

EuroSQIP

Wed, 2012-03-28 12:41 - [Lukas Theussl](#) **Full Name:** European Superconducting Quantum Information Processor

Coordinator: Prof. Göran Wendin

Location

Chalmers University of Technology S-412 96 Göteborg Sweden
51° 56' 46.8564" N, 4° 22' 53.3748" E

Website:

<http://mina4-49.mc2.chalmers.se/~eurosqip/>

Running time: 2005-11-01 - 2009-10-31

The overall objective of EuroSQIP is to develop a 4-qubit information processor capable of

- running simple algorithms for search, QFT, teleportation and complex dynamics simulation.
- demonstrating quantum state control of a macroscopic multi-partite system
- demonstrating entanglement and entanglement transfer
- providing storage of quantum information
- providing quantum communication interfaces
- running simple quantum error correction schemes

This will be implemented and performed within three major tasks involving hardware platforms based on Josephson junction (JJ) technology for

- Cooper-pair-box Transmon-type qubits
- flux qubits
- phase qubits

representing three major lines with proven 1-qubit, and emerging 2-qubit, gate functionality. The platforms will allow control and readout of individual qubits, allow two-qubit gates with fixed and switchable couplings, and contain on-chip circuitry for storage and internal and external communication of quantum information. A particular task will be to investigate and design scalable hybrid systems including nanotraps for atoms and ions and quantum optical components in order to integrate the best of different QIPC approaches.

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