



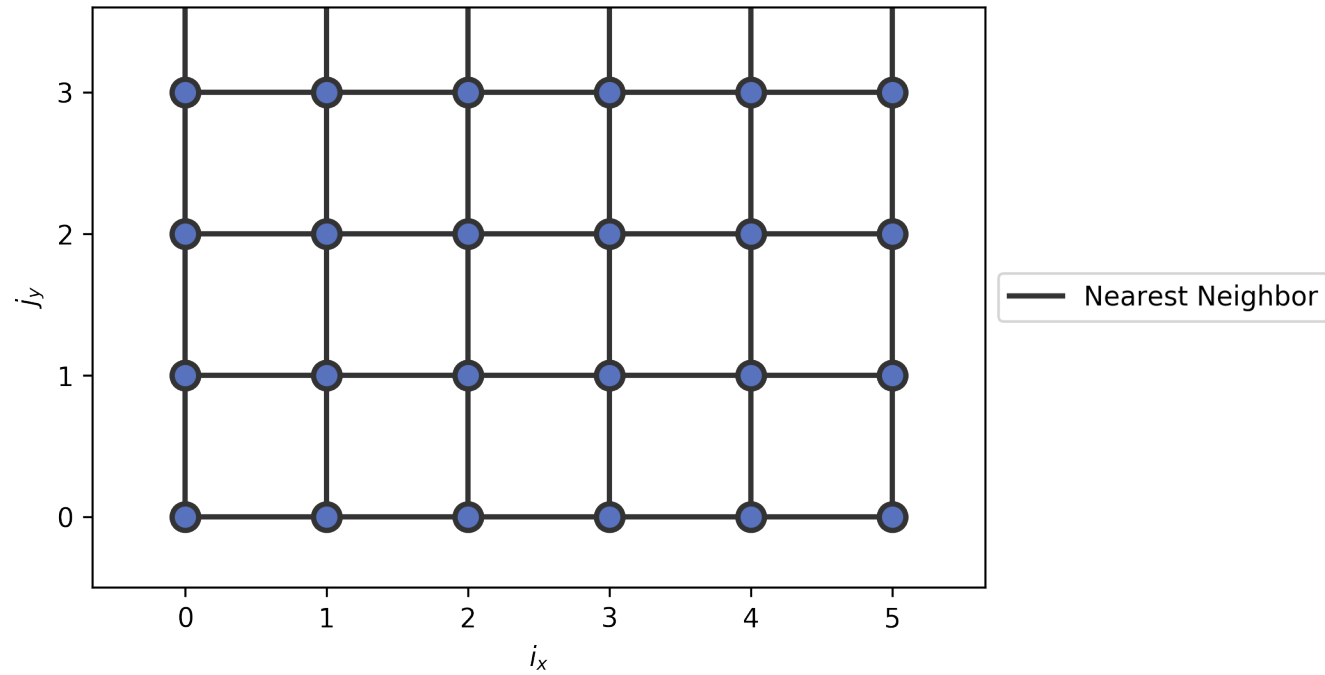
# 2D-DMRG

Using a one-dimensional traversal

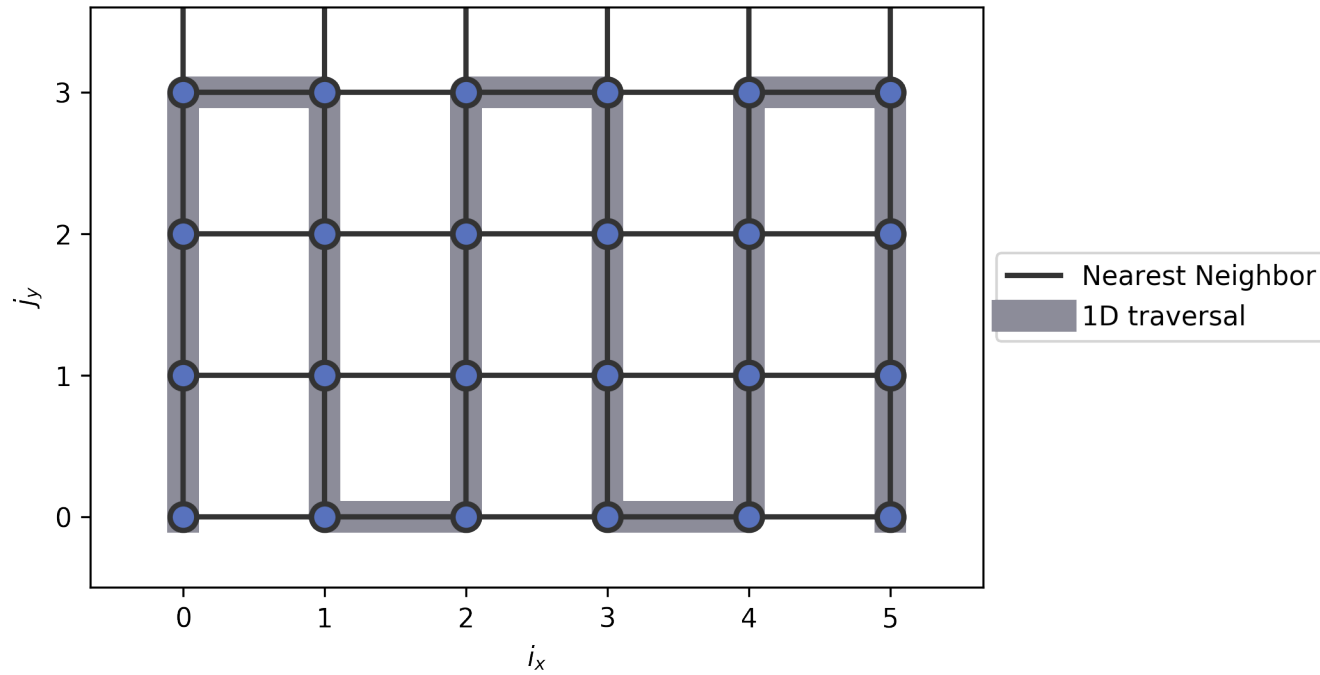
James Vance  
[ivance@ictp.it](mailto:ivance@ictp.it)



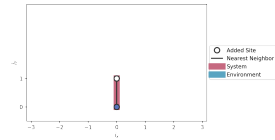
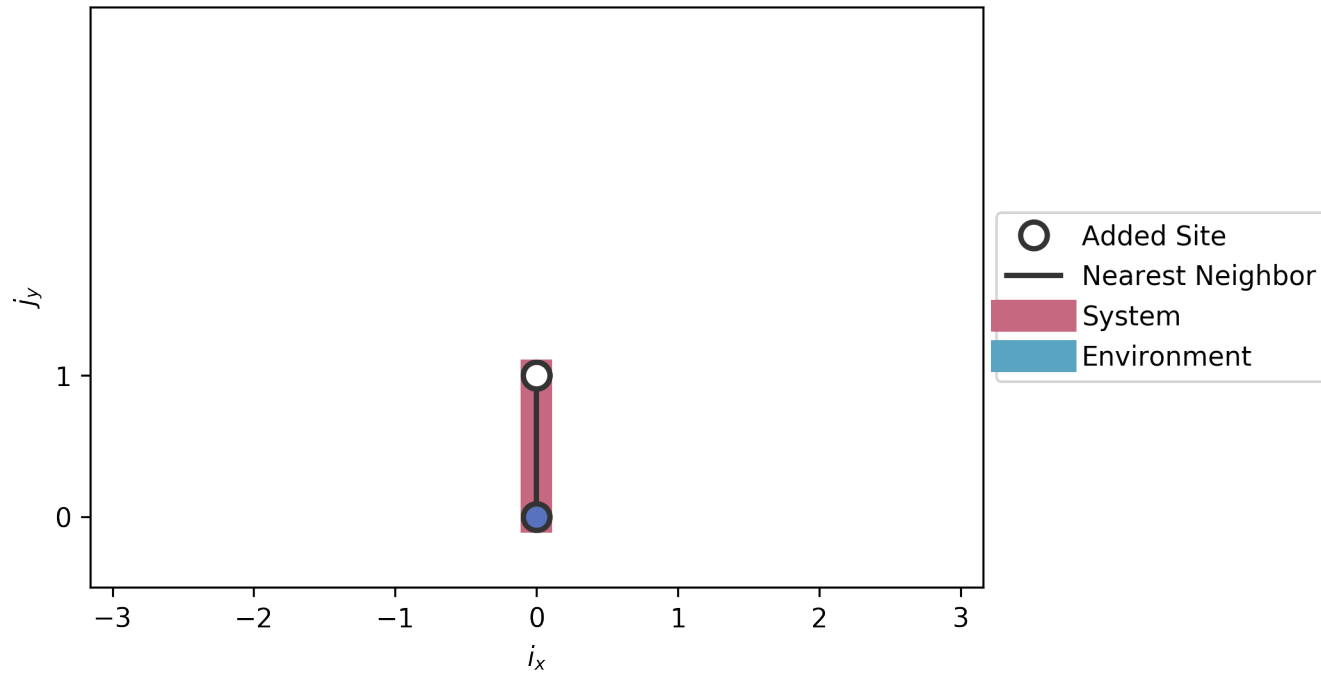
## Heisenberg Model w/ Square-type Geometry



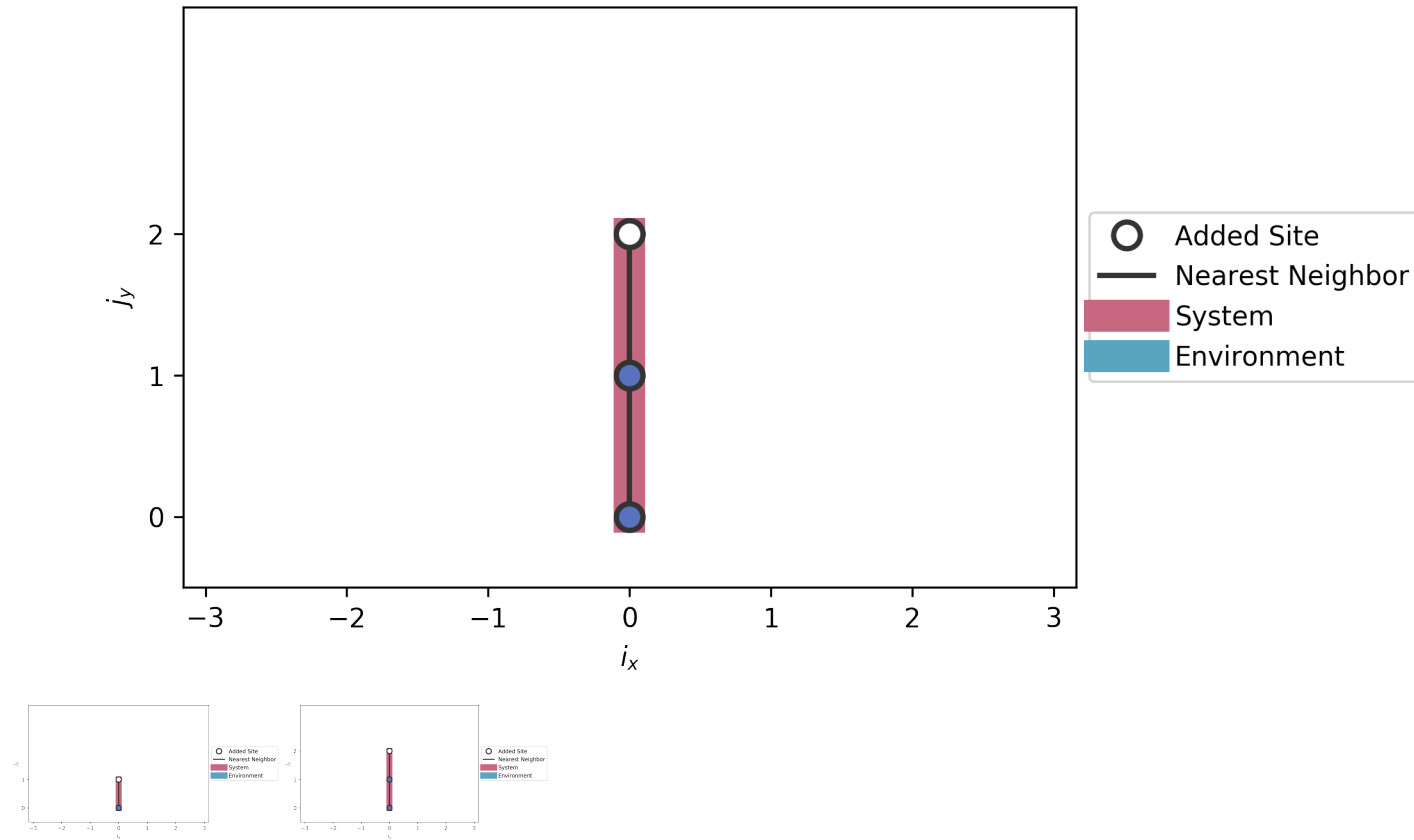
## One-dimensional traversal of the square lattice



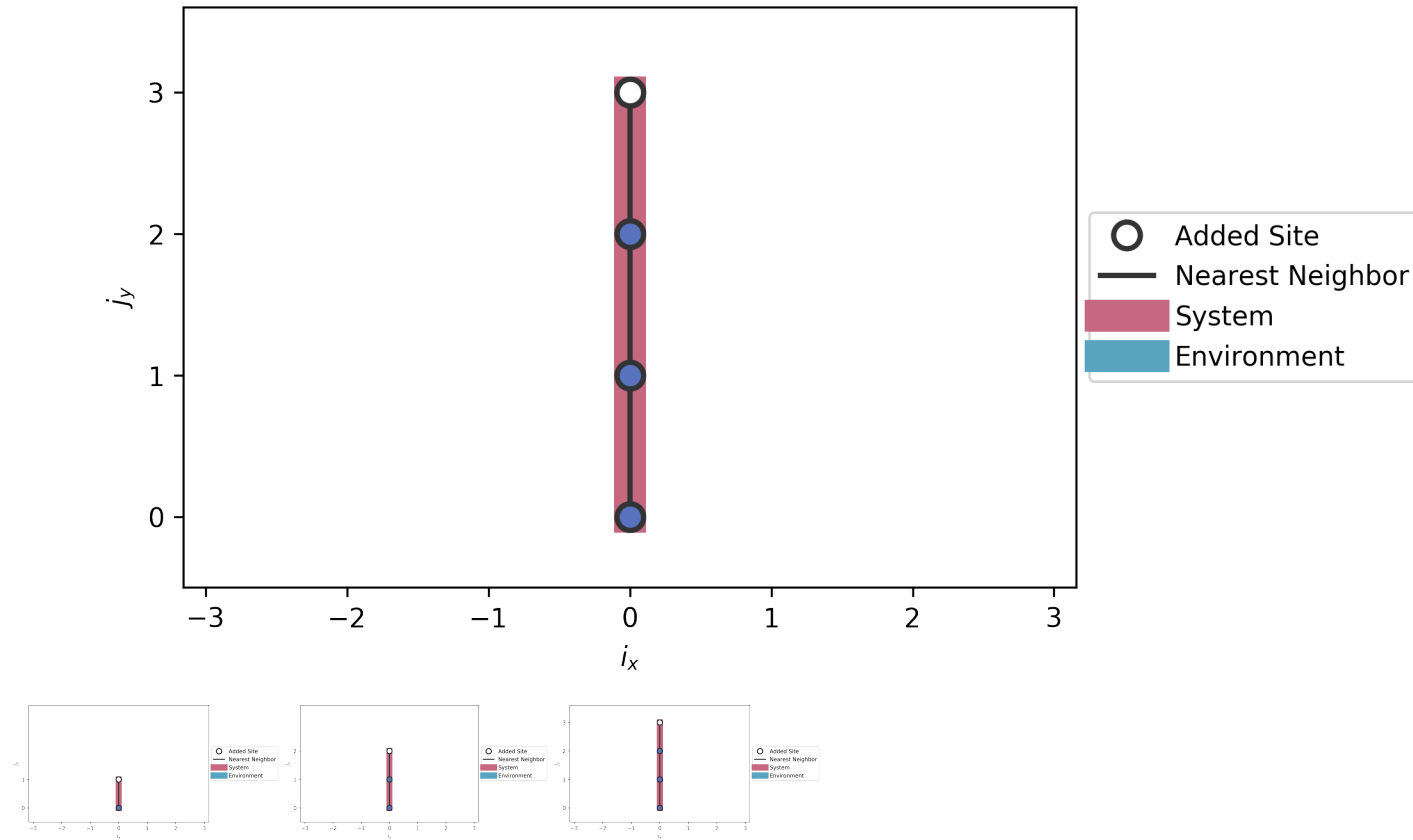
# Preparation of exact blocks



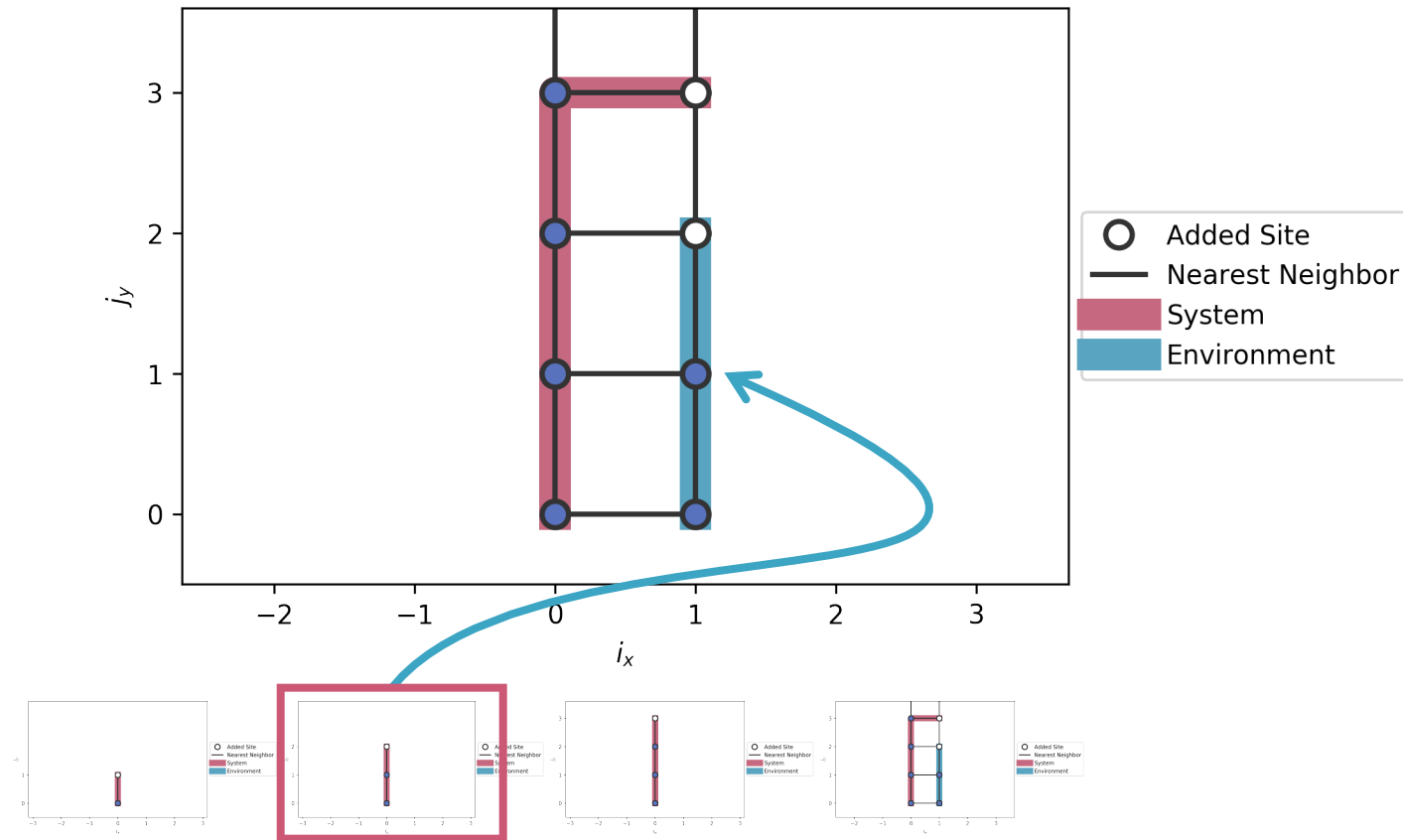
# Preparation of exact blocks



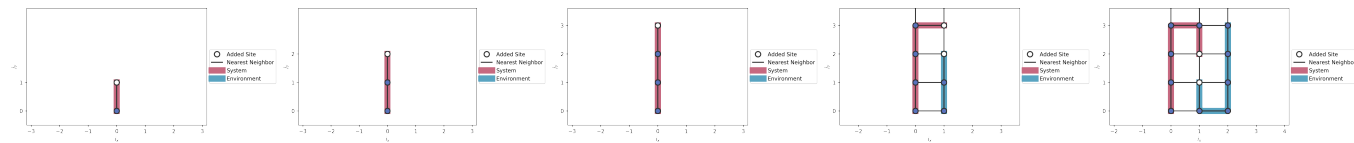
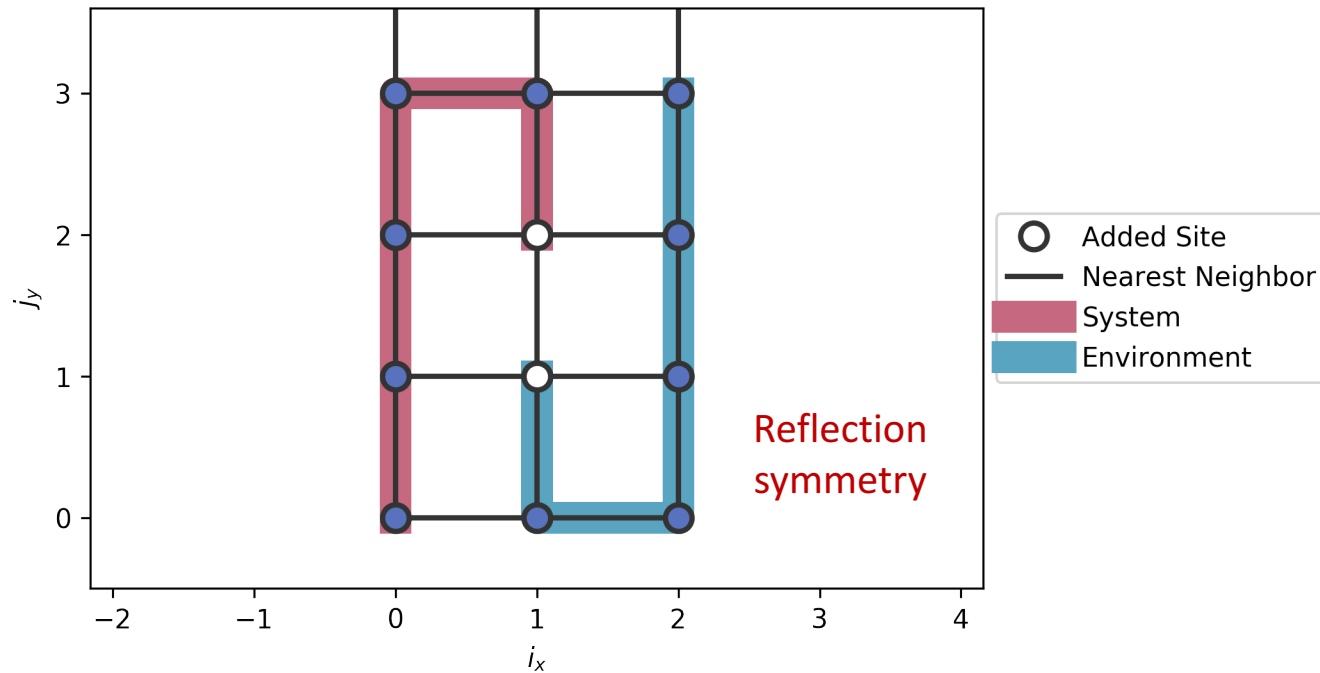
# Preparation of exact blocks



# Infinite-size DMRG Algorithm (Warmup)

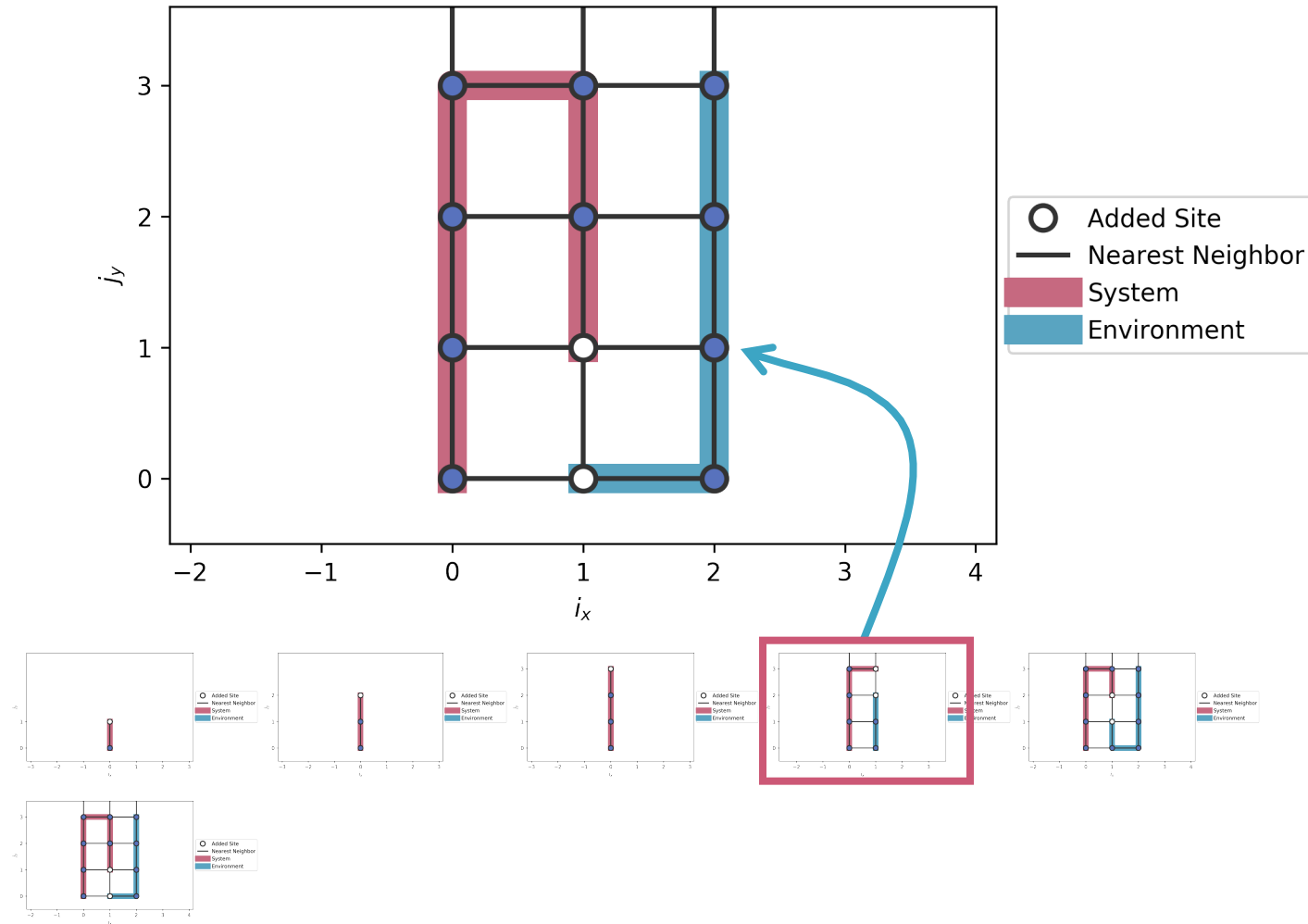


# Infinite-size DMRG Algorithm (Warmup)

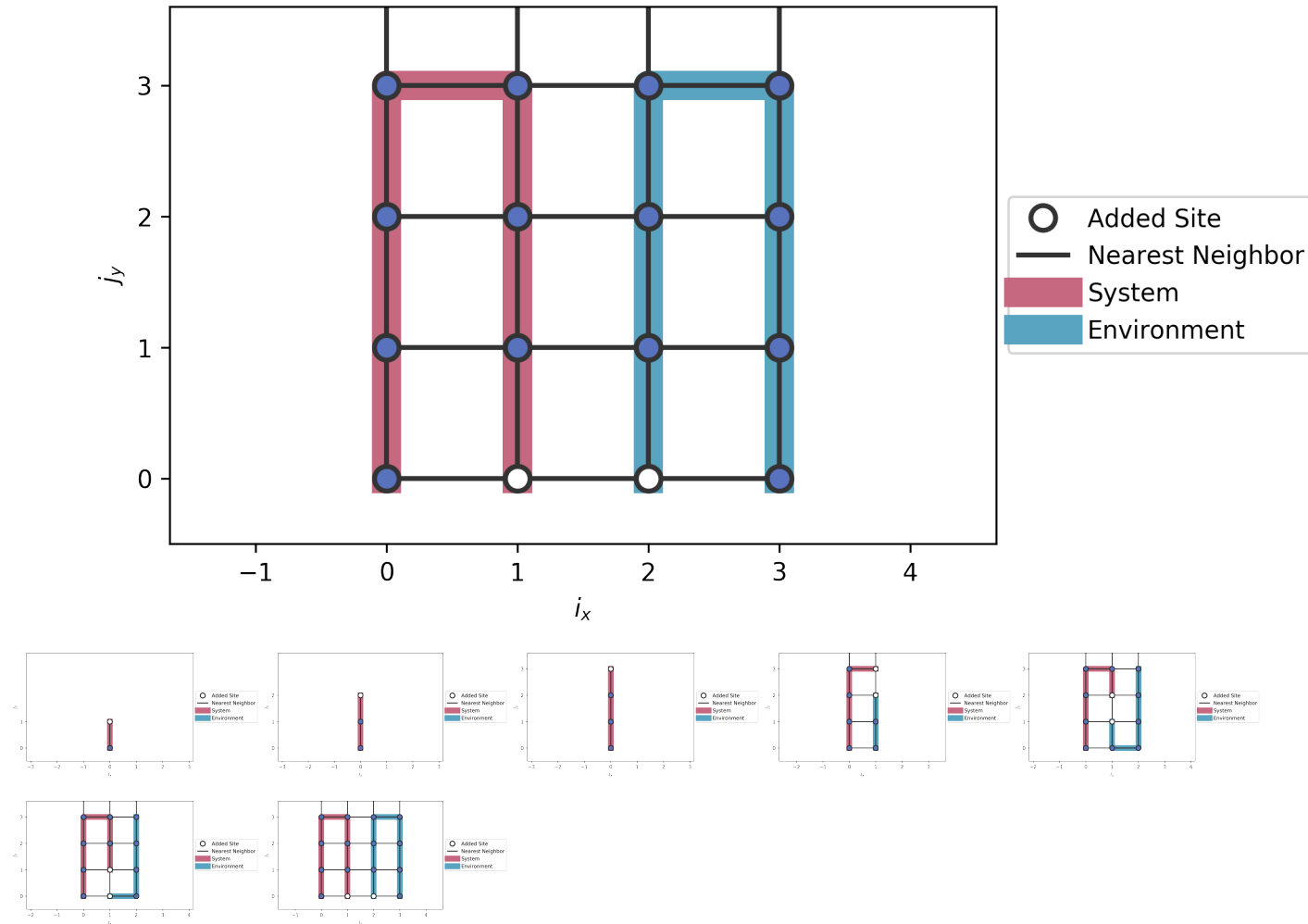




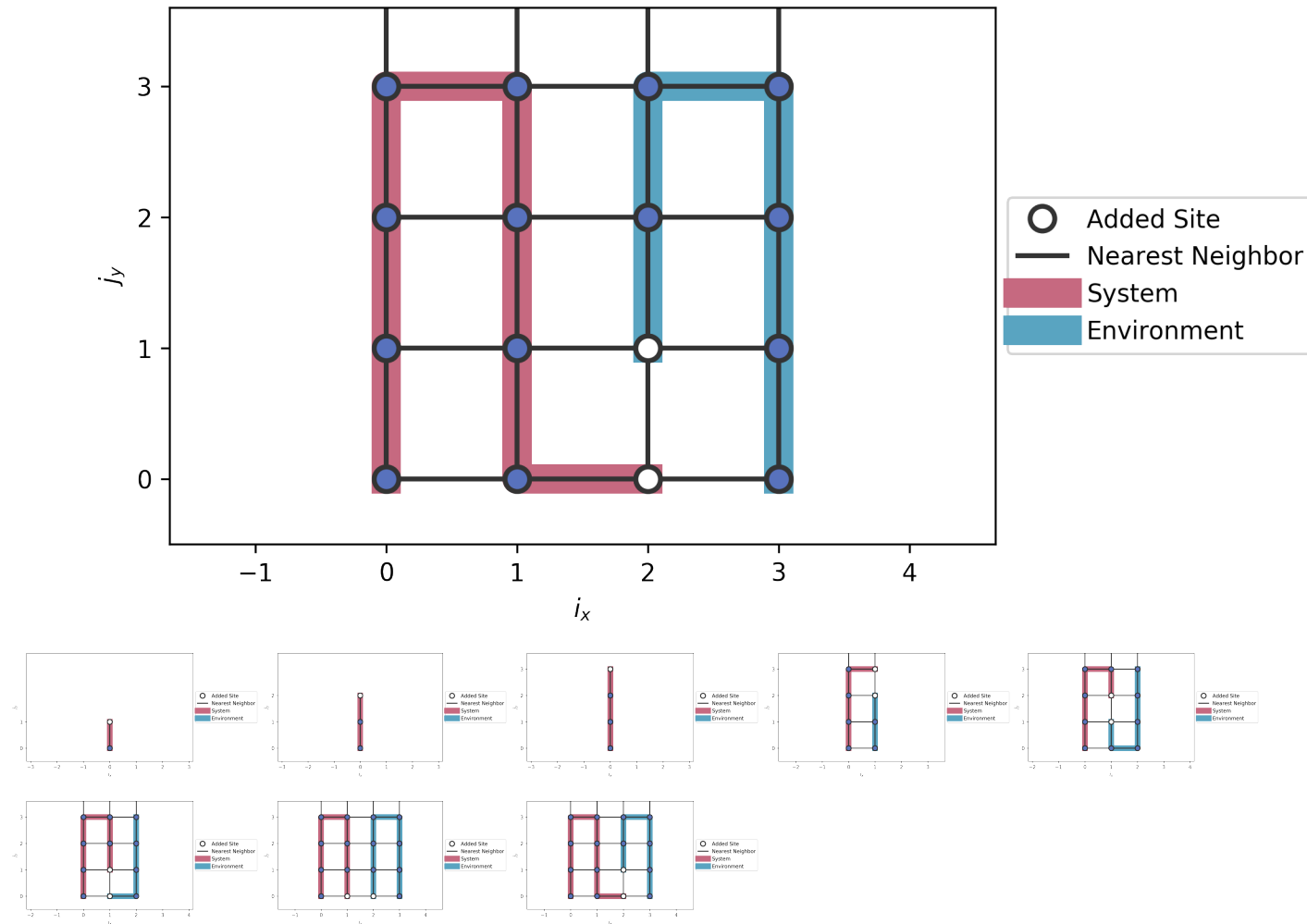
# Infinite-size DMRG Algorithm (Warmup)



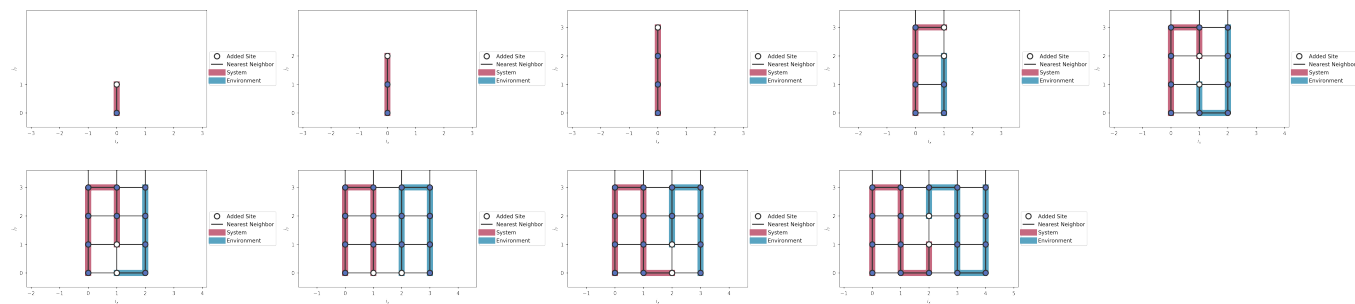
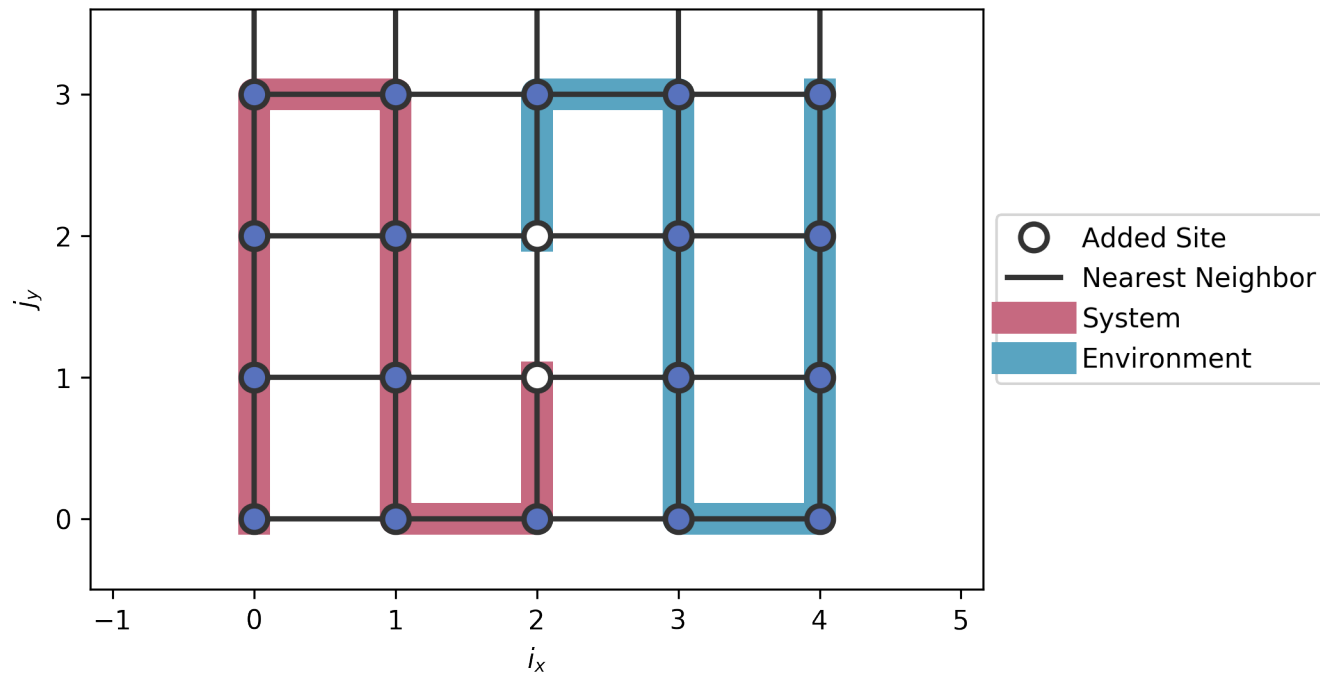
## Infinite-size DMRG Algorithm (Warmup)



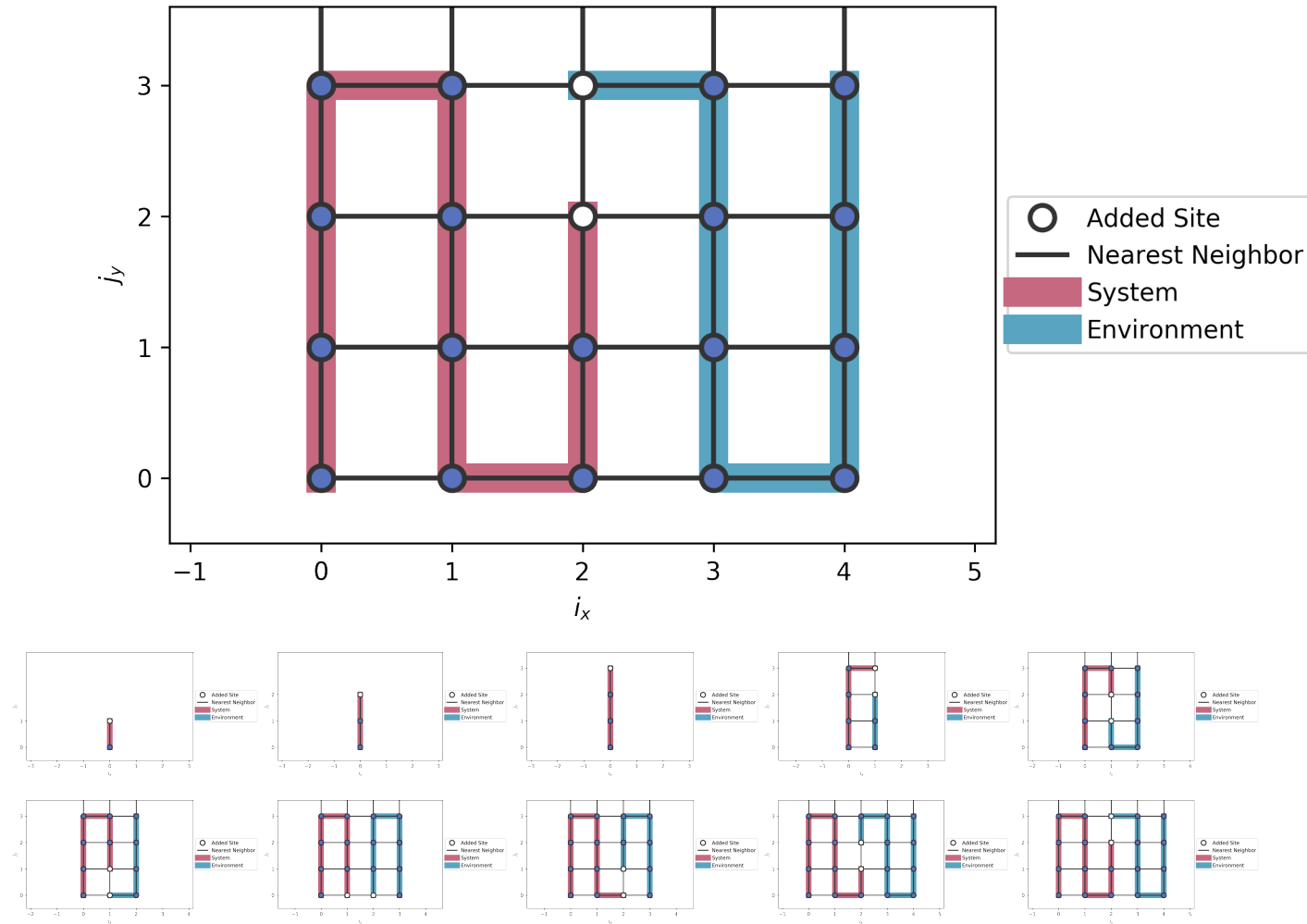
# Infinite-size DMRG Algorithm (Warmup)



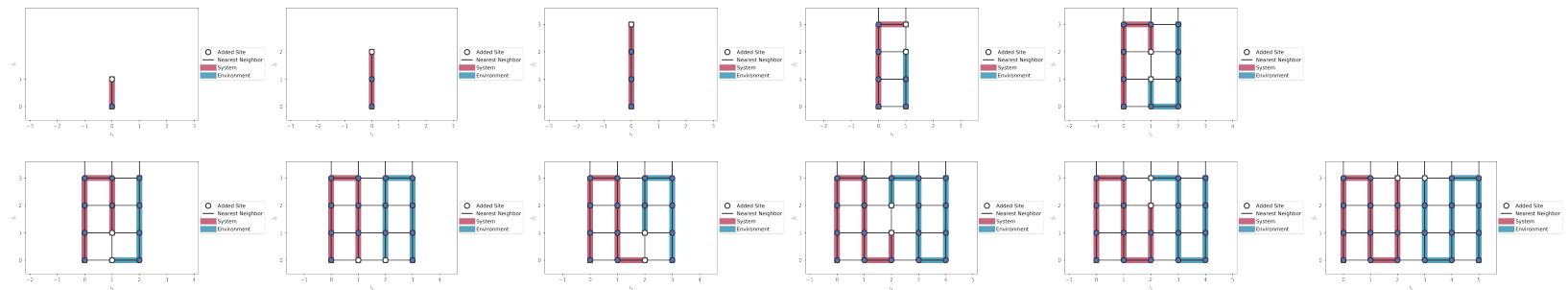
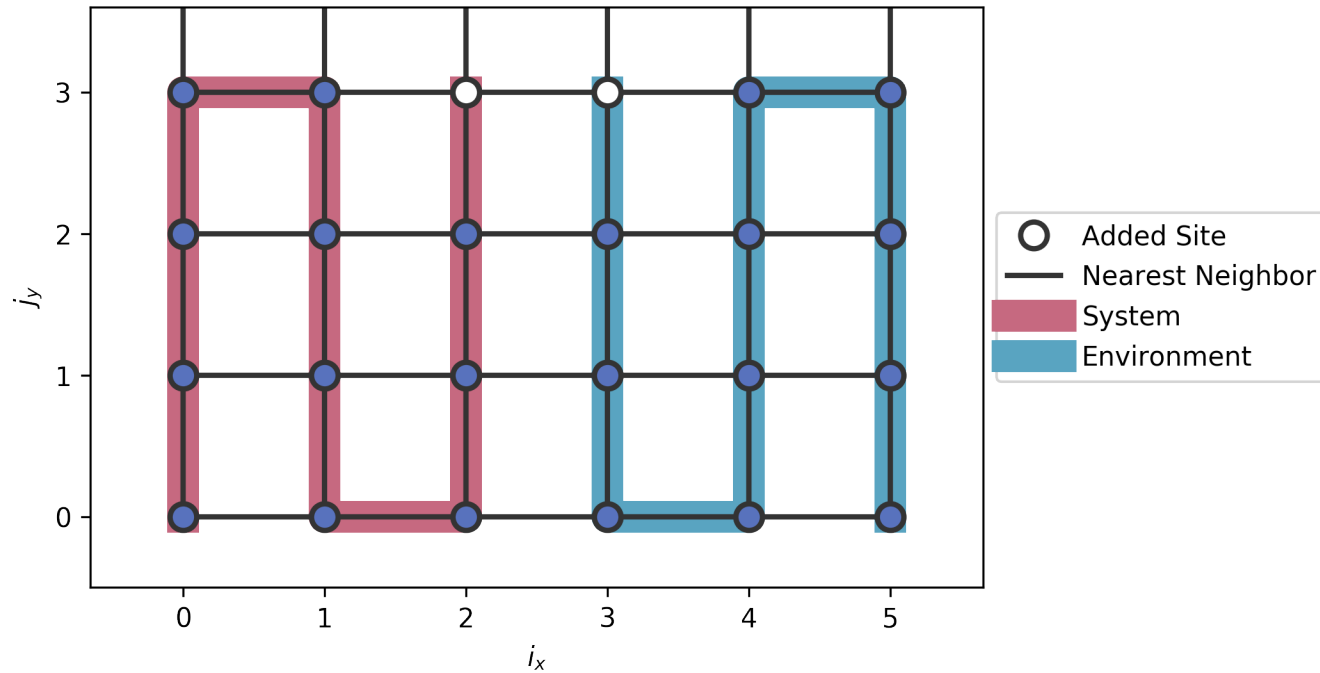
# Infinite-size DMRG Algorithm (Warmup)



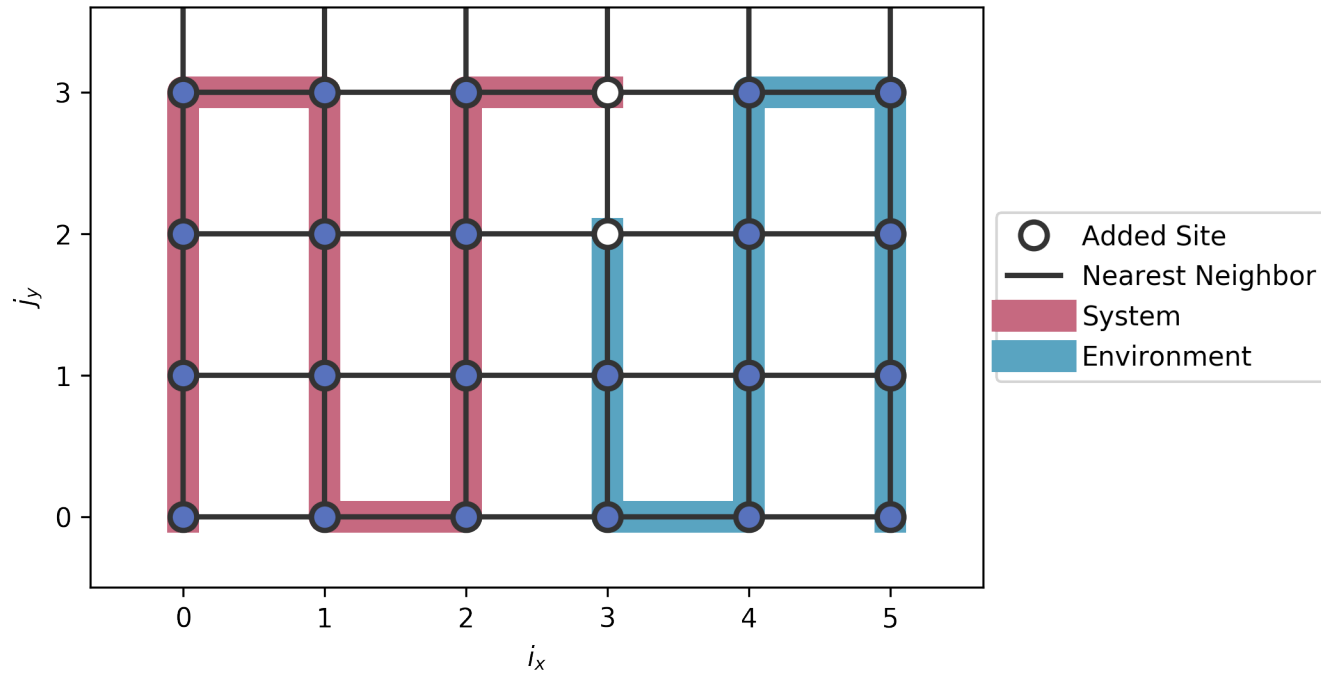
# Infinite-size DMRG Algorithm (Warmup)



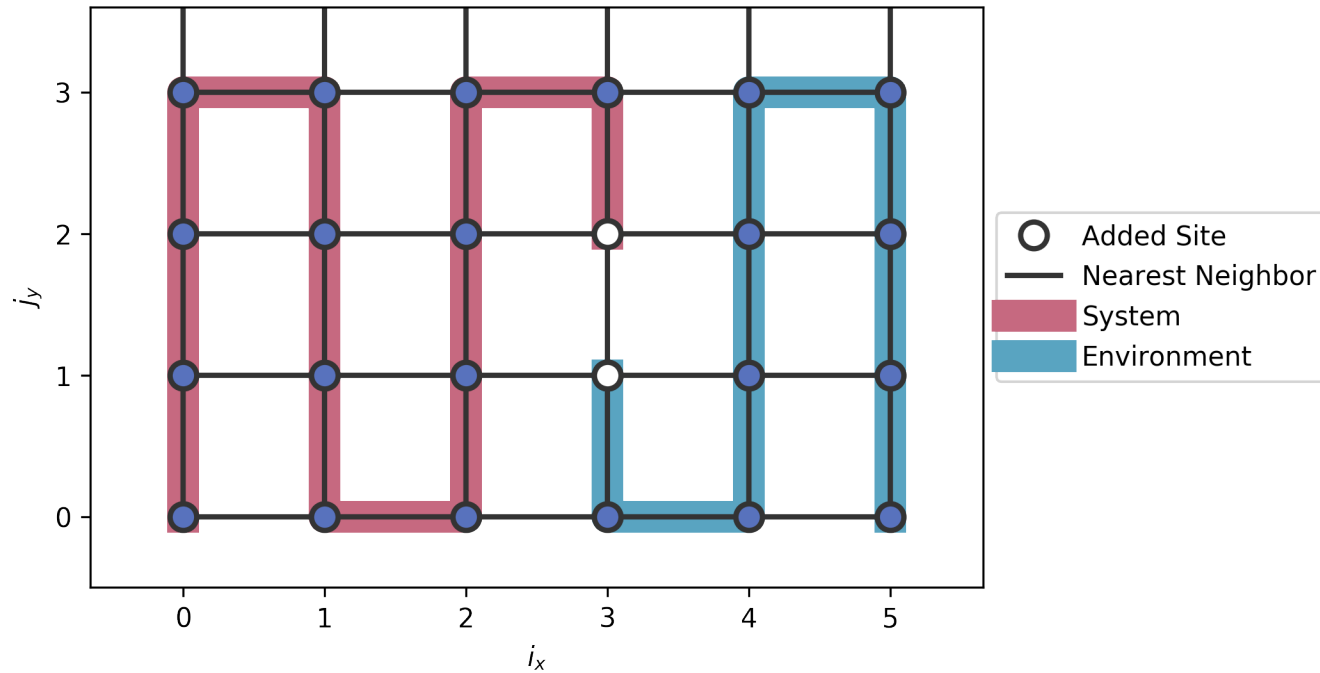
# Infinite-size DMRG Algorithm (Warmup)



## Finite-size DMRG Algorithm (Forward Sweep)

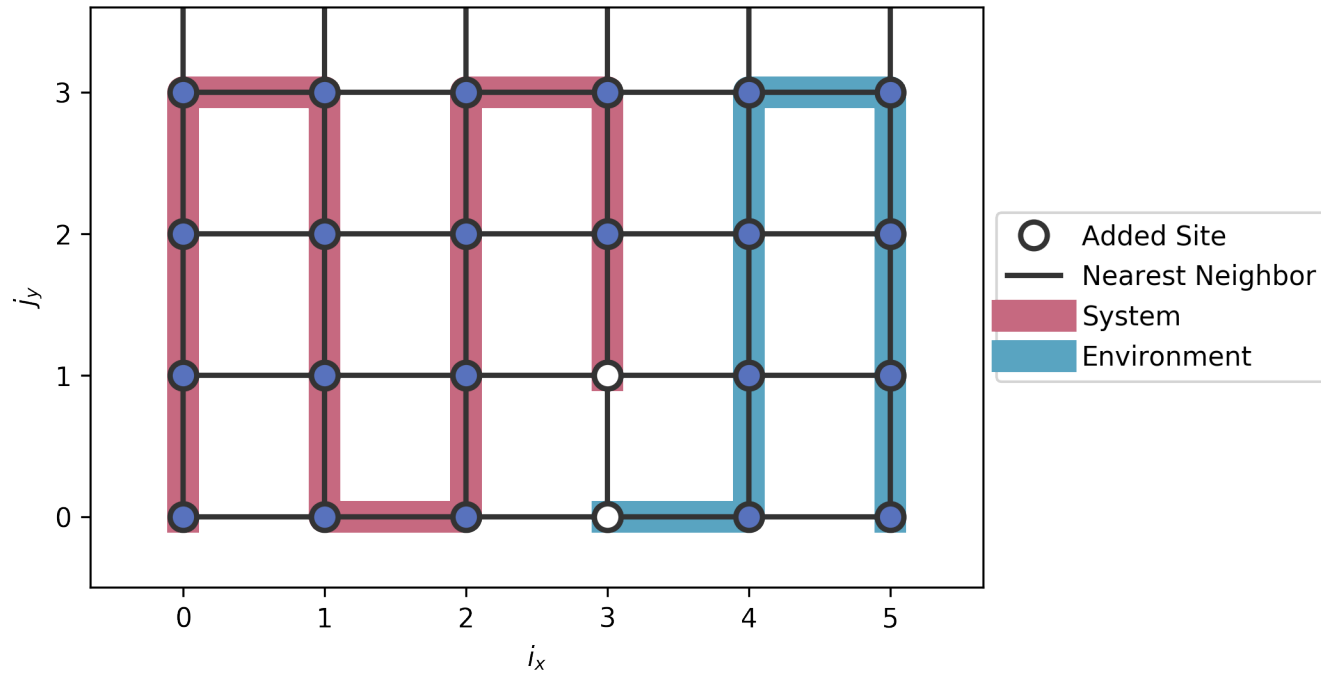


## Finite-size DMRG Algorithm (Forward Sweep)

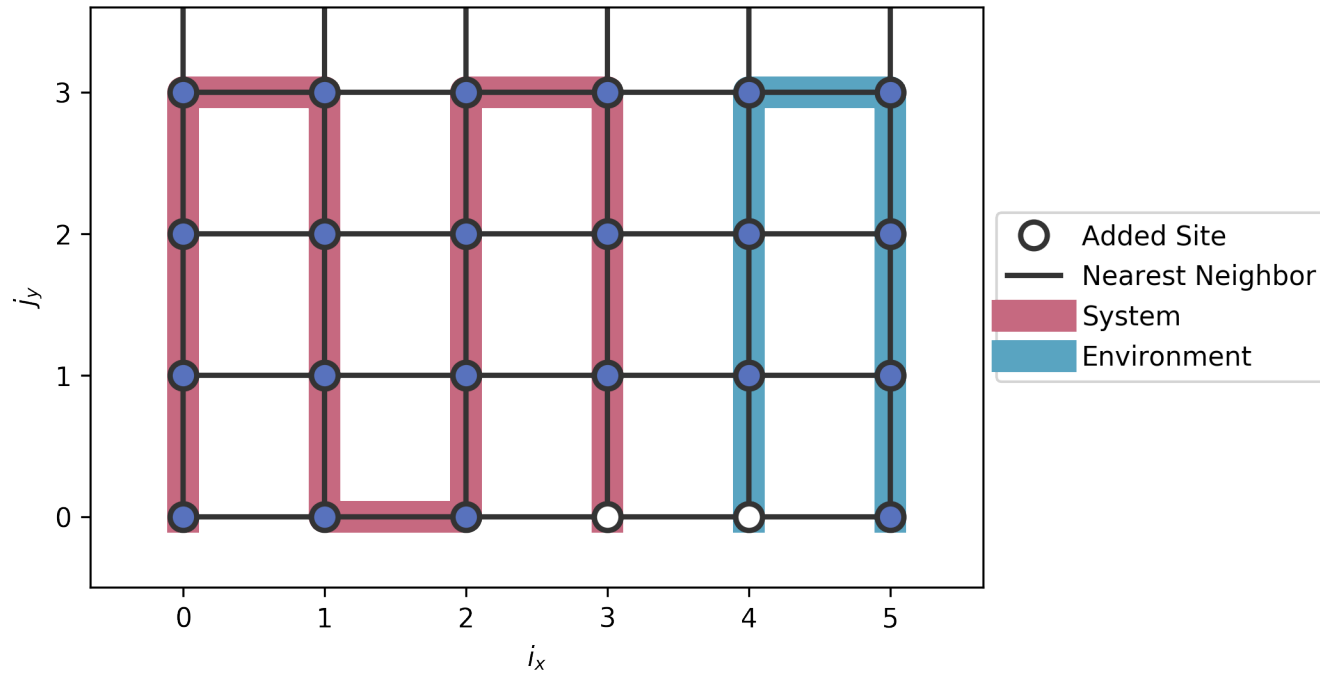




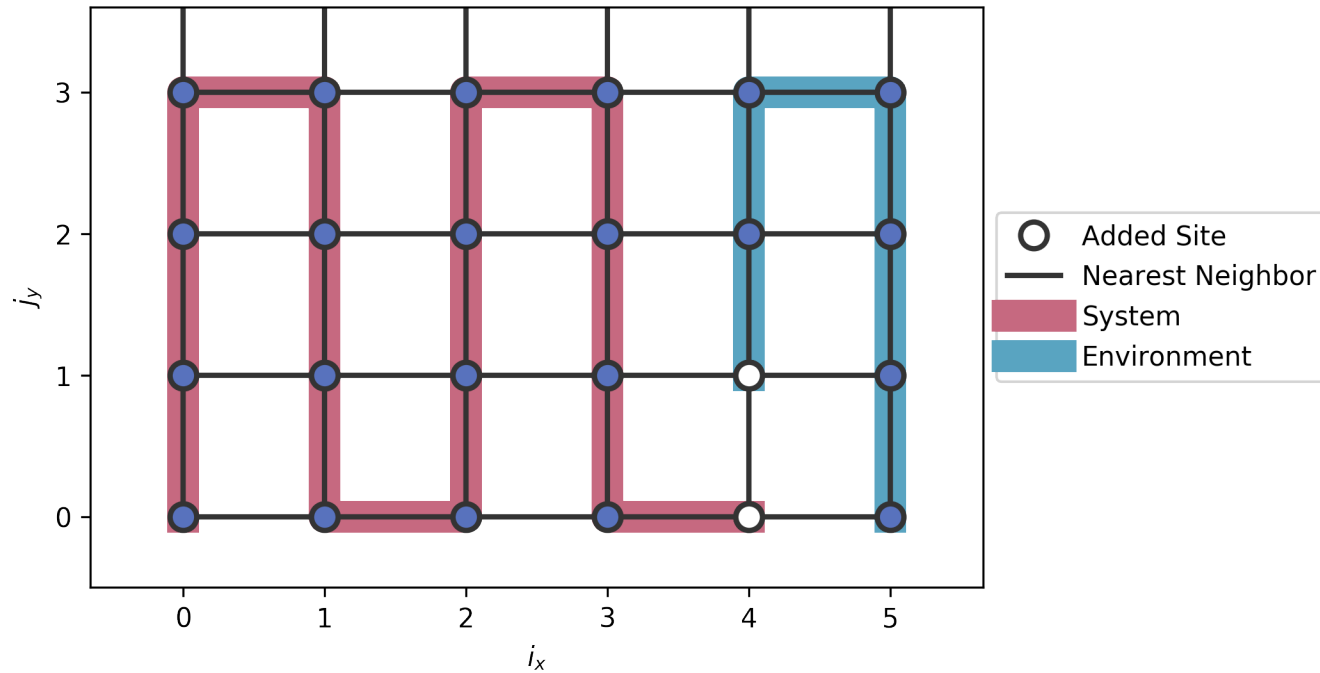
## Finite-size DMRG Algorithm (Forward Sweep)



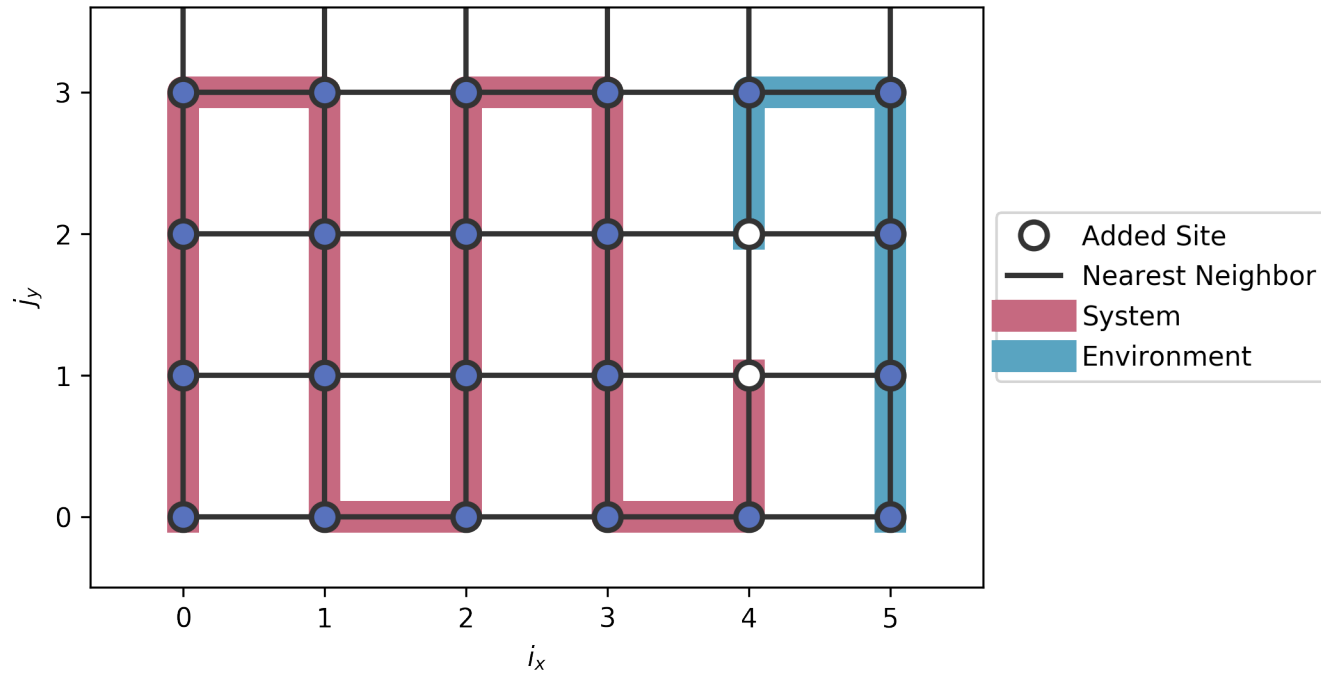
## Finite-size DMRG Algorithm (Forward Sweep)



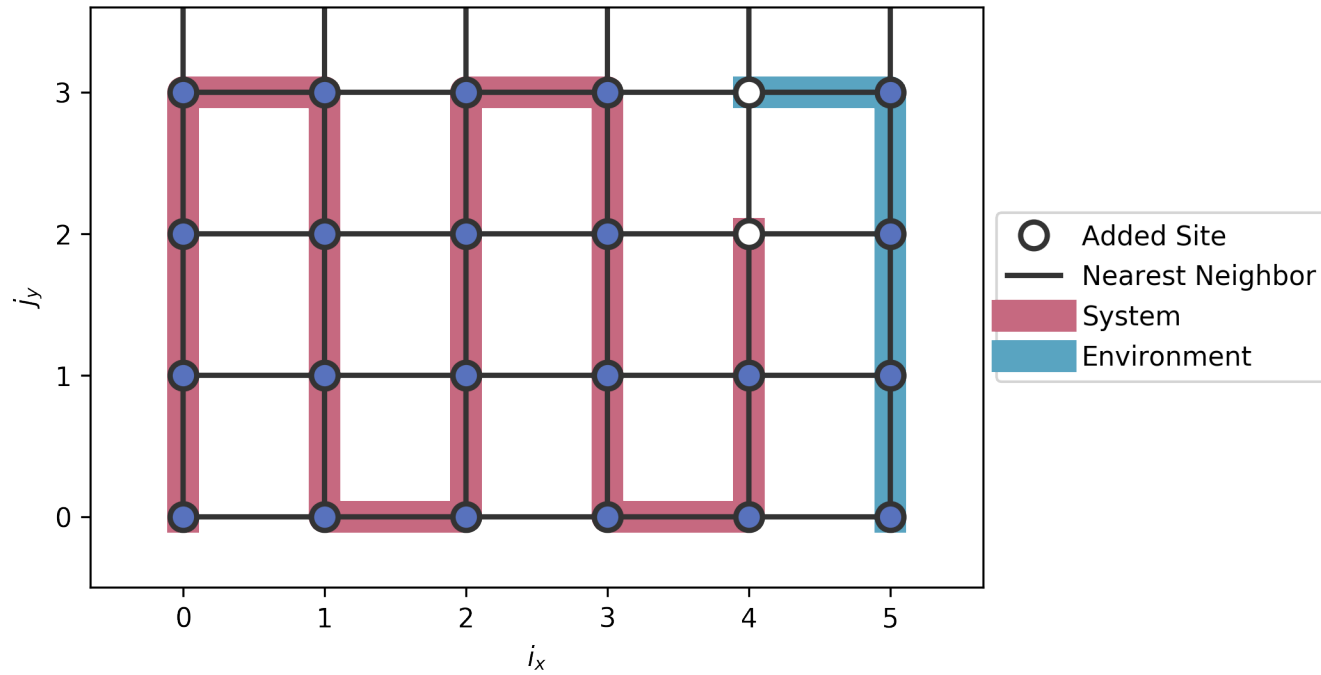
## Finite-size DMRG Algorithm (Forward Sweep)



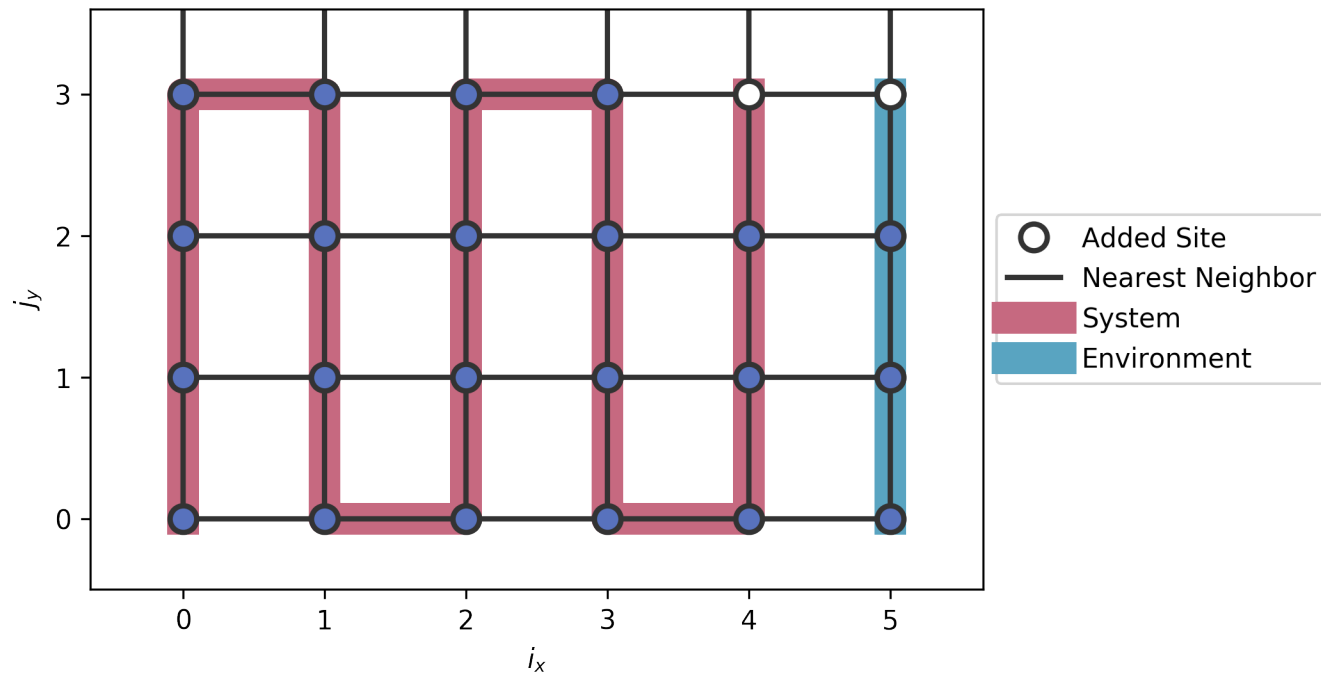
## Finite-size DMRG Algorithm (Forward Sweep)



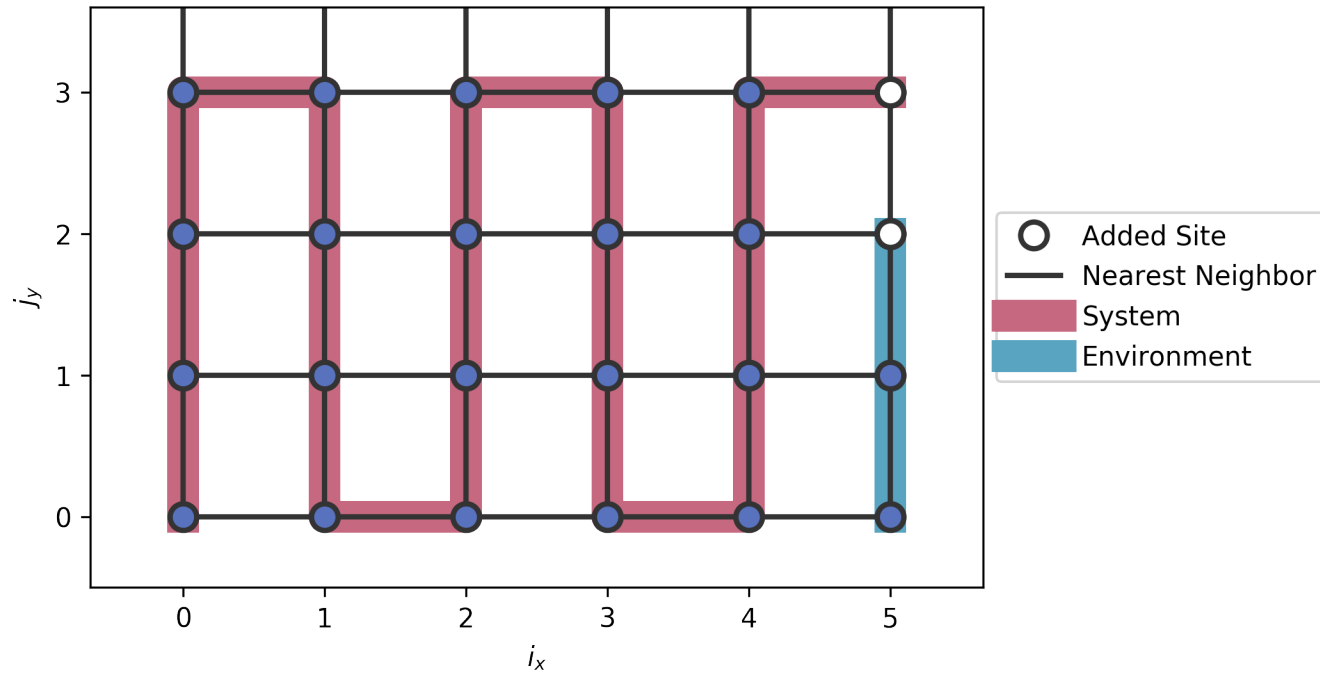
## Finite-size DMRG Algorithm (Forward Sweep)



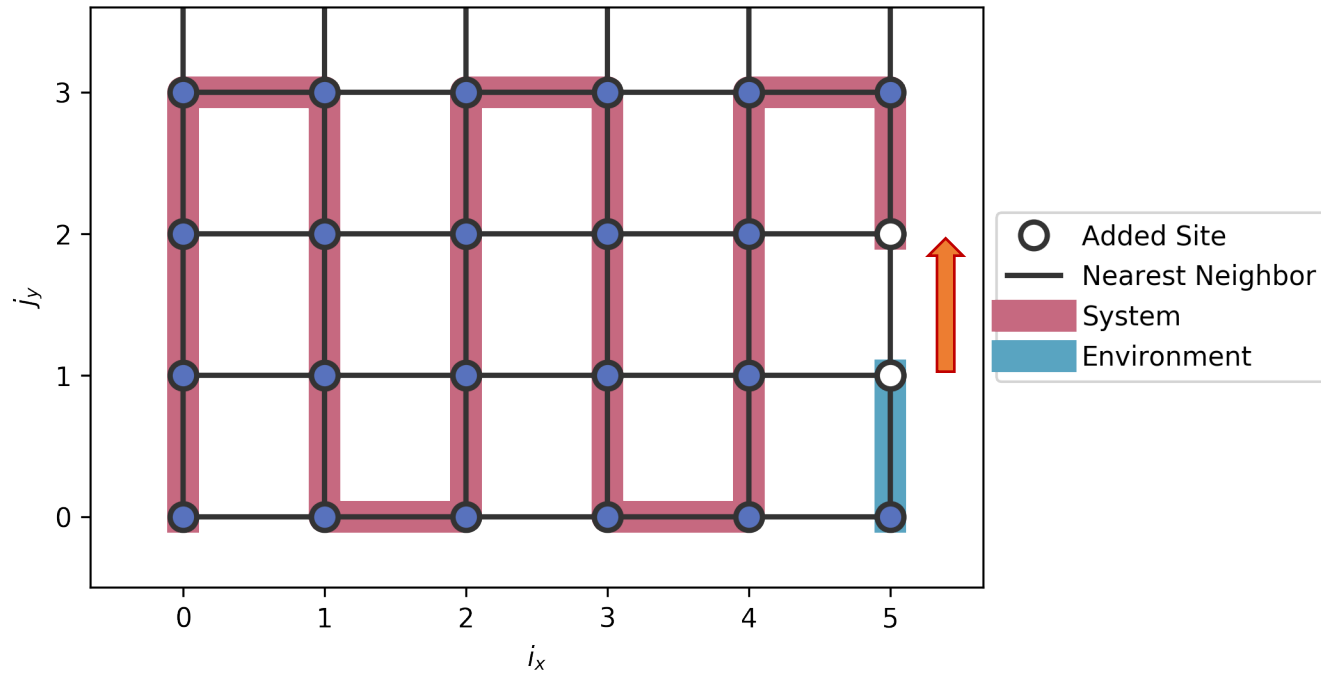
## Finite-size DMRG Algorithm (Forward Sweep)



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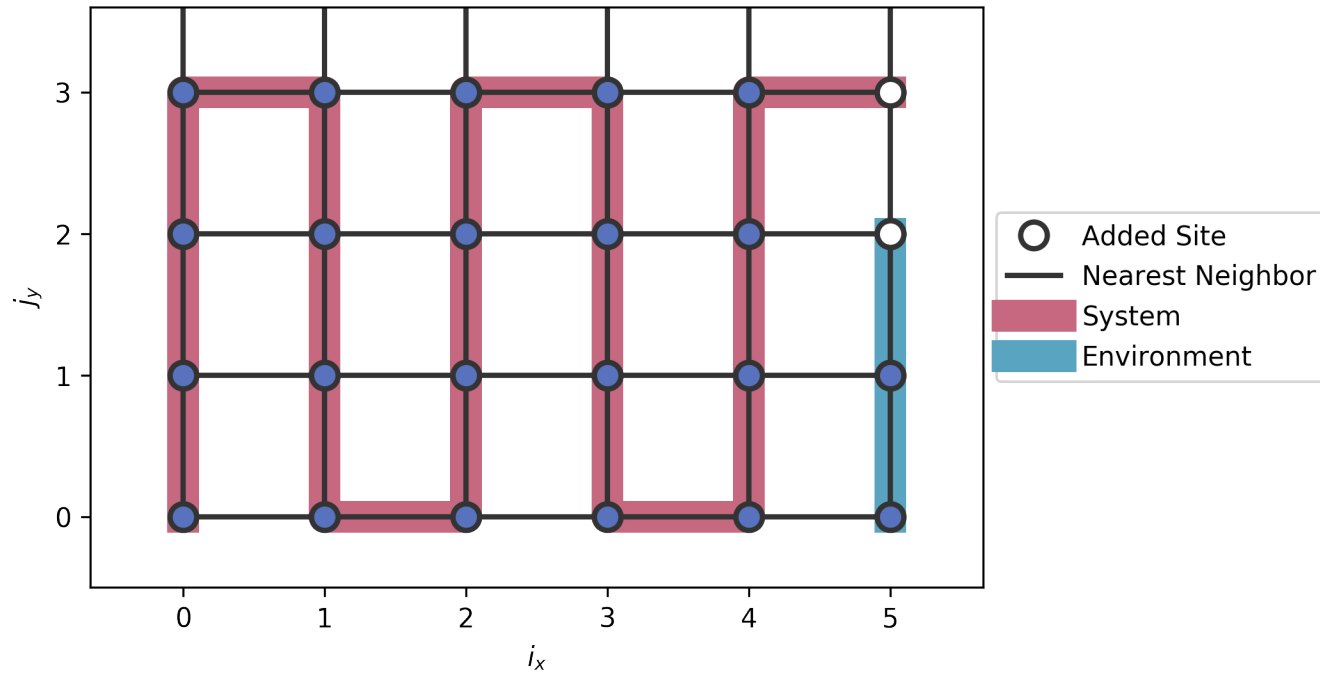


## Finite-size DMRG Algorithm (Forward Sweep)

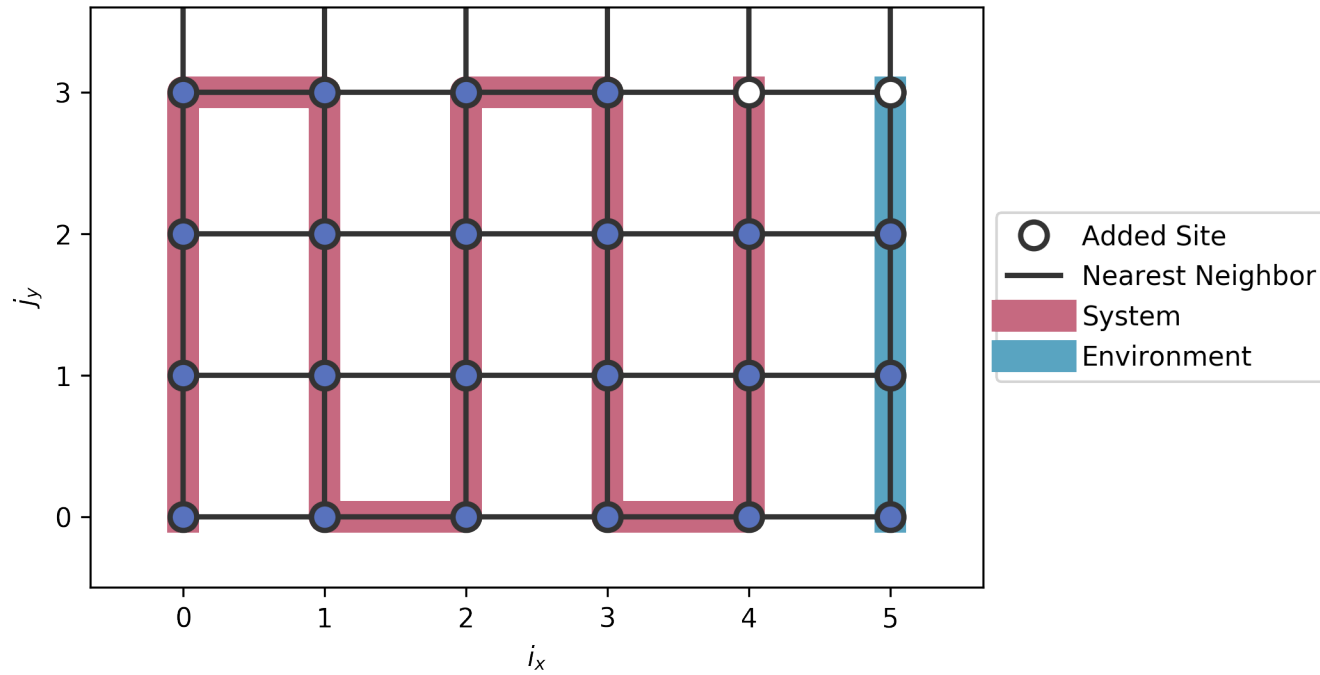




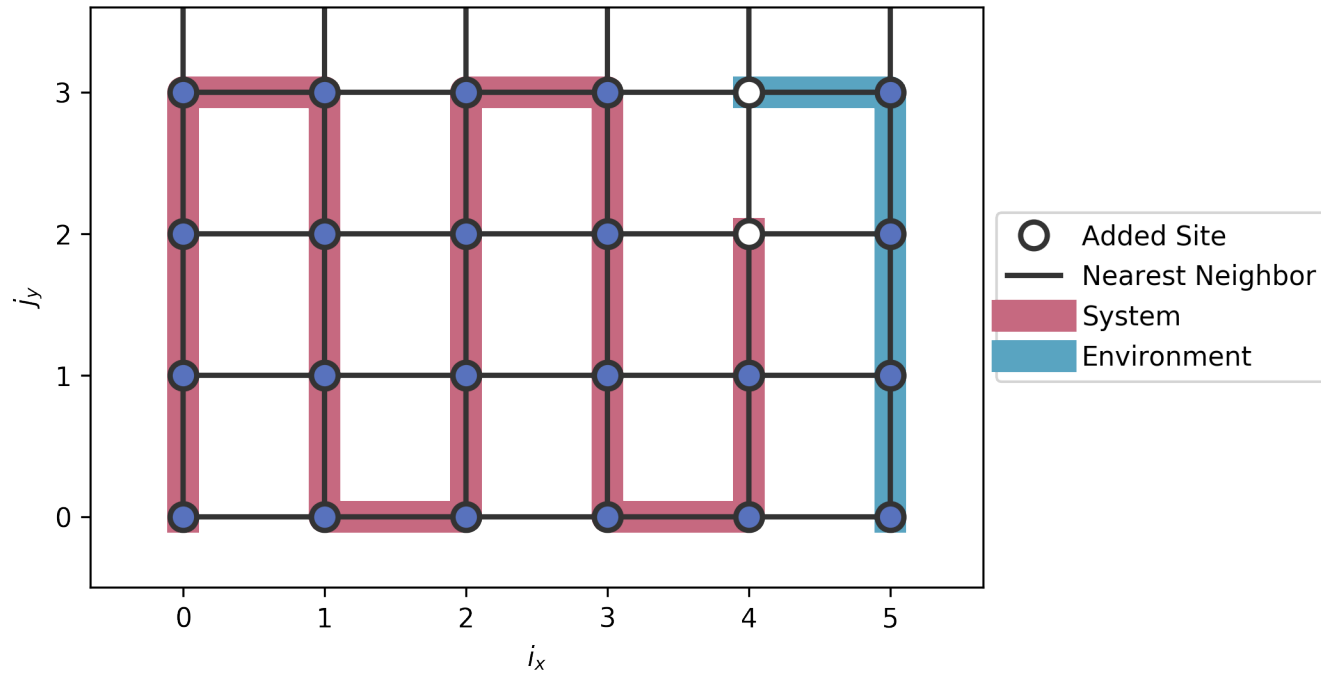
## Finite-size DMRG Algorithm (Backward Sweep)



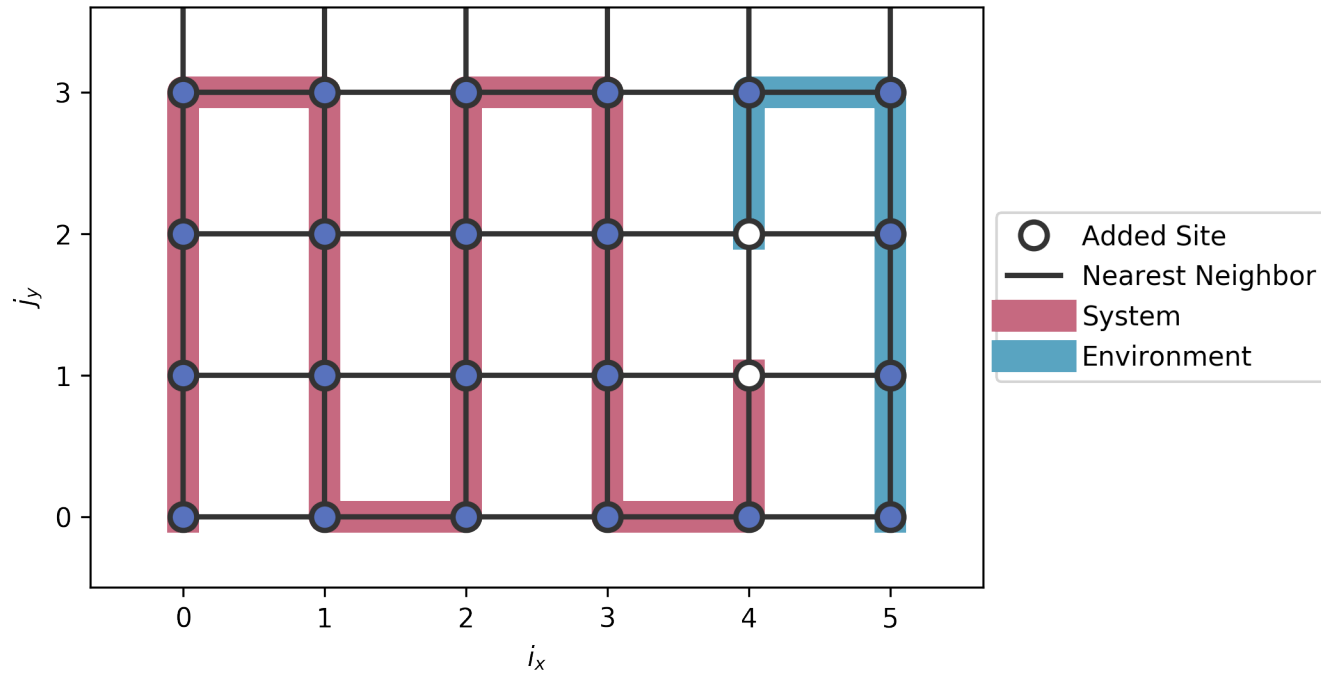
## Finite-size DMRG Algorithm (Backward Sweep)



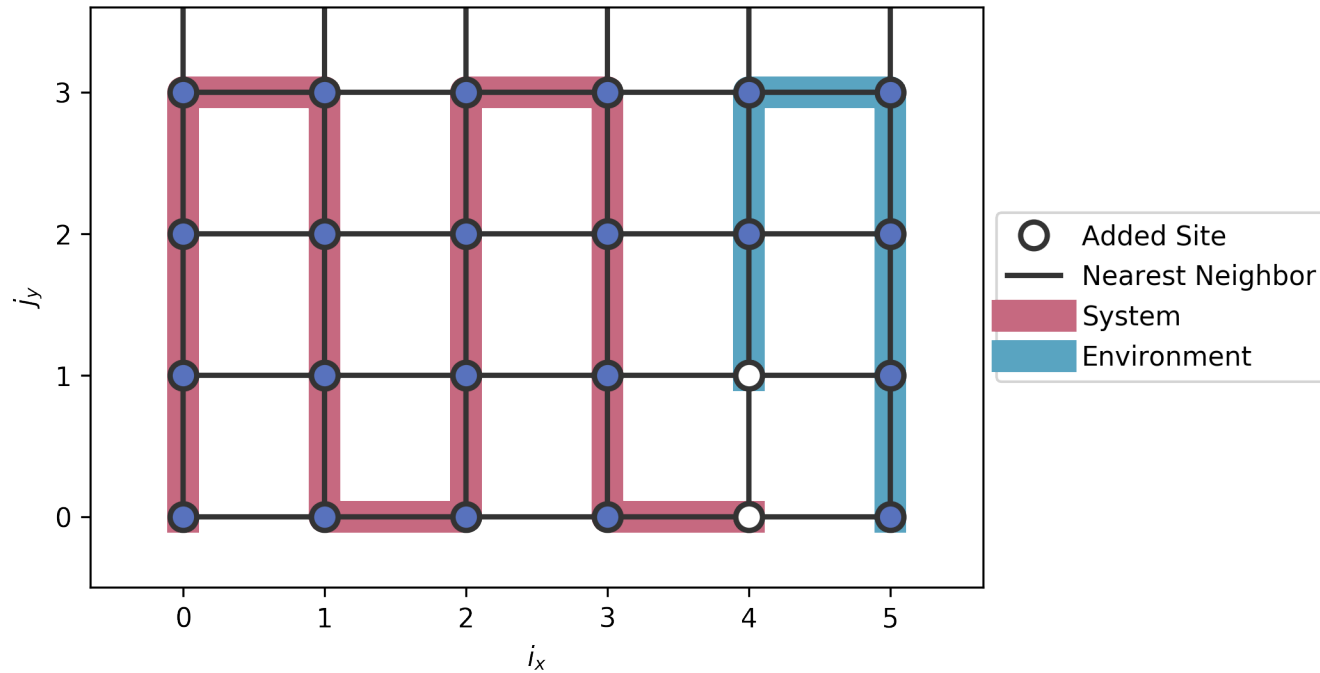
## Finite-size DMRG Algorithm (Backward Sweep)



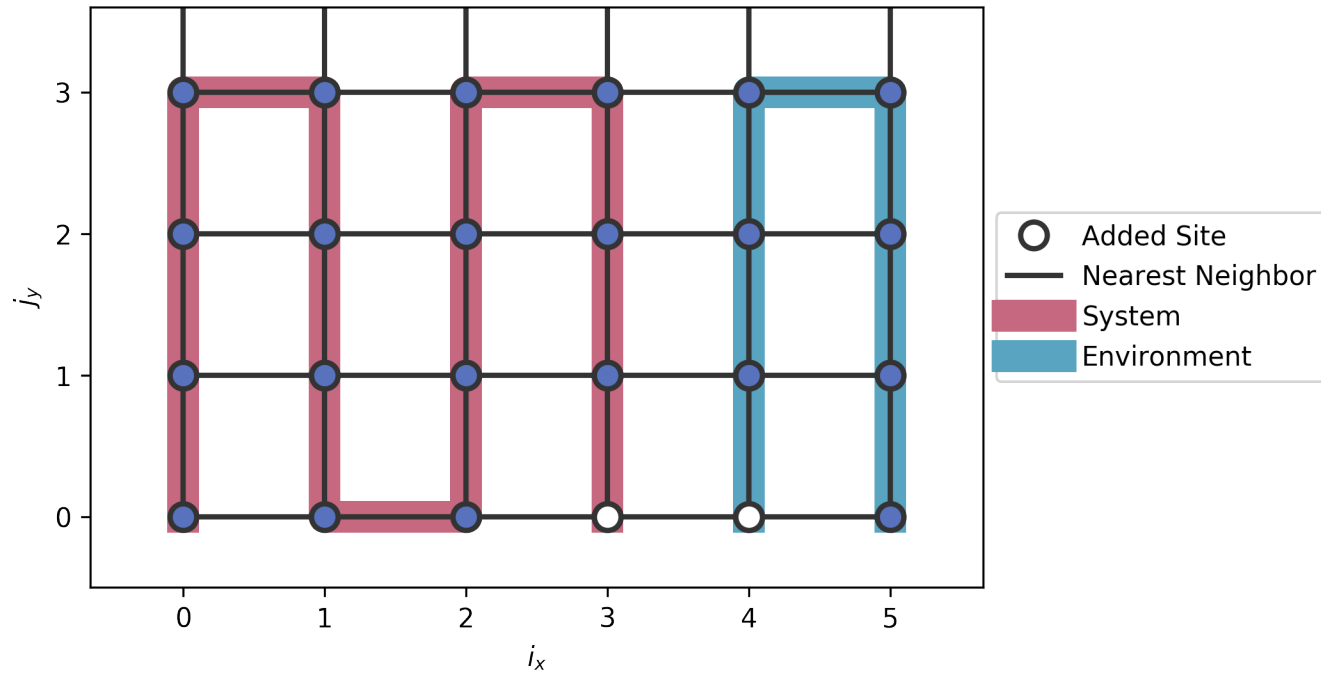
## Finite-size DMRG Algorithm (Backward Sweep)



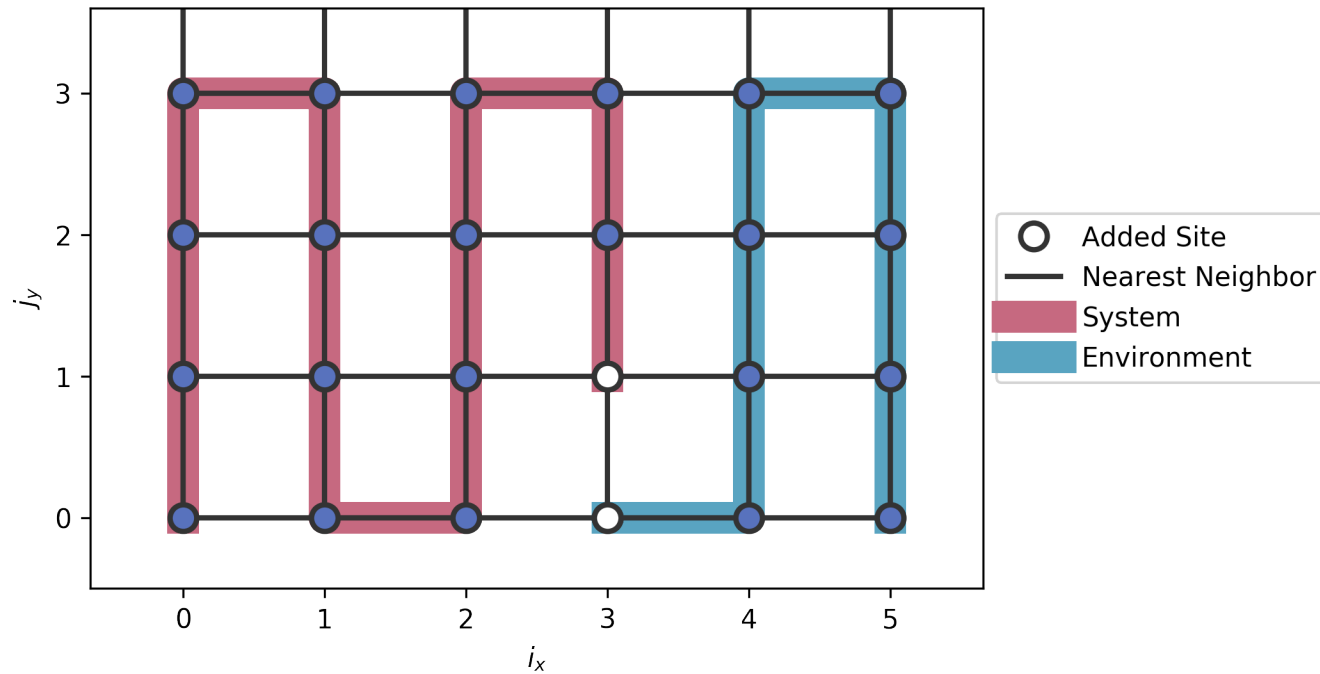
## Finite-size DMRG Algorithm (Backward Sweep)



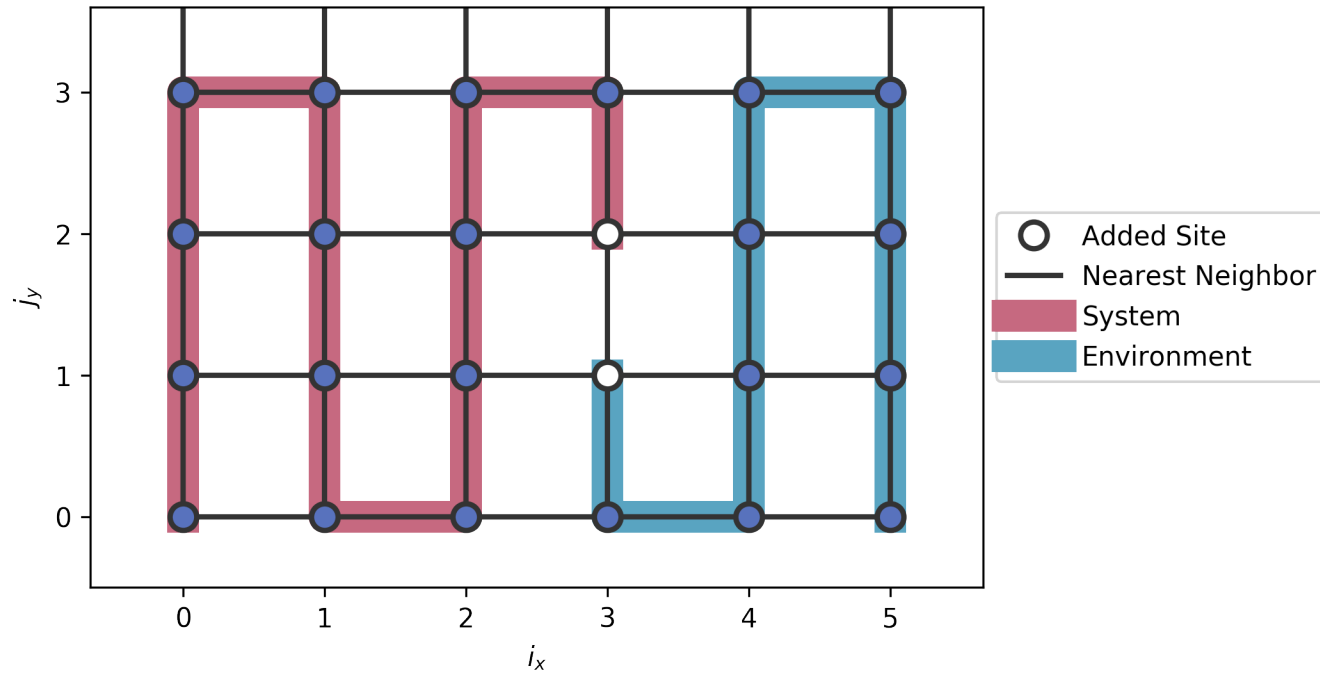
## Finite-size DMRG Algorithm (Backward Sweep)



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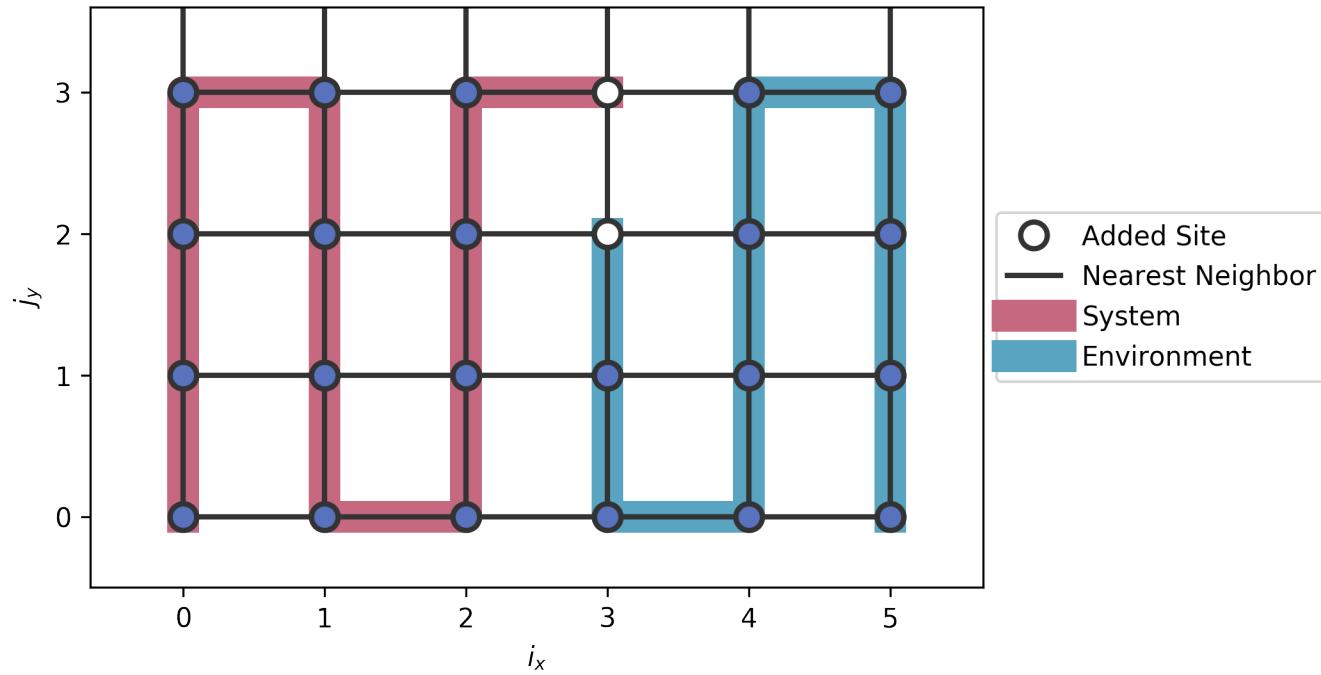


# Finite-size DMRG Algorithm (Backward Sweep)

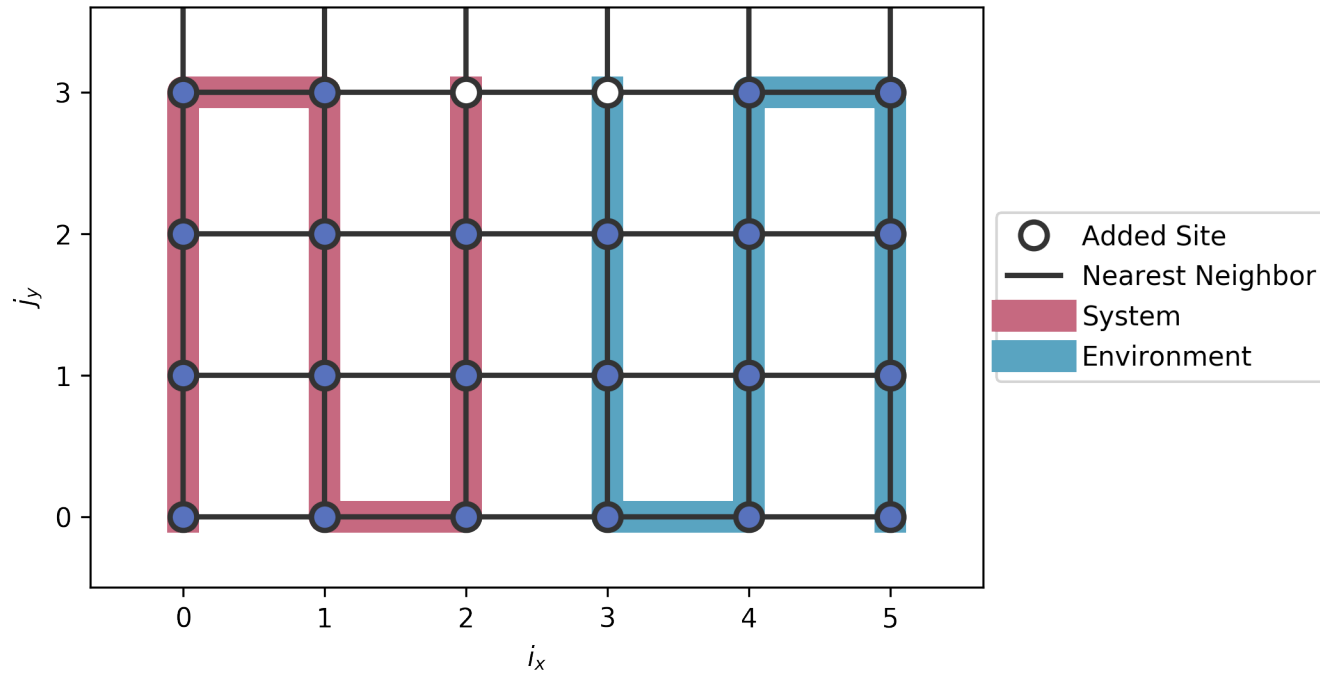




## Finite-size DMRG Algorithm (Backward Sweep)



## Finite-size DMRG Algorithm (Backward Sweep)



End of Sweep

## Convergence of Energy

