



Method tags: Characterization/Experiment, Modelling/Simulation, Processing/Nanofabrication

Scientific tags: Quantum physics, Quantum technology, Low-temperature transport, Nanothermodynamics

Supervisor: Ville Maisi, ville.maisi@ftf.lth.se

Website: <https://portal.research.lu.se/en/persons/ville-maisi>

Ville Maisi's research interests lie around single-electron devices where the movement of individual electrons is controlled. On one hand, our research of these devices aims to develop applications such as thermometers, quantized electrical current sources and qubits for quantum computing. On the other hand, these devices suit ideally for addressing fundamental physics questions because their operation is based on quantum mechanics. In addition, these nanometre-sized devices are so small that fluctuations in them play an important role. This opens an excellent opportunity to study fluctuations and non-equilibrium thermodynamics experimentally. The nano thermodynamics of the small systems has become an active field of paramount importance in recent years as the size of electronic devices continue to shrink towards the atomic scale.