BRITTON L. T. PLOURDE

201 Physics Building
Syracuse University
Syracuse, NY 13244

email: bplourde@syr.edu
phone (office): (315) 443-8967
phone (lab): (315) 443-4719

ACADEMIC POSITIONS

- Professor, Physics Department – *Syracuse University* 2016-present
- Associate Professor, Physics Department – *Syracuse University* 2011-2016
- Assistant Professor, Physics Department – *Syracuse University* 2005-2011
- Postdoctoral Research Associate –*University of California, Berkeley* 2000-2004

EDUCATION

- Ph.D., *University of Illinois at Urbana-Champaign* October 2000
  Thesis Title: "Vortex Distributions and Dynamics in Superconductors near Surface Steps and Sample Edges Studied by Scanning SQUID Microscopy and Critical Current Measurements"
  Thesis Advisor: Dale J. Van Harlingen
  Thesis committee: Anthony Leggett, Michael Weissman, James Wiss
- Master of Science, Physics - *University of Illinois* January 1995
- Bachelor of Science, Physics with honors - *University of Michigan* May 1993
- Master of Music, Performance - *University of Illinois* May 1999
- Bachelor of Music, Performance with honors - *University of Michigan* May 1993

HONORS AND AWARDS

- Fellow of IEEE 2023
- Outstanding Referee Award – American Physical Society 2018
- Visiting Professor of Physics, *University of the Saarland Saarbrücken, Germany* Fall 2013
- IBM Faculty award 2011
- NSF CAREER award 2006
- Lunch on the Department teaching award, *Syracuse University* 2012, 2017
- Outstanding Physics Professor award, Society of Physics Students, *Syracuse University* 2009
- Excellence in Teaching Award, *University of Illinois* 1994
- Williams Undergraduate Physics Thesis Award, *University of Michigan* 1993
- Literature, Science, and the Arts Merit Scholarship, *University of Michigan* 1993
- National Science Foundation Travel Award 1998

PUBLICATIONS

"Hardware implementation of quantum stabilizers in superconducting circuits" K. Dodge, Y. Liu, A.R. Klots, B. Cole, A. Shearrow, M. Senatore, S. Zhu, L.B. Ioffe, R. McDermott, B.L.T. Plourde – arXiv:2303.00625 (2023).

"Single Flux Quantum-Based Digital Control of Superconducting Qubits in a Multi-Chip Module" C.-H. Liu, A. Ballard, D. Olaya, D.R. Schmidt, J. Biesecker, T. Lucas, J. Ullom, S. Patel, O. Rafferty, A. Opremcak, K. Dodge, V. Iaia, T. McBroom, J. L. Dubois, P.F. Hopkins, S.P. Benz, B.L.T. Plourde, R. McDermott –Physical Review X Quantum 4, 030310 (2023).

“Superconducting Qubits” Britton Plourde & Frank K. Wilhelm-Mauch, Handbook of Superconductivity, CRC Press, 719-730 (2023).

"Quasiparticle Poisoning of Superconducting Qubits from Resonant Absorption of Pair-breaking Photons" C.H. Liu, D.C. Harrison, S. Patel, C.D. Wilen, O. Rafferty, A. Shearrow, A. Ballard, V. Iaia, J. Ku, B.L.T. Plourde, R. McDermott – arxiv:2203.06577 (2022).

"Phonon downconversion to suppress correlated errors in superconducting qubits" V. Iaia, J. Ku, A. Ballard, C.P. Larson, E. Yelton, C.H. Liu, S. Patel, R. McDermott, B.L.T. Plourde – Nature Communications 13, 6425 (2022).

"High-Fidelity Measurement of a Superconducting Qubit using an On-Chip Microwave Photon Counter" A. Opremcak, C.H. Liu, C. Wilen, K. Okubo, B.G. Christensen, D. Sank, T.C. White, A. Vainsencher, M. Giustina, A. Megrant, B. Burkett, B.L.T. Plourde, R. McDermott – Physical Review X 11, 011027 (2021).

"Coupling a Superconducting Qubit to a Left-Handed Metamaterial Resonator" S. Indrajeet, H. Wang, M.D. Hutchings, B.G. Taketani, Frank K. Wilhelm, M.D. LaHaye, and B.L.T. Plourde – Physical Review Applied 14, 064033 (2020).

"Suppression of Unwanted *ZZ* Interactions in a Hybrid Two-Qubit System" Jaseung Ku, Xuexin Xu, Markus Brink, David C. McKay, Jared B. Hertzberg, Mohammad H. Ansari, and B.L.T. Plourde –Physical Review Letters 125 200504 (2020).

"Anomalous charge noise in superconducting qubits", B. G. Christensen, C. D. Wilen, A. Opremcak, J. Nelson, F. Schlenker, C. H. Zimonick, L. Faoro, L. B. Ioffe, Y. J. Rosen, J. L. DuBois, B. L. T. Plourde, and R. McDermott - Physical Review B 100, 140503(R) (2019).

"Interfacing Superconducting Qubits With Cryogenic Digital Logic: Measurement" C. Howington, A. Opremcak, R. McDermott, A. Kirichenko, O.A. Mukhanov, B.L.T. Plourde IEEE Transactions on Applied Superconductivity 29, 5 (2019).

“Mode Structure in Superconducting Metamaterial Transmission Line Resonators” H. Wang, A.P. Zhuravel, S. Indrajeet, B.G. Taketani, M.D. Hutchings, Y. Hao, F. Rouxinol, F.K. Wilhelm, M. LaHaye, A.V. Ustinov, B.L.T. Plourde – Physical Review Applied 11, 054062 (2019).

"Digital coherent control of a superconducting qubit" E. Leonard Jr, M.A. Beck, J. Nelson, B.G. Christensen, T. Thorbeck, C. Howington, A. Opremcak, I.V. Pechenezhskiy, K. Dodge, N.P. Dupuis, J. Ku, F. Schlenker, J. Suttle, C. Wilen, S. Zhu, M.G. Vavilov, B.L.T. Plourde, R. McDermott – Physical Review Applied 11, 014009 (2019).

"Measurement of a Superconducting Qubit with a Microwave Photon Counter" A. Opremcak, I.V. Pechenezhskiy, C. Howington, B.G. Christensen, M.A. Beck, E. Leonard Jr., J. Suttle, C. Wilen, K.N. Nesterov, G.J. Ribeill, T. Thorbeck, F. Schlenker, M.G. Vavilov, B.L.T. Plourde, R. McDermott – Science 361, 1239 (2018).

“Enhanced superconducting transition temperature in electroplated rhenium” David P. Pappas, Donald E. David, Russell E. Lake, Mustafa Bal, Ron B. Goldfarb, Dustin A. Hite, Eunja Kim, H.-S. Ku, J.L. Long, C.R.H. McRae, L.D. Pappas, A. Roshko, J.G. Wen, B.L.T. Plourde, I. Arslan, and X. Wu – Applied Physics Letters 112, 182601 (2018).

“Quantum-classical interface based on single flux quantum digital logic” R. McDermott, M.G. Vavilov, B.L.T. Plourde, F.K. Wilhelm, P.J. Liebermann, O.A. Mukhanov, T.A. Ohki — Quantum Science and Technology 3, 024004 (2018).

“Phonon-Mediated Quasiparticle Poisoning of Superconducting Microwave Resonators” U. Patel, Ivan V. Pechenezhskiy, B. L. T. Plourde, M. G. Vavilov, R. McDermott — Physical Review B, 96, 220501(R) (2017).

“Tunable Superconducting Qubits with Flux-Independent Coherence” M.D. Hutchings, J.B. Hertzberg, Y. Liu, N.T. Bronn, G.A. Keefe, M. Brink, J.M. Chow, B.L.T. Plourde, — Physical Review Applied 8, 044003 (2017).

"Experimental Demonstration of a Resonator-Induced Phase Gate in a Multiqubit Circuit-QED System" Hanhee Paik, A. Mezzacapo, Martin Sandberg, D. T. McClure, B. Abdo, A. D. Córcoles, O. Dial, D. F. Bogorin, B. L. T. Plourde, M. Steffen, A. W. Cross, J. M. Gambetta, Jerry M. Chow — Physical Review Letters 117, 250502 (2016).

"Transient dynamics of a superconducting nonlinear oscillator" P. Bhupathi, Peter Groszkowski, M. P. DeFeo, Matthew Ware, Frank K. Wilhelm, and B. L. T. Plourde — Physical Review Applied 5, 024002 (2016).

"Scalable two- and four-qubit parity measurement with a threshold photon counter" L.C.G. Govia, Emily J. Pritchett, B. L. T. Plourde, Maxim G. Vavilov, R. McDermott, and Frank K. Wilhelm —Physical Review A 92, 022335 (2015).

"Superconducting metamaterials and qubits" B. L. T. Plourde, Haozhi Wang, Francisco Rouxinol, M. D. LaHaye —Proceedings of the SPIE 9500, Quantum Information and Computation XIII, 95000M (2015).

"High-fidelity qubit measurement with a microwave-photon counter" L.C.G. Govia, Emily J. Pritchett, Canran Xu, B. L. T. Plourde, Maxim G. Vavilov, Frank K. Wilhelm, and R. McDermott— Physical Review A 90, 062307 (2014).

"Trapping a Single Vortex and Reducing Quasiparticles in a Superconducting Resonator" I. Nsanzineza and B. L. T. Plourde — Physical Review Letters 113, 117002 (2014).

“Copper Waveguide Cavities with Reduced Surface Loss for Coupling to Superconducting Qubits", D.F. Bogorin, D.T. McClure, M. Ware, B.L.T. Plourde – IEEE Transactions on Applied Superconductivity 24(4), 1700207 (2014).

"First-order sideband transitions with flux-driven asymmetric transmon qubits", J.D. Strand, Matthew Ware, Felix Beaudoin, T.A. Ohki, B.R. Johnson, Alexandre Blais, B.L.T. Plourde – Physical Review B **87**, 220505(R) (2013).

"Process verification of two-qubit quantum gates by randomized benchmarking", A.D. Corcoles, Jay M. Gambetta, Jerry M. Chow, John A. Smolin, Matthew Ware, J.D. Strand, B.L.T. Plourde, M. Steffen – Physical Review A **87**, 030301 (2013).

"Reducing surface loss in 3D microwave copper cavities for superconducting transmon qubits" Daniela Bogorin, Matthew Ware, D.T. McClure, Stephen Sorokanich, B.L.T. Plourde – Proceedings of 2013 IEEE 14th International Superconductive Electronics Conference (ISEC), 7-11 July 2013, DOI:10.1109/ISEC.2013.6604283.

"Superconducting qubit in a waveguide cavity with a coherence time approaching 0.1 ms", Chad Rigetti, Jay M. Gambetta, Stefano Poletto, B.L.T. Plourde, Jerry M. Chow, A.D. Corcoles, John A. Smolin, Seth T. Merkel, J.R. Rozen, George A. Keefe, Mary B. Rothwell, Mark B. Ketchen, M. Steffen – Physical Review B **86**, 100506(R) (2012).

"Superconducting microstrip amplifiers with sub-Kelvin noise temperature near 4 GHz", M.P. DeFeo, B.L.T. Plourde – Applied Physics Letters **101**, 052603 (2012).

"Rectification of vortex motion in a circular ratchet channel", N.S. Lin, T.W. Heitmann, K. Yu, B.L.T. Plourde, V.R. Misko, – Physical Review B **84**, 144511 (2011).

"Microstrip superconducting quantum interference device amplifiers with submicron Josephson junctions: Enhanced gain at gigahertz frequencies", M.P. DeFeo, P. Bhupathi, K. Yu, T.W. Heitmann, C. Song, R. McDermott, B.L.T. Plourde – Applied Physics Letters **97**, 092507 (2010).

"Vortex dynamics in superconducting channels with periodic constrictions", K. Yu, M.B.S. Hesselberth, P.H. Kes, B.L.T. Plourde – Physical Review B **81**, 184503 (2010).

"Reducing microwave loss in superconducting resonators due to trapped vortices" C. Song, M.P. DeFeo, K. Yu, B.L.T. Plourde – Applied Physics Letters **95**, 232501 (2009).

"Nanostructured Superconductors with Asymmetric Pinning Potentials: Vortex Ratchets" Britton L.T. Plourde – IEEE Transactions on Applied Superconductivity **19**, 3698 (2009).

"Microwave response of vortices in superconducting thin films of Re and Al" C. Song, T.W. Heitmann, M.P. DeFeo, K. Yu, R. McDermott, M. Neeley, John M. Martinis, B.L.T. Plourde – Physical Review B **79**, 174512 (2009).

"Picovoltmeter for probing vortex dynamics in a single weak-pinning Corbino channel" T.W. Heitmann, K. Yu, C. Song, M.P. DeFeo, B.L.T. Plourde, M.B.S. Hesselberth, P.H. Kes – Rev. Sci. Inst. **79**, 103906 (2008).

“Quantum nondemolition-like fast measurement scheme for a superconducting qubit” I. Serban, B.L.T. Plourde, F.K.Wilhelm – Physical Review B **78**, 054507 (2008).

"Asymmetric weak-pinning superconducting channels: vortex ratchets", K. Yu, T.W. Heitmann, C. Song, M.P. DeFeo, B.L.T. Plourde, M.B.S. Hesselberth, P.H. Kes – Physical Review B **76**, 220507(R) (2007).

“Long-range coupling and scalable architecture for superconducting flux qubits”, Austin G. Fowler, William F. Thompson, Zhizhong Yan, Ashley M. Stephens. B.L.T. Plourde, Frank K. Wilhelm – Physical Review B, **76**, 174507 (2007).

"Solid-State Qubits with Current-Controlled Coupling", T. Hime, P.A. Reichardt, B.L.T. Plourde, T.L. Robertson, C.-E. Wu, A.V. Ustinov, John Clarke -- Science **314**, 1427 (2006).

"Quantum theory of three-junction flux qubit with non-negligible loop inductance: Towards scalability", T.L. Robertson, B.L.T. Plourde, P.A. Reichardt, T. Hime, C.-E. Wu, John Clarke -- Physical Review B, **73**, 174526 (2006).

"Flux qubits and readout device with two independent flux lines", B.L.T. Plourde, T.L. Robertson, P.A. Reichardt, T. Hime, S. Linzen, C.-E. Wu, and John Clarke -- Physical Review B **72**, 060506(R) (2005).

"Superconducting Quantum Interference Device with frequency-dependent damping: readout of flux qubits", T.L. Robertson, B.L.T. Plourde, T. Hime, S. Linzen, P.A. Reichardt, F.K. Wilhelm, and John Clarke -- Physical Review B **72**, 024513 (2005).

"Entangling flux qubits with a bipolar dynamic inductance", B.L.T. Plourde, J. Zhang, K.B. Whaley, F.K. Wilhelm, T.L Robertson, T. Hime, S. Linzen, P.A. Reichardt, C.-E. Wu, and John Clarke – Physical Review B, **70**, 140501(R) (2004).

"Low-noise computer-controlled current source for quantum coherence experiments", S. Linzen, T.L. Robertson, T. Hime, B.L.T. Plourde, P.A. Reichardt, and John Clarke -- Review of Scientific Instruments, **75**, 2541 (2004).

"Decoherence in Josephson-junction qubits due to critical-current fluctuations", D.J. Van Harlingen, T.L. Robertson, B.L.T. Plourde, P.A. Reichardt, T.A. Crane, and John Clarke – Physical Review B, **70**, 064517 (2004).

"Decoherence in Flux Qubits Due to 1/f Noise in Josephson Junctions" D.J. Van Harlingen, B.L.T. Plourde, T.L. Robertson, P.A. Reichardt, and John Clarke -- in *Quantum Computing and Quantum Bits in Mesoscopic Systems*, Kluwer Academic, 2004.

"Quiet Readout of Superconducting Flux States"**,** John Clarke, T.L. Robertson, B.L.T. Plourde, A. García-Martinez, P.A. Reichardt, D.J. Van Harlingen, B. Chesca, R. Kleiner, Y. Makhlin, G. Schön, A. Shnirman and F.K. Wilhelm – Physica Scripta, T102, 173 (2002).

"Vortex distributions near surface steps observed by scanning SQUID microscopy", B.L.T. Plourde, D.J. Van Harlingen, N. Saha, R. Besseling, M.B.S. Hesselberth, and P.H. Kes – Physical Review B, **66**, 054529 (2002).

"Influence of edge barriers on vortex dynamics in thin weak-pinning superconducting strips", B.L.T. Plourde, D.J. Van Harlingen, D. Yu. Vodolazov, R. Besseling, M.B.S. Hesselberth, and P.H. Kes – Physical Review B, **64**, 014503 (2001).

"Vortex dynamics in thin superconducting strips observed by Scanning SQUID Microscopy", B.L.T. Plourde and D.J. Van Harlingen - Physica C, **341-348**, 1023-1026 (2000).

"Search for superconducting phases with broken time-reversal symmetry in d-wave grain boundary junctions and mesoscopic islands", W.K. Neils, B.L.T. Plourde and D.J. Van Harlingen – Physica C, **341-348**, 1705-1706 (2000).

"Scanning SQUID Microscopy of Flux Distributions and Motion near Surface Features in $NbSe_2$", B.L.T. Plourde and D.J. Van Harlingen - NATO Advanced Study Institute Proceedings, **356**, 281 (1999).

"Design of a Scanning Josephson Junction Microscope for Submicron-Resolution Magnetic Imaging", B.L.T. Plourde, D.J. Van Harlingen – Review of Scientific Inst., **70**, 4344 (1999).

"Extending SQUID interferometry beyond the cuprates and beyond d-wave symmetry", D.J. Van Harlingen, J.E. Hilliard, B.L.T. Plourde, B.D. Yanoff, Physica C, **317-318**, 410 (1999).

"Water Droplet Avalanches", Britton Plourde, Franco Nori and Michael Bretz, Physical Review Letters, **71,** 2749 (1993).

SPONSORED RESEARCH PROJECTS

- CAREER: *Quantum Coherence in Vortex Systems and Superconducting Devices* -- $514,000 over 5 years
  National Science Foundation — 2006-2012
- MRI: *Acquisition of an Atomic Force Microscope and Surface Profilometer for Surface Analysis Facility at Syracuse University*
  co-PIs: Tewodros Asefa, Karin Ruhlandt-Senge, Gianfranco Vidali
  -- $297,896 for purchasing new equipment
  National Science Foundation — 2007-2009
- QuEST: *Quantum-Limited Measurement as a Tool for Entanglement in Superconducting Circuits*
  project led by PI Robert McDermott (U. Wisconsin)
  -- $840,000 (Syracuse portion)
  DARPA — 2009-2013
- Coherent Superconducting Qubits: *Improved Materials for High-Performance Phase and Flux Qubits*
  project led by PI Robert McDermott (U. Wisconsin)
  -- $615,000 (Syracuse portion)
  IARPA — 2009-2011
- Multi-Qubit Coherent Operations: *Surface-Code Multi-Qubit Functionality with Superconducting Qubits*
  project led by PI Mark Ketchen (IBM Yorktown Heights)
  -- $2,197,000 (Syracuse portion)
  IARPA — 2010-2016
- *Coupling a Single Vortex in a Superconductor to a Single Microwave Photon* -- $345,000 over 4 years
  National Science Foundation — 2011-2015
- *Acquisition of an Adiabatic Demagnetization Refrigerator for Quantum Information Science with Superconducting Circuits (DURIP)*
  -- $230,738
  Army Research Office — 2014-2015
- *Scalable Readout of Superconducting Qubits with Novel Superconducting Amplifiers and Metamaterials*
  Lead PI = Britton Plourde, co-PIs at Wisconsin and Saarland
  -- $2,250,000 total; $813,000 over 3 years (Syracuse portion)
  Army Research Office — 2014-2017

- *Accurate Qubit Control with Single Flux Quantum Pulses* 2015-2019
  project led by PI Robert McDermott (U. Wisconsin), co-PIs
  at Wisconsin and Saarland
  -- $1,010,000 over 4 years (Syracuse portion)
  Army Research Office
- LogiQ: *Superconducting Logically Encoded Extensible Qubit* 2016-2019
  project led by PI Jerry Chow (IBM Yorktown Heights)
  -- $900,000 over 3 years (Syracuse portion)
  IARPA
- *Collaborative Research: Proximal Digital Control and Stabilization* 2017- 2020
  of Superconducting Qubits -- $270,000 over 3 years (Syracuse portion)
  Collaboration with McDermott lab at U. Wisconsin
  National Science Foundation
- *Interfacing SFQ Digital Logic with Superconducting Qubit Circuits* 2019-2021
  Collaboration with R. McDermott (U. Wisconsin) and LLNS
  -- $200,000 over 2 years (Syracuse portion)
  Lawrence Livermore National Laboratory (DOE)
- *[Quantum Accelerator] Superconducting Metamaterial Ring Resonators* 2020-2022
  Collaboration with Rome AFRL
  -- $75,000 over 2 years (Syracuse portion)
  Air Force Office of Scientific Research (AFOSR)
- *Charge Parity Qubit Protected Against Local Noise* 2018-present
  project led by PI Robert McDermott (U. Wisconsin), co-PIs
  at Wisconsin (L. Ioffe and L. Faoro)
  -- $1,432,481 over 5 years (Syracuse portion)
  Army Research Office
- *Superconducting Metamaterials for Entanglement Generation* 2020-present
  and Quantum Interfacing
  Collaboration with Rome AFRL
  -- $385,000 over 3 years (Syracuse portion)
  Air Force Research Laboratory (AFRL)
- *Quasiparticle Modeling for Engineered Quantum Systems* Sept. 2021-present
  Collaboration with Brookhaven National Lab and U. Wisconsin
  -- $58,896/year (Syracuse portion)
  Department of Energy (DOE)/Brookhaven National Lab
- *High-Speed Waveform Electronics for Quantum Information Science* Sept. 2022-present
  With Superconducting Circuits (DURIP)
  -- $297,718
  Air Force Office of Scientific Research (AFOSR)
- *Characterizing and Mitigating Phononic and Photonic* Sept. 2022-present
  Poisoning in Solid-State Qubits
  Lead PI = Britton Plourde, co-PIs at Wisconsin, Stanford, Jülich, SU
  -- $5,600,000 total; $2,400,000 over 4 years (Syracuse portion)
  Army Research Office (ARO)

PATENTS & PENDING APPLICATIONS

- *System and Method for Circuit Quantum Electrodynamics Measurment* 2017
  US 9,692,423 with McDermott, Vavilov, Wilhelm-Mauch
  Govia, Pritchett

- *Metamaterial-Boosted Quantum Electromechanical Transducer for Microwave-Optical Interfacing* 2021
  US 11,163,209 with LaHaye
- *Superconducting metamaterials for quantum simulations and qubit addressability in quantum processors* 2022
  US Patent App. 17/545,592
- *Fabrication of normal conducting or low-gap islands for downconversion of pair-breaking phonons in superconducting quantum circuits* 2023
  US Patent App. 17/469,380 with McDermott

EDITORIAL BOARDS

- IEEE Transactions on Quantum Engineering 2021-2022
  Interim Editor-in-Chief
- IEEE Transactions on Applied Superconductivity 2013-2019
  Editor-in-Chief
- IEEE Transactions on Applied Superconductivity 2011-2013
  Associate Editor
- IEEE Transactions on Quantum Engineering 2020-2021
  Member of advisory board

JOURNAL REFEREE SERVICE

- Reviewer for:

- Applied Physics Letters
- Europhysics Letters
- IEEE Transactions on Applied Superconductivity
- IEEE Transactions on Quantum Engineering
- Journal of Low Temperature Physics
- Nature Communications
- Nature Scientific Reports
- New Journal of Physics
- Physica C
- Physical Review Letters
- Physical Review Applied
- Physical Review A
- Physical Review B
- Physical Review Research
- Physical Review X
- Physical Review X Quantum
- Science
- Superconductor Science and Technology

RESEARCH PROPOSAL REFEREE SERVICE

- National Science Foundation, Division of Materials Research 3 times since 2008
  Proposal review panel
- National Science Foundation, Division of Materials Research since 2007
  email review of proposals
- National Science Foundation, Division of Physics since 2011
  email review of proposals

- Army Research Office — since 2012
  email review of proposals
- Department of Energy, Office of Science — since 2018
  email review of proposals
- Japan Society for the Promotion of Science — since 2016
  email review of proposals
- DFG (German Science Foundation) — since 2018
  email review of proposals
- SNSF (Swiss National Science Foundation) — since 2019
  email review of proposals
- Israel Science Foundation — since 2020
  email review of proposals

PROFESSIONAL ORGANIZATIONS

- American Physical Society, member — since 2000
- American Physical Society, graduate student member — 1994-2000
- IEEE, senior member — since 2012
- IEEE Council on Superconductivity, member of Executive Committee — 2013-2019
- IEEE Council on Superconductivity, member of Advisory Committee — since 2013
- IEEE Council on Superconductivity, Chair of Technical Committee on Quantum Engineering — since 2022

CONFERENCE ORGANIZATION

- United States Committee For Superconducting Electronics — since 2019
  Member of board
- Applied Superconductivity Conference, Program Committee member — multiple years
- IEEE International Committee on Rebooting Computing (ICRC) — 2020
  Program Committee member
- IEEE Conference on Quantum Computing and Engineering (QCE20, 21) — 2020, 2021
  Technical Program Committee member
- IEEE Conference on Quantum Computing and Engineering (QCE23) — 2023
  Organizing Committee member

INVITED PRESENTATIONS

- Moonshot Goal 6 International Symposium 2023 — July 2023
  Tokyo, Japan
- RIKEN Quantum Computing (RQC) Seminar — July 2023
  Saitama, Japan
- Workshop on disordered superconductors and quantum circuits — June 2023
  Les Houches, France
- JQI Seminar, University of Maryland, College Park, MD — April 2023
- IBM Qiskit seminar (online) — December 2022
- Applications of Superconductor Electronics and Detectors Workshop — November 2022
  Jefferson Lab, Newport News, VA
- Laboratory of Atomic and Solid State Physics and Applied & — November 2022
  Engineering Physics seminar, Cornell University, Ithaca, NY

- Workshop on Quantum Coherence, Information, and Computing — October 2022
  Stevens Institute of Technology, Hoboken, NJ
- DaleFest: Symposium in Honor of Dale Van Harlingen — September 2022
  University of Illinois at Urbana-Champaign
- Matter and Light for Quantum Computing Conference: ML4Q 2022 — August 2022
  Jülich, Köln, Aachen, Bonn (virtual due to COVID)
- Quantum Engineering Workshop: ASME Caltech (virtual) — May 2022
- Doolittle Institute, Global Futures Speaker Series: Quantum Edition — October 2021
  (virtual due to COVID)
- 15th International Congress on Artificial Materials for Novel — September 2021
  Wave Phenomena (virtual due to COVID)
- SeeQC Research Seminar (virtual due to COVID) — May 2021
- Physics Colloquium, University at Buffalo (virtual due to COVID) — April 2021
- American Physical Society March Meeting (virtual due to COVID) — March 2021
- Research Computing Seminar, Syracuse University, Syracuse, NY — November 2020
  (virtual due to COVID)
- Applied Superconductivity Conference (virtual due to COVID) — November 2020
- Quantum Information Seminar, Syracuse University, Syracuse, NY — December 2019
- Keynote talk at Workshop on Quantum and Classical Cryogenic — November 2019
  Devices, Circuits, and Systems, Nagoya University, Nagoya, Japan
- US Superconductor Electronics Workshop, Skytop, PA — October 2019
- Plenary talk at Cornell NanoScale Facility Annual Meeting — September 2019
  Cornell University, Ithaca, NY
- SQ20th: 20th Anniversary of Superconducting Qubits Symposium — May 2019
  Tsukuba, Japan
- IEEE Quantum Initiative Workshop, Gaithersburg, MD — May 2019
- Condensed Matter Seminar, University of Rochester, Rochester, NY — March 2019
- Quantum Information/AMO Seminar, University of Illinois — February 2019
  Urbana-Champaign, IL
- RIT Photonics for Quantum Workshop — January 2019
  Rochester Institute of Technology, Rochester, NY
- Condensed Matter Seminar, University of Pittsburgh — November 2018
  Pittsburgh Quantum Institute, Pittsburgh, PA
- International Workshop on Quantum Control, Coherence, and Computing — October 2018
  Stevens Institute of Technology, Hoboken, NJ
- Quantum Information Science Workshop, Michigan State University — October 2018
  East Lansing, MI
- Workshop on Localization, Interactions and Superconductivity — July 2018
  Landau Institute for Theoretical Physics, Chernogolovka, Russia
- Undergraduate Physics Colloquium, Syracuse University — April 2018
  Syracuse, NY
- Condensed Matter Physics seminar, Michigan State University — October 2017
  East Lansing, MI
- Rome Air Force Research Lab seminar, Rome, NY — July 2017
- SUNY Poly CNSE Colloquium — May 2017
  SUNY Polytechnic Institute, Albany, NY
- Frontiers in Quantum Coherent Science, Center for Quantum — January 2017
  Coherent Science, University of California, Berkeley

- Center for Nanophysics and Advanced Materials (CNAM) Colloquium — October 2016
  University of Maryland
- Syracuse Society of Physics Students colloquium, Syracuse, NY — November 2015
- Syracuse University Project Advance (SUPA) lectures — Oct./Nov. 2015
  Lubin House, NYC and Syracuse University
- US Superconductor Electronics Workshop, North Conway, NH — October 2015
- Institute for Quantum Computing Seminar, University of Waterloo — August 2015
- Quantum Metamaterials Conference, Spetses, Greece — June 2015
- Physics Colloquium, SUNY Geneseo — April 2015
- Fourth International Workshop on Entanglement, Decoherence — October 2014
  and Control, University at Buffalo
- Cornell NanoScale Facility Annual Users Meeting — September 2014
  Cornell University
- Physics Seminar, Yale University — May 2014
- R.G. Herb Condensed Matter Physics Seminar, — March 2014
  University of Wisconsin, Madison
- Control-Q Physics Lectures (2x), University of the Saarland — December 2013
  Saarbrücken, Germany
- Physics Seminar, University of Tübingen, Germany — December 2013
- WMI Seminar, Walther-Meißner Institute, Garching, Germany — November 2013
- Solid State Physics Seminar, ETH Zurich — November 2013
  Zurich, Switzerland
- Physics Institute Seminar, Karlsruhe Institute of Technology — November 2013
  Karlsruhe, Germany
- Physics Colloquium, University of the Saarland — October 2013
- International Workshop on Frontiers in Quantum Information Science — June 2013
  Fudan University, Shanghai, China
- Physics Seminar, University at Buffalo — February 2013
- Physics Seminar, Colgate University — November 2012
- SEALeR workshop on reversible digital logic — March 2012
  sponsored by NSA/ARO -- Annapolis, MD
- New York State Section meeting of the American Physical Society — October 2011
  SUNY Oneonta, NY
- Buffalo Workshop on Quantum Computing, Buffalo, NY — September 2011
- National Institute of Standards and Technology seminar, Boulder, CO — April 2011
- University of Ottawa, Physics seminar — February 2011
- IQC Colloquium, Institute for Quantum Computing — October 2010
  University of Waterloo, Ontario
- Physics Colloquium, Syracuse University — September 2010
- Physics Seminar, Dartmouth College — May 2010
- Superconducting Device Research group seminar — May 2010
  Karlsruhe Institue of Technology (Germany)
- Physics Seminar, Tuebingen University (Germany) — May 2010
- ESF Workshop on Superconductivity in Reduced Dimensions — May 2010
  Salzburg, Austria
- Condensed Matter 60 Seminar, Syracuse University — April 2010
- Research Seminar, MIT Lincoln Labs — November 2009
- Sweet Lecture, Technology Alliance of Central New York — October 2009

• Condensed Matter Seminar, University of Wisconsin	April 2008
• Condensed Matter Seminar, Michigan State University	May 2008
• Solid State Physics Seminar, ETH Zurich	September 2008
• ESF Workshop on Nanoscience Engineering and Superconductivity Freudenstadt-Lauterbad, Germany	September 2008
• Condensed Matter Seminar, Syracuse University	October 2008
• Physics Colloquium, Kent State University	November 2008
• Laboratory for Atomic and Solid State Physics (LASSP) Seminar Cornell University	November 2008
• New York Section, American Association of Physics Teachers, 2007 Fall Meeting, Syracuse University	September 2007
• Frontiers of Science Lecture, Syracuse University	March 2007
• Condensed Matter Seminar, University of Rochester	November 2006
• Physics Colloquium, Binghamton University	October 2006
• Physics Colloquium, Amherst College	October 2006
• Condensed Matter, Atomic, and Molecular Physics Seminar, Penn State University	April 2006
• Saturday Morning Physics Lecture, Syracuse University Physics Department	April 2006
• Physics and Astronomy Seminar, Colgate University	February 2006
• Condensed Matter Seminar, Brown University	November 2005
• International Superconductive Electronics Conference, The Netherlands, invited plenary talk on flux qubits	September 2005
• Flux qubit group seminar, TU Delft, Delft, The Netherlands	September 2005
• IQC Seminar, Institute for Quantum Computing, University of Waterloo	May 2005
• Solid State and Optics Seminar, Yale University	April 2005
• Berkeley Quantum Information and Computation Center Seminar, University of California	November 2004
• International Workshop on Solid State Based Quantum Information Processing, Herrsching, Germany Invited talk in superconducting qubit session	September 2004
• Quantum Information Science Seminar, University of Illinois	September 2004
• Physics Department Colloquium, Syracuse University	February 2004
• Condensed Matter Physics Seminar, Syracuse University	February 2004
• Condensed Matter Physics Seminar, University of Minnesota	February 2004
• Condensed Matter Physics Seminar, University of Massachusetts	February 2004
• Applied Superconductivity Conference, Houston, TX Invited talk in quantum computing session	August 2002
• ESF Vortex Matter Workshop, Lunteren, The Netherlands Invited talk and poster presentation	August 2000
• Materials and Mechanisms of Superconductivity, Houston, TX Invited poster session	February 2000

THESIS AND POSTDOCTORAL ADVISING

- Advisor to Vito Iaia – Ph.D., Syracuse University — June 2023
  "Downconversion of Phonons to Suppress Correlated Errors in Superconducting Qubit Arrays"
- Advisor to Yebin Liu – Ph.D., Syracuse University — December 2022
  "Design and Modeling of Superconducting Hardware for Implementing Quantum Stabilizers"
- Advisor to Kenneth Dodge – Ph.D., Syracuse University — December 2022
  "Characterization of Superconducting Hardware for Implementing Quantum Stabilizers"
- Advisor to Indrajeet – Ph.D., Syracuse University — August 2021
  "Multimode Circuit Quantum Electrodynamics with Superconducting Metamaterial Resonators"
- Advisor to Caleb Howington – Ph.D., Syracuse University — December 2019
  "Digital Readout and Control of a Superconducting Qubit"
- Advisor to Haozhi Wang – Ph.D., Syracuse University — August 2018
  "Fabrication and Characterization of Superconducting Metamaterial Resonators"
- Advisor to Ibrahim Nsanzineza – Ph.D., Syracuse University — May 2016
  "Vortices and Quasiparticles in Superconducting Microwave Resonators"
- Advisor to Matthew Ware – Ph.D., Syracuse University — May 2015
  "Flux-tunable superconducting transmons for quantum information processing"
- Advisor to Michael DeFeo – Ph.D., Syracuse University — July 2012
  "Microstrip Superconducting Quantum Interference Devices for Quantum Information Science"
- Advisor to Chunhua Song – Ph.D., Syracuse University — December 2011
  "Microwave Properties of Vortices in Superconducting Resonators"
- Advisor to Kang Yu – Ph.D., Syracuse University — May 2010
  "Vortex Dynamics in Nanostructured Weak-Pinning Channels"
- Advisor to Dr. Thomas Heitmann – Postdoctoral researcher — 2005-2008
  Currently at University of Missouri
- Advisor to Dr. Pradeep Bhupathi – Postdoctoral researcher — 2009-2011
  Currently at Caltech
- Advisor to Dr. Bo Xiao – Postdoctoral researcher — 2009-2011
  Currently at Norfolk State University
- Advisor to Dr. Joel Strand – Postdoctoral researcher — 2010-2012
  Currently at Northrop Grumman Corporation
- Advisor to Dr. Daniela Bogorin – Postdoctoral researcher — 2012-2015
  Currently at IBM Watson Lab
- Advisor to Dr. Matthew Hutchings – Postdoctoral researcher — 2013-2017
  Currently at SeeQC (UK)
- Advisor to Dr. JJ Nelson – Postdoctoral researcher — 2015-2018
  Currently at University of Rochester
- Advisor to Dr. Jaseung Ku – Postdoctoral researcher — 2016-2022
  Currently at Korea Research Institute of Standards and Science
- Advisor to 7 graduate students & 1 postdoctoral researcher — present