Topoquant

2D hybrid materials as a platform for topological quantum computing

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**High-quality InSb Quantum Well Devices**

**MBE Growth:** high-quality semiconductor materials

**Nano Fabrication for Quantum Devices**

**Low-temperature Quantum Transport Measurements**

**Understanding of Quantum Properties**

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**n-type InSb, 2D and 1D**

![Graphs showing electrical properties of n-type InSb.](image)

**p- and n-type InSb in a Single Device**

![Graphs showing electrical properties of p- and n-type InSb.](image)

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- Z. Lei *et al.*, arXiv:2208.10427
Epitaxial InAs/Al Heterostructures

2D InAs/Al for Topological Quantum Computing

Material growth: Wegscheider Group, ETH Zurich

Topological Quantum Computing

Dephasing[1]

Continuous readout of QD charge to detect qubit state

Qubit readout[2]

Dephasing rate as signature of Majorana bound states

Improved platform[3]

Topological phase due to phase bias w/o magnetic field

Qubit lifetime

QD charge

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