CHRISTOPHER JOHN LOBB

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EDUCATION:

1974-1980	Harvard University, Cambridge, MA S.M. in Applied Physics, 1976 Ph.D. in Applied Physics, 1980 Thesis: Percolation and Electrical Conduction in Superconducting Composites (M. Tinkham, advisor)
1970-1974	Rutgers College, New Brunswick, NJ BA in Physics, with High Honors and Highest Distinction in Physics, 1974 Member of Phi Beta Kappa

HONORS: Member of Phi Beta Kappa (1974); Recognized as an Outstanding Teacher, Maryland Center for Teaching Excellence (1994); Fellow of the American Physical Society (1994); Dean's Award for Excellence in Teaching (1995); Certificate of Teaching Excellence (1997); Invention of the Year Award (1999); Finalist, Parent's Association Outstanding Faculty Award (1999); Honorable Mention Citation for Excellence in Teaching (2000); Distinguished Scholar-Teacher Award (2000).

RESEARCH:

Quantum computing using Josephson devices, hybrid superconducting/atomic quantum systems, atomic analogs of electronic devices, applications and properties of superconductors.

PROFESSIONAL EXPERIENCE:

2013-2016	University of Maryland- Director, Center for Nanophysics and Advanced Materials.
2011-2013	National Institute of Standards and Technology- Senior NIST-ARRA Fellow.
2008-present	NIST, Gaithersburg, Maryland- Guest Researcher.
2004-2008	Co-Director, Joint Quantum Institute.
2004-2009	Cartilix, Inc.-Scientific Advisory Board.
1996-2007	University of Maryland- Assoc. Director, Center for Superconductivity Research.
1996	University of Maryland- Acting Director, Center for Superconductivity Research.
1996	University of Chicago-Visiting Scholar.
1993-present	University of Maryland- Professor of Physics.
1994-1998	NIST, Gaithersburg, Maryland, Guest Scientist.
1990-1993	University of Maryland- Associate Professor of Physics.
1990	Technical University of Denmark, Visiting Professor.
1986-1990	Harvard University- Associate Professor of Applied Physics and Physics.
1989-1990	American Superconductor Corporation, Watertown, Massachusetts-Consultant.
1987	Sanders Associates, Nashua, New Hampshire- Consultant on high-T_c materials.
1985	Harvard University- Appointed Assistant Professor of Physics.
1982-1986	Harvard University- Assistant Professor of Applied Physics.
1981-1982	Harvard University- Post Doctoral Research Fellow on an IBM fellowship.
1981	IBM Thomas J. Watson Research Center- Consultant on composite superconductors.
1980-1982	Harvard University- Post Doctoral Research Fellow.

PUBLICATIONS:

1. C. J. Lobb, M. Tinkham, and W. J. Skocpol, Percolation in Inhomogeneous Superconducting Composite Wires, Sol. St. Comm. **27**, 1273 (1978).

2. J. Bevk, F. Habbal, C. J. Lobb, and James P. Harbison, Superconducting Properties of *In Situ* Formed Cu-Va_3Ga Composites, Appl. Phys. Lett. **35**, 93 (1979).

3. L. N. Smith and C. J. Lobb, Percolation in Two-Dimensional Conductor-Insulator Networks With Controllable Anisotropy, Phys. Rev. B **20**, 3653 (1979).

4. C. J. Lobb and D. J. Frank, A Large-Cell Renormalization-Group Calculation of the Percolation Conduction Critical Exponent, J. Phys. C: Sol. St. Phys. **12**, L827 (1979).

5. J. Bevk, F. Habbal, C. J. Lobb, and G. Dublon, Superconducting and Mechanical Properties of *In Situ*-Formed Cu-Va_3Ga Composites, in Advances in Cryogenic Engineering Materials, Vol. 26, edited by A. F. Clark and R. P. Reed (Plenum, New York, 1980), p. 538.

6. C. J. Lobb and D. J. Frank, Percolation Critical Exponents for Conductance and Critical Current in Two Dimensions, in Inhomogeneous Superconductors-1979, Berkeley Springs, West Virginia, edited by D. U. Gubser, T. L. Francavilla, J. R. Leibowitz, and S. A. Wolfe, AIP Conf. Proc. No. 58 (AIP, New York, 1980), p. 308.

7. C. J. Lobb and Keith R. Karasek, A Monte Carlo Calculation of the Cluster Size Exponent for 2D Bond Percolation, J. Phys. C: Sol. St. Phys. **13**, L245 (1980).

8. J. Bevk, M. Tinkham, F. Habbal, C. J. Lobb, and J. P. Harbison, *In Situ*-Formed Multifilamentary Composites Part I: Coupling Mechanisms, Stress Effects, and Flux-Pinning Mechanisms, IEEE Trans Mag. MAG-17, 235 (1981).

9. C. J. Lobb, D. J. Frank, and M. Tinkham, Percolative Conduction in Anisotropic Media: A Renormalization-Group Approach, Phys. Rev. B **23**, 2262 (1981).

10. C. J. Lobb, M. Tinkham, T. M. Klapwijk, and A. D. Smith, Superconducting Properties of Clustered PbBi Films, Proc. 16th. Int. Conf. on Low Temperature Physics, Physica **107B**, 17 (1981).

11. C. J. Lobb and Keith R. Karasek, Critical Exponents for Two-Dimensional Bond Percolation, Phys. Rev. B **25**, 492 (1982).

12. David W. Abraham, C. J. Lobb, M. Tinkham, and T.M. Klapwijk, Resistive Transition in 2-D Arrays of Superconducting Weak Links, Phys. Rev. B **26** (Rapid Communication), 5268 (1982).

13. C. J. Lobb, David W. Abraham, and M. Tinkham, Theoretical Interpretation of Resistive Transition Data from Arrays of Superconducting Weak Links, Phys. Rev. B **27**, 150 (1983)

14. James M. Gordon, C. J. Lobb, and M. Tinkham, Electron Inelastic Lifetime and Electron-Electron Attraction Strength in Al Films, Phys. Rev. B **28** (Rapid Communication), 4046 (1983)

15. R. C. Cammarata, A. L. Greer, and C. J. Lobb, An Order-Wave Description of the Kinetics of Spinodal Ordering, in Proceedings of the International Conference on Phase Transformations in Solids, Crete, June 1983; edited by Thomas Tsakalakos, MRS Proc. Vol. 21 (North-Holland, Amsterdam, 1984), p. 571.

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18. James M. Gordon, C. J. Lobb, and M. Tinkham, Electron Localization and Interaction Effects in Aluminum Films at Temperatures Just Above the Superconducting Transition, in Proceedings of the 17th International Conference on Low Temperature Physics, Karlsruhe, West Germany, edited by U. Eckern, A. Schmid, W. Weber, and K. Wuhl (North-Holland, Amsterdam, 1984), p. 493.

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21. James M. Gordon, C. J. Lobb, and M. Tinkham, Quantum Coherence Effects in Submicron Aluminum Cylinders, Proceedings of the International Conference on Localization, Interaction, and Transport Phenomena in Impure Metals, LITPIM Supplement PTB-PG-1, edited by Ludwig Schweitzer and Bernhard Kramer, p. 115 (1984).

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Milton (SIAM, Philadelphia, 1989), p. 171 (invited paper for the SIAM workshop on Random Media and Composites, Leesburg, VA, Dec. 1988).

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64. L. L. Sohn, M. S. Rzchowski, J. U. Free, S. P. Benz, M. Tinkham, and C. J. Lobb, Absence of Fractional Giant Shapiro Steps in Diagonal Josephson-Junction Arrays, Phys. Rev. B **44** (Rapid Communication), 925 (1991).

65. M. Octavio, J. U. Free, S. P. Benz, R. S. Newrock, D. B. Mast, and C. J. Lobb, Simulations and Interpretation of Fractional Giant Shapiro Steps in Two-Dimensional Josephson-Junction Arrays, Phys. Rev. B **44**, 4601 (1991), DOI: 10.1103/PhysRevB.44.4601.

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INVITED TALKS:

In Situ Superconducting Composite Research at Harvard, MIT Francis Bitter National Magnet Laboratory, June 1978.

Critical Exponents for 2D Bond Percolation, Boston University, January 1980.

Phase Transitions in Superconducting Composites, Ohio State University, April 1980.

Superconducting Properties of Clustered PbBi Films, IBM Thomas J. Watson Research Center, August 1981.

Superconducting Properties of Clustered PbBi Films, Rutgers University, October 1981.

Percolative Conduction in Anisotropic Two-Dimensional Systems, IBM Thomas J. Watson Research Center, November 1981.

The Vortex-Unbinding Transition in Real 2D systems, Harvard University, February 1983.

Phase Transitions in Josephson Junction Arrays, NATO Advanced Study Institute on Percolation, Localization, and Superconductivity, Les Arcs, France, June 1983.

The Vortex-Unbinding Transition in Josephson Junction Arrays, Technical University of Delft, the Netherlands, July 1983.

Experimental Studies of Josephson Junction Arrays, Emory University, January 1984.

Phase Transitions in Josephson Junction Arrays, Northeastern University, January 1984.

Percolative Conduction in Two Dimensions, Schlumberger-Doll Research, Ridgefield, Connecticut, June 1984.

Phase Transitions in Arrays of Josephson Junctions, 17th International Conference on Low Temperature Physics, Karlsruhe, West Germany, August 1984.

Phase Transitions in Arrays of Josephson Junctions, Oersted Institute, Copenhagen, August 1984.

Phase Transitions in Josephson Junction Arrays, Fundacion Instituto de Ingeniera, Caracas, Venezuela, January 1985.

Phase Transitions in Josephson Junction Arrays, MIT, March 1985.

Josephson Junction Arrays, The University of Chicago, May 1985.

Phase Transitions in Arrays of Josephson Junctions, Raytheon Research Division, Lexington, Massachusetts, September 1985.

Phase Transitions in Josephson Junction Arrays, Iowa State University, October 1985.

Phase Transitions in Josephson Junction Arrays, University of Cincinnati, October 1985.

Percolation in Two Dimensions, Instituto Venezolano de Investigaciones Cientificas, Caracas, Venezuela, January 1986.

Swiss Cheese, Speckles, and Scaling: Non-Universality in Random Media, Ohio State University, February 1986.

Swiss Cheese, Speckles, and Scaling: Non-Universality in Random Media, Exxon Research and Engineering, Annandale, NJ , April 1986.

Swiss Cheese, Speckles, and Scaling: Percolation in Two Dimensions, University of Massachusetts at Amherst, September 1986.

Swiss Cheese, Speckles, and Scaling: Non-Universality in Random Media, Harvard University, September 1986.

Swiss Cheese, Speckles, and Scaling: Percolation Experiments in Two Dimensions, Michigan State University, October 1986.

Swiss Cheese, Speckles, and Scaling: Percolation Experiments in Two Dimensions, University of Florida, October 1987.

Positional Disorder in Josephson Junction Arrays, University of Illinois, November 1987.

Swiss Cheese, Speckles, and Scaling: Percolation in Two Dimensions, Technical University of Twente, the Netherlands, December 1987.

What Can (and Can't) be Measured in Superconducting Networks, NATO Advanced Research Workshop on Phase Coherence in Superconducting Networks, Delft, the Netherlands, December 1987.

Josephson Junction Arrays, Gordon Conference on Collective Dynamics in Nonequilibrium Systems, Wolfeboro, New Hampshire, June 1988.

Phase Transitions in Arrays of Josephson Junctions, Boston University, October 1988.

Phase Transitions in Arrays of Josephson Junctions, UCLA, October 1988.

How the New Superconductors Compare With the Old Ones, Ford Motor Company, Dearborn, Michigan, October 1988.

Simulations of Composites: From Ohmic Response to the Breakdown of Superconductivity, SIAM Workshop on Random Media and Composites, Leesburg, Virginia, December 1988.

Physics in Microelectronic Systems: From 1 to 10^6 Josephson Junctions, Brown University, December 1988.

Positional Disorder in Josephson Junction Arrays, Instituto Venezolano de Investigaciones Cientificas, Caracas, Venezuela, January 1989.

Disorder in Josephson Junction Arrays, 1989 March Meeting of the American Physical Society, St. Louis, March 1989.

Phase Transitions in Josephson Junction Arrays, University of Maryland, March 1989.

Phase Transitions in Arrays of Josephson Junctions, MIT, April 1989.

Flux Pinning in Josephson Junction Arrays, Gordon Conference on Phenomenology of High-Temperature Superconductors, Wolfeboro, New Hampshire, June 1989.

Highly Efficient Algorithms for Calculating the Conductivity of Composites, Princeton University, February 1990.

Phase Transitions in Josephson Junction Arrays, University of Maryland, February 1990.

Hall Effect in the Superconducting State, Harvard University, May 1990.

Hall Effect in the Superconducting State, Princeton University, May 1990.

Efficient Simulations and Model Experiments for Studying Percolation, National Institute of Standards and Technology, Gaithersburgh, Maryland, May 1990.

Hall Effect in the Superconducting State, Technical University of Denmark, Lyngby, Denmark, August 1990.

Fractional Giant Shapiro Steps in 2D Josephson Arrays, NATO Applied Research Workshop on Superconducting Electronics, Capri, Italy, September 1990.

Fractional Giant Shapiro Steps in 2D Josephson Arrays, Cambridge University, September 1990.

Electrical and Elastic Properties of Porous Materials: Model Experiments and Numerical Simulations, Johns Hopkins, October 1990.

Hall Effect in the Superconducting State, Ohio State University, November 1990.

Phase Transitions in Josephson Junction Arrays, University of Virginia, February 1991.

Vortex Motion and the Hall Effect in Superconductors, New York University, February 1991.

Josephson Junction Arrays and Superconducting Wire Networks, International Conference on Physics in Two Dimensions, Neuchatel, Switzerland, August 1991.

Experiments on Vortex Motion in Superconductors, University of Cincinnati, March 1992.

Viscous Fingering in a Variable Hele-Shaw Cell, Gordon Conference on Fractals, Plymouth State College, Plymouth, New Hampshire, June 1992.

Vortex Motion and the Hall Effect in the Superconducting State, Gordon Conference on Superconductivity, Oxnard, California, January 1993.

High-Frequency Properties of Two-Dimensional Josephson-Junction Arrays, AFOSR Superconductivity Contractors Meeting, Wright-Patterson Air Force Base, Dayton, Ohio, March 1993

High-T_c Vertical Junctions, NRL Digital Signal Processing Meeting, San Francisco, California, June 1993.

Vortex Dynamics in Superconductors, Instituto Venezolano de Investigaciones Cientificas, Caracas, Venezuela, July 1993.

Hall Effect as a Probe for Vortex Dynamics, Workshop on the Statics and Dynamics of Vortices in Superconductors, Eugene, Oregon, August 1993 (delivered by A. W. Smith due to illness).

Vortex Motion in Superconductors: Sideways, Backwards, and Surprising, University of Pittsburgh, Pittsburgh, Pennsylvania, September 1993.

Superconductivity at the CSR: Materials, Devices, and Vortex Dynamics, Westinghouse Research and Development Laboratory, October 1993.

Vortex Motion in Superconductors: Sideways, Backwards, and Surprising, Case Western Reserve University, Cleveland, Ohio, October 1993.

Vortex Motion in Superconductors: Sideways, Backwards, and Surprising, Cornell University, Ithaca, New York, November 1993.

Hall Effect Sign Anomaly and Vortex Dynamics, 1994 March Meeting of the American Physical Society, Pittsburgh, Pennsylvania, March 1994.

High-Frequency Properties of Two-Dimensional Josephson-Junction Arrays, AFOSR Superconductivity Contractors Meeting, Stanford University, April 1994.

Pinning, Anisotropy, and the Hall Effect in Superconductors, Seventh Conference on Superconductivity and Applications, Buffalo, New York, September 1994.

Vortex Motion in Superconductors: Spinning, Cutting, and Swimming Upstream, University of Chicago, November 1994.

Quantum States in the Vortex Core, University of Pennsylvania, Philadelphia, February 1995.

High-Frequency Properties of Two-Dimensional Josephson-Junction Arrays, AFOSR Superconductivity Contractors Meeting, Greenbelt, Maryland, April 1995.

Hall Effect in Superconductors, University of Virginia, October 1995.

Superconducting Vortices from the Ground (State) Up, University of Maryland, February 1996.

Introduction to Superconductors and Superconducting Devices, 1996 March Meeting of the American Physical Society, St. Louis Missouri, March 1996.

Superconductivity: Not as Cool as it Used to Be, St. Mary's College, St. Mary's, Maryland, June 1996.

Superconductivity: Not as Cool as it Used to Be, AAPT Meeting, University of Maryland, August 1996.

Vortex Motion in Superconductors: Spinning, Sliding, and Swimming Upstream, Rutgers University, September 1996

Superconductivity: Not as Cool as it Used to Be, Rutgers University, September 1996.

Vortex Dynamics in Superconductors, University of Chicago, October 1996.

Vortex Dynamics and the Hall Effect in Superconductors, Johns Hopkins University, December 1996.

Vortex Dynamics and the Hall Effect in Superconductors, University of Cincinnati, February 1997.

Vortex Motion, Pinning, and the Hall Effect in Superconductors, University of Maryland, February 1997.

Superconductivity: Not as Cool as it Used to Be, Georgetown University, April 1997.

Vortex Motion, Pinning, and the Hall Effect in Superconductors, Georgetown University, April 1997.

Dynamical Properties of Two-Dimensional Josephson-Junction Arrays, Fourth SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 1997.

Dynamics of Two-Dimensional Josephson-Junction Arrays, MIT, June 1997.

What's So Super About Superconductivity? , St. Mary's College, June 1997.

Dynamics of Two-Dimensional Josephson-Junction Arrays, University of Cambridge, July 1997.

Vortex Motion in Superconductors: Spinning, Sliding, and Swimming Upstream, Penn. State University, October 1997.

Stimulated Emission in Josephson-Junction Arrays (?), University of Maryland, November 1997.

Vortex Motion in Superconductors, University of Florida, February 1998.

Coupling Mechanisms and Stimulated Emission in Josephson Junction Arrays, AFOSR Superconductivity Contractors Meeting, Key Largo, Florida, November 1998.

The Hall Effect and Vortex Motion in Superconductors, University of Salerno, Italy, January 1999.

Stimulated Emission and Amplification in Josephson-Junction Arrays, NIST, Gaithersburg, Maryland, April 1999.

Quantum Computing Using Superconducting Devices, Quantum Computing Program Review, Ft. Meade, Maryland, September 1999.

Stimulated Emission in Josephson-Junction Arrays, University of Notre Dame, September 1999.

Josephson Junction Arrays as Coherent Sources: Superconducting Masers?, University of Chicago, October 1999.

Josephson Junction Arrays as Coherent Sources: Superconducting Masers?, New York University, October 1999.

Stimulated Emission in Josephson-Junction Arrays, 2000 Meeting of the American Physical Society, Minneapolis, Minnesota, March 2000.

Josephson-Junction Arrays, University of Salerno, Italy, June 2000

The Paramagnetic Meissner Effect in Josephson-Junction Arrays, EuroConference on Physics and Applications of Multi-Junction Superconduting Josephson Devices, Maratea, Italy, July 2000.

Quantum Computing with Superconducting Devices, Quantum Computing Program Review, Baltimore, Maryland, August 2000.

Smaller, Faster, Cheaper: From Transistors to Artificial Microstructures, Distinguished Scholar-Teacher Lecture, University of Maryland, October 2000.

Smaller, Faster, Cheaper: From Transistors to Artificial Microstructures, The Johns Hopkins University Applied Physics Laboratory, October 2001.

Introduction to Single-Electron Transistors, March Meeting of the American Physical Society, Indianapolis, Indiana, March 2002.

Probing the Limits of Superconductivity, 2002 SPIE Meeting, Seattle, Washington, July 2002.

Are Superconductors Really Superconducting in a Magnetic Field?, California Institute of Technology, October 2002.

Are Superconductors Really Superconducting in a Magnetic Field?, University of Maryland, October 2002.

Do Superconductors in a Magnetic Field Have Zero Resistance, March Meeting of the American Physical Society, Austin, Texas, March 2003 (not given because of family emergency).

Experimental Evidence for Entangled Macroscopic Quantum States in Two Superconducting Qubits, University of Pennsylvania, October 2003.

Experimental Evidence for Entangled Macroscopic Quantum States in Two Superconducting Qubits, University of Maryland, November 2003.

Experimental Evidence for Entangled Macroscopic Quantum States in Two Superconducting Qubits, Laboratory for Physical Sciences, College Park, Maryland, February 2004.

New Results in the Normal-Superconducting Phase Transition of YBCO, March Meeting of the American Physical Society, Montreal, Canada, March 2004.

Smaller, Faster, Cheaper: From Transistors to Artificial Microstructures, University of Cincinnati, September 2004.

Macroscopic Quantum States in One/Two/Three Superconducting Qubits , University of Cincinnati, 2004.

When Are Superconductors Really Superconducting?, Georgetown University, January 2005.

Quantum Entanglement in Macroscopic Superconducting Circuits, University of South Carolina, November 2005.

Quantum Science for Tomorrow's Technology, Morgan State University, May 2008. (Guest lecture in Engineering Seminar II, EEGR789, May 8).

Quantum Science for Tomorrow's Technology, University of Cincinnati College of Applied Science, July 2008.

Engineering Quantum Coherence, Temple University, April 2011.

Engineering Quantum Coherence, Georgetown University, October 2011.

Engineering Quantum Coherence, University of Cincinnati, November 2011.

Engineering Quantum Coherence, University of Kentucky, September 2012.

Engineering Quantum Coherence, University of Pennsylvania, November 2012.

Engineering Quantum Coherence, Intel, Hillsboro, Oregon, September 2014.

Ohm's Law for Atom Circuits, Australasian Workshop on Emergent Quantum Matter 2014, North Stradbroke Island, Queensland, Australia, November 2014.

Ohm's Law for Atom Circuits, University of Maryland, January 2015.

Smaller, Faster, Cheaper: From (Before) Transistors to Quantum Computers, St. Mary's College Maryland, February 2015.

Classical and Quantum Physics, Basis DC (a 5-12 charter school), Washington, DC, May 2015.

Getting Slammed from Both Sides: Three Decades of Writing and Reviewing Proposals, National Science Foundation, June 2015

Pushing Atoms Instead of Electrons: Everything You Learned About Circuits Still Helps, Laboratory for Physical Sciences, College Park, Maryland, March 2016.

Superconducting Qubits: Disruptive Environments Challenge Disruptive Technology, 2016 APS/CNM Users Meeting, Argonne National Lab, Argonne, Illinois, May 2016.

Getting the Jump in the Kosterlitz-Thouless Transition, Workshop on Topological Phase Transitions and New Developments, Nanyang Technological University, Singapore, June 2017 (Presented via Skype due to flight cancellation).

Ohm's Law and Beyond in Atom Circuits, University of Florida, October 2017.

Ohm's Law and Beyond in Atom Circuits , University of Illinois, Sept. 2017.

RESEARCH FUNDING AT THE UNIVERSITY OF MARYLAND:

F. C. Wellstood and C. J. Lobb, Non-equilibrium quasiparticle sources and traps: Increasing the coherence time of superconducting qubits, 2019-2020, $250,000 per year for two years.

C. J. Lobb and F. C. Wellstood, Coupling Networks for Superconducting Quantum Devices, 2014-2017, $1,438,011 four years total funding.

F. C. Wellstood and C. J. Lobb, Atomic Resolution Dual-Point Superconducting Phase STM, NSF 1409925, 2014-2015, $155,000 one year total funding (+ 6 month no-cost extension).

C. J. Lobb, V. Galitski, G. Rubloff, C. B. Musgrave, IARPA W911NF0910351, 2009-2013, total $1,380,844 four years total funding

William Phillips, Glenn Solomon, Christopher Monroe, Luis Orozco, and Christopher Lobb, Joint Quantum Institute: Processing Quantum Coherence, NSF 0822671, 2007-2011, $12,500,000.00.

J. R. Anderson, A. J. Dragt, C. J. Lobb, and F. C. Wellstood, Quantum Computing Using SQUID Phase Qubits, DOD, 2008-2012, $1,500,000 total funding.

F. C. Wellstood, J. R. Anderson, and C. J. Lobb, Imaging the Gauge-Invariant Phase Difference in Superconductors, NSF 0605763, 2006-2009, $390,000 total funding.

C. J. Lobb, Luis Orozco, and J. R. Anderson, Cooperative Research Program for the Joint Quantum Institute, NIST, 2006-2010, $29,085,046 five year total funding (including $4,500,000 cost share and $3,862,463 overhead waiver from the University of Maryland).

Anna Kidiyarova-Shevchenko, C. J. Lobb, and F. Wellstood, Reciprocal Quantum Logic, DOD N000140710256, 2006-2007, $27,000 one year total funding.

Anna Kidiyarova-Shevchenko, C. J. Lobb, and F. Wellstood, RF Waveform Library Reader, Hypres, Inc., 2006, $21,500 total funding for one year.

C. J. Lobb, Quantum Computing Using Josephson Circuits, DOD N00140610968, 2006-2007, $22,000 total funding for one year

F. C. Wellstood, C. J. Lobb, J. R. Anderson, and A. J. Dragt, Quantum Computing with Superconducting Devices II, DOD, $1,424,499 total funding, 2003-2007.

F. C. Wellstood, J. R. Anderson, A. Dragt, and C. J. Lobb, Demonstration of Entanglement in Coupled Josephson-Junction Qubits, NSF Grant DMR-0524259 , 2003-2006 $692,000 total funding.

C. J. Lobb and S. M. Anlage, Fluctuations and Phase Transitions in Superconductors, NSF Grant DMR-0302596, 2003-2006, $404,014 total funding.

M. Fuhrer, C. J. Lobb, I. V. Lyubinetsky, L. R. Sita, and E. D. Williams, Dynamics of Structure and Charge at the Molecular Scale, NSF grant DMR-0102950, 2001-2005, $1,200,000 total funding.

F. C. Wellstood, C. J. Lobb, J. R. Anderson, and A. J. Dragt, Quantum Computing with Superconducting Devices, DOD MDA90403C1800, $100,000 total funding, 2003-2004.

F. C. Wellstood, C. J. Lobb, J. R. Anderson, and A. J. Dragt, Quantum Computing with Superconducting Devices, DOD MDA90499C2601, $1,834,999 four-year total funding, 1999-2003.

F. C. Wellstood, C. J. Lobb, and Lee Knauss, Electric Field Microscopy of Computer Chips Using a Scanning Single Electron Transistor, NSF DMR-9873268, 1999-2002, $291,824 for three years total funding.

C. J. Lobb and F. C. Wellstood, Collaboration on Quantum Hall Effect Research, NIST 43NANB13655, 1998-1999, $24,000; NIST 43SBNB067008, 1999-2000, $30,000.

C. J. Lobb, High-Frequency Properties of Two-Dimensional Josephson-Junction Arrays, AFOSR grant F49620-92-J-0041, 1991-1994, $230,000 three year total funding. Renewed 1994, $264,000 three year total funding; $97,444 supplemental funds awarded for Low and High-Frequency Scanning-SQUID Probe Characterization of Josephson-Junction Arrays, 1996-1998. Renewed 1997 as F49620-98-1-0072 for $175,000 for 3 years.

C. J. Lobb, Vortex Dynamics in Superconductors, NSF grant DMR-9202471, 1992-1994, $210,000 three year total funding, renewed as DMR-9510464, 1995-1997, $225,000 three-year total funding; renewed as Dynamical Properties of Superconductors, DMR-9732800, 1998-2001, $264,000 three-year total funding.

F. C. Wellstood and C. J. Lobb, Collaboration on Single-Electron Transistors, NIST grant 60NANB4D1588, 1994-1997, $72,000 for 3 years total funding; renewed 1997 for $24,000; renewed as Collaboration to Improve Performance of Device Characterization Capability and Study Charge Noise in a Single-Electron Transistor, NIST 70NANB6H0141, 1998-1999, $8,000 for one year total funding.

T. Venkatesan, C. J. Lobb, and J. Melngailis, Development of High-T_c Josephson Junction Device Technology, Naval Research Laboratory, grant NOOO1496C2008, 1995-1997, $299,988 for two years total funding.

R. Webb and C. J. Lobb, Nanostructures, part of Microelectronics Research Collaborative Program, Army Research Laboratory grant number DAAL01-95-2-3530, 1995-1997, $124,999 for 15 months total funding.

C. J. Lobb and and R. N. Newrock, Two-Dimensional Josephson-Junction Arrays, 1992-1994, NSF grant INT-9202471, $15,000 two years total funding.

T. Venkatesan and C. J. Lobb, Process for Making Reproducible SNS Junctions Based on High-T_c Normal Layer Heterostructures, NRL grant N00014-93-K-2022, 1993-1995, $225,000 two years total funding.
S. Anlage, F. C. Wellstood and C. J. Lobb, NSF equipment grant for a UHV sputter deposition system, grant DMR-9214579, 1994, $150,000.

GRADUATE STUDENTS AND POST-DOC COLLABORATORS AT MARYLAND:

Past PhD. Students: Chagarn Barter Whan (now Chagaan Baatar) ONR, James Repaci Global Science and Technology, Wu Liu Bell Atlantic Network Services, Allan Smith NIST, Ichiro Takeuchi, UMD, Alfred Cawthorne, Trevecca Nazerene University; Douglas Strachan U. Kentucky; Branimir Vasilic GrayBits LLC, Aaron Nielsen MacAulay Brown, Matt Kenyon JPL, Matt Sullivan Ithaca College, David Tobias EPA, Hanhee Paik BBN, Andrew Berkeley D-Wave, Huizhong Xu St. John's College, Su Li UMD, Hua Xu Brion Technologies, Tauno Palomaki NIST, Anthony Przybysz Northrup Grumman, Hyeokshin Kwon Samsung, Kaushik Mitra Intel, Sudeep Dutta (University of Maryland), Benjamin Cooper (UMD), Anita Roychowdury (Intel), Rangga Budoyo (Sandia), Cody Ballard (Northrup Grumman), Wan-Ting Liao (Harvard).

Current PhD. Students : Kristen Voigt, Joseph Murphy, Kungang Li.

Past post-doctoral collaborators: Xiuguang Jiang; T. W. Clinton, HGST Research; P. Warburton, University College, London; Patrick Fournier, Sherbrooke; Fernando Araujo-Moreira, Sao Carlos; Paola Barbara, Georgetown; Roberto Ramos, Indiana Wesleyan; Rupert Lewis, Sandia; Constantine Vlahacos (deceased); Micah Stoutimore, Northrup Grumman; Zaeil Kim, Seoul; Kevin Wright, Dartmouth; Jared Herzberg, IBM; Stephen Eckel NIST.

Current post-doctoral collaborators: Sudeep Dutta, UMD.

COURSES TAUGHT AT THE UNIVERSITY OF MARYLAND:

Physics 161-General Physics: Mechanics and Particle Dynamics, Fall 1992, 1994, 1995.

Physics 171- Introductory Physics: Mechanics, Spring 1991-1994, Fall 2013-2015.

Physics 174-Introductory Physics Lab, Spring 2003, 2004, 2005.

Physics 263-General Physics: Electrodynamics, Light, Relativity, and Modern Optics, Spring 1995.

Physics 273-Introductory Physics: Waves, Spring 1999, 2000, 2001, 2002, 2010, 2011, 2017-2019.

Physics 275-Experimental Physics I, Fall 2007, 2008, 2009, 2010.

Physics 401, Quantum Mechanics, Fall 2016-2019.

Physics 404 (414 in 1997)-Thermodynamics and Statistical Mechanics, Fall 1997, 1998, 1999, 2003, 2004.

Physics 410, Classical Mechanics, Fall 2001, 2002.

Physics 798c-Superconductivity, Fall 1991, Spring 1996, Spring 1998.

SERVICE:

University of Maryland, Department of Physics:

Computer Committee, 1990-1994.

Honors Committee, 1990-1994 (Chair 1992-1994).

Instructional Computer Committee (Chair), 1991-1994.

Physics Olympics, 1991-1996.

Business and Finance Director Search Committee, 1991.

Network Manager Search Committee, 1991.

Appointments, Promotion, and Tenure Committee, 1991-1993.

Education Review Committee; Undergraduate Major Subcomittee (Chair), 1992-1994.

Undergraduate Education Commitee, 1995-96; 1997-present (Chair).

Center for Superconductivity Research Research Coordinator Search Committee, 1996.

Non-Traditional Experimenter Search Committee, 1997, 1998.

MRSEC External Oversight Committee, 1997.

Physics 161-262-263 Long-Term Mentor, 1997.

Undergraduate Lab Committee, 2003-present.

Priorities Committee (Chair), 2004-2006.

Interim Co-Director, Joint Quantum Institute, 2004-2006.

Co-Director, Joint Quantum Institute, 2006-2008

Chair of the Joint Quantum Institute Executive Committee, 2006-2008.

Condensed Matter/Nano Faculty Search Committee, 2006-2007.

Director, Center for Nanophysics and Advanced Materials, 2013-2016.

University of Maryland, general:

Dean's Award for Excellence in Teaching Committee, 1992.

Dean's Committee on the First Two Years, 1993-1995.

Maryland Junior Science and Humanities Symposium, 1992-1995.

College Appointments, Promotion, and Tenure Committee, 1995-1996.

K-16 Faculty Collaboration Committee CMPS-COE Task Force, 1999-2006.

University Appointments, Promotion, and Tenure Committee, 2000-2002.

Provost Search Committee, University of Maryland, 2006

Other Professional Service:

Co-Organizer, Josephson Junction Array Workshop, May 23-27, 1995, Jackson Hole, Wyoming.

Co-Chair for Electronics, Applied Superconductivity Conference, Sept. 17-22, 2000, Virginia Beach, Virginia.

Scientific Coordinator, Boulder School for Condensed Matter and Materials Physics: Introduction to Superconductivity: Fundamentals and Applications, July 15-21, 2000, Boulder, Colorado.

Technical Content Committee, Applied Superconductivity Conference, Oct. 3-8, 2004, Jacksonville, Florida,

Frequent referee for funding agencies and physics journals.

RESEARCH FUNDING AT HARVARD:

M. Tinkham and C. J. Lobb, Fundamental Properties of Superconductors, NSF grant DMR84-04489, 1984-1989, $799,000 five year total funding.

COURSES TAUGHT AT HARVARD:

Physics 11b- Electricity, Magnetism, and Waves, Spring 1983-1986.

Applied Physics 284- Statistical Thermodynamics, Fall 1983.

Applied Physics 191/210r- Advanced Laboratory in Applied Physics, Fall 1986-1988.

Physics 90r- Supervised Research (for undergraduates), 1986-1989.

Physics 181- Elementary Thermodynamics and Statistical Mechanics, Spring 1987-1989.

GRADUATE STUDENTS AND POST-DOC COLLABORATORS AT HARVARD:

PhD Students: David Abraham IBM, Martin Forrester Applied Physics Lab, Samuel Benz NIST, Walter Smith Haverford, Marco Iansiti Harvard, James Gordon (deceased) Alan T. Johnson U. Penn, Qing Hu MIT, Gabriel Spalding Illinois Wesleyan, Sam Benz NIST.

Post-doctoral collaborators: Hu Jong Lee POSTECH, M. S. Rzchowski U. Wisconsin.