

David I. Schuster

PROFESSOR OF APPLIED PHYSICS · QUANTUM INFORMATION AND QUANTUM OPTICS

James and Anna Marie Spilker Engineering and Applied Sciences Building, 348 Via Pueblo, Stanford, CA 94305

☎ 773-270-CQED | ✉ David.Schuster@stanford.edu | 🏠 schusterlab.stanford.edu

Education

Yale University

PH.D. IN PHYSICS

- Ph.D. Thesis - Circuit Quantum Electrodynamics

New Haven, CT

May 2007

Brown University

SC.B. IN MATHEMATICS-PHYSICS

- Honors Thesis - An Interactive Environment for Real-Time Object Recognition in Video Streams

Providence, RI

May 2001

Experience

Joan Reinhart Professor of Applied Physics

STANFORD UNIVERSITY

- Experimental quantum information science

Stanford, CA

2024-

Associate Professor of Physics, James Franck Institute, and Pritzker School of Molecular Engineering

UNIVERSITY OF CHICAGO

- Quantum simulation of topological and strongly interacting systems
- Using superconducting qubits for dark matter searches

Chicago, IL

2017-2022

Assistant Professor of Physics and the James Franck Institute

UNIVERSITY OF CHICAGO

- Hybrid quantum computation architectures
- Random access quantum memories

Chicago, IL

2010-2017

Yale Quantum Info Postdoctoral Fellowship with Professor Robert Schoelkopf

APPLIED PHYSICS DEPARTMENT, YALE UNIVERSITY

- Demonstrated first high-cooperativity coupling of superconducting cavity to electron spin ensemble
- Developed theoretical proposals for hybrid quantum information currently pursued around the world

New Haven, CT

2008-2010

Visiting Postdoctoral Associate with Professor Isaac Chuang

CENTER FOR ULTRACOLD ATOMS, MIT

- Developed theory of molecular ions coupled to SC cavities / cryo-ion trap using close cycle cryostat

Cambridge, MA

June-Dec. 2007

Graduate Research Assistant with Professor Robert Schoelkopf

APPLIED PHYSICS DEPARTMENT, YALE UNIVERSITY

- Developed circuit quantum electrodynamics paradigm
- Utilized qubit to perform non-demolition measurement of individual microwave photon number states
- Developed transmon qubit, used in all QC efforts

New Haven, CT

2001-2007

Honors & Awards

Fellow of the American Physical Society

2022

Amazon Scholar

2020-present

National Academies of Sciences, Kavli Frontiers Fellow

2015

Packard Fellowship

2013

Sloan Fellowship

2012

NSF CAREER Award

2012

William L. McMillan Prize (Top condensed matter prize for junior faculty)

2011

DARPA Young Faculty Award

2011

Yale Quantum Information Postdoctoral Fellowship

2008-2010

Northeastern Association of Graduate Schools Dissertation Award

2007

DOD Quantum Computing Graduate Research Fellowship

2003-2005

Publications

1. THE SUPERCONDUCTING QUASIPARTICLE-AMPLIFYING TRANSMON: A QUBIT-BASED SENSOR FOR MEV SCALE PHONONS AND SINGLE THZ PHOTONS. CALEB W. FINK, CHIARA P. SALEMI, BETTY A. YOUNG, DAVID I. SCHUSTER, NOAH A. KURINSKY. ARXIV:2310.01345 (2023)
2. QUANTUM SENSORS FOR HIGH ENERGY PHYSICS. AARON CHOU, KENT IRWIN, REINA H. MARUYAMA, OLIVER K. BAKER, CHELSEA BARTRAM, KARL K. BERGGREN, GUSTAVO CANCELO, DANIEL CARNEY, CLARENCE L. CHANG, HSIAO-MEI CHO, MAURICE GARCIA-SCIVERES, PETER W. GRAHAM, SALMAN HABIB, RONI HARNIK, J. G. E. HARRIS, SCOTT A. HERTEL, DAVID B. HUME, RAKSHYA KHATIWADA, TIMOTHY L. KOVACHY, NOAH KURINSKY, STEVE K. LAMOREAUX, KONRAD W. LEHNERT, DAVID R. LEIBRANDT, DALE LI, BEN LOER, JULIÁN MARTÍNEZ-RINCÓN, LEE MCCULLER, DAVID C. MOORE, HOLGER MUELLER, CRISTIAN PENA, RAPHAEL C. POOSER, MATT PYLE, SURJEET RAJENDRAN, MARIANNA S. SAFRONOVA, DAVID I. SCHUSTER, MATTHEW D. SHAW, MARIA SPIROPULU, PAUL STANKUS, ALEXANDER O. SUSHKOV, LINDLEY WINSLOW, SI XIE, KATHRYN M. ZUREK. ARXIV:2311.01930 (2023)
3. UNIVERSAL CONTROL IN BOSONIC SYSTEMS WITH WEAK KERR NONLINEARITIES. MING YUAN, ALIREZA SEIF, ANDREW LINGENFELTER, DAVID I. SCHUSTER, AASHISH A. CLERK, LIANG JIANG. ARXIV:2312.15783 (2023)
4. SUPERCONDUCTING QUBITS ABOVE 20 GHZ OPERATING OVER 200 MK. ALEXANDER ANFEROV, SHANNON P. HARVEY, FANGHUI WAN, JONATHAN SIMON, DAVID I. SCHUSTER. ARXIV:2402.03031 (2024)
5. NIOBIUM COAXIAL CAVITIES WITH INTERNAL QUALITY FACTORS EXCEEDING 1.5 BILLION FOR CIRCUIT QUANTUM ELECTRODYNAMICS. ANDREW E. ORIANI, FANG ZHAO, TANAY ROY, ALEXANDER ANFEROV, KEVIN HE, ANKUR AGRAWAL, RIJU BANERJEE, SRIVATSAN CHAKRAM, DAVID I. SCHUSTER. ARXIV:2403.00286 (2024)
6. DESIGNING HIGH-FIDELITY TWO-QUBIT GATES BETWEEN FLUXONIUM QUBITS. EMMA L. ROSENFELD, CONNOR T. HANN, DAVID I. SCHUSTER, MATTHEW H. MATHENY, AASHISH A. CLERK. ARXIV:2403.07242 (2024)
7. EXPERIMENTAL ADVANCES WITH THE QICK (QUANTUM INSTRUMENTATION CONTROL KIT) FOR SUPERCONDUCTING QUANTUM HARDWARE. CHUNYANG DING, MARTIN DI FEDERICO, MICHAEL HATRIDGE, ANDREW HOUCK, SEBASTIEN LEGER, JERONIMO MARTINEZ, CONNIE MIAO, DAVID I. SCHUSTER, LEANDRO STEFANAZZI, CHRIS STOUGHTON, SARA SUSSMAN, KEN TREPTOW, SHO UEMURA, NEAL WILCER, HELIN ZHANG, CHAO ZHOU, AND GUSTAVO CANCELO. ARXIV:2311.17171 (2023)
8. LOW-LOSS MILLIMETER-WAVE RESONATORS WITH AN IMPROVED COUPLING STRUCTURE. ALEXANDER ANFEROV, SHANNON P. HARVEY, FANGHUI WAN, JONATHAN SIMON, AND DAVID I. SCHUSTER. ARXIV:2311.01670 (2023)
9. EFFICIENT MULTIMODE WIGNER TOMOGRAPHY. KEVIN HE, MING YUAN, YAT WONG, SRIVATASAN CHAKRAM, ALIREZA SEIF, LIANG JIANG, AND DAVID I. SCHUSTER. ARXIV:2309.10145 (2023)
10. MANYBODY INTERFEROMETRY OF QUANTUM FLUIDS. GABRIELLE ROBERTS, ANDREI VRAJITOAREA, BRENDAN SAXBERG, MARGARET G. PANETTA, JONATHAN SIMON, DAVID I. SCHUSTER. ARXIV:2309.05727 (2023)
11. TUNABLE INDUCTIVE COUPLER FOR HIGH-FIDELITY GATES BETWEEN FLUXONIUM QUBITS. HELIN ZHANG, CHUNYANG DING, D. K. WEISS, ZIWEN HUANG, YUWEI MA, CHARLES GUINN, SARA SUSSMAN, SAI PAVAN CHITTA, DANYANG CHEN, ANDREW A. HOUCK, JENS KOCH, DAVID I. SCHUSTER. PRX QUANTUM 5, 020326 (2024)
12. DIRECT COLLOCATION FOR QUANTUM OPTIMAL CONTROL. AARON TROWBRIDGE, ADITYA BHARDWAJ, KEVIN HE, DAVID I. SCHUSTER, ZACHARY MANCHESTER. IEEE INTERNATIONAL CONFERENCE ON QUANTUM COMPUTING AND ENGINEERING (QCE) (2023)
13. IMPROVED COHERENCE IN OPTICALLY-DEFINED NIOBIUM TRILAYER JUNCTION QUBITS. ALEXANDER ANFEROV, KAN-HENG LEE, FANG ZHAO, JONATHAN SIMON, DAVID I. SCHUSTER. PHYS. REV. APPLIED 21, 024047
14. STIMULATED EMISSION OF SIGNAL PHOTONS FROM DARK MATTER WAVES. ANKUR AGRAWAL, AKASH V. DIXIT, TANAY ROY, SRIVATSAN CHAKRAM, KEVIN HE, RAVI K. NAIK, DAVID I. SCHUSTER, AARON CHOU. ARXIV:2305.03700 (2023)
15. EXPLORING QUQUART COMPUTATION ON A TRANSMON USING OPTIMAL CONTROL. LENNART MAXIMILIAN SEIFERT, ZIQIAN LI, TANAY ROY, DAVID I. SCHUSTER, FREDERIC T. CHONG, JONATHAN M. BAKER. PHYS. REV. A 108, 062609 (2023)
16. AUTONOMOUS ERROR CORRECTION OF A SINGLE LOGICAL QUBIT USING TWO TRANSMONS. ZIQIAN LI, TANAY ROY, DAVID RODRIGUEZ PEREZ, KAN-HENG LEE, ELIOT KAPIT, DAVID I. SCHUSTER. NATURE COMMUNICATIONS 15, 1681 (2024)
17. HARDWARE EFFICIENT AUTONOMOUS ERROR CORRECTION WITH LINEAR COUPLERS IN SUPERCONDUCTING CIRCUITS. ZIQIAN LI, TANAY ROY, DAVID RODRIGUEZ PEREZ, ELIOT KAPIT, DAVID I. SCHUSTER. PHYS. REV. RESEARCH 6, 013171 (2024)

18. REALIZATION OF TWO-QUBIT QUANTUM ALGORITHMS ON A PROGRAMMABLE SUPERCONDUCTING PROCESSOR. TANAY ROY, ZIQIAN LI, ELIOT KAPIT, DAVID I SCHUSTER. *PHYS. REV. APPLIED* 19, 064024 (2023)
19. ELECTRON CHARGE QUBITS ON SOLID NEON WITH 0.1 MILLISECOND COHERENCE TIME. XIANJING ZHOU, XINHAO LI, QIANFAN CHEN, GERWIN KOOLSTRA, GE YANG, BRENNAN DIZDAR, XU HAN, XUFENG ZHANG, DAVID I. SCHUSTER, DAFEI JIN. *NATURE PHYSICS* 20, 116 (2024)
20. DISORDER-ASSISTED ASSEMBLY OF STRONGLY CORRELATED FLUIDS OF LIGHT. BRENDAN SAXBERG, ANDREI VRAJITOAREA, GABRIELLE ROBERTS, MARGARET G PANETTA, JONATHAN SIMON, DAVID I SCHUSTER. *NATURE VOLUME* 612, 435–441 (2022)
21. QUANTUM-LIMITED MILLIMETER WAVE TO OPTICAL TRANSDUCTION. AISHWARYA KUMAR, AZIZA SULEYMANZADE, MARK STONE, LAVANYA TANEJA, ALEXANDER ANFEROV, DAVID I. SCHUSTER, JONATHAN SIMON. *NATURE VOL.* 615, 614-619 (2023)
22. FAST HIGH-FIDELITY GATES FOR GALVANICALLY-COUPLED FLUXONIUM QUBITS USING STRONG FLUX MODULATION. D. K. WEISS, HELIN ZHANG, CHUNYANG DING, YUWEI MA, DAVID I. SCHUSTER, JENS KOCH. *PRX QUANTUM* 3, 040336 (2022)
23. DETERMINISTIC GROVER SEARCH WITH A RESTRICTED ORACLE. TANAY ROY, LIANG JIANG, DAVID I SCHUSTER. *PHYS. REV. RESEARCH* 4 022013 (2022)
24. ERROR-DIVISIBLE TWO-QUBIT GATES. DAVID RODRIGUEZ PEREZ, PAUL VAROSY, ZIQIAN LI, TANAY ROY, ELIOT KAPIT, DAVID I SCHUSTER. *PHYS. REV. APPLIED* 19, 024043 (2023)
25. THE QICK (QUANTUM INSTRUMENTATION CONTROL KIT): READOUT AND CONTROL FOR QUBITS AND DETECTORS. LEANDRO STEFANAZZI, KEN TREPTOW, NEAL WILCER, CHRIS STOUGHTON, SALVATORE MONTELLA, COLLIN BRADFORD, GUSTAVO CANCELO, SHEFALI SAXENA, HORACIO ARNALDI, SARA SUSSMAN, ANDREW HOUCK, ANKUR AGRAWAL, HELIN ZHANG, CHUNYANG DING, DAVID I SCHUSTER. *REV. SCI. INST.* 93 044709 (2022)
26. CHIRAL CAVITY QUANTUM ELECTRODYNAMICS. JOHN CLAI OWENS, MARGARET G. PANETTA, BRENDAN SAXBERG, GABRIELLE ROBERTS, SRIVATSAN CHAKRAM, RUICHAO MA, ANDREI VRAJITOAREA, JONATHAN SIMON, DAVID I. SCHUSTER. *NATURE PHYSICS* 18, 1048–1052 (2022)
27. TRAPPING AND MANIPULATING SINGLE-ELECTRON QUBITS ON SOLID NEON IN A HYBRID CIRCUIT QUANTUM ELECTRODYNAMICS ARCHITECTURE. XIANJING ZHOU, GERWIN KOOLSTRA, XUFENG ZHANG, GE YANG, XU HAN, BRENNAN DIZDAR, DIVAN RALU, WEI GUO, KATER W. MURCH, DAVID I. SCHUSTER, DAFEI JIN. *NATURE* 605 46-50 (2022)
28. MOVING BEYOND THE TRANSMON: NOISE-PROTECTED SUPERCONDUCTING QUANTUM CIRCUITS. ANDRAS GYENIS, AGUSTIN DI PAOLO, JENS KOCH, ALEXANDRE BLAIS, ANDREW A. HOUCK, DAVID I. SCHUSTER. *PRX QUANTUM* 2, 030101 (2021)
29. ROBUST QUANTUM OPTIMAL CONTROL WITH TRAJECTORY OPTIMIZATION. THOMAS PROPSON, BRIAN E. JACKSON, JENS KOCH, ZACHARY MANCHESTER, DAVID I. SCHUSTER. *PHYSICAL REVIEW APPLIED* 17, 014036 (2022)
30. TOMOGRAPHY IN THE PRESENCE OF STRAY INTER-QUBIT COUPLING. TANAY ROY, ZIQIAN LI, ELIOT KAPIT, DAVID I. SCHUSTER. *ARXIV:2103.13611* (2021)
31. OPTICAL MODE CONVERSION IN COUPLED FABRY-PEROT RESONATORS. MARK STONE, AZIZA SULEYMANZADE, LAVANYA TANEJA, DAVID I. SCHUSTER, AND JONATHAN SIMON. *OPTICS LETTERS* 46-1, 21-24 (2021)
32. SEAMLESS HIGH-Q MICROWAVE CAVITIES FOR MULTIMODE CIRCUIT QED. SRIVATSAN CHAKRAM, ANDREW E. ORIANI, RAVI K. NAIK, AKASH V. DIXIT, KEVIN HE, ANKUR AGRAWAL, HYEOKSHIN KWON, DAVID I. SCHUSTER. *PHYS. REV. LETT.* 127, 107701 (2021)
33. MULTIMODE PHOTON BLOCKADE. SRIVATSAN CHAKRAM, KEVIN HE, AKASH V. DIXIT, ANDREW E. ORIANI, RAVI K. NAIK, NELSON LEUNG, HYEOKSHIN KWON, WEN-LONG MA, LIANG JIANG, DAVID I. SCHUSTER. *NATURE PHYSICS* 18, 879-884 (2022)
34. DETERMINISTIC MULTI-QUBIT ENTANGLEMENT IN A QUANTUM NETWORK.. Y. P. ZHONG, H.-S. CHANG, A. BIENFAIT, É. DUMUR, M.-H. CHOU, C. R. CONNER, J. GREBEL, R. G POVEY, H. X. YAN, D. I. SCHUSTER, A. N. CLELAND. *NATURE* 590, 571-575 (2021)
35. SEARCHING FOR DARK MATTER WITH A SUPERCONDUCTING QUBIT. AKASH V. DIXIT, SRIVATSAN CHAKRAM, KEVIN HE, ANKUR AGRAWAL, RAVI K. NAIK, DAVID I. SCHUSTER, AARON CHOU. *PHYS. REV. LETT.* 126, 141302 (2021)
36. VIRTUALIZED LOGICAL QUBITS: A 2.5D ARCHITECTURE FOR ERROR-CORRECTED QUANTUM COMPUTING. CASEY DUCKERING, JONATHAN M. BAKER, DAVID I. SCHUSTER, FREDERIC T. CHONG. 2020 53RD ANNUAL IEEE/ACM (MICRO)

37. MEMORY-EQUIPPED QUANTUM ARCHITECTURES: THE POWER OF RANDOM ACCESS. JONATHAN M. BAKER, DAVID I. SCHUSTER, FREDERIC T. CHONG. PACT '20: PROCEEDINGS OF THE ACM INTERNATIONAL CONFERENCE ON PARALLEL ARCHITECTURES AND COMPILATION TECHNIQUES PAGES 387–398 (2020)
38. RESOURCE-EFFICIENT QUANTUM COMPUTING BY BREAKING ABSTRACTIONS. YUNONG SHI, PRANAV GOKHALE, PRAKASH MURALI, JONATHAN M BAKER, CASEY DUCKERING, YONGSHAN DING, NATALIE C BROWN, CHRISTOPHER CHAMBERLAND, ALI JAVADI-ABHARI, ANDREW W CROSS, DAVID I SCHUSTER, KENNETH R BROWN, MARGARET MARTONOSI, FREDERIC T CHONG. PROCEEDINGS OF THE IEEE 108, 8 PP. 1353-1370 (2020)
39. PHOTONIC MATERIALS IN CIRCUIT QUANTUM ELECTRODYNAMICS. IACOPO CARUSOTTO, ANDREW A HOUCK, ALICIA J KOLLÁR, PEDRAM ROUSHAN, DAVID I SCHUSTER, JONATHAN SIMON. NATURE PHYSICS 16, 268–279 (2020)
40. ENGINEERING DYNAMICAL SWEET SPOTS TO PROTECT QUBITS FROM $1/f$ NOISE. ZIWEN HUANG, PRANAV S. MUNDADA, ANDRÁS GYENIS, DAVID I. SCHUSTER, ANDREW A. HOUCK, JENS KOCH. PHYS. REV. APP. 15, 034065 (2021)
41. UNIVERSAL FAST FLUX CONTROL OF A COHERENT, LOW-FREQUENCY QUBIT. HELIN ZHANG, SRIVATSAN CHAKRAM, TANAY ROY, NATHAN EARNEST, YAO LU, ZIWEN HUANG, DANIEL WEISS, JENS KOCH, DAVID I. SCHUSTER. PHYS. REV. X. 11, 011010 (2021)
42. A TUNABLE HIGH-Q MILLIMETER WAVE CAVITY FOR HYBRID CIRCUIT AND CAVITY QED EXPERIMENTS. AZIZA SULEYMANZADE, ALEXANDER ANFEROV, MARK STONE, RAVI K. NAIK, JONATHAN SIMON, DAVID SCHUSTER. APPL. PHYS. LETT. 116, 104001 (2020)
43. EXPERIMENTAL REALIZATION OF A PROTECTED SUPERCONDUCTING CIRCUIT DERIVED FROM THE 0-PI QUBIT. ANDRAS GYENIS, PRANAV S. MUNDADA, AGUSTIN DI PAOLO, THOMAS M. HAZARD, XINYUAN YOU, DAVID I. SCHUSTER, JENS KOCH, ALEXANDRE BLAIS, ANDREW A. HOUCK. PRX QUANTUM 2, 010339 (2021)
44. UNIVERSAL GATES FOR PROTECTED SUPERCONDUCTING QUBITS USING OPTIMAL CONTROL. MOHAMED ABDELHAFEZ, BRIAN BAKER, ANDRAS GYENIS, PRANAV MUNDADA, ANDREW A. HOUCK, DAVID SCHUSTER, JENS KOCH. PHYS. REV. A 101, 022321 (2020)
45. VIOLATING BELL'S INEQUALITY WITH REMOTELY-CONNECTED SUPERCONDUCTING QUBITS. Y. P. ZHONG, H. -S. CHANG, K. J. SATZINGER, M. -H. CHOU, A. BIENFAIT, C. R. CONNER, É. DUMUR, J. GREBEL, G. A. PEAIRS, R. G. POVEY, D. I. SCHUSTER, A. N. CLELAND. NAT. PHYS. 15, 741–744 (2019)
46. PARTIAL COMPILATION OF VARIATIONAL ALGORITHMS FOR NOISY INTERMEDIATE-SCALE QUANTUM MACHINES. PRANAV GOKHALE, YONGSHAN DING, THOMAS PROPSON, CHRISTOPHER WINKLER, NELSON LEUNG, YUNONG SHI, DAVID I. SCHUSTER, HENRY HOFFMAN, FREDERIC T. CHONG. MICRO 52 PAGES 266-278 (2019)
47. MILLIMETER-WAVE FOUR-WAVE MIXING VIA KINETIC INDUCTANCE FOR QUANTUM DEVICES. ALEXANDER ANFEROV, AZIZA SULEYMANZADE, ANDREW ORIANI, JONATHAN SIMON, DAVID I. SCHUSTER. PHYS. REV. APPLIED 13, 024056 (2020)
48. TWO-DIMENSIONAL MATERIAL TUNNEL BARRIER FOR JOSEPHSON JUNCTIONS AND SUPERCONDUCTING QUBITS. KAN-HENG LEE, SRIVATSAN CHAKRAM, SHI EN KIM, FAUZIA MUJID, ARIANA RAY, HUI GAO, CHIBEOM PARK, YU ZHONG, DAVID ANTHONY MULLER, DAVID ISAAC SCHUSTER, AND JIWOONG PARK. NANO LETTERS 19, 11, 8287–8293 (2019)
49. GRADIENT-BASED OPTIMAL CONTROL OF OPEN QUANTUM SYSTEMS USING QUANTUM TRAJECTORIES AND AUTOMATIC DIFFERENTIATION. MOHAMED ABDELHAFEZ, DAVID I. SCHUSTER, JENS KOCH. PHYS. REV. A 99, 052327 (2019)
50. OPTIMIZED COMPILATION OF AGGREGATED INSTRUCTIONS FOR REALISTIC QUANTUM COMPUTERS. YUNONG SHI, NELSON LEUNG, PRANAV GOKHALE, ZANE ROSSI, DAVID I. SCHUSTER, HENRY HOFFMAN, FRED T. CHONG. ASPLOS 19 1031-1044 (2019)
51. SIMPLE NON-GALVANIC FLIP-CHIP INTEGRATION METHOD FOR HYBRID QUANTUM SYSTEMS. K. J. SATZINGER, C. R. CONNER, A. BIENFAIT, H.-S. CHANG, MING-HAN CHOU, A. Y. CLELAND, É. DUMUR, J. GREBEL, G. A. PEAIRS, R. G. POVEY, S. J. WHITELEY, Y. P. ZHONG, D. D. AWSCHALOM, D. I. SCHUSTER, AND A. N. CLELAND. APPL. PHYS. LETT. 114, 173501 (2019)
52. COUPLING A SINGLE ELECTRON ON SUPERFLUID HELIUM TO A SUPERCONDUCTING RESONATOR. G. KOOLSTRA, GE YANG, D. I. SCHUSTER. NATURE COMMUNICATIONS 10, 5323 (2019)
53. A NONLINEAR, GEOMETRIC HALL EFFECT WITHOUT MAGNETIC FIELD. NICHOLAS B. SCHADE, DAVID I. SCHUSTER, SIDNEY R. NAGEL. PNAS 116 (49) 24475-24479 (2019)
54. EXPERIMENTAL DATA FROM A QUANTUM COMPUTER VERIFIES THE GENERALIZED PAULI EXCLUSION PRINCIPLE. SCOTT E. SMART, DAVID I. SCHUSTER, AND DAVID A. MAZZIOTTI. COMMUNICATIONS PHYSICS VOLUME 2, 11 (2019)
55. A DISSIPATIVELY STABILIZED MOTT INSULATOR OF PHOTONS. RUICHAO MA, BRENDAN SAXBERG, CLAI OWENS, NELSON LEUNG, YAO LU, JONATHAN SIMON, DAVID I. SCHUSTER. NATURE 566, 51–57 (2019)

56. PROBING THE BERRY CURVATURE AND FERMI ARCS OF A WEYL CIRCUIT. YUEHUI LU, NINGYUAN JIA, LIN SU, CLAI OWENS, GEDIMINAS JUZELIŪNAS, DAVID I. SCHUSTER, JONATHAN SIMON. *PHYS. REV. B* 99, 020302(R) - EDITORS SUGGESTION (2019)
57. QUANTUM CONTROL OF SURFACE ACOUSTIC-WAVE PHONONS. K. J. SATZINGER, Y. P. ZHONG, H.-S. CHANG, G. A. PEAIRS, A. BIENFAIT, MING-HAN CHOU, A. Y. CLELAND, C. R. CONNER, É. DUMUR, J. GREBEL, I. GUTIERREZ, B. H. NOVEMBER, R. G. POVEY, S. J. WHITELEY, D. D. AWSCHALOM, D. I. SCHUSTER, AND A. N. CLELAND. *NATURE* 563, 661–665 (2018)
58. ATOMIC LAYER DEPOSITION OF TITANIUM NITRIDE FOR QUANTUM CIRCUITS. ABIGAIL SHEARROW, GERWIN KOOLSTRA, SAMUEL J. WHITELEY, NATHAN EARNEST, PETER S. BARRY, F. JOSEPH HEREMANS, DAVID D. AWSCHALOM, ERIK SHIROKOFF, AND DAVID I. SCHUSTER. *APPL. PHYS. LETT.* 113, 212601 (2018)
59. INPUT-OUTPUT THEORY FOR SUPERCONDUCTING AND PHOTONIC CIRCUITS THAT CONTAIN WEAK RETROREFLECTIONS AND OTHER WEAK PSEUDOCAVITIES. ROBERT COOK, DAVID I. SCHUSTER, ANDREW N. CLELAND, AND KURT JACOBS. *PHYS. REV. A* 98, 013801 (2018)
60. UNIVERSAL STABILIZATION OF SINGLE-QUBIT STATES USING A TUNABLE COUPLER. ZIWEN HUANG, YAO LU, ELIOT KAPIT, DAVID I. SCHUSTER, AND JENS KOCH. *PHYS. REV. A* 97, 062345 (2018)
61. COHERENT CONTROL OF SPINS WITH GAUSSIAN ACOUSTICS. SAMUEL J. WHITELEY, GARY WOLFOWICZ, CHRISTOPHER P. ANDERSON, ALEXANDRE BOURASSA, HE MA, MENG YE, GERWIN KOOLSTRA, KEVIN J. SATZINGER, MARTIN V. HOLT, F. JOSEPH HEREMANS, ANDREW N. CLELAND, DAVID I. SCHUSTER, GIULIA GALLI, DAVID D. AWSCHALOM. *NATURE PHYSICS VOLUME 15*, 490 (2019)
62. DETERMINISTIC BIDIRECTIONAL COMMUNICATION AND REMOTE ENTANGLEMENT GENERATION BETWEEN SUPERCONDUCTING QUANTUM PROCESSORS. N. LEUNG, Y. LU, S. CHAKRAM, R. K. NAIK, N. EARNEST, R. MA, K. JACOBS, A. N. CLELAND, D. I. SCHUSTER. *NPJ QUANTUM INFORMATION* 5, 18 (2019)
63. TOPOLOGICAL PHOTONICS. TOMOKI OZAWA, HANNAH M. PRICE, ALBERTO AMO, NATHAN GOLDMAN, MOHAMMAD HAFEZI, LING LU, MIKAEL RECHTSMAN, DAVID SCHUSTER, JONATHAN SIMON, ODED ZILBERBERG, IACOPO CARUSOTTO. *REV. MOD. PHYS.* 91, 015006 (2019)
64. COHERENCE PROPERTIES OF THE 0-PI QUBIT. PETER GROSZKOWSKI, A. DI PAOLO, A. L. GRIMSMO, A. BLAIS, D. I. SCHUSTER, A. A. HOUCK, JENS KOCH. *NEW JOURNAL OF PHYSICS* 20, 043053 (2018)
65. QUARTER-FLUX HOFSTADTER LATTICE IN QUBIT-COMPATIBLE MICROWAVE CAVITY ARRAY. CLAI OWENS, AMAN LACHAPPELLE, BRENDAN SAXBERG, BRANDON ANDERSON, RUICHAO MA, JONATHAN SIMON, DAVID I. SCHUSTER. *PHYS. REV. A* 97, 013818 (2017)
66. UNIVERSAL STABILIZATION OF A PARAMETRICALLY COUPLED QUBIT. YAO LU, SRIVATSAN CHAKRAM, NELSON LEUNG, NATHAN EARNEST, RAVI K. NAIK, ZIWEN HUANG, PETER GROSZKOWSKI, ELIOT KAPIT, JENS KOCH, DAVID I. SCHUSTER. *PHYS. REV. LETT.* 119, 150502 (2017)
67. REALIZATION OF A LAMBDA SYSTEM WITH METASTABLE STATES OF A CAPACITIVELY-SHUNTED FLUXONIUM. NATHAN EARNEST, SRIVATSAN CHAKRAM, YAO LU, NICHOLAS IRONS, RAVI K. NAIK, NELSON LEUNG, JAY LAWRENCE, JENS KOCH, DAVID I. SCHUSTER. *PHYS. REV. LETT.* 120, 150504 (2018)
68. NATURE OF THE LOW FIELD Q DEGRADATION IN SUPERCONDUCTING NIOBIUM CAVITIES. A. ROMANENKO, D. I. SCHUSTER. *PHYS. REV. LETT.* 119, 264801 (2017)
69. CONTINUOUSLY CYCLING ADSORPTION-DILUTION REFRIGERATOR. A. ORIANI, D. I. SCHUSTER. PATENT PENDING (2017)
70. RANDOM ACCESS QUANTUM INFORMATION PROCESSORS. R. K. NAIK, N. LEUNG, S. CHAKRAM, P. GROSZKOWSKI, Y. LU, N. EARNEST, D. C. MCKAY, JENS KOCH, D. I. SCHUSTER. *NATURE COMMUNICATIONS* 8, 1904 (2017)
71. HAMILTONIAN TOMOGRAPHY OF PHOTONIC LATTICES. RUICHAO MA, CLAI OWENS, AMAN LACHAPPELLE, DAVID I. SCHUSTER, JONATHAN SIMON. *PHYS. REV. A* 95, 062120 (2017)
72. SPEEDUP FOR QUANTUM OPTIMAL CONTROL FROM AUTOMATIC DIFFERENTIATION BASED ON GRAPHICS PROCESSING UNITS. NELSON LEUNG, MOHAMED ABDELHAFEZ, JENS KOCH, AND DAVID SCHUSTER. *PHYS. REV. A* 95, 042318 (2017)
73. AUTONOMOUS STABILIZER FOR INCOMPRESSIBLE PHOTON FLUIDS AND SOLIDS. RUICHAO MA, CLAI OWENS, ANDREW HOUCK, DAVID I. SCHUSTER, AND JONATHAN SIMON. *PHYS. REV. A* 95, 043811 (2017)
74. COUPLING AN ENSEMBLE OF ELECTRONS ON SUPERFLUID HELIUM TO A SUPERCONDUCTING CIRCUIT. GE YANG, A. FRAGNER, G. KOOLSTRA, L. OCOLA, D. A. CZAPLEWSKI, R. J. SCHOELKOPF, AND D. I. SCHUSTER. *PHYS. REV. X* 6, 011031 (2016)

75. ENGINEERING TOPOLOGICAL MANY-BODY MATERIALS IN MICROWAVE CAVITY ARRAYS. BRANDON M. ANDERSON, RUICHAO MA, CLAI OWENS, DAVID I. SCHUSTER, AND JONATHAN SIMON. *PHYS. REV. X* 6, 041043 (2016)
76. TIME REVERSAL INVARIANT TOPOLOGICALLY INSULATING CIRCUITS. NINGYUAN JIA, CLAI OWENS, ARIEL SOMMER, DAVID SCHUSTER, JONATHAN SIMON. *PHYS. REV. X* 5, 021031 (2015)
77. HIGH-CONTRAST QUBIT INTERACTIONS USING MULTIMODE CAVITY QED. D. C. MCKAY, R. NAIK, P. REINHOLD, L. S. BISHOP, AND D. I. SCHUSTER. *PHYS. REV. LETT.* 114, 080501 (2015)
78. UNDERSTANDING DEGENERATE GROUND STATES OF A PROTECTED QUANTUM CIRCUIT IN THE PRESENCE OF DISORDER. JOSHUA DEMPSTER, BO FU, DAVID G. FERGUSON, D. I. SCHUSTER, JENS KOCH. *PHYS. REV. B* 90, 094518 (2014)
79. FAST, LOW-POWER MANIPULATION OF SPIN ENSEMBLES IN SUPERCONDUCTING MICRORESONATORS. A. J. SIGILLITO, H. MALISSA, A. M. TYRYSHKIN, H. RIEMANN, N. V. ABROSIMOV, P. BECKER, H.-J. POHL, M. L. W. THEWALT, K. M. ITOH, J. J. L. MORTON, A. A. HOUCK, D. I. SCHUSTER AND S. A. LYON. *APPL. PHYS. LETT.* 104, 222407 (2014)
80. SUPERCONDUCTING COPLANAR WAVEGUIDE RESONATORS FOR LOW TEMPERATURE PULSED ELECTRON SPIN RESONANCE SPECTROSCOPY. H. MALISSA, D. I. SCHUSTER, A. M. TYRYSHKIN, A. A. HOUCK, AND S. A. LYON. *REV. SCI. INSTRUM.* 84, 025116 (2013)
81. MEASUREMENTS OF QUASIPARTICLE TUNNELING DYNAMICS IN A BAND-GAP-ENGINEERED TRANSMON QUBIT. L. SUN, L. DICARLO, M. D. REED, G. CATELANI, LEV S. BISHOP, D. I. SCHUSTER, B. R. JOHNSON, GE A. YANG, L. FRUNZIO, L. GLAZMAN, M. H. DEVORET, AND R. J. SCHOELKOPF. *PRL* 108, 230509 (2012)
82. OBSERVATION OF HIGH COHERENCE IN JOSEPHSON JUNCTION QUBITS MEASURED IN A THREE-DIMENSIONAL CIRCUIT QED ARCHITECTURE. HANHEE PAIK, D. I. SCHUSTER, LEV S. BISHOP, G. KIRCHMAIR, G. CATELANI, A. P. SEARS, B. R. JOHNSON, M. J. REAGOR, L. FRUNZIO, L. I. GLAZMAN, S. M. GIRVIN, M. H. DEVORET, AND R. J. SCHOELKOPF. *PHYS. REV. LETT.* 107, 240501 (2011)
83. CAVITY QED IN A MOLECULAR ION TRAP. D. I. SCHUSTER, LEV S. BISHOP, I. L. CHUANG, D. DEMILLE, AND R. J. SCHOELKOPF. *PHYS. REV. A* 83, 012311 (2011)
84. HIGH-FIDELITY READOUT IN CIRCUIT QUANTUM ELECTRODYNAMICS USING THE JAYNES-CUMMINGS NONLINEARITY. M. D. REED, L. DICARLO, B. R. JOHNSON, L. SUN, D. I. SCHUSTER, L. FRUNZIO, R. J. SCHOELKOPF. *PHYS. REV. LETT.* 105, 173601 (2010)
85. HIGH-COOPERATIVITY COUPLING OF ELECTRON-SPIN ENSEMBLES TO SUPERCONDUCTING CAVITIES. D. I. SCHUSTER, A. P. SEARS, E. GINOSSAR, L. DICARLO, L. FRUNZIO, J. J. L. MORTON, H. WU, G. A. D. BRIGGS, R. J. SCHOELKOPF. *PHYS. REV. LETT.* 105, 140501 (2010)
86. STORAGE OF MULTIPLE COHERENT MICROWAVE EXCITATIONS IN AN ELECTRON SPIN ENSEMBLE. H. WU, R. E. GEORGE, J. H. WESENBERG, K. MØLMER, D. I. SCHUSTER, R. J. SCHOELKOPF, KOHEI M. ITOH, A. ARDAVAN, J. J. L. MORTON, AND G. A. D. BRIGGS. *PHYS. REV. LETT.* 105, 140503 (2010)
87. PROTOCOL FOR HIGH-FIDELITY READOUT IN THE PHOTON-BLOCKADE REGIME OF CIRCUIT QED. E. GINOSSAR, LEV S. BISHOP, D. I. SCHUSTER, AND S. M. GIRVIN. *PHYS. REV. A* 82, 022335 (2010)
88. PROPOSAL FOR MANIPULATING AND DETECTING SPIN AND ORBITAL STATES OF TRAPPED ELECTRONS ON HELIUM USING CAVITY QUANTUM ELECTRODYNAMICS. D. I. SCHUSTER, A. FRAGNER, M. I. DYKMAN, S. A. LYON, AND R. J. SCHOELKOPF. *PHYS. REV. LETT.*, 105, 040503 (2010)
89. QUANTUM NON-DEMOLITION DETECTION OF SINGLE MICROWAVE PHOTONS IN A CIRCUIT. B. R. JOHNSON, M. D. REED, A. A. HOUCK, D. I. SCHUSTER, LEV S. BISHOP, E. GINOSSAR, J. M. GAMBETTA, L. DICARLO, L. FRUNZIO, S. M. GIRVIN, R. J. SCHOELKOPF. *NATURE PHYSICS* 6, 663–667 (2010)
90. FAST RESET AND SUPPRESSING SPONTANEOUS EMISSION OF A SUPERCONDUCTING QUBIT. M. D. REED, B. R. JOHNSON, A. A. HOUCK, L. DICARLO, J. M. CHOW, D. I. SCHUSTER, L. FRUNZIO, AND R. J. SCHOELKOPF. *APPL. PHYS. LETT.* 96, 203110 (2010)
91. QUANTUM COMPUTING WITH AN ELECTRON SPIN ENSEMBLE. J. H. WESENBERG, A. ARDAVAN, G. A. D. BRIGGS, J. J. L. MORTON, R. J. SCHOELKOPF, D. I. SCHUSTER, AND K. MØLMER. *PHYS. REV. LETT.* 103, 070502 (2009)
92. DEMONSTRATION OF TWO-QUBIT ALGORITHMS WITH A SUPERCONDUCTING QUANTUM PROCESSOR. L. DICARLO, J. M. CHOW, J. M. GAMBETTA, LEV S. BISHOP, B. R. JOHNSON, D. I. SCHUSTER, J. MAJER, A. BLAIS, L. FRUNZIO, S. M. GIRVIN AND R. J. SCHOELKOPF. *NATURE* 460, 240-244 (2009)
93. CRYOGENIC ION TRAPPING SYSTEMS WITH SURFACE-ELECTRODE TRAPS. P. B. ANTOHI, D. SCHUSTER, G. M. AKSELROD, J. LABAZIEWICZ, Y. GE, Z. LIN, W. S. BAKR, I. L. CHUANG. *REV. SCI. INST.*, VOL. 80, 013103 (2009)

94. CONTROLLING THE SPONTANEOUS EMISSION OF A SUPERCONDUCTING TRANSMON QUBIT. A. HOUCK, J. A. SCHREIER, B. R. JOHNSON, J. M. CHOW, JENS KOCH, J. M. GAMBETTA, D. I. SCHUSTER, L. FRUNZIO, M. H. DEVORET, S. M. GIRVIN, AND R. J. SCHOELKOPF. *PHYS. REV. LETT.* 101, 080502 (2008)
95. SUPPRESSING CHARGE NOISE DECOHERENCE IN SUPERCONDUCTING CHARGE QUBITS. J. A. SCHREIER, A. A. HOUCK, JENS KOCH, D. I. SCHUSTER, B. R. JOHNSON, J. M. CHOW, J. M. GAMBETTA, J. MAJER, L. FRUNZIO, M. H. DEVORET, S. M. GIRVIN, AND R. J. SCHOELKOPF. *PHYS. REV. B* 77, 180502(R) (2008)
96. CHARGE-INSENSITIVE QUBIT DESIGN DERIVED FROM THE COOPER PAIR BOX. JENS KOCH, TERRI M. YU, JAY GAMBETTA, A. A. HOUCK, D. I. SCHUSTER, J. MAJER, ALEXANDRE BLAIS, M. H. DEVORET, S. M. GIRVIN, AND R. J. SCHOELKOPF. *PHYS. REV. A* 76, 042319 (2007)
97. OBSERVATION OF BERRY'S PHASE IN A SOLID-STATE QUBIT. P. J. LEEK, J. M. FINK, A. BLAIS, R. BIANCHETTI, M. GÖPPL, J. M. GAMBETTA, D. I. SCHUSTER, L. FRUNZIO, R. J. SCHOELKOPF, AND A. WALLRAFF. *SCIENCE* 21 V318 5858, 1889 - 189 (2007)
98. COUPLING SUPERCONDUCTING QUBITS VIA A CAVITY BUS. J. MAJER, J. M. CHOW, J. M. GAMBETTA, JENS KOCH, B. R. JOHNSON, J. A. SCHREIER, L. FRUNZIO, D. I. SCHUSTER, A. A. HOUCK, A. WALLRAFF, A. BLAIS, M. H. DEVORET, S. M. GIRVIN AND R. J. SCHOELKOPF. *NATURE* 449, 443-447 (2007)
99. GENERATING SINGLE MICROWAVE PHOTONS IN A CIRCUIT. A. HOUCK*, D. I. SCHUSTER*, J. M. GAMBETTA, J. A. SCHREIER, B. R. JOHNSON, J. M. CHOW, L. FRUNZIO, J. MAJER, M. H. DEVORET, S. M. GIRVIN AND R. J. SCHOELKOPF. *NATURE* 449, 328-331 (2007)
100. SIDEBAND TRANSITIONS AND TWO-TONE SPECTROSCOPY OF A SUPERCONDUCTING QUBIT STRONGLY COUPLED TO AN ON-CHIP CAVITY. WALLRAFF, D. I. SCHUSTER, A. BLAIS, J. M. GAMBETTA, J. SCHREIER, L. FRUNZIO, M. H. DEVORET, S. M. GIRVIN, AND R. J. SCHOELKOPF. *PHYS. REV. LETT.* 99, 050501 (2007)
101. QUANTUM-INFORMATION PROCESSING WITH CIRCUIT QUANTUM ELECTRODYNAMICS. ALEXANDRE BLAIS, JAY GAMBETTA, A. WALLRAFF, D. I. SCHUSTER, S. M. GIRVIN, M. H. DEVORET, AND R. J. SCHOELKOPF. *PHYS. REV. A* 75, 032329 (2007)
102. RESOLVING PHOTON NUMBER STATES IN A SUPERCONDUCTING CIRCUIT. D. I. SCHUSTER*, A. A. HOUCK*, J. A. SCHREIER, A. WALLRAFF, J. M. GAMBETTA, A. BLAIS, L. FRUNZIO, J. MAJER, B. JOHNSON, M. H. DEVORET, S. M. GIRVIN AND R. J. SCHOELKOPF. *NATURE (LONDON)* VOL 445 515 (2007)
103. QUANTUM TRAJECTORY APPROACH TO CIRCUIT QED: QUANTUM JUMPS AND THE ZENO EFFECT. JAY GAMBETTA, ALEXANDRE BLAIS, M. BOISSONNEAULT, A. A. HOUCK, D. I. SCHUSTER, AND S. M. GIRVIN. *PHYS. REV. A* 77, 012112 (2008)
104. QUBIT-PHOTON INTERACTIONS IN A CAVITY: MEASUREMENT DEPHASING AND NUMBER SPLITTING. J. M. GAMBETTA, A. BLAIS, D. I. SCHUSTER, A. WALLRAFF, L. FRUNZIO, J. MAJER, B. JOHNSON, M. H. DEVORET, S. M. GIRVIN AND R. J. SCHOELKOPF. *PHYSICAL REVIEW A* VOL 74, 042318 (2006)
105. APPROACHING UNIT VISIBILITY FOR CONTROL OF A SUPERCONDUCTING QUBIT WITH DISPERSIVE READOUT. WALLRAFF, D. I. SCHUSTER, A. BLAIS, L. FRUNZIO, J. MAJER, M. H. DEVORET, S. M. GIRVIN AND R. J. SCHOELKOPF. *PHYSICAL REVIEW LETTERS*, VOL 95, 6 060501 (2005)
106. FABRICATION AND CHARACTERIZATION OF SUPERCONDUCTING CIRCUIT QED DEVICES FOR QUANTUM COMPUTATION. L. FRUNZIO, A. WALLRAFF, D. SCHUSTER, J. MAJER, R. SCHOELKOPF. *APPLIED SUPERCONDUCTIVITY, IEEE TRANSACTIONS* VOL 15, 2 860-863 (2005)
107. AC-STARK SHIFT AND DEPHASING OF A SUPERCONDUCTING QUBIT STRONGLY COUPLED TO A CAVITY FIELD. D. I. SCHUSTER, A. WALLRAFF, A. BLAIS, L. FRUNZIO, R.-S. HUANG, J. MAJER, S. M. GIRVIN AND R. J. SCHOELKOPF. *PHYSICAL REVIEW LETTERS* VOL 94, 090501 (2005)
108. CIRCUIT QUANTUM ELECTRODYNAMICS: COHERENT COUPLING OF A SINGLE PHOTON TO A COOPER PAIR BOX. WALLRAFF, D. I. SCHUSTER, A. BLAIS, L. FRUNZIO, R.-S. HUANG, J. MAJER, S. KUMAR, S. M. GIRVIN AND R. J. SCHOELKOPF. *NATURE (LONDON)* 431 162 (2004)
109. MEASUREMENT OF THE EXCITED-STATE LIFETIME OF A MICROELECTRONIC CIRCUIT. K. W. LEHNERT, K. BLADH, L. F. SPIETZ, D. GUNNARSSON, D. I. SCHUSTER, P. DELSING, AND R. J. SCHOELKOPF. *PHYSICAL REVIEW LETTERS* 90(2):027002 (2003)
110. A RECOGNITION SYSTEM THAT USES SACCADDES TO DETECT CARS FROM REAL-TIME VIDEO STREAMS. PREDRAG NESKOVIC, DAVID SCHUSTER, AND LEON N COOPER. *PROCEEDINGS OF INTERNATIONAL CONFERENCE ON NEURAL INFORMATION PROCESSING* (2002)
111. LOCALIZED MEASUREMENTS OF ECCD USING MSE SPECTROSCOPY ON THE DIII-D TOKAMAK. C.C. PETTY, Y.R. LIN-LIU, T.C. LUCE, M.A. MAKOWSKI, R. PRATER, D.I. SCHUSTER, ET AL.. *NUCLEAR FUSION* 41(5):551-566, (2001)

PUBLICATION STATISTICS

- h-index: 58
- Total citations: 29593
- Most citations for single paper: 4570

Last updated: 3/2024

Mentorship

POSTDOCS

Srivatsan Chakram (Faculty at Rutgers), Tanay Roy, Kan-Heng Lee, Ash Kumar, Andrei Vrajitoarea, Alex Ruichao Ma (Faculty at Purdue University), David McKay (Research Scientist at IBM)

GRADUATE STUDENTS

Andrew Oriani, Sasha Anferov, Helin Zhang, Gabrielle Roberts, Kevin He, Brennan Dizdar, Morgan Lynn, Ziqian Li, Chunyang Ding, Chris Anderson (Postdoc at Stanford), Aziza Suleymanzade (Postdoc at Harvard), Akash Dixit, Ankur Agrawal, Mark Stone (Atom Computing), Brendan Saxberg, Margaret Panetta, Clai Owens (Postdoc at Caltech), Gerwin Koolstra (Postdoc at UC Berkeley), Sam Whiteley (Staff Scientists at HRL), Mohamed Abdelhafez (Postdoc at MIT), Yao Lu (Postdoc at Yale University), Nelson Leung (Quantitative Researcher at Radix Trading LLC), Ge Yang (Intern at BAIR, FAIR), Nate Earnest (Postdoc at Rockefeller University), Ravi Naik (Postdoc at UC Berkeley)

UNDERGRADUATES

Thomas Propson (Graduate student at Harvard), Jeronimo Martinez (Graduate student at Princeton), Jasmine Kalia (Graduate student at Harvard), Sophia Xue (Graduate student at Yale), Larry Chen (Graduate student at UC Berkeley), Abigail Shearrow (Graduate student at Univ. of Wisconsin-Madison), Sam Saskin (Graduate student at Princeton), Victoria Norman (Intern at LBL), Taekwan Yoon (Graduate student at Yale), Aman LaChapelle (Machine Learning startup), Agnetta Cleland (Graduate student at Stanford)