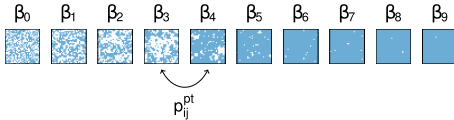
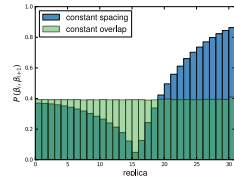
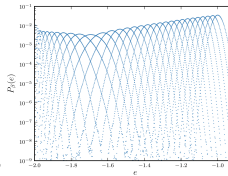
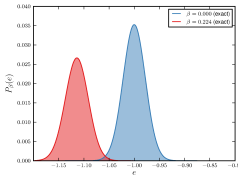
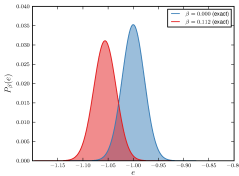


Towards optimized parallel tempering

Marco Müller¹, Thomas Neuhaus², Michael Bachmann³



$$p_{ij}^{\text{pt}} = \min(1, e^{\Delta}) \quad \Delta = (\beta_i - \beta_j) [E_i - E_j]$$

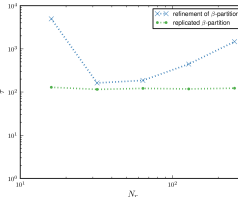
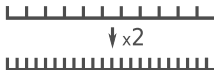


Many replica scaling - choosing the β -distribution:

$$\tau = \frac{1}{N^2} \frac{N_{mc}}{N_t}$$

τ ... tunnel time
 N ... number of spins
 N_{mc} ... number of Monte Carlo updates
 N_t ... average number of tunnel events

Refinement



Replicated distribution

