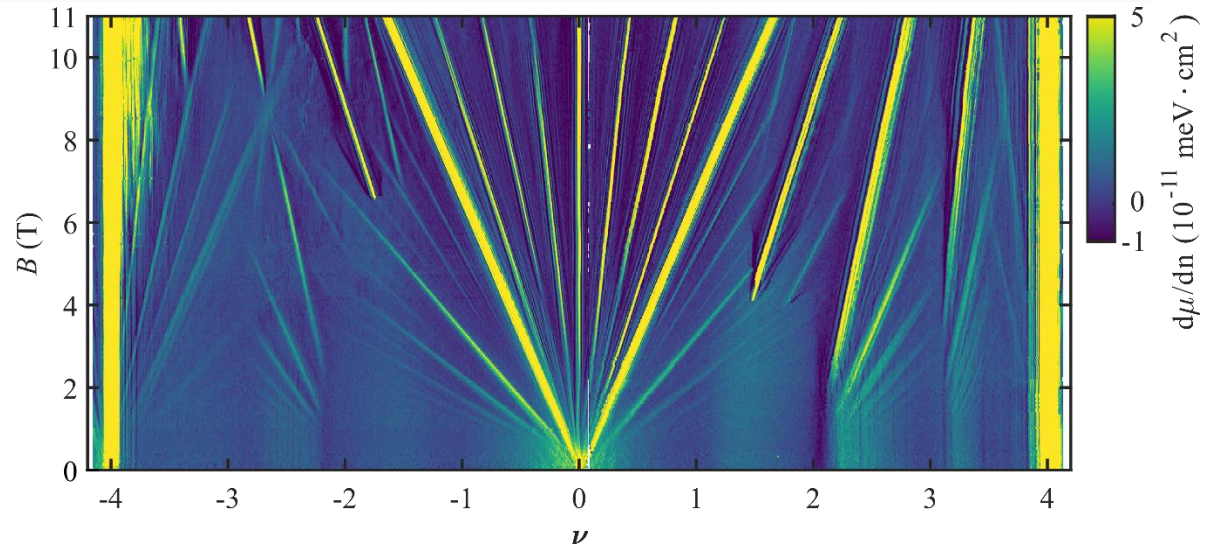


# Quantum Sensing and Quantum Materials (QSQM)

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**MISSION:** To develop new quantum sensing techniques and apply them to investigate relationships between the local and global properties of quantum materials that exhibit strong correlations and/or topological order.



<https://iquist.illinois.edu/programs/qsqm>

## RESEARCH PLAN

QSQM is building a scanning qubit microscope to explore localized electronic states and exotic excitations in quantum materials. QSQM is also developing Einstein-Podolsky-Rosen (EPR) spectroscopy, which is a two-electron time-of-flight technique that will reveal valence band interaction effects in superconductors and determine the microscopic origin of electron-electron interactions and the degree of correlations in strange metals and topological crystalline insulators.