

FMO (no Cavity)

# No Dephasing

Site energy = 1.0

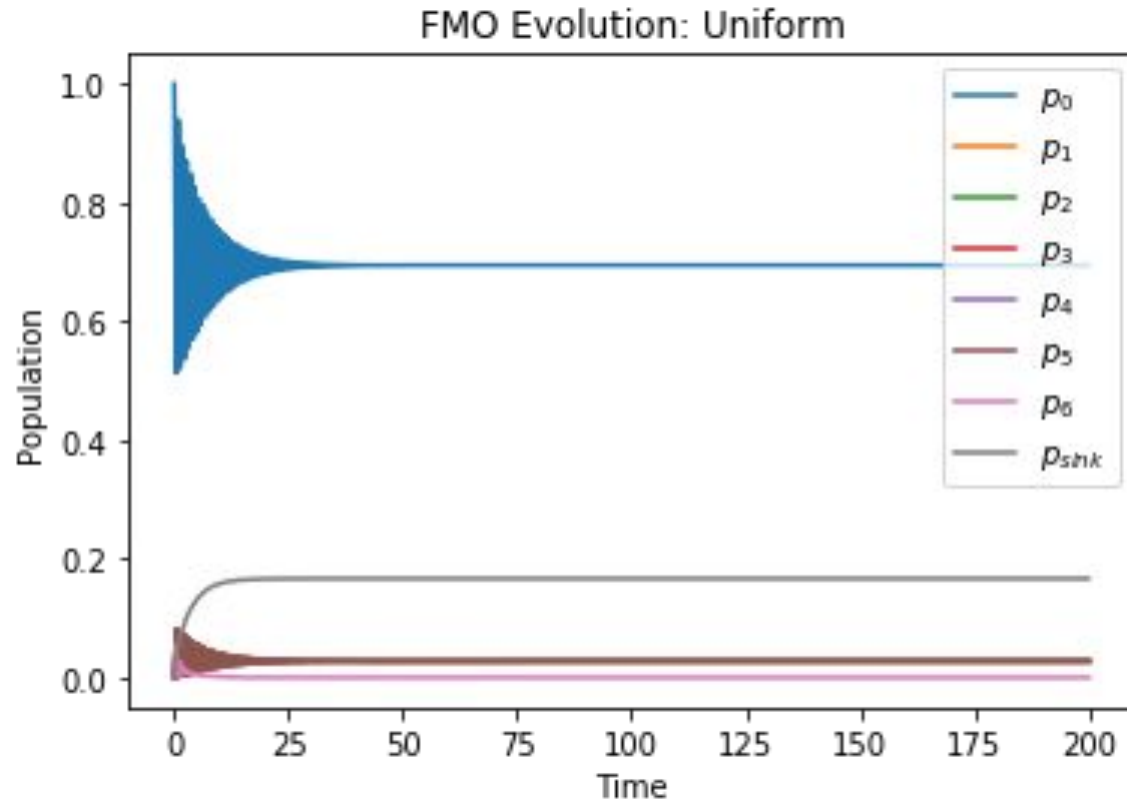
Tunneling Rate = 1.0

Initially excited: site 1

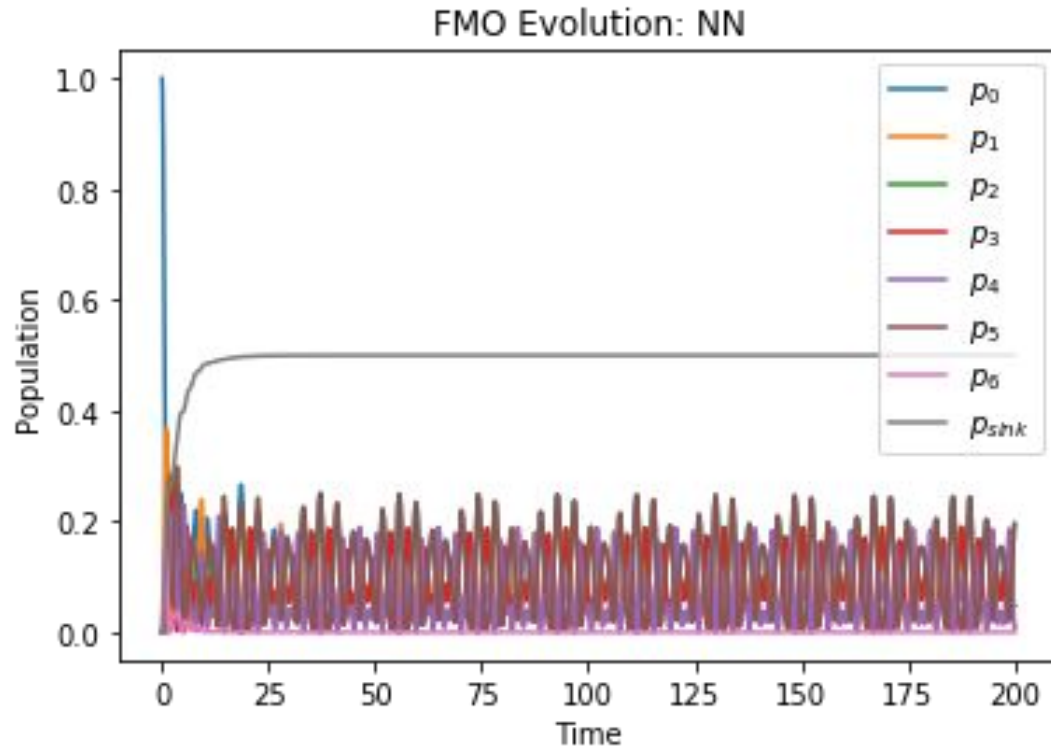
Sink: Site 6

7 Sites

# Uniform, coupling between all sites



# Nearest Neighbors ( $i, i+1$ ); ( $i, i-1$ )



# Random (3 couplings for each atom)

[[1. 0. 0. 0. 1. 0. 1.]

[0. 1. 1. 0. 1. 1. 1.]

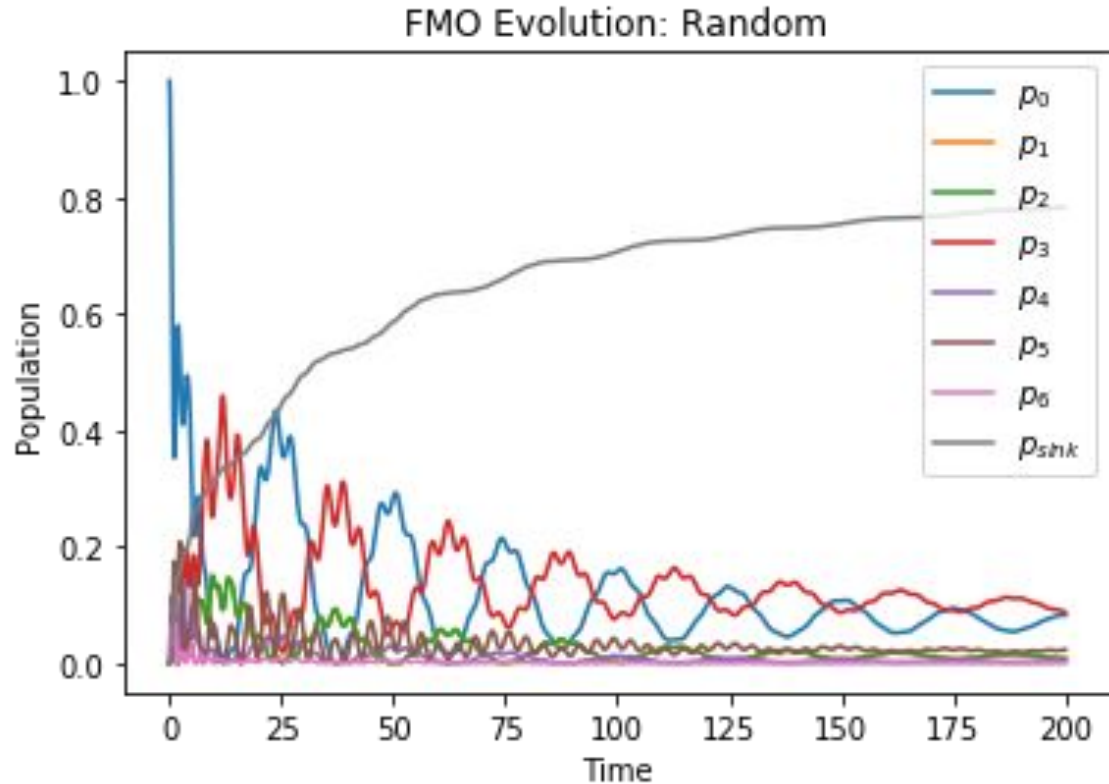
[0. 1. 0. 0. 1. 1. 1.]

[0. 0. 0. 0. 1. 1. 1.]

[1. 1. 1. 1. 0. 1. 0.]

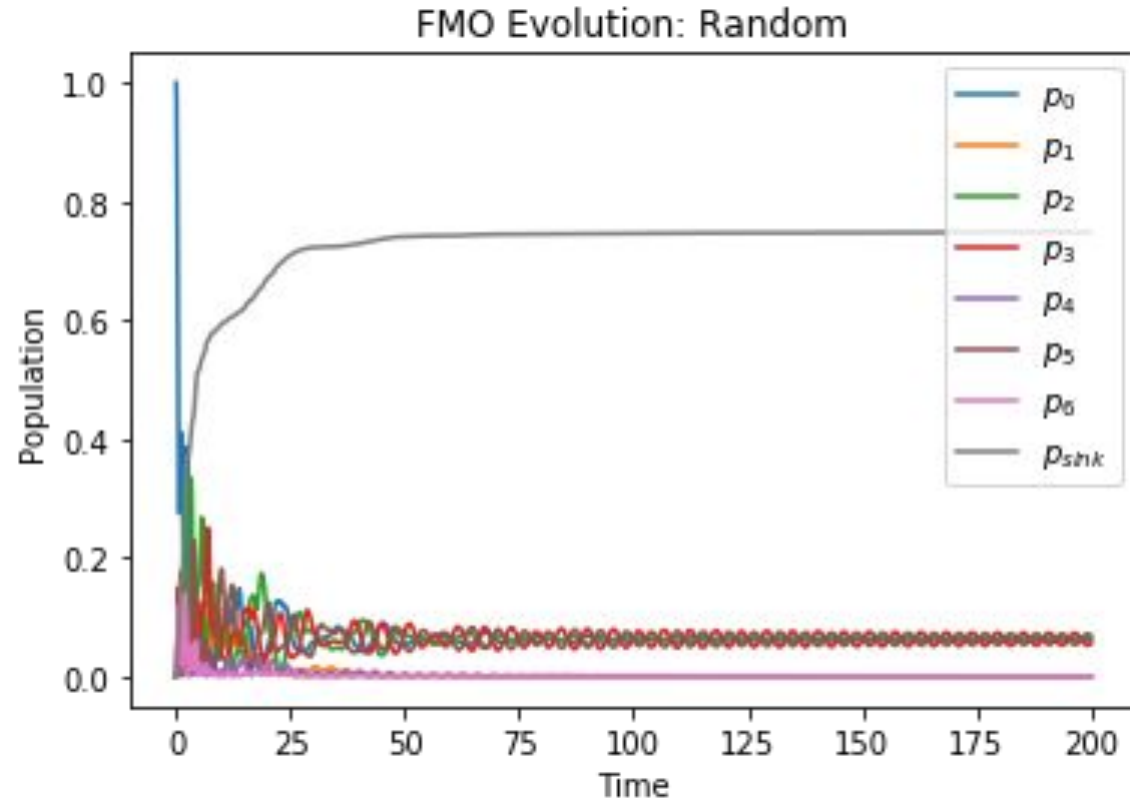
[0. 1. 1. 1. 1. 0. 1.]

[1. 1. 1. 1. 0. 1. 0.]]



# Random (3 Couplings)

[[1. 1. 0. 1. 1. 0. 1.]  
[1. 0. 1. 1. 1. 1. 1.]  
[0. 1. 1. 0. 1. 1. 0.]  
[1. 1. 0. 1. 0. 0. 1.]  
[1. 1. 1. 0. 0. 0. 1.]  
[0. 1. 1. 0. 0. 0. 0.]  
[1. 1. 0. 1. 1. 0. 0.]]



# Random (2 Couplings)

[[1. 0. 0. 1. 0. 1. 1.]

[0. 1. 1. 0. 0. 0. 0.]

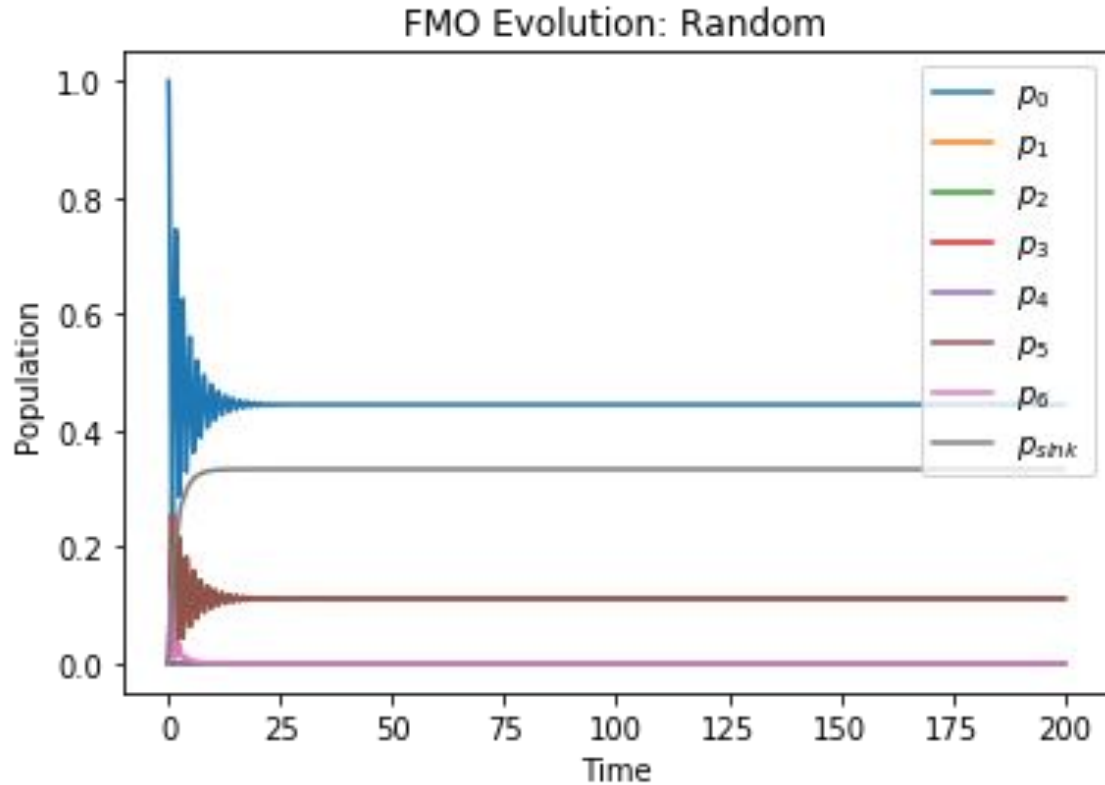
[0. 1. 0. 0. 1. 0. 0.]

[1. 0. 0. 0. 0. 1. 1.]

[0. 0. 1. 0. 1. 0. 0.]

[1. 0. 0. 1. 0. 0. 1.]

[1. 0. 0. 1. 0. 1. 0.]]



# Random (1 Coupling)

[[0. 0. 0. 1. 0. 0. 0.]

[0. 0. 1. 0. 1. 0. 1.]

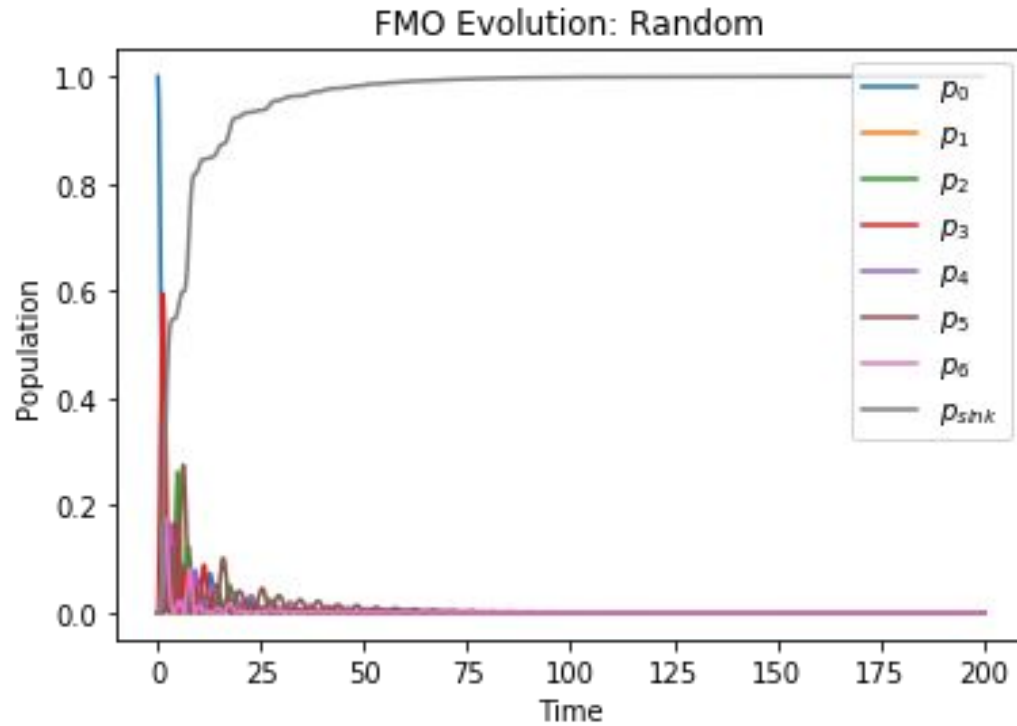
[0. 1. 0. 0. 0. 1. 0.]

[1. 0. 0. 0. 0. 0. 1.]

[0. 1. 0. 0. 0. 0. 0.]

[0. 0. 1. 0. 0. 0. 0.]

[0. 1. 0. 1. 0. 0. 1.]





# Random 1 Coupling

[[0. 1. 0. 1. 1. 1. 0.]

[1. 0. 1. 0. 0. 0. 1.]

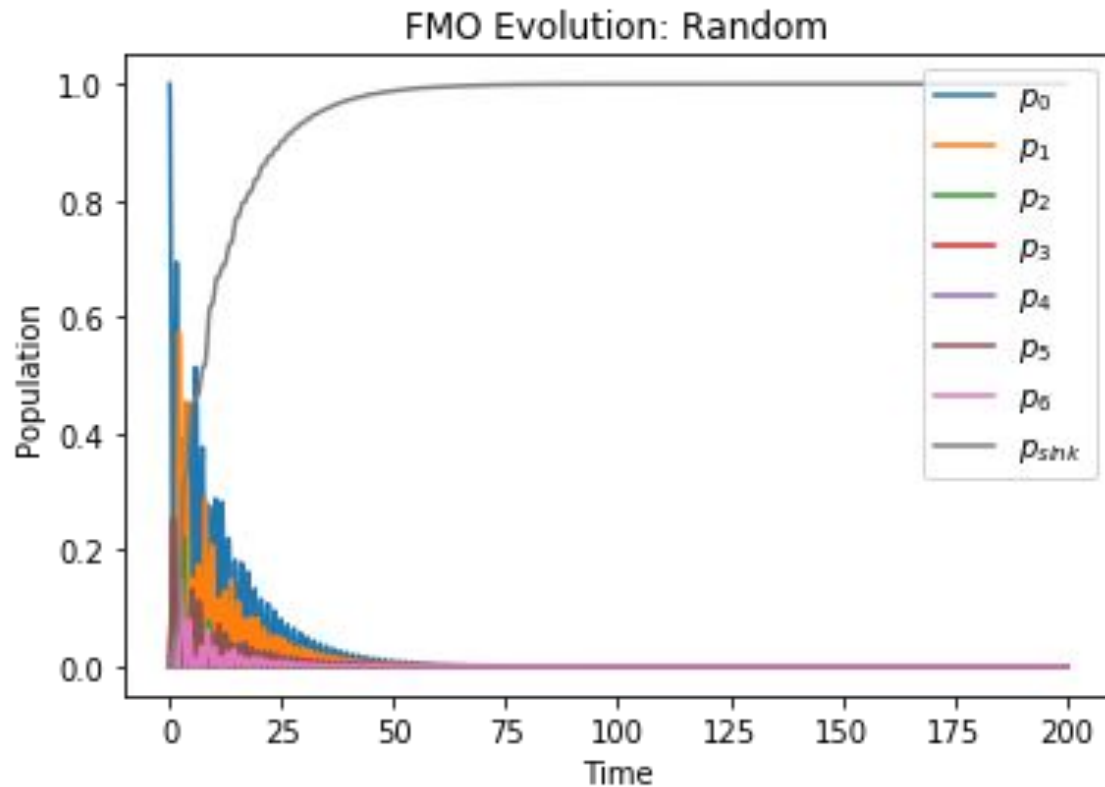
[0. 1. 0. 0. 0. 0. 0.]

[1. 0. 0. 0. 0. 0. 0.]

[1. 0. 0. 0. 0. 0. 0.]

[1. 0. 0. 0. 0. 0. 0.]

[0. 1. 0. 0. 0. 0. 1.]



# Random ( 1 Coupling)

[[0. 0. 0. 0. 0. 1. 0.]

[0. 1. 0. 0. 0. 1. 0.]

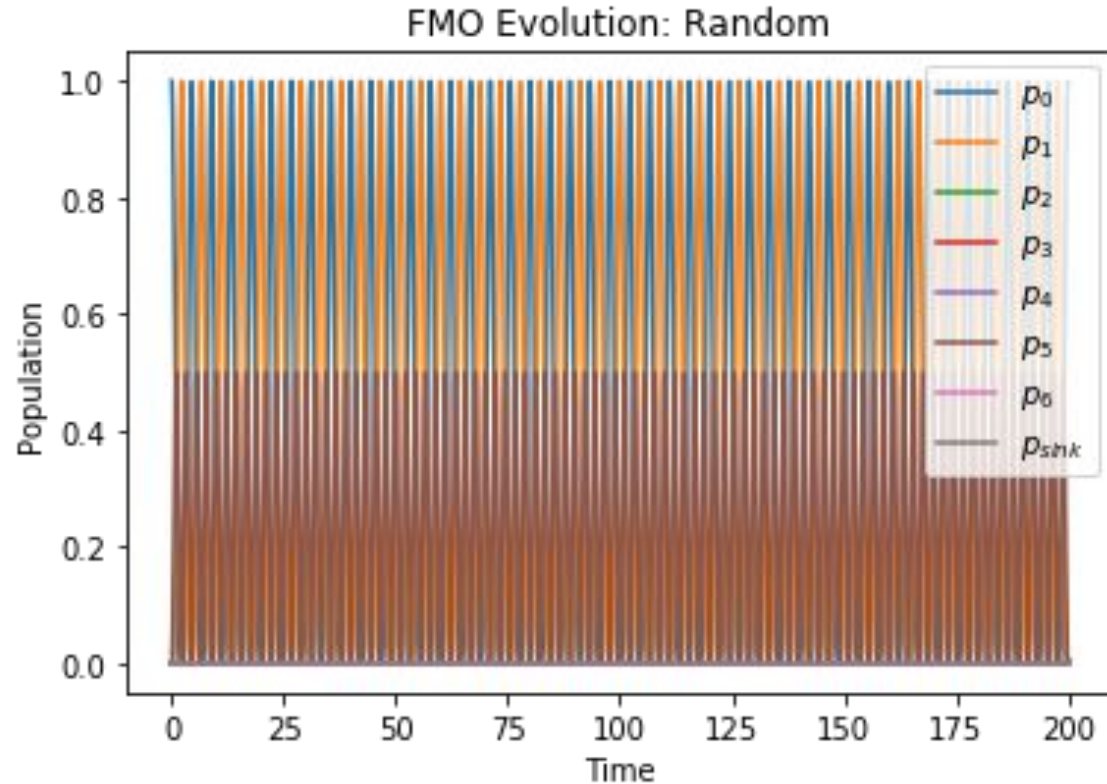
[0. 0. 1. 1. 0. 0. 0.]

[0. 0. 1. 0. 0. 0. 1.]

[0. 0. 0. 0. 0. 0. 1.]

[1. 1. 0. 0. 0. 0. 0.]

[0. 0. 0. 1. 1. 0. 0.]]



# Random ( 4 Coupling)

[[1. 0. 1. 1. 1. 1. 1. 1.]

[0. 1. 1. 0. 1. 1. 1. 1.]

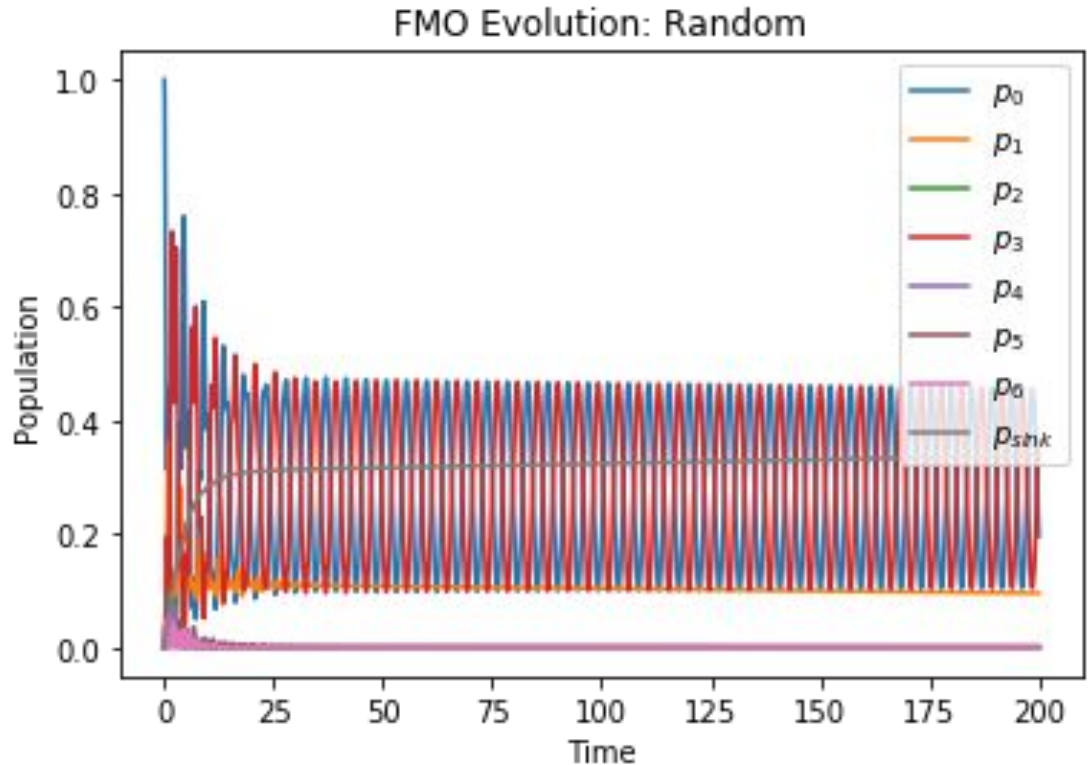
[1. 1. 0. 1. 0. 1. 0.]

[1. 0. 1. 1. 1. 1. 1. 1.]

[1. 1. 0. 1. 0. 1. 1.]

[1. 1. 1. 1. 1. 1. 0.]

[1. 1. 0. 1. 1. 0. 1.]



## Random (4 Coupling)

[[0. 0. 1. 1. 0. 1. 1.]

[0. 0. 1. 1. 1. 0. 1.]

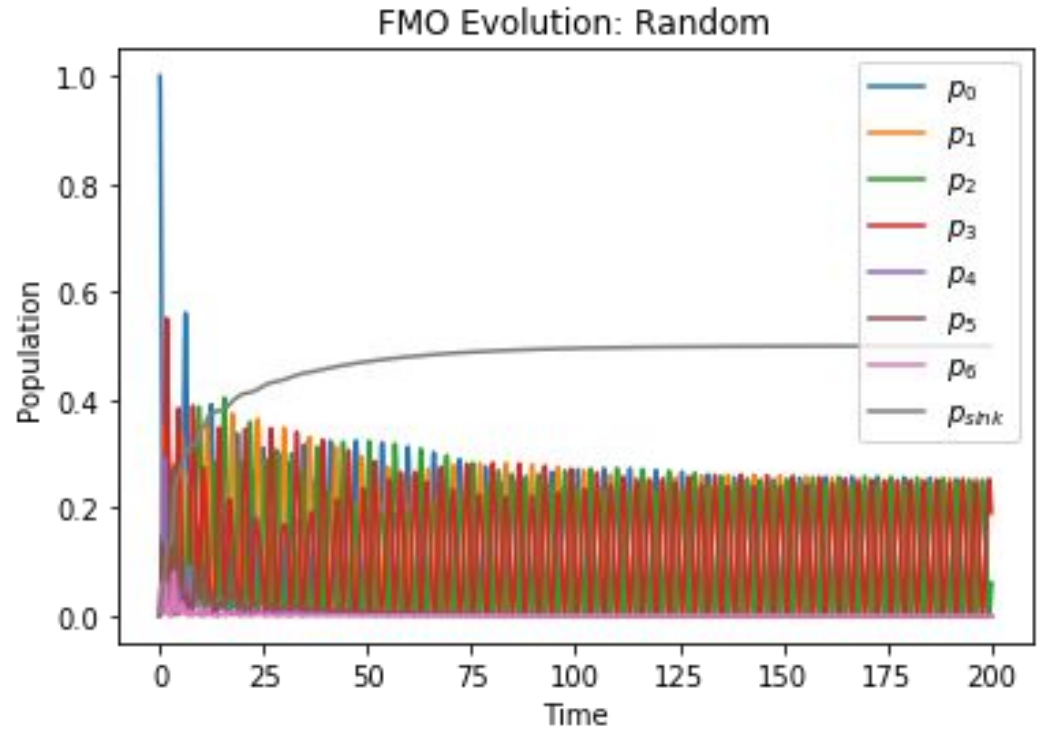
[1. 1. 0. 0. 0. 1. 1.]

[1. 1. 0. 1. 1. 0. 1.]

[0. 1. 0. 1. 0. 1. 1.]

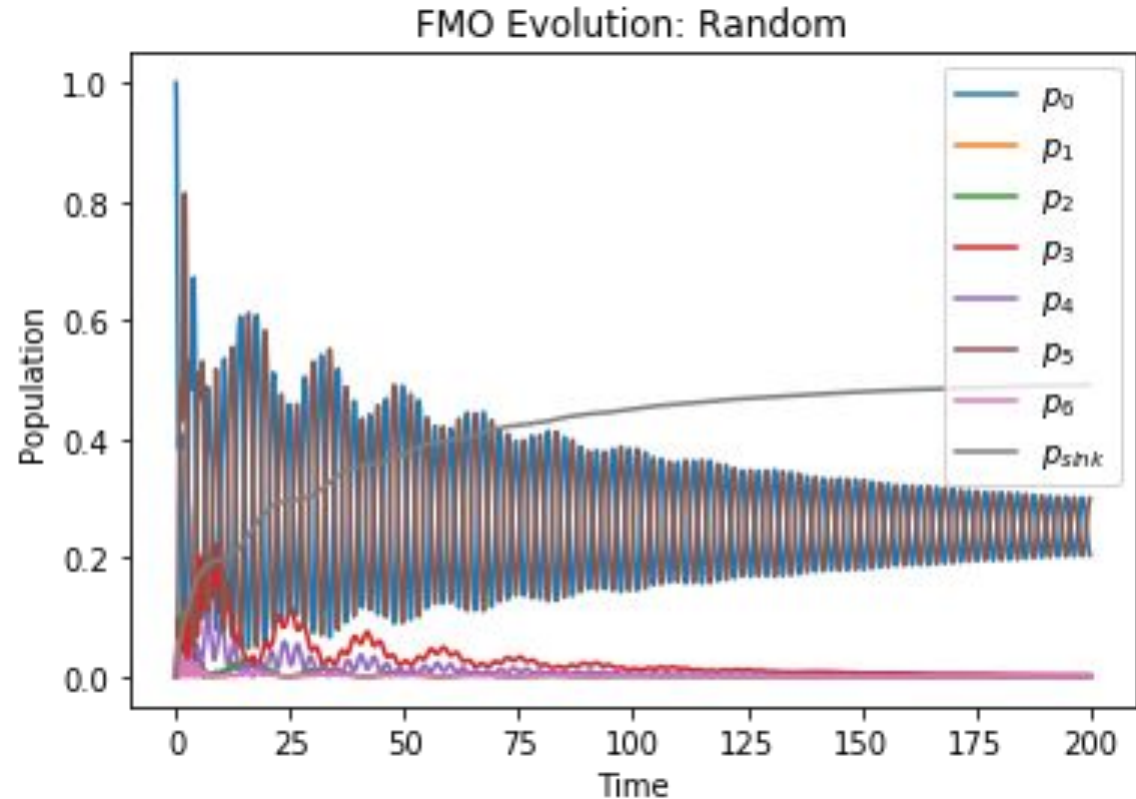
[1. 0. 1. 0. 1. 1. 0.]

[1. 1. 1. 1. 1. 0. 0.]

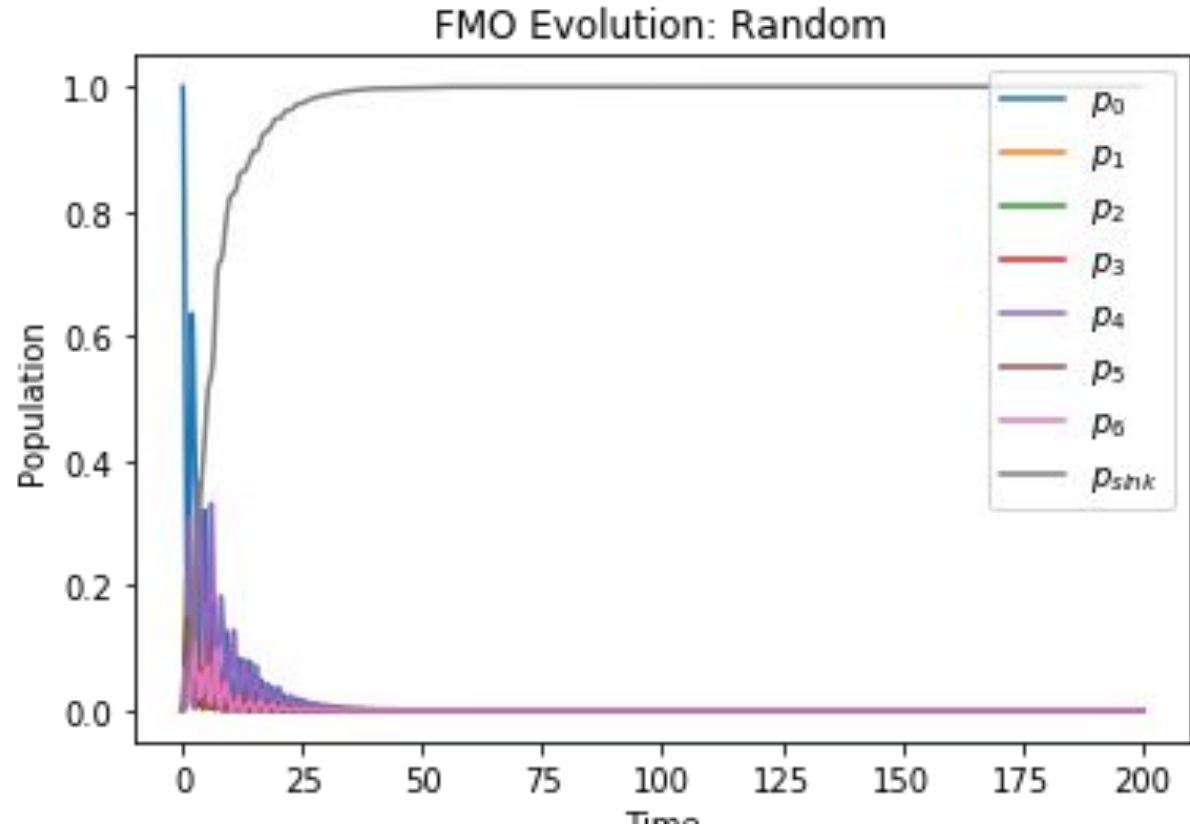


# Random 4 Coupling

[[0. 1. 1. 1. 0. 0. 1.]  
[1. 0. 1. 1. 0. 1. 1.]  
[1. 1. 0. 1. 0. 1. 1.]  
[1. 1. 1. 0. 1. 1. 1.]  
[0. 0. 0. 1. 1. 0. 0.]  
[0. 1. 1. 1. 0. 1. 1.]  
[1. 1. 1. 1. 0. 1. 0.]]



[1. 1. 1. 1. 0. 0. 1.]



# Random 6 Coupling

[[0. 1. 1. 1. 1. 1. 1. 1.]

[1. 1. 1. 1. 1. 1. 0. 1.]

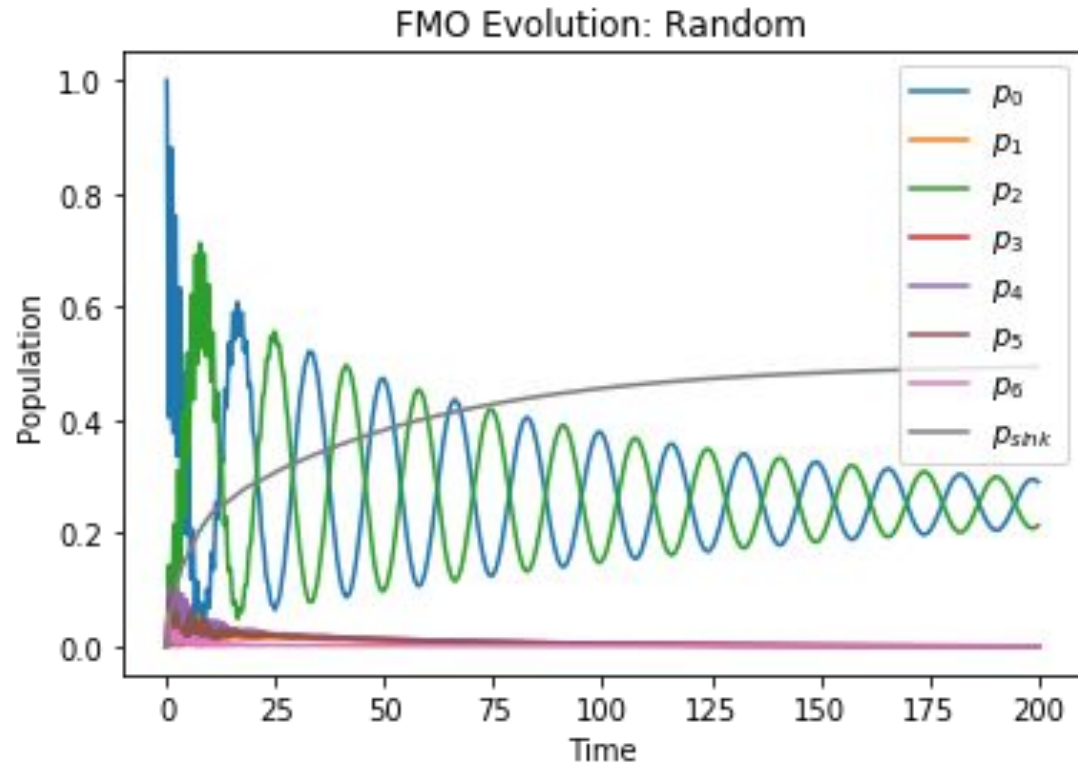
[1. 1. 1. 1. 1. 1. 1. 1.]

[1. 1. 1. 1. 1. 0. 1. 1.]

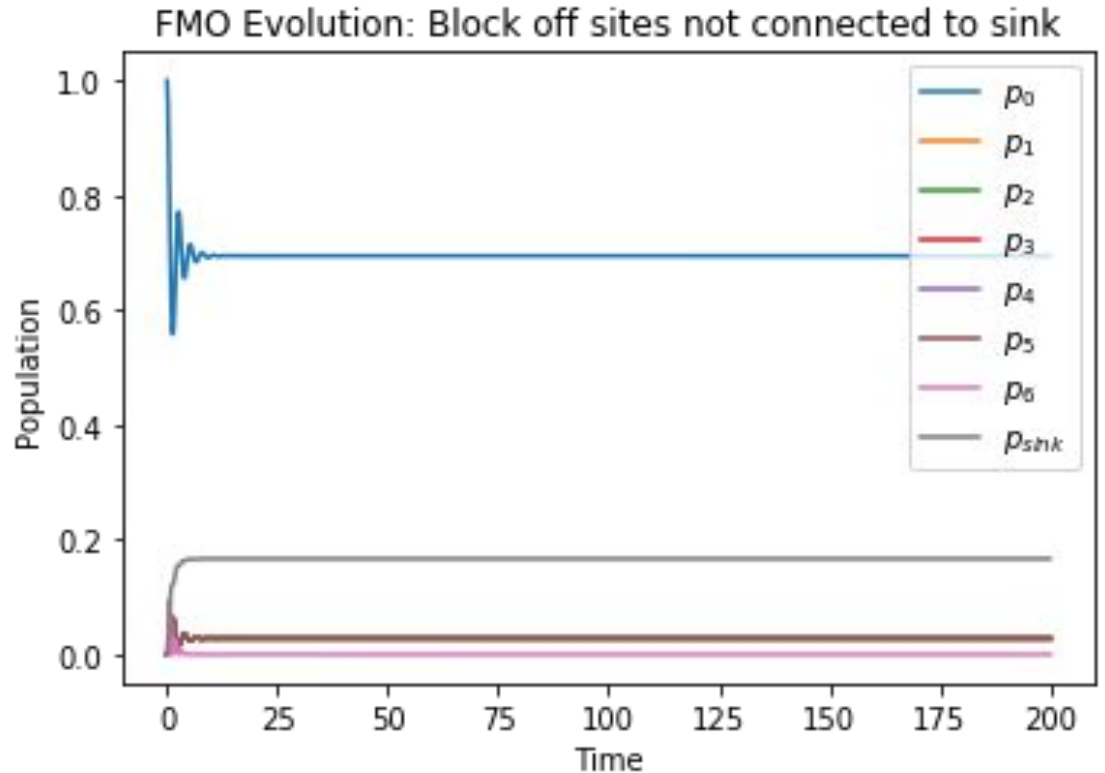
[1. 1. 1. 1. 0. 0. 1. 1.]

[1. 0. 1. 1. 1. 1. 0. 0.]

[1. 1. 1. 1. 1. 1. 0. 1.]

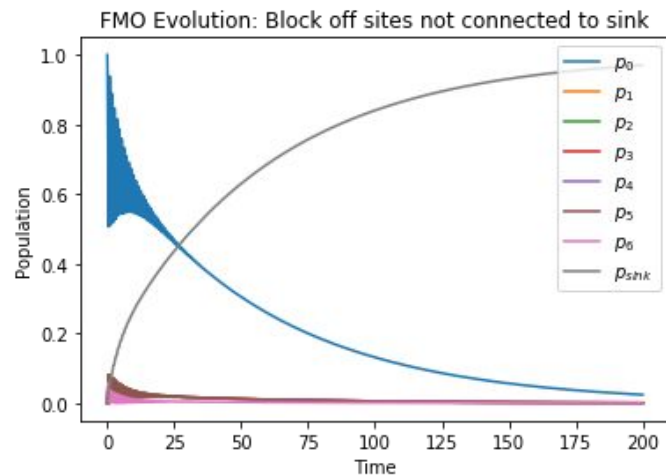


# Only coupling site $1/N$

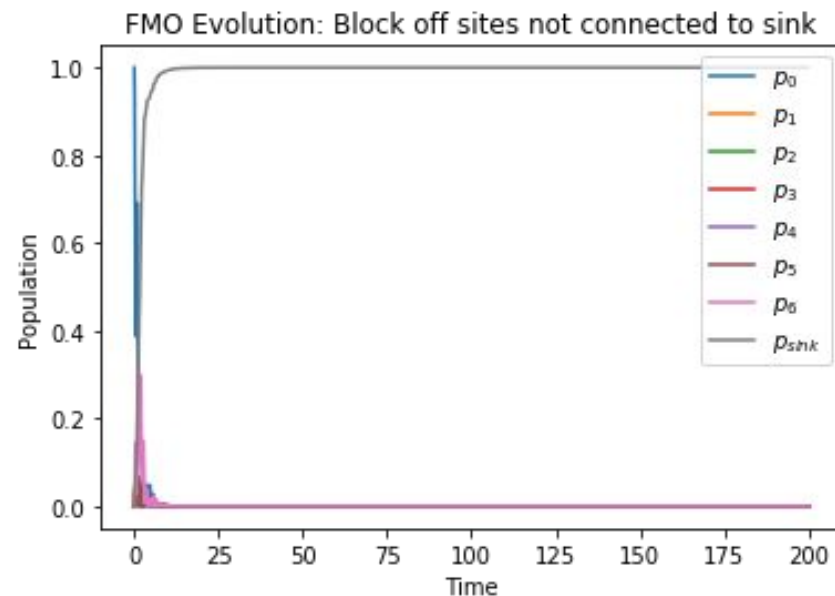
[illegible]



## Increase coupling site $1/N$ , keeping full network



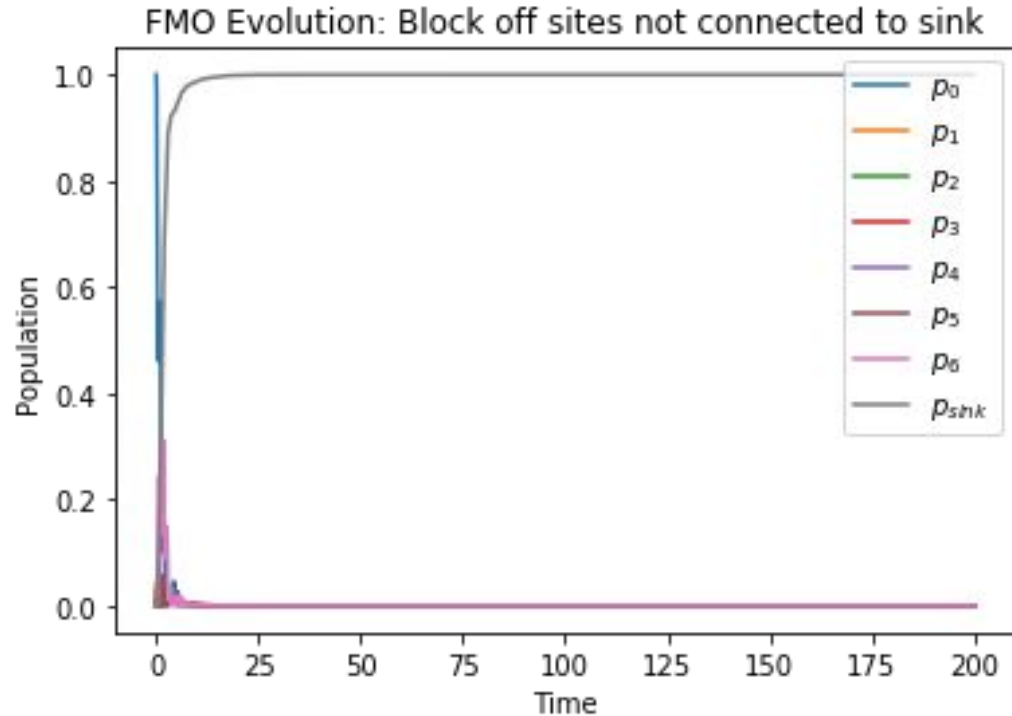
```
[[1. 1. 1. 1. 1. 1. 1.]]
[1. 1. 1. 1. 1. 1. 1.]
[1. 1. 1. 1. 1. 1. 1.]
[1. 1. 1. 1. 1. 1. 1.]
[1. 1. 1. 1. 1. 1. 1.]
[1. 1. 1. 1. 1. 1. 1.]
[1.1 1.1 1.1 1.1 1.1 1.1 1.1]]
```



```
[[1. 1. 1. 1. 1. 1. 2.]
 [1. 1. 1. 1. 1. 1. 1.]
 [1. 1. 1. 1. 1. 1. 1.]
 [1. 1. 1. 1. 1. 1. 1.]
 [1. 1. 1. 1. 1. 1. 1.]
 [1. 1. 1. 1. 1. 1. 1.]
 [2. 1. 1. 1. 1. 1. 1.]]
```

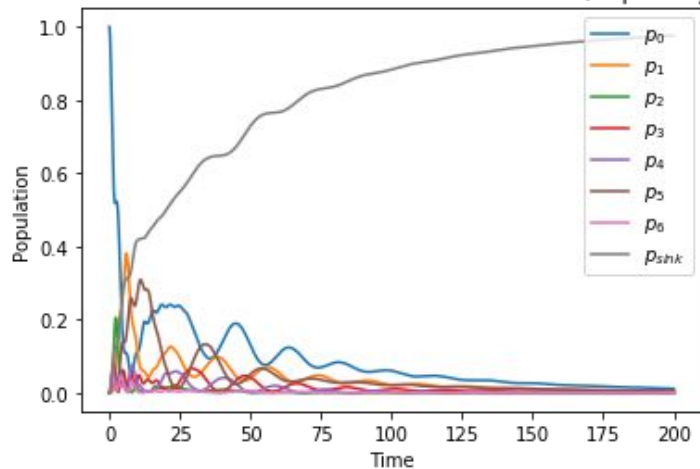
# Blocked site 1-N

```
[[1. 1. 1. 1. 1. 1. 0.]
 [1. 1. 1. 1. 1. 1. 1.]
 [1. 1. 1. 1. 1. 1. 1.]
 [1. 1. 1. 1. 1. 1. 1.]
 [1. 1. 1. 1. 1. 1. 1.]
 [1. 1. 1. 1. 1. 1. 1.]
 [0. 1. 1. 1. 1. 1. 1.]]
```

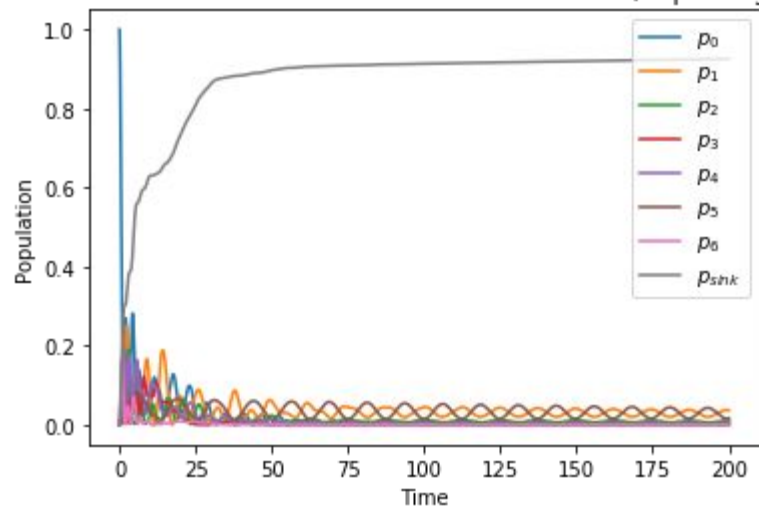


# Randomize all edges

FMO Evolution: Block off sites not connected to sink (Dephasing = 0.0)



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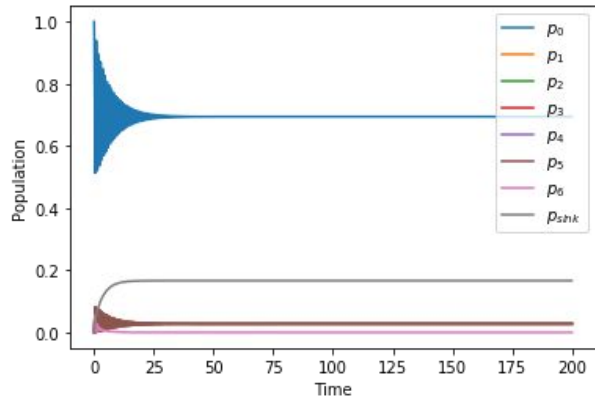
Change tunneling 1-N to 1, keeping other sites randomized

# With Dephasing

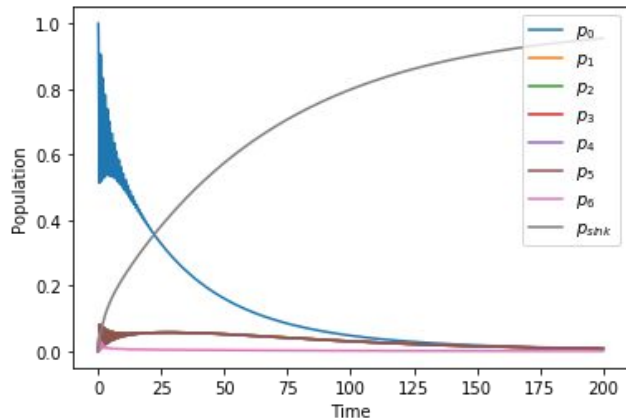
Vary dephasing from 0 to  $\frac{1}{2}$  the site energy

# Uniform coupling

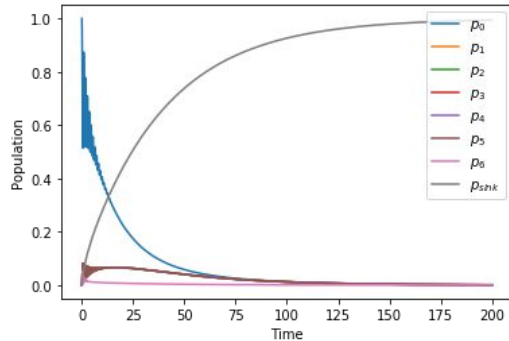
FMO Evolution: Uniform : 0.0



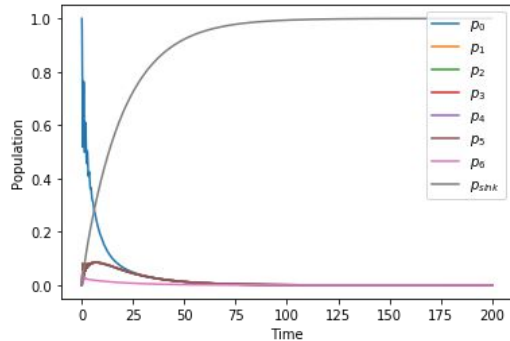
FMO Evolution: Uniform : 0.05555555555555555



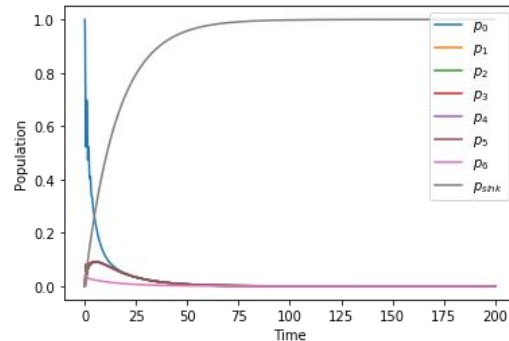
FMO Evolution: Uniform : 0.11111111111111111



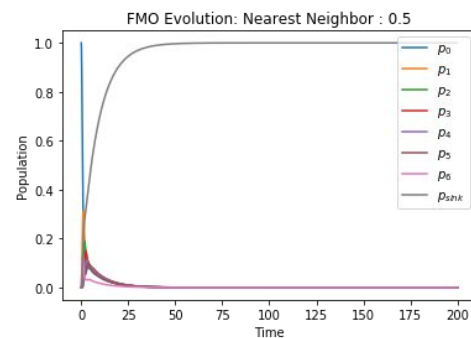
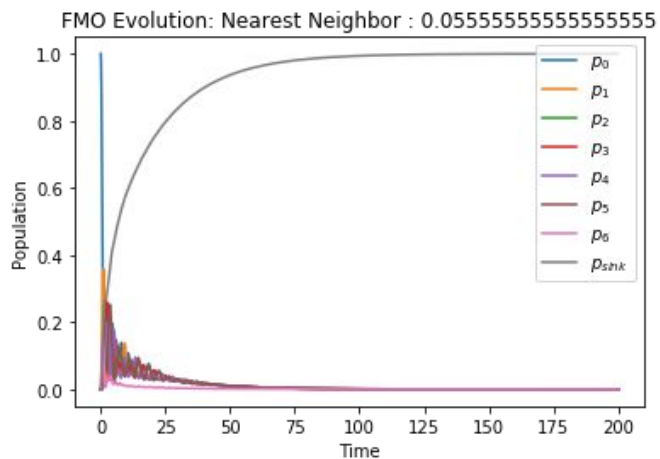
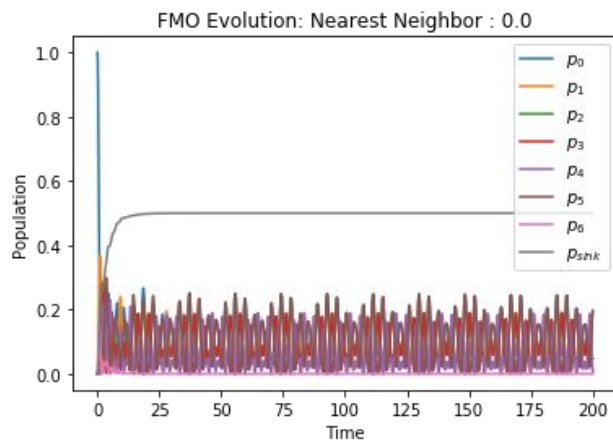
FMO Evolution: Uniform : 0.33333333333333333



FMO Evolution: Uniform : 0.5

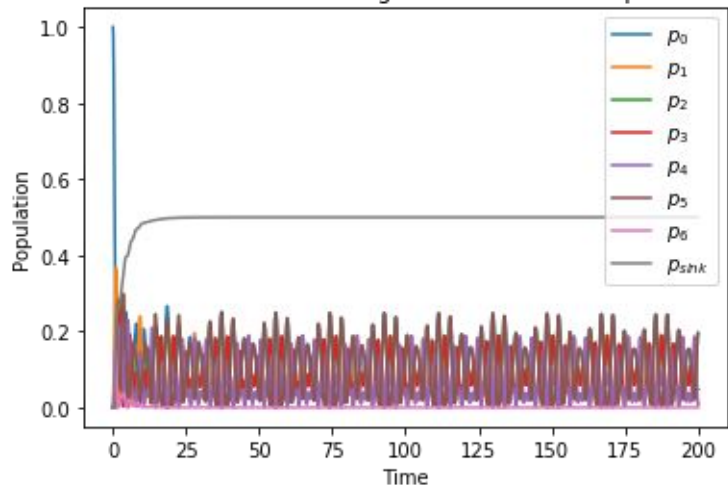


# Nearest Neighbor

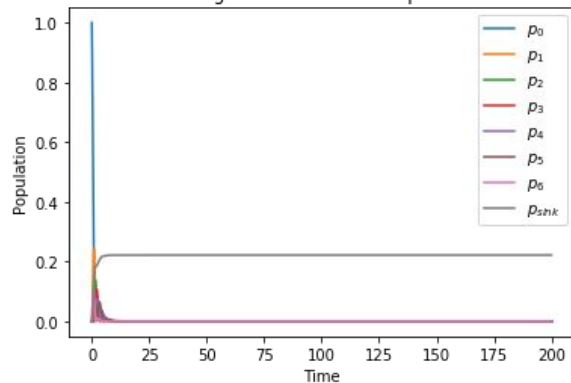


# Nearest Neighbor with Radiative Dissipation, No dephasing

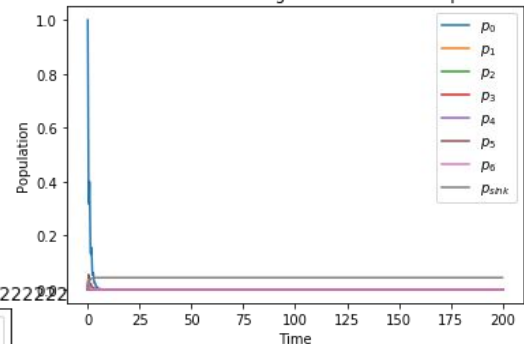
FMO Evolution: Nearest Neighbor Radiative Dissipation: 0.0



FMO Evolution: Nearest Neighbor Radiative Dissipation: 0.222222222222

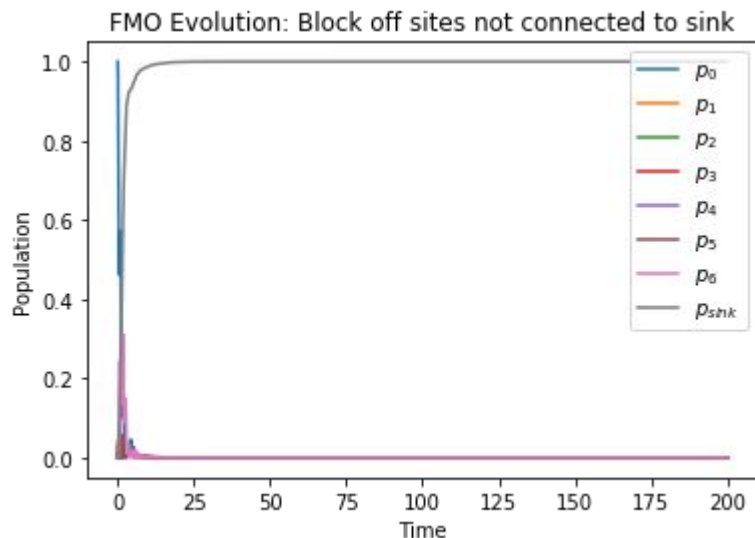


FMO Evolution: Nearest Neighbor Radiative Dissipation: 0.5



# Blocked site 1-N with dephasing vs no dephasing

[[1. 1. 1. 1. 1. 1. 0.]  
[1. 1. 1. 1. 1. 1. 1.]  
[1. 1. 1. 1. 1. 1. 1.]  
[1. 1. 1. 1. 1. 1. 1.]  
[1. 1. 1. 1. 1. 1. 1.]  
[1. 1. 1. 1. 1. 1. 1.]  
[0. 1. 1. 1. 1. 1. 1.]]



FMO Evolution: Block off sites not connected to sink (Dephasing = 0.5)

