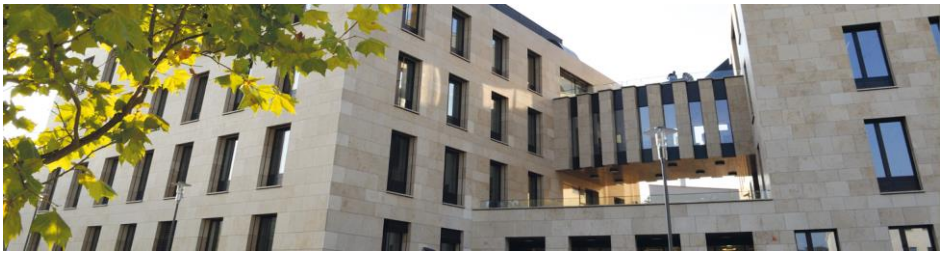

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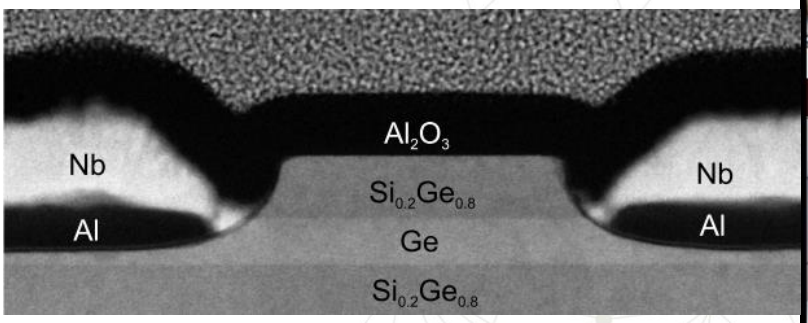
Hybrid semiconducting-superconducting Ge devices

In the past decade, there has been a huge wave of excitement in the prospect of realizing topological qubits for quantum computation. Such qubits are predicted to be robust versus decoherence. In the main focus of these proposals are the so-called Majorana zero modes. By now various groups have reported signatures of Majorana zero modes by typically using proximitized III-V nanowires [1,2]. However, the origin of the observed zero bias peaks is highly debated [3]. One of the reasons is that the induced in-gap states appearing when a magnetic field is applied makes the interpretation of the experimental data more difficult.

Several works which were published in the past few years pointed out that planar Josephson junctions can be used for reaching the topological regime at low magnetic fields by applying a phase difference between the two superconductors. Here we aim to use Ge hole gases as a 2D platform, for which we have recently demonstrated proximity induced superconductivity, to investigate such ideas.



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Requirements

- High motivation
- Excellent track record in semiconductor-superconductor devives
- Enjoy working in an international environment
- Solid background in the following areas: superconductivity and low temperature physics

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