Superconducting Quantum Devices 2024 – SQD24

Tuesday 18th June 2024

Institute of Physics
37 Caledonian Road
London
N1 9BU

Talk Programme

Time	Talk Title	Speaker
10:30 – 10:50	**Arrival and Refreshments**	
10:50 – 11:00	**Welcome and Meeting Start**	
11:00 - 11:20	Dual-rail encoding of a fixed frequency multimode transmon qubit with ancilla-free erasure error detection	James Wills, Oxford Quantum Circuits
11:20 - 11:40	Towards the detection of Majorana bound states using topological insulator-based superconducting qubits	Chenlu Liu, Imperial College London
11:40 - 12:00	Quantum state discrimination enhanced by path signature	Shuxiang Cao, University of Oxford
12:00 - 12:20	Quantum-to-semiclassical transition in qubit-field interactions	Elinor Twyeffort, University of Southampton
12:20 - 12:40	Simultaneous AC bias and gate drive to control a SINIS turnstile	Yuri Pashkin, Lancaster University
12:40 - 13:00	Calibrated Scattering Parameter Measurements of a Josephson Travelling Wave Parametric Amplifier	Thomas Sweetnam, National Physical Laboratory
13:00 - 14:30	**Lunch and Poster Session**	
14:30 – 14:50	Develop NPL's superconducting nanobridge based microwave amplifier technologies at high frequencies and mK	Laith Meti, National Physical Laboratory
14:50 – 15:10	Niobium Quantum Devices: from fabrication to measurement	Jharna Paul, University of Glasgow
15:10 – 15:30	Imaging Two-Level System Defects with Scanning Gate Microscopy	Andrew Hutcheson, National Physical Laboratory
15:30 – 15:50	Integration of through-sapphire substrate machining with superconducting quantum processors	Kowsar Shahbazi, Oxford Quantum Circuits
15:50 – 16:10	Superconducting qubits development	Artem Shesterikov, RHUL
16:10 – 16:30	Characterization of a 16-Qubit Superconducting Device with Nearest-Neighbour Coupling	Mohammed Alghadeer, University of Oxford
16:30	**Meeting Close**	

Poster Session

Poster Title	Presenter
Cryogenic cooling technology for superconducting quantum devices	Anthony Matthews, Oxford Instruments
A software toolkit for superconducting qubit characterisation	Masum Ishaan Uddin, National Physical Laboratory
Development of a tuneable quantum-limited amplifier for the UK's haloscope for dark matter axion detection	Gemma Chapman, National Physical Laboratory
Developing solid state quantum sensors and microwave resonators for quantum optomechanics	John Gallop, National Physical Laboratory
Development of Inductive Superconducting Transition Edge Detector (ISTED) for quantum communication	Ling Hao, National Physical Laboratory
Low Temperature SOLR Calibration for Precise S-Parameters Measurements of Quantum Devices	Wong Wang Ngai, National Physical Laboratory
Design and Simulation of a Superconducting Quantum Amplifier	Tian Bai, University College London - LCN
Design and modelling of superconducting microwave resonators embedded with nanobridge-based elements	Parth Bhandari, University College London
Towards quantum-limited amplification in the K band for absolute neutrino mass measurement experiments	Jamie Potter, National Physical Laboratory
A thin film resonant Superconducting Parametric Amplifier embedded in a Ka band waveguide	Valerio Gilles & Babak Mohammadian, University of Manchester
TiN/AlN/TiN-Nb Tri-Layer Josephson Junctions: A Potential Competitor for Al-Based Junctions	Hua Feng, University of Glasgow
EPR of nitroxides in o-terphenyl at 20 milliKelvin using high-Q micro-resonators	Ana Villanueva Ruiz de Temino, UCL
Parametric Amplification using Superconducting Nanowires	Henry Chew, University College London
Using nanomagnets to engineer sub-gap states in superconductor-semiconductor hybrid quantum devices	Shey Dylan Lovett, Imperial College London
Machine learning based characterizing of wafer-scale superconducting qubits	Manognya Acharya, National Physical Laboratory
Enhance Josephson Junction Performance through laser annealing	Shimeng Xi, University of Glasgow
Cooling, noise mitigation, and decoherence in quantum circuits immersed in a quantum fluid bath	John Saunders, RHUL
Investigating electron transport in topological-insulator nanoribbon Josephson junctions	Stefanos Dimitriadis, Imperial College London
Metrological Nanodevices	Ilya Antonov, RHUL
Hybrid Ferromagnetic/Superconducting Quantum Interference Devices	Victor Petrashov, RHUL
High-Q Thin Tantalum Superconducting CPW Resonator Arrays on Silicon Chip for Quantum Technology	Shima Poorgholam Khanjari, University of Glasgow

Attendee List

Name	Institution
Manognya Acharya	National Physical Laboratory
Ehsaneh Daghigh Ahmadi	NPL
Mohammed Alghadeer	University of Oxford
Ilya Antonov	Royal Holloway University of London
Andrew Armour	University of Nottingham
Daan Arroo	Imperial College London
Amir Awawdeh	Oxford Quantum Circuits
Tian Bai	University College London - LCN
Mustafa Bakr	University of Oxford
Riju Banerjee	National Physical Laboratory
Sam Barnett	NQCC
Pete Barry	Cardiff University
Chris Bell	University of Bristol
Parth Bhandari	University College London
Karthik Srikanth Bharadwaj	SEEQC UK Ltd
Richard Bounds	OQC - Uni of Oxford
Declan Burke	Oxford Quantum Circuits
Shuxiang Cao	University of Oxford
Juan Carlos	Mind Foundry
Amber Carreck	Royal holloway
Gemma Chapman	National Physical Laboratory
Chris Checkley	SEEQC
Xingtai Chen	Royal Holloway, University of London
Henry Chew	University College London
Vivek Chidambaram	NQCC
Johnathan Collins	University of Glasgow
Malcolm Connolly	Imperial College London
Gioele Consani	Oxford Quantum Circuits
Sergey Danilin	OQC
Sebastian de Graaf	National Physical Laboratory
Kaveh Delfanazari	University of Glasgow, UK
Stefanos Dimitriadis	Imperial
Daniel Doling	Royal Holloway
Simone Diego Fasciati	University of Oxford
Hua Feng	University of Glasgow
Sophie Fromage	National Quantum Computing Centre
John Gallop	National Physical Laboratory
Valerio Gilles	University of Manchester
Eran Ginossar	University of Surrey
Tom Godfrey	UCL
Ling Hao	National Physical Laboratory
Mohammad Tasnimul Haque	Oxford Quantum Circuits
Andrew Hutcheson	National Physical Laboratory

Kian Jansepar	University College London
Shima Poorgholam Khanjari	University of Glasgow
Nathan Korda	Mind Foundry
Tom Korff	Royal Holloway University
Chenlu Liu	Imperial College London
Shey Dylan Lovett	Imperial College London
Anthony Matthews	Oxford Instruments
Phil Meeson	Royal Holloway
Ziad Melhem	Oxford Quantum Solutions Ltd
Laith Meti	National Physical Laboratory (NPL)
Babak Mohamamdian	University of Manchester
WONG Wang Ngai	National Physical Laboratory
Yuri Pashkin	Lancaster University
Jharna Paul	University of Glasgow
Nianhua Peng	University of Surrey
Victor Petrashov	Royal Holloway, University of london
Michele Piscitelli	University of Oxford
Katie Porsch	Seeqc
Renuka Devi Pothuraju	Oxford Quantum Circuits
Jamie Potter	National Physical Laboratory
Jessica Powell	NQCC
Kitti Ratter	NQCC
Rushforth	University of Nottingham
John Saunders	Royal Holloway University of London
Kowsar Shahbazi	Oxford Quantum Circuits
Priya Sharma	University of Surrey
Connor Shelly	OQC
Artem Shesterikov	RHUL
Yi Shi	University College London
Thomas Sweetnam	NPL
Ana Villanueva Ruiz de Temino	University College London
Elinor Twyeffort	University of Southampton
Masum Ishaan Uddin	National Physical Laboratory
Harriet van der Vliet	Oxford Instruments NanoScience
James Wills	Oxford Quantum Circuits
Shimeng Xi	University of Glasgow