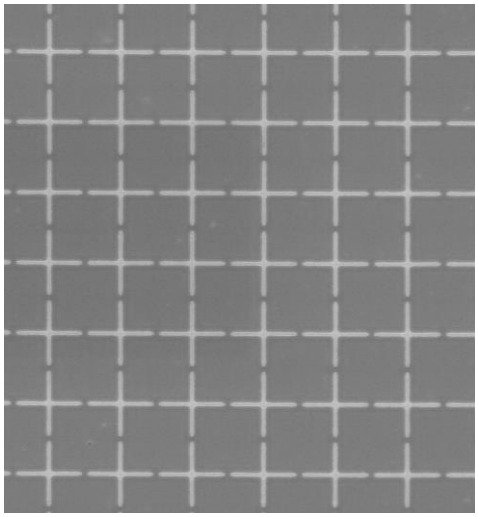
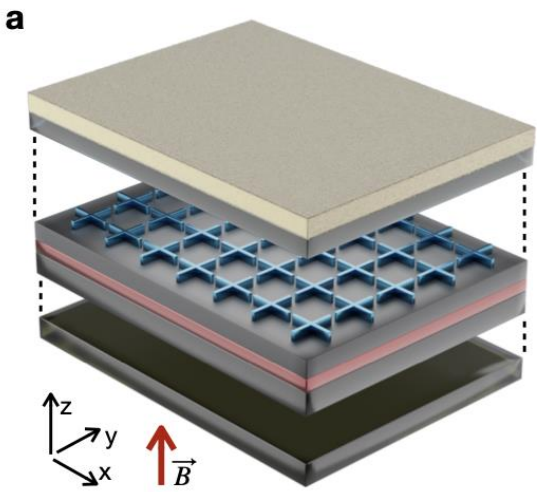
Masters Project in QDev:

Two-dimensional Josephson Arrays

A new Masters Project to experimentally investigate quantum phases in two-dimensional arrays of Josephson junctions is available in the Center for Quantum Devices (QDev). Josephson arrays can be fabricated from superconductor-semiconductor heterostructures, allowing voltage control of phase transitions. The project involves design, fabrication, and measurement of these structures at millikelvin temperatures in collaboration with PhD students, postdocs, and faculty.





We encourage motivated master students to join QDev. This project is somewhat challenging. Some background in condensed matter physics will help with reading, but it's more about having a can-do approach in the lab. Some programming experience in Python is also helpful but not essential. These are not demonstration experiments, this is research. We don't know what will happen. Let's find out and tell the world. Read about a related experiment here: https://arxiv.org/abs/1711.01451.

You will learn the physics of semiconductors, superconductors, quantum phase transitions, flat bands, and artificial lattices. Work with the the best equipment in condensed matter physics on a problem that the world cares about. Discuss physics with colleagues, become an experimental scientist.

To learn more, contact **Charles Marcus** at marcus@nbi.dk or **Saulius Vaitiekenas** (saulius@nbi.dk).