

# Superconducting Quantum Circuit Fabrication Facility (Qufab)

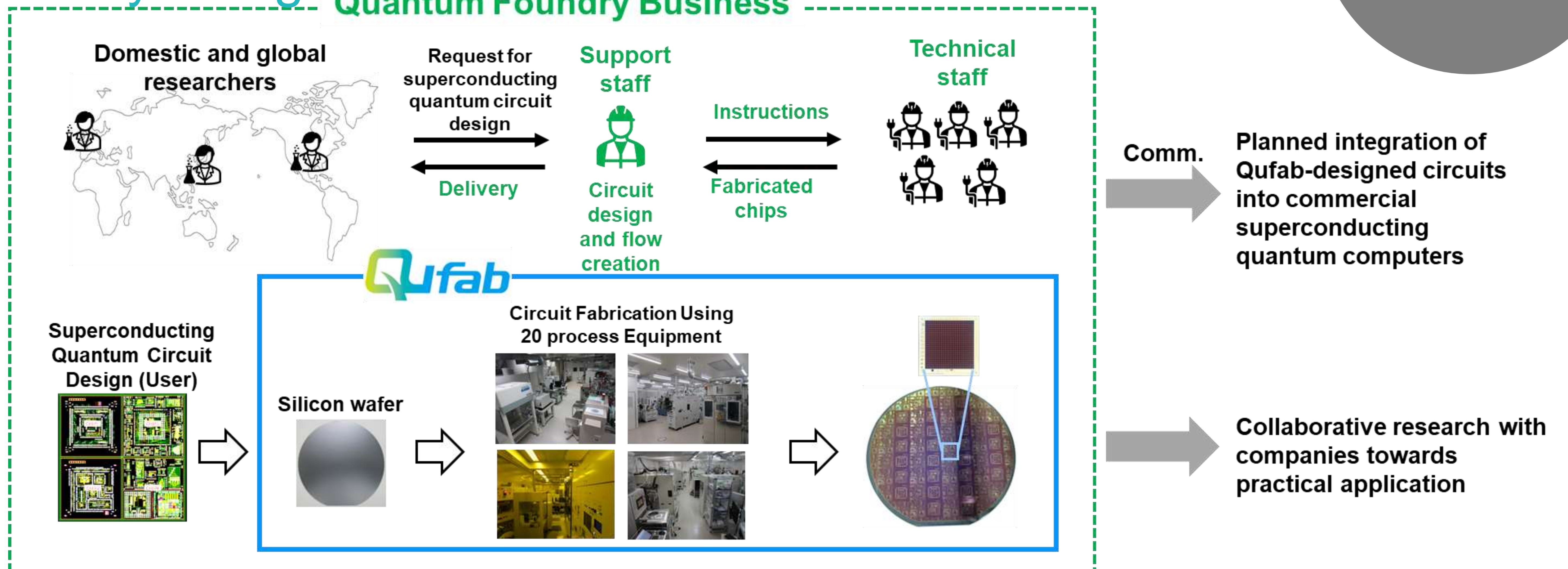
Superconducting Quantum Device and Circuit Prototyping Line

- ▶ 4-inch circuit prototyping line for superconducting quantum computer
- ▶ Superconducting Qubits, Qubits control circuit, 3D implementation
- ▶ R&D to commercial circuit prototyping

Offering foundry services to both domestic and global users

## Facility Usage

### Quantum Foundry Business



Since April 2024

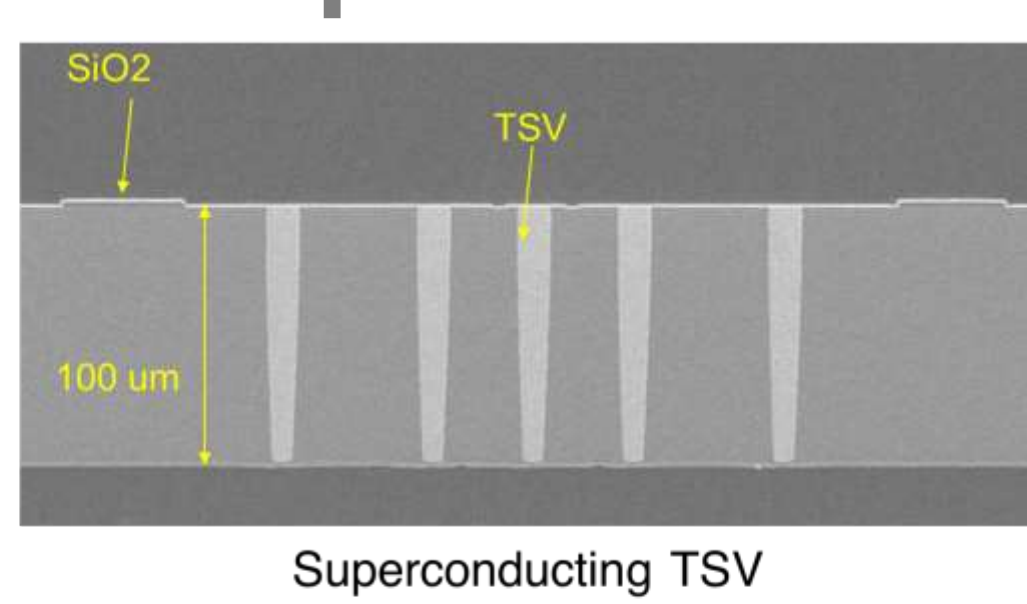
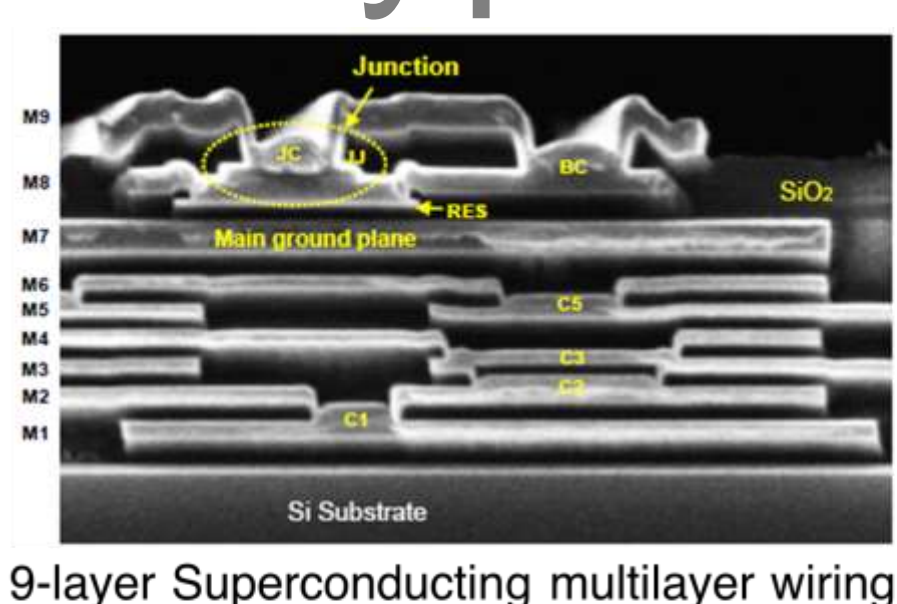
Since October 2024

- English Support started.
- Users come to Qufab to fabricate devices and circuits using **Qufab's** process and measurement equipment.
- R&D and commercial Foundry for superconducting Qubits and Circuits

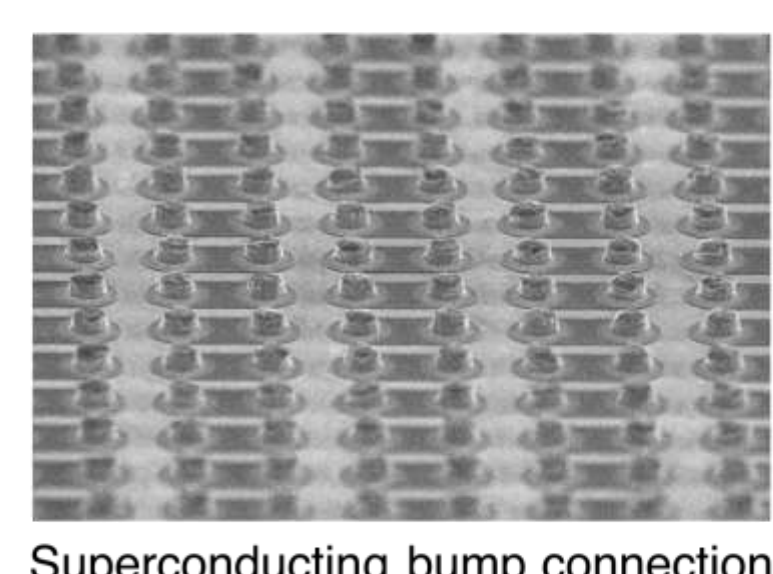
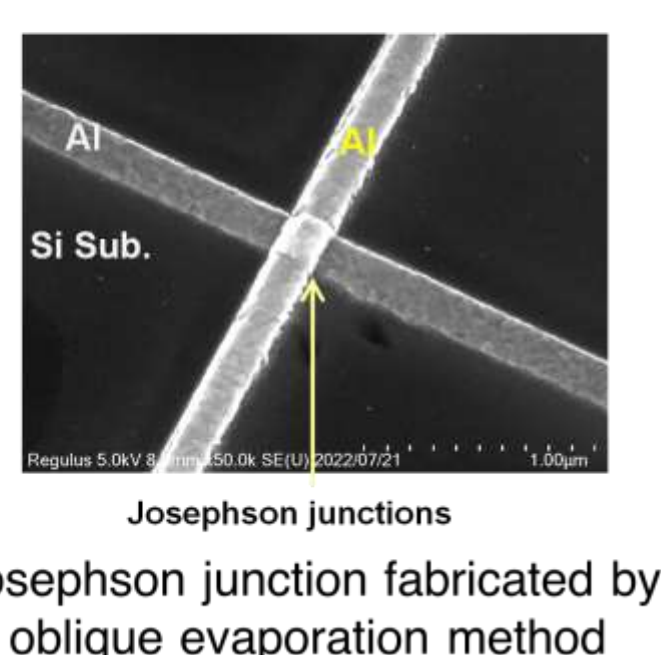
## CR and Process Equipment for Prototype Line

- Superconducting mounting equipment Clean room: 720m<sup>2</sup>, Class: Mainly 1000
- 4-inch prototype line
- Main process and measurement equipment: 20 units
- Superconducting thin films: Nb, Al, Pd, Mo, TiN.
- Al JJ using oblique deposition
- i-line stepper, EB lithography, lithography down to 20 nm
- F, Cl etching system. Suitable for etching various materials.
- 3D superconducting mounting equipment

## Prototype Lineup



- 11-layer superconducting multilayer wiring for superconducting digital circuits
- Superconducting qubits by oblique deposition
- Superconducting 3D mounting



Global Research and Development Center for Business by Quantum-AI Technology (G-QuAT), AIST  
Contact : M-G-QuAT-plan-ml@aist.go.jp

