Abstract: In Fall 2019, a team at Google made the first claim of "quantum computational supremacy"---that is, a clear advantage for a quantum computer over current classical computers on a contrived benchmark task---using a 53-qubit programmable superconducting chip called Sycamore. Since then, groups at USTC in China and Xanadu in Toronto have made additional such claims. In addition to engineering, these experiments built on a decade of research in quantum computing theory. This talk will discuss questions like: what exactly were the benchmark problems solved? How do we verify the outputs using a classical computer? How good have classical computers since gotten at the same tasks---good enough to call the quantum supremacy claims into doubt? And where do we go next?

Bio: Scott Aaronson is the Schlumberger Chair of Computer Science at the University of Texas at Austin, and founding director of its Quantum Information Center. He received his bachelor's from Cornell University and his PhD from UC Berkeley. Before coming to UT Austin, he spent nine years as a professor in Electrical Engineering and Computer Science at MIT. Aaronson's research in theoretical computer science has focused mainly on the capabilities and limits of quantum computers. His first book, *Quantum Computing Since Democritus*, was published in 2013 by Cambridge University Press. He received the National Science Foundation's Alan T. Waterman Award, the United States PECASE Award, the Tomassoni-Chisesi Prize in Physics, and the ACM Prize in Computing, and is a Fellow of the ACM.