



Colloquium

Towards the next generation of superconducting qubit

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Host: Johannes Fink

Superconducting circuits have emerged as one of the leading platforms for quantum computing. However, scaling these systems towards fault-tolerant quantum computation remains challenging, placing stringent demands on qubit performance and qubit count. In this talk, I will discuss how we are addressing some of these challenges by exploring alternative superconducting qubit designs. In particular, I will focus on fluxonium qubits, whose strong anharmonicity and high coherence offer new opportunities for improving qubit readout and implementing high-fidelity quantum gates. I will highlight recent progress in leveraging these properties to overcome some of the limitations of more conventional superconducting qubit architectures. Looking further ahead, I will explore how hybrid superconducting-semiconducting devices can open up entirely new possibilities for quantum computing. In particular, Andreev spin qubits offer a promising route towards novel architectures, where their unique coupling mechanisms could enable all-to-all qubit connectivity. Together, these developments illustrate how moving beyond conventional qubit designs may provide new pathways towards scalable and more powerful superconducting quantum processors.

Tuesday, November 3, 2026 11:00am - 12:00pm

Office Bldg West / Ground floor / Heinzel Seminar Room (I21.EG.101)



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

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<https://ista.ac.at/en/campus/how-to-get-here/> The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.