incident Energy (MeV)
41-Nb-103

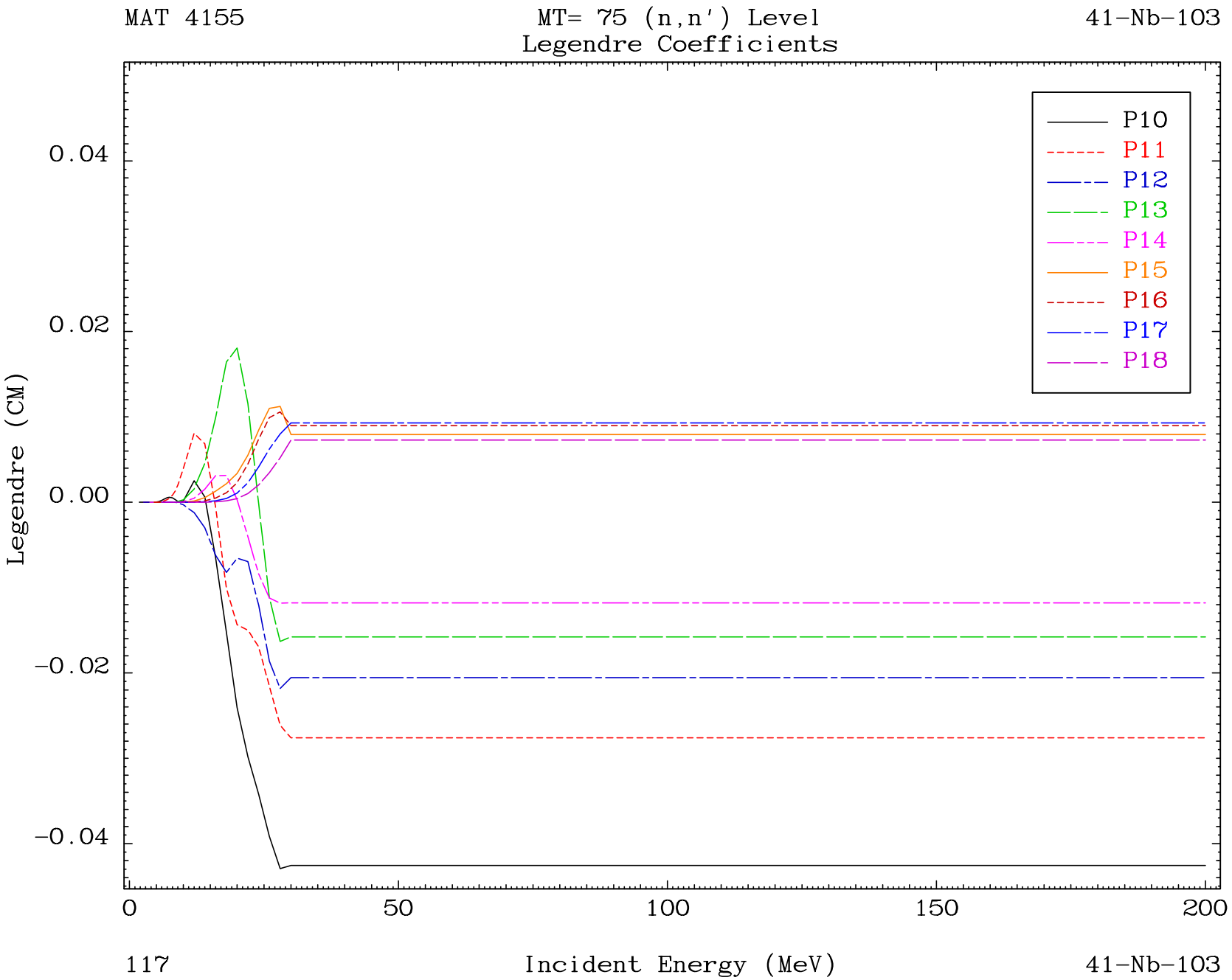

MAT 4155
MT= 74 (n,n') Level
Legendre Coefficients
41-Nb-103
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
P1
P2
P3
P4
P5
P6
P7
P8
P9
112
Incident Energy (MeV)
41-Nb-103

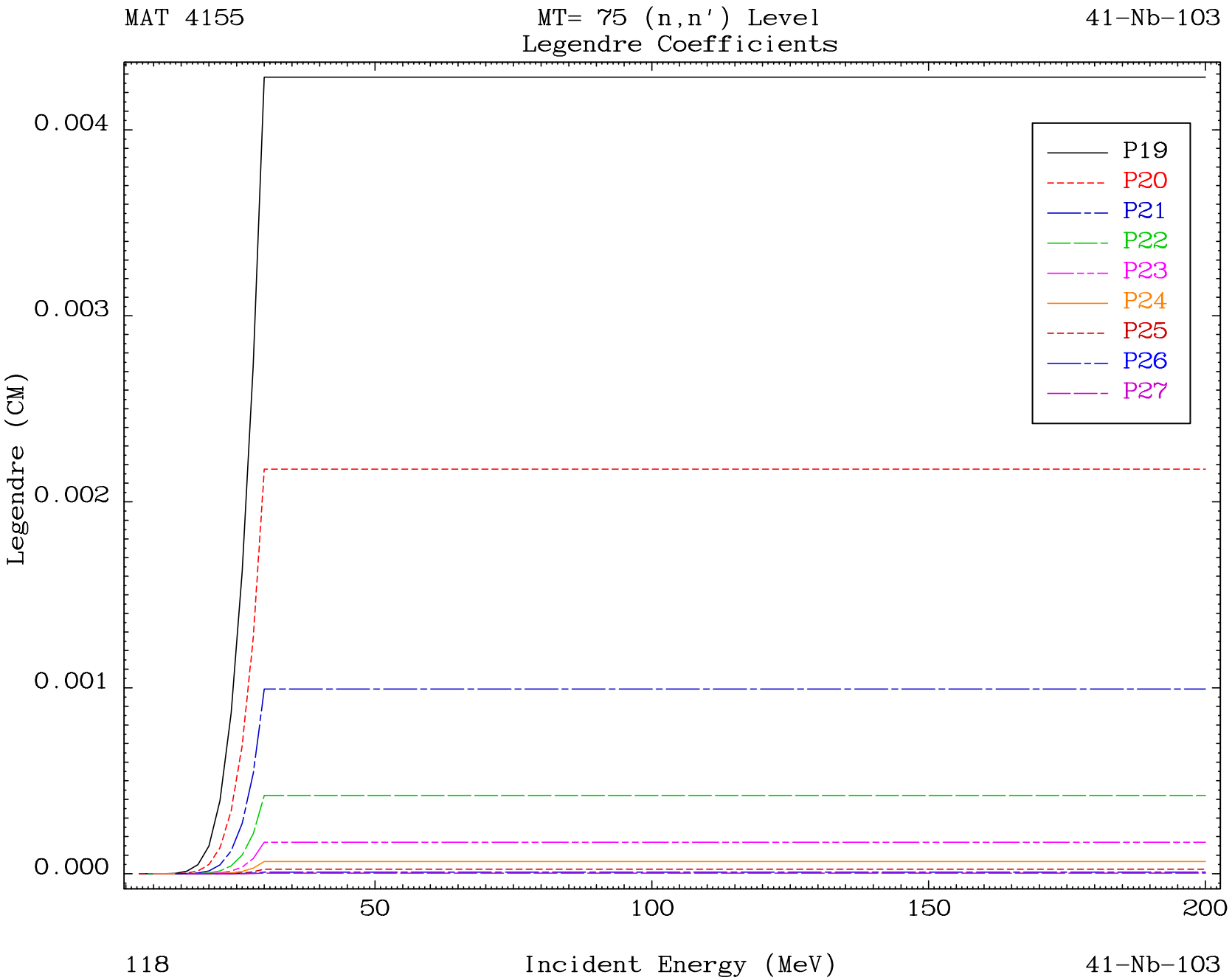

MAT 4155
MT= 74 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
Legendre (CM)
0
50
100
150
200
113
Incident Energy (MeV)
41-Nb-103

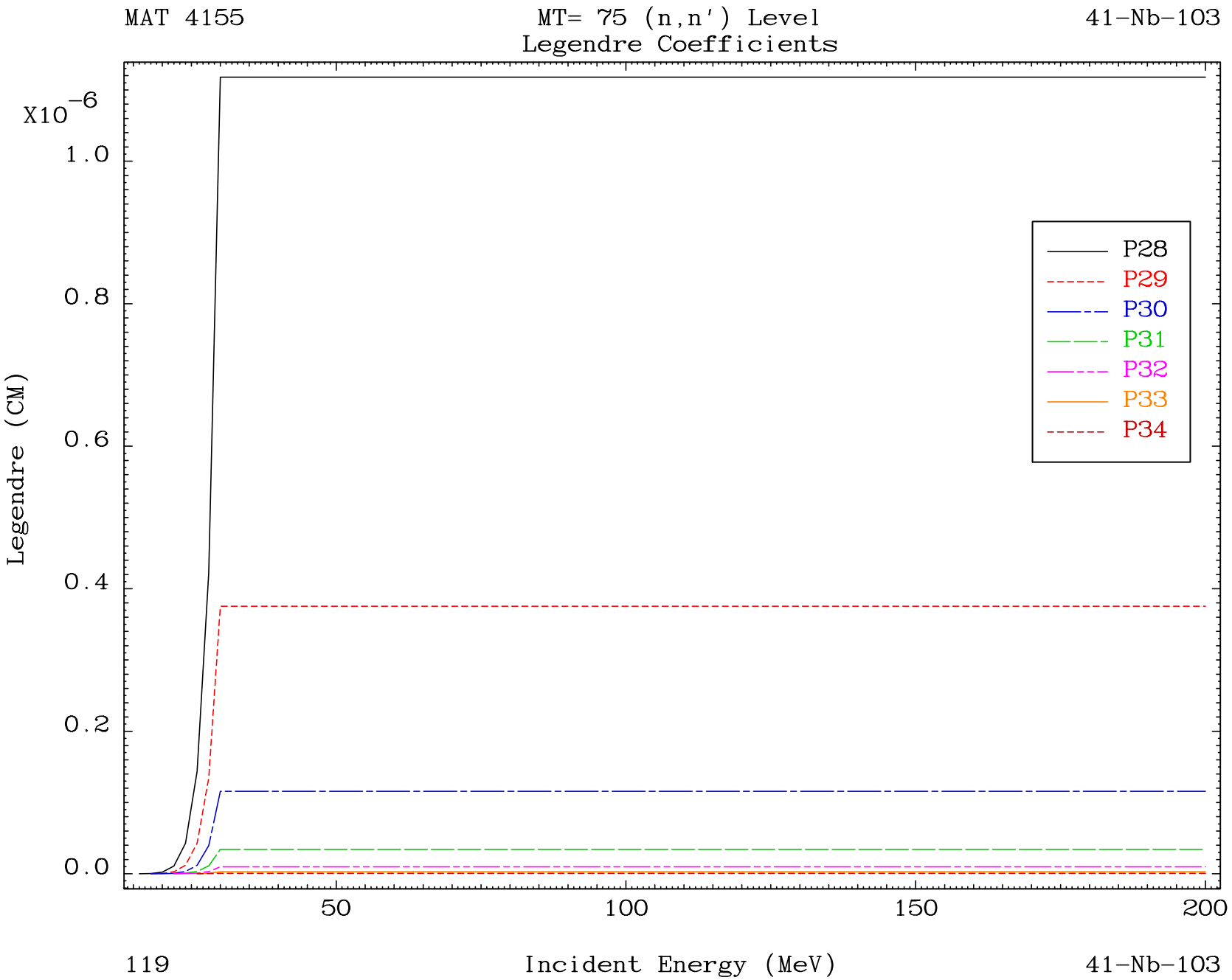

MAT 4155
MT= 74 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-3
1.5
1.0
0.5
0.0
P19
P20
P21
P22
P23
P24
P25
P26
P27
Legendre (CM)
50
100
150
200
114
Incident Energy (MeV)
41-Nb-103

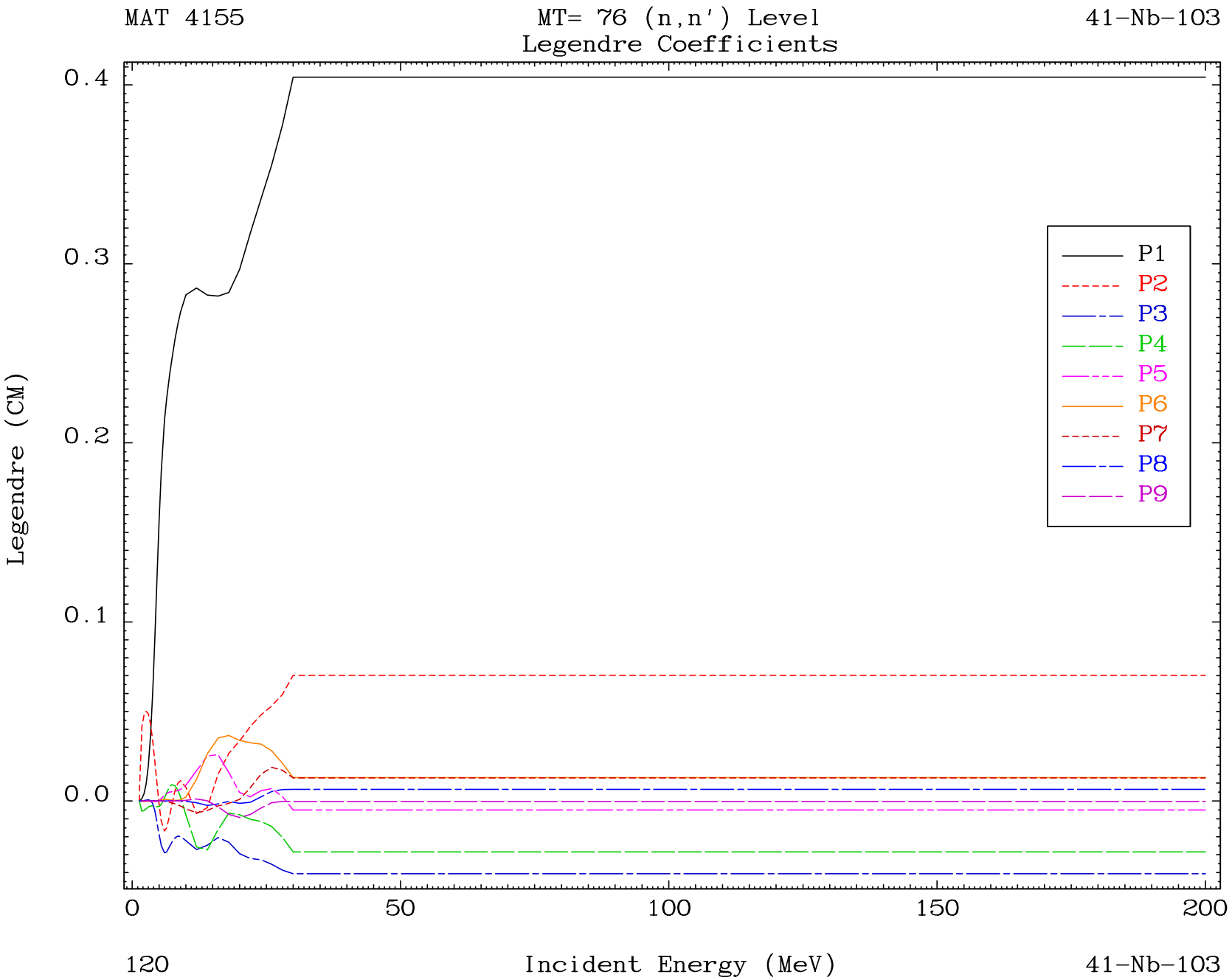

MAT 4155
MT= 74 (n,n') Level
Legendre Coefficients
41-Nb-103
X10-7
5
4
3
2
1
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
115
Incident Energy (MeV)
41-Nb-103

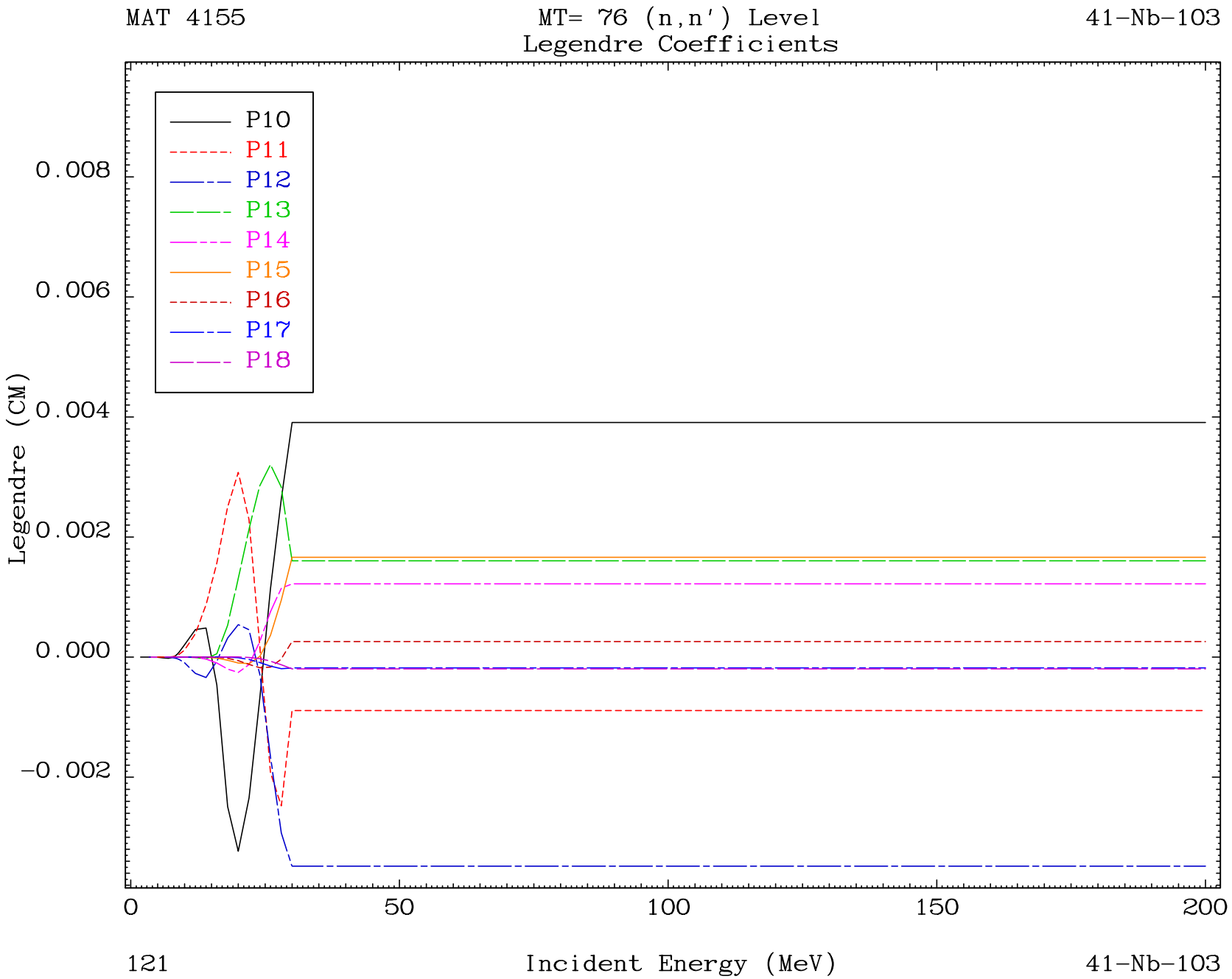

MAT 4155
MT= 75 (n,n') Level
Legendre Coefficients
41-Nb-103
P1
P2
P3
P4
P5
P6
P7
P8
P9
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
116
Incident Energy (MeV)
41-Nb-103

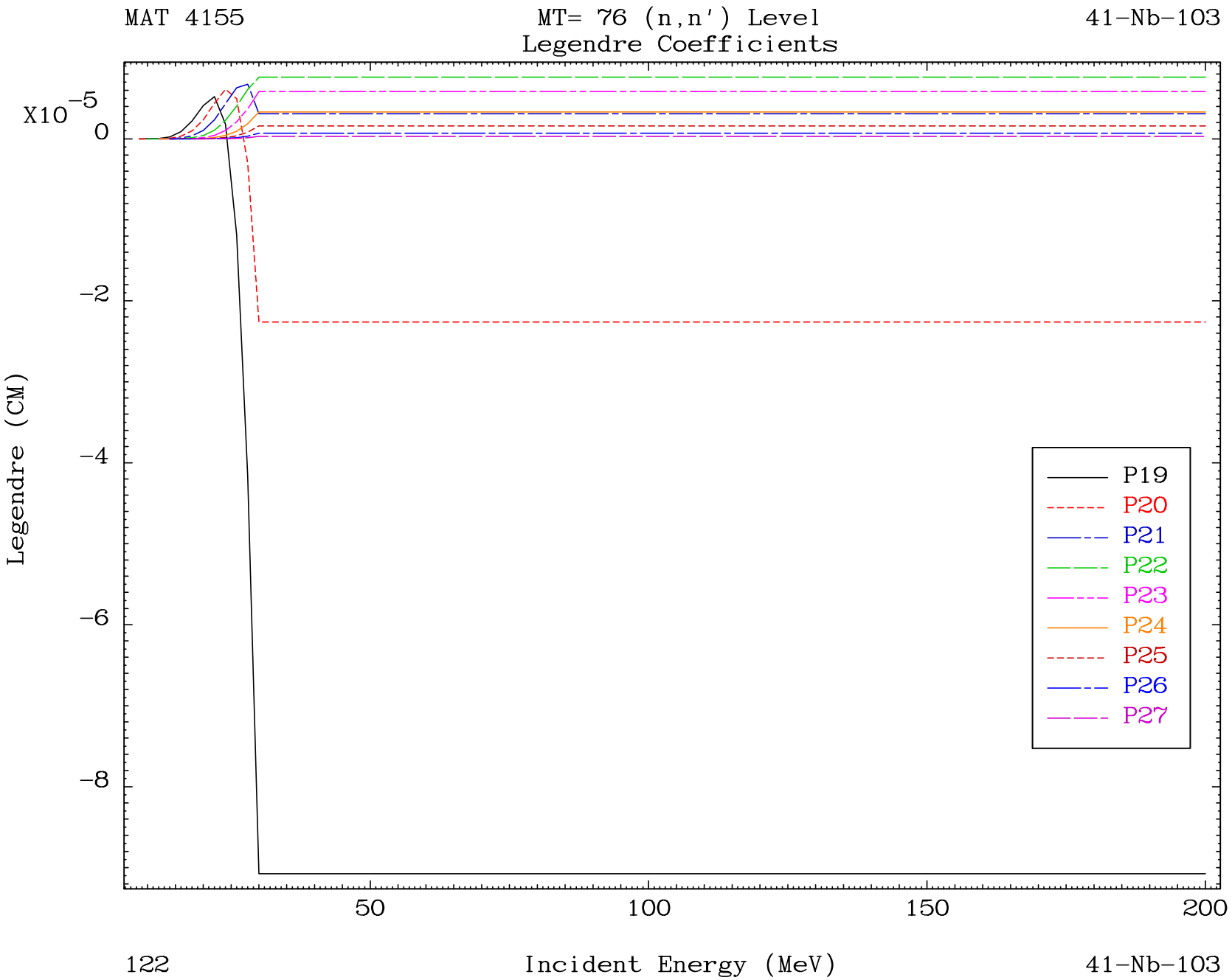

MAT 4155
MT= 75 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
117
Incident Energy (MeV)
41-Nb-103

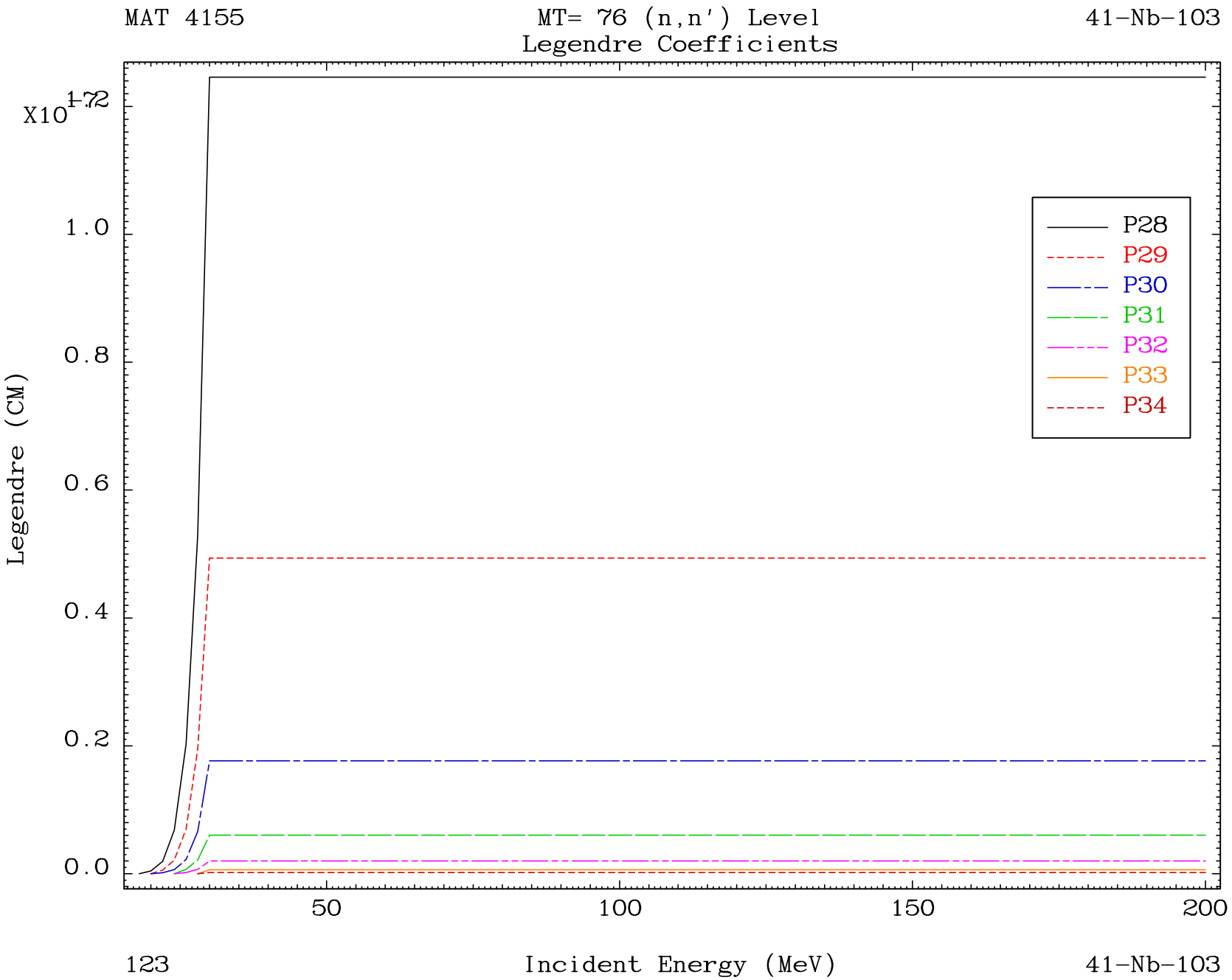

MAT 4155
MT= 75 (n,n') Level
Legendre Coefficients
41-Nb-103
0.004
0.003
0.002
0.001
0.000
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
118
Incident Energy (MeV)
41-Nb-103

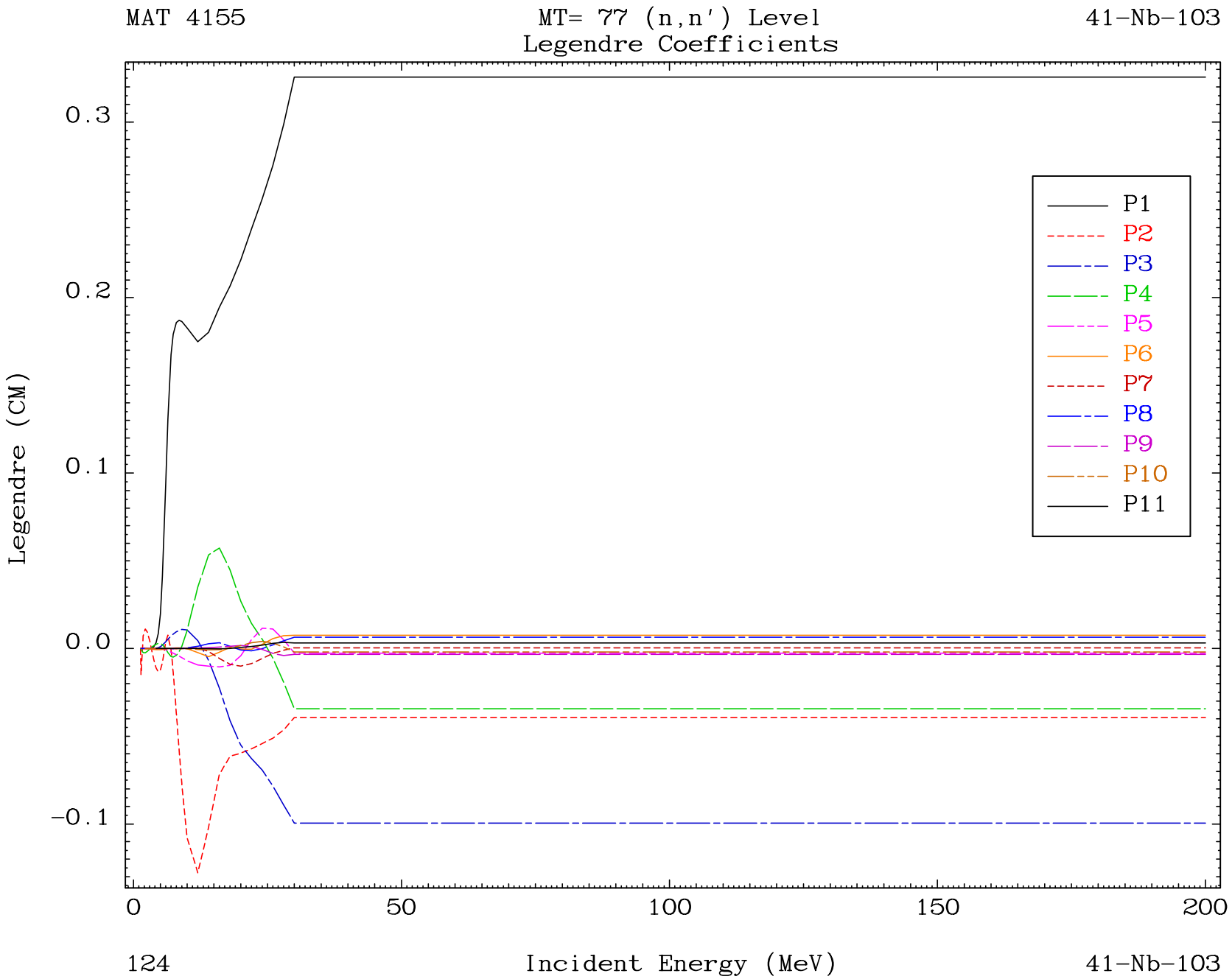

MAT 4155
MT= 75 (n,n') Level
Legendre Coefficients
41-Nb-103
X10^-6
1.0
0.8
0.6
0.4
0.2
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
119
Incident Energy (MeV)
41-Nb-103

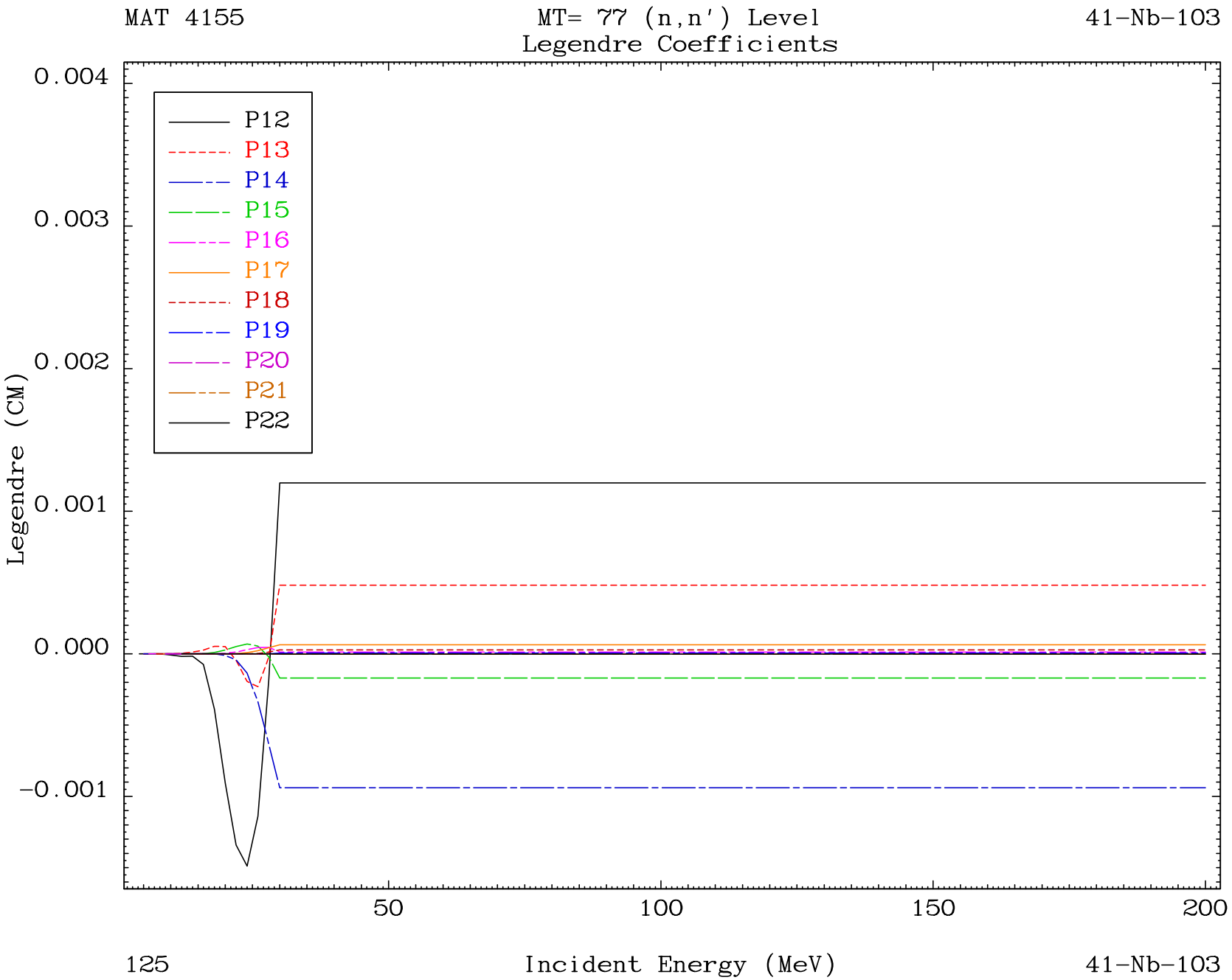

MAT 4155
MT= 76 (n,n') Level
Legendre Coefficients
41-Nb-103
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
120
Incident Energy (MeV)
41-Nb-103
P1
P2
P3
P4
P5
P6
P7
P8
P9

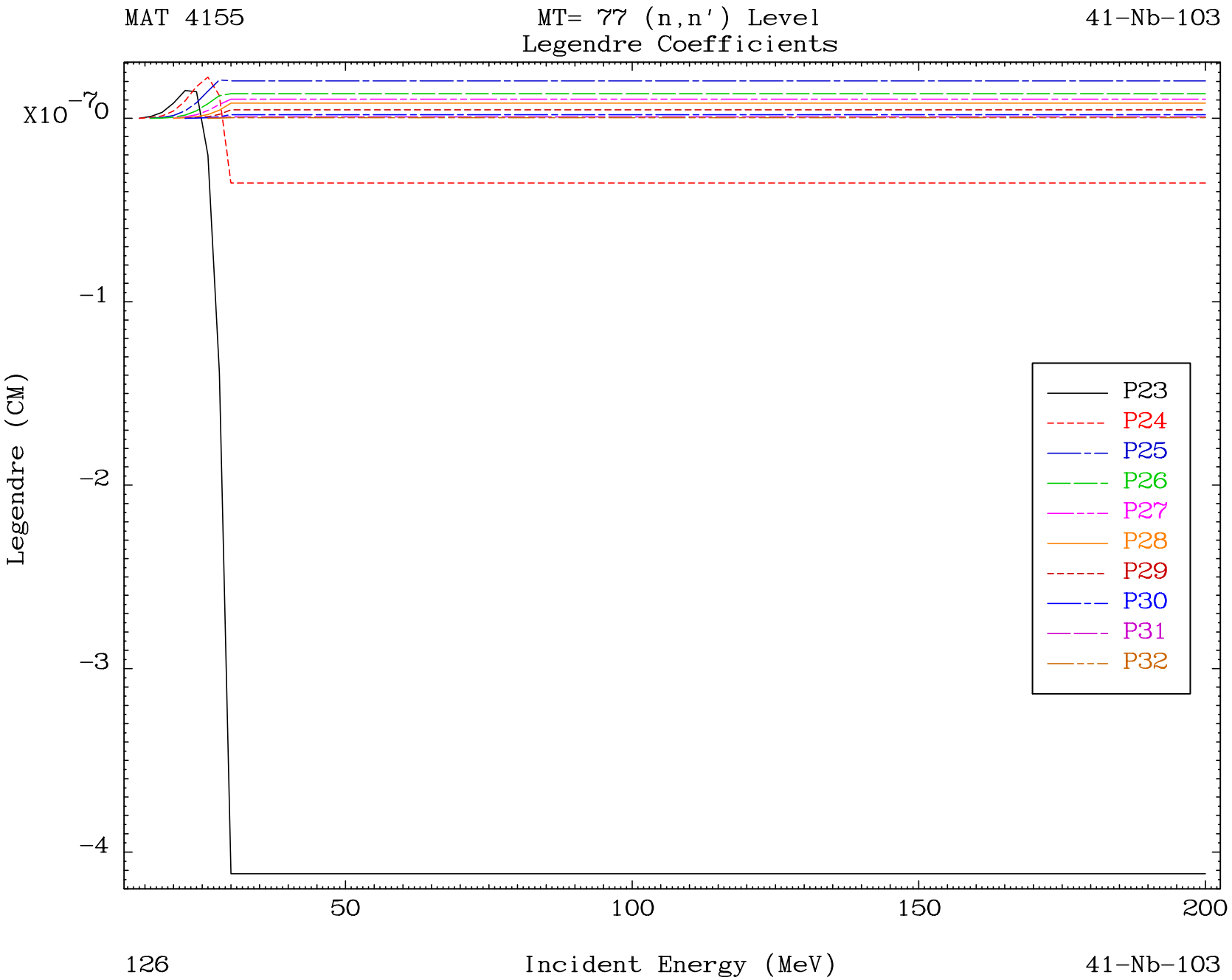

MAT 4155
MT= 76 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.008
0.006
0.004
0.002
0.000
-0.002
Legendre (CM)
0
50
100
150
200
121
Incident Energy (MeV)
41-Nb-103

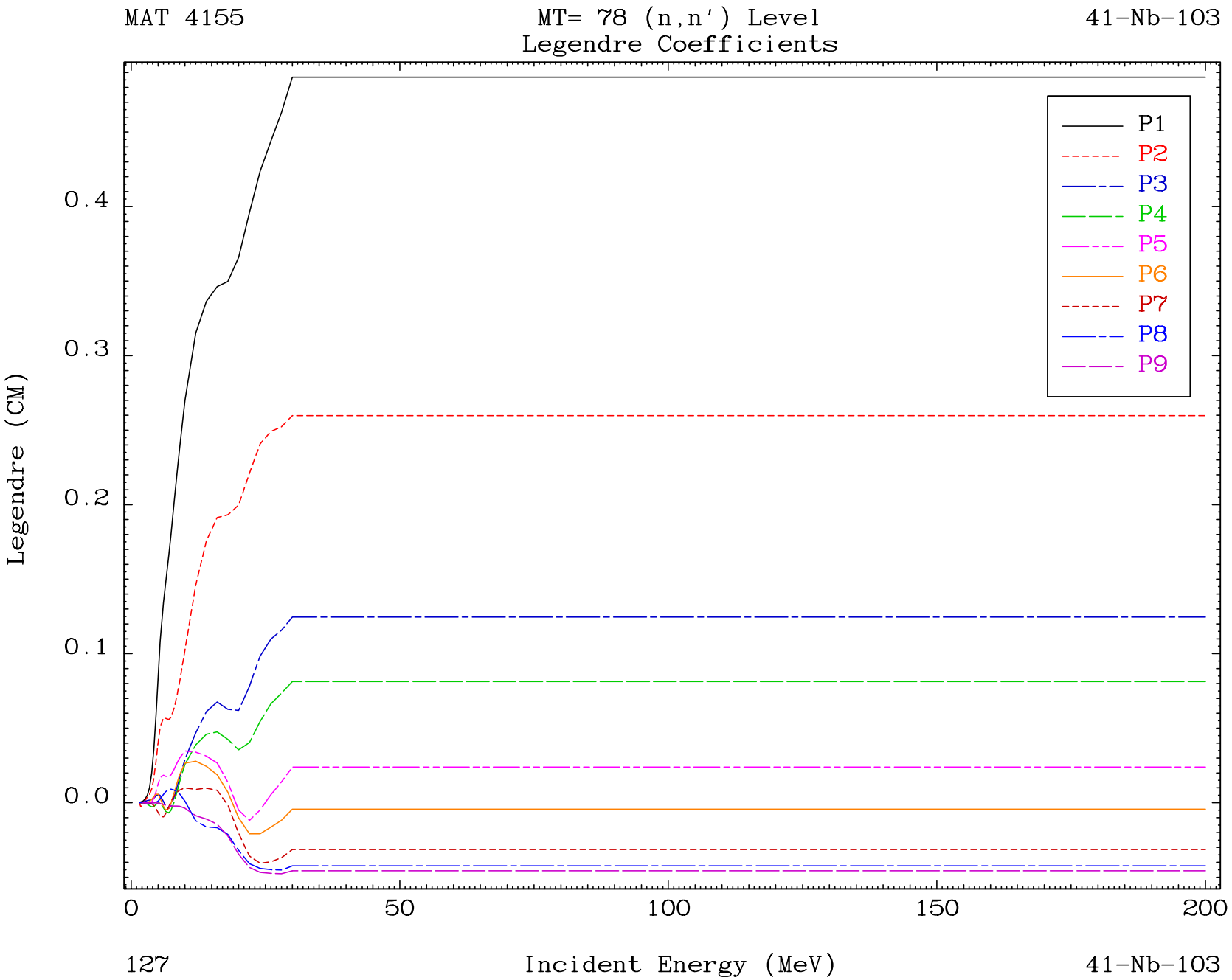

MAT 4155
MT= 76 (n,n') Level
Legendre Coefficients
41-Nb-103
X10^-5
0
-2
-4
-6
-8
Legendre (CM)
50
100
150
200
122
Incident Energy (MeV)
41-Nb-103
P19
P20
P21
P22
P23
P24
P25
P26
P27

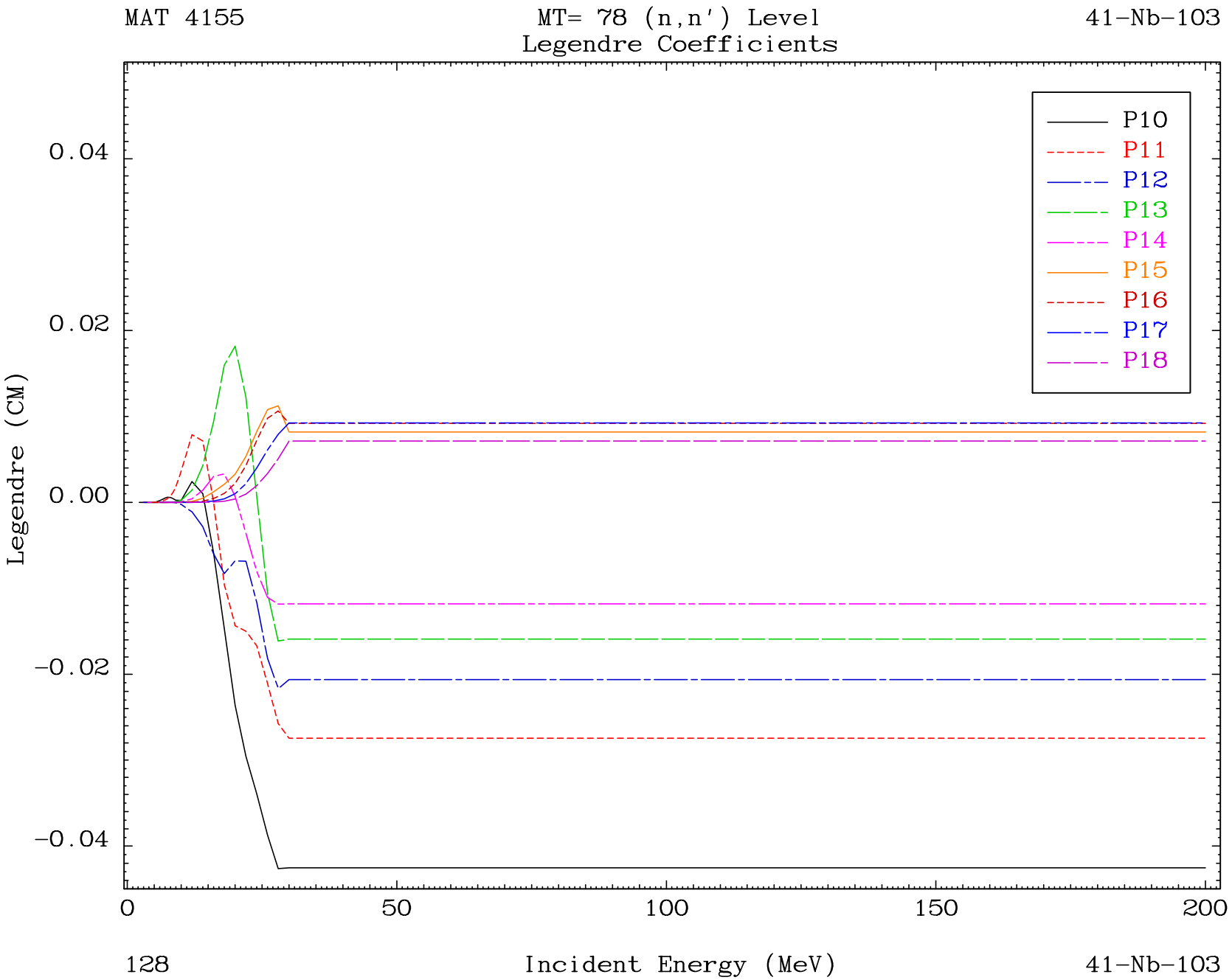

MAT 4155
MT= 76 (n,n') Level
Legendre Coefficients
41-Nb-103
X10+-2
1.0
0.8
0.6
0.4
0.2
0.0
Legendre (CM)
50
100
150
200
123
Incident Energy (MeV)
41-Nb-103
P28
P29
P30
P31
P32
P33
P34

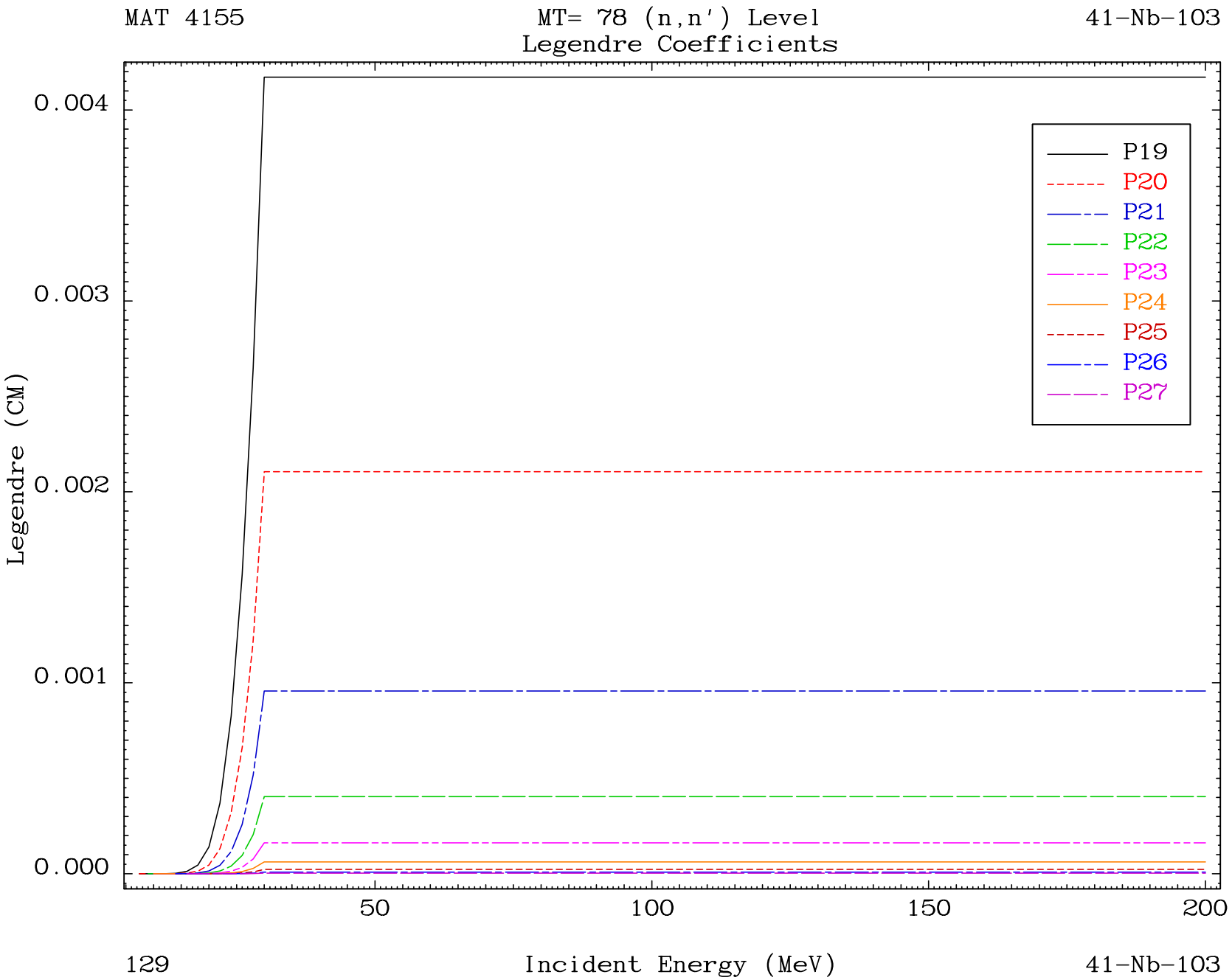

MAT 4155
MT= 77 (n,n') Level
Legendre Coefficients
41-Nb-103
Legendre (CM)
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
124
Incident Energy (MeV)
41-Nb-103
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
P11

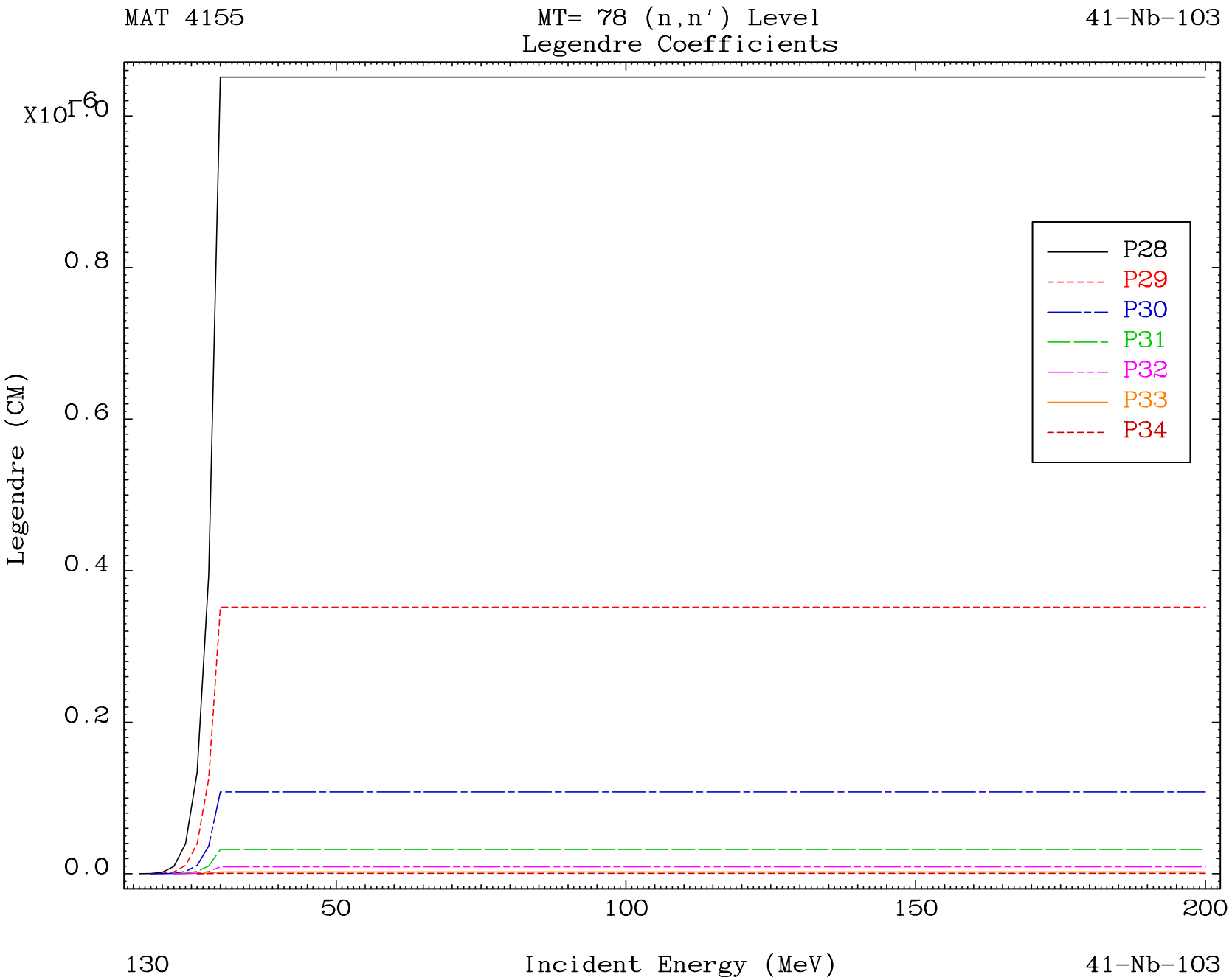

MAT 4155
MT= 77 (n,n') Level
Legendre Coefficients
41-Nb-103
P12
P13
P14
P15
P16
P17
P18
P19
P20
P21
P22
0.004
0.003
0.002
0.001
0.000
-0.001
Legendre (CM)
50
100
150
200
125
Incident Energy (MeV)
41-Nb-103

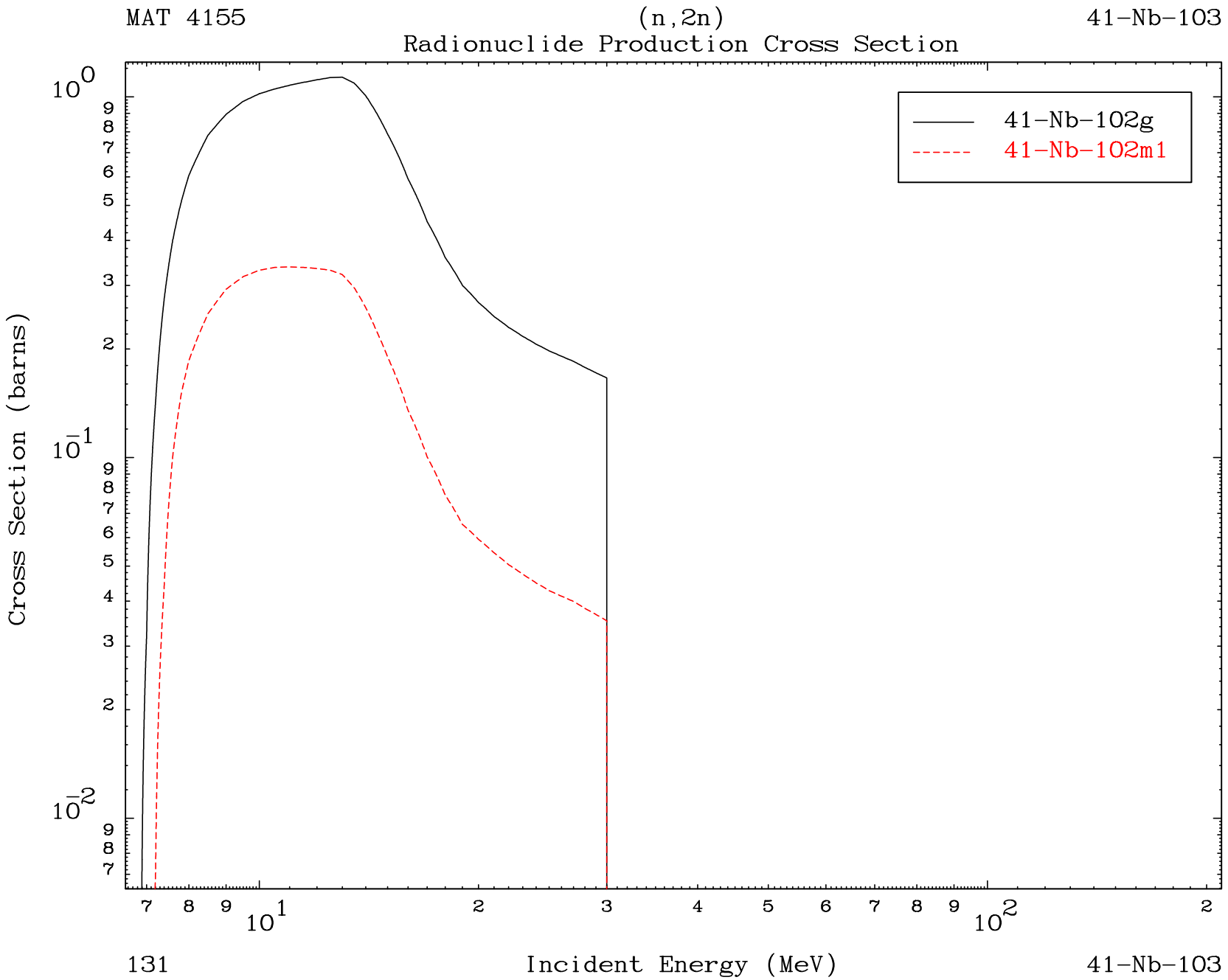

MAT 4155
MT= 77 (n,n') Level
Legendre Coefficients
41-Nb-103
X10^-7
0
-1
-2
-3
-4
Legendre (CM)
50
100
150
200
126
Incident Energy (MeV)
41-Nb-103
P23
P24
P25
P26
P27
P28
P29
P30
P31
P32

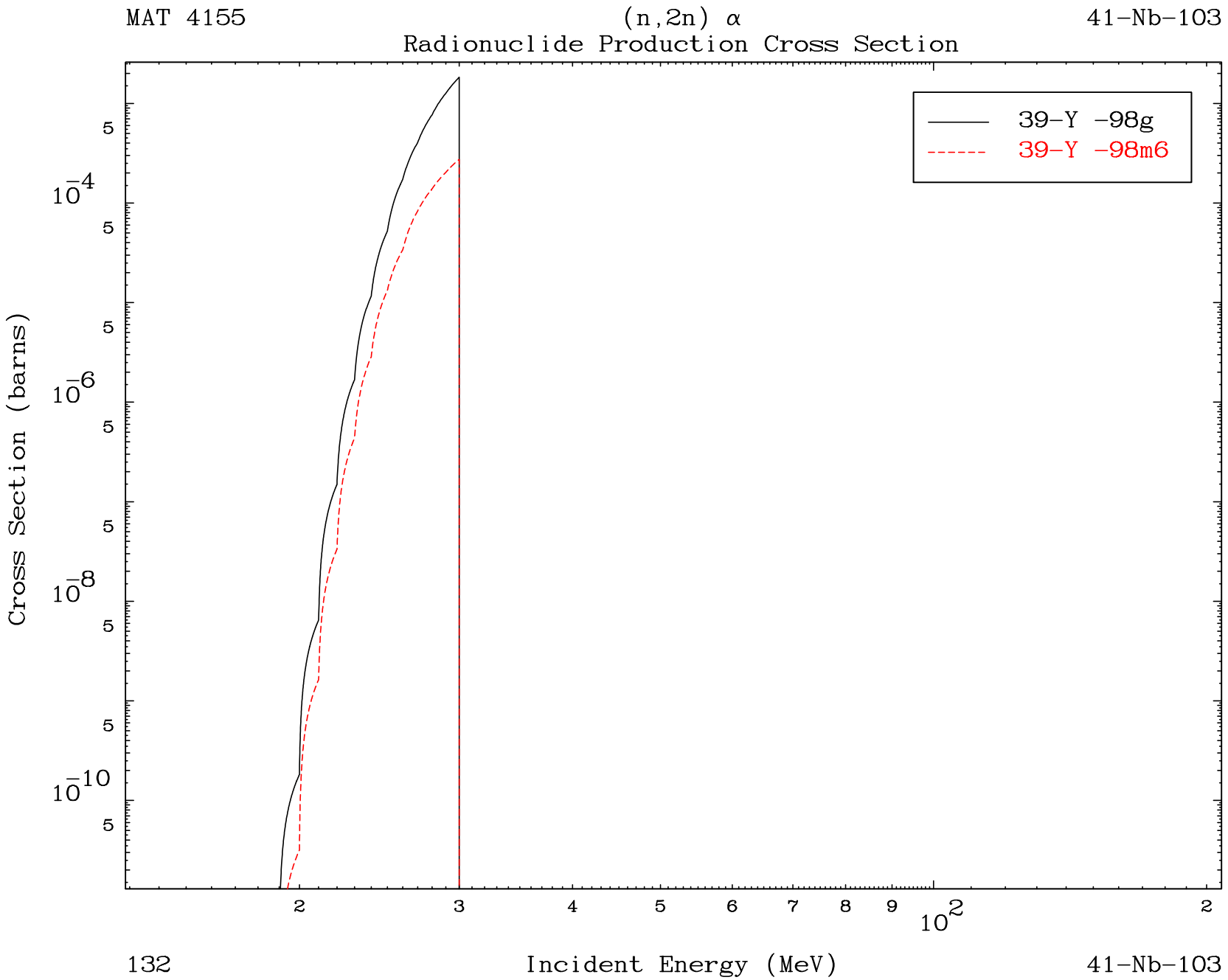

MAT 4155
MT= 78 (n,n') Level
Legendre Coefficients
41-Nb-103
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
P1
P2
P3
P4
P5
P6
P7
P8
P9
127
Incident Energy (MeV)
41-Nb-103

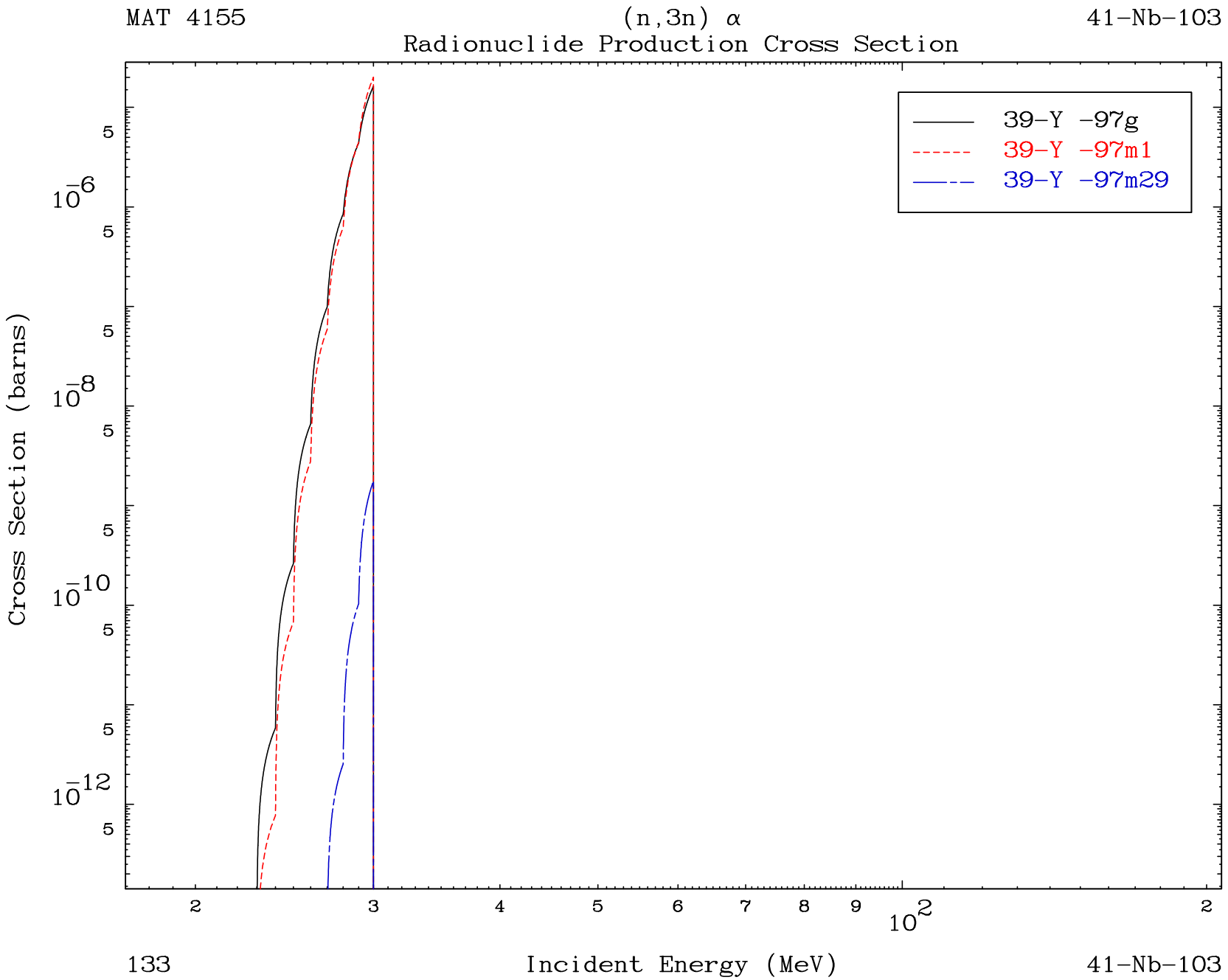

MAT 4155
MT= 78 (n,n') Level
Legendre Coefficients
41-Nb-103
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
128
Incident Energy (MeV)
41-Nb-103

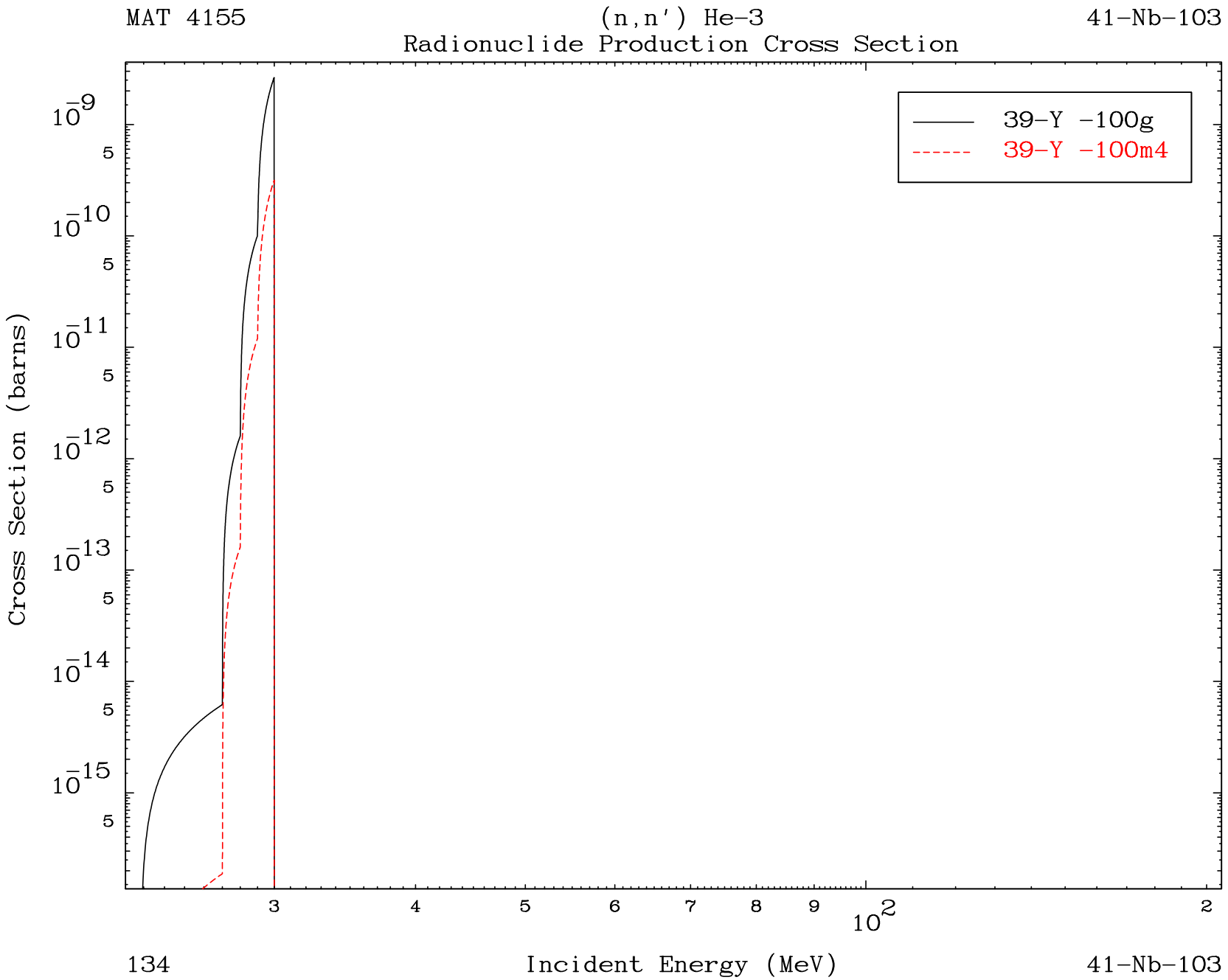

MAT 4155
MT= 78 (n,n') Level
Legendre Coefficients
41-Nb-103
0.004
0.003
0.002
0.001
0.000
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
129
Incident Energy (MeV)
41-Nb-103

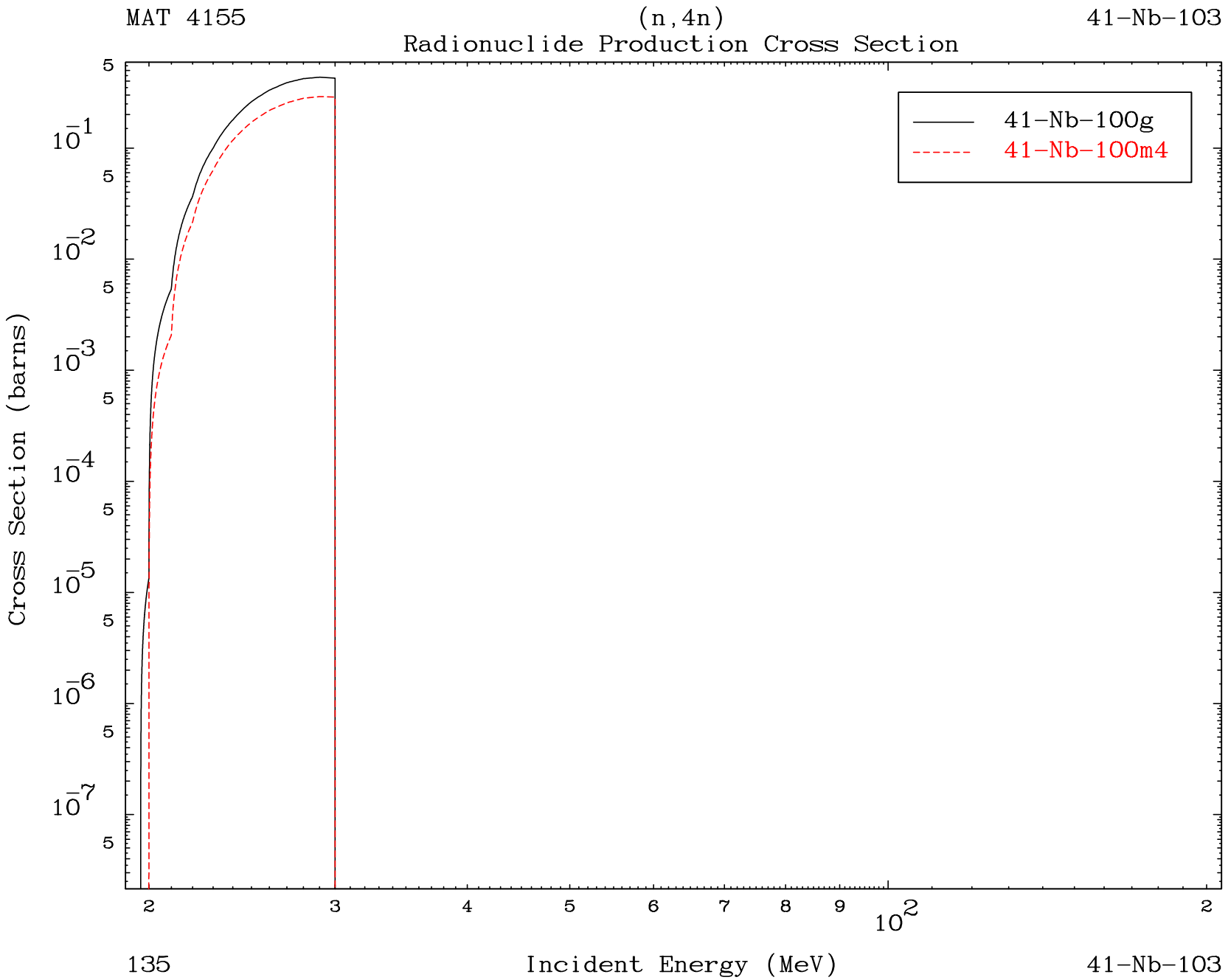

MAT 4155
MT= 78 (n,n') Level
Legendre Coefficients
41-Nb-103
X10+0
0.8
0.6
0.4
0.2
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
130
Incident Energy (MeV)
41-Nb-103

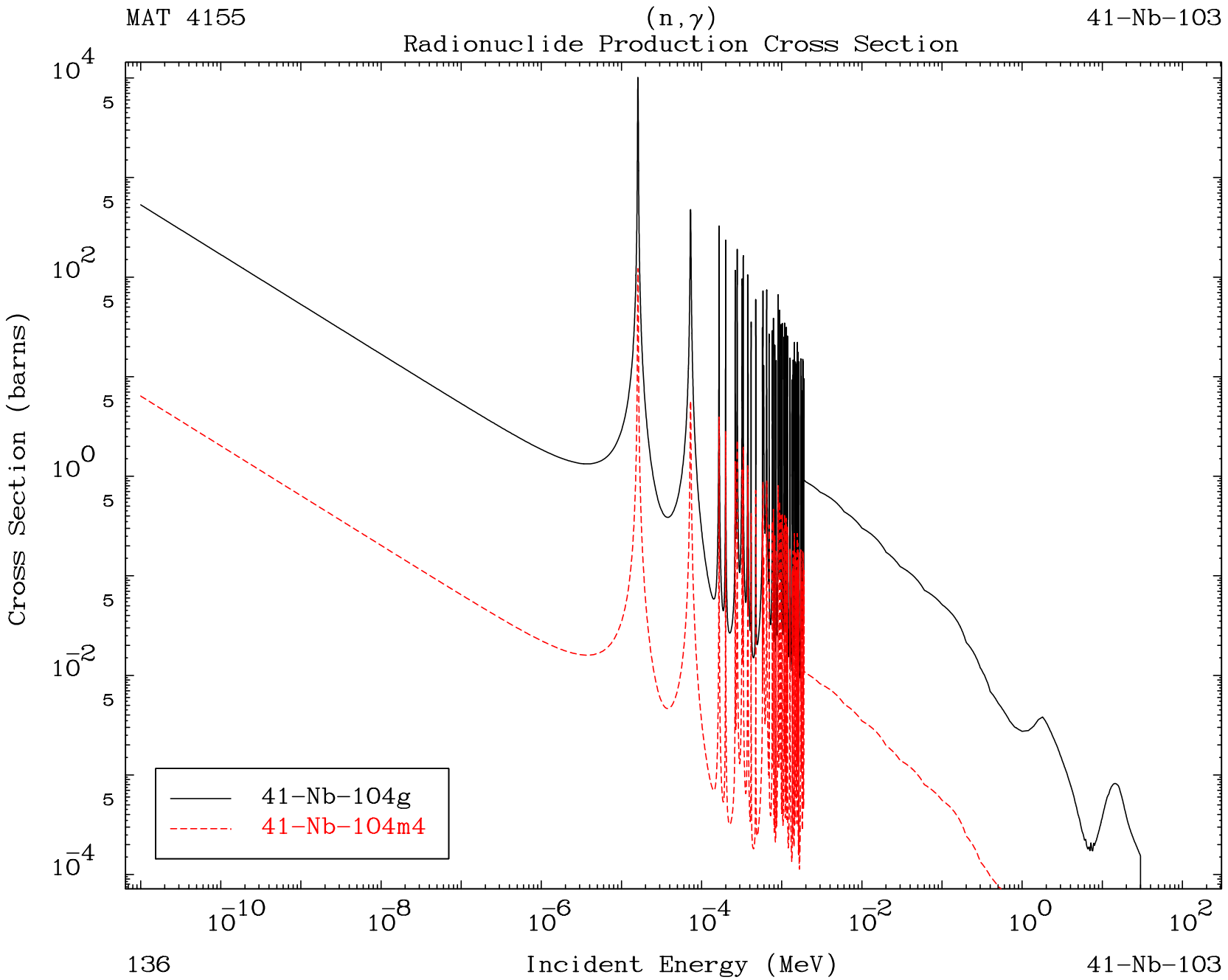

MAT 4155
(n,2n)
41-Nb-103
Radionuclide Production Cross Section
41-Nb-102g
41-Nb-102m1
Cross Section (barns)
Incident Energy (MeV)
131
41-Nb-103

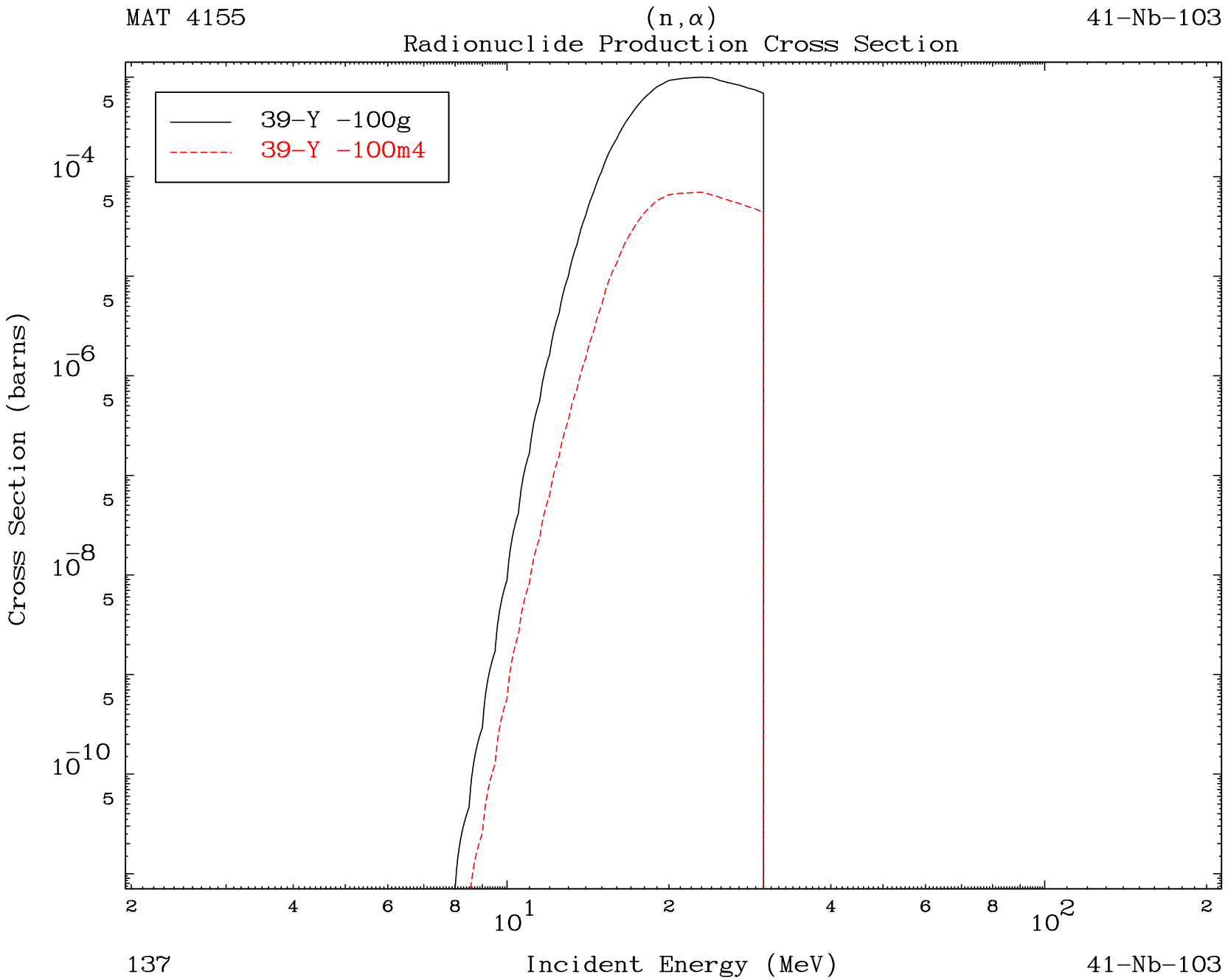

MAT 4155
(n,2n) α
41-Nb-103
Radionuclide Production Cross Section
39-Y -98g
39-Y -98m6
Cross Section (barns)
10-4
10-6
10-8
10-10
5
2
3
4
5
6
7
8
9
10 2
2
132
Incident Energy (MeV)
41-Nb-103


MAT 4155
(n,3n) α
41-Nb-103
Radionuclide Production Cross Section
39-Y -97g
39-Y -97m1
39-Y -97m29
Cross Section (barns)
10-6
10-8
10-10
10-12
5
2
3
4
5
6
7
8
9
10 2
2
133
Incident Energy (MeV)
41-Nb-103


MAT 4155
(n,n') He-3
41-Nb-103
Radionuclide Production Cross Section
39-Y -100g
39-Y -100m4
Cross Section (barns)
10-9
10-10
10-11
10-12
10-13
10-14
10-15
5
3
4
5
6
7
8
9
10 2
2
134
Incident Energy (MeV)
41-Nb-103


MAT 4155
(n,4n)
41-Nb-103
Radionuclide Production Cross Section
41-Nb-100g
41-Nb-100m4
Cross Section (barns)
Incident Energy (MeV)
135
41-Nb-103


MAT 4155
(n,γ)
41-Nb-103
Radionuclide Production Cross Section
Cross Section (barns)
10^4
10^2
10^0
10^-2
10^-4
10^-10
10^-8
10^-6
10^-4
10^-2
10^0
10^2
41-Nb-104g
41-Nb-104m4
136
Incident Energy (MeV)
41-Nb-103


MAT 4155
(n,α)
41-Nb-103
Radionuclide Production Cross Section
39-Y -100g
39-Y -100m4
Cross Section (barns)
10-4
10-6
10-8
10-10
2
4
6
8
10 1
2
4
6
8
10 2
2
137
Incident Energy (MeV)
41-Nb-103