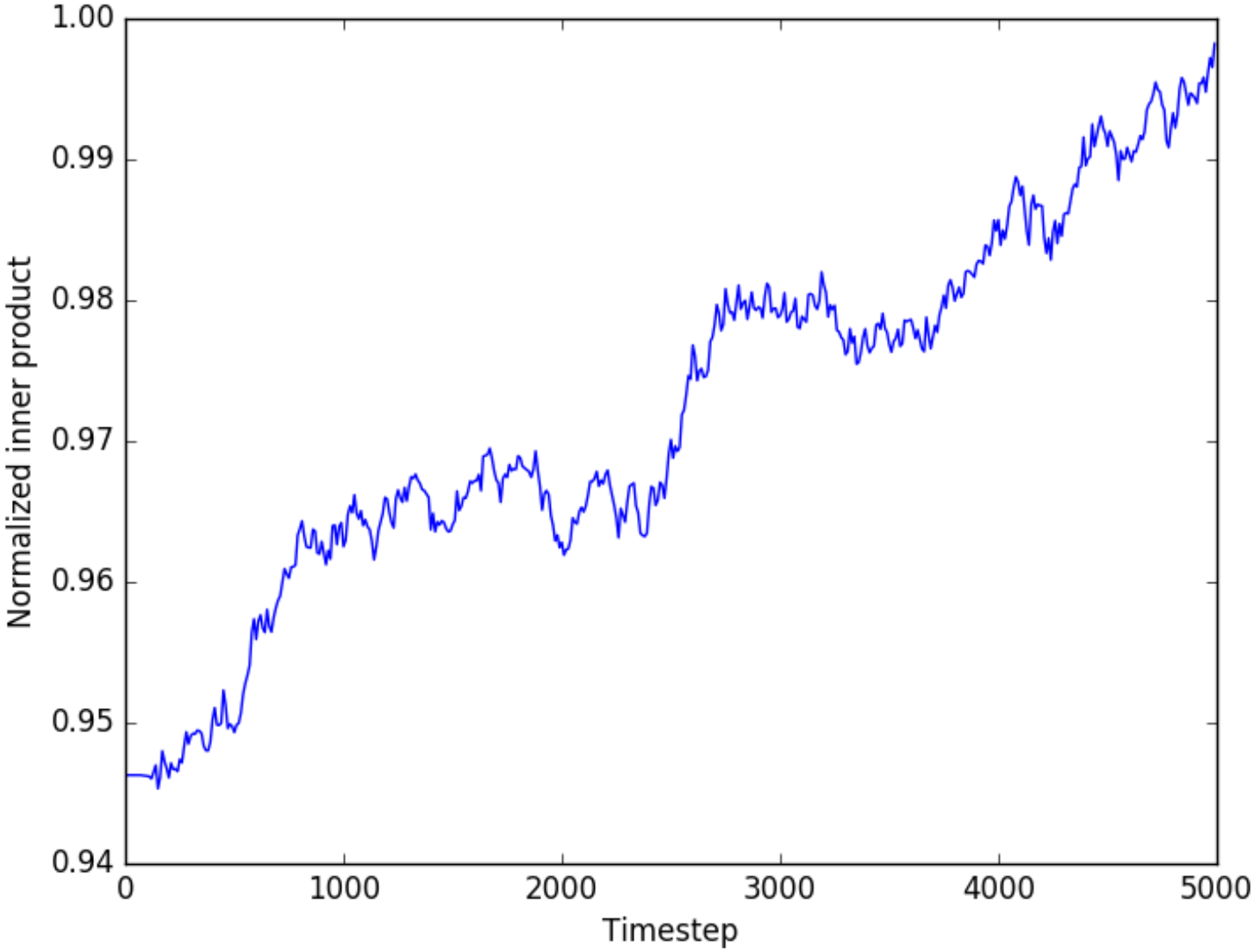
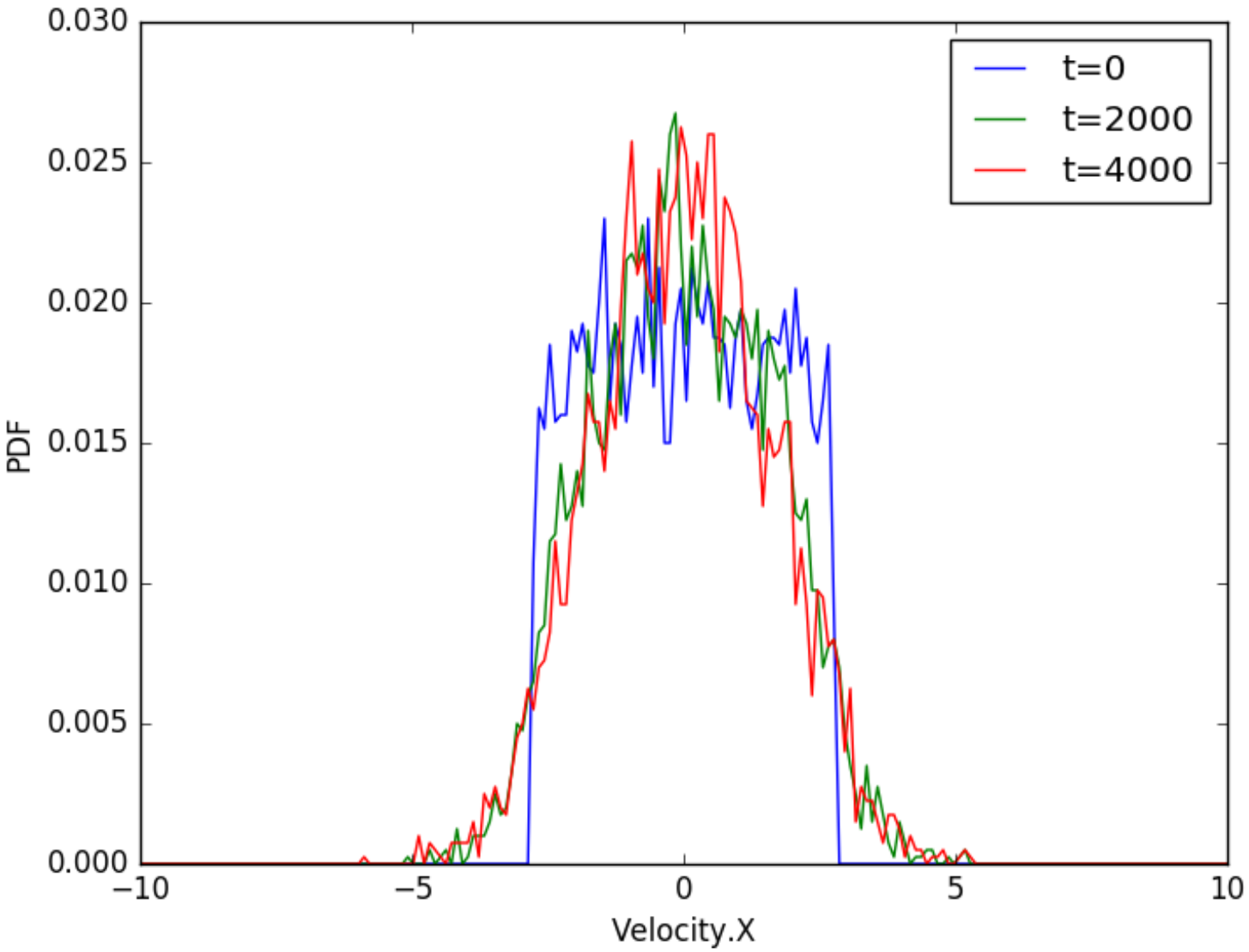
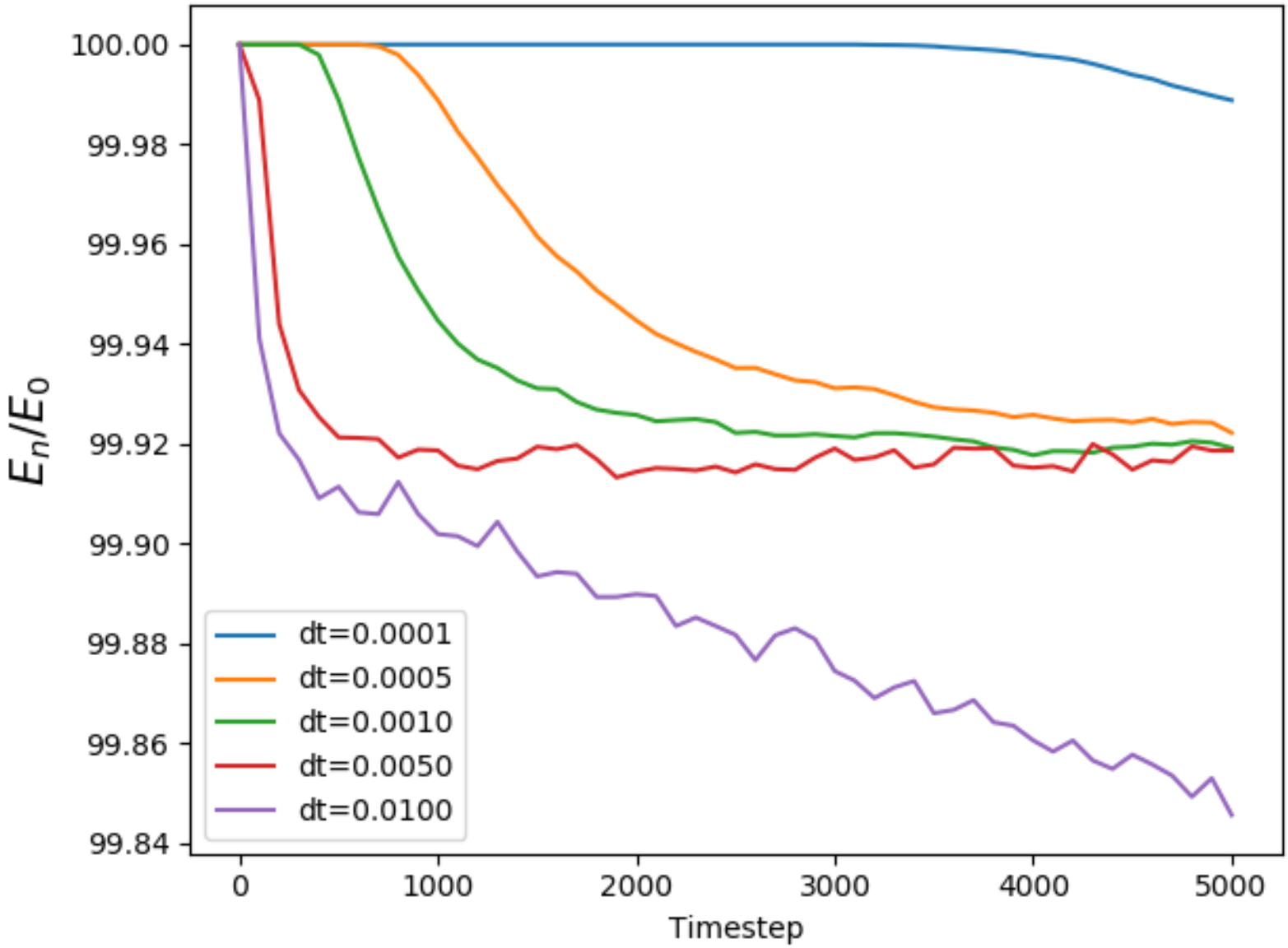
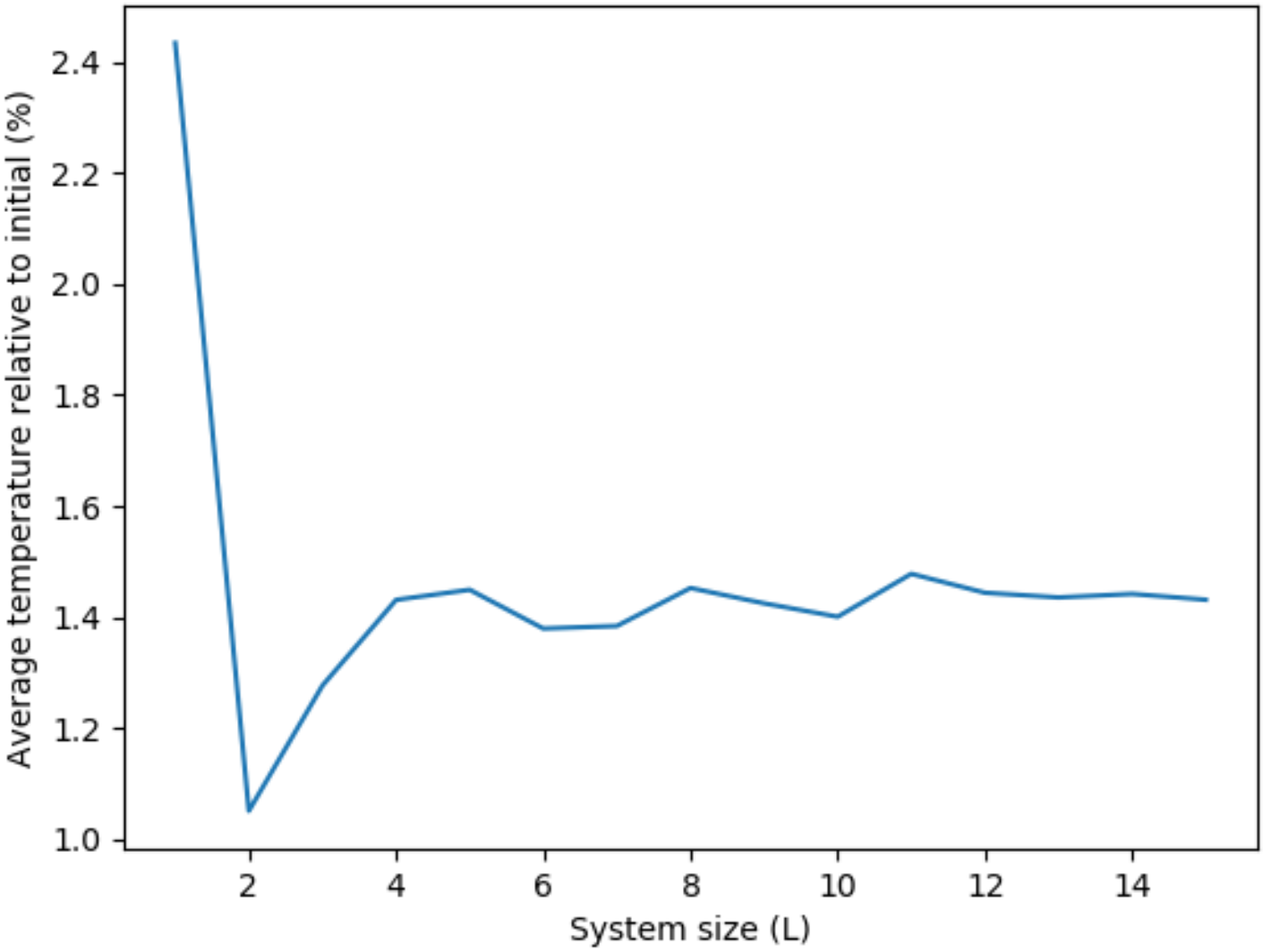
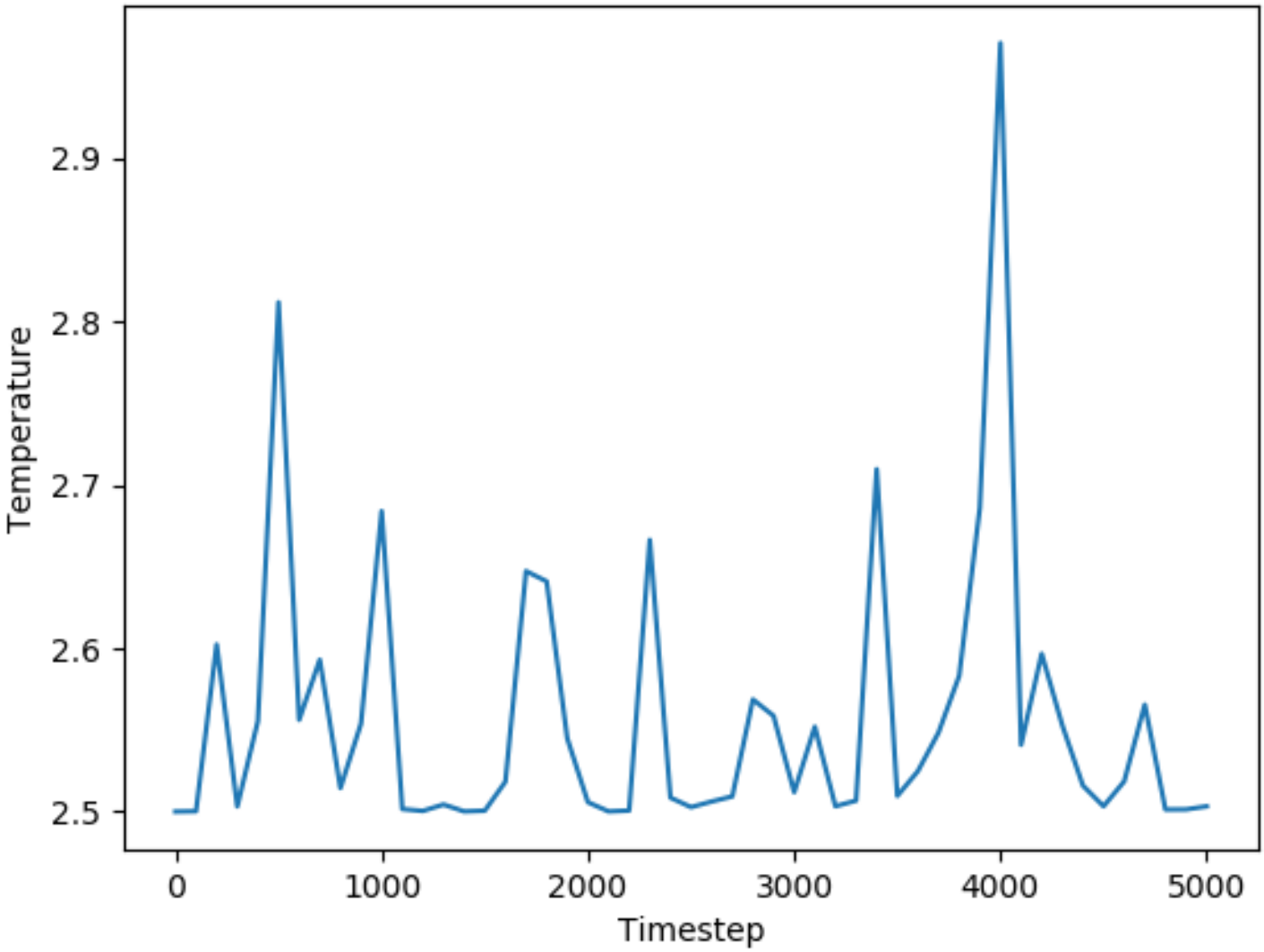
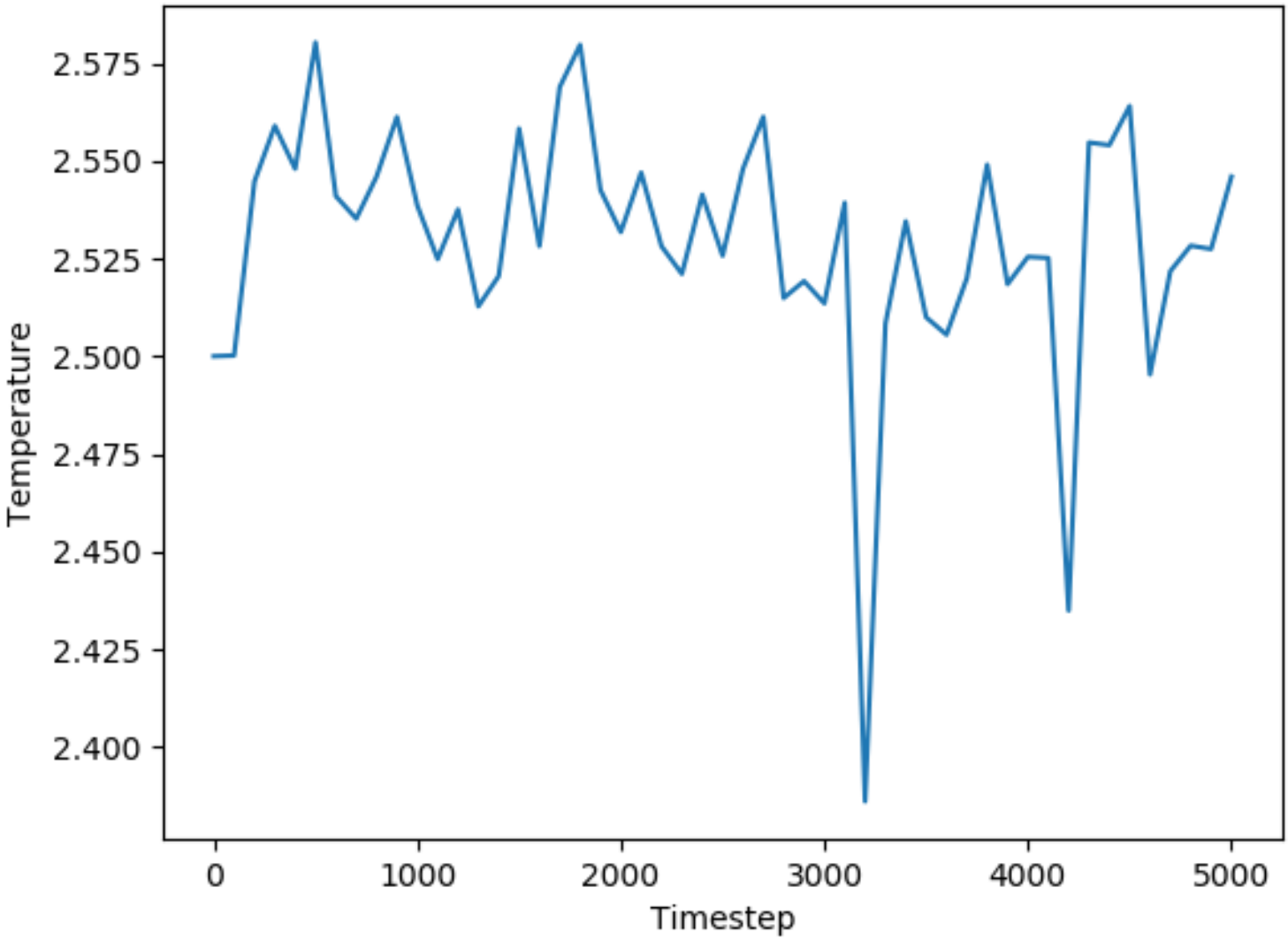

1.00
0.99
0.98
0.97
0.96
0.95
0.94
Normalized inner product
0
1000
2000
3000
4000
5000
Timestep

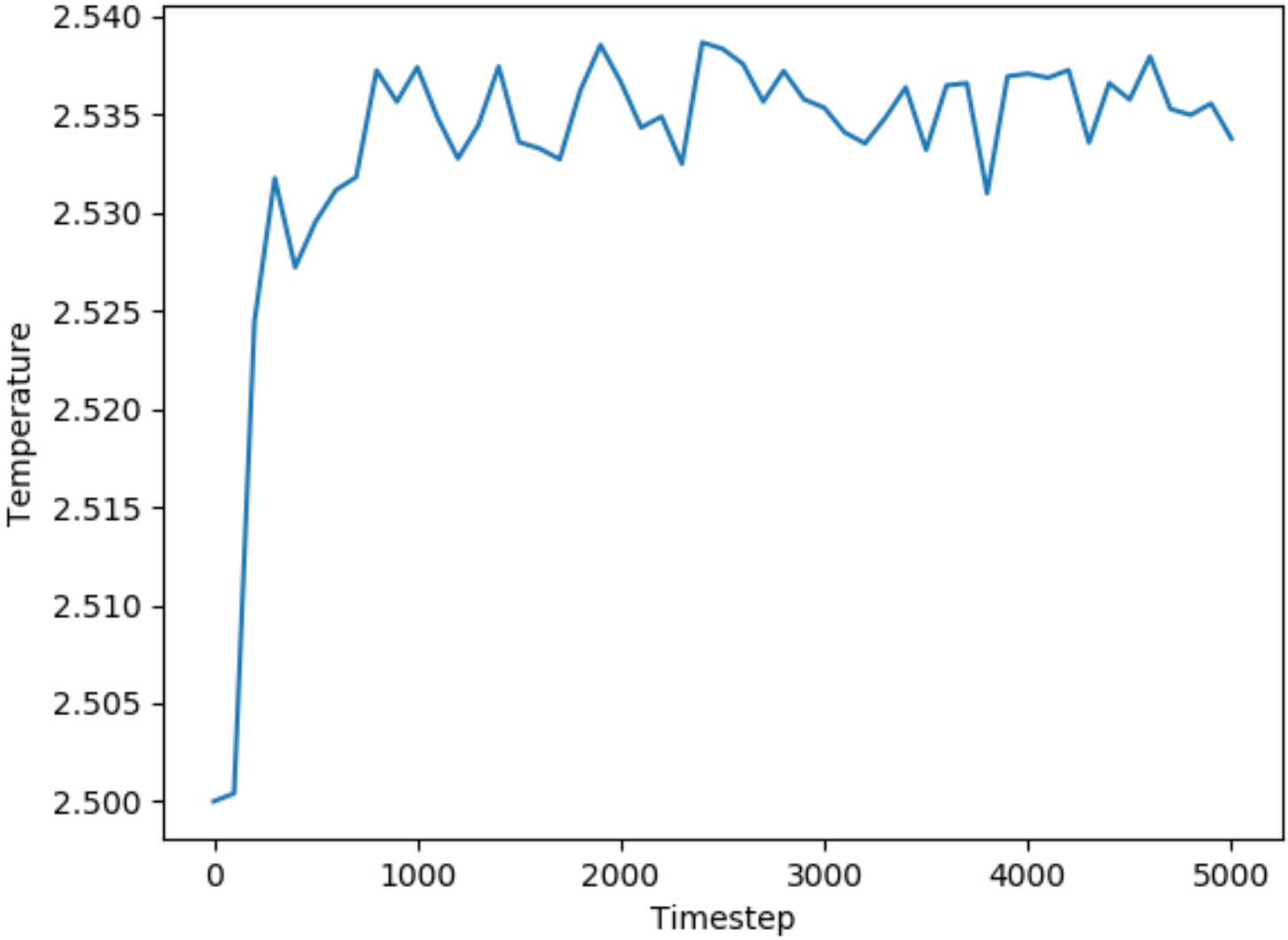

0.030
0.025
0.020
0.015
0.010
0.005
0.000
PDF
−10
−5
0
5
10
Velocity.X
t=0
t=2000
t=4000

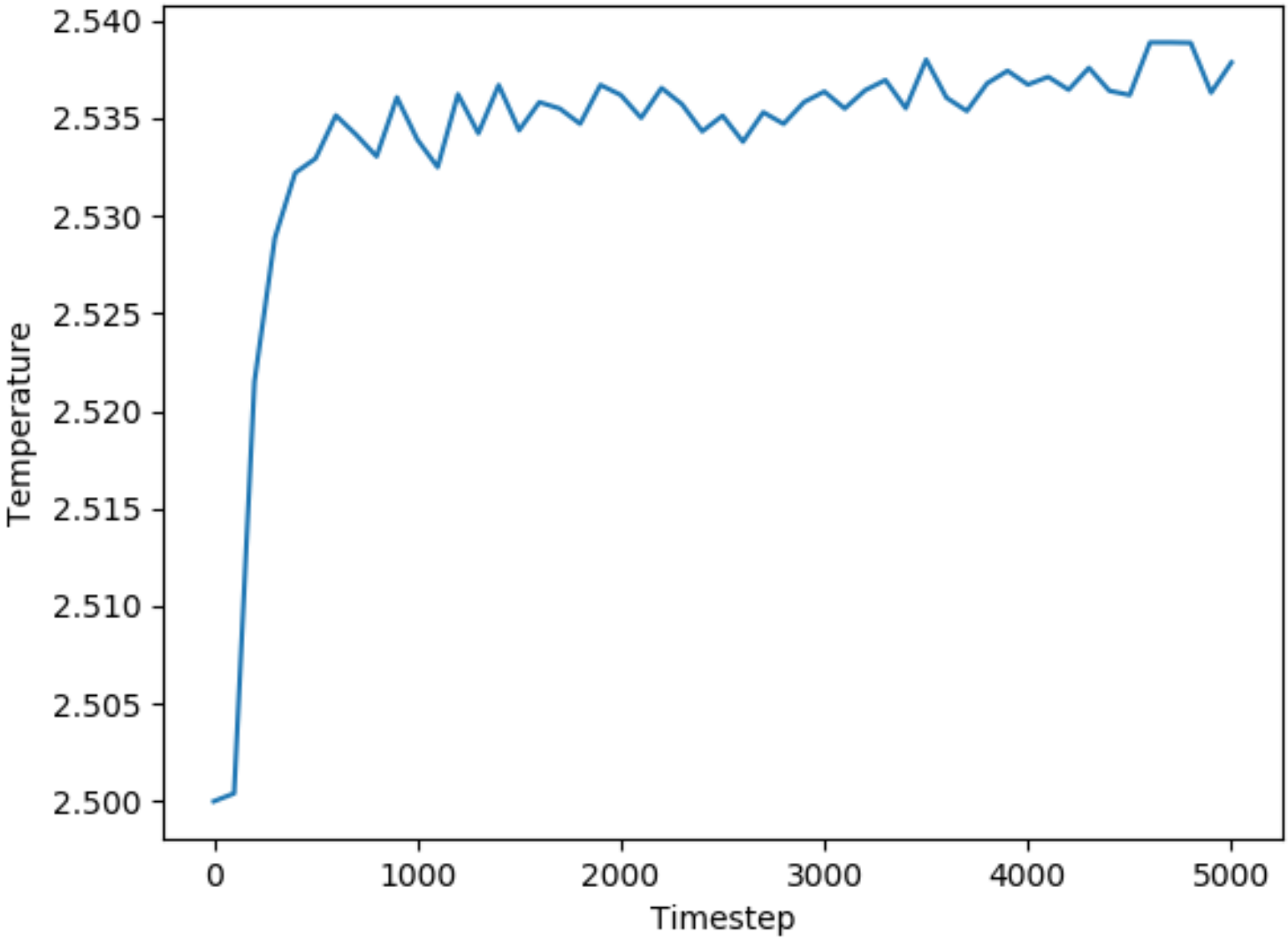

100.00
99.98
99.96
99.94
99.92
99.90
99.88
99.86
99.84
E_n/E_0
0
1000
2000
3000
4000
5000
Timestep
dt=0.0001
dt=0.0005
dt=0.0010
dt=0.0050
dt=0.0100

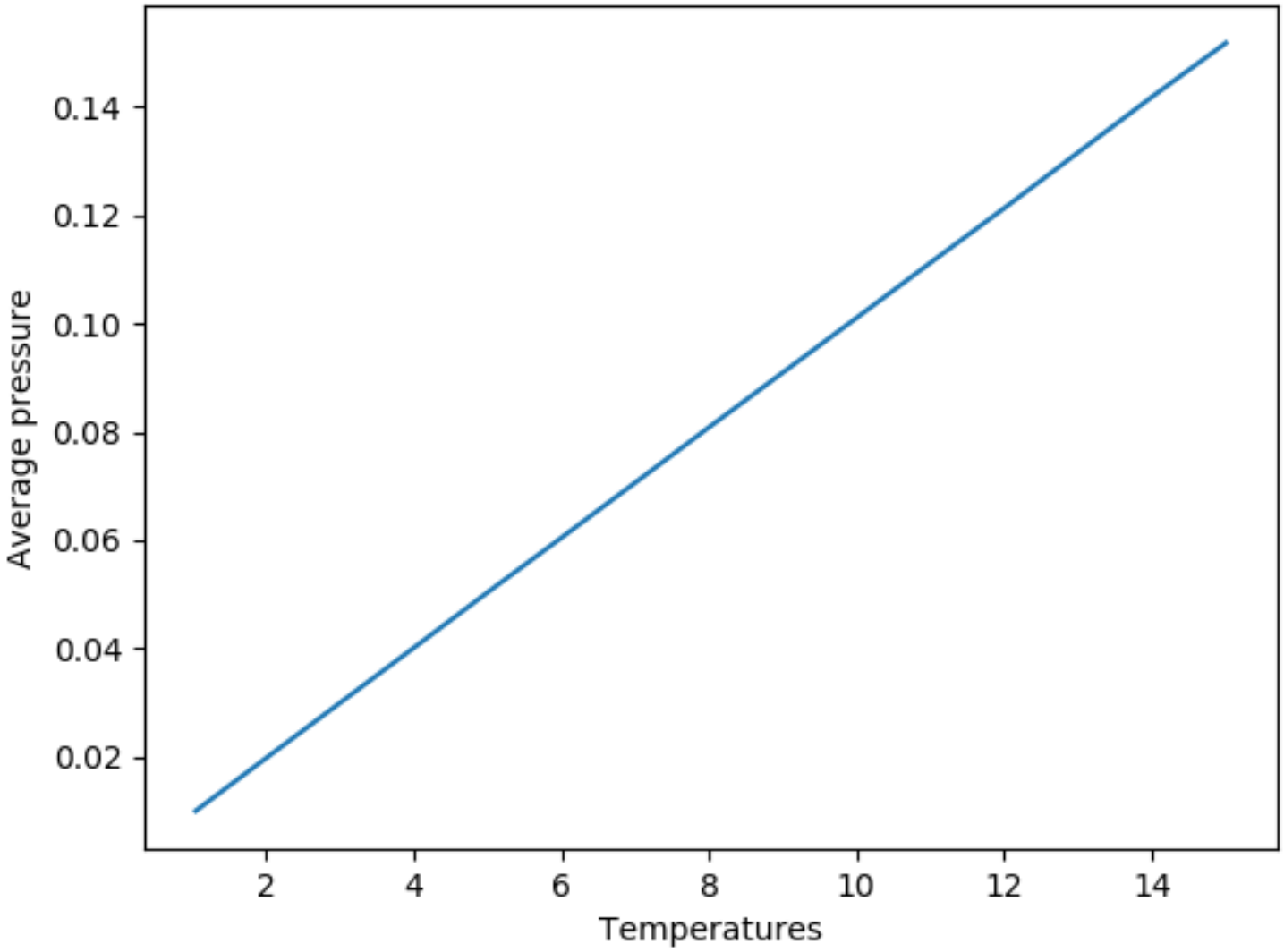

Average temperature relative to initial (%)
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
2
4
6
8
10
12
14
System size (L)

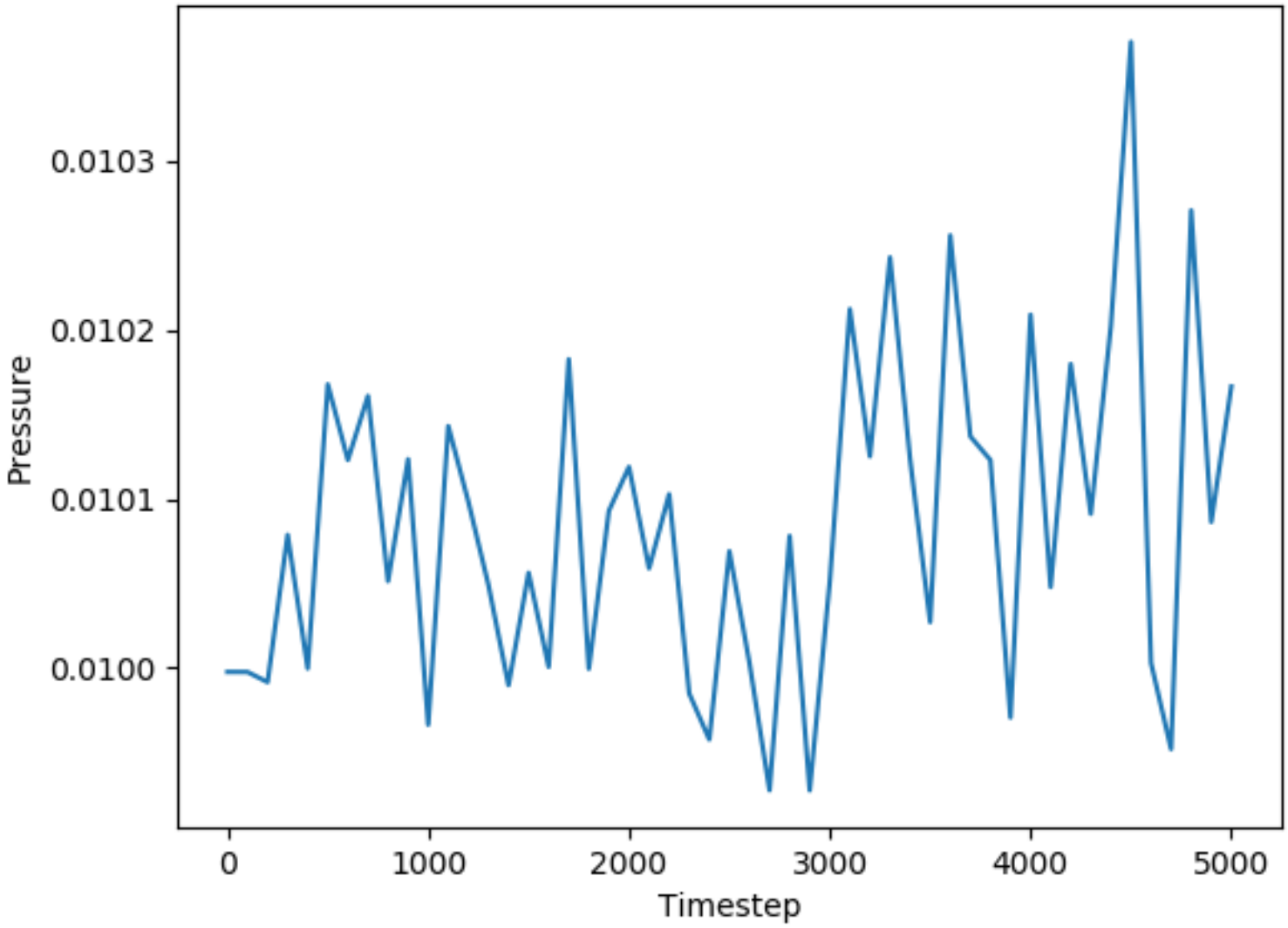

Temperature
2.9
2.8
2.7
2.6
2.5
0
1000
2000
3000
4000
5000
Timestep

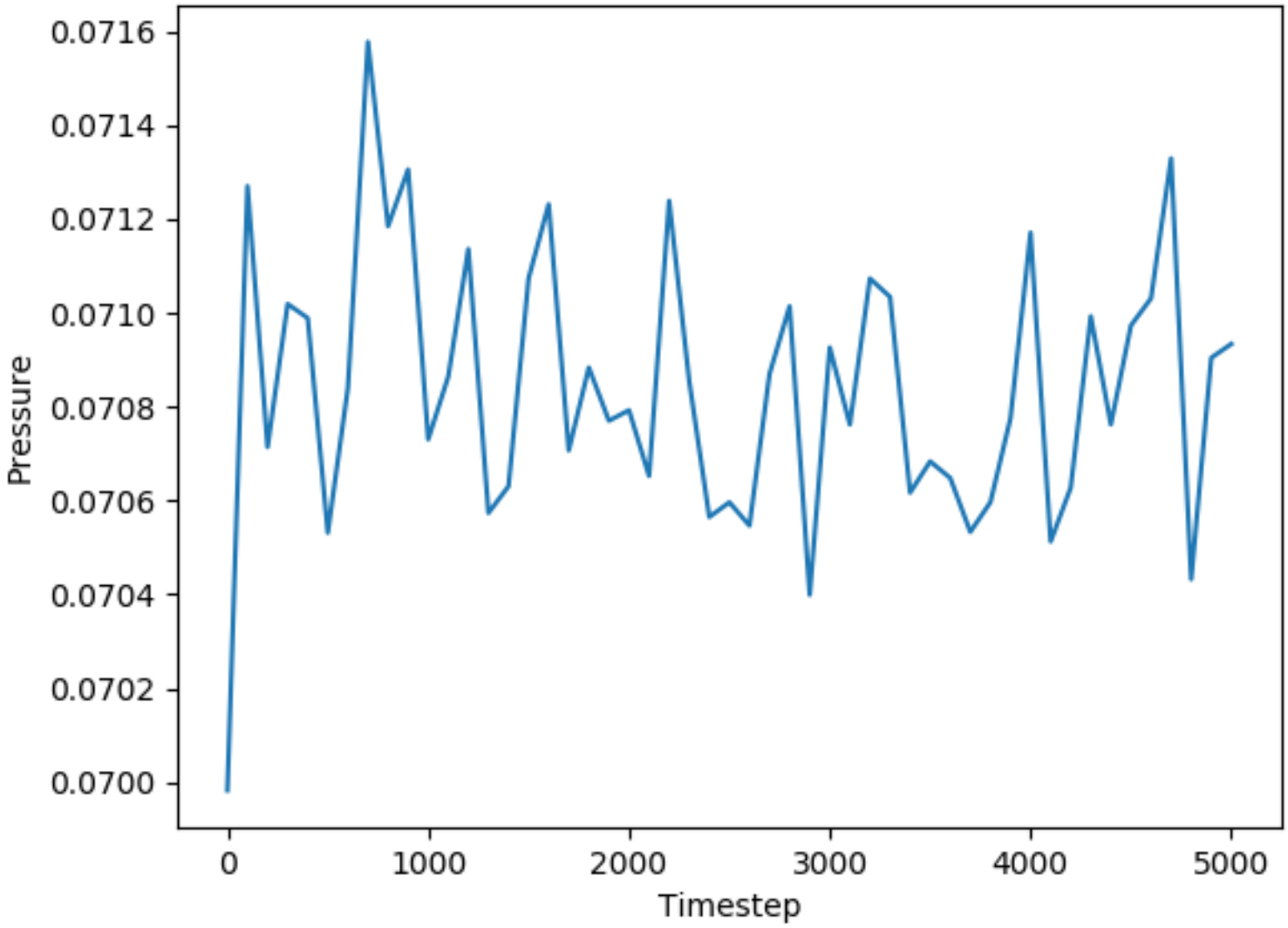

2.575
2.550
2.525
2.500
2.475
2.450
2.425
2.400
Temperature
0
1000
2000
3000
4000
5000
Timestep

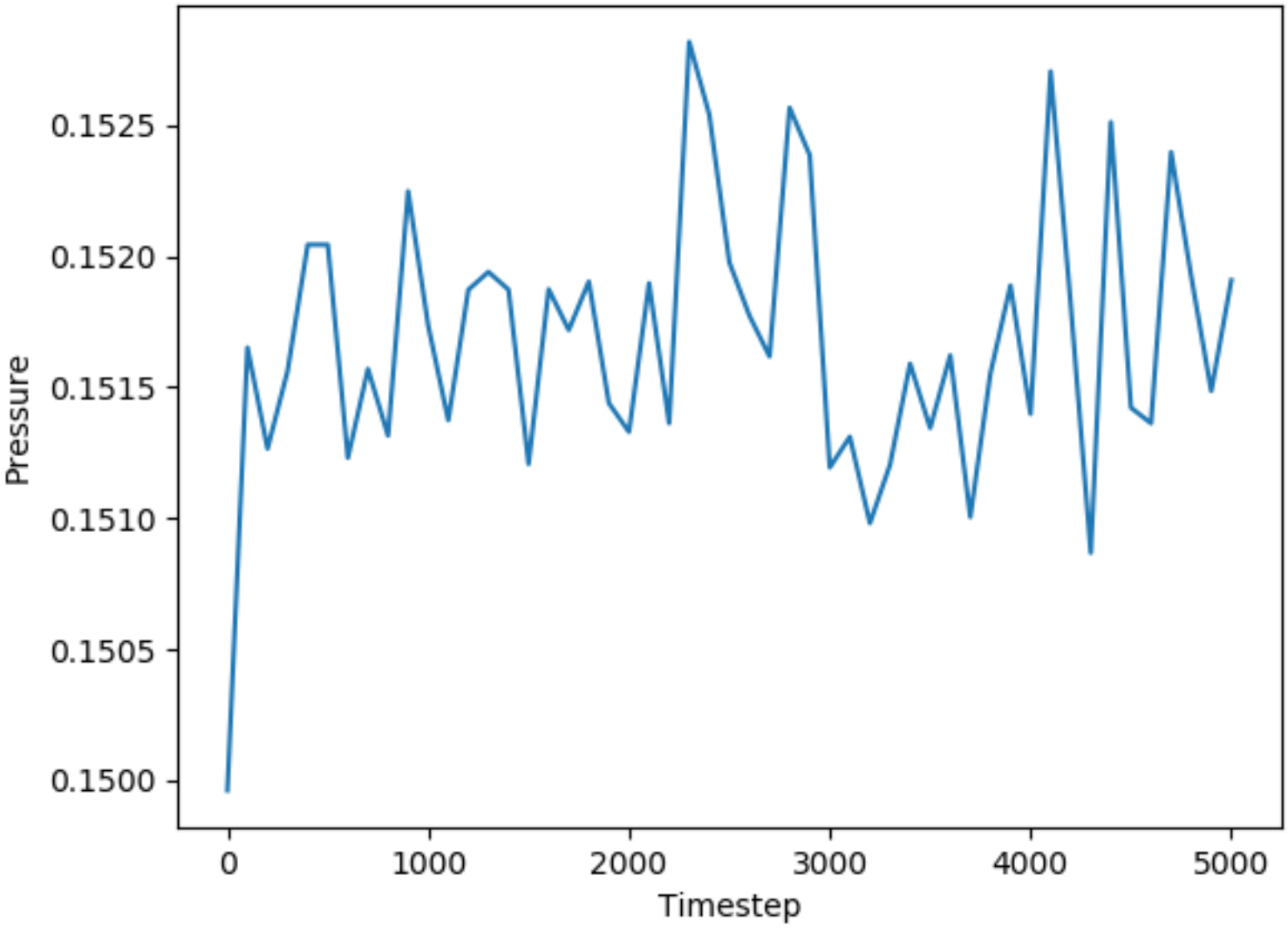

2.540
2.535
2.530
2.525
2.520
2.515
2.510
2.505
2.500
Temperature
0
1000
2000
3000
4000
5000
Timestep

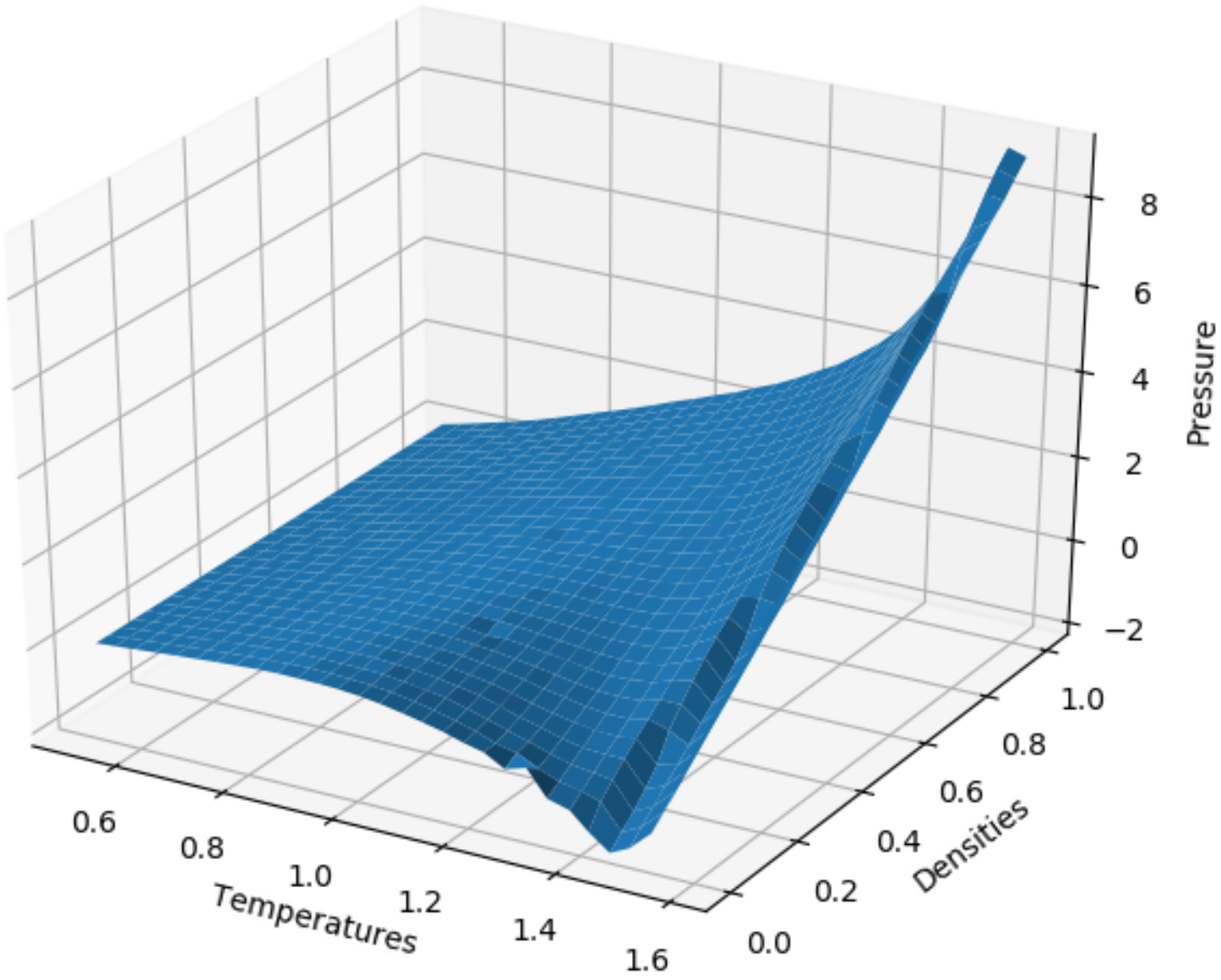

2.540
2.535
2.530
2.525
2.520
2.515
2.510
2.505
2.500
Temperature
0
1000
2000
3000
4000
5000
Timestep

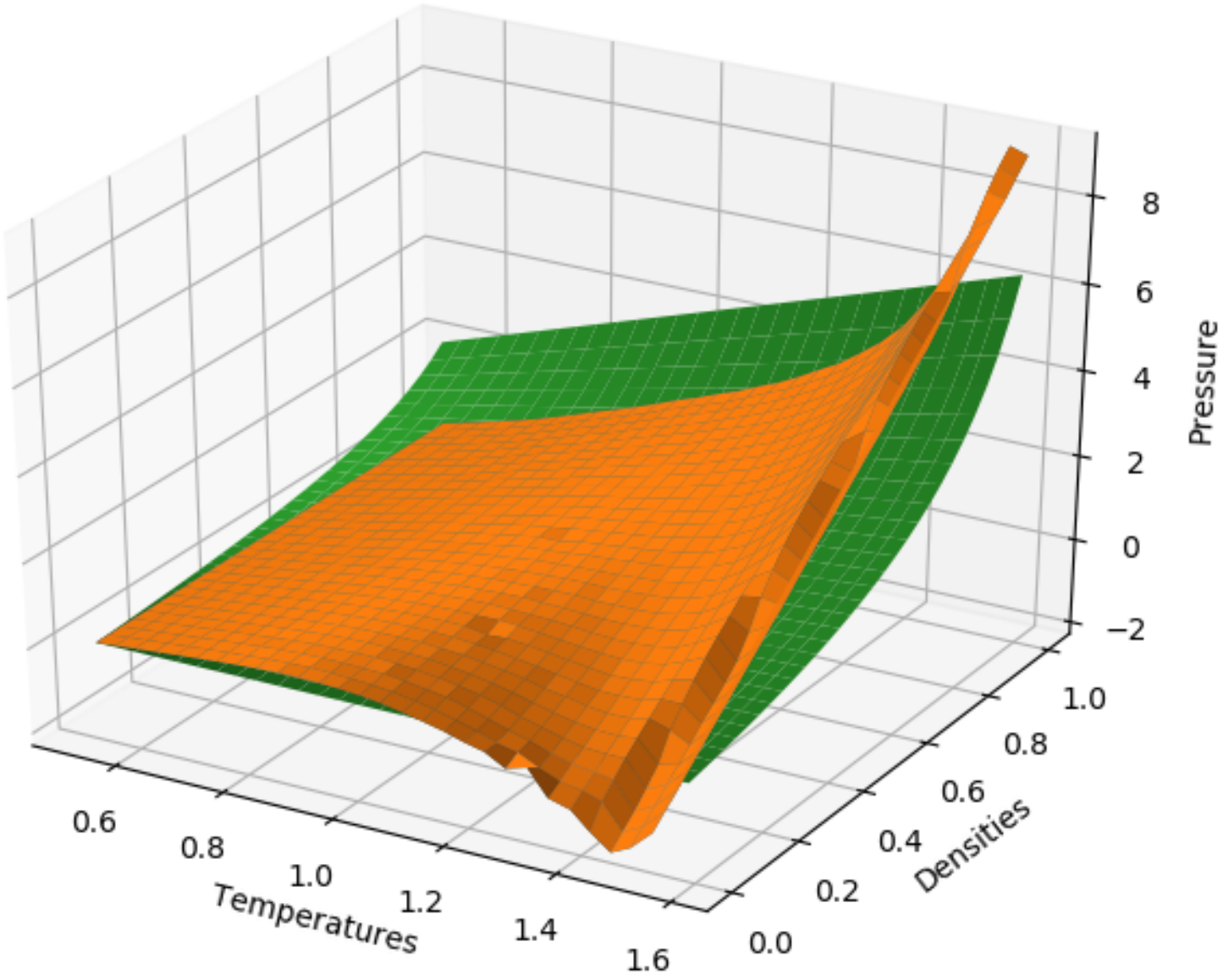

0.14
0.12
0.10
0.08
0.06
0.04
0.02
Average pressure
2
4
6
8
10
12
14
Temperatures

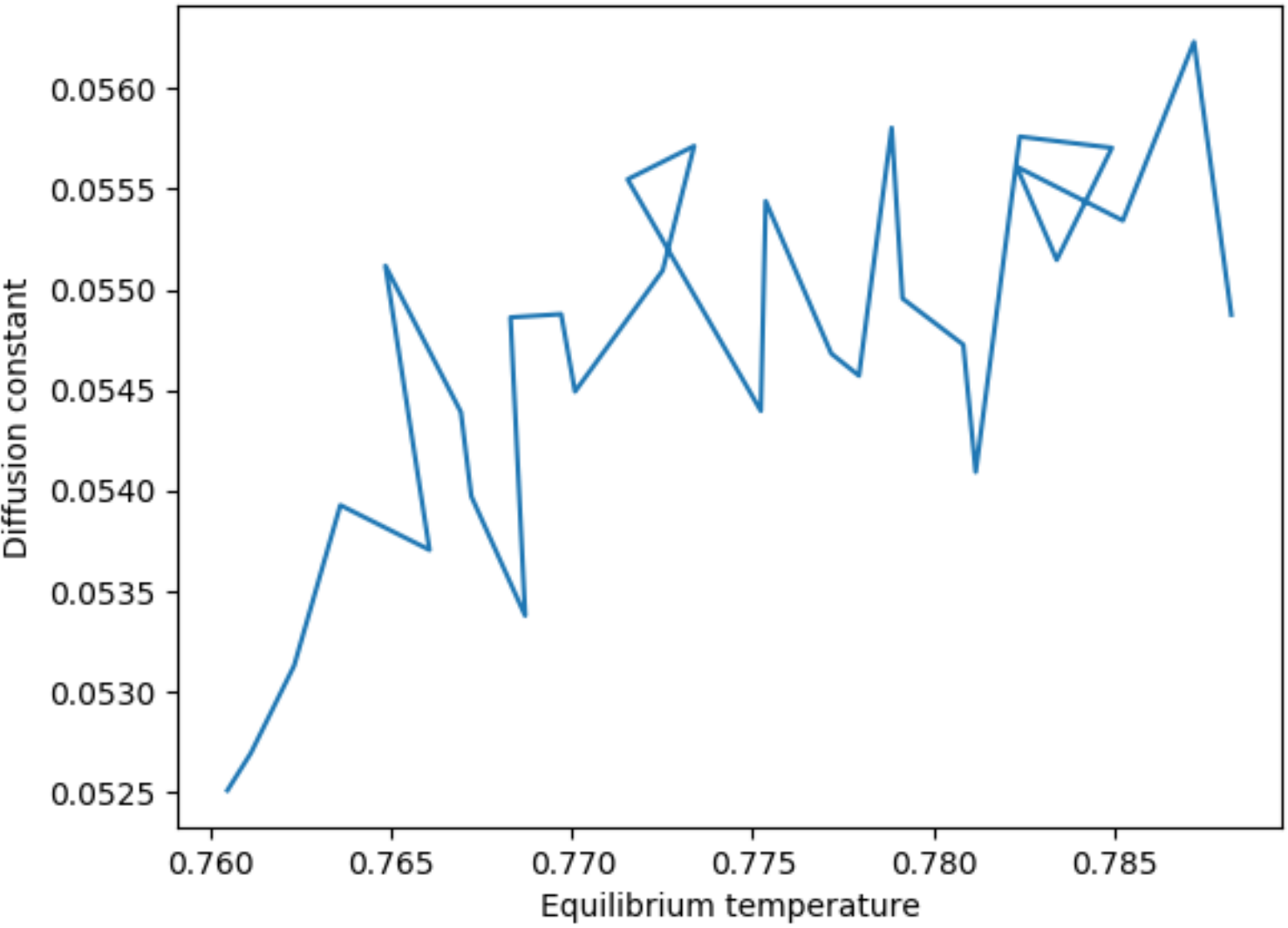

0.0103
0.0102
0.0101
0.0100
Pressure
0
1000
2000
3000
4000
5000
Timestep

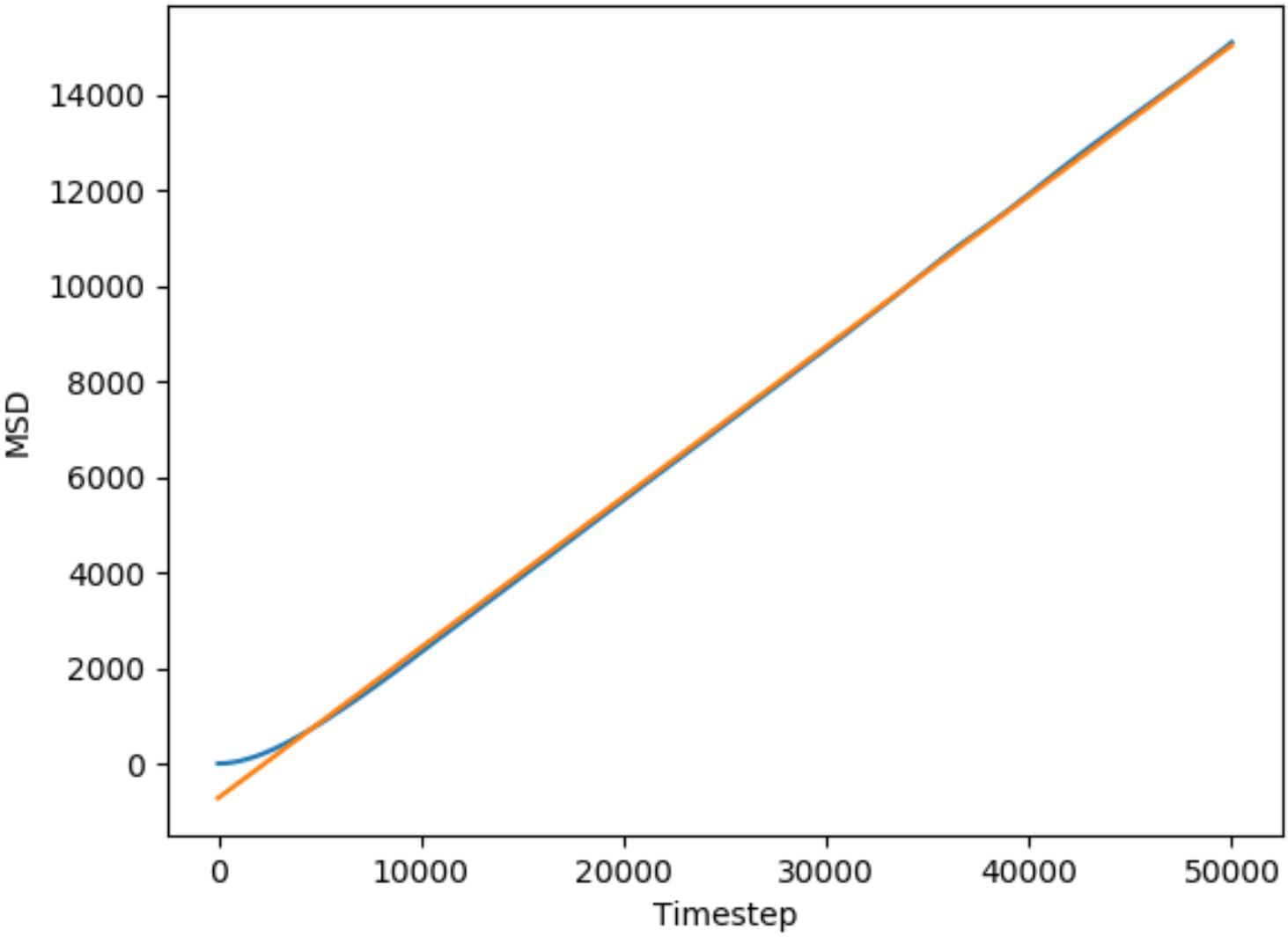

0.0716
0.0714
0.0712
0.0710
0.0708
0.0706
0.0704
0.0702
0.0700
Pressure
0
1000
2000
3000
4000
5000
Timestep

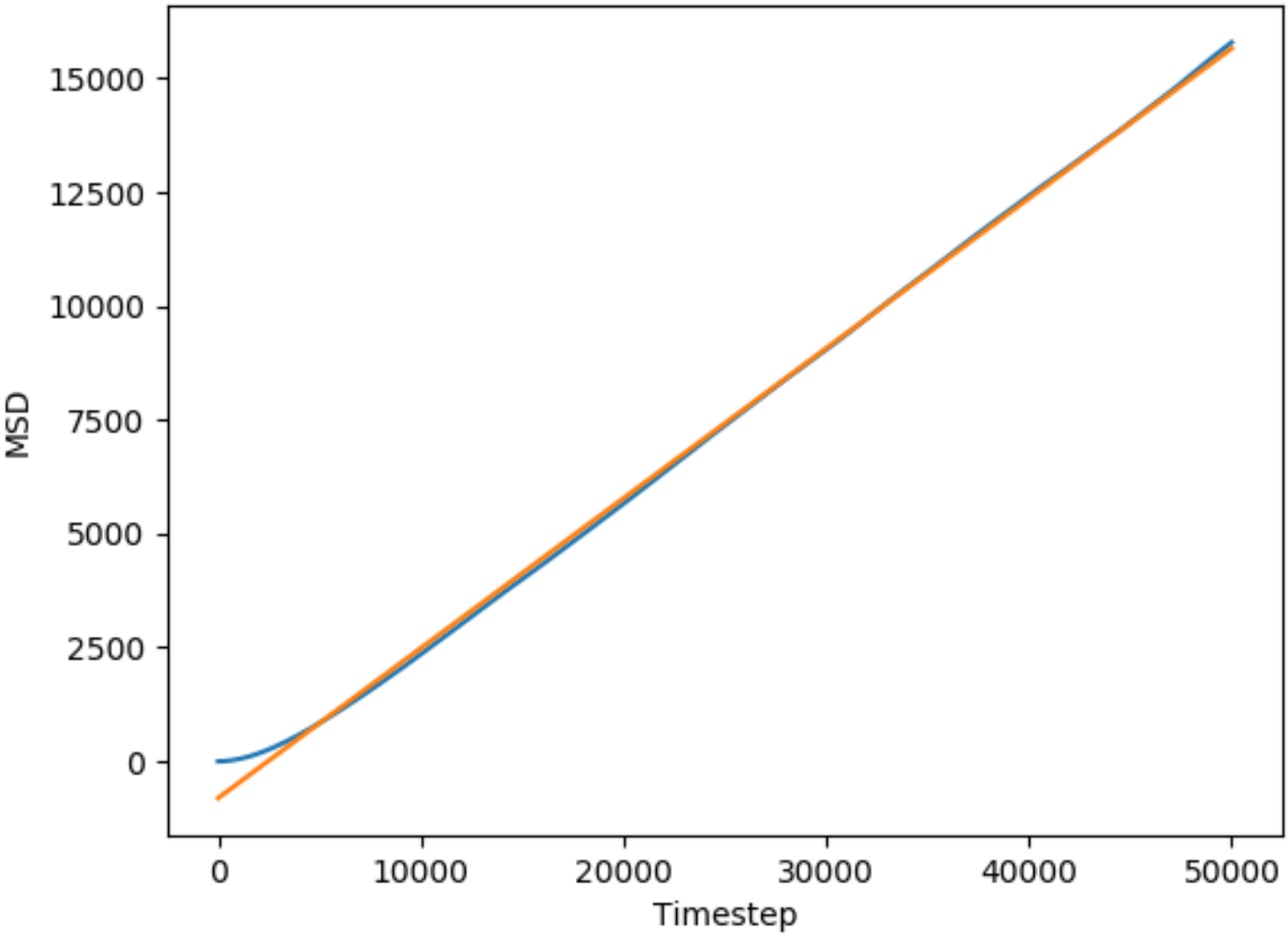

0.1525
0.1520
0.1515
0.1510
0.1505
0.1500
Pressure
0
1000
2000
3000
4000
5000
Timestep

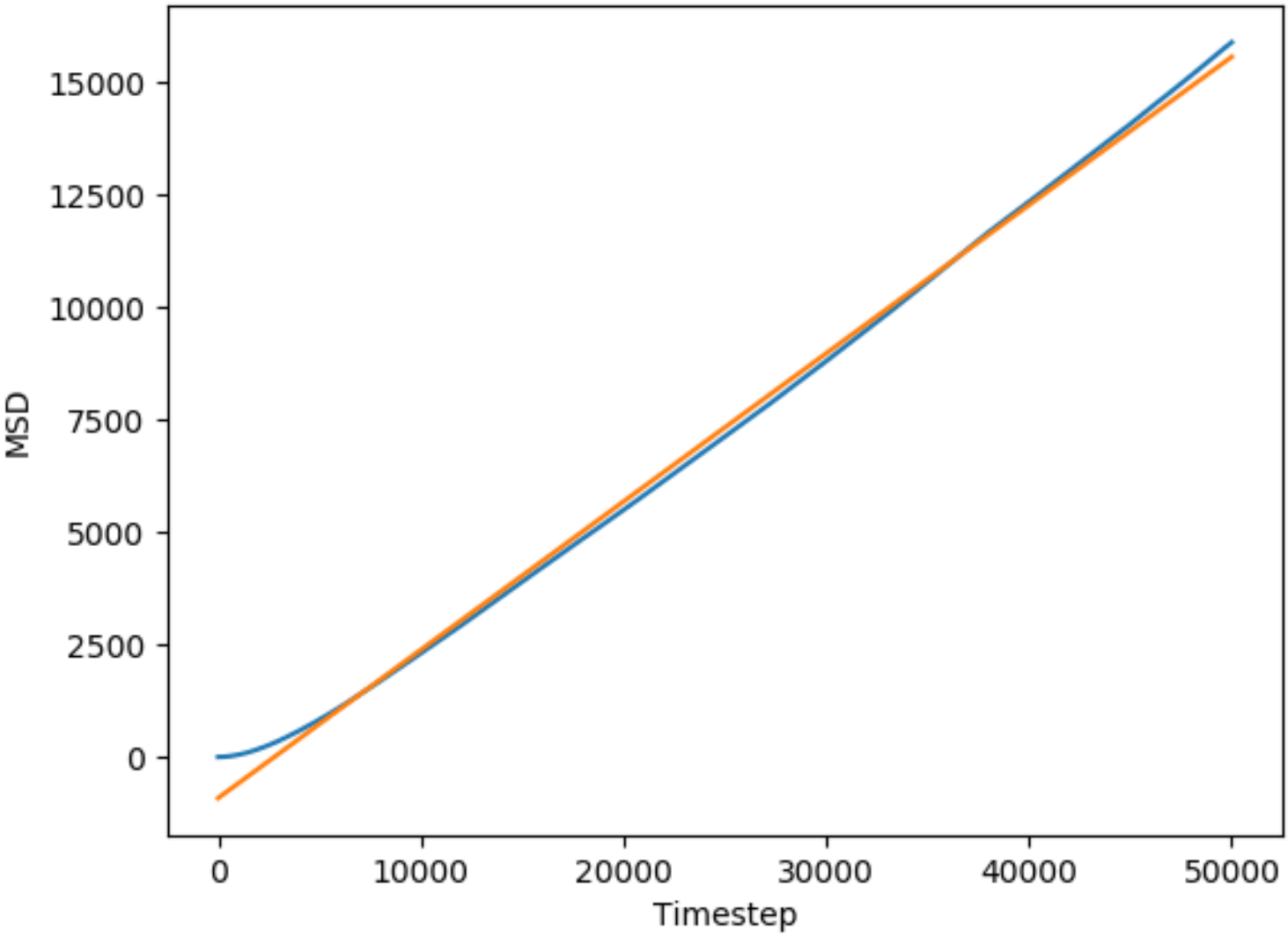

Pressure
8
6
4
2
0
−2
Densities
0.0
0.2
0.4
0.6
0.8
1.0
Temperatures
0.6
0.8
1.0
1.2
1.4
1.6

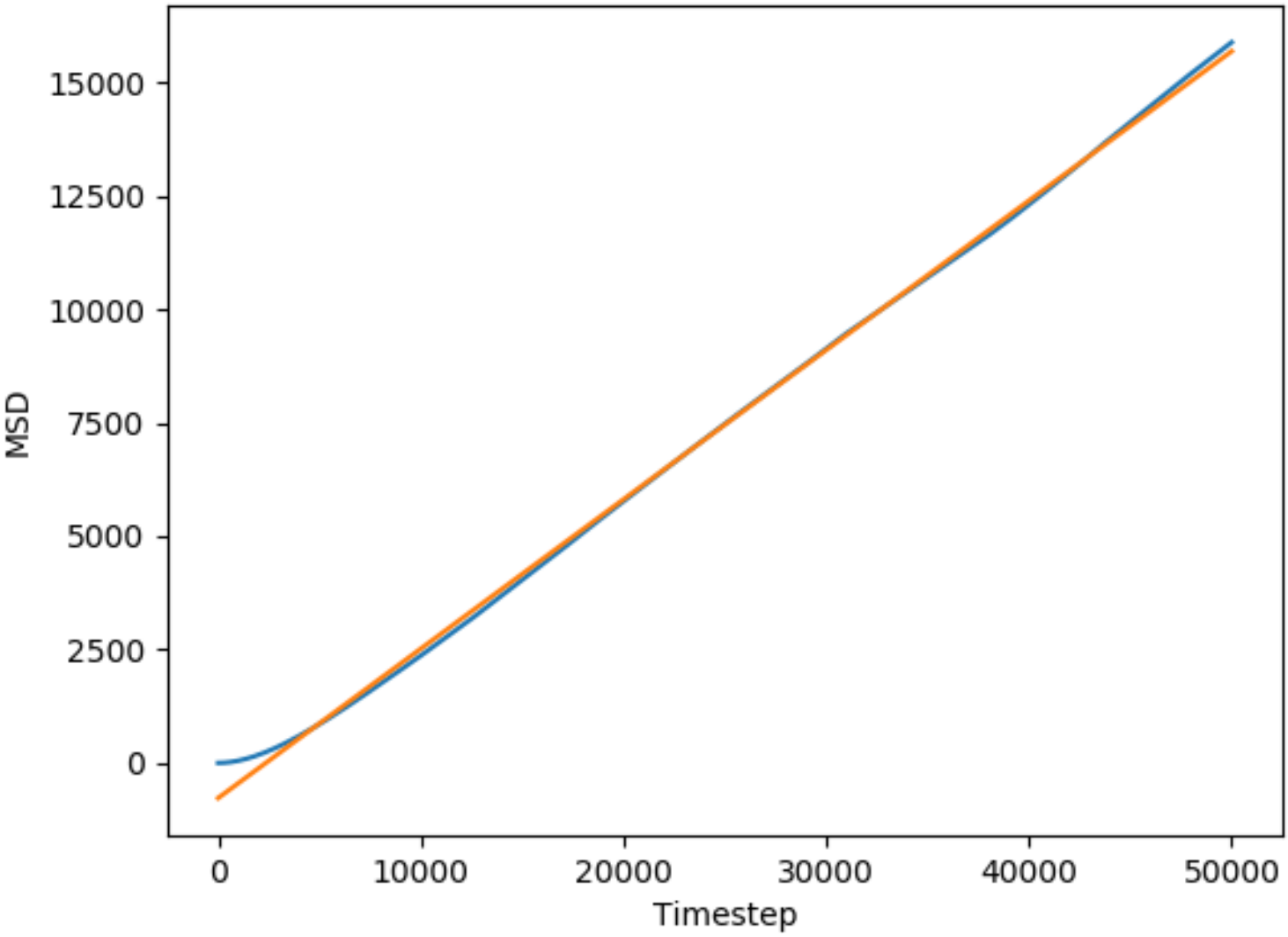

Pressure
8
6
4
2
0
−2
Densities
0.0
0.2
0.4
0.6
0.8
1.0
Temperatures
0.6
0.8
1.0
1.2
1.4
1.6

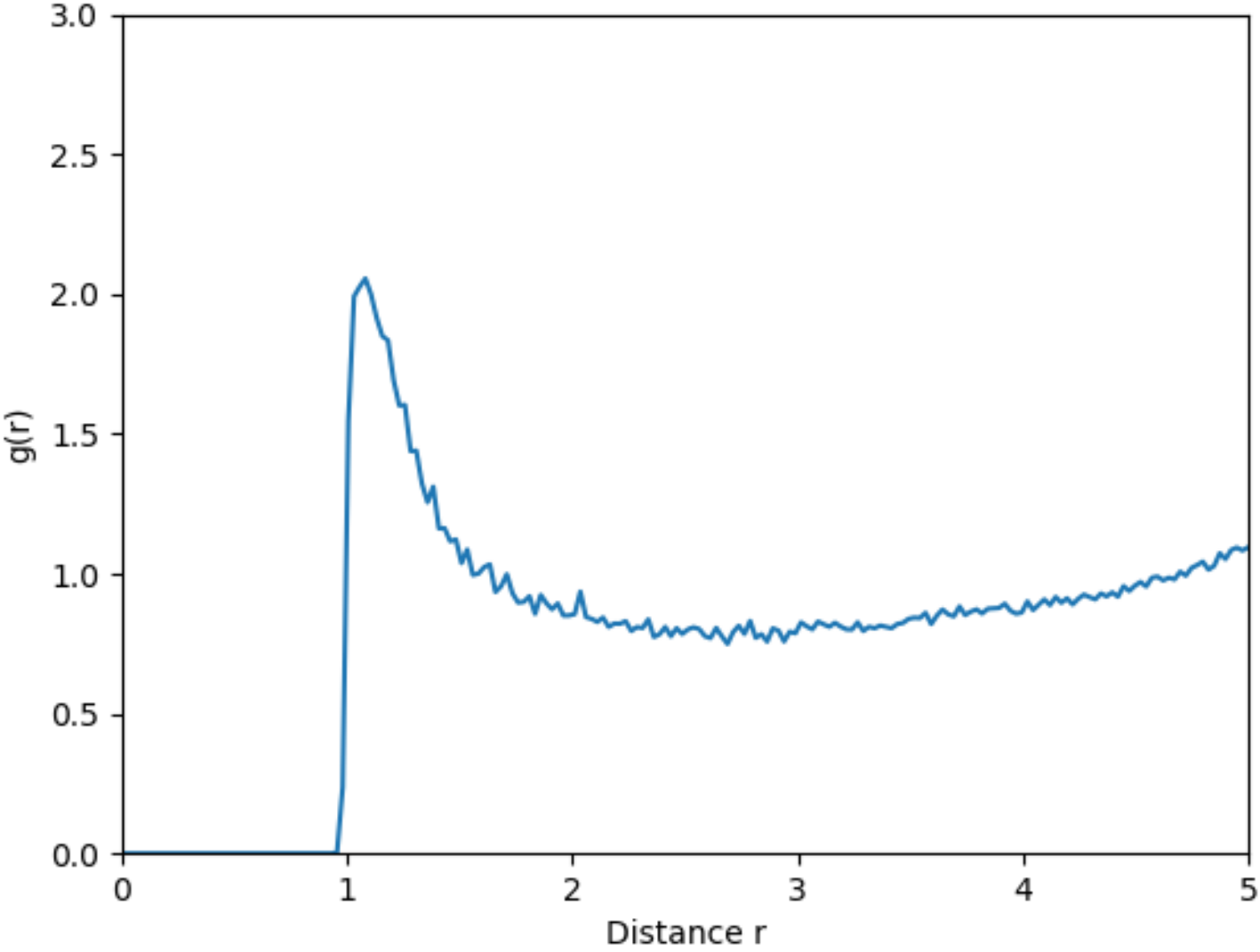

0.0560
0.0555
0.0550
0.0545
0.0540
0.0535
0.0530
0.0525
Diffusion constant
0.760
0.765
0.770
0.775
0.780
0.785
Equilibrium temperature

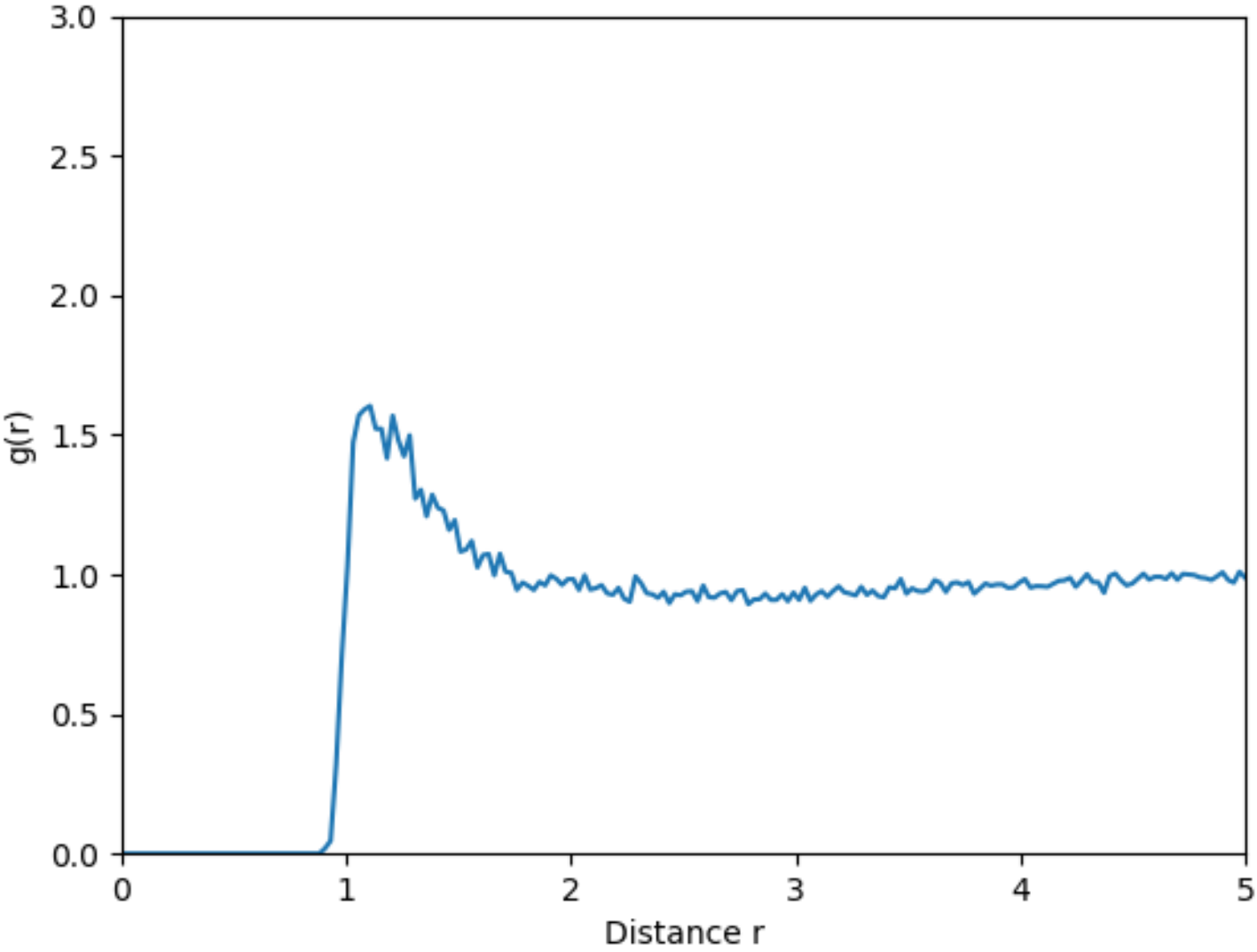

14000
12000
10000
8000
6000
4000
2000
0
MSD
0
10000
20000
30000
40000
50000
Timestep

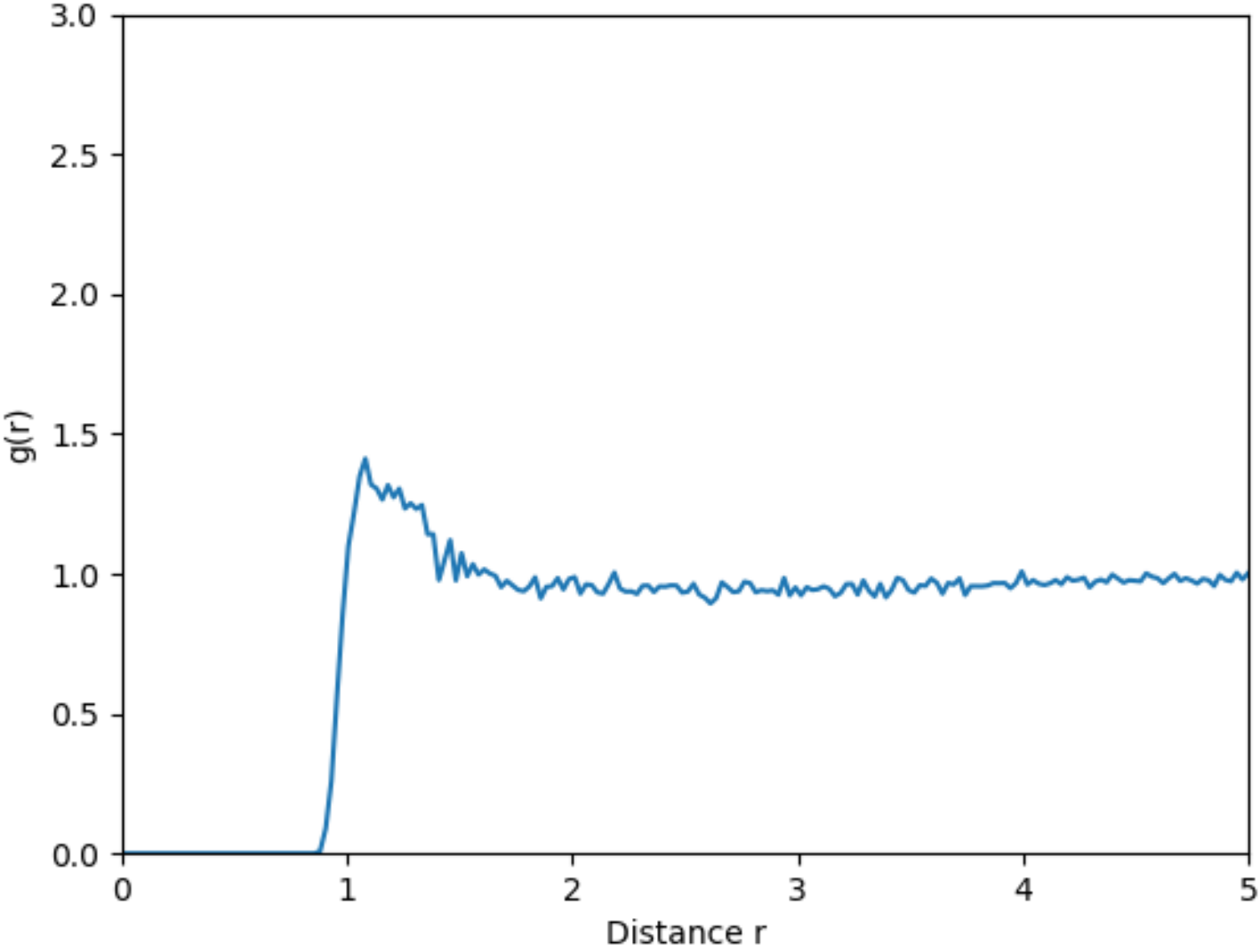

15000
12500
10000
7500
5000
2500
0
MSD
0
10000
20000
30000
40000
50000
Timestep

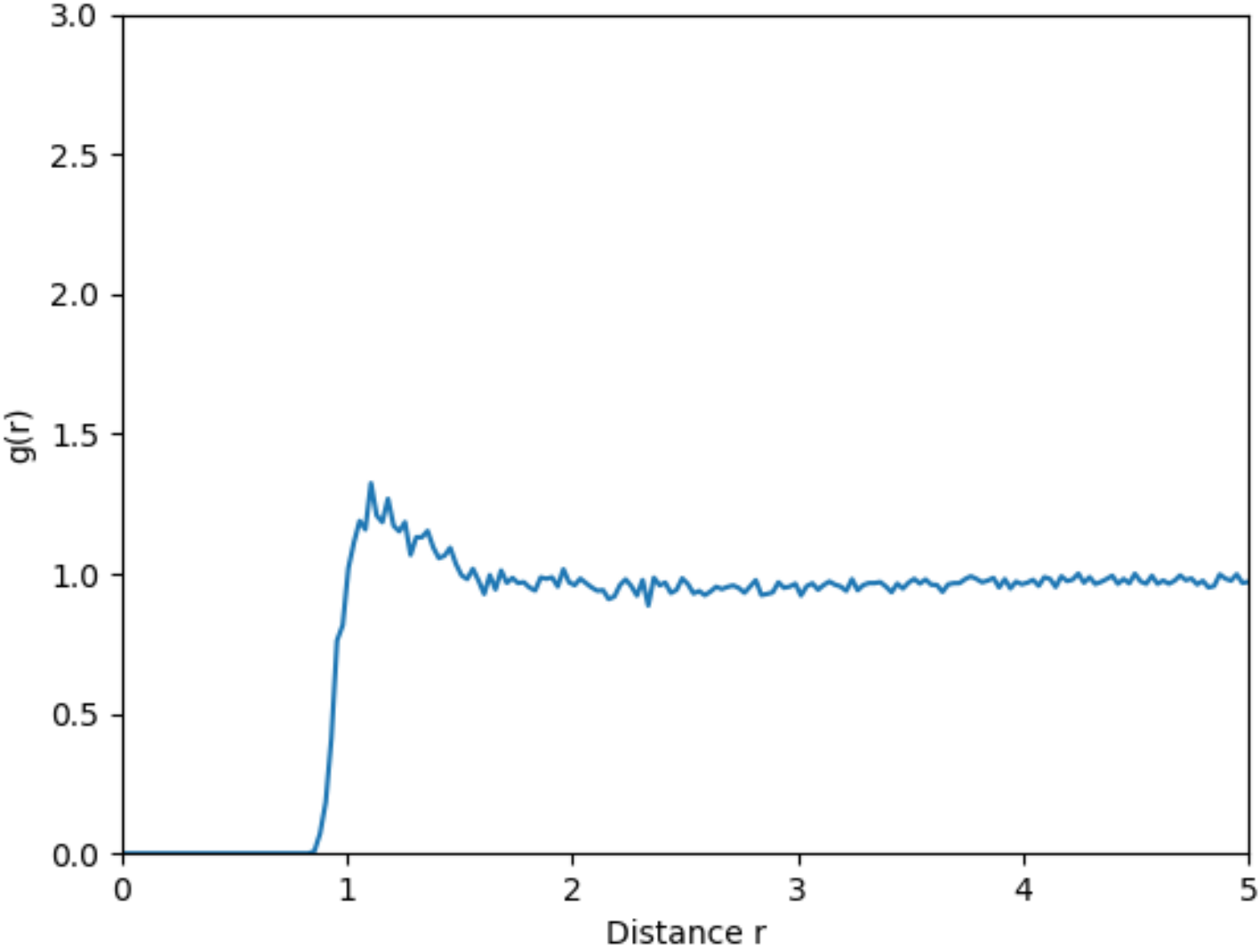

15000
12500
10000
7500
5000
2500
0
MSD
0
10000
20000
30000
40000
50000
Timestep

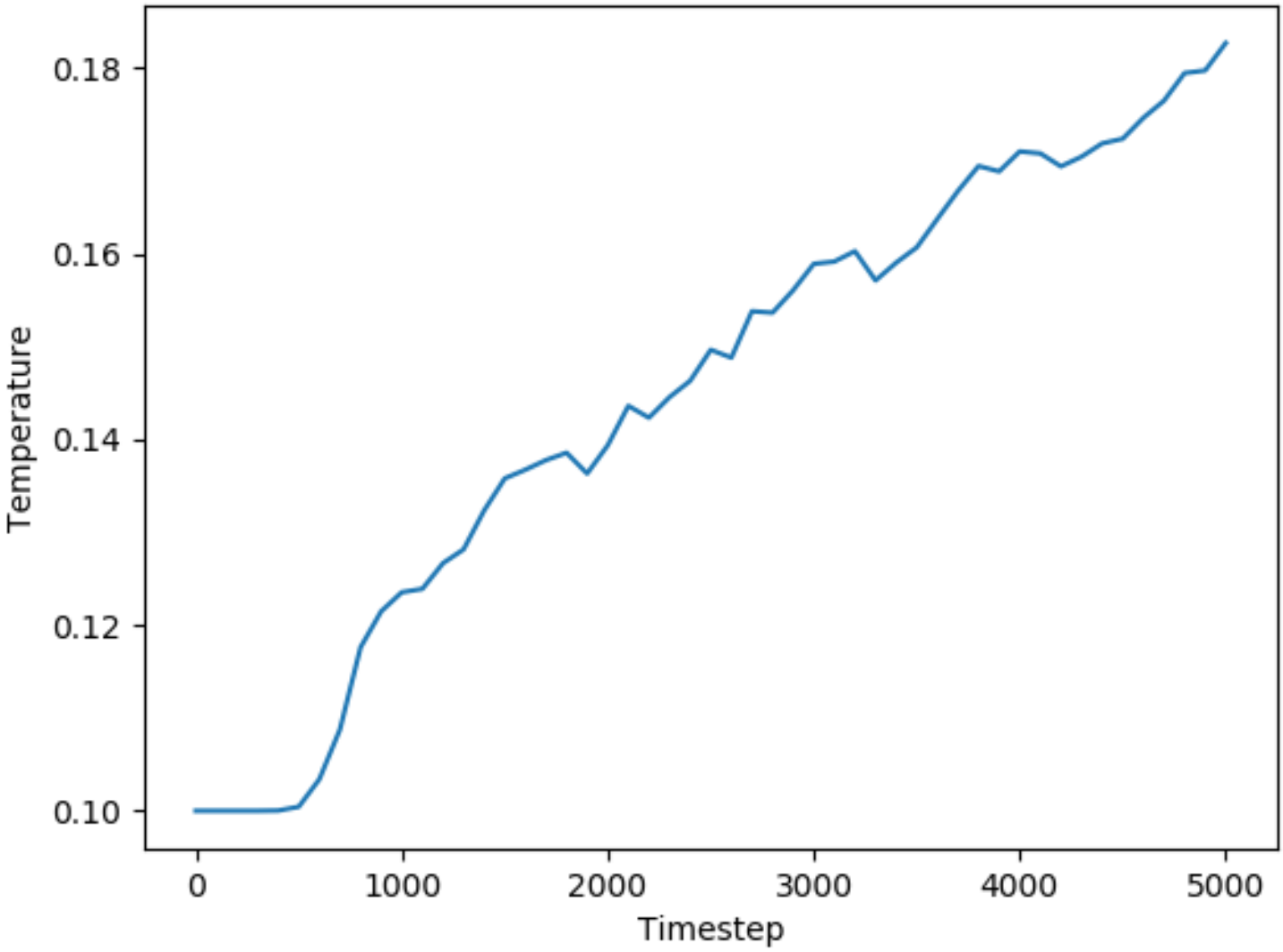

15000
12500
10000
7500
5000
2500
0
MSD
0
10000
20000
30000
40000
50000
Timestep

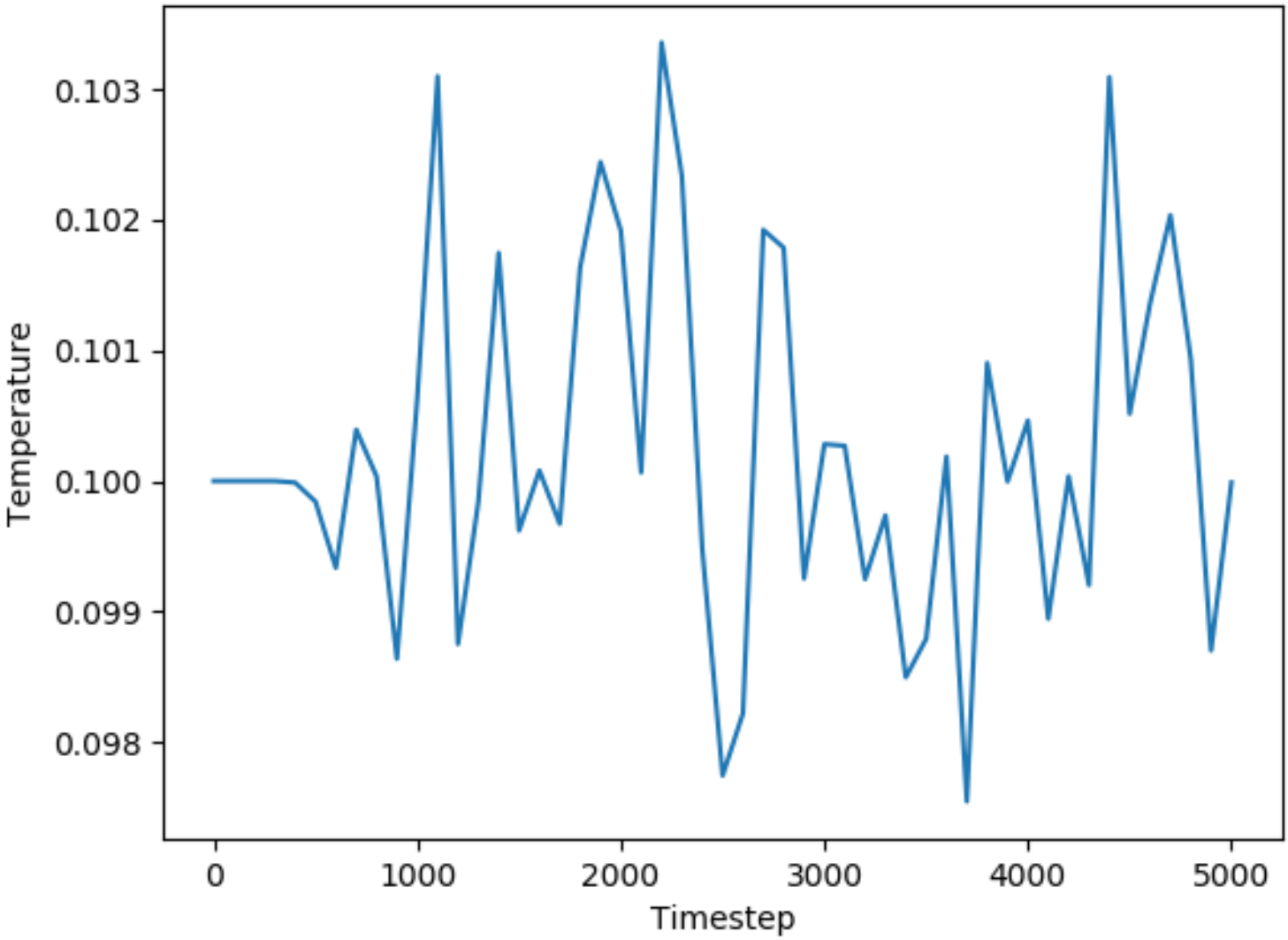

3.0
2.5
2.0
1.5
1.0
0.5
0.0
g(r)
0
1
2
3
4
5
Distance r

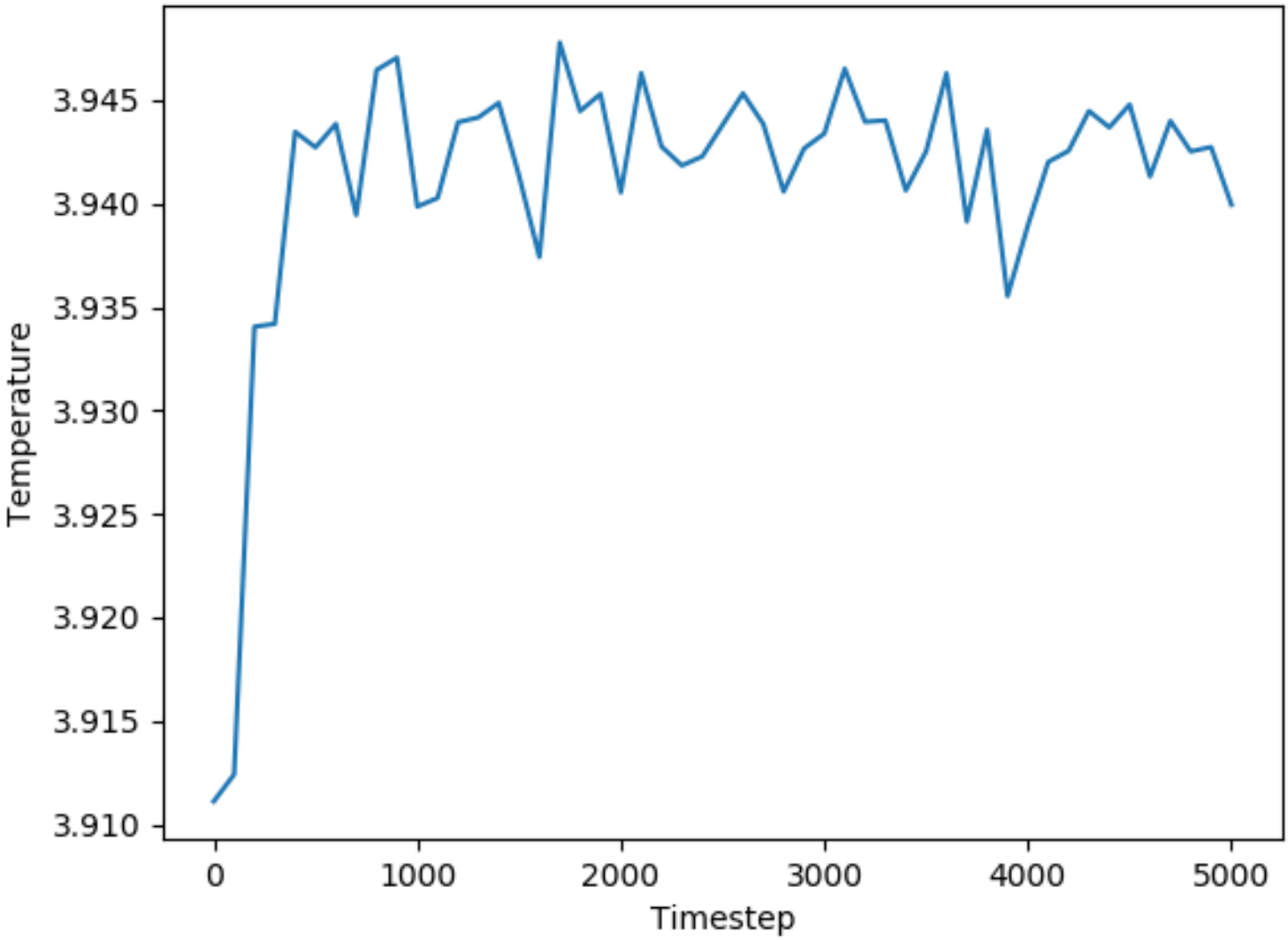

3.0
2.5
2.0
1.5
1.0
0.5
0.0
g(r)
0
1
2
3
4
5
Distance r

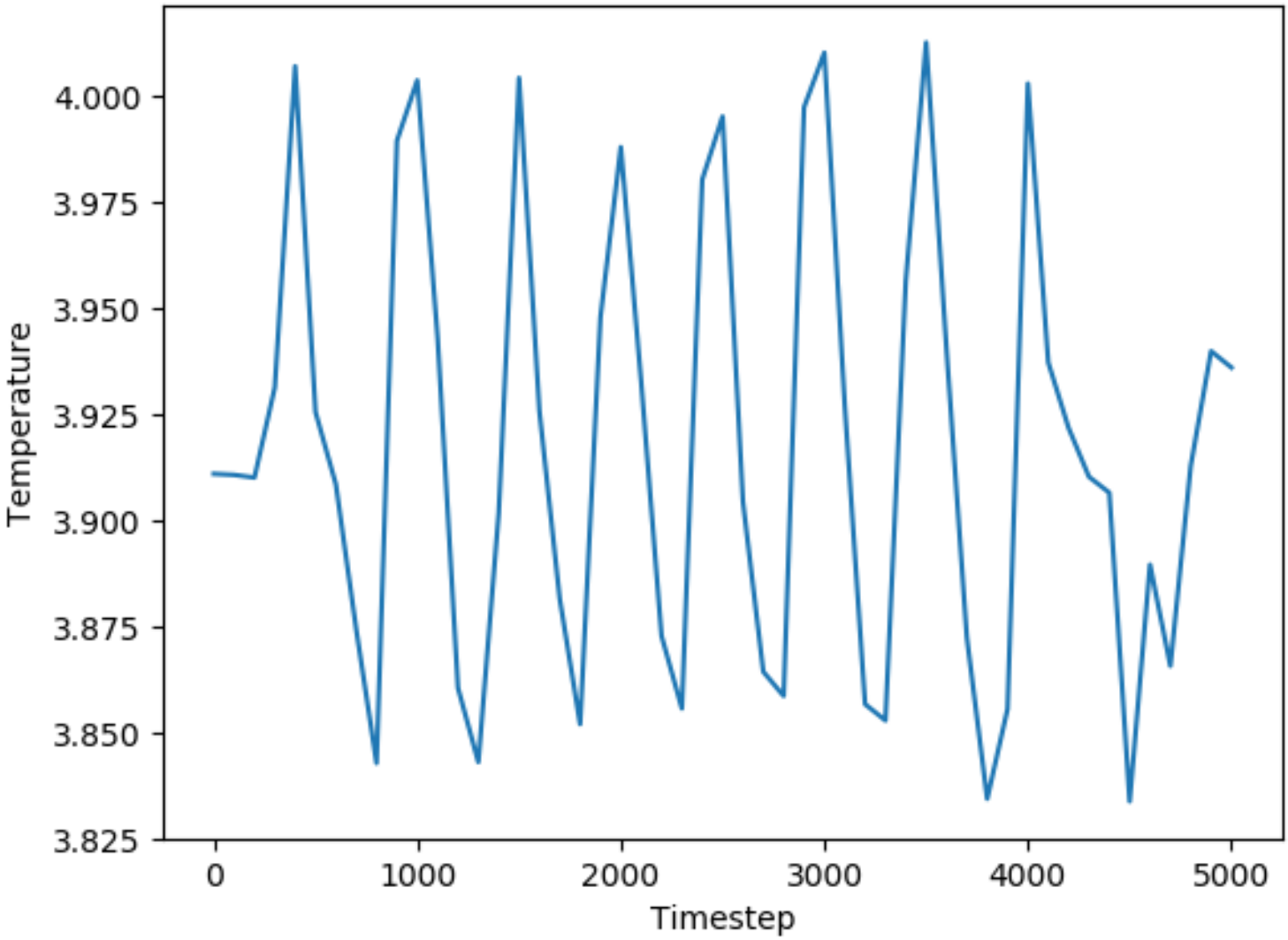

3.0
2.5
2.0
1.5
1.0
0.5
0.0
g(r)
0
1
2
3
4
5
Distance r

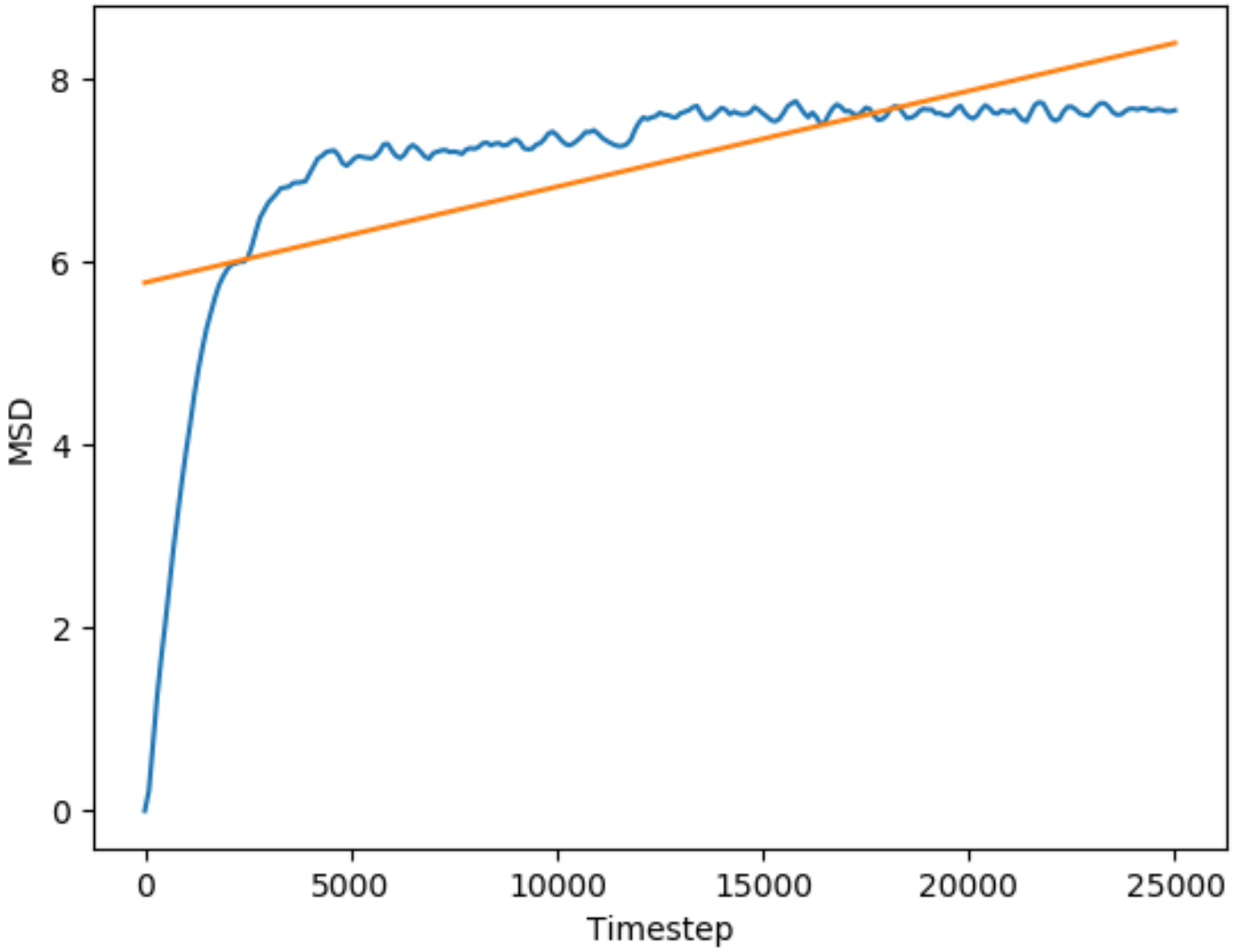

3.0
2.5
2.0
1.5
1.0
0.5
0.0
g(r)
0
1
2
3
4
5
Distance r

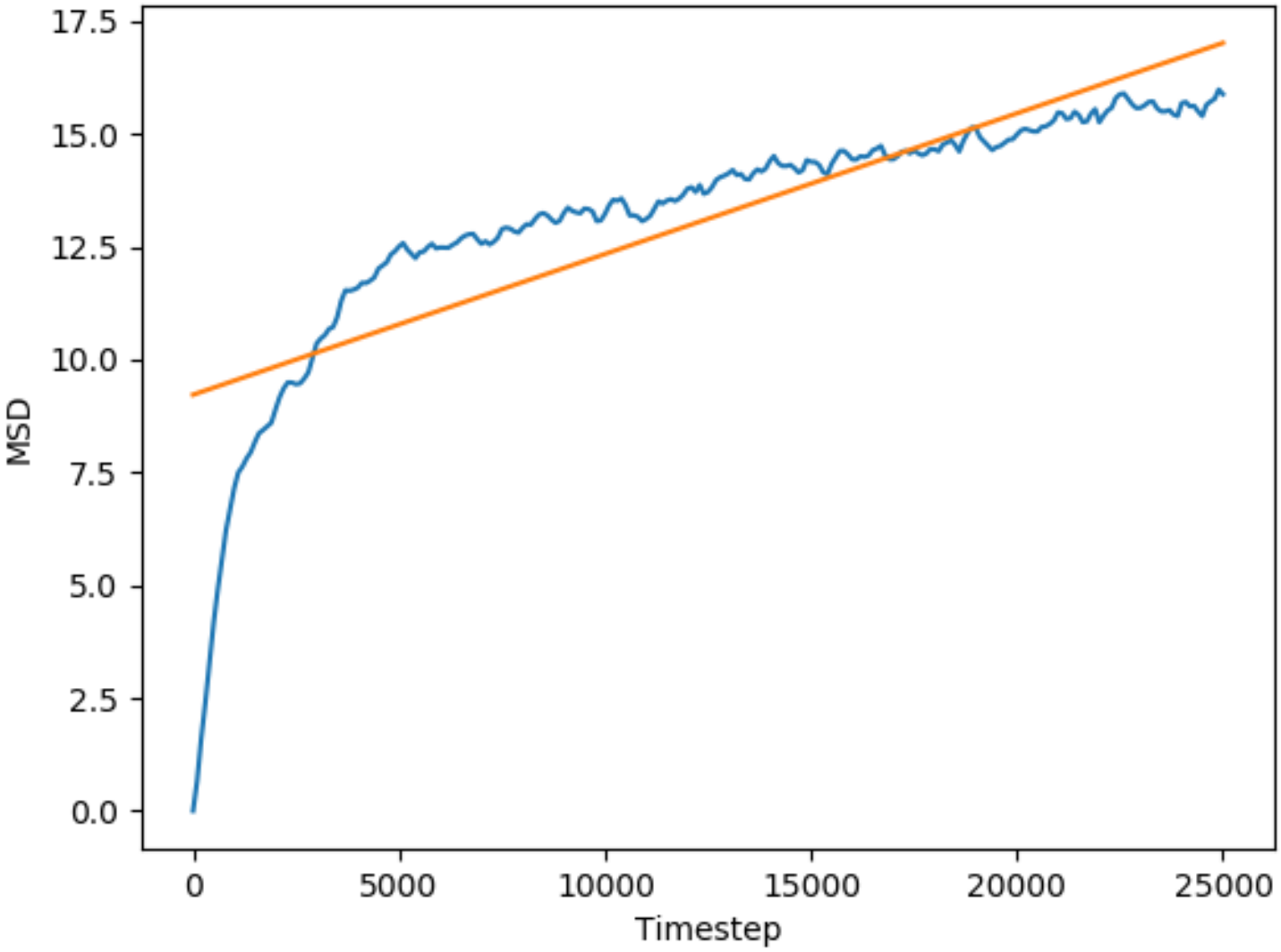

0.18
0.16
0.14
0.12
0.10
Temperature
0
1000
2000
3000
4000
5000
Timestep

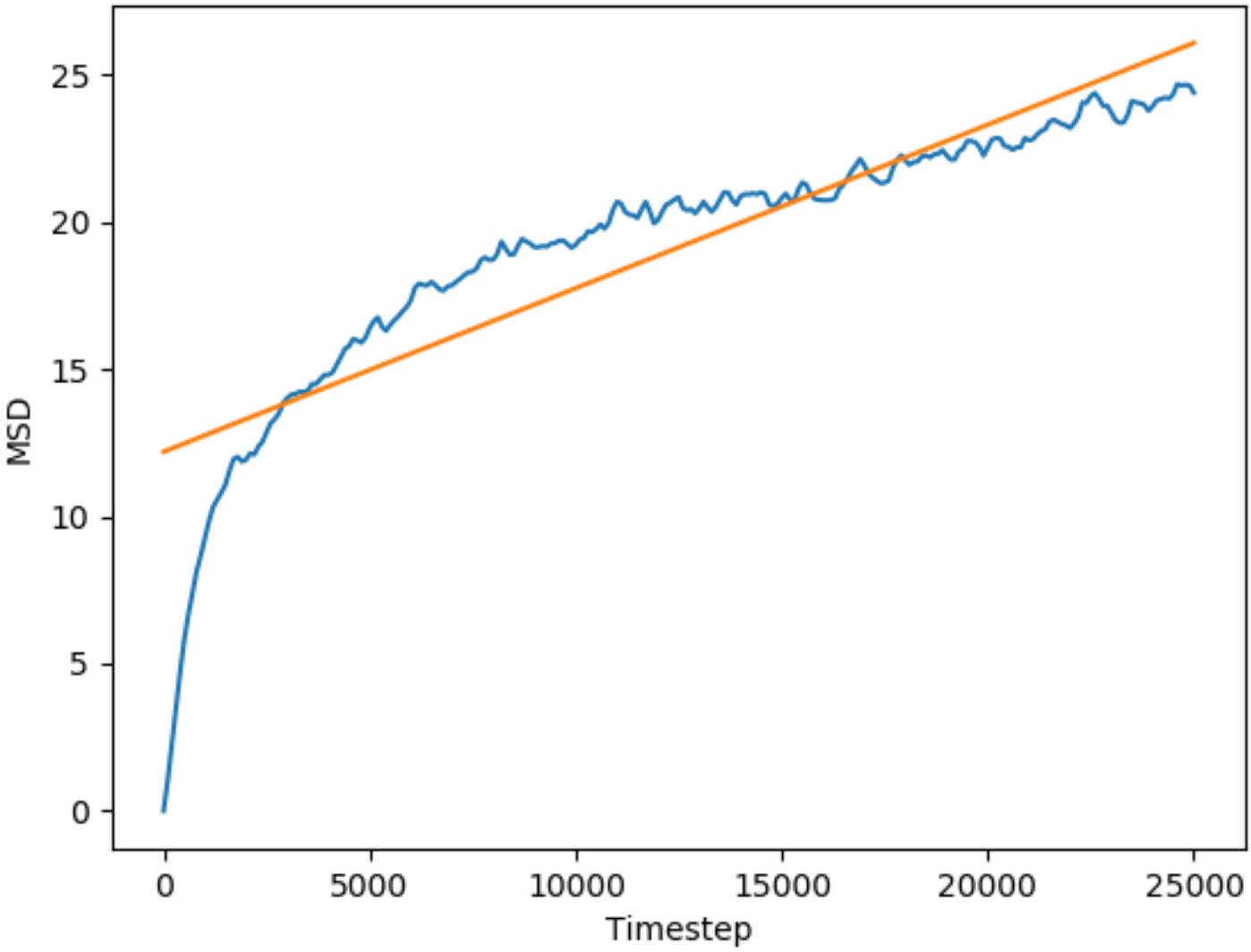

0.103
0.102
0.101
0.100
0.099
0.098
Temperature
0
1000
2000
3000
4000
5000
Timestep

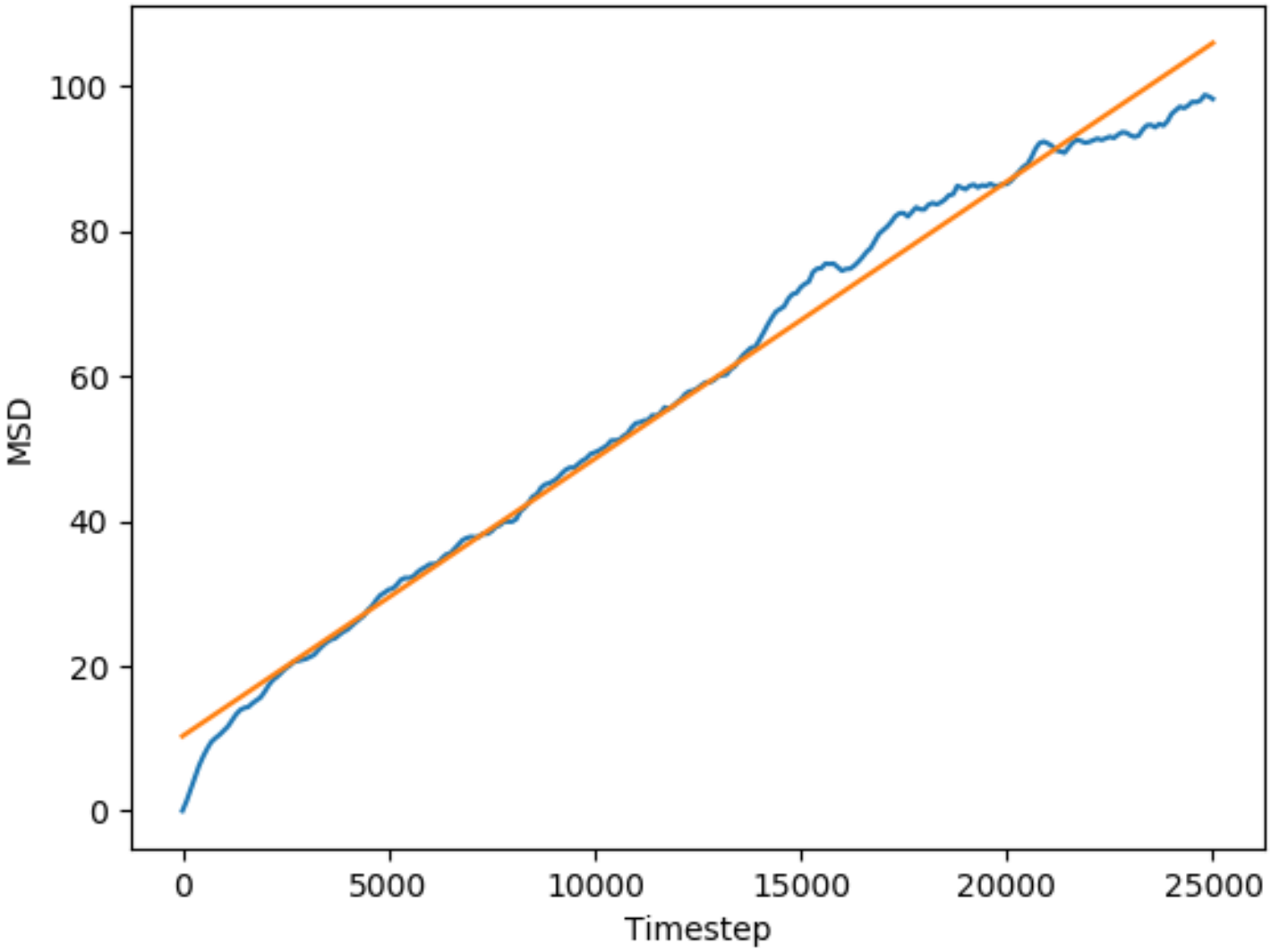

3.945
3.940
3.935
3.930
3.925
3.920
3.915
3.910
Temperature
0
1000
2000
3000
4000
5000
Timestep

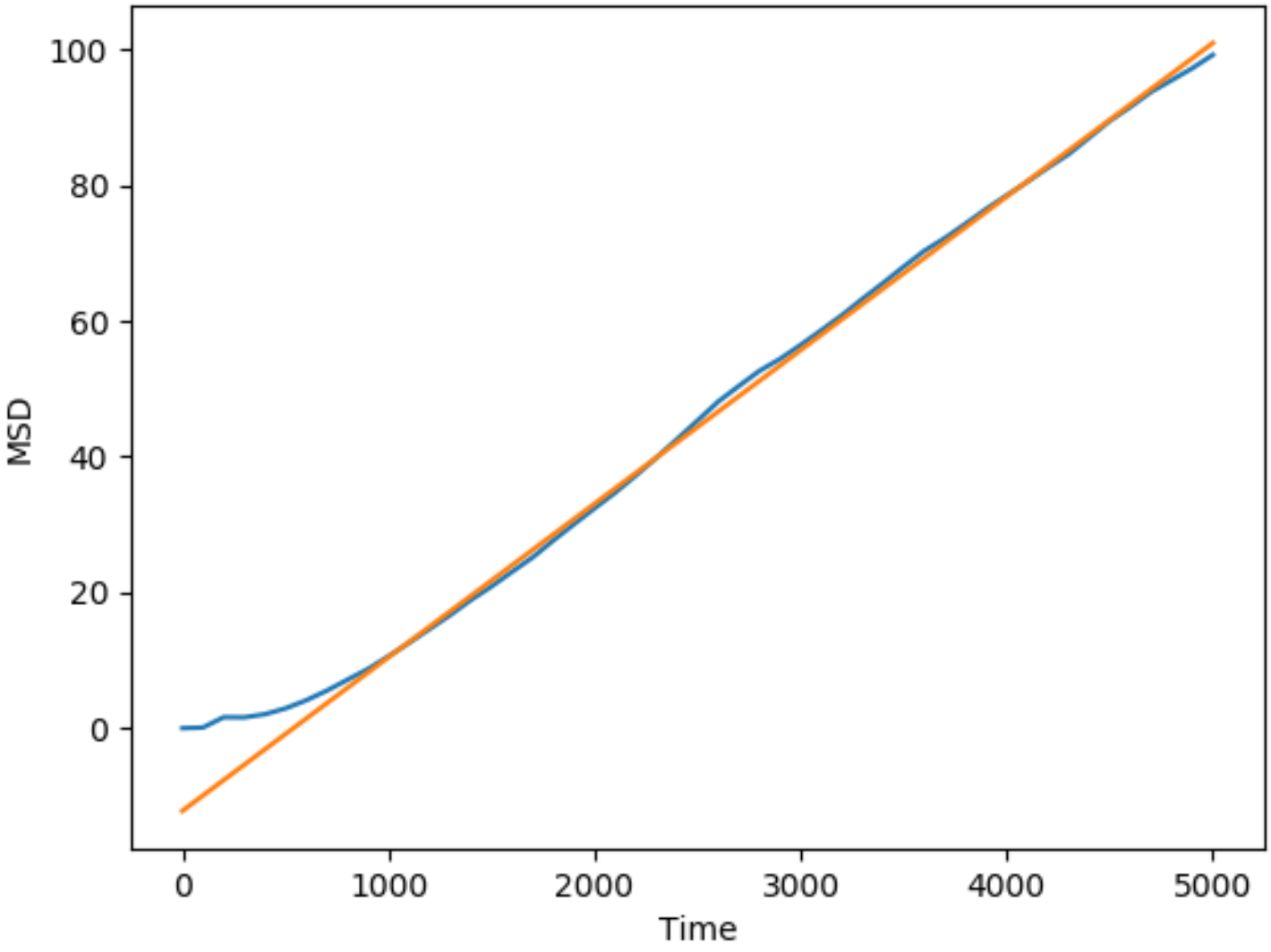

4.000
3.975
3.950
3.925
3.900
3.875
3.850
3.825
Temperature
0
1000
2000
3000
4000
5000
Timestep

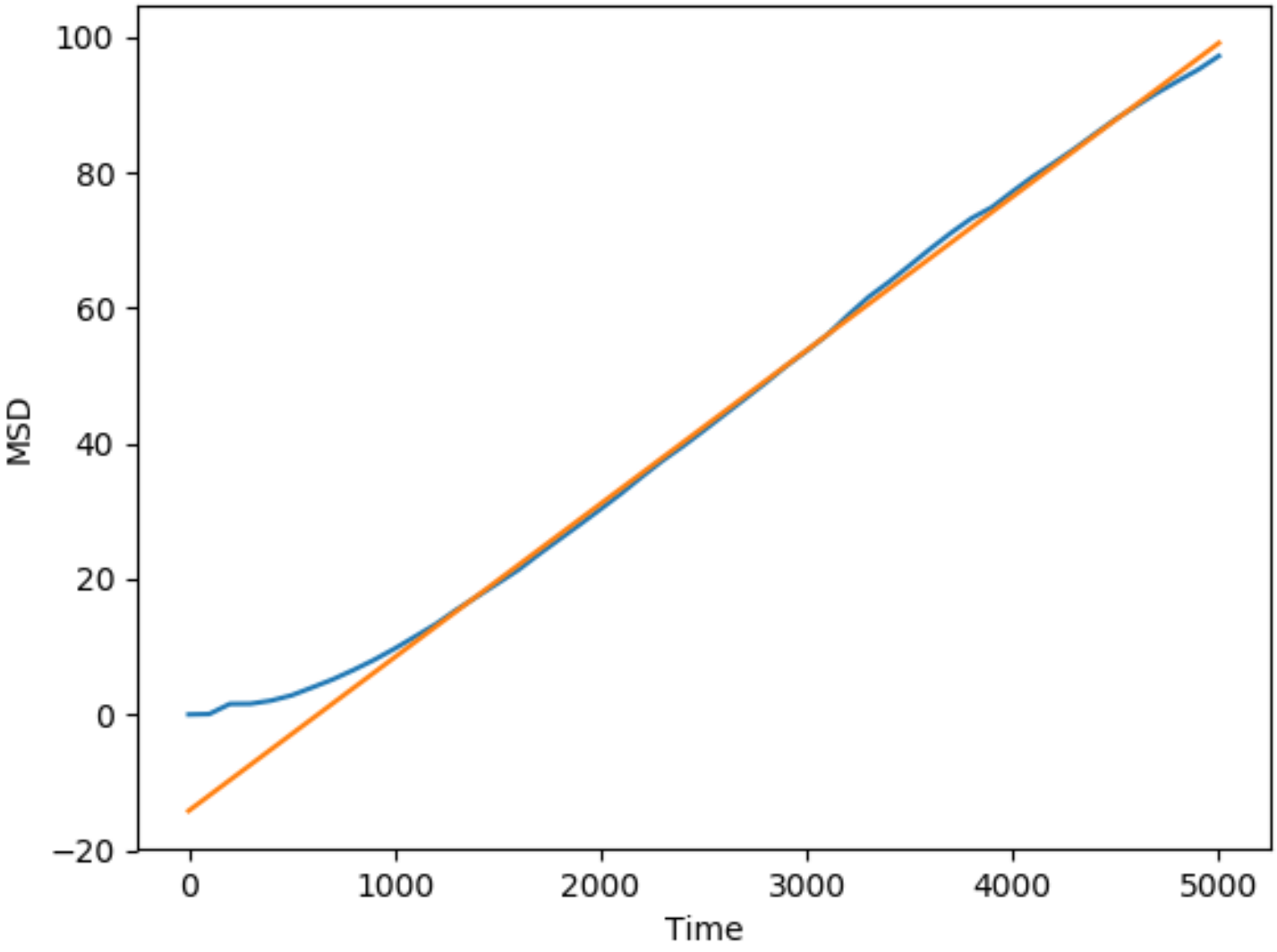

MSD
Timestep
0
2
4
6
8
0
5000
10000
15000
20000
25000

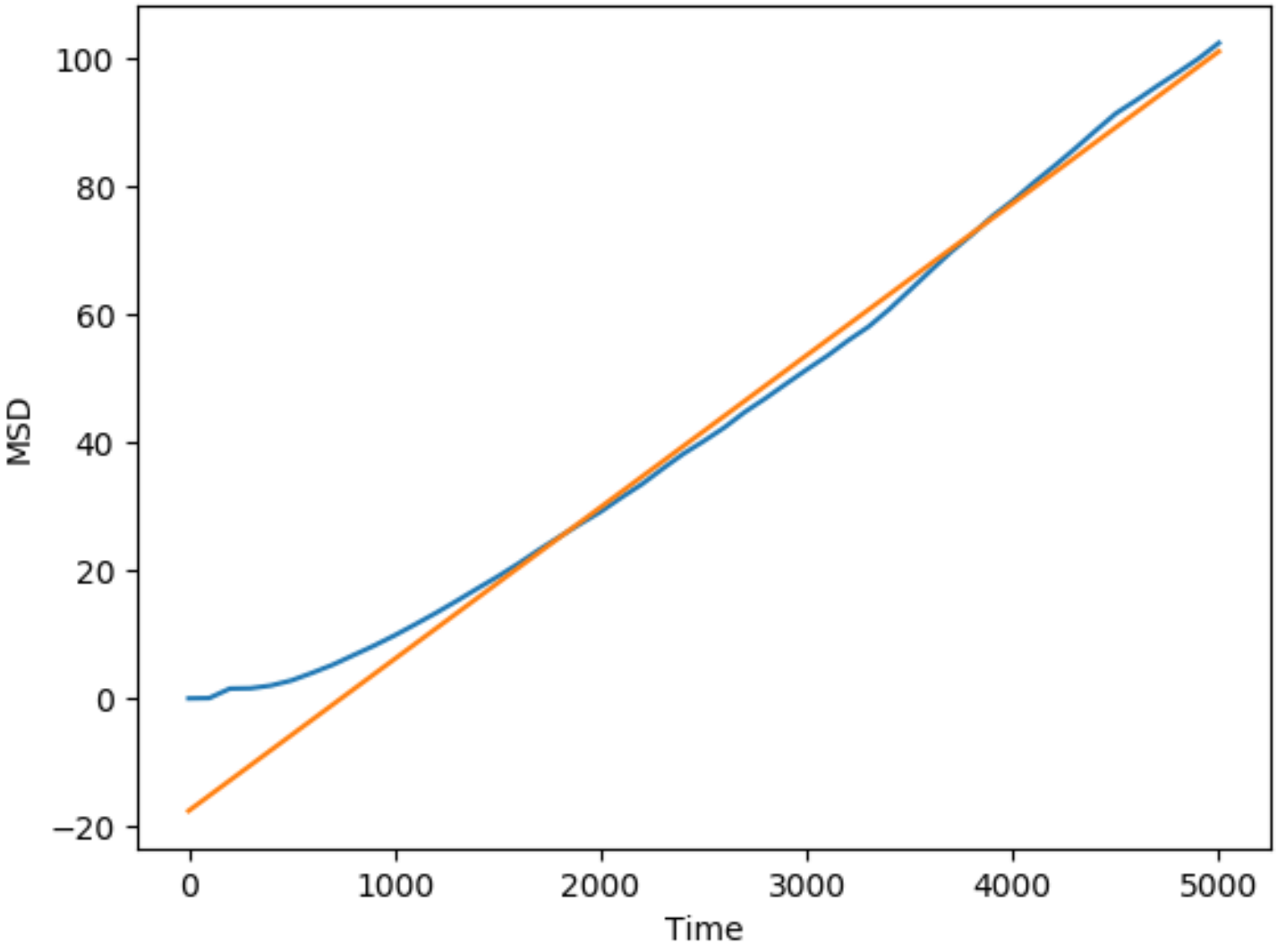

17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
MSD
0
5000
10000
15000
20000
25000
Timestep

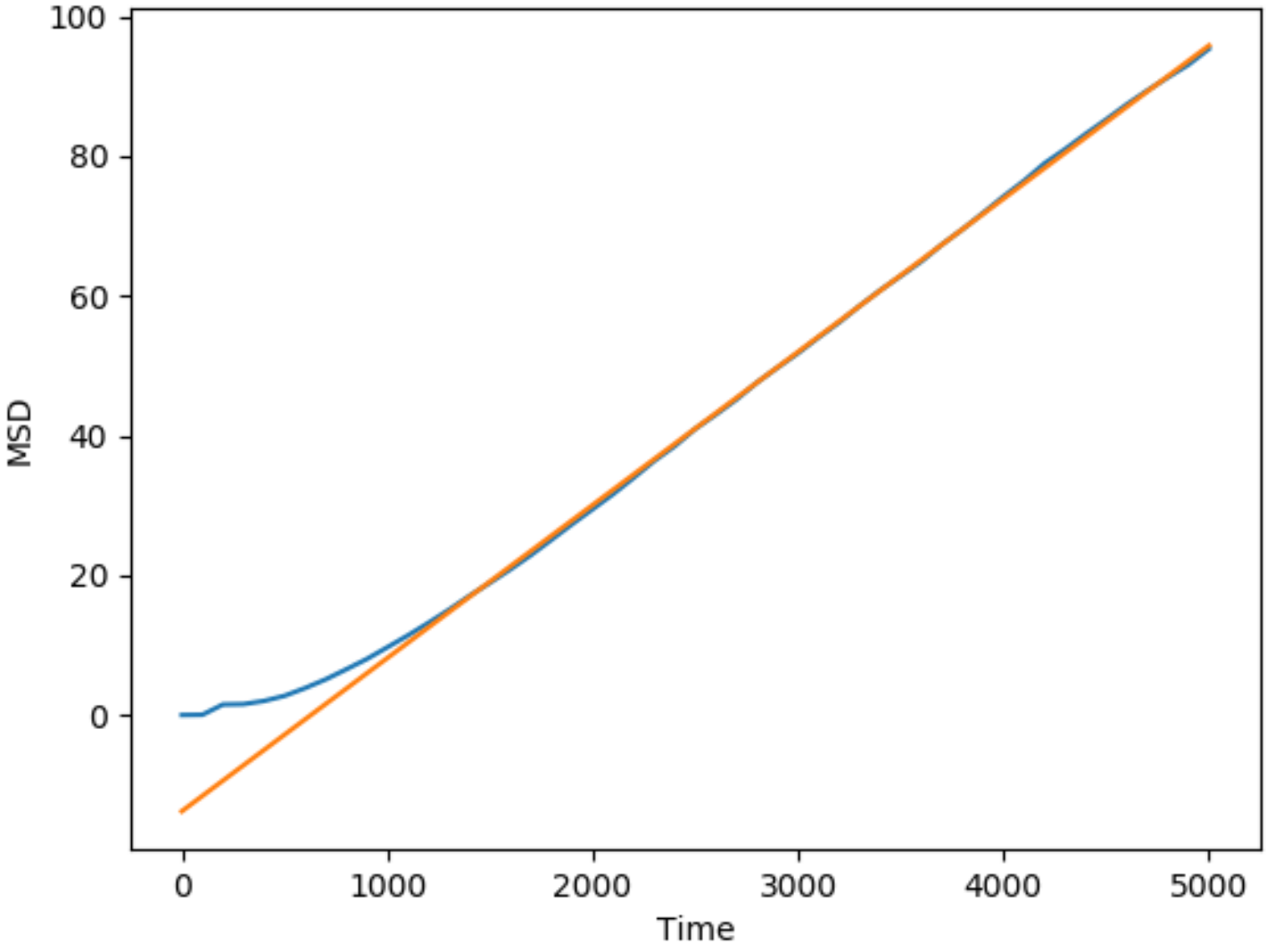

25
20
15
10
5
0
MSD
0
5000
10000
15000
20000
25000
Timestep

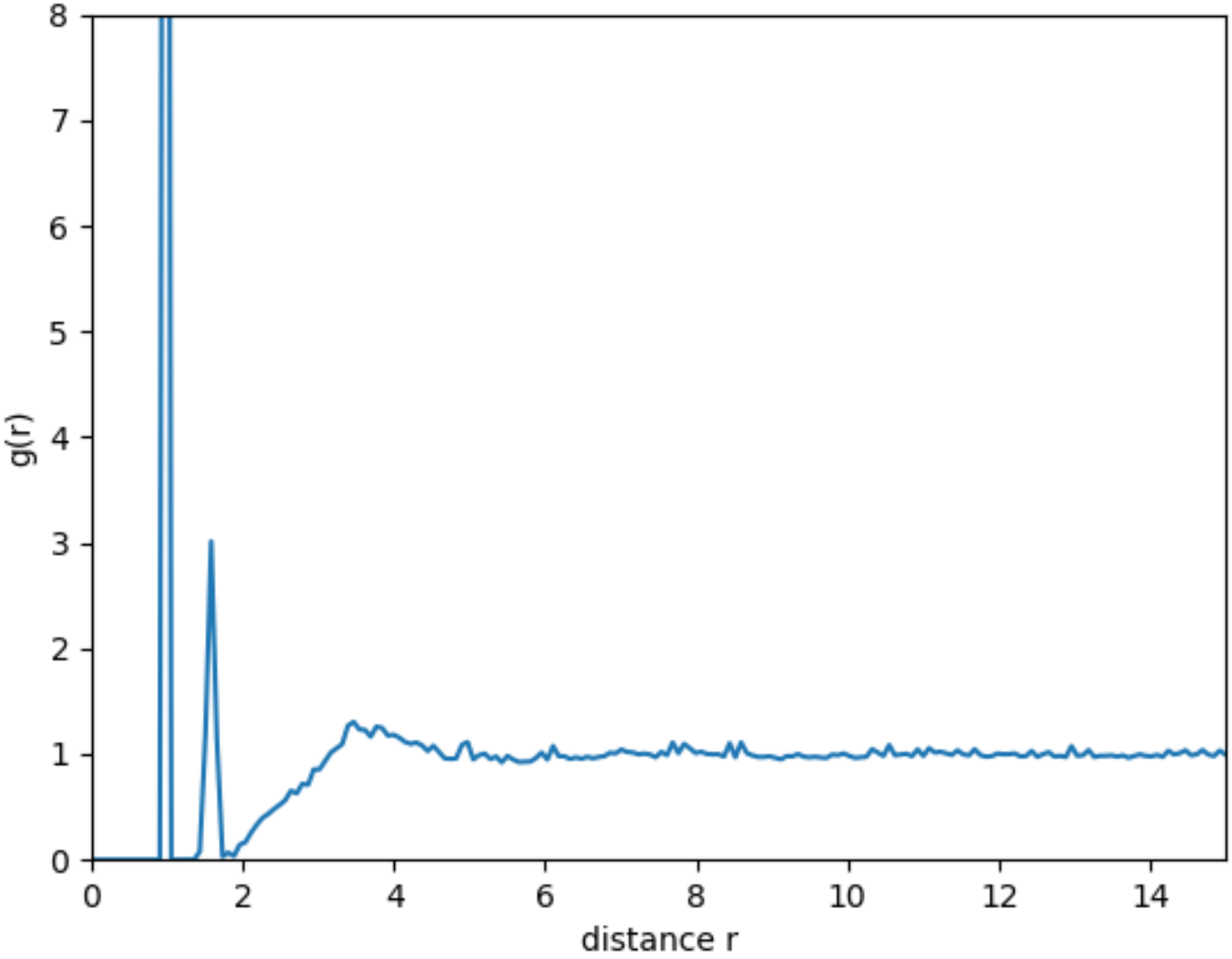

100
80
60
40
20
0
MSD
0
5000
10000
15000
20000
25000
Timestep

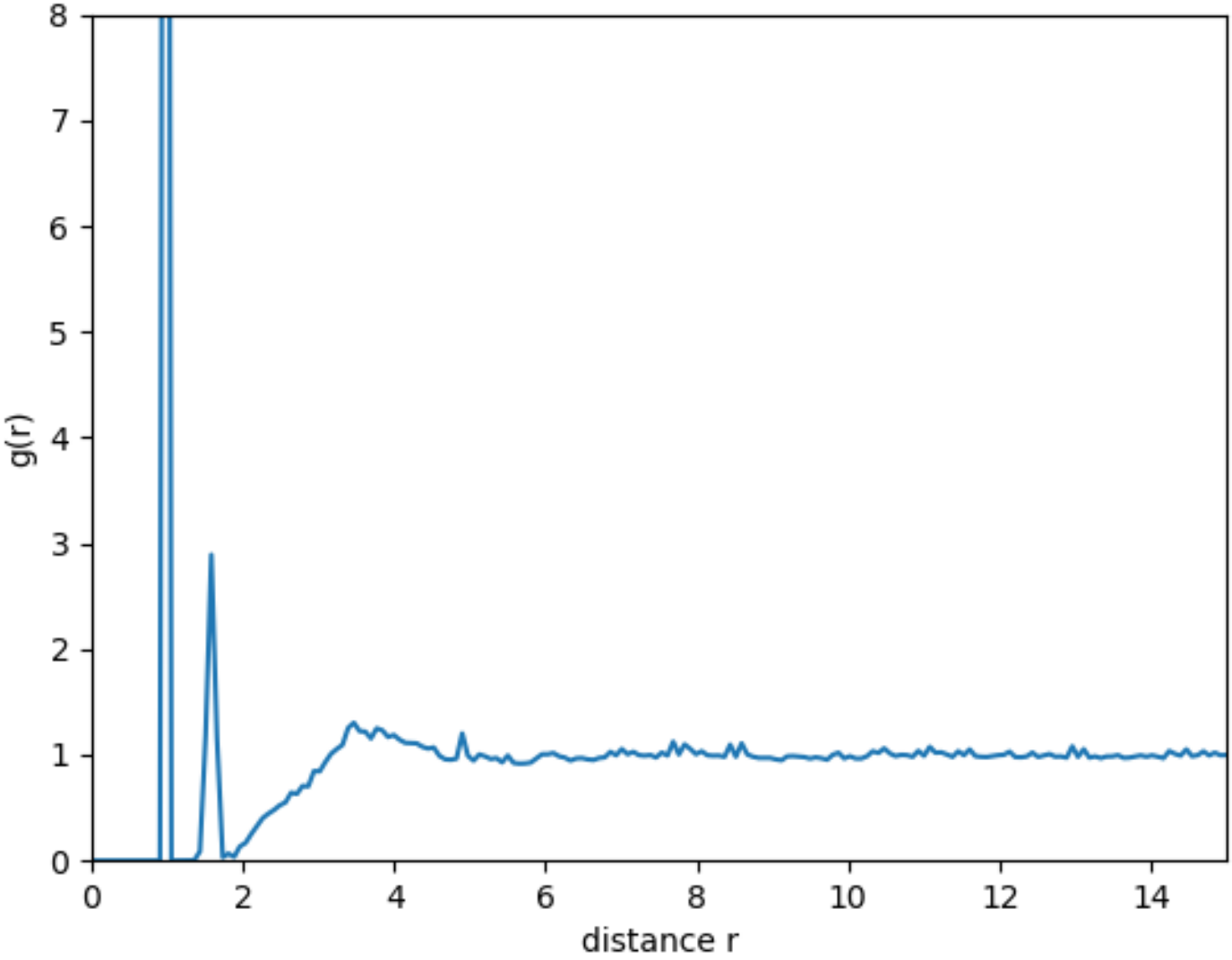

100
80
60
40
20
0
MSD
0
1000
2000
3000
4000
5000
Time

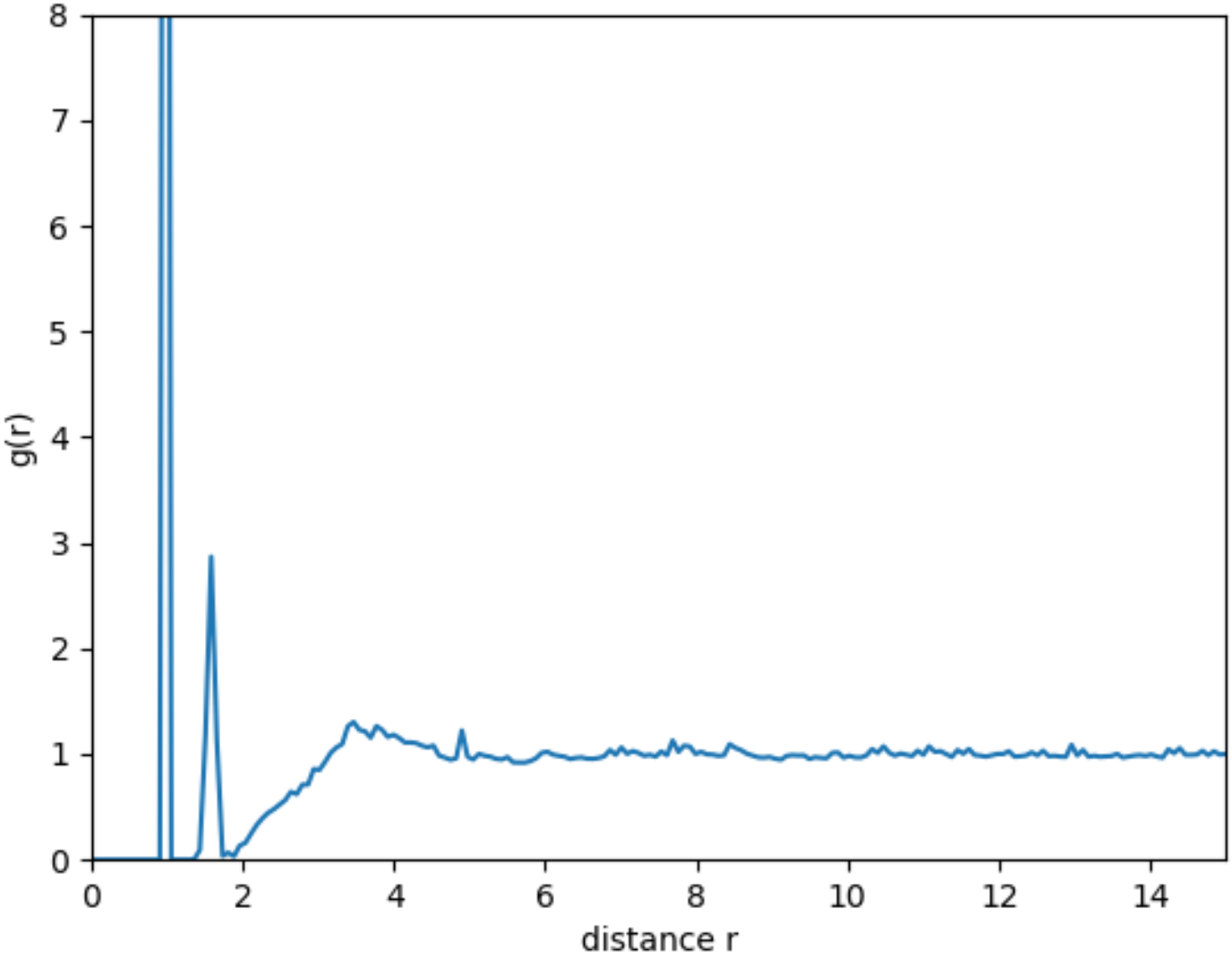

100
80
60
40
20
0
−20
MSD
0
1000
2000
3000
4000
5000
Time

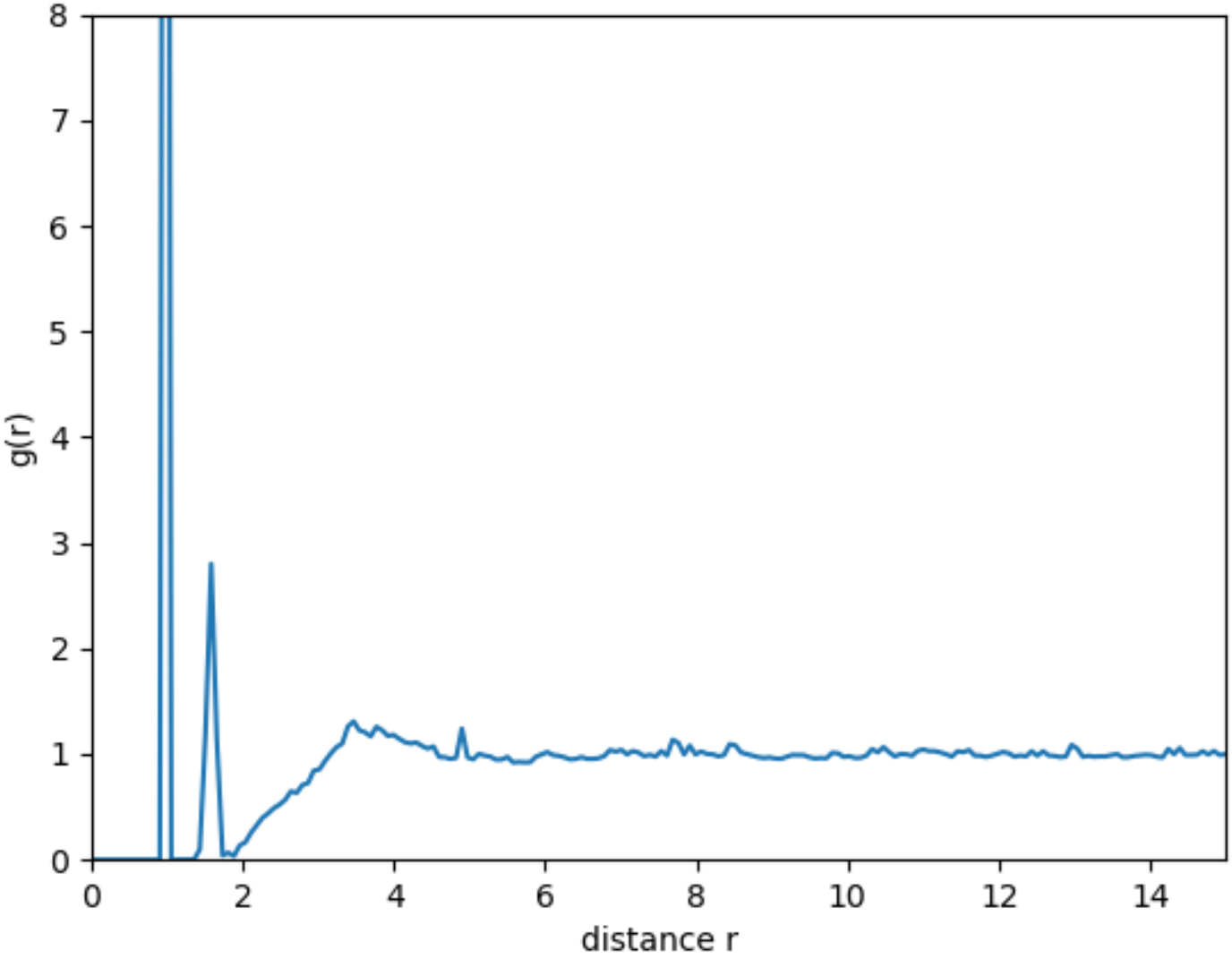

100
80
60
40
20
0
−20
MSD
0
1000
2000
3000
4000
5000
Time

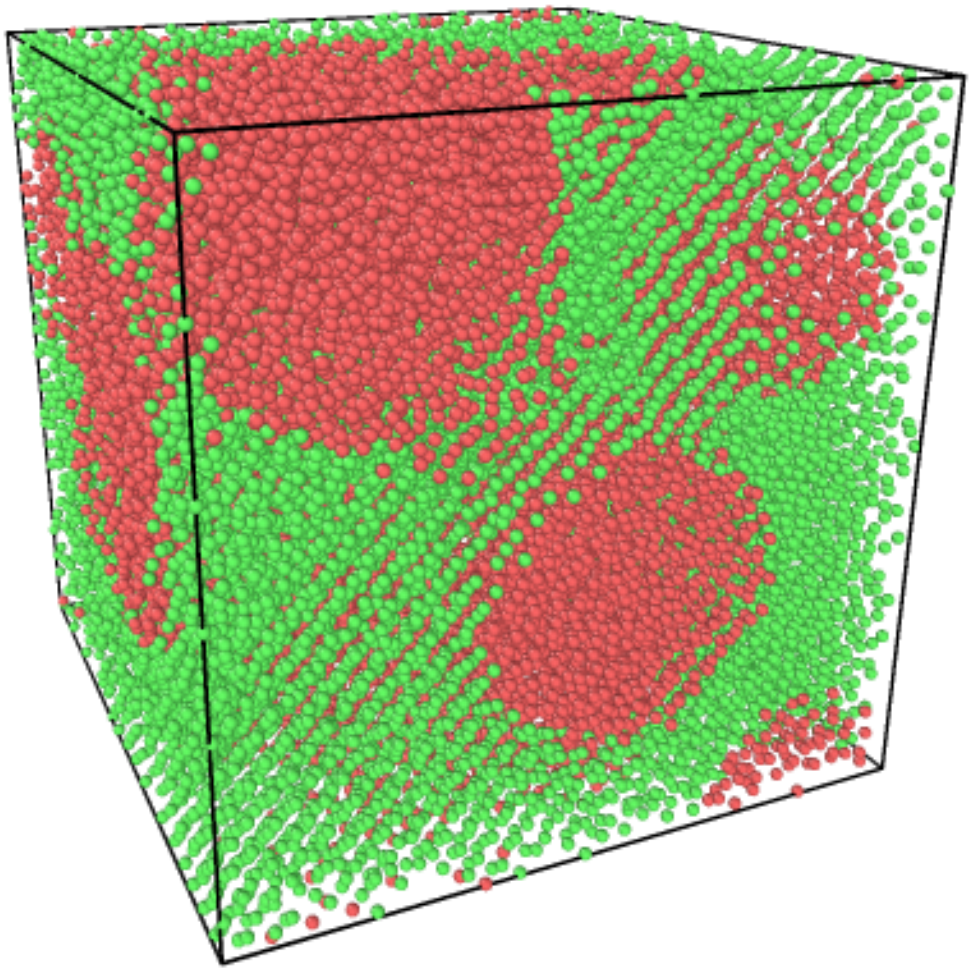

100
80
60
40
20
0
MSD
0
1000
2000
3000
4000
5000
Time

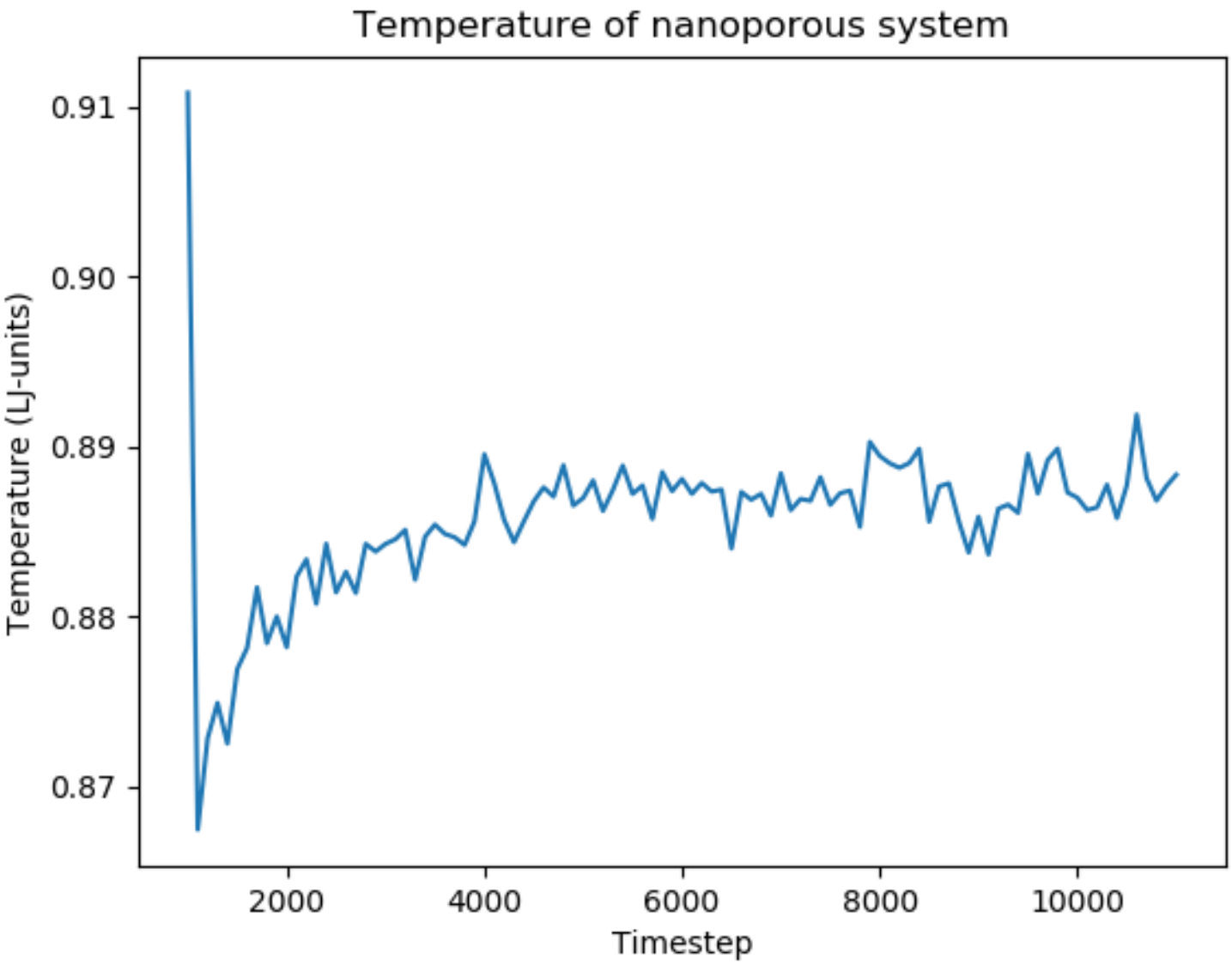

8
7
6
5
4
3
2
1
0
g(r)
0
2
4
6
8
10
12
14
distance r

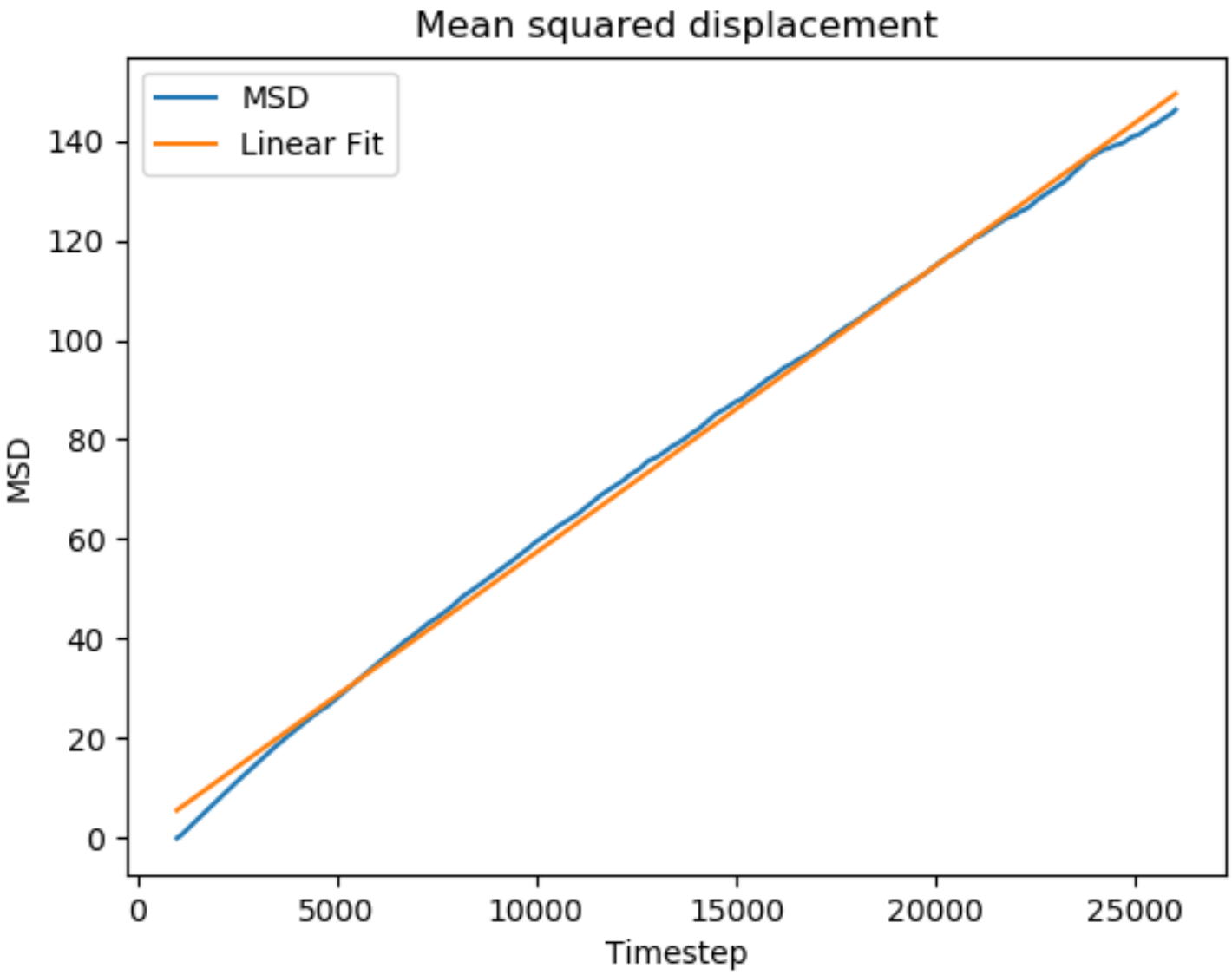

8
7
6
5
4
3
2
1
0
g(r)
0
2
4
6
8
10
12
14
distance r

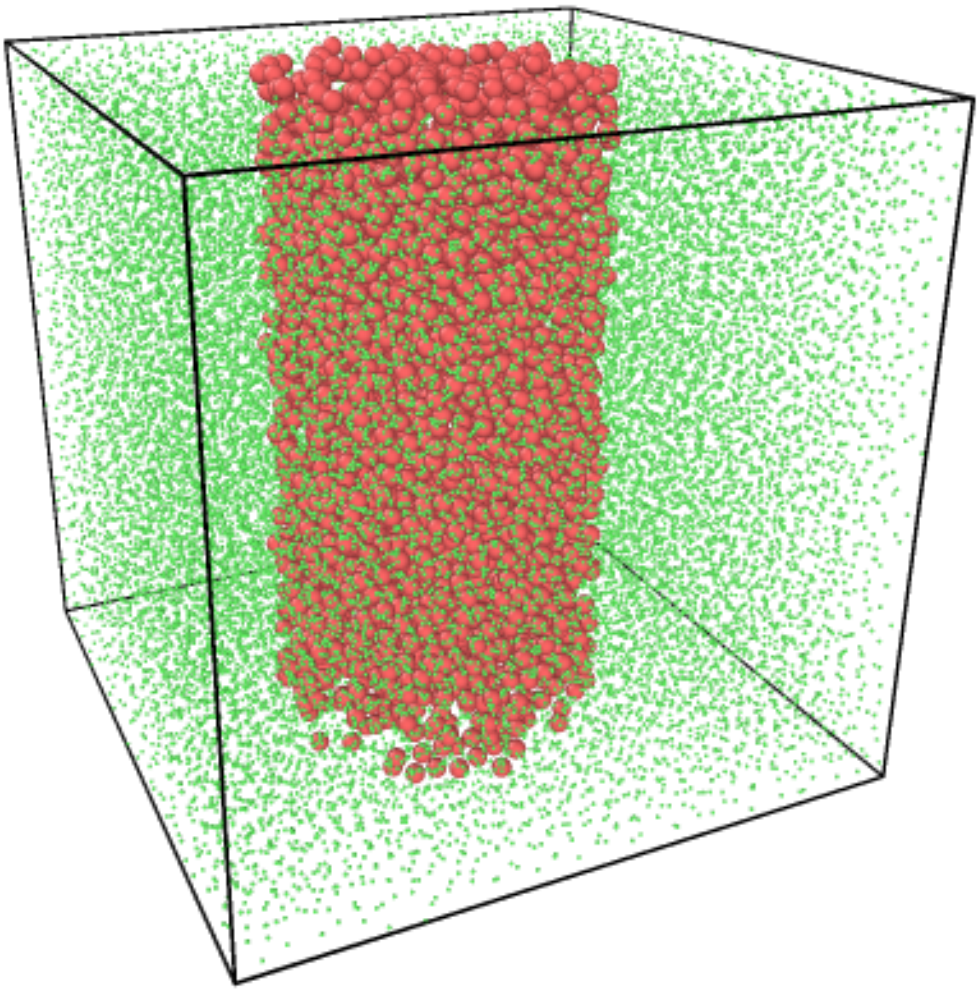

8
7
6
5
4
3
2
1
0
g(r)
0
2
4
6
8
10
12
14
distance r

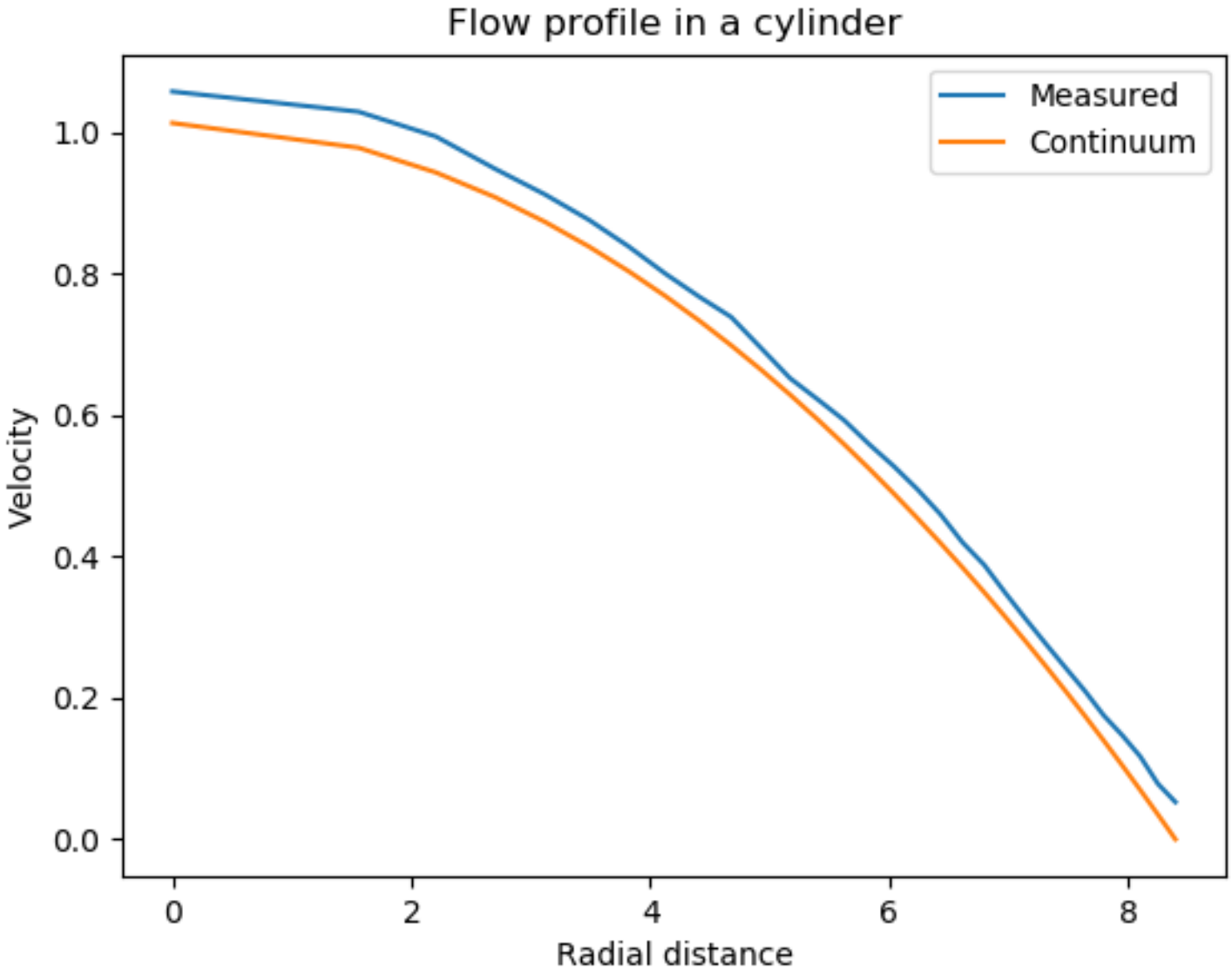

8
7
6
5
4
3
2
1
0
g(r)
0
2
4
6
8
10
12
14
distance r

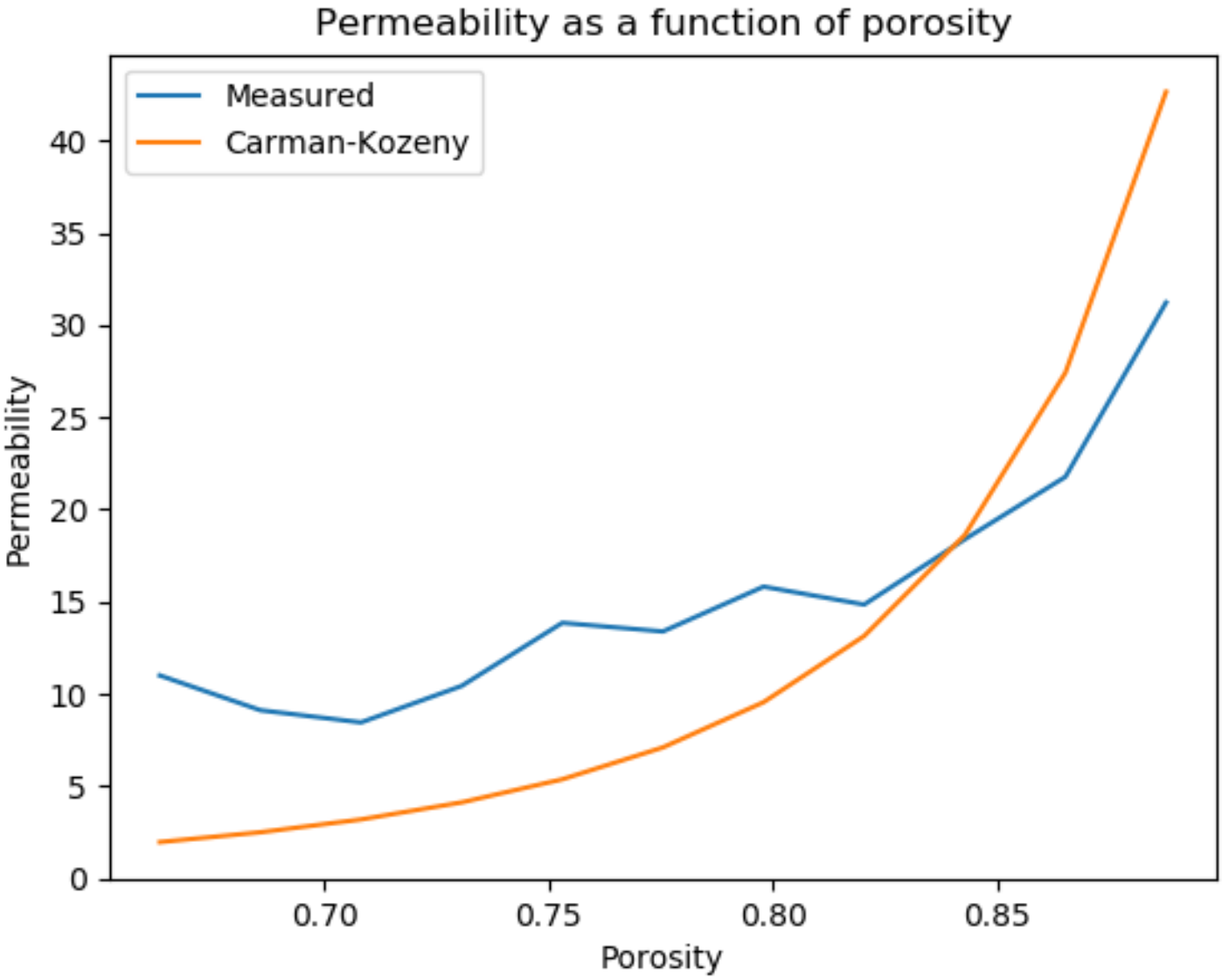


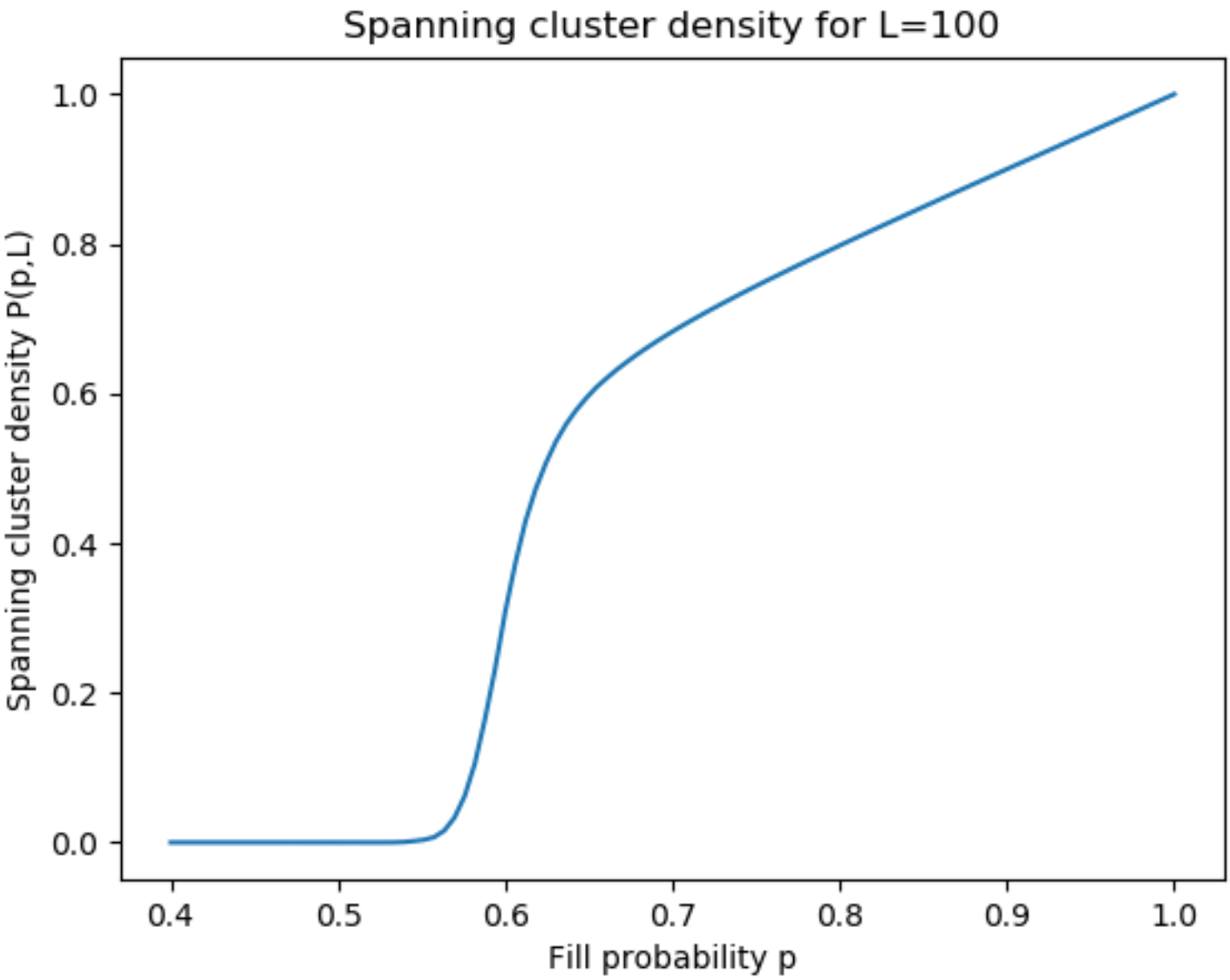

Temperature of nanoporous system
Temperature (LJ-units)
0.91
0.90
0.89
0.88
0.87
2000
4000
6000
8000
10000
Timestep

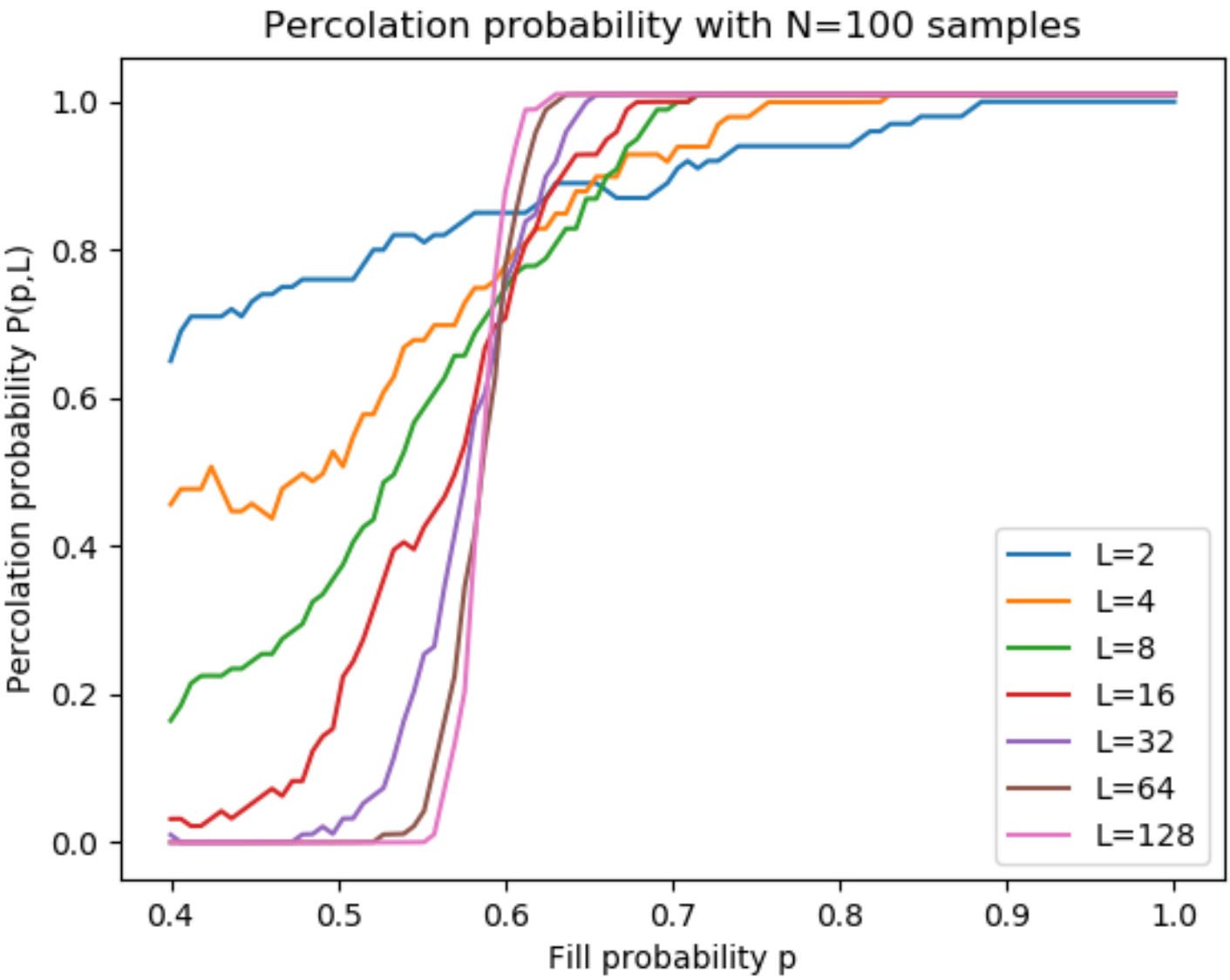

Mean squared displacement
MSD
Linear Fit
140
120
100
80
60
40
20
0
MSD
0
5000
10000
15000
20000
25000
Timestep

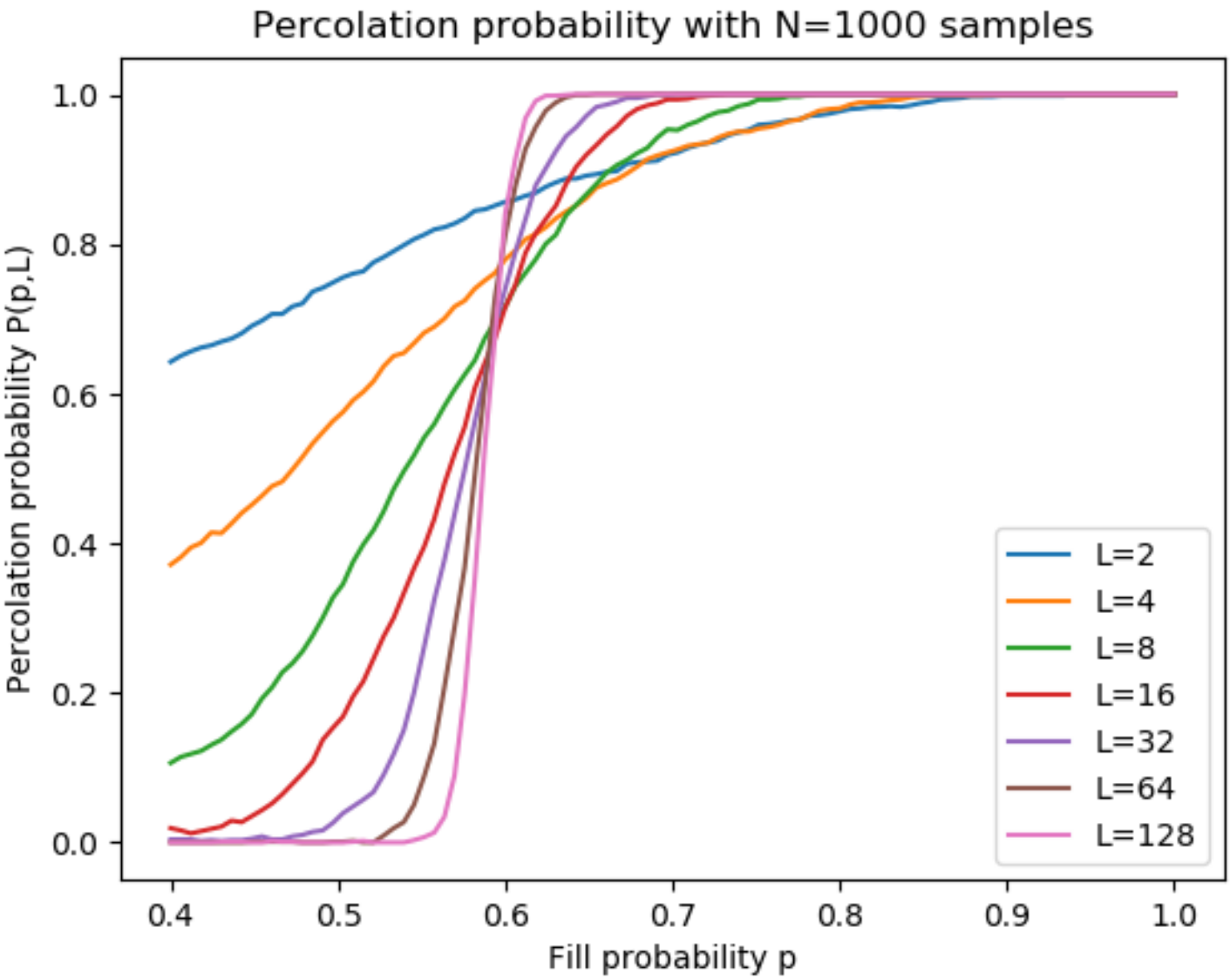


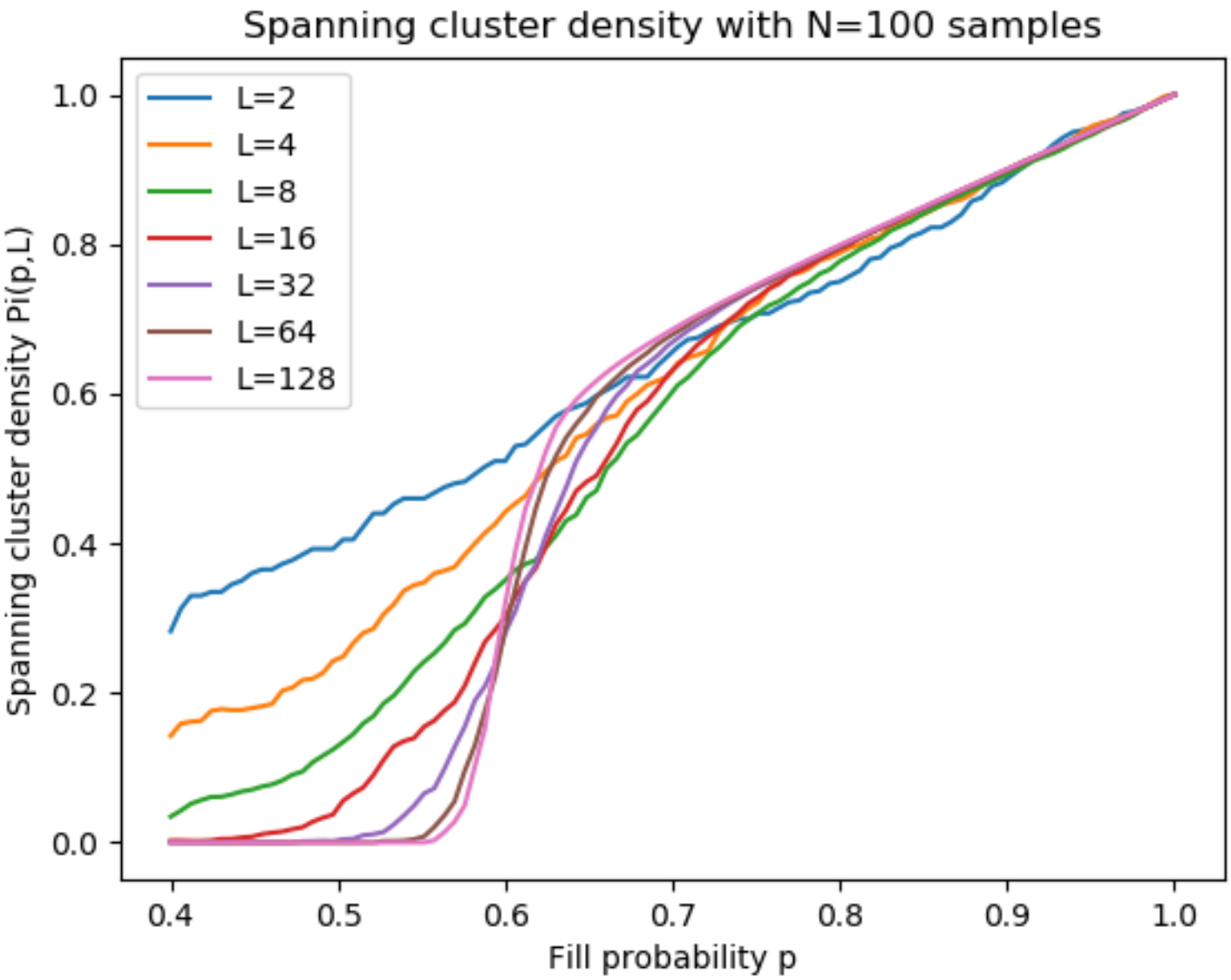

Flow profile in a cylinder
Measured
Continuum
Velocity
1.0
0.8
0.6
0.4
0.2
0.0
0
2
4
6
8
Radial distance

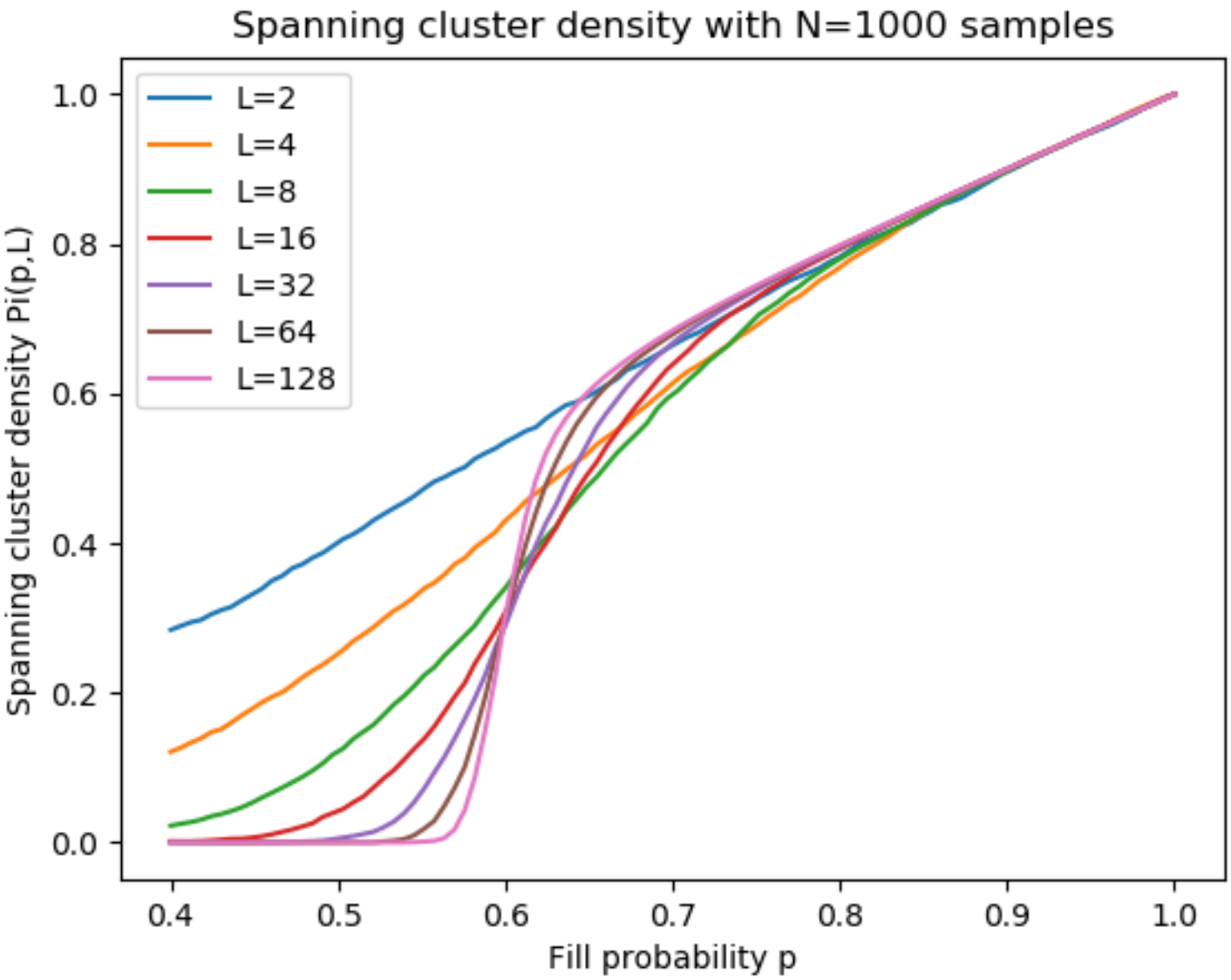

Permeability as a function of porosity
Measured
Carman-Kozeny
Permeability
Porosity
0
5
10
15
20
25
30
35
40
0.70
0.75
0.80
0.85

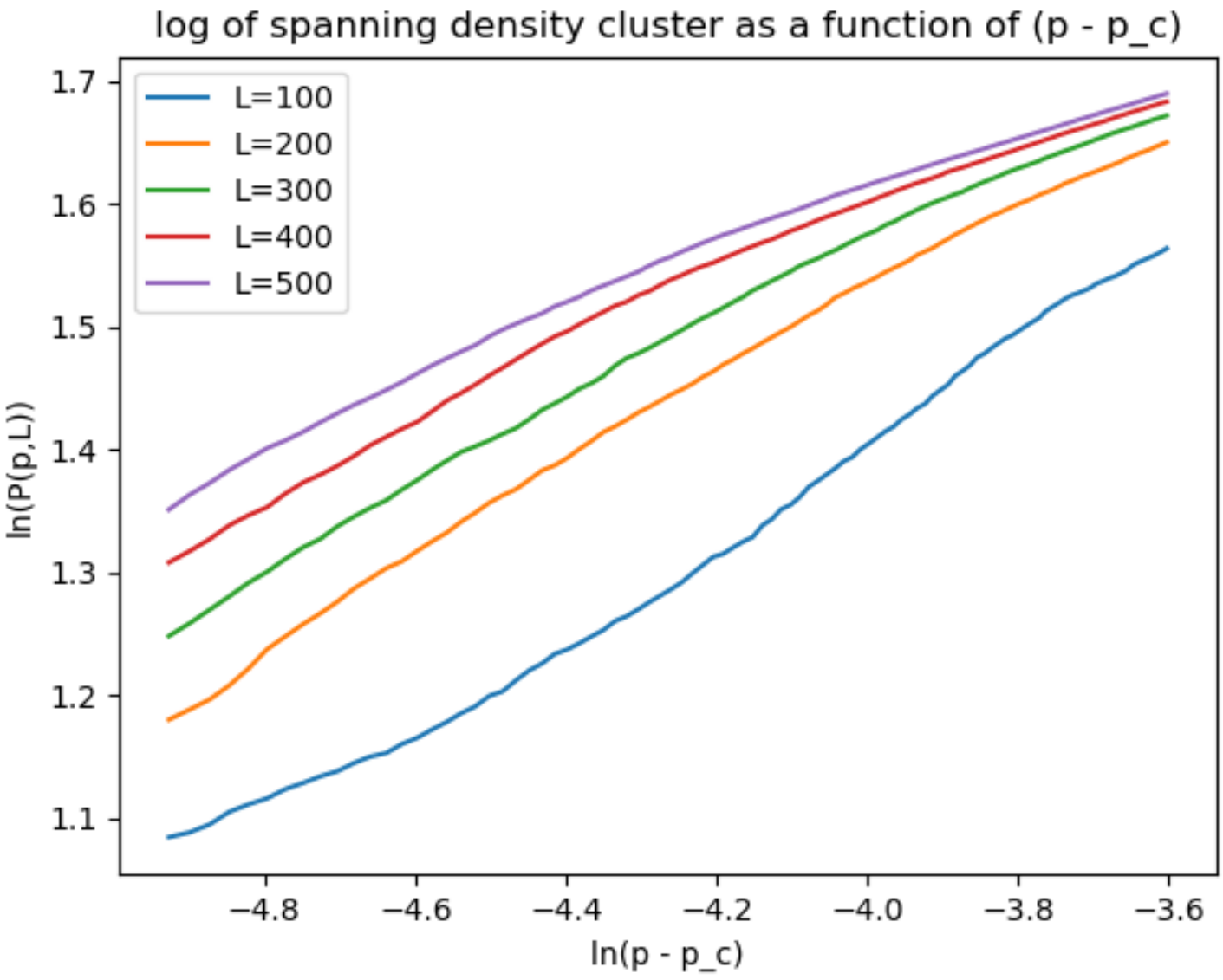

Spanning cluster density for L=100
Spanning cluster density P(p,L)
1.0
0.8
0.6
0.4
0.2
0.0
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Fill probability p

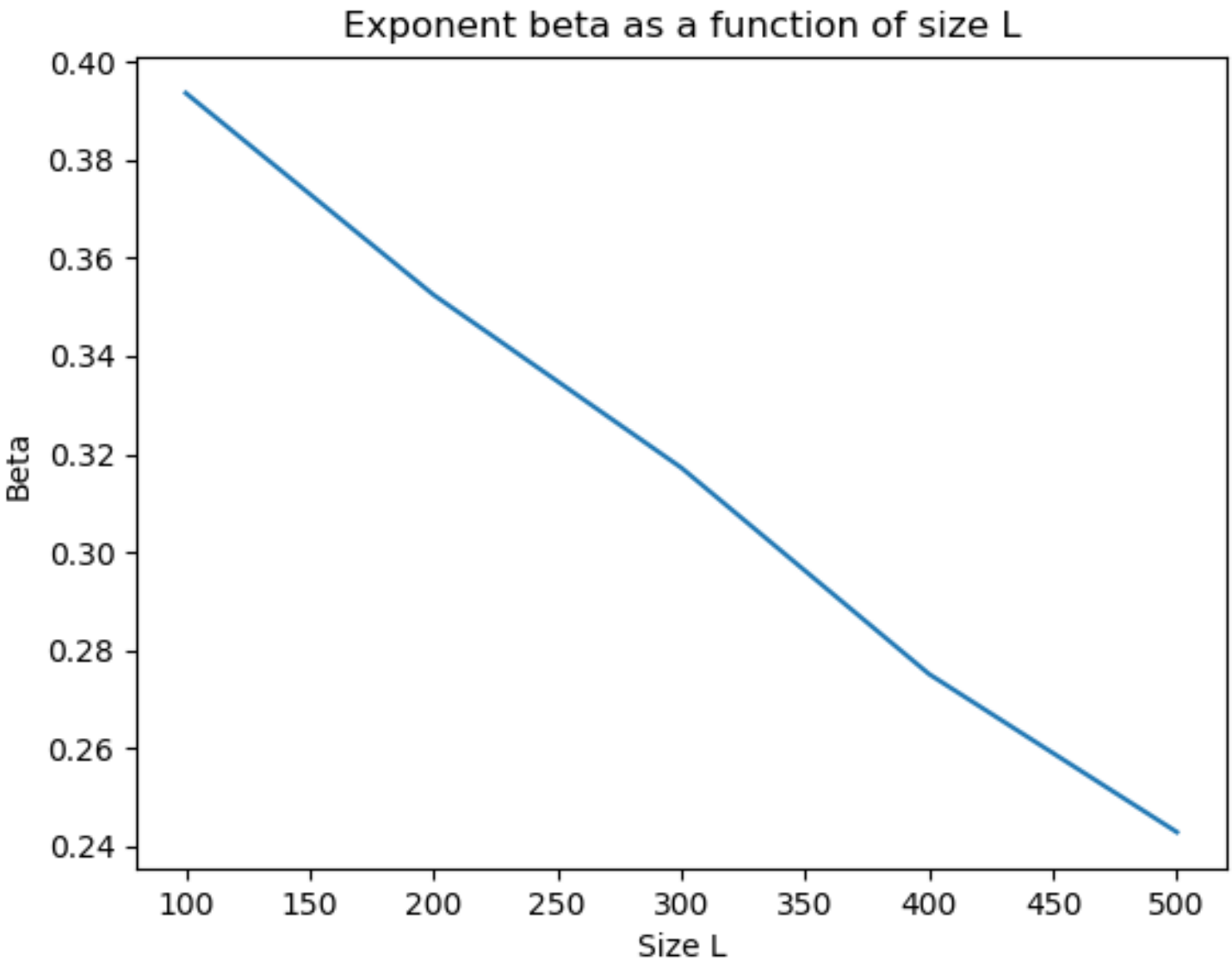

Percolation probability with N=100 samples
Percolation probability P(p,L)
Fill probability p
1.0
0.8
0.6
0.4
0.2
0.0
0.4
0.5
0.6
0.7
0.8
0.9
1.0
L=2
L=4
L=8
L=16
L=32
L=64
L=128

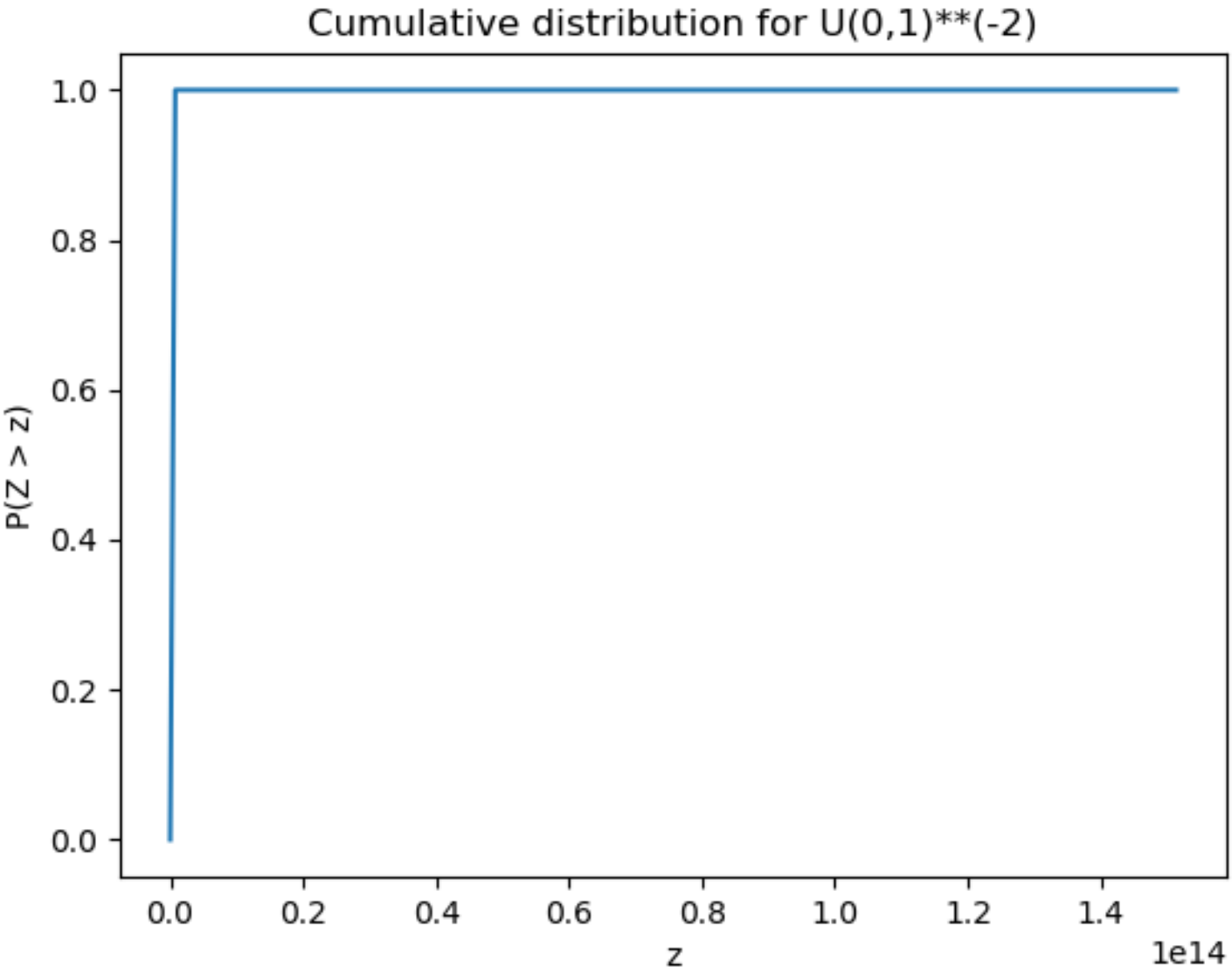

Percolation probability with N=1000 samples
Percolation probability P(p,L)
Fill probability p
1.0
0.8
0.6
0.4
0.2
0.0
0.4
0.5
0.6
0.7
0.8
0.9
1.0
L=2
L=4
L=8
L=16
L=32
L=64
L=128

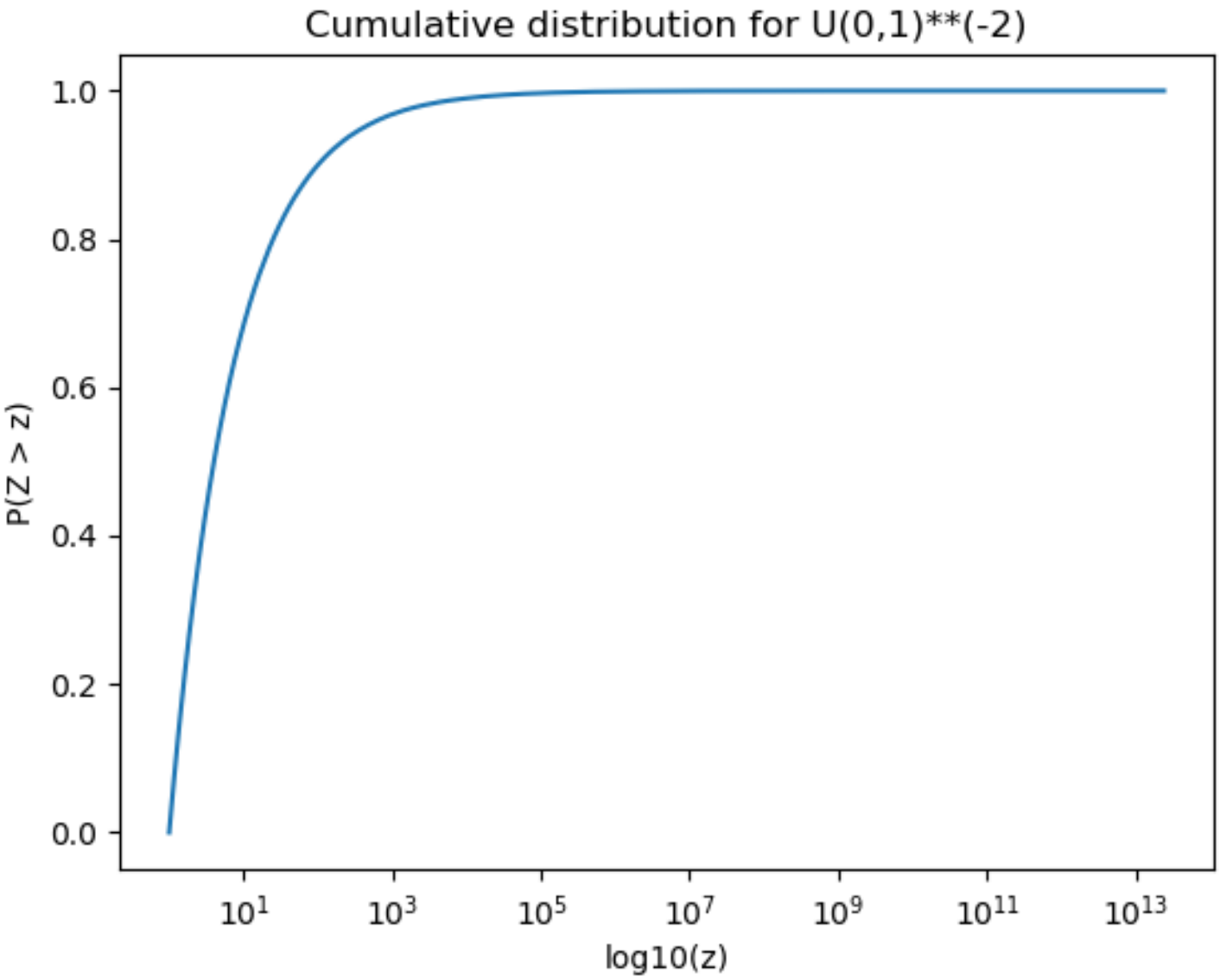

Spanning cluster density with N=100 samples
L=2
L=4
L=8
L=16
L=32
L=64
L=128
Spanning cluster density Pi(p,L)
Fill probability p
0.0
0.2
0.4
0.6
0.8
1.0
0.4
0.5
0.6
0.7
0.8
0.9
1.0

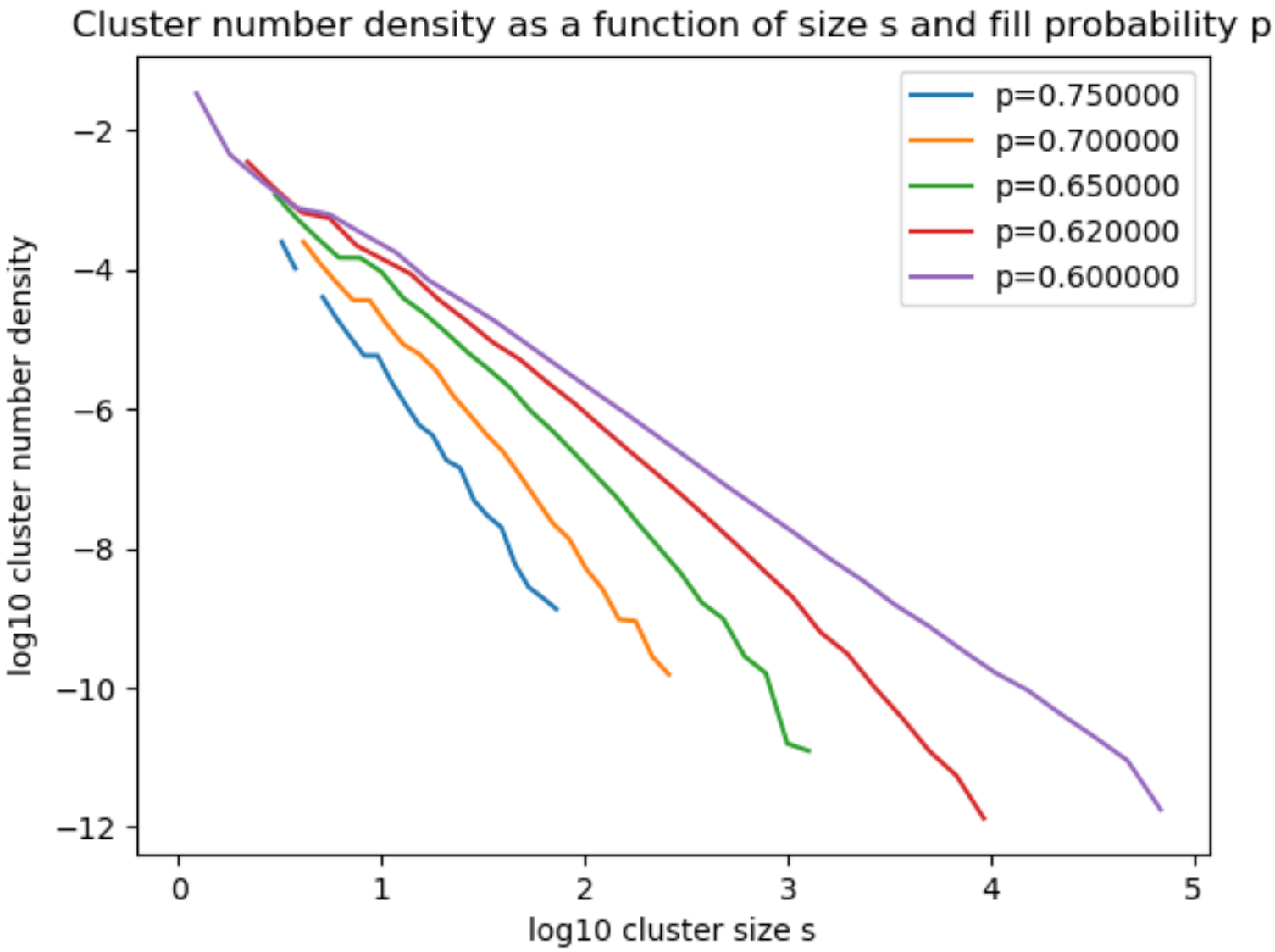

Spanning cluster density with N=1000 samples
L=2
L=4
L=8
L=16
L=32
L=64
L=128
Spanning cluster density Pi(p,L)
Fill probability p
0.0
0.2
0.4
0.6
0.8
1.0
0.4
0.5
0.6
0.7
0.8
0.9
1.0

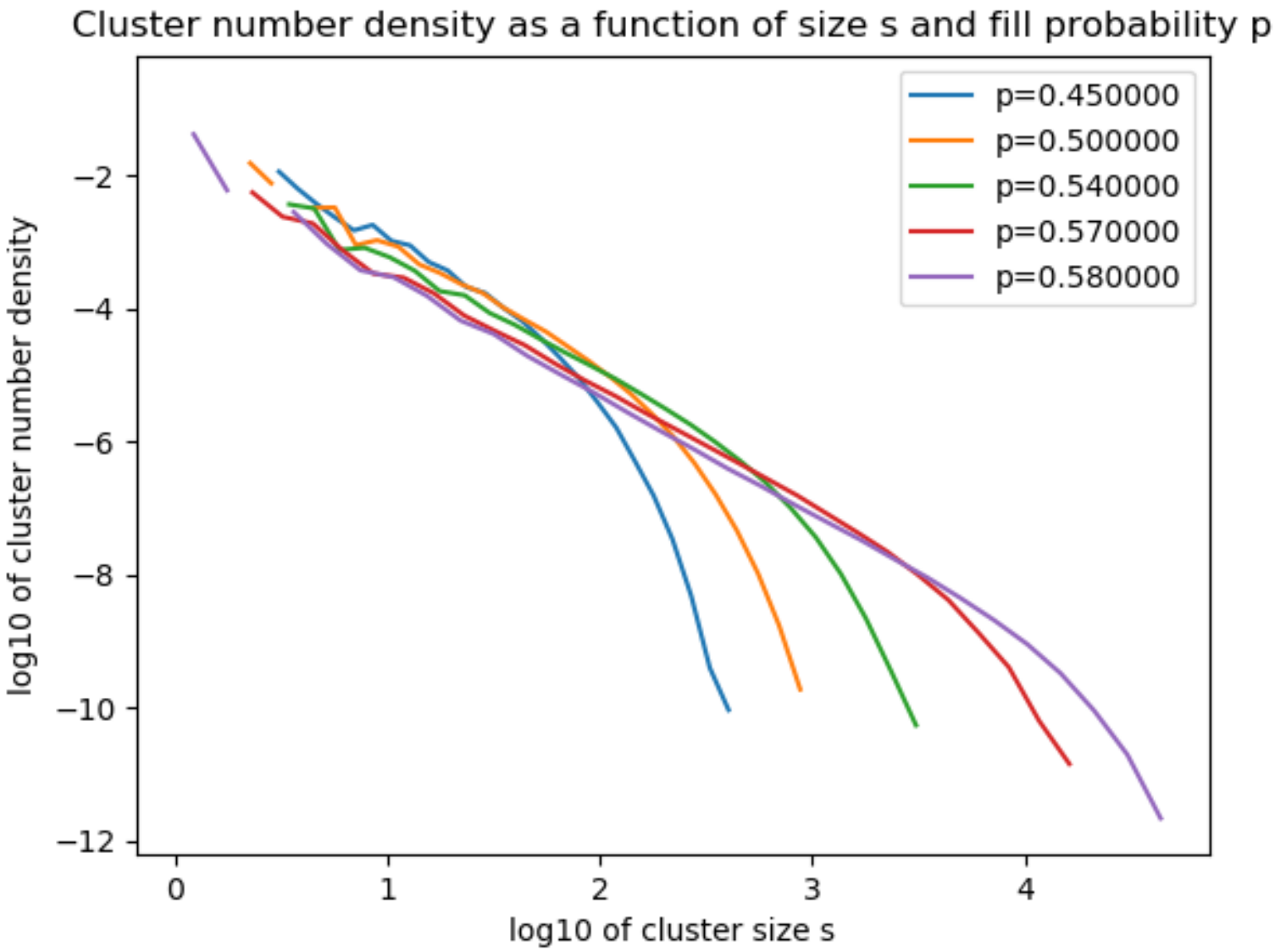

log of spanning density cluster as a function of (p - p_c)
L=100
L=200
L=300
L=400
L=500
ln(P(p,L))
ln(p - p_c)
1.7
1.6
1.5
1.4
1.3
1.2
1.1
−4.8
−4.6
−4.4
−4.2
−4.0
−3.8
−3.6

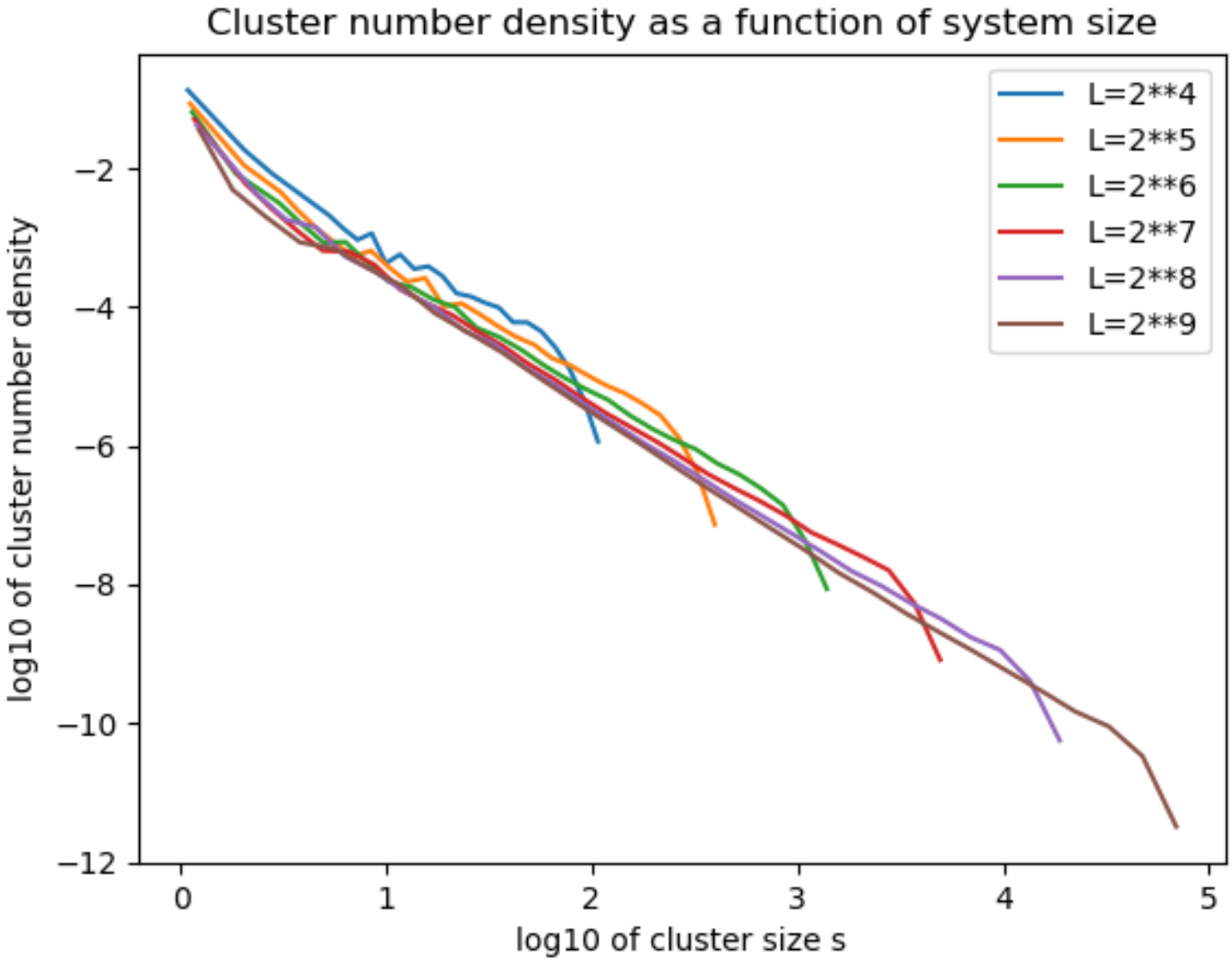

Exponent beta as a function of size L
Beta
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
100
150
200
250
300
350
400
450
500
Size L

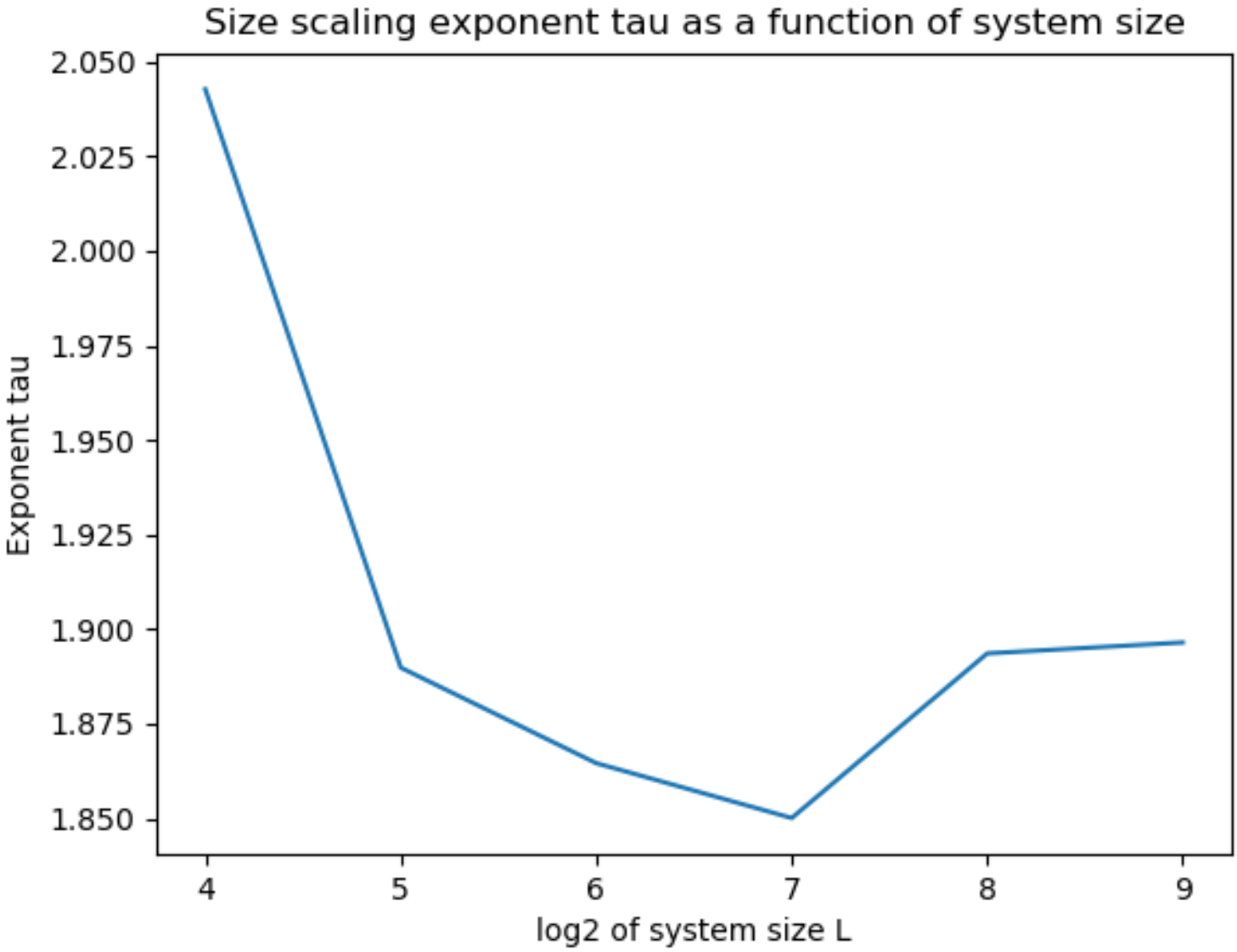

Cumulative distribution for U(0,1)**(-2)
P(Z > z)
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
z
1e14

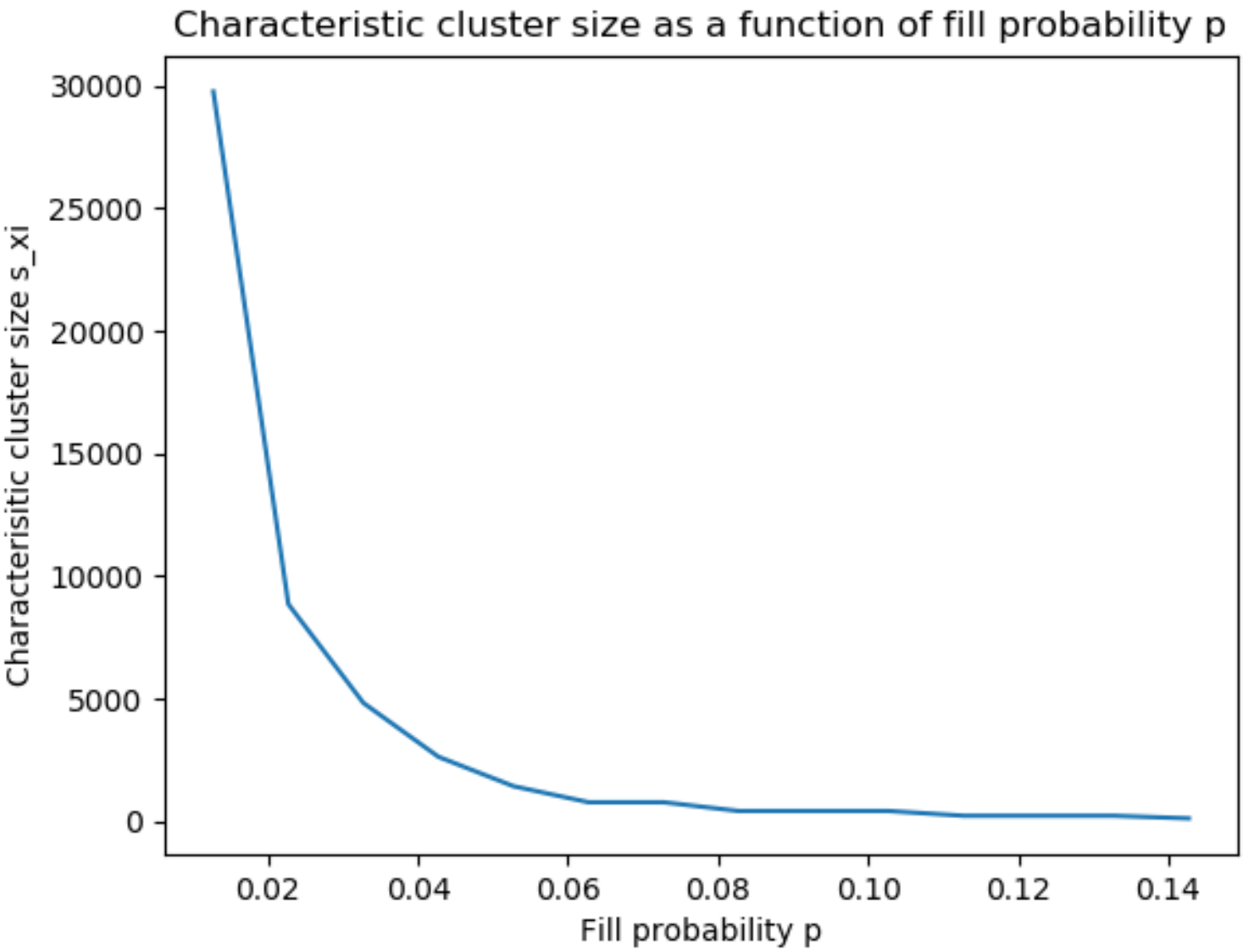

Cumulative distribution for U(0,1)**(-2)
1.0
0.8
0.6
0.4
0.2
0.0
P(Z > z)
10^1
10^3
10^5
10^7
10^9
10^{11}
10^{13}
log10(z)

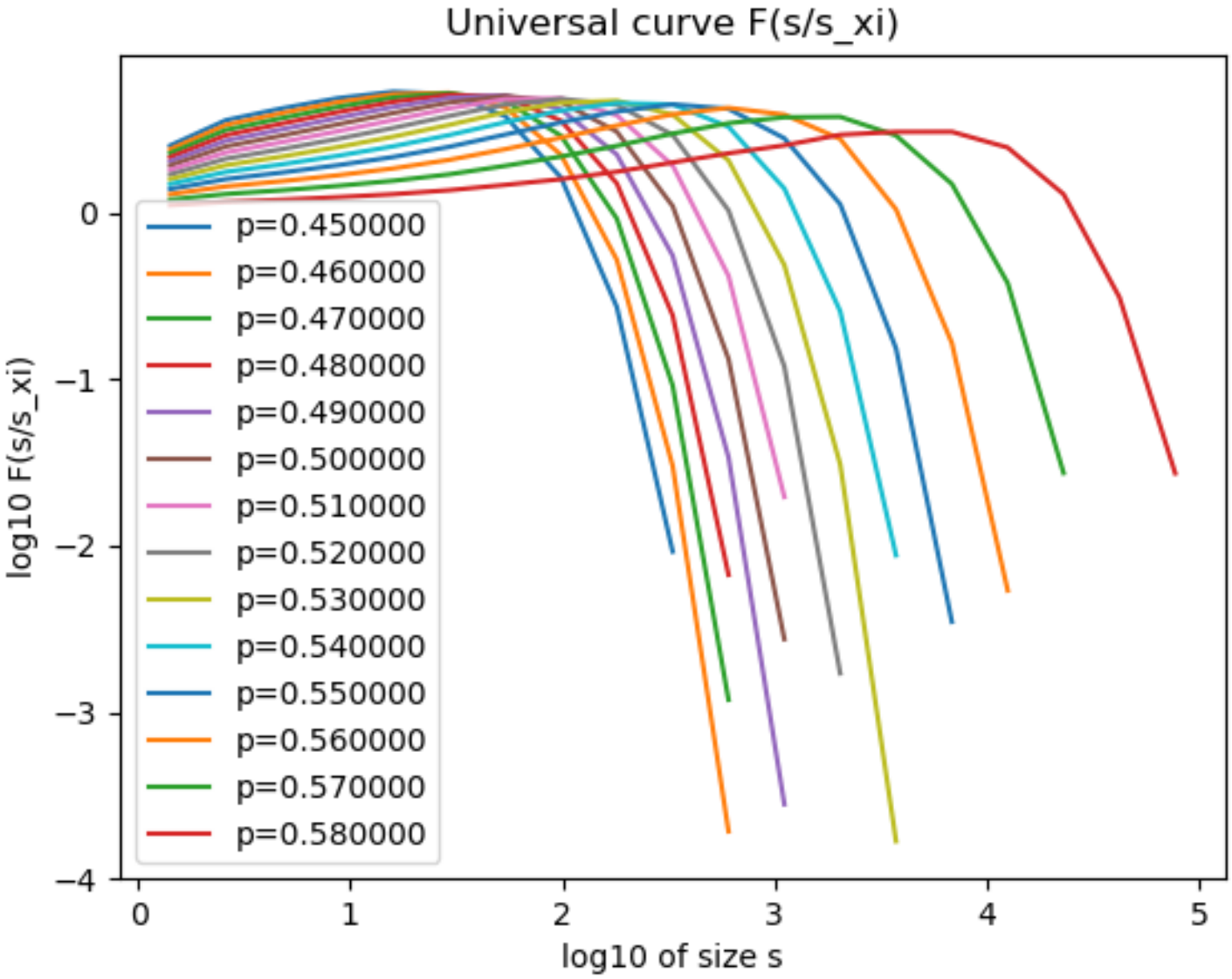

Cluster number density as a function of size s and fill probability p
p=0.750000
p=0.700000
p=0.650000
p=0.620000
p=0.600000
log10 cluster number density
−2
−4
−6
−8
−10
−12
0
1
2
3
4
5
log10 cluster size s

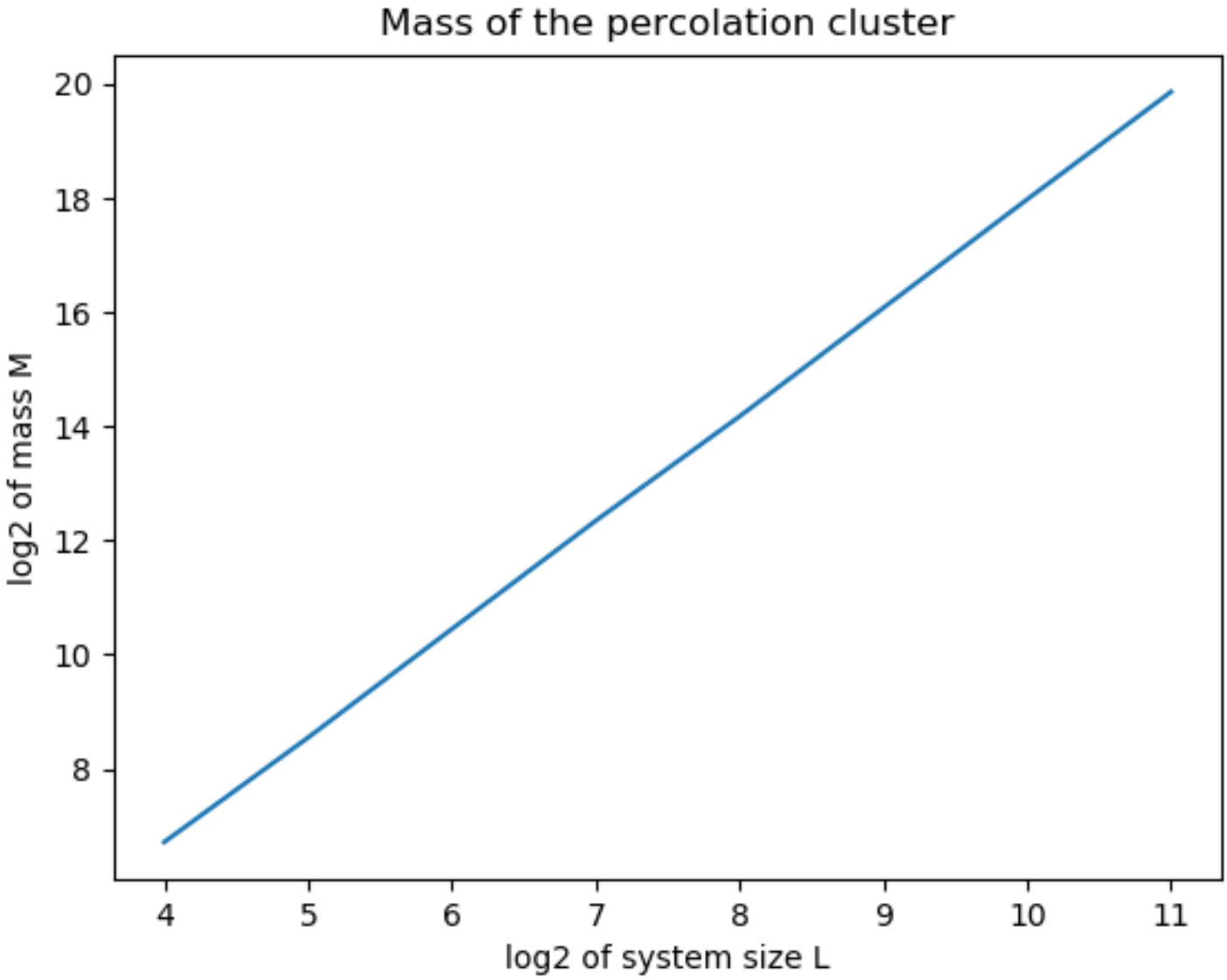

Cluster number density as a function of size s and fill probability p
p=0.450000
p=0.500000
p=0.540000
p=0.570000
p=0.580000
log10 of cluster number density
−2
−4
−6
−8
−10
−12
0
1
2
3
4
log10 of cluster size s

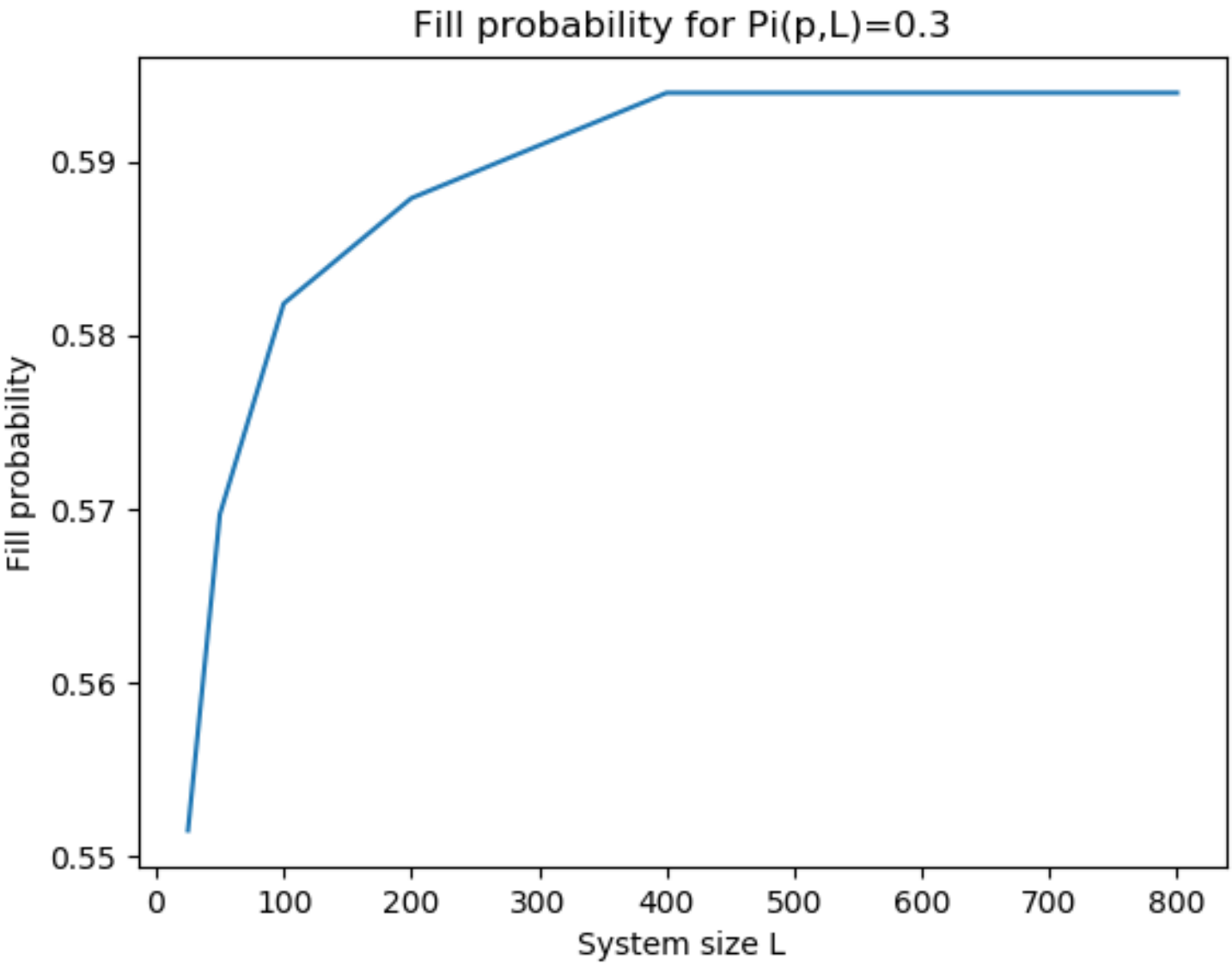

Cluster number density as a function of system size
log10 of cluster number density
log10 of cluster size s
L=2**4
L=2**5
L=2**6
L=2**7
L=2**8
L=2**9
−2
−4
−6
−8
−10
−12
0
1
2
3
4
5

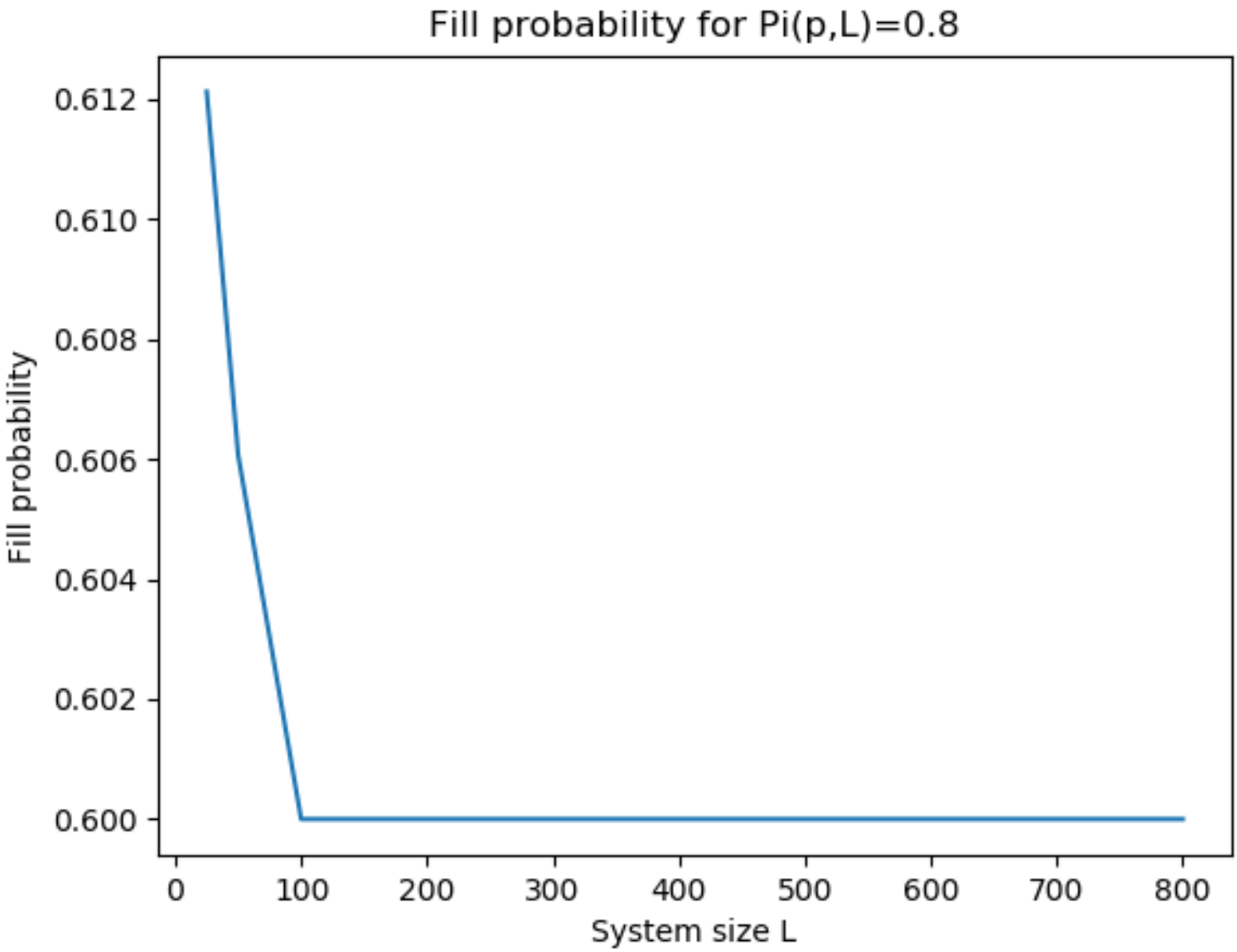

Size scaling exponent tau as a function of system size
Exponent tau
2.050
2.025
2.000
1.975
1.950
1.925
1.900
1.875
1.850
4
5
6
7
8
9
log2 of system size L

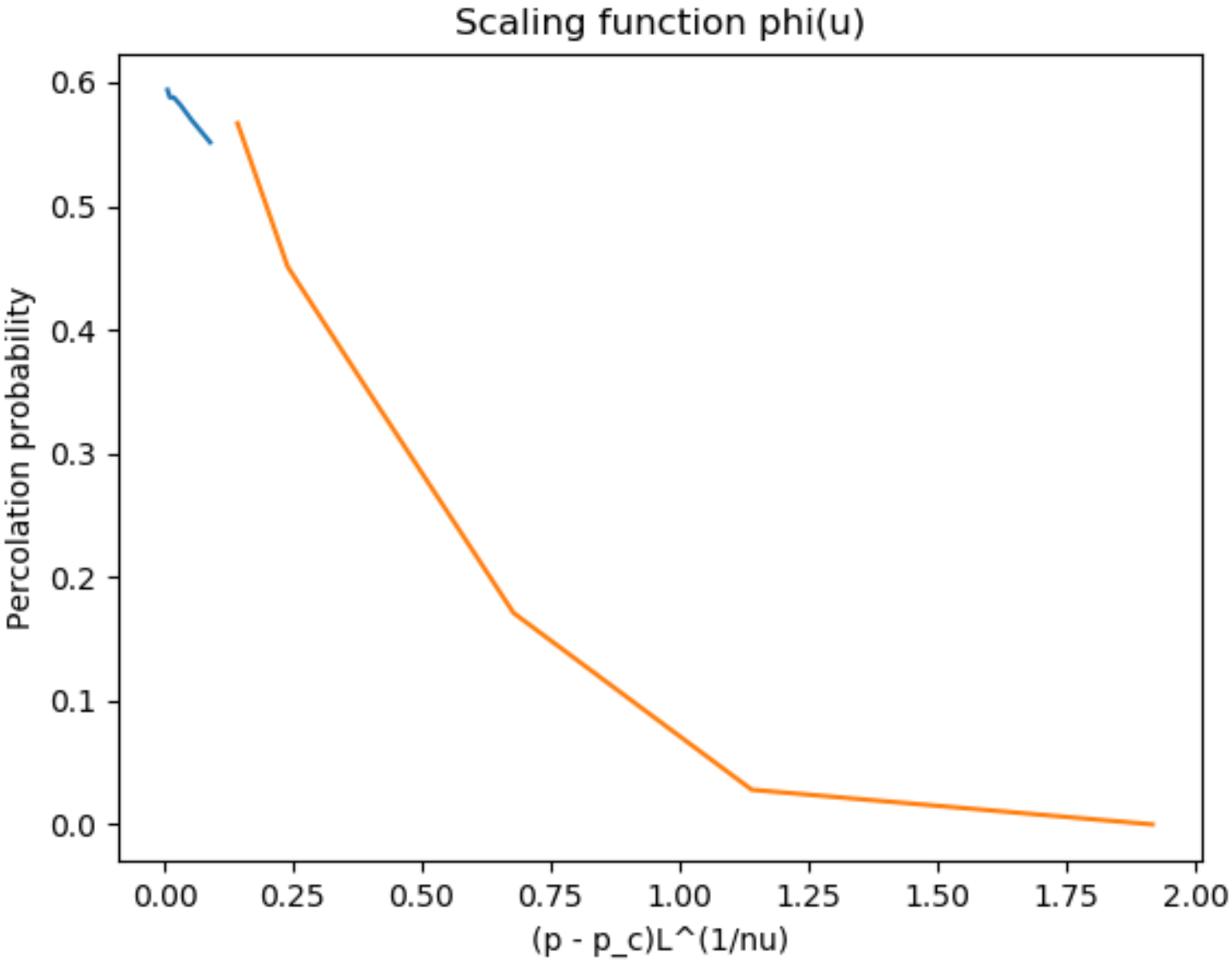

Characteristic cluster size as a function of fill probability p
Characterisitic cluster size s_xi
30000
25000
20000
15000
10000
5000
0
0.02
0.04
0.06
0.08
0.10
0.12
0.14
Fill probability p

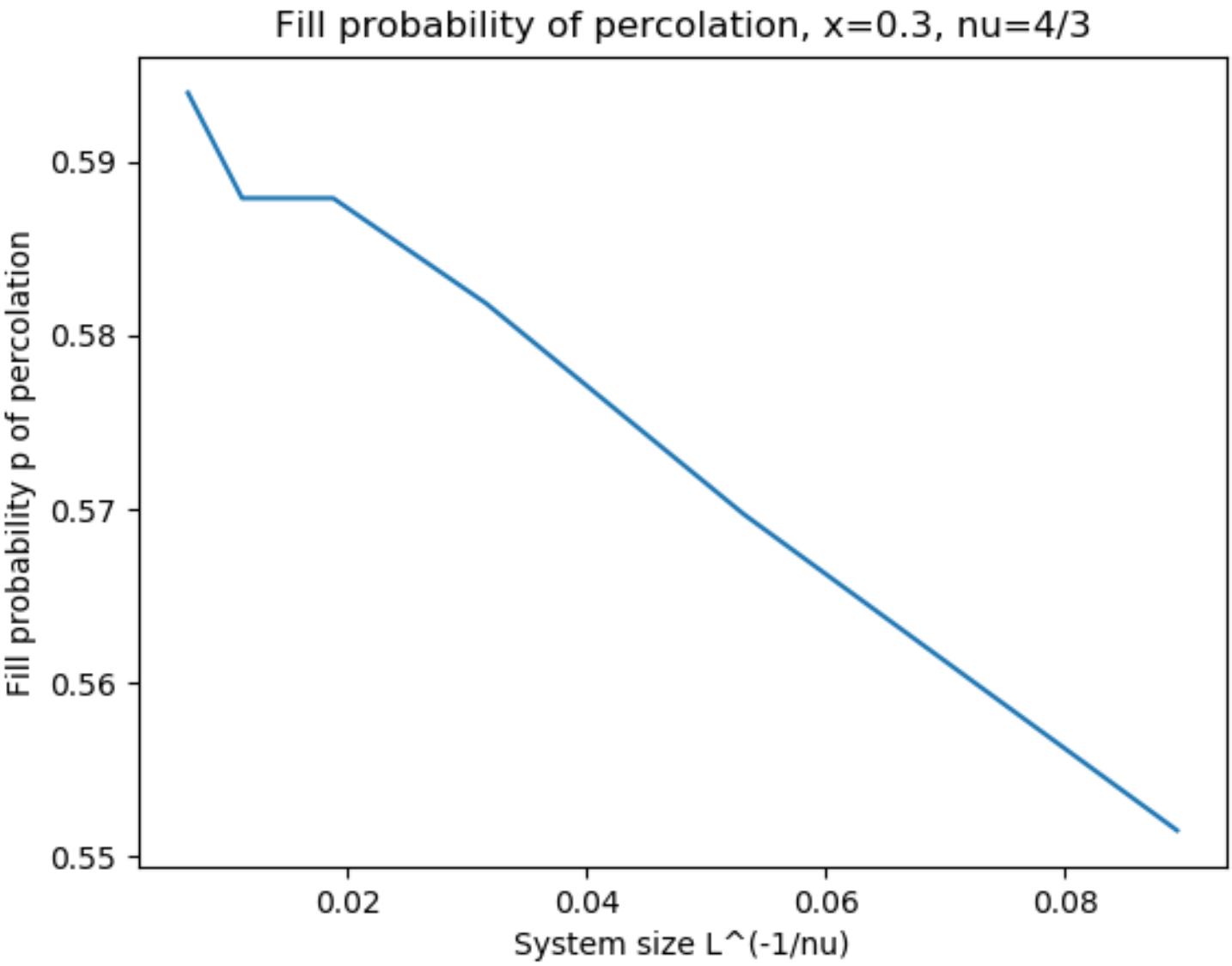

Universal curve F(s/s_xi)
log10 F(s/s_xi)
log10 of size s
p=0.450000
p=0.460000
p=0.470000
p=0.480000
p=0.490000
p=0.500000
p=0.510000
p=0.520000
p=0.530000
p=0.540000
p=0.550000
p=0.560000
p=0.570000
p=0.580000
0
−1
−2
−3
−4
0
1
2
3
4
5

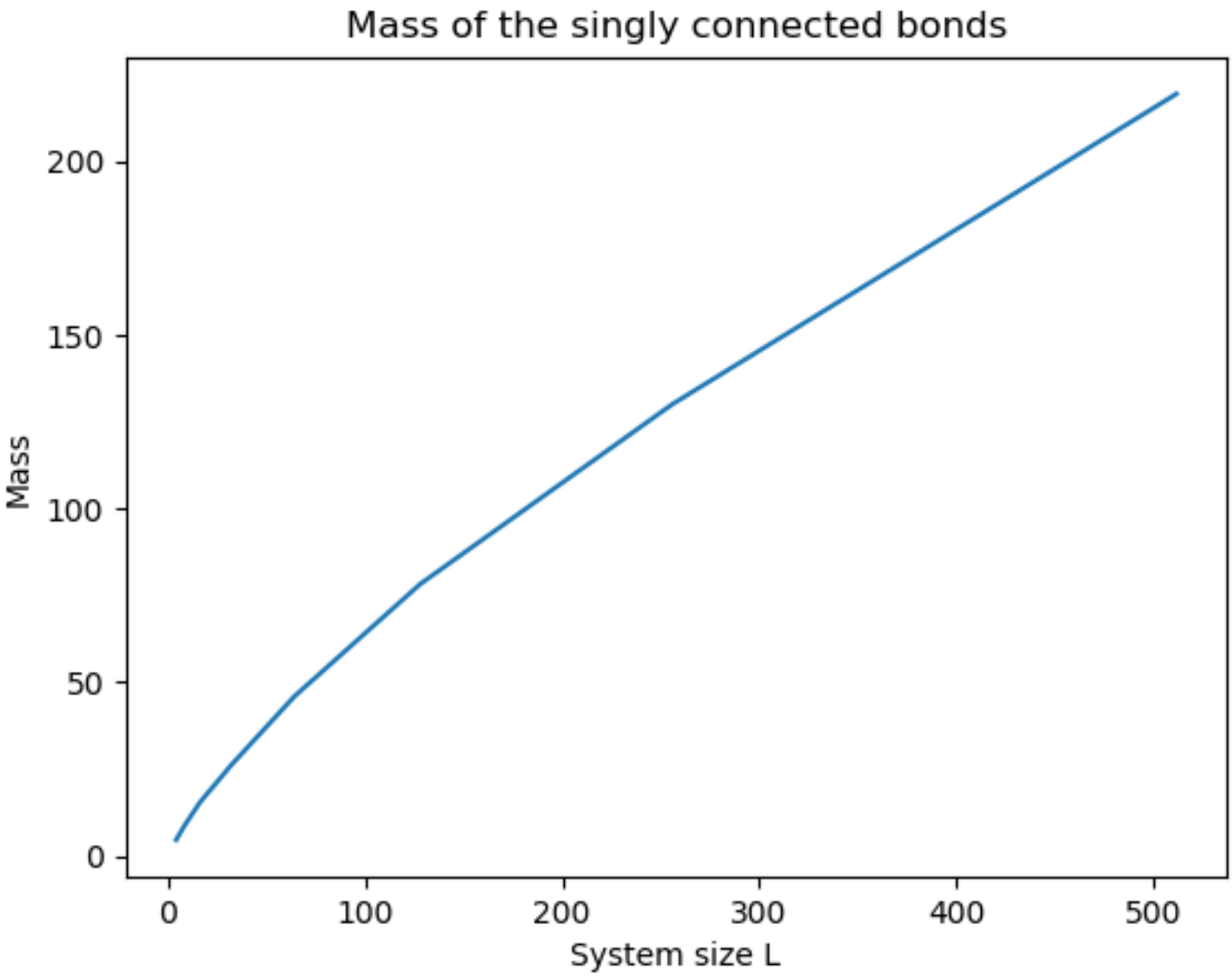

Mass of the percolation cluster
log2 of mass M
log2 of system size L
20
18
16
14
12
10
8
4
5
6
7
8
9
10
11

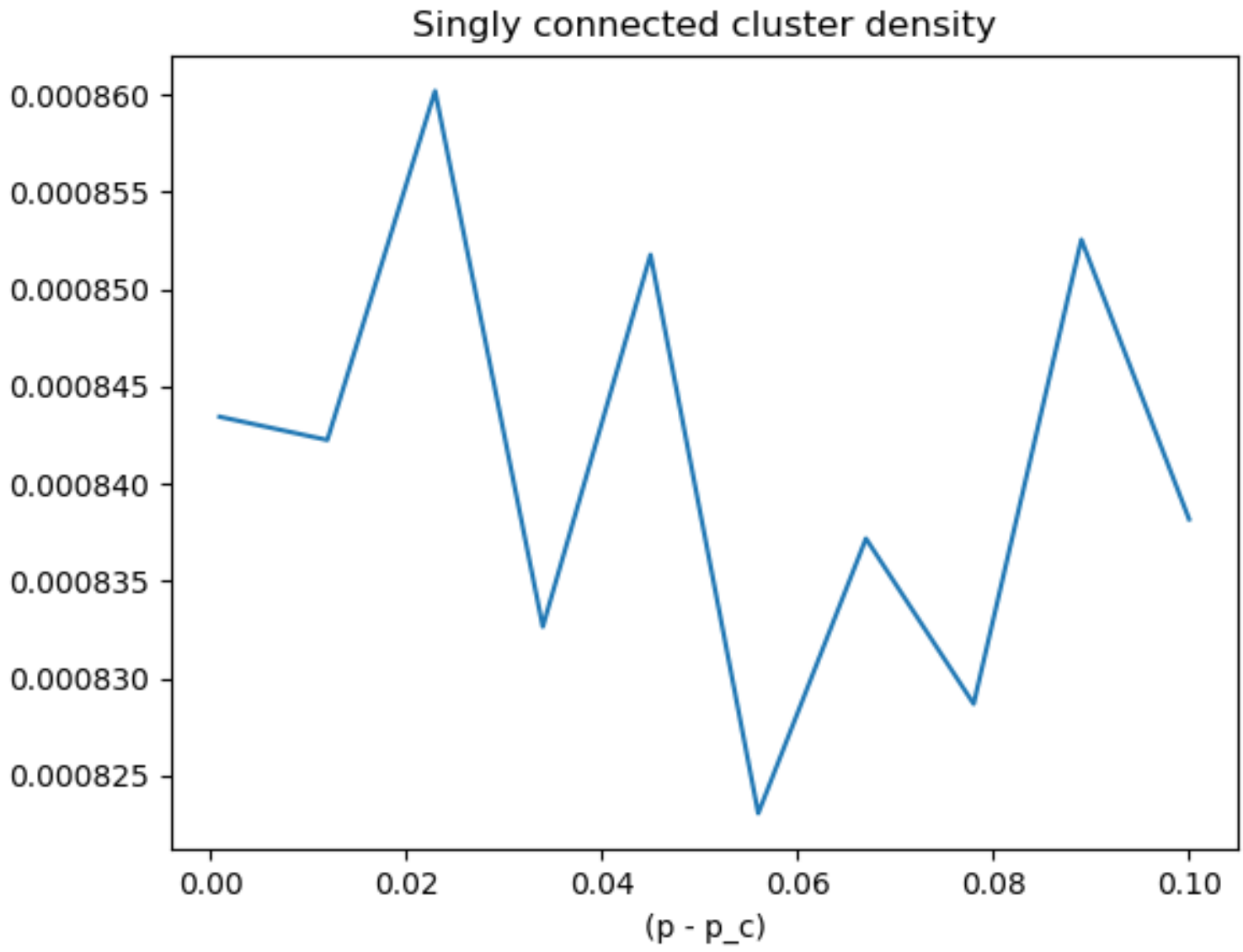

Fill probability for Pi(p,L)=0.3
Fill probability
0.55
0.56
0.57
0.58
0.59
0
100
200
300
400
500
600
700
800
System size L


Fill probability for Pi(p,L)=0.8
Fill probability
0.612
0.610
0.608
0.606
0.604
0.602
0.600
0
100
200
300
400
500
600
700
800
System size L


Scaling function phi(u)
Percolation probability
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.00
0.25
0.50
0.75
1.00
1.25
1.50
1.75
2.00
(p - p_c)L^(1/nu)


Fill probability of percolation, x=0.3, nu=4/3
Fill probability p of percolation
0.59
0.58
0.57
0.56
0.55
0.02
0.04
0.06
0.08
System size L^(-1/nu)


Mass of the singly connected bonds
Mass
System size L
0
50
100
150
200
0
100
200
300
400
500


Singly connected cluster density
0.000860
0.000855
0.000850
0.000845
0.000840
0.000835
0.000830
0.000825
0.00
0.02
0.04
0.06
0.08
0.10
(p - p_c)