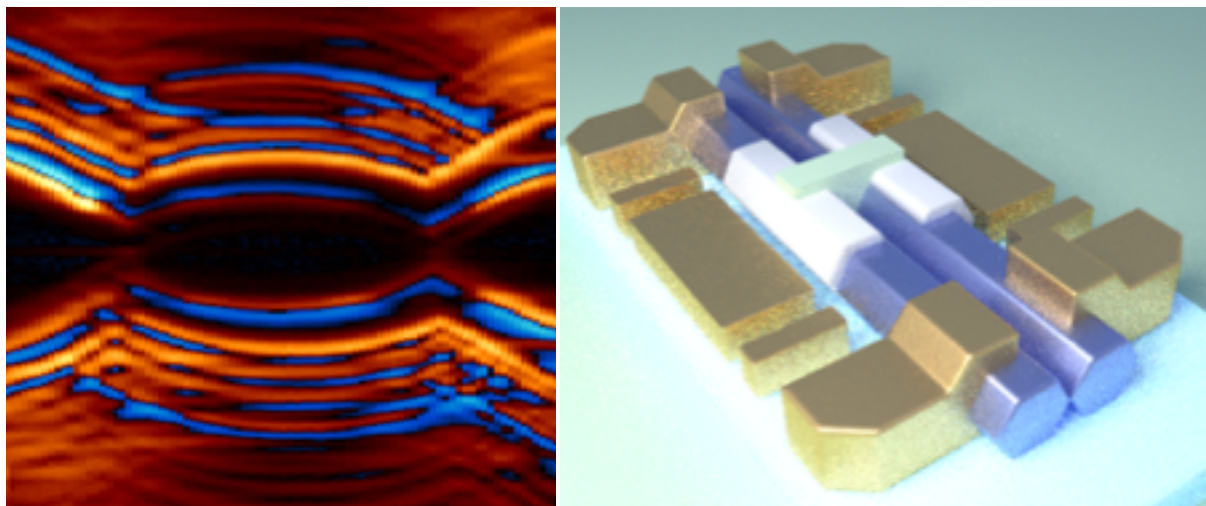




# Bachelors and Masters Student Projects: Experiments on quantum wires and hybrid quantum dots

Center for Quantum Devices

Student projects will focus on devices based on nanostructured materials synthesized in-house such as semiconductor nanowires or carbon-based materials. When superconducting electrodes are attached to such wires, they form quantum dots where we can study the states arising in such “artificial superconducting atoms/molecules”. Currently we are investigating these quantum states and the coupling between them in different multi-quantum-dot geometries consisting of, e.g., serial or parallel double quantum dots contacted with one or more superconducting electrodes. The quantum states are typically probed by conductance measurements or phenomena directly related to superconductivity such as supercurrent. Other projects are dedicated to tests of new semiconducting nanowires and require close interactions with researchers developing and growing these materials. Projects may involve nanoscale device fabrication, electrical transport measurements at sub-Kelvin temperatures and advanced data acquisition/analysis. The work may also include interaction with QDev theory and participation in a weekly journal club, where recent publications are discussed.



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