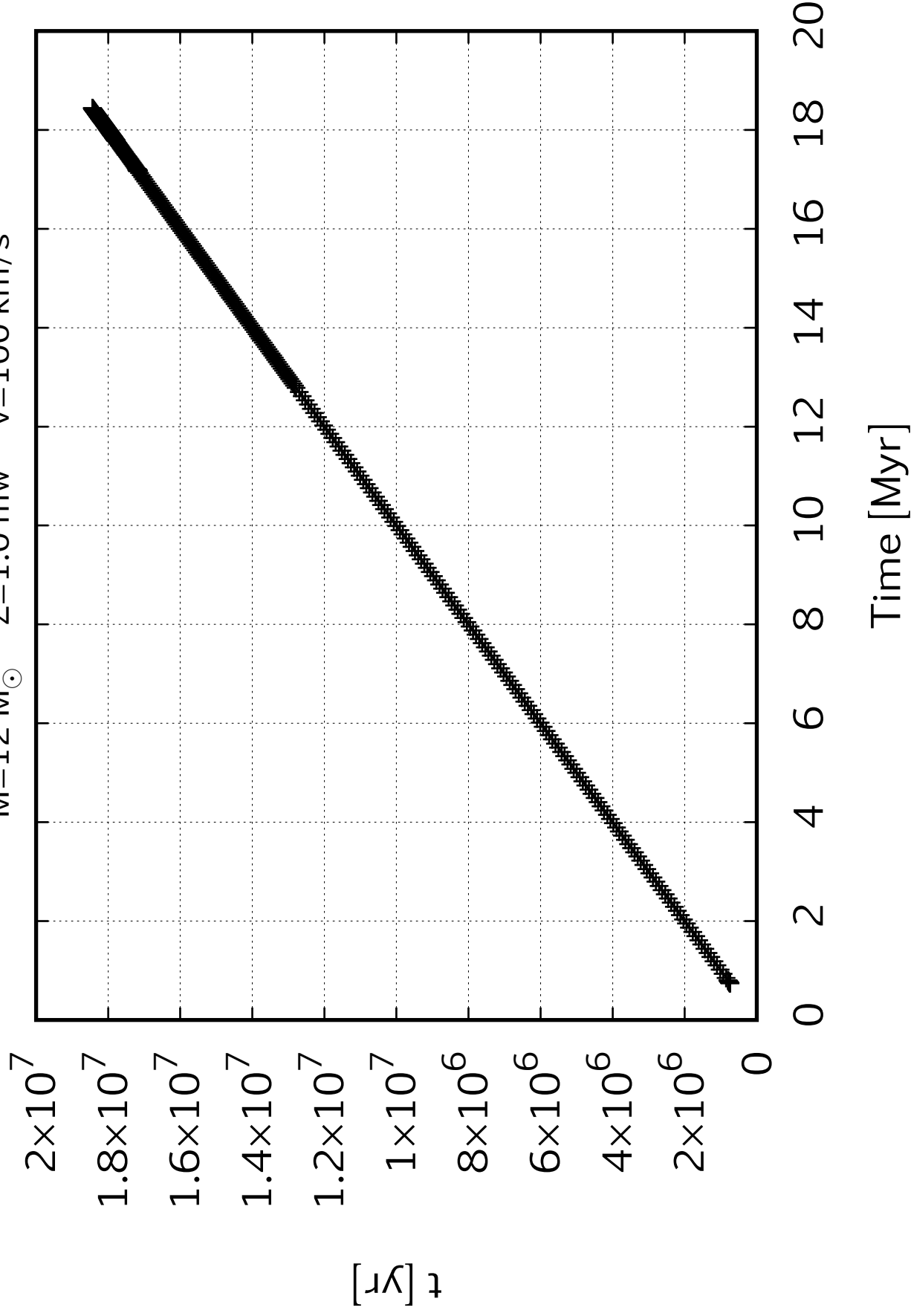
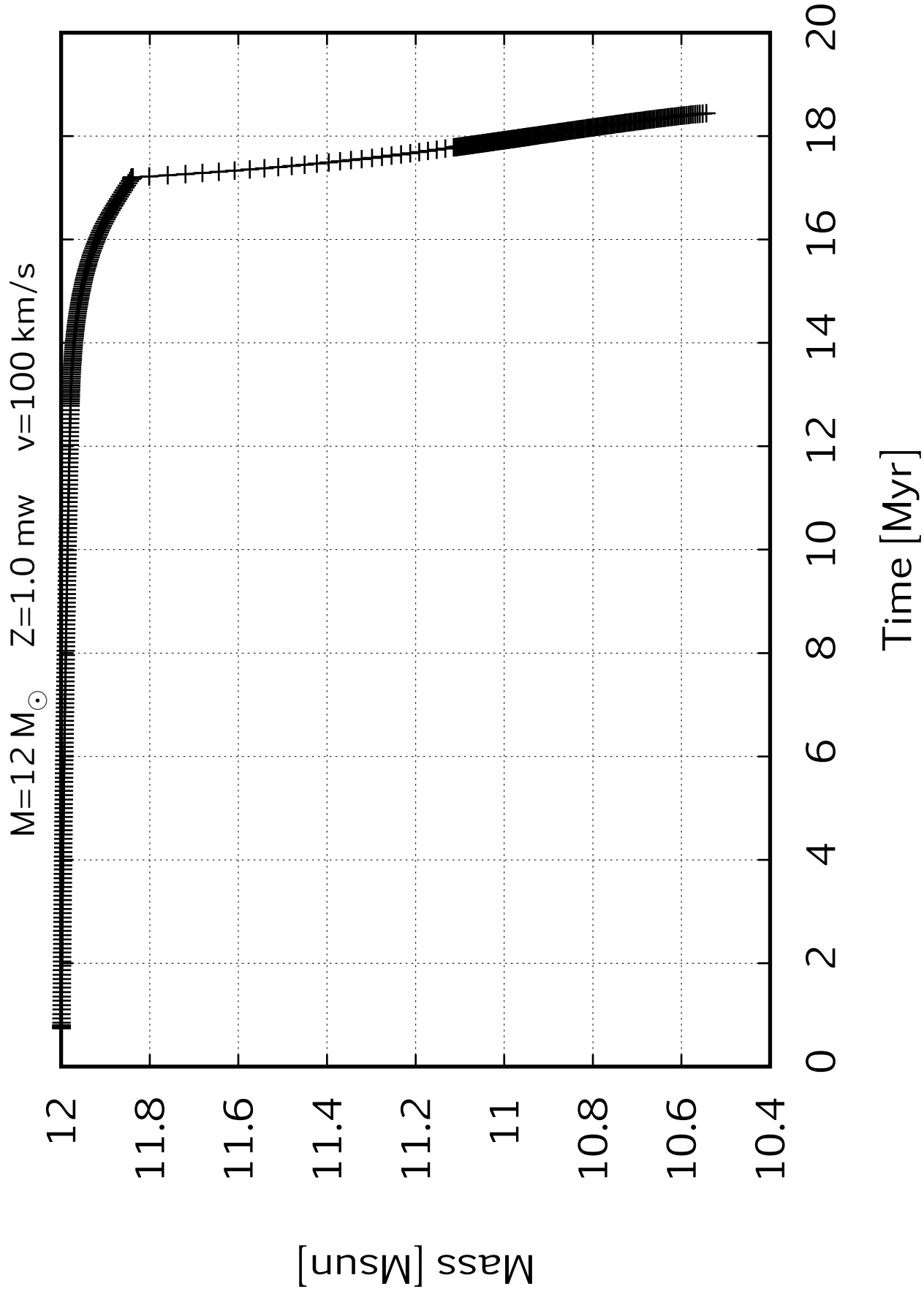
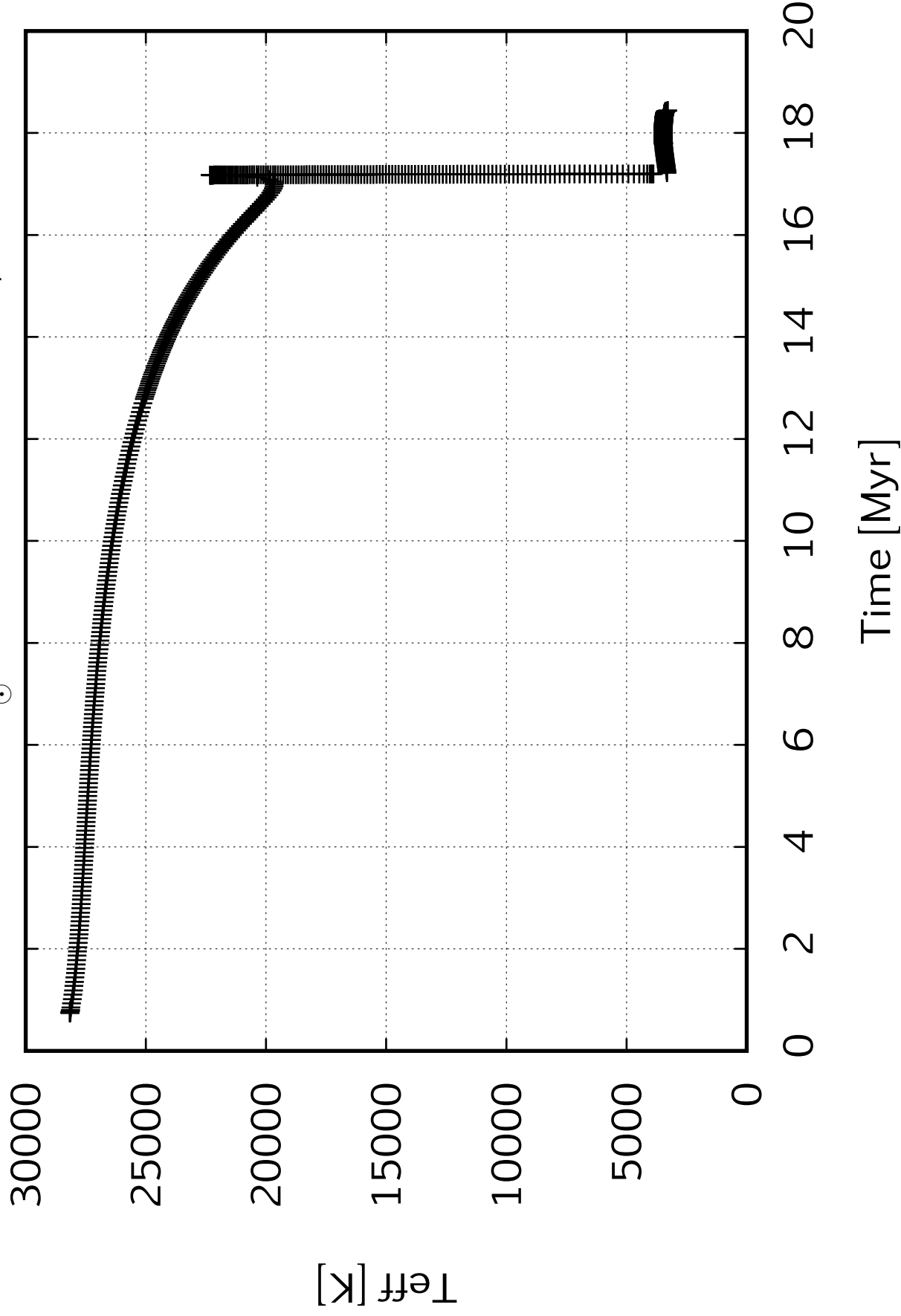


$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$

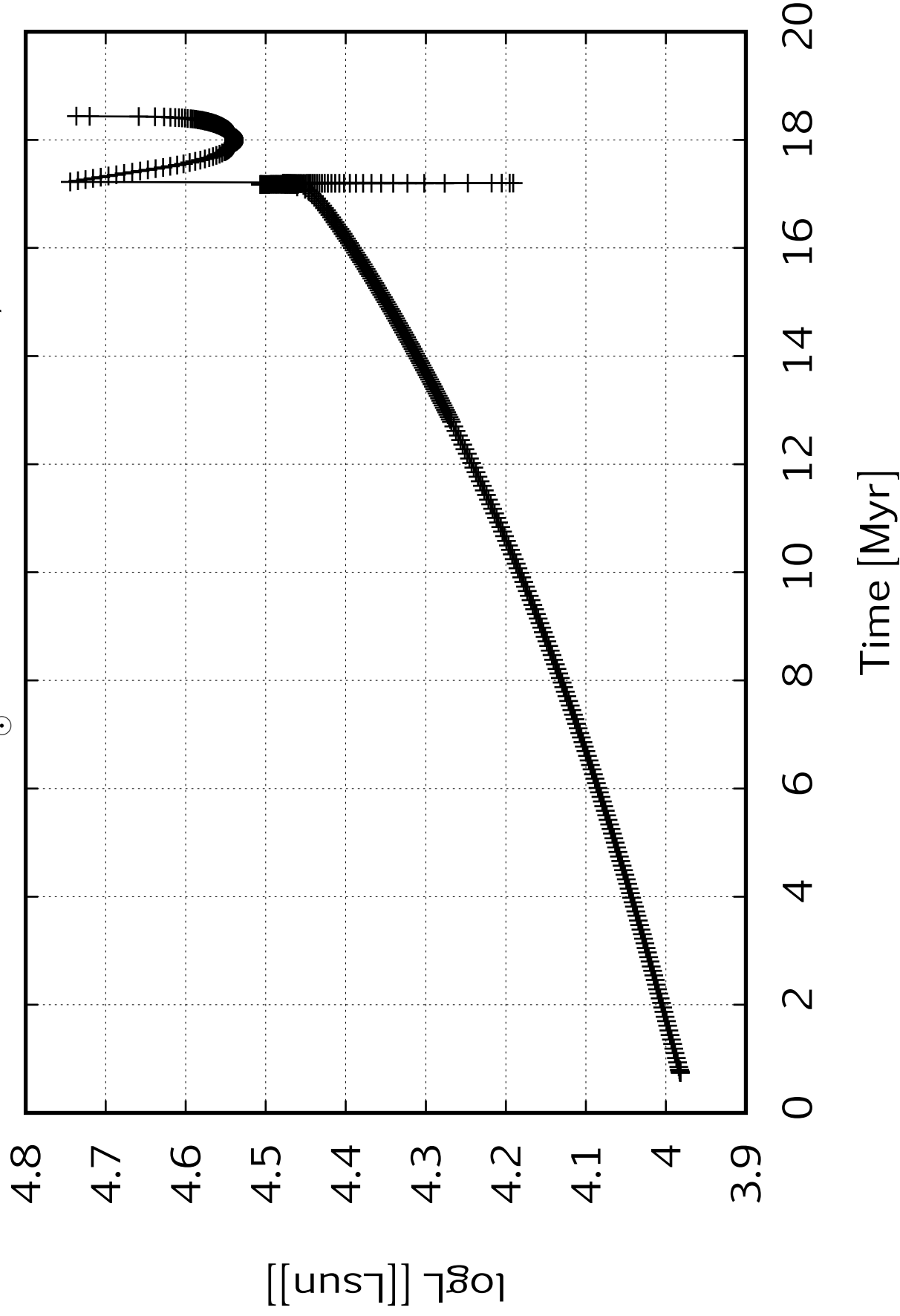


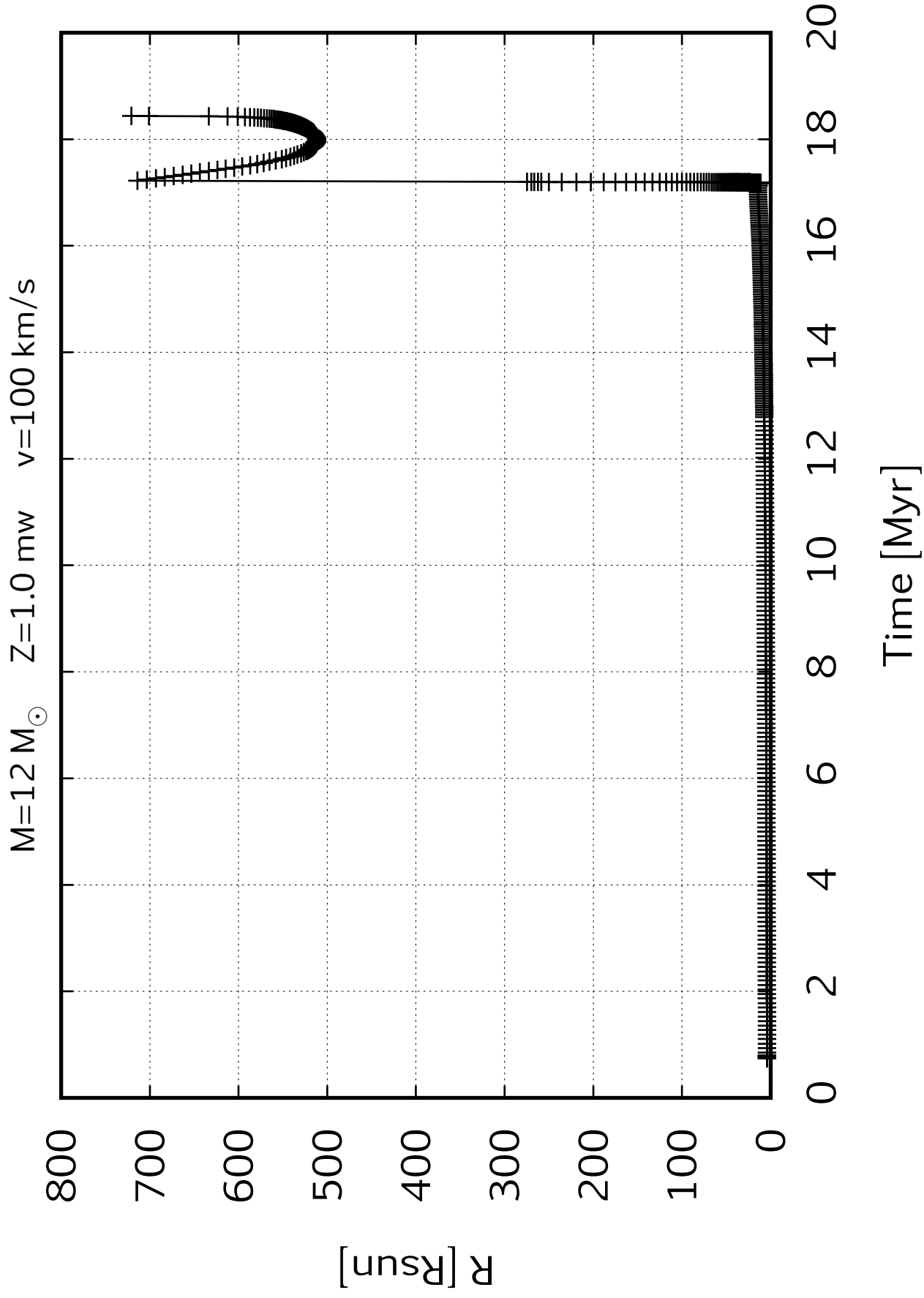


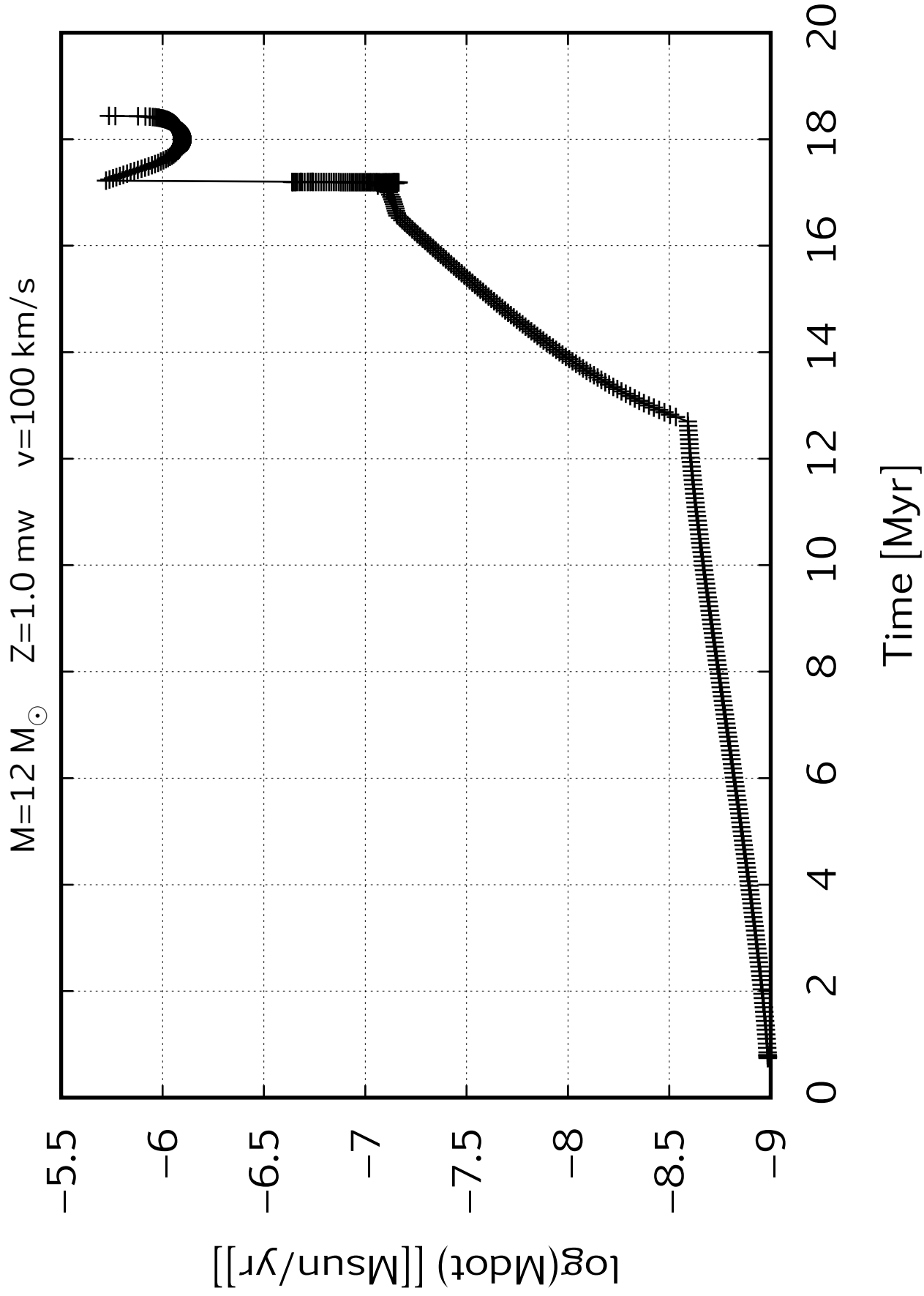
$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$

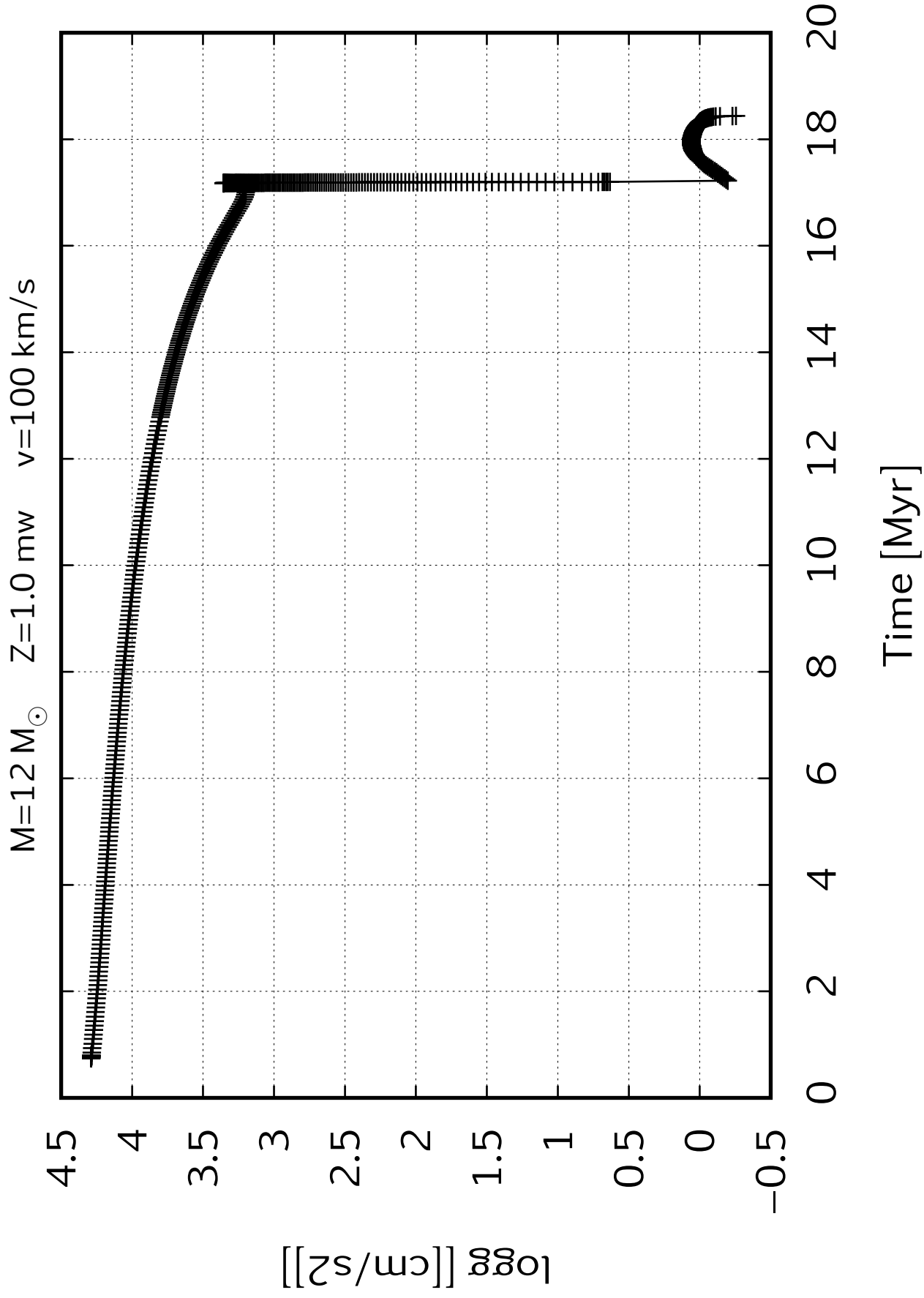


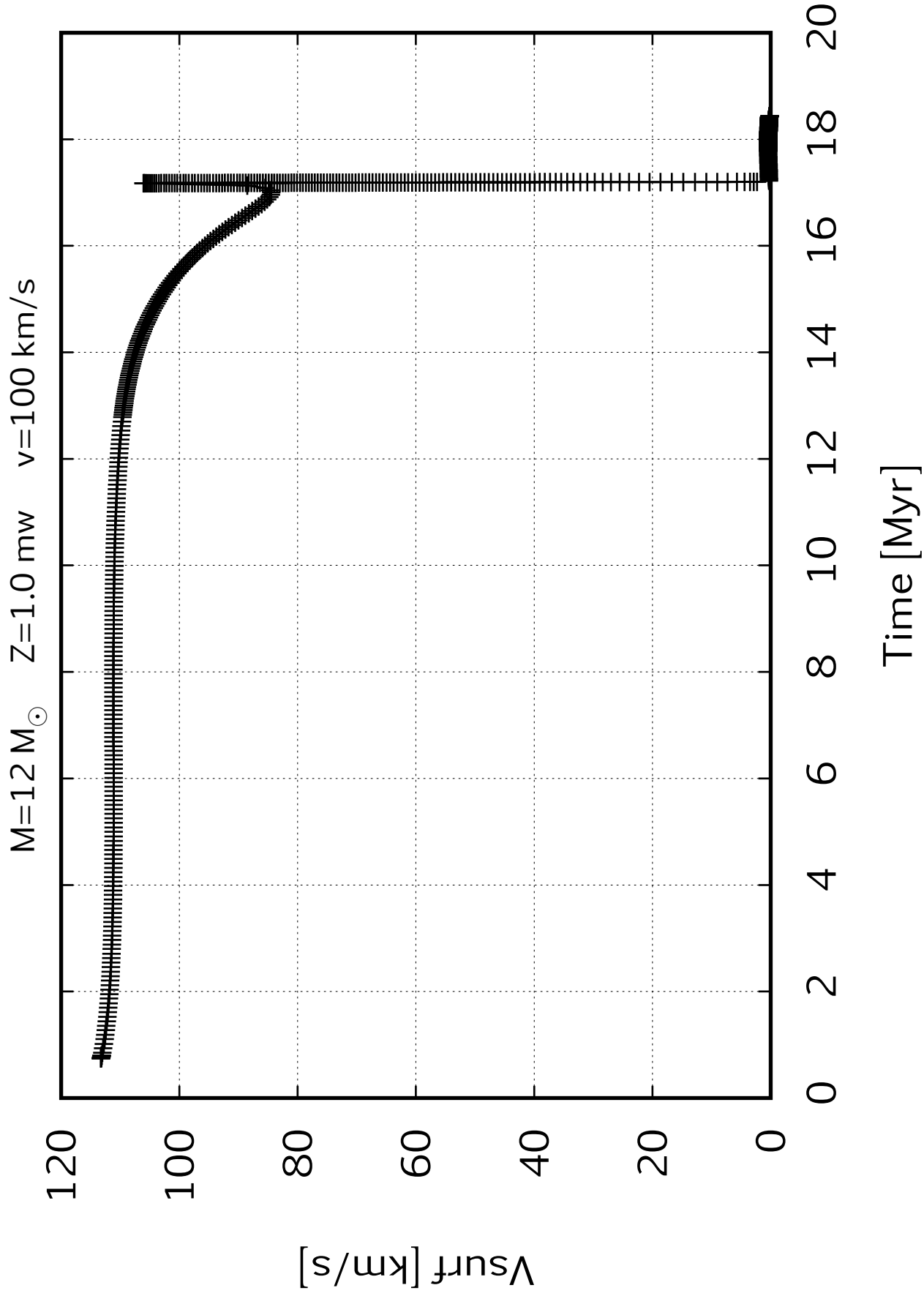
$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100$ km/s



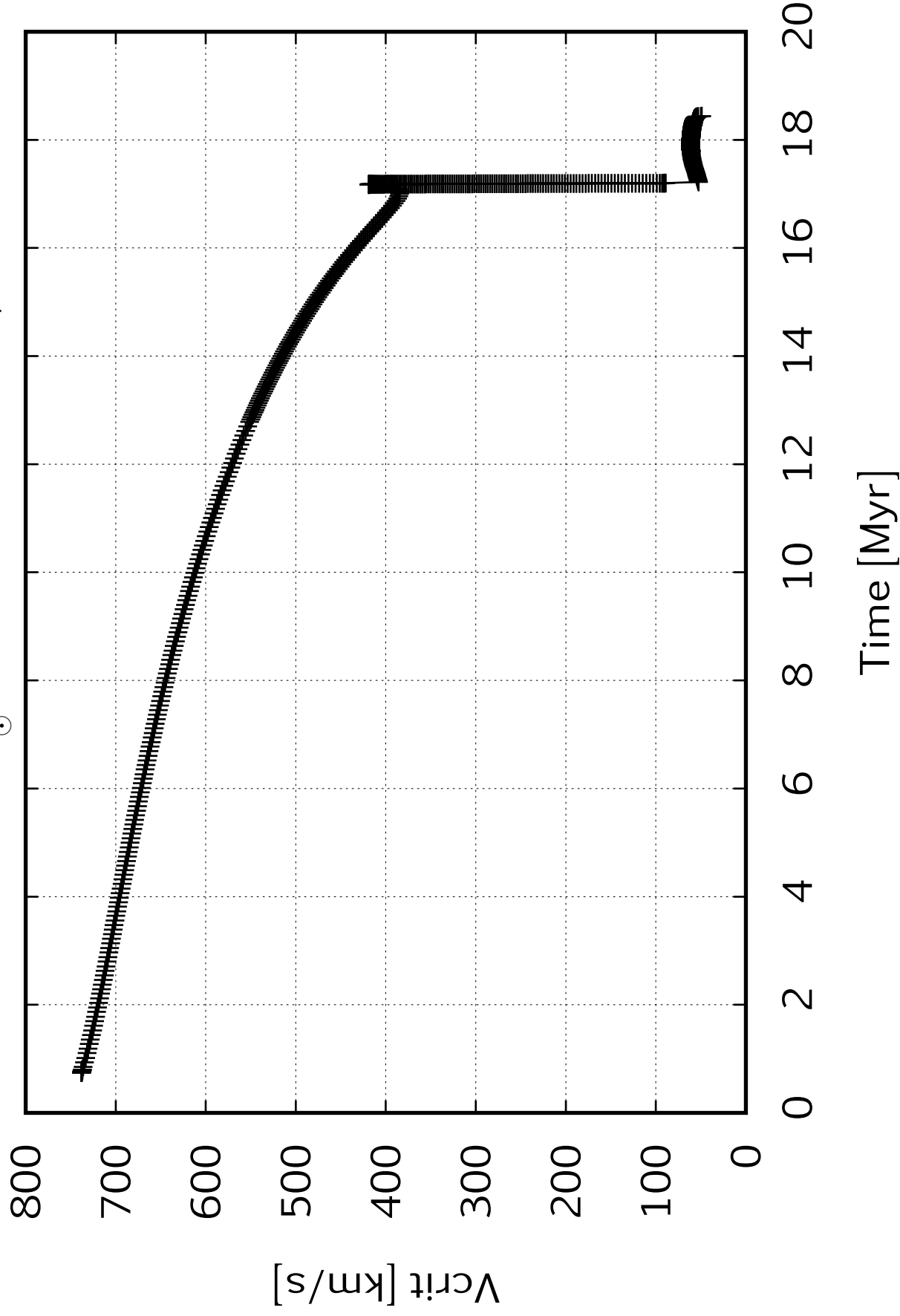


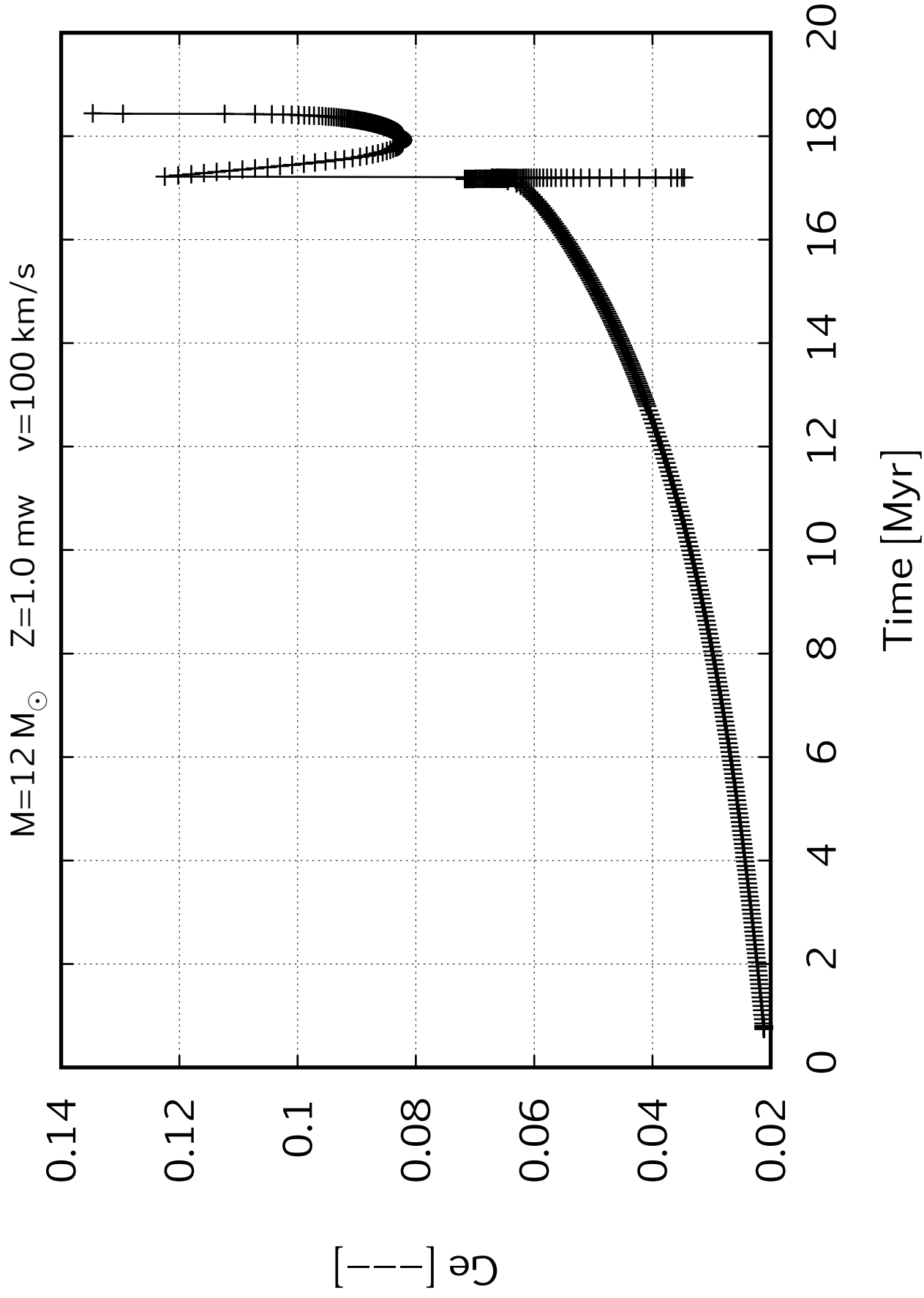




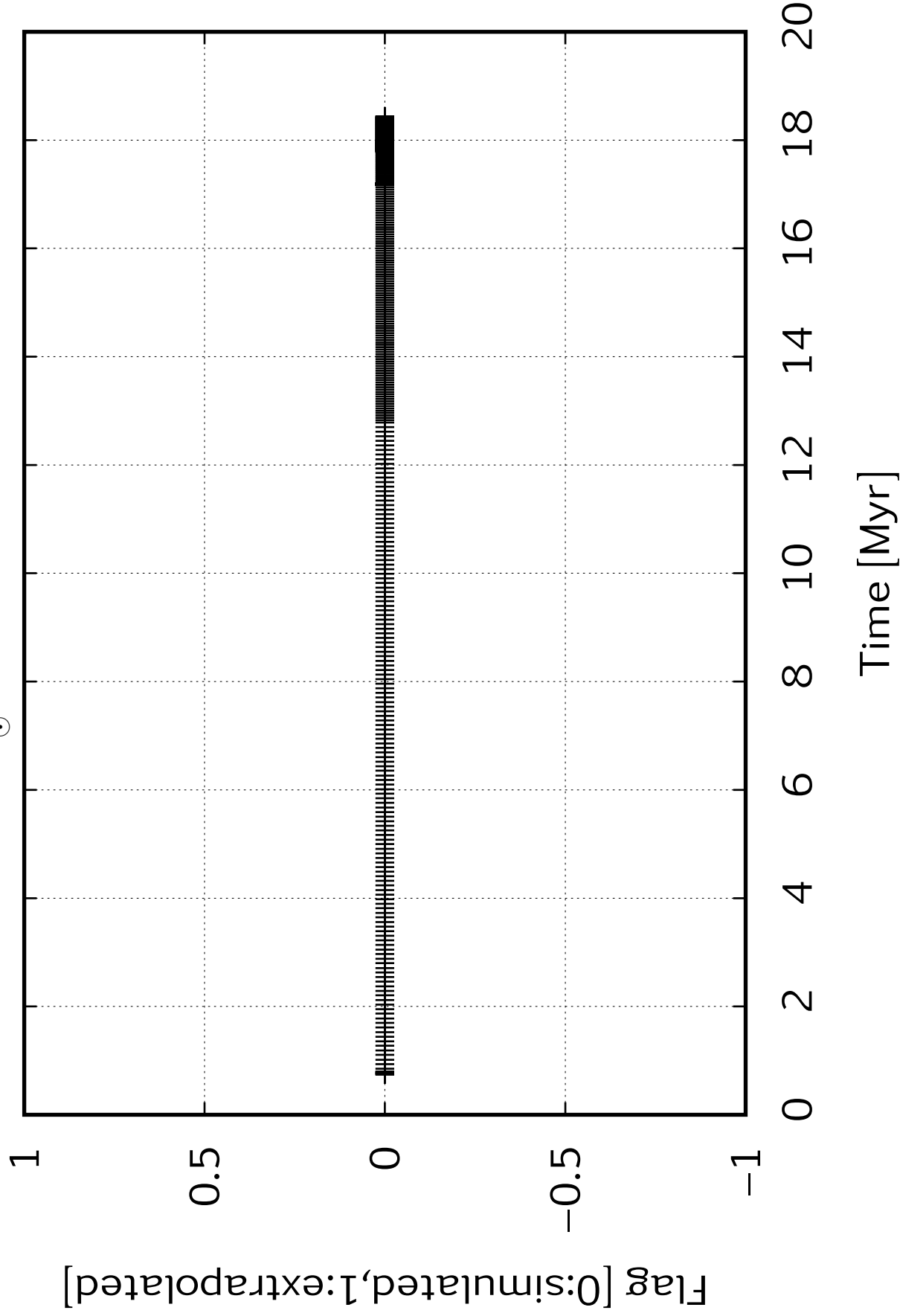


$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100$ km/s





$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100$ km/s



$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$

12.15

12.1

12.05

12

11.95

11.9

11.85

$[\text{---}] (\text{H}) \text{eps}$

0

2

4

6

8

10

12

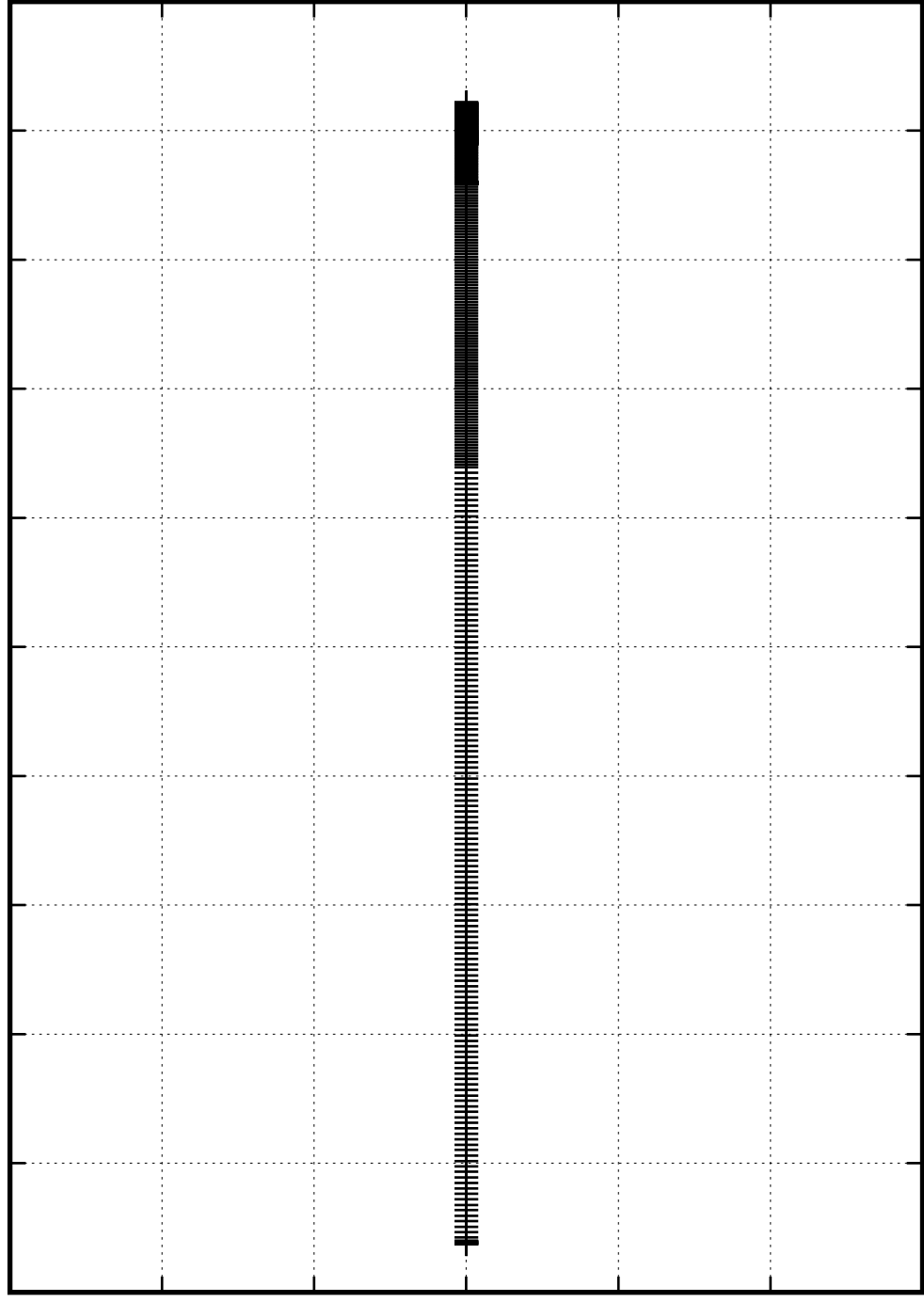
14

16

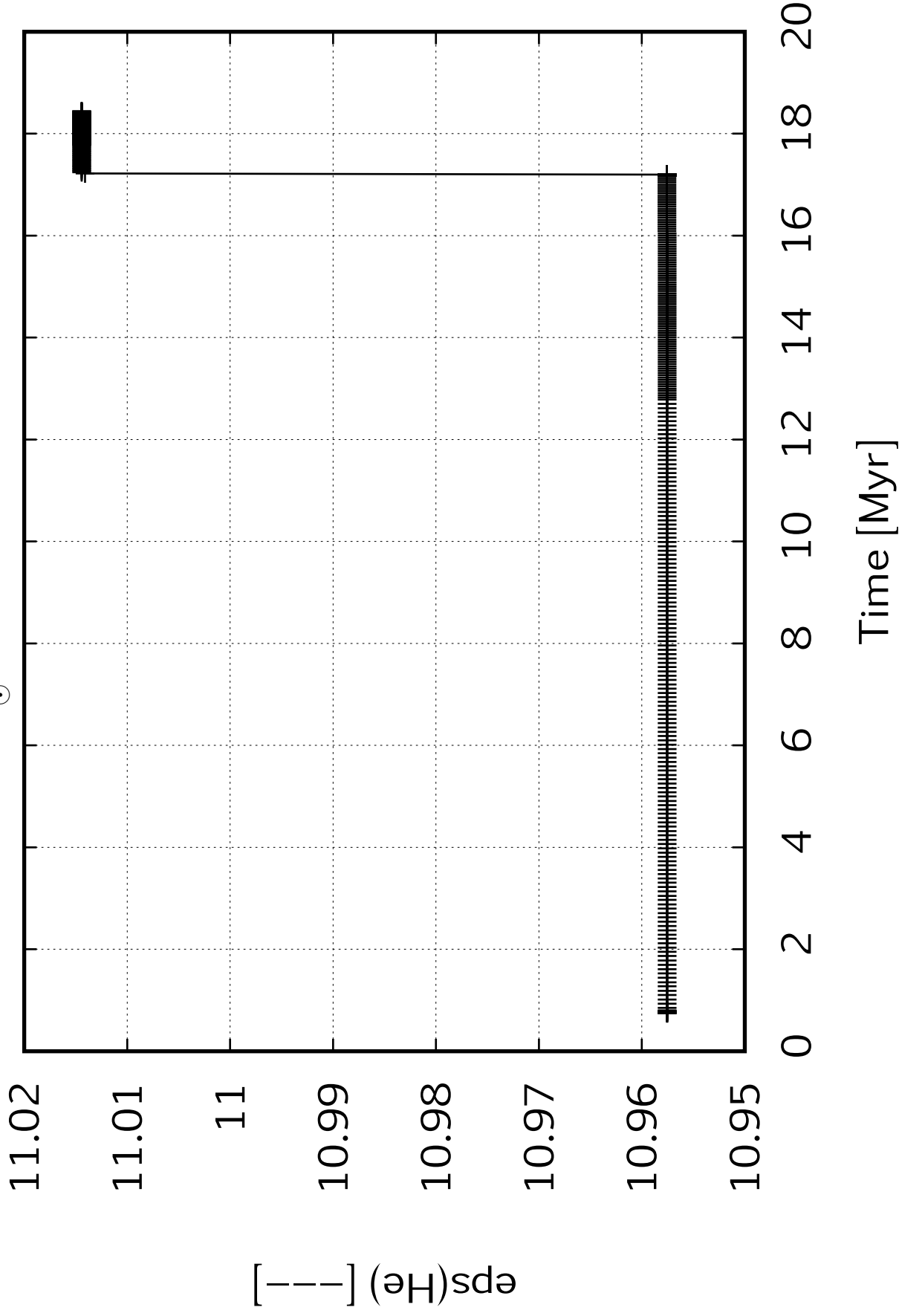
18

20

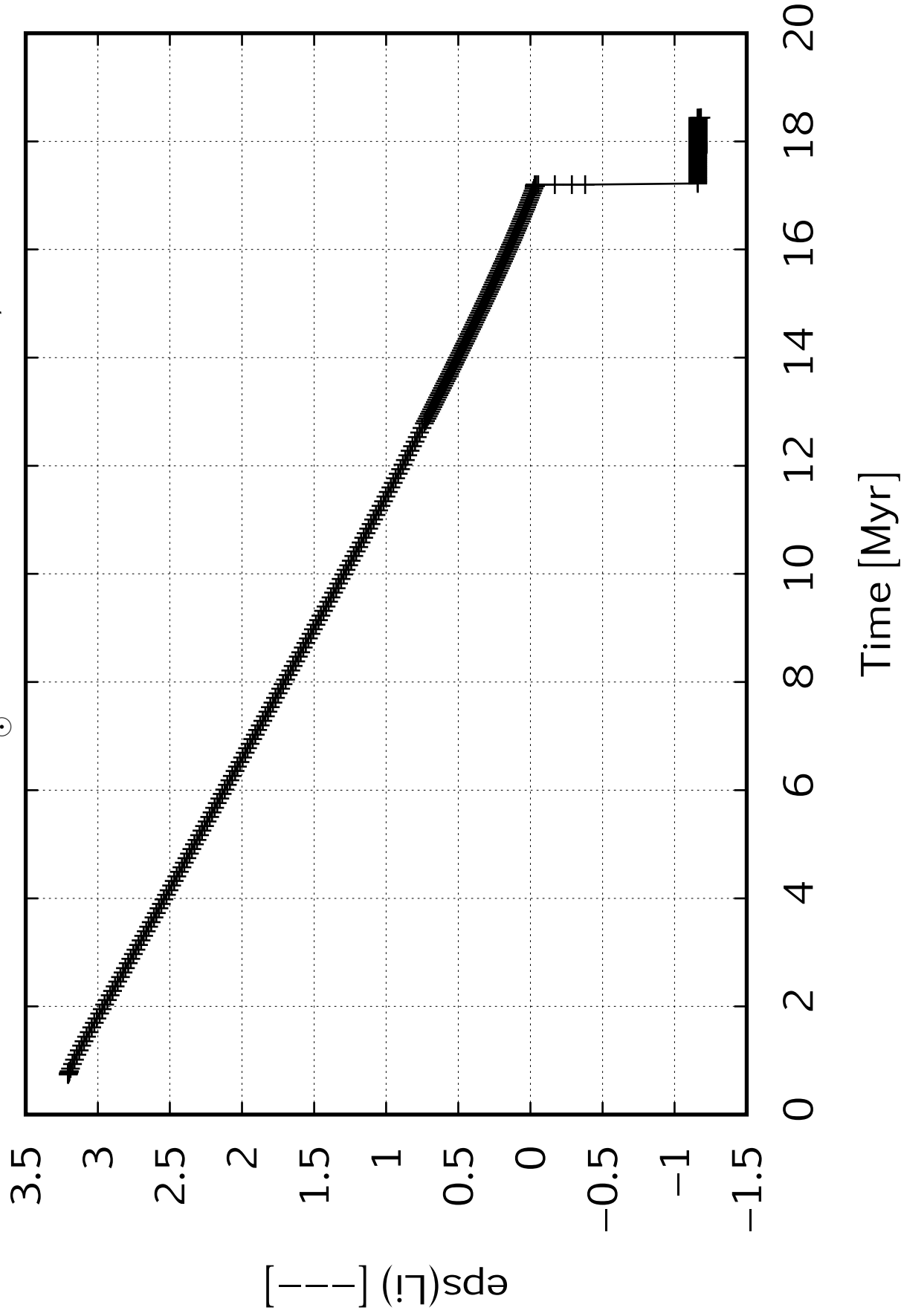
Time [Myr]



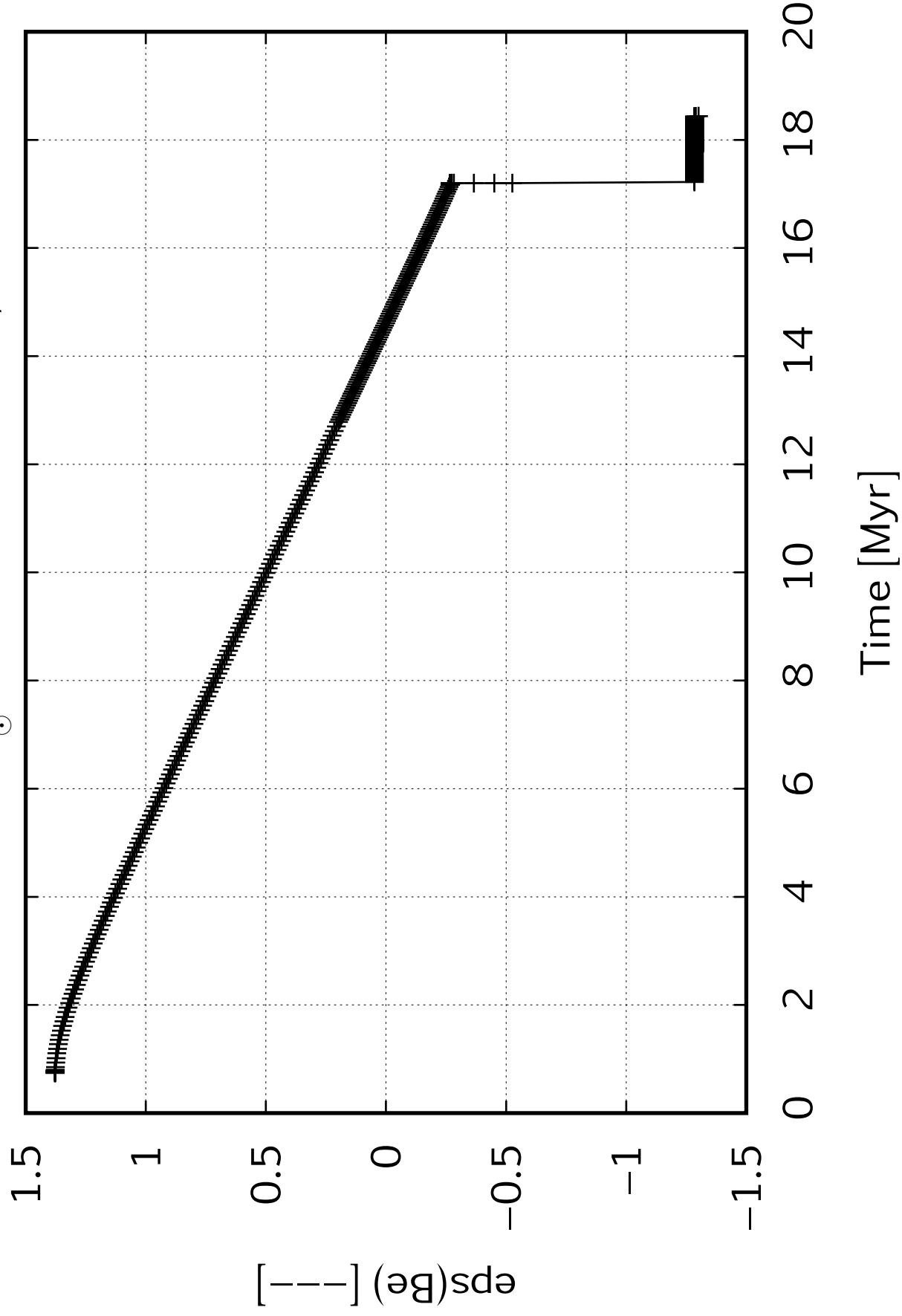
$M=12 M_{\odot}$ $Z=1.0 \text{ mw}$ $v=100 \text{ km/s}$

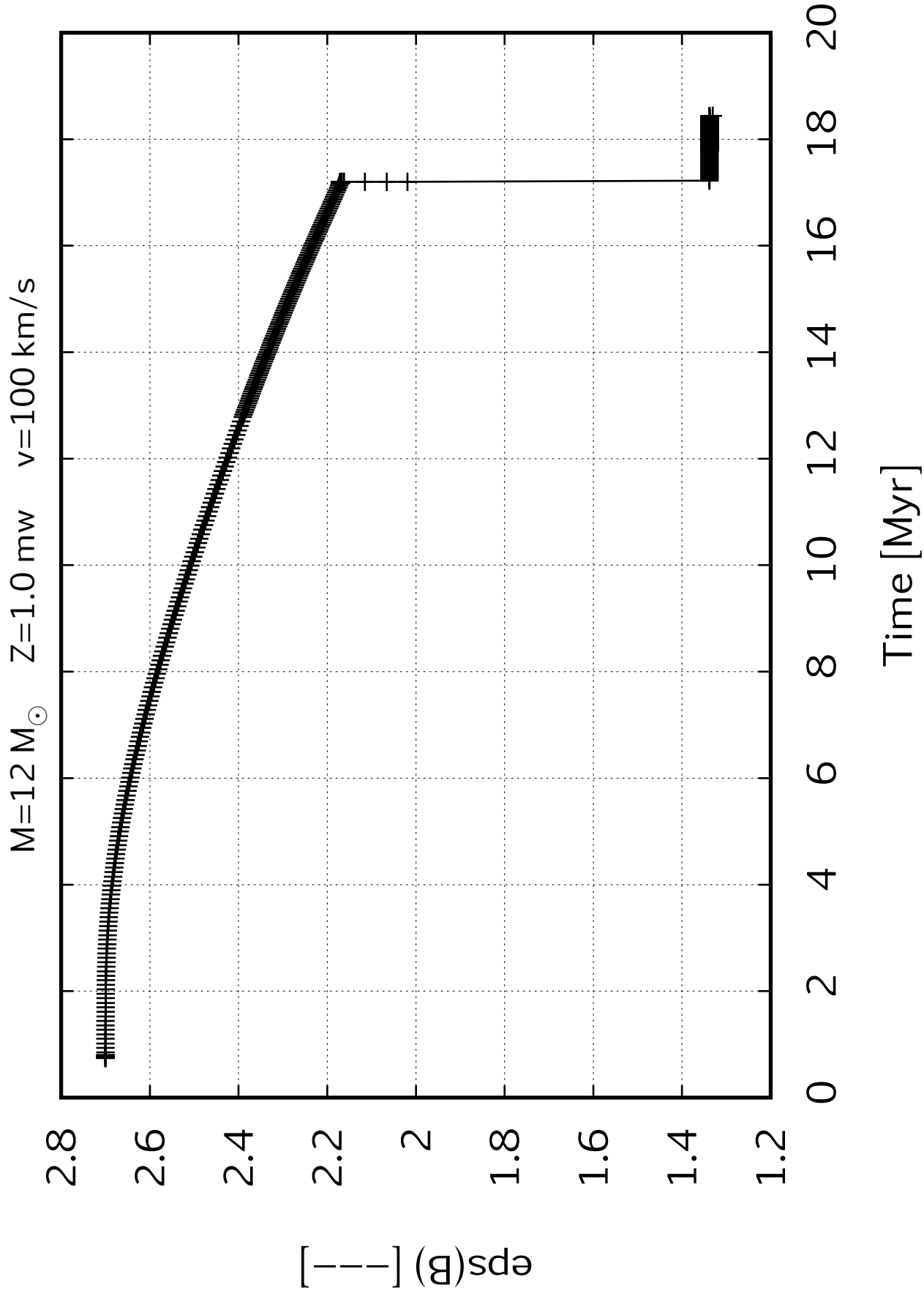


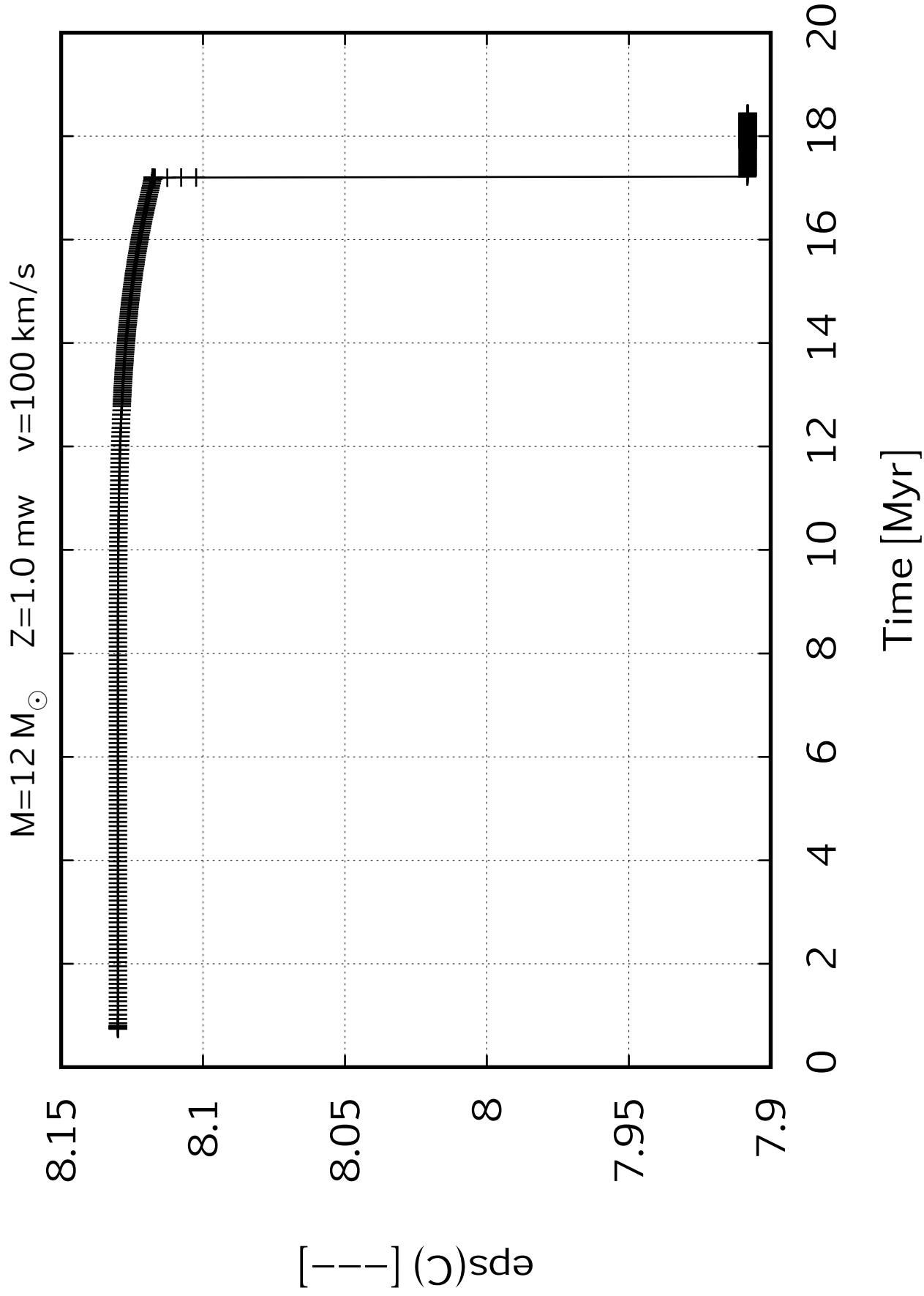
$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$

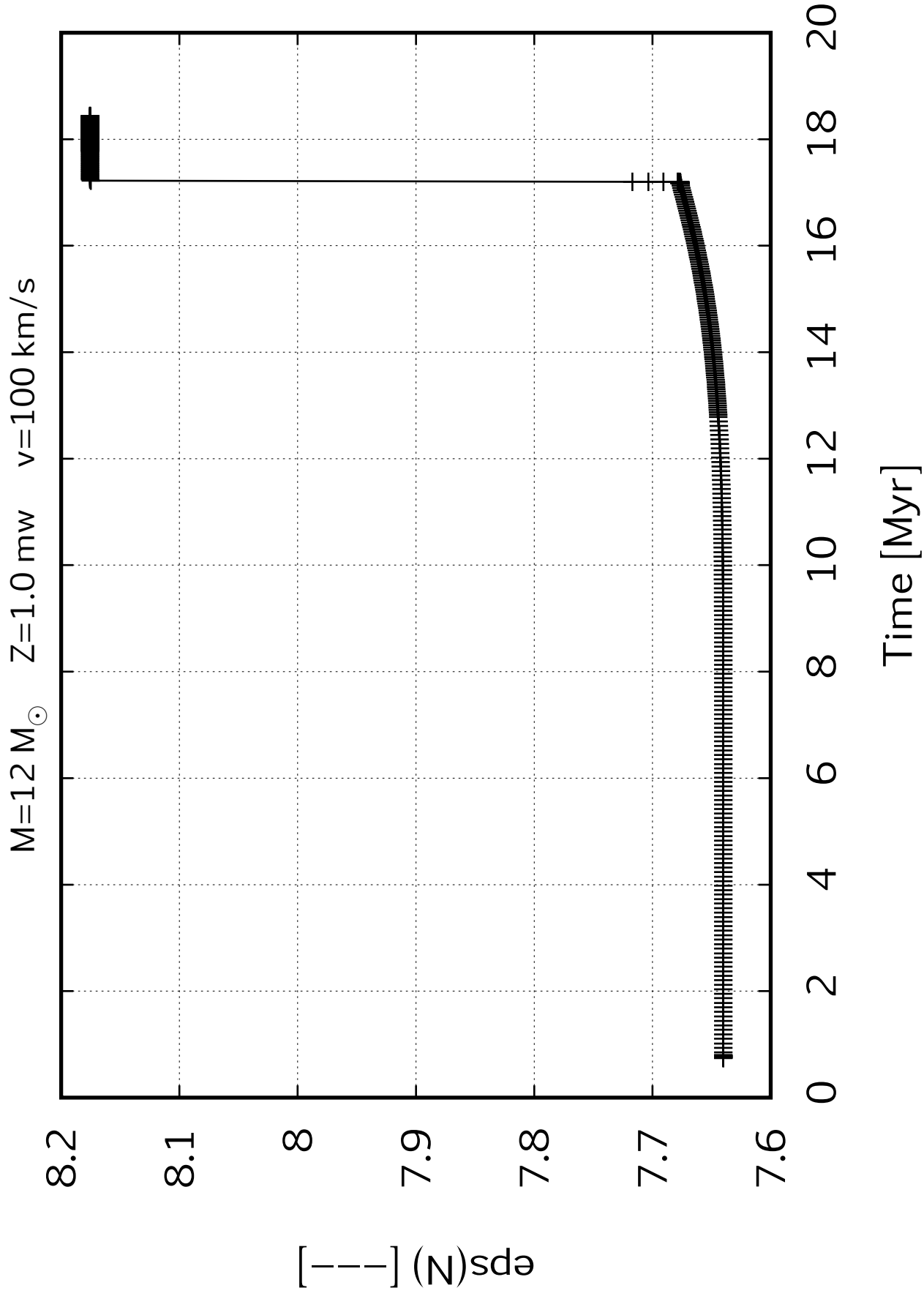


$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100$ km/s

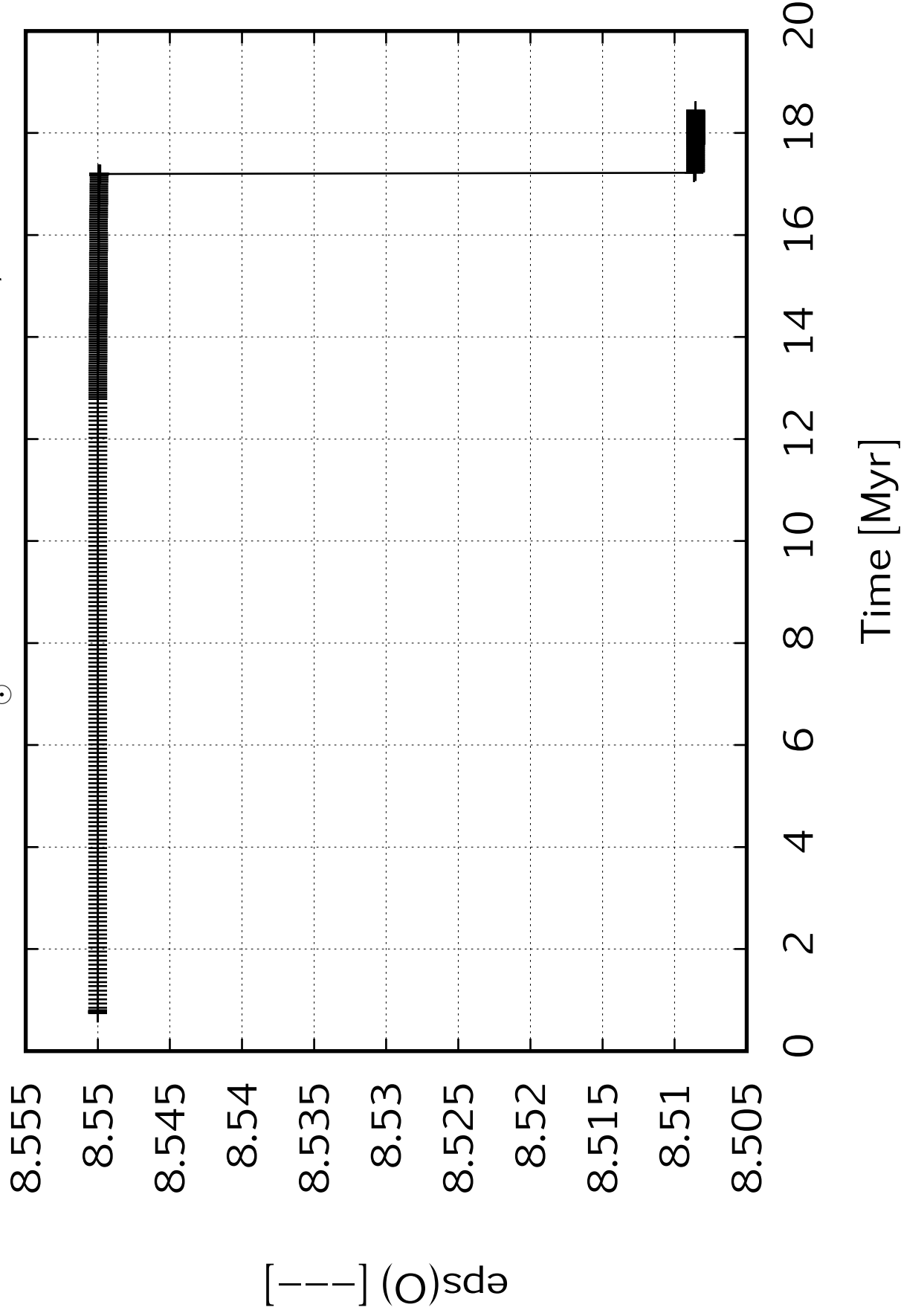


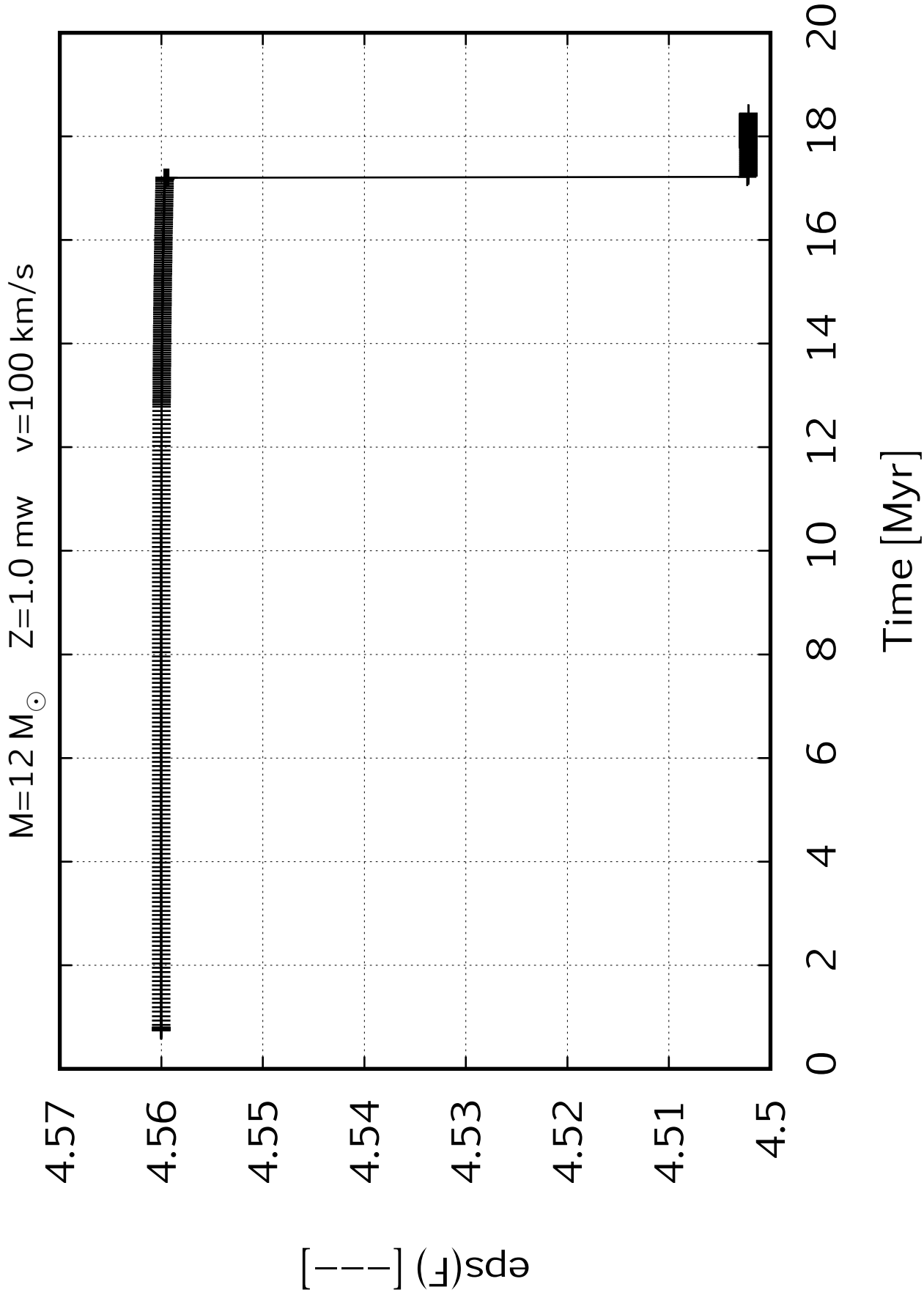




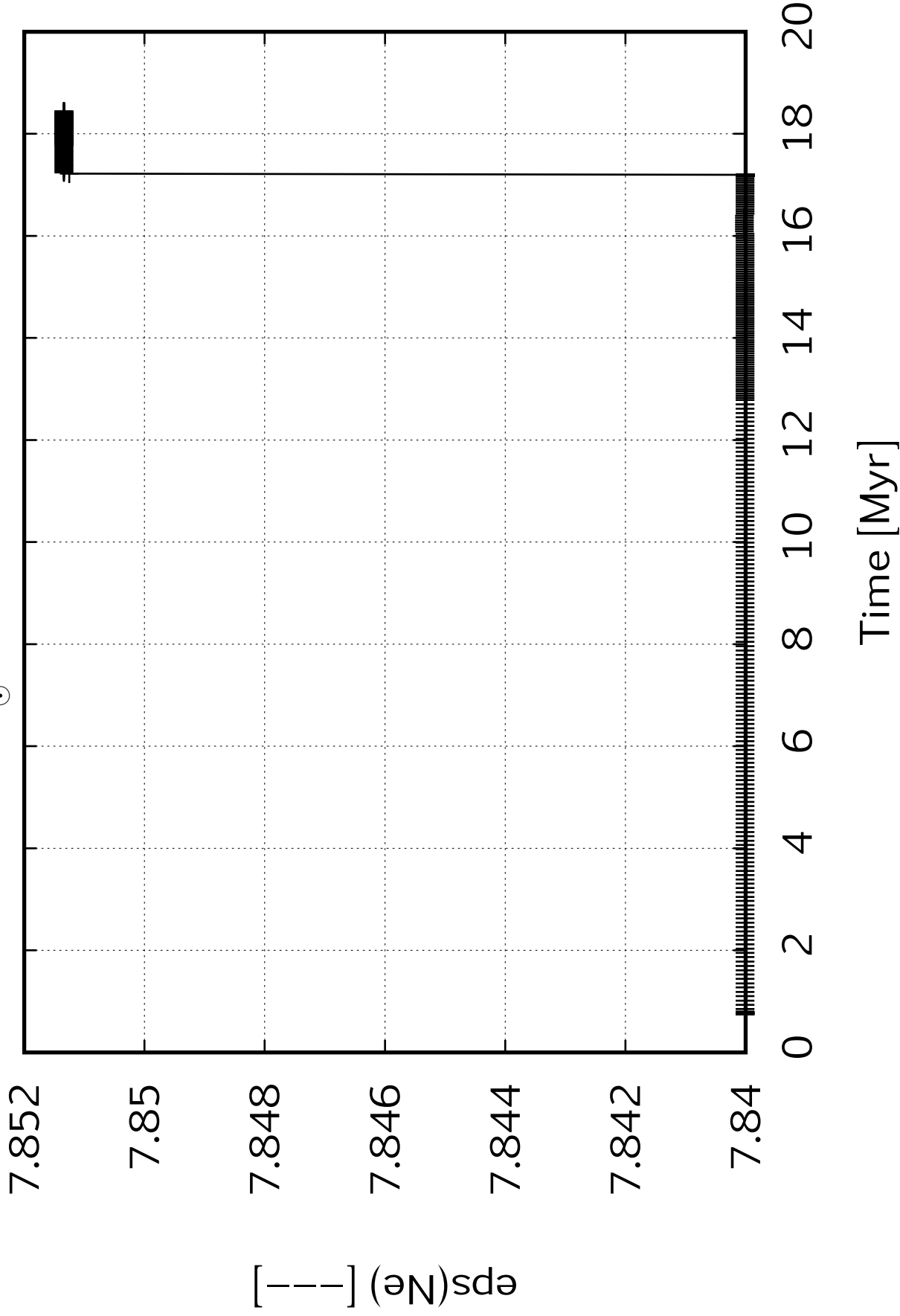


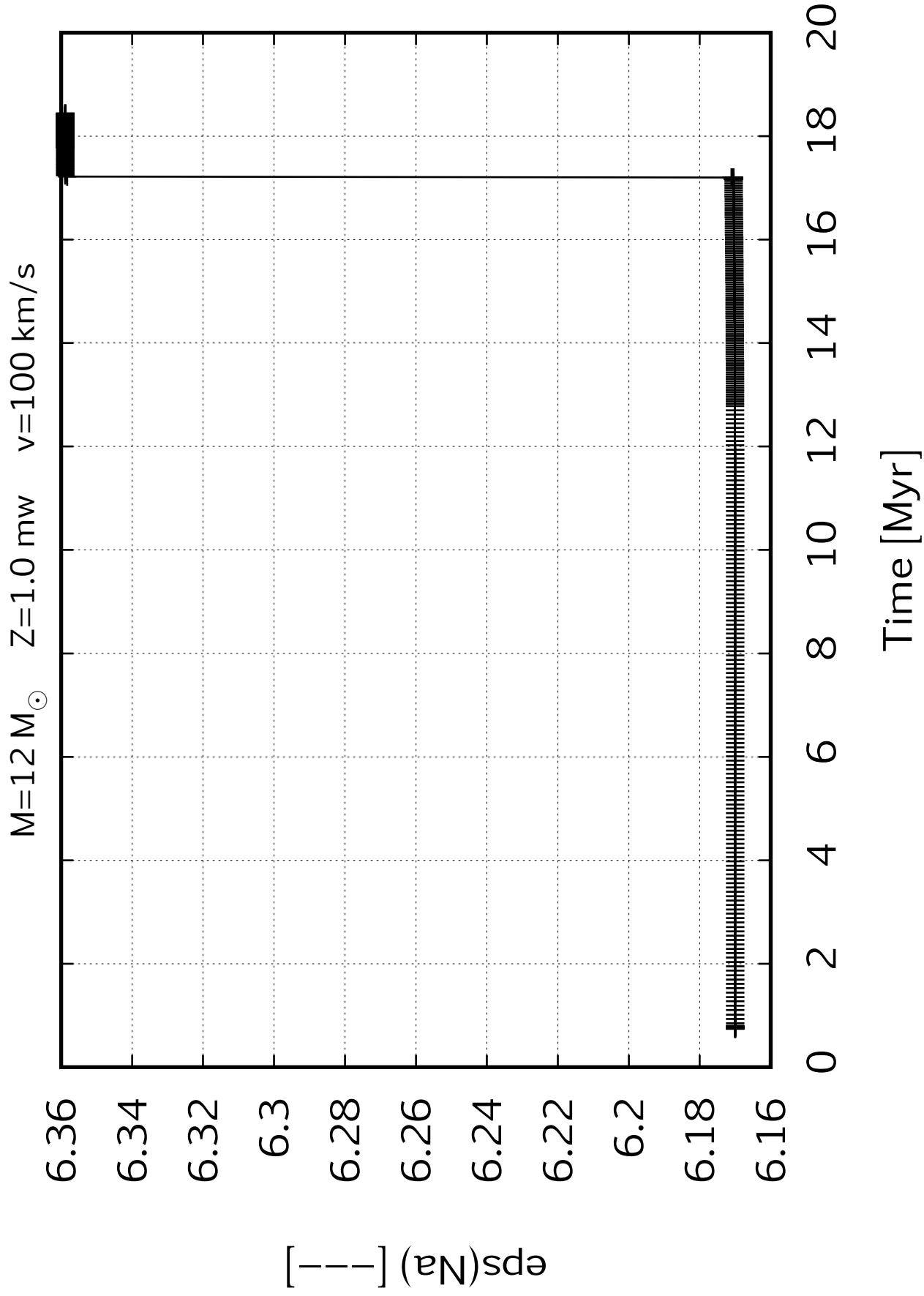
$M=12\,M_{\odot}$ $Z=1.0\,\text{mw}$ $v=100\,\text{km/s}$



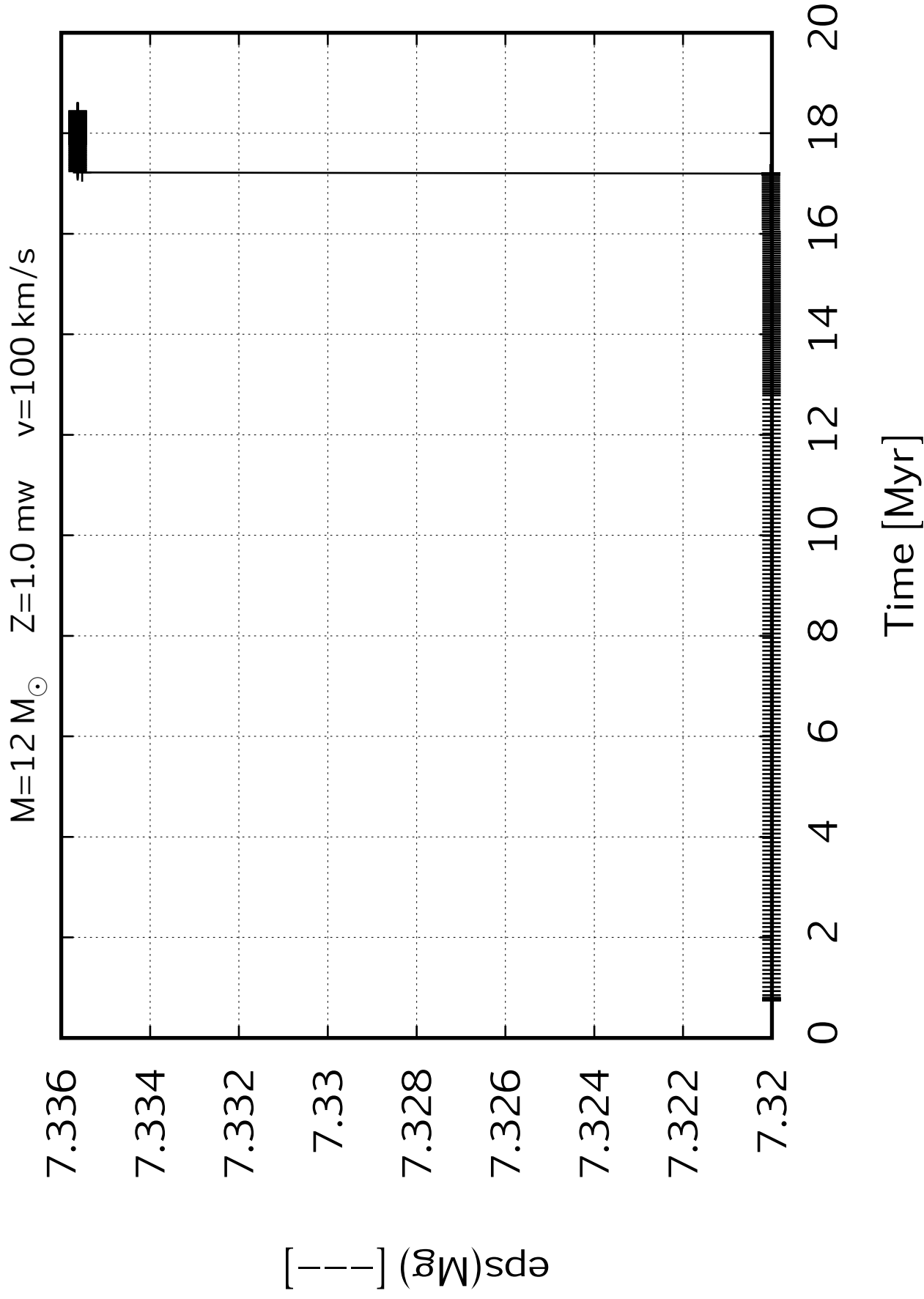


M=12 M_⊙ Z=1.0 mw v=100 km/s





$M=12\,M_{\odot}$ $Z=1.0\,\text{mw}$ $v=100\,\text{km/s}$



$M=12\,M_{\odot}$ $Z=1.0\,\text{mw}$ $v=100\,\text{km/s}$

6.39

6.388

6.386

6.384

6.382

6.38

6.378

6.376

6.374

6.372

6.37

$\epsilon_{\text{ps}}(\text{Al})$

0

2

4

6

8

10

12

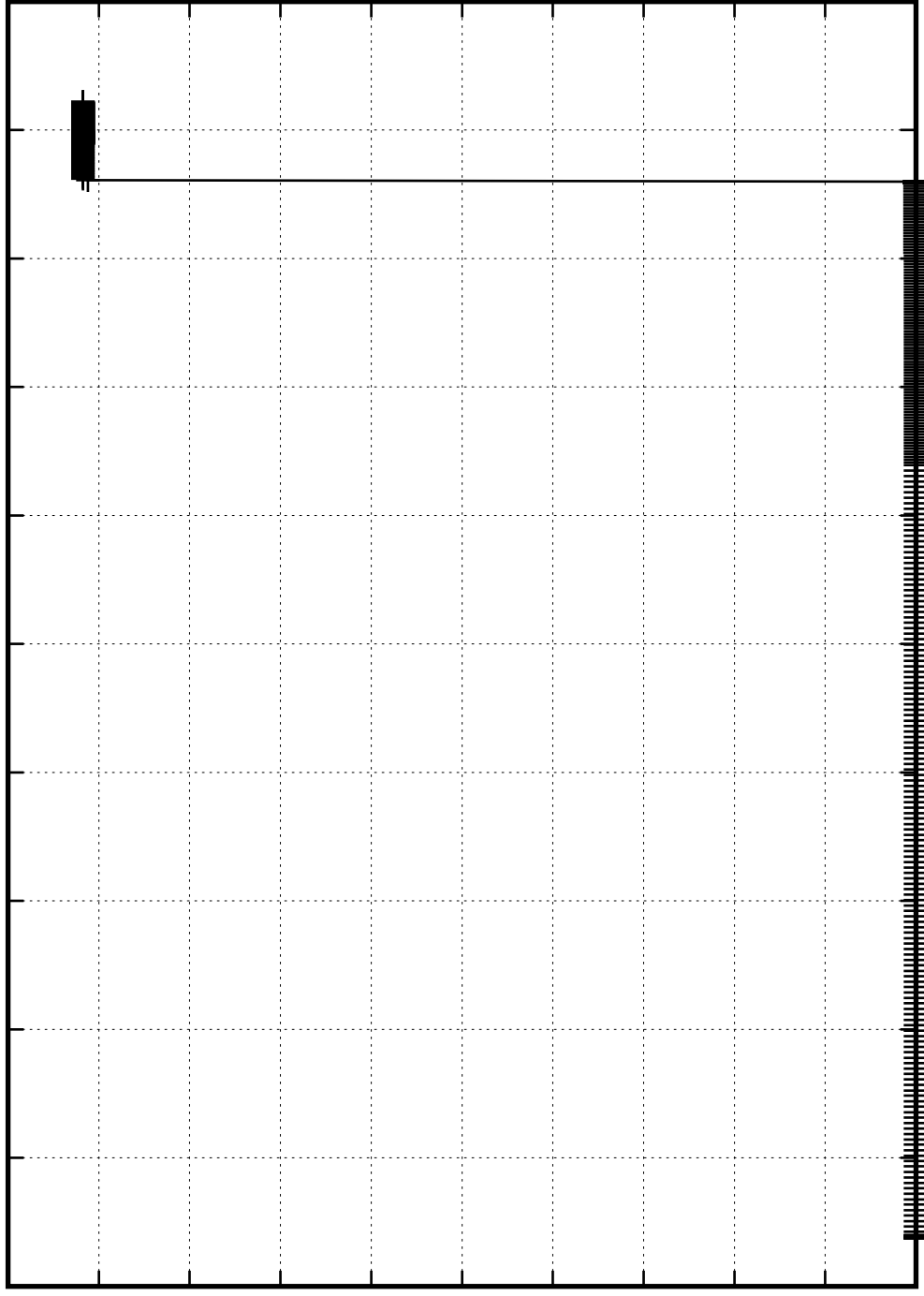
14

16

18

20

Time [Myr]



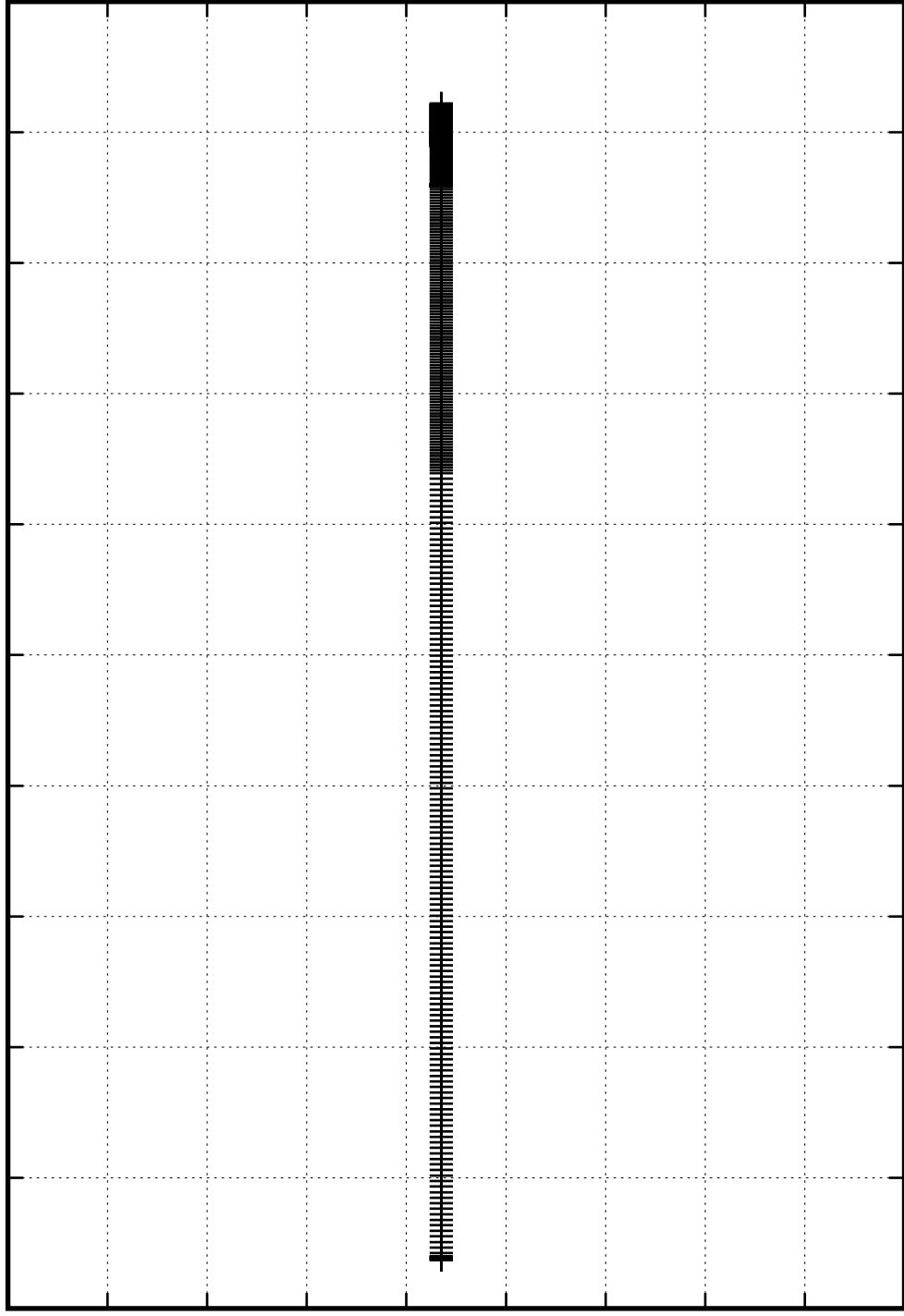
$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$

He-core-size [Msun]

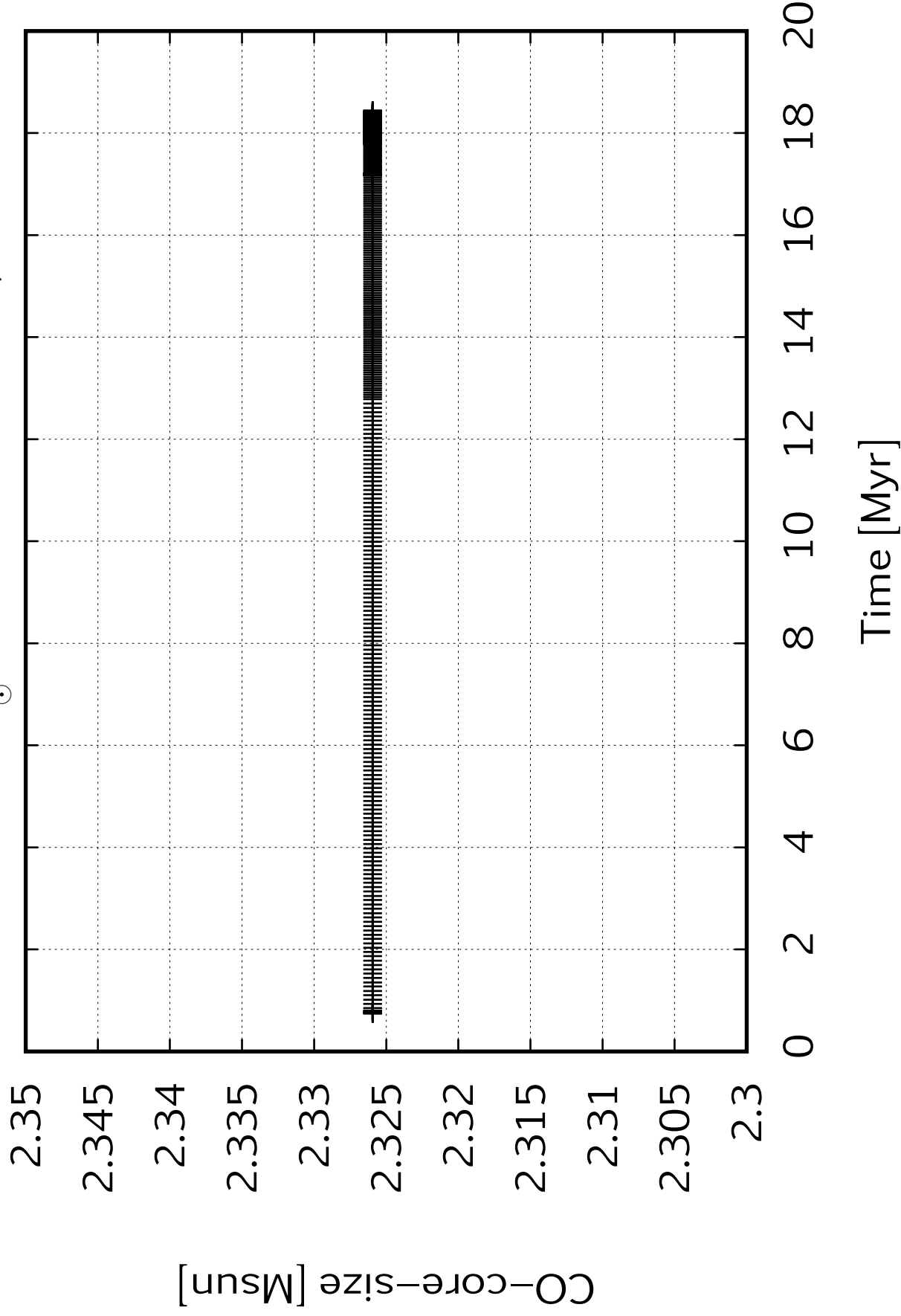
4.18
4.17
4.16
4.15
4.14
4.13
4.12
4.11
4.1
4.09

0 2 4 6 8 10 12 14 16 18 20

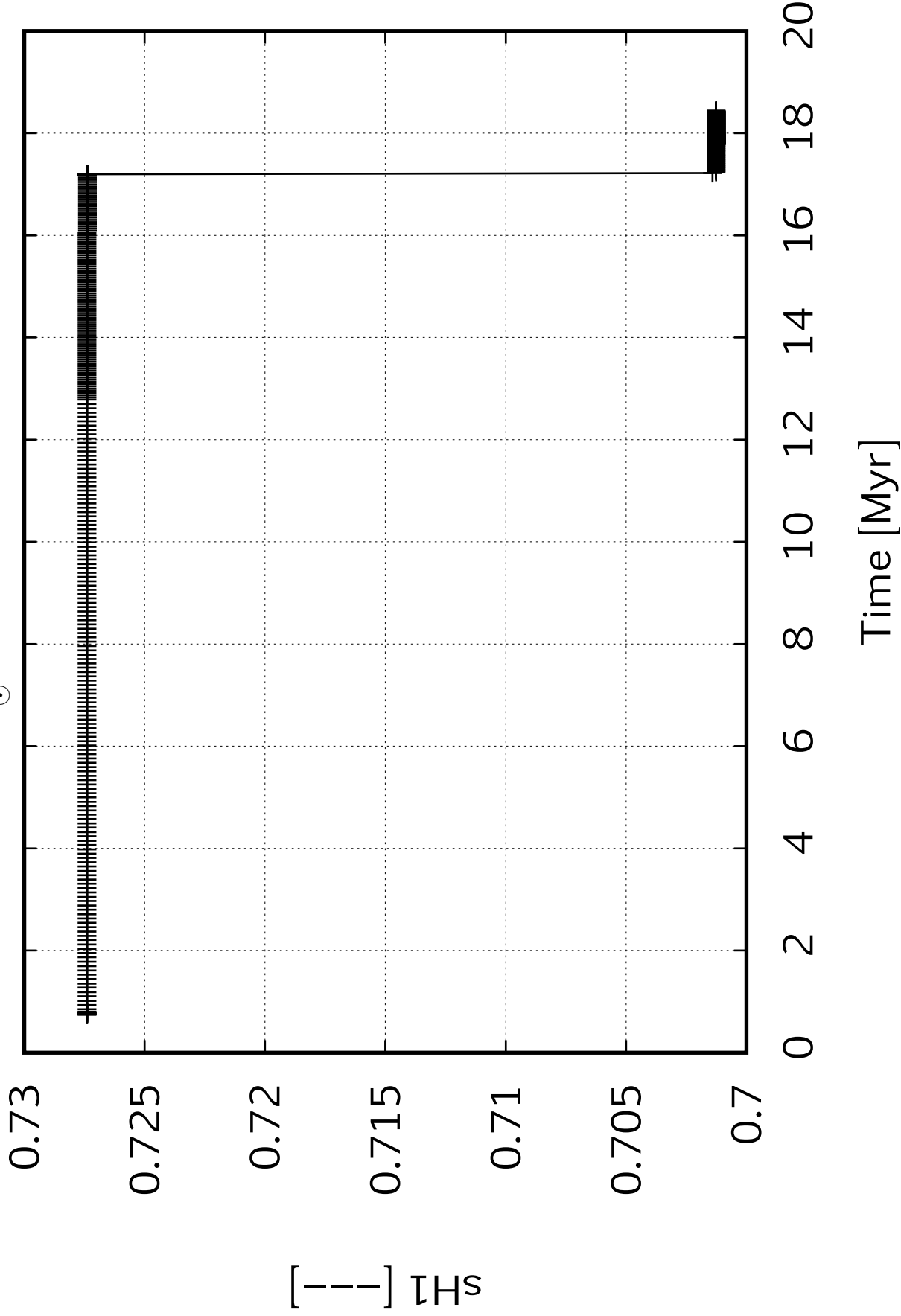
Time [Myr]

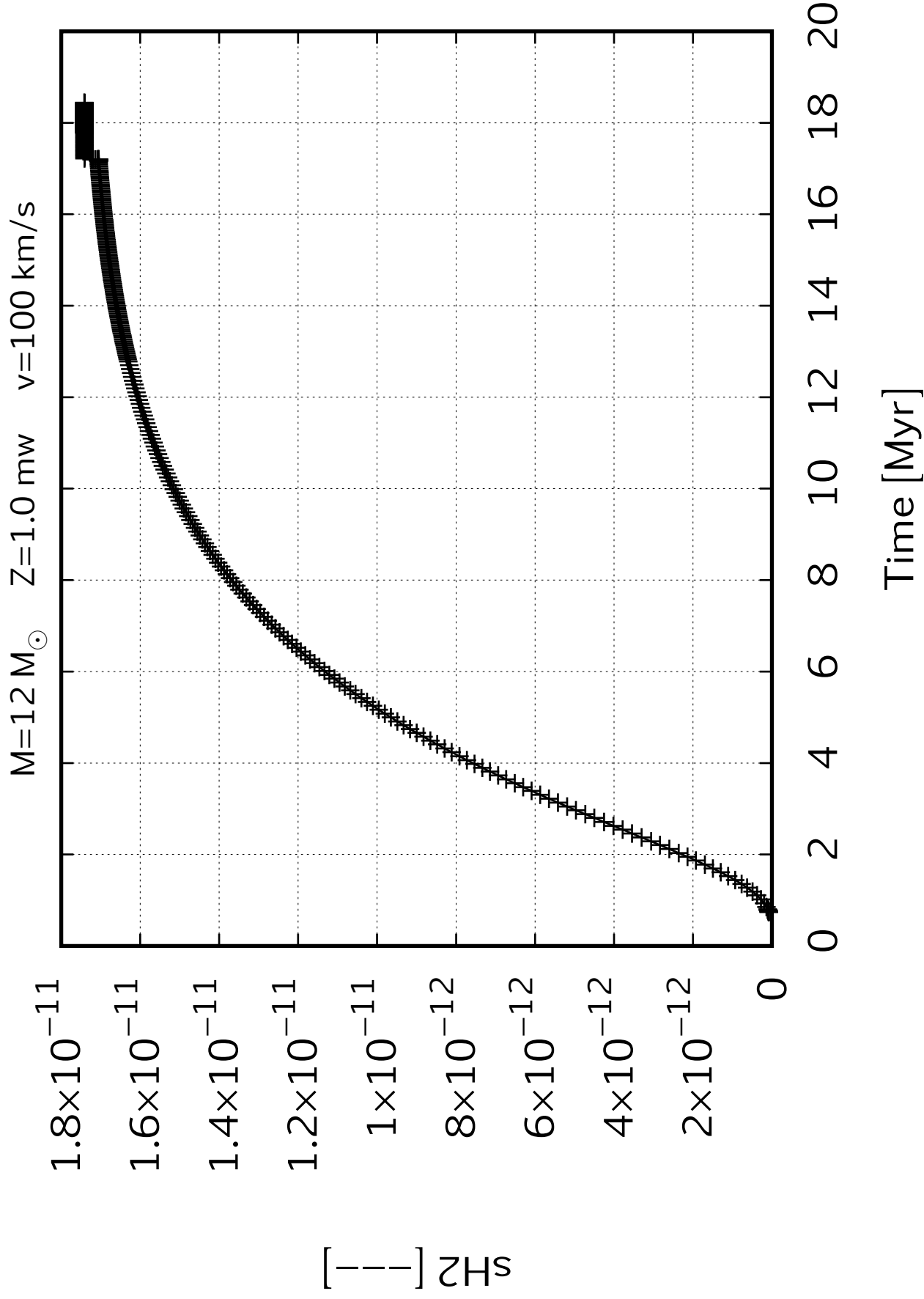


$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$

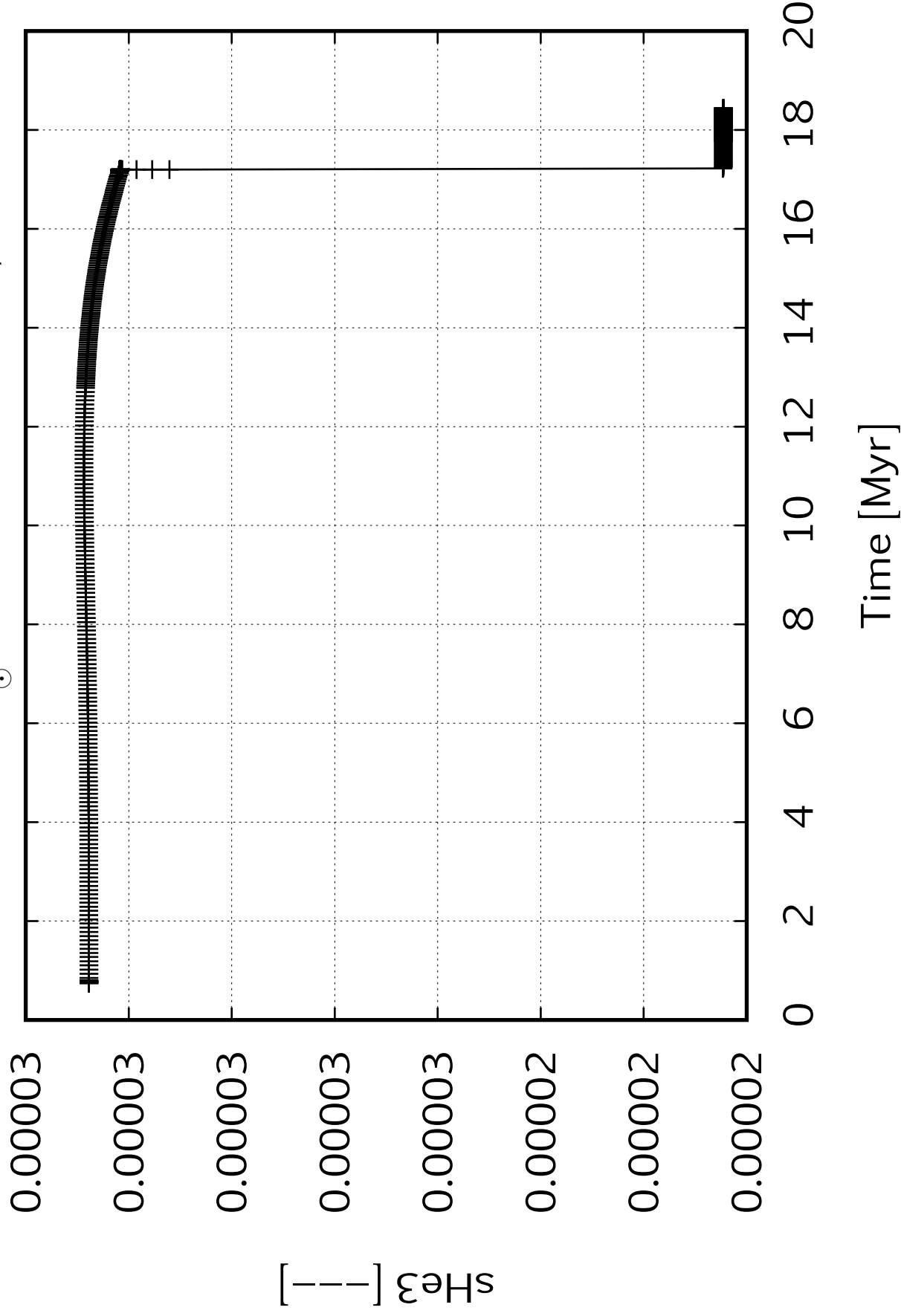


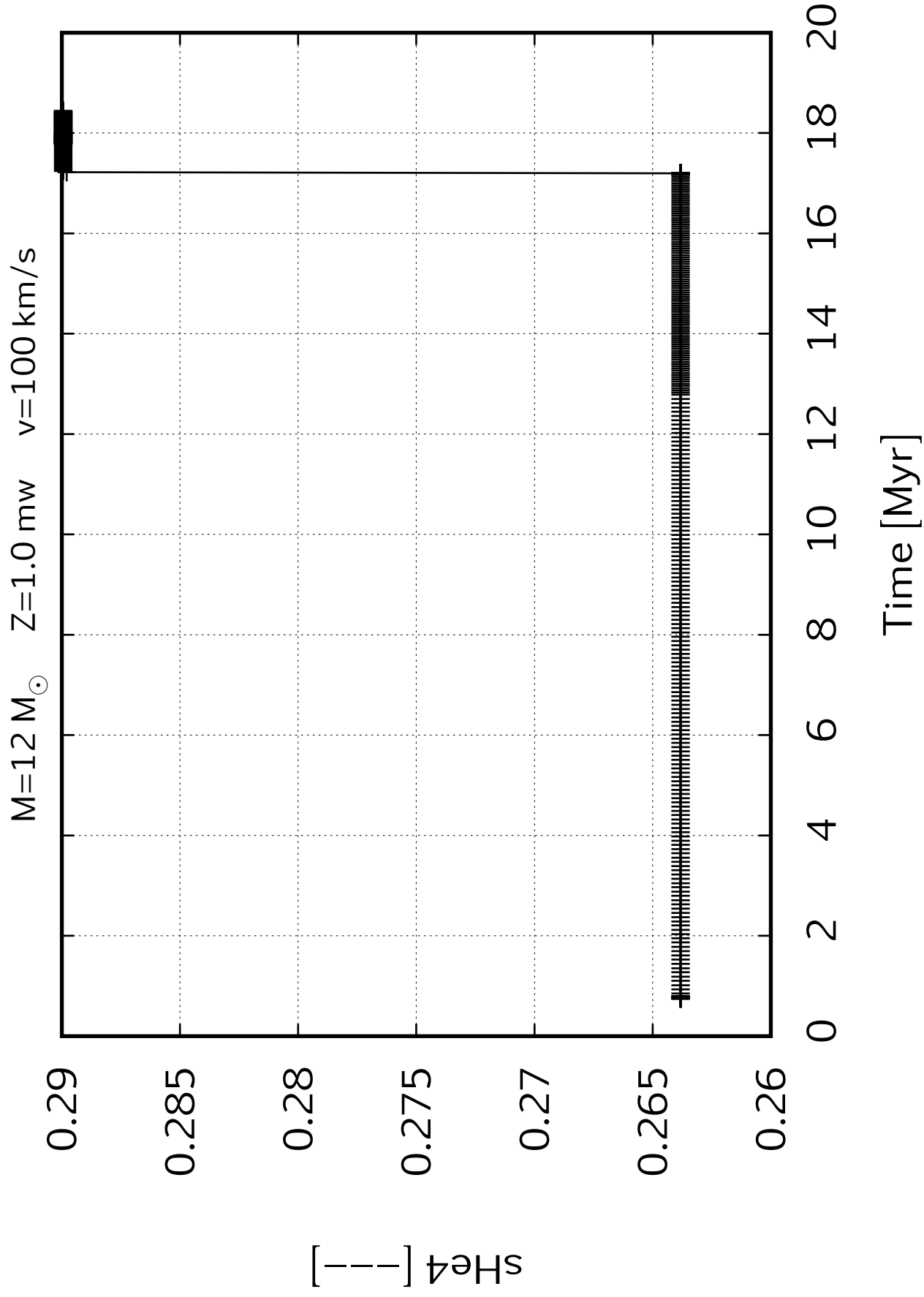
$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$

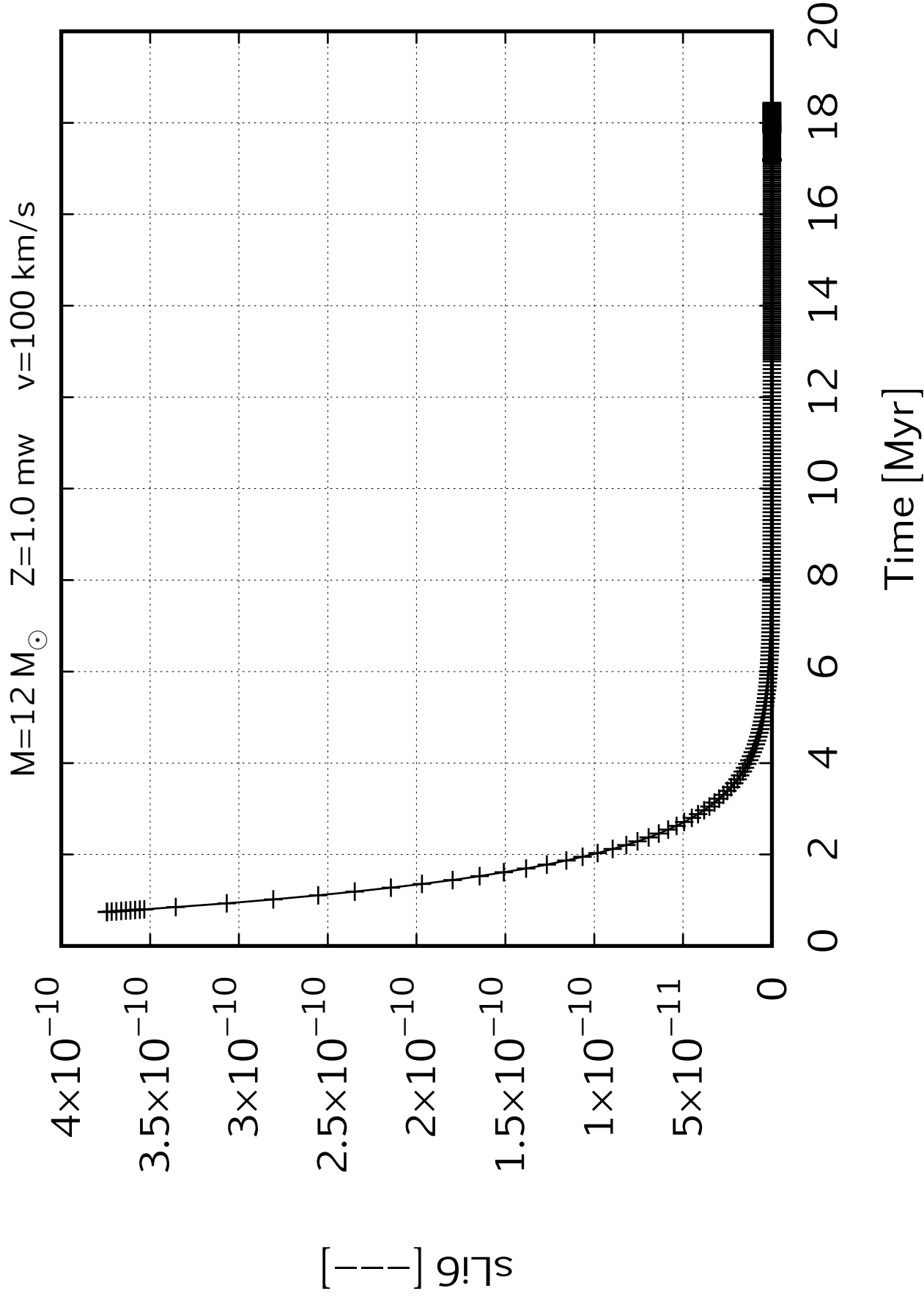




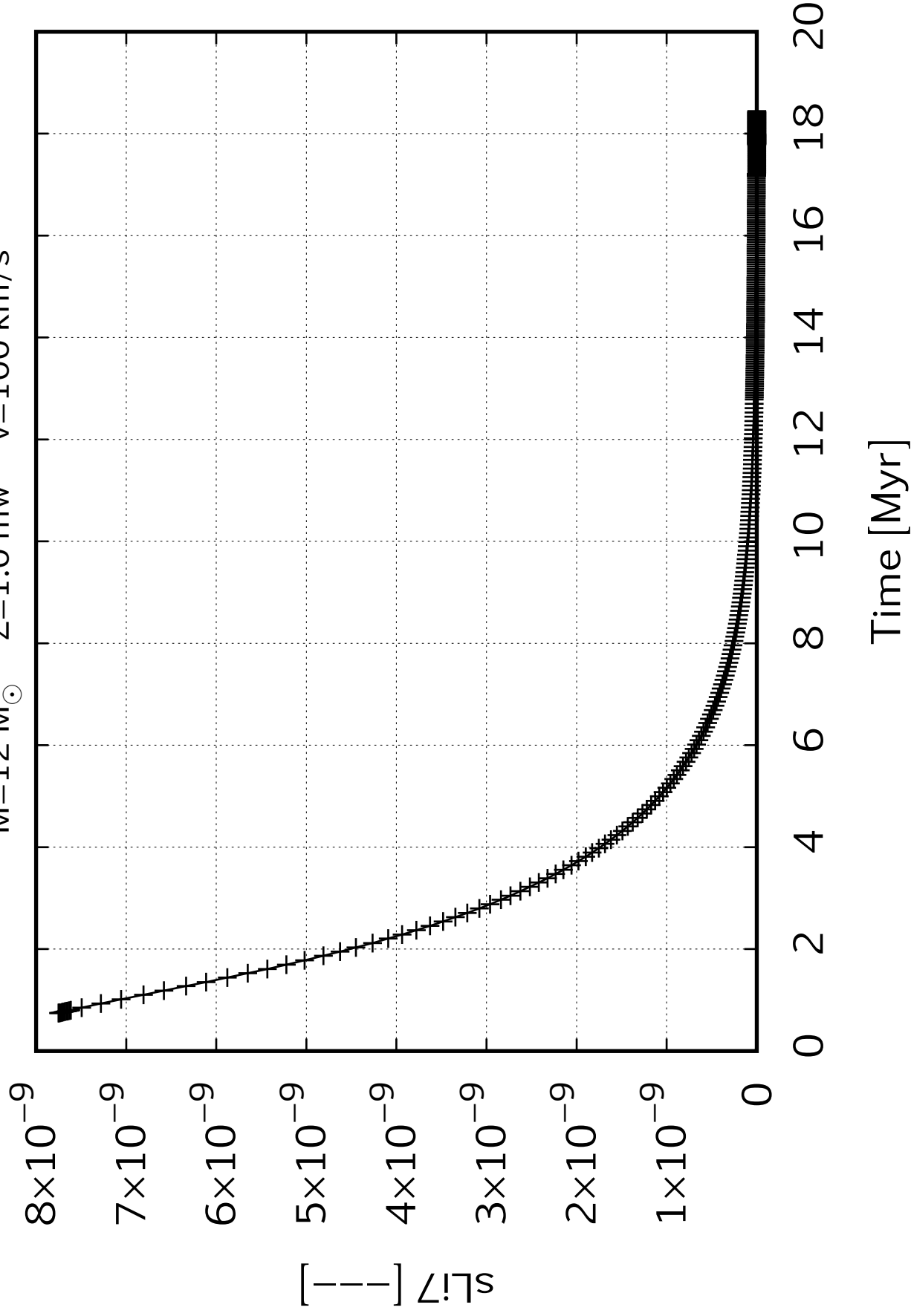
$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$

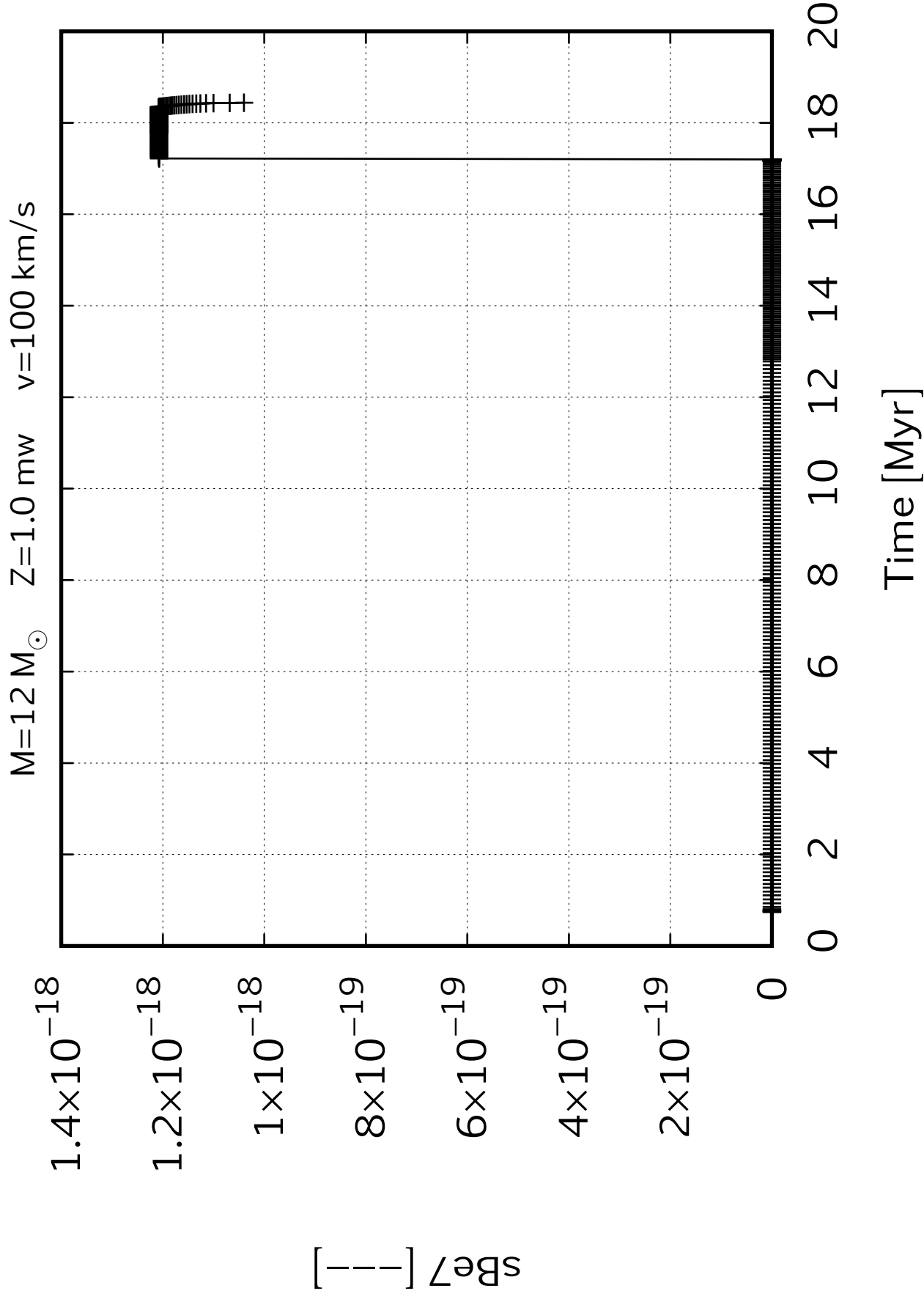


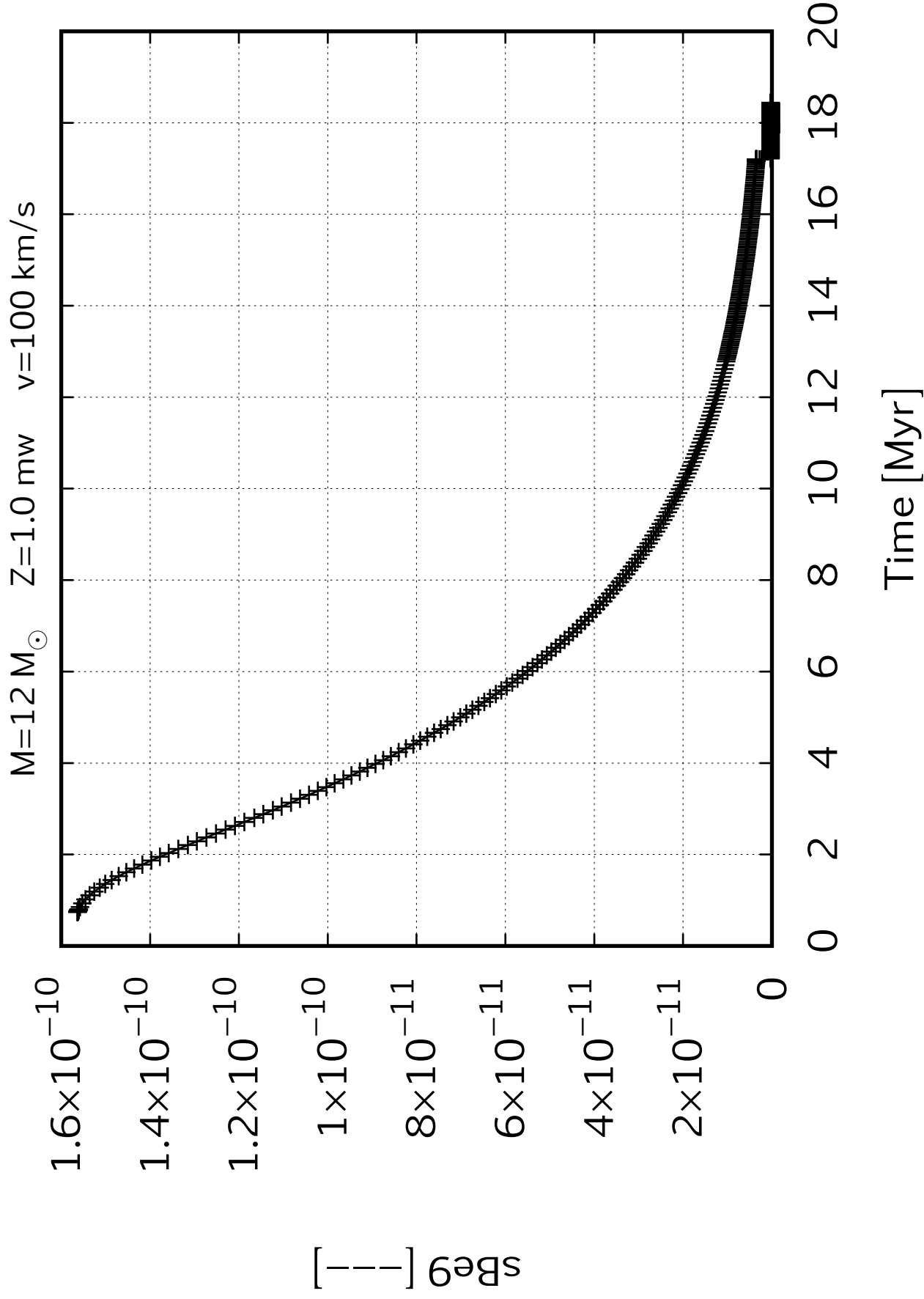


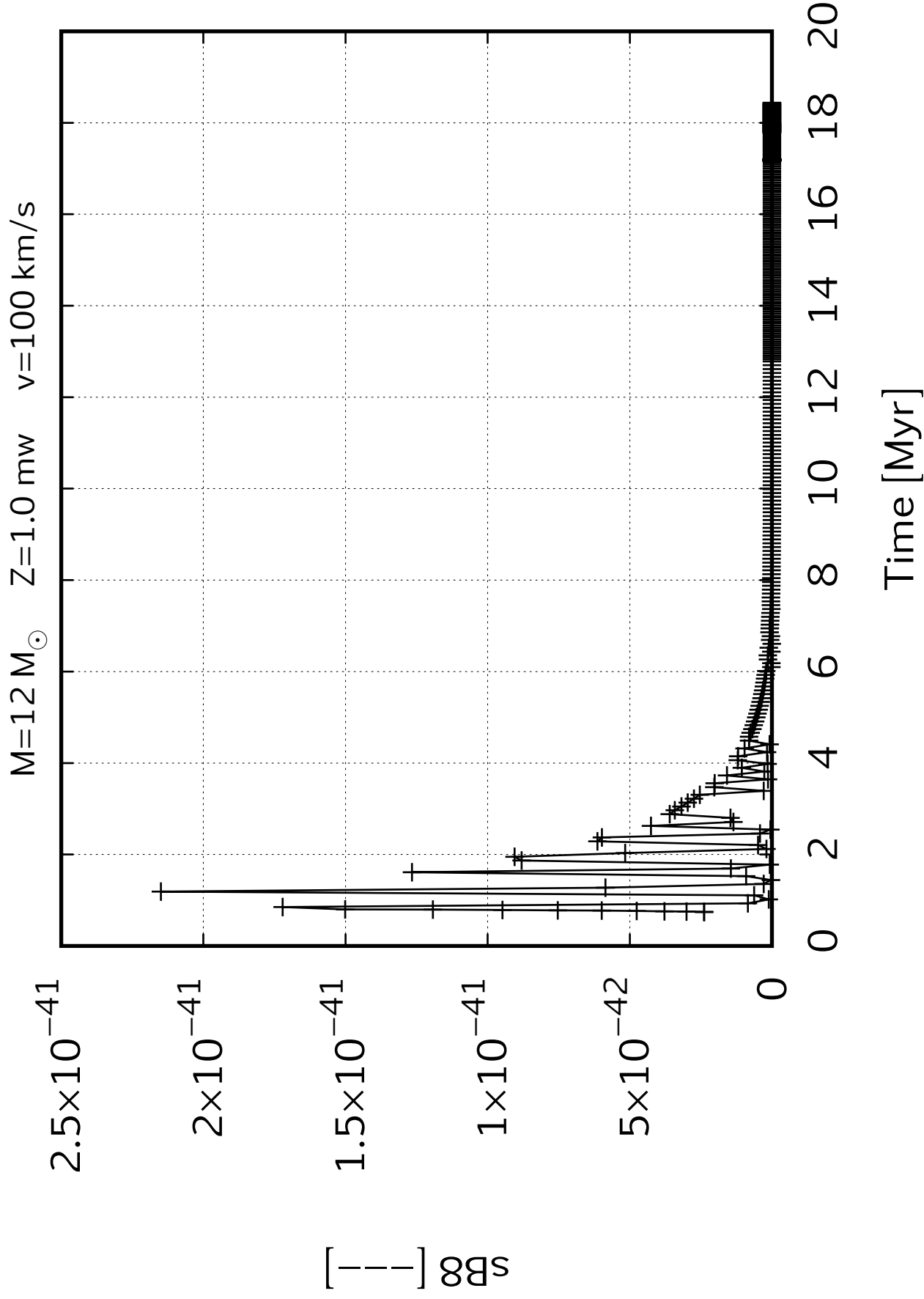


$M=12\,M_{\odot}$ $Z=1.0\,\text{mw}$ $v=100\,\text{km/s}$

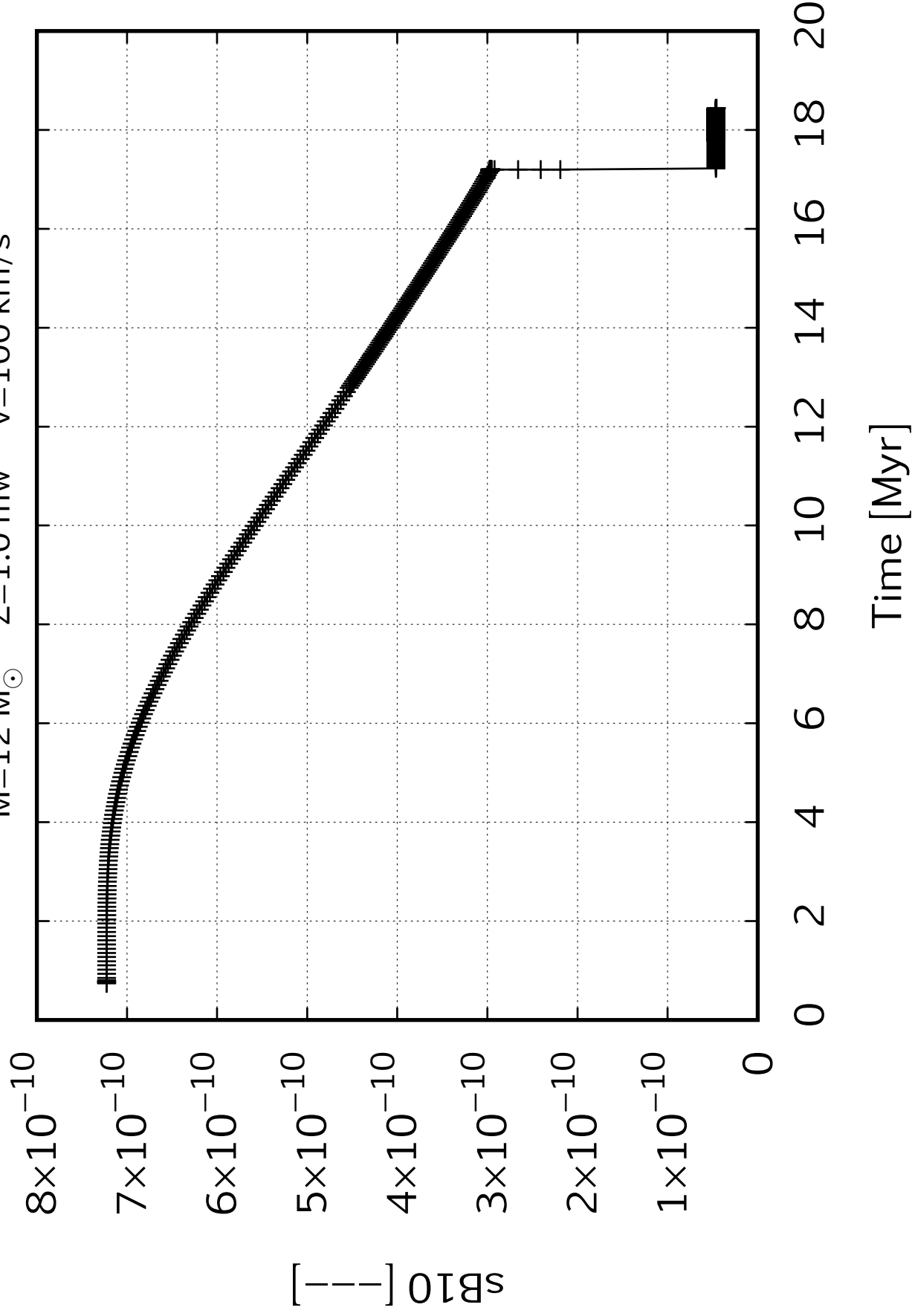


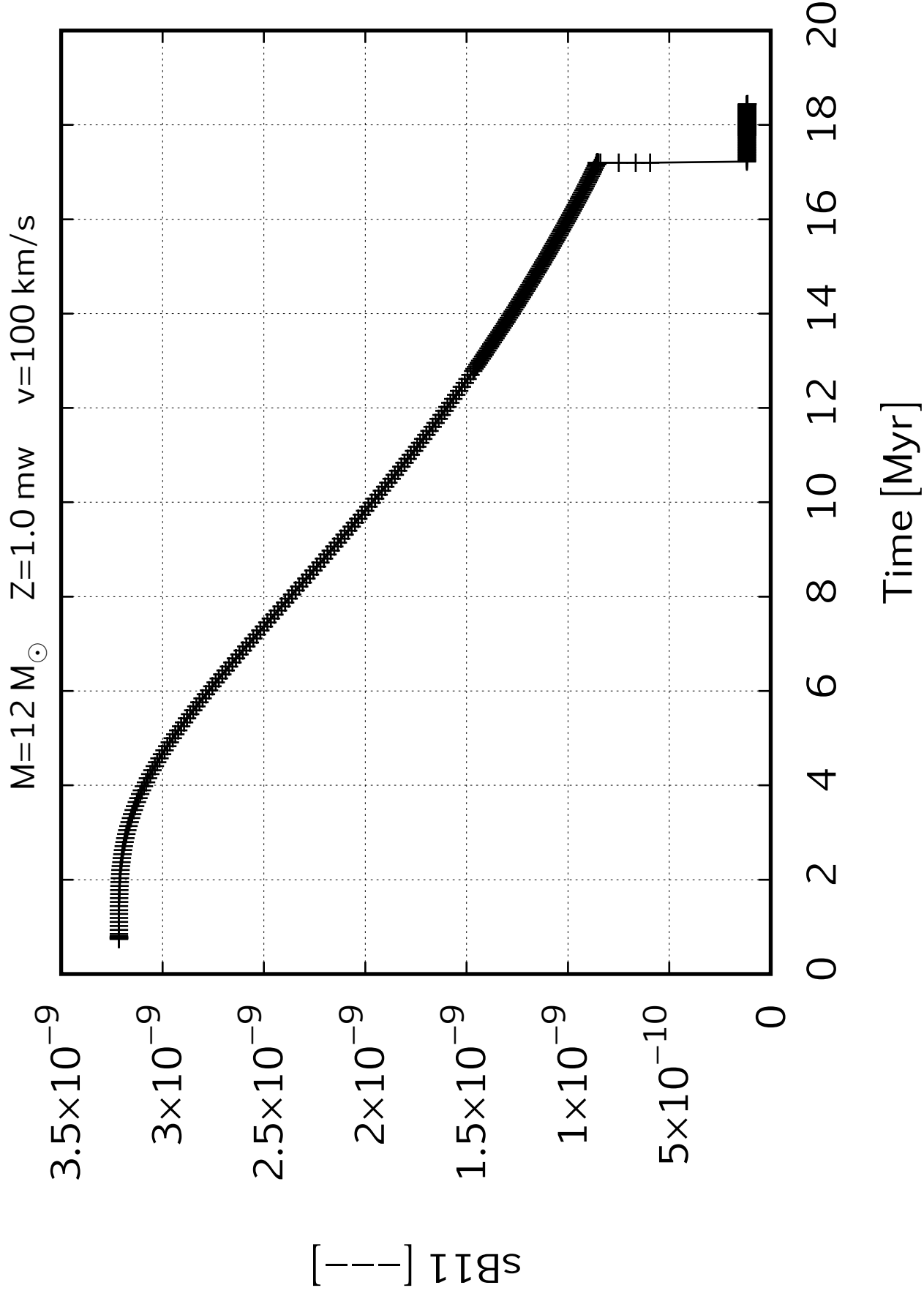


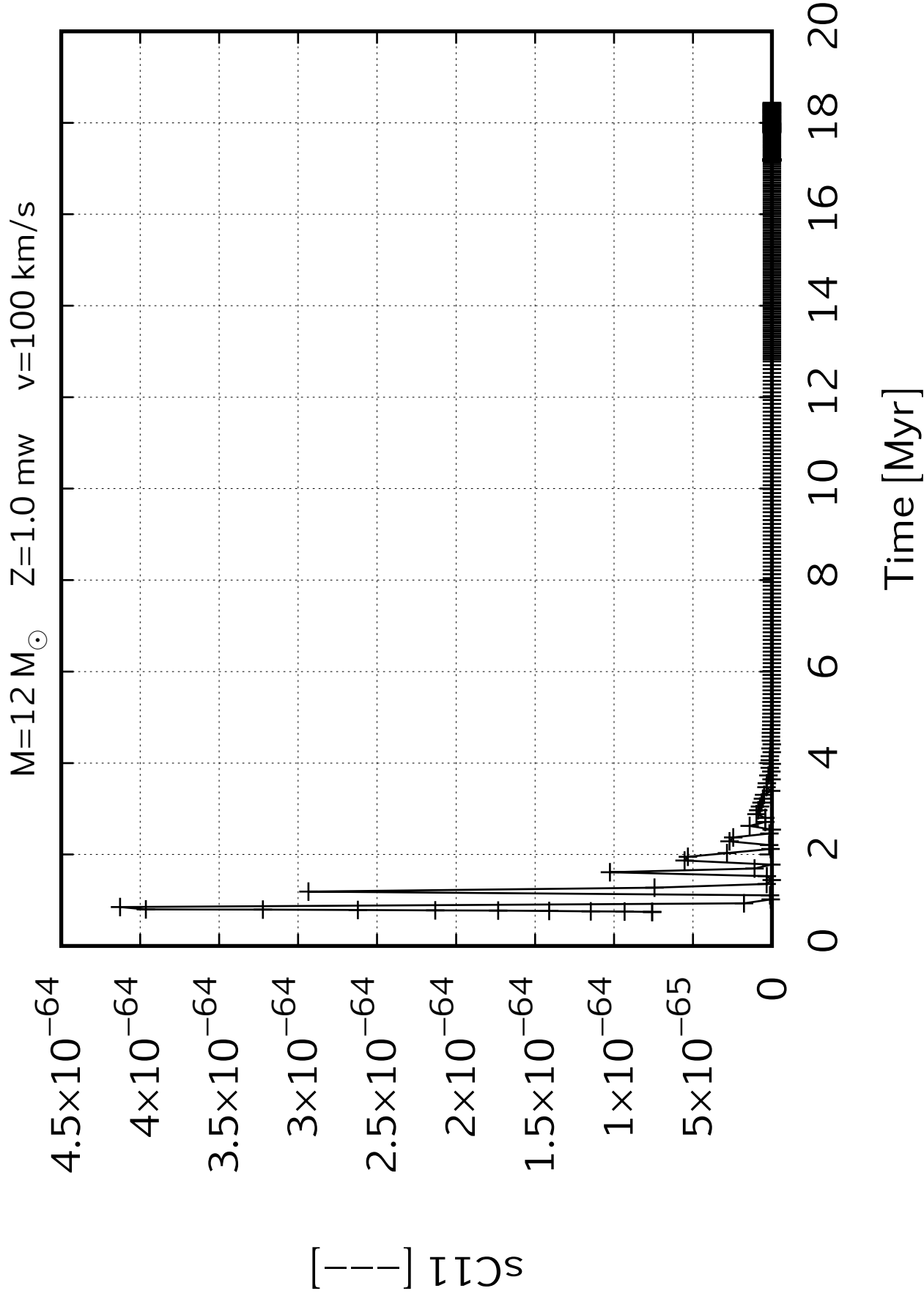


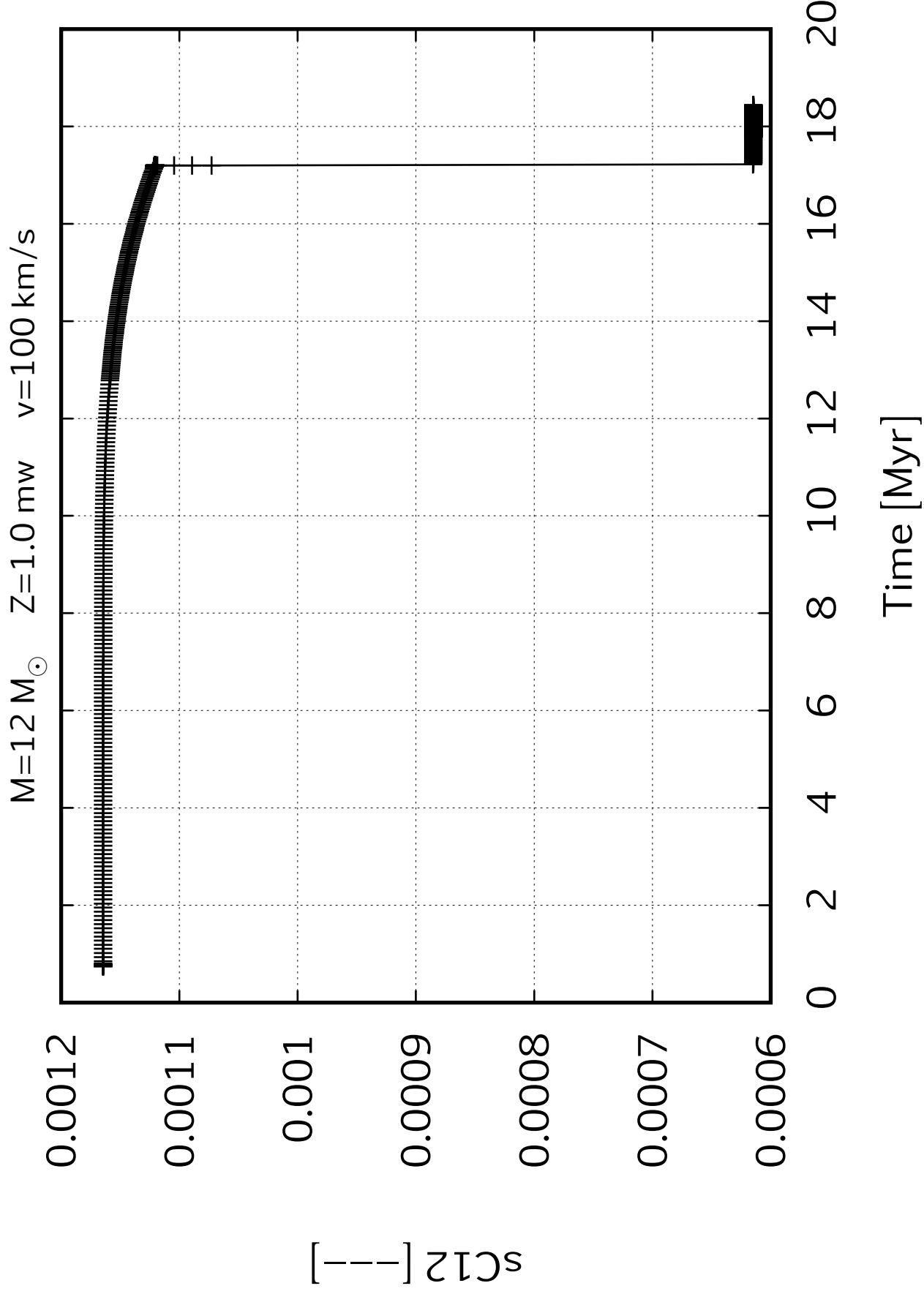


$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$









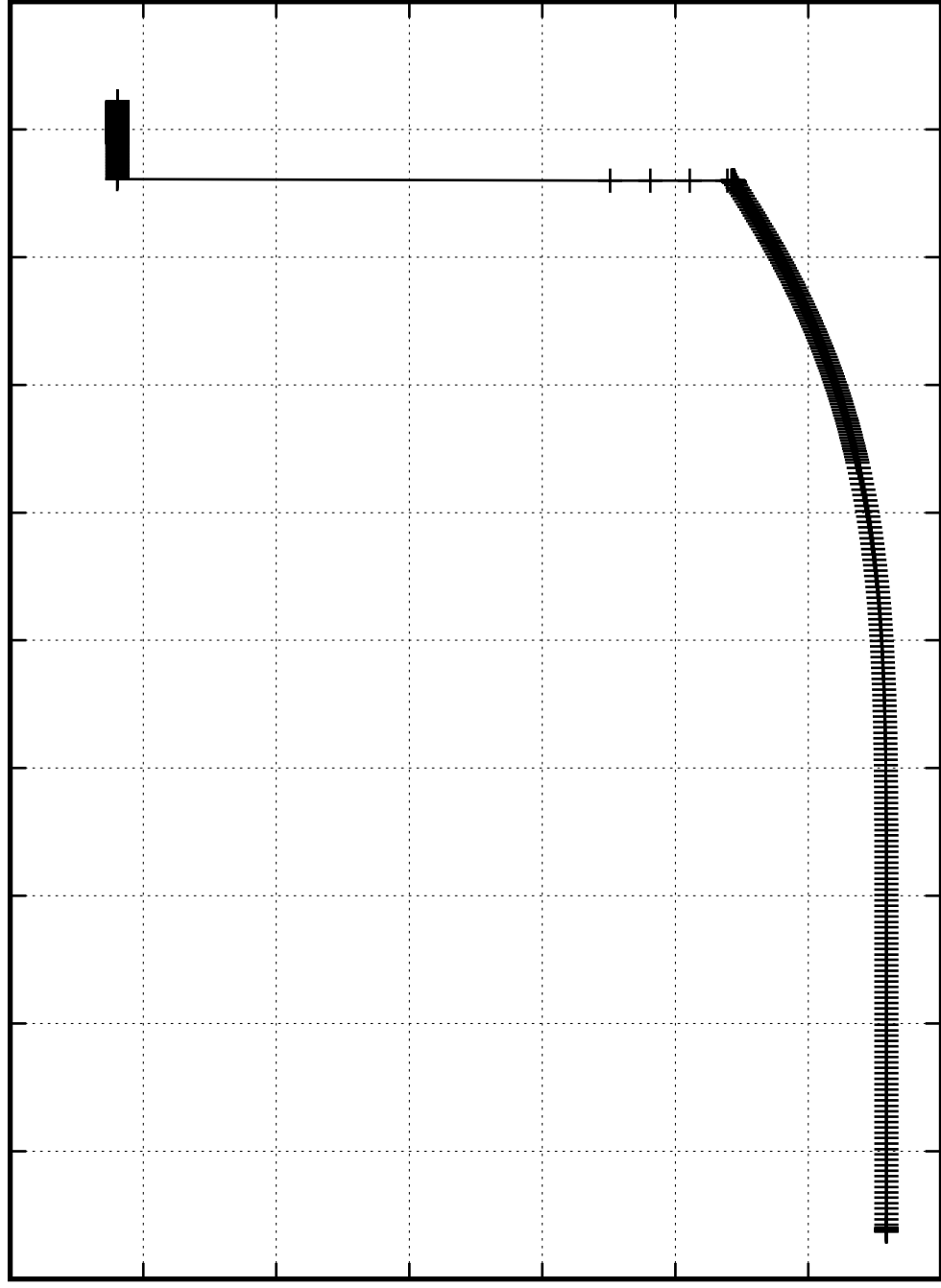
$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$

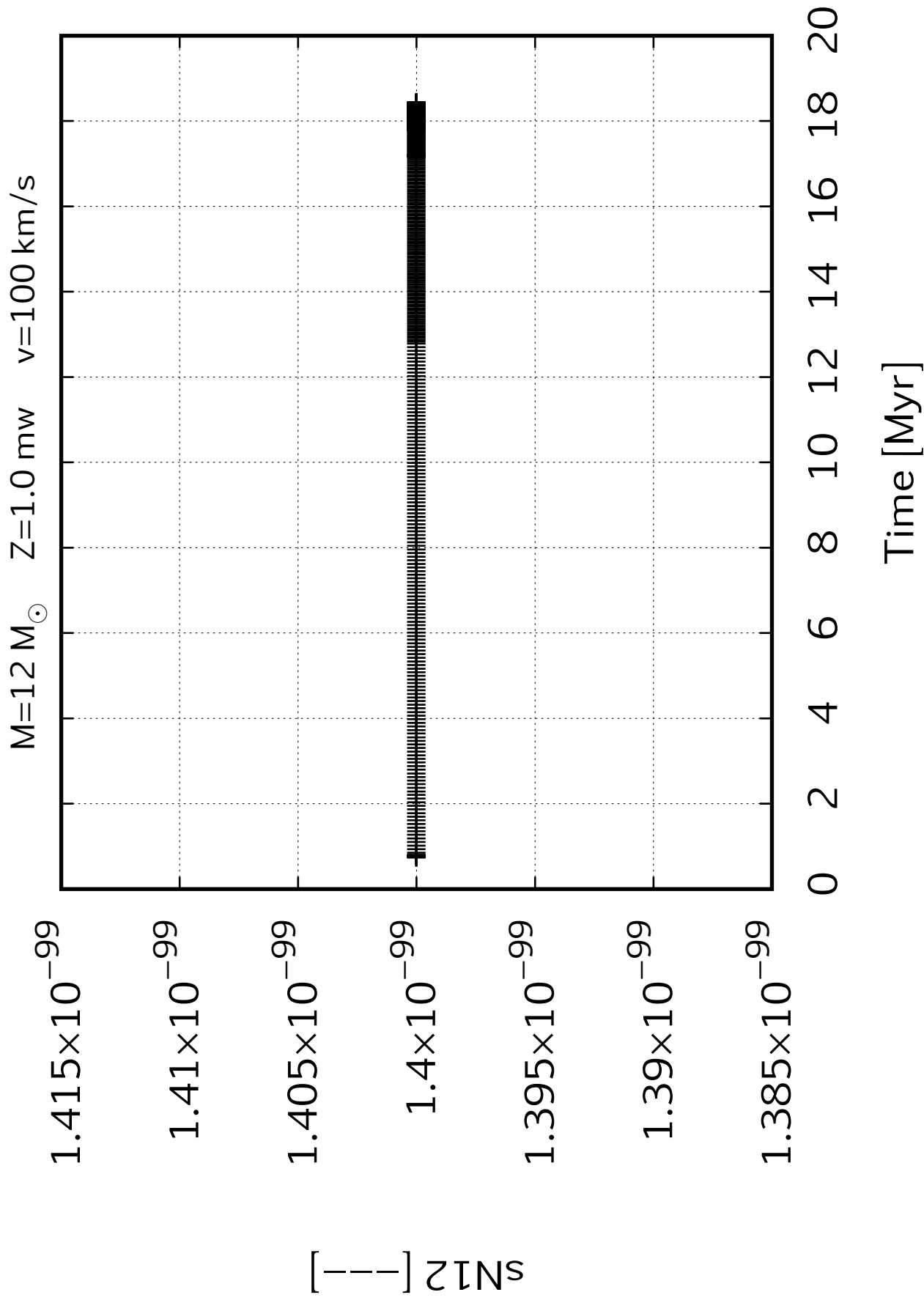
^{13}C [—]

0.00008
0.00007
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001

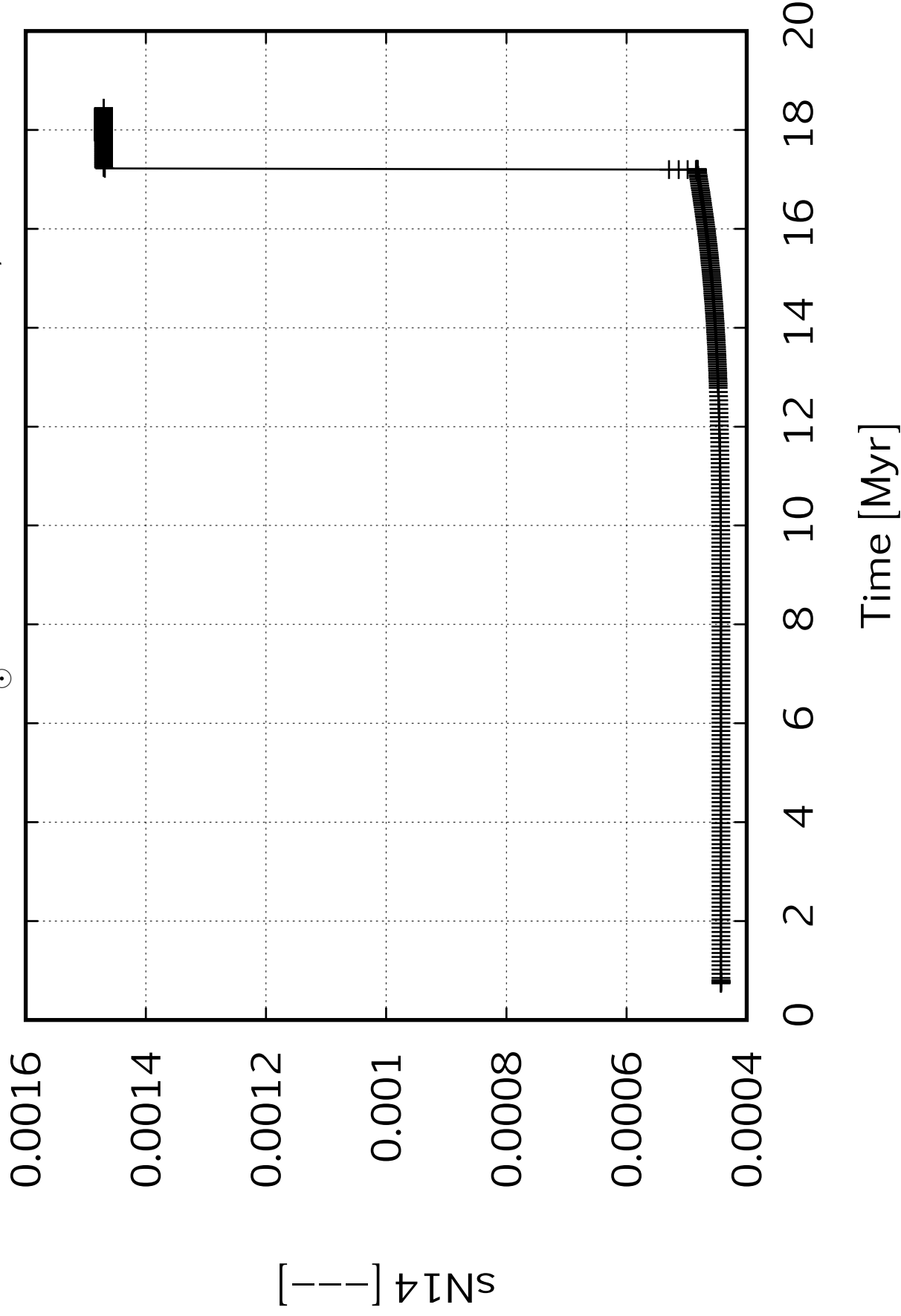
0 2 4 6 8 10 12 14 16 18 20

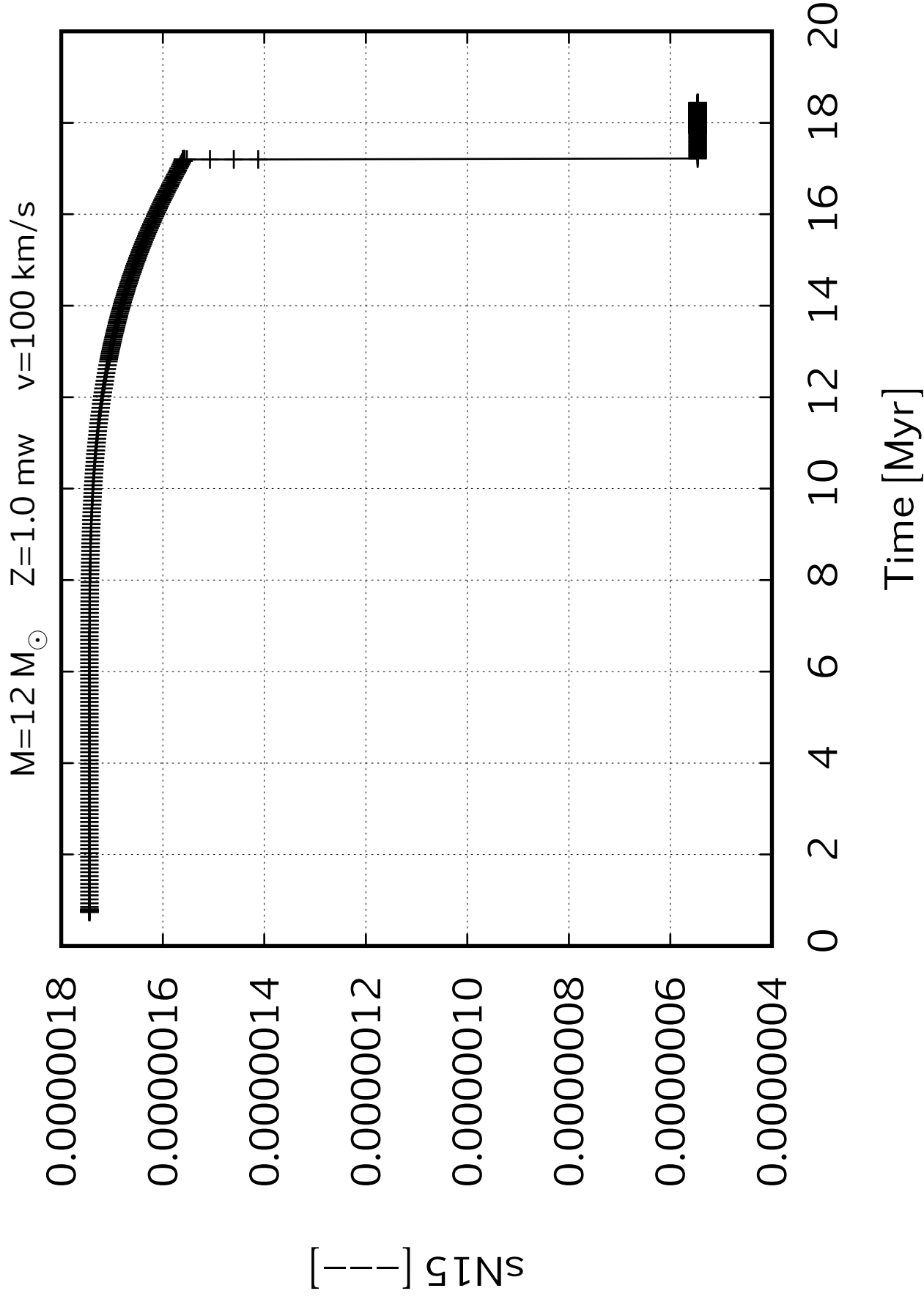
Time [Myr]

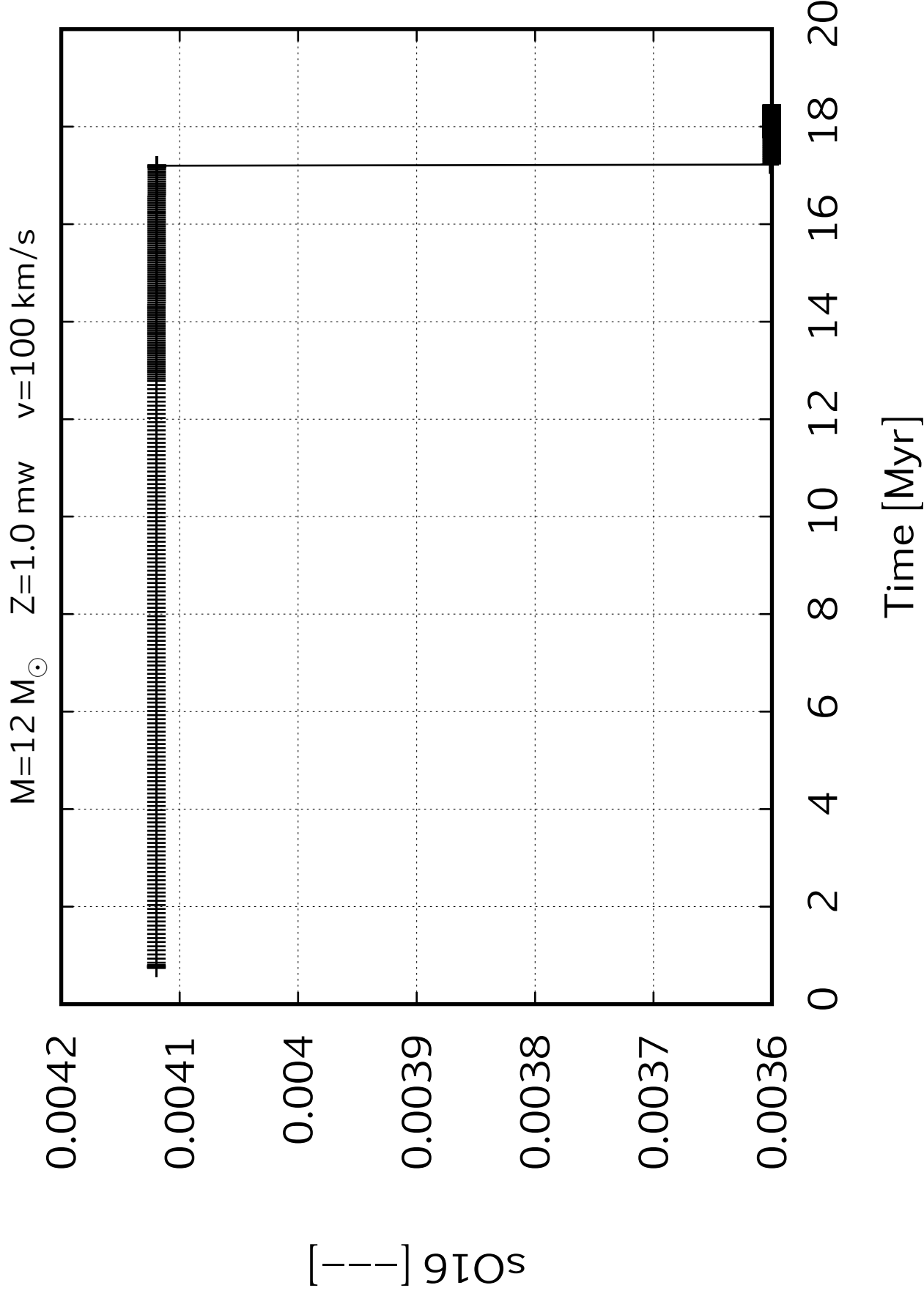


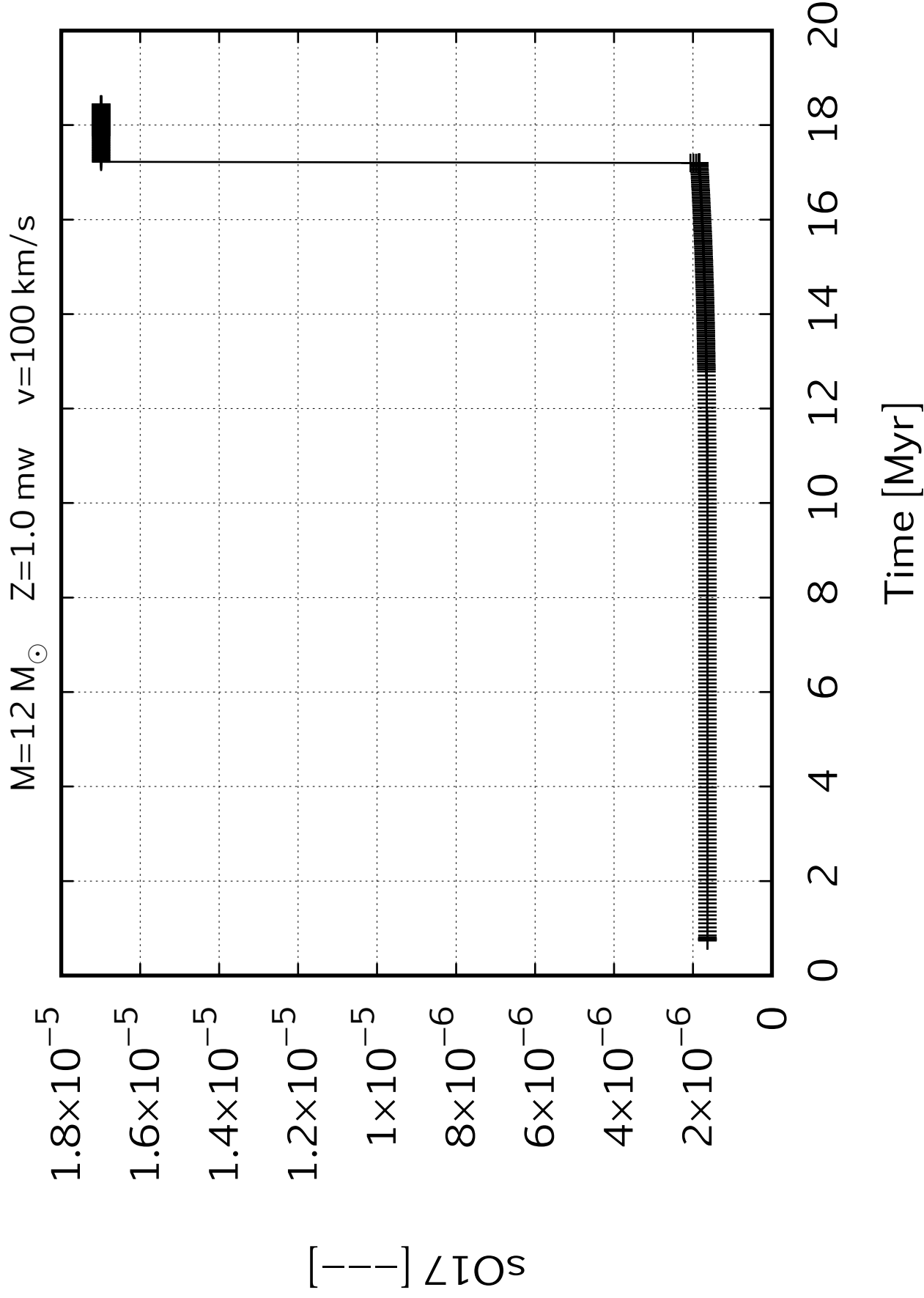


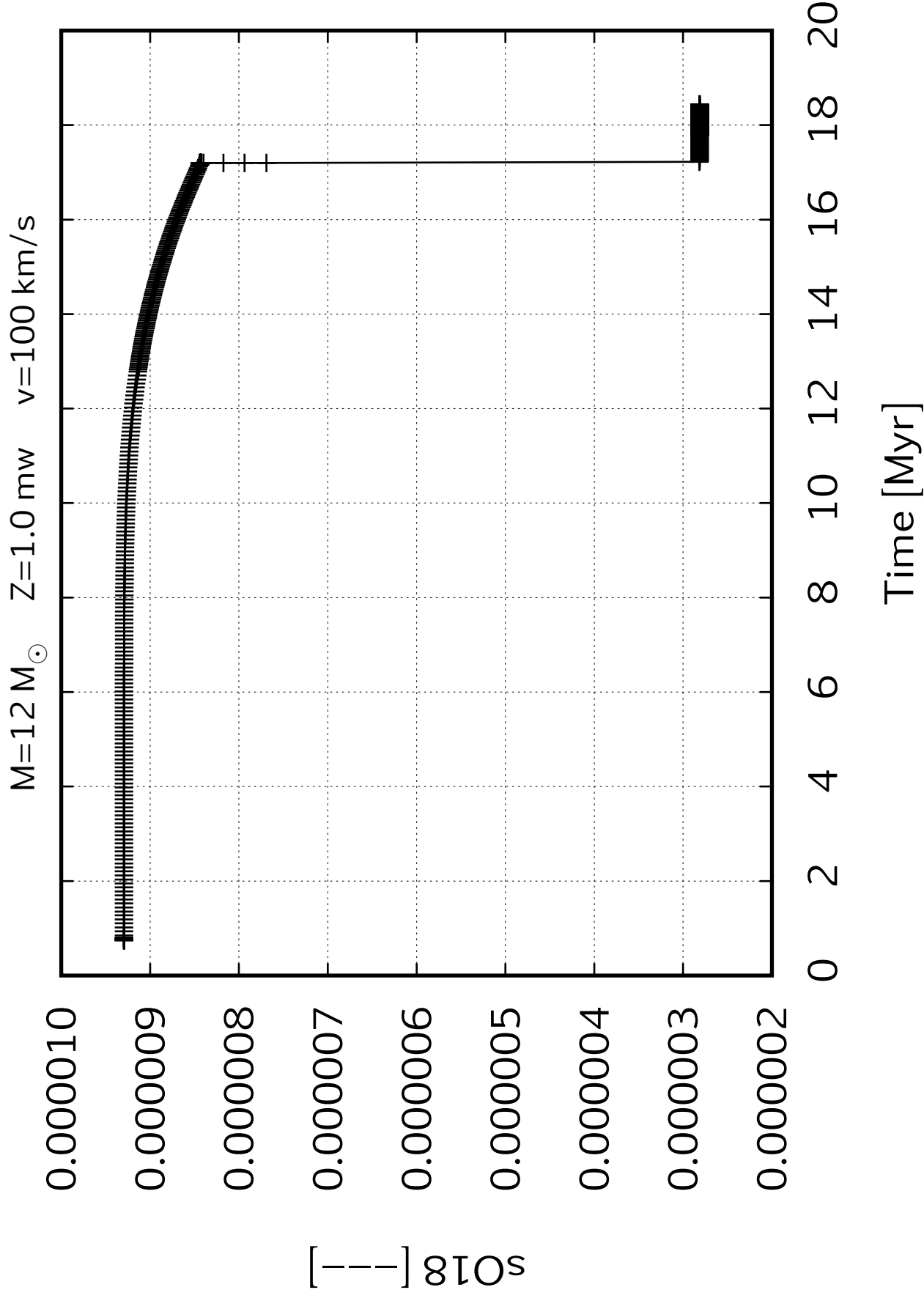
$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$

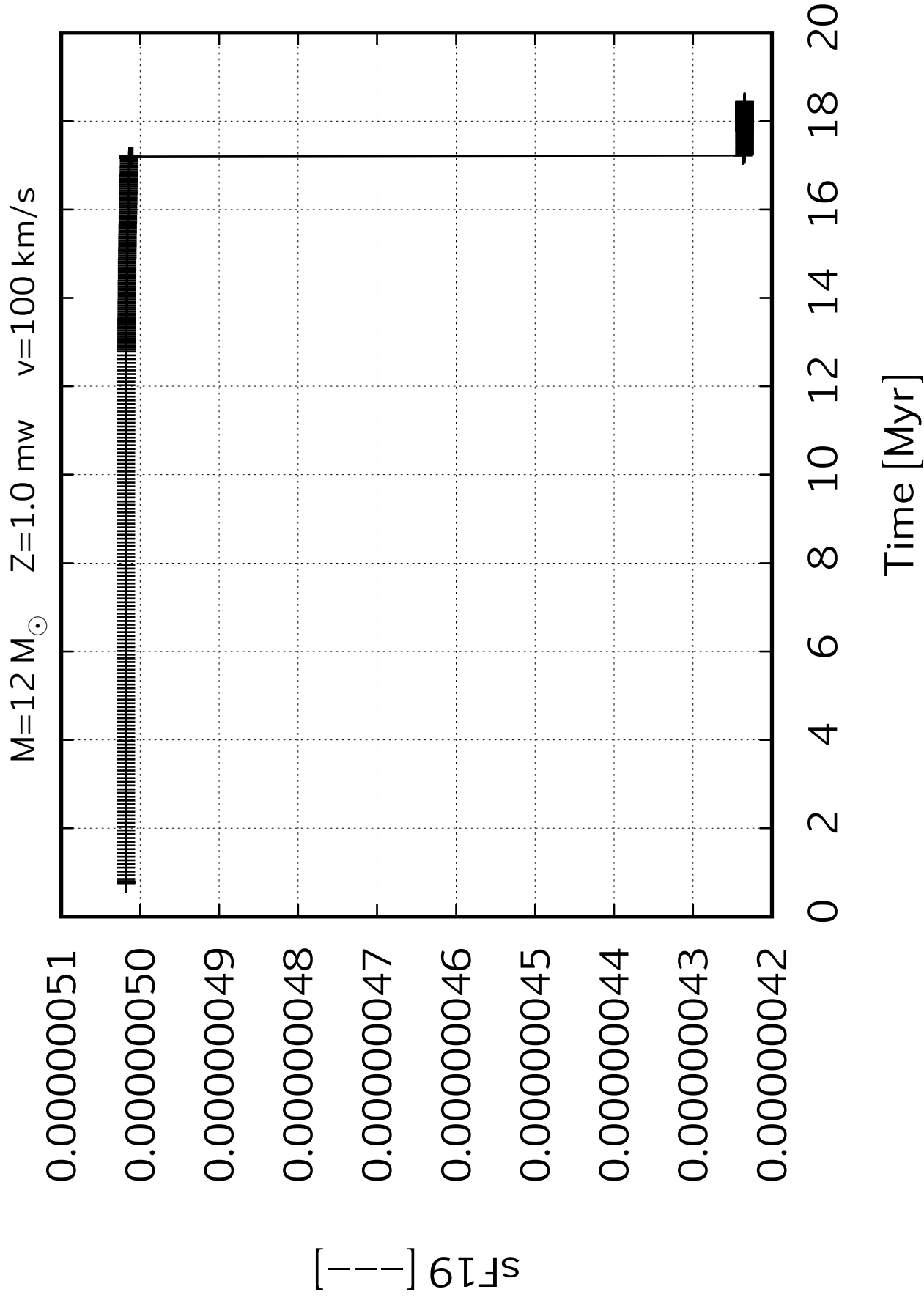


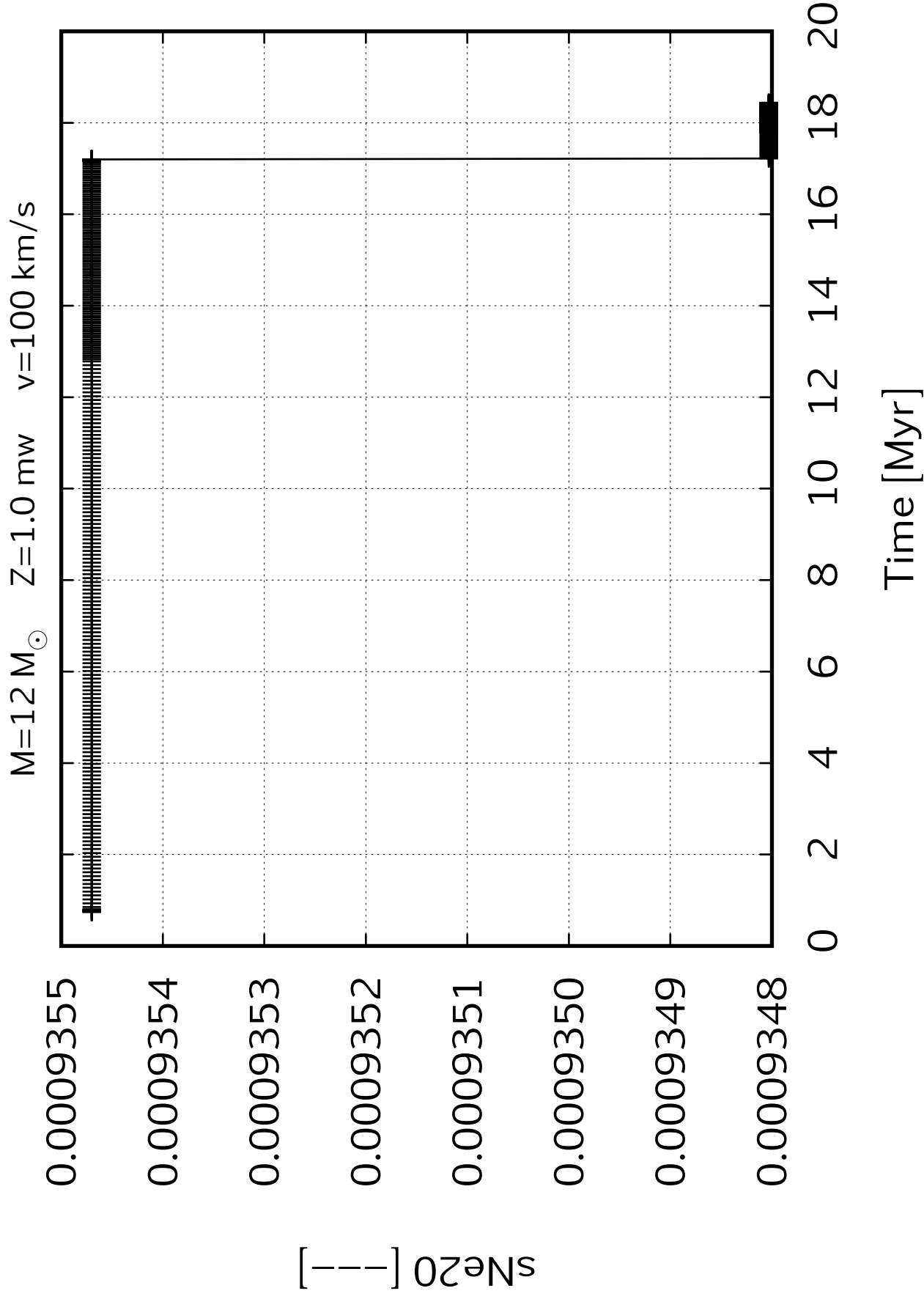


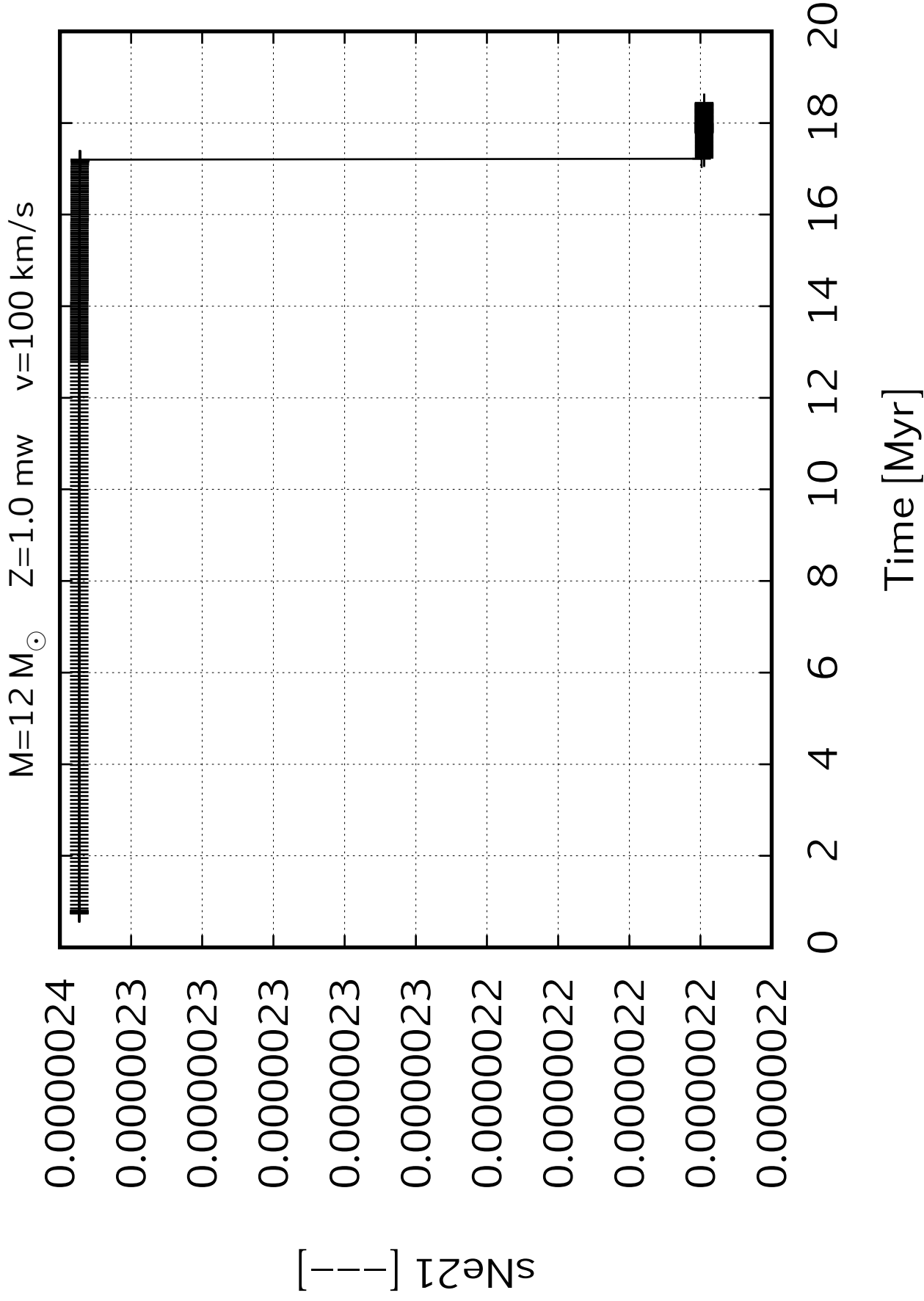












$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100$ km/s

0.00008

0.00007

0.00007

0.00007

0.00007

0.00007

0.00006

$s_{\text{Ne22}} [--]$

0

2

4

6

8

10

12

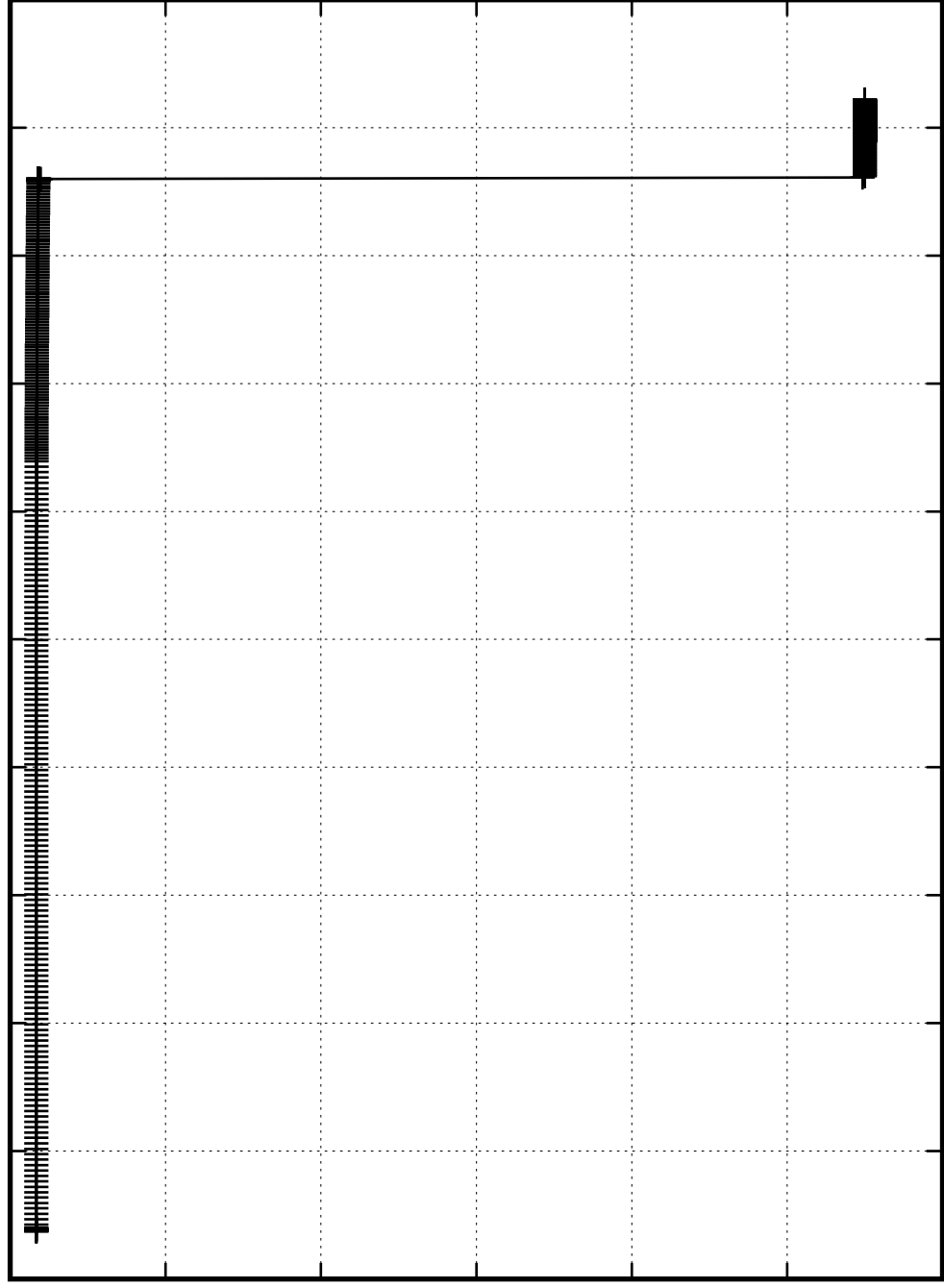
14

16

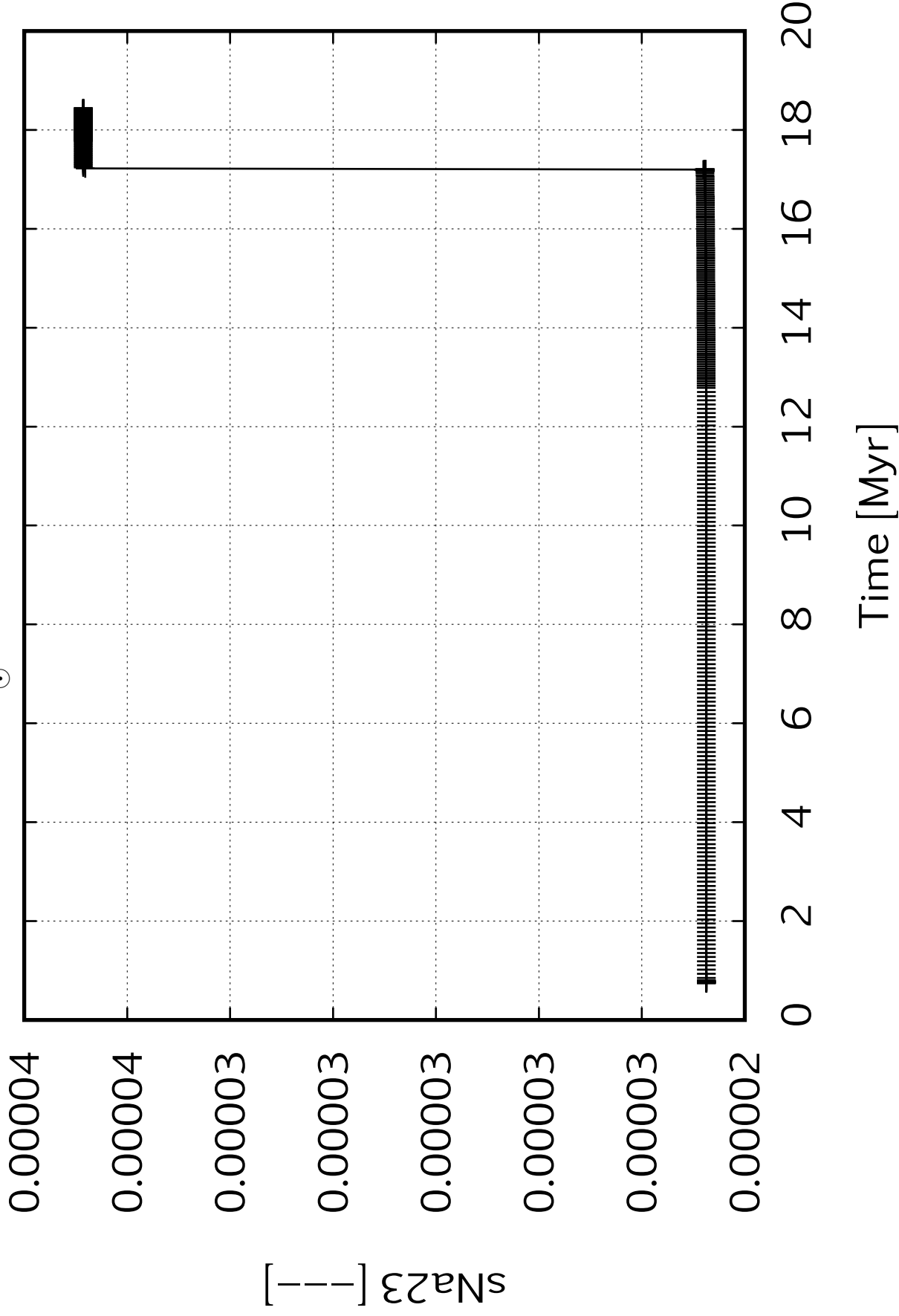
18

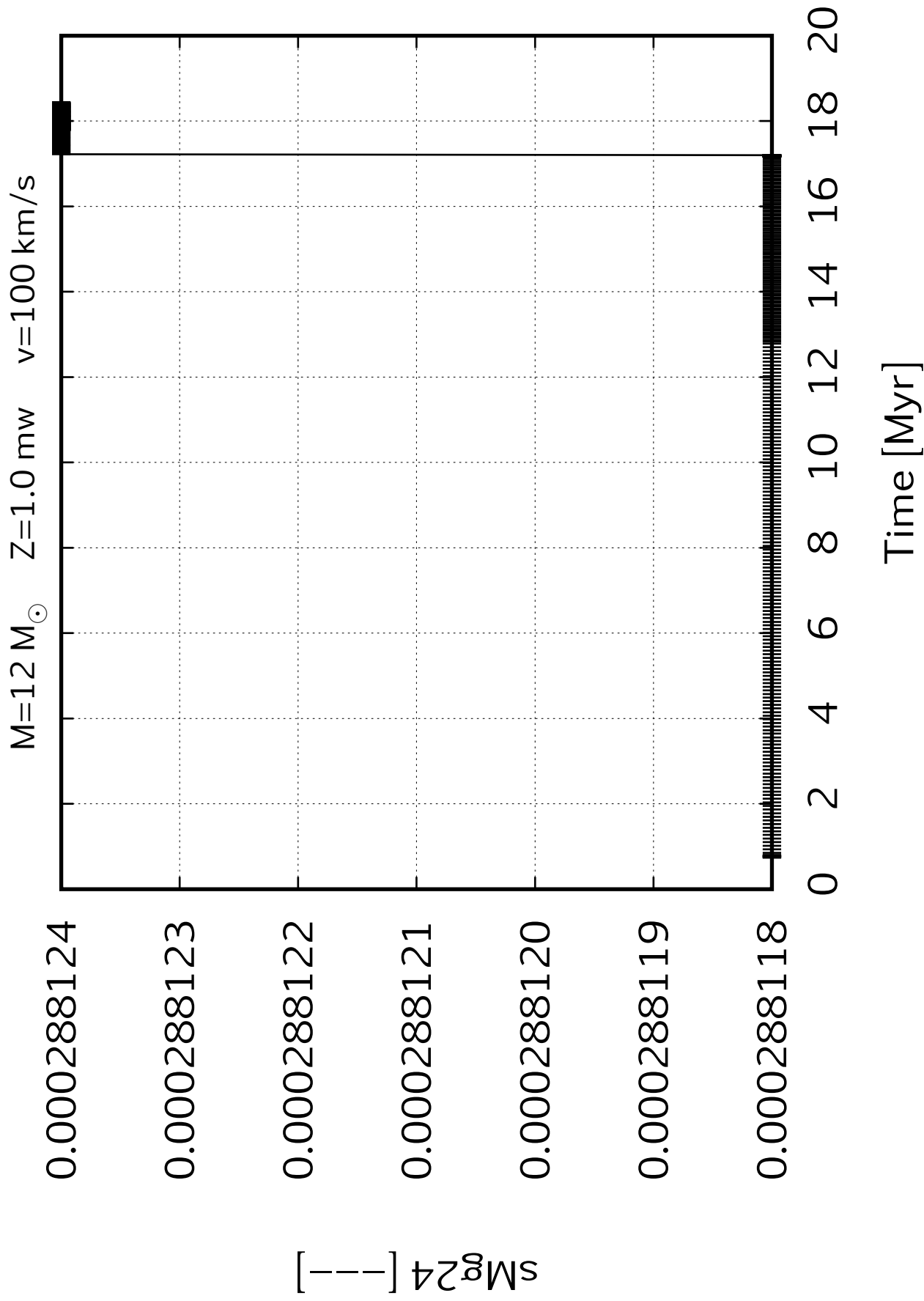
20

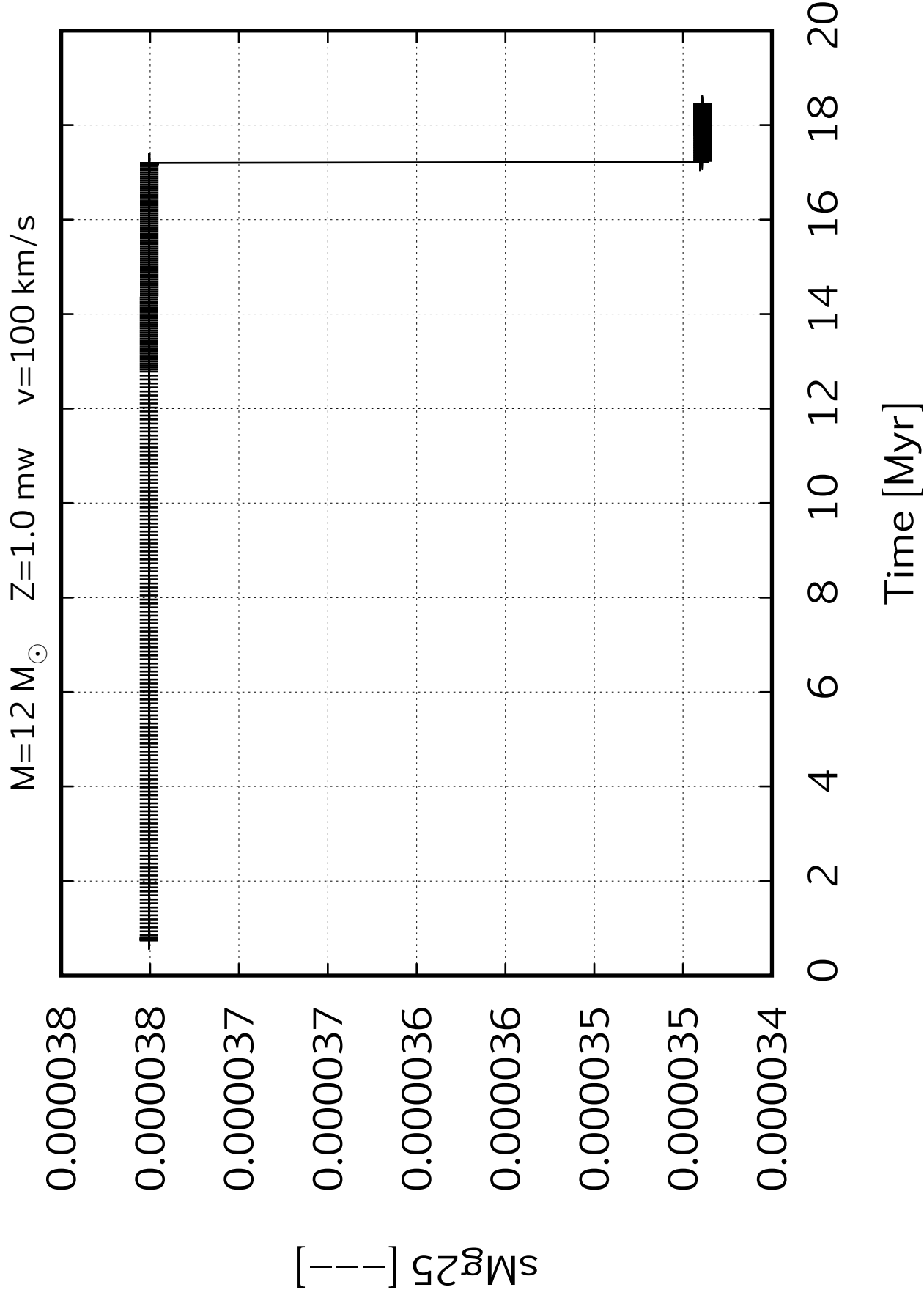
Time [Myr]

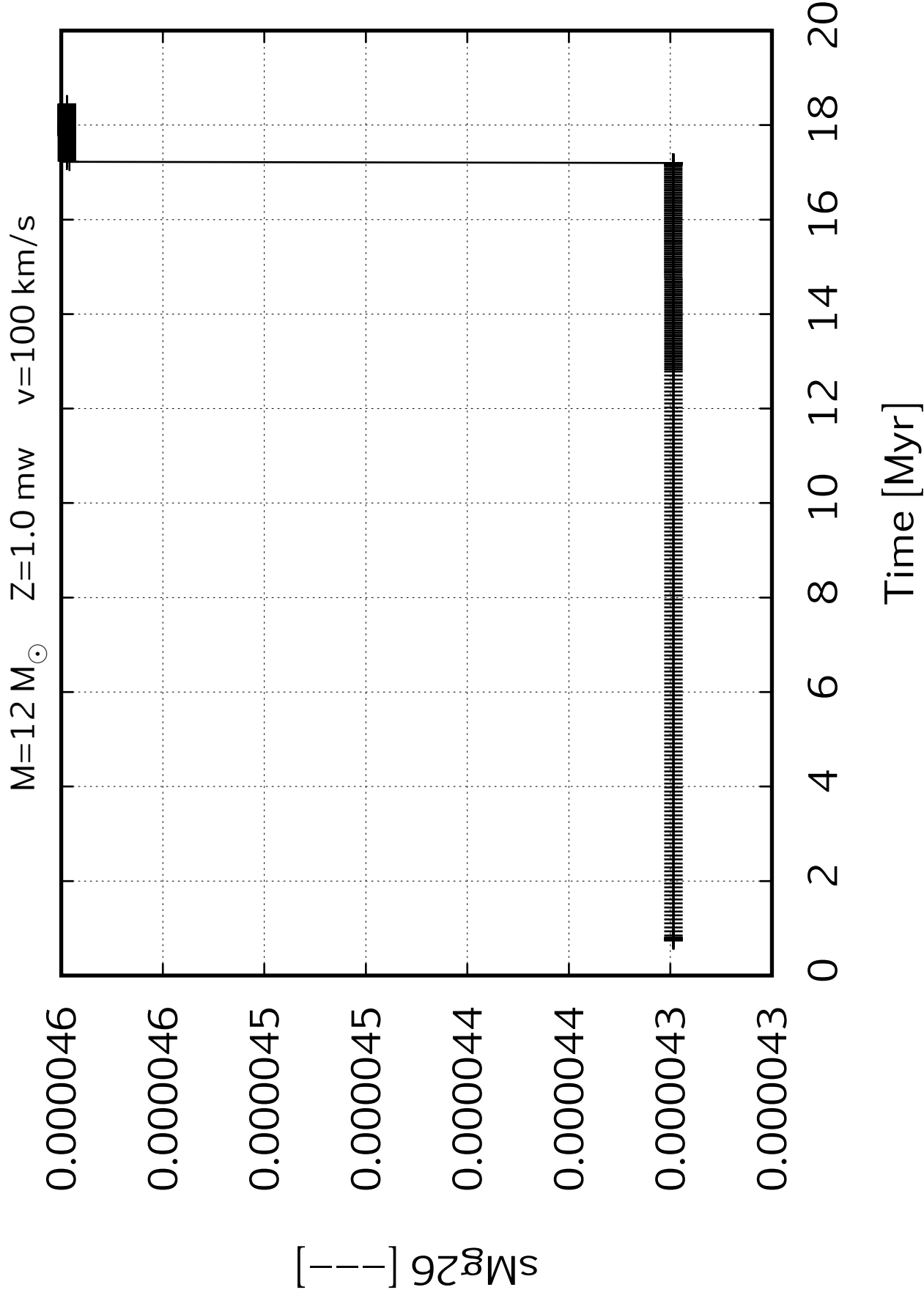


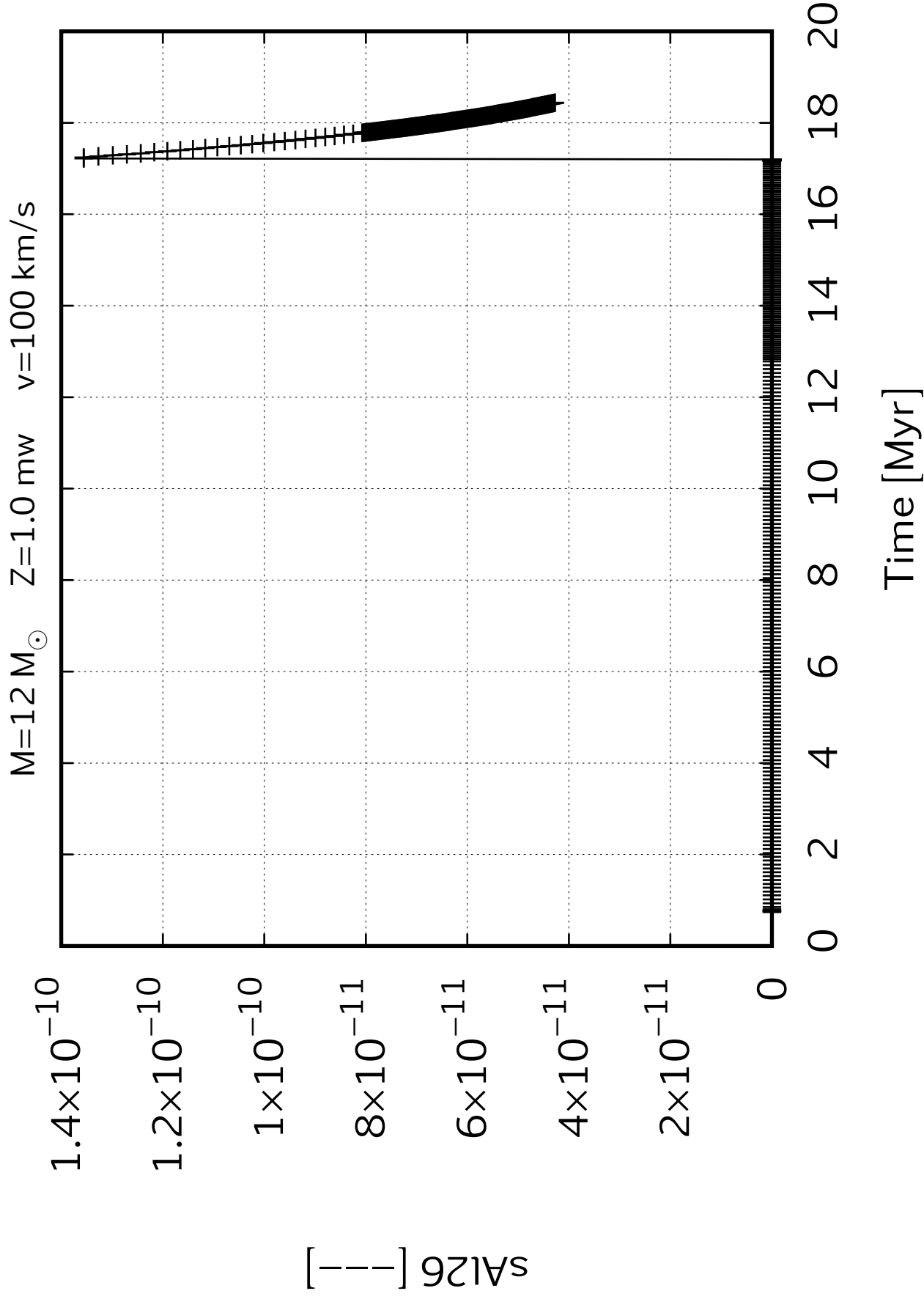
$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$

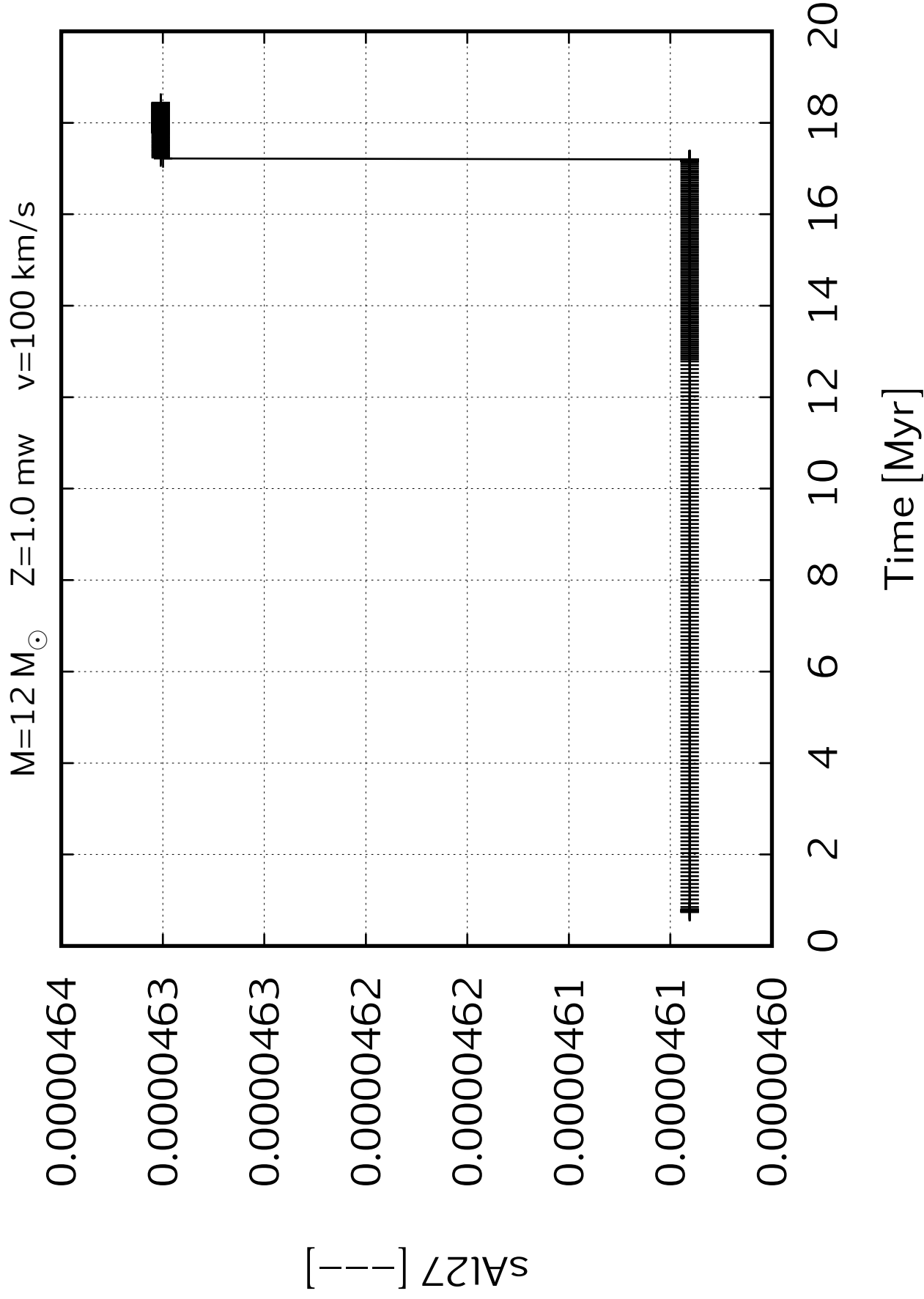












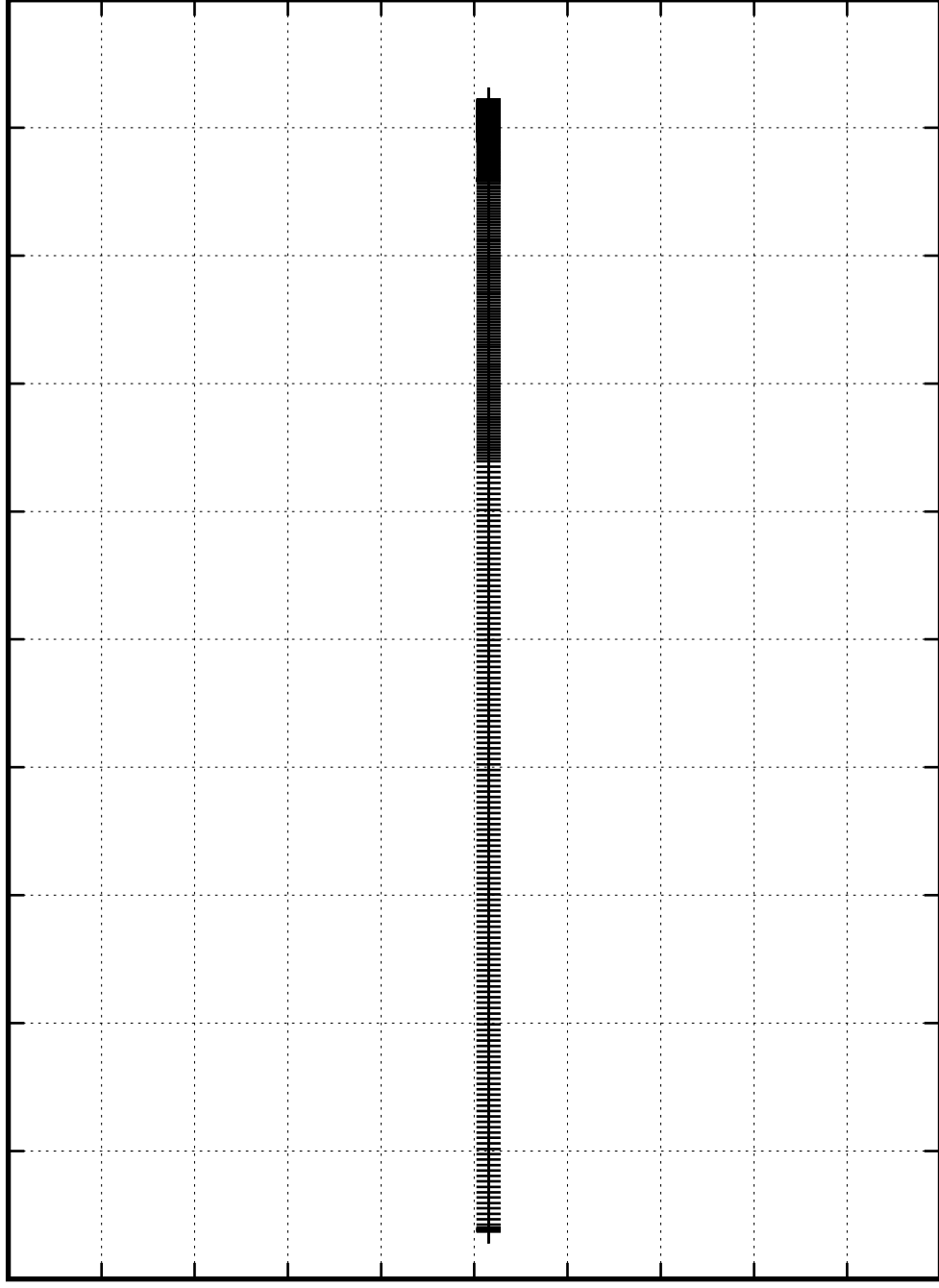
$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$

0.00049
0.00049
0.00049
0.00049
0.00048
0.00048
0.00048
0.00048
0.00048
0.00048

$[\text{--}]_{\text{S}:\text{28}}$

0 2 4 6 8 10 12 14 16 18 20

Time [Myr]



$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100$ km/s

0.0000257

0.0000256

0.0000255

0.0000254

0.0000253

0.0000252

0.0000251

$[S\,II]$

0

2

4

6

8

10

12

14

16

18

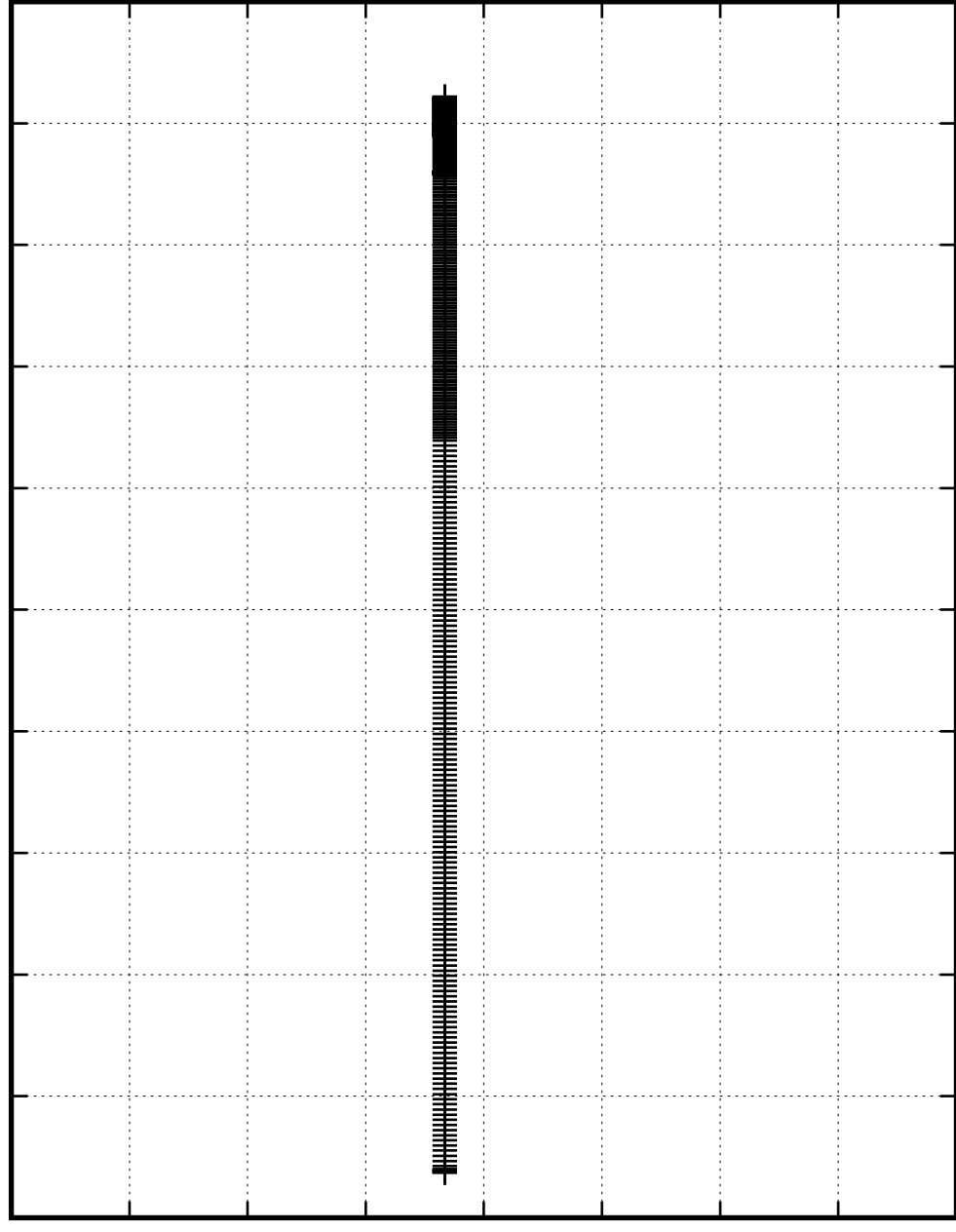
20

Time [Myr]

$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100$ km/s

$[\text{S}:\text{S}]\text{S}30$

0.00000175
0.00000175
0.00000174
0.00000174
0.00000173
0.00000173
0.00000172
0.00000172
0.00000171



Time [Myr]

$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$

0.00104

0.00103

0.00103

0.00102

0.00102

0.00101

[Fe56]

0

2

4

6

8

10

12

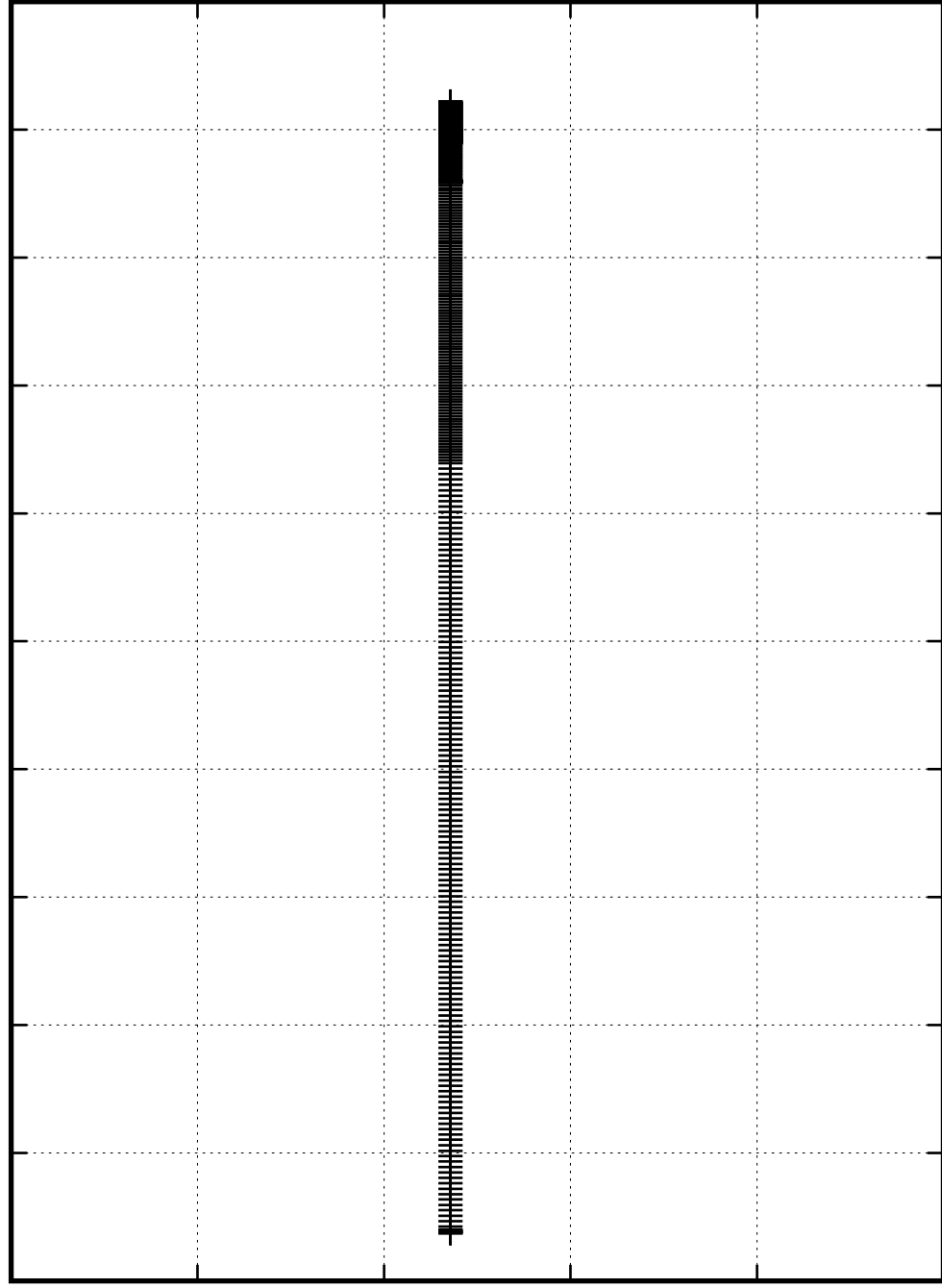
14

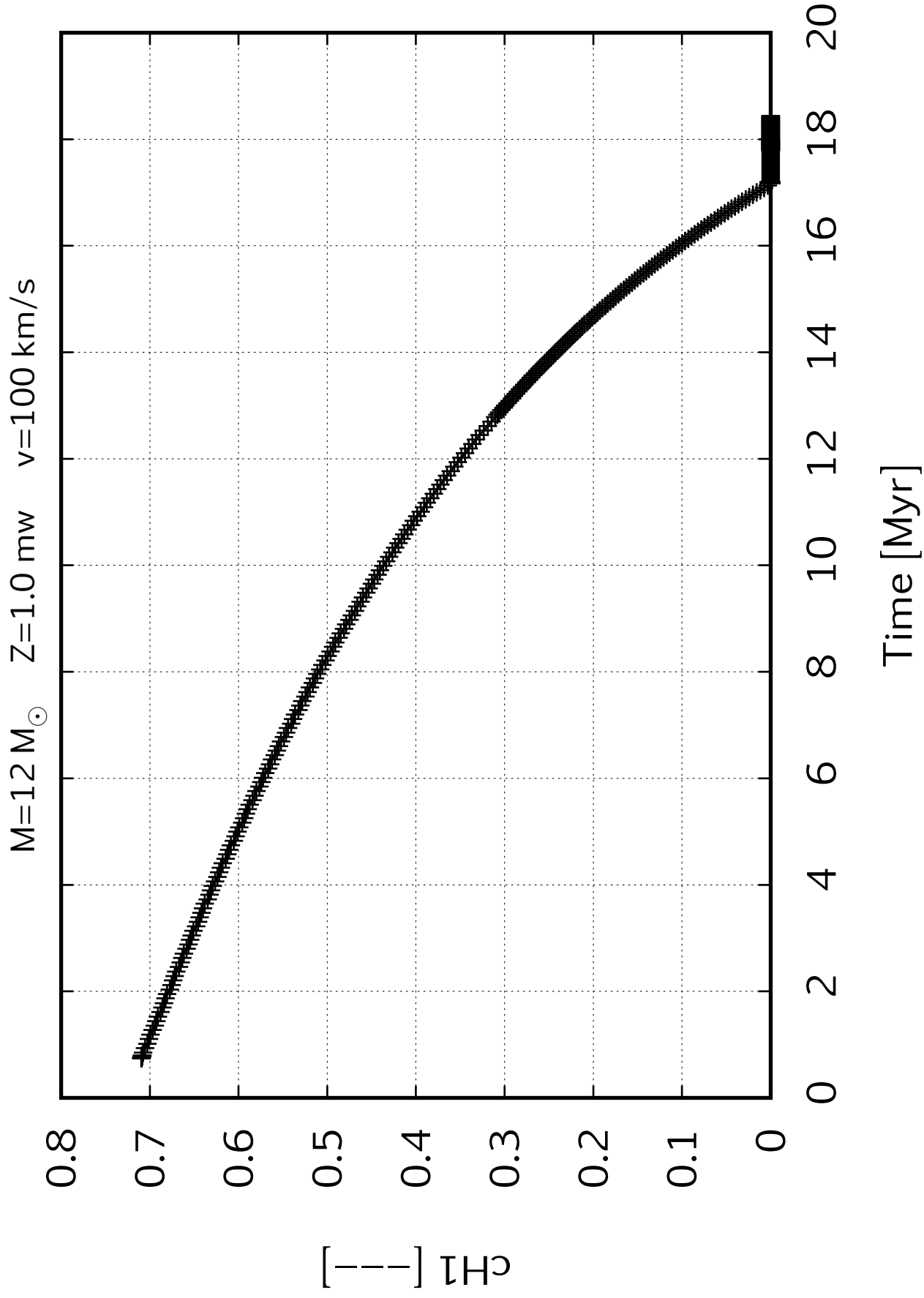
16

18

20

Time [Myr]





$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100$ km/s

1.765×10^{-11}

1.76×10^{-11}

1.755×10^{-11}

1.75×10^{-11}

1.745×10^{-11}

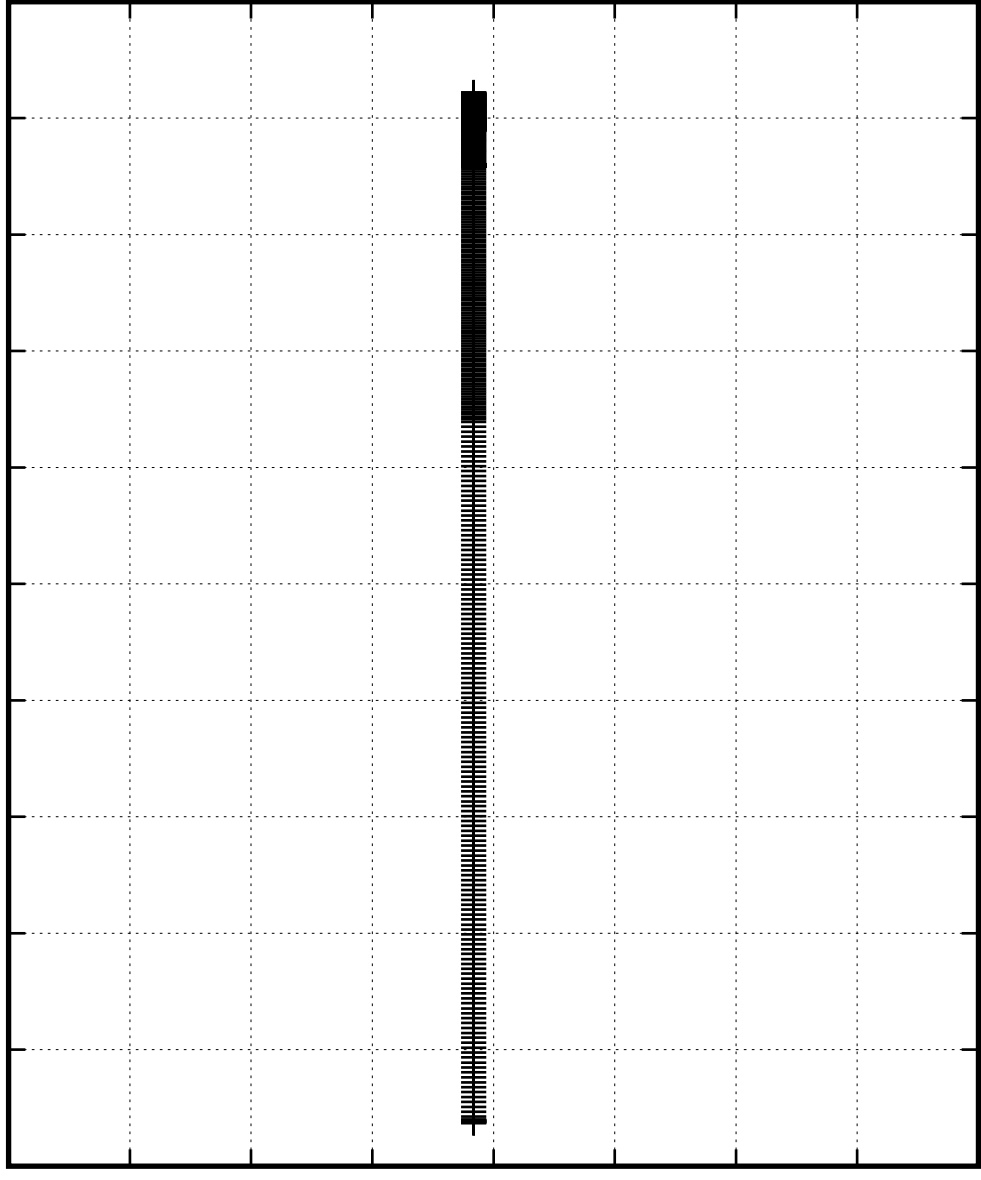
1.74×10^{-11}

1.735×10^{-11}

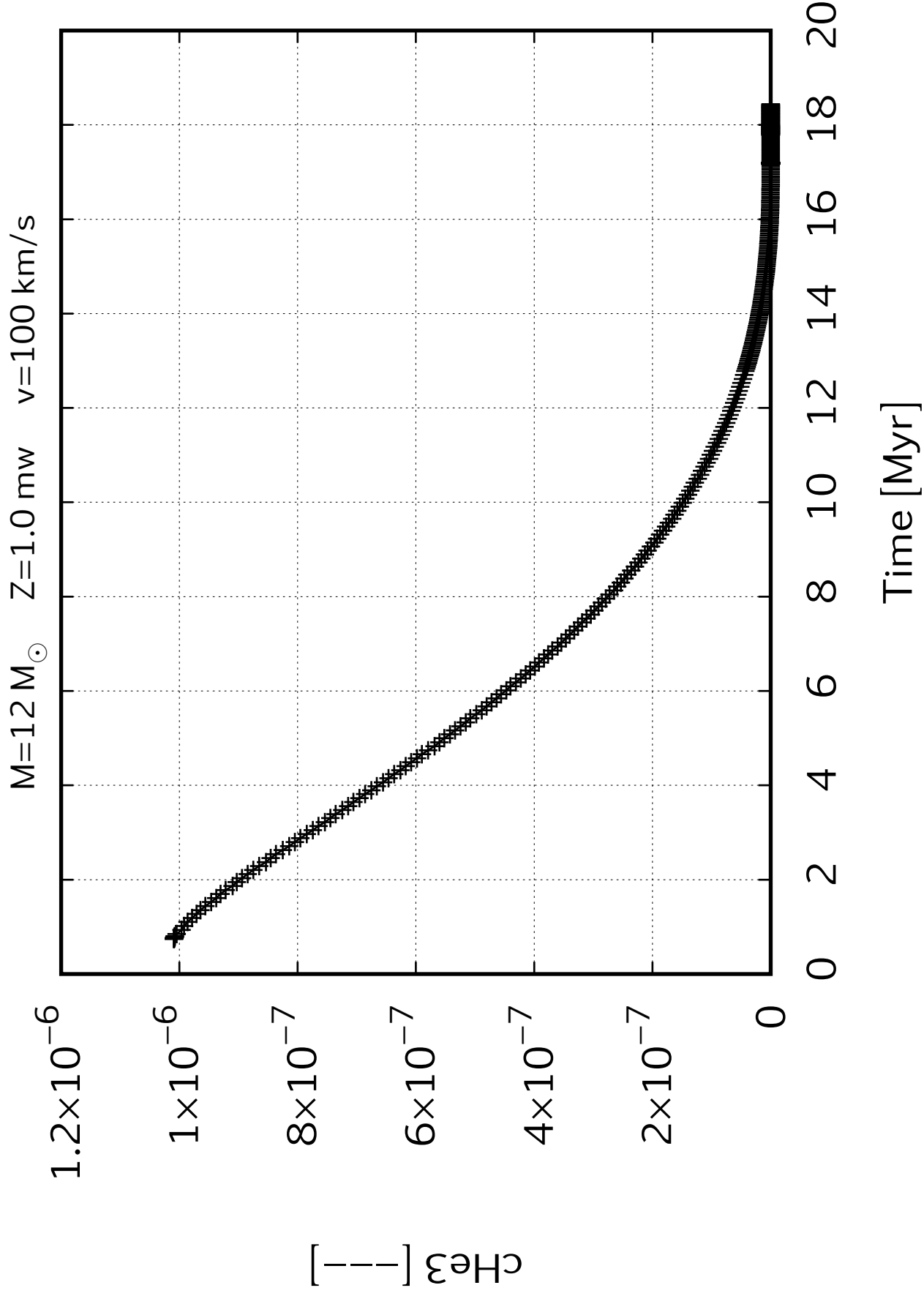
1.73×10^{-11}

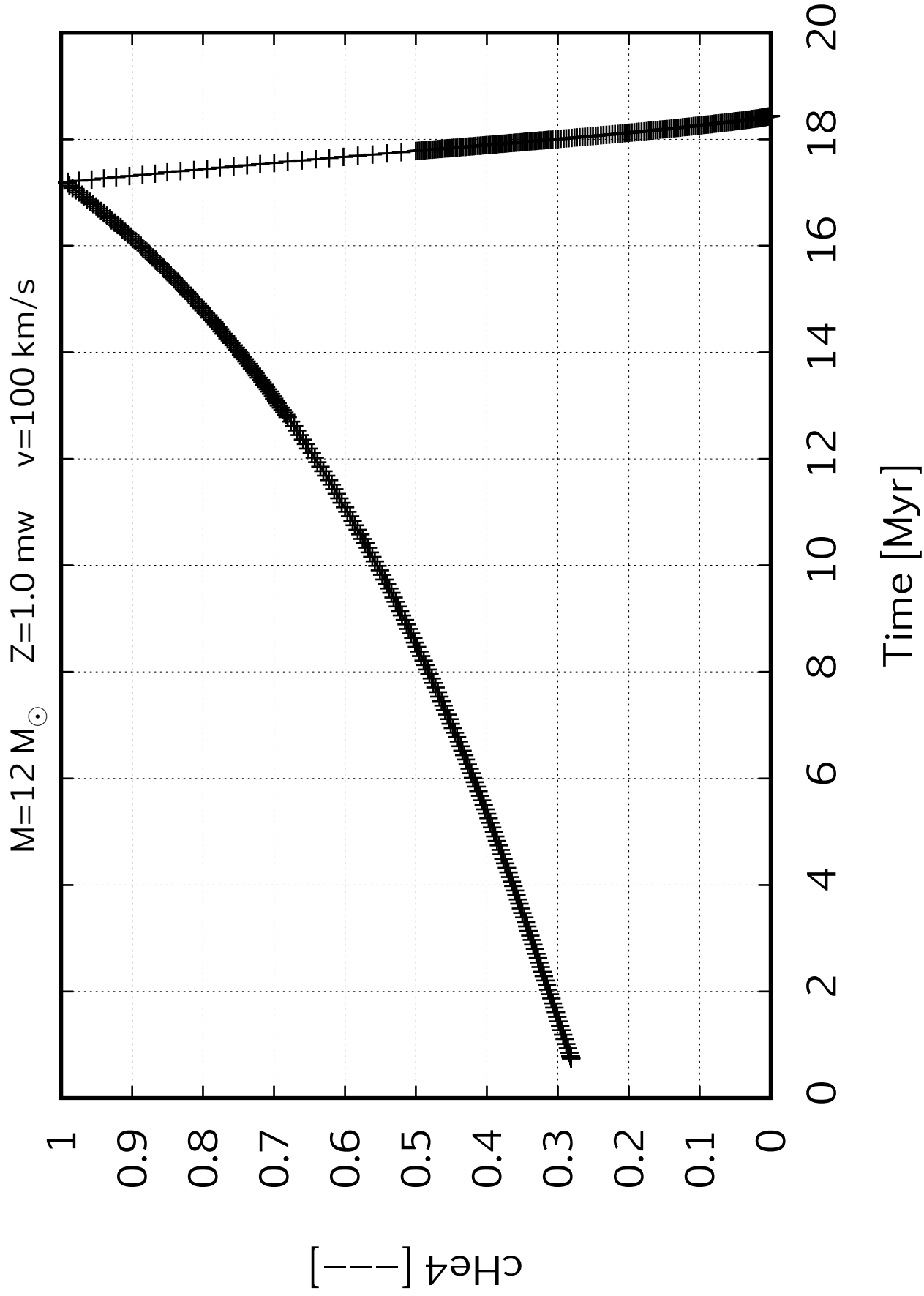
1.725×10^{-11}

$[\text{C II}]$

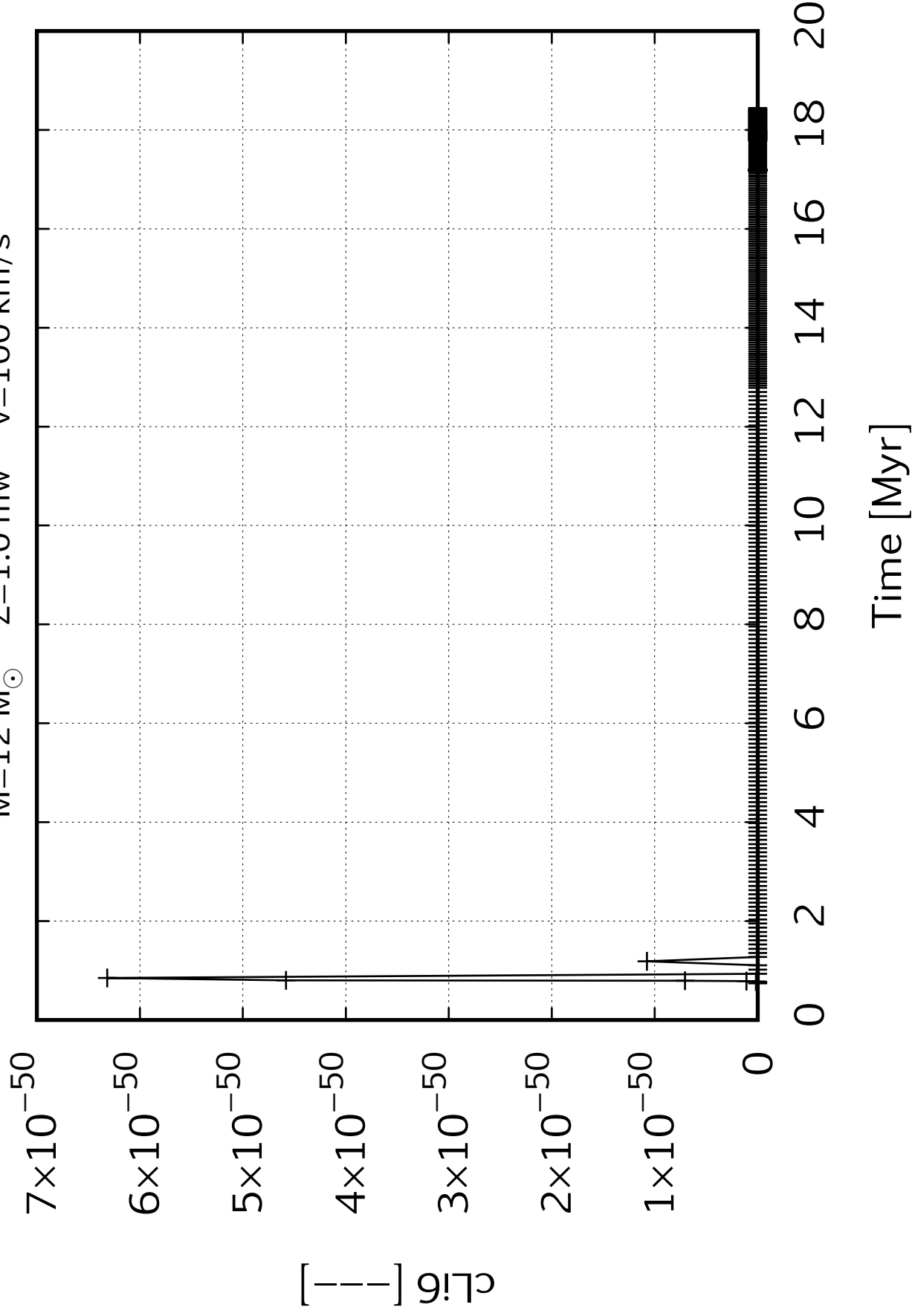


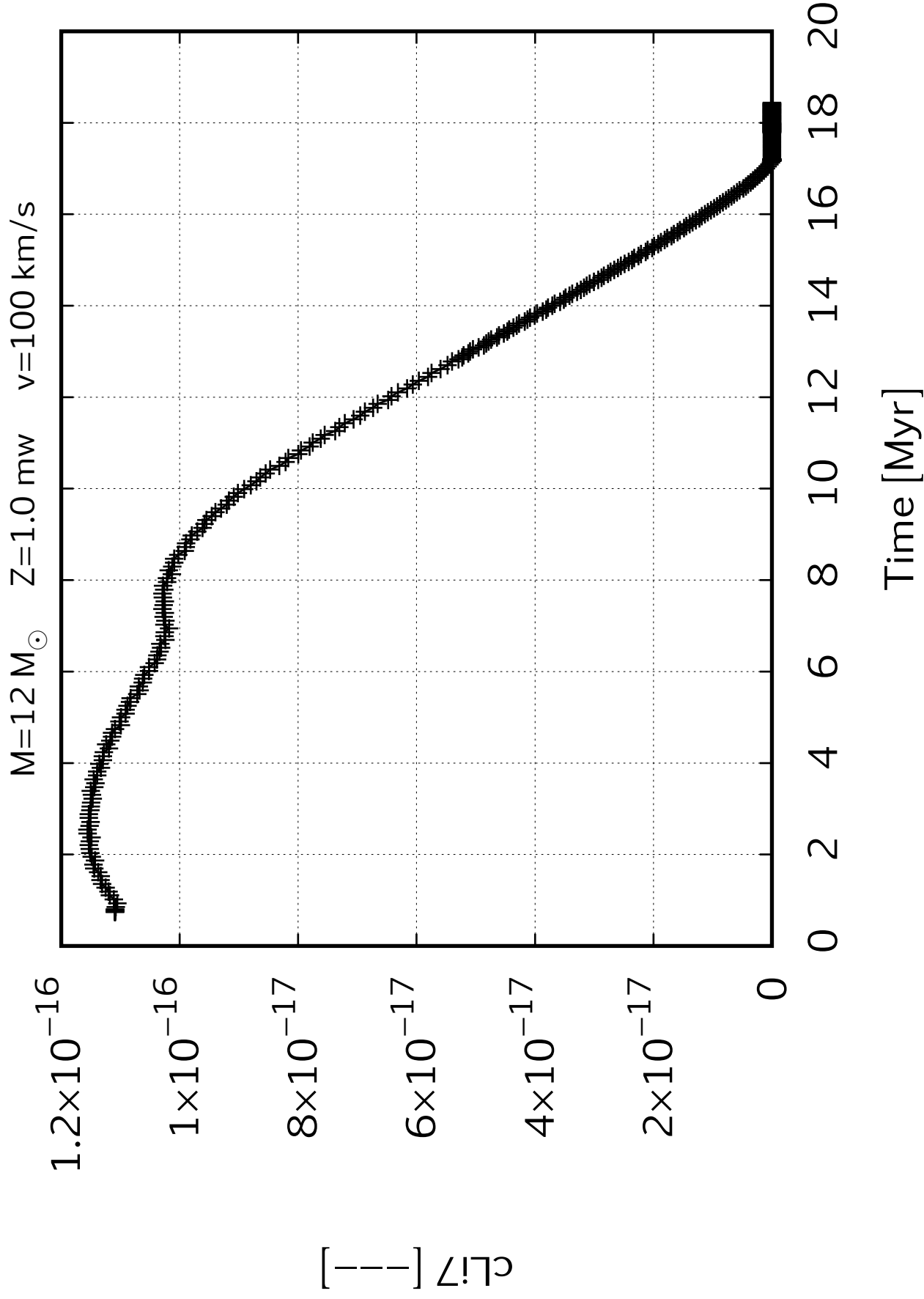
Time [Myr]



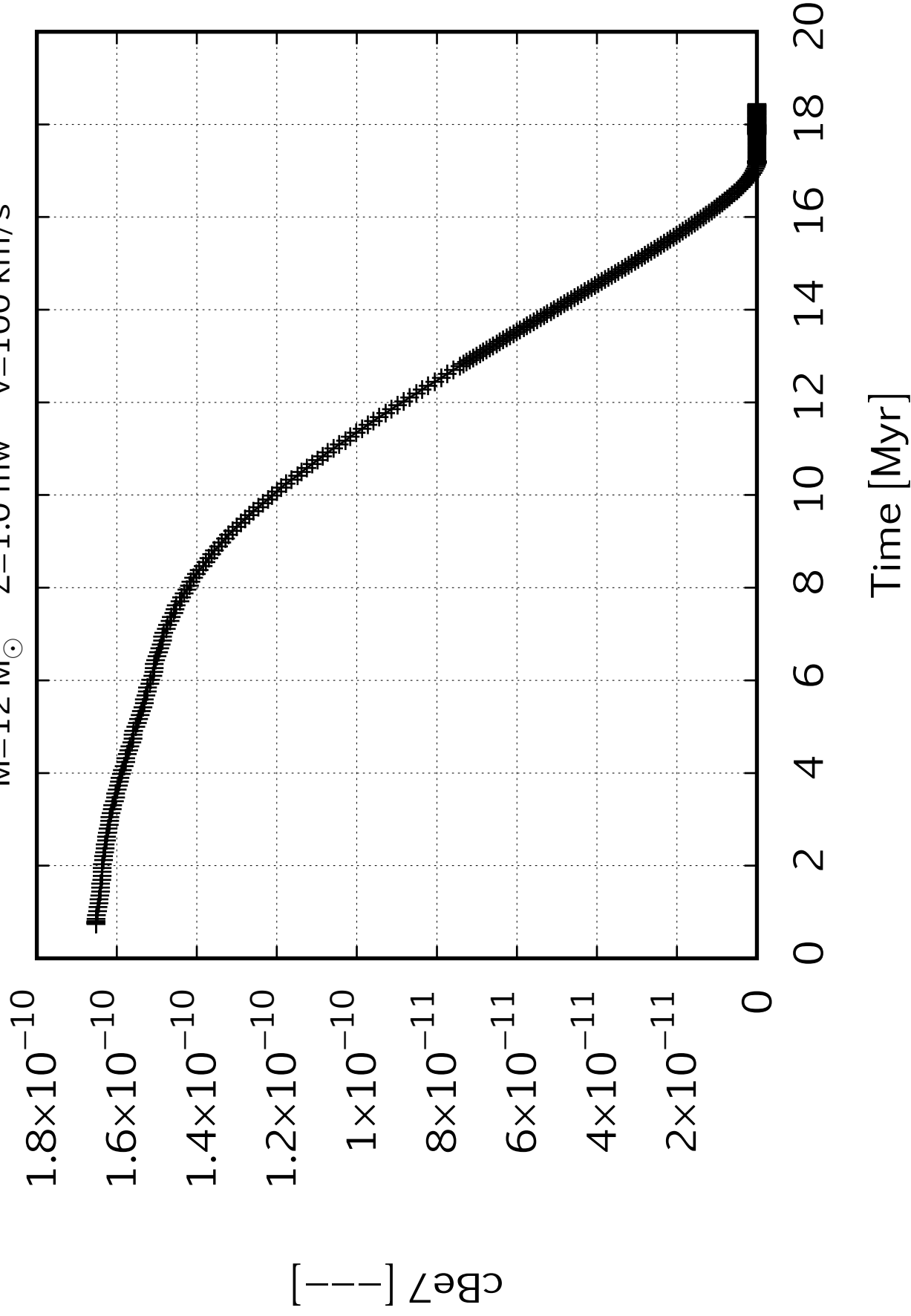


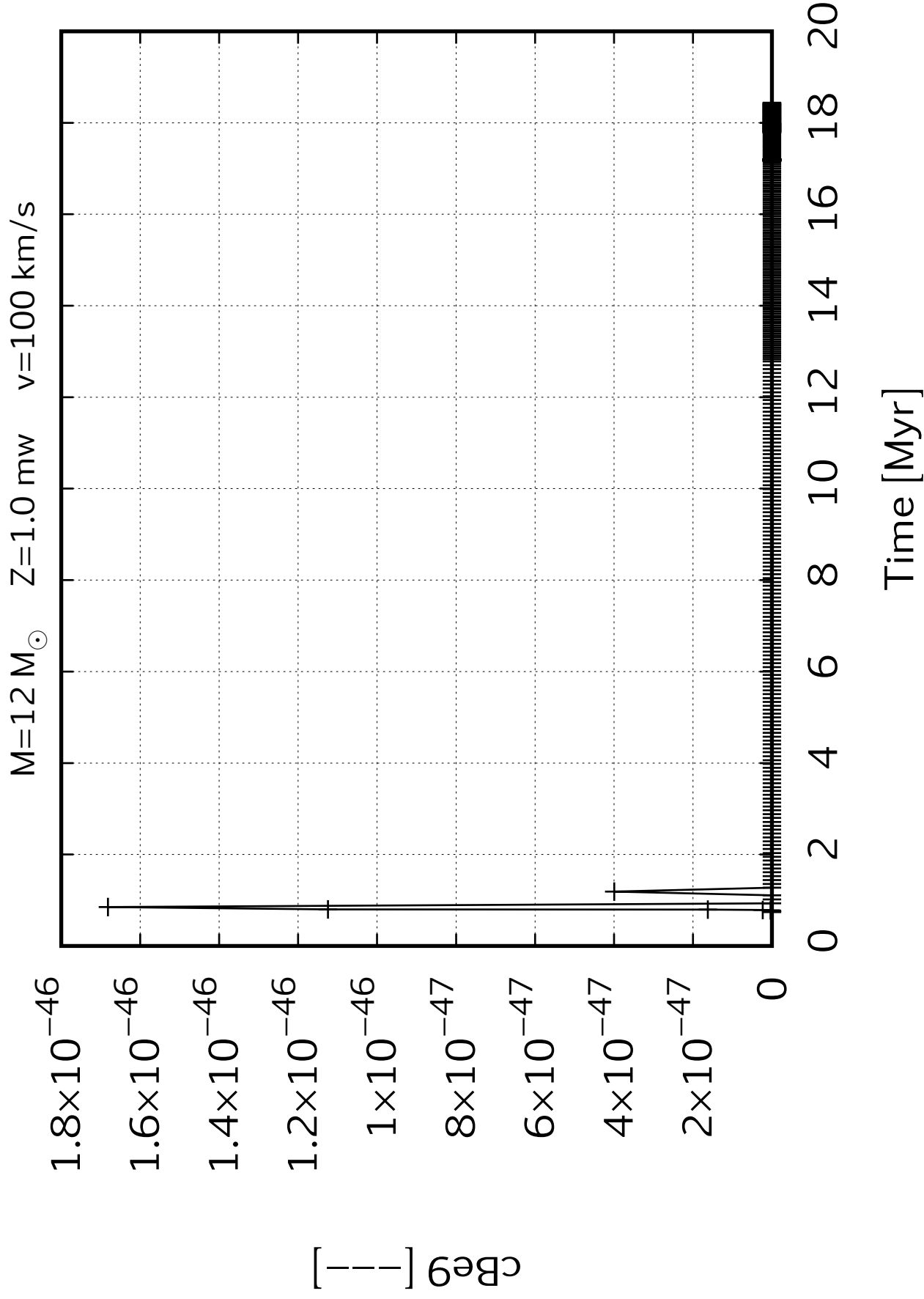
$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$



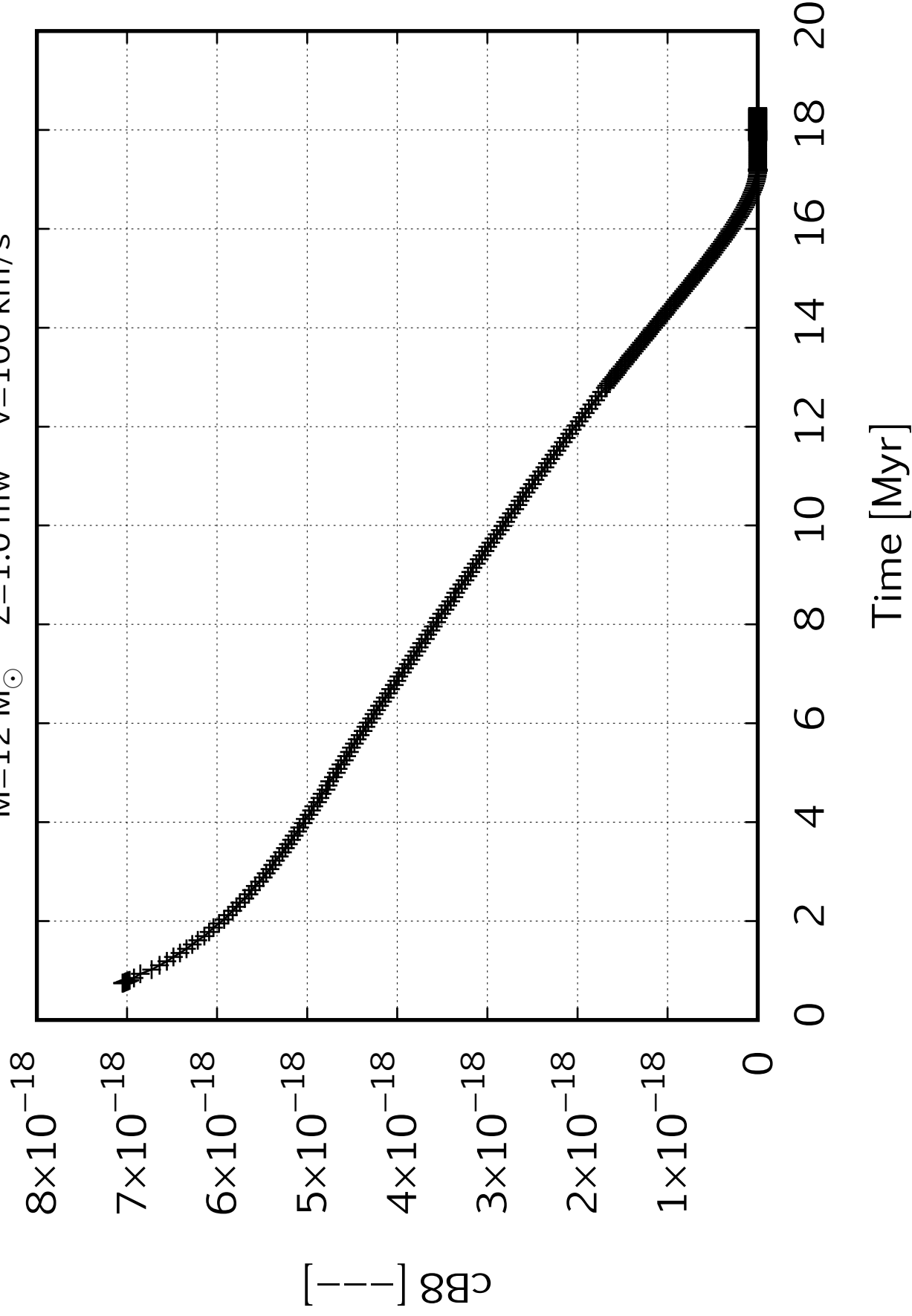


$M=12\,M_{\odot}$ $Z=1.0\,\text{mw}$ $v=100\,\text{km/s}$

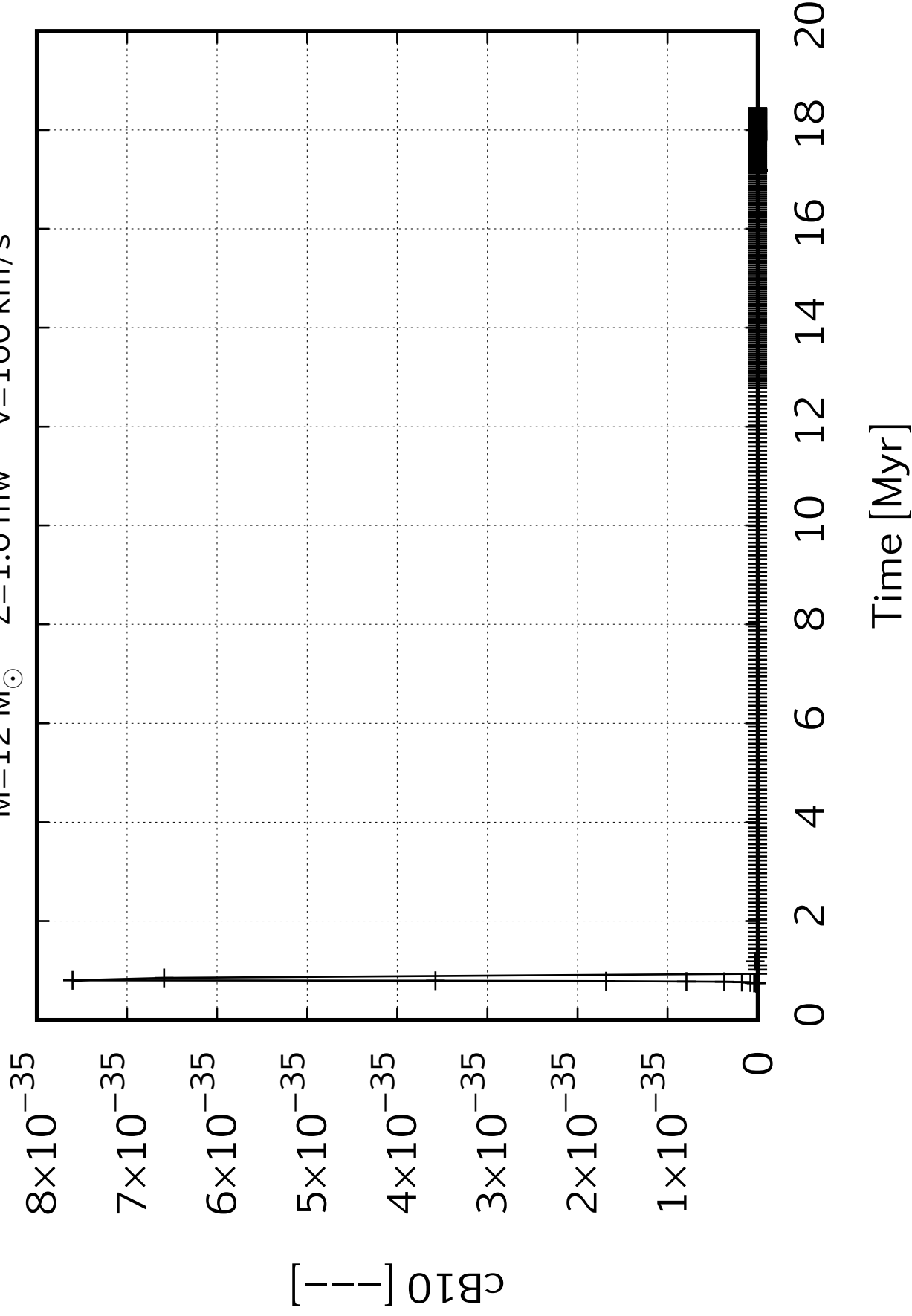




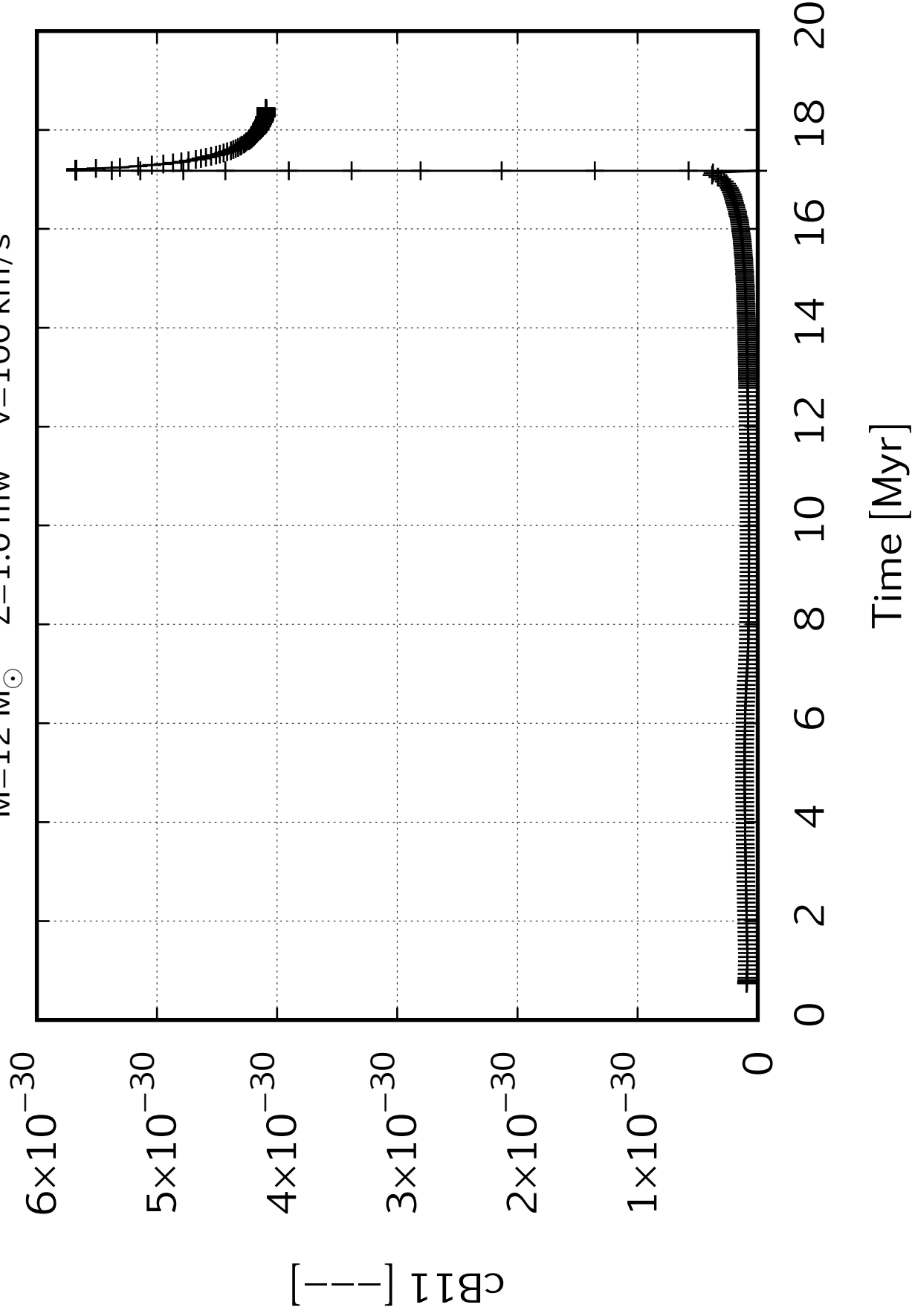
$M=12\,M_{\odot}$ $Z=1.0\,\text{mw}$ $v=100\,\text{km/s}$



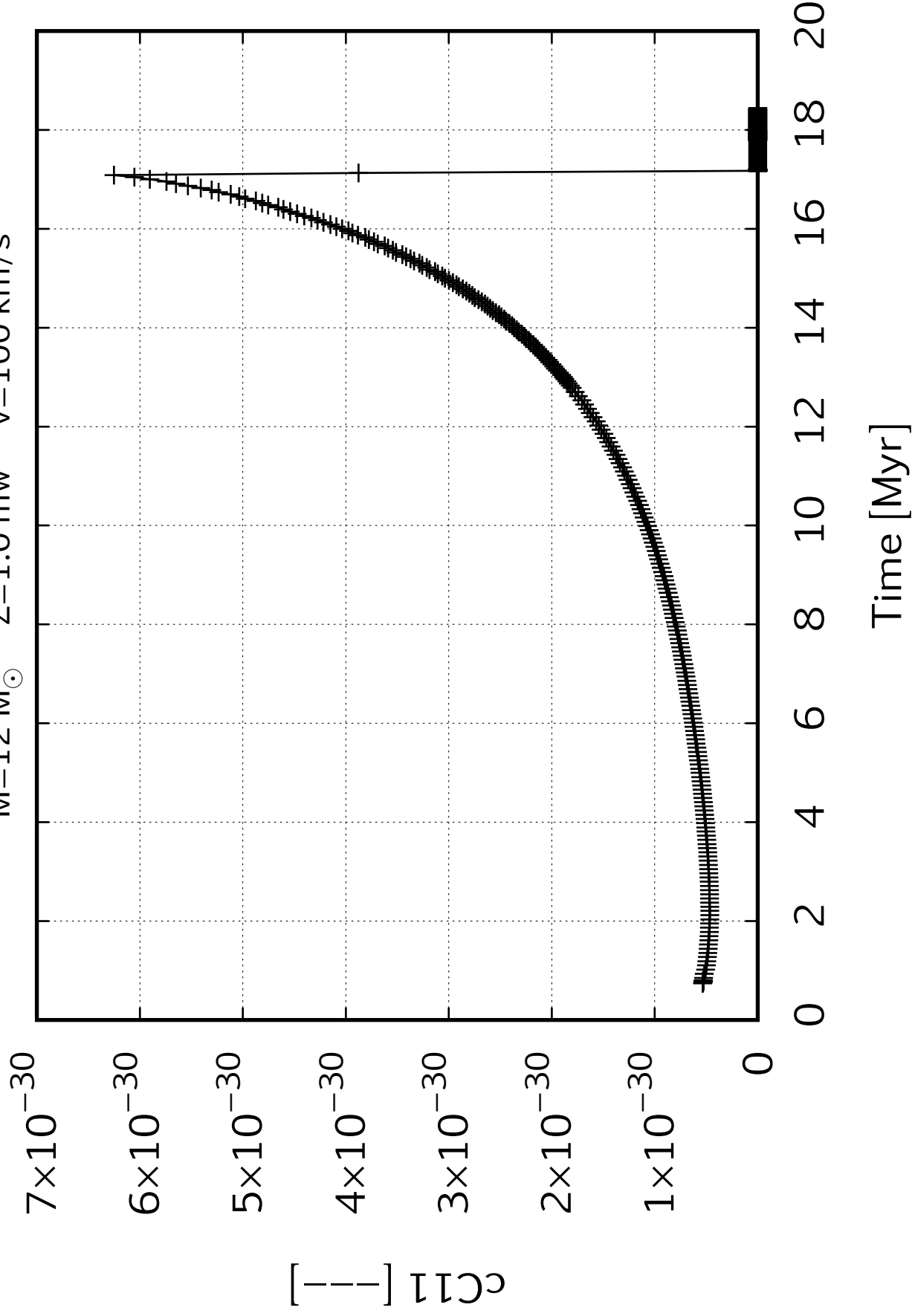
$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$



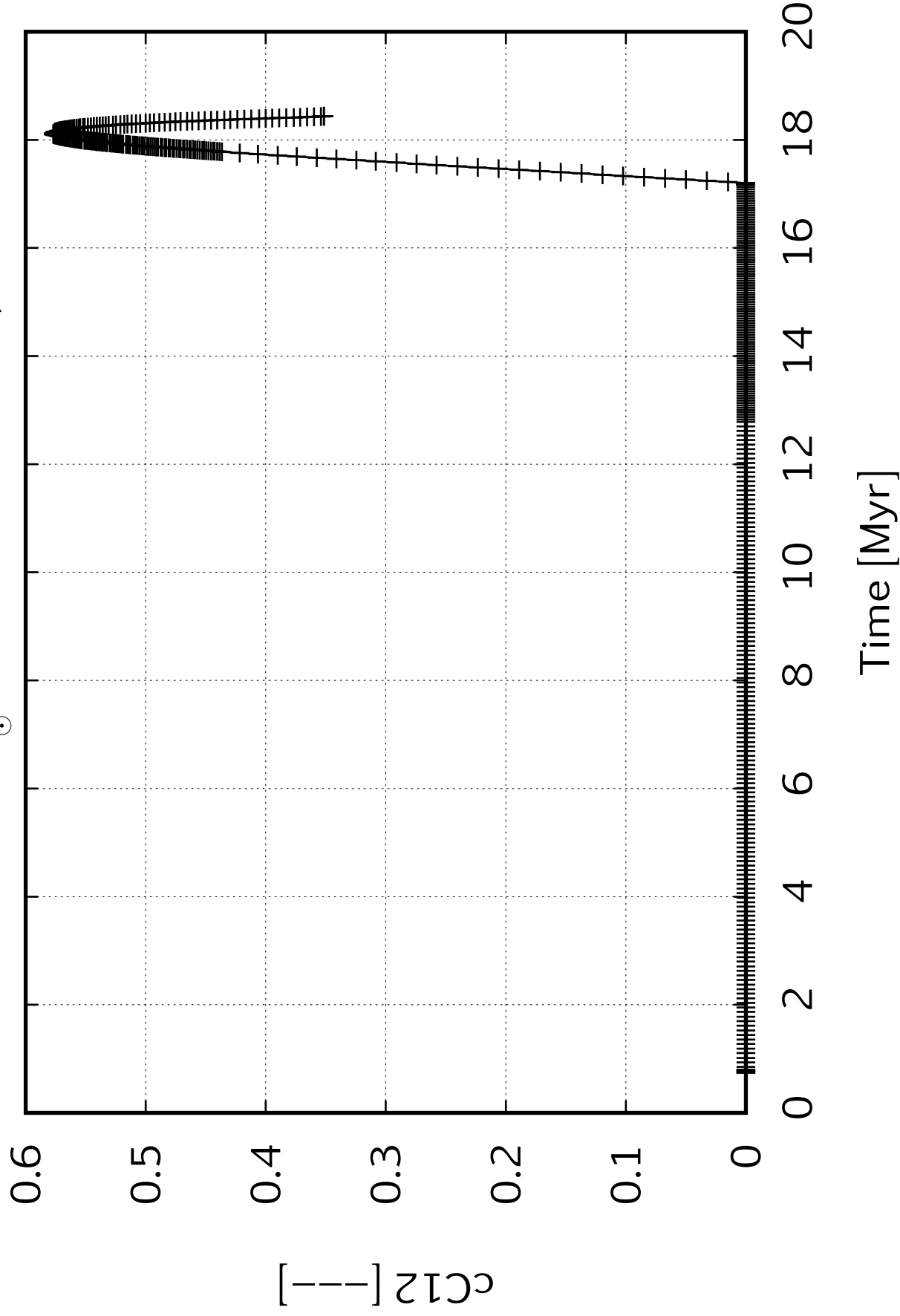
$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100$ km/s



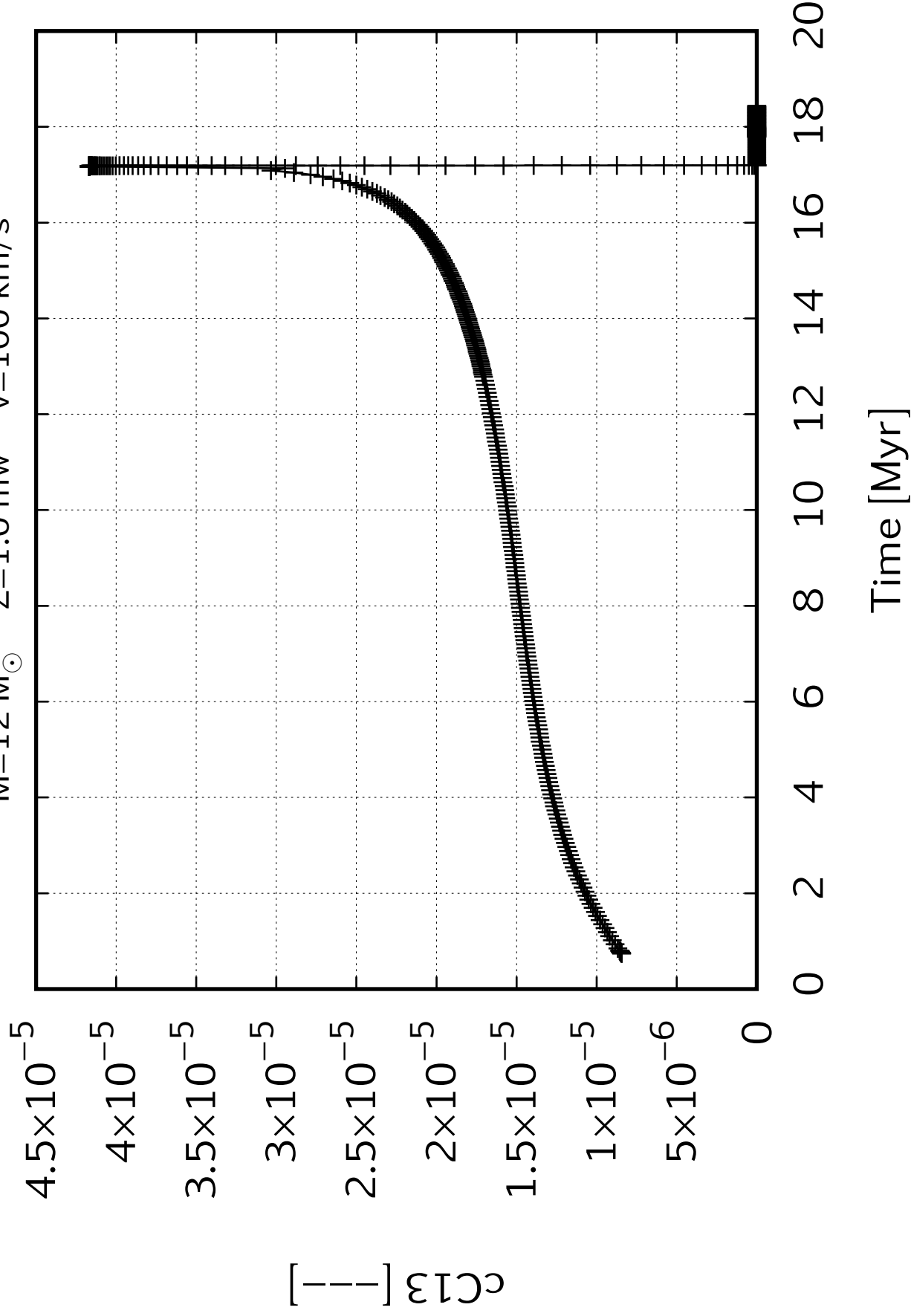
$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$

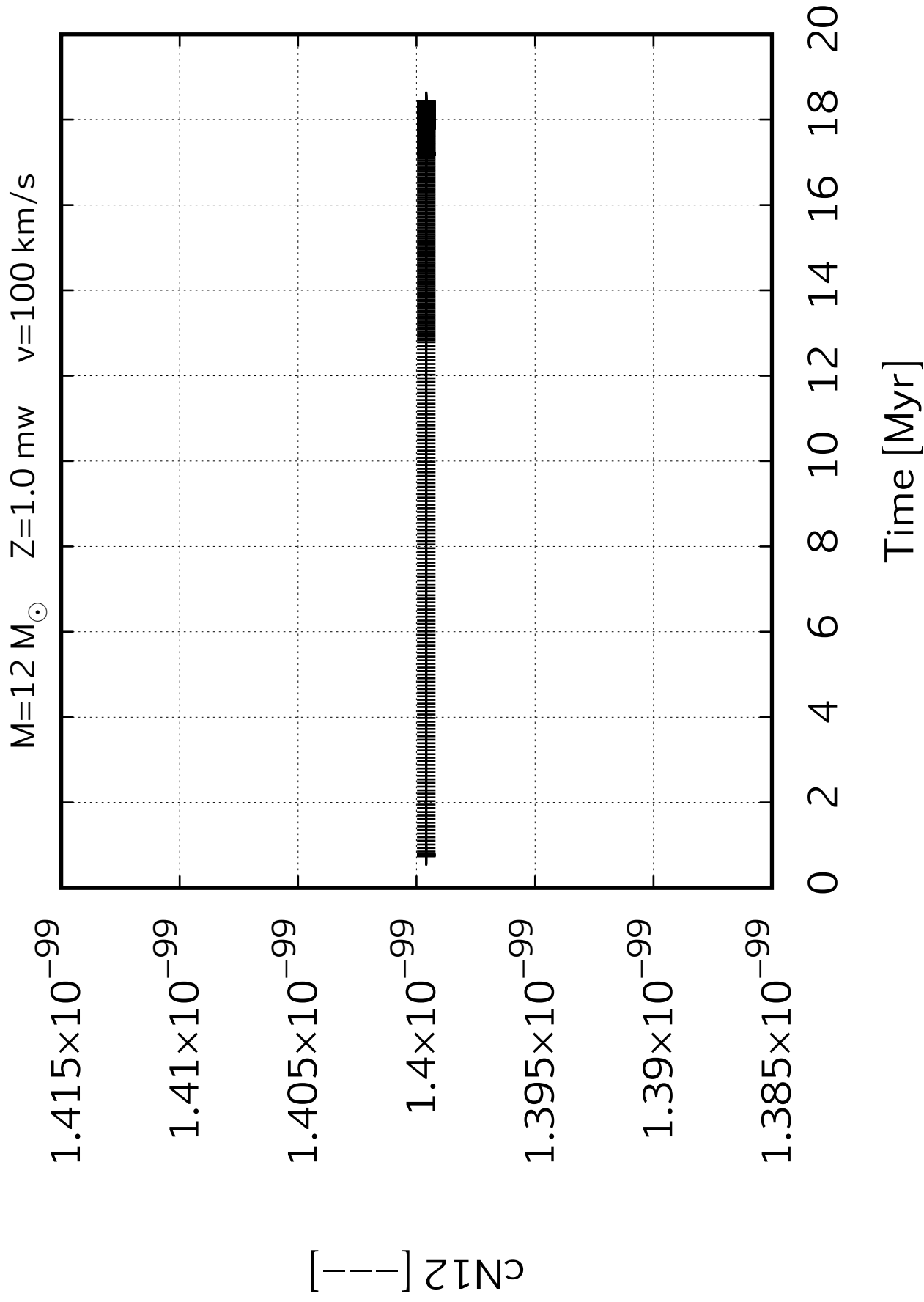


$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100$ km/s

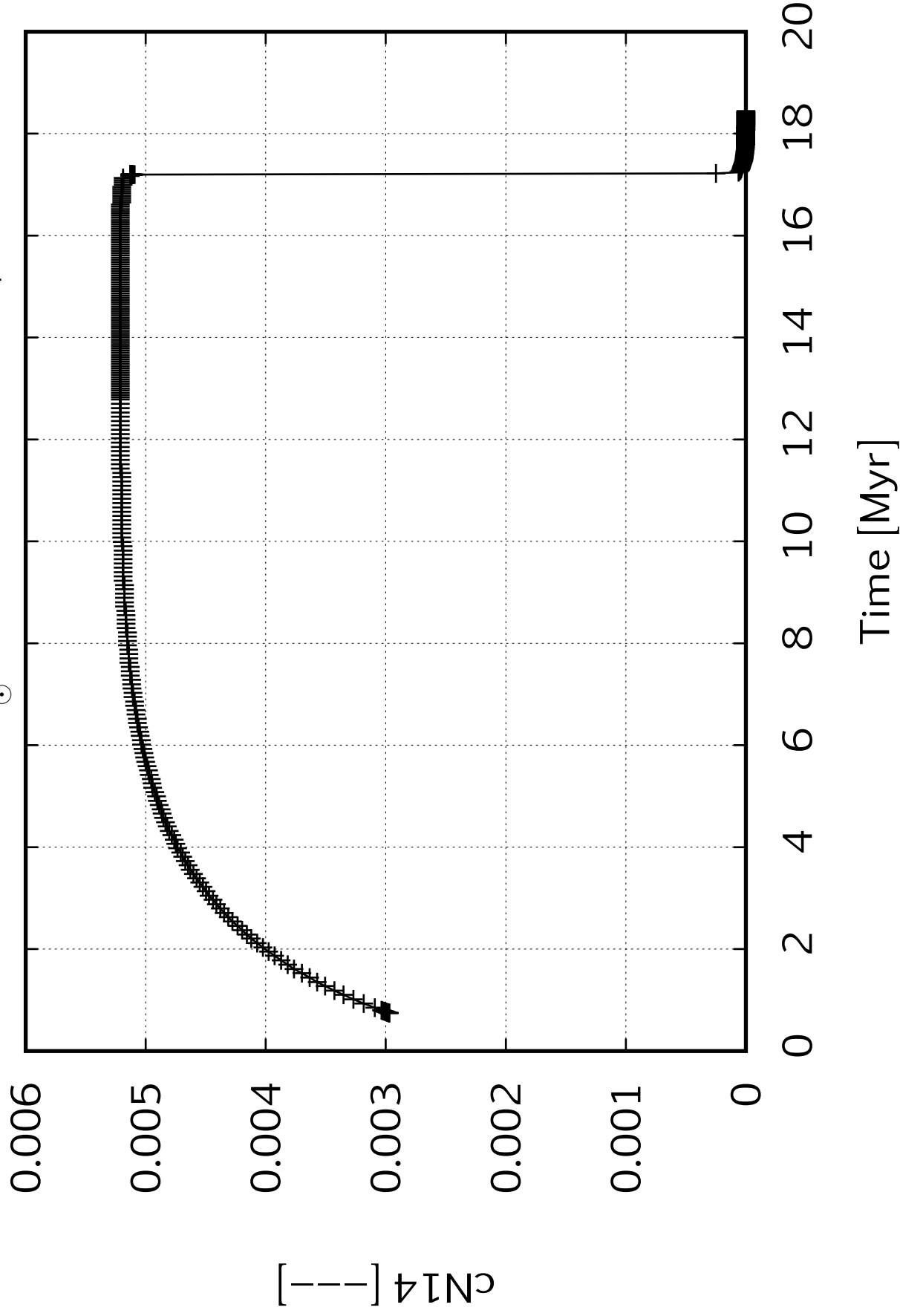


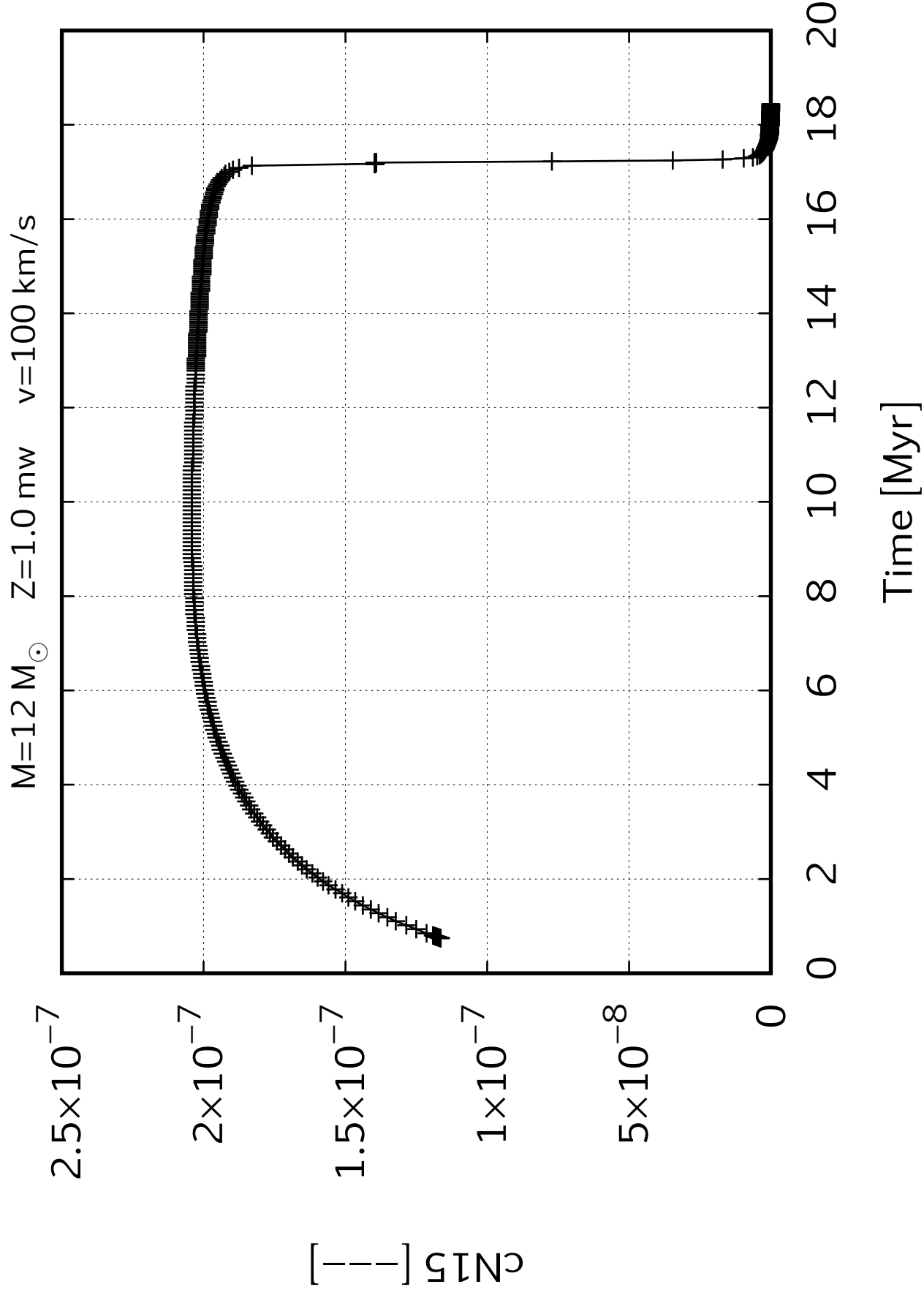
$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100$ km/s



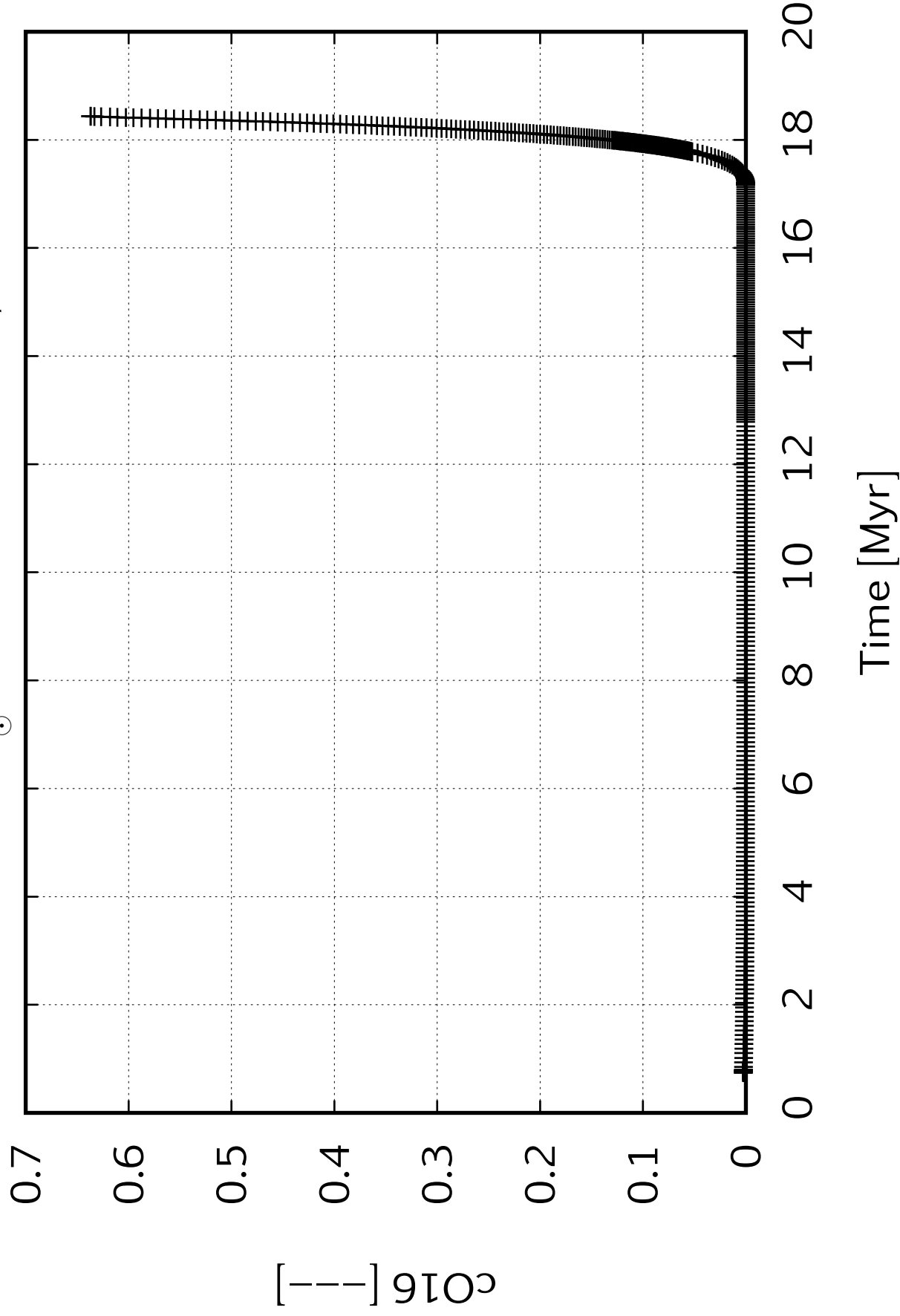


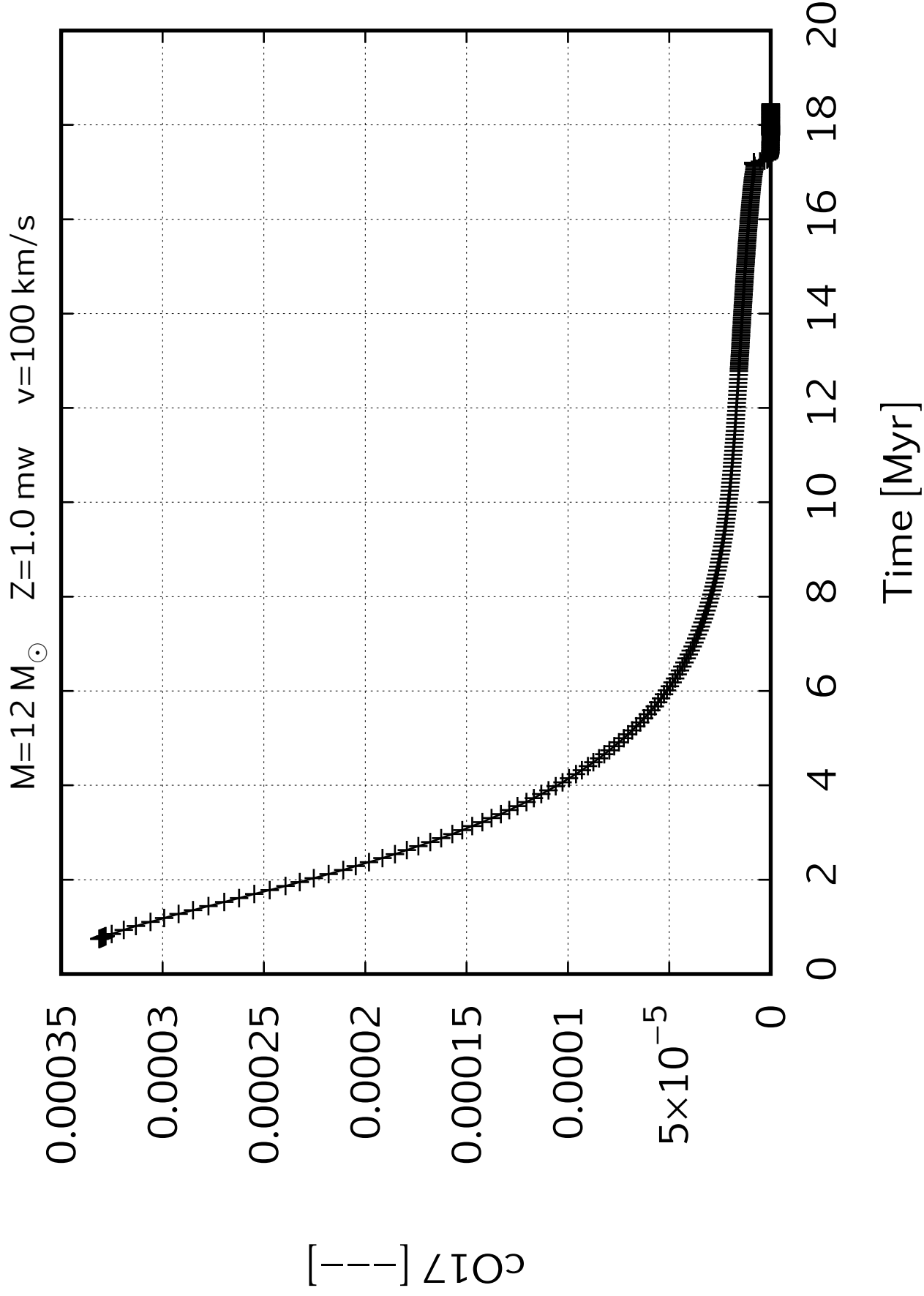
$M=12 M_{\odot}$ $Z=1.0$ mw $v=100$ km/s



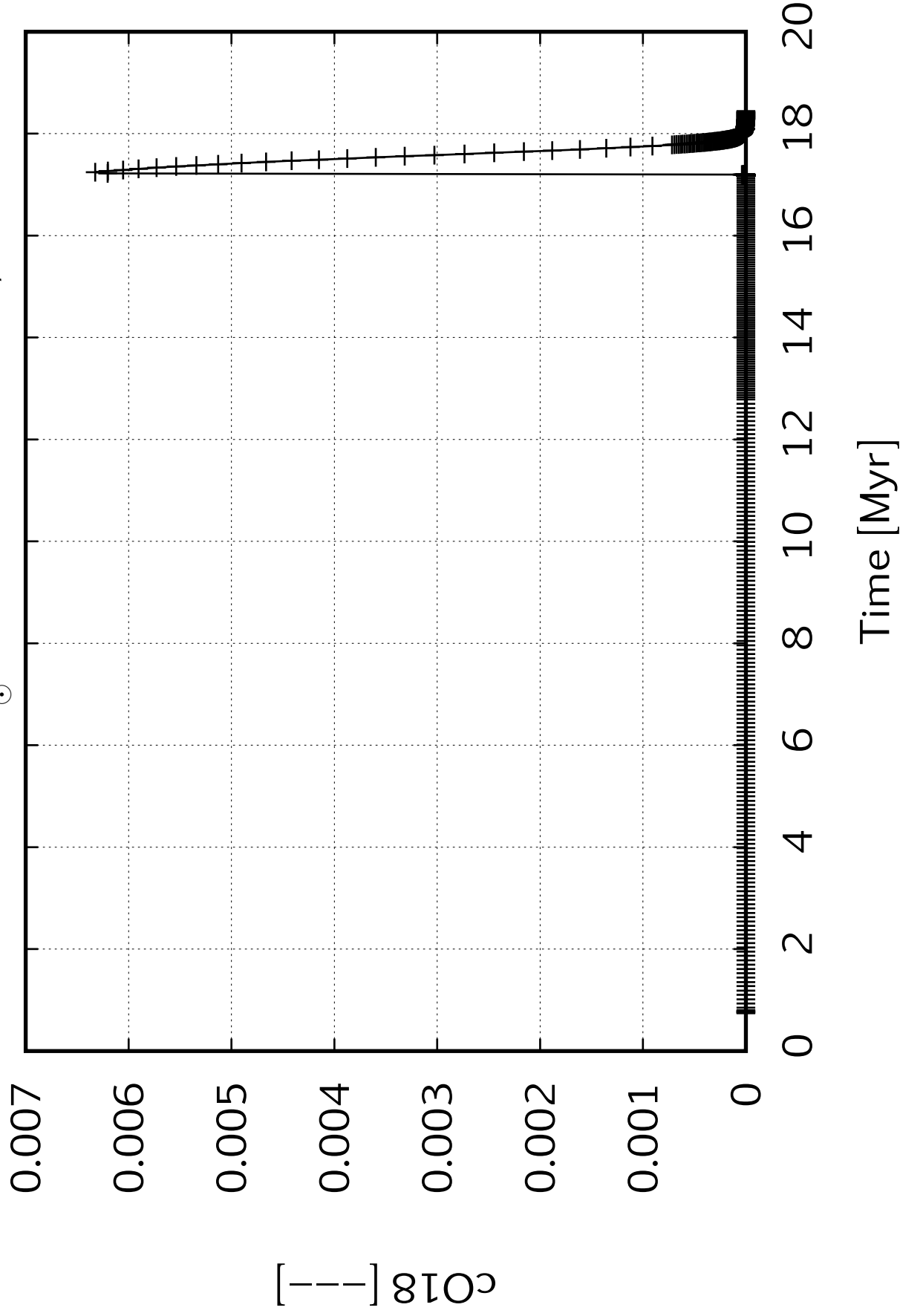


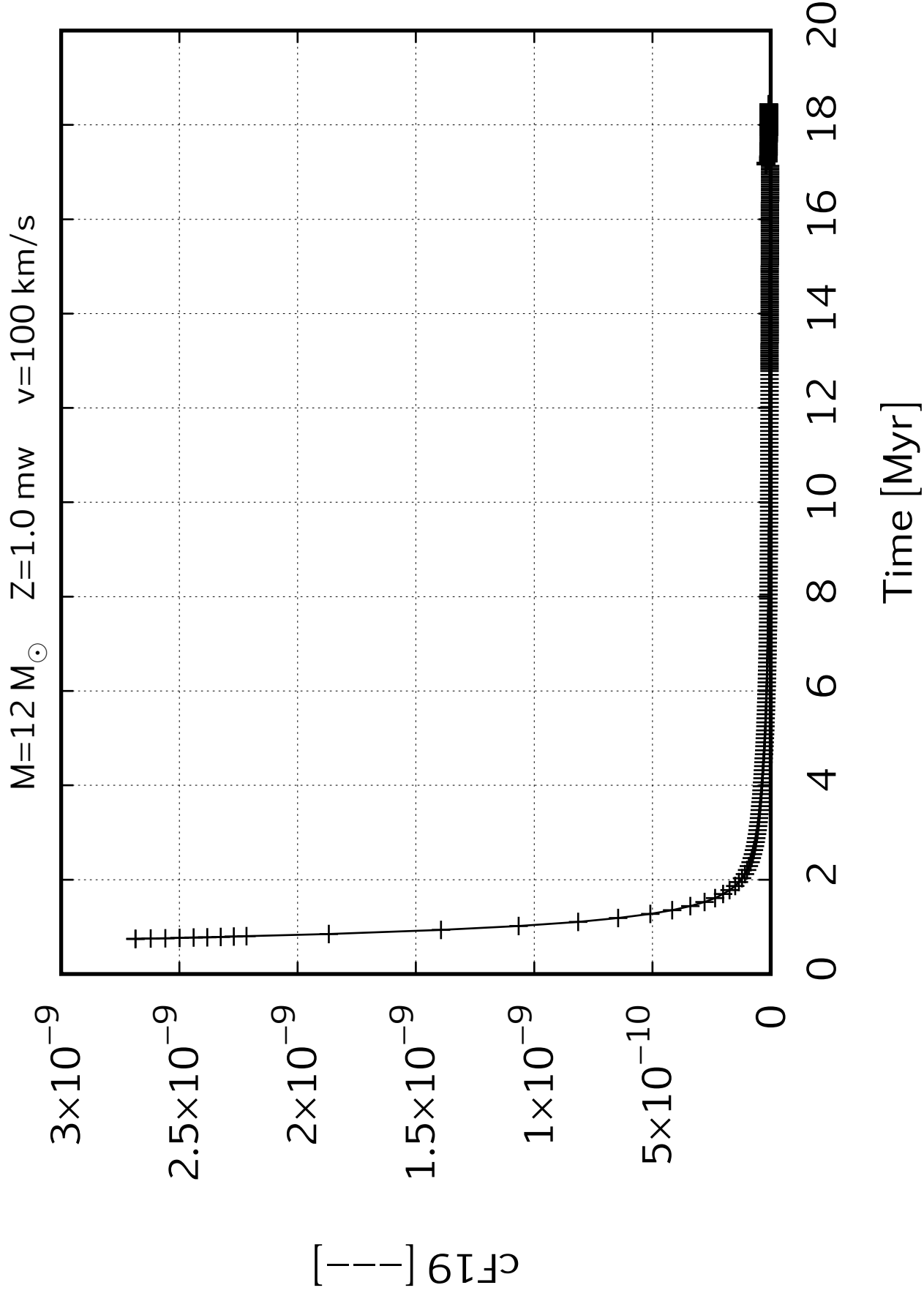
$M=12 M_{\odot}$ $Z=1.0$ mw $v=100$ km/s

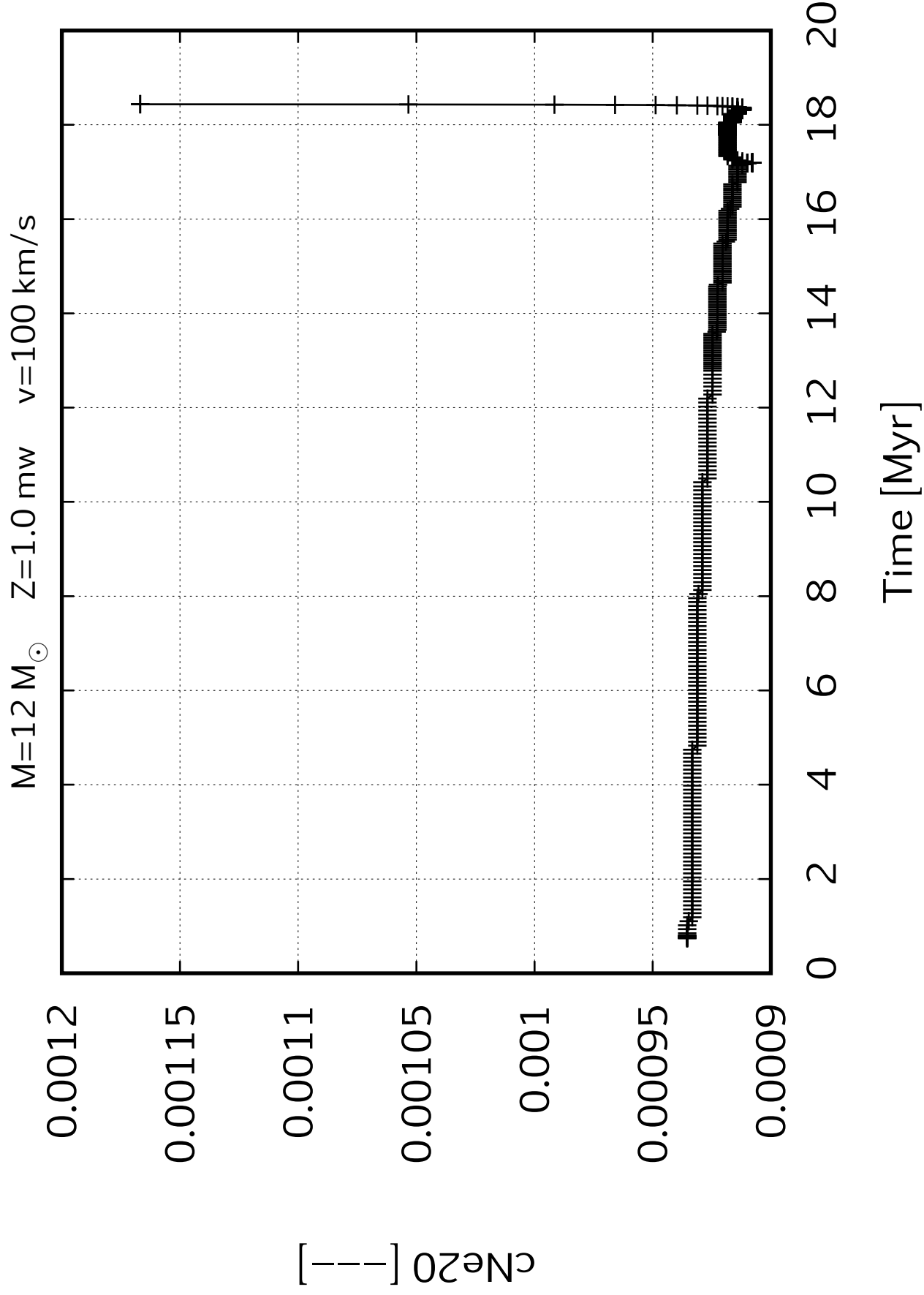


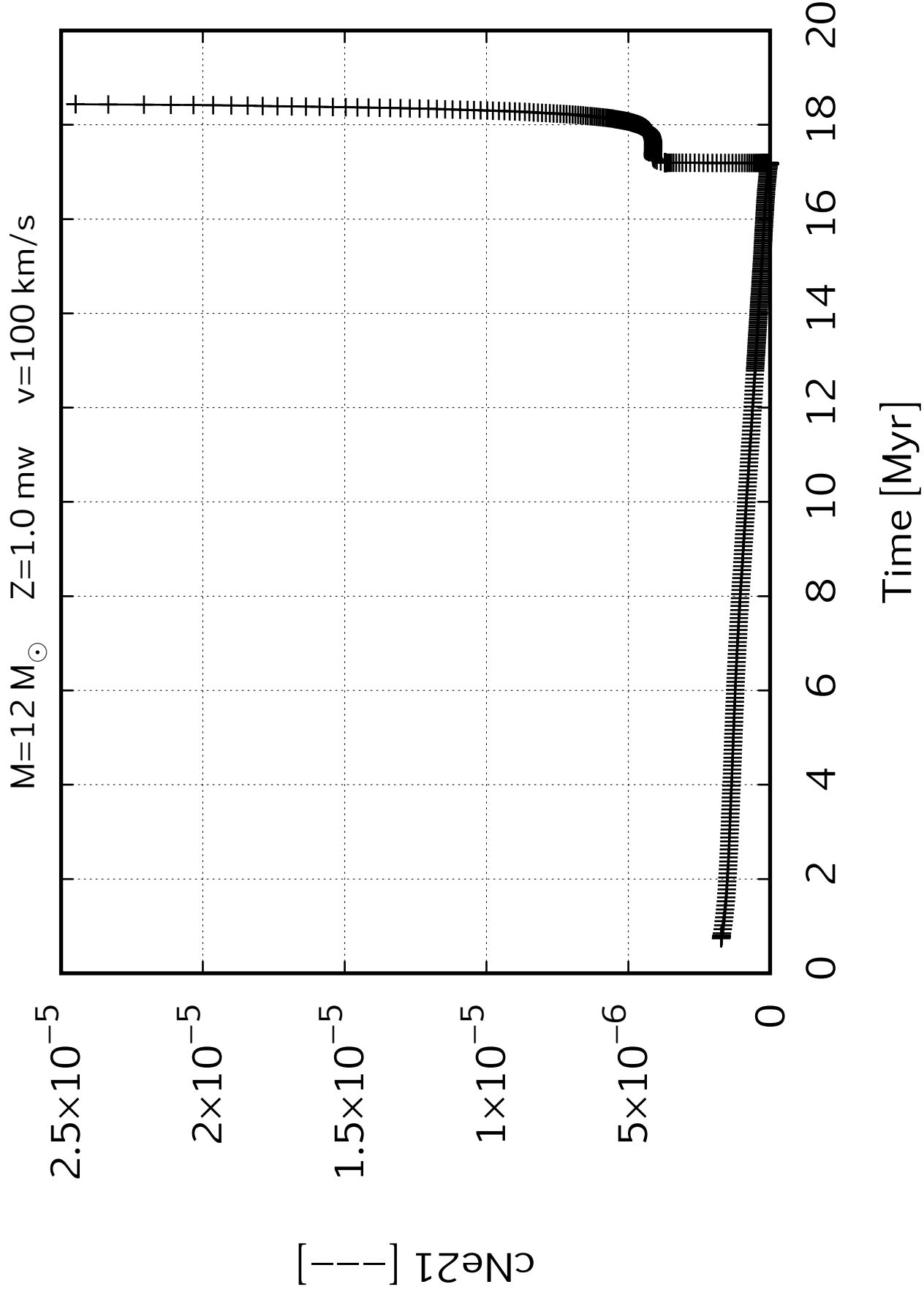


$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100$ km/s

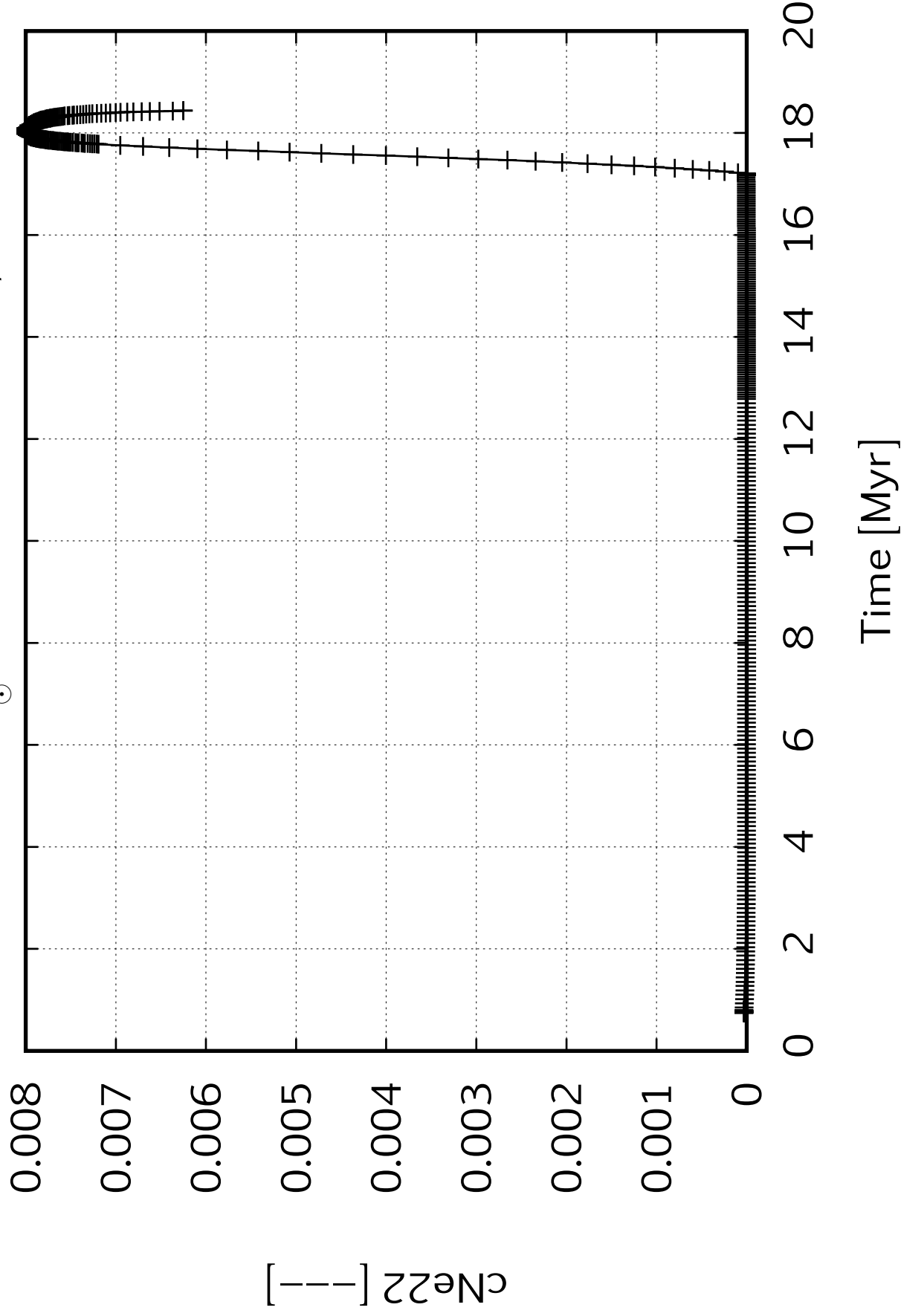








$M=12\,M_{\odot}$ $Z=1.0\,\text{mw}$ $v=100\,\text{km/s}$



$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$

0.00013

0.00012

0.00011

0.00010

0.00009

0.00008

0.00007

$c_{\text{Na23}} [--]$

0

2

4

6

8

10

12

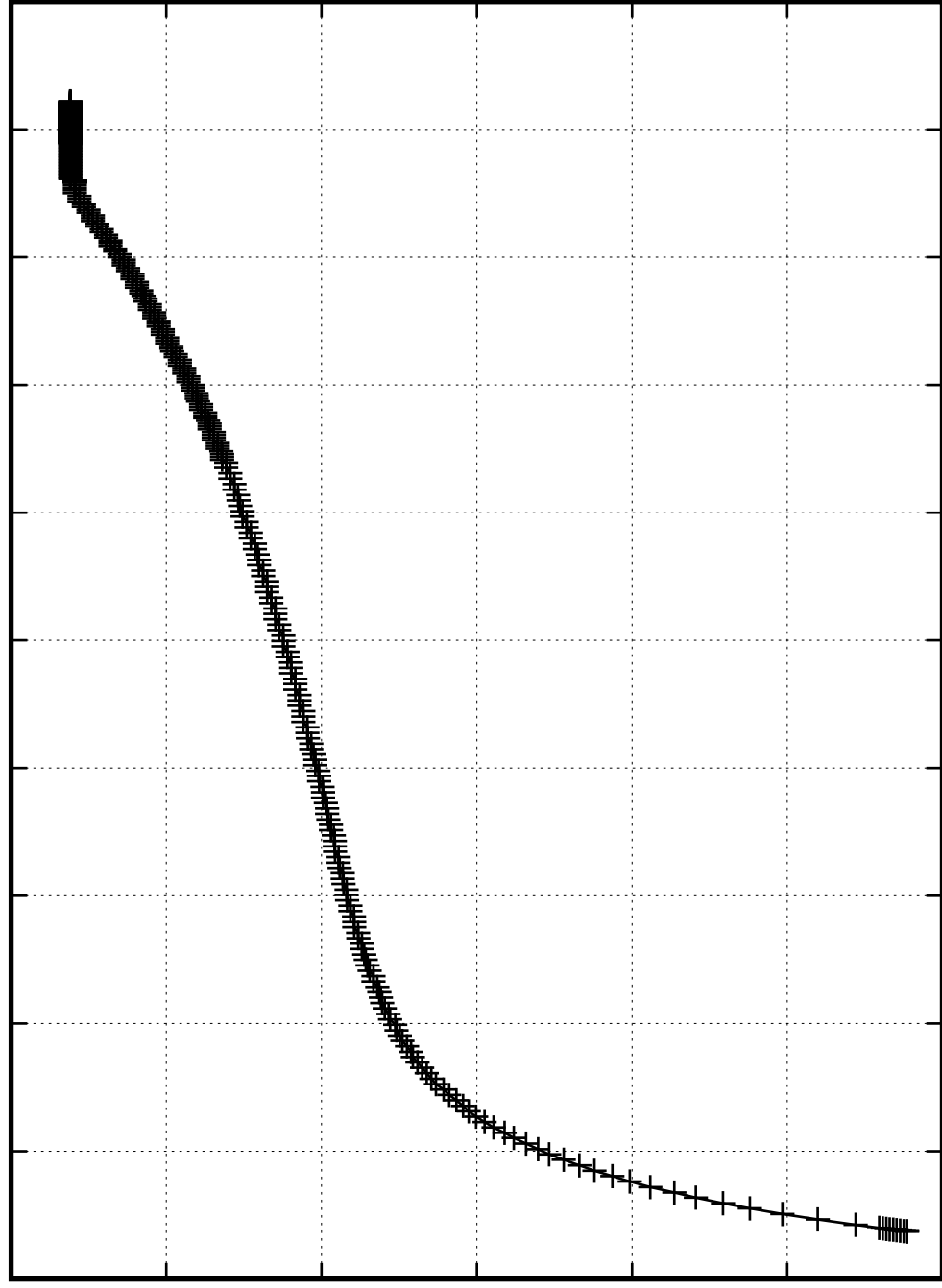
14

16

18

20

Time [Myr]



$M=12\ M_{\odot}$ $Z=1.0\ \text{mw}$ $v=100\ \text{km/s}$

0.00030

0.00025

0.00020

0.00015

0.00010

0.00005

$cM_{\text{g}24} [-]$

0

2

4

6

8

10

12

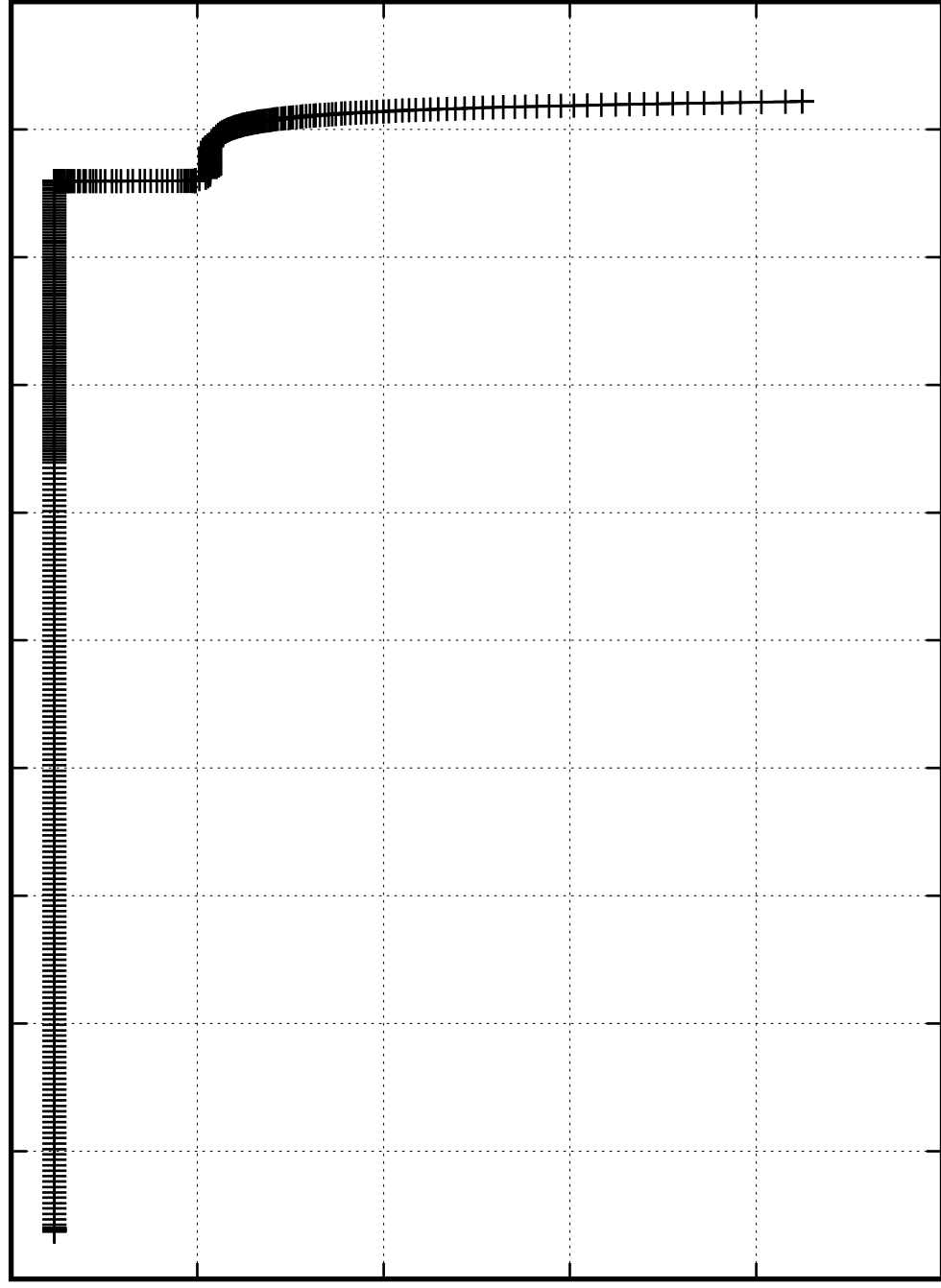
14

16

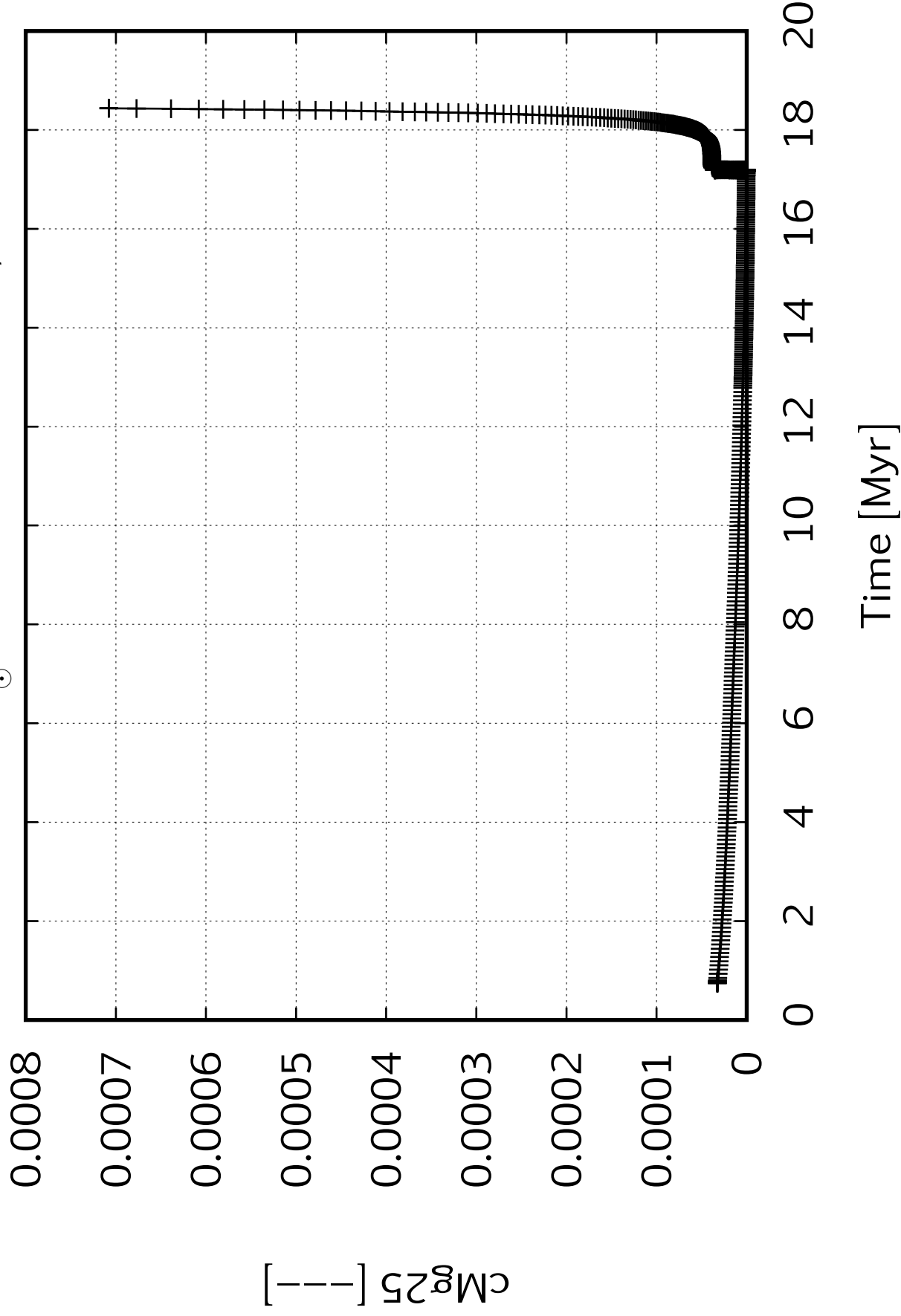
18

20

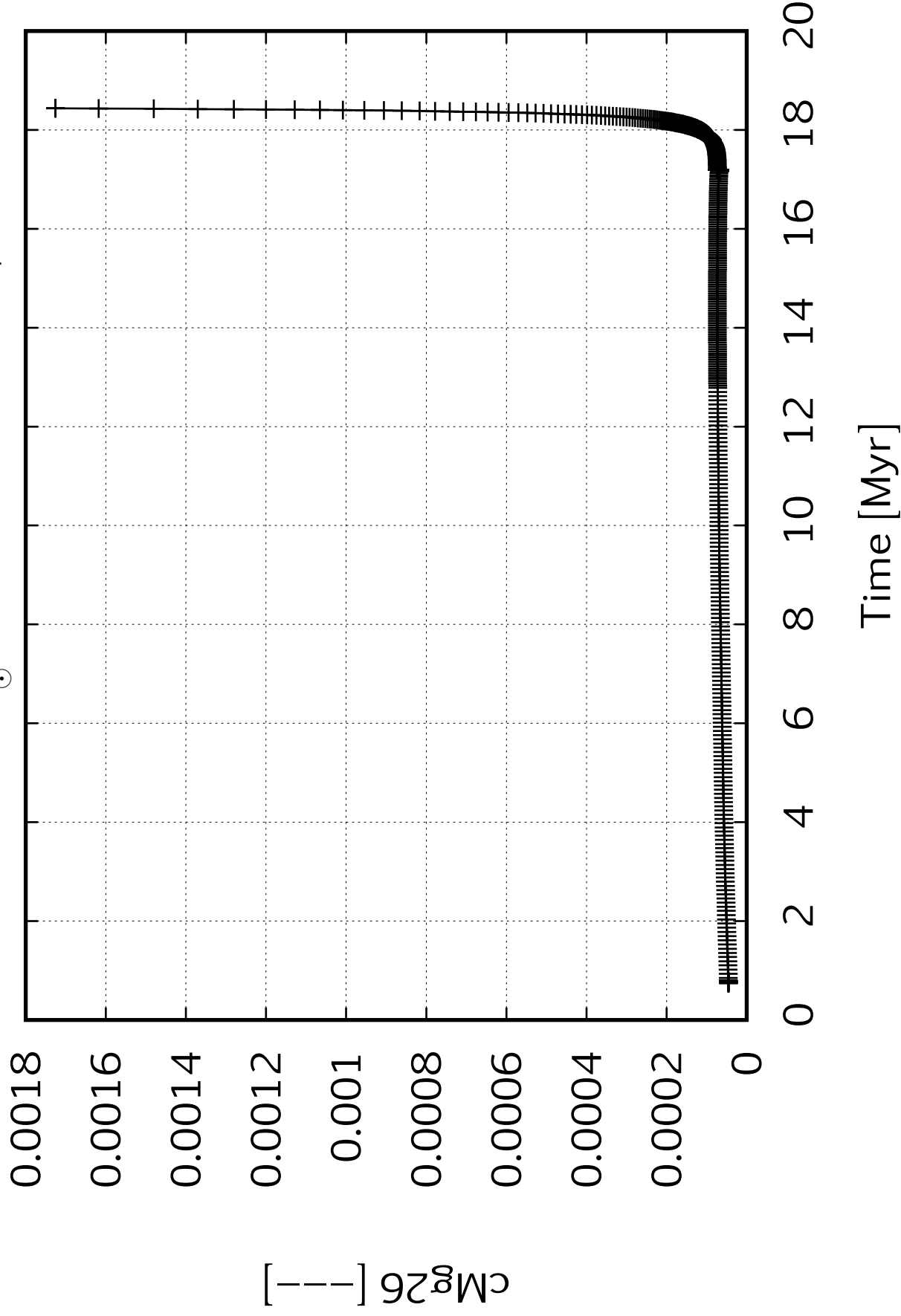
Time [Myr]



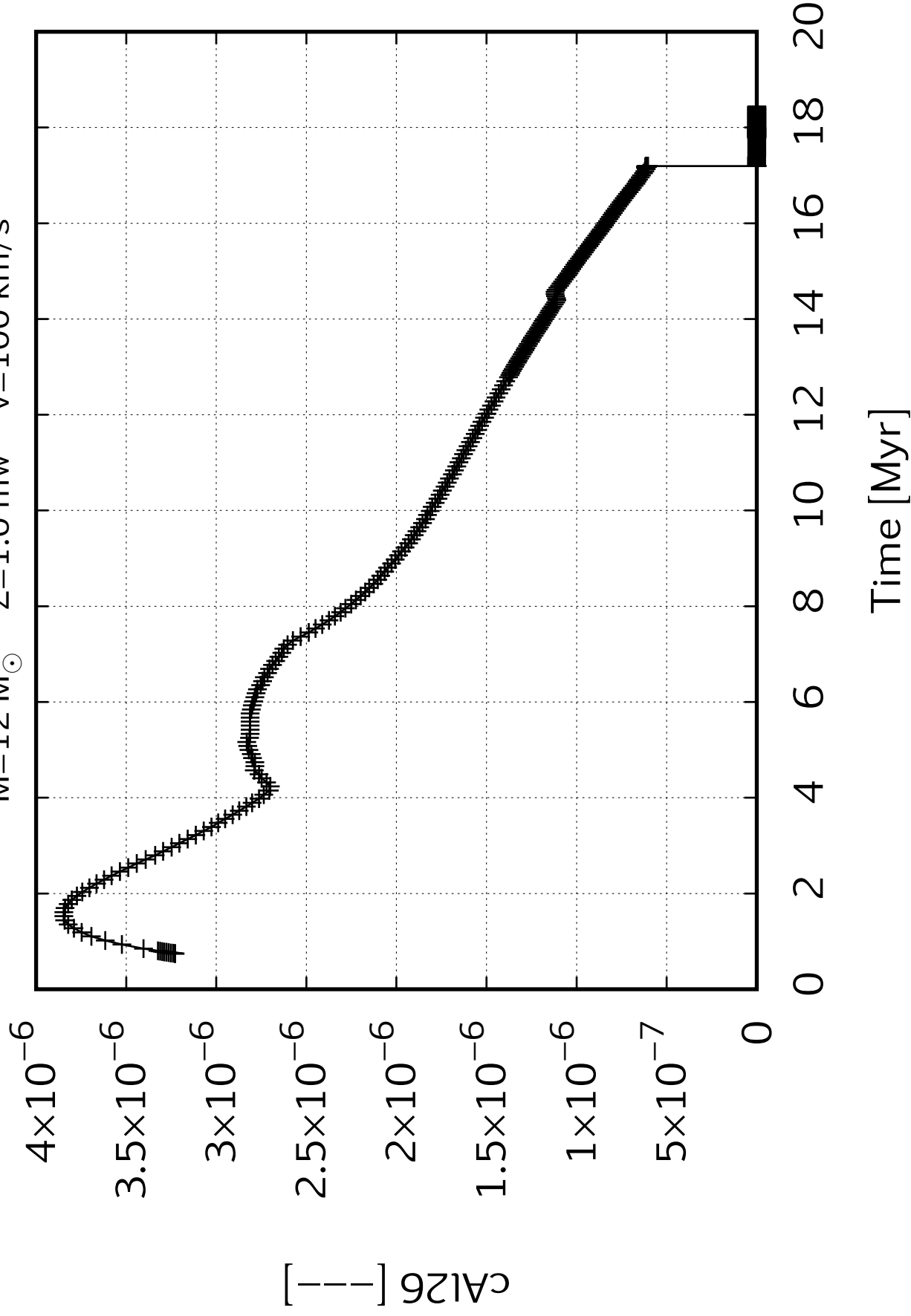
$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$



$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$



$M=12\,M_{\odot}$ $Z=1.0\,\text{mw}$ $v=100\,\text{km/s}$



$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$

0.00006
0.00006
0.00006
0.00006
0.00005
0.00005
0.00005
0.00005
0.00005

c_{Al27} [—]

0

2

4

6

8

10

12

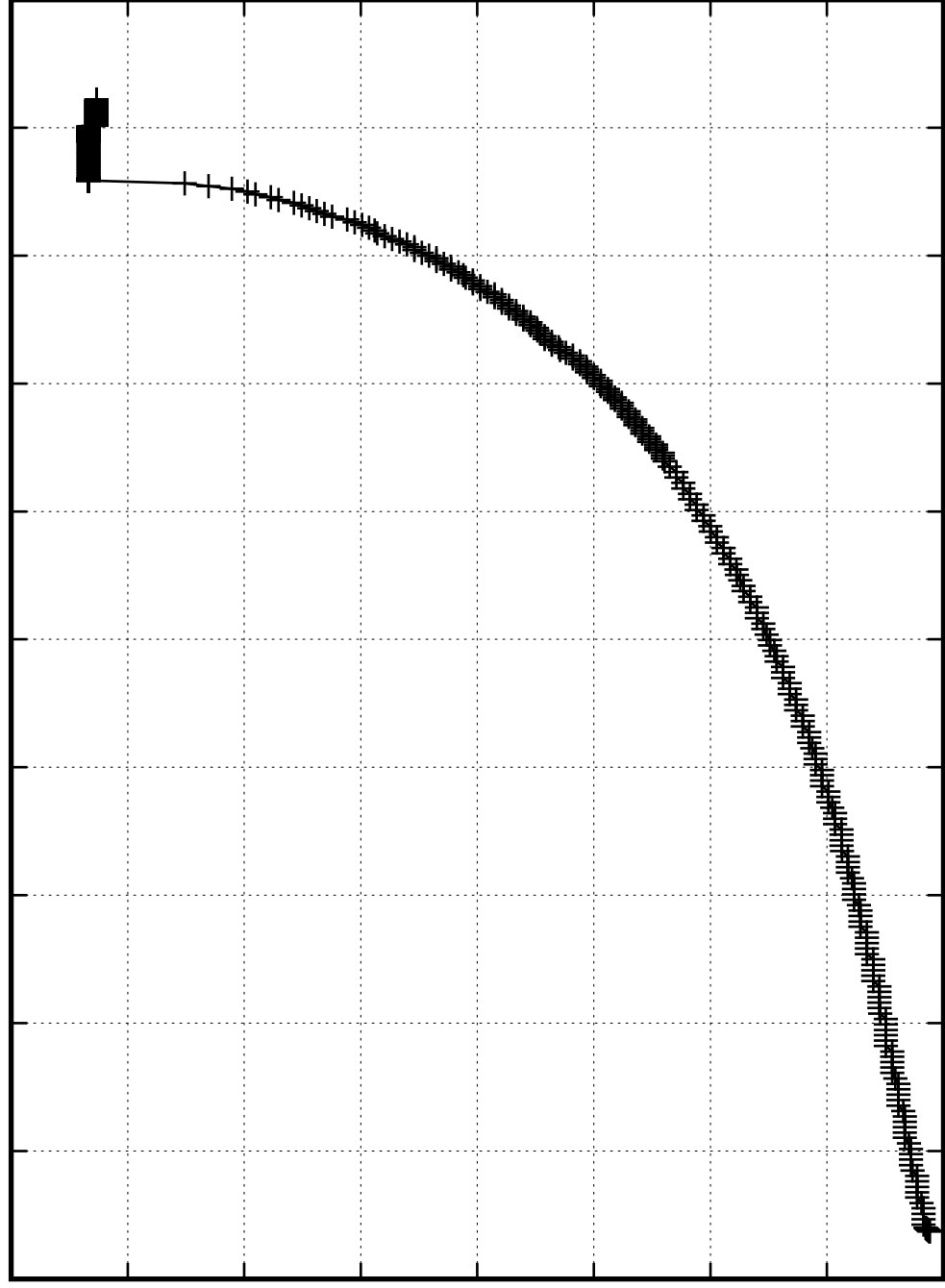
14

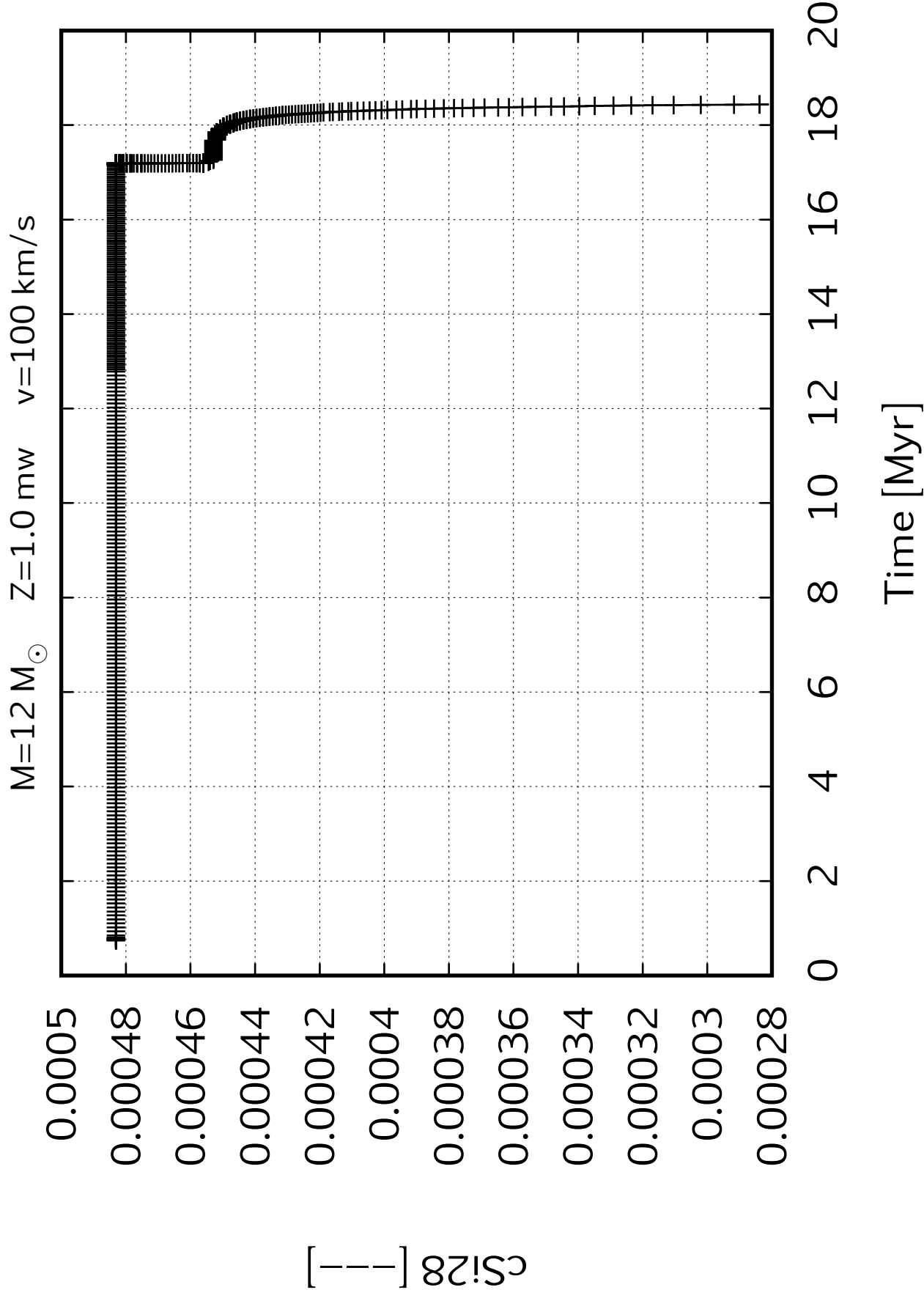
16

18

20

Time [Myr]





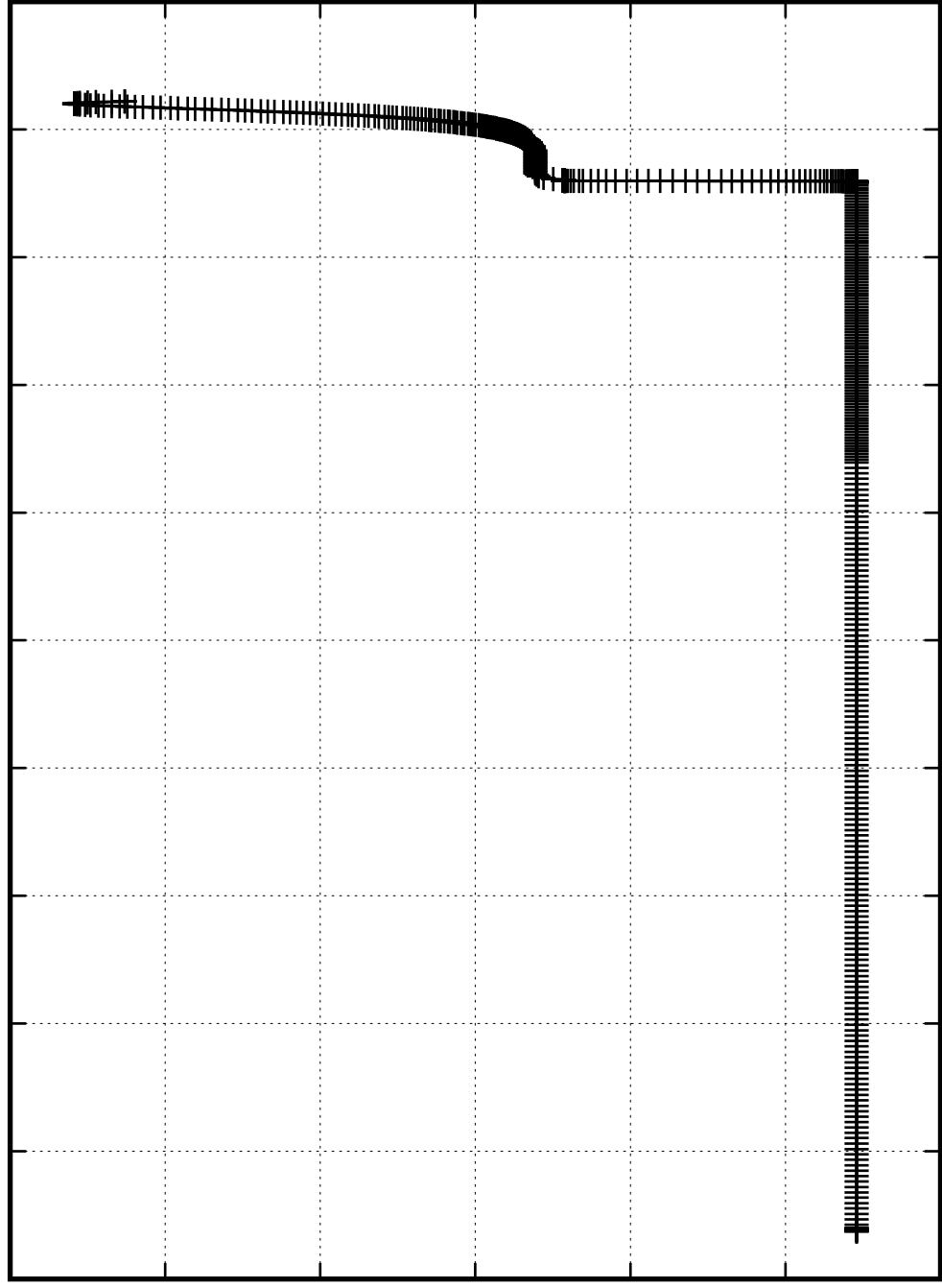
$M=12 M_{\odot}$ $Z=1.0$ mw $v=100$ km/s

$[\text{S II}]$

0.00008
0.00007
0.00006
0.00005
0.00004
0.00003
0.00002

0 2 4 6 8 10 12 14 16 18 20

Time [Myr]



$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100$ km/s

0.0002

0.00018

0.00016

0.00014

0.00012

0.0001

8×10^{-5}

6×10^{-5}

4×10^{-5}

2×10^{-5}

0

$[{\rm Si}/30]$

0

2

4

6

8

10

12

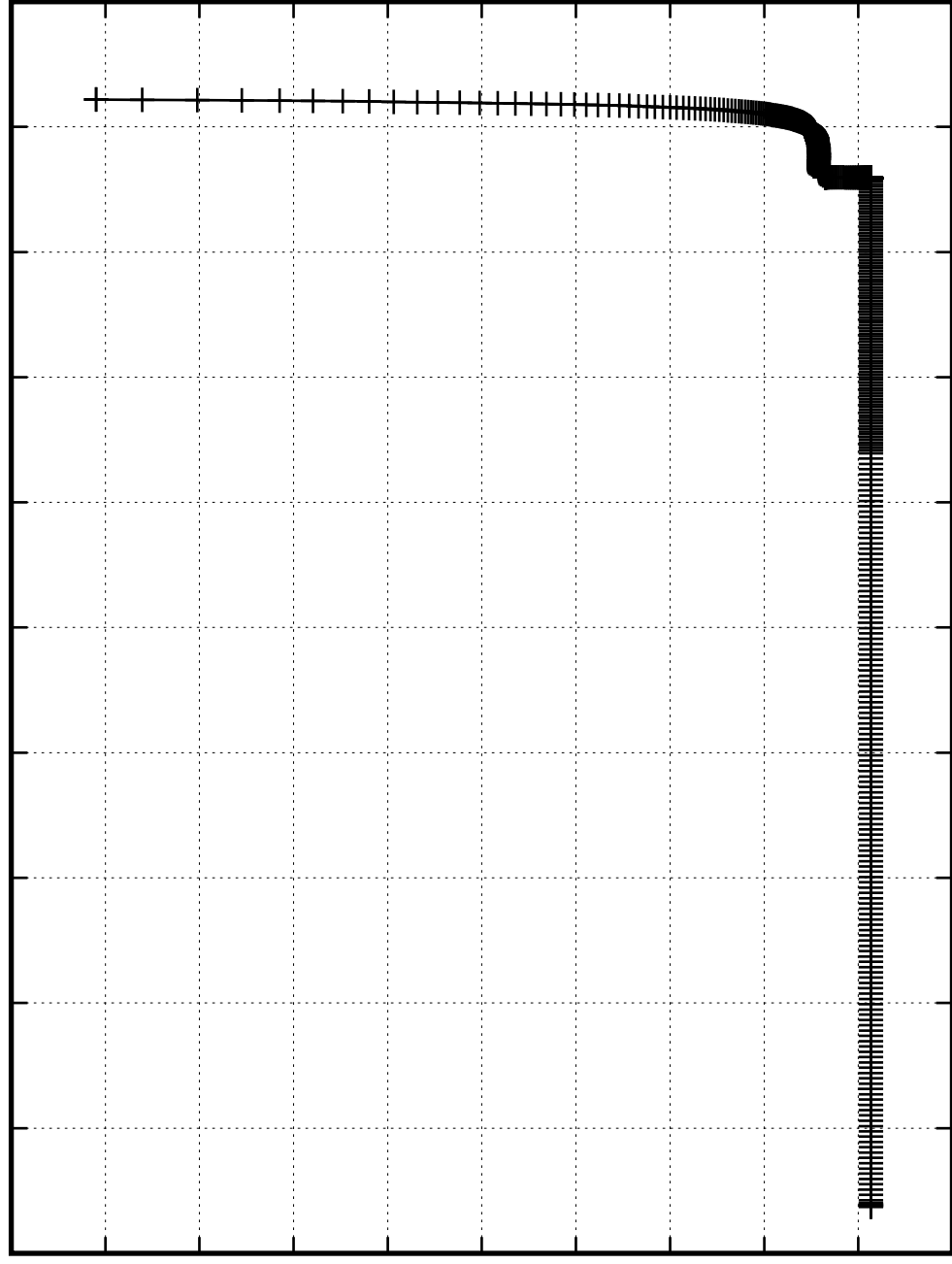
14

16

18

20

Time [Myr]



$M=12 M_{\odot}$ $Z=1.0$ mw $v=100$ km/s

0.00104

0.00103

0.00103

0.00102

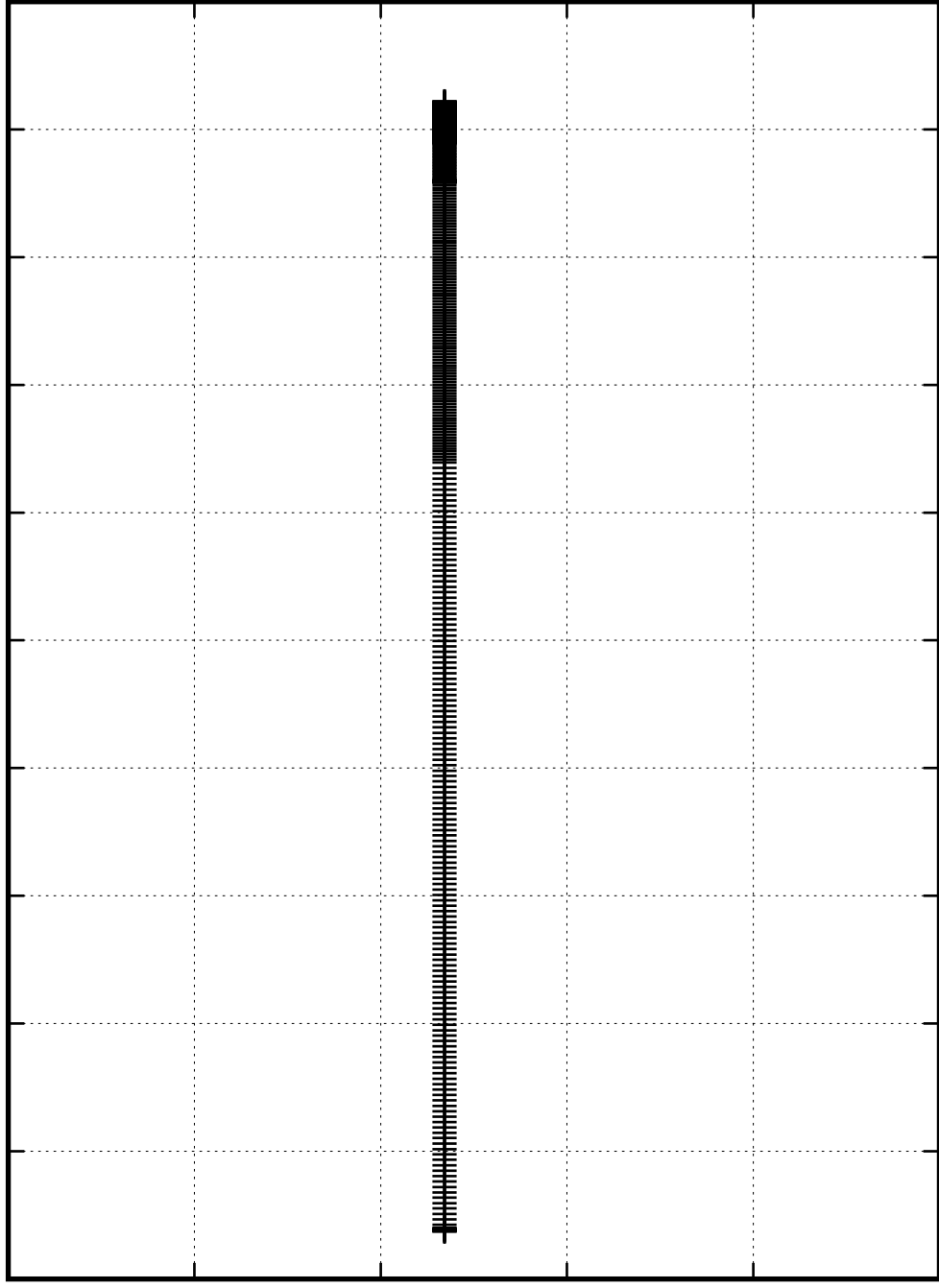
0.00102

0.00101

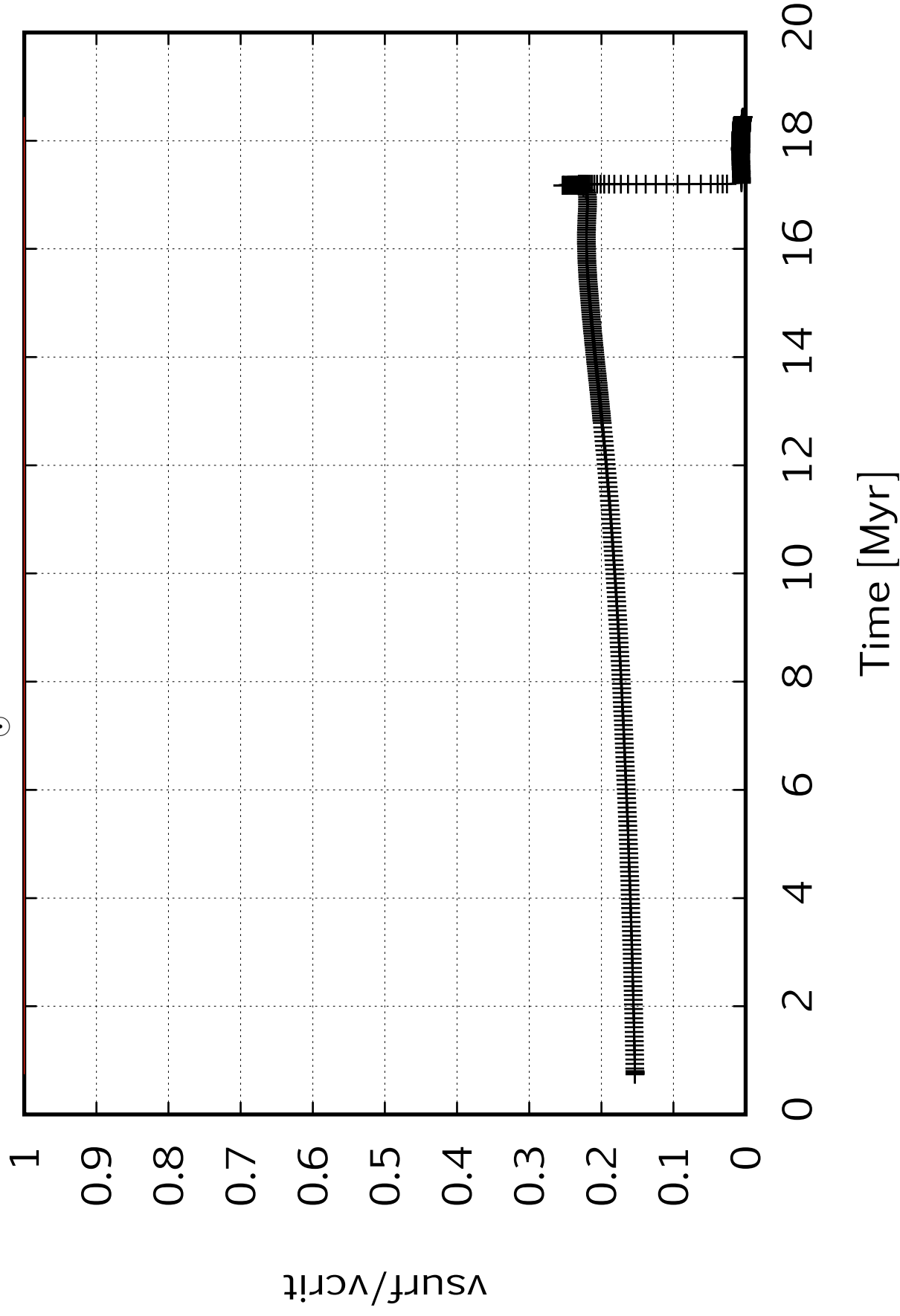
[Fe56]

0 2 4 6 8 10 12 14 16 18 20

Time [Myr]



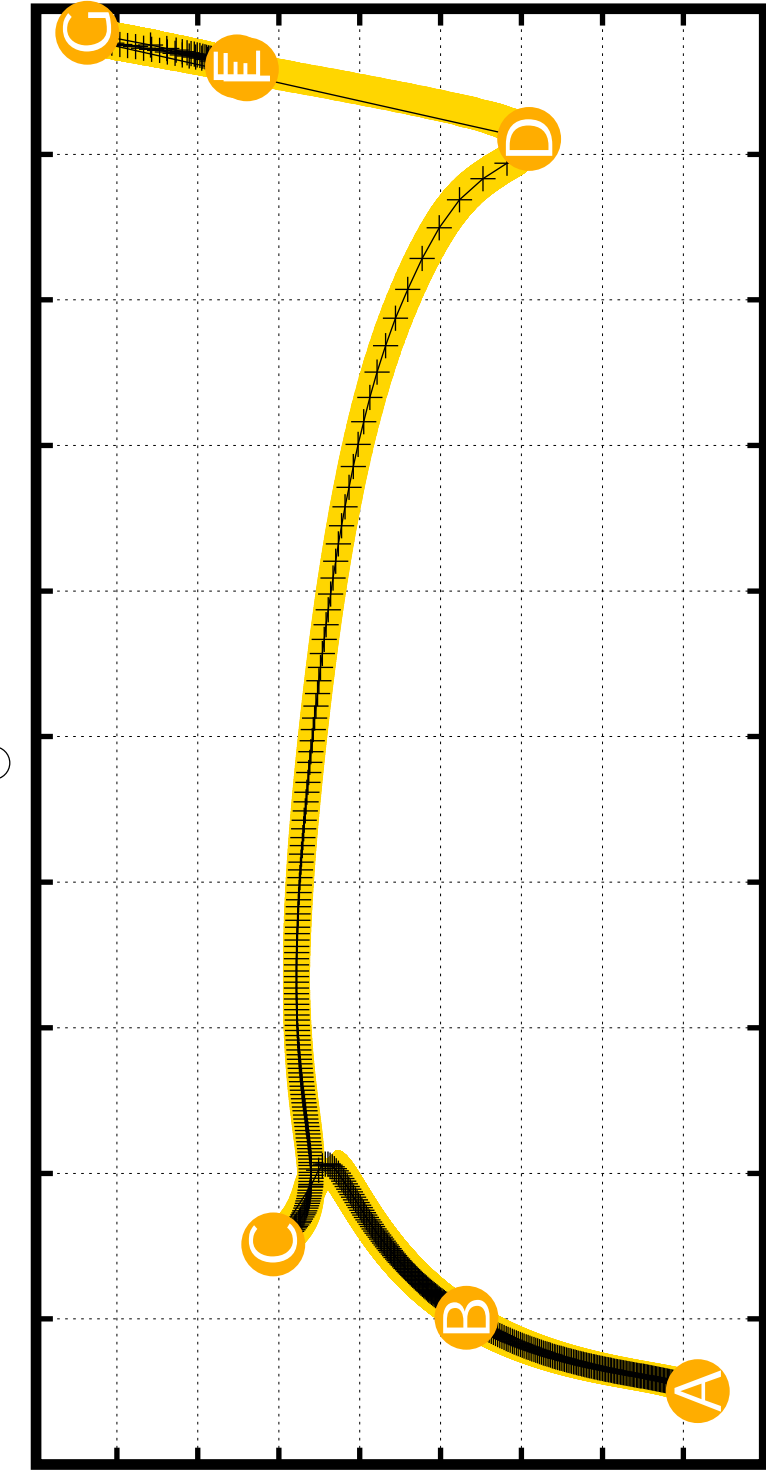
$M=12\,M_{\odot}$ $Z=1.0$ mw $v=100\text{ km/s}$



12 M_⊙ MW

L/L_{\odot}

4.8
4.7
4.6
4.5
4.4
4.3
4.2
4.1
4
3.9



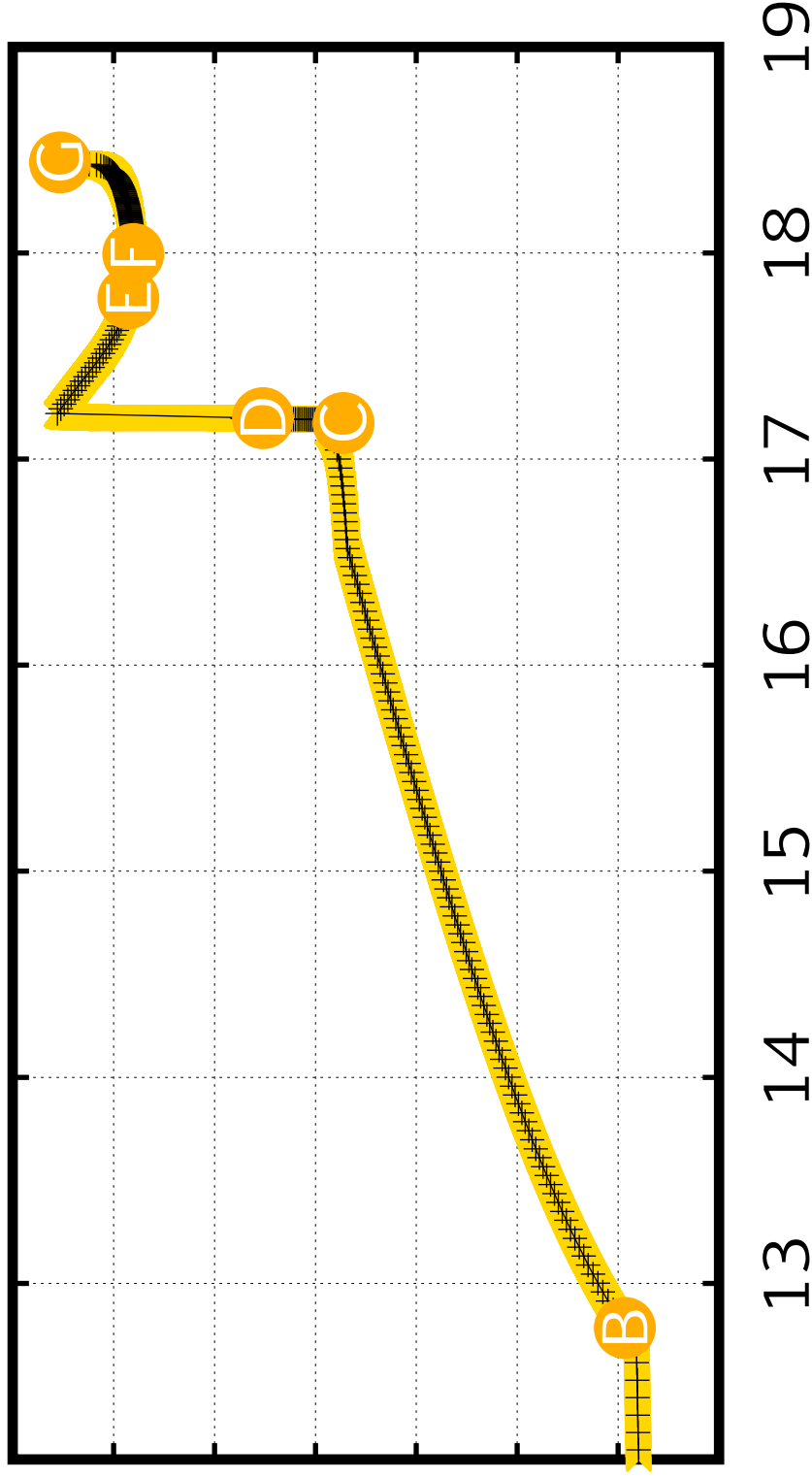
4.5 4.4 4.3 4.2 4.1 4 3.9 3.8 3.7 3.6 3.5

$\log T_{\text{eff}} [\text{K}]$

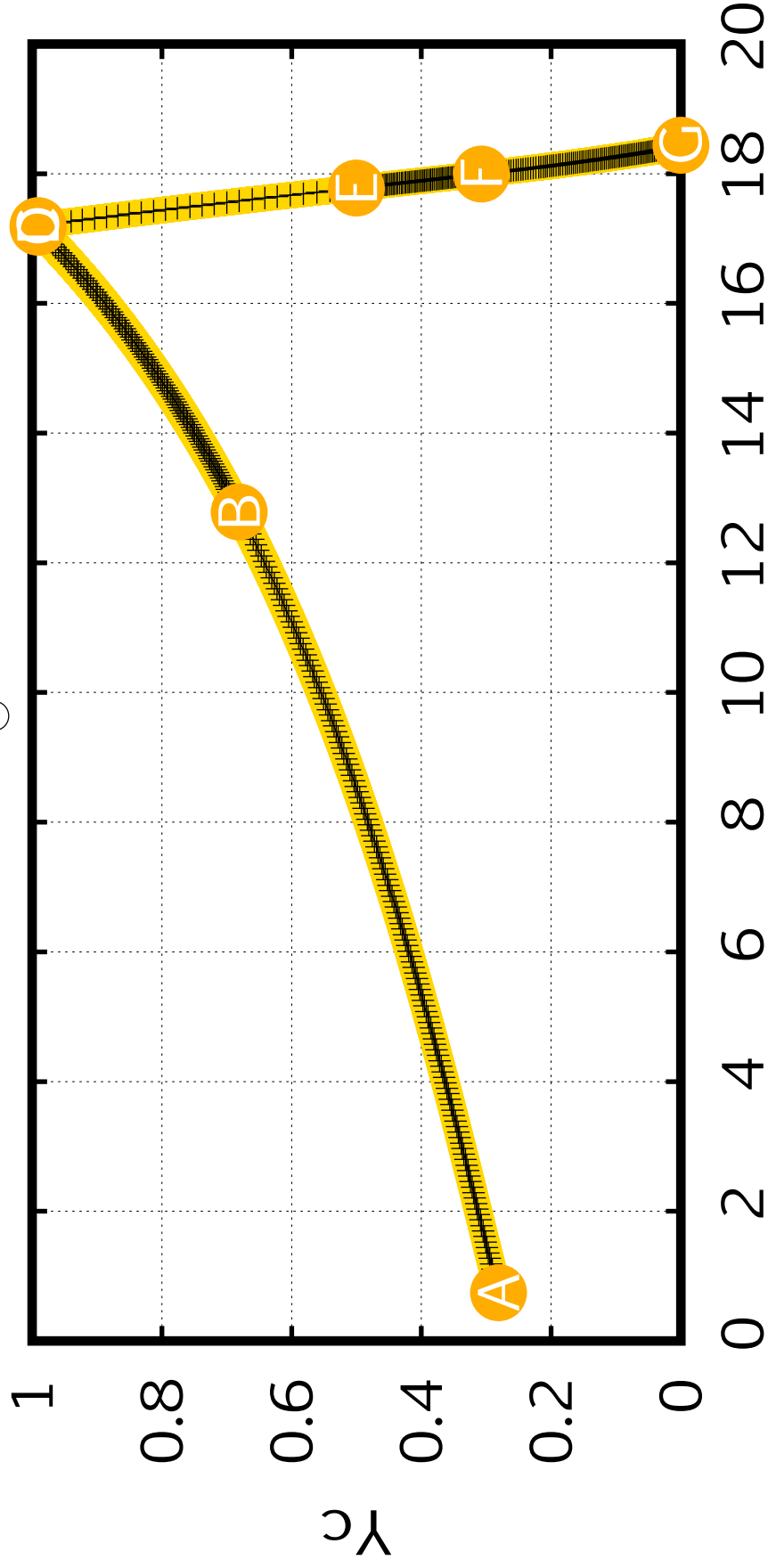
12 M_⊙ MW

log dot M [M_⊙/yr]

Time [Myr]



12 M_⊙ MW



Time [Myr]

12 M_⊙ MW

700

600

line number

500

400

300

200

100

0

BoOST: A

0

B

C

D

E

F

G

151

252

403

429

505

606

MIST: A

202

B

C

D

E

F

G

353

454

605

631

707

Total number of lines
in filtered model: 606 / 808

0

2

4

6

8

10

12

14

16

18

20

Time [Myr]

