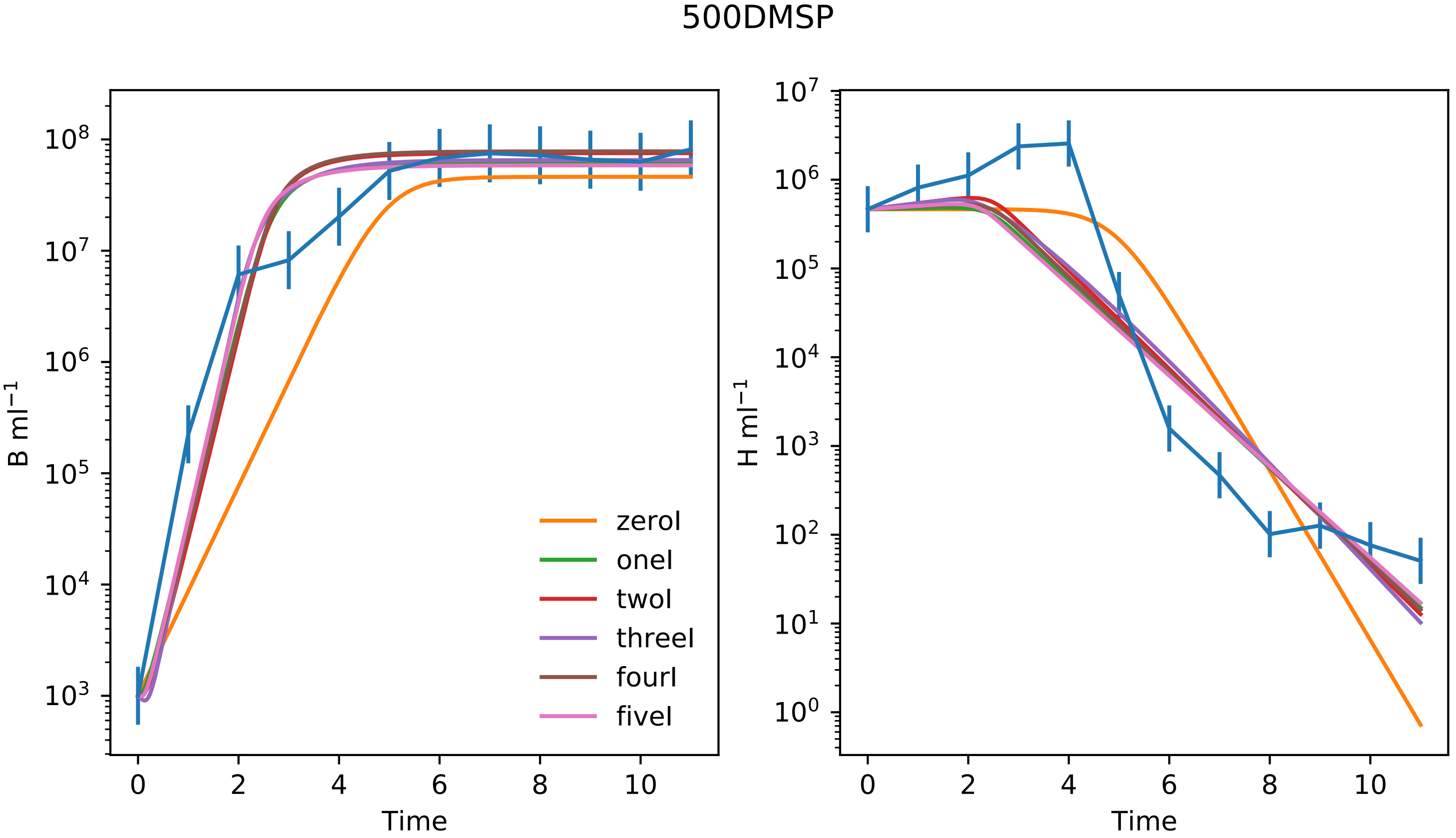
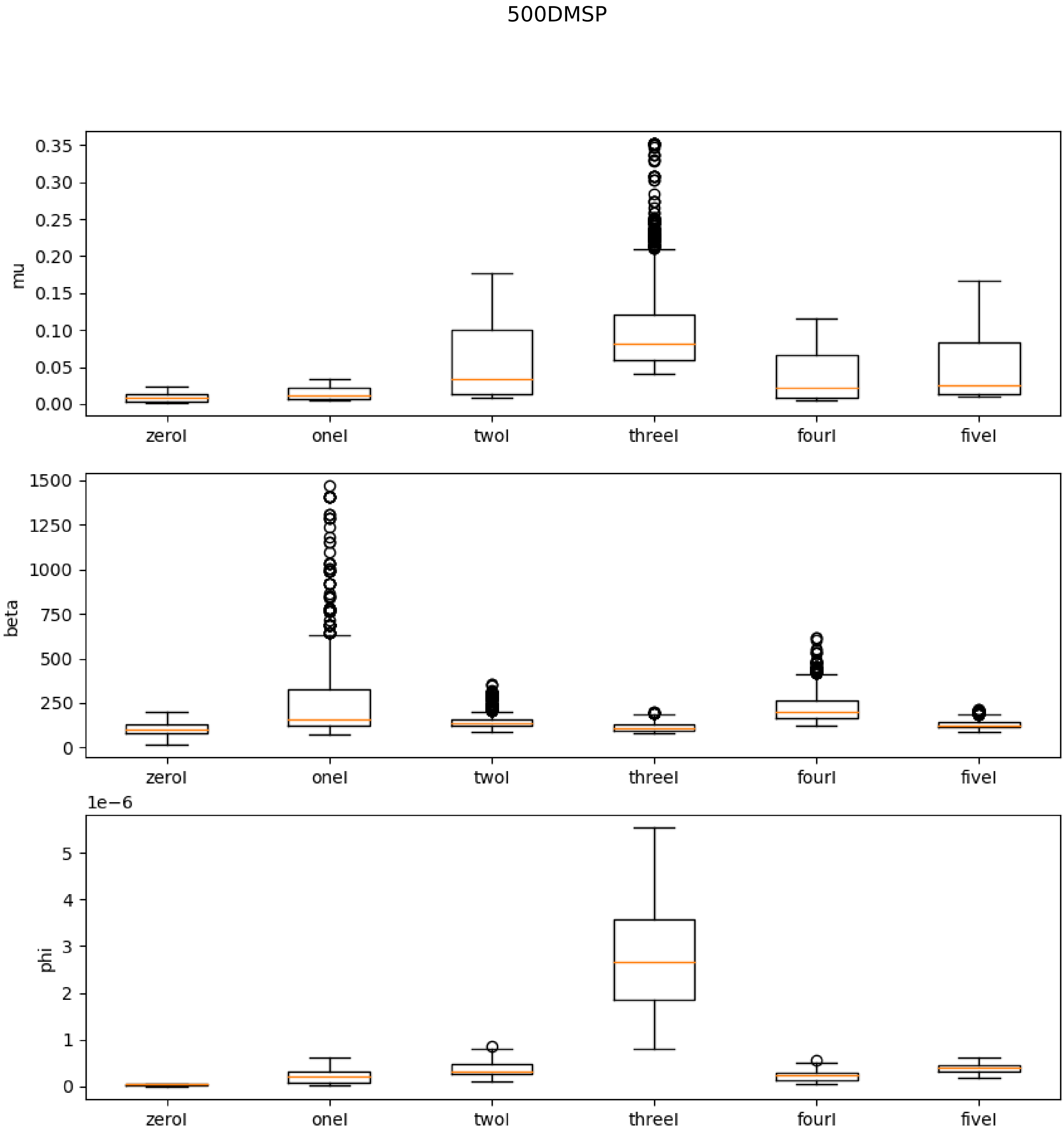
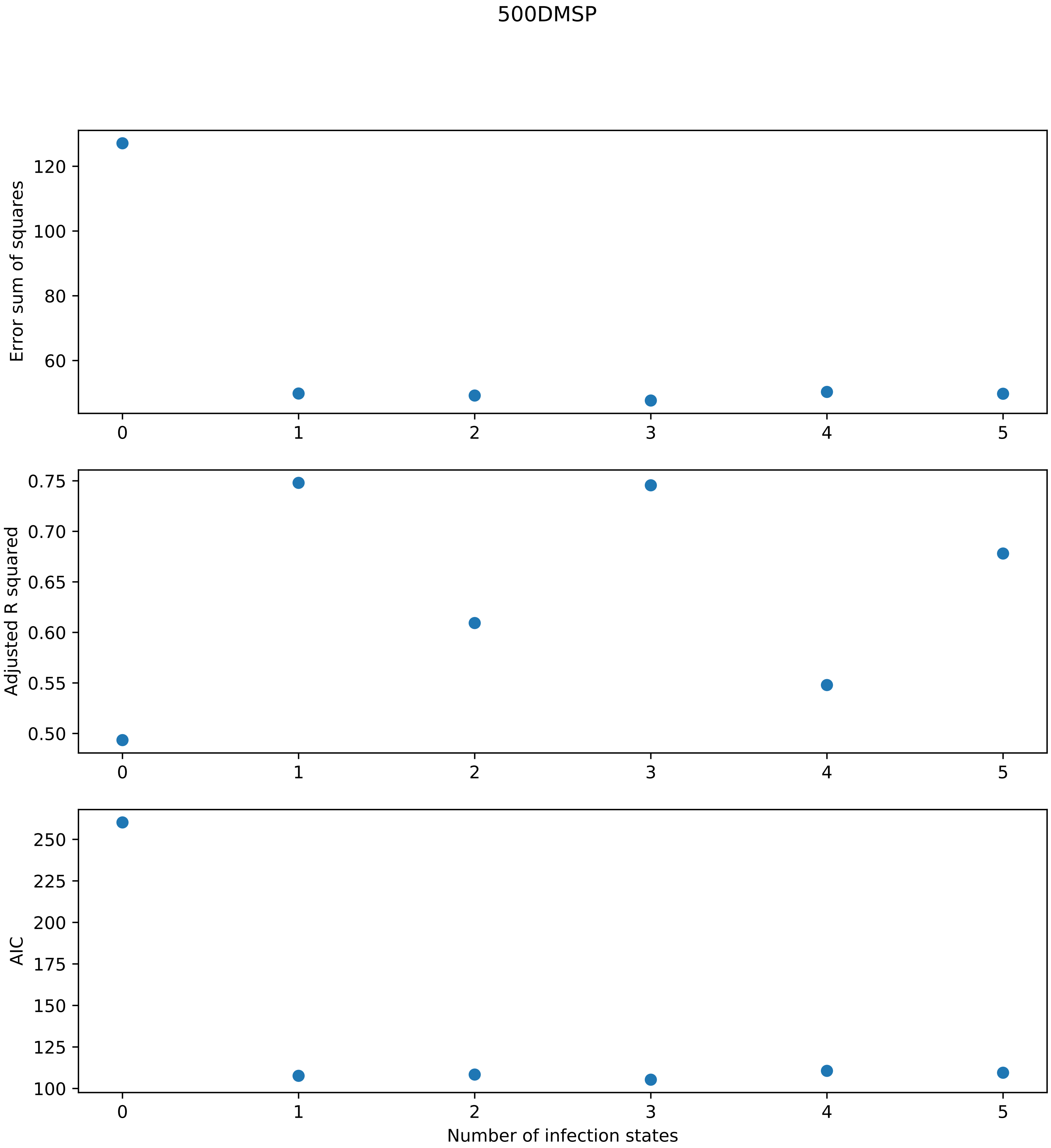
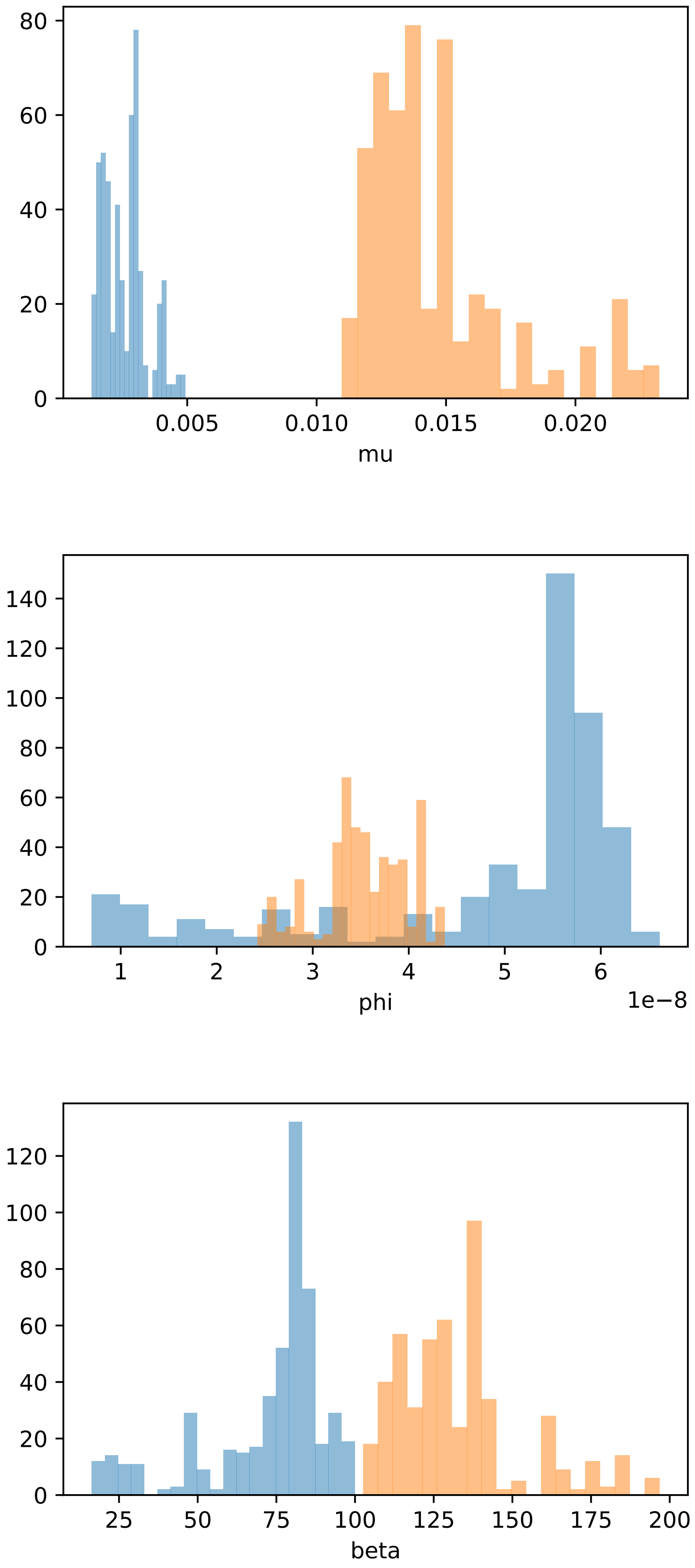

500DMSP

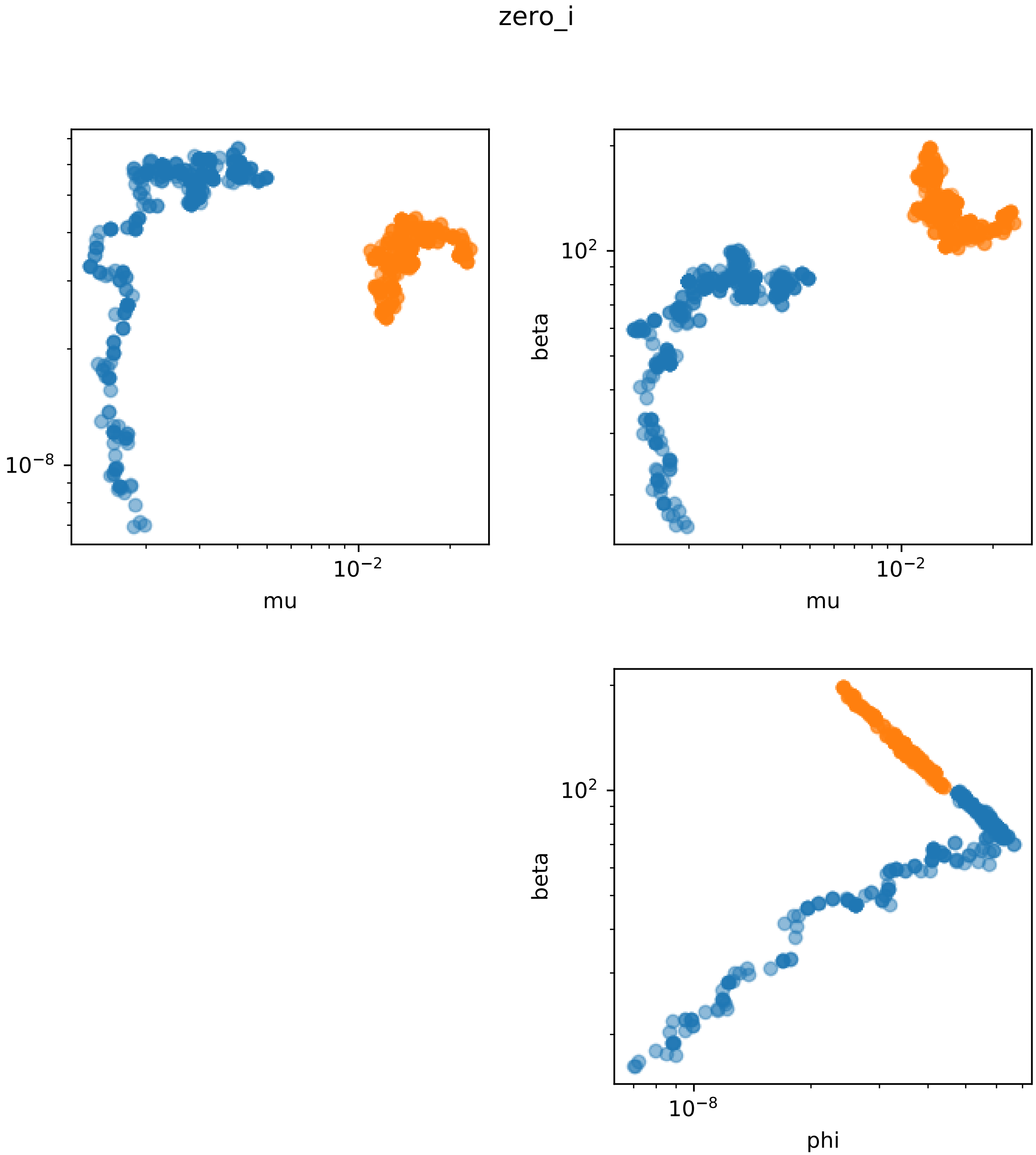
B ml^{-1}
10^3
10^4
10^5
10^6
10^7
10^8
0
2
4
6
8
10
Time
zerol
onel
twol
threel
fourl
fivel
H ml^{-1}
10^0
10^1
10^2
10^3
10^4
10^5
10^6
10^7
0
2
4
6
8
10
Time

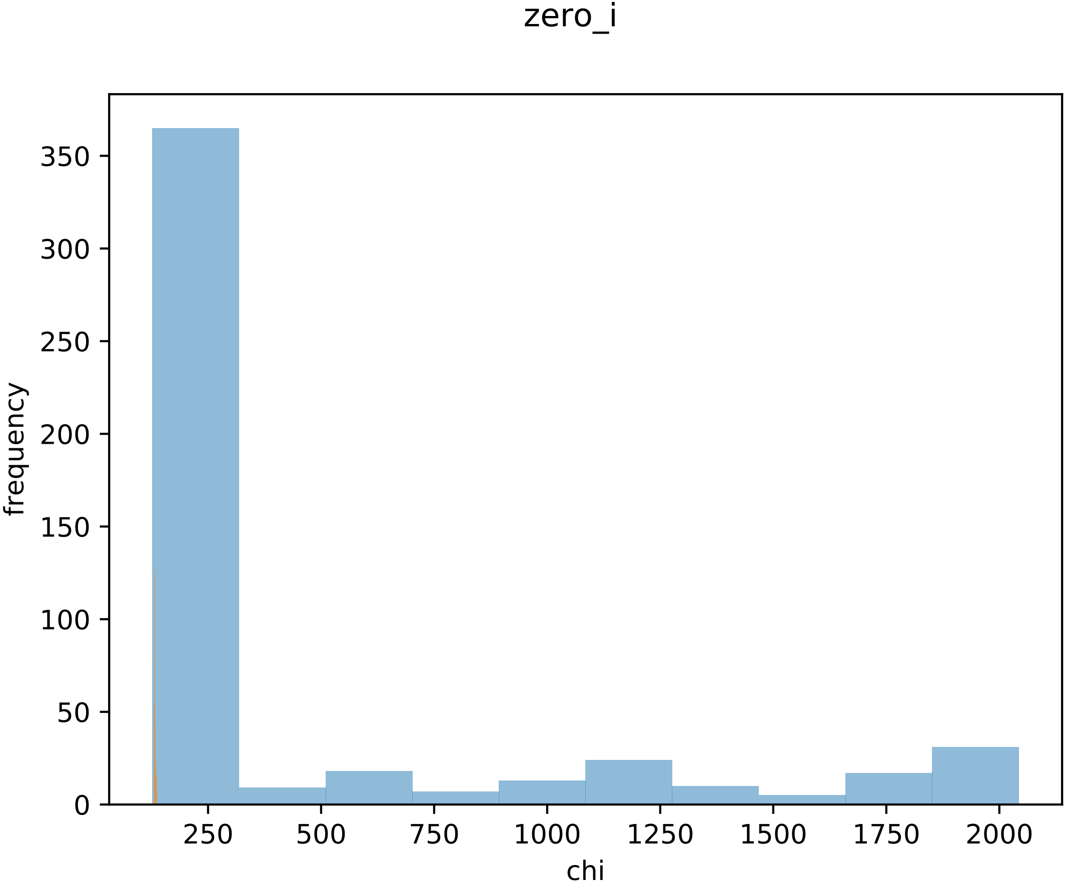

500DMSP
mu
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
zeroI
oneI
twoI
threeI
fourI
fiveI
beta
1500
1250
1000
750
500
250
0
zeroI
oneI
twoI
threeI
fourI
fiveI
1e−6
phi
5
4
3
2
1
0
zeroI
oneI
twoI
threeI
fourI
fiveI

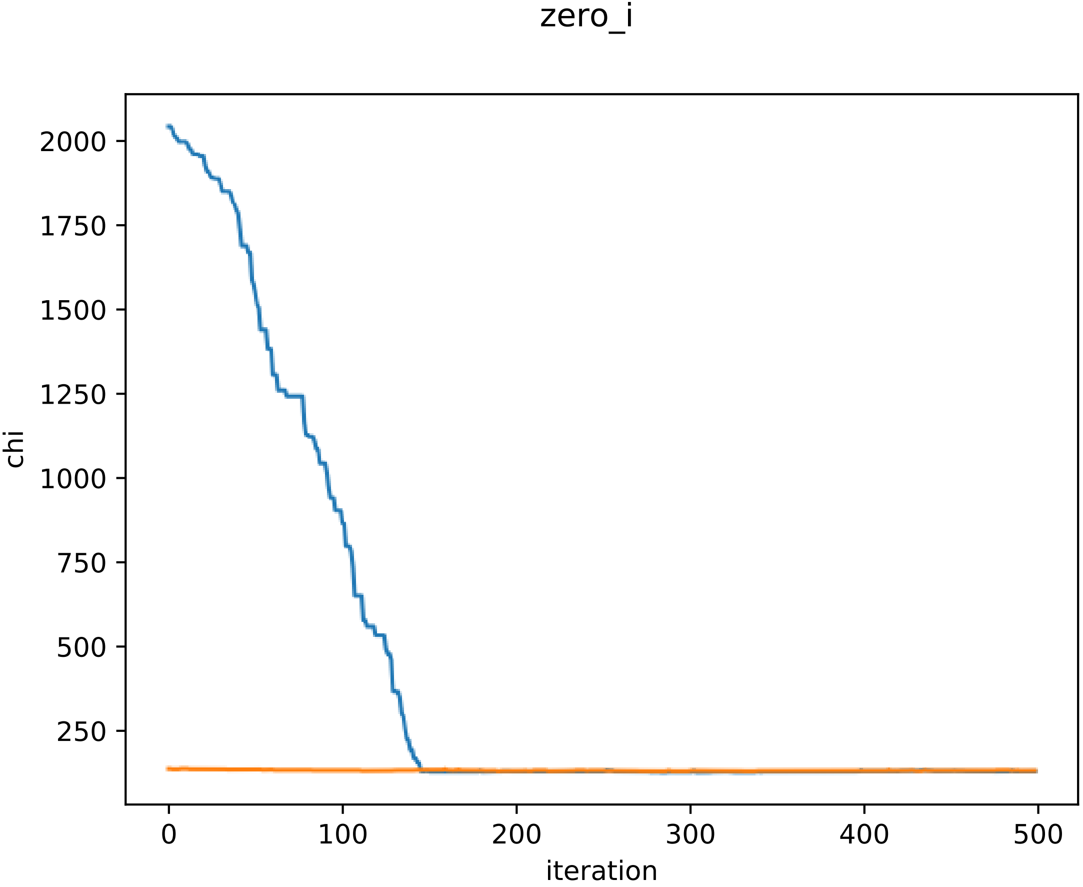

500DMSP
Error sum of squares
120
100
80
60
0
1
2
3
4
5
Adjusted R squared
0.75
0.70
0.65
0.60
0.55
0.50
0
1
2
3
4
5
AIC
250
225
200
175
150
125
100
0
1
2
3
4
5
Number of infection states

zero_i

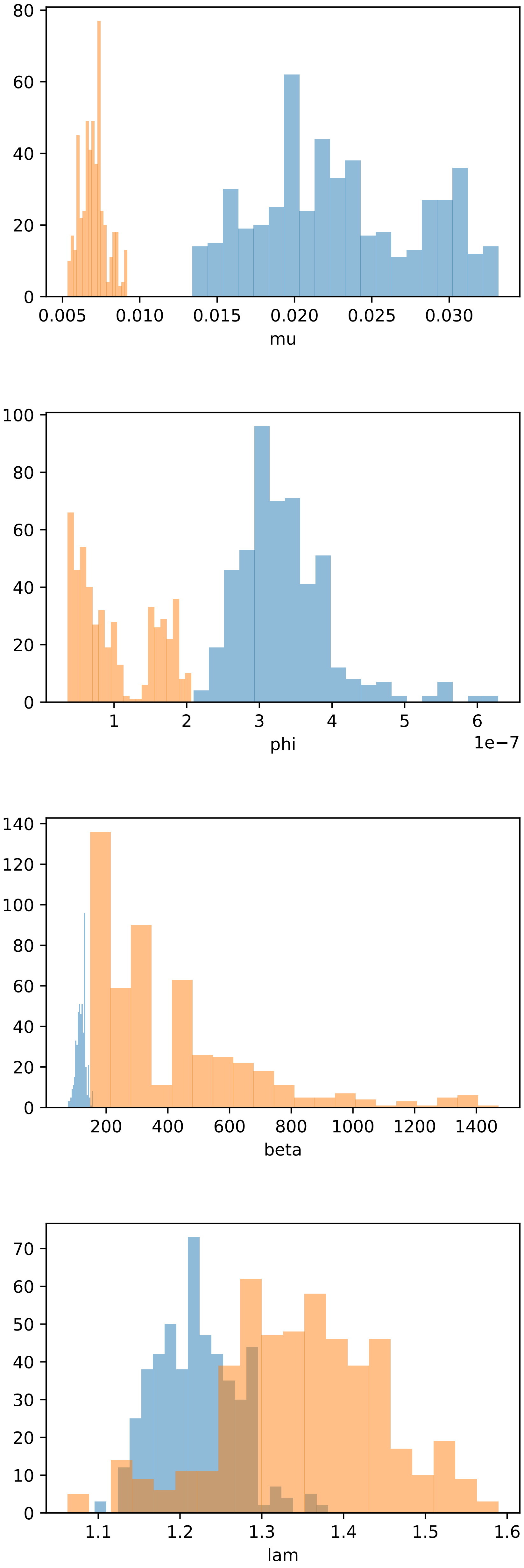

80
60
40
20
0
0.005
0.010
0.015
0.020
mu
140
120
100
80
60
40
20
0
1
2
3
4
5
6
phi
1e−8
120
100
80
60
40
20
0
25
50
75
100
125
150
175
200
beta

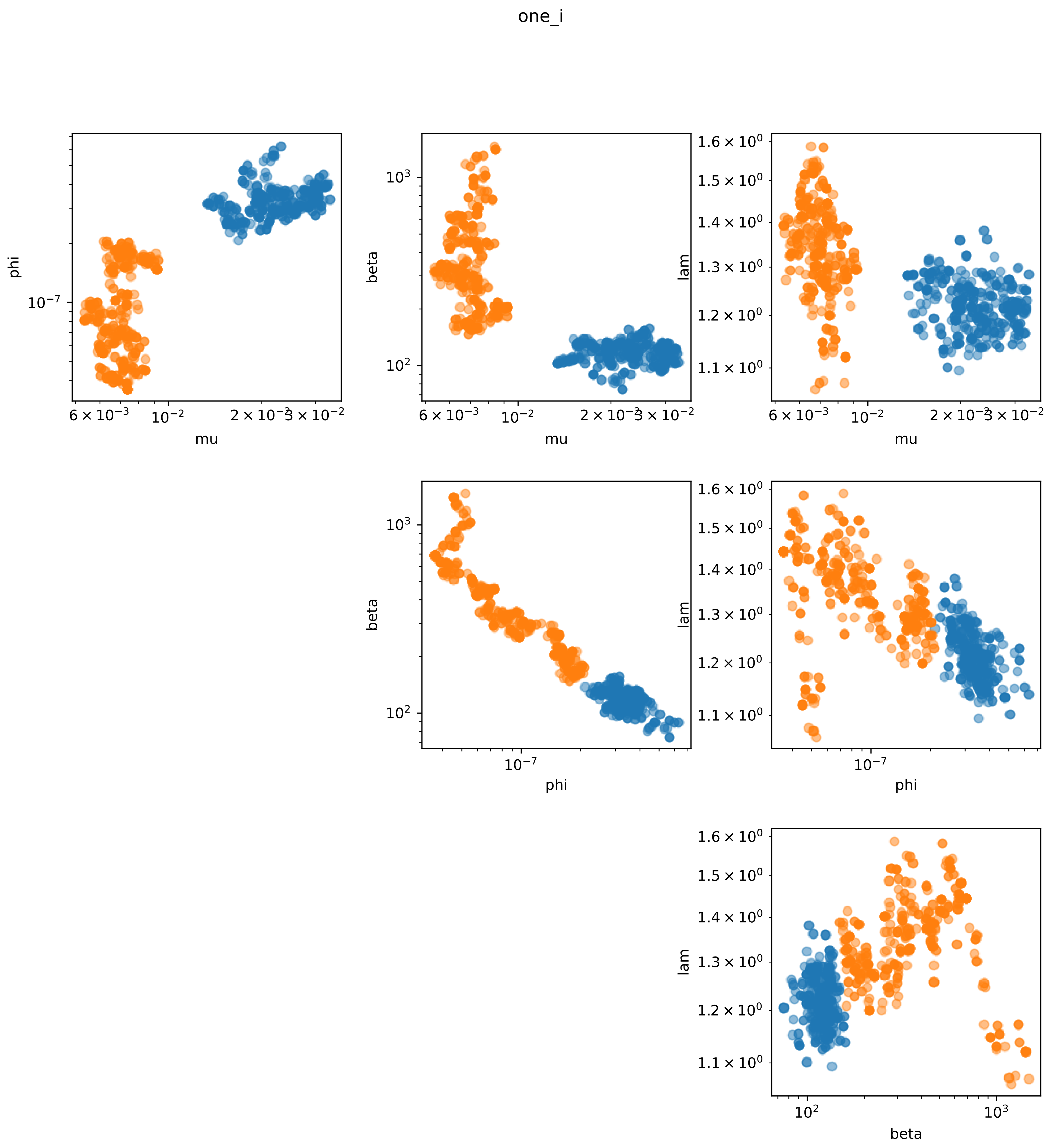

zero_i
phi
10^{-8}
mu
10^{-2}
beta
10^2
mu
10^{-2}
beta
10^2
phi
10^{-8}

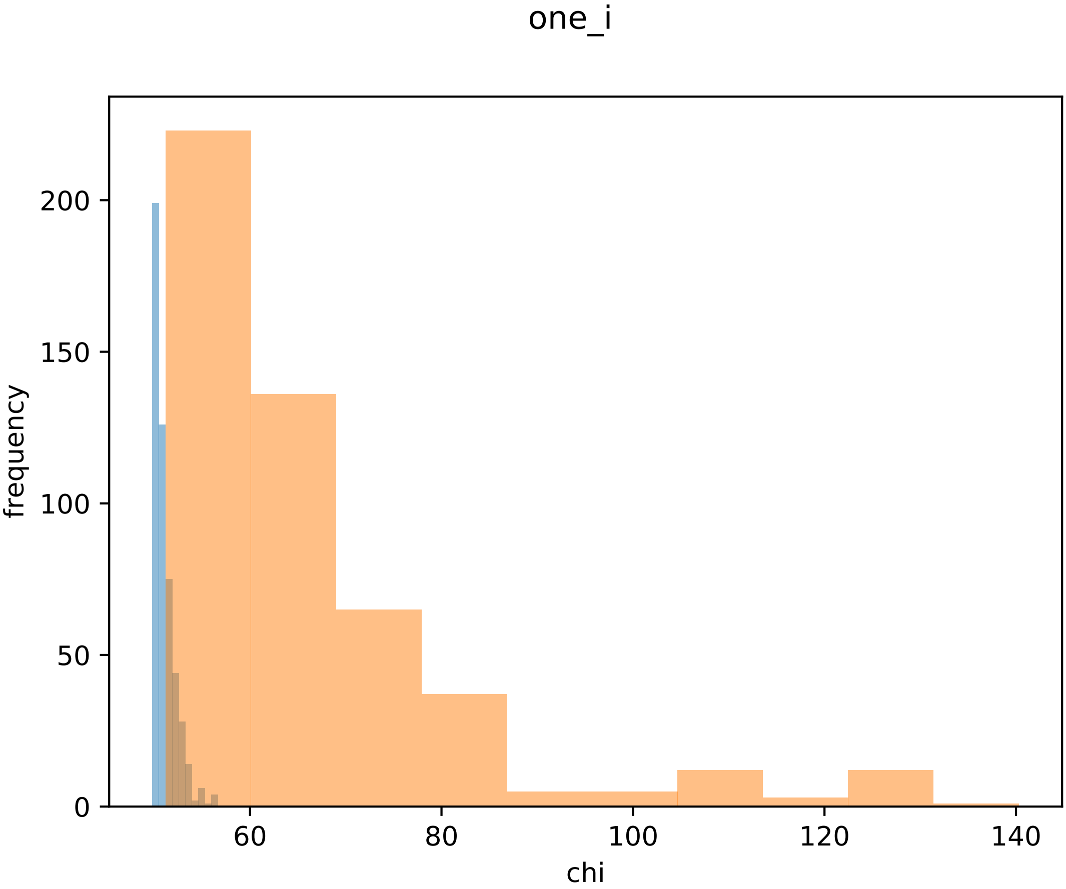

zero_i
frequency
0
50
100
150
200
250
300
350
250
500
750
1000
1250
1500
1750
2000
chi

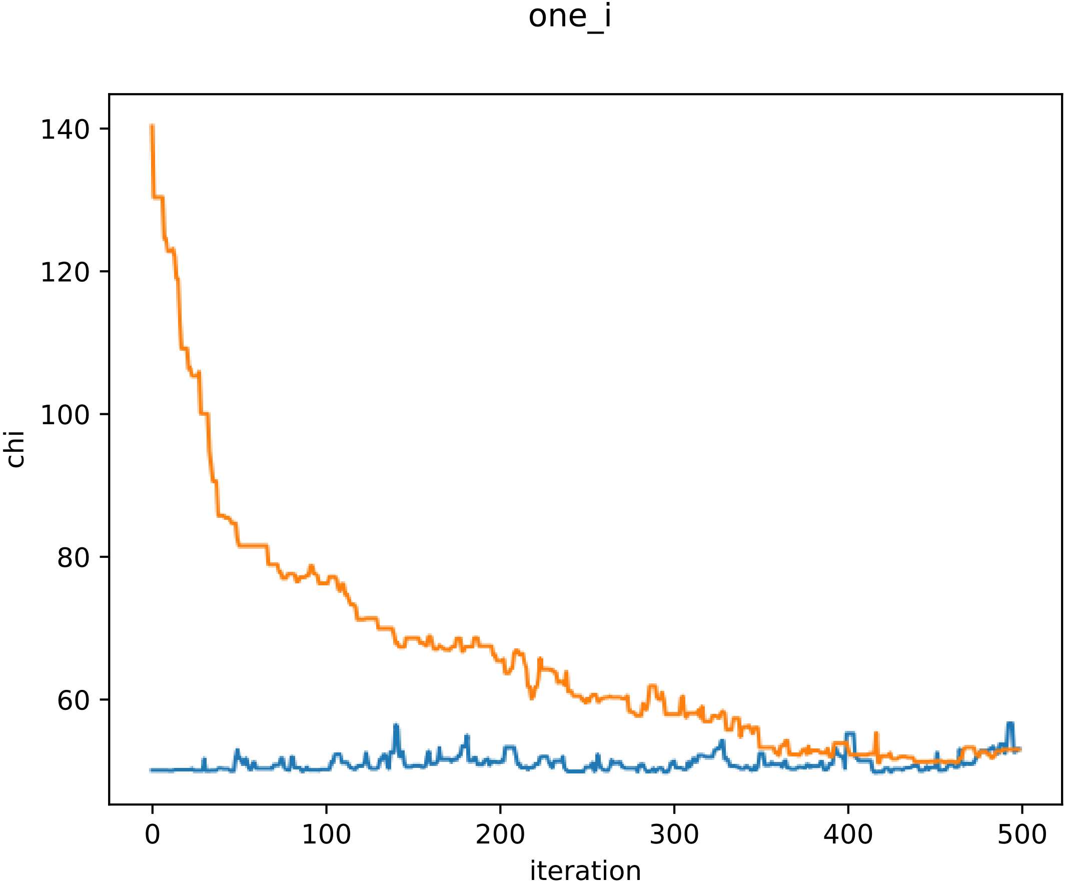

zero_i
chi
2000
1750
1500
1250
1000
750
500
250
0
100
200
300
400
500
iteration

one_i

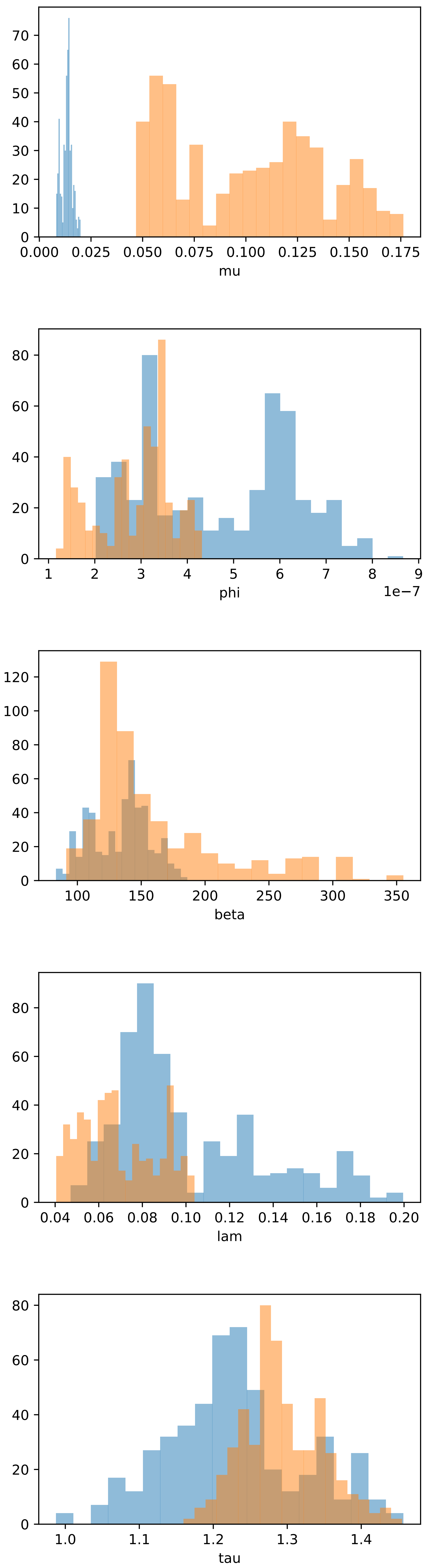

80
60
40
20
0
0.005
0.010
0.015
0.020
0.025
0.030
mu
100
80
60
40
20
0
1
2
3
4
5
6
1e−7
phi
140
120
100
80
60
40
20
0
200
400
600
800
1000
1200
1400
beta
70
60
50
40
30
20
10
0
1.1
1.2
1.3
1.4
1.5
1.6
lam


one_i
phi
10^{-7}
mu
6×10^{-3}
10^{-2}
2×10^{-2}
3×10^{-2}
beta
10^{3}
10^{2}
lam
1.6×10^{0}
1.5×10^{0}
1.4×10^{0}
1.3×10^{0}
1.2×10^{0}
1.1×10^{0}
phi
beta

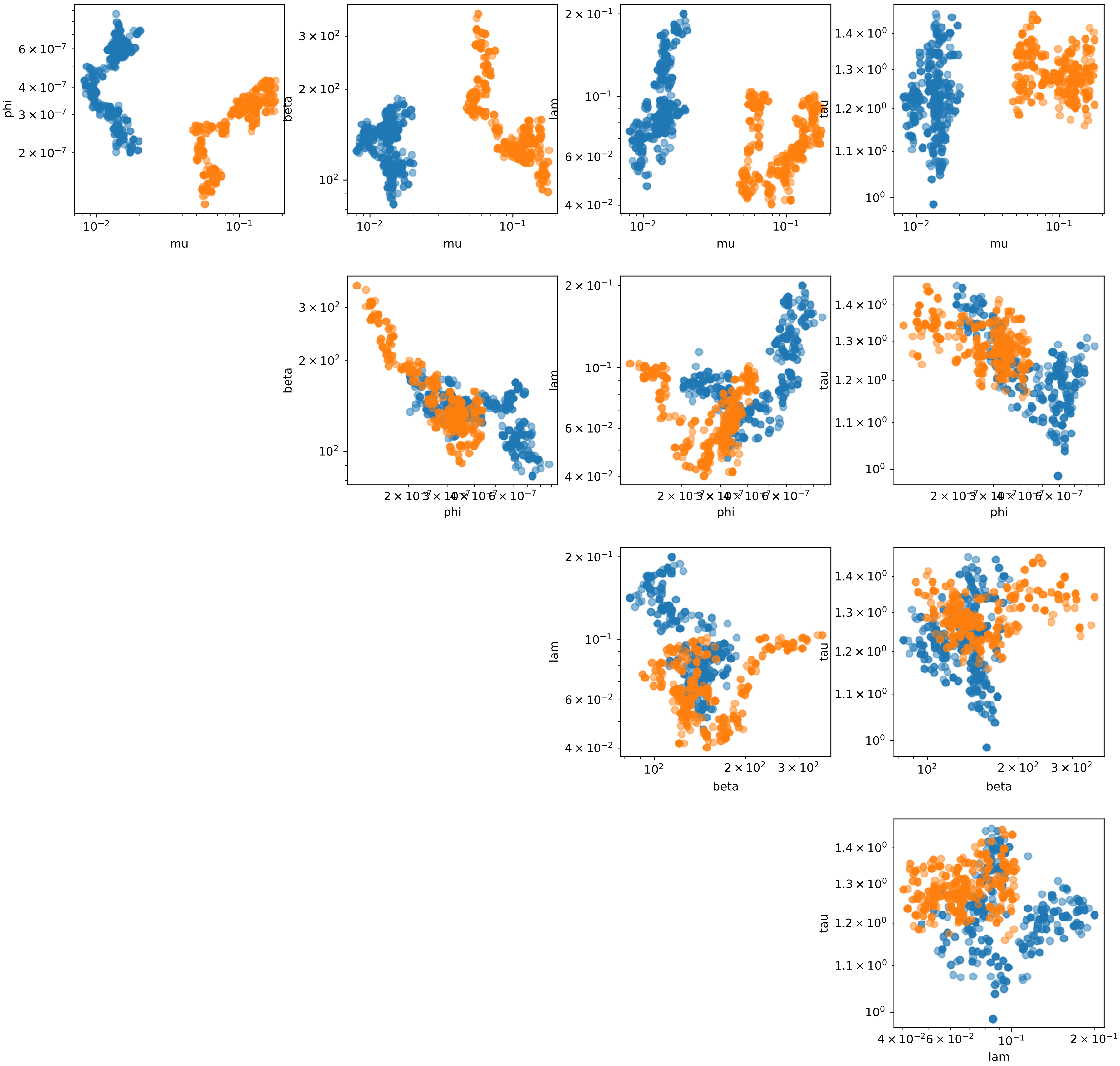

one_i
frequency
200
150
100
50
0
60
80
100
120
140
chi


one_i
chi
140
120
100
80
60
iteration
0
100
200
300
400
500

two_i

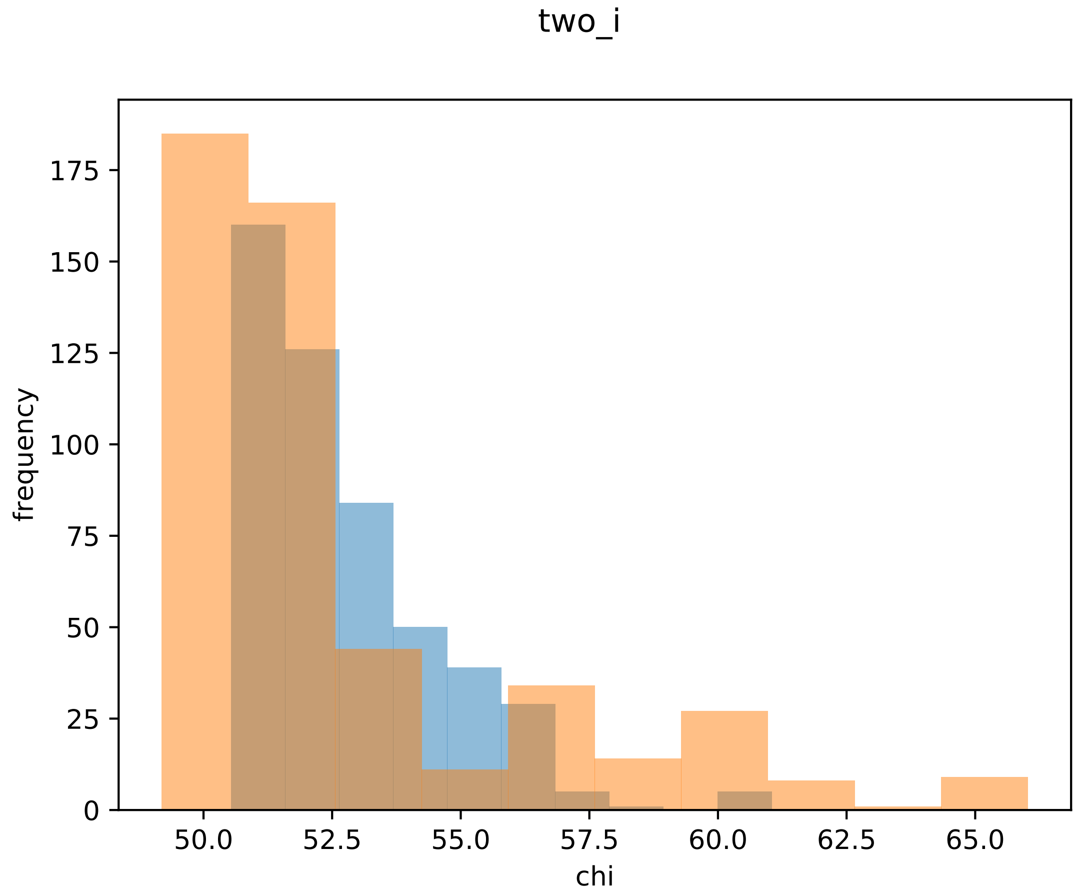


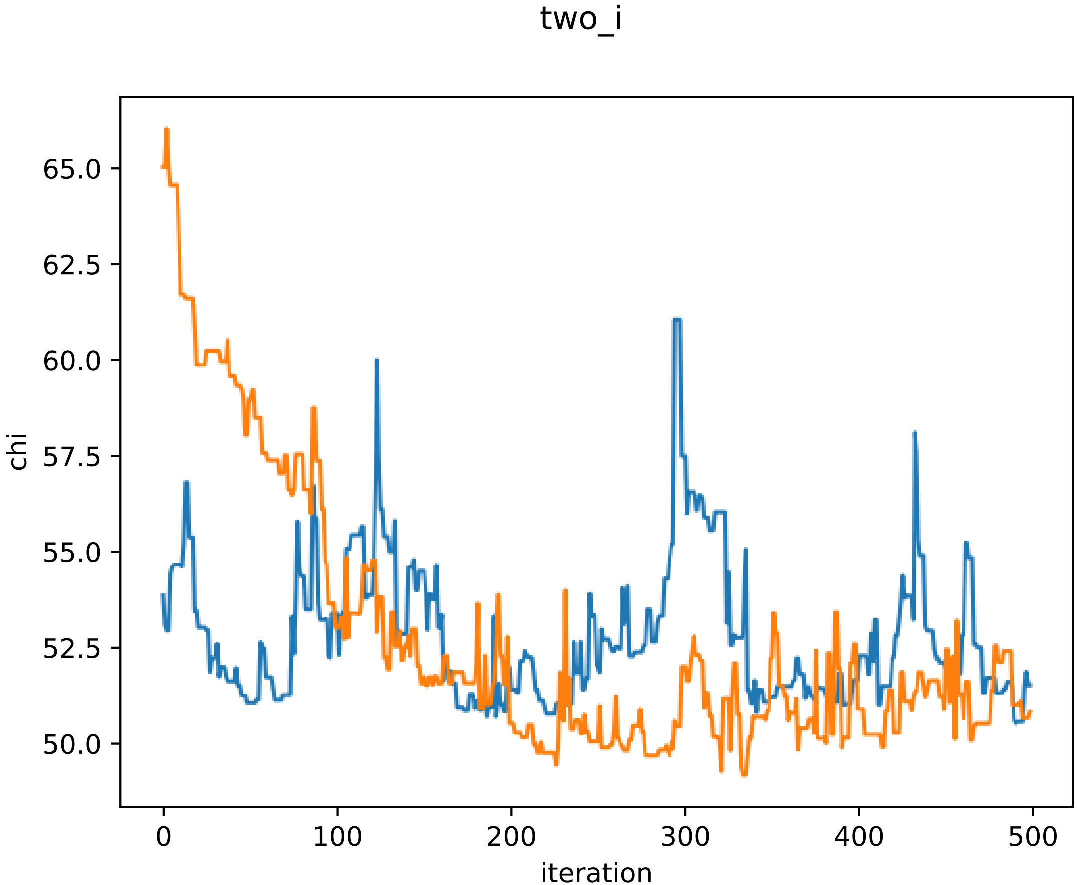
mu
0.000 0.025 0.050 0.075 0.100 0.125 0.150 0.175
0 10 20 30 40 50 60 70
phi
1 2 3 4 5 6 7 8 9
1e−7
0 20 40 60 80
beta
100 150 200 250 300 350
0 20 40 60 80 100 120
lam
0.04 0.06 0.08 0.10 0.12 0.14 0.16 0.18 0.20
0 20 40 60 80
tau
1.0 1.1 1.2 1.3 1.4
0 20 40 60 80



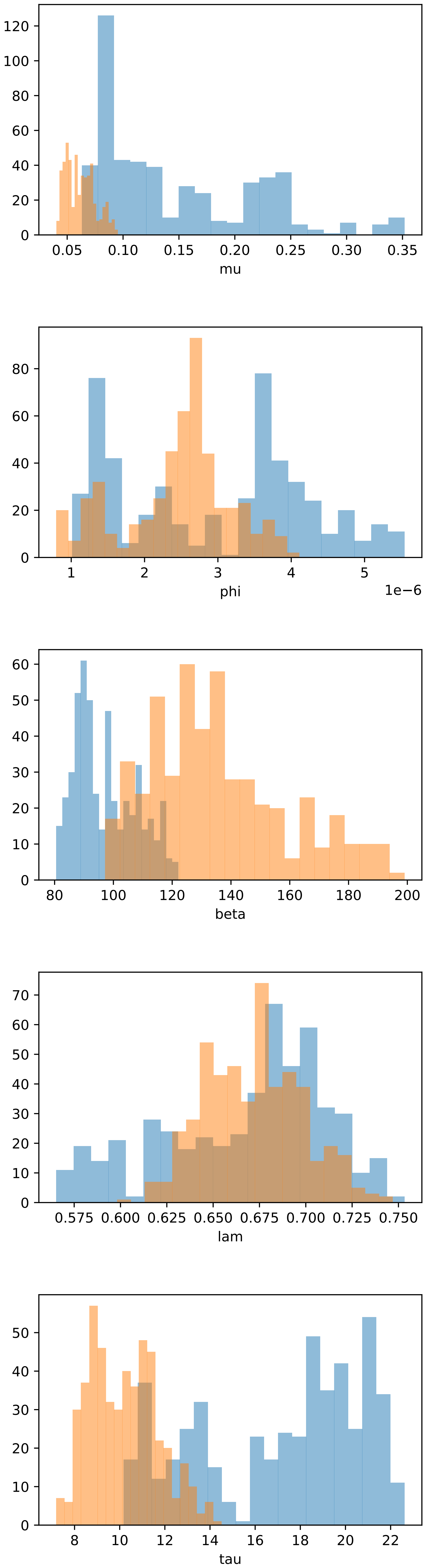
two_i

mu
phi
beta
lam
tau
6×10^{-7}
4×10^{-7}
3×10^{-7}
2×10^{-7}
3×10^{2}
2×10^{2}
10^{2}
2×10^{-1}
10^{-1}
6×10^{-2}
4×10^{-2}
1.4×10^{0}
1.3×10^{0}
1.2×10^{0}
1.1×10^{0}
10^{0}
10^{-2}
10^{-1}


two_i
frequency
chi
0
25
50
75
100
125
150
175
50.0
52.5
55.0
57.5
60.0
62.5
65.0

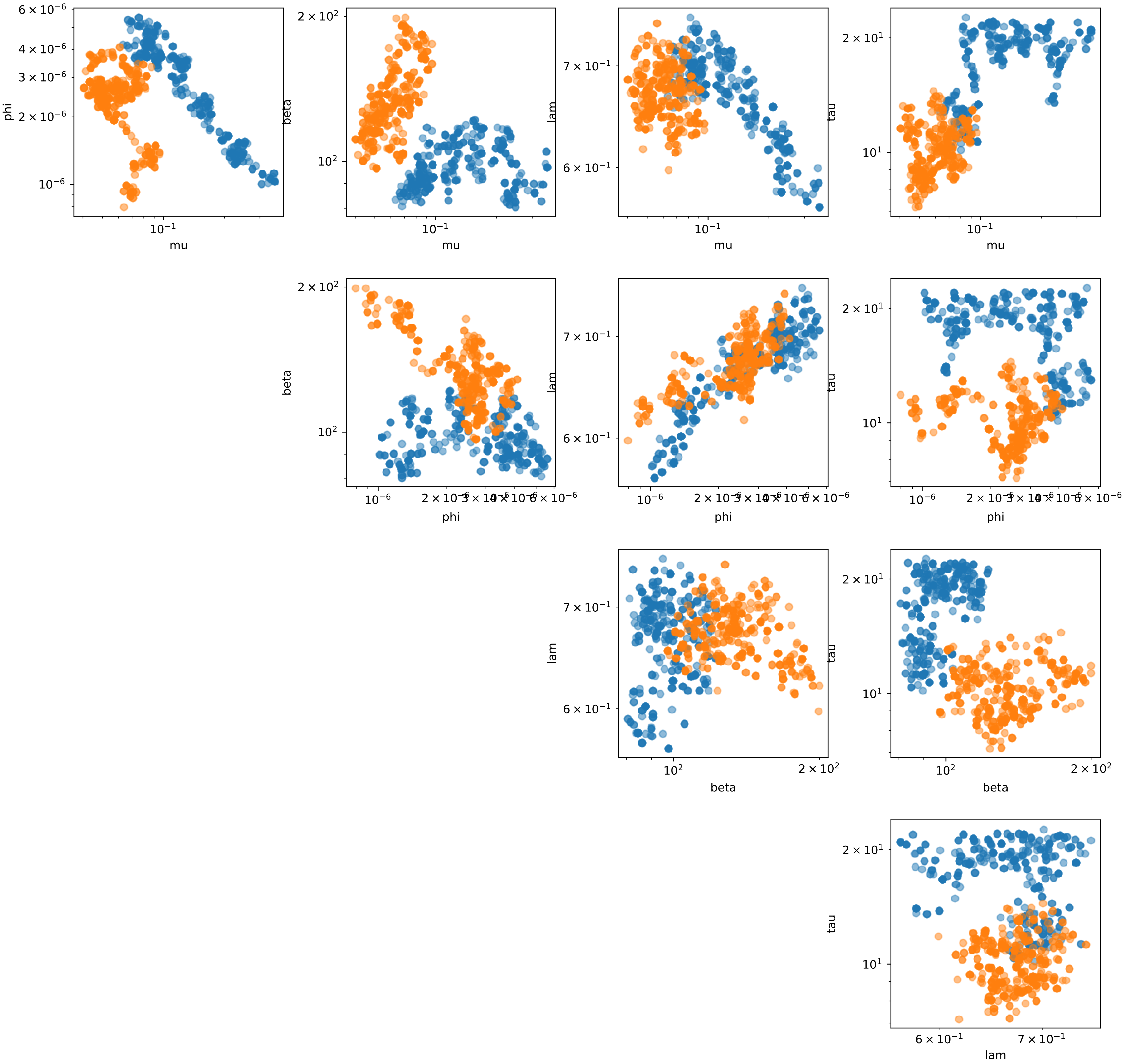

two_i
chi
65.0
62.5
60.0
57.5
55.0
52.5
50.0
0
100
200
300
400
500
iteration

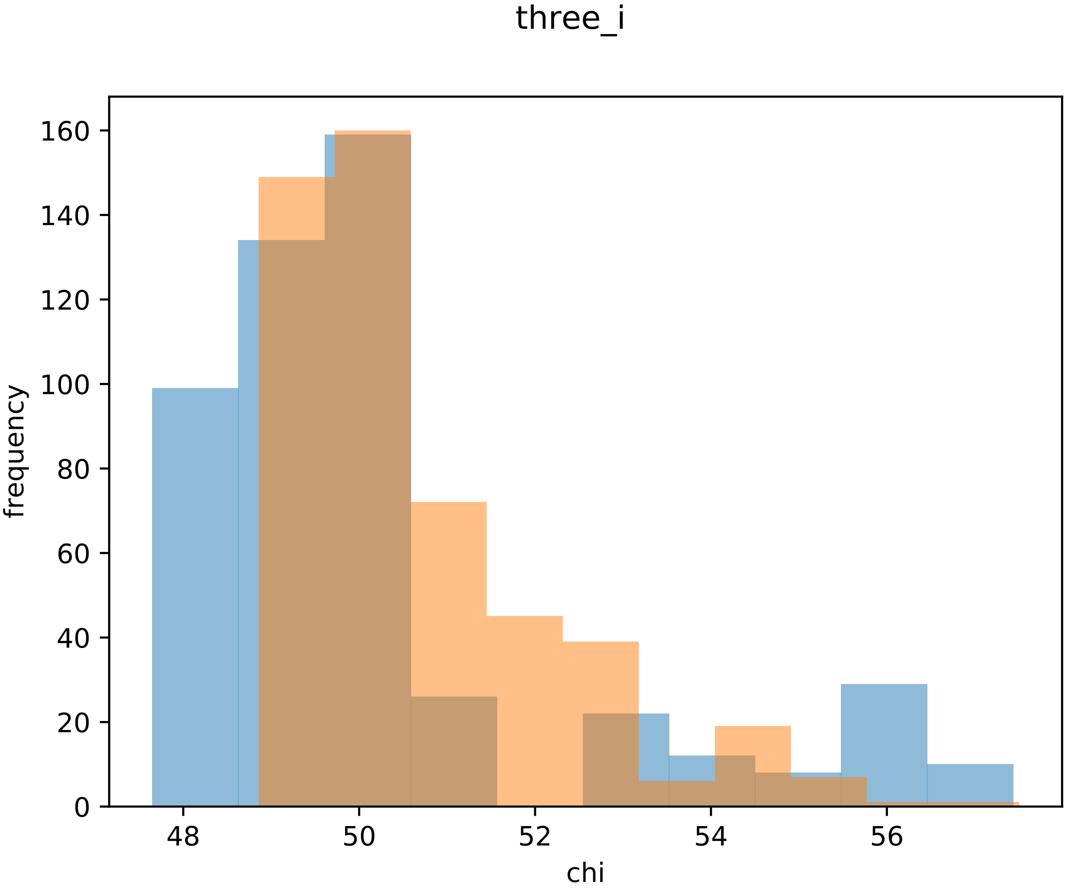
three_i

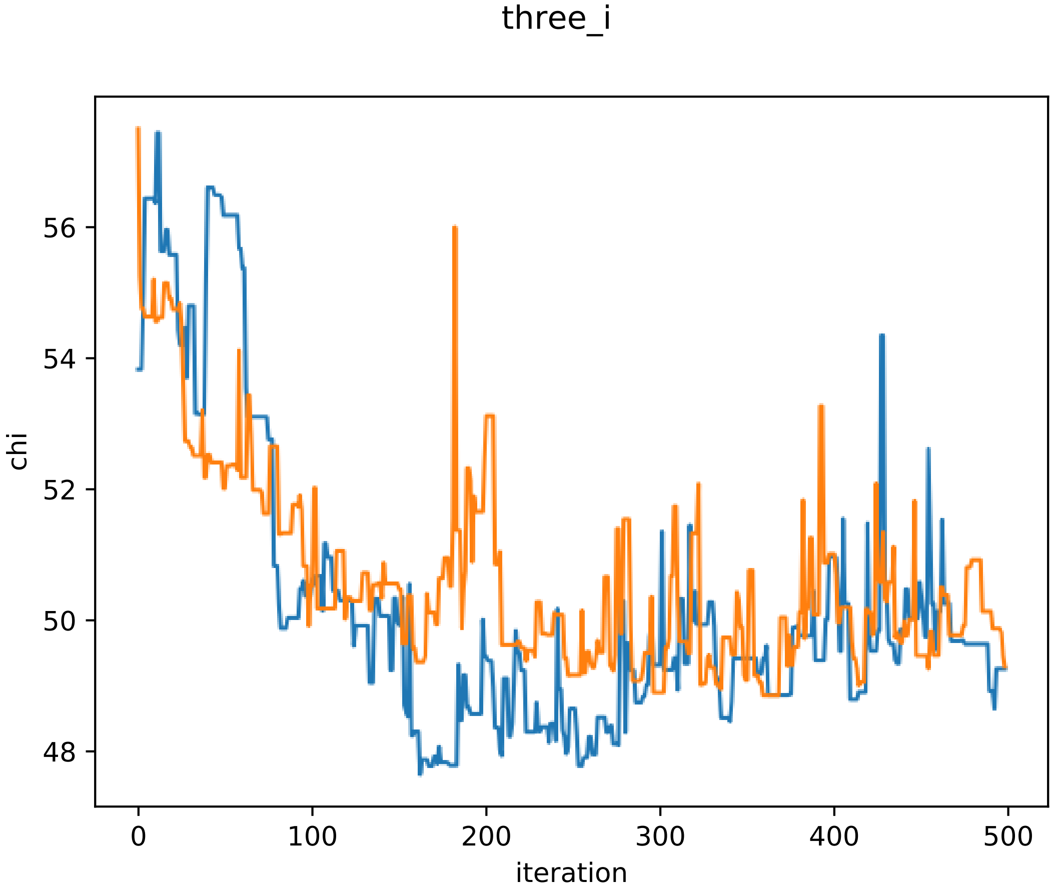


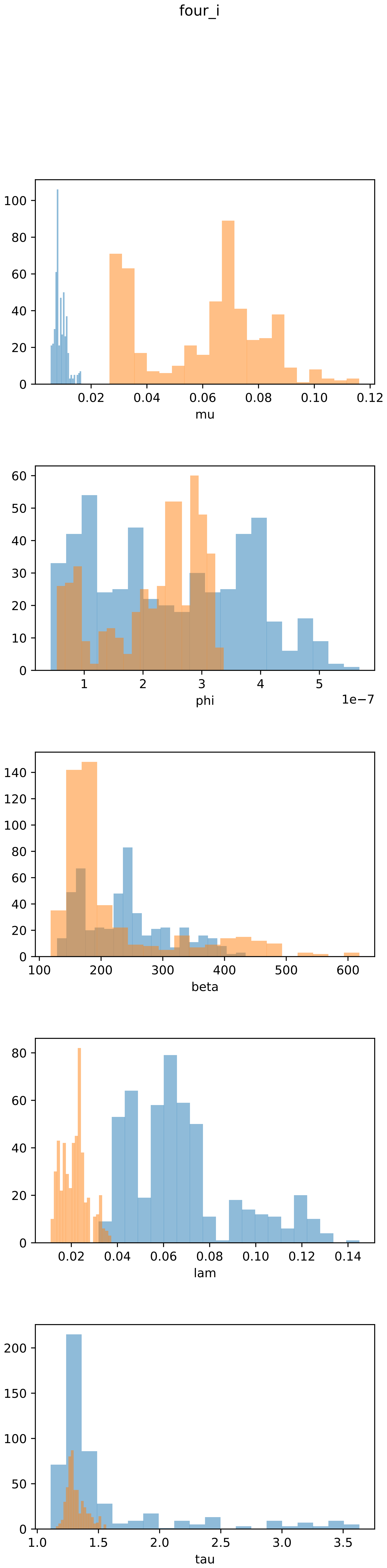
0
20
40
60
80
100
120
0.05
0.10
0.15
0.20
0.25
0.30
0.35
mu
0
20
40
60
80
1
2
3
4
5
phi
1e−6
0
10
20
30
40
50
60
80
100
120
140
160
180
200
beta
0
10
20
30
40
50
60
70
0.575
0.600
0.625
0.650
0.675
0.700
0.725
0.750
lam
0
10
20
30
40
50
8
10
12
14
16
18
20
22
tau

three_i

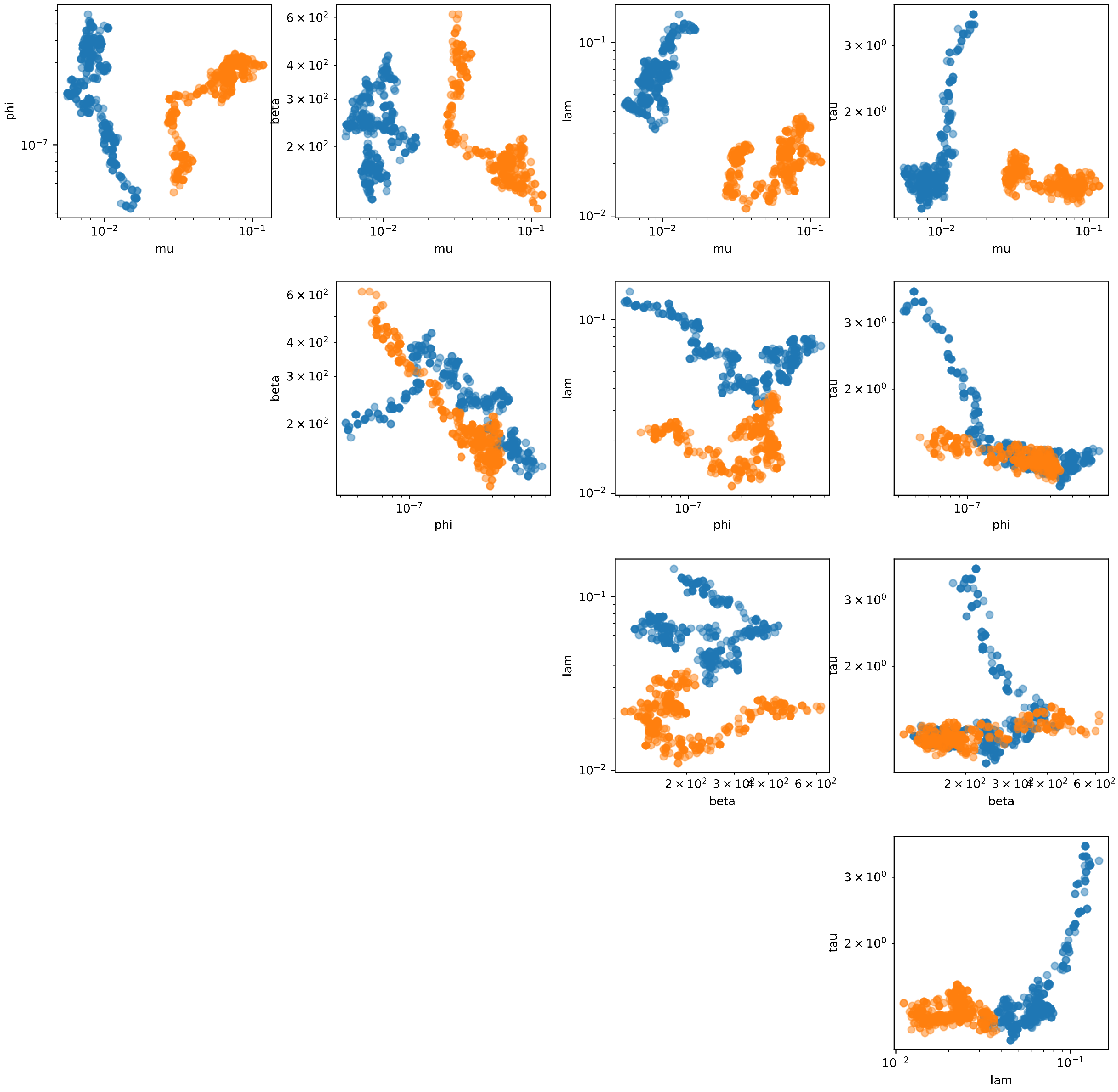

phi
mu
beta
lam
tau
6×10^{-6}
4×10^{-6}
3×10^{-6}
2×10^{-6}
10^{-6}
10^{-1}
2×10^{2}
10^{2}
7×10^{-1}
6×10^{-1}
2×10^{1}
10^{1}

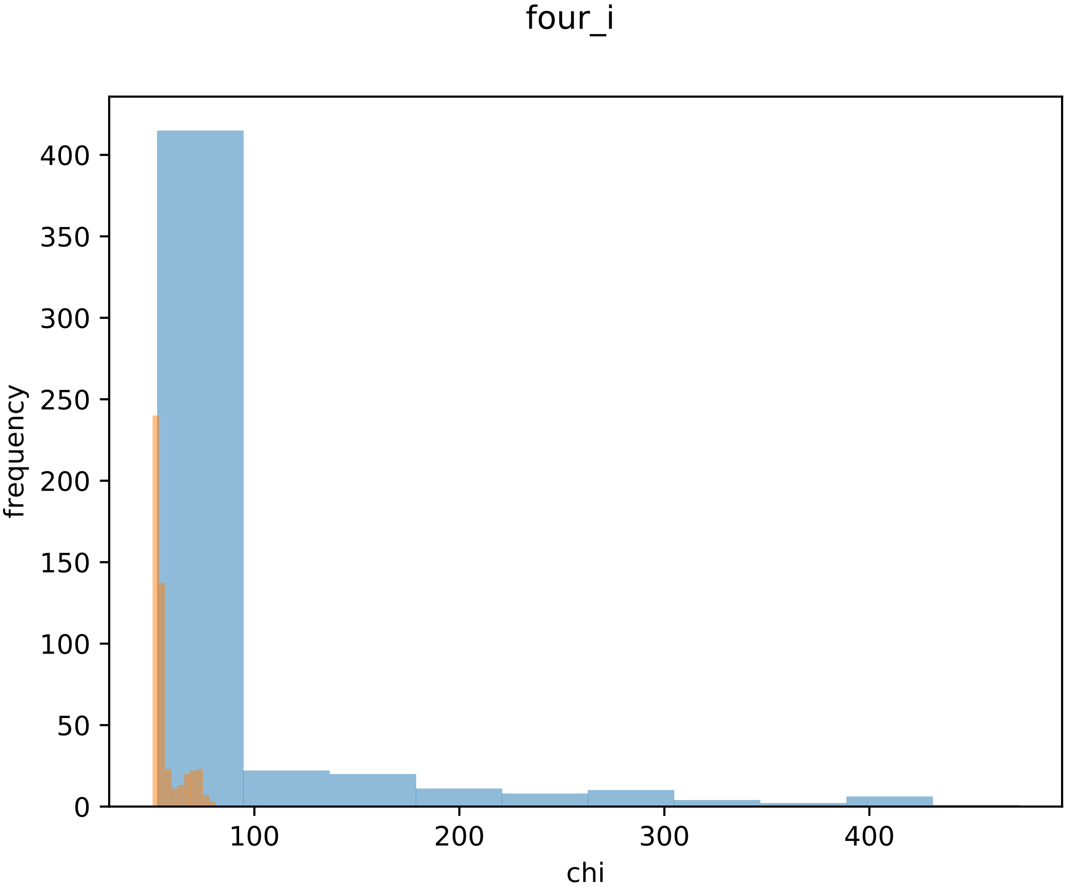

three_i
frequency
chi
0
20
40
60
80
100
120
140
160
48
50
52
54
56


three_i
chi
iteration
56
54
52
50
48
0
100
200
300
400
500

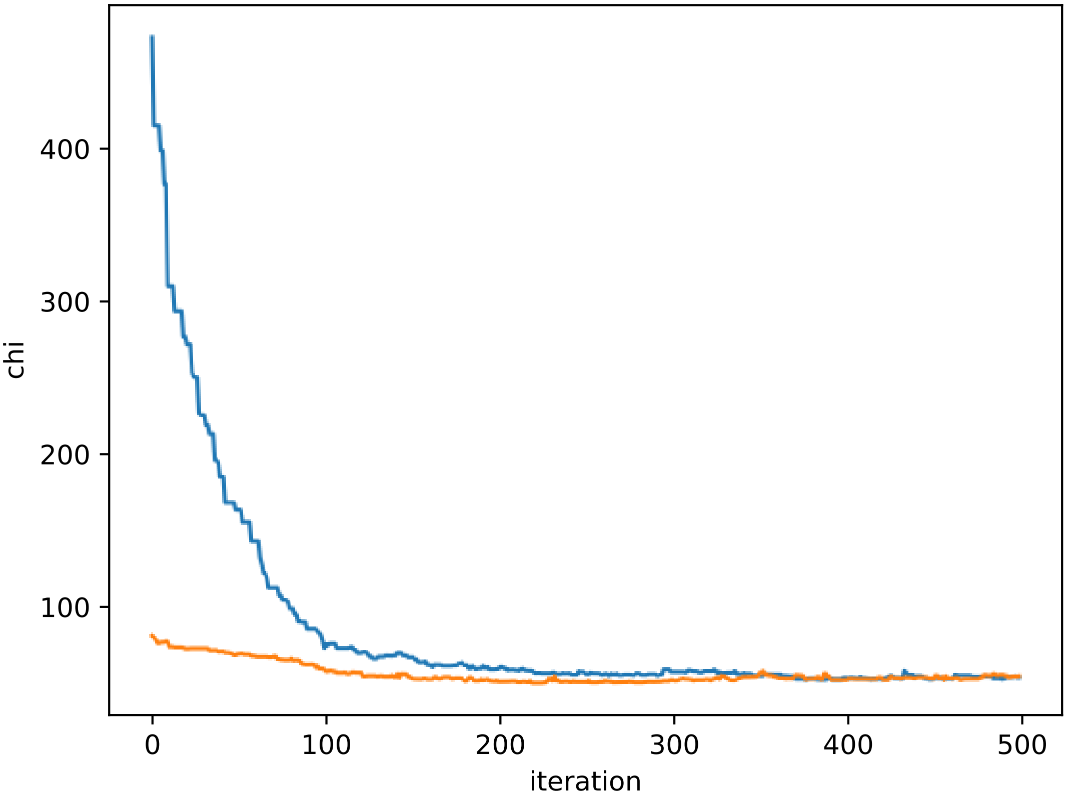

four_i
100
80
60
40
20
0
0.02
0.04
0.06
0.08
0.10
0.12
mu
60
50
40
30
20
10
0
1
2
3
4
5
phi
1e−7
140
120
100
80
60
40
20
0
100
200
300
400
500
600
beta
80
60
40
20
0
0.02
0.04
0.06
0.08
0.10
0.12
0.14
lam
200
150
100
50
0
1.0
1.5
2.0
2.5
3.0
3.5
tau

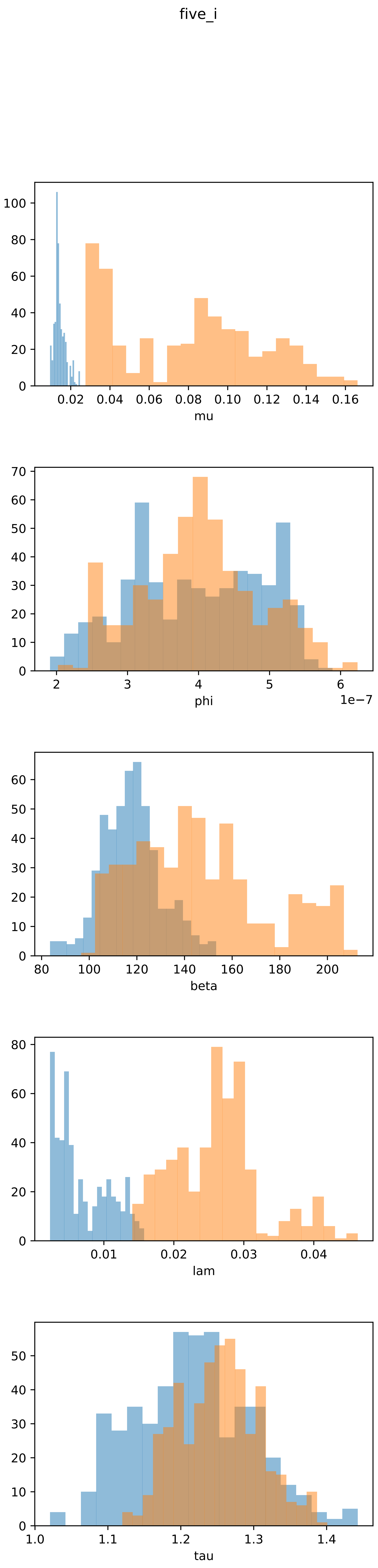
four_i

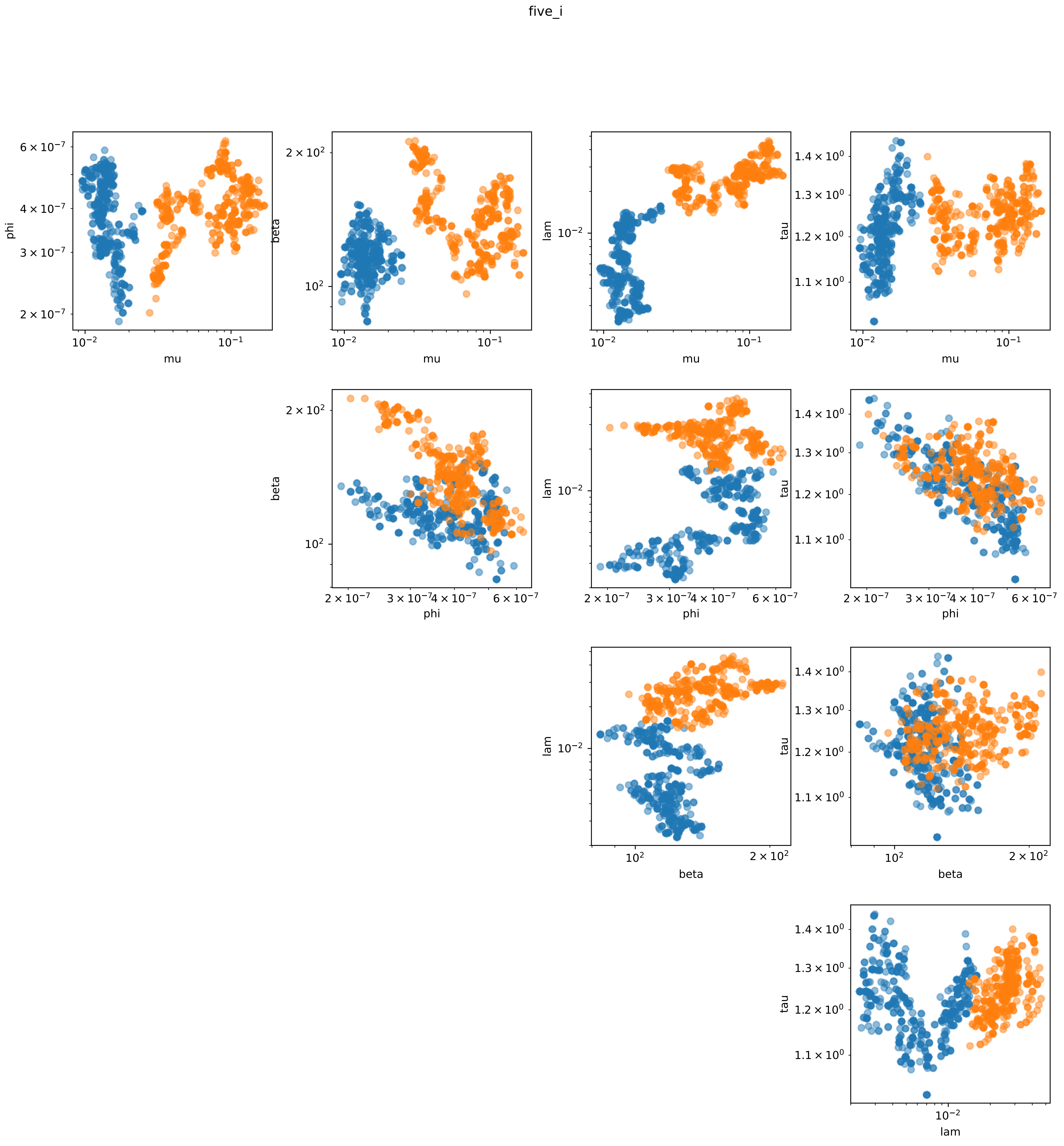

phi
10^{-7}
10^{-2}
10^{-1}
mu
beta
6×10^{2}
4×10^{2}
3×10^{2}
2×10^{2}
lam
10^{-1}
10^{-2}
tau
3×10^{0}
2×10^{0}
phi
beta
lam
tau

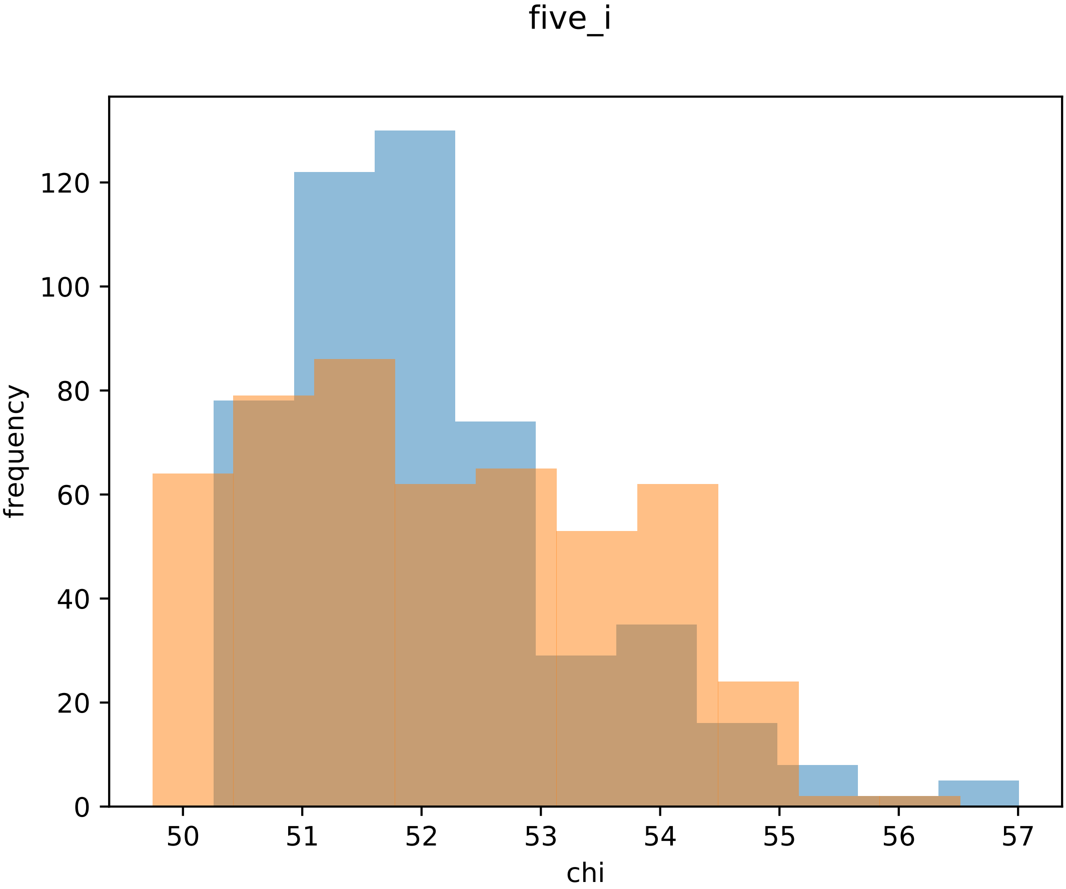

four_i
frequency
0
50
100
150
200
250
300
350
400
chi
100
200
300
400

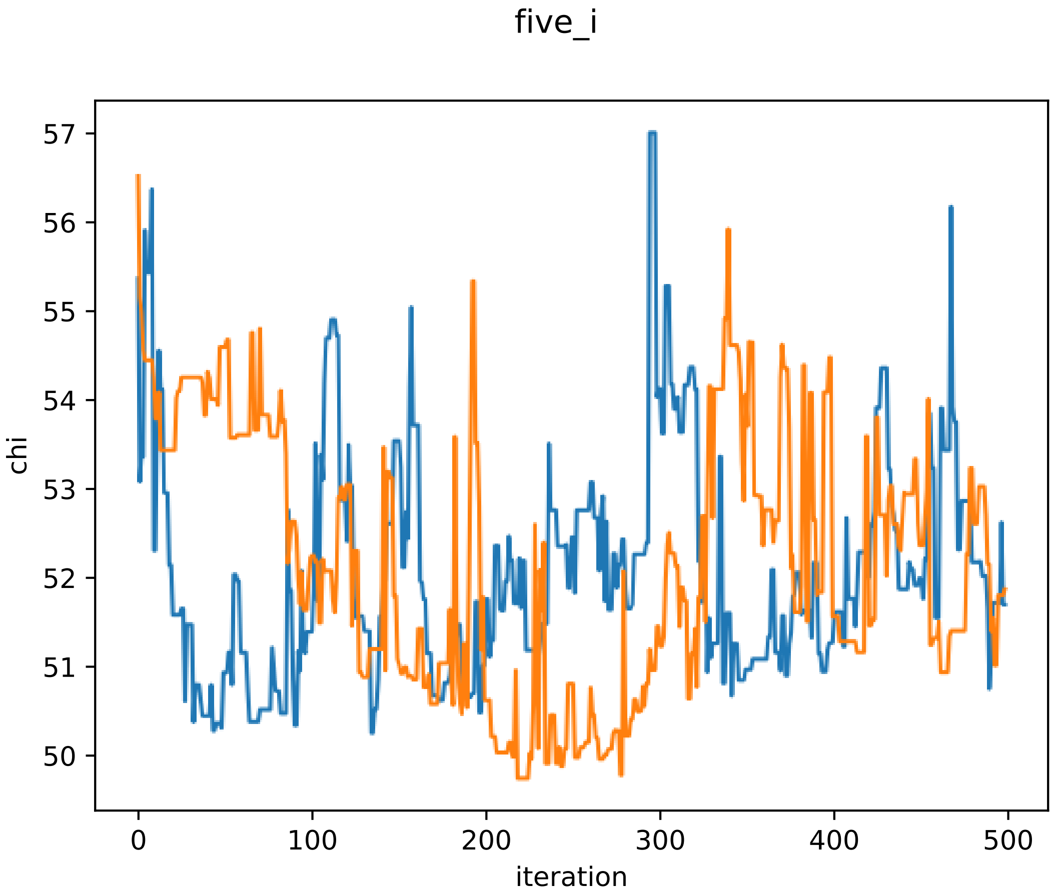
four_i




five_i
0
20
40
60
80
100
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
mu
0
10
20
30
40
50
60
70
2
3
4
5
6
phi
1e−7
0
10
20
30
40
50
60
80
100
120
140
160
180
200
beta
0
20
40
60
80
0.01
0.02
0.03
0.04
lam
0
10
20
30
40
50
1.0
1.1
1.2
1.3
1.4
tau


five_i
mu
phi
beta
lam
tau
6×10^{-7}
4×10^{-7}
3×10^{-7}
2×10^{-7}
2×10^{2}
10^{2}
10^{-2}
10^{-1}
1.4×10^{0}
1.3×10^{0}
1.2×10^{0}
1.1×10^{0}


five_i
frequency
120
100
80
60
40
20
0
50
51
52
53
54
55
56
57
chi


five_i
chi
57
56
55
54
53
52
51
50
0
100
200
300
400
500
iteration