..
0
v_8
σ_i^z
$\tilde{z}$
$\tilde{x}$
$H(t) = -A(t)\sum_i \sigma_i^x + B(t)H_{Ising}, t \in [0, t_a].$
(1)
$t =$
0
$B(0) =$
0
$A(0) \gg$
$k_B T$
$\tilde{T}$
$\tilde{x}$
2^N
σ_i^z
$B(t)$
$A(t)$
$A(t_a) =$
0
$B(t_a) \max(\max_{ij} |J_{ij}|, \max_i |h_i|) \gg$
$k_B T$
?
??
$A_i(t)$
$B(t)$
$T =$
18
?
$\beta =$
0.1
$\beta =$
$3r$
± 1
$\tilde{r} =$
1
$\tilde{r} =$
3
?
?
64
$\tilde{L} =$
?
?
$\tilde{r} =$
1
$\tilde{r} =$
3
$\tilde{L} =$
?
?
?
64
??
1
??
$_{l}eftover.pdfScalingoftime - to - solutionforSQA.Shownisthetime - to - solutionA)forrangeandB)forrange.$
$N \leq 238 N = 284 N = 385 N = 503$
$s \leq$
1
?
1000
s
??
??
K'
$K_{4,4}$
512
6
$L \times$
L'
$N =$
$2cL^2$
$L \times$
L
$K_{c,c}$
?
L
K_L
$L =$
$4c$
$N =$
$2cL^2$
$L \times$
L
$K_{c,c}$
$cL +$
$1 \sim$
$O(\sqrt{N})$
?
512
??
33
$\exp(a\sqrt{N})$

$\{1, \ldots, 8\}$
$h_i =$
0
h_i
?
J_{ij}
$2r$
$\{n/r\}$
$n \in$
$\{-r, -r-$
$1, \ldots, -1, 1, \ldots, r-$
$1, r\}$
r
$r =$
1
$J_{ij} =$
± 1
$r =$
7
J_{ij}
h_j
$\sim$
5%
?
$\sigma_i =$
± 1
$\sigma_i =$
-1
$\sigma_i^z \rightarrow$
$a_i \sigma_i^z$
$a_i =$
± 1
$J_{ij} \rightarrow$
$a_i a_j J_{ij}$
$h_i \rightarrow$
$a_i h_i$
s
R
s
$(1-$
$s)^R$
R
$P = 1-(1-s)^R.$

(3)

P
R
?
R/G
G
s_g

$$P^{(G)} = 1-\prod_{g=1}^{G}(1-s_g)^{R/G}.$$

(4)

$$\overline{s} = 1-\prod_{g=1}^{G}(1-s_g)^{1/G},$$

(5)

$$P^{(G)} = 1-(1-\overline{s})^R.$$

(6)

$\overline{s}$
$p =$
0.99
16
$r =$
1
$r =$
3
$r =$
7
50
99
?
R
$t_{anneal} = Rt_a,$

(7)

t_a
R
$t_p(N)+$
$Rt_r(N)$
$t_p(N)$
$t_r(N)$
N
t_p
t_r
??
R
G
R/G
$t_{total}(N) = Gt_p(N)+Rt_r(N).$

(8)