CircuitQED@20

A celebration of the 20 years of circuit quantum electrodynamics

2024 marks the 20 year anniversary of the publications "Strong coupling of a single photon to a superconducting qubit using circuit quantum electrodynamics" in Nature and "Cavity quantum electrodynamics for superconducting electrical circuits: An architecture for quantum computation" in Physics Review A in 2004.

We invite you to a celebration of the 20 years of circuit quantum electrodynamics, at Yale University's campus in New Haven, CT, USA, from January 10 to 12, 2024.

*This event is supported by the **Yale Quantum Institute** and the **Sigma Xi Fund at Yale**.*

Wednesday

9 AM *Opening Remarks* - Michael Crair - Office of the Provost, Yale University

Session 1 - Circuit QED I

9:15 AM *Keynote* - Steve Girvin - Yale University
Circuit QED and Quantum Control of Oscillators and Qubits

10:15 AM Morning break

10:30 AM Yvonne Gao - National University of Singapore
On-demand transposition across light-matter interaction regimes in bosonic cQED

11 AM Alexandre Blais - Université de Sherbrooke
Measurement-induced transmon ionization

11:30 AM Archana Kamal - UMass Lowell
Resolving the T1 anomaly in circuit-QED

12 PM Discussion period

12:30 PM Lunch

Session 2 - Spins, Atoms, and Photons

2 PM *Keynote* - Patrice Bertet - CEA Saclay
Circuit QED for microwave photon counting and single-spin magnetic resonance

3 PM Lieven Vandersypen - TU Delft
Spin circuit-QED in the time-domain

3:30 PM Afternoon break

4 PM David Schuster - Stanford University
Hybrid Quantum Science with neutral atoms in superconducting resonators

4:30 PM Gerhard Rempe - Max Planck Institute
Entanglement: The Next Generation

5 PM Discussion period

Thursday

Session 3 - Quantum Error Correction

9 AM *Keynote* - Michel Devoret - Yale University/Google
How fast can we remove entropy from a superconducting qubit?

10 AM Morning break

10:30 AM Luyan Sun - Tsinghua University
Binomial bosonic quantum error correction

11 AM Leo DiCarlo - TU Delft
A benevolent controlled-Z gate for quantum error correction in a tunable-coupler circuit QED architecture

11:30 AM Shruti Puri - Yale University
Noise Steering in CircuitQED

12 PM Discussion period

12:30 PM Lunch

Session 4 - Quantum Photonics

2 PM	*Keynote* - **Andreas Wallraff - ETH Zurich**
	Loophole-Free Bell Tests OR Surface Code QEC
3 PM	**Andrew Houck - Princeton University**
	Quantum Simulation with cQED lattices
3:30 PM	Afternoon break
4 PM	**Yasunobu Nakamura - RIKEN/University of Tokyo**
	Circuit QED for high-fidelity qubit readout
4:30 PM	**Vladimir Manucharyan - EPFL**
	Strong down-conversion regime in multi-mode circuit QED
5 PM	Discussion period

Poster Session

5:30 PM	**Poster Session & Reception**

Session 5 - Quantum Acoustics and Transduction

Friday

9 AM	*Keynote* - **Konrad Lehnert - JILA**
	Quantum transduction between the microwave and optical domains
10 AM	Morning break
10:30 AM	**John Teufel - NIST**
	Circuit Quantum Electromechanics
11 AM	**Per Delsing - Chalmers University**
	Controlling emission from qubits in a 1D waveguide
11:30 AM	**Yiwen Chu - ETH Zurich**
	Creating and measuring quantum states of sound with circuit QAD
12 PM	Discussion period
12:30 PM	Lunch

Session 6 - Circuit QED II

2 PM	*Keynote* - **Will Oliver - MIT**
	Waveguide QED and High-Fidelity Operations
3 PM	**Jerry Chow - IBM**
	From utility scale towards quantum centric supercomputing
3:30 PM	Afternoon break
4 PM	**Nathalie de Leon - Princeton University**
	New materials for superconducting qubits
4:30 PM	*Concluding remarks* - **Rob Schoelkopf - Yale University**
	Dual-rail Erasure Qubits