Kathryn Ann Moler (Kam)

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Curriculum Vitae
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Education

1995	Ph.D. in Physics, Stanford University
1988	B.S. in Physics with Honors, Stanford University

Employment

2018-	Vice Provost and Dean of Research, Stanford University
2011-	Professor, Applied Physics and Physics, Stanford University
2016-2018	Senior Associate Dean for the Natural Sciences, Stanford University
2004-2011	Associate Professor (with tenure), Applied Physics and Physics, Stanford University
2002-2004	Associate Professor (with tenure), Applied Physics, Stanford University
1998-2002	Assistant Professor, Applied Physics, Stanford University
1995-1998	R.H. Dicke Postdoctoral Fellow, Princeton University
1995	Visiting Scientist, IBM T.J. Watson Research Center

Honors

2021	National Academy of Sciences, Member
2020 -	Marvin Chodorow Professor
2014-	Sapp Family University Fellow in Undergraduate Education
2011	AAPT Richtmyer Award for “outstanding leadership in physics education”
2008-	APS Fellow
2004	SIAM Stanford Student Chapter Professorial Award
2001-2006	Packard Fellow
2000-2005	Presidential Early Career Award for Scientists and Engineers
1999	William L. McMillan Award for “outstanding contributions in condensed matter physics”
1999-2003	NSF CAREER Award
1999-2001	Alfred P. Sloan Research Fellow
1998-2001	Frederick E. Terman Fellow
1995-1998	R.H. Dicke Postdoctoral Fellow

1992	Kirkpatrick Award for Teaching
1990	Stanford Centennial Teaching Assistant
1989-1992	National Science Foundation Fellow
1988	Carrington Award for Excellence in Research and Teaching
1986-1988	Eastman Kodak Scholar

Selected Lectures

2017	Kavli Symposium, March Meeting of the American Physical Society
2017	Bell Colloquium, McGill University
2016	Kavli Colloquium, Kavli Institute of Nanoscience, Delft
2011	AAPT Richtmyer Lecture
2009	Heinz R. Pagels Memorial Public Lecture, Aspen
2008	Lecture in Honor of the Inauguration of the Drs. Ann and Myron Rice Family Fund for the KITP Santa Barbara
2004	Leigh Paige Prize Lecture Series at Yale
2001-2017	Stanford Classes Without Quizzes (2004, 2019 Stanford Sierra Camp; 2009 Stanford Leading Matters; 2001, 2003, 2004, 2005, 2006 Parents' Day; 2011, 2012 Family Weekend; 2008, 2010, 2017 Reunion Homecoming)

Professional Activities

2020-	National Quantum Initiative Advisory Committee (NQIAC), Co-Chair
2020-	NASEM (National Academies of Sciences, Engineering, and Medicine) National Science, Technology, and Security Roundtable
2017-	NanoFront (TU-Delft/Leiden), Scientific Advisory Board
2009-	PFC - Joint Quantum Institute, Advisory Board
2017-2018	SLAC Scientific Policy Committee
2013	ETH Zurich, Committee for the Evaluation of the Department of Physics
2012-2017	Aspen Center for Physics, General Member
2010	DOE BES ESPM Contractor's Meeting, Chair
2008	New Horizons in Condensed Matter Physics (Aspen Winter Conference), Organizer
2007	Sr_2RuO_4 and Chiral p-wave Superconductivity (KITP Rapid Response Program), Organizer
2005	24th International Conference on Low Temperature Physics, Co-Director for Superconductivity
2001-2003	McMillan Award Committee, Member
2000-	Canadian Institute for Advanced Research, Foreign Associate

1999	International Workshop on Vortex Matter, Organizing Committee
ongoing	Journal Review for Physical Review Journals, Nature, Science, Nature Group Journals
ongoing	Proposal Review / Panelist for NSF, DOE, AFOSR, IBSF

Teaching

AP215	Numerical Methods for Physicists and Engineers (Fall 03-04, Fall 04-05, Fall 05-06, Spring 12-13, Spring 13-14, Spring 15-16)
AP260	Professional Ethics for Physicists (Fall 02-03, later offered as workshop)
AP473B	Decoherence Processes in Solid State Systems (Spring 00-01)
AP302	Experimental Techniques in CMP (Fall 07-08, Spring 09-10)
CS138	MATLAB & Maple for Science and Engineering Applications (Winter 99-00, Winter 02-03)
Ph61	Mechanics and Special Relativity (Fall 98-99, Fall 99-00, Fall 00-01, Fall 09-10, Fall 10-11, Fall 12-13, Fall 14-15, Fall 15-16)
Ph62	Mechanics Laboratory (Fall 10-11, Fall 12-13, Fall 13-14, Fall 14-15)
Ph106/108	Intermediate Laboratory: Project (Winter 00-01, Spring 02-03, Fall 04-05, Spring 05-06)
Ph134	Advanced Topics in Quantum Mechanics (Spring 06-07, Spring 07-08, Spring 08-09)

University Service at Stanford

2017-2018	Long Range Planning Area Steering Group for Research, Co-Chair
2015-2016	Presidential Search Committee, Member
2015-2016	47th Faculty Senate, Chair
2013-2017	University Budget Group, Member
2012-2016	Faculty Senate, Member (13-14 CoC, 14-15 StC, 15-16 Chair)
2010-2012	Study of Undergraduate Education at Stanford, Member
2010-2011	Stanford Institute for Materials and Energy Sciences, Deputy Director
2008-2016	Stanford Nano Shared Facilities, Director
2006-2016	Nanofacilities Planning Committees, Co-Chair
2004-2011	Founder and Director, Center for Probing the Nanoscale, an NSF NSEC
1999-2004	Committee on Materials Research and Teaching / Materials Council, Member

Publications

1. E. Riis, D. S. Weiss, K. A. Moler, and S. Chu, "Atom funnel for the production of a slow, high-density atomic beam," *Physical Review Letters* **64**, 1658 (1990).
2. M. Kasevich, D. S. Weiss, E. Riis, K. Moler, S. Kasapi, and S. Chu, "Atomic velocity selection using stimulated Raman transitions," *Physical Review Letters* **66**, 2297 (1991).

3. K. A. Moler, D. S. Weiss, M. Kasevich, and S. Chu, “Theoretical analysis of velocity-selective Raman transitions,” *Physical Review A* **45**, 342(1992).

4. K. A. Moler, D. J. Baar, J. S. Urbach, Ruixing Liang, W. N. Hardy, and A. Kapitulnik, “Magnetic field dependence of the density of states of $YBa_2Cu_3O_{6.95}$ as determined from the specific heat,” *Physical Review Letters* **73**, 2744 (1994).

5. K. A. Moler, A. L. Fetter, and A. Kapitulnik, “Proposed thermodynamic method to determine the vortex mass in layered superconductors,” *J. Low Temp. Phys.* **100**, 185 (1995).

6. J. R. Kirtley, C. C. Tsuei, Martin Rupp, J. Z. Sun, Lock See Yu-Jahnes, A. Gupta, M. B. Ketchen, K. A. Moler, and M. Bhushan, “Direct imaging of integer and half-integer Josephson vortices in high-Tc grain boundaries,” *Physical Review Letters* **76**, 1336 (1996).

7. J. Mannhart, H. Hilgenkamp, B. Mayer, Ch. Gerber, J. R. Kirtley, K. A. Moler, and M. Sigrist, “Generation of magnetic flux by single grain boundaries of $YBa_2Cu_3O_{7-x}$,” *Physical Review Letters* **77**, 2782 (1996).

8. H. Hilgenkamp, J. Mannhart, B. Mayer, Ch. Gerber, J. R. Kirtley, and K. A. Moler, “Influence of dx_2-y_2 symmetry on device applications of high-Tc grain boundary junctions,” *IEEE Trans. Appl. Superconductivity* **7**, 3670 (1997).

9. K. A. Moler, D. L. Sisson, J. S. Urbach, M. R. Beasley, D. J. Baar, Ruixing Liang, W. N. Hardy, and A. Kapitulnik, “Specific heat of $YBa_2Cu_3O_{7-\delta}$,” *Physical Review B* **55**, 3954 (1997).

10. K. A. Moler, J. R. Kirtley, Ruixing Liang, D. Bonn, and W. N. Hardy, “Scanning SQUID microscopy of sparsely twinned $YBa_2Cu_3O_{7-\delta}$” *Physical Review B* **55,** 12753 (1997).

11. J. R. Kirtley, K. A. Moler, and D. J. Scalapino, “Spontaneous flux and magnetic interference patterns in 0-pi Josephson junctions,” *Physical Review B* **56**, 886 (1997).

12. K. A. Moler, J. R. Kirtley, D. Hinks, Ting Wei Li, Ming Xu, “Images of interlayer Josephson vortices in $Tl_2Ba_2CuO_{6+\delta}$,” *Science* **279**, 1193 (1998).

    [Accompanying theory paper by P.W. Anderson, *Science* **279**, 1196 (1998), and Commentary by A.J. Leggett, *Science* **279**, 1157 (1998).]

13. A. A. Tsvetkov, D. van der Marel, K. A. Moler, J. R. Kirtley, J. L. de Boer, A. Meetsma, Z. F. Ren, N. N. Kolesnikov, D. Dulic, A. Damascelli, M. Grüninger, J. Schützmann, J. W. van der Eb, H. S. Somal, and J. H. Wang, “Global and local measures of the intrinsic Josephson coupling in $Tl_2Ba_2CuO_6$ as a test of the interlayer tunnelling model,” *Nature* **395**, 360 (1998).

14. J. R. Kirtley, K.A. Moler, G. Villard, A. Maignan, “c-axis penetration depth of Hg-1201 single crystals,” *Physical Review Letters* **81**, 2140 (1998).

15. J. R. Kirtley, V.G. Kogan, J.R. Clem, K.A. Moler, “Magnetic field of an in-plane vortex outside a layered superconductor,” *Physical Review B* **59**, 4343 (1999).

16. J. R. Kirtley, K. A. Moler, J. M. Williams, and J. A. Schlueter, “Inhomogeneous interlayer Josephson coupling in κ-$(BEDT\text{-}TTF)_2Cu(NCS)_2$,” *J. Phys. B* **11**, 2007 (1999).

17. J.R. Kirtley, C.C. Tsuei, K.A. Moler, V.G. Kogan, J.R. Clem, and A.J. Turberfield, “Variable sample temperature scanning SQUID microscope,” *Applied Physics Letters* **74**, 4011 (1999).

18. J.R. Kirtley, C.C. Tsuei, and K.A. Moler, “Temperature dependence of the half-flux effect,” *Science* **285**, 1373 (1999).

19. B.W. Gardner, J.C. Wynn, P.G. Björnsson, E.W.J. Straver, J.R. Kirtley, M.B. Ketchen, and K.A. Moler, “Scanning SQUID susceptometry,” *Review of Scientific Instruments* **72**, 2239 (2001).

20. J.C. Wynn, D.A. Bonn, B.W. Gardner, Yu-Ju Lin, Ruixing Liang, W.N. Hardy, J.R. Kirtley, and K.A. Moler, “Limits on spin-charge separation from h/2e fluxoids in very underdoped $YBa_2Cu_3O_{6+x}$,” *Physical Review Letters* **87**, 197002 (2001).

21. Per G. Bjornsson, Brian W. Gardner, John R. Kirtley, and Kathryn A. Moler, “Scanning SQUID microscope in a dilution refrigerator,” *Review of Scientific Instruments* **72**, 4153 (2001).
22. D.A. Bonn, Janice C. Wynn, Brian W. Gardner, Yu-Ju Lin, Ruixing Liang, W.N. Hardy, J.R. Kirtley and K.A. Moler, “A limit on spin-charge separation in high-T_c superconductors from the absence of a vortex-memory effect,” *Nature* **414**, 887 (2001).
23. Brian W. Gardner, Janice C. Wynn, D.A. Bonn, Ruixing Liang, W.N. Hardy, John R. Kirtley, V.G. Kogan, and Kathryn A. Moler, “Manipulation of Single Vortices in $YBa_2Cu_3O_{6.354}$ with a Locally Applied Magnetic Field,” *Applied Physics Letters* **80**, 1010 (2002).
24. R. Liang, D.A. Bonn, W.N. Hardy, J.C. Wynn, K.A. Moler, L. Lu, S. Larochelle, L. Zhou, M. Greven, L. Lurio, S.G.J. Mochrie, “Preparation and characterization of homogeneous YBCO single crystals with doping level near the SC-AFM boundary,” *Physica C: Superconductivity* **383**, 1-7 (2002).
25. Zhifeng Deng, Erhan Yenilmez, Josh Leu, J.E. Hoffman, Eric Straver, Hongjie Dai, Kathryn A. Moler, “Metal-coated carbon nanotube tips for magnetic force microscopy,” *Applied Physics Letters* **85**, 6263 (2004).
26. Per G. Björnsson, Yoshiteru Maeno, Martin E. Huber, Kathryn A. Moler, “Scanning magnetic imaging of Sr_2RuO_4,” *Physical Review B* **72**, 012504 (2005).
27. Rafael Dinner, M. R. Beasley, Kathryn A. Moler, “Cryogenic scanning Hall probe microscope with centimeter scan range and submicron resolution,” *Review of Scientific Instruments* **76**, 103702 (2005).
28. Zhifeng Deng, Erhan Yenilmez, Amy Reilein, Joshua Leu, Hongjie Dai, Kathryn A. Moler, “Nanotube manipulation with focused ion beam,” *Applied Physics Letters* **88**, 023119 (2006).
29. Hendrik Bluhm, Suchitra E. Sebastian, Janice W. Guikema, I.R. Fisher, and Kathryn A. Moler, “Scanning Hall probe imaging of $ErNi_2B_2C$,” *Physical Review B* **73**, 014514 (2006).
30. Hendrik Bluhm, Nicholas C. Koshnick, Martin E. Huber, and Kathryn A. Moler, "Magnetic response of mesoscopic superconducting rings with two order parameters," *Physical Review Letters* **97**, 237002 (2006).
31. Rafael B. Dinner, Kathryn A. Moler, D. Matthew Feldmann, and M. R. Beasley, “Imaging ac losses in superconducting films via scanning Hall probe microscopy,” *Physical Review B*. **75**, 144503 (2007).
32. C.W. Hicks, L. Luan, K.A. Moler, E. Zeldov, H. Shtrikman, “Noise characteristics of 100 nm-scale GaAs/Al_xGa_{1-x}As scanning Hall probes,” *Applied Physics Letters* **90**, 13352 (2007).
33. Rafael B. Dinner, Kathryn A. Moler, D. Matthew Feldmann, and M. R. Beasley, “Enhanced current flow through meandering and tilted grain boundaries in YBCO films,” *Applied Physics Letters* **90**, 212501 (2007).
34. J.R. Kirtley, C. Kallin, C.W. Hicks, E.-A. Kim, Y. Liu, K.A. Moler, Y. Maeno, and K.D. Nelson, “Upper limit on spontaneous supercurrents in Sr_2RuO_4,” *Physical Review B* **76**, 014526 (2007).
35. J.R. Kirtley, Z. Deng, L. Luan, E. Yenilmez, H. Dai, and K.A. Moler, “Moment switching in nanotube magnetic force probes,” *Nanotechnology* **18**, 465506 (2007).
36. Nicholas C. Koshnick, Hendrik Bluhm, Martin E. Huber, and Kathryn A. Moler, “Fluctuation Superconductivity in Mesoscopic Aluminum Rings,” *Science* **318**, 1440 (2007).
37. Hendrik Bluhm and Kathryn A. Moler, “Dissipative Cryogenic Filters with Zero DC Resistance,” *Review of Scientific Instruments* **79**, 014703 (2008).
38. J.W. Guikema, Hendrik Bluhm, D.A. Bonn, Ruixing Liang, W.N. Hardy, and K.A. Moler, “Two-dimensional vortex behavior in highly underdoped $YBa_2Cu_3O_{6+x}$ observed by scanning Hall probe microscopy,” *Physical Review B* **77**, 104515 (2008).

39. Martin E. Huber, Nicholas C. Koshnick, Hendrik Bluhm, Leonard J. Archuleta, Tommy Azua, Per G. Björnsson, Brian W. Gardner, Sean T. Halloran, Erik A. Lucero, and Kathryn A. Moler, "Gradiometric micro-SQUID susceptometer for scanning measurements of mesoscopic samples," *Review of Scientific Instruments* **79**, 053704 (2008).

40. C.W. Hicks, T.M. Lippman, M.E. Huber, Z.A. Ren, Jie Yang, Z.X. Zhao and K.A. Moler, "Limits on the Superconducting Order Parameter in $NdFeAsO_{1-x}F_y$ from Scanning SQUID Microscopy," *Journal of the Physical Society of Japan (Letters)* **78**, 013708 (2008).

41. E. W. J. Straver, J. E. Hoffman, O. M. Auslaender, D. Rugar, and Kathryn A. Moler, "Controlled manipulation of individual vortices in a superconductor," *Applied Physics Letters* **93**, 172514 (2008).

42. N.C. Koshnick, M.E. Huber, J.A. Bert, C.W. Hicks, J. Large, H. Edwards, and K.A. Moler, "A Terraced Scanning SQUID Susceptometer with Sub-Micron Pickup Loops," *Applied Physics Letters* **93**, 243101 (2008).

43. O. M. Auslaender, Lan Luan, E. W. J. Straver, J. E. Hoffman, N. C. Koshnick, E. Zeldov, D. A. Bonn, Ruixing Liang, W. N. Hardy, and K. A. Moler, "Mechanics of Individual, Isolated Vortices in a Cuprate Superconductor," *Nature Physics* **5**, 35 - 39 (2009).

    [Accompanied by commentary by C Reichardt in News and Views, *Nature Physics* **5**, 15 (2009).]

44. Hendrik Bluhm, Nicholas C. Koshnick, Julie A. Bert, Martin E. Huber, and Kathryn A. Moler, "Persistent Currents in Normal Metal Rings," *Physical Review Letters* **102**, 136802 (2009). [Accompanied by commentary by Y. Imry in Physics Viewpoint, *Physics* **2**, 24 (2009).]

45. B. Kalisky, J. R. Kirtley, E. A. Nowadnick, R. B. Dinner, E. Zeldov, Ariando, S. Wenderich, H. Hilgenkamp, D. M. Feldmann, and K. A. Moler, "Dynamics of single vortices in grain boundaries: *I-V* characteristics on the femtovolt scale," *Applied Physics Letters* **94,** 202504 (2009).

46. Lan Luan, Ophir M. Auslaender, Douglas A. Bonn, Ruixing Liang, Walter N. Hardy, and Kathryn A. Moler, "Magnetic force microscopy study of interlayer 'kinks' in individual vortices in the underdoped cuprate YBCO," *Physical Review B*, **79**, 214530 (2009).

47. Hendrik Bluhm, Nicholas C. Koshnick, Julie A. Bert, Martin E. Huber, and Kathryn A. Moler, "Spin-like susceptibility of metallic and insulating thin films at low temperature," *Physical Review Letters* **103**, 026805 (2009).

48. C. W. Hicks, T. M. Lippman, M. E. Huber, J. G. Analytis, J. H. Chu, A. S. Erickson, I. R. Fisher, and K. A. Moler, "Evidence for a Nodal Energy Gap in the Iron-Pnictide Superconductor LaFePO from Penetration Depth Measurements by Scanning SQUID Susceptometry," *Physical Review Letters* **103**, 127003 (2009).

49. J. C. Keay, P. R. Larson, K. L. Hobbs, M. B. Johnson, J. R. Kirtley, O. M. Auslaender and K. A. Moler, "Sequential vortex hopping in an array of artificial pinning centers," *Physical Review B* **80,** 165421 (2009).

50. L. Luan, O. M. Auslaender, T. M. Lippman, C. W. Hicks, B. Kalisky, J. H. Chu, J. G. Analytis, I. R. Fisher, J. R. Kirtley, and K. A. Moler, "Local measurement of the penetration depth in the pnictide superconductor $Ba(Fe_{0.95}Co_{0.05})_2As_2$," *Physical Review B* **81**, 100501(R) (2010).

    [Accompanied by an Editor's Synopsis in *Physics*.]

51. J. R. Kirtley, B. Kalisky, L. Luan, and K.A. Moler, "Meissner response of a bulk superconductor with an embedded sheet of reduced penetration depth," *Physical Review B* **81**, 184514 (2010).

52. Beena Kalisky, John R. Kirtley, James G. Analytis, Jiun-Haw Chu, Arturas Vailionis, Ian R. Fisher, Kathryn A. Moler, "Enhanced superfluid density on twin boundaries in $Ba(Fe_{1-x}Co_x)_2As_2$," *Physical Review B* **81**, 184513 (2010).

    [Accompanied by a Viewpoint by John Tranquada, *Physics* **3**, 41 (2010).]

53. Clifford W. Hicks, John R. Kirtley, Thomas M. Lippman, Nicholas C. Koshnick Martin E. Huber, Yoshiteru Maeno, William M. Yuhasz, M. Brian Maple, and Kathryn A. Moler, "Limits on superconductivity-related magnetization in Sr_2RuO_4 and $PrOs_4Sb_{12}$ from scanning SQUID microscopy," *Physical Review B* **81** 214501 (2010).

54. K.A. Moler, "High-temperature superconductivity: How the cuprates hid their stripes," *Nature* **468**, 643 (2010).

55. L. Luan, T.M. Lippman, C.W. Hicks, J.A. Bert, O.M. Auslaender, Jiun-Haw Chu, J.G. Analytis, I.R. Fisher, K. A. Moler, "Local measurement of the superfluid density in the pnictide superconductor $Ba(Fe_{1-x}Co_x)_2As_2$ across the superconducting dome," *Physical Review Letters* **106**, 067001 (2011).

56. Beena Kalisky, John R. Kirtley, James G. Analytis, Jiun-Haw Chu, Ian R. Fisher, Kathryn A. Moler, "Behavior of vortices near twin boundaries in underdoped $Ba(Fe_{1-x}Co_x)_2As_2$," *Physical Review B* **83,** 064511 (2011).

    [Editor's Suggestion.]

57. Julie A. Bert, Nicholas C. Koshnick, Hendrik Bluhm and Kathryn A. Moler, "Fluxoid fluctuations in mesoscopic superconducting rings," *Physical Review B* **84**, 134523 (2011).

58. J. A. Bert, B. Kalisky, C. Bell, M. Kim, Y. Hikita, H. Y. Hwang, and K. A. Moler, "Direct imaging of the coexistence of ferromagnetism and superconductivity at the $LaAlO_3/SrTiO_3$ interface," *Nature Physics* ***7,*** *2079 (2011).*

    [Accompanied by a News and Views commentary by Andrew Millis]

59. Julie A. Bert, Nicholas C. Koshnick, Hendrik Bluhm and Kathryn A. Moler, "Fluxoid fluctuations in mesoscopic superconducting rings," *Physical Review B* **84**, 134523 (2011).

60. Thomas M. Lippman and Kathryn A. Moler, "Calculation of the effect of random superfluid density on the temperature dependence of the penetration depth," *Physical Review B* **85**, 104529 (2012).

61. John R. Kirtley, Beena Kalisky, Julie A. Bert, Chris Bell, Minu Kim, Yasuyuki Hikita, Harold Y. Hwang, J. H. Ngai, Y. Segal, F. J. Walker, C. H. Ahn, Kathryn A. Moler "Scanning SQUID susceptometry of a paramagnetic superconductor," *Physical Review B* **85**, 224518 (2012).

62. Beena Kalisky, Julie A. Bert, Brannon B. Klopfer, Christopher Bell, Hiroki K. Sato, Masayuki Hosoda, Yasuyuki Hikita, Harold Y. Hwang, Kathryn A. Moler, "Critical thickness for ferromagnetism in $LaAlO_3/SrTiO_3$ heterostructures," *Nature Communications* **3,** 922 (2012).

63. Beena Kalisky, Julie A. Bert, Christopher Bell, Yanwu Xie, Hiroki K. Sato, Masayuki Hosoda, Yasuyuki Hikita, Harold Y. Hwang, and Kathryn A. Moler, "Scanning Probe Manipulation of Magnetism at the $LaAlO_3/SrTiO_3$ Heterointerface," *Nano Letters* Article ASAP (2012).

64. Julie A. Bert, Katja C. Nowack, Beena Kalisky, Hilary Noad, John R. Kirtley, Chris Bell, Hiroki K. Sato, Masayuki Hosoda, Yasayuki Hikita, Harold Y. Hwang, Kathryn A. Moler, "Measurements of the gate tuned superfluid density in superconducting $LaAlO_3/SrTiO_3$," *Physical Review B* **86** 060503(R) (2012).

65. Thomas M. Lippman, Beena Kalisky, Hyunsoo Kim, Makariy A. Tanatar, Sergey L. Bud'ko, Paul C. Canfield, Ruslan Prozorov, Kathryn A. Moler, "Agreement between local and global measurements of the London penetration depth," *Physica C* **483**, 91 (2012).

66. Katja C. Nowack, Eric M. Spanton, Matthias Baenninger, Markus König, John R. Kirtley, Beena Kalisky, C. Ames, Philipp Leubner, Christoph Brüne, Hartmut Buhmann, Laurens W. Molenkamp, David Goldhaber-Gordon, Kathryn A. Moler, "Imaging currents in HgTe quantum wells in the quantum spin Hall regime," *Nature Materials* **12**, 787 (2013).

67. Ilya Sochnikov, Andrew J. Bestwick, James R. Williams, Thomas M. Lippman, Ian R. Fisher, David Goldhaber-Gordon, John R. Kirtley, and Kathryn A. Moler, "Direct Measurement of Current-Phase

Relations in Superconductor/Topological Insulator/Superconductor Junctions," *Nano Letters* **13**, 3086 (2013).

68. Beena Kalisky, Eric M. Spanton, Hilary Noad, John R. Kirtley, Katja C. Nowack, Christopher Bell, Hiroki K. Sato, Masayuki Hosoda, Yanwu Xie, Yasuyuki Hikita, Carsten Woltmann, Georg Pfanzelt, Rainer Jany, Christoph Richter, Harold Y. Hwang, Jochen Mannhart & Kathryn A. Moler, "Locally enhanced conductivity due to the tetragonal domain structure in $LaAlO_3/SrTiO_3$ heterointerfaces," *Nature Materials* **12**, 1091 (2013).

    [Accompanied by a News and Views by Alexander Brinkman].

69. Eric M. Spanton, Katja C. Nowack, Lingjie Du, Rui-Rui Du, and Kathryn A. Moler, "Images of edge current in InAs/GaSb quantum wells," *Physical Review Letters* **113**, 026804 (2014).

70. Jan O. Walbrecker, Beena Kalisky, Denys Grombacher, John Kirtley, and Kathryn A. Moler, Rosemary Knight, "Direct measurement of internal magnetic fields in natural sands using scanning SQUID microscopy," *Journal of Magnetic Resonance* **242**, 10 (2014).

71. Ilya Sochnikov, Luis Maier, Christopher A. Watson, John R. Kirtley, Charles Gould, Grigory Tkachov, Ewelina M. Hankiewicz, Christoph Brüne, Hartmut Buhmann, Laurens W. Molenkamp, and Kathryn A. Moler, "Non-sinusoidal current-phase relationship in Josephson junctions from the 3D topological insulator HgTe," *Physical Review Letters* **114**, 066801 (2015).

72. [retracted] Y.H. Wang, J. R. Kirtley, F. Katmis, P. Jarillo-Herrero, J. S. Moodera, and K. A. Moler, "Observation of chiral currents at the magnetic domain boundary of a topological insulator," *Science* (2015), *retracted 2015*.

73. Eric M. Spanton, Aaron J. Rosenberg, Yihua H. Wang, John R. Kirtley, Ferhat Katmis, Pablo Jarillo-Herrero, Jagadeesh S. Moodera, Kathryn A. Moler, "Electric coupling in scanning SQUID measurements," *arXiv preprint* 1512.03373 (2015).

74. Tyler A. Merz, Hilary Noad, R. Xu, H. Inoue, W. Liu, Y. Hikita, A. Vailionis, Kathryn A. Moler and Harold Y. Hwang, "Depth resolved domain mapping in tetragonal $SrTiO_3$ by micro-Laue diffraction," *Applied Physics Letters* **108** 182901 (2016).

75. T. D. C. Higgs, S. Bonetti, H. Ohldag, N. Banerjee, X. L. Wang, A. J. Rosenberg, Z. Cai, J. H. Zhao, K. A. Moler and J. W. A. Robinson, "Magnetic coupling at rare earth ferromagnet/transition metal ferromagnet interfaces: A comprehensive study of Gd/Ni," *Scientific Reports* **6** 30092 (2016).

76. Fabrizio Nichele, Henri J. Suominen, Morten Kjaergaard, Charles M. Marcus, Ebrahim Sajadi, Joshua A. Folk, Fanming Qu, Arjan J.A. Beukman, Folkert K. de Vries, Jasper van Veen, Stevan Nadj-Perge, Leo P. Kouwenhoven, Binh-Minh Nguyen, Andrey A. Kiselev, Wei Yi, Marko Sokolich, Michael J. Manfra, Eric M. Spanton, and Kathryn A. Moler, "Edge transport in the trivial phase of InAs/GaSb," *New Journal of Physics* **18**, 083005 (2016).

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