Main Cross Sections

Legend:
- Elastic (red)
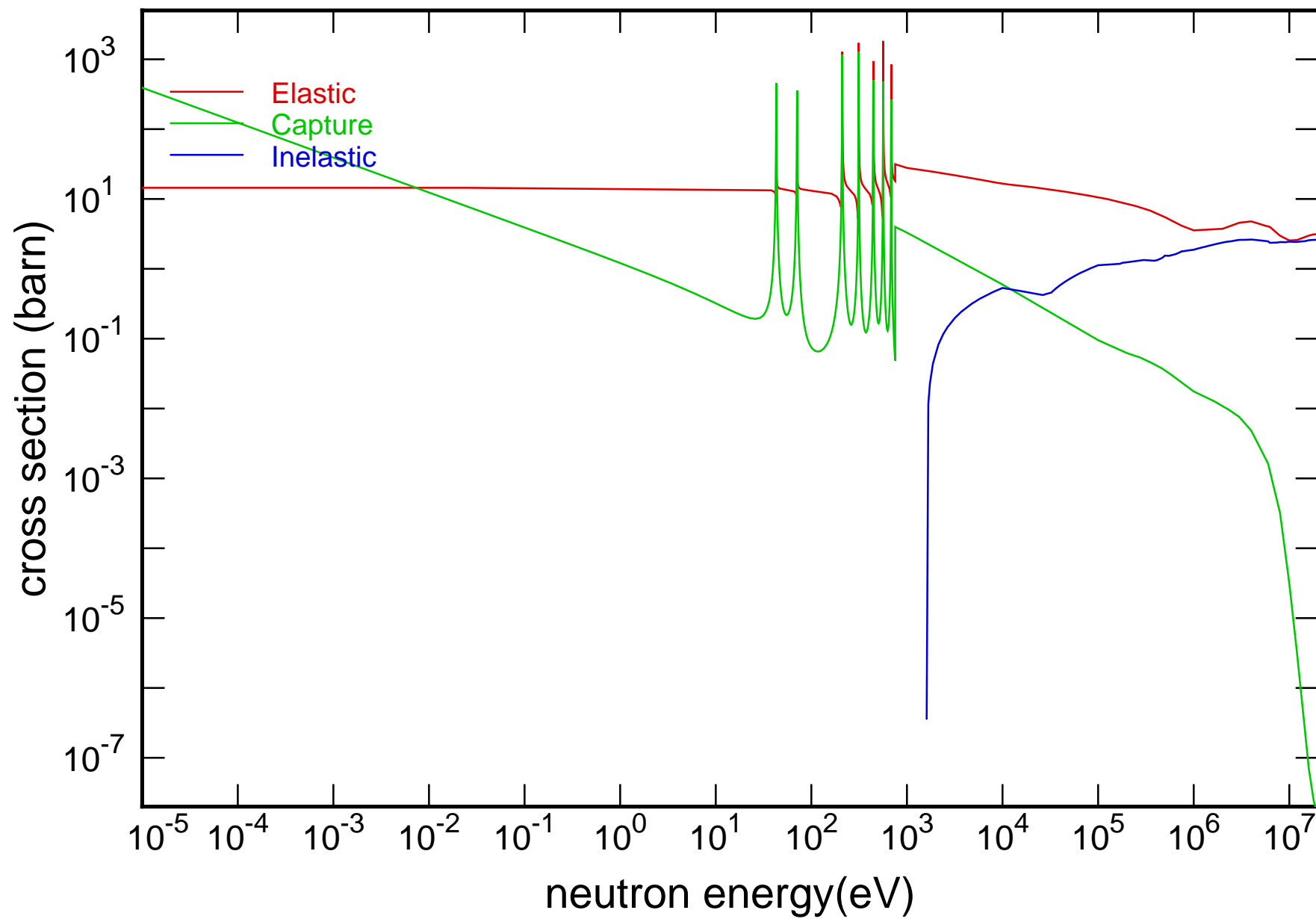- Capture (green)
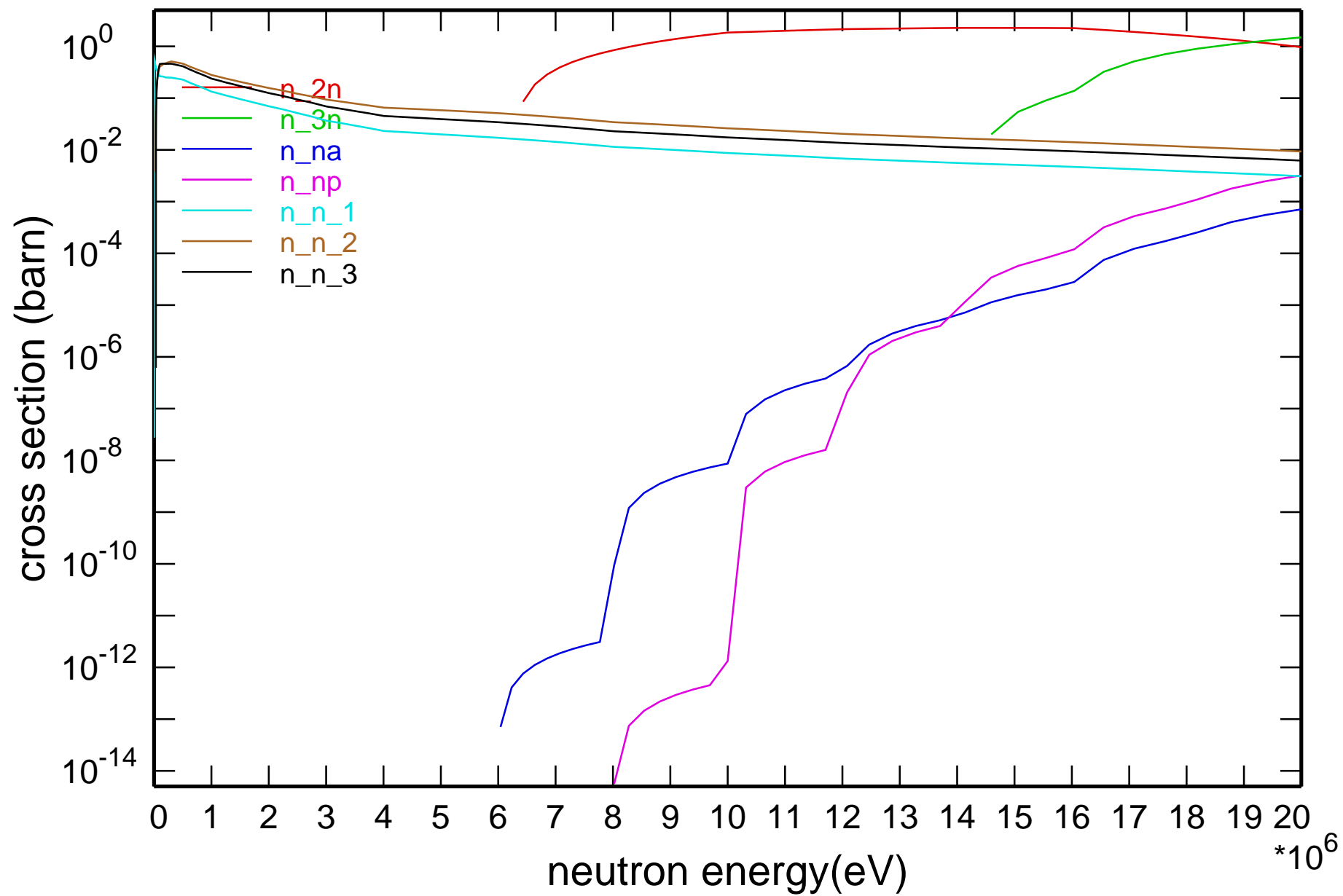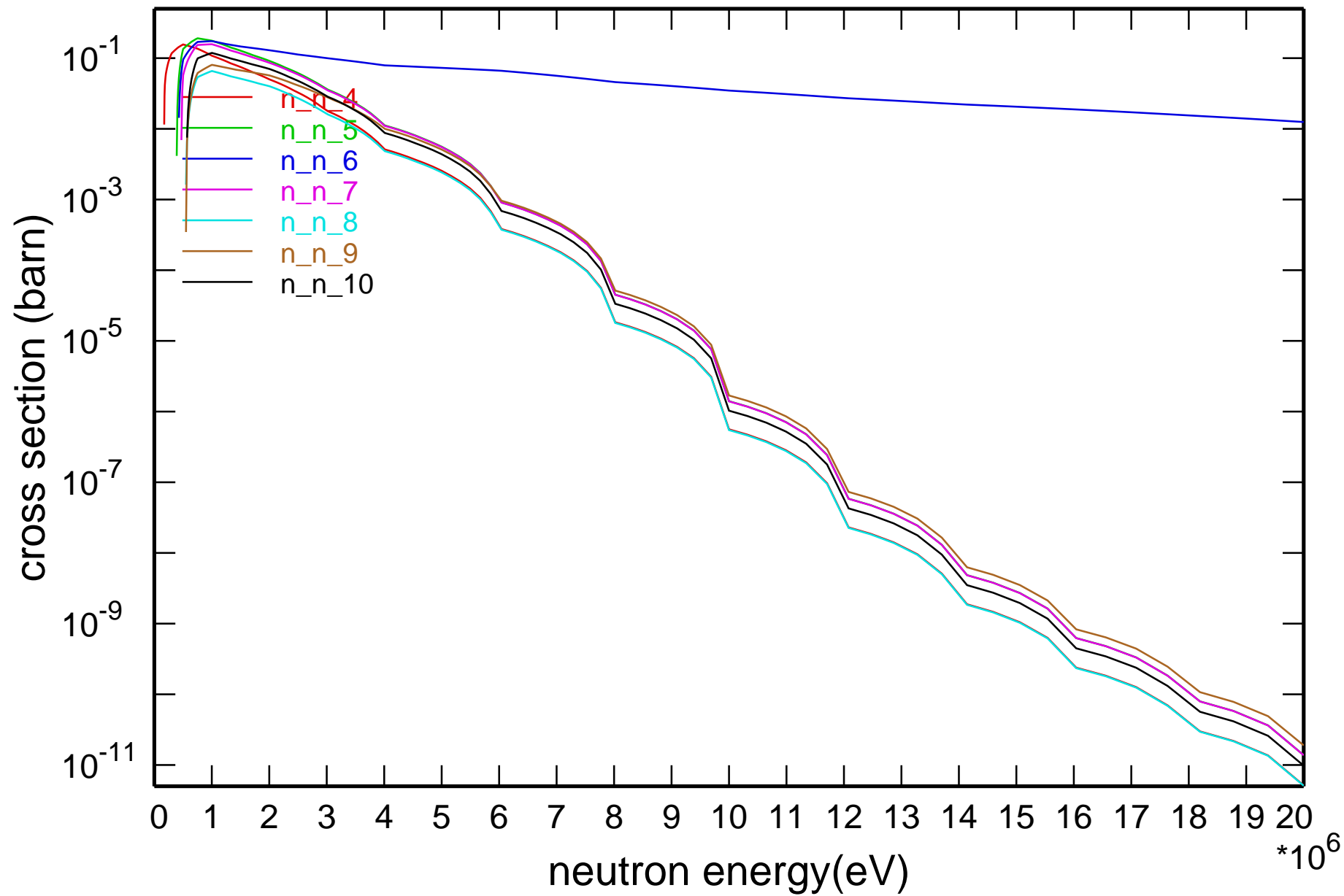- Inelastic (blue)

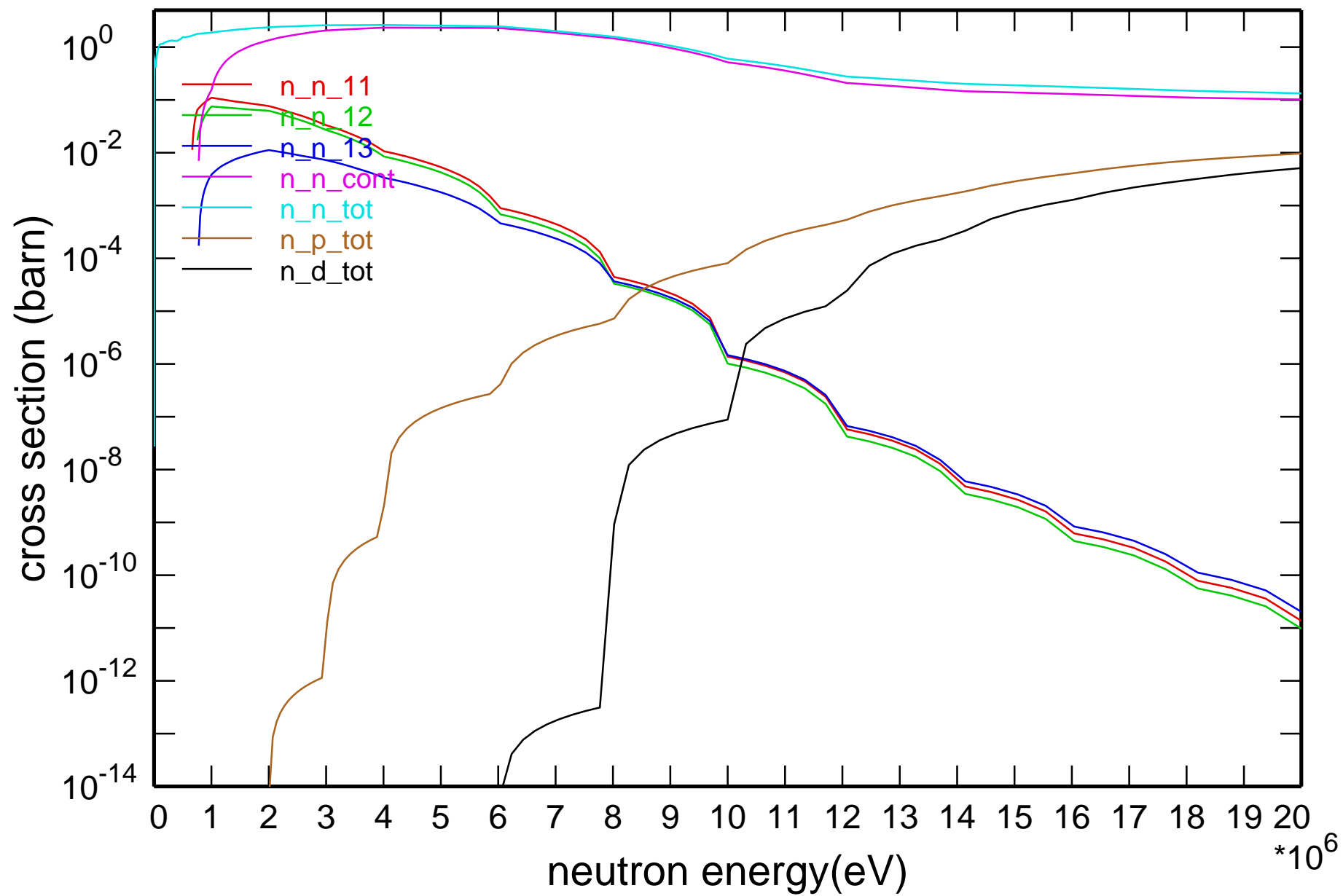Y-axis: cross section (barn)

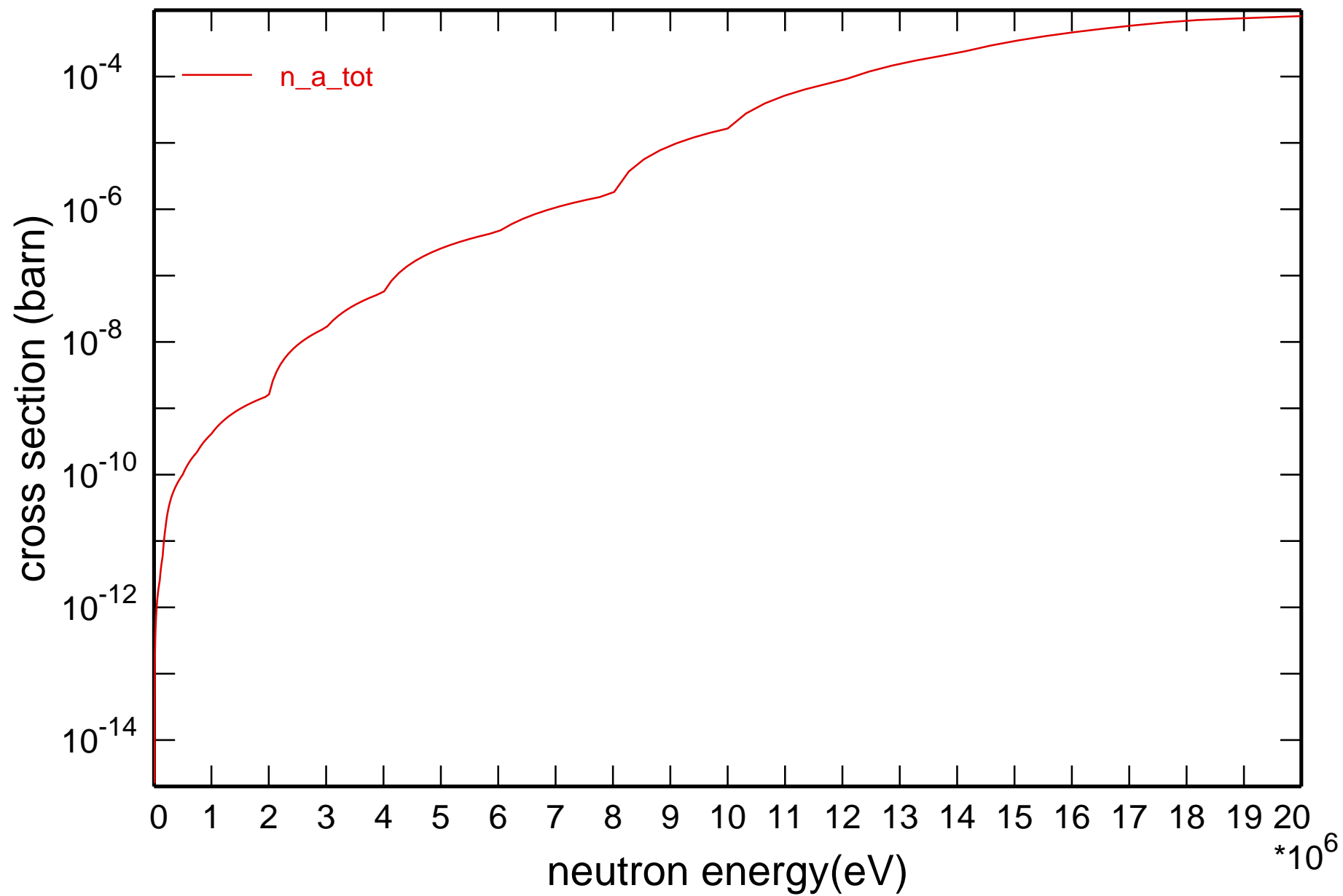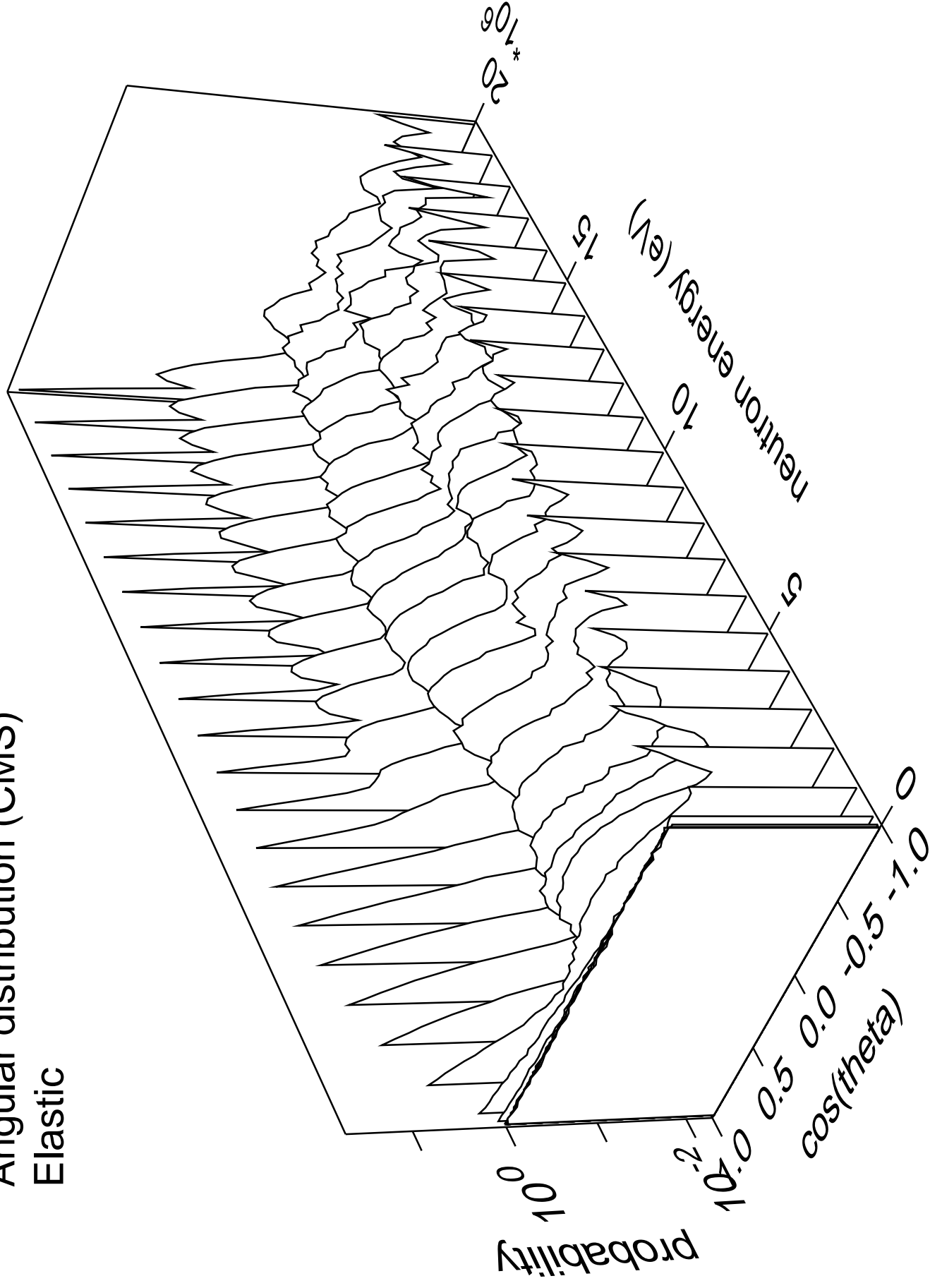X-axis: neutron energy(eV)

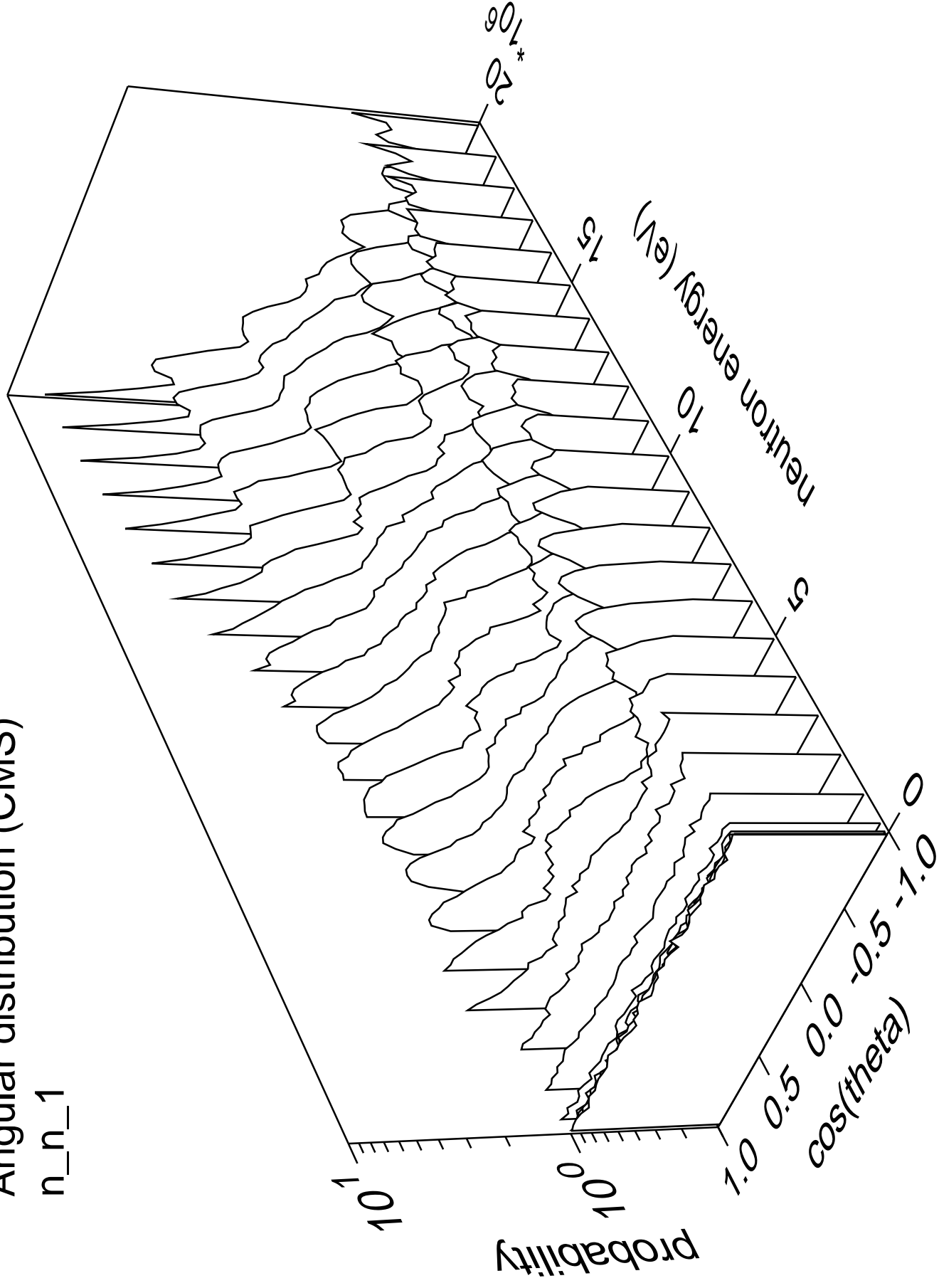Cross Section

Cross Section

Cross Section

Cross Section

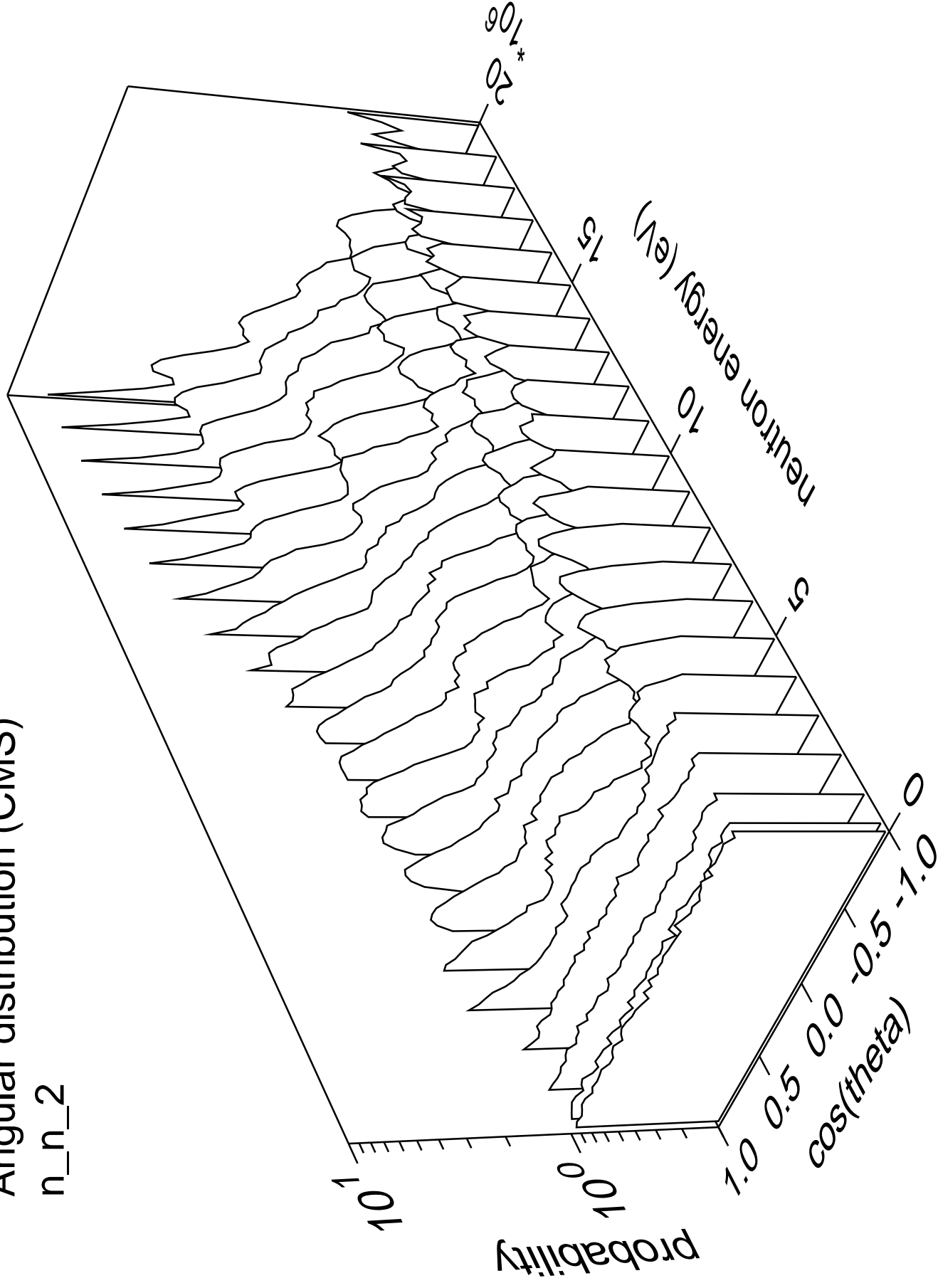Angular distribution (CMS)
Elastic

Angular distribution (CMS)
n_n_1

Angular distribution (CMS)
n_n_2
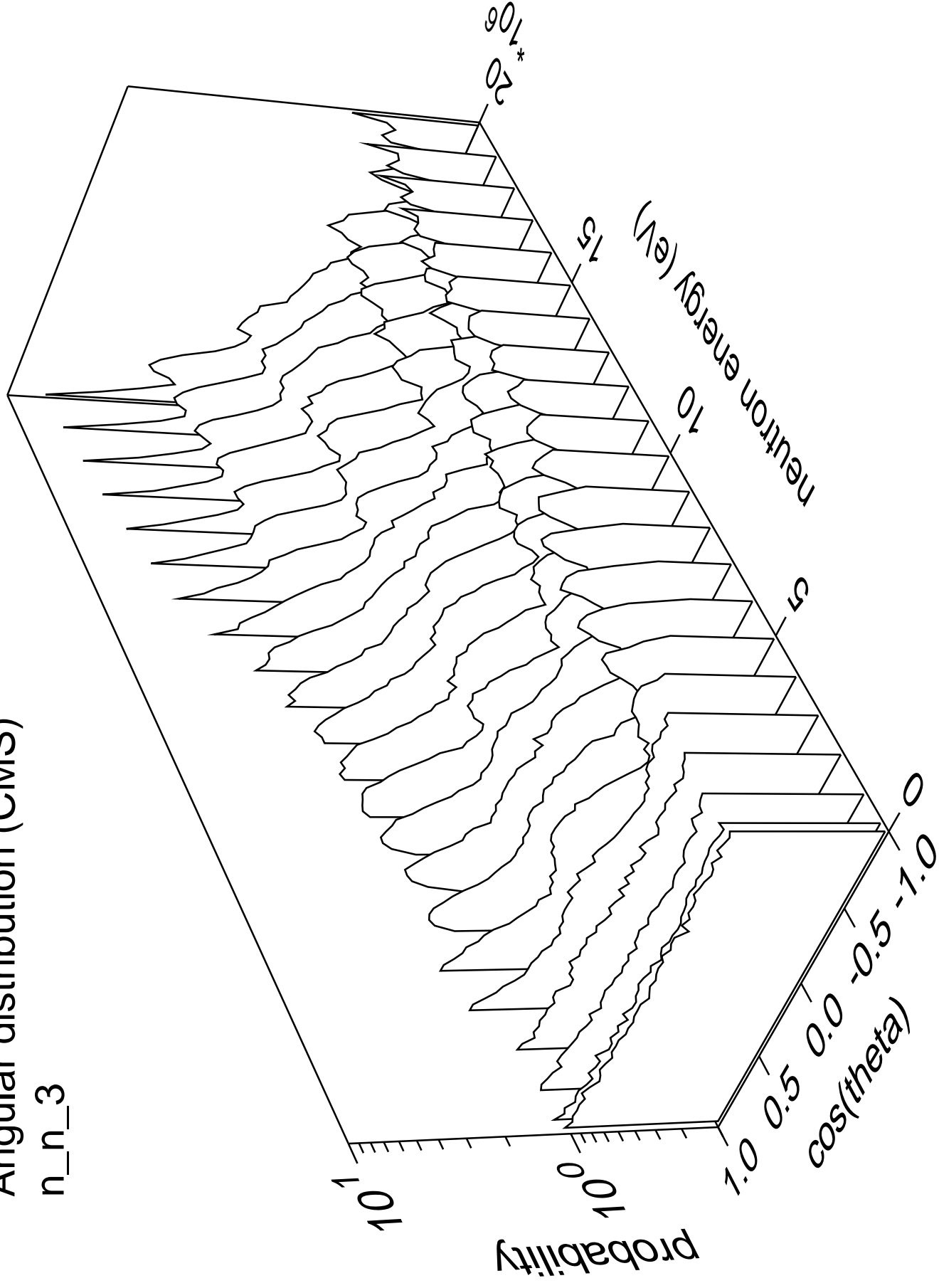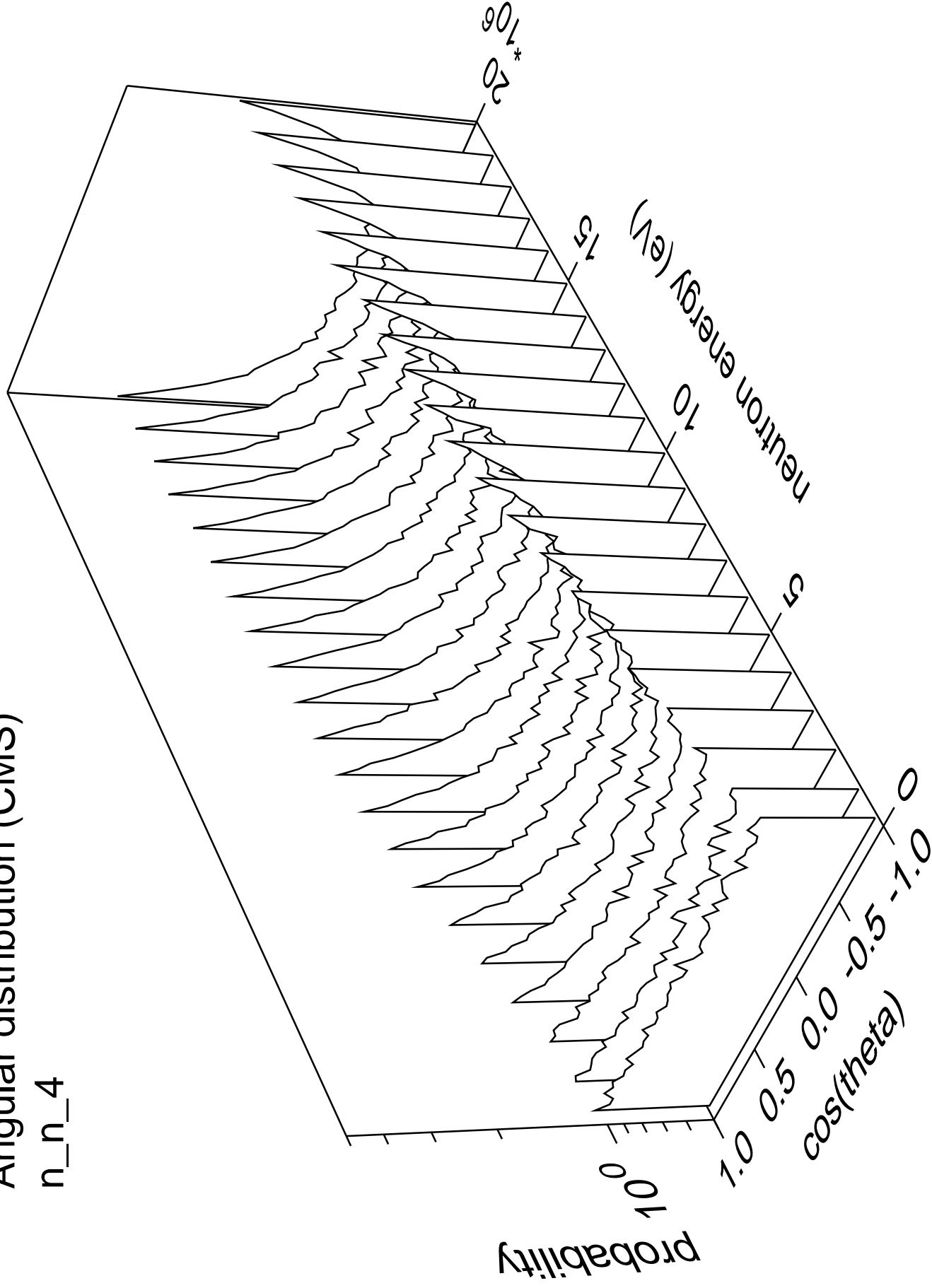
probability

cos(theta)

neutron energy (eV)

Angular distribution (CMS)
n_n_3

probability

cos(theta)

neutron energy (eV)

Angular distribution (CMS)
n_n_4

probability

neutron energy (eV)

cos(theta)

Angular distribution (CMS)
n_n_5

probability

neutron energy (eV)

cos(theta)

20 *10⁶

15

10

5

0

1.0 0.5 0.0 -0.5 -1.0

Angular distribution (CMS)
n_n_6

probability

neutron energy (eV)

cos(theta)

Angular distribution (CMS)
n_n_7

probability

$*10^6$

neutron energy (eV)

cos(theta)

20

15

10

5

0

1.0 0.5 0.0 -0.5 -1.0

10^0

Angular distribution (CMS)
n_n_8

probability

cos(theta)

neutron energy (eV)

Angular distribution (CMS)
n_n_9

cos(theta)

neutron energy (eV)

probability

*10⁶

Angular distribution (CMS)
n_n_10

neutron energy (eV)

cos(theta)

probability

20
*10⁶

15

10

5

0

1.0 0.5 0.0 -0.5 -1.0

0

Angular distribution (CMS)
n_n_11

probability

10^0

1.0 0.5 0.0 -0.5 -1.0 cos(theta)

0 5 10 15 20 *10^6

neutron energy (eV)

Angular distribution (CMS)
n_n_12

probability

10⁰

neutron energy (eV)

20 *10⁶

15

10

5

0

1.0 0.5 0.0 -0.5 -1.0

cos(theta)
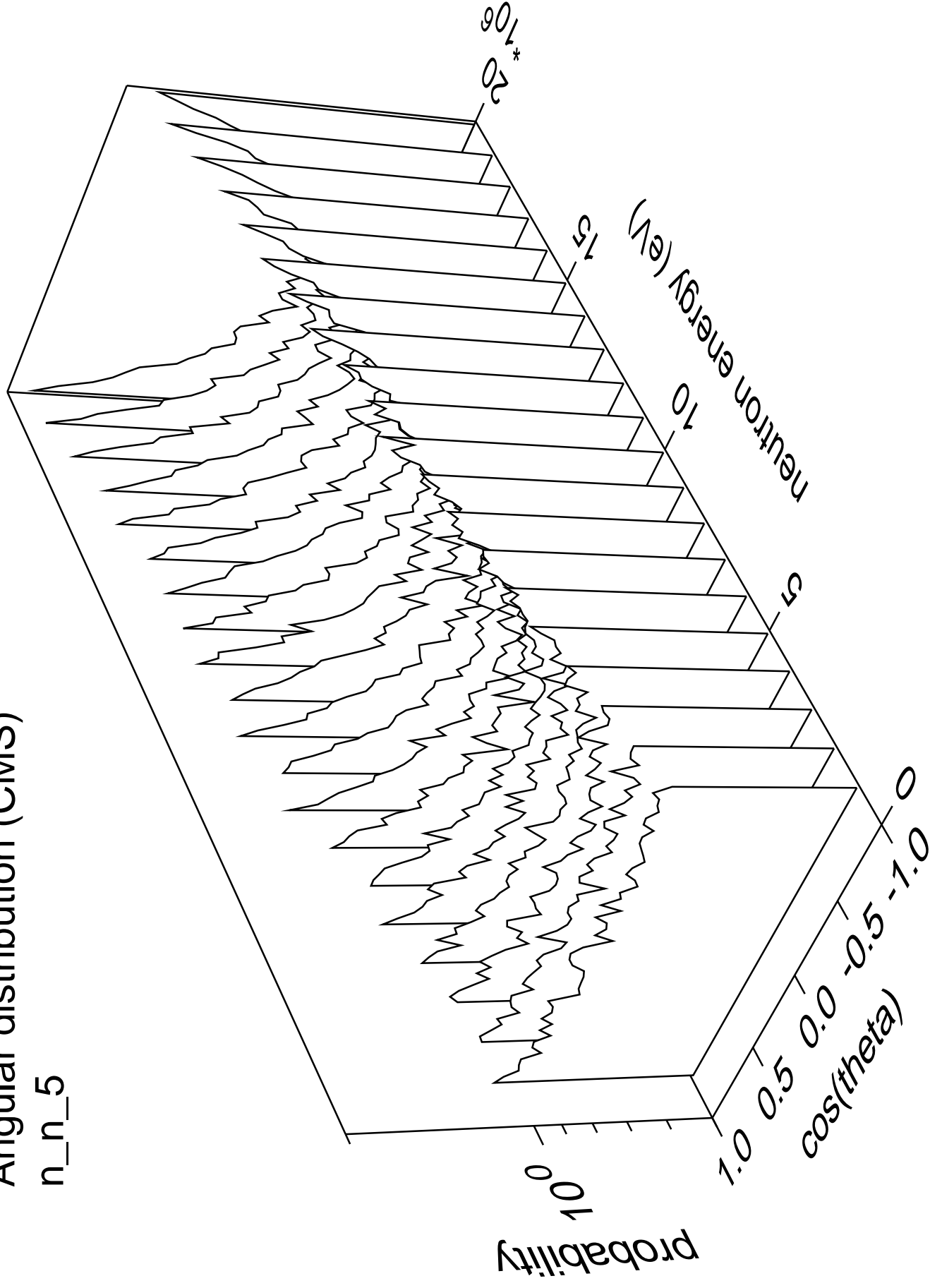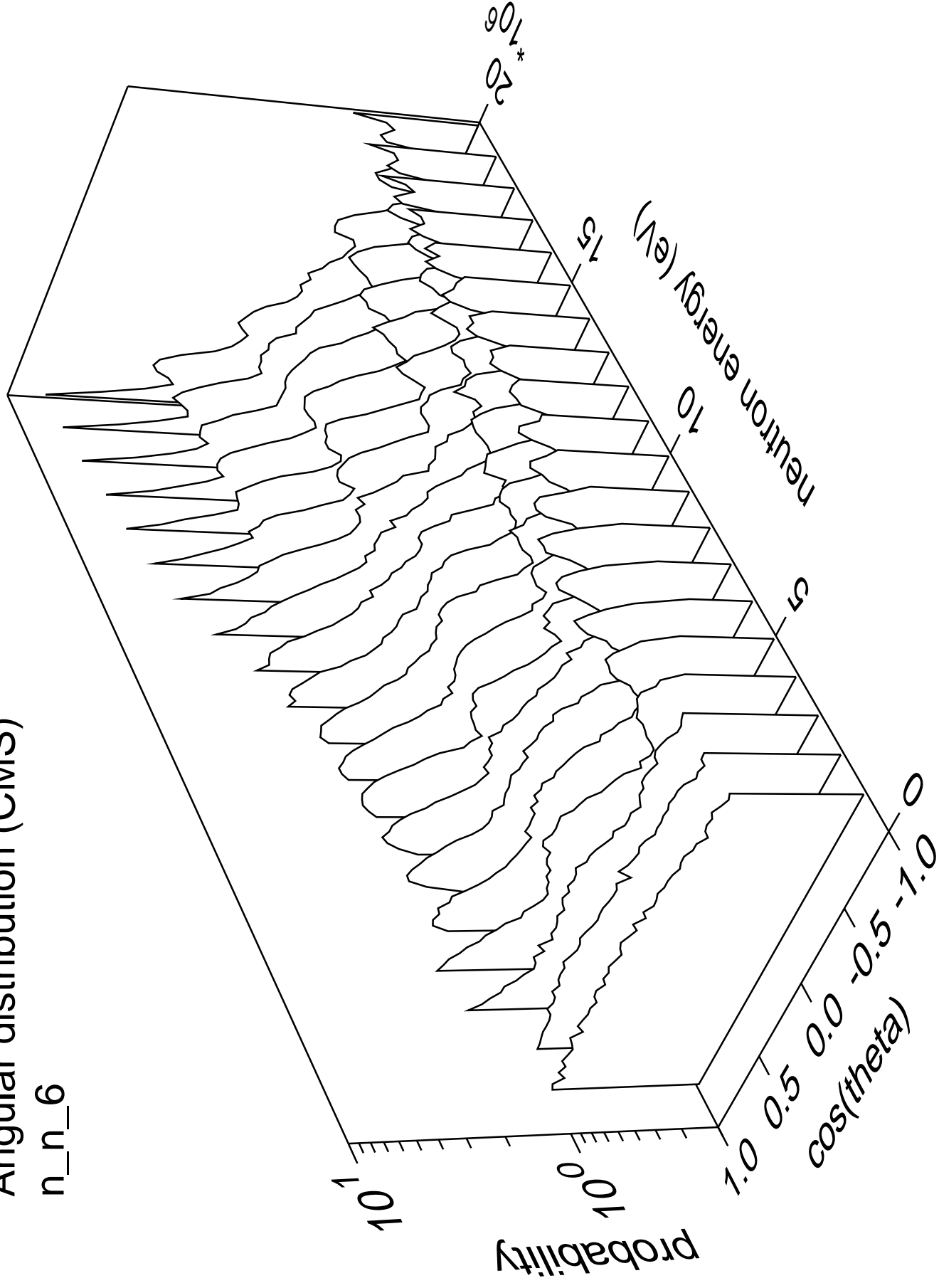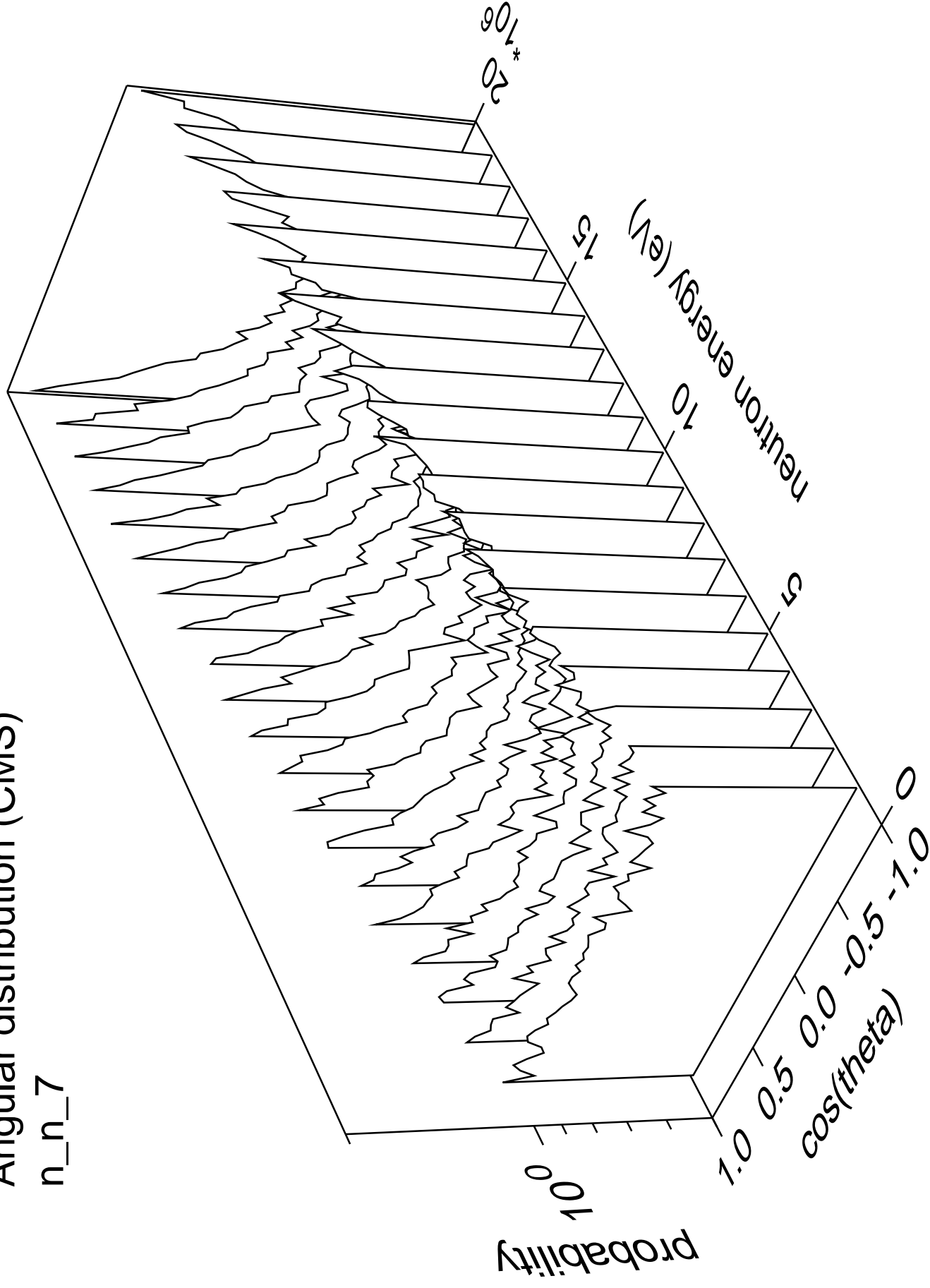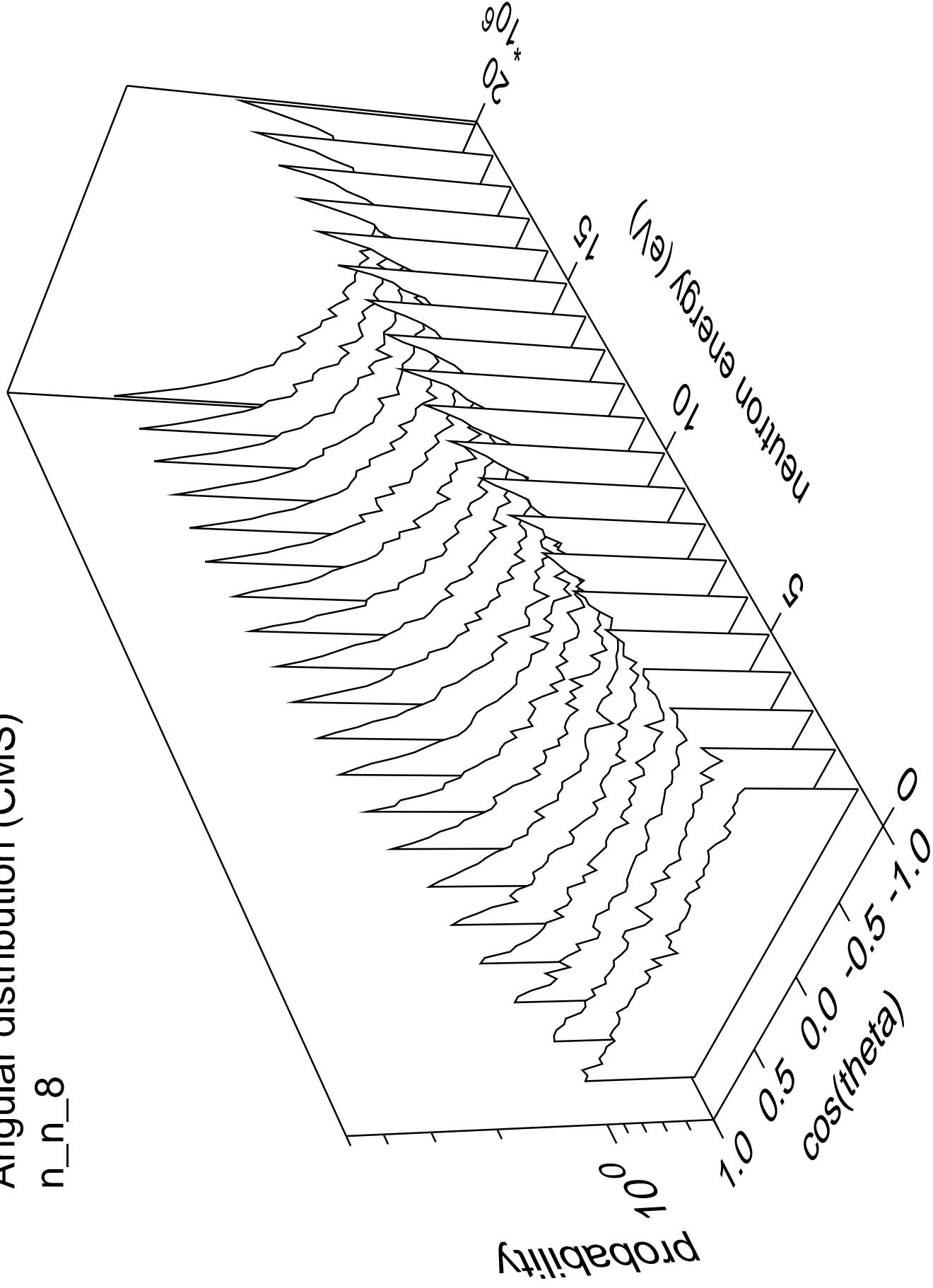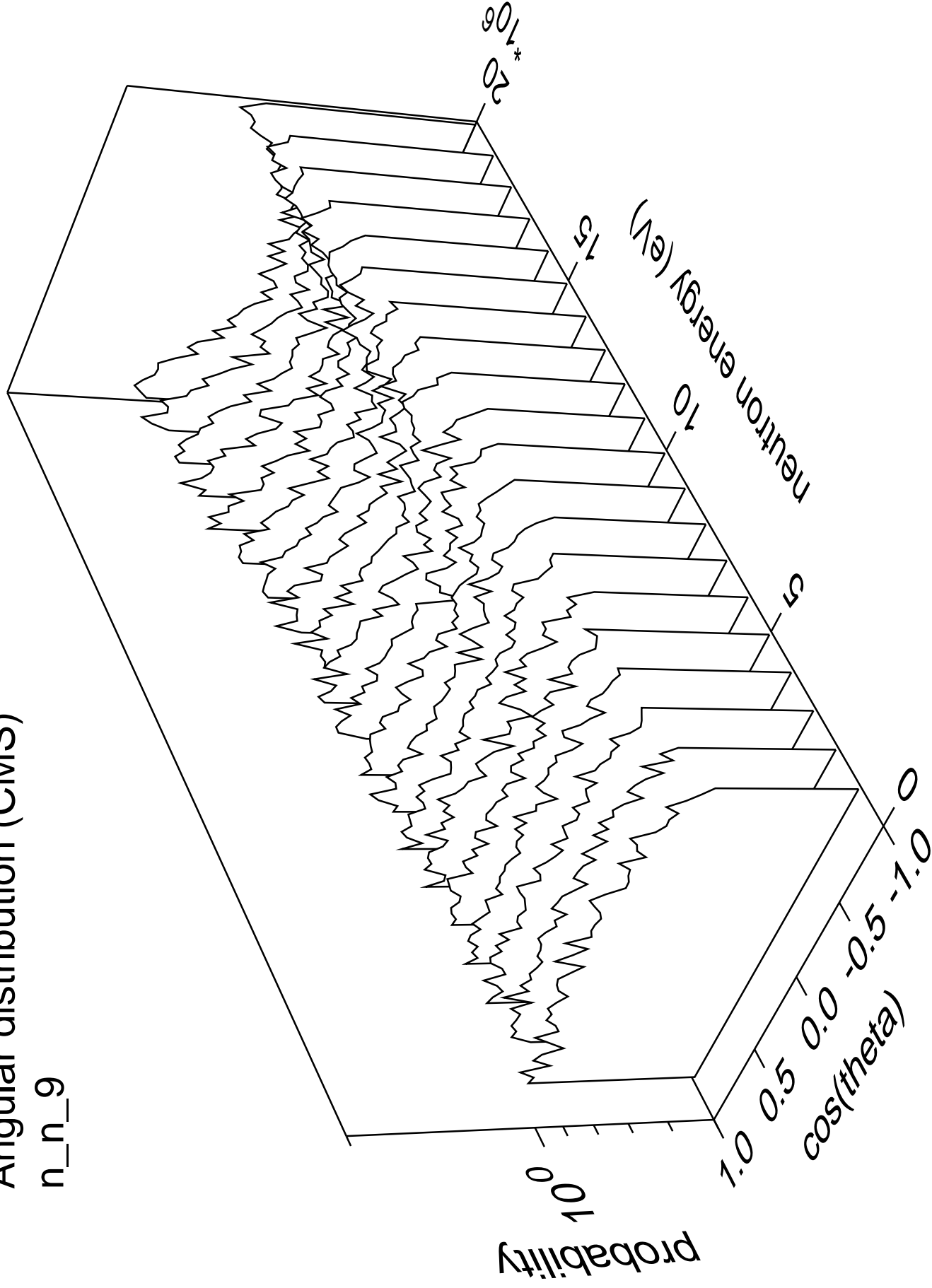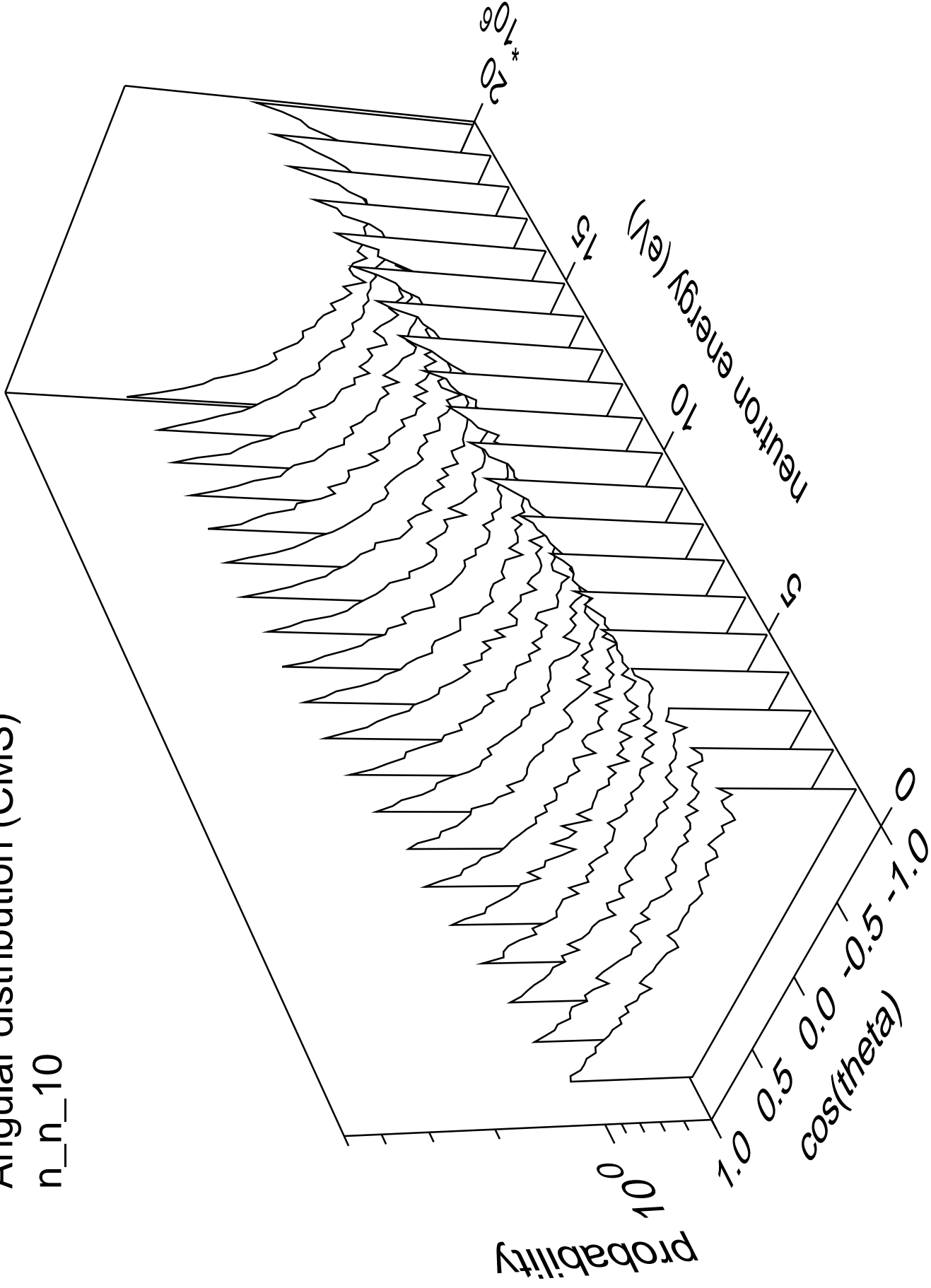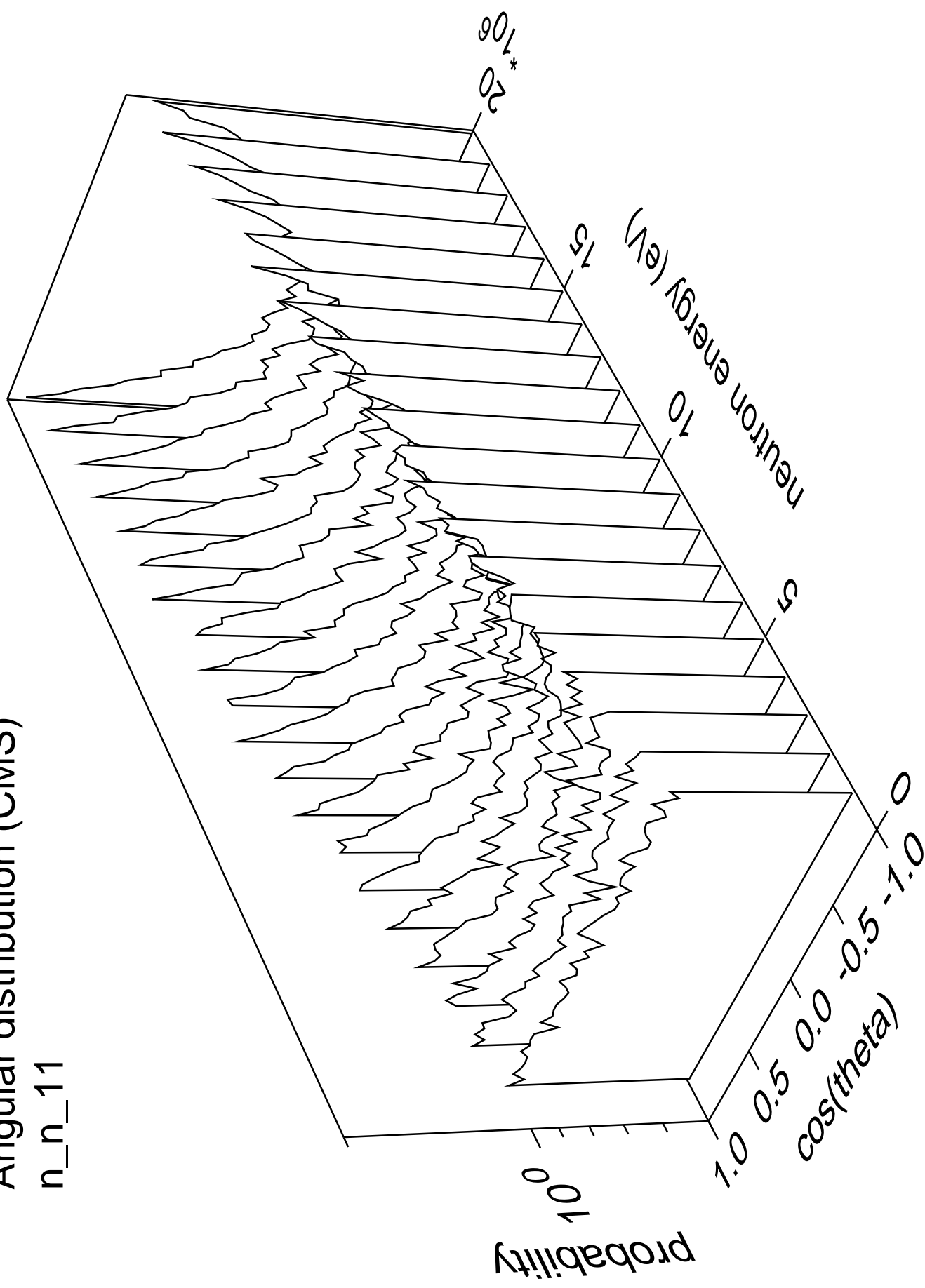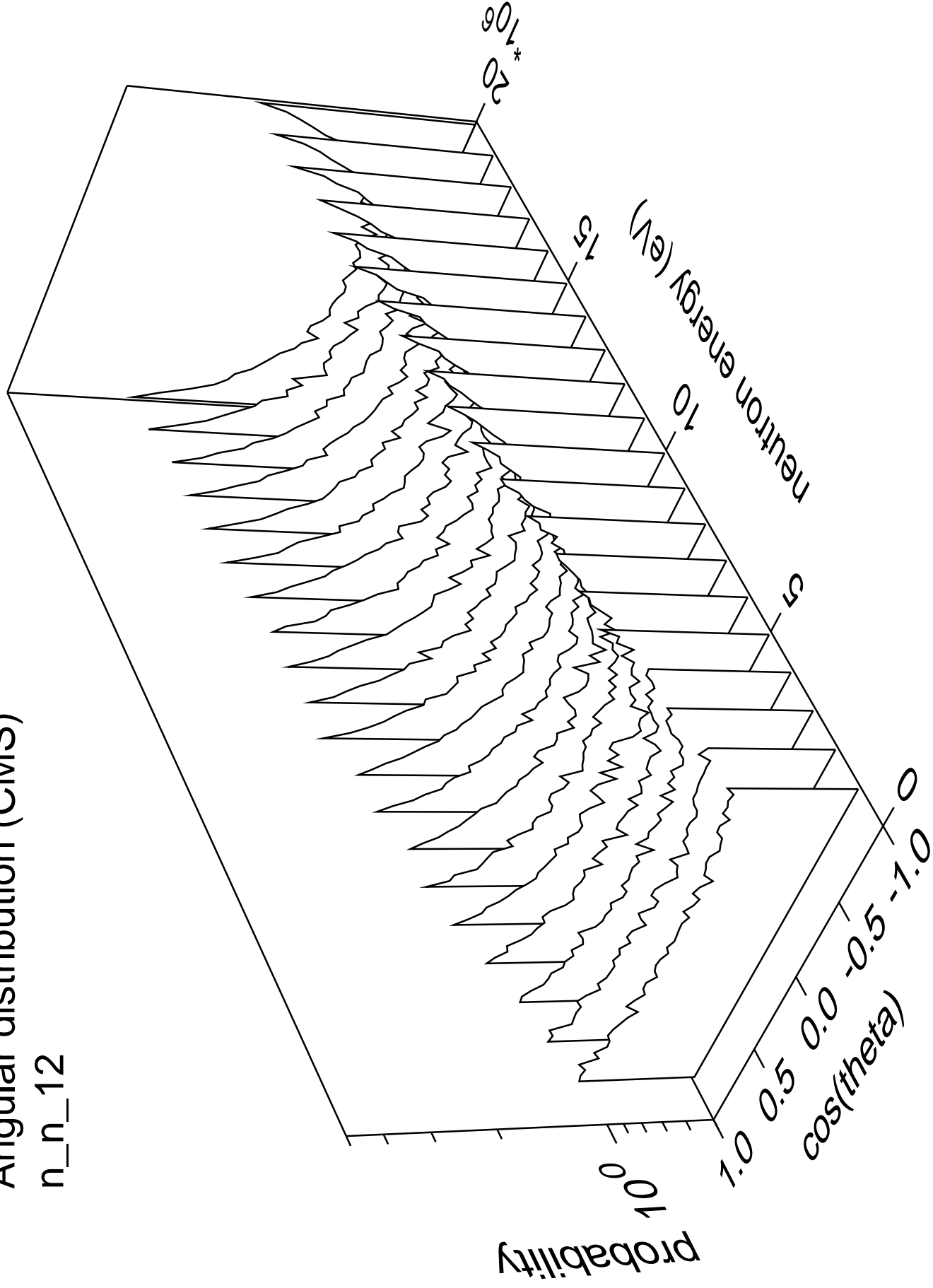
Angular distribution (CMS)
n_n_13

Angular distribution (LABS)
n_n_cont
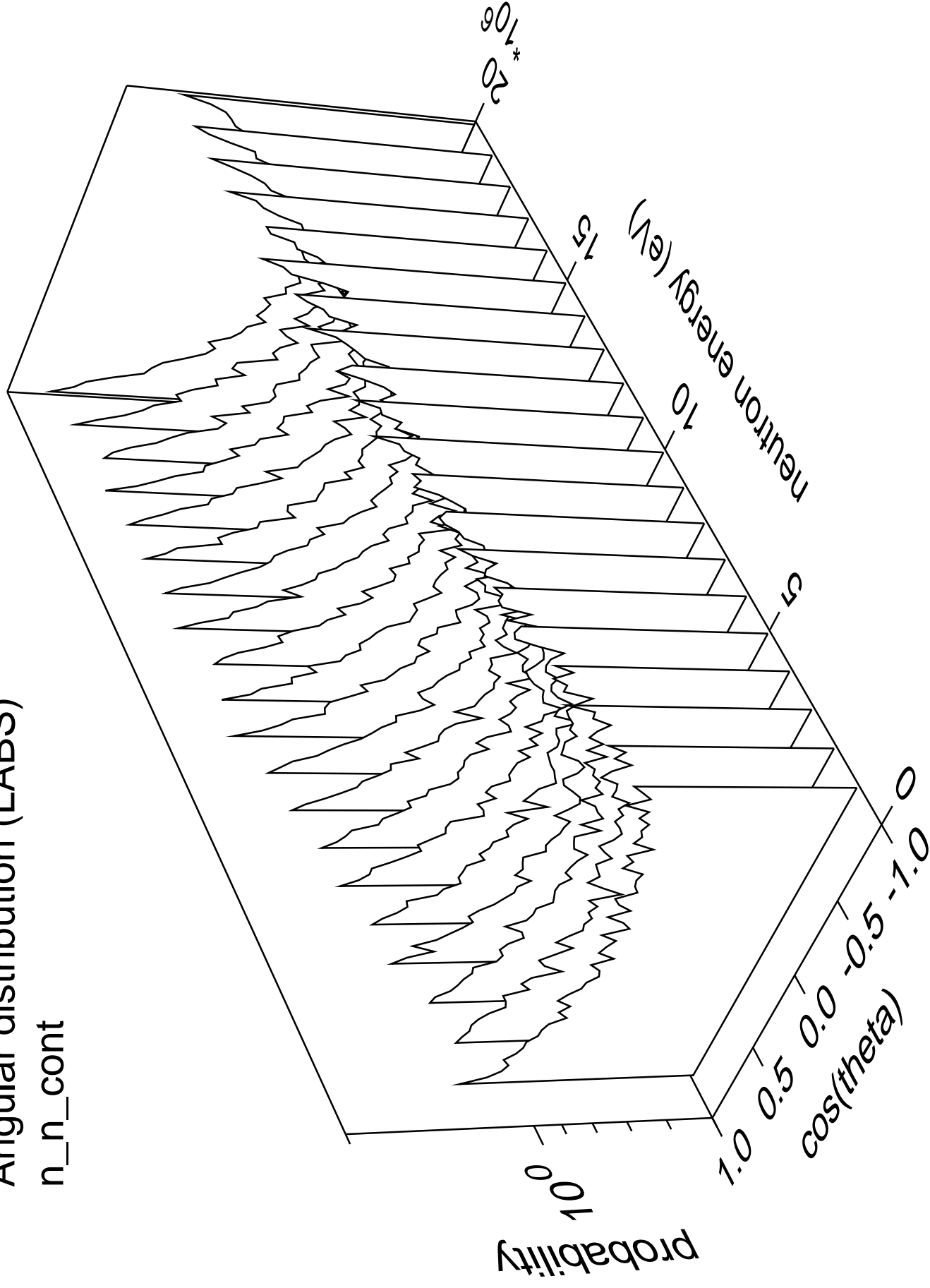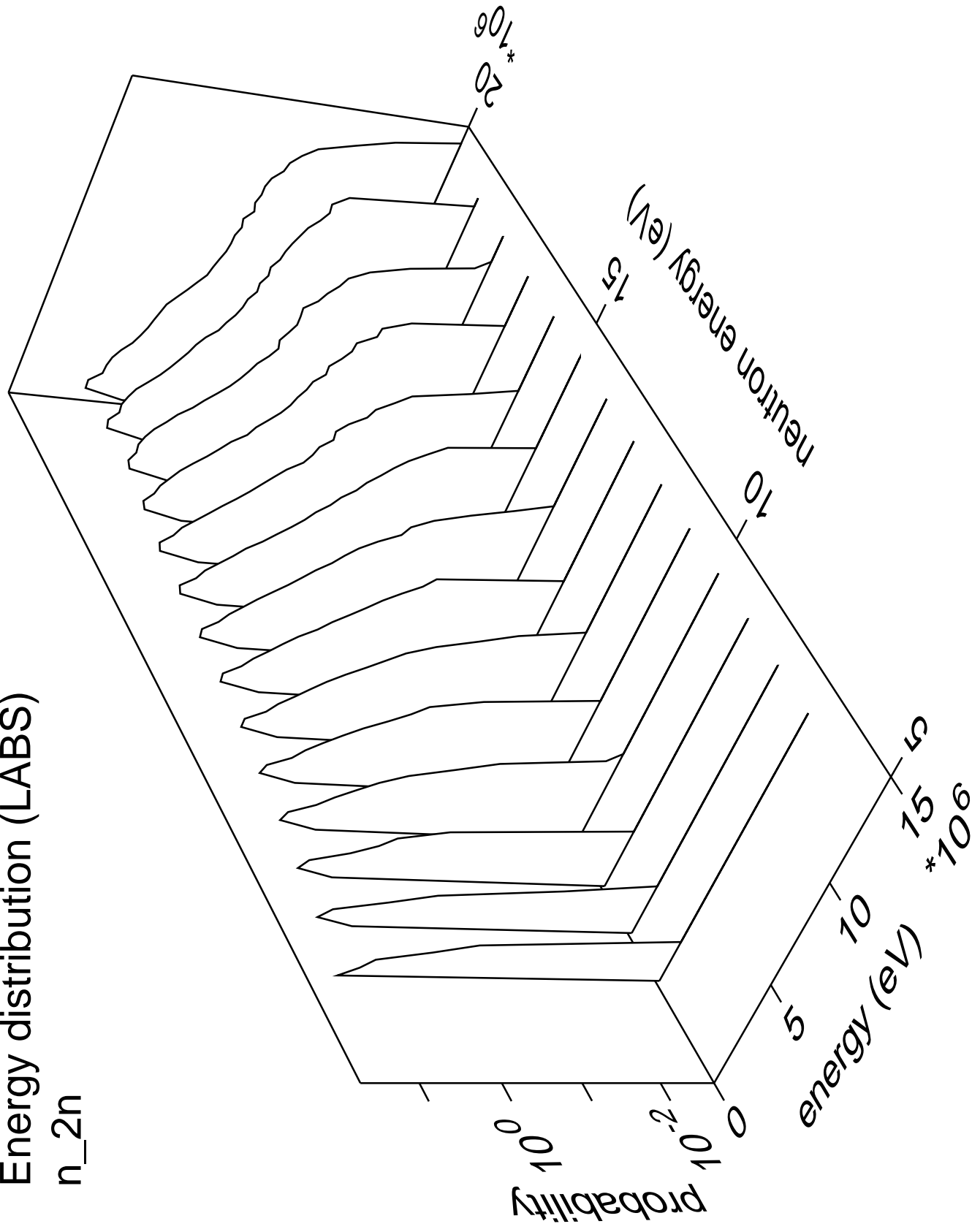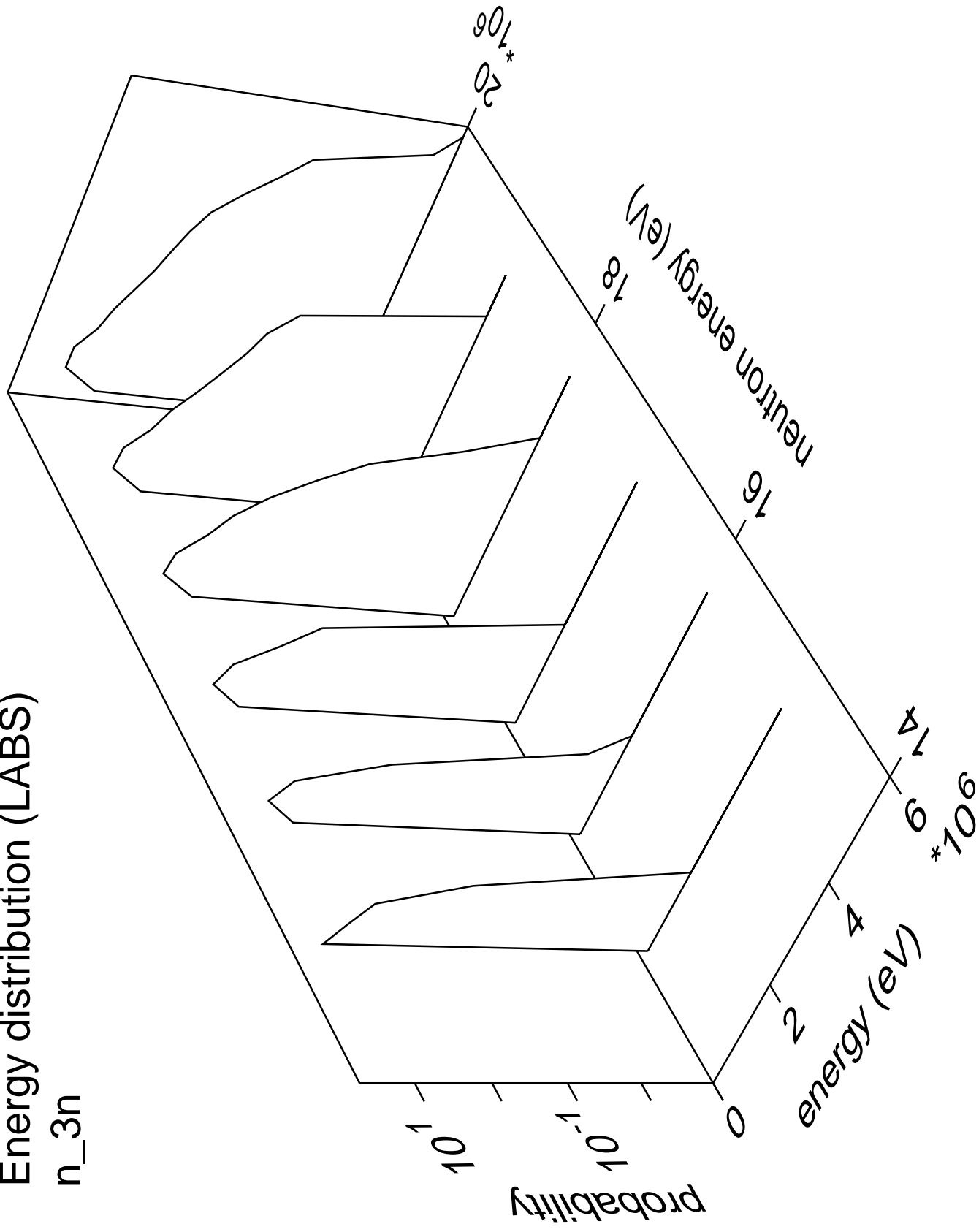
probability

10⁰

1.0 0.5 0.0 -0.5 -1.0

cos(theta)

0   5   10   15   20
*10⁶

neutron energy (eV)

Energy distribution (LABS)
n_2n

probability

10^0

10^{-2}

neutron energy (eV)

energy (eV)

20 $*10^6$

15

10

5

5

10

15 $*10^6$

0

Energy distribution (LABS)
n_3n

probability

10^1

10^{-1}

energy (eV)

0

2

4

6 $*10^6$

14

16

18

20 $*10^6$

neutron energy (eV)

Energy distribution (LABS)
n_na

probability

10^1

10^{-1}

neutron energy (eV)

20 *10^6

15

10

5

energy (eV)

0

2

4

6

8 *10^6

Energy distribution (LABS)
n_np

probability

10^1

10^{-1}

neutron energy (eV)

20 *10^6

15

10

5

0   2   4   6   8   *10^6

energy (eV)

Energy distribution (LABS)
n_n_cont

probability

10^0

10^{-2}

energy (eV) *10^6

neutron energy (eV)

20 *10^6

Gamma energy distribution
Capture

*10⁶

neutron energy (eV)

gamma energy (MeV)

probability

Gamma angles distribution
Capture

probability

neutron energy (eV)

cos(theta)
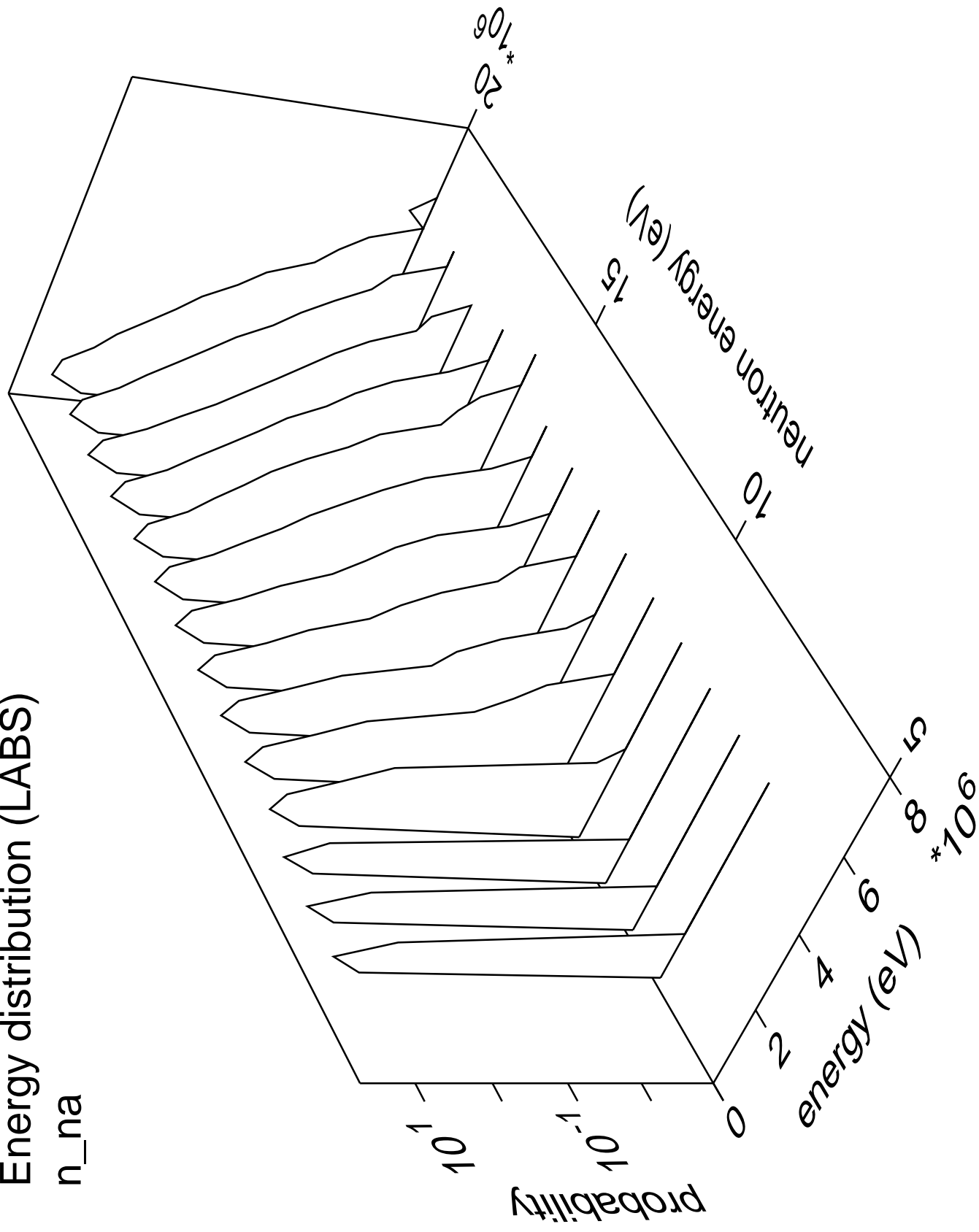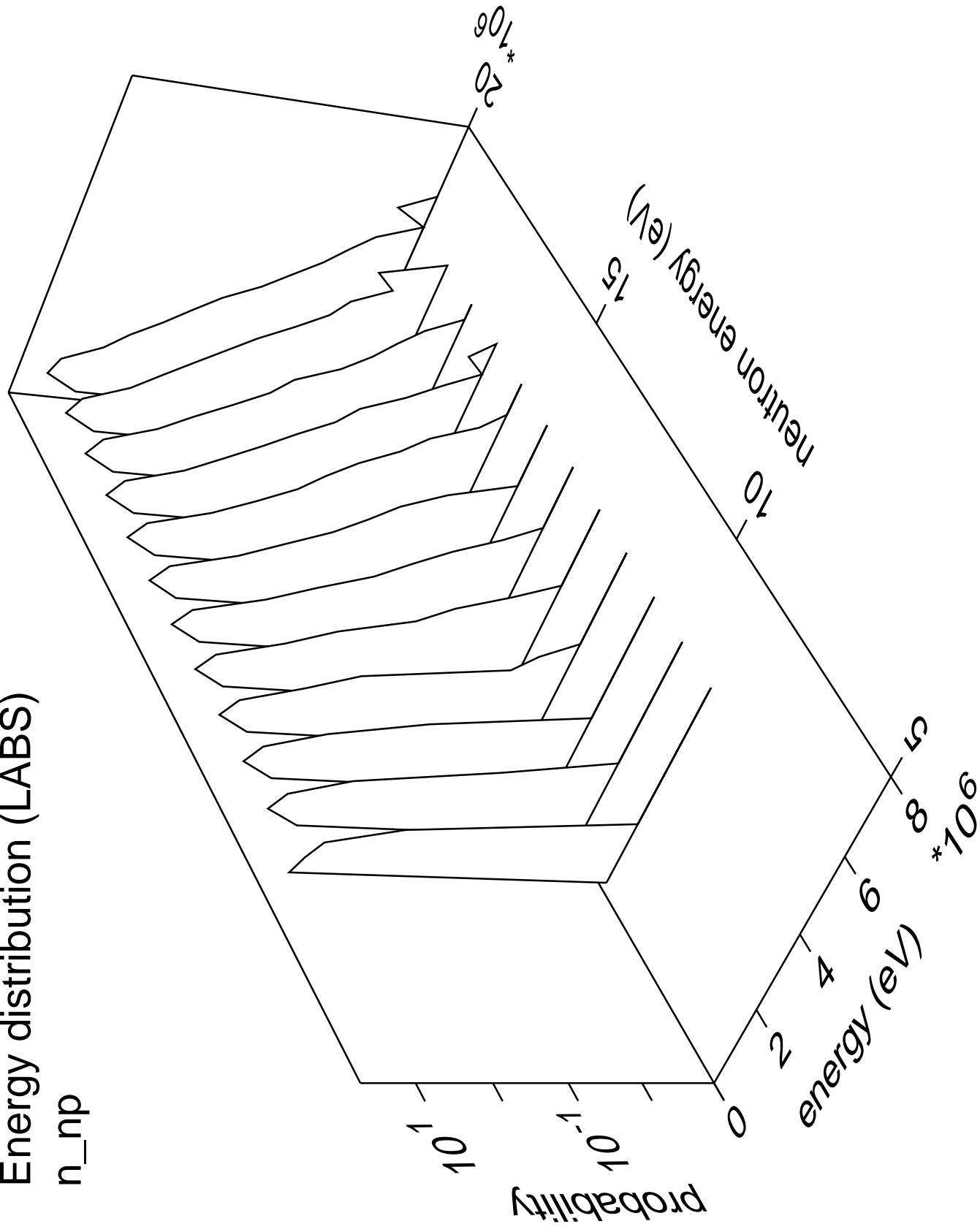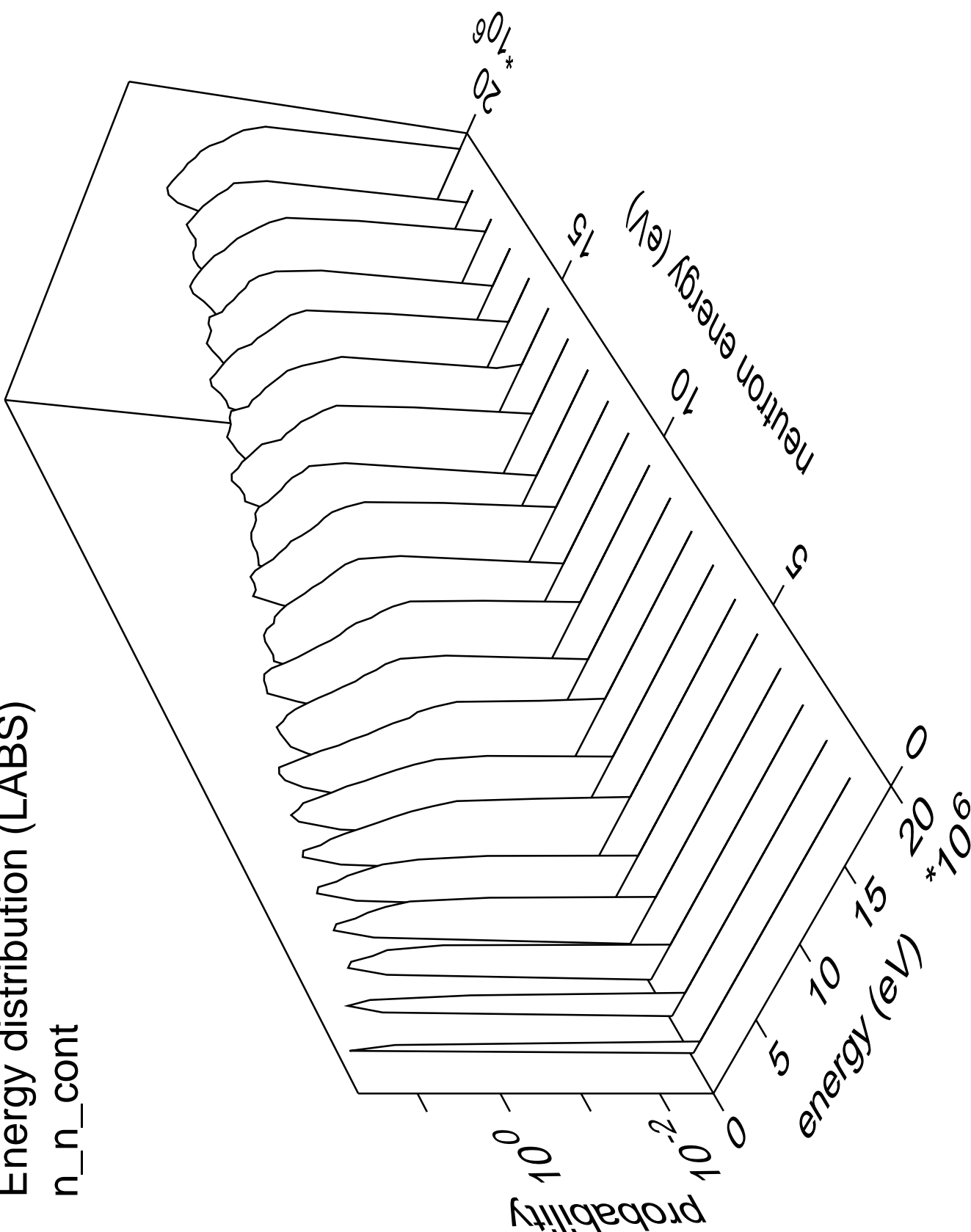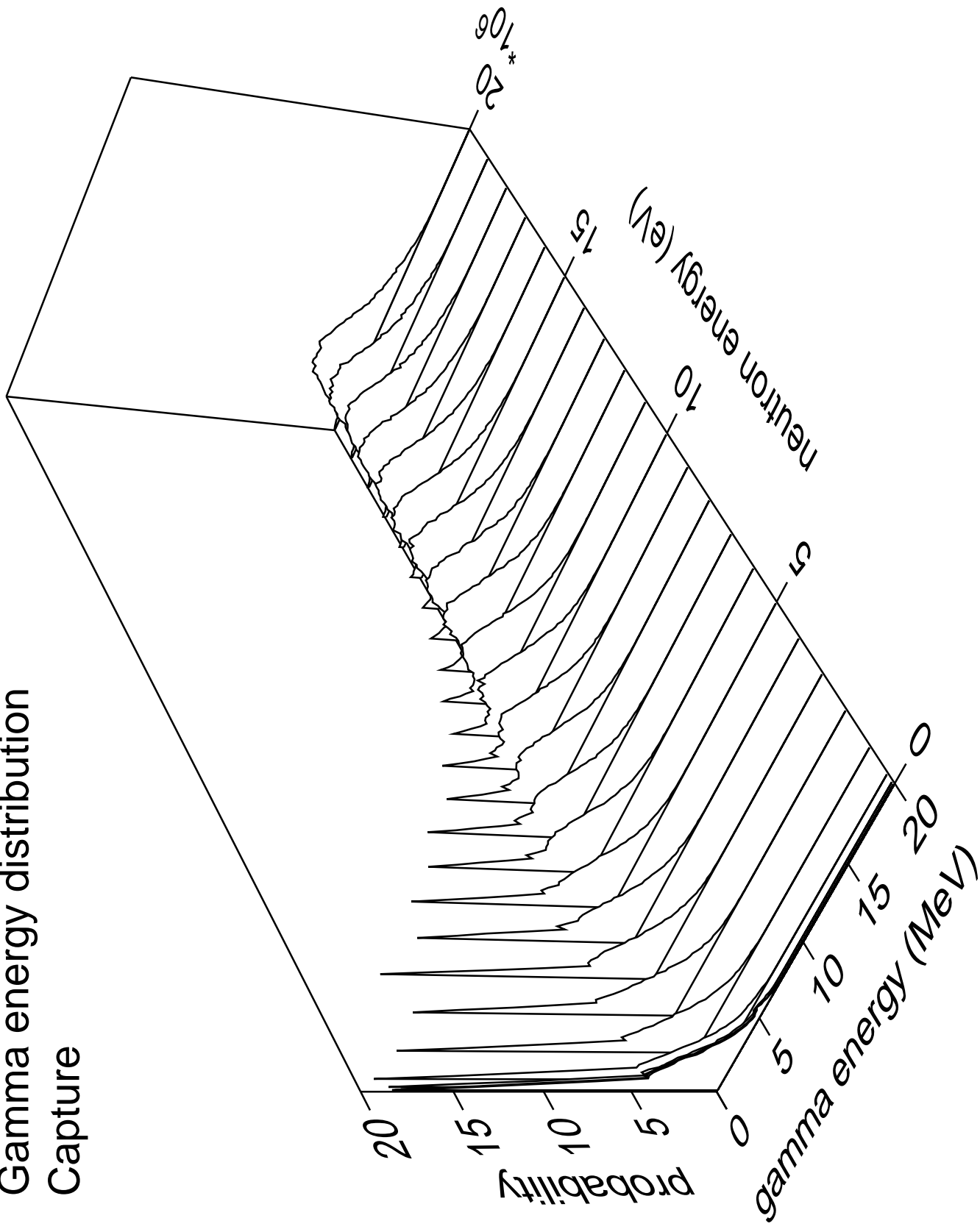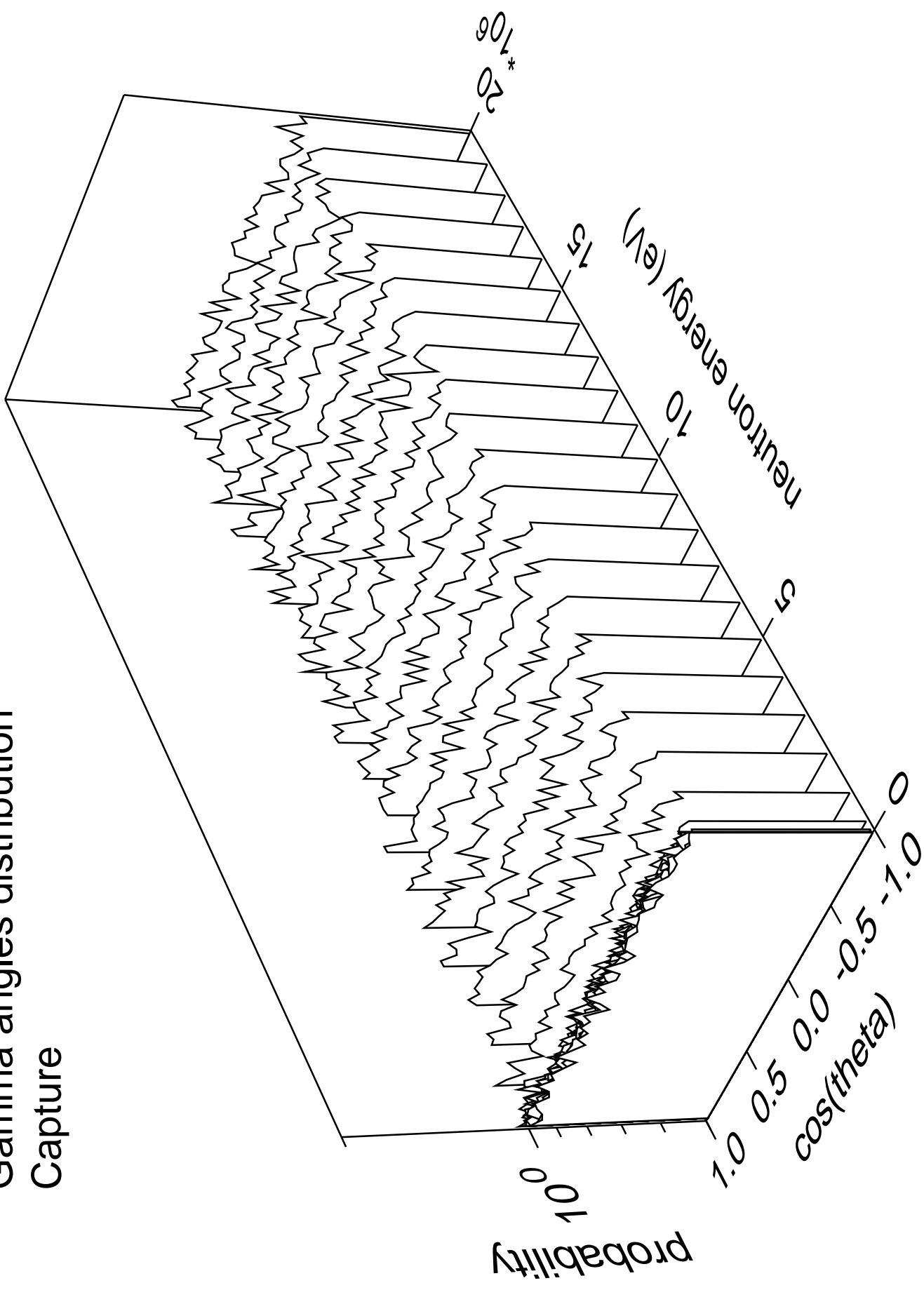
Gamma multiplicities distribution
Capture

Gamma energy distribution
n_2n

probability

gamma energy (MeV)

neutron energy (eV)

Gamma angles distribution
n_2n

probability

neutron energy (eV)
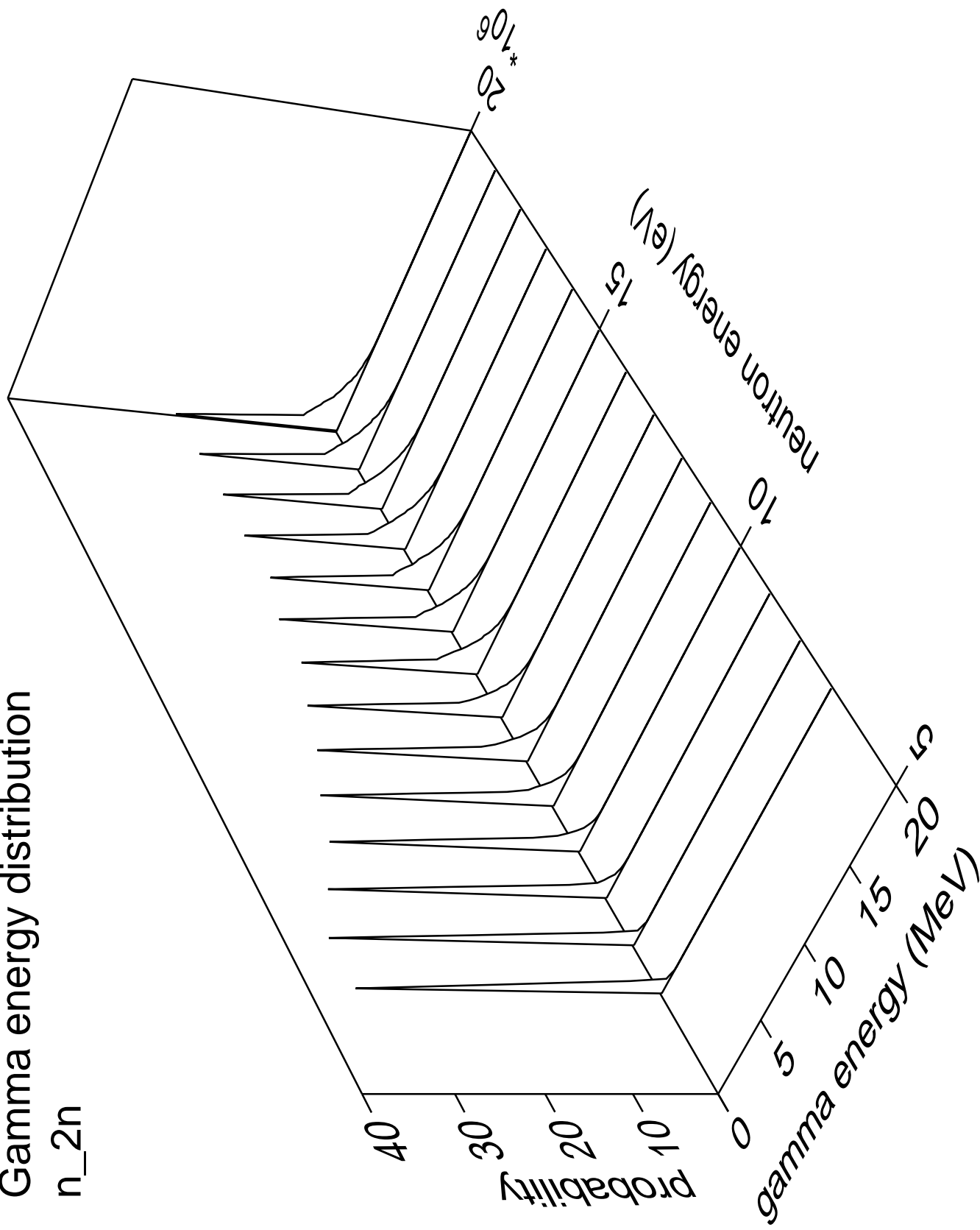
cos(theta)

20 *10⁶

15

10

5

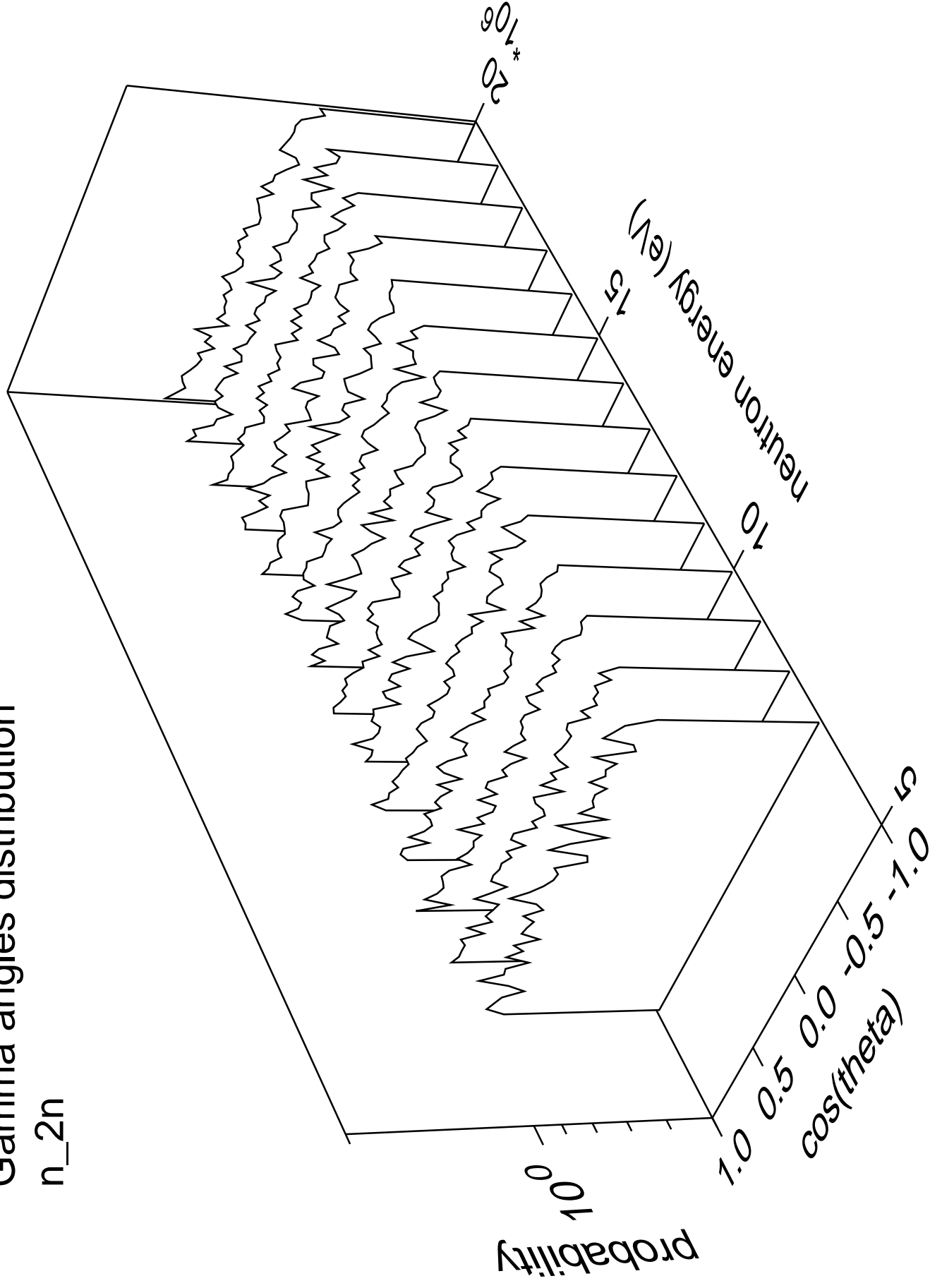1.0 0.5 0.0 -0.5 -1.0

10⁰

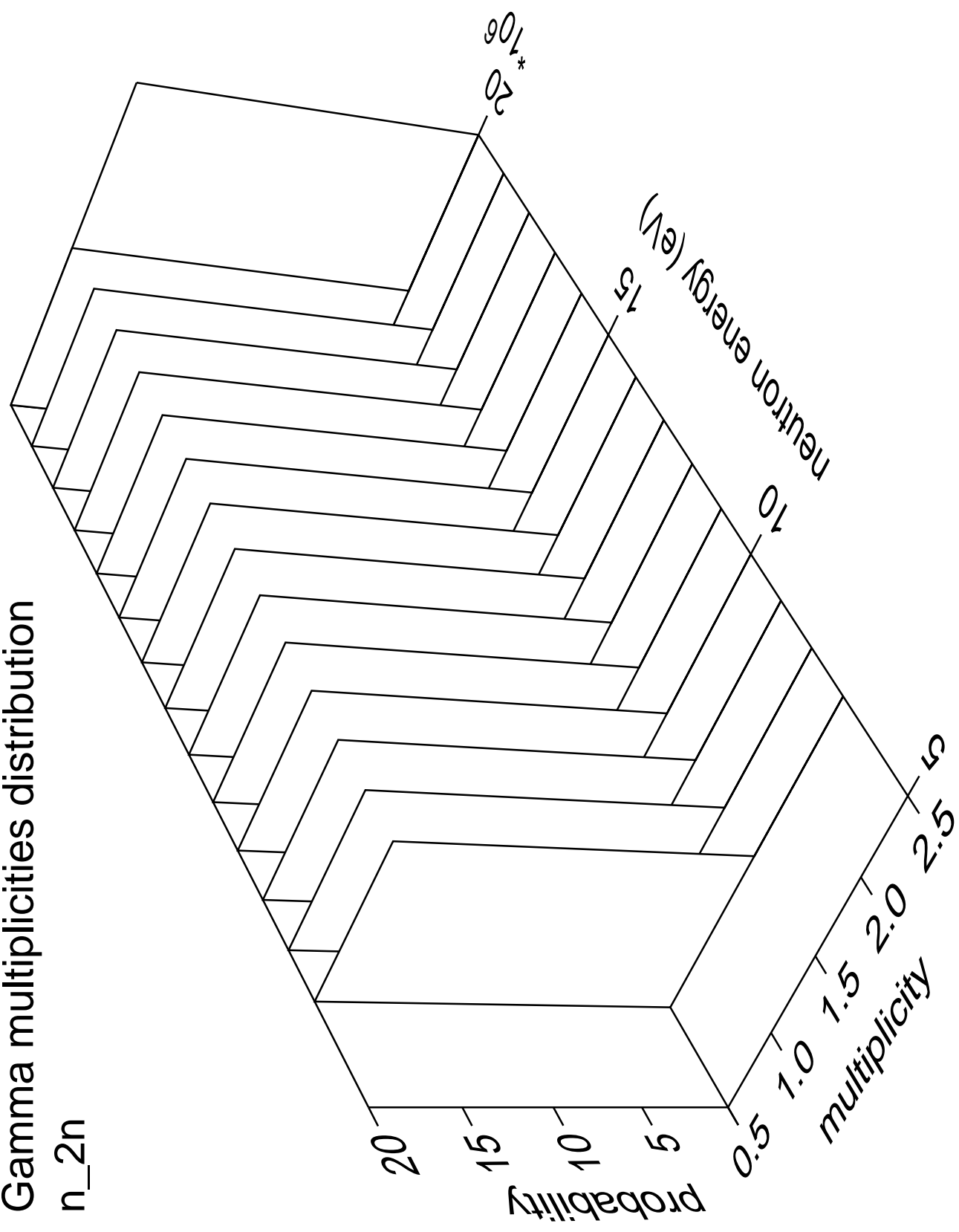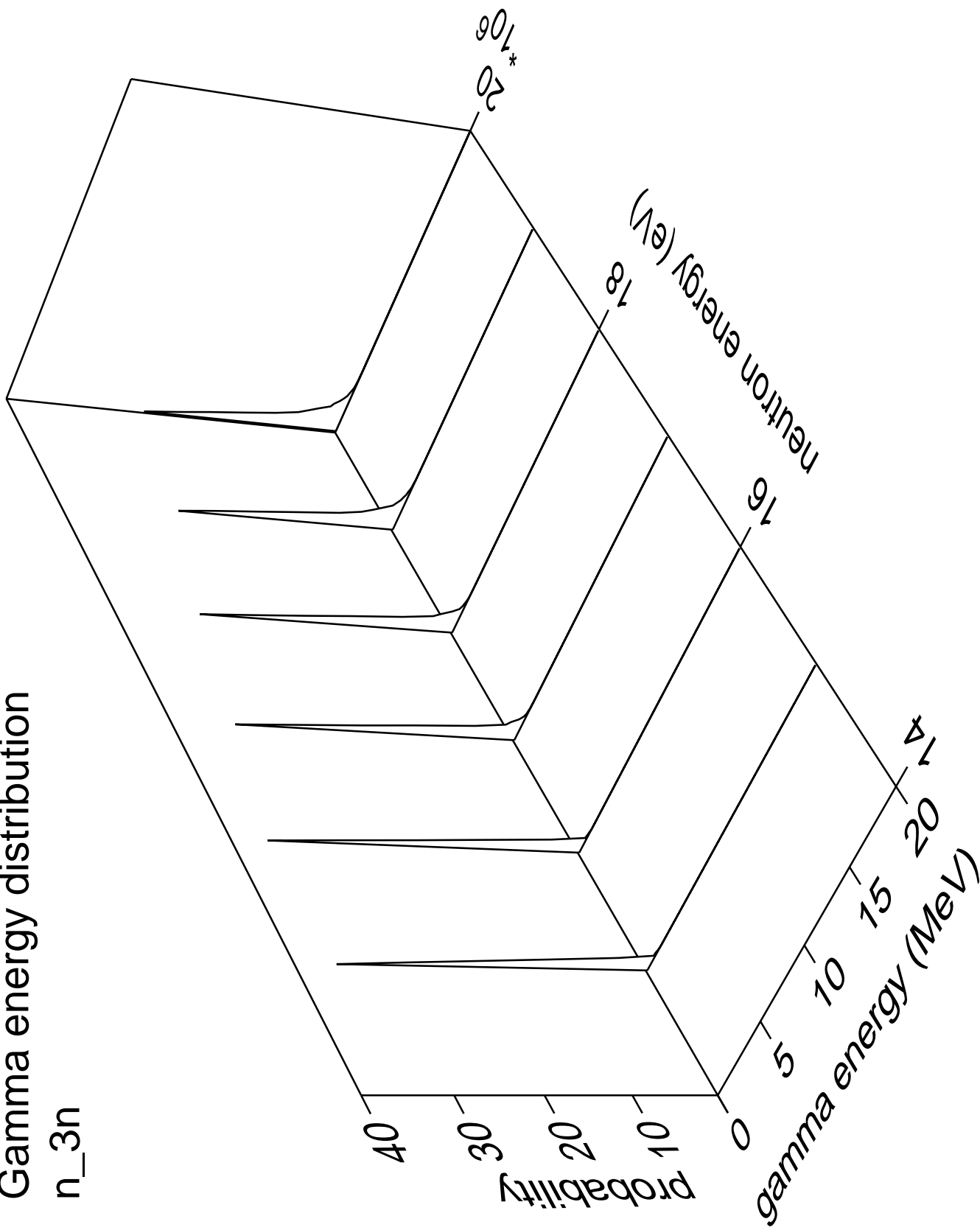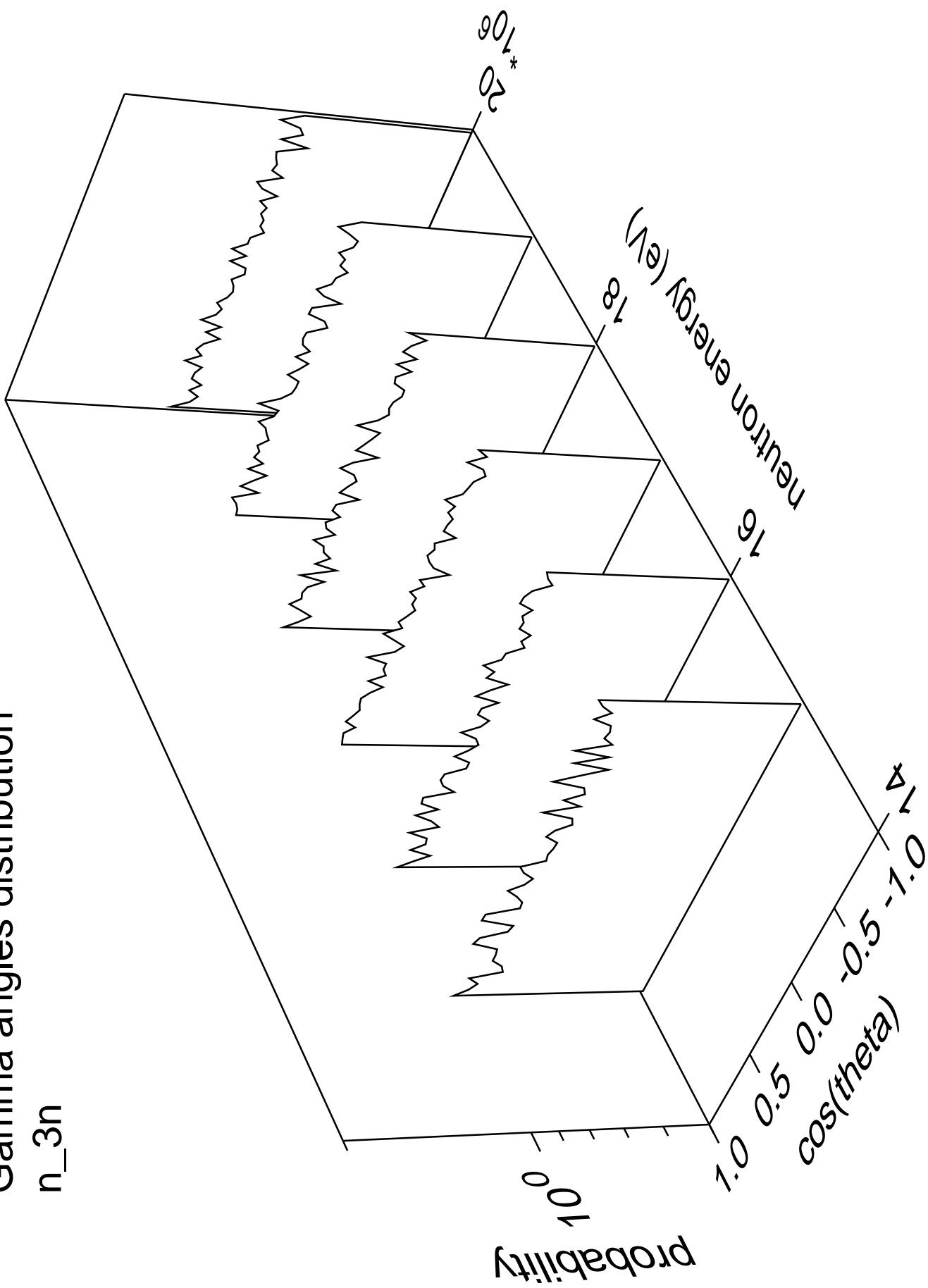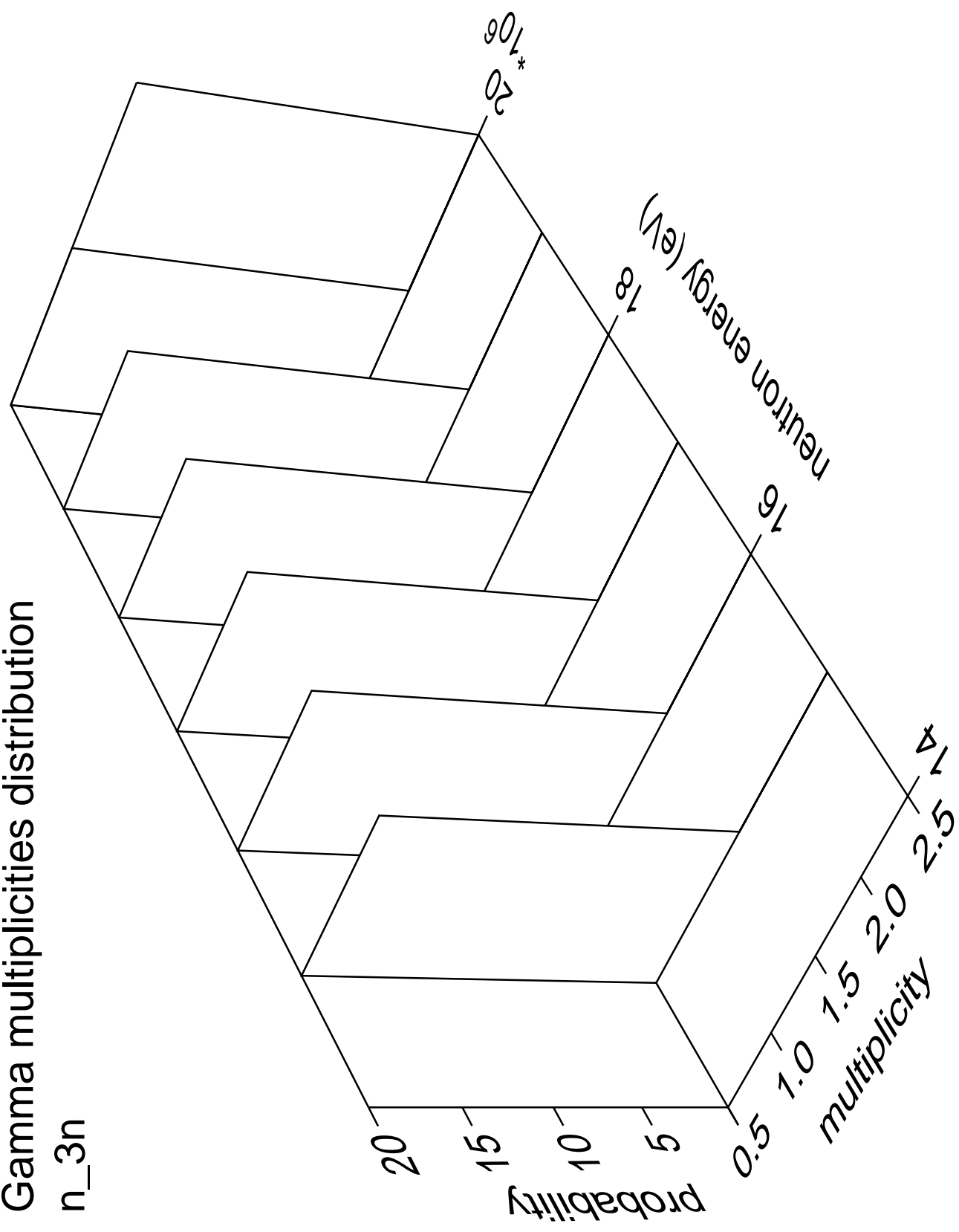Gamma multiplicities distribution
n_2n

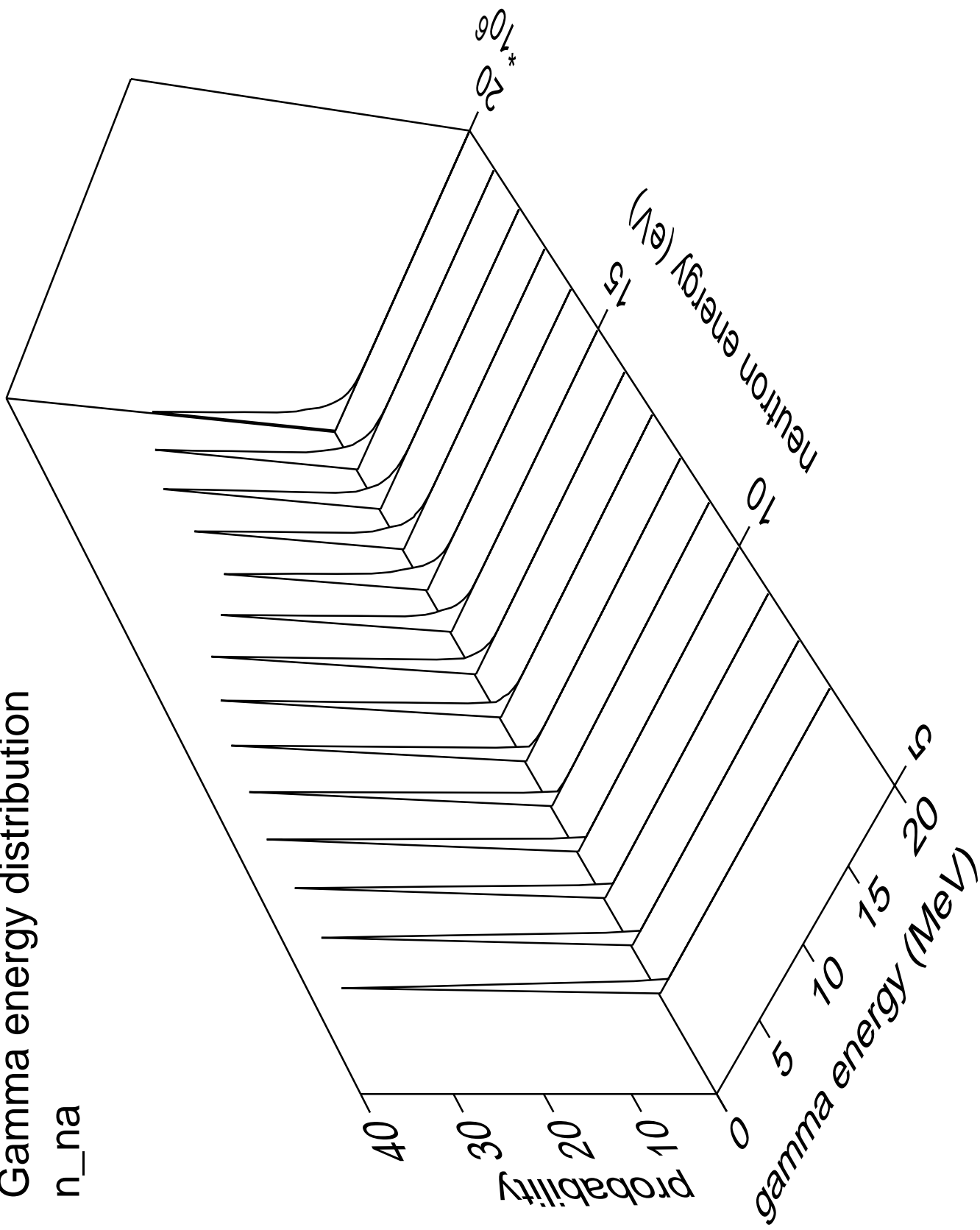Gamma energy distribution
n_3n

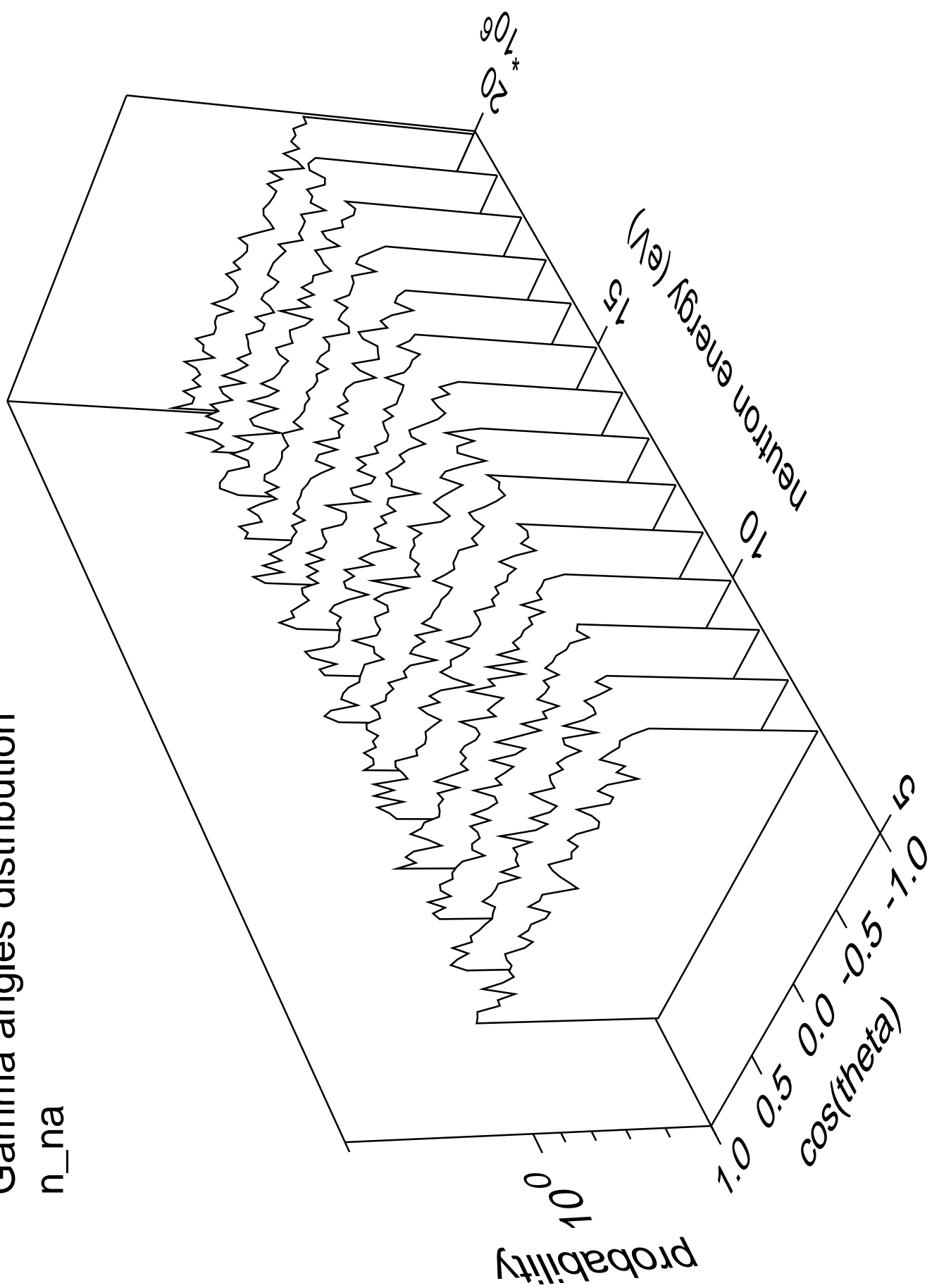Gamma angles distribution
n_3n

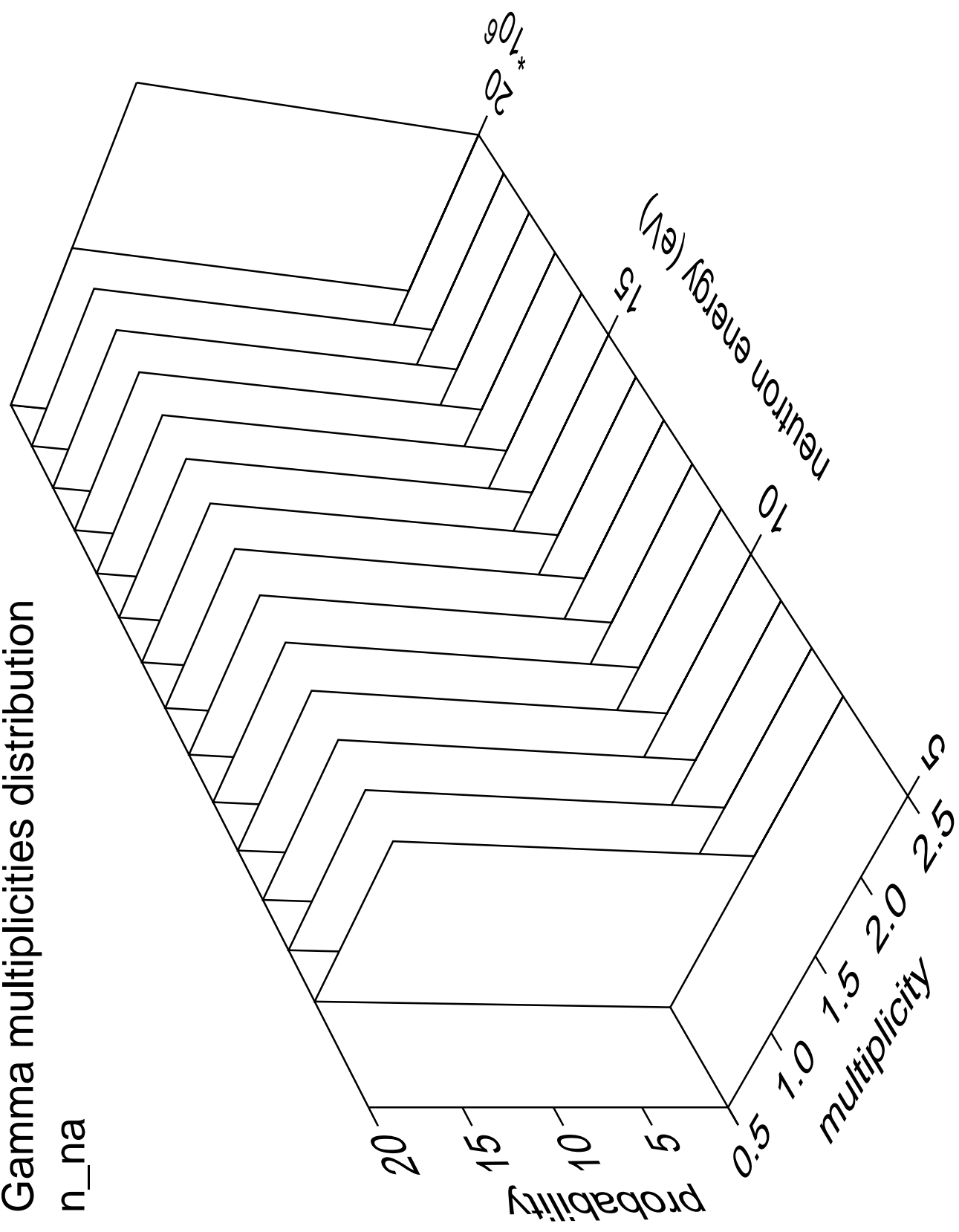Gamma multiplicities distribution
n_3n

Gamma energy distribution
n_na

probability

neutron energy (eV)

gamma energy (MeV)

20 *10⁶

15

10

5

20

15

10

5

0

40

30

20

10

Gamma angles distribution
n_na

neutron energy (eV)

cos(theta)

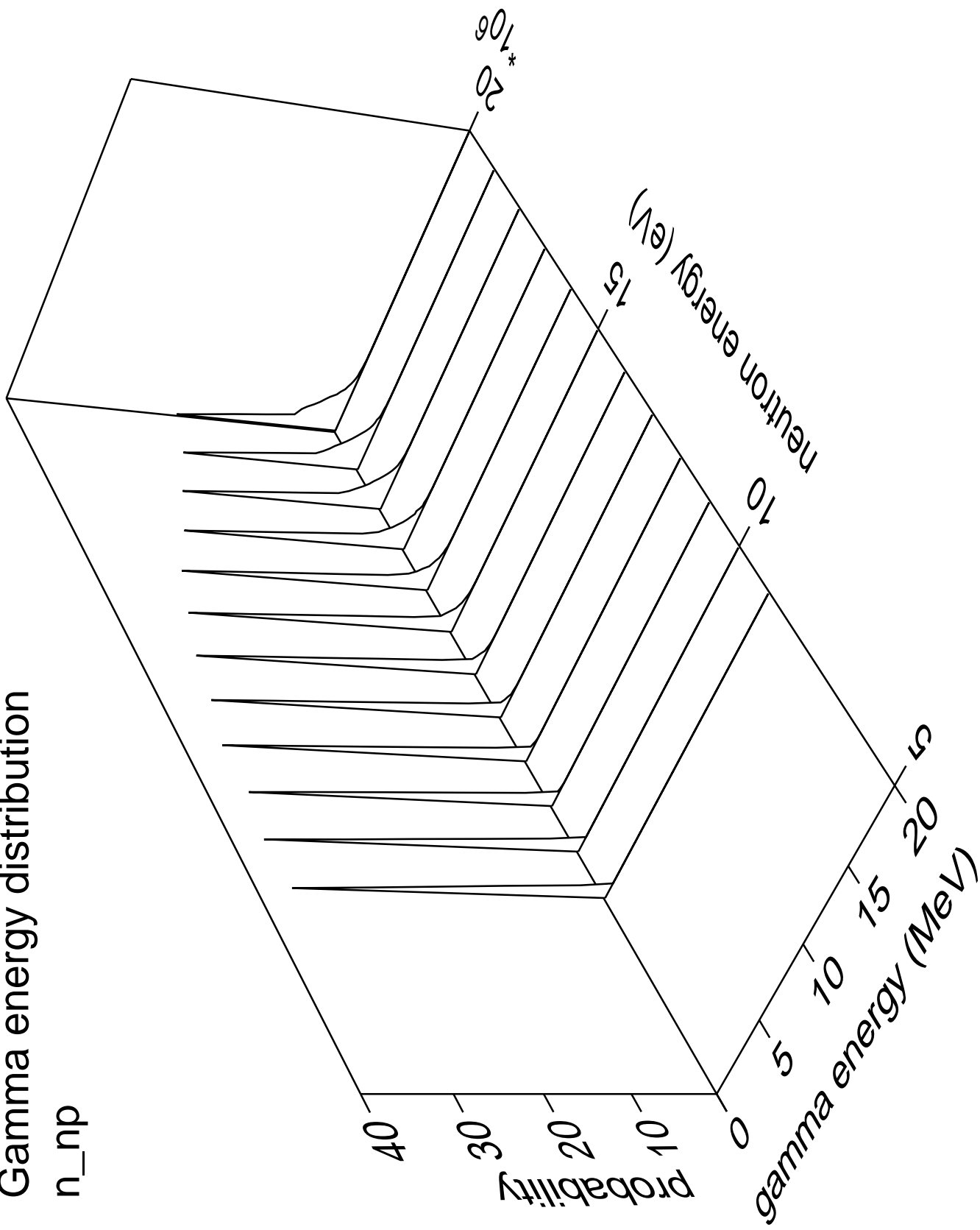probability

20 *10⁶

15

10

5

1.0 0.5 0.0 -0.5 -1.0

0

10

Gamma multiplicities distribution
n_na

Gamma energy distribution
n_np

Gamma angles distribution
n_np
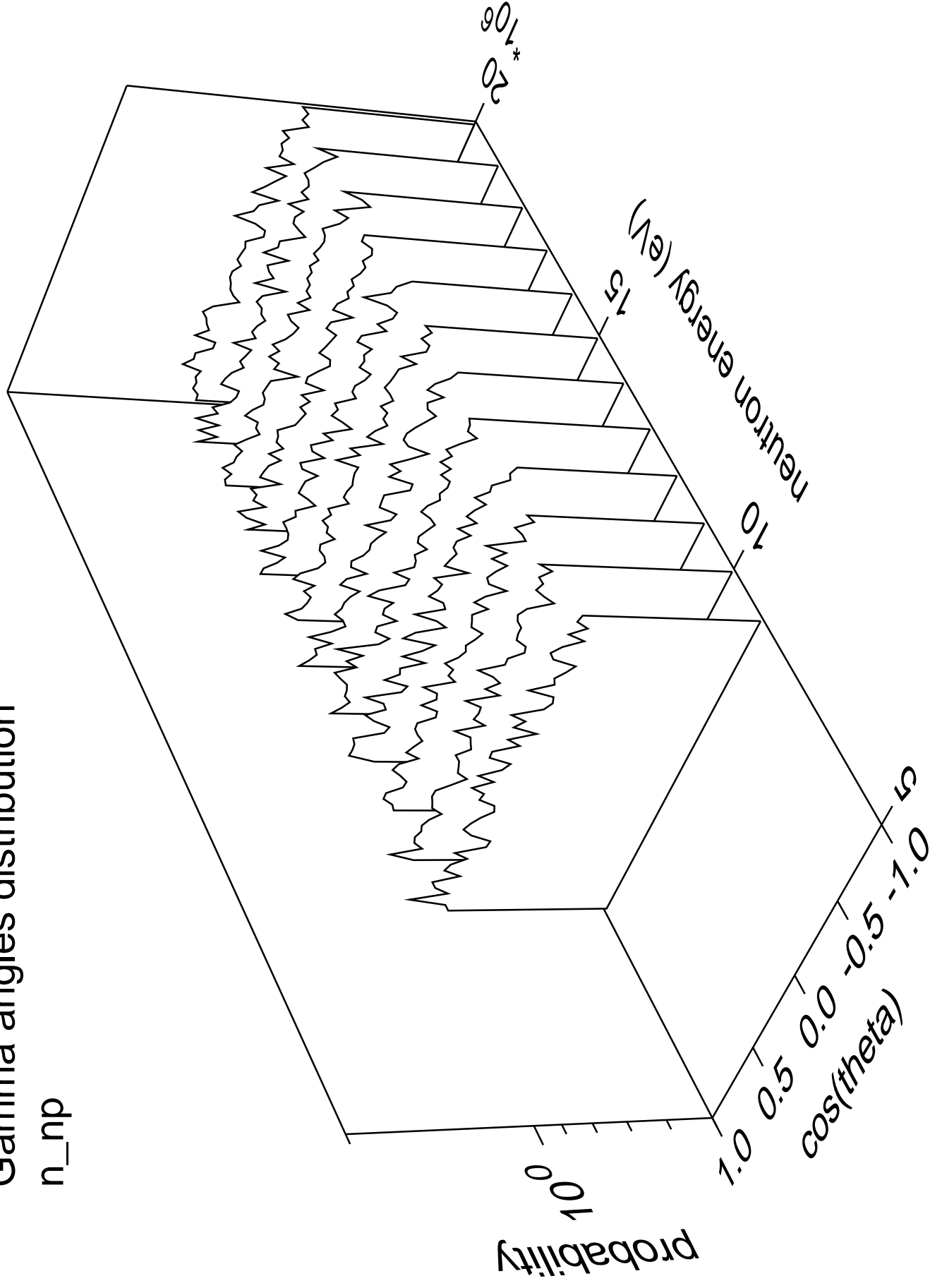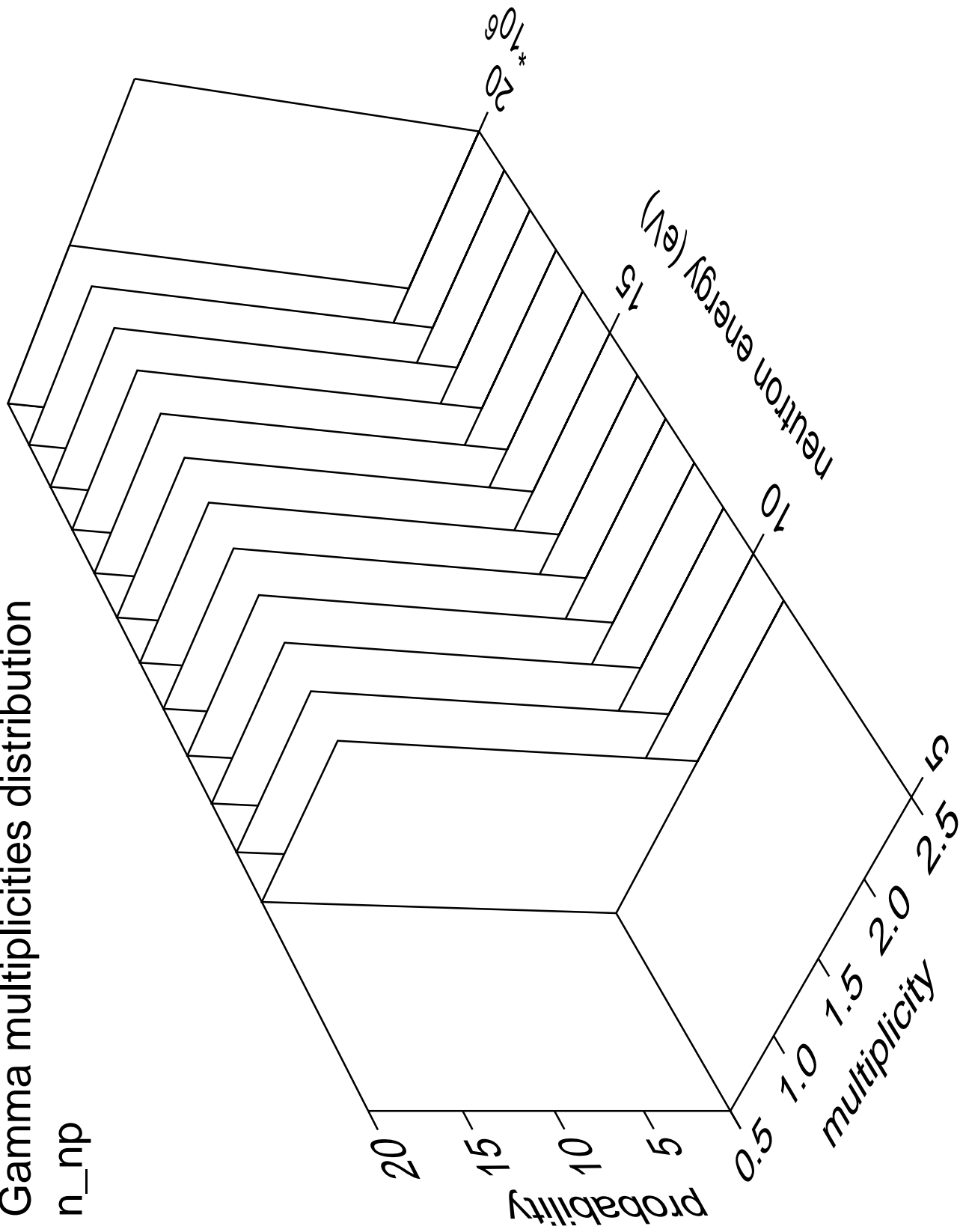
probability

cos(theta)

neutron energy (eV)

Gamma multiplicities distribution

Gamma energy distribution
n_n_1

probability

neutron energy (eV)

gamma energy (MeV)

20 *10⁶

15

10

5

0

100

50

0

5

10

15

20

Gamma angles distribution
n_n_1

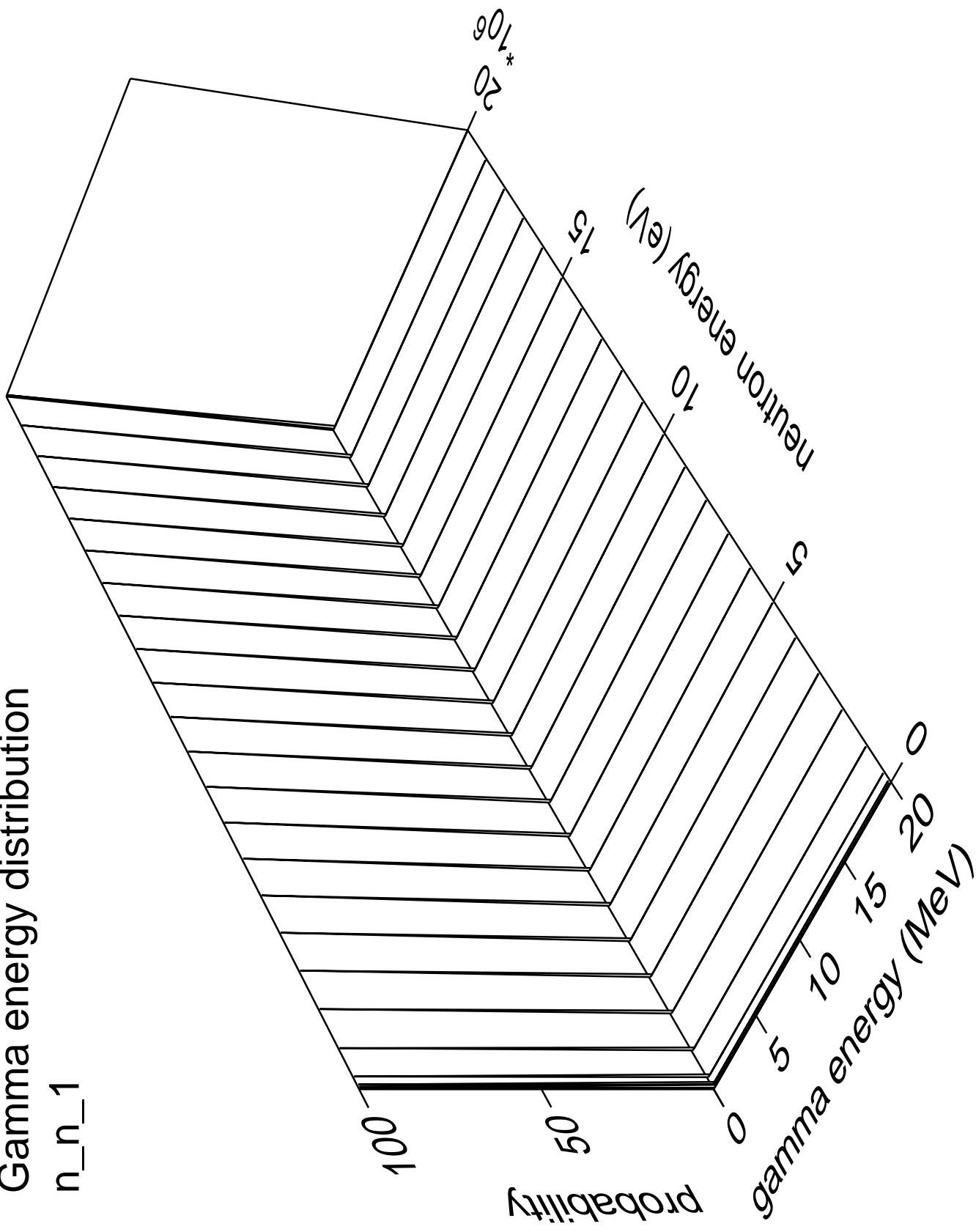probability

neutron energy (eV)

cos(theta)

20 *10⁶

15

10

5

0

1.0 0.5 0.0 -0.5 -1.0
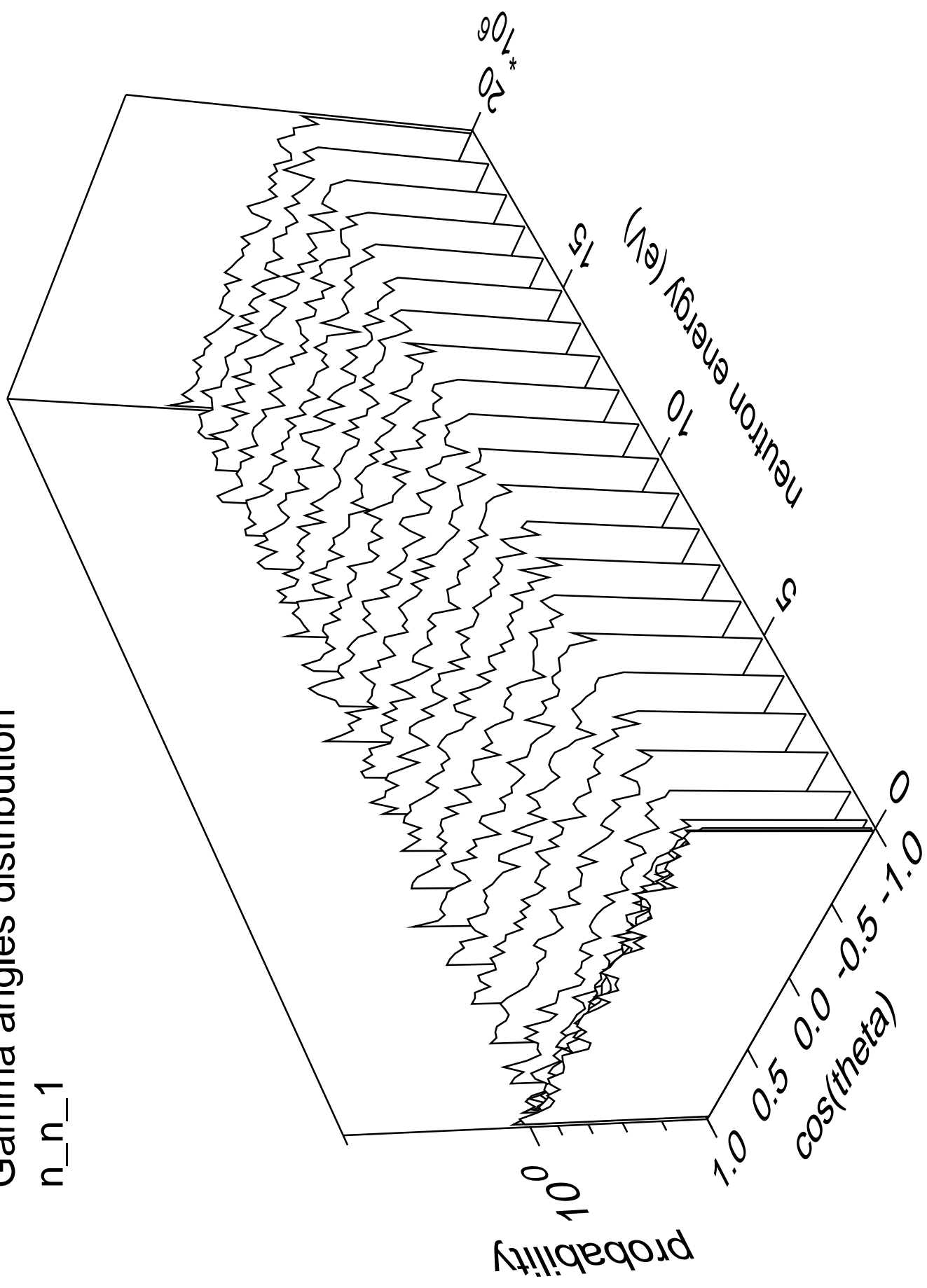
Gamma multiplicities distribution n_n_1

Gamma energy distribution
n_n_2
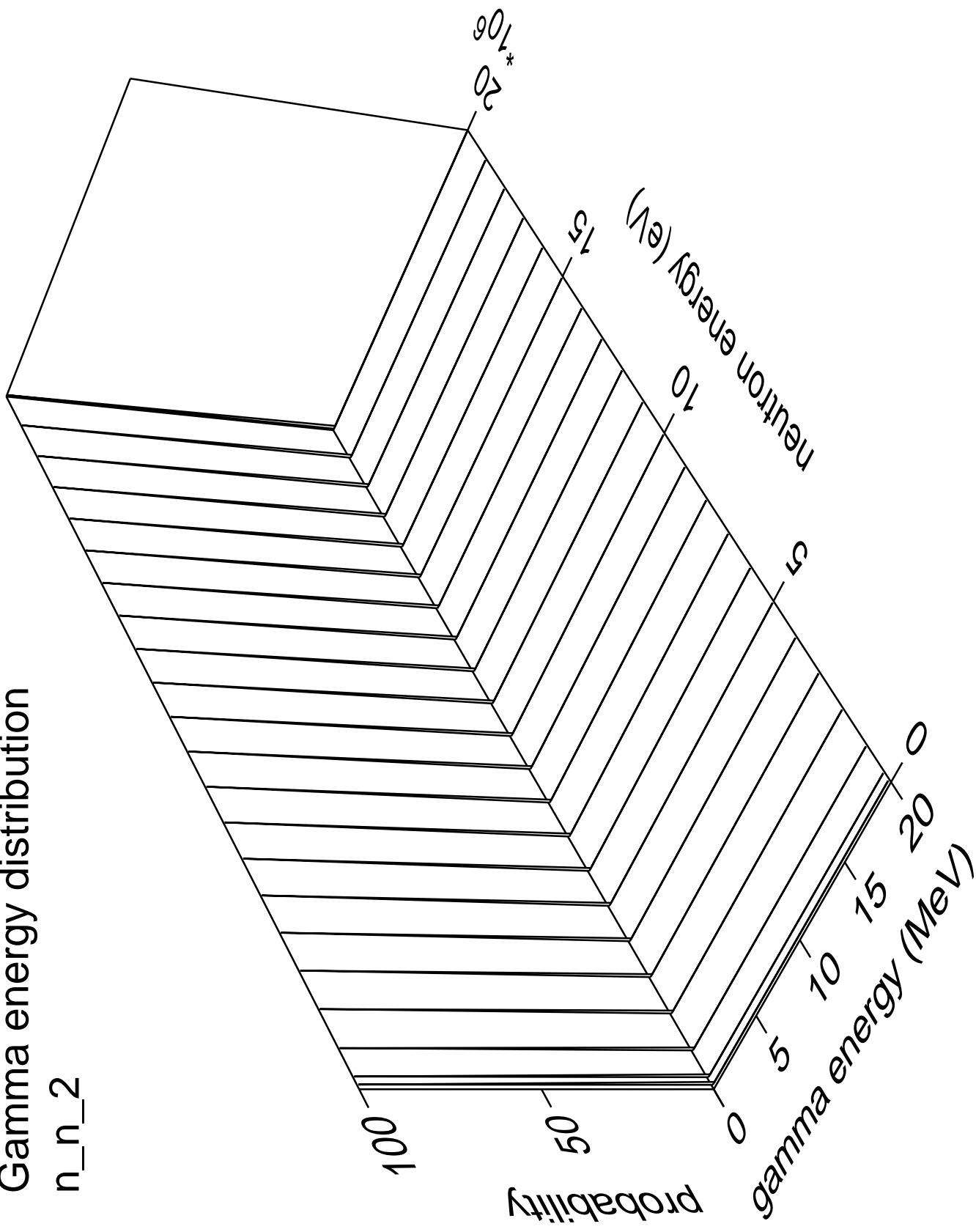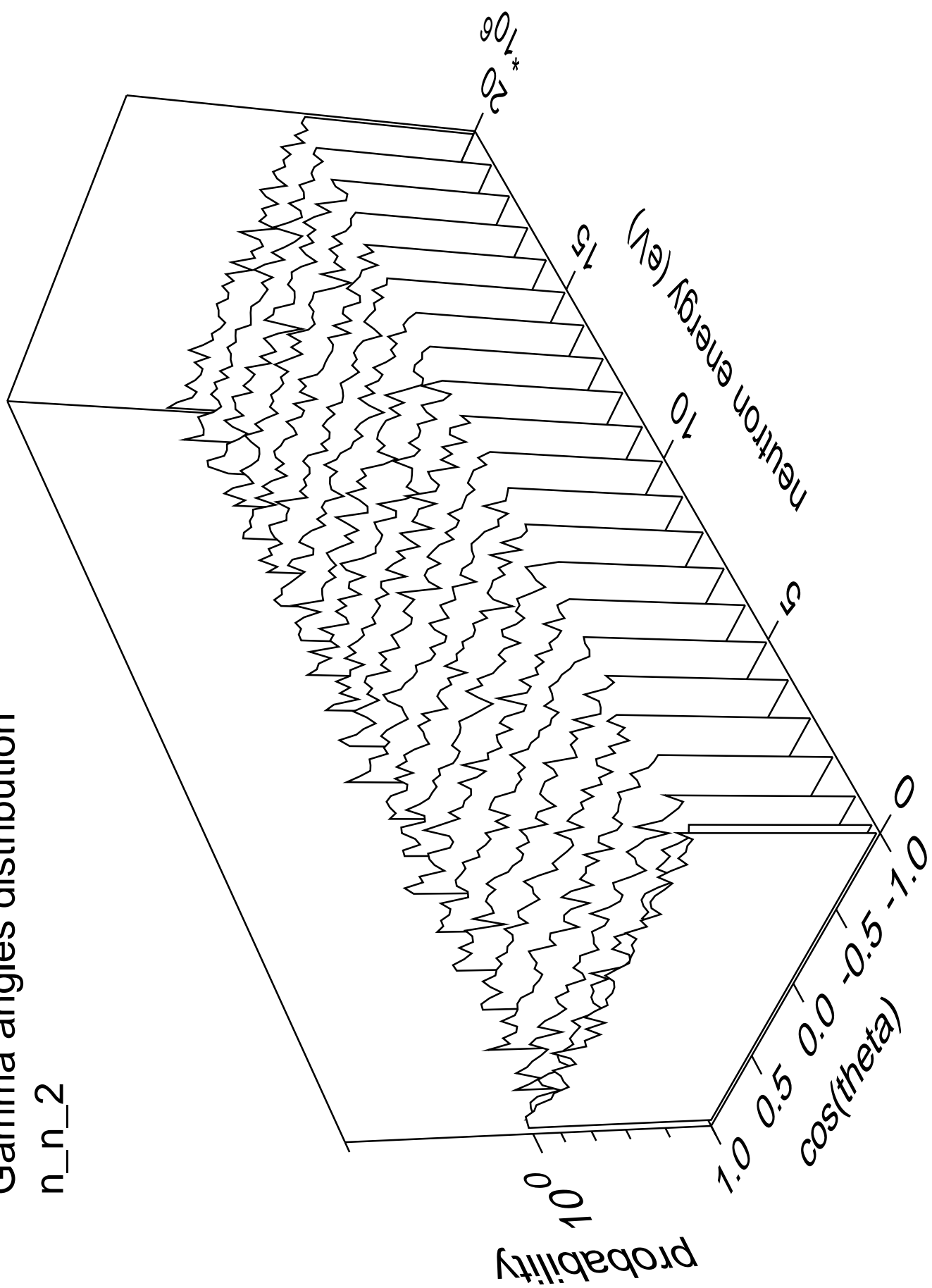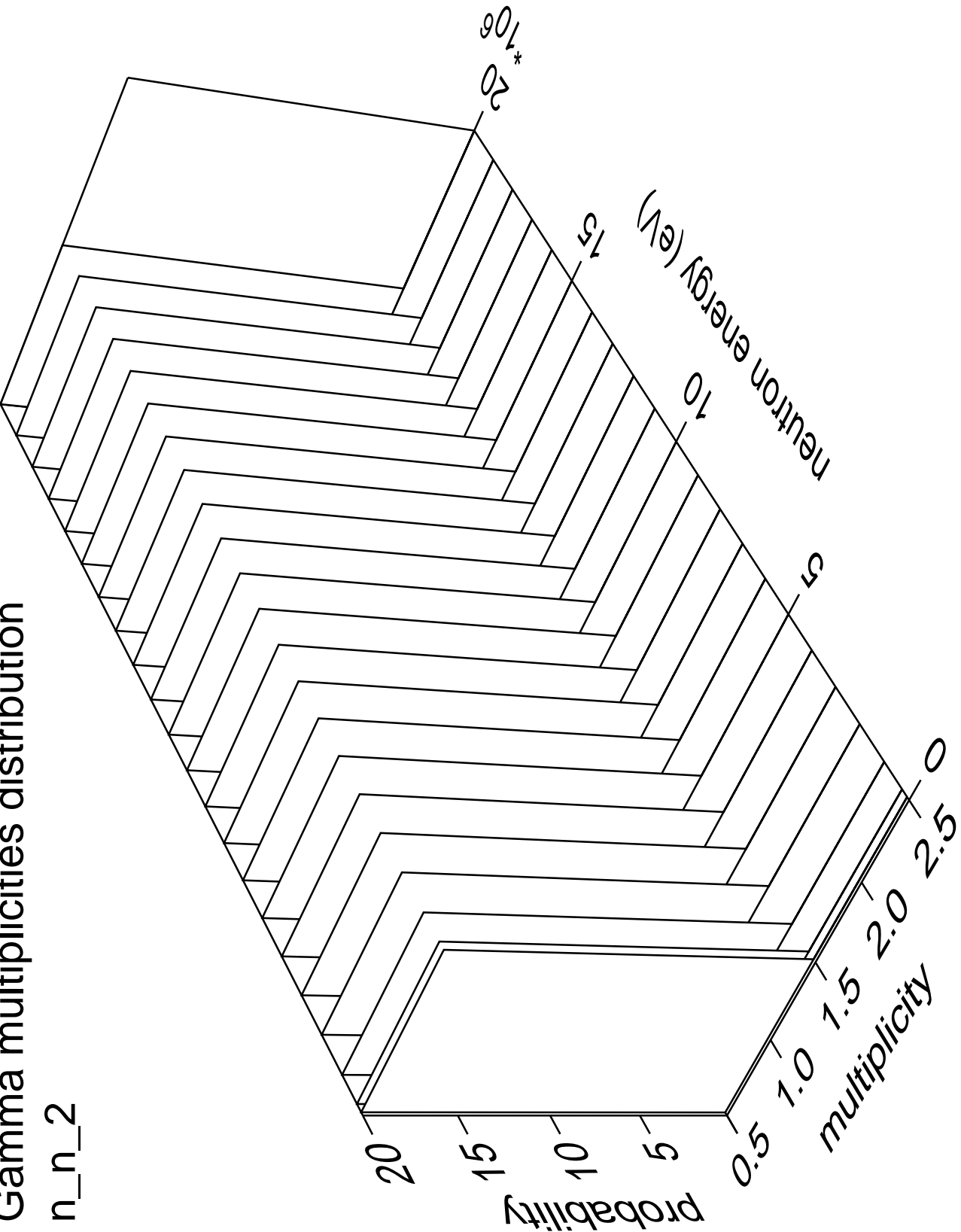
probability

neutron energy (eV)

gamma energy (MeV)

20 *10⁶

15

10

5

0

20

15

10

5

0

100

50

Gamma angles distribution
n_n_2

probability

10⁰

neutron energy (eV)

20
*10⁶

15

10

5

0

1.0 0.5 0.0 -0.5 -1.0

cos(theta)

Gamma multiplicities distribution
n_n_2

probability

multiplicity

neutron energy (eV)

*10^6

Gamma energy distribution
n_n_3

probability

neutron energy (eV)

gamma energy (MeV)

20 *10⁶

15

10

5

100

50

0

0   5   10   15   20

Gamma angles distribution
n_n_3

probability

$*10^6$

neutron energy (eV)

cos(theta)
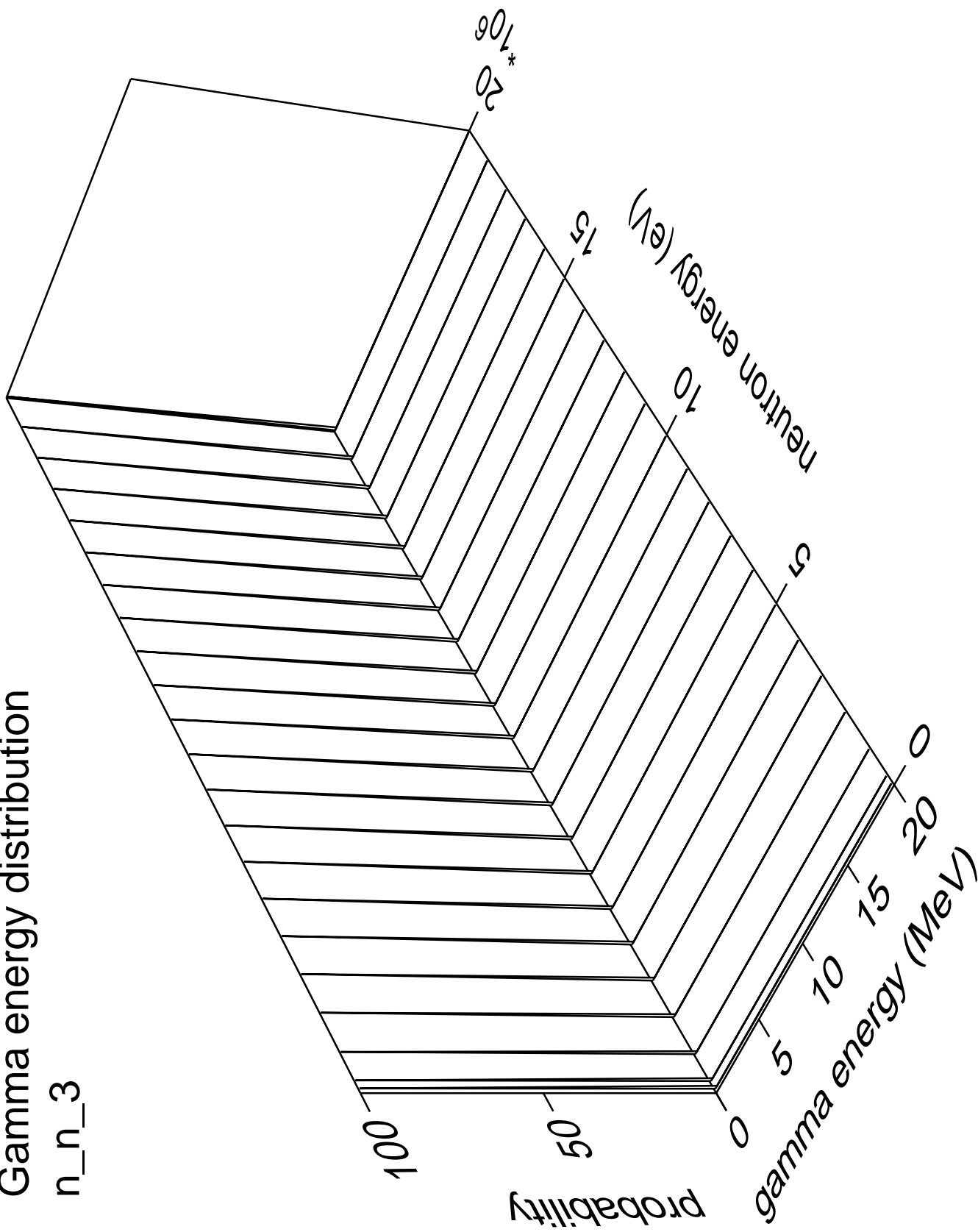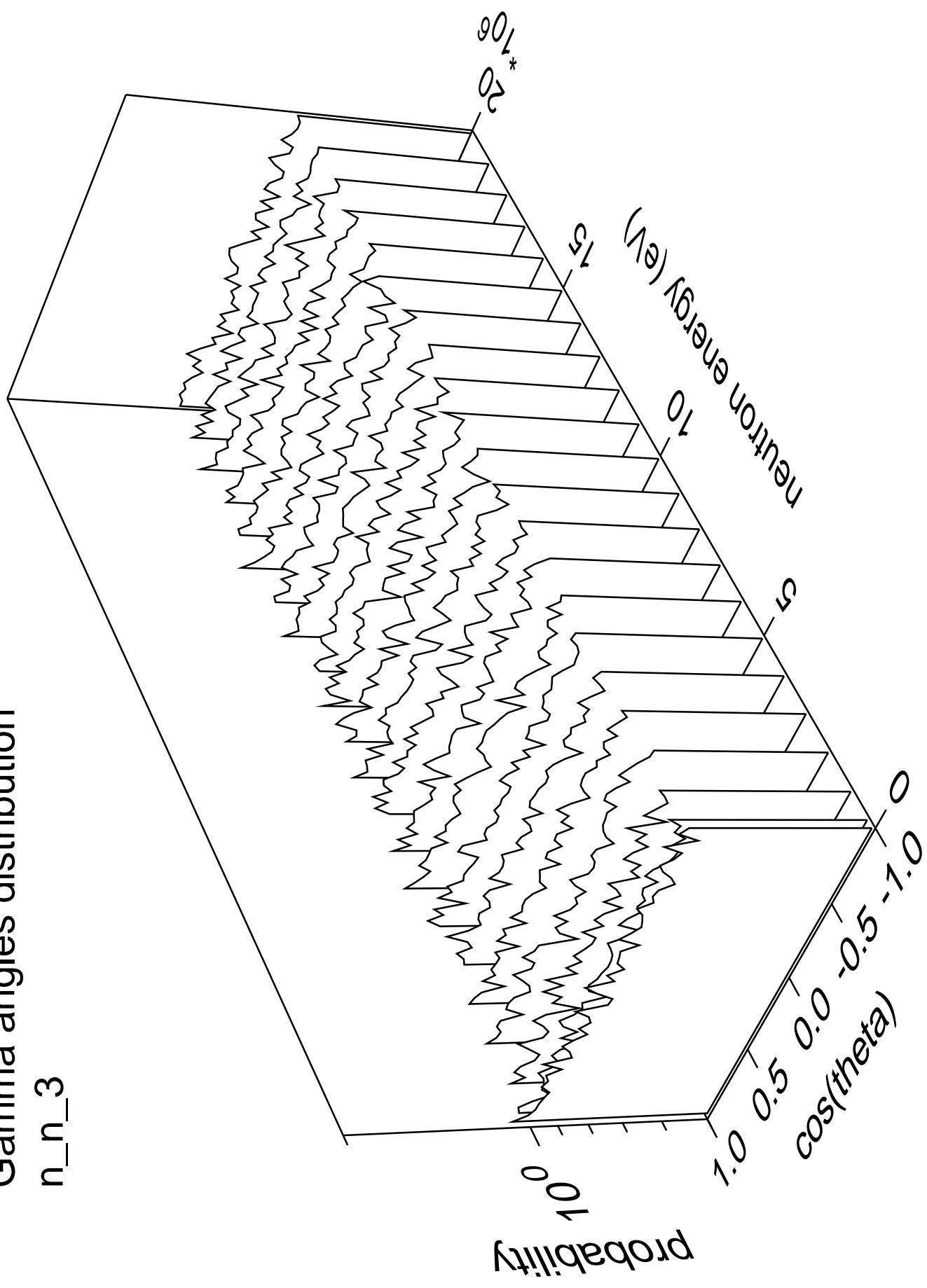
Gamma multiplicities distribution
n_n_3

Gamma energy distribution
n_n_4

probability

gamma energy (MeV)

neutron energy (eV)

Gamma angles distribution
n_n_4

probability

neutron energy (eV)

cos(theta)

20 *10⁶

15

10

5

0

1.0 0.5 0.0 -0.5 -1.0

10⁰
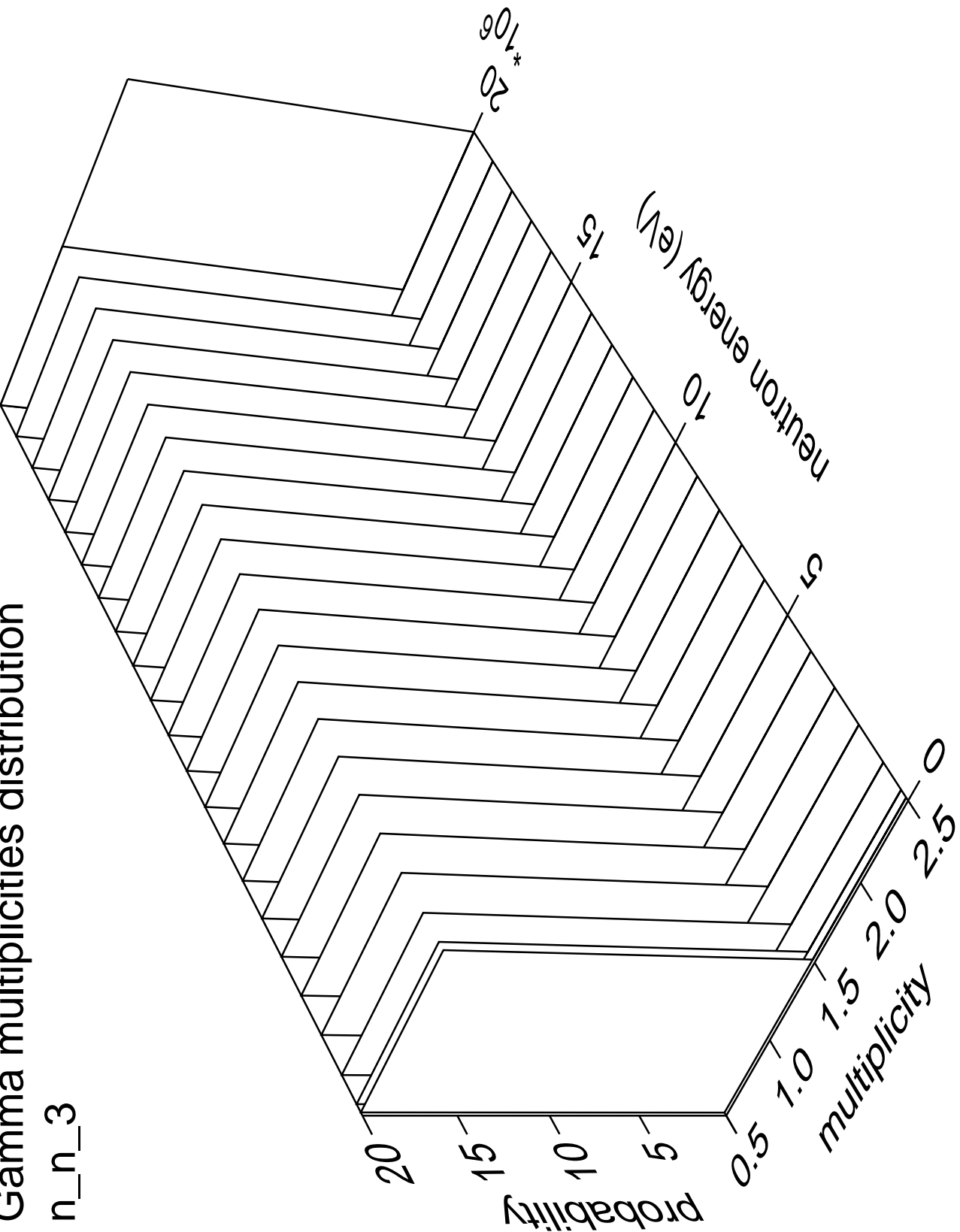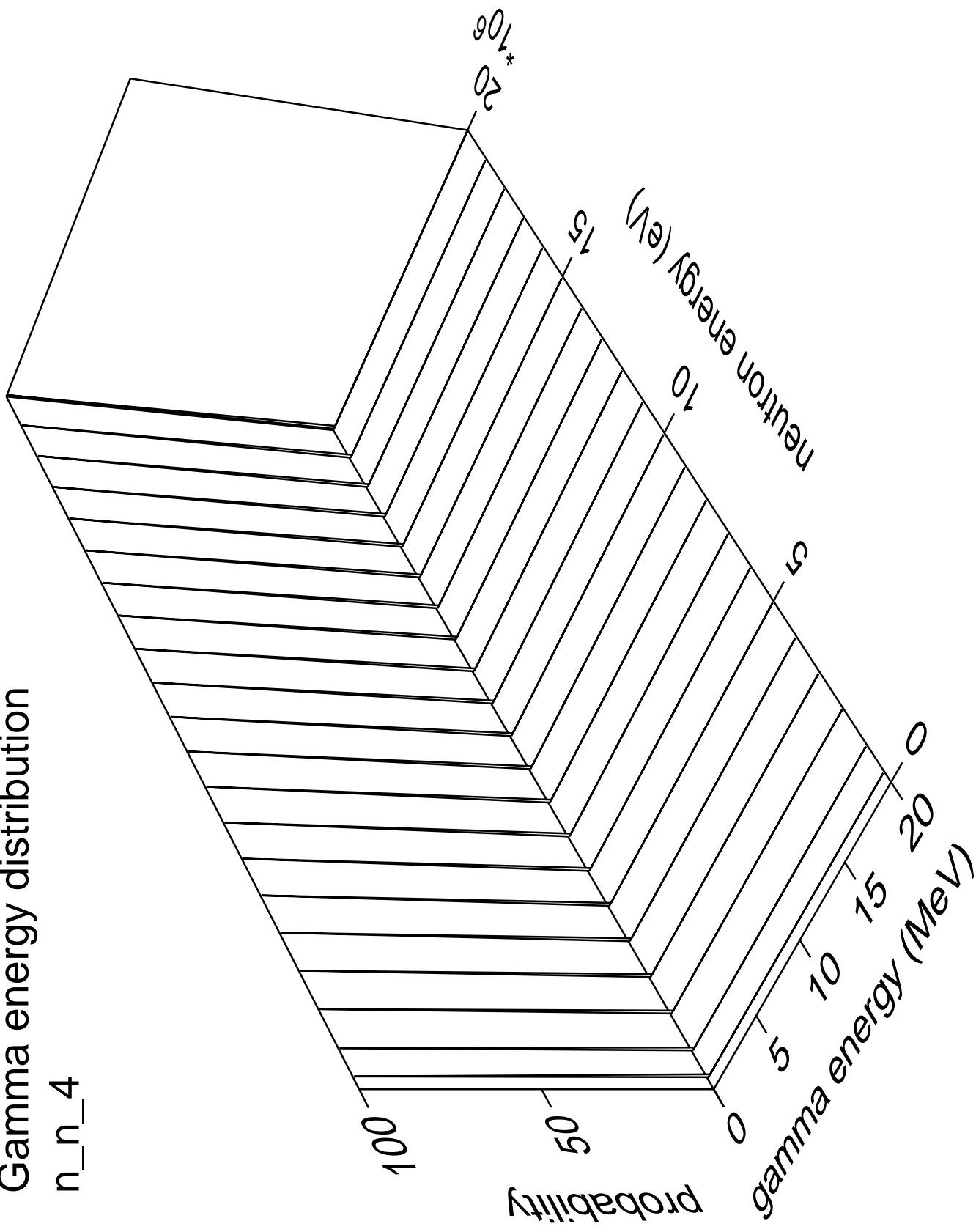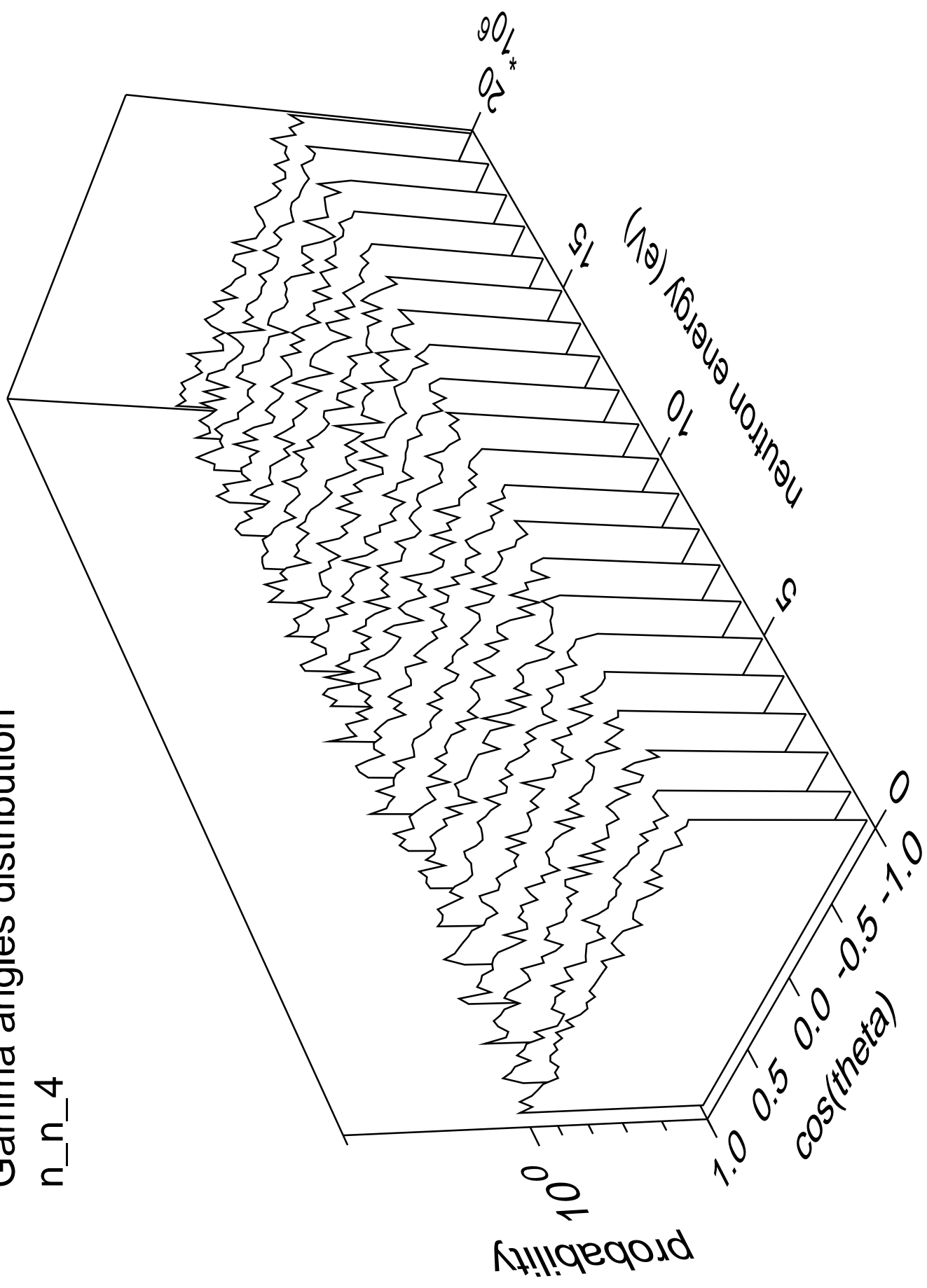
Gamma multiplicities distribution
n_n_4

Gamma energy distribution
n_n_5
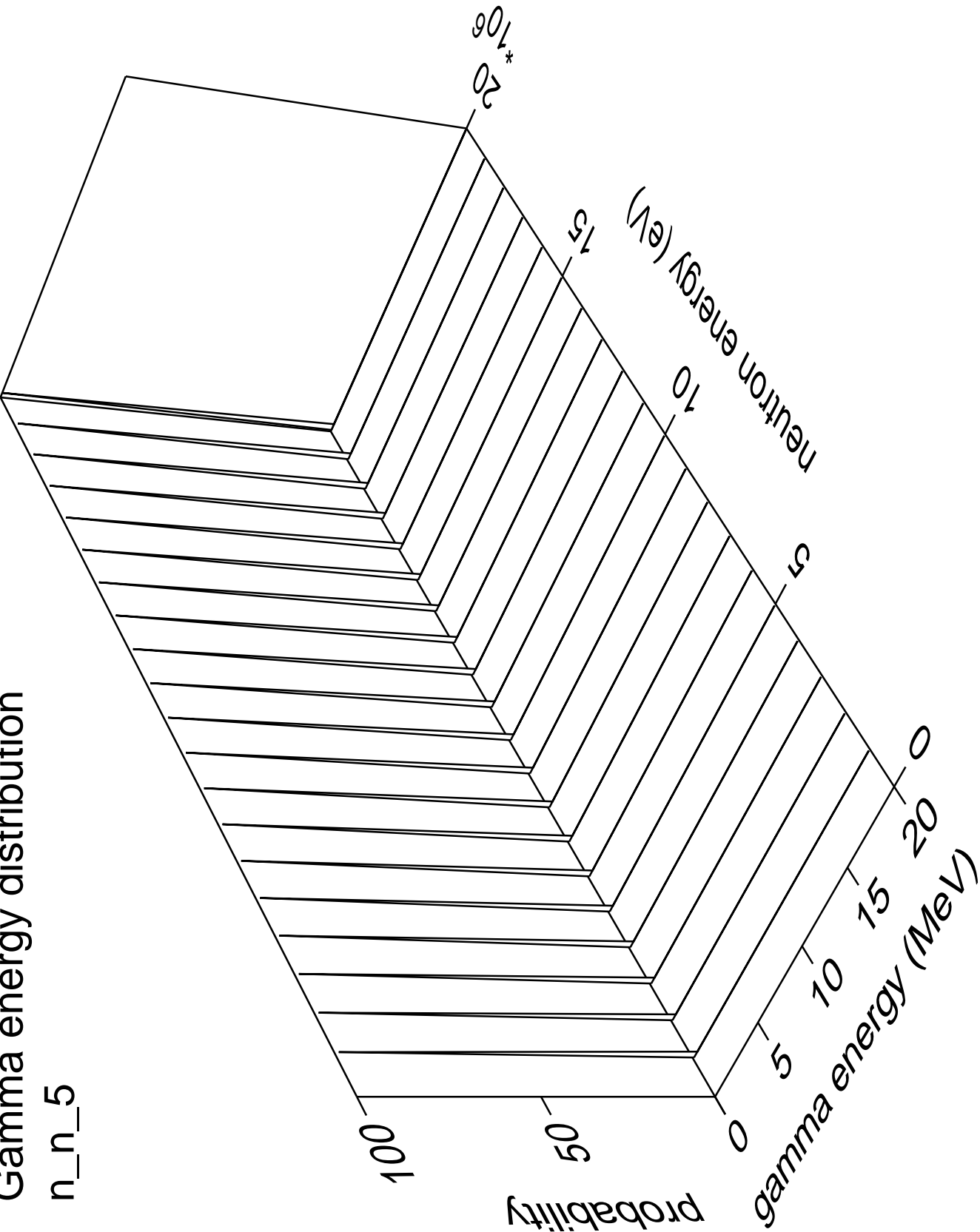
probability

neutron energy (eV)

gamma energy (MeV)

20 *10⁶

15

10

5

100

50

0

0

5

10

15

20

Gamma angles distribution
n_n_5
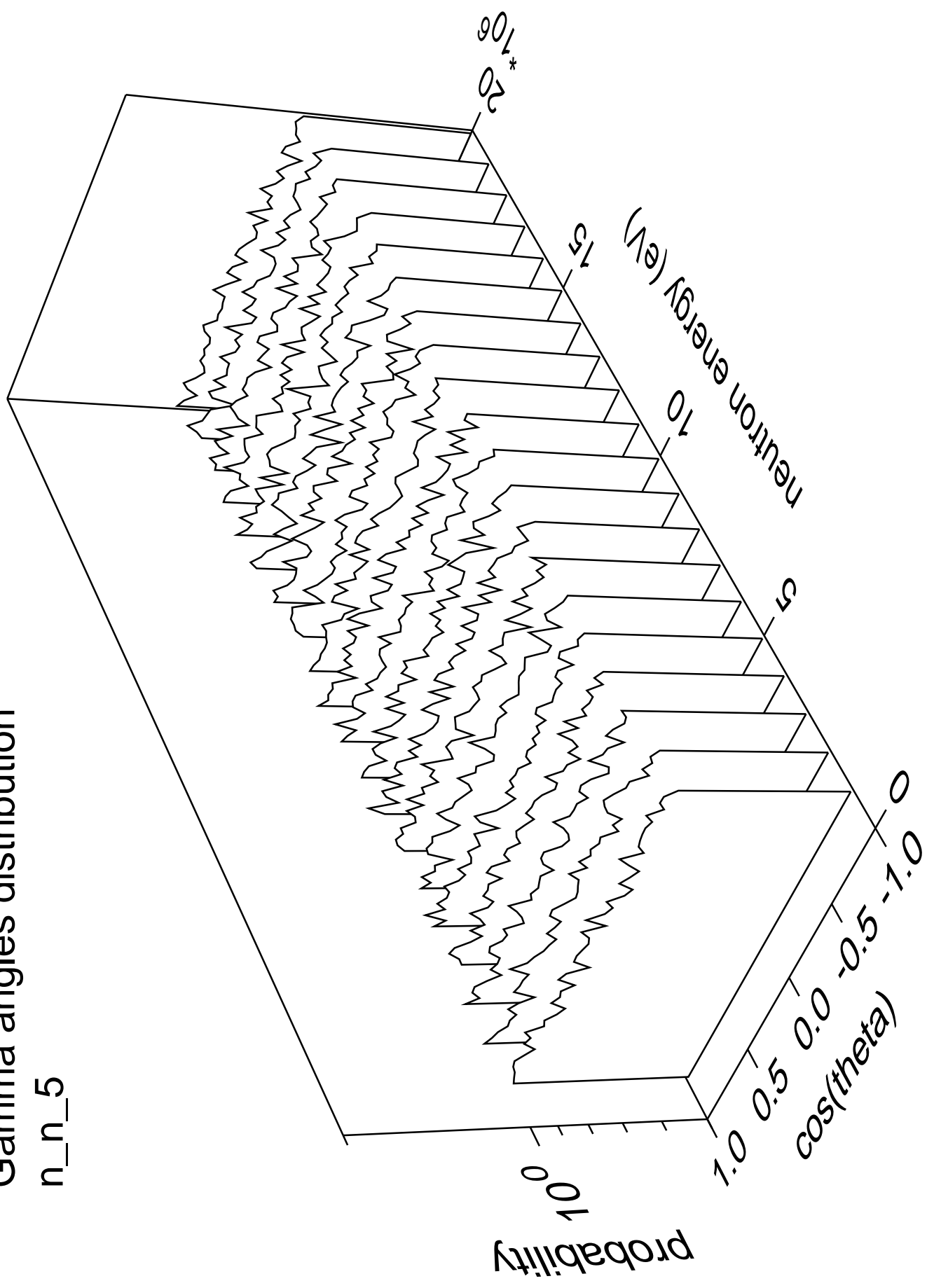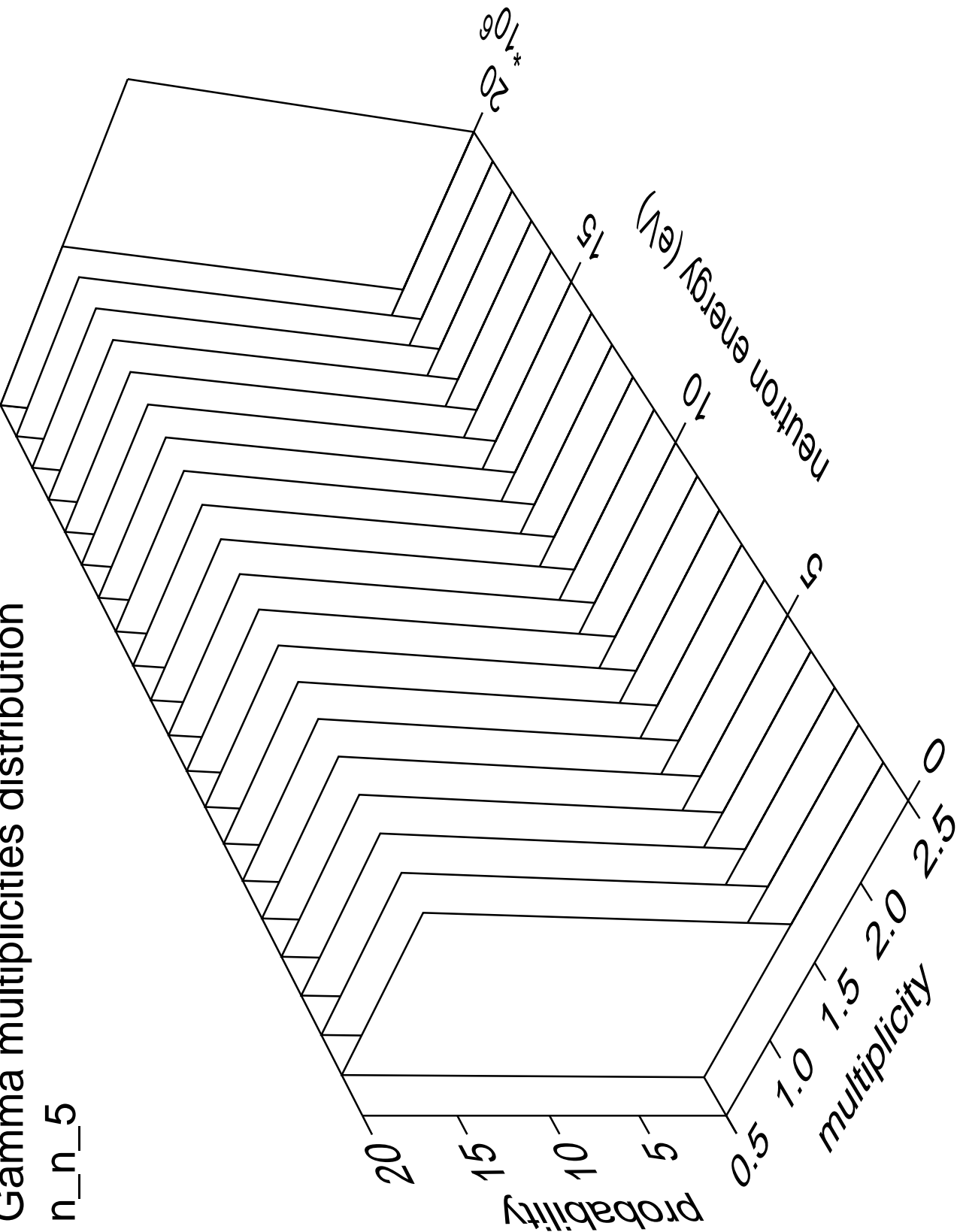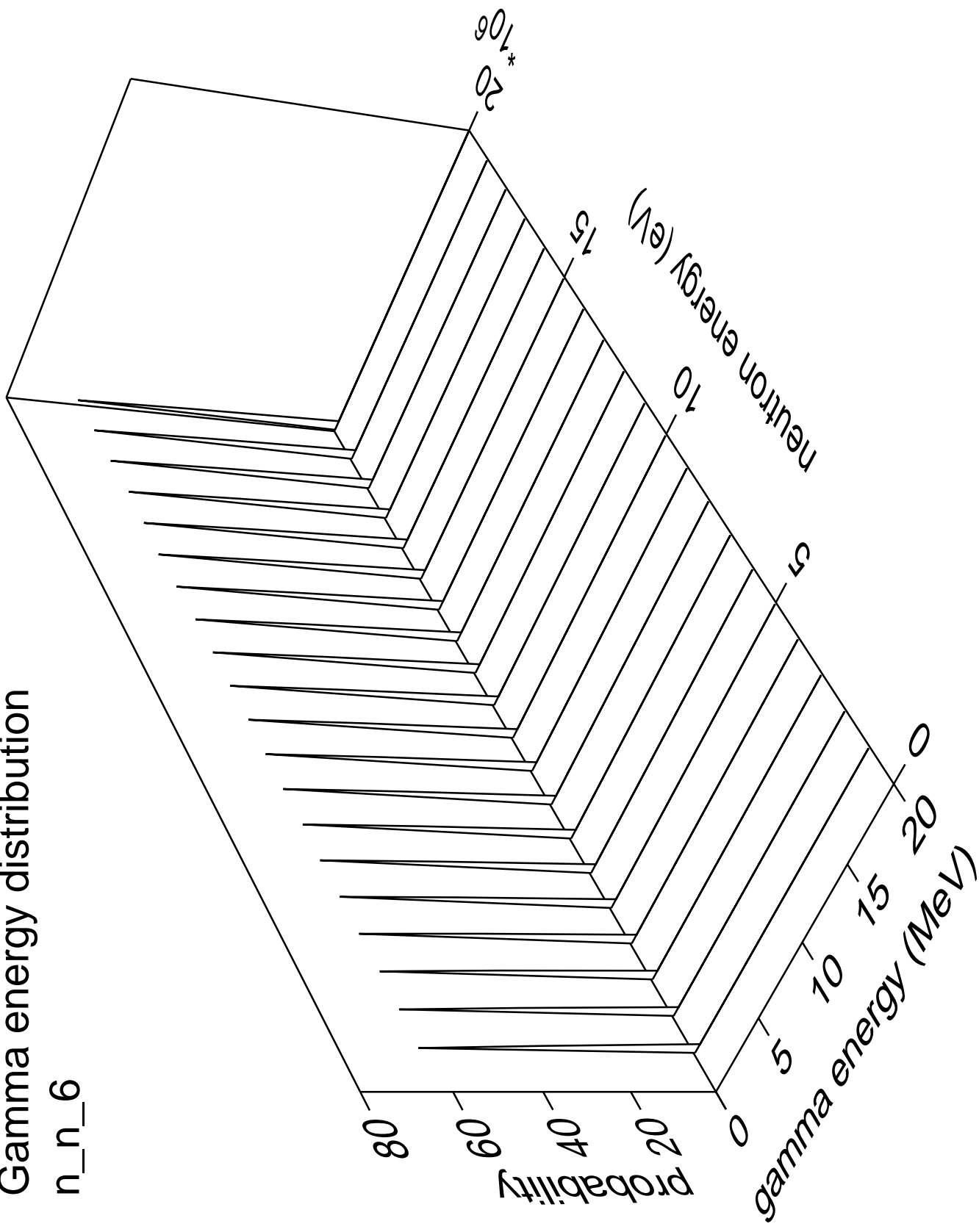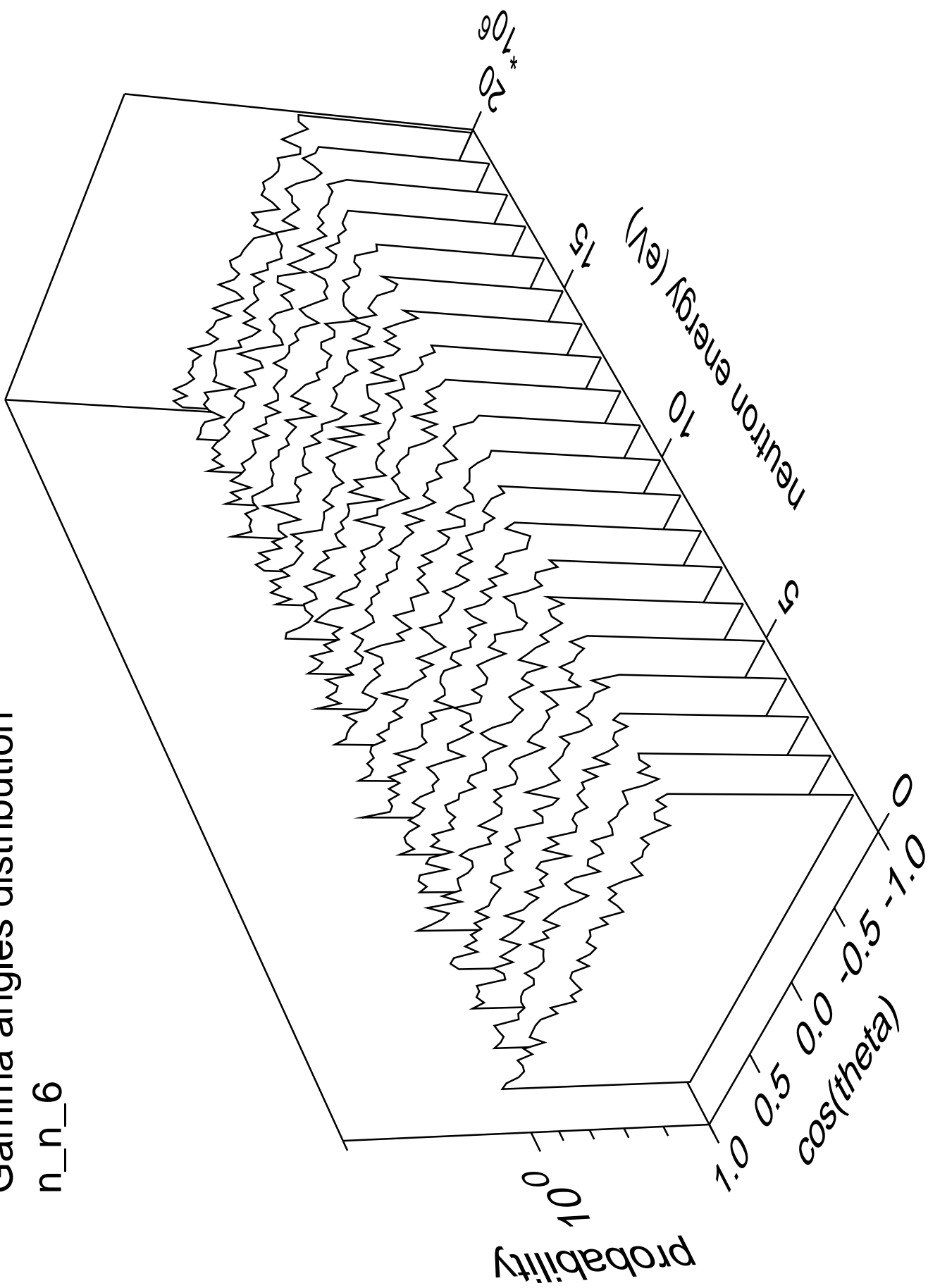
probability

neutron energy (eV)

cos(theta)

20 15 10 5 0

*10⁶

1.0 0.5 0.0 -0.5 -1.0

10⁰

Gamma multiplicities distribution

Gamma energy distribution
n_n_6

probability

neutron energy (eV)

gamma energy (MeV)

Gamma angles distribution
n_n_6

probability

neutron energy (eV)

cos(theta)

Gamma multiplicities distribution
n_n_6

neutron energy (eV)

multiplicity

probability

Gamma energy distribution
n_n_7

probability

gamma energy (MeV)

neutron energy (eV)

20 *10⁶

15

10

5

0

5

10

15

20

0

50

100
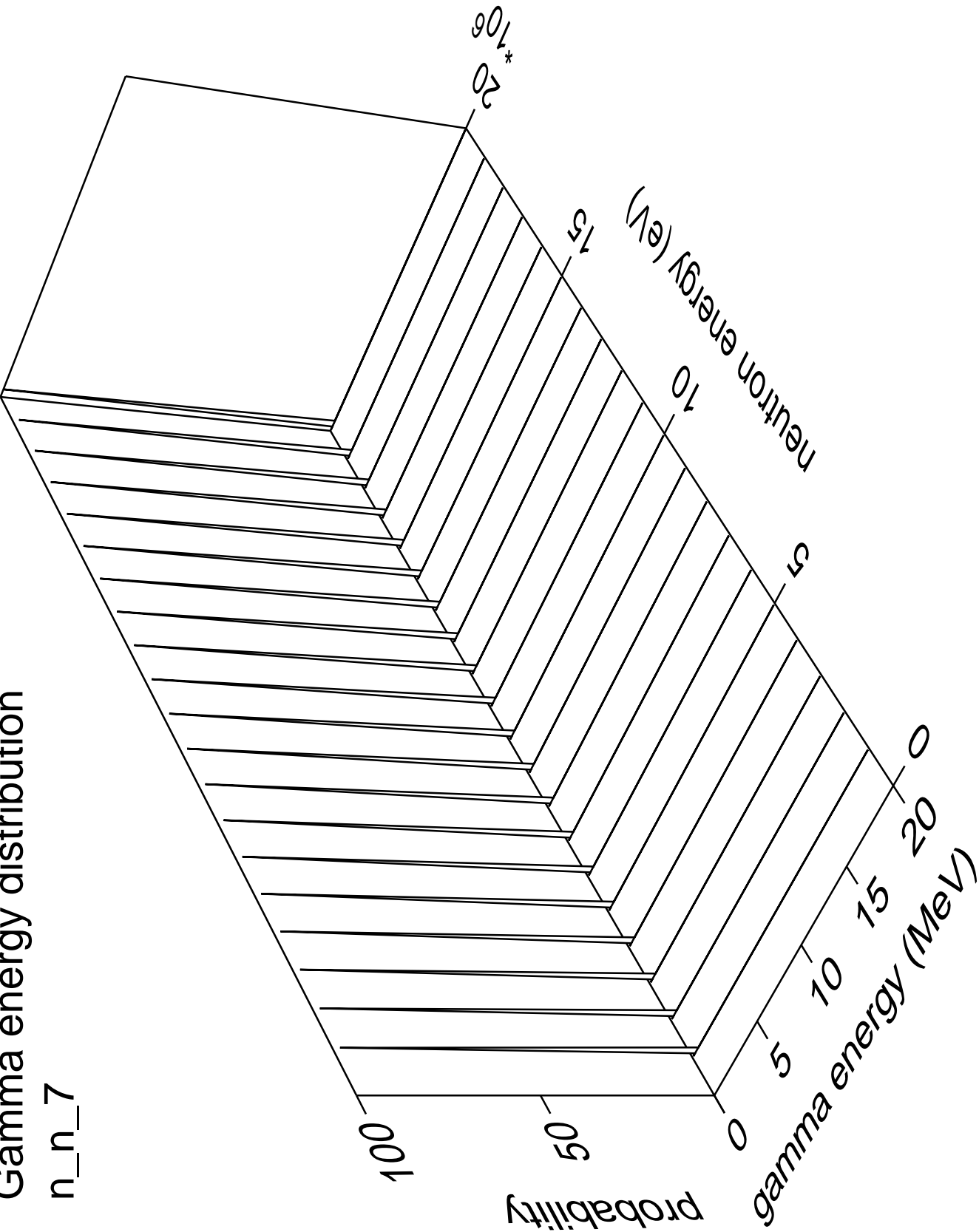
Gamma angles distribution
n_n_7

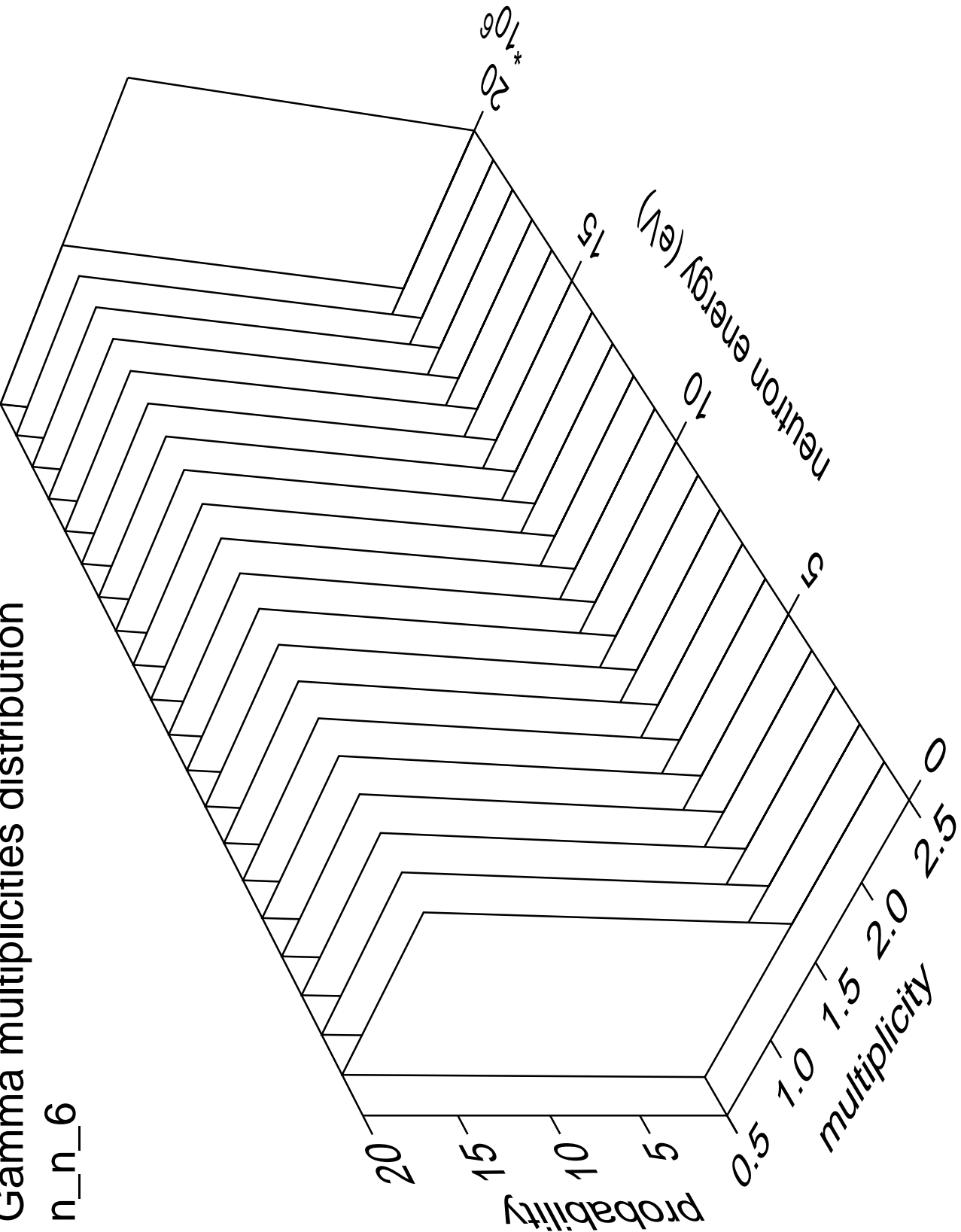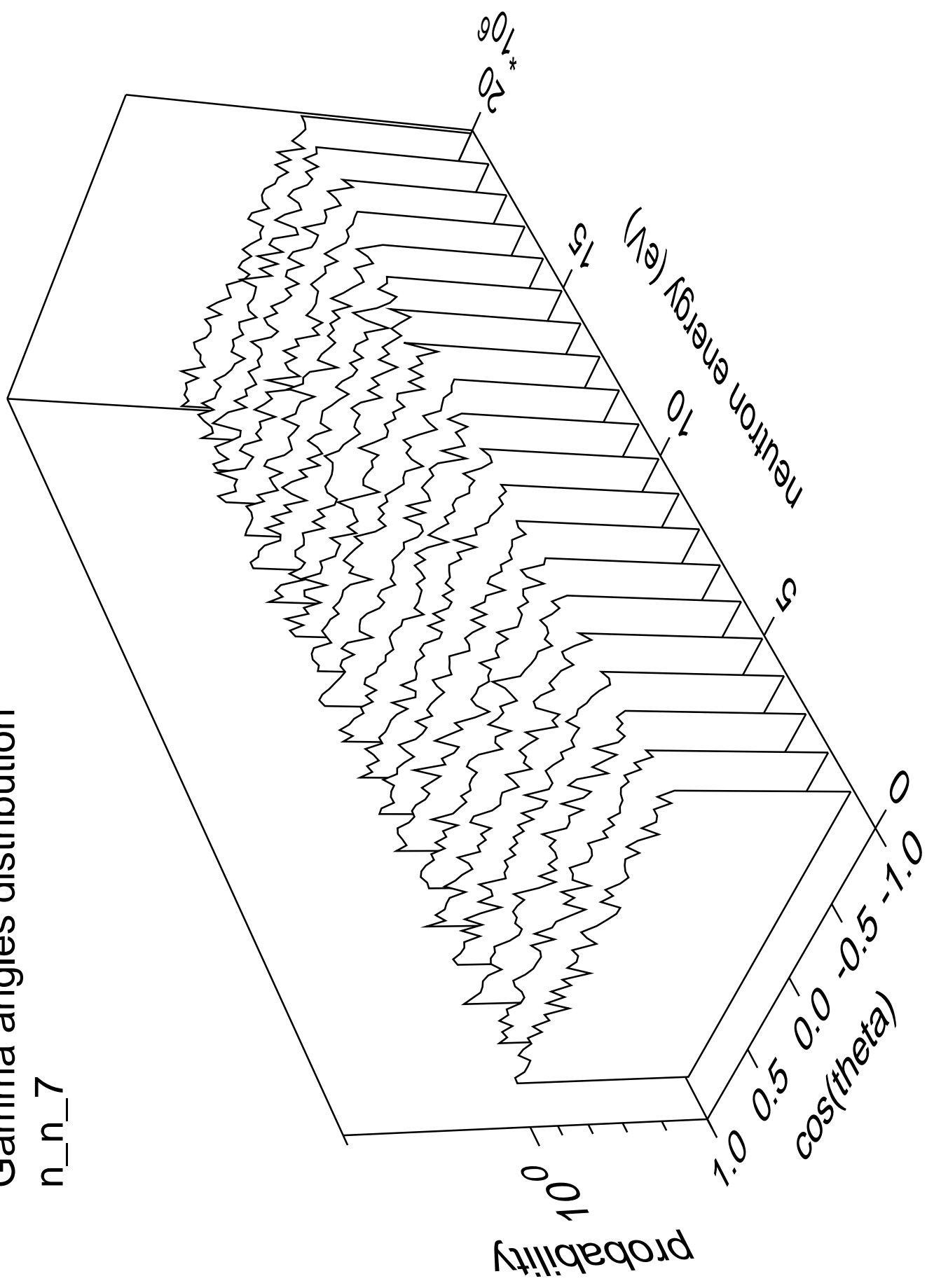Gamma multiplicities distribution
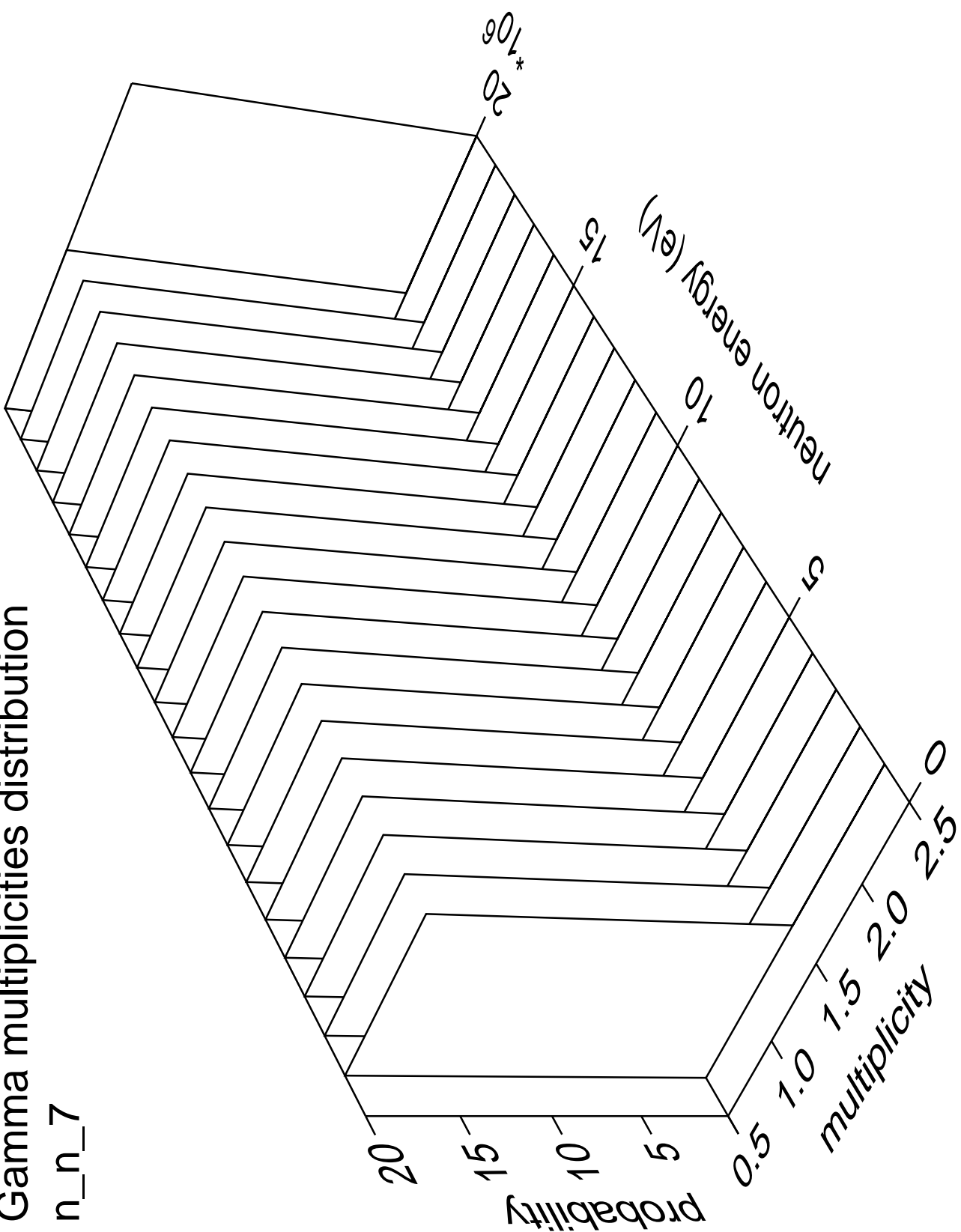n_n_7

Gamma energy distribution
n_n_8

probability

gamma energy (MeV)

neutron energy (eV)

20 *10⁶

15

10

5

0

5

10

15

20

0

50

100

Gamma angles distribution
n_n_8

probability

neutron energy (eV)

cos(theta)

20 *10⁶

15

10

5

0

1.0 0.5 0.0 -0.5 -1.0

10⁰
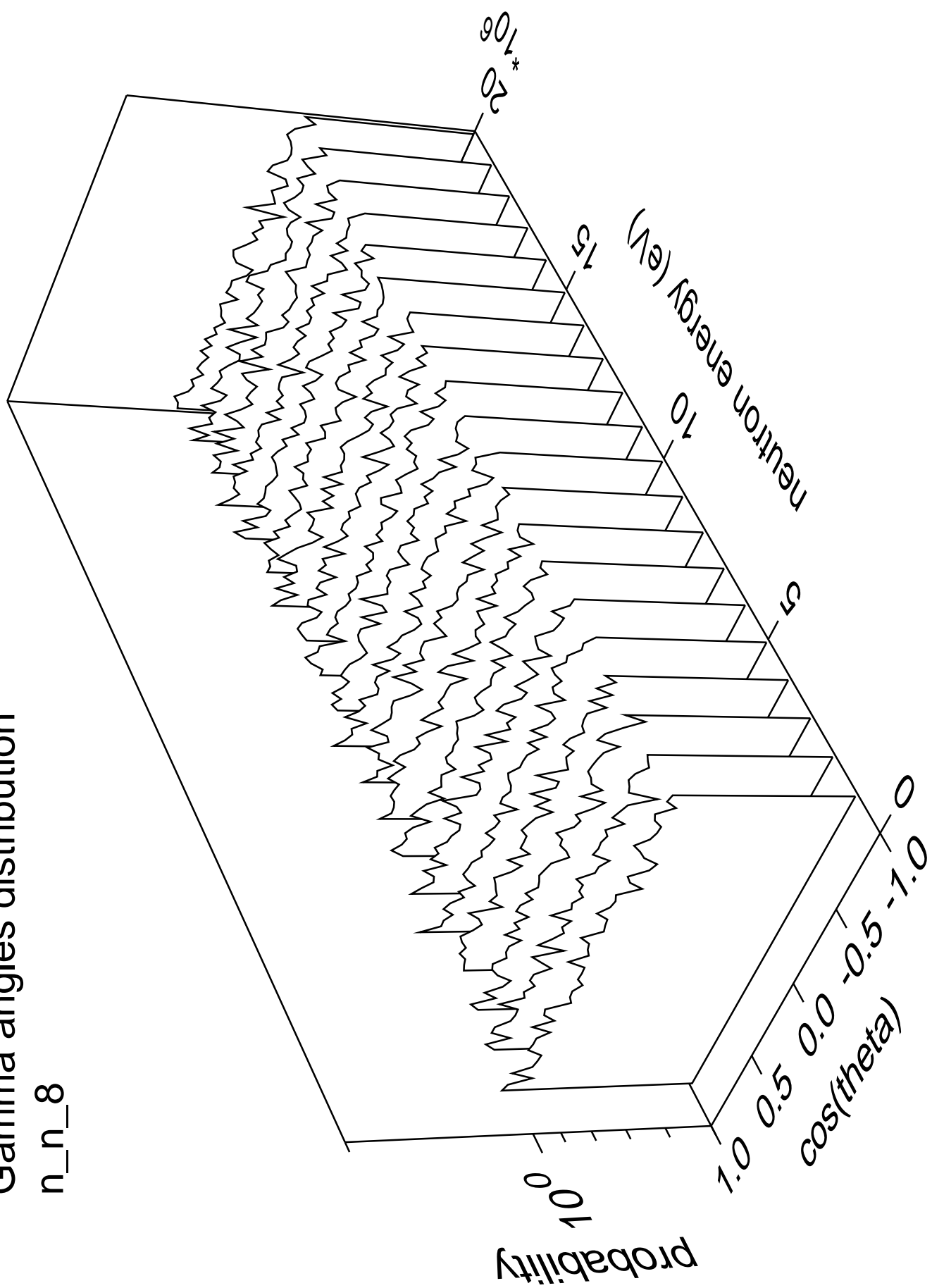
Gamma multiplicities distribution
n_n_8

Gamma energy distribution
n_n_9

probability

gamma energy (MeV)

neutron energy (eV)

Gamma angles distribution
n_n_9

probability

cos(theta)

neutron energy (eV)
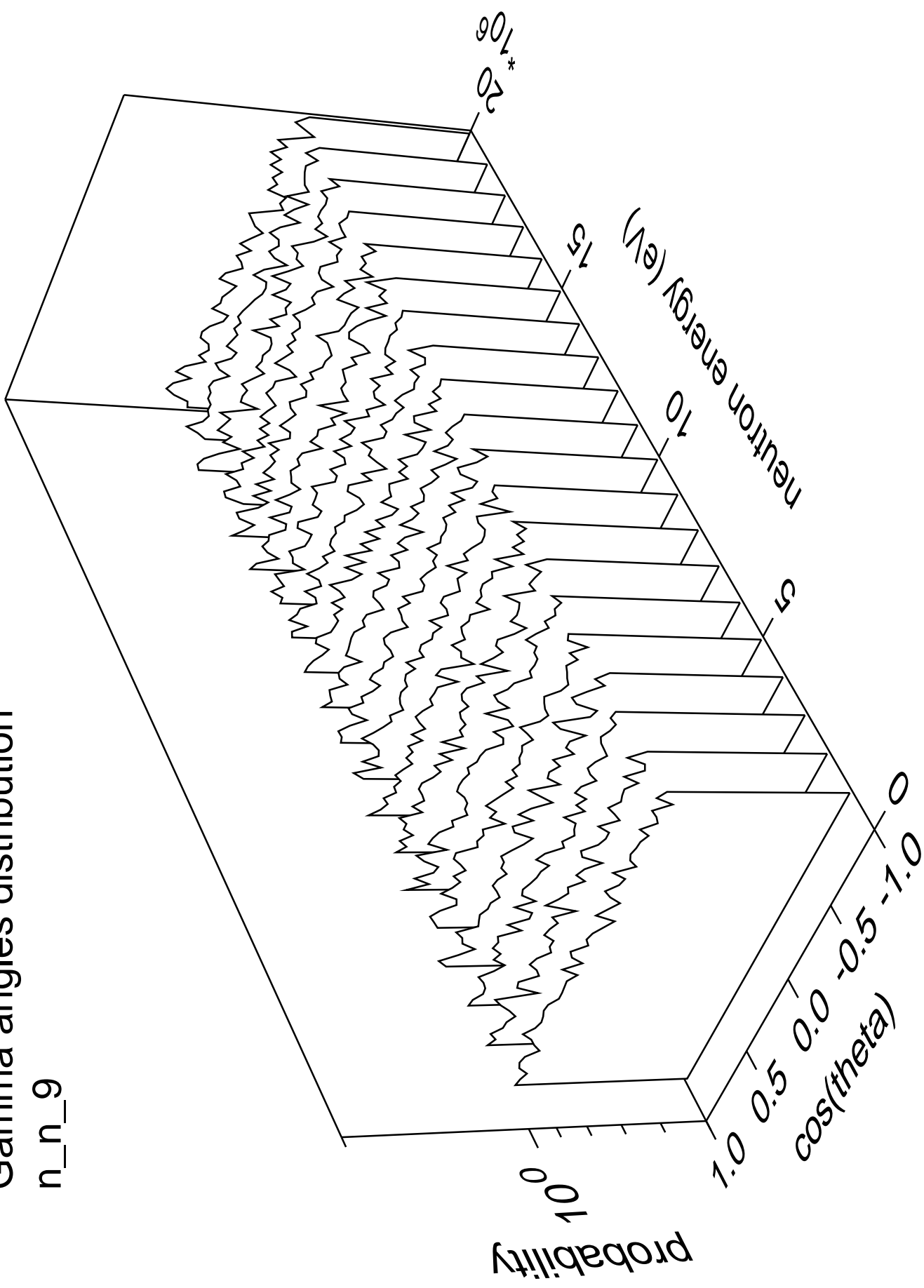
Gamma multiplicities distribution
n_n_9

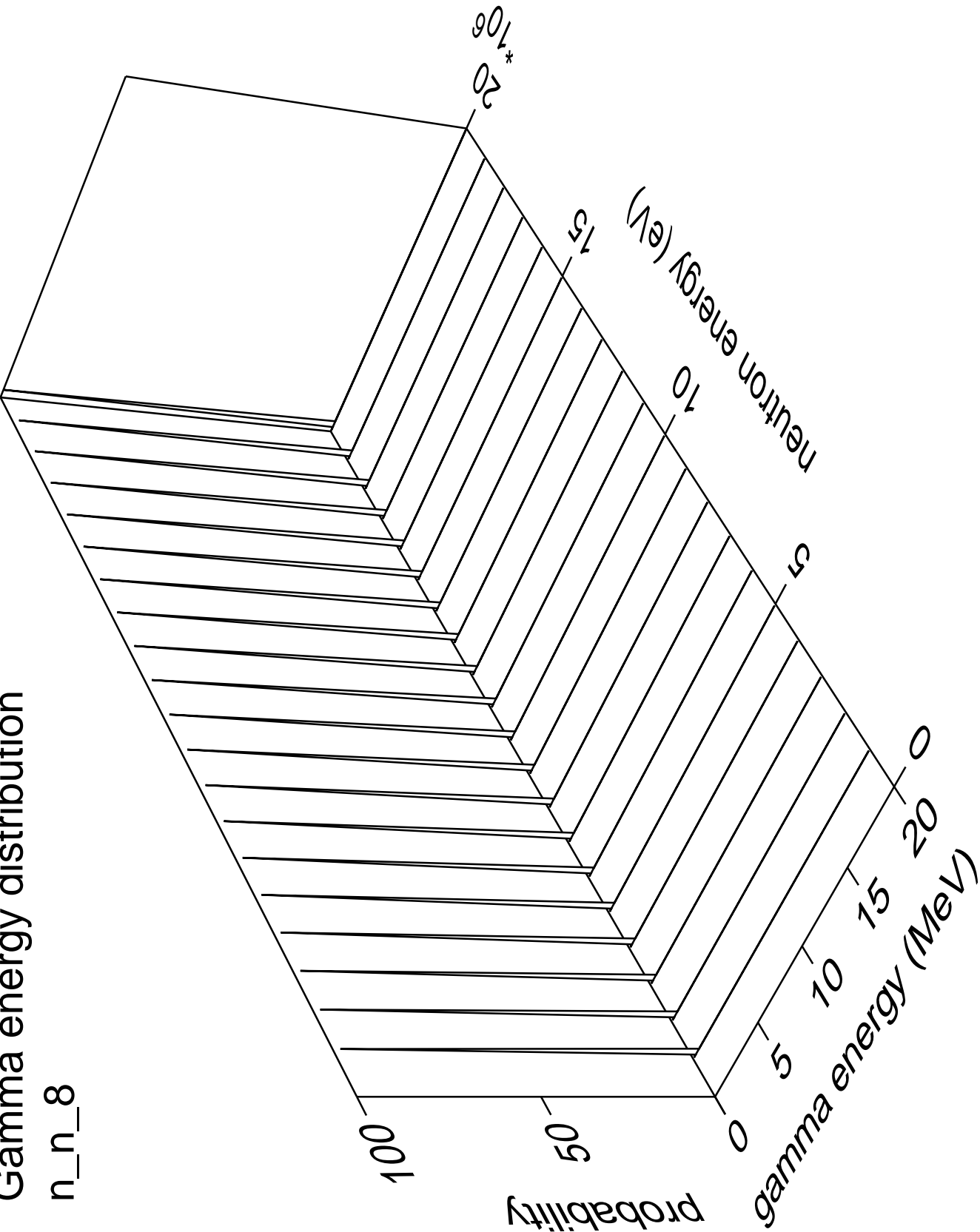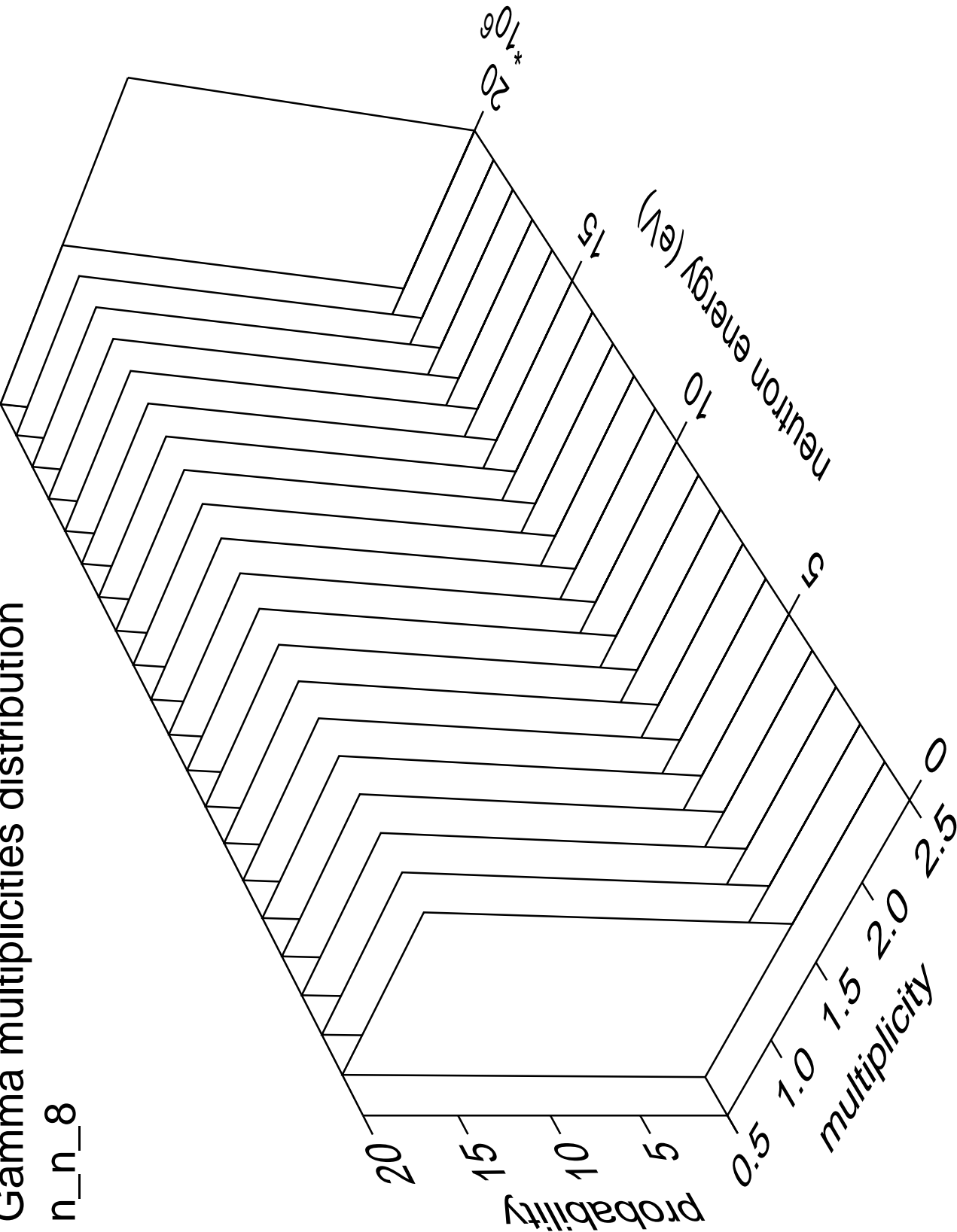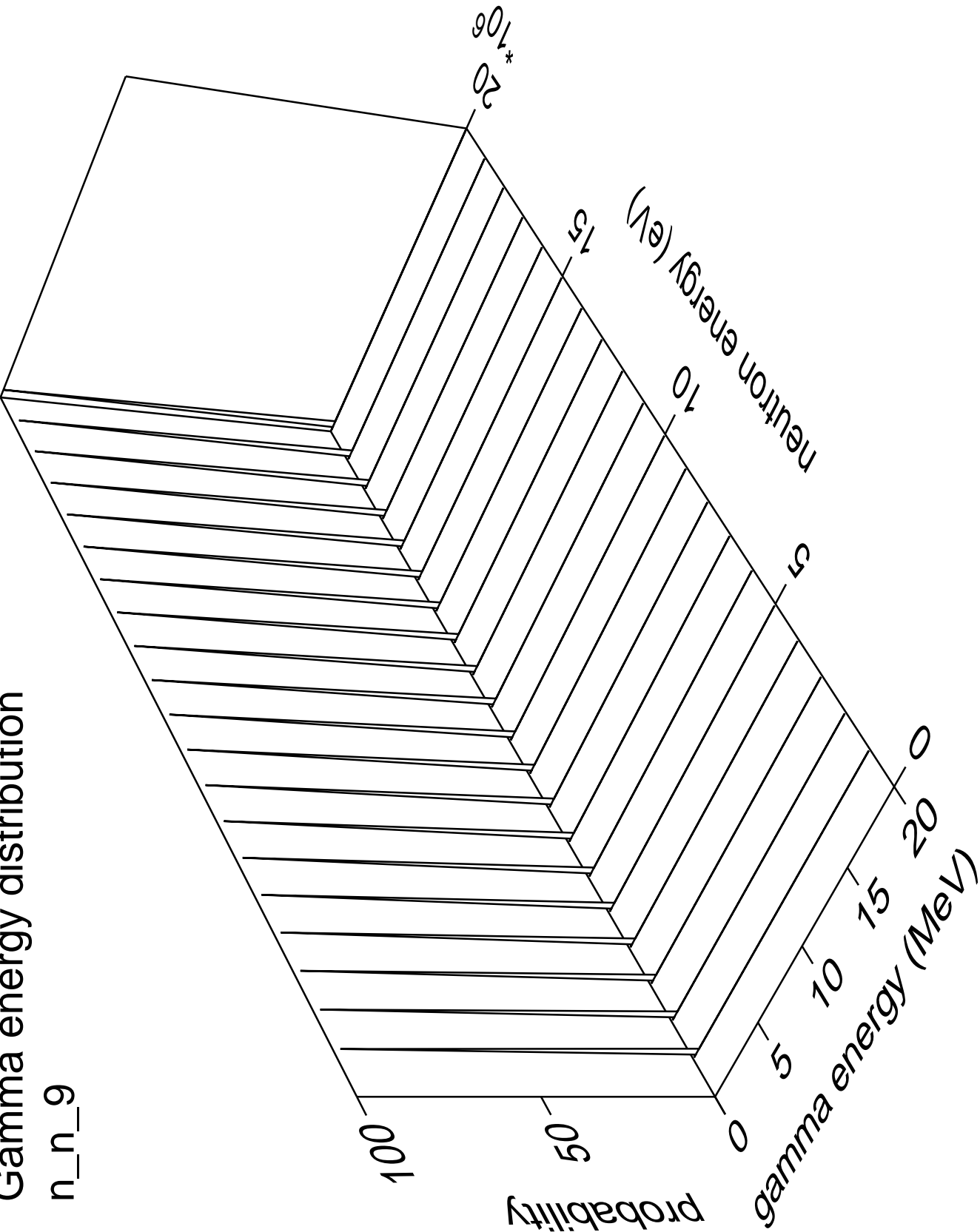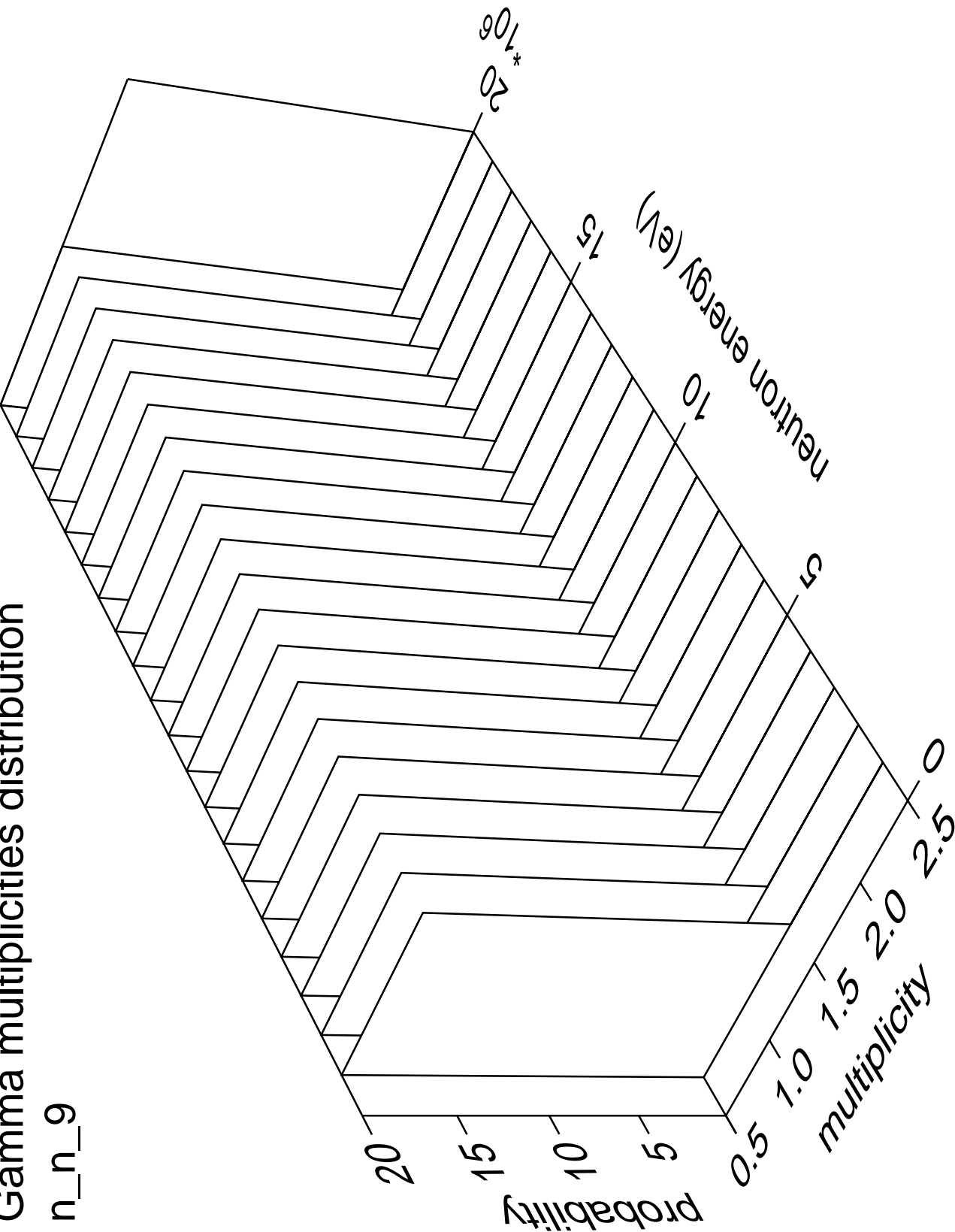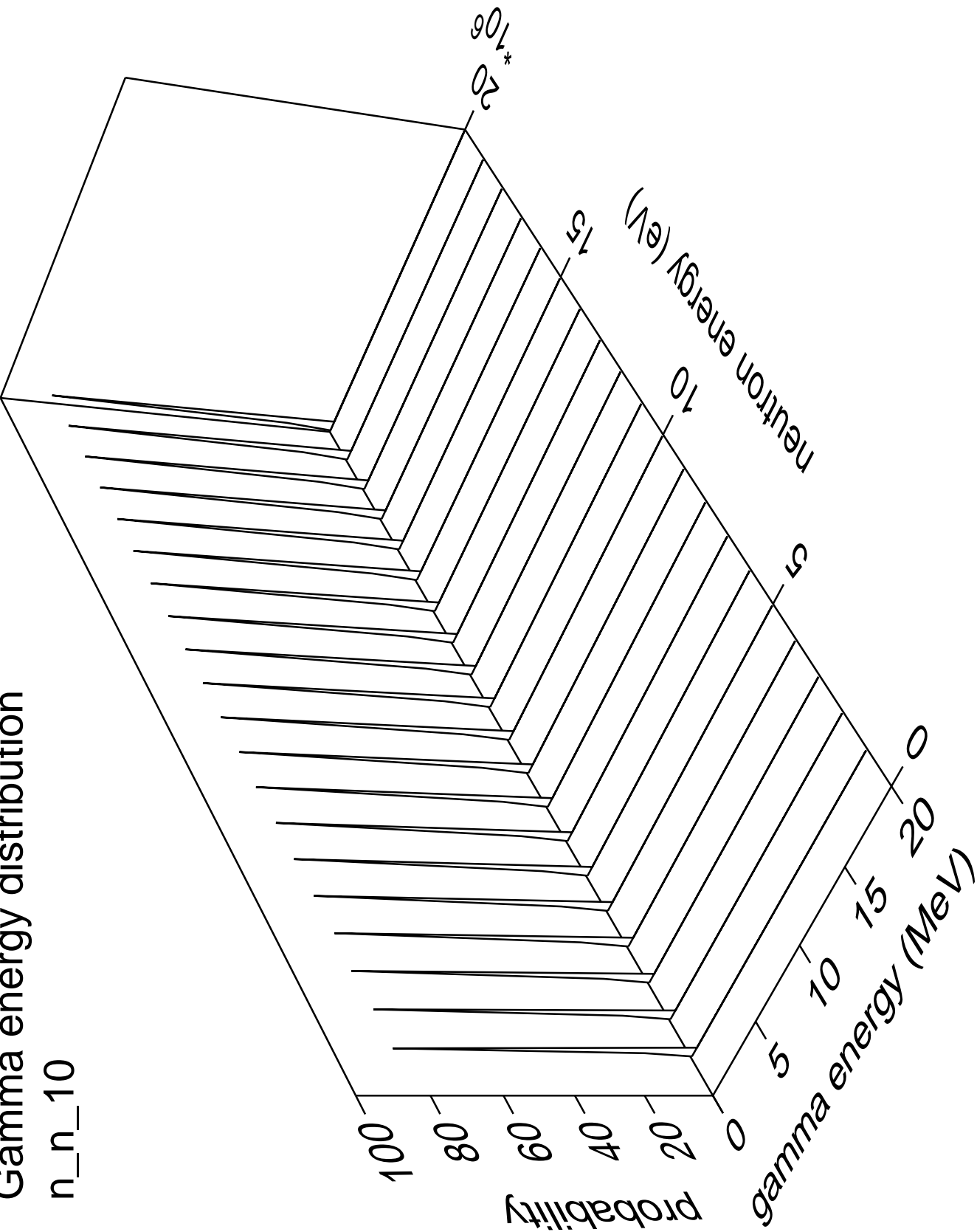# Gamma energy distribution
n_n_10

Gamma angles distribution
n_n_10

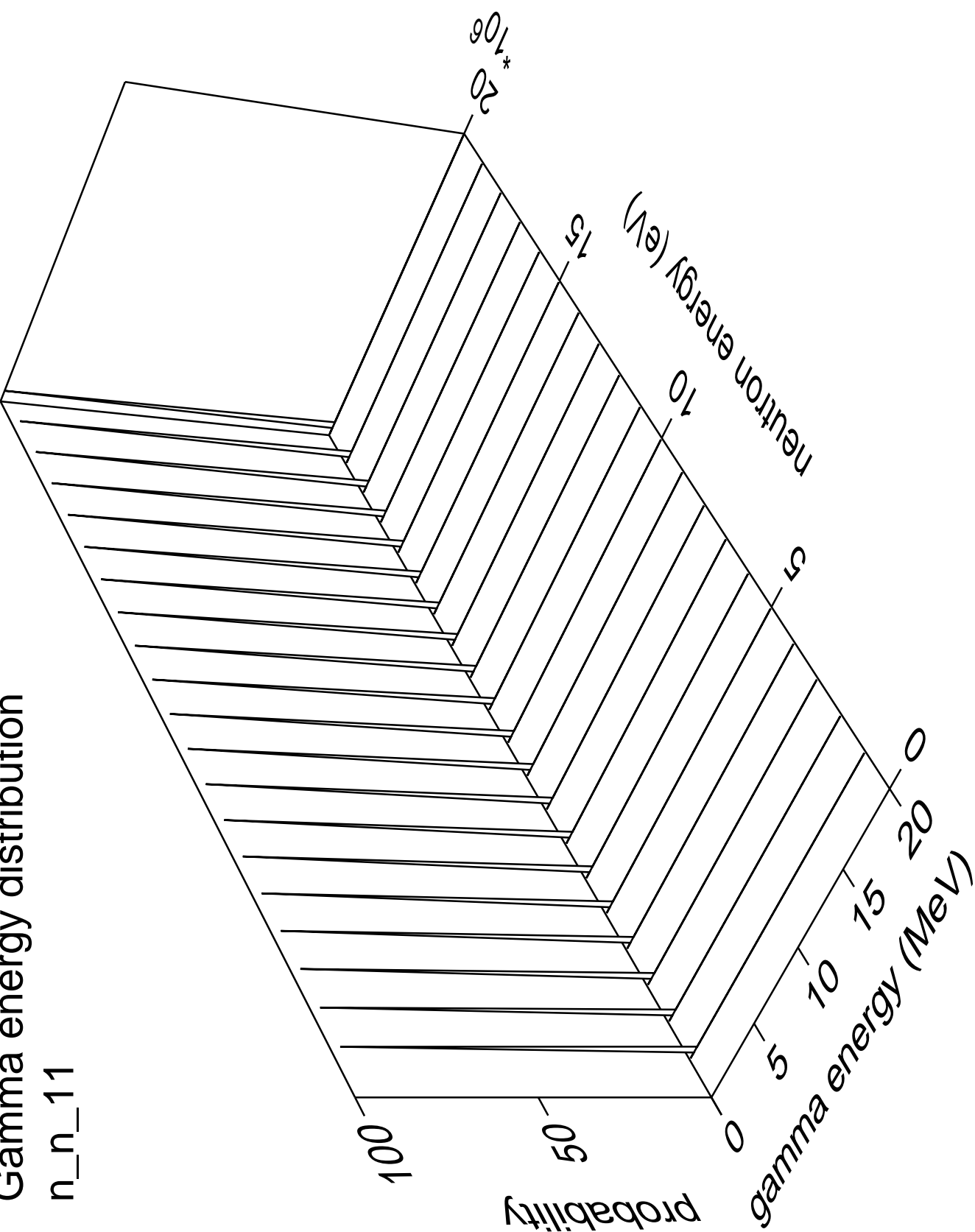neutron energy (eV)

cos(theta)

probability

20 *10⁶

15

10

5

0

1.0 0.5 0.0 -0.5 -1.0
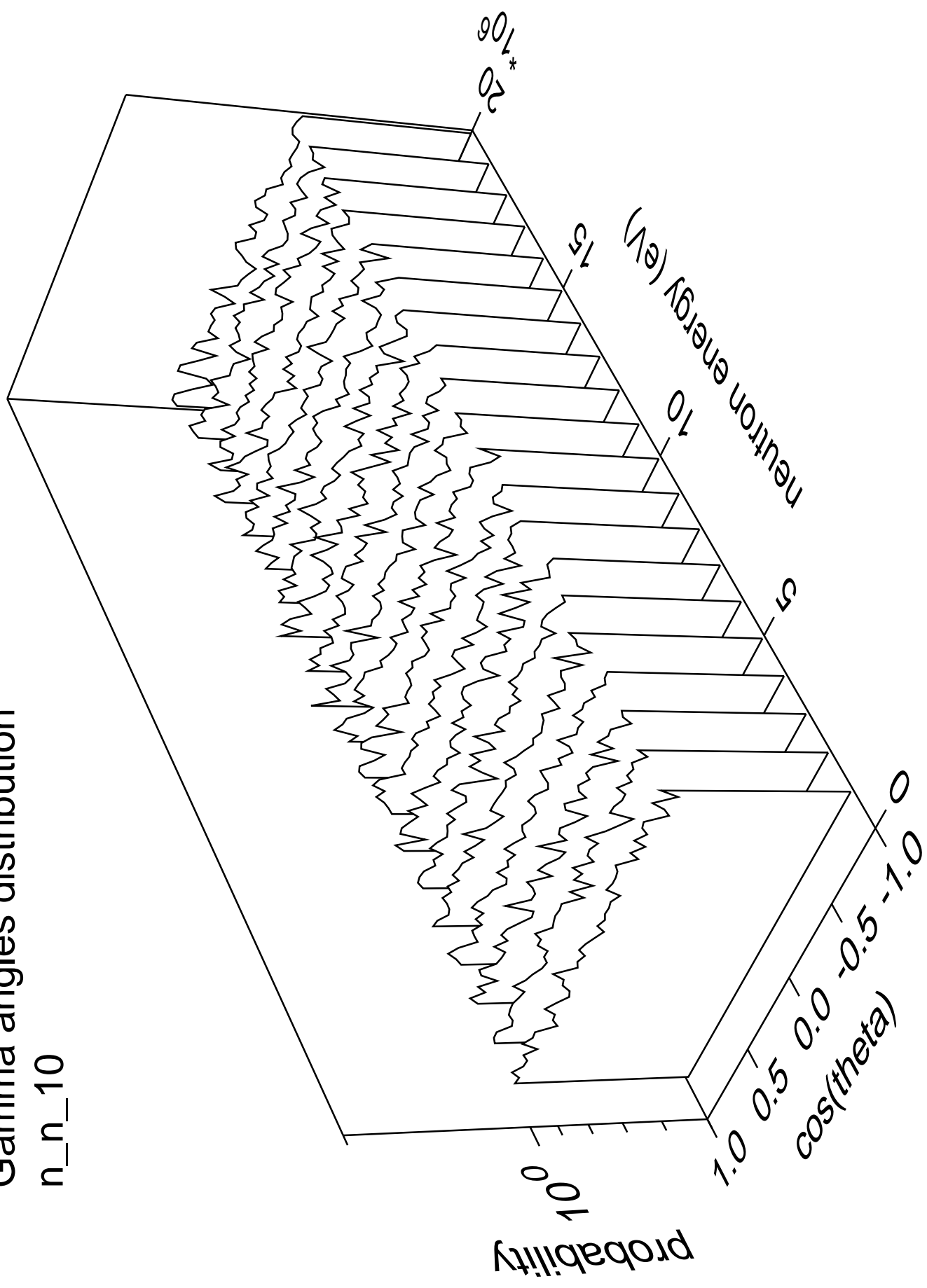
Gamma multiplicities distribution
n_n_10

Gamma energy distribution
n_n_11

probability

neutron energy (eV)

gamma energy (MeV)

20 *10^6

15

10

5

0

5

10

15

20

50

100

Gamma angles distribution
n_n_11

neutron energy (ev)

cos(theta)

probability
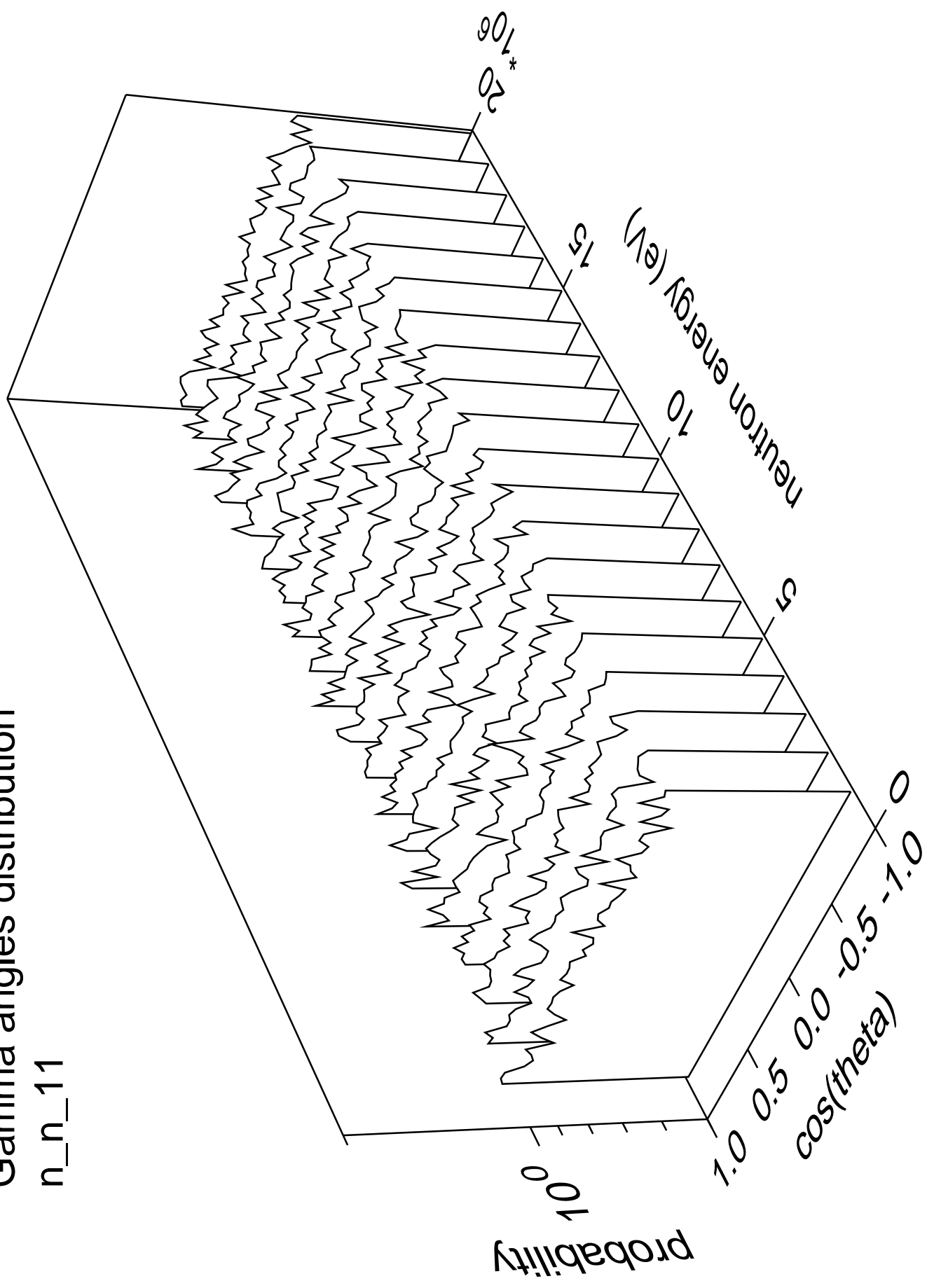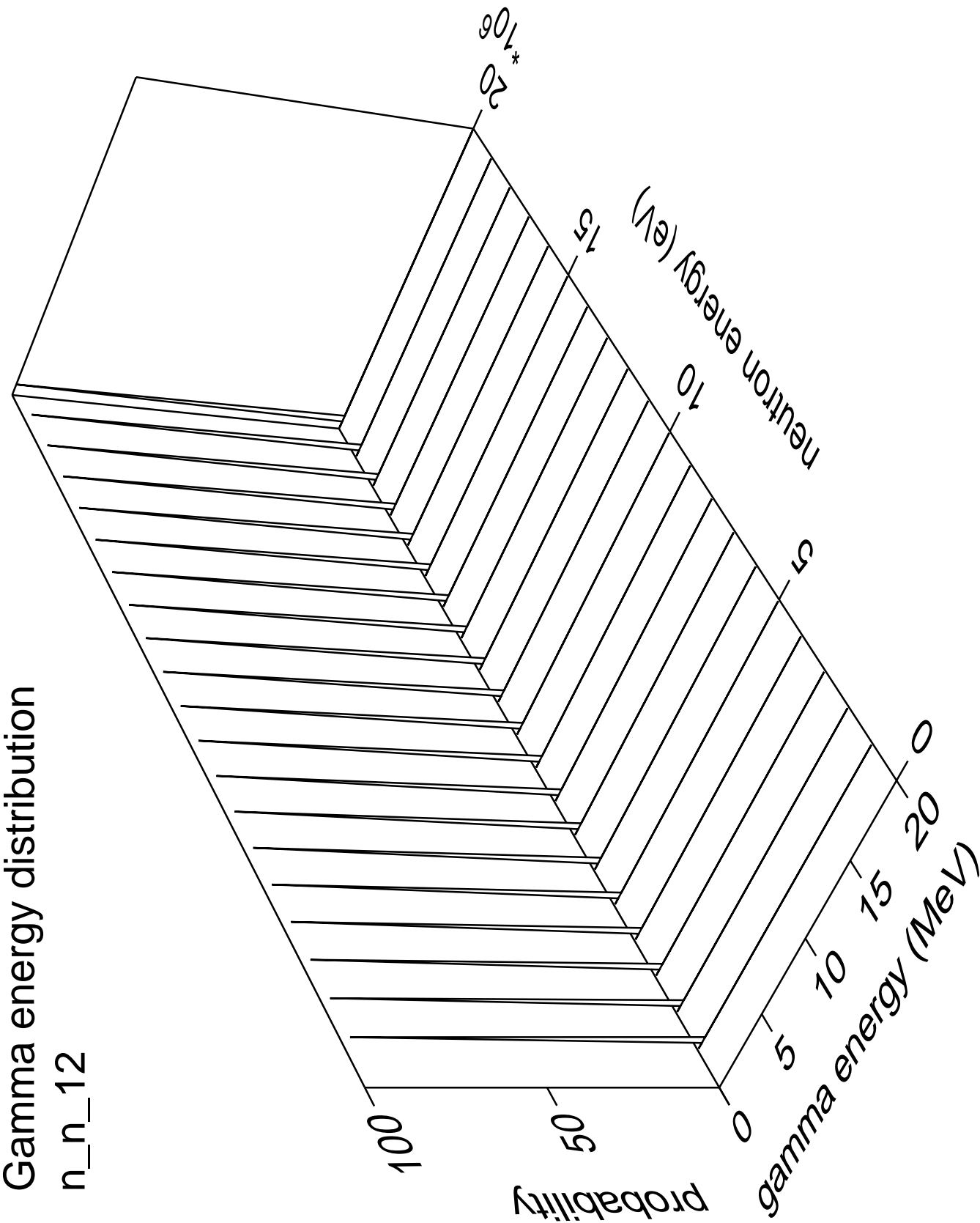
Gamma multiplicities distribution
n_n_11

Gamma energy distribution
n_n_12

neutron energy (eV)

gamma energy (MeV)

probability

20 *10⁶

15

10

5

0

5

10

15

20

0

50

100

Gamma angles distribution
n_n_12

probability

neutron energy (eV)

cos(theta)

$*10^6$
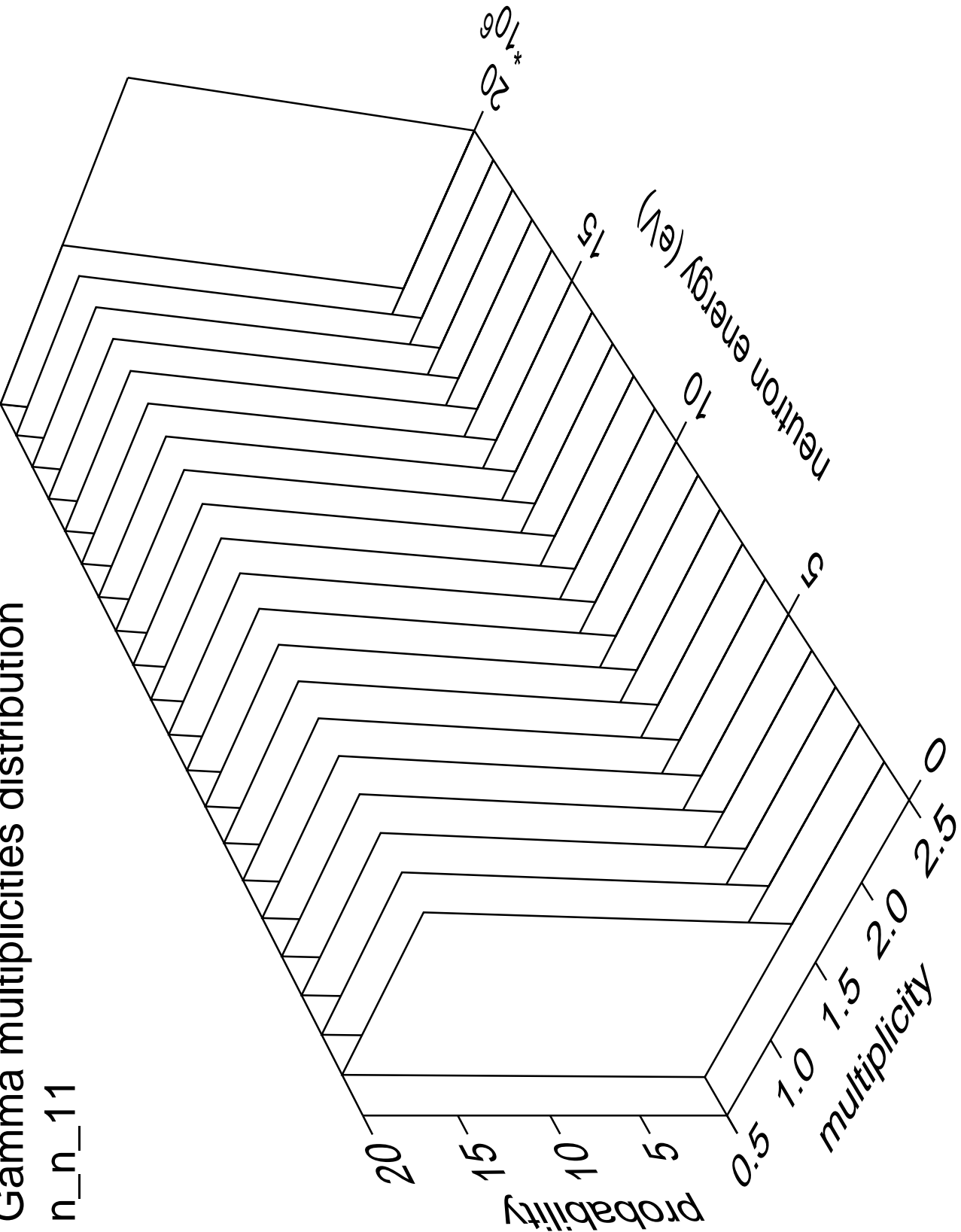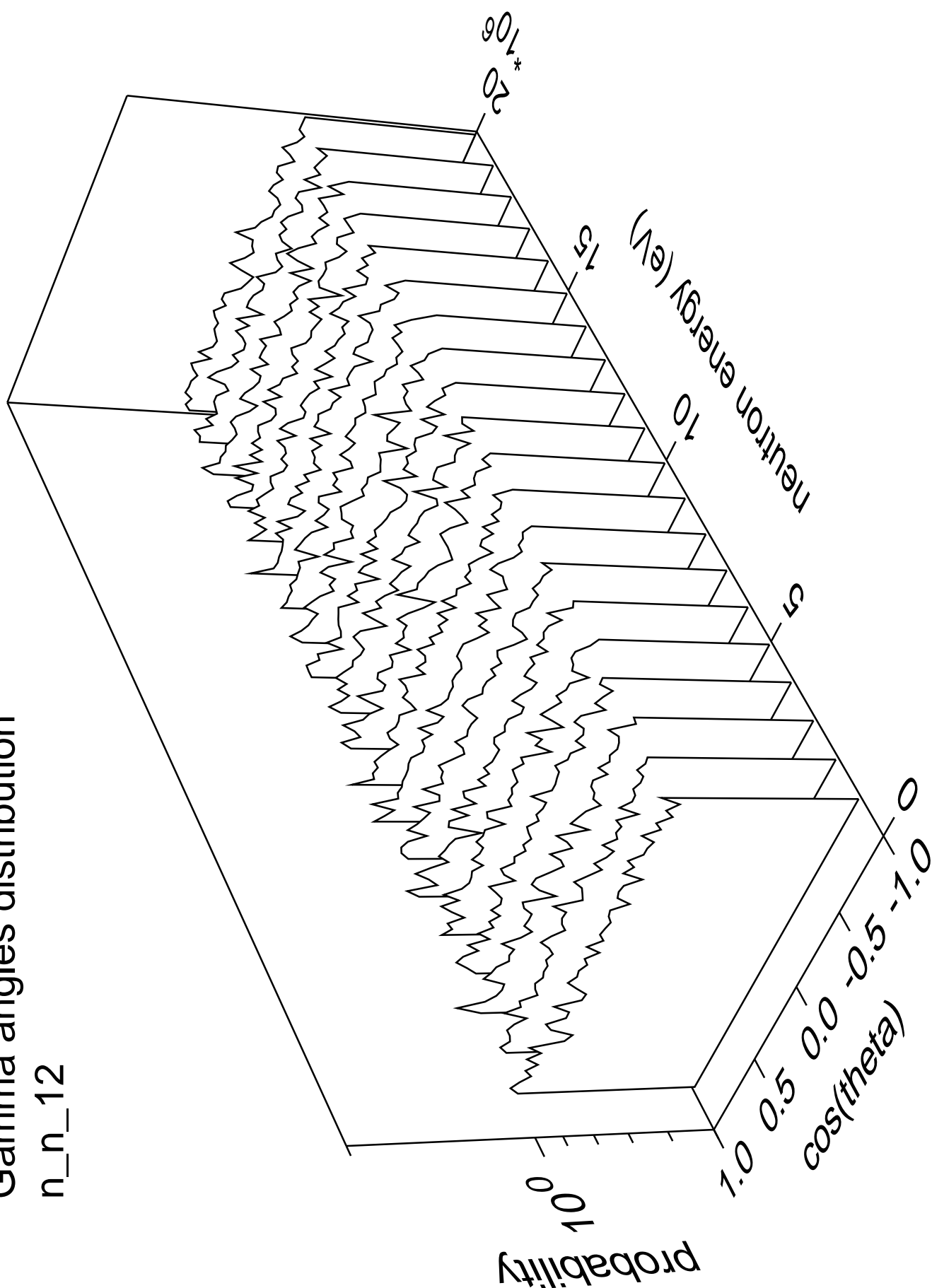
Gamma multiplicities distribution
n_n_12

Gamma energy distribution
n_n_13

probability

100

50

0

gamma energy (MeV)

0   5   10   15   20

neutron energy (eV)

5   10   15   20
*10⁶

Gamma angles distribution
n_n_13

neutron energy (eV)

cos(theta)

probability

$*10^6$

20

15

10

5

0

1.0   0.5   0.0   -0.5   -1.0

10^0
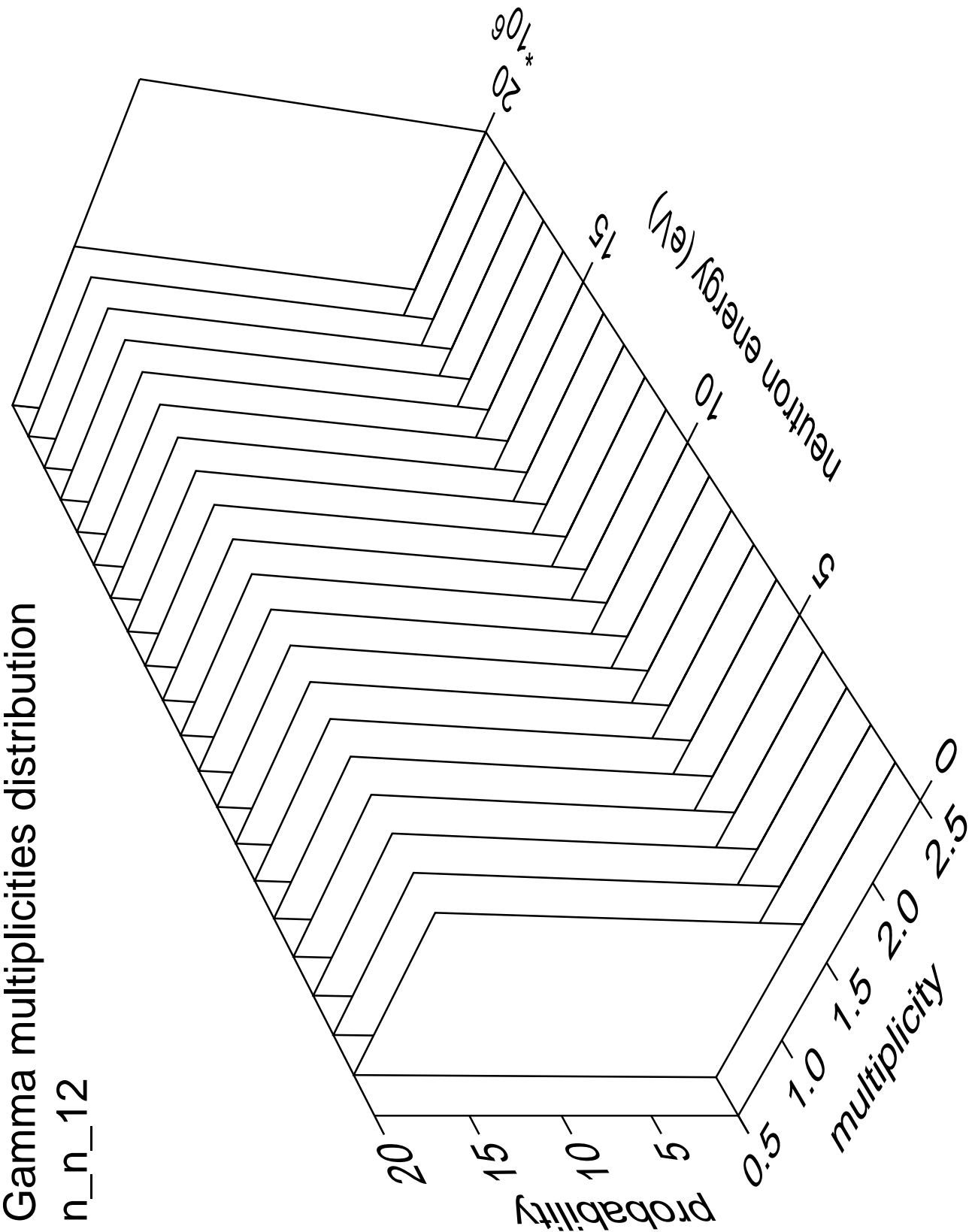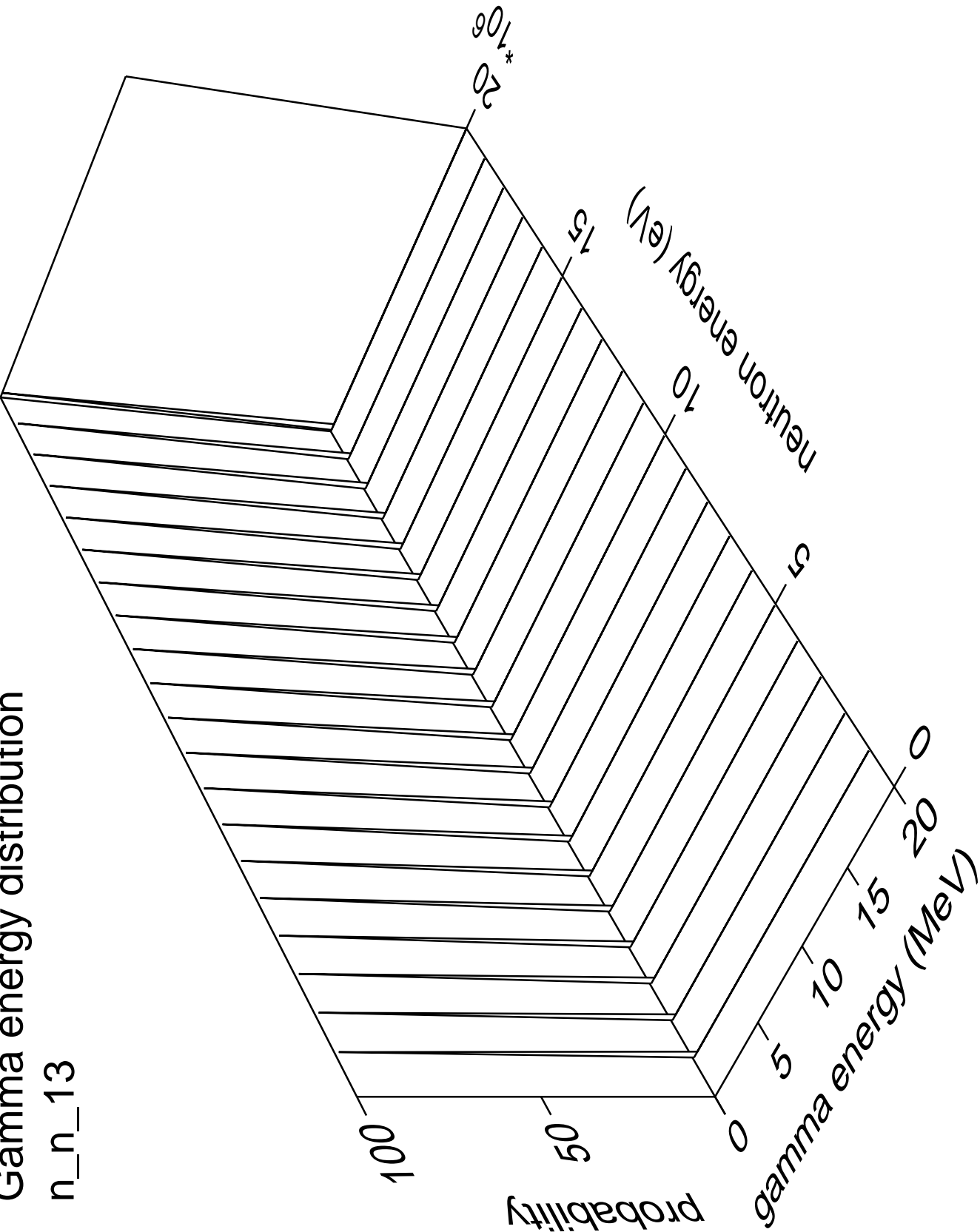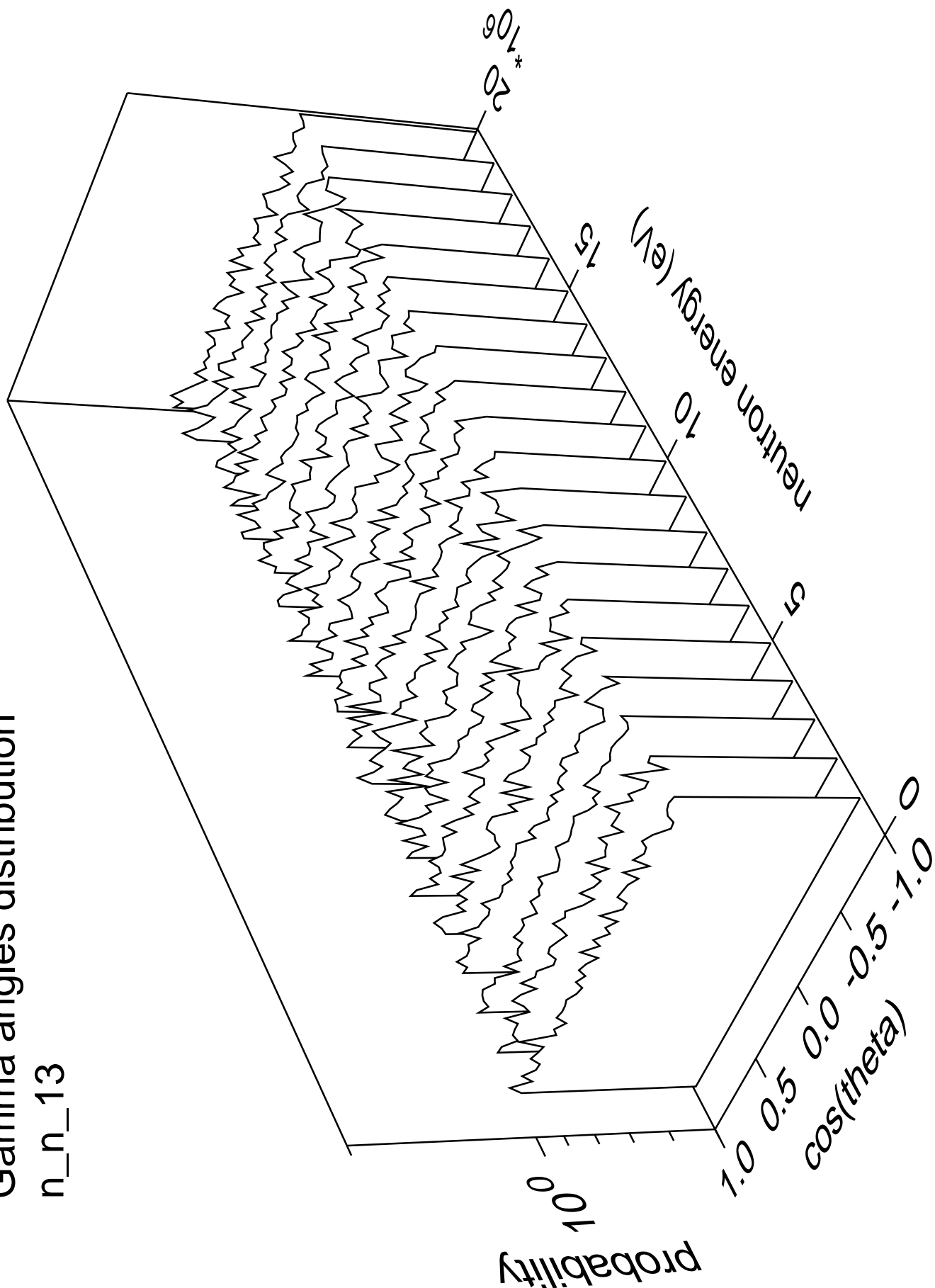
Gamma multiplicities distribution
n_n_13

Gamma energy distribution
n_n_cont

probability

neutron energy (eV)

gamma energy (MeV)

20 *10⁶

15

10

5

40

30

20

10

0

5   10   15   20

0

Gamma angles distribution
n_n_cont

probability

neutron energy (eV)

cos(theta)
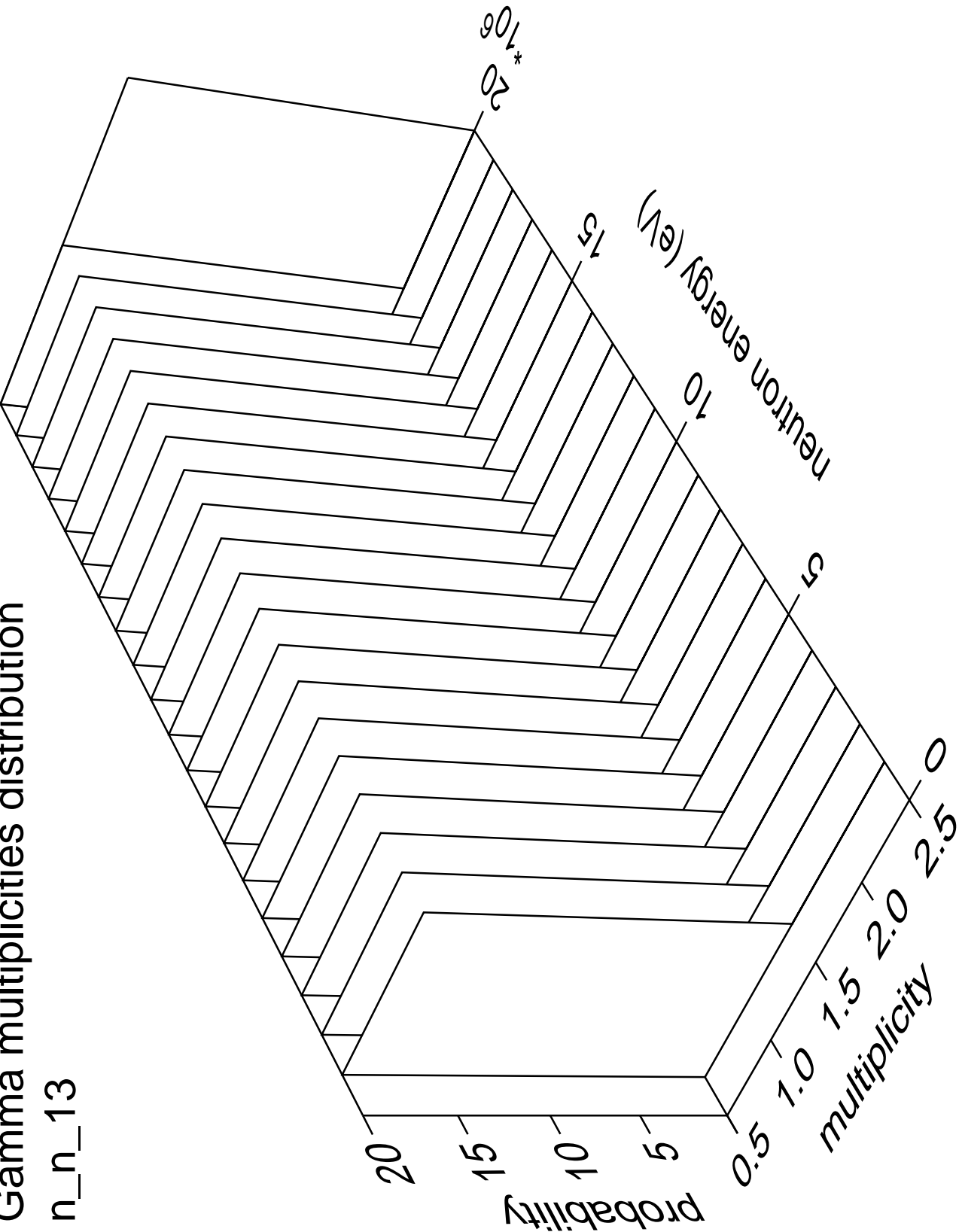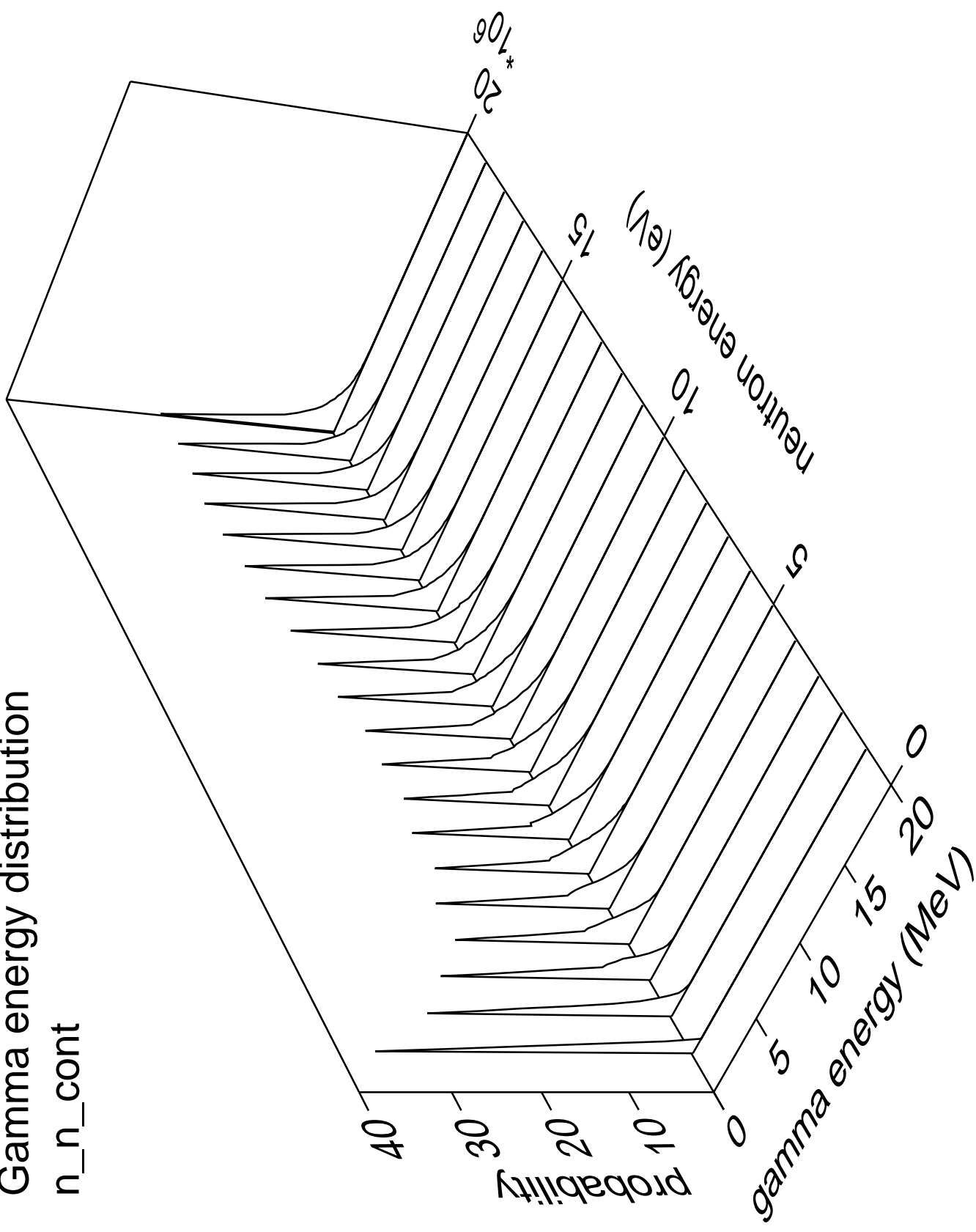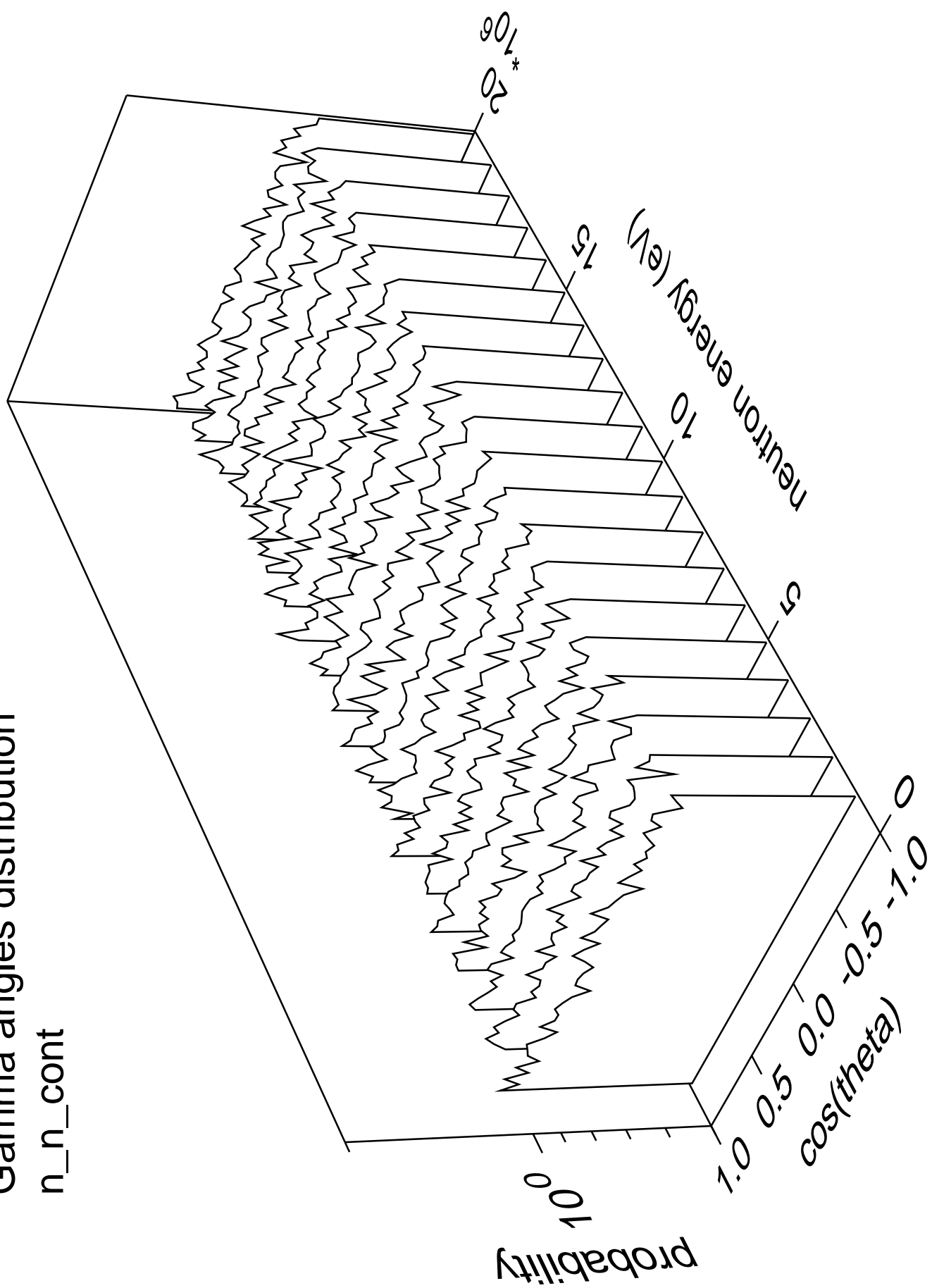
Gamma multiplicities distribution n_n_cont

Gamma energy distribution
n_p_tot

probability

neutron energy (eV)

gamma energy (MeV)

20 *10⁶

15

10

5

40

30

20

10

0

5   10   15   20

0

Gamma angles distribution
n_p_tot

neutron energy (eV)

cos(theta)

probability
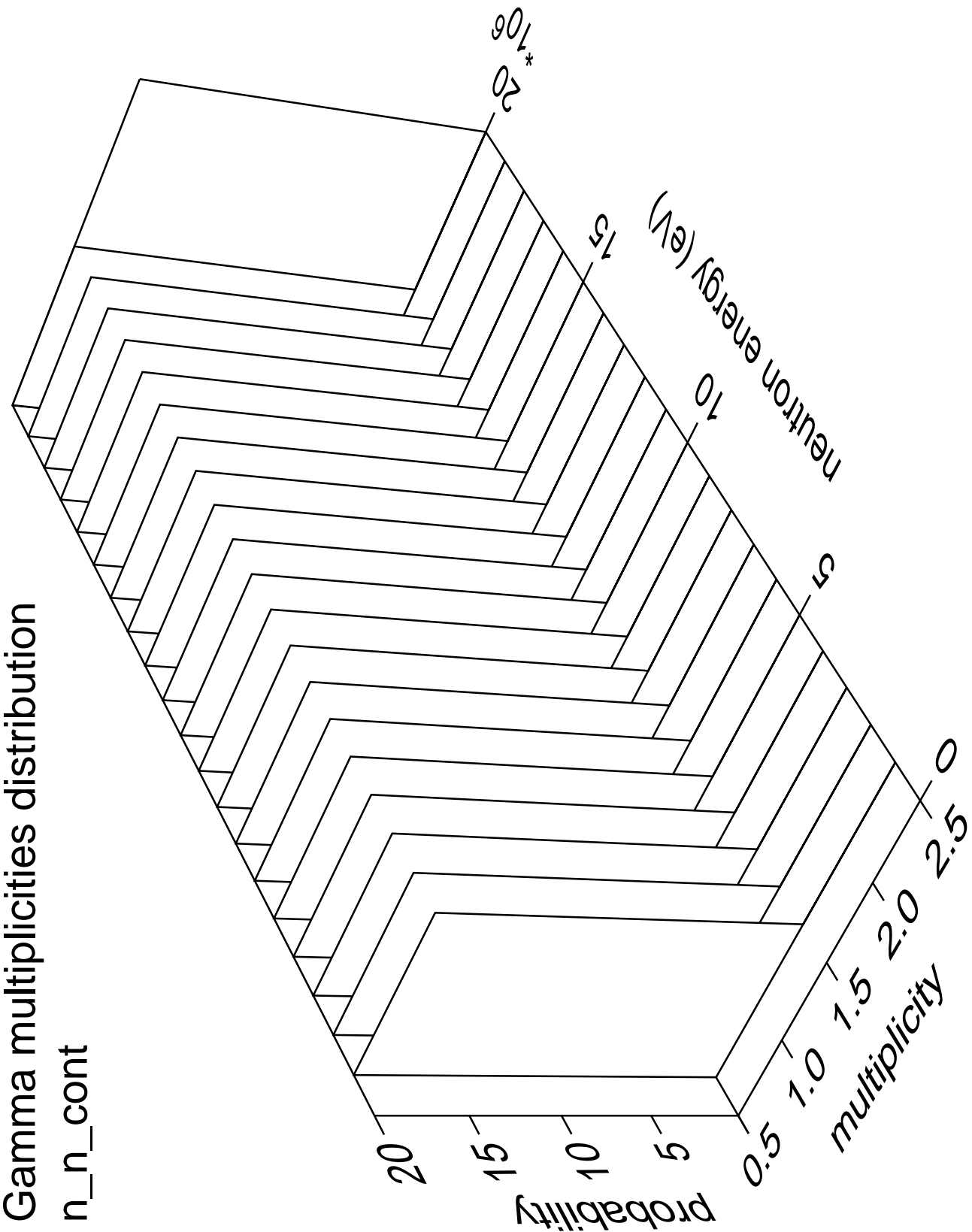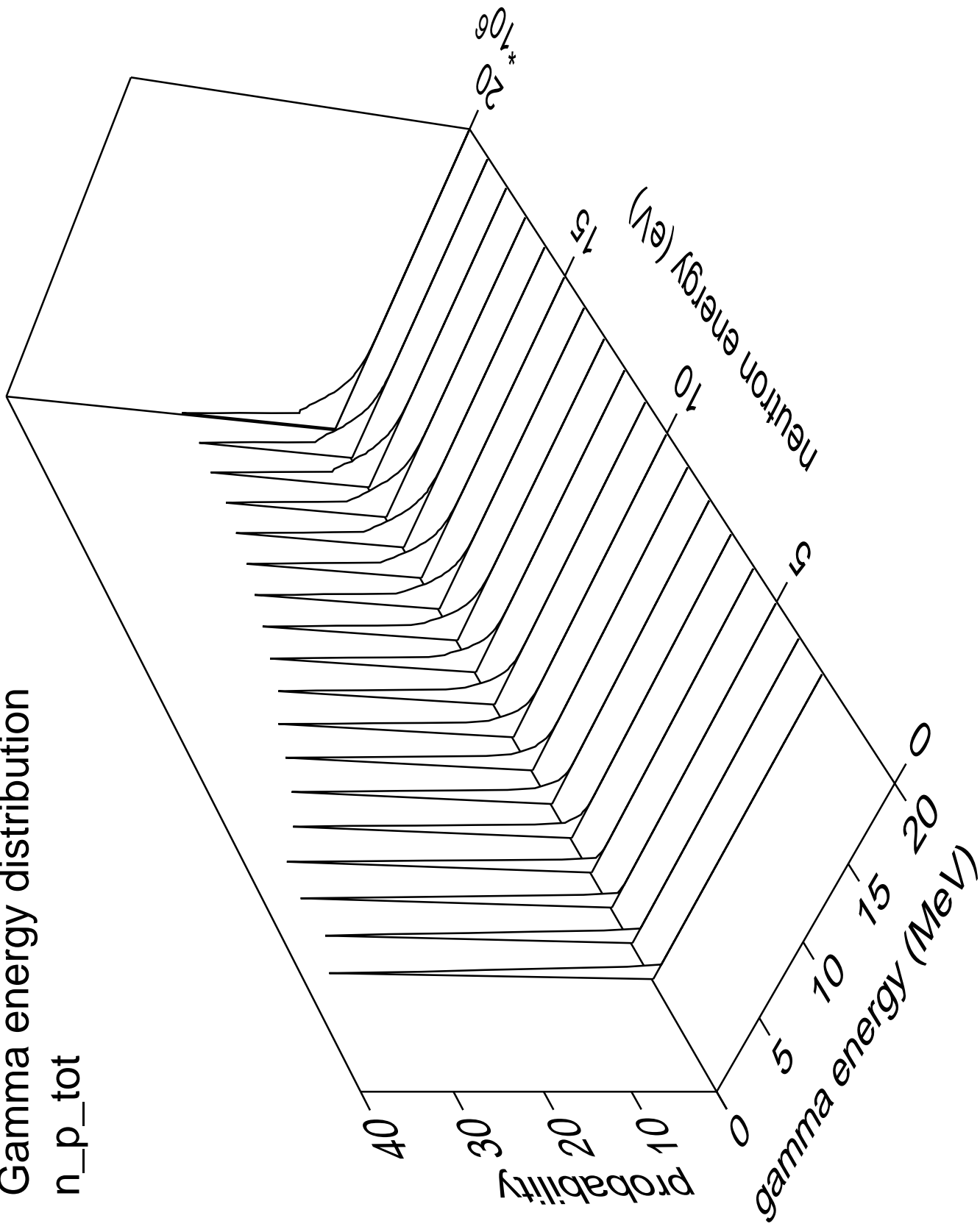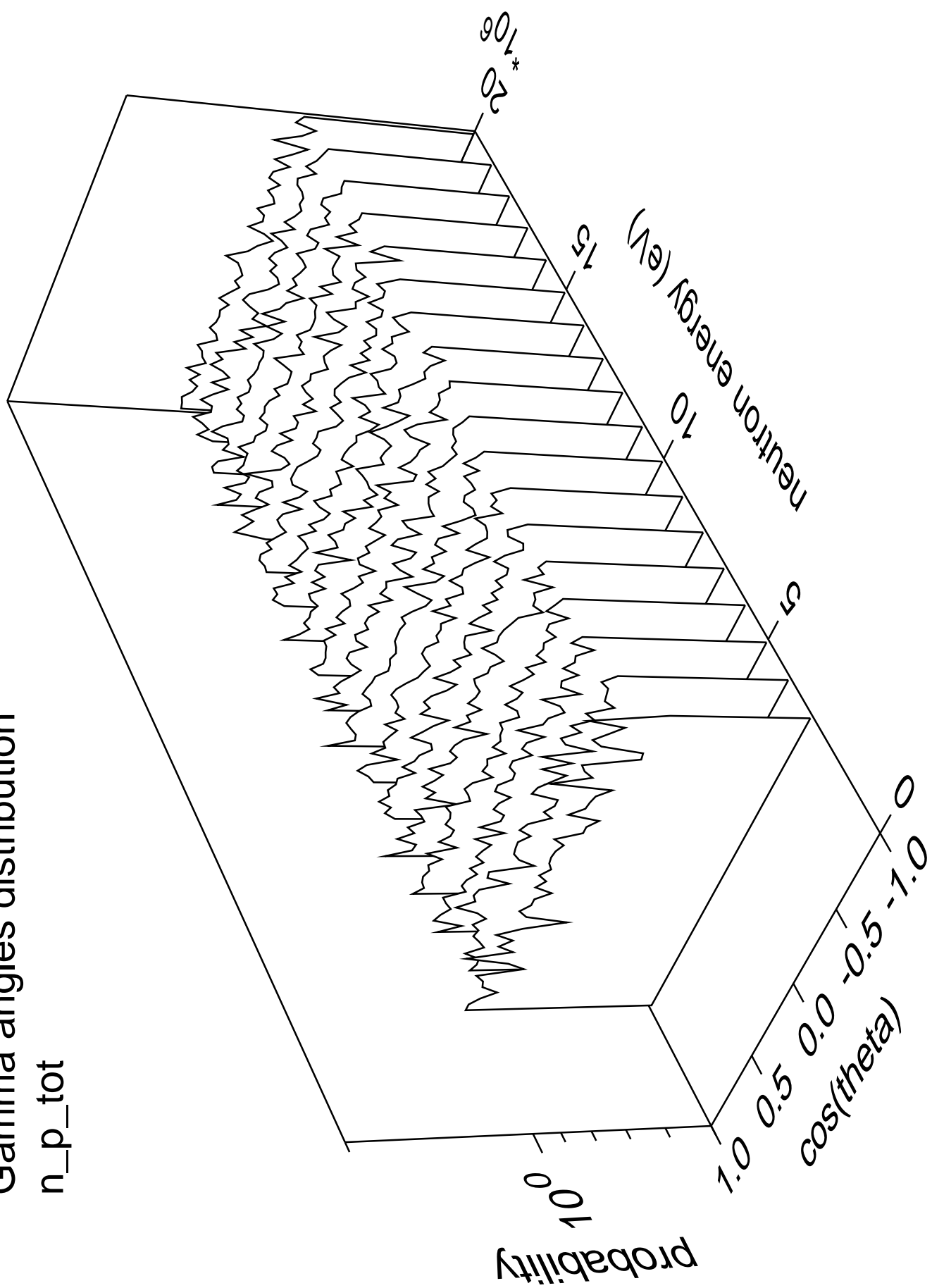
Gamma multiplicities distribution
n_p_tot

Gamma energy distribution
n_d_tot
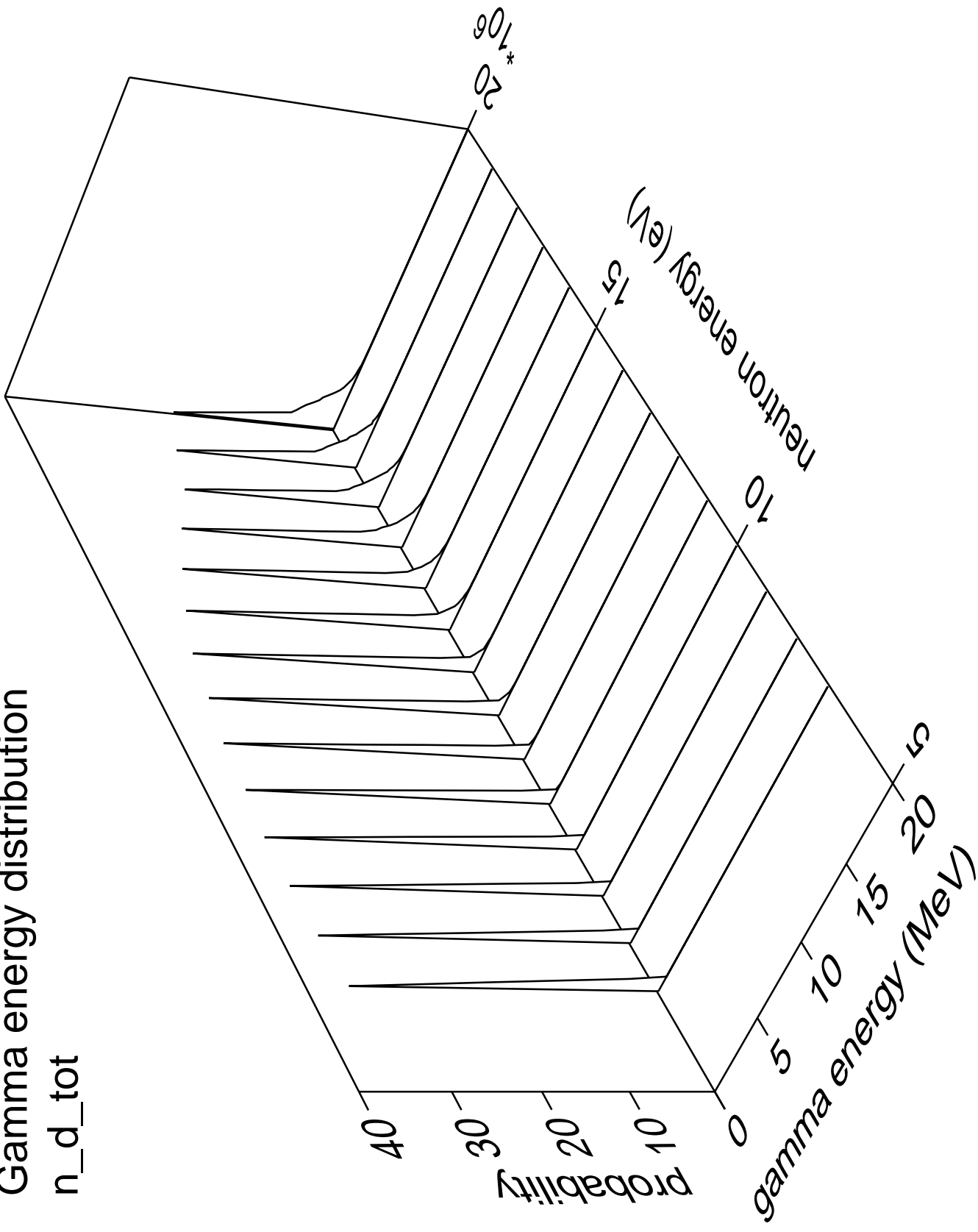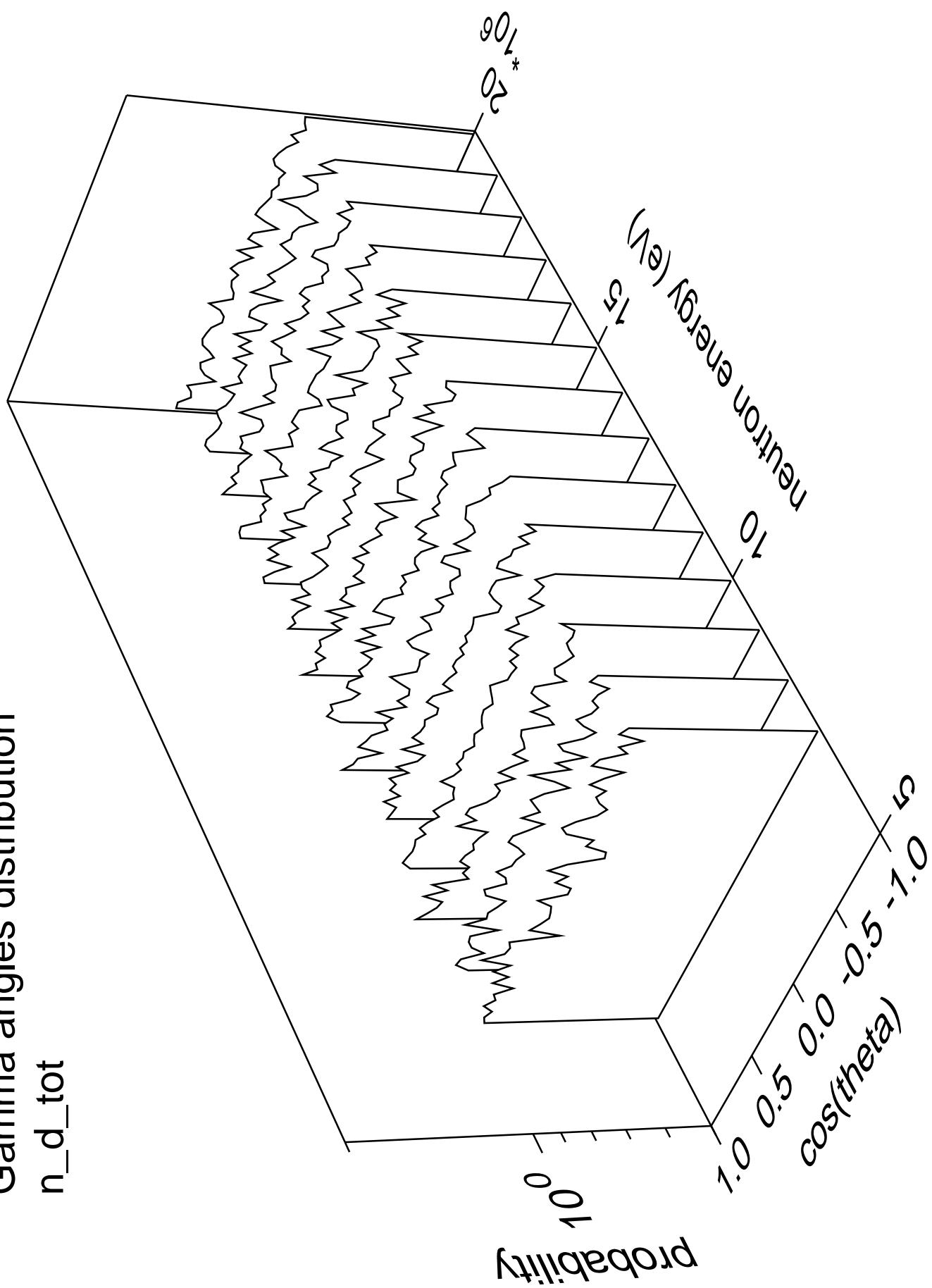
probability

gamma energy (MeV)

neutron energy (eV)

20 *10⁶

15

10

5

0   5   10   15   20

10

20

30

40

Gamma angles distribution
n_d_tot

neutron energy (eV)

cos(theta)

probability

Gamma multiplicities distribution
n_d_tot

probability

multiplicity

neutron energy (eV)

Gamma energy distribution
n_a_tot

probability

gamma energy (MeV)

neutron energy (eV)

20 *10⁶

15

10

5

0

5

10

15

20

40

30

20
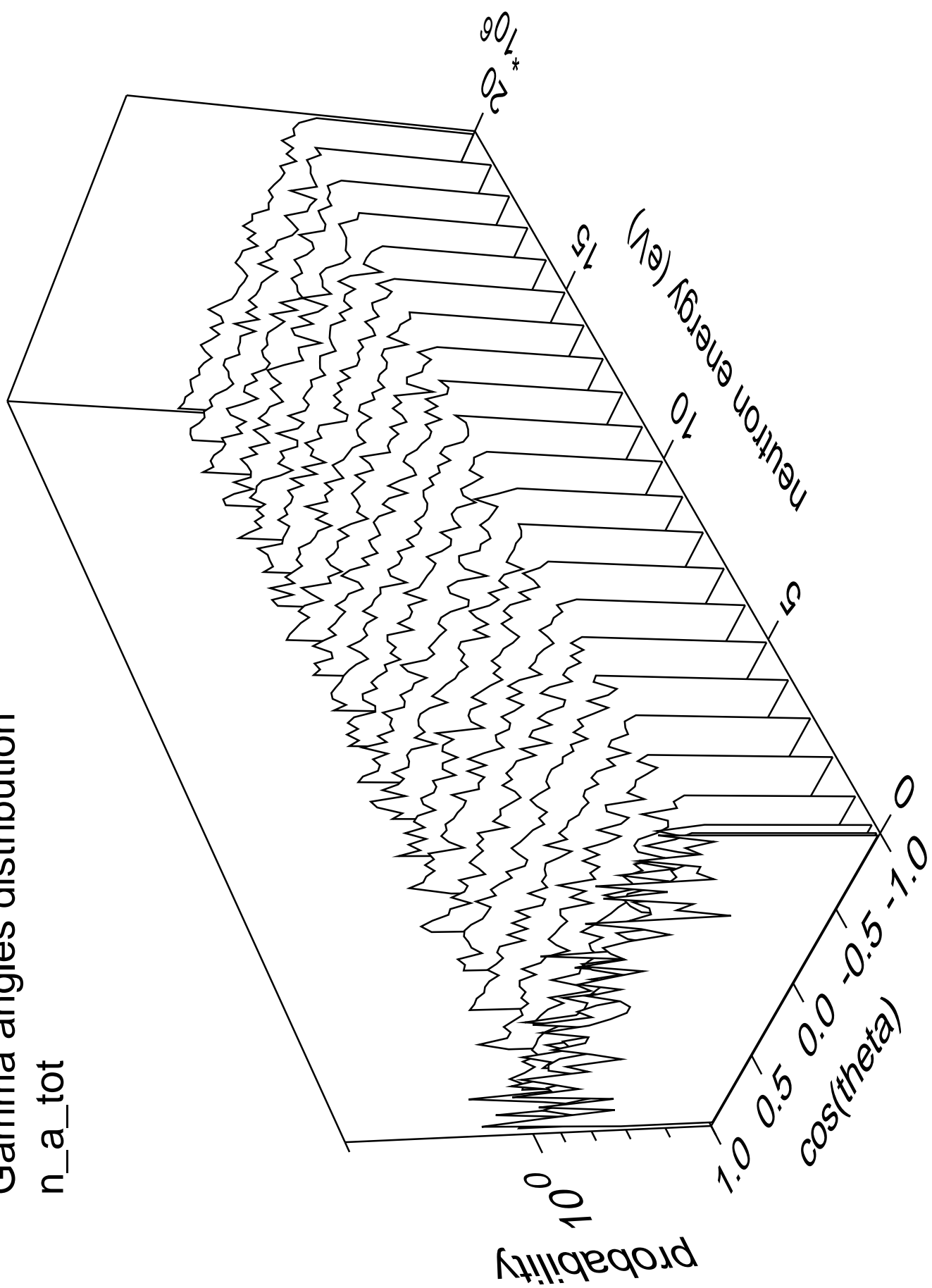
10

0
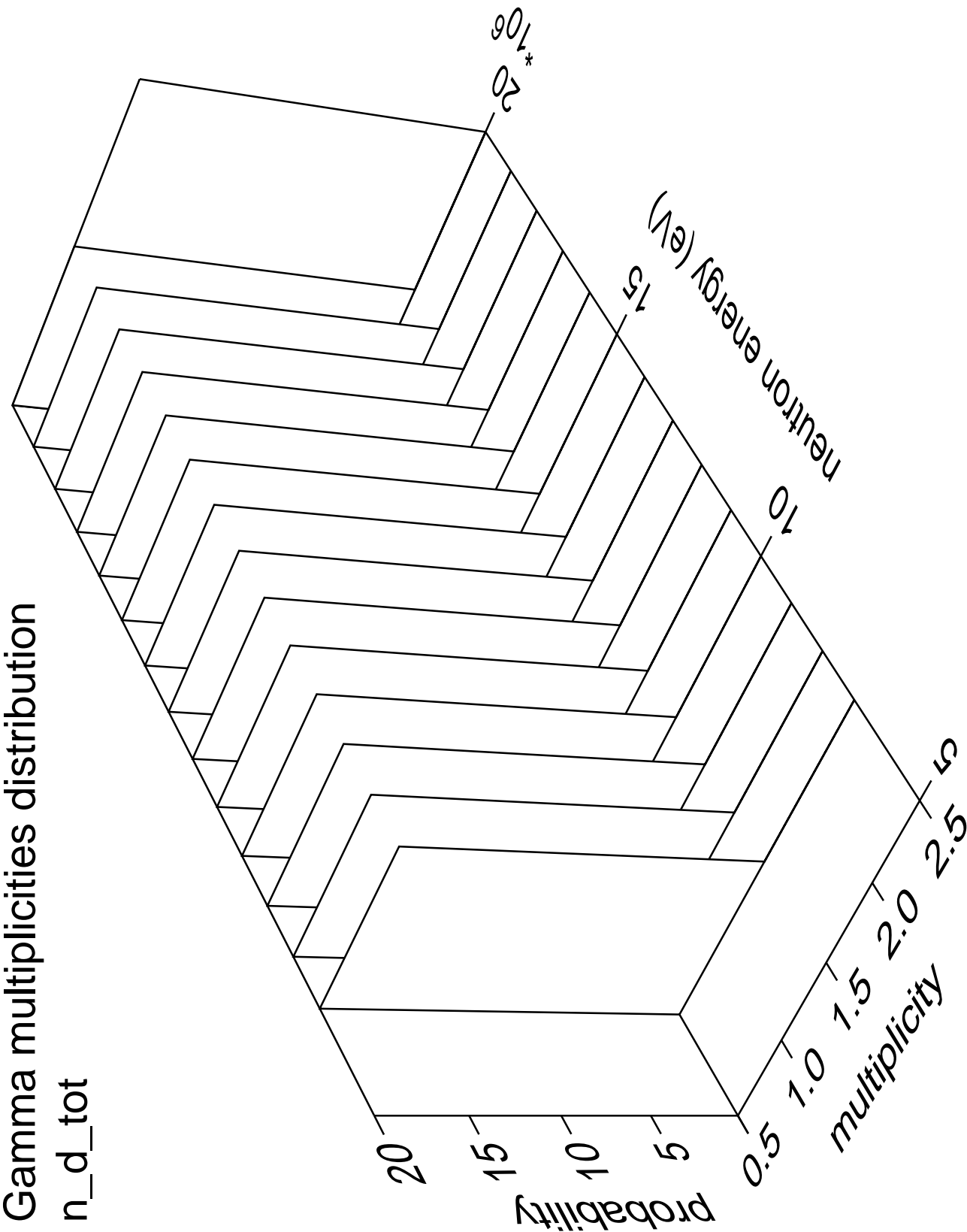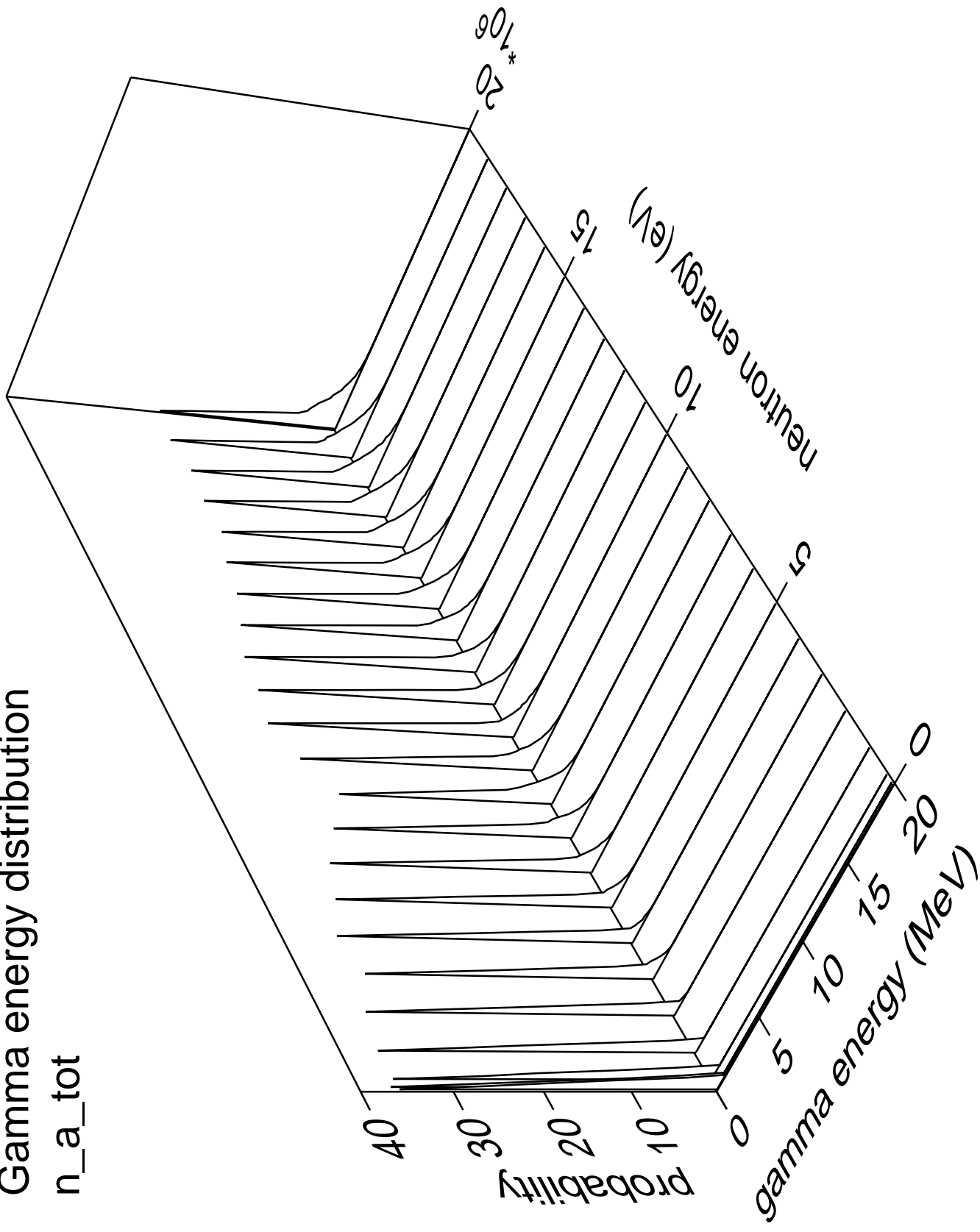
Gamma angles distribution
n_a_tot

Gamma multiplicities distribution n_a_tot