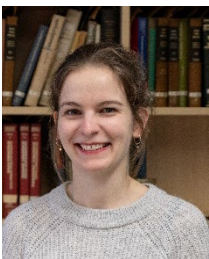


**Montag, 04.05.2026 um 15:15 Uhr**  
**R87, Wilhelm-Klemm-Str. 10**

## Building Qubits: The Fabrication of Superconducting Quantum Circuits



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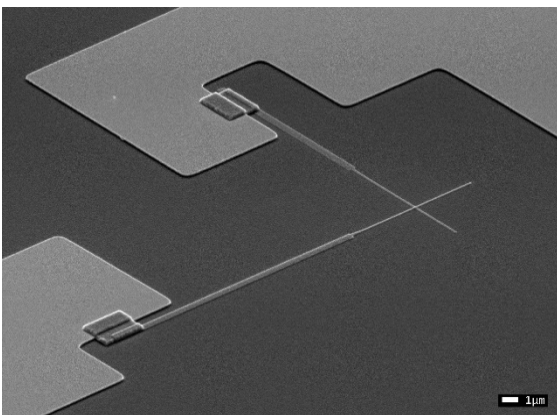
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Quantum computing is a rapidly developing field that harnesses the principles of quantum mechanics to enable fundamentally new approaches to information processing. By exploiting phenomena such as superposition and entanglement, quantum systems operate on qubits rather than classical bits, offering the potential for significant computational advantages in specific problem domains.

Superconducting qubits are among the most promising implementations, based on macroscopic quantum states in superconducting circuits. They offer high flexibility in circuit design and strong scalability potential, making them a leading candidate for future quantum processors. However, they also require extremely precise and demanding fabrication processes, placing significant challenges on nanofabrication techniques and material quality. The presentation introduces the fabrication technologies used for superconducting qubits, including lithography, thin-film deposition, and Josephson junction engineering. Finally, the talk provides an outlook on current developments in the field.



The heart of a superconducting qubit: the Josephson junction.