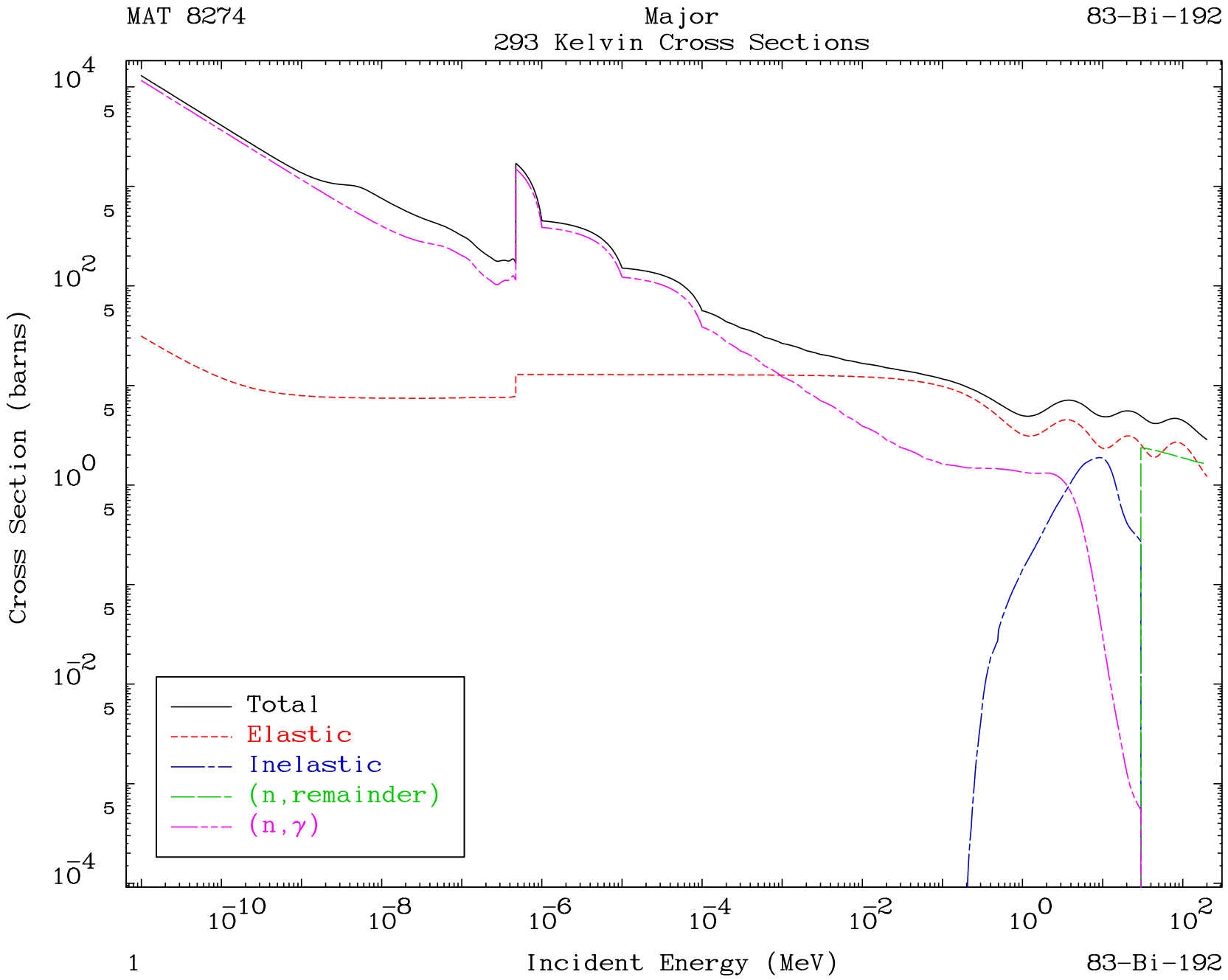
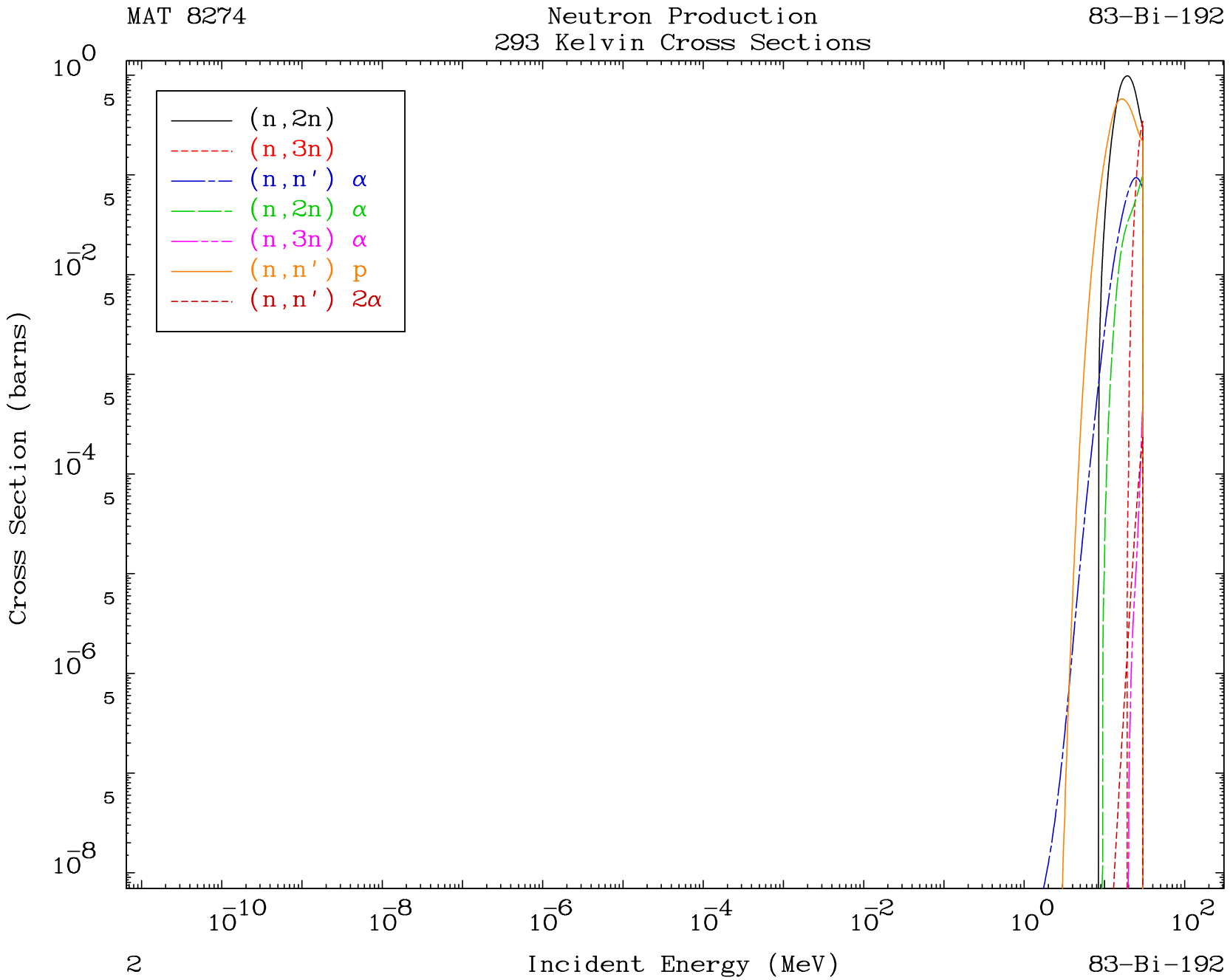
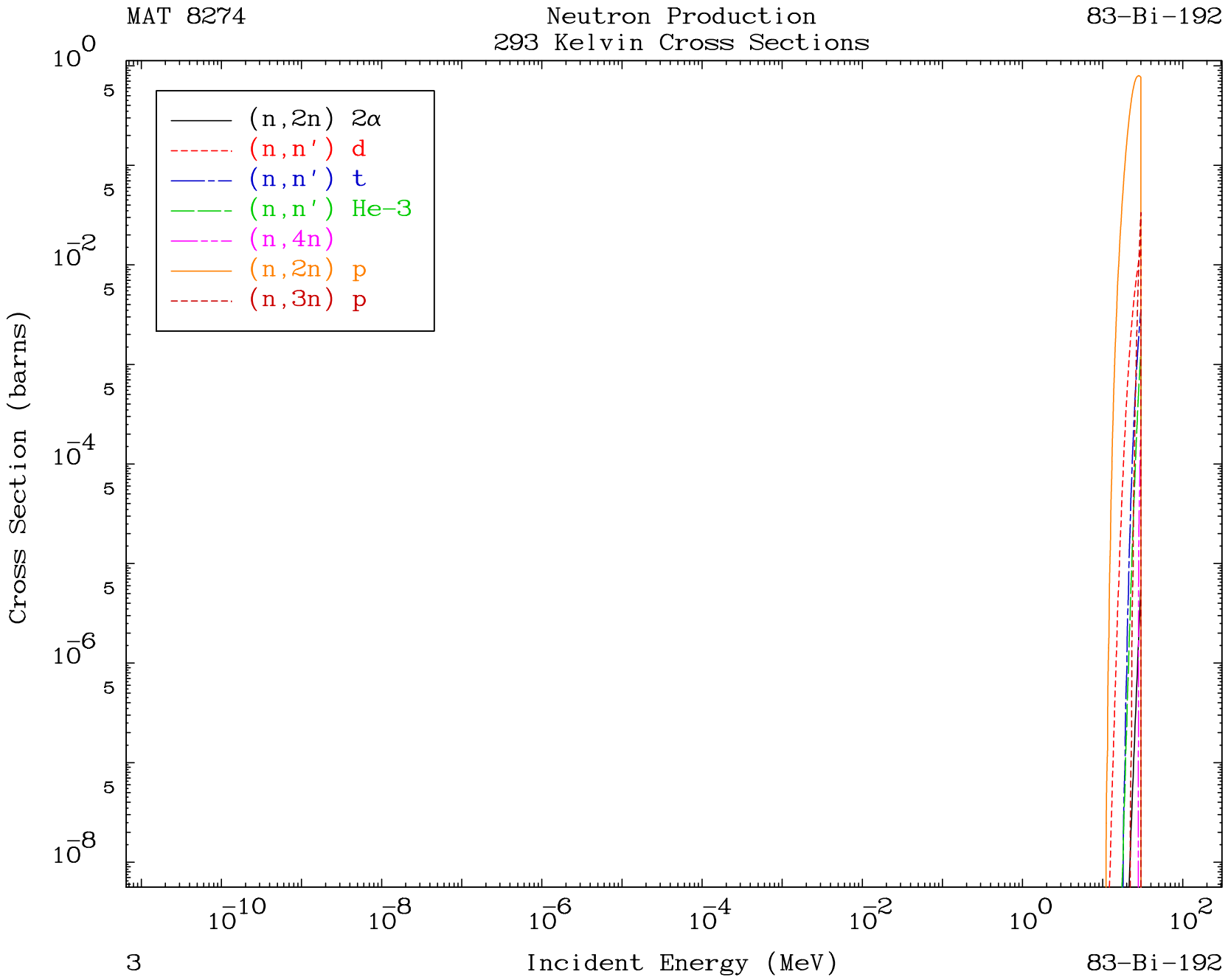
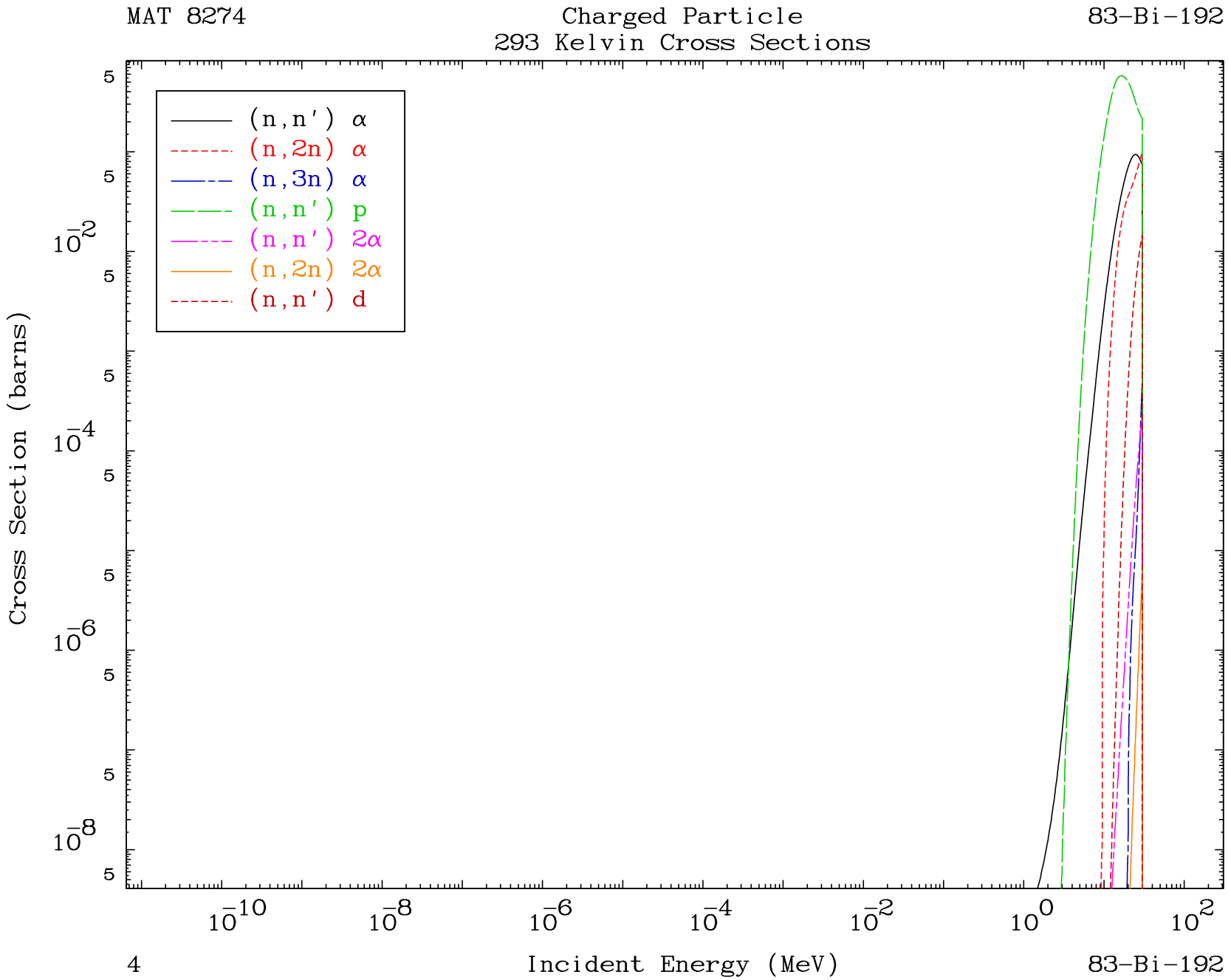
Program EVALPLOT
(Version 2018-1)
by
Dermott E. Cullen
(Present Contact Information)
Dermott E. Cullen
1466 Hudson Way
Livermore, CA 94550
U.S.A.
Tele: 925-443-1911
E.Mail:redcullen1@comcast.net
Web:redcullen1.net/HOMEPAGE.NEW

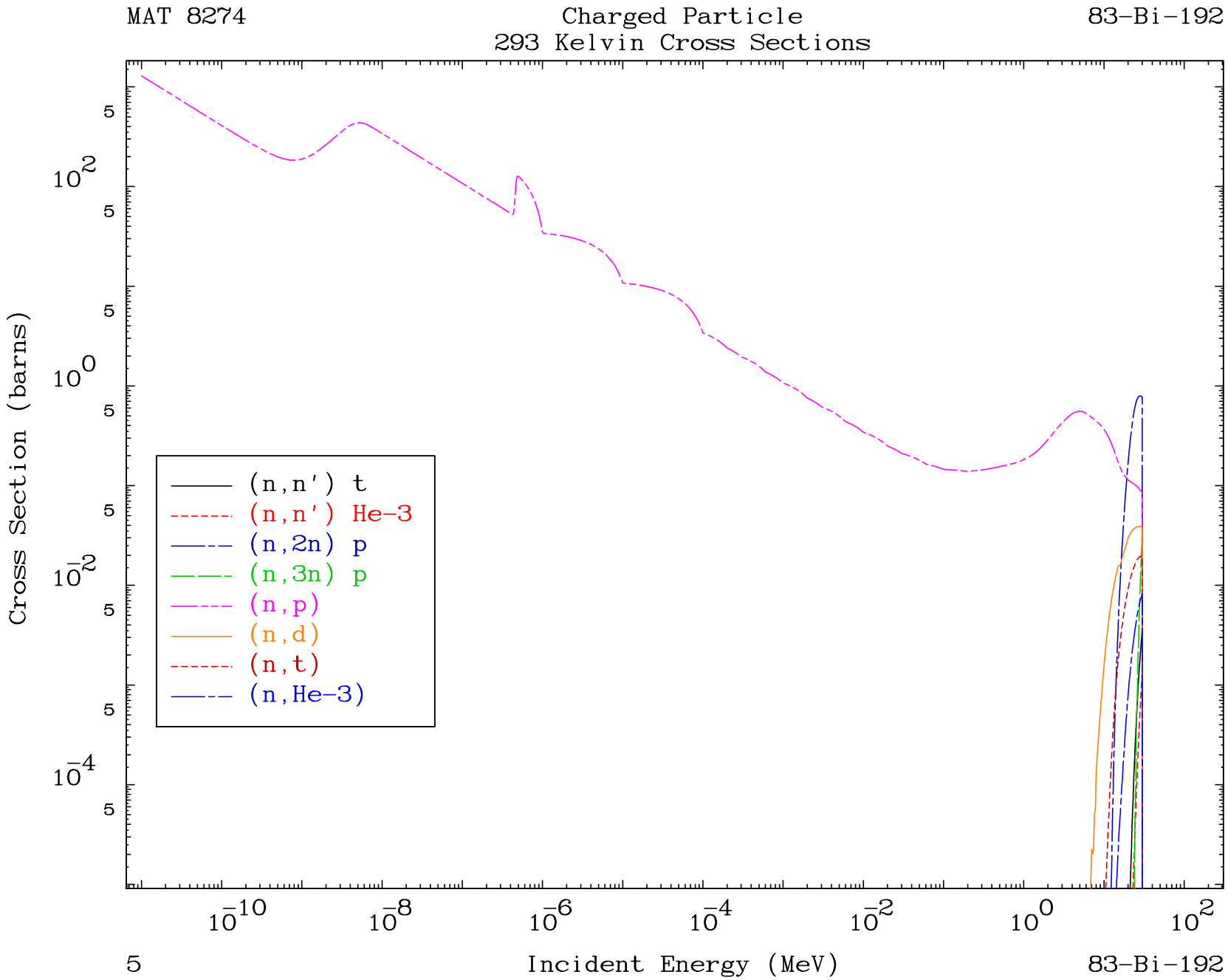
Press Mouse Button to Start

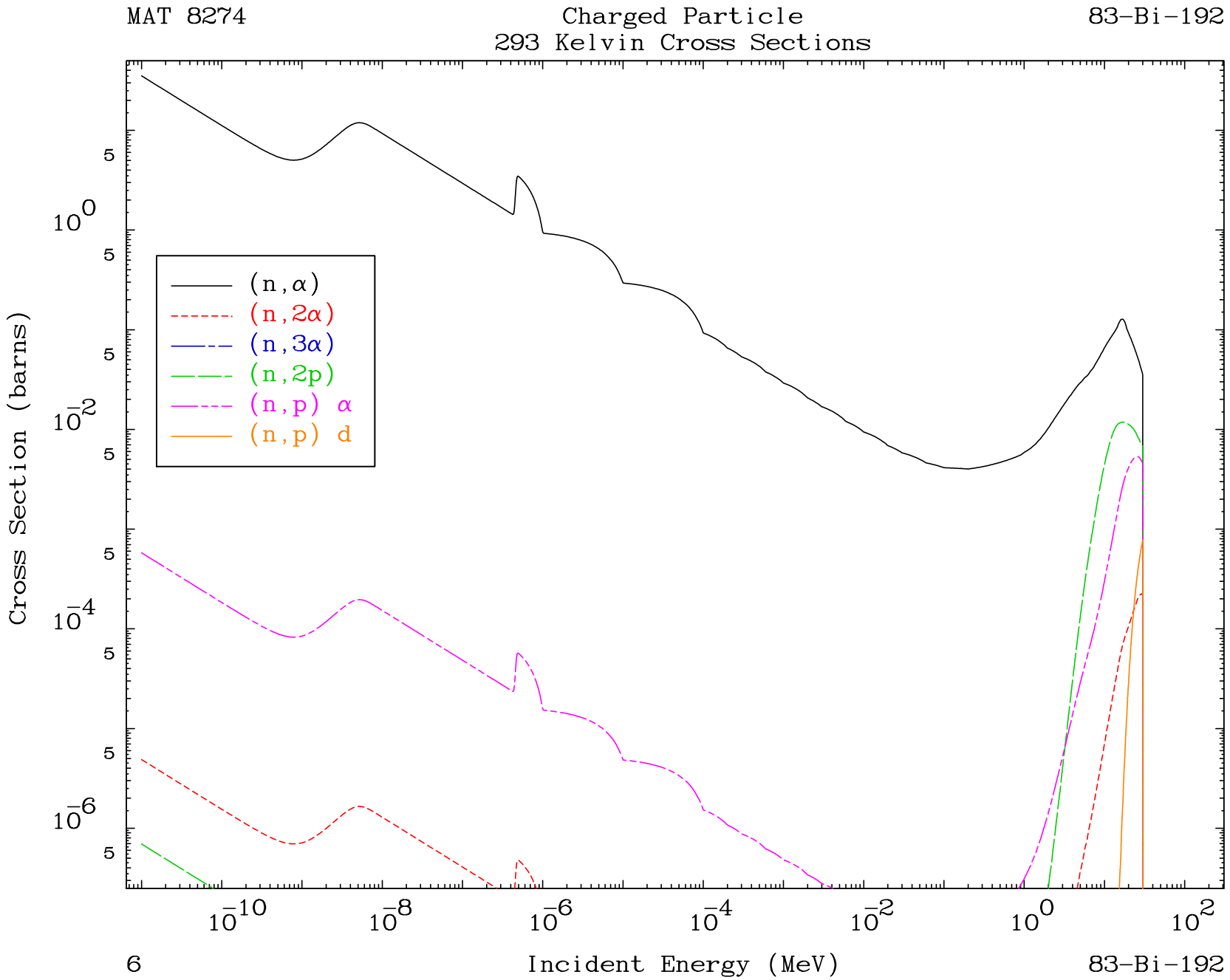

MAT 8274
Major
83-Bi-192
293 Kelvin Cross Sections
Cross Section (barns)
Incident Energy (MeV)
Total
Elastic
Inelastic
(n,remainder)
(n,γ)
1
83-Bi-192

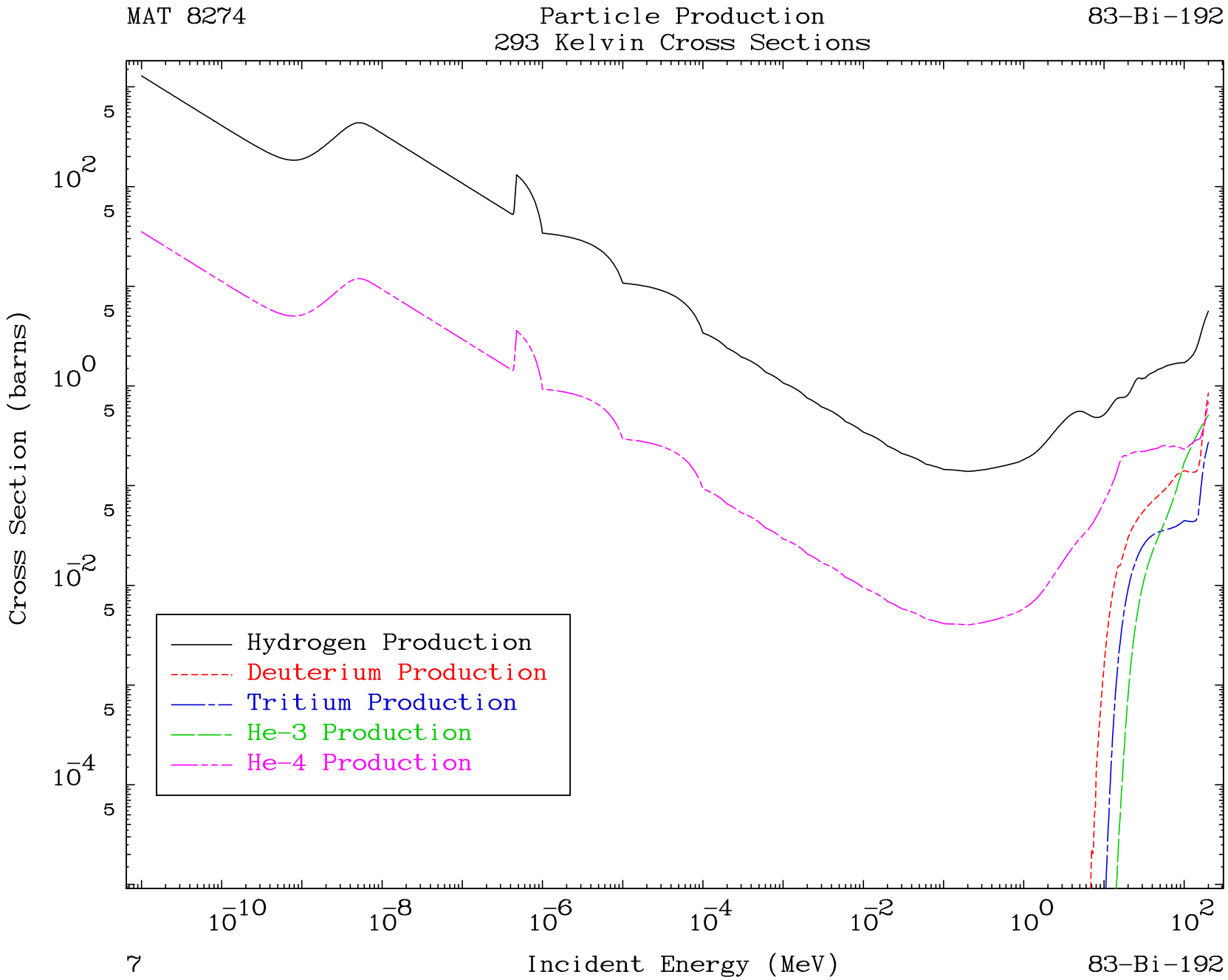

MAT 8274
Neutron Production
293 Kelvin Cross Sections
83-Bi-192
(n,2n)
(n,3n)
(n,n') α
(n,2n) α
(n,3n) α
(n,n') p
(n,n') 2α
Cross Section (barns)
Incident Energy (MeV)
2
83-Bi-192

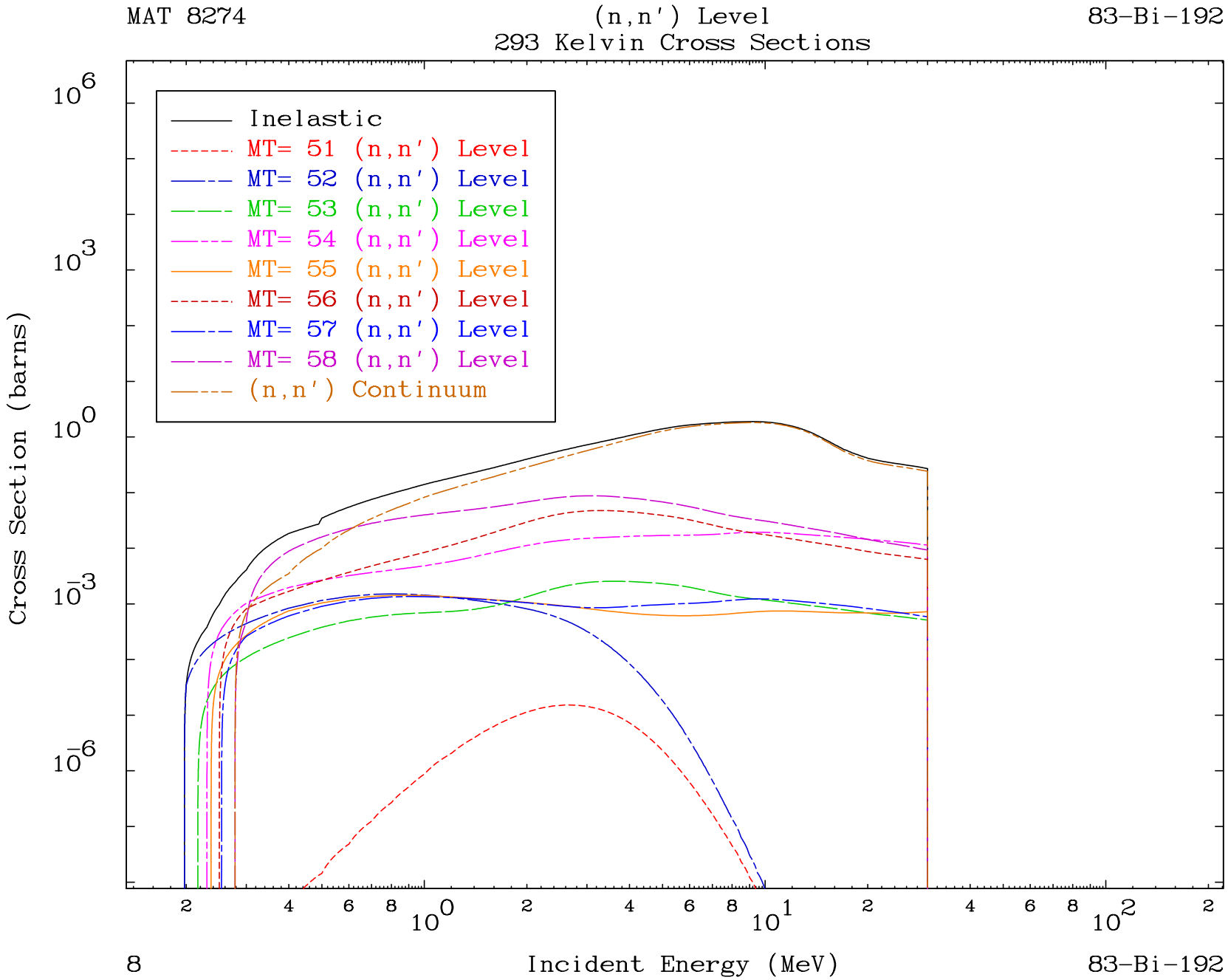

MAT 8274
Neutron Production
293 Kelvin Cross Sections
83-Bi-192
(n,2n) 2α
(n,n') d
(n,n') t
(n,n') He-3
(n,4n)
(n,2n) p
(n,3n) p
Cross Section (barns)
Incident Energy (MeV)
3
83-Bi-192

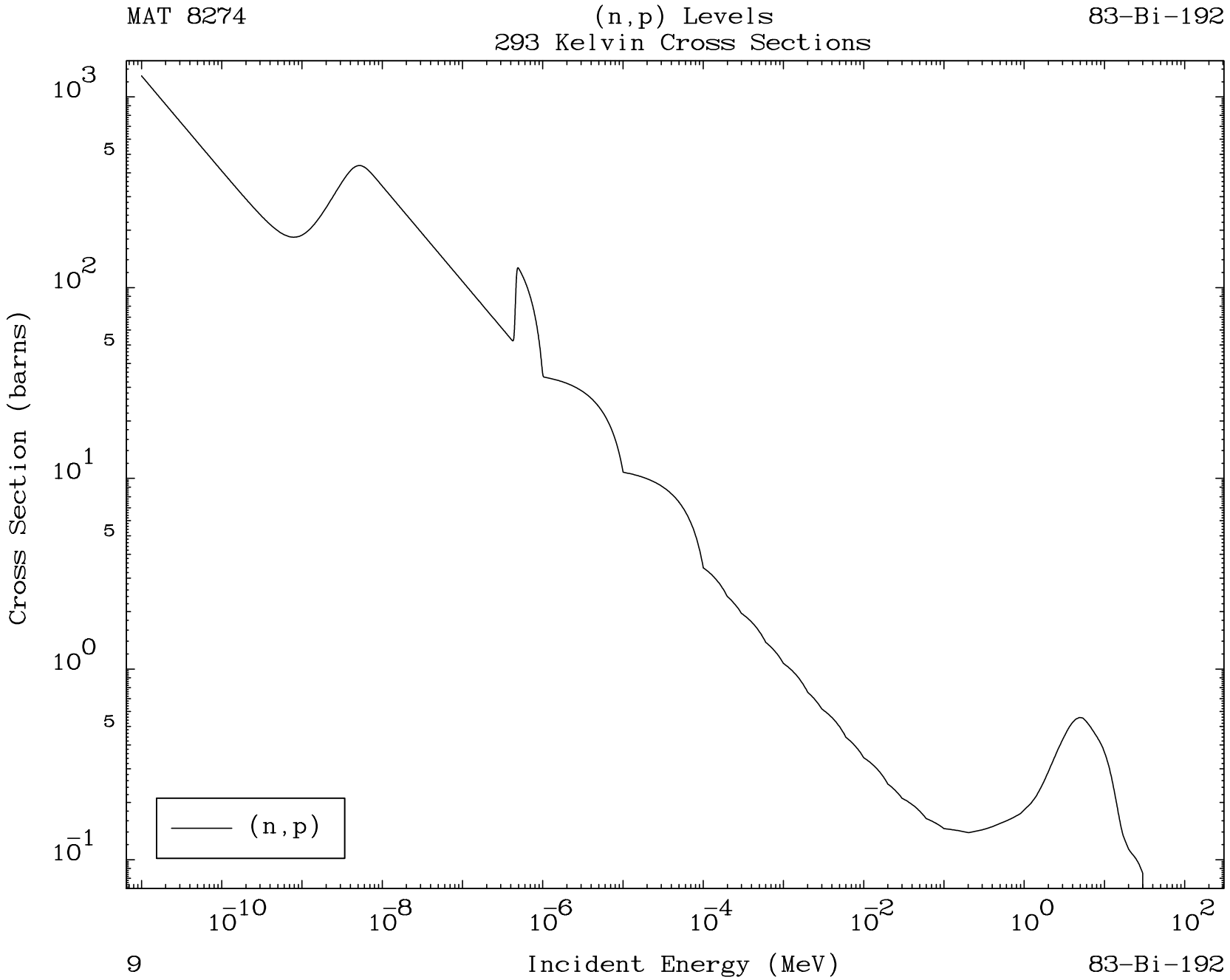

MAT 8274
Charged Particle
293 Kelvin Cross Sections
83-Bi-192
(n,n') α
(n,2n) α
(n,3n) α
(n,n') p
(n,n') 2α
(n,2n) 2α
(n,n') d
Cross Section (barns)
Incident Energy (MeV)
4
83-Bi-192

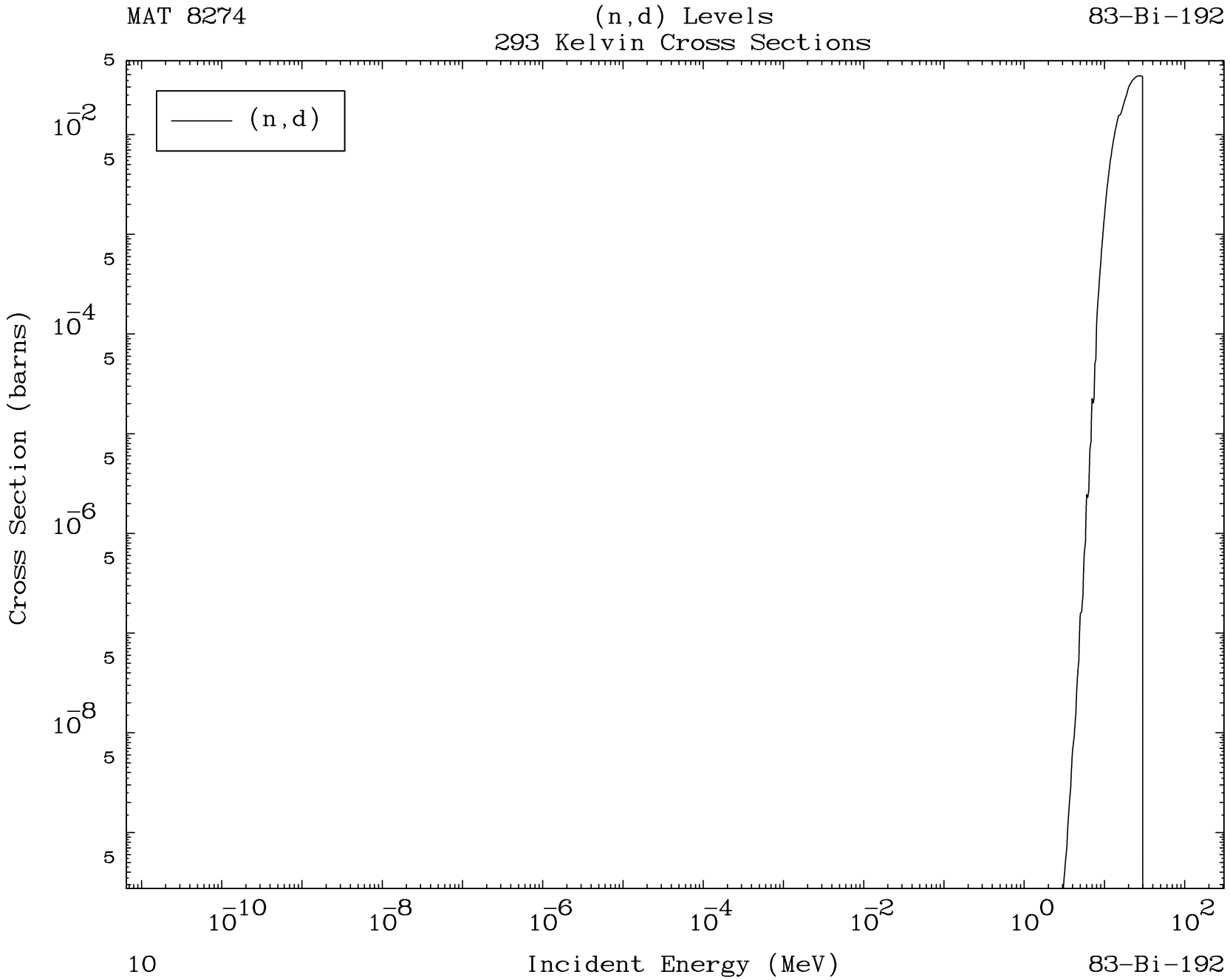

MAT 8274
Charged Particle
293 Kelvin Cross Sections
83-Bi-192
Cross Section (barns)
Incident Energy (MeV)
83-Bi-192
(n,n') t
(n,n') He-3
(n,2n) p
(n,3n) p
(n,p)
(n,d)
(n,t)
(n,He-3)

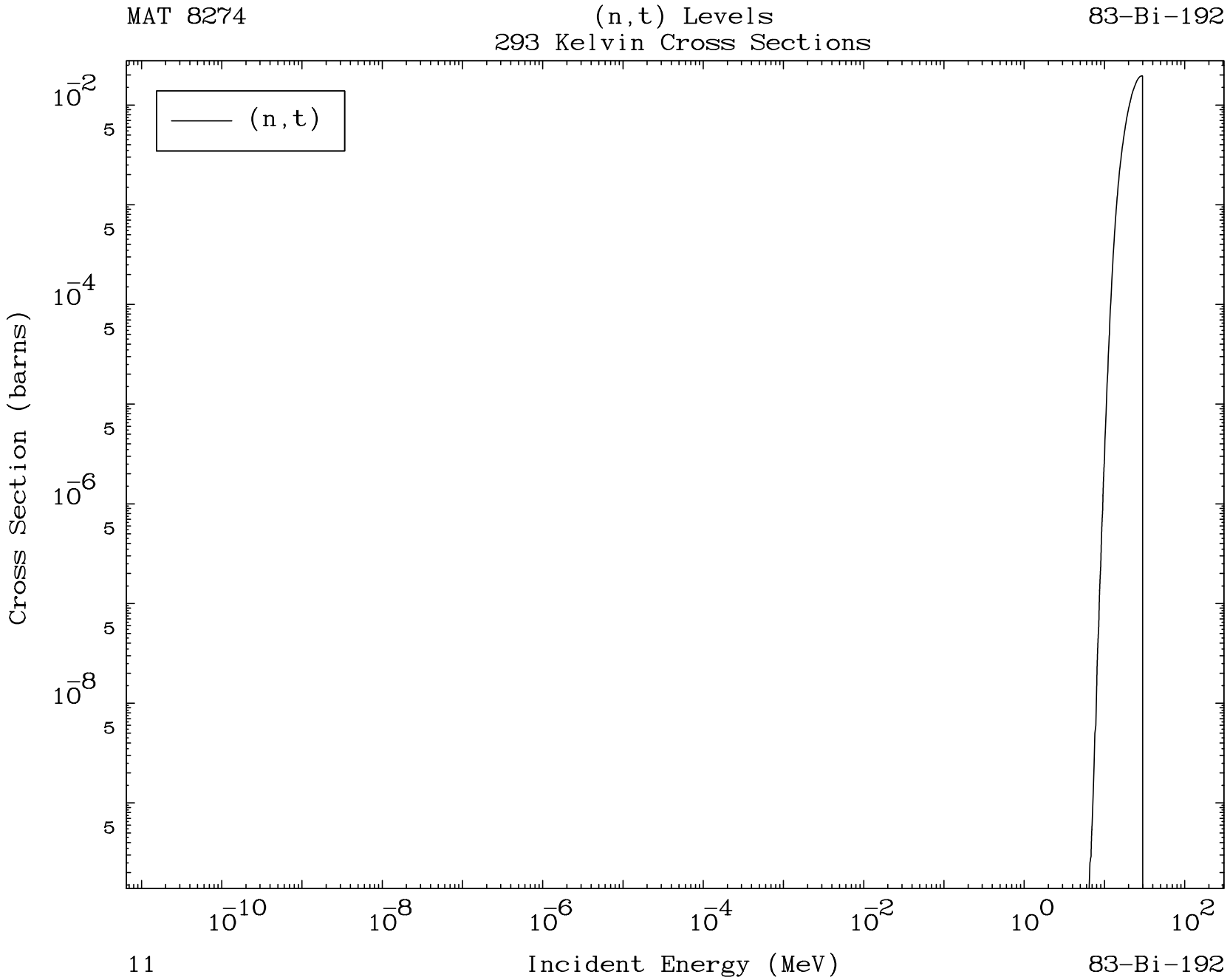

MAT 8274
Charged Particle
293 Kelvin Cross Sections
83-Bi-192
(n,α)
(n,2α)
(n,3α)
(n,2p)
(n,p) α
(n,p) d
Cross Section (barns)
Incident Energy (MeV)
6
83-Bi-192

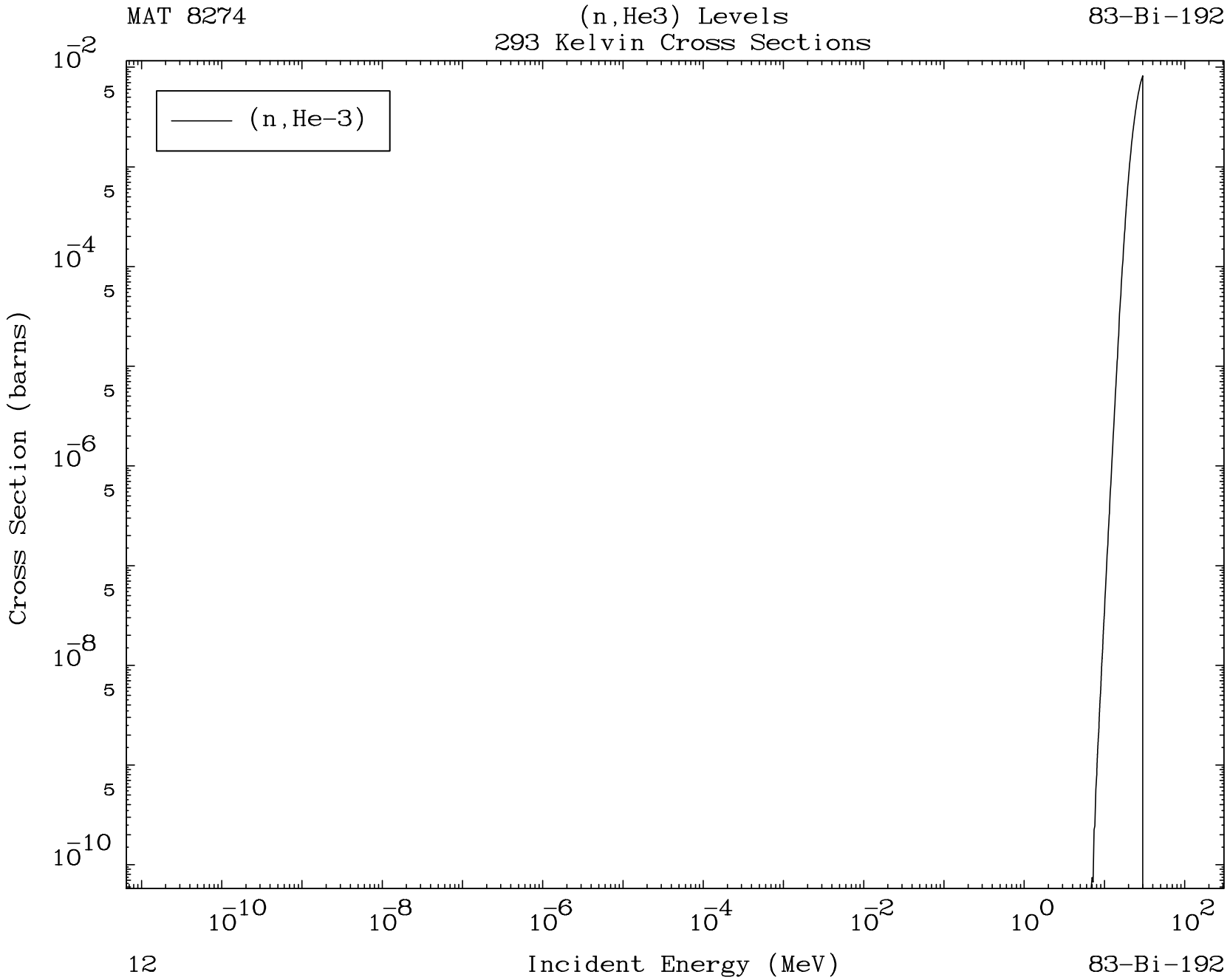

MAT 8274
Particle Production
293 Kelvin Cross Sections
83-Bi-192
Cross Section (barns)
Incident Energy (MeV)
Hydrogen Production
Deuterium Production
Tritium Production
He-3 Production
He-4 Production
7
83-Bi-192

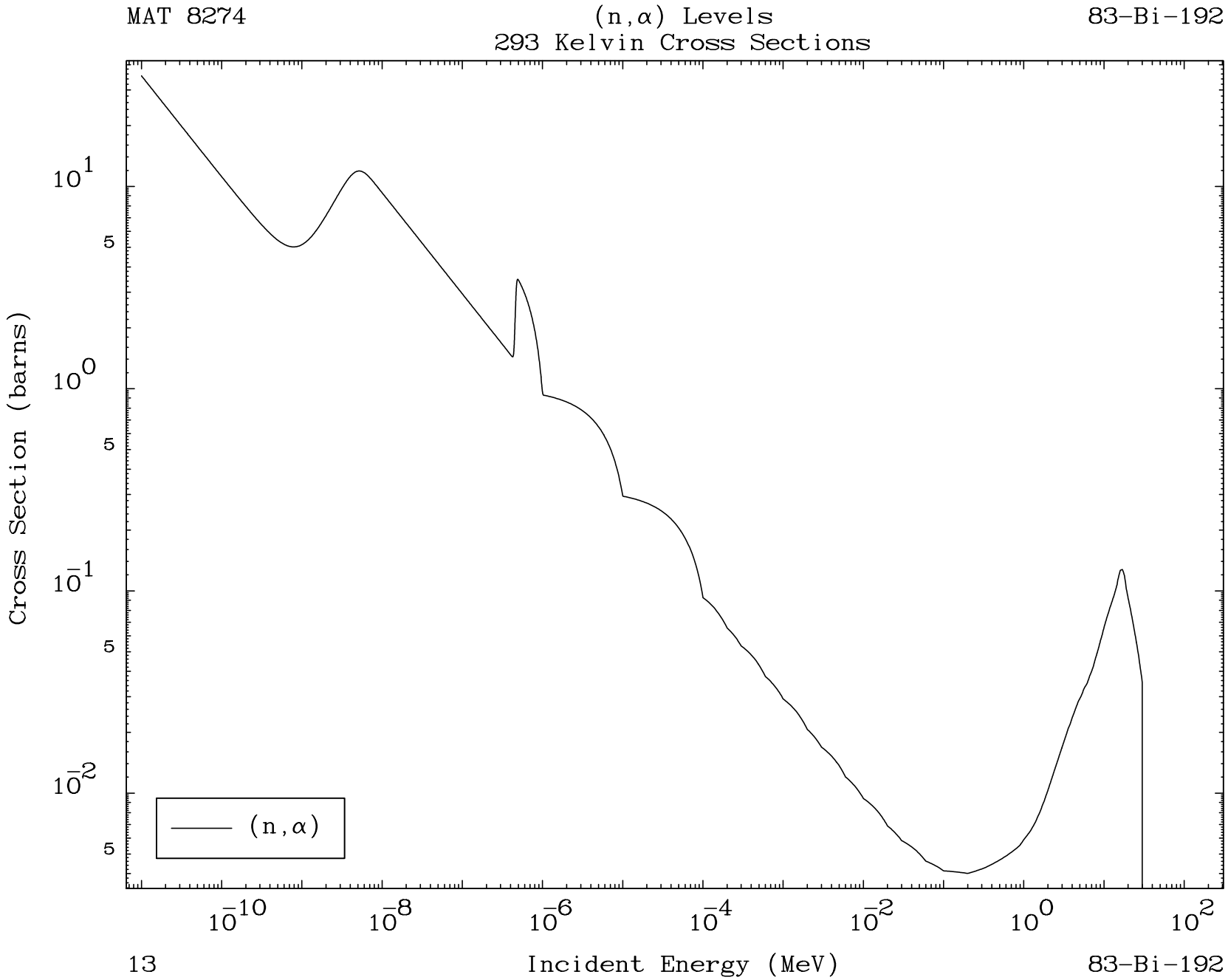

MAT 8274
(n,n') Level
83-Bi-192
293 Kelvin Cross Sections
Inelastic
MT= 51 (n,n') Level
MT= 52 (n,n') Level
MT= 53 (n,n') Level
MT= 54 (n,n') Level
MT= 55 (n,n') Level
MT= 56 (n,n') Level
MT= 57 (n,n') Level
MT= 58 (n,n') Level
(n,n') Continuum
Cross Section (barns)
10^6
10^3
10^0
10^-3
10^-6
2
4
6
8
10^0
2
4
6
8
10^1
2
4
6
8
10^2
2
Incident Energy (MeV)
8
83-Bi-192

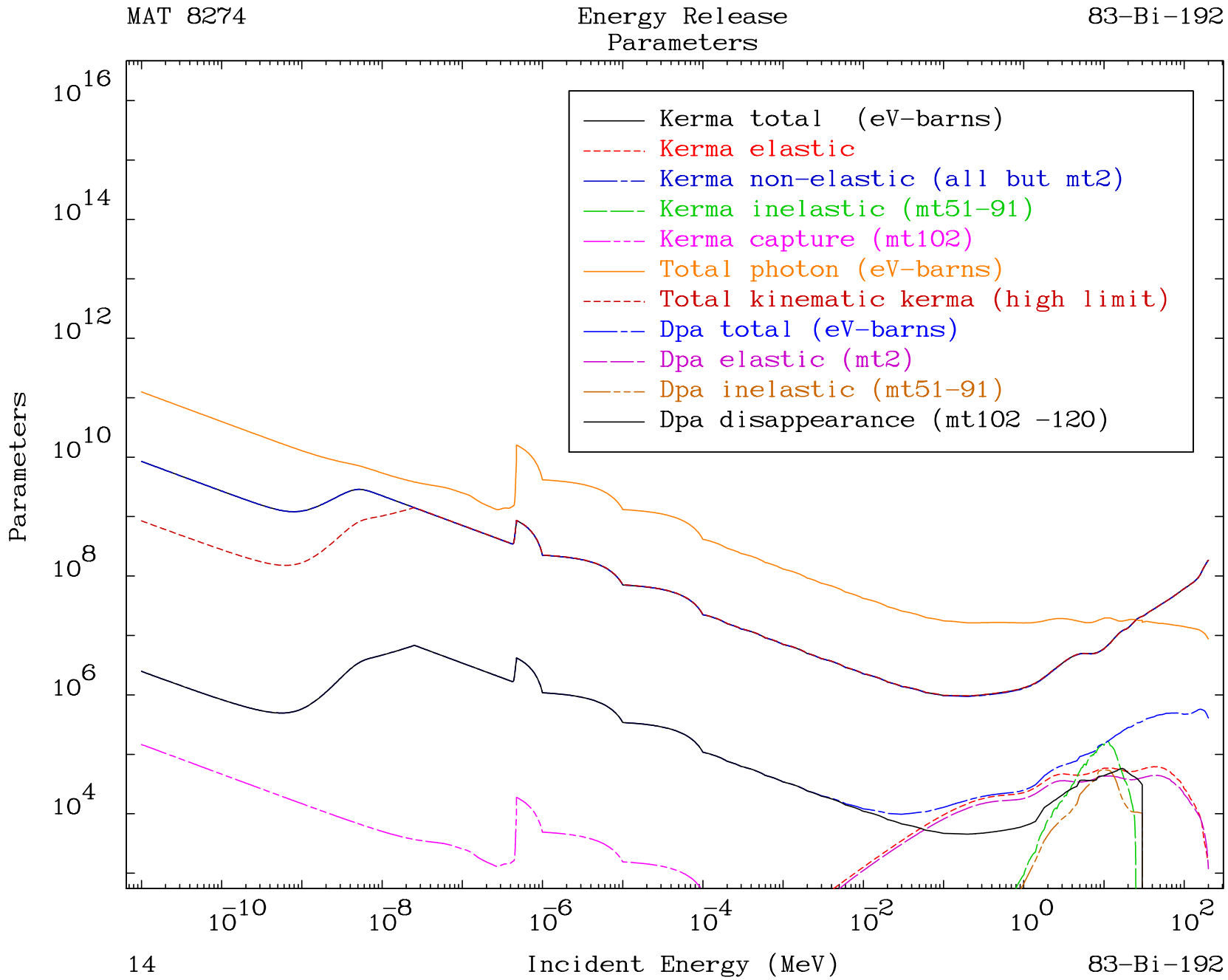

MAT 8274
(n,p) Levels
83-Bi-192
293 Kelvin Cross Sections
Cross Section (barns)
10^3
5
10^2
5
10^1
5
10^0
5
10^-1
(n,p)
10^-10
10^-8
10^-6
10^-4
10^-2
10^0
10^2
Incident Energy (MeV)
9
83-Bi-192

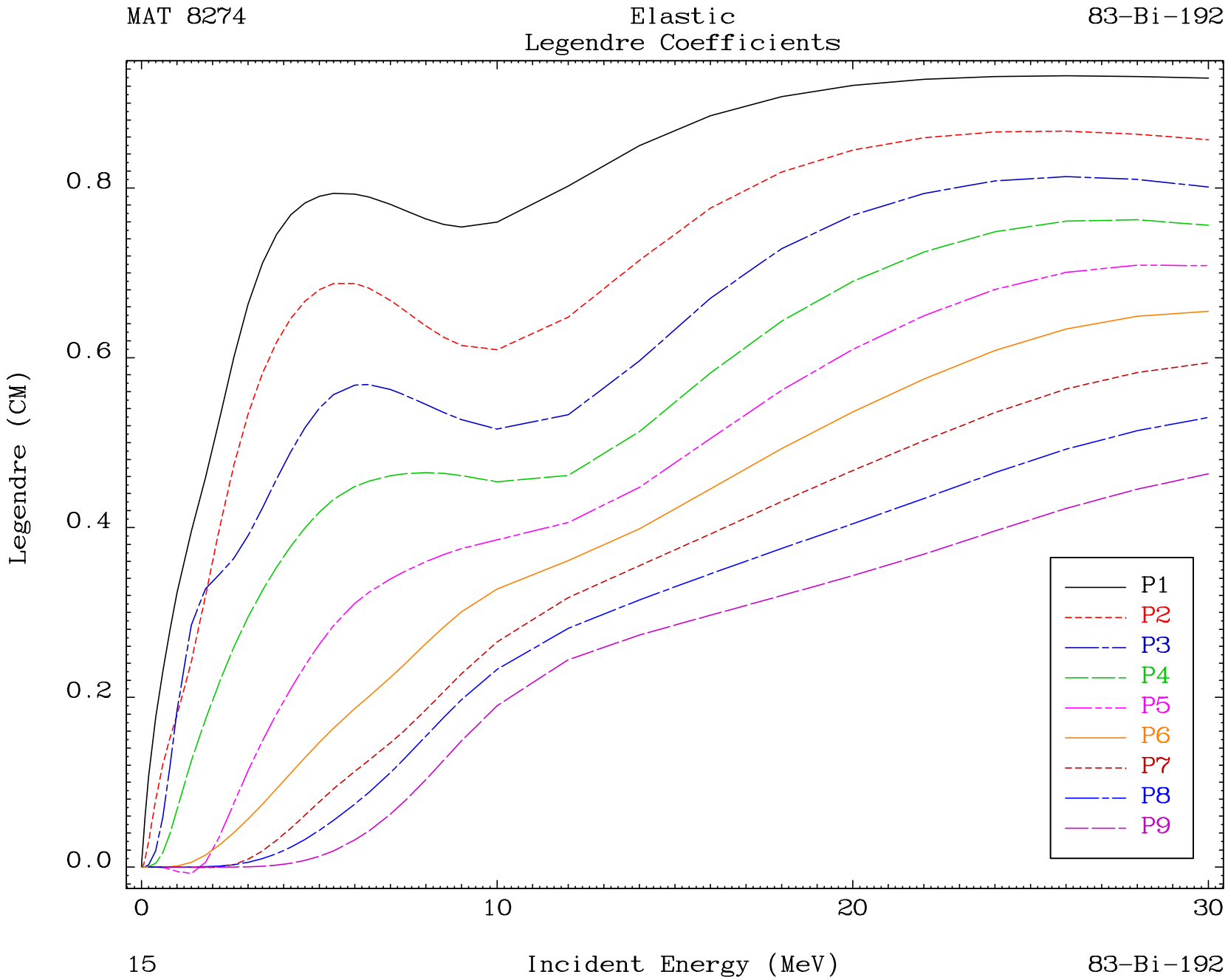

MAT 8274
(n,d) Levels
83-Bi-192
293 Kelvin Cross Sections
(n,d)
Cross Section (barns)
Incident Energy (MeV)
10
83-Bi-192

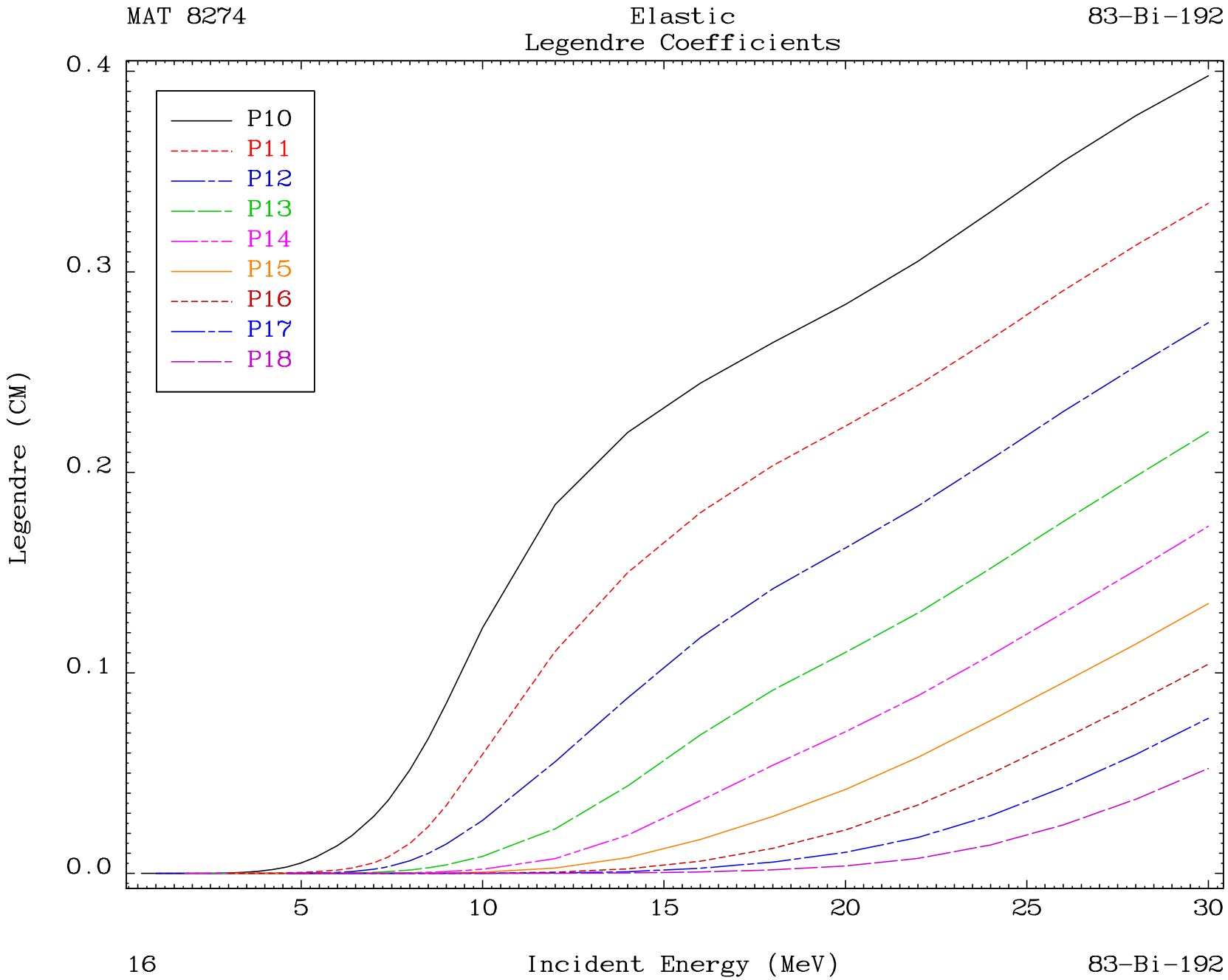

MAT 8274
(n,t) Levels
83-Bi-192
293 Kelvin Cross Sections
(n,t)
Cross Section (barns)
Incident Energy (MeV)
11
83-Bi-192

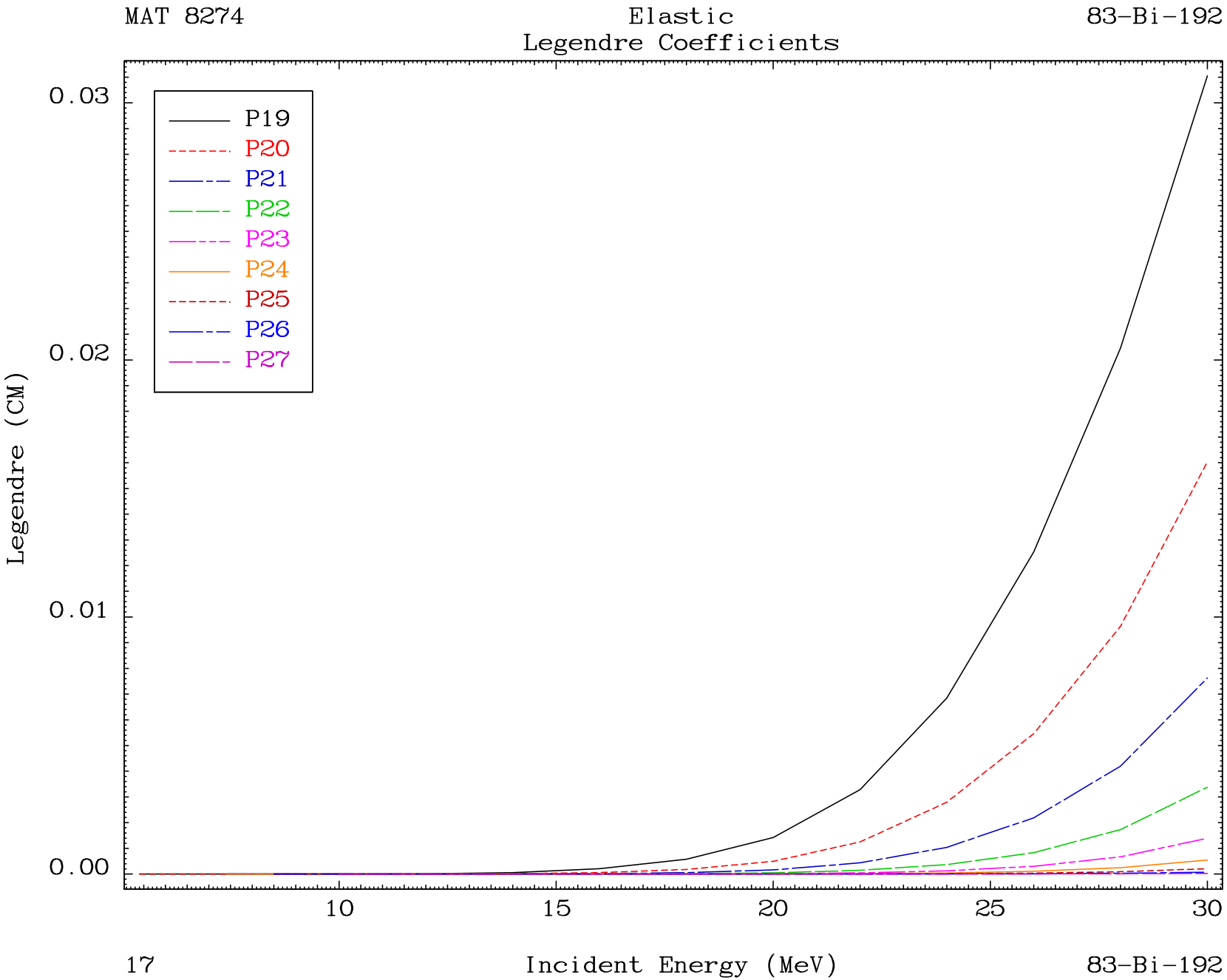

MAT 8274
(n,He3) Levels
83-Bi-192
293 Kelvin Cross Sections
(n,He-3)
Cross Section (barns)
Incident Energy (MeV)
12
83-Bi-192

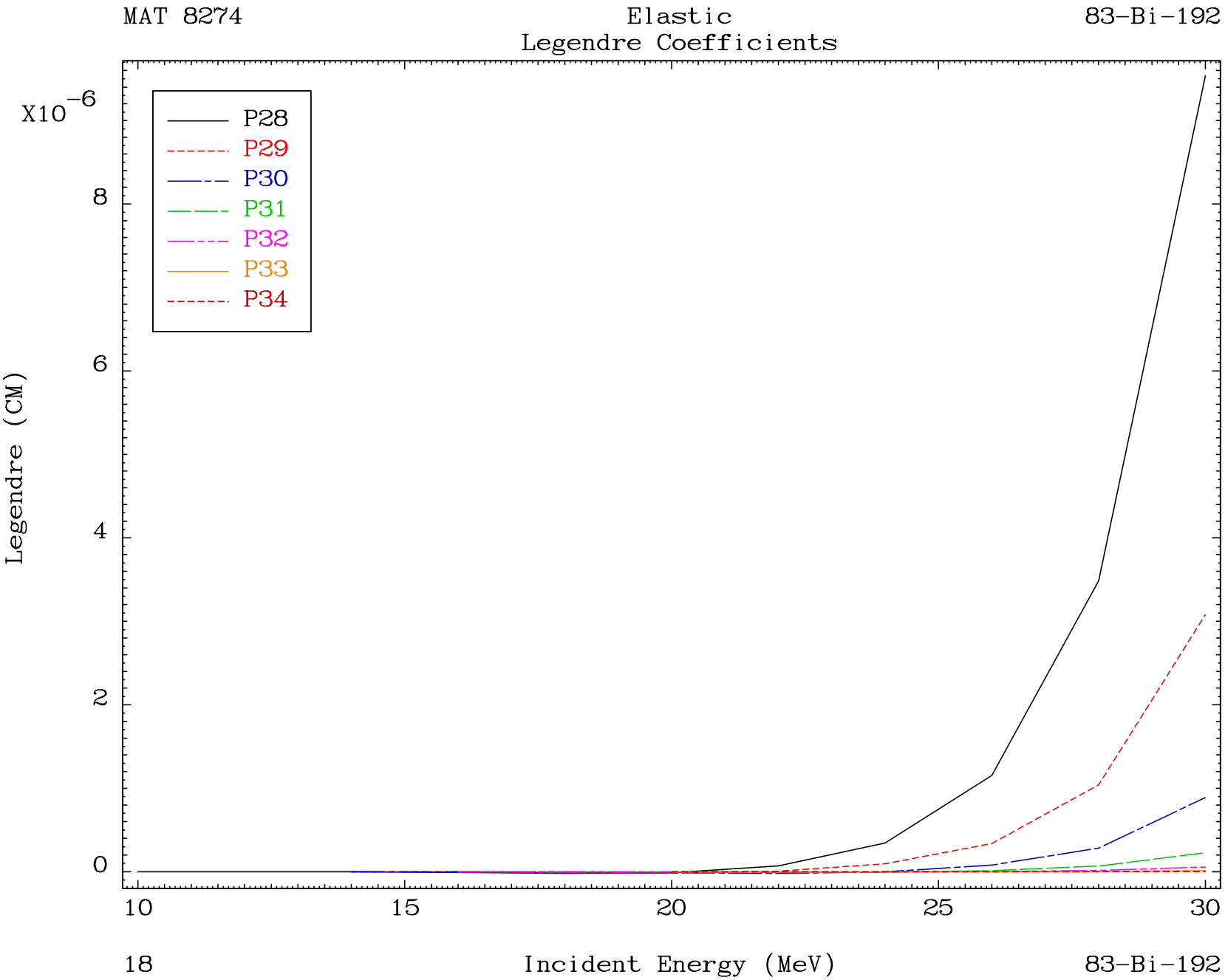

MAT 8274
(n,α) Levels
83-Bi-192
293 Kelvin Cross Sections
Cross Section (barns)
10^1
5
10^0
5
10^-1
5
10^-2
5
(n,α)
10^-10
10^-8
10^-6
10^-4
10^-2
10^0
10^2
13
Incident Energy (MeV)
83-Bi-192

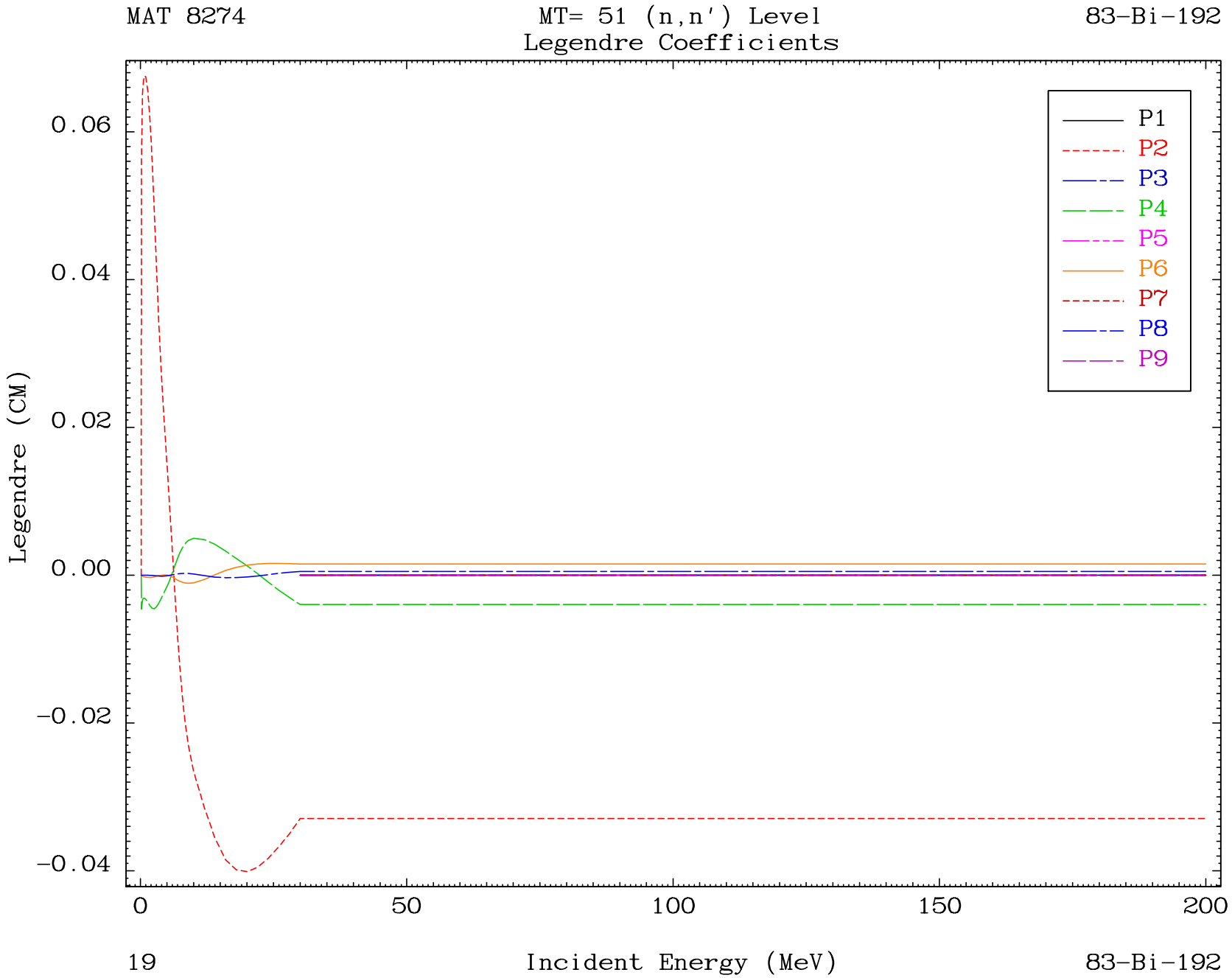

MAT 8274
Energy Release
Parameters
83-Bi-192
Kerma total (eV-barns)
Kerma elastic
Kerma non-elastic (all but mt2)
Kerma inelastic (mt51-91)
Kerma capture (mt102)
Total photon (eV-barns)
Total kinematic kerma (high limit)
Dpa total (eV-barns)
Dpa elastic (mt2)
Dpa inelastic (mt51-91)
Dpa disappearance (mt102 -120)
Parameters
Incident Energy (MeV)
14
83-Bi-192

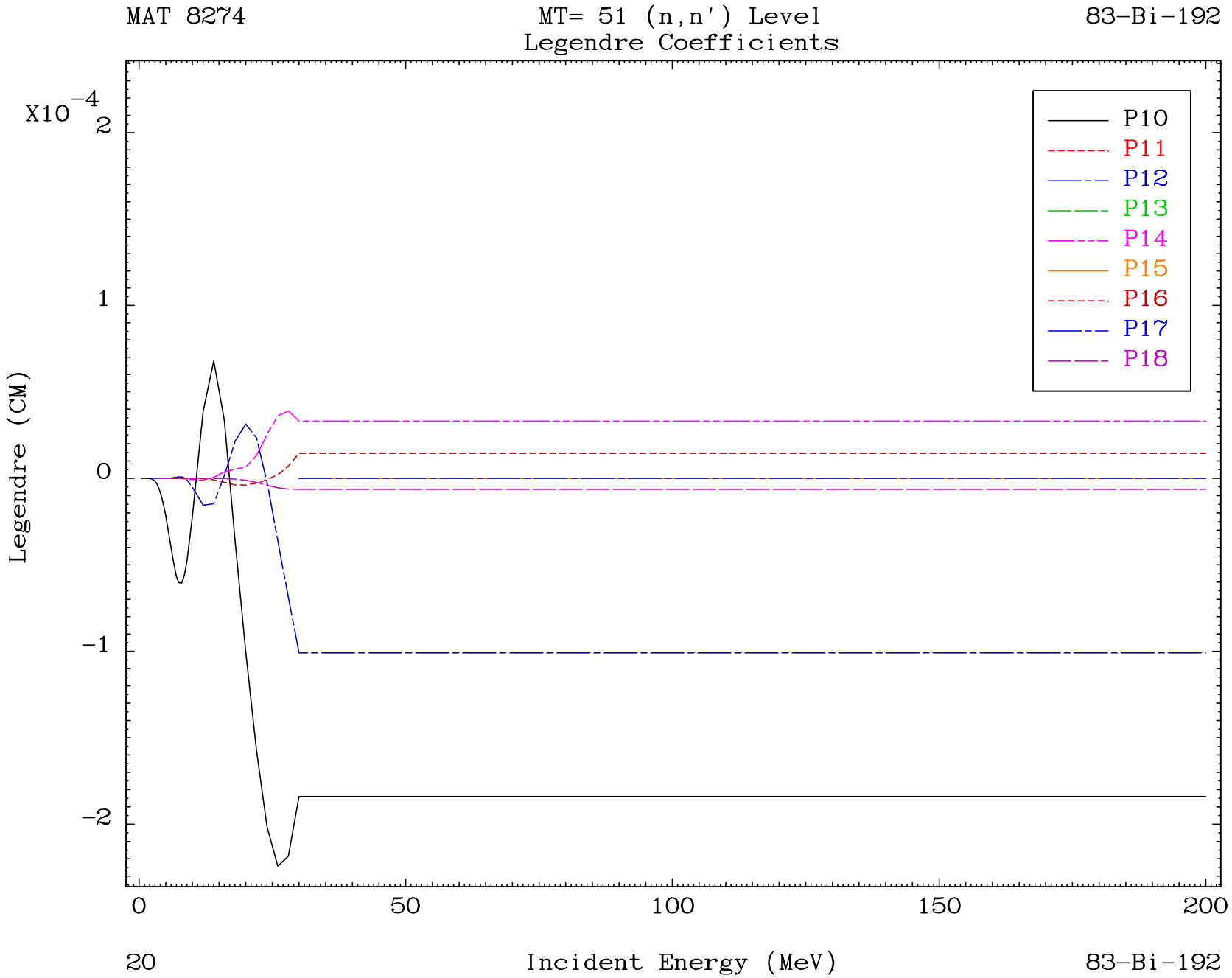

MAT 8274
Elastic
Legendre Coefficients
83-Bi-192
Legendre (CM)
0.0
0.2
0.4
0.6
0.8
0
10
20
30
15
Incident Energy (MeV)
83-Bi-192
P1
P2
P3
P4
P5
P6
P7
P8
P9

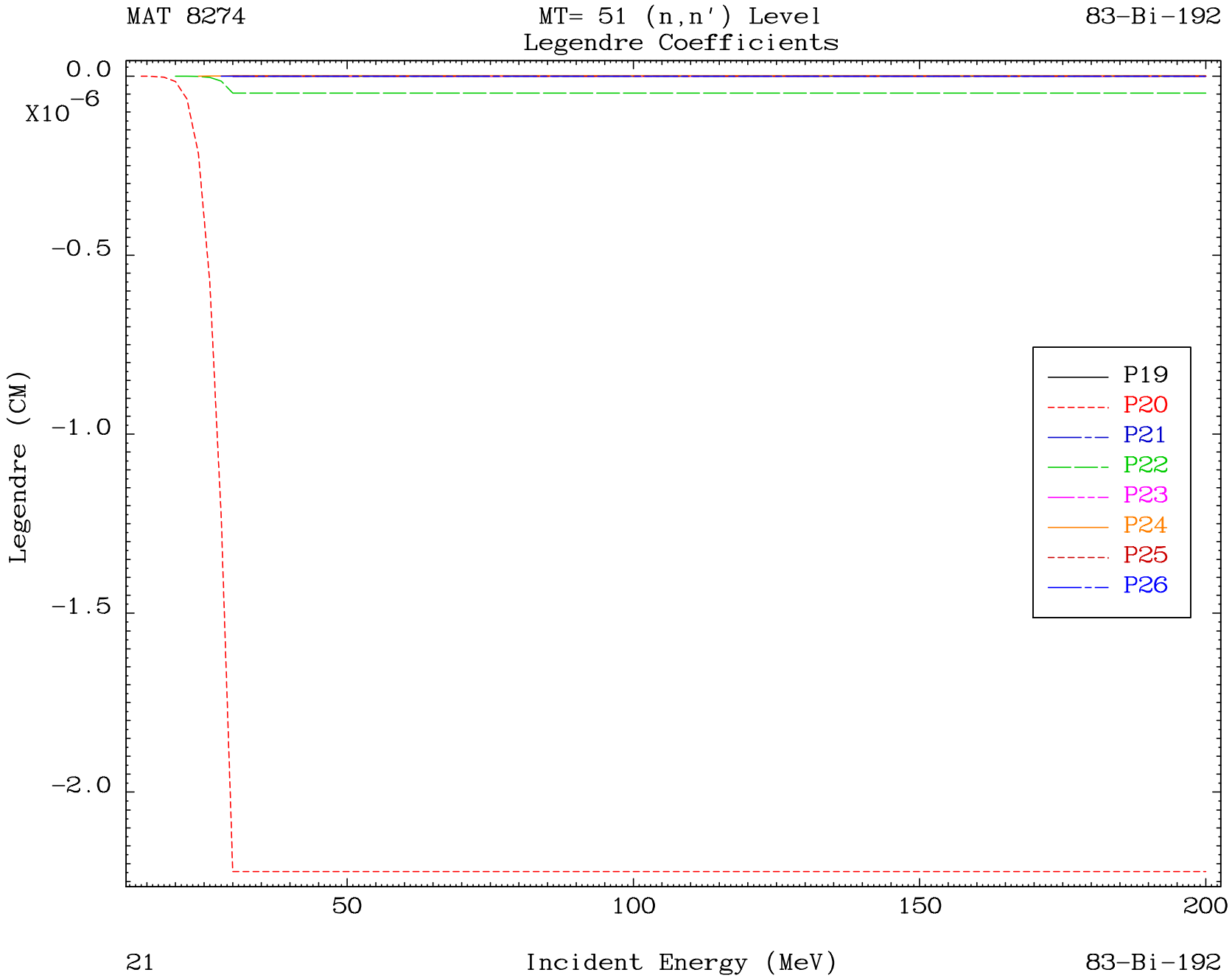

MAT 8274
Elastic
Legendre Coefficients
83-Bi-192
P10
P11
P12
P13
P14
P15
P16
P17
P18
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
5
10
15
20
25
30
16
Incident Energy (MeV)
83-Bi-192

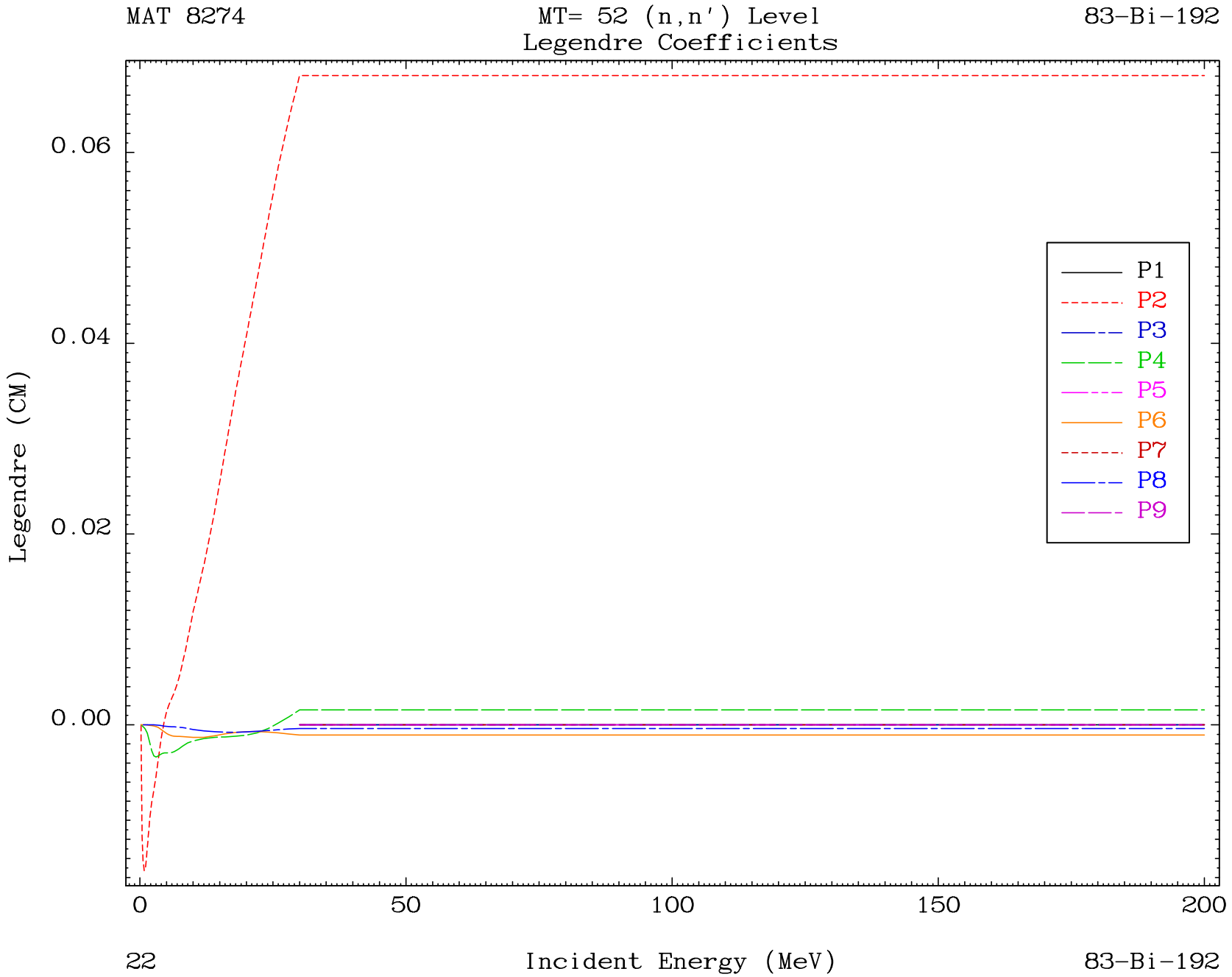

MAT 8274
Elastic
Legendre Coefficients
83-Bi-192
P19
P20
P21
P22
P23
P24
P25
P26
P27
0.03
0.02
0.01
0.00
Legendre (CM)
10
15
20
25
30
17
Incident Energy (MeV)
83-Bi-192

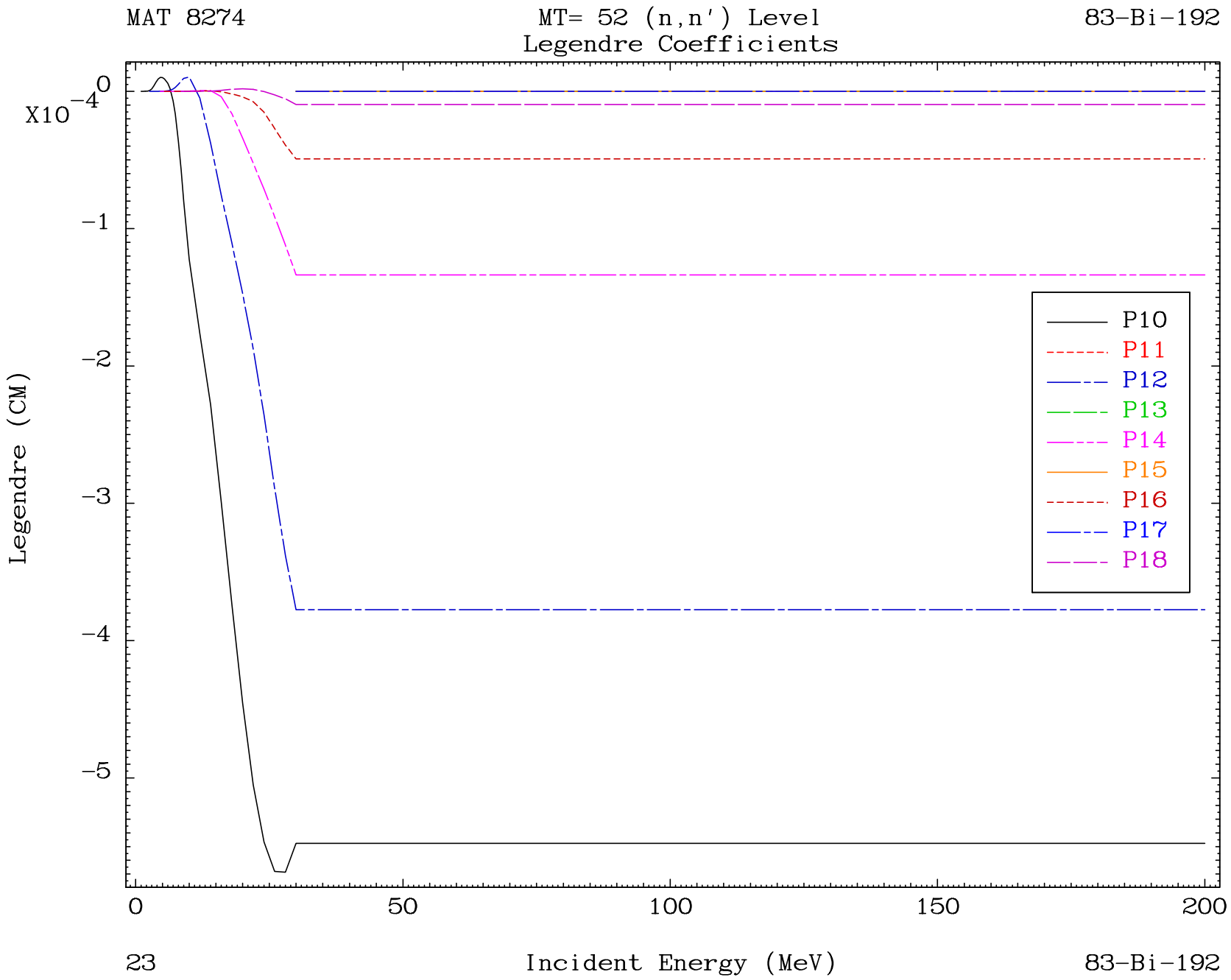

MAT 8274
Elastic
Legendre Coefficients
83-Bi-192
X10 −6
8
6
4
2
0
Legendre (CM)
P28
P29
P30
P31
P32
P33
P34
10
15
20
25
30
18
Incident Energy (MeV)
83-Bi-192

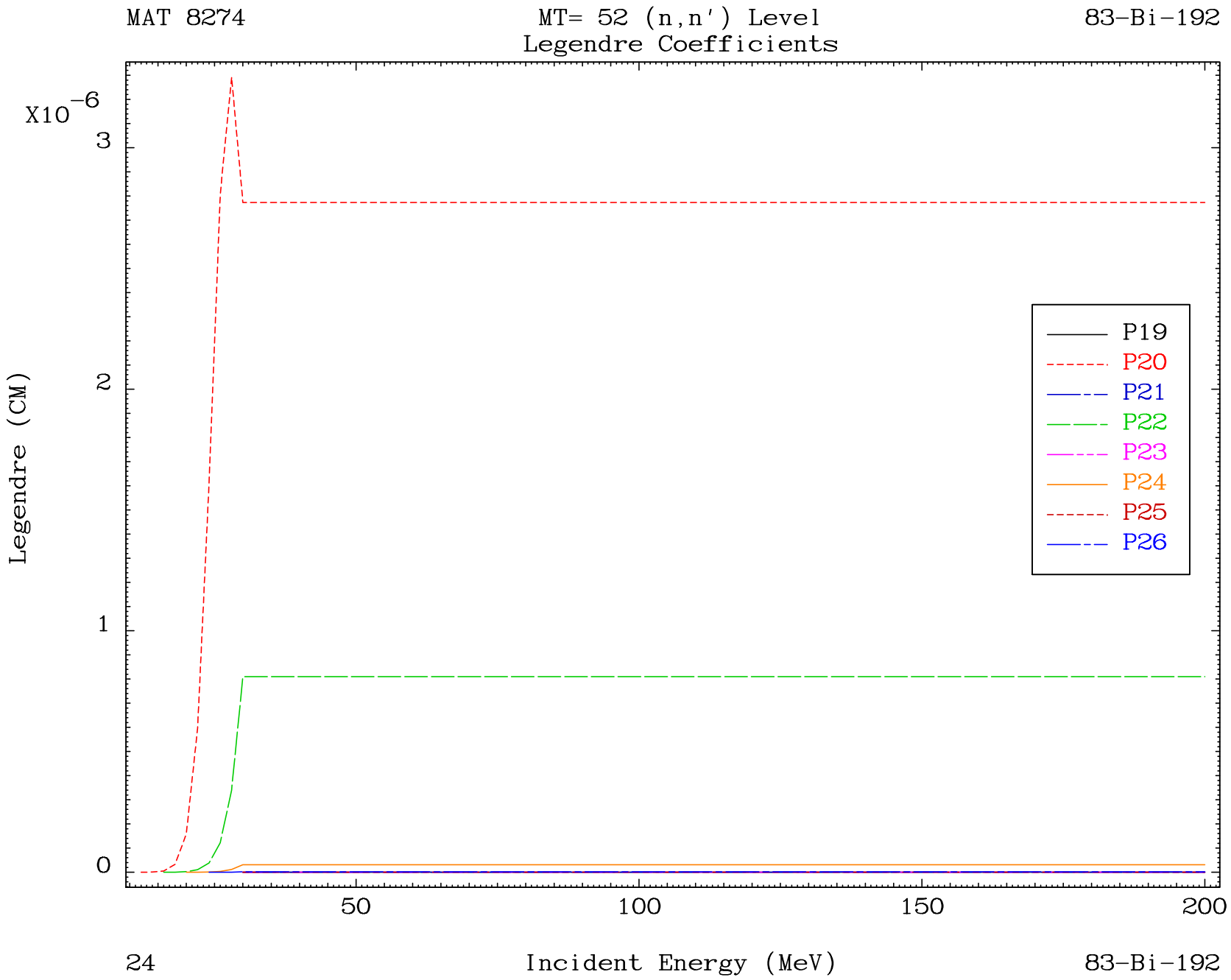

MAT 8274
MT= 51 (n,n') Level
Legendre Coefficients
83-Bi-192
0.06
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
Incident Energy (MeV)
P1
P2
P3
P4
P5
P6
P7
P8
P9
19
83-Bi-192

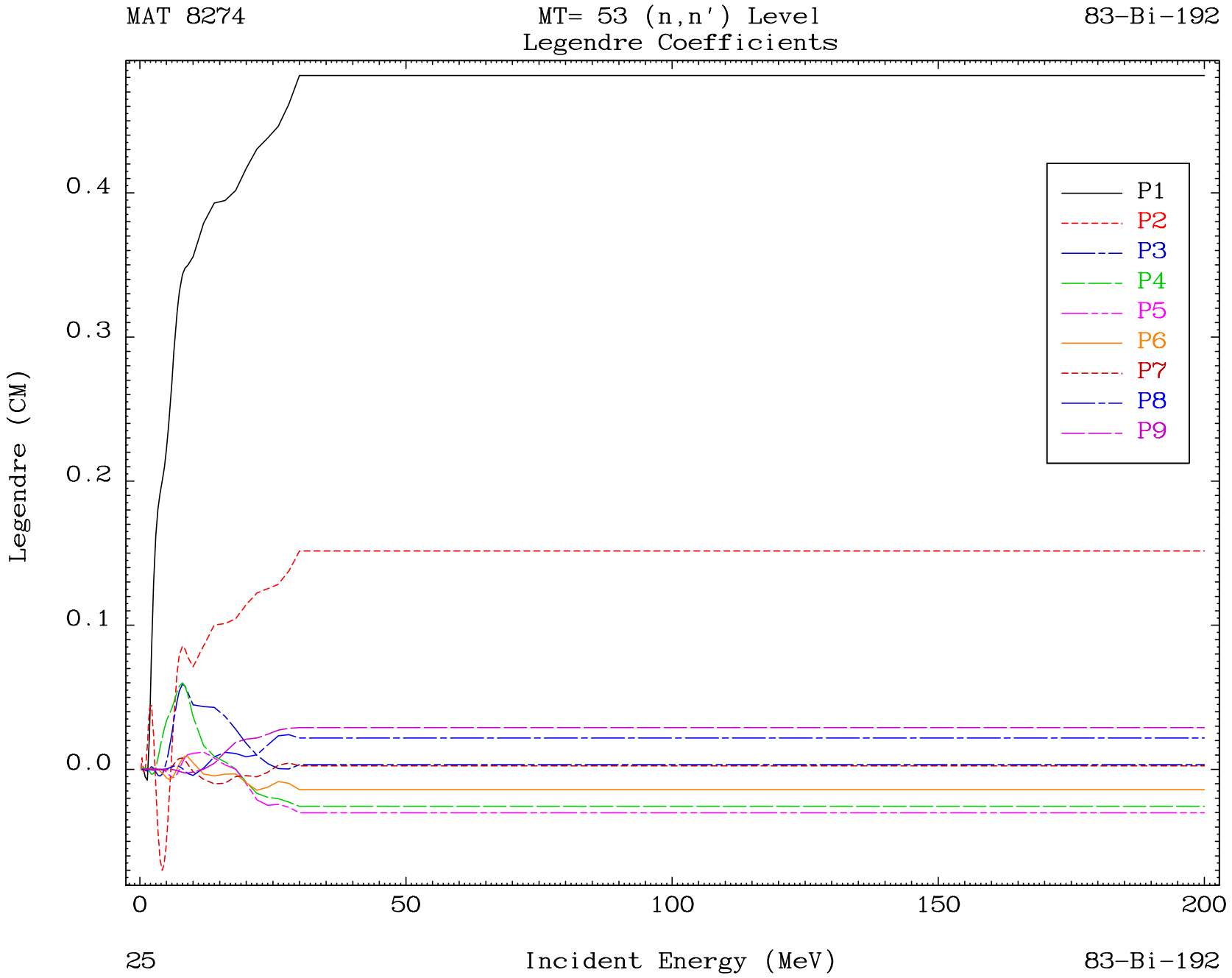

MAT 8274
MT= 51 (n,n') Level
Legendre Coefficients
83-Bi-192
X10^-4
2
1
0
-1
-2
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
20
Incident Energy (MeV)
83-Bi-192

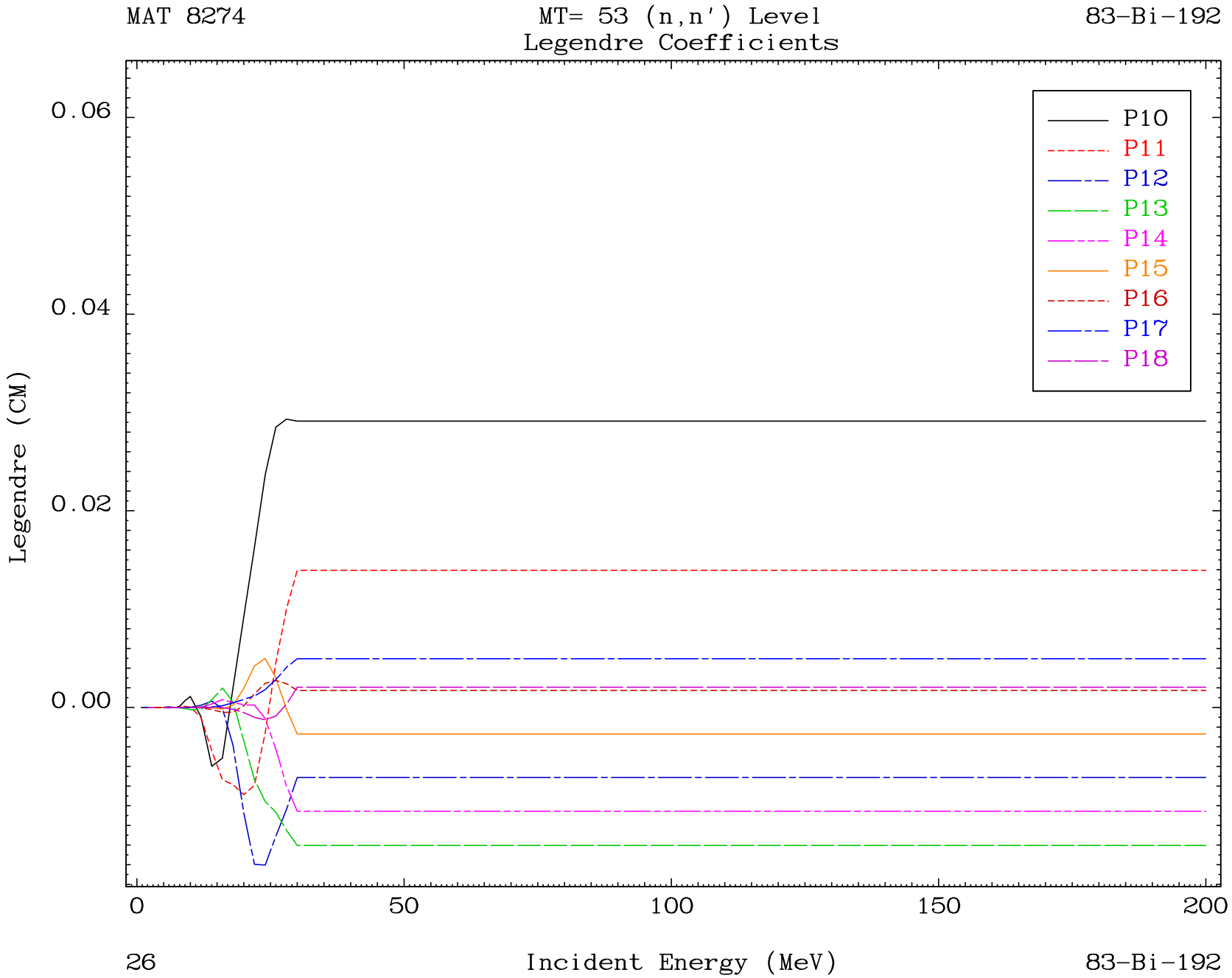

MAT 8274
MT= 51 (n,n') Level
Legendre Coefficients
83-Bi-192
0.0
X10^-6
-0.5
-1.0
-1.5
-2.0
Legendre (CM)
50
100
150
200
21
Incident Energy (MeV)
83-Bi-192
P19
P20
P21
P22
P23
P24
P25
P26

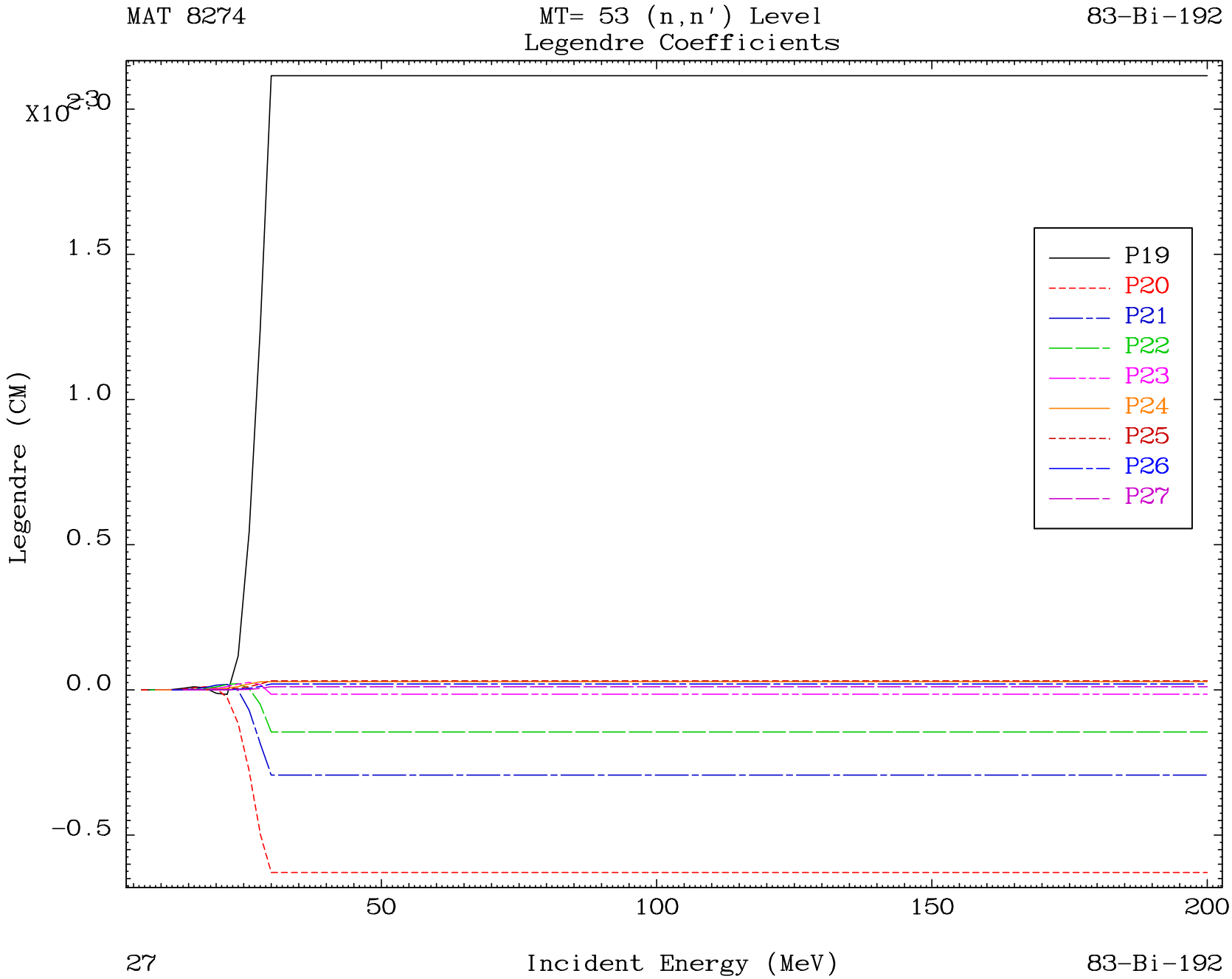

MAT 8274
MT= 52 (n,n') Level
Legendre Coefficients
83-Bi-192
0.06
0.04
0.02
0.00
Legendre (CM)
P1
P2
P3
P4
P5
P6
P7
P8
P9
0
50
100
150
200
22
Incident Energy (MeV)
83-Bi-192

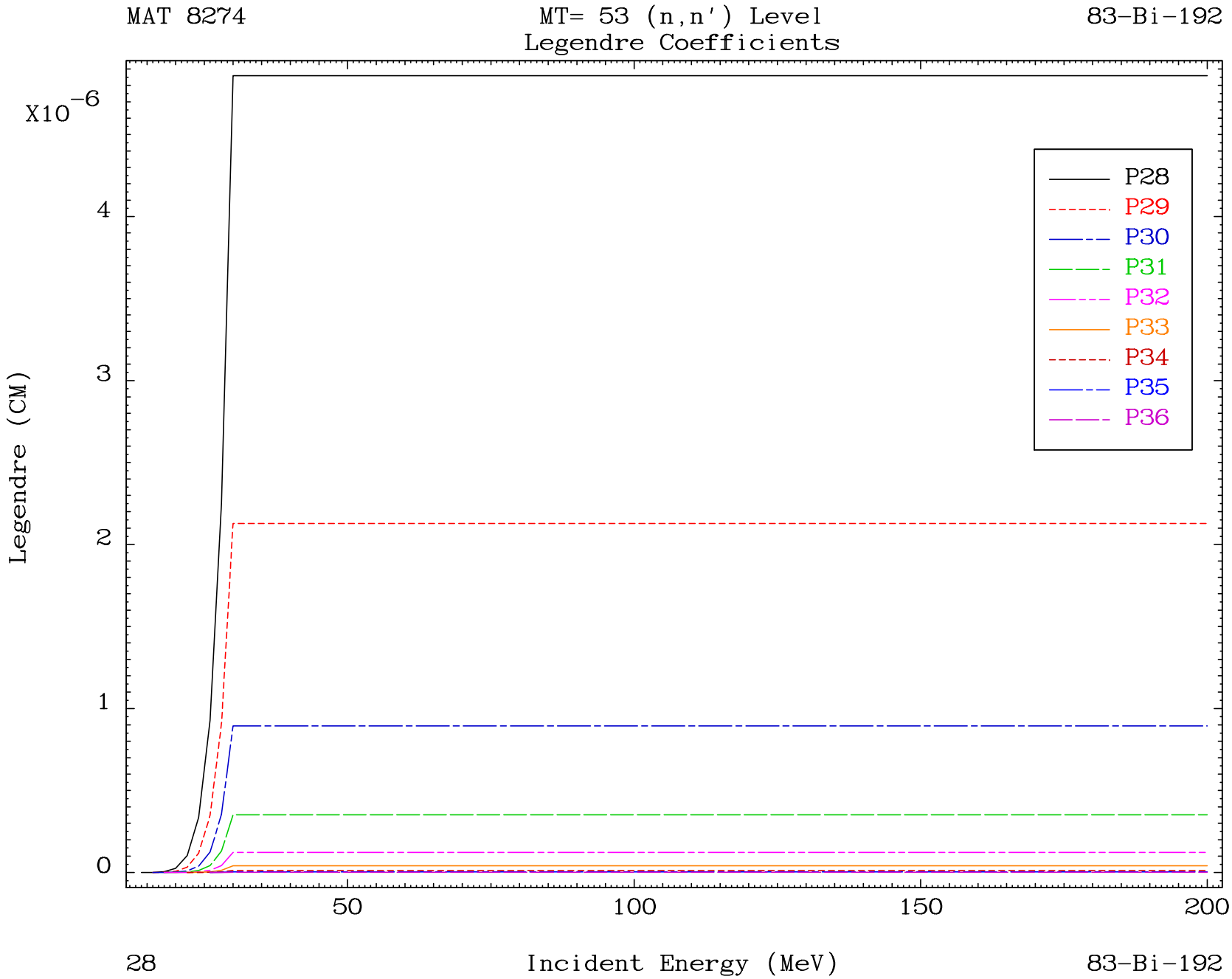

MAT 8274
MT= 52 (n,n') Level
Legendre Coefficients
83-Bi-192
X10^-4
0
-1
-2
-3
-4
-5
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
23
Incident Energy (MeV)
83-Bi-192

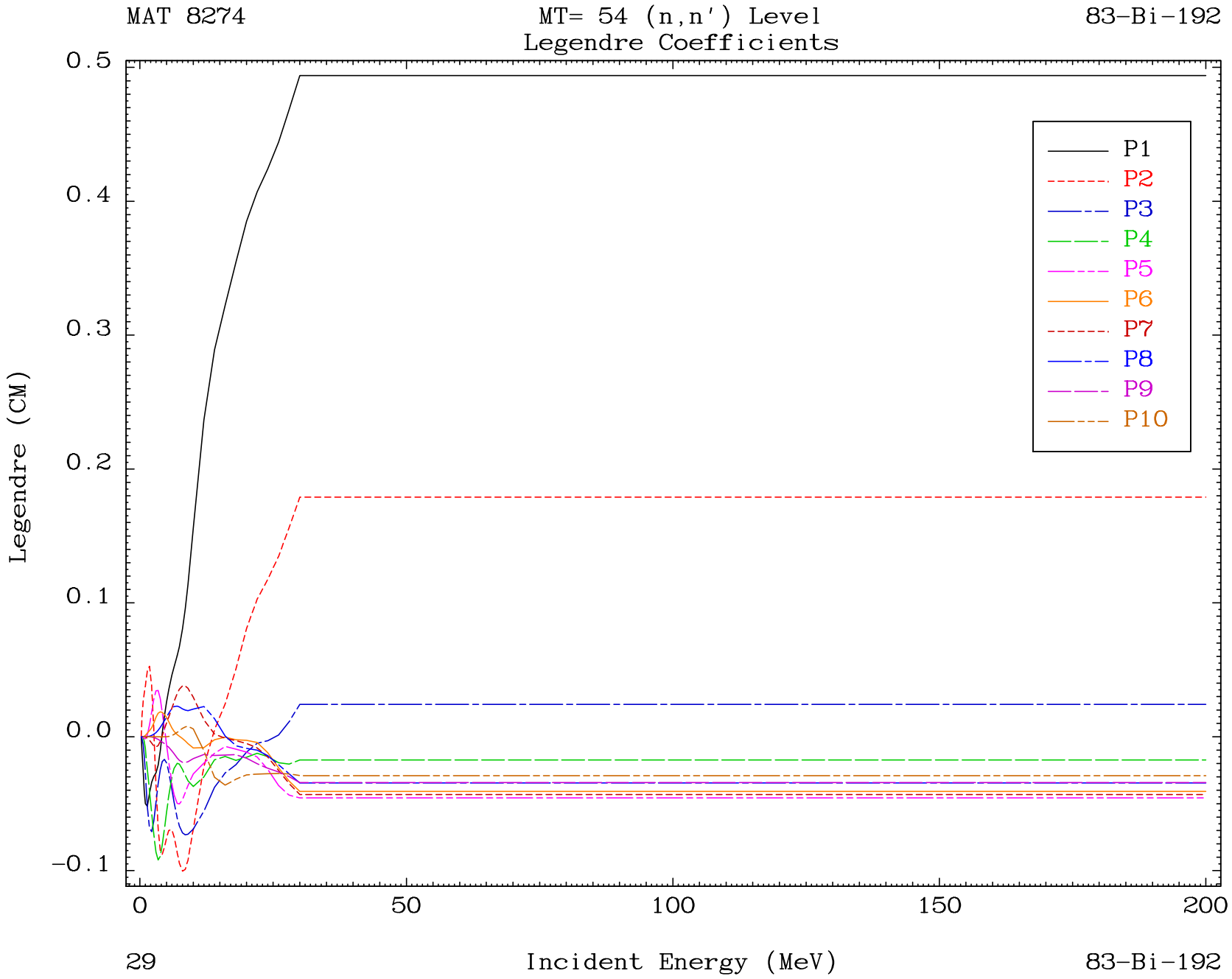

MAT 8274
MT= 52 (n,n') Level
Legendre Coefficients
83-Bi-192
X10^-6
3
2
1
0
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
50
100
150
200
24
Incident Energy (MeV)
83-Bi-192

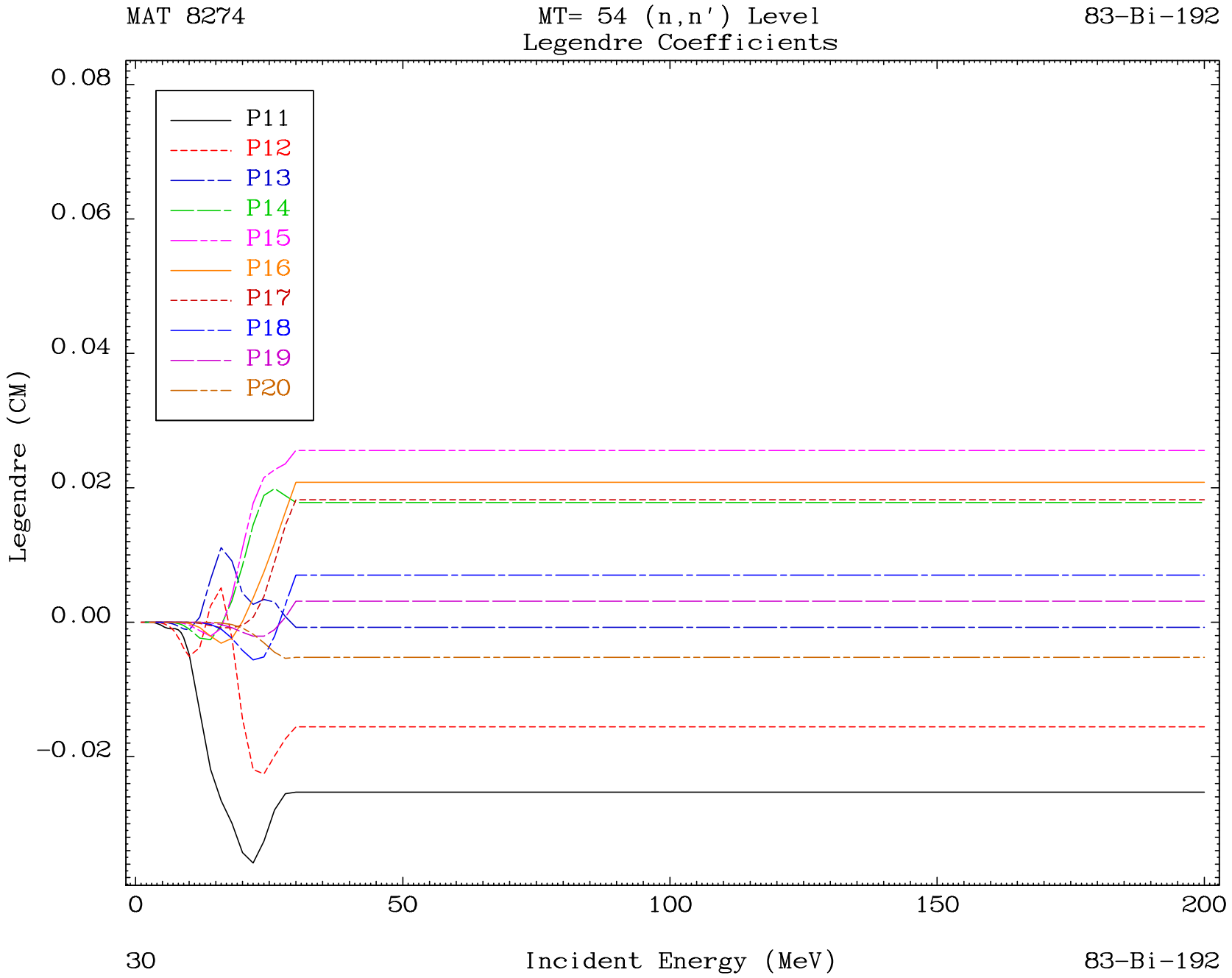

MAT 8274
MT= 53 (n,n') Level
Legendre Coefficients
83-Bi-192
Legendre (CM)
0.4
0.3
0.2
0.1
0.0
0
50
100
150
200
25
Incident Energy (MeV)
83-Bi-192
P1
P2
P3
P4
P5
P6
P7
P8
P9

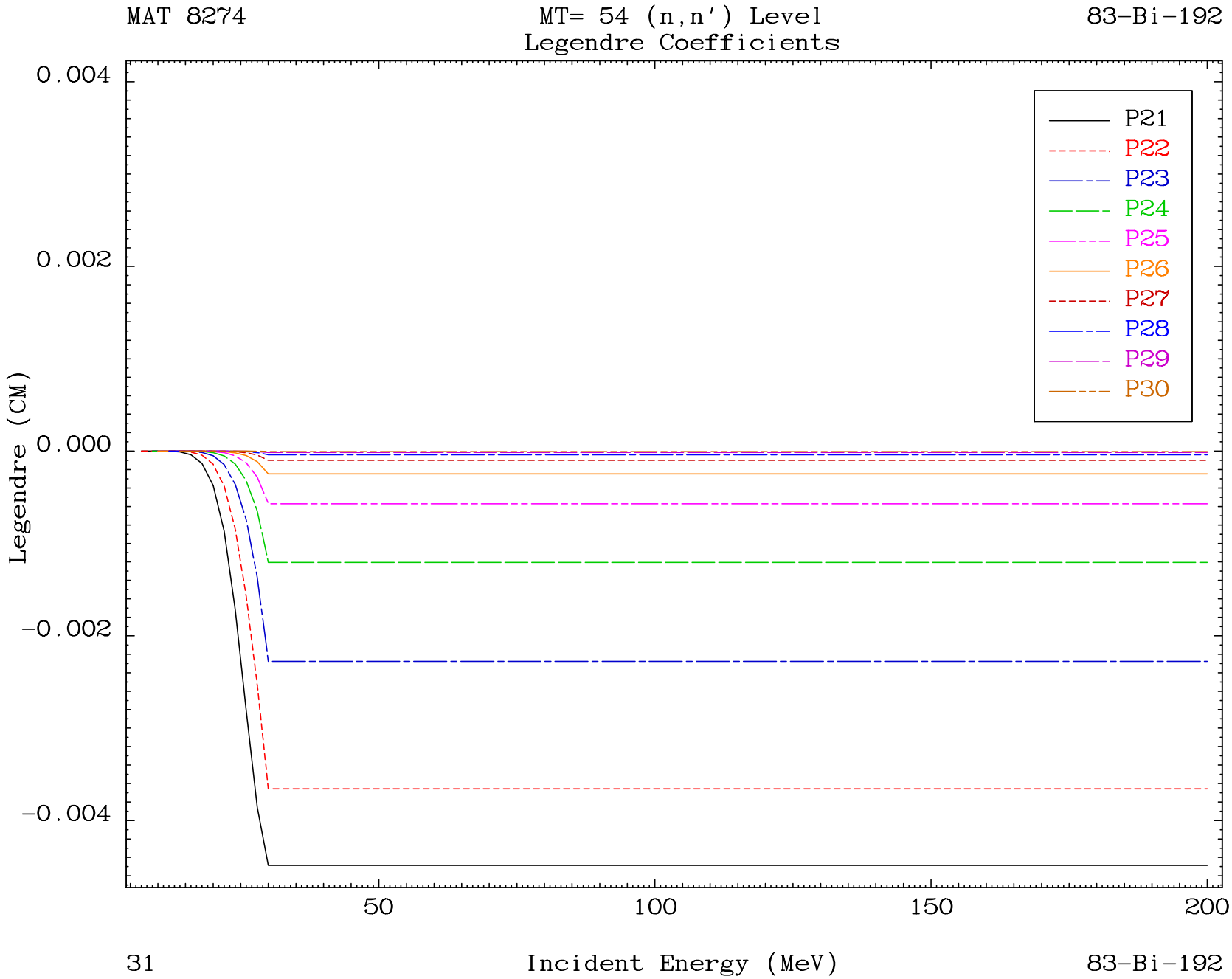

MAT 8274
MT= 53 (n,n') Level
Legendre Coefficients
83-Bi-192
0.06
0.04
0.02
0.00
Legendre (CM)
P10
P11
P12
P13
P14
P15
P16
P17
P18
0
50
100
150
200
26
Incident Energy (MeV)
83-Bi-192

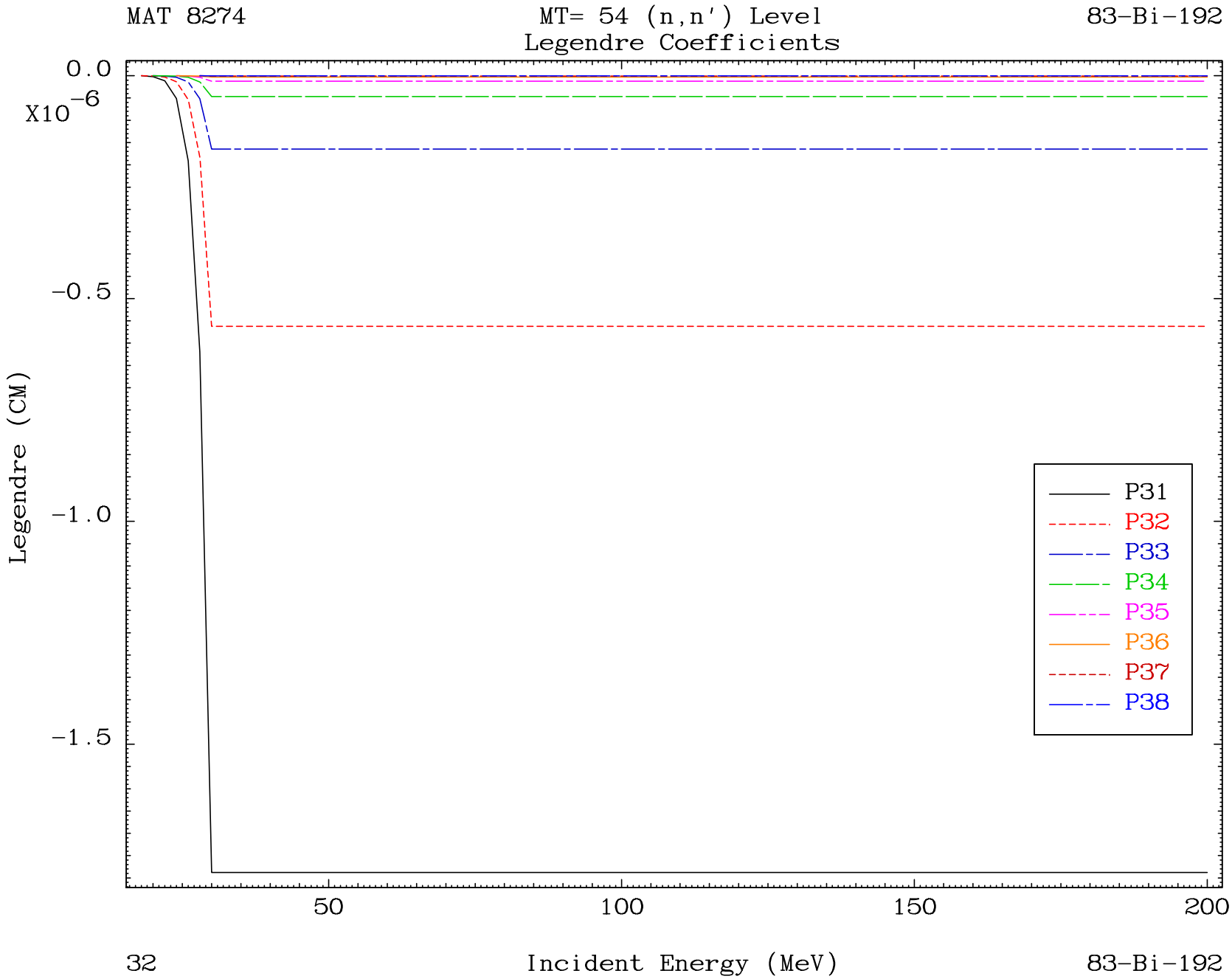

MAT 8274
MT= 53 (n,n') Level
Legendre Coefficients
83-Bi-192
X10^-30
2.3
1.5
1.0
0.5
0.0
-0.5
Legendre (CM)
P19
P20
P21
P22
P23
P24
P25
P26
P27
50
100
150
200
27
Incident Energy (MeV)
83-Bi-192

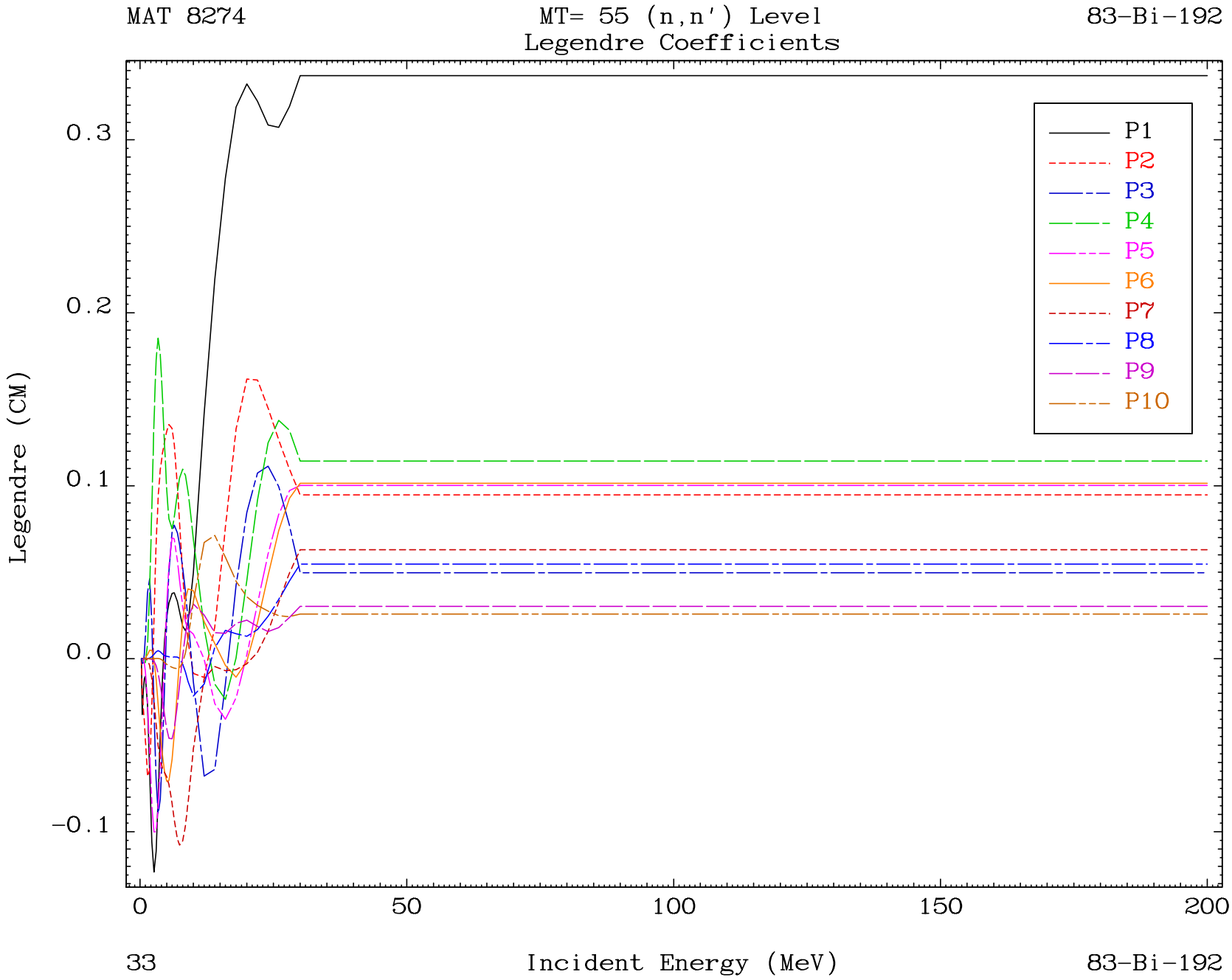

MAT 8274
MT= 53 (n,n') Level
Legendre Coefficients
83-Bi-192
X10^-6
4
3
2
1
0
Legendre (CM)
50
100
150
200
28
Incident Energy (MeV)
83-Bi-192
P28
P29
P30
P31
P32
P33
P34
P35
P36

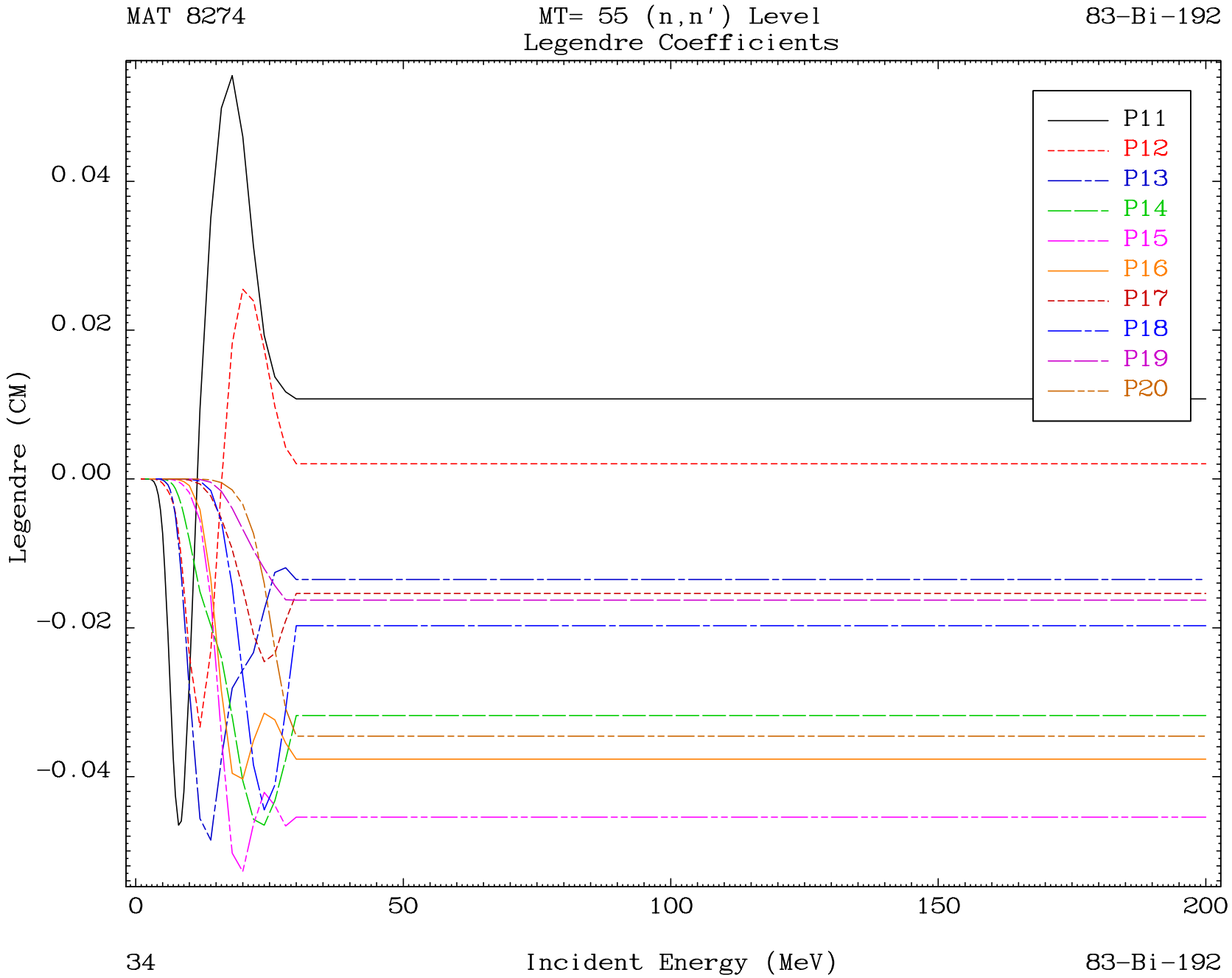

MAT 8274
MT= 54 (n,n') Level
Legendre Coefficients
83-Bi-192
Legendre (CM)
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
Incident Energy (MeV)
29
83-Bi-192
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10

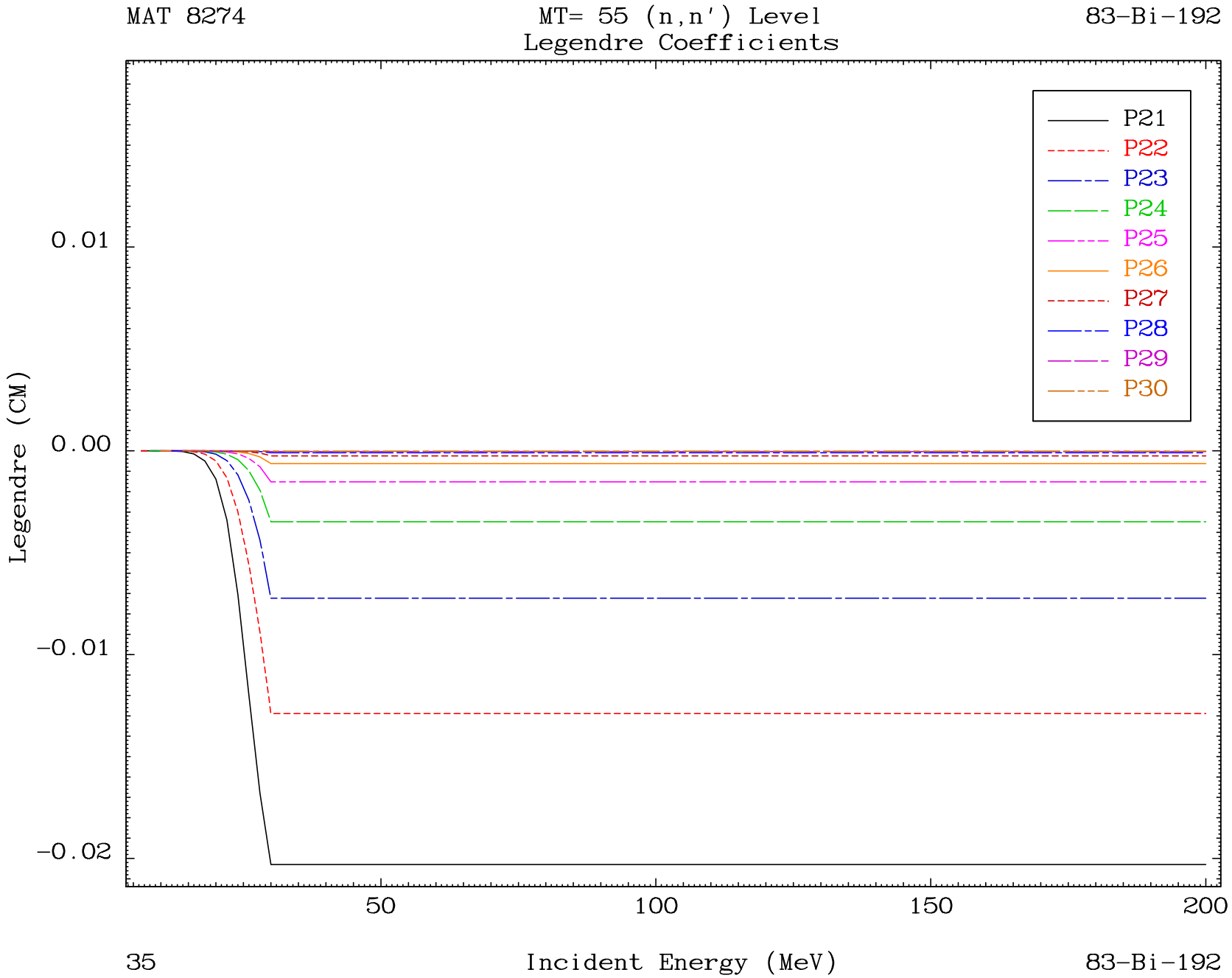

MAT 8274
MT= 54 (n,n') Level
Legendre Coefficients
83-Bi-192
P11
P12
P13
P14
P15
P16
P17
P18
P19
P20
0.08
0.06
0.04
0.02
0.00
-0.02
Legendre (CM)
0
50
100
150
200
30
Incident Energy (MeV)
83-Bi-192

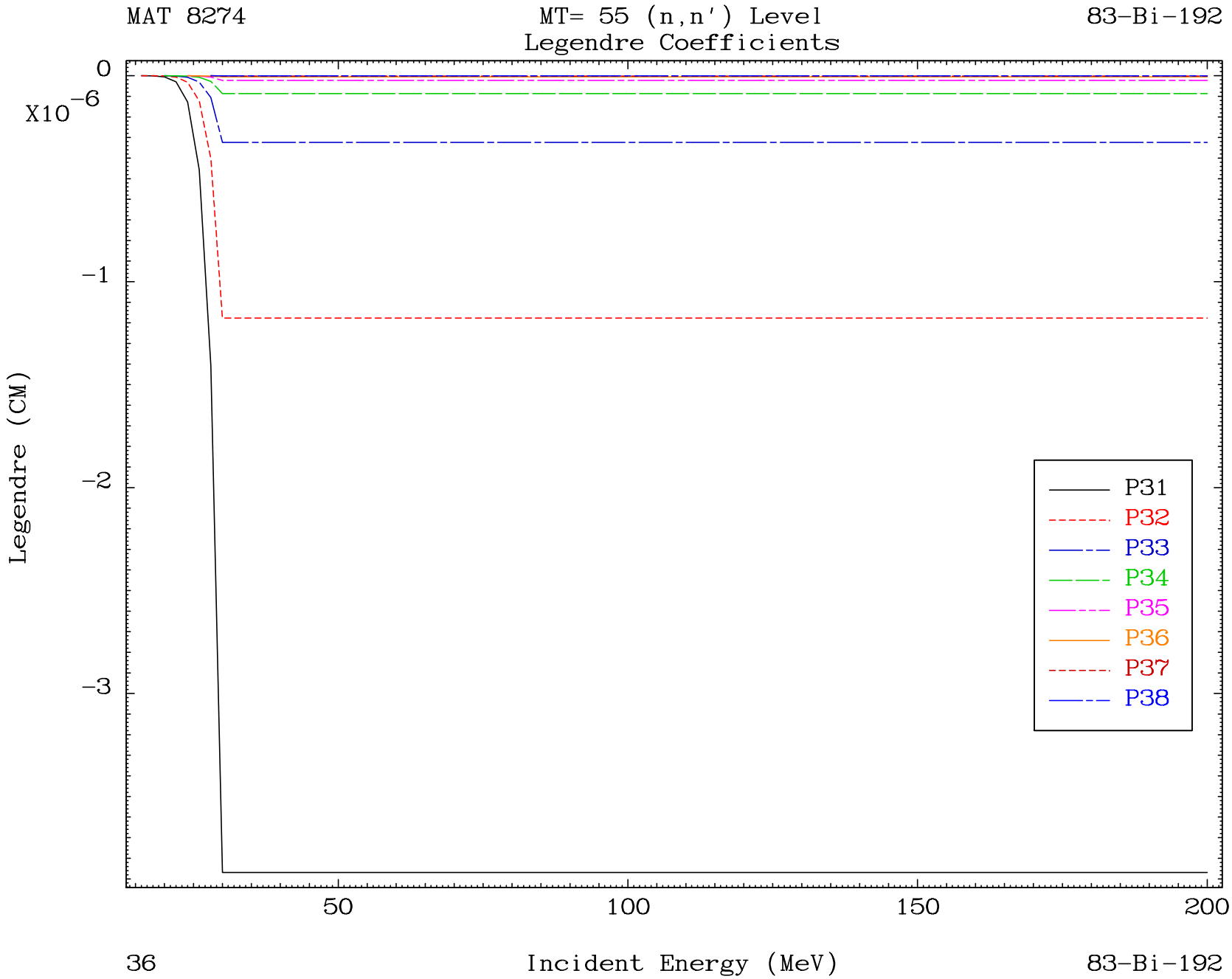

MAT 8274
MT= 54 (n,n') Level
Legendre Coefficients
83-Bi-192
0.004
0.002
0.000
-0.002
-0.004
Legendre (CM)
P21
P22
P23
P24
P25
P26
P27
P28
P29
P30
50
100
150
200
31
Incident Energy (MeV)
83-Bi-192

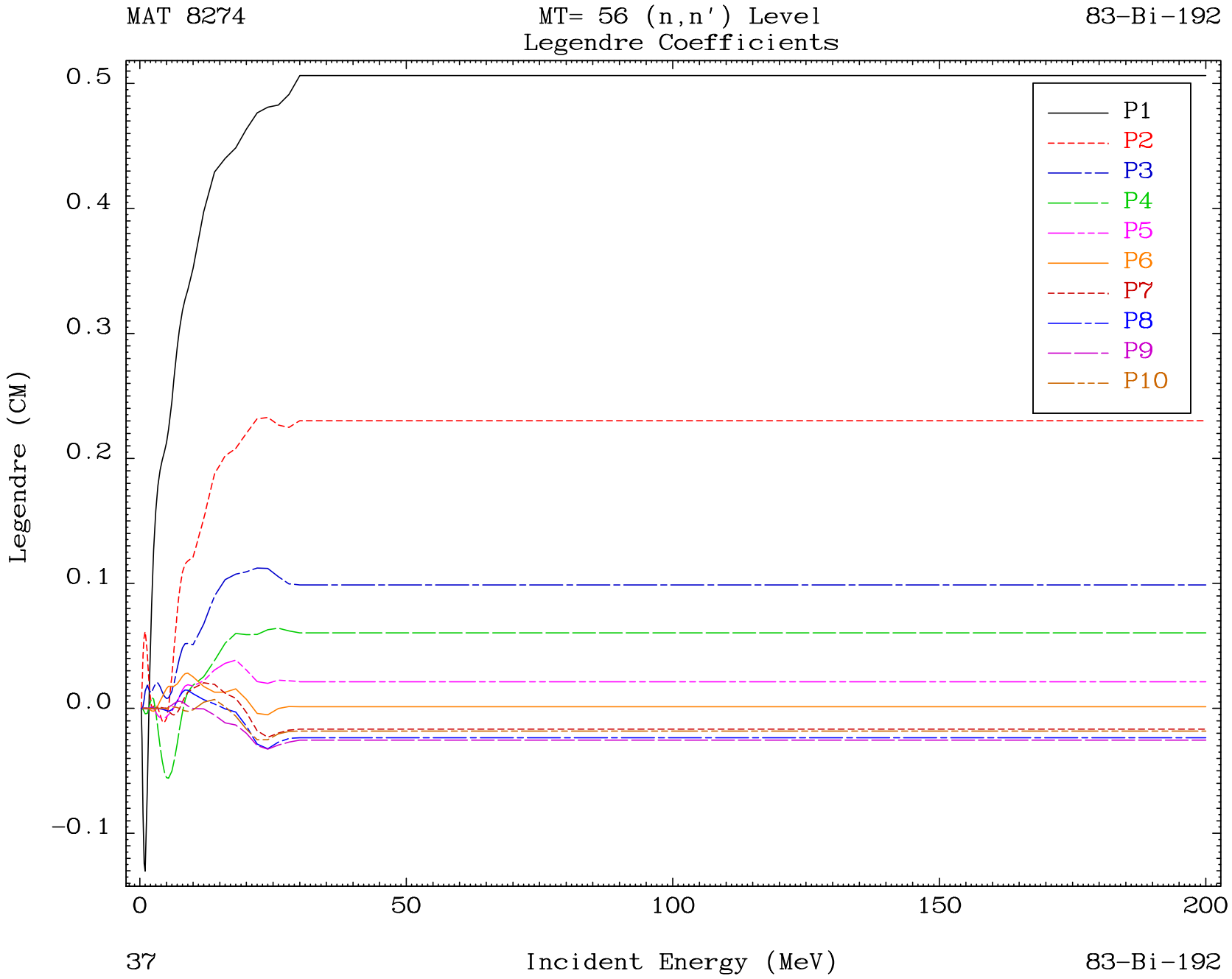

MAT 8274
MT= 54 (n,n') Level
Legendre Coefficients
83-Bi-192
0.0
X10^-6
-0.5
-1.0
-1.5
Legendre (CM)
50
100
150
200
32
Incident Energy (MeV)
83-Bi-192
P31
P32
P33
P34
P35
P36
P37
P38

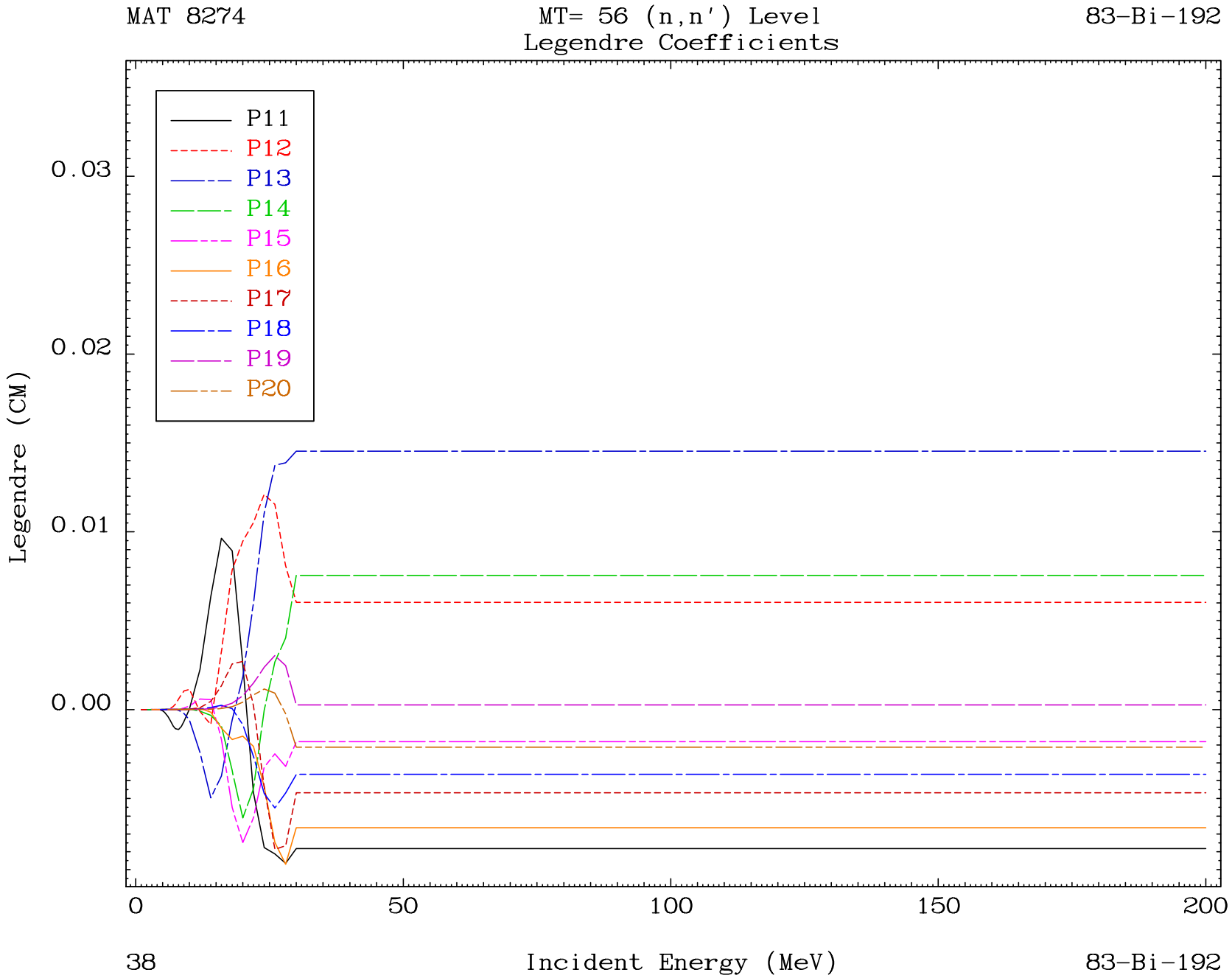

MAT 8274
MT= 55 (n,n') Level
Legendre Coefficients
83-Bi-192
Legendre (CM)
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
33
Incident Energy (MeV)
83-Bi-192
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10

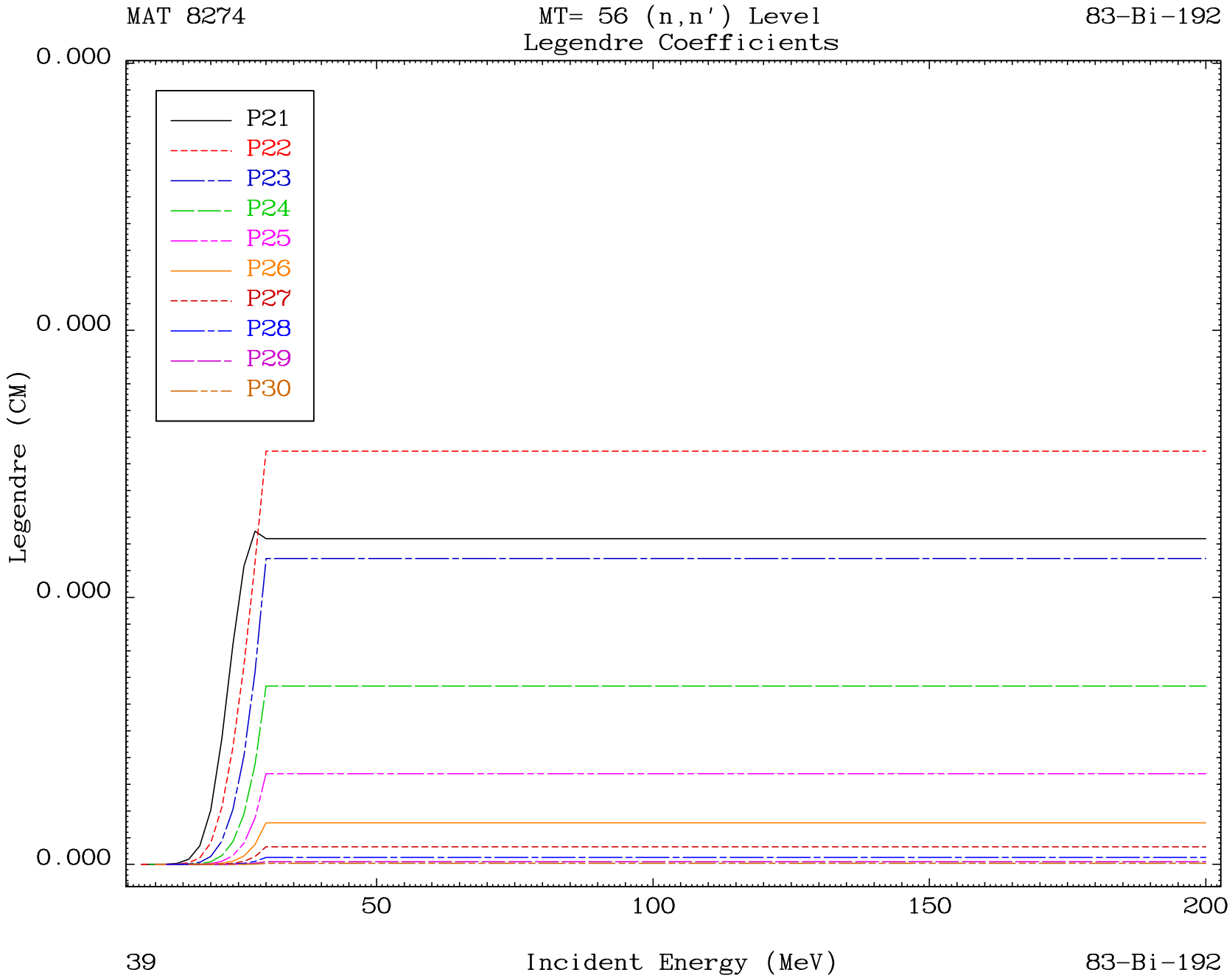

MAT 8274
MT= 55 (n,n') Level
Legendre Coefficients
83-Bi-192
P11
P12
P13
P14
P15
P16
P17
P18
P19
P20
0.04
0.02
0.00
-0.02
-0.04
Legendre (CM)
0
50
100
150
200
34
Incident Energy (MeV)
83-Bi-192

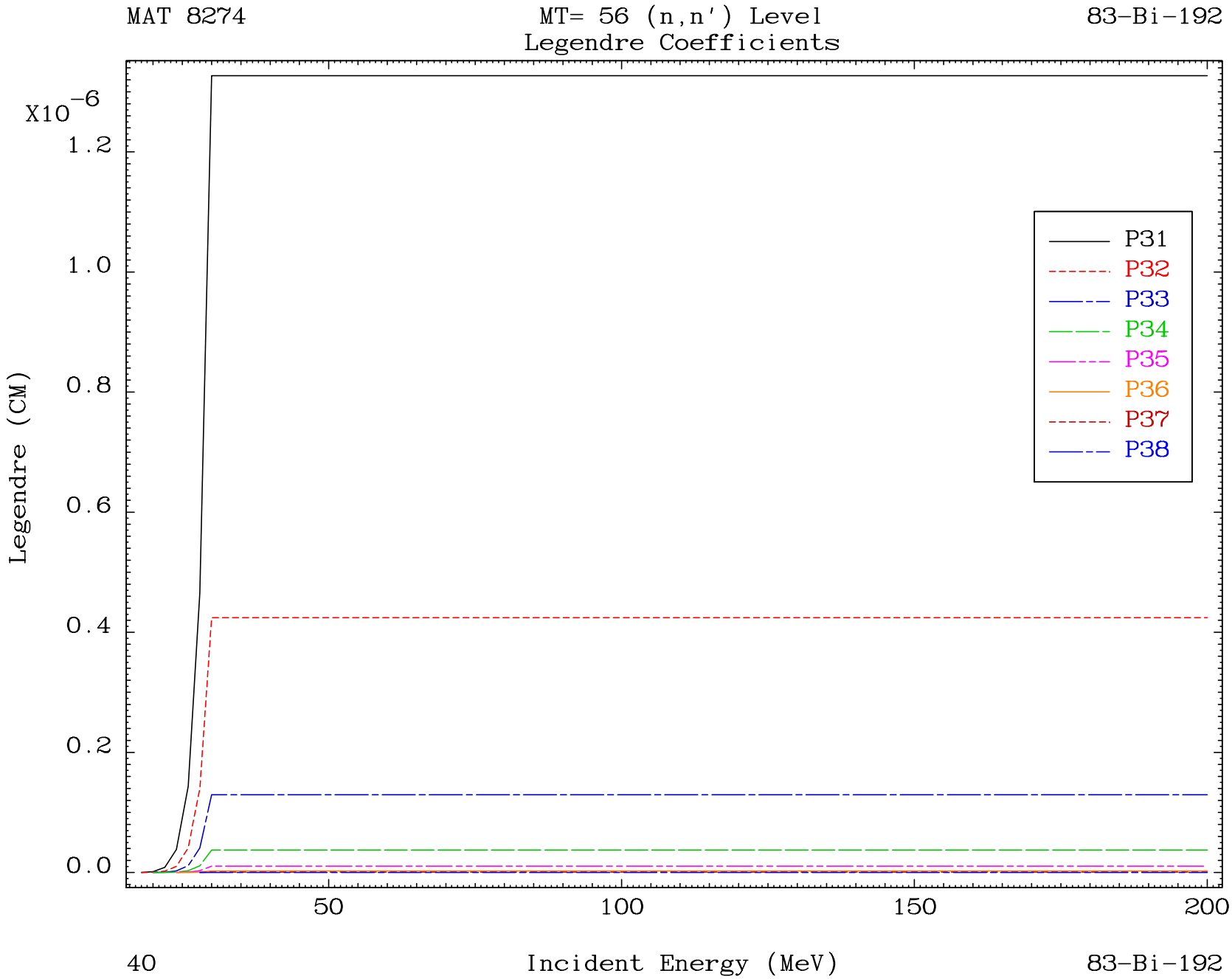

MAT 8274
MT= 55 (n,n') Level
Legendre Coefficients
83-Bi-192
P21
P22
P23
P24
P25
P26
P27
P28
P29
P30
0.01
0.00
-0.01
-0.02
Legendre (CM)
50
100
150
200
35
Incident Energy (MeV)
83-Bi-192

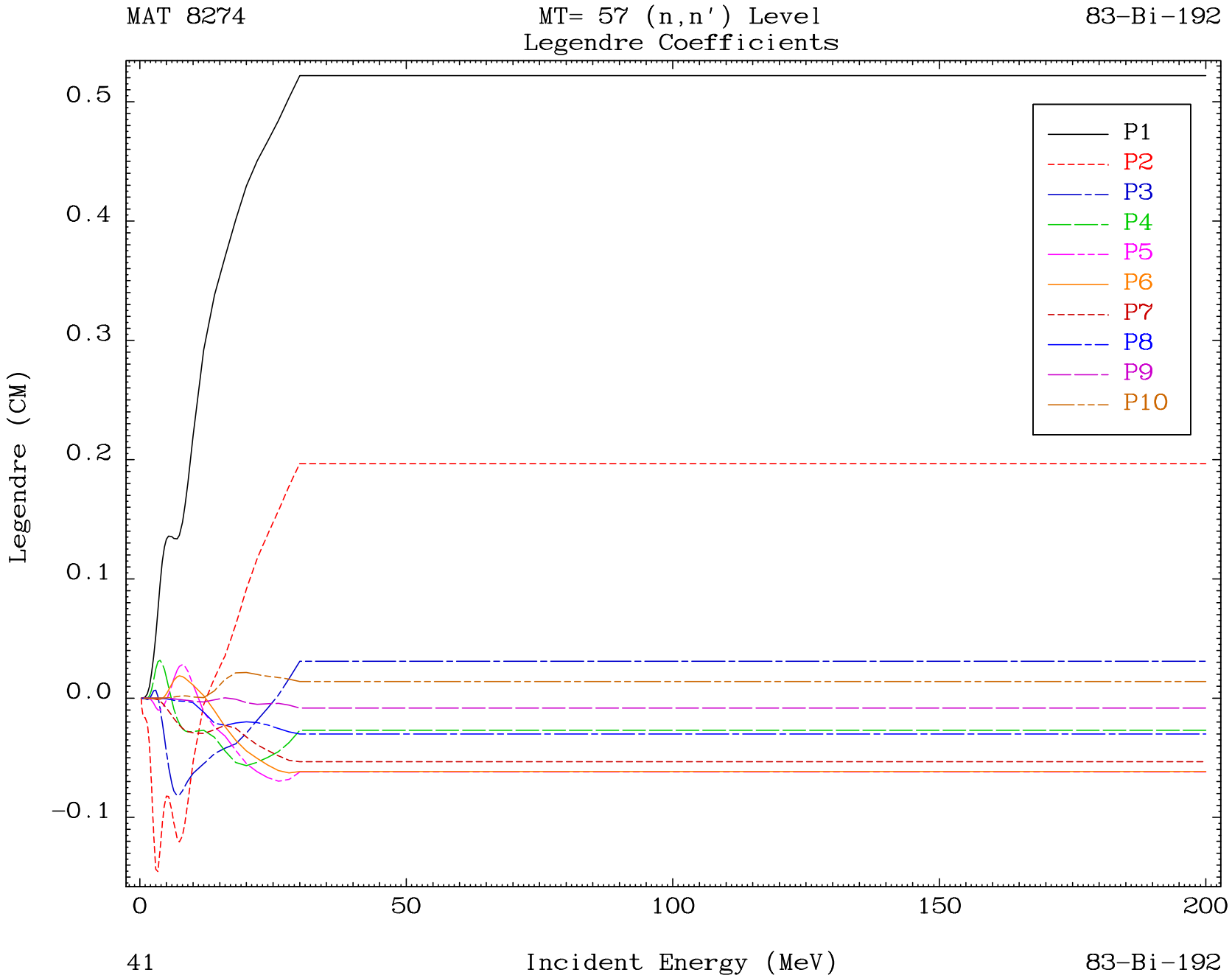

MAT 8274
MT= 55 (n,n') Level
Legendre Coefficients
83-Bi-192
0
X10 −6
−1
−2
−3
Legendre (CM)
50
100
150
200
36
Incident Energy (MeV)
83-Bi-192
P31
P32
P33
P34
P35
P36
P37
P38

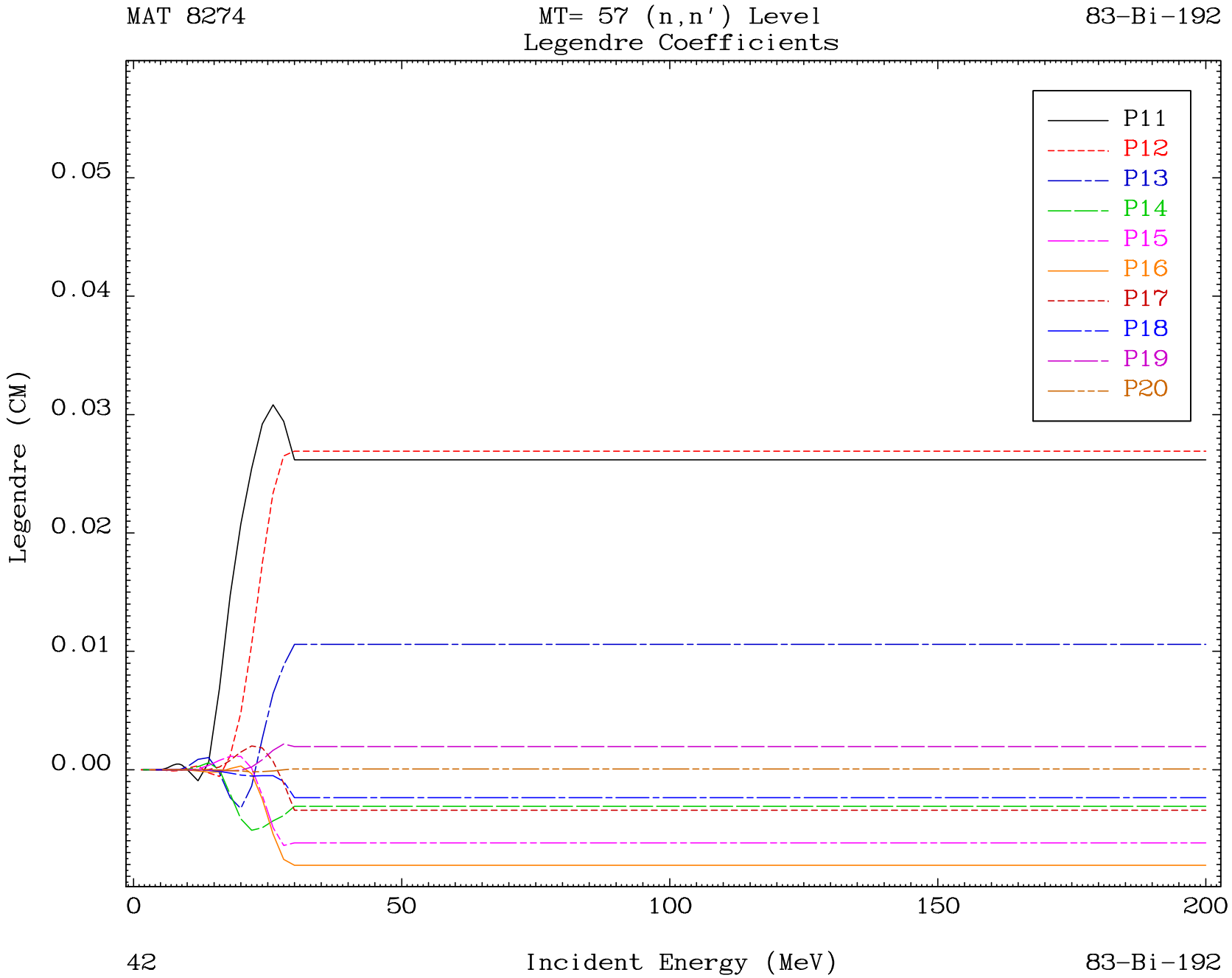

MAT 8274
MT= 56 (n,n') Level
Legendre Coefficients
83-Bi-192
Legendre (CM)
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
37
Incident Energy (MeV)
83-Bi-192
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10

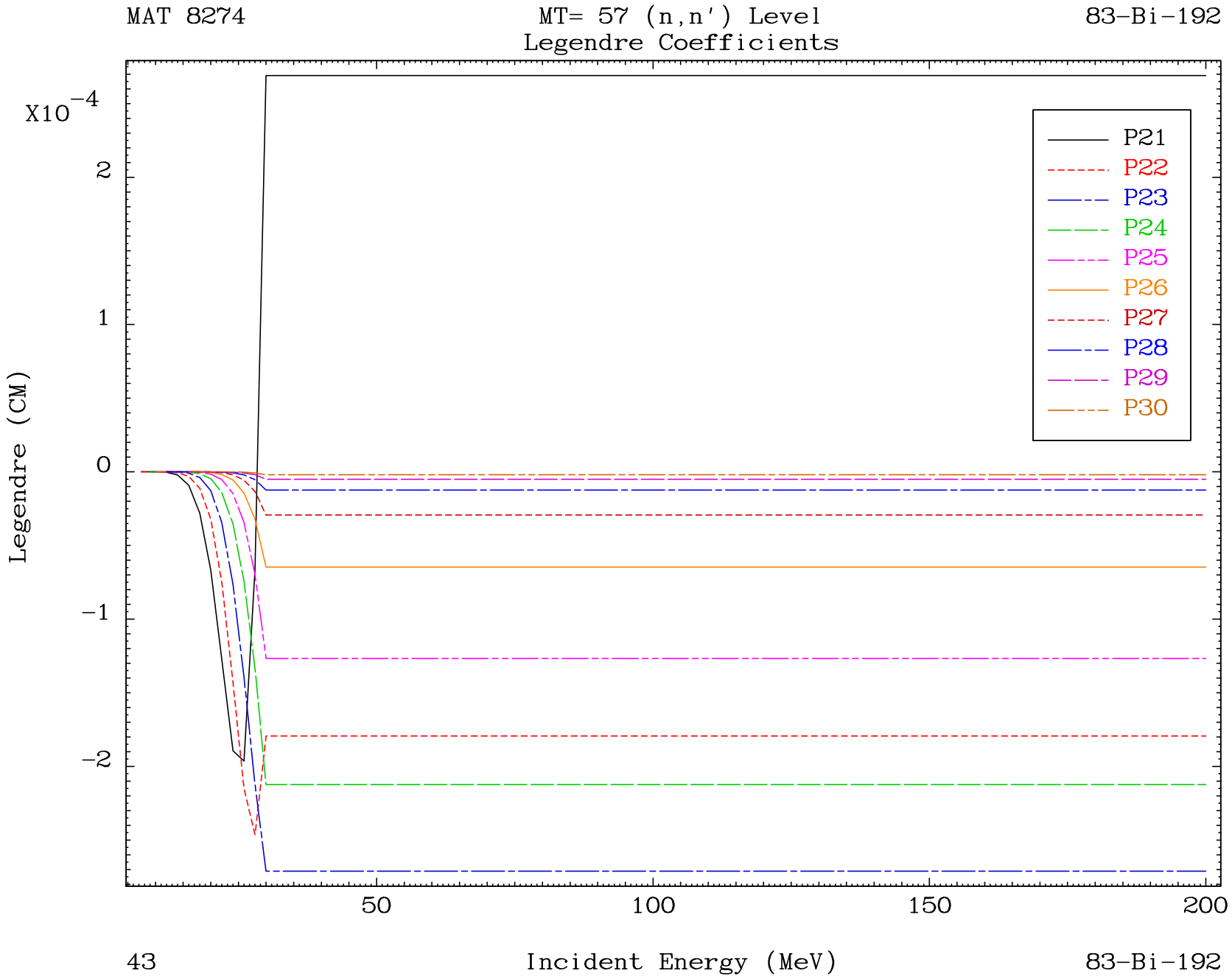

MAT 8274
MT= 56 (n,n') Level
Legendre Coefficients
83-Bi-192
P11
P12
P13
P14
P15
P16
P17
P18
P19
P20
0.03
0.02
0.01
0.00
Legendre (CM)
0
50
100
150
200
38
Incident Energy (MeV)
83-Bi-192

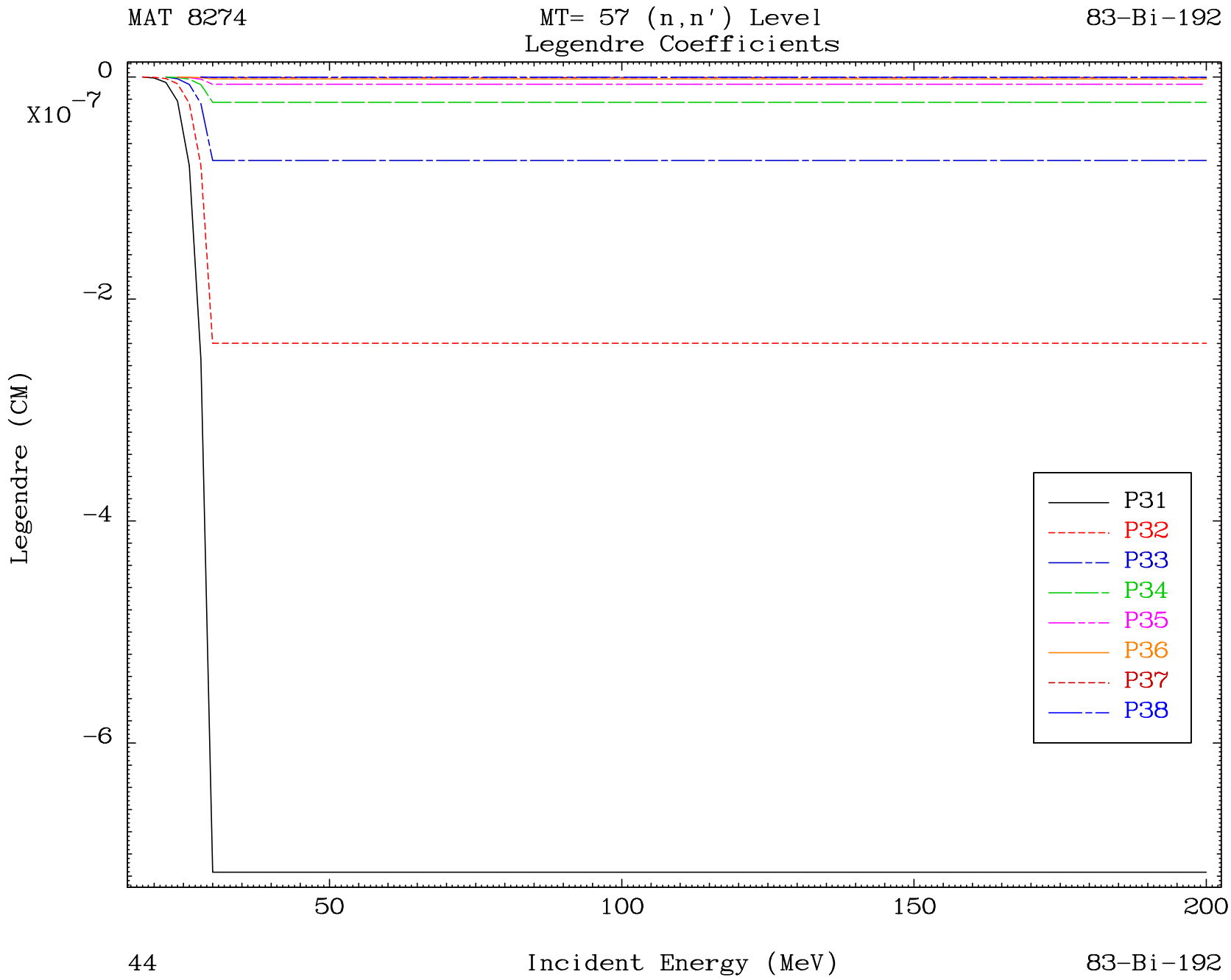

MAT 8274
MT= 56 (n,n') Level
Legendre Coefficients
83-Bi-192
P21
P22
P23
P24
P25
P26
P27
P28
P29
P30
0.000
0.000
0.000
0.000
Legendre (CM)
50
100
150
200
39
Incident Energy (MeV)
83-Bi-192

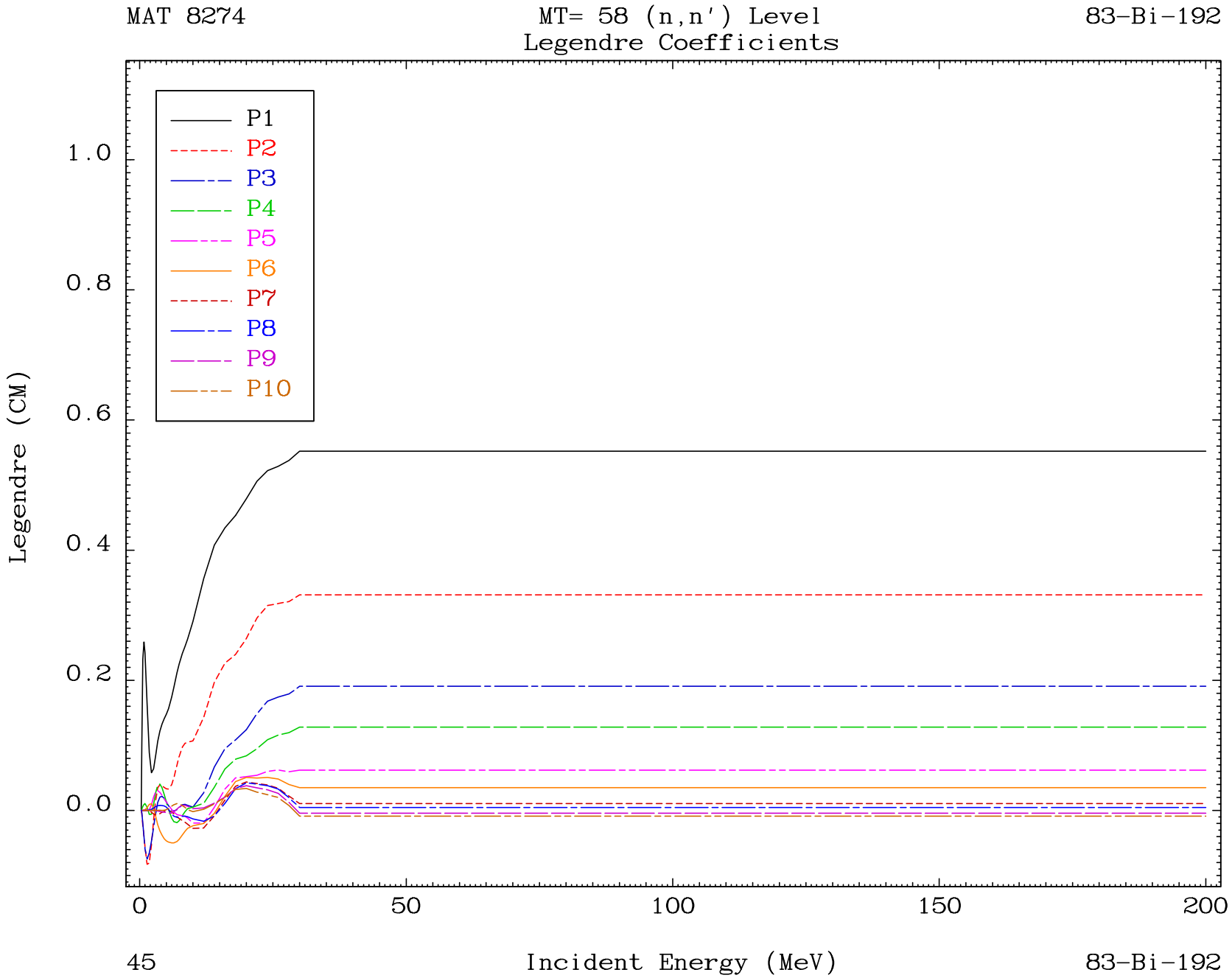

MAT 8274
MT= 56 (n,n') Level
Legendre Coefficients
83-Bi-192
X10^-6
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Legendre (CM)
P31
P32
P33
P34
P35
P36
P37
P38
50
100
150
200
40
Incident Energy (MeV)
83-Bi-192

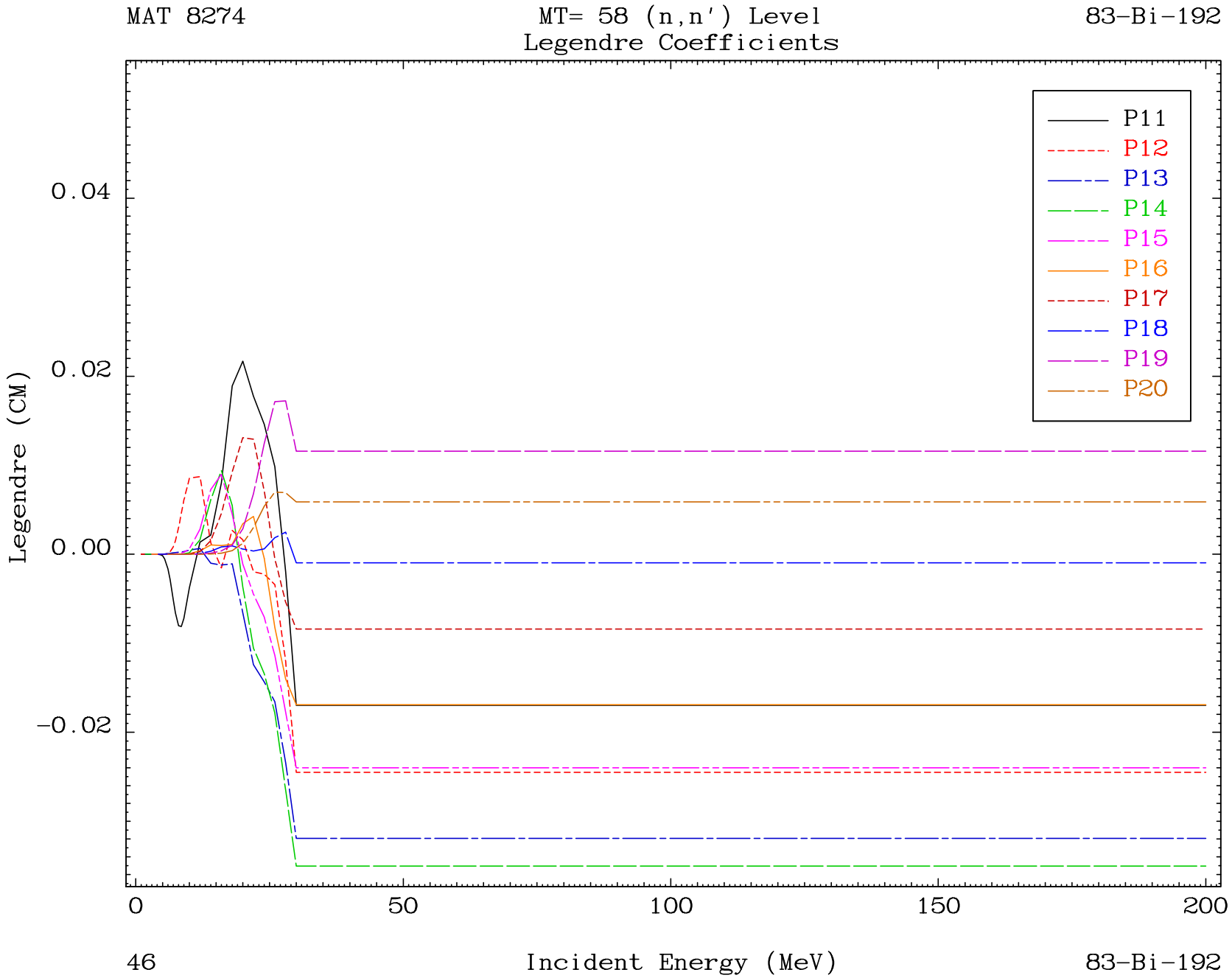

MAT 8274
MT= 57 (n,n') Level
Legendre Coefficients
83-Bi-192
Legendre (CM)
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
0
50
100
150
200
Incident Energy (MeV)
41
83-Bi-192
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10

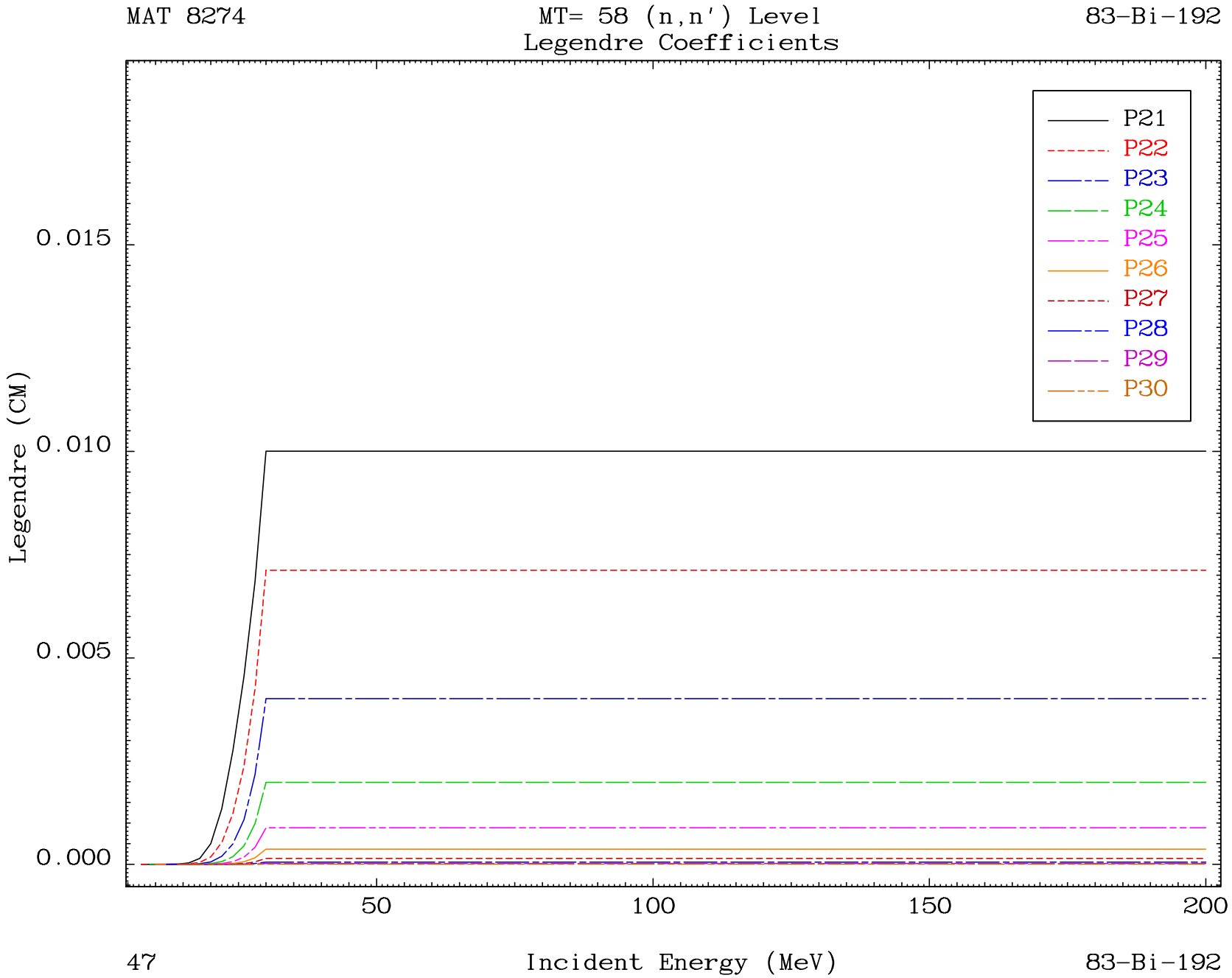

MAT 8274
MT= 57 (n,n') Level
Legendre Coefficients
83-Bi-192
P11
P12
P13
P14
P15
P16
P17
P18
P19
P20
0.05
0.04
0.03
0.02
0.01
0.00
Legendre (CM)
0
50
100
150
200
42
Incident Energy (MeV)
83-Bi-192

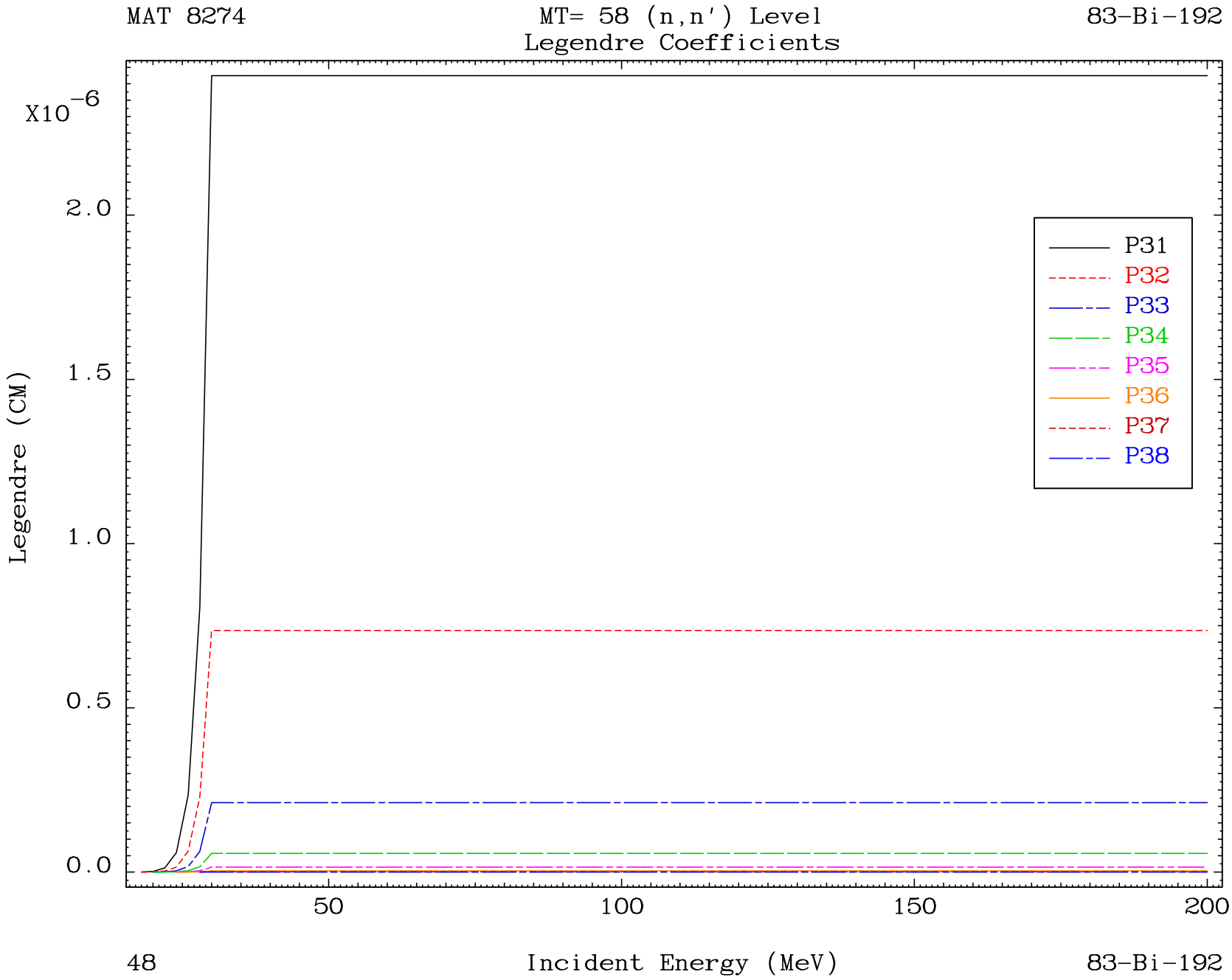

MAT 8274
MT= 57 (n,n') Level
Legendre Coefficients
83-Bi-192
X10^-4
2
1
0
-1
-2
Legendre (CM)
P21
P22
P23
P24
P25
P26
P27
P28
P29
P30
50
100
150
200
43
Incident Energy (MeV)
83-Bi-192

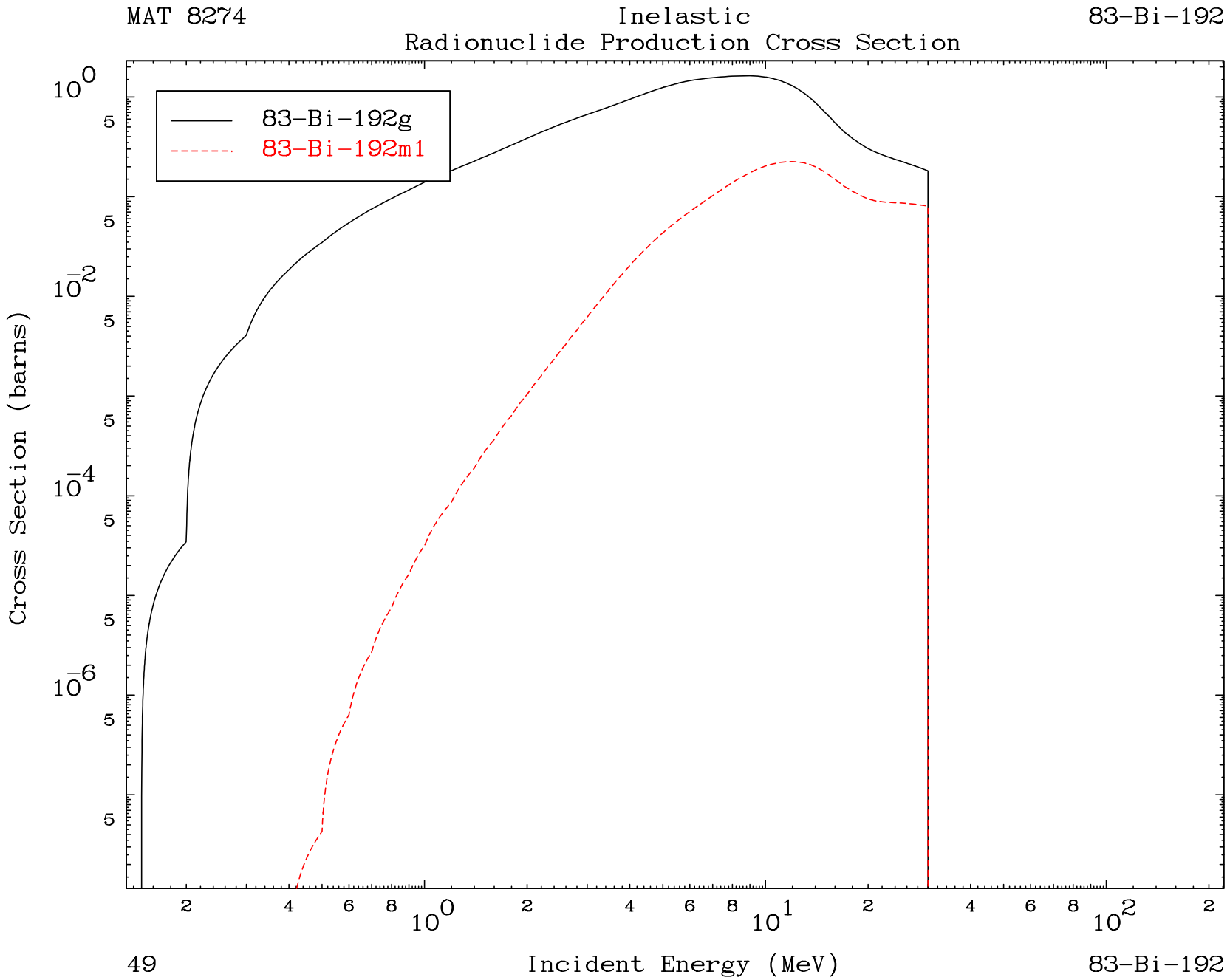

MAT 8274
MT= 57 (n,n') Level
Legendre Coefficients
83-Bi-192
0
X10-7
-2
-4
-6
Legendre (CM)
50
100
150
200
44
Incident Energy (MeV)
83-Bi-192
P31
P32
P33
P34
P35
P36
P37
P38

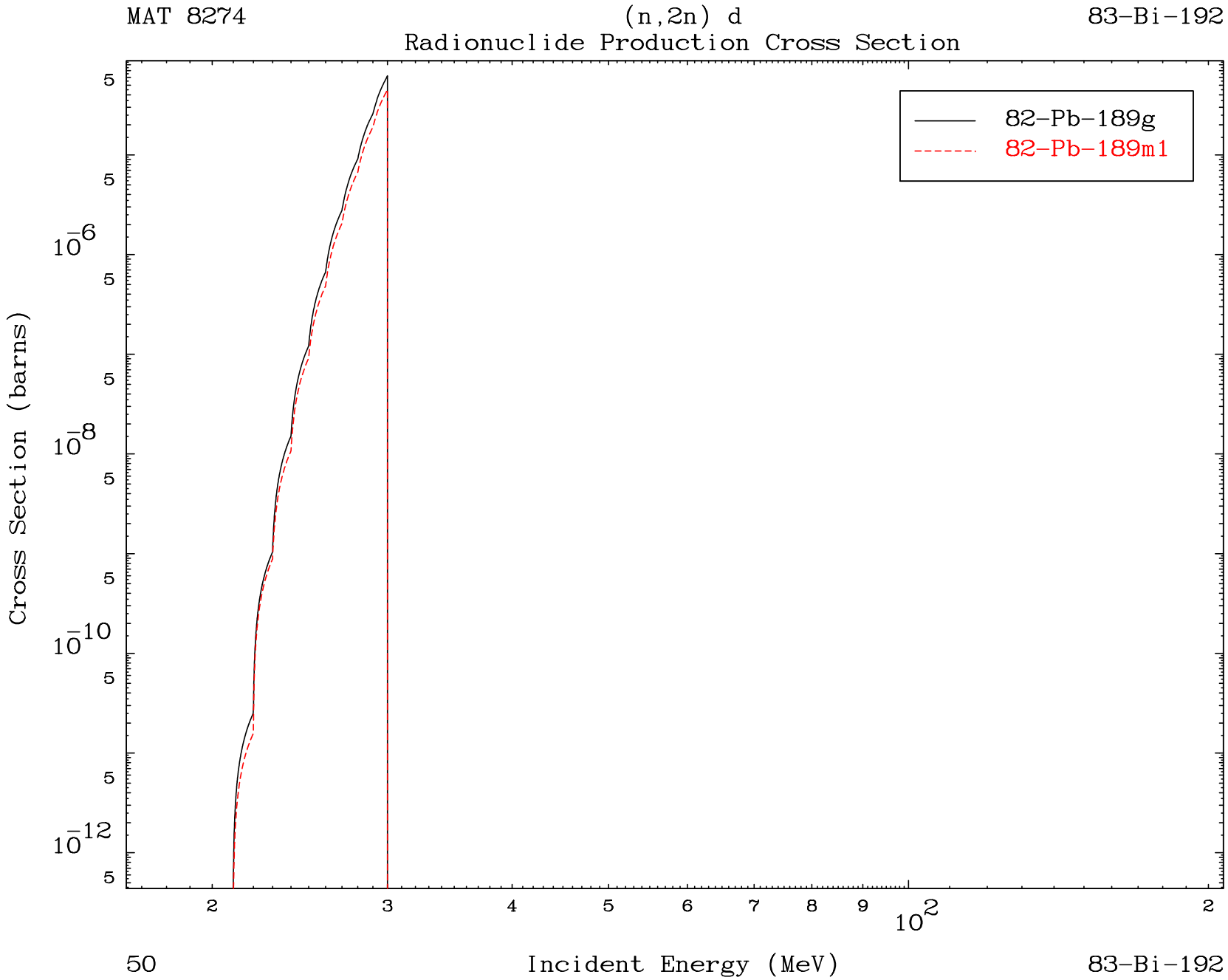

MAT 8274
MT= 58 (n,n') Level
Legendre Coefficients
83-Bi-192
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
Legendre (CM)
1.0
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200
45
Incident Energy (MeV)
83-Bi-192

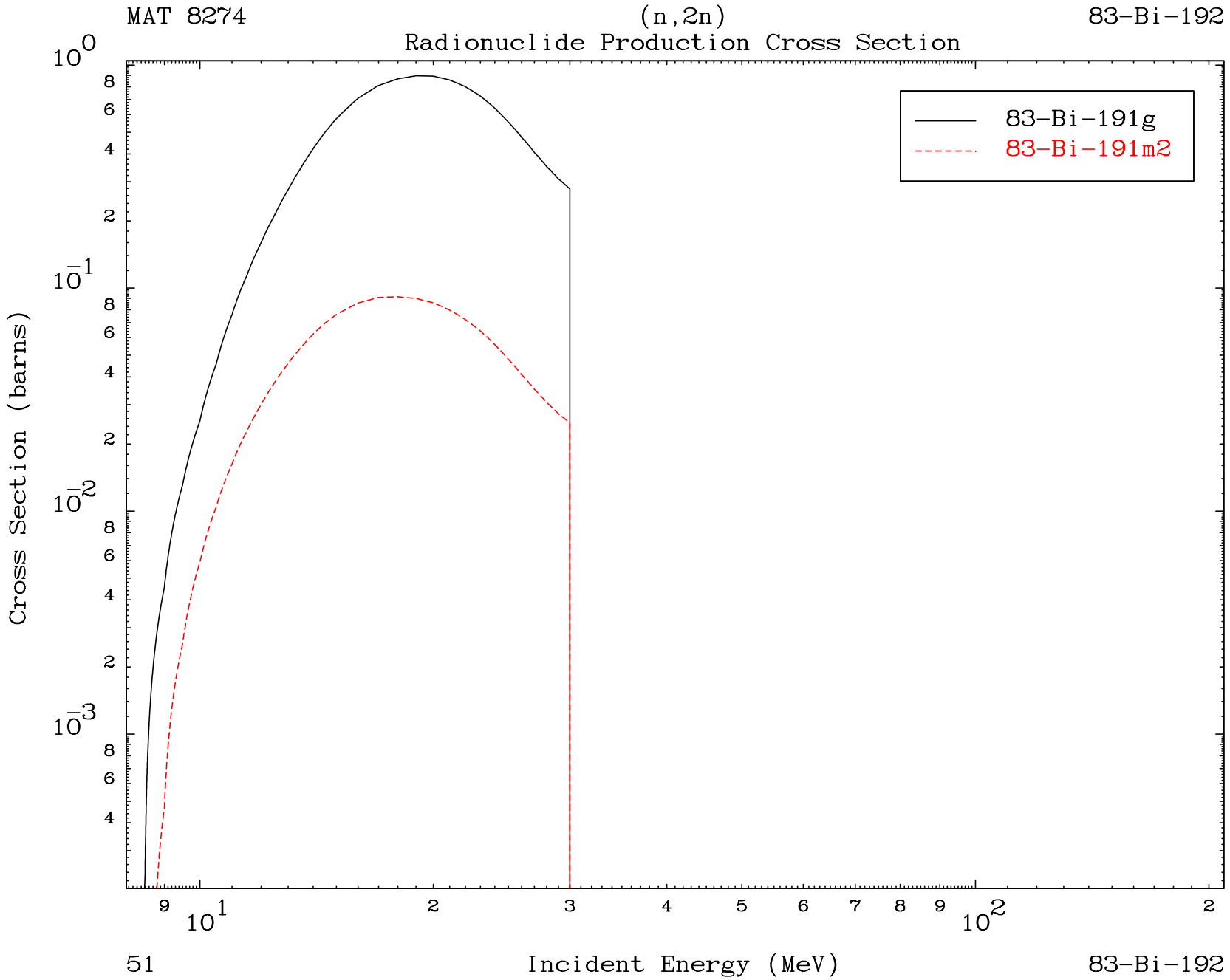

MAT 8274
MT= 58 (n,n') Level
Legendre Coefficients
83-Bi-192
P11
P12
P13
P14
P15
P16
P17
P18
P19
P20
0.04
0.02
0.00
-0.02
Legendre (CM)
0
50
100
150
200
46
Incident Energy (MeV)
83-Bi-192

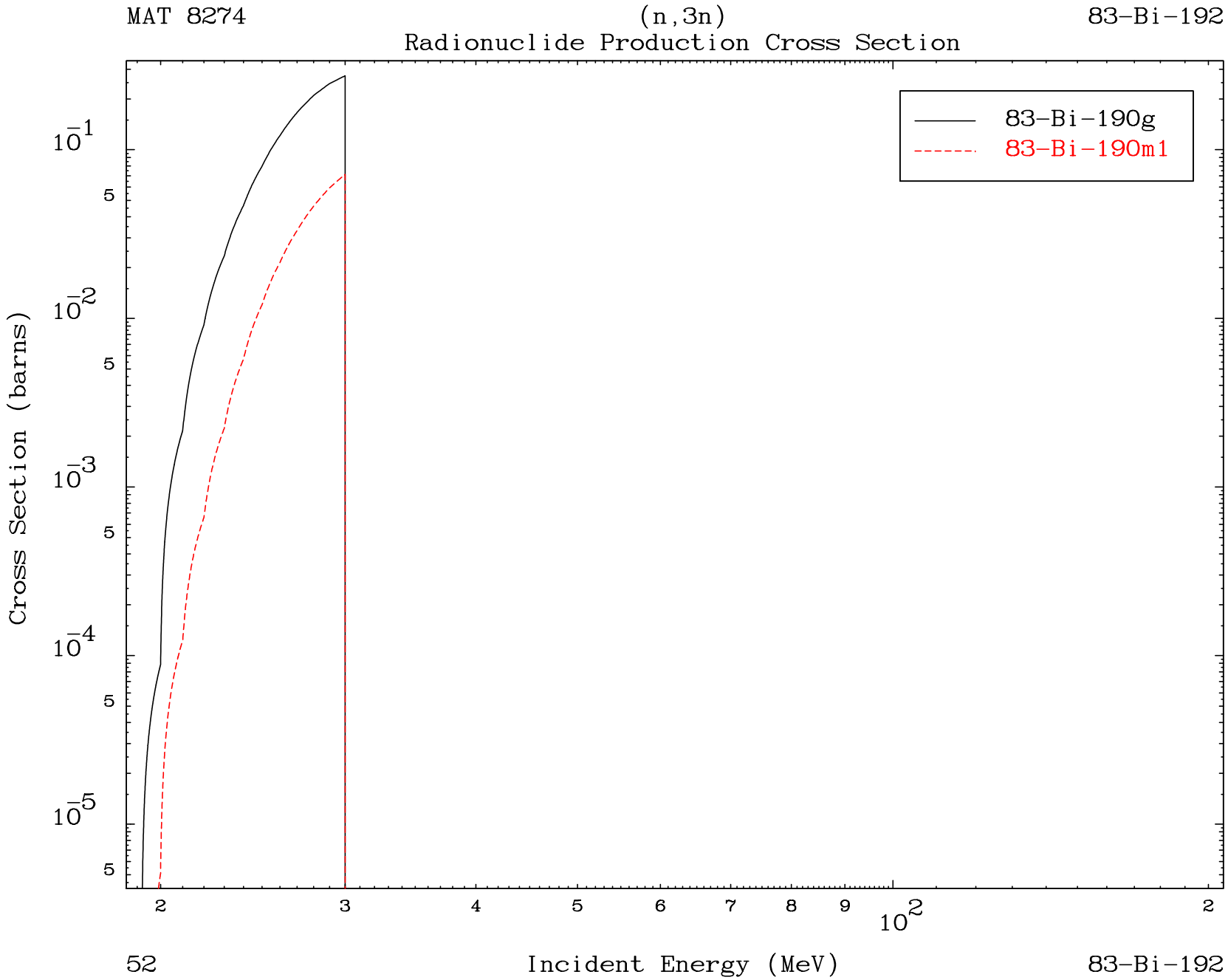

MAT 8274
MT= 58 (n,n') Level
Legendre Coefficients
83-Bi-192
P21
P22
P23
P24
P25
P26
P27
P28
P29
P30
0.015
0.010
0.005
0.000
Legendre (CM)
50
100
150
200
47
Incident Energy (MeV)
83-Bi-192

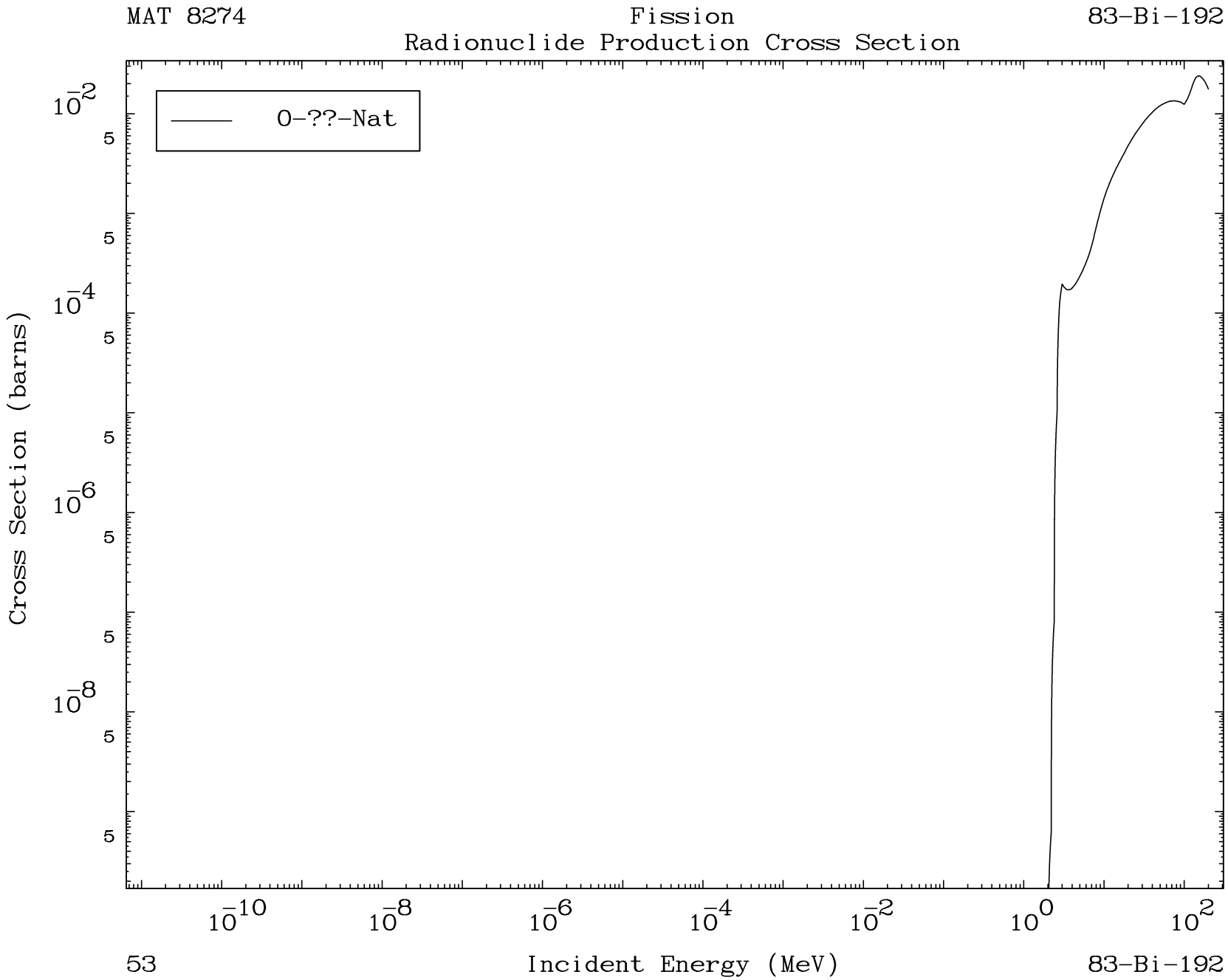

MAT 8274
MT= 58 (n,n') Level
Legendre Coefficients
83-Bi-192
X10^-6
2.0
1.5
1.0
0.5
0.0
Legendre (CM)
P31
P32
P33
P34
P35
P36
P37
P38
50
100
150
200
48
Incident Energy (MeV)
83-Bi-192

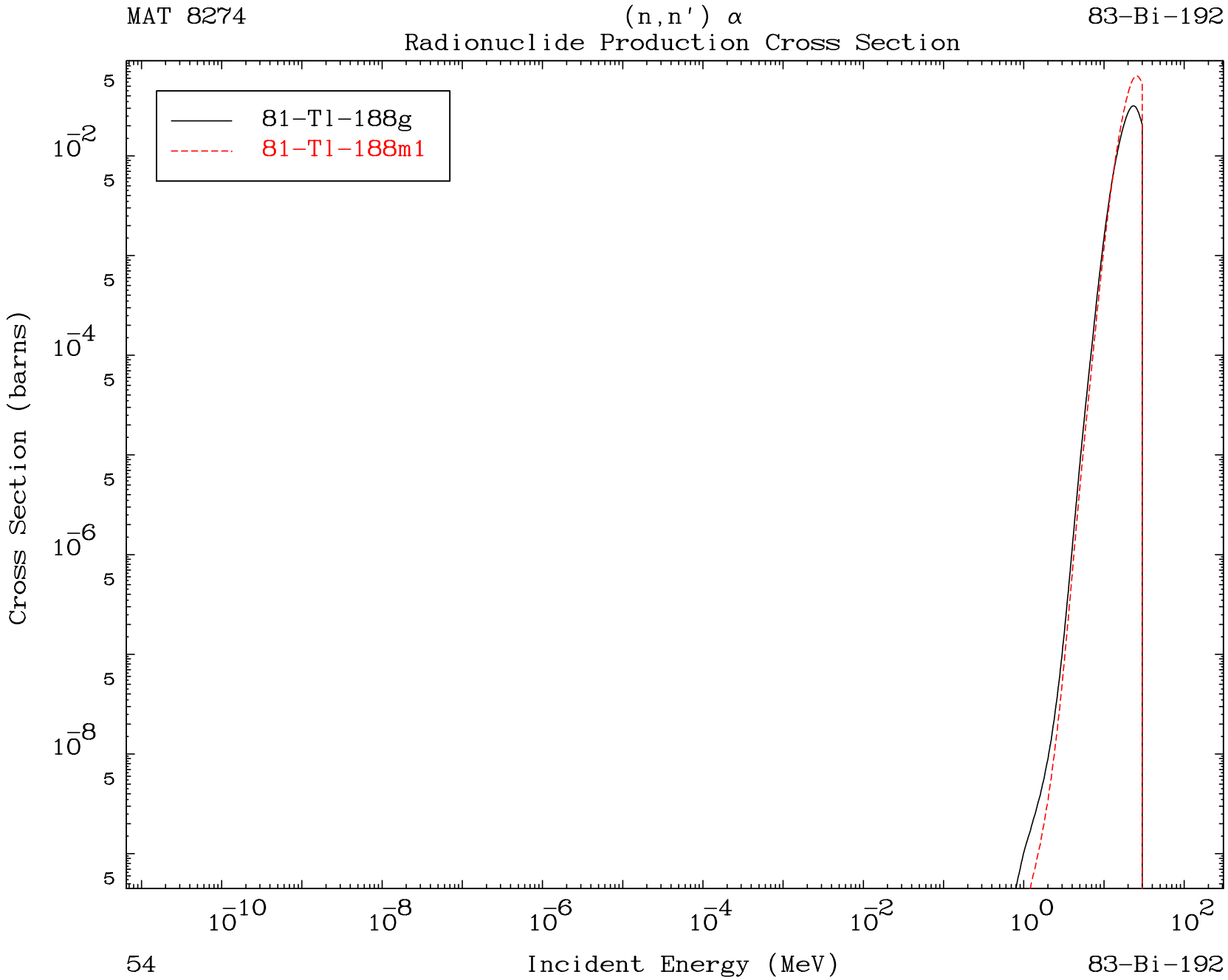

MAT 8274
Inelastic
83-Bi-192
Radionuclide Production Cross Section
83-Bi-192g
83-Bi-192m1
Cross Section (barns)
Incident Energy (MeV)
49
83-Bi-192

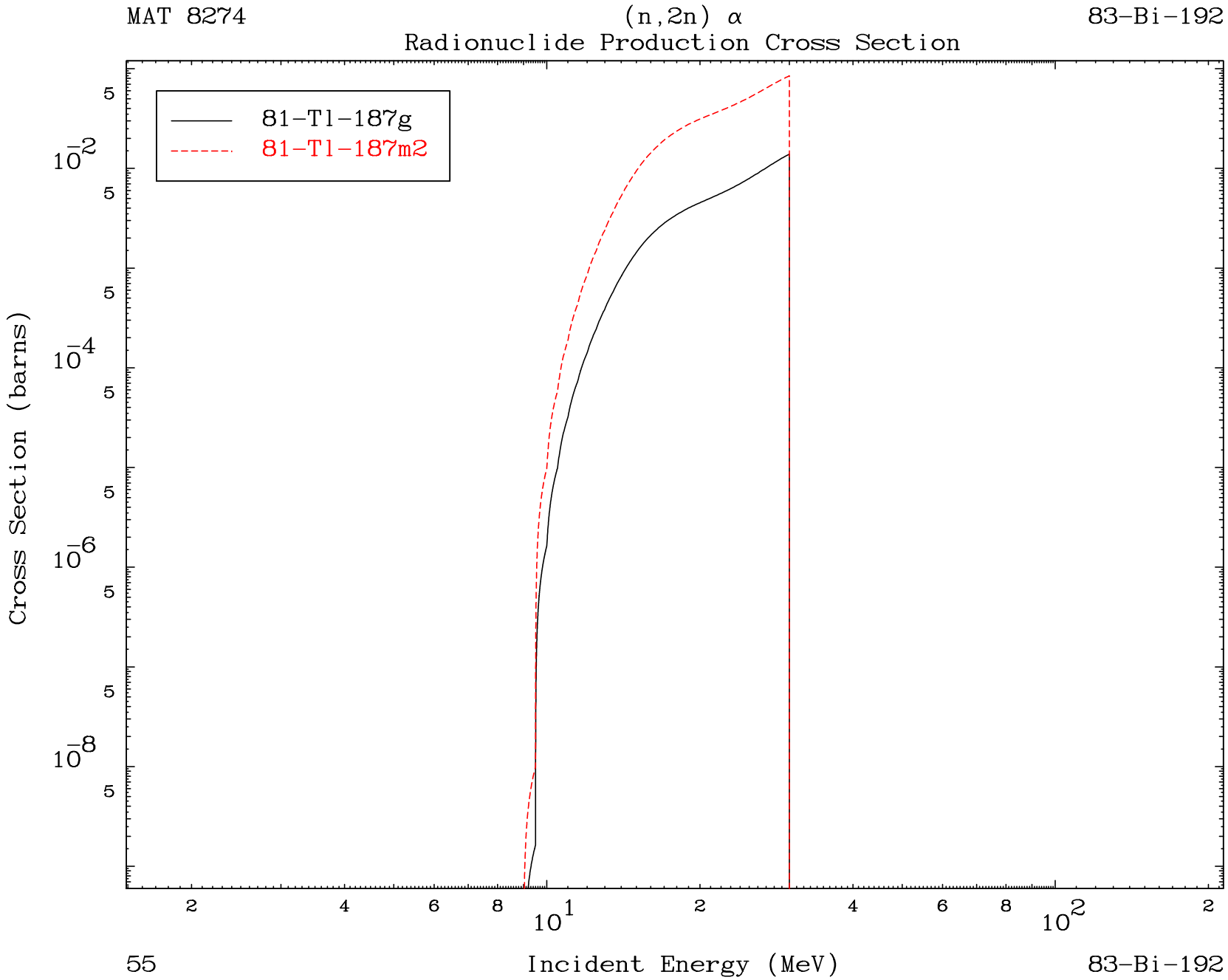

MAT 8274
(n,2n) d
83-Bi-192
Radionuclide Production Cross Section
82-Pb-189g
82-Pb-189m1
Cross Section (barns)
Incident Energy (MeV)
50
83-Bi-192

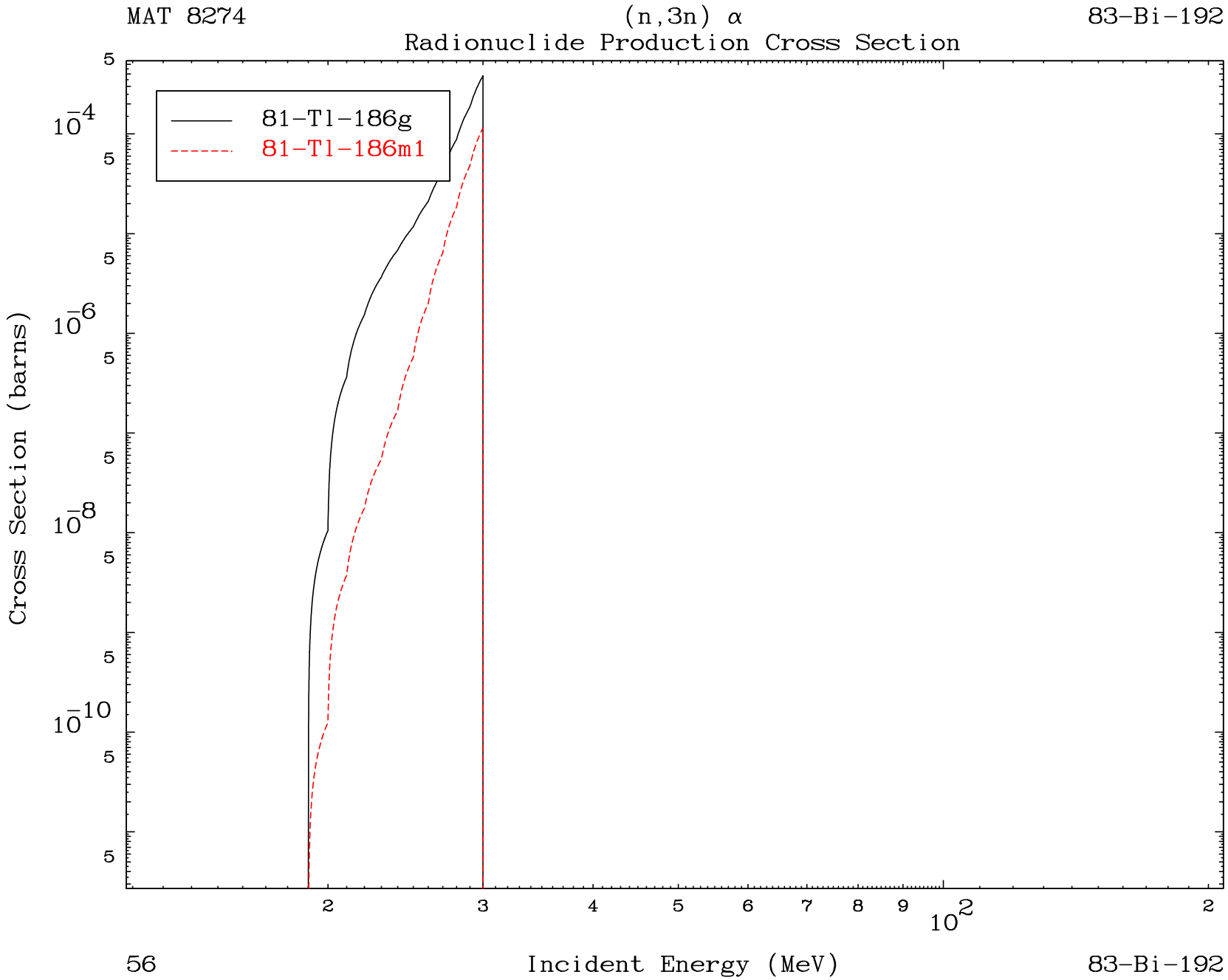

MAT 8274
(n,2n)
83-Bi-192
Radionuclide Production Cross Section
83-Bi-191g
83-Bi-191m2
Cross Section (barns)
Incident Energy (MeV)
51
83-Bi-192

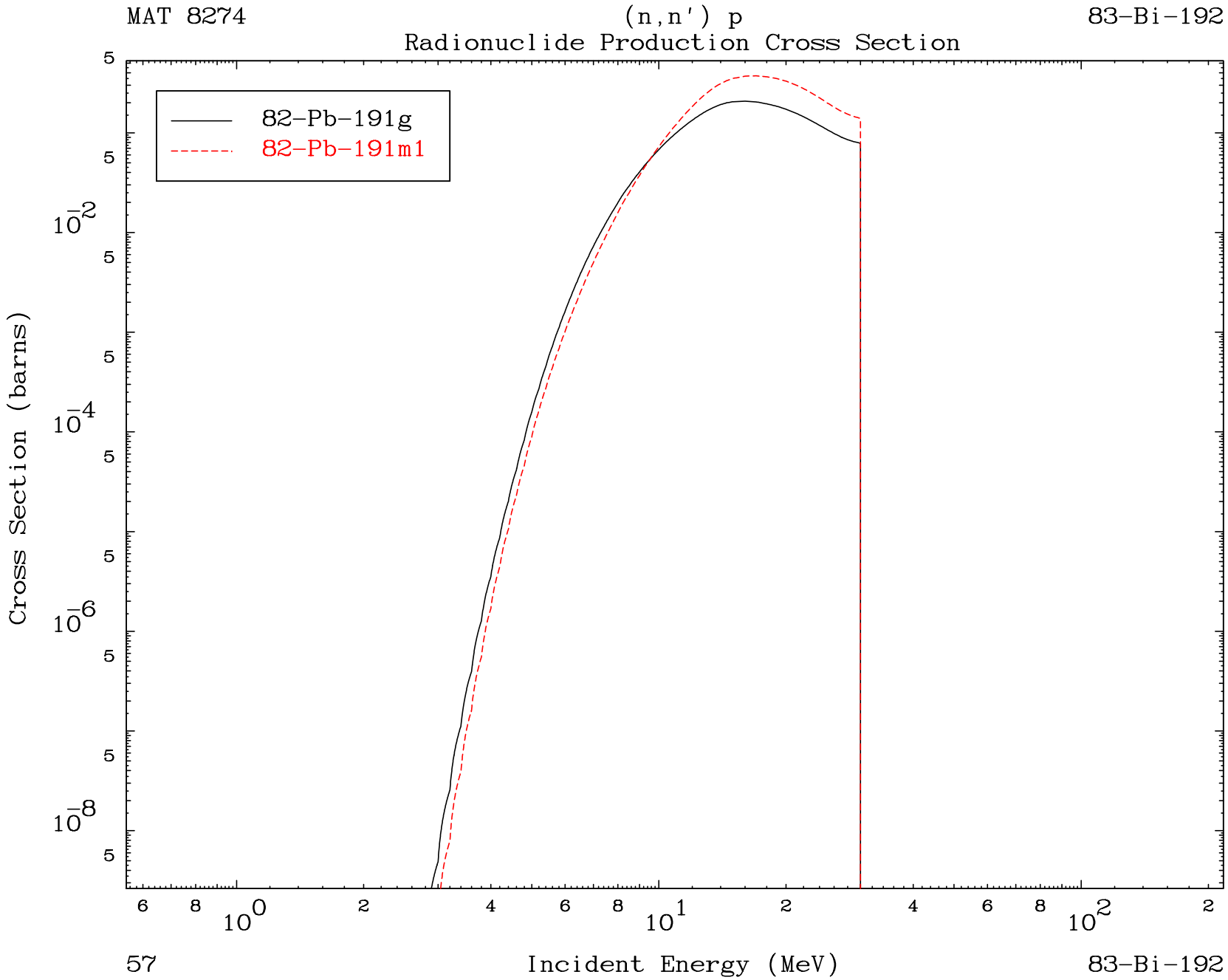

MAT 8274
(n,3n)
83-Bi-192
Radionuclide Production Cross Section
83-Bi-190g
83-Bi-190m1
Cross Section (barns)
10-1
10-2
10-3
10-4
10-5
5
2
3
4
5
6
7
8
9
10 2
2
52
Incident Energy (MeV)
83-Bi-192

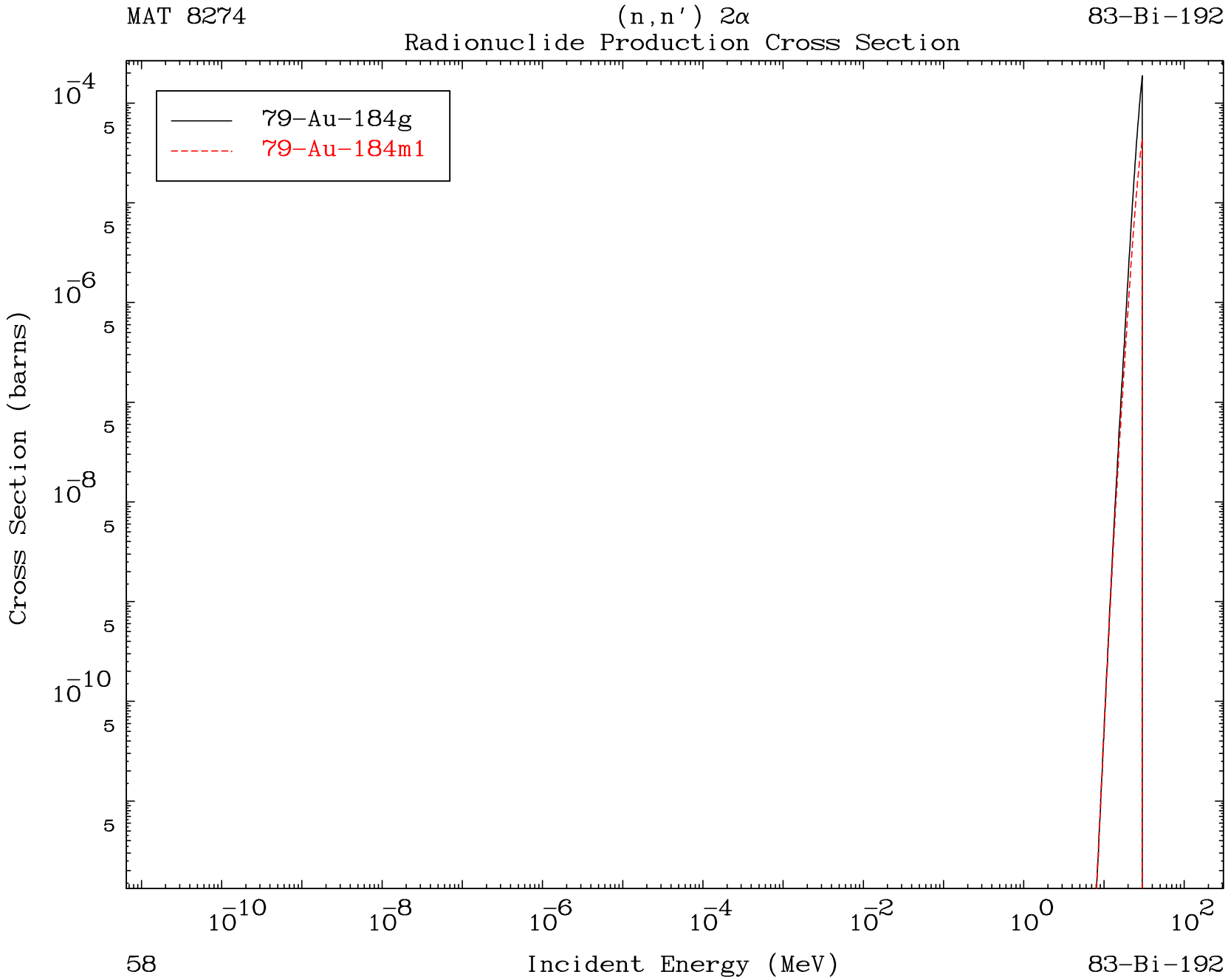

MAT 8274
Fission
83-Bi-192
Radionuclide Production Cross Section
0-??-Nat
Cross Section (barns)
Incident Energy (MeV)
53
83-Bi-192

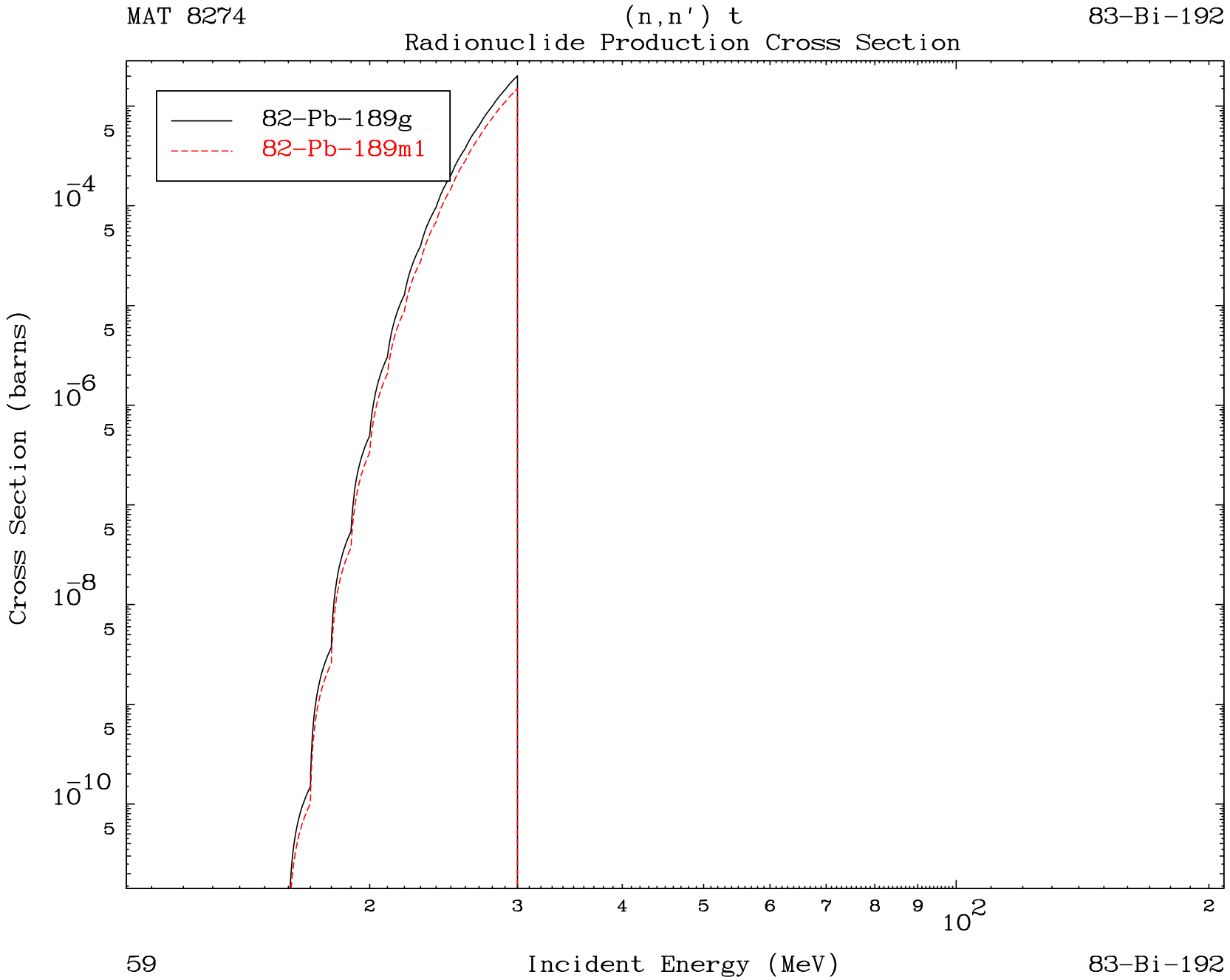

MAT 8274
(n,n') α
83-Bi-192
Radionuclide Production Cross Section
81-Tl-188g
81-Tl-188m1
Cross Section (barns)
Incident Energy (MeV)
54
83-Bi-192

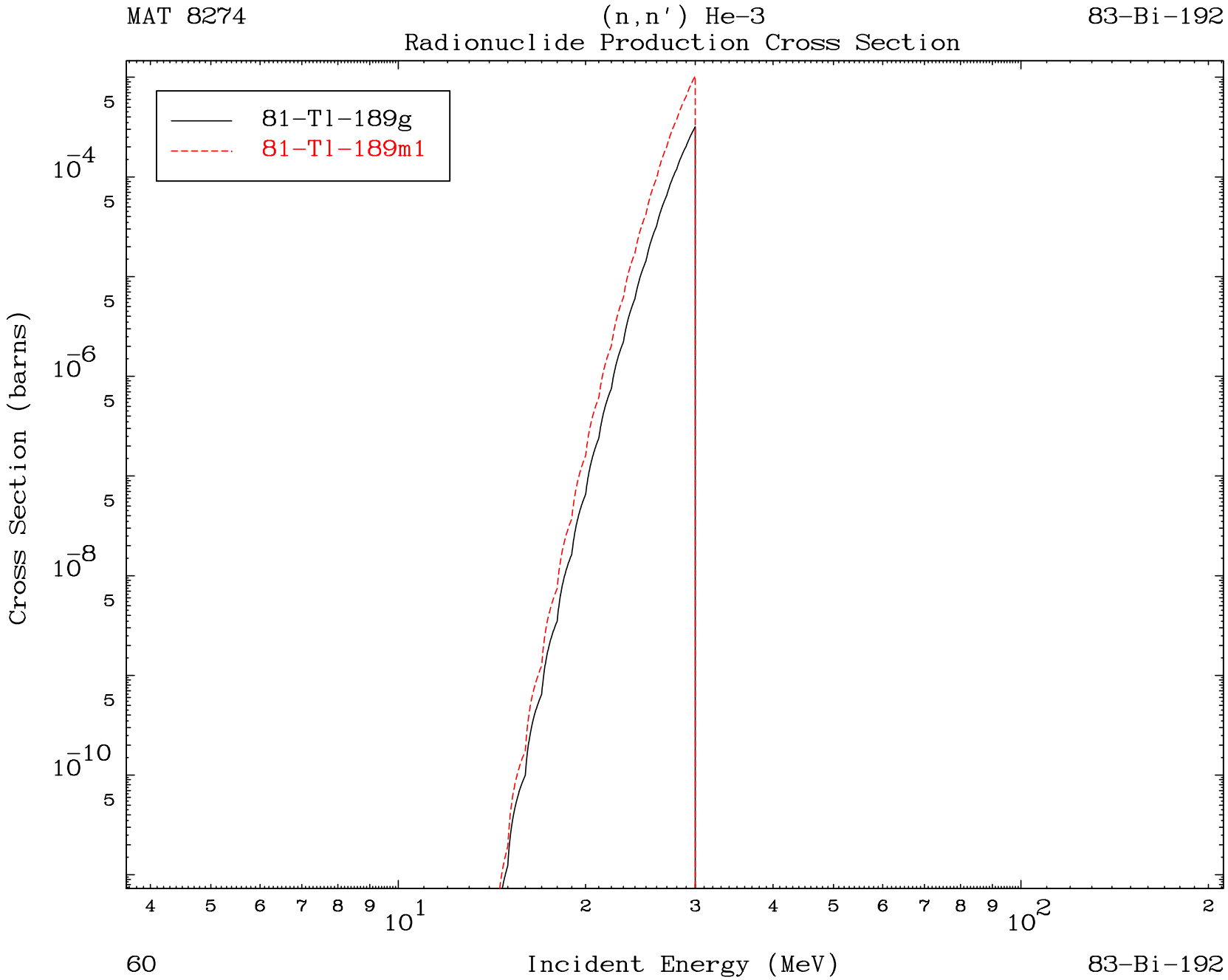

MAT 8274
(n,2n) α
83-Bi-192
Radionuclide Production Cross Section
81-Tl-187g
81-Tl-187m2
Cross Section (barns)
10-2
10-4
10-6
10-8
5
2
4
6
8
101
102
55
Incident Energy (MeV)
83-Bi-192

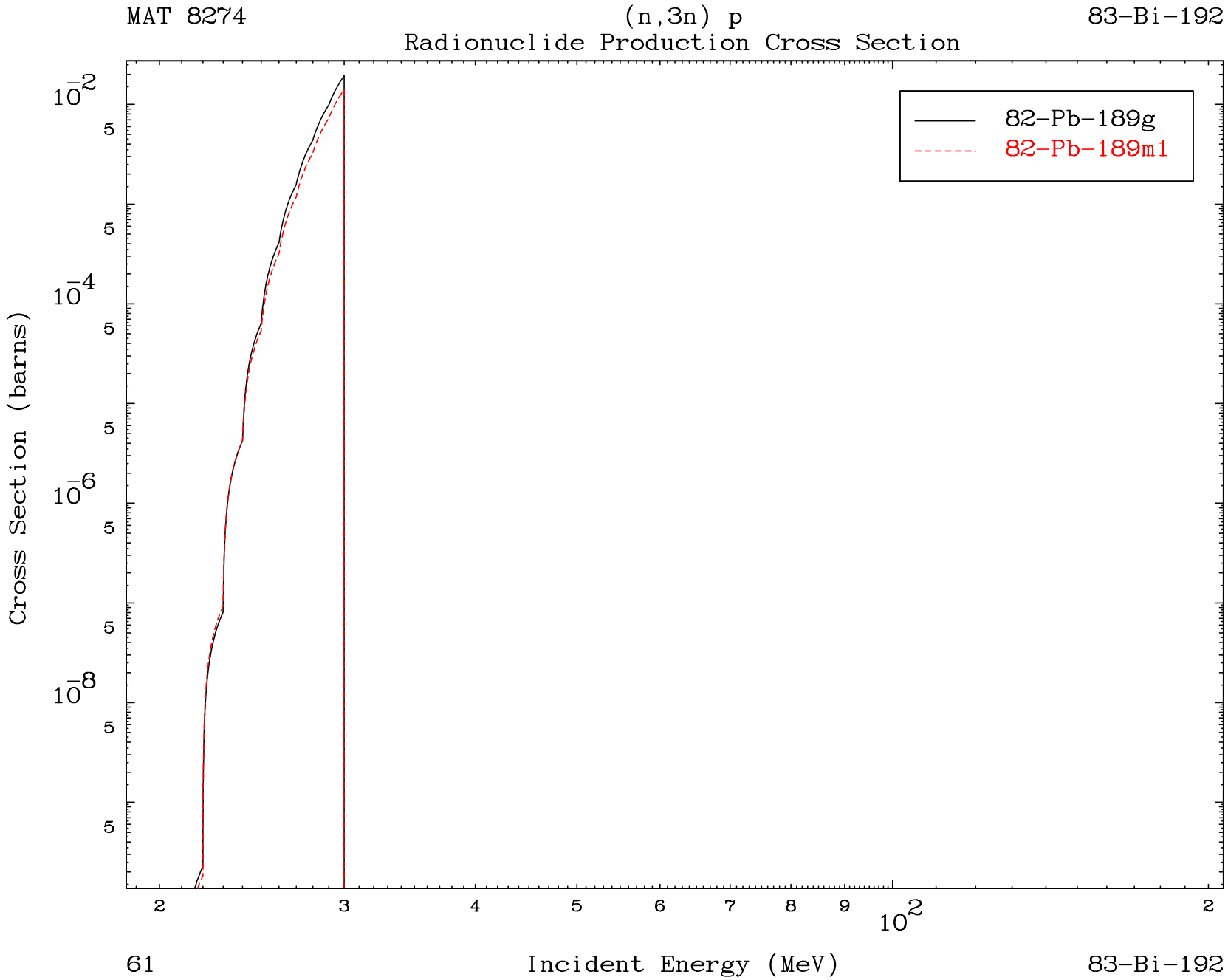

MAT 8274
(n,3n) α
83-Bi-192
Radionuclide Production Cross Section
81-Tl-186g
81-Tl-186m1
Cross Section (barns)
Incident Energy (MeV)
56
83-Bi-192

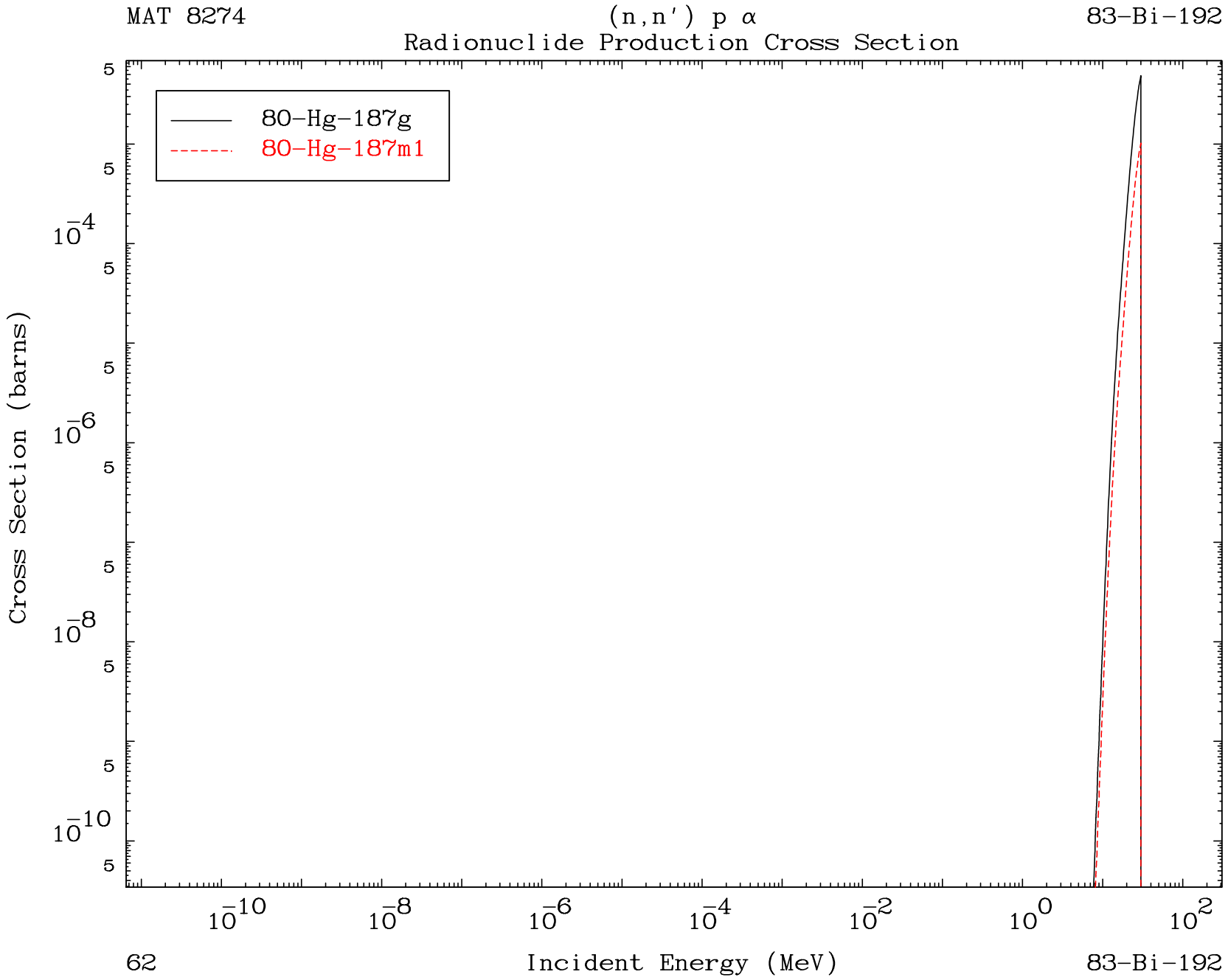

MAT 8274
(n,n') p
83-Bi-192
Radionuclide Production Cross Section
82-Pb-191g
82-Pb-191m1
Cross Section (barns)
Incident Energy (MeV)
57
83-Bi-192

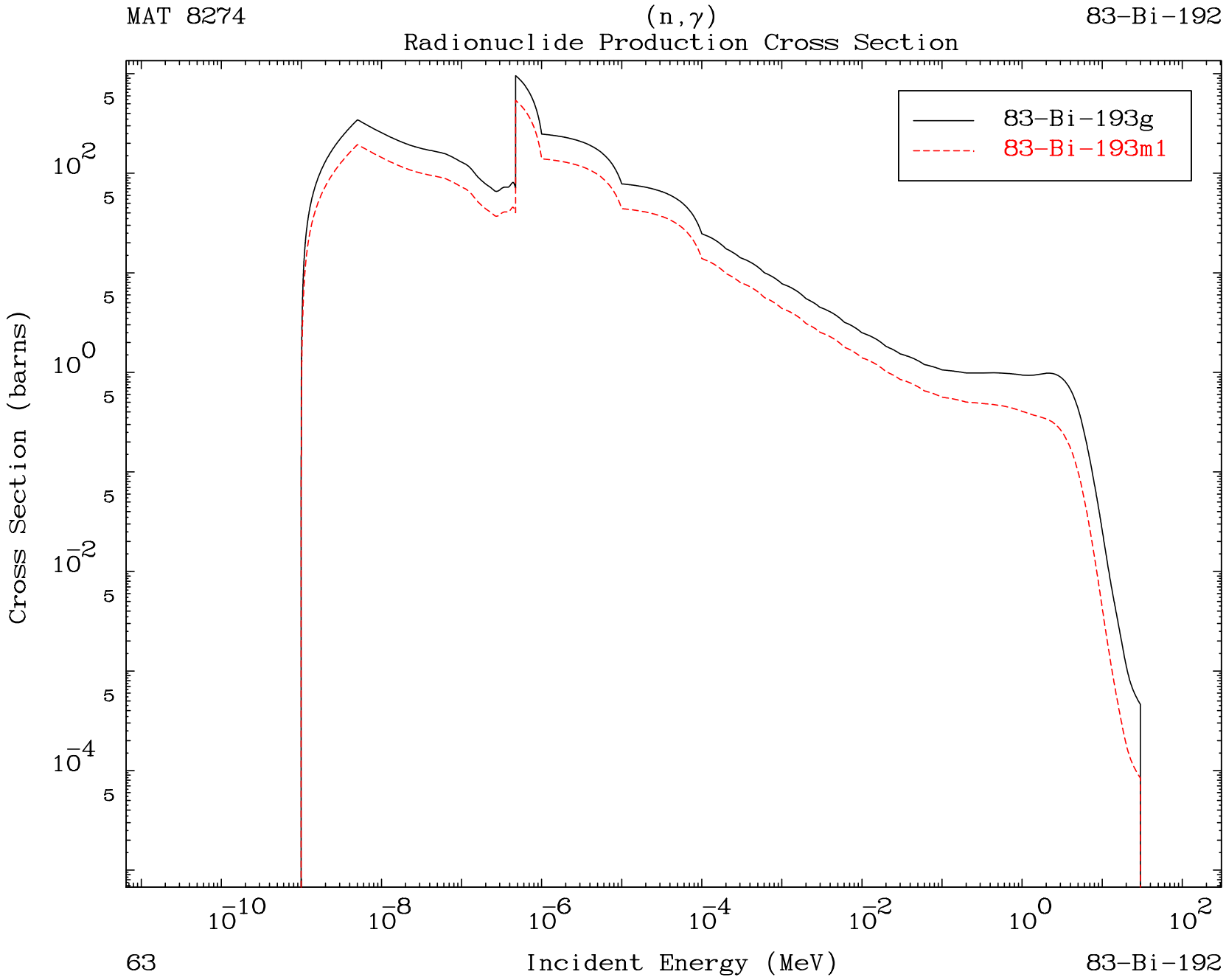

MAT 8274
(n,n') 2α
83-Bi-192
Radionuclide Production Cross Section
79-Au-184g
79-Au-184m1
Cross Section (barns)
Incident Energy (MeV)
58
83-Bi-192

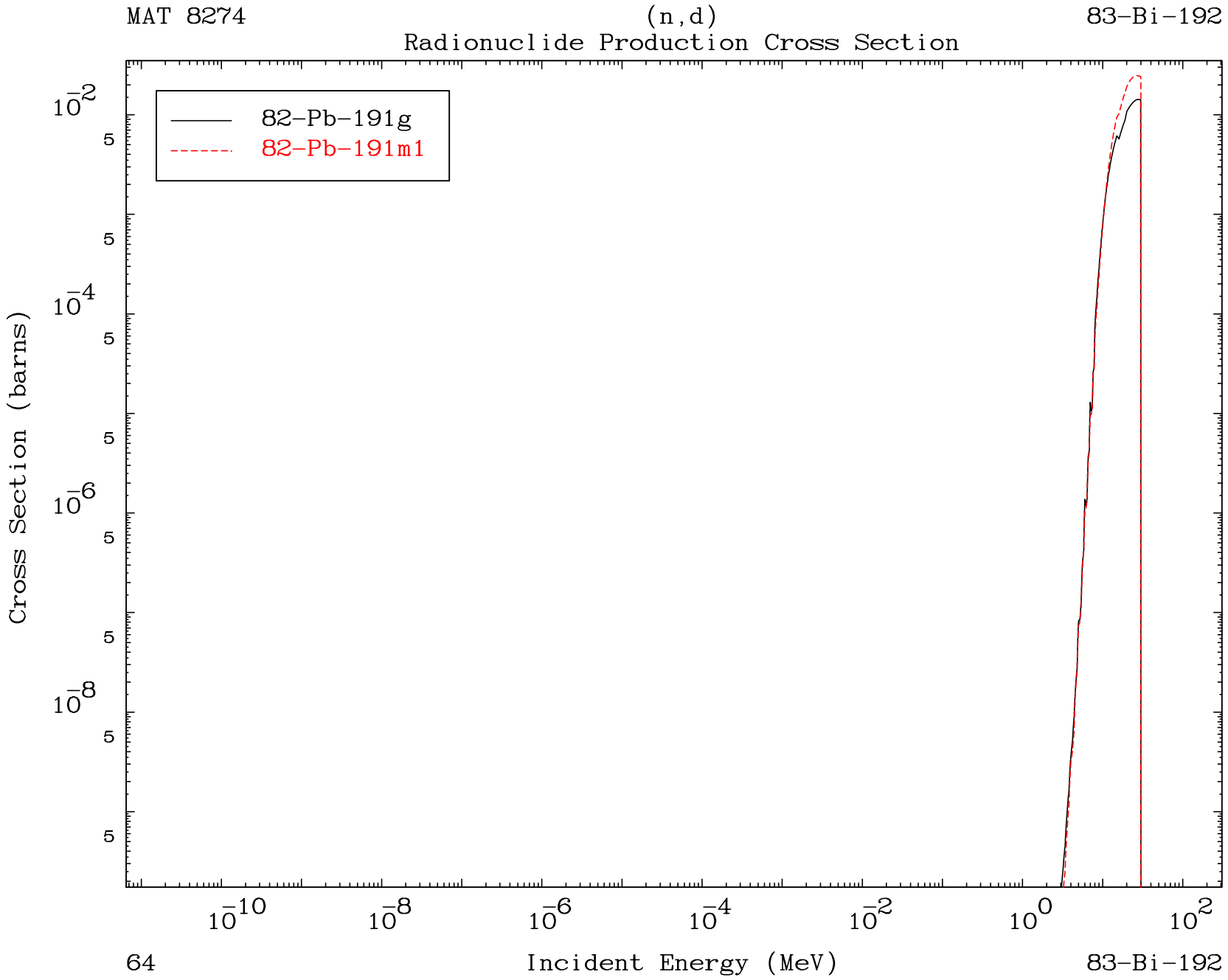

MAT 8274
(n,n') t
83-Bi-192
Radionuclide Production Cross Section
82-Pb-189g
82-Pb-189m1
Cross Section (barns)
10^-4
10^-6
10^-8
10^-10
5
2
3
4
5
6
7
8
9
10^2
2
59
Incident Energy (MeV)
83-Bi-192

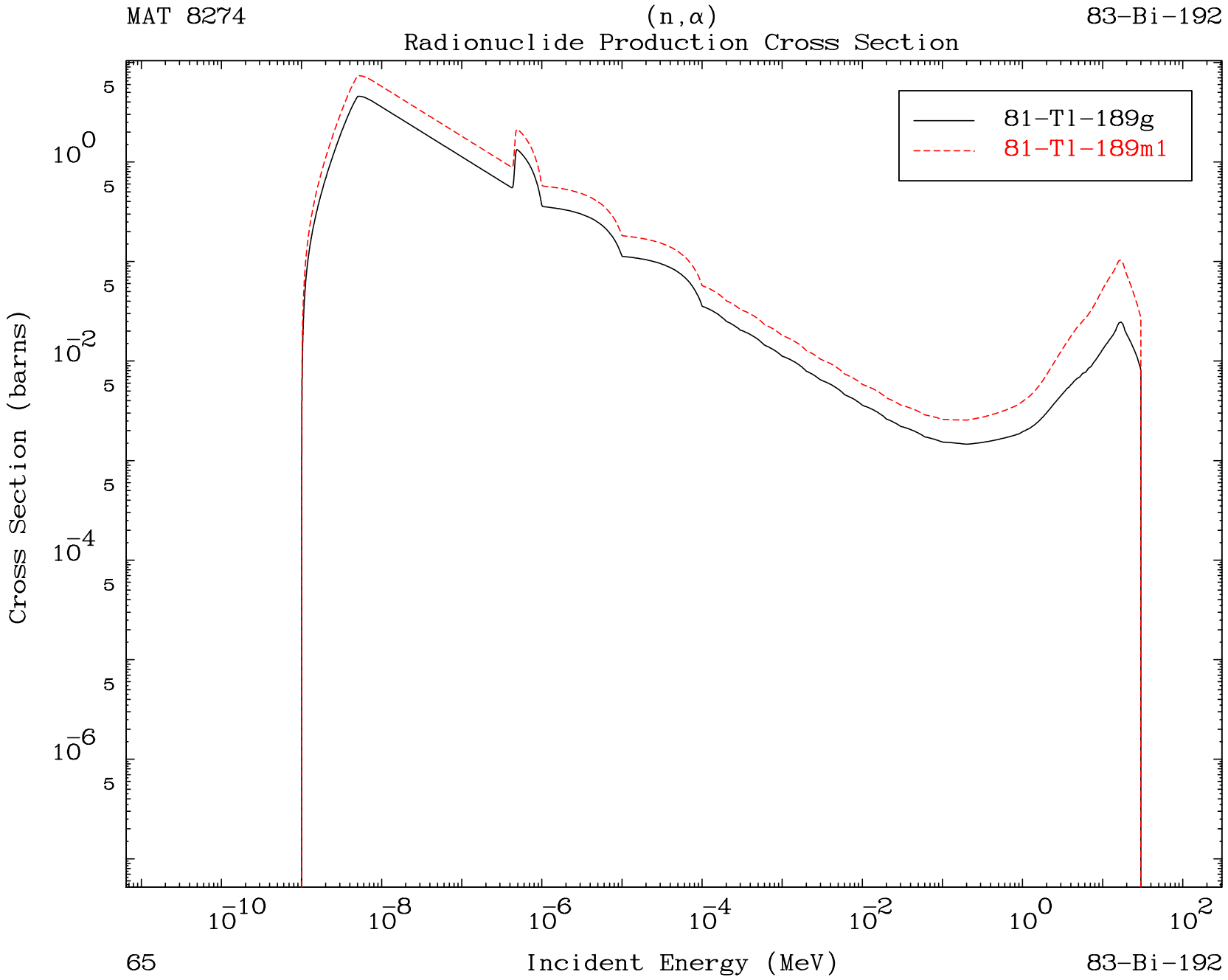

MAT 8274
(n,n') He-3
83-Bi-192
Radionuclide Production Cross Section
81-Tl-189g
81-Tl-189m1
Cross Section (barns)
10^-4
10^-6
10^-8
10^-10
10^1
10^2
Incident Energy (MeV)
60
83-Bi-192

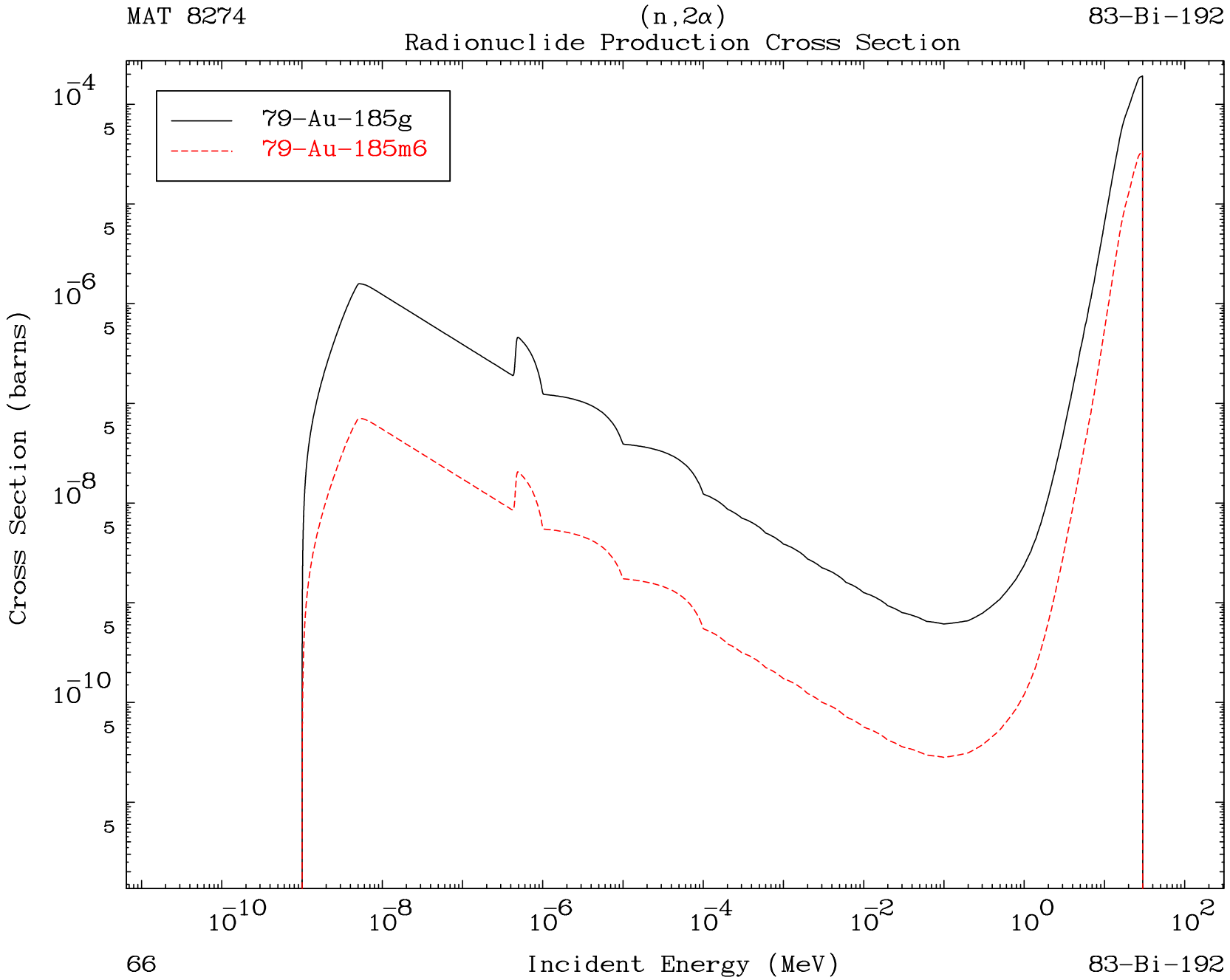

MAT 8274
(n,3n) p
83-Bi-192
Radionuclide Production Cross Section
82-Pb-189g
82-Pb-189m1
Cross Section (barns)
Incident Energy (MeV)
61
83-Bi-192

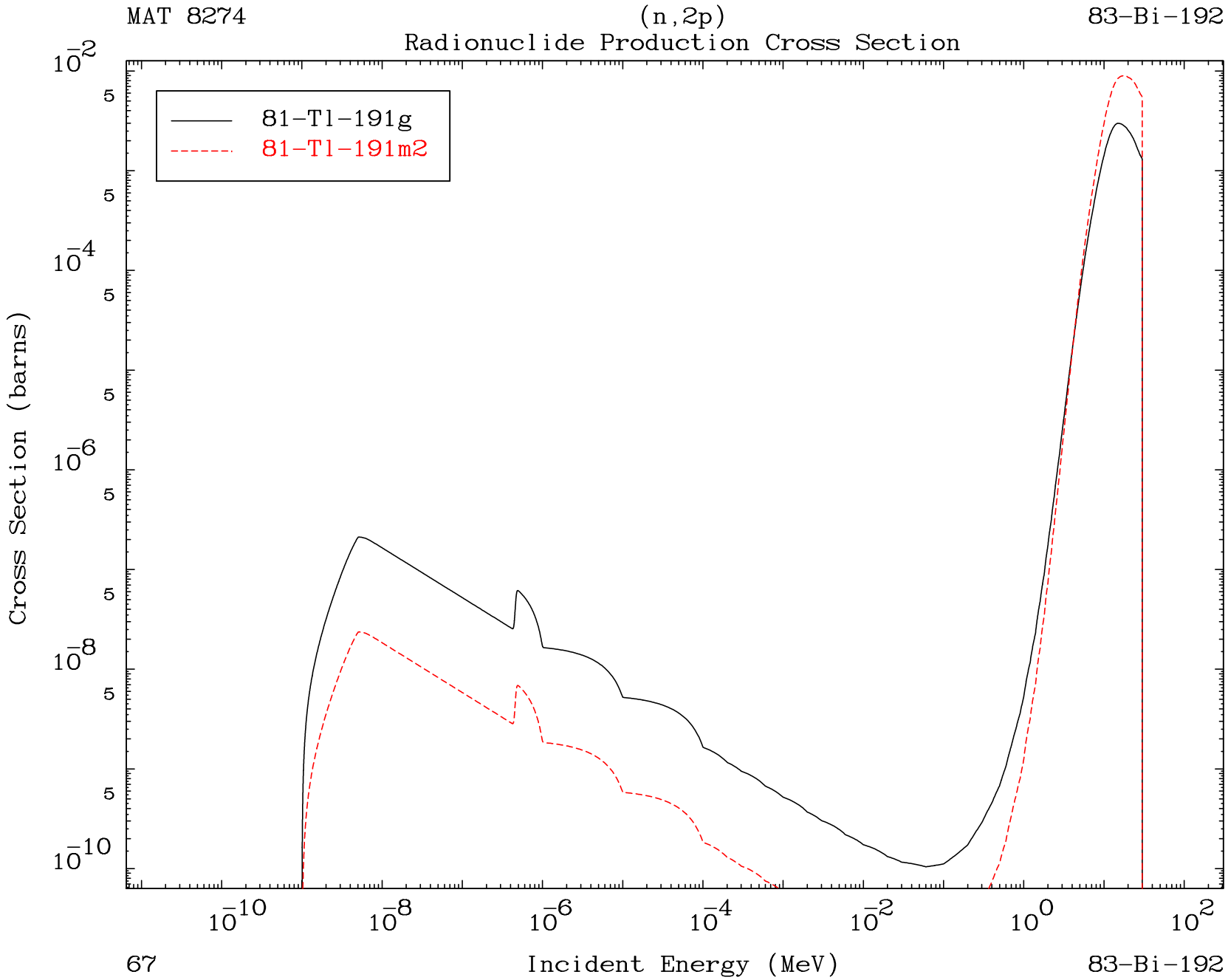

MAT 8274
(n,n') p α
83-Bi-192
Radionuclide Production Cross Section
80-Hg-187g
80-Hg-187m1
Cross Section (barns)
Incident Energy (MeV)
62
83-Bi-192

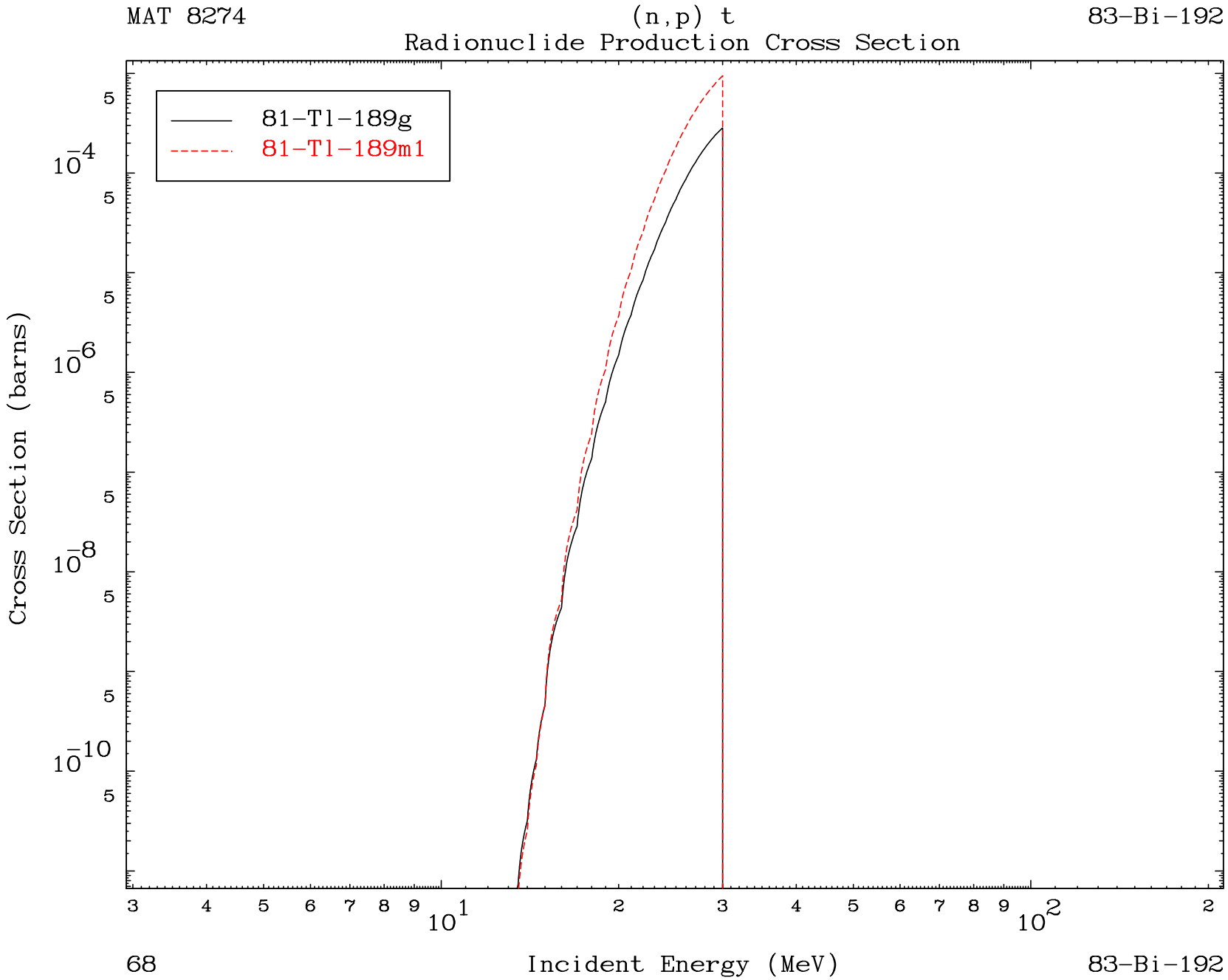

MAT 8274
(n,γ)
83-Bi-192
Radionuclide Production Cross Section
83-Bi-193g
83-Bi-193m1
Cross Section (barns)
10^2
10^0
10^-2
10^-4
10^-10
10^-8
10^-6
10^-4
10^-2
10^0
10^2
63
Incident Energy (MeV)
83-Bi-192

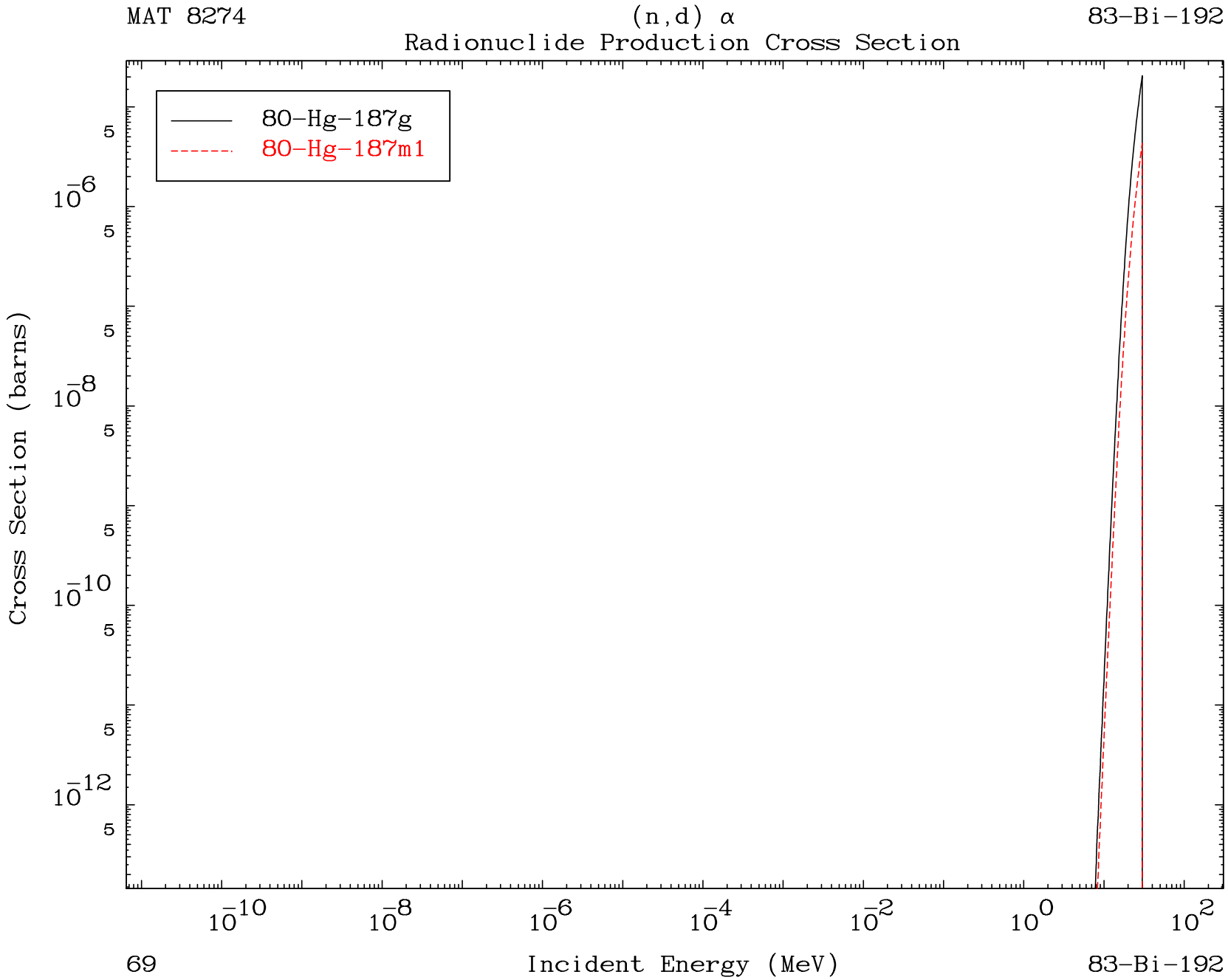

MAT 8274
(n,d)
83-Bi-192
Radionuclide Production Cross Section
82-Pb-191g
82-Pb-191m1
Cross Section (barns)
Incident Energy (MeV)
64
83-Bi-192


MAT 8274
(n,α)
83-Bi-192
Radionuclide Production Cross Section
81-Tl-189g
81-Tl-189m1
Cross Section (barns)
Incident Energy (MeV)
65
83-Bi-192


MAT 8274
(n,2α)
83-Bi-192
Radionuclide Production Cross Section
79-Au-185g
79-Au-185m6
Cross Section (barns)
10^-4
10^-6
10^-8
10^-10
5
10^-10
10^-8
10^-6
10^-4
10^-2
10^0
10^2
66
Incident Energy (MeV)
83-Bi-192


MAT 8274
(n,2p)
83-Bi-192
Radionuclide Production Cross Section
81-Tl-191g
81-Tl-191m2
Cross Section (barns)
Incident Energy (MeV)
67
83-Bi-192


MAT 8274
(n,p) t
83-Bi-192
Radionuclide Production Cross Section
81-Tl-189g
81-Tl-189m1
Cross Section (barns)
Incident Energy (MeV)
68
83-Bi-192


MAT 8274
(n,d) α
83-Bi-192
Radionuclide Production Cross Section
80-Hg-187g
80-Hg-187m1
Cross Section (barns)
Incident Energy (MeV)
69
83-Bi-192