

## Ali Yazdani

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### Professional Preparation

IBM Almaden Research Center	Postdoctoral Fellow	1994–1997
Stanford University	Ph.D. Applied Physics	1995
Stanford University	M. S. Applied Physics	1991
University of California, Berkeley	B. A. Physics ( <i>summa cum laude</i> )	1989

*Graduate Thesis Adviser:* Aharon Kapitulnik, Stanford University

*Postdoctoral Adviser:* Donald M. Eigler, IBM Almaden Research Center

### Appointments

Class of 1909 Professor of Physics	2015–Present
Director, Princeton Center for Complex Materials	2015–Present
Professor of Physics, Princeton University	2005–Present
Professor of Physics, University of Illinois, Urbana	2004–2005
Visiting Professor of Applied Physics, Stanford University	2003–2004
Associate Professor of Physics, University of Illinois, Urbana	2003–2004
Assistant Professor of Physics, University of Illinois, Urbana	1997–2003

### Honors

- Member of National Academy of Sciences (USA), elected 2019.
- Fellow of American Academy of Arts and Sciences, since 2015.
- Humboldt Research Award, Alexander von Humboldt Foundation, 2014.
- Gordon and Betty Moore Foundation Experimental Investigator, 2014.
- Fellow of American Association for Advancement of Science, since 2012.
- Member-at-large, American Physical Society (DCMP), 2011–2013.
- Fellow of American Physical Society, since 2009.
- Brilliant Ten, *Popular Science*, October 2008.
- A. P. Sloan Fellow, 2000–2002.
- Willet Faculty Scholar, Engineering College, University of Illinois, 2002–2004.
- Xerox Award for Faculty Research, University of Illinois, 2002.
- National Science Foundation Early Faculty Career Development Award, 1999.
- Research Innovation Award, Research Cooperation, 1998.
- IBM Research Division Technical Award, 1996.
- IBM Pre-Doctoral Fellow, 1992–1993.
- University of California President's Undergraduate Fellow, 1988–1989.
- Phi Beta Kappa since 1988.

### Lectureships

- Lamb Lecturer, Max Planck Institute for Solid State Research, Stuttgart, 2017.
- Morris Loeb Lectureship, Harvard University, 2016.
- Joliot Chair, École Supérieure de Physique et de Chimie Industrielles de la ville de Paris, 2016.

- Maggie and Nick DeWolf Public Lecturer, Aspen, 2016.
- Einstein Lecturer, Weizmann Institute of Science, Israel, 2015.
- Pagels Lecturer, Aspen Center for Physics, 2011.
- Kavli Lecturer, Delft University of Technology, The Netherlands, 2011.

## Publications

### \*Notable Publications

1. \* B. Jäck, Y. Xie, J. Li, S. Jeon, B. A. Bernevig, and A. Yazdani, "Observation of a Majorana zero mode in a topologically protected edge channel," *Science* **364**, 1255-1259(2019).
2. \* M. T. Randeria, K. Agarwal, B. E. Feldman, H. Ding, H. Ji, R. J. Cava, S. L. Sondhi, S. A. Parameswaran, and A. Yazdani, "Interacting multi-channel topological boundary modes in a quantum Hall valley system," *Nature* **566**, 363-367 (2019).
3. R. V. Mishmash, A. Yazdani, and M. P. Zaletel, "Majorana lattices from the quantized Hall limit of a proximitized spin-orbit coupled electron gas," *Physical Review B* **99**, 11524 (2019).
4. \* F. Schindler, Z. Wang, M. G. Vergniory, A. M. Cook, A. Murani, S. Sengupta, A. Y. Kasumov, R. Deblock, S. Jeon, I. Drozdov, H. Bouchiat, S. Guéron, A. Yazdani, B. A. Bernevig, and T. Neupert, "Higher-order topology in bismuth," *Nature Physics* **14**, 918-924 (2018) (*cover story*).
5. \* M. T. Randeria, B. E. Feldman, F. Wu, H. Ding, A. Gyenis, H. Ji, R. J. Cava, A. H. MacDonald, and A. Yazdani, "Ferroelectric quantum Hall phase revealed by visualizing Landau level wavefunction interference," *Nature Physics* **14**, 796-800 (2018).
6. J. Li, S. Jeon, Y. Xie, A. Yazdani, and B. A. Bernevig, "Majorana spin in magnetic atomic chain systems," *Physical Review B* **97**, 125119 (2018).
7. A. Gyenis, B. E. Feldman, M. T. Randeria, G. A. Peterson, E. D. Bauer, P. Aynajian, and A. Yazdani, "Visualizing heavy fermion confinement and Pauli-limited superconductivity in layered CeCoIn<sub>5</sub>," *Nature Communications* **9**.549 (2018).
8. Z. Papić, R. S. K. Mong, A. Yazdani, and M. P. Zaletel, "Imaging anyons with scanning tunneling microscopy," *Physical Review X* **8**, 011037 (2018)
9. \* S. Jeon, Y. Xie, J. Li, Z. Wang, B. A. Bernevig, and A. Yazdani, "Distinguishing a Majorana zero mode using spin resolved measurements," *Science* **358**, 772 (2017).
10. \* B. E. Feldman, M. T. Randeria, J. Li, S. Jeon, Y. Xie, Z. Wang, I. K. Drozdov, B. A. Bernevig, and A. Yazdani, "High-resolution studies of the Majorana atomic chain platform," *Nature Physics* **13**, 286 (2016).
11. \* B. E. Feldman, M. T. Randeria, A. Gyenis, F. Wu, H. Ji, R. J. Cava, A. H. MacDonald, and A. Yazdani, "Observation of a nematic quantum Hall liquid on the surface of bismuth," *Science* **354**, 6310 (2016).

12. M. Liu, W. Wang, A. R. Richardella, A. Kandala, J. Li, A. Yazdani, N. Samarth, and N. P. Ong, "Large discrete jumps observed in the transition between Chern states in a ferromagnetic topological insulator," *Science Advances* **29**, No. 7, e1600167 (2016).
13. A. Gyenis, E. H. da Silva Neto, R. Sutarto, E. Schierle, F. He, E. Weschke, M. Kawai, R. E. Baumbach, J. D. Thompson, E. D. Bauer, Z. Fisk, A. Damascelli, A. Yazdani, and Pegor Aynajian, "Quasiparticle interference of heavy fermions in resonant x-ray scattering," *Science Advances* **2**, 10 (2016).
14. A. Gyenis, H. Inoue, S. Jeon, B. B. Zhou, B. E. Feldman, Z. Wang, J. Li, S. Jiang, Q. D. Gibson, S. K. Kushwaha, J. W. Krizan, N. Ni, R. J. Cava, B. A. Andrei Bernevig, and A. Yazdani, "Imaging electronic states on topological semimetals using scanning tunneling microscopy," *New Journal of Physics* **18**, 105003 (2016).
15. \* H. Inoue, A. Gyenis, Z. Wang, J. Li, S. W. Oh, S. Jiang, N. Ni, B. A. Bernevig and A. Yazdani, "Quasiparticle interference of the Fermi arcs and surface-bulk connectivity of Weyl semimetals," *Science* **351**, 1184 (2016).
16. J. Li, T. Neupert, Z. Wang, A. H. MacDonald, A. Yazdani, and B. A. Bernevig, "Two-dimensional chiral topological superconductivity in Shiba lattices," *Nature Communication* **7**, 12297 (2016).
17. S. K. Kushwaha, I. Pletikosić, T. Liang, A. Gyenis, S. H. Lapidus, Y. Tian, H. Zhao, K. S. Burch, J. Lin, W. Wang, H. Ji, A. V. Fedorov, A. Yazdani, N. P. Ong, T. Valla, and R. J. Cava, "Sn-doped  $\text{Bi}_{1.1}\text{Sb}_{0.9}\text{Te}_2\text{S}$ , a bulk topological insulator with ideal properties," *Nature Communication* **7**, 11456 (2016).
18. M. T. Randeria, B. E. Feldman, I. K. Drozdov, and A. Yazdani, "Scanning Josephson spectroscopy on the atomic scale," *Physical Review B Rapid Communication* **93**, 161115R (2016). Selected as an Editor's choice.
19. A. Yazdani, E. H. da Silva Neto, and P. Aynajian, "Spectroscopic imaging of strongly correlated electronic states," *Annual Review of Condensed Matter Physics* **7**, 11 (2016).
20. T. Neupert, A. Yazdani, and B. A. Bernevig, "Shiba chains of scalar impurities on unconventional superconductors," *Physical Review B* **93**, 094508, (2016).
21. P. K. Das, D. Di Sante, I. Vobornik, J. Fujii, T. Okuda, E. Bruyer, A. Gyenis, B. E. Feldman, J. Tao, R. Ciancio, G. Rossi, M. N. Ali, S. Picozzi, A. Yazdani, G. Panaccione, and R. J. Cava, "Layer-dependent quantum cooperation of electron and hole states in the anomalous semimetal  $\text{WTe}_2$ ," *Nature Communication* **7**, 10847 (2016).
22. S. Kourtic, J. Li, Z. Wang, A. Yazdani, and B. A. Bernevig, "Universal signatures of Fermi arcs in quasiparticle interference on the surface of Weyl semimetals," *Physical Review B Rapid Communication* **93**, 041109 (2016).
23. J. Li, T. Neupert, B. A. Bernevig, and A. Yazdani, "Manipulating Majorana zero modes on atomic rings with an external magnetic field," *Nature Communication* **7**, 10395, (2016).
24. A. Yazdani, "Visualizing Majorana fermions in a chain of magnetic atoms on a superconductor," *Proceeding of Nobel symposium on Topological Phases of Matter, Physica Scripta* **T164**, 014012 (2015).
25. S. K. Kushwaha, J. W. Krizan, B. E. Feldman, A. Gyenis, M. T. Randeria, J. Xiong, S-Y. Xu, N. Alidoust, I. Belopolski, T. Liang, M. Z. Hasan, N. P. Ong, A. Yazdani, and R. J. Cava, "Bulk

- crystal growth and electronic characterization of the 3D Dirac semimetal  $\text{Na}_3\text{Bi}$ ,” *Applied Physics Letters Materials* **3**, 041504 (2015).
26. H. Luo, W. Xie, J. Tao, H. Inoue, A. Gyenis, J. W. Krizan, A. Yazdani, Y. Zhu, and R. J. Cava, “Polytypism, polymorphism, and superconductivity in  $\text{TaSe}_{2-x}\text{Te}_x$ ,” *Proceeding of National Academy of Sciences* **112** no. 11 (2015).
  27. J. Li, H. Chen, I. K. Drozdov, A. Yazdani, B. A. Bernevig, and A. H. MacDonald, “Topological superconductivity induced by ferromagnetic metal chains,” *Physical Review B* **90**, 235433 (2014).
  28. \* S. Nadj-Perge, I. K. Drozdov, J. Li, H. Chen, S. Jeon, J. Seo, A. H. MacDonald, B. A. Bernevig, and A. Yazdani, “Observation of Majorana fermions in ferromagnetic atomic chains on a superconductor,” *Science* **346**, 6209 (2014).
  29. \* S. Jeon, B. B. Zhou, A. Gyenis, B. E. Feldman, I. Kimchi, A. C. Potter, Q. D. Gibson, R. J. Cava, A. Vishwanath, and A. Yazdani, “Landau quantization and quasiparticle interference in the three-dimensional Dirac semimetal  $\text{Cd}_3\text{As}_2$ ,” *Nature Materials* **13**, 851-856 (2014).
  30. \* I. K. Drozdov, A. Alexandradinata, S. Jeon, S. Nadj-Perge, H. Ji, R. J. Cava, B. A. Bernevig, and A. Yazdani, “One-dimensional topological edge states of bismuth bilayers,” *Nature Physics* **10**, 663-669 (2014).
  31. \* E. H. da Silva Neto, P. Aynajian, A. Frano, R. Comin, E. Schierle, E. Weschke, A. Gyenis, J. Wen, J. Schneeloch, Z. Xu, S. Ono, G. Gu, M. Le Tacon, and A. Yazdani, “Ubiquitous interplay between charge ordering and high-temperature superconductivity in cuprates,” *Science* **343**, 393 (2014).
  32. P. Aynajian, E. H. da Silva Neto, B. B. Zhou, S. Misra, R. E. Baumbach, Z. Fisk, J. Mydosh, J. D. Thompson, E. D. Bauer, and A. Yazdani, “Visualizing heavy fermion formation and their unconventional superconductivity in f-electron materials,” *Journal of the Physical Society of Japan* **83**, 061008 (2014) (Invited review).
  33. M. N. Ali, Q. Gibson, S. Jeon, B. B. Zhou, A. Yazdani, and R. J. Cava, “The crystal and electronic structures of  $\text{Cd}_3\text{As}_2$ , the three-dimensional electronic analogue of graphene,” *Inorganic Chemistry* **53**, 4062-4067 (2014).
  34. \* B. B. Zhou, S. Misra, E. H. da Silva Neto, P. Aynajian, R. E. Baumbach, J. D. Thompson, E. D. Bauer, and A. Yazdani, “Visualizing nodal heavy fermion superconductivity in  $\text{CeCoIn}_5$ ,” *Nature Physics* **9**, 474 (2013) (cover story).
  35. H. Beidenkopf, P. Roushan, and A. Yazdani, “Visualizing topological surface states and their novel properties using scanning tunneling microscopy and spectroscopy,” invited chapter in *Topological Insulators*, edited by M. Franz and L. Molenkamp, Elsevier (2013).
  36. \* J. Klinovaja, P. Stano, A. Yazdani, and D. Loss, “Topological superconductivity and Majorana fermions in RKKY systems,” *Physical Review Letters* **111**, 186805, (2013).
  37. S. Misra, B. Zhou, I.K. Drozdov, J. Seo, L. Urban, A. Gyenis, S. C. J. Kingsley, H. Jones, and A. Yazdani, “Design and performance of an ultra-high vacuum scanning tunneling microscope operating at dilution refrigerator temperatures and high magnetic fields,” *Review of Scientific Instruments* **84**, 103903 (2013).
  38. \* S. Misra, L. Urban, M. Kim, G. Sambandamurthy, and A. Yazdani, “Measurements of the magnetic-field-tuned conductivity of disordered two-dimensional  $\text{Mo}_{43}\text{Ge}_{577}$  and  $\text{InO}_x$  superconducting films: Evidence for a universal minimum superfluid response,” *Physical Review Letters* **110**, 037002 (2013).

39. S. Nadj-Perge, I.K. Drozdov, B. A. Bernevig, and A. Yazdani, "Proposal for realizing Majorana fermions in chains of magnetic atoms on a superconductor," *Rapid Communication in Physical Review B* **88**, 020407 (2013).
40. E. H. da Silva Neto, P. Aynajian, R. E. Baumbach, E. D. Bauer, J. Mydosh, S. Ono, and A. Yazdani, "Detection of electronic nematicity using scanning tunneling microscope," *Physical Review B* **87**, 161170 (2013). (Editor's choice).
41. Q. D. Gibson, L. M. Schoop, A. P. Weber, H. Ji, S. Nadj-Perge, I. K. Drozdov, H. Beidenkopf, J. T. Sadowski, A. Fedorov, A. Yazdani, T. Valla, and R. J. Cava, "Termination-dependent topological surface states of the natural superlattice phase  $\text{Bi}_4\text{Se}_3$ ," *Physical Review B* **88**, 081108 (2013).
42. A. Gyenis, I.K. Drozdov, S. Nadj-Perge, O. B. Jeong, J. Seo, I. Pletkovic, T. Valla, G. D. Gu, and A. Yazdani, "Quasiparticle interference on the surface of the topological crystalline insulator  $\text{Pb}_{1-x}\text{Sn}_x\text{Se}$ ," *Physical Review B* **88**, 125414 (2013).
43. \* P. Aynajian, E. H. da Silva Neto, A. Gyenis, R. E. Baumbach, J. D. Thompson, Z. Fisk, Eric D. Bauer, and A. Yazdani, "Visualizing heavy fermions emerging in a quantum critical Kondo lattice," *Nature* **486**, 201 (2012).
44. S. Jia, H. Beidenkopf, I. Drozdov, M. K. Fuccillo, J. Seo, J. Xiong, N. P. Ong, A. Yazdani, and R. J. Cava, "Defects and high bulk resistivities in the Bi-rich tetradymite topological insulator  $\text{Bi}_{2+x}\text{Te}_{2-x}\text{Se}$ ," *Phys. Rev. B* **86**, 165119 (2012).
45. D. Zhang, A. Richardella, S.-Y. Xu, D. W. Rench, A. Kandala, T. C. Flanagan, H. Beidenkopf, A. Yeats, B. B. Buckley, P. Klimov, D. D. Awschalom, A. Yazdani, P. Schiffer, M. Z. Hasan, and N. Samarth, "Interplay between ferromagnetism, surface states, and quantum corrections in a magnetically doped topological insulator," *Physics Review B* **86**, 205127 (2012).
46. A. Yazdani, invited paper: "Topological surface states: Science and potential applications," *Proceedings of SPIE* **8373**, 8373-1 (2012).
47. A. Yazdani, "Visualizing critical spatial correlations for electronic states near the metal-insulator transition," invited chapter in *Conductor-Insulator Quantum Phase Transition*, edited by V. Dobrosavlevjic, N. Trivedi, and J. M. Valles, Oxford University Press (2012).
48. E. H. da Silva Neto, C. V. Parker, P. Aynajian, A. Pushp, A. Yazdani, J. Wen, Z. Xu, and G. Gu, "Scattering from incipient stripe order in the high-temperature superconductor  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+d}$ ," *Physical Review B* **85**, 104521 (2012).
49. E. H. da Silva Neto, C. V. Parker, P. Aynajian, A. Pushp, J. Wen, Z. Xu, G. Gu, and A. Yazdani, "Detecting incipient stripe order in the high-temperature superconductor  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ ," *Physica C* **481**, 153 (2012).
50. \* H. Beidenkopf, P. Roushan, J. Seo, L. Gorman, I. Drozdov, Y. S. Hor, R. J. Cava, and A. Yazdani, "Spatial fluctuations of helical Dirac fermions on the surface of topological insulators," *Nature Physics* **7**, 939 (2011).
51. \* C. V. Parker, P. Aynajian, E. H. da Silva Neto, A. Pushp, S. Ono, J. Wen, Z. Xu, G. Gu, and A. Yazdani, "Fluctuating stripes at the onset of the pseudogap in the high- $T_c$  superconductor  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ ," *Nature* **468**, 677 (2010).
52. \* J. Seo, P. Roushan, H. Beidenkopf, Y. S. Hor, R. J. Cava, and A. Yazdani, "Transmission of topological surface states through surface barriers," *Nature* **466**, 343 (2010).

53. \* P. Aynajian, E. H. da Silva Neto, C. V. Parker, Y. Huang, A. Pasupathy, J. Mydosh, and A. Yazdani, "Visualizing the formation of the Kondo lattice and the hidden order in URu<sub>2</sub>Si<sub>2</sub>," PNAS **107**, 10383-10388 (2010).
54. Y. S. Hor, P. Roushan, H. Beidenkopf, J. Seo, D. Qu, J. G. Checkelsky, L. Wray, D. Hsieh, Y. Xia, S. Y. Xu, D. Qian, M. Z. Hasan, N. P. Ong, A. Yazdani, and R. J. Cava, "Development of ferromagnetism in the doped topological insulator Bi<sub>2-x</sub>Mn<sub>x</sub>Te<sub>3</sub>," Physical Review B **81**, 195203 (2010).
55. \* C. V. Parker, A. Pushp, A. N. Pasupathy, K. K. Gomes, J. Wen, Z. Xu, S. Ono, G. Gu, and A. Yazdani, "Nanoscale proximity effect in the high temperature superconductor Bi<sub>2</sub>Sr<sub>2</sub>CaCu<sub>2</sub>O<sub>8+δ</sub> using a scanning tunneling microscope," Physical Review Letters **104**, 117001 (2010).
56. \* A. Richardella, P. Roushan, S. Mack, B. Zhou, D. Huse, D. Awschalom, and A. Yazdani, "Visualizing critical spatial correlations for electronic states near the metal-insulator transition GaMnAs," Science **327**, 665 (2010).
57. \* Y. S. Hor, A. J. Williams, J. G. Checkelsky, P. Roushan, J. Seo, Q. Xu, H. W. Zandbergen, A. Yazdani, N. P. Ong, and R. J. Cava, "Superconductivity in Cu<sub>x</sub>Bi<sub>2</sub>Se<sub>3</sub> and its implications for pairing in the undoped topological insulator," Physical Review Letters **104**, 057001 (2010).
58. \* P. Roushan, J. Seo, C. V. Parker, Y.-S. Hor, D. Hsieh, D. Qian, A. Richardella, M. Z. Hasan, R. J. Cava, and A. Yazdani, "Topological surface states protected from backscattering by chiral spin texture," Nature **460**, 1106 (2009).
59. A. Richardella, D. Kitchen, and A. Yazdani "Mapping the wave function of transition metal acceptor states in the GaAs surface," Physical Review B **80**, 045318 (2009).
60. Y. S. Hor, A. Richardella, P. Roushan, Y. Xia, J. G. Checkelsky, A. Yazdani, M. Z. Hasan, N. P. Ong, and R. J. Cava, "p-type Bi<sub>2</sub>Se<sub>3</sub> for topological insulator and low-temperature thermoelectric applications," Physical Review B **79**, 195208 (2009)
61. \* A. Pushp, C. V. Parker, A. N. Pasupathy, K. K. Gomes, S. Ono, J. Wen, Z. Xu, G. Gu, and A. Yazdani, "Extending universal nodal excitations optimizes superconductivity in Bi<sub>2</sub>Sr<sub>2</sub>CaCu<sub>2</sub>O<sub>8+δ</sub>," Science **324**, 1689, (2009).
62. A. Yazdani: "Visualizing pair formation on the atomic scale and search for the mechanism superconductivity in high-T<sub>c</sub> cuprates," Plenary invited paper, Proceeding of the 25<sup>th</sup> conference on Low Temperature Physics, Journal of Physics: Condensed Matter **21**, 164214 (2009).
63. \* A. N. Pasupathy, A. Pushp, K. K. Gomes, C. V. Parker, J. Wen, Z. Xu, G. Gu, S. Ono, Y. Ando, and A. Yazdani, "Electronic origin of the inhomogeneous pairing interaction in the high-T<sub>c</sub> superconductor Bi<sub>2</sub>Sr<sub>2</sub>CaCu<sub>2</sub>O<sub>8+δ</sub>," Science **320**, 196 (2008).
64. L. Wray, D. Qian, D. Hsieh, Y. Xia, L. Li, J. G. Checkelsky, A. Pasupathy, K. K. Gomes, C. V. Parker, A. V. Fedorov, G. F. Chen, J. L. Luo, A. Yazdani, N. P. Ong, N. L. Wang, and M. Z. Hasan, "Momentum-dependence of superconducting gap, strong-coupling dispersion kink, and tightly bound Cooper pairs in the high-T<sub>c</sub> (Sr,Ba)<sub>1-x</sub>(K,Na)<sub>x</sub>Fe<sub>2</sub>As<sub>2</sub> superconductors," Phys. Rev. B **78**, 184508 (2008).
65. K. K. Gomes, A. N. Pasupathy, A. Pushp, C. V. Parker, S. Ono, Y. Ando, G. Gu, and A. Yazdani, "Mapping of the formation of the pairing gap in Bi<sub>2</sub>Sr<sub>2</sub>CaCu<sub>2</sub>O<sub>8+δ</sub>," Journal of Physics and Chemistry of Solids **69**, 3034-3038, (2008).

66. D. Hsieh, Y. Xia, L. Wray, D. Qian, K. Gomes, A. Yazdani, G.F. Chen, J. L. Luo, N. L. Wang, and M. Z. Hasan, "Experimental determination of the microscopic origin of magnetism in parent iron pnictides," *cond-matt* 0812.2289 (2008).
67. K. Gomes, A. Pasupathy, A. Pushp, S. Ono, Y. Ando, and A. Yazdani, "Gap distributions and spatial variation of electronic states in superconducting and pseudogap states of  $\text{Bi}_2\text{Sr}_2\text{Ca}_2\text{CuO}_{8+\delta}$ ," *Physica C: Superconductivity* **460-462**, 212 (2007).
68. \* K. Gomes, A. Pasupathy, A. Pushp, S. Ono, Y. Ando, and A. Yazdani, "Visualizing pair formation on the atomic scale in the high- $T_c$  superconductor  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ ," *Nature* **447**, 569 (2007).
69. C. H. L. Quay, J. Cumings, S. J. Gamble, A. Yazdani, H. Kataura, and D. Goldhaber-Gordon, "Transport properties of carbon nanotube  $\text{C}_{60}$  peapods," *Physical Review B* **76**, 073404 (2007).
70. M. P. Jura, M. A. Topinka, L. Urban, A. Yazdani, H. Shtrikman, L. N. Pfeiffer, and D. Goldhaber-Gordon, "Unexpected features of branched flow through high mobility two-dimensional electron gases," *Nature Physics* **3**, 841(2007).
71. D. Kitchen, A. Richardella, P. Roushan, J.-M. Tang, M. Flatte, and A. Yazdani, "Hole-mediated interactions of Mn acceptors on GaAs (110)," *J. Appl. Phys.* **101**, 09G515 (2007).
72. \* D. Kitchen, A. Richardella, J.-M. Tang, M. Flatte, and A. Yazdani, "Atom-by-atom substitution of Mn in GaAs and visualization of their hole-mediated interactions," *Nature* **442**, 436 (2006). (Cover Story).
73. A. Yazdani, "Lean and mean superconductivity," *Nature Physics* **2**, 151-152, (2006).
74. D. Kitchen, A. Richardella, and A. Yazdani, "Spatial structure of a single Mn impurity state on GaAs (110) surface," *Journal of Superconductivity: Incorporating Novel Magnetism* **18**, 23 (2005).
75. \* M. Vershinin, S. Misra, S. Ono, Y. Abe, Y. Ando, and A. Yazdani, "Local ordering in the pseudogap state of the high- $T_c$  superconductor  $\text{Bi}_2\text{Sr}_2\text{Ca}_2\text{CuO}_{8+\delta}$ ," *Science* **303** 1995, (2004).
76. S. Misra, M. Vershinin, P. Phillips, and A. Yazdani, "Failure of scattering interference in the pseudogap state of cuprate superconductors," *Rapid Communication in Physical Review B* **70**, 220503 (2004).
77. \* H.-D. Chen, O. Vafek, A. Yazdani, and S.-C Zhang, "Pair density wave in the pseudogap state of high temperature superconductors," *Physical Review Letters* **93**, 187002 (2004).
78. M. Vershinin, S. Misra, Y. Abe, Y. Ando, and A. Yazdani, "Electron standing waves on the surface of  $\text{Bi}_2\text{Sr}_2\text{Ca}_2\text{CuO}_{8+\delta}$ ," *Proceedings of Conference on Materials and Mechanisms of Superconductivity and High Temperature Superconductors*, Brazil, May 2003, in *Physica C: Superconductivity* **408-410**, 764-767, (2004).
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## Patents

- A. Yazdani and B. A. Bernevig, "Magnetic Topological Nanowires," U.S. patent 10,020,438; July 10, 2018.
- A. Yazdani, N. P. Ong, R. J. Cava, "Electronic interconnects and devices with topological surface states and methods for fabricating same," U.S. patent 9,331,020; May 3, 2016.

## Invited Talks

1. Material Research Society, Symposium on Topological Material for Quantum Information, Phoenix, AZ, April 2019.
2. Seminar, École Normale Supérieure, Paris, FR, April 2019.
3. American Physics Society March Meeting, Boston, MA, March 2019
4. International workshop on Anyons in Quantum Many-Body Systems, Max Planck Institute, Dresden, GR, January 2019.
5. 4<sup>th</sup> annual International Conference on 2D Materials and Technologies (ICON2DMat 2018), Australia, December 2018
6. Future Low-Energy Electronics Technologies (FLEET) annual workshop, Australia, December 2018
7. Physics colloquium: University of Basel, Switzerland, November 2018
8. Physics colloquium: Caltech, Pasadena, CA, October 2018
9. Quantum colloquium: Cavendish Laboratory, University of Cambridge, United Kingdom, October 2018
10. Physics colloquium: University of Minnesota, September 2018
11. International conference: Materials and Mechanisms of Superconductivity and High Temperature Superconductors (M2S2018), Beijing, August 2018
12. International conference: SPSTM-7 & LTSPM-1: Advances in high-precision and low-temperature scanning probe microscopy," Netherlands, July 2018
13. International conference: Topological Matter Beyond the Ten-Fold Way, NORDITA (Nordic Institute for Theoretical Physics), Stockholm, Sweden, July 2018
14. Plenary speaker, International Conference on Nanoscience + Technology (ICN+T), Brno, Czech Republic, July 2018

15. International conference: Quantum Designer Physics, San Sebastian, Spain, July 2018
16. Aspen Center for Physics summer session invited talk, Aspen, CO, July 2018
17. International conference: Condensed Matter in the City – “Towards a new Spectroscopic Perspective of Quantum Materials,” London, June 2018
18. International conference: Quantum Dynamics of Disordered Interacting Systems, Trieste, Italy, June 2018
19. International workshop: New Platforms for Topological Superconductivity with Magnetic Atoms, Dresden, GR, April 2018
20. Physics colloquium: APS Editorial Office, Ridge, NY, January 2018
21. International workshop: TMS-EPIQS 2<sup>nd</sup> Alliance Workshop – Topological Magnets and Topological Superconductors, Kyoto University, Japan, January 2018
22. Seminar, London Center for Nanotechnology (LCN), London, December 2018
23. Majorana Fermions and Beyond, Yale Quantum Institute, Connecticut, October 2017
24. Quantum Matter Symposium, Max Planck Society, Berlin, Germany, October 2017
25. Physics colloquium, University of Illinois, Urbana-Champaign, September 2017
26. Aspen Center for Physics summer session invited talk, Aspen, CO, August 2017
27. Gordon Research Conference: Spin Dynamics in Nanostructures, Les Diablerets, Switzerland, July 2017
28. Simons Program: Frontiers in Quantum Hall Physics, Niels Bohr Institute, University of Copenhagen, July 2017
29. Public lecturer, Inaugural Symposium: Frontiers in Emergent Quantum Phenomena, New York University (NYU), June 2017
30. International workshop: Topological Matter Meets Quantum Information, Shanghai Jiao Tong University (SJTU), China, June 2017
31. Spin Dynamics in the Dirac Systems, Johannes Gutenberg-Universität, Mainz, Germany, June 2017
32. Keynote speaker, Majorana States in Condensed Matter: Toward Topological Quantum Computation, Mallorca, Spain, May 2017
33. Symposium on Quantum Materials 2017, University of Oxford, United Kingdom, April 2017
34. APS March Meeting 2017, New Orleans, LA, March 2017.
35. International Winterschool on Electronic Properties of Novel Materials (IWEPNM), Kirchberg, Austria, March 2017.
36. Lamb Lecture, Max Planck Institute for Solid State Research, Stuttgart, Germany, February, 2017.
37. Physics seminar, École Normale Supérieure, Paris, France, Feb. 2017.
38. 44<sup>th</sup> Conference on the Physics and Chemistry of Surfaces and Interfaces (PCSI-44), Santaf Fe, New Mexico, January 2017.
39. EPIQS-TMS Trans-Pacific Conference on Topological Quantum Materials, Moorea, French Polynesia, December 2016.

40. Physics colloquium, Stanford University, California, November 2016.
41. Morris Loeb Lecturer, Harvard University, MA, November 2016.
42. TRR80 International Workshop: From Electronic Correlations to Functionality, Irsee, Germany, September 2016.
43. Topological States of Matter conference, San Sebastian, Spain, September 2016.
44. 20<sup>th</sup> International Vacuum Congress (IVC-20), Busan, Korea, August 2016.
45. Plenary speaker, International Conference on the Physics of Semiconductors (ICPS), Beijing, China, August 2016.
46. Lecturer, Boulder Summer School, Colorado, July 2016.
47. Physics seminar, Ecole Supérieure de Physique et de Chimie Industrielles (ESPCI), Paris, France, July 2016.
48. Spectroscopies in Novel Superconductors (SNS 2016) conference, Ludwigsburg, Germany, June 2016
49. Grande conférence sur les matériaux de pointe quantum materials and quantum information, RQMP, Université de Sherbrooke, Montreal, Canada, June 2016.
50. Physics seminar, Ecole Supérieure de Physique et de Chimie Industrielles (ESPCI), Paris, France, June 2016.
51. Physics seminar, Paris-Sud University, Orsay, France, June 2016.
52. NSF Frontiers of Condensed Matter Physics: PIs workshop on topological phases of matter, Arlington, VA, May 2016.
53. Deutsche Physikalische Gesellschaft (DPG) meeting, Regensburg, GR, March 2016.
54. Condensed Matter Seminar, Rutgers University, NJ, February 2016.
55. Aspen Center for Physics Winter Workshop of Topological Quantum Matter: Progress and Applications, February 2016.
56. Physics Colloquium, City College of New York, New York, February 2016.
57. Physics Colloquium, University of Pennsylvania, Philadelphia, December 2015.
58. ISANN 2015: International Symposium on Advanced Nanodevices and Nanotechnology, Hawaii, December 2015.
59. Quantum Transport in One Dimension, Dresden, Germany, September 2015.
60. Plenary speaker at the International Conference on Material and Mechanism of Superconductivity (M<sup>2</sup>S), Geneva, Switzerland, August 2015.
61. KITP Conference on Spin-Orbit Systems, UC-Santa Barbara, August 2015.
62. SpinTech VIII, Basel, Switzerland, August 2015.
63. New Trends in Topological Insulators 2015 (NTTI2015), San Sebastian, Spain, July 2015
64. Gordon Conference on Topological States, Hong Kong University of Science and Technology, June 2015.
65. Gordon Conference on Superconductivity, Chinese University of Hong Kong, May 2015
66. Einstein Colloquium at the Weismann Institute, Israel, May 2015.

67. Franklin Medal Symposium in Honor of C. Kane, G. Mele and S-C. Zhang, Temple University, April 2015.
68. Physics Colloquium, Princeton, March 2015.
69. APS March Meeting 2015, San Antonio, TX, March 2015.
70. Annual Meeting of American Association for Advancement of Science, Symposium on From Novel Imaging to Novel Physics, San Jose, CA, February 2015.
71. Physics Colloquium, New York University, December 2014.
72. SCES@60 workshop on strongly correlated electron systems at 60 years old, University of Illinois at Urbana-Champaign, October 2014.
73. Aspen Center for Physics Colloquium, August 2014.
74. Conference on New Trends in Topological Insulators, Berlin-Brandenburg Academy of Sciences, Berlin, July 2014.
75. Nobel Symposium on New Forms of Matter: Topological Insulators and Superconductors, Högberga Gård, Lidingö, Sweden, June 2014.
76. James Franck Institute Colloquium, University of Chicago, May 2014.
77. Physics Colloquium, University of California at Berkeley, April 2014.
78. DPG German Physical Society Spring meeting, Dresden, Germany, March 2014.
79. International Conference on Nanoscience and Nanotechnology, Adelaide, Australia, February 2014.
80. Physics Colloquium, University of California at Santa Barbara, January 2014.
81. Aspen Winter Conference on “Beyond Quasi-particles,” Center for Physics, Aspen, January 2014.
82. “Superconductivity at 300mK and Beyond” workshop, University of Maryland, College Park, MD, November 2013.
83. AVS 60<sup>th</sup> International Symposium & Exhibition, Long Beach, California, October 2013
84. International Workshop on Topology and Nonequilibrium in Low-Dimensional Electronic Systems, Dresden, Germany, September 2013.
85. 22<sup>nd</sup> International Conference on Strongly Correlated Electron Systems, Tokyo, Japan, August 2013.
86. Conference on Majorana Physics in Condensed Matter, Erice, Italy, July 2013.
87. Aspen Center for Physics summer program, July 2013.
88. Microsoft-Station Q Meeting, University of California-Santa Barbara, June 2013.
89. Majoranas in Solid State Workshop, Peking University, Beijing, China, June 2013.
90. Gordon Research Conference on Superconductivity, Les Diablerets, Switzerland, May 2013.
91. Microsoft-Station Q Seminar, University of California-Santa Barbara, May 2013.
92. Physics Colloquium, Department of Physics, MIT, Cambridge, Massachusetts, April 2013.

93. Symposium on Novel Topological Quantum Matter, University of Texas at Dallas, February 2013.
94. International Symposium at Advance Institute for Material Research, Sendai, Japan, February 2013.
95. Physics Colloquium, Department of Physics, University of Florida, January 2013.
96. Aspen Winter Conference on Topological States of Matter, Aspen, CO, January 2013.
97. Institute Colloquium, Max Planck Institute for Solid State Physics, Stuttgart, Germany, December 2012.
98. Physics Colloquium, Harvard University, Boston, MA, December 2012.
99. Aalto Physics Colloquium, Helsinki University of Technology, Otsvängen, Espoo, Finland, November 2012.
100. DARPA Workshop on Correlated Quantum Materials, Arlington, VA, November 2012.
101. Condensed Matter Seminar, Rutgers University, NJ, October 2012.
102. Keck Symposium on Imaging and Detection on the Molecular Scale: Challenges and Opportunities, Irvine, CA, August 2012.
103. Summer School and Workshop on Innovation in Strongly Correlated Electronic Systems, International Center for Theoretical Physics, Trieste, Italy, August 2012.
104. International Conference on Material and Mechanism of Superconductivity, Washington, D.C., August 2012.
105. Workshop on Interacting Electron in Strong Spin-Orbit Systems, Aspen, CO. July 2012.
106. Gordon Conference on Correlated Systems, New Hampshire, MA June 2012.
107. Workshop on Quantum Matter from Nano to the Macroscale, Max-Planck Institute for the Physics of Complex Matter, June 2012.
108. Workshop on Quantum Disorder Systems, Poincare Institute, Paris, France, June 2012.
109. Condensed Matter Seminar, Los Alamos National Laboratory, May 2012.
110. Physics Colloquium, University of Roma La Spaienza, April 2012.
111. Condensed Matter Seminar, Harvard University, Cambridge, MA, March 15, 2012.
112. March APS Meeting, Boston, MA, February 27-March 2, 2012.
113. Workshop on Physics of topological insulators, graphene, spin chains and Nanowires, Dresden, Germany, February 16-17, 2012.
114. 39<sup>th</sup> Conference on the Physics and Chemistry of Surfaces and Interfaces (PCSI), Santa Fe, New Mexico, January 22-26, 2012.
115. Conference on Topological Insulators and Superconductors at Kavli Institute for Theoretical Physics, Santa Barbara, CA, November 2011.
116. Conference on Topological aspects of quantum-coherent states in new materials, Chicago, IL, October 2011.
117. Half-Plenary Speaker 26<sup>th</sup> Annual International Conference on Low Temperature Physics, LT26, Beijing, China, August 2011.
118. Pagels Public Lecture, Aspen, August 2011.

119. Colloquium, Aspen Center For Physics, Aspen, CO, August 2011.
120. Fifth Stig Lundqvist Conference on Advancing the Frontiers of Condensed Matter Physics, Trieste, Italy, July 10-15, 2011.
121. Kavli Colloquium, Kavli Institute of Nanoscience, Delft University of Technology, Delft, Netherlands, April 13-15, 2011.
122. Physics Colloquium, Yale University, New Haven, CT, April 11, 2011.
123. Physics Colloquium, University of Texas, Austin, TX, April 7, 2011.
124. Institute Colloquium, Max-Planck Institute for Complex Matter, Dresden, Germany, March 1, 2011.
125. Physics Colloquium, Oxford University, Oxford, England, February 2011.
126. Aspen Winter Conference on Contrasting Superconductivity in Pnictides and Cuprates, Aspen, CO, January 2011.
127. 2010 Winter School of theoretical physics on "Topological states and condensed matter systems" at the Institute of Advanced Study of the Hebrew University, Jerusalem, Israel, December 2010.
128. Conference on Topological Insulators & Superconductors Workshop, Princeton, NJ, November 2010.
129. 55<sup>th</sup> Annual Conference on Magnetism & Magnetic Materials, Atlanta, GA, November 2010.
130. Physics Colloquium, Pennsylvania State University, College Park, PA, October 2010.
131. Zurich Physics Colloquium, ETH Zurich, Switzerland, September 2010.
132. CM Seminar, ETH Zurich, Switzerland, September 2010.
133. Keynote Lecturer, 18<sup>th</sup> International Vacuum Congress (IVC-18), Beijing, China, August 2010.
134. Strongly Correlated Electron Conference Santa Fe, NM, July 2010.
135. Conference on The Physics of Complex Oxides, Santorini, June 2010.
136. 6th annual workshop of the NSF Center for Probing the Nanoscale, Stanford University, May 14, 2010.
137. Invited talk at American Physical Society March Meeting, Portland, March 2010.
138. Conference on Exotic Insulating States of Matter, Johns Hopkins Workshop, Baltimore, MD, January 14-16, 2010.
139. ICAM Annual Conference, University of California, Davis, January 10-13, 2010.
140. Physics Colloquium, University of Chicago, Chicago, Illinois, October 15, 2009.
141. Nanostructures at Surfaces International Conference, Ascona, Switzerland, September 20-25, 2009.
142. 9<sup>th</sup> International Conference on Materials and Mechanisms of Superconductivity M<sup>2</sup>S-IX, Tokyo, Japan, September 2009.
143. Glassy '09, Emergence of Inhomogeneous Phases in Strongly Correlated Electron Systems, Paris, France, July 2009.

144. Critical Issues Related to Higher Temperature Superconductors Conference, Kavli Institute for Theoretical Physics, Santa Barbara, CA, June 2009.
145. Gordon Research Conference on Superconductivity, Hong Kong, June 2009.
146. Conference on Superconductor-Insulator Transitions, International Center for Theoretical Physics, Trieste, Italy, May 2009.
147. CMAP Colloquium, Harvard, April 2009.
148. Chez Pierre Seminar, MIT, April 2009.
149. Spin Currents 2009 Retreat, IBM, Stanford Sierra Conference Center, Fallen Leaf Lake, South Lake Tahoe, April 2009.
150. Condensed Matter Physics Seminar, Yale, New Haven, MA, March 2009.
151. Condensed matter Physics Seminar, Ohio State University, Columbus, Ohio, January 2009.
152. Ringberg Superconductivity Symposium, Schloss Ringberg, Rottach-Egern, Germany, November 2008.
153. Workshop on Strong Correlation in Materials and Atom Traps, International Center for Theoretical Physics, Trieste, Italy, August 2008.
154. Half-Plenary Talk at the 25<sup>th</sup> Low Temperature Conference, Amsterdam, August 2008.
155. Plenary Talks at the 2008 International Conference on Nanoscience and Technology (ICN+T 2008), Keystone, CO, July 2008.
156. School Lecturer at the 2008 Boulder Condensed Matter Physics Summer School focusing on "Strongly Correlated Electrons, Boulder, CO, July 2008.
157. International Conference on Low-Energy Electrodynamics in Solids 2008 (LEESO8), Vancouver-Whistler, British Columbia, July 2008.
158. Unconventional Phases and Phase Transitions in Strongly Correlated Electron Systems (UPPT08), Dresden, Germany, June 2008.
159. Oakridge National Laboratory Discovery Lecture, May 2008.
160. Canadian Institute for Advanced Research Quantum Materials Meeting, Toronto, Canada, May 2008.
161. IBM T. J. Watson Research Center, Physical Sciences Seminar, May 2008.
162. Frontiers in Nanoscience: Spectroscopy at the Nanometer Scale, Schloss Ringberg, Rottach-Egern, Germany, April 2008.
163. American Physical Society March 2008 Meeting, New Orleans, March 2008.
164. University of Wisconsin, Physics Colloquium, February 2008.
165. The 35<sup>th</sup> Conference on the Physics and Chemistry of Surfaces and Interfaces (PCSI), Santa Fe, New Mexico, January 2008.
166. Workshop on Conductor-Insulator Quantum Phase Transitions at the Ohio State University, Columbus, Ohio, January 2008.
167. Condensed Matter Seminar, Rutgers University, October 2007.
168. Gordon Conference on Superconductivity, Les Diablerets, Switzerland, September 2007.

169. International Conference on Spectroscopies in Novel Superconductors (SNS2007), Sendai, Japan, August 2007.
170. Workshop on Superfluid Universe, Aspen, Colorado August 2007.
171. A. I. Larkin Memorial Conference, Landau Institute for Theoretical Physics, Chernogolovka, Russia, June 2007.
172. Fourth International School and Conference on Spintronics and Quantum Information Technology, Spintech IV, Maui, Hawaii, June 2007.
173. International Symposium on Nanoscience and Nanotechnology, Hamburg, Germany, May 30 to June 2007.
174. Dynamics in Complex Systems, DELFS III, Port Jefferson, NY, May 2007.
175. Condensed Matter Seminar, Harvard University, May 2007.
176. Physics Colloquium, Ohio University, May 2007.
177. Condensed Matter Seminar, Simon Fraser University, Vancouver, British Columbia, April 2007.
178. Condensed Matter Seminar, University of British Columbia, April 2007.
179. Condensed Matter Seminar, University of Illinois Urbana Champaign, Condensed Matter Seminar, March 2007
180. Norman Hascoe Distinguished Lecture, University of Connecticut, February 2007.
181. Winter 2007 Aspen Condensed Matter Conference on Spins in Nanostructures: Dynamics, Spectroscopy, Manipulation and Control, Aspen, Colorado, January 2007.
182. Physics Colloquium, Johns Hopkins University, January 2007.
183. MMM/Intermag Conference, Baltimore, MD, January 2007.
184. 5<sup>th</sup> International Conference Stripes 06, University of Roma, La Sapienza, Italy, December 2006.
185. The 10<sup>th</sup> Anniversary Workshop of APCTP (Asia Pacific Center for Theoretical Physics), Pohang, Korea, November 2006.
186. Condensed Matter Seminar, University of Pennsylvania, September 2006.
187. 4th International Conference on Scanning Probe Spectroscopy SPS'06, Hamburg, Germany, July 2006.
188. 8<sup>th</sup> International Conference on Materials and Mechanisms of Superconductivity and High Temperature Superconductors (M2S-HTSC-VIII), Dresden, Germany, July 2006.
189. Weizmann Institute of Science, Rehovot, Israel, Physics Colloquium, June 2006.
190. University of Minnesota, Physics Colloquium, April 2006.
191. Rice University, Physics Colloquium, April 2006.
192. Workshop on Electron Phonon Coupling in Oxides, Santa Fe, NM, April 2006.
193. Rutgers University, Physics Colloquium, December 2005.
194. Michigan State University, Physics Colloquium, November 2005.
195. Max Planck Institute and DFG Workshop on Properties of Cuprate Superconductors, Schloss Ringberg, Rottach-Egern, Germany, November 2005.



196. Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, Switzerland, September 2005.
197. Frontiers of Science within Nanotechnology conference, Boston University, August 2005.
198. Institute for Complex Adaptive Matter Summer School: Strongly correlated electrons: diverse examples and unifying themes, Cargèse, France, August 2005.
199. Fourth Asia-Pacific Workshop on Strongly Correlated Systems, Beijing, China, May 2005.
200. Max-Planck-Institute Dresden workshop on Nanoscale Fluctuations in Magnetic and Superconducting Systems (NANO05), Dresden, Germany, May 2005.
201. University of Kentucky in Lexington, Novel Electronic Materials Workshop, April 2005.
202. AAAS Annual Meeting, Frontiers in Physical Sciences, Washington DC, February 2005.
203. Princeton Center for Complex Materials, Symposium Novel Electronic Materials, February 2005.
204. Fourth International Conference of the STRIPES series on Nanoscale Heterogeneity and Quantum Phenomena in Complex Matter, Roma, Italy, September 2004.
205. Seventh International Conference on Spectroscopies in Novel Superconductors (SNS2004), Sitges, Spain, July 2004.
206. Gordon Research Conference on Correlated Electron Systems, South Hadley Massachusetts, July 2004.
207. Kavli Institute for Theoretical Physics Conference on Exotic Order and Criticality in Quantum Matter, Santa Barbara, CA, June 2004.
208. Canadian Institute for Advanced Research, Quantum Materials Meeting, May 2004.
209. Canadian Institute for Advanced Research, Summer School, May 2004.
210. Institute for Adaptive Matter Conference on Evolution of Quantum Effects from the Nano to the Macro Scale, Corsica, France, May 2004.
211. Yale University, Condensed Matter Seminar, April 2004.
212. University of Chicago, James Franck Institute and MRSEC Seminar, April 2004.
213. American Physical Society March Meeting, Montreal, Canada, March 2004.
214. Stanford University, Condensed Matter Seminar, March 2004.
215. University of California at Santa Cruz, CM-EE Seminar, March 2004
216. Northwestern University, Physical Chemistry Seminar, February 2004.
217. Aspen Center for Physics: Winter Conference on Condensed Matter, Aspen, CO, January 2004.
218. Northwestern University, Physical Chemistry Colloquium, January 2004.
219. University of California at Los Angeles, Physics Department Colloquium, January 2004.
220. 3rd International Workshop on Novel Quantum Phenomena in Transition Metal Oxides and The 1st Asia-Pacific Workshop on Strongly Correlated Electron Systems, Sendai, Japan, November 2003.

221. 3<sup>rd</sup> International Symposium on Scanning Probe Spectroscopy and Related Methods SPS'03, Poznan-Malta, Poland, July 2003.
222. Los Alamos National Laboratory, Condensed Matter Seminar, June 2003.
223. Workshop on Phase Competition in Transition-Metal Oxides and Other Compounds, University of California at Berkeley, May 2003.
224. 7<sup>th</sup> International Conference on Materials and Mechanisms of Superconductivity and High Temperature Superconductors, Rio de Janeiro, Brazil, May 2003.
225. Material Research Society, Symposium on Nanotubes-Based Devices, San Francisco, CA, April 2003.
226. University of Pennsylvania, Frontiers of Materials Seminar, February 2003.
227. University of California at Berkeley, Condensed Matter seminar, November 2002.
228. University of Illinois at Chicago, Condensed Matter seminar, October 2002.
229. California Institute of Technology, Physics Department Colloquium, October 2002.
230. IBM T.J Watson Research Center, Yorktown Heights, IBM-Illinois Symposium, October 2002.
231. University of Chicago, Physics Department Colloquium, October 2002.
232. University of Illinois at Urbana-Champaign, Physics Department Colloquium, September 2002.
233. International Conference on the Science and Application of Nanotubes NT'02, Boston College, July 2002.
234. Workshop on Intrinsic Multiscale Structure and Dynamics in Complex Electronic Oxides, Trieste, Italy, June 2002.
235. The Centennial Meeting of the Electrochemical Society, Philadelphia, PA, May 2002.
236. University of Pennsylvania, Physics Department Colloquium, April 2002.
237. American Physical Society March Meeting, Indianapolis, IN, March 2002.
238. XVI<sup>th</sup> International Winter School on Electronic Properties of Novel Materials, Kirchberg, Austria, March 2002.
239. Princeton University, Physics Department Colloquium and Condensed Matter seminar, February 2002.
240. Institute for Complex Adaptive Matter Workshop on Local probes of Nanoscale Phenomena in Matter, Santa Fe, NM, December 2001.
241. Stanford University, Condensed Matter Seminar, December 2001.
242. University of Wisconsin, Physics Department Colloquium, October 2001.
243. Gordon Conference on Superconductivity, Oxford, England, September 2001.
244. Symposium on Physics of Correlated Electron Systems, Los Alamos National Laboratory, August 2001.
245. Los Alamos National Laboratory, Symposium on Correlated Electron Physics, August 2001.
246. Workshop on Defects in Correlated Electron Systems, Dresden, Germany, July 2001.

247. 6<sup>th</sup> International Conference on Spectroscopy of Novel Superconductors, Chicago, IL, May 2001.
248. Ohio State University, Condensed Matter Seminar, April 2001.
249. National High Magnetic Field Laboratory, Florida State University, Seminar, December 2000
250. Second International Conference on Scanning Probe Spectroscopy, Hamburg, Germany, July 2000.
251. American Physical Society March Meeting, Minneapolis, MN, March 2000.
252. Indiana University, Condensed Matter Seminar, November 1999.
253. University of Tennessee at Knoxville, Condensed Matter Seminar, June 1999.
254. Purdue University, Condensed Matter Seminar, January 1999.
255. National Academy of Sciences 10<sup>th</sup> Annual Symposium on Frontiers in Science, Irvin, CA, November 1998.
256. American Chemical Society: Symposium on Structure and Electronic Properties of Materials by Scanning Probe Microscopy, Boston, MA, August 1998.
257. Gordon Conference on Correlated Electron Systems, Tilton College, New Hampshire, July 1998.
258. Cornell University, Condensed Matter Seminar, March 1998.
259. Northwestern University, Condensed Matter Seminar, March 1998.
260. The 5<sup>th</sup> International Colloquium on Scanning Tunneling Microscopy, Kanazawa, Japan, December 1997.
261. University of Illinois at Urbana-Champaign, Condensed Matter Seminar, October 1997.
262. International Scanning Microscopy Meeting: Symposium on Formation and Properties of Nanoscale Structures, Chicago, IL, August 1997.
263. IBM Almaden Research Center, Physical Sciences Colloquium, May 1997.
264. NEC Research, Princeton, Seminar, April 1997.
265. American Physical Society March Meeting, Kansas City, March 1997.
266. University of Southern California, Condensed Matter Seminar, February 1997.
267. California Institute of Technology, Condensed Matter Seminar, February 1997.
268. Aspen Center for Physics: Winter Conference on Condensed Matter, Aspen, CO, January, 1997.
269. Stanford University, Condensed Matter Seminar, November 1996.
270. Princeton University, Condensed Matter Seminar, November 1996.
271. Symposium on the Physics of Nanostructures, Hamburg University, Hamburg, Germany, June 1996.
272. NATO Workshop on Atomic and Molecular Wires, Les Houches, France, May 1996.
273. University of California at Santa Barbara, Condensed Matter Seminar, May 1996.
274. University of Geneva, Switzerland, May 1996.

275. CNRS-Low Temperature Laboratory, Grenoble, France, May 1996.
276. University of Paris at Orsay, France, May 1996.
277. University of California at Berkeley, Condensed Matter Seminar, September 1996.
278. Brown University, Condensed Matter Seminar, April 1996.
279. University of California at San Diego, Condensed Matter Seminar, April 1996.
280. University of Illinois at Urbana-Champaign, Condensed Matter Seminar, April 1996.
281. Purdue University, Condensed Matter Seminar, March 1996.
282. Rice University, Condensed Matter Seminar, February 1996.
283. University of Pennsylvania, Condensed Matter Seminar, February 1996.
284. University of California at Santa Cruz, Condensed Matter Seminar, May 1995.
285. American Physical Society March Meeting, San Jose, CA, March 1995.
286. University of California at Berkeley, Condensed Matter Seminar, October 1994.
287. IBM Almaden Research Center, Seminar, April 1994.
288. Harvard University, Condensed Matter Seminar, December 1993.
289. IBM Yorktown Heights Research Center, Seminar, September 1993.

## **Academic Activities**

### ***Panels & Committees:***

1. Science and Technology Steering Committee, Brookhaven National Laboratory, 2005-present.
2. Advisory Committee, Australian Research Council Center of Excellence in Future Low-Energy Electronics Technologies (FLEET), 2017-present
3. Alan T. Waterman Award Committee, National Science Foundation, 2013-2015.
4. Chair, American Physical Society (DCMP) Fellowship Committee, 2015.
5. Member-at-large, American Physical Society (DCMP), 2011-2013.
6. McMillian Award Prize Committee, University of Illinois, External Member, 2009-2012.
7. Defense Science Study Group, 2010-2011.
8. Member AAAS Electorate Nominating Committee of the Section on Physics, 2009-2012.
9. Panel member, National Science Foundation's site visit of Harvard University's Nanoscience and Engineering Center, May 2003, 2007.
10. Panel member, National Science Foundation's review panel for evaluation of Nanoscale Science and Engineering (NIRT) program proposals, Washington D.C., January 2001.

### **Organizing Activities:**

1. Director, Princeton Center for Complex Materials, an NSF-supported Materials Science and Research Center (MRSEC) at Princeton (annual budget of \$3M), since 2015.

2. Co-Chair, Gordon Research Conference, "New Materials and Structures in Topological and Correlated Systems," Hong Kong, CN, June 16-21, 2019
3. Co-Organizer, Princeton Center for Theoretical Science workshop, "Strongly Correlated Systems and Interactions in Quantum Matter," Princeton, NJ, April 25-28, 2019
4. Organizer, National Science Foundation Frontiers of Condensed Matter Physics Meeting, Arlington, Virginia, May 2016.
5. Co-Organizer, Princeton Center for Theoretical Science and ONR Workshop on Majorana Fermions and Beyond, Princeton, NJ, October 2014.
6. Program Committee for the PWA90 Workshop Marking the Frontier Scientific Accomplishments of Philip W. Anderson, Princeton, NJ, December 2013.
7. Co-Organizer, Aspen Center for Physics summer program on Disorder, Dynamics, Frustration and Topology in Quantum Condensed Matter, Aspen, CO, June-July, 2013.
8. Chair, Gordon Research Conference on Superconductivity, Waterville Valley, NH, June 5-10, 2011.
9. PCCM Executive Committee. (Princeton Center for Complex Materials, a National Science Foundation Funded Materials Research Science and Engineering Center (MRSEC) at Princeton University), 2008-present
10. Co-Chair Joint PCCM-PCTS (Princeton Center for Complex Materials-Princeton Center for Theoretical Science) Conference on Topological Insulators and Superconductors, Princeton, NJ, November 13-14, 2010.
11. Program Committee for the International Conference on Nanoscale Science and Technology, China, August 2010.
12. Chair, Princeton Physics Department Graduate Admission Committee, 2009-11.
13. Task Force on the Status of Women and Minority Faculty at Princeton, 2006-2007.
14. Co-Chair Joint PCCM-PCTS (Princeton Center for Complex Materials-Princeton Center for Theoretical Science) Iron-based High Temperature Superconductors Short Program, Princeton, NJ, November 13-14, 2008.
15. Program Committee for the International Conference on Nanoscale Science and Technology, Keystone Resort, Colorado, July 2008.
16. Vice-Chair, Gordon Conference on Superconductivity, Hong-Kong, 2009.
17. Scientific Advisory Committee, International Conference on Scanning Probe Spectroscopy and Related Methods, 2003-present.
18. Co-Organizer, Institute for Complex Adaptive Matter Workshop on Local probes of Nanoscale Phenomena in Matter, Santa Fe, New Mexico, December 2001.

### **Previous Graduate Students & Postdoctoral Associates**

1. D. Hornbaker (Ph.D. U. Illinois, 2002), Research Scientist, Army Research Laboratory
2. S. Kahng (Postdoc 1999-2000), Professor of Physics, Korea University, Seoul, Korea
3. M. Vershinin (Ph.D. U. Illinois, 2004), Assistant Professor of Physics, University of Utah
4. S. Misra (Ph.D. U. Illinois, 2005), Staff Scientist, Sandia National Laboratory
5. D. Kitchen (Ph.D. U. Illinois, 2006), Research Scientist, Milliken Research Corporation
6. K. Gomes (Ph. D. U Illinois, 2008), Assistant Professor of Physics, Notre Dame University.

7. Abhay Pasupathy (Postdoc 2004-2008) Associate Professor of Physics, Columbia University
8. Anthony Richardella (Ph.D. U. Illinois, 2009), Postdoctoral Scientist, Penn State University
9. Aakash Pushp (Ph.D. U Illinois, 2009), Research Staff Member, IBM Almaden Research Center
10. Lukas Urban (Ph.D. U Illinois, 2010), Princeton Consulting Co.
11. Pedram Roushan (Ph.D. Princeton, 2011), Research Scientist at Google Inc., Santa Barbara
12. Colin Parker (Ph.D. Princeton, 2011), Assistant Professor of Physics, Georgia Institute of Technology, starting in 2016
13. Haim Beidenkopf (Postdoc 2009-2012) Assistant Professor of Physics, Weizmann Institute, Israel
14. Jungpil Seo (Postdoc 2009-2013) Assistant Professor of Physics, Daegu Gyeongbuk Institute of Science & Technology (DGIST), Republic of Korea
15. Pegor Aynajian (Postdoc 2010-2013) Assistant Professor at Binghamton University, New York
16. E. H. da Silva Neto (Ph.D. Princeton, 2012) Assistant Professor of Physics, UC Davis
17. Brian B. Zhou (Ph.D. Princeton, 2014) Assistant Professor of Physics, Boston College
18. Stevan Nadj-Perge (Postdoc 2012-2014), Assistant Professor of Applied Physics, California Institute of Technology
19. Ilya K. Drozdov, (Ph.D. Princeton, 2015), Postdoctoral Fellow, Brookhaven National Laboratory
20. András Gyenis, (Ph.D. Princeton, 2016), Postdoctoral Fellow, Electrical Engineering department, Princeton University
21. Ben Feldman, (Postdoc 2013-2017), Assistant Professor of Physics, Stanford University
22. Sangjun Jeon, (Lab Manager, 2013-2018), Assistant Professor of Physics, Chung-Ang University, Republic of Korea

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