



The Strachey Lectures

Oxford Computer Science Public Lectures

DEPARTMENT OF
**COMPUTER
SCIENCE**

Quantum Supremacy

Dr Scott Aaronson, UT Austin

14:00

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Oxford Mathematical
Institute,
Andrew Wiles Building,
Woodstock Rd,
Oxford OX2 6GG

Soon, it will likely become possible to perform special-purpose quantum computations that, while not immediately useful for anything, are plausibly hard to simulate using a classical computer. These 'quantum supremacy experiments' would be a scientific milestone, casting doubt on one of the foundational tenets of computer science, the Extended Church-Turing Thesis. These experiments raise questions for computational complexity theorists: On what grounds should we believe that a given quantum system really is hard to simulate classically? Does classical simulation become easier as a quantum system becomes noisier? How do we verify the results of such an experiment? Recent results and open problems will be discussed.

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