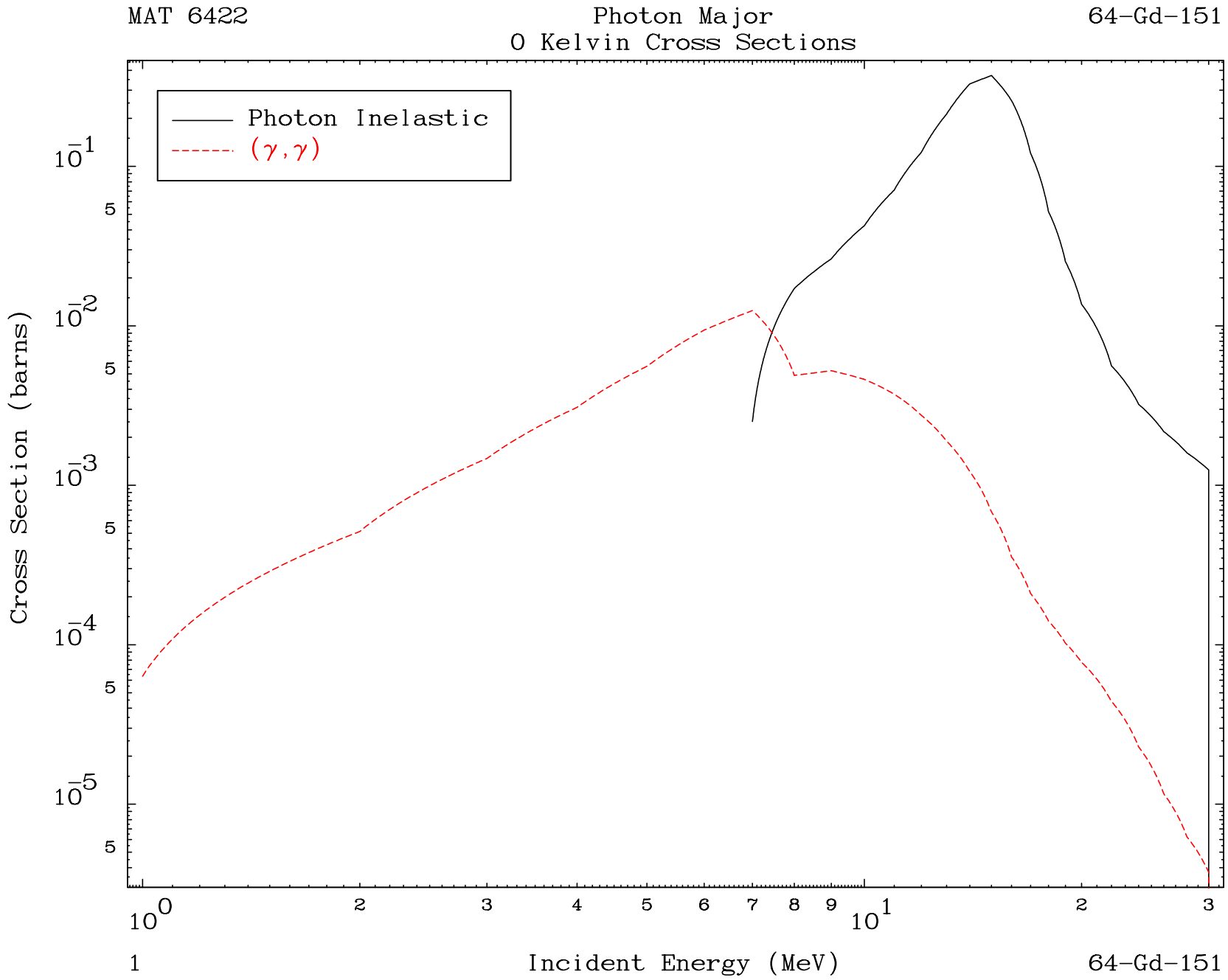
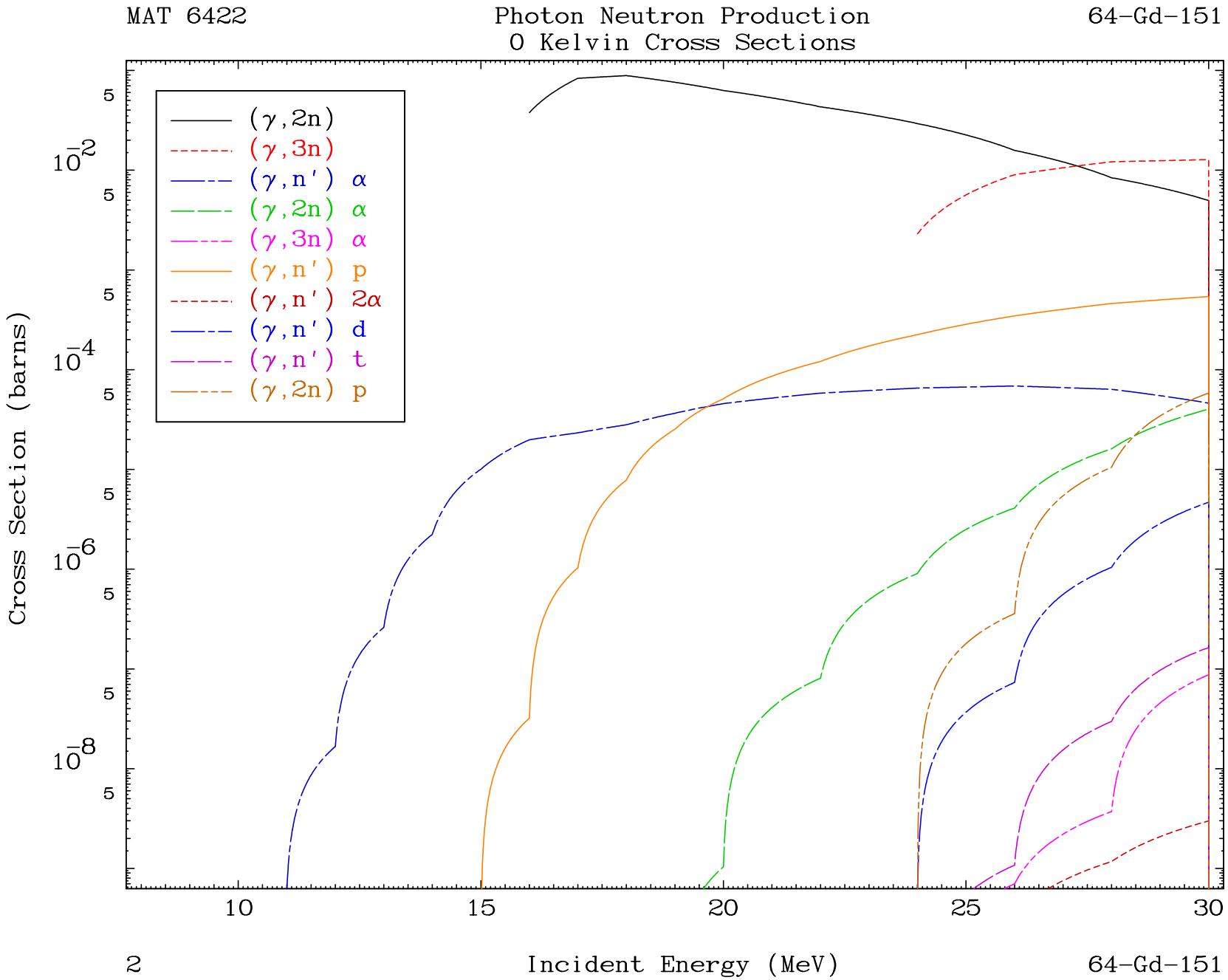
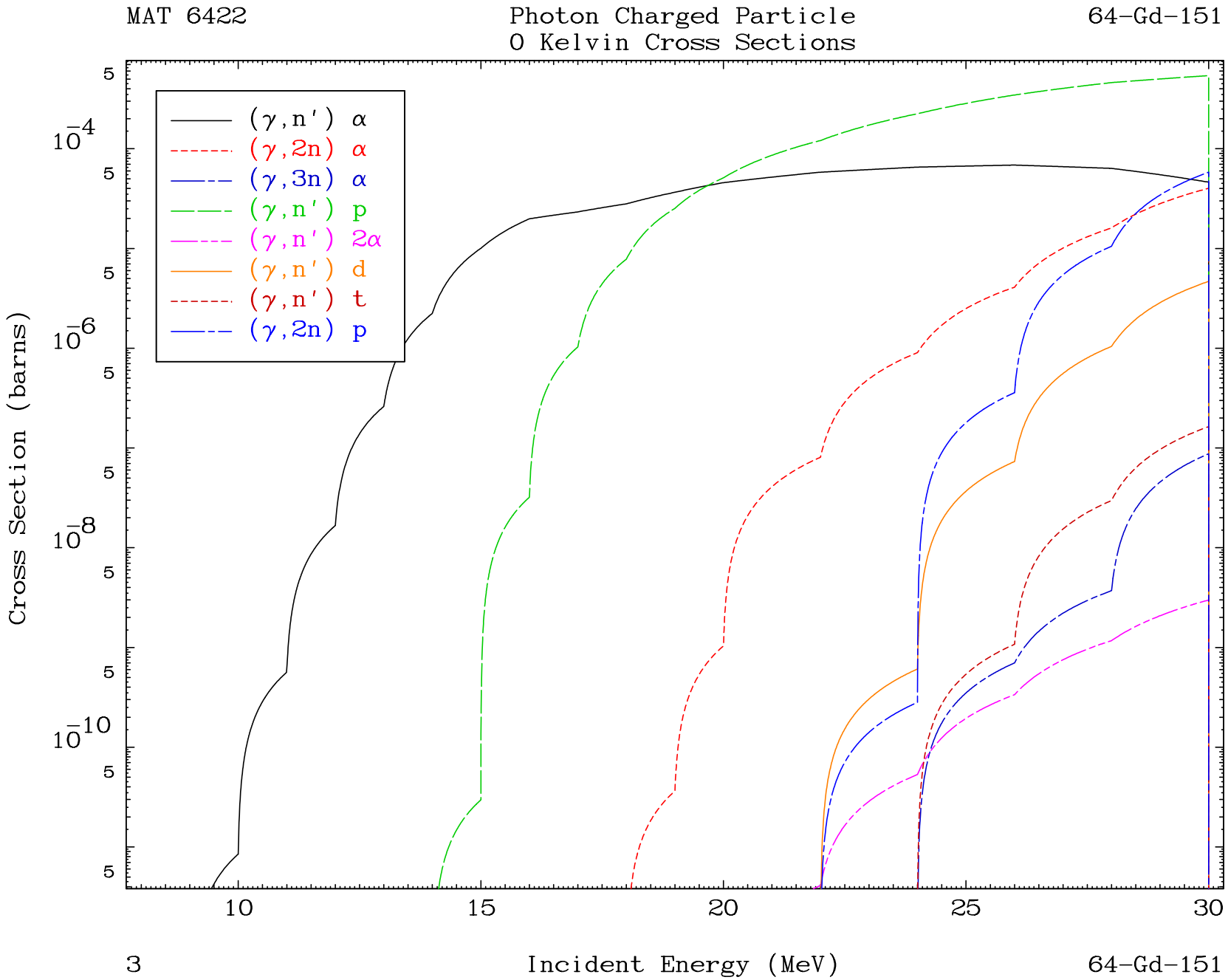
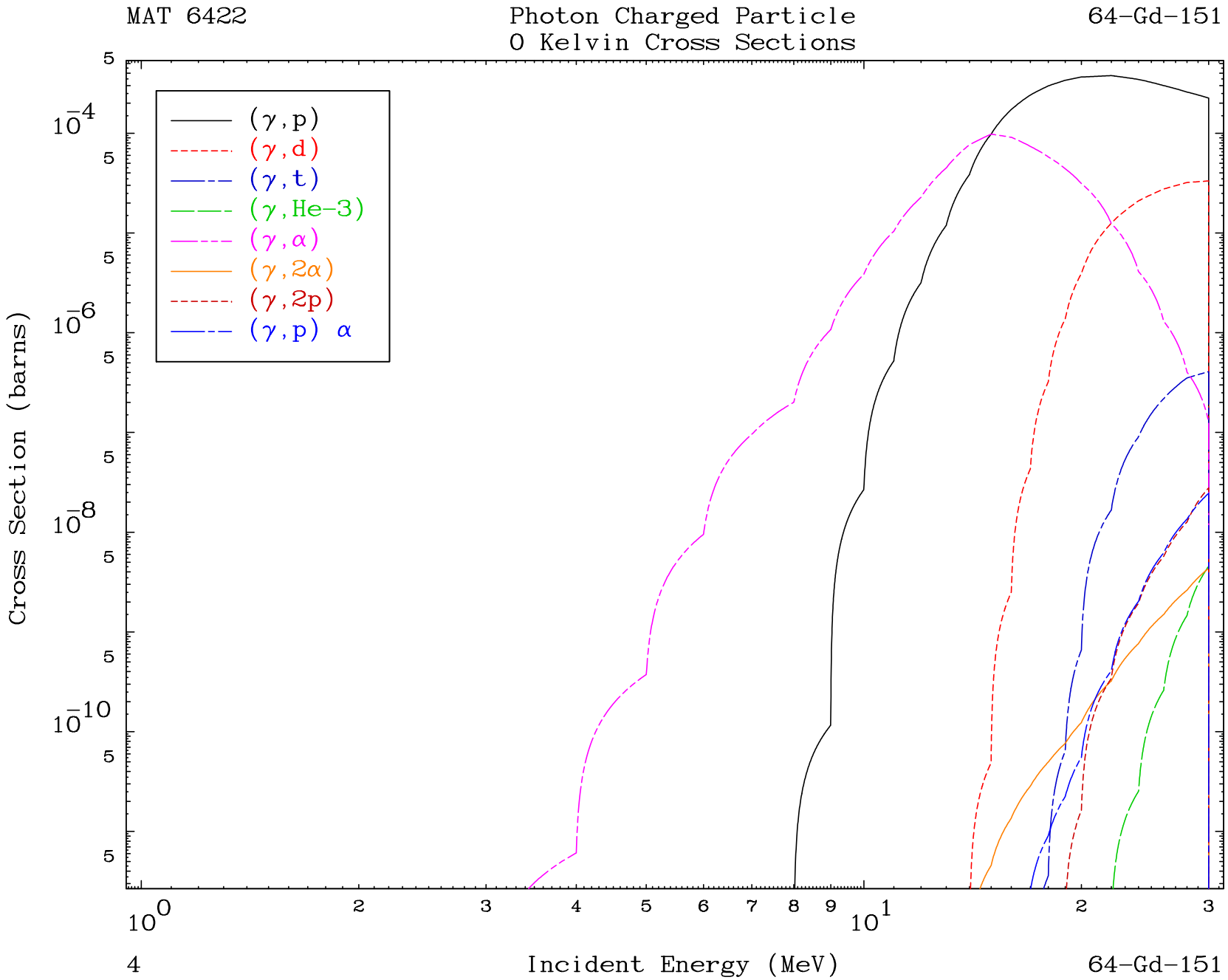
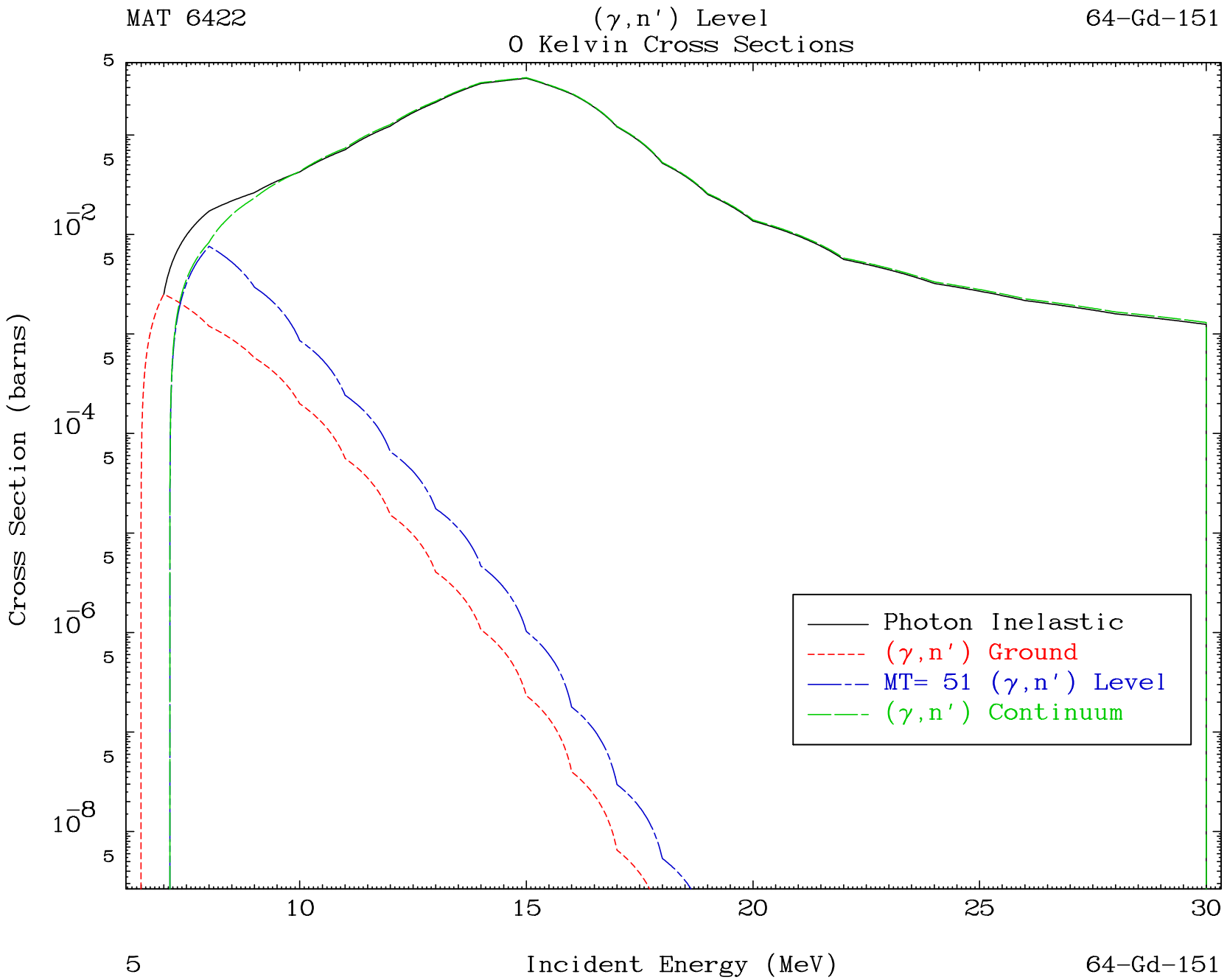
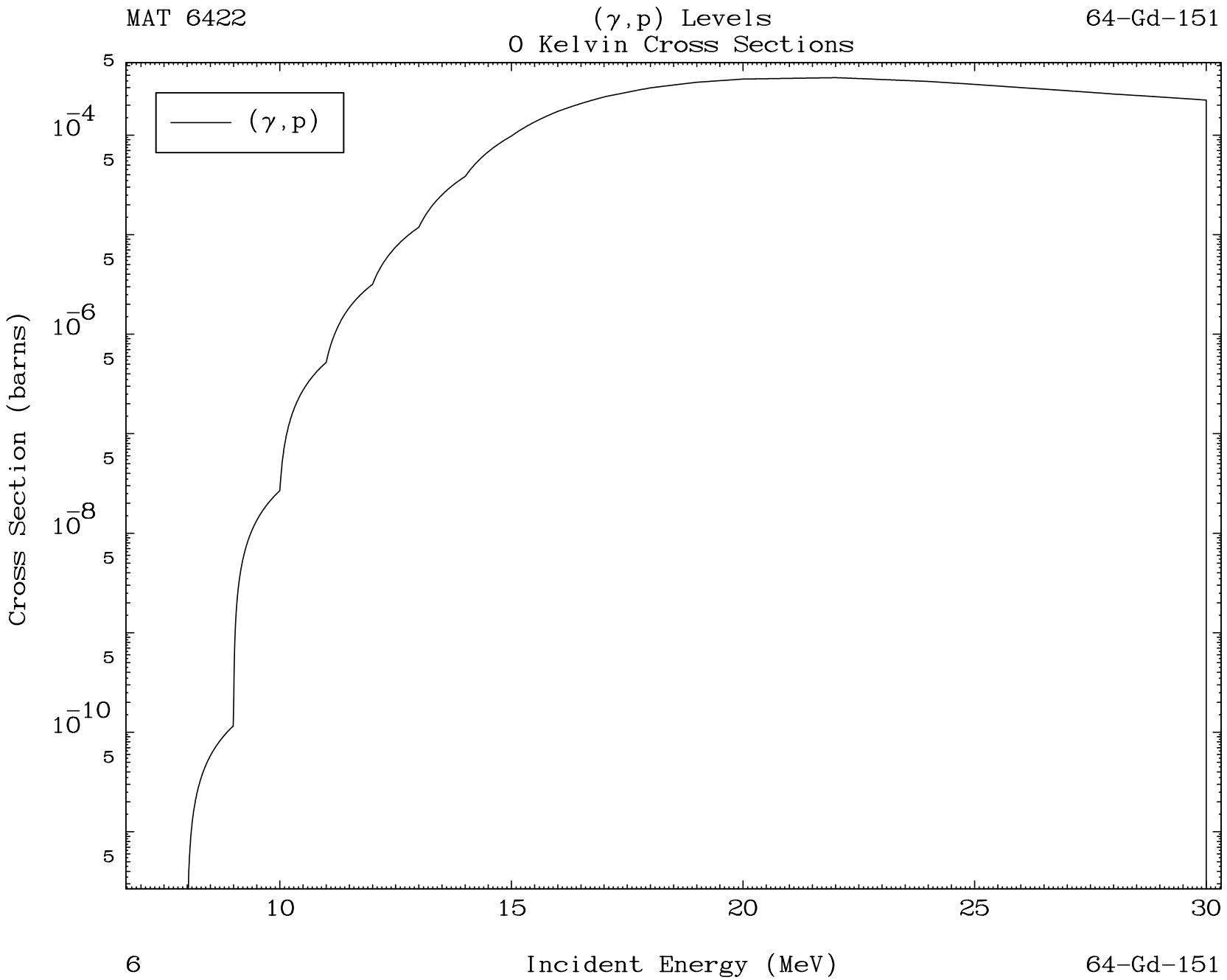

MAT 6422
Photon Major
64-Gd-151
0 Kelvin Cross Sections
Photon Inelastic
(γ,γ)
Cross Section (barns)
10-1
10-2
10-3
10-4
10-5
5
100
2
3
4
5
6
7
8
9
101
2
3
1
Incident Energy (MeV)
64-Gd-151

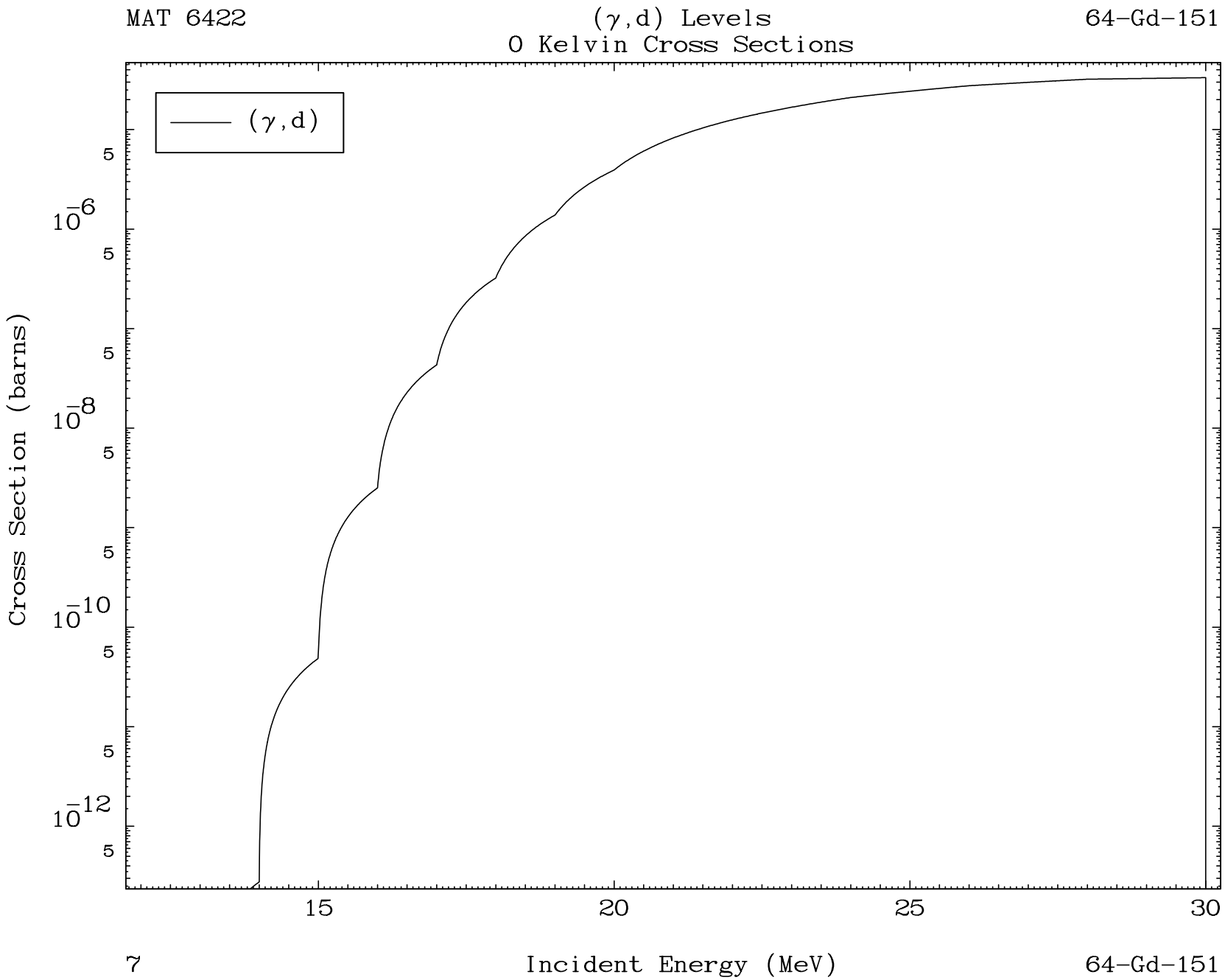

MAT 6422
Photon Neutron Production
0 Kelvin Cross Sections
64-Gd-151
(γ,2n)
(γ,3n)
(γ,n') α
(γ,2n) α
(γ,3n) α
(γ,n') p
(γ,n') 2α
(γ,n') d
(γ,n') t
(γ,2n) p
Cross Section (barns)
10^-2
10^-4
10^-6
10^-8
5
10
15
20
25
30
2
Incident Energy (MeV)
64-Gd-151

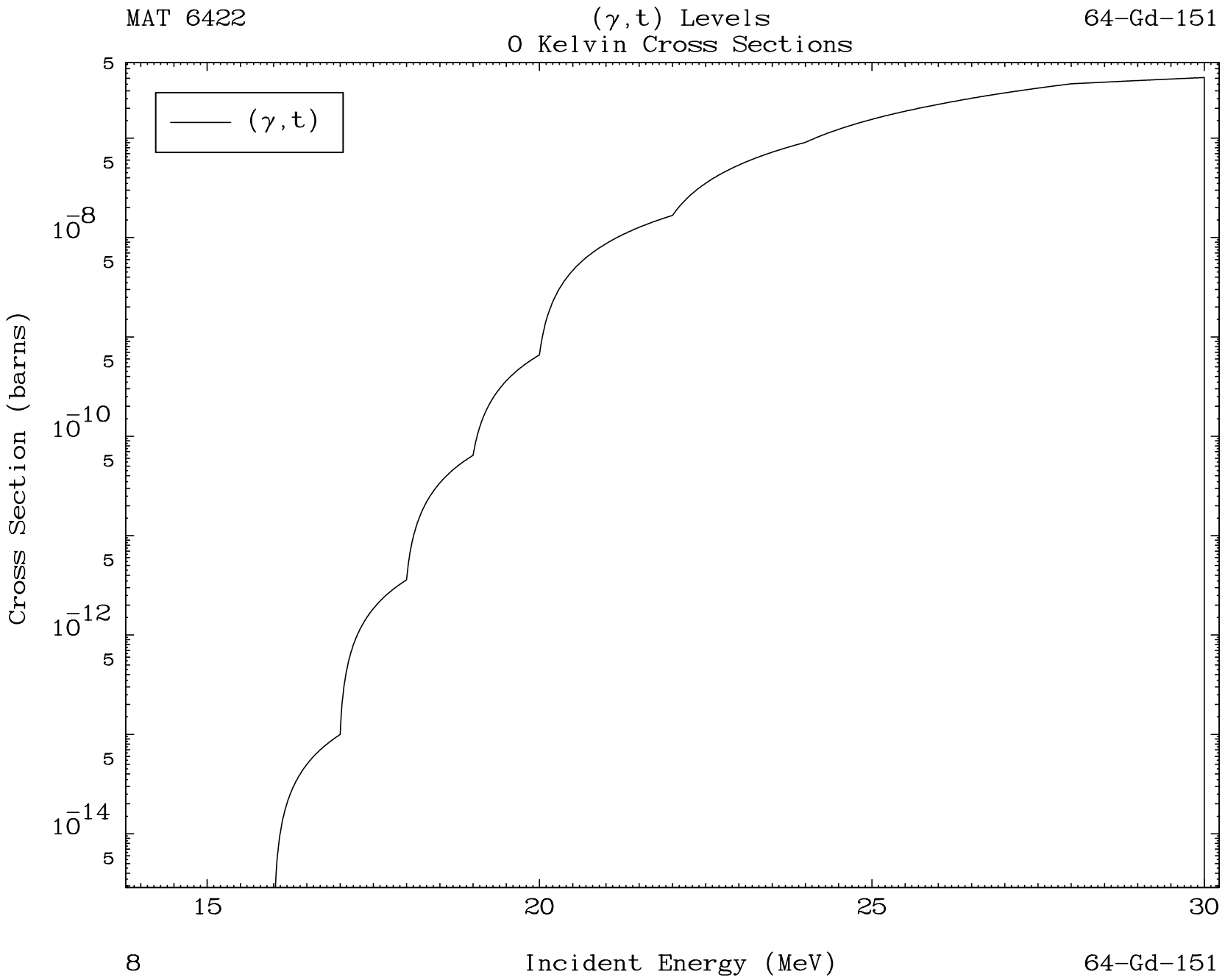

MAT 6422
Photon Charged Particle
0 Kelvin Cross Sections
64-Gd-151
(γ,n') α
(γ,2n) α
(γ,3n) α
(γ,n') p
(γ,n') 2α
(γ,n') d
(γ,n') t
(γ,2n) p
Cross Section (barns)
10^-4
10^-6
10^-8
10^-10
5
10
15
20
25
30
Incident Energy (MeV)
3
64-Gd-151

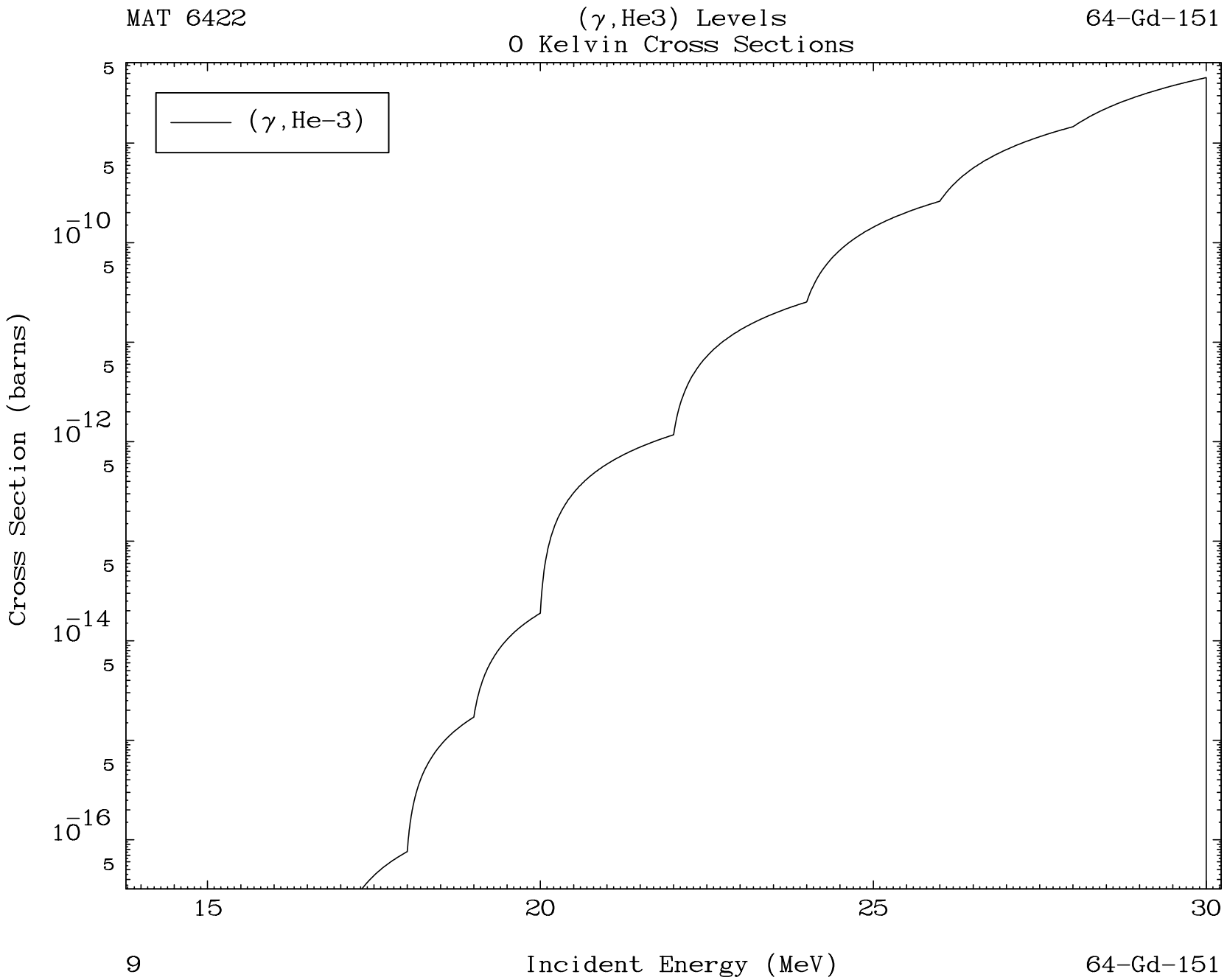

MAT 6422
Photon Charged Particle
0 Kelvin Cross Sections
64-Gd-151
(γ,p)
(γ,d)
(γ,t)
(γ,He-3)
(γ,α)
(γ,2α)
(γ,2p)
(γ,p) α
Cross Section (barns)
Incident Energy (MeV)
64-Gd-151
4

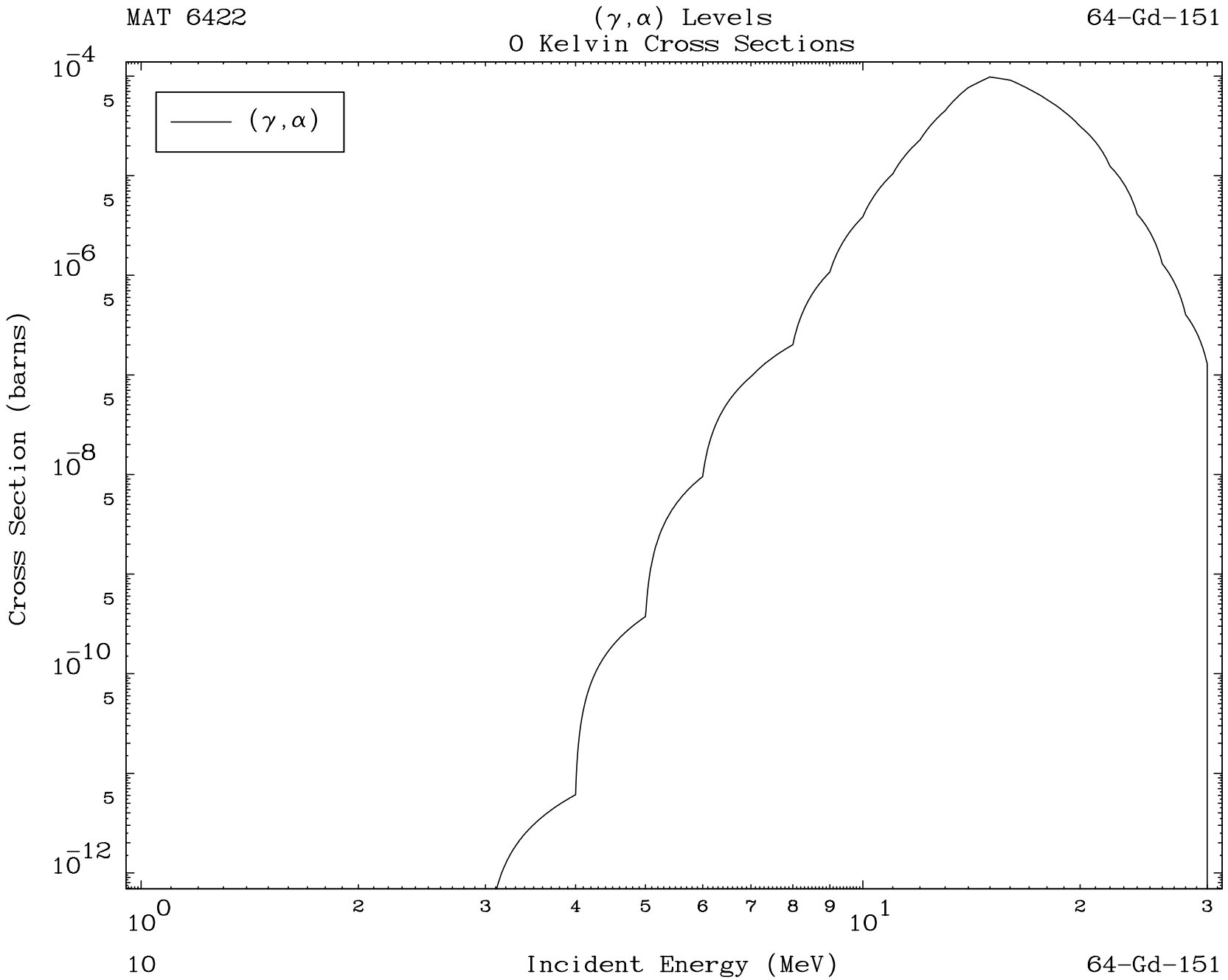

MAT 6422
(γ,n') Level
64-Gd-151
0 Kelvin Cross Sections
Cross Section (barns)
10-2
10-4
10-6
10-8
5
10
15
20
25
30
Incident Energy (MeV)
64-Gd-151
Photon Inelastic
(γ,n') Ground
MT= 51 (γ,n') Level
(γ,n') Continuum

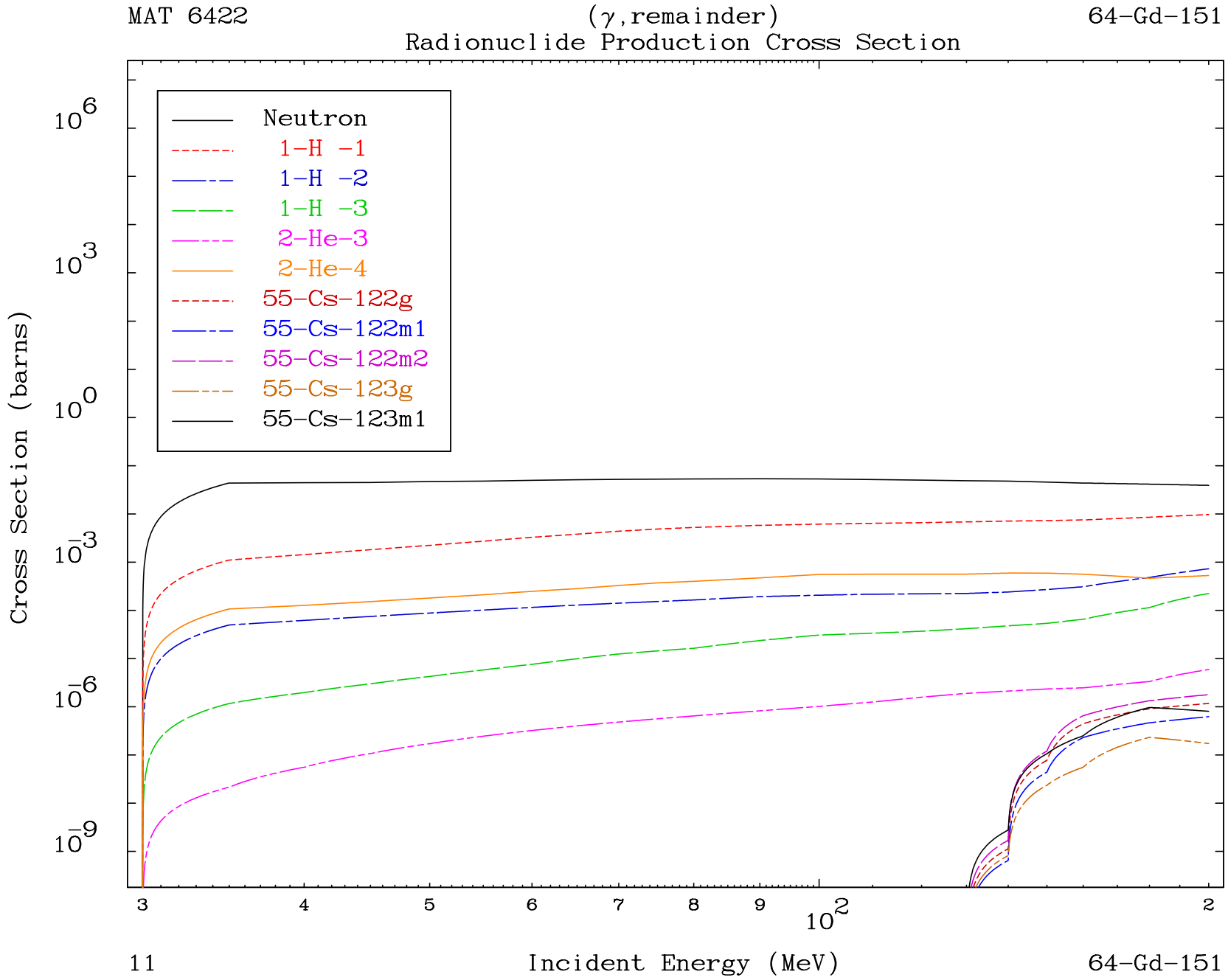

MAT 6422
(γ,p) Levels
64-Gd-151
0 Kelvin Cross Sections
(γ,p)
Cross Section (barns)
10^-4
10^-6
10^-8
10^-10
5
10
15
20
25
30
6
Incident Energy (MeV)
64-Gd-151

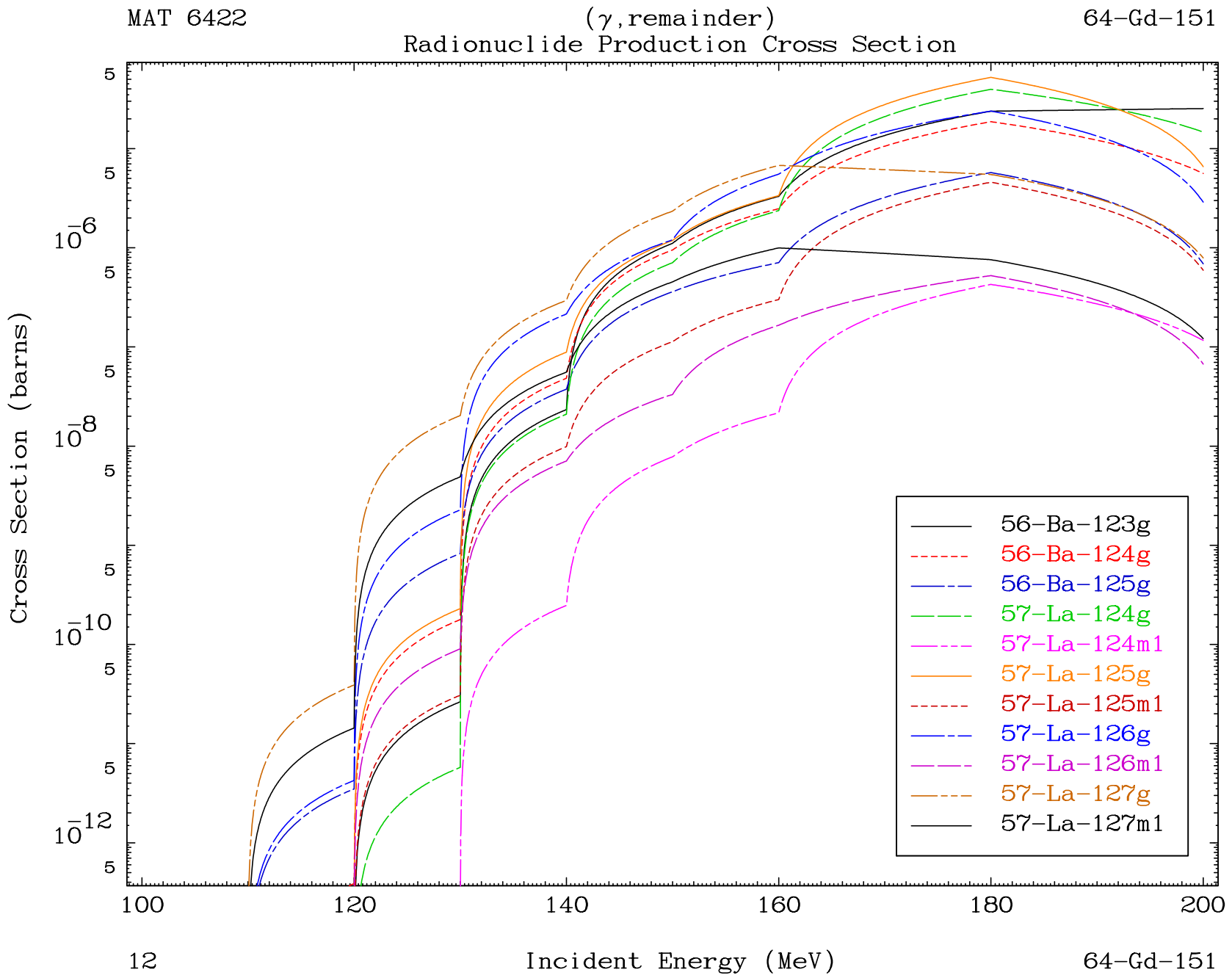

MAT 6422
(γ,d) Levels
64-Gd-151
0 Kelvin Cross Sections
(γ,d)
Cross Section (barns)
10-6
10-8
10-10
10-12
5
15
20
25
30
Incident Energy (MeV)
7
64-Gd-151

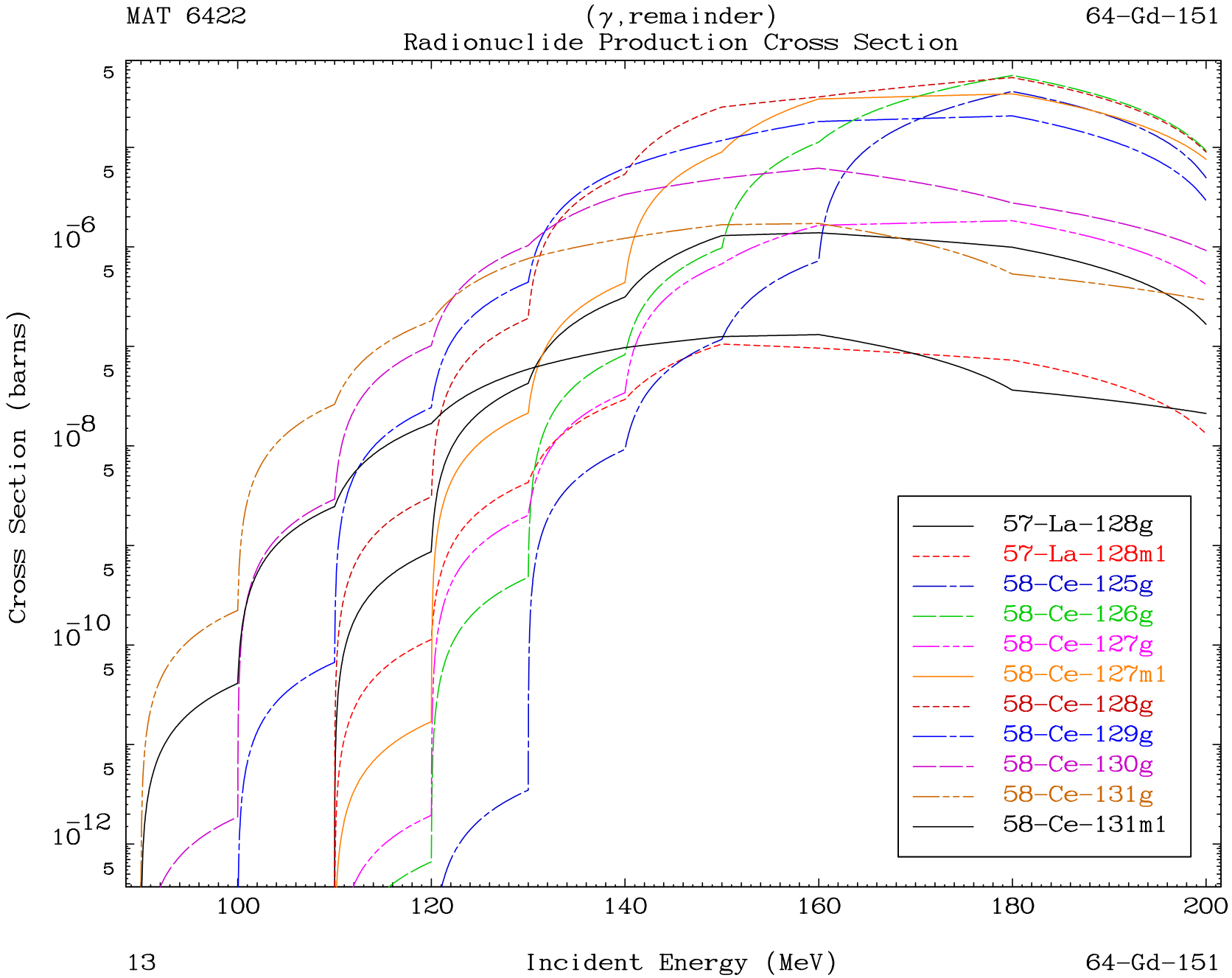

MAT 6422
(γ,t) Levels
64-Gd-151
0 Kelvin Cross Sections
(γ,t)
Cross Section (barns)
10-8
10-10
10-12
10-14
5
15
20
25
30
Incident Energy (MeV)
8
64-Gd-151


MAT 6422
(γ,He3) Levels
64-Gd-151
0 Kelvin Cross Sections
(γ,He-3)
Cross Section (barns)
10-10
10-12
10-14
10-16
5
15
20
25
30
9
Incident Energy (MeV)
64-Gd-151

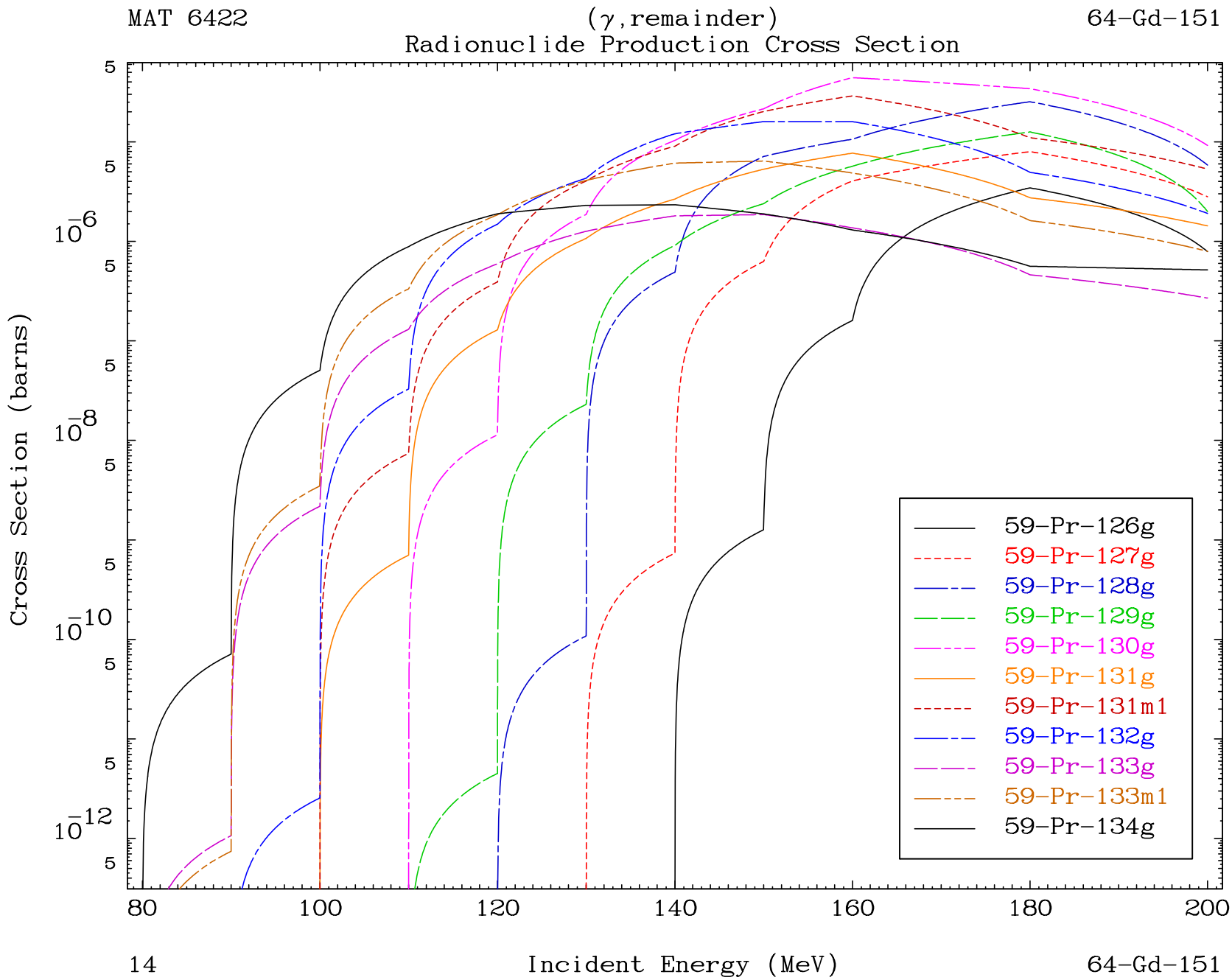

MAT 6422
(γ,α) Levels
64-Gd-151
0 Kelvin Cross Sections
(γ,α)
Cross Section (barns)
10^-4
5
10^-6
5
10^-8
5
10^-10
5
10^-12
5
10^0
2
3
4
5
6
7
8
9
10^1
2
3
10
Incident Energy (MeV)
64-Gd-151

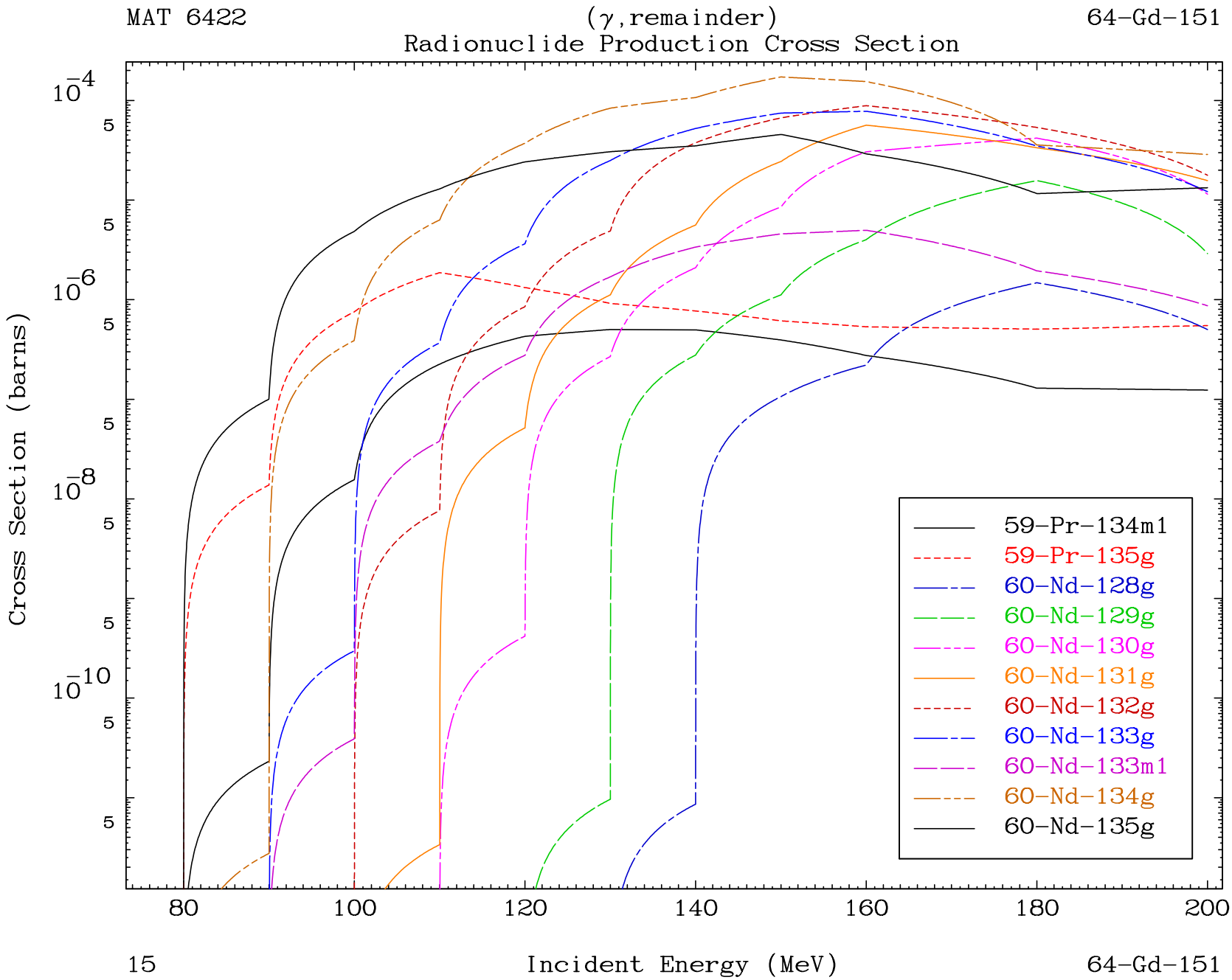

MAT 6422
(γ,remainder)
64-Gd-151
Radionuclide Production Cross Section
Neutron
1-H -1
1-H -2
1-H -3
2-He-3
2-He-4
55-Cs-122g
55-Cs-122m1
55-Cs-122m2
55-Cs-123g
55-Cs-123m1
Cross Section (barns)
10^6
10^3
10^0
10^-3
10^-6
10^-9
3
4
5
6
7
8
9
10^2
2
11
Incident Energy (MeV)
64-Gd-151

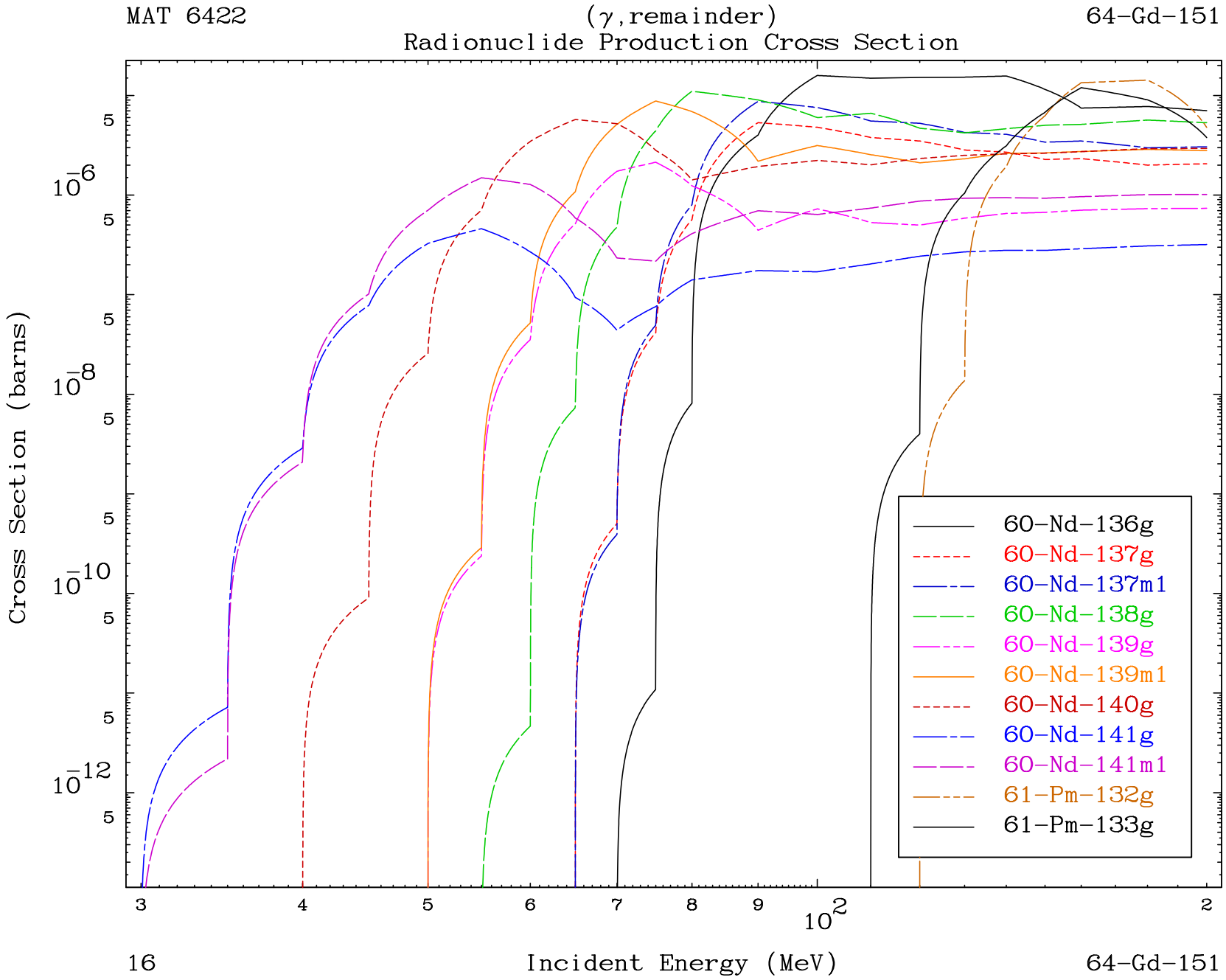

MAT 6422
(γ,remainder)
64-Gd-151
Radionuclide Production Cross Section
Cross Section (barns)
10-6
10-8
10-10
10-12
5
100
120
140
160
180
200
Incident Energy (MeV)
12
64-Gd-151
56-Ba-123g
56-Ba-124g
56-Ba-125g
57-La-124g
57-La-124m1
57-La-125g
57-La-125m1
57-La-126g
57-La-126m1
57-La-127g
57-La-127m1


MAT 6422
(γ,remainder)
64-Gd-151
Radionuclide Production Cross Section
Cross Section (barns)
10-6
10-8
10-10
10-12
5
100
120
140
160
180
200
Incident Energy (MeV)
57-La-128g
57-La-128m1
58-Ce-125g
58-Ce-126g
58-Ce-127g
58-Ce-127m1
58-Ce-128g
58-Ce-129g
58-Ce-130g
58-Ce-131g
58-Ce-131m1

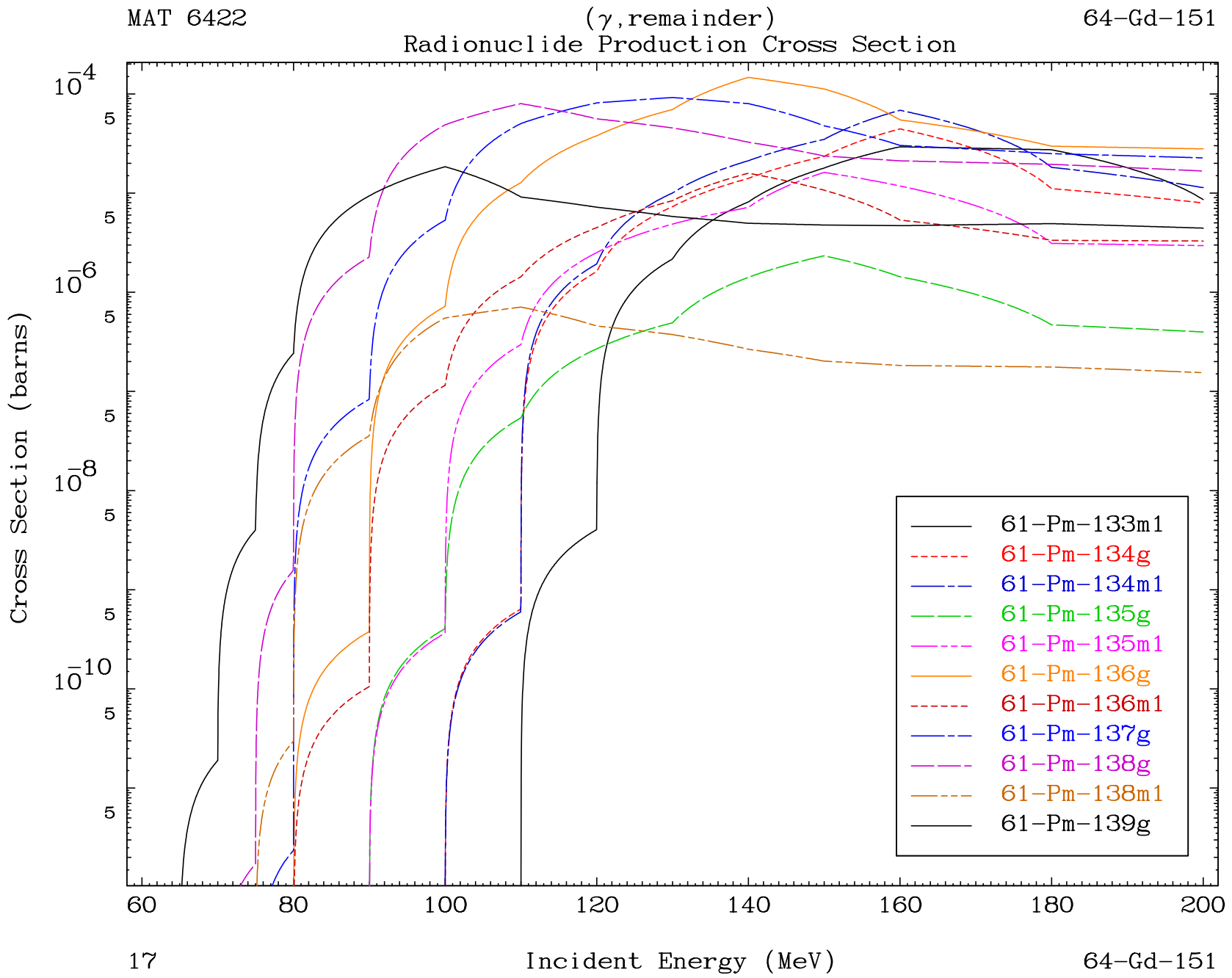
64-Gd-151

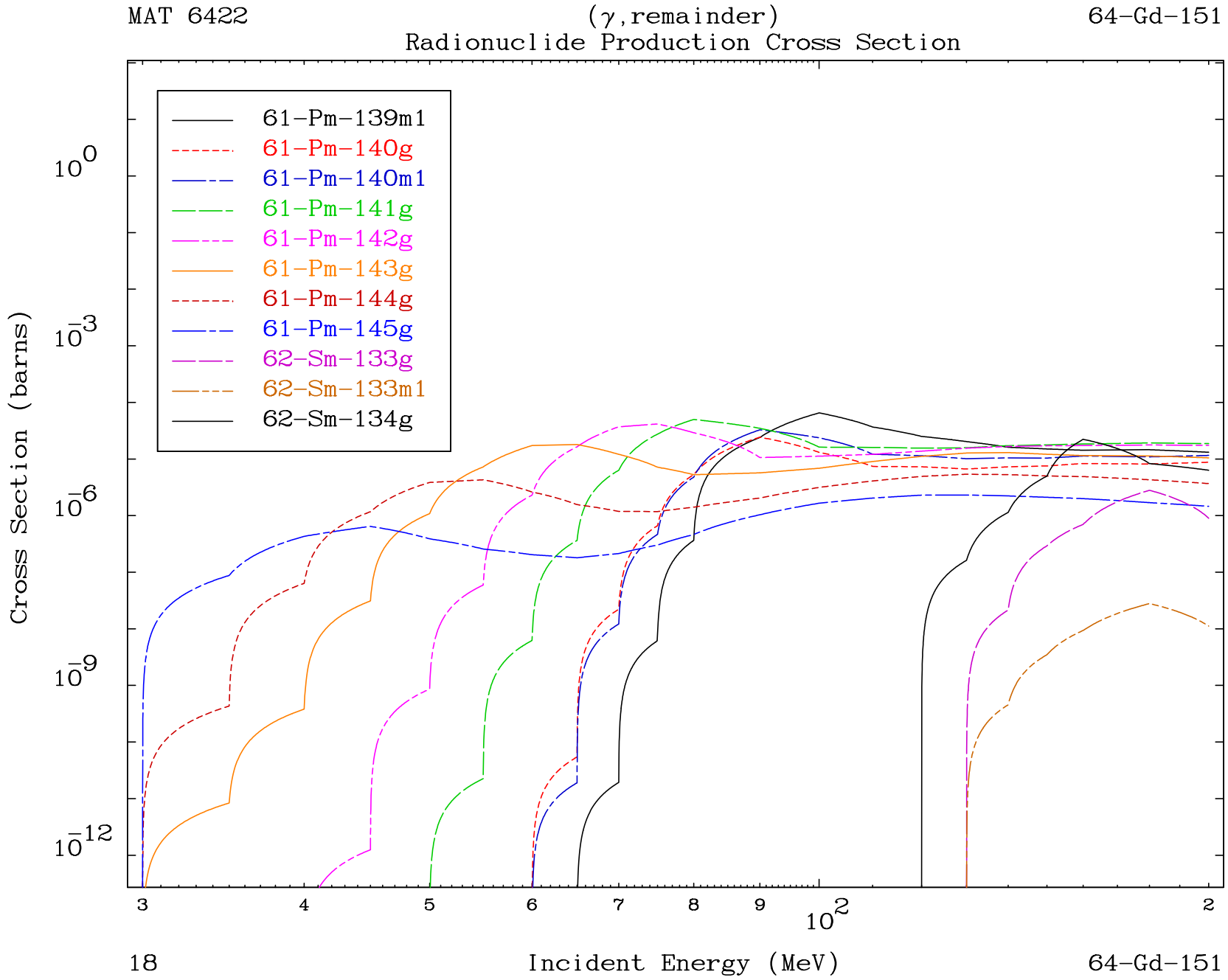

MAT 6422
(γ,remainder)
64-Gd-151
Radionuclide Production Cross Section
Cross Section (barns)
10-6
10-8
10-10
10-12
5
80
100
120
140
160
180
200
14
Incident Energy (MeV)
64-Gd-151
59-Pr-126g
59-Pr-127g
59-Pr-128g
59-Pr-129g
59-Pr-130g
59-Pr-131g
59-Pr-131m1
59-Pr-132g
59-Pr-133g
59-Pr-133m1
59-Pr-134g

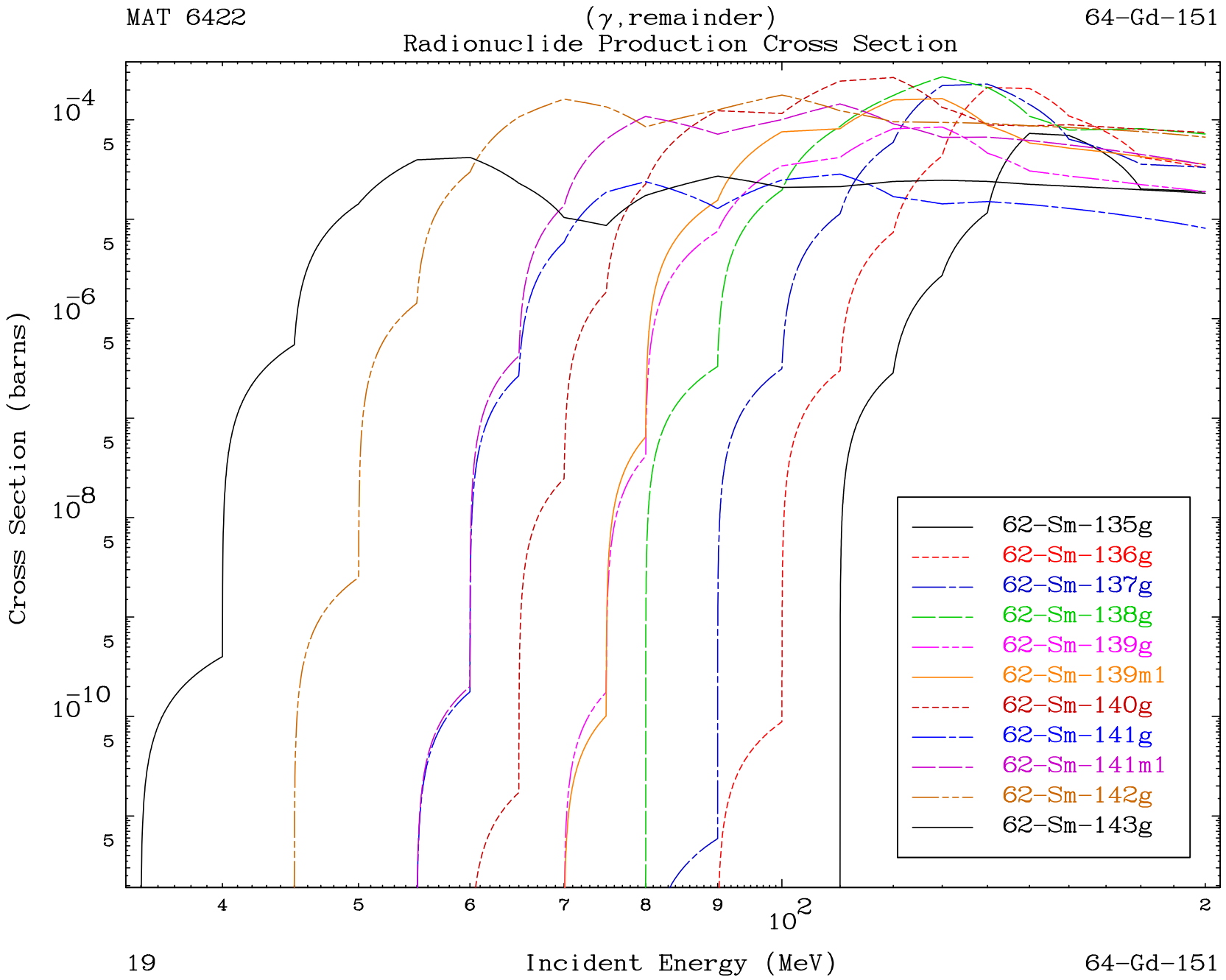

MAT 6422
(γ,remainder)
64-Gd-151
Radionuclide Production Cross Section
Cross Section (barns)
10-4
10-6
10-8
10-10
80
100
120
140
160
180
200
Incident Energy (MeV)
15
64-Gd-151
59-Pr-134m1
59-Pr-135g
60-Nd-128g
60-Nd-129g
60-Nd-130g
60-Nd-131g
60-Nd-132g
60-Nd-133g
60-Nd-133m1
60-Nd-134g
60-Nd-135g

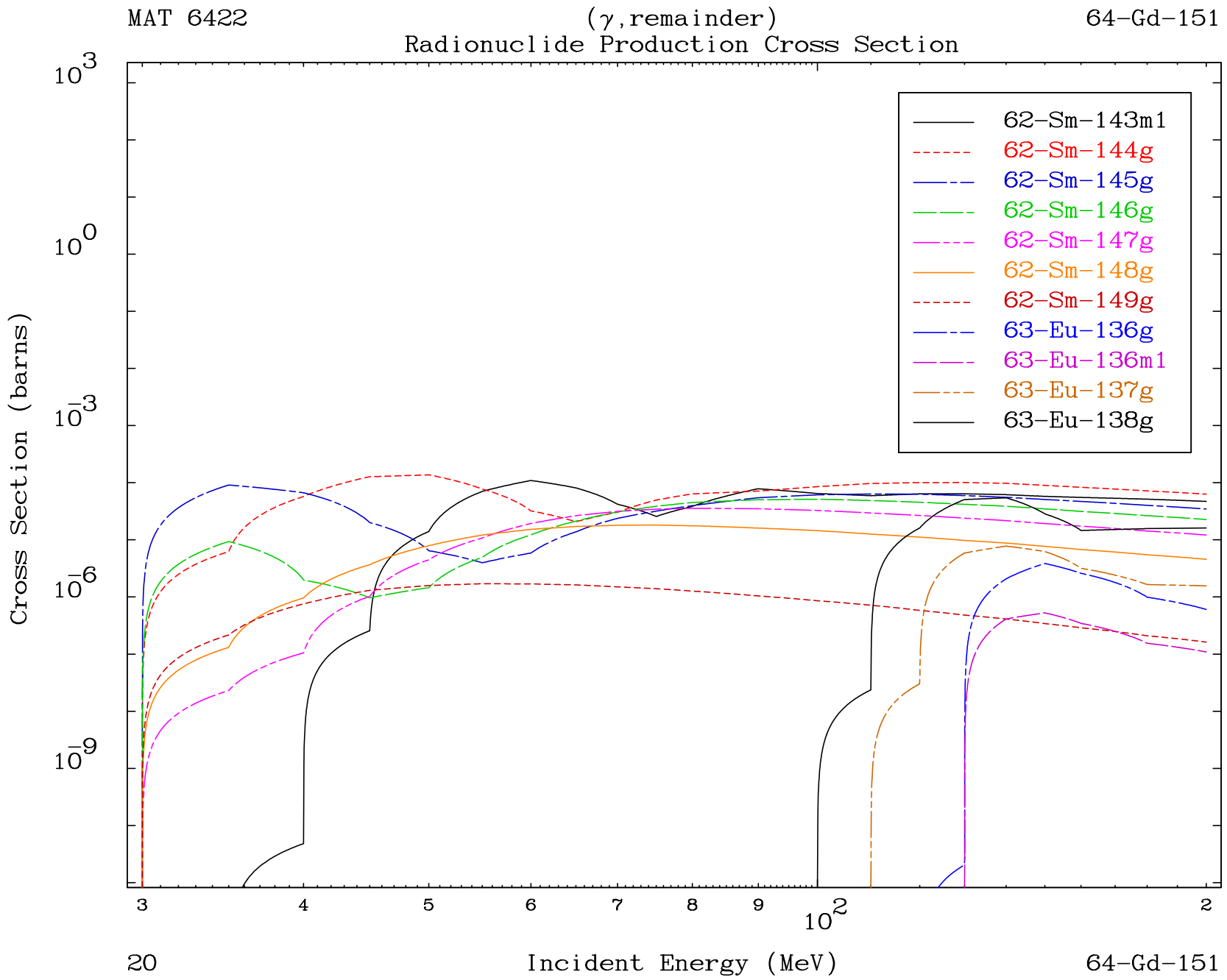

MAT 6422
(γ,remainder)
64-Gd-151
Radionuclide Production Cross Section
Cross Section (barns)
10-6
10-8
10-10
10-12
5
3
4
5
6
7
8
9
10 2
2
Incident Energy (MeV)
60-Nd-136g
60-Nd-137g
60-Nd-137m1
60-Nd-138g
60-Nd-139g
60-Nd-139m1
60-Nd-140g
60-Nd-141g
60-Nd-141m1
61-Pm-132g
61-Pm-133g

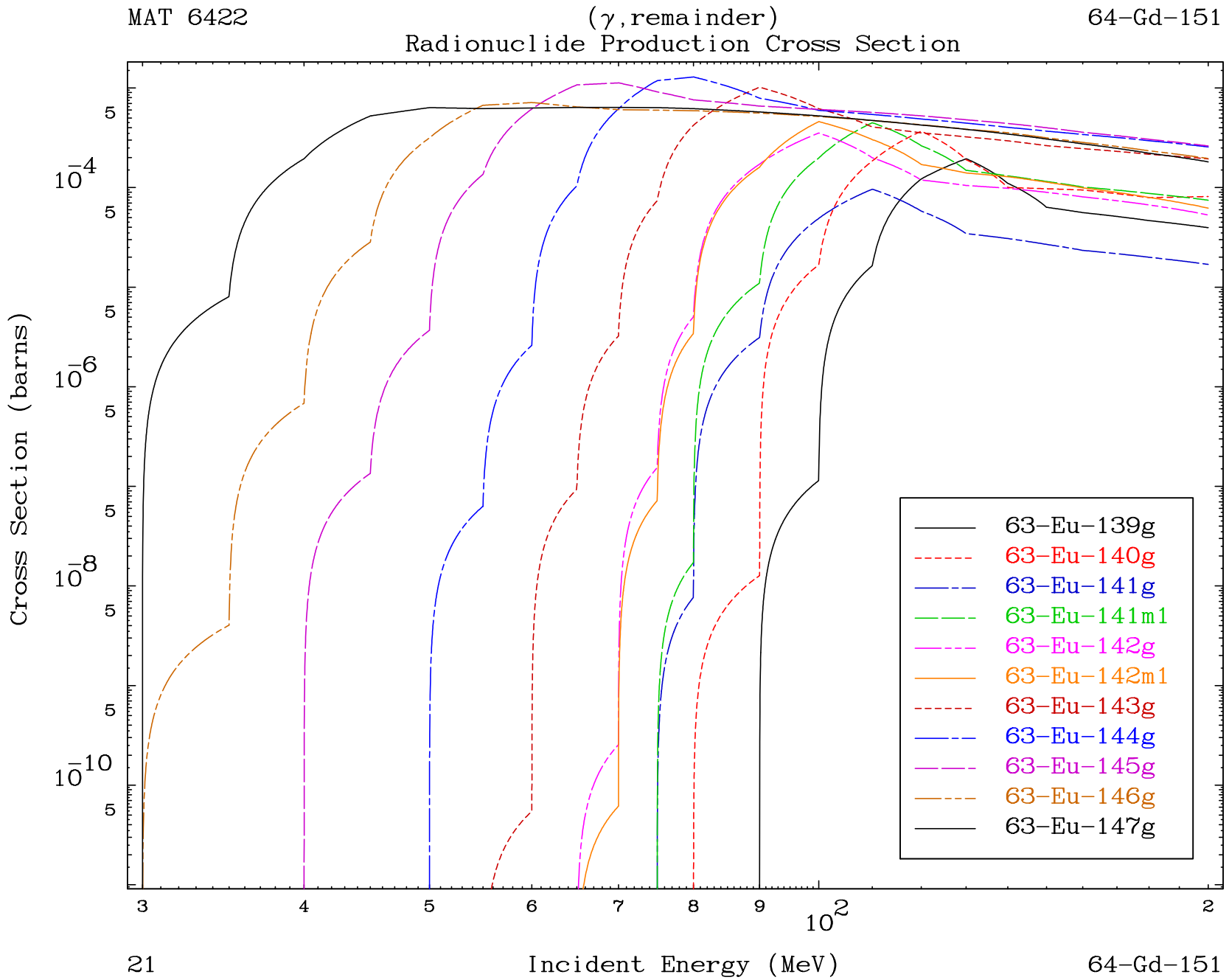
64-Gd-151

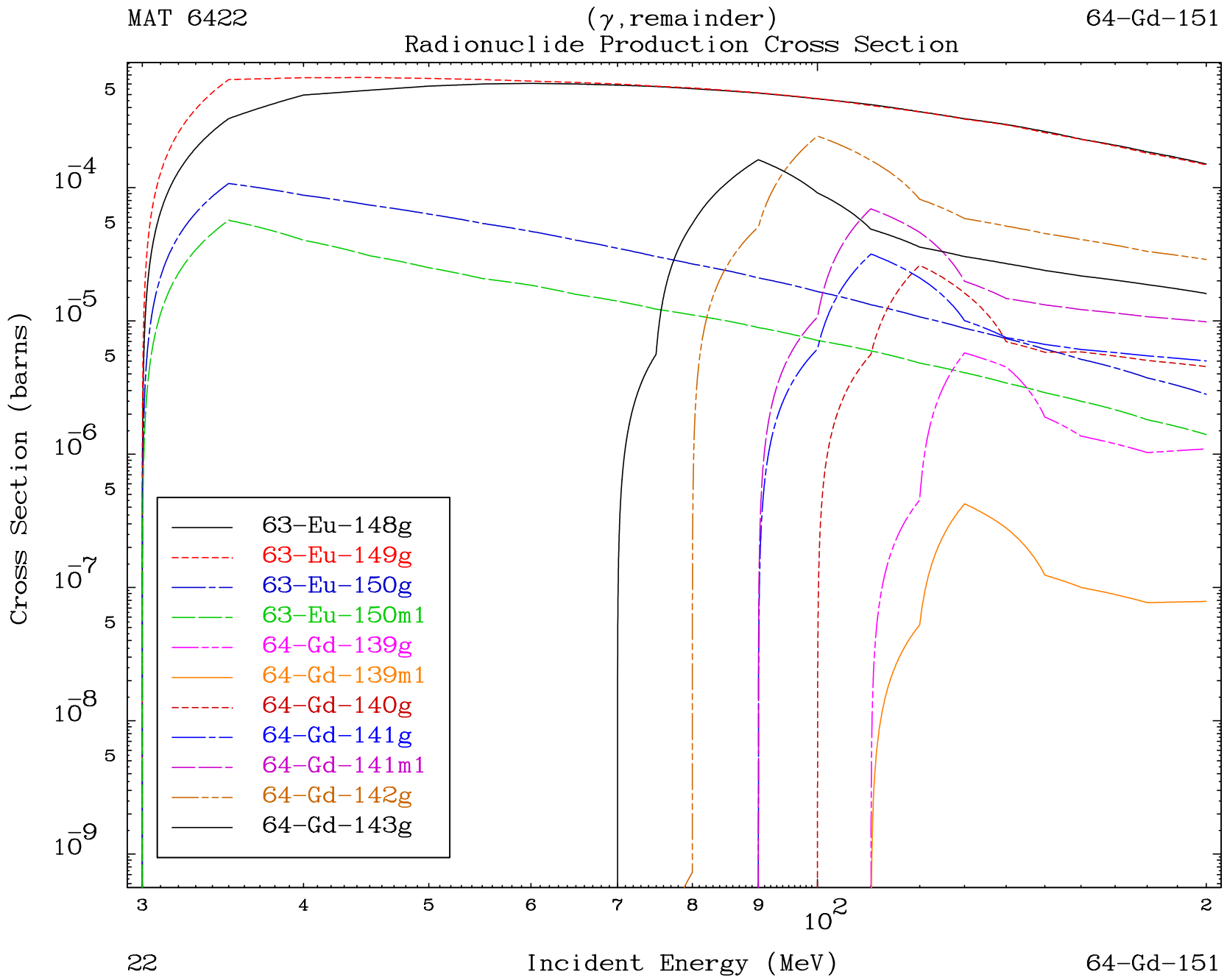

MAT 6422
(γ,remainder)
64-Gd-151
Radionuclide Production Cross Section
Cross Section (barns)
10-4
10-6
10-8
10-10
60
80
100
120
140
160
180
200
17
Incident Energy (MeV)
64-Gd-151
61-Pm-133m1
61-Pm-134g
61-Pm-134m1
61-Pm-135g
61-Pm-135m1
61-Pm-136g
61-Pm-136m1
61-Pm-137g
61-Pm-138g
61-Pm-138m1
61-Pm-139g

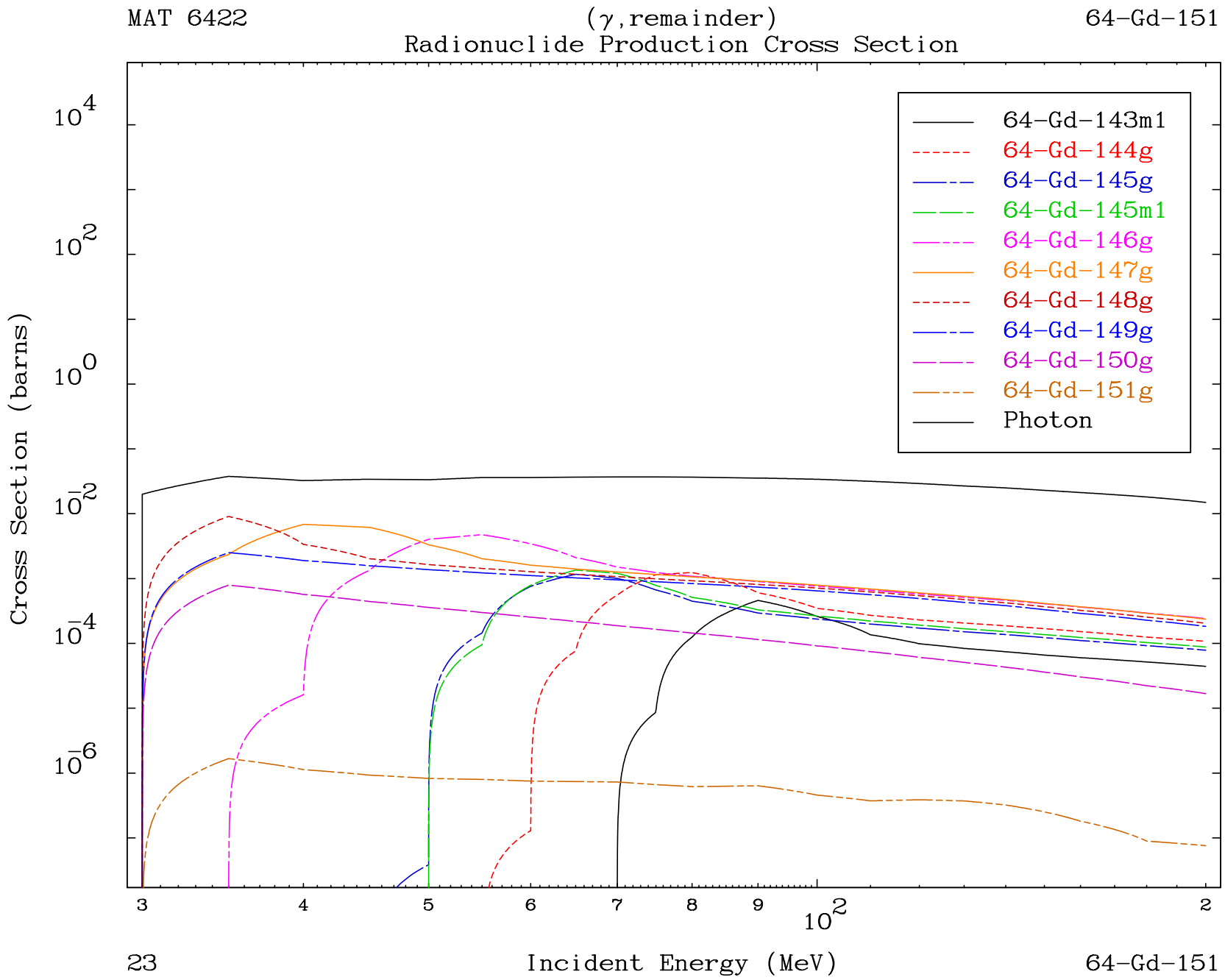

MAT 6422
(γ,remainder)
64-Gd-151
Radionuclide Production Cross Section
61-Pm-139m1
61-Pm-140g
61-Pm-140m1
61-Pm-141g
61-Pm-142g
61-Pm-143g
61-Pm-144g
61-Pm-145g
62-Sm-133g
62-Sm-133m1
62-Sm-134g
Cross Section (barns)
10^0
10^-3
10^-6
10^-9
10^-12
3
4
5
6
7
8
9
10^2
2
18
Incident Energy (MeV)
64-Gd-151

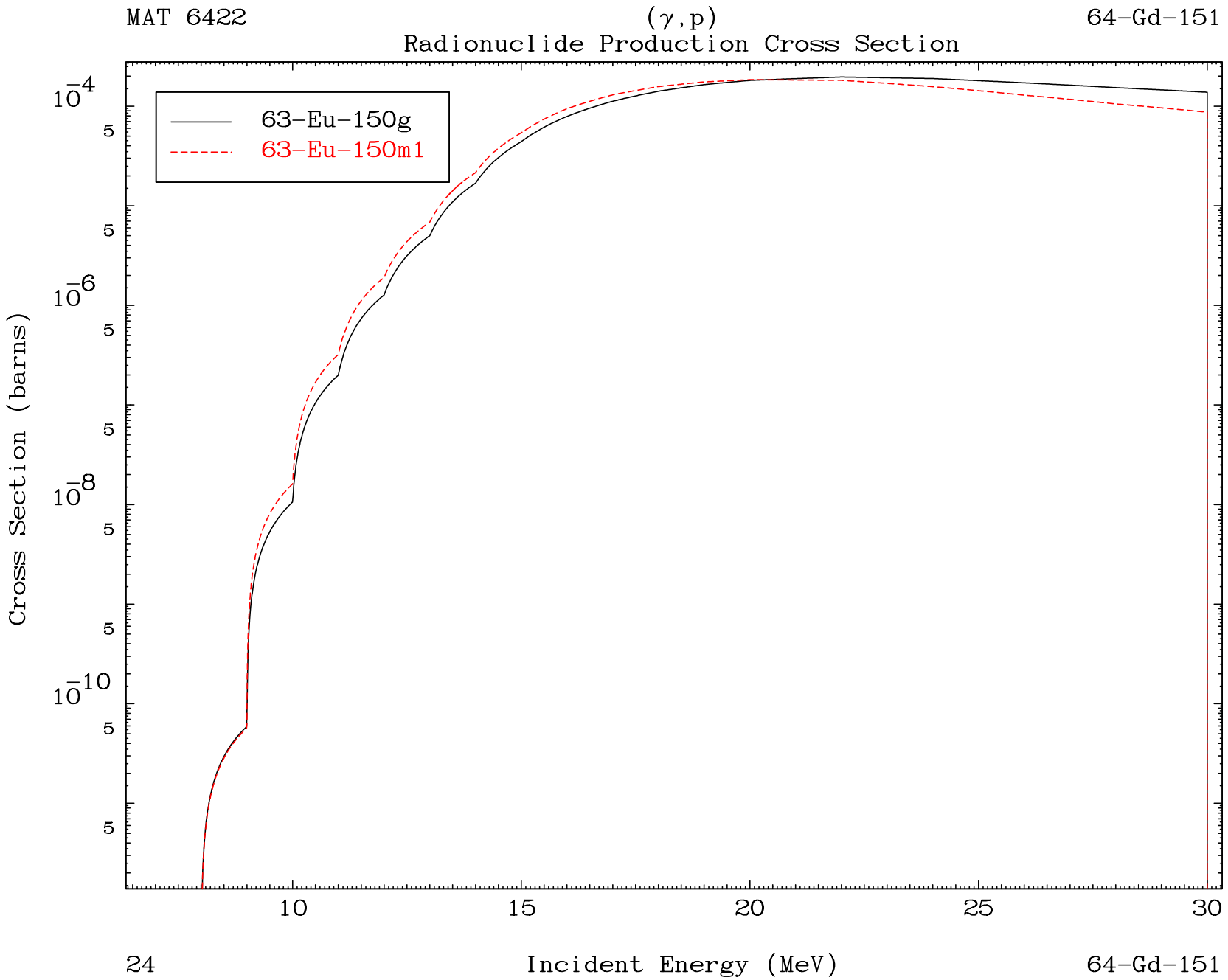

MAT 6422
(γ,remainder)
64-Gd-151
Radionuclide Production Cross Section
Cross Section (barns)
10-4
10-6
10-8
10-10
4
5
6
7
8
9
10 2
2
62-Sm-135g
62-Sm-136g
62-Sm-137g
62-Sm-138g
62-Sm-139g
62-Sm-139m1
62-Sm-140g
62-Sm-141g
62-Sm-141m1
62-Sm-142g
62-Sm-143g
19
Incident Energy (MeV)
64-Gd-151


MAT 6422
(γ,remainder)
64-Gd-151
Radionuclide Production Cross Section
Cross Section (barns)
10^3
10^0
10^-3
10^-6
10^-9
62-Sm-143m1
62-Sm-144g
62-Sm-145g
62-Sm-146g
62-Sm-147g
62-Sm-148g
62-Sm-149g
63-Eu-136g
63-Eu-136m1
63-Eu-137g
63-Eu-138g
3
4
5
6
7
8
9
10^2
2
20
Incident Energy (MeV)
64-Gd-151


MAT 6422
(γ,remainder)
64-Gd-151
Radionuclide Production Cross Section
Cross Section (barns)
10-4
10-6
10-8
10-10
5
3
4
5
6
7
8
9
10 2
2
Incident Energy (MeV)
63-Eu-139g
63-Eu-140g
63-Eu-141g
63-Eu-141m1
63-Eu-142g
63-Eu-142m1
63-Eu-143g
63-Eu-144g
63-Eu-145g
63-Eu-146g
63-Eu-147g
21
64-Gd-151


MAT 6422
(γ,remainder)
64-Gd-151
Radionuclide Production Cross Section
Cross Section (barns)
10-4
10-5
10-6
10-7
10-8
10-9
5
3
4
5
6
7
8
9
10 2
2
63-Eu-148g
63-Eu-149g
63-Eu-150g
63-Eu-150m1
64-Gd-139g
64-Gd-139m1
64-Gd-140g
64-Gd-141g
64-Gd-141m1
64-Gd-142g
64-Gd-143g
22
Incident Energy (MeV)
64-Gd-151


MAT 6422
(γ,remainder)
64-Gd-151
Radionuclide Production Cross Section
Cross Section (barns)
10^4
10^2
10^0
10^-2
10^-4
10^-6
64-Gd-143m1
64-Gd-144g
64-Gd-145g
64-Gd-145m1
64-Gd-146g
64-Gd-147g
64-Gd-148g
64-Gd-149g
64-Gd-150g
64-Gd-151g
Photon
3
4
5
6
7
8
9
10^2
2
23
Incident Energy (MeV)
64-Gd-151


MAT 6422
(γ,p)
64-Gd-151
Radionuclide Production Cross Section
63-Eu-150g
63-Eu-150m1
Cross Section (barns)
10^-4
10^-6
10^-8
10^-10
5
10
15
20
25
30
24
Incident Energy (MeV)
64-Gd-151