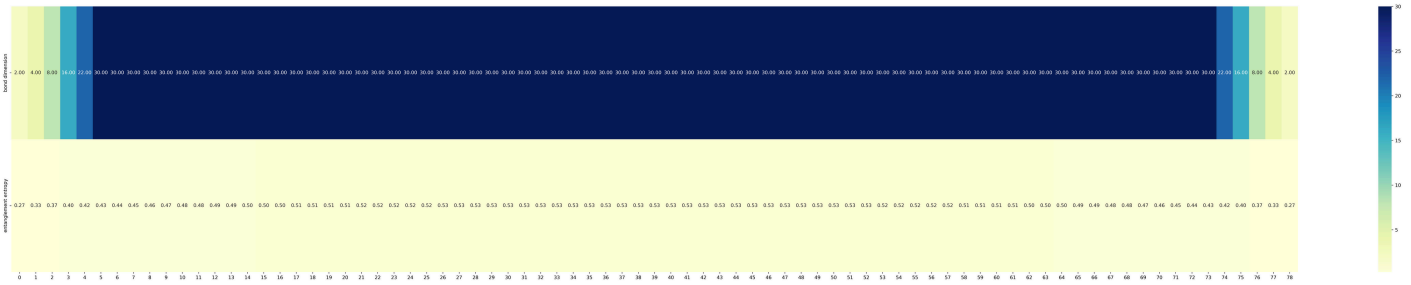
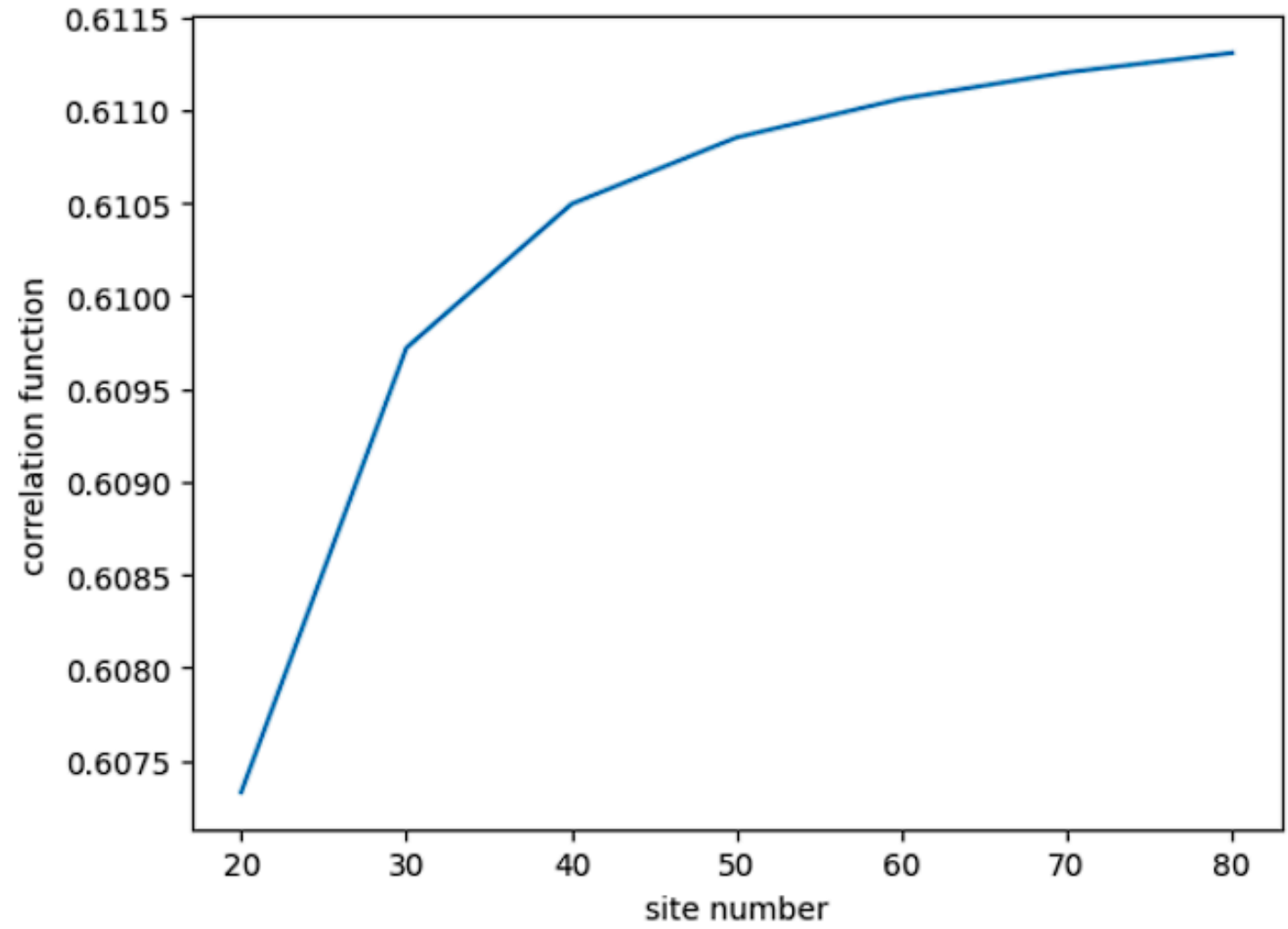
Github repository:- https://github.com/shikharkyadesultory/MB-Localization-TLFIM-

1. iTEBD Transverse Field ising model for dt=[0.1, 0.01, 0.001, 1.e-5, 1.e-6] for site length L=80 bond dimension max(chi) = 30 :-

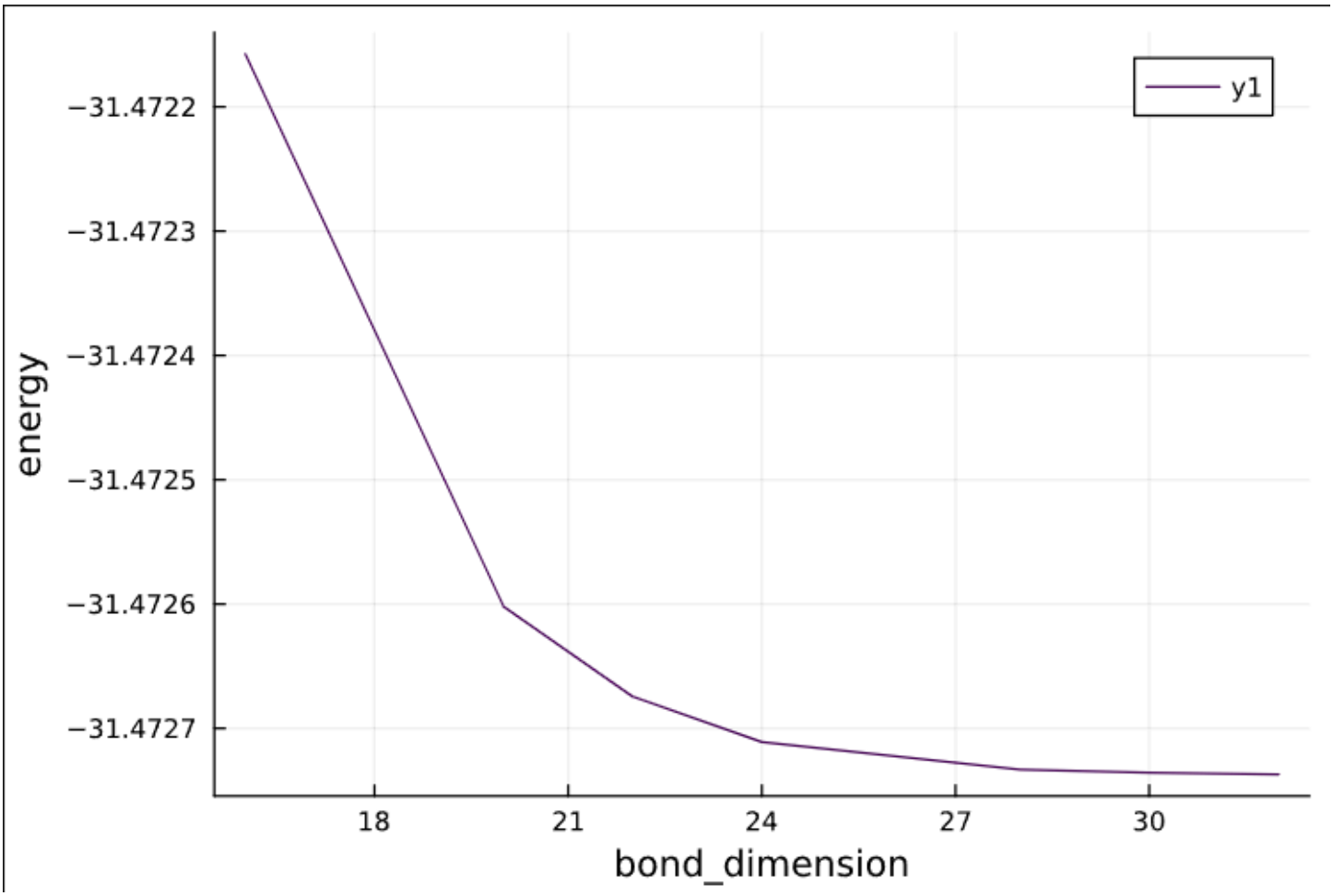


2.Correltation Function vs Site number:-

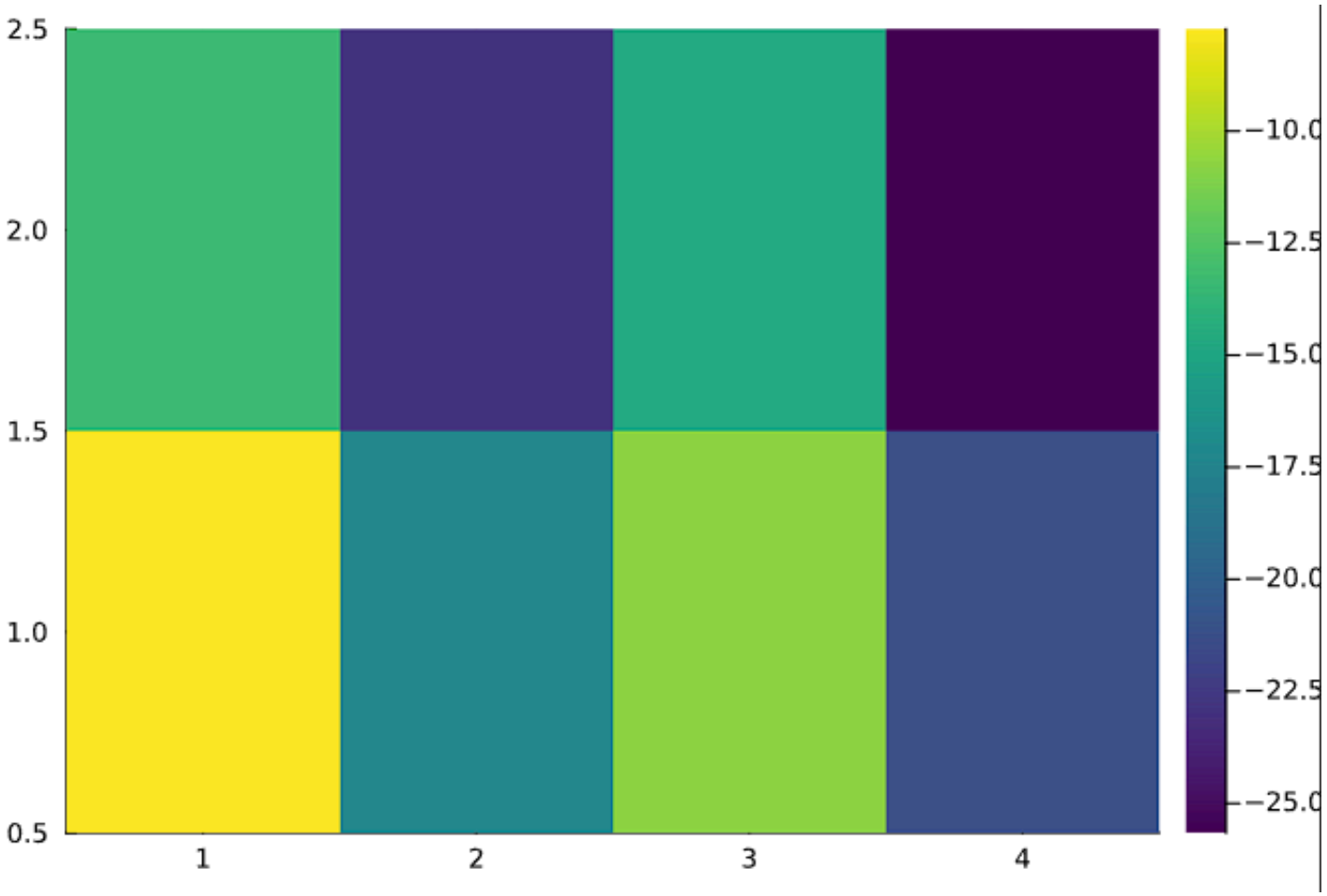


3.DMRG result(Energy vs Bond dimension):-

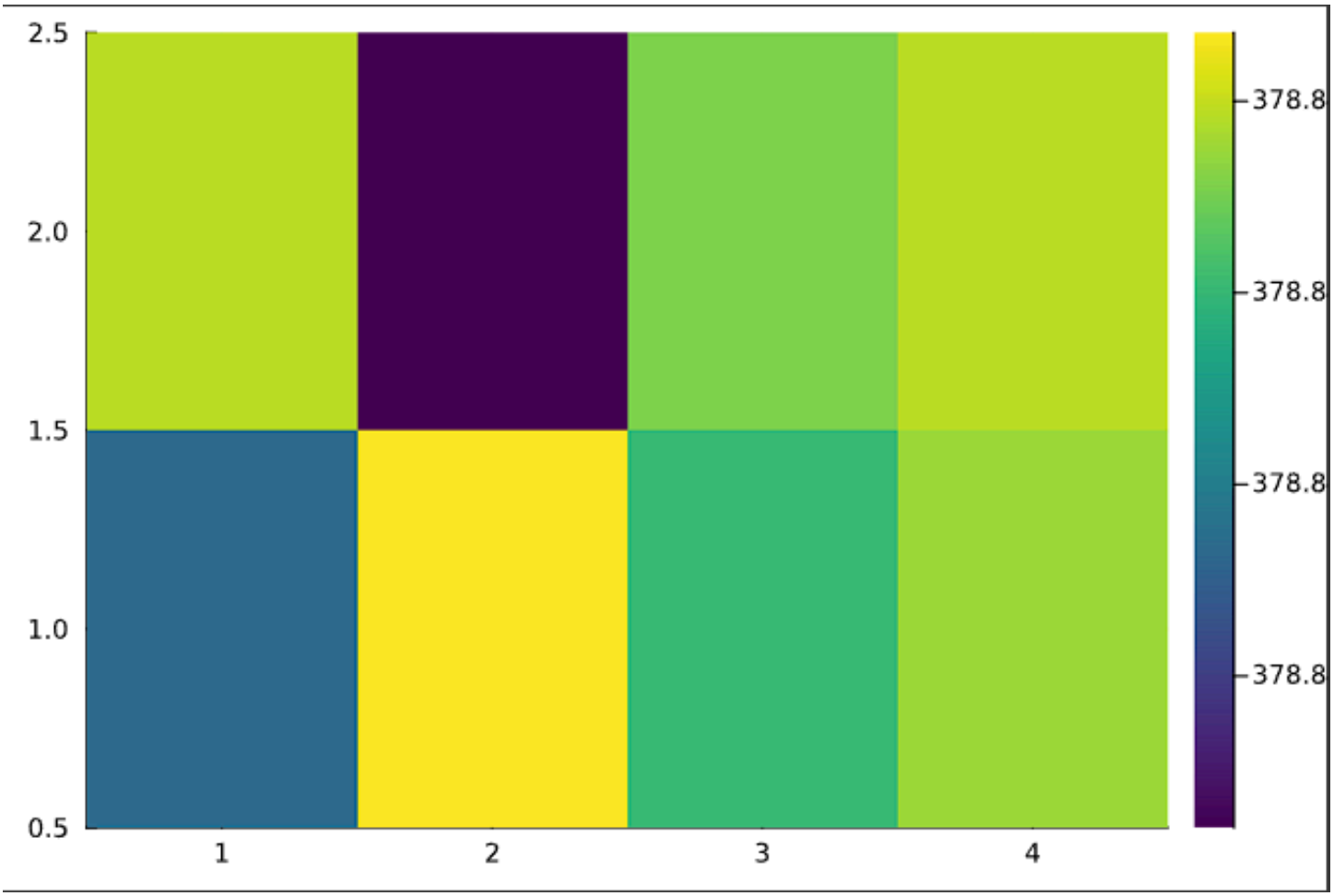
(random tensor MPS || bond dimensions (16,20,22,24,28,30,32)



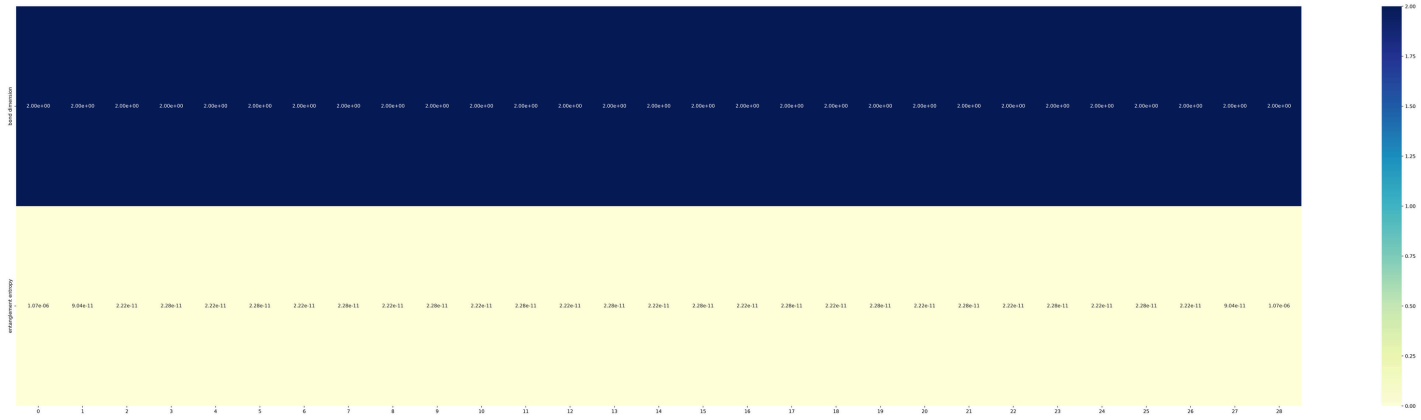
4.Energy Heat-Map (Random tensor MPS [Exact Diagonalization])



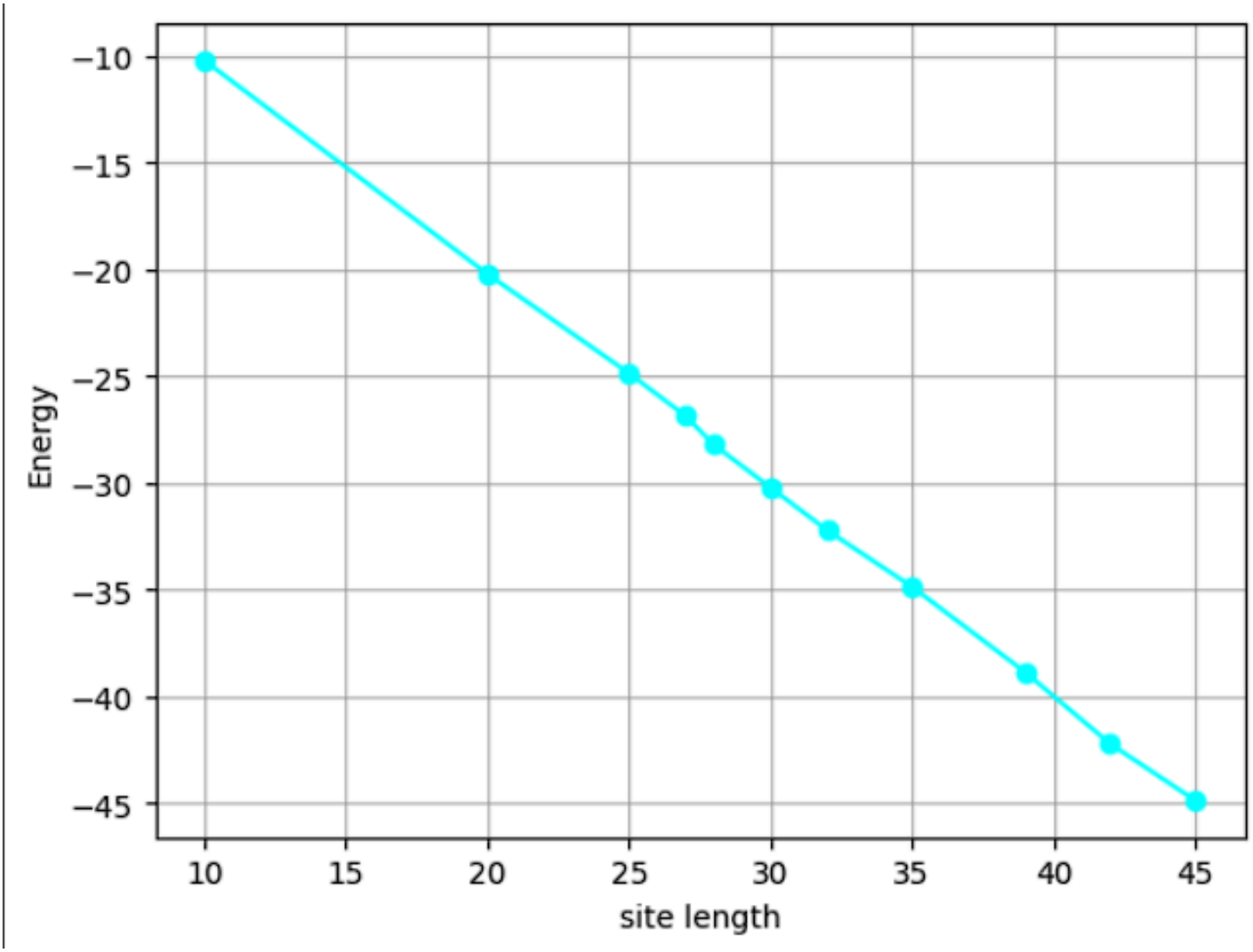
5.Energy Heat-Map (Random tensor MPS[finite DMRG])



6.iTEBD Suzuki-Trotter Decomposition [Entanglement Entropy vs Bond dimension]

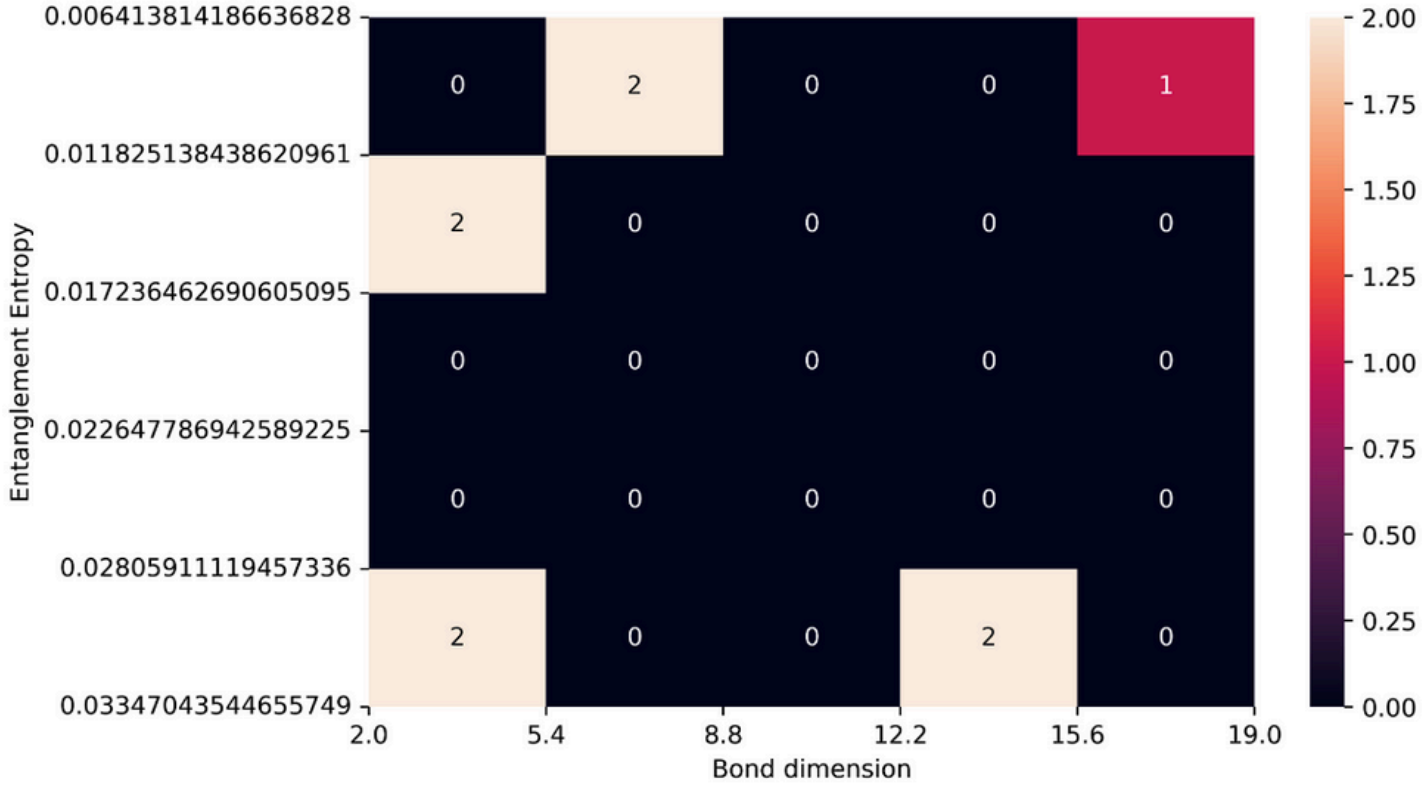


7. iTEBD (L=10,15,20,25,28,32,36,38,42,45,40) [Energy vs site Length]

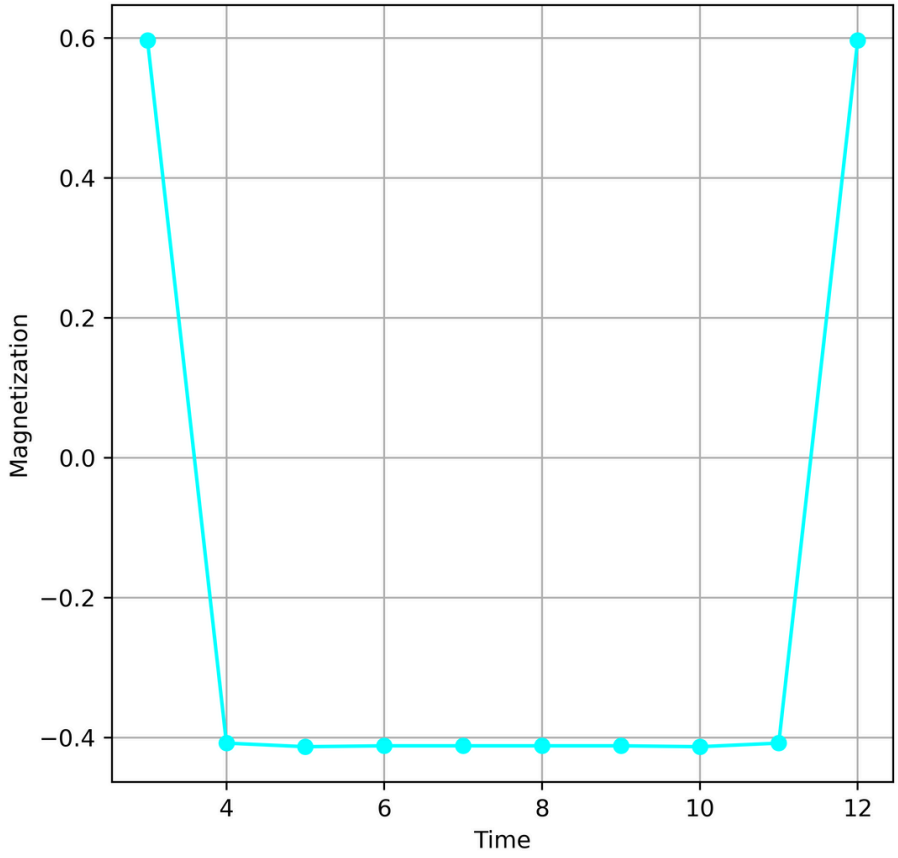


8.Transverse and Longitudinal Field Ising model [iTEBD] (L=10,h=0.9)

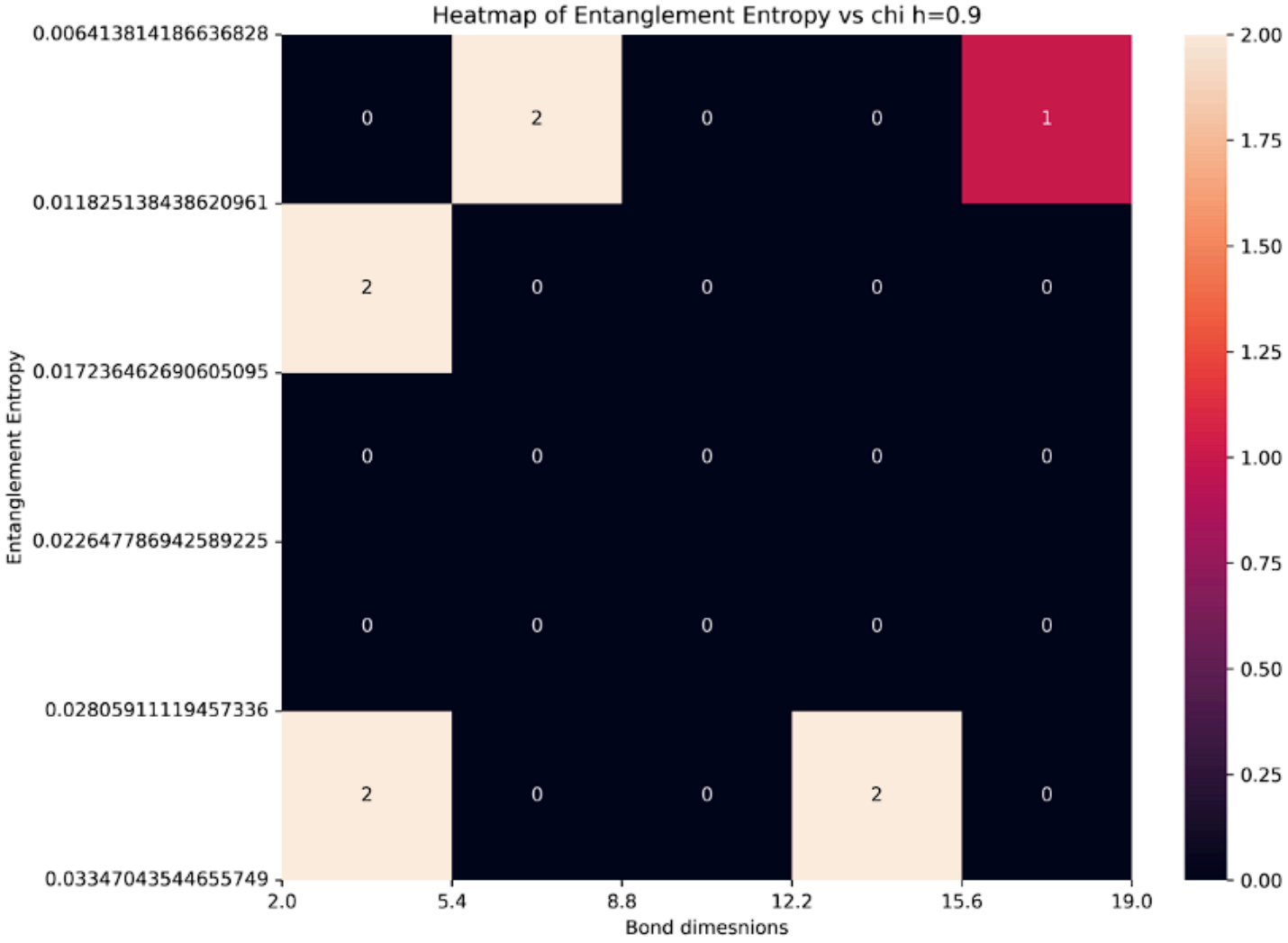
dt =[12. ,11. , 10. , 9. , 8. , 7. , 6. ,5. ,4. ,3. ,2. , 1.]



9.Magnetization for TLFI-Model:-

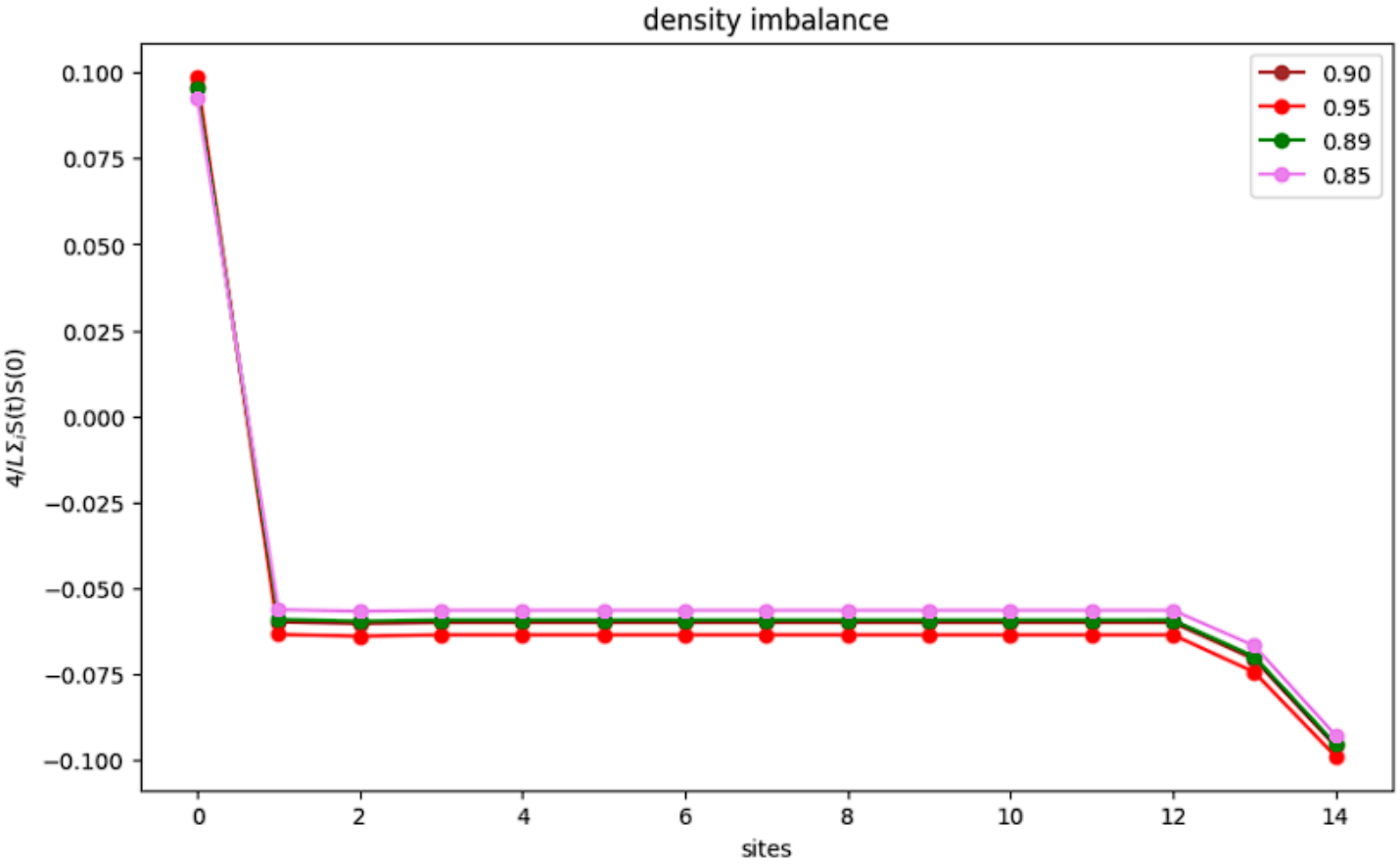


10.Driven Case [iTEBD] (h=0.9 , L=15, dt=T/2)

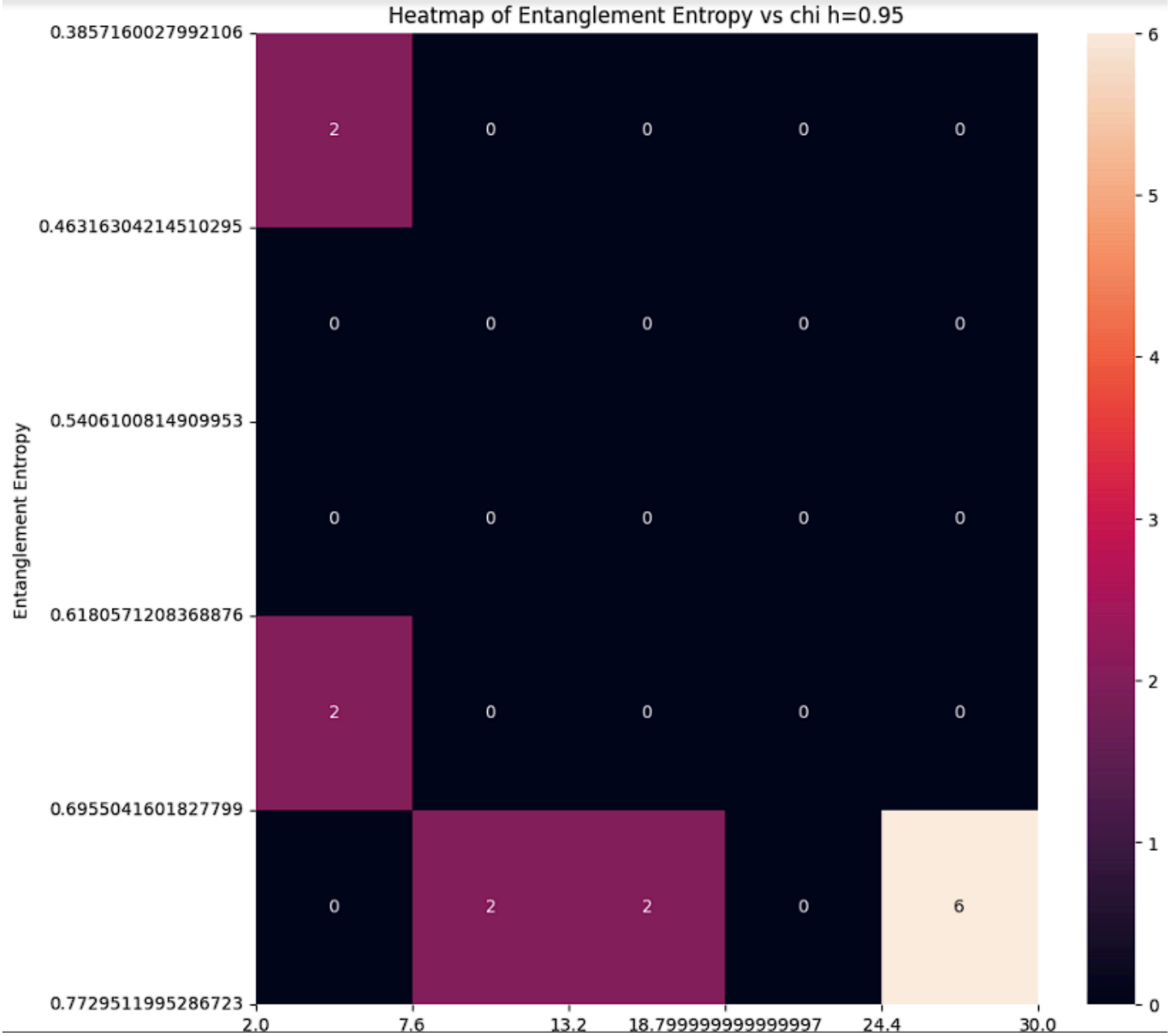


11.Alternate driving sequence [iTEBD] :-

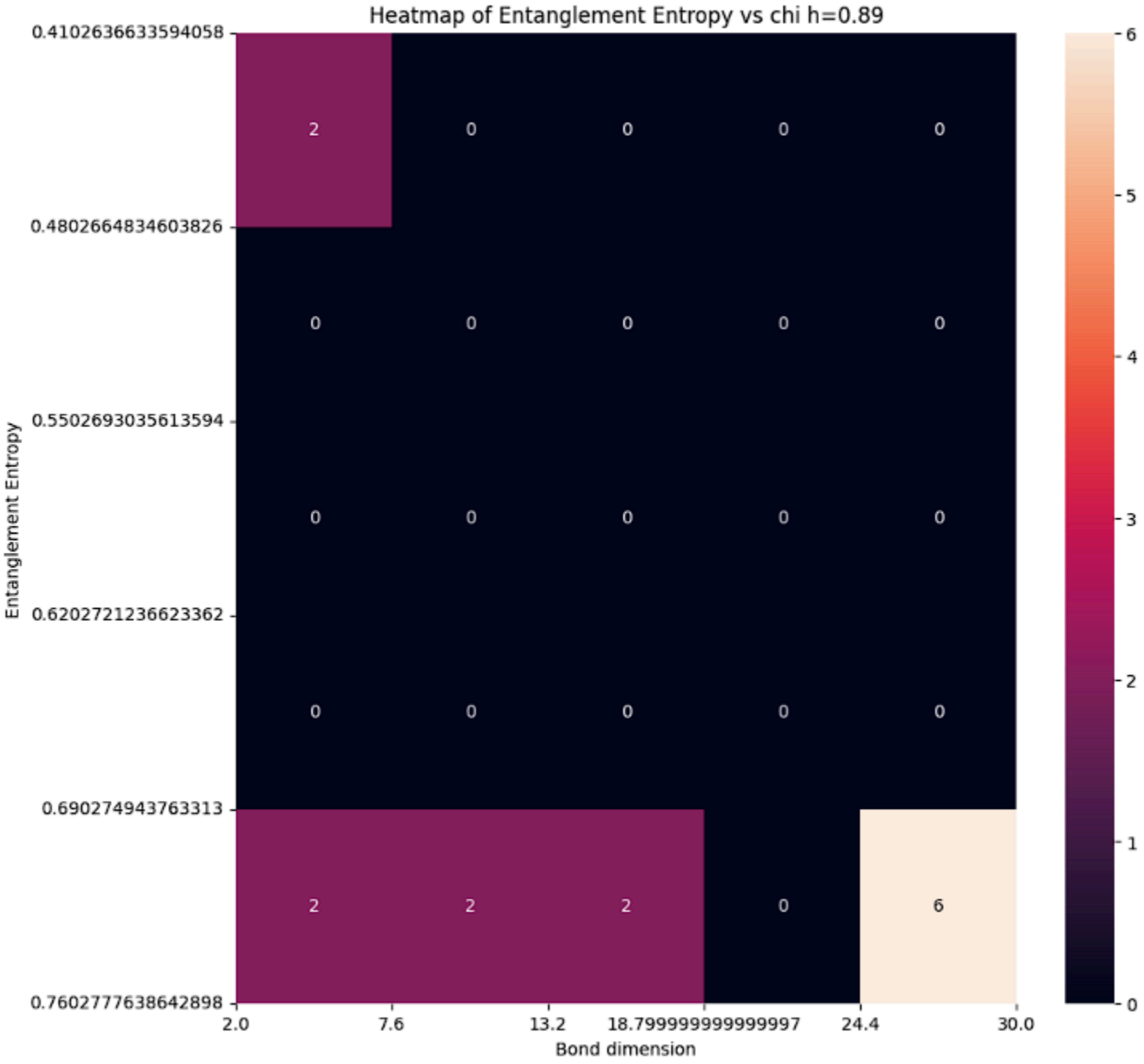
1.)Density Imbalance (h=0.90 , h=0.95 , h= 0.89 , h=0.85):-



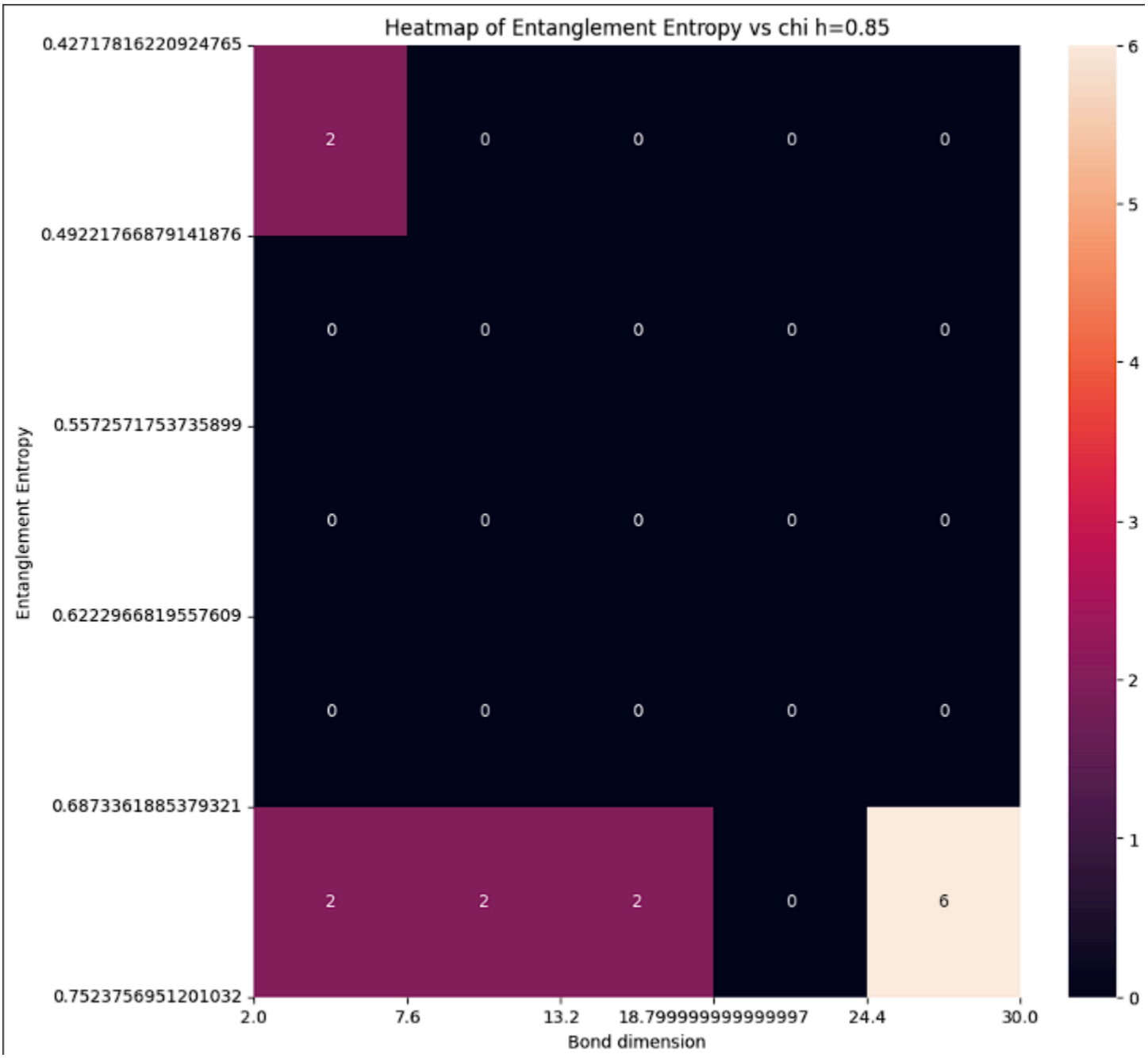
2.Entanglement Entropy (dt= T/4 , chi_max=30 , h=0.95)



3.Entanglement Entropy (dt= T/4 , chi max=30 , h=0.89):-

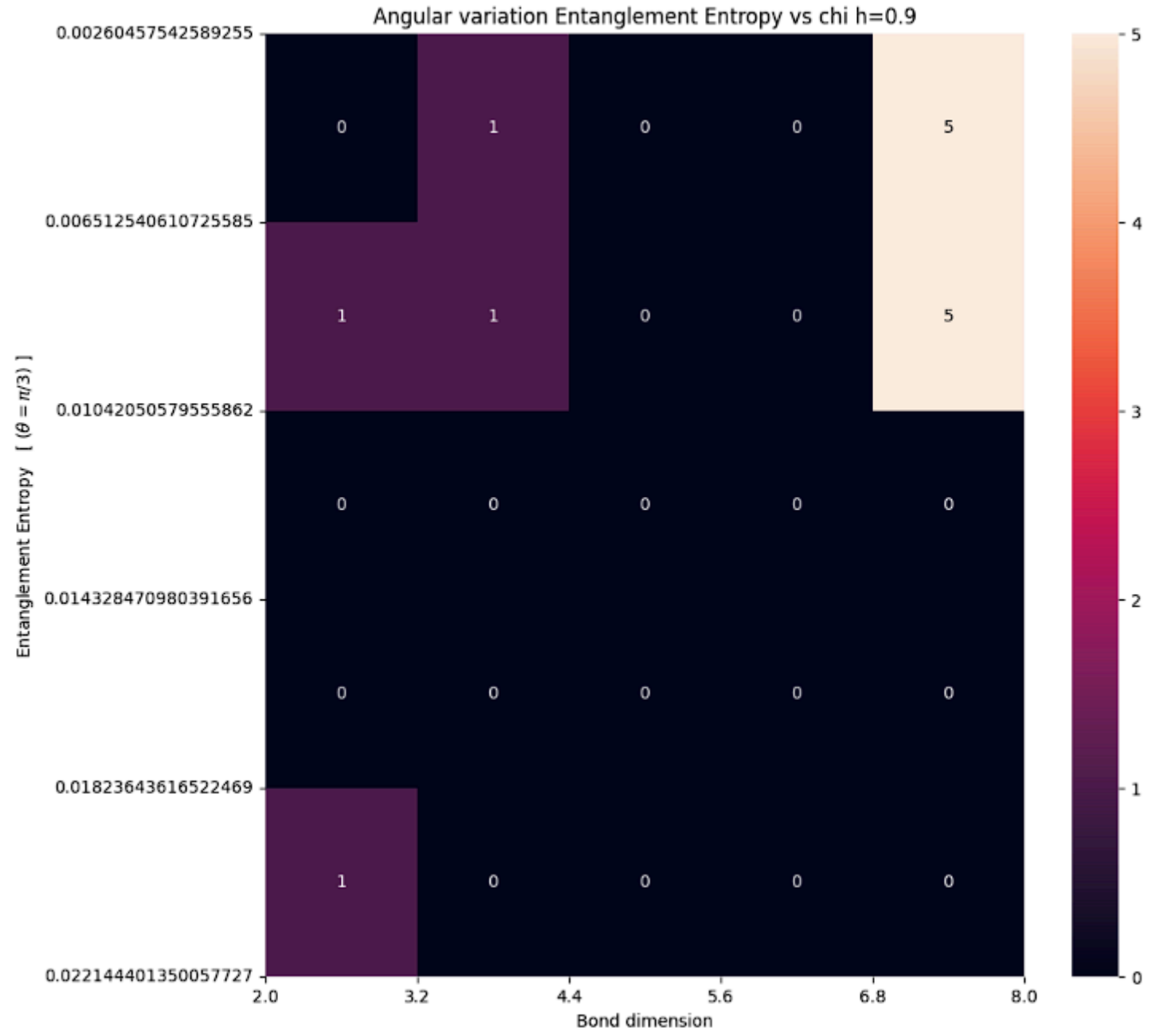


4.Entanglement Entropy (dt= T/4 , chi max=30 , h=0.85):-



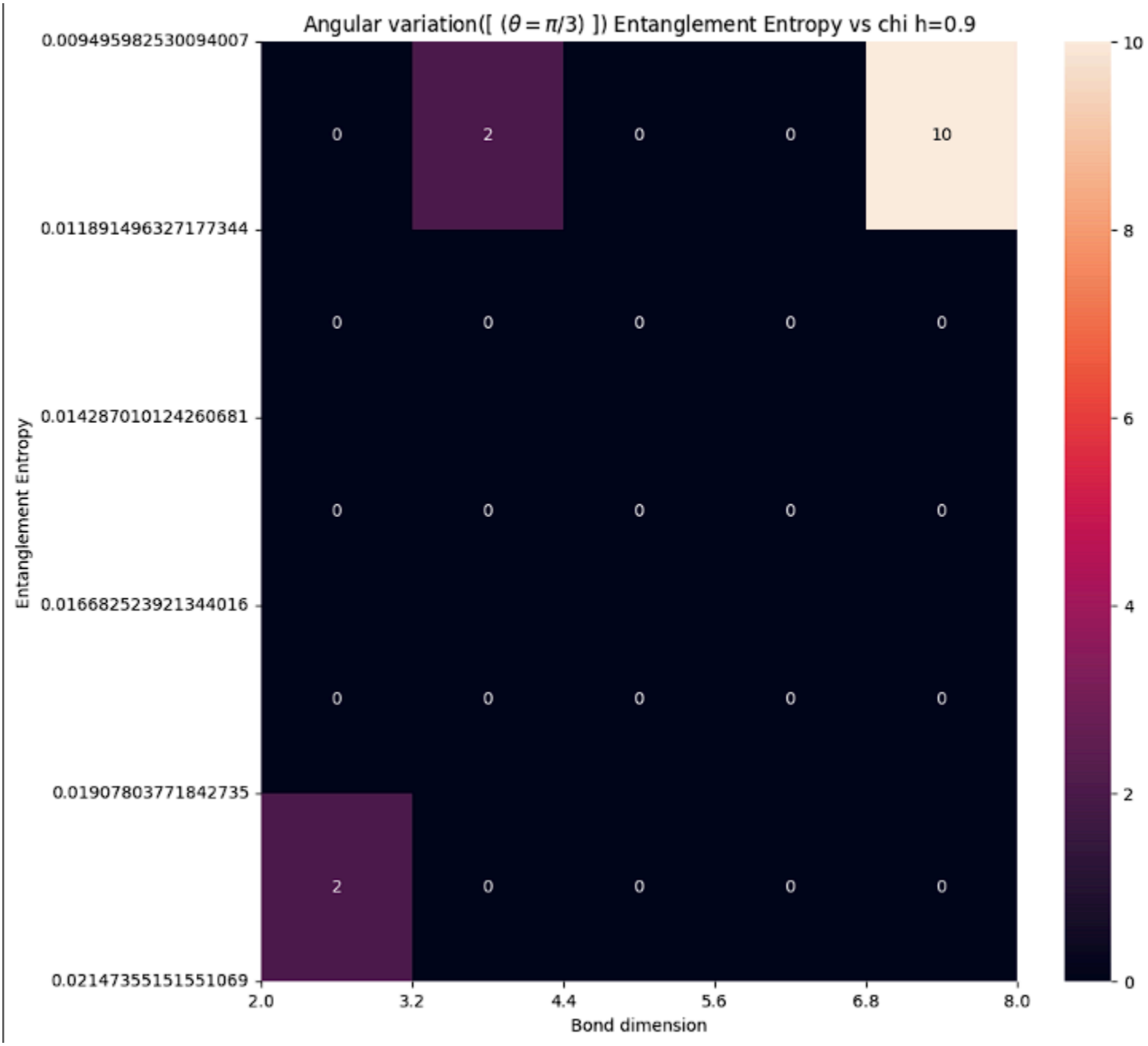
Angular Variation ||Entanglement Entropy

1. Undriven Case (h =0.9 , $\Theta=\pi/3$)

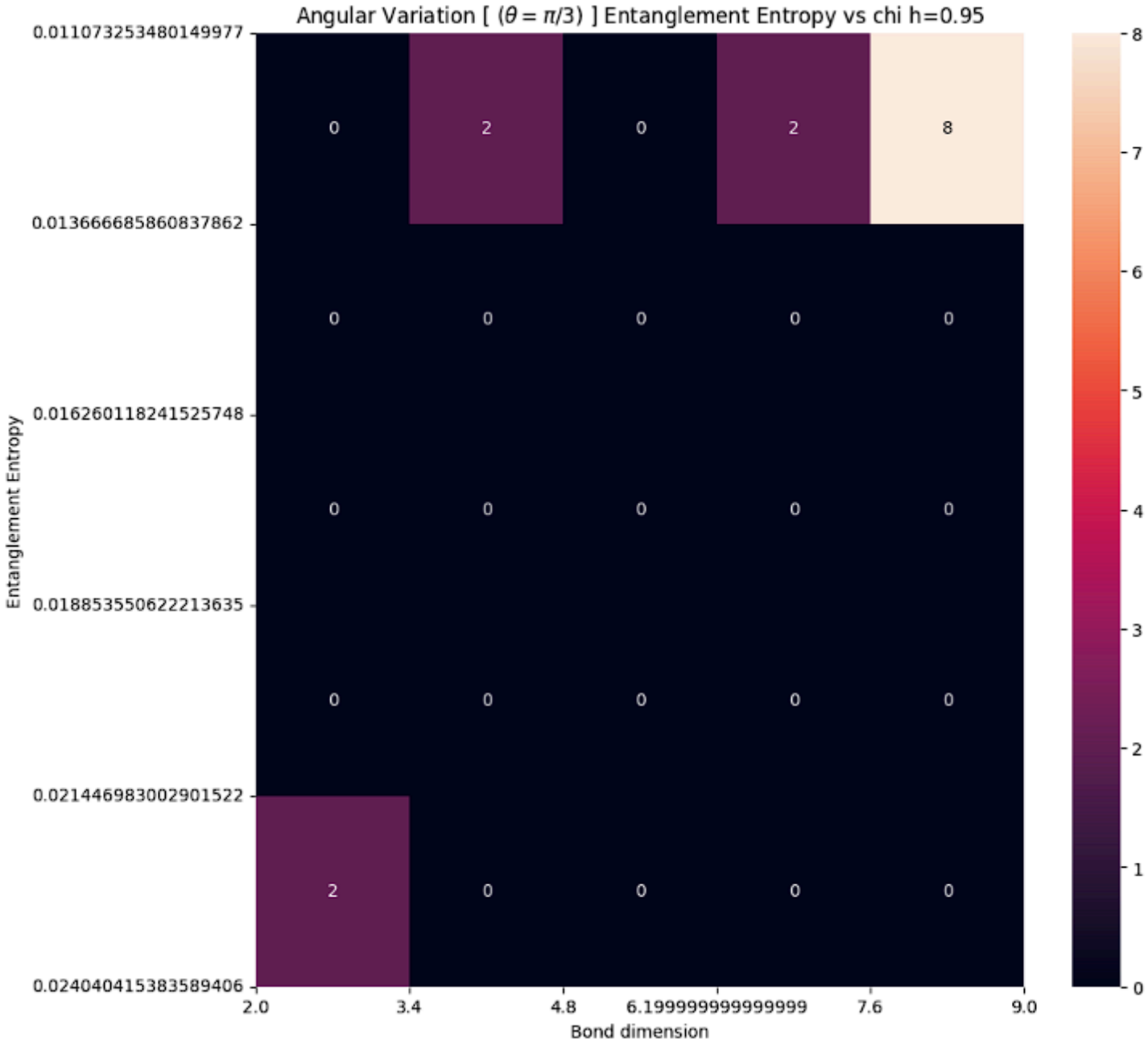


2.Driven Case : -

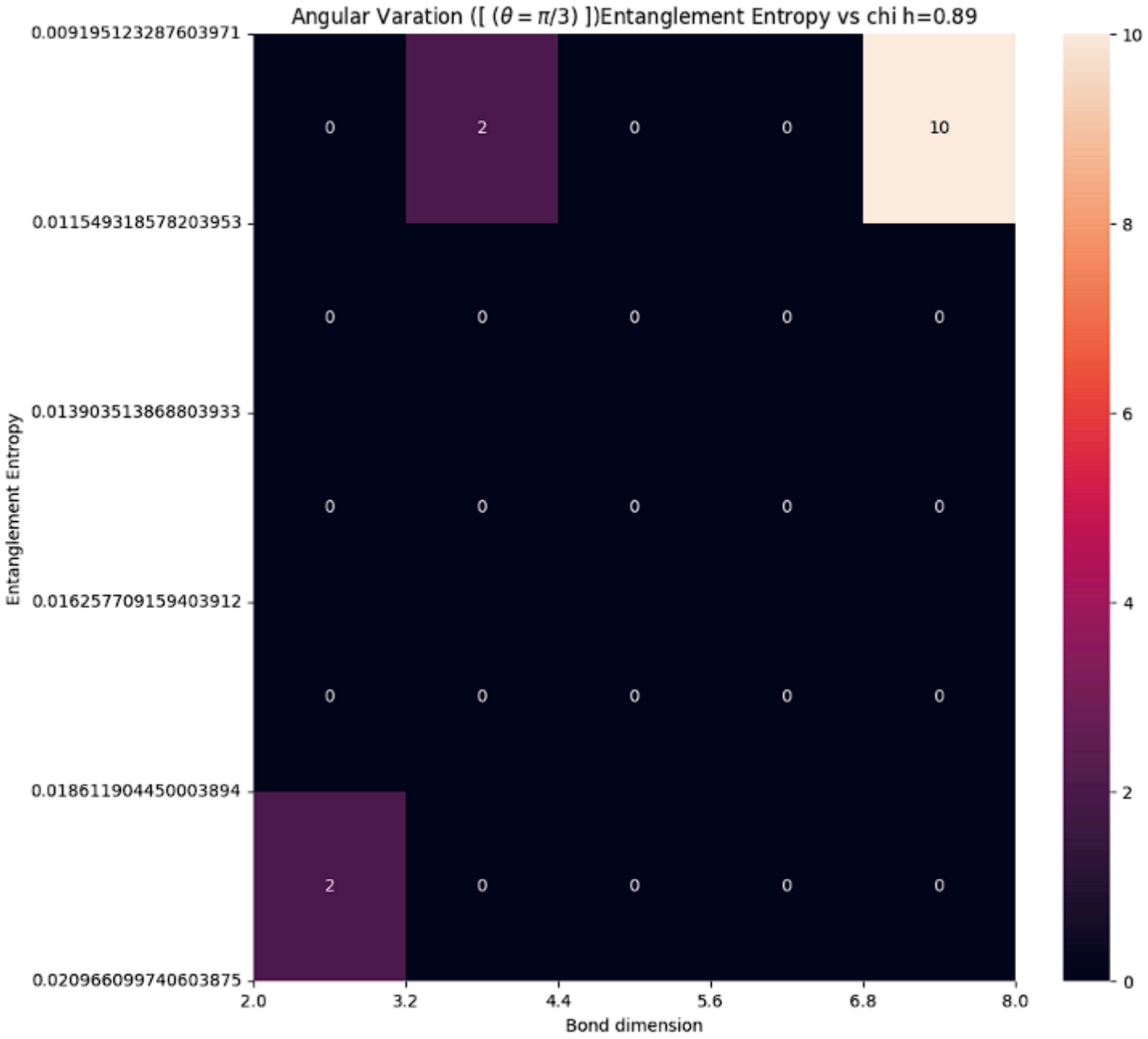
1.h = 0.9 **Θ=π/3**


Angular variation([(θ = π/3)]) Entanglement Entropy vs chi h=0.9
0.009495982530094007
0.011891496327177344
0.014287010124260681
0.016682523921344016
0.01907803771842735
0.02147355151551069
Entanglement Entropy
0 2 0 0 10
0 0 0 0 0
0 0 0 0 0
0 0 0 0 0
2 0 0 0 0
2.0 3.2 4.4 5.6 6.8 8.0
Bond dimension
10 8 6 4 2 0

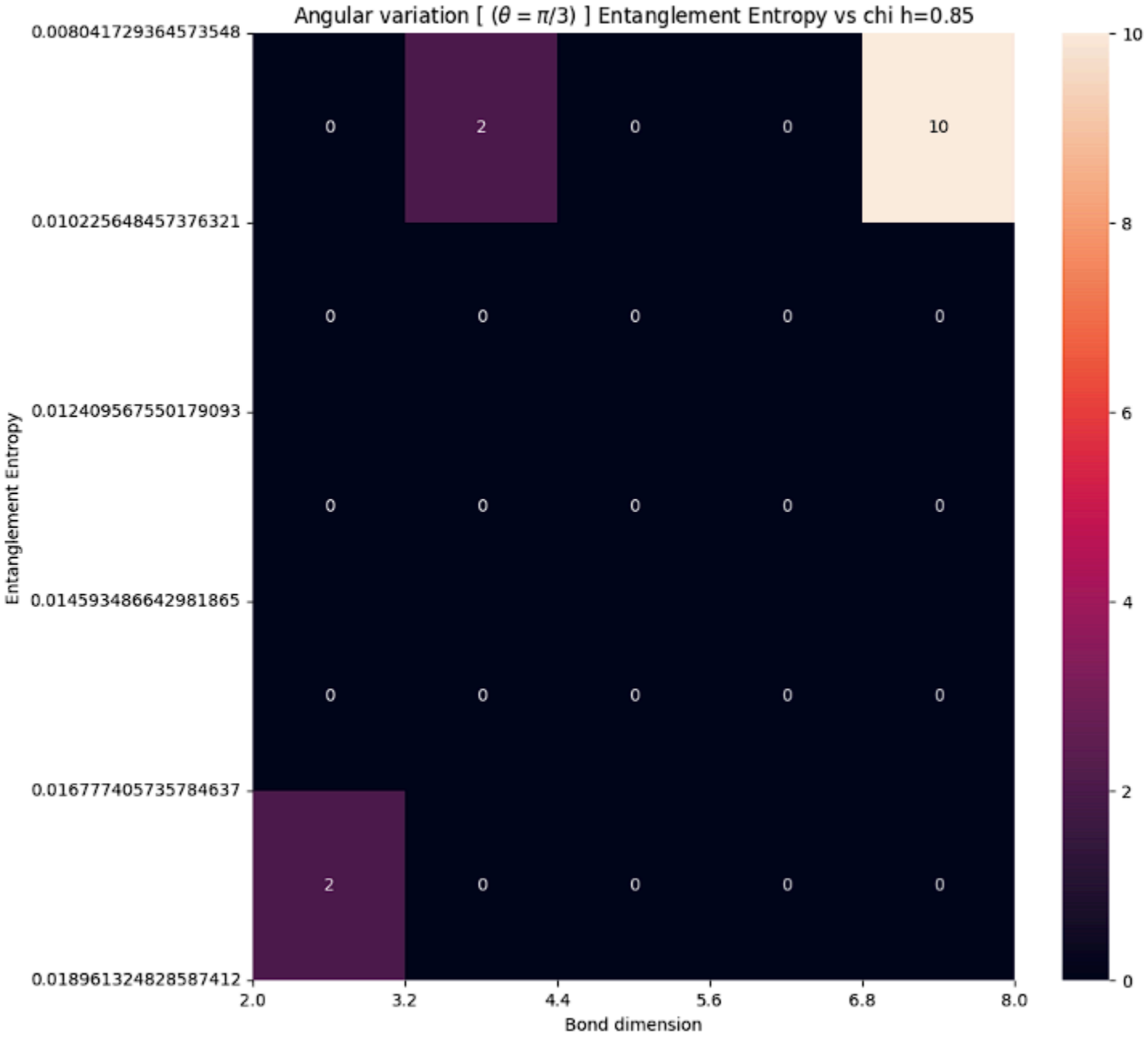
2.h = 0.95 **Θ=π/3**


Angular Variation [(θ = π/3)] Entanglement Entropy vs chi h=0.95
Entanglement Entropy
0.011073253480149977
0.013666685860837862
0.016260118241525748
0.018853550622213635
0.021446983002901522
0.024040415383589406
0 2 0 2 8
0 0 0 0 0
0 0 0 0 0
0 0 0 0 0
2 0 0 0 0
2.0
3.4
4.8
6.199999999999999
7.6
9.0
Bond dimension
8
7
6
5
4
3
2
1
0

3.h=0.89 **Θ=π/3**


Angular Varation ([($\theta = \pi/3$)])Entanglement Entropy vs chi h=0.89
0.009195123287603971
0.011549318578203953
0.013903513868803933
0.016257709159403912
0.018611904450003894
0.020966099740603875
Entanglement Entropy
0 2 0 0 10
0 0 0 0 0
0 0 0 0 0
0 0 0 0 0
2 0 0 0 0
2.0 3.2 4.4 5.6 6.8 8.0
Bond dimension
10 8 6 4 2 0

4.h=0.85 **Θ=π/3**


Angular variation [($\theta = \pi/3$)] Entanglement Entropy vs chi h=0.85
0.008041729364573548
0.010225648457376321
0.012409567550179093
0.014593486642981865
0.016777405735784637
0.018961324828587412
Entanglement Entropy
0 2 0 0 10
0 0 0 0 0
0 0 0 0 0
0 0 0 0 0
2 0 0 0 0
2.0 3.2 4.4 5.6 6.8 8.0
Bond dimension
10 8 6 4 2 0