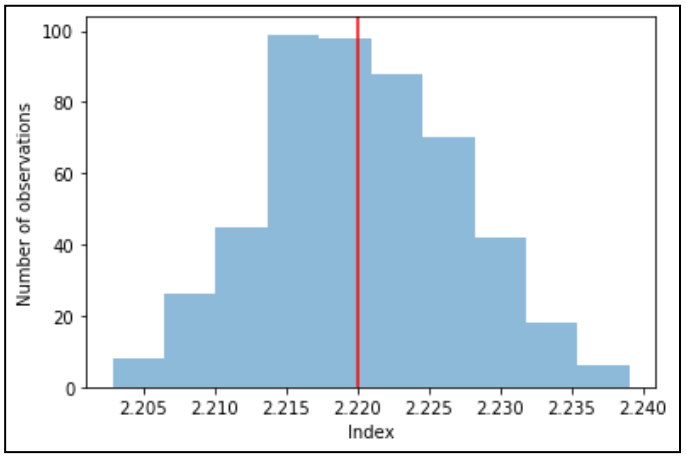
Spectral Analysis of M82 by comparing two models PowerLaw and Exponentialcut-PowerLaw

M82 provided info:

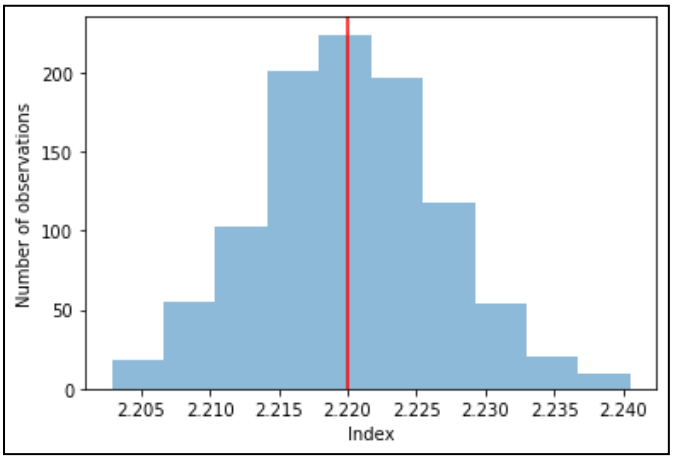
Index = 2.22
Amplitude = 1.289e-12

PowerLaw analysis for the different number of observations run:

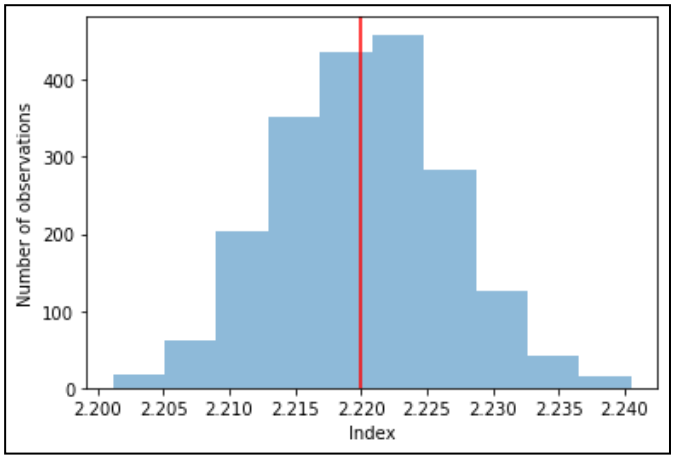
Index Values:



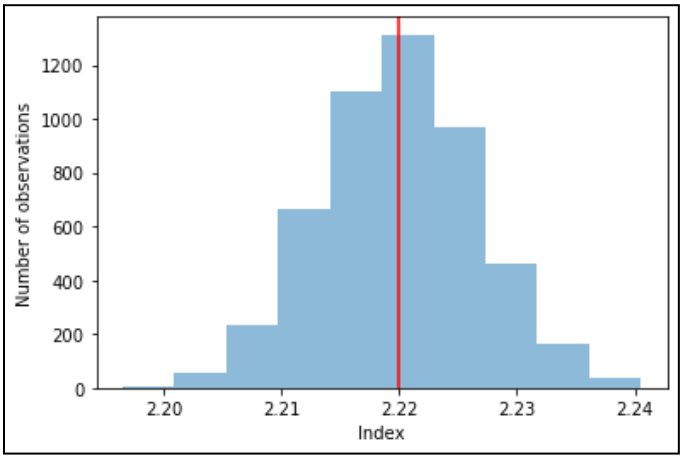
N = 500



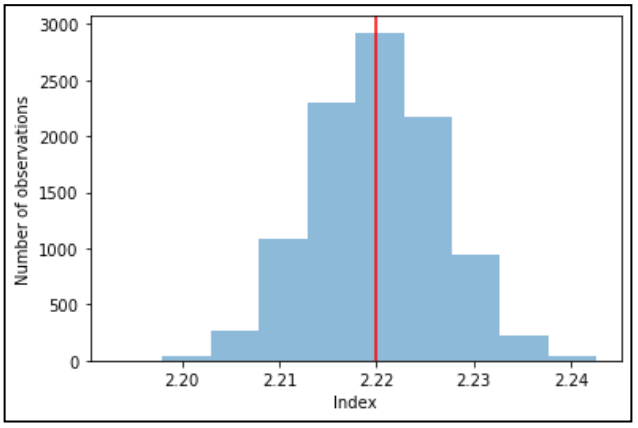
N = 1000



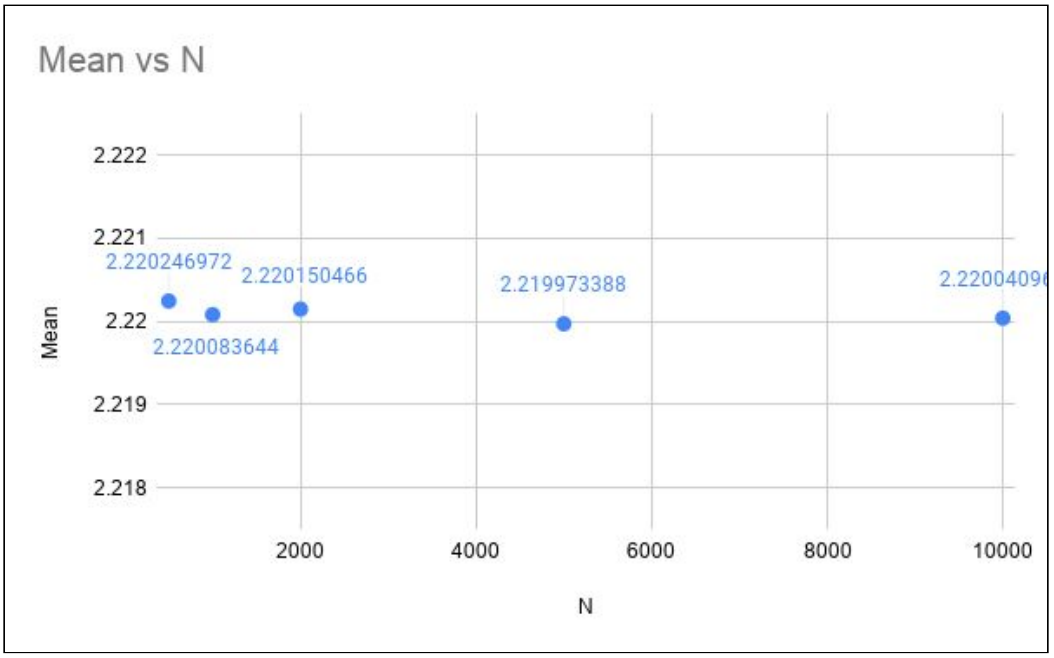
N = 2000

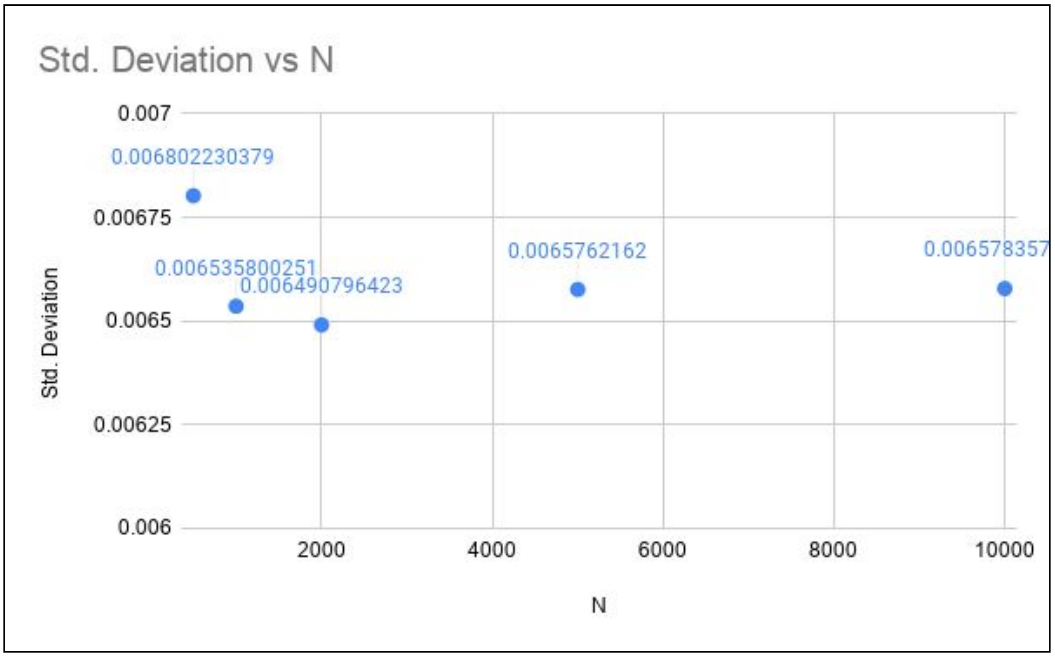


N = 5000

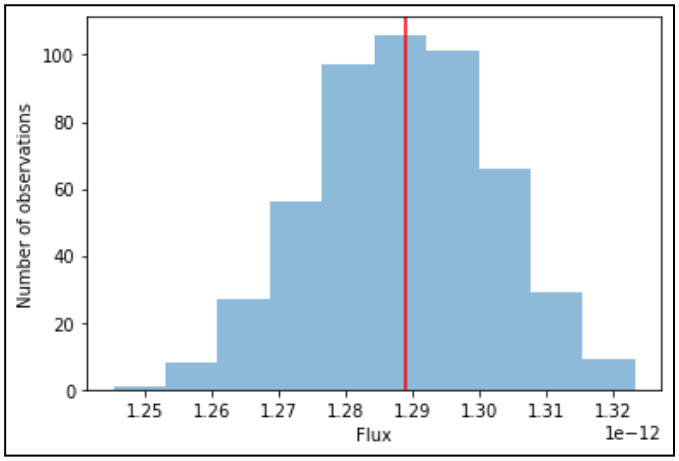

3000
2500
2000
1500
1000
500
0
Number of observations
2.20
2.21
2.22
2.23
2.24
Index

N = 10000

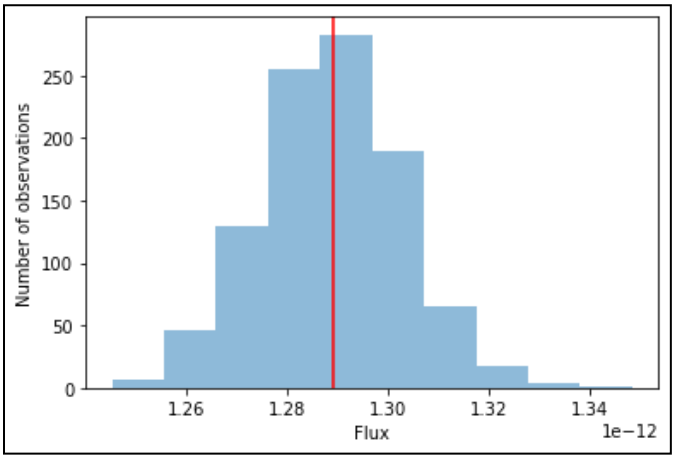

Mean vs N
2.222
2.221
2.22
2.219
2.218
Mean
2.220246972
2.220150466
2.220083644
2.219973388
2.2200409
2000
4000
6000
8000
10000
N


Std. Deviation vs N
0.007
0.00675
0.0065
0.00625
0.006
Std. Deviation
0.006802230379
0.006535800251
0.006490796423
0.0065762162
0.006578357
2000
4000
6000
8000
10000
N

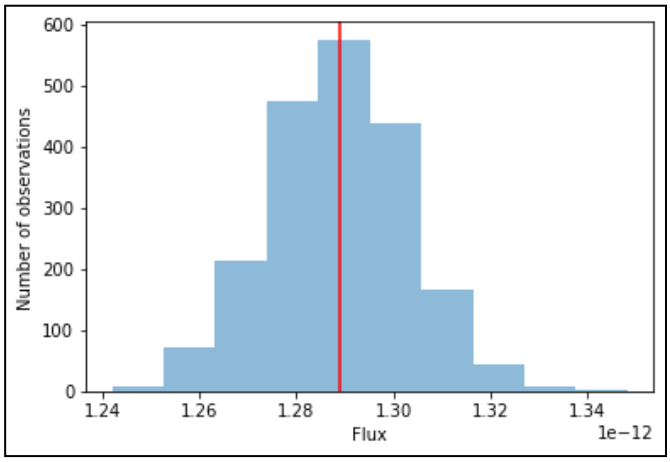
Flux Values:



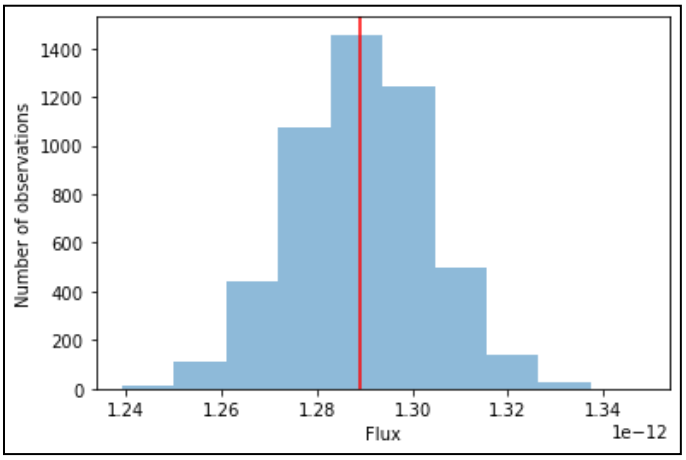
N = 500



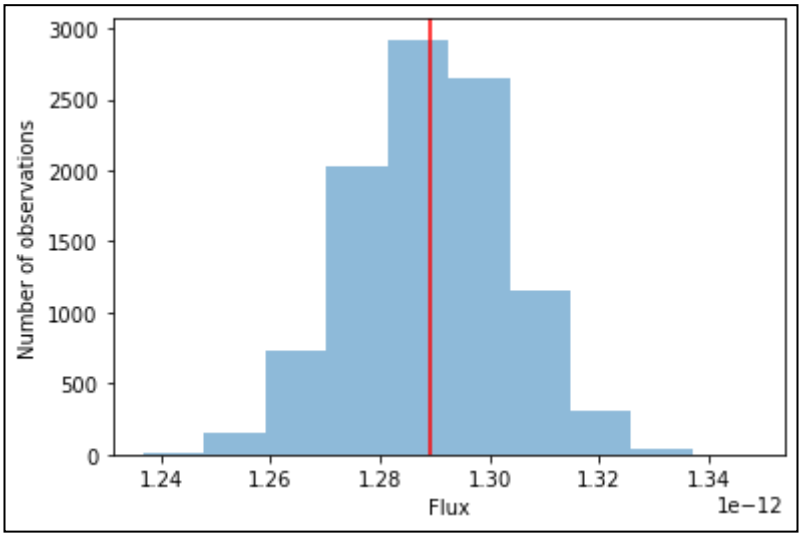
N = 1000



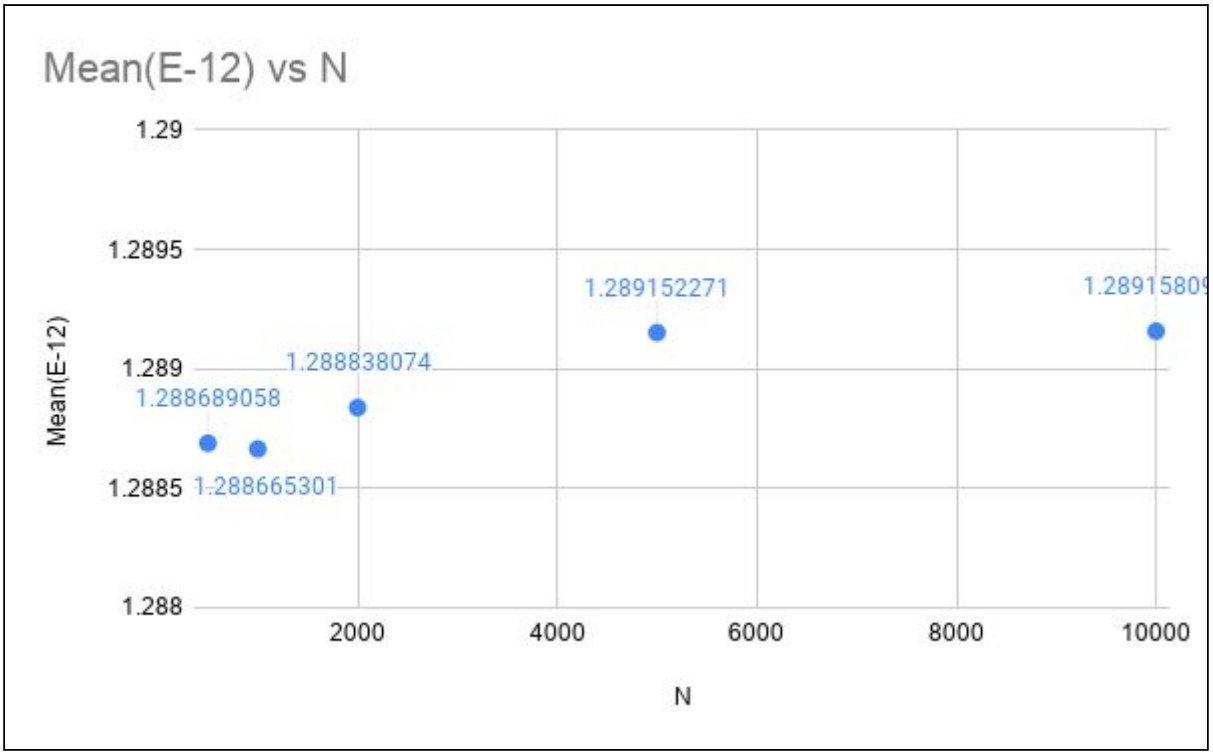
N = 2000

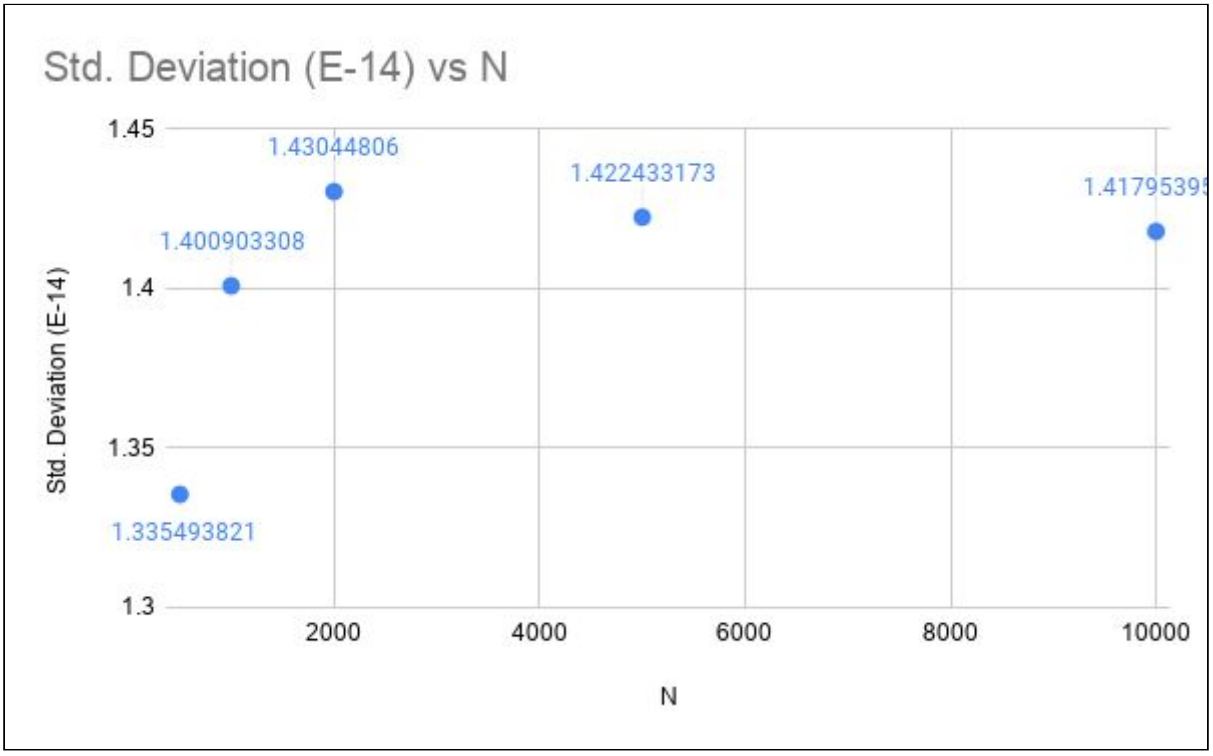


N = 5000



N = 10000

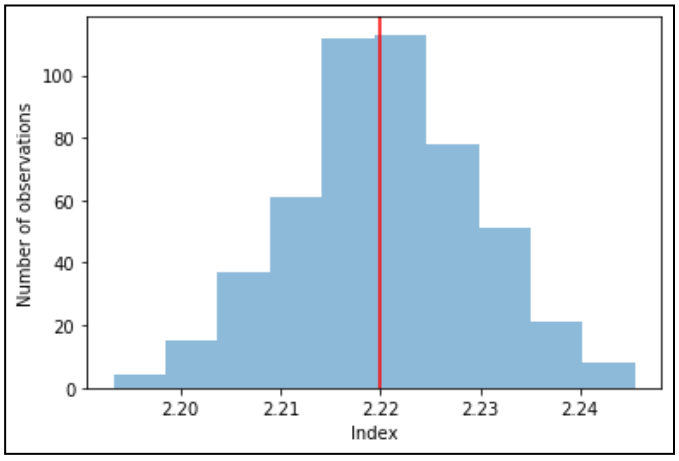

Mean(E-12) vs N
1.29
1.2895
1.289
1.2885
1.288
Mean(E-12)
1.289152271
1.28915809
1.288838074
1.288689058
1.288665301
2000
4000
6000
8000
10000
N


Std. Deviation (E-14) vs N
1.45
1.4
1.35
1.3
Std. Deviation (E-14)
1.43044806
1.422433173
1.41795395
1.400903308
1.335493821
2000
4000
6000
8000
10000
N

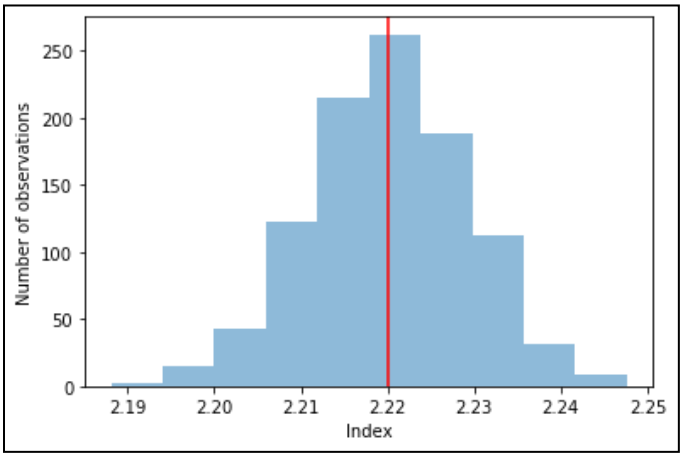
Exponentialcutoff-PowerLaw analysis for the different number of observations run and different cutoff value:

L = 0.01

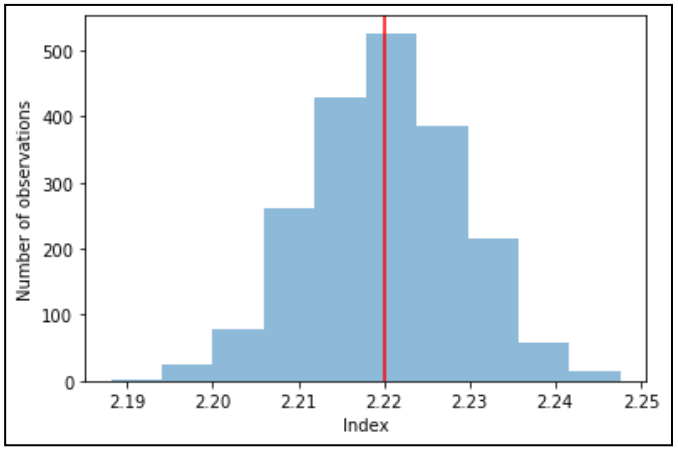
Index Values:



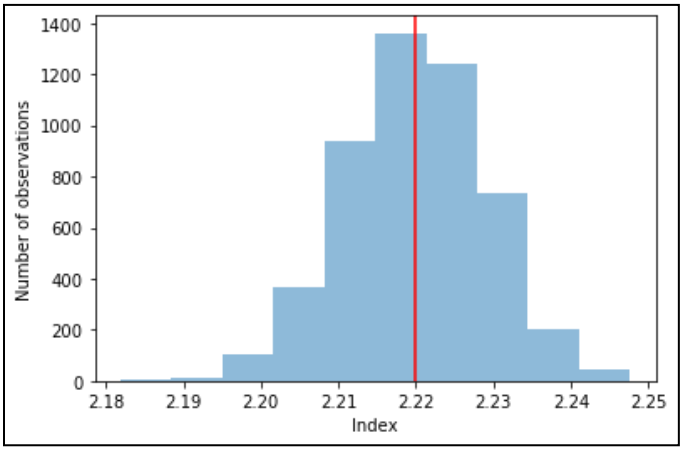
N = 500



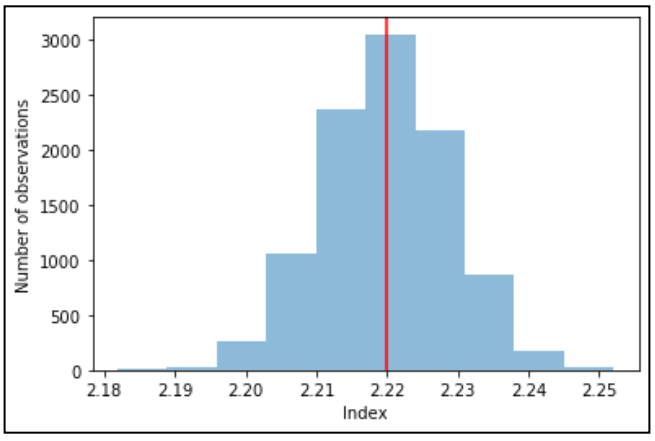
N = 1000



N = 2000

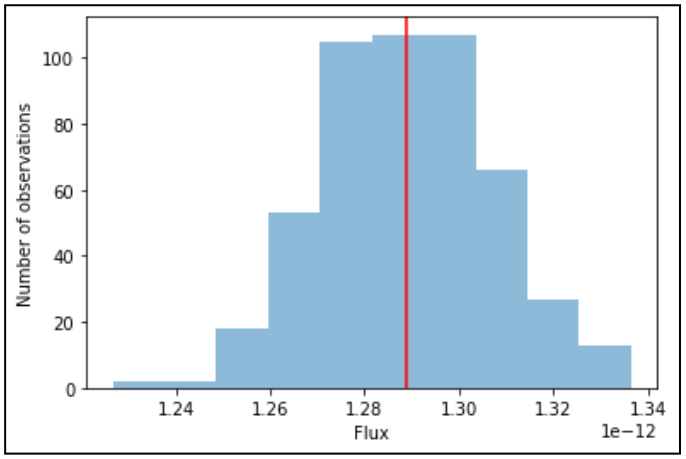


N = 5000

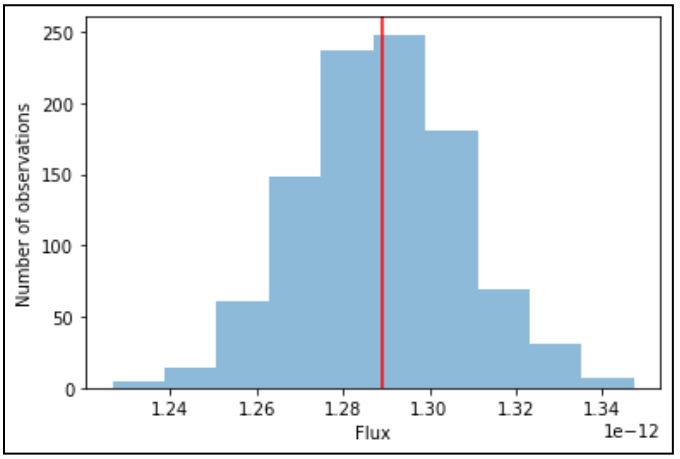


N = 10000

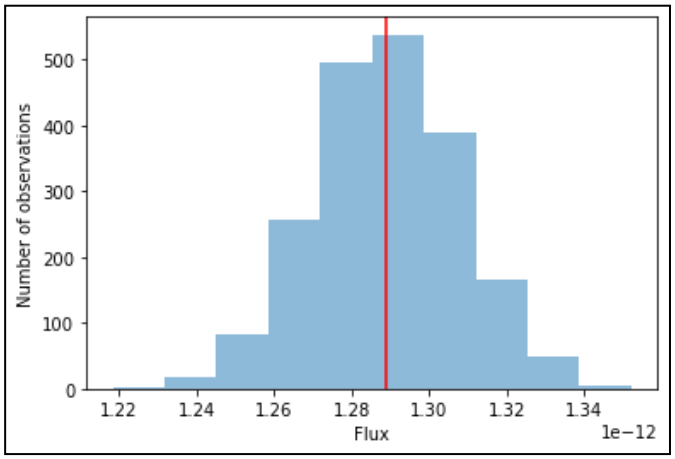
Flux Values:



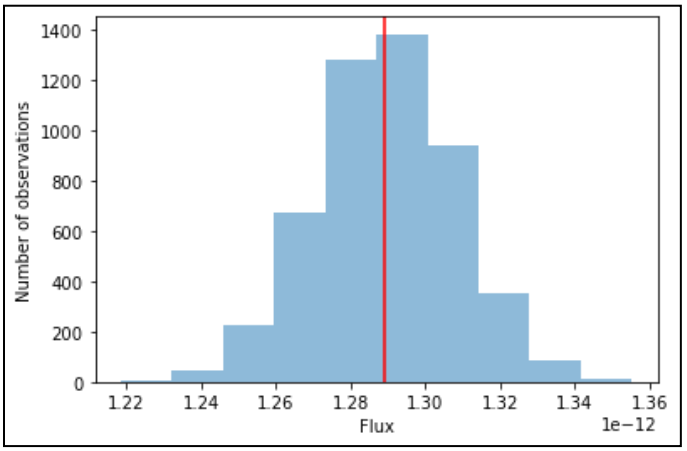
N = 500



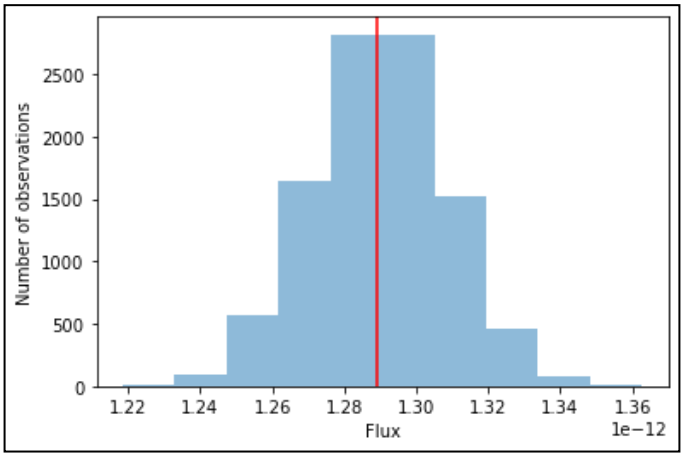
N = 1000



N = 2000

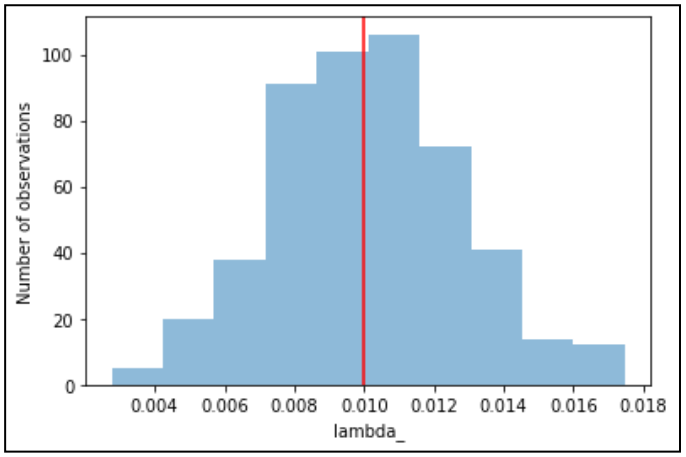


N = 5000

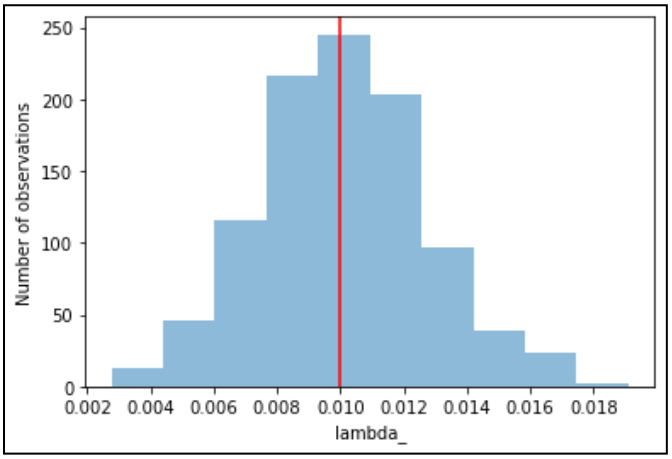


N = 10000

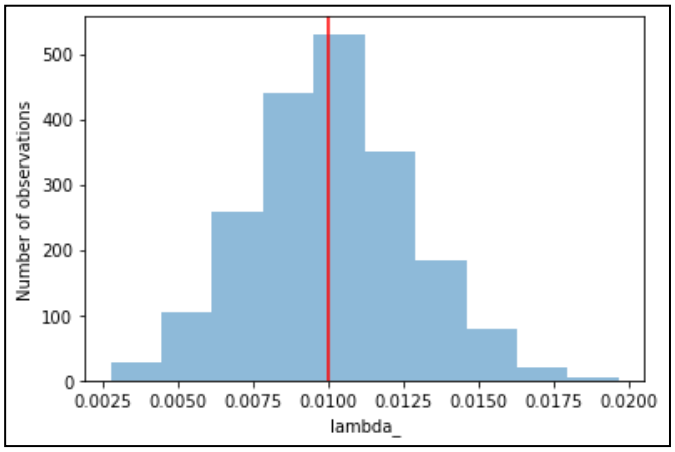
Cutoff Value:



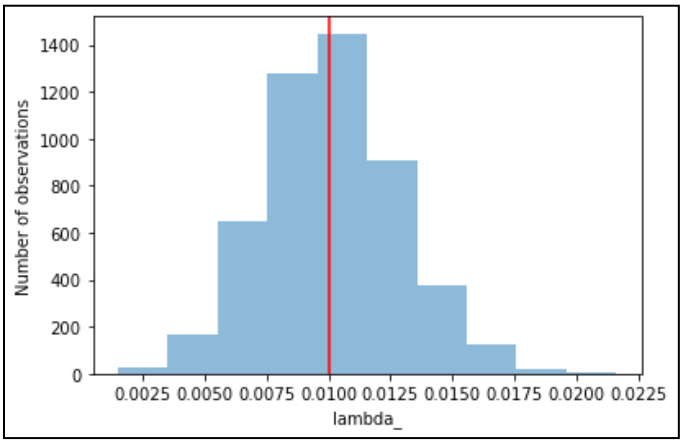
N = 500



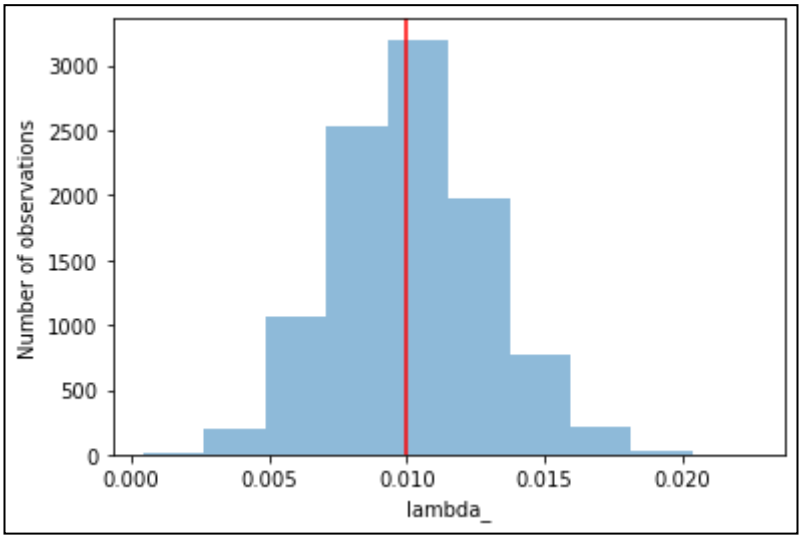
N = 1000



N = 2000



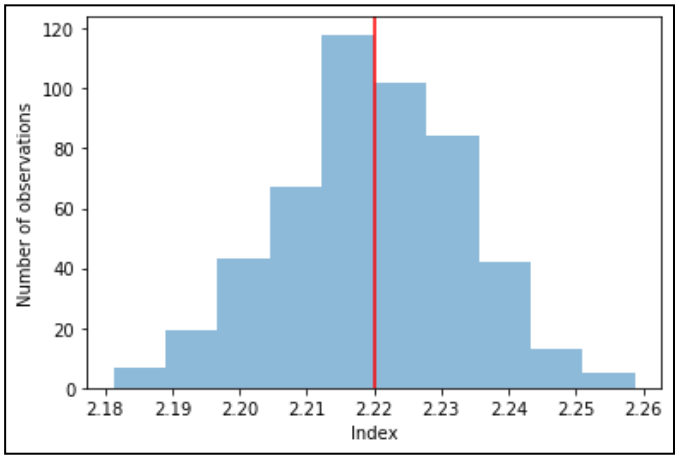
N = 5000



N = 10000

L = 0.1

Index Values:



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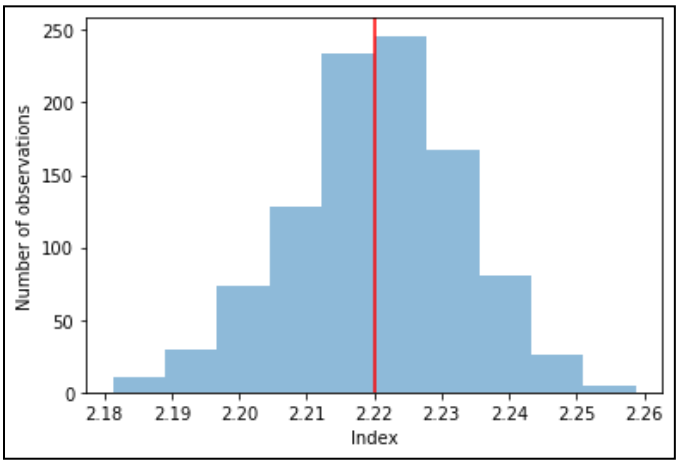
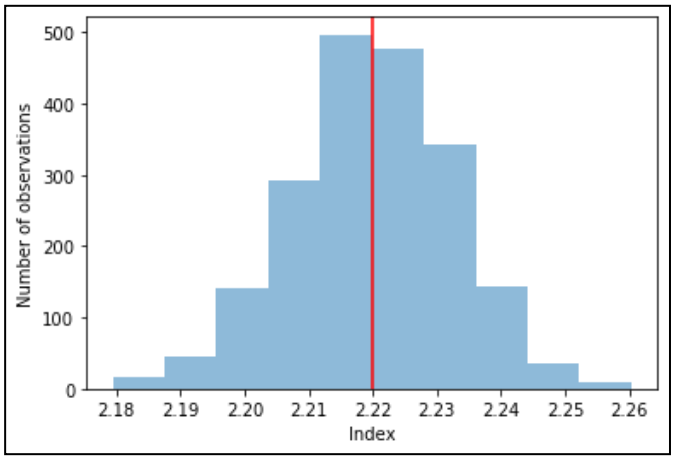
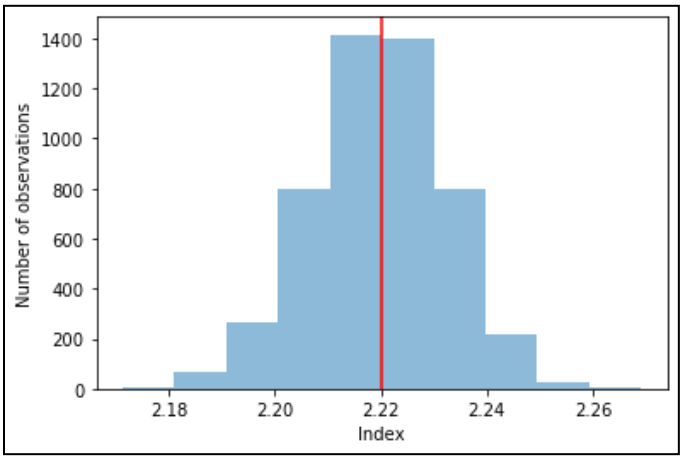


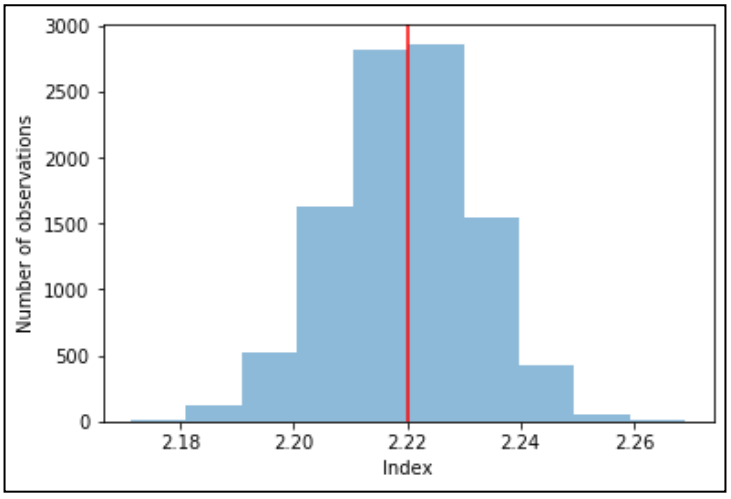
N = 1000



N = 2000

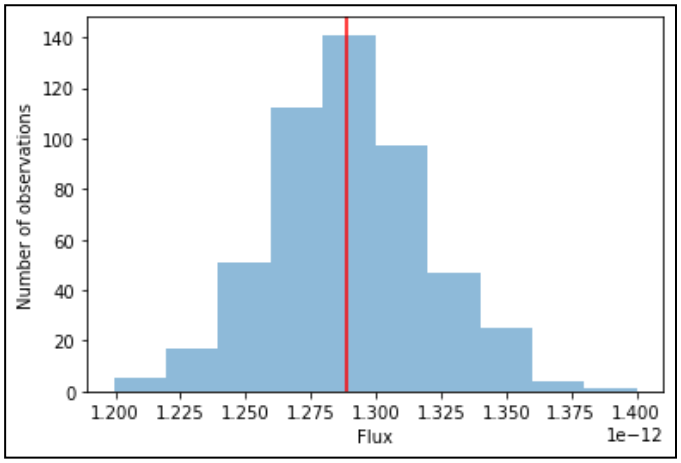


N = 5000

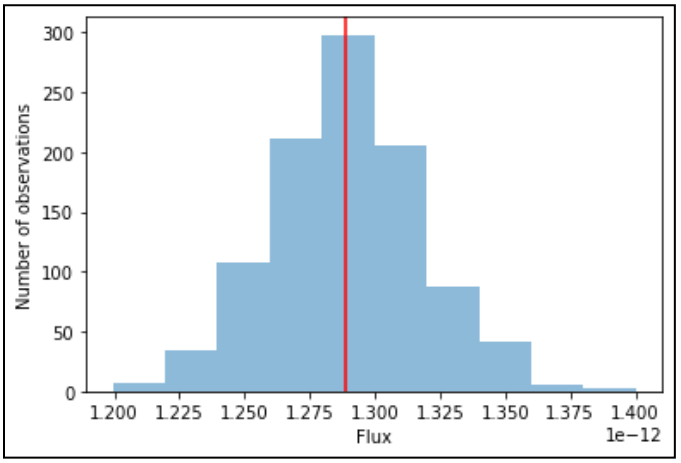


N = 10000

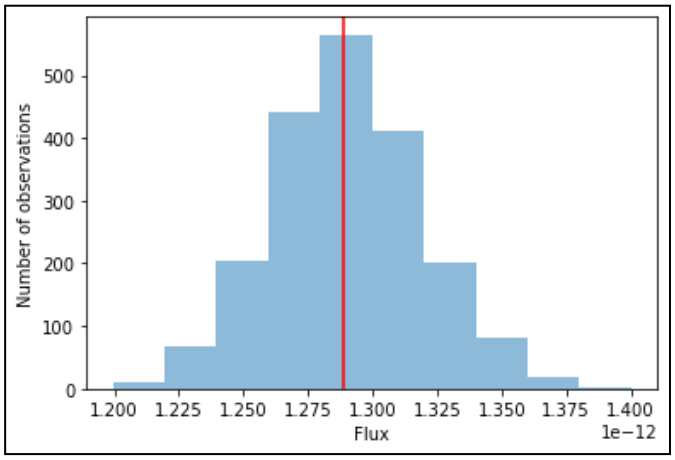
Flux Values:



N = 500



N = 1000



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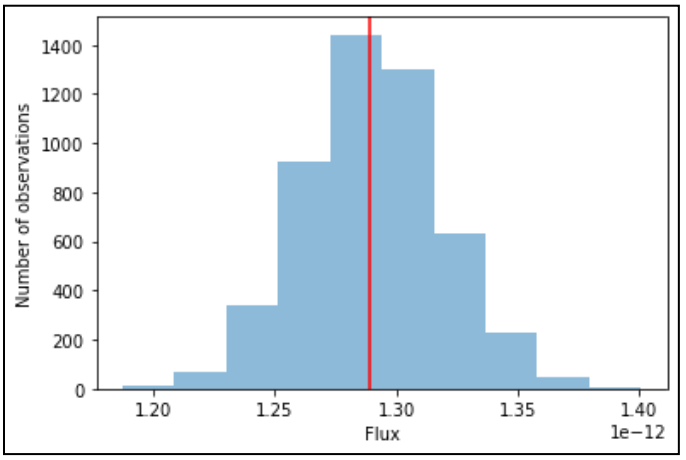
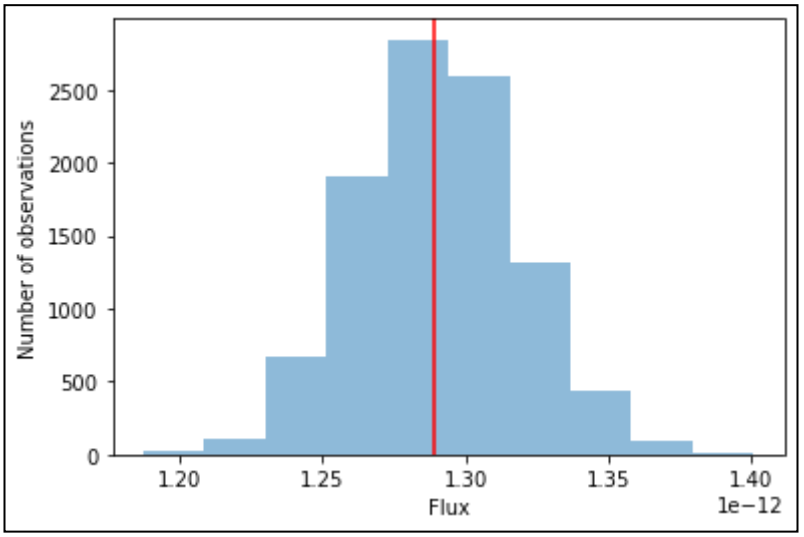
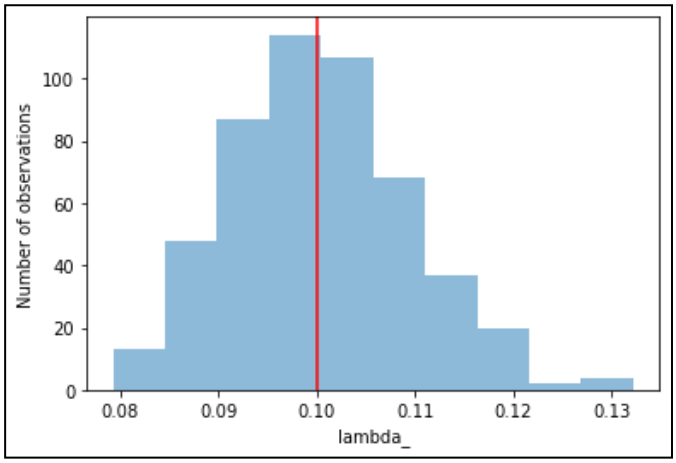


N = 5000

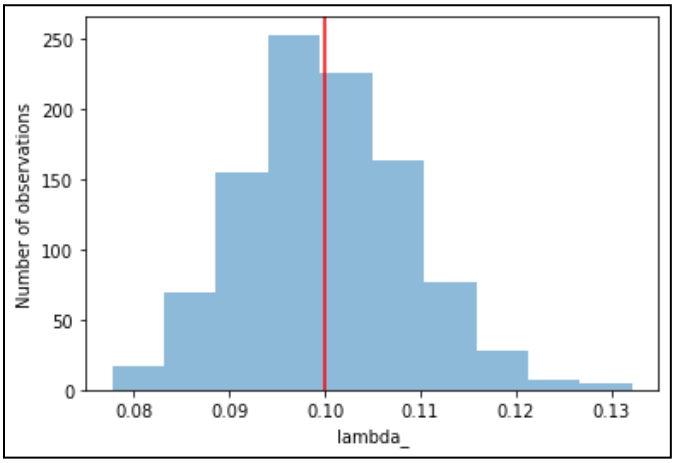


N = 10000

Cutoff Values:



N = 500



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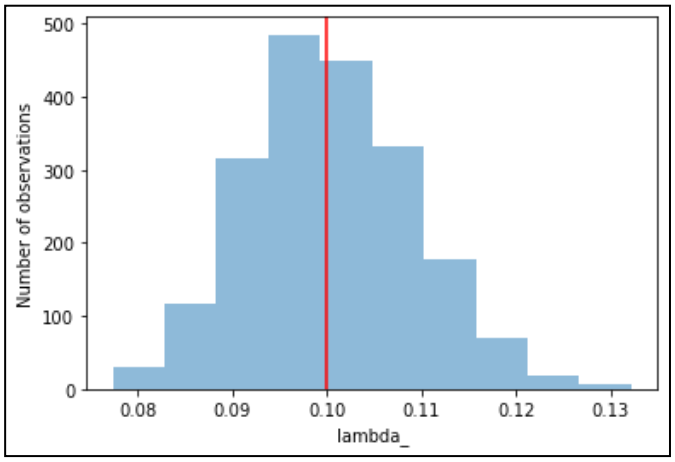
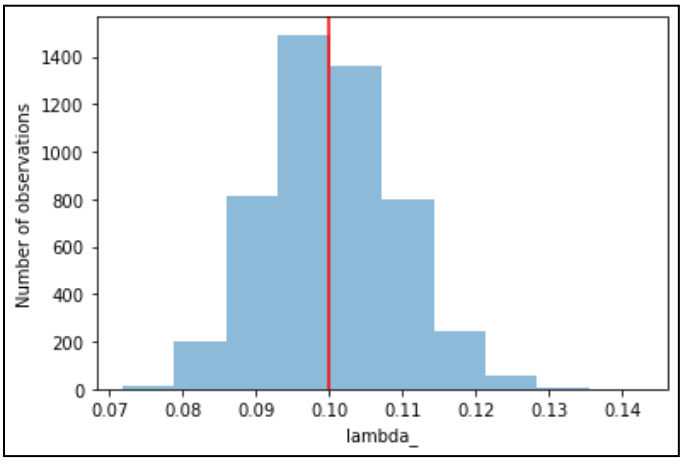
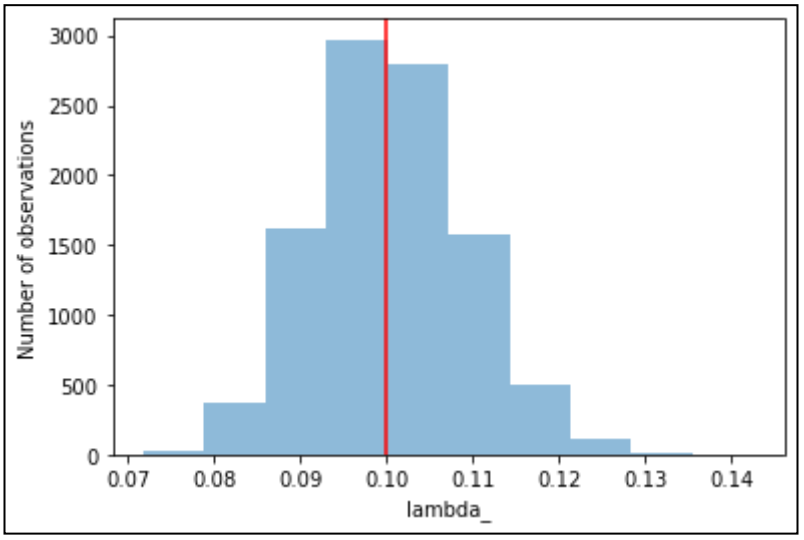


N = 2000



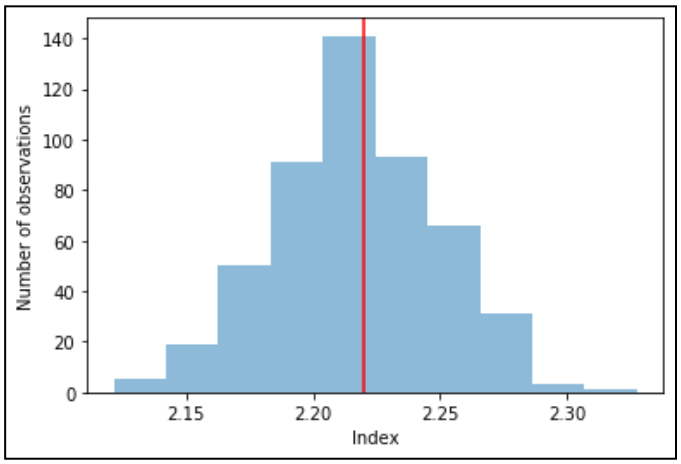
N = 5000



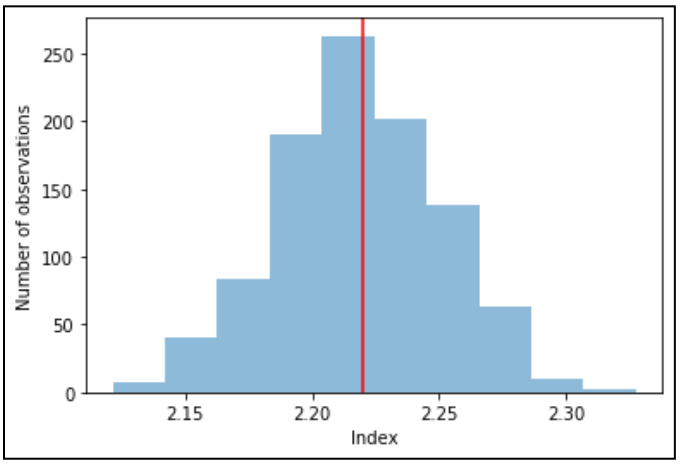
N = 10000

L = 1

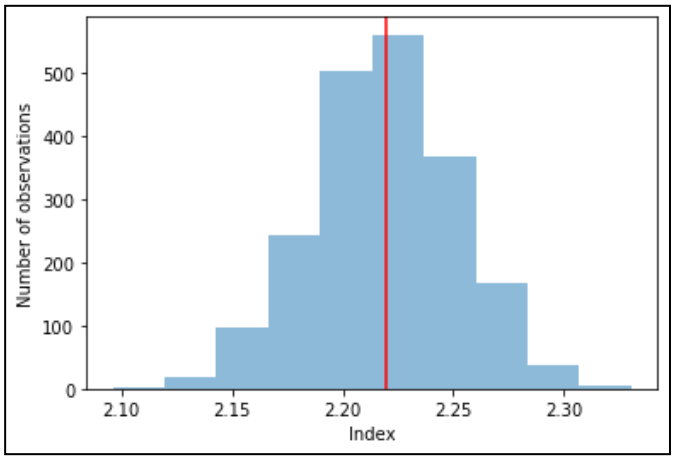
Index Values:



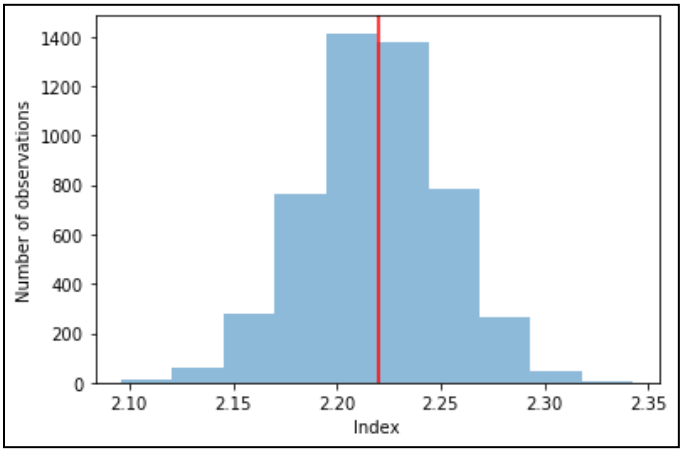
N = 500



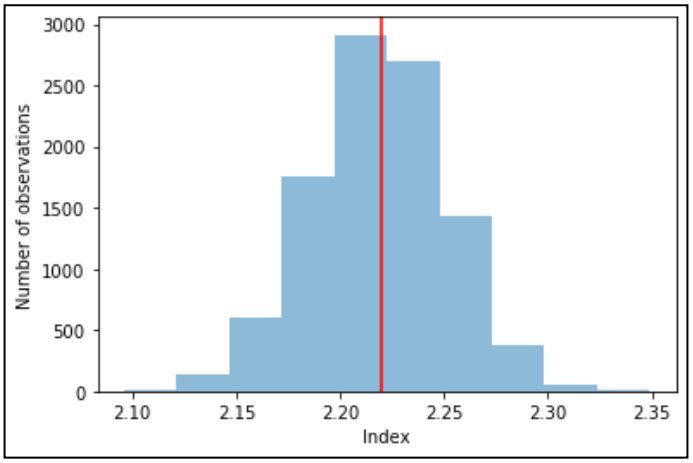
N = 1000



N = 2000

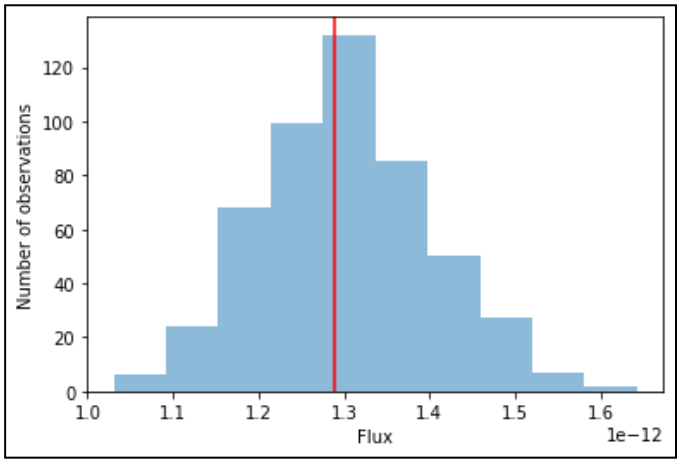


N = 5000

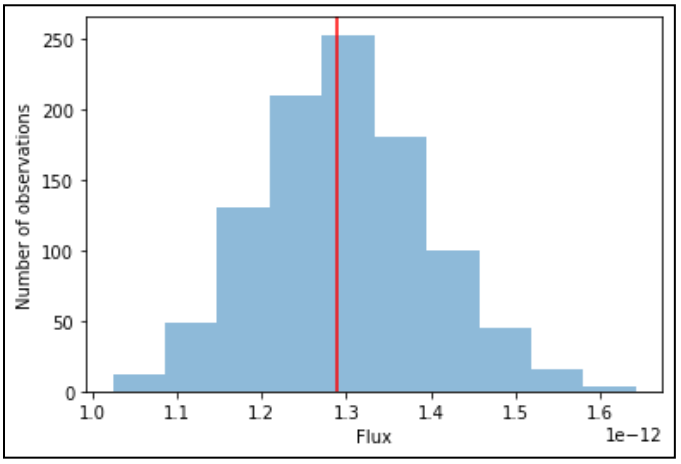


N = 10000

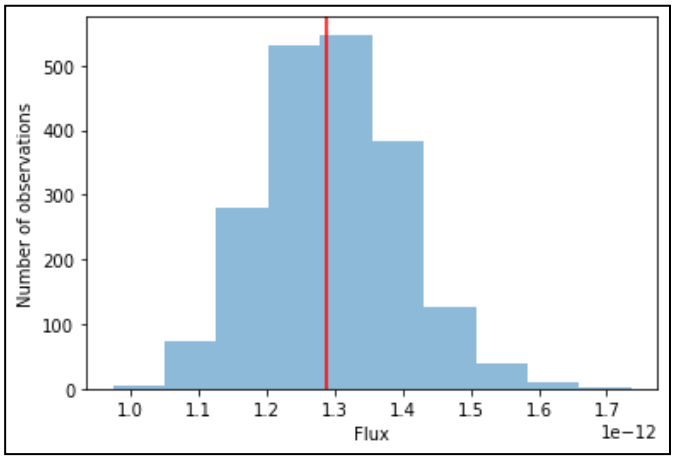
Flux Values:



N = 500



N = 1000



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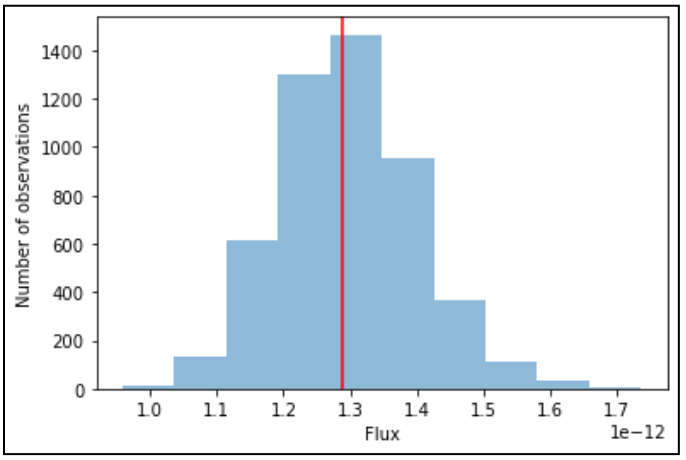
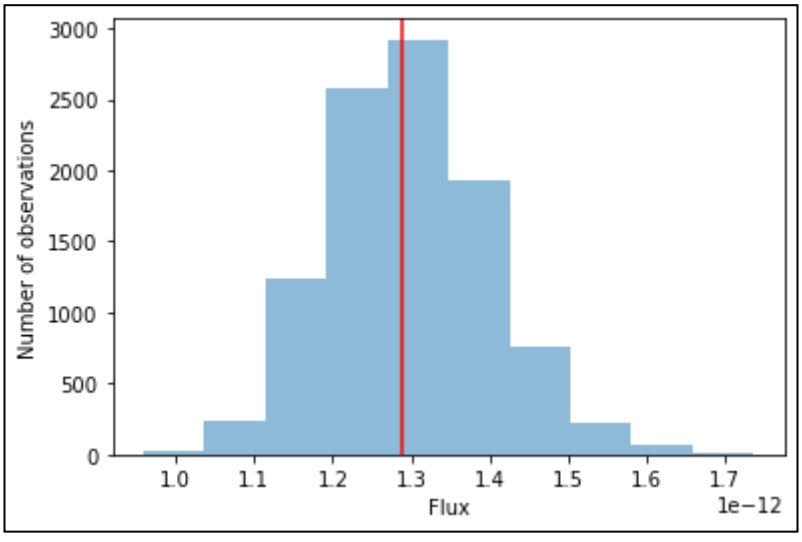
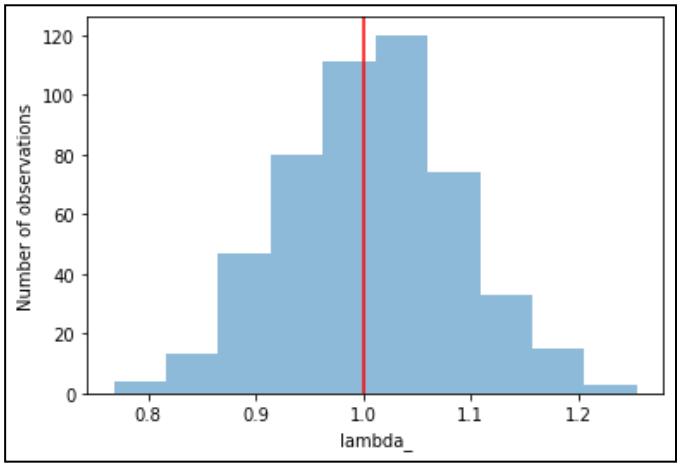


N = 5000

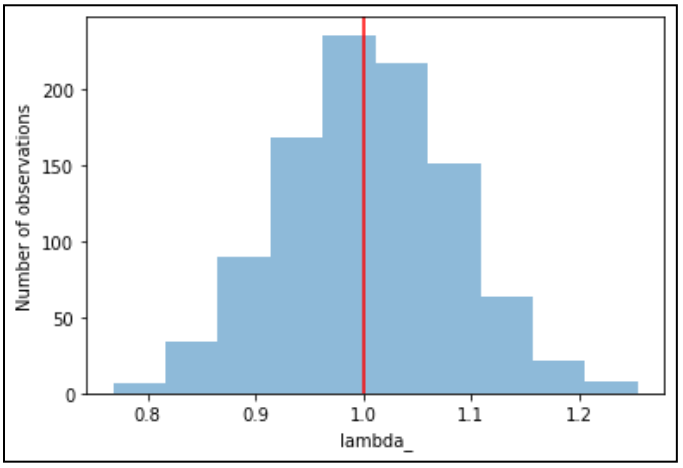


N = 10000

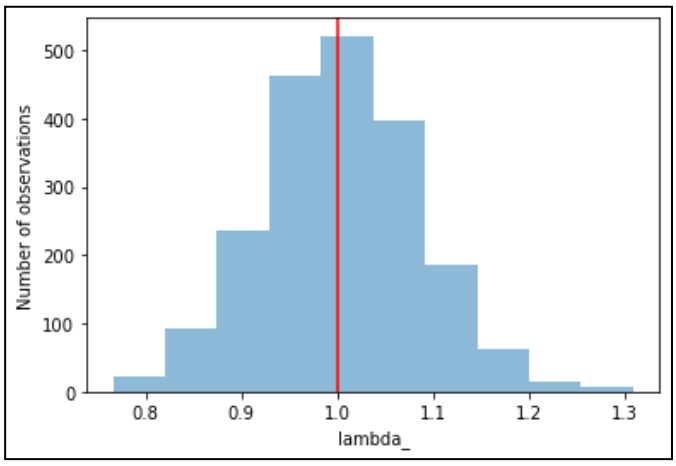
Cutoff Values:



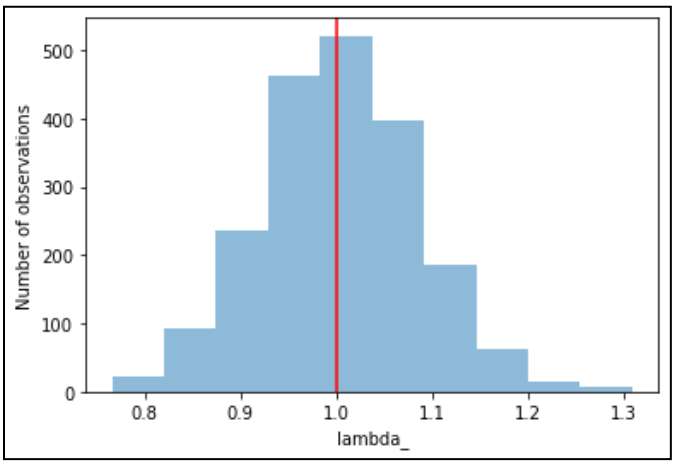
N = 500



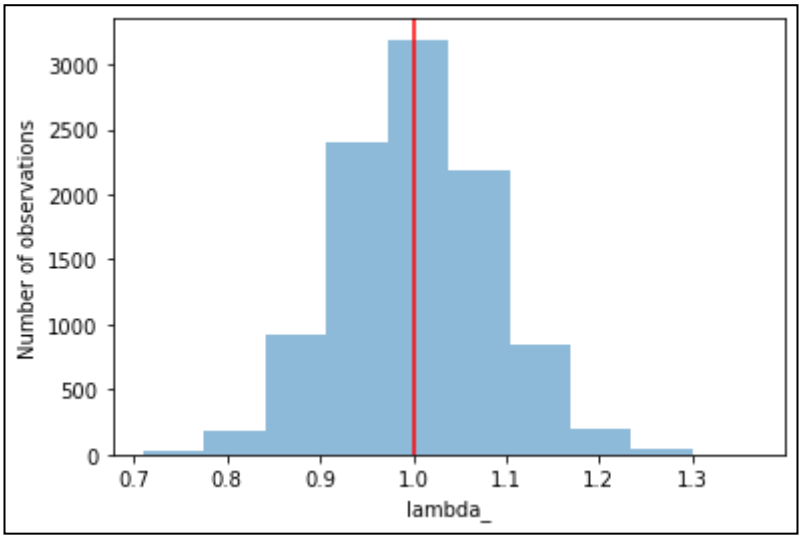
N = 1000



N = 2000



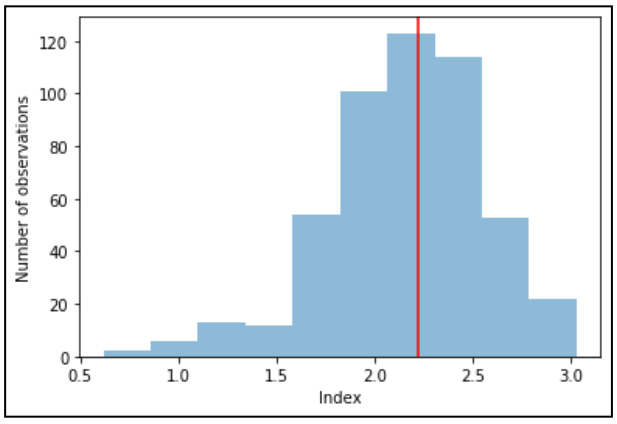
N = 5000



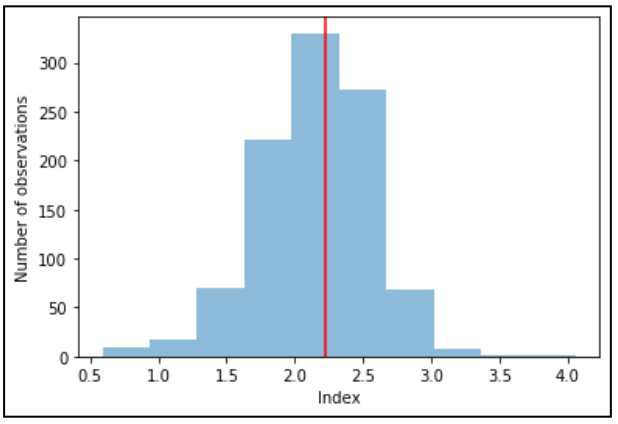
N = 10000

L = 10

Index Values:

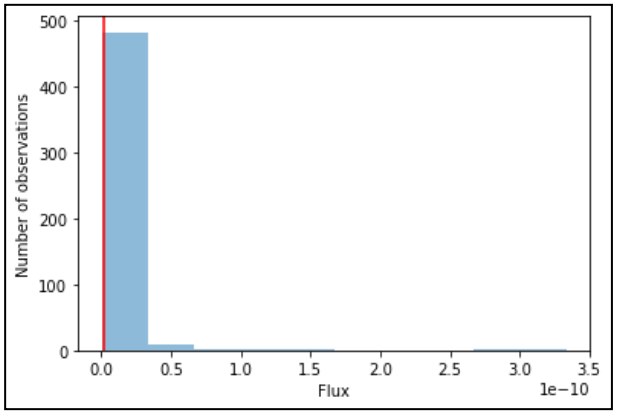


N = 500

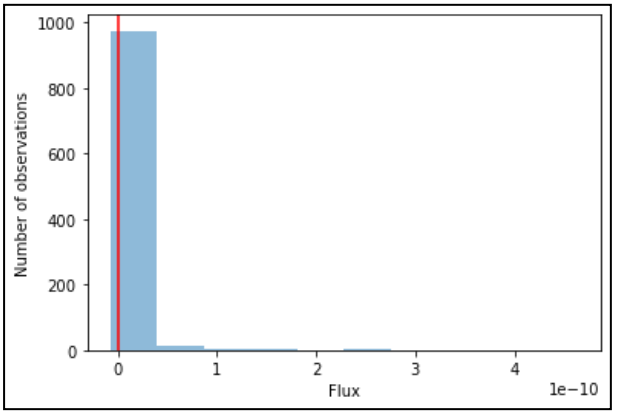


N = 1000

Flux Values:

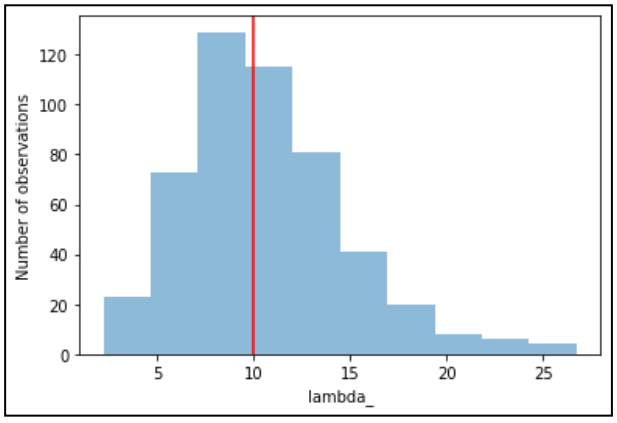


N = 500

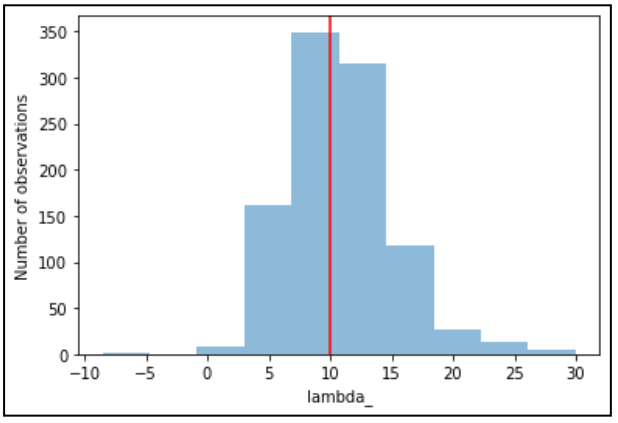


N = 1000

Cutoff Values:

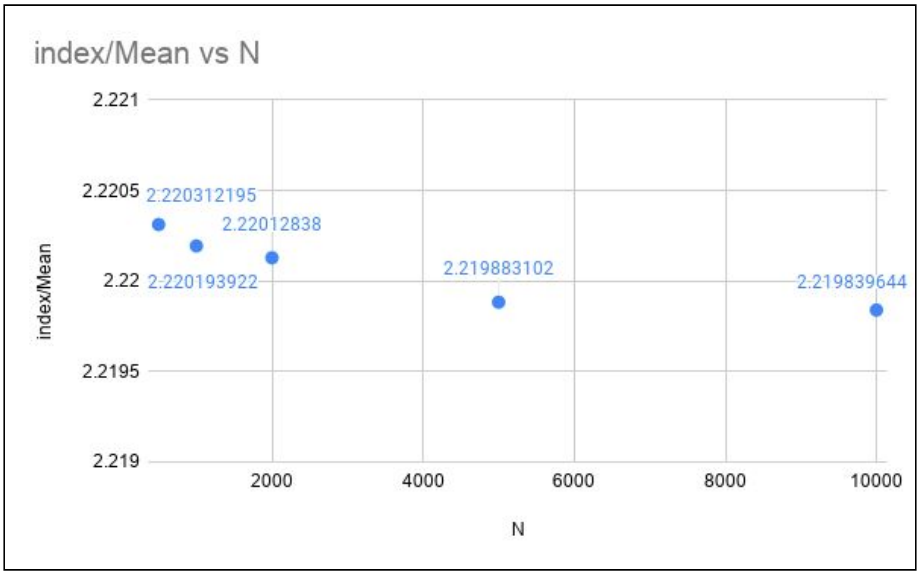


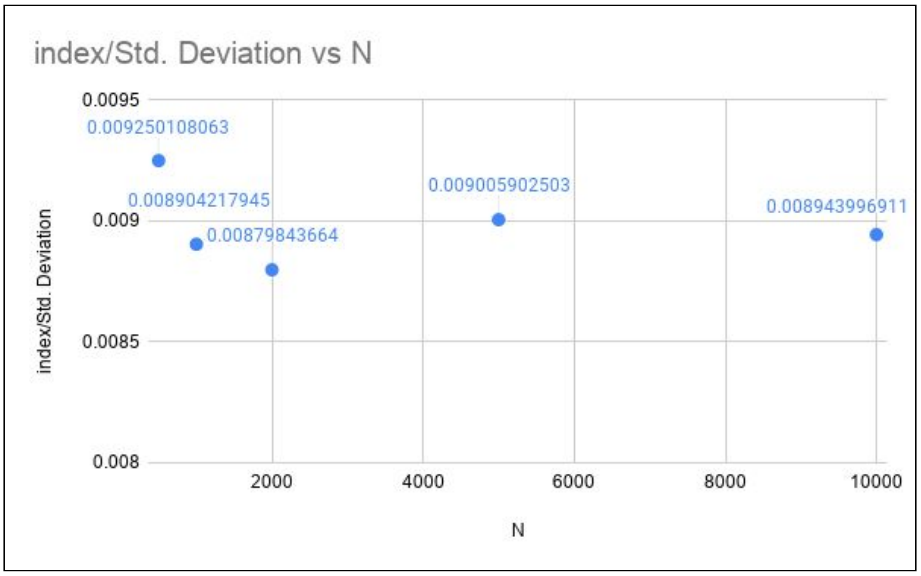
N = 500

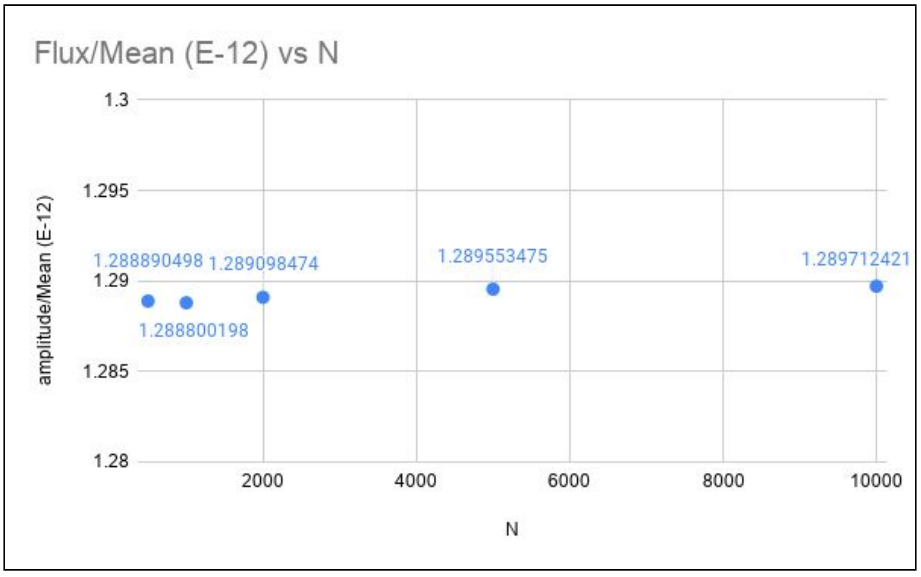


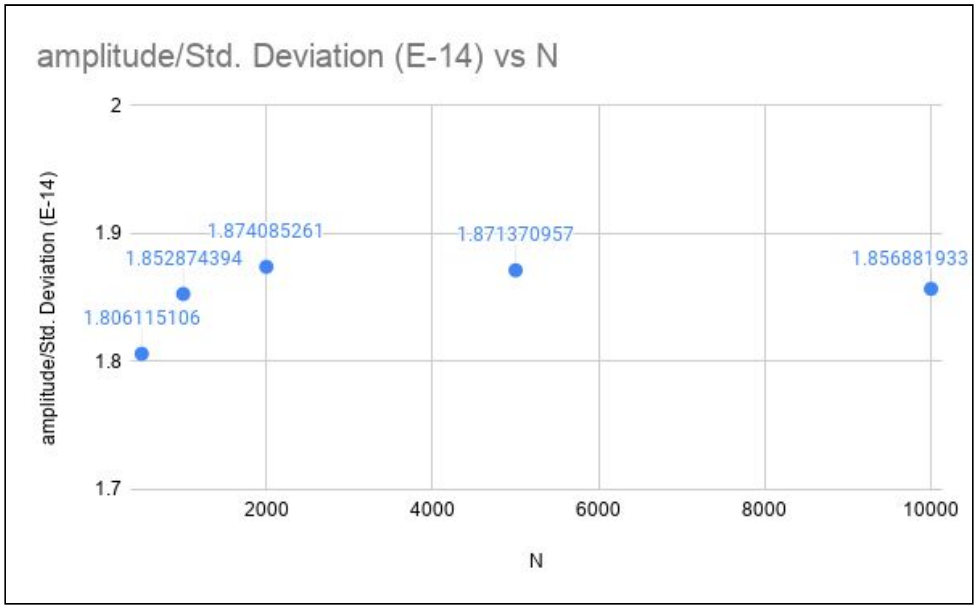
N = 1000

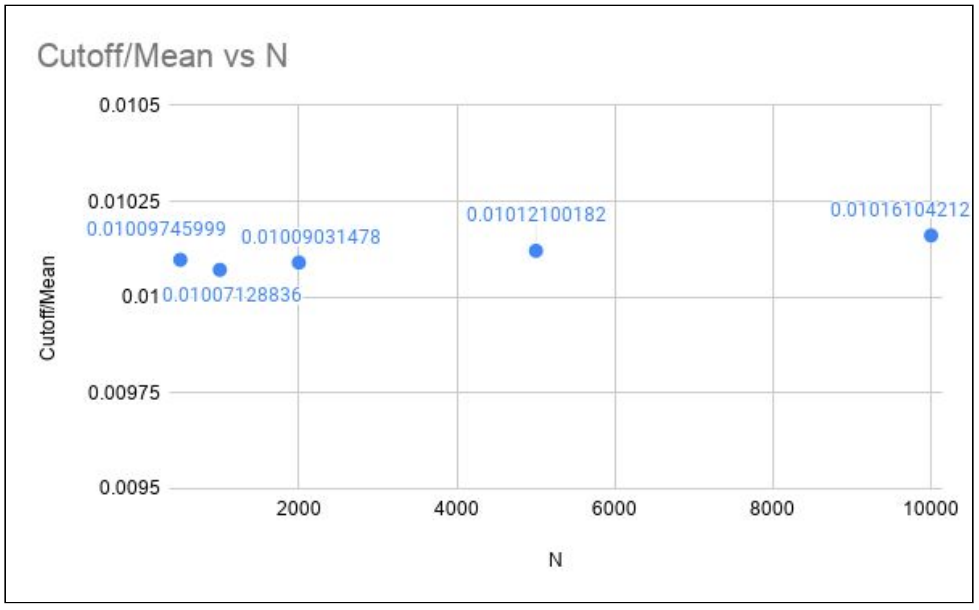
L = 0.01

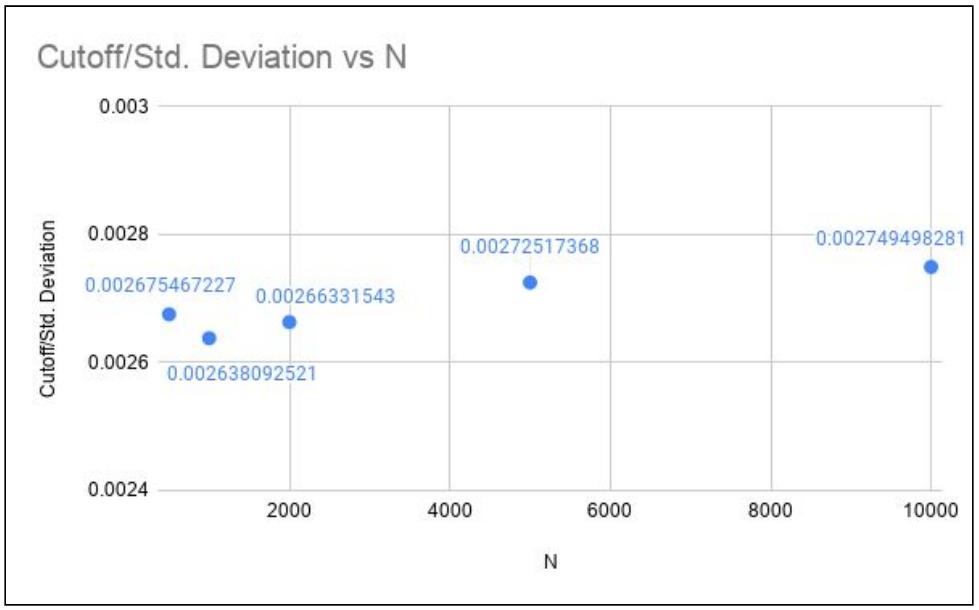

index/Mean vs N
2.221
2.2205
2.22
2.2195
2.219
index/Mean
2:220312195
2.22012838
2:220193922
2.219883102
2.219839644
2000
4000
6000
8000
10000
N


index/Std. Deviation vs N
0.0095
0.009
0.0085
0.008
index/Std. Deviation
0.009250108063
0.008904217945
0.00879843664
0.009005902503
0.008943996911
2000
4000
6000
8000
10000
N

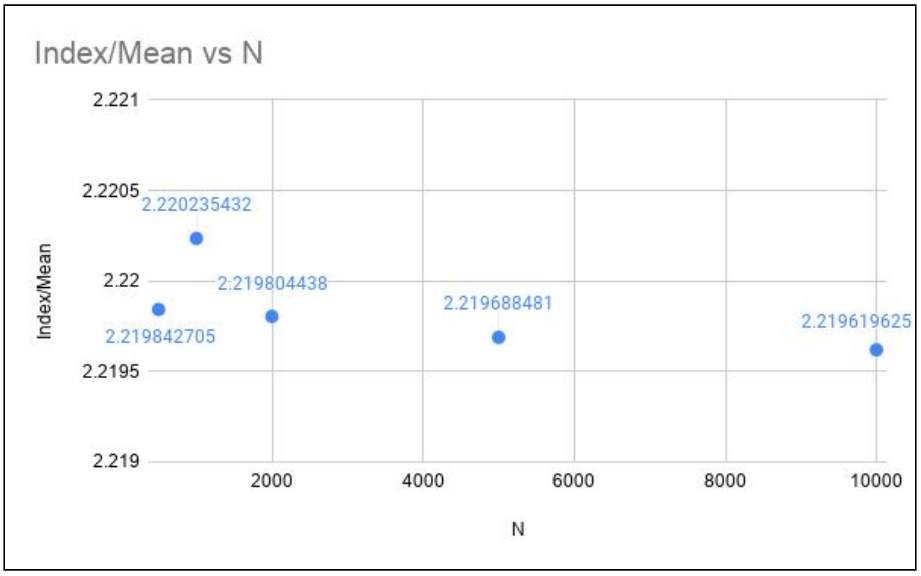

Flux/Mean (E-12) vs N
1.3
1.295
1.29
1.285
1.28
amplitude/Mean (E-12)
1.288890498
1.289098474
1.288800198
1.289553475
1.289712421
2000
4000
6000
8000
10000
N

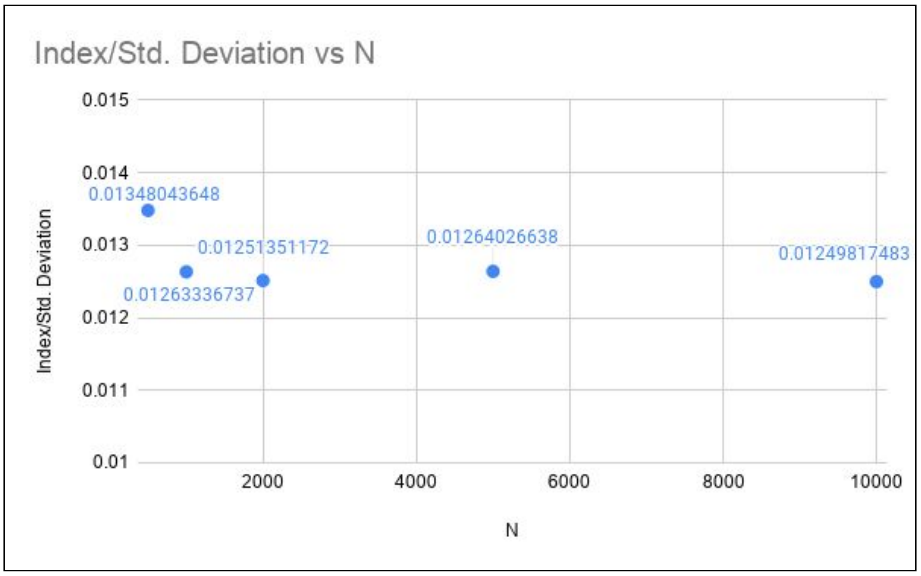

amplitude/Std. Deviation (E-14) vs N
amplitude/Std. Deviation (E-14)
2
1.9
1.8
1.7
1.874085261
1.852874394
1.871370957
1.856881933
1.806115106
2000
4000
6000
8000
10000
N

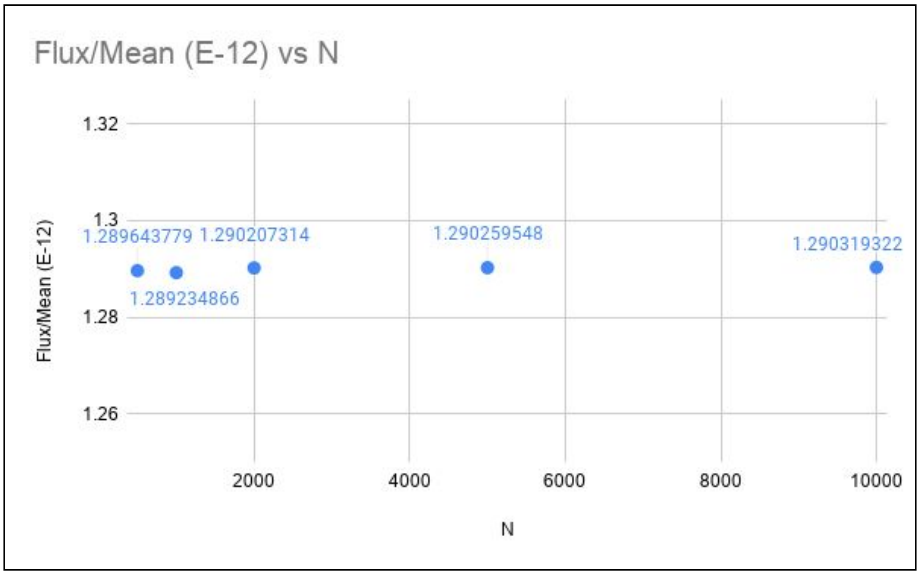

Cutoff/Mean vs N
Cutoff/Mean
0.0105
0.01025
0.01
0.00975
0.0095
0.01009745999
0.01009031478
0.01012100182
0.01016104212
0.01007128836
2000
4000
6000
8000
10000
N

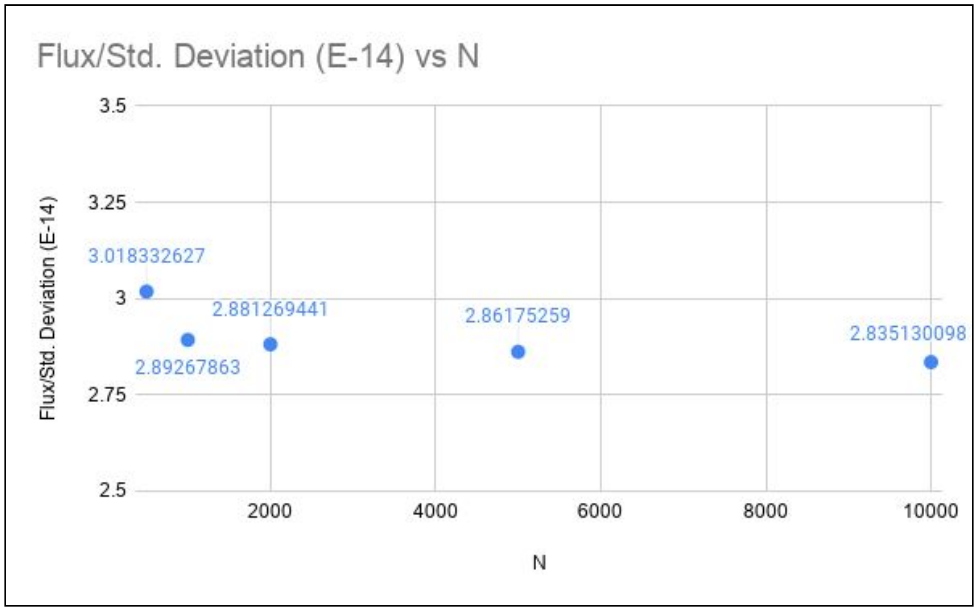

Cutoff/Std. Deviation vs N
Cutoff/Std. Deviation
0.003
0.0028
0.0026
0.0024
0.002675467227
0.00266331543
0.00272517368
0.002749498281
0.002638092521
2000
4000
6000
8000
10000
N

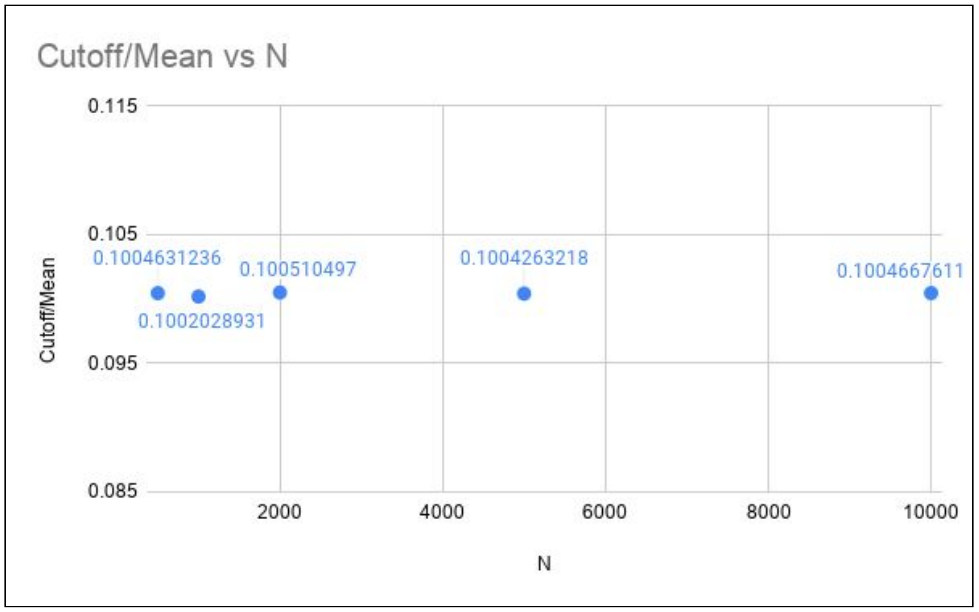
L = 0.1

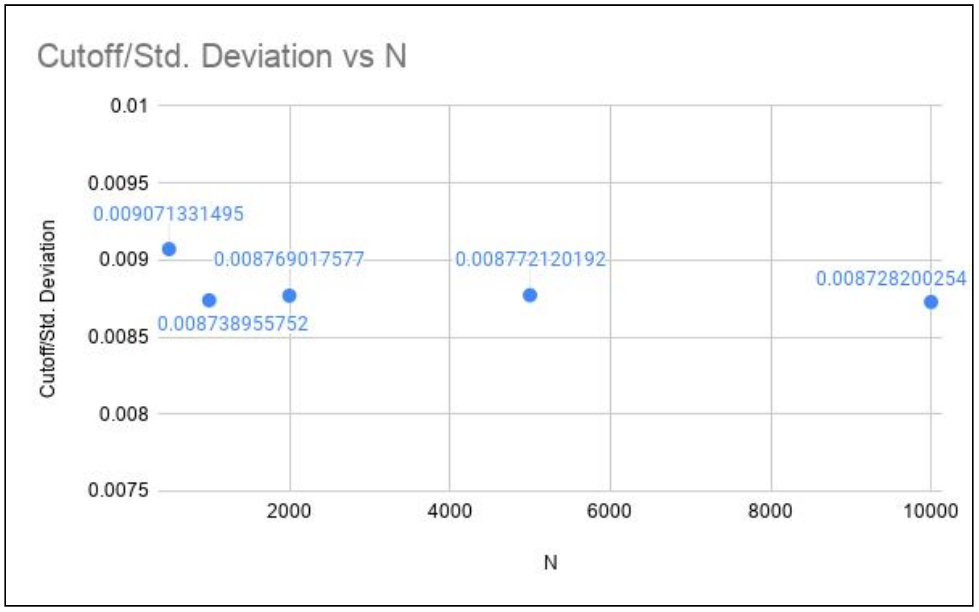

Index/Mean vs N
2.221
2.2205
2.22
2.2195
2.219
Index/Mean
2.220235432
2.219804438
2.219842705
2.219688481
2.219619625
2000
4000
6000
8000
10000
N


Index/Std. Deviation vs N
0.015
0.014
0.013
0.012
0.011
0.01
Index/Std. Deviation
0.01348043648
0.01251351172
0.01263336737
0.01264026638
0.01249817483
2000
4000
6000
8000
10000
N

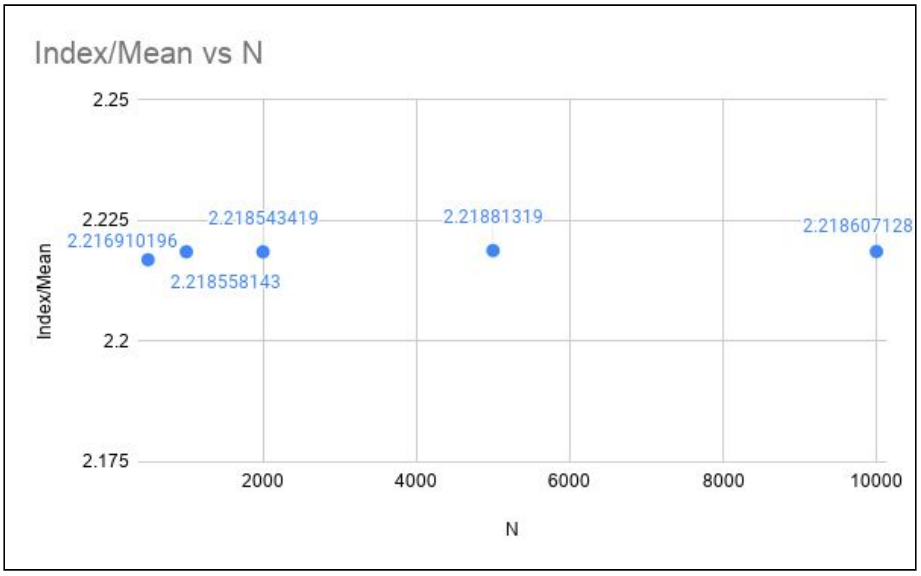

Flux/Mean (E-12) vs N
1.32
1.3
1.28
1.26
Flux/Mean (E-12)
1.289643779
1.290207314
1.289234866
1.290259548
1.290319322
2000
4000
6000
8000
10000
N

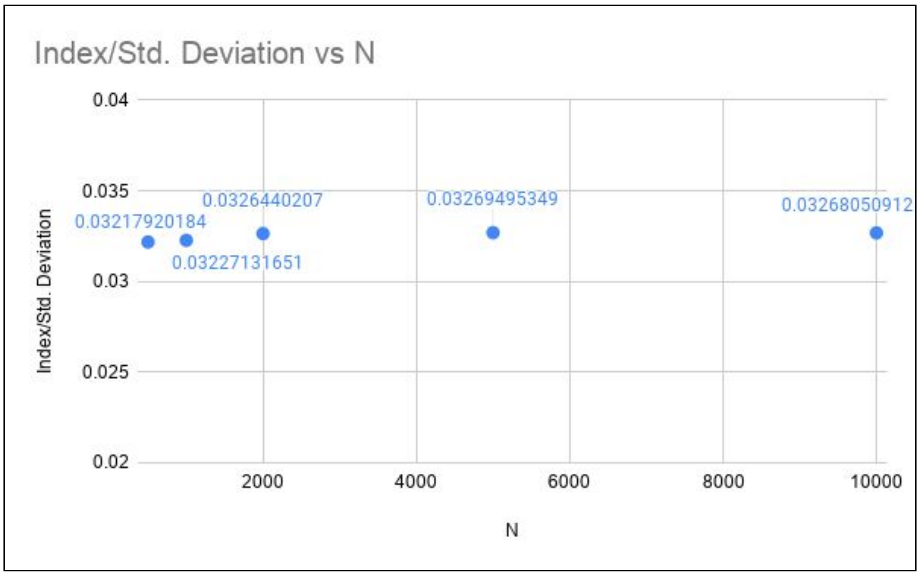

Flux/Std. Deviation (E-14) vs N
Flux/Std. Deviation (E-14)
3.5
3.25
3
2.75
2.5
3.018332627
2.881269441
2.89267863
2.86175259
2.835130098
2000
4000
6000
8000
10000
N

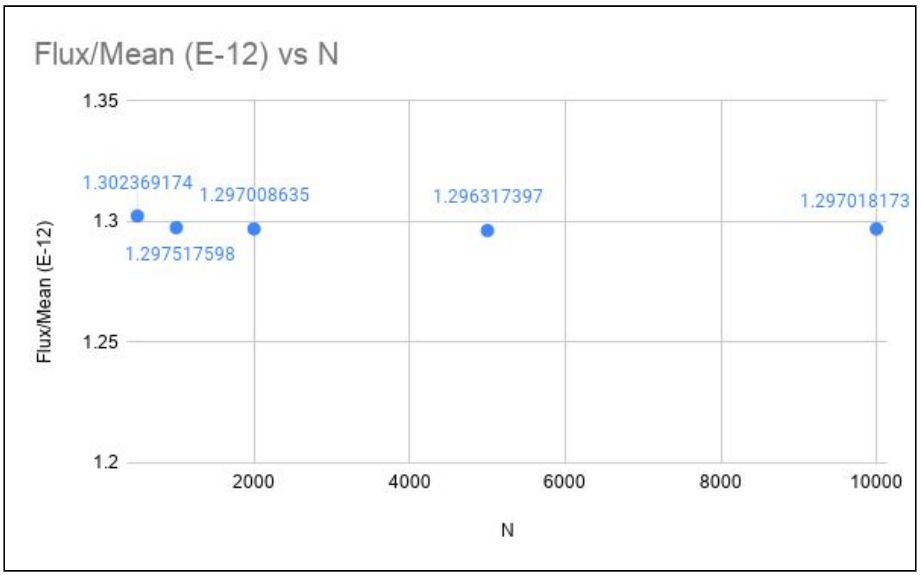

Cutoff/Mean vs N
Cutoff/Mean
0.115
0.105
0.095
0.085
0.1004631236
0.100510497
0.1002028931
0.1004263218
0.1004667611
2000
4000
6000
8000
10000
N

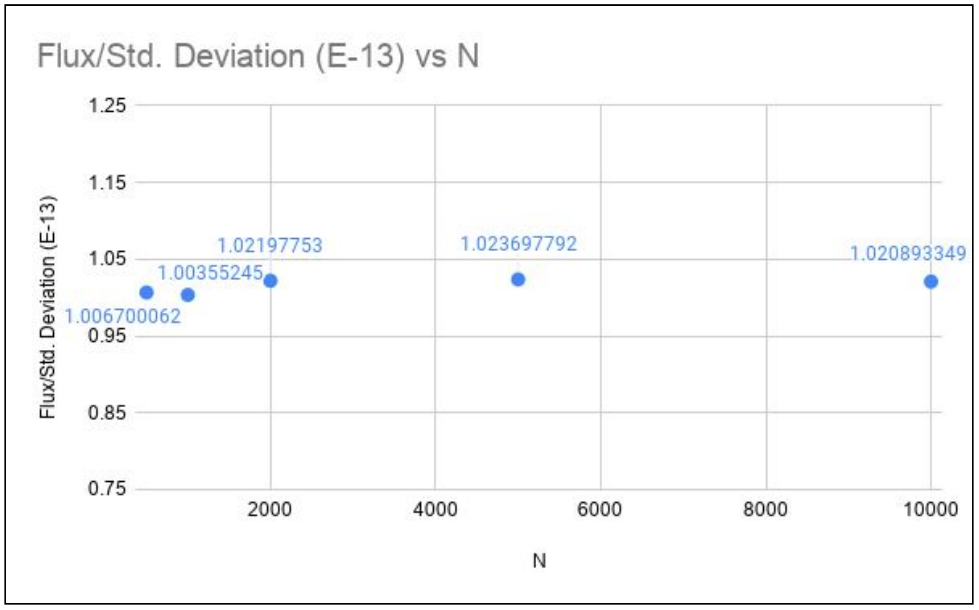

Cutoff/Std. Deviation vs N
Cutoff/Std. Deviation
0.01
0.0095
0.009
0.0085
0.008
0.0075
0.009071331495
0.008769017577
0.008738955752
0.008772120192
0.008728200254
2000
4000
6000
8000
10000
N

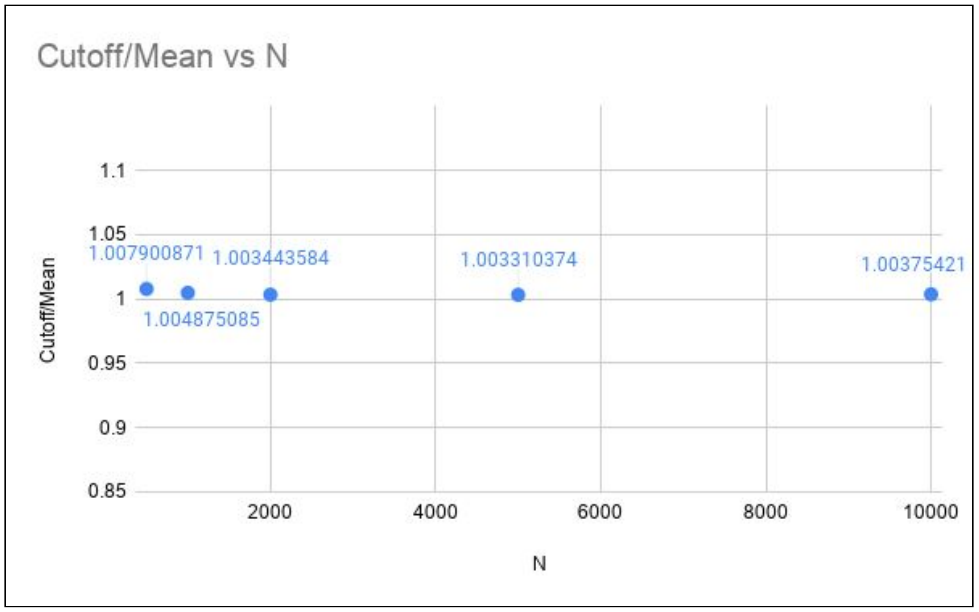
L = 1

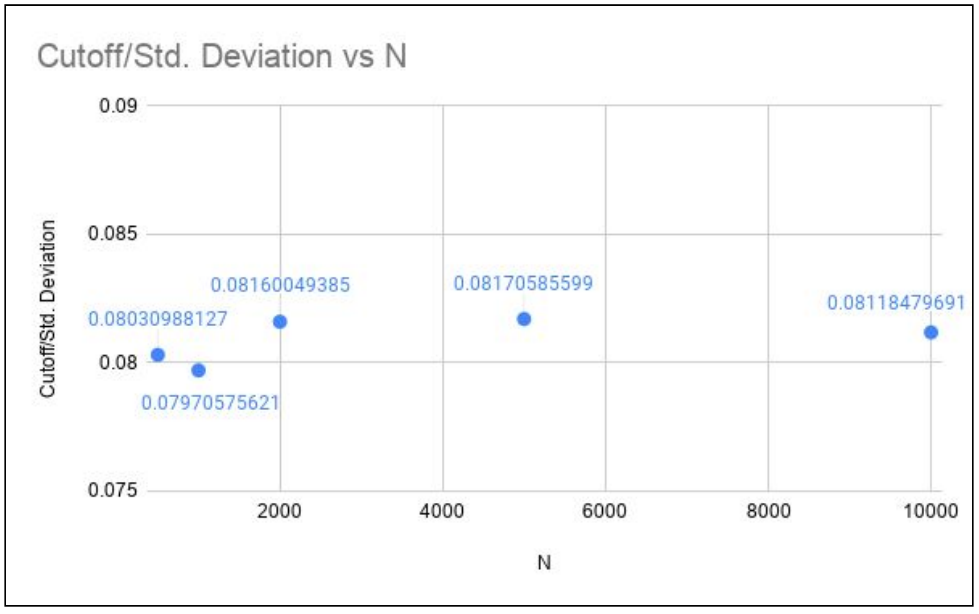

Index/Mean vs N
2.25
2.225
2.2
2.175
Index/Mean
2.216910196
2.218543419
2.218558143
2.21881319
2.218607128
2000
4000
6000
8000
10000
N


Index/Std. Deviation vs N
0.04
0.035
0.03
0.025
0.02
Index/Std. Deviation
0.03217920184
0.0326440207
0.03227131651
0.03269495349
0.03268050912
2000
4000
6000
8000
10000
N


Flux/Mean (E-12) vs N
1.35
1.3
1.25
1.2
Flux/Mean (E-12)
1.302369174
1.297008635
1.297517598
1.296317397
1.297018173
2000
4000
6000
8000
10000
N


Flux/Std. Deviation (E-13) vs N
Flux/Std. Deviation (E-13)
1.25
1.15
1.05
0.95
0.85
0.75
1.02197753
1.023697792
1.020893349
1.00355245
1.006700062
2000
4000
6000
8000
10000
N


Cutoff/Mean vs N
Cutoff/Mean
1.1
1.05
1
0.95
0.9
0.85
1.007900871
1.003443584
1.003310374
1.00375421
1.004875085
2000
4000
6000
8000
10000
N


Cutoff/Std. Deviation vs N
Cutoff/Std. Deviation
0.09
0.085
0.08
0.075
0.08160049385
0.08170585599
0.08118479691
0.08030988127
0.07970575621
2000
4000
6000
8000
10000
N