



# Building A Computer Without A Computer.

( Introduction To Error Correction And Fault Tolerance Computation. )

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Hebrew University of Jerusalem

Qubit meeting 2022-23, Israel Quantum Tech Community.

# The Goal Of The Talk

## Blocktitle

- Motivation. Answer on what we are fighting for. Give a non-cryptographic advantage of quantum computing.

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- Motivation. Answer on what we are fighting for. Give a non-cryptographic advantage of quantum computing.
- Reviewing the current status and latest results. Sharing the view of the errors correction scientist.
- Engaging. Build a common language, explain all the frightening terms (Noise, Thresholds, NISQ, Advantage). Talking Business.

# Motivation.

## The Question.

Why should we have a Quantum Computer?



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Why should we have a ~~Quantum~~ Classic Computer?



# Motivation.

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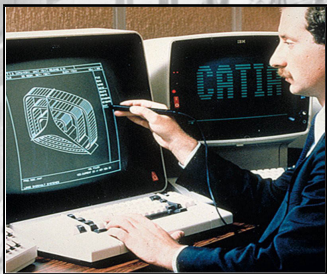
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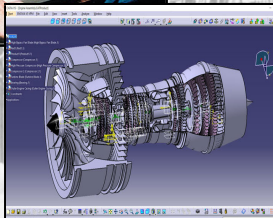




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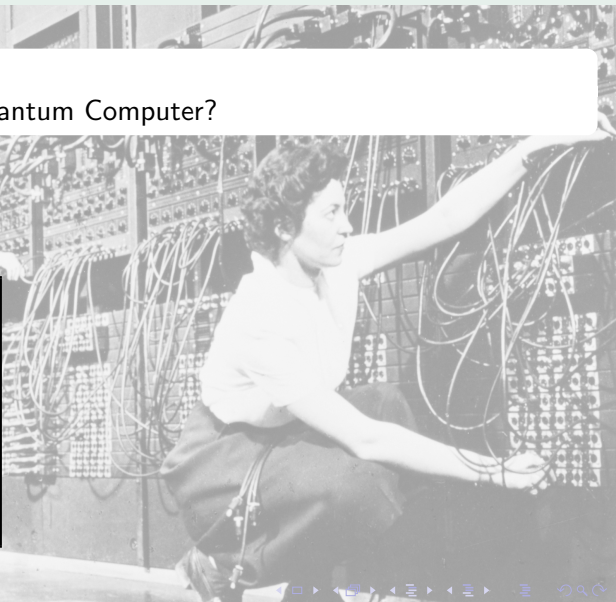
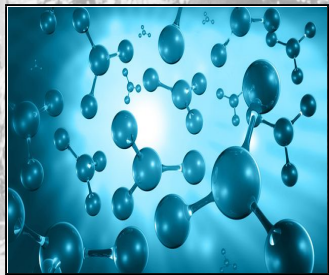
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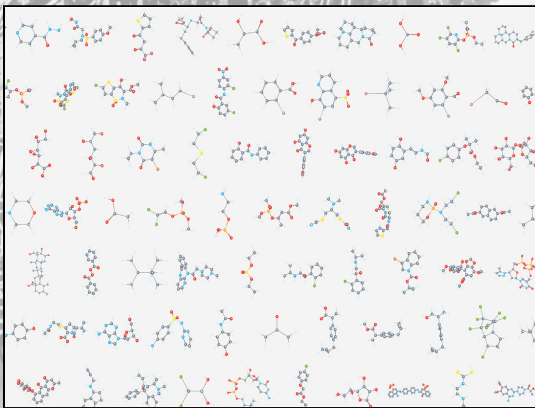
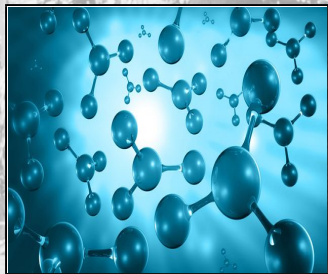
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Why should we have a Quantum Computer?



# Electronic Structure in a Fixed Basis is QMA-complete

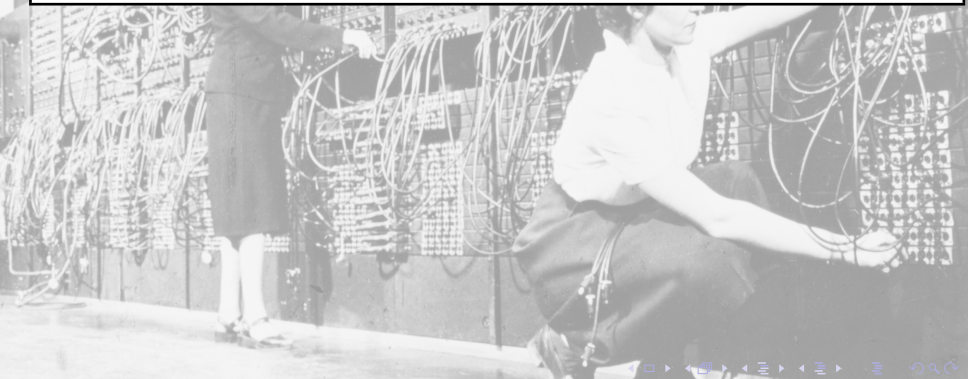
Bryan O'Gorman\*

Sandy Irani<sup>†</sup>

James Whitfield\*\*

Bill Fefferman<sup>‡</sup>

March 16, 2021



# Electronic Structure in a Fixed Basis is QMA-complete

Bryan O'Gorman\*

Sandy Irani<sup>†</sup>

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March 16, 2021

# Asymptotically Good Quantum and Locally Testable Classical LDPC Codes

Pavel Panteleev and Gleb Kalachev\*

January 24, 2022

# About this Presentation.

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# Sounds Grate, Whats is the catch?

here you can put any text/equation etc.  $a^2 + b^2 = c^2$ .

# Wait a minute.

here you can put any text/equation etc.  $a^2 + b^2 = c^2$ .



# This is the second slide

A bit more information about this

Some random text.