Low-Temperature Quantum Detectors

CONFERENCE PROGRAMME

August 3-6, 2025
Clarion Hotel, Helsinki

Sunday, August 3		
17:00 - 20:00	Registration and Welcome drinks	Clarion Hotel, Living room
18:00 – 18:25	Introduction	Sorin Paraoanu, Aalto University, Finland

Monday, August 4		
8:00 - 8:45	Registration, Morning coffee	
8:45 – 9:00	Welcome	Sorin Paraoanu, Pertti Hakonen, Aalto University, Finland

SESSION I Chair: Jose Lado

9:00 – 9:45	**Keynote talk: Microwave photon counting applied to magnetic resonance**	**Patrice Bertet** CEA Saclay, France
9:45 – 10:20	**Invited talk: Zeptojoule calorimetry and beyond with applications in circuit quantum electrodynamics**	**Mikko Möttönen** Aalto University, Finland
10:20 – 10:45	Transition edge sensors for rare event detection: current efforts at DESY	Christina Schwemmbauer DESY, Germany
10:45 – 11:15	Coffee break	

SESSION II Chair: Manohar Kumar

11:15 – 11:50	**Invited talk: Low temperature detector experiments to test fundamental physics**	**Michael Tobar** UWA, Australia
11:50 – 12:15	Quantum sensing of axion dark matter with a phase resolved haloscope	Chloé Fruy LPENS, France
12:15 – 12:40	Superconducting coolers for quantum detectors	Joel Hätinen VTT, Finland
12:40 – 14:00	Lunch (Clarion buffet)	

SESSION III Chair: Jukka Pekola

14:00 - 14:45	**Keynote talk: Quantum Sensing for Pre-Inflationary Axions**	**Kent Irwin** Stanford University, US
14:45 – 15:20	**Invited talk: Superfluid 3He as a sub-GeV dark matter detector**	**Samuli Autti** Lancaster University, UK
15:20 – 15:45	A single superconducting vortex on a leash: thermodynamics and applications	Maciej Zgirski Institute of Physics, PAS, Poland
15:45 – 16:10	Sub-40 nm Magnon Generation and Detection Enabled by Moving Fluxons	Oleksandr Dobrovolskiy, Technische Universität Braunschweig, Germany
16:10 – 18:00	Coffee break/Poster session	

Tuesday, August 5		
8:30 - 9:00	Morning coffee	
SESSION IV	**Chair: Mika Sillanpää**	
9:00 – 9:45	**Keynote talk: Exploring phonons as mobile qubits**	**Andrew Cleland** University of Chicago, US
9:45 – 10:20	**Invited talk: Physics and Applications of Andreev Spin Qubits**	**Valla Fatemi** Cornell University, US
10:20 – 10:45	Ytterbium Ion-Based Interfaces for Optical and Microwave Remote Entanglement Distribution	Louis Nicolas University of Geneva, Switzerland
10:45 – 11:15	Coffee break	
SESSION V	**Chair: Mika Prunnila**	
11:15 – 11:50	**Invited talk: Parametric amplification with an Al-InAs superconductor–semiconductor Josephson junction**	**Shyam Shankar** University of Texas, US
11:50 – 12:15	Nonlinearity-enhanced dispersive-plus-dissipative coupling in tunable niobium photon-pressure circuits	Daniel Bothner Universität Tübingen, Germany
12:15 – 12:40	Interferometric readout of high-Q magnetically levitated superconductors at mK temperatures	Jannek J Hansen Vienna Center for Quantum Science and Technology, Austria
12:40 – 14:00	Lunch (Clarion buffet)	
SESSION VI	**Chair: Maciej Zgirski**	
14:00 - 14:35	**Invited talk: Bound states in waveguide Quantum Electrodynamics**	**Arkady Fedorov** The University of Queensland, Australia
14:35 – 15:10	**Invited talk: Microwave impedance microscopy of quantum materials at mK temperatures**	**Monica Allen** University of California, US
15:10 – 15:35	Escape rate problem in driven Josephson junctions	Tomáš Novotný Charles University, Czech Republic
15:35 – 16:00	Feasibility of the Josephson voltage and current standards on a single chip	Rais Shaikhaidarov Royal Holloway University of London, UK
16:00 – 16:10	Sponsor talk	Juha Hassel IQM
16:10 – 18:00	Coffee break/ Poster session II	
18:15	Bus leaves to the restaurant	
19:00	**Conference dinner** (Seurasaaren Juhlatalo, Seurasaari 00250 Helsinki)	

Wednesday, August 6		
8:30 - 9:00	Morning coffee	

SESSION VII Chair: Jorden Senior

9:00 – 9:45	**Keynote talk: Superconducting Nanowire Detectors**	**Karl Berggren** MIT, US
9:45 – 10:20	**Invited talk: Exploring New Physics with Superconducting Quantum Technologies**	**Nicolò Crescini** CNRS, France
10:20 – 10:45	Hamiltonian learning quantum magnets with scanning tunnel microscopy	Jose Lado Aalto University, Finland
10:45 – 10:50	Poster winners announced	
10:50 – 11:20	Coffee break	

SESSION VIII Chair: Jere Mäkinen

11:20 – 11:55	**Invited talk: Imaging vdW magnets and magnetic devices in the 2D limit**	**Martino Poggio** University of Basel, Switzerland
11:55 – 12:20	Multi-channel second-order topological states in $Bi_{0.97}Sb_{0.03}$	Biplab Bhattacharyya University of Twente, Netherlands
12:20 – 12:45	When dissipation kills dissipation in a metastable dynamic vortex state	Cheryl Feuillet-Palma ESPCI-Paris, France
12:45 – 14:15	Lunch (Clarion buffet)	