MAY 23-25
Madrid (Spain)
QUANTUM MATTER 2023
International Quantum Matter Conference

TENTATIVE PROGRAM (as of 16/05/2023)

P: Plenary / K: Keynote lecture / I: Invited Lecture / O: Oral contribution

Tuesday (23/05/2023)

PLENARY

08:00 – 08:45: Registration
08:45 – 09:00: Opening

Chairperson: Gloria Platero Coello (ICMM-CSIC, Spain)
09:00 – 09:45: **Daniel Loss** (University of Basel, Switzerland) P
Spin Qubits in Semiconductors for Scalable Quantum Computers
09:45 – 10:15: **William Oliver** (MIT, USA) K
Giant Artificial Atoms and Waveguide QED
10:15 – 10:30: **Russell Anderson** (Q-CTRL, Australia) O
Enhancing atom-interferometric inertial sensors in dynamic environments using robust control

10:30– 11:20: Coffee Break / Poster Session / Exhibition

Chairperson: Juan Jose Garcia-Ripoll (IFF-CSIC, Spain)
11:20 – 11:50: **Maciej Lewenstein** (ICFO/ICREA, Spain) K
The coming decades of quantum simulators
11:50 – 12:10: **Yvonne Gao** (NUS, Singapore) I
Quantum Information Processing with Bosonic Circuit QED
12:10– 12:40: **Chetan Nayak** (Microsoft Research, USA) K
Topological Superconductivity in Superconductor-Semiconductor Hybrids
12:40 – 13:00: **Eun-Ah Kim** (Cornell University, USA) I
Realizing non-Abelian statistics using graph gauge theory on a quantum processor

13:00- 14:00 Cocktail Lunch
14:00 – 14:30*:* Poster Session 1

Chairperson: Silvano de Franceschi (CEA/UGA, France)
14:30 – 14:50: **Mikko Möttönen** (Aalto University, Finland) I
Addressing the fidelity and scaling challenges of superconducting qubits
14:50 – 15:10: **Giordano Scappucci** (TU Delft, The Netherlands) I
Materials and Interfaces for spin qubits: On and Off the Beaten Path
15:10-15:25: **Artem Kononov** (University of Basel, Switzerland) O
Coherent coupling of two distant Andreev level qubits
15:25-15:40: **Eleanor Crane** (UMD/JQI/ NIST/ Quantinuum, USA) O
Advantages of Digital Qubit-Boson Hardware for Quantum Simulation of Lattice Gauge Theories
15:40-15:55: **Jake Dudley Mehew** (ICN2, Spain) O
Ultrafast Photodetectors for Quantum Circuitry Using Moire Materials
15:55-16:10: **Anatoly Kulikov** (ETH Zurich, Switzerland) *O*
Loophole-free Bell Inequality Violation with Superconducting Circuits
16:10-16:25: **Arunav Bordoloi** (University of Maryland, College Park, USA) O
Spin Cross-Correlation Experiments in Semiconducting-Superconducting Heterostructures

16:25-16:55: *Coffee Break / Poster Session / Exhibition*

Chairperson: Ricardo Muiño (DIPC & CFM-CSIC, Spain)

16:55-17:40: **Jerry Chow** (IBM, USA) P
The next wave of computing: quantum-centric supercomputing

17:40-17:55: **Alejandro Rodriguez-Pardo Montblanc** (TU Delft/QuTech, The Netherlands) O
Experiments on an entanglement-based quantum network in the lab

17:55-18:10: **Jose Carlos Abadillo-Uriel** (CEA Grenoble, France) O
How inhomogeneities enhance the manipulability of Ge spin qubits

18:10-18:25: **Tomas Ramos** IFF-CSIC Madrid, Spain) O
Topological amplification and perfect phase matching in a Josephson junction array with a non-local pump

18:25-18:40: **Elizabeth Agudelo Ospina** (TU Wien) O
Phase-space inequalities: certification of quantum correlations in the phase space

18:40-18:55: **Carlos Antón Solanas** (Universidad Autónoma de Madrid, Spain) O
Time-resolved energetic exchanges during a Ramsey sequence

18:55-19:15: **Eduardo Lee** (IFIMAC / UAM, Spain) I
Joule spectroscopy and heating in hybrid superconductor-semiconductor devices

Wednesday (24/05/2023)

INDUSTRIAL FORUM

Chairperson: Alba Cervera-Lierta (Barcelona Supercomputing Center, Spain)

09:00 – 09:30: **Pedram Roushan** (Google Inc, USA) K
Quantum simulations with superconducting qubits

09:30 – 09:50: **Lucas Leclerc** (PASQAL, France) I
Quantum Graph Machine Learning on a Neutral Atom Processor

09:50 – 10:05: **Marc Almendros** (Keysight Technologies, Spain) O
Implementation of Parallel Arbitrary Single-qubit Gates on High-qubit-count Processors Using a Truly Scalable Control Stack

10:05 – 10:20: **Amin Hosseinkhani** (IQM Quantum Computers, Germany) O
Noise Robust Error Mitigation

10:20 – 10:35: **Ramon Szmuk** (Quantum Machines, Israel) O
A control system for driving dynamic circuits on atom and ion-based quantum processors using camera and photodiode-based readout.

10:35– 11:05: Coffee Break / Poster Session / Exhibition

Chairperson: Alba Cervera-Lierta (Barcelona Supercomputing Center, Spain)

11:05 – 11:35: **Zlatko Minev** (IBM Quantum Research, USA) K
To learn and cancel quantum noise: Probabilistic error cancellation with sparse Pauli-Lindblad models on noisy quantum processors.

11:35-11:55 **Roman Orus** (Multiverse Computing, Spain) I
Useful Quantum Software for Today's Processors

11:55 – 12:15: **Moritz Kirste** (Zurich Instruments AG, Switzerland) I
A software framework for scalable quantum computing

12:15 – 12:35: **Yonatan Cohen** (Quantum Machines, Israel) I
Unlocking the Potential of Quantum-Classical Processing

12:35 – 12:50 **David Arvidsson-Shukur** (Hitachi Cambridge Laboratory, UK) O
Quantum advantage by filtering in optical metrology

12:50 – 13:30: **Round Table 1: Bringing Quantum to Industry: Best Practices, Practical Experiences and Challenges (Moderator: Esperanza Cuenca, Multiverse Computing, Spain)**

13:30- 14:30 Cocktail Lunch

Chairperson: Alba Cervera-Lierta (Barcelona Supercomputing Center, Spain)

14:30 – 14:45: **Pierre Desjardins** (C12, France) O
Leading the next materials leap in quantum computing

14:45 – 15:00: **Sarah Thomas** (Imperial College London, UK) O
Deterministic Storage and Retrieval of Telecom Quantum Dot Photons Interfaced with an Atomic Quantum Memory

15:00 – 15:15: **Pau Jorba** (Kiutra GmbH, Germany) O
ADR based sub-Kelvin cryostats for applied quantum technologies

15:15 – 15:30: **Cristina Giusca** (National Physical Laboratory, UK) O
State-of-the-Art Measurement Capability for the Characterisation of Materials for Quantum Technologies

15:30 – 15:45: **Boris Bourdoncle** (Quandela, France) O
Certified randomness in tight space

15:45-16:05 **Yemliha Bilal Kalyoncu** (Qblox BV, The Netherlands) I
Scalable qubit control and readout with fast-scalable feedback

16:05 – 16:50: **Round Table 2: The quest for quantum advantage: technology, standards and talent (moderator: Alba Cervera Lierta, BSC, Spain)**

16:50 – 17:30: *Coffee Break / Poster Session / Exhibition*

PLENARY

Chairperson: Sonia Conesa Boj (Delft University, The Netherlands)

17:30 – 17:50: **Fernando Luis** (UNIZAR, Spain) I
Circuit QED with molecular spin qudits

17:50 – 18:05: **Christoph Wolf** (Center q-nanoscience, Korea) O
A Qubit Platform Assembled Atom-by-Atom on a Surface

18:05 – 18:20: **Sebastian Koelling** (Polytechnique Montreal, Canada) O
Atomic-scale tomography of isotopically purified group-IV materials for qubit integration

18:20 – 18:35: **Vladyslav Usenko** (Palacky University, Czech Republic) O
Multiplexed continuous-variable quantum communication in the presence of inter-mode cross talk

18:35 – 18:55: **Géza Giedke** (DIPC, Spain) I
Hyperfine interaction in graphene nanostructures

18:55 – 19:10: **Dimitris Angelakis** (CQT Singapore) O
Quantum supremacy with many-body systems: Merging thermalization with complexity theory

Parallel Session 1 - "Quantum information and techs"

Chairperson: Alejandro Pozas (UCM, Spain)

09:00 – 09:10: **Pieter-Jan Stas** (Harvard University, USA) O
A Two-Node Quantum Network with Silicon-Vacancy Centers in Diamond

09:10 – 09:20: **Yong Yu** (TU Delft, The Netherlands) O
Frequency tunable single Er ions as telcom quantum emitters

09:20 – 09:30: **Margarida Vieira** (Deimos Engenharia, Portugal) O
DISCRETION: Disruptive SDN enabled by QKD for secure communications for European Defence

09:30 – 09:40: **Soeren Wengerowsky** (ICFO, Spain) O
Cavity-Assisted highly efficient Atomic Frequency Comb Solid-State Quantum Memory

09:40 – 09:50: **Roberto Di Candia** (Aalto University, Finland) O
Critical Parametric Quantum Sensing

09:50 – 10:00: **Radim Filip** (Palacky University, Czech Republic) O
Quantum non-Gaussian sensing of mechanical motion

10:00 – 10:10: **Alessandro Braggio** (NEST, Istituto Nanoscienze-CNR and Scuola Normale Superiore, Italy) O
Coherent superconducting thermoelectrical nanodevices

10:10 – 10:20: **Thomas Draper** (Center for Communications Research at La Jolla, USA) O
A Top-down Algorithmic Test for Comparing Imperfect Quantum Computers

10:20 – 10:30: **Dario Ferraro** (University of Genova, Italy) O
IBM Quantum Platforms: A Quantum Battery Perspective

10:30– 11:30: Coffee Break / Poster Session / Exhibition

Chairperson: Diego Porras (IFF-CSIC, Spain)

11:30 – 11:40: **Federico Centrone** (ICFO, Spain) O
Quantum speed steering

11:40 – 11:50: **Xi Chen** (University of the Basque Country UPV/EHU, Spain) O
Shortcuts to Adiabaticity for Fast Qubit Readout and Quantum Gate in Circuit Quantum Electrodynamics

11:50 – 12:00: **Victor Rollano** (University of Science and Technology of China, China) O
High cooperativity coupling to nuclear spins on a circuit quantum electrodynamics architecture

12:00 – 12:10: **Iris Agresti** (University of Vienna, Austria) O
Experimental superposition of time directions

12:10 – 12:20: **Eric Planz** (Niels Bohr Institute / Center for Hybrid Quantum Networks, Denmark) O
Towards Microwave-Optical Transduction with an Embedded Mechanical Quantum Memory

12:20 – 12:30: **Nadia Antoniadis** (University of Basel, Switzerland) O
Photon bound state dynamics from a single artificial atom

12:30 – 12:40: **Max Cykiert** (University of Surrey, UK) O
Robust optimal control for a systematic error in the control amplitude

12:40 – 12:50: **Alexandru Petrescu** (Centre Automatique et Systemes, Ecole des Mines, France) O
Signatures of classical chaos in driven transmons

12:50 – 13:00: **Lior Ella** (Quantum Machines, Israel) O
Demonstration of long-range state quantum teleportation
13:00 – 13:10: **Manuel Gessner** (University of Valencia, Spain) O
Quantum metrology with non-Gaussian spin states
13:10 – 13:20: **Alessia Pally** (University of Basel, Switzerland) O
Strong coupling between a microwave photon and a singlet-triplet qubit

Parallel Session 2 - "Quantum materials"

Chairperson: Leni Bascones (ICMM-CSIC, Spain)
09:00 – 09:10: **Marc Botifoll** (ICN2, Spain) O
Sub-nanometer mapping of strain-induced band structure variations in semiconductor devices
09:10 – 09:20: **Sabrya van Heijst** (Delft University of Technology, The Netherlands) O
Strain-Driven Bandgap Increase in Twisted 2D Quantum Materials: A Nanoscale Study
09:20 – 09:30: **Nicolás Lorente** (Centro de Física de Materiales CSIC, Spain) O
A simple quantum circuit using ESR with the scanning tunnelling microscope
09:30 – 09:40: **Elena Lupo** (University of Surrey, UK) O
Theory of adiabatic charge pump with a topological insulator nanowire device
09:40 – 09:50: **Stijn de Graaf** (Yale University, USA) O
Implementing an erasure check for dual-rail qubits in 3D superconducting cavities
09:50 – 10:00: **Maxim Ilyn** (Centro de Física de Materiales CSIC-UPV/EHU, Spain) O
Implementation of hybrid Al/EuS heterostructures in the superconducting tunnelling devices
10:10 – 10:10: **Nicolas Aparicio** (CNRS, France) O
Graphene based superconducting quantum circuits
10:10 – 10:20: **Benedikt Fauseweh** (German Aerospace Center, Germany) O
Emerging Exotic Phases in Unconventional Superconductors with Long-range Interactions
10:20 – 10:30: **Samuel Escribano** (Weizmann Institute of Science, Israel) O
Semiconductor-Superconductor-Ferromagnetic heterostructure as a Platform for Topological Superconductivity

10:30– 11:30: Coffee Break / Poster Session / Exhibition

Chairperson: Sergio Valenzuela (ICN2, Spain)
11:30 – 11:40: **Enrique Munoz** (Pontificia Universidad Catolica de Chile, Chile) O
Electronic transport in Weyl semimetals with a uniform concentration of torsional dislocations
11:40 – 11:50: **Diego Martin Cano** (IFIMAC, Universidad Autónoma de Madrid, Spain) O
Engineering long-lived vibrational states for an organic molecule
11:50 – 12:00: **Ibrahim Sarpkaya** (Bilkent University, Turkey) O
Controlling the photoluminescence of quantum emitters in hexagonal boron nitride by applied magnetic fields
12:00 – 12:10: **Martin Esmann** (Carl von Ossietzky University Oldenburg, Germany) O
Ultra-bright single photon source based on an atomically thin material
12:10 – 12:20: **Mario Amado** (University of Salamanca, Spain) O
Generation and control of non-local chiral currents in graphene superlattices by orbital Hall effect
12:20 – 12:30: **Patrick Vora** (George Mason University, USA) O
Novel Excitons in MoSe2 from Proximitized Charge Density Waves
12:30 – 12:40: **Jean-Sébastien Lauret** (ENS Paris Saclay, France) O
Single nanographenes as quantum emitters
12:40 – 12:50: **Pei-Hao Fu** (Singapore University of Technology and Design (SUTD), Singapore) O
Field-Effect Josephson Diode with Anisotropic Spin-Momentum Locking States
12:50 – 13:00: **Maria Jose Calderon** (CSIC, Spain) O
Heavy quasiparticles and cascades without symmetry breaking in twisted bilayer graphene
13:00 – 13:10: **Jerome Rech** (Centre de Physique Théorique, France) O
Revealing the exotic statistics of anyons in the fractional quantum Hall regime
13:10 – 13:20: **Chadr Shekhar Yadav** (Indian Institute of Technology Mandi, India) O
Planar Hall effect in noble metal doped type II Dirac Semimetal PdTe2

13:20- 14:30 Cocktail Lunch
14:30 – 15:00*:* Poster Session 2

Parallel Session 1 - PhD Students (Topics: Quantum Computing and Technologies / Advanced Quantum Communication protocols and Quantum internet)

Chairperson: Francesc Perez-Murano (CNM / CSIC, Spain)

15:00 – 15:10: **Parsa Zivari** (Delft University of Technology, The Netherlands) O
On-chip distribution of quantum information using traveling phonons

15:10 – 15:20: **Jesus Arjona Martinez** (University of Cambridge, UK) O
Photonic indistinguishability of the tin- vacancy centre in diamond

15:20 – 15:30: **Eduardo Beattie** (ICFO-The Institute of Photonic Sciences, Spain) O
Detection of single ions in a nanoparticle coupled to a fiber cavity

15:30 – 15:40: **Mathias Pont** (C2N, France) O
High-fidelity on chip four-photon GHZ states

15:40 – 15:50: **Luciano Pereira** (Instituto de Física Fundamental IFF-CSIC, Spain) O
Exploring dispersive qubit readout in the strong driving limit

15:50 – 16:00: **Beatrice Polacchi** (Sapienza University of Rome, Italy) O
Machine learning-based device-independent certification of quantum networks

16:00 – 16:10: **Marta Pita-Vidal** (QuTech (TU Delft), The Netherlands) O
Supercurrent-mediated coupling between two Andreev spin qubits: theory and device

16:10 – 16:20: **Ilse Maillette de Buy Wenniger** (C2N, CNRS, Université Paris-Saclay, France) O
Quantum interference with photon-number superposition states from a coherently driven quantum emitter

16:20 – 16:30: **Miika Rasola** (Aalto University, Finland) O
Optomechanical Systems as Quantum Heat Engines

16:30 – 16:40: **Jurgen Dijkema** (QuTech/Delft University of Technology, The Netherlands) O
Two-qubit logic between distant spin qubits in silicon

16:40 – 16:50: **Baldo Najera** (Laboratoire Kastler Brossel, France) O
Towards resonant coupling between a RF superconducting qubit and a mechanical resonator

16:50 – 17:30: *Coffee Break / Poster Session / Exhibition*

Parallel Session 2 - PhD Students (Topics: Quantum materials for electronics, photonics and spintronics / Quantum semiconductor devices / Quantum sensing and applications / Quantum simulation of exotic states of matter / Quantum softwares and algorithms / Theory of Quantum Materials)

Chairperson: Diego Porras (IFF-CSIC, Spain)

15:00 – 15:10: **Viktoria Yurgens** (University of Basel, Switzerland) O
Purcell-enhancement and resonance fluorescence from a low-noise emitter in diamond

15:10 – 15:20: **Patrick Del Vecchio** (Polytechnique Montreal, Canada) O
Light-Hole Spin-Orbit Qubit in Germanium

15:20 – 15:30: **Estelle Vincent** (UGA, CEA, France) O
Charge sensing readout of Ge quantum dots

15:30 – 15:40: **Elizaveta Morozova** (TU Delft, The Netherlands) O
Towards coherent control of a spin ladder in germanium quantum dots

15:40 – 15:50: **Marion Bassi** (CEA, France) O
Investigation of optimal operating point for hole spin qubit

15:50 – 16:00: **Maria Efthymiou Tsironi** (University of Salento, Italy) O
Polariton Bose–Einstein condensate from a bound state in the continuum

16:00 – 16:10: **Antoine Michel** (Institut d´optique/EDF, France) O
Mott physics with Rydberg atoms: using spin quantum simulators to simulate strong fermionic correlations

16:10 – 16:20: **Petar Bojovic** (Max Planck Institute of Quantum Optics, Germany) O
Magnetically mediated hole pairing in fermionic ladders of ultracold atoms

16:20 – 16:30: **Daniel Bultrini** (University of Heidelberg, Germany) O
The battle of clean and dirty qubits in the era of partial error correction

16:30 – 16:40: **Paula García Molina** (Institute of fundamental physics, Spain) O
Global optimization of MPS and applications to quantum-inspired numerical analysis

16:40 – 16:50: **Beatriz Pérez González** (Instituto de Ciencia de Materiales de Madrid (ICMM-CSIC), Spain) O
Light-matter correlations in Quantum Floquet engineering

16:50 – 17:30: *Coffee Break / ePoster Session / Exhibition*

*21:00 – **Conference Dinner** – Restaurant La Masia de Jose Luis / Puerta del Angel nº 3, 28011 (Madrid)*
Underground line number 6 - Station "Puerta del Angel" - Google Maps

Thursday (25/05/2023)

PLENARY

Chairperson: Stephan Roche (ICN2-ICREA, Spain)

09:00 – 09:45: **Mikhail Lukin** (Harvard University, USA) P
Exploring new scientific frontiers with programmable atom arrays

09:45 – 10:15: **Ana Maria Rey** (University of Colorado, USA) K
Pair creation, correlations, and entanglement dynamics in dipolar multi-layers

10:15 – 10:35: **Monika Aidelsburger** (Ludwig-Maximilians-University Munich, Germany) I
Quantum simulation with ultracold atoms – from Hubbard models to gauge theories

10:35– 11:15: Coffee Break / Poster Session / Exhibition

Chairperson: Alfredo Levy Yeyati (IFIMAC / UAM, Spain)

11:15 – 11:45: **Pascale Senellart-Mardon** (C2N-CNRS-Université Paris Saclay, France) K
Semiconductor sources of quantum light

11:45 – 12:05: **Costanza Toninelli** (Istituto Nazionale di Ottica, CNR-INO, Italy) I
Single molecules in photonic quantum technologies

12:05 – 12:25: **Hugues de Riedmatten** (ICFO, Spain) I
Quantum networking with solid-state based quantum repeater nodes

12:25 – 12:45: **Binghai Yan** (Weizmann Institute of Science, Israel) I
Chirality and Topology in DNA-type Chiral Materials

12:45-13:00: **Michele Filippone** (CEA Grenoble, France) O
Observation of Universal Hall Response in Strongly Interacting Fermions

13:00-13:15: **Ilan Rosen** (Massachusetts Institute of Technology, USA) O
Bulk current flow in a quantum anomalous Hall insulator

13:15 - 13:30: **Julien Barrier** (University of Manchester, UK) O
Andreev bound states along quantum Hall edges

13:30-13:35: **Poster Awards Ceremony**

13:35 – 15:00*: Lunch Break*

Chairperson: Ramon Aguado (ICMM/CSIC, Spain)

15:00 – 15:20: **Jelena Klinovaja** (University of Basel, Switzerland) I
Superconducting diode effect due to magnetochiral anisotropy in topological insulator and Rashba nanowires

15:20 – 15:40: **Georgios Katsaros** (IST Austria, Austria) I
Combining tunnelling and Coulomb blockade spectroscopy on hybrid Al/InAs nanowire device

15:40 – 15:55: **Tom Dvir** (Delft University of Technology, The Netherlands) O
Majorana bound states in coupled quantum dots

15:55 – 16:10: **Ruben Seoane Souto** (ICMM-CSIC, Spain) O
Fine-tuned Majorana states in quantum dot systems

16:10 – 16:25: **Tommaso Roscilde** (Ecole Normale Supérieure de Lyon, France) O
Short-range interactions generating massive multipartite entanglement for metrology

16:25 – 16:40: **Tzu-Kan Hsiao** (QuTech, TU Delft, The Netherlands) O
Exciton transport in a germanium 4x2 ladder quantum dot array

16.40-16:55: **Luigi Amico** (Technology Innovation Institute, United Arab Emirates) O
Atomtronic circuits: From many-body physics to quantum technologies

16:55 – 17:15: **Ioan Pop** (KIT, Germany) I
Mesoscopic physics challenges (in) superconducting quantum devices

17:15: **Closing and QUANTUMatter2024 announcement.**

Parallel Session I - Orals Senior (Topics: Quantum Computing and Technologies / Quantum sensing and applications / Other / Topological quantum computing)

Chairperson: Ramon Aguado (ICMM/CSIC, Spain)

11:15 – 11:25: **Vasilii Vadimov** (Aalto University, Finland) O
Input-output theory for quantum circuits based on hierarchical equation of motion

11:25 – 11:35: **Ed Younis** (Lawrence Berkeley National Laboratory, USA) O
Quantum Circuit Optimization and Transpilation via Parameterized Circuit Instantiation
11:35 – 11:45: **Clément Sayrin** (Laboratoire Kastler Brossel, France) O
Interacting Laser-Trapped Circular Rydberg Atoms
11:45 – 11:55: **Jingfu Zhang** (TU-Dortmund, Germany) O
Fast Quantum State Tomography in the Nitrogen Vacancy Center of Diamond
11:55 – 12:05: **Inigo Arrazola** (TU Wien, Austria) O
High-fidelity quantum information processing and quantum simulation with spin qubits and phonons
12:05 – 12:15: **Panjin Kim** (The Affiliated Institute of ETRI, South Korea) O
An Algorithm for Reversible Logic Circuit Synthesis Based on Tensor Decomposition
12:15 – 12:25: **Fabio Mezzacapo** (CNRS LPENSL, France) O
Quench dynamics of lattice quantum many-body systems from time-dependent variational Monte Carlo
12:25 – 12:35: **Caspar Groiseau** (UAM, Spain) O
Single-photon source over the THz regime
12:35 – 12:45: **Yue Ban** (Fundacion Tecnalia Research and Innovation, Spain) O
Neural-network-assisted quantum magnetometers
12:45 – 12:55: **Mažena Mackoit-Sinkevičienė** (Vilnius University, Institute of Theoretical Physics and Astronomy, Lithuania) O
Spin-squeezed states with ultracold fermions
12:55 – 13:05: **Jose Maria De Teresa** (CSIC, Spain) O
Josephson junctions and nanoSQUIDs grown by Focused Ion Beam Induced Deposition (FIBID)
13:05 – 13:15: **Carlos Sánchez Muñoz** (UAM-IFIMAC, Spain) O
Machine Learning for Parameter Estimation from Continuously-Monitored Quantum Systems
13:15 – 13:25: **Deividas Sabonis** (IBM Research Europe – Zurich, Switzerland) O
Flip-chip-based microwave spectroscopy of Andreev bound states in a planar Josephson junction

Parallel Session II - Orals Senior (Topics: Advanced Quantum Communication protocols and Quantum internet / Quantum materials for electronics, photonics and spintronics / Quantum simulation of exotic states of matter / Quantum softwares and algorithms / Theory of Quantum Materials)

Chairperson: Alejandro Gonzalez-Tudela (IFF-CSIC, Spain)
11:15 – 11:25: **Ralf Riedinger** (Universität Hamburg, Germany) O
Thermodynamic Limits of Quantum Search and their implications for quantum-classical cryptography
11:25 – 11:35: **Pablo Burset** (Universidad Autónoma de Madrid, Spain) O
Tunable Andreev-Conversion of Single-Electron Charge Pulses
11:35 – 11:45: **Victor Krivenkov** (University of the Basque Country and Centro de Fisica de Materiales, Spain) O
Reversible and non-reversible effects of plasmon nanoparticles on the photoluminescence properties of nanoscale semiconductor quantum emitters
11:45 – 11:55: **Esperanza Lopez** (CSIC-Instituto de Fisica Teorica, Spain) O
Algebriac Bethe Circuits
11:55 – 12:05: **Anbang Yang** (National University of Singapore, Singapore) O
Highly Efficient Creation of Ultracold Ground-state 6Li-40K Polar Molecules
12:05 – 12:15: **Oksana Busel** (University of Oulu, Finland) O
Dynamics Beyond Hard-Core Bosons in Transmon Arrays
12:15 – 12:25: **Adrian M Mak** (Institute of High Performance Computing, Agency for Science, Technology and Research, Singapore) O
Molecular Energies with Electron Correlation from Linear Depth Quantum Circuits
12:25 – 12:35: **Antonio Márquez Romero** (University of Barcelona, Spain) O
Simulating nuclei with digital quantum computers
12:35 – 12:45: **Daniel Huerga** (University of British Columbia, Canada) O
Variational quantum simulation of frustrated quantum magnets in the thermodynamic limit
12:45 – 12:55: **Carlos Kuchkovsky** (QCentroid, Spain) O
Accelerating business impact with a problem-centered framework for quantum computing
12:55 – 13:05: **Satoshi Ejima** (German Aerospace Center, Germany) O
Photoinduced pair correlations in Mott and excitonic insulators
13:05 – 13:15: **Anastasiia Skurativska** (Donostia International Physics Center, Spain) O
Robust Spin Polarization of the YSR States in Superconductor/Ferromagnetic Insulator Heterostrucures
13:15 – 13:25: **Álvaro Gómez León** (CSIC, Spain) O
Driven-dissipative topological phases in parametric resonator arrays