

# Spring School on Quantum Computation

March 19-22, 2018  
University of California, San Diego

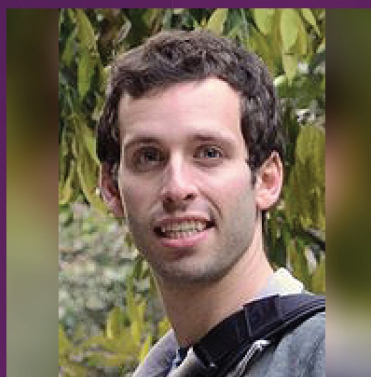
<https://goo.gl/Ua5GRc>

The 3.5-day Spring school will bring TCS researchers up to speed on the current excitement in quantum computing.

Registration deadline: **February 1, 2018** . Limited funding available for students.



**Dorit Aharonov**  
Hebrew University



**David Gosset**  
IBM Research



**Thomas Vidick**  
Caltech

## TARGET AUDIENCE

The school is oriented towards graduate students, postdocs and faculty alike. We expect participants to have a background in computer science (complexity and algorithms), as well as a working familiarity with linear algebra, but no prior exposure to quantum information is needed.

## TOPICS COVERED

Emphasis will be put on interesting open algorithmic and computational complexity questions which are of appeal to theoretical computer scientists. The following topics will be discussed:

- Basics of quantum mechanics, entanglement, the quantum circuit model, the complexity class BQP, the notion of a local Hamiltonian, and the class QMA (the quantum analog of NP).
- Restricted models of quantum computation, such as low-depth circuits and adiabatic computation.
- Quantum error correcting codes and multiparticle entanglement.
- Quantum interactive proofs with one or more provers and their connection to cryptography (delegating quantum computations) and complexity (the quantum PCP conjecture).