

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

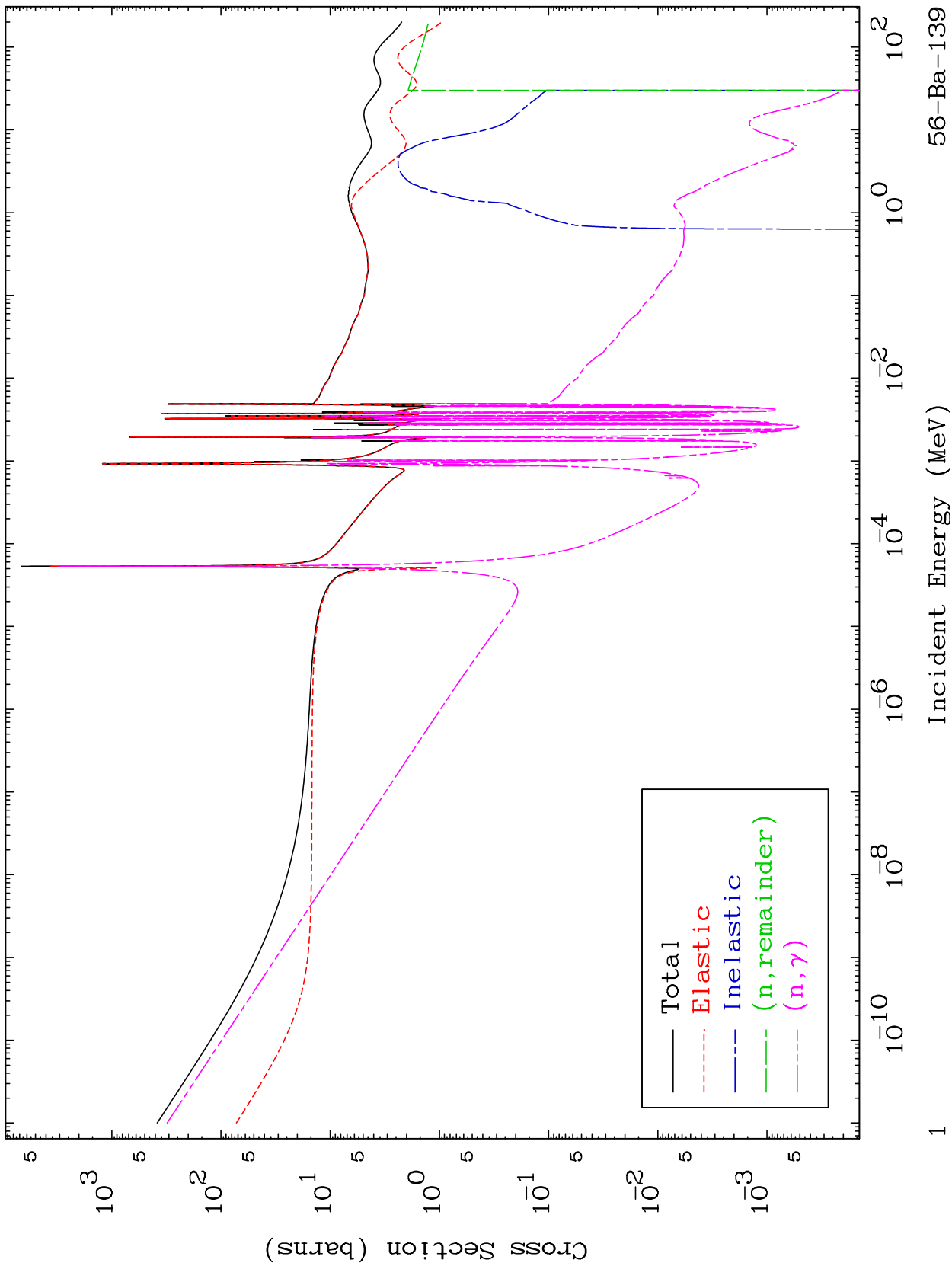
Press Mouse Button to Start

MAT 5652

Major

293 Kelvin Cross Sections

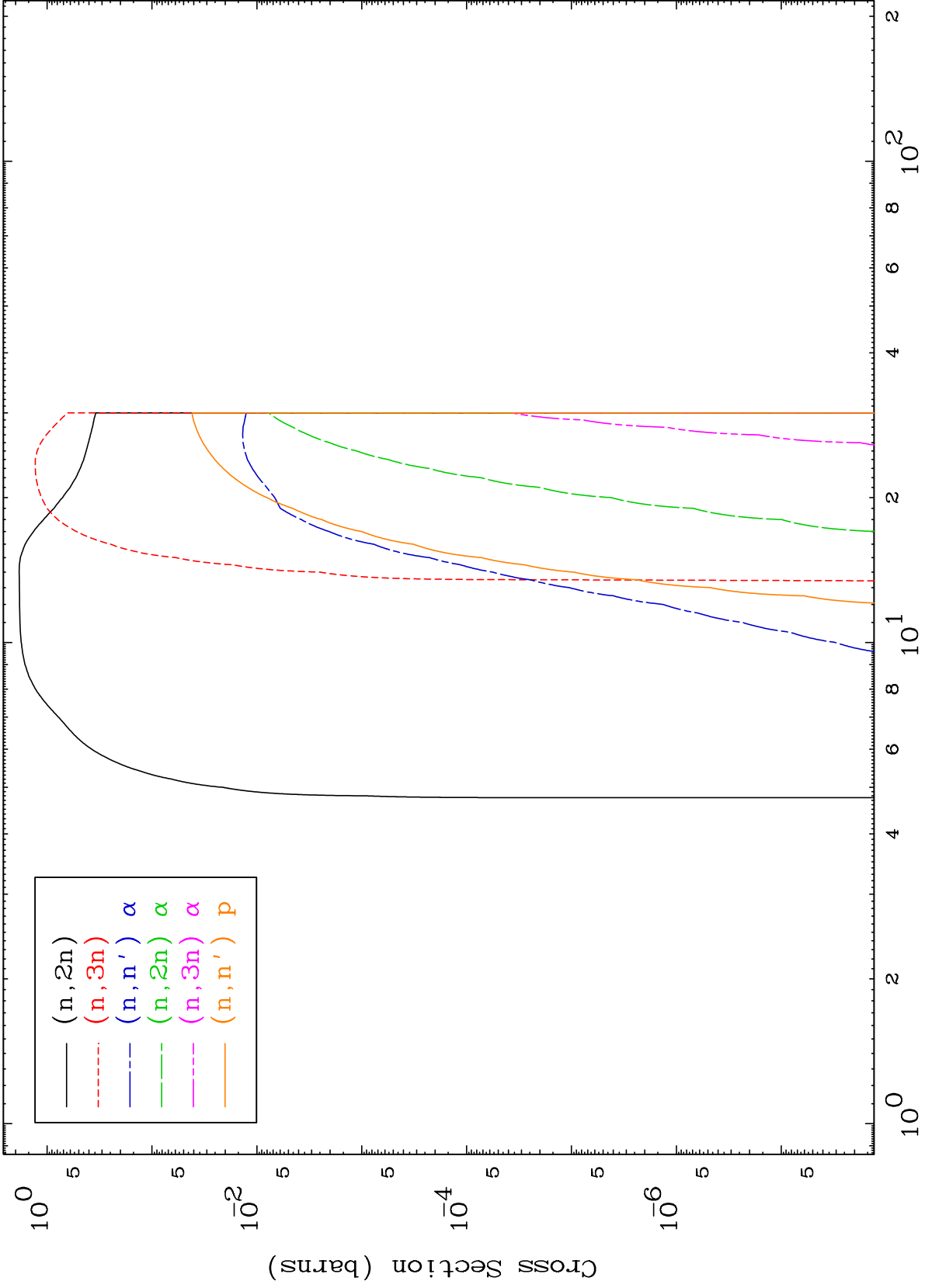
56-Ba-139



MAT 5652

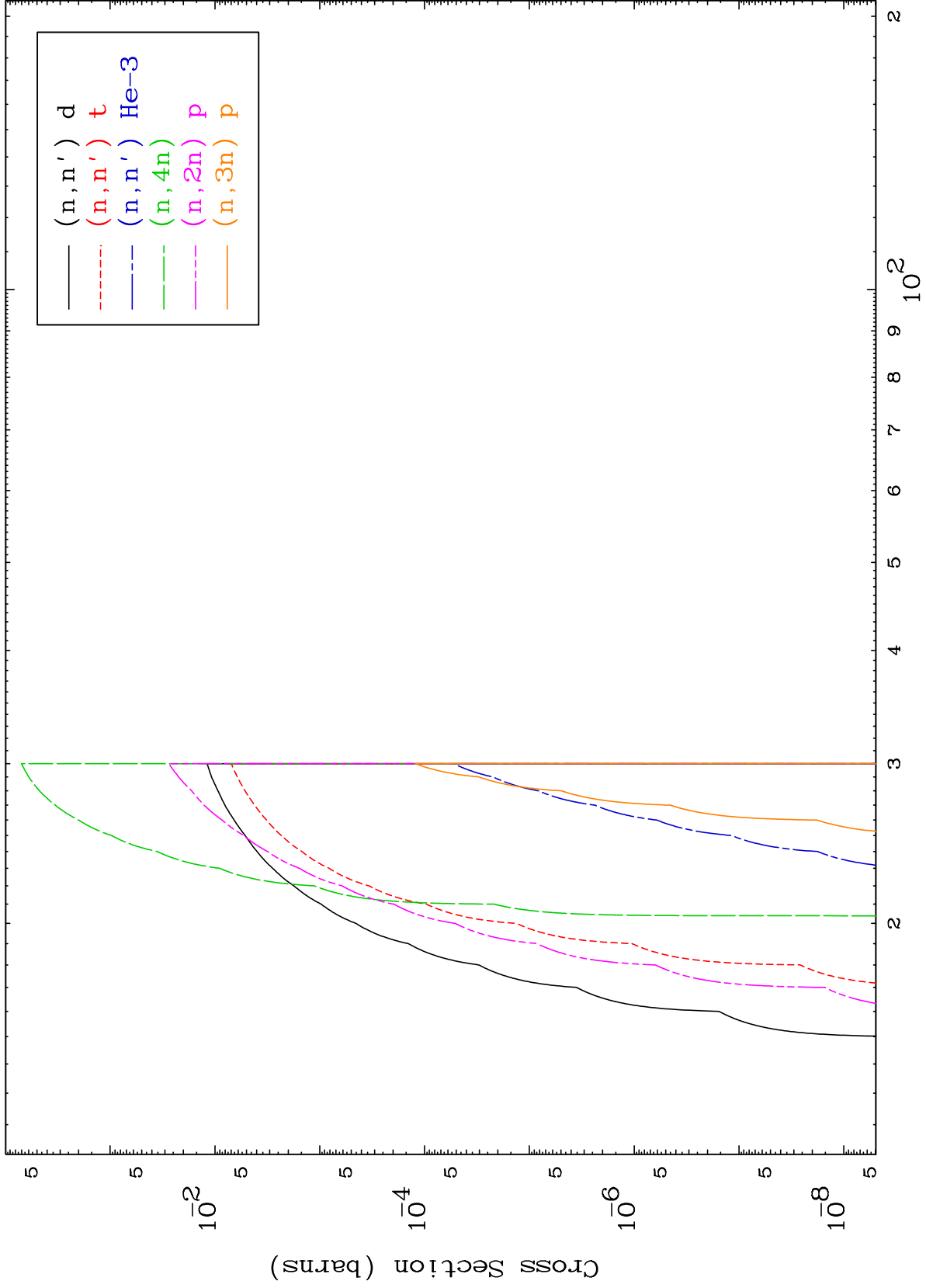
Neutron Production  
293 Kelvin Cross Sections

56-Ba-139



Incident Energy (MeV)

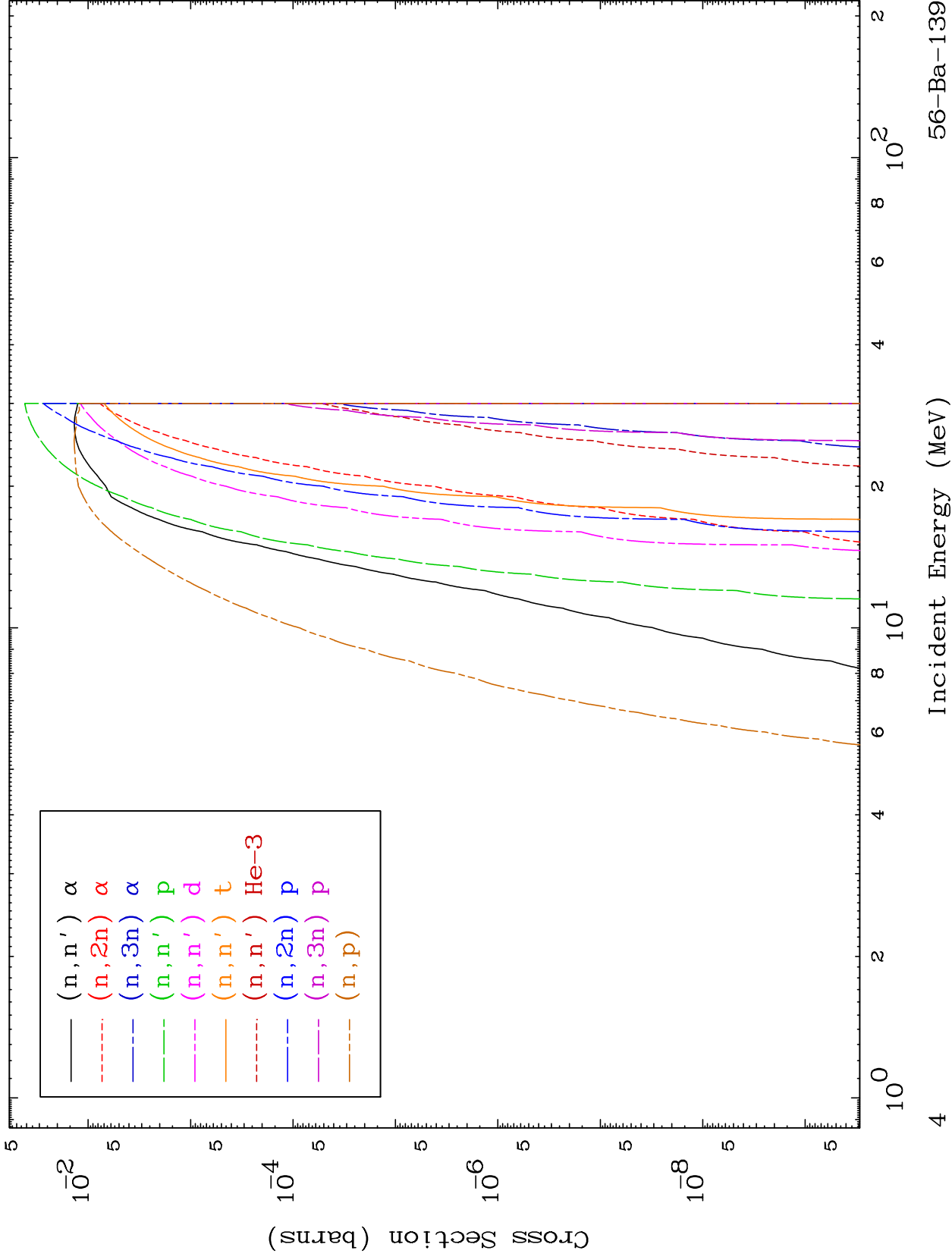
56-Ba-139



MAT 5652

Charged Particle  
293 Kelvin Cross Sections

56-Ba-139



56-Ba-139

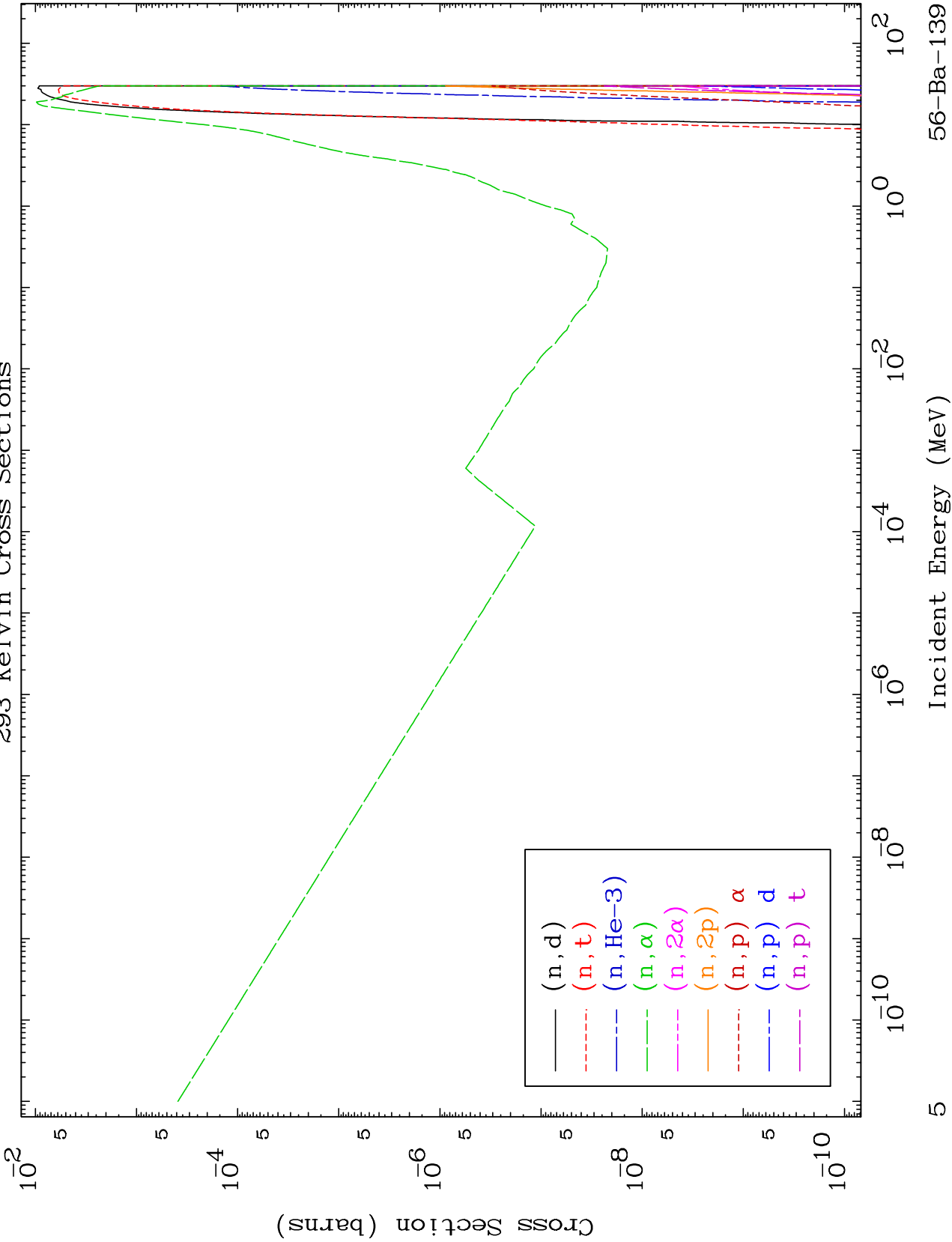
Incident Energy (MeV)

4

MAT 5652

Charged Particle  
293 Kelvin Cross Sections

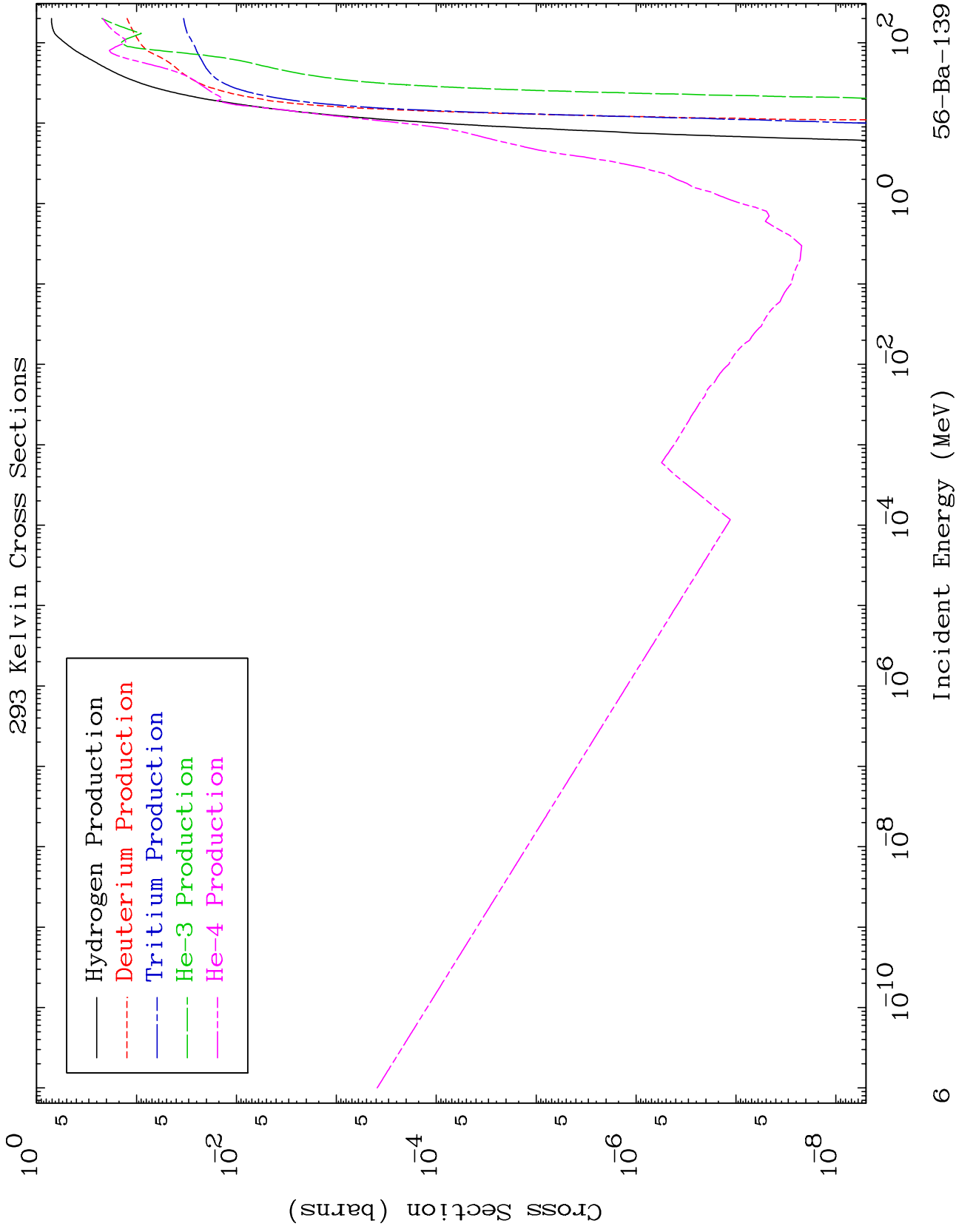
56-Ba-139



MAT 5652

Particle Production  
293 Kelvin Cross Sections

56-Ba-139

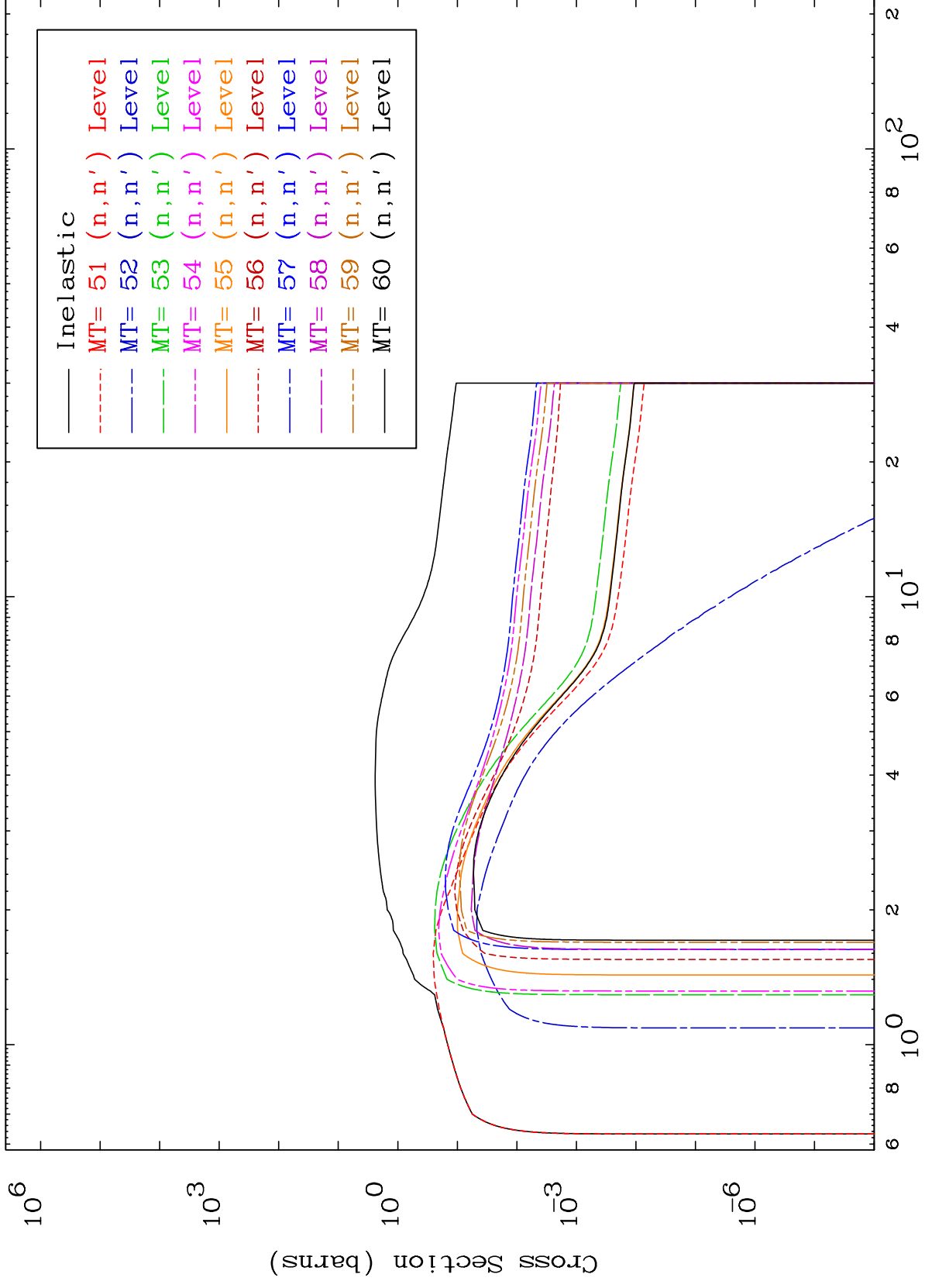


MAT 5652

(n,n') Level

56-Ba-139

293 Kelvin Cross Sections



Incident Energy (MeV)

56-Ba-139

7

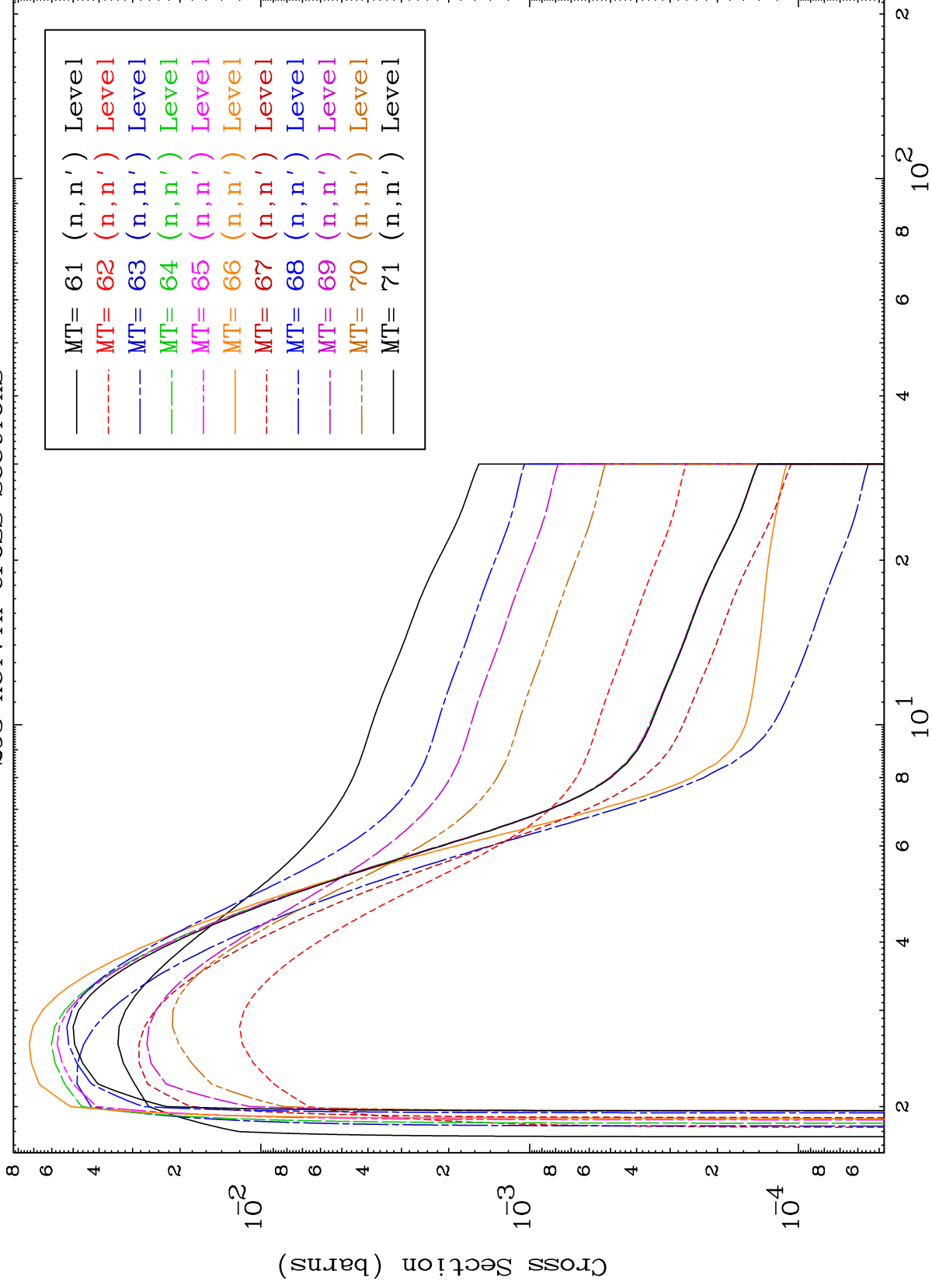


MAT 5652

(n,n') Level

56-Ba-139

293 Kelvin Cross Sections



8

Incident Energy (MeV)

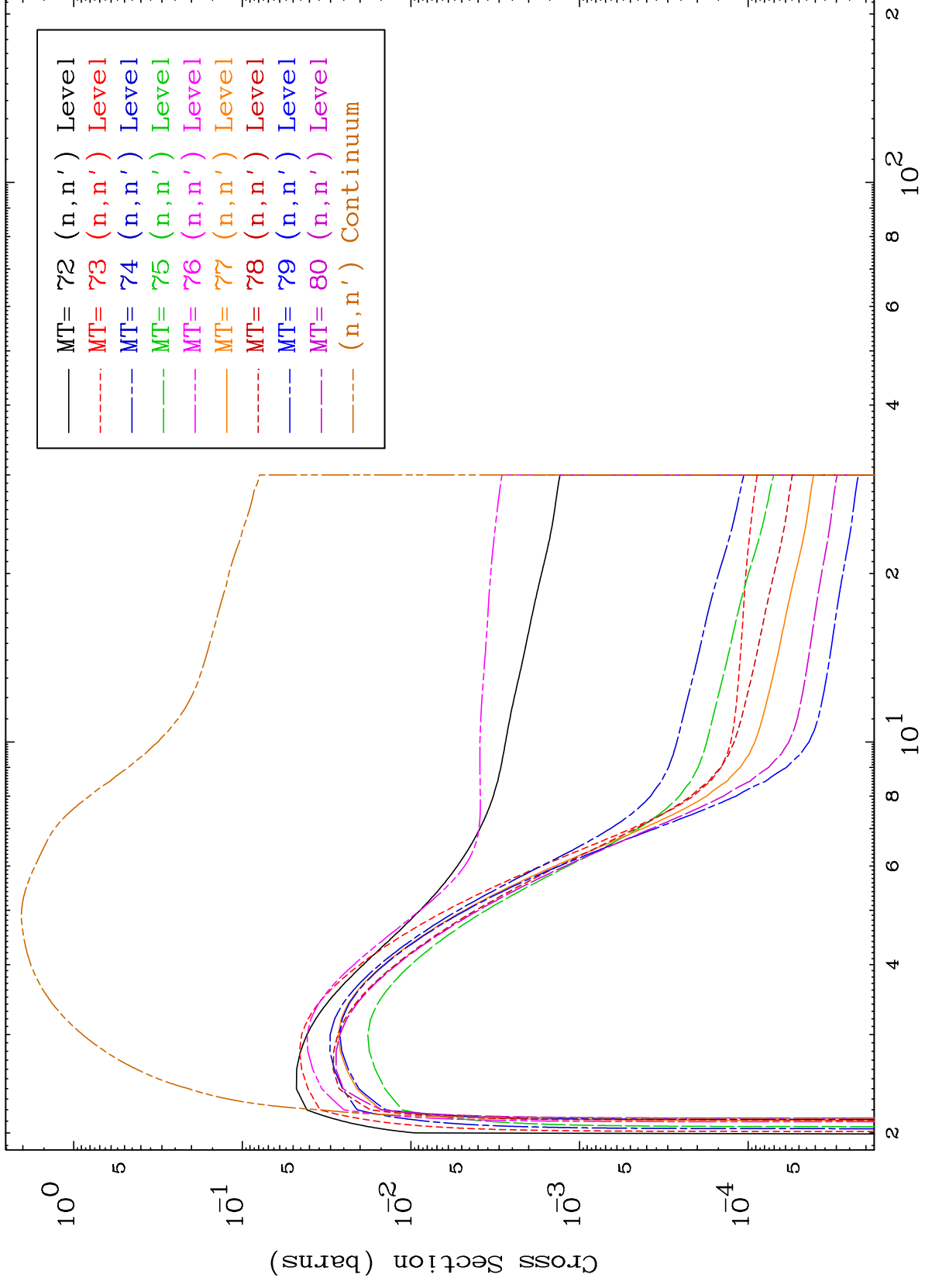
56-Ba-139

MAT 5652

(n,n') Level

56-Ba-139

293 Kelvin Cross Sections



9

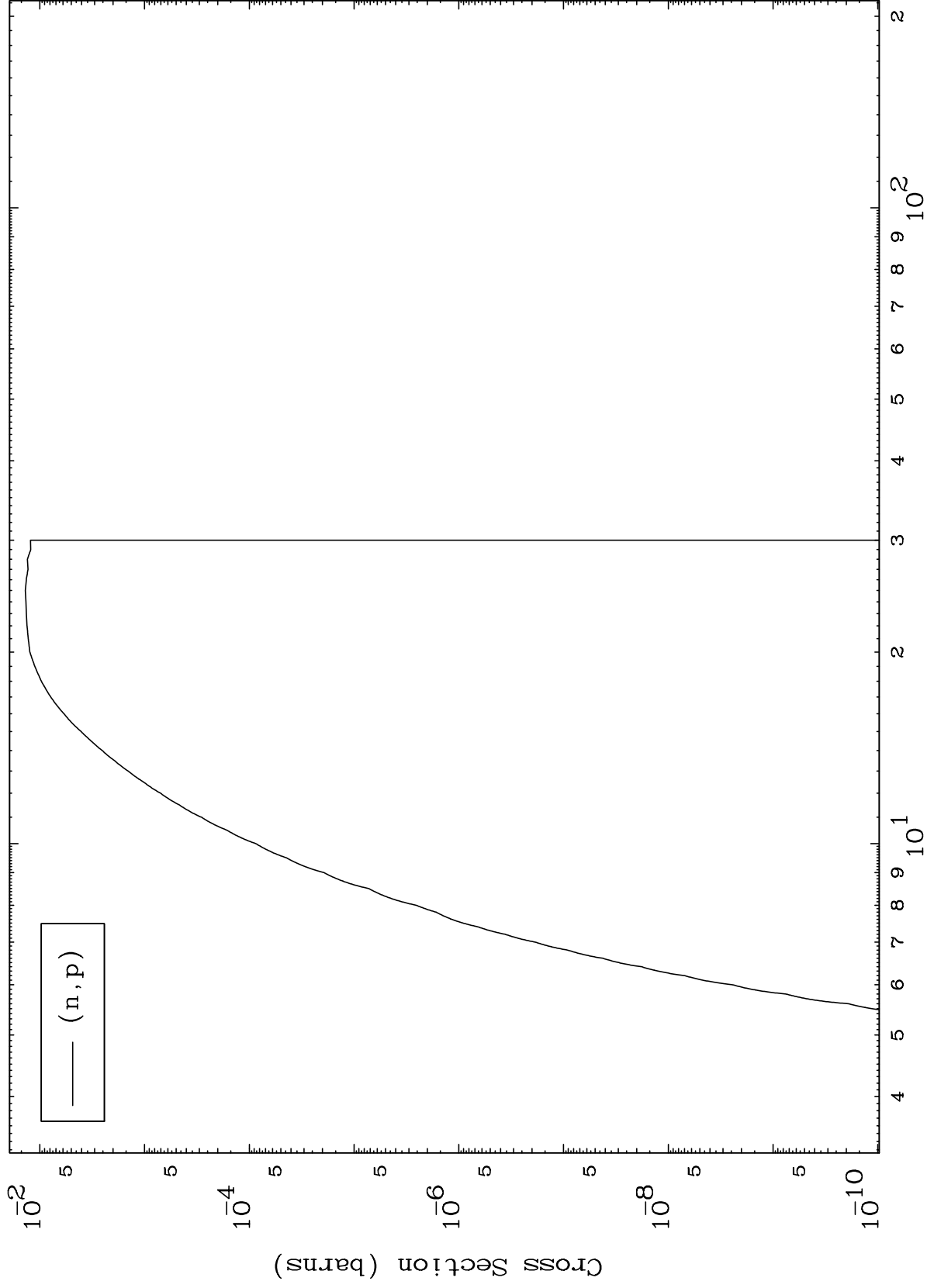
Incident Energy (MeV)

56-Ba-139

MAT 5652

(n,p) Levels  
293 Kelvin Cross Sections

56-Ba-139



10

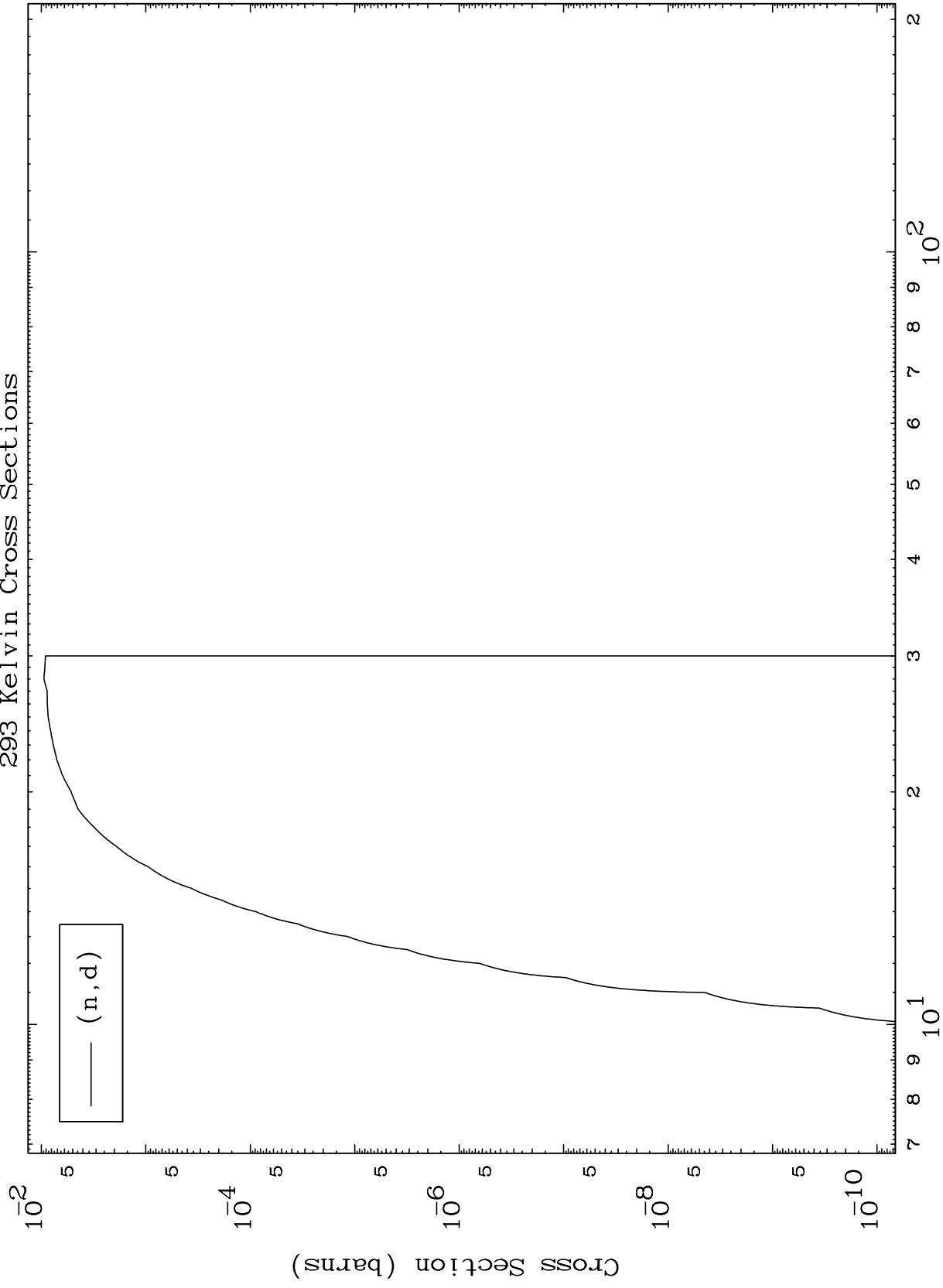
Incident Energy (MeV)

56-Ba-139

MAT 5652

(n,d) Levels  
293 Kelvin Cross Sections

56-Ba-139



11

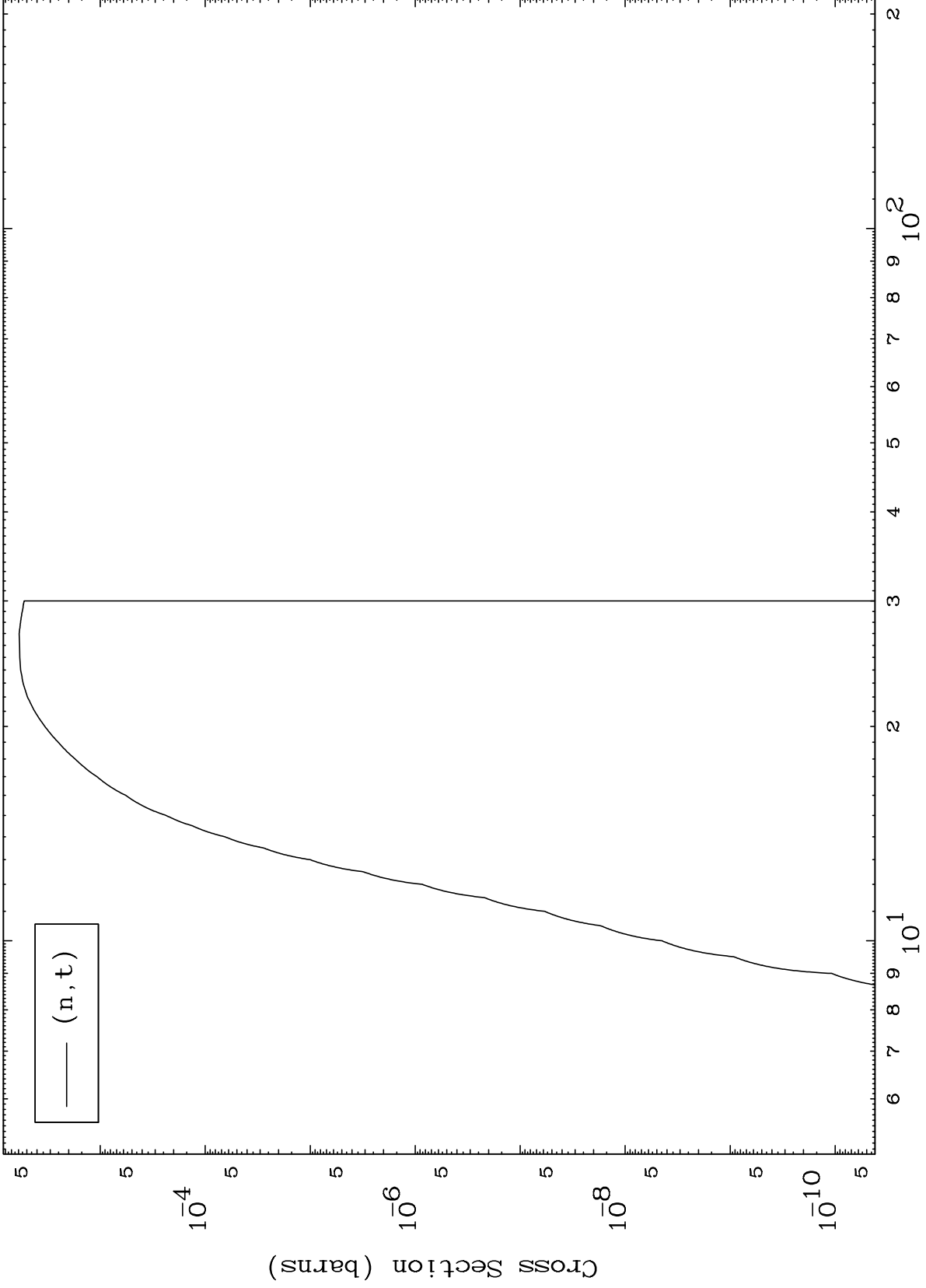
Incident Energy (MeV)

56-Ba-139

MAT 5652

(n,t) Levels  
293 Kelvin Cross Sections

56-Ba-139



12

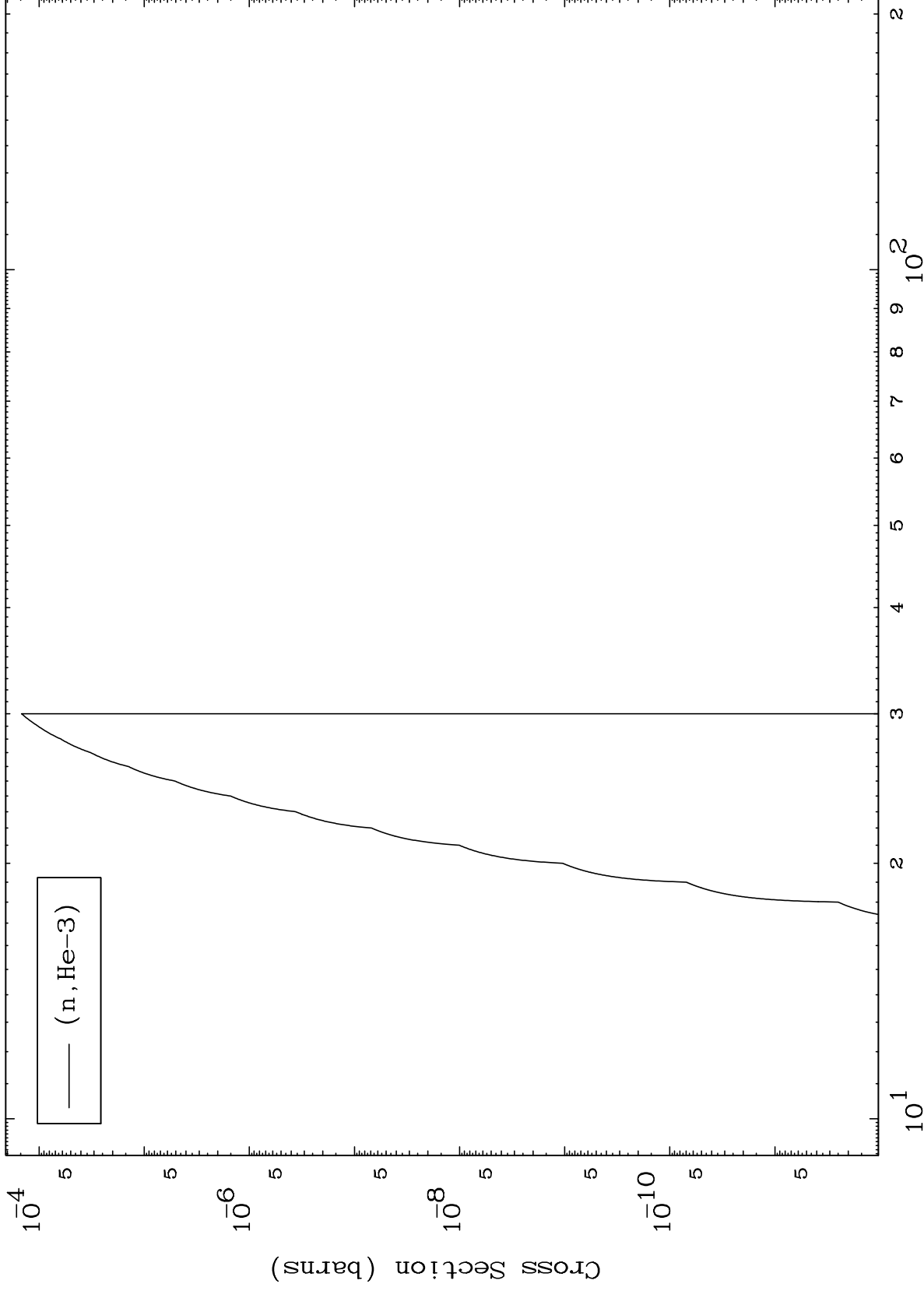
Incident Energy (MeV)

56-Ba-139

MAT 5652

(n,He3) Levels  
293 Kelvin Cross Sections

56-Ba-139



13

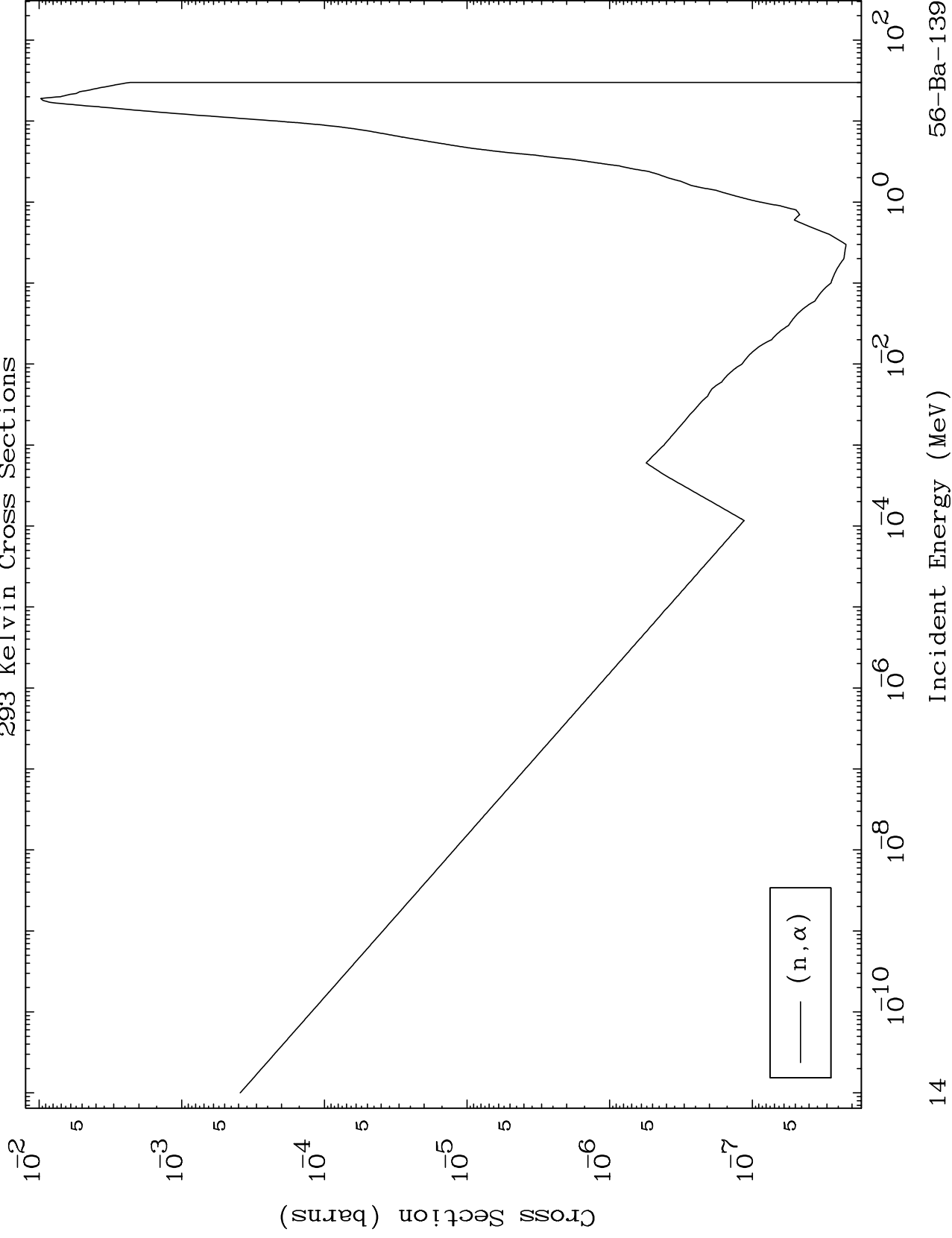
Incident Energy (MeV)

56-Ba-139

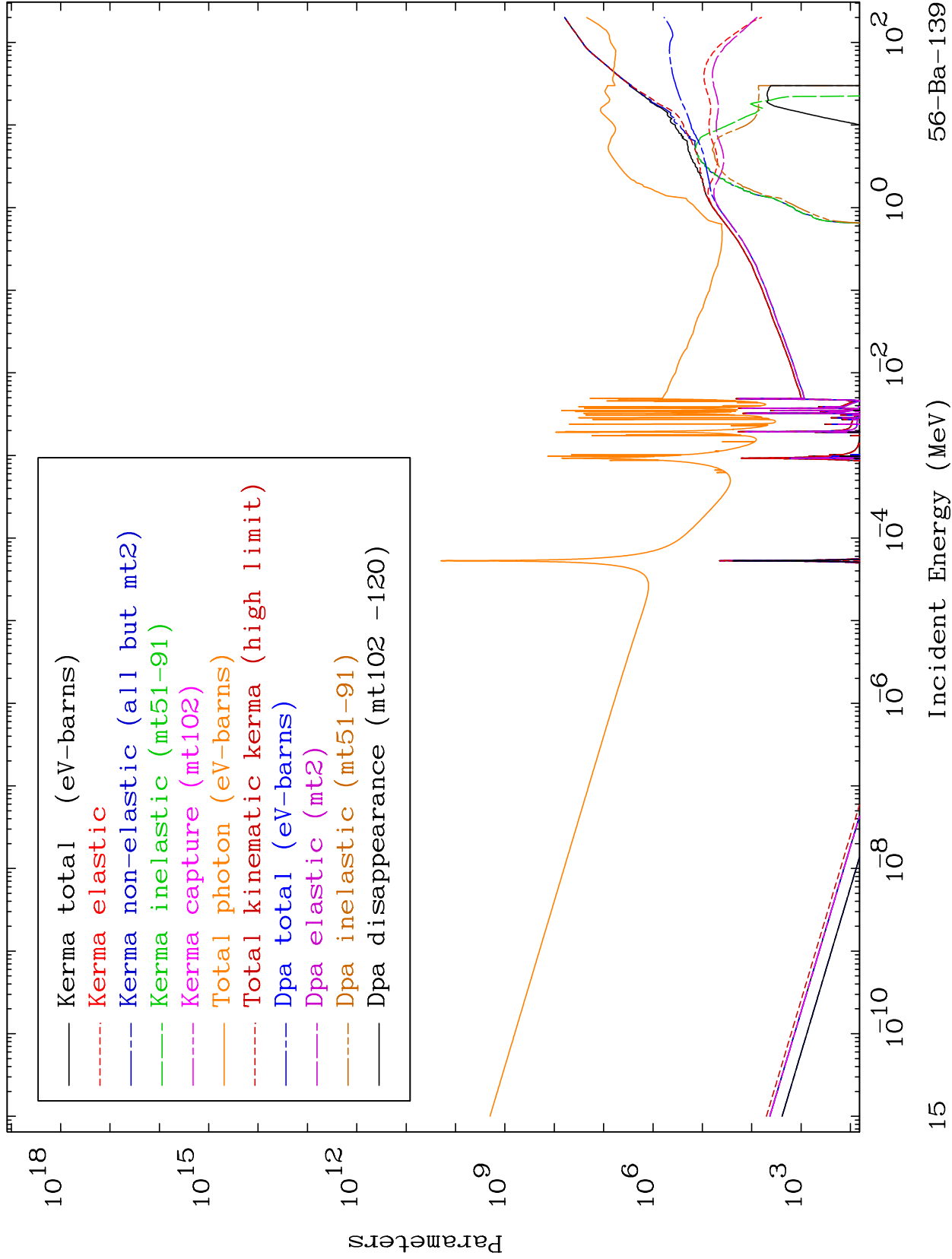
MAT 5652

(n,α) Levels  
293 Kelvin Cross Sections

56-Ba-139



14

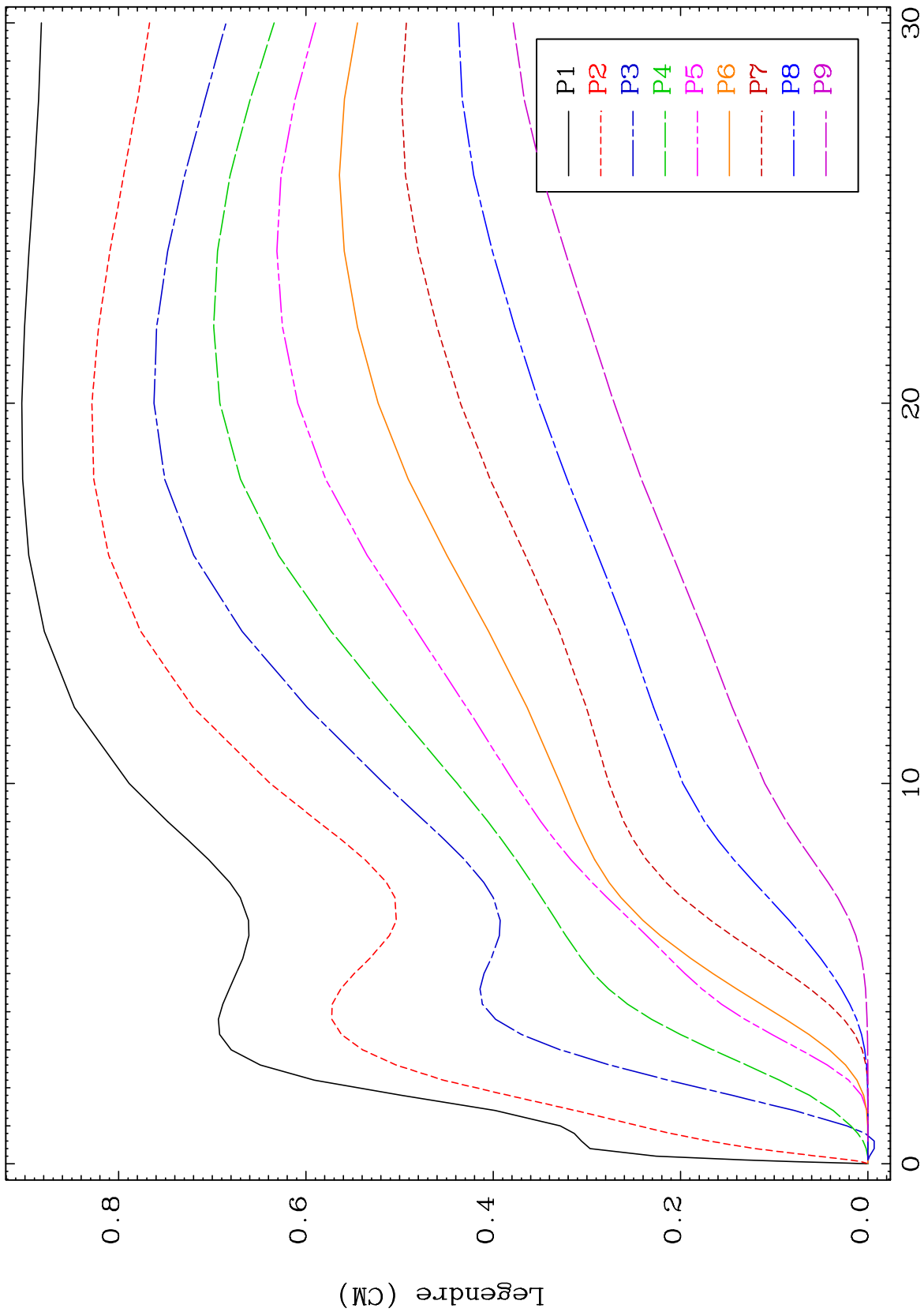




MAT 5652

56-Ba-139

Elastic Legendre Coefficients



56-Ba-139

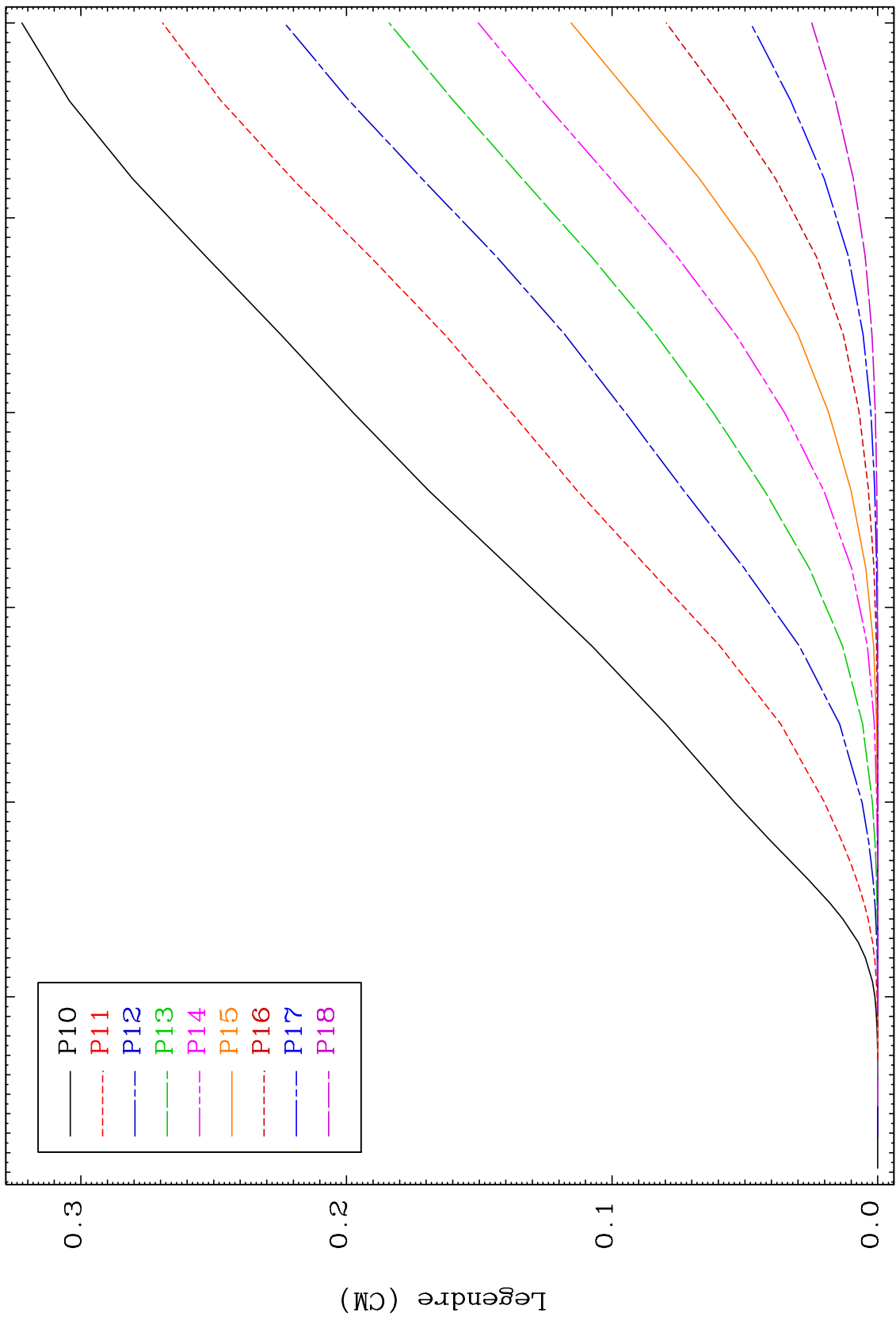
Incident Energy (MeV)

16

MAT 5652

Elastic Legendre Coefficients

56-Ba-139



17

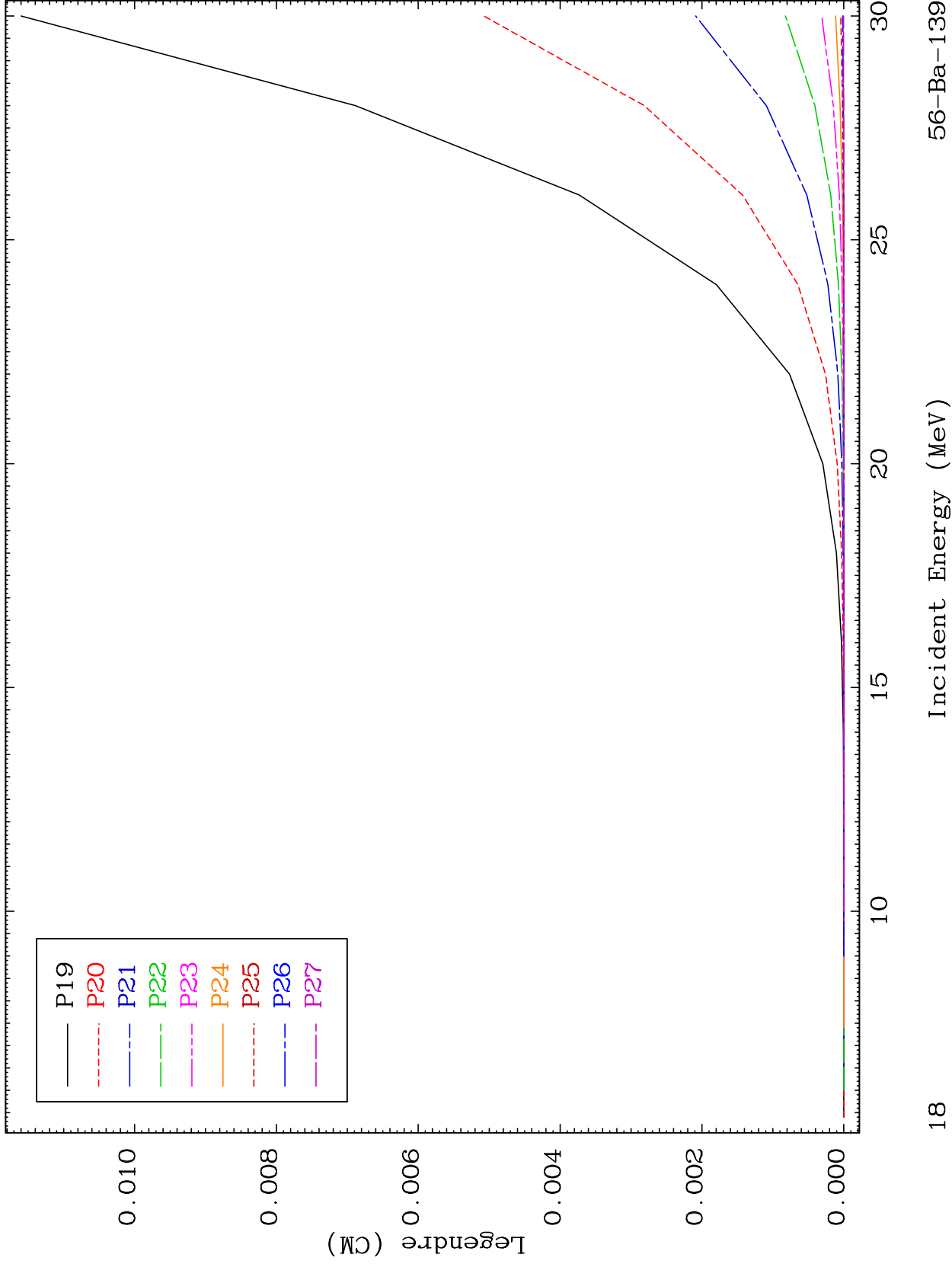
Incident Energy (MeV)

56-Ba-139

MAT 5652

### Elastic Legendre Coefficients

56-Ba-139



18

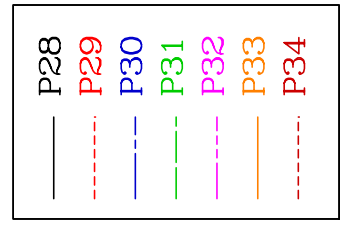
Incident Energy (MeV)

56-Ba-139

MAT 5652

Elastic Legendre Coefficients

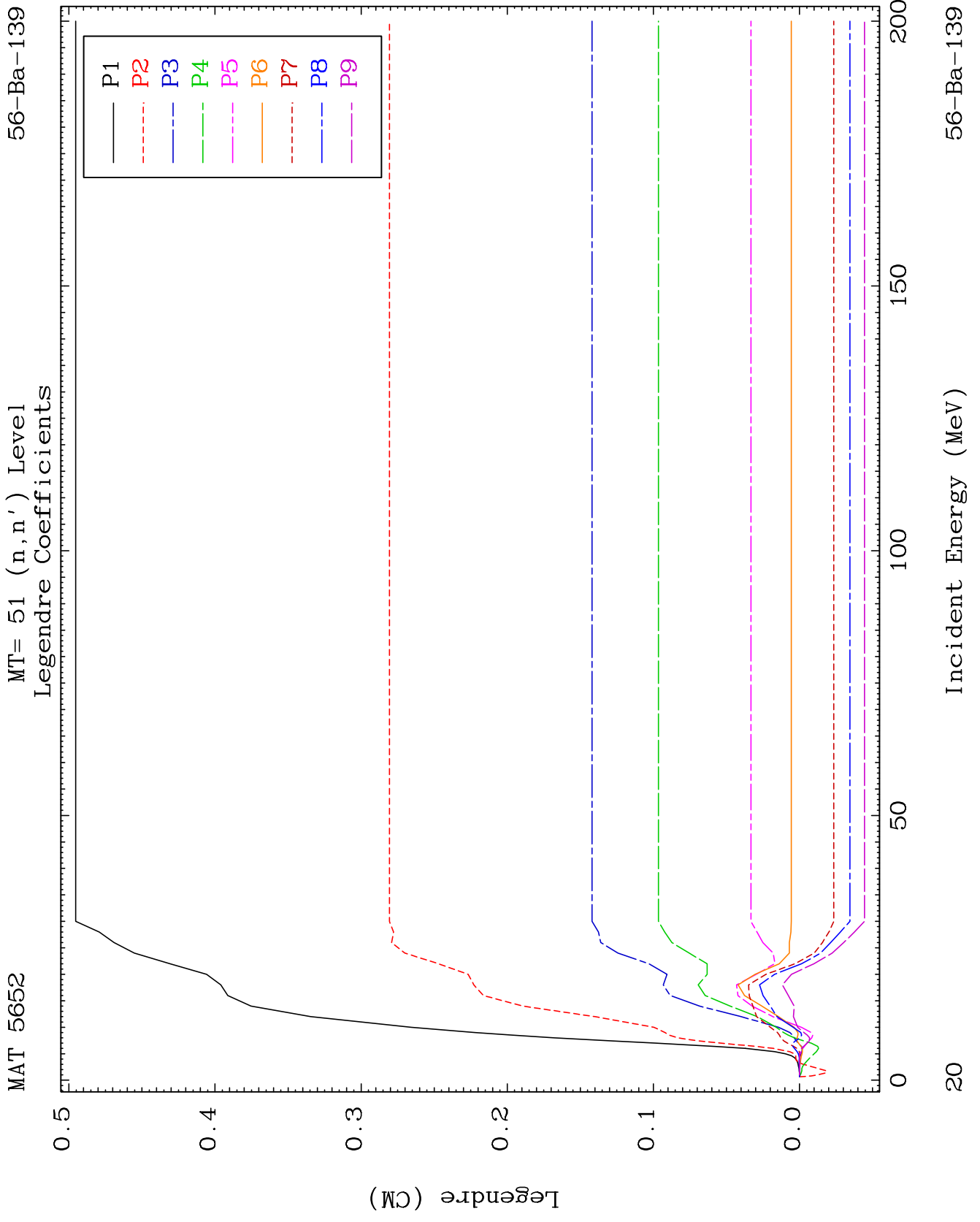
56-Ba-139



56-Ba-139

Incident Energy (MeV)

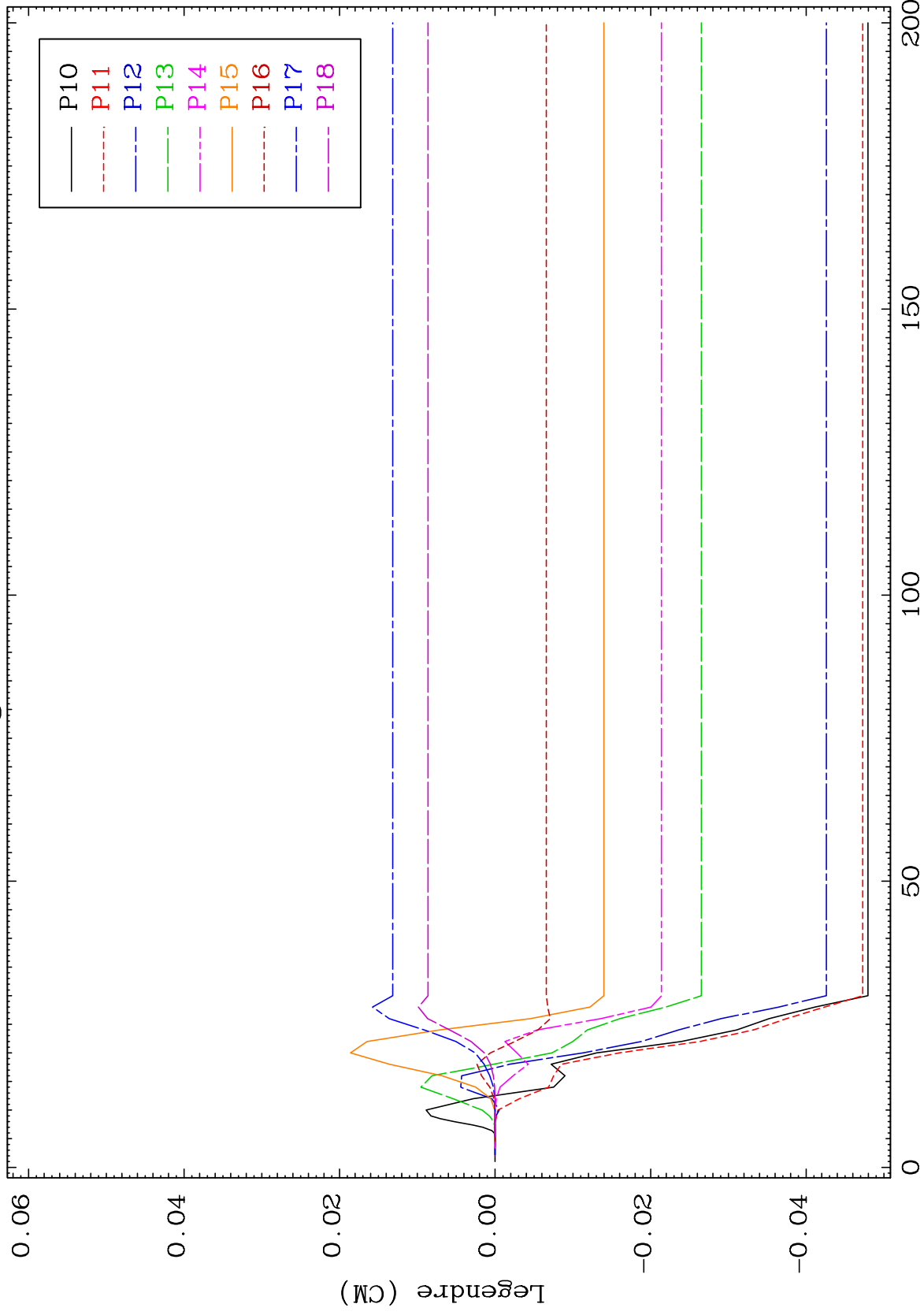
19



MAT 5652

MT= 51 (n,n') Level  
Legendre Coefficients

56-Ba-139



21

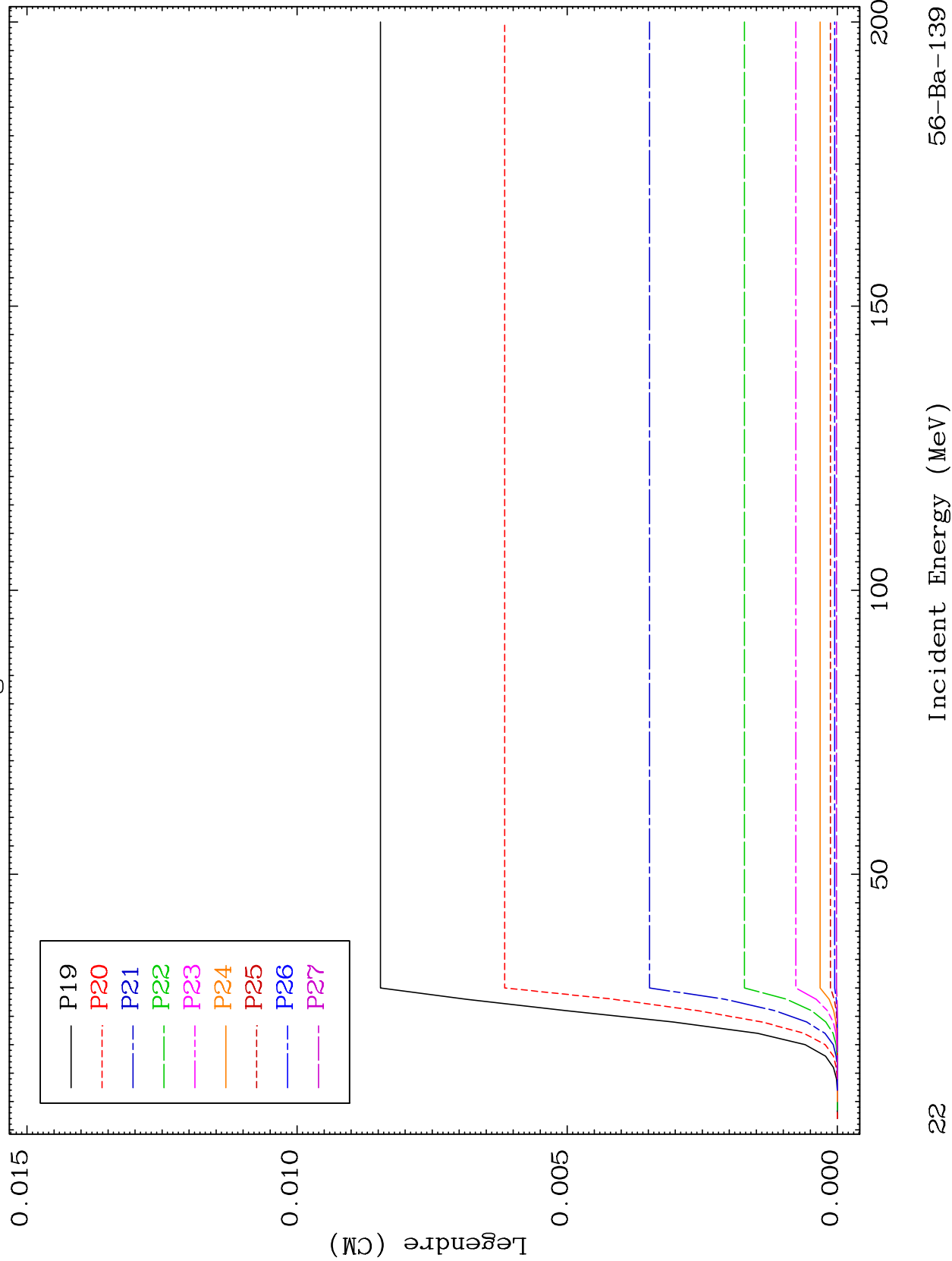
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 51 (n,n') Level  
Legendre Coefficients

56-Ba-139



22

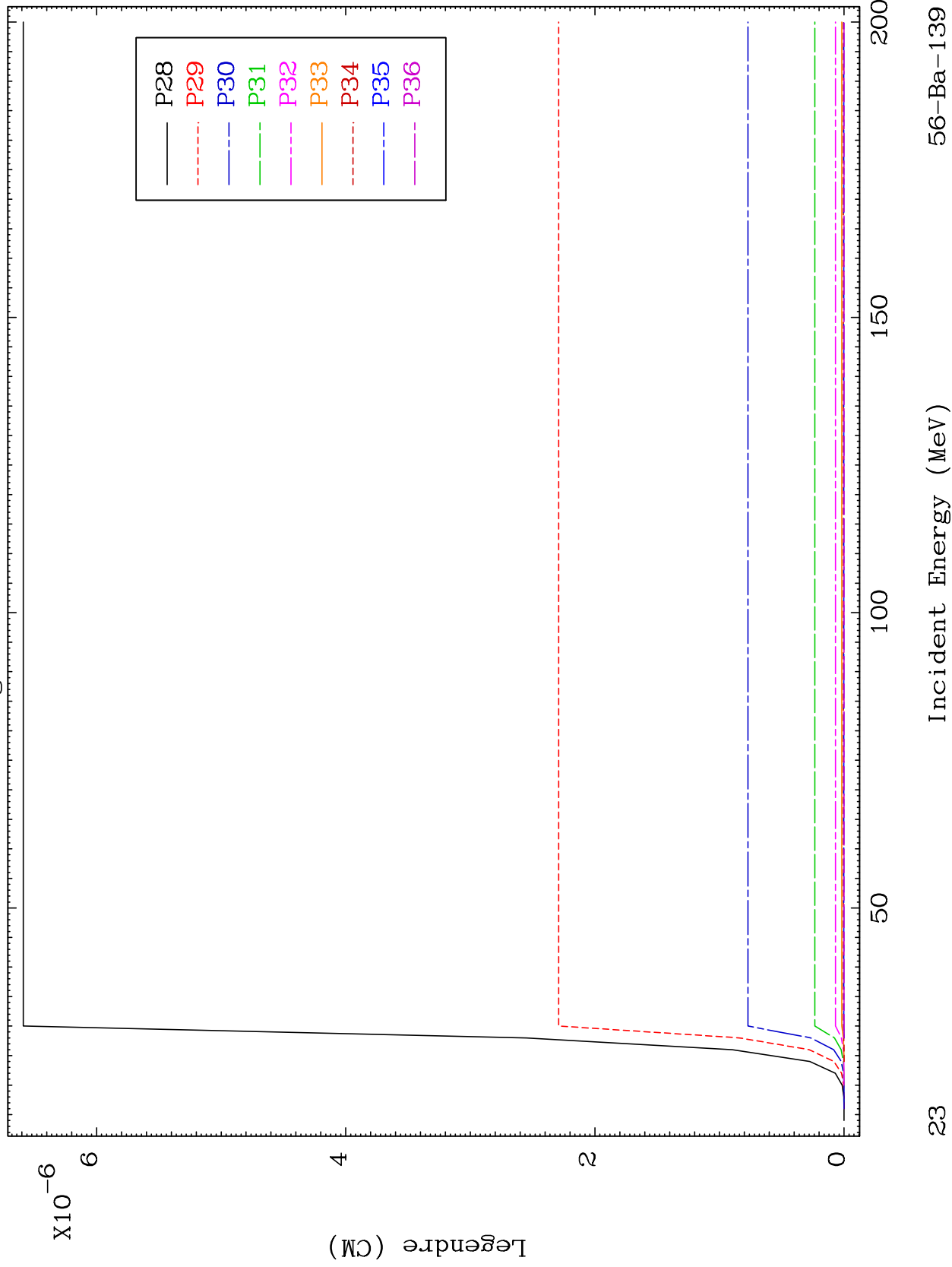
Incident Energy (MeV)

56-Ba-139

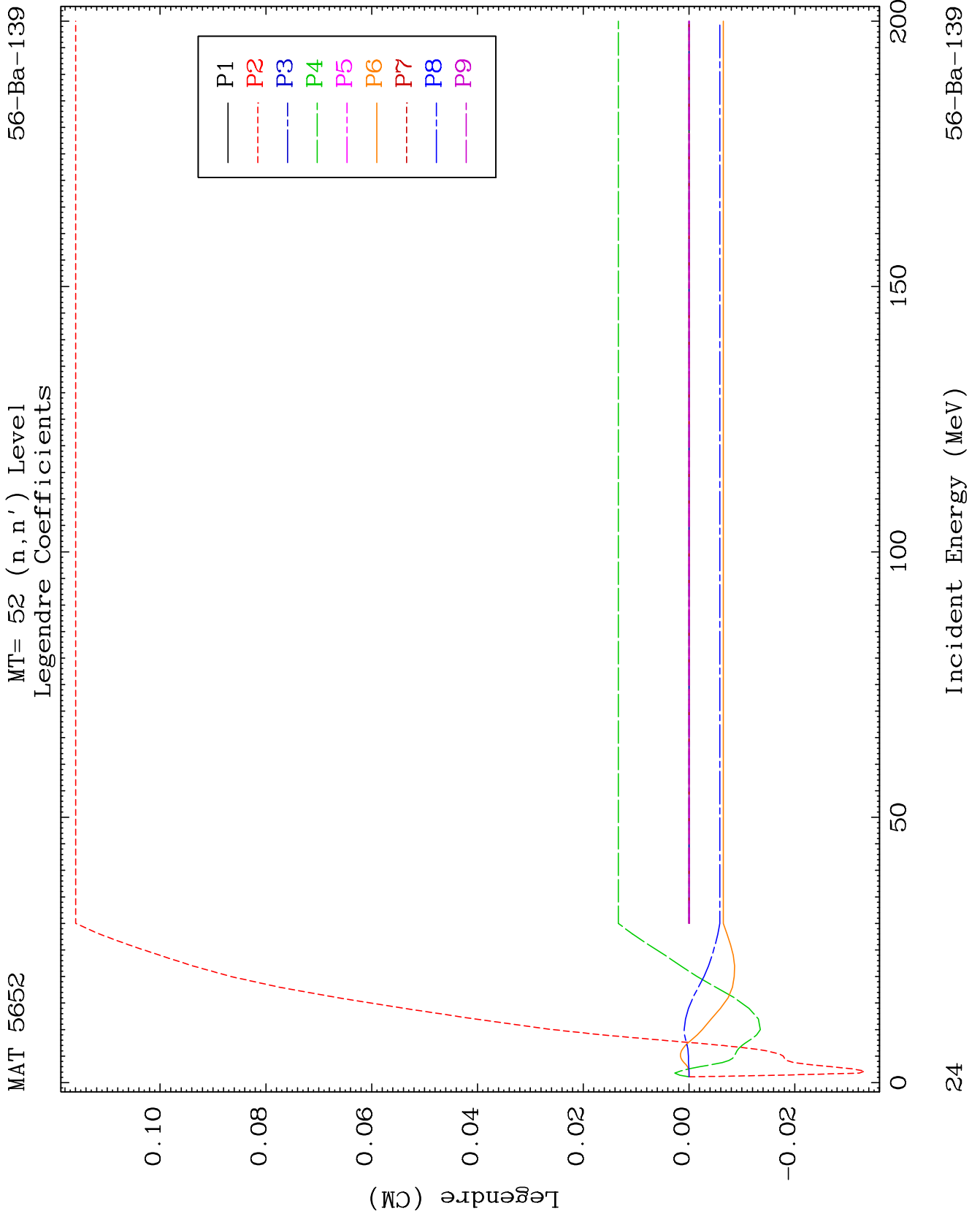
MAT 5652

MT= 51 (n,n') Level  
Legendre Coefficients

56-Ba-139



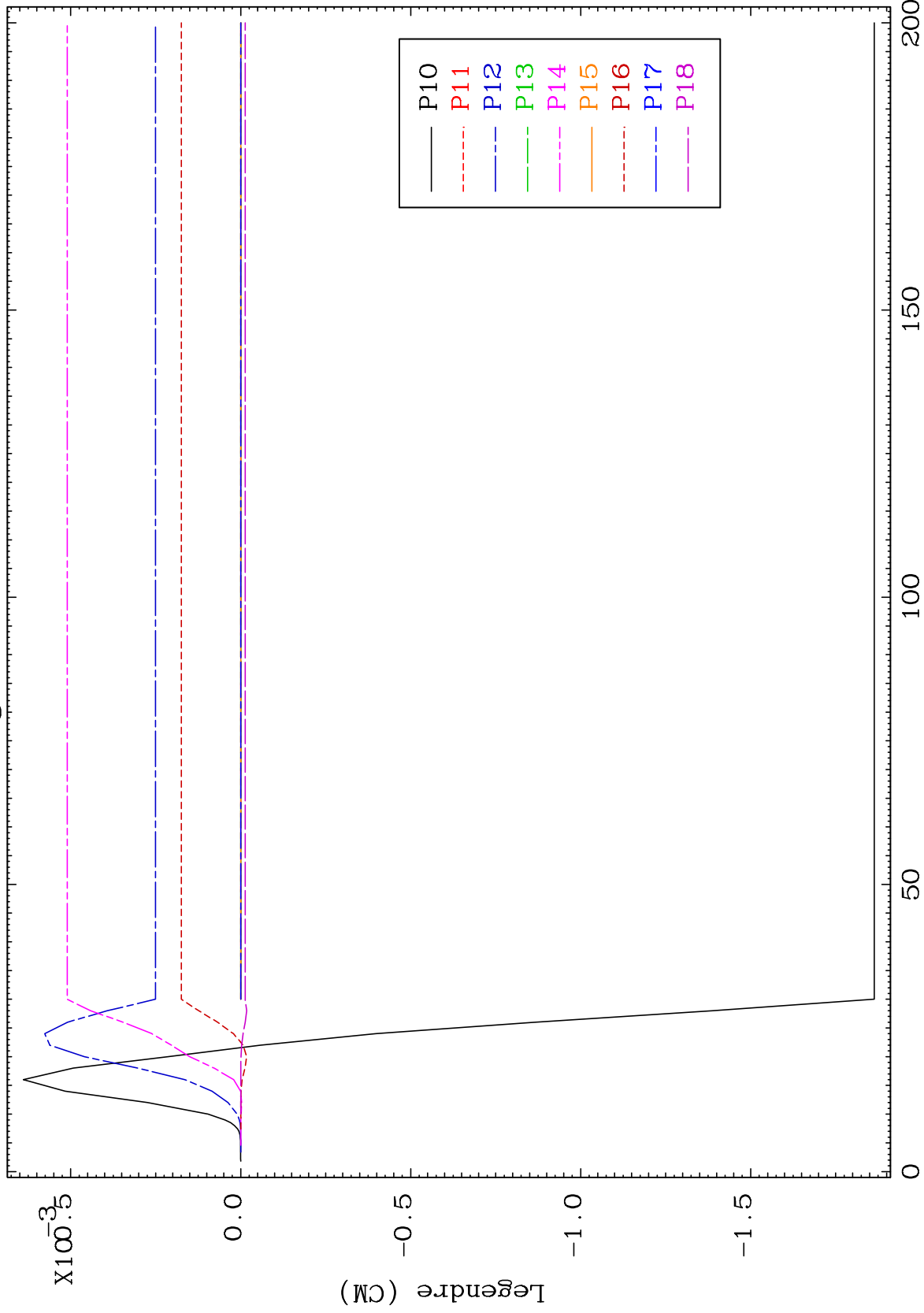




MAT 5652

MT= 52 (n,n') Level  
Legendre Coefficients

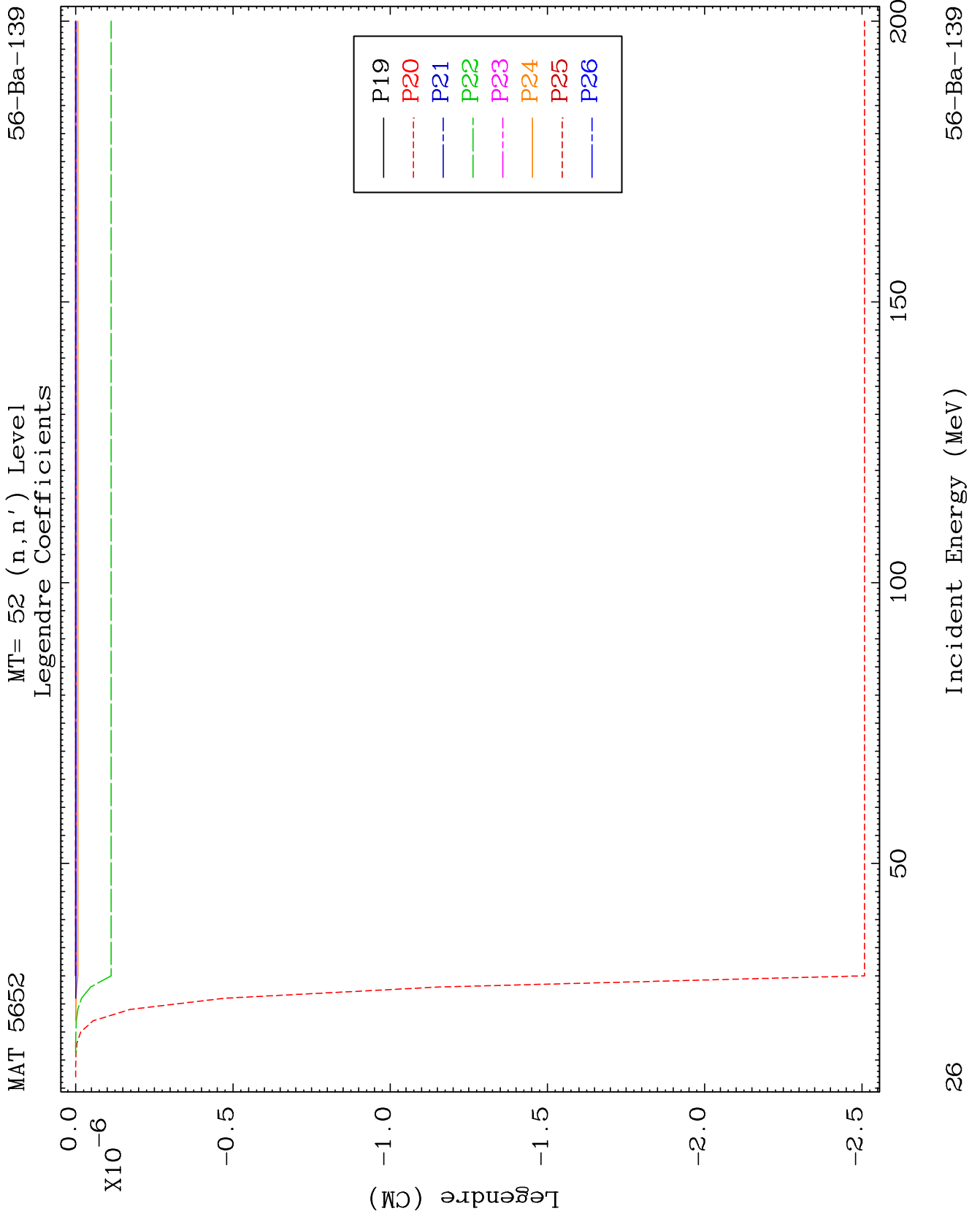
56-Ba-139

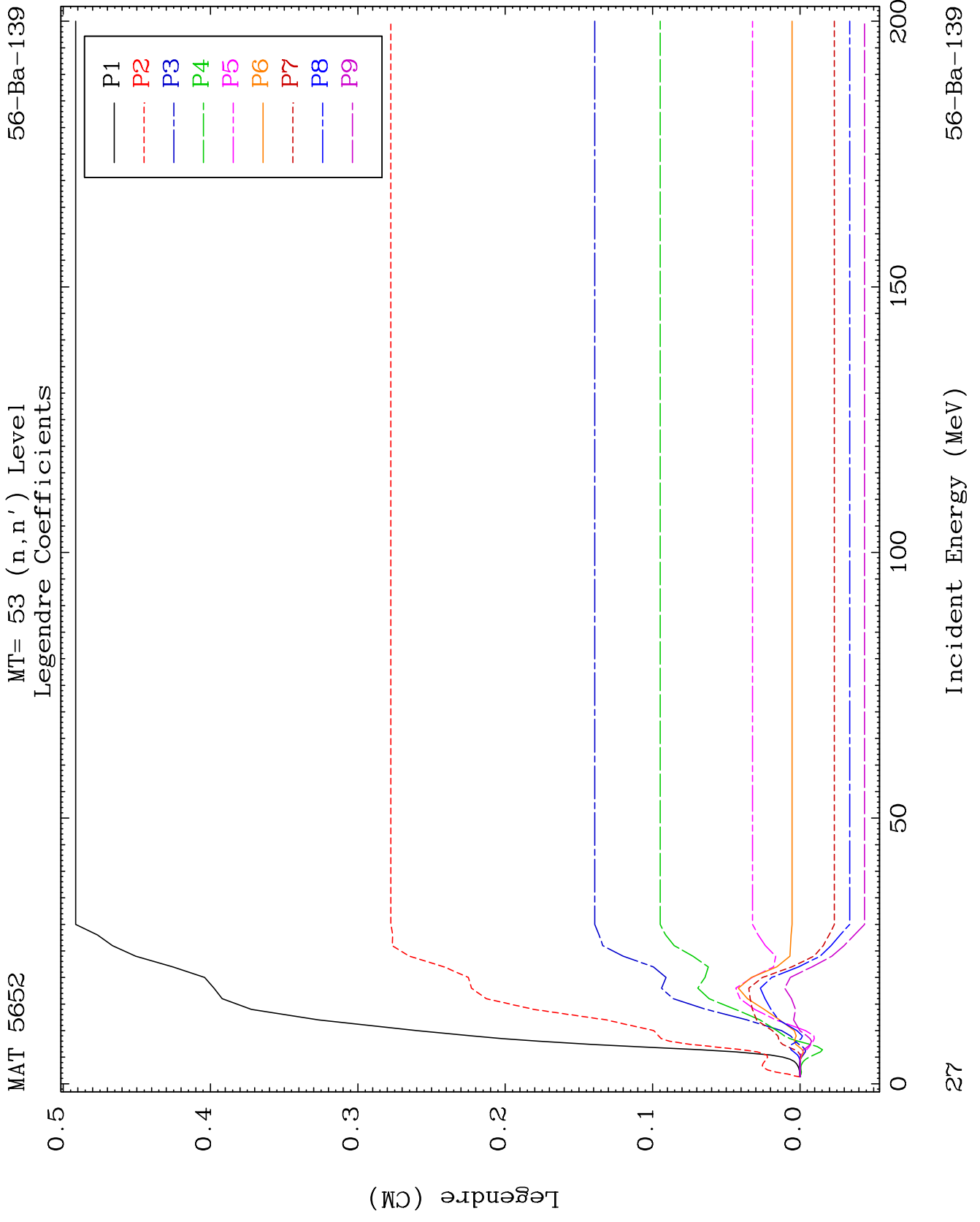


25

Incident Energy (MeV)

56-Ba-139

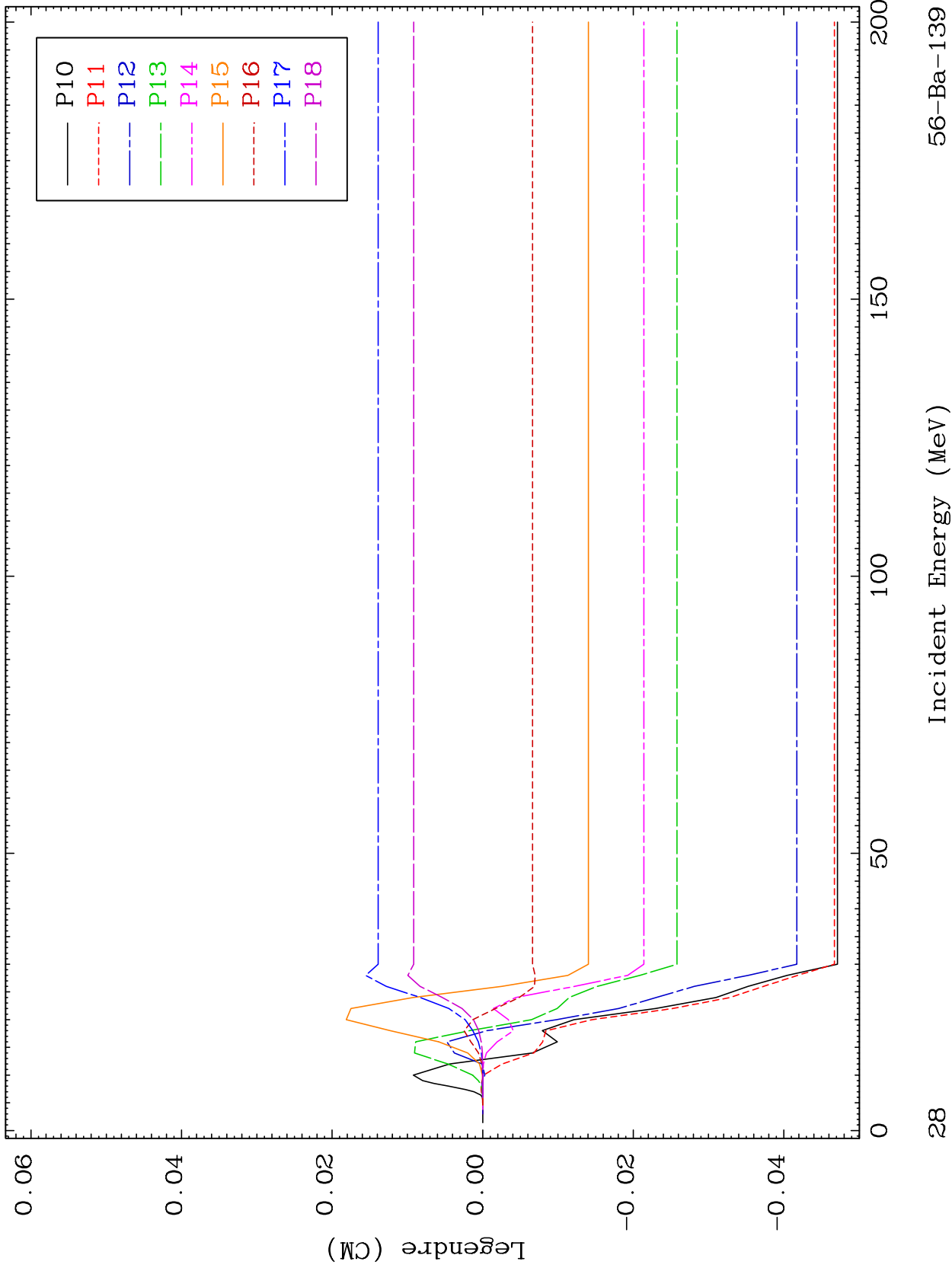




MAT 5652

MT= 53 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

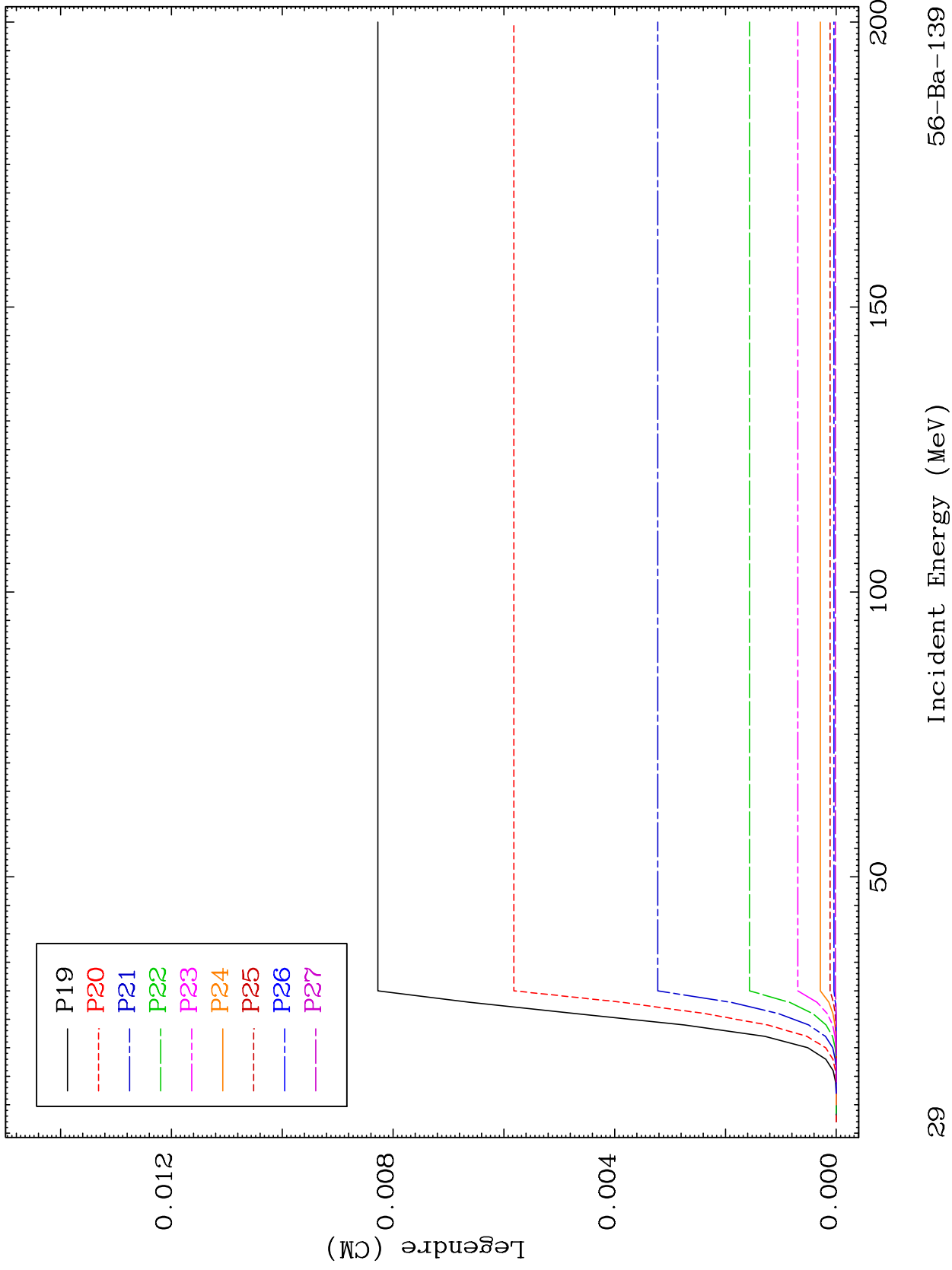
Incident Energy (MeV)

28

MAT 5652

MT= 53 (n,n') Level  
Legendre Coefficients

56-Ba-139



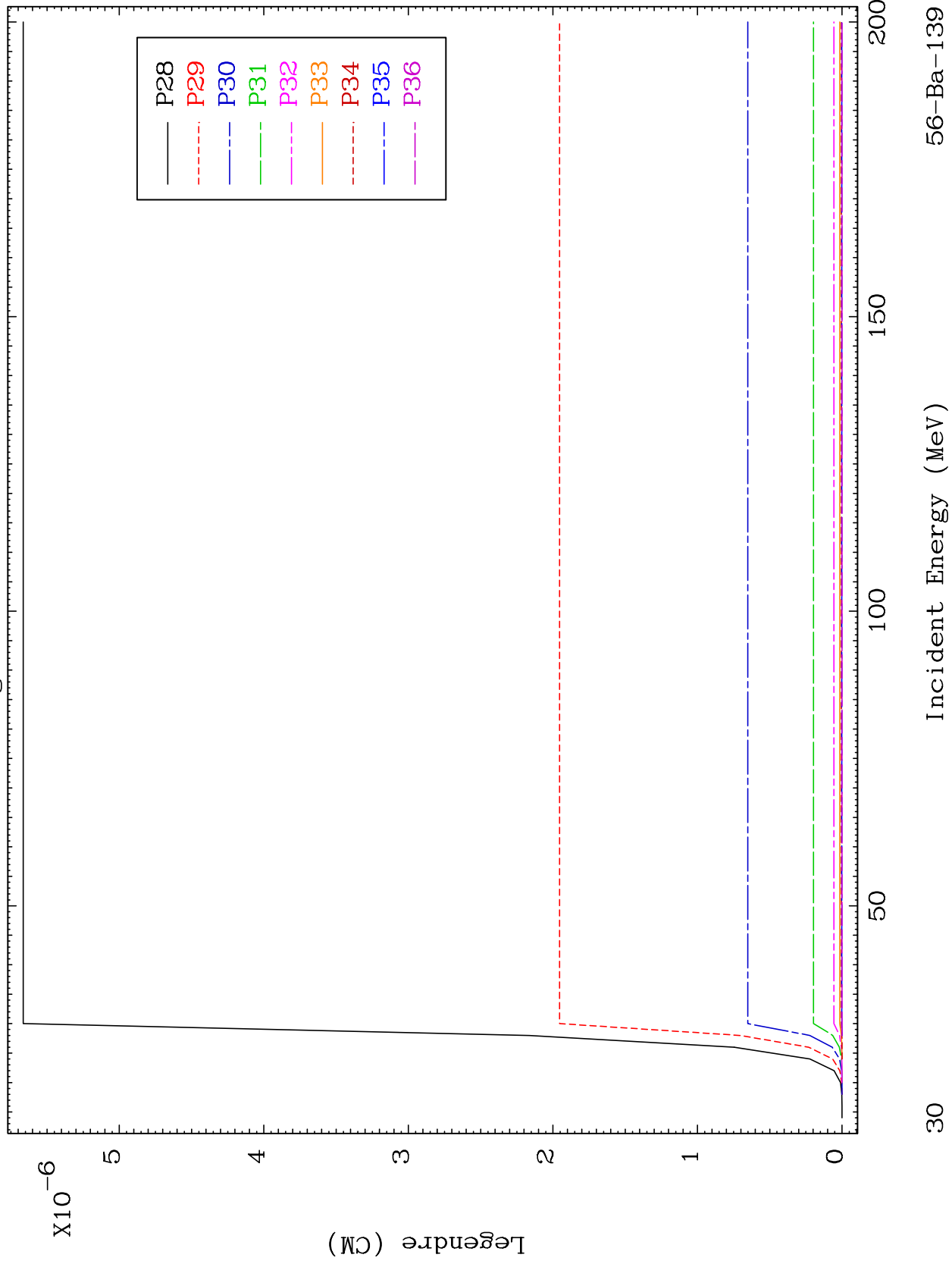
29

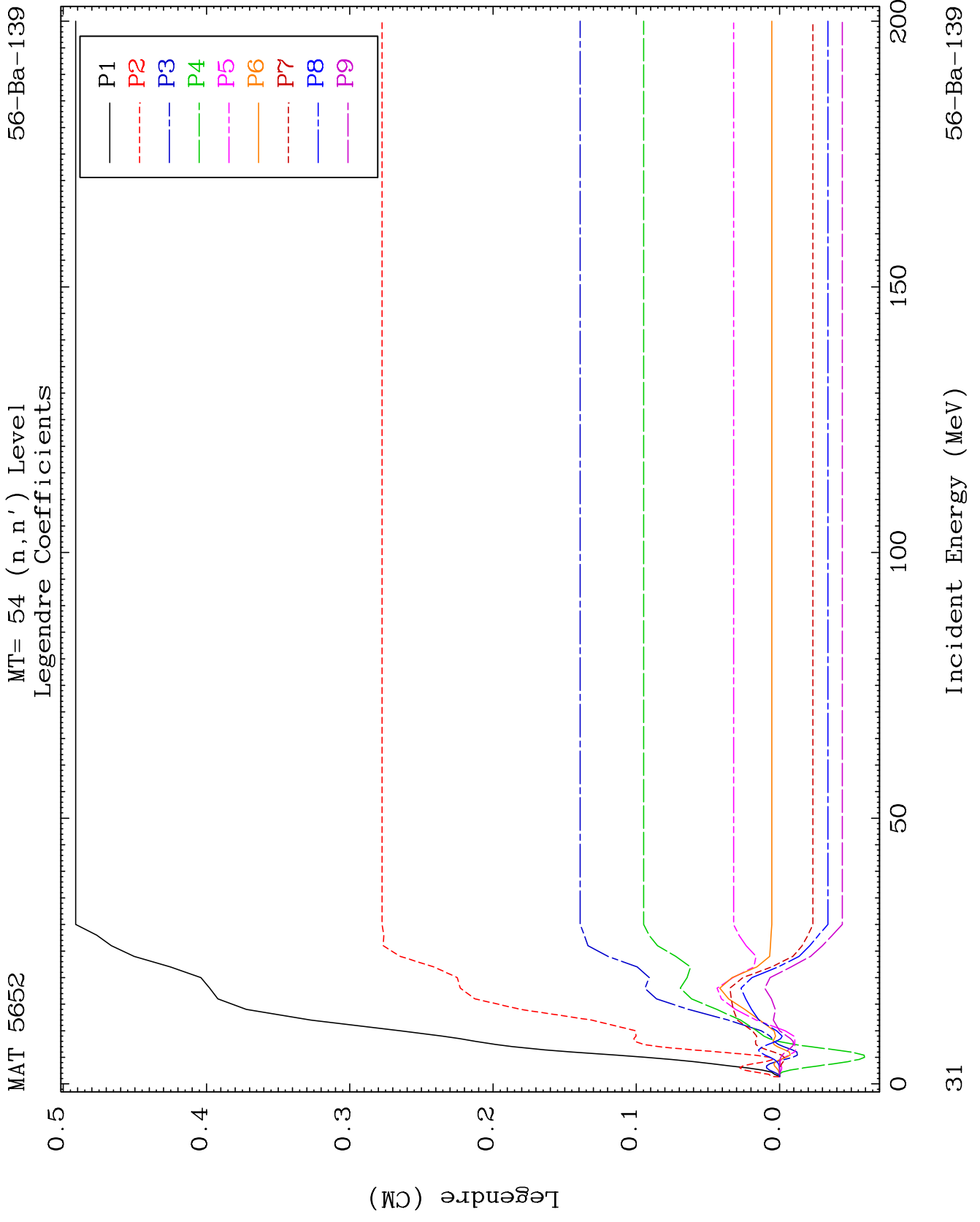
56-Ba-139

MAT 5652

MT= 53 (n,n') Level  
Legendre Coefficients

56-Ba-139



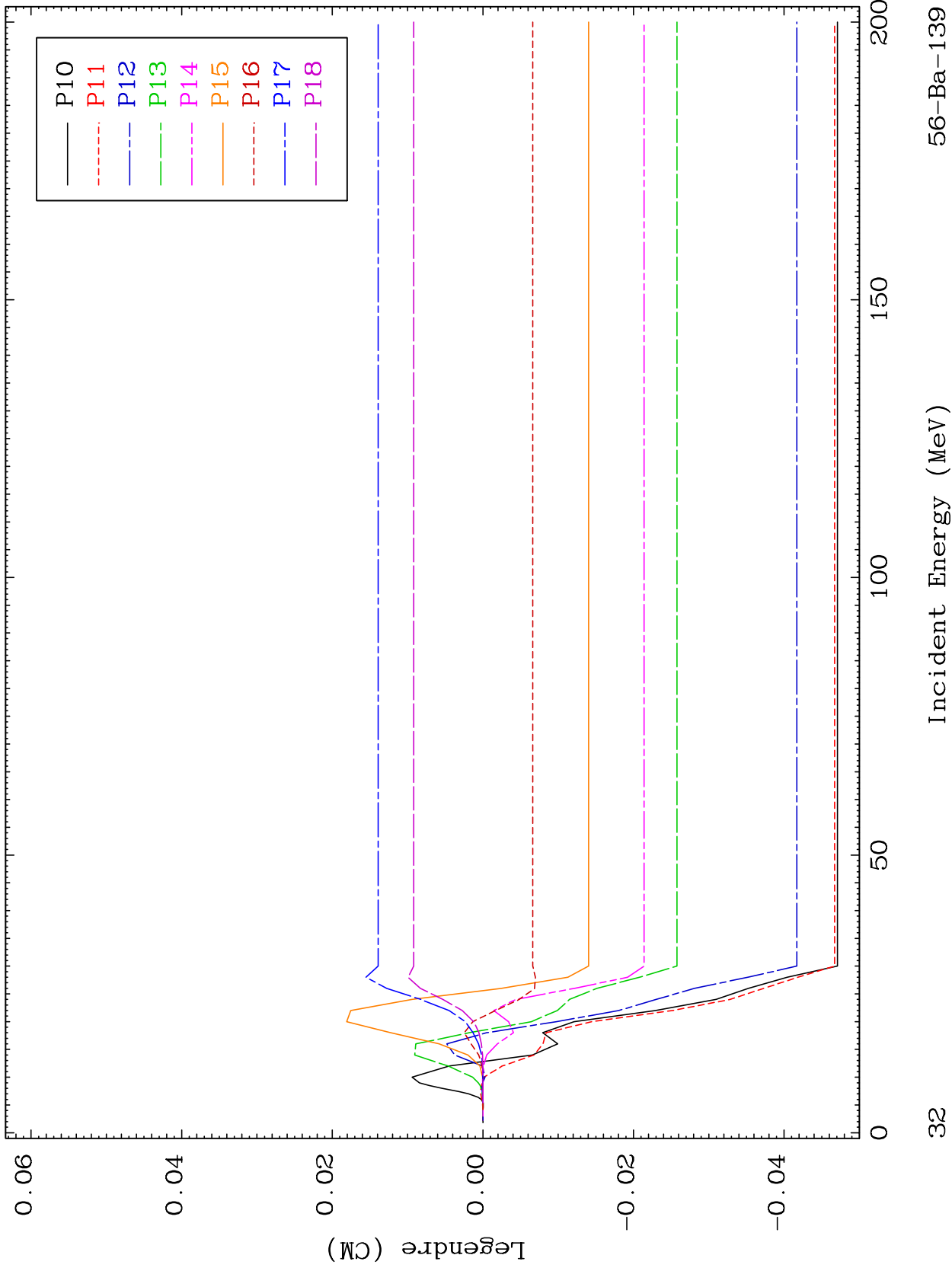




MAT 5652

MT= 54 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

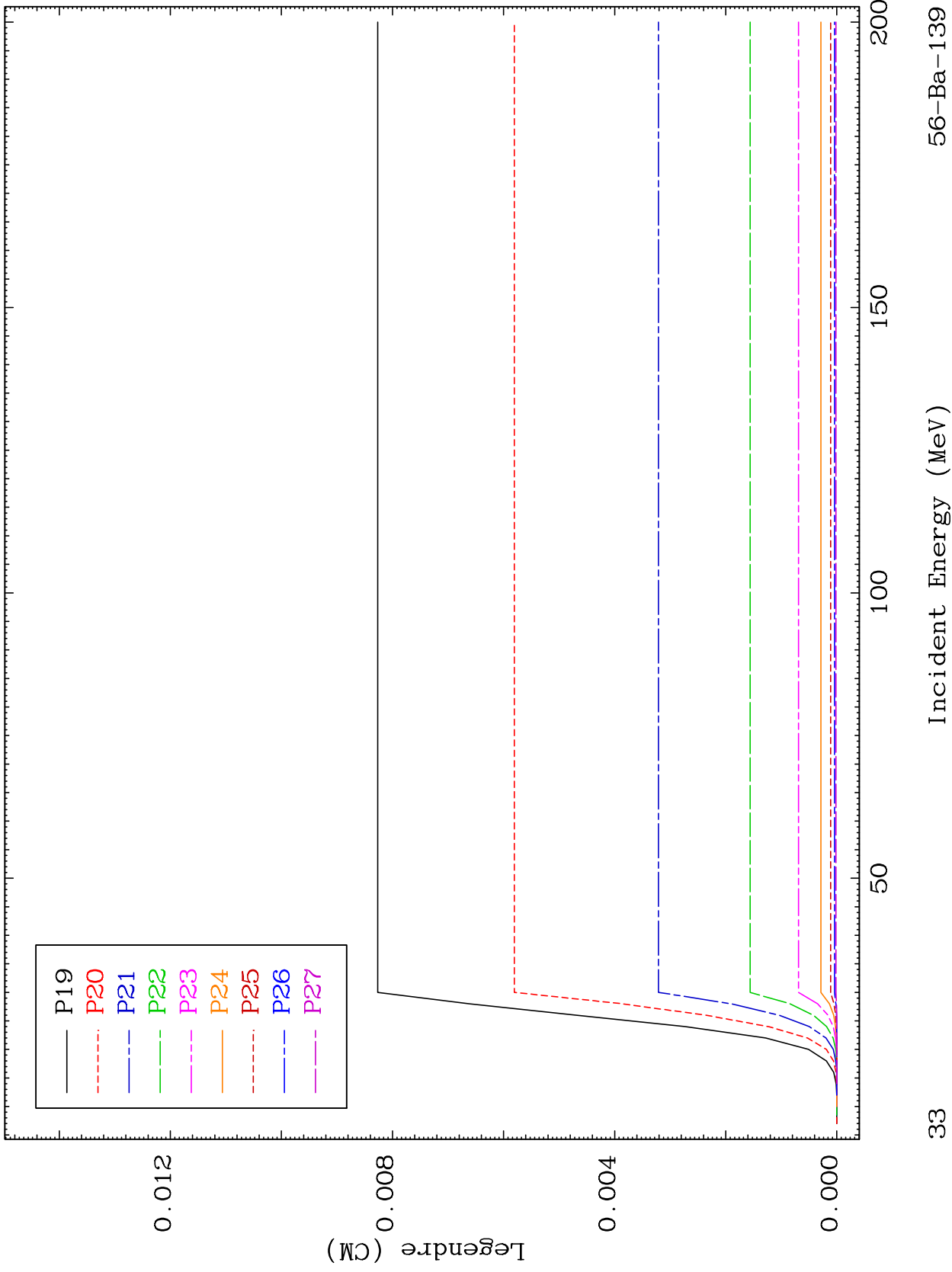
Incident Energy (MeV)

32

MAT 5652

MT= 54 (n,n') Level  
Legendre Coefficients

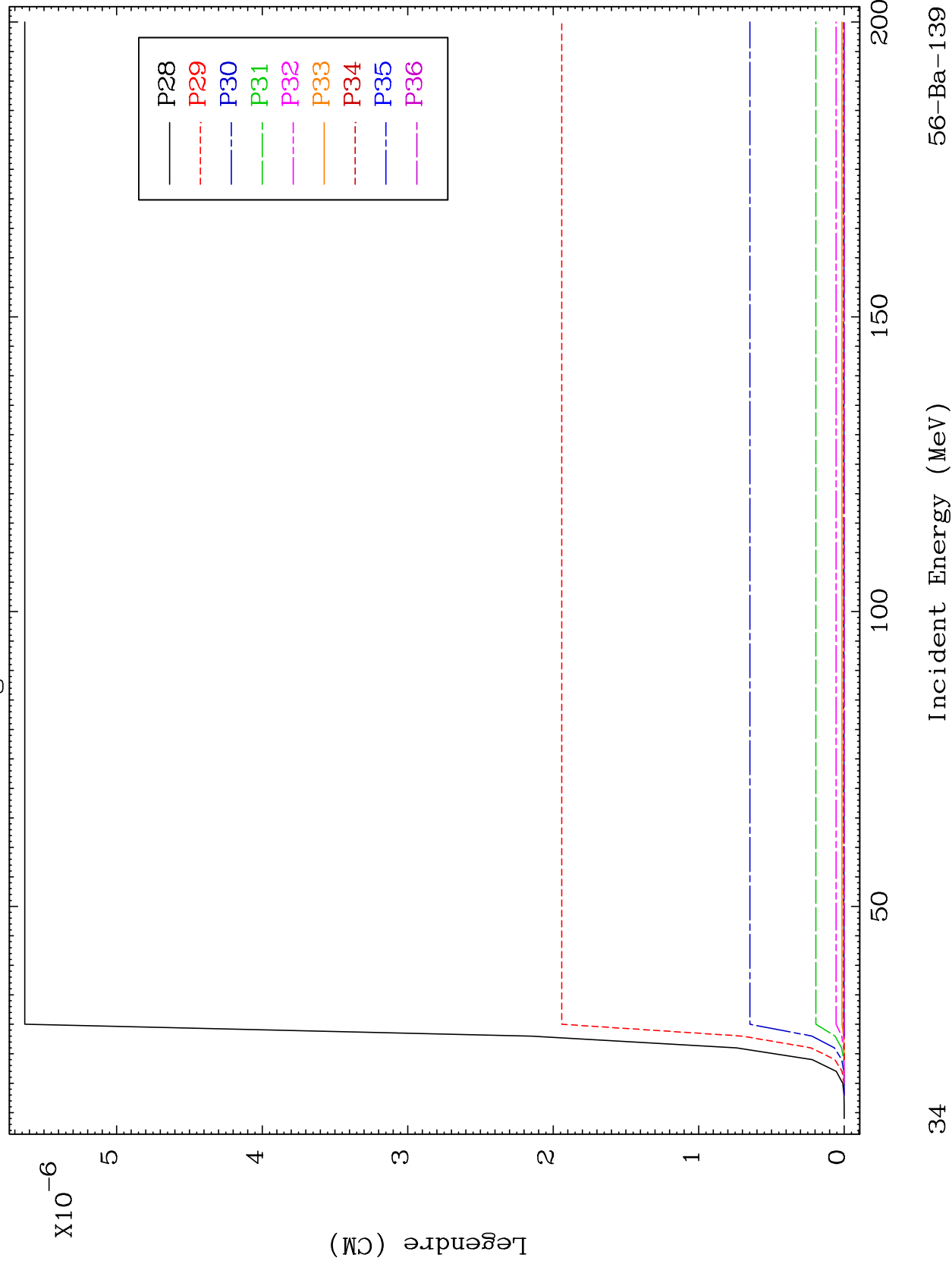
56-Ba-139



MAT 5652

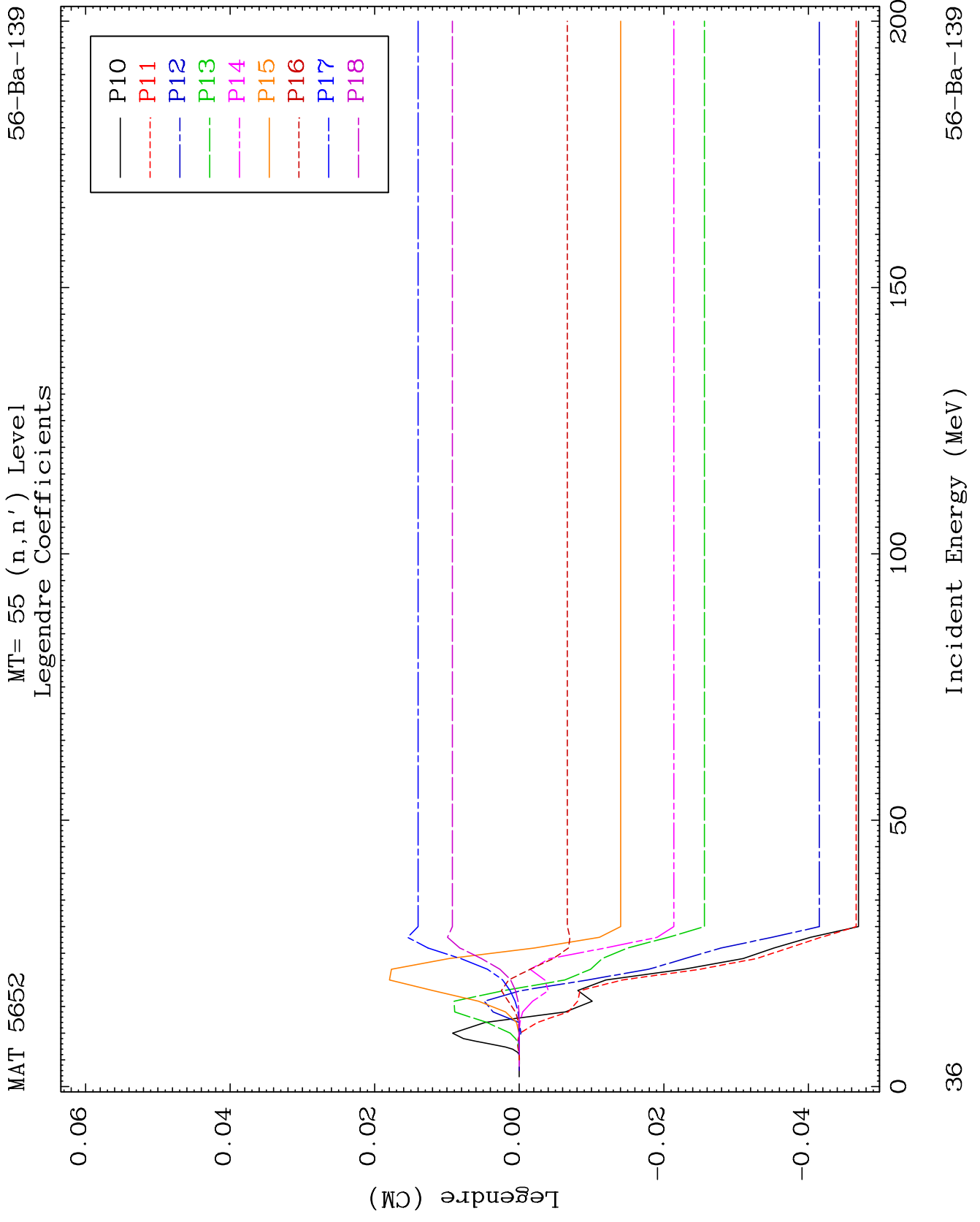
MT= 54 (n,n') Level  
Legendre Coefficients

56-Ba-139



34

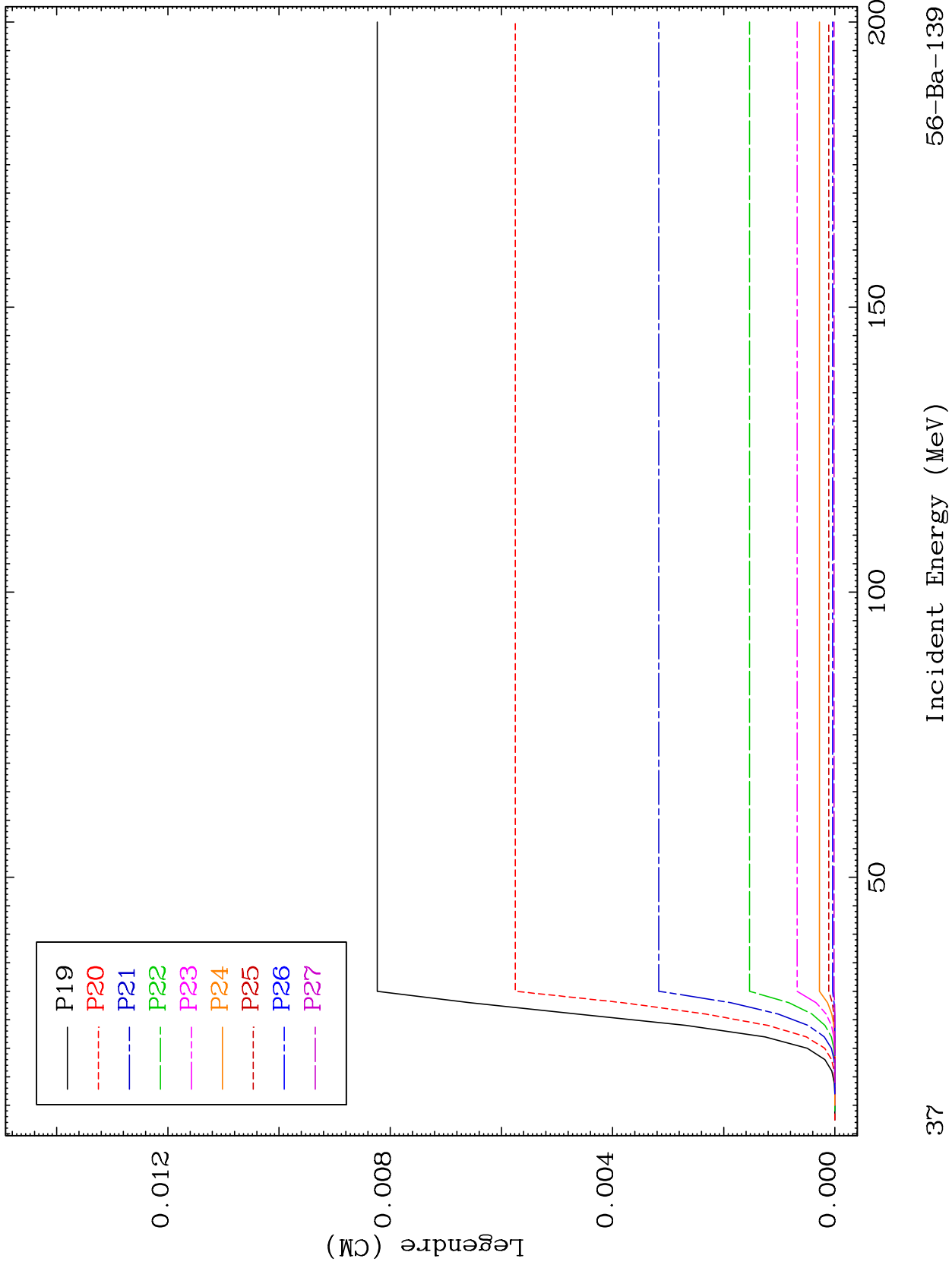




MAT 5652

MT= 55 (n,n') Level  
Legendre Coefficients

56-Ba-139



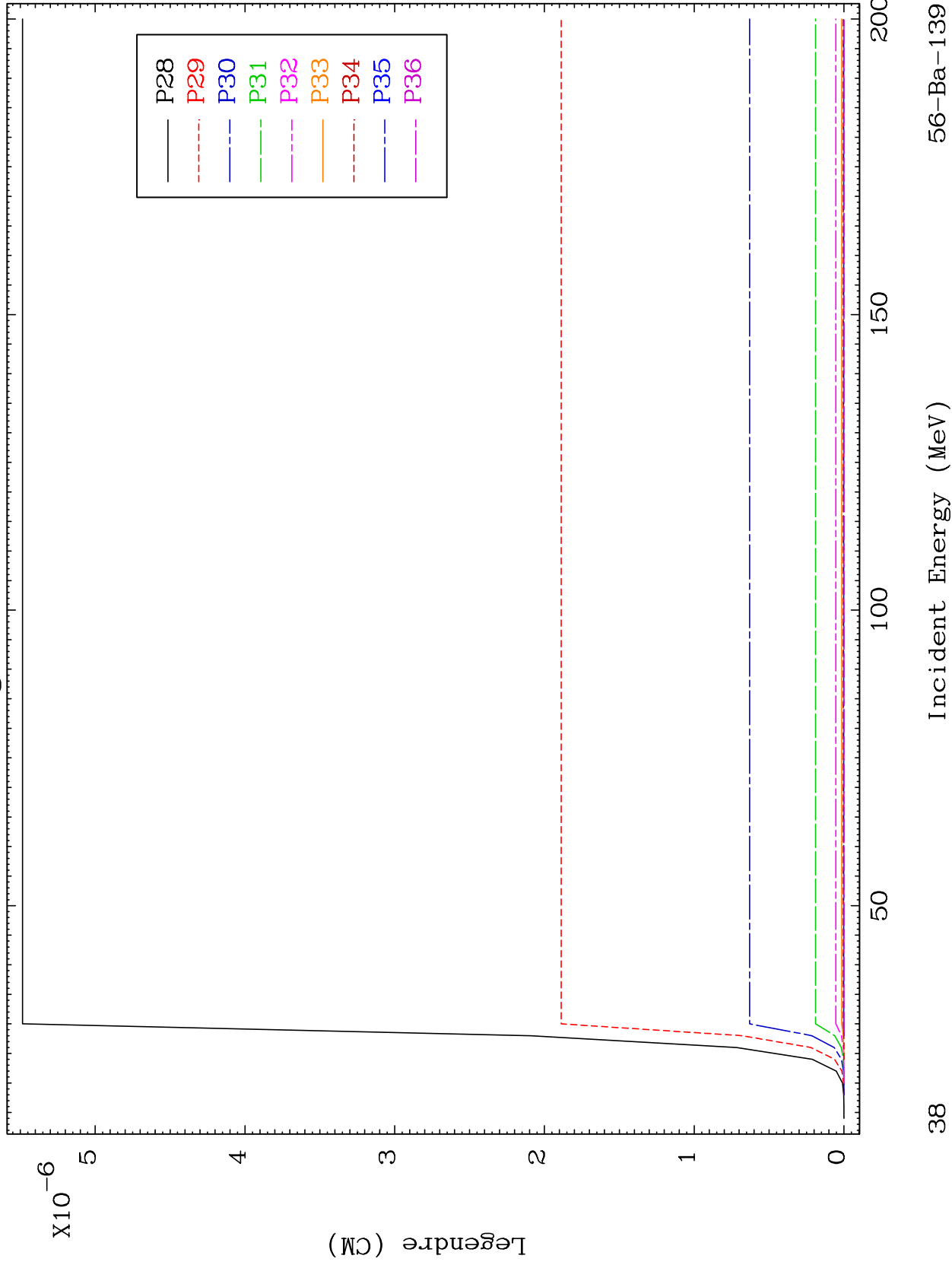
37

56-Ba-139

MAT 5652

MT= 55 (n,n') Level  
Legendre Coefficients

56-Ba-139

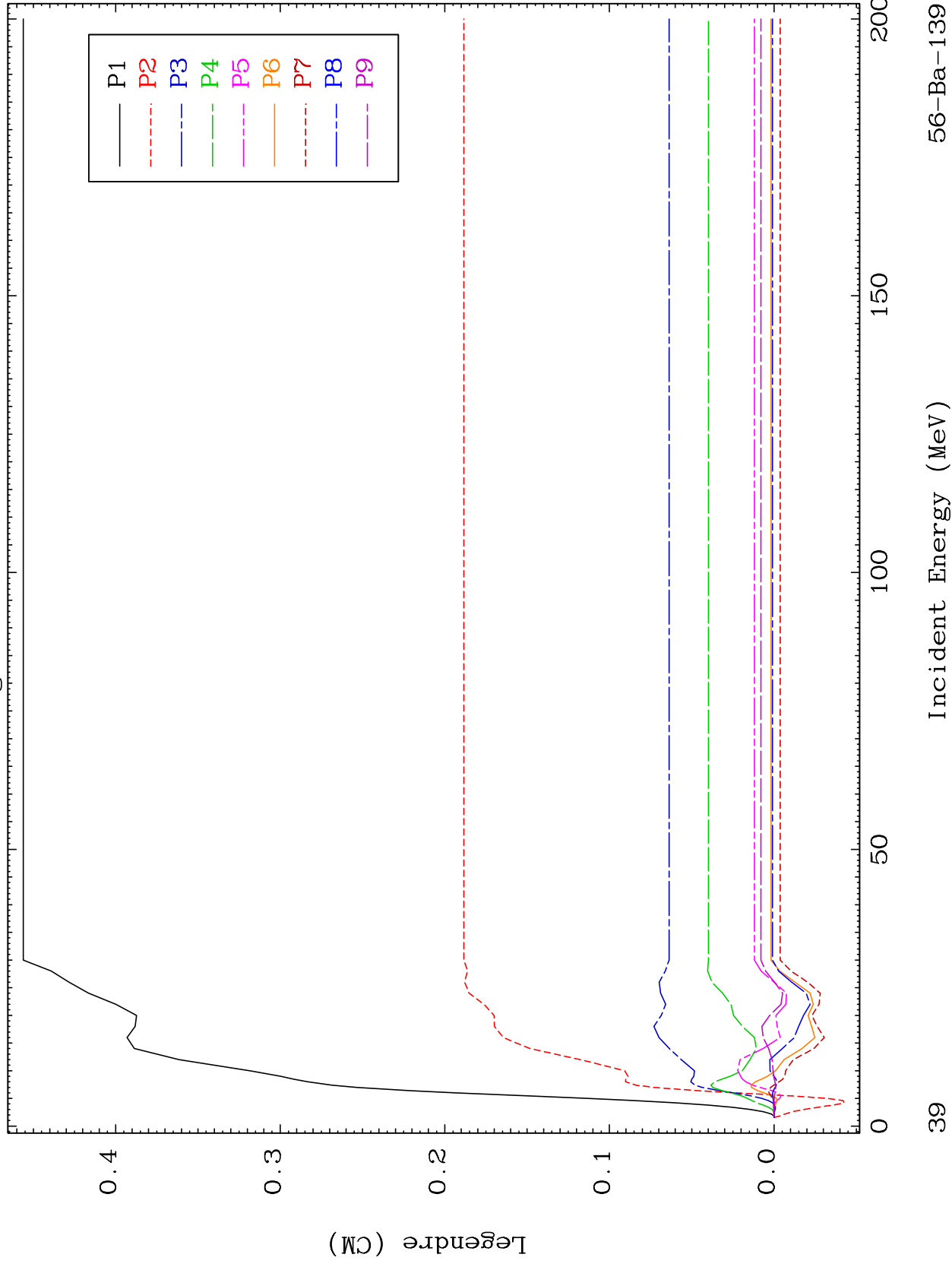


38

MAT 5652

MT= 56 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

Incident Energy (MeV)

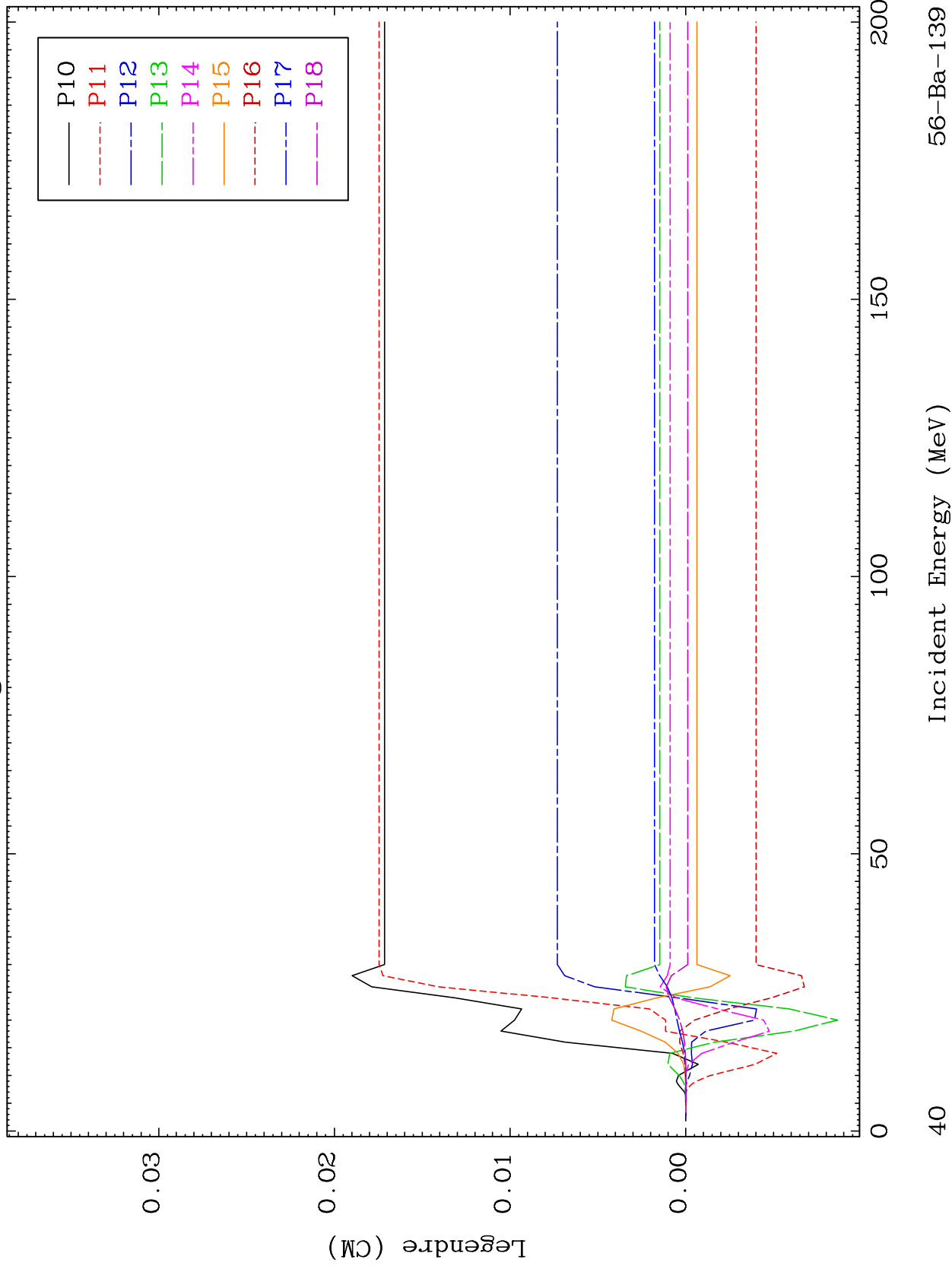
39



MAT 5652

MT= 56 (n,n') Level  
Legendre Coefficients

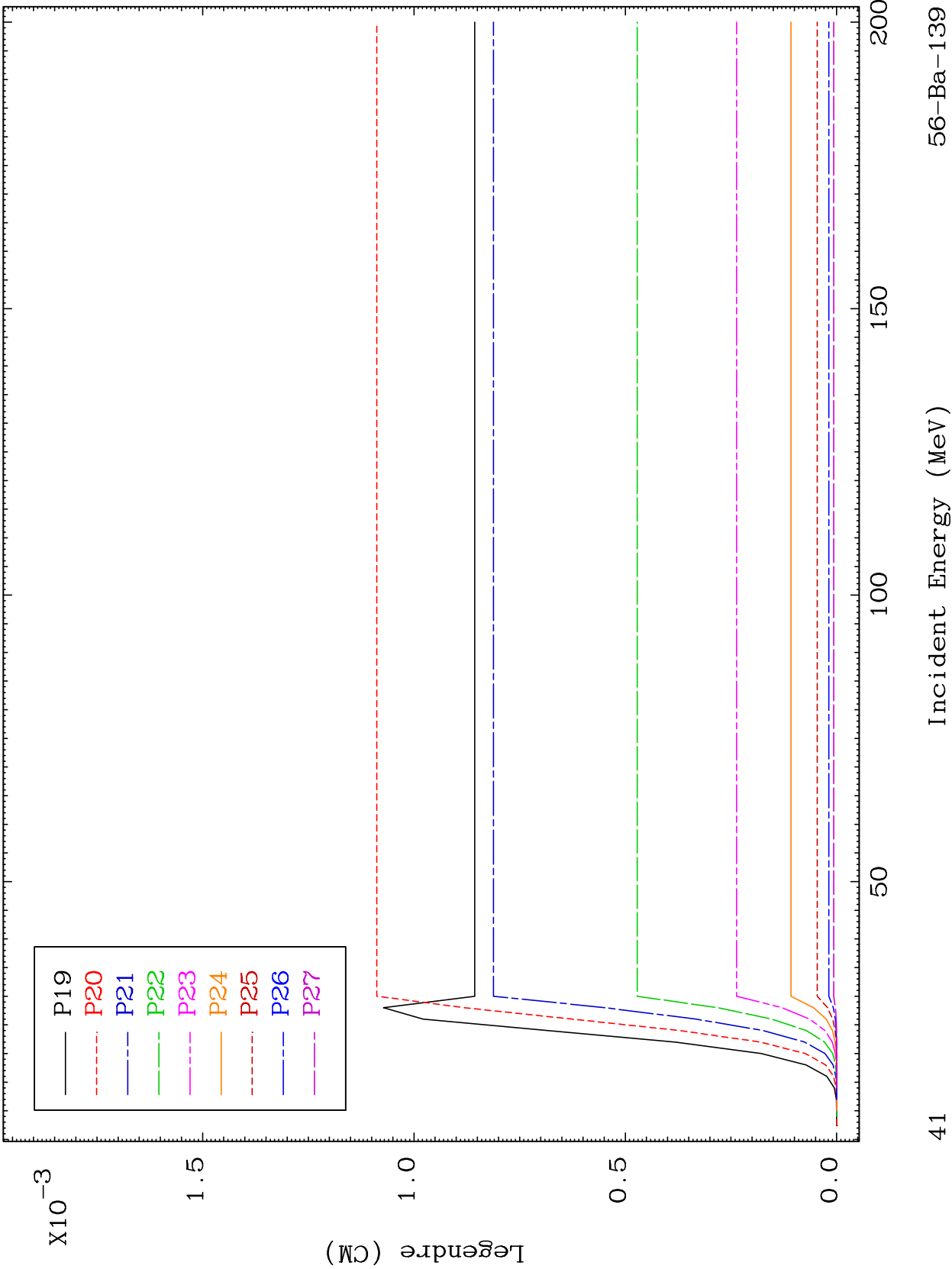
56-Ba-139



56-Ba-139

Incident Energy (MeV)

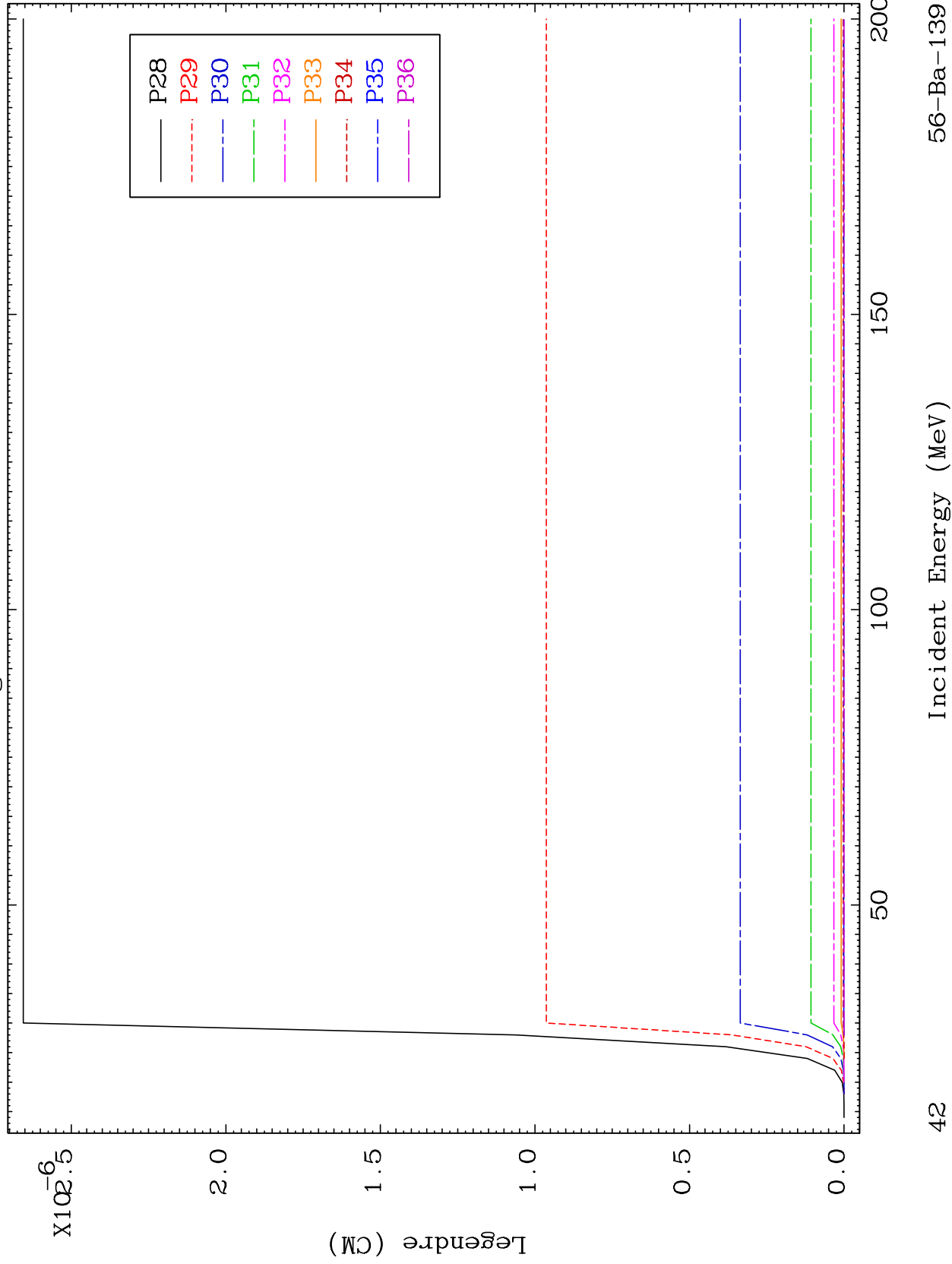
40



MAT 5652

MT= 56 (n,n') Level  
Legendre Coefficients

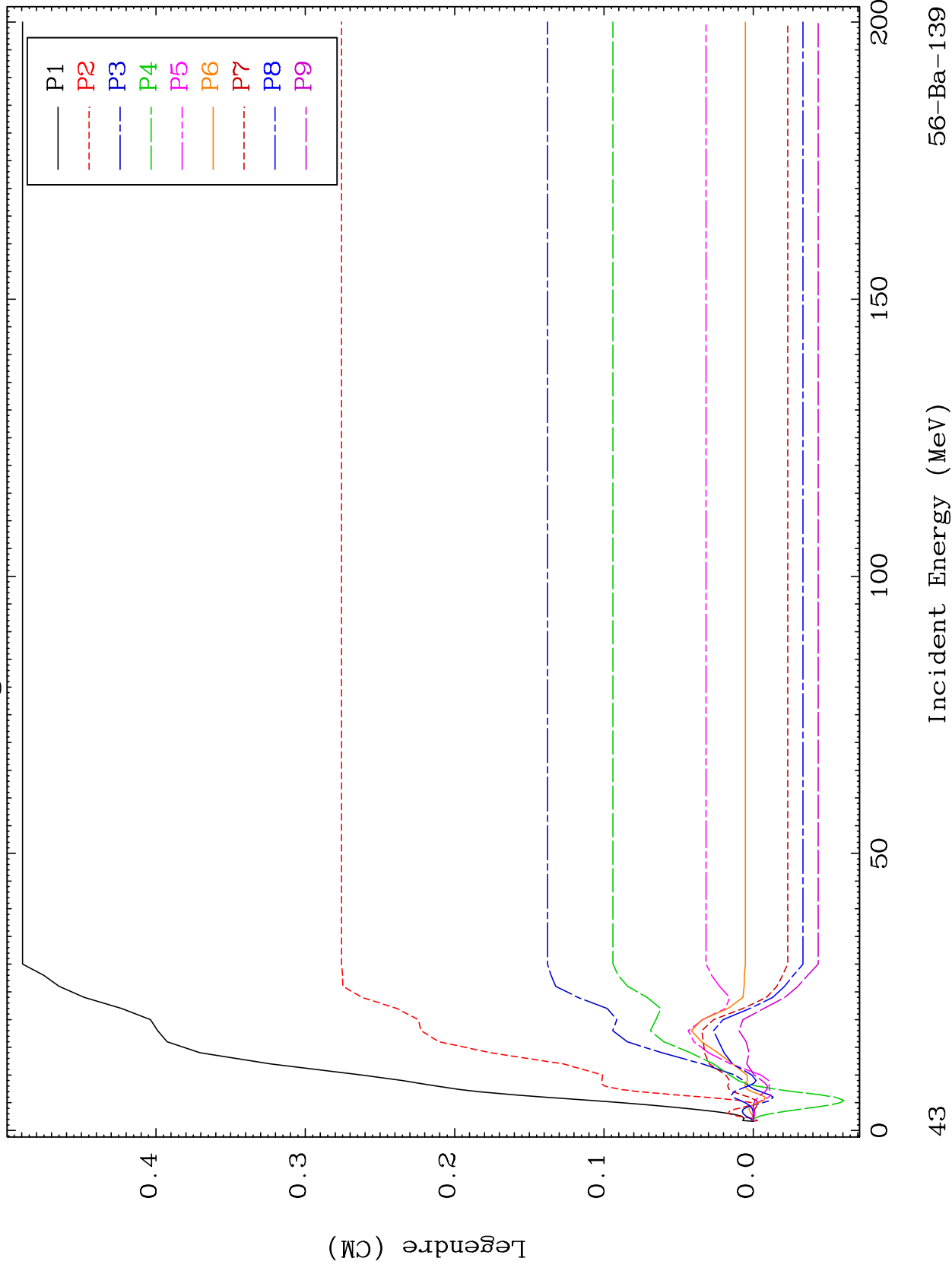
56-Ba-139



MAT 5652

MT= 57 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

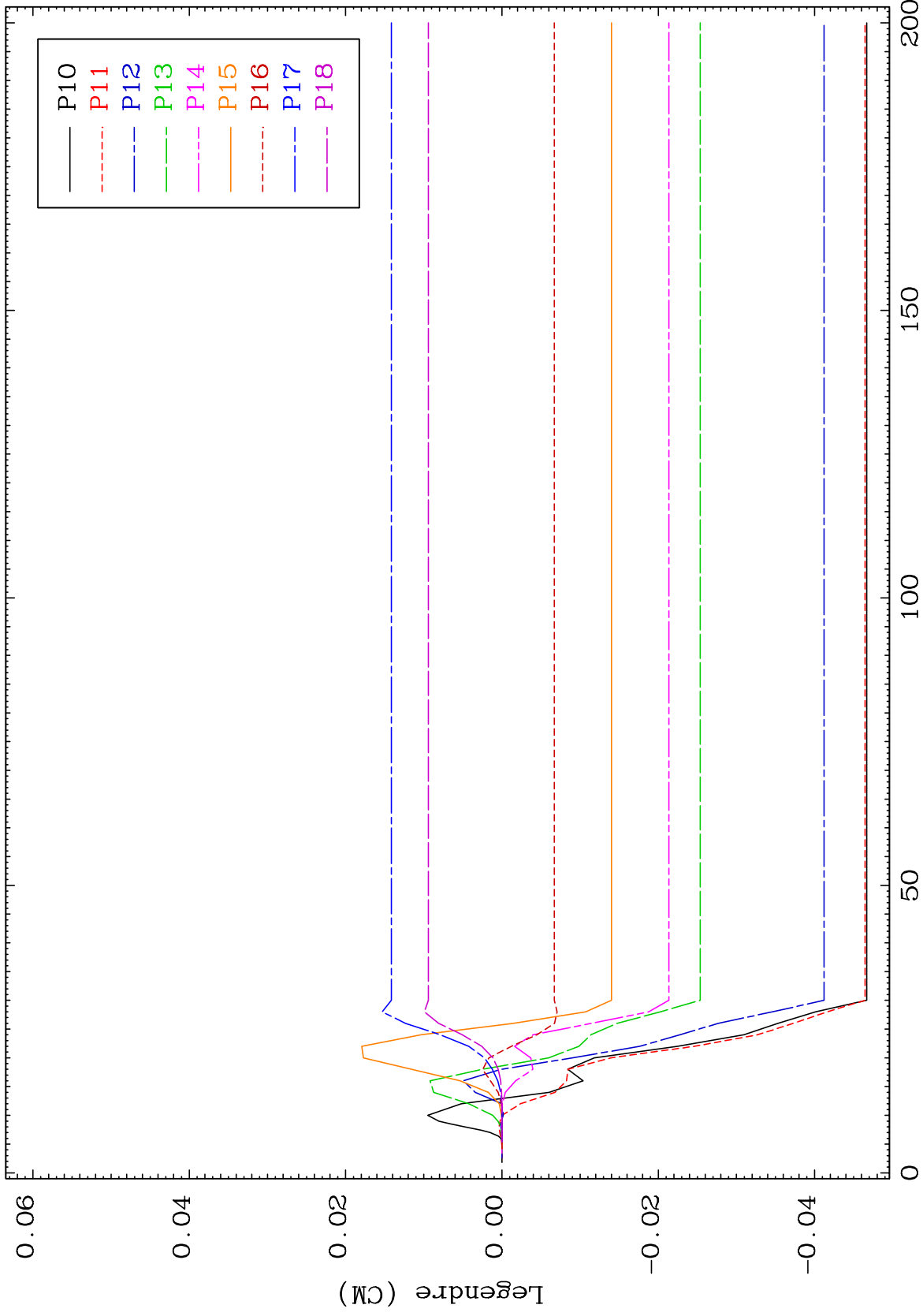
Incident Energy (MeV)

43

MAT 5652

MT= 57 (n,n') Level  
Legendre Coefficients

56-Ba-139



44

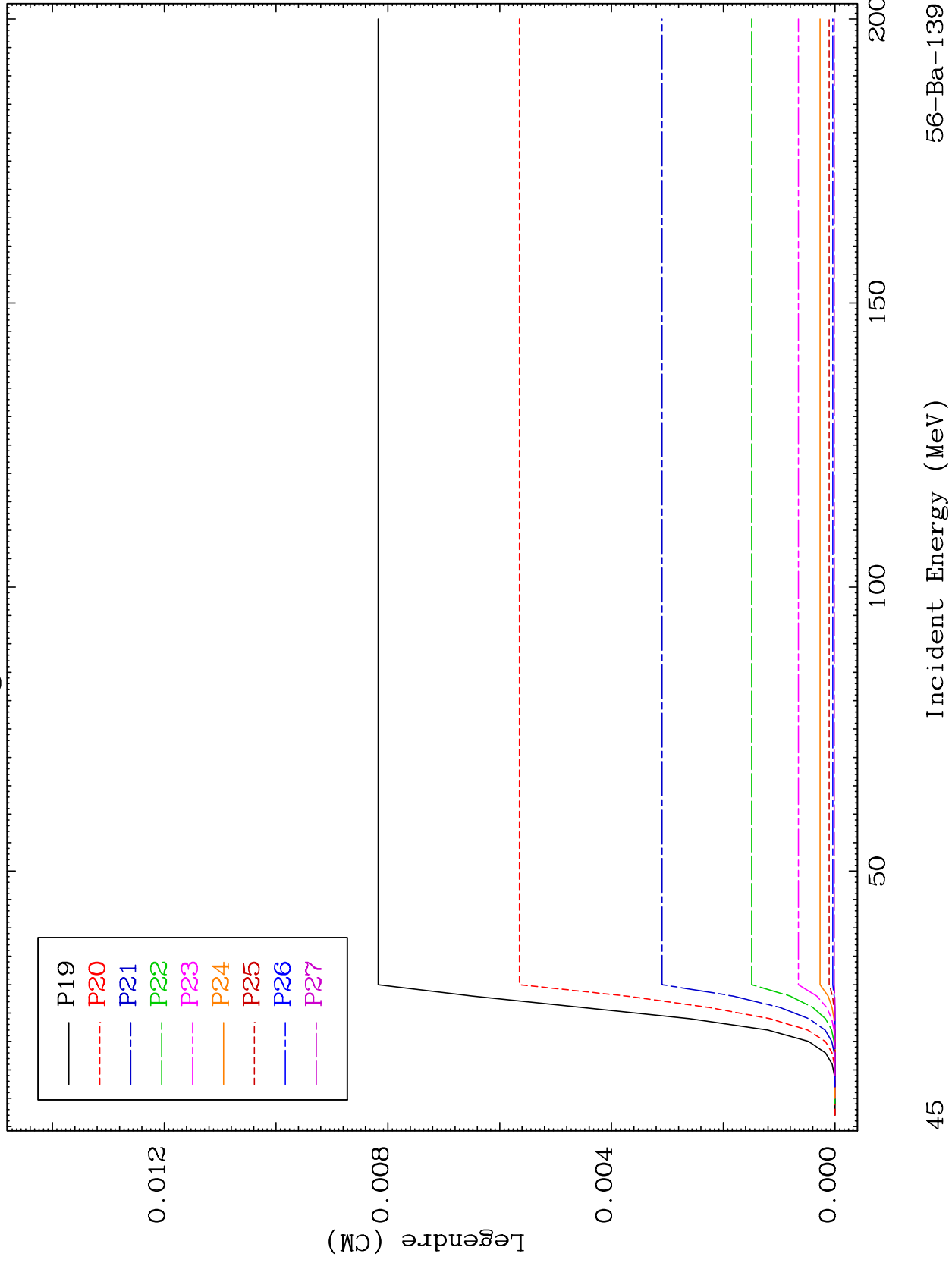
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 57 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

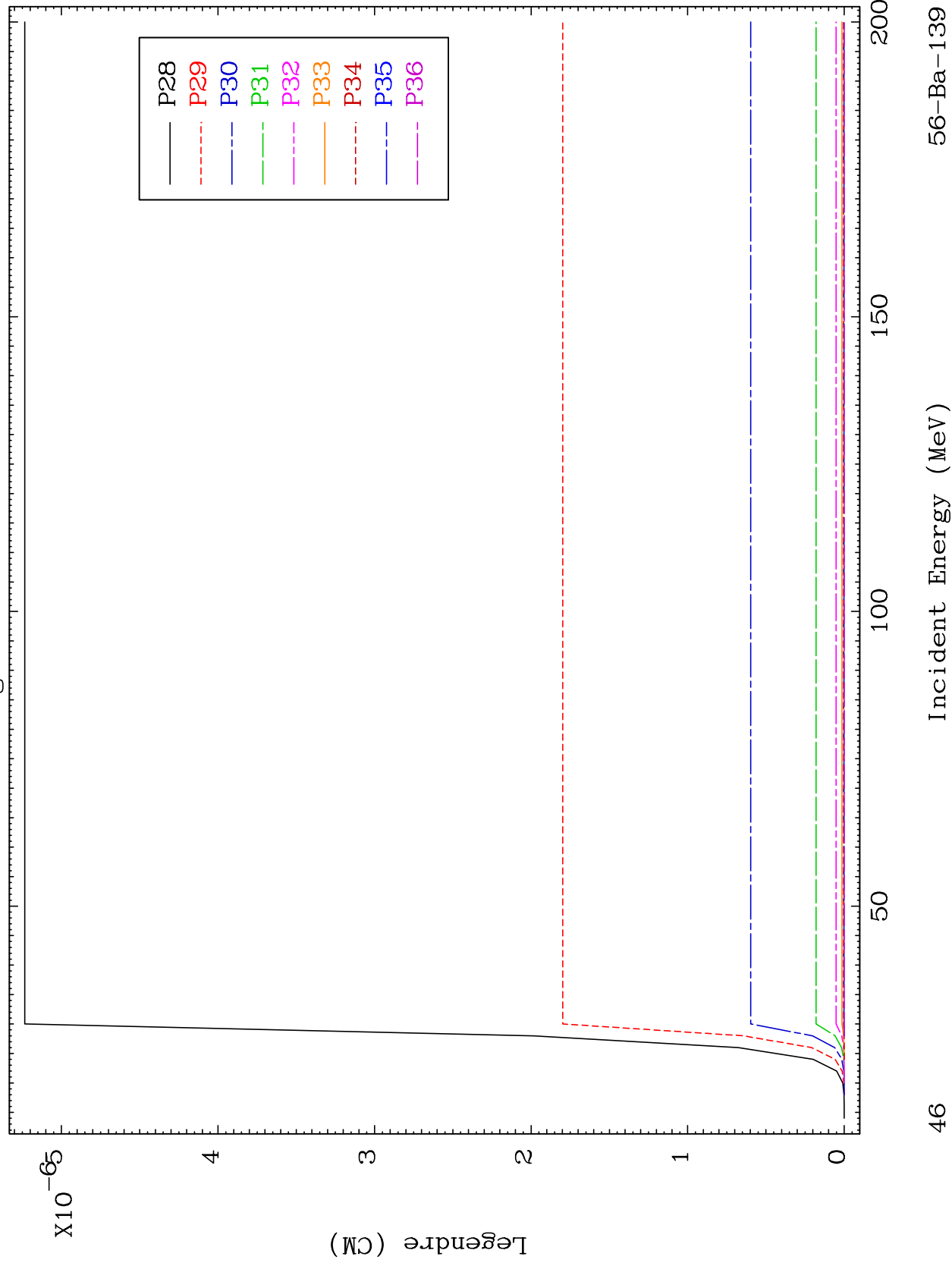
Incident Energy (MeV)

45

MAT 5652

MT= 57 (n,n') Level  
Legendre Coefficients

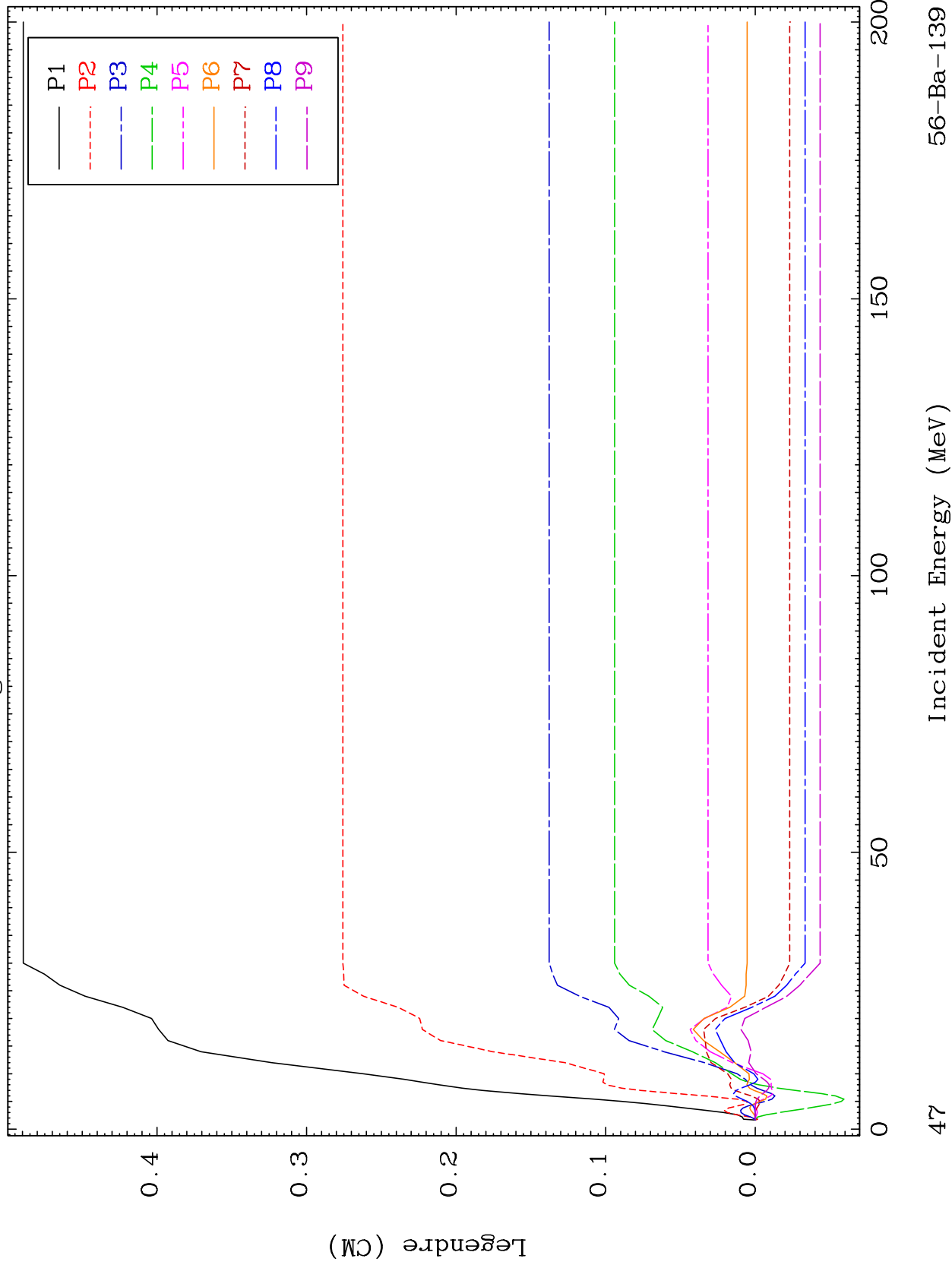
56-Ba-139



MAT 5652

MT= 58 (n,n') Level  
Legendre Coefficients

56-Ba-139



47

Incident Energy (MeV)

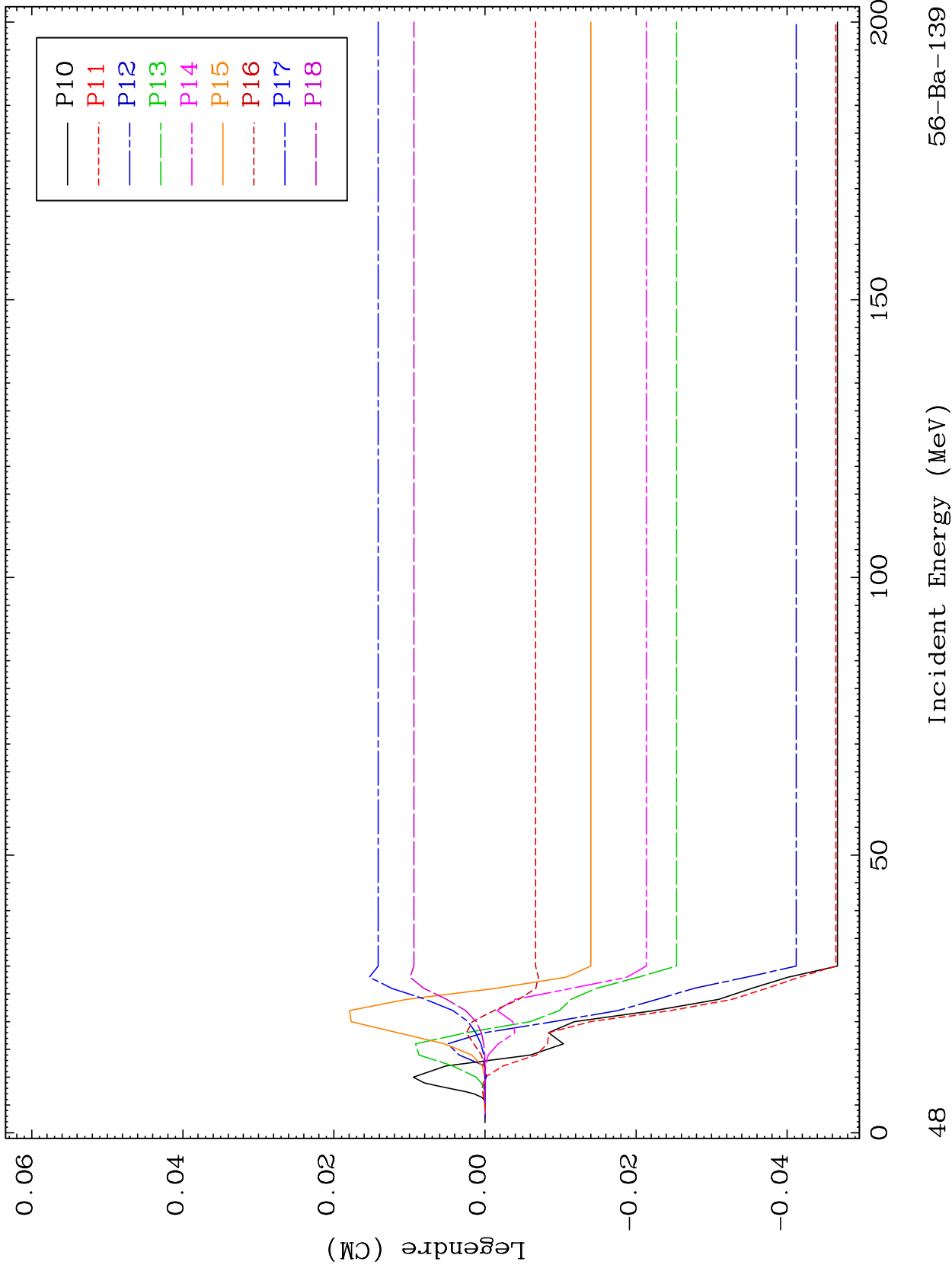
56-Ba-139



MAT 5652

MT= 58 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

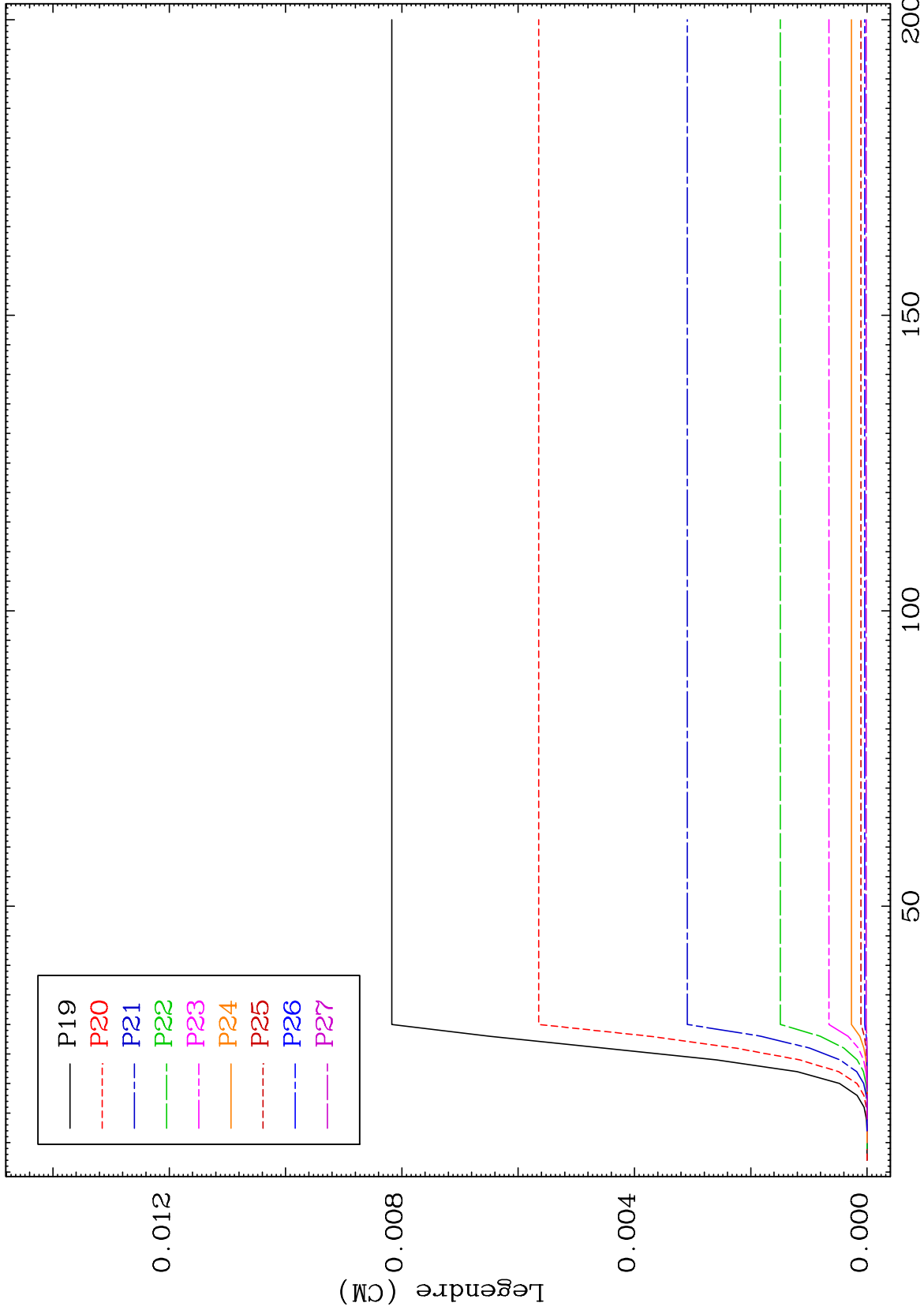
Incident Energy (MeV)

48

MAT 5652

MT= 58 (n,n') Level  
Legendre Coefficients

56-Ba-139



49

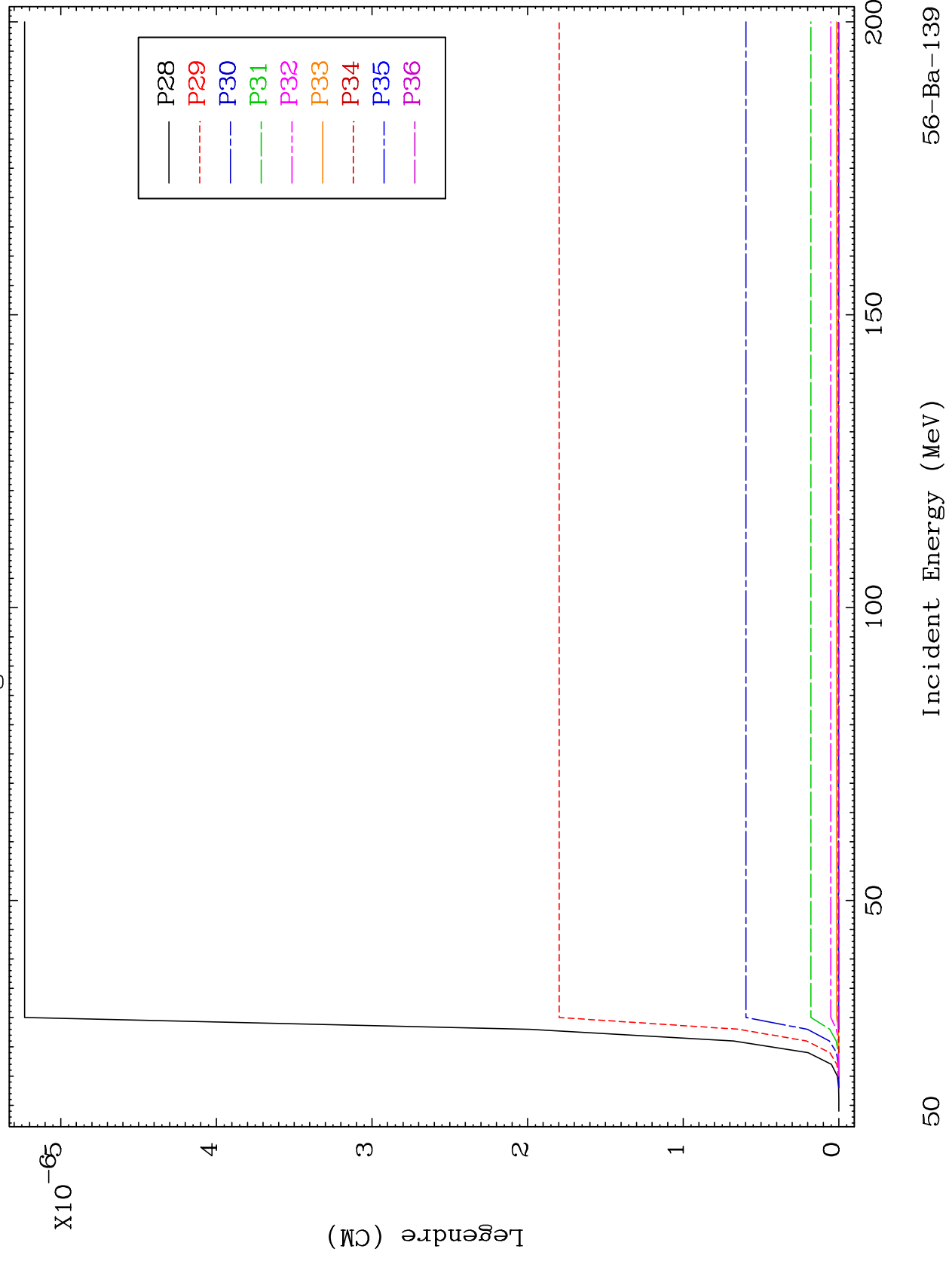
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 58 (n,n') Level  
Legendre Coefficients

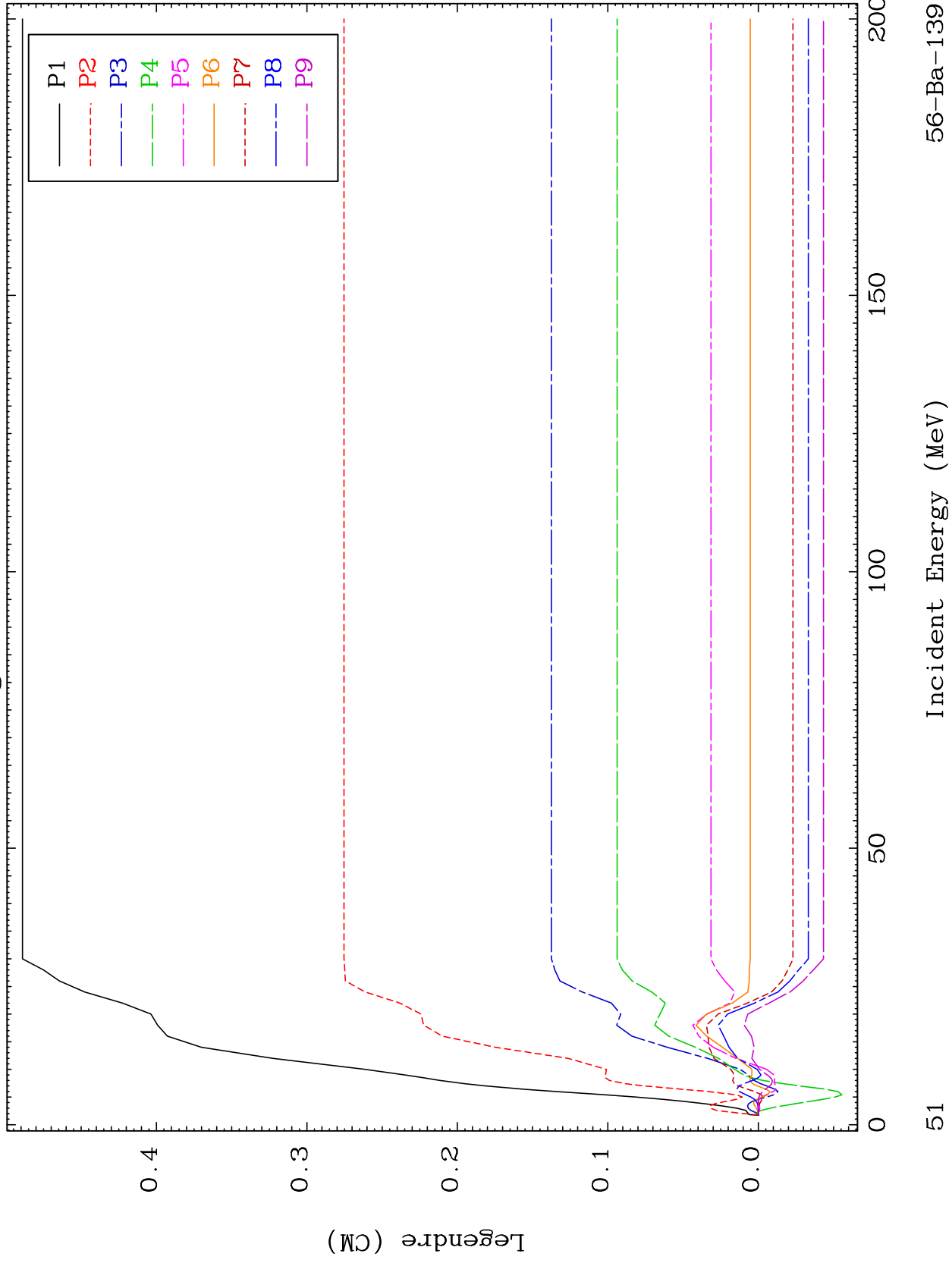
56-Ba-139



MAT 5652

MT= 59 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

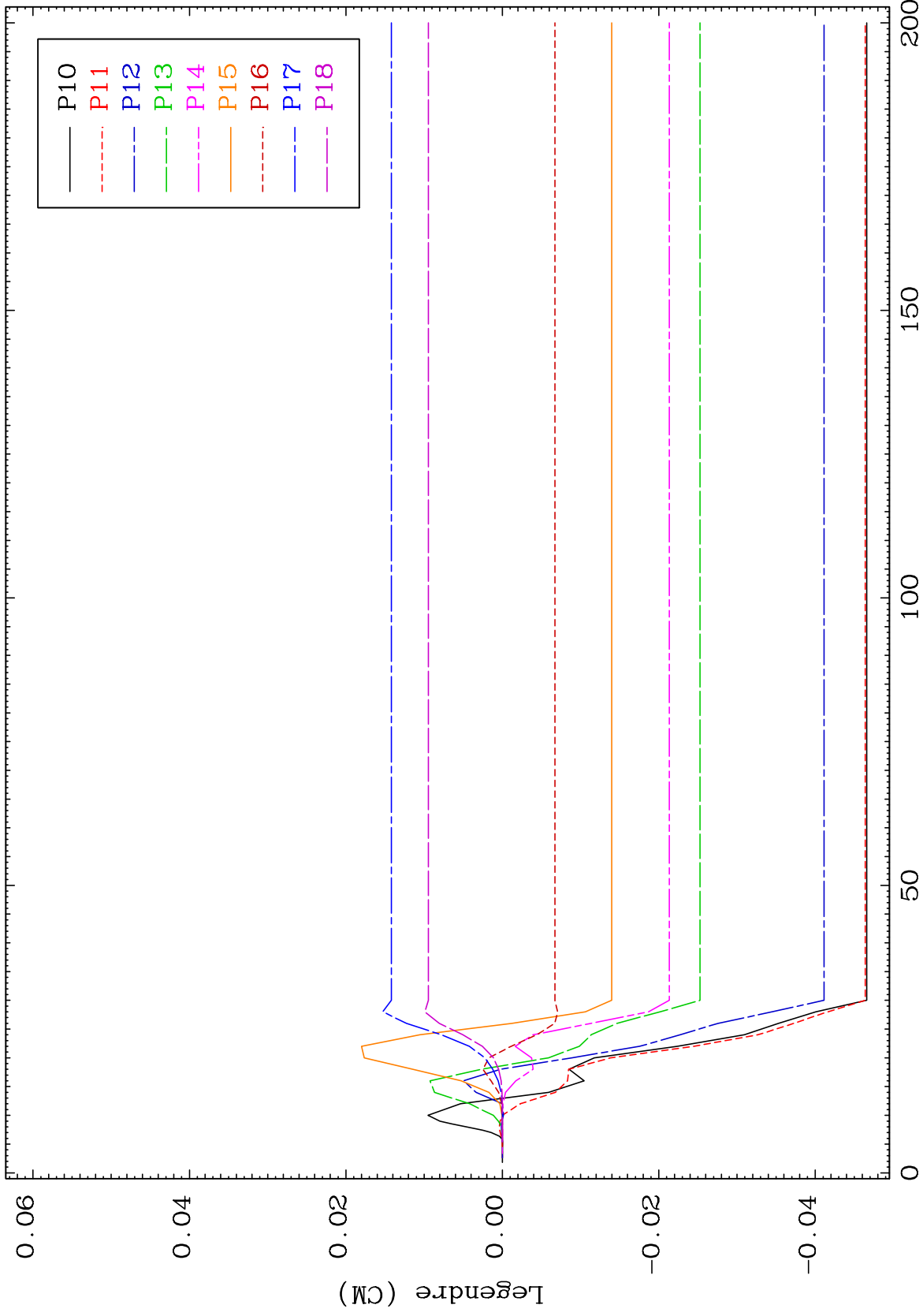
Incident Energy (MeV)

51

MAT 5652

MT= 59 (n,n') Level  
Legendre Coefficients

56-Ba-139



52

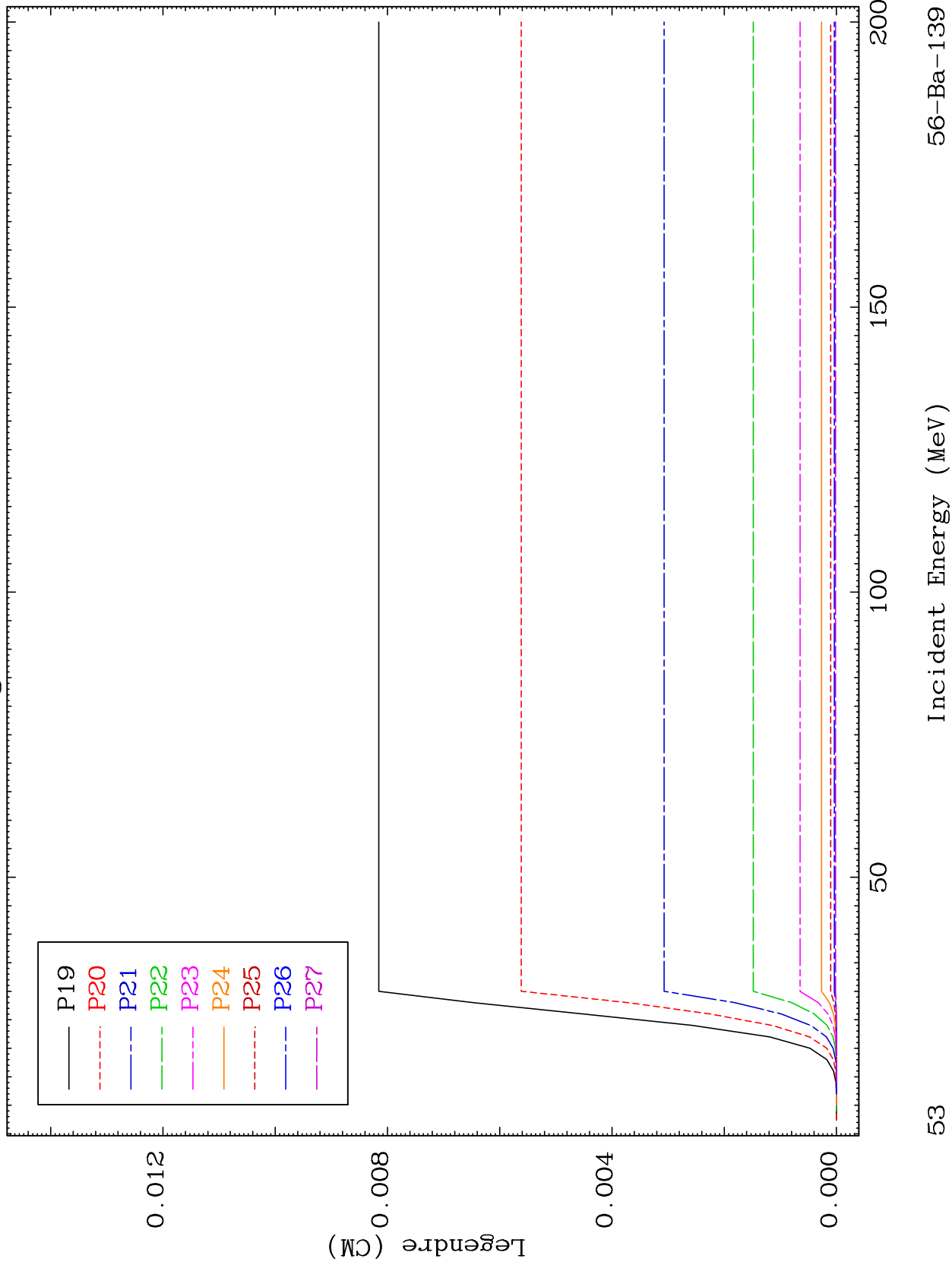
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 59 (n,n') Level  
Legendre Coefficients

56-Ba-139



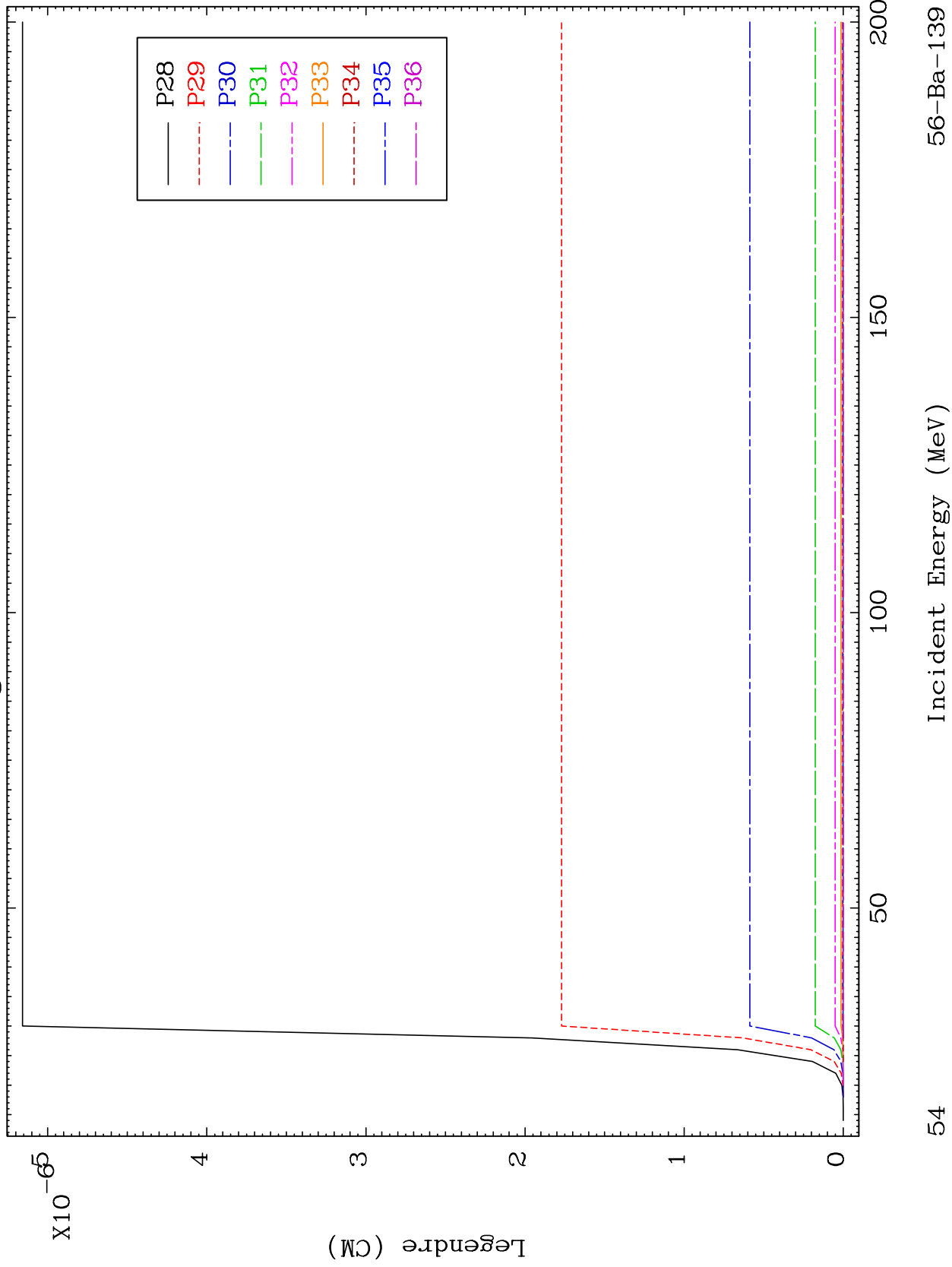
53

56-Ba-139

MAT 5652

MT= 59 (n,n') Level  
Legendre Coefficients

56-Ba-139



54

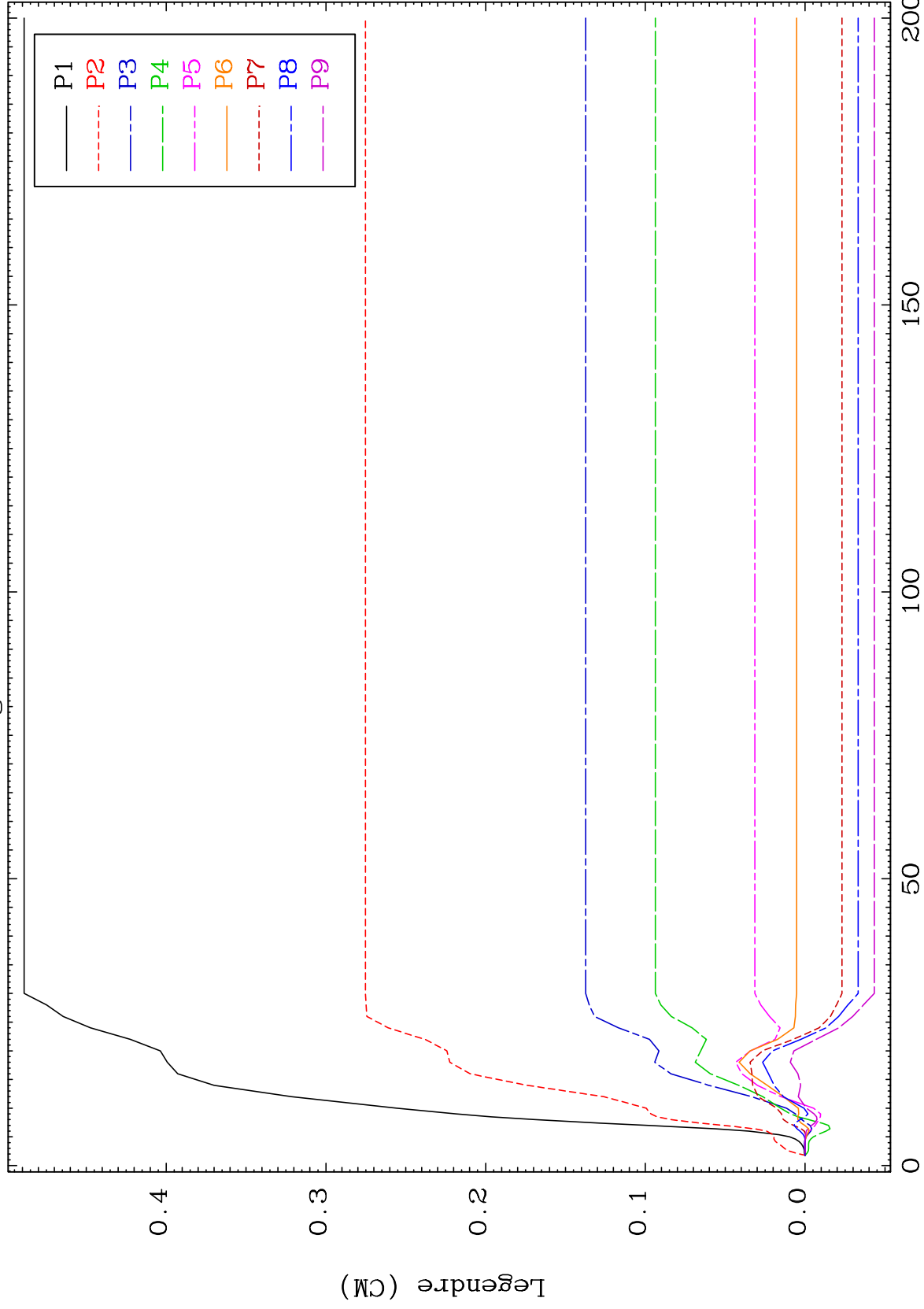
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 60 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

Incident Energy (MeV)

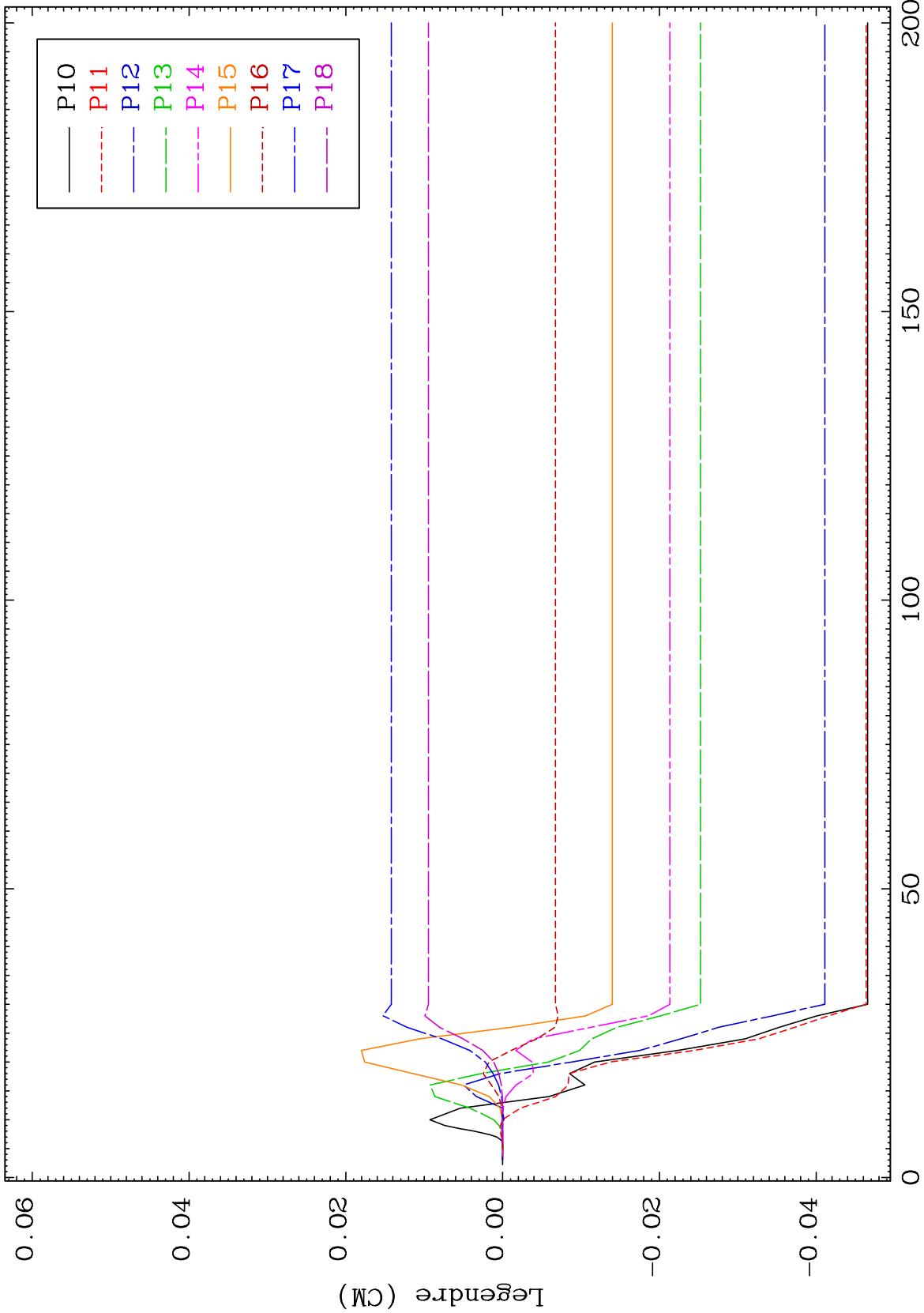
55



MAT 5652

MT= 60 (n,n') Level  
Legendre Coefficients

56-Ba-139



56

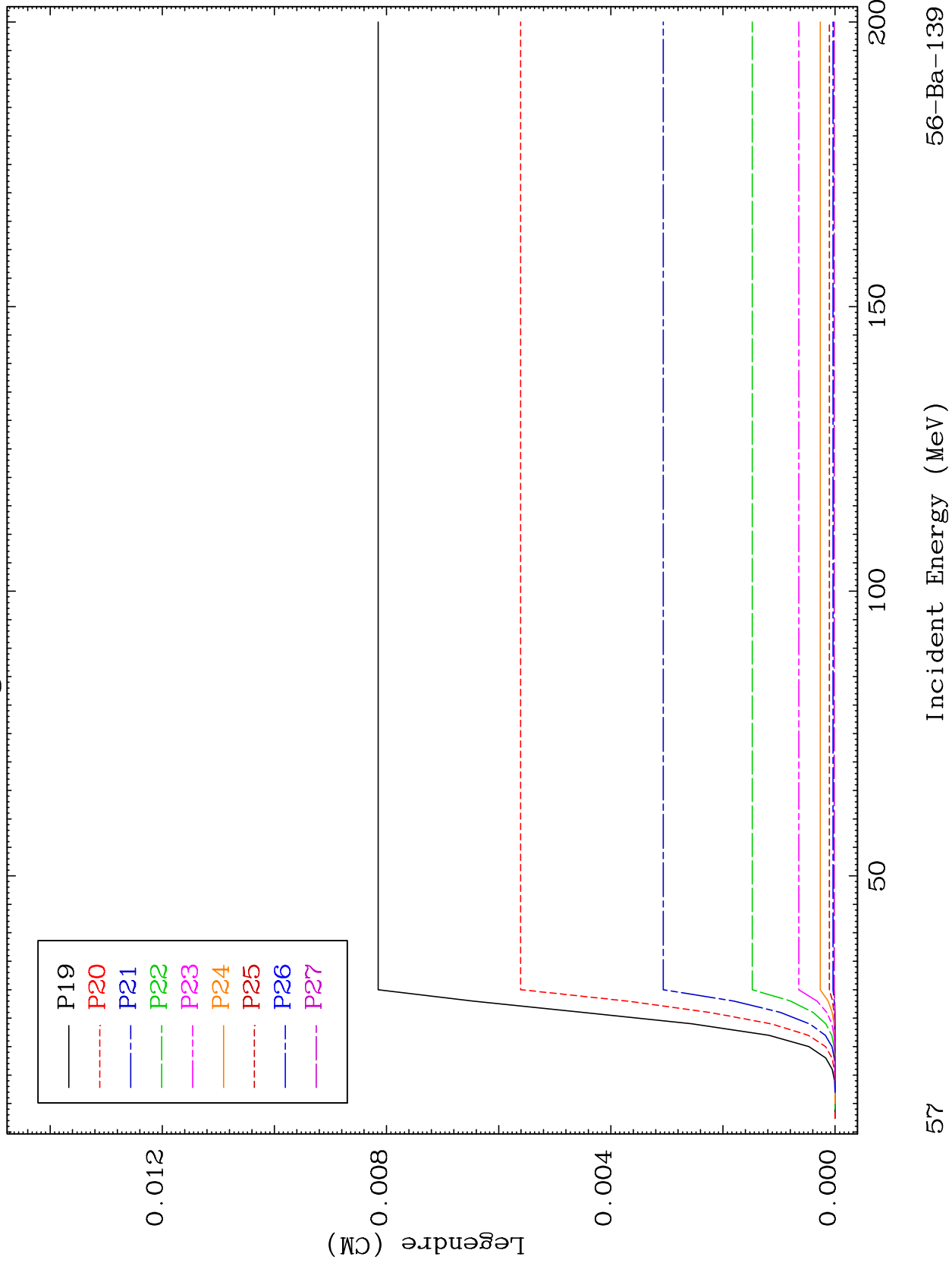
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 60 (n,n') Level  
Legendre Coefficients

56-Ba-139



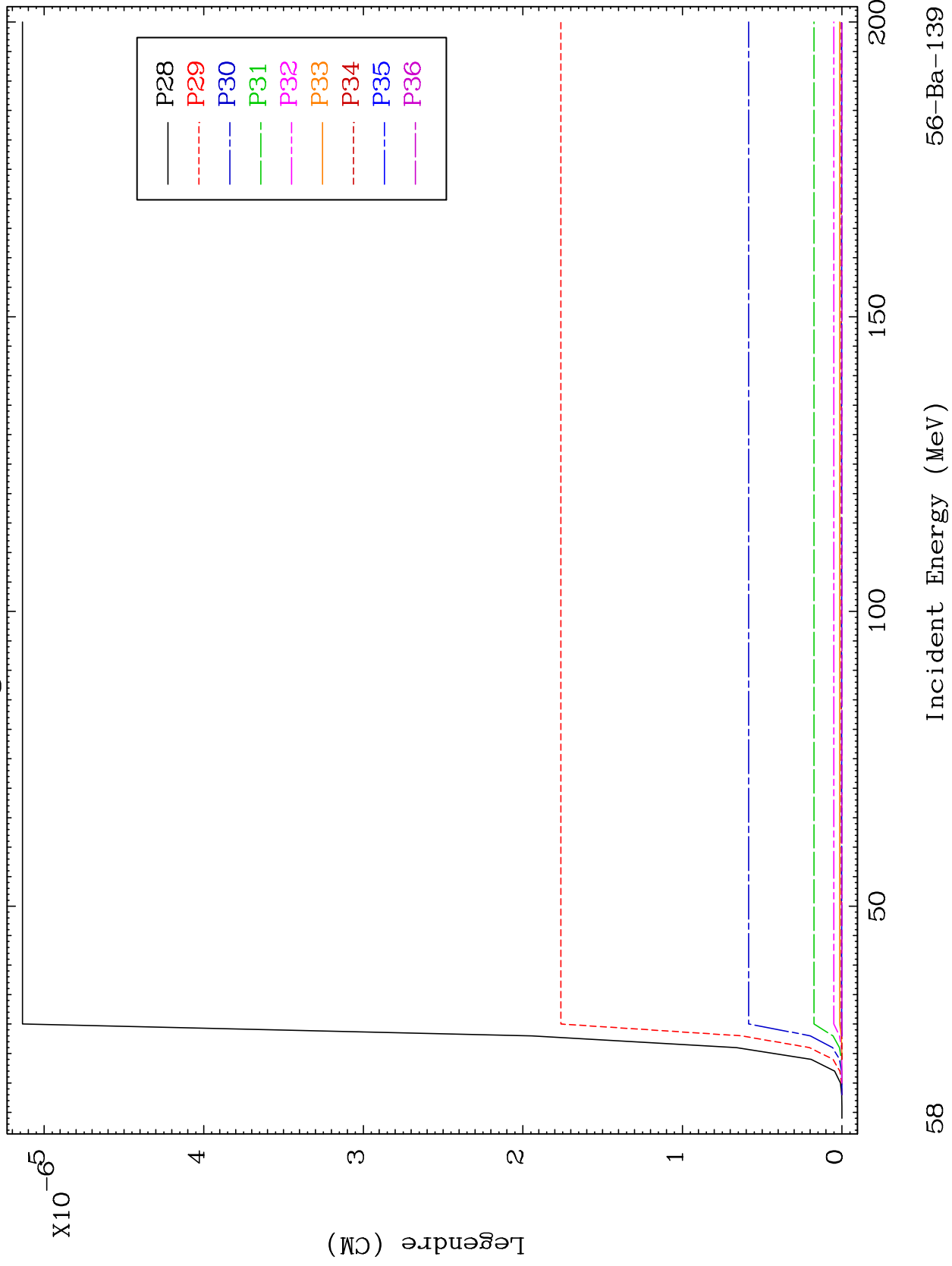
57

56-Ba-139

MAT 5652

MT= 60 (n,n') Level  
Legendre Coefficients

56-Ba-139



58

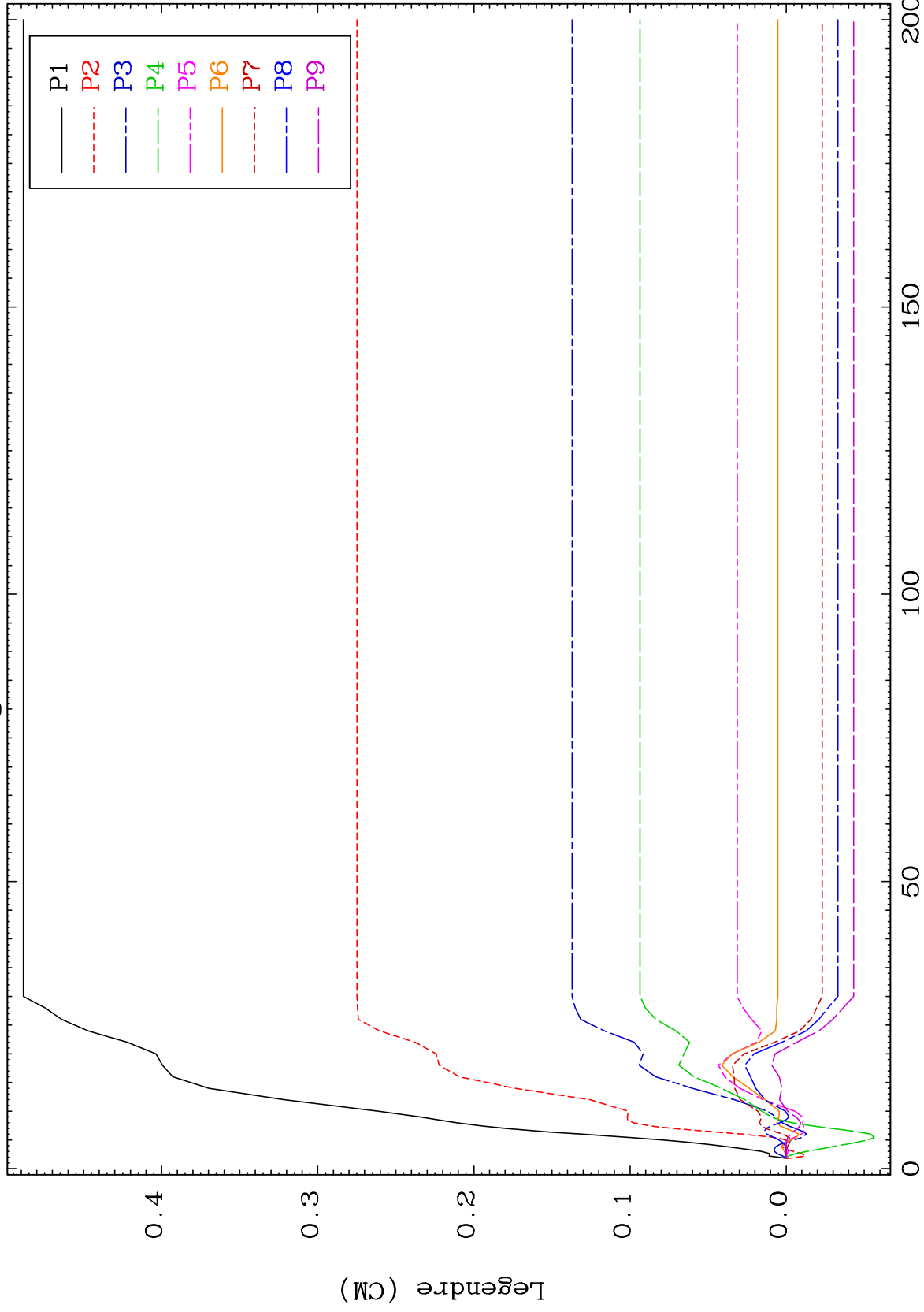
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 61 (n,n') Level  
Legendre Coefficients

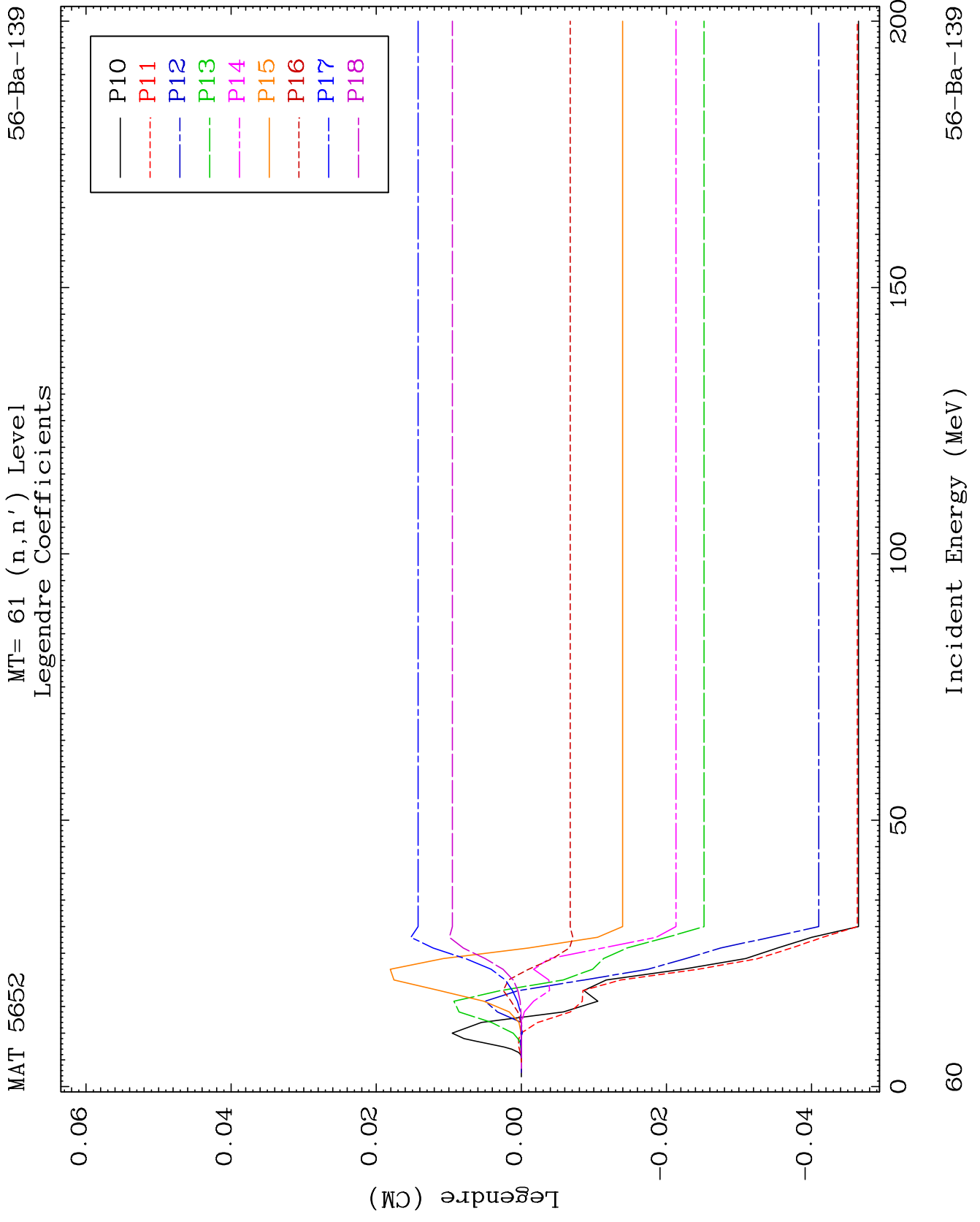
56-Ba-139



56-Ba-139

Incident Energy (MeV)

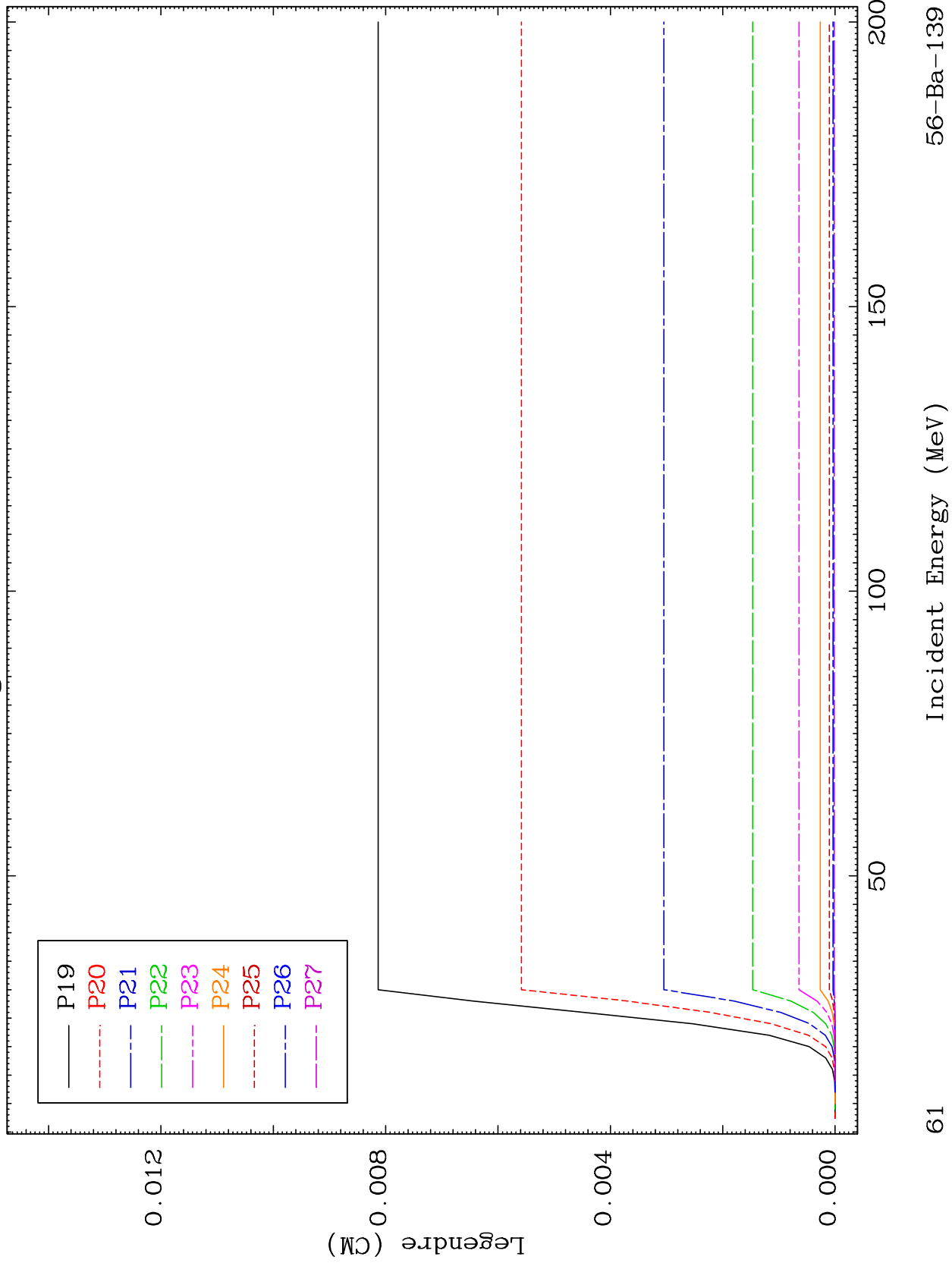
59



MAT 5652

MT= 61 (n,n') Level  
Legendre Coefficients

56-Ba-139



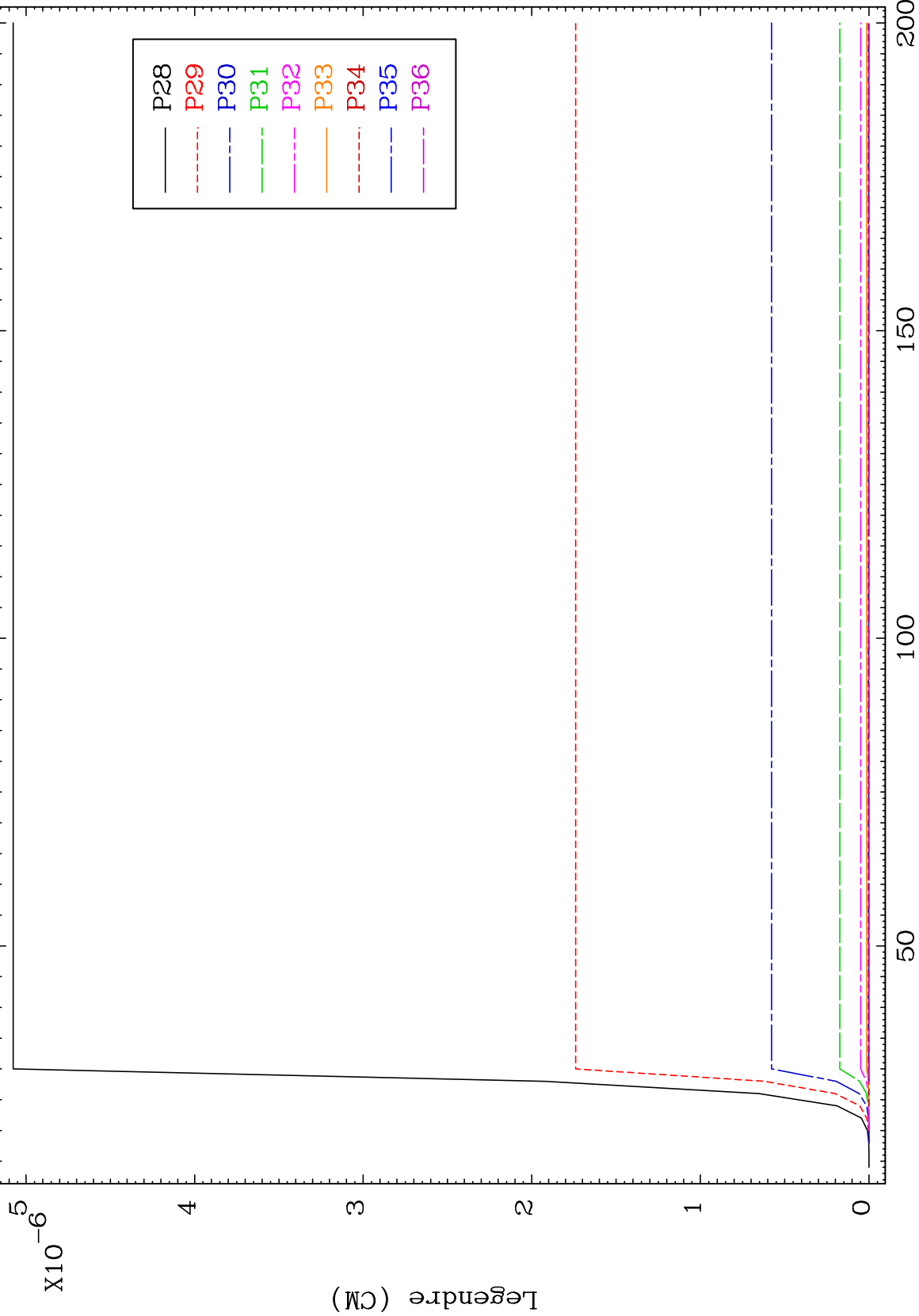
61

56-Ba-139

MAT 5652

MT= 61 (n,n') Level  
Legendre Coefficients

56-Ba-139



62

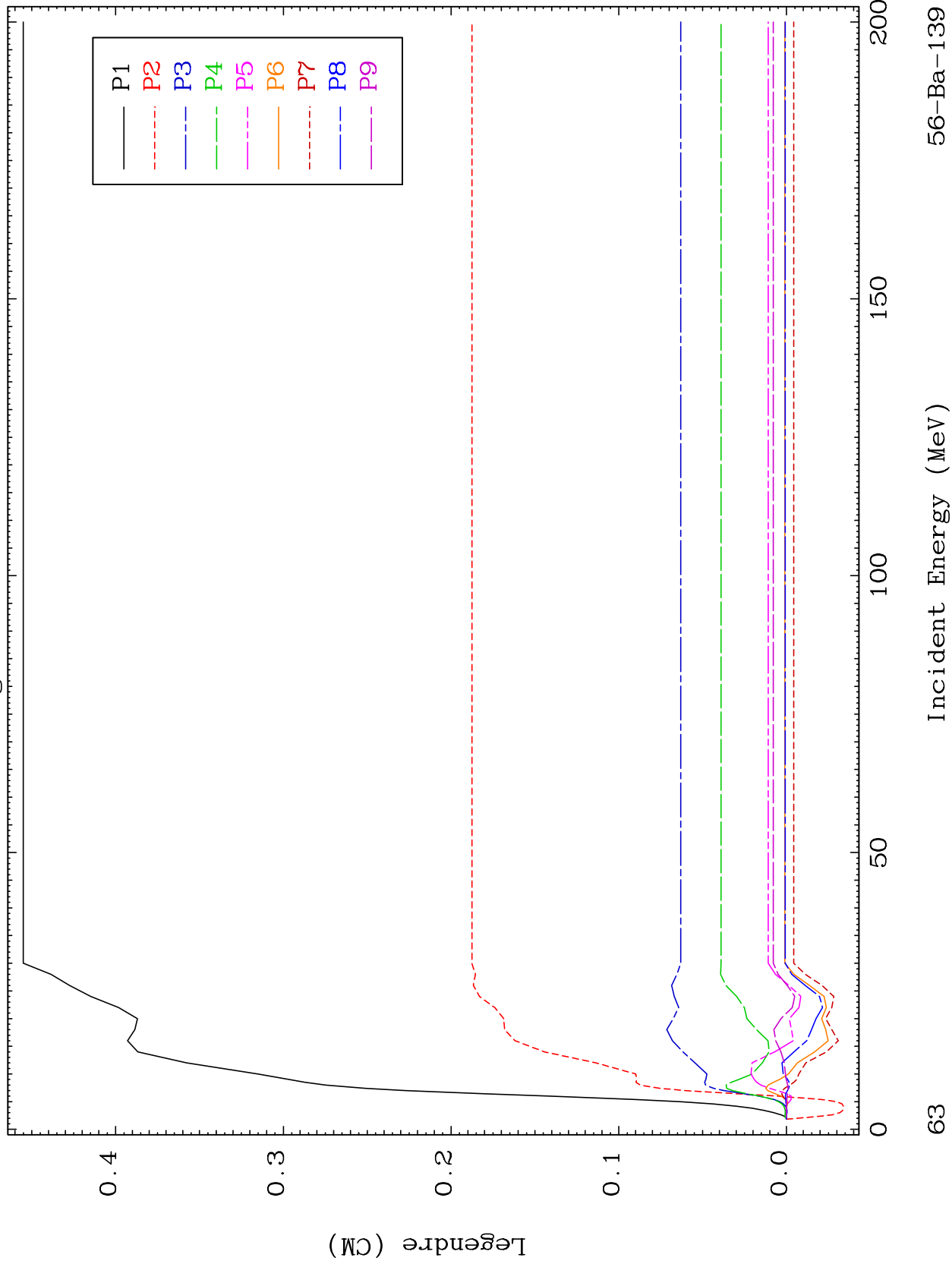
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 62 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

Incident Energy (MeV)

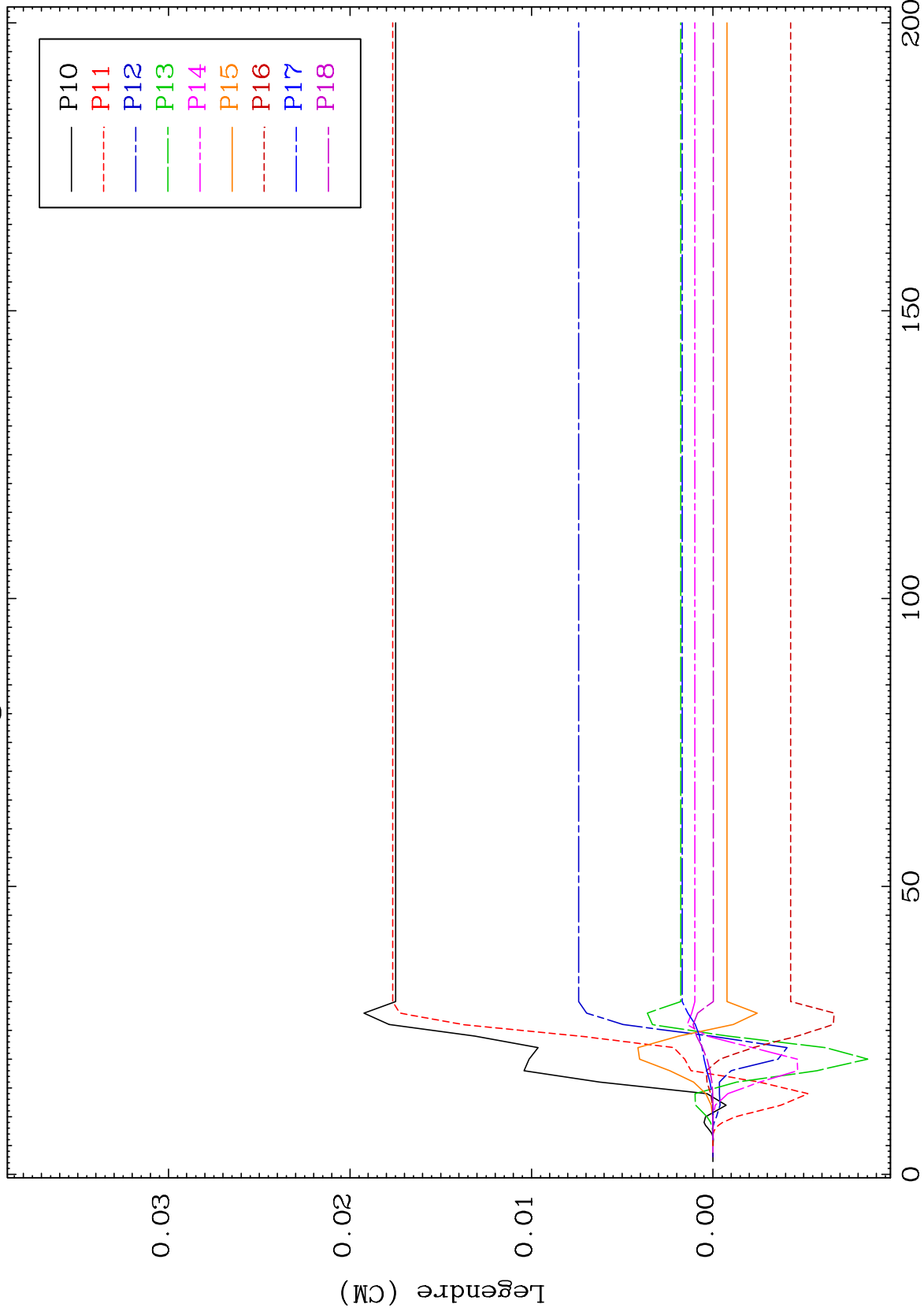
63



MAT 5652

MT= 62 (n,n') Level  
Legendre Coefficients

56-Ba-139



64

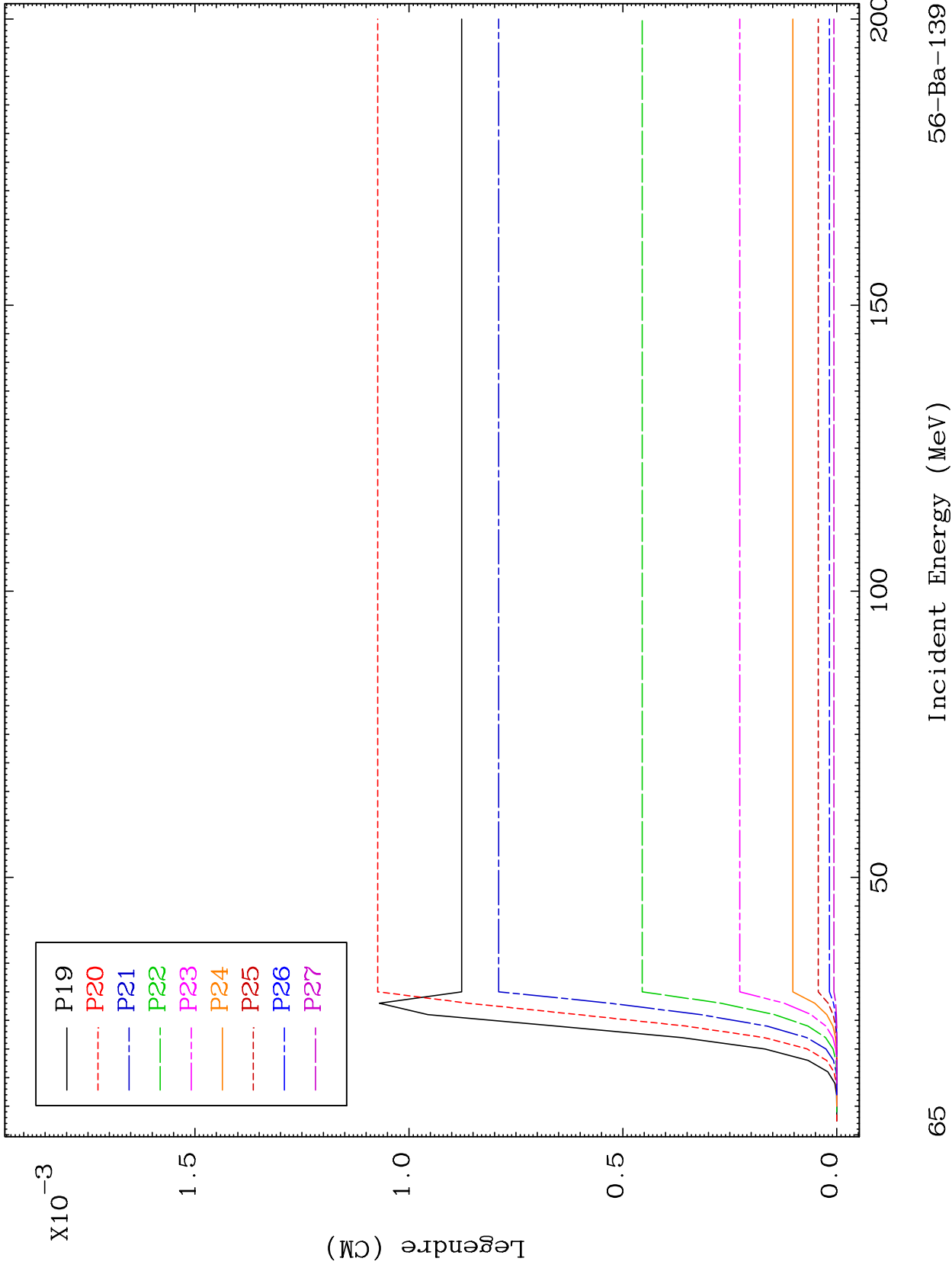
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 62 (n,n') Level  
Legendre Coefficients

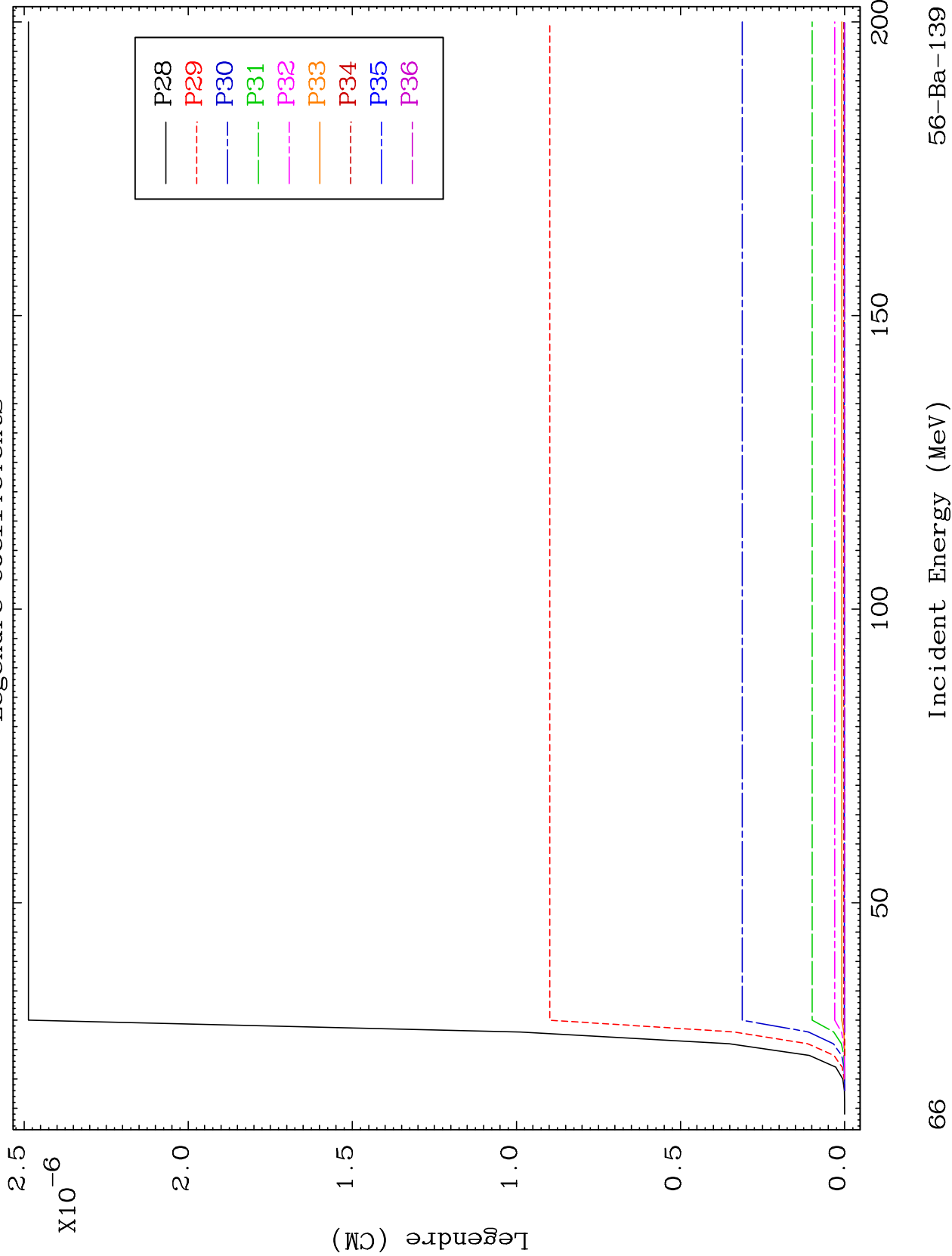
56-Ba-139



MAT 5652

MT= 62 (n,n') Level  
Legendre Coefficients

56-Ba-139



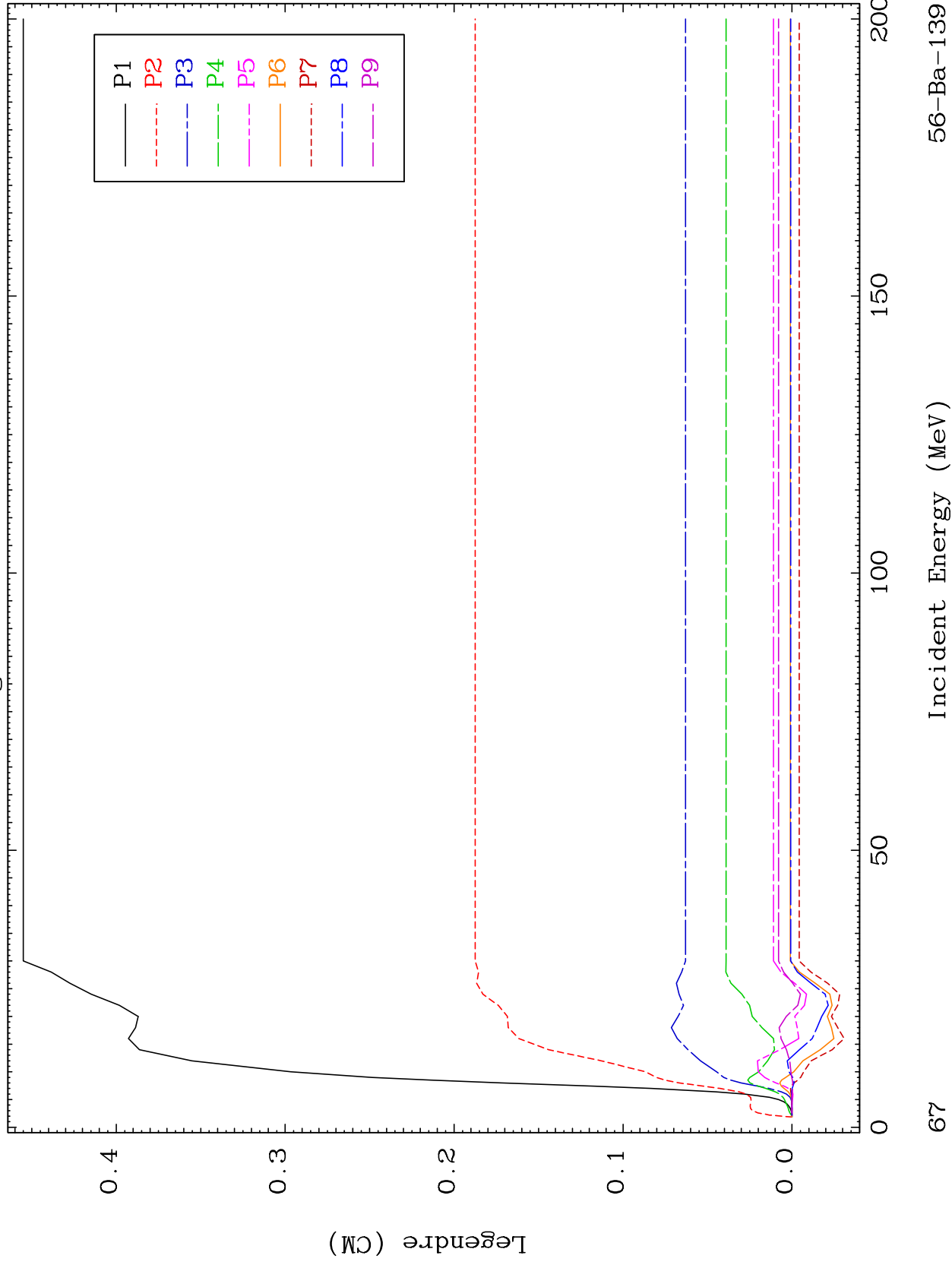
66

56-Ba-139

MAT 5652

MT= 63 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

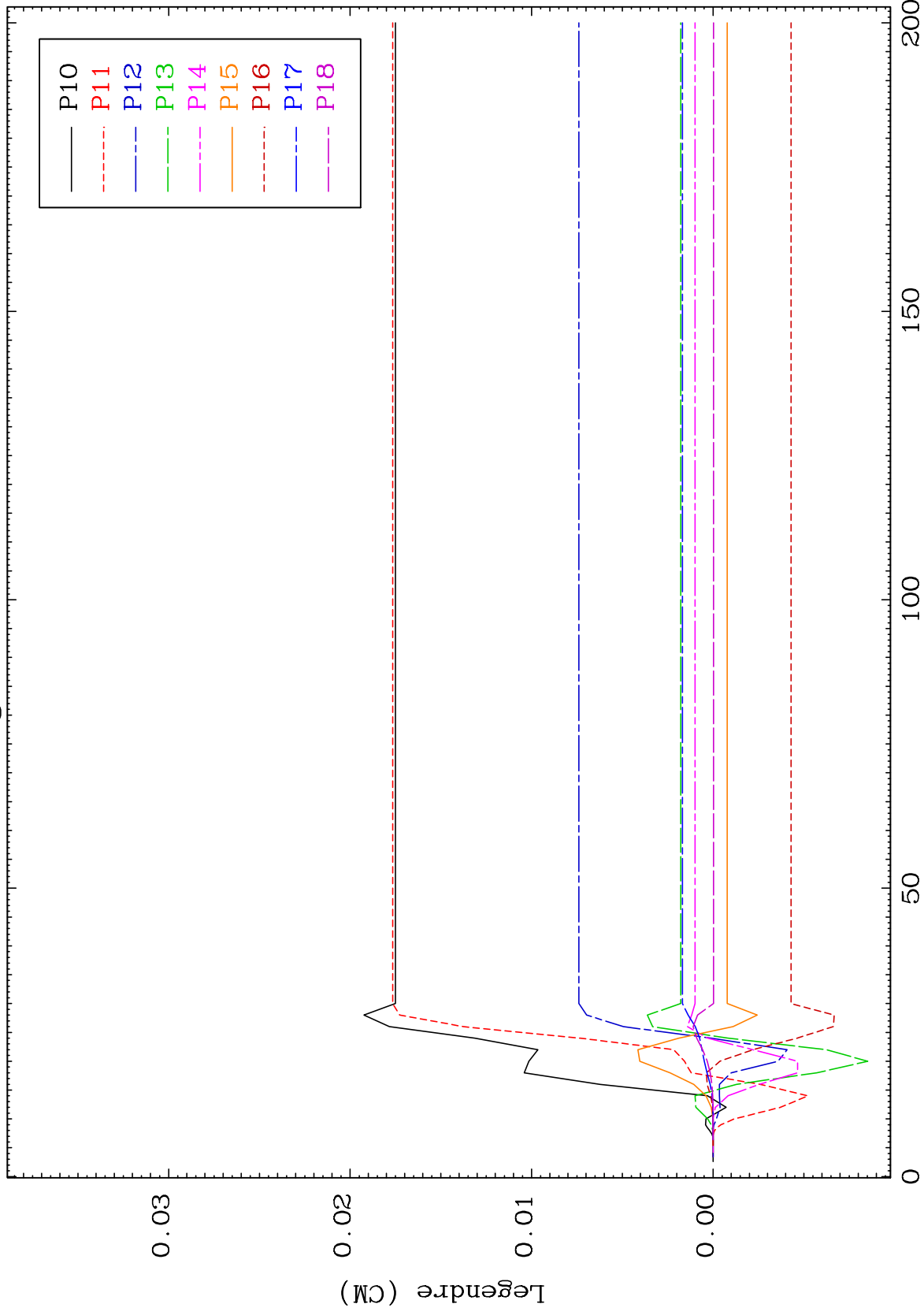
Incident Energy (MeV)

67

MAT 5652

MT= 63 (n,n') Level  
Legendre Coefficients

56-Ba-139



68

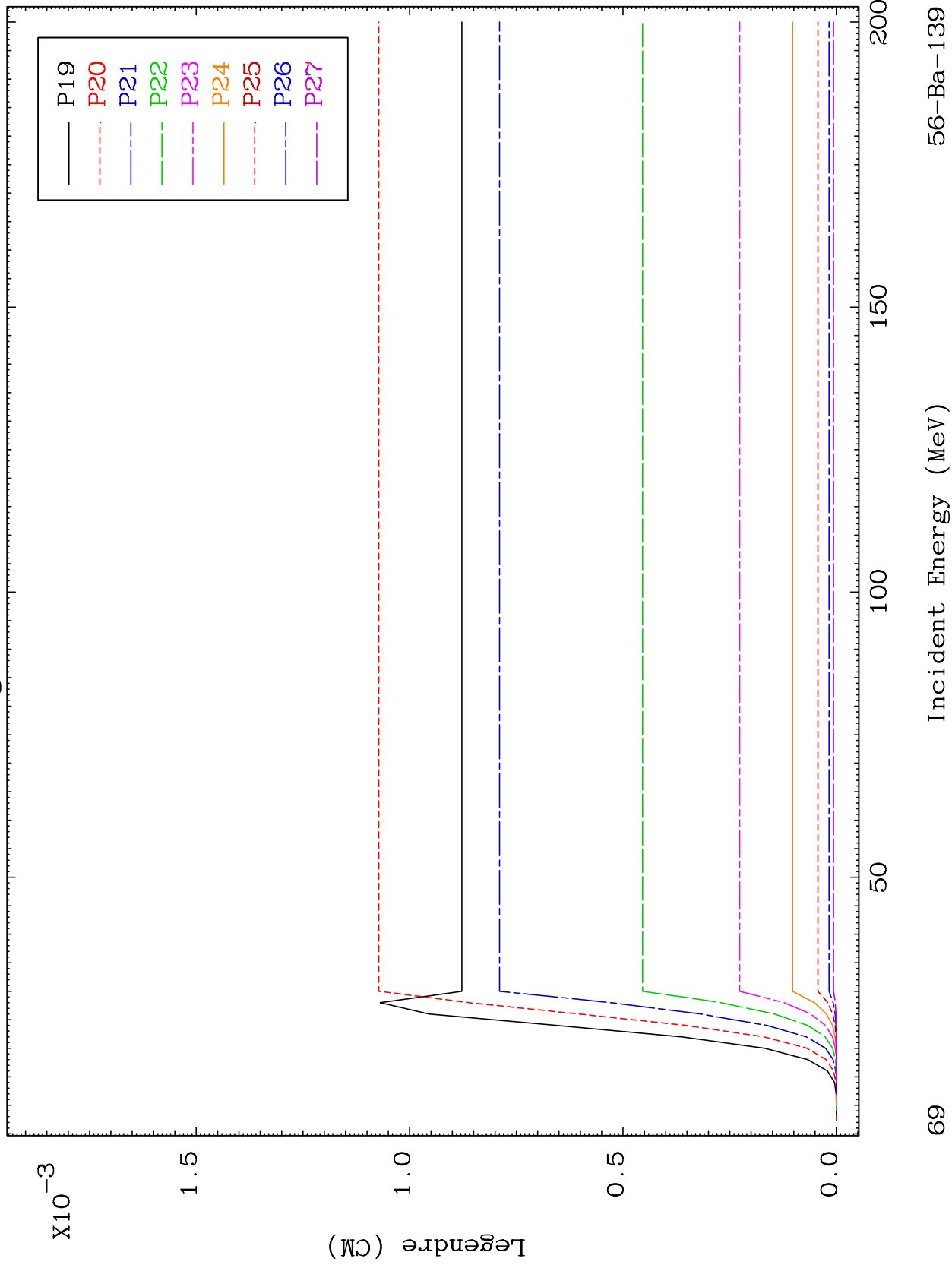
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 63 (n,n') Level  
Legendre Coefficients

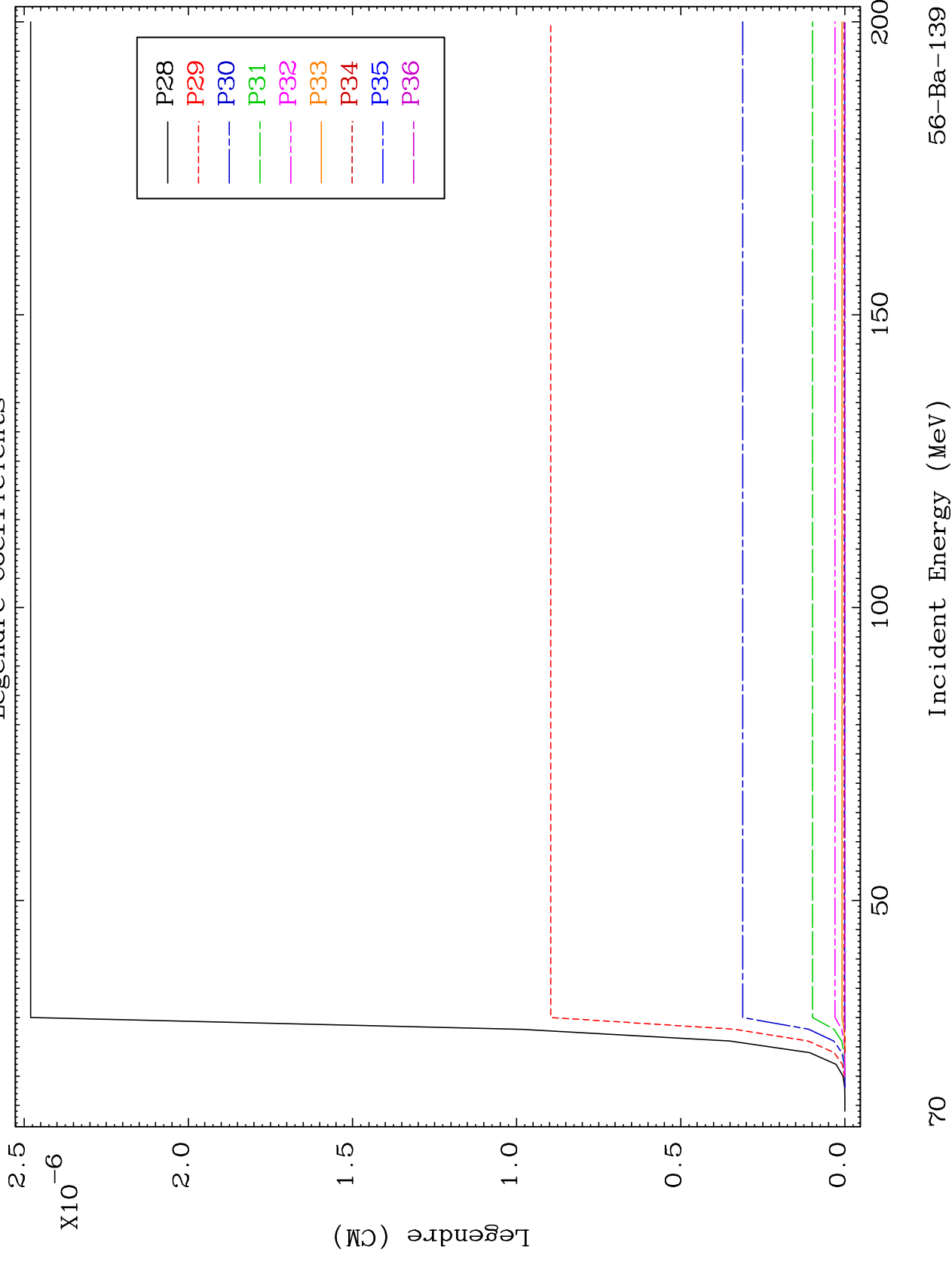
56-Ba-139



MAT 5652

MT= 63 (n,n') Level  
Legendre Coefficients

56-Ba-139



70

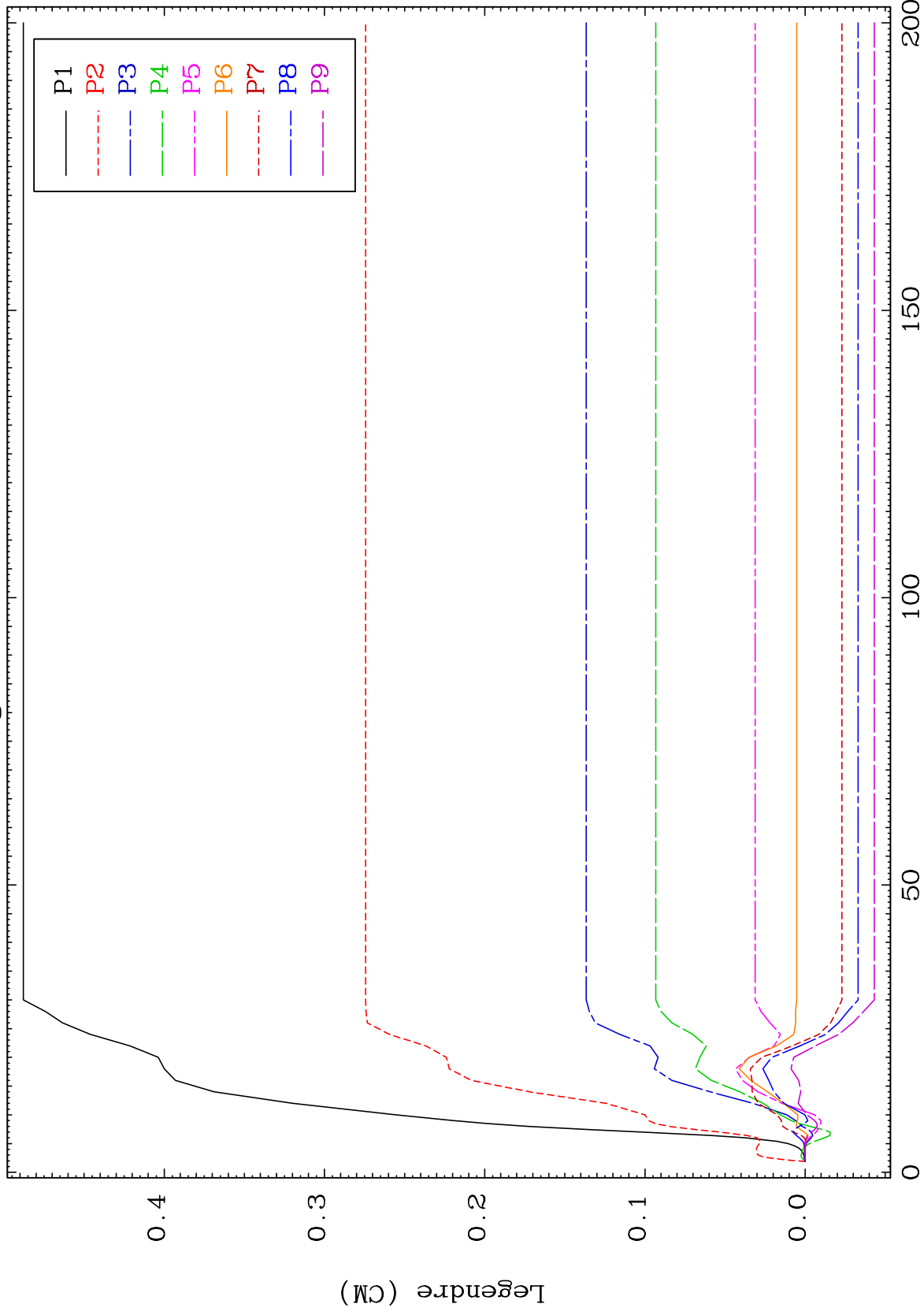
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 64 (n,n') Level  
Legendre Coefficients

56-Ba-139



71

Incident Energy (MeV)

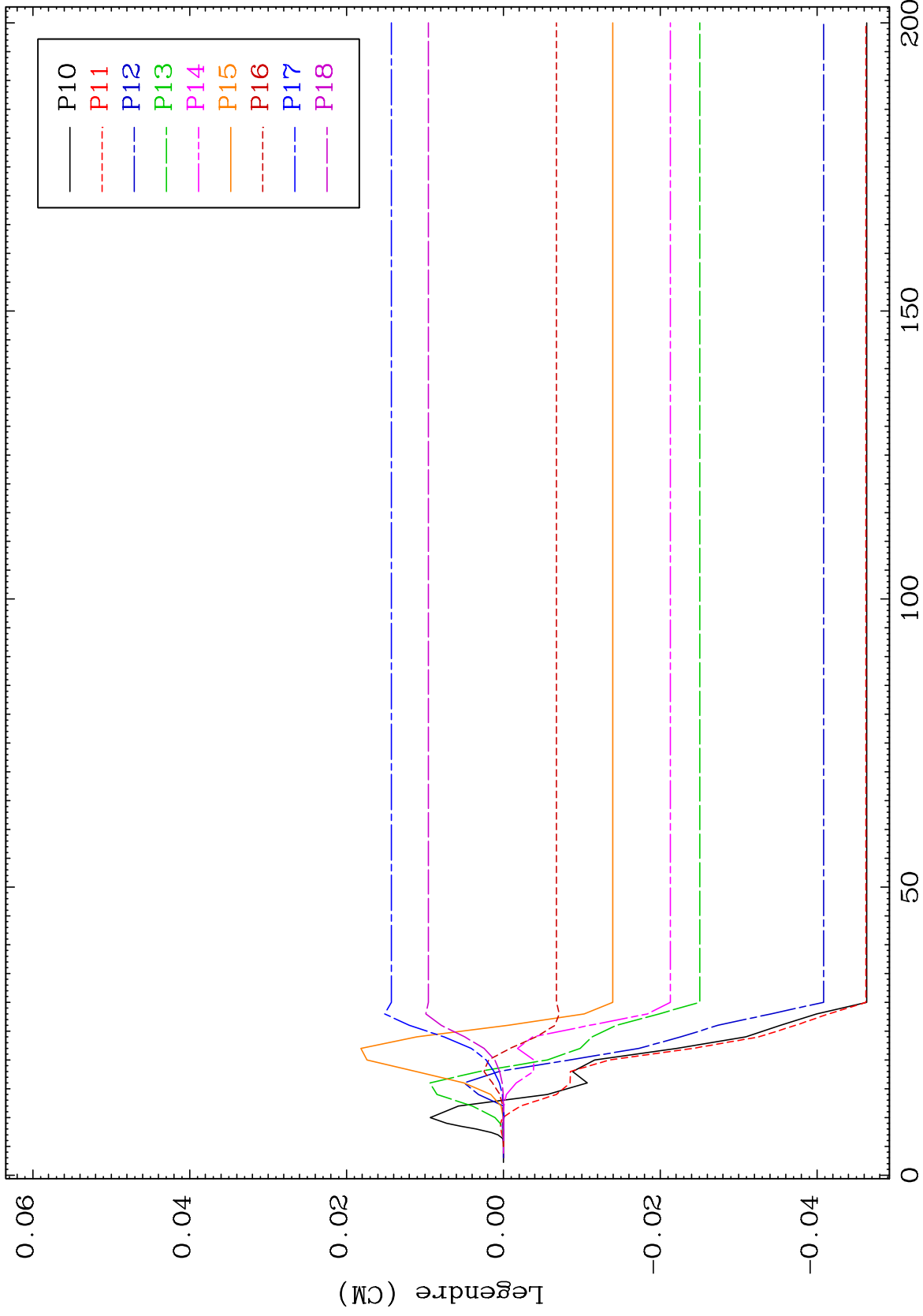
56-Ba-139



MAT 5652

MT= 64 (n,n') Level  
Legendre Coefficients

56-Ba-139



72

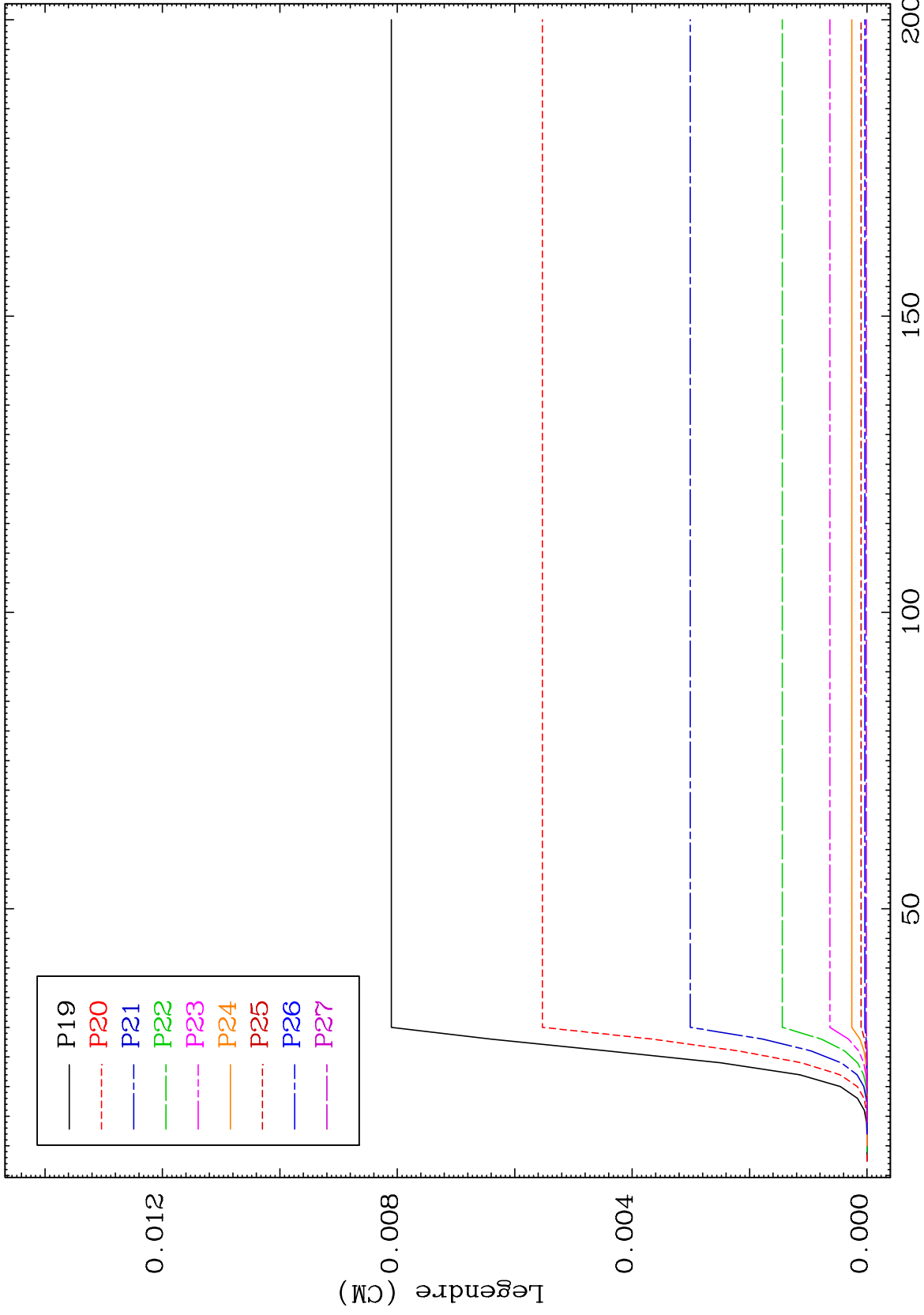
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 64 (n,n') Level  
Legendre Coefficients

56-Ba-139



73

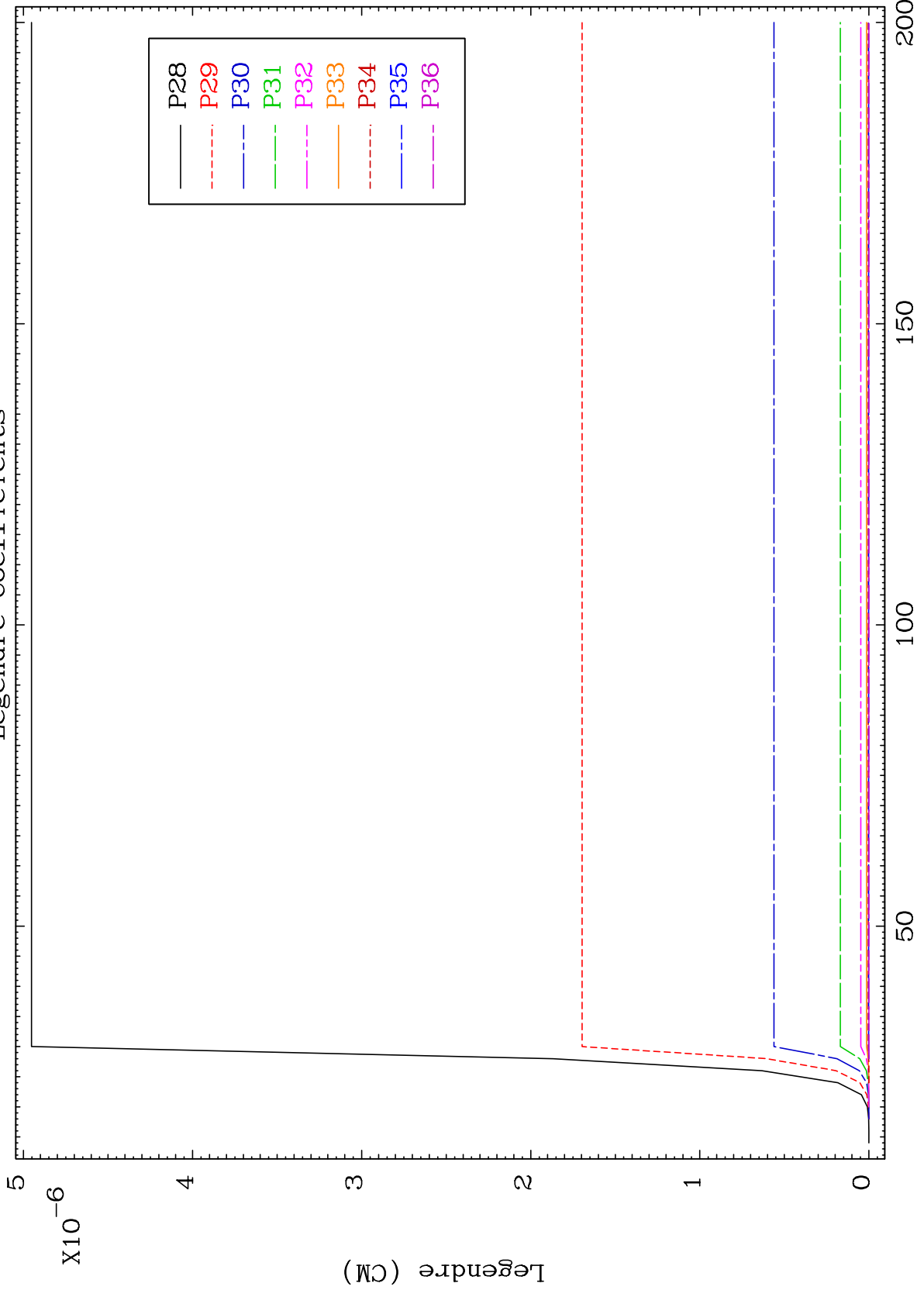
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 64 (n,n') Level  
Legendre Coefficients

56-Ba-139



74

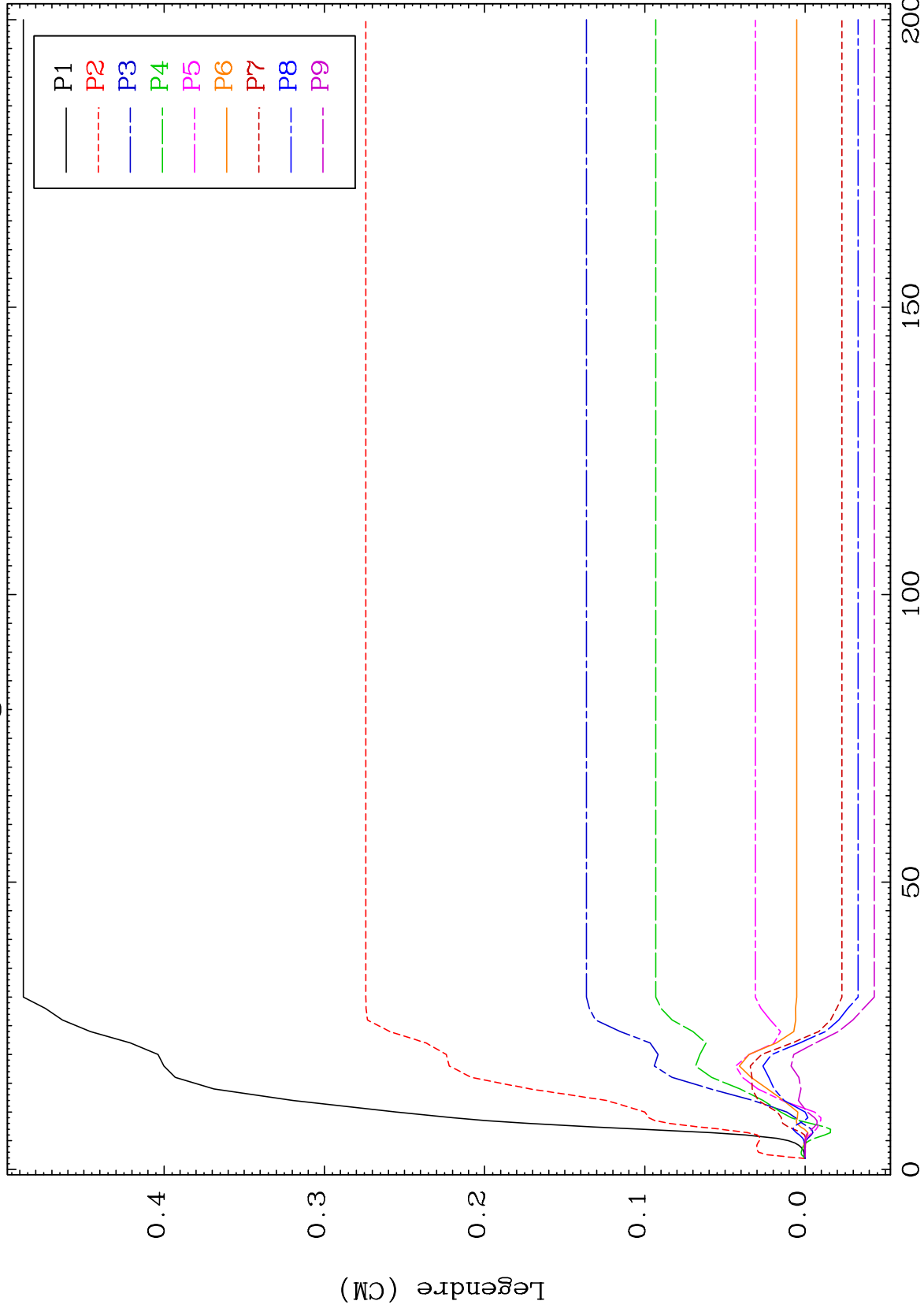
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 65 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

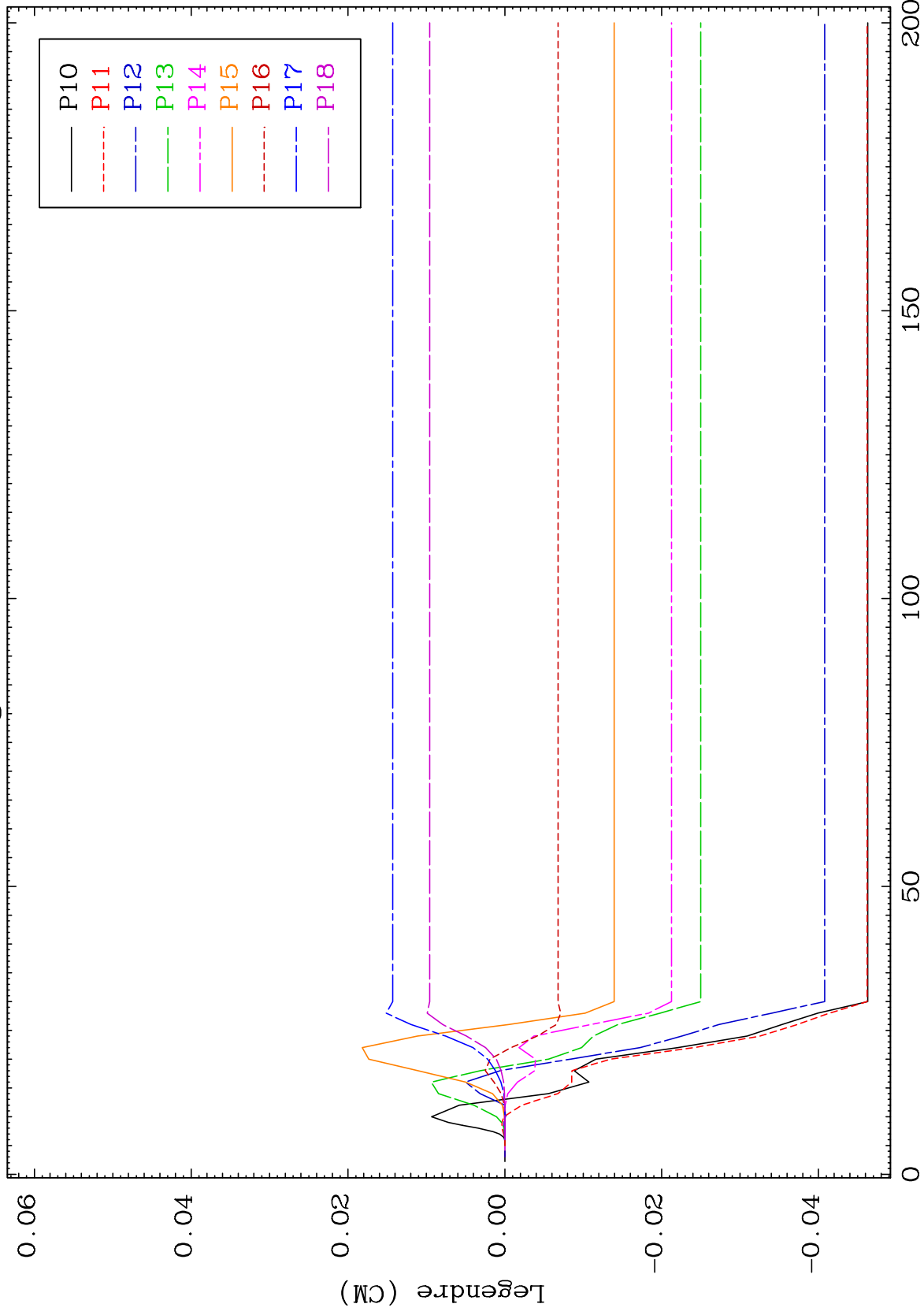
Incident Energy (MeV)

75

MAT 5652

MT= 65 (n,n') Level  
Legendre Coefficients

56-Ba-139



76

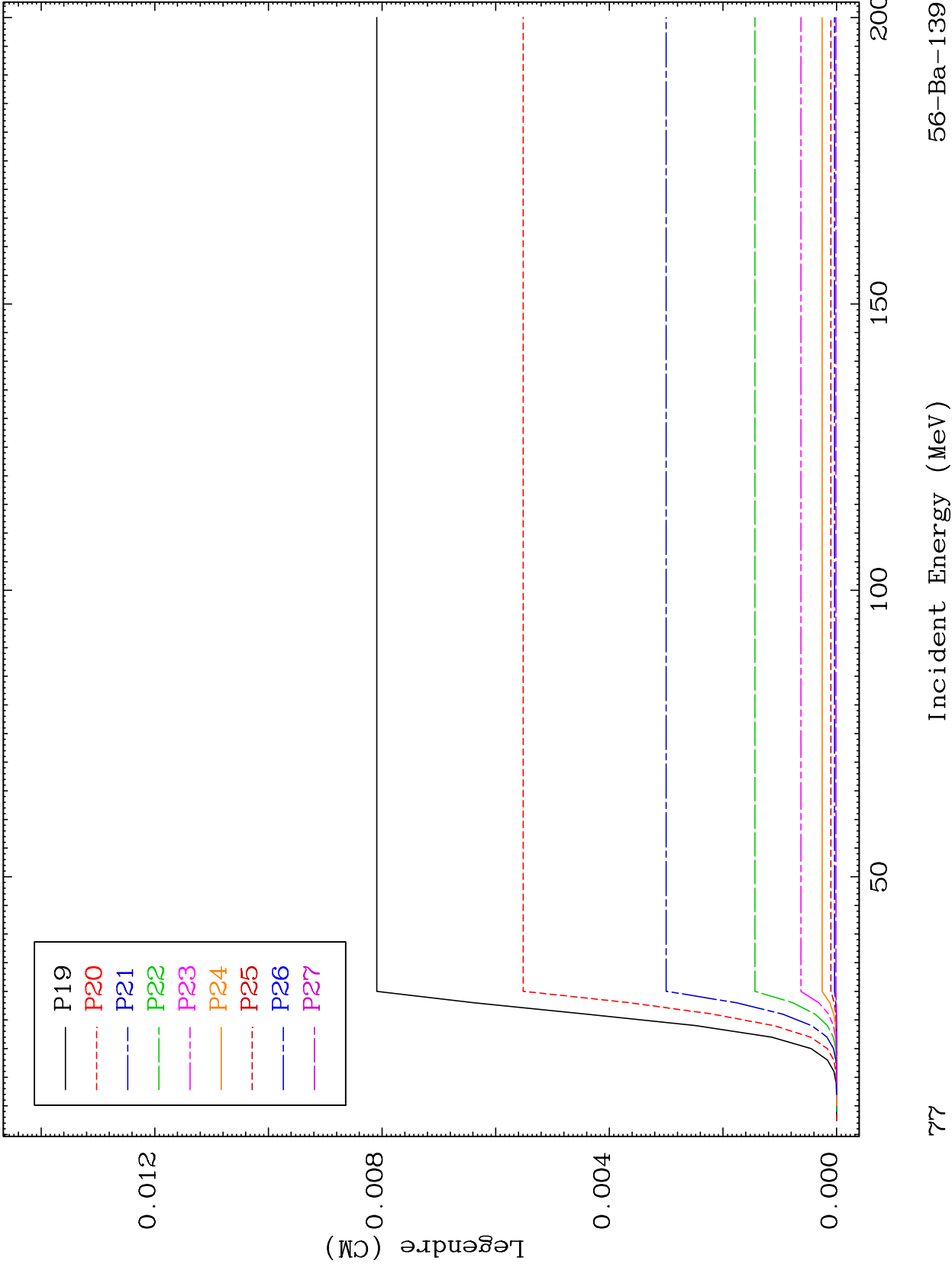
Incident Energy (MeV)

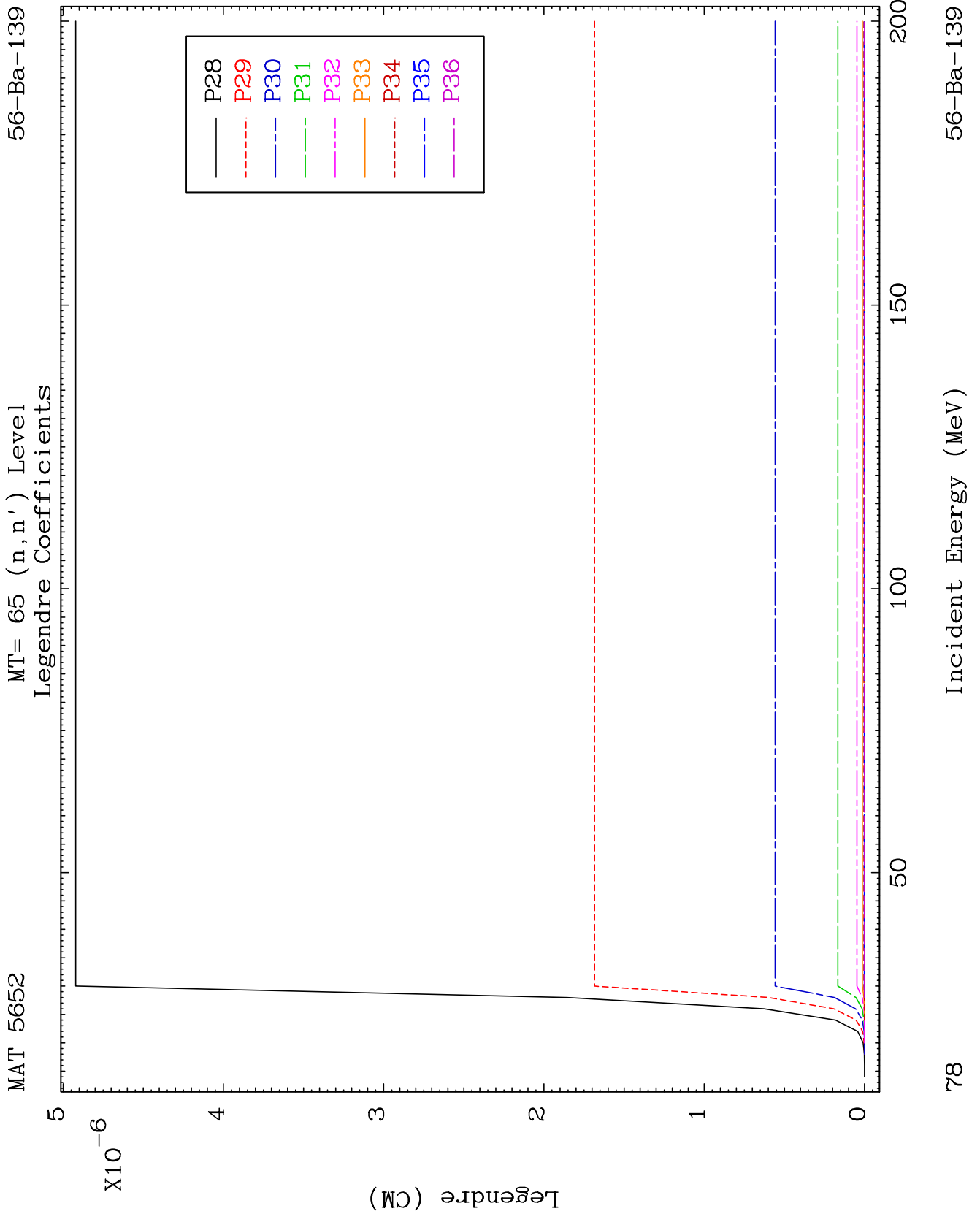
56-Ba-139

MAT 5652

MT= 65 (n,n') Level  
Legendre Coefficients

56-Ba-139

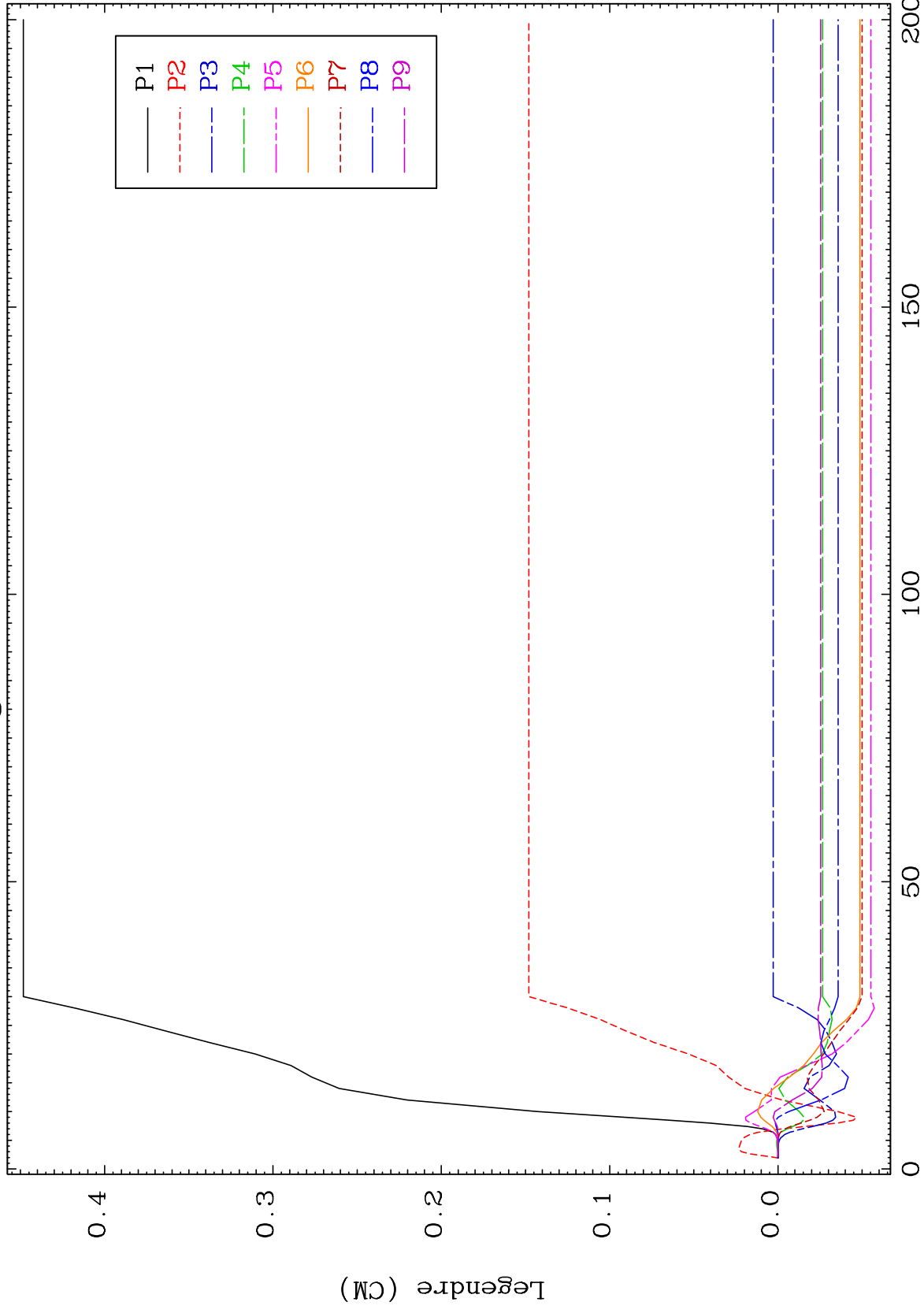




MAT 5652

MT= 66 (n,n') Level  
Legendre Coefficients

56-Ba-139



79

Incident Energy (MeV)

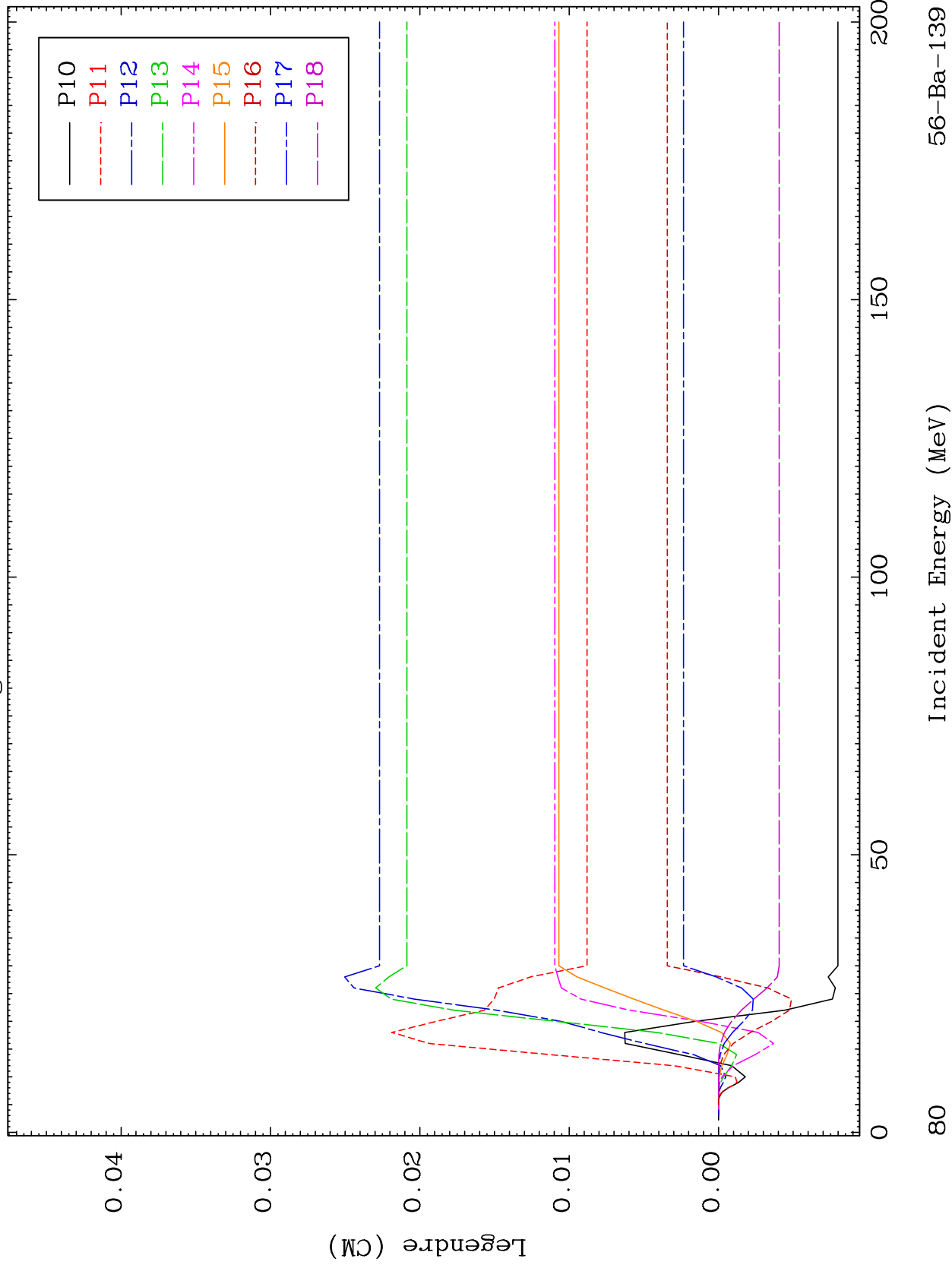
56-Ba-139



MAT 5652

MT= 66 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

Incident Energy (MeV)

80

200

150

100

50

0

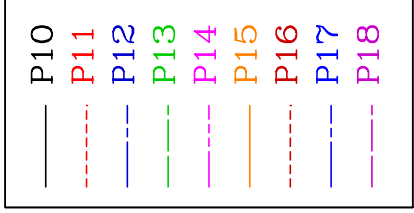
0.04

0.03

0.02

0.01

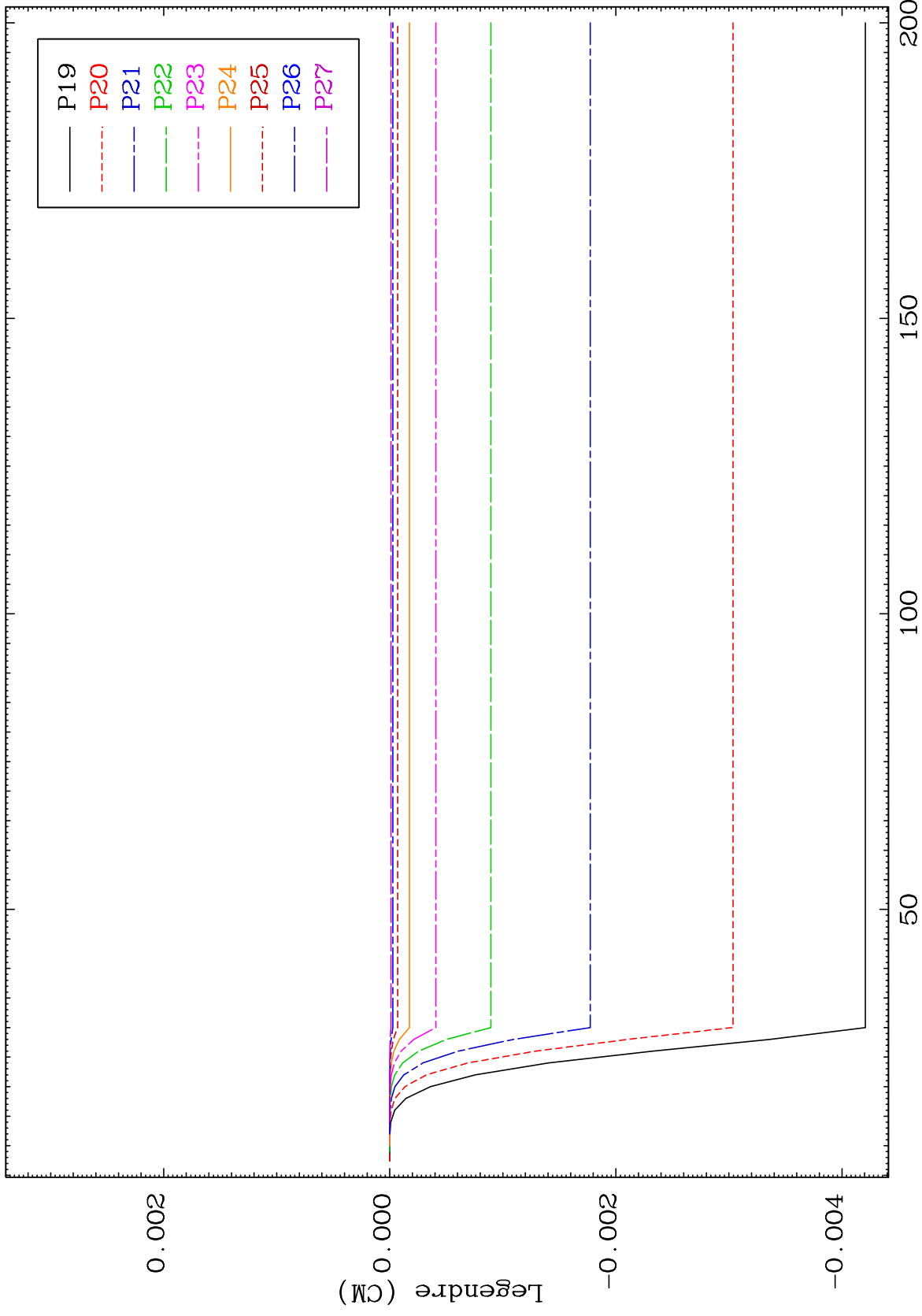
0.00



MAT 5652

MT= 66 (n,n') Level  
Legendre Coefficients

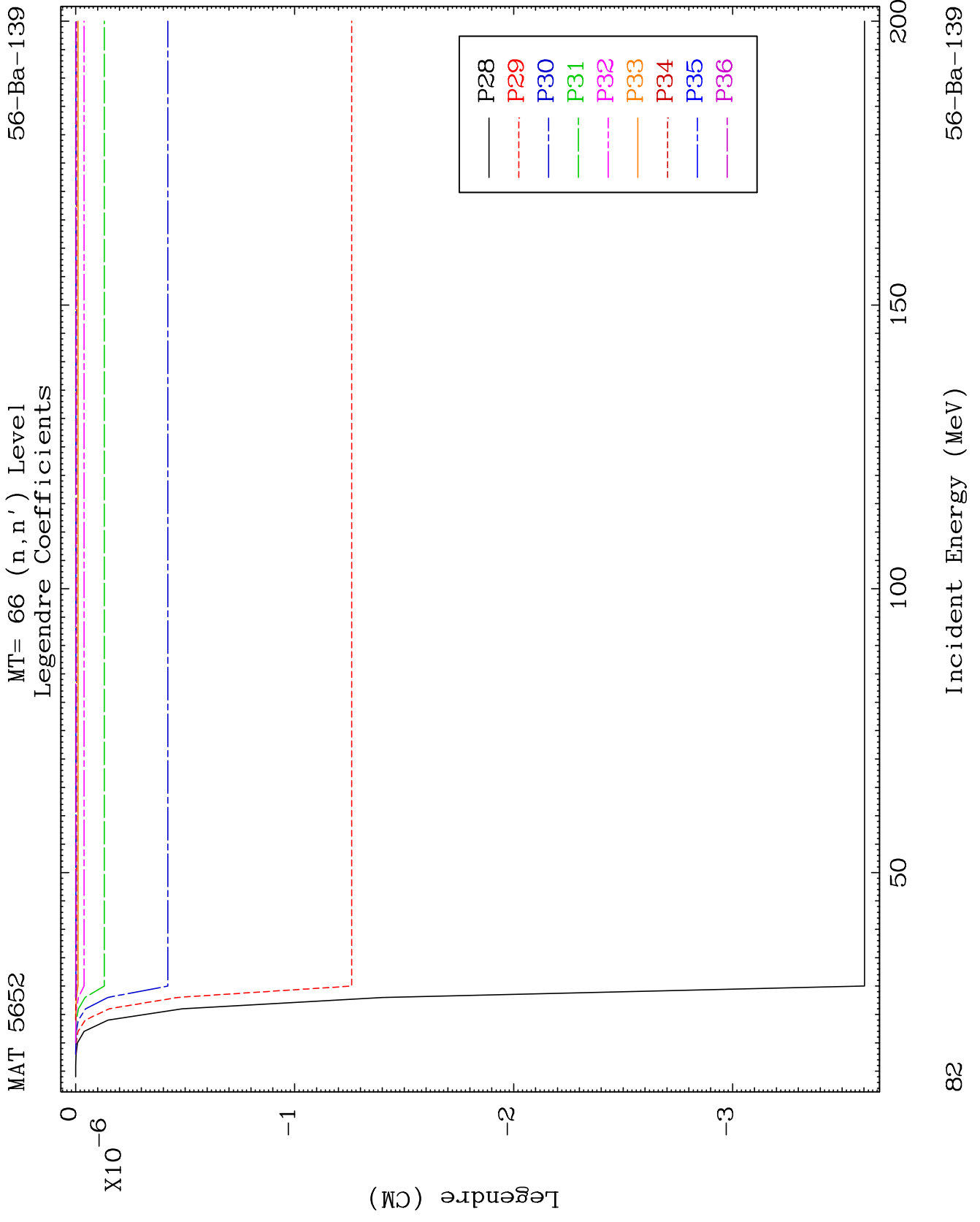
56-Ba-139



81

Incident Energy (MeV)

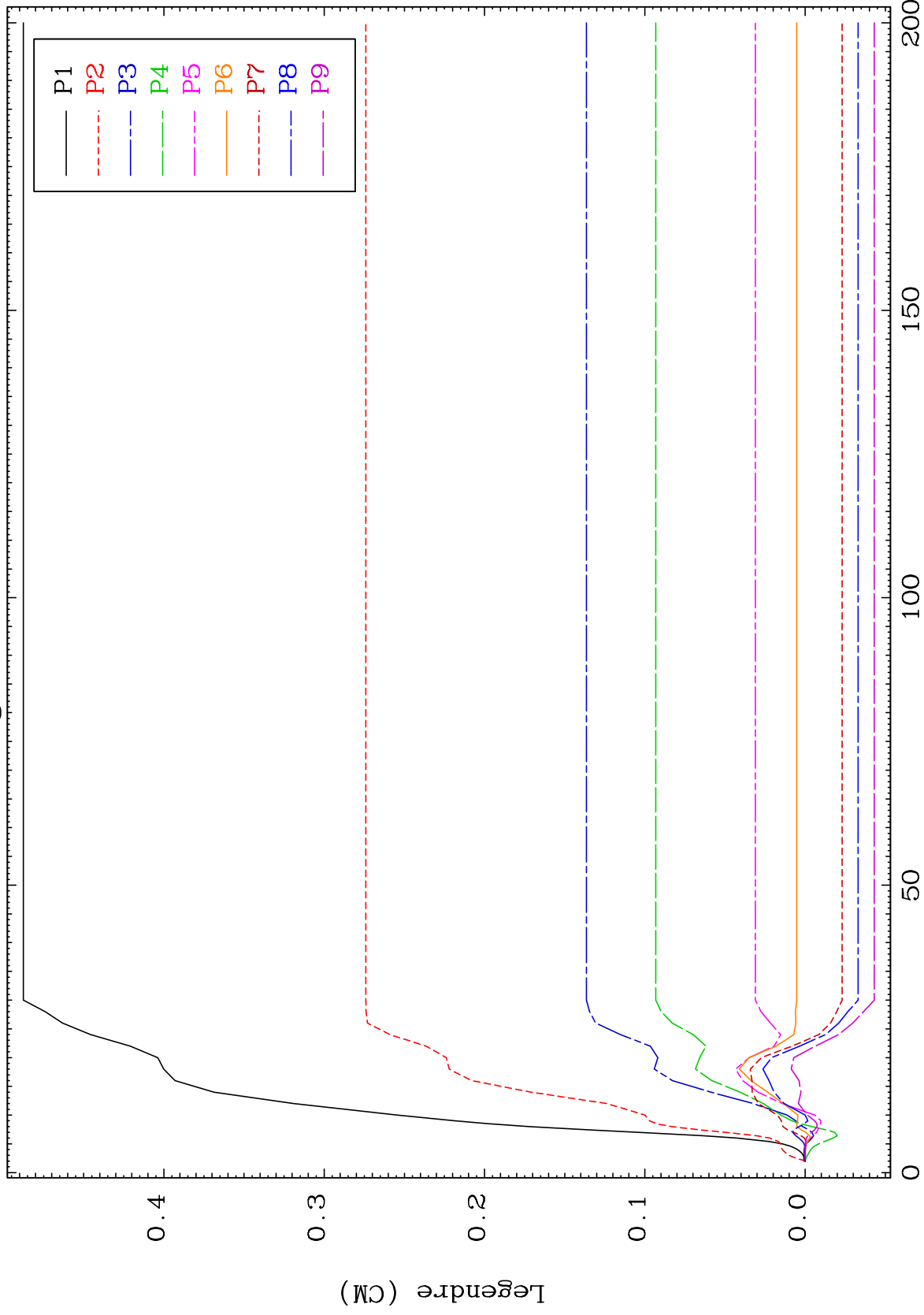
56-Ba-139



MAT 5652

MT= 67 (n,n') Level  
Legendre Coefficients

56-Ba-139



83

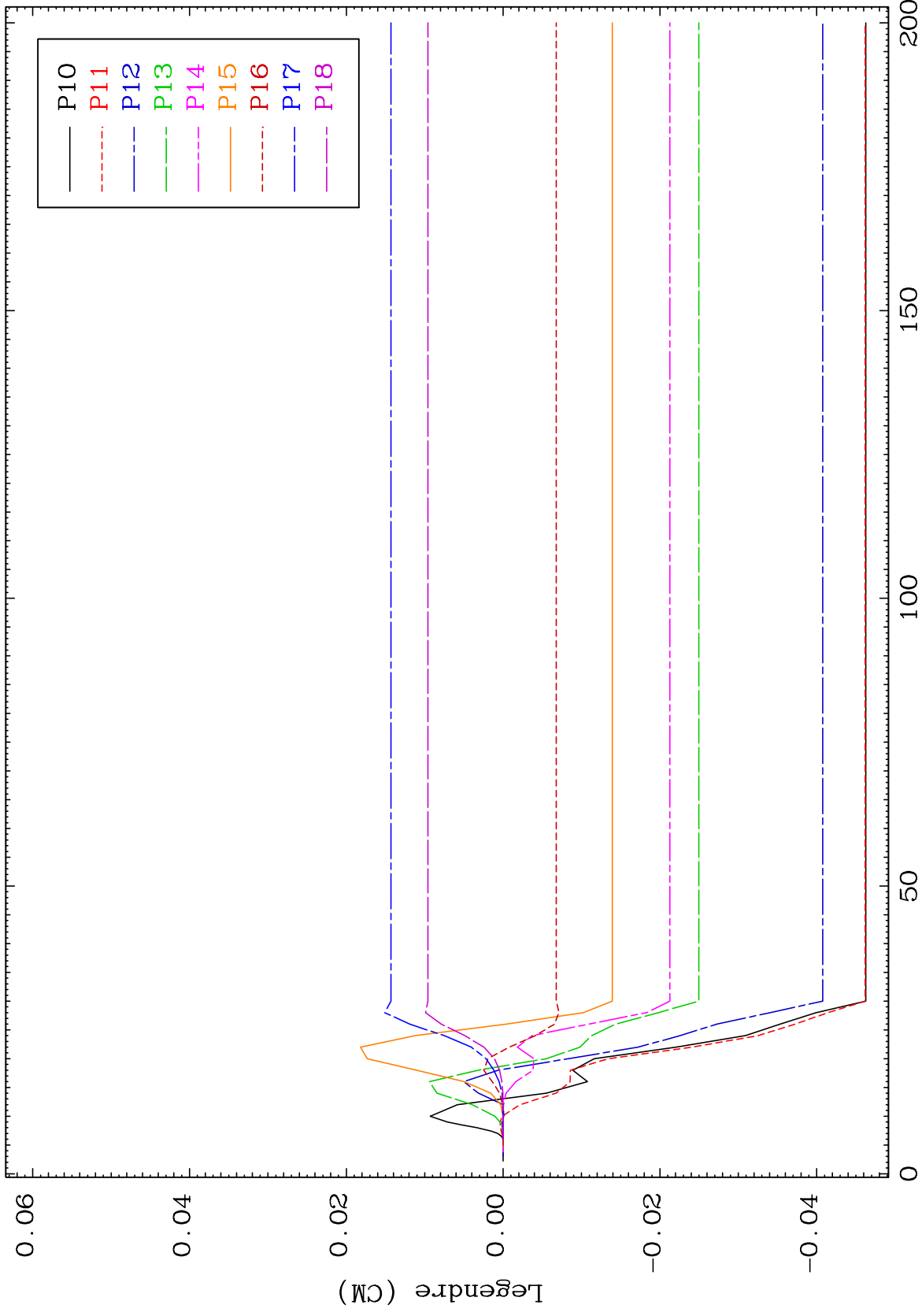
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 67 (n,n') Level  
Legendre Coefficients

56-Ba-139



84

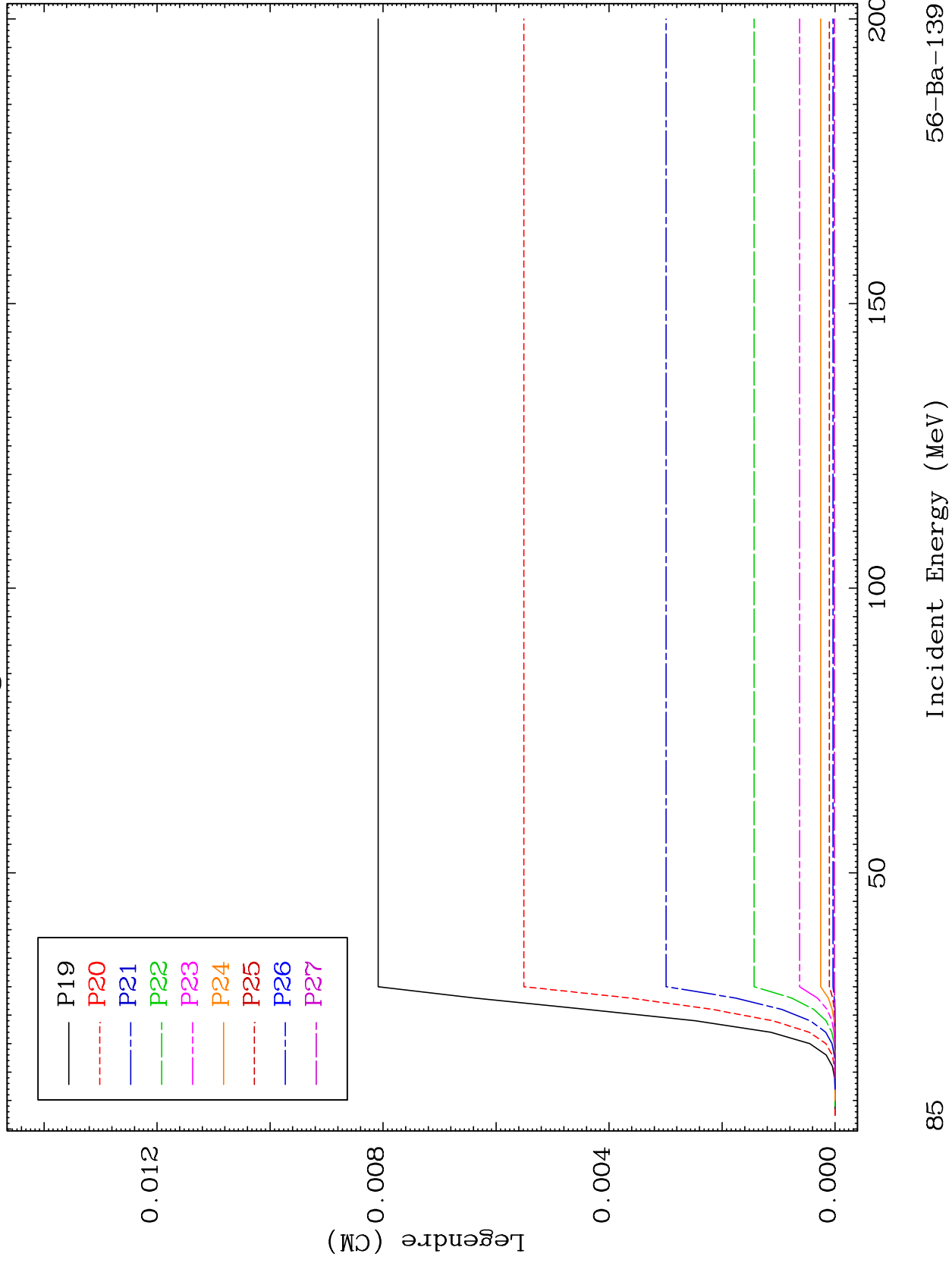
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 67 (n,n') Level  
Legendre Coefficients

56-Ba-139



85

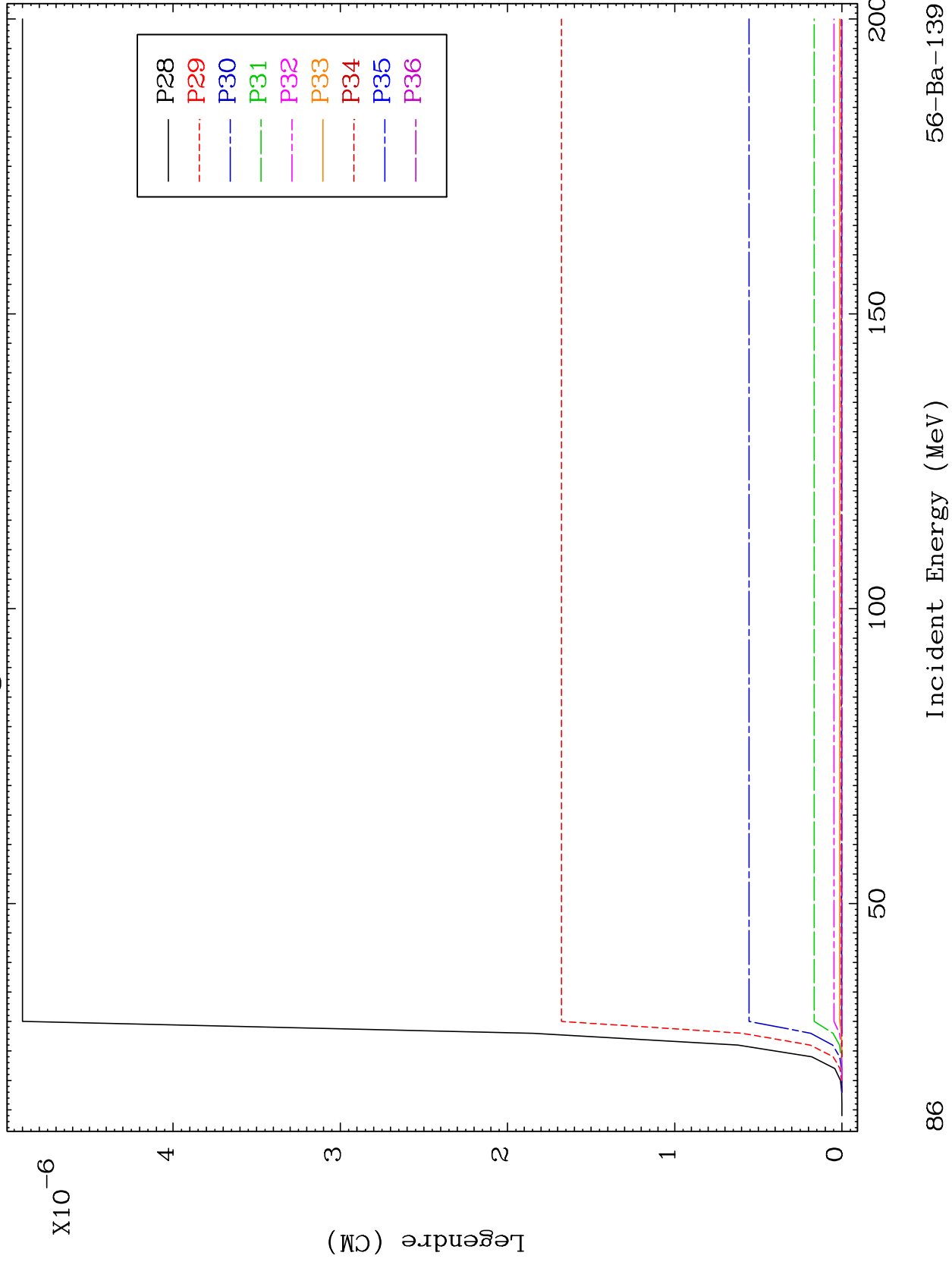
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 67 (n,n') Level  
Legendre Coefficients

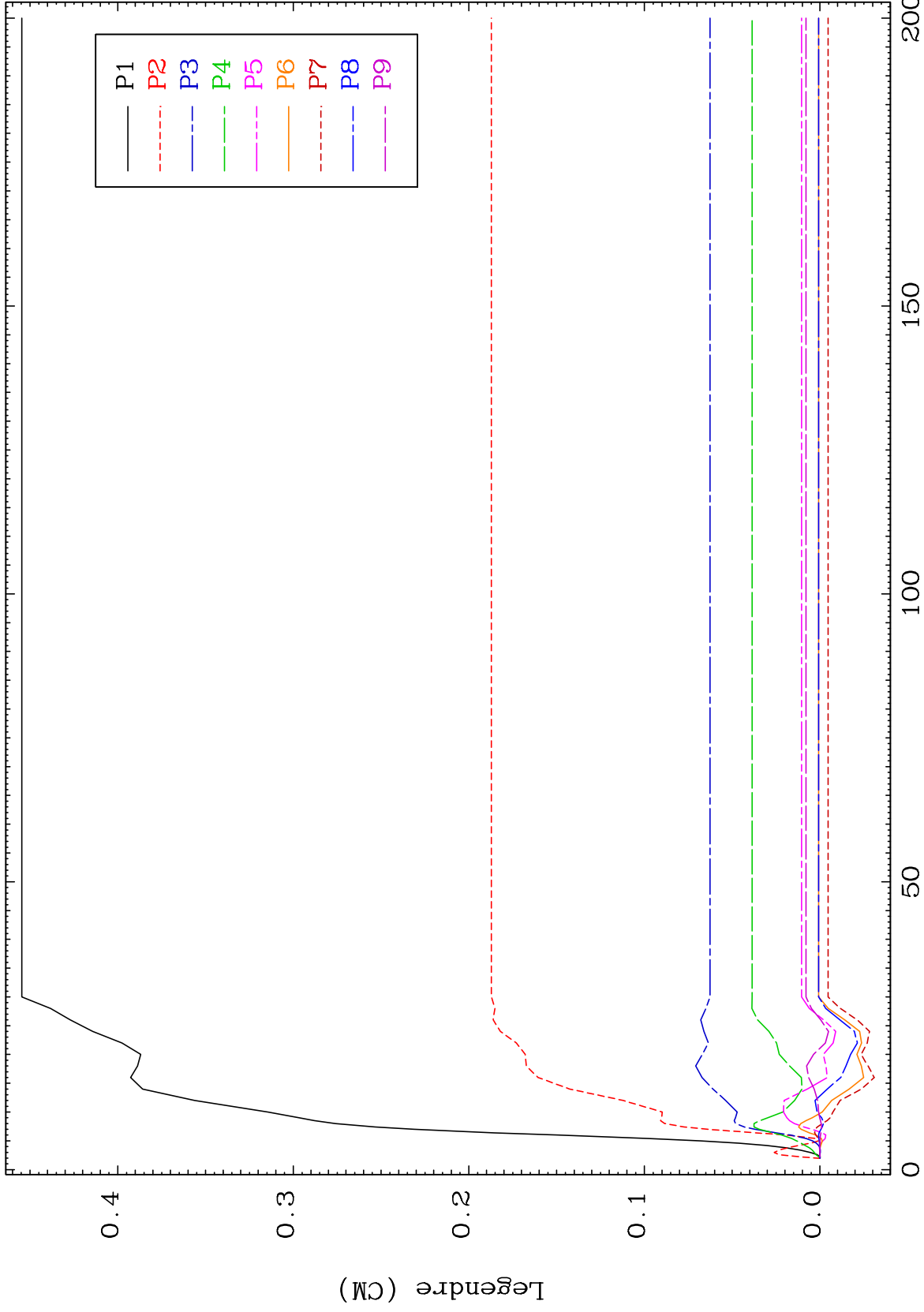
56-Ba-139



MAT 5652

MT= 68 (n,n') Level  
Legendre Coefficients

56-Ba-139



87

Incident Energy (MeV)

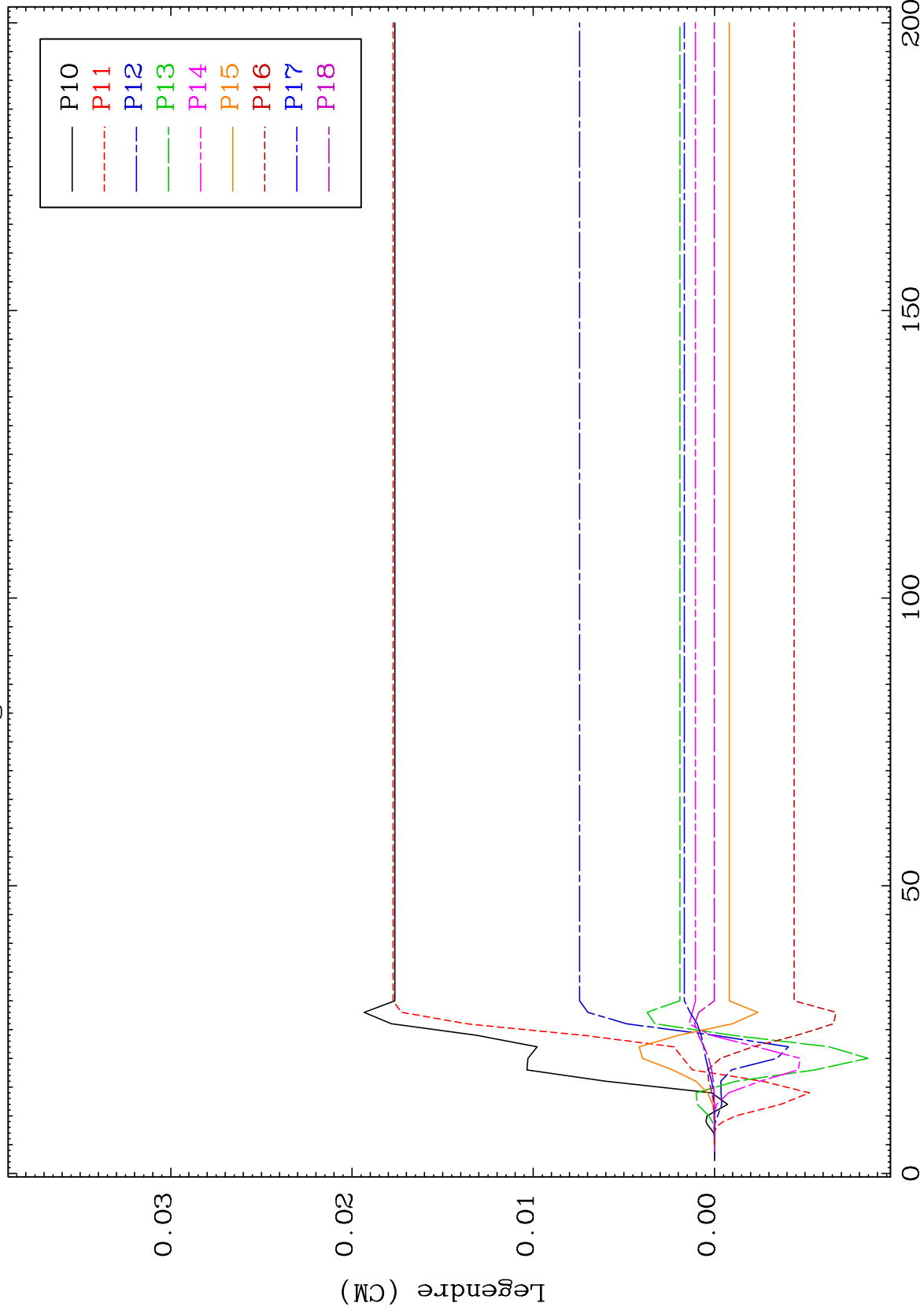
56-Ba-139



MAT 5652

MT= 68 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

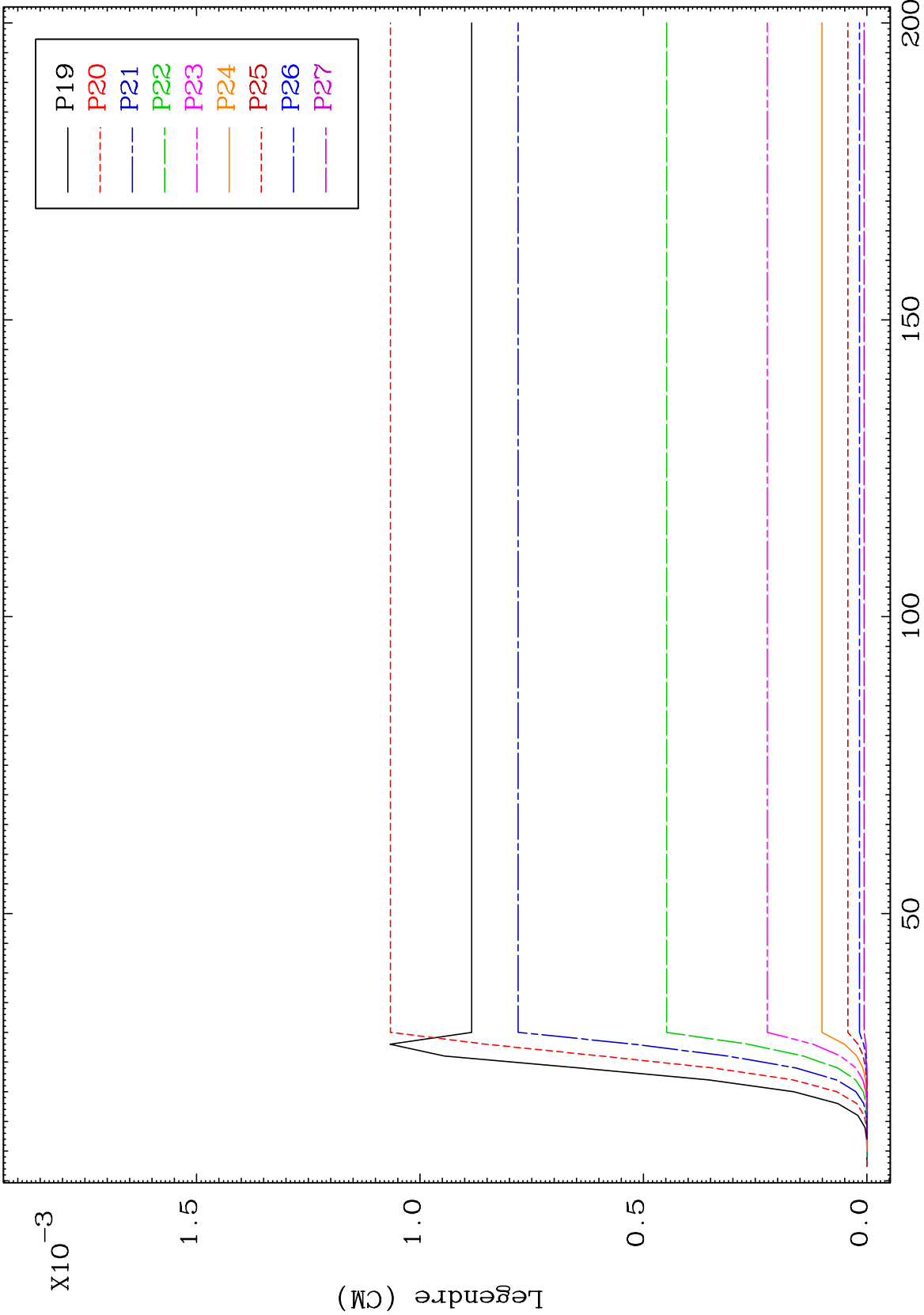
Incident Energy (MeV)

88

MAT 5652

MT= 68 (n,n') Level  
Legendre Coefficients

56-Ba-139



89

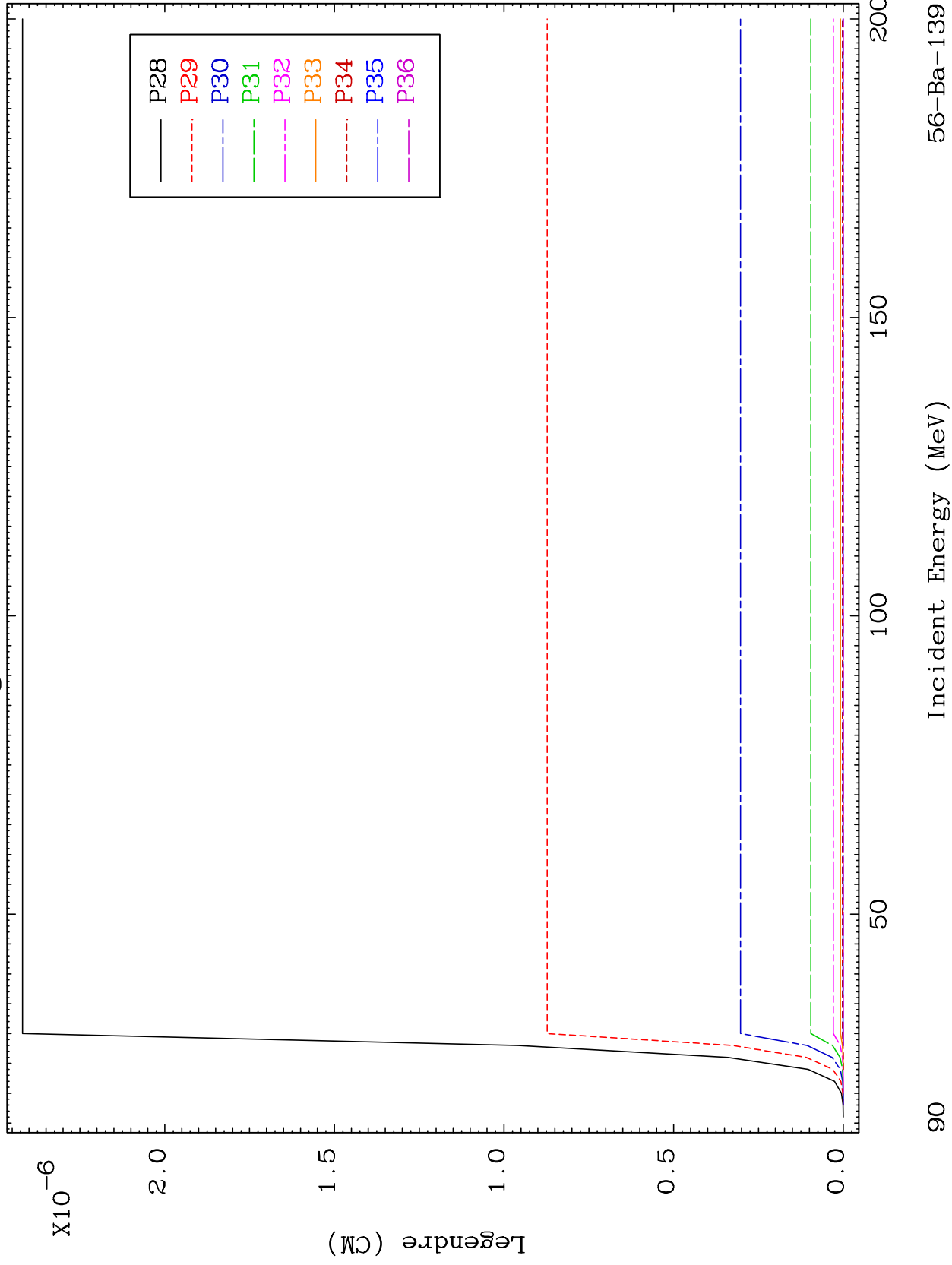
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 68 (n,n') Level  
Legendre Coefficients

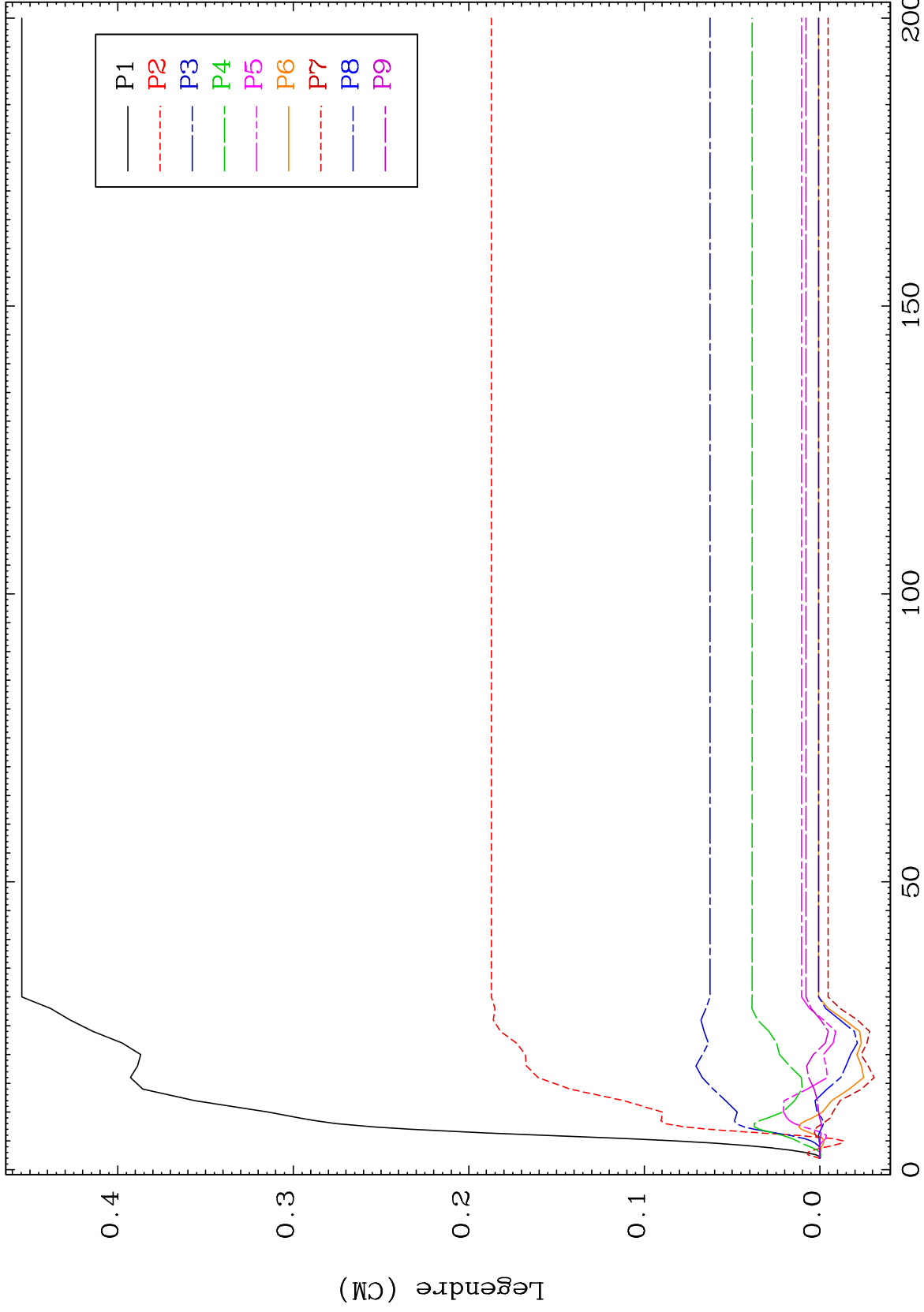
56-Ba-139



MAT 5652

MT= 69 (n,n') Level  
Legendre Coefficients

56-Ba-139



91

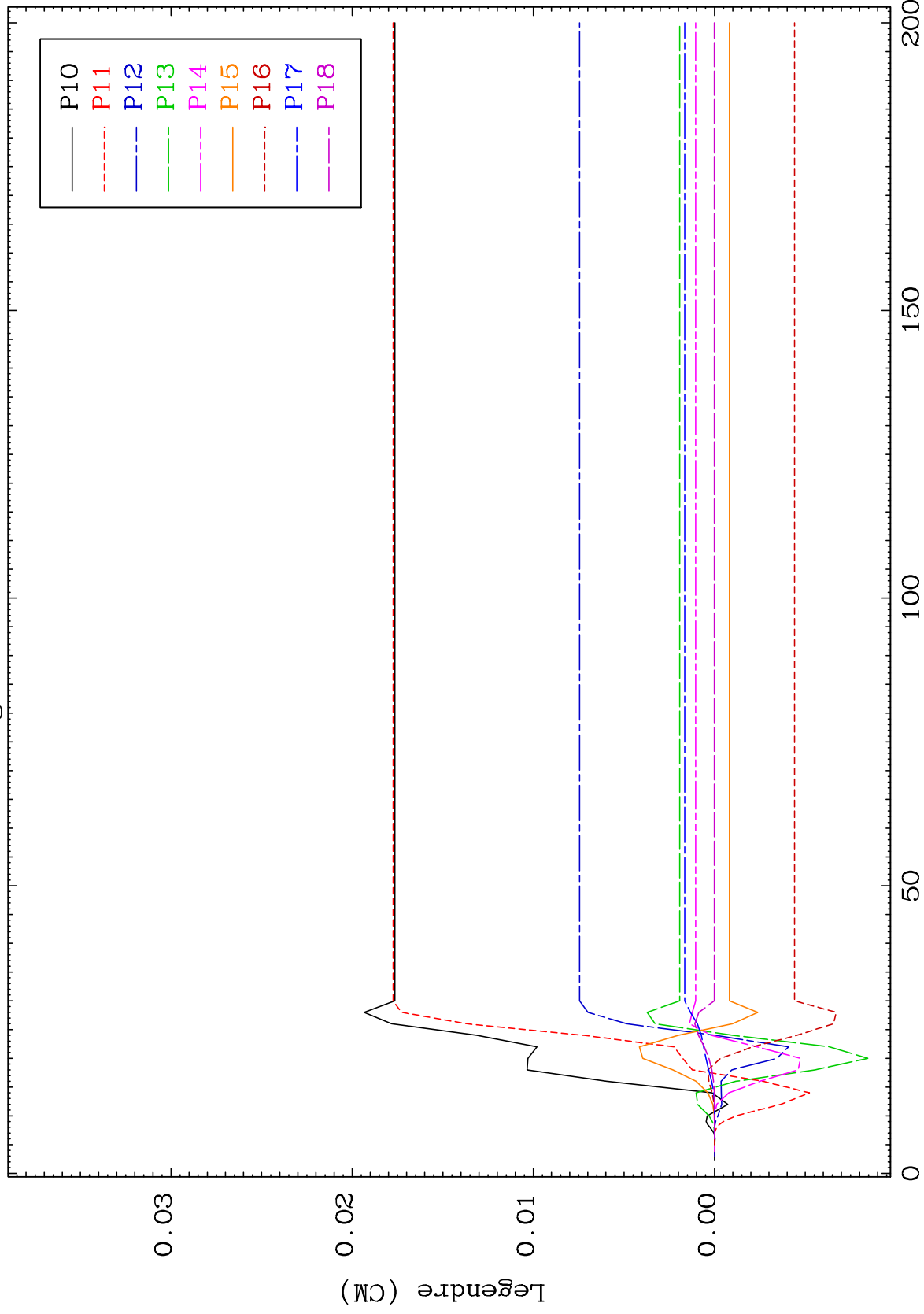
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 69 (n,n') Level  
Legendre Coefficients

56-Ba-139



92

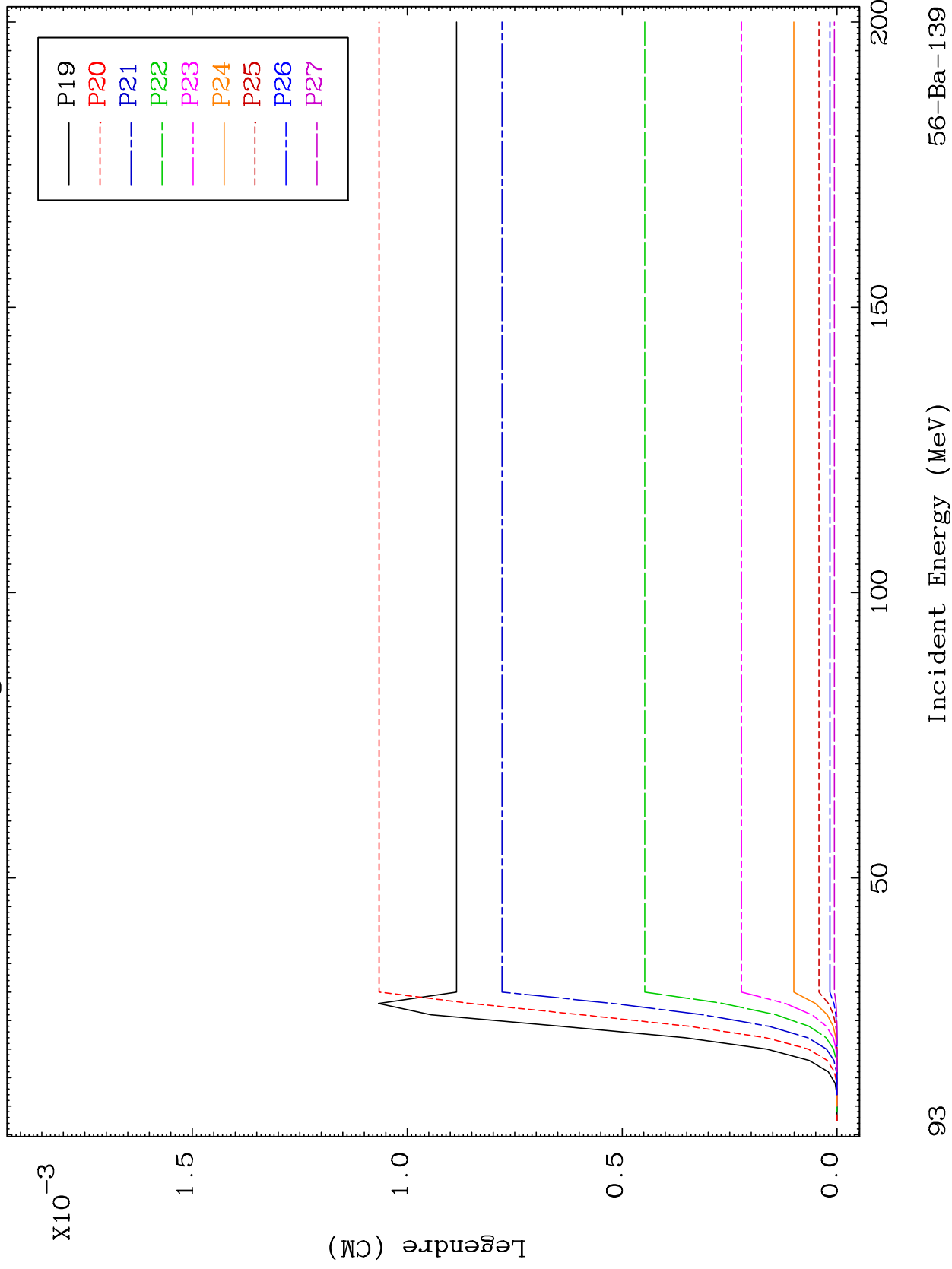
Incident Energy (MeV)

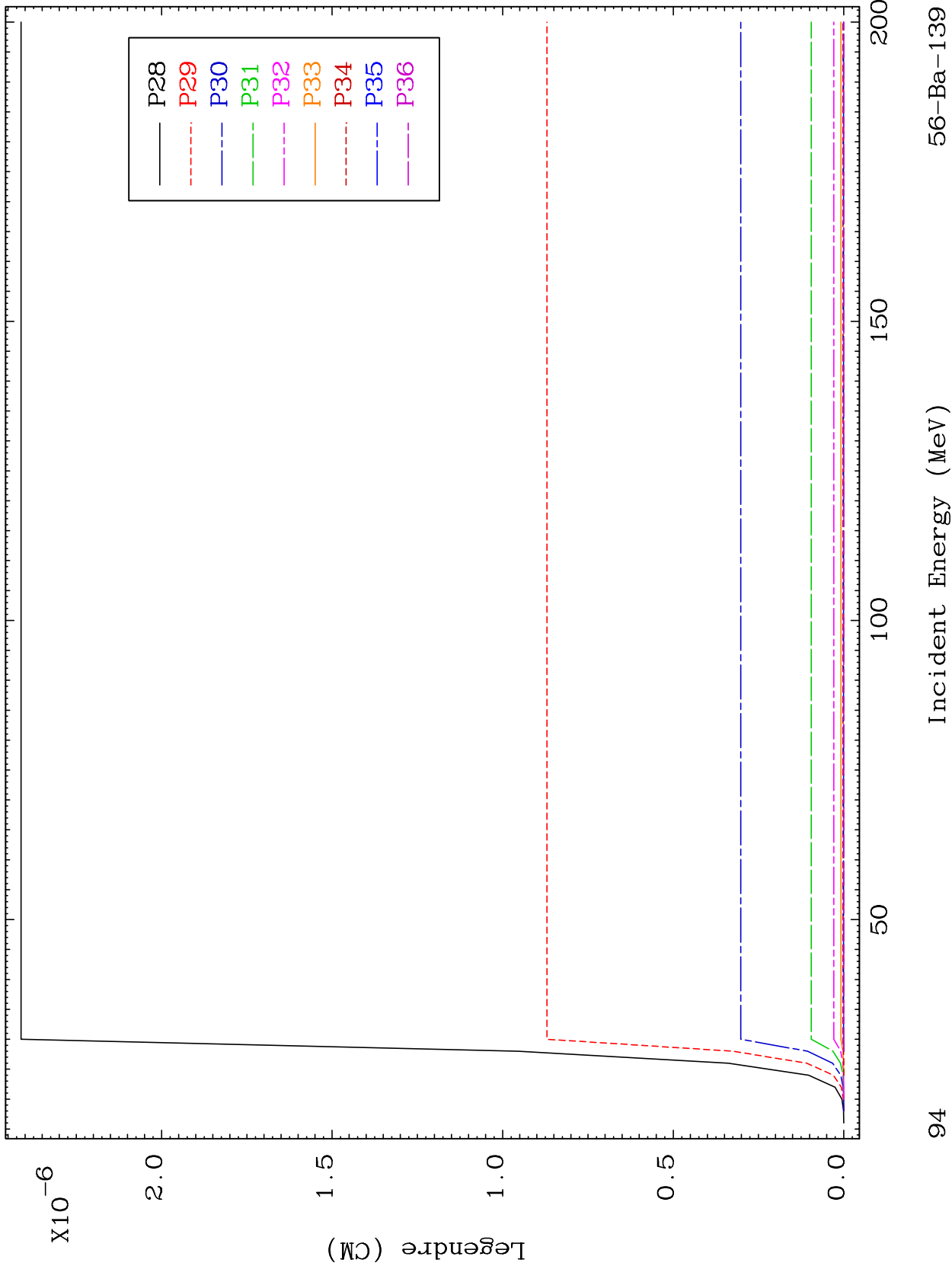
56-Ba-139

MAT 5652

MT= 69 (n,n') Level  
Legendre Coefficients

56-Ba-139

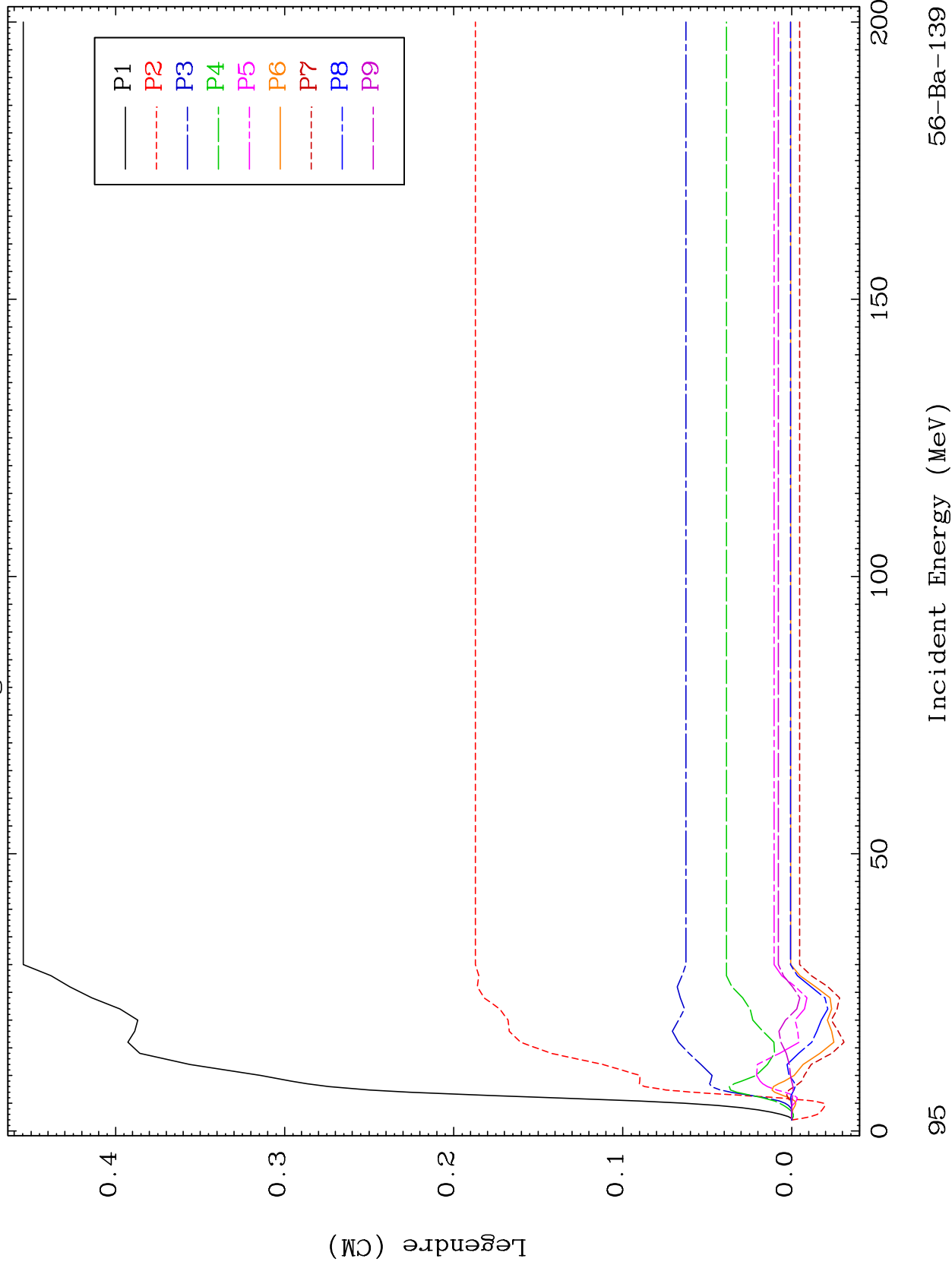




MAT 5652

MT= 70 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

Incident Energy (MeV)

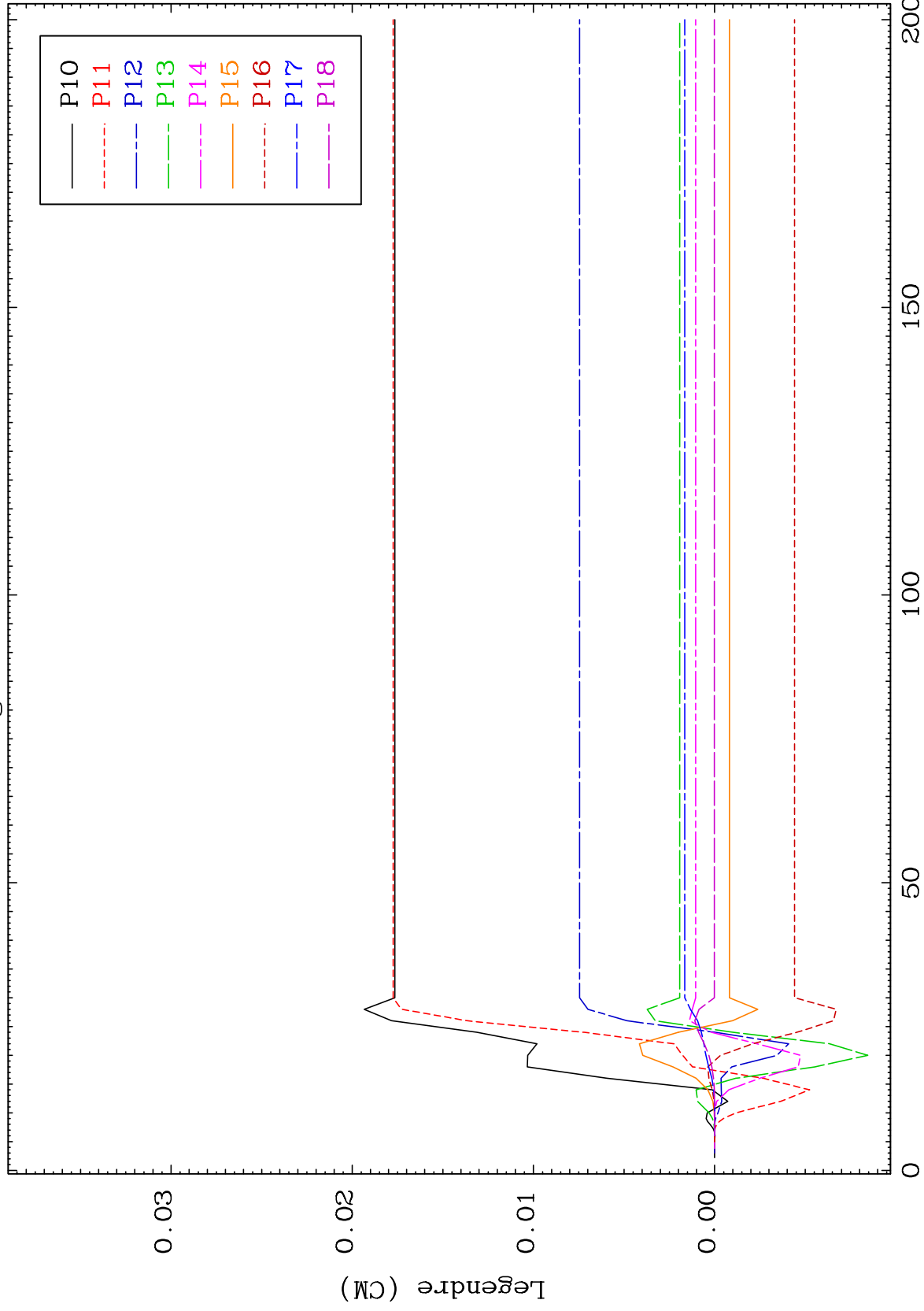
95



MAT 5652

MT= 70 (n,n') Level  
Legendre Coefficients

56-Ba-139



96

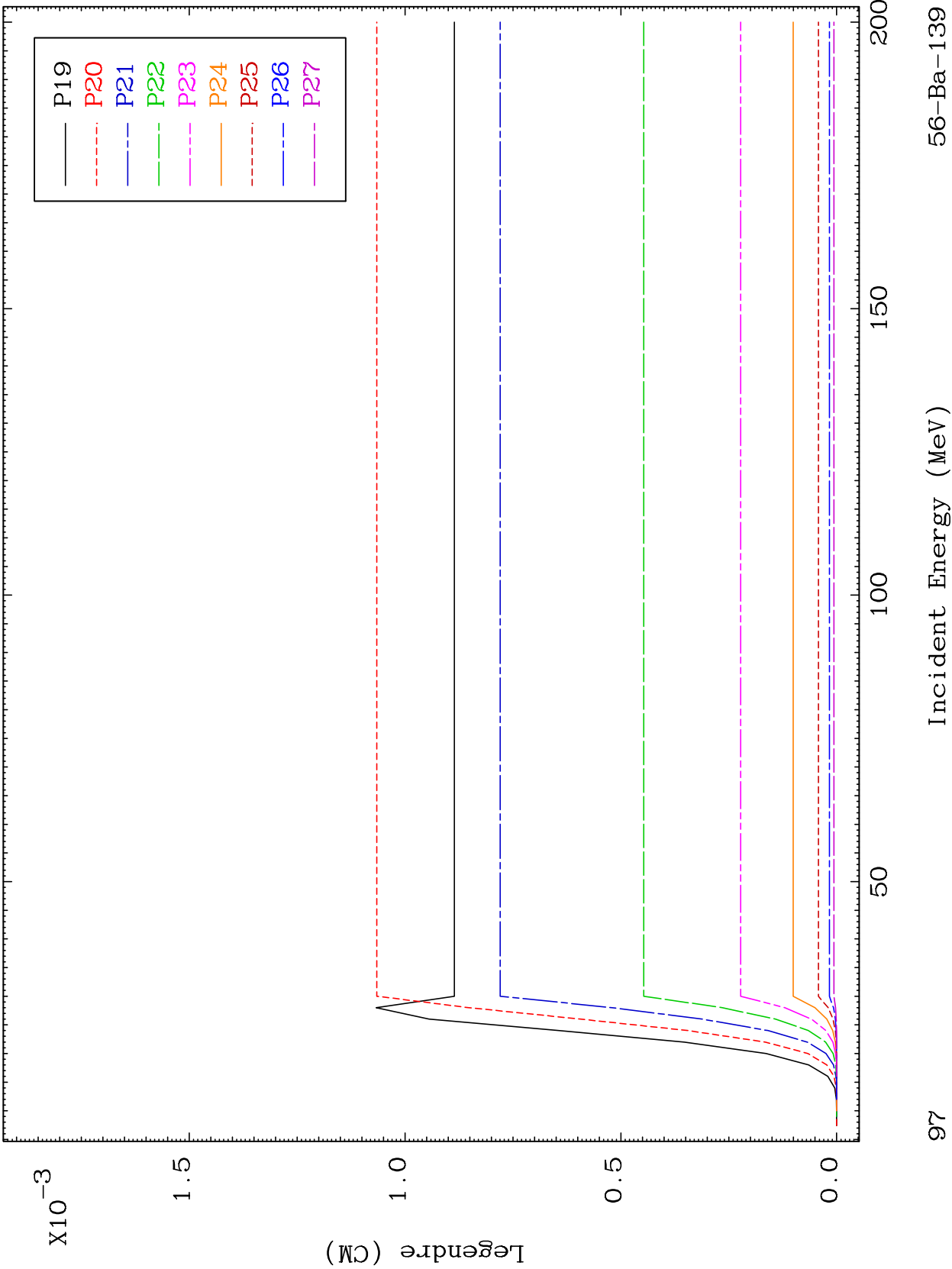
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 70 (n,n') Level  
Legendre Coefficients

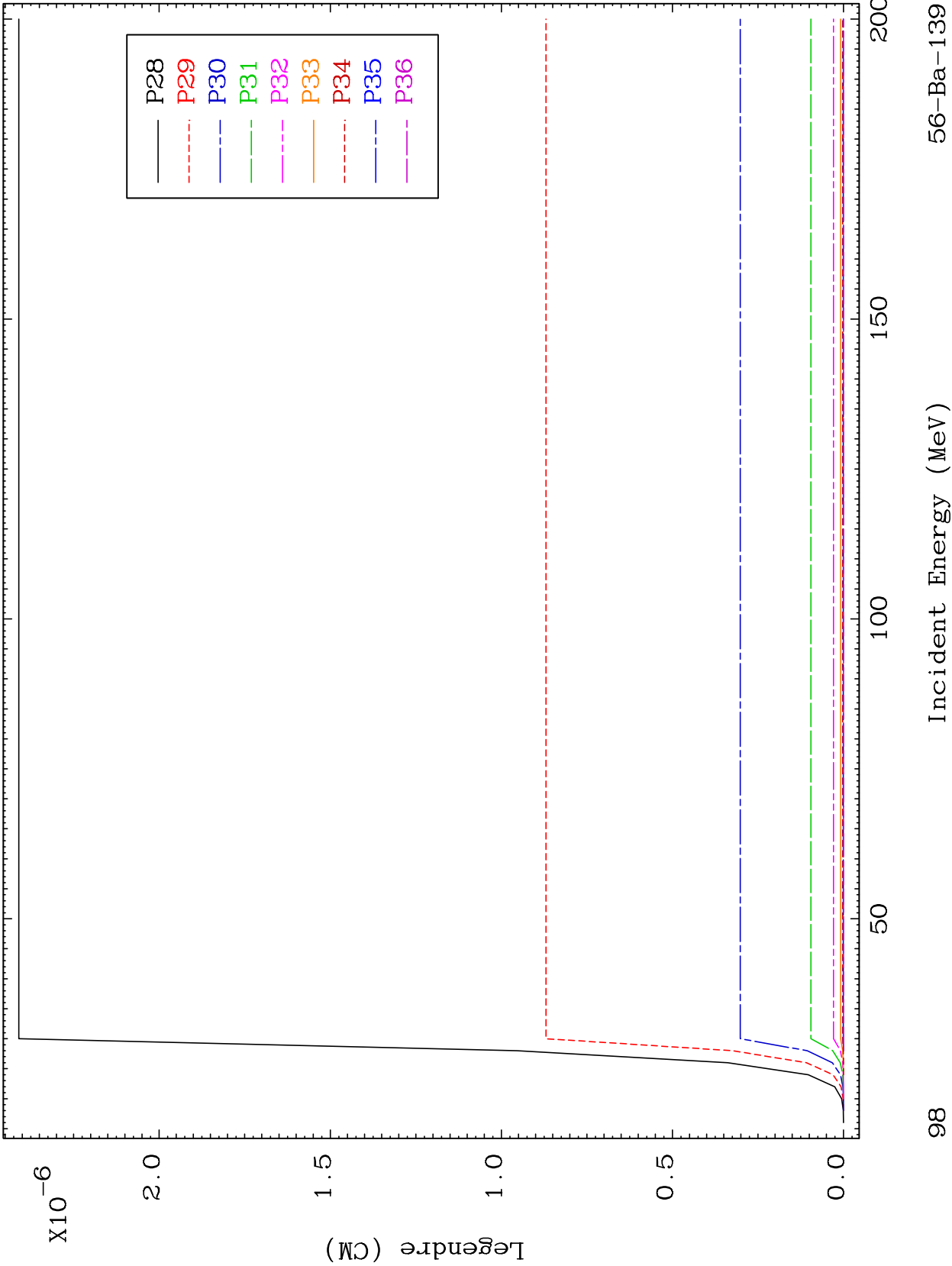
56-Ba-139



MAT 5652

MT= 70 (n,n') Level  
Legendre Coefficients

56-Ba-139



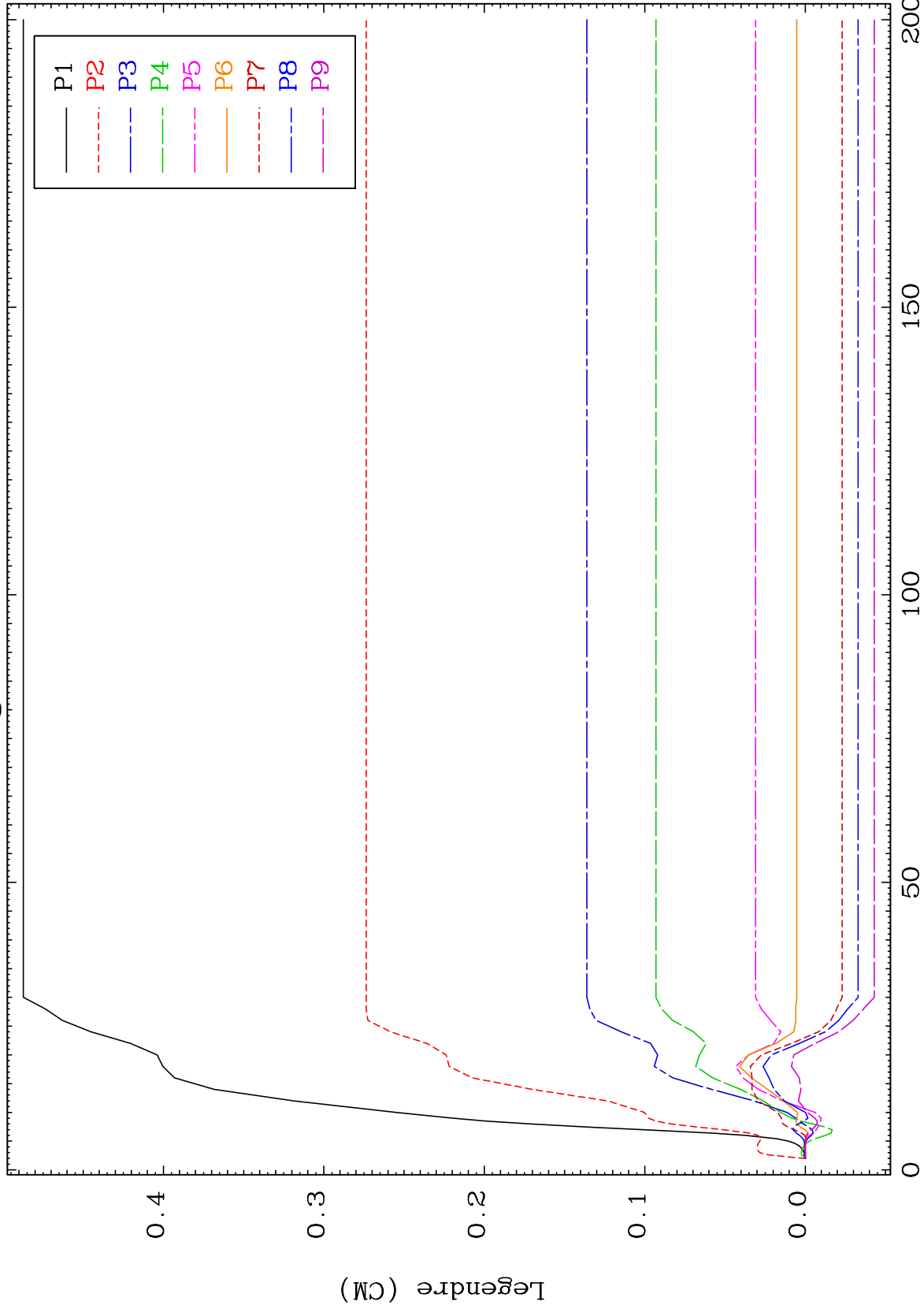
98

56-Ba-139

MAT 5652

MT= 71 (n,n') Level  
Legendre Coefficients

56-Ba-139



99

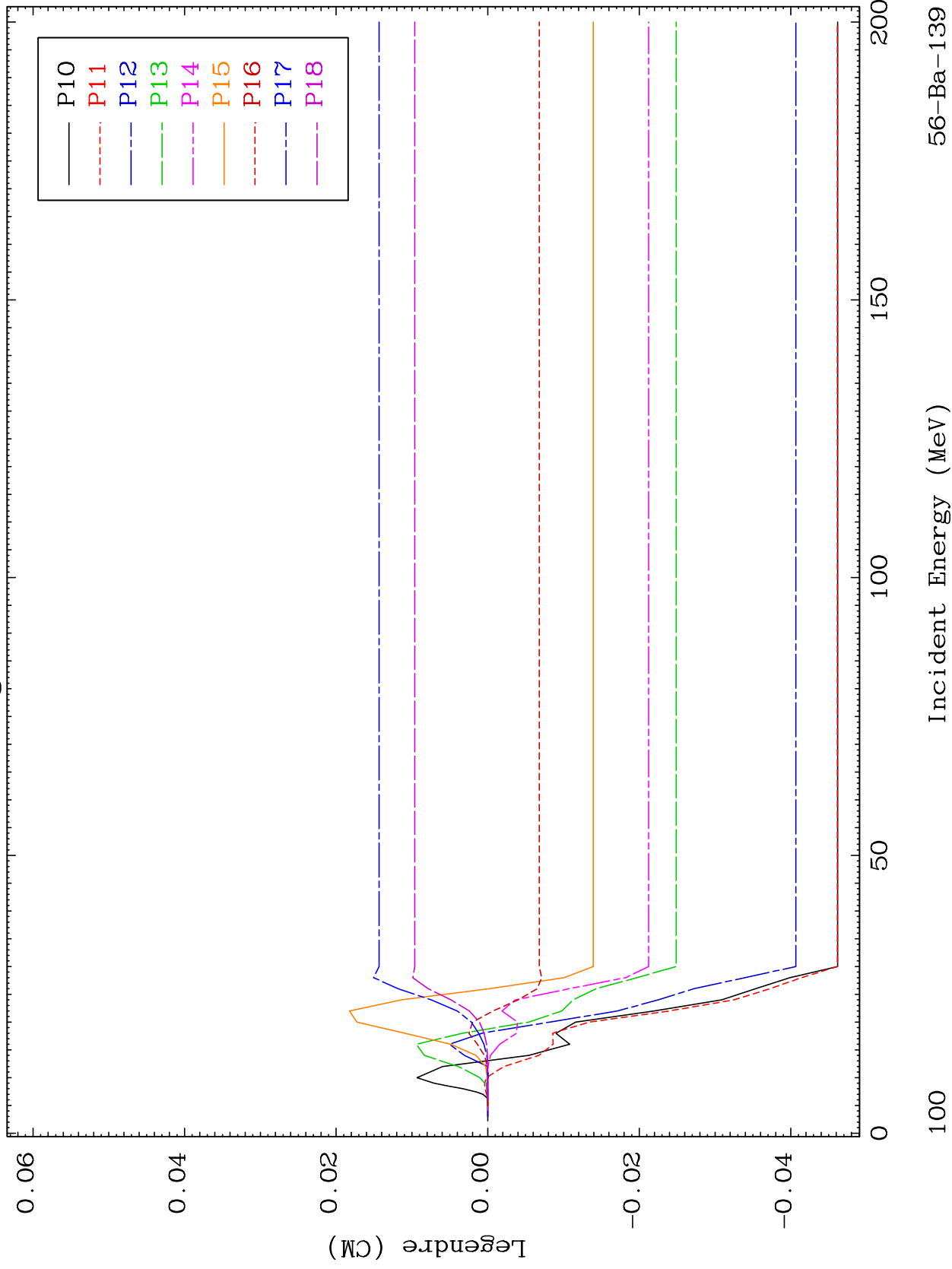
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 71 (n,n') Level  
Legendre Coefficients

56-Ba-139



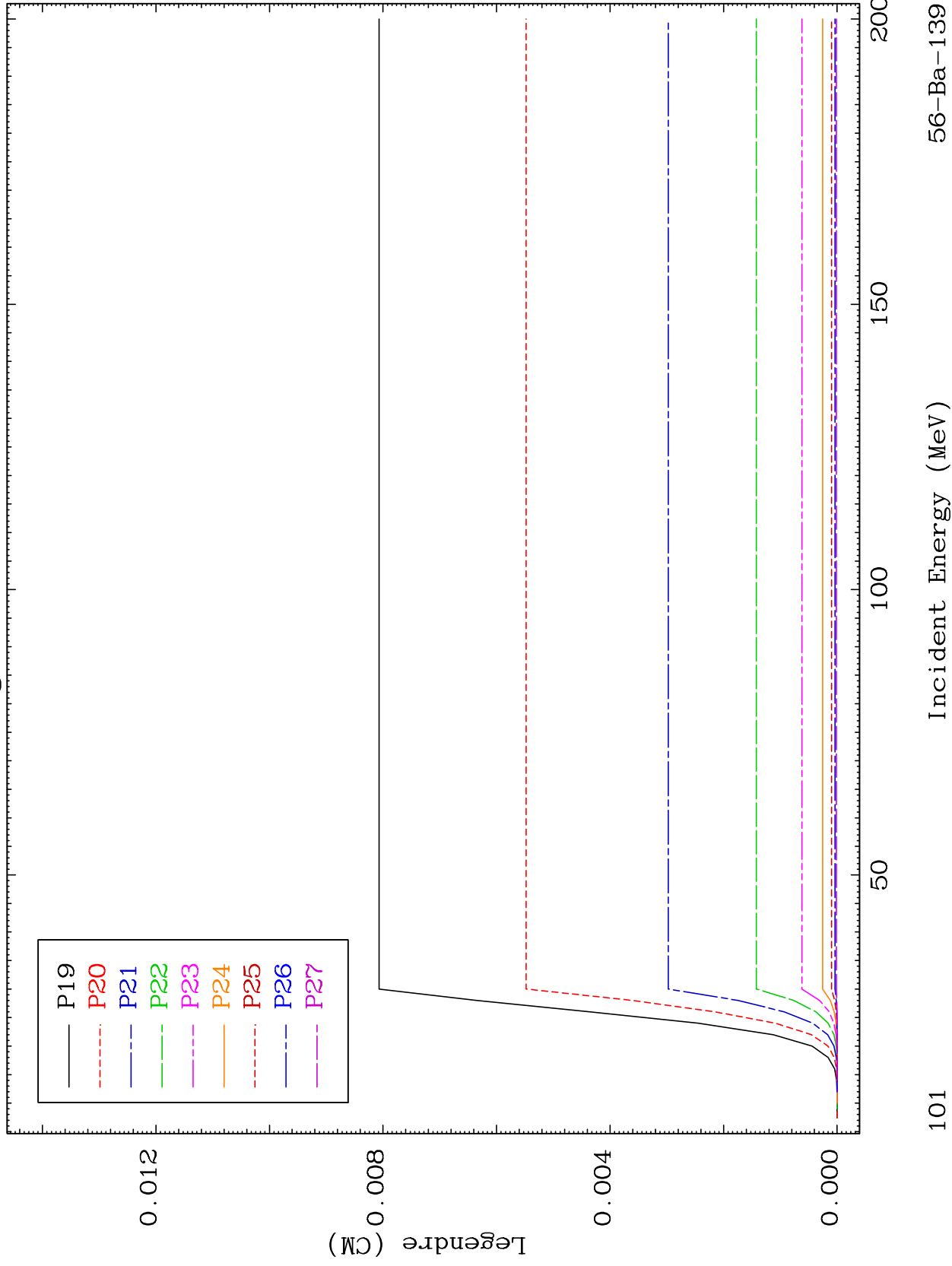
56-Ba-139

Incident Energy (MeV)

MAT 5652

MT= 71 (n,n') Level  
Legendre Coefficients

56-Ba-139



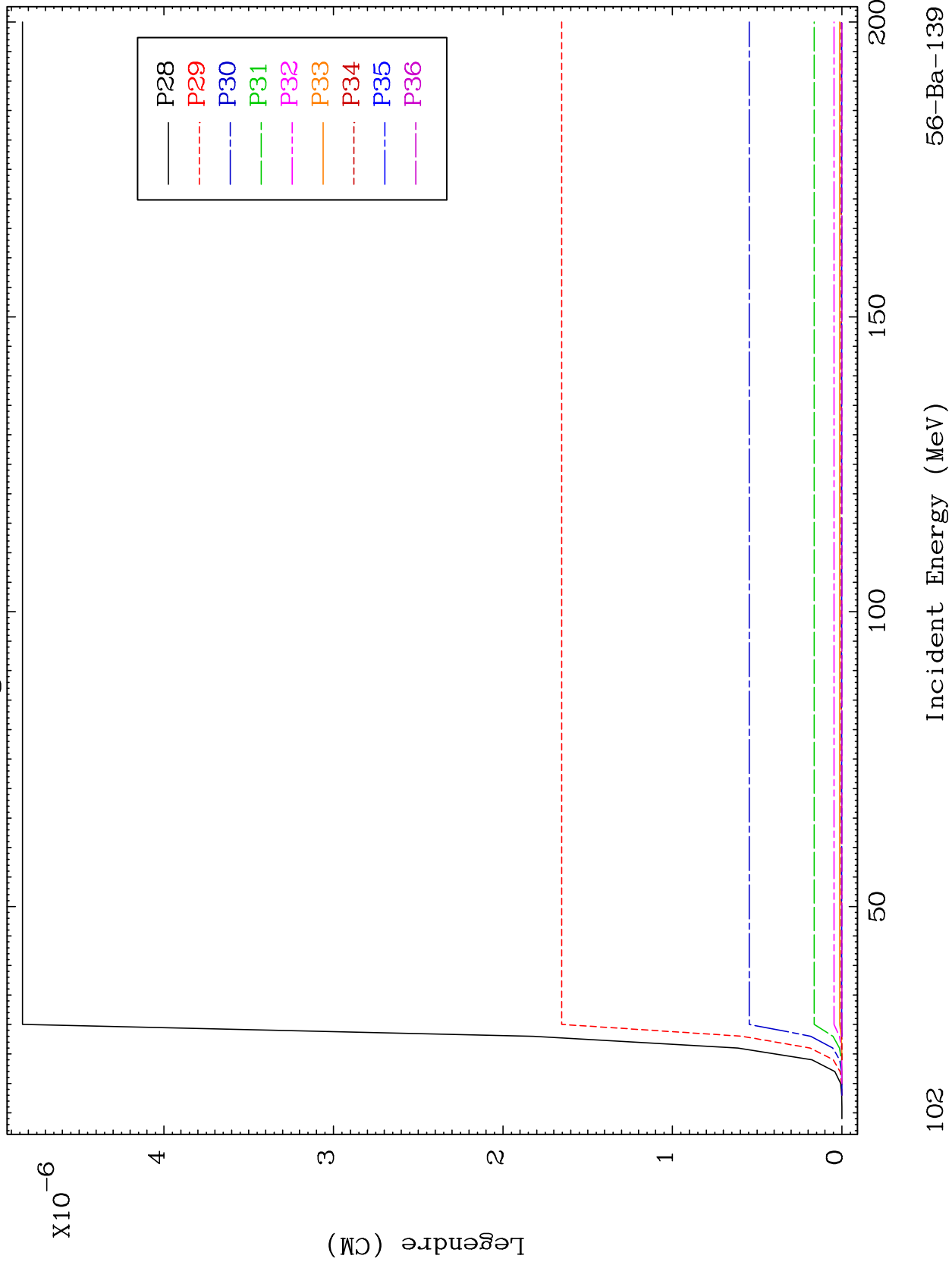
101

56-Ba-139

MAT 5652

MT= 71 (n,n') Level  
Legendre Coefficients

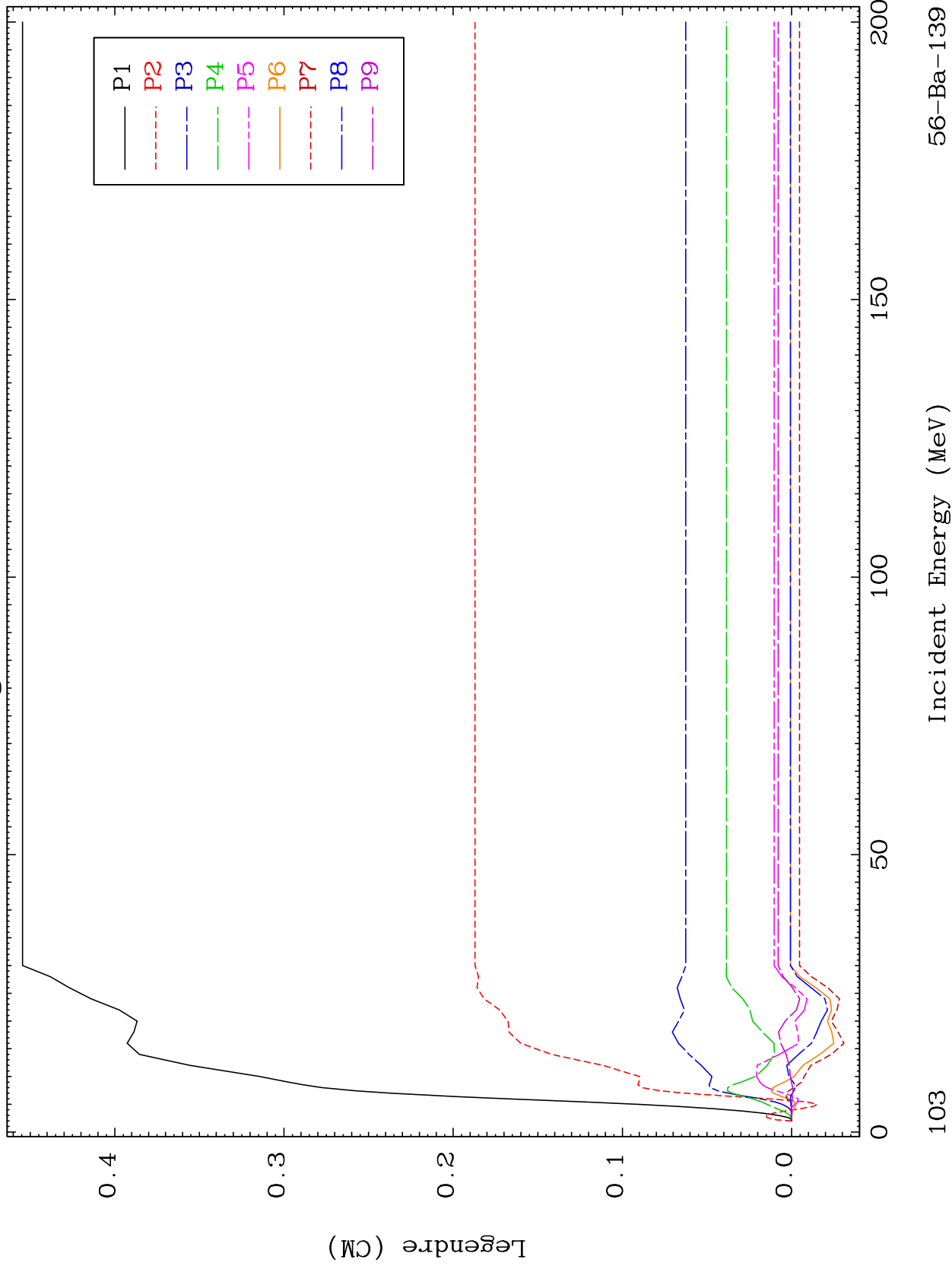
56-Ba-139



MAT 5652

MT= 72 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

Incident Energy (MeV)

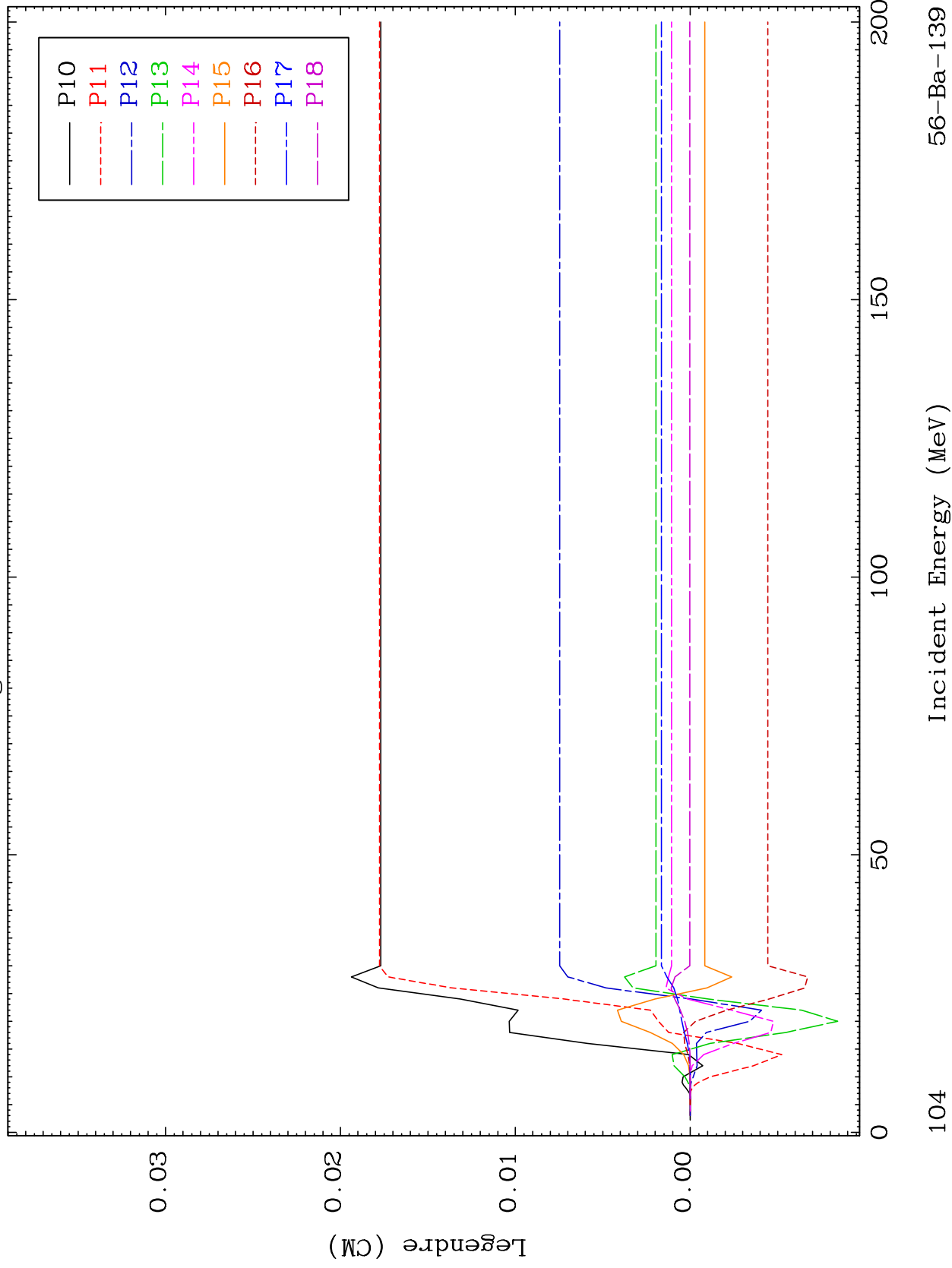
103



MAT 5652

MT= 72 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

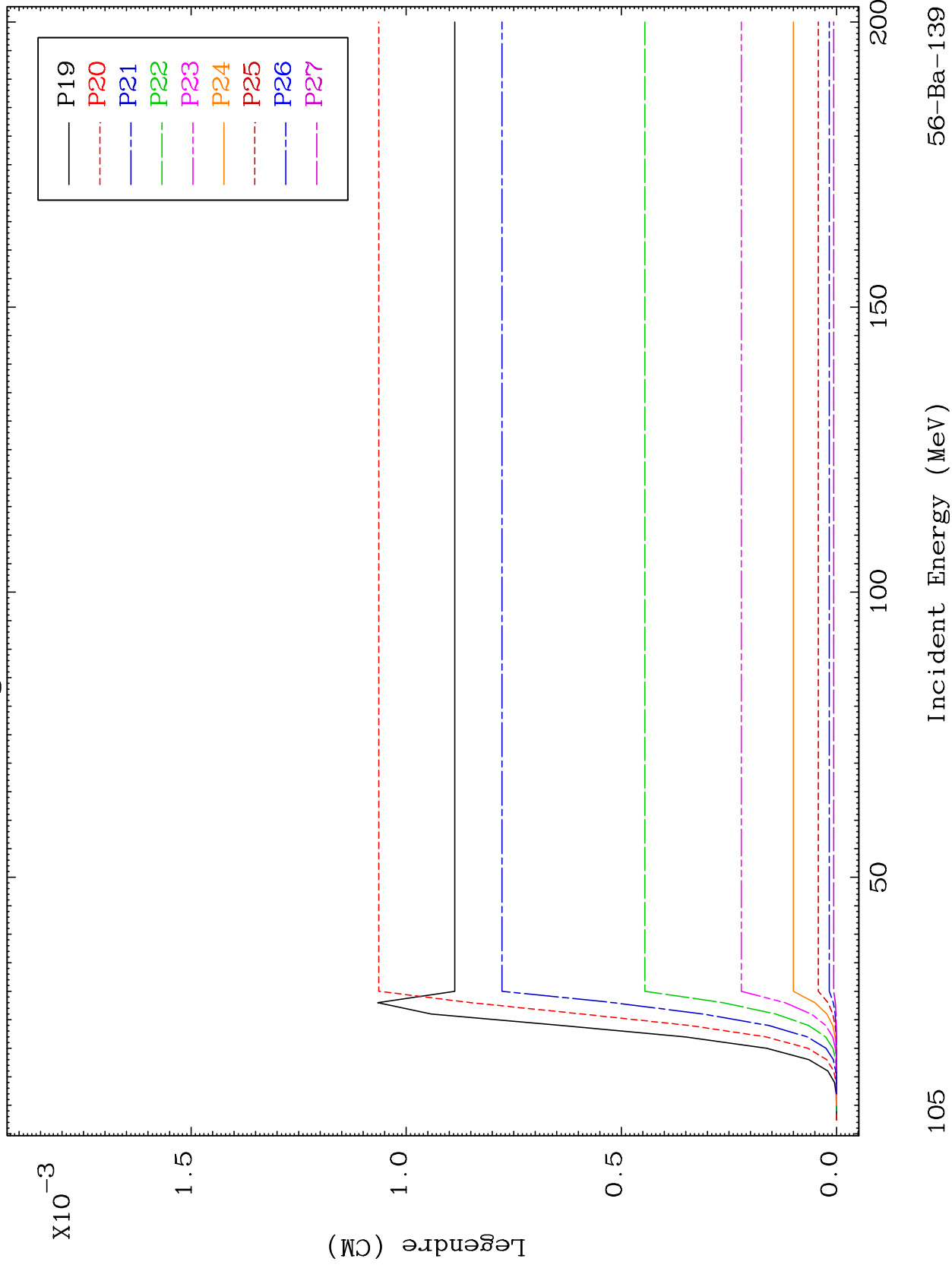
Incident Energy (MeV)

104

MAT 5652

MT= 72 (n,n') Level  
Legendre Coefficients

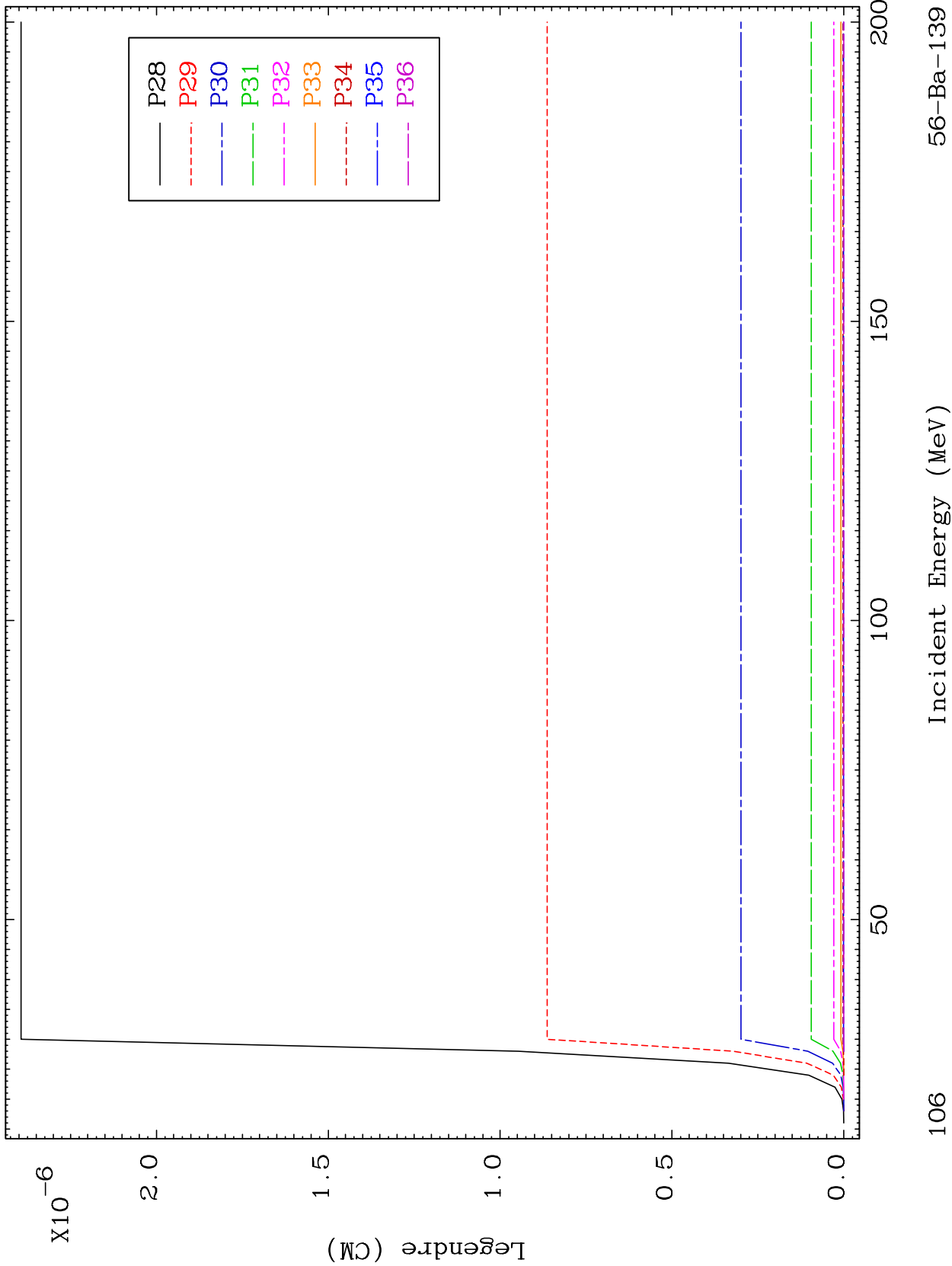
56-Ba-139



MAT 5652

MT= 72 (n,n') Level  
Legendre Coefficients

56-Ba-139

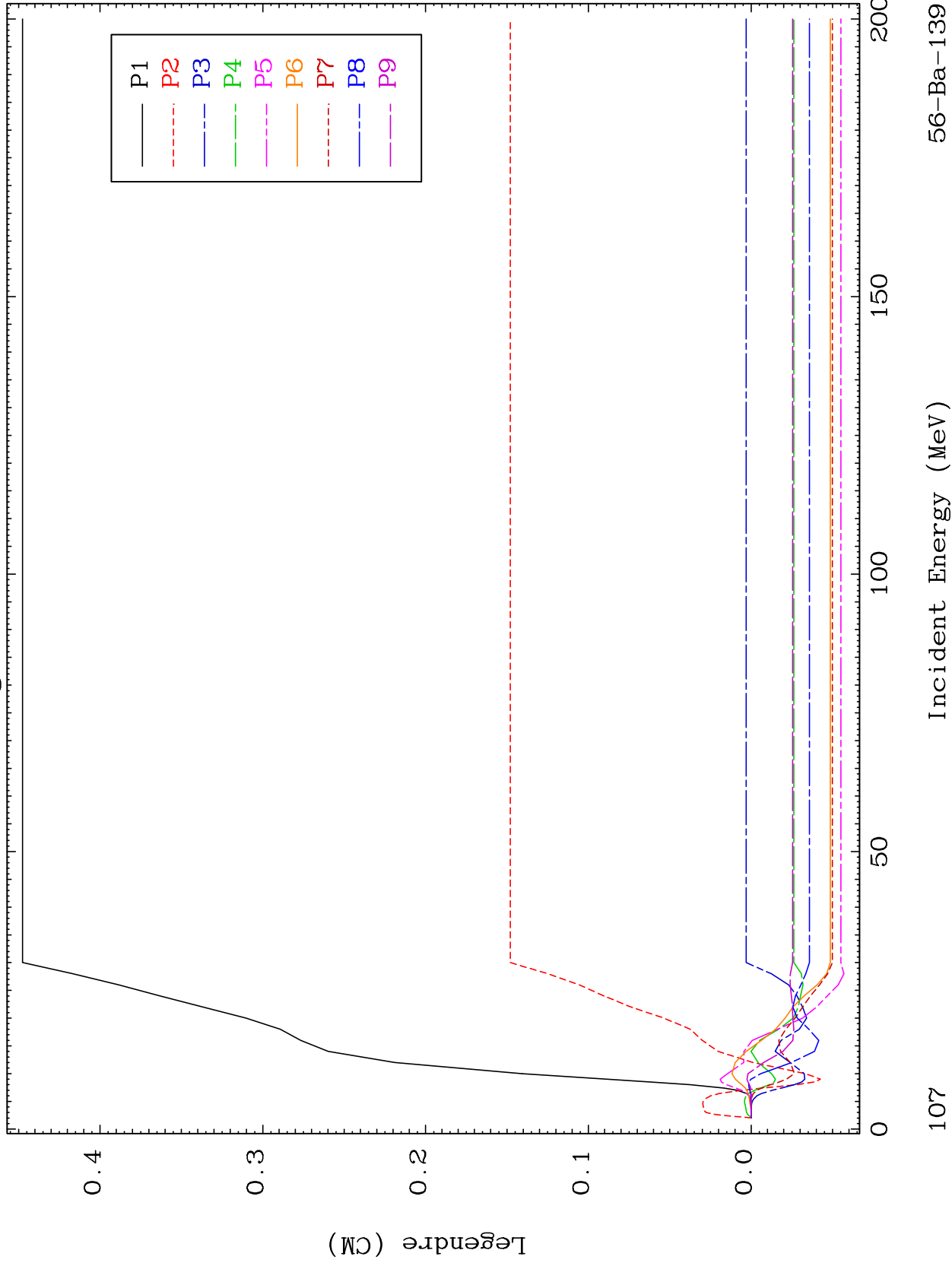


106

MAT 5652

MT= 73 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

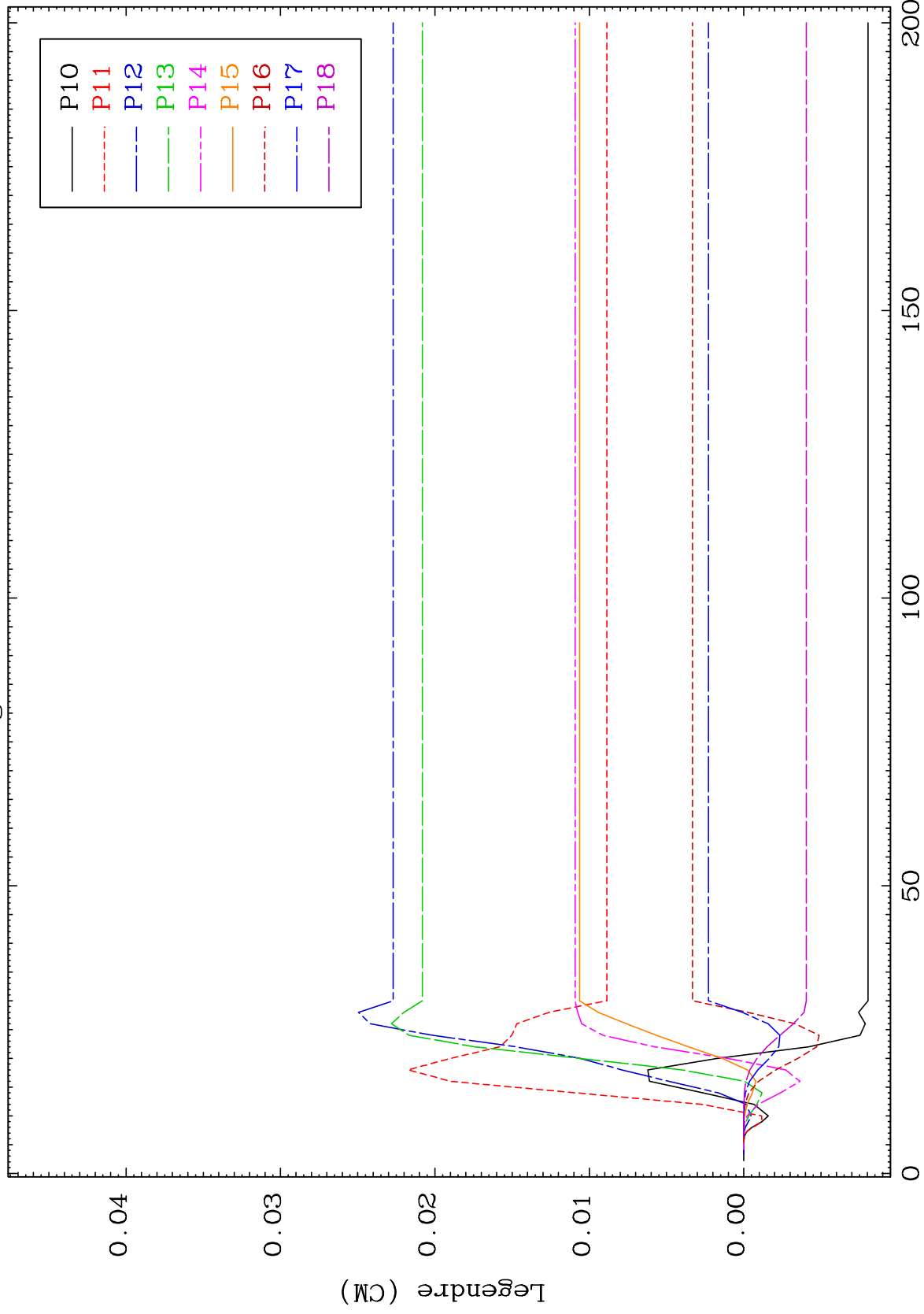
Incident Energy (MeV)

107

MAT 5652

MT= 73 (n,n') Level  
Legendre Coefficients

56-Ba-139



108

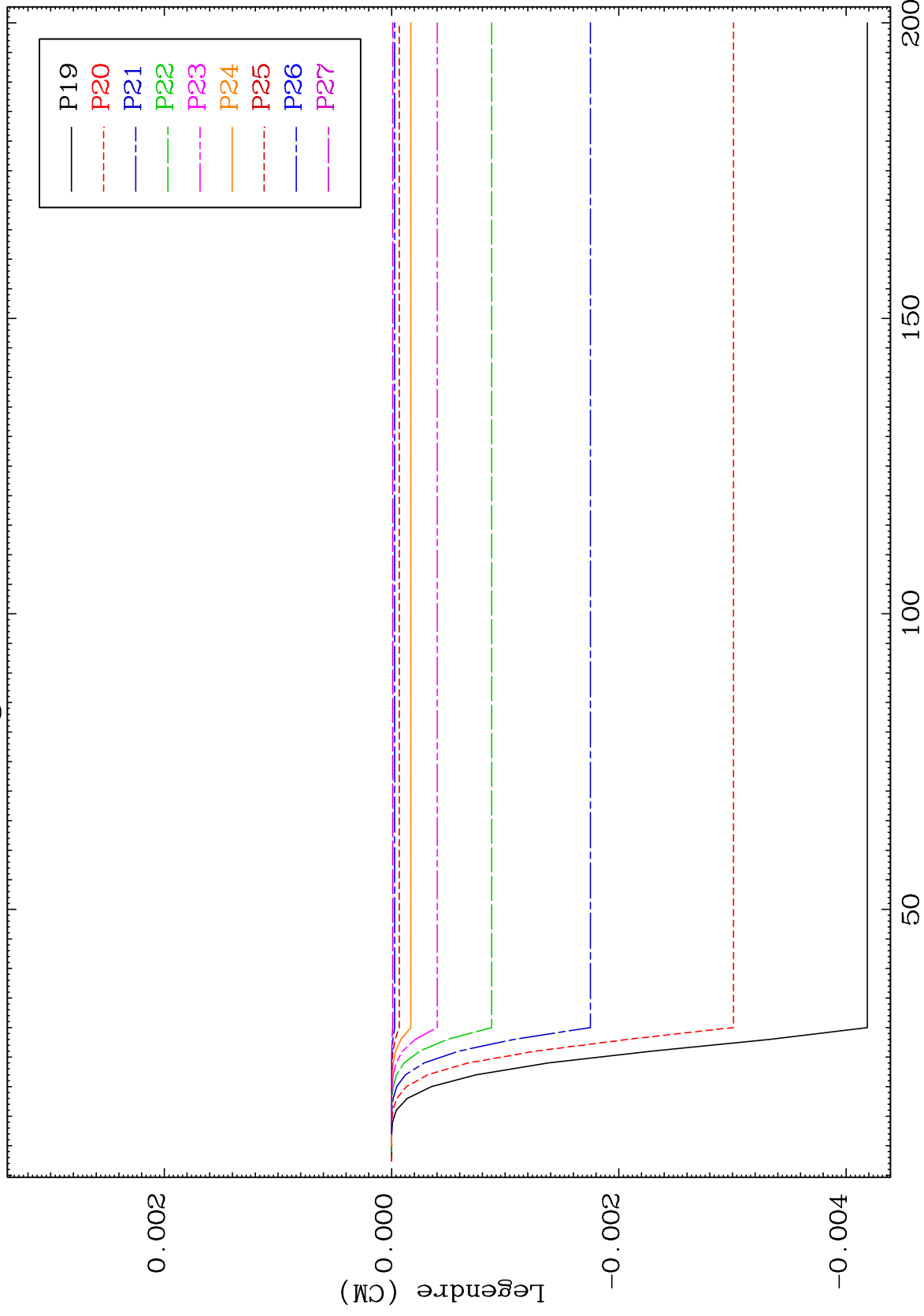
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 73 (n,n') Level  
Legendre Coefficients

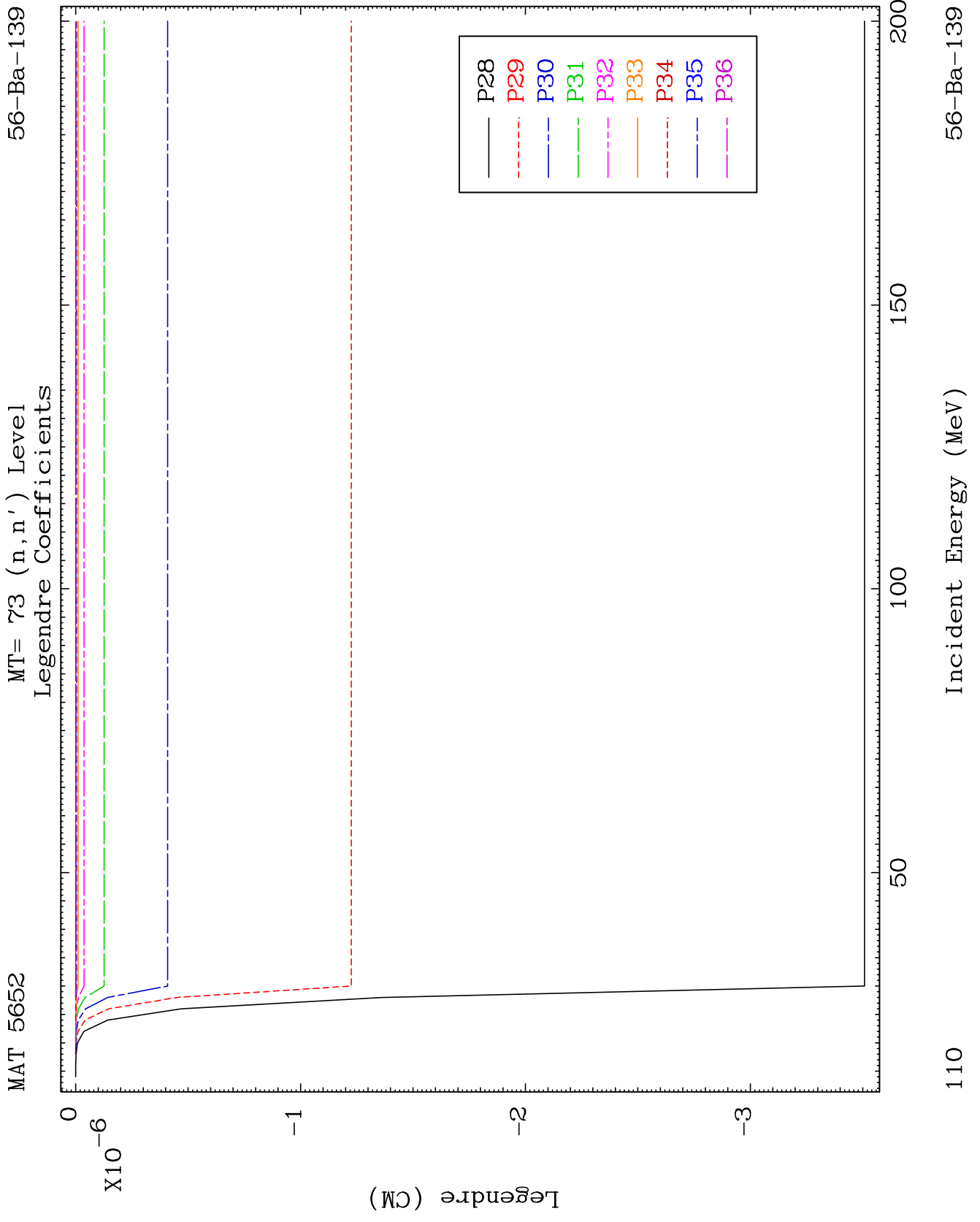
56-Ba-139



109

Incident Energy (MeV)

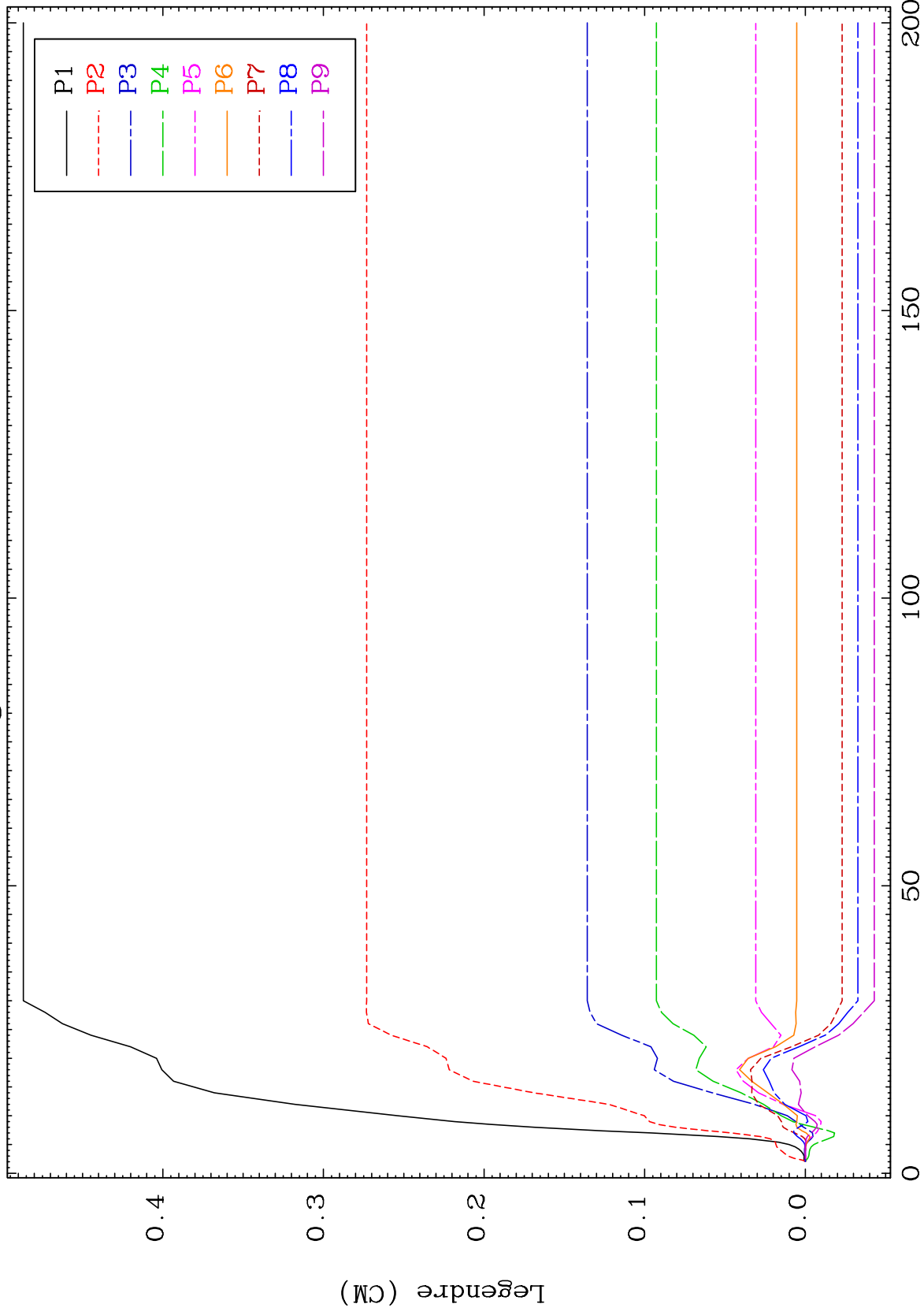
56-Ba-139



MAT 5652

MT= 74 (n,n') Level  
Legendre Coefficients

56-Ba-139



111

Incident Energy (MeV)

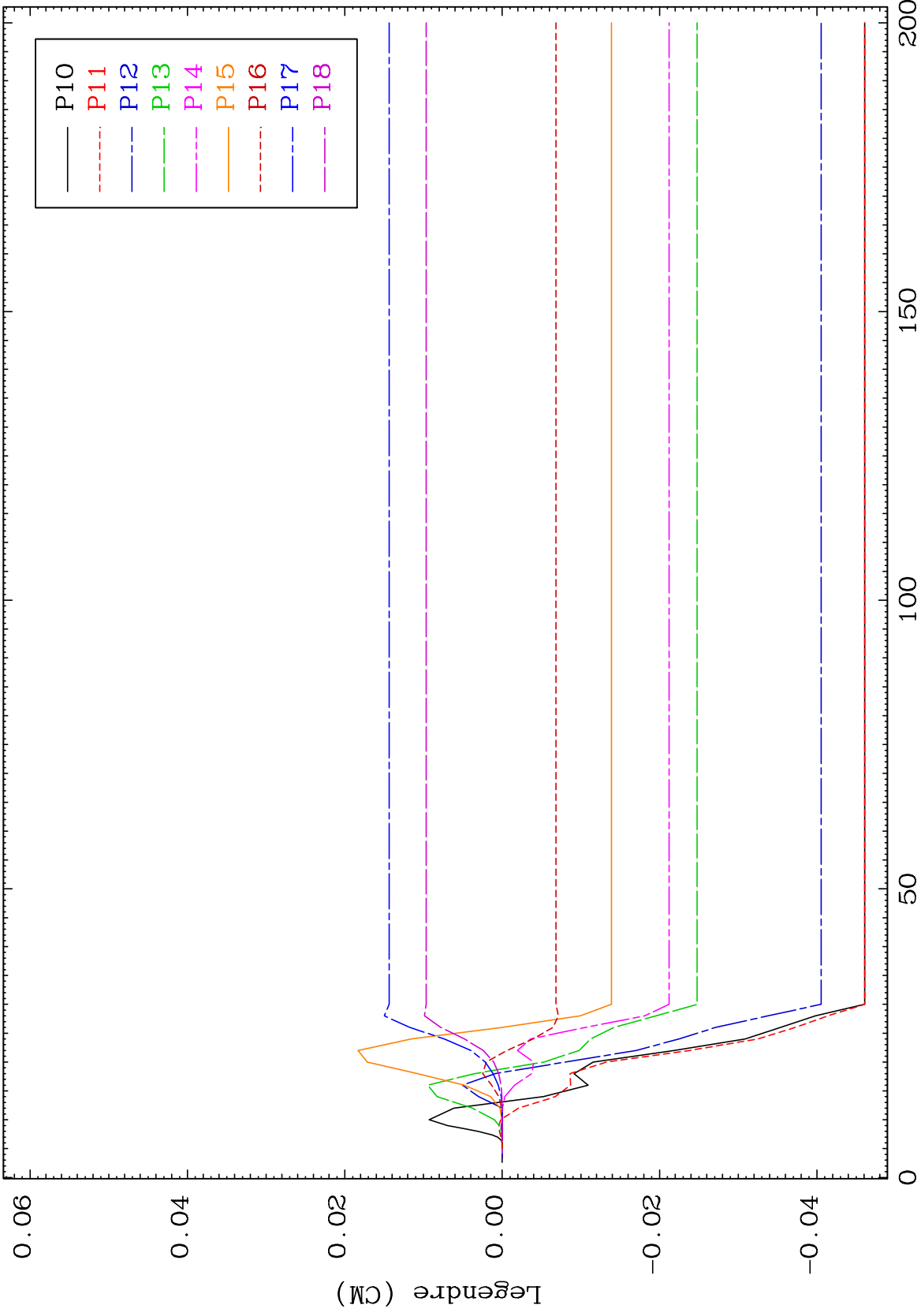
56-Ba-139



MAT 5652

MT= 74 (n,n') Level  
Legendre Coefficients

56-Ba-139



112

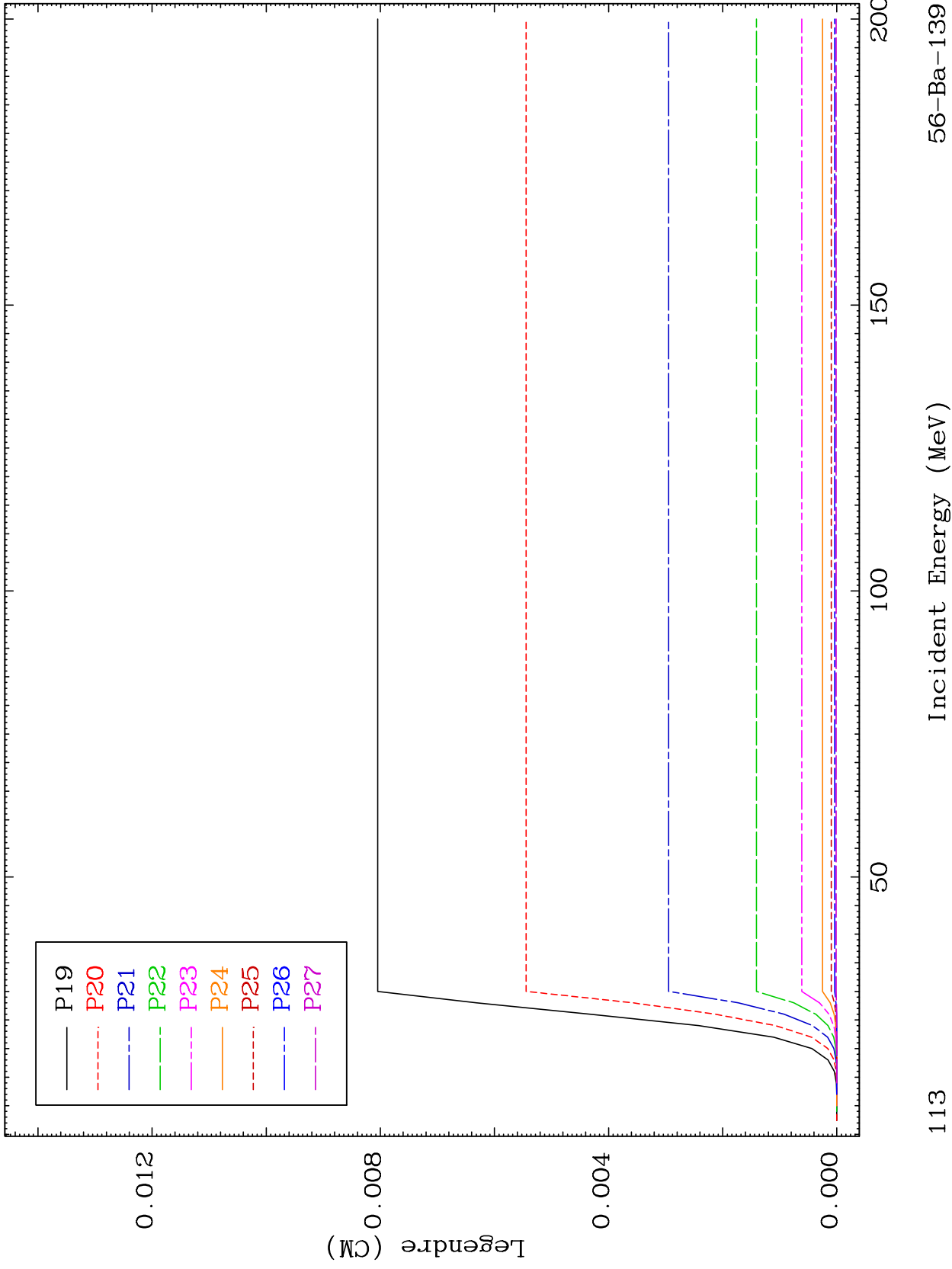
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 74 (n,n') Level  
Legendre Coefficients

56-Ba-139



113

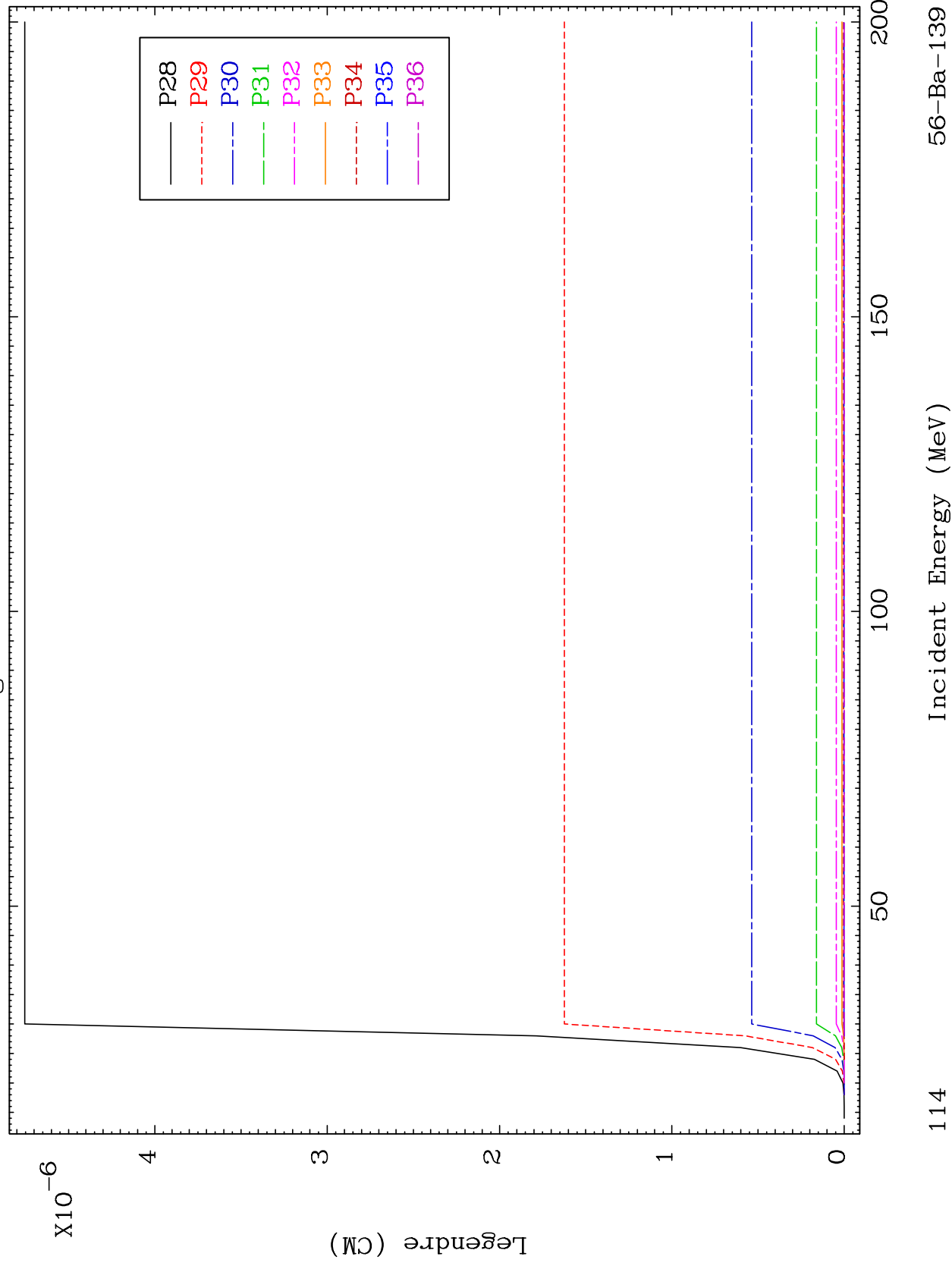
Incident Energy (MeV)

56-Ba-139

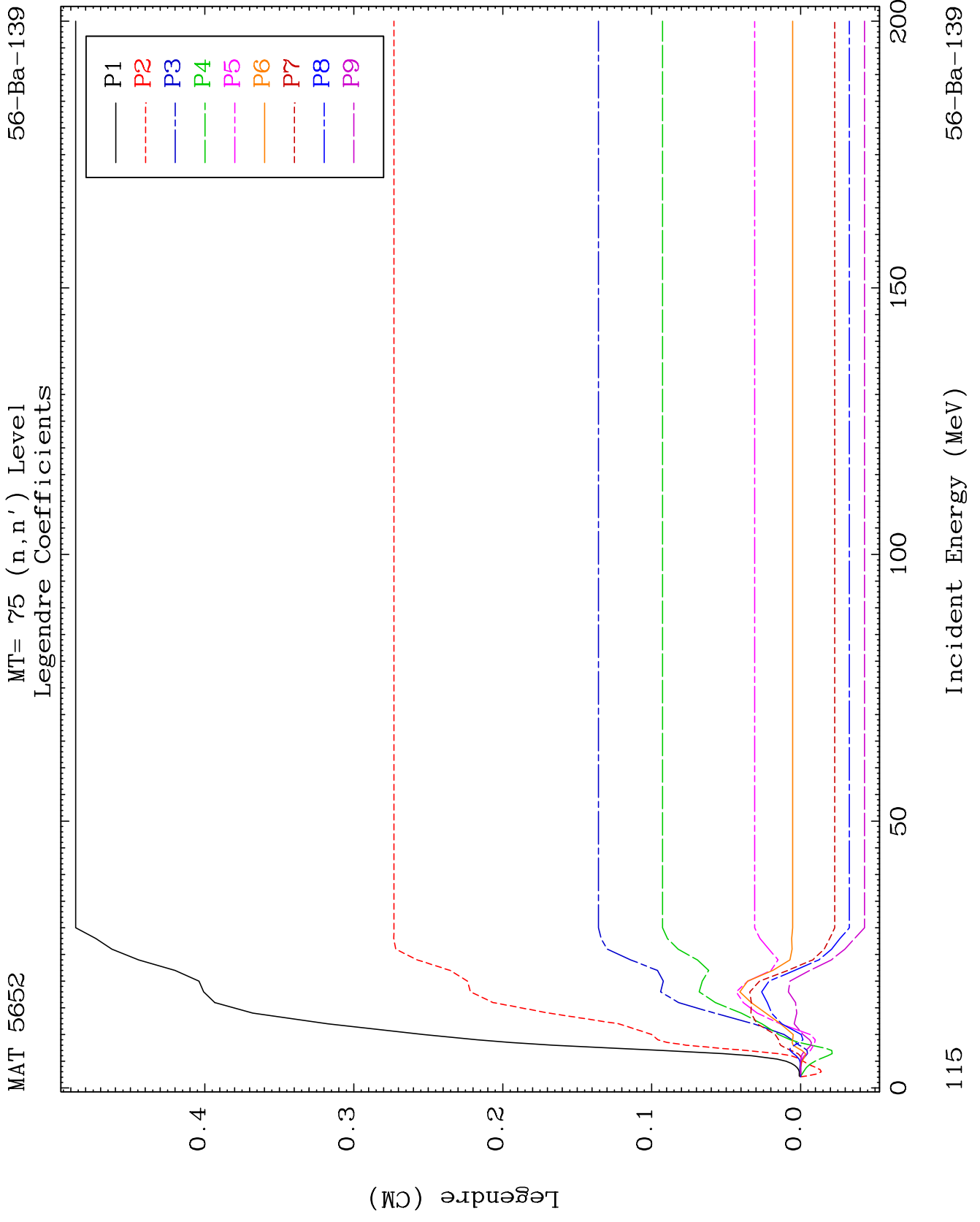
MAT 5652

MT= 74 (n,n') Level  
Legendre Coefficients

56-Ba-139



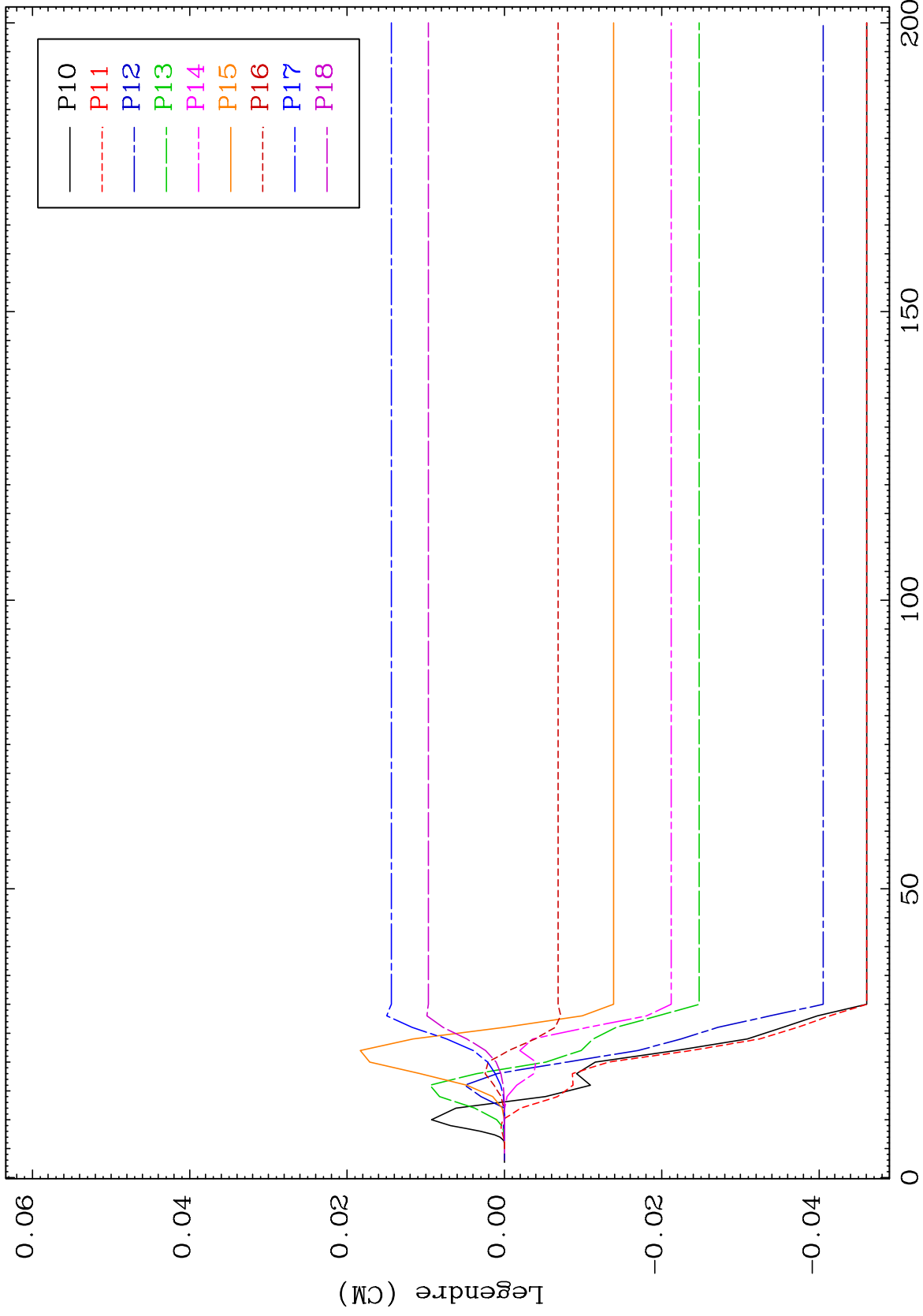
114



MAT 5652

MT= 75 (n,n') Level  
Legendre Coefficients

56-Ba-139



116

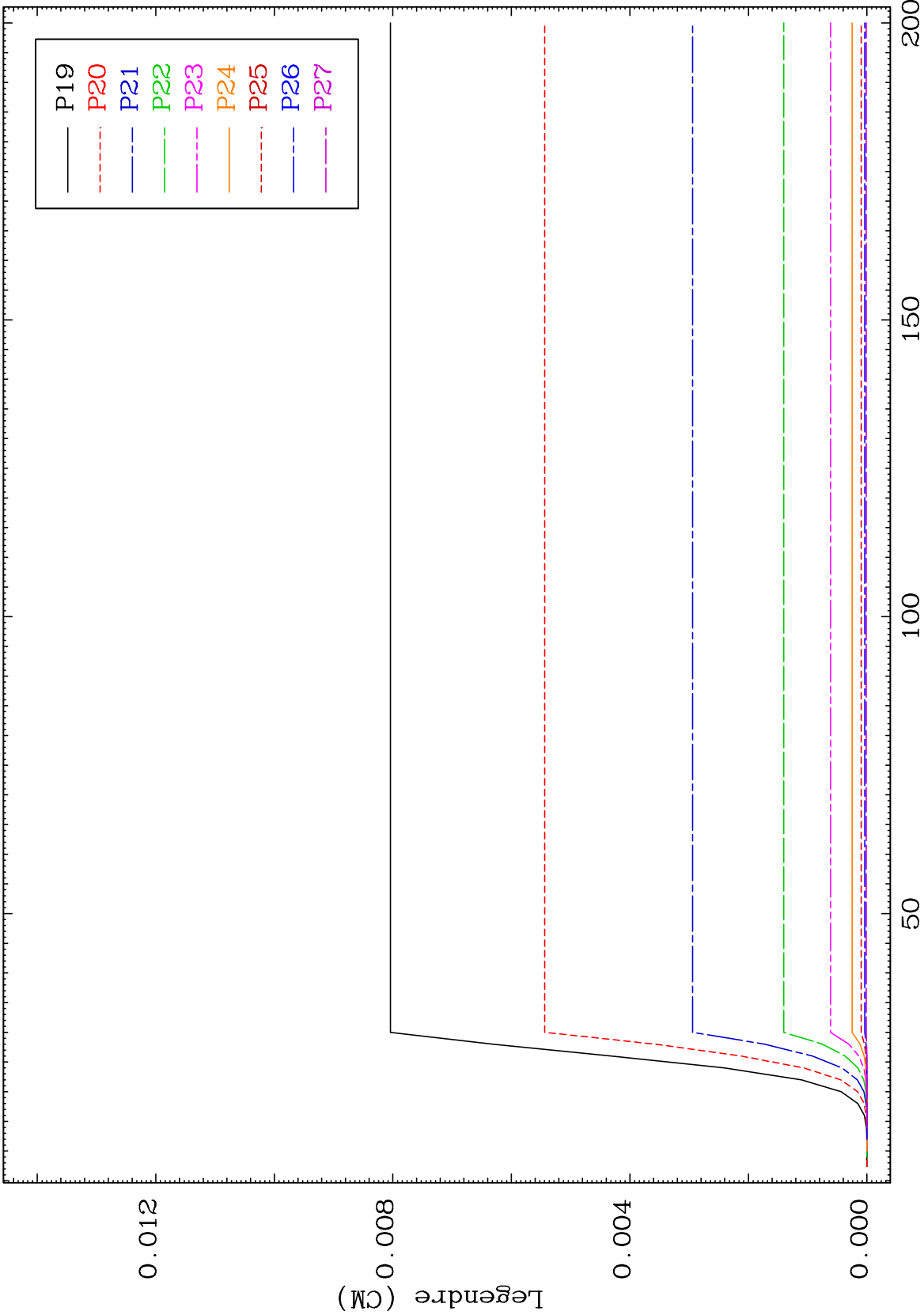
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 75 (n,n') Level  
Legendre Coefficients

56-Ba-139



117

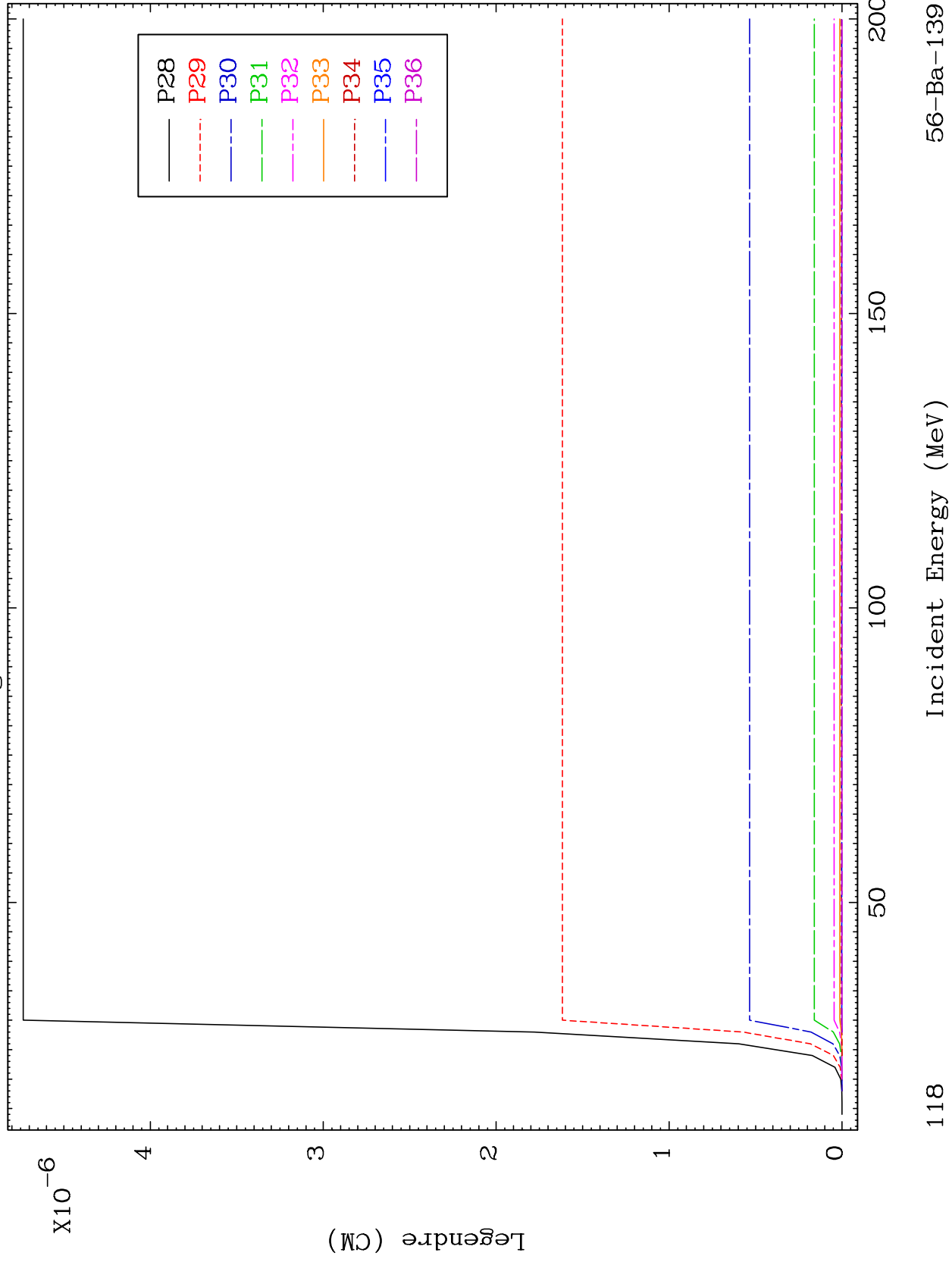
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 75 (n,n') Level  
Legendre Coefficients

56-Ba-139

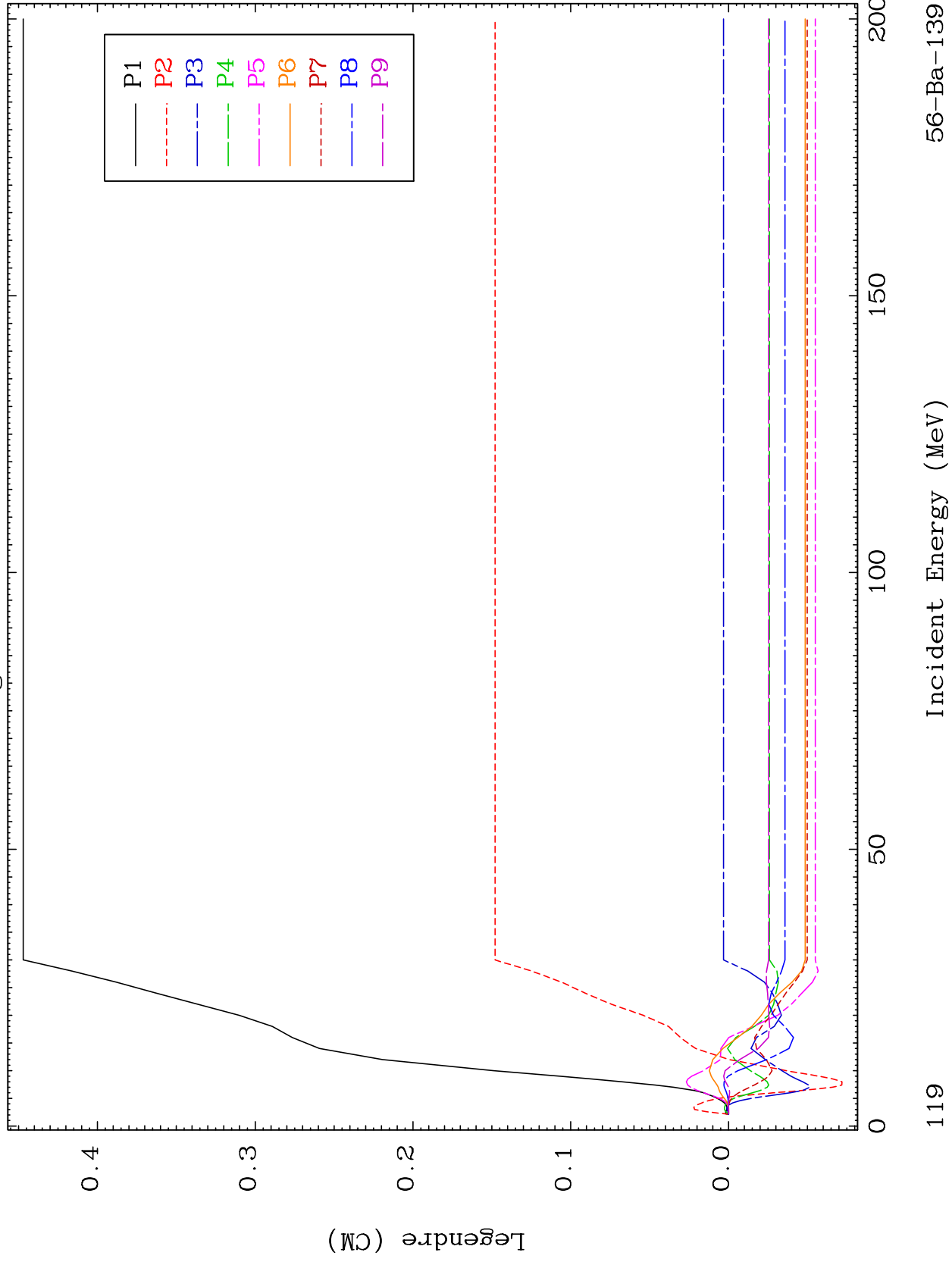


118

MAT 5652

MT= 76 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

Incident Energy (MeV)

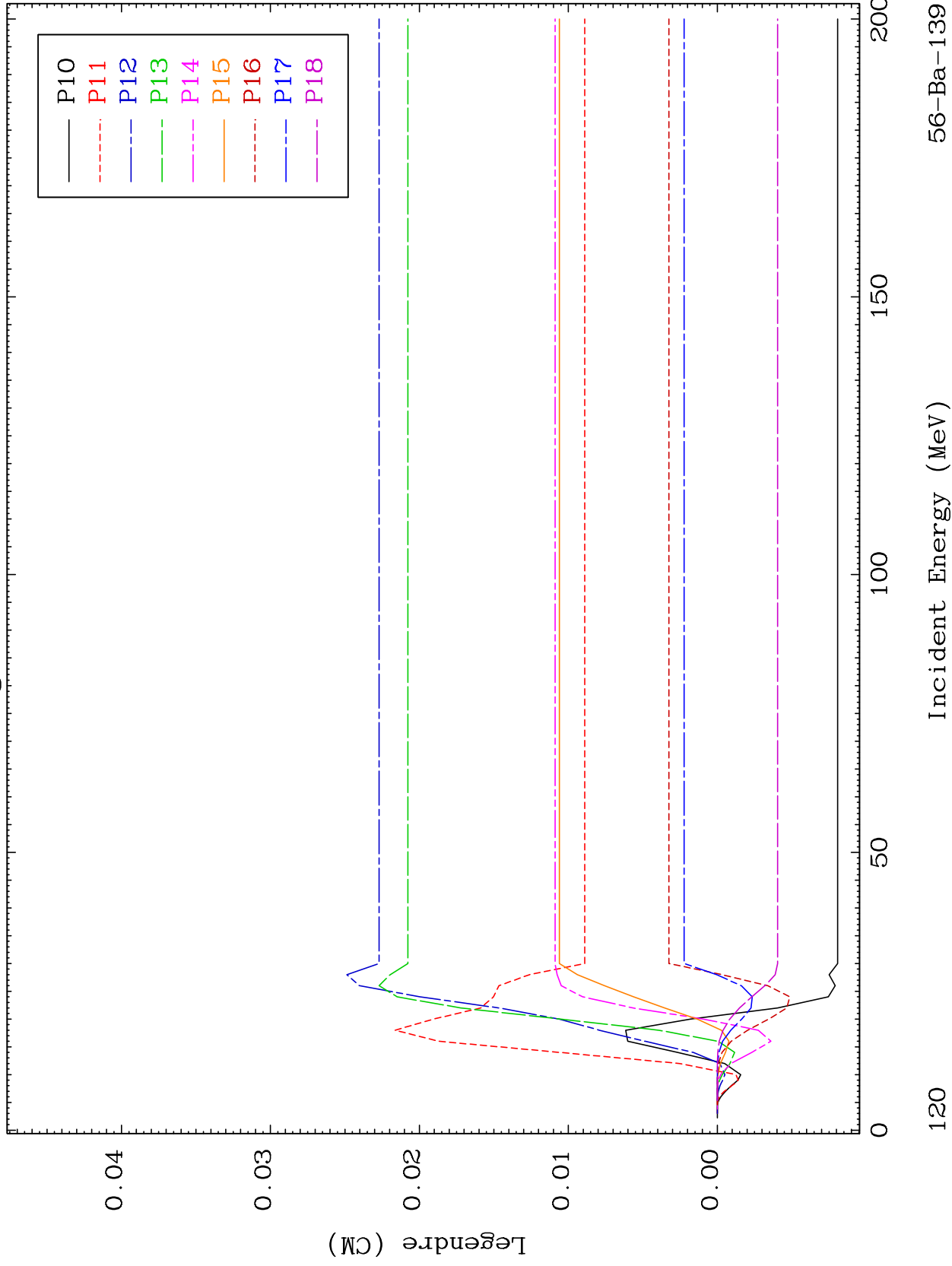
119



MAT 5652

MT= 76 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

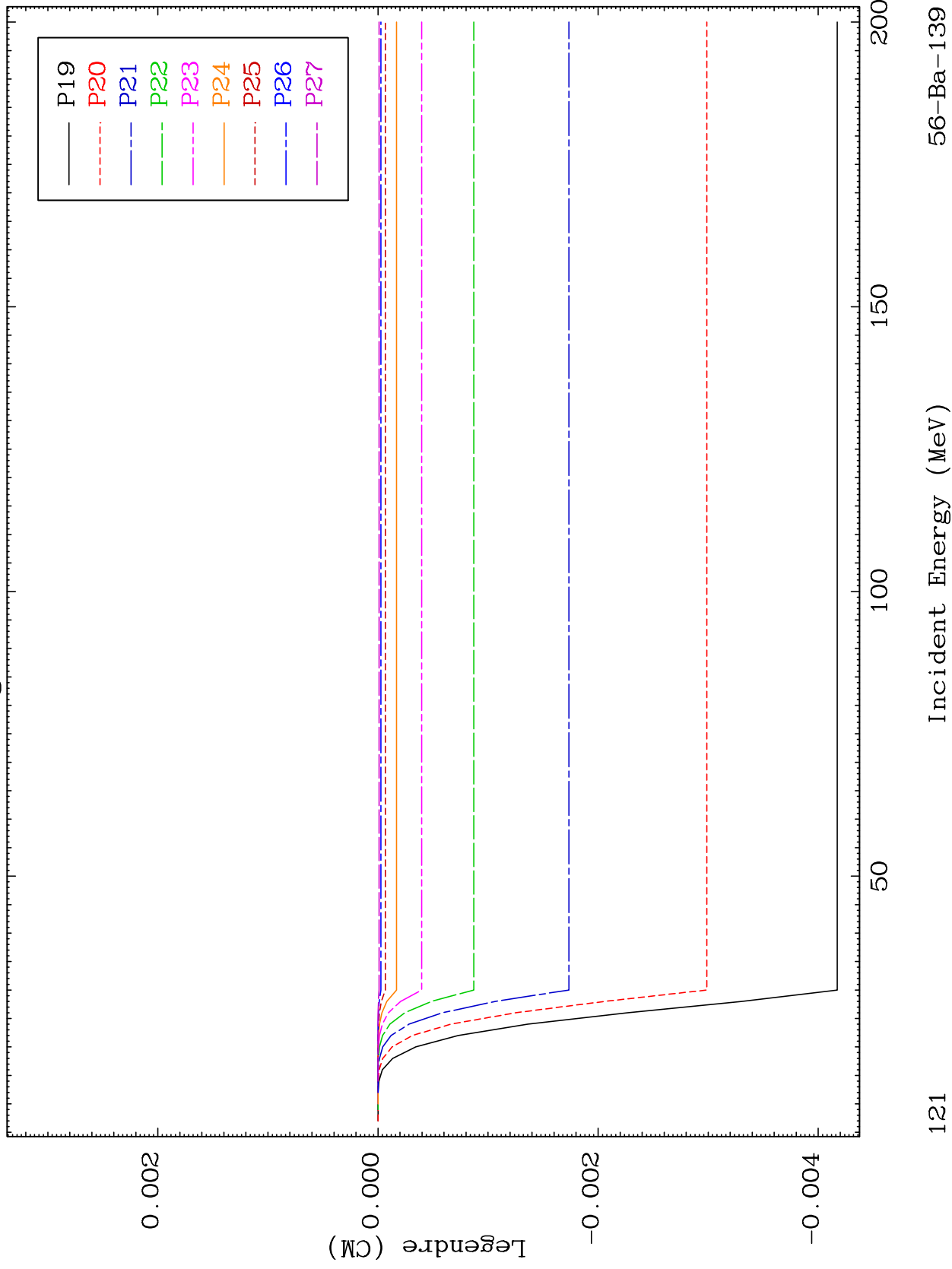
Incident Energy (MeV)

120

MAT 5652

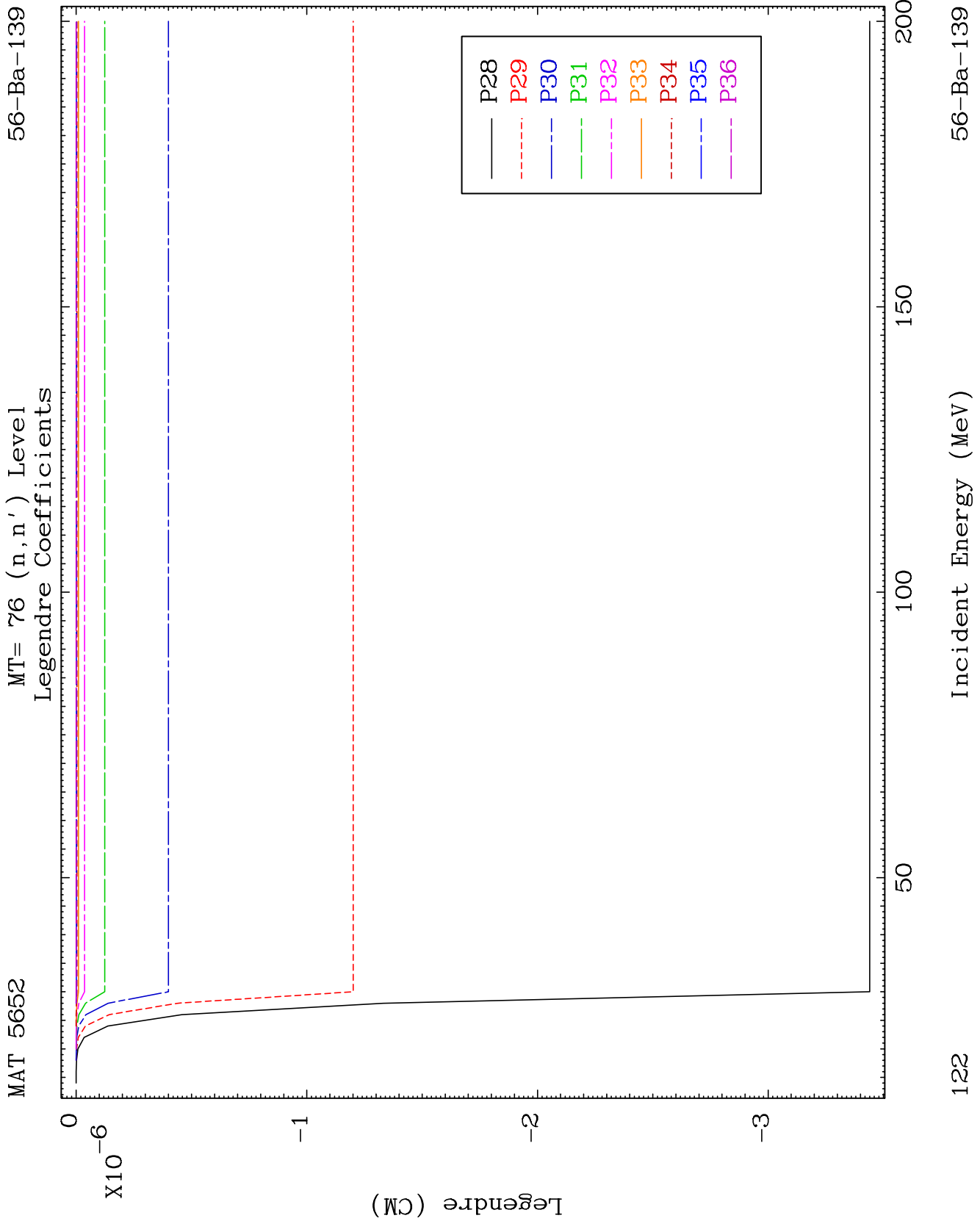
MT= 76 (n,n') Level  
Legendre Coefficients

56-Ba-139



121

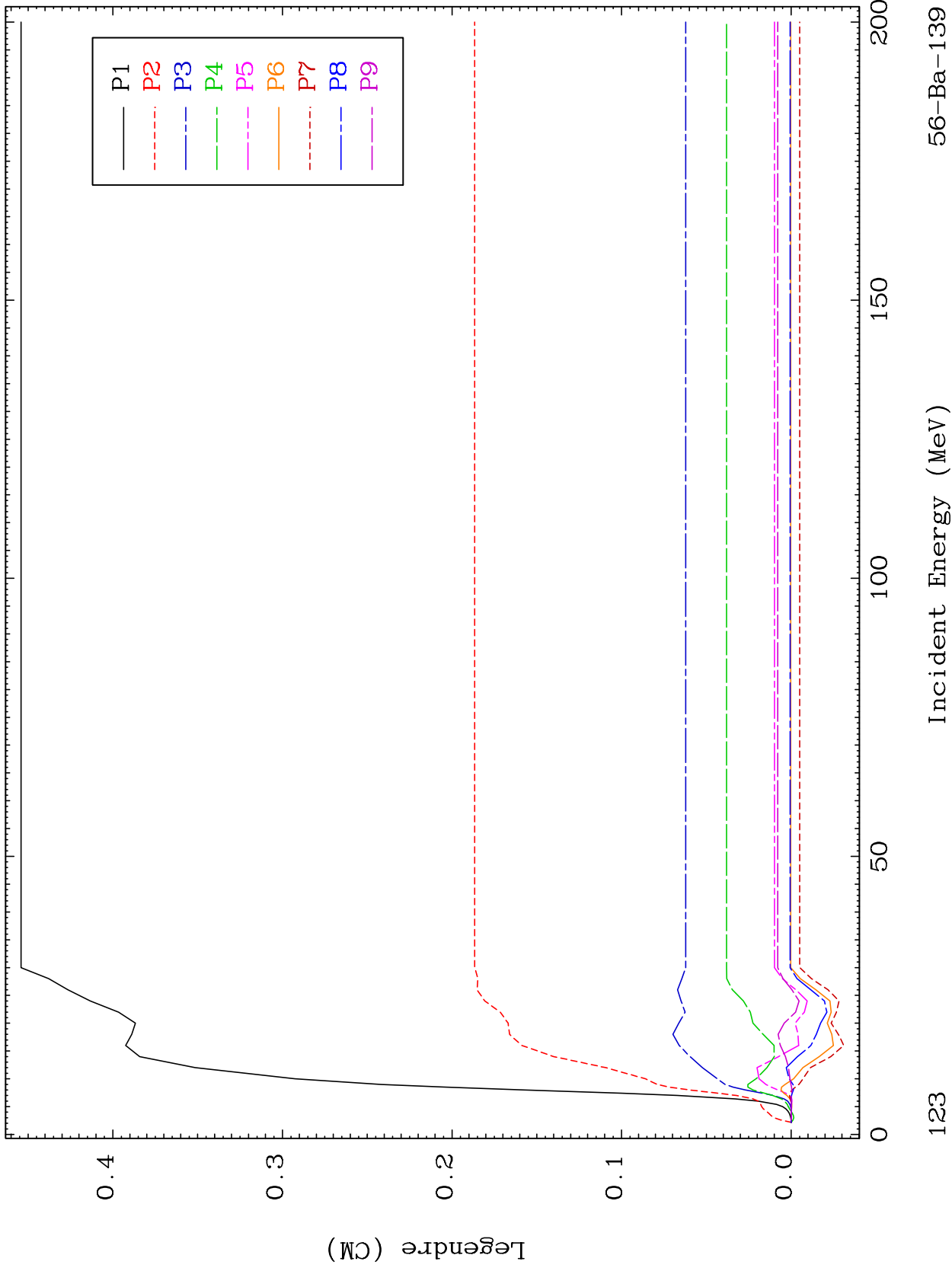
56-Ba-139



MAT 5652

MT= 77 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

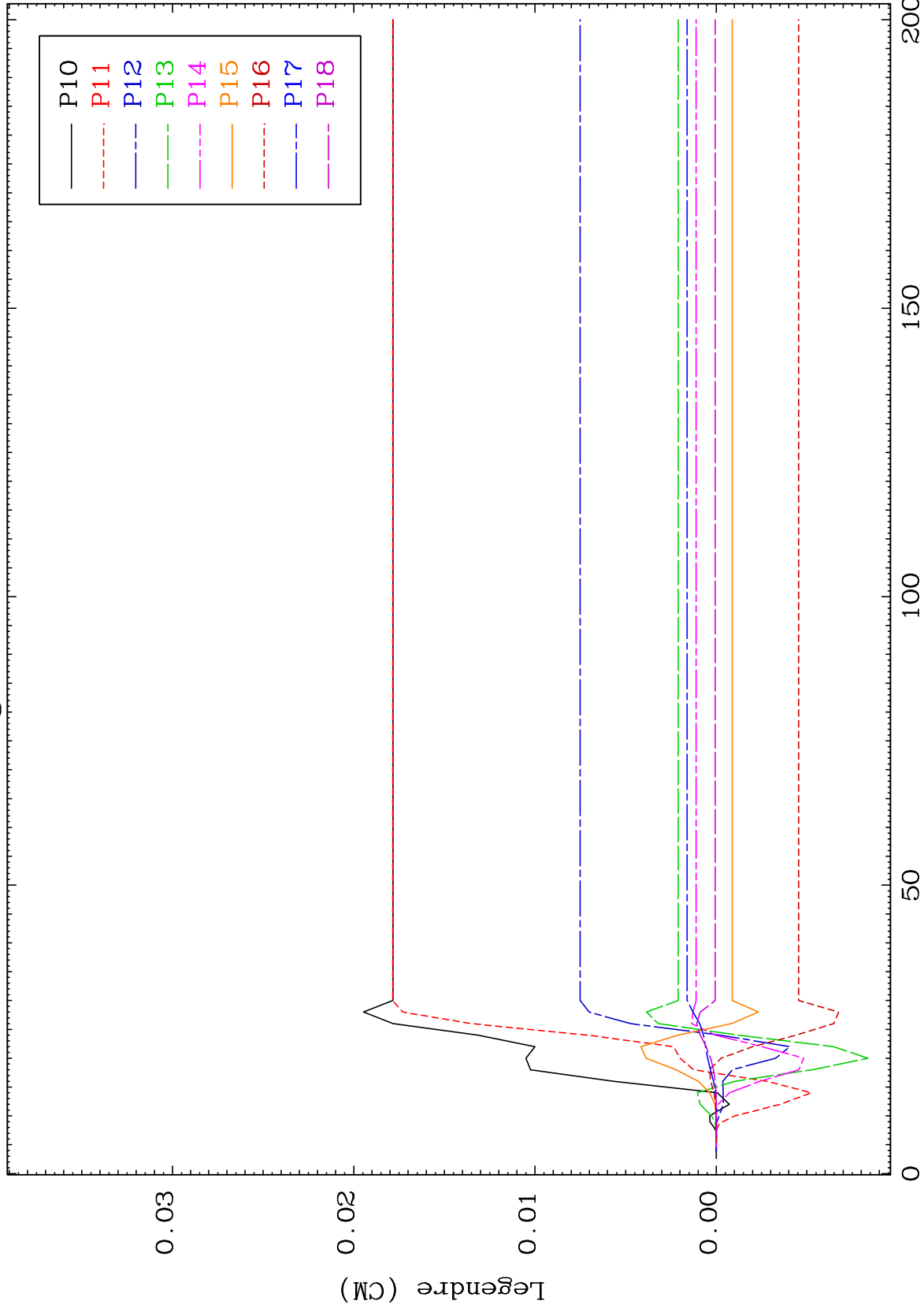
Incident Energy (MeV)

123

MAT 5652

MT= 77 (n,n') Level  
Legendre Coefficients

56-Ba-139



124

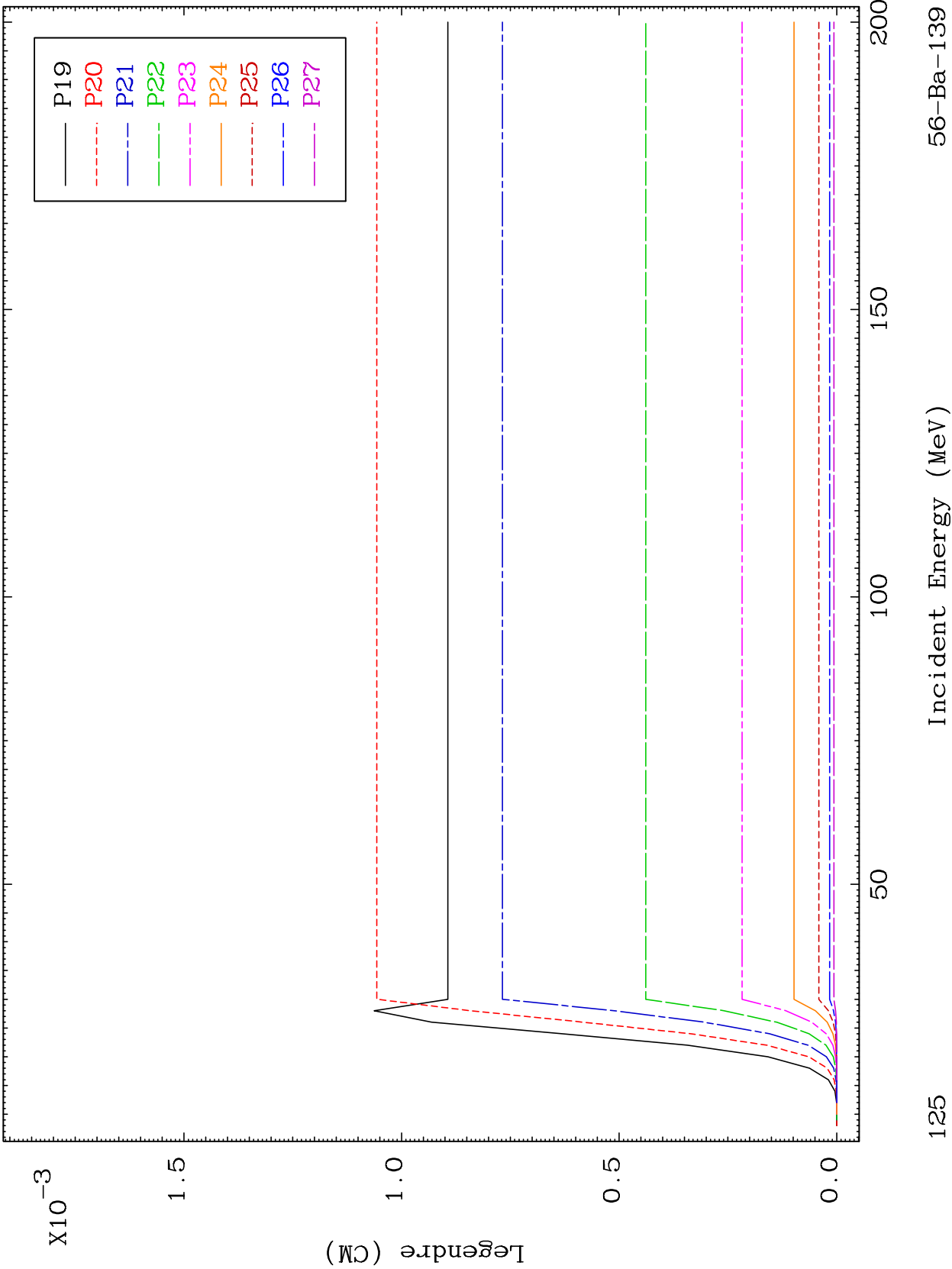
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 77 (n,n') Level  
Legendre Coefficients

56-Ba-139



125

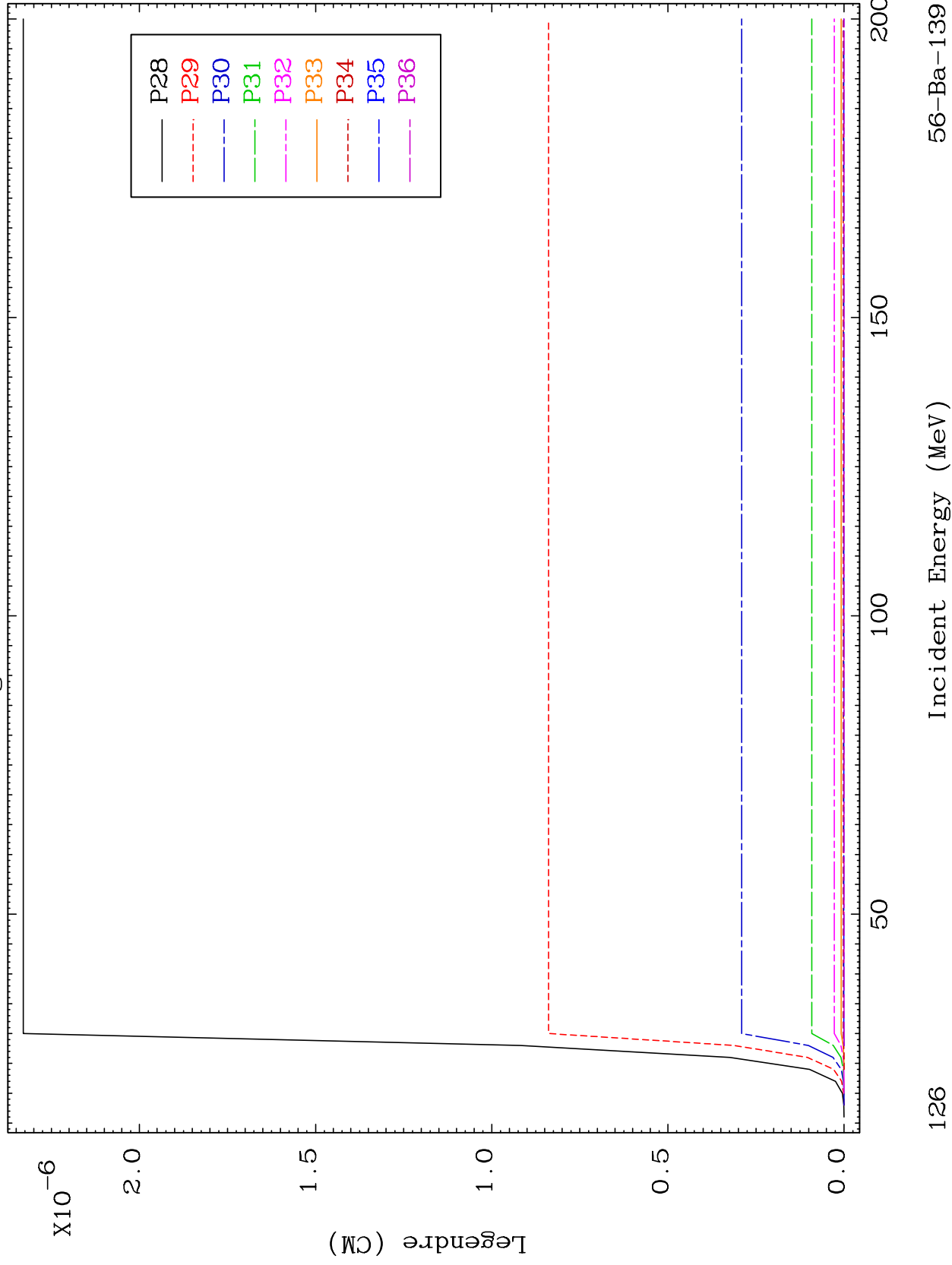
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 77 (n,n') Level  
Legendre Coefficients

56-Ba-139



126

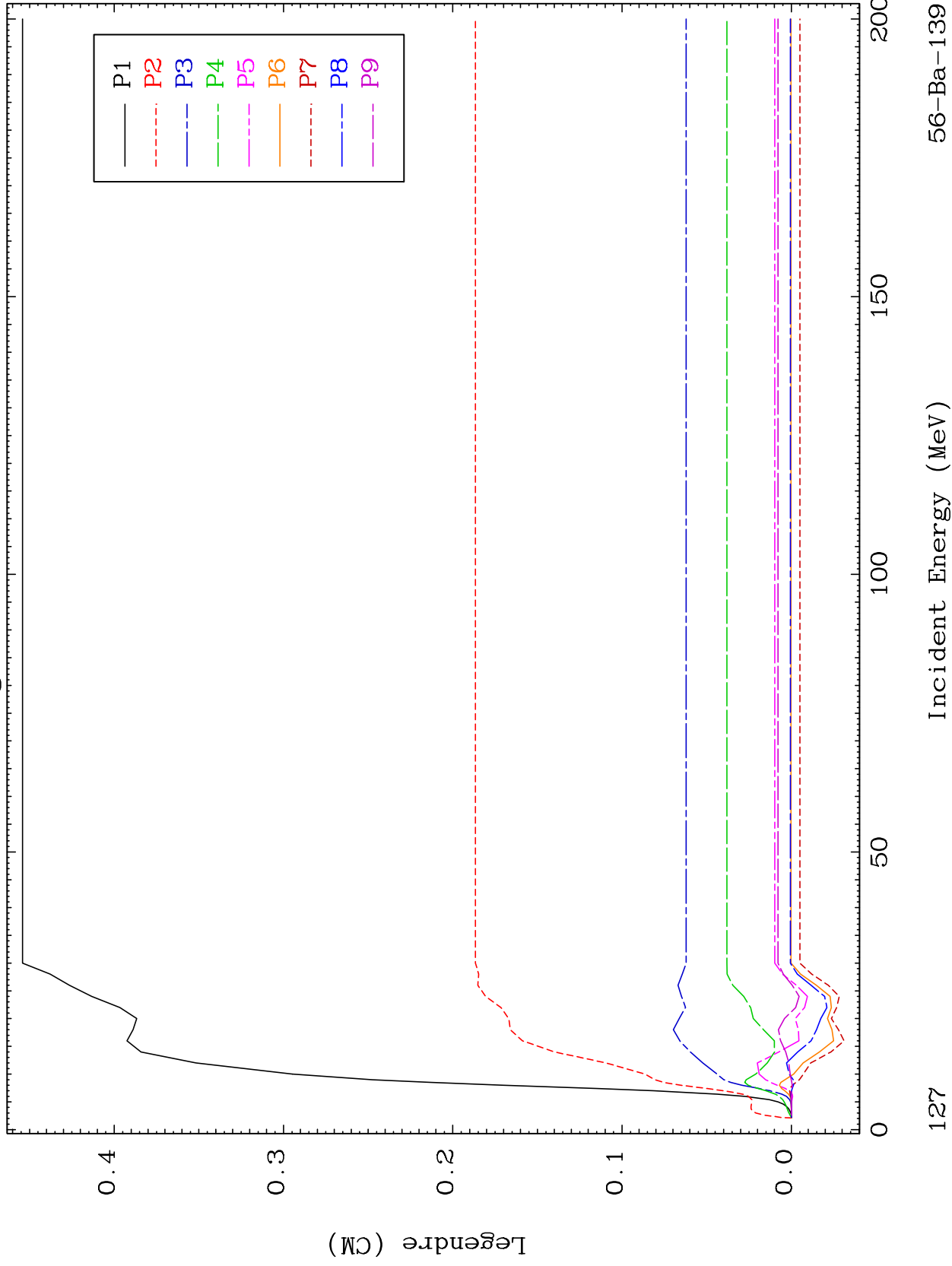
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 78 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

Incident Energy (MeV)

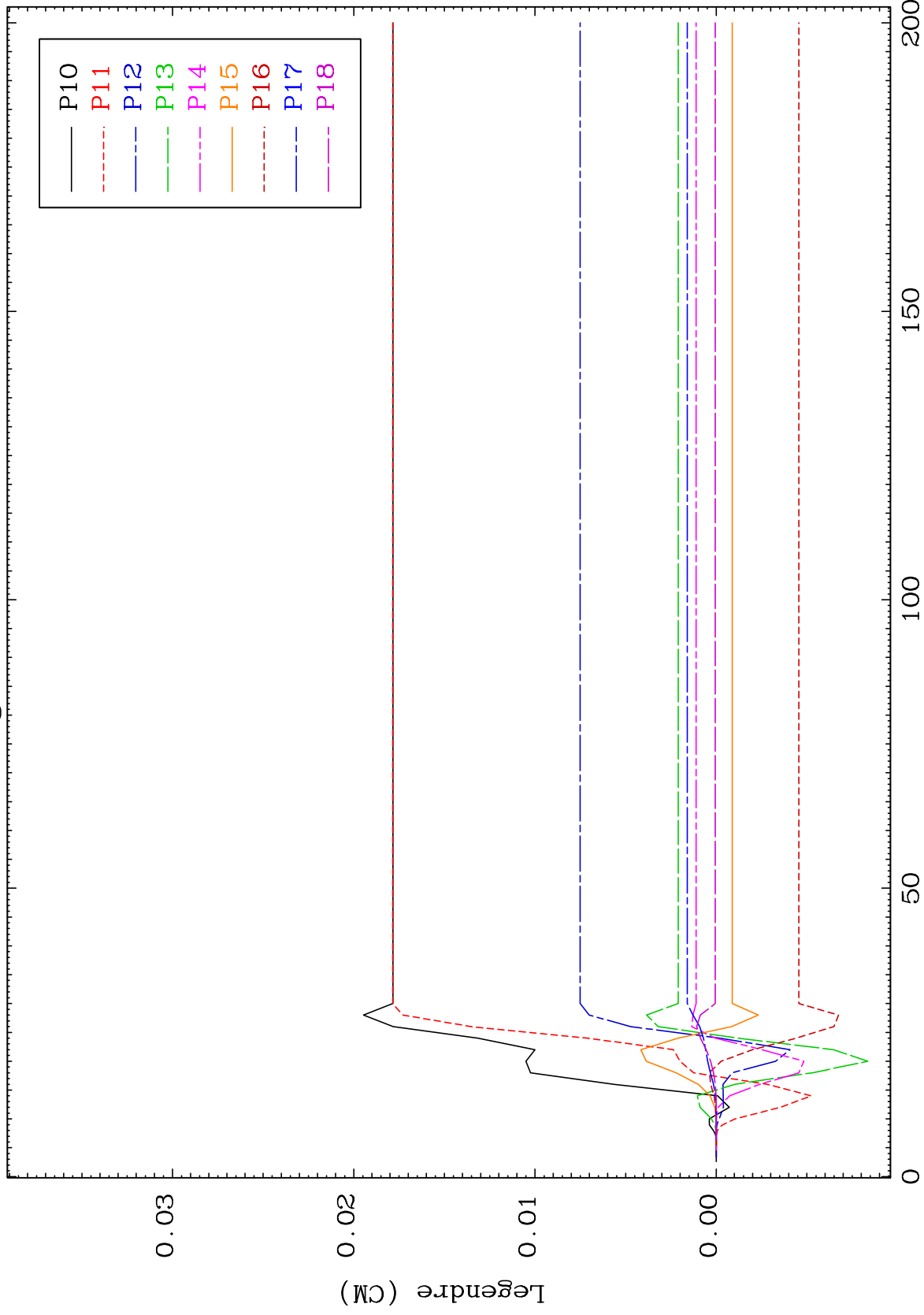
127



MAT 5652

MT= 78 (n,n') Level  
Legendre Coefficients

56-Ba-139



128

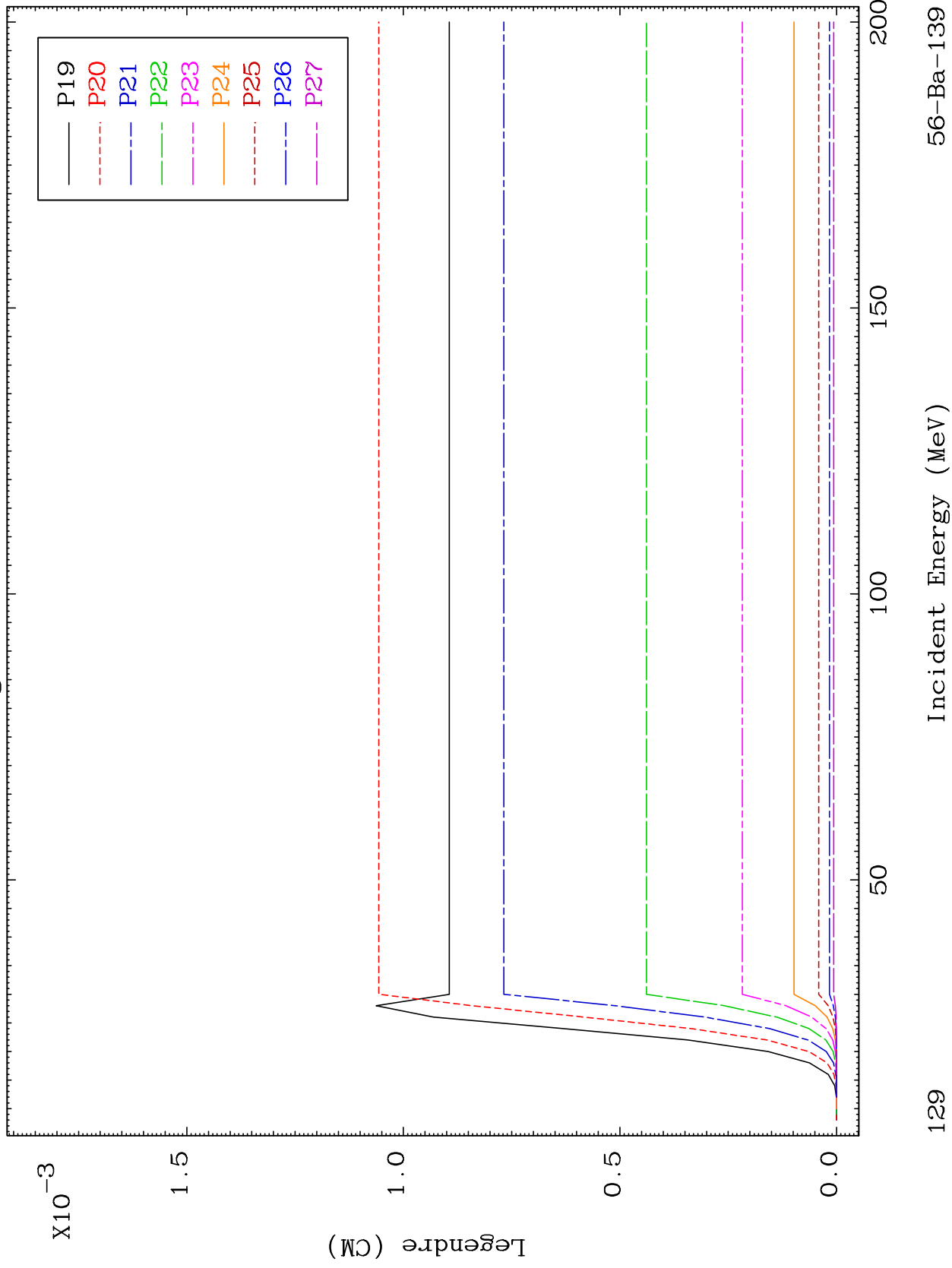
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 78 (n,n') Level  
Legendre Coefficients

56-Ba-139

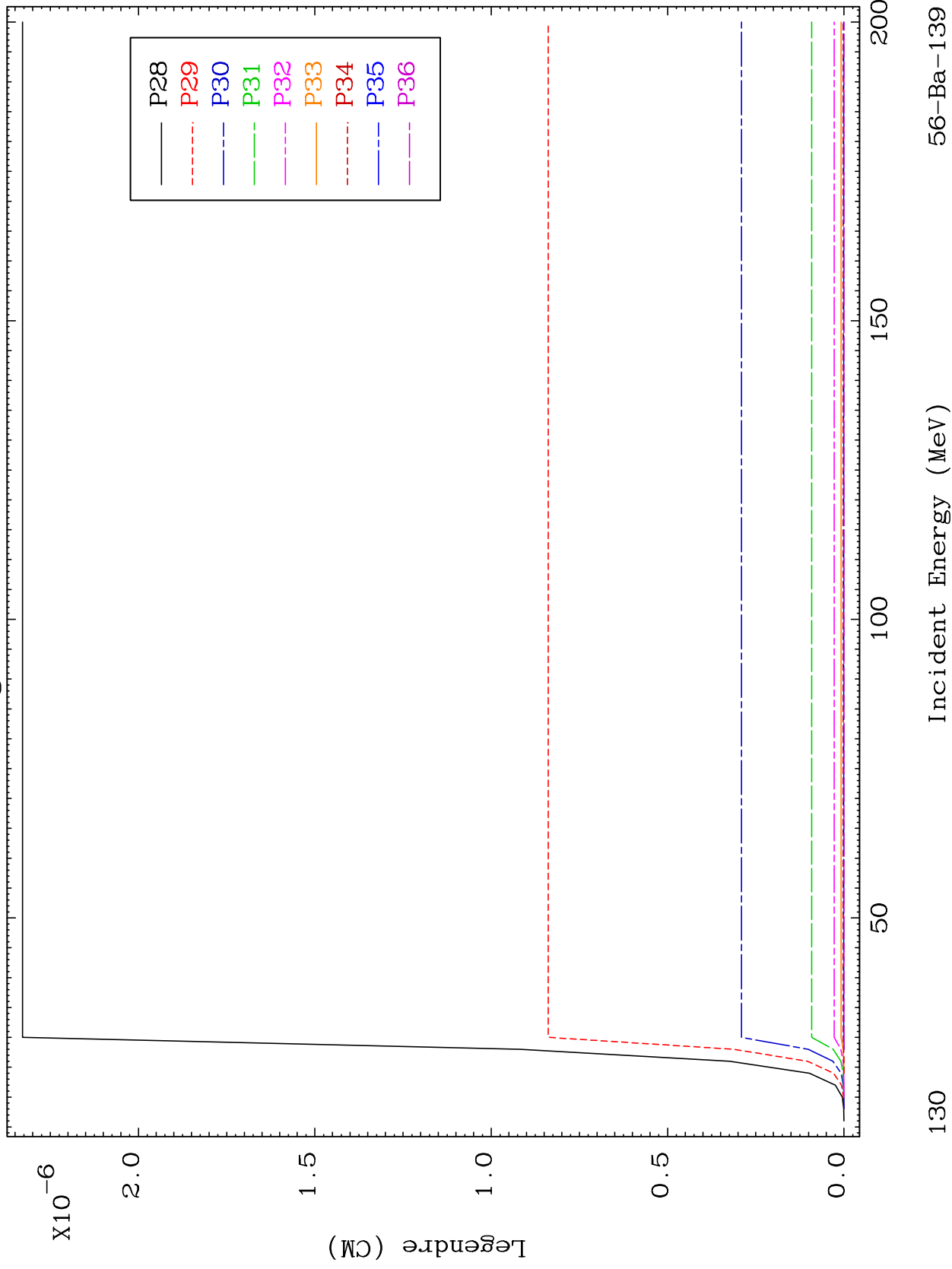


129

MAT 5652

MT= 78 (n,n') Level  
Legendre Coefficients

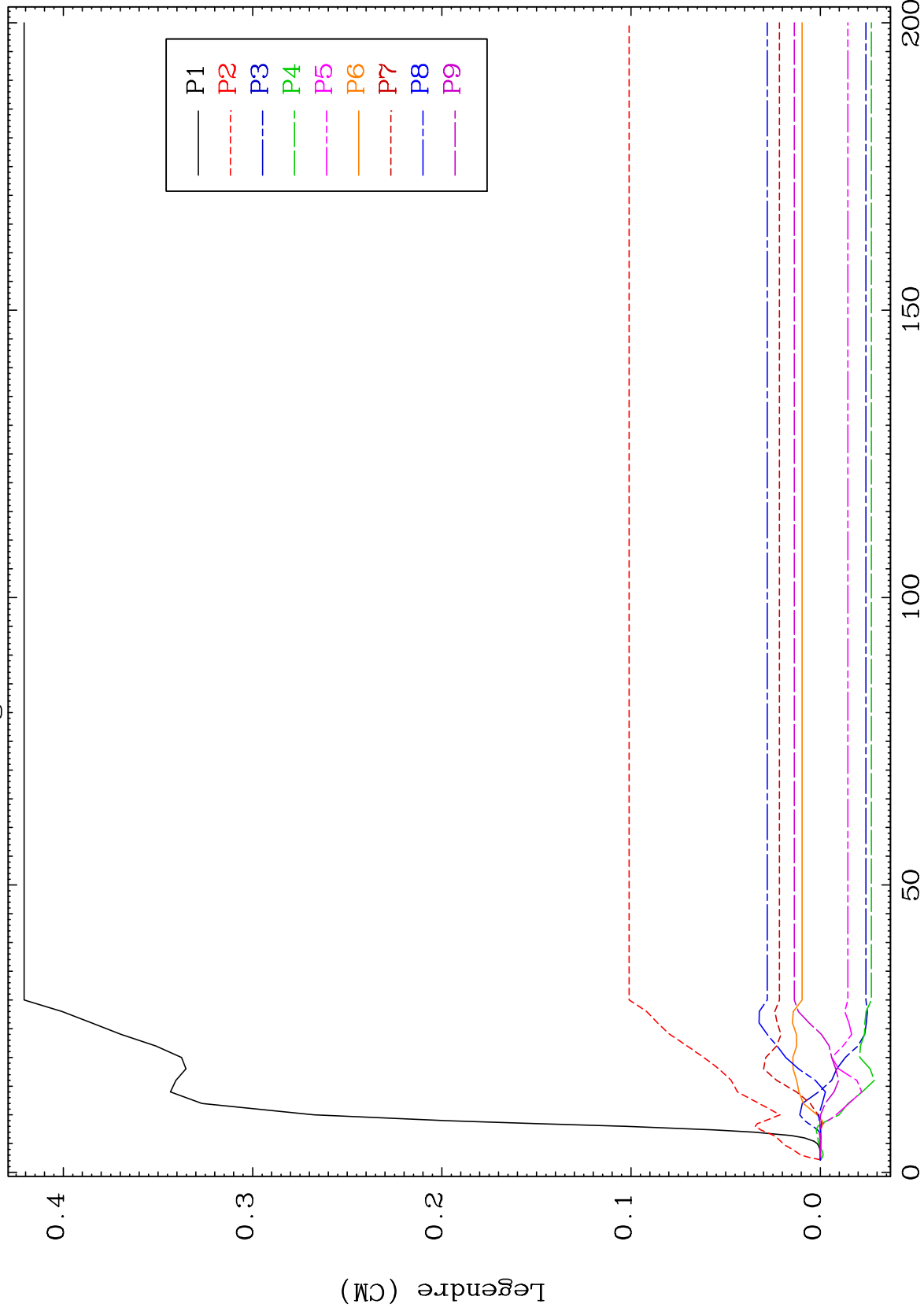
56-Ba-139



MAT 5652

MT= 79 (n,n') Level  
Legendre Coefficients

56-Ba-139



131

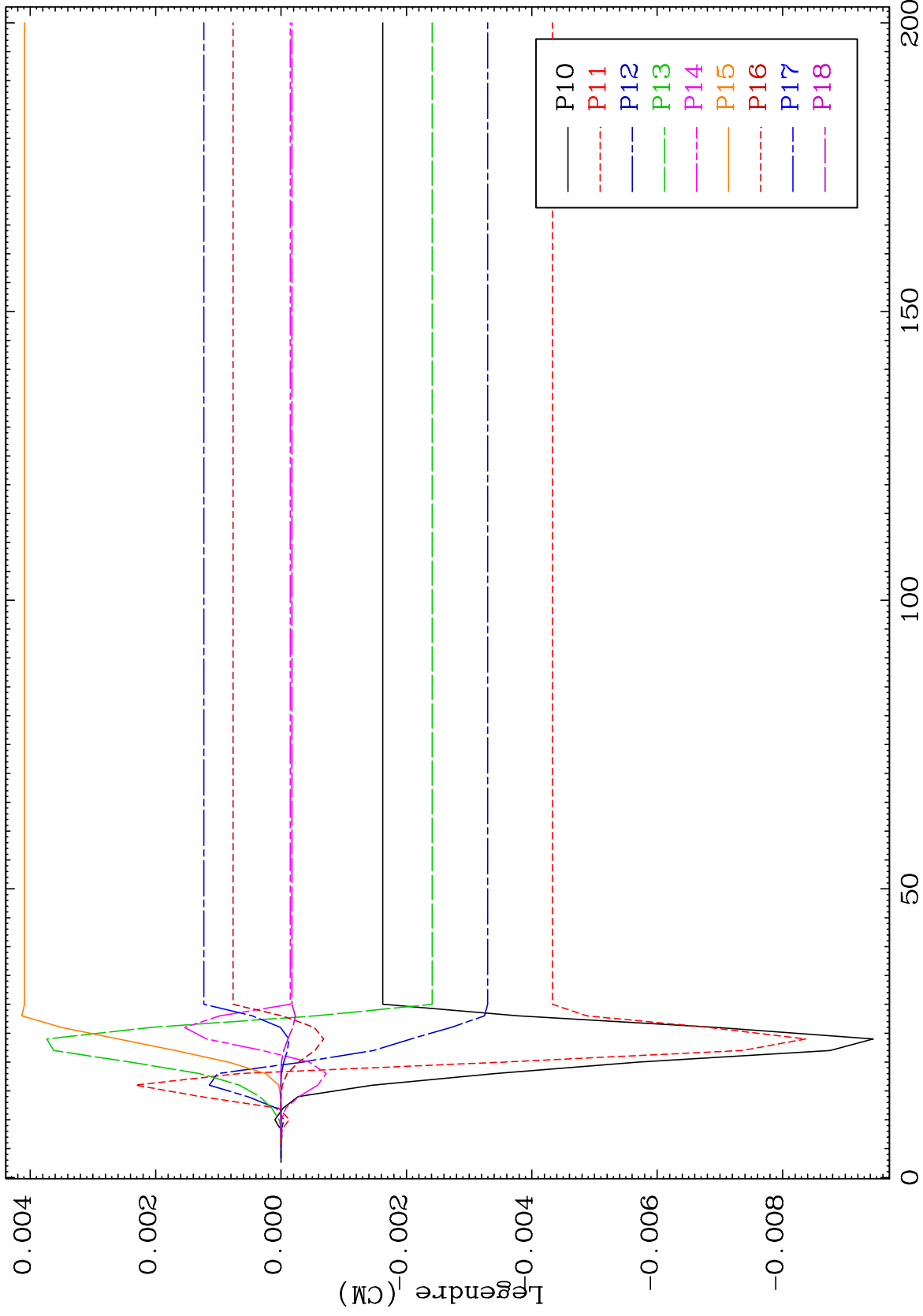
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 79 (n,n') Level  
Legendre Coefficients

56-Ba-139



132

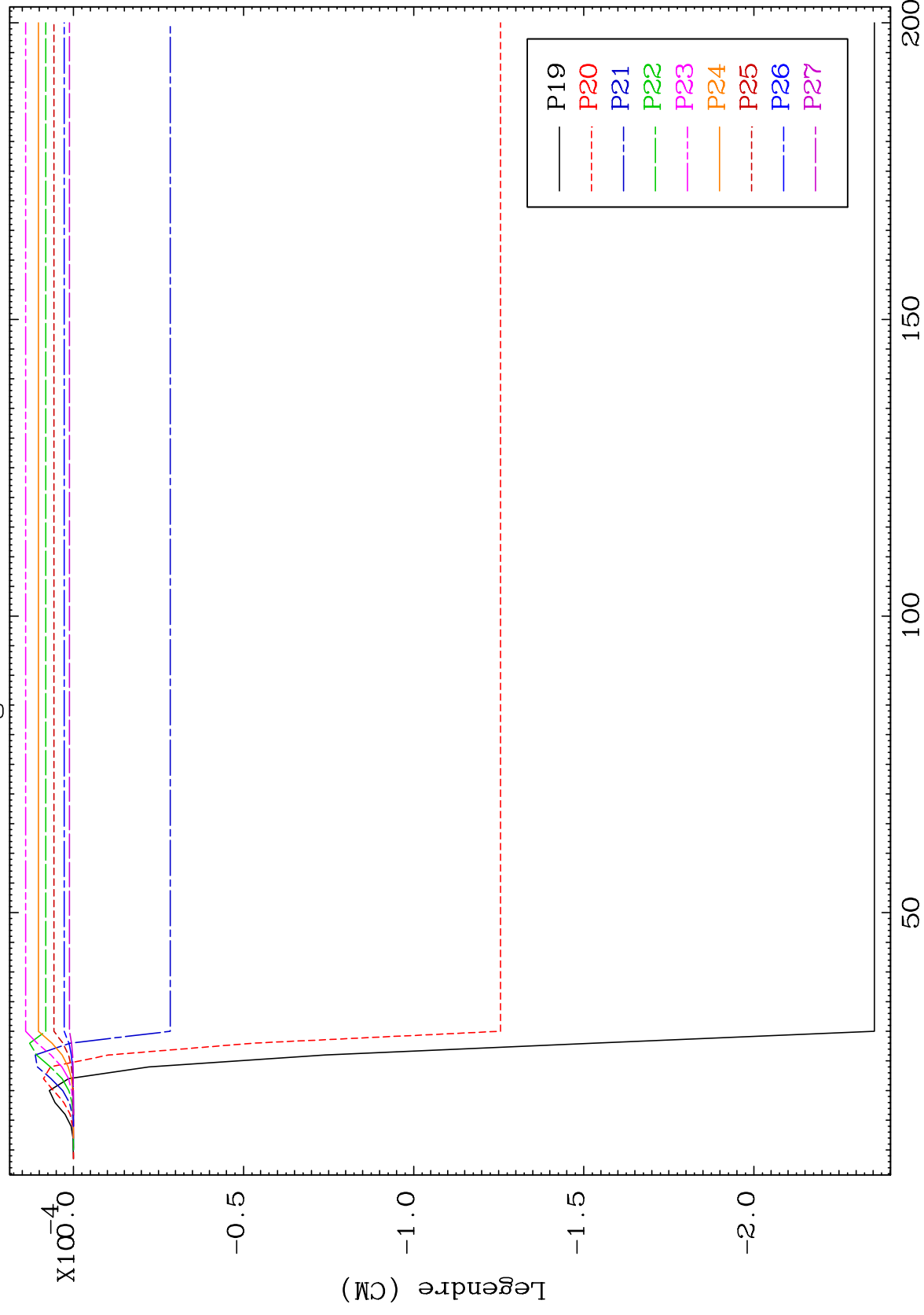
Incident Energy (MeV)

56-Ba-139

MAT 5652

MT= 79 (n,n') Level  
Legendre Coefficients

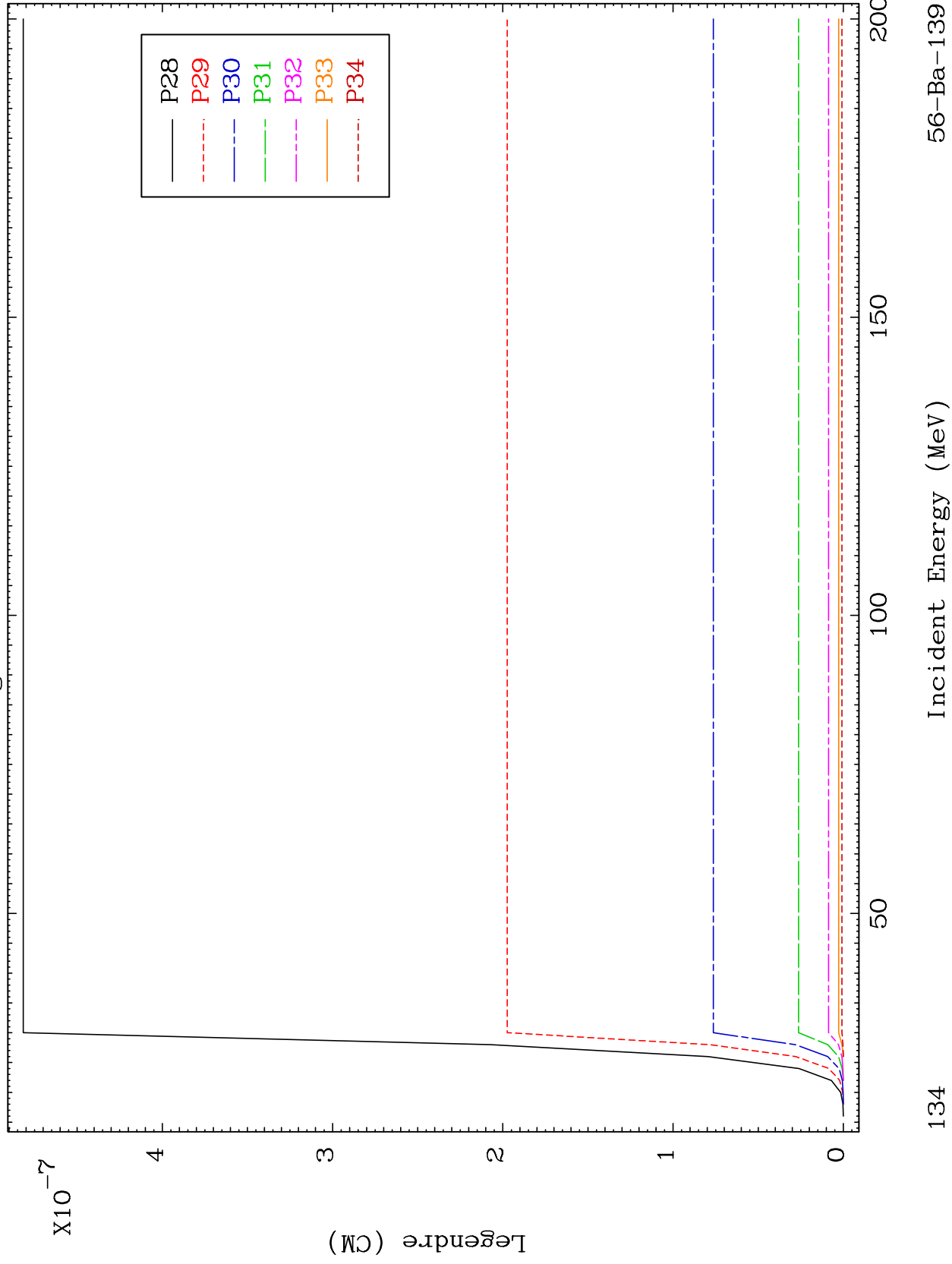
56-Ba-139



MAT 5652

MT= 79 (n,n') Level  
Legendre Coefficients

56-Ba-139

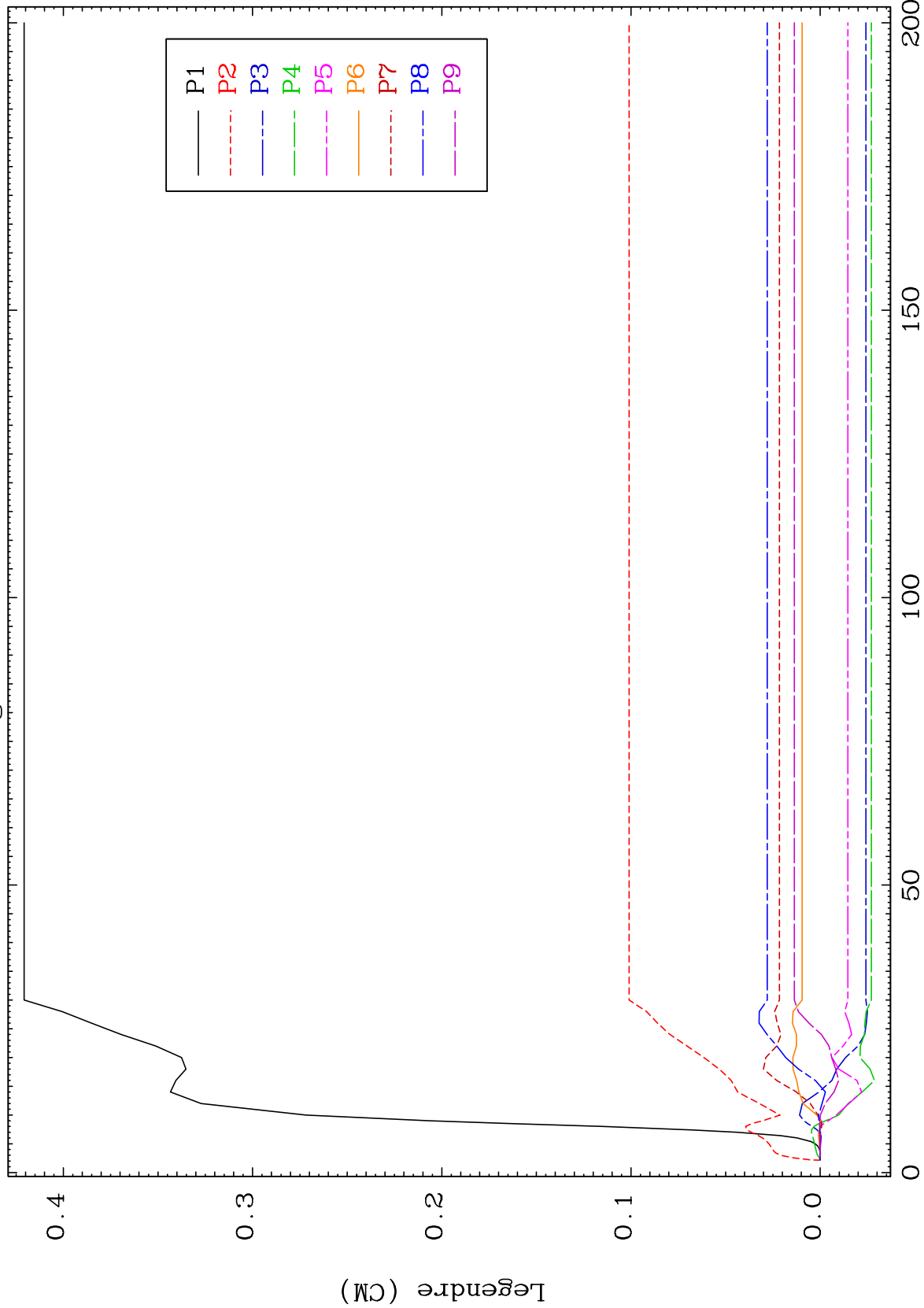


134

MAT 5652

MT= 80 (n,n') Level  
Legendre Coefficients

56-Ba-139



56-Ba-139

Incident Energy (MeV)

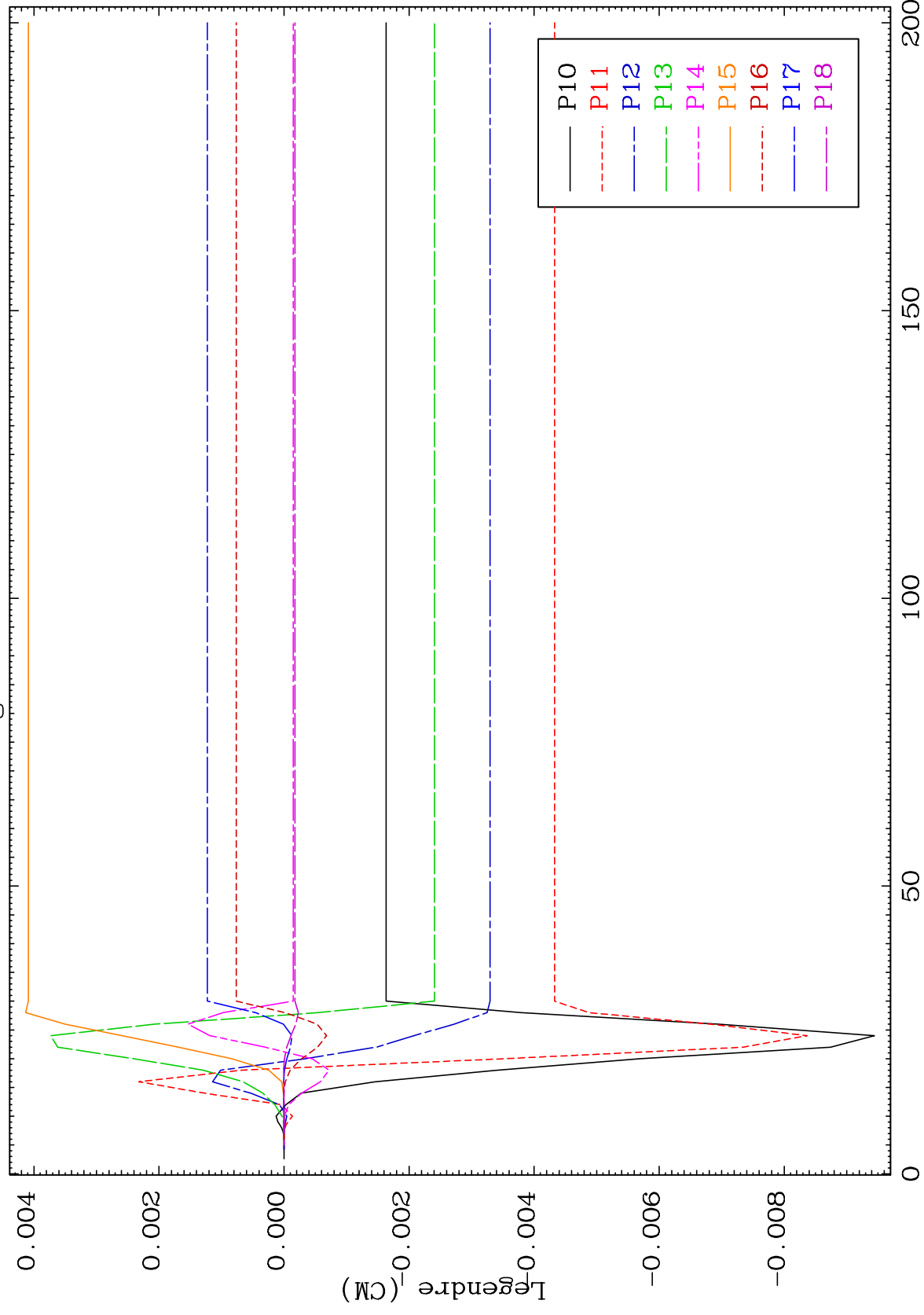
135



MAT 5652

MT= 80 (n,n') Level  
Legendre Coefficients

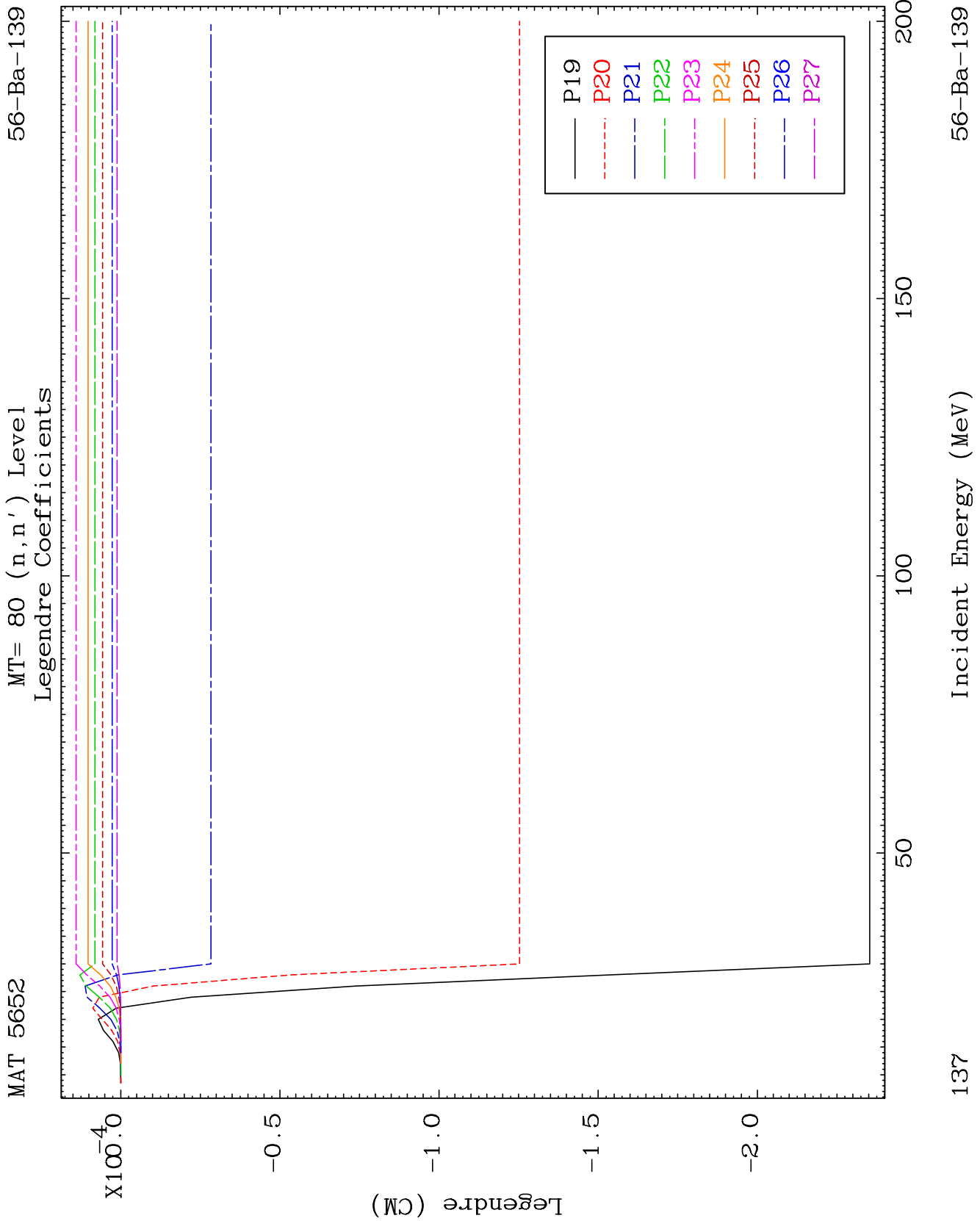
56-Ba-139



136

Incident Energy (MeV)

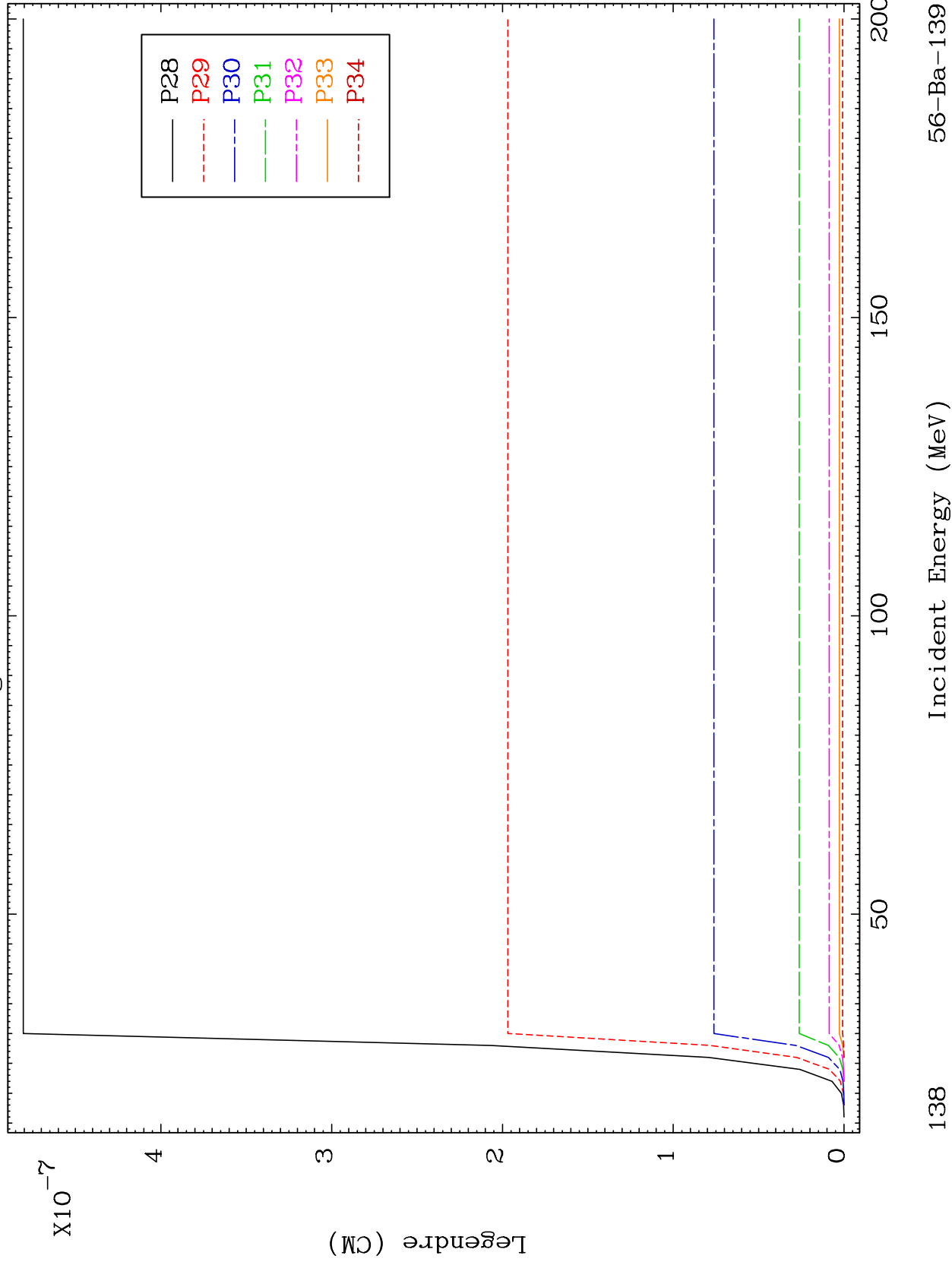
56-Ba-139



MAT 5652

MT= 80 (n,n') Level  
Legendre Coefficients

56-Ba-139

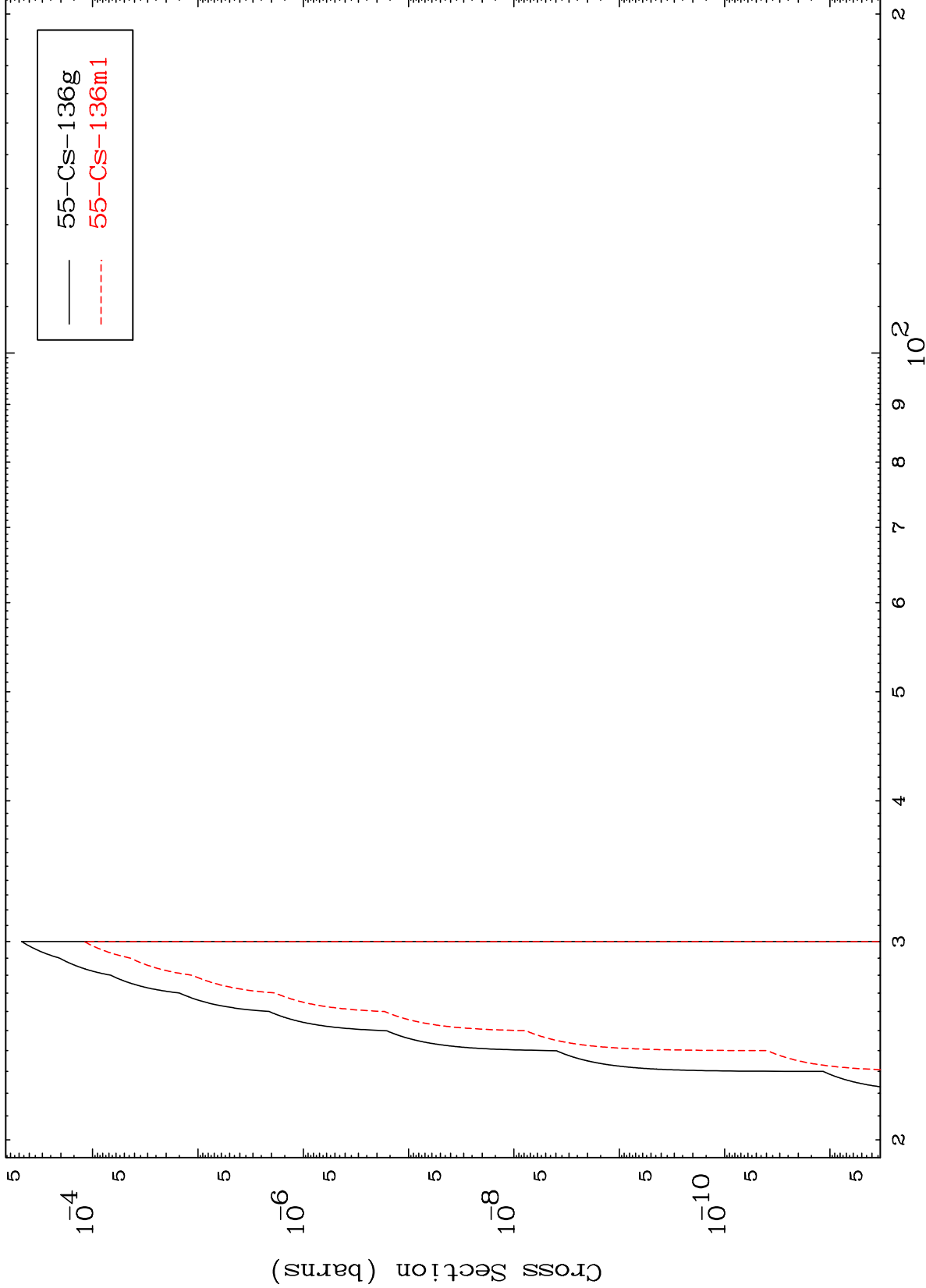


MAT 5652

(n,2n) d

56-Ba-139

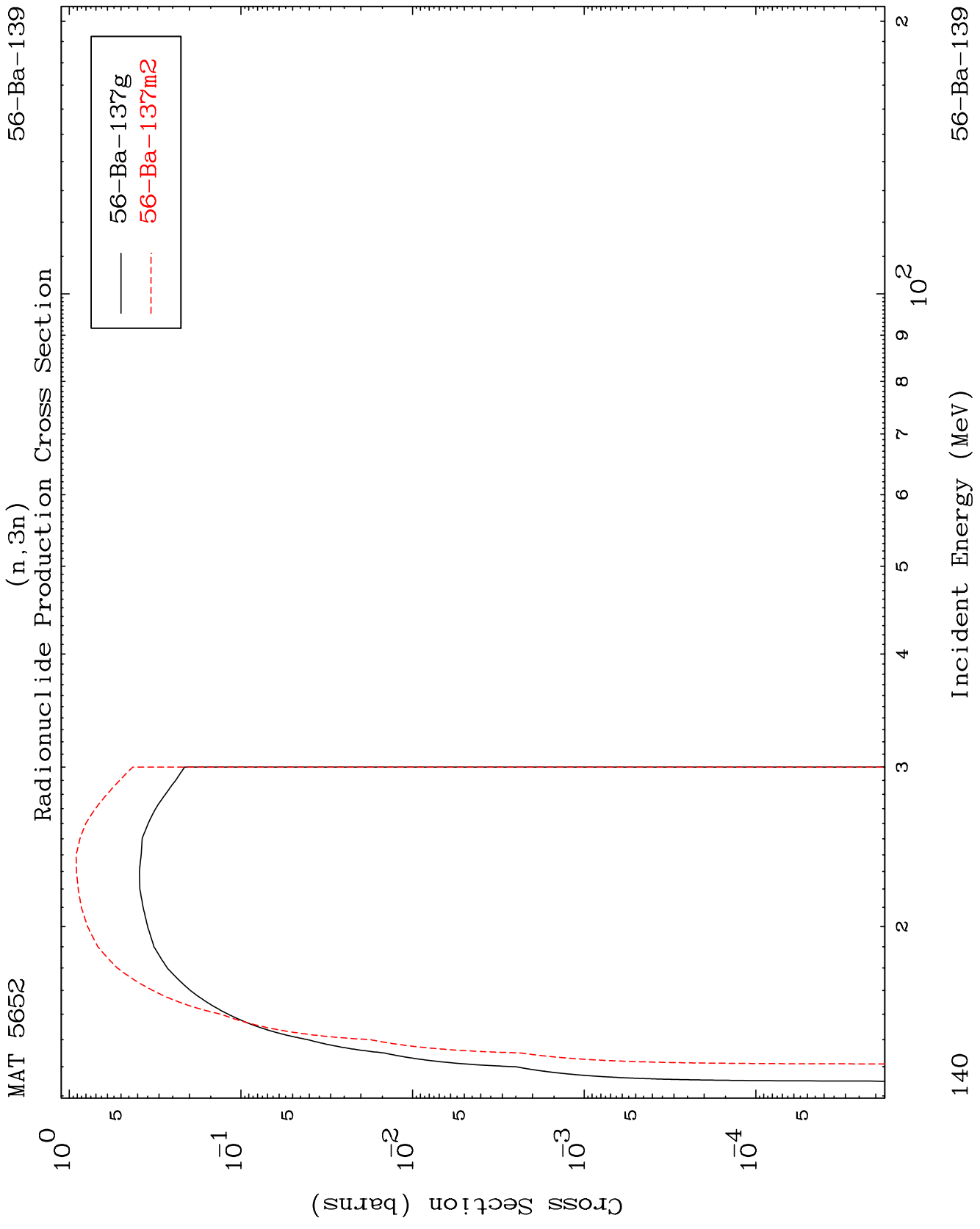
Radionuclide Production Cross Section



139

Incident Energy (MeV)

56-Ba-139

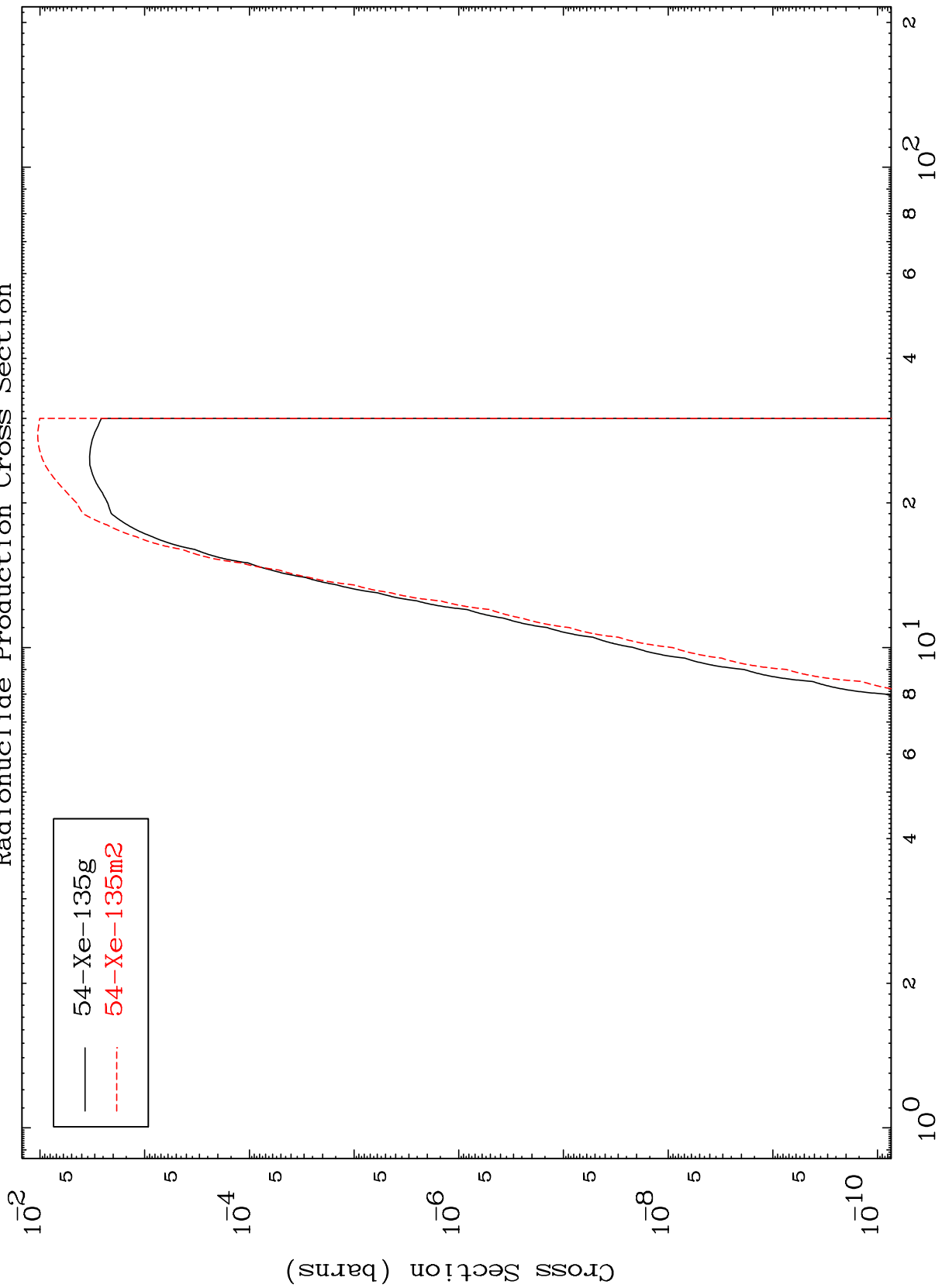


MAT 5652

(n,n')  $\alpha$

56-Ba-139

Radionuclide Production Cross Section



141

Incident Energy (MeV)

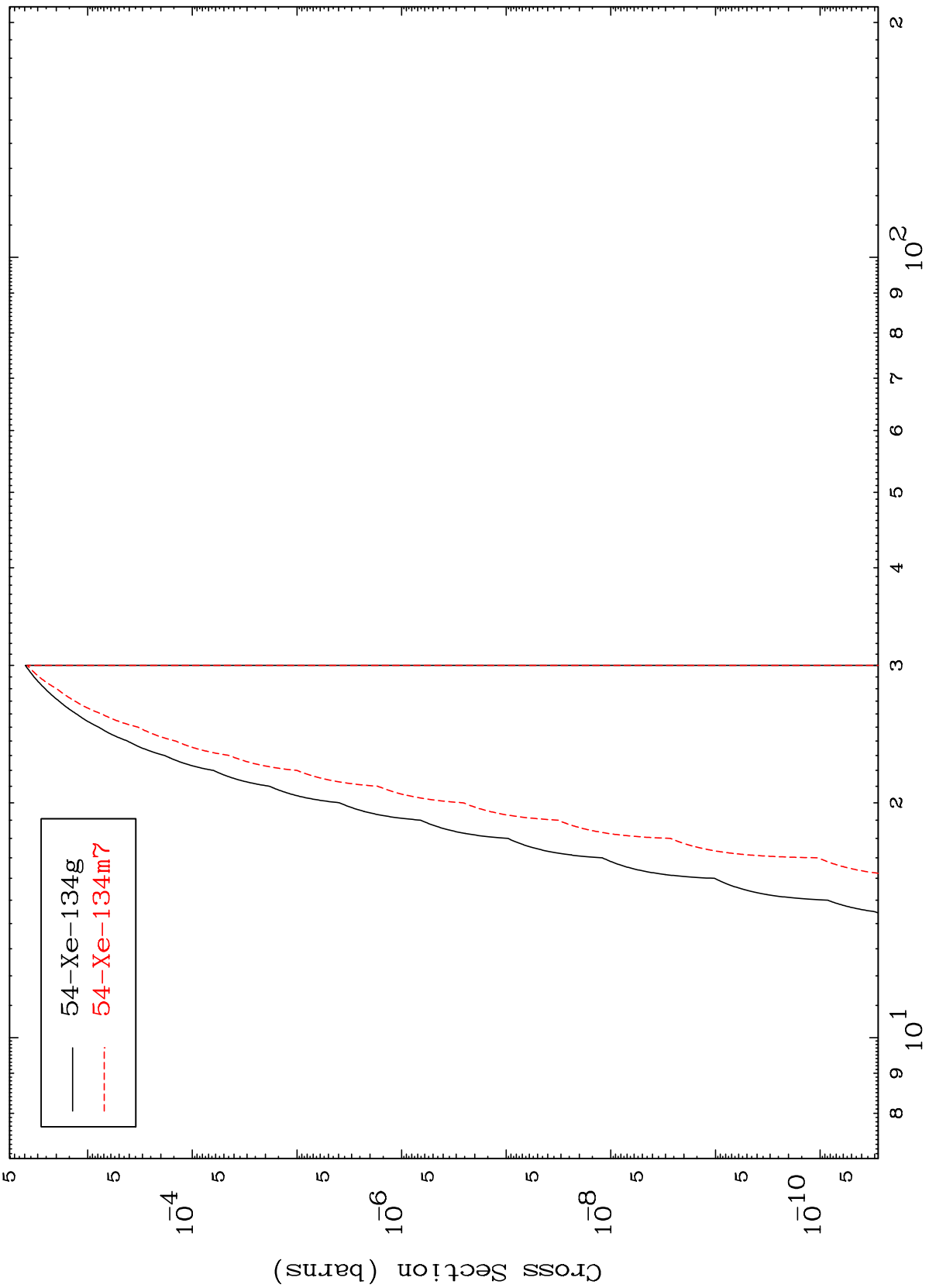
56-Ba-139

MAT 5652

(n,2n)  $\alpha$

56-Ba-139

Radionuclide Production Cross Section



142

Incident Energy (MeV)

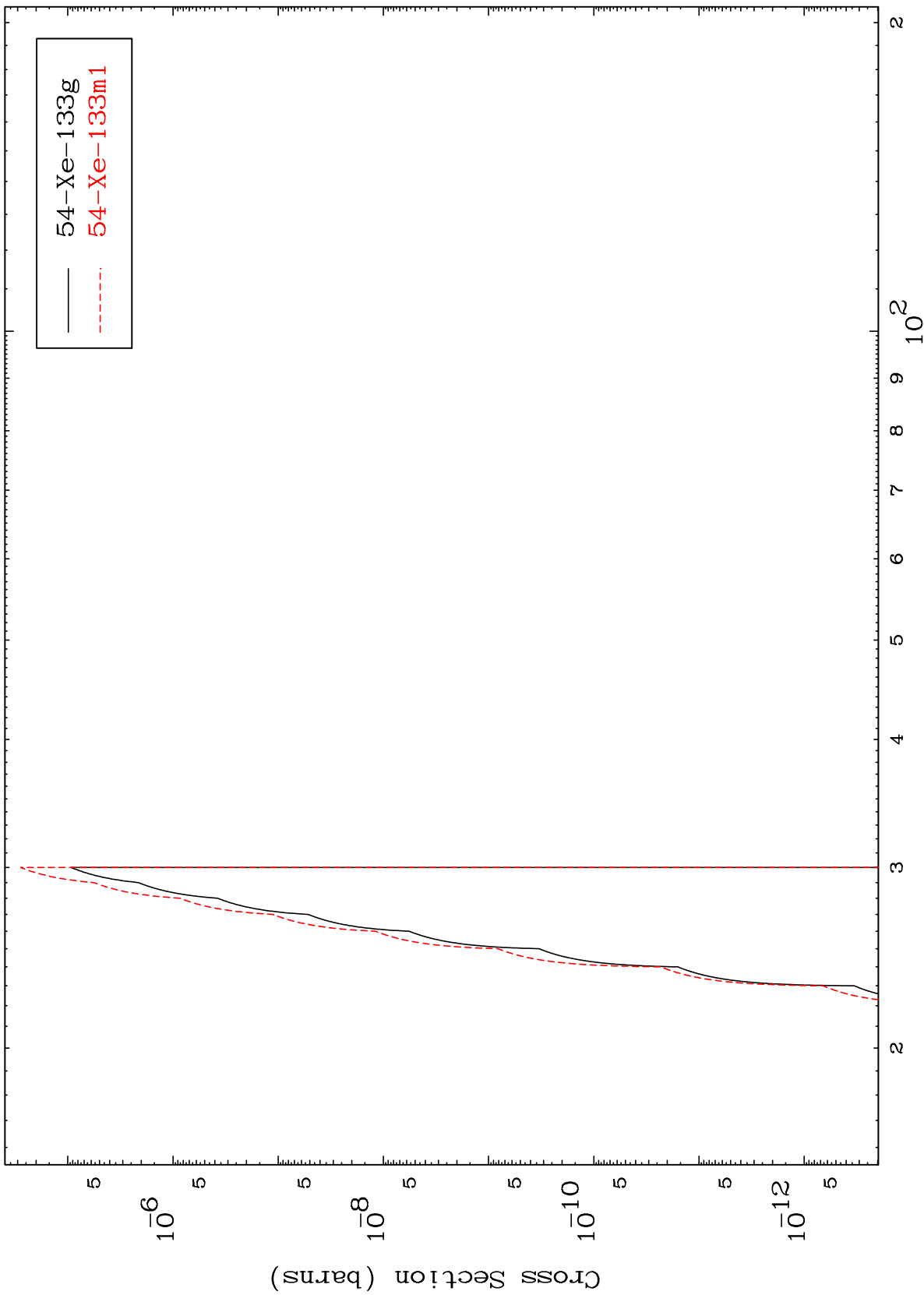
56-Ba-139

MAT 5652

$(n,3n) \alpha$

56-Ba-139

Radionuclide Production Cross Section



143

Incident Energy (MeV)

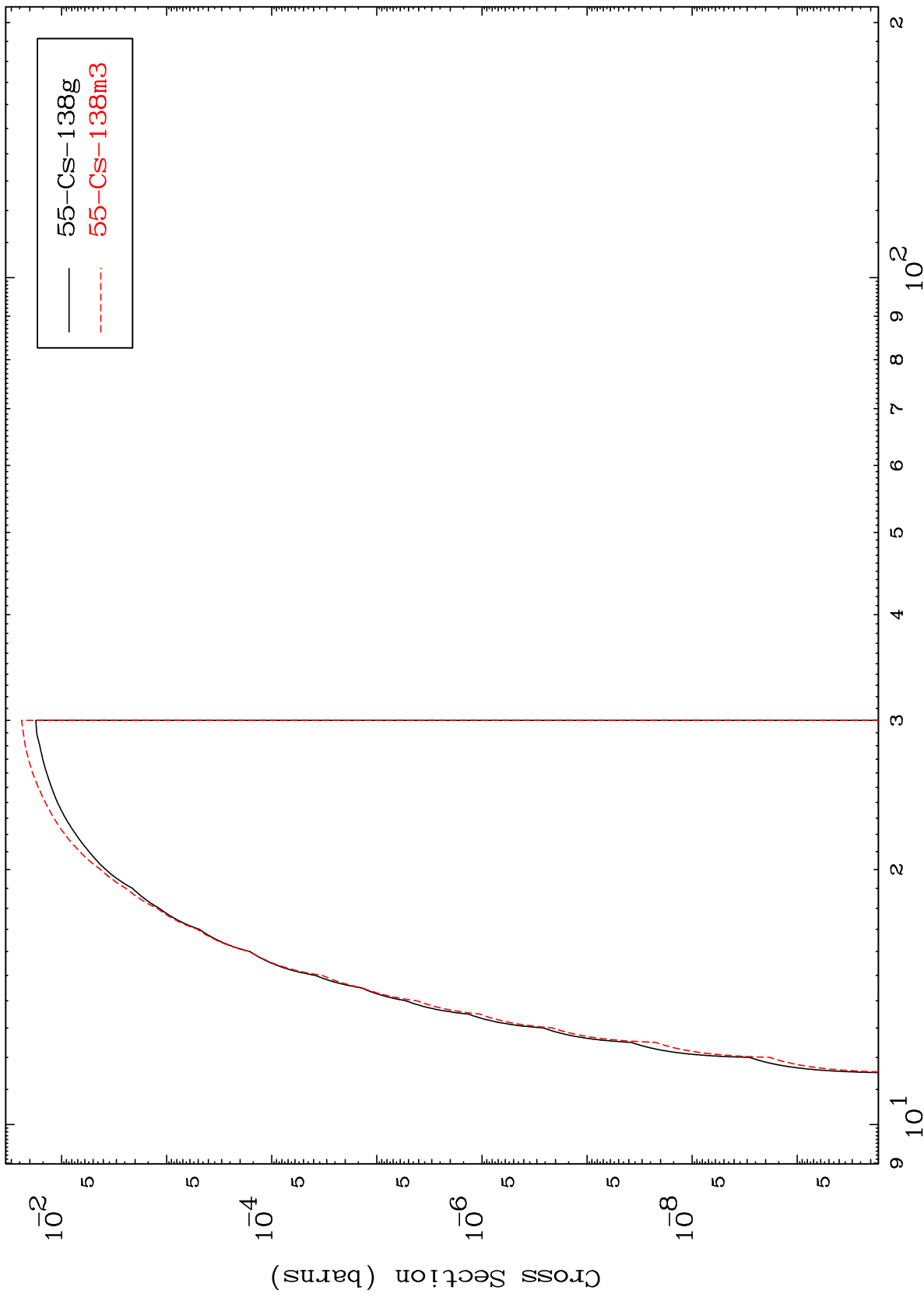
56-Ba-139



MAT 5652

56-Ba-139

(n,n') p  
Radionuclide Production Cross Section



55-Cs-138g  
55-Cs-138m3

56-Ba-139

Incident Energy (MeV)

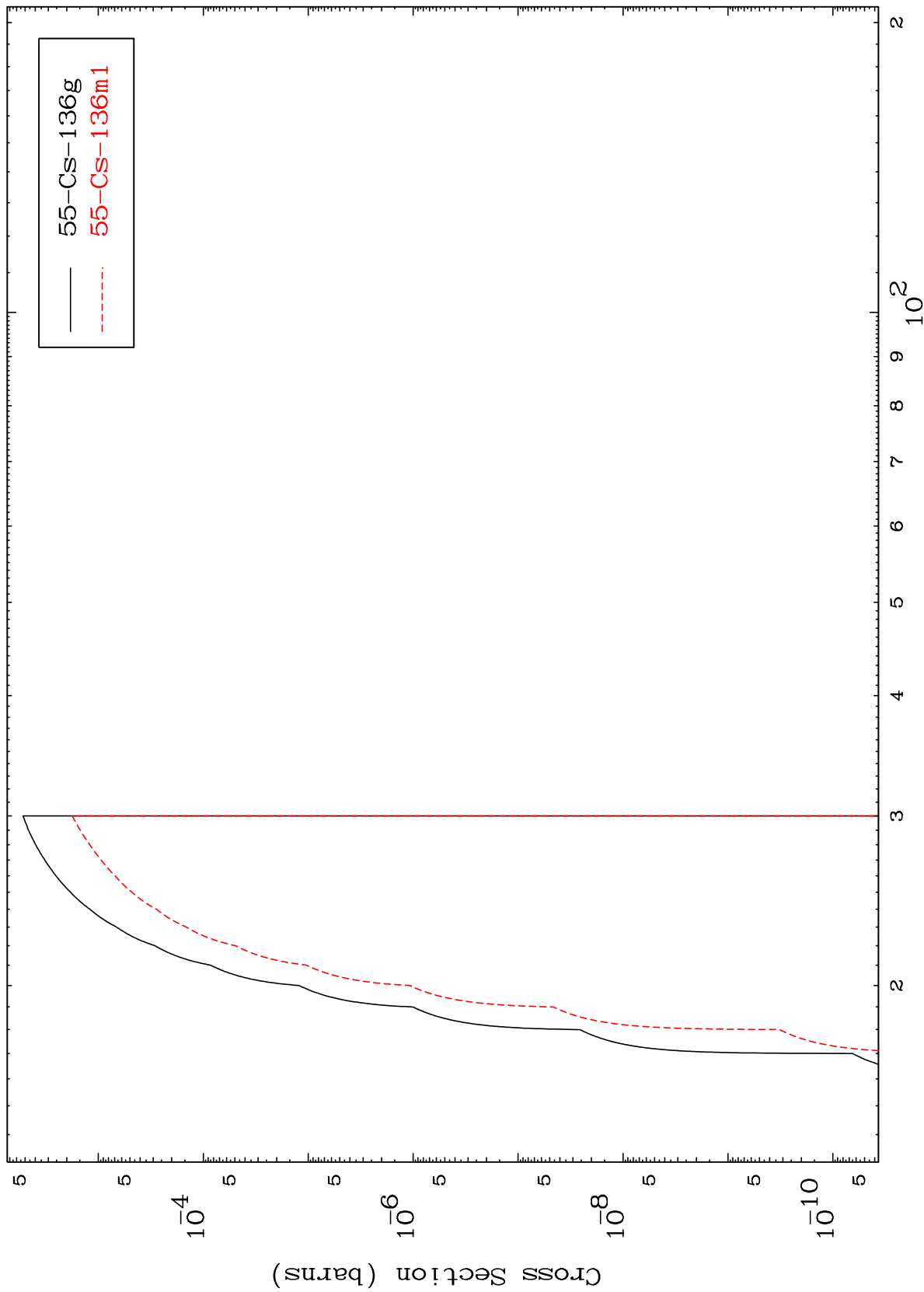
144

MAT 5652

(n,n') t

56-Ba-139

Radionuclide Production Cross Section



145

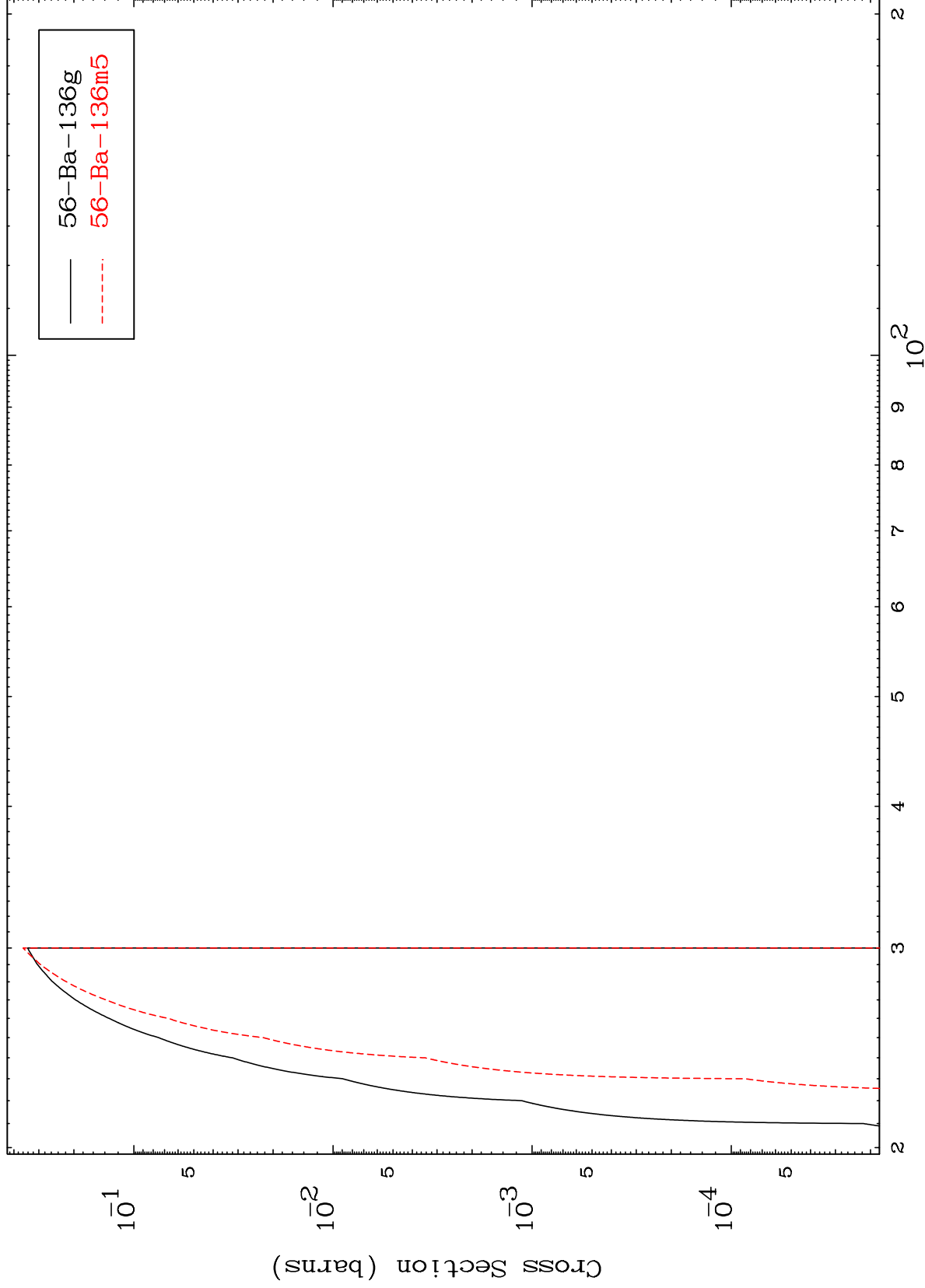
Incident Energy (MeV)

56-Ba-139

MAT 5652

56-Ba-139

(n,4n)  
Radionuclide Production Cross Section



56-Ba-139

Incident Energy (MeV)

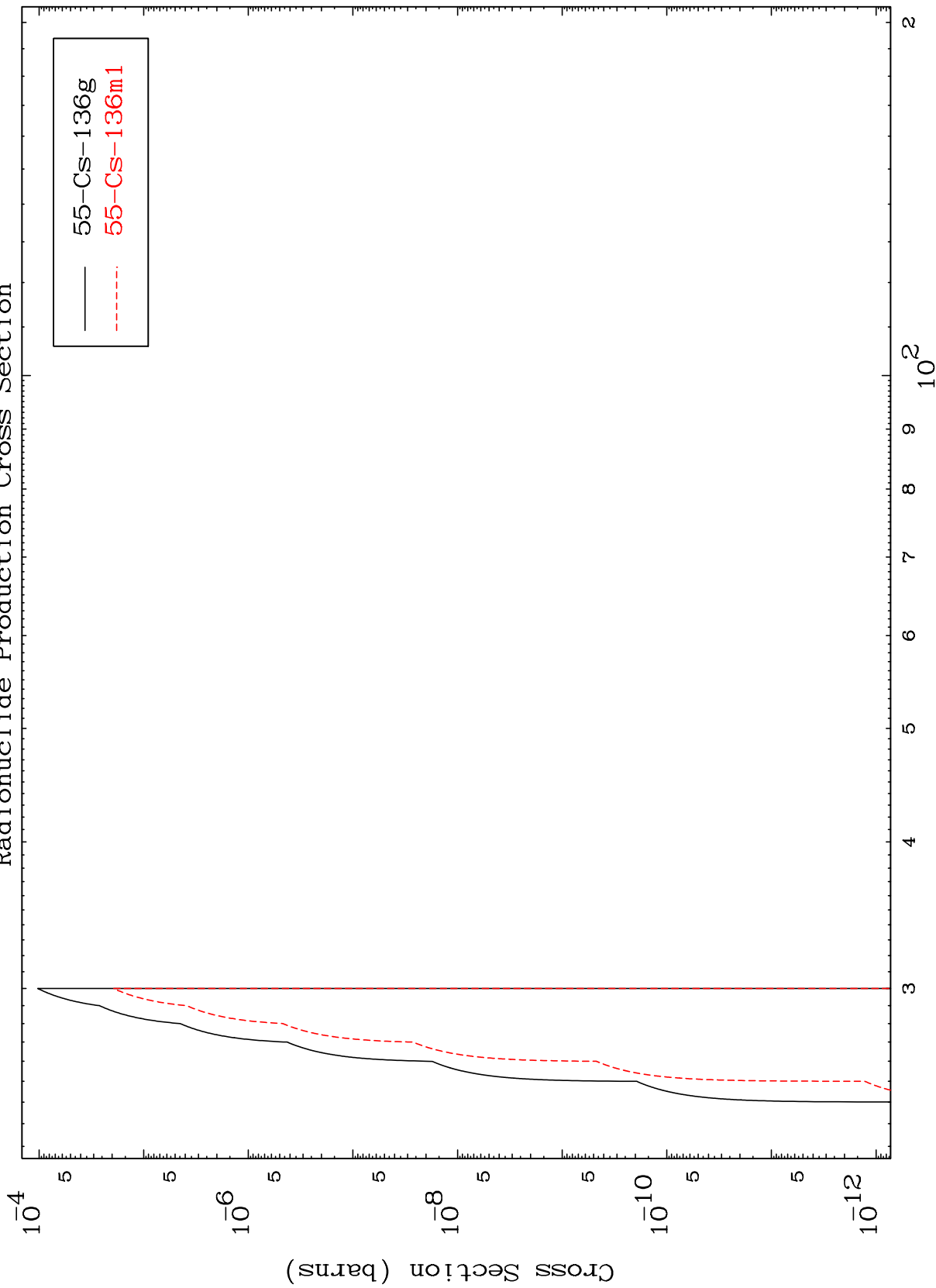
146

MAT 5652

(n,3n) p

56-Ba-139

Radionuclide Production Cross Section



147

Incident Energy (MeV)

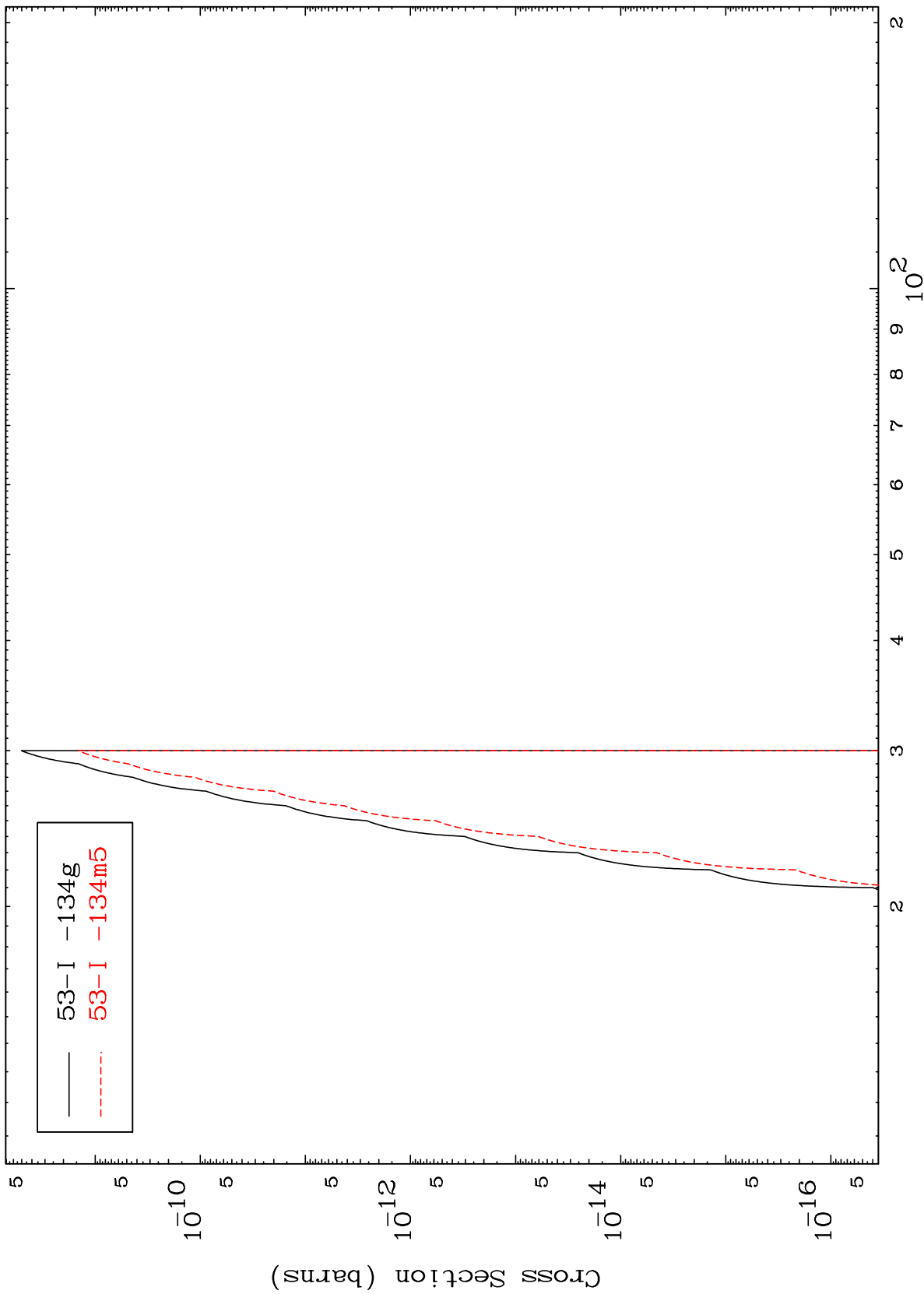
56-Ba-139

MAT 5652

(n,n') p  $\alpha$

56-Ba-139

Radionuclide Production Cross Section



148

Incident Energy (MeV)

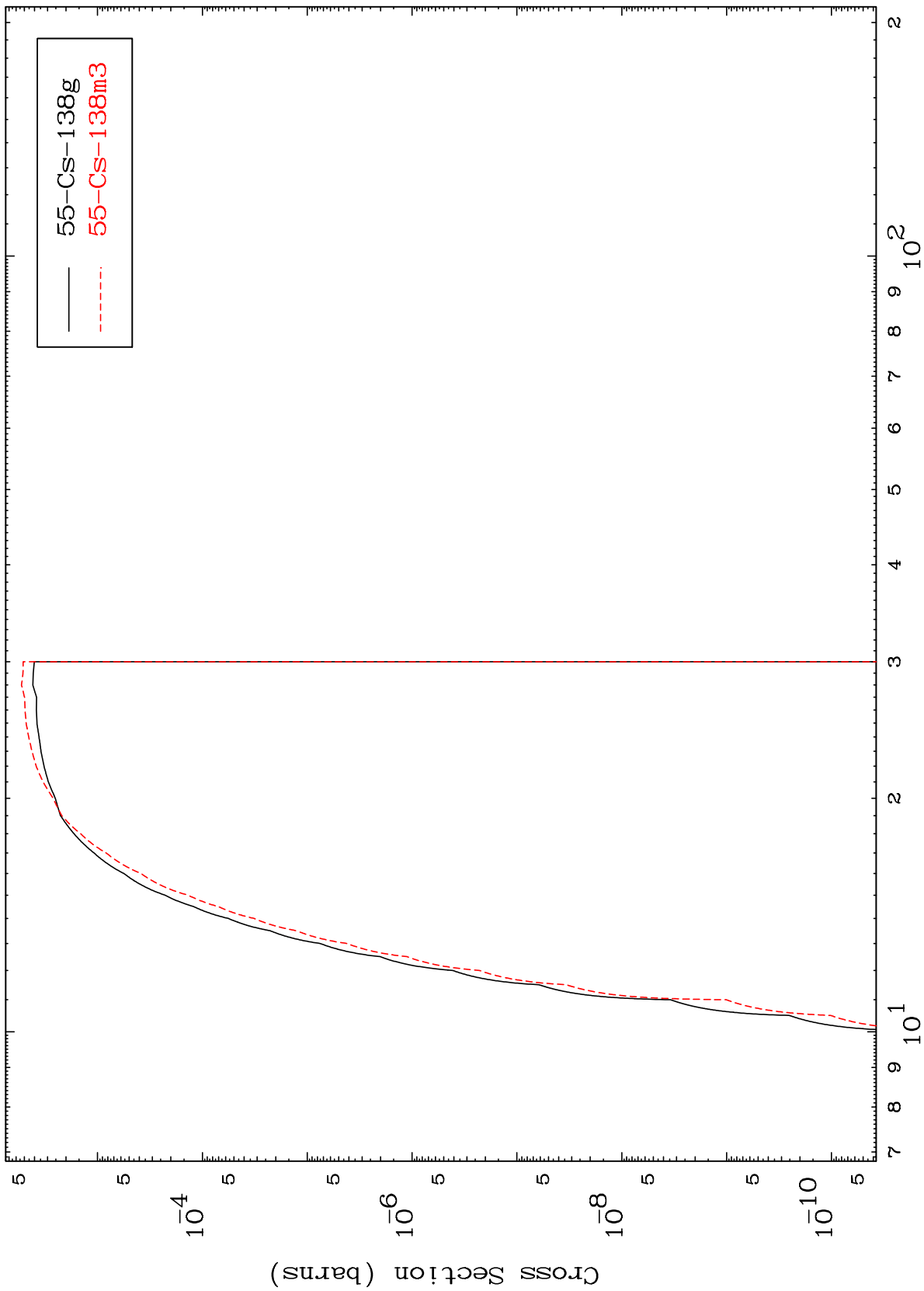
56-Ba-139

MAT 5652

(n,d)

56-Ba-139

Radionuclide Production Cross Section



149

Incident Energy (MeV)

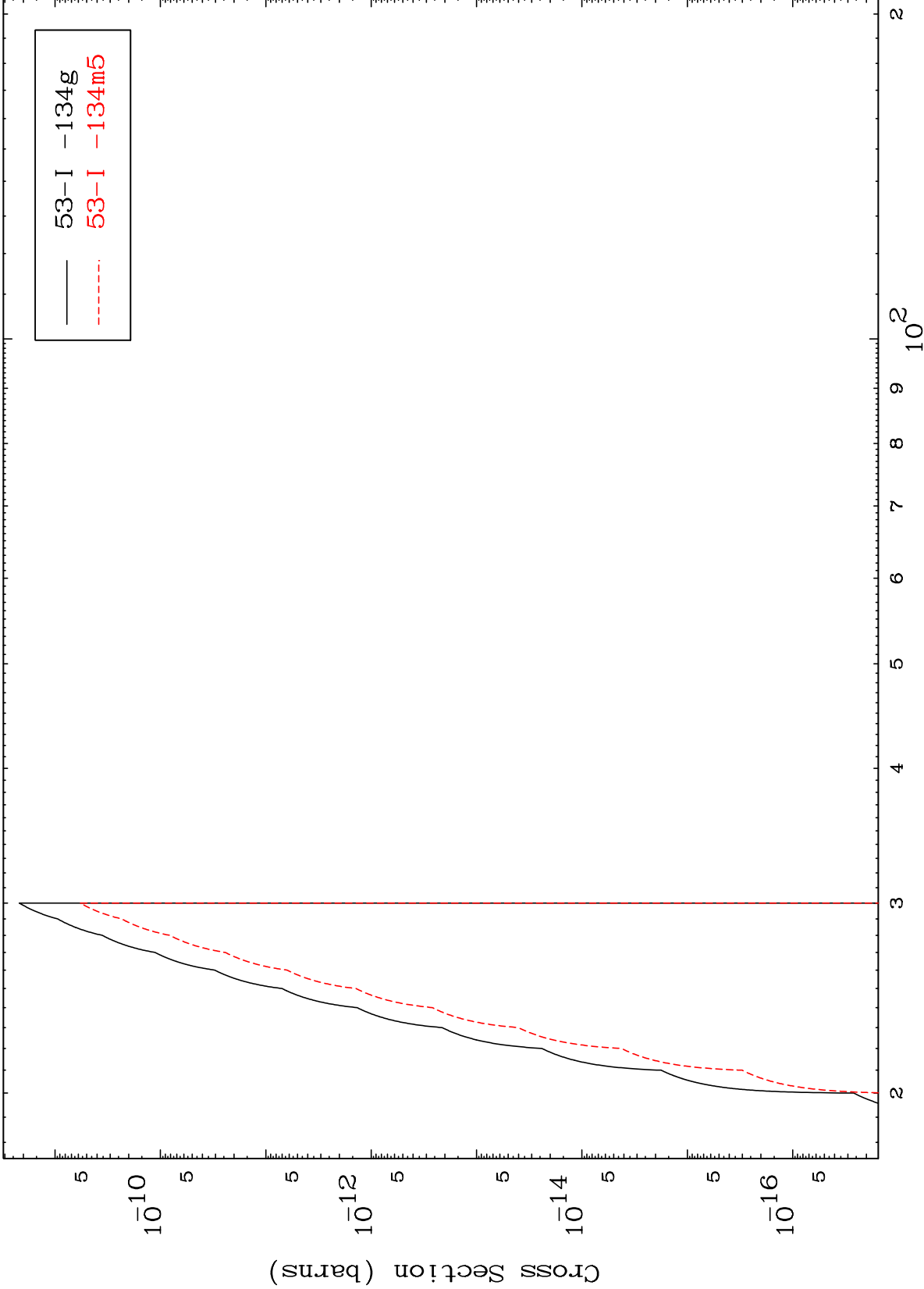
56-Ba-139

MAT 5652

(n,d)  $\alpha$

56-Ba-139

Radionuclide Production Cross Section



150

Incident Energy (MeV)

56-Ba-139