

Robert Schoelkopf is the Sterling Professor of Applied Physics and Physics at Yale University. His research focuses on the development of superconducting devices for quantum information processing, which might eventually lead to revolutionary advances in computing.

His group is a leader in the development of solid-state quantum bits (qubits) for quantum computing, and the advancement of their performance to practical levels. Together with his collaborators at Yale, Professors Michel Devoret and Steve Girvin, their team created the new field of “circuit quantum electrodynamics,” which allows quantum information to be distributed by microwave signals on wires. His lab has produced many firsts in the field based on these ideas, including the development of a “quantum bus” for information, and the first demonstrations of quantum algorithms and quantum error correction with integrated circuits.

A graduate of Princeton University, Schoelkopf earned his Ph.D. at the California Institute of Technology. From 1986 to 1988 he was an electrical/cryogenic engineer in the Laboratory for High-Energy Astrophysics at NASA’s Goddard Space Flight Center, where he developed low-temperature radiation detectors and cryogenic instrumentation for future space missions.

Schoelkopf, who came to Yale as a postdoctoral researcher in 1995, joined the faculty in 1998, becoming a full professor in 2003. He was named the inaugural William A. Norton Professor of Applied Physics and Physics in 2009, and he currently serves as Associate Director of the Yale Institute for Nanoscience and Quantum Engineering.

The Yale physicist has been recognized as a fellow of both the American Association for the Advancement of Science and the American Physical Society. In 2009, he was awarded the Joseph F. Keithley Award of the American Physical Society for the development of high-frequency measurement techniques to probe quantum devices and nanostructures.

