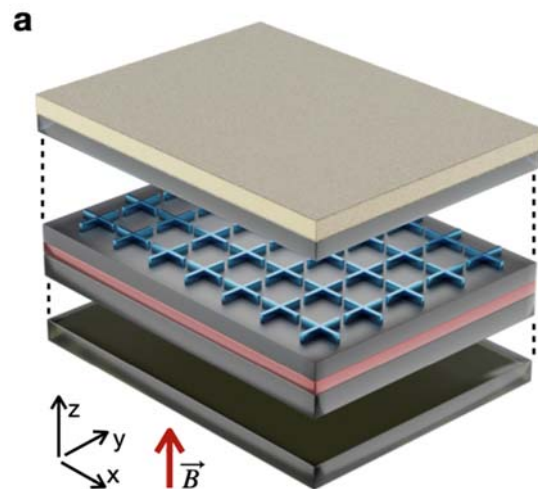
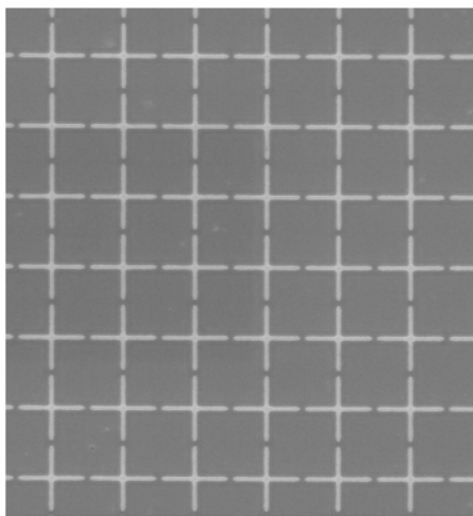




## Masters Project in QDev: Two-dimensional Josephson Arrays

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. What new phases of matter will emerge when a flux is thread and the gate voltage is changed? Can we generate unique ground states in different lattice geometries? The answers to these and other similar questions are not know! Let's answer them together and tell the world what we learn. Read about a related experiment here: <https://arxiv.org/abs/1711.01451>. The project involves design, fabrication, and measurement of these structures at millikelvin temperatures in collaboration with PhD students, postdocs, and faculty.



You will learn the physics of semiconductors, superconductors, quantum phase transitions, flat bands, and artificial lattices. Work with the best equipment in condensed matter physics on a problem that the world cares about. Discuss physics with colleagues, become an experimental scientist. This project is somewhat challenging and will likely evolve into a PhD project. We encourage motivated master students to join QDev.

To learn more, contact **Charles Marcus** at ([marcus@nbi.dk](mailto:marcus@nbi.dk)) or **Saulius Vaitiekėnas** ([saulius@nbi.dk](mailto:saulius@nbi.dk)).