Coupled Fluxonium for Analog Quantum Computing

Tim Duty
The Qilimanjaro Team

Qilimanjaro Quantum Tech, S.L., Carrer de Veneçuela, Barcelona, Spain

Contact: tim.duty@qilimanjaro.tech

Abstract

Analog quantum computing places challenging requirements on processor design and physical implementation. Densely coupled qubits need to be broadly tuneable, which opens many channels for decoherence and presents significant wiring and control issues to overcome. Nevertheless, we believe a scalable superconducting analog platform can be achieved that simultaneously allows for very long coherence times, high connectivity and efficient readout.
I present progress towards this goal at Qilimanjaro, where we are developing an architecture suitable for analog and hybrid quantum information processing based on galvanically-coupled fluxonium qubits.

Figures

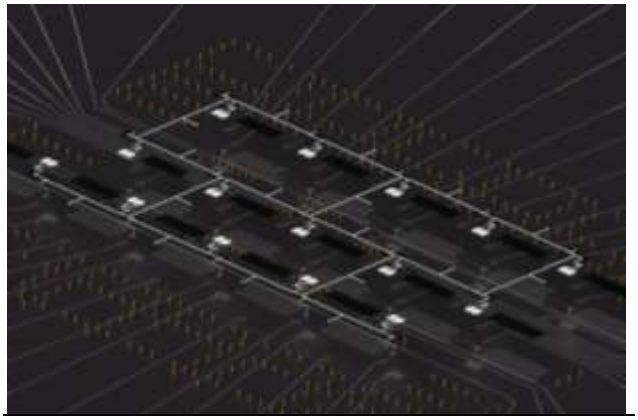

Figure 1: Layout of 15 qubit processor coupled in a hexagonal topology with flip-chip packaging.

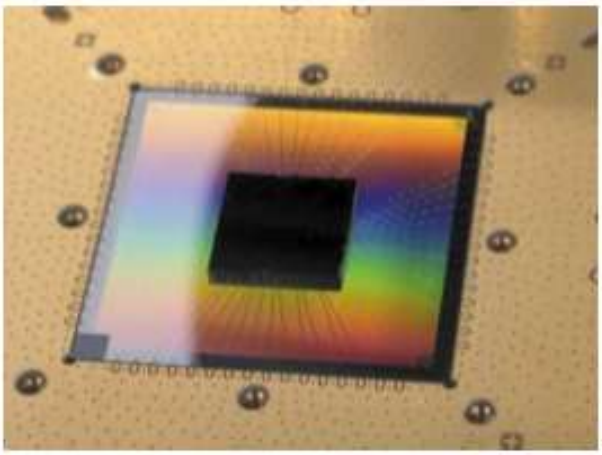

Figure 2: Photo of fabricated hexagonal 15-qubit flip-chip processor mounted on circuit board.