



U.S. DEPARTMENT
of **ENERGY** | Office of
Science

NATIONAL QUANTUM INFORMATION SCIENCE RESEARCH CENTERS

Affiliated Speaker Presentations

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JOINT MARCH MEETING AND APRIL MEETING
Global Physics Summit



MONDAY | March 17

**Quantum Science and Technology at the National DOE
Research Centers: Progress and Opportunities**

Presented by NQISRC Directors:

David Awschalom, Bert de Jong, Anna Grassellino,
Andrew Houck, Travis Humble

March 17 | 8:00-11:00 a.m. | Convention Center | Room #158

**Robustness of Vacancy-Bound Non-Abelian Anyons in
the Kitaev Model in a Magnetic Field**

Bo Xiao, Oak Ridge National Laboratory | QSC

March 17 | 8:12-8:24 a.m. | Convention Center | Room #254A

**Exploring the dynamical interplay between mass-energy equivalence,
photon-mediated interactions and entanglement in
an optical lattice clock**

Anjun Chu, University of Colorado Boulder | QSA

March 17 | 8:36-8:48 a.m. | Convention Center | Room #252C

QSP-based pulse characterization

Christopher Kang, University of Chicago | QSC

March 17 | 8:36-8:48 a.m. | Convention Center | Room #258A

Quantum computing of entangled state in atomic nuclei

Zhonghao Sun, Louisiana State University | QSC

March 17 | 8:36-8:48 a.m. | Convention Center | Room #256B

**Leveraging qudits for efficient simulations of nuclear systems
and quantum field theories**

Marc Illa, University of Washington | QSC

March 17 | 8:48-9:00 a.m. | Convention Center | Room #256B

**On-chip microwave-to-optical transduction with
171Yb:YVO4 at single photon levels**

Riku Fukumori, California Institute of Technology | C²QA

March 17 | 9:12-9:24 a.m. | Convention Center | Room #204C

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Modeling Impurities for Quantum Information Science

Mark Turiansky, University of California - Santa Barbara | C²QA
March 17 | 9:24-10:00 a.m. | Convention Center | Room #264A

String Breaking in the Heavy Quark Limit with Scalable Circuits

Anthony Ciavarella, Lawrence Berkeley National Lab | QSA
March 17 | 9:24-9:36 a.m. | Convention Center | Room #256B

Quantum Computing for Nuclear and Particle Physics

Martin Savage, University of Washington | QSC
March 17 | 9:48-10:24 a.m. | Convention Center | Room #253C

**Development of three-dimensional electro-optic systems for
microwave-optical quantum transduction**

Changqing Wang, Fermi National Accelerator Laboratory | SQMS
March 17 | 10:00-10:12 a.m. | Convention Center | Room #204C

**Topological quantum sensing in
a tilted one dimensional optical lattice clock**

Tianrui Xu, University of Colorado Boulder | QSA
March 17 | 10:12-10:24 a.m. | Convention Center | Room #252C

**Focused ion beam fabrication of
epitaxially grown Fe(Se,Te)/Bi₂Te₃ superconductor devices**

Deb Mallick, Oak Ridge National Laboratory | QSC
March 17 | 10:24-10:36 a.m. | Convention Center | Room #255C

Quantum Simulation of Renormalized Yukawa Theory

Carter Gustin, Tufts University | QSA
March 17 | 11:33-11:45 a.m. | Marriott | Room: Platinum 9

EVERY DAY | March 16-21

LabEscape Escape Room

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Continuous reloading of large-scale atom arrays.

Part I: Experimental setup

Elias Trapp, Harvard University | QSA

March 17 | 11:54-12:06 p.m. | Convention Center | Room #204C

Continuous reloading of large-scale atom arrays.

Part II: Coherent operation and system characterization

Mohamed Abobeih, Harvard University | QSA

March 17 | 12:06-12:18 p.m. | Convention Center | Room #204C

Optimizing the efficiency of quantum emitters

Chris Van de Walle, University of California - Santa Barbara | C²QA

March 17 | 12:06-12:42 p.m. | Convention Center | Room #201CD

Efficient Routing and Interconnects for Superconducting Qubits

Mollie Schwartz, MIT Lincoln Laboratory | QSA

March 17 | 12:42-1:18 p.m. | Convention Center | Room #162

A topological crystalline response theory for quantum paramagnets

Chunxiao Liu, University of California - Berkeley | QSC

March 17 | 12:54-1:06 p.m. | Convention Center | Room #260A

**Frequency-Modulated Microwave Drives for
Single- and Two-Qubit Gates**

Qi Ding, Massachusetts Institute of Technology | QSA

March 17 | 12:54-1:06 p.m. | Convention Center | Room #253C

**Towards entangling distant solid state spin qubits
via mechanical resonators**

Binhan Hua, Harvard University | QSA

March 17 | 12:54-1:06 p.m. | Convention Center | Room #253A

Development of Capacitance Measurement in Pulsed Magnetic Fields

Minseong Lee, National High Magnetic Field Laboratory | QSC

March 17 | 1:18-1:30 p.m. | Convention Center | Room #261B

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**Optimizing dielectric losses in a flip-chip architecture
through silicon micromachining**

Nico Zani, Yale University | C²QA
March 17 | 1:18-1:30 p.m. | Convention Center | Room #162

**Interfacing a single spin qubit in diamond with the motion of
levitated micron magnets**

Yiqi Wang, Harvard University | QSA
March 17 | 1:42-1:54 p.m. | Convention Center | Room #253A

**Temperature and Magnetic field dependent relaxation dynamics of
Boron-Vacancy centers in Hexagonal Boron Nitride**

Abhishek Bharatbhai Solanki, Purdue University | QSC
March 17 | 1:42-1:54 p.m. | Convention Center | Room #253B

**Impact of Dopants on Electronic and Crystal Structure of
Erbium-Doped Oxides for Quantum Memory**

Jessica Barbosa-Martins, Argonne | Q-NEXT
March 17 | 1:54-2:06 p.m. | Convention Center | Room #253B

Reduced Flux-Trapping in Low-Tc MKIDs

Taylor Aralis, SLAC | Q-NEXT
March 17 | 1:54-2:06 p.m. | Convention Center | Room #261B

**Learning from Measurements: Predictability Transitions in Generative
Modeling of Random Quantum Circuits**

Ehud Altman, University of California Berkeley | QSA
March 17 | 1:54-2:30 p.m. | Convention Center | Room #158

**Physical-Size Biasing Corrections for
Improved Josephson Junction Targeting**

Hannah Stickler, MIT Lincoln Laboratory | QSA
March 17 | 2:06-2:18 p.m. | Convention Center | Room #162

Distributed quantum science with neutral atom arrays

Jacob Covey, University of Illinois Urbana-Champaign | Q-NEXT
March 17 | 3:00-3:36 p.m. | Convention Center | Room #253A

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DQI Thesis Award Session: Learning in the Quantum Universe

Hsin-Yuan Huang, Caltech | QSA
March 17 | 3:00-3:36 p.m. | Convention Center | Room #158

Have we seen a demonstration of experimental quantum advantage?

Bill Fefferman, University of Chicago | Q-NEXT
March 17 | 3:00-3:36 p.m. | Convention Center | Room #160

**Nonperturbative computations with the CP-violating
Weinberg three-gluon operator**

Tanmoy Bhattacharya, Los Alamos National Laboratory | QSC
March 17 | 3:06-3:18 p.m. | Marriott | Room: Grand Ballroom Salon A

Efficient Pauli noise learning in fault-tolerant Clifford circuits

Xiao Xiao, University of Maryland | QSA
March 17 | 3:24-3:36 p.m. | Convention Center | Room #256B

**Interaction-Enhanced Correlation Sensing via
Non-Equilibrium Quench Dynamics**

Nazli Ugur Koyluoglu, Harvard University | QSA
March 17 | 3:48-4:00 p.m. | Convention Center | Room #151

**Quantum Simulation of Spin-Boson Models with Structured Bath:
Toward a Quantum Advantage**

Mingyu Kang, Duke University | QSA
March 17 | 4:00-4:12 p.m. | Convention Center | Room #160

**Tunable Nanophotonic Devices and Cavities based on
a Two-Dimensional Magnet**

Ahmet Kemal Demir, Massachusetts Institute of Technology | C²QA
March 17 | 4:00-4:12 p.m. | Convention Center | Room #254B

**How to Build a Quantum Computer: Advanced Fabrication of
Superconducting Qubits**

John Martinis, Qolab, Inc. | QSC
March 17 | 4:12-4:48 p.m. | Convention Center | Room #162

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Spin the spin liquid candidate α - RuCl_3

Heda Zhang, Oak Ridge National Laboratory | QSC
March 17 | 4:42-5:00 p.m. | Convention Center | Room #259A

Many-body spectroscopy algorithms for quantum simulations of chemistry and materials

Nishad Maskara, Harvard University | QSA
March 17 | 4:48-5:00 p.m. | Convention Center | Room #253A

Quantum gravity on noisy quantum computers

Raghav Jha, Thomas Jefferson National Laboratory | C²QA
March 17 | 4:48-5:00 p.m. | Convention Center | Room #160

Transmon qubits under laser illumination

Chunzhen Li, Yale University | C²QA
March 17 | 4:48-5:00 p.m. | Convention Center | Room #204C

Semiconductor moiré materials for photocatalytic overall water splitting

Qun Yang, University of California - Los Angeles | QSC
March 17 | 5:00-5:12 p.m. | Convention Center | Room #255A

Dielectric loss from defects and impurities

Mark Turiansky, University of California - Santa Barbara | C²QA
March 17 | 5:12-5:24 p.m. | Convention Center | Room #260C

Superconducting diode effect in two-dimensional topological insulator edges and Josephson junctions

Tatiana de Picoli Ferreira, Purdue University | QSC
March 17 | 5:48-6:00 p.m. | Convention Center | Room #255C

Efficient Quantum-enabled Monte Carlo sampling for training neural network quantum states

Manas Sajjan, Purdue University | QSC
March 17 | 7:12-7:24 p.m. | Virtual Session | Virtual Room 1

Building New Pathways for a Quantum-Ready Workforce

Megan Ivory, Sandia National Laboratory | QSA
March 17 | 8:15-8:30 p.m. | Convention Center | Room #154



Presentations affiliated with the

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Challenges and opportunities for the second quantum century

John Preskill, Caltech | QSA

March 17 | 9:15-9:30 p.m. | Convention Center | Room #154

TUESDAY | March 18

Beyond-classical experiments on a trapped-ion quantum processor

Ruslan Shaydulin, JPMorgan Chase | Q-NEXT

March 18 | 8:00-8:24 a.m. | Convention Center | Room #256A

Oral: Fast and High-Fidelity SNAP Gate for Cavities Controlled by Weakly Coupled Ancilla

Xinyuan You, Fermi National Accelerator Laboratory | SQMS

March 18 | 8:24-8:36 a.m. | Convention Center | Room #161

Ready for it? Approaching Quantum Utility in High Energy Physics

Henry S Lamm, Fermi National Accelerator Laboratory | SQMS

March 18 | 8:30-9:06 a.m. | Marriott | Room: Platinum 2

Co-Designed Multimode Quantum Optimal Control: Mitigating Crosstalk in Neutral Atom Arrays with Programmable Photonics

Qian Ding, MIT | QSA

March 18 | 8:36-8:48 a.m. | Convention Center | Room #258A

Efficient preparation of Dicke states

Jeffery Yu, University of Maryland College Park | QSA

March 18 | 8:36-8:48 a.m. | Convention Center | Room #160

Building control systems for the long-lived logical qubit challenge

Sebastian Krinner, Zurich Instruments | Q-NEXT

March 18 | 8:48-9:00 a.m. | Convention Center | Room #256B

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Surrogate Constructed Scalable Circuits ADAPT-VQE

Erik Gustafson, University Space Research Associates | SQMS
March 18 | 8:48-9:00 a.m. | Convention Center | Room #160

**Improved SNAP gate through Perturbative Analytical Correction
using Floquet Theory**

Nischay Suri, NASA Ames Research Center | SQMS
March 18 | 9:12-9:24 a.m. | Convention Center | Room #161

Random unitaries in extremely low depth

Thomas Schuster, Caltech | QSA
March 18 | 9:12-9:48 a.m. | Convention Center | Room #256A

Integrated Coulomb Blockade Thermometry for Quantum Computing

Yulia Krasnikova, Fermi National Accelerator Laboratory | SQMS
March 18 | 9:24-9:36 a.m. | Convention Center | Room #151

**Estimation of a small displacement in both quadratures of an harmonic
oscillator using a single-mode stabilized GKP state**

Lautaro Labarca, Université de Sherbrooke | QSA
March 18 | 9:36-9:48 a.m. | Convention Center | Room #256B

**Resource Estimates for Lindbladian-Based Gibbs State Preparation on
Fault-Tolerant Quantum Computers**

Eric Bobrow, Sandia National Laboratory National Laboratories | QSA
March 18 | 9:48-10:00 a.m. | Convention Center | Room #160

**Realizing Fibonacci string-net condensate for universal topological
quantum computation and sampling chromatic polynomials**

Guanyu Zhu, IBM | C²QA
March 18 | 10:24-11:00 a.m. | Convention Center | Room #158

Markovian master equations beyond the Lindblad master equation

Rohan Rajmohan, Northwestern University | SQMS
March 18 | 10:48-11:00 a.m. | Convention Center | Room #161

Simulation of Energy Transport in Novel Materials Using G4CMP

Isreal Hernandez, Illinois Institute of Technology | QSC
March 18 | 10:48-11:00 a.m. | Convention Center | Room #253C

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Rydberg Atom Arrays

Hannes Bernien, University of Chicago | Q-NEXT
March 18 | 11:30 a.m.-12:06 p.m. | Convention Center | Room #158

A Quantum approach for Implementing Fixed-Point Arithmetic in Solving Ordinary Differential Equations

Jose Serralles, New York University | SQMS
March 18 | 11:42-11:54 a.m. | Convention Center | Room #256A

Logical quantum processor based on reconfigurable atom arrays

Vladan Vuletic, MIT | QSA
March 18 | 12:06-12:42 p.m. | Convention Center | Room #158

Multi-Mode Architectures

Srivatsan Chakram Sundar, Rutgers University | SQMS
March 18 | 12:06-12:42 p.m. | Convention Center | Room #161

Coexisting Ferromagnetic–Antiferromagnetic State and Giant Anomalous Hall Effect in Chemical Vapor Deposition Grown 2D Cr₅Te₈

Lei Fu, Purdue University | QSC
March 18 | 12:18-12:30 p.m. | Convention Center | Room #264A

A Mermin-Wagner theorem violation: Non-markovianity enabling long-range order in low dimensions

Ehud Altman, University of California Berkeley | QSA
March 18 | 12:30-12:42 p.m. | Hilton | Room: Avila AB

Spin squeezing and boson sampling with neutral atom arrays

Adam Kaufman, JILA | QSA
March 18 | 12:42-1:18 p.m. | Convention Center | Room #158

Towards ab initio and material specific theories of electron correlation in quantum materials

Garnet K Chan, Caltech | QSA
March 18 | 12:42-1:18 p.m. | Convention Center | Room #159

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**Fast sideband control of a multimode bosonic memory with
a weakly coupled transmon ancilla**

Jordan Huang, Rutgers University | SQMS
March 18 | 12:42-12:54 p.m. | Convention Center | Room #161

**Single-shot readout and weak measurement of
a tin-vacancy qubit in diamond**

Eric Rosenthal, Stanford University | Q-NEXT
March 18 | 1:06-1:18 p.m. | Convention Center | Room #253B

Cooling Electrons on a Micromotion Sideband

Qian Yu, University of California Berkeley | QSA
March 18 | 1:18-1:30 p.m. | Convention Center | Room #204C

**Symmetry-protected topological phases in
a dipolar Bose Hubbard quantum simulator**

Lin Su, Harvard University | QSA
March 18 | 1:42-1:54 p.m. | Convention Center | Room #252C

Exploring quantum computing frontier with programmable atom arrays

Mikhail Lukin, Harvard University | QSA
March 18 | 1:54-2:30 p.m. | Convention Center | Room #160

**Poster 389 Quantum Enhanced Impulse Measurements with
Mechanical Sensors in the Search for Dark Matter**

Sohitri Ghosh, Fermilab | QSC
March 18 | 2:00-5:00 p.m. | Convention Center | Room: Exhibit Hall A

**Magnetic phase diagram of a spin-1/2 compound $\text{Rb}_2\text{Co}_2(\text{SeO}_3)_3$ on
a triangular lattice**

Shengzhi Zhang, Los Alamos National Laboratory | QSC
March 18 | 2:06-2:18 p.m. | Convention Center | Room #260A

**Studying Valley Splitting in
an Industrially Manufactured Quantum Dot Array**

Jonathan Marcks, Argonne | Q-NEXT
March 18 | 2:06-2:18 p.m. | Convention Center | Room #163

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**Noise induced regression to classical dynamics in
the single mode Kerr Effect**

Mohsin Raza, University of New Mexico | QSA
March 18 | 3:24-3:36 p.m. | Convention Center | Room #253A

Spherical Polarization Analysis for Measuring Spin Hall Materials

Guga Khundzakishvili, Purdue University | QSC
March 18 | 3:36-3:48 p.m. | Convention Center | Room #254A

**Windchime and POLONAISE: New directions in
dark matter direct detection with quantum sensing**

Sohitri Ghosh, Fermilab | QSC
March 18 | 3:45-3:57 p.m. | Marriott | Room: Platinum 1

**Demonstration of a CAFQA-bootstrapped Variational Quantum
Eigensolver on a trapped-ion quantum computer**

Qingfeng Wang, Tufts University | QSA
March 18 | 3:48-4:00 p.m. | Convention Center | Room #160

**Probing Nonlinear Effects in Unconventional Superconductors using
a Nonlinear Superconducting Ring Resonator**

Nicolas Dirneggger, University of California - Los Angeles | QSC
March 18 | 3:48-4:00 p.m. | Convention Center | Room #151

The role of reference states in pulse-level VQEs

Kyle Sherbert, Virginia Tech | C²QA
March 18 | 3:00-3:12 p.m. | Convention Center | Room #160

**Direct Observation of the Ferromagnetic Orders Interactions with
Interfacial-Topological-Superconducting States in
FeTe-Bi2Te3-CrTe2 Heterostructures**

Qiangsheng Lu, Oak Ridge National Laboratory | QSC
March 18 | 4:00-4:12 p.m. | Convention Center | Room #255B

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Practical roadmap to measurement-altered criticality in Rydberg arrays

Stephen Naus, Caltech | QSC
March 18 | 4:00-4:12 p.m. | Convention Center | Room #251A

Sensitivity of electronic structure to crystal distortions in infinite layered LaNiO₂

Despina Louca, University of Virginia | QSC
March 18 | 4:00-4:12 p.m. | Convention Center | Room #255C

The Kondo lattice in 1T-TaS₂ single crystal as revealed by mK-STM

Hoyeon Jeon, Oak Ridge National Laboratory | QSC
March 18 | 4:00-4:12 p.m. | Convention Center | Room #251B

Physics-conditioned deep generative model for high-efficiency metasurface thermal emitter design

Yuheng Chen, Purdue University | QSC
March 18 | 4:12-4:24 p.m. | Convention Center | Room #252B

Crystal growth of quantum materials in controlled temperature gradients

Jiaqiang Yan, Oak Ridge National Laboratory | QSC
March 18 | 4:12-4:48 p.m. | Convention Center | Room #159

LabEscape: An adventure from both sides

Paul Kwiat, University of Illinois Urbana-Champaign | Q-NEXT
March 18 | 4:12-4:48 p.m. | Convention Center | Room #155

Quantum Enhanced Dark-Matter Search with Entangled Fock States in High-Quality Factor Cavities

Raphael Cervantes, Fermi National Accelerator Laboratory | SQMS
March 18 | 4:21-4:33p.m. | Convention Center | Room #151

AI-Enabled Molecular State Control using Quantum-Logic Spectroscopy

Anastasia Papi, University of California - Los Angeles | QSC
March 18 | 4:24-4:36 p.m. | Convention Center | Room #258B

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Derandomized shallow shadows: Efficient Pauli learning with bounded-depth circuits

Jonathan Kunjummen, University of Maryland | QSA
March 18 | 4:48-5:00 p.m. | Convention Center | Room #256B

Optimal Distillation of Coherent States with Phase-Insensitive Operations

Shiv Akshar Yadavalli, Duke University | QSA
March 18 | 4:48-5:00 p.m. | Convention Center | Room #253C

Landauer-Bennett Award Prize Symposium

Patrick Hayden, Stanford University | Q-NEXT
March 18 | 4:48-5:24 p.m. | Convention Center | Room #158

Listening for Dark Matter with Quantum Acoustics

Ryan Linehan, Fermilab | QSC
March 18 | 5:09-5:21 p.m. | Marriott | Room: Platinum 1

Quantum Sensor Networks

Alexey Gorshkov, NIST | QSA
March 18 | 5:24-6:00 p.m. | Convention Center | Room #151

Synthesis of Single Qutrit Circuits from Clifford+R gates

Edison Murairi, Fermi National Accelerator Laboratory | SQMS
March 18 | 5:36-5:48 p.m. | Convention Center | Room #256B

Towards topological quantum computing using InAs-Al hybrid devices

Chetan Nayak, Microsoft | QSC
March 18 | 8:00-8:36 p.m. | Convention Center | Room #158

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WEDNESDAY | March 19

The superconducting grid-states qubit, Theory

Long Nguyen, University of California Berkeley | QSA
March 19 | 8:00-8:12 a.m. | Convention Center | Room #162

The Superconducting Grid-States Qubit: Experiment

Hyunseong Kim, University of California Berkeley | QSA
March 19 | 8:12-8:24 a.m. | Convention Center | Room #162

TEPID-ADAPT: Adaptive variational thermal state preparation at low temperatures

Bharath Sambasivam, Virginia Tech | C²QA
March 19 | 8:24-8:36 a.m. | Convention Center | Room #256A

Encapsulated NV-NPA SPE: a stable quantum light source nanodevice with dielectric engineering of PL lifetime

Peigang Chen, Purdue University | QSC
March 19 | 8:48-9:00 a.m. | Convention Center | Room #263A

To break, or not to break: translation symmetry in adaptive quantum simulations of the lattice Schwinger model

Karunya Shirali, Virginia Tech | C²QA
March 19 | 8:48-9:00 a.m. | Convention Center | Room #256A

Upper speed limit on parametric gates in Josephson junction-based circuits (part II)

Matthew Capocci, Northwestern University | C²QA
March 19 | 8:48-9:00 a.m. | Convention Center | Room #258A

Modeling Paired Cooper Pair Tunneling in Noise-Protected Circuits

Thomas Ersevim, University of California Berkeley | QSA
March 19 | 9:12-9:24 a.m. | Convention Center | Room #162

Microwave dielectric properties of LiNbO and AlN at millikelvin temperatures and single-photon power

Alessandro Reineri, Fermi National Accelerator Laboratory | SQMS
March 19 | 9:24-9:36 a.m. | Convention Center | Room #253C

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Finding the symmetries of defects in 2D quantum materials

Bernard Field, Lawrence Berkeley National Lab | QSA
March 19 | 9:36-9:48 a.m. | Convention Center | Room #264C

Unified picture of measurement-induced ionization in the transmon

Alexandre Blais, Université de Sherbrooke | QSA
March 19 | 10:24-11:00 a.m. | Convention Center | Room #158

Characterizing the Robustness of POVMs for Metrology in the Presence of Noise

Andrew Forbes, University of New Mexico | QSA
March 19 | 11:30-11:42 a.m. | Convention Center | Room #151

Bounding the precision of frequency estimation subject to generic non-Markovian noise

Shravan Shravan, University of New Mexico | QSA
March 19 | 11:42-11:54 a.m. | Convention Center | Room #151

Towards fault-tolerant quantum computing with neutral atoms

Vladan Vuletic, MIT | QSA
March 19 | 11:50-12:10 p.m. | Virtual Session | Virtual Room 4

Strategies for superconducting transmon qubits with millisecond T_1 relaxation time

Mustafa Bal, Fermi National Accelerator Laboratory | SQMS
March 19 | 11:54-12:06 p.m. | Convention Center | Room #162

Application-level benchmarking of superconducting qubit platforms using non-local games

Kathleen Hamilton, Oak Ridge National Laboratory | QSC
March 19 | 12:06-12:18 p.m. | Convention Center | Room #258A

Enhancing Entanglement Distribution by Pre- and Post-Processing

Xinan Chen, University of Illinois Urbana-Champaign | Q-NEXT
March 19 | 12:06-12:18 p.m. | Convention Center | Room #204C

Few Electron Transfer using Helium-Channel CCDs

Gordian Fuchs, Princeton University | C²QA
March 19 | 12:06-12:18 p.m. | Convention Center | Room #253C

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A modular approach to superconducting quantum information processing

Andrew Cleland, University of Chicago | Q-NEXT
March 19 | 12:06-12:42 p.m. | Convention Center | Room #158

Probing quantum phenomena with near-term digital quantum simulation

Jin Ming Koh, Caltech | QSA
March 19 | 12:06-12:42 p.m. | Convention Center | Room #154

Superconducting Qubits: Loss Studies for Device Improvements

Daniel Bafia, Fermi National Accelerator Laboratory | SQMS
March 19 | 12:06-12:18 p.m. | Convention Center | Room #162

Understanding mechanisms of RF loss in dielectric substrates in mK temperature range

Ivan Nekrashevich, Fermi National Accelerator Laboratory | SQMS
March 19 | 12:18-12:30 p.m. | Convention Center | Room #162

Investigation of the loss budget in superconducting transmon qubits

Shaojiang Zhu, Fermi National Accelerator Laboratory | SQMS
March 19 | 12:30-12:42 p.m. | Convention Center | Room #162

Entanglement-enhanced learning of quantum processes at scale

Alireza Seif, IBM | C²QA
March 19 | 12:42-1:18 p.m. | Convention Center | Room #256A

Machine Learning Variational Wave-functions for Fermions

Bryan Clark, University of Illinois Urbana-Champaign | Q-NEXT
March 19 | 12:42-1:18 p.m. | Convention Center | Room #156

Quantum Simulation of Bose-Hubbard Phases with a Superconducting Transmon Lattice

Sarah Muschinske, MIT | QSA
March 19 | 12:42-12:54 p.m. | Convention Center | Room #256B

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**Imaginary vector potential in non-Hermitian
spin-orbit coupled systems**

Wenhui Xu, Purdue University | QSC
March 19 | 12:54-1:06 p.m. | Convention Center | Room #253A

**Analog Quantum Simulation of Non-equilibrium Dynamics in
a Frustrated System**

Ammar Ali, Purdue University | QSC
March 19 | 1:06-1:18 p.m. | Convention Center | Room #256B

New Submission Application of linear response quantum algorithm

Alessandro Baroni, Oak Ridge National Laboratory | QSC
March 19 | 1:06-1:18 p.m. | Convention Center | Room #202

**Covariant Quantum Error-Correcting Codes with
Metrological Entanglement Advantage**

Cheng-Ju Lin, University of Maryland | QSA
March 19 | 1:18-1:30 p.m. | Convention Center | Room #151

Realization and Applications of Two-Node Quantum Networks

Pieter-Jan Stas, Harvard University | QSA
March 19 | 1:18-1:30 p.m. | Convention Center | Room #204C

**Three-dimensional quantum Hall states as
a chiral electromagnetic filter**

Nandagopal Manoj, Caltech | QSC
March 19 | 1:18-1:30 p.m. | Convention Center | Room #254A

Optimal function estimation with interacting sensor networks

Erfan Abbasgholinejad, University of Maryland | QSA
March 19 | 1:30-1:42 p.m. | Convention Center | Room #151

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Quantum simulation of infinite temperature spin transport in Heisenberg-like models

Keerthi Kumaran, Purdue University | QSC
March 19 | 1:30-1:42 p.m. | Convention Center | Room #202

Minimal Quantum Circuits for Simulating Fibonacci Anyons

Layla Hormozi, Brookhaven National Laboratory | C²QA
March 19 | 1:42-1:54 p.m. | Convention Center | Room #202

Non-Gaussian generalized two-mode squeezing: applications to two-ensemble spin squeezing and beyond

Aashish Clerk, University of Chicago | Q-NEXT
March 19 | 1:42-1:54 p.m. | Convention Center | Room #151

Exponential entanglement advantage in sensing correlated noise

Yuxin Wang, University of Maryland | QSA
March 19 | 1:54-2:30 p.m. | Convention Center | Room #151

Optimizing fluxonium readout fidelity and non-demolition character using quantum optimal control

Simon Richer, Université de Sherbrooke | QSA
March 19 | 1:54-2:06 p.m. | Convention Center | Room #161

Nuclear clock: scalable quantum system for time

Jun Ye, University of Colorado Boulder | QSA
March 19 | 1:57-2:24 p.m. | Marriott | Room: Platinum 5 & 6

Comparing Belief-Propagation and Matrix-Product-State Simulations of Quantum Dynamics

Jason Saroni, Iowa State University | SQMS
March 19 | 2:06-2:18 p.m. | Convention Center | Room #202

Flat-band (de)localization emulated with a superconducting qubit array

Ilan Rosen, MIT | QSA
March 19 | 2:18-2:30 p.m. | Convention Center | Room #256B

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**Statistical Signatures of Majorana Zero Modes in
Disordered Topological Superconductor Antidot Vortices**

Zhibo Ren, Purdue University | QSC
March 19 | 2:18-2:30 p.m. | Convention Center | Room #264B

**Probing the electronic structure of
the current-induced metastable state in 1T-TaS₂**

Maximilian Huber, Lawrence Berkeley National Lab | QSA
March 19 | 3:00-3:12 p.m. | Convention Center | Room #251B

QubiC update 2025: expandability, versatility, modularity and usability

Gang Huang, Lawrence Berkeley National Lab | QSA
March 19 | 3:00-3:12 p.m. | Convention Center | Room #258A

**Oral: Effect of encapsulation on superconducting properties of
niobium thin films for qubits applications**

Amlan Datta, Ames National Laboratory, Iowa State University | SQMS
March 19 | 3:12-3:24 p.m. | Convention Center | Room #255B

From laser-driven quantum Hall matter to shaken quasicrystals

Yifei Bai, University of California - Santa Barbara | QSC
March 19 | 3:24-3:36 p.m. | Convention Center | Room #252C

**Revealing the Origin and Nature of the Buried Metal-Substrate
Interface Layer in Ta/Sapphire Superconducting Films**

Aswin kumar Anbalagan, Brookhaven National Laboratory | C²QA
March 19 | 3:36-3:48 p.m. | Convention Center | Room #255B

Qubit-based particle detectors

Kester Anyang, Illinois Institute of Technology | QSC
March 19 | 3:57-4:09 p.m. | Marriott | Room: Platinum 10

Probing Transport Phenomena in a Cr-based Kagome Compound

Jhinkyu Choi, Purdue University | QSC
March 19 | 4:00-4:12 p.m. | Convention Center | Room #259B

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Understanding Materials-Level Sources of Performance Variations in Superconducting Qubits

Akshay Murthy, Fermi National Accelerator Laboratory | SQMS
March 19 | 4:00-4:36 p.m. | Convention Center | Room #162

An Ultra-Low-Voltage, 16-Channel Current DAC ASIC in 22nm FDSOI for cryogenic SQUID Biasing

Davide Braga, Fermilab | QSC
March 19 | 4:12-4:24 p.m. | Convention Center | Room #258A

Underground Measurement of Correlated Charge Noise in Superconducting Qubits

Grace Bratrud, Northwestern University | QSC
March 19 | 4:21-4:33 p.m. | Marriott | Room: Platinum 10

Efficient Entanglement Routing in Quantum Networks

William Munizzi, University of California - Los Angeles | QSC
March 19 | 4:36-4:48 p.m. | Convention Center | Room #204C

Quasi-Lindblad pseudomode theory for open quantum systems

Gunhee Park, Caltech | QSA
March 19 | 4:36-4:48 p.m. | Convention Center | Room #262B

Enabling sustainable chemical manufacturing with plasmon catalysis, optimized from the atomic to the reactor scale

Jennifer Dionne, Stanford University | Q-NEXT
March 19 | 4:48-5:24 p.m. | Convention Center | Room #156

Anisotropic Magneto-transport in Homoepitaxial Superconducting Boron Doped Diamond Thin Films

Jyotirmay Dwivedi, Pennsylvania State University | Q-NEXT
March 19 | 5:00-5:12 p.m. | Convention Center | Room #255C

Volume-law suppression in (2 + 1)D subsystem-symmetric monitored quantum circuits

Cole Kelson-Packer, University of New Mexico | QSA
March 19 | 5:00-5:12 p.m. | Convention Center | Room #252B

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Towards microwave spectroscopy of induced superconductivity on high mobility topological insulator Josephson junctions

Mingi Kim, Purdue University | QSC
March 19 | 5:12-5:24 p.m | Convention Center | Room #264B

Artificial Intelligence and Machine Learning in QubiC

Yilun Xu, Lawrence Berkeley National Lab | QSA
March 19 | 5:12-5:24 p.m. | Convention Center | Room #258A

Temperature and Magnetic-Field Dependence of Relaxation in a Fluxonium Qubit

Lamia Ateshian, Massachusetts Institute of Technology | C²QA
March 19 | 5:12-5:24 p.m. | Convention Center | Room #162

FPGA-based In-situ Learning for Real-time Quantum State Discrimination on QubiCML

Neel Vora, Lawrence Berkeley National Lab | QSA
March 19 | 5:24-5:36 p.m. | Convention Center | Room #258A

Quantum circuit expectation values and real-time operator evolution via sparse Pauli dynamics

Tomislav Begusic, Caltech | QSA
March 19 | 5:24-5:36 p.m. | Convention Center | Room #262B

Rahman Prize for Computational Physics: First-principles studies of nonradiative recombination

Chris Van de Walle, University of California - Santa Barbara | C²QA
March 19 | 5:24-6:00 p.m. | Convention Center | Room #159

Investigating the impact of magnetic fields on superconducting qubits and 3D superconducting radio-frequency cavities for quantum applications

Bektur Abdisatrov, Fermi National Accelerator Laboratory, Old Dominion University | SQMS
March 19 | 5:36-5:48 p.m. | Convention Center | Room #162

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Accelerating Quantum Algorithms: A Hardware-Software Co-Design for Efficient Parameterized Circuit Execution

Abhi Rajagopala, Lawrence Berkeley National Lab | QSA
March 19 | 5:48-6:00 p.m. | Convention Center | Room #258A

Realizing measurement-induced phase transitions in multimode circuit QED systems

Shivam Patel, Rutgers University | SQMS
March 19 | 5:48-6:00 p.m. | Convention Center | Room #252B

Characterizing microwave losses in superconducting coaxial cables for quantum systems

Andre Vallieres, Northwestern University | SQMS
March 19 | 5:48-6:00 p.m. | Convention Center | Room #162

Violation of detailed balance in non-equilibrium spin waves

Chengyun Hua, Oak Ridge National Laboratory | QSC
March 19 | 8:24-8:36 p.m. | Convention Center | Room #252B

Quantum Sensing with Circuit QED Photonics

Ioannis Petrides, University of California - Los Angeles | QSC
March 19 | 9:12-9:24 p.m. | Convention Center | Room #151

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THURSDAY | March 20

Characterization of adverse drive-induced transitions in superconducting circuits

Wei Dai, Yale University | C²QA
March 20 | 8:00-8:12 a.m. | Convention Center | Room #161

Improving Coherence in Tantalum Transmon Qubits

Matthew Bland, Princeton University | C²QA
March 20 | 8:00-8:12 a.m. | Convention Center | Room #162

Photonic-cavity-enhanced laser writing of color centers in diamond

Anchita Addhya, University of Chicago | Q-NEXT
March 20 | 8:00-8:12 a.m. | Convention Center | Room #163

Prototype of the 3D QPU based on the 9-cell superconducting radio frequency cavity

Alexander Romanenko, Fermi National Accelerator Laboratory | SQMS
March 20 | 8:00-8:12 a.m. | Convention Center | Room #253C

Building a Long-Lived 3D Multimode Quantum Processing Unit with TESLA Cavities

Yao Lu, Fermi National Accelerator Laboratory | SQMS
March 20 | 8:12-8:24 a.m. | Convention Center | Room #253C

Chiral group velocity of short-wavelength magnons in 11-nm-thick yttrium iron garnet

Andrea Mucchietto, Los Alamos National Laboratory - NHMFL | QSC
March 20 | 8:24-8:36 a.m. | Convention Center | Room #262A

Efficient and Versatile Control of a Long-Lived 3D Multimode Quantum Processing Unit

Taeyoon Kim, Fermi National Accelerator Laboratory | SQMS
March 20 | 8:24-8:36 a.m. | Convention Center | Room #253C

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Observation of string breaking on a (2+1)D Rydberg quantum simulator

Majd Hamdan, QuEra | QSA

March 20 | 8:24-8:36 a.m. | Convention Center | Room #253A

Readout and fluxonium ionization: lessons, pitfalls, and advice

Alexander McDonald, Université de Sherbrooke | QSA

March 20 | 8:36-8:48 a.m. | Convention Center | Room #161

**Neutral-atom quantum simulation of
Shastry-Sutherland Ising materials**

Vahagn Mkhitaryan, Purdue University | QSC

March 20 | 8:48-9:00 a.m. | Convention Center | Room #253A

**Statistical characterization of valley coupling in
Si/SiGe quantum dots via g-factor measurements**

Benjamin Woods, University of Wisconsin–Madison | Q-NEXT

March 20 | 9:00-9:12 a.m. | Convention Center | Room #202

Tunneling spectroscopy in superconducting circuit lattices

Botao Du, Purdue University | QSC

March 20 | 9:00-9:12 a.m. | Convention Center | Room #160

**Digital quantum simulations of t-J model in
one and two dimensions on NISQ devices**

Jianxin Zhu, Los Alamos National Laboratory | QSC

March 20 | 9:12-9:24 a.m. | Convention Center | Room #204C

**Probing low-temperature phases of XXZ models in
a trapped ion quantum simulator**

Sean Muleady, University of Maryland | QSA

March 20 | 9:12-9:24 a.m. | Convention Center | Room #253A

Two-level System Loss in Amorphous Nb₂O₅ and Ta₂O₅

Corey Rae McRae, University of Colorado Boulder / NIST Boulder | SQMS

March 20 | 9:12-9:24 a.m. | Convention Center | Room #162

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**A high-resolution spin-photon interface with
molecular rare-earth ion qubits**

Leah Weiss, University of Chicago | Q-NEXT
March 20 | 9:12-9:48 a.m. | Convention Center | Room #155

Integrated quantum technologies with diamond membranes

Alexander High, University of Chicago | Q-NEXT
March 20 | 9:12-9:48 a.m. | Convention Center | Room #156

**Chemical Analysis of Tantalum Thin Films for
Quantum Information Science using SIMS and XPS**

Maithilee Shinde, Fermi National Accelerator Laboratory | SQMS
March 20 | 9:36-9:48 a.m. | Convention Center | Room #162

**Probing Entanglement Scaling Across a Phase Transition on
a Quantum Computer**

Qiang Miao, Duke University | QSA
March 20 | 9:36-9:48 a.m. | Convention Center | Room #204C

**Quantum Computing Thermalization Dynamics in
a (2+1)D Lattice Gauge Theory**

Niklas Mueller, University of Washington | QSA
March 20 | 9:36-9:48 a.m. | Convention Center | Room #202

**Readout error mitigation for
mid-circuit measurements and feedforward**

Jin Ming Koh, Harvard University | QSA
March 20 | 9:36-9:48 a.m. | Convention Center | Room #256A

AMO-based quantum technologies for space-based research

Dan Stamper-Kurn, University of California Berkeley | QSA
March 20 | 9:42-10:18 a.m. | Marriott | Room: Platinum 5 & 6

Rare-earth oxide host engineering for telecom qubits

Jiefei Zhang, Argonne | Q-NEXT
March 20 | 9:48-10:12 a.m. | Convention Center | Room #156

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First measurement of correlated charge noise in superconducting qubits underground

Daniel Bowring, Fermilab | QSC
March 20 | 9:48-10:24 a.m. | Convention Center | Room #158

Error Management for a Quantum Chemistry Application on a Near-Term Quantum Computer

Meenambika Gowrishankar, University of Tennessee | QSC
March 20 | 10:00-1:00 p.m. | Convention Center | Room #256A

Poster 24 Manipulation of phase shift in antidot three-dimensional topological insulator Josephson junctions

Jian Liao, Purdue University | QSC
March 20 | 10:00-1:00 p.m. | Convention Center | Exhibit Hall A

Poster 164 Physics-conditioned deep generative model for high-efficiency metasurface thermal emitter design

Yuheng Chen, Purdue University | QSC
March 20 | 10:00-1:00 p.m. | Convention Center | Exhibit Hall A

Poster 220 Topology-Optimized Dielectric Metasurface Cavities for Enhanced Valley Polarized Excitonic Light Emission from WSe₂

Vahagn Mkhitaryan, Purdue University | QSC
March 20 | 10:00-1:00 p.m. | Convention Center | Exhibit Hall A

Poster 289 Exploring Design-Dependent Charge-Noise in Charge-Sensitive Transmons

Ramya Suresh, Purdue University | QSC
March 20 | 10:00-1:00 p.m. | Convention Center | Exhibit Hall A

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Poster 397 Encapsulated NV-NPA SPE: a stable quantum light source nanodevice with dielectric engineering of PL lifetime

Peigang Chen, Purdue University | QSC
March 20 | 10:00-1:00 p.m. | Convention Center | Exhibit Hall A

Poster 452 Implementation of a laser–neutron pump–probe capability for inelastic neutron scattering

Chengyun Hua | QSC
March 20 | 10:00-1:00 p.m. | Convention Center | Exhibit Hall A

Measurement-induced transitions in a transmon qudit: Theory

Benjamin D'Anjou, Université de Sherbrooke | QSA
March 20 | 10:00-10:12 a.m. | Convention Center | Room #161

Error Mitigation for Analog Quantum Simulators

Thomas Steckmann, University of Maryland | QSA
March 20 | 10:12-10:24 a.m. | Convention Center | Room #256A

Quantum engineering with a tweezer array of ultracold CaF molecules

Scarlett Seejia Yu, Harvard University | QSA
March 20 | 10:12-10:24 a.m. | Convention Center | Room #253A

Quantum simulation of quantum field theory on the light-front

Peter Love, Tufts University | QSA
March 20 | 10:36-10:48 am. | Convention Center | Room #204C

Multiphoton Processes in a Quasi-1D Coplanar Waveguide Array

Won Chan Lee, University of Maryland | QSA
March 20 | 10:48-11:00 a.m. | Convention Center | Room #161

CEP Stabilized Dual-Comb Spectroscopy for Quantum Enhanced Sensing

Jack Diab, University of California - Los Angeles | QSC
March 20 | 10:57-11:09 a.m. | Marriott | Orange County Salon 1

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Machine Learning for Instrumentation and Measurement Science

Stephen Jesse, Oak Ridge National Laboratory | QSC
March 20 | 11:30 a.m.-12:06 p.m. | Convention Center | Room #261B

Engineering a quantum future for societal impact

David Awschalom + panel, University of Chicago, Argonne | Q-NEXT
March 20 | 11:30 a.m.-12:30 p.m. | Convention Center | Room #159

Stacking fault simulations of Kitaev spin liquid candidate α - RuCl_3

Tom Berlijn, Oak Ridge National Laboratory | QSC
March 20 | 11:30-11:42 a.m. | Convention Center | Room #259B

Clifford Extraction and Absorption for Quantum Circuit Optimization

Ji Liu, Argonne | Q-NEXT
March 20 | 11:42-11:54 a.m. | Convention Center | Room #258A

Vortex Motion Induced Losses in Tantalum Resonators

Faranak Bahrami, Princeton University | C²QA
March 20 | 11:42-11:54 a.m. | Convention Center | Room #162

Impact of surface growth method and surface treatment in niobium-based superconducting devices

Adrian Lupascu, University of Waterloo | SQMS
March 20 | 11:54 a.m. -12:06 p.m. | Convention Center | Room #162

Using Qubit-Derived Sensors to Design Radiation Mitigation Techniques

Noah Kurinsky, SLAC | Q-NEXT
March 20 | 11:57 a.m.-12:33 p.m. | Marriott | Room: Platinum 8

Investigation of surface oxide thermal evolution and removal on Nb thin films

David Garcia-Wetten, Northwestern University | SQMS
March 20 | 12:06-12:18 | Convention Center | Room #162

Hydrodynamic Magnon Transport in Heisenberg Ferromagnet CrCl_3

Ruolan Xue, Harvard University | QSC
March 20 | 12:06-12:18 p.m. | Convention Center | Room #259A

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Partial Error Correction with Error Mitigation

Dawei Zhong, University of South California | QSA
March 20 | 12:06-12:18 p.m. | Convention Center | Room #256A

Hyperfine Transitions: A New Class of TLS Defect in Amorphous Nb Oxides

Patrick Graham Pritchard, Northwestern University | SQMS
March 20 | 12:18-12:30 p.m. | Convention Center | Room #162

What have we learned about the magnetic interactions in α -RuCl₃ from neutron scattering?

Christian Balz, Oak Ridge National Laboratory | QSC
March 20 | 12:30-12:48 p.m. | Convention Center | Room #259B

Scanning Tunneling Microscopy and Spectroscopy Studies of Au-Capped Nb Films for Superconducting Qubit Development

Seth Rice, Illinois Institute of Technology | SQMS
March 20 | 12:54-1:06 | Convention Center | Room #162

Drag conductance induced by neutral-mode localization in fractional quantum Hall junctions

Jukka Vayrynen, Purdue University | QSC
March 20 | 1:06-1:18 p.m. | Convention Center | Room #254A

Scalable, hardware-efficient quantum error correction using concatenated cat qubits

Oskar Painter, Caltech | Q-NEXT
March 20 | 1:18-1:54 p.m. | Convention Center | Room #155

Scanning Tunneling Microscopy/Spectroscopy of Nb films capped with Re for Potential Qubit Development

John Zasadzinski, Illinois Institute of Technology | SQMS
March 20 | 1:30-1:42 p.m. | Convention Center | Room #162

Robust resonator-assisted ZZ cancellation in superconducting quantum processors

Paul Heidler, Fermi National Accelerator Laboratory | SQMS
March 20 | 2:18-2:30 p.m. | Convention Center | Room #161

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**Comparative study of quasi-particle burst events in
transmon qubits made with different materials**

Tanay Roy, Fermi National Accelerator Laboratory | SQMS
March 20 | 2:30-2:42 p.m. | Marriott | Room: Platinum 7

**Tunable non-Gaussian mechanical states in a
strongly coupled hybrid quantum system**

Jugal Talukdar, University of California - Los Angeles | QSC
March 20 | 3:00-3:12 p.m. | Convention Center | Room #253C

**Emulating dynamical phases of BCS superconductors in
a cavity QED simulator**

James Thompson, University of Colorado Boulder | QSA
March 20 | 3:00-3:36 p.m. | Convention Center | Room #252C

Quantum Routing and Entanglement Capacity Through Bottlenecks

Dhruv Devulapalli, University of Maryland | QSA
March 20 | 3:36-3:48 p.m. | Convention Center | Room #256B

High-quality factor superconducting devices using Rhenium

Francesco Crisa, Fermi National Accelerator Laboratory | SQMS
March 20 | 3:48 - 4:00 p.m. | Convention Center | Room #162

**Spin coherence of Er³⁺ in CeO₂ thin film on Silicon at
sub-kelvin temperatures**

Sagar Kumar Seth, University of Chicago | Q-NEXT
March 20 | 4:00-4:12 p.m. | Convention Center | Room #202

**Millikelvin-temperature spin dynamics of
optically addressed single Er³⁺ ions in CaWO₄**

Adam Turflinger, Princeton University | C²QA
March 20 | 4:12-4:24 p.m. | Convention Center | Room #202

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Physics-conditioned deep generative model for high-efficiency metasurface thermal emitter design

Yuheng Chen, Purdue University | QSC
March 20 | 4:12-4:24 p.m. | Convention Center | Room #252B

Quantum Criticality Under Imperfect Teleportation

Yue Liu, Caltech | QSC
March 20 | 4:24-4:36 p.m. | Convention Center | Room #256B

An Exact Lower Bound on Stiffness for Contact Interactions

Zihan Yan, Harvard University | QSC
March 20 | 5:00-5:12 p.m. | Convention Center | Room #255C

Quartic quantum speedups for planted inference

Alexander Schmidhuber, MIT | QSA
March 20 | 5:00-5:12 p.m. | Convention Center | Room #160

Solving k-SAT Problems with Generalized Quantum Measurements, Part I: Zeno Dissipation and Measurement

Philippe Lewalle, University of California Berkeley | QSA
March 20 | 5:12-5:24 p.m. | Convention Center | Room #256A

Solving k-SAT Problems with Generalized Quantum Measurements, Part II: Algorithm Scaling and Performance

Yipei Zhang, University of California Berkeley | QSA
March 20 | 5:24-5:36 p.m. | Convention Center | Room #256A

Exploring the role of quantum fluctuations and chaos in dynamical phase transitions of the Dicke model

Yicheng Zhang, University of Oklahoma | QSA
March 20 | 5:36-5:48 p.m. | Convention Center | Room #252C

String-Breaking Dynamics in Quantum Adiabatic and Diabatic Processes

Federica Maria Surace, Caltech | QSA
March 20 | 5:48-6:00 p.m. | Convention Center | Room #252C

FRIDAY | March 21

PearSAN: an inverse design framework for the latent optimization of photonic devices using Pearson Correlated Surrogate Annealing

Michael Bezick, Purdue University | QSC
March 21 | 8:00-8:12 a.m. | Convention Center | Room #263A

**Spin Qubits produced with a 300mm fabrication line:
An update on Intel Si/SiGe devices**

Jim Clarke, Intel | Q-NEXT
March 21 | 8:00-8:36 a.m. | Convention Center | Room #158

Extending coherence in a diode-embedded quantum register

Cyrus Zeledon, University of Chicago | Q-NEXT
March 21 | 8:12-8:24 a.m. | Convention Center | Room #163

Sparse Block-Encodings for Linear Combinations of Ladder Operators

William Simon, Tufts University | QSA
March 21 | 8:24-8:36 a.m. | Convention Center | Room #160

Imaging photoinduced structural dynamics preceding color center creation in silicon carbide

Kumar Neeraj, Argonne | Q-NEXT
March 21 | 8:36-8:48 a.m. | Convention Center | Room #163

Superconductivity from spin-canting fluctuations in rhombohedral graphene

Zhiyu Dong, Caltech | QSC
March 21 | 8:36-8:48 a.m. | Convention Center | Room #255C

Robustness of Chiral and Bound Majorana Fermions in the superconductor and 3D topological insulator bilayer without and with antidot vortex

Umesh Kumar, Oak Ridge National Laboratory | QSC
March 21 | 8:48-9:00 a.m. | Convention Center | Room #264C

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**Superconducting Qubits Underground:
Design, Measurement, and Scalability**

Olivia Seidel, University of Texas - Arlington | QSC
March 21 | 8:48-9:00 a.m. | Convention Center | Room #162

Dynamic defects in the surface code with a transverse field

Phillip Lotshaw & Paul Kairys, Oak Ridge National Laboratory | QSC
March 21 | 9:00-9:12 a.m. | Convention Center | Room #256B

**Semicoherent Symmetric Quantum Processes:
Theory and Applications**

Yan Wang, Oak Ridge National Laboratory | QSC
March 21 | 9:00-9:12 a.m. | Convention Center | Room #160

**Towards quantum simulation of
neutron scattering dynamics in real space**

Paul Kairys, Oak Ridge National Laboratory | QSC
March 21 | 9:12-9:24 a.m. | Convention Center | Room #202

Multipolar condensates and synthetic tensor gauge fields

Qi Zhou, Purdue University | QSC
March 21 | 9:12-9:48 a.m. | Convention Center | Room #201CD

**Quantum Computing Thermalization Dynamics in
a (2+1)D Lattice Gauge Theory**

Niklas Mueller, University of Washington | QSA
March 21 | 9:36-9:48 a.m. | Convention Center | Room #202

Spin-liquid-based topological qubits

Jason Alicea, Caltech | QSC
March 21 | 9:48-10:24 a.m. | Convention Center | Room #256B

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The Impact of Radiation-Induced Electron-Hole Pairs on Industrially Fabricated Si/SiGe Quantum Dot Qubits

Mark Eriksson, University of Wisconsin–Madison | Q-NEXT
March 21 | 9:48-10:24 a.m. | Convention Center | Room #158

Exponential improvements in the simulation of lattice gauge theories using near-optimal techniques

Michael Kreshchuk, Phasecraft | QSA
March 21 | 10:00-10:12 a.m. | Convention Center | Room #202

Observation of quasi-ballistic transport at infinite temperature in a Rydberg simulator

Daniel Mark, MIT | QSA
March 21 | 10:00-10:12 a.m. | Convention Center | Room #252B

Instability of steady-state mixed-state symmetry-protected topological order to strong-to-weak spontaneous symmetry breaking

Jeet Shah, Joint Quantum Institute | QSA
March 21 | 10:36-10:48 a.m. | Convention Center | Room #254A

Microwave single-photon detection using a hybrid spin-optomechanical quantum interface

Pratyush Anand, MIT | QSA
March 21 | 10:36-10:48 a.m. | Convention Center | Room #204C

Room temperature optically detected magnetic resonance of single spins in GaN

Gregory Fuchs, Cornell University | Q-NEXT
March 21 | 11:30 a.m.-12:06 p.m. | Convention Center | Room #264A

Quantum Engineering of Qubits and Devices with Molecules

Multiple Speakers | Q-NEXT
March 21 | 11:30 a.m.-2:30 p.m. | Convention Center | Room #158

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Single-photon optical nonlinearity using electronic avalanche multiplication process

Demid Sychev, Purdue University | QSC
March 21 | 11:30-11:42 a.m. | Convention Center | Room #253A

Elucidation of the Mechanism Underlying the Payne Effect in Filler-Reinforced Rubber Using in-operando X-ray Photon Correlation Spectroscopy

Xiaoran Wang, Stony Brook University | QSC
March 21 | 11:42-11:54 a.m. | Hilton | Room #California B

An Error Suppressing Encoding for Positional Disorder in Rydberg Atom Analog Quantum Simulation

Haohai Shi, University of Maryland | QSA
March 21 | 11:54-12:06 p.m. | Convention Center | Room #202

Probing and Controlling Density Waves at the Atomic Scale using Ultrafast STM

Vidya Madhavan, University of Illinois Urbana-Champaign | Q-NEXT
March 21 | 12:06-12:42 p.m. | Convention Center | Room #157

Quantum Materials meets Quantum Information

Yong Chen, Purdue University | QSC
March 21 | 12:06-12:42 p.m. | Convention Center | Room #154

Error resilience in digital quantum simulations for controlled electron dynamics

Max Porter, Sandia National Laboratory National Laboratories | QSA
March 21 | 12:18-12:30 p.m. | Convention Center | Room #202

Quasicrystal product codes

Brenden Roberts, Harvard University | QSA
March 21 | 12:18-12:30 p.m. | Marriott | Room #151

Scalable Quantum Circuits for Simulating Quantum Field Theories

Martin Savage, University of Washington | QSC
March 21 | 12:42-12:54 p.m. | Convention Center | Room #253C

U.S. Department of Energy | Office of Science
National Quantum Information Science Research Centers

**Optimal Conversion from Classical to Quantum Randomness via
Quantum Chaos**

Wai-Keong Mok, Caltech | QSA
March 21 | 12:54-1:06 p.m. | Hilton | Room: San Simeon AB

**Systematic construction of time-dependent Hamiltonians for
microwave-driven Josephson circuits**

Tianpu Zhao, Northwestern University | C²QA
March 21 | 12:54-1:06 p.m. | Convention Center | Room #151

**Implications of annealing on the structure and chemistry of Al/AlO_x/Al
Josephson junctions**

Jaeyel Lee, Fermi National Accelerator Laboratory | SQMS
March 21 | 1:30-1:42 p.m. | Convention Center | Room #263A

**Convenient numerical package generating CPTP dynamical maps for
driven quantum systems**

Ziwen Huang, Fermi National Accelerator Laboratory | SQMS
March 21 | 2:06-2:18 p.m. | Convention Center | Room #161

LabEscape Escape Room

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