Superconducting Quantum Devices in the UK 2023 (SQD23)

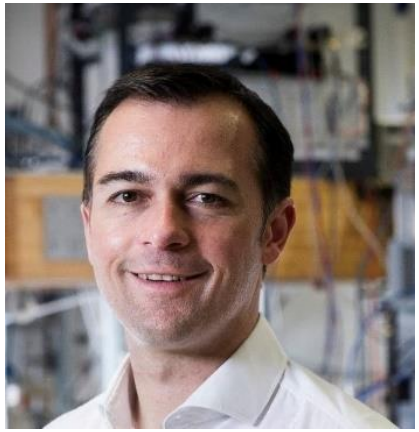
Superconducting Quantum Devices in the UK 2023 (SQD23)

The Mazumdar-Shaw Advanced Research Centre (ARC)
University of Glasgow, Glasgow, 6-7 July 2023

Superconducting Quantum Devices in the UK 2023 (SQD23)

Conference Chairs

Dr Kaveh Delfanazari (Lead)



Prof. Martin Weides

Prof. Robert Hadfield

Superconducting Quantum Devices in the UK 2023 (SQD23)

Sponsors/Exhibitors

kiutra

Delft Circuits
Hardware for quantum engineers

SQD23 Day 1: Thursday 6th July 2023

Time	Presentation title	Speaker
8:30-9:00	**Arrival, and registration**	ARC
9:00-9:05	Welcome and Introduction	Co-chair SQD23
9:05-9:20	Opening Speech	HoRD ENE, Hadi Heidari
9:20-9:50	Talk 1: Introduction to Superconducting Quantum Technologies in Glasgow	Martin Weides, UofG
9:50-10:20	Talk 2: Identifying material defects in superconducting quantum circuits	Tobias Lindsorm, NPL
10:20-10:40	Talk 3: Detecting telecom photons using a 2D high-Tc superconductor	Rafael Luque Merino, Munich
10:40-11:00	Talk 4: Superconducting Quantum Amplifiers for Dark Matter Searches	Edward Romans, UCL
11:00-11:15	**Coffee break**	
11:15-11:45	Industry Talk 1: Novel sub-Kelvin cryostats for applied quantum technologies	Pau Jorba, Kiutra
11:45-12:15	Talk 5: How to control THz radiation in layered superconductors and engineered Josephson Junctions	Sergey Saveliev, Loughborough University
12:15-12:35	Talk 6: Cryogen-free Scanning Gate Microscope for Single TLS Defect Detection in Superconducting Quantum Devices	M. Hegedus, NPL
12:35-12:55	Talk 7: Fabrication of Airbridges for Superconducting Quantum Circuits	Jharna Paul, UofG
12:55-14:30	**Lunch break, poster presentation, and JWNC virtual tour (optional)**	
14:30-15:00	Industry Talk 2: Cryocoolers for SNSPD	Will Jones, Shicryogenics
15:00-15:30	Talk 8: Superconductor-Semiconductor Quantum Circuits	Malcolm R. Connolly, Imperial
15:30-15:50	Talk 9: Large-scale integration and characterisation of gate-addressable hybrid superconducting quantum circuit elements	Kaveh Delfanazari, UofG
15:50-16:05	**Coffee break**	
16:05-16:35	Talk 10: The current quantization in small Josephson junctions	Vladimir Antonov, RHUL
16:35-16:55	Talk 11: Modelling non-Markovian noise in driven superconducting qubits	Abhishek Agarwal, NPL
16:55-17:15	Talk 12: High efficiency SNSPD receiver for Breakthrough Starshot initiative	Robert Graham, UofG
17:15-17:30	Quantum Circuit Lab tour (optional)	ARC/Rankine
17:15-17:30	**Preparation for Reception in Civic Centre**	
18:00-20:00	**Reception in Civic Centre (optional)**	Glasgow City Chambers

SQD23 Day 2: Friday 7th July 2023

Time	Activity	Speaker
9:00-9:30	Industry Talk 3: Building the Quantum Control Stack	Elisha Svetitsky, Quantum-Machines
9:30-10:00	Talk 1: Approaches to Scaling Superconducting Qubits	Vivek Chidambaram, NQCC
10:00-10:20	Talk 2: Near- to Mid-IR single photon detection using superconducting nanowire arrays	Vidur Raj, UofG
10:20-10:40	Talk 3: Study of superconducting qubit crosstalk and EM environment	Artem Shesterikov, RHUL
10:40-11:00	Talk 4: Ta based resonators for superconducting quantum applications	Valentino Seferai, UofG
11:00-11:25	**Coffee break**	
11:25-11:45	Talk 5: Absolute power calibrator based on the flux and transmon qubits	Ilya Antonov, RHUL
11:45-12:05	Talk 6: Single Step Kinetic Inductance Parametric Amplifier (KIPA) With Large Signal Gain	Cong Fu, UofG
12:05-12:25	Talk 7: RSFQ Programmable Multi-Tone Generator for Quantum Circuits Control	Joao Barbosa, UofG
12:25-12:45	Talk 8: Characterization of 22nm FDSOI transistors down to mK temperatures	Meraj Ahmed, UofG
12:45-14:40	**Lunch break, poster presentation and JWNC virtual tour (optional)**	
14:40-15:00	Talk 9: Tuneable capacitive coupler for superconducting flux qubits	Henry Chew, UCL
15:00-15:20	Talk 10: Transition edge sensor and SQUID readout scheme for the ALPS-II dark matter search experiment	Devandra K Namburi, UofG
15:20-15:40	Talk 11: Building optoelectronics architecture for control and readout of a microwave resonator operating at mK temperature.	Calum Rose, UofG
15:40-16:00	**Poster prize** **Closing remarks**	Robert Hadfield, Kaveh Delfanazari, Martin Weides
16:00-16:30	Quantum Sensor Lab tour (optional)	ARC

SQD23 Poster Session

	Presenter	Presentation title
1	Leon M. Guerrero, UCL	Digital Control of Fluxonium Qubits
2	Pias Tubsrinuan, UCL	Diabatic quantum annealing with a superconducting flux qubit
3	Sebastian de Graaf, NPL	Spin echo silencing using a frequency tunable superconducting resonator
4	Manognya Acharya, NPL	Metrology for wafer-scale superconducting quantum circuits
5	Paniz Foshat, UofG	Characterizing high-Q niobium nitride superconducting microwave coplanar waveguide resonator array for cQED in high magnetic fields
6	Andrew Hutcheson, NPL	Strategies in Vibration Reduction in Dry Dilution Refrigerator for Scanning Probe Measurements of Superconducting Quantum Circuits
7	Gianluca Aiello, NPL	Bayesian State Separation for readout calibration of superconducting
8	Nathan Eng, RHUL	Quantum bath suppression in a superconducting circuit by immersion cooling
9	Shimeng Xi, UofG	Enhancing Qubit Control and Josephson Junction Performance through Laser Annealing
10	Giuseppe Colletta, UofG	Superconducting Coherent Structures for Next-Generation Quantum Technology
11	Susan Johny, UofG	Superconducting material characterisation for next-generation quantum applications
12	Nicholas Nugent, UofG	Flip-chip integration for quantum circuits
13	Kaivan Karami, UofG	Optimisation of aluminium deposition for Josephson junctions
14	Jack Brennan, UofG	Integrating single flux quantum (SFQ) technology into a dilution refrigerator for superconducting-qubit control
15	Shima Poorgholam-Khanjari, UofG	Thin Niobium Nitride and Tantalum Superconducting Microwave Coplanar Resonators Arrays for Quantum Circuits
16	Hua Feng, UofG	Characterisation of Titanium Nitride Thin Films for Josephson Junction Electrodes
17	Deepanian Das, Lancaster	Exploring quantum paraelectricity as a mechanism for parametric amplification
18	Mingqi Zhang, UofG	Engineering optical properties of HTS superconducting van der Waals nano-circuits down to monolayer for quantum technologies
19	Max Russell Littlewood, UofG	Pick and place transfer of SNSPDs fabricated on SiNx membranes

Poster information:

Please note that A1 poster boards (portrait only) are available in the ARC – these use pins. You could also send us the electronic file of your poster as portable screens are available for digital posters or videos, 16:9 ratio.

Local Organising Committee:

Dr Kaveh Delfanazari, Professor Martin Weides, Professor Robert Hadfield

Dr Kaivan Karami, Dr Jack Brennan, Dr Devendra Kumar Namburi, Dr Vidur Raj, Dr Robert Graham

Mingqi Zhang, Paniz Foshat, Susan Johny, Shima Poorgholam, Calum Rose, Cong Fu, Nicholas Nugent

SQD23 Contact:

Dr Kaveh Delfanazari

kaveh.delfanazari@glasgow.ac.uk

SQD23 Participant list:

Name	Organization/Institution
Manognya Acharya	National Physical Laboratory
Tobias Lindstrom	National Physical Laboratory
Sebastian de Graaf	National Physical Laboratory
Manognya Acharya	National Physical Laboratory
John Saunders	Royal Holloway University of London
Narendra Acharya	Oxford Quantum Circuits (OQC)
Tom Dixon	Oxford Quantum Circuits (OQC)
Pau Jorba	kiutra GmbH
Jasper Kölling	kiutra GmbH
Vladimir Antonov	Royal Holloway University of London
Martin Weides	University of Glasgow
Cong Fu	University of Glasgow
Shima Poorgholam Khanjari	University of Glasgow
Wridhdhisom Karar	University of Glasgow
Elisha Svetitsky	Quantum Machines
Andrew Hutcheson	National Physical Laboratory
Vidur Raj	University of Glasgow
Giuseppe Colletta	University of Glasgow
Abhishek Agarwal	National Physical Laboratory
Devendra Namburi	University of Glasgow
Joao Barbosa	University of Glasgow
Shimeng Xi	University of Glasgow
Chunlin Qu	University of Glasgow
Gianluca Aiello	National Physical Laboratory
Asem Elarabi	National Physical Laboratory
Valentino Seferai	University of Glasgow
Kaivan Karami	University of Glasgow
Max Russell Littlewood	University of Glasgow
Hua Feng	University of Glasgow
Henry Chew	University College London
Jharna Paul	University of Glasgow
Pias Tubsrinuan	University College London
Rui Tan	University of Glasgow
Rafael Luque Merino	Ludwig Maximilian Universitat (Munich)
Leon Guerrero	University College London
Joe Bronstein	University of Glasgow

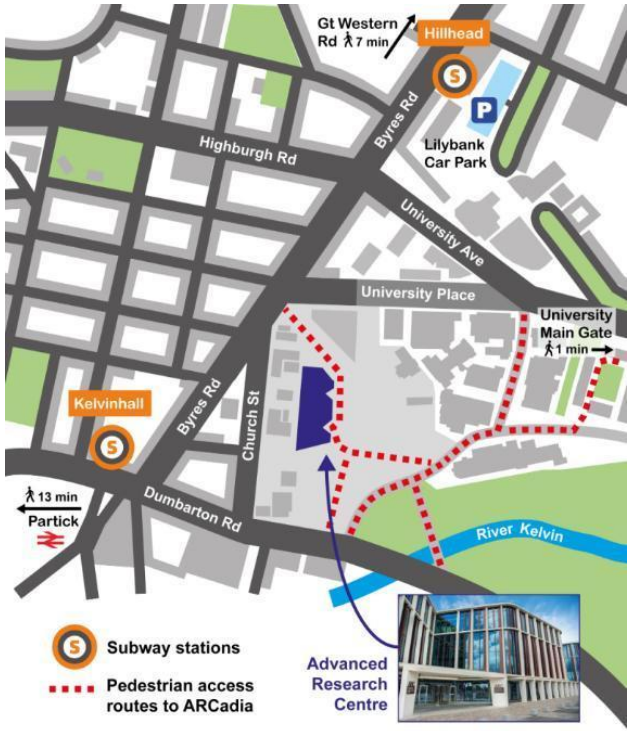
Mingqi Zhang	University of Glasgow
Paniz Foshat	University of Glasgow
Nathan Eng	Royal Holloway, University of London
Yi Shi	University College London
Kevin Crawford	Oxford Quantum Circuits
Ilya Antonov	Royal Holloway University of London
Artem Nikitin	Delft Circuits B.V.
Sumender Singh	DELFT CIRCUITS BV
Edward Romans	University College London
Calum Rose	University of Glasgow
Artem Shesterikov	Royal Holloway, University London
Daniel Kuznesof	University of Glasgow
Malcolm Connolly	Imperial College London
Robert Hadfield	University of Glasgow
Mahmoud Ahtaiba	University of Glasgow
Ni Hong	University of Glasgow
Freya Johnson	London Center for Nanotechnology
Susan Johny	University of Glasgow
Marius Hegedus	National Physical Laboratory
Stefanos Dimitriadis	Imperial College London
Vivek Chidambaram	National Quantum Computing Centre
Siyi Chen	University of Glasgow
Kaveh Delfanazari	University of Glasgow
Deepanjan Das	Lancaster University
Robert Graham	University of Glasgow
Jack Enright	University of Oxford
Jonathan Williams	National Physical Laboratory
Aneirin Baker	National Quantum Computing Centre
Abid Moueddene	National Quantum Computing Centre
Mohammed Alkhalidi	University of Glasgow
Abdullah Tamim Abdul Maleque	University of Glasgow
Zahra Rahimian Omam	University of Glasgow
Rais Shaikhaidarov	Royal Holloway University of London
Hadi Heidari	HoRD ENE, University of Glasgow
Jack Brennan	University of Glasgow
Meraj Ahmad	University of Glasgow

SQD23 Venue:

The Mazumdar-Shaw Advanced Research Centre
11 Chapel Lane
University of Glasgow
G11 6EW
Find us on Google Maps

Directions to the ARC

Here's how to find our lovely new building. The nearest subway stations are Hillhead and Kelvinhall.



SQD23 Reception venue:

City Chambers, 80 George Square, Glasgow, G2 1DU.

Unfortunately, we won't be able to provide transport (bus or taxi) and delegates shall arrange their trip to City Chambers themselves, and train could be the best option.

Glasgow Taxis:

0141 429 7070

Download the app: https://www.glasgowtaxis.co.uk/passenger-services/smartphone-apps/

GlasGo Cabs (private hire)

0141 332 5050 / 0141 774 3000

Download the app: https://glasgocabs.co.uk/app/