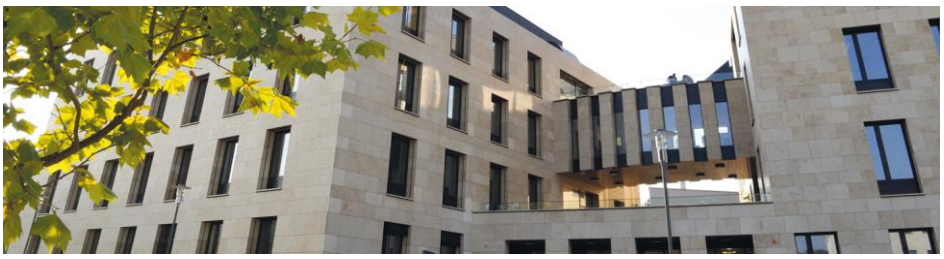


Institute of Science and Technology Austria

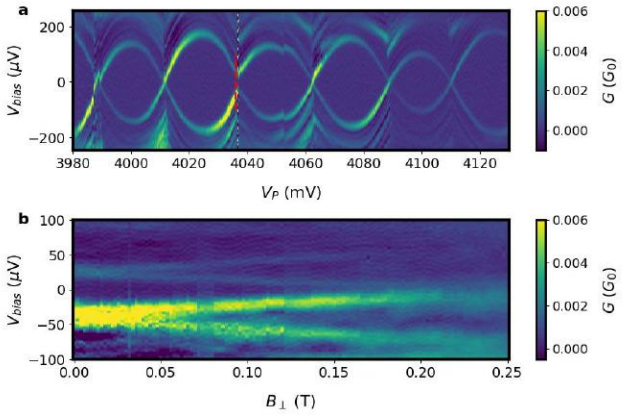
Postdoc position

Hybrid semiconducting-superconducting Ge devices

Holes in planar germanium are gaining significant interest in the field of spin qubits and hybrid semiconducting-superconducting devices [1,2]. This is due to desirable properties, including low effective mass, strong spin-orbit interaction, inducible superconductivity, and the potential for isotopic purification. However, a key challenge lies in Ge's small in-plane g-factor, which complicates the integration of spin qubits with superconducting circuits.

Recently, the first proximitized quantum dot in planar Ge was demonstrated, using PtGeSi superconducting leads. These leads exhibit a 75 μeV-induced gap and robust magnetic-field resilience in all three spatial directions.

At ISTA we have recently realized a hard-induced gap in a Ge quantum well with a zero-conductance region of 200 μeV and BCS peaks at 270 μeV. We have used this platform to proximitize a quantum dot [4], showing a gate-tunable superconductor-dot hybridization. The magnetic field resilience exceeds 200 mT in the out-of-plane direction using wide superconducting leads. This combination of stable quantum dots, a large hard induced gap, and 3D magnetic field resilience with micron-scale superconducting contacts represent a promising step toward integrating spin qubits into cQED architectures and moving towards Cooper-pair splitter devices.



References:

[1] G. Scappucci et al. Nat. Rev. Mater. 6, 926 (2021)
[2] M. Pita-Vidal et al., arXiv: 2512.23336 (2026)
[3] L. Lakic et. al. Nat. Mater. **24,** 552-558 (2025)
[4], G. Fabris, P. Falthansl-Scheinecker et al., in preparation (2026)

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Requirements

- High motivation
- Proven track record in hybrid quantum dot devices and/or RF reflectometry experience
- Enjoy working in an international environment
- Team player mentality