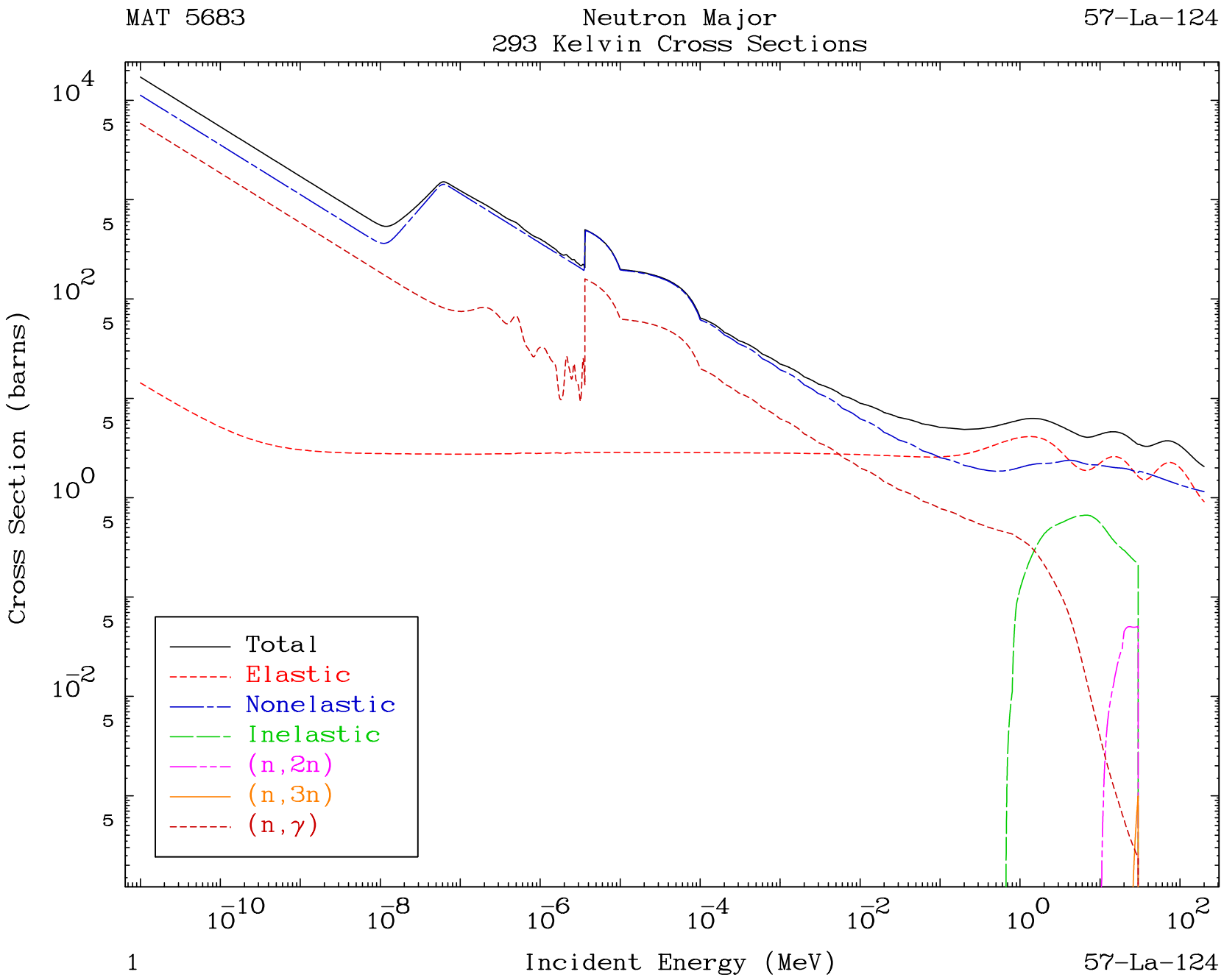
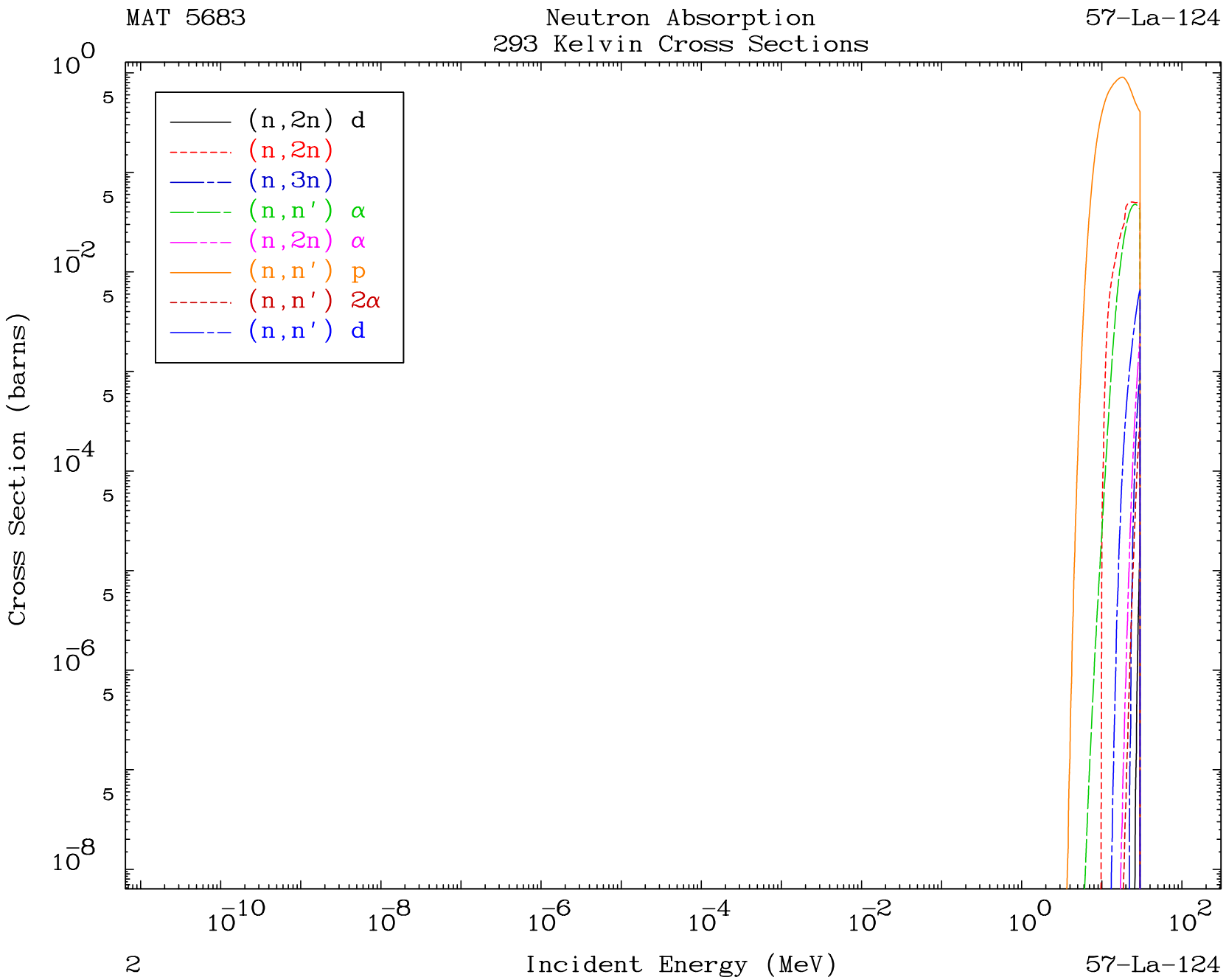
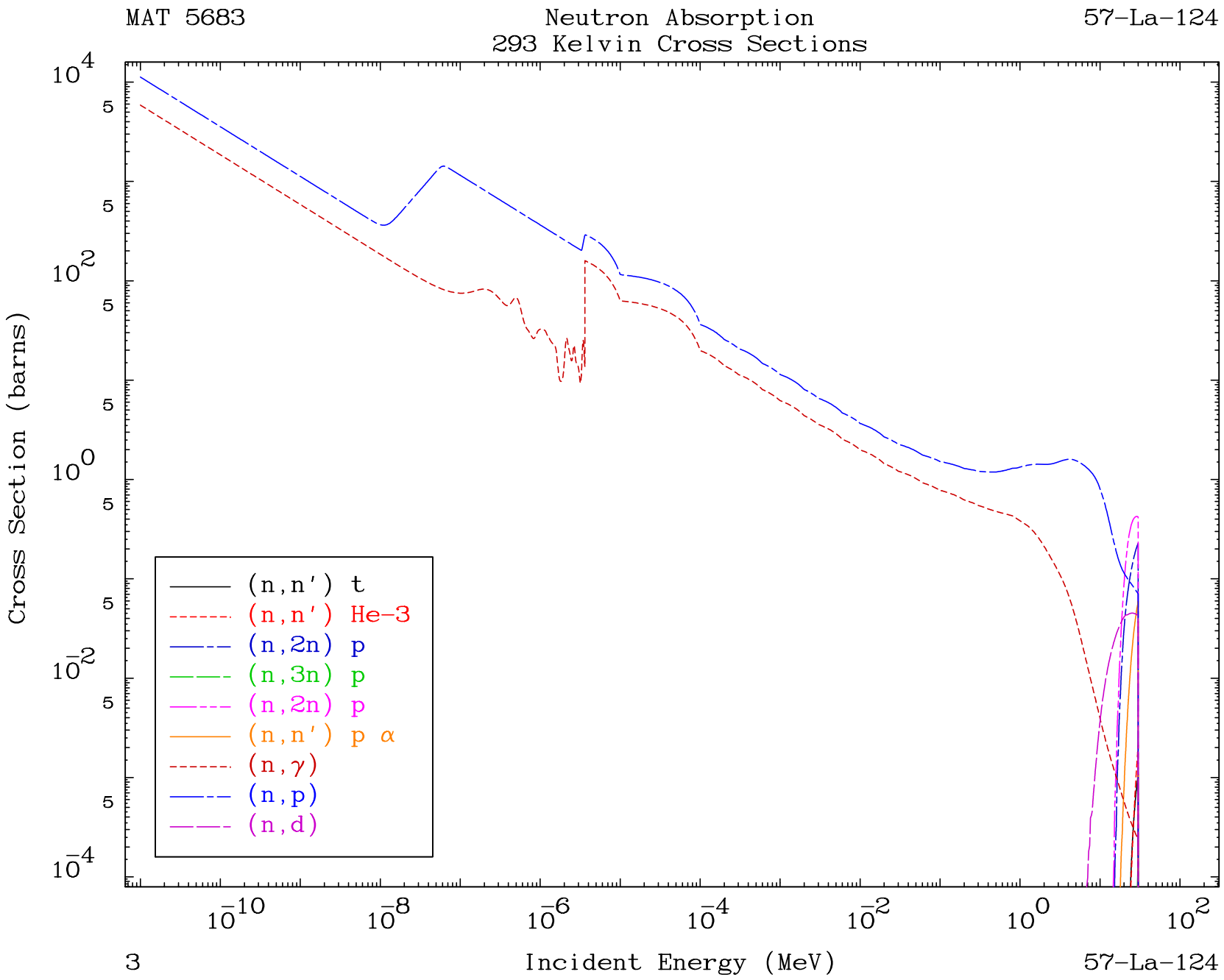
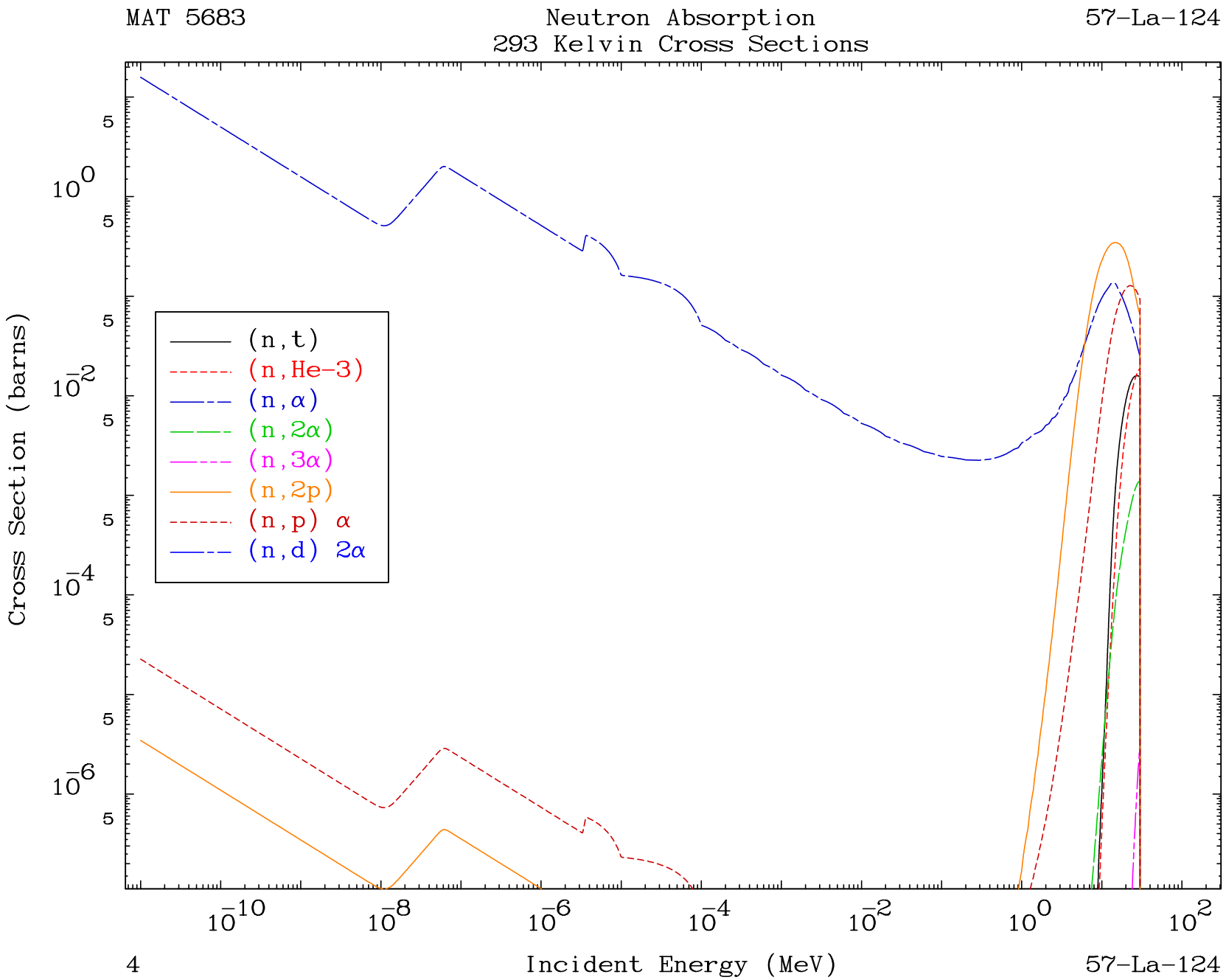
Program EVALPLOT
(Version 2021-1)
by
Dermott E. Cullen
(Present Contact Information)
Dermott E. Cullen
1466 Hudson Way
Livermore, CA 94550
U.S.A.
Tele: 925-443-1911
E.Mail:redcullen1@comcast.net
Web:redcullen1.net/HOMEPAGE.NEW

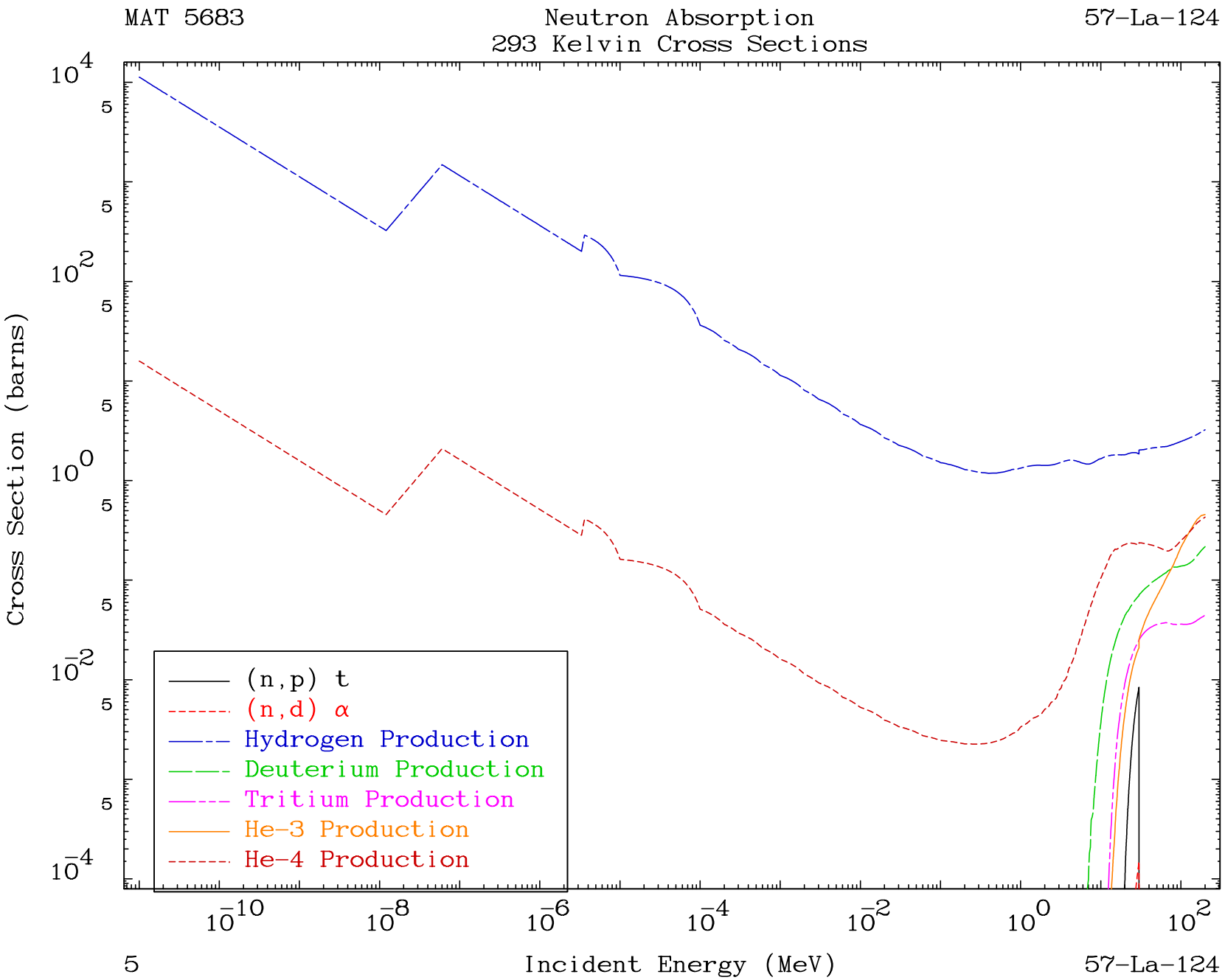
Press Mouse Button to Start

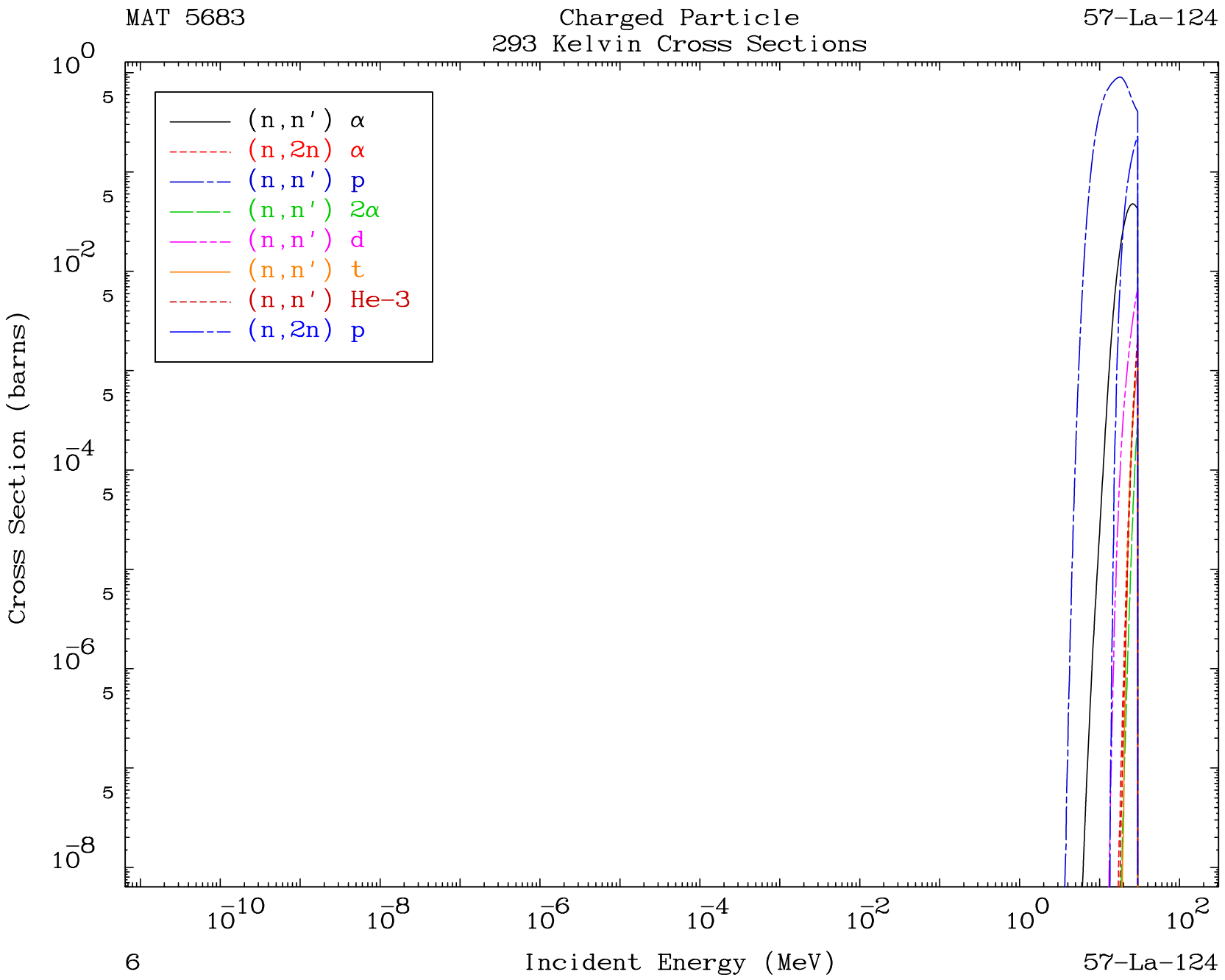

MAT 5683
Neutron Major
293 Kelvin Cross Sections
57-La-124
Cross Section (barns)
Incident Energy (MeV)
Total
Elastic
Nonelastic
Inelastic
(n,2n)
(n,3n)
(n,γ)
1
57-La-124

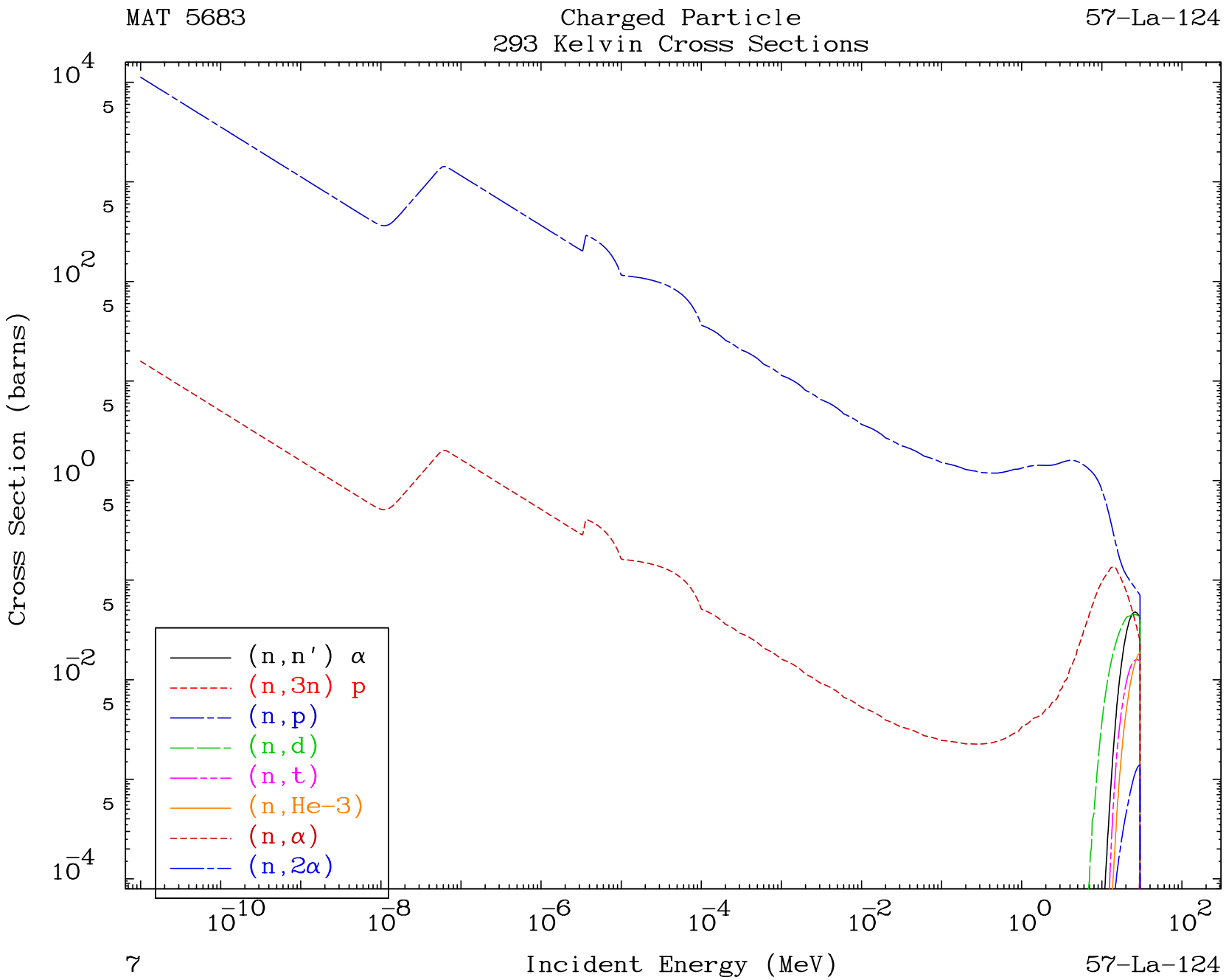

MAT 5683
Neutron Absorption
293 Kelvin Cross Sections
57-La-124
(n,2n) d
(n,2n)
(n,3n)
(n,n') α
(n,2n) α
(n,n') p
(n,n') 2α
(n,n') d
Cross Section (barns)
Incident Energy (MeV)
2
57-La-124

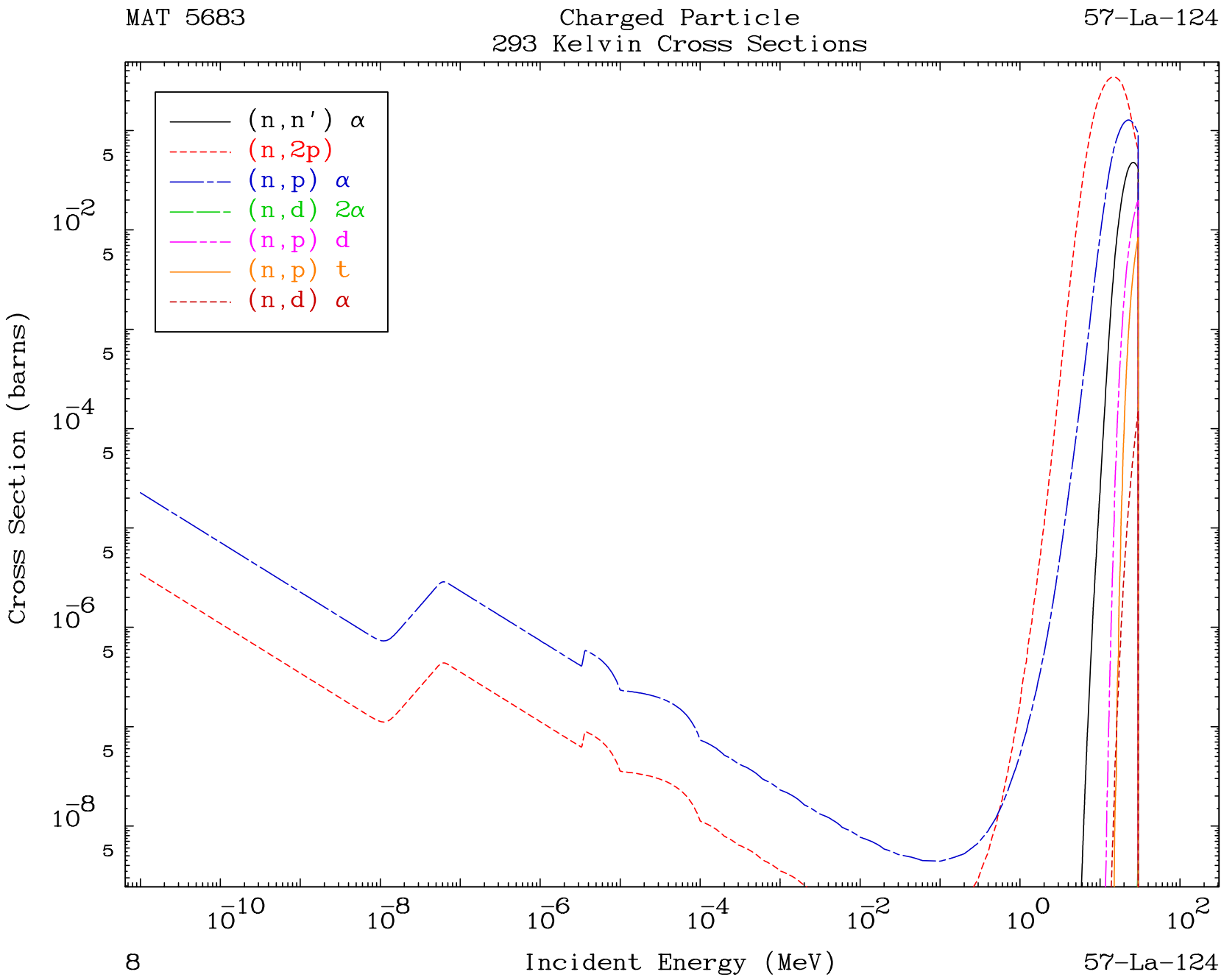

MAT 5683
Neutron Absorption
293 Kelvin Cross Sections
57-La-124
Cross Section (barns)
Incident Energy (MeV)
(n,n') t
(n,n') He-3
(n,2n) p
(n,3n) p
(n,2n) p
(n,n') p α
(n,γ)
(n,p)
(n,d)
3
57-La-124

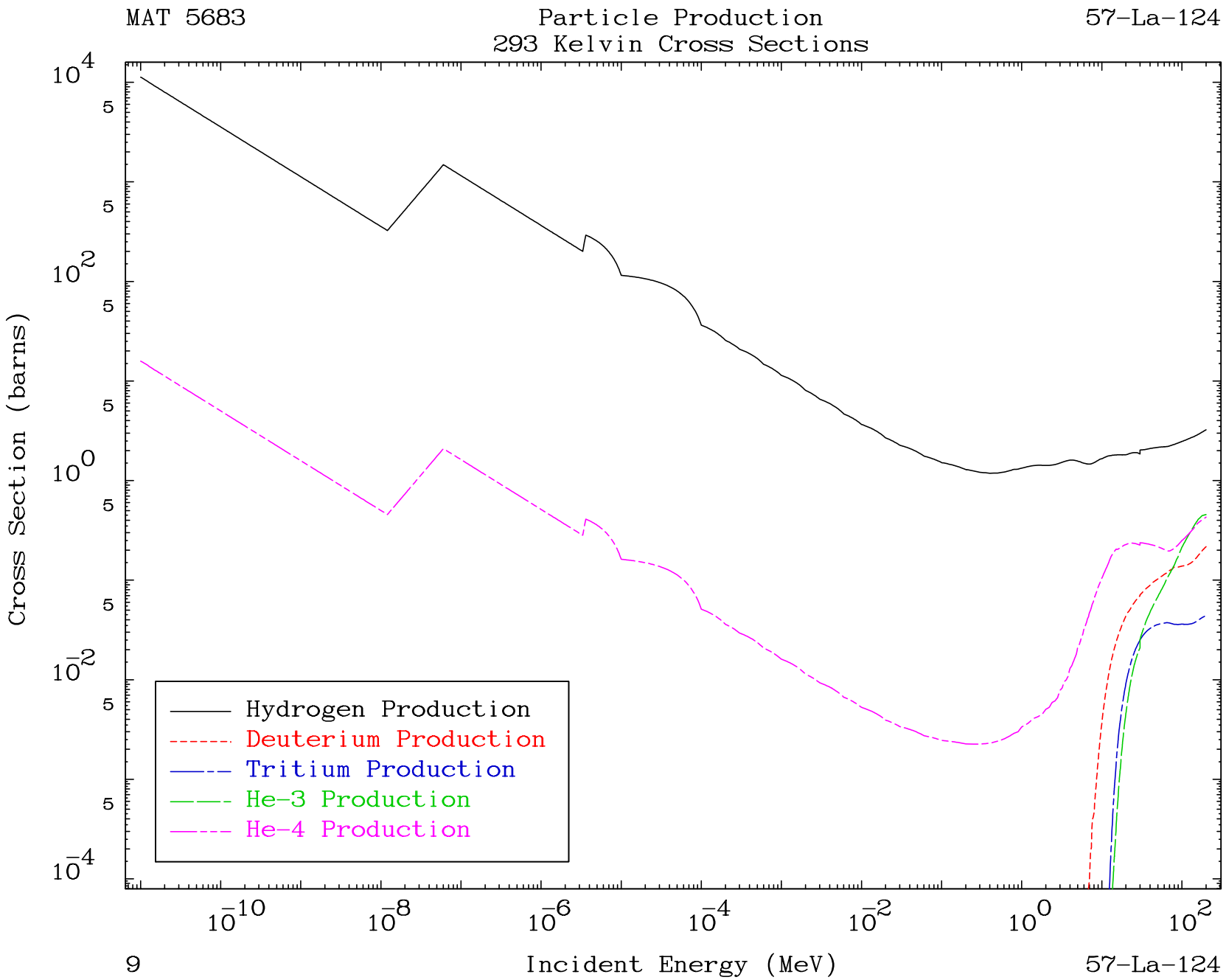

MAT 5683
Neutron Absorption
293 Kelvin Cross Sections
57-La-124
Cross Section (barns)
Incident Energy (MeV)
(n,t)
(n,He-3)
(n,α)
(n,2α)
(n,3α)
(n,2p)
(n,p) α
(n,d) 2α
4
57-La-124

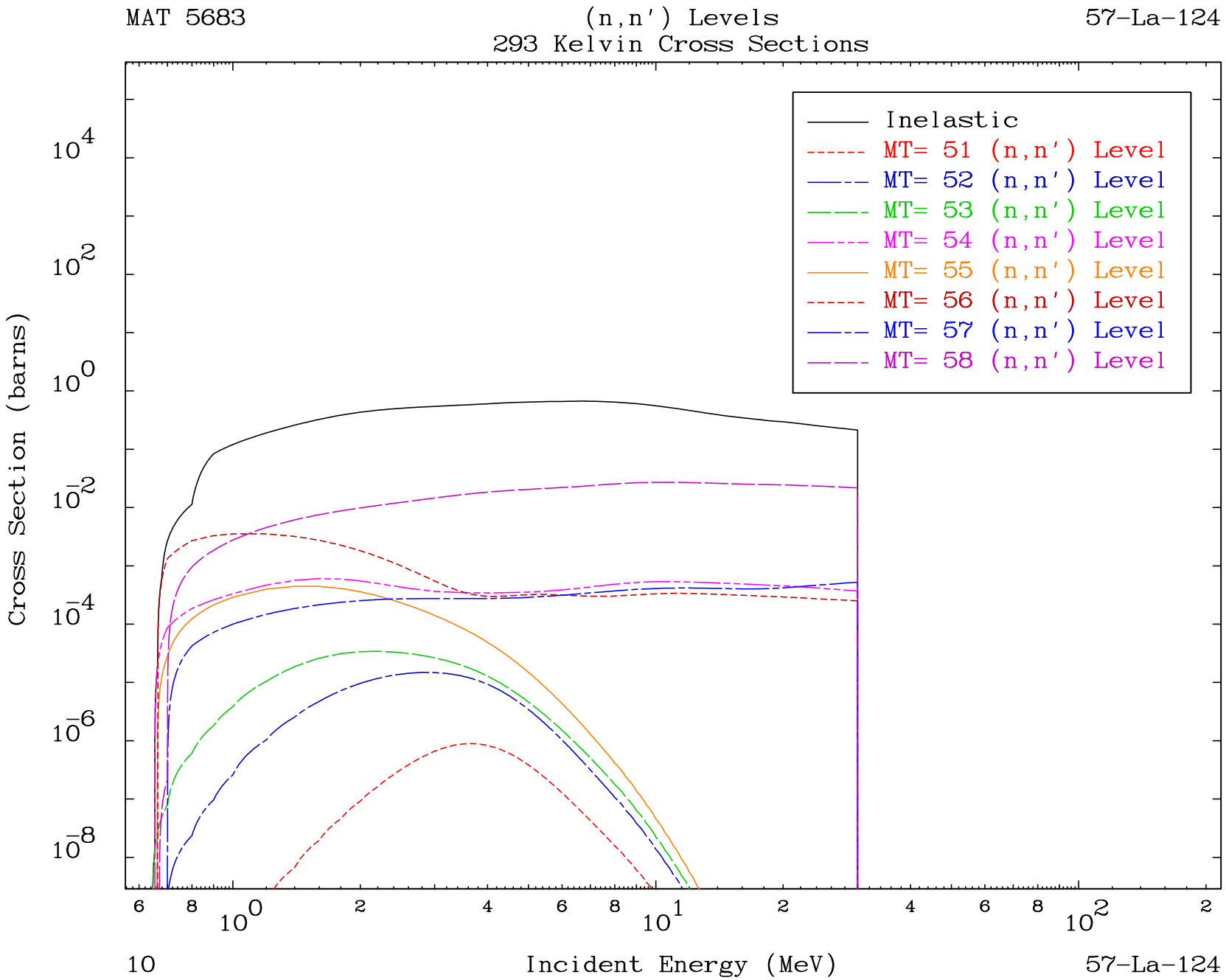

MAT 5683
Neutron Absorption
293 Kelvin Cross Sections
57-La-124
Cross Section (barns)
Incident Energy (MeV)
(n,p) t
(n,d) α
Hydrogen Production
Deuterium Production
Tritium Production
He-3 Production
He-4 Production

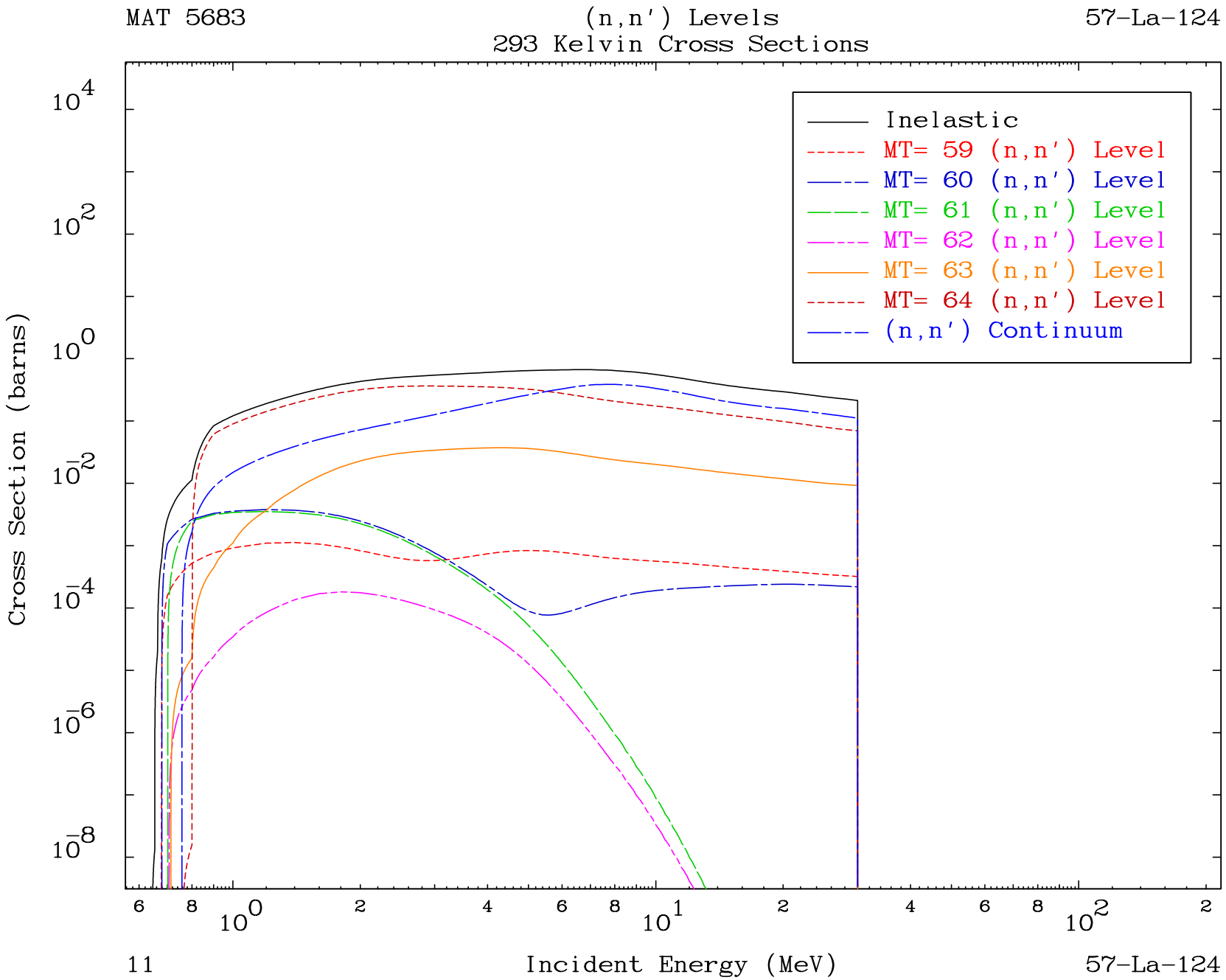

MAT 5683
Charged Particle
293 Kelvin Cross Sections
57-La-124
(n,n') α
(n,2n) α
(n,n') p
(n,n') 2α
(n,n') d
(n,n') t
(n,n') He-3
(n,2n) p
Cross Section (barns)
Incident Energy (MeV)
6
57-La-124

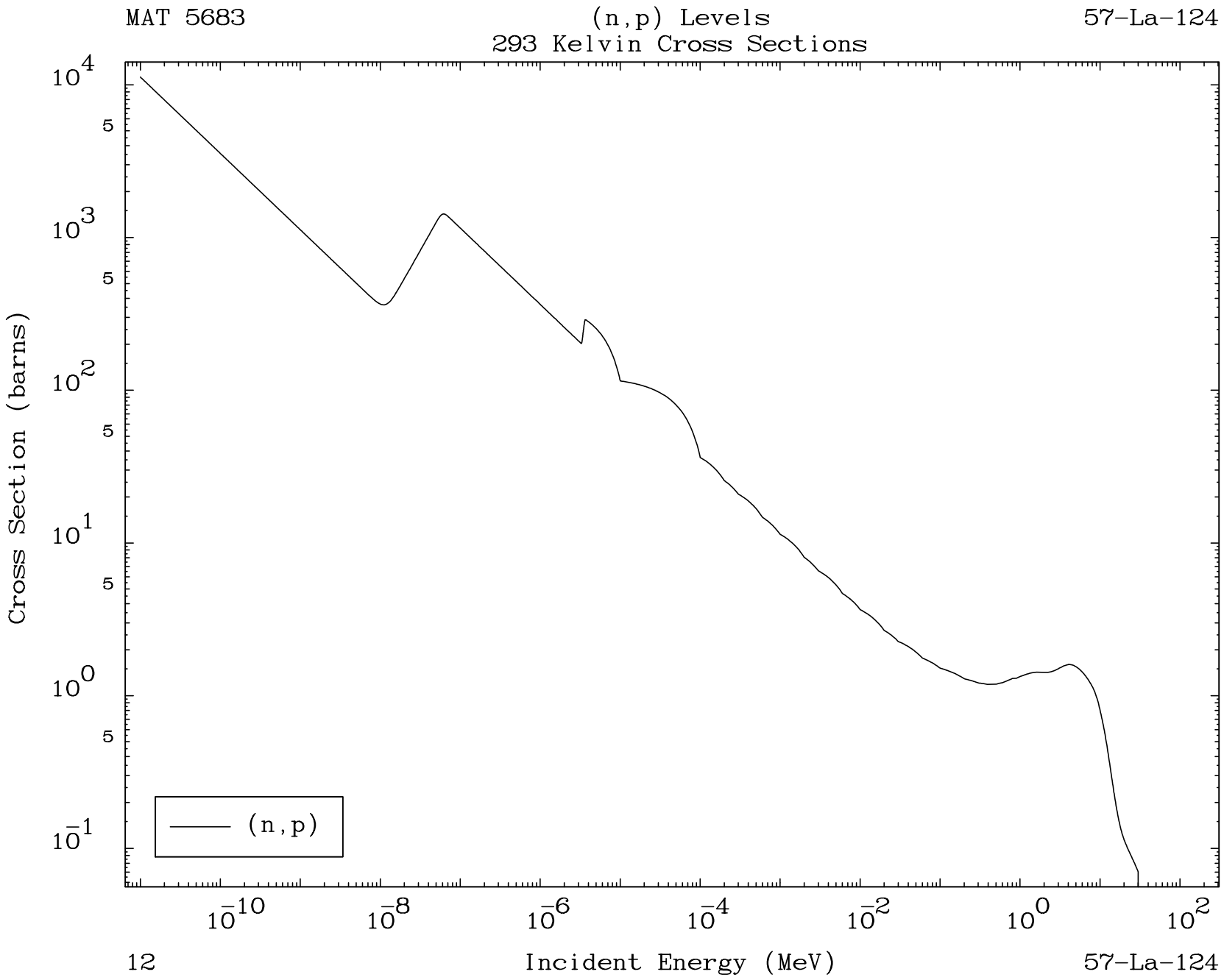

MAT 5683
Charged Particle
293 Kelvin Cross Sections
57-La-124
Cross Section (barns)
Incident Energy (MeV)
(n,n') α
(n,3n) p
(n,p)
(n,d)
(n,t)
(n,He-3)
(n,α)
(n,2α)
7
57-La-124

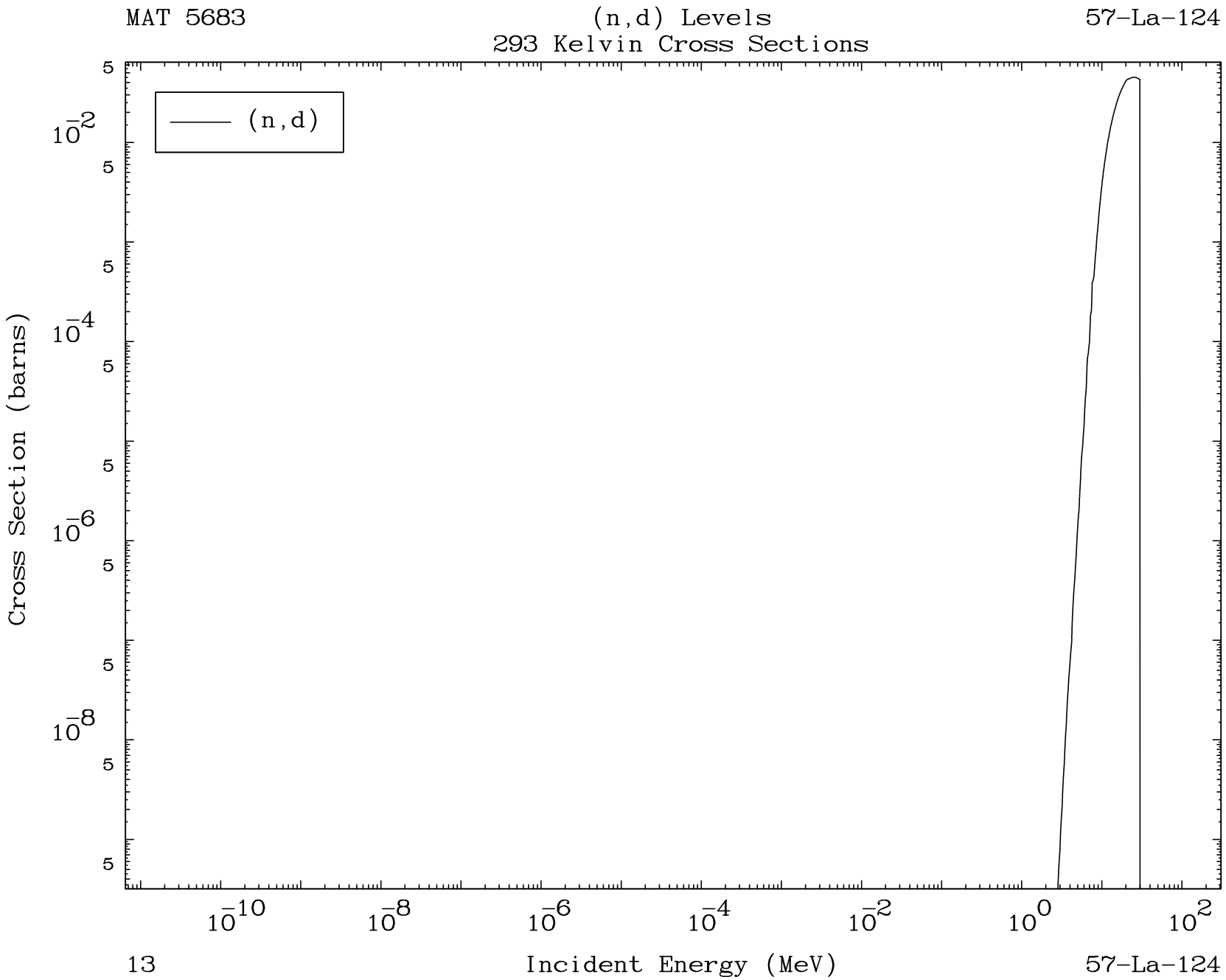

MAT 5683
Charged Particle
293 Kelvin Cross Sections
57-La-124
(n,n') α
(n,2p)
(n,p) α
(n,d) 2α
(n,p) d
(n,p) t
(n,d) α
Cross Section (barns)
Incident Energy (MeV)
8
57-La-124

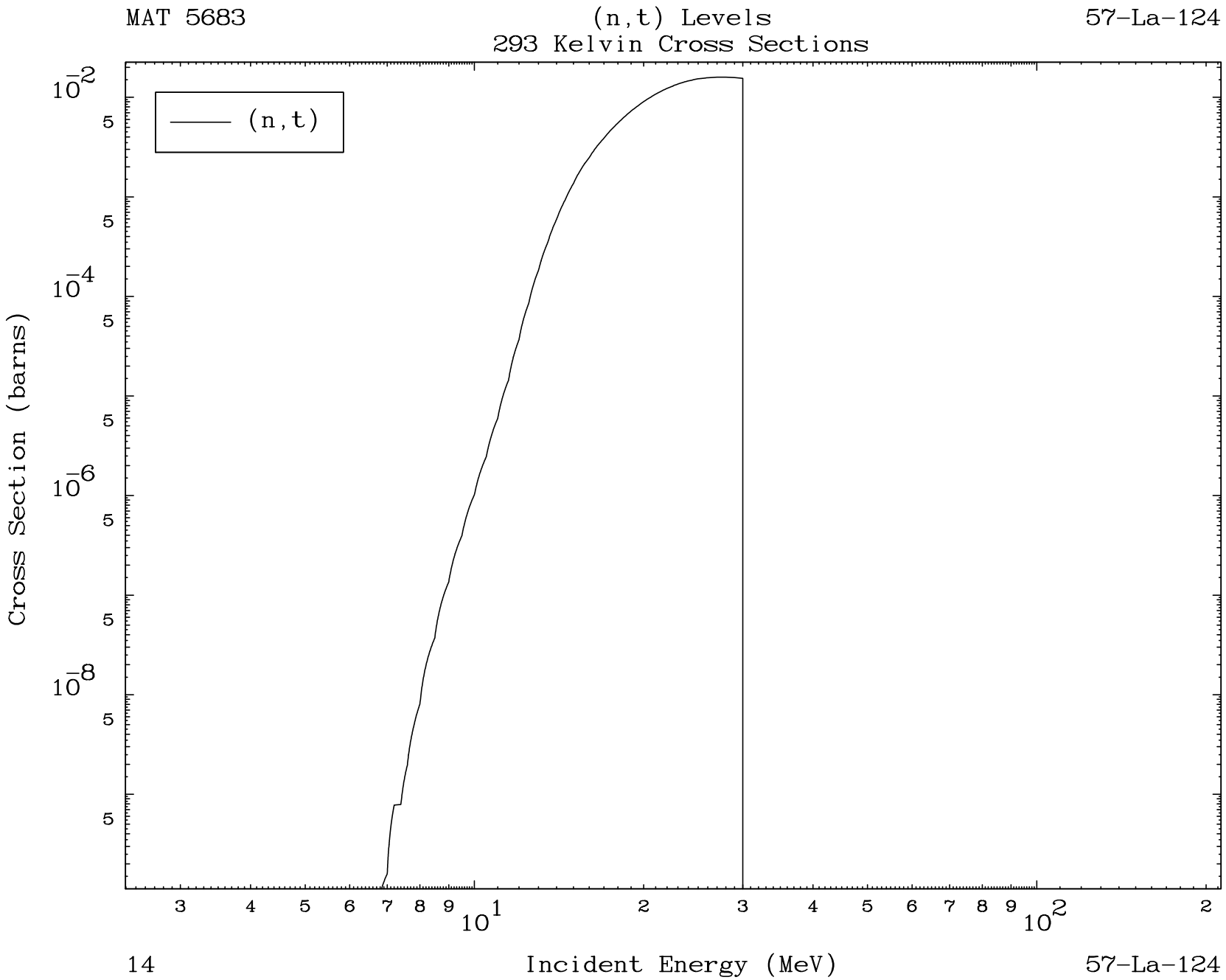

MAT 5683
Particle Production
293 Kelvin Cross Sections
57-La-124
Cross Section (barns)
Incident Energy (MeV)
Hydrogen Production
Deuterium Production
Tritium Production
He-3 Production
He-4 Production
9
57-La-124

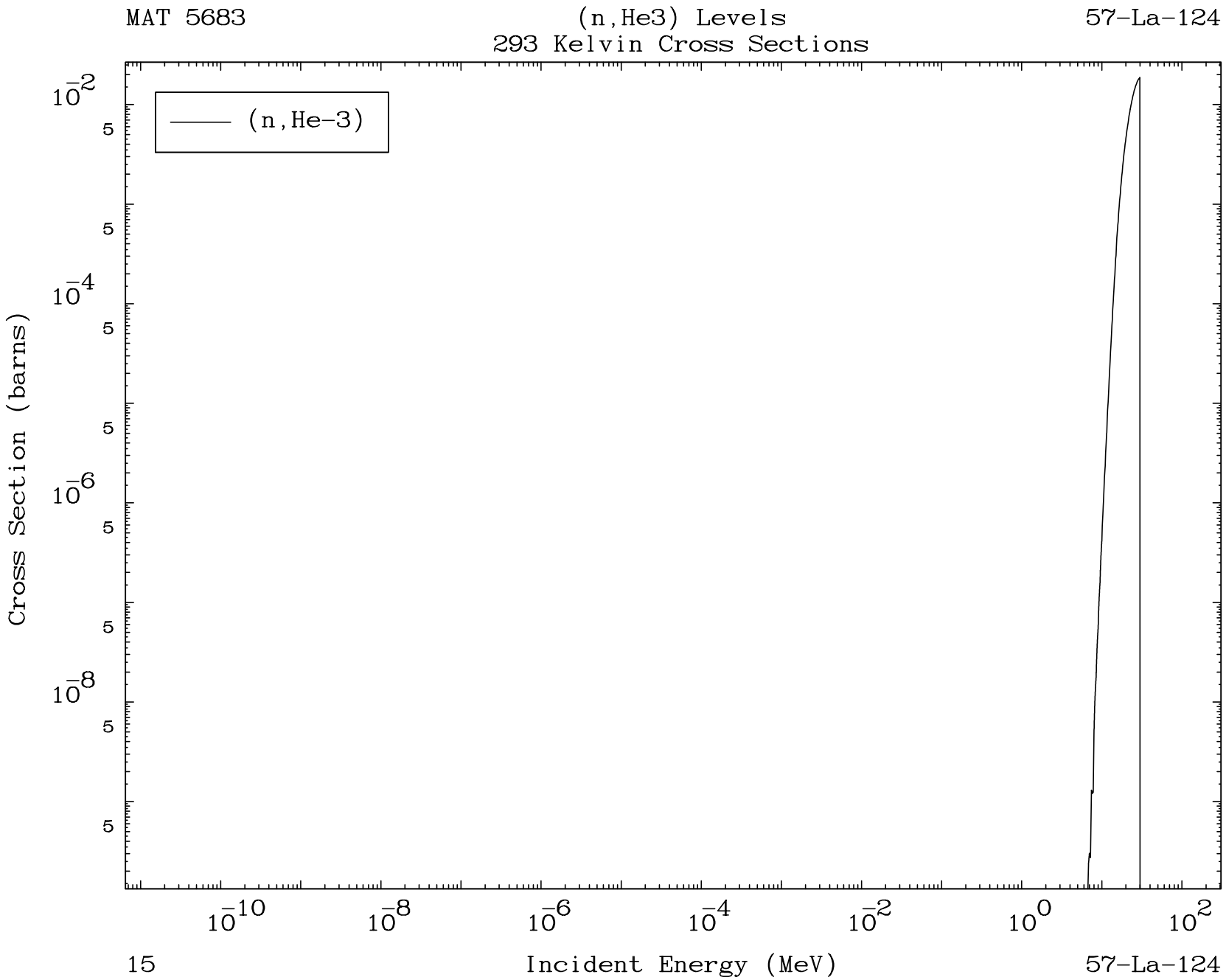

MAT 5683
(n,n') Levels
293 Kelvin Cross Sections
57-La-124
Inelastic
MT= 51 (n,n') Level
MT= 52 (n,n') Level
MT= 53 (n,n') Level
MT= 54 (n,n') Level
MT= 55 (n,n') Level
MT= 56 (n,n') Level
MT= 57 (n,n') Level
MT= 58 (n,n') Level
Cross Section (barns)
10^4
10^2
10^0
10^-2
10^-4
10^-6
10^-8
6 8 10^0 2 4 6 8 10^1 2 4 6 8 10^2 2
10
Incident Energy (MeV)
57-La-124

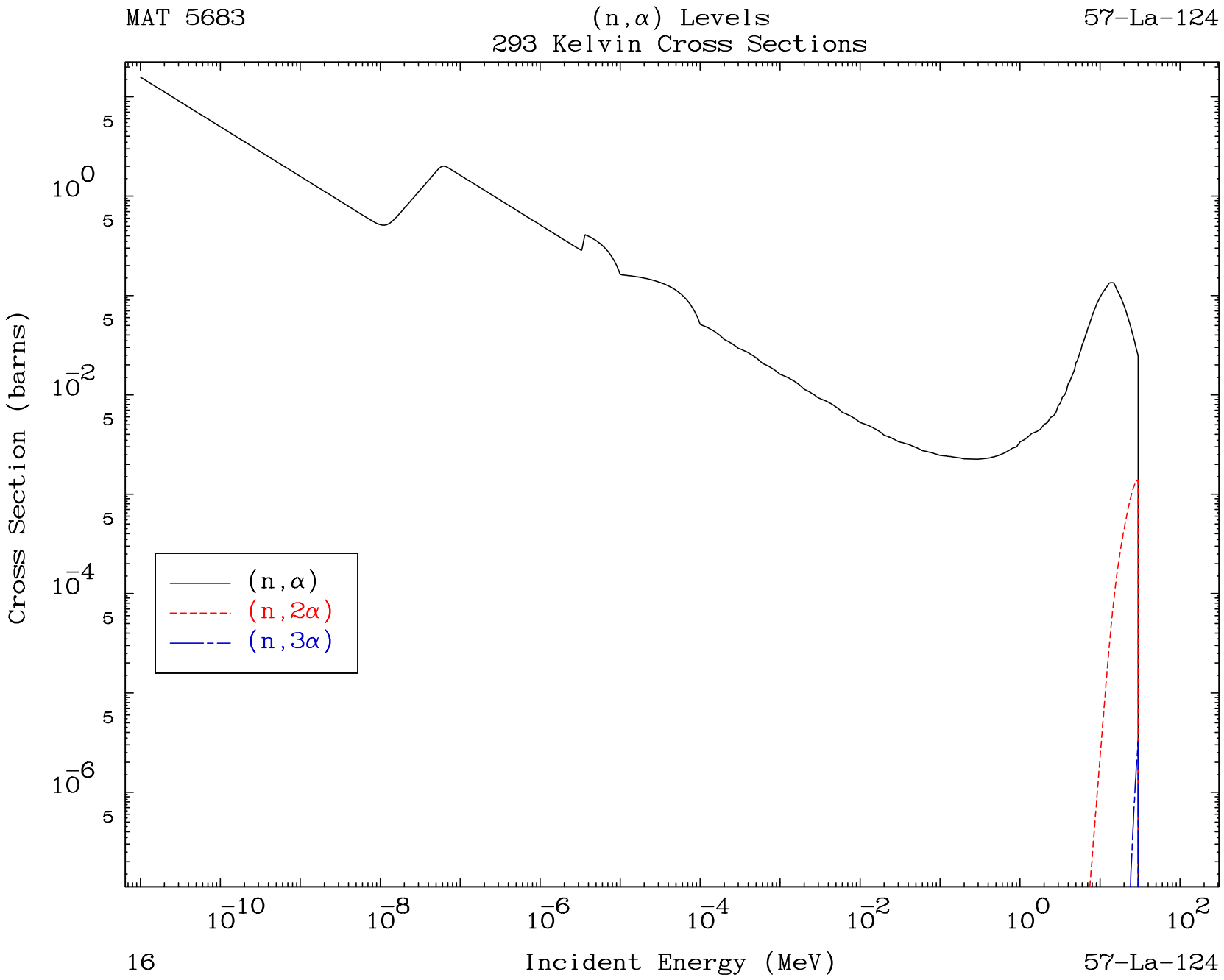

MAT 5683
(n,n') Levels
293 Kelvin Cross Sections
57-La-124
Inelastic
MT= 59 (n,n') Level
MT= 60 (n,n') Level
MT= 61 (n,n') Level
MT= 62 (n,n') Level
MT= 63 (n,n') Level
MT= 64 (n,n') Level
(n,n') Continuum
Cross Section (barns)
Incident Energy (MeV)
11
57-La-124

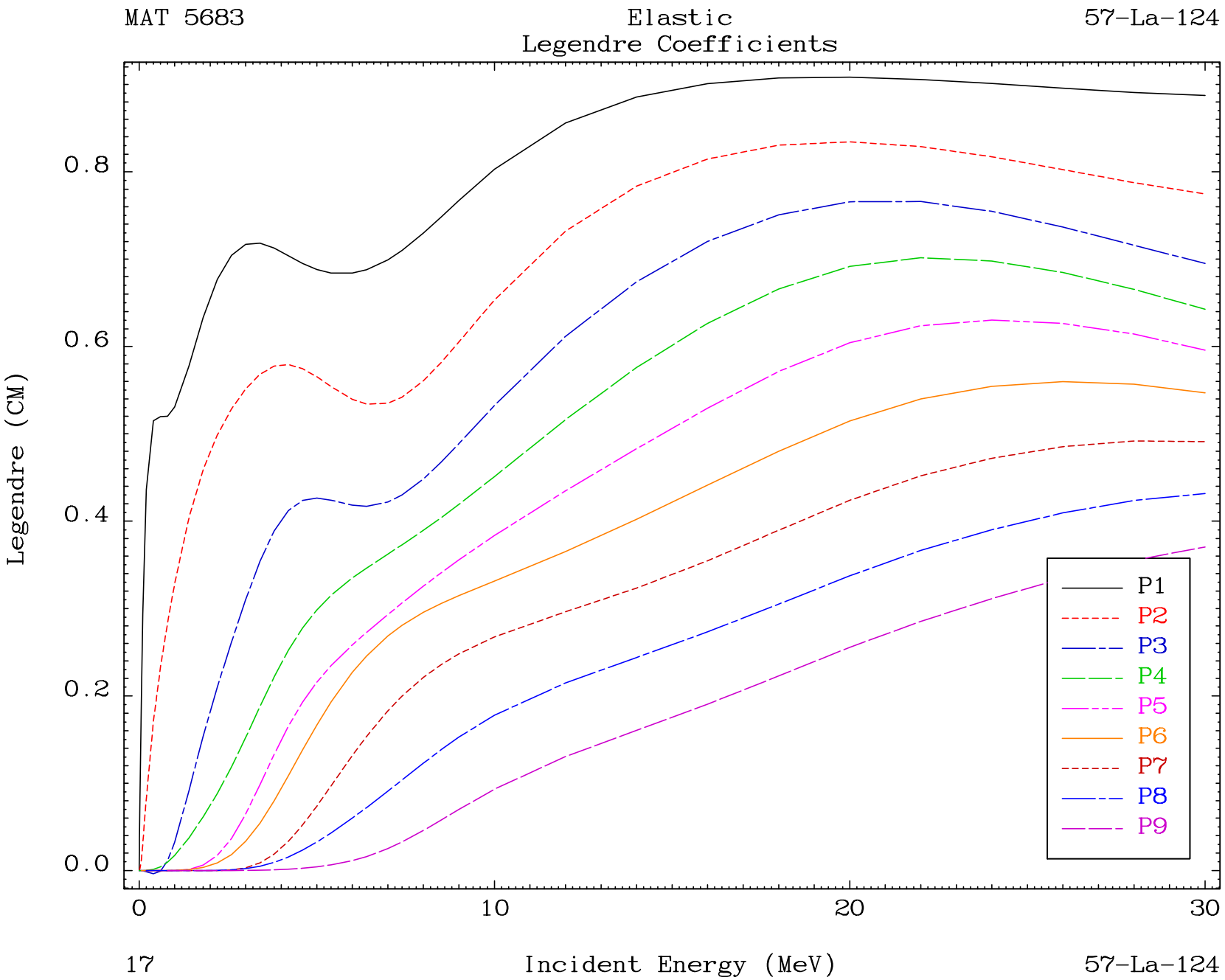

MAT 5683
(n,p) Levels
57-La-124
293 Kelvin Cross Sections
Cross Section (barns)
10^4
10^3
10^2
10^1
10^0
10^-1
(n,p)
10^-10
10^-8
10^-6
10^-4
10^-2
10^0
10^2
Incident Energy (MeV)
12
57-La-124

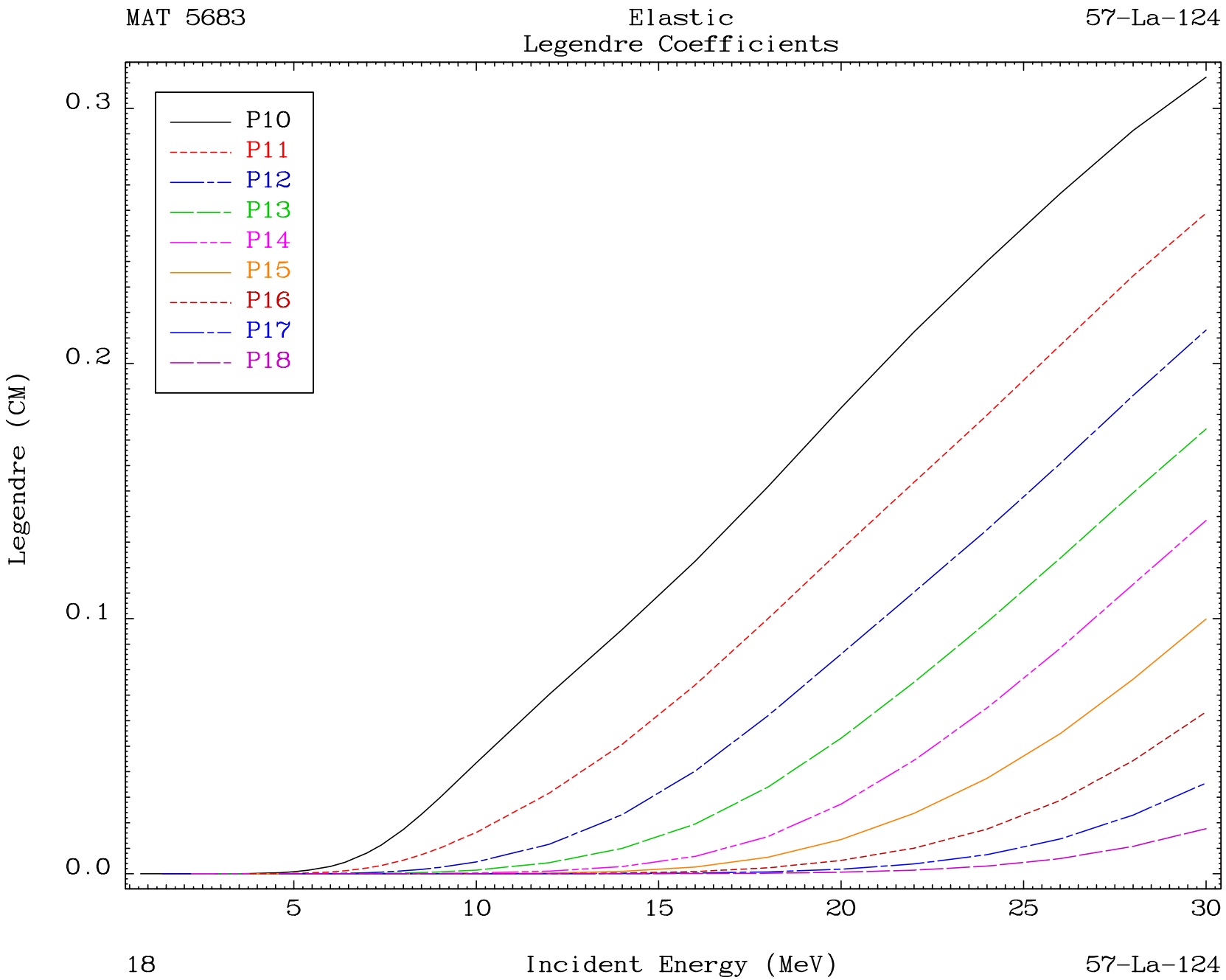

MAT 5683
(n,d) Levels
57-La-124
293 Kelvin Cross Sections
(n,d)
Cross Section (barns)
Incident Energy (MeV)
13
57-La-124

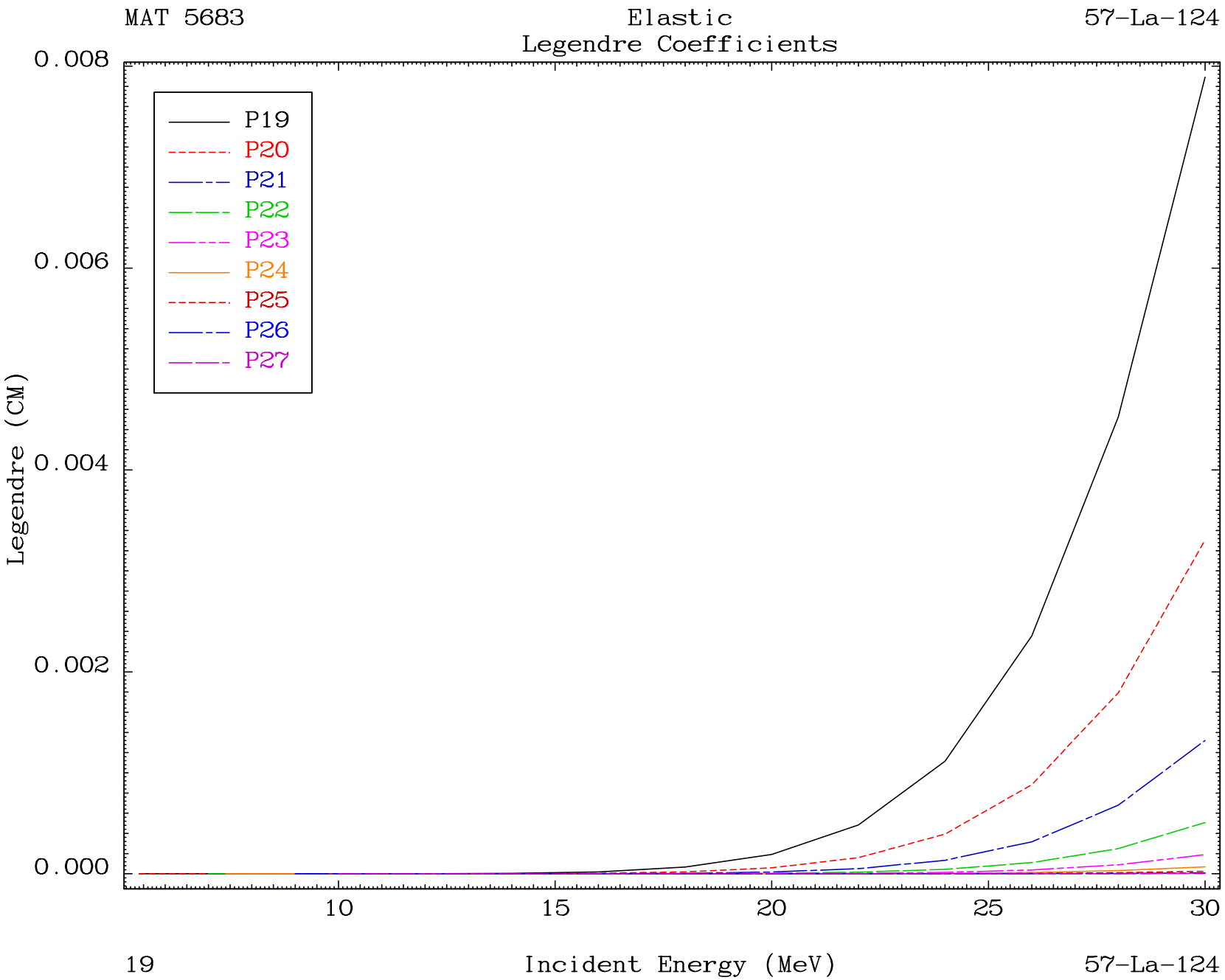

MAT 5683
(n,t) Levels
57-La-124
293 Kelvin Cross Sections
(n,t)
Cross Section (barns)
Incident Energy (MeV)
14
57-La-124

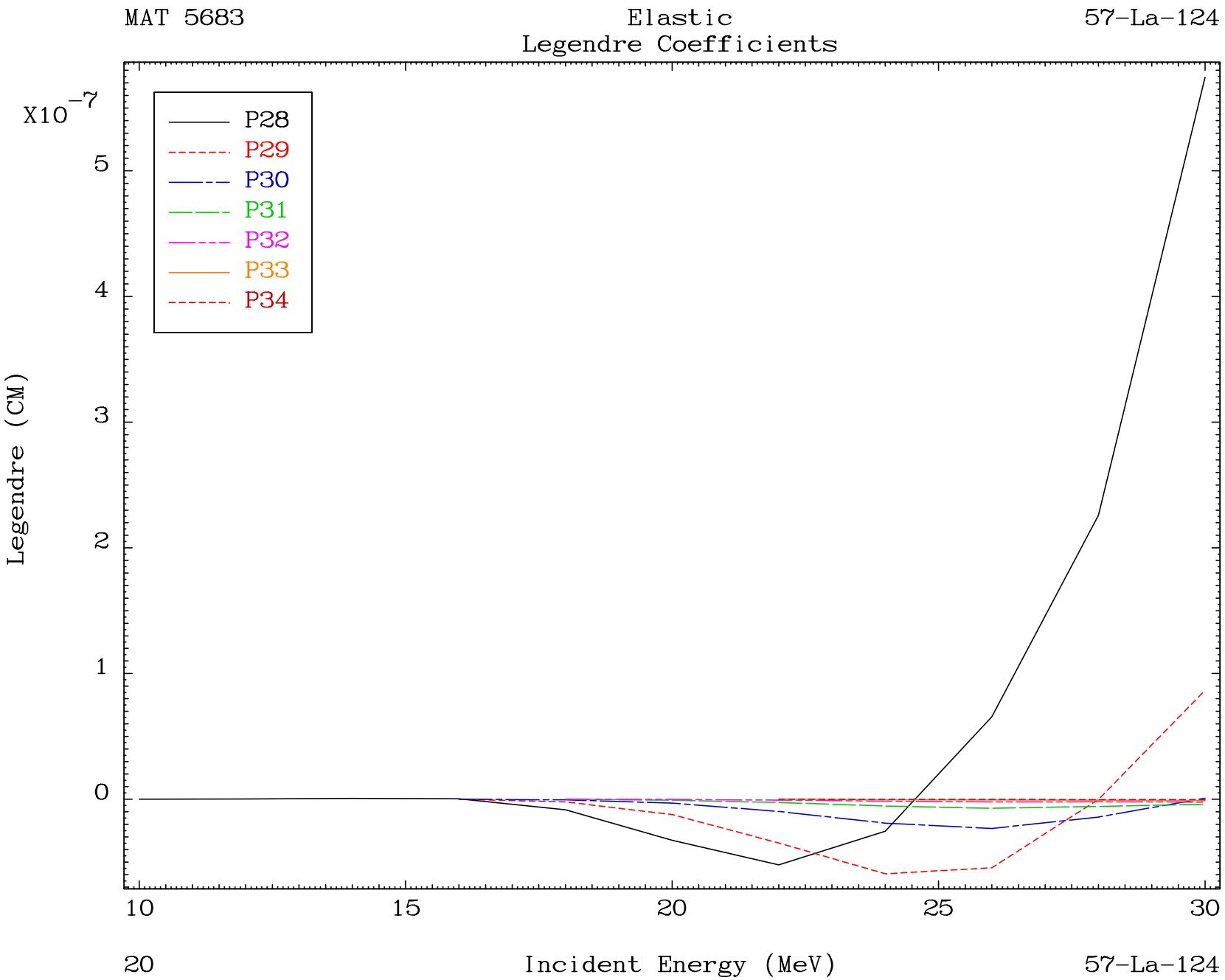

MAT 5683
(n,He3) Levels
57-La-124
293 Kelvin Cross Sections
(n,He-3)
Cross Section (barns)
Incident Energy (MeV)
15
57-La-124

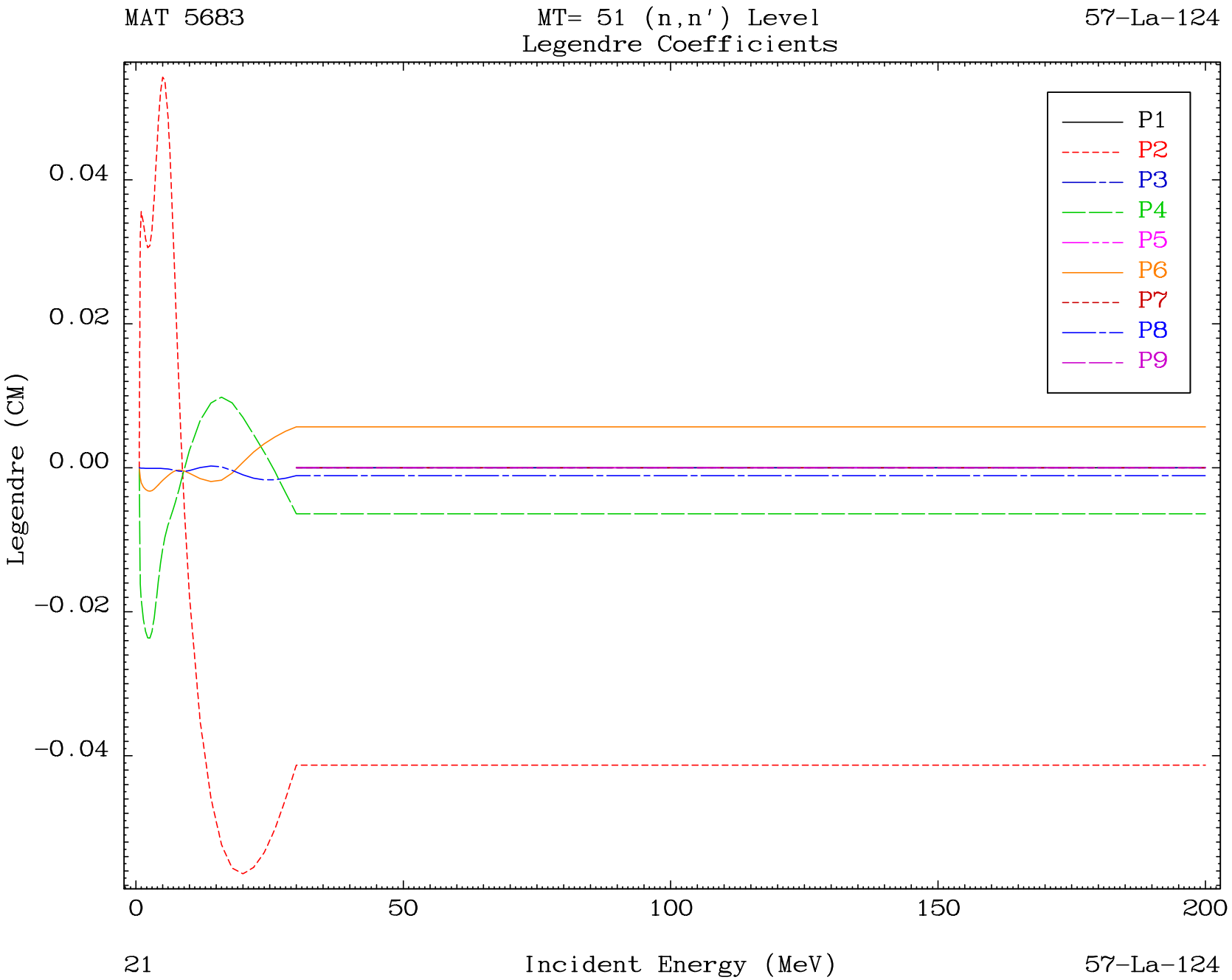

MAT 5683
(n,α) Levels
57-La-124
293 Kelvin Cross Sections
Cross Section (barns)
10^0
10^-2
10^-4
10^-6
(n,α)
(n,2α)
(n,3α)
10^-10
10^-8
10^-6
10^-4
10^-2
10^0
10^2
Incident Energy (MeV)
16
57-La-124

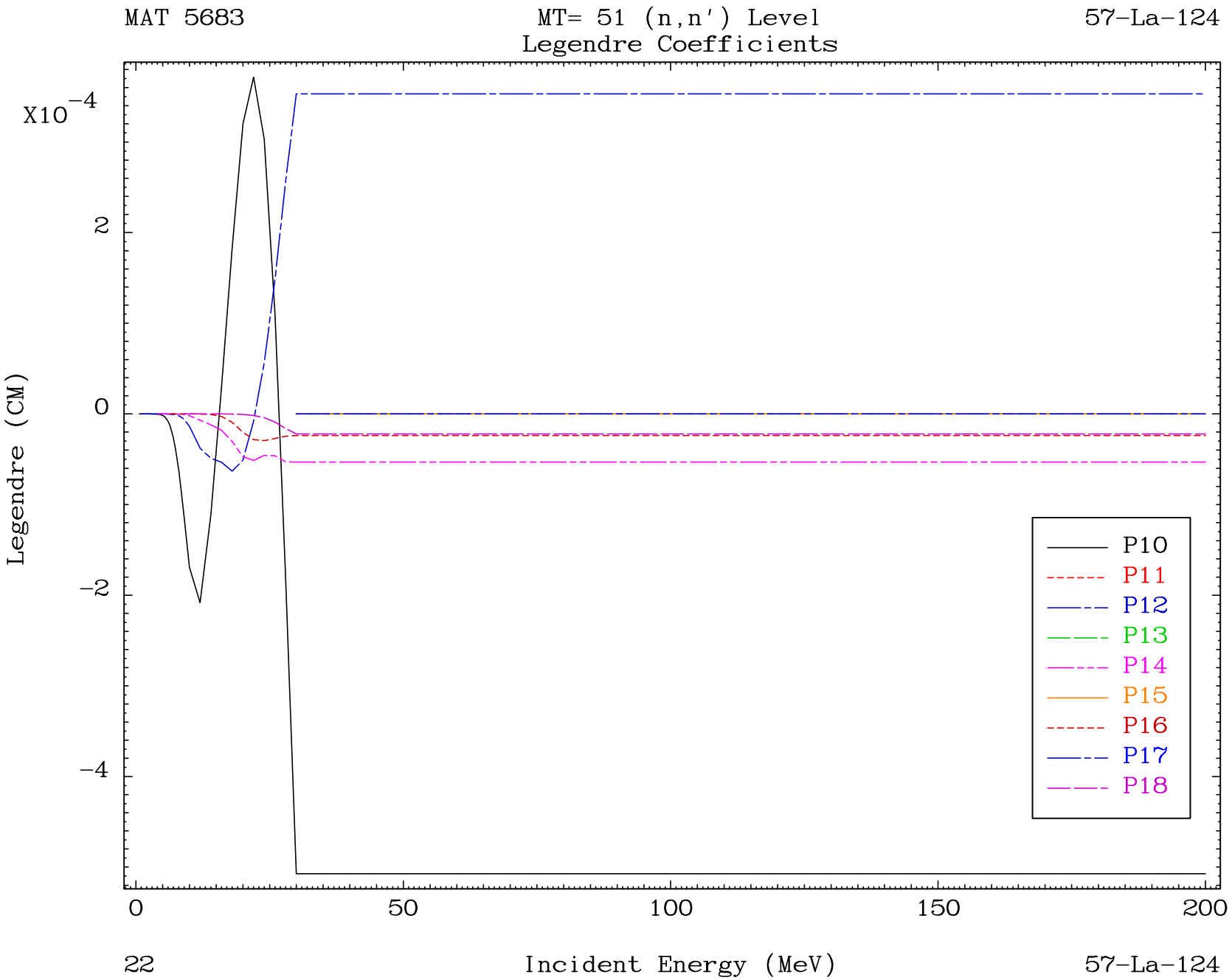

MAT 5683
Elastic
Legendre Coefficients
57-La-124
Legendre (CM)
0.0
0.2
0.4
0.6
0.8
0
10
20
30
17
Incident Energy (MeV)
57-La-124
P1
P2
P3
P4
P5
P6
P7
P8
P9

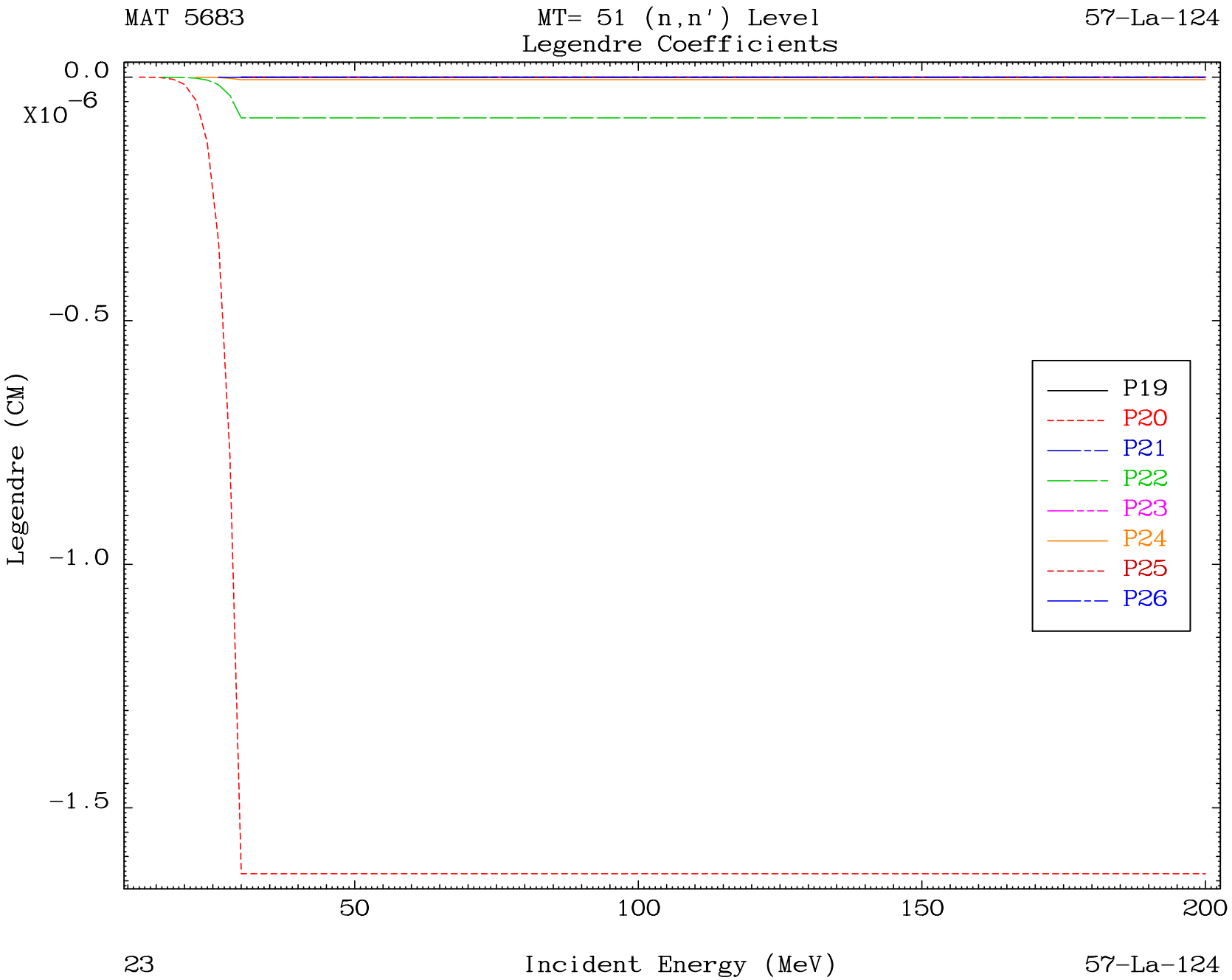

MAT 5683
Elastic
Legendre Coefficients
57-La-124
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.3
0.2
0.1
0.0
Legendre (CM)
5
10
15
20
25
30
18
Incident Energy (MeV)
57-La-124

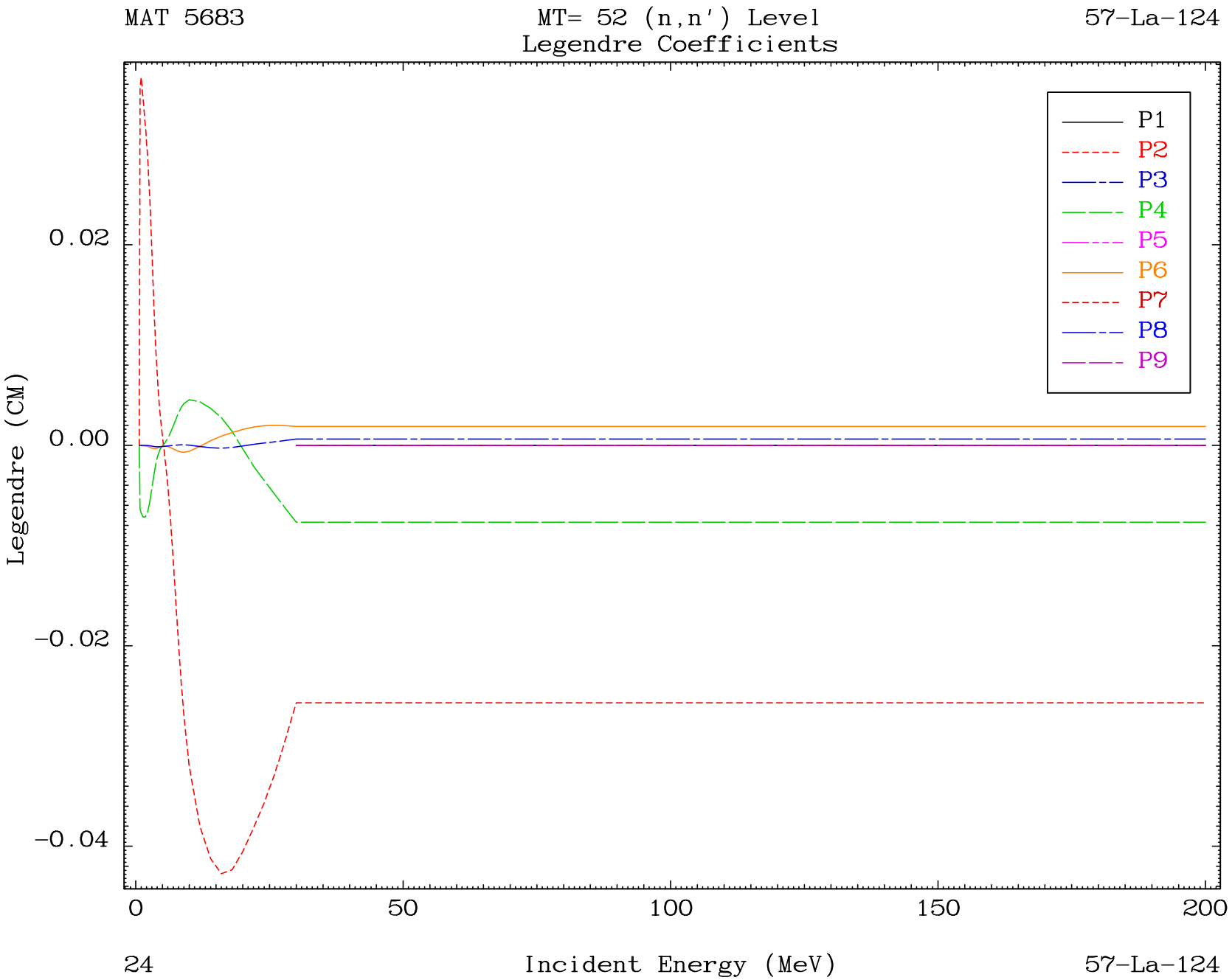

MAT 5683
Elastic
Legendre Coefficients
57-La-124
0.008
0.006
0.004
0.002
0.000
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
10
15
20
25
30
19
Incident Energy (MeV)
57-La-124

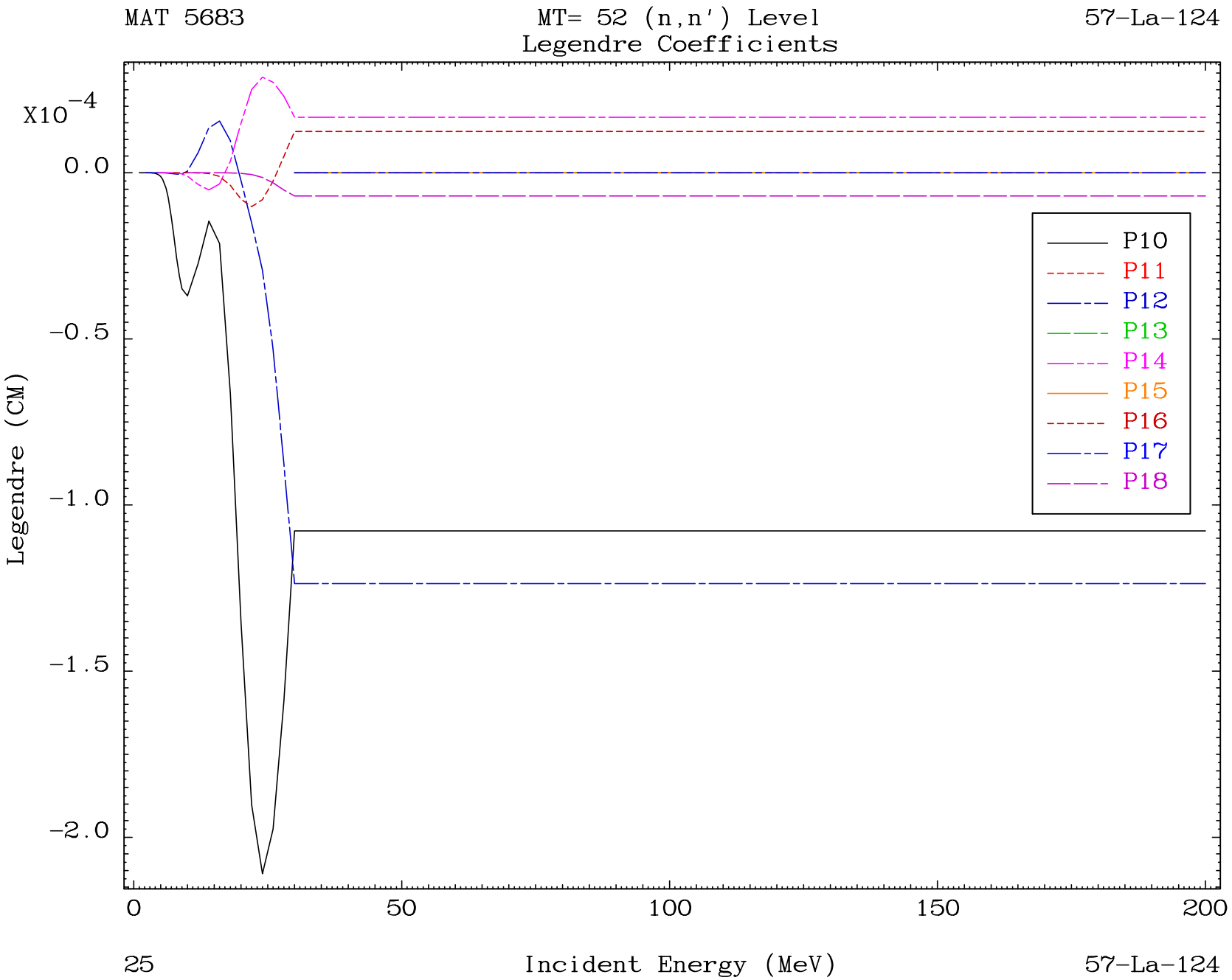

MAT 5683
Elastic
Legendre Coefficients
57-La-124
X10^-7
P28
P29
P30
P31
P32
P33
P34
Legendre (CM)
5
4
3
2
1
0
10
15
20
25
30
20
Incident Energy (MeV)
57-La-124

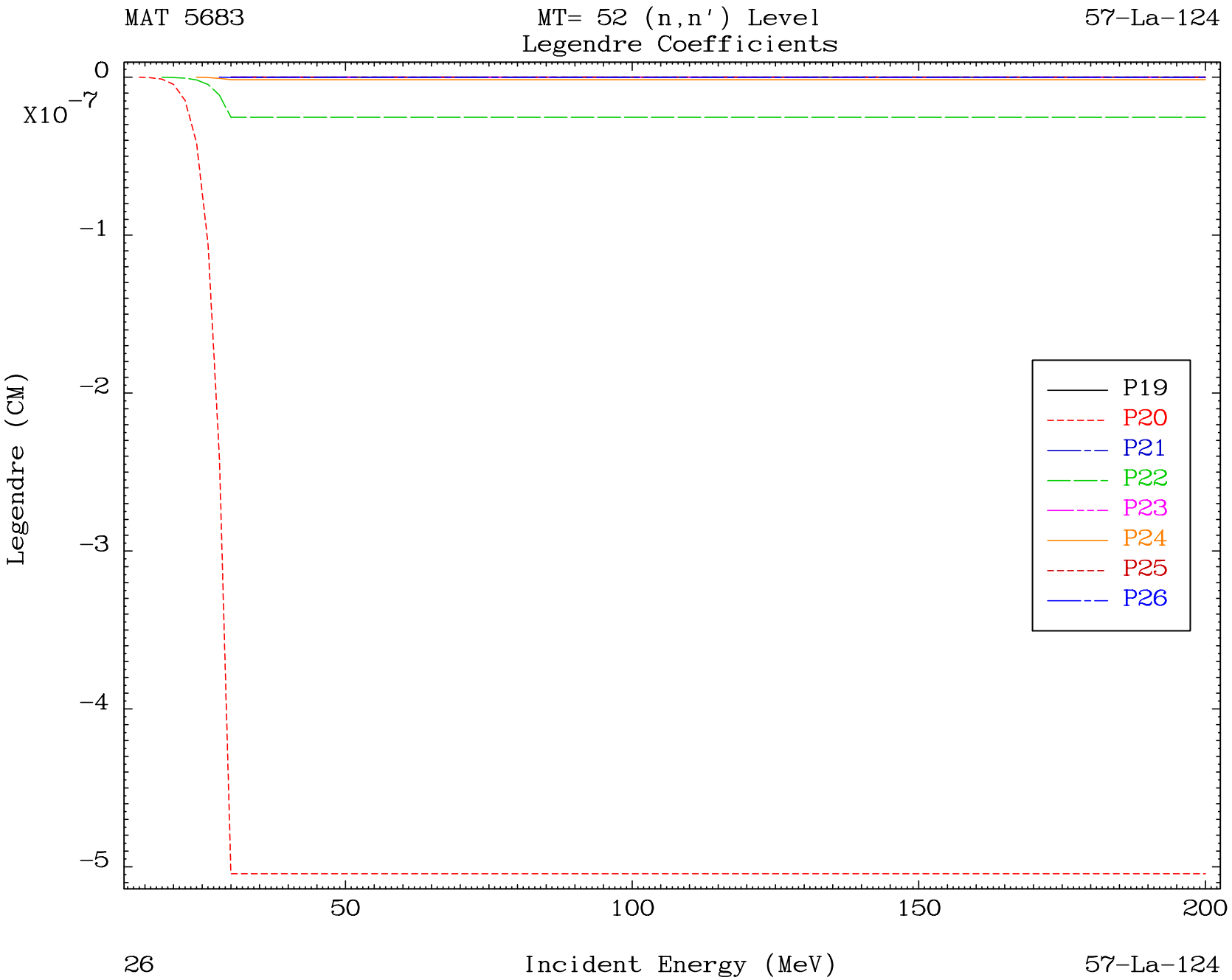

MAT 5683
MT= 51 (n,n') Level
Legendre Coefficients
57-La-124
P1
P2
P3
P4
P5
P6
P7
P8
P9
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
21
Incident Energy (MeV)
57-La-124

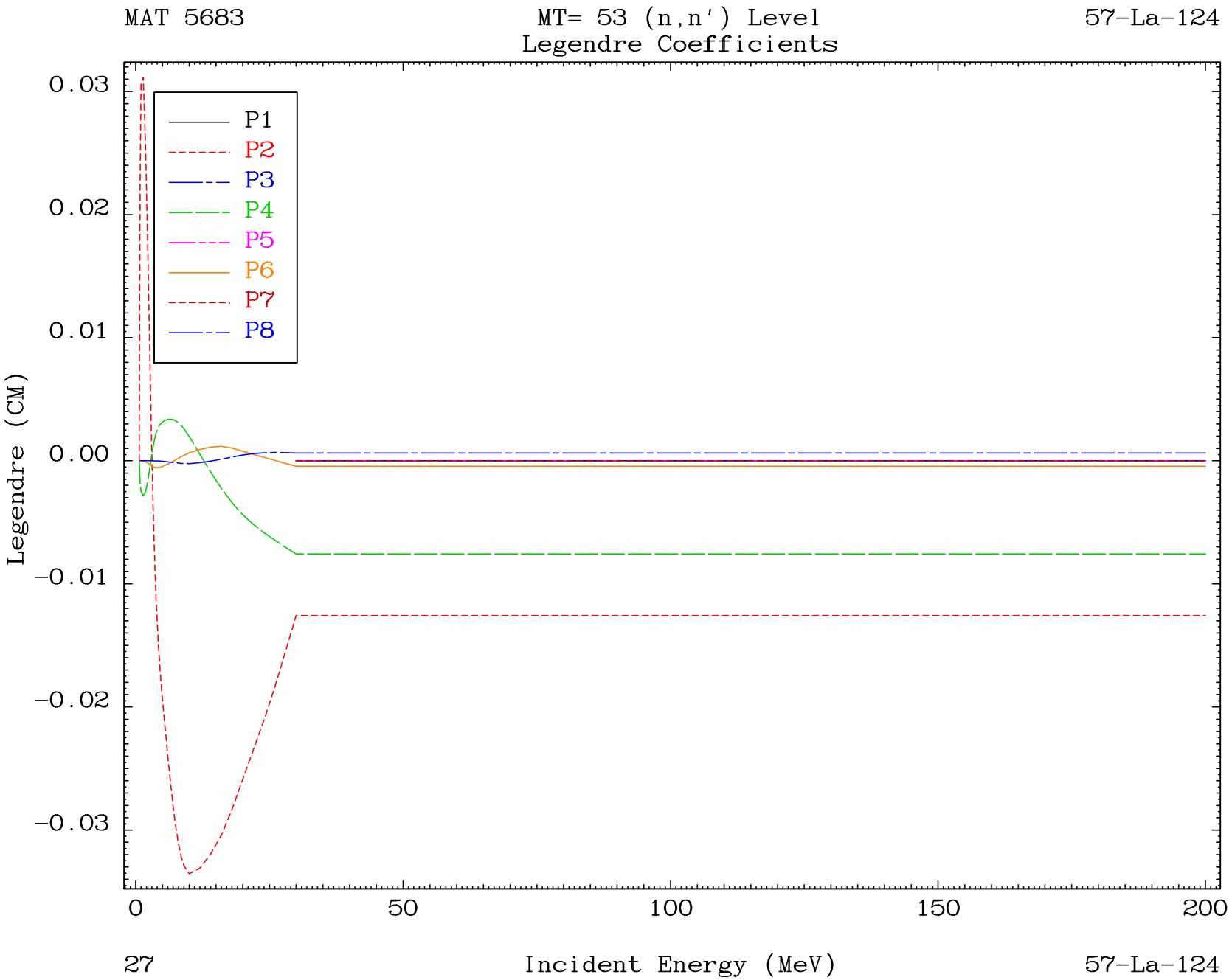

MAT 5683
MT= 51 (n,n') Level
Legendre Coefficients
57-La-124
X10^-4
2
0
-2
-4
Legendre (CM)
0
50
100
150
200
22
Incident Energy (MeV)
57-La-124
P10
P11
P12
P13
P14
P15
P16
P17
P18

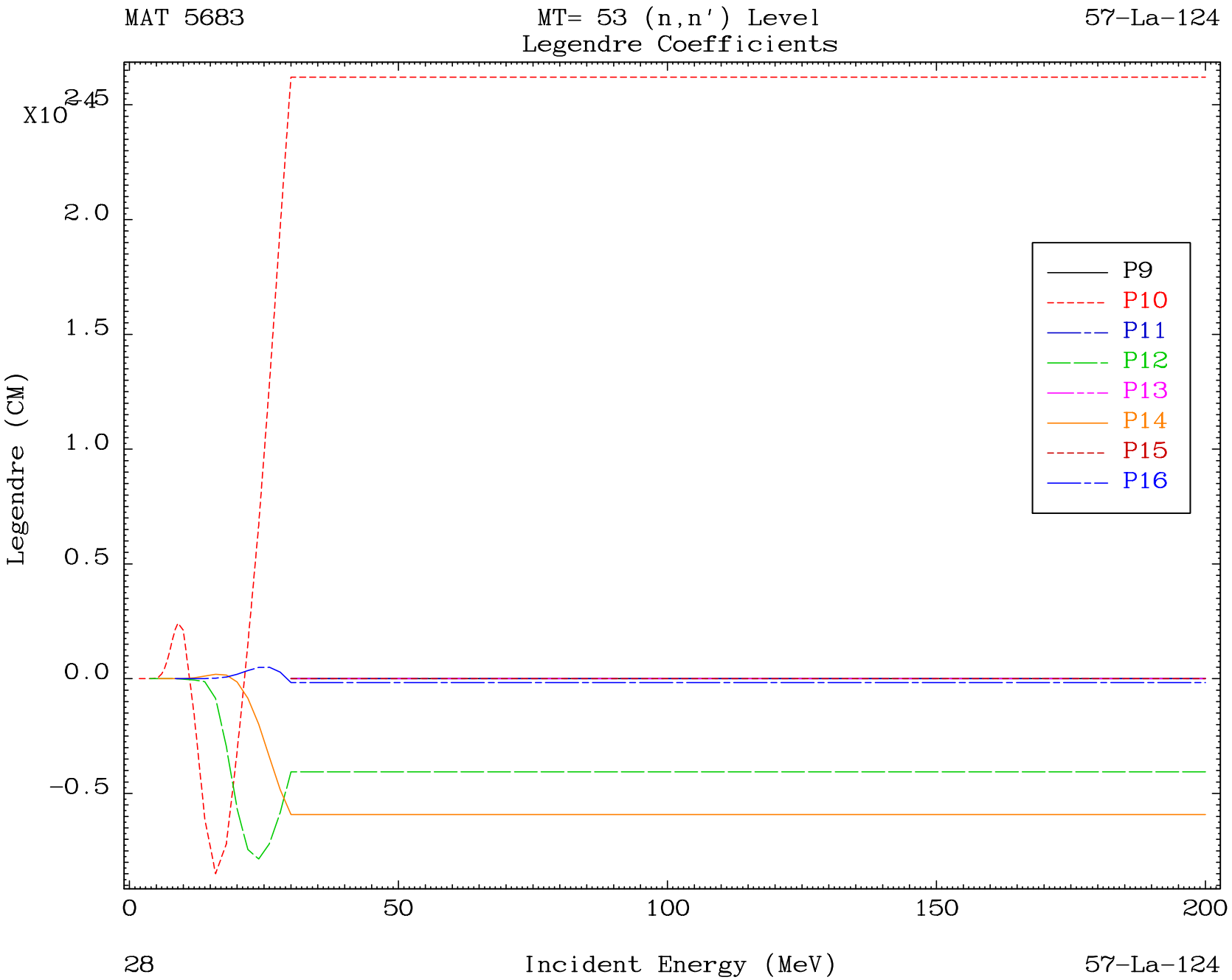

MAT 5683
MT= 51 (n,n') Level
Legendre Coefficients
57-La-124
0.0
X10^-6
-0.5
-1.0
-1.5
Legendre (CM)
50
100
150
200
23
Incident Energy (MeV)
57-La-124
P19
P20
P21
P22
P23
P24
P25
P26

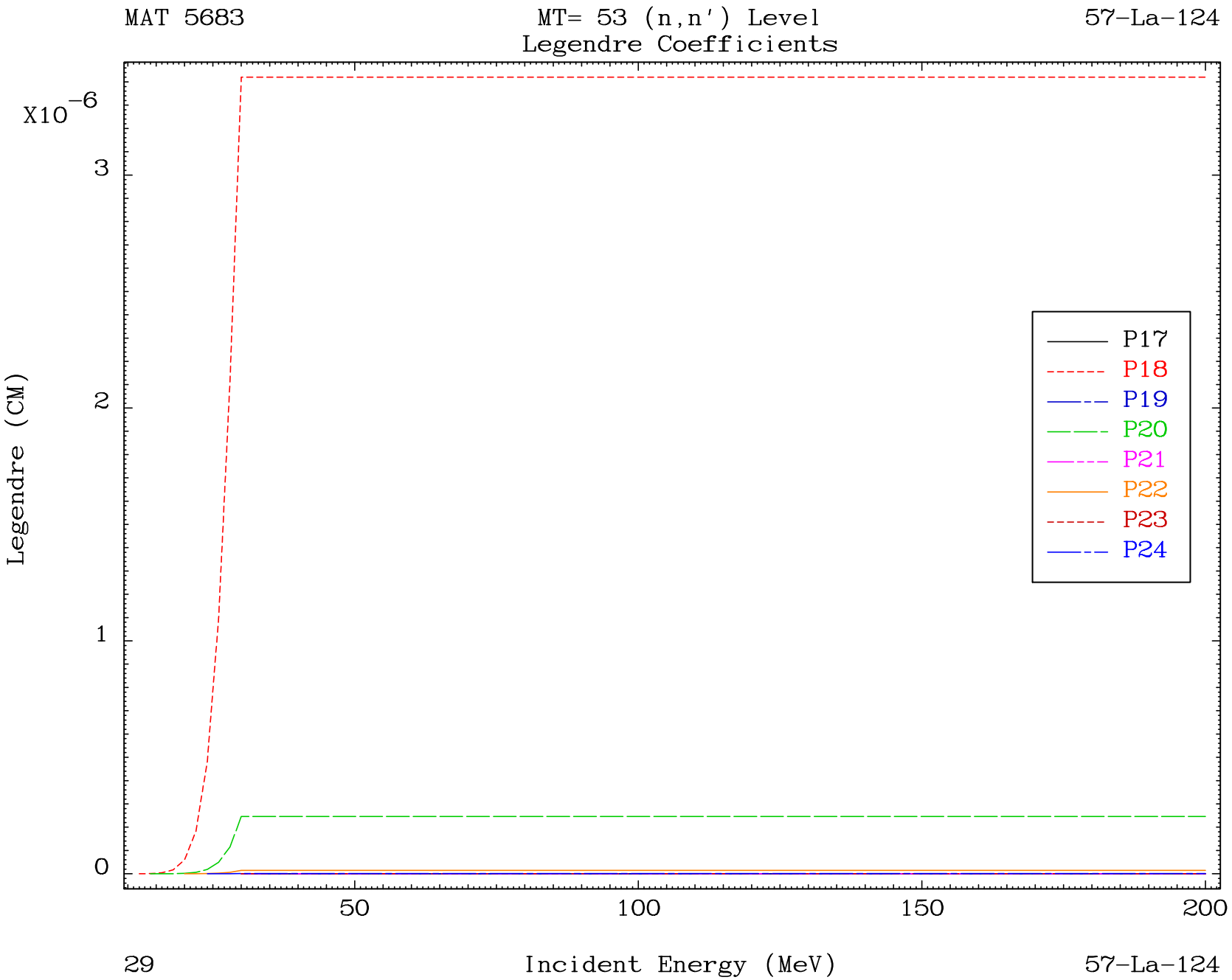

MAT 5683
MT= 52 (n,n') Level
Legendre Coefficients
57-La-124
P1
P2
P3
P4
P5
P6
P7
P8
P9
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
24
Incident Energy (MeV)
57-La-124

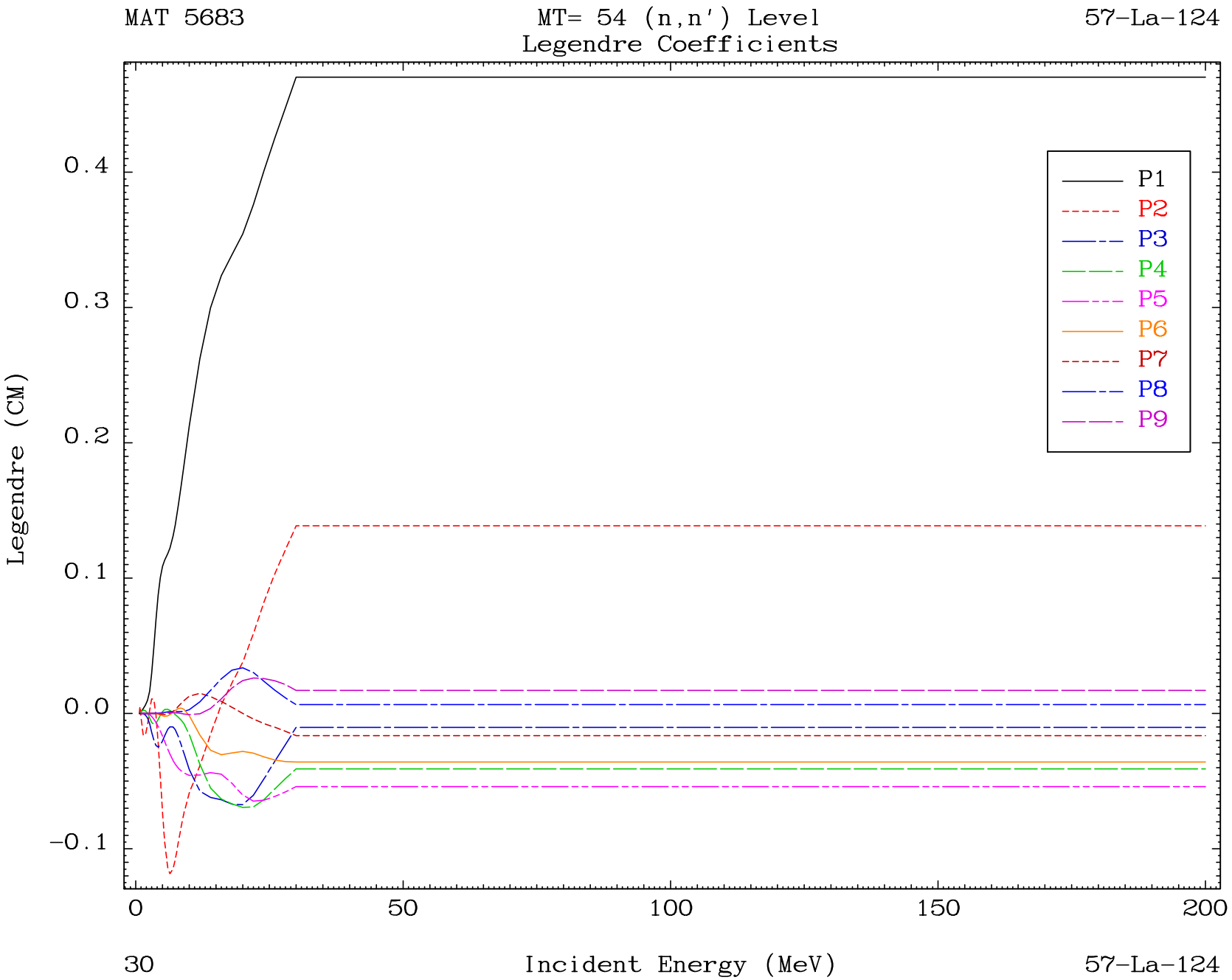

MAT 5683
MT= 52 (n,n') Level
Legendre Coefficients
57-La-124
X10^-4
0.0
-0.5
-1.0
-1.5
-2.0
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
25
Incident Energy (MeV)
57-La-124

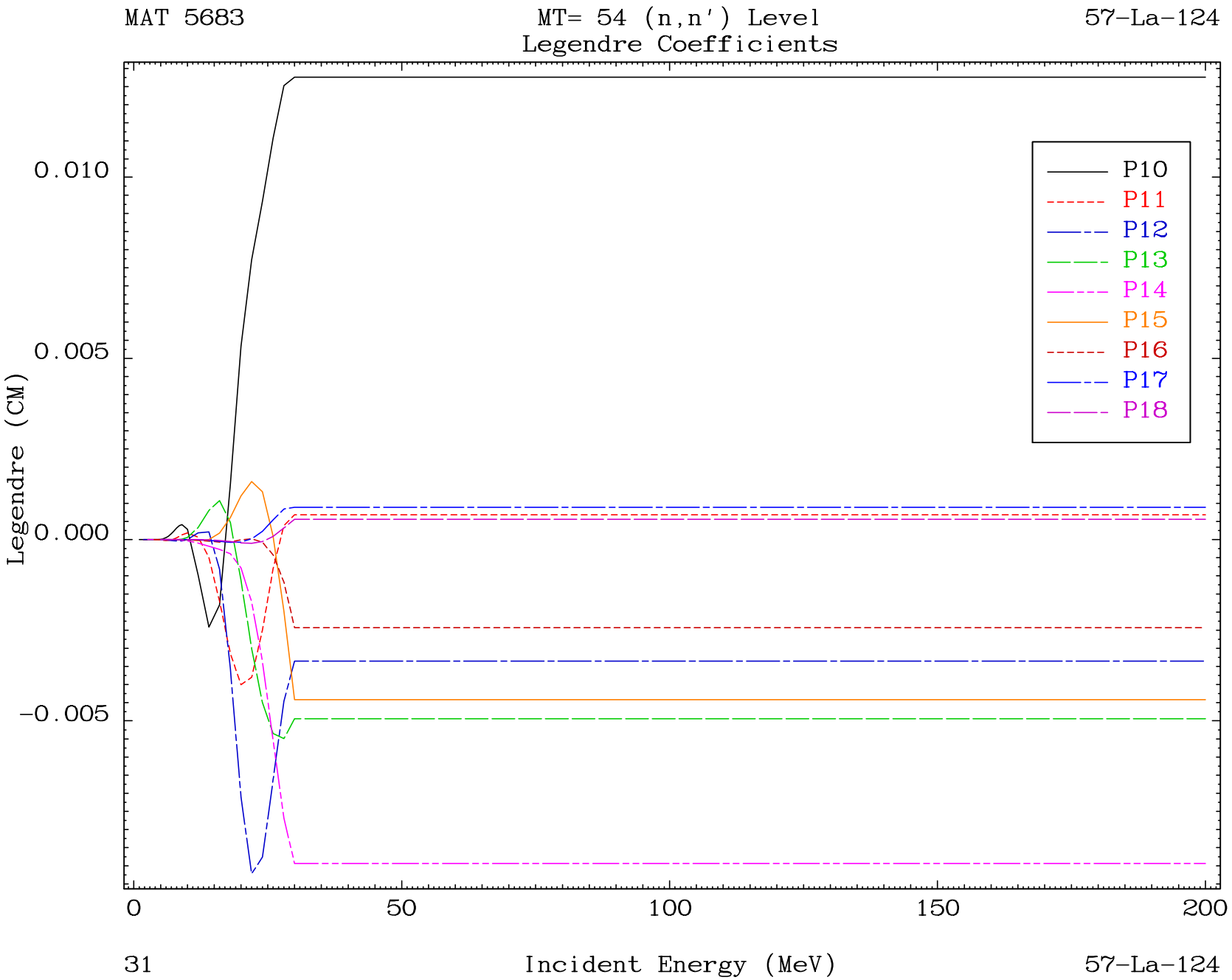

MAT 5683
MT= 52 (n,n') Level
Legendre Coefficients
57-La-124
0
X10-7
-1
-2
-3
-4
-5
Legendre (CM)
50
100
150
200
P19
P20
P21
P22
P23
P24
P25
P26
26
Incident Energy (MeV)
57-La-124

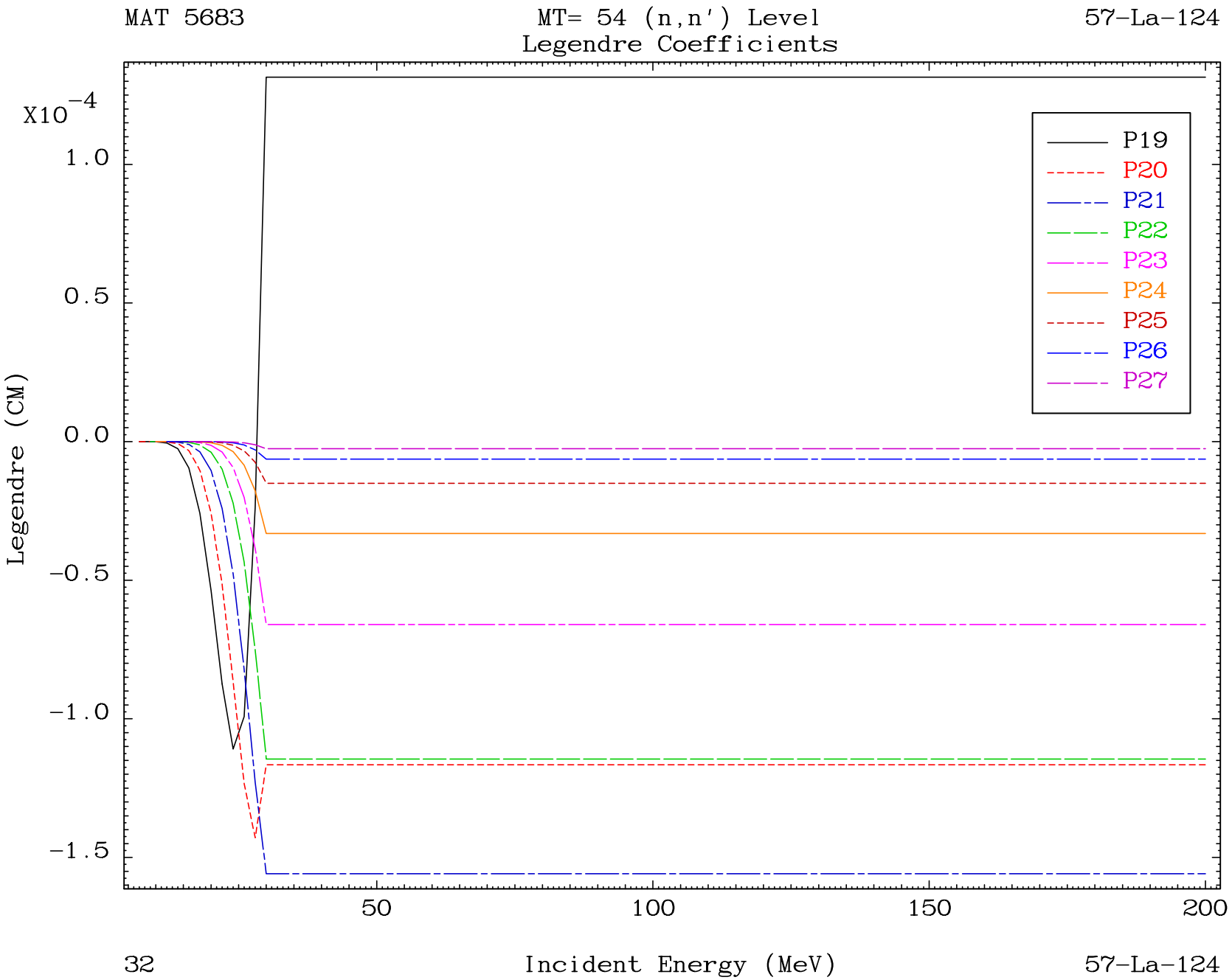

MAT 5683
MT= 53 (n,n') Level
Legendre Coefficients
57-La-124
P1
P2
P3
P4
P5
P6
P7
P8
0.03
0.02
0.01
0.00
-0.01
-0.02
-0.03
Legendre (CM)
0
50
100
150
200
27
Incident Energy (MeV)
57-La-124

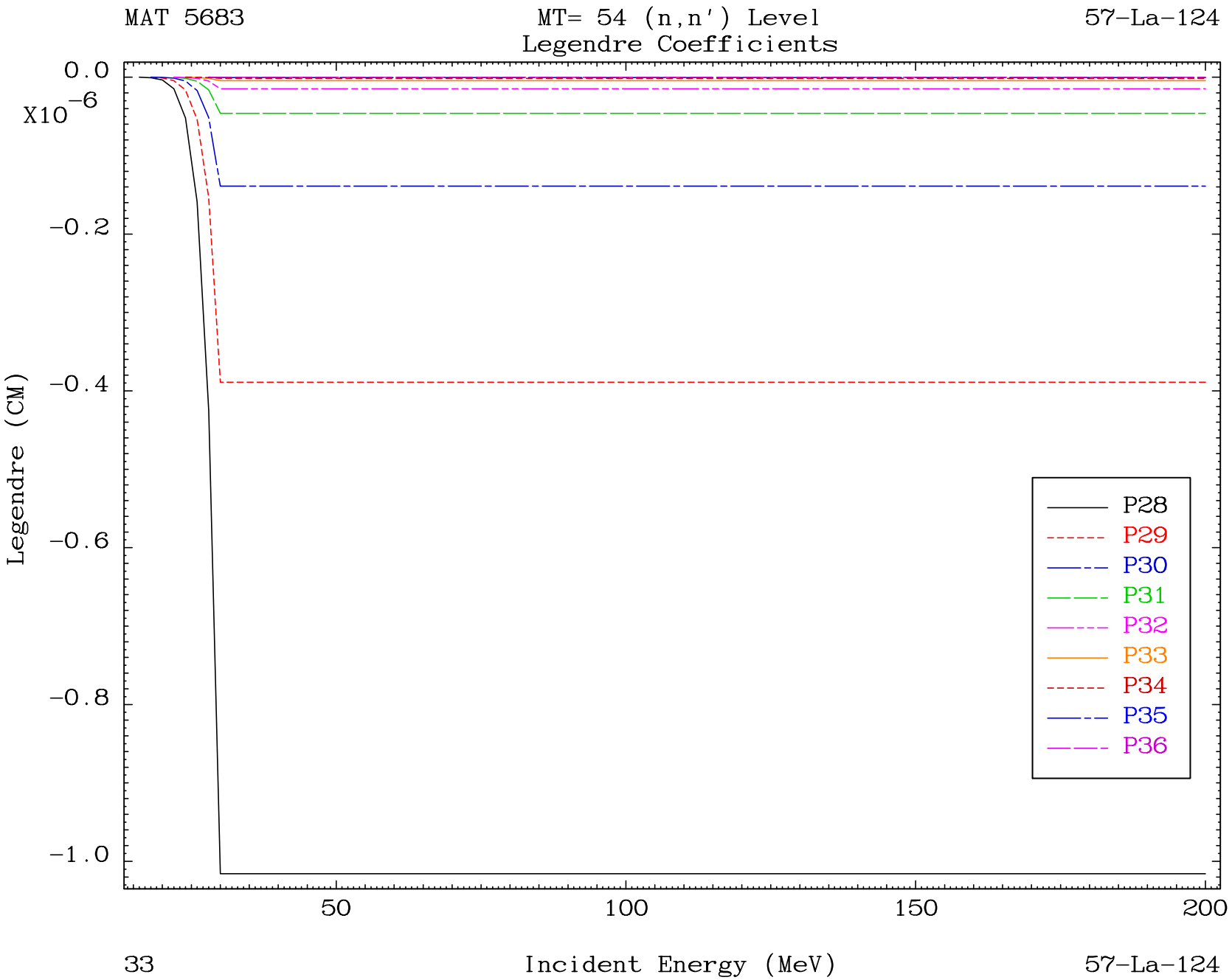

MAT 5683
MT= 53 (n,n') Level
Legendre Coefficients
57-La-124
X10-24
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
Legendre (CM)
P9
P10
P11
P12
P13
P14
P15
P16
0
50
100
150
200
28
Incident Energy (MeV)
57-La-124

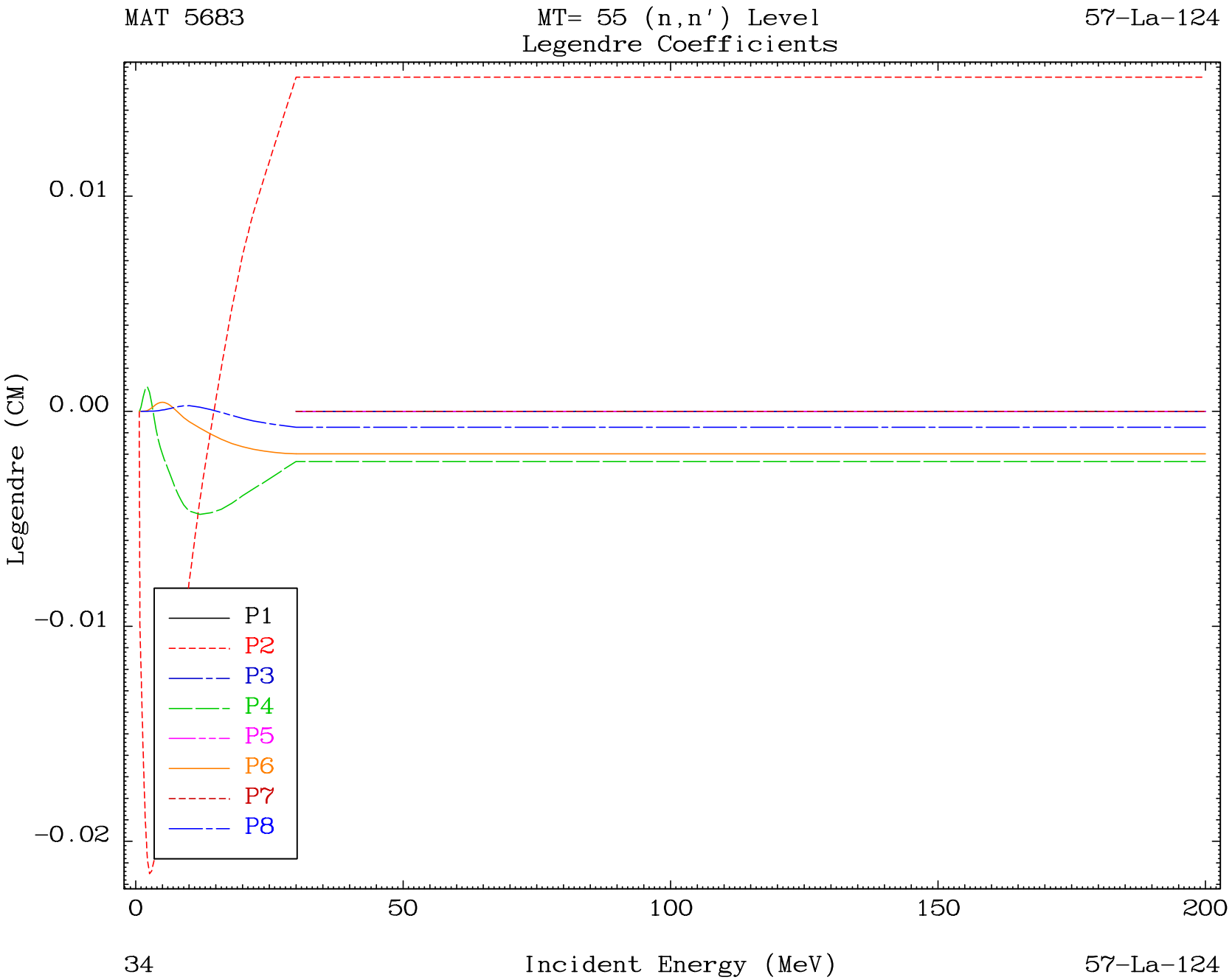

MAT 5683
MT= 53 (n,n') Level
Legendre Coefficients
57-La-124
X10^-6
3
2
1
0
Legendre (CM)
50
100
150
200
29
Incident Energy (MeV)
57-La-124
P17
P18
P19
P20
P21
P22
P23
P24

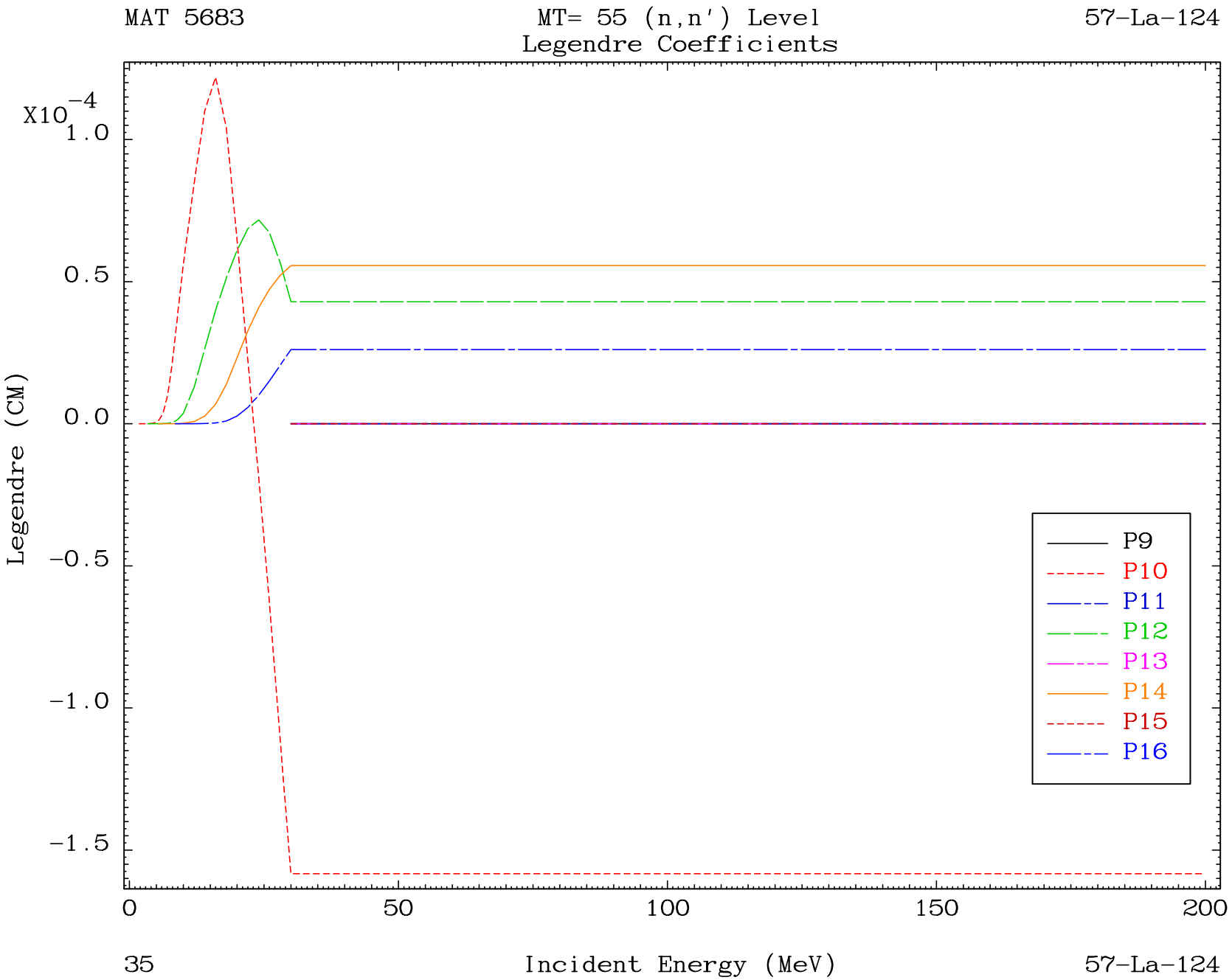

MAT 5683
MT= 54 (n,n') Level
Legendre Coefficients
57-La-124
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
30
Incident Energy (MeV)
57-La-124
P1
P2
P3
P4
P5
P6
P7
P8
P9

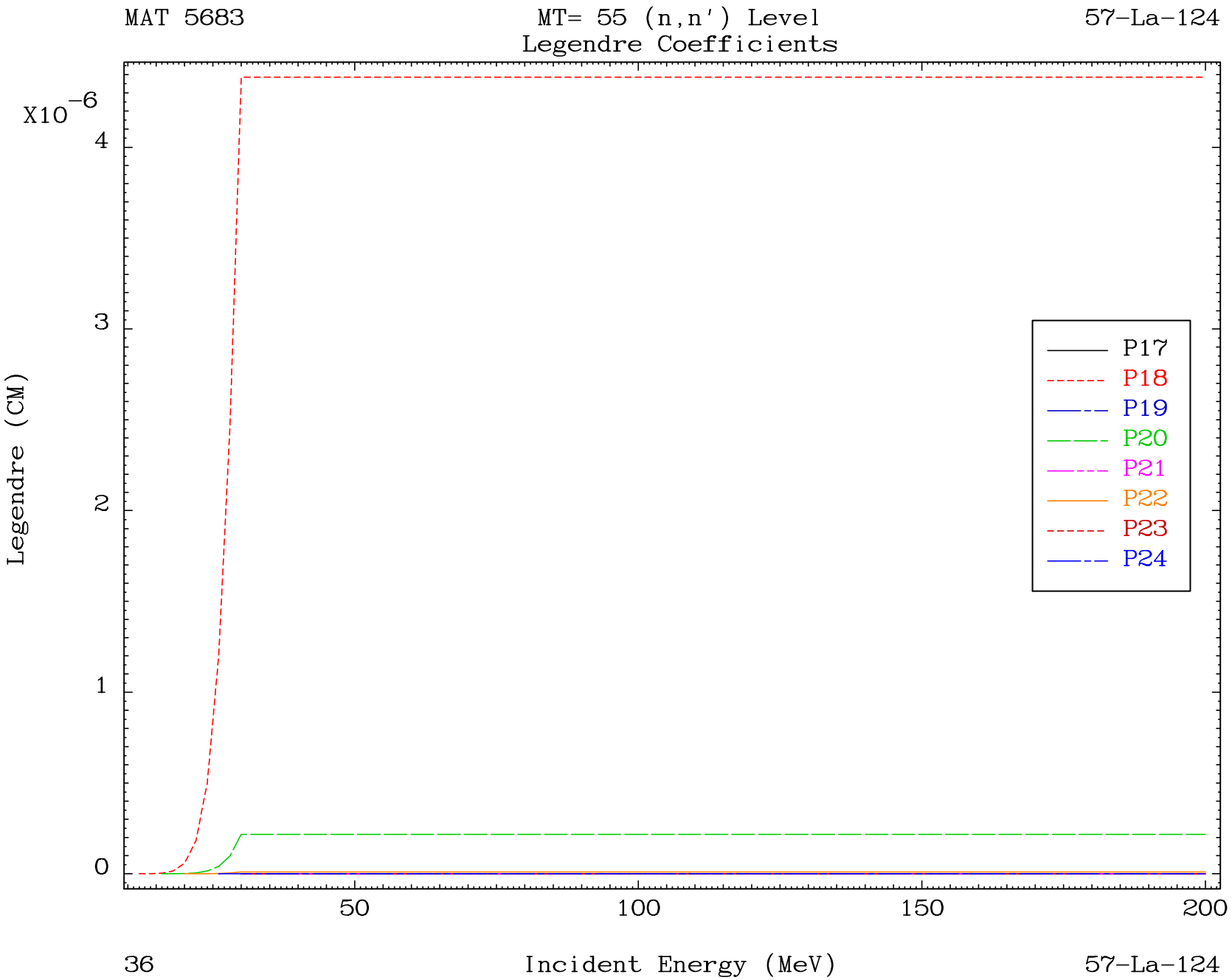

MAT 5683
MT= 54 (n,n') Level
Legendre Coefficients
57-La-124
0.010
0.005
0.000
-0.005
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
31
Incident Energy (MeV)
57-La-124

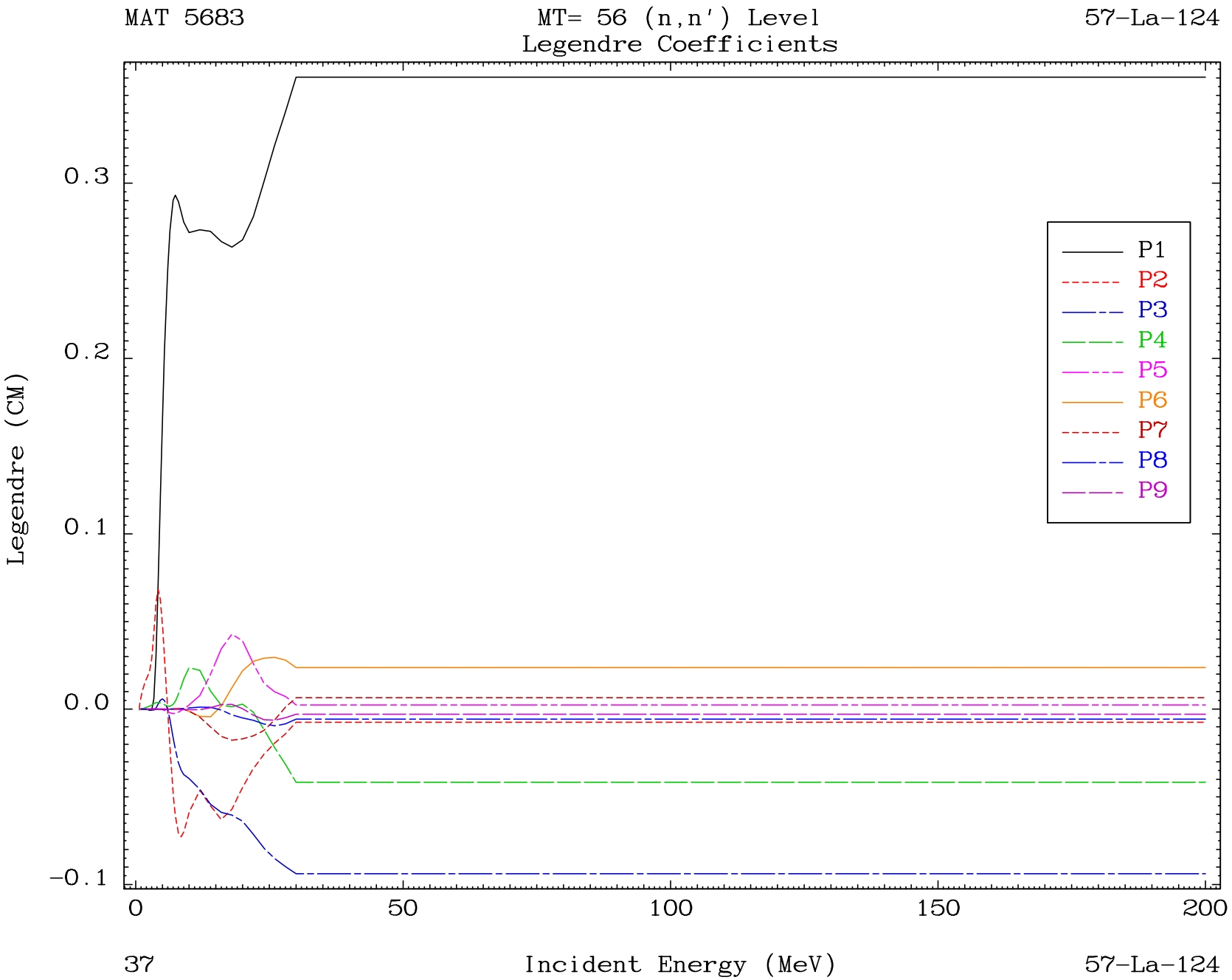

MAT 5683
MT= 54 (n,n') Level
Legendre Coefficients
57-La-124
X10^-4
1.0
0.5
0.0
-0.5
-1.0
-1.5
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
32
Incident Energy (MeV)
57-La-124

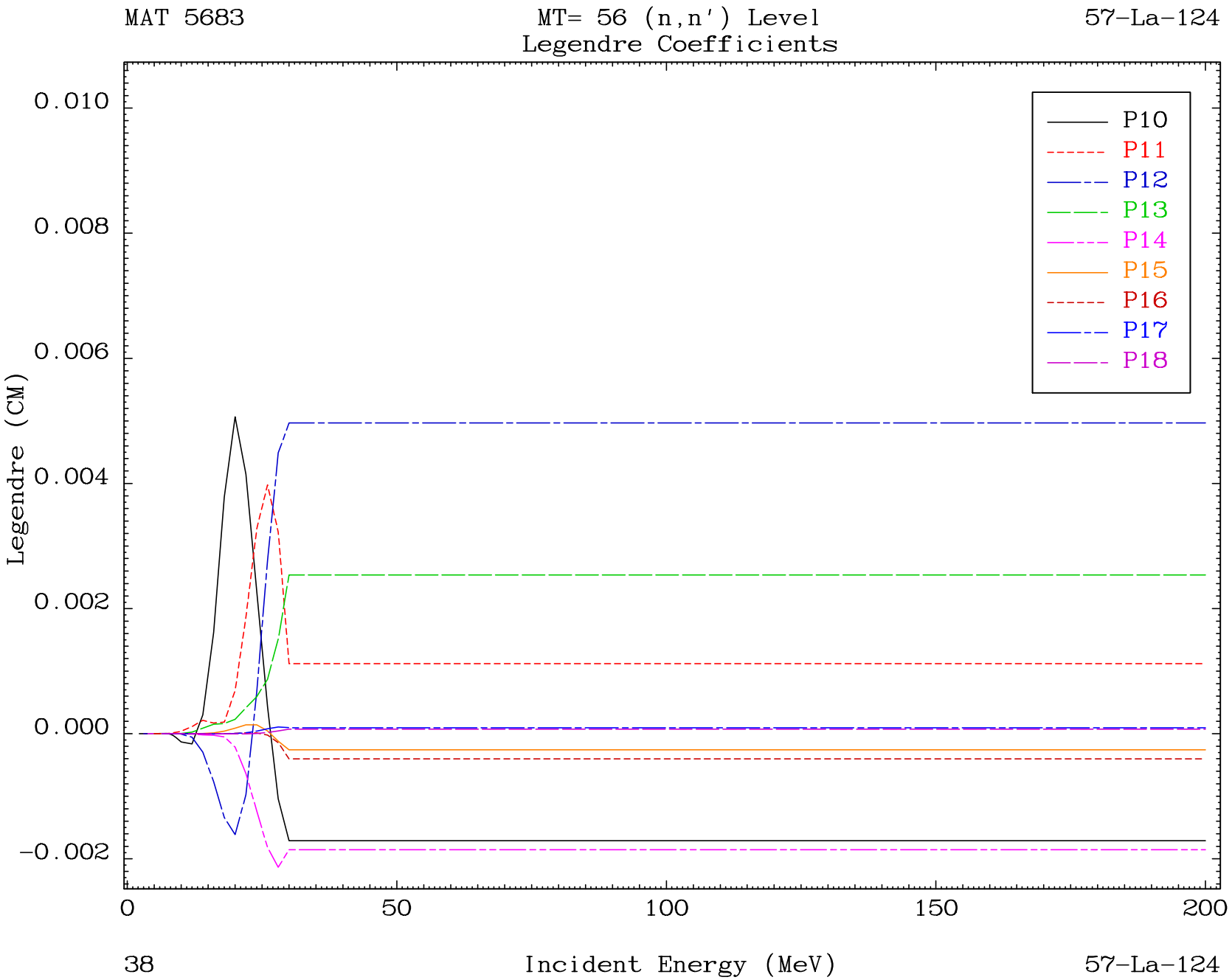

MAT 5683
MT= 54 (n,n') Level
Legendre Coefficients
57-La-124
0.0
X10^-6
-0.2
-0.4
-0.6
-0.8
-1.0
Legendre (CM)
50
100
150
200
33
Incident Energy (MeV)
57-La-124
P28
P29
P30
P31
P32
P33
P34
P35
P36

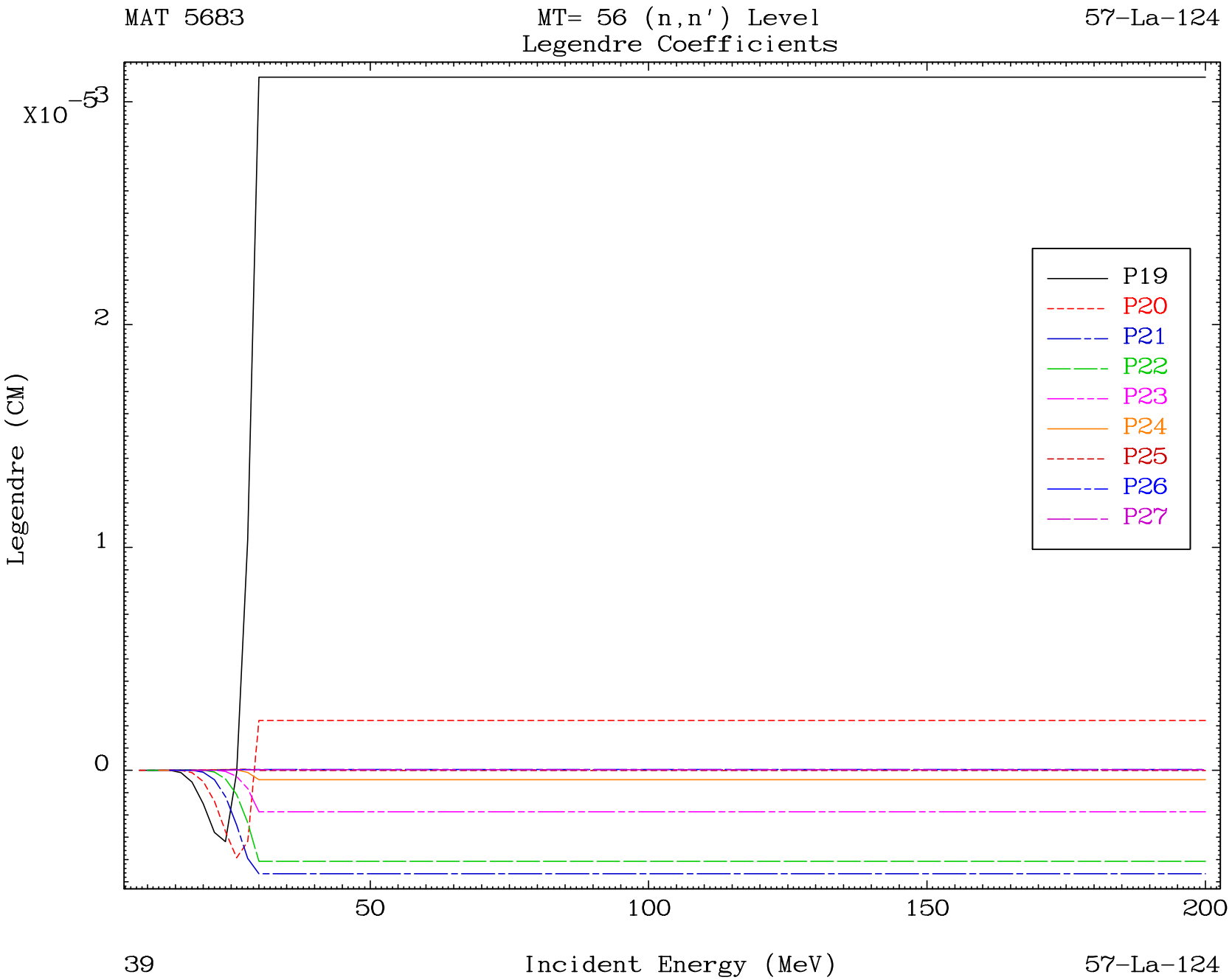

MAT 5683
MT= 55 (n,n') Level
Legendre Coefficients
57-La-124
0.01
0.00
-0.01
-0.02
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
0
50
100
150
200
34
Incident Energy (MeV)
57-La-124

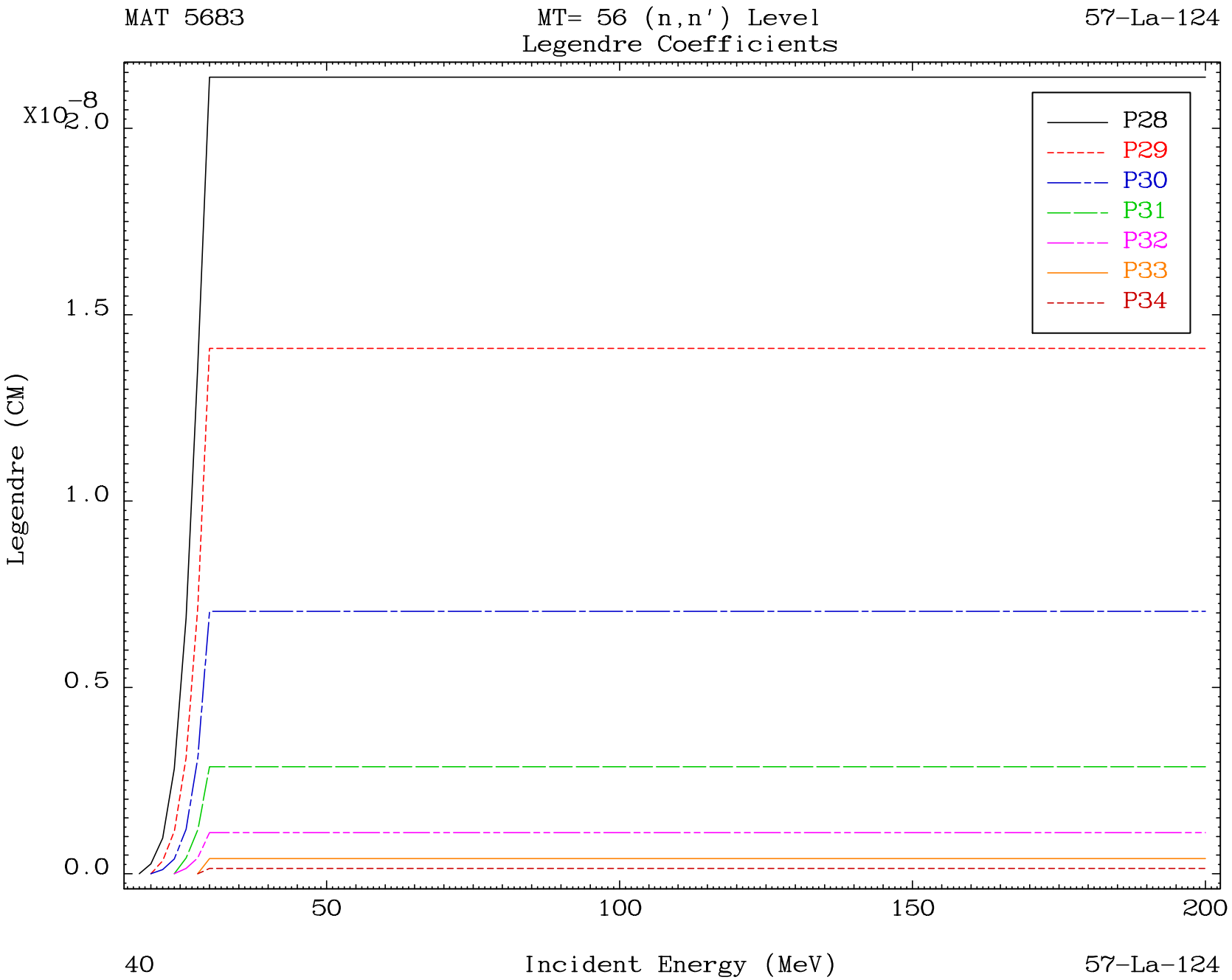

MAT 5683
MT= 55 (n,n') Level
Legendre Coefficients
57-La-124
X10^-4
1.0
0.5
0.0
-0.5
-1.0
-1.5
Legendre (CM)
0
50
100
150
200
35
Incident Energy (MeV)
57-La-124
P9
P10
P11
P12
P13
P14
P15
P16

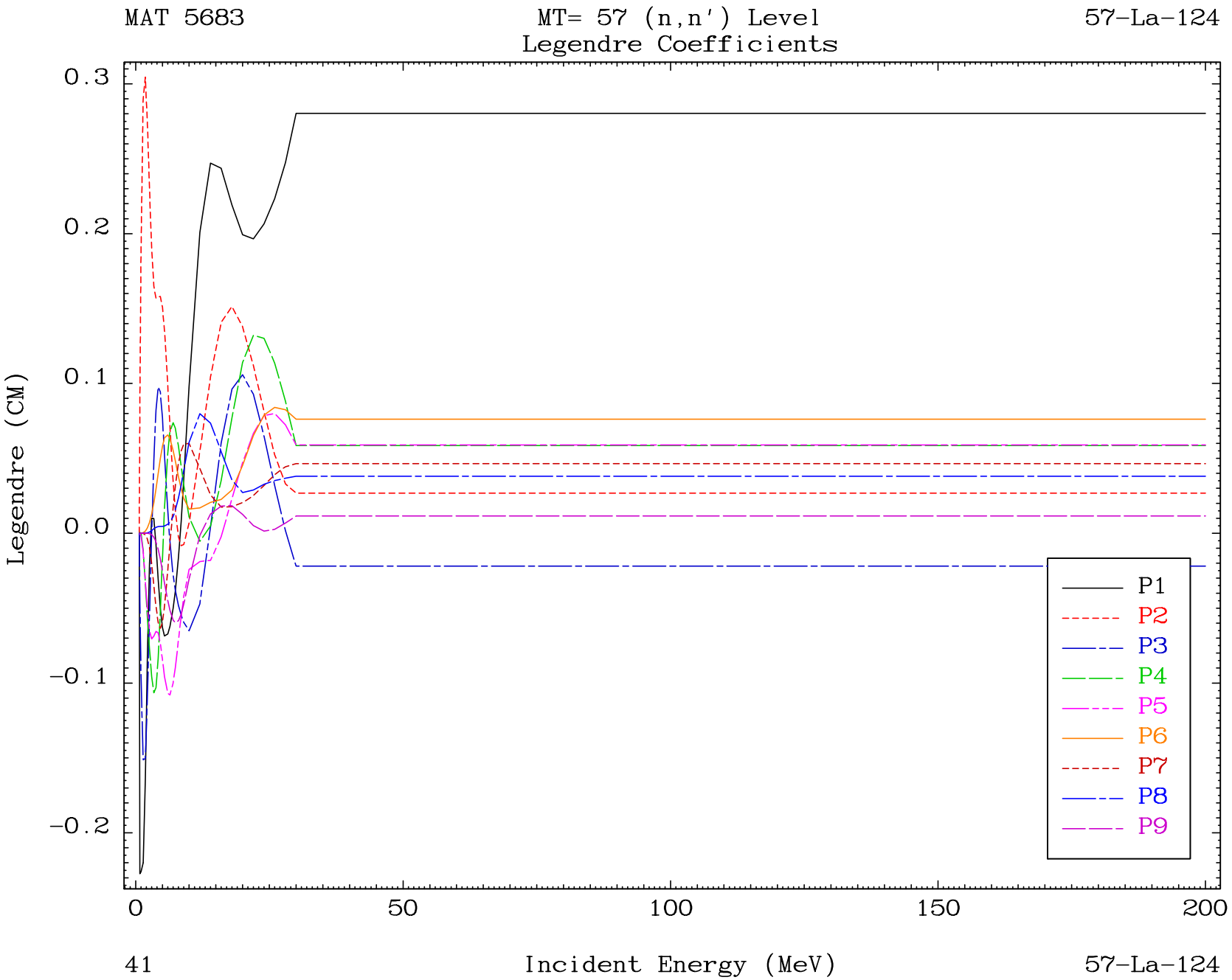

MAT 5683
MT= 55 (n,n') Level
Legendre Coefficients
57-La-124
X10 -6
4
3
2
1
0
Legendre (CM)
P17
P18
P19
P20
P21
P22
P23
P24
50
100
150
200
36
Incident Energy (MeV)
57-La-124

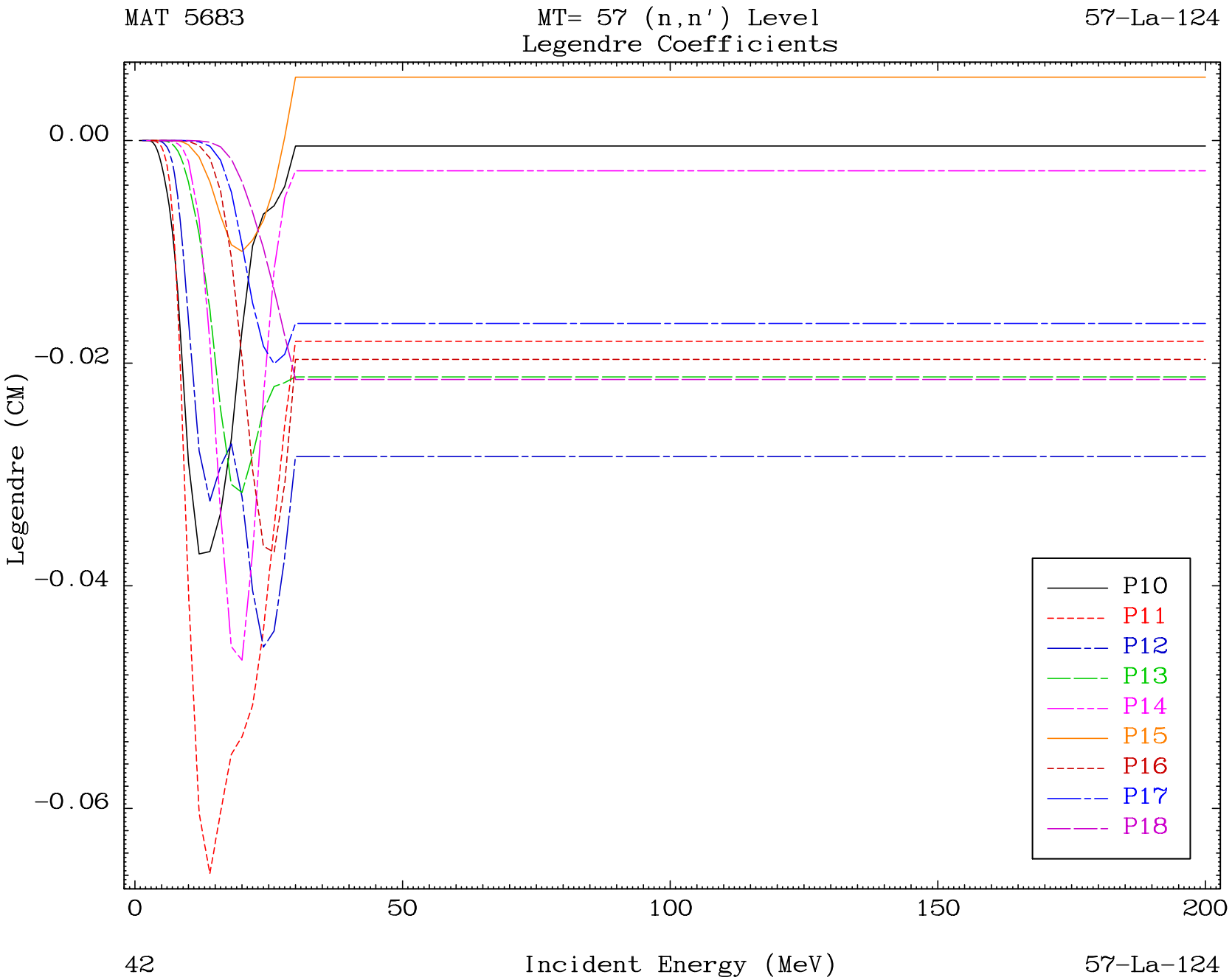

MAT 5683
MT= 56 (n,n') Level
Legendre Coefficients
57-La-124
Legendre (CM)
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
P1
P2
P3
P4
P5
P6
P7
P8
P9
37
Incident Energy (MeV)
57-La-124

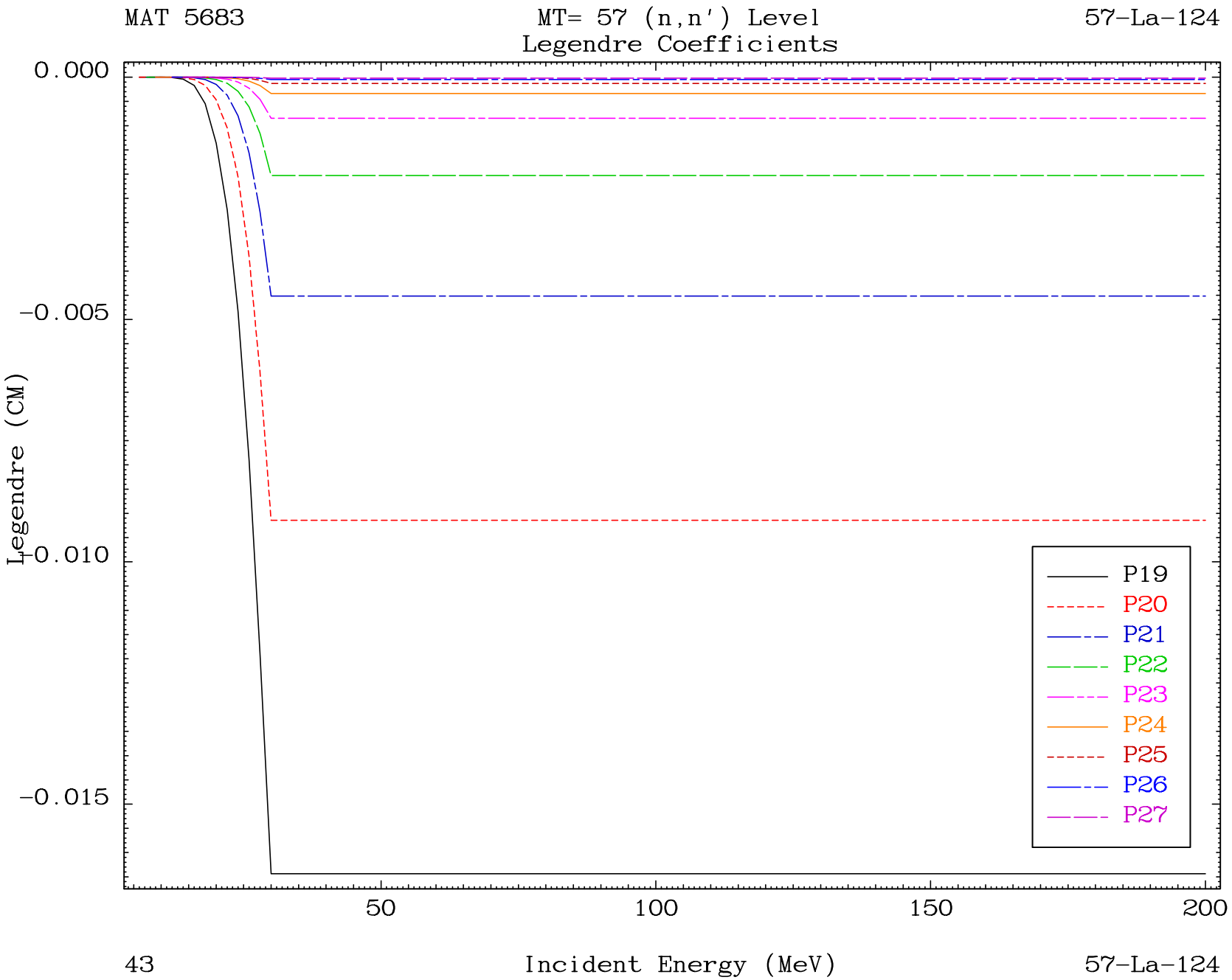

MAT 5683
MT= 56 (n,n') Level
Legendre Coefficients
57-La-124
0.010
0.008
0.006
0.004
0.002
0.000
-0.002
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
38
Incident Energy (MeV)
57-La-124

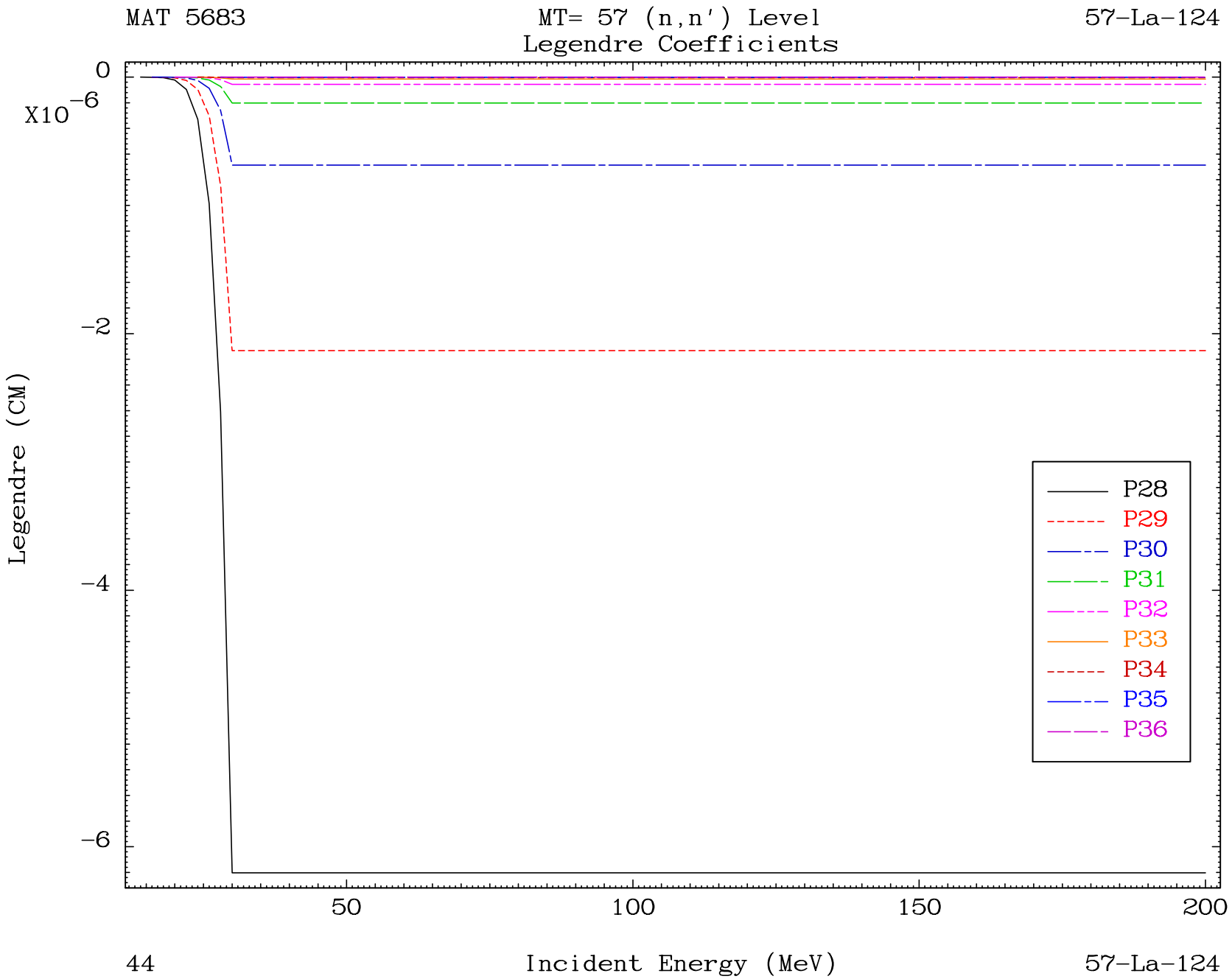

MAT 5683
MT= 56 (n,n') Level
Legendre Coefficients
57-La-124
X10 -5
3
2
1
0
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
39
Incident Energy (MeV)
57-La-124

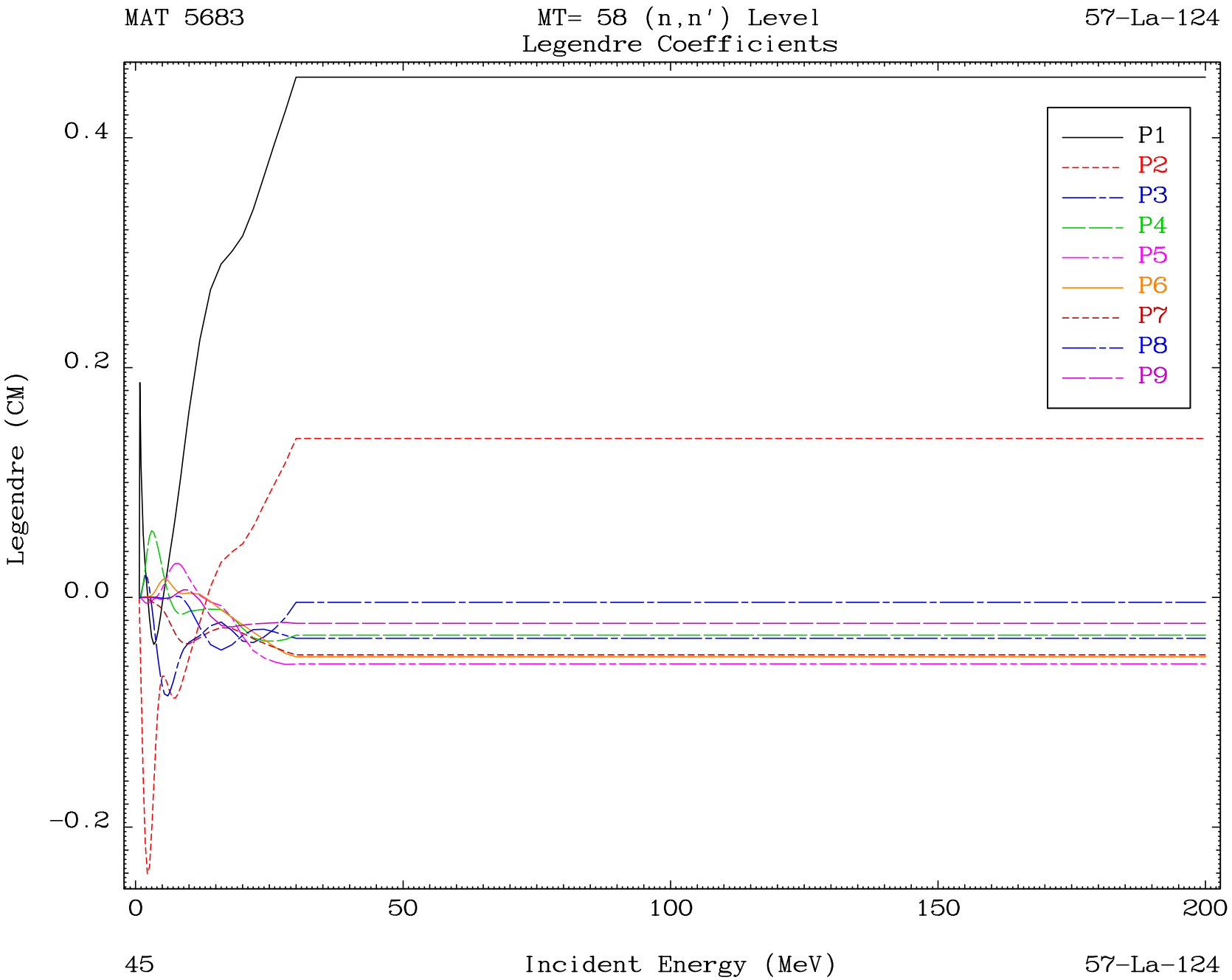

MAT 5683
MT= 56 (n,n') Level
Legendre Coefficients
57-La-124
X10-8
2.0
1.5
1.0
0.5
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
40
50
100
150
200
Incident Energy (MeV)
57-La-124

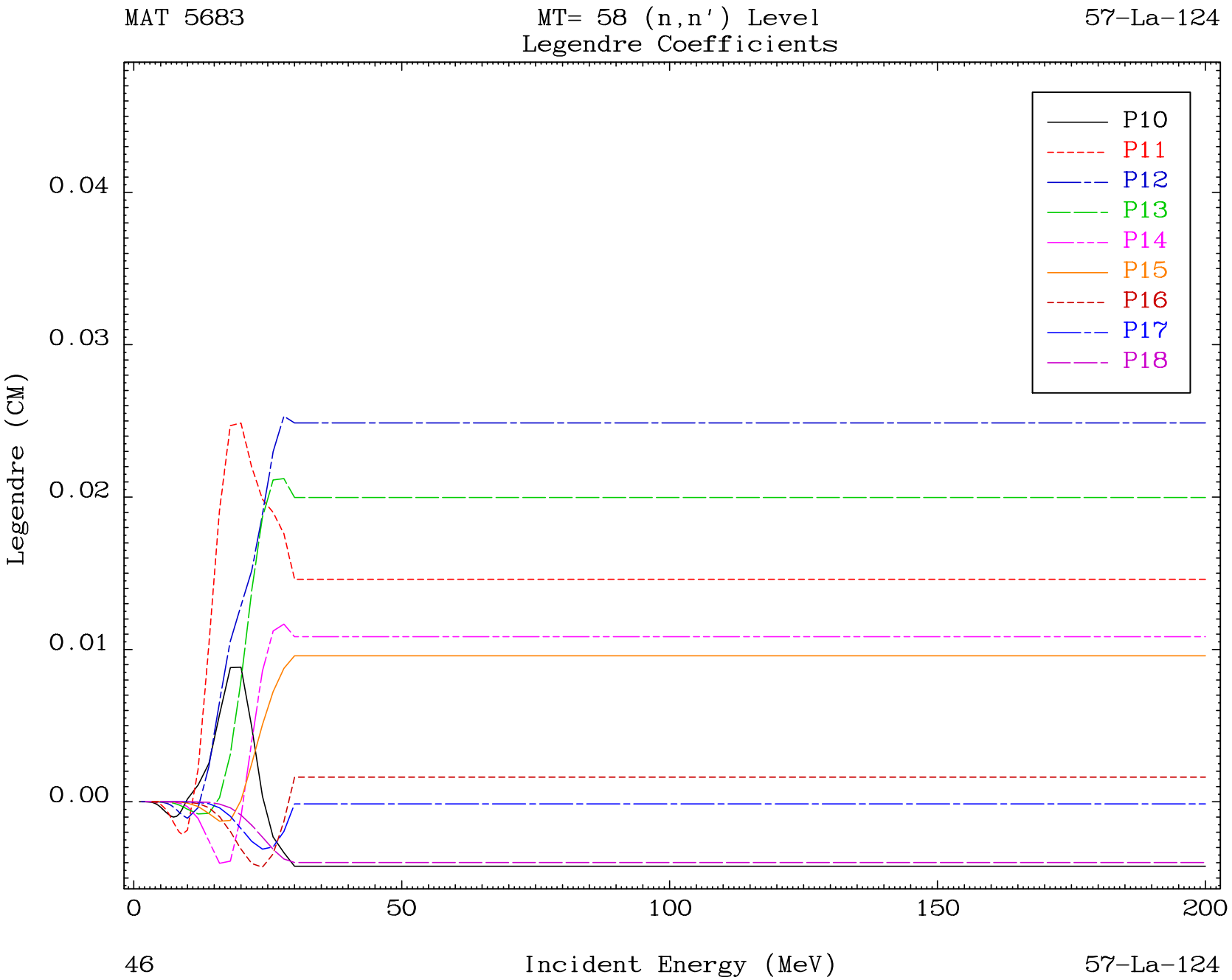

MAT 5683
MT= 57 (n,n') Level
Legendre Coefficients
57-La-124
Legendre (CM)
0.3
0.2
0.1
0.0
-0.1
-0.2
0
50
100
150
200
41
Incident Energy (MeV)
57-La-124
P1
P2
P3
P4
P5
P6
P7
P8
P9

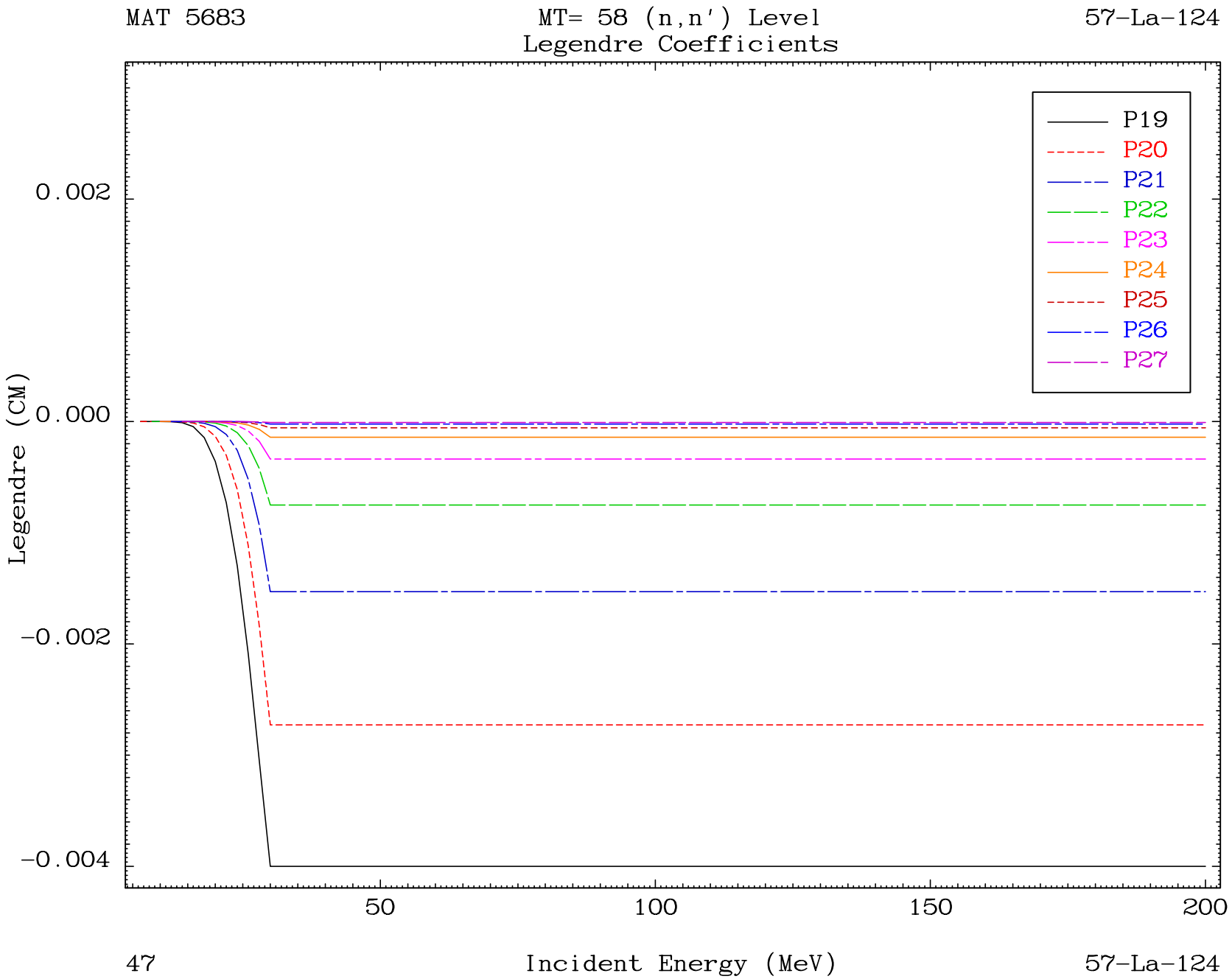

MAT 5683
MT= 57 (n,n') Level
Legendre Coefficients
57-La-124
0.00
-0.02
-0.04
-0.06
Legendre (CM)
0
50
100
150
200
42
Incident Energy (MeV)
57-La-124
P10
P11
P12
P13
P14
P15
P16
P17
P18

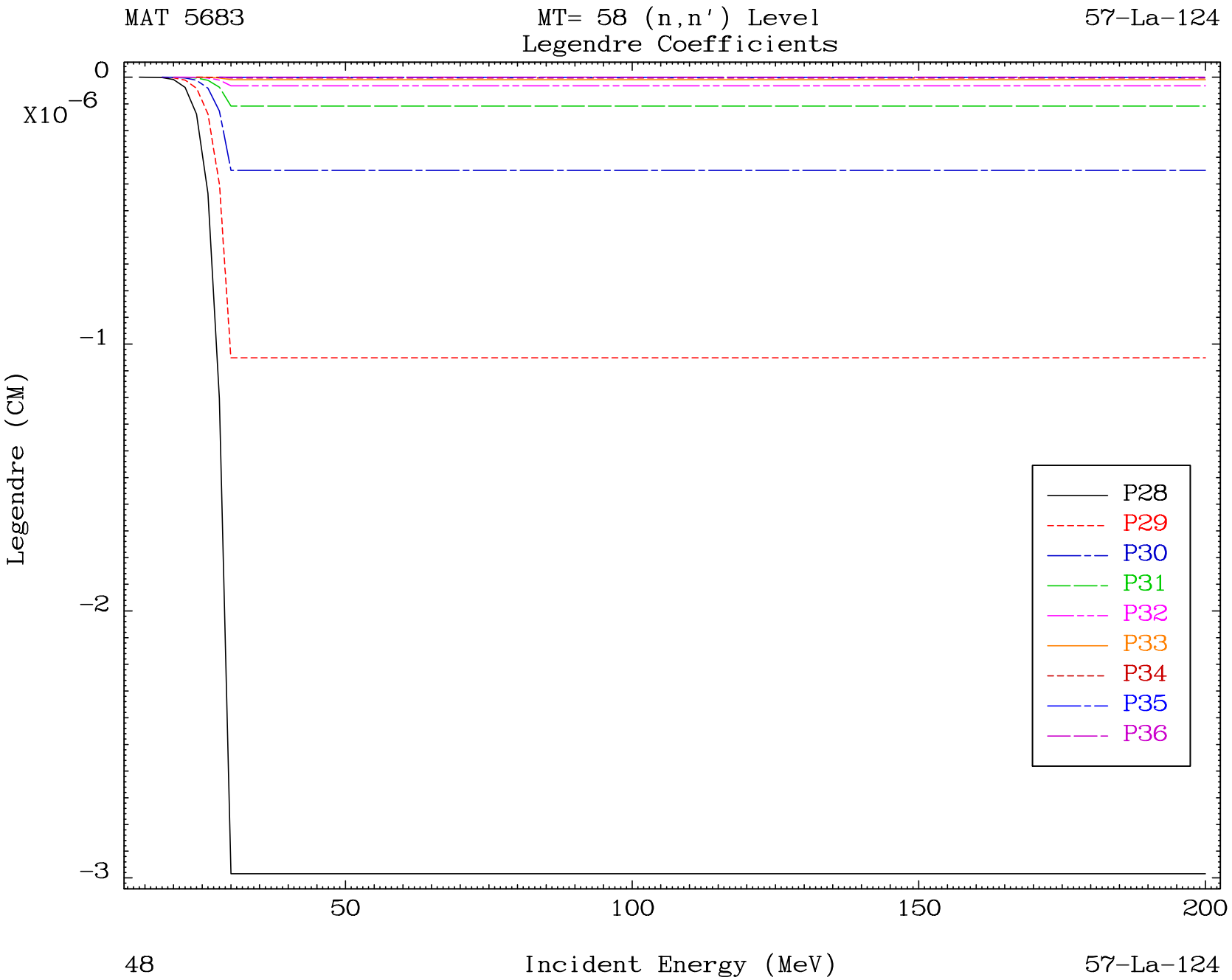

MAT 5683
MT= 57 (n,n') Level
Legendre Coefficients
57-La-124
0.000
-0.005
-0.010
-0.015
Legendre (CM)
50
100
150
200
43
Incident Energy (MeV)
57-La-124
P19
P20
P21
P22
P23
P24
P25
P26
P27

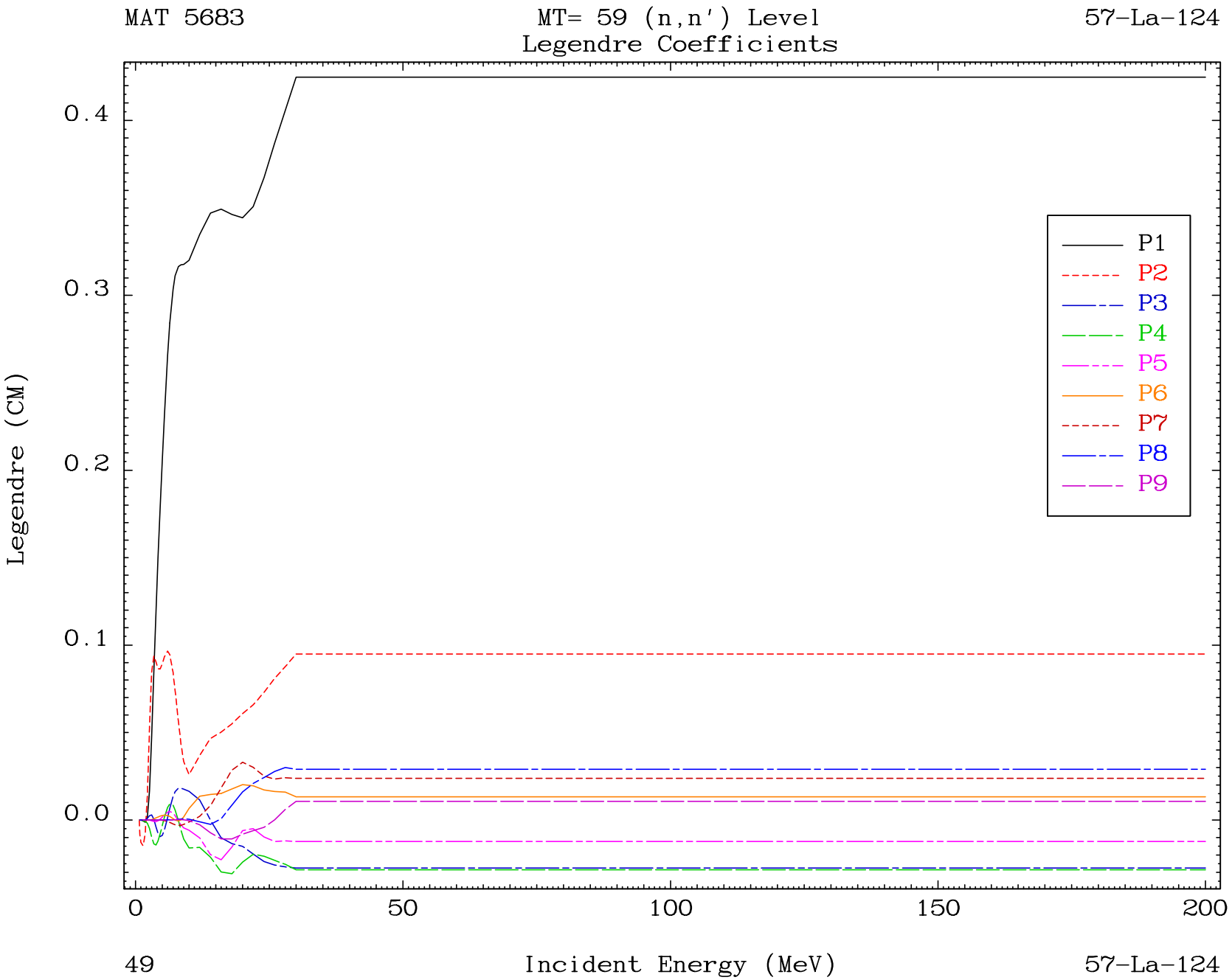

MAT 5683
MT= 57 (n,n') Level
Legendre Coefficients
57-La-124
0
X10−6
−2
−4
−6
Legendre (CM)
50
100
150
200
P28
P29
P30
P31
P32
P33
P34
P35
P36
44
Incident Energy (MeV)
57-La-124

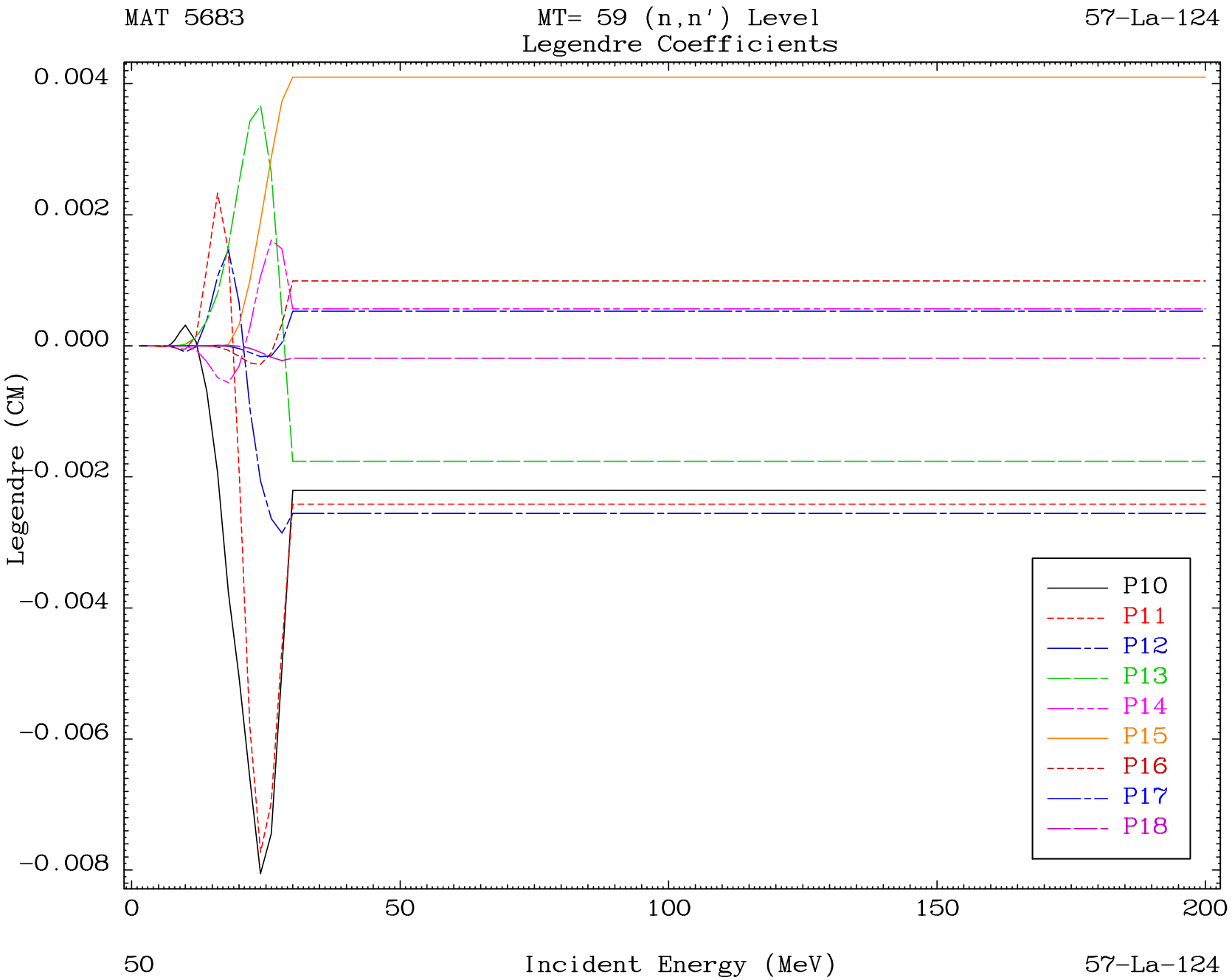

MAT 5683
MT= 58 (n,n') Level
Legendre Coefficients
57-La-124
0.4
0.2
0.0
-0.2
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
45
Incident Energy (MeV)
57-La-124

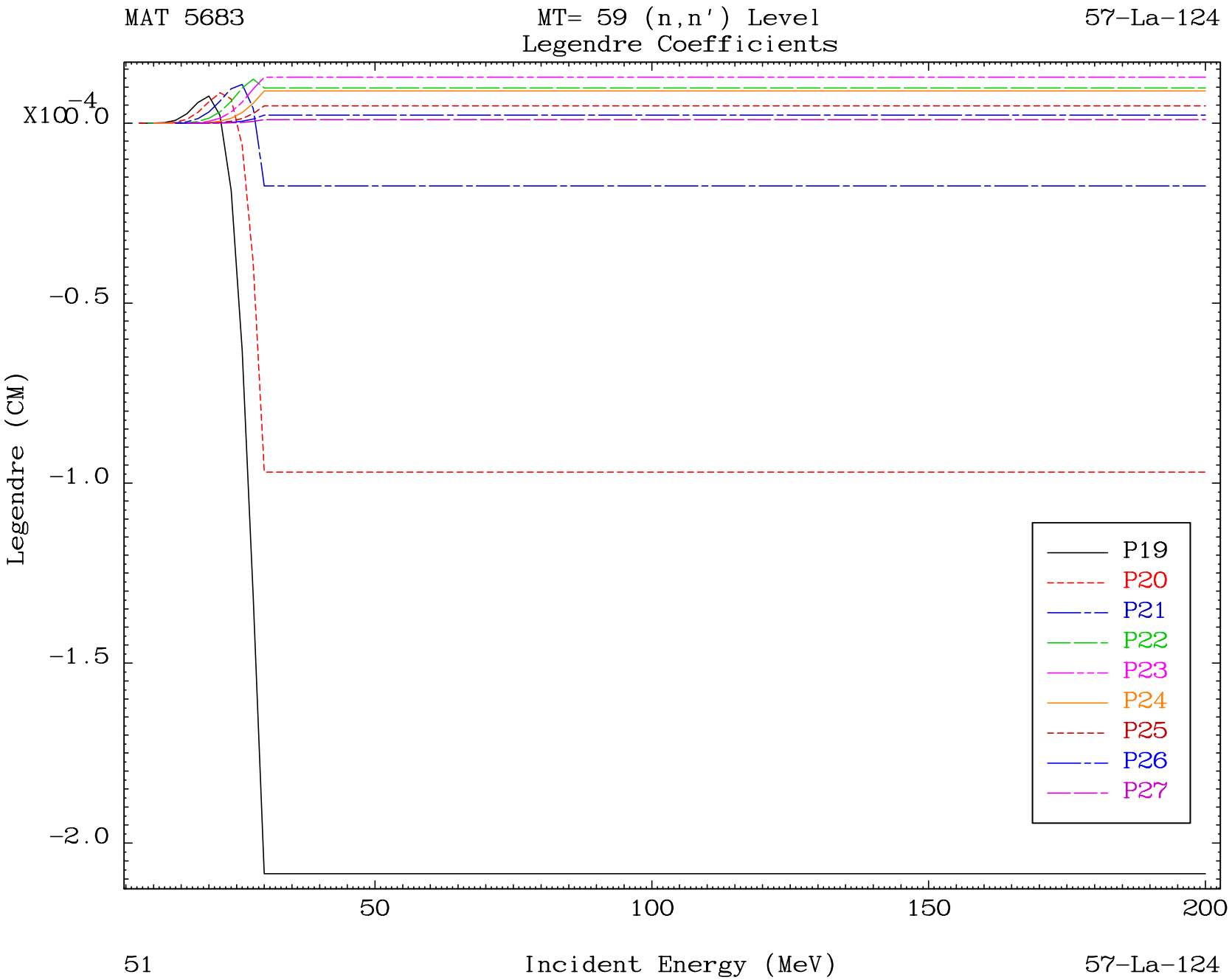

MAT 5683
MT= 58 (n,n') Level
Legendre Coefficients
57-La-124
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.03
0.02
0.01
0.00
Legendre (CM)
0
50
100
150
200
46
Incident Energy (MeV)
57-La-124

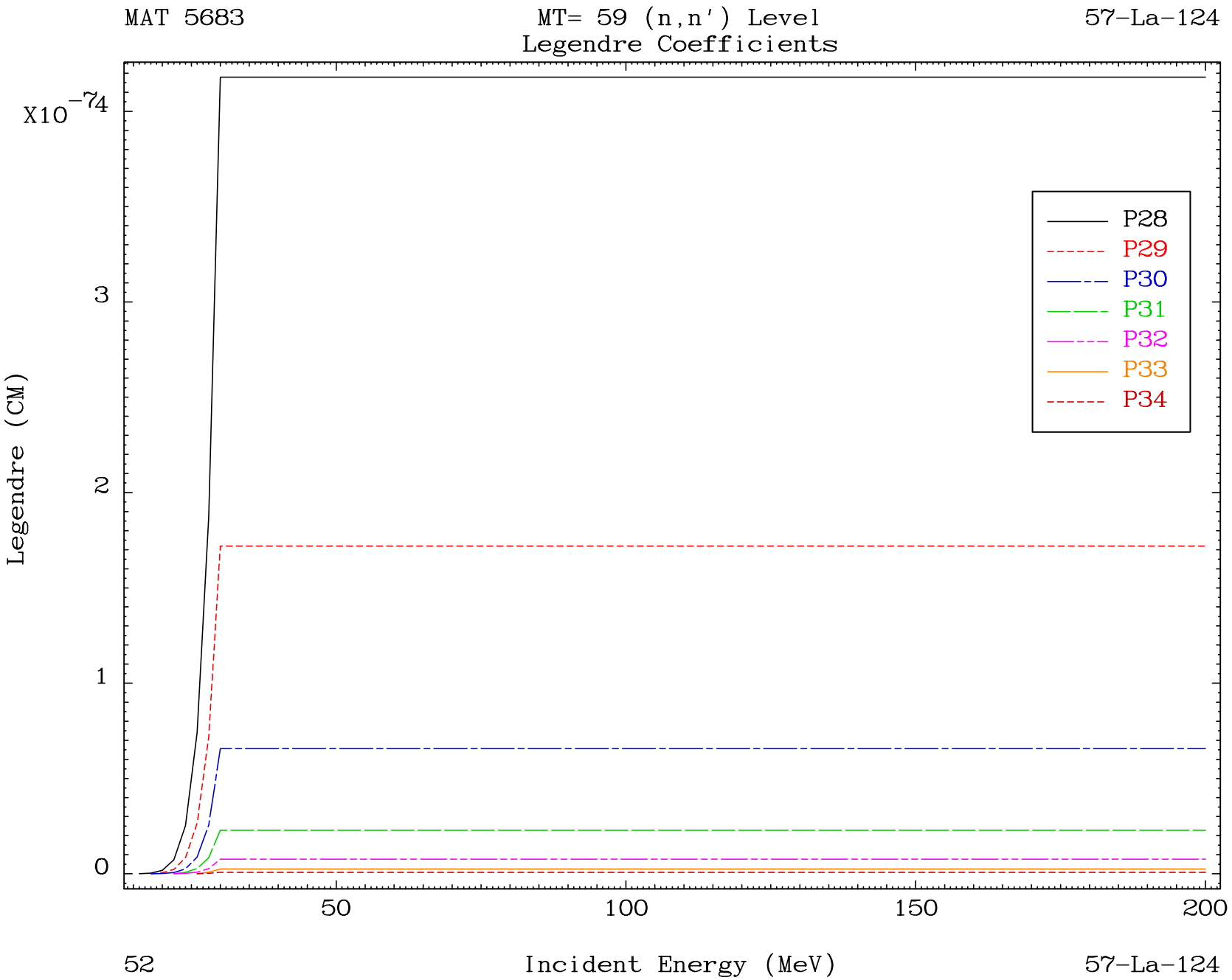

MAT 5683
MT= 58 (n,n') Level
Legendre Coefficients
57-La-124
P19
P20
P21
P22
P23
P24
P25
P26
P27
0.002
0.000
-0.002
-0.004
Legendre (CM)
50
100
150
200
47
Incident Energy (MeV)
57-La-124

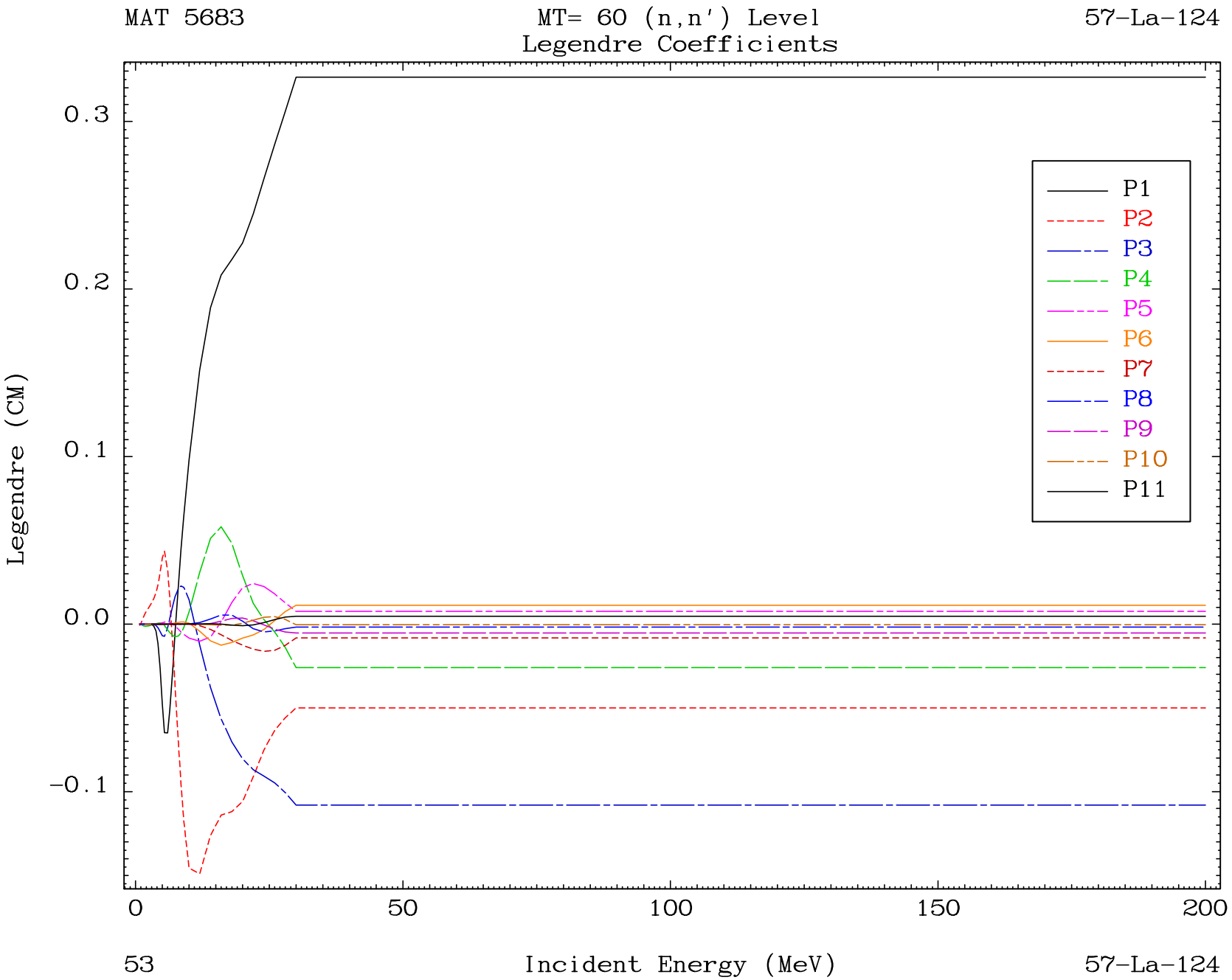

MAT 5683
MT= 58 (n,n') Level
Legendre Coefficients
57-La-124
0
X10^-6
-1
-2
-3
Legendre (CM)
50
100
150
200
48
Incident Energy (MeV)
57-La-124
P28
P29
P30
P31
P32
P33
P34
P35
P36

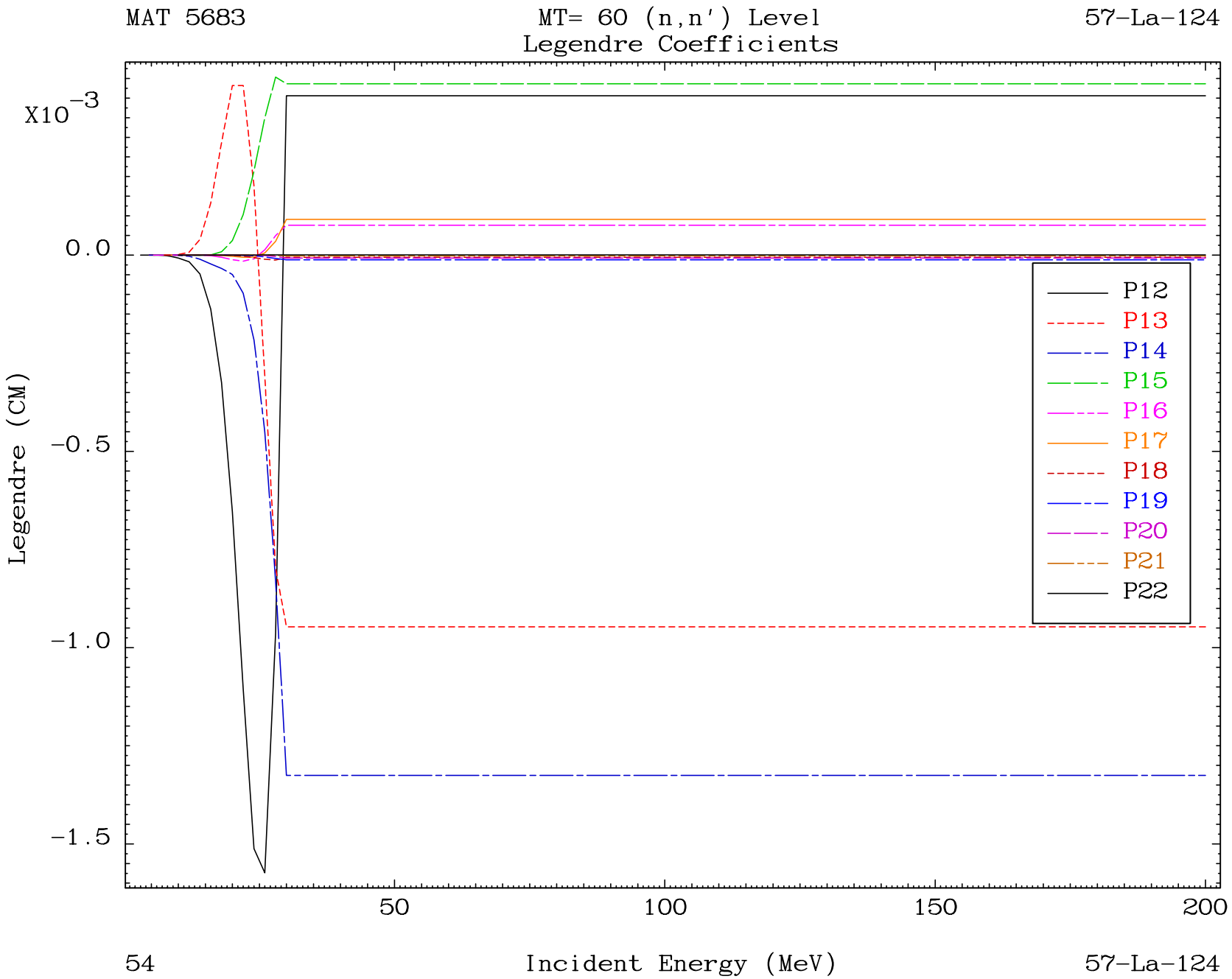

MAT 5683
MT= 59 (n,n') Level
Legendre Coefficients
57-La-124
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
P1
P2
P3
P4
P5
P6
P7
P8
P9
49
Incident Energy (MeV)
57-La-124

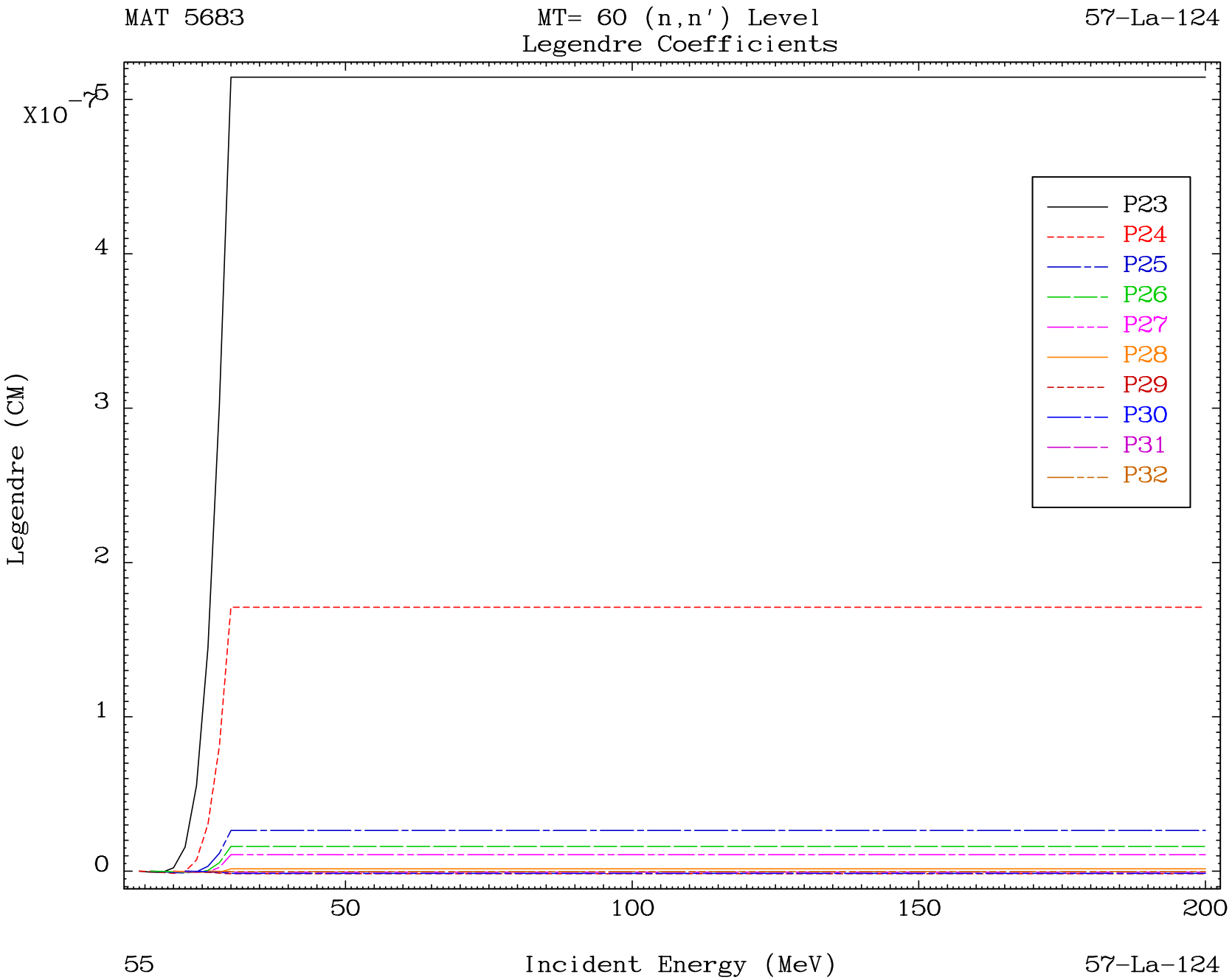

MAT 5683
MT= 59 (n,n') Level
Legendre Coefficients
57-La-124
0.004
0.002
0.000
-0.002
-0.004
-0.006
-0.008
Legendre (CM)
0
50
100
150
200
50
Incident Energy (MeV)
57-La-124
P10
P11
P12
P13
P14
P15
P16
P17
P18

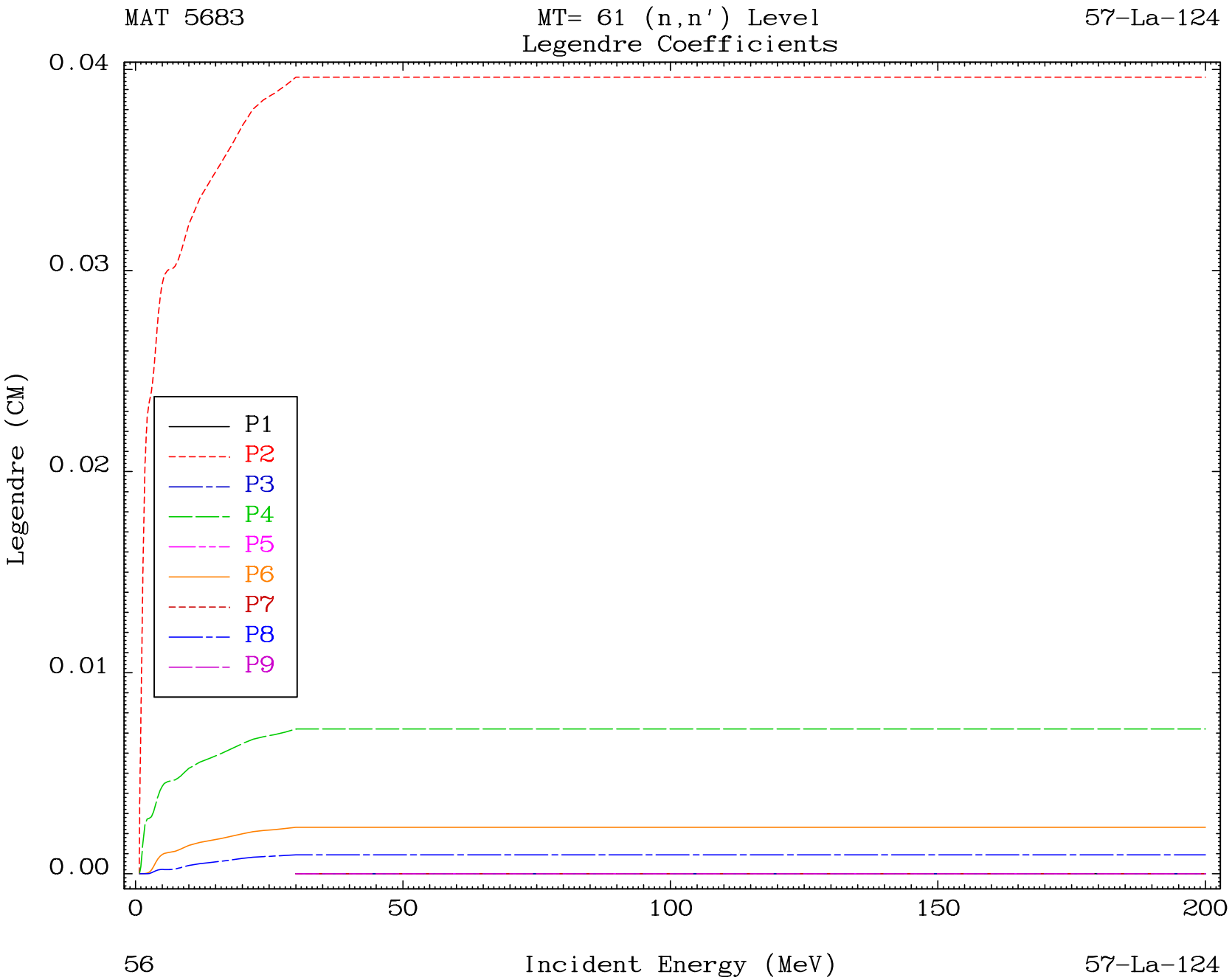

MAT 5683
MT= 59 (n,n') Level
Legendre Coefficients
57-La-124
X10^-4
0.0
-0.5
-1.0
-1.5
-2.0
Legendre (CM)
50
100
150
200
51
Incident Energy (MeV)
57-La-124
P19
P20
P21
P22
P23
P24
P25
P26
P27

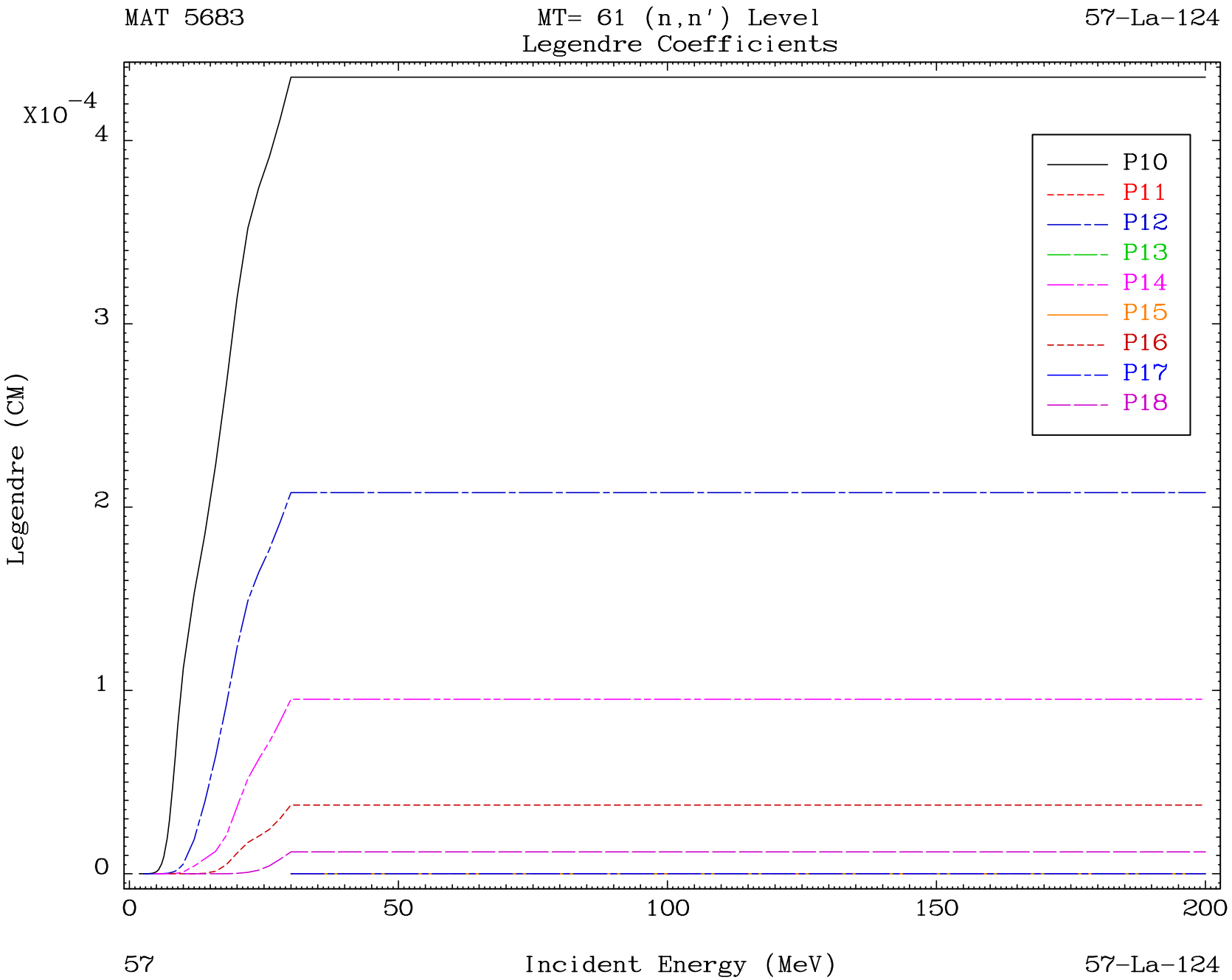

MAT 5683
MT= 59 (n,n') Level
Legendre Coefficients
57-La-124
X10^-7
4
3
2
1
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
50
100
150
200
52
Incident Energy (MeV)
57-La-124

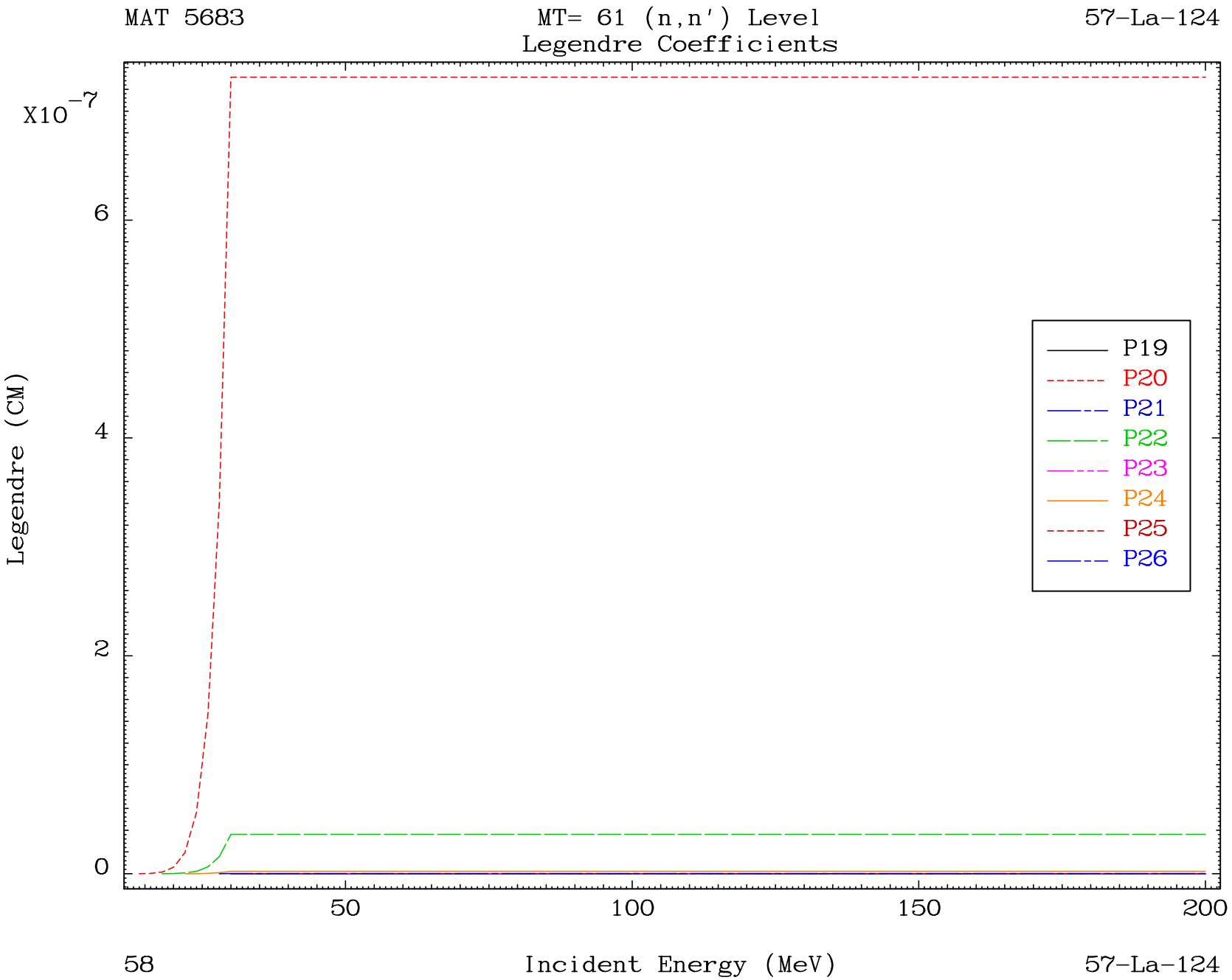

MAT 5683
MT= 60 (n,n') Level
Legendre Coefficients
57-La-124
Legendre (CM)
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
Incident Energy (MeV)
53
57-La-124
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
P11

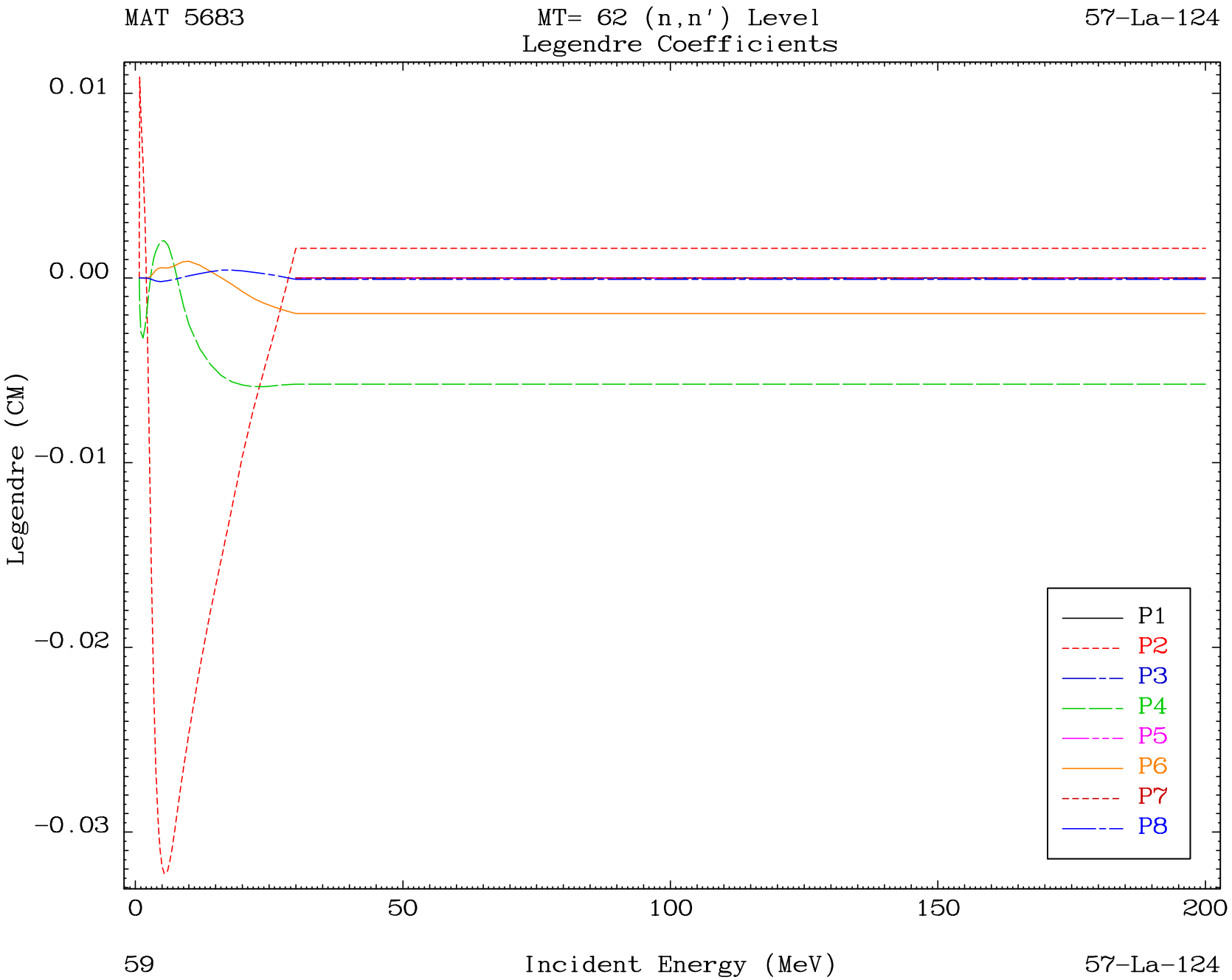

MAT 5683
MT= 60 (n,n') Level
Legendre Coefficients
57-La-124
X10^-3
0.0
-0.5
-1.0
-1.5
Legendre (CM)
50
100
150
200
54
Incident Energy (MeV)
57-La-124
P12
P13
P14
P15
P16
P17
P18
P19
P20
P21
P22

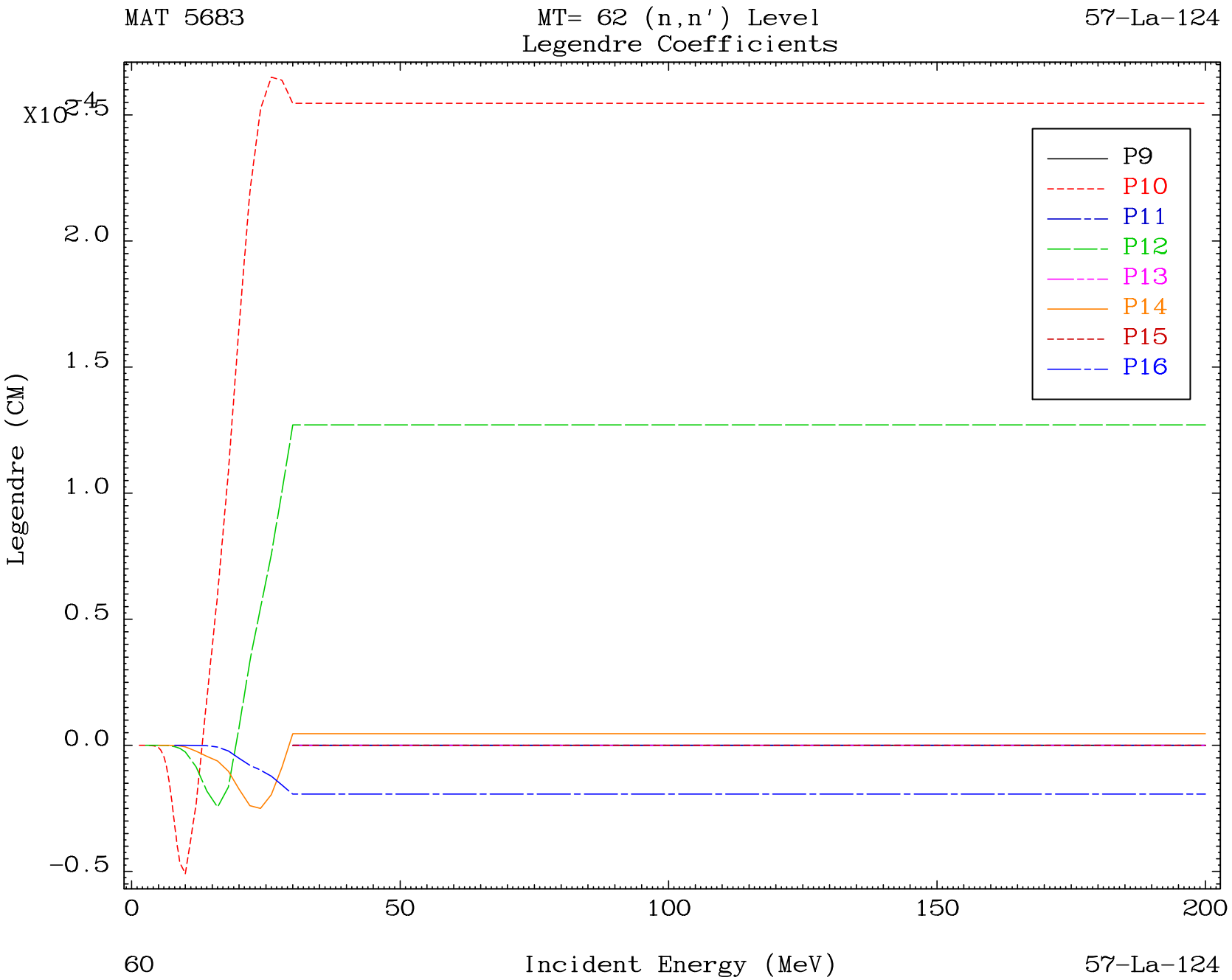

MAT 5683
MT= 60 (n,n') Level
Legendre Coefficients
57-La-124
X10-5
Legendre (CM)
4
3
2
1
0
50
100
150
200
55
Incident Energy (MeV)
57-La-124
P23
P24
P25
P26
P27
P28
P29
P30
P31
P32

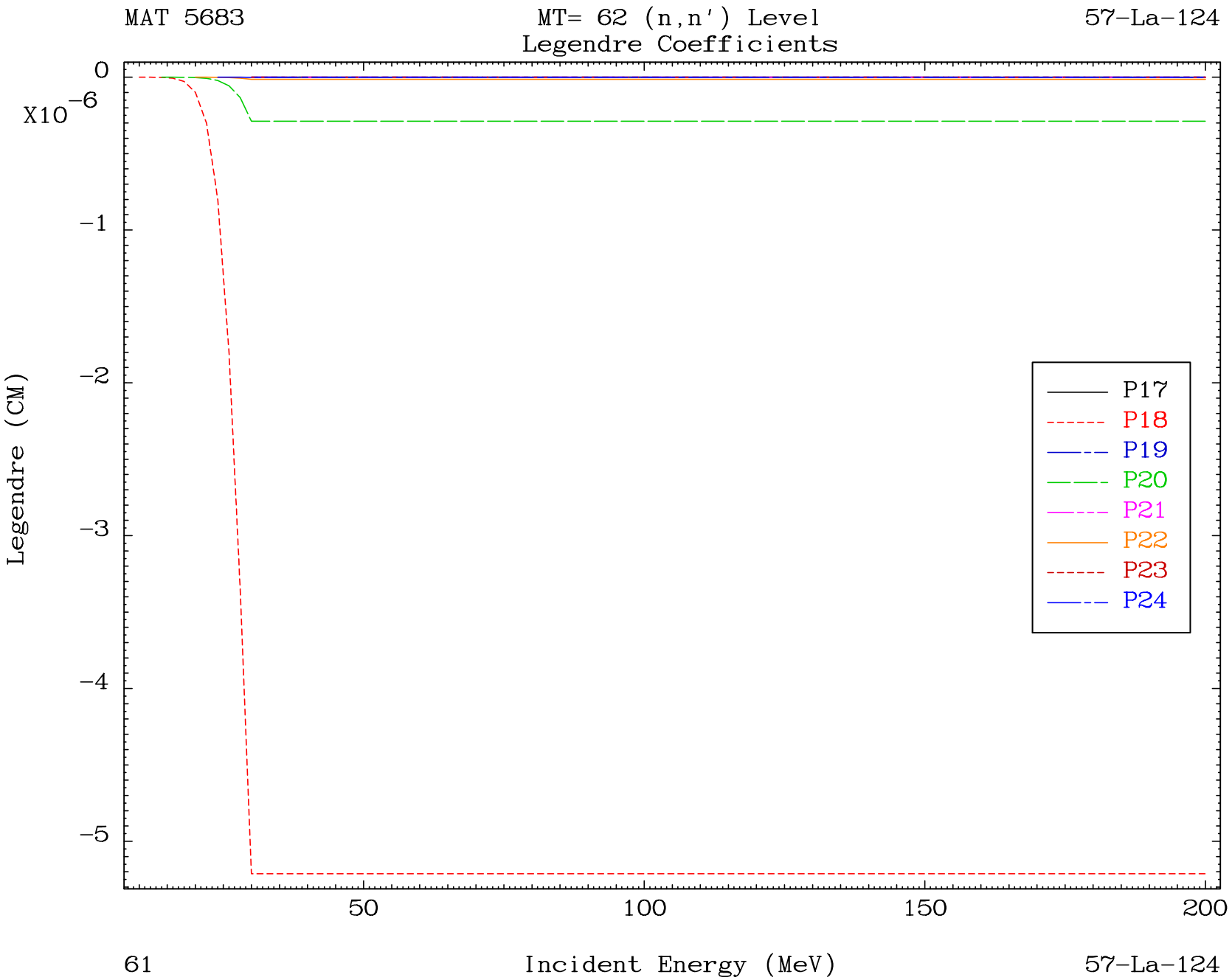

MAT 5683
MT= 61 (n,n') Level
Legendre Coefficients
57-La-124
0.04
0.03
0.02
0.01
0.00
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
56
Incident Energy (MeV)
57-La-124

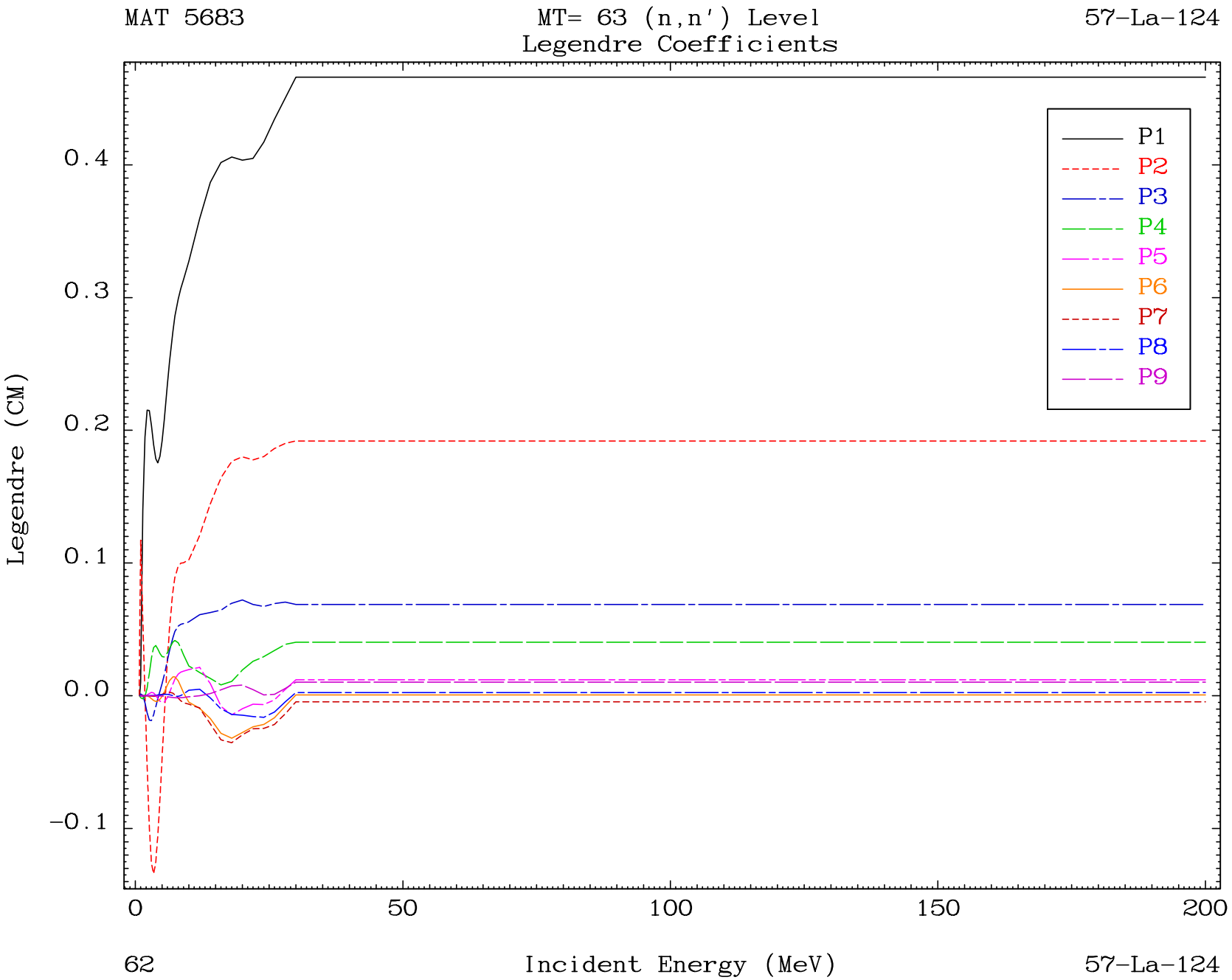

MAT 5683
MT= 61 (n,n') Level
Legendre Coefficients
57-La-124
X10^-4
4
3
2
1
0
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
57
Incident Energy (MeV)
57-La-124

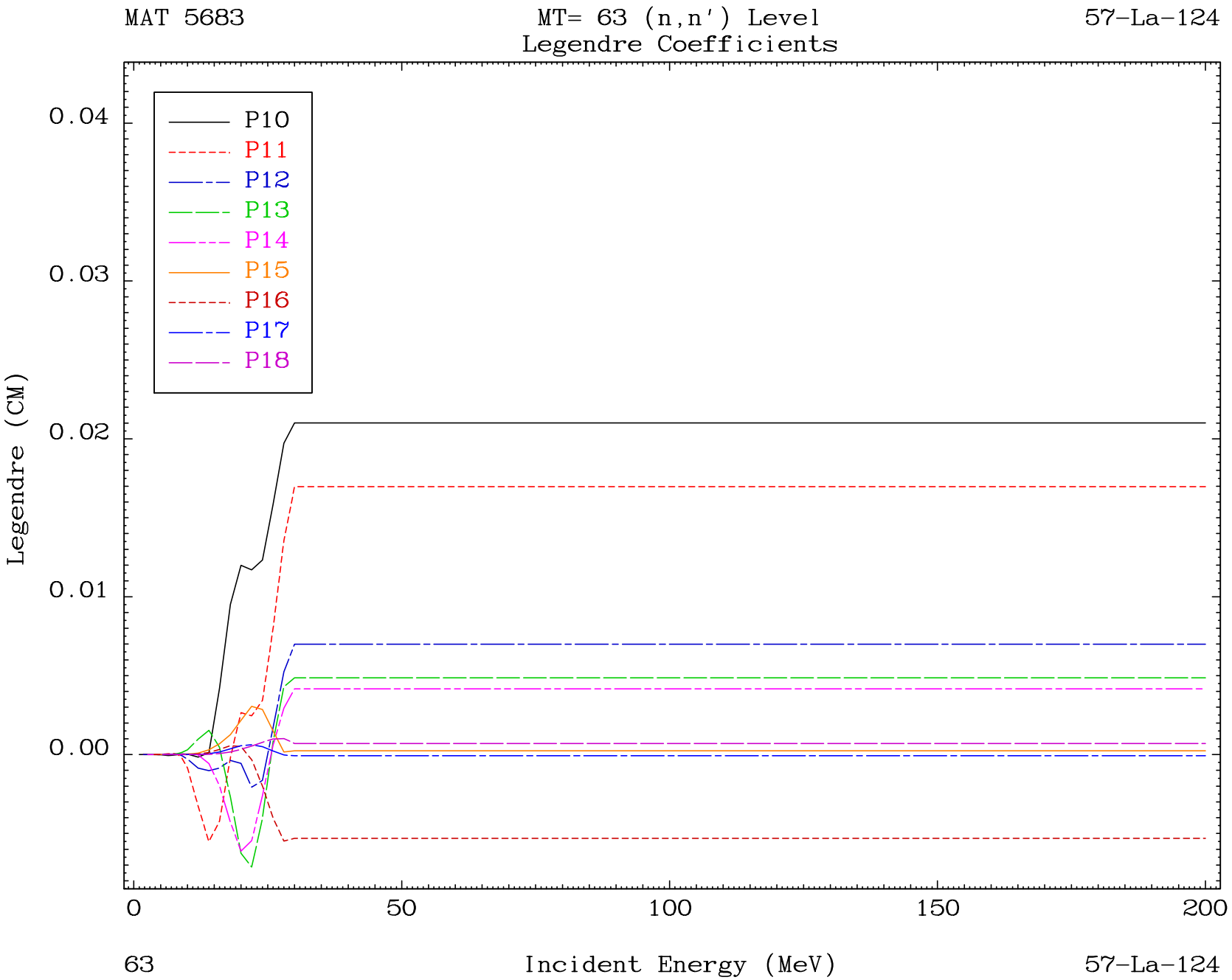

MAT 5683
MT= 61 (n,n') Level
Legendre Coefficients
57-La-124
X10-7
6
4
2
0
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
50
100
150
200
58
Incident Energy (MeV)
57-La-124

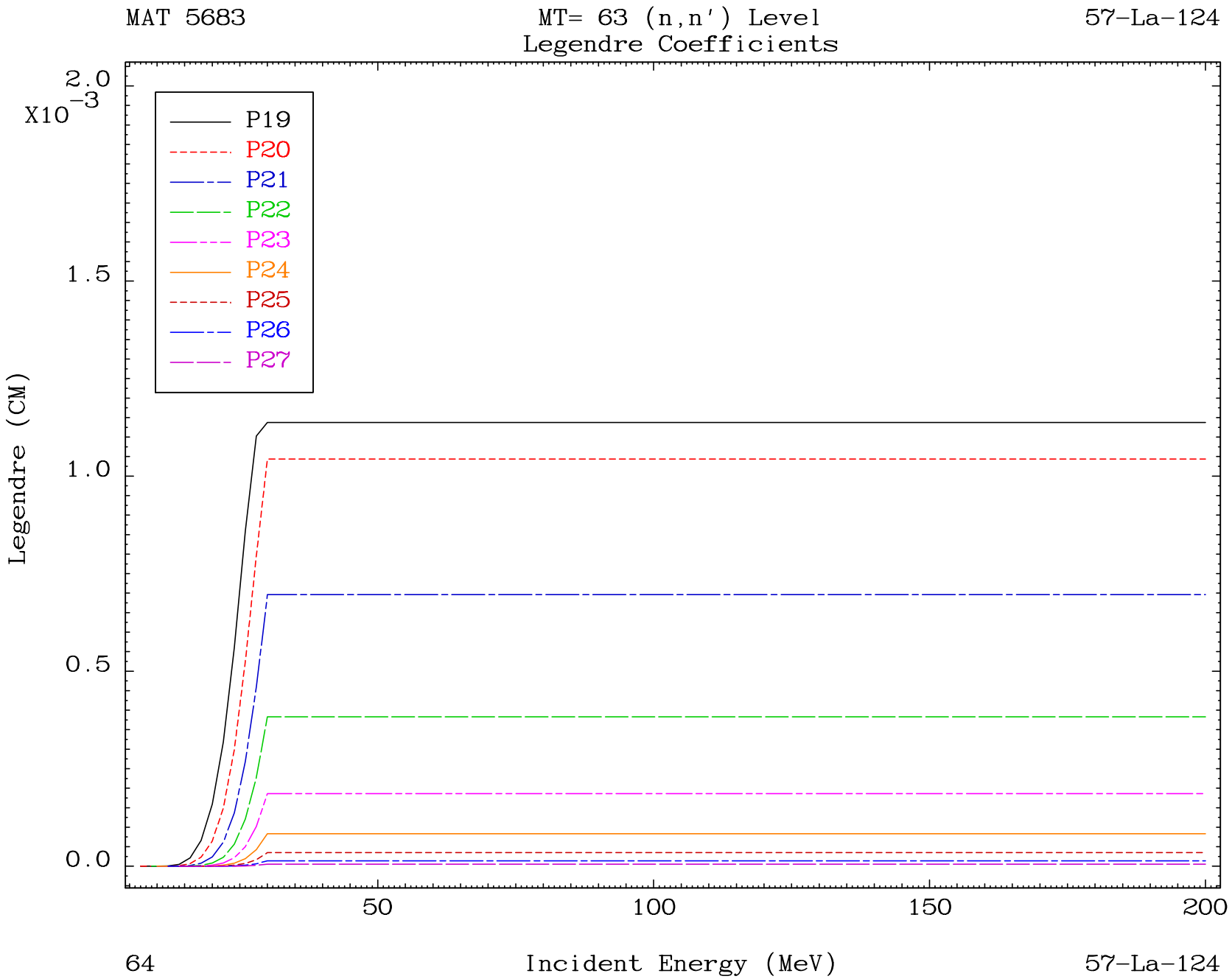

MAT 5683
MT= 62 (n,n') Level
Legendre Coefficients
57-La-124
0.01
0.00
−0.01
−0.02
−0.03
Legendre (CM)
0
50
100
150
200
59
Incident Energy (MeV)
57-La-124
P1
P2
P3
P4
P5
P6
P7
P8

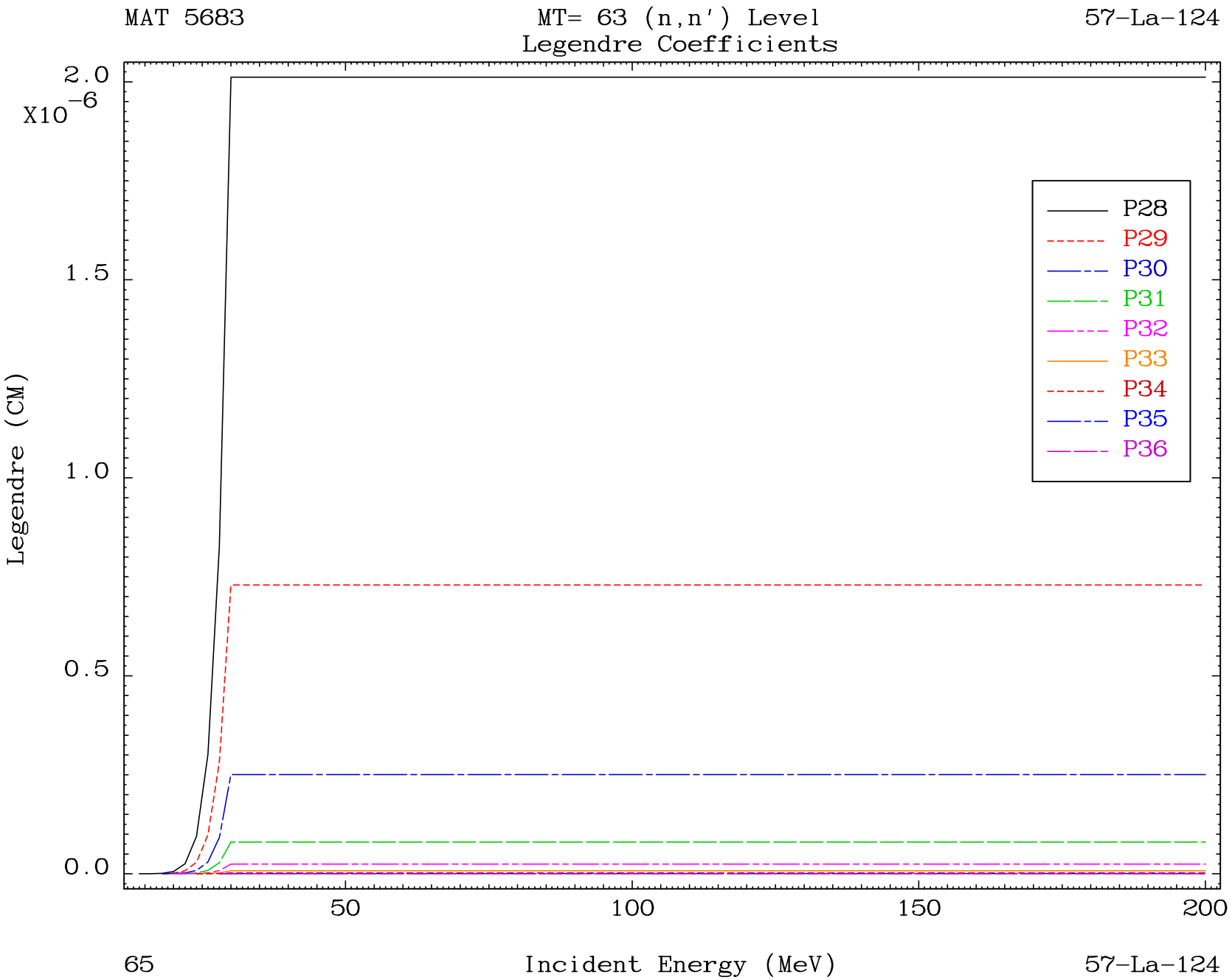

MAT 5683
MT= 62 (n,n') Level
Legendre Coefficients
57-La-124
X10-24
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
Legendre (CM)
P9
P10
P11
P12
P13
P14
P15
P16
0
50
100
150
200
60
Incident Energy (MeV)
57-La-124

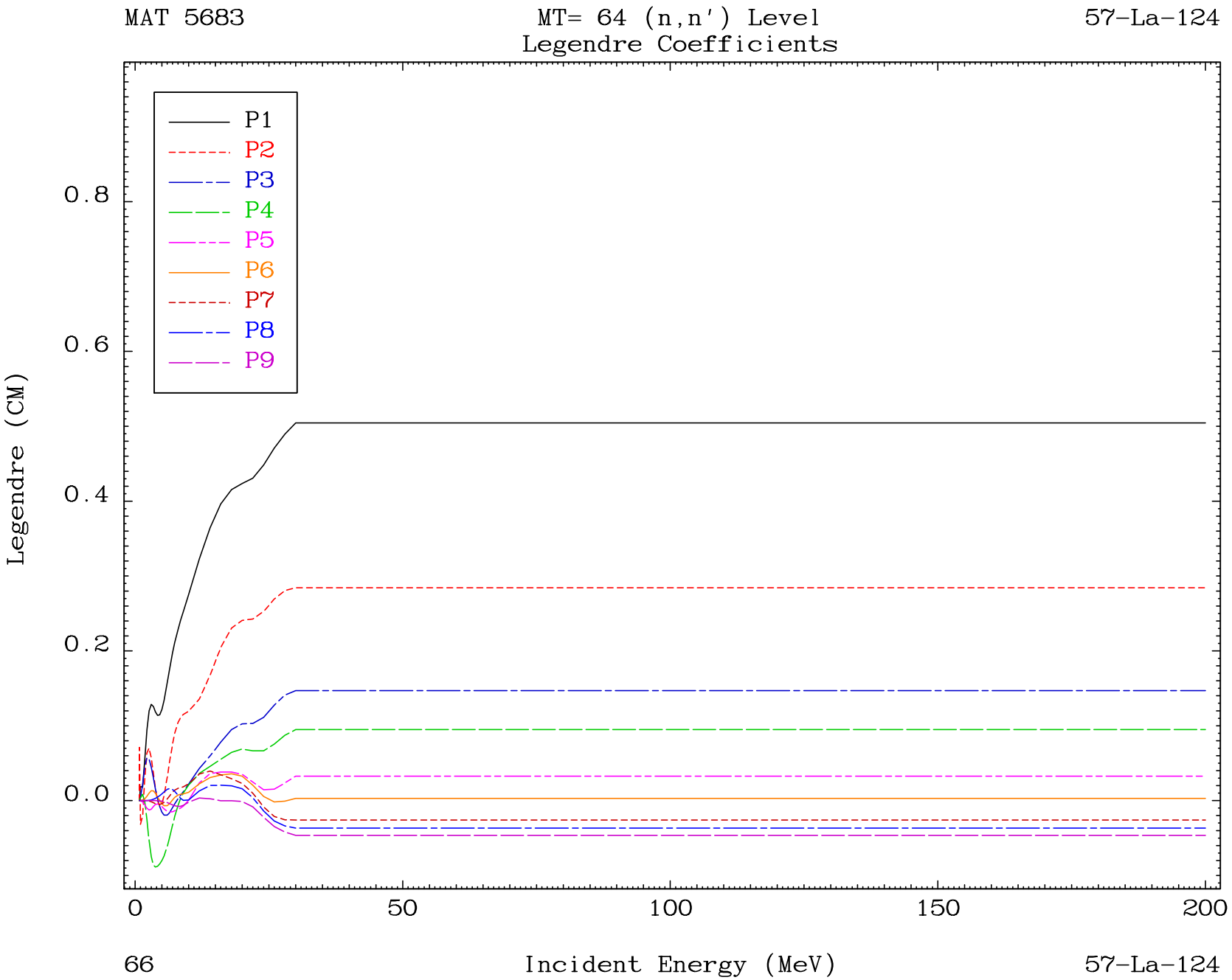

MAT 5683
MT= 62 (n,n') Level
Legendre Coefficients
57-La-124
0
X10−6
−1
−2
−3
−4
−5
Legendre (CM)
50
100
150
200
P17
P18
P19
P20
P21
P22
P23
P24
61
Incident Energy (MeV)
57-La-124

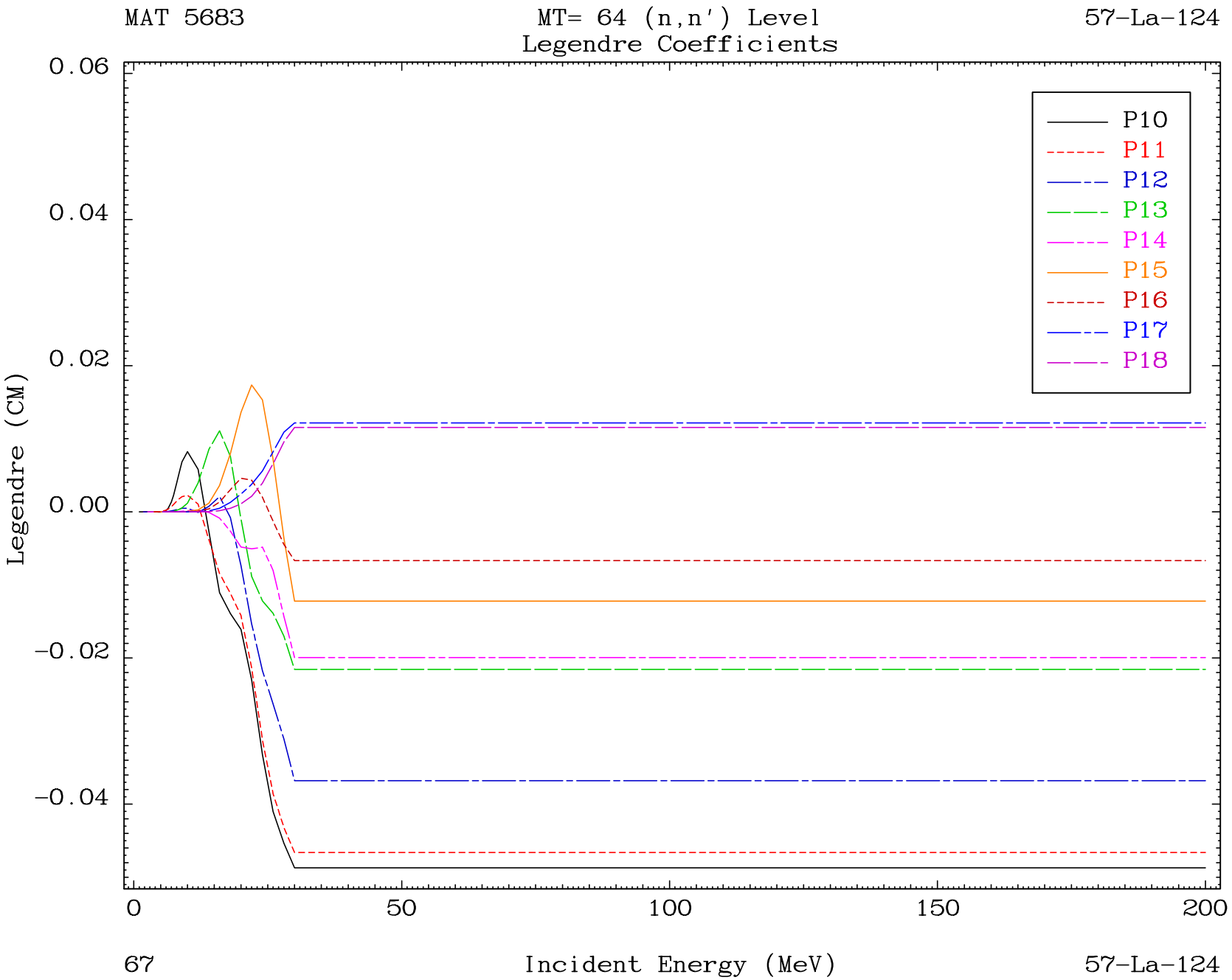

MAT 5683
MT= 63 (n,n') Level
Legendre Coefficients
57-La-124
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
62
Incident Energy (MeV)
57-La-124
P1
P2
P3
P4
P5
P6
P7
P8
P9

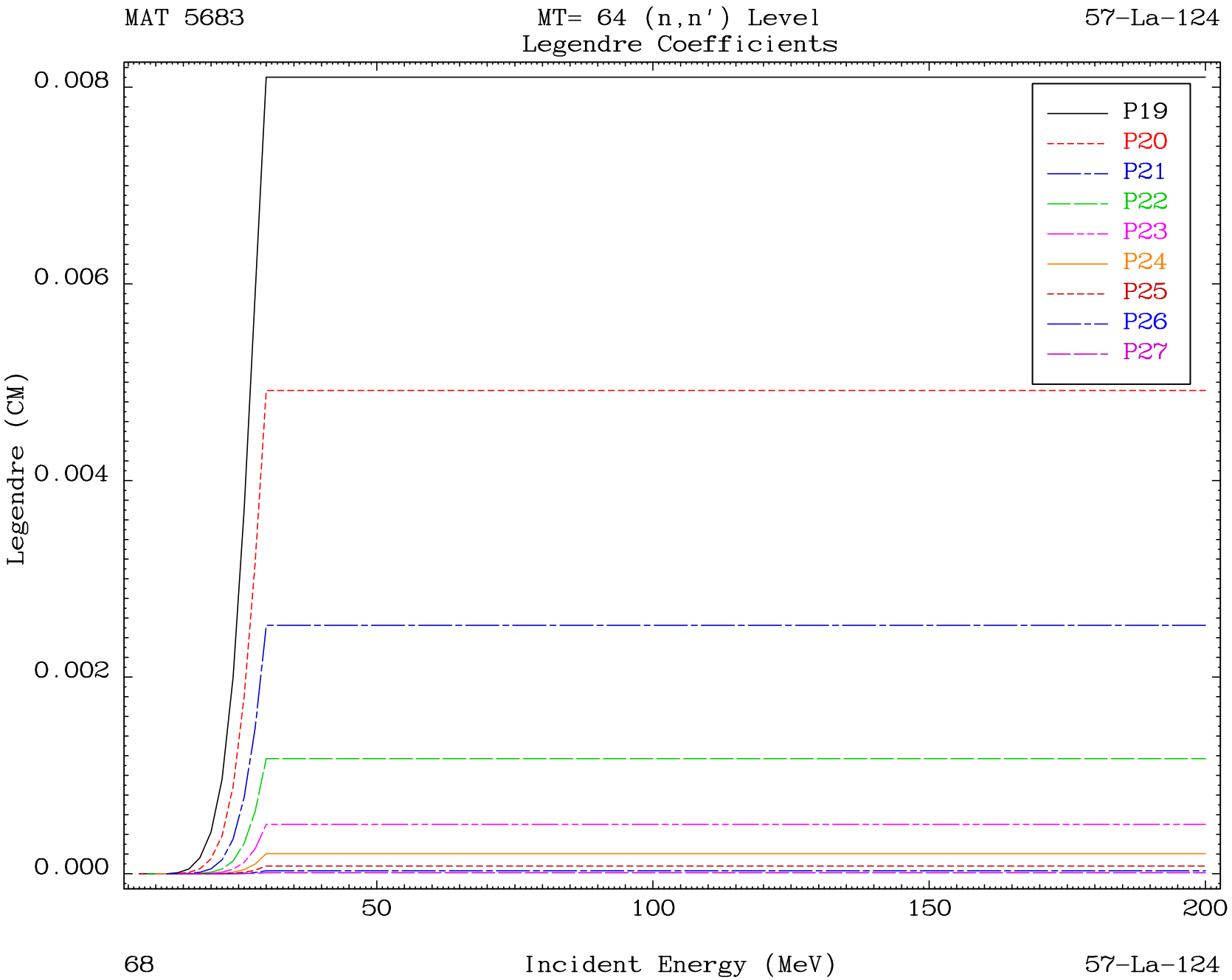

MAT 5683
MT= 63 (n,n') Level
Legendre Coefficients
57-La-124
P10
P11
P12
P13
P14
P15
P16
P17
P18
0.04
0.03
0.02
0.01
0.00
Legendre (CM)
0
50
100
150
200
63
Incident Energy (MeV)
57-La-124

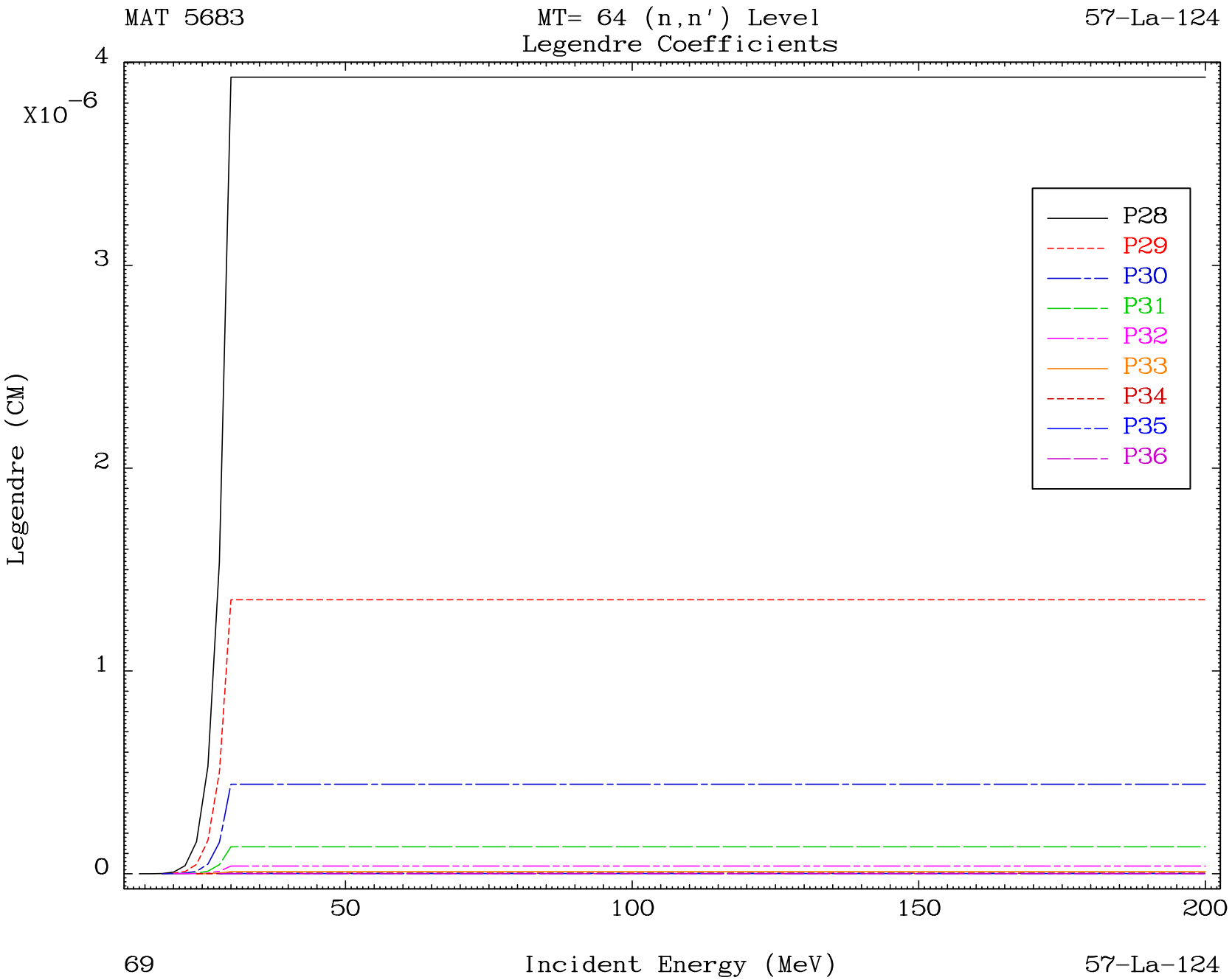

MAT 5683
MT= 63 (n,n') Level
Legendre Coefficients
57-La-124
X10 -3
2.0
1.5
1.0
0.5
0.0
P19
P20
P21
P22
P23
P24
P25
P26
P27
Legendre (CM)
50
100
150
200
64
Incident Energy (MeV)
57-La-124

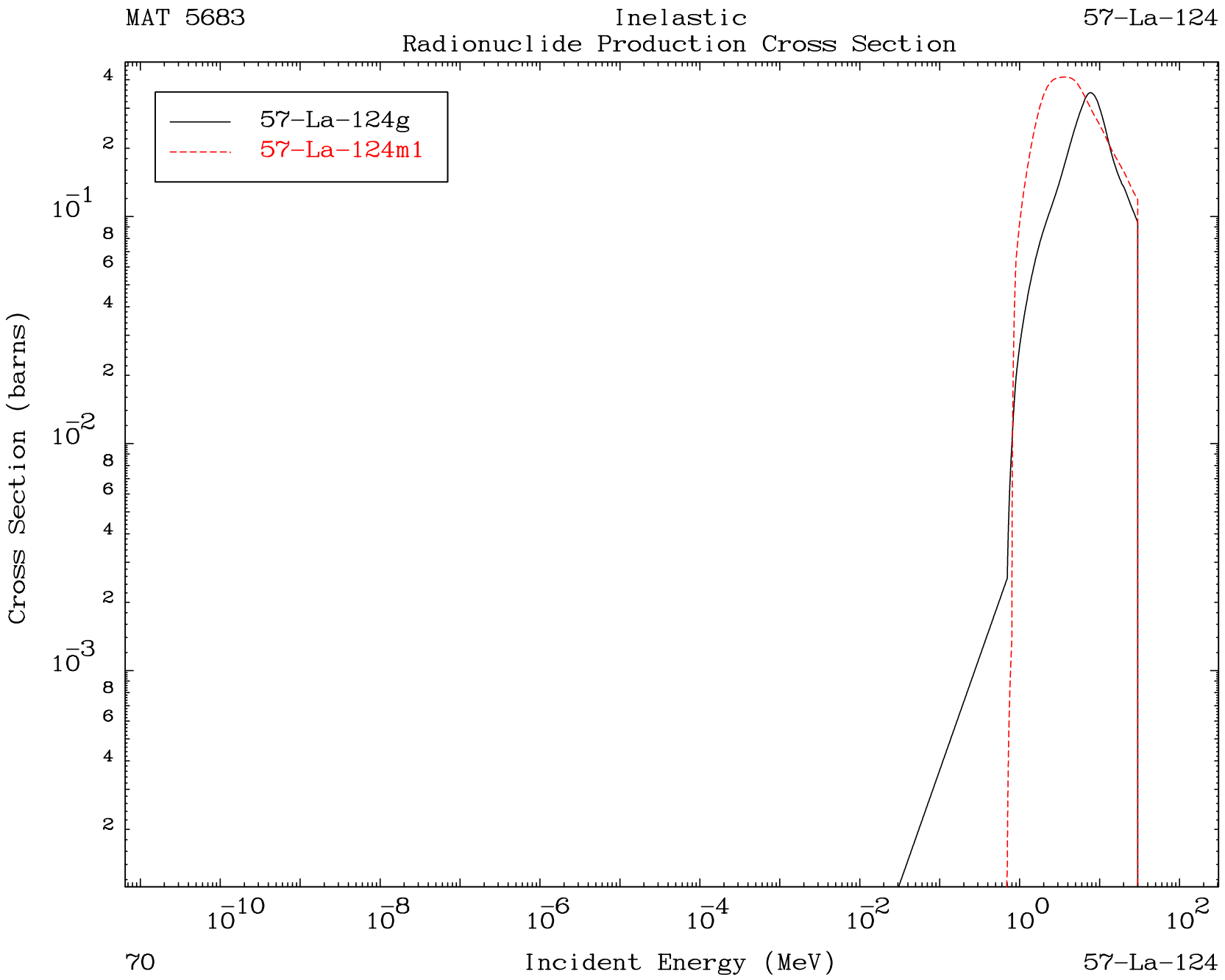

MAT 5683
MT= 63 (n,n') Level
Legendre Coefficients
57-La-124
X10 -6
2.0
1.5
1.0
0.5
0.0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
P35
P36
50
100
150
200
65
Incident Energy (MeV)
57-La-124

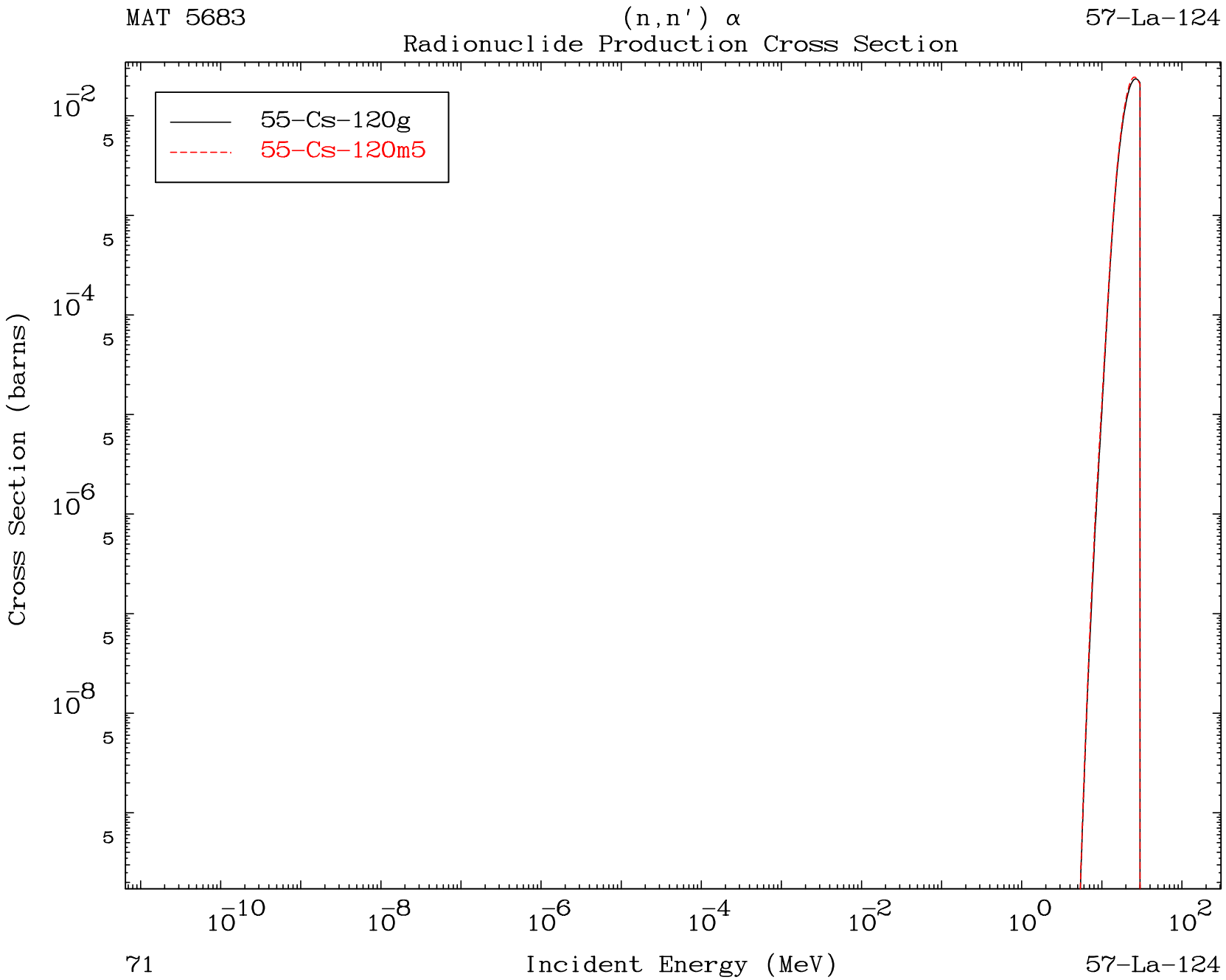

MAT 5683
MT= 64 (n,n') Level
Legendre Coefficients
57-La-124
P1
P2
P3
P4
P5
P6
P7
P8
P9
Legendre (CM)
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200
66
Incident Energy (MeV)
57-La-124

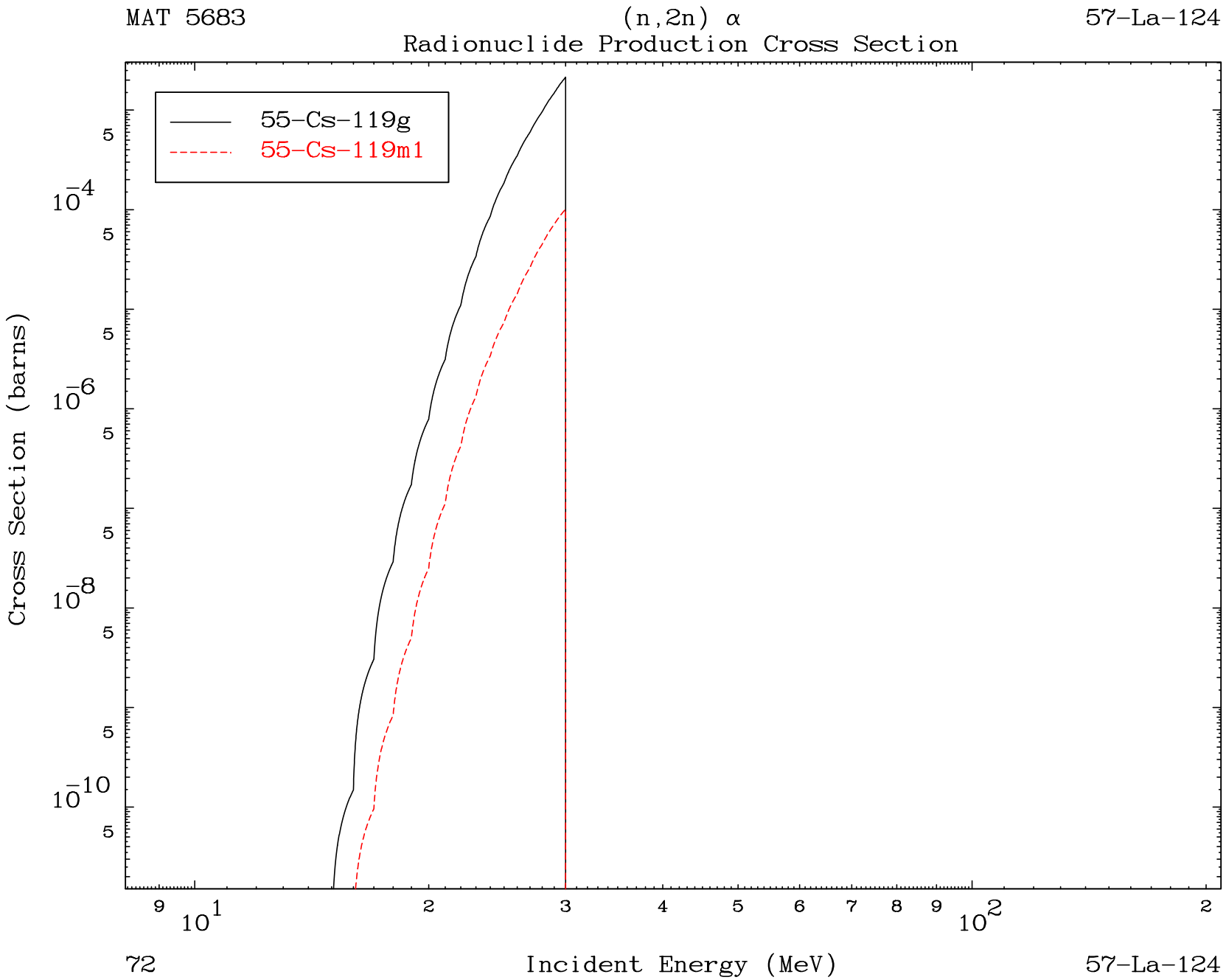

MAT 5683
MT= 64 (n,n') Level
Legendre Coefficients
57-La-124
0.06
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
67
Incident Energy (MeV)
57-La-124

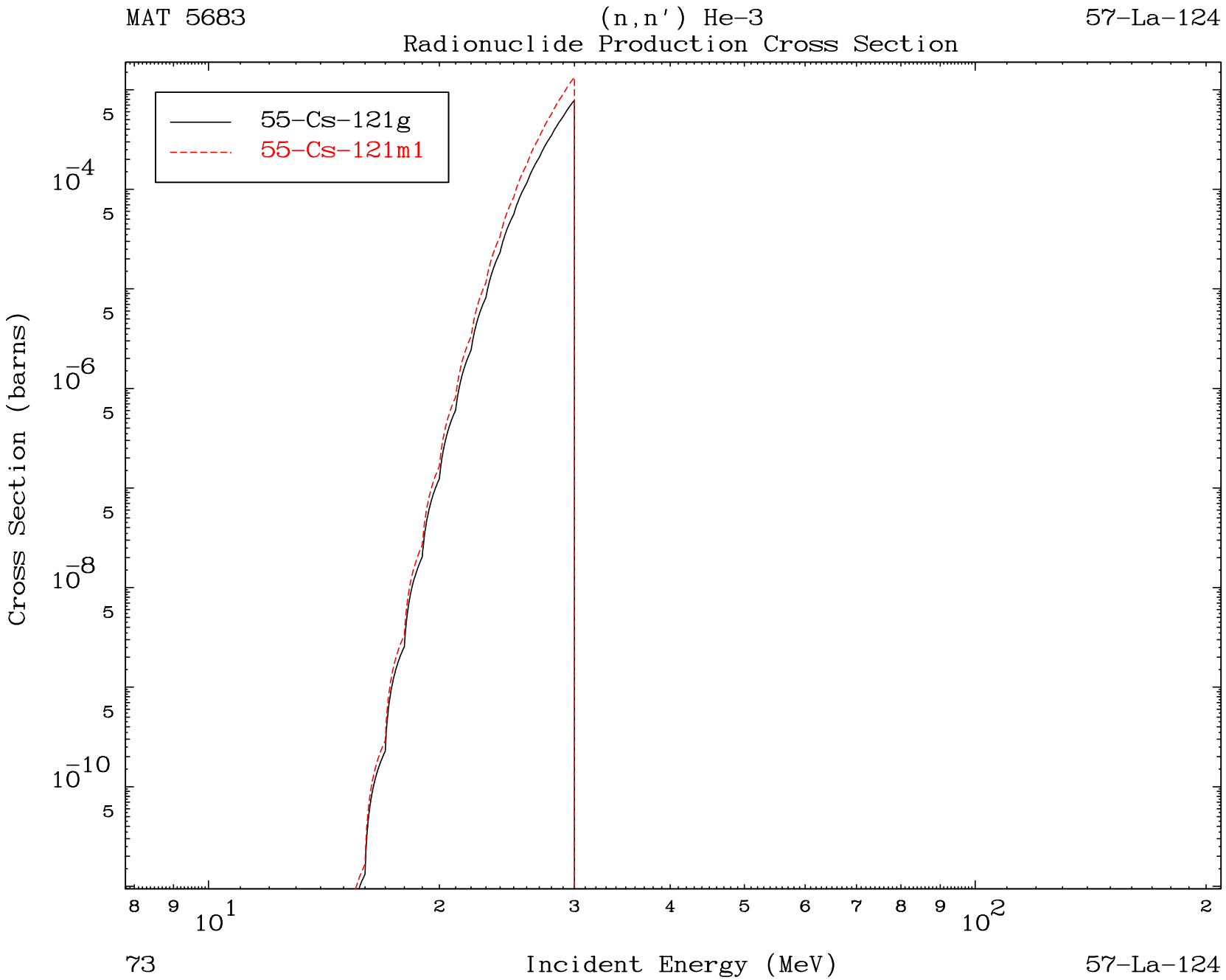

MAT 5683
MT= 64 (n,n') Level
Legendre Coefficients
57-La-124
0.008
0.006
0.004
0.002
0.000
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
68
Incident Energy (MeV)
57-La-124

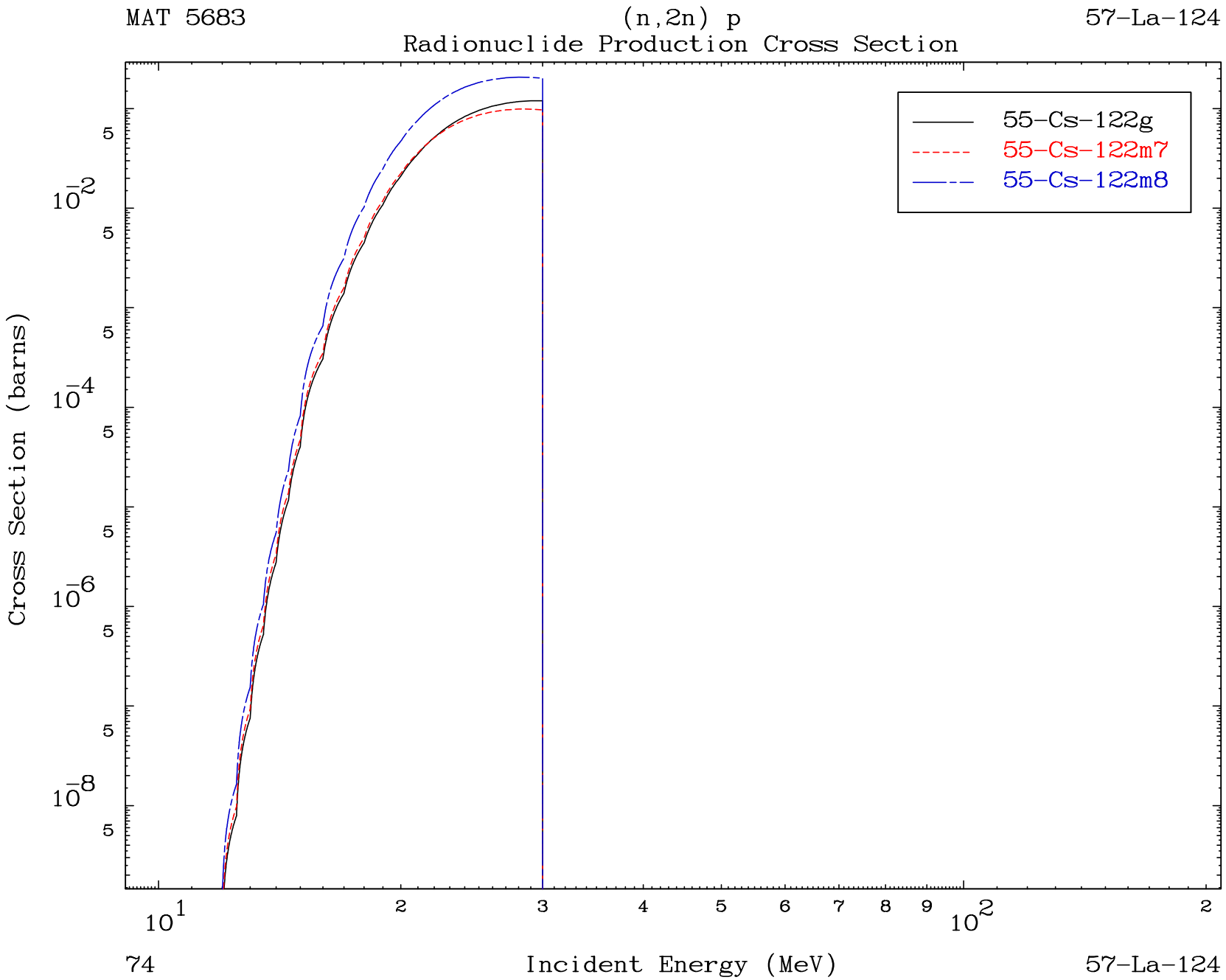

MAT 5683
MT= 64 (n,n') Level
Legendre Coefficients
57-La-124
X10^-6
4
3
2
1
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
P35
P36
50
100
150
200
69
Incident Energy (MeV)
57-La-124

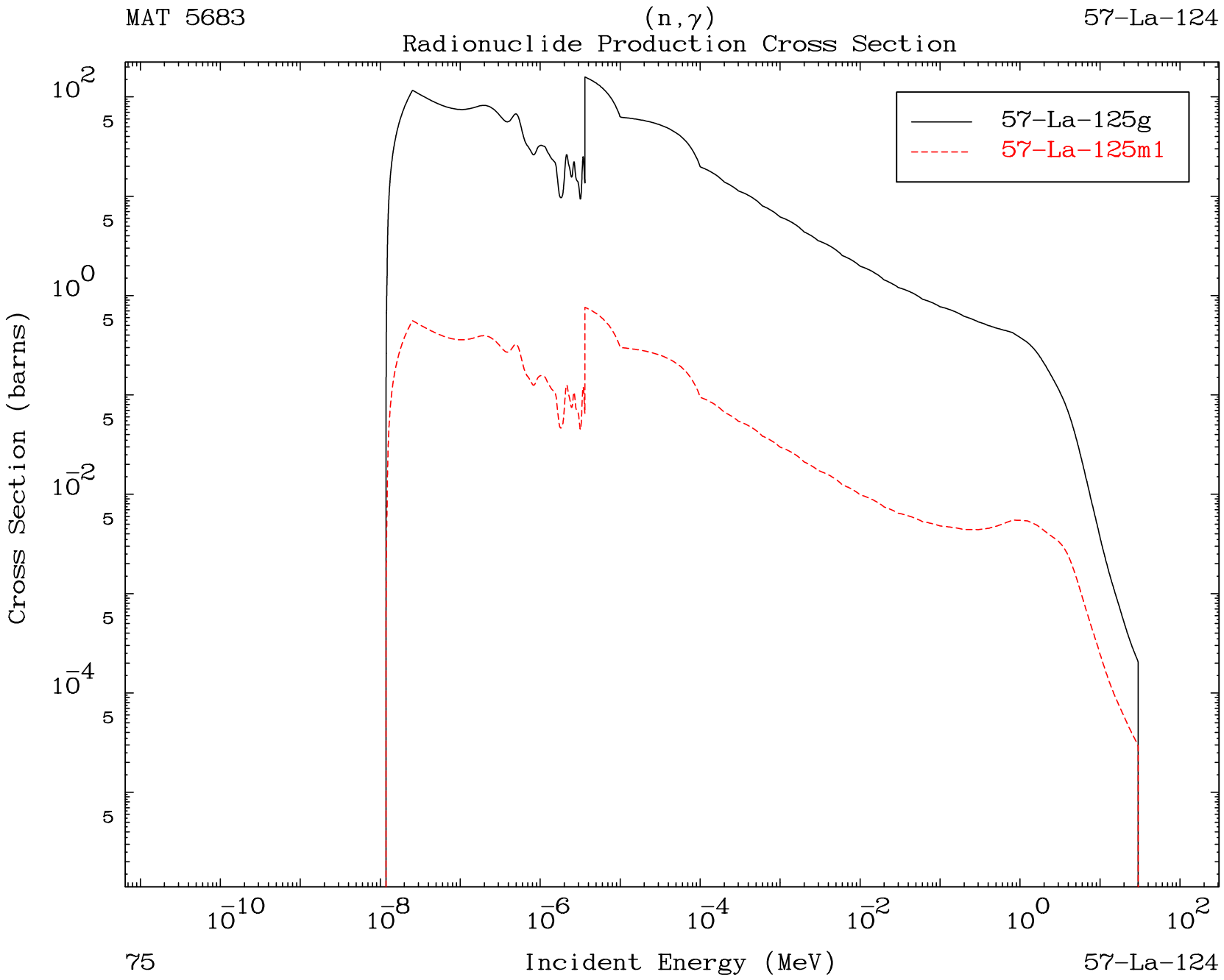

MAT 5683
Inelastic
57-La-124
Radionuclide Production Cross Section
57-La-124g
57-La-124m1
Cross Section (barns)
Incident Energy (MeV)
70
57-La-124

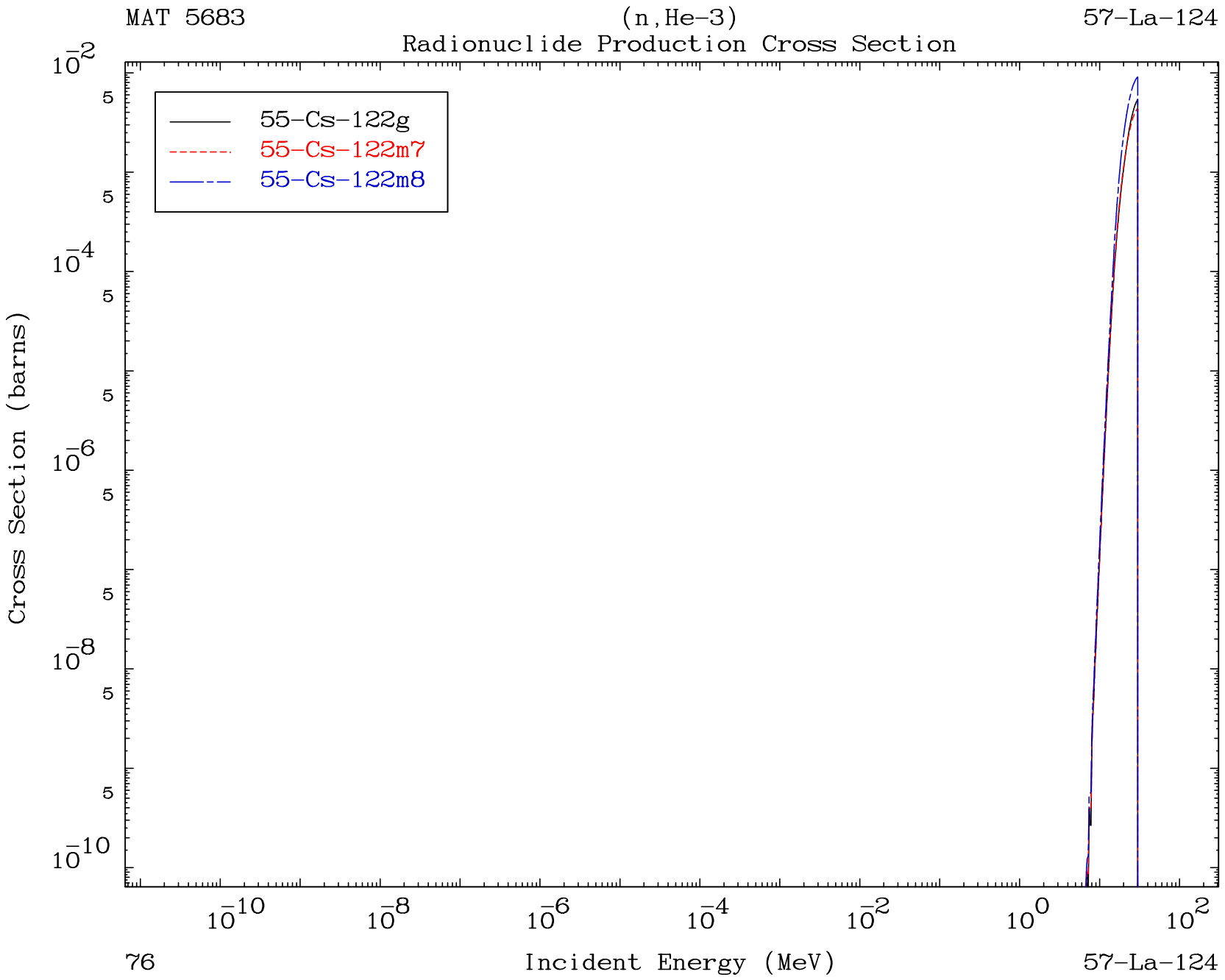

MAT 5683
(n,n') α
57-La-124
Radionuclide Production Cross Section
55-Cs-120g
55-Cs-120m5
Cross Section (barns)
10-2
10-4
10-6
10-8
10-10
100
102
Incident Energy (MeV)
71
57-La-124

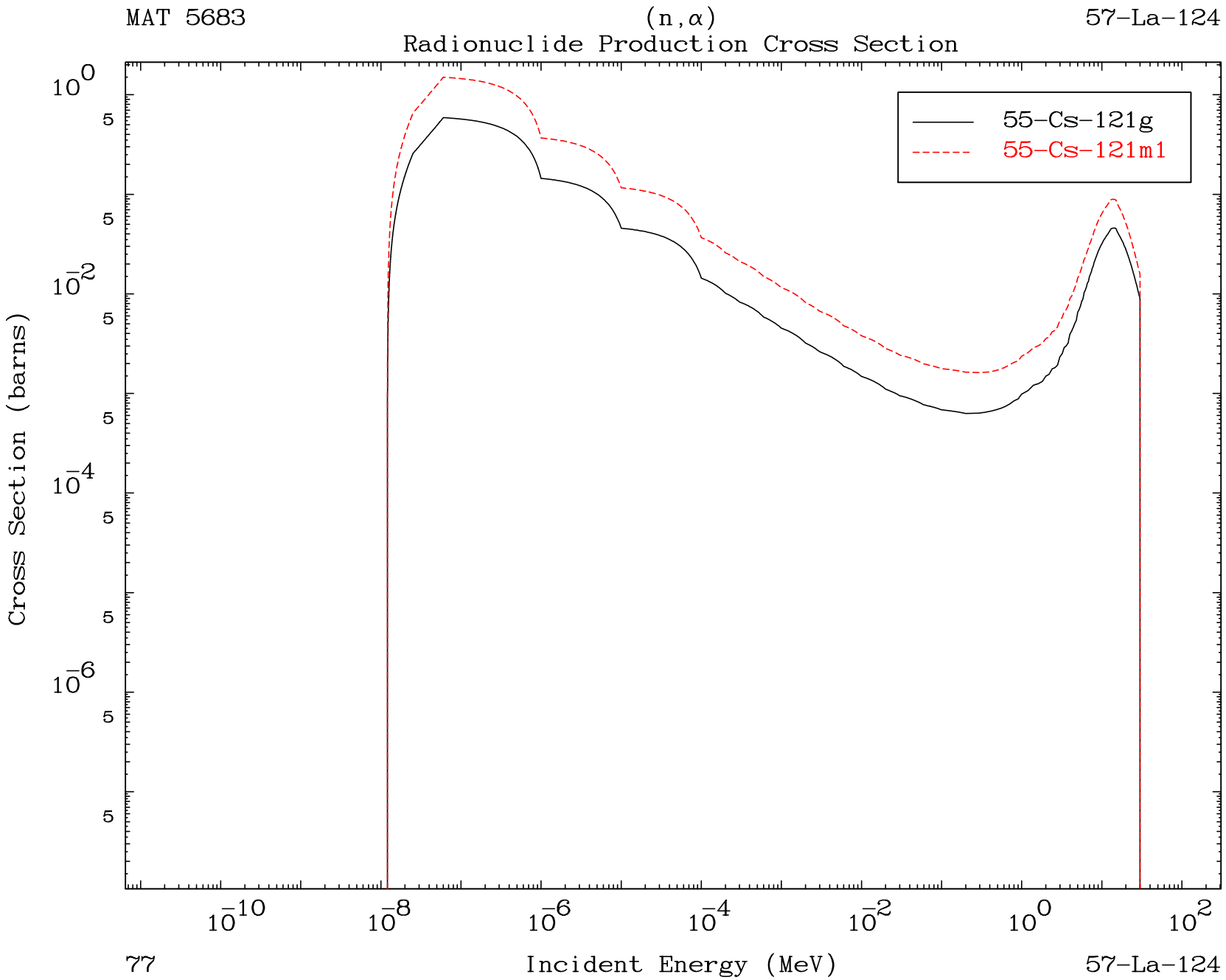

MAT 5683
(n,2n) α
57-La-124
Radionuclide Production Cross Section
55-Cs-119g
55-Cs-119m1
Cross Section (barns)
10-4
10-6
10-8
10-10
9
10 1
2
3
4
5
6
7
8
9
10 2
2
72
Incident Energy (MeV)
57-La-124

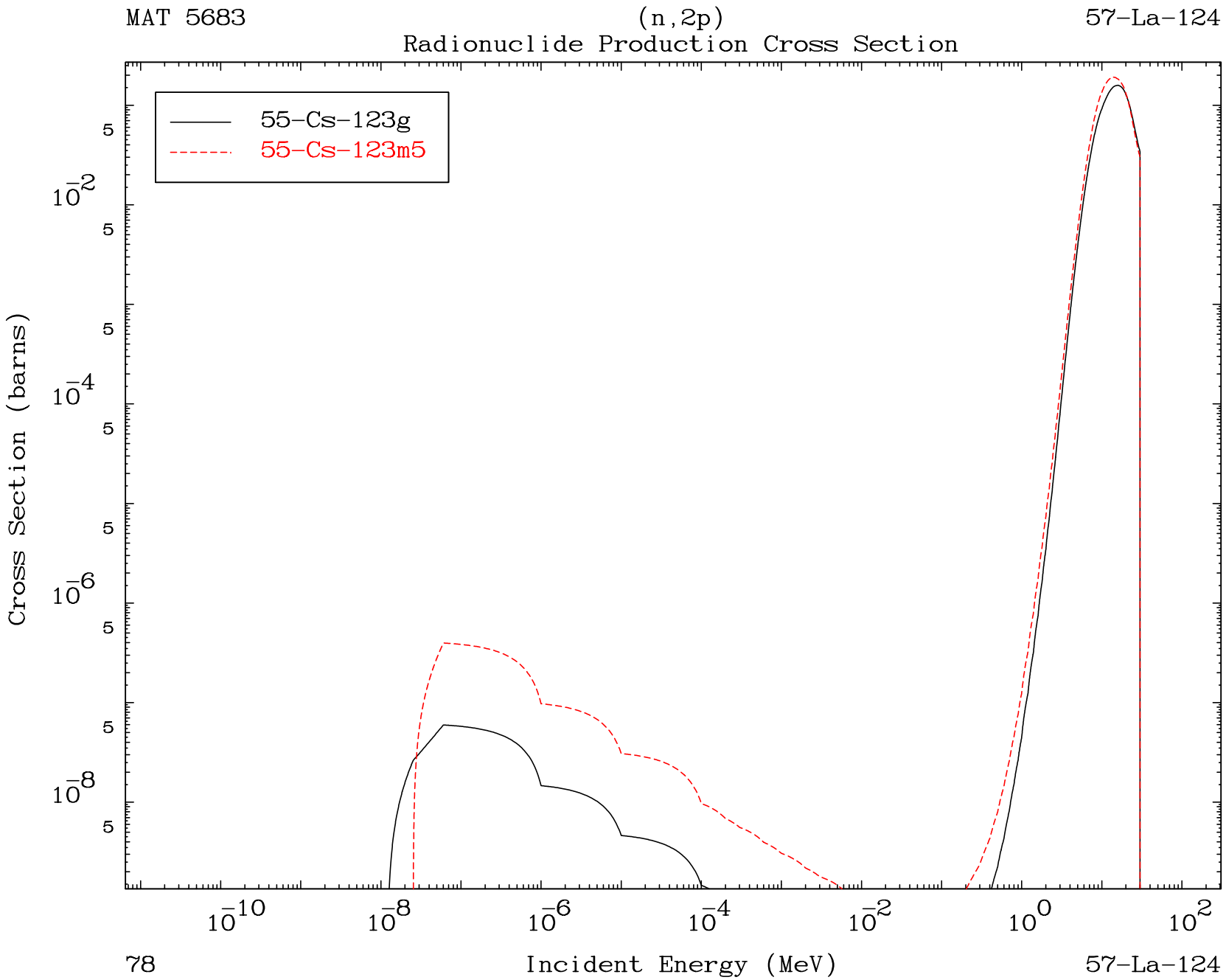

MAT 5683
(n,n') He-3
57-La-124
Radionuclide Production Cross Section
55-Cs-121g
55-Cs-121m1
Cross Section (barns)
10-4
10-6
10-8
10-10
8 9 10 1 2 3 4 5 6 7 8 9 10 2 2
73
Incident Energy (MeV)
57-La-124

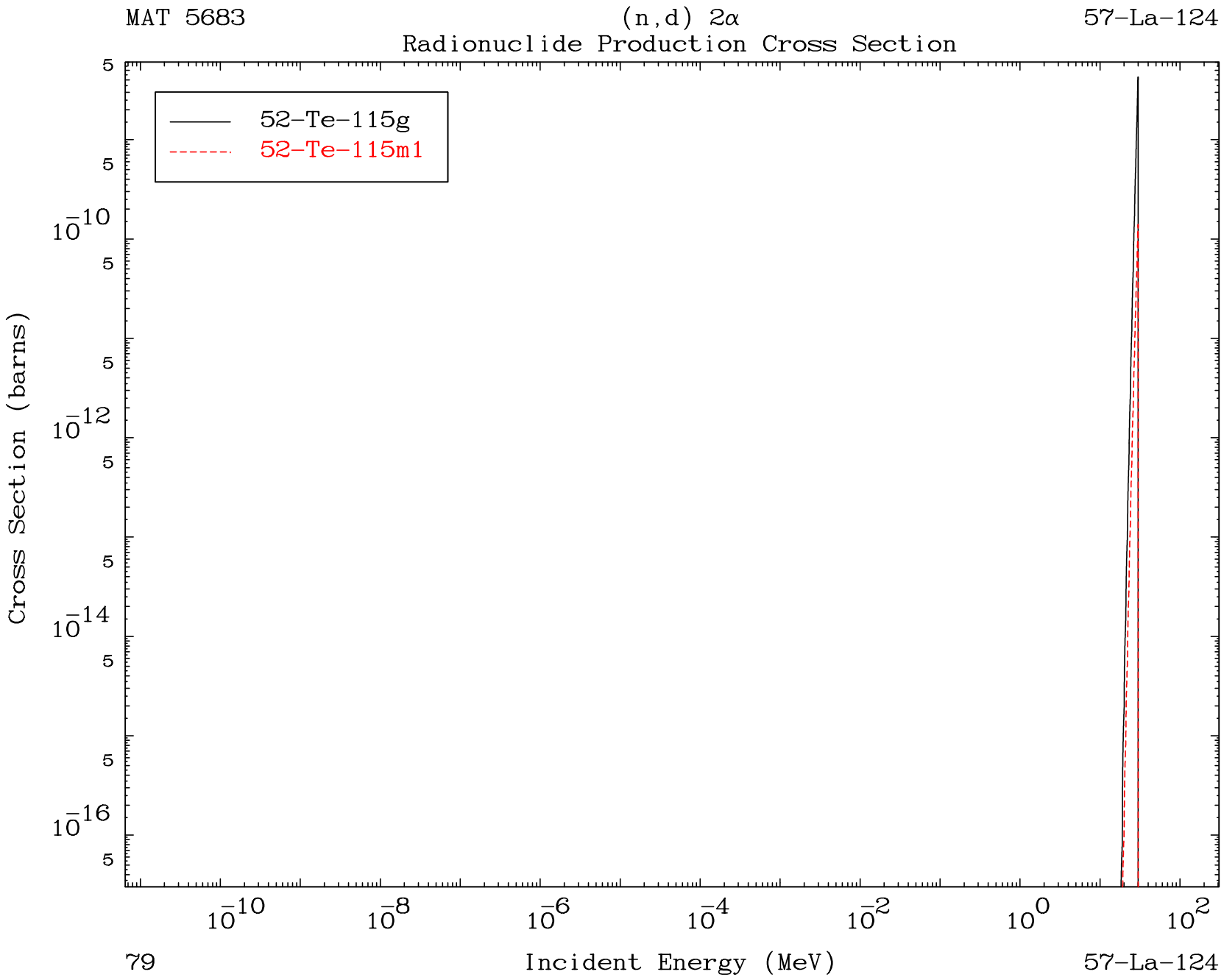

MAT 5683
(n,2n) p
57-La-124
Radionuclide Production Cross Section
55-Cs-122g
55-Cs-122m7
55-Cs-122m8
Cross Section (barns)
10-2
10-4
10-6
10-8
5
10 1
2
3
4
5
6
7
8
9
10 2
2
74
Incident Energy (MeV)
57-La-124

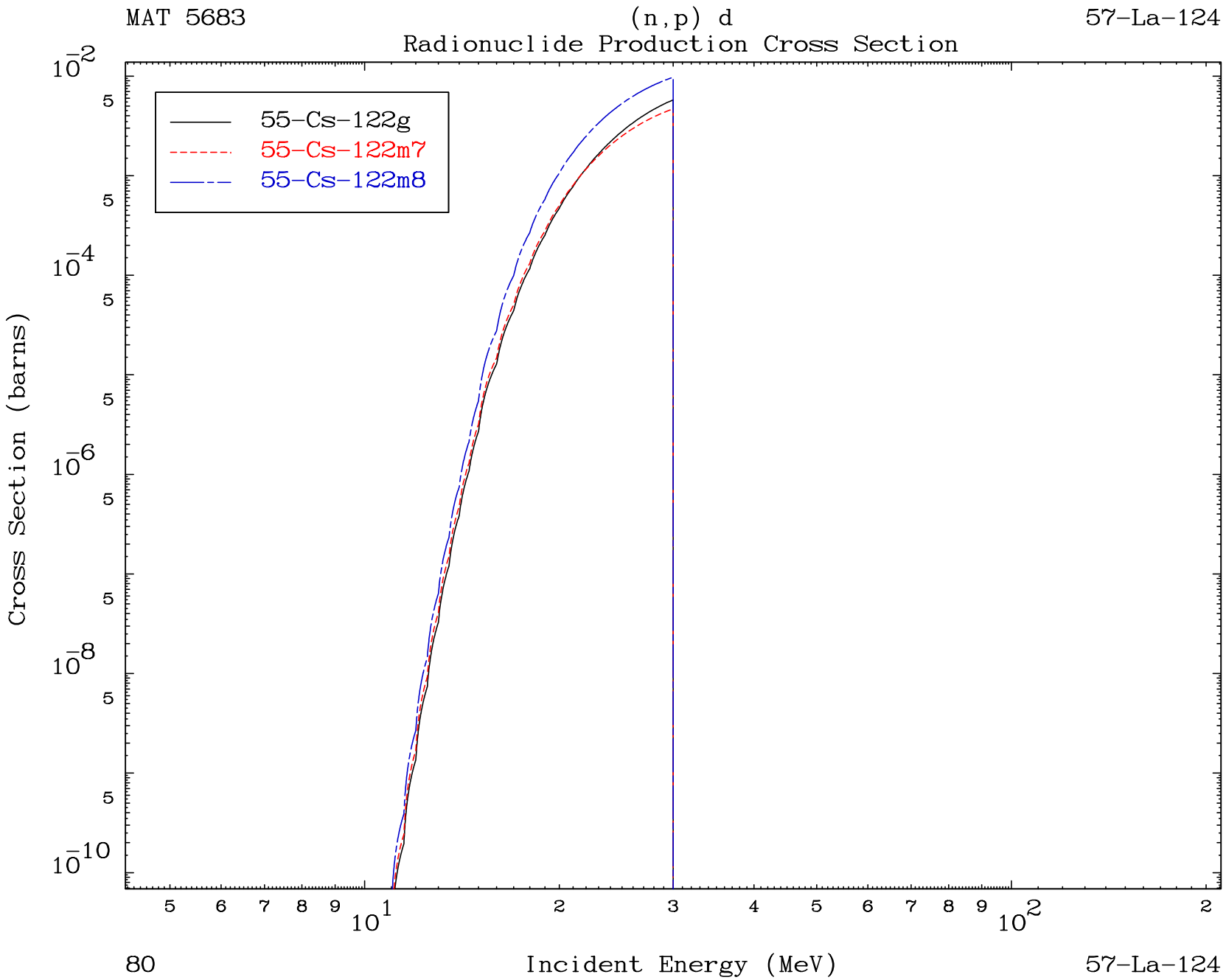

MAT 5683
(n,γ)
57-La-124
Radionuclide Production Cross Section
57-La-125g
57-La-125m1
Cross Section (barns)
Incident Energy (MeV)
75
57-La-124

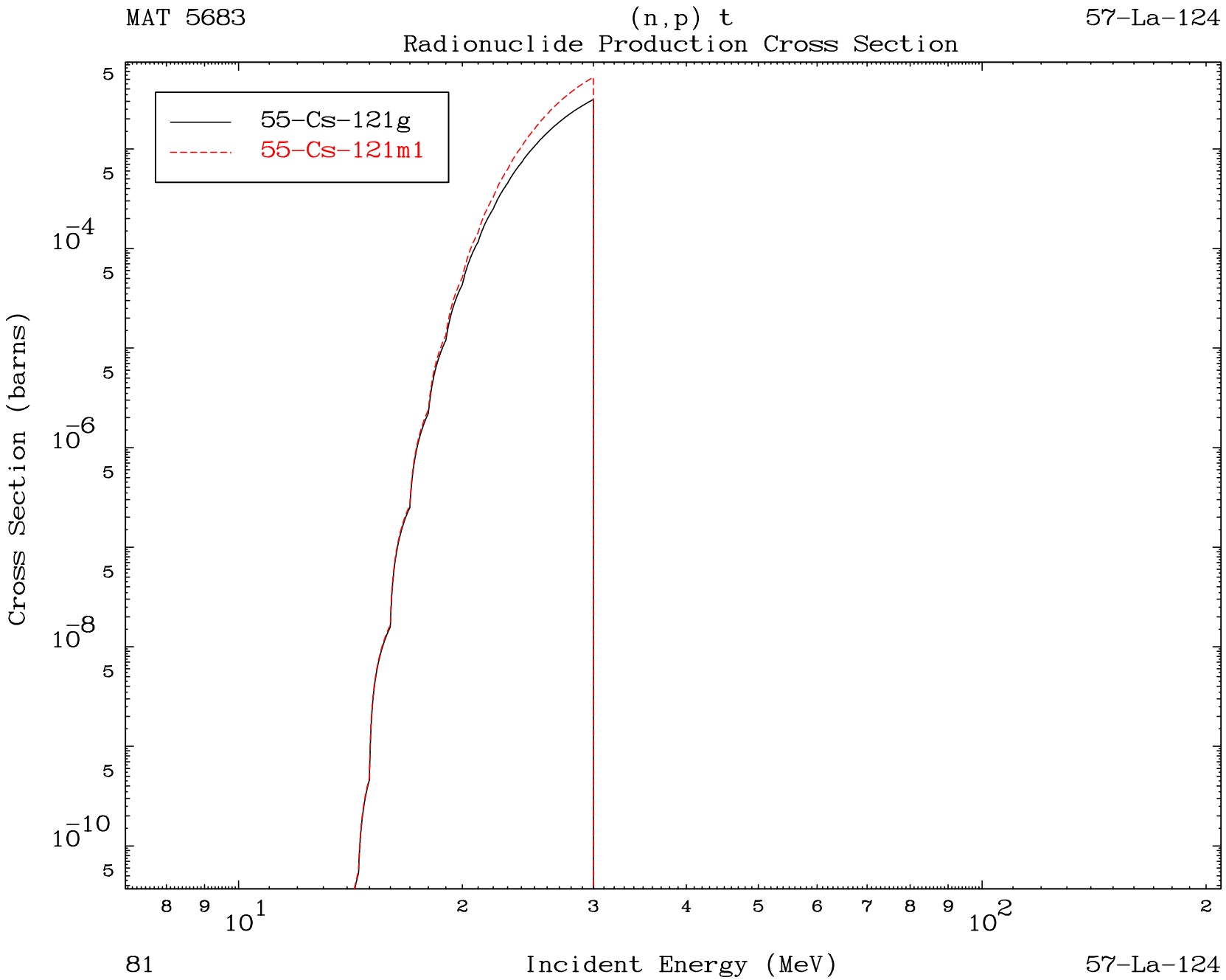

MAT 5683
(n,He-3)
57-La-124
Radionuclide Production Cross Section
55-Cs-122g
55-Cs-122m7
55-Cs-122m8
Cross Section (barns)
Incident Energy (MeV)
76
57-La-124


MAT 5683
(n,α)
57-La-124
Radionuclide Production Cross Section
55-Cs-121g
55-Cs-121m1
Cross Section (barns)
Incident Energy (MeV)
77
57-La-124


MAT 5683
(n,2p)
57-La-124
Radionuclide Production Cross Section
55-Cs-123g
55-Cs-123m5
Cross Section (barns)
Incident Energy (MeV)
78
57-La-124


MAT 5683
(n,d) 2α
57-La-124
Radionuclide Production Cross Section
52-Te-115g
52-Te-115m1
Cross Section (barns)
Incident Energy (MeV)
79
57-La-124


MAT 5683
(n,p) d
57-La-124
Radionuclide Production Cross Section
55-Cs-122g
55-Cs-122m7
55-Cs-122m8
Cross Section (barns)
Incident Energy (MeV)
80
57-La-124


MAT 5683
(n,p) t
57-La-124
Radionuclide Production Cross Section
55-Cs-121g
55-Cs-121m1
Cross Section (barns)
Incident Energy (MeV)
81
57-La-124