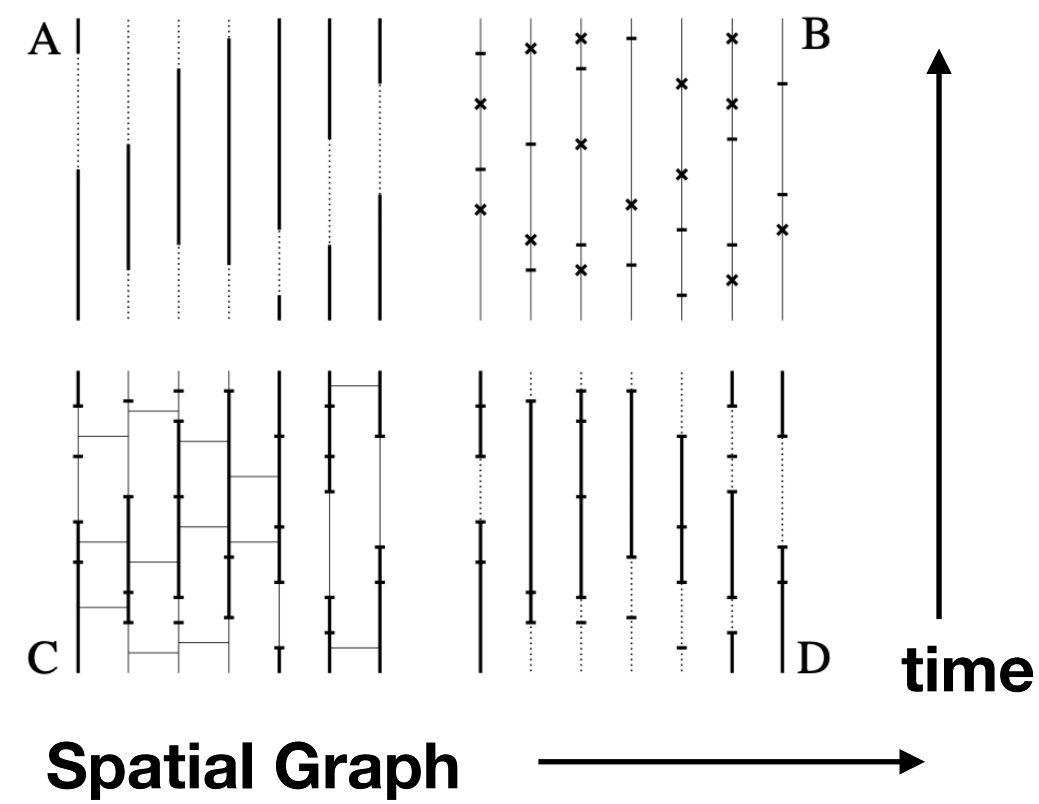
*Continuous Time (aka Euclidian Hamiltonian) Cluster Monte Carlo**

$$\text{Affine:} \quad a_t \to 0$$

$$S = -\sum_{t,i} K_i^0 s_{t,i} s_{t+1,i} - \sum_{\langle i,j \rangle} K_{ij}^{\perp} s_{t,i} s_{t,i}$$

$$H = \sum_i \Gamma_i \sigma_i^x + \sum_{\langle i,j \rangle} \widetilde{K}_{ij} \sigma_i^z \sigma_j^z$$

$$K_{ij} = a_t \widetilde{K}_{ij} \quad , \quad e^{-2a_t K_i^0} = \tanh(a_t \Gamma_i)$$



- A state space (real value decay times)
- B Poisson Decays: $$P(t) = \Gamma e^{-\Gamma t}$$
- C. Spatial Percolation $$P_{ij} = 1 - e^{-2\Delta t_{overlap} \widetilde{K}_{ij}}$$
- D. SW Flip clusters for new state A

Pretty Easy to Program with Connected Components Graph algorithms:
Works for 1 + d Radial Quantization (Sphere) Ising/SUSY/Warped AdS etc

***See: 1998: H. Rieger, N. Kawashima**
Application of a continous time cluster algorithm to the Two-dimensional Random Quantum Ising Ferromagnet

Duality: $\cosh(2a_t K_i^0)\cosh(a_t \Gamma_i) = 1$