PCNS project

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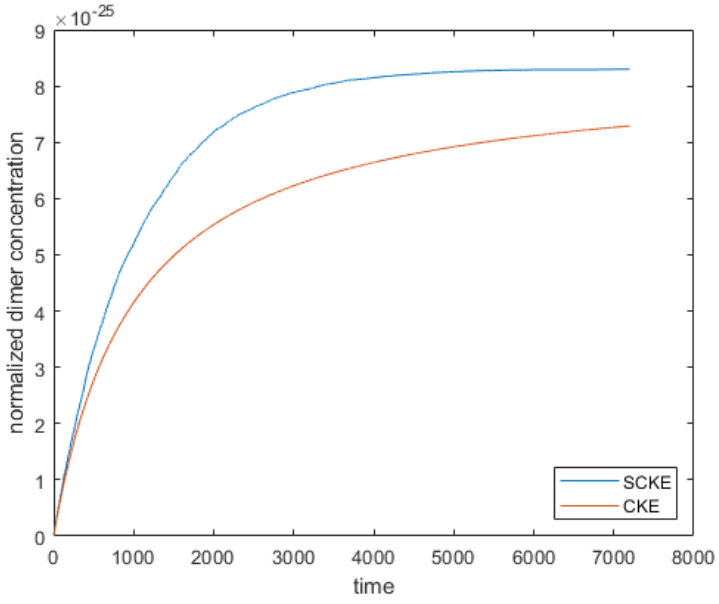
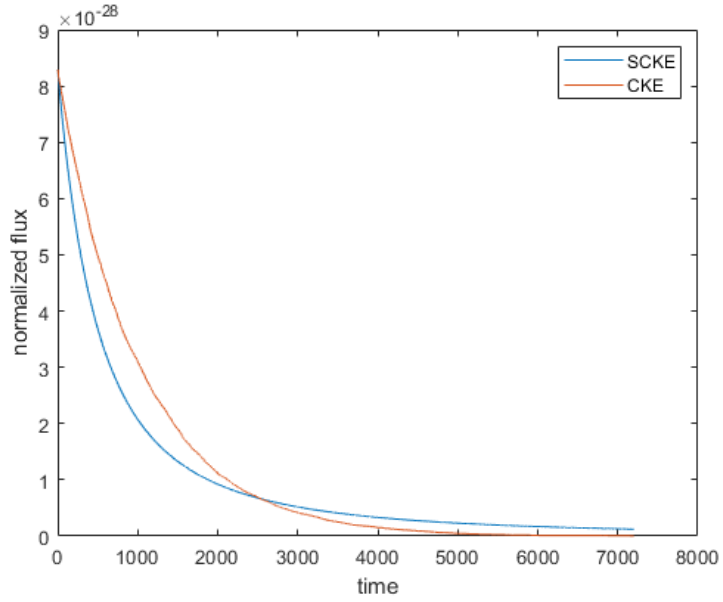
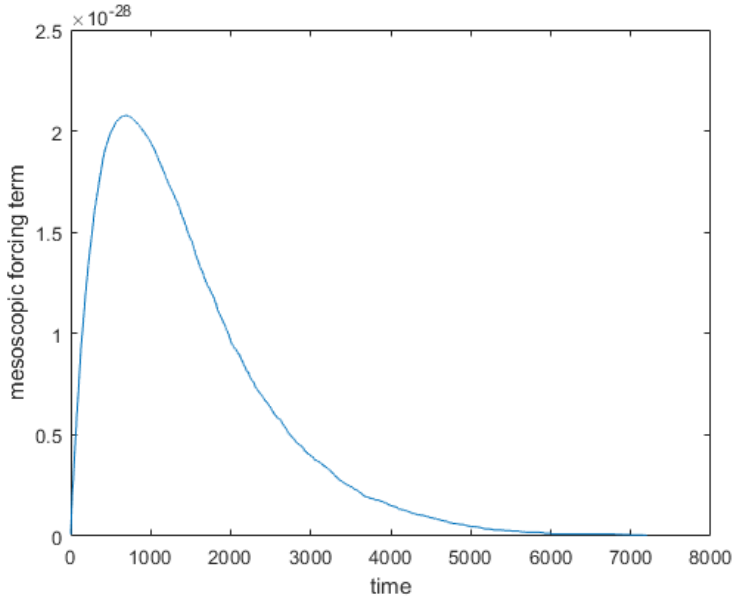
When $S = 1$ we have the following plots below. We can see that normalized dimer concentration predicted by SCKE(with Monte Carlo simulation using the Gillespie algorithm) converges to a steady state more quickly than it predicted by CKE. Their values have significant discrepancy after 1000 seconds. The normalized flux predicted by these two methods are crossed around 2500 seconds while they don't have large discrepancy in all. The mesoscopic forcing term predicted by SCKE appears to be right skewed while reaches its maximum value around 1000 seconds.

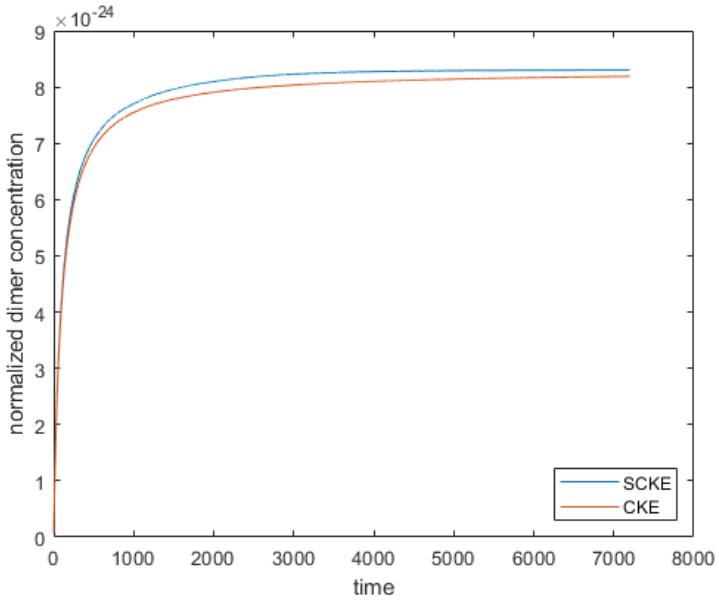


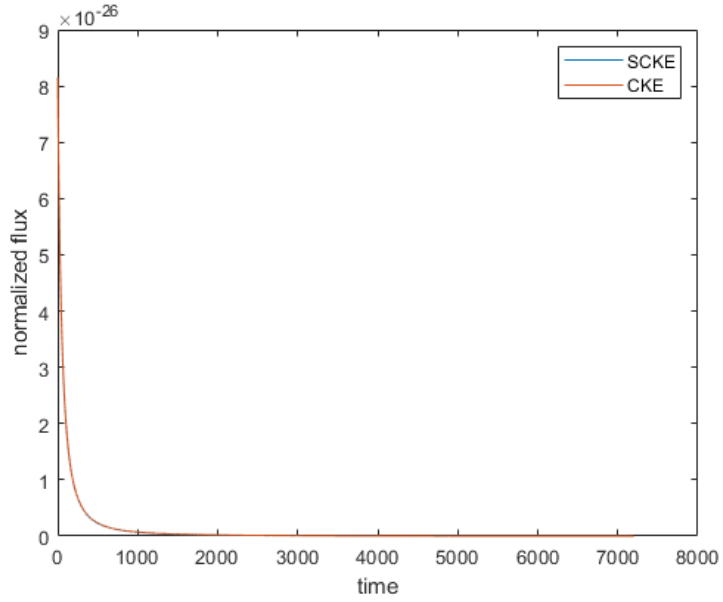

×10^-28
9
8
7
6
5
4
3
2
1
0
normalized flux
SCKE
CKE
0
1000
2000
3000
4000
5000
6000
7000
8000
time

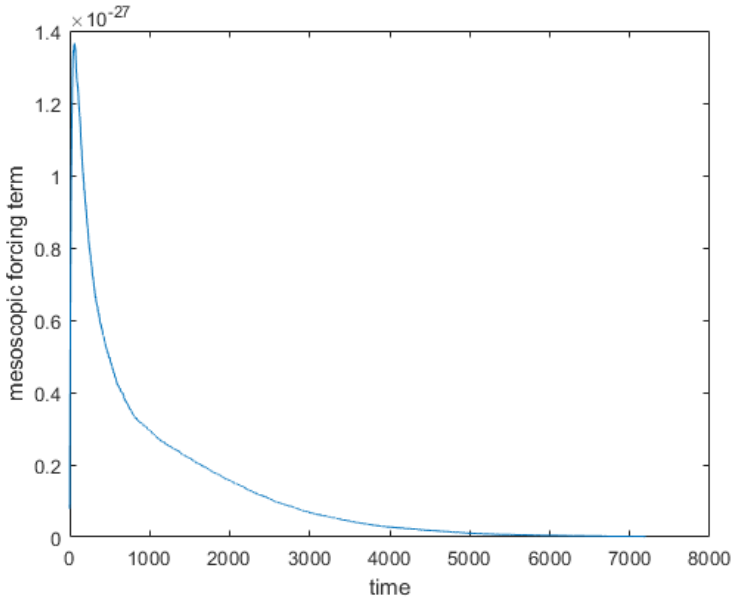

×10^-28
2.5
2
1.5
1
0.5
0
mesoscopic forcing term
0
1000
2000
3000
4000
5000
6000
7000
8000
time

2

When $S = 10$ we have the following plots below. We can see the first two plots which are dimer concentration and normalized flux predicted by two methods almost overlaps each other, which means when S reaches a relatively large number such as 10, the CKE predicts as good as SCKE but it consumes less time than SCKE since it is a analytical method. The mesoscopic forcing term has the same trend as $S = 1$ but it reaches its maximum value much faster than it predicted when $S = 1$.




×10^-26
9
8
7
6
5
4
3
2
1
0
normalized flux
SCKE
CKE
0
1000
2000
3000
4000
5000
6000
7000
8000
time


×10^-27
1.4
1.2
1
0.8
0.6
0.4
0.2
0
mesoscopic forcing term
0
1000
2000
3000
4000
5000
6000
7000
8000
time