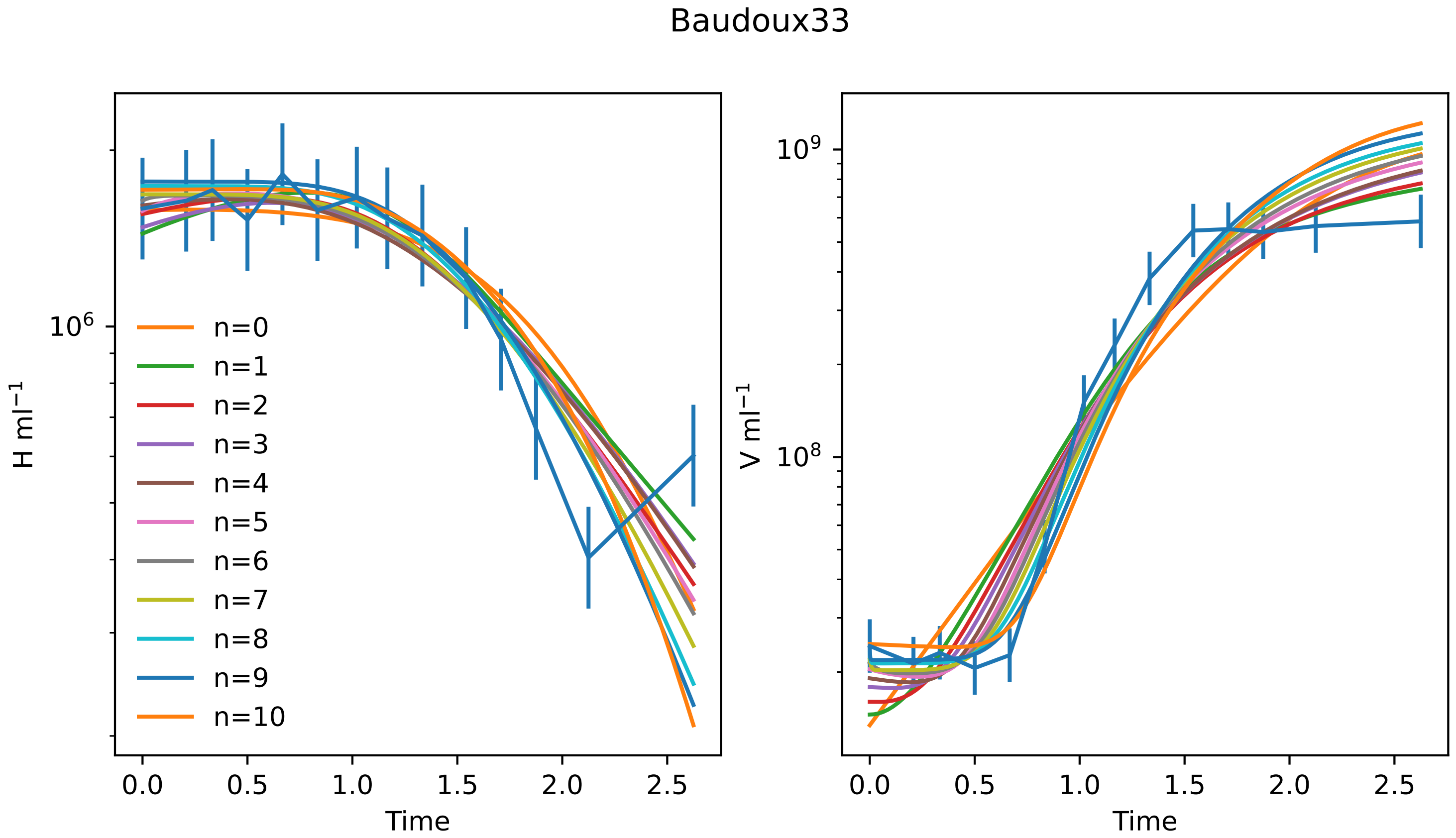
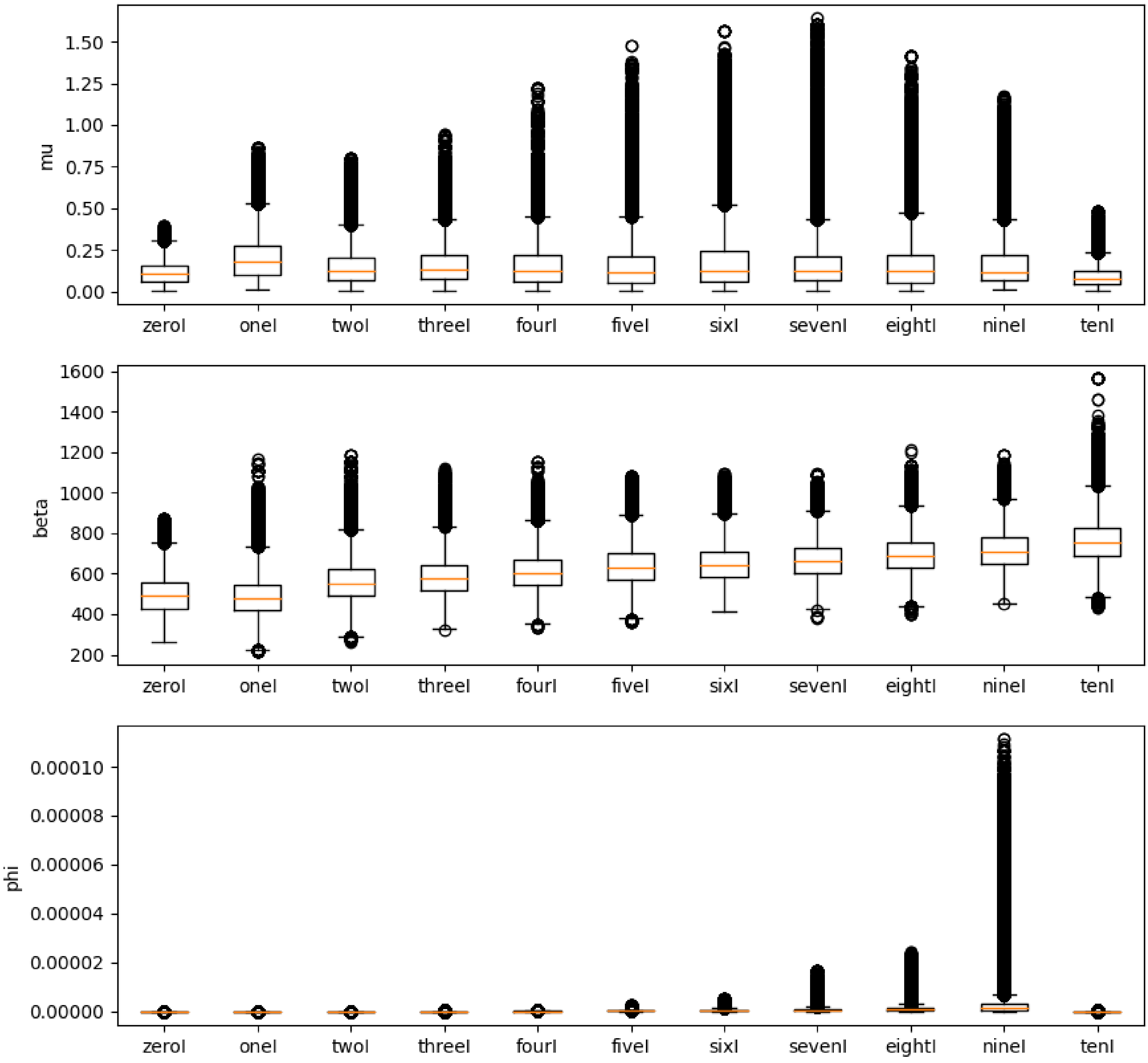
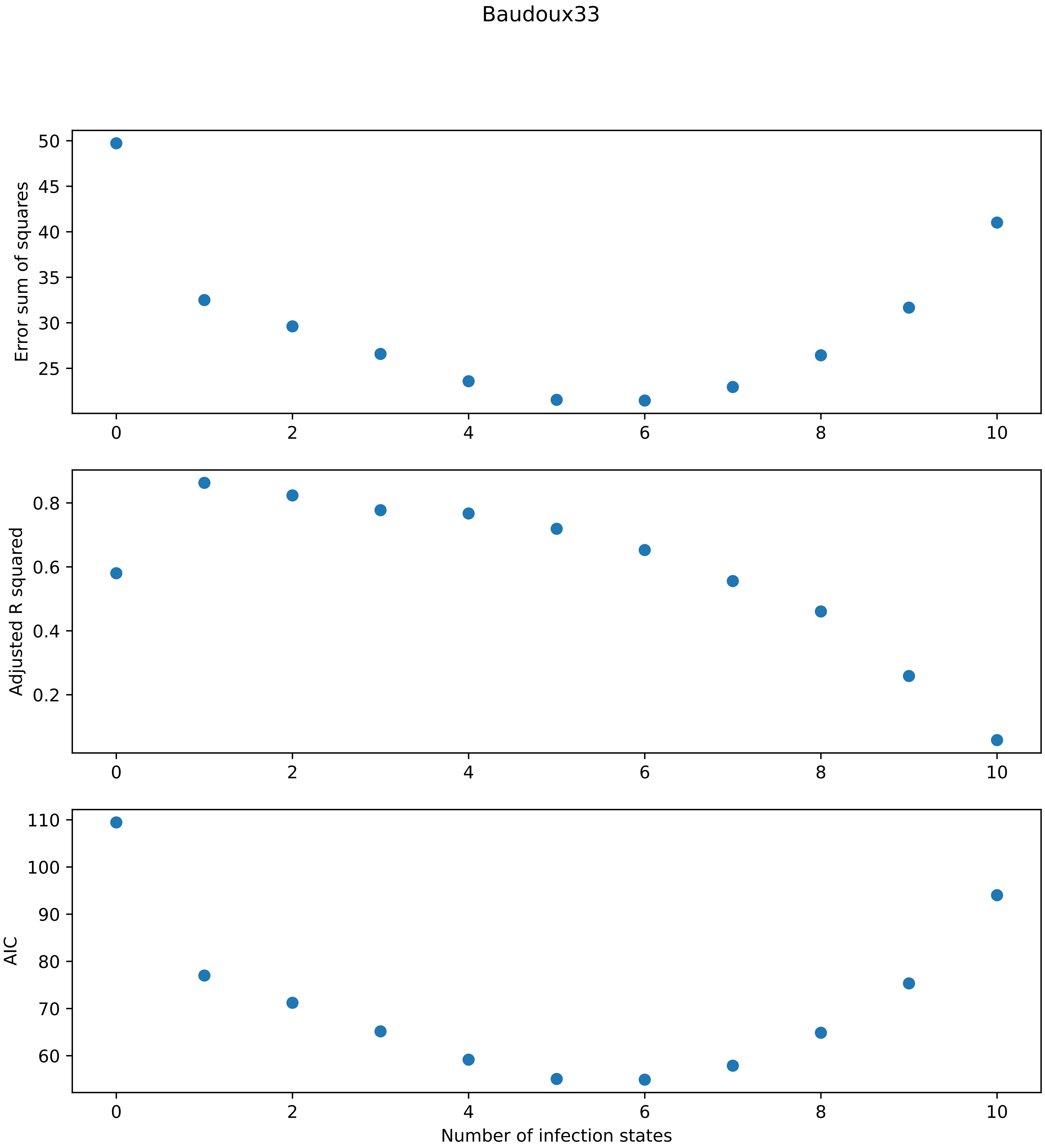
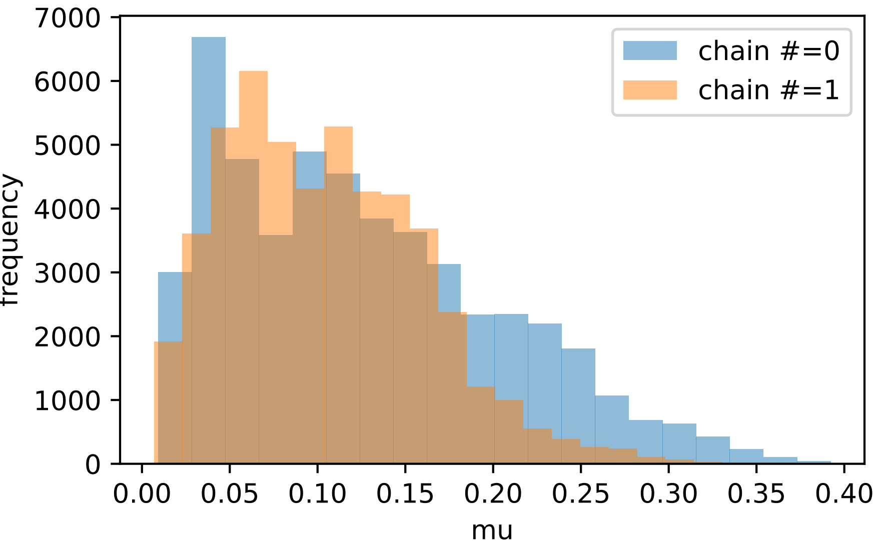

Baudoux33
H ml^{-1}
10^6
n=0
n=1
n=2
n=3
n=4
n=5
n=6
n=7
n=8
n=9
n=10
0.0
0.5
1.0
1.5
2.0
2.5
Time
V ml^{-1}
10^9
10^8
0.0
0.5
1.0
1.5
2.0
2.5
Time

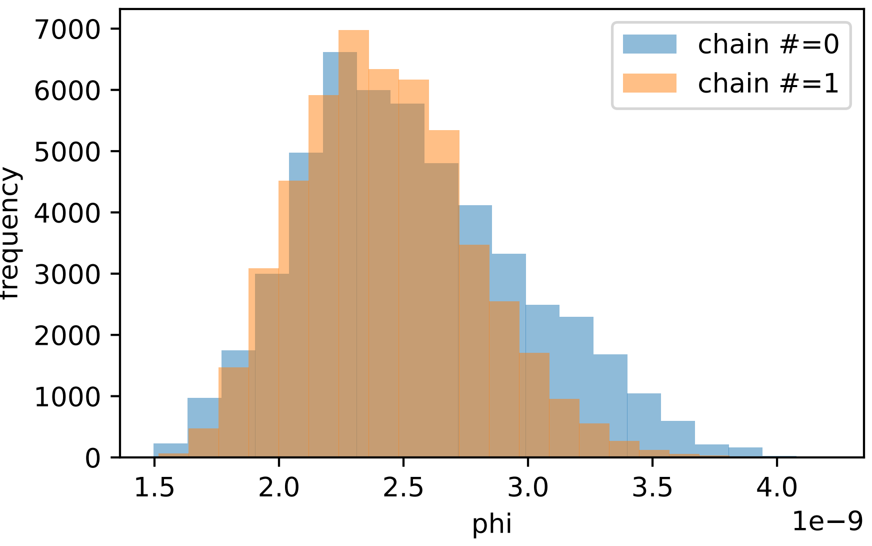
Baudoux33

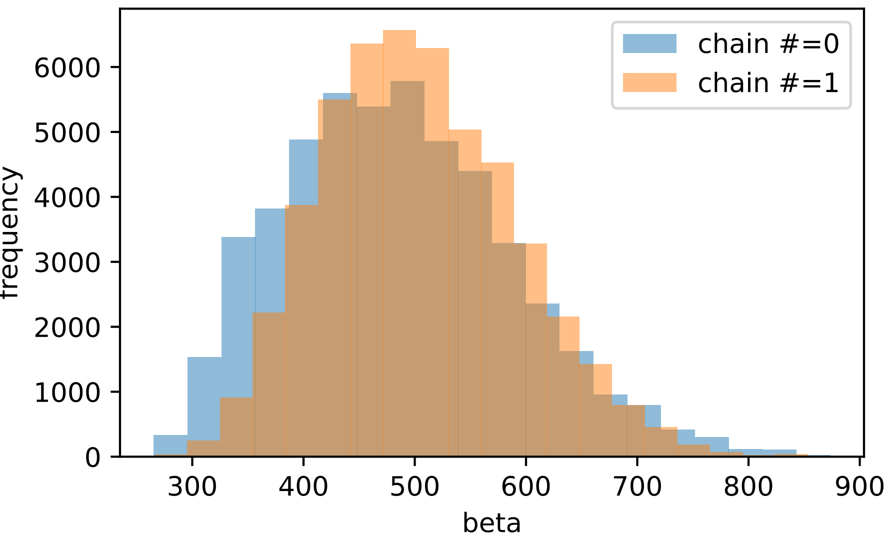

mu
1.50
1.25
1.00
0.75
0.50
0.25
0.00
beta
1600
1400
1200
1000
800
600
400
200
phi
0.00010
0.00008
0.00006
0.00004
0.00002
0.00000
zeroI
oneI
twoI
threeI
fourI
fiveI
sixI
sevenI
eightI
nineI
tenI

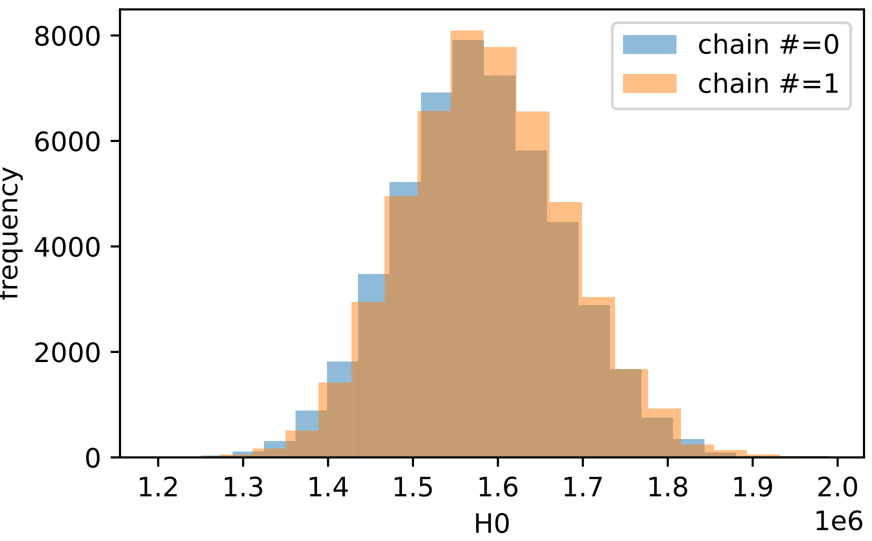

Baudoux33
Error sum of squares
50
45
40
35
30
25
0
2
4
6
8
10
Adjusted R squared
0.8
0.6
0.4
0.2
0
2
4
6
8
10
AIC
110
100
90
80
70
60
0
2
4
6
8
10
Number of infection states

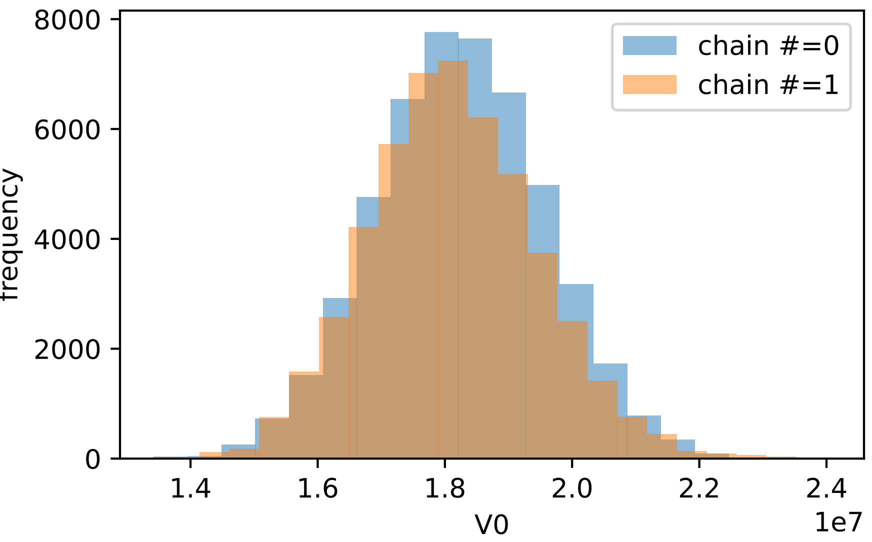
zero_i

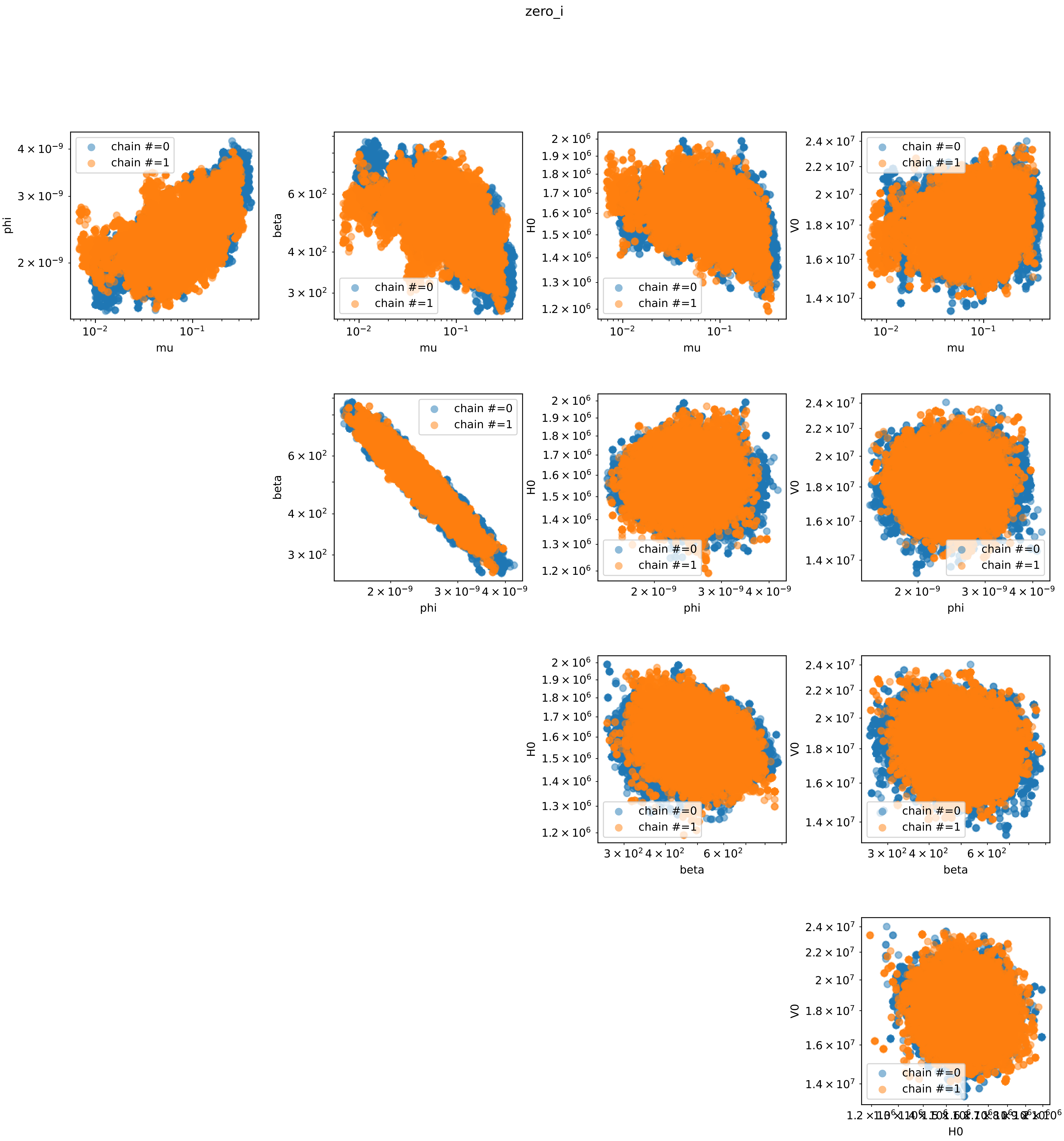

chain #=0
chain #=1
frequency
0
1000
2000
3000
4000
5000
6000
7000
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
mu

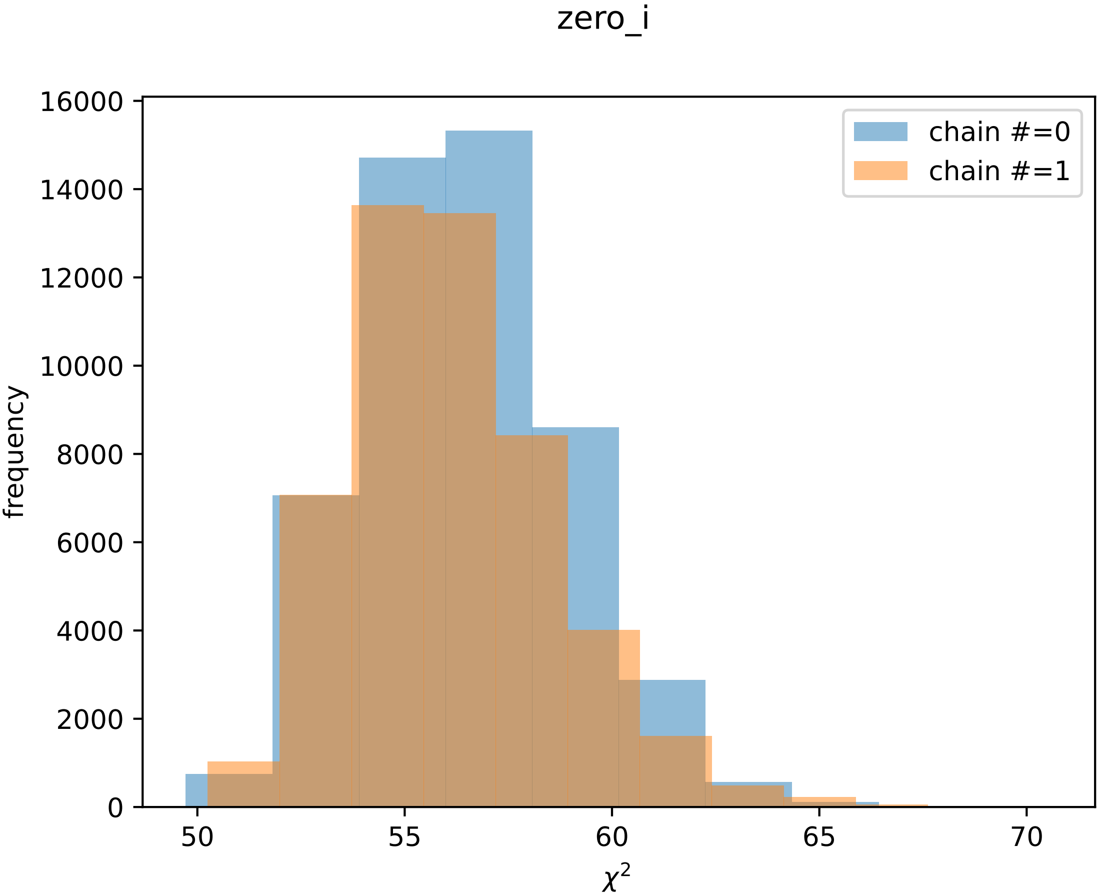

chain #=0
chain #=1
frequency
0
1000
2000
3000
4000
5000
6000
7000
1.5
2.0
2.5
3.0
3.5
4.0
1e−9
phi

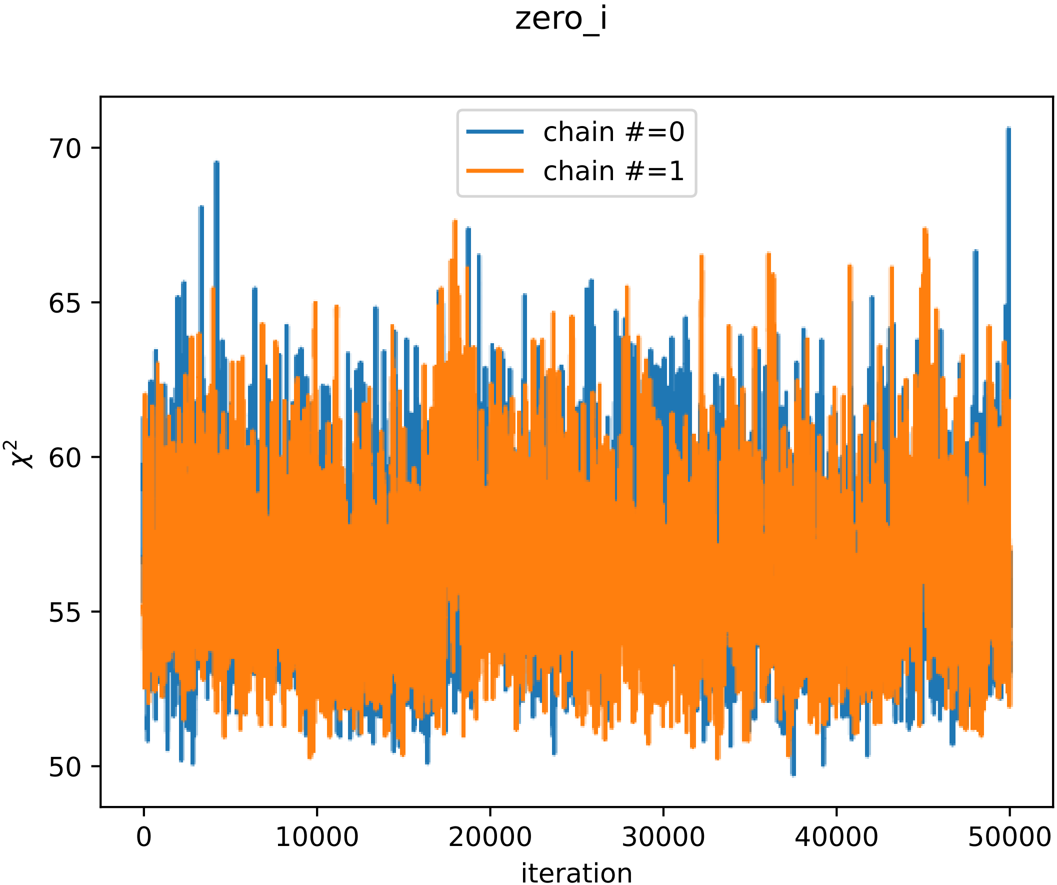

chain #=0
chain #=1
frequency
0
1000
2000
3000
4000
5000
6000
300
400
500
600
700
800
900
beta


chain #=0
chain #=1
frequency
0
2000
4000
6000
8000
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
1e6
H0

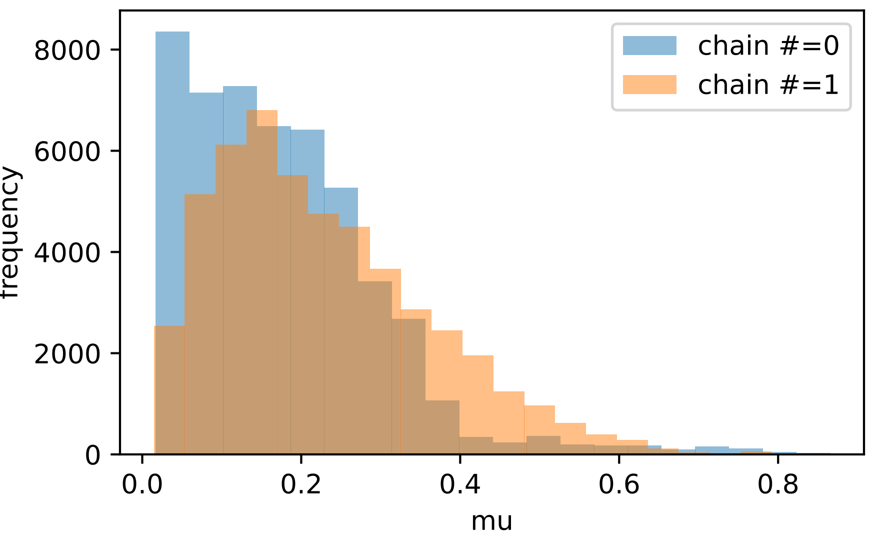

chain #=0
chain #=1
frequency
0
2000
4000
6000
8000
1.4
1.6
1.8
2.0
2.2
2.4
1e7
V0

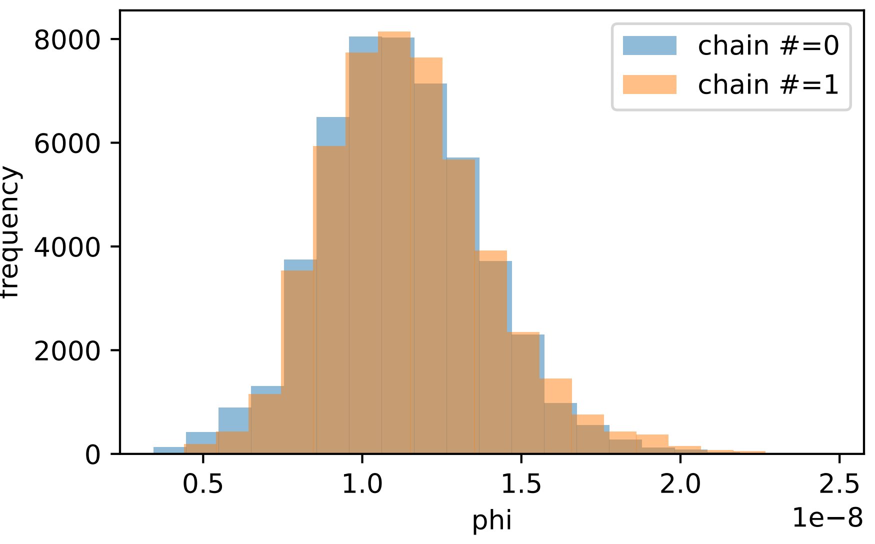

zero_i
chain #=0
chain #=1
mu
phi
beta
H0
V0
10^{-2}
10^{-1}
2×10^{-9}
3×10^{-9}
4×10^{-9}
3×10^{2}
4×10^{2}
6×10^{2}
1.2×10^{6}
1.3×10^{6}
1.4×10^{6}
1.5×10^{6}
1.6×10^{6}
1.7×10^{6}
1.8×10^{6}
1.9×10^{6}
2×10^{6}
1.4×10^{7}
1.6×10^{7}
1.8×10^{7}
2×10^{7}
2.2×10^{7}
2.4×10^{7}

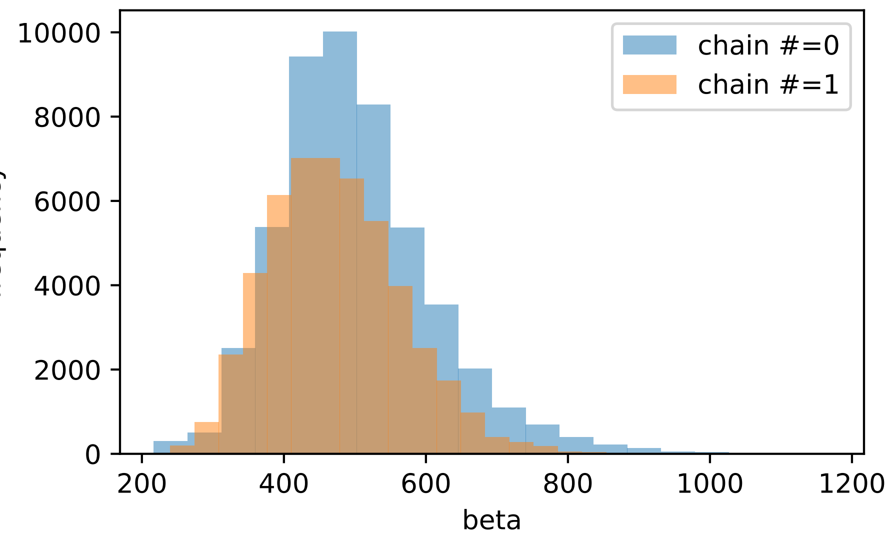

zero_i
chain #=0
chain #=1
frequency
0
2000
4000
6000
8000
10000
12000
14000
16000
50
55
60
65
70
χ^2

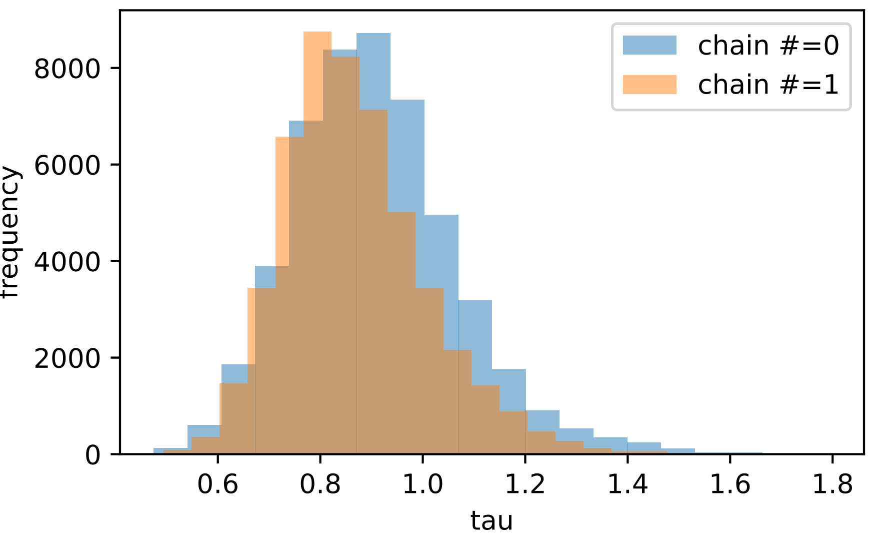

zero_i
chain #=0
chain #=1
70
65
60
55
50
χ^2
0
10000
20000
30000
40000
50000
iteration

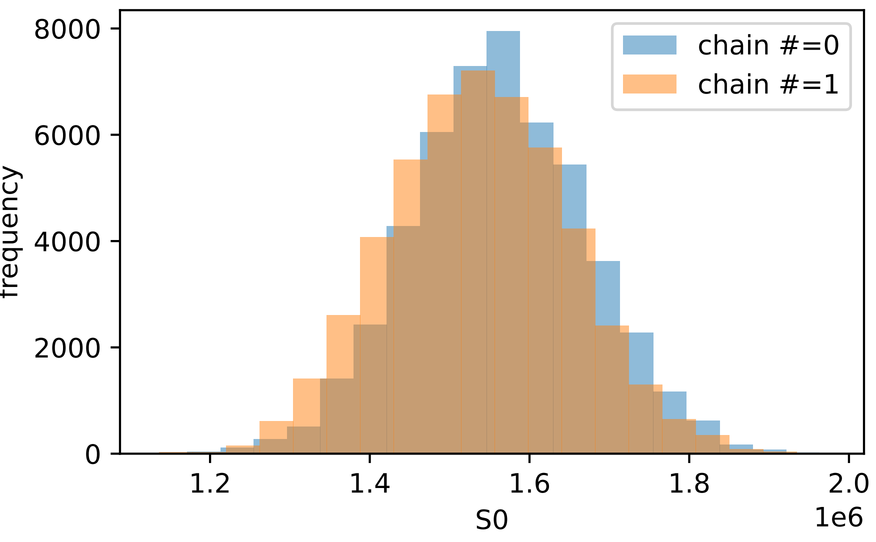
one_i

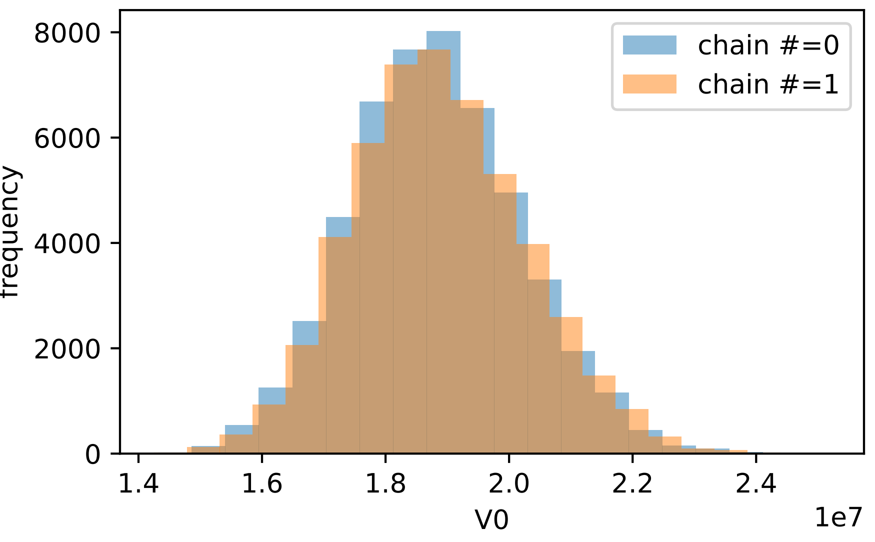

frequency
0
2000
4000
6000
8000
0.0
0.2
0.4
0.6
0.8
mu
chain #=0
chain #=1


frequency
0
2000
4000
6000
8000
0.5
1.0
1.5
2.0
2.5
1e−8
phi
chain #=0
chain #=1

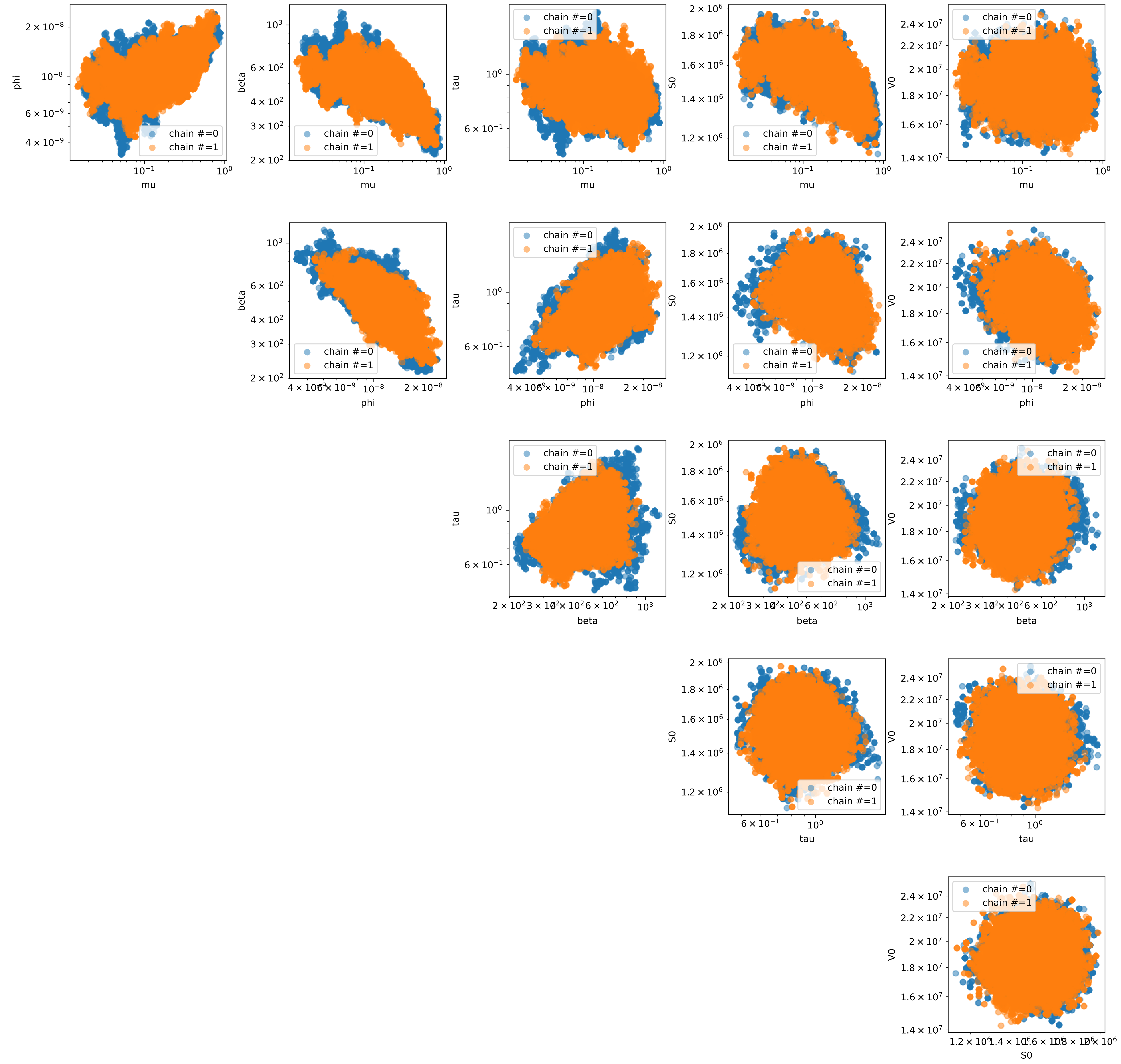

0
2000
4000
6000
8000
10000
200
400
600
800
1000
1200
beta
chain #=0
chain #=1

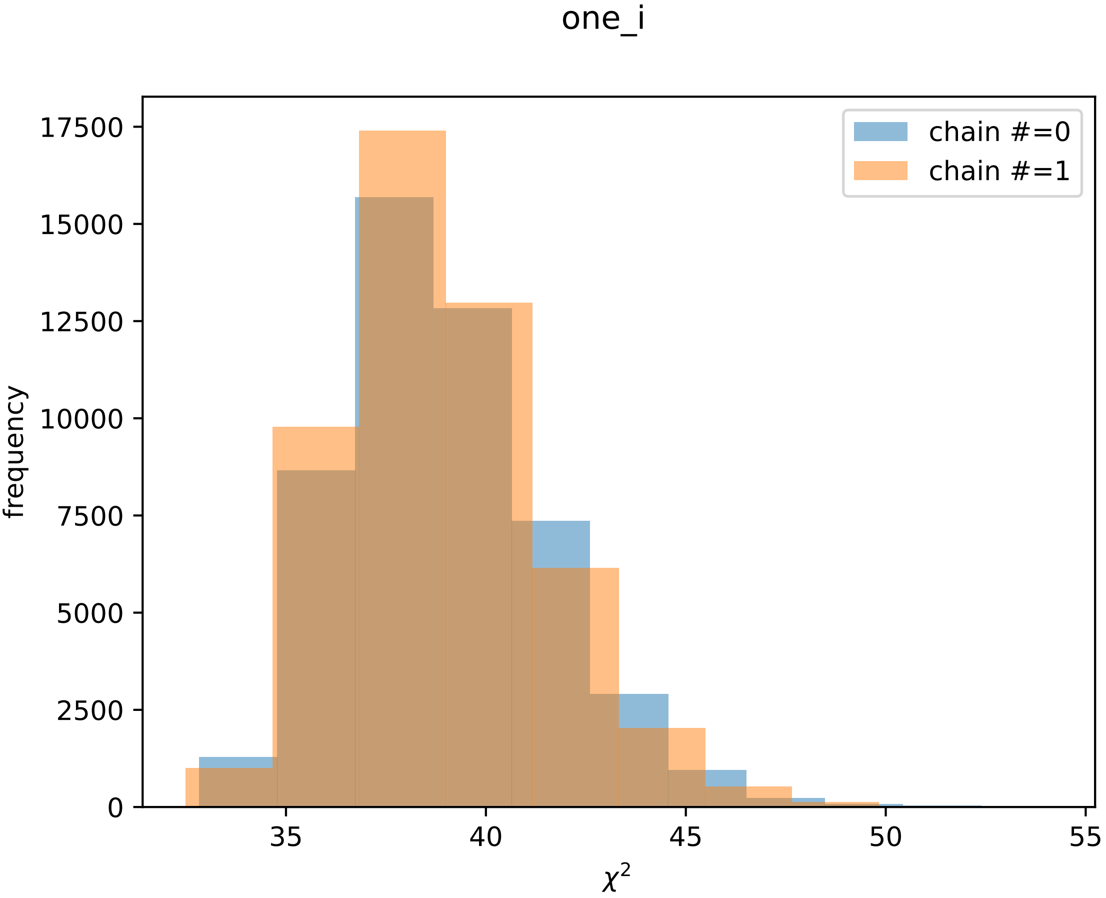

frequency
0
2000
4000
6000
8000
0.6
0.8
1.0
1.2
1.4
1.6
1.8
tau
chain #=0
chain #=1


frequency
0
2000
4000
6000
8000
1.2
1.4
1.6
1.8
2.0
1e6
S0
chain #=0
chain #=1

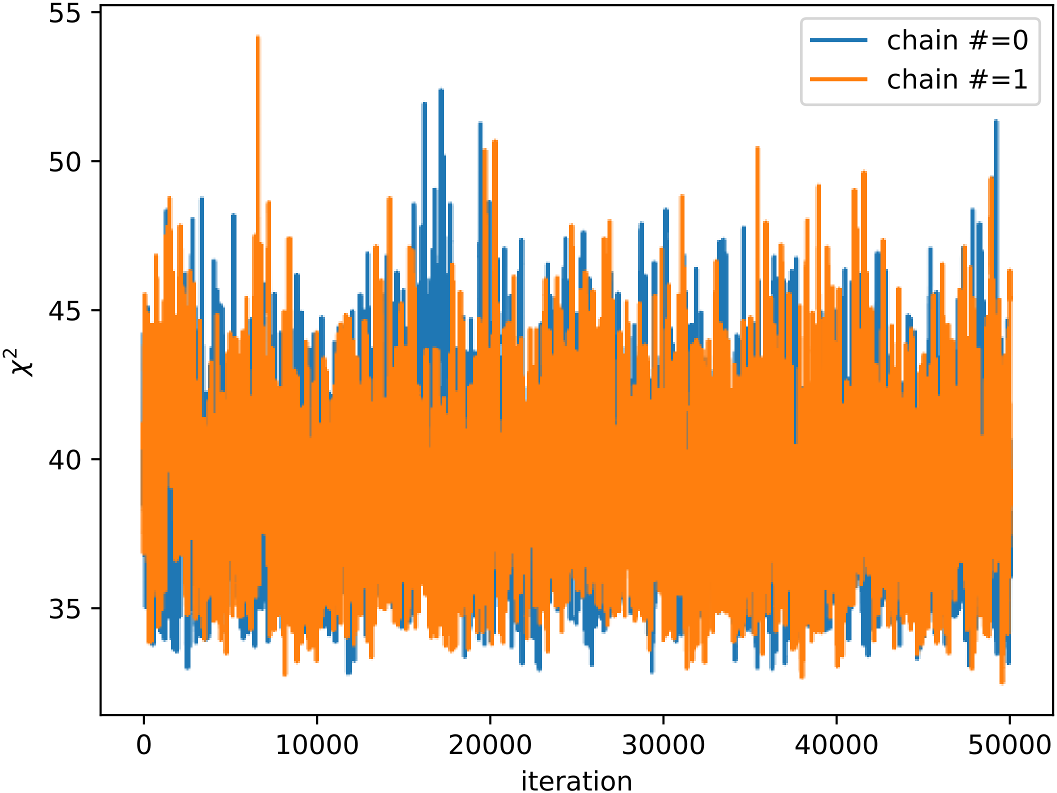

frequency
0
2000
4000
6000
8000
1.4
1.6
1.8
2.0
2.2
2.4
1e7
V0
chain #=0
chain #=1

one_i


chain #=0
chain #=1
mu
phi
beta
tau
S0
V0
10^{-1}
10^{0}
4×10^{-9}
6×10^{-9}
10^{-8}
2×10^{-8}
2×10^{2}
3×10^{2}
4×10^{2}
6×10^{2}
10^{3}
6×10^{-1}
10^{0}
1.2×10^{6}
1.4×10^{6}
1.6×10^{6}
1.8×10^{6}
2×10^{6}
1.4×10^{7}
1.6×10^{7}
1.8×10^{7}
2×10^{7}
2.2×10^{7}
2.4×10^{7}

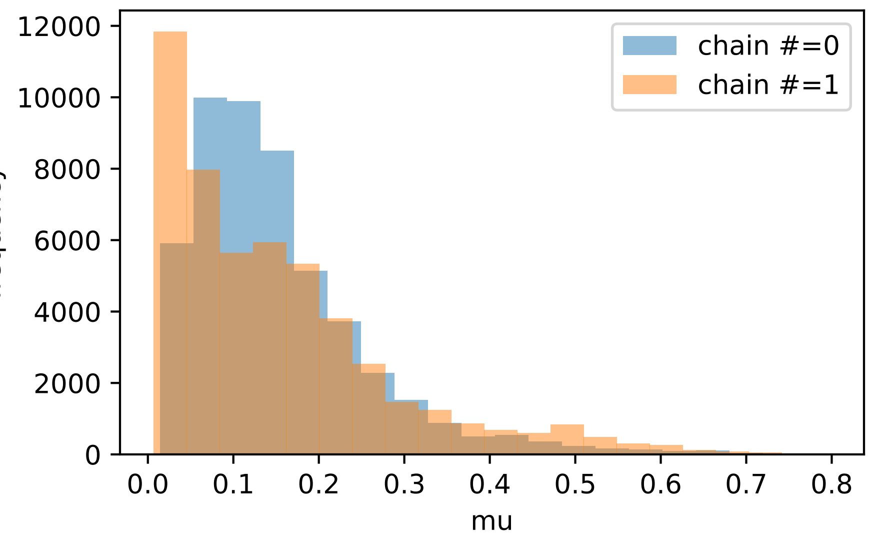

one_i
chain #=0
chain #=1
frequency
0
2500
5000
7500
10000
12500
15000
17500
35
40
45
50
55
χ^2

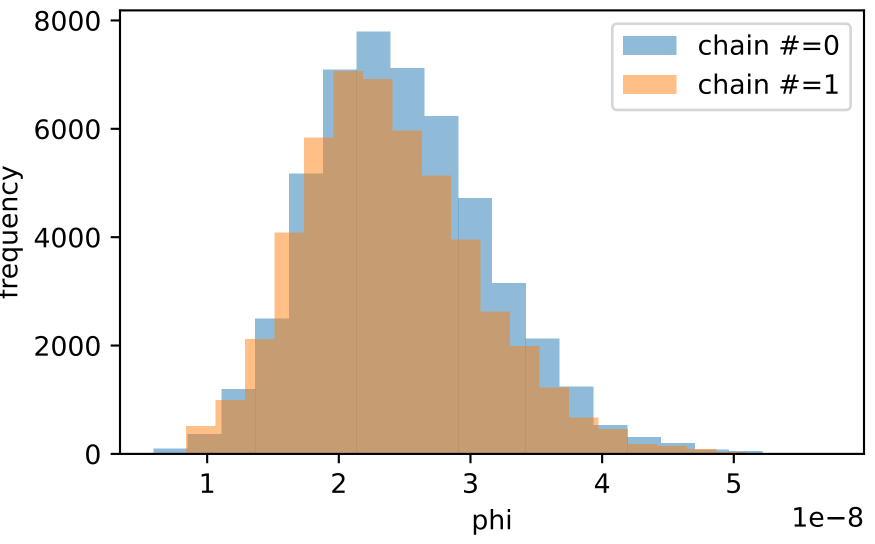
one_i

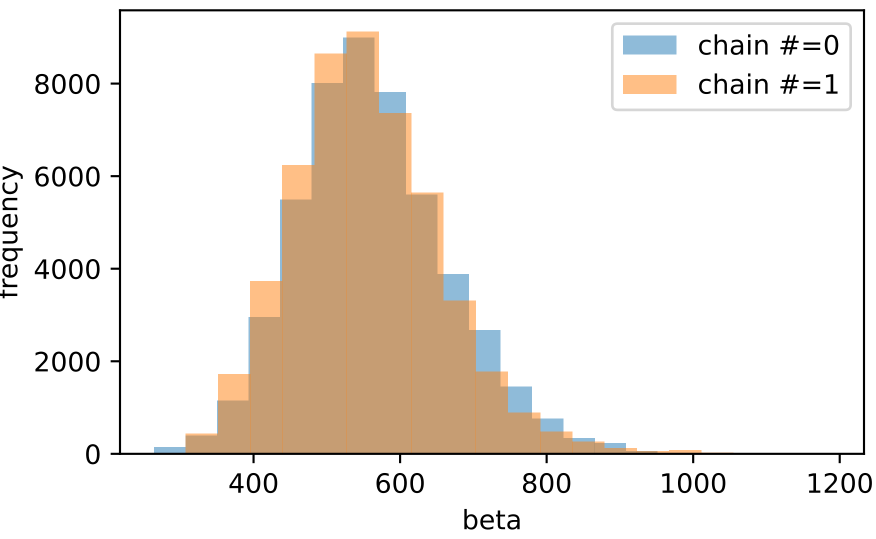


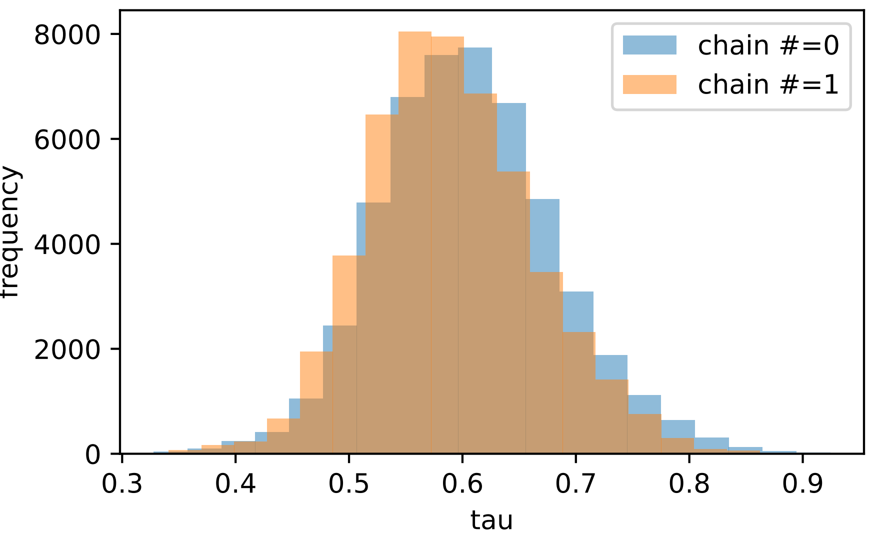
55
50
45
40
35
χ^2
0
10000
20000
30000
40000
50000
iteration
chain #=0
chain #=1

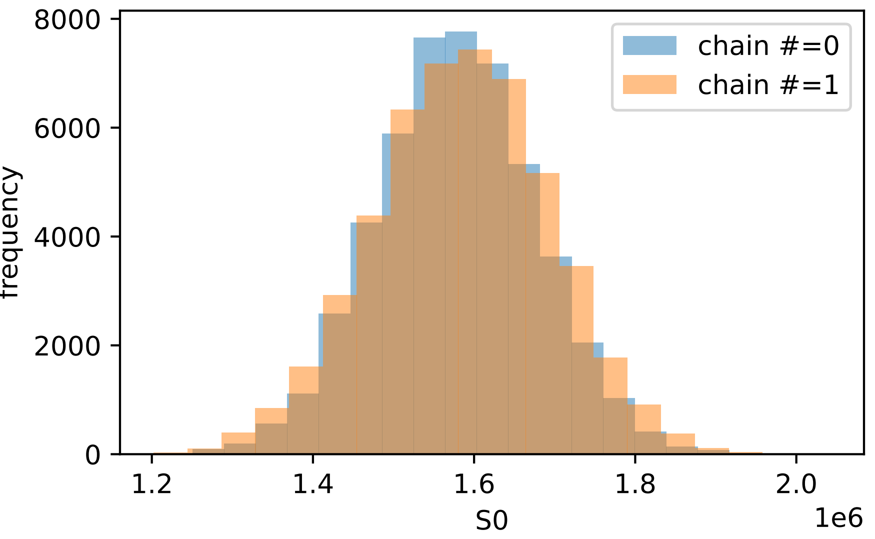
two_i

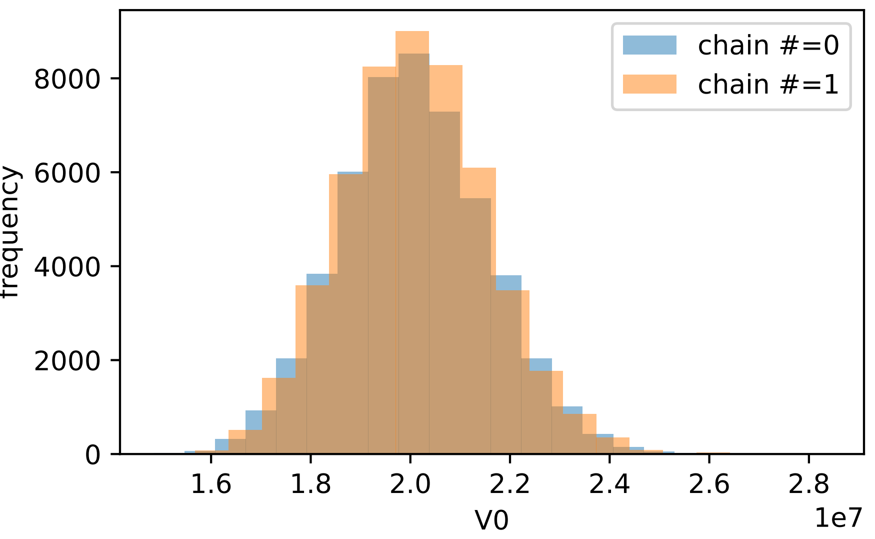

chain #=0
chain #=1
12000
10000
8000
6000
4000
2000
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
mu


chain #=0
chain #=1
8000
6000
4000
2000
0
requency
1
2
3
4
5
phi
1e−8

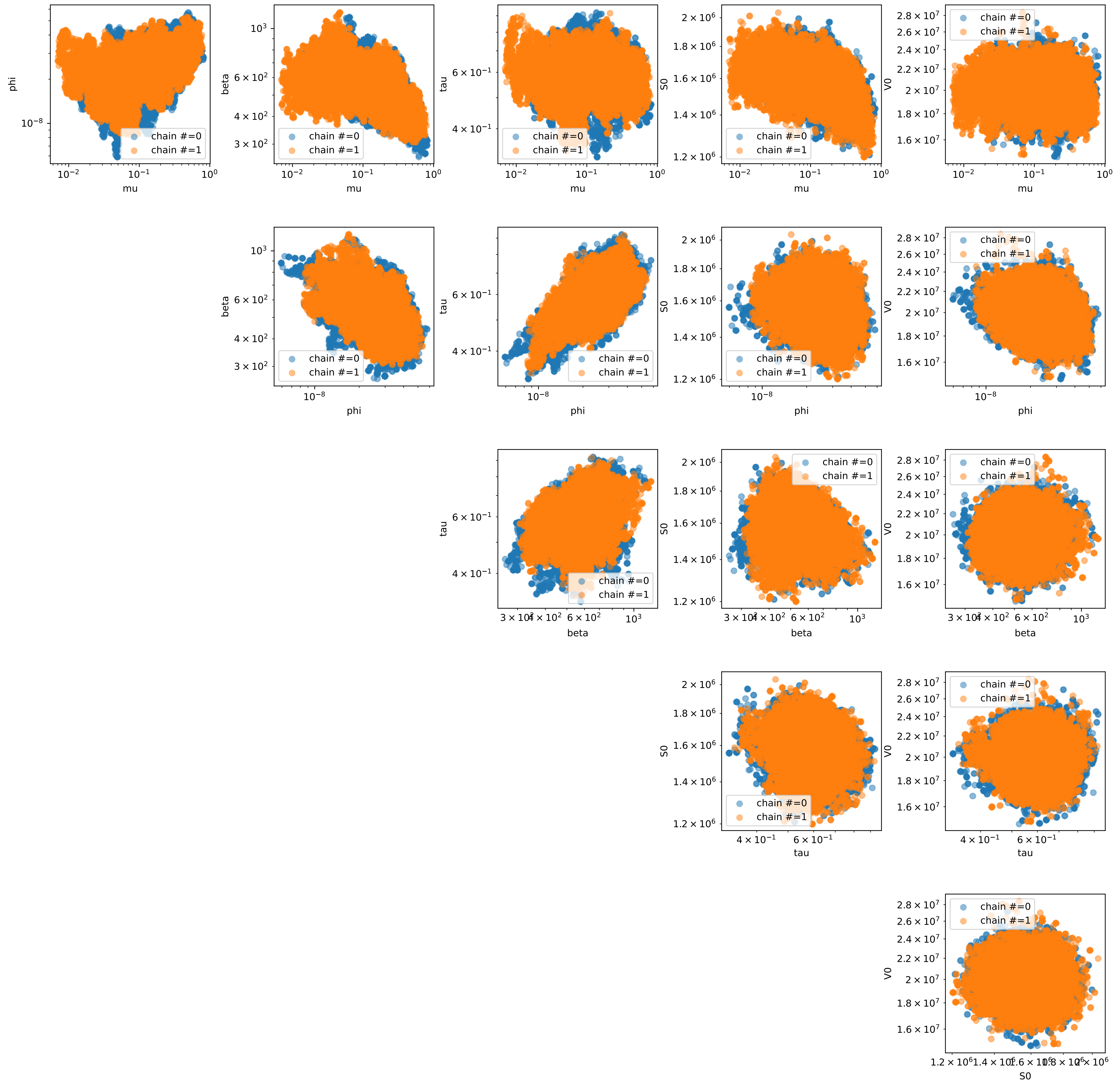

chain #=0
chain #=1
8000
6000
4000
2000
0
requency
400
600
800
1000
1200
beta

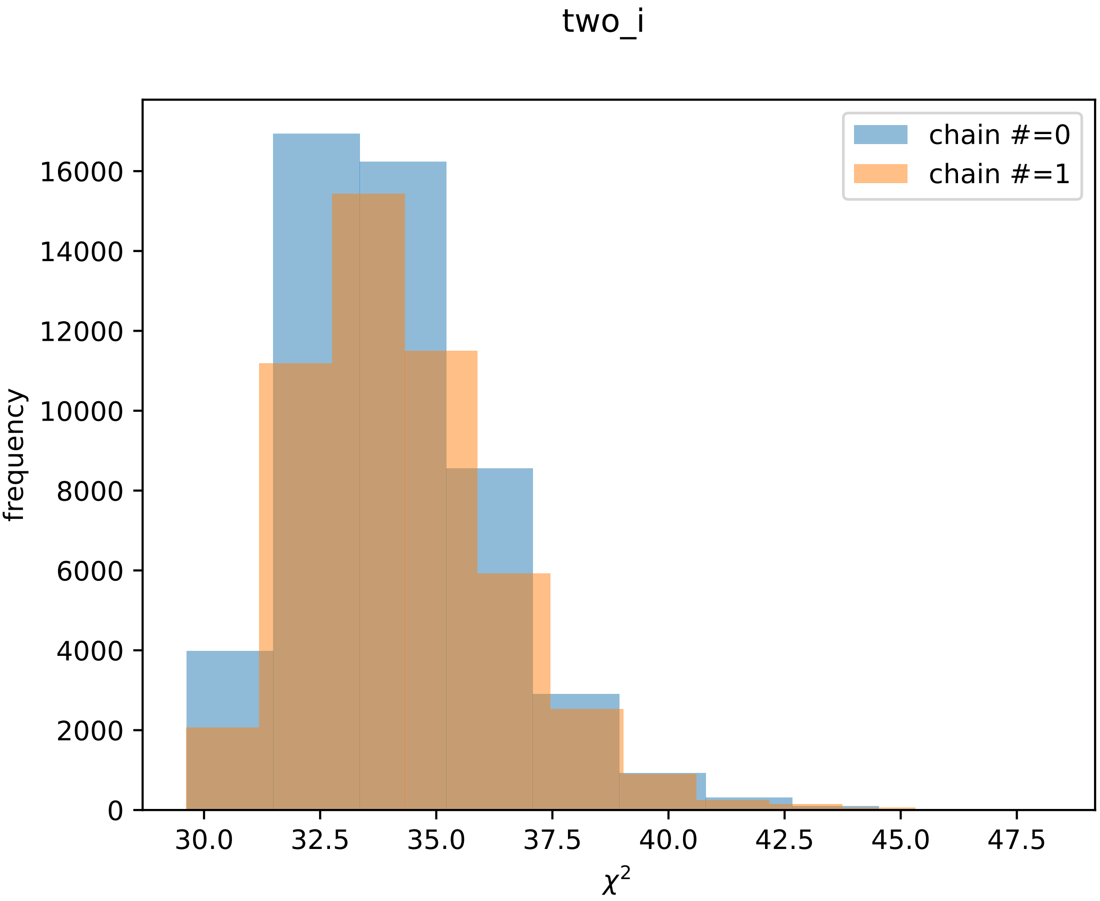

chain #=0
chain #=1
8000
6000
4000
2000
0
requency
0.3
0.4
0.5
0.6
0.7
0.8
0.9
tau

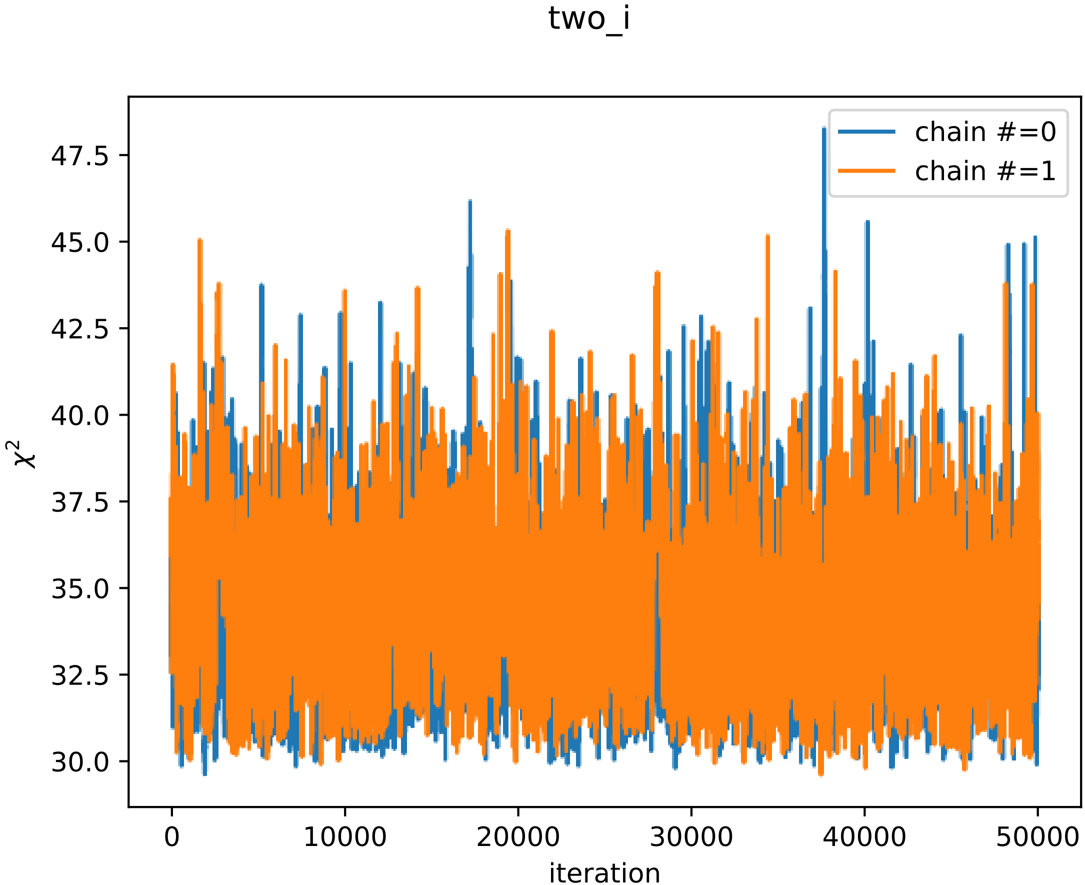

chain #=0
chain #=1
8000
6000
4000
2000
0
requency
1.2
1.4
1.6
1.8
2.0
S0
1e6

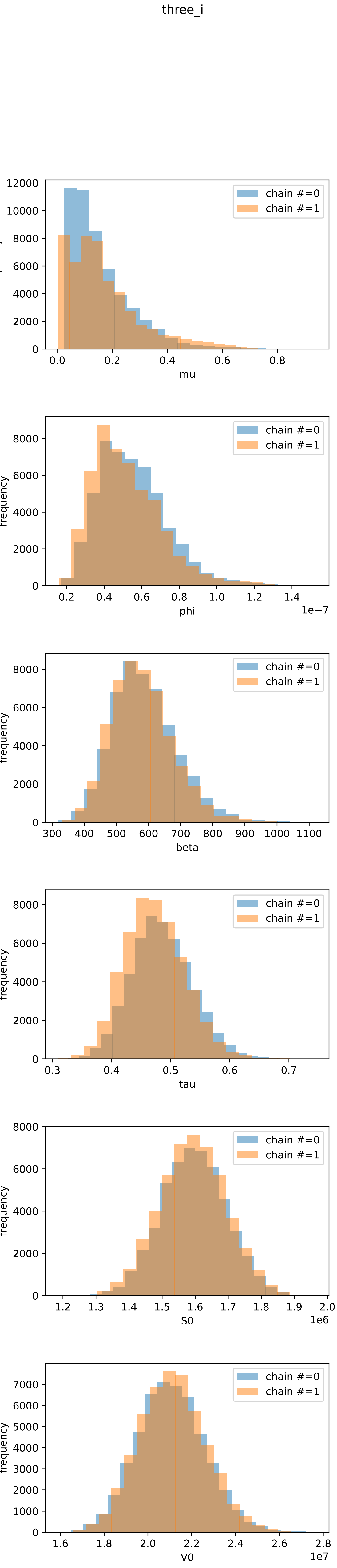

chain #=0
chain #=1
8000
6000
4000
2000
0
requency
1.6
1.8
2.0
2.2
2.4
2.6
2.8
V0
1e7

two_i

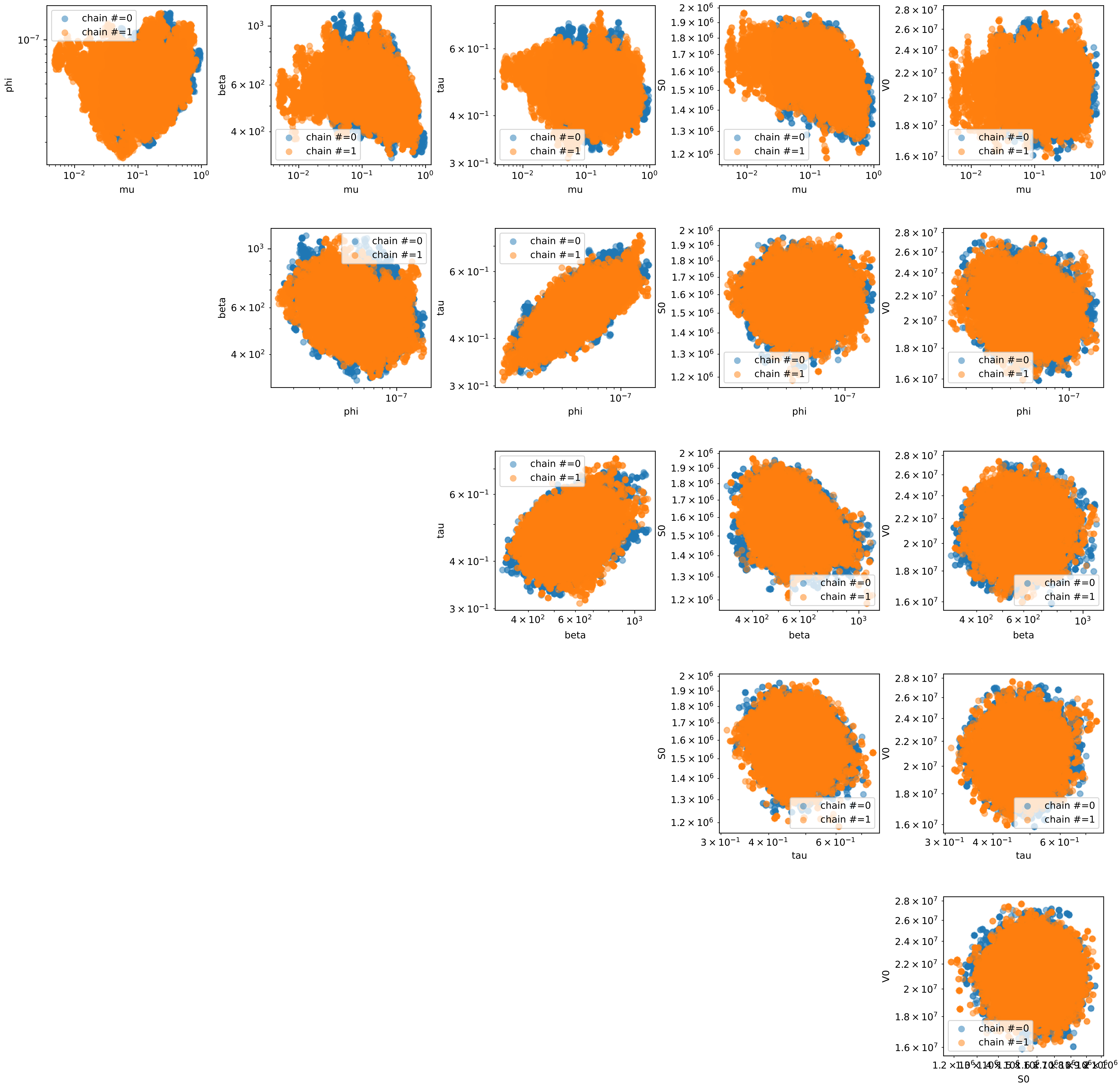

chain #=0
chain #=1
mu
phi
beta
tau
S0
V0
10^{-2}
10^{-1}
10^{0}
10^{-8}
10^{3}
6×10^{2}
4×10^{2}
3×10^{2}
6×10^{-1}
4×10^{-1}
2×10^{6}
1.8×10^{6}
1.6×10^{6}
1.4×10^{6}
1.2×10^{6}
2.8×10^{7}
2.6×10^{7}
2.4×10^{7}
2.2×10^{7}
2×10^{7}
1.8×10^{7}
1.6×10^{7}


two_i
chain #=0
chain #=1
frequency
0
2000
4000
6000
8000
10000
12000
14000
16000
30.0
32.5
35.0
37.5
40.0
42.5
45.0
47.5
χ^2

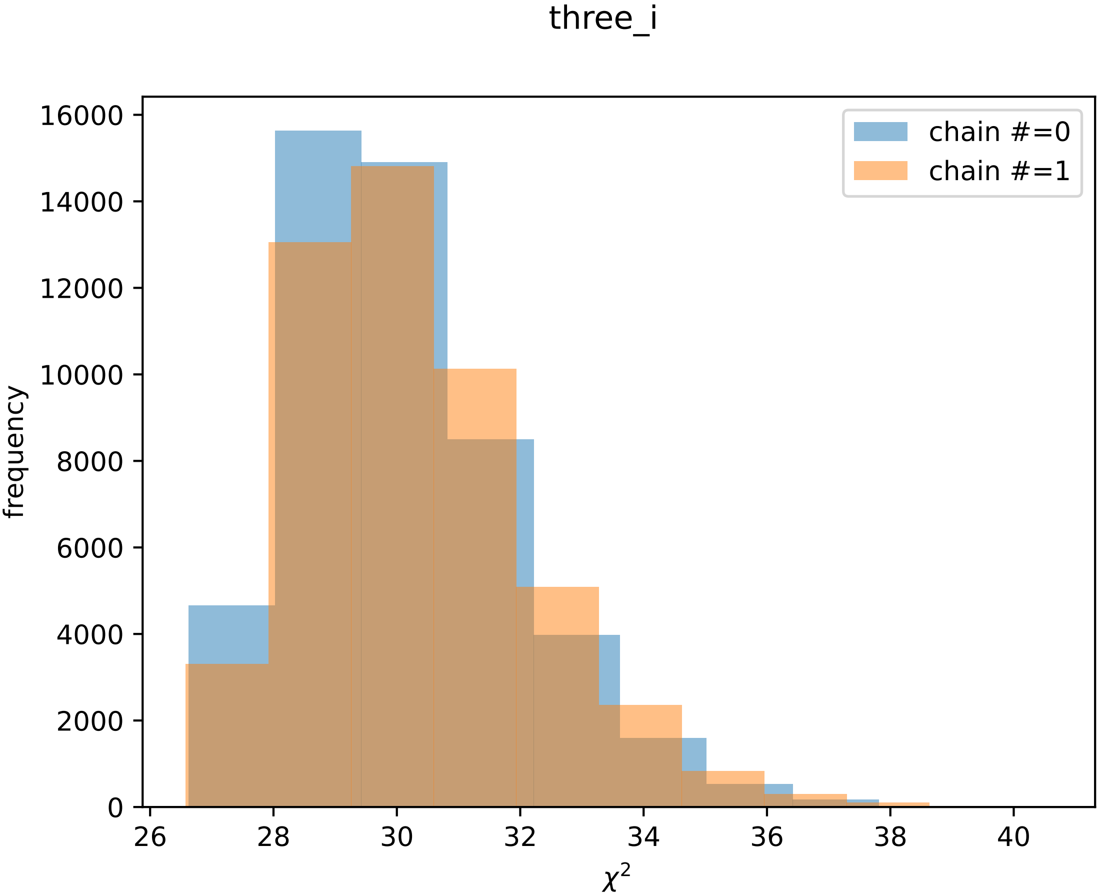

two_i
chain #=0
chain #=1
χ^2
47.5
45.0
42.5
40.0
37.5
35.0
32.5
30.0
0
10000
20000
30000
40000
50000
iteration

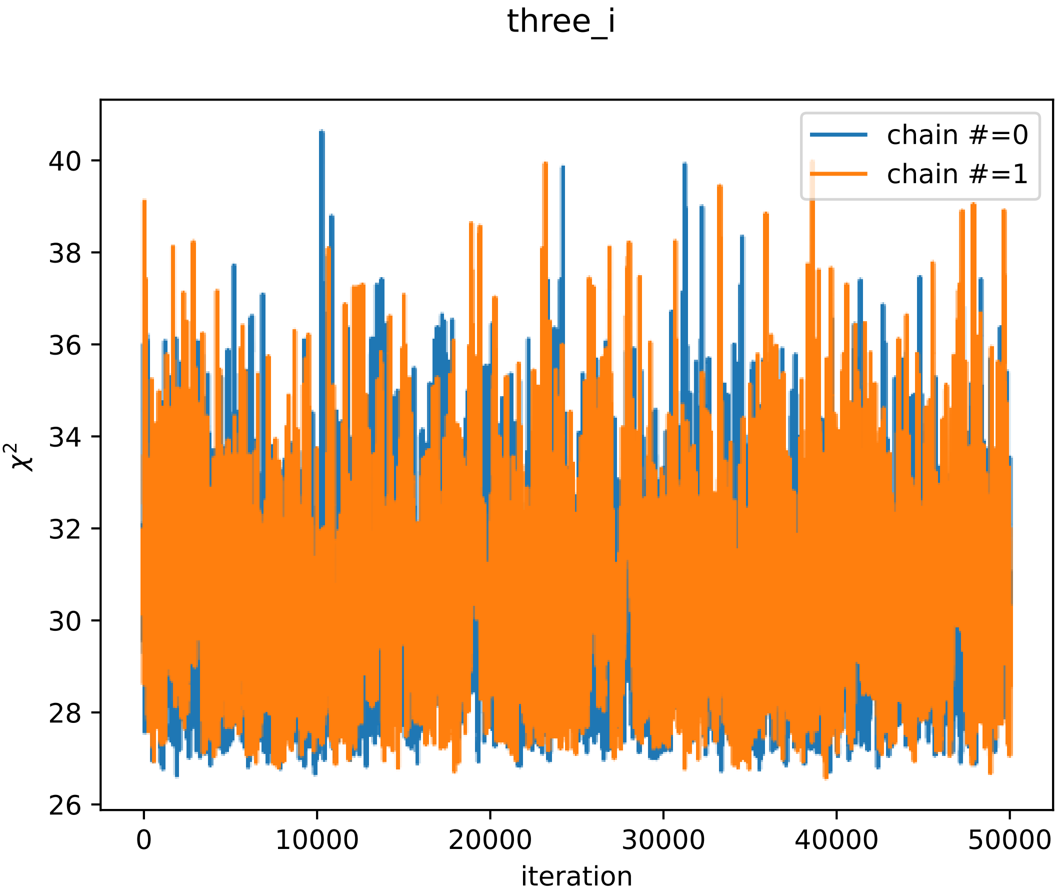

three_i
chain #=0
chain #=1
frequency
mu
0.0 0.2 0.4 0.6 0.8
0 2000 4000 6000 8000 10000 12000
phi
0.2 0.4 0.6 0.8 1.0 1.2 1.4
1e−7
0 2000 4000 6000 8000
beta
300 400 500 600 700 800 900 1000 1100
0 2000 4000 6000 8000
tau
0.3 0.4 0.5 0.6 0.7
0 2000 4000 6000 8000
S0
1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0
1e6
0 2000 4000 6000 8000
V0
1.6 1.8 2.0 2.2 2.4 2.6 2.8
1e7
0 1000 2000 3000 4000 5000 6000 7000

three_i

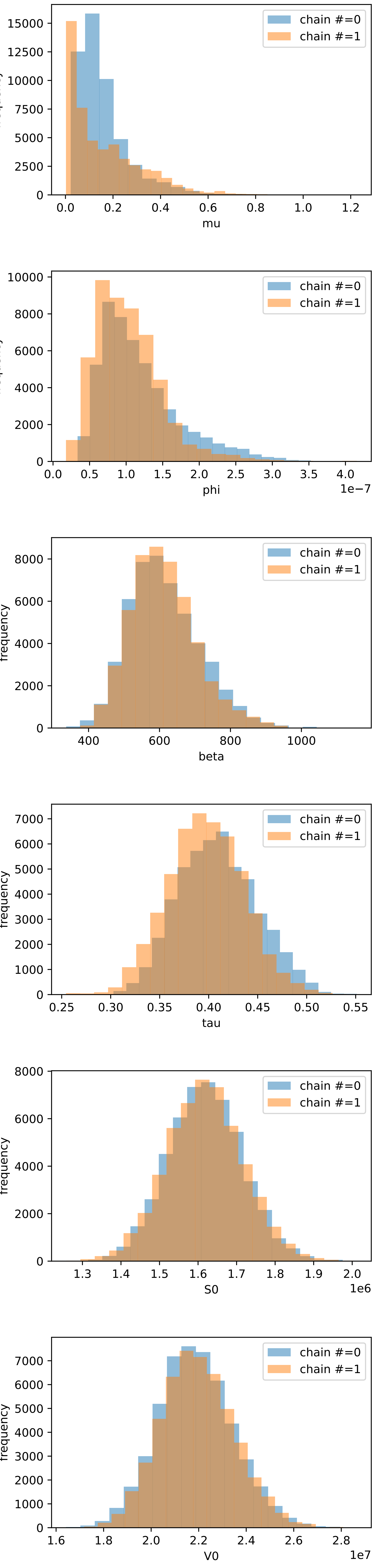


chain #=0
chain #=1
mu
phi
beta
tau
S0
V0
10^{-2}
10^{-1}
10^{0}
10^{-7}
4×10^{2}
6×10^{2}
10^{3}
3×10^{-1}
4×10^{-1}
6×10^{-1}
1.2×10^{6}
1.3×10^{6}
1.4×10^{6}
1.5×10^{6}
1.6×10^{6}
1.7×10^{6}
1.8×10^{6}
1.9×10^{6}
2×10^{6}
1.6×10^{7}
1.8×10^{7}
2×10^{7}
2.2×10^{7}
2.4×10^{7}
2.6×10^{7}
2.8×10^{7}

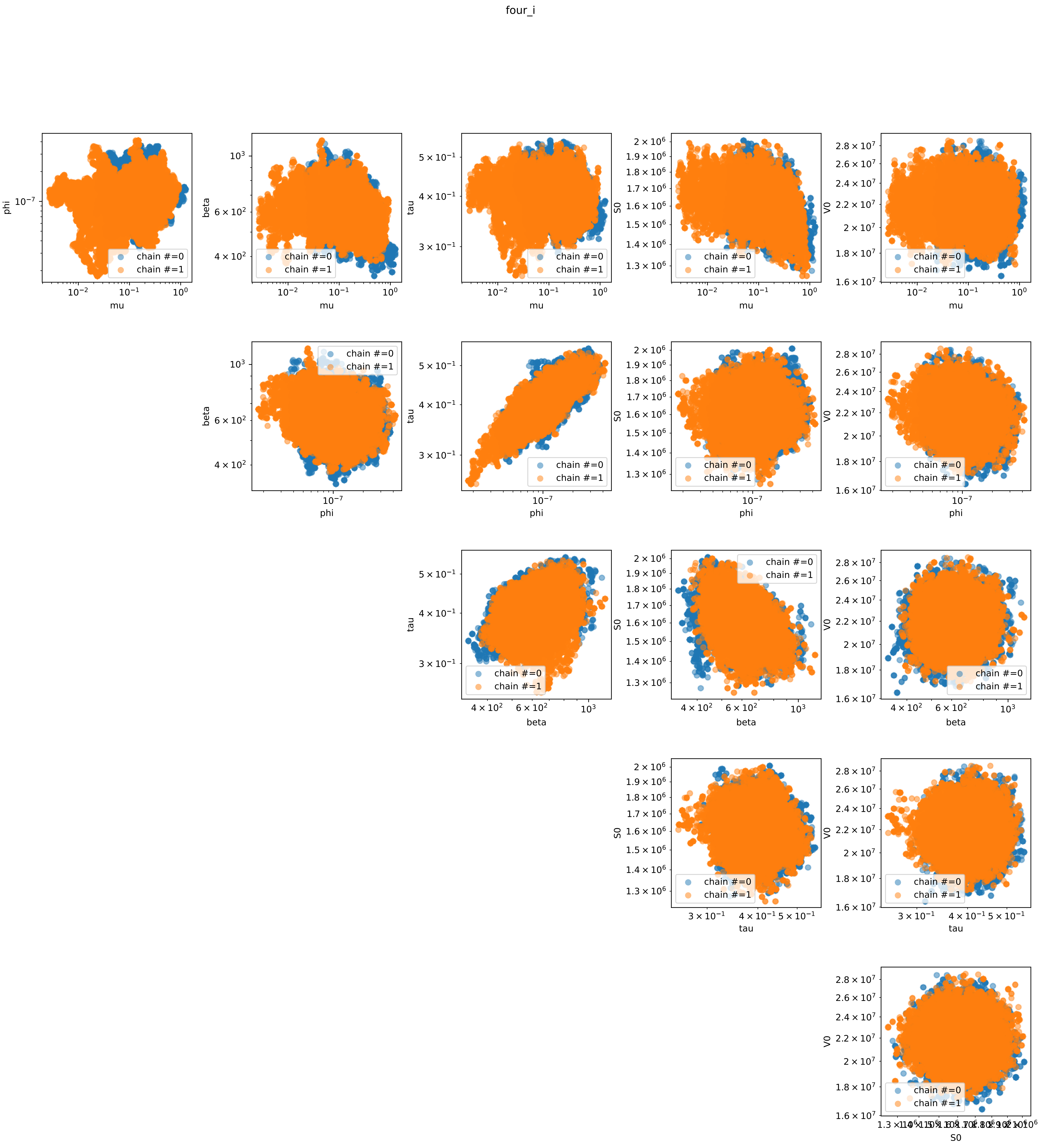

three_i
chain #=0
chain #=1
frequency
0
2000
4000
6000
8000
10000
12000
14000
16000
26
28
30
32
34
36
38
40
χ^2

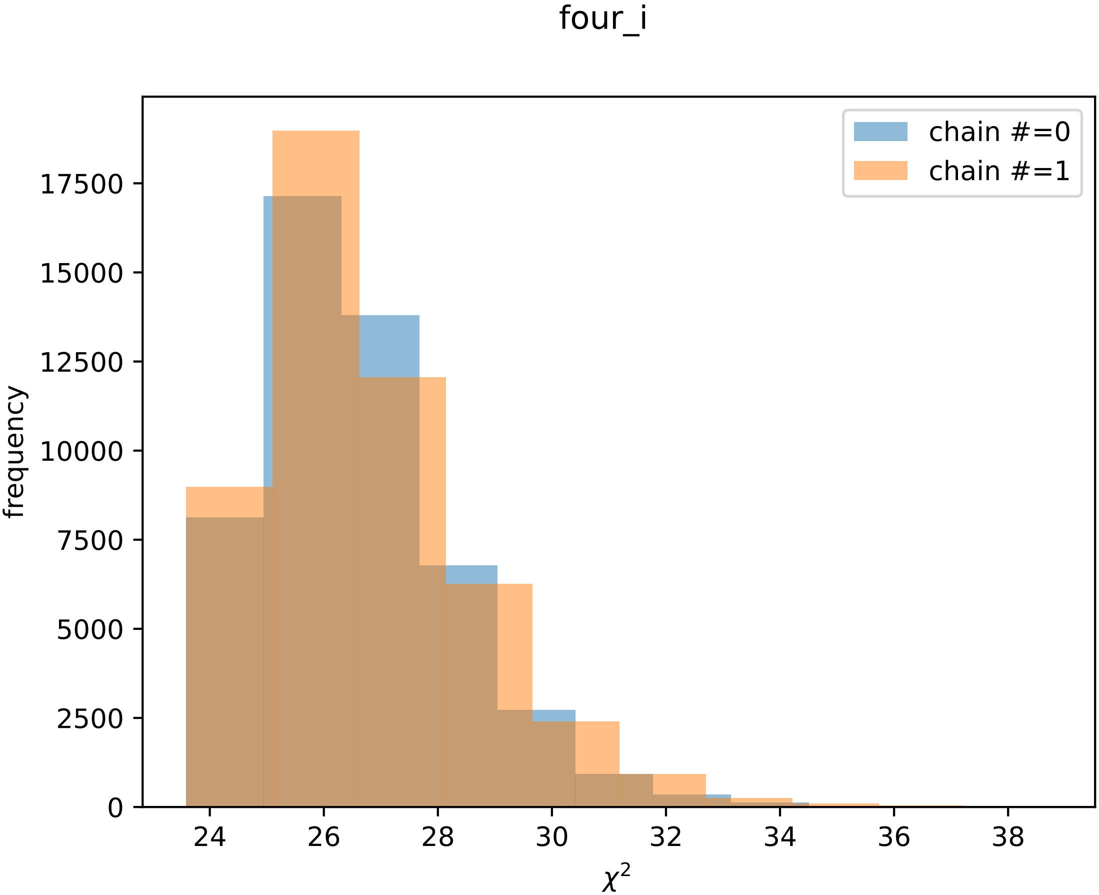

three_i
chain #=0
chain #=1
χ^2
26
28
30
32
34
36
38
40
0
10000
20000
30000
40000
50000
iteration

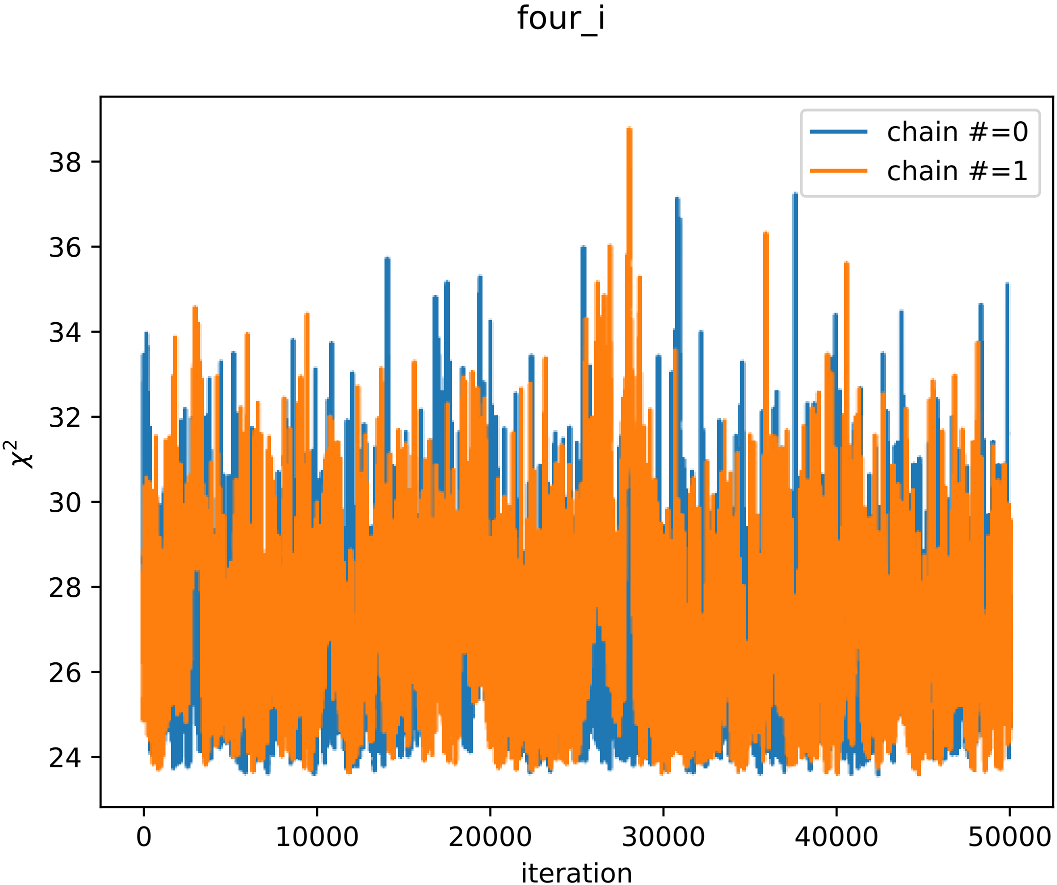
four_i



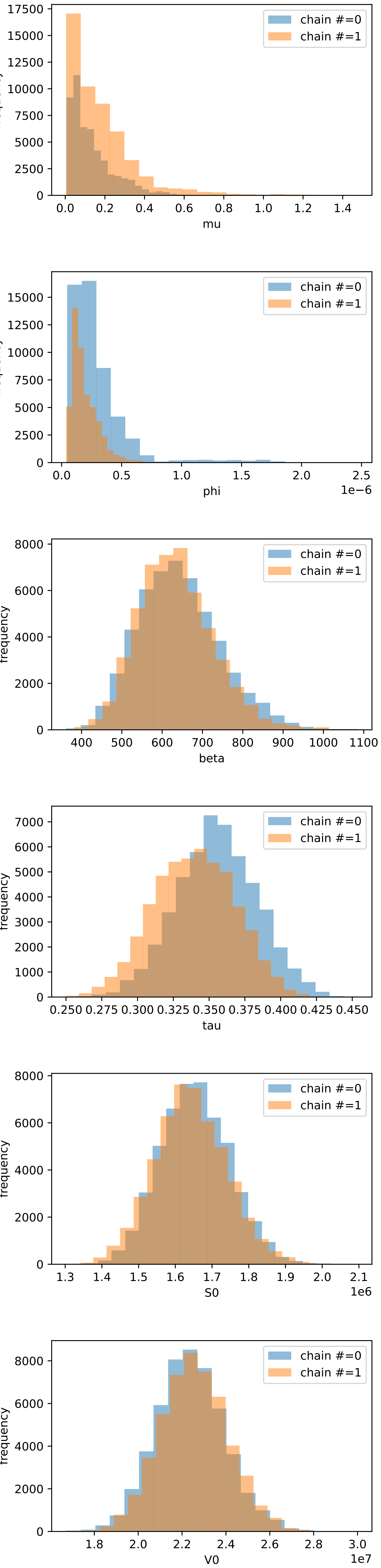
chain #=0
chain #=1
frequency
15000
12500
10000
7500
5000
2500
0
0.0
0.2
0.4
0.6
0.8
1.0
1.2
mu
10000
8000
6000
4000
2000
0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
1e−7
phi
8000
6000
4000
2000
0
400
600
800
1000
beta
7000
6000
5000
4000
3000
2000
1000
0
0.25
0.30
0.35
0.40
0.45
0.50
0.55
tau
8000
6000
4000
2000
0
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
1e6
S0
7000
6000
5000
4000
3000
2000
1000
0
1.6
1.8
2.0
2.2
2.4
2.6
2.8
1e7
V0


four_i
mu
phi
beta
tau
S0
V0
chain #=0
chain #=1
10^{-2}
10^{-1}
10^{0}
10^{-7}
4×10^{2}
6×10^{2}
10^{3}
3×10^{-1}
4×10^{-1}
5×10^{-1}
1.3×10^{6}
1.4×10^{6}
1.5×10^{6}
1.6×10^{6}
1.7×10^{6}
1.8×10^{6}
1.9×10^{6}
2×10^{6}
1.6×10^{7}
1.8×10^{7}
2×10^{7}
2.2×10^{7}
2.4×10^{7}
2.6×10^{7}
2.8×10^{7}

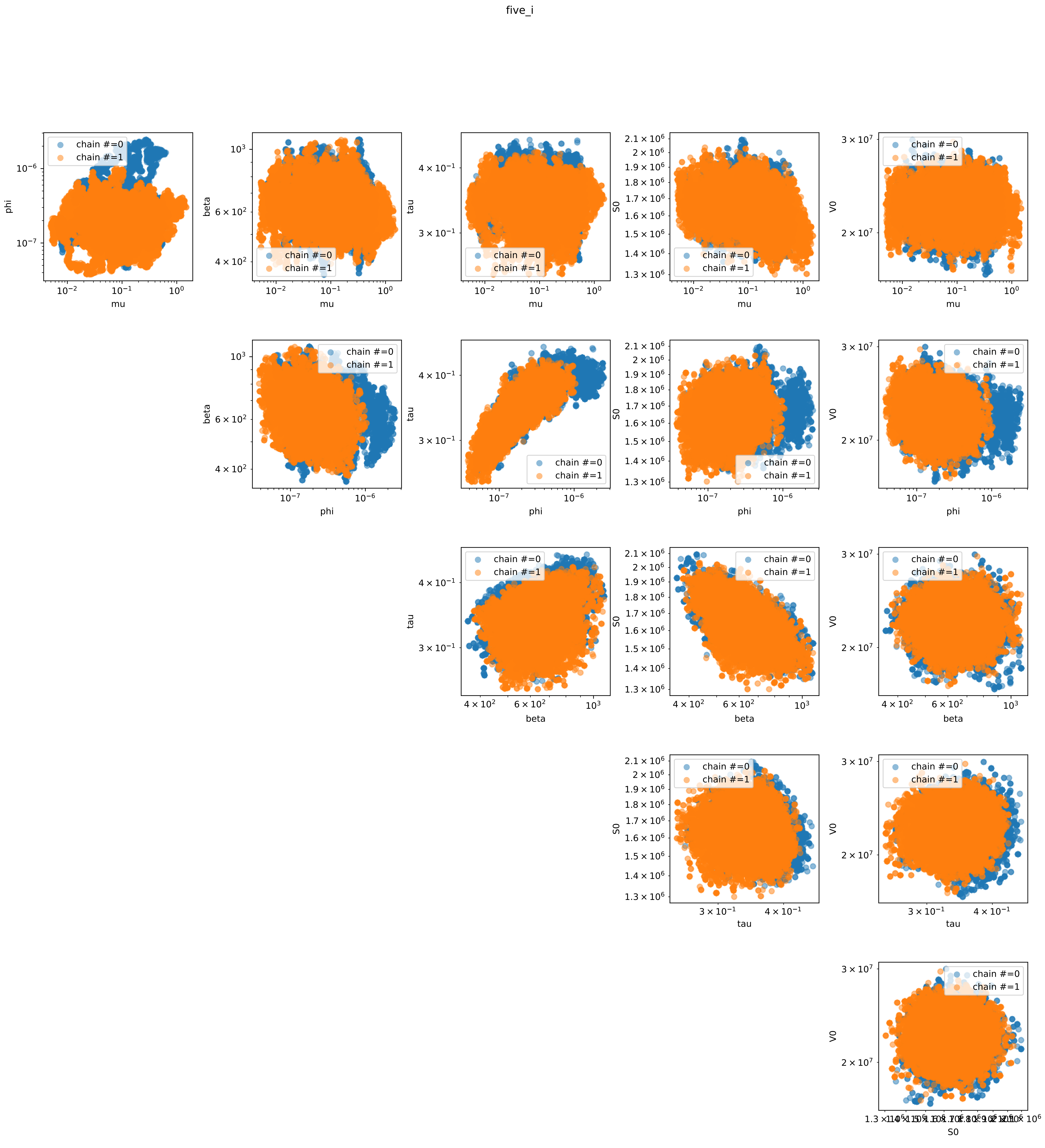

four_i
chain #=0
chain #=1
frequency
0
2500
5000
7500
10000
12500
15000
17500
24
26
28
30
32
34
36
38
χ^2

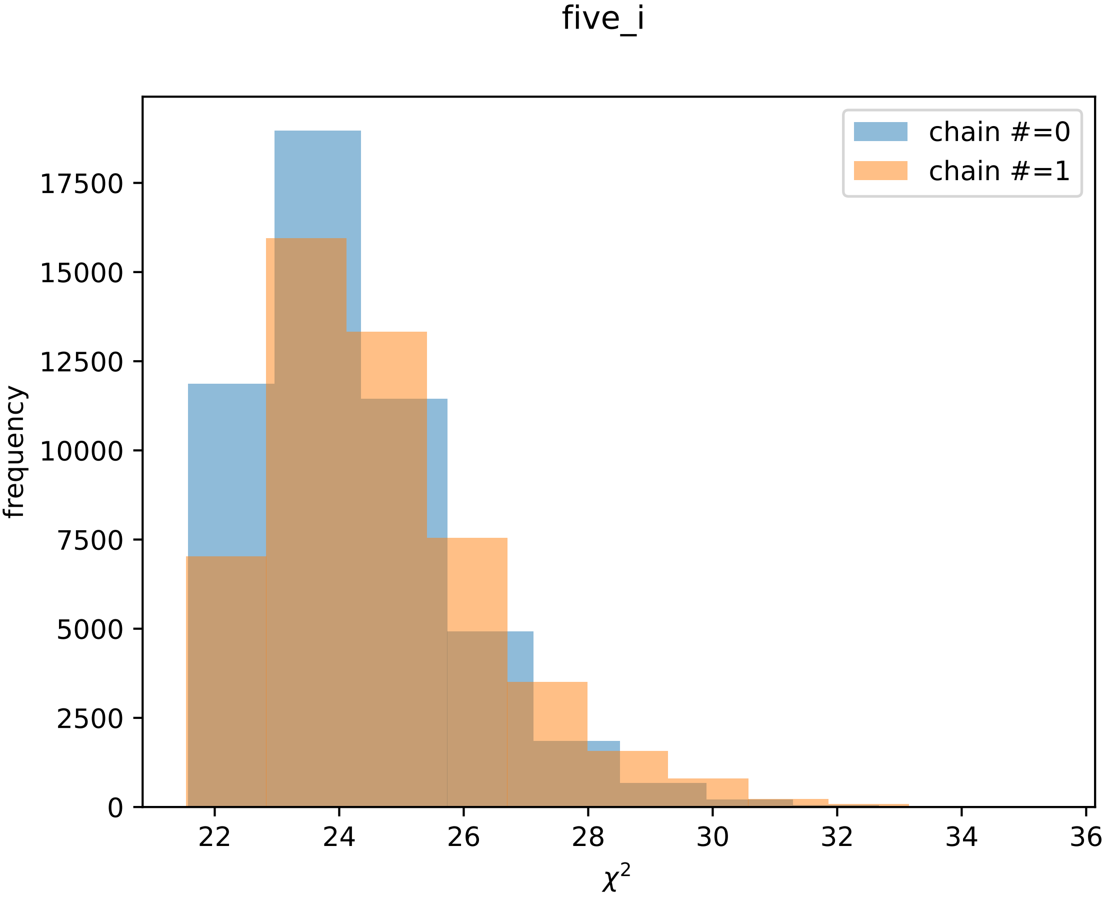

four_i
chain #=0
chain #=1
38
36
34
32
30
28
26
24
χ^2
0
10000
20000
30000
40000
50000
iteration

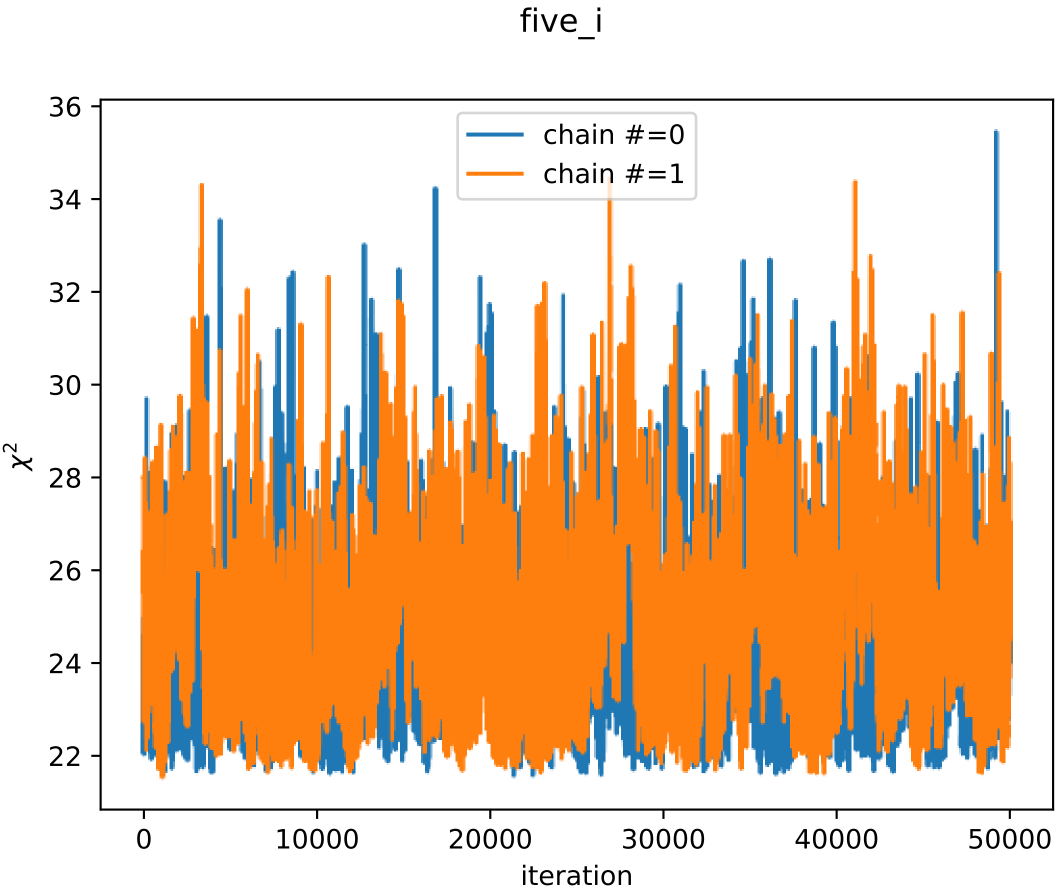
five_i



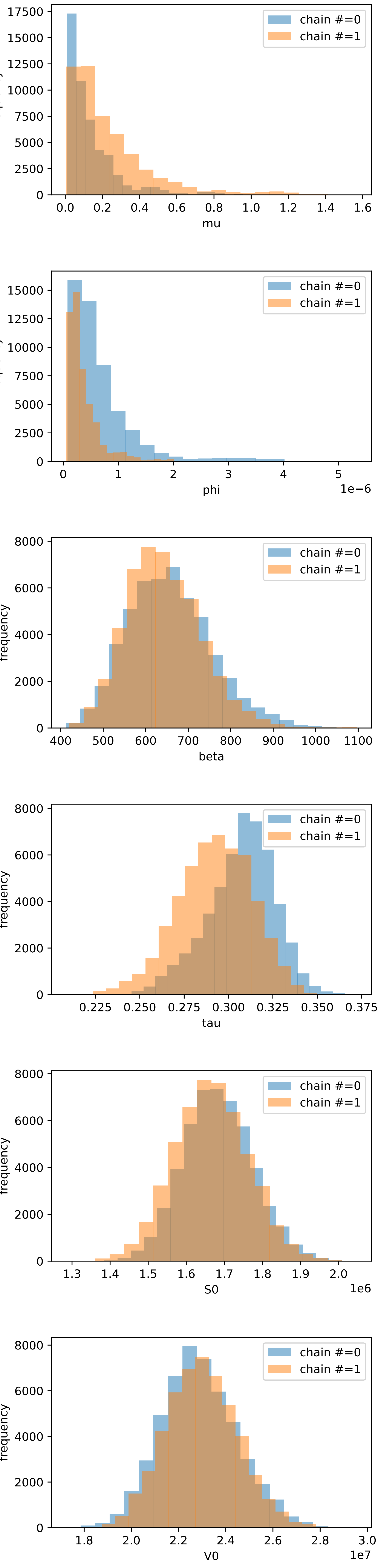
17500
15000
12500
10000
7500
5000
2500
0
chain #=0
chain #=1
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
mu
15000
12500
10000
7500
5000
2500
0
chain #=0
chain #=1
0.0
0.5
1.0
1.5
2.0
2.5
1e−6
phi
8000
6000
4000
2000
0
frequency
chain #=0
chain #=1
400
500
600
700
800
900
1000
1100
beta
7000
6000
5000
4000
3000
2000
1000
0
frequency
chain #=0
chain #=1
0.250
0.275
0.300
0.325
0.350
0.375
0.400
0.425
0.450
tau
8000
6000
4000
2000
0
frequency
chain #=0
chain #=1
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
1e6
S0
8000
6000
4000
2000
0
frequency
chain #=0
chain #=1
1.8
2.0
2.2
2.4
2.6
2.8
3.0
1e7
V0


five_i
chain #=0
chain #=1
phi
beta
tau
S0
V0
mu
10^{-2}
10^{-1}
10^{0}
10^{-7}
10^{-6}
4×10^{2}
6×10^{2}
10^{3}
3×10^{-1}
4×10^{-1}
1.3×10^{6}
1.4×10^{6}
1.5×10^{6}
1.6×10^{6}
1.7×10^{6}
1.8×10^{6}
1.9×10^{6}
2×10^{6}
2.1×10^{6}
2×10^{7}
3×10^{7}

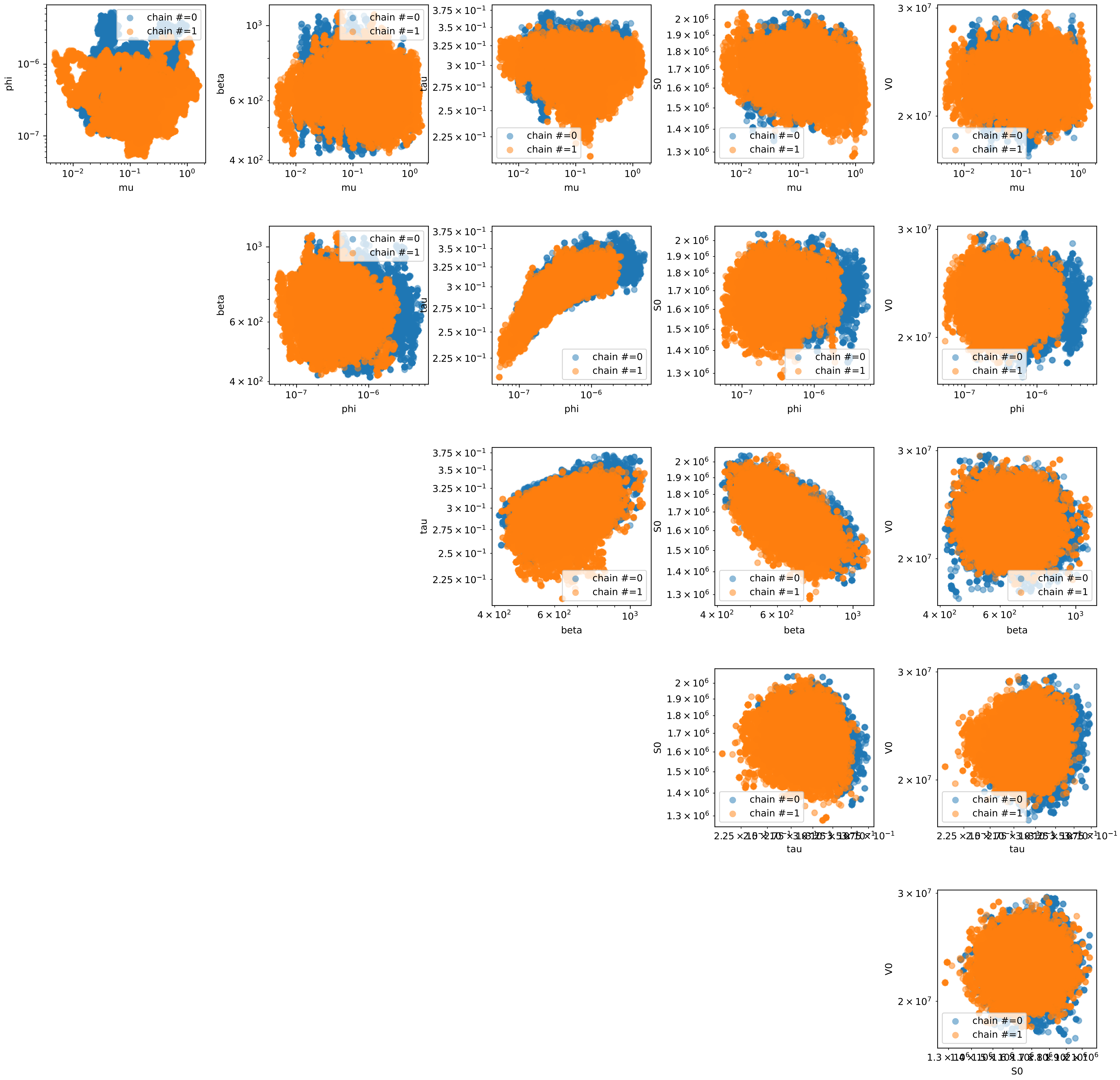

five_i
chain #=0
chain #=1
frequency
0
2500
5000
7500
10000
12500
15000
17500
22
24
26
28
30
32
34
36
χ^2


five_i
chain #=0
chain #=1
χ^2
36
34
32
30
28
26
24
22
0
10000
20000
30000
40000
50000
iteration

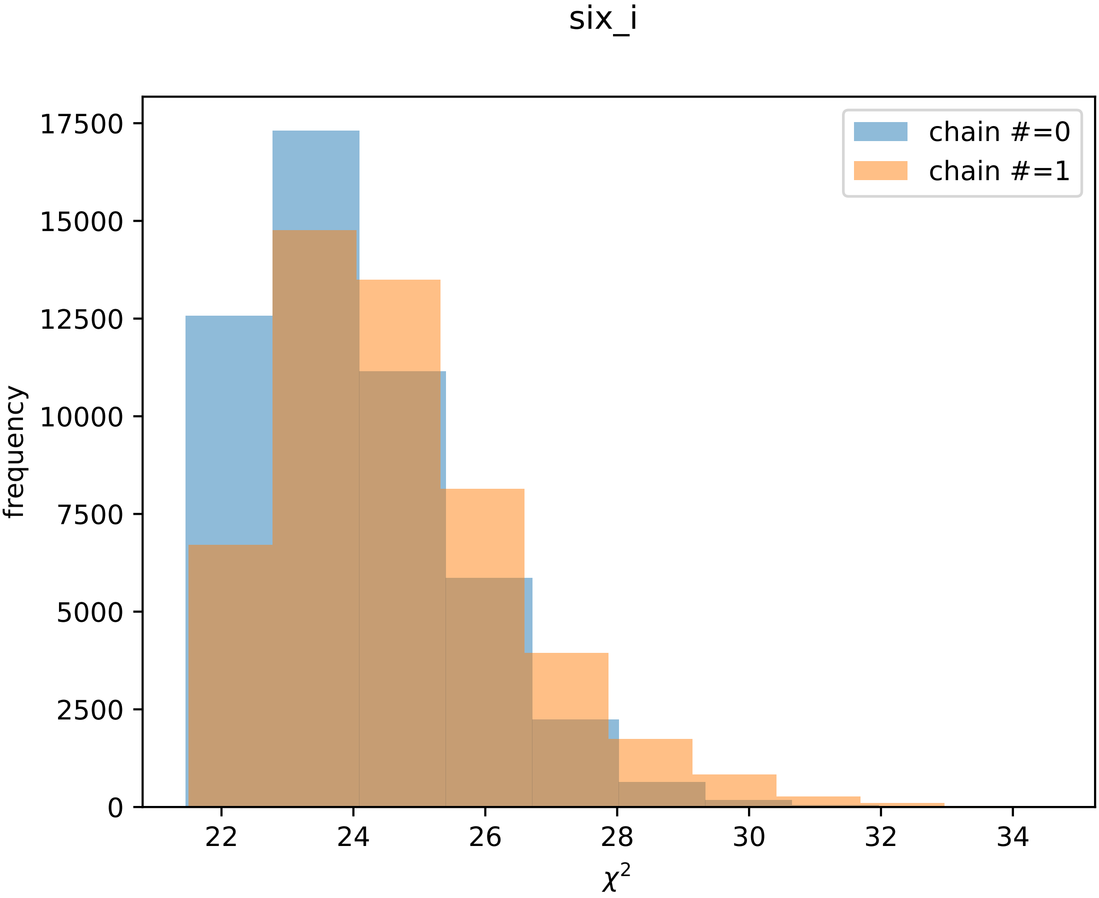
six_i

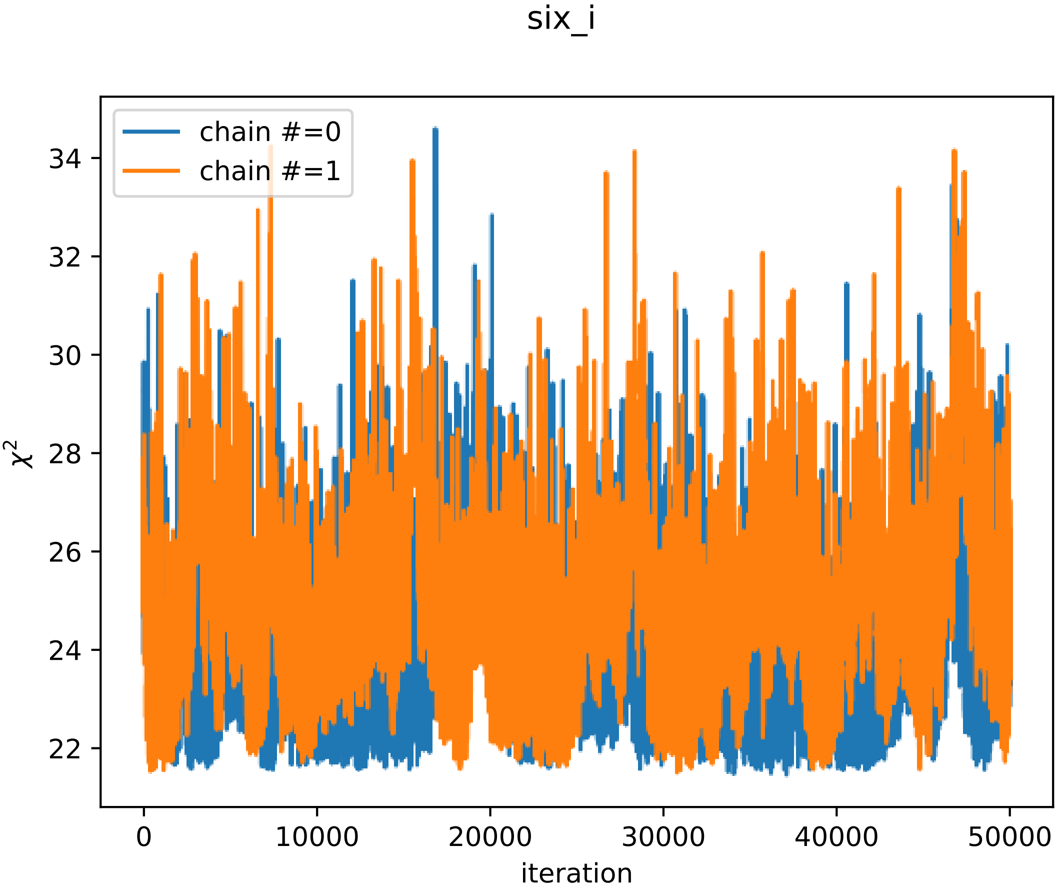

frequency
chain #=0
chain #=1
17500
15000
12500
10000
7500
5000
2500
0
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
mu
0
1
2
3
4
5
1e−6
phi
8000
6000
4000
2000
400
500
600
700
800
900
1000
1100
beta
0.225
0.250
0.275
0.300
0.325
0.350
0.375
tau
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
1e6
S0
1.8
2.0
2.2
2.4
2.6
2.8
3.0
1e7
V0

six_i

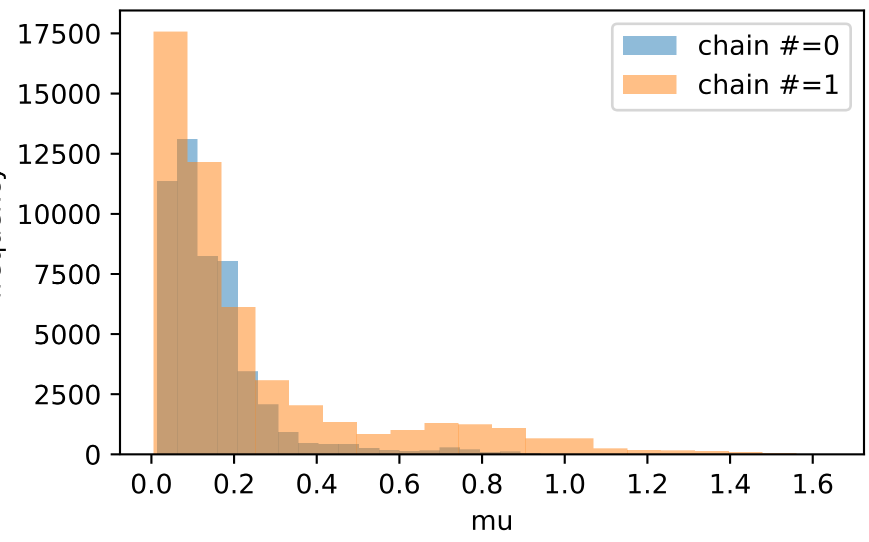


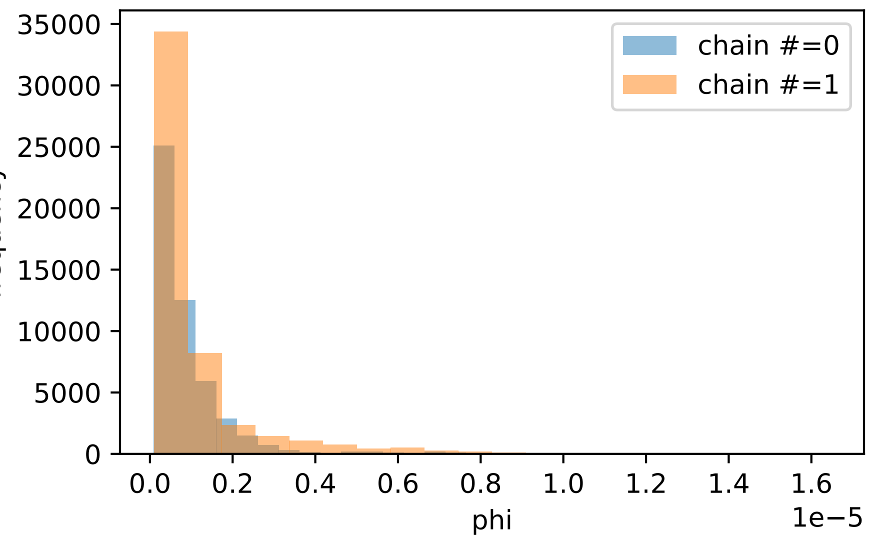
phi
mu
beta
tau
S0
V0
chain #=0
chain #=1
10^{-6}
10^{-7}
10^{-2}
10^{-1}
10^{0}
10^{3}
6×10^{2}
4×10^{2}
3.75×10^{-1}
3.5×10^{-1}
3.25×10^{-1}
3×10^{-1}
2.75×10^{-1}
2.5×10^{-1}
2.25×10^{-1}
2×10^{6}
1.9×10^{6}
1.8×10^{6}
1.7×10^{6}
1.6×10^{6}
1.5×10^{6}
1.4×10^{6}
1.3×10^{6}
3×10^{7}
2×10^{7}

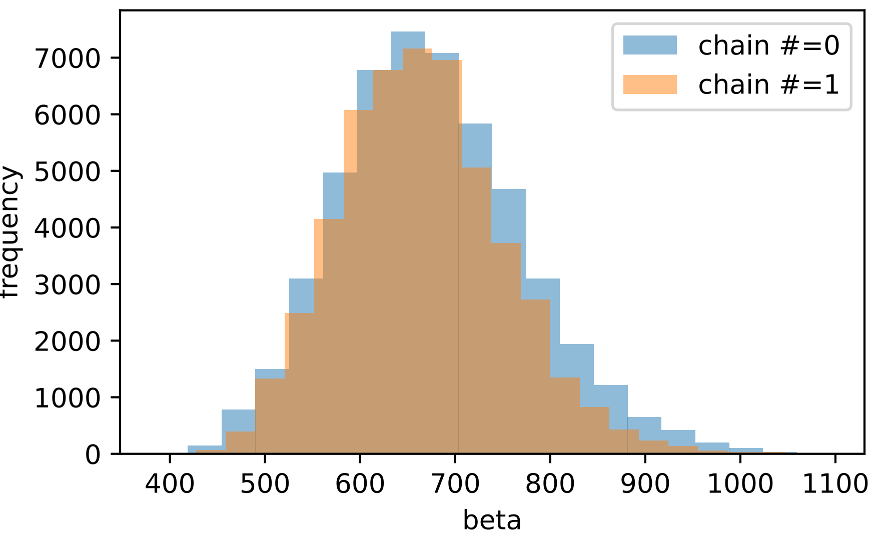

six_i
chain #=0
chain #=1
frequency
17500
15000
12500
10000
7500
5000
2500
0
22
24
26
28
30
32
34
χ^2

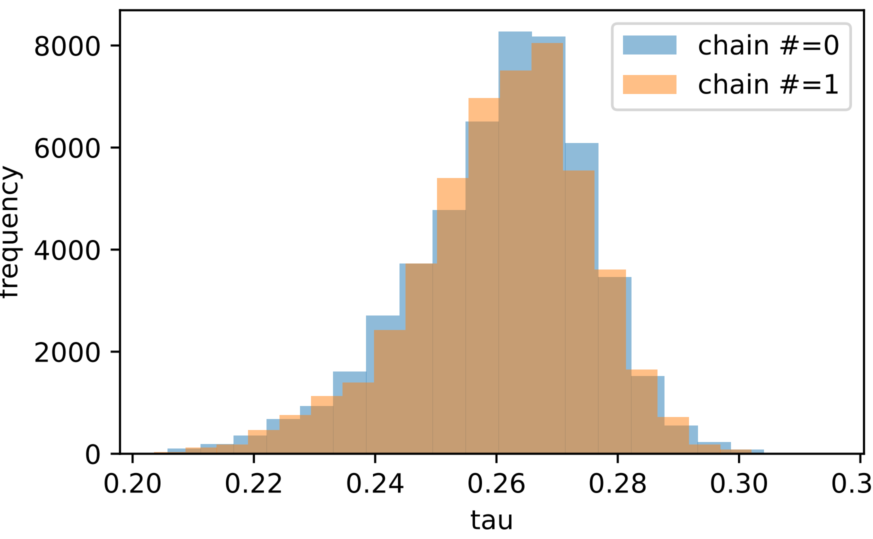

six_i
chain #=0
chain #=1
χ^2
34
32
30
28
26
24
22
0
10000
20000
30000
40000
50000
iteration

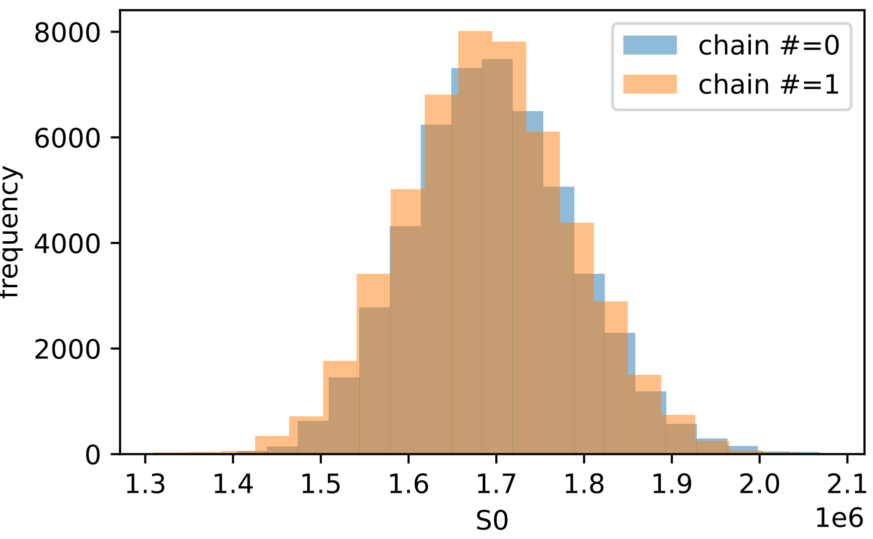
seven_i

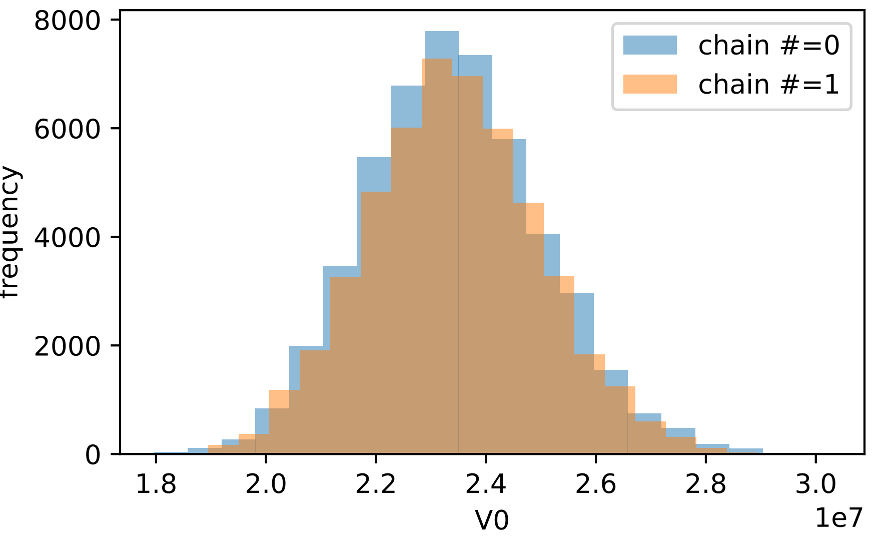

chain #=0
chain #=1
17500
15000
12500
10000
7500
5000
2500
0
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
mu

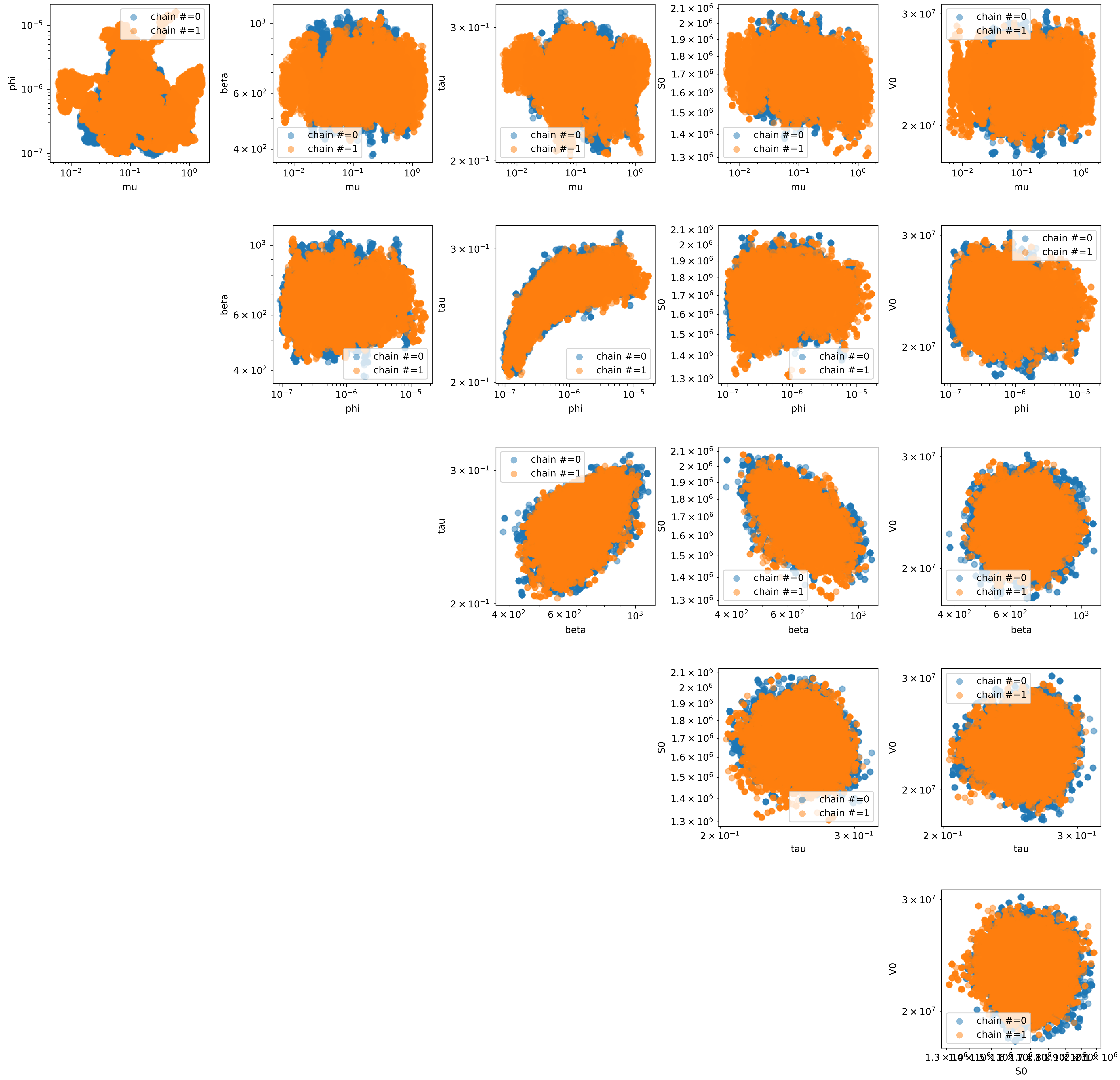

chain #=0
chain #=1
35000
30000
25000
20000
15000
10000
5000
0
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1e−5
phi


chain #=0
chain #=1
frequency
7000
6000
5000
4000
3000
2000
1000
0
400
500
600
700
800
900
1000
1100
beta

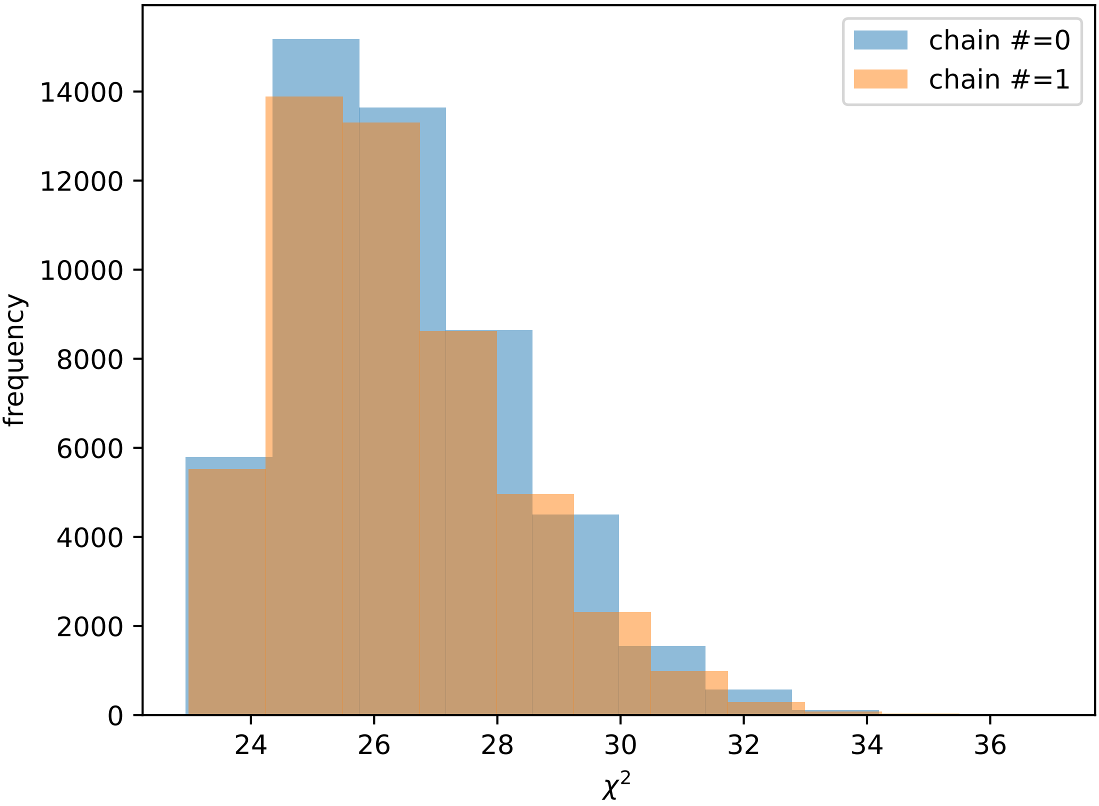

chain #=0
chain #=1
frequency
8000
6000
4000
2000
0
0.20
0.22
0.24
0.26
0.28
0.30
0.32
tau


chain #=0
chain #=1
frequency
8000
6000
4000
2000
0
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
1e6
S0

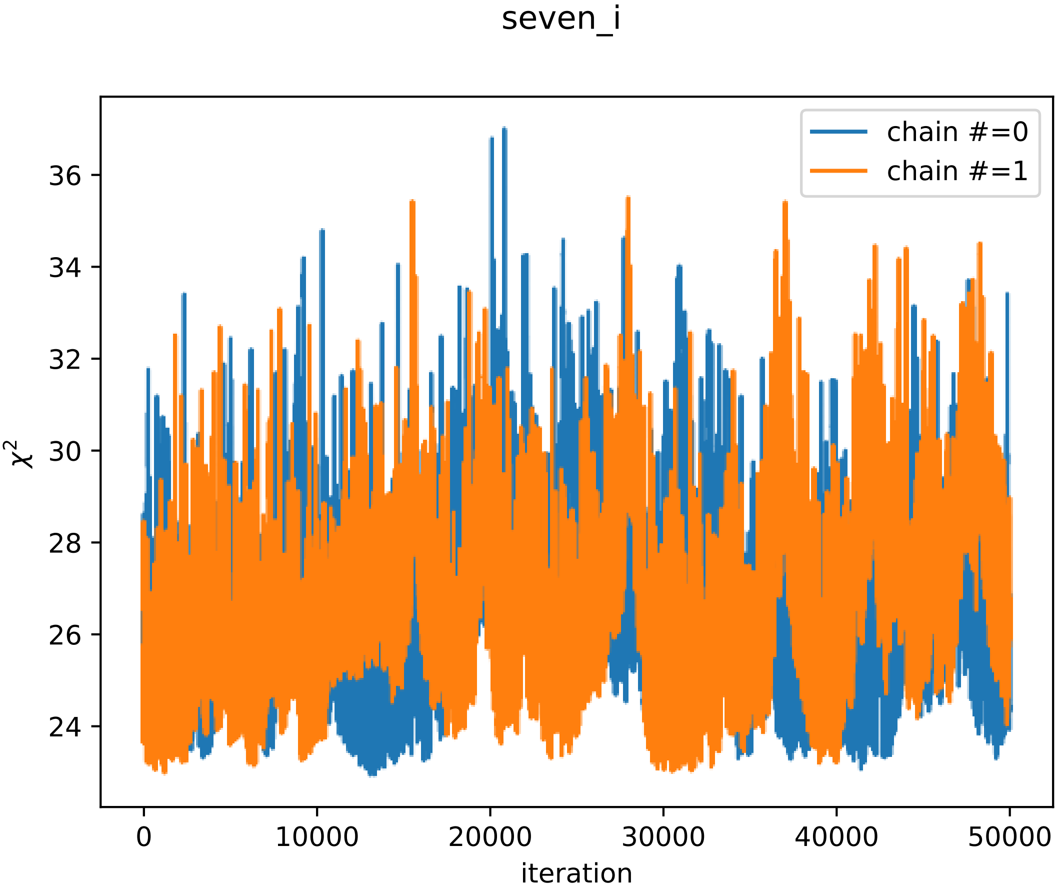

chain #=0
chain #=1
frequency
8000
6000
4000
2000
0
1.8
2.0
2.2
2.4
2.6
2.8
3.0
1e7
V0


seven_i
chain #=0
chain #=1
mu
phi
beta
tau
S0
V0
10^{-2}
10^{-1}
10^{0}
10^{-7}
10^{-6}
10^{-5}
4×10^{2}
6×10^{2}
10^{3}
2×10^{-1}
3×10^{-1}
1.3×10^{6}
1.4×10^{6}
1.5×10^{6}
1.6×10^{6}
1.7×10^{6}
1.8×10^{6}
1.9×10^{6}
2×10^{6}
2.1×10^{6}
2×10^{7}
3×10^{7}

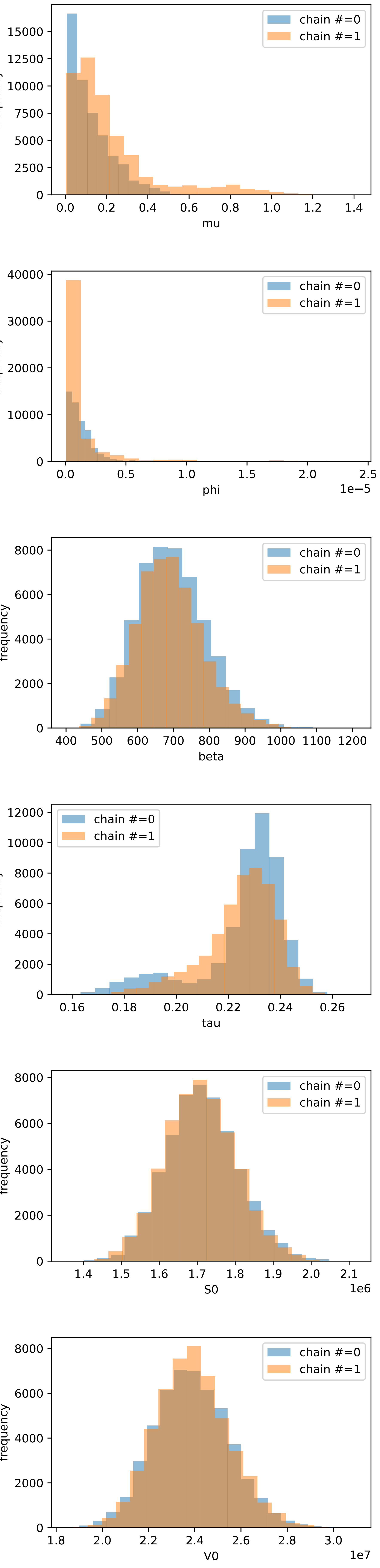
seven_i



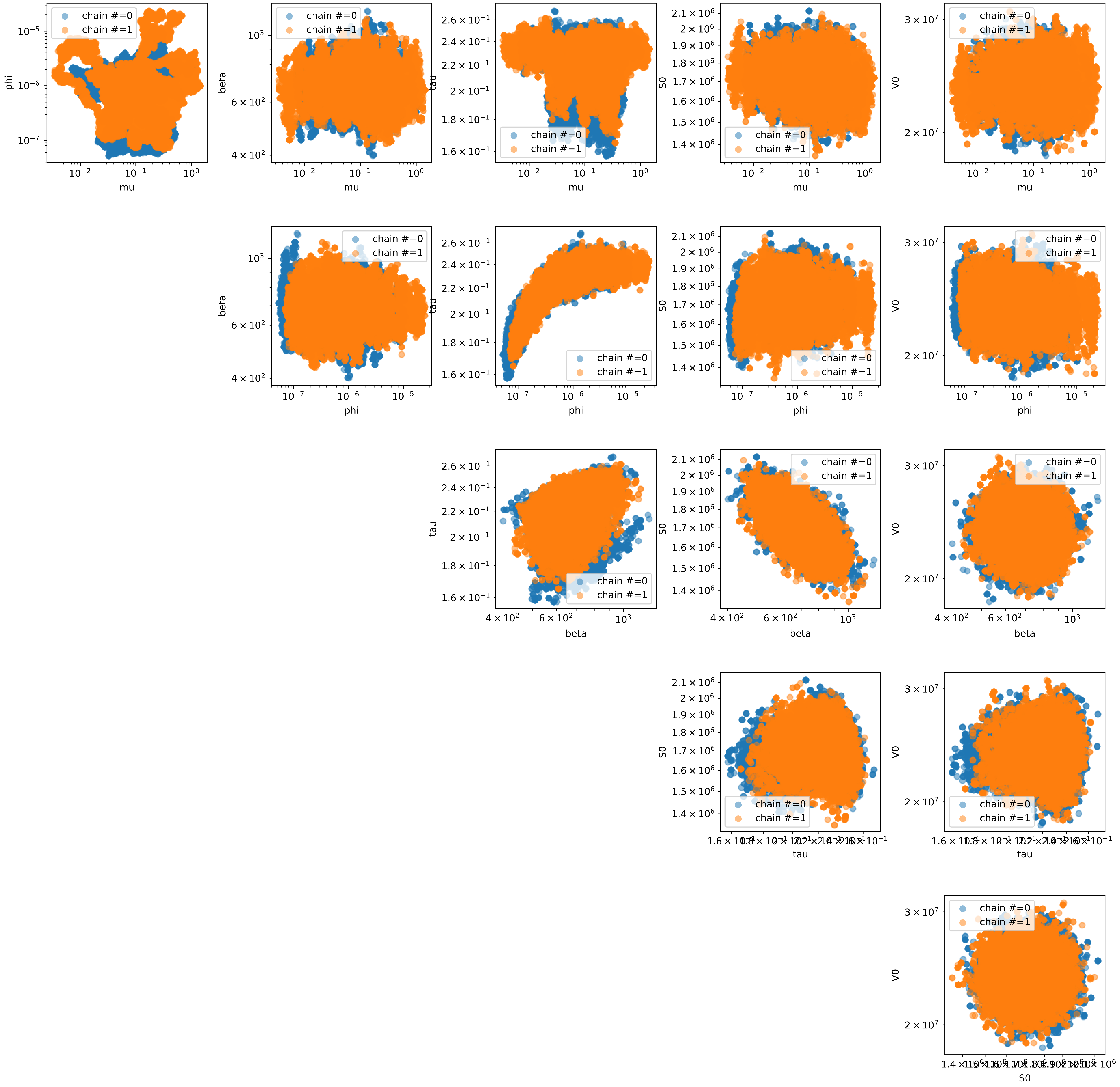
frequency
0
2000
4000
6000
8000
10000
12000
14000
24
26
28
30
32
34
36
χ^2
chain #=0
chain #=1


seven_i
chain #=0
chain #=1
χ^2
24
26
28
30
32
34
36
0
10000
20000
30000
40000
50000
iteration

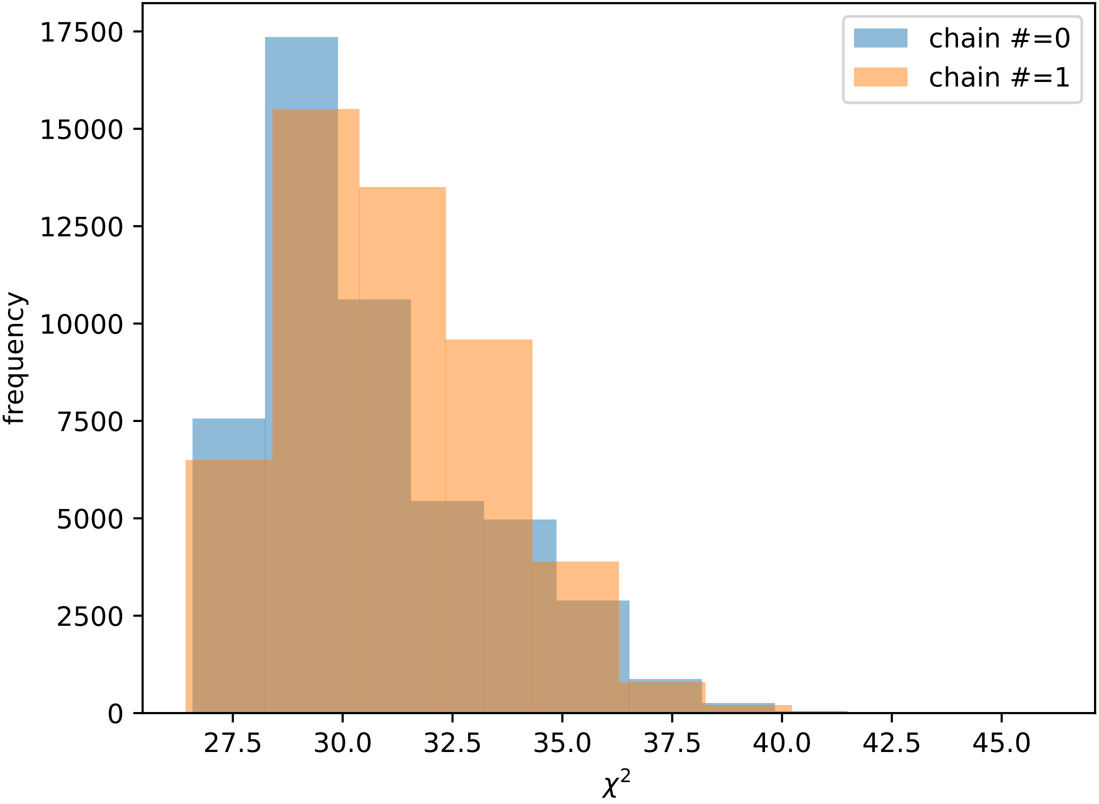
eight_i

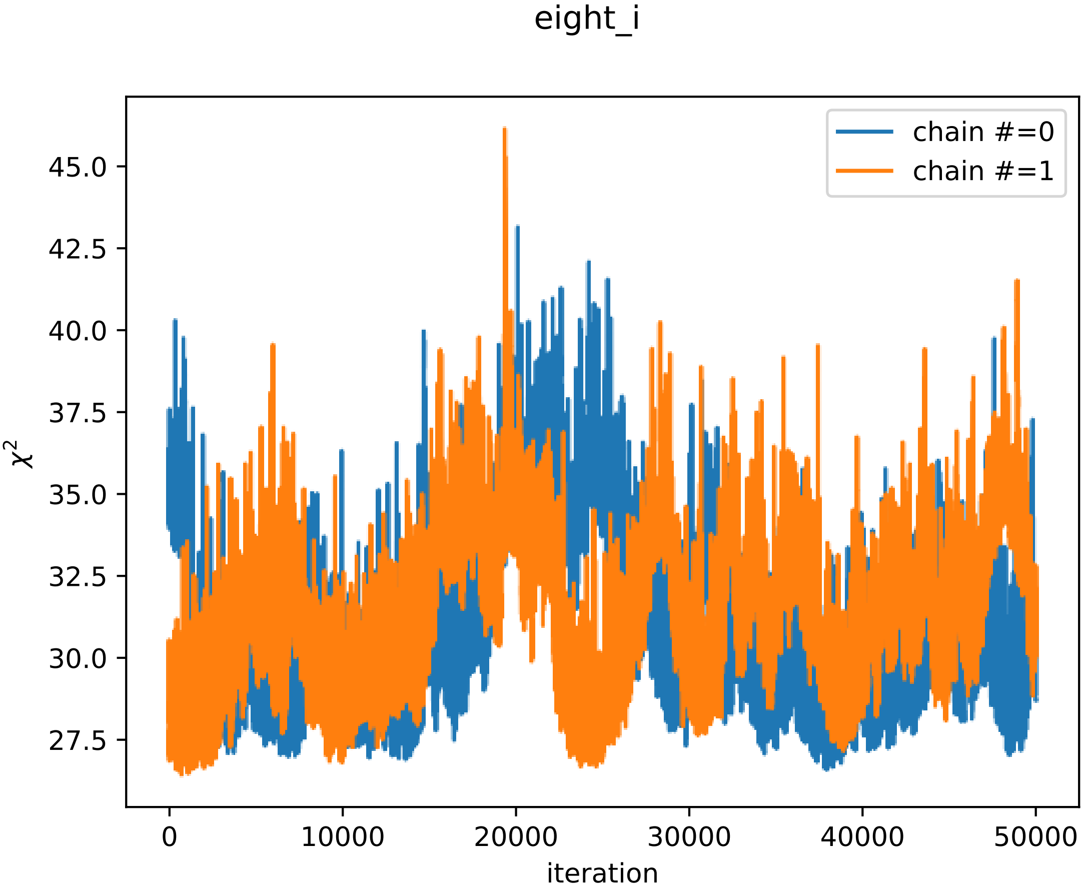

frequency
chain #=0
chain #=1
0
2500
5000
7500
10000
12500
15000
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
mu
0
10000
20000
30000
40000
0.0
0.5
1.0
1.5
2.0
2.5
1e−5
phi
0
2000
4000
6000
8000
400
500
600
700
800
900
1000
1100
1200
beta
0
2000
4000
6000
8000
10000
12000
0.16
0.18
0.20
0.22
0.24
0.26
tau
0
2000
4000
6000
8000
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
1e6
S0
0
2000
4000
6000
8000
1.8
2.0
2.2
2.4
2.6
2.8
3.0
1e7
V0

eight_i

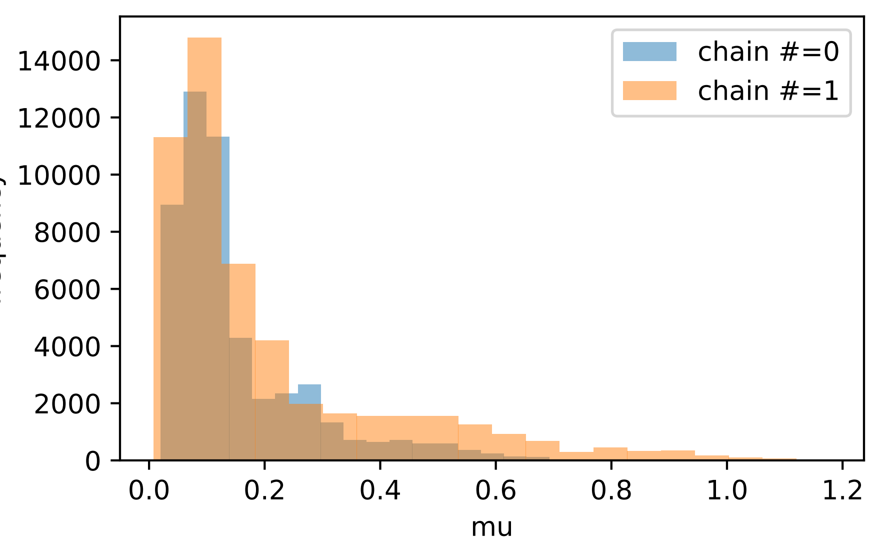

chain #=0
chain #=1
mu
phi
beta
tau
S0
V0
10^{-2}
10^{-1}
10^{0}
10^{-7}
10^{-6}
10^{-5}
4×10^{2}
6×10^{2}
10^{3}
1.6×10^{-1}
1.8×10^{-1}
2×10^{-1}
2.2×10^{-1}
2.4×10^{-1}
2.6×10^{-1}
1.4×10^{6}
1.5×10^{6}
1.6×10^{6}
1.7×10^{6}
1.8×10^{6}
1.9×10^{6}
2×10^{6}
2.1×10^{6}
2×10^{7}
3×10^{7}

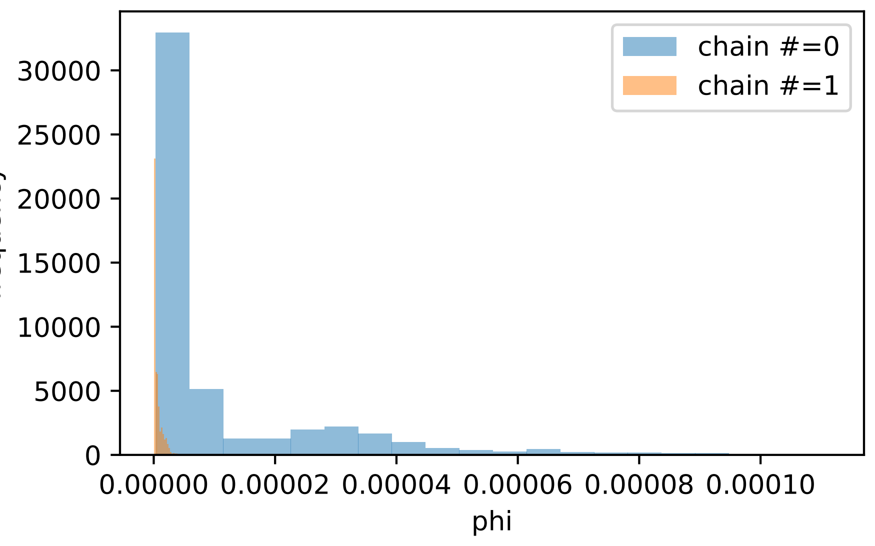
eight_i

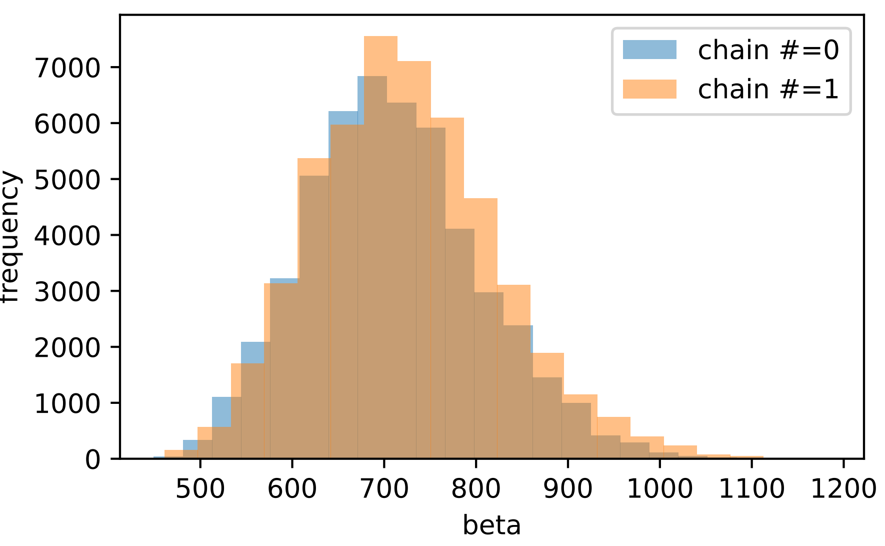

chain #=0
chain #=1
frequency
0
2500
5000
7500
10000
12500
15000
17500
27.5
30.0
32.5
35.0
37.5
40.0
42.5
45.0
χ^2

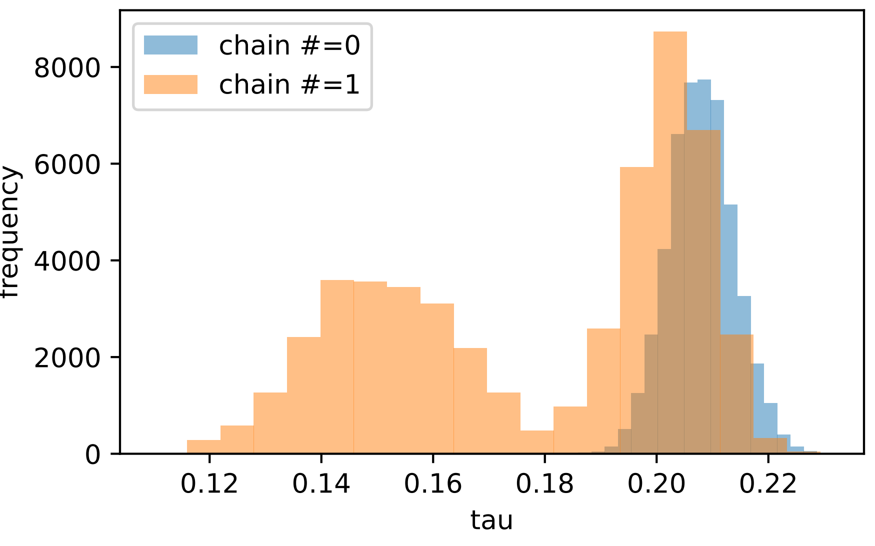

eight_i
chain #=0
chain #=1
χ^2
45.0
42.5
40.0
37.5
35.0
32.5
30.0
27.5
0
10000
20000
30000
40000
50000
iteration

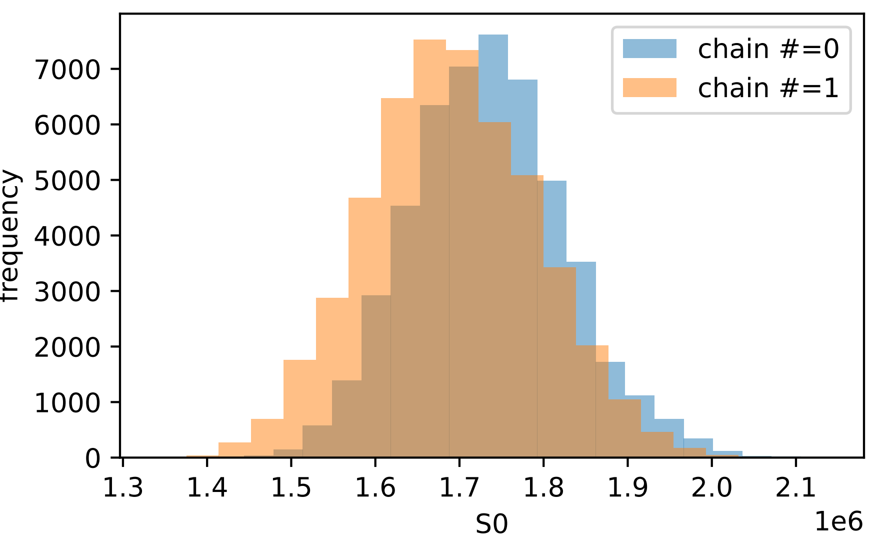
nine_i

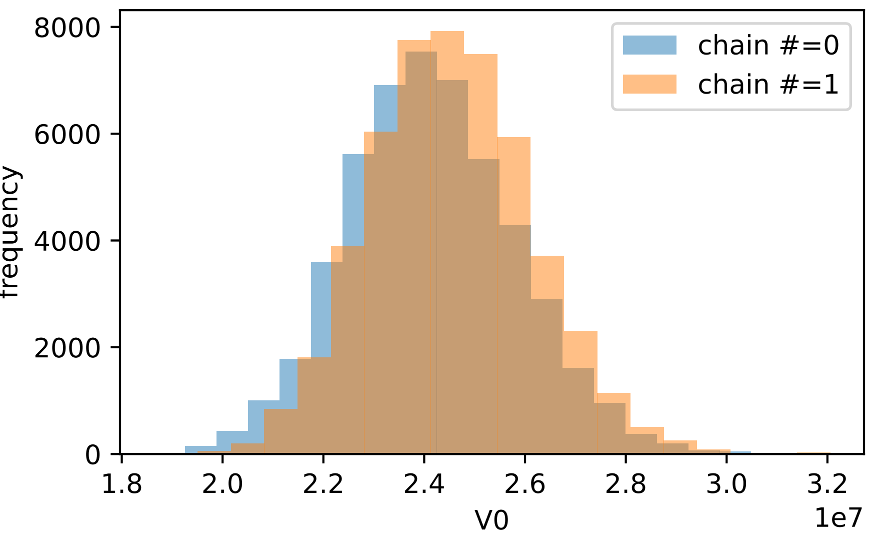

chain #=0
chain #=1
14000
12000
10000
8000
6000
4000
2000
0
0.0
0.2
0.4
0.6
0.8
1.0
1.2
mu


chain #=0
chain #=1
30000
25000
20000
15000
10000
5000
0
0.00000
0.00002
0.00004
0.00006
0.00008
0.00010
phi

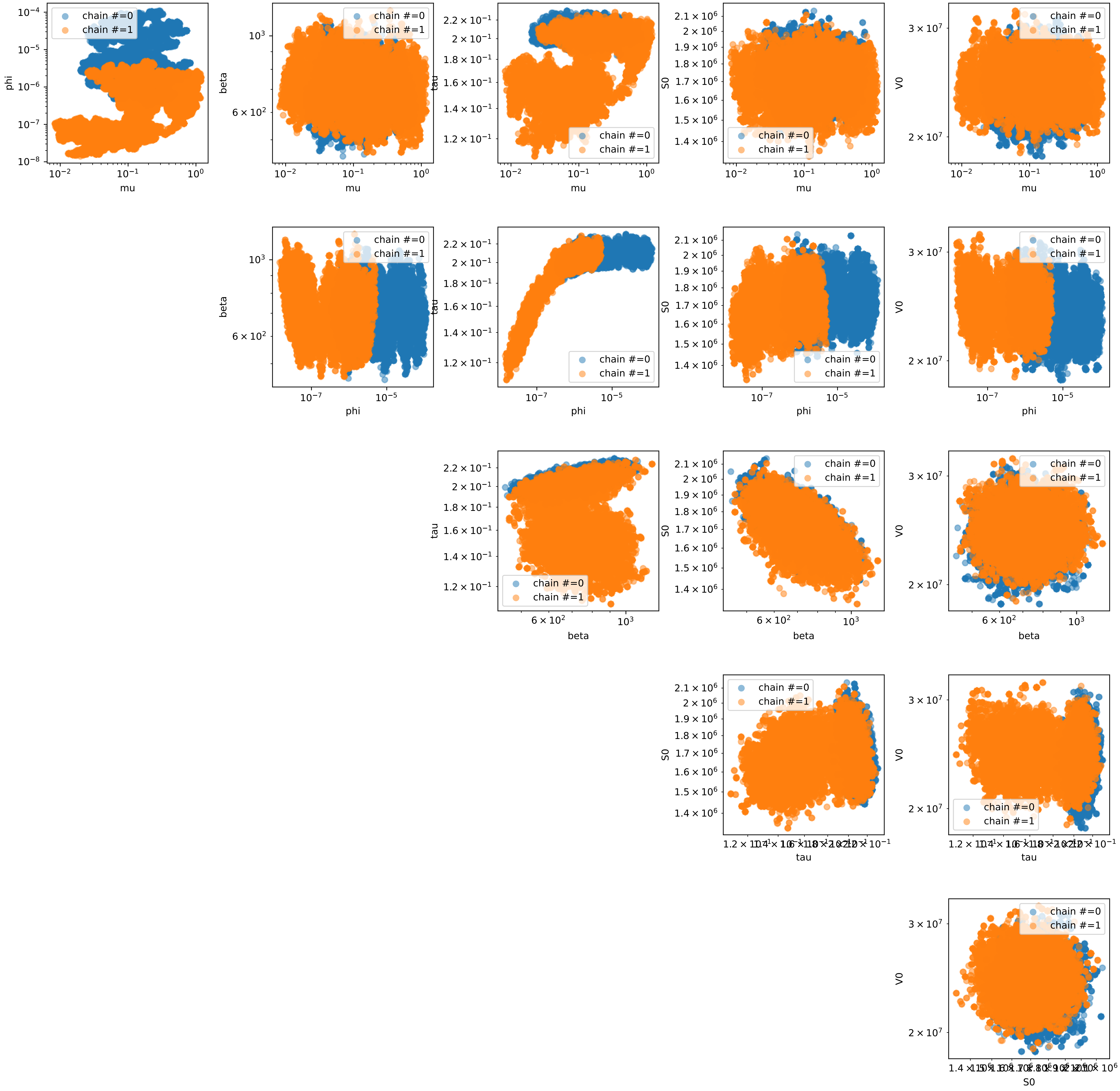

chain #=0
chain #=1
frequency
7000
6000
5000
4000
3000
2000
1000
0
500
600
700
800
900
1000
1100
1200
beta

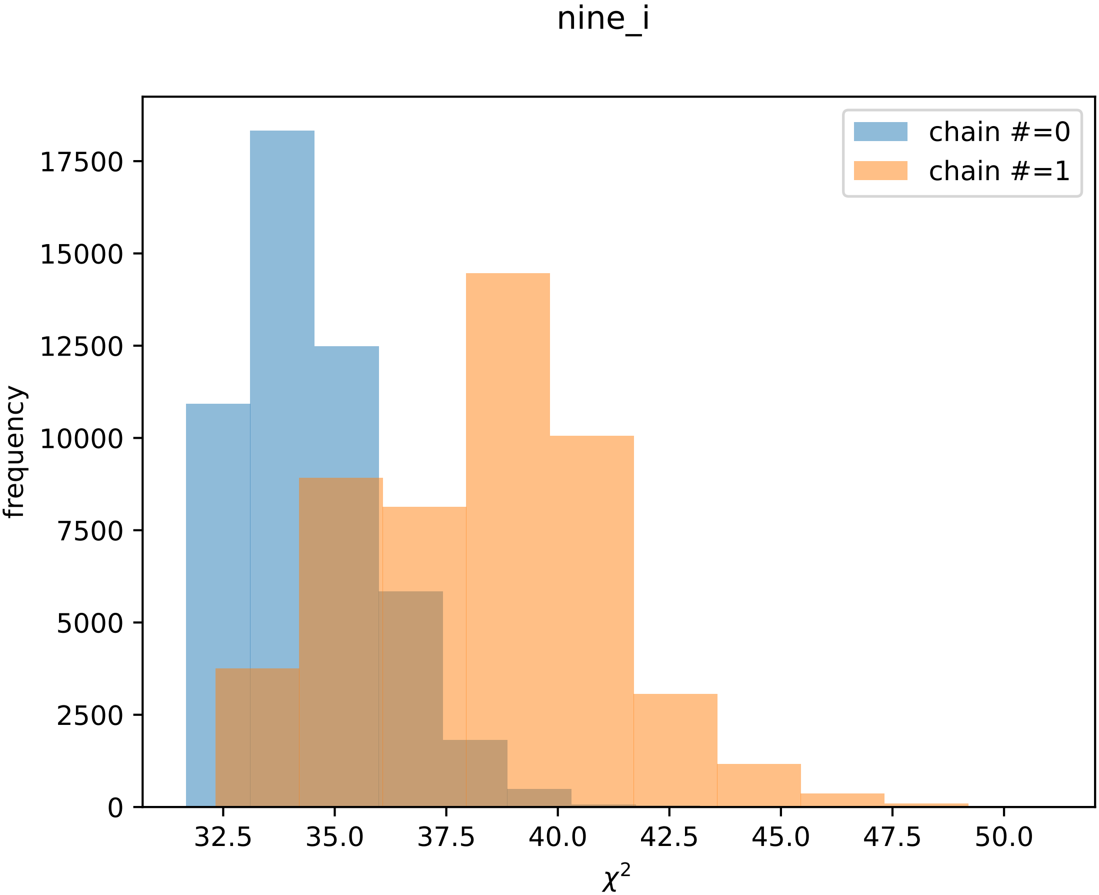

chain #=0
chain #=1
frequency
8000
6000
4000
2000
0
0.12
0.14
0.16
0.18
0.20
0.22
tau

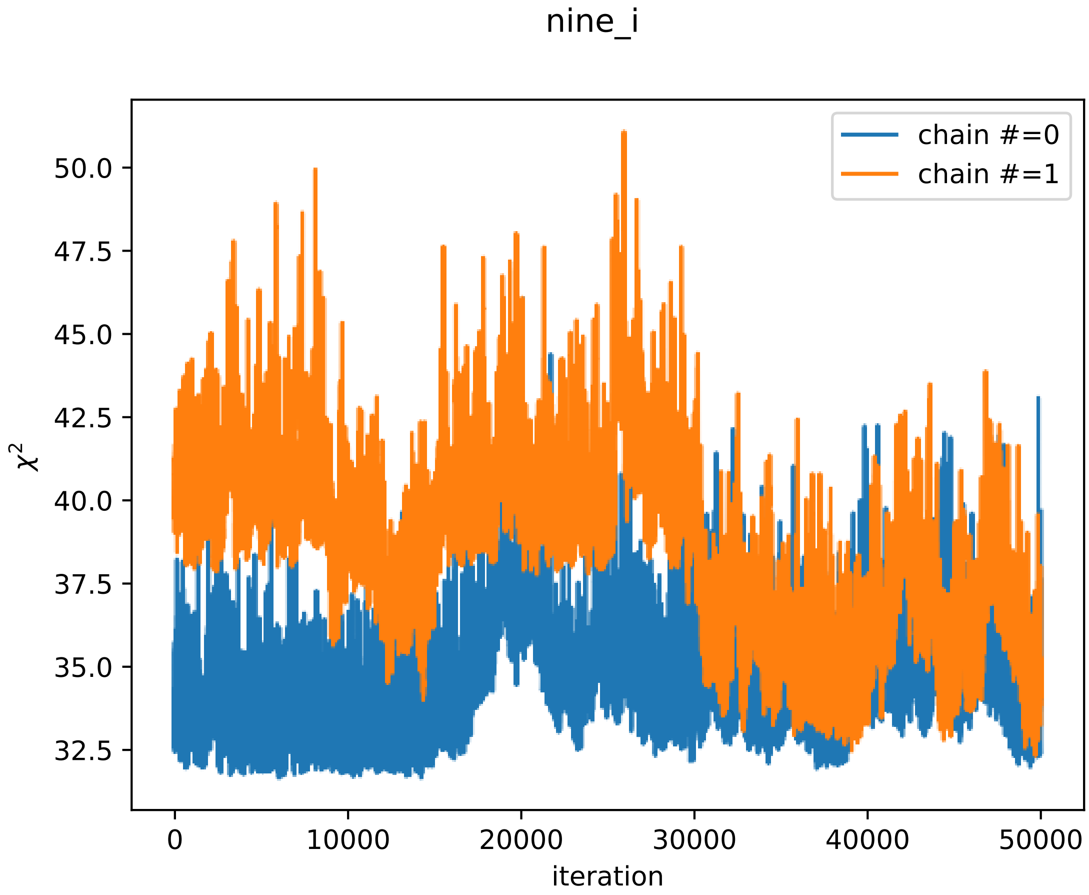

chain #=0
chain #=1
frequency
7000
6000
5000
4000
3000
2000
1000
0
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
1e6
S0


chain #=0
chain #=1
frequency
8000
6000
4000
2000
0
1.8
2.0
2.2
2.4
2.6
2.8
3.0
3.2
1e7
V0

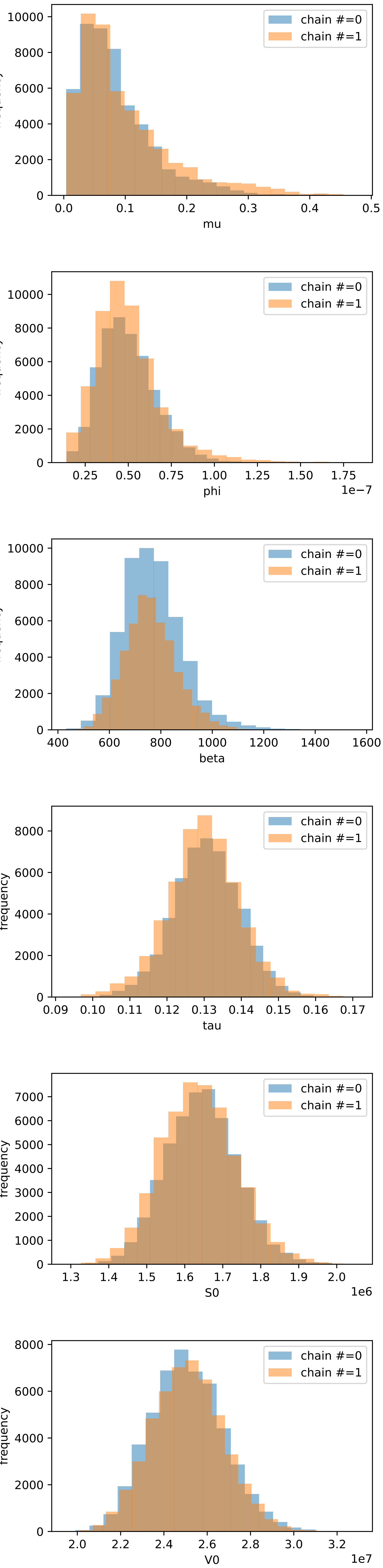
nine_i


chain #=0
chain #=1
mu
phi
beta
tau
S0
V0
10^{-2}
10^{-1}
10^{0}
10^{-4}
10^{-5}
10^{-6}
10^{-7}
10^{-8}
10^{3}
6×10^{2}
2.2×10^{-1}
2×10^{-1}
1.8×10^{-1}
1.6×10^{-1}
1.4×10^{-1}
1.2×10^{-1}
2.1×10^{6}
2×10^{6}
1.9×10^{6}
1.8×10^{6}
1.7×10^{6}
1.6×10^{6}
1.5×10^{6}
1.4×10^{6}
3×10^{7}
2×10^{7}


nine_i
chain #=0
chain #=1
frequency
0
2500
5000
7500
10000
12500
15000
17500
32.5
35.0
37.5
40.0
42.5
45.0
47.5
50.0
χ^2

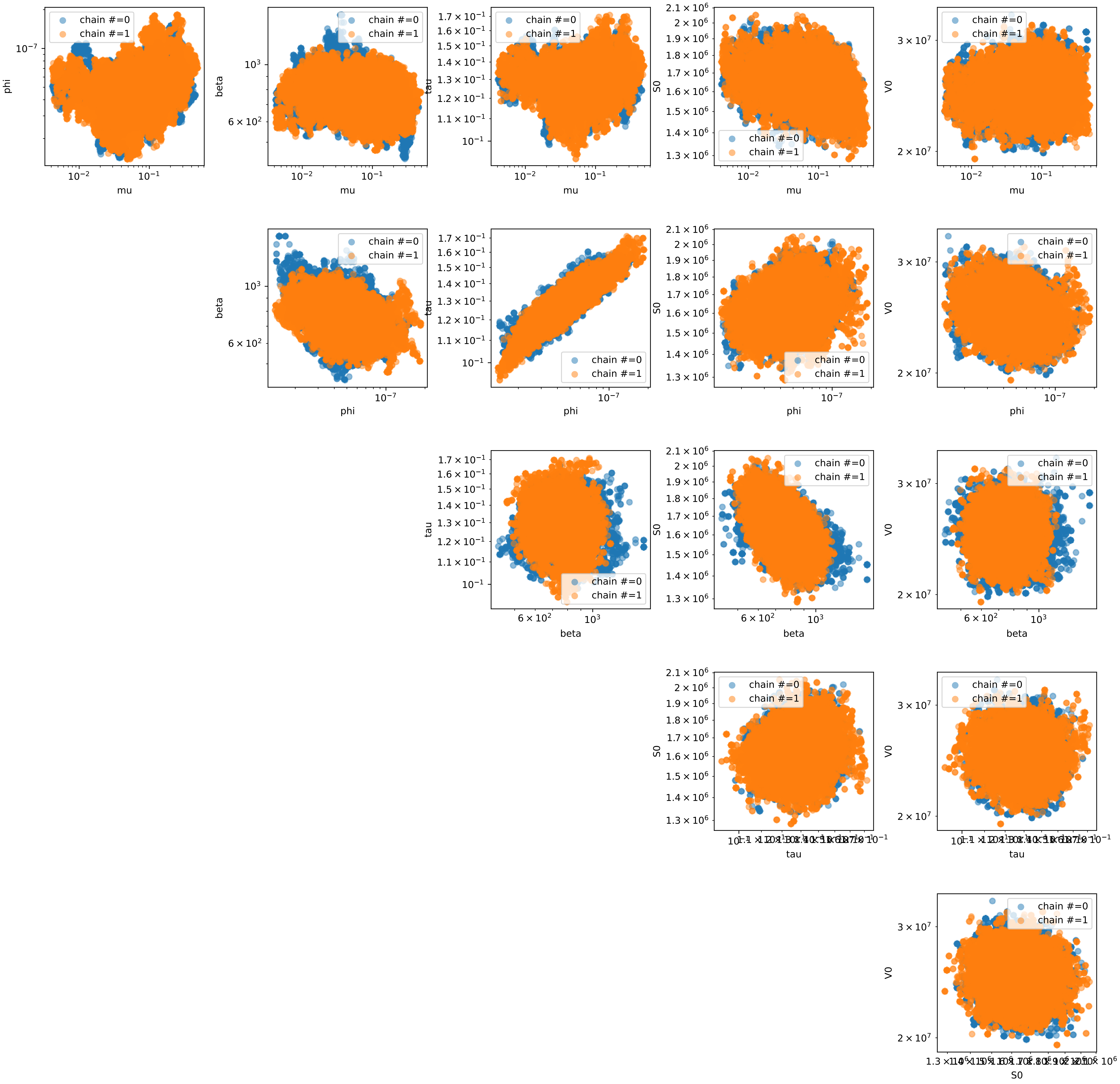

nine_i
chain #=0
chain #=1
50.0
47.5
45.0
42.5
40.0
37.5
35.0
32.5
χ^2
0
10000
20000
30000
40000
50000
iteration

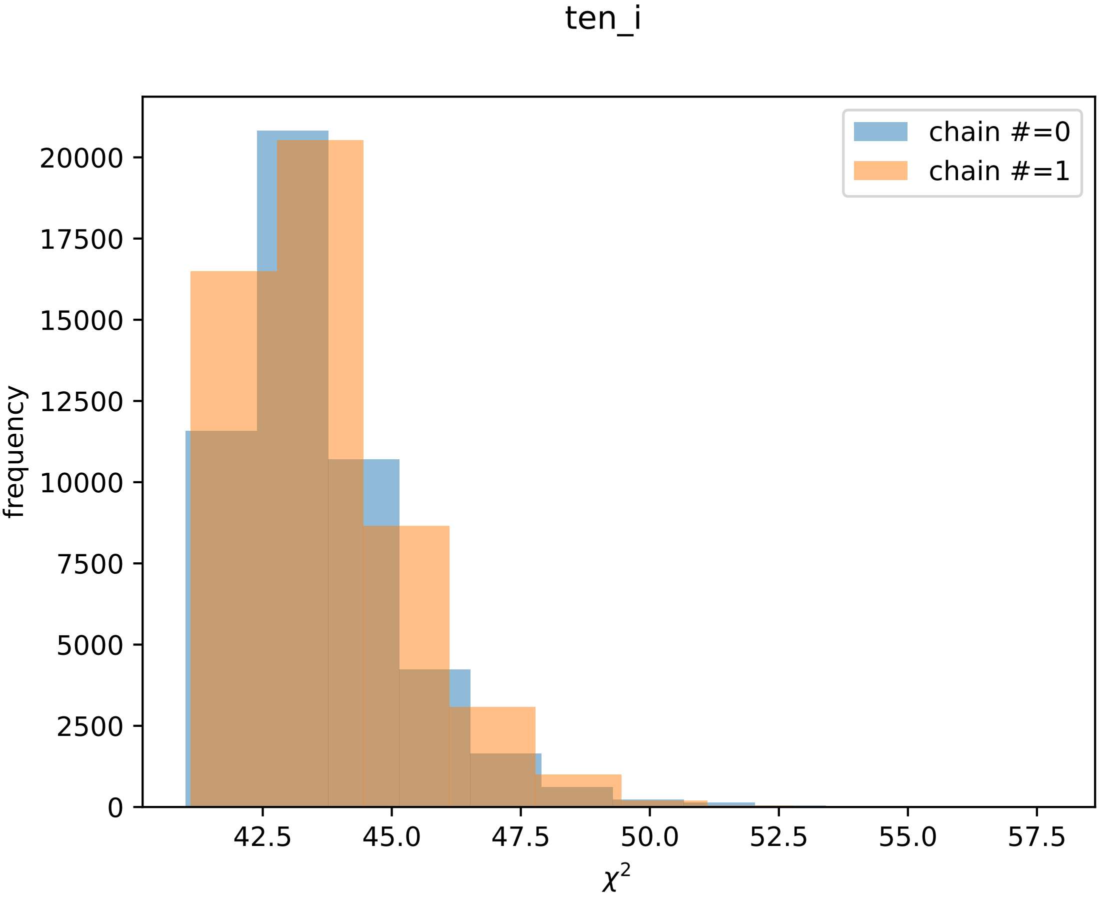
ten_i

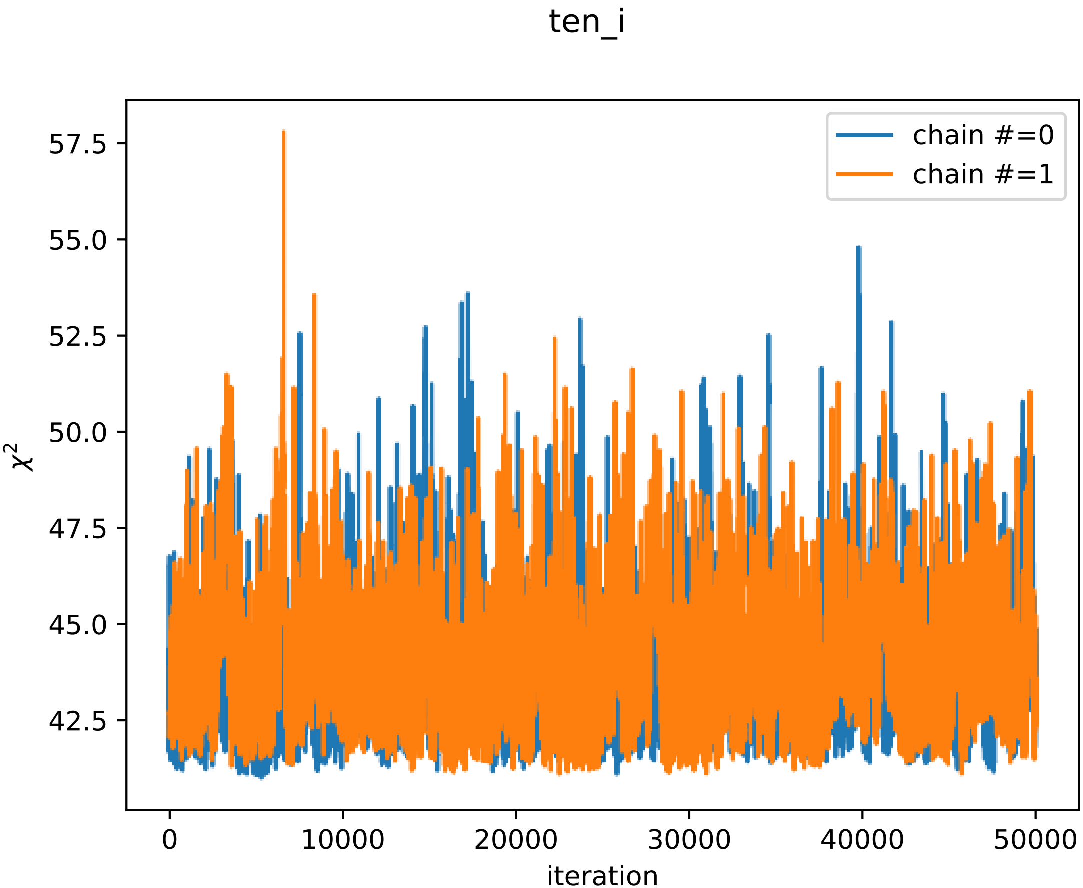


frequency
0
2000
4000
6000
8000
10000
0.0
0.1
0.2
0.3
0.4
0.5
mu
chain #=0
chain #=1
frequency
0
2000
4000
6000
8000
10000
0.25
0.50
0.75
1.00
1.25
1.50
1.75
1e−7
phi
chain #=0
chain #=1
frequency
0
2000
4000
6000
8000
10000
400
600
800
1000
1200
1400
1600
beta
chain #=0
chain #=1
frequency
0
2000
4000
6000
8000
0.09
0.10
0.11
0.12
0.13
0.14
0.15
0.16
0.17
tau
chain #=0
chain #=1
frequency
0
1000
2000
3000
4000
5000
6000
7000
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
1e6
S0
chain #=0
chain #=1
frequency
0
2000
4000
6000
8000
2.0
2.2
2.4
2.6
2.8
3.0
3.2
1e7
V0
chain #=0
chain #=1

ten_i


chain #=0
chain #=1
mu
phi
beta
tau
S0
V0
10^{-2}
10^{-1}
10^{-7}
10^{3}
6×10^{2}
1.7×10^{-1}
1.6×10^{-1}
1.5×10^{-1}
1.4×10^{-1}
1.3×10^{-1}
1.2×10^{-1}
1.1×10^{-1}
10^{-1}
2.1×10^{6}
2×10^{6}
1.9×10^{6}
1.8×10^{6}
1.7×10^{6}
1.6×10^{6}
1.5×10^{6}
1.4×10^{6}
1.3×10^{6}
3×10^{7}
2×10^{7}


ten_i
chain #=0
chain #=1
frequency
0
2500
5000
7500
10000
12500
15000
17500
20000
42.5
45.0
47.5
50.0
52.5
55.0
57.5
χ^2


ten_i
chain #=0
chain #=1
57.5
55.0
52.5
50.0
47.5
45.0
42.5
χ^2
0
10000
20000
30000
40000
50000
iteration