

Title: Limitations of Noisy Reversible Computations II

Date: Jun 15, 2007 10:50 AM

URL: <http://pirsa.org/07060053>

Abstract:

Group photo:

Afternoon coffee break 4:45 pm
Friday



Group photo:

Afternoon coffee break 4:45 pm

Friday



$$H = \mathbb{C}^{2^n}$$

$$\underbrace{100 \dots 0}_{n} \rangle$$

$$H = \mathbb{C}^{2^n}$$

$$\underbrace{(100 \dots 0)}_n$$

$$S(S_t | I) < (1-p)^t$$

$$100 \dots 0 \rangle$$

$\underbrace{\hspace{10em}}_n$

Lower bound $S(S_+ | I) < (1-p)^t \cdot n$

$$\underbrace{100 \dots 0}_{n}$$

Lower bound $S(S_+ | I) < (1-p)^t \cdot n$

$$H = \mathbb{F}^{2^n}$$

$$\underbrace{(100 \dots 0)}_n$$

Lower bound $S(S_t | I) < (1-p)^t n$

Upper bound $p < \text{Threshold} \Rightarrow \text{Almost logarithmic}$



Strong Amp. Damping
Exp Time

Strong Amp. Damping

Exp Time

Strong Amp. Damping

Exp Time

What About a general qubit channel

Strong Amp Damping

Exp Time

What About a general qubit channel

Unital Noise } General depolarizing
 } Phase Damping

Strong Amp Damping

Exp Time

What About a general qubit channel

Unital Noise } General depolarizing
 } Phase Damping

Strong Amp Damping

Exp Time

What About a general qubit channel

Unital Noise:

} General depolarizing

} Phase Damping



$$|\lambda_1 + \lambda_2| \leq |\lambda_1 + \lambda_3|$$

Strong Army Drawing

Exp Time

What About a general pit channel

Vertical Hesse

General deployment

Phase Drawing



→ Summary 7

\Rightarrow Same as $\text{dep. } \lambda_1$

\Rightarrow Same as dep. λ_1
with an EPR pair for $n/\log n$ time.

\Rightarrow Same as dep. λ_1
don't have an EPR pair for $n/\log n$ time.
not for more than n^c , $c < 1/2$

(... Damping Can Keep

Now write

Non Unital for weak noise
can distill almost clean bits
 \Rightarrow Can compute for exp time