^{-9}m

$[Kod1]$

$[SciAm1]$

$[Odi1]$

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$[Ada1]$

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$[Hay1]$

-

$[Asp1]$

$[\mathrm{Re}\, g1]$

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[SciAm1]

$[Nie1]$

$[Wol1]$

$[Pe\check{c}1]$

$[Nie1]$

$[Wol1]$
$[Peč1]$

$[Cal1]$

$[Wik1]$

- $| \ 0\rangle$
- $| \ 1\rangle$

$a \mid 0\rangle$

$b \ | \ 1\rangle$ $| \ q\rangle$

$[Use1]$

$$| \ q\rangle = a \mid 0\rangle + b \mid 1\rangle$$

$a \mid 0\rangle, b \mid 1\rangle$

$[Use1]$,

$[Vir1]$

$$|a|^2 + |b|^2 = 1,$$

$$a = x_o + iy_0, b = x_1 + iy_{1,}$$

$$|a| = \sqrt{x_o^2 + y_o^2}, |b| = \sqrt{x_1^2 + y_1^2},$$

$|a|^2$ $\mid 0\rangle$ $|b|^2$ $\mid 1\rangle$

$\mid q\rangle$

$\{|\,0\rangle, |\,1\rangle\}$,

$|a|^2$ $|b|^2$

$[Hir1]$

n ^{n}

n ^{n}

^{n}

n

90

$\rightarrow H2.$

$$|\,0\rangle \rightarrow a\,|\,0\rangle + b\,|\,1\rangle,$$

$$|\,1\rangle \rightarrow c\,|\,0\rangle + d\,|\,1\rangle,$$

$$U = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

- U n n
- $U * U^T = U^T * U = I$

I

$[Pit1]$

$|\ 0\rangle$ $|\ 1\rangle$

$|\ 0\rangle$ $|\ 1\rangle$

-
-

-
-
-

- $\lfloor i\rangle$
-
-
-
-
- $[Sho1]$
-
-

$[Hak1]$

$[Wik1]$

$[Bac1]$

$[Mem1]$

E

$E = Q/P,$

$E < 1$

$[Bac1]$

-
-
-
-
-

$[Bac1]$

-
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-

-
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-
-

-
-
-
-
-

$[Sof1]$

$[Wik1]$

$[Cal2]$

G n

v_{in} v_{out}

G

n

n

n

n

$B = (A, T, C, G)$

$$s_2 = TATCGGATCG\ GTATATCCGA,$$

$$s_3 = GCTATTCGAG\ CTTAAAGCTA,$$

$$s_4 = GGCTAGGTAC\ CAGCATGCTT.$$

$$\overline{T} = A, \overline{A} = T, \overline{C} = G, \overline{G} = C.$$

$$e_{2\to 3} = CATATAGGCT\ CGATAAGCTC,$$

$$e_{3\to 2} = GAATTTCGAT\ ATAGCCTAGC.$$

25

$[Cal2]$.

$[Cve1]$

12 5

•

-
-

- $n = m$
- $m = 0$
-

n m

$[Wik1]$

$[Wik1]$.

$[Har1]$

$$c = a_1 * n + a_2 * m,$$

a_1 a_2 n m

n m

c

$[Har1]$

$^\circ C$

-
  $^{-6}$
-
- $n = m$
  ^{3}
- $n - m$
- n m

$[Ibm1]$

$$q(t+1) = f(I(t), q(t)),$$

$$q(t_{i+1}) = f(I(t_i), q(t_i)),$$

$q(t)$ $q(t_i)$ $I(t)$ $I(t_i)$ f

$$q(t) = f^{-1}(q(t+1)),$$
$$q(t_i) = f^{-1}(q(t_{i+1})).$$

$f(a) = f(b) \Rightarrow a = b, a \neq b \Rightarrow f(a) \neq f(b)$
$x \Rightarrow y : exist!x : y \Rightarrow x$

$[Hay2]$

E

$$E \geq k * T * \ln 2,$$

T

$k = 1,38 * 10^{-23} J/K$ E

$^{-21}$

$[Hay2]$

-

- E

$[Ben1]$

$[Hay2]$.

$y_1 = x_1 \quad y_2 = xor(x_1, x_2)$

x_1	x_2	y_1	y_2
0	0	0	0
0	1	0	1
1	0	1	1
1	1	1	0

$$\begin{aligned} if(x_1 &= x_2 = 1) \Rightarrow (y_1 = x_1)\&(y_2 = x_2)\&(y_3 = \overline{x}_3) \\ else(y_1 &= x_1)\&(y_2 = x_2)\&(y_3 = x_3). \end{aligned}$$

x_1	x_2	x_3	y_1	y_2	y_3
0	0	0	0	0	0
0	0	1	0	0	1
0	1	0	0	1	0
0	1	1	0	1	1
1	0	0	1	0	0
1	0	1	1	0	1
1	1	0	1	1	1
1	1	1	1	1	0

$$\begin{aligned} c_2 &= c_1, \\ c_1 &= 0 \Rightarrow (y_1 = x_1)\&(y_2 = x_2), \\ c_1 &= 1 \Rightarrow (y_1 = x_2)\&(y_2 = x_1). \end{aligned}$$

c_1	x_1	x_2	c_2	y_1	y_2
0	0	0	0	0	0
0	0	1	0	0	1
0	1	0	0	1	0
0	1	1	0	1	1
1	0	0	1	0	0
1	0	1	1	1	0
1	1	0	1	0	1
1	1	1	1	1	1

$[Fra1]$

-

- $\frac{1}{3} \rightarrow 0,33333)$

- $\rightarrow$

$[Fra2]$

$[Abe2]$, $[Abe3]$

$[Abe1]$

-

-

$[Abe2]$

- ^{6} ^{12} $[Abe2]$

[$Coo1$]

[$Coo1$]

-
-
-
-
-

$[Coo1]$,
$[Eva1]$

$[Zho1]$

$[Wik1]$

-

-

-

$[Vir2]$

r_1 n_1

N_1 $r_1 * n_1$

r_2

$N_2 \geq N_1$

$N_1 \leq N_2 \leq ... \leq N_i \leq ....$

$[Wik1]$

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-
-
-
-

-
-

$[Wik2]$

$[Wik3]$

$$x_{n+1} = 0, y_{n+1} = 0,16 * y_n,$$

$$x_{n+1} = 0,2 * x_n - 0,26 * y_n, y_{n+1} = 0,23 * x_n + 0,22 * y_n + 1,6,$$

$$x_{n+1} = -0,15 * x_n + 0,28 * y_n, y_{n+1} = 0,26 * x_n + 0,24 * y_n + 0,44,$$

$$x_{n+1} = 0,85 * x_n + 0,04 * y_n, y_{n+1} = -0,04 * x_n + 0,85 * y_n + 1,6,$$

$x_0 = y_0 = 0$

$[-5..5, 0..10]$

$[Str1]$

$[-100V, 100V]$

$\circ C$ $\circ C$

n

[$Abe1$]

[$Abe2$]

[$Abe3$]

[$Ada1$]

[$Asp1$]

[$Ars1$]
[$Bac1$]
[$Ben1$]
[$Cal1$]
[$Cal2$]

[$Coo1$]

[$Cve1$]
[$Eva1$]

[$Fra1$]
[$Fra2$]
[$Hak1$]
[$Har1$]
[$Hay1$]
[$Hay2$]

[$Hir1$]

[$Ibm1$]

[$Kod1$]

[$Mem1$]
[$Odi1$]
[$Pit1$]

[$\mathrm{Re}\, g1$]

[$SciAm1$]

[$Sho1$]

[$Sof1$]
[$Str1$]

[$Use1$]
[$Vir1$]

[$Vir2$]

[$Zho1$]

[$Wik1$]
[$Wik2$]
[$Wik3$]