

Subir Sachdev Curriculum Vitae

OFFICE ADDRESS: Department of Physics, Harvard University, Cambridge MA 02138; 617-495-3923

EMAIL : lastname@g.harvard.edu

WEB : <http://sachdev.physics.harvard.edu>

Employment

- Chair, Department of Physics, Harvard University, starting January 1, 2018
- Herchel Smith Professor of Physics at Harvard University, starting July 1, 2015
- Professor of Physics at Harvard University, July 1, 2005 to June 30, 2015.
- Stanley S. Hanna Visiting Professor, Stanford University, Fall 2017.
- Dr. Homi Bhabha Chair Professorship, Tata Institute of Fundamental Research, July 1, 2016 to June 30, 2019.
- **Cenovus Energy James Clerk Maxwell Chair in Theoretical Physics (Visiting)** at the Perimeter Institute for Theoretical Physics, Feb 1, 2014 to Jan 31, 2019.
- Professor of Physics and Applied Physics at Yale University, July 1, 1995 to June 30, 2005.
- Associate Professor (tenured) of Physics and Applied Physics at Yale University, July 1, 1992 to June 30, 1995.
- Associate Professor (term) of Physics and Applied Physics at Yale University, July 1, 1989 to June 30, 1992
- Assistant Professor of Physics and Applied Physics at Yale University, July 1, 1987 to June 30, 1989
- Postdoctoral Member of Technical Staff at AT&T Bell Laboratories, Murray Hill, NJ from September 1, 1985 to August 31, 1987.

Degrees Received

- Freshman year at the Indian Institute of Technology, Delhi, 1978-79
- S.B. (Bachelor of Science) in Physics from the Massachusetts Institute of Technology, February 1982.
- A.M. (Master of Arts) in Physics from Harvard University, June 1984.
- Ph.D. in Theoretical Physics from Harvard University, November 1985. Thesis title: Frustration and Order in Rapidly Cooled Metals.
- M.A. (honorary) from Yale University, 1995.

Significant Research Accomplishments

See the description on the Wikipedia page: [Subir Sachdev](#).

Honors

- **Foreign Fellow** of the Indian National Science Academy, 2019.
Citation: Professor Subir Sachdev is a world renowned condensed matter theorist, with many seminal contributions to the theory of strongly interacting condensed matter systems. He is a pioneer in the study of systems near quantum phase transitions. He has also pioneered the exploration of the connection between physical properties of modern quantum materials and the nature of quantum entanglement in their many-particle state, elucidating the diverse varieties of entangled states of quantum matter.
- **Dirac Medal**, International Center for Theoretical Physics, Trieste, 2018; shared with Dam Thanh Son and Xiao-Gang Wen for “independent contributions towards understanding novel phases in strongly interacting many-body systems, introducing original transdisciplinary techniques”.
Citation: Subir Sachdev has made pioneering contributions to many areas of theoretical condensed matter physics. Of particular importance were the development of the theory of quantum critical phenomena in insulators, superconductors and metals; the theory of spin-liquid states of quantum antiferromagnets and the theory of fractionalized phases of matter; the study of novel deconfinement phase transitions; the theory of quantum matter without quasiparticles; and the application of many of these ideas to a priori unrelated problems in black hole physics, including a concrete model of non-Fermi liquids.
- **Lars Onsager Prize** ([picture](#)), American Physical Society, 2018.
Citation: for his seminal contributions to the theory of quantum phase transitions, quantum magnetism, and fractionalized spin liquids, and for his leadership in the physics community.
- **Star Family Prize for Excellence in Advising**, Certificate of Distinction, Harvard University, 2016.
- **Dirac Medal for the Advancement of Theoretical Physics** ([picture](#)), the Australian Institute of Physics, the University of New South Wales, and the Royal Society of New South Wales, 2015.
Citation: The Dirac Medal was awarded to Professor Sachdev in recognition of his many seminal contributions to the theory of strongly interacting condensed matter systems: quantum phase transitions, including the idea of critical deconfinement and the breakdown of the conventional symmetry based Landau-Ginsburg-Wilson paradigm; the prediction of exotic ‘spin-liquid’ and fractionalized states; and applications to the theory of high-temperature superconductivity in the cuprate materials.
- Elected to the U.S. National Academy of Sciences, April 2014 ([picture](#)).
Citation: Sachdev has made seminal advances in the theory of condensed matter systems near a quantum phase transition, which have elucidated the rich variety of static and dynamic behavior in

such systems, both at finite temperatures and at $T = 0$. His book, *Quantum Phase Transitions*, is the basic text of the field.

- Salam Distinguished Lectures, The Abdus Salam International Center for Theoretical Physics, Trieste, Italy, January 27-30, 2014.
- Lifetime Achievement Award, by the Old Boys' Association ([picture](#)), St. Joseph's Boys' High School, Bangalore, September 8, 2013.
- Lorentz Chair, Instituut-Lorentz, 2012
- Distinguished Visiting Research Chair at the Perimeter Institute for Theoretical Physics, 2009 onwards
- Highly ranked in Diffusion of scientific credits and the ranking of scientists, F. Radicchi, S. Fortunato, B. Markines, and A. Vespignani, *Physical Review E* **80**, 056103 (2009).
- APS Outstanding Referee, 2009.
- John Simon Guggenheim Memorial Foundation fellow, 2003.
- Fellow of the American Physical Society, 2001.
Citation: For his contributions to the theory of quantum phase transitions and its application to correlated electron materials.
- Creativity Award from the National Science Foundation, May 1998.
- Alfred P. Sloan Foundation Fellow, February 1989.
- Presidential Young Investigator Award, National Science Foundation, July 1988 - July 1993.
- LeRoy Apker Award ([picture](#)), American Physical Society, January 1983.
Citation: For his accomplishments as an undergraduate students at the Massachusetts Institute of Technology, including his research "Quantum Electrodynamics in a Damped Cavity".
- Honorable Mention in the William Lowell Putnam Mathematical competition, 1980.
- Second (all India) in the Joint Entrance Examination to the Indian Institutes of Technology, 1978.

Named and plenary lectures

- Biard Lecture, California Institute of Technology, Pasadena, November 2, 2017.
- Dirac Lecture, University of New South Wales, Australia, September 1, 2015.
- Salam Distinguished Lectures, The Abdus Salam International Center for Theoretical Physics, Trieste, Italy, January 27-30, 2014.
- Institute Lecture, Indian Institute of Technology, Kanpur, January 21, 2014.

- Arnold Sommerfeld Lectures, University of Munich, January 31 - February 3, 2012.
- HRI-Girdharilal Mehta Lecture, Harish-Chandra Research Institute, Allahabad, January 13, 2012.
- Rapporteur at the 25th Solvay Conference on Physics - The Theory of the Quantum World, Brussels, October 19-22, 2011.
- Plenary talk at the International Conference on Strong Correlated Electron Systems, August 30, 2011.
- Marc Kac Memorial Lectures, Los Alamos National Laboratory, May 3-5, 2011.
- Moshe Flato Lectures, Ben Gurion University, Israel, March 10, 2011.
- Subramanyan Chandrasekhar Lectures, International Center for Theoretical Sciences, Bangalore, Dec 6-8, 2010
- Plenary talk at the 24th International Conference on Statistical Physics, Cairns, Australia, July 2010.
- Niels Bohr Lecture, Niels Bohr Institute, May 5, 2010
- Colloquium Pierre et Marie Curie, University of Paris, May 3, 2010
- De Sitter Lecture Series in Theoretical Physics 2009, University of Groningen, November 2009
- Solvay colloquium, International Solvay Institutes, Brussels, October 2009
- Plenary talk at the 25th International Conference on Low Temperature Physics, Amsterdam, August 2008
- Rapporteur at the 24th Solvay Conference on Physics, Quantum Theory of Condensed Matter, Brussels, Oct 11-13, 2008
- Distinguished Lecture Series, Technion, Israel, March 2007.
- Plenary talk at the International Conference on Strongly Correlated Electronic Systems, Karlsruhe, Germany, July 2004
- Matsen Lecture at the University of Texas, Austin, October 2002.
- Ehrenfest Lecturer at the Lorentz Institute in Leiden, Holland, May 1998.
- Plenary talk at the 19th International Conference on Statistical Physics, Xiamen, August 1995.

Ph. D. Students

- **Jinwu Ye**, Associate Professor, Department of Physics and Astronomy, Mississippi State University
Thesis: [Some Examples of Quantum Phase Transitions](#)
- **T. Senthil**, Professor, Department of Physics, Massachusetts Institute of Technology.
Thesis: [Quantum Phase Transitions in Random Spin Systems](#)
- **Kedar Damle**, Department of Theoretical Physics, Tata Institute of Fundamental Research, Mumbai, India.
Thesis: [Turning on the Heat: Non-zero Temperature Dynamical Properties of Quantum Many-body Systems](#)
- **Chiranjeeb Buragohain**, Microsoft.
Thesis: [Dynamical Properties of Quantum Antiferromagnets in One and Two Dimensions](#)
- **Ying Zhang**, Finisterre Capital, London.
Thesis: [Competing Orders in the Cuprate Superconductors](#)
- **Anatoli Polkovnikov**, Associate Professor, Boston University.
Thesis: [Manifestation of Quantum Fluctuations in Strongly Correlated Systems](#)
- **Stephen Powell**, Assistant Professor, University of Nottingham
Thesis: [Quantum phases and transitions of many-body systems realized using cold atomic gases](#)
- **Adrian Del Maestro**, Assistant Professor, University of Vermont
Thesis: [The superconductor-metal quantum phase transition in ultra-narrow wires](#)
- **Emily Dunkel** (with **David Coker**, Boston University).
Thesis: [Quantum Phenomena in Condensed Phase Systems](#)
- **Yang Qi**, Institute for Advanced Studies, Tsinghua University
Thesis: [Spin and Charge Fluctuations in Strongly Correlated Systems.](#)
- **Rudro Rana Biswas**, Assistant Professor, Purdue University
Thesis: [Explorations in Dirac Fermions and Spin Liquids.](#)
- **Eun Gook Moon**, Assistant Professor, Korea Advanced Institute of Science and Technology
Thesis: [Superfluidity in Strongly Correlated Systems](#)
- **Max Metlitski**, Assistant Professor, Department of Physics, Massachusetts Institute of Technology
Thesis: [Aspects of Critical Behavior of Two Dimensional Electron Systems](#)
- **Yejin Huh**, Applied Scientist at Apple
Thesis: [Quantum Phase Transitions in d-wave Superconductors and Antiferromagnetic Kagome Lattices](#)

- **Susanne Pielawa**, Lyft, Munich
Thesis: **Metastable Phases and Dynamics of Low-Dimensional Strongly-Correlated Atomic Quantum Gases**
- **Debanjan Chowdhury**, Moore Foundation Postdoctoral Fellow, MIT
Thesis: **Interplay of Broken Symmetries and Quantum Criticality in Correlated Electronic Systems**
- **Junhyun Lee**, Postdoctoral fellow, University of Maryland
Thesis: **Novel quantum phase transitions in low-dimensional systems**
- **Andrew Lucas**, Postdoctoral fellow, Stanford University
Thesis: **Transport and hydrodynamics in holography, strange metals and graphene**
- **Shubhayu Chatterjee**, Harvard University
- **Aavishkar Patel**, Harvard University
- **Wenbo Fu**, Harvard University
- **Seth Whitsitt**, Harvard University
- Alex Thomson, Harvard University
- **Julia Steinberg**, Harvard University

Postdocs

- **Pierre Le Doussal**, Permanent Member, Laboratoire de Physique Théorique de l' Ecole Normale Supérieure, Paris, France.
- **Rodolfo Jalabert**, Professeur à l'Université Louis Pasteur, Institut de Physique et Chimie des Matériaux de Strasbourg, France.
- **Andrey Chubukov**, Professor of Physics, University of Minnesota, Minneapolis.
- **Satya Majumdar**, Permanent Member, Laboratoire de Physique Théorique et Modèles Statistiques, University of Paris XI, France.
- **Matthias Vojta**, Professor, Technische Universität, Dresden, Germany
- **Oleg Starykh**, Professor, Department of Physics, University of Utah.
- **Marcus Kollar**, Theoretische Physik III, Institut für Physik, Universität Augsburg, Germany.
- **Kwon Park**, Professor, Korea Institute for Advanced Study, Seoul.
- **Takao Morinari**, Kyoto University, Kyoto, Japan.

- [Adam Durst](#), Associate Professor, Hofstra University.
- [Krishnendu Sengupta](#), Professor, Indian Association for the Cultivation of Science, Kolkata, India.
- [Lorenz Bartosch](#), Assistant Professor, University of Frankfurt.
- [Predrag Nikolic](#), Assistant Professor, George Mason University
- [Ribhu Kaul](#), Associate Professor, University of Kentucky
- [Markus Müller](#), Permanent Staff Member, International Center of Theoretical Physics, Trieste, Italy.
- [Lars Fritz](#), Assistant Professor, University of Utrecht
- [Michael Levin](#), Assistant Professor, University of Chicago
- [Cenke Xu](#), Associate Professor, University of California, Santa Barbara
- [Sean Hartnoll](#), Assistant Professor, Stanford University
- [Erez Berg](#), Faculty of Physics, Weizmann Institute of Science, Israel
- [Liang Fu](#), Assistant Professor, Massachusetts Institute of Technology
- [Liza Huijse](#), Postdoctoral fellow, Stanford University
- [Chris Laumann](#), Assistant Professor, University of Washington
- [Matthias Punk](#), Faculty, LMU Munich
- [Philipp Strack](#), Group leader, University of Cologne
- [Brian Swingle](#), Postdoctoral fellow, Stanford University
- [Dmitry Abanin](#), Faculty, Perimeter Institute, Waterloo, Canada.
- [Ling-Yan \(Janet\) Hung](#), Professor of Physics, Fudan University, Shanghai
- [Sarang Gopalakrishnan](#), Sherman Fairchild Fellow, Caltech
- [Andrea Allais](#), Harvard University
- [Paul Chesler](#), Harvard University
- [Andreas Eberlein](#), Harvard University
- [William Witczak-Krempa](#), Harvard University
- [Richard Davison](#), Harvard University
- [Chong Wang](#), Harvard University

Research appointments

- Research at Harvard and Yale has been continually supported by grants from the Division of Materials Research of the National Science Foundation since 1988.
- Visiting professor at Harvard University, January-June 2001.
- Visiting professor at the University of Fribourg, Switzerland, June 2000.
- Visiting professor at the Institut Henri Poincare, Paris, July 1999.
- Visiting professor at Université Joseph Fourier, Grenoble, France, Nov-Dec, 1997.
- Visiting professor at Université de Paris VII, May-July 1993.
- Visiting Scientist at AT&T Bell Laboratories, 1987, 1988, 1989.
- Visiting Scientist at IBM Thomas J. Watson Research Center, August 1988.
- Ph.D. dissertation research under Prof. D.R. Nelson at Harvard University involving the statistical mechanics of liquids and glasses.
- Undergraduate thesis research under Prof. D. Kleppner at M.I.T. involving theory on atom-field interactions.

Professional

- Co-editor, Annual Reviews of Condensed Matter Physics
- Scientific Council, International Center for Theoretical Physics, Trieste.
- International Advisory Committee, Higgs Centre for Theoretical Physics, Edinburgh.
- International Advisory Board, International Center for Theoretical Sciences, TIFR, Bangalore.
- Divisional Associate Editor, Physical Review Letters.
- Advisory board, Dutch Research School of Theoretical Physics.
- Chair of steering committee and advisory board, Kavli Institute for Theoretical Physics, Santa Barbara.
- General member and admissions committee, Aspen Center for Physics.
- Review panel for Condensed Matter Science, Brookhaven National Laboratory.

Teaching

I have taught the following courses to undergraduate and graduate students.

- Spring 2015 - Physics 143a, Quantum Mechanics I
- Fall 2014 - Physics 295b, Quantum Theory of Solids
- Spring 2014 - leave
- Fall 2013 - Physics 143b, Quantum Mechanics II
- Spring 2013 - no teaching
- Fall 2012 - Physics 295b, Quantum Theory of Solids
- Fall 2012 - Physics 143b, Quantum Mechanics II
- Spring 2012 - leave
- Fall 2011 - Physics 143b, Quantum Mechanics II
- Spring 2011 - Physics 268r, Classical and Quantum Phase Transitions
- Fall 2010 - Physics 143b, Quantum Mechanics II
- Spring 2010 - Applied Physics 295b, Quantum Theory of Solids
- Fall 2009 - leave.
- Spring 2009 - Physics 268r, Classical and Quantum Phase Transitions
- Fall 2008 - Physics 262, Statistical Thermodynamics
- Spring 2008 - Physics 15b
- Fall 2007 - Applied Physics 284, Statistical Thermodynamics
- Spring 2007 - leave
- Fall 2006 - Physics 262, Statistical Thermodynamics
- Spring 2006 - Physics 268r, Classical and Quantum Phase Transitions
- Fall 2005 - Applied Physics 284, Statistical Thermodynamics
- Spring 2005 - Physics 440b, Quantum Mechanics I
- Fall 2004 - Physics 441a, Quantum Mechanics II
- Spring 2004 - Physics 440b, Quantum Mechanics I

- Fall 2003 - Physics 628, Statistical Physics II
- Spring 2003 - Physics 441b, Quantum Mechanics II
- Fall 2002 - Physics 440a, Quantum Mechanics I
- Spring 2002 - Physics 509a, Many Body Theory
- Spring 2001 - Physics 268r (Harvard University), Theory of Many Particle Systems
- Fall 2000 - Physics 509a, Many-Body theory
- Spring 2000 - Physics 628b, Statistical Physics II
- Spring 1999 - Physics 441b, Quantum Mechanics II
- Fall 1998 - Physics 440a, Quantum Mechanics I, and a section for Physics 200a, Fundamentals of Physics I
- Spring 1998 - Physics 628, Statistical Physics II
- Spring 1997 - Physics 602b, Classical Field Theory
- Fall 1996 - Physics 509a, Many Body Theory
- Fall 1995 - Physics 509a, Many Body Theory
- Spring 1995 - Physics 608b, Quantum Mechanics II
- Spring 1994 - Physics 608b, Quantum Mechanics II
- Fall 1993 - Physics 509a, Many-Body theory, and a section for Physics 200a, Fundamentals of Physics I
- Spring 1993 - Physics 608b, Quantum Mechanics II
- Fall 1992 - Two sections for Physics 180a, Advanced General Physics
- Fall 1991 - Two sections for Physics 180a, Advanced General Physics
- Spring 1991 - Physics 512b, Statistical Mechanics, and a section for Physics 201b, Fundamentals of Physics II
- Spring 1990 - Physics 512b, Statistical Mechanics
- Fall 1989 - Physics 460a/506a, Mathematical methods for physicists
- Spring 1989 - Physics 512b, Statistical Mechanics
- Fall 1988 - Physics 460a/506a, Mathematical methods for physicists

- Spring 1988 - Physics 628, Special topics in condensed matter physics

In addition, I have presented pedagogical lectures at numerous summer schools and conferences: these are listed under “Talks”.

Publications

Books

- *Quantum Phase Transitions*, by Subir Sachdev, published by Cambridge University Press, Cambridge (1999); paperback in 2001; expanded second edition in 2011. For reviews see
 - Physics Today, vol **54**, number 2, page 56 (February 2001).
 - Contemporary Physics, vol **42**, number 2, page 141, March 2001.
 - Physikalische Blätter, vol **57**, number 10, page 68 (2001).
 - Journal of Statistical Physics, vol **103**, 1139 (2001).
- *Holographic Quantum Matter*, by Sean Hartnoll, Andrew Lucas, and Subir Sachdev, published by MIT Press (2018).

For a listing of the papers below under subject categories, along with overviews of their contents, see the web page <http://qpt.physics.harvard.edu/publications.html>

Publications in refereed journals

1. Atom in a Damped Cavity by S. Sachdev, Physical Review A **29**, 2627 (1983).
2. Crystalline and Fluid Order on a Random Topography by S. Sachdev and D. R. Nelson, Journal of Physics: Solid State C **17**, 5473 (1984).
3. Theory of the Structure Factor of Metallic Glasses, S. Sachdev and D. R. Nelson, Physical Review Letters **53**, 1947 (1984).
4. Universal Amplitude Ratios for two-dimensional melting on smooth and periodic substrates, S. Sachdev, Physical Review B **31**, 4476 (1985).
5. Incommensurate Icosahedral Density Waves in Rapidly Cooled Metals, D. R. Nelson and S. Sachdev, Physical Review B **32**, 689, (1985).
6. Statistical Mechanics of Pentagonal and Icosahedral Order in Dense Liquids, S. Sachdev and D. R. Nelson, Physical Review B **32**, 1480 (1985).
7. Order in Metallic Glasses and Icosahedral Crystals, S. Sachdev and D. R. Nelson, Physical Review B **32**, 4592 (1985).
8. Viscous Relaxation in Metallic Glasses, S. Sachdev, Physical Review B **33**, 6395 (1986).
9. Excited States and the metal-insulator transition in monovalent systems by R. N. Bhatt and S. Sachdev, Physical Review B **34**, 3520, (1986).

10. Electron Spin Resonance in Insulating Doped Semiconductors by S. Sachdev and R. N. Bhatt, *Physical Review B* **34**, 4898 (1986).
11. Electron Spin Resonance in Disordered Metals by S. Sachdev, *Physical Review B* **34**, 6049 (1986).
12. Spin Dynamics of Nearly Localized Electrons by M. A. Paalanen, S. Sachdev, R. N. Bhatt and A. E. Ruckenstein, *Physical Review Letters* **57**, 2061 (1986).
13. Spin Dynamics Across the Metal-Insulator Transition, by S. Sachdev and R. N. Bhatt, *Journal of Applied Physics* **61**, 4366 (1987).
14. Spin Dephasing in Disordered Semiconductors and Metals, by S. Sachdev, *Physical Review B* **35**, 7558 (1987).
15. Valley Fluctuations in Degenerately-doped Semiconductors by S. Sachdev, *Physical Review Letters* **58**, 2590 (1987).
16. Inelastic Scattering and Pair Breaking in Anisotropic and Isotropic Superconductors, by A. J. Millis, S. Sachdev and C. M. Varma, *Physical Review B* **37**, 4975 (1988).
17. Magnetic Properties Across the Metal-Insulator Transition, by S. Sachdev, R. N. Bhatt and M. A. Paalanen, *Journal of Applied Physics* **63**, 4285 (1988).
18. Superconductivity of Itinerant Electrons coupled to Spin Chains by S. Sachdev and R. Shankar, *Physical Review B* **38**, 826 (1988).
19. Thermodynamic Behavior near a Metal-Insulator Transition by M. A. Paalanen, J. Graebner, S. Sachdev and R. N. Bhatt, *Physical Review Letters* **61**, 597, (1988).
20. Local Moments near the Metal-Insulator Transition, by S. Sachdev. *Physical Review B* **39**, 5297 (1989).
21. Hole motion in a Quantum Neel State, by S. Sachdev, *Physical Review B* **39**, 12232 (1989).
22. Some Features of the Phase Diagram of $SU(N)$ Antiferromagnets on a Square Lattice, by N. Read and S. Sachdev, *Nucl Phys. B* **316**, 609 (1989).
23. Valence bond and spin-Peierls ground states of low dimensional quantum antiferromagnets, by N. Read and S. Sachdev, *Physical Review Letters* **62**, 1694 (1989).
24. Effective Field Theory of Local Moment Formation in Disordered Metals, by M. Milivanovic, S. Sachdev and R.N. Bhatt, *Physical Review Letters* **63**, 82 (1989).
25. Sine-Gordon theory of the non-Néel phase of two-dimensional quantum antiferromagnets, by W. Zheng and S. Sachdev, *Physical Review B* **40**, 2704 (1989).

26. Spin-Peierls ground states of the quantum dimer model: a finite size study, by S. Sachdev, *Physical Review B* **40**, 5204 (1989).
27. Large N limit of the square lattice $t-J$ model at $1/4$ and other filling fractions, by S. Sachdev, *Physical Review B* **41**, 4502 (1990).
28. Bond-operator representation of quantum spins: Mean field theory of frustrated quantum Heisenberg antiferromagnets, by S. Sachdev and R. N. Bhatt, *Physical Review B* **41**, 9323 (1990).
29. Action of hedgehog-instantons in the disordered phase of the $2 + 1$ dimensional CP^{N-1} model, by G. Murthy and S. Sachdev, *Nuclear Physics B* **344**, 557 (1990).
30. Conservation laws, anisotropy and “self-organized criticality” in noisy non-equilibrium systems, by G. Grinstein, D. H. Lee, and S. Sachdev, *Physical Review Letters* **64**, 1927 (1990).
31. Spin-Peierls, valence bond solid, and Néel ground states of low dimensional quantum antiferromagnets, N. Read and S. Sachdev, *Physical Review B* **42**, 4568 (1990).
32. Effective lattice models for two dimensional quantum antiferromagnets, by S. Sachdev and R. Jalabert, *Modern Physics Letters B* **4**, 1043 (1990).
33. Large N expansion for frustrated quantum antiferromagnets, by N. Read and S. Sachdev, *Physical Review Letters*, **66**, 1773 (1991).
34. Large N expansion for frustrated and doped quantum antiferromagnets, by S. Sachdev and N. Read, *International Journal of Modern Physics B*, **5**, 219 (1991), <http://arxiv.org/abs/cond-mat/0402109>.
35. Pairing in two dimensions: a systematic approach, by S. Sachdev and Z. Wang, *Physical Review B* **43**, 10229 (1991).
36. Spontaneous alignment of frustrated bonds in an anisotropic, three dimensional Ising model, by R. Jalabert and S. Sachdev, *Physical Review B* **44**, 686 (1991).
37. Stable hc/e vortices in a gauge theory of superconductivity in strongly correlated electronic systems. by S. Sachdev, *Physical Review B* **45**, 389 (1992).
38. Superconducting, metallic, and insulating phases in a model of CuO_2 layers, by J. Ye and S. Sachdev, *Physical Review B* **44**, 10173 (1991).
39. The kagomé and triangular lattice Heisenberg antiferromagnets: ordering from quantum fluctuations and quantum-disordered ground states with unconfined bosonic spinons, by S. Sachdev, *Physical Review B* **45**, 12377 (1992).
40. Universal quantum critical dynamics of two-dimensional quantum antiferromagnets, by S. Sachdev and J. Ye, *Physical Review Letters* **69**, 2411 (1992).

41. Gapless spin-fluid ground state in a random quantum Heisenberg magnet, by S. Sachdev and J. Ye, *Physical Review Letters* **70**, 3339 (1993)
42. A solvable spin-glass of quantum rotors, by J. Ye, S. Sachdev, and N. Read, *Physical Review Letters* **70**, 4011 (1993).
43. Universal magnetic properties of $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ at intermediate temperatures, by A. V. Chubukov and S. Sachdev, *Physical Review Letters* **71**, 169 (1993); **71**, 2680 (1993) (E).
44. Chubukov and Sachdev reply to Comment on “Universal magnetic properties of $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ at intermediate temperatures”, *Physical Review Letters* **71**, 3615 (1993).
45. Theory of two-dimensional quantum Heisenberg antiferromagnets with a nearly-critical ground-state, by A. V. Chubukov, S. Sachdev, and J. Ye, *Physical Review B* **49**, 11919 (1994).
46. Polylogarithm identities in a conformal field theory in three dimensions by S. Sachdev, *Physics Letters B* **309**, 285 (1993).
47. Universal magnetic properties of frustrated quantum antiferromagnets in two dimensions, by A. V. Chubukov, T. Senthil, and S. Sachdev, *Physical Review Letters* **72**, 2089 (1994).
48. Universal behavior of the spin-echo decay rate in La_2CuO_4 by A. V. Chubukov, S. Sachdev, and A. Sokol, *Physical Review B* **49**, 9052 (1994).
49. Quantum phases of the Shraiman-Siggia model by S. Sachdev *Physical Review B* **49**, 6770 (1994).
50. Quantum phase transitions and conserved charges by S. Sachdev, *Zeitschrift für Physik B* **94**, 469 (1994).
51. Quantum phase transitions in frustrated, two-dimensional, antiferromagnets by A. V. Chubukov, S. Sachdev, and T. Senthil, *Nuclear Physics B*, **426** [FS], 601 (1994).
52. Large- S expansion for quantum antiferromagnets on a triangular lattice by A. V. Chubukov, S. Sachdev, and T. Senthil, *Journal of Physics: Condensed Matter* **6**, 8891 (1994).
53. Finite temperature properties of quantum antiferromagnets in a uniform magnetic field in one and two dimensions by S. Sachdev, T. Senthil and R. Shankar, *Physical Review B* **50**, 258, (1994).
54. NMR relaxation in half-integer antiferromagnetic spin chains by S. Sachdev, *Physical Review B* **50**, 13006 (1994).
55. Crossover and scaling in a nearly antiferromagnetic Fermi liquid in two dimensions by S. Sachdev, A. V. Chubukov, and A. Sokol, *Physical Review B*, **51**, 14874 (1995).
56. Landau theory of quantum spin glasses of rotors and Ising spins by N. Read, S. Sachdev, and J. Ye, *Physical Review B*, **52**, 384 (1995).

57. Quantum-critical behavior in a two layer antiferromagnet by A. W. Sandvik, A. V. Chubukov, and S. Sachdev, *Physical Review B*, **51**, 16483 (1995).
58. Charge and spin density wave ordering transitions in strongly correlated metals by S. Sachdev and A. Georges, *Physical Review B* **52**, 9520 (1995).
59. Quantum field theory of metallic spin glasses, by S. Sachdev, N. Read, and R. Oppermann, *Physical Review B*, **52**, 10286 (1995).
60. Continuum quantum ferromagnets at finite temperature and the quantum Hall effect by N. Read and S. Sachdev, *Physical Review Letters* **75**, 3509 (1995).
61. Universal, finite temperature, crossover functions of the quantum transition in the Ising chain in a transverse field by S. Sachdev, *Nuclear Physics B*. **464**, 576 (1996).
62. Phase ordering kinetics of the Bose gas by K. Damle, S. Majumdar, and S. Sachdev, *Physical Review A*, **54**, 5037 (1996).
63. Zero temperature phase transitions in quantum Heisenberg ferromagnets by S. Sachdev and T. Senthil, *Annals of Physics* **251**, 76 (1996).
64. Multicritical crossovers near the dilute Bose gas quantum critical point by K. Damle and S. Sachdev, *Physical Review Letters* **76**, 4412 (1996).
65. Universal low temperature properties of quantum and classical ferromagnetic chains by M. Takahashi, H. Nakamura, and S. Sachdev, *Physical Review B* **54**, R744 (1996).
66. Phase transition of a Bose gas in a harmonic potential by K. Damle, T. Senthil, S.N. Majumdar, and S. Sachdev, *Europhysics Letters* **36**, 7 (1996).
67. Spin-Peierls states of quantum antiferromagnets on the CaV_4O_9 lattice by S. Sachdev and N. Read, *Physical Review Letters* **77**, 4800 (1996).
68. Theory of finite temperature crossovers near quantum critical points close to, or above, their upper-critical dimension by S. Sachdev, *Physical Review B* **55**, 142 (1997).
69. Finite temperature correlations in the one-dimensional quantum Ising model by A. Leclair, F. Lesage, S. Sachdev, and H. Saleur, *Nuclear Physics B* **482**, 579 (1996).
70. Higher dimensional realizations of activated dynamic scaling at random quantum transitions by T. Senthil and S. Sachdev, *Physical Review Letters* **77**, 5292 (1996).
71. Metallic spin glasses by S. Sachdev and N. Read, *Journal of Physics: Condensed Matter* **8**, 9723 (1996).

72. Low temperature relaxational dynamics of the Ising chain in a transverse field by S. Sachdev and A. P. Young, *Physical Review Letters* **78**, 2220 (1997).
73. Low temperature spin diffusion in the one-dimensional quantum $O(3)$ nonlinear σ -model by S. Sachdev and K. Damle, *Physical Review Letters* **78**, 943 (1997).
74. Scaling and Crossover Functions for the Conductance in the Directed Network Model of Edge States by I. Gruzberg, N. Read and S. Sachdev, *Physical Review B* **55**, 10593 (1997).
75. Double-layer quantum Hall antiferromagnetism at filling fraction $\nu = 2/m$ where m is an odd integer, by S. Das Sarma, S. Sachdev and L. Zheng, *Physical Review Letters* **79**, 917 (1997).
76. Conductance and its universal fluctuations in the directed network model at the crossover to the quasi-one-dimensional regime by I.A. Gruzberg, N. Read and S. Sachdev, *Physical Review B* **56**, 13218 (1997).
77. Non-zero temperature transport near quantum critical points by K. Damle and S. Sachdev, *Physical Review B* **56**, 8714 (1997).
78. Non-zero temperature transport near fractional quantum Hall critical points by S. Sachdev, *Physical Review B* **57**, 7157 (1998).
79. Canted antiferromagnetic and spin singlet quantum Hall states in double-layer systems by L. Zheng, S. Sachdev and S. Das Sarma, *Physical Review B* **58**, 4672 (1998).
80. Spin dynamics and transport in gapped one-dimensional Heisenberg antiferromagnets at nonzero temperatures by K. Damle and S. Sachdev, *Physical Review B* **57**, 8307 (1998).
81. Coulomb interactions at quantum Hall critical points of systems in a periodic potential by J. Ye and S. Sachdev, *Physical Review Letters* **80**, 5409 (1998).
82. Universal critical temperature for Kosterlitz-Thouless transitions in bilayer quantum magnets by M. Troyer and S. Sachdev, *Physical Review Letters*, **81**, 5418 (1998).
83. Universal relaxational dynamics near two-dimensional quantum-critical points by S. Sachdev, *Physical Review B* **59**, 14054 (1999).
84. Intermediate temperature dynamics of one-dimensional Heisenberg antiferromagnets by C. Buragohain and S. Sachdev, *Physical Review B* **59**, 9285 (1999).
85. Continuum, quasiclassical, transport theory for thermally fluctuating superconductors in two dimensions, by S. Sachdev, O. A. Starykh, *Nature* **405**, 322 (2000).
86. Comment on "Spin Transport properties of the quantum one-dimensional non-linear sigma model" by S. Sachdev and K. Damle, *Journal of the Physical Society of Japan* **69**, 2712 (2000).

87. Charge order, superconductivity, and a global phase diagram of doped antiferromagnets by M. Vojta and S. Sachdev, *Physical Review Letters* **83**, 3916 (1999).
88. Quantum phase transitions in antiferromagnets and superfluids, by S. Sachdev and M. Vojta, *Physica B* **280**, 333 (2000).
89. Mean field theory of a quantum Heisenberg spin glass, by A. Georges, O. Parcollet and S. Sachdev, *Physical Review Letters* **85**, 840 (2000).
90. Quantum impurity in a nearly-critical two dimensional antiferromagnet, by S. Sachdev, C. Buragohain and M. Vojta, *Science* **286**, 2479 (1999).
91. Translational symmetry breaking in two-dimensional antiferromagnets and superconductors, by S. Sachdev and M. Vojta, *Journal of the Physical Society of Japan* **69** Supplement B, 1 (2000).
92. Quantum impurity dynamics in two-dimensional antiferromagnets and superconductors, by M. Vojta, C. Buragohain, and S. Sachdev, *Physical Review B* **61**, 15152 (2000).
93. Quantum criticality: competing ground states in low dimensions, by S. Sachdev, *Science*, **288**, 475 (2000).
94. Competing orders and quantum criticality in doped antiferromagnets, by M. Vojta, Y. Zhang, and S. Sachdev, *Physical Review B* **62**, 6721 (2000).
95. Quantum phase transitions in d -wave superconductors, by M. Vojta, Y. Zhang, and S. Sachdev, *Physical Review Letters* **85**, 4940 (2000); **100**, 089904 (2008) (E).
96. Impurity in a d -wave superconductor: Kondo effect and STM spectra, by A. Polkovnikov, S. Sachdev, and M. Vojta, *Physical Review Letters* **86**, 296 (2001).
97. Renormalization group analysis of quantum critical points in d -wave superconductors, by M. Vojta, Y. Zhang, and S. Sachdev, *International Journal of Modern Physics B* **14**, 3719 (2000).
98. Quantum fluctuations of a nearly critical Heisenberg spin glass by A. Georges, O. Parcollet, and S. Sachdev, *Physical Review B* **63**, 134406 (2001).
99. Spin orthogonality catastrophe in two-dimensional antiferromagnets and superconductors, by S. Sachdev, M. Troyer, and M. Vojta, *Physical Review Letters* **86**, 2617 (2001).
100. Static hole in a critical antiferromagnet: field-theoretic renormalization group, by S. Sachdev, *Physica C* **357**, 78 (2001).
101. Comment on “Critical spin dynamics of the 2D quantum Heisenberg antiferromagnets: $\text{Sr}_2\text{CuO}_2\text{Cl}_2$ and $\text{Sr}_2\text{Cu}_3\text{O}_4\text{Cl}_2$ ”, by S. Sachdev and O. A. Starykh, <http://arxiv.org/abs/cond-mat/0101394>.

102. Quantum phases of the Shastry-Sutherland antiferromagnet, by C.-H. Chung, J. B. Marston, and S. Sachdev, *Physical Review B* **64**, 134407 (2001).
103. Spin ordering quantum transitions of superconductors in a magnetic field, by E. Demler, S. Sachdev, and Y. Zhang, *Physical Review Letters* **87**, 067202 (2001)
104. Bond operator theory of doped antiferromagnets: from Mott insulators with bond-centered charge order, to superconductors with nodal fermions, by K. Park and S. Sachdev, *Physical Review B* **64**, 184510 (2001).
105. Tunneling gap of laterally separated quantum Hall systems, by M. Kollar and S. Sachdev, *Physical Review B* **65**, 121304 (2002).
106. Ground states of quantum antiferromagnets in two dimensions, by S. Sachdev and K. Park, *Annals of Physics (N.Y.)* **298**, 58 (2002).
107. Quantum spin glass transition in the two dimensional electron gas, by S. Sachdev, *Pramana* **58**, 285 (2002).
108. Bond and Néel order and fractionalization in ground states of easy-plane antiferromagnets in two dimensions, by K. Park and S. Sachdev, *Physical Review B* **65**, 220405 (2002).
109. Competing orders in a magnetic field: spin and charge density waves in the cuprate superconductors, by Y. Zhang, E. Demler and S. Sachdev, *Physical Review B* **66**, 094501 (2002).
110. Pinning of dynamic spin density wave fluctuations in the cuprate superconductors, by A. Polkovnikov, M. Vojta, and S. Sachdev, *Physical Review B* **65**, 220509 (2002).
111. Mott insulators in strong electric fields, by S. Sachdev, K. Sengupta, and S. M. Girvin, *Physical Review B* **66**, 075128 (2002).
112. Non-equilibrium Gross-Pitaevskii dynamics of boson lattice models, by A. Polkovnikov, S. Sachdev, and S. M. Girvin, *Physical Review A* **66**, 053607 (2002).
113. Strongly coupled quantum criticality with a Fermi surface in two dimensions: fractionalization of spin and charge collective modes, by S. Sachdev and T. Morinari, *Physical Review B* **66**, 235117 (2002).
114. Spin collective mode and quasiparticle contributions to STM spectra of d -wave superconductors with pinning, by A. Polkovnikov, S. Sachdev, and M. Vojta, *Physica C* **388-389**, 19 (2003) (Erratum **391**, 381 (2003)).
115. Fractionalized Fermi liquids, by T. Senthil, S. Sachdev, and M. Vojta, *Physical Review Letters* **90**, 216403 (2003).
116. Order and quantum phase transitions in the cuprate superconductors, S. Sachdev, *Reviews of Modern Physics* **75**, 913 (2003).

117. Understanding correlated electron systems by a classification of Mott insulators, S. Sachdev, *Annals of Physics* **303**, 226 (2003).
118. Radiation-induced magnetoresistance oscillations in a 2D electron gas, A. C. Durst, S. Sachdev, N. Read, and S. M. Girvin, *Physical Review Letters*, **91**, 086803 (2003).
119. Quantum impurity in an antiferromagnet: non-linear sigma model theory, S. Sachdev and M. Vojta, *Physical Review B* **68**, 064419 (2003).
120. Non-Fermi liquid behavior from two-dimensional antiferromagnetic fluctuations: a renormalization-group and large- N analysis, S. Pankov, S. Florens, A. Georges, G. Kotliar, and S. Sachdev, *Physical Review B* **69**, 054426 (2004).
121. Weak magnetism and non-Fermi liquids near heavy-fermion critical points, T. Senthil, M. Vojta and S. Sachdev, *Physical Review B* **69**, 035111 (2004).
122. Absence of U(1) spin liquids in two dimensions, I. F. Herbut, B. H. Seradjeh S. Sachdev, and G. Murthy, *Physical Review B* **68**, 195110 (2003). This paper has been superseded by paper 130 below and M. Hermele *et al.*, [cond-mat/0404751](#).
123. Competing orders in thermally fluctuating superconductors in two dimensions, S. Sachdev and E. Demler, *Physical Review B* **69**, 144504 (2004).
124. Conductivity of thermally fluctuating superconductors in two dimensions, S. Sachdev, *Physica* **408-410C**, 218 (2004).
125. Competing density-wave orders in a one-dimensional hard-boson model, P. Fendley, K. Sengupta, and S. Sachdev, *Physical Review B* **69**, 075106 (2004).
126. Deconfined quantum critical points, T. Senthil, A. Vishwanath, L. Balents, S. Sachdev, and M. P. A. Fisher, *Science* **303**, 1490 (2004).
127. The planar pyrochlore antiferromagnet: A large- N analysis, J.-S. Bernier, C.-H. Chung, Y. B. Kim, and S. Sachdev, *Physical Review B* **69**, 214427 (2004).
128. Quench dynamics across quantum critical points, K. Sengupta, S. Powell, and S. Sachdev, *Physical Review A* **69**, 053616 (2004).
129. Quantum phase transition in an atomic Bose gas with a Feshbach resonance, M. W. J. Romans, R. A. Duine, S. Sachdev, and H. T. C. Stoof, *Physical Review Letters* **93**, 020405 (2004).
130. Quantum criticality beyond the Landau-Ginzburg-Wilson paradigm, T. Senthil, L. Balents, S. Sachdev, A. Vishwanath, and M. P. A. Fisher, *Physical Review B* **70**, 144407 (2004).
131. Universal conductance of nanowires near the superconductor-metal quantum transition, S. Sachdev, P. Werner, and M. Troyer, *Physical Review Letters* **92**, 237003 (2004)

132. Putting competing orders in their place near the Mott transition, L. Balents, L. Bartosch, A. Burkov, S. Sachdev, and K. Sengupta, *Physical Review B* **71**, 144508 (2005).
133. Phenomenological lattice model for dynamic spin and charge fluctuations in the cuprates, M. Vojta and S. Sachdev, *Journal of the Physics and Chemistry of Solids*, **67**, 11 (2006).
134. Putting competing orders in their place near the Mott transition II: A spin on the dimer model, L. Balents, L. Bartosch, A. Burkov, S. Sachdev, and K. Sengupta, *Physical Review B* **71**, 144509 (2005).
135. Low temperature broken symmetry phases of spiral antiferromagnets, L. Capriotti and S. Sachdev, *Physical Review Letters* **93**, 257206 (2004).
136. Thermal melting of density waves on the square lattice, A. Del Maestro and S. Sachdev, *Physical Review B* **71**, 184511 (2005).
137. Quantum spin chains with site dissipation, P. Werner, M. Troyer, and S. Sachdev, *J. Phys. Soc. Jpn. Suppl.* **74**, 67 (2005).
138. Estimating the mass of vortices in the cuprate superconductors, L. Bartosch, L. Balents, and S. Sachdev, <http://arxiv.org/abs/cond-mat/0502002>.
139. Depletion of the Bose-Einstein condensate in Bose-Fermi mixtures, S. Powell, S. Sachdev, and H. P. Büchler, *Phys. Rev. B* **72**, 024534 (2005).
140. Universal relaxational dynamics of gapped one dimensional models in the quantum sine-Gordon universality class, K. Damle and S. Sachdev, *Phys. Rev. Lett.* **95**, 187201 (2005).
141. Quantum critical dynamics of the two-dimensional Bose gas, S. Sachdev and E. R. Dunkel, *Physical Review B* **73**, 085116 (2006).
142. Thermoelectric transport near pair breaking quantum phase transition out of d -wave superconductivity, D. Podolsky, A. Vishwanath, J. Moore, and S. Sachdev, *Physical Review B* **75**, 014520 (2007).
143. Effective action for vortex dynamics in clean d -wave superconductors, P. Nikolić and S. Sachdev, *Physical Review B* **73**, 134511 (2006).
144. Magnon decay in gapped quantum spin systems, A. Kolezhuk and S. Sachdev, *Physical Review Letters* **96**, 087203 (2006).
145. Quantum criticality of a Fermi gas with a spherical dispersion minimum, K. Yang and S. Sachdev, *Physical Review Letters* **96**, 187001 (2006).
146. Fermi surfaces and Luttinger's theorem in paired fermion systems, S. Sachdev and K. Yang, *Physical Review B* **73**, 174504 (2006).

147. Detecting the quantum zero-point motion of vortices in the cuprate superconductors, L. Bartosch, L. Balents, and S. Sachdev, *Annals of Physics* **321**, 1528 (2006).
148. From stripe to checkerboard order on the square lattice, in the presence of quenched disorder, A. del Maestro, B. Rosenow, and S. Sachdev, *Physical Review B* **74**, 024520 (2006).
149. Influence of the quantum zero-point motion of a vortex on the electronic spectra of *s*-wave superconductors, L. Bartosch and S. Sachdev, *Physical Review B* **74**, 144515 (2006).
150. Electronic states near a quantum fluctuating point vortex in a *d*-wave superconductor: Dirac fermion theory, P. Nikolić, S. Sachdev and L. Bartosch, *Physical Review B* **74**, 144516 (2006).
151. Theory of quantum impurities in spin liquids, A. Kolezhuk, S. Sachdev, R. R. Biswas, and P. Chen, *Physical Review B* **74**, 165114 (2006).
152. Excited state spectra at the superfluid-insulator transition out of paired condensates, S. Powell and S. Sachdev, *Physical Review A* **75**, 031601 (2007).
153. Renormalization group fixed points, universality, and $1/N$ expansion for quantum liquids with interactions near the unitarity limit, P. Nikolić and S. Sachdev, *Physical Review A* **75**, 033608 (2007).
154. Hole dynamics in an antiferromagnet across a deconfined quantum critical point, R. K. Kaul, A. Kolezhuk, M. Levin, S. Sachdev, and T. Senthil, *Physical Review B* **75**, 235122 (2007).
155. Impurity induced spin texture in quantum critical 2D antiferromagnets, K. H. Höglund, A. W. Sandvik, and S. Sachdev, *Physical Review Letters* **98**, 087203 (2007).
156. Dual vortex theory of doped antiferromagnets, L. Balents and S. Sachdev, *Annals of Physics* **322**, 2635 (2007).
157. Quantum critical transport, duality, and M-theory, C. P. Herzog, P. Kovtun, S. Sachdev, and D. T. Son, *Physical Review D* **75**, 085020 (2007).
158. Spin dynamics across the superfluid-insulator transition of spinful bosons, S. Powell and S. Sachdev, *Physical Review A* **76**, 033612 (2007).
159. Impurity spin textures across conventional and deconfined quantum critical points of two-dimensional antiferromagnets, M. Metlitski and S. Sachdev, *Physical Review B* **76**, 064423 (2007).
160. Algebraic charge liquids, R. K. Kaul, Y. B. Kim, S. Sachdev, and T. Senthil, *Nature Physics* **4**, 28 (2008).
161. Theory of the Nernst effect near quantum phase transitions in condensed matter, and in dyonic black holes, S. A. Hartnoll, P. K. Kovtun, M. Müller, and S. Sachdev, *Physical Review B* **76**, 144502 (2007).

162. Coulomb impurity in graphene, R. R. Biswas, S. Sachdev, and D. T. Son, *Physical Review B* **76**, 205122 (2007).
163. Superfluid-insulator transitions of the Fermi gas with near-unitary interactions in a periodic potential, E. G. Moon, P. Nikolić, and S. Sachdev, *Physical Review Letters* **99**, 230403 (2007).
164. Universal thermal and electrical transport near the superconductor-metal quantum phase transition in nanowires, A. del Maestro, B. Rosenow, N. Shah, and S. Sachdev, *Physical Review B* **77**, 180501 (2008).
165. Theory of Néel and valence-bond-solid phases on the kagome lattice of Zn-paratacamite, M. J. Lawler, L. Fritz, Y. B. Kim, and S. Sachdev, *Physical Review Letters* **100**, 187201 (2008).
166. Valence bond solid order near impurities in two-dimensional quantum antiferromagnets, M. A. Metlitski and S. Sachdev, *Physical Review B* **77**, 054411 (2008).
167. Insulator-metal transition on the triangular lattice, Y. Qi and S. Sachdev, *Physical Review B* **77**, 165112 (2008).
168. Quantum magnetism and criticality, S. Sachdev, *Nature Physics* **4**, 173 (2008).
169. A square lattice algebraic spin liquid with $SO(5)$ symmetry, C. Xu and S. Sachdev, *Physical Review Letters* **100**, 137201 (2008).
170. Quantum criticality of $U(1)$ gauge theories with fermionic and bosonic matter in two spatial dimensions, R. Kaul and S. Sachdev, *Physical Review B* **77**, 155105 (2008).
171. Collective cyclotron motion of the relativistic plasma in graphene, M. Müller and S. Sachdev, *Physical Review B* **78**, 115419 (2008).
172. Nodal quasiparticles and the onset of spin density wave order in the cuprates, A. Pelissetto, S. Sachdev and E. Vicari, *Physical Review Letters* **101**, 027005 (2008).
173. Infinite randomness fixed point of the superconductor-metal quantum phase transition, A. Del Maestro, B. Rosenow, M. Müller, and S. Sachdev, *Physical Review Letters* **101**, 035701 (2008).
174. Quantum critical transport in clean graphene, L. Fritz, J. Schmalian, M. Müller, and S. Sachdev, *Physical Review B* **78**, 085416 (2008).
175. Radio frequency spectroscopy of a strongly imbalanced Feshbach-resonant Fermi gas, M. Veillette, E. G. Moon, A. Lamacraft, L. Radzihovsky, S. Sachdev, and D. E. Sheehy, *Physical Review A* **78**, 033614 (2008).
176. Destruction of Neel order in the cuprates by electron-doping, R. K. Kaul, M. A. Metlitski, S. Sachdev and C. Xu, *Physical Review B* **78**, 045110 (2008).

177. Ising and spin orders in iron-based superconductors, C. Xu, M. Müller, and S. Sachdev, *Physical Review B* **78**, 020501(R) (2008).
178. Quantum critical relativistic magnetotransport in graphene, M. Müller, L. Fritz, and S. Sachdev, *Physical Review B* **78**, 115406 (2008).
179. Theory of the nodal nematic quantum phase transition in superconductors, E.-A. Kim, M. J. Lawler, P. Oreto, S. Sachdev, E. Fradkin, and S. A. Kivelson, *Physical Review B* **77**, 184514 (2008).
180. Renormalization group theory of nematic ordering in d -wave superconductors, Y. Huh and S. Sachdev, *Physical Review B* **78**, 064512 (2008).
181. Experimental observables near a nematic quantum critical point in the pnictide and cuprate superconductors, C. Xu, Y. Qi, and S. Sachdev, *Physical Review B* **78**, 134507 (2008).
182. Theory of the pairbreaking superconductor-metal transition in nanowires, A. Del Maestro, B. Rosenow, and S. Sachdev, *Annals of Physics* **324**, 523 (2009).
183. Imaging bond order near non-magnetic impurities in square lattice antiferromagnets, R. K. Kaul, R. G. Melko, M. A. Metlitski, and S. Sachdev, *Physical Review Letters* **101**, 187206 (2008).
184. Quantum phase transitions beyond the Landau-Ginzburg paradigm and supersymmetry, S. Sachdev and X. Yin, *Annals of Physics* **325**, 2 (2010).
185. Edge and impurity response in two-dimensional quantum antiferromagnets, M. A. Metlitski, and S. Sachdev, *Physical Review B* **78**, 174410 (2008).
186. Quantum Hall to insulator transition in the bilayer quantum hall ferromagnet, G. Murthy and S. Sachdev, *Physical Review Letters* **101**, 226801 (2008).
187. Dynamics and transport of the Z_2 spin liquid: application to κ -(ET) $_2$ Cu $_2$ (CN) $_3$, Y. Qi, C. Xu, and S. Sachdev, *Physical Review Letters* **102**, 176401 (2009).
188. Low temperature quasiparticle transport in a d -wave superconductor with coexisting charge order, A. C. Durst and S. Sachdev, *Physical Review B* **80**, 054518 (2009).
189. Global phase diagrams of frustrated quantum antiferromagnets in two dimensions: doubled Chern-Simons theory, C. Xu and S. Sachdev, *Physical Review B* **79**, 064405 (2009).
190. Paired electron pockets in the hole-doped cuprates, V. Galitski and S. Sachdev, *Physical Review B* **79**, 134512 (2009).
191. Nernst effect in the electron-doped cuprates, A. Hackl and S. Sachdev, *Physical Review B* **79**, 235124 (2009).

192. Signatures of the nematic ordering transition in the thermal conductivity of d -wave superconductors, L. Fritz and S. Sachdev, *Physical Review* **80**, 144503 (2009).
193. Entanglement entropy in the $O(N)$ model, M. A. Metlitski, C. A. Fuertes, and S. Sachdev, *Physical Review B* **80**, 115122 (2009).
194. Magnetization of the Shastry-Sutherland antiferromagnet near the Ising limit, F. Liu and S. Sachdev, [arXiv:0904.3018](https://arxiv.org/abs/0904.3018).
195. Competition between spin density wave order and superconductivity in the underdoped cuprates, E. G. Moon and S. Sachdev, *Physical Review B* **80**, 035117 (2009).
196. Fluctuating spin density waves in metals, S. Sachdev, M. A. Metlitski, Y. Qi, and C. Xu, *Physical Review B* **80**, 155129 (2009).
197. Quasiparticle Nernst effect in stripe-ordered cuprates, A. Hackl, M. Vojta and S. Sachdev, *Physical Review B* **81**, 045102 (2010).
198. Quantum oscillations and black hole ringing, F. Denef, S. A. Hartnoll, and S. Sachdev, *Physical Review D* **80**, 126016 (2009).
199. Black hole determinants and quasinormal modes, F. Denef, S. A. Hartnoll, and S. Sachdev, *Classical and Quantum Gravity* **27**, 125001 (2010).
200. de Haas-van Alphen oscillations for non-relativistic fermions coupled to an emergent U(1) gauge field, L. Fritz and S. Sachdev, *Physical Review B* **82**, 045123 (2010).
201. Effective theory of Fermi pockets in fluctuating antiferromagnets, Y. Qi and S. Sachdev, *Physical Review B* **81**, 115129 (2010).
202. Quantum phase transitions of metals in two spatial dimensions: I. Ising-nematic order, M. A. Metlitski and S. Sachdev, *Physical Review B* **82**, 075127 (2010).
203. Quantum criticality of the kagome antiferromagnet with Dzyaloshinskii-Moriya interactions, Y. Huh, L. Fritz and S. Sachdev, *Physical Review B* **81**, 144432 (2010).
204. Majorana liquids: the complete fractionalization of the electron, C. Xu and S. Sachdev, *Physical Review Letters* **105**, 057201 (2010).
205. Quantum phase transitions of metals in two spatial dimensions: II. Spin density wave order, M. A. Metlitski and S. Sachdev, *Physical Review B* **82**, 075128 (2010).
206. Quantum critical point shifts under superconductivity: the pnictides and the cuprates, E. G. Moon and S. Sachdev, *Physical Review B* **82**, 104516 (2010).

207. Holographic metals and the fractionalized Fermi liquid, S. Sachdev, *Physical Review Letters* **105**, 151602 (2010).
208. Holographic quantum critical transport without self-duality, R. C. Myers, S. Sachdev, and A. Singh, *Physical Review D* **83**, 066017 (2011).
209. Geometric phases and competing orders in two dimensions, L. Fu, S. Sachdev, and C. Xu, *Physical Review B* **83**, 165123 (2011).
210. The underdoped cuprates as fractionalized Fermi liquids: transition to superconductivity, E. G. Moon and S. Sachdev, *Physical Review B* **83**, 224508 (2011).
211. Correlated phases of bosons in tilted, frustrated lattices, S. Pielawa, T. Kitagawa, E. Berg, and S. Sachdev, *Physical Review B* **83**, 205135 (2011).
212. SU(2)-invariant spin liquids on the triangular lattice with spinful Majorana excitations, R. R. Biswas, L. Fu, C. Laumann, and S. Sachdev, *Physical Review B* **83**, 245131 (2011).
213. Fermi surfaces and gauge-gravity duality, L. Huijse and S. Sachdev, *Physical Review D* **84**, 026001 (2011).
214. Quantum critical response at the onset of spin density wave order in two-dimensional metals, S. A. Hartnoll, D. M. Hofman, M. A. Metlitski and S. Sachdev, *Physical Review B* **84**, 125115 (2011).
215. Vison states and confinement transitions of Z_2 spin liquids on the kagome lattice, Y. Huh, M. Punk and S. Sachdev, *Physical Review B* **84**, 094419 (2011).
216. A model of a Fermi liquid using gauge-gravity duality, S. Sachdev, *Physical Review D* **84**, 066009 (2011).
217. Topological Defects Coupling Smectic Modulations to Intra-unit-cell Nematicity in Cuprate, A. Mesaros, K. Fujita, H. Eisaki, S. Uchida, J. C. Davis, S. Sachdev, J. Zaanen, M. J. Lawler, and Eun-Ah Kim, *Science* **333**, 426 (2011).
218. Dicke quantum spin glass of atoms and photons, P. Strack and S. Sachdev, *Physical Review Letters* **107**, 277202 (2011).
219. Nematicity in the vortex lattice of FeSe, D. Chowdhury, E. Berg, and S. Sachdev, *Physical Review B* **84**, 205113 (2011).
220. Renyi entropies for free field theories, I. R. Klebanov, S. S. Pufu, S. Sachdev, and B. R. Safdi, *Journal of High Energy Physics* **1204** (2012) 074.
221. Hidden Fermi surfaces in compressible states of gauge-gravity duality, L. Huijse, S. Sachdev, and B. Swingle, *Physical Review B* **85**, 035121 (2012).

- 222. Competition between superconductivity and nematic order: anisotropy of superconducting coherence length, E. G. Moon and S. Sachdev, *Physical Review B* **85**, 184511 (2012).
- 223. Entanglement Entropy of 3-d Conformal Gauge Theories with Many Flavors, I. R. Klebanov, S. S. Pufu, S. Sachdev, and B. R. Safdi, *Journal of High Energy Physics* **1205** (2012) 036.
- 224. Fermi surface reconstruction in hole-doped t - J models without long-range antiferromagnetic order, M. Punk and S. Sachdev, *Physical Review B* **85**, 195123 (2012).
- 225. Frustrated quantum Ising spins simulated by spinless bosons in a tilted lattice: from a quantum liquid to antiferromagnetic order, S. Pielawa, E. Berg, and S. Sachdev, *Physical Review B* **86**, 184435 (2012).
- 226. Spectral functions of the Higgs mode near two-dimensional quantum critical points, D. Podolsky and S. Sachdev, *Physical Review B* **86**, 054508 (2012).
- 227. Quantum charge glasses of itinerant fermions with cavity-mediated long-range interactions, M. Müller, P. Strack and S. Sachdev, *Physical Review A* **86**, 023604 (2012).
- 228. Sign-problem-free quantum Monte Carlo of the onset of antiferromagnetism in metals, E. Berg, M. A. Metlitski and S. Sachdev, *Science* **338**, 1606 (2012).
- 229. Strange Metals in One Spatial Dimension, R. Gopakumar, A. Hashimoto, I. R. Klebanov, S. Sachdev, and K. Schoutens, *Physical Review D* **86**, 066003 (2012).
- 230. Breakdown of Fermi liquid behavior at the $(\pi, \pi) = 2k_F$ spin-density wave quantum-critical point: the case of electron-doped cuprates, D. Bergeron, D. Chowdhury, M. Punk, S. Sachdev and A.-M.S. Tremblay, *Physical Review B* **86**, 155123 (2012).
- 231. Compressible quantum phases from conformal field theories in 2+1 dimensions, S. Sachdev, *Physical Review D* **86**, 126003 (2012).
- 232. Quantum criticality of reconstructing Fermi surfaces, Junhyun Lee, P. Strack and S. Sachdev, *Physical Review B* **87**, 045104 (2013).
- 233. The quasi-normal modes of quantum criticality, W. Witczak-Krempa and S. Sachdev, *Physical Review B* **86**, 235115 (2012).
- 234. Multipoint correlators of conformal field theories: implications for quantum critical transport, D. Chowdhury, S. Raju, S. Sachdev, A. Singh, and P. Strack, *Physical Review B* **87**, 085138 (2013).
- 235. Mobile impurity near the superfluid-Mott insulator quantum critical point in two dimensions, M. Punk and S. Sachdev, *Physical Review A* **87**, 033618 (2013).
- 236. Scaling of the thermal spectral function for quantum critical bosons in one dimension, T. Barthel, U. Schollwöck, and S. Sachdev, [arXiv:1212.3570](https://arxiv.org/abs/1212.3570).

237. Keldysh approach for non-equilibrium phase transitions in quantum optics: beyond the Dicke model in optical cavities, E. G. Dalla Torre, S. Diehl, M. D. Lukin, S. Sachdev, and P. Strack, *Physical Review A* **87**, 023831 (2013).
238. Dispersing quasinormal modes in 2+1 dimensional conformal field theories , W. Witczak-Krempa and S. Sachdev, *Physical Review B* **87**, 155149 (2013).
239. Bond order in two-dimensional metals with antiferromagnetic exchange interactions, S. Sachdev and R. La Placa, *Physical Review Letters* **111**, 027202 (2013).
240. Monopoles in 2 + 1-dimensional conformal field theories with global U(1) symmetry, S. S. Pufu and S. Sachdev, *Journal of High Energy Physics* **1309** (2013) 127.
241. Vortex Lattices and Crystalline Geometries, N. Bao, S. Harrison, S. Kachru and S. Sachdev, *Physical Review D* **88**, 026002 (2013).
242. Singularity of the London penetration depth at quantum critical points in superconductors, D. Chowdhury, B. Swingle, E. Berg, and S. Sachdev, *Physical Review Letters* **111**, 157004 (2013).
243. Optical conductivity of visons in \mathbb{Z}_2 spin liquids close to a VBS transition on the kagome lattice, Y. Huh, M. Punk and S. Sachdev, *Physical Review B* **87**, 235108 (2013).
244. Dicke Quantum Spin and Photon Glass in Optical Cavities: Non-equilibrium theory and experimental signatures, M. Buchhold, P. Strack, S. Sachdev, and S. Diehl, *Physical Review A* **87**, 063622 (2013).
245. Vector boson excitations near deconfined quantum critical points, Y. Huh, P. Strack, and S. Sachdev, *Physical Review Letters* **111**, 166401 (2013).
246. Conserved current correlators of conformal field theories in 2+1 dimensions, Y. Huh, P. Strack, and S. Sachdev, *Physical Review B* **88**, 155109 (2013).
247. Conformal field theories in a periodic potential: results from holography and field theory, P. Chesler, A. Lucas, and S. Sachdev, *Physical Review D* **89**, 026005 (2014).
248. Topological excitations and the dynamic structure factor of spin liquids on the kagome lattice, M. Punk, D. Chowdhury, and S. Sachdev, *Nature Physics* **10**, 289 (2014).
249. Entanglement entropy of compressible holographic matter: loop corrections from bulk fermions, B. Swingle, L. Huijse, and S. Sachdev, *Physical Review B* **90**, 045107 (2014).
250. The dynamics of quantum criticality revealed by Quantum Monte Carlo and holography, W. Witczak-Krempa, E. Sorensen, and S. Sachdev, *Nature Physics* **10**, 361 (2014).
251. Angular fluctuations of a multi-component order describe the pseudogap regime of the cuprate superconductors, L. E. Hayward, D. G. Hawthorn, R. G. Melko, and S. Sachdev, *Science* **343**, 1336 (2014).

252. Mean field theory of competing orders in metals with antiferromagnetic exchange interactions, J. D. Sau and S. Sachdev, *Physical Review B* **89**, 075129 (2014).
253. Quantum Fluctuations of the Transverse Field Ising Chain, A. W. Kinross, M. Fu, T. J. Munsie, H. A. Dabkowska, G. M. Luke, S. Sachdev, and T. Imai, *Physical Review X* **4**, 031008 (2014).
254. Transport near the Ising-nematic quantum critical point of metals in two dimensions, S. A. Hartnoll, R. Mahajan, M. Punk, and S. Sachdev, *Physical Review B* **89**, 155130 (2014).
255. Scale-invariant hyperscaling-violating holographic theories and the resistivity of strange metals with random-field disorder, A. Lucas, S. Sachdev, and K. Schalm, *Physical Review D* **89**, 066018 (2014).
256. Quantum quenches and competing orders, Ling-Yan Hung, Wenbo Fu, and S. Sachdev, *Physical Review B* **90**, 024506 (2014).
257. Bond order instabilities in a correlated two-dimensional metal, A. Allais, J. Bauer, and S. Sachdev, *Physical Review B* **90**, 155114 (2014).
258. Auxiliary-boson and DMFT studies of bond ordering instabilities of t - J - V models on the square lattice, A. Allais, J. Bauer, and S. Sachdev, *Indian Journal of Physics* **88**, 905 (2014).
259. Cooper pairing in non-Fermi liquids, M. A. Metlitski, D. F. Mross, S. Sachdev, and T. Senthil, *Physical Review B* **91**, 115111 (2015).
260. Fermi Surface and Pseudogap Evolution in a Cuprate Superconductor, Yang He, Yi Yin, M. Zech, A. Soumyanarayanan, I. Zeljkovic, M. M. Yee, M. C. Boyer, K. Chatterjee, W. D. Wise, Takeshi Kondo, T. Takeuchi, H. Ikuta, P. Mistark, R. S. Markiewicz, A. Bansil, S. Sachdev, E. W. Hudson, and J. E. Hoffman, *Science* **344**, 608 (2014).
261. Direct phase sensitive identification of a d -form factor density wave in underdoped cuprates, K. Fujita, M. H. Hamidian, S. D. Edkins, Chung Koo Kim, Y. Kohsaka, M. Azuma, M. Takano, H. Takagi, H. Eisaki, S. Uchida, A. Allais, M. J. Lawler, E.-A. Kim, S. Sachdev, and J. C. Seamus Davis, *Proceedings of the National Academy of Sciences* **111**, E3026 (2014).
262. Feedback of superconducting fluctuations on charge order in the underdoped cuprates, D. Chowdhury and S. Sachdev, *Physical Review B* **90**, 134516 (2014).
263. Connecting high-field quantum oscillations to the pseudogap in the underdoped cuprates, A. Allais, D. Chowdhury, and S. Sachdev, *Nature Communications* **5**, 5771 (2014).
264. Diamagnetism and density wave order in the pseudogap regime of $\text{YBa}_2\text{Cu}_3\text{O}_{6+x}$, L. E. Hayward, A. J. Achkar, D. G. Hawthorn, R. G. Melko, and S. Sachdev, *Physical Review B* **90**, 094515 (2014).
265. Spectral function of a localized fermion coupled to the Wilson-Fisher conformal field theory, A. Allais and S. Sachdev, *Physical Review B* **90**, 035131 (2014).

266. Renormalization Group Analysis of a Fermionic Hot Spot Model, S. Whitsitt and S. Sachdev, *Physical Review B* **90**, 104505 (2014).
267. Deconfined criticality in bilayer graphene, Junhyun Lee and S. Sachdev, *Physical Review B* **90**, 195427 (2014).
268. DC resistivity at the onset of spin density wave order in two-dimensional metals, A. A. Patel and S. Sachdev, *Physical Review B* **90**, 165146 (2014).
269. Conformal field theories at non-zero temperature: operator product expansions, Monte Carlo, and holography, E. Katz, S. Sachdev, E. Sorensen, and W. Witczak-Krempa, *Physical Review B* **90**, 245109 (2014).
270. Density wave instabilities of fractionalized Fermi liquids, D. Chowdhury and S. Sachdev, *Physical Review B* **90**, 245136 (2014).
271. Charge ordering in three-band models of the cuprates, A. Thomson and S. Sachdev, *Physical Review B* **91**, 115142 (2015).
272. Conductivity of weakly disordered strange metals: from conformal to hyperscaling-violating regimes, A. Lucas and S. Sachdev, *Nuclear Physics B* **892**, 239 (2015).
273. Wess-Zumino-Witten terms in graphene Landau levels, Junhyun Lee and S. Sachdev, *Physical Review Letters* **114**, 226801 (2015).
274. Higgs criticality in a two-dimensional metal, D. Chowdhury and S. Sachdev, *Physical Review B* **91**, 115123 (2015).
275. A quantum dimer model for the pseudogap metal, M. Punk, A. Allais, and S. Sachdev, *Proceedings of the National Academy of Sciences* **112**, 9552 (2015).
276. Phase transition beneath the superconducting dome in $\text{BaFe}_2(\text{As}_{1-x}\text{P}_x)_2$, D. Chowdhury, J. Orenstein, S. Sachdev, and T. Senthil, *Physical Review B* **92**, 081113 (2015).
277. Memory matrix theory of magnetotransport in strange metals, A. Lucas and S. Sachdev, *Physical Review B* **91**, 195122 (2015).
278. Scaling dimensions of monopole operators in the CP^{N_b-1} theory in $2 + 1$ dimensions, E. Dyer, M. Mezei, S. S. Pufu and S. Sachdev, *Journal of High Energy Physics* **1506** (2015) 037; , Erratum **1603** (2016) 111.
279. Fluctuating orders and quenched randomness in the cuprates, Laimei Nie, L. E. H. Sierens, R. G. Melko, S. Sachdev, and S. A. Kivelson, *Physical Review B* **92**, 174505 (2015).
280. Probing excitations in insulators via injection of spin currents, S. Chatterjee and S. Sachdev, *Physical Review B* **92**, 165113 (2015).

281. Bekenstein-Hawking Entropy and Strange Metals, S. Sachdev, *Physical Review X* **5**, 041025 (2015).
282. Real space Eliashberg approach to charge order of electrons coupled to dynamic antiferromagnetic fluctuations, J. Bauer and S. Sachdev, *Physical Review B* **92**, 085134 (2015).
283. Absence of disorder-driven metal-insulator transitions in simple holographic models, S. Grozdanov, A. Lucas, S. Sachdev, and K. Schalm, *Physical Review Letters* **115**, 221601 (2015).
284. Hyperscaling at the spin density wave quantum critical point in two dimensional metals, A. A. Patel, P. Strack, and S. Sachdev, *Physical Review B* **92**, 165105 (2015).
285. Atomic-scale Electronic Structure of the Cuprate d -Symmetry Form Factor Density Wave State, M. H. Hamidian, S. D. Edkins, Chung Koo Kim, J. C. Davis, A. P. Mackenzie, H. Eisaki, S. Uchida, M. J. Lawler, E.-A. Kim, S. Sachdev, and K. Fujita, *Nature Physics* **12**, 150 (2016).
286. Magnetic-field Induced Interconversion of Cooper Pairs and Density Wave States within Cuprate Composite Order, M. H. Hamidian, S. D. Edkins, K. Fujita, A. Kostin, A. P. Mackenzie, H. Eisaki, S. Uchida, M. J. Lawler, E.-A. Kim, S. Sachdev, and J. C. Davis, [arXiv:1508.00620](https://arxiv.org/abs/1508.00620); this paper has been superseded by paper 325 below.
287. Fractionalized Fermi liquid on the surface of a topological Kondo insulator, A. Thomson and S. Sachdev, *Physical Review B* **93**, 125103 (2016).
288. Observation of the Dirac fluid and the breakdown of the Wiedemann-Franz law in graphene, J. Crossno, Jing K. Shi, Ke Wang, Xiaomeng Liu, A. Harzheim, A. Lucas, S. Sachdev, Philip Kim, Takashi Taniguchi, Kenji Watanabe, T. A. Ohki, and Kin Chung Fong, *Science* **351**, 1058 (2016).
289. Transport in inhomogeneous quantum critical fluids and in the Dirac fluid in graphene, A. Lucas, J. Crossno, Kin Chung Fong, Philip Kim, and S. Sachdev, *Physical Review B* **93**, 075426 (2016).
290. Emergent gauge fields and the high temperature superconductors, S. Sachdev, *Philosophical Transactions of the Royal Society A* **374**, 20150248 (2016).
291. Confinement transition to density wave order in metallic doped spin liquids, A. A. Patel, D. Chowdhury, A. Allais, and S. Sachdev, *Physical Review B* **93**, 165139 (2016).
292. Superconductivity from a confinement transition out of a FL* metal with \mathbb{Z}_2 topological and Ising-nematic orders, S. Chatterjee, Y. Qi, S. Sachdev, and J. Steinberg, *Physical Review B* **94**, 024502 (2016).
293. Universal Signatures of Quantum Critical Points from Finite-Size Torus Spectra: A Window into the Operator Content of Higher-Dimensional Conformal Field Theories, M. Schuler, S. Whitsitt, L.-P. Henry, S. Sachdev, and A. M. Läuchli, *Physical Review Letters* **117**, 210401 (2016).

294. Numerical study of fermion and boson models with infinite-range random interactions, Wenbo Fu and S. Sachdev, *Physical Review B* **94**, 035135 (2016).
295. Transition from the \mathbb{Z}_2 spin liquid to antiferromagnetic order: spectrum on the torus, S. Whitsitt and S. Sachdev, *Physical Review B* **94**, 085134 (2016).
296. Hydrodynamic theory of thermoelectric transport and negative magnetoresistance in Weyl semimetals, A. Lucas, R. Davison, and S. Sachdev, *Proceedings of the National Academy of Sciences* **113**, 9463 (2016).
297. Hyperscaling violation at the Ising-nematic quantum critical point in two dimensional metals, A. Eberlein, I. Mandal, and S. Sachdev, *Physical Review B* **94**, 045133 (2016).
298. The novel metallic states of the cuprates: topological Fermi liquids and strange metals, S. Sachdev and D. Chowdhury, *Progress of Theoretical and Experimental Physics* 12C102 (2016).
299. Electronic quasiparticles in the quantum dimer model: density matrix renormalization group results, Junhyun Lee, S. Sachdev, and S. R. White, *Physical Review B* **94**, 115112 (2016).
300. Spin density wave order, topological order, and Fermi surface reconstruction, S. Sachdev, E. Berg, S. Chatterjee, and Y. Schattner, *Physical Review B* **94**, 115147 (2016).
301. Shear viscosity at the Ising-nematic quantum critical point in two dimensional metals, A. A. Patel, A. Eberlein, and S. Sachdev, *Physical Review B* **95**, 075127 (2017).
302. Spectrum of conformal gauge theories on a torus, A. Thomson and S. Sachdev, *Physical Review B* **95**, 205128 (2017).
303. A fractionalized Fermi liquid with bosonic chargons as a candidate for the pseudogap metal, S. Chatterjee and S. Sachdev, *Physical Review B* **94**, 205117 (2016);.
304. Fermi surface reconstruction and drop of Hall number due to spiral antiferromagnetism in high- T_c cuprates, A. Eberlein, W. Metzner, S. Sachdev, and H. Yamase, *Physical Review Letters* **117**, 187001 (2016).
305. Holography of the Dirac Fluid in graphene with two currents, Yunseok Seo, Geunho Song, Philip Kim, S. Sachdev, and Sang-Jin Sin, *Physical Review Letters* **118**, 036601 (2017).
306. Entanglement entropy of the large N Wilson-Fisher conformal field theory, S. Whitsitt, W. Witczak-Krempa, and S. Sachdev, *Physical Review B* **95**, 045148 (2017).
307. Supersymmetric SYK models, Wenbo Fu, D. Gaiotto, J. Maldacena, and S. Sachdev, *Physical Review D* **95**, 026009 (2017).
308. Quantum chaos on a critical Fermi surface, A. A. Patel and S. Sachdev, *Proceedings of the National Academy of Sciences* **114**, 1844 (2017).

309. Thermoelectric transport in disordered metals without quasiparticles: the SYK models and holography, R. A. Davison, Wenbo Fu, Yingfei Gu, A. Georges, K. Jensen, and S. Sachdev, *Physical Review B* **95**, 155131 (2017).
310. Holographic quantum matter, S. A. Hartnoll, A. Lucas, and S. Sachdev, [arXiv:1612.07324](https://arxiv.org/abs/1612.07324).
311. Spectrum of the Wilson-Fisher conformal field theory on the torus, S. Whitsitt, M. Schuler, L.-P. Henry, A. M. Läuchli, and S. Sachdev, *Physical Review B* **96**, 035142 (2017).
312. Quantum electrodynamics in 2+1 dimensions with quenched disorder: quantum critical states with interactions and disorder, A. Thomson and S. Sachdev, *Physical Review B* **95**, 235146 (2017).
313. Insulators and metals with topological order and discrete symmetry breaking, S. Chatterjee and S. Sachdev, *Physical Review B* **95**, 205133 (2017).
314. Quantum butterfly effect in weakly interacting diffusive metals, A. A. Patel, D. Chowdhury, S. Sachdev, and B. Swingle, *Physical Review X* **7**, 031047 (2017).
315. Thermal and electrical transport in metals and superconductors across antiferromagnetic and topological quantum transitions, S. Chatterjee, A. Eberlein, and S. Sachdev, *Physical Review B* **96**, 075103 (2017).
316. Intertwining topological order and broken symmetry in a theory of fluctuating spin density waves, S. Chatterjee, S. Sachdev, and M. S. Scheurer, *Physical Review Letters* **119**, 227002 (2017).
317. Thermal diffusivity and chaos in metals without quasiparticles, M. Blake, R. A. Davison, and S. Sachdev, *Physical Review D* **96**, 106008 (2017).
318. Quantum quench of the Sachdev-Ye-Kitaev model, A. Eberlein, V. Kasper, S. Sachdev, and J. Steinberg, *Physical Review B* **96**, 205123 (2017).
319. Fermionic spinon theory of square lattice spin liquids near the Néel state, A. Thomson and S. Sachdev, *Physical Review X* **8**, 011012 (2018).
320. Critical behavior of an impurity at the boson superfluid-Mott insulator transition, S. Whitsitt and S. Sachdev, *Physical Review A* **96**, 053620 (2017).
321. Pseudogap and Fermi surface topology in the two-dimensional Hubbard model, Wei Wu, M. S. Scheurer, S. Chatterjee, S. Sachdev, A. Georges, and M. Ferrero, *Physical Review X* **8**, 021048 (2018).
322. Topological order in the pseudogap metal, M. S. Scheurer, S. Chatterjee, Wei Wu, M. Ferrero, A. Georges, and S. Sachdev, *Proceedings of the National Academy of Sciences* **115**, E3665 (2018).
323. Magnetotransport in a model of a disordered strange metal, A. A. Patel, J. McGreevy, D.P. Arovas, and S. Sachdev, *Physical Review X* **8**, 021049 (2018).

324. Topological order, emergent gauge fields, and Fermi surface reconstruction, S. Sachdev, partly based on lectures at the 34th Jerusalem Winter School in Theoretical Physics: New Horizons in Quantum Matter, December 27, 2016 - January 5, 2017, Reports on Progress in Physics **82**, 014001 (2019).
325. Magnetic-field Induced Pair Density Wave State in the Cuprate Vortex Halo, S. D. Edkins, A. Kostin, K. Fujita, A. P. Mackenzie, Hiroshi Eisaki, Shin-Ichi Uchida, S. Sachdev, M. J. Lawler, Eun-Ah Kim, J. C. Seamus Davis, and M. H. Hamidian, [arXiv:1802.04673](#).
326. Thermoelectric signatures of the electron-phonon fluid in PtSn₄, Chenguang Fu, T. Scaffidi, J. Waissman, Yan Sun, R. Saha, S. J. Watzman, A. K. Srivastava, Guowei Li, W. Schnelle, P. Werner, M. E. Kammaing, S. Sachdev, S. S. P. Parkin, S. A. Hartnoll, C. Felser, and J. Gooth, [arXiv:1802.09468](#).
327. Confinement transition of \mathbb{Z}_2 gauge theories coupled to massless fermions: emergent QCD₃ and SO(5) symmetry, S. Gazit, F. F. Assaad, S. Sachdev, A. Vishwanath, and Chong Wang, Proceedings of the National Academy of Sciences **115**, E6987 (2018).
328. \mathbb{Z}_2 fractionalized phases of a solvable, disordered, t - J model, Wenbo Fu, Yingfei Gu, S. Sachdev, and G. Tarnopolsky, Physical Review B **98**, 075150 (2018).
329. Numerical study of the chiral \mathbb{Z}_3 quantum phase transition in one spatial dimension, R. Samajdar, Soonwon Choi, H. Pichler, M. D. Lukin, and S. Sachdev, Physical Review A **98**, 023614 (2018).
330. Triangular antiferromagnetism on the honeycomb lattice of twisted bilayer graphene, A. Thomson, S. Chatterjee, S. Sachdev, and M. S. Scheurer, Physical Review B **98**, 075109 (2018).
331. A critical strange metal from fluctuating gauge fields in a solvable random model, A. A. Patel and S. Sachdev, Physical Review B **98**, 125134 (2018).
332. Orbital currents in insulating and doped antiferromagnets, M. S. Scheurer and S. Sachdev, Physical Review B **98**, 235126 (2018).
333. Quantum field theory for the chiral clock transition in one spatial dimension, S. Whitsitt, R. Samajdar, and S. Sachdev, Physical Review B **98**, 205118 (2018).
334. Probing quantum critical dynamics on a programmable Rydberg simulator, A. Keesling, A. Omran, H. Levine, H. Bernien, H. Pichler, Soonwon Choi, R. Samajdar, S. Schwartz, P. Silvi, S. Sachdev, P. Zoller, M. Endres, M. Greiner, V. Vuletić, and M. D. Lukin, [arXiv:1809.05540](#).
335. NMR relaxation in Ising spin chains, J. Steinberg, N. P. Armitage, F. H. L. Essler, and S. Sachdev, [arXiv:1810.11466](#).
336. Gauge theory for the cuprates near optimal doping, S. Sachdev, H. D. Scammell, M. S. Scheurer, and G. Tarnopolsky, [arXiv:1811.04930](#).
337. Thermal Hall effect in square lattice spin liquids: a Schwinger boson mean-field study, R. Samajdhar, S. Chatterjee, S. Sachdev, and M. S. Scheurer, [arXiv:1812.08792](#).

Contributions to conference proceedings, schools, books and popular reviews

1. Order and Frustration on a Random Topography by S. Sachdev and D. R. Nelson in *Applications of Field Theory to Statistical Mechanics*, Proceedings, Sitges Spain 1984, edited by L. Garrido, Springer-Verlag, Berlin 1985.
2. Icosahedral Order in undercooled liquids and metallic glasses by D.R. Nelson and S. Sachdev in *Proceedings of the Workshop on Amorphous Metals and Semiconductors*, May 1985, edited by P. Haasen and R. Jaffe, Acta Metallurgica.
3. Frustration and Order in Rapidly Cooled Metals by S. Sachdev, Proceedings of the NATO Advanced Research Workshop on Incommensurate Materials, July 1986.
4. Electron Spin Resonance in Si:P near the metal-insulator transition by M. A. Paalanen, S. Sachdev and R. N. Bhatt, 18th International Conference on The Physics of Semiconductors, edited by Olof Engstrom, World Scientific, Singapore (1986).
5. Magnetic Properties of Disordered Systems Near a Metal-Insulator Transition, by R. N. Bhatt, M. A. Paalanen, and S. Sachdev, invited paper in the Proceedings of the International Conference on Magnetism, Paris, July 1988, Journal de Physique, Colloque C8, 1179 (1988).
6. Nature of the disordered phase of low dimensional quantum antiferromagnets, by S. Sachdev; lectures presented at the Winter School on Disorder and Correlation effects in metals, Puri, India, January 1989, and published in “Electronic Correlation and Disorder Effects in Metals” edited by S. N. Behera, World Scientific, Singapore.
7. Local moments near the metal-insulator transition, by S. Sachdev; contribution to “Frontiers in Condensed Matter Theory”, Proceedings of a US-USSR conference, Annals of the New York Academy of Sciences, vol. 581 (1990).
8. Icosahedral ordering in supercooled liquids and metallic glasses, in *Bond Orientational Order in Condensed Matter Systems*, edited by K. J. Strandburg, Springer-Verlag, New York, 1992.
9. Stable hc/e vortices in superconductors with spin-charge separation, International Journal of Modern Physics B **6**, 509 (1992).
10. Quantum antiferromagnets in two dimensions, by S. Sachdev, in “Low dimensional quantum field theories for condensed matter physicists”, edited by Yu Lu, S. Lundqvist, and G. Morandi, World Scientific, Singapore, 1995; <http://arxiv.org/abs/cond-mat/9303014>
11. Spin glasses enter the quantum regime by S. Sachdev, Physics World, **7**, No. 10, 25 (October 1994).
12. Quantum phase transitions in spin systems and the high temperature limit of continuum quantum field theories by S. Sachdev, proceedings of the 19th IUPAP International Conference on Statistical

- Physics, Xiamen, China, July 31 - August 4 1995, World Scientific, edited by Hao Bailin, Singapore (1996), page 289; <http://arxiv.org/abs/cond-mat/9508080>.
13. Landau theory of quantum spin glasses of rotors and Ising spins, N. Read and S. Sachdev, Nuclear Physics B – Proceedings Supplements, **45A**, 38 (1996).
 14. Finite temperature correlations of the Ising chain in a transverse field, by S. Sachdev, proceedings of the Symposium on “Exactly Soluble Models in Statistical Mechanics: Historical perspectives and current status”, March 30-31, 1996, Northeastern University, C. King and F. Y. Wu eds, International Journal of Modern Physics B **11**, 57 (1997).
 15. A quantum-critical trio: solvable models of finite temperature crossovers near quantum phase transitions, by S. Sachdev, El Escorial Summer School on “Strongly Correlated Magnetic and Superconducting Systems”, July 15-19, 1996, Madrid, Spain, G. Sierra and M.A. Martin-Delgado eds, Springer Verlag, Berlin (1997).
 16. Far from equilibrium dynamics of the Bose gas, Kedar Damle, Satya N. Majumdar and S. Sachdev, in “Pune Workshop (CMT-20) Proceedings”; Vol-12, Condensed Matter Theories, J.W. Clark ed, Nova Science Publishing; <http://arxiv.org/abs/cond-mat/9705047>.
 17. Magnetic properties of strongly disordered electronic systems, by S. Sachdev, Royal Society Discussion Meeting on “The Metal-Non Metal Transition in Macroscopic and Microscopic Systems”, London, March 5-6, 1997, Philosophical Transactions of the Royal Society of London, Series A **356**, 173 (1998).
 18. Dynamics and transport near quantum-critical points, by S. Sachdev, NATO Advanced Study Institute on “Dynamical properties of unconventional magnetic systems”, Geilo, Norway, April 2-12, 1997, NATO ASI Series E: Applied Sciences, Vol. 349, edited by A. Skjeltorp and D. Sherrington (Kluwer Academic, Dordrecht); <http://arxiv.org/abs/cond-mat/9705266>.
 19. High temperature relaxational dynamics in low-dimensional quantum field theories, by S. Sachdev, APCTP/ICTP Joint International Conference on “Highlights in Condensed Matter Physics”, Seoul, Korea, June 12-16 1998, edited by B. K. Chung and M. A. Virasoro, World Scientific, Singapore (2000); <http://arxiv.org/abs/cond-mat/9811110>.
 20. Quantum Conductors in a Plane, by P. Phillips, S. Sachdev, S. Kravchenko, and A. Yazdani, Tenth Annual Frontiers of Science Symposium of the National Academy of Sciences, Irvine, CA, November 19-21, 1998, Proceedings of the National Academy of Sciences **96**, 9983 (1999), <http://arxiv.org/abs/cond-mat/9902025>.
 21. Quantum phase transitions by S. Sachdev, Physics World, **12**, No. 4, 33 (April 1999).
 22. *Quantum Phase Transitions*, by Subir Sachdev, published by Cambridge University Press, Cambridge (1999) (also listed above in the book category).

23. Impurity spin dynamics in 2D antiferromagnets and superconductors by M. Vojta, C. Buragohain, and S. Sachdev, Proceedings of the M2S-HTSC-VI conference, Houston 2000, Physica C **341-348**, 327 (2000), <http://arxiv.org/abs/cond-mat/0002316>.
24. Damping of collective modes and quasiparticles in d-wave superconductors by S. Sachdev and M. Vojta, Lectures at the NATO Advanced Study Institute/EC Summer School on New Theoretical Approaches to Strongly Correlated Systems, Newton Institute, Cambridge, UK, April 10-20, 2000, NATO Science Series II, vol. 23, Kluwer Academic, Dordrecht (2001), <http://arxiv.org/abs/cond-mat/0005250>.
25. Non-magnetic impurities as probes of insulating and doped Mott insulators in two dimensions by S. Sachdev and M. Vojta, Proceedings of the XIII International Congress on Mathematical Physics, July 2000, London, A. Fokas, A. Grigoryan, T. Kibble, and B. Zegarliniski eds., International Press, Boston (2001); <http://arxiv.org/abs/cond-mat/0009202>.
26. Quantum phase transitions and collective modes in *d*-wave superconductors by M. Vojta and S. Sachdev, Proceedings of the 2001 meeting of the German Physical Society, Hamburg, Advances in Solid State Physics, **41**, 329 (2001); <http://arxiv.org/abs/cond-mat/0104176>.
27. Spin and charge order in Mott insulators and *d*-wave superconductors, by S. Sachdev, Proceedings of SNS 2001, Conference on the Spectroscopies of Novel Superconductors, Chicago, May 13-17, 2001, Journal of Physics and Chemistry of Solids **63**, 2269 (2002), <http://arxiv.org/abs/cond-mat/0108238>.
28. Quantum phase transitions of correlated electrons in two dimensions, by S. Sachdev, Lectures at the International Summer School on Fundamental Problems in Statistical Physics X, August-September 2001, Altenberg, Germany, Physica A **313**, 252 (2002), <http://arxiv.org/abs/cond-mat/0109419>.
29. Finite temperature dynamics near quantum phase transitions, by S. Sachdev, keynote talk at the 11th International Conference on Recent Progress in Many-Body Theories, UMIST, Manchester UK, 9-13 July, 2001, edited by Raymond F. Bishop, Tobias Brandes, Klaus A. Gernoth, Niels R. Walet and Yang Xian, World Scientific, Singapore (2002), <http://arxiv.org/abs/cond-mat/0110161>.
30. Magnetic field tuning of charge and spin order in the cuprate superconductors, by A. Polkovnikov, S. Sachdev, M. Vojta, and E. Demler, Proceedings of Physical Phenomena at High Magnetic Fields-IV, G. Boebinger, Z. Fisk, L. P. Gor'kov, A. Lacerda, and J. R. Schieffer eds, World Scientific, Singapore (2002), <http://arxiv.org/abs/cond-mat/0110329>.
31. Tuning order in the cuprate superconductors by a magnetic field, S. Sachdev and S.-C. Zhang, Science **295**, 452 (2002).
32. Spin and charge order in the vortex lattice of the cuprates: experiment and theory, by S. Sachdev, Proceedings of the Mexican Meeting on Mathematical and Experimental Physics, Collegio Nacional, Mexico City, September 2001, Developments in Mathematical and Experimental Physics, Volume B:

- Statistical Physics and Beyond, A. Macias, F. Uribe, and E. Diaz eds, Kluwer Academic, New York (2002), <http://arxiv.org/abs/cond-mat/0203363>.
33. Scratching the Bose surface, by S. Sachdev, *Nature* **418**, 739 (2002).
 34. Order and quantum phase transitions in the cuprate superconductors, by S. Sachdev, *Solid State Communications* **127**, 169 (2003), Proceedings of the Euroconference on Quantum phases at the nanoscale, Erice, Italy, 15-20 July 2002.
 35. Field theories of paramagnetic Mott insulators, by S. Sachdev, Proceedings of the International Conference on Theoretical Physics, Paris, UNESCO, 22-27 July 2002, *Annales Henri Poincaré* **4**, 559 (2003), <http://arxiv.org/abs/cond-mat/0304137>.
 36. Quantum impurity in a magnetic environment, by S. Sachdev, Proceedings of the conference on Field Theory and Statistical Mechanics, Rome, June 2002 in honor of G. Jona-Lasinio, *Journal of Statistical Physics* **115**, 47 (2004), <http://arxiv.org/abs/cond-mat/0304171>.
 37. Radiation-induced magnetoresistance oscillations in a 2D electron gas, A. C. Durst, S. Sachdev, N. Read and S. M. Girvin, Proceedings of the International Symposium “Quantum Hall Effect: Past, Present and Future”, edited by R. Haug and D. Weiss, *Physica E* **20**, 117 (2003).
 38. Quantum phases and phase transitions of Mott insulators, by S. Sachdev, to appear in *Quantum magnetism*, U. Schollwöck, J. Richter, D. J. J. Farnell and R. A. Bishop eds, *Lecture Notes in Physics* **645**, Springer, Berlin (2004); <http://arxiv.org/abs/cond-mat/0401041>.
 39. Deconfined criticality critically defined, by T. Senthil, L. Balents, S. Sachdev, A. Vishwanath, and M. P. A. Fisher, Proceedings of the International Conference on Statistical Physics of Quantum Systems – novel orders and dynamics, July 17-20, 2004, Sendai, Japan, *Journal of the Physics Society of Japan* **74** Suppl. 1 (2005); <http://arxiv.org/abs/cond-mat/0404718>.
 40. Quantum Phase Transitions, popular science article to appear in *The New Physics*, edited by Gordon Fraser, Cambridge University Press, <http://onsager.physics.yale.edu/c40.pdf>
 41. Quantum Phase Transitions, *Encyclopedia of Mathematical Physics*, eds. J.-P. Francoise, G.L. Naber and Tsou S.T., **4**, 289 (2006), Oxford: Elsevier. <http://onsager.physics.yale.edu/c41.pdf>
 42. Quantum phase transitions out of the heavy Fermi liquid, by T. Senthil, S. Sachdev, and M. Vojta, Proceedings of the International Conference on Strongly Correlated Electrons, July 26-30, 2004, Karlsruhe, Germany, *Physica B* **359-361**, 9 (2005), <http://arxiv.org/abs/cond-mat/0409033>
 43. Quantum Phase Transitions, contribution to the *Handbook of Magnetism and Advanced Magnetic Materials*, edited by H. Kronmüller and S. Parkin, Wiley, 2005, <http://onsager.physics.yale.edu/c43.pdf>

44. Competing Orders and non-Landau-Ginzburg-Wilson Criticality in (Bose) Mott transitions, L. Balents, L. Bartosch, A. Burkov, S. Sachdev, and K. Sengupta, Proceedings of “Physics of Strongly Correlated Electron Systems”, YKIS2004 workshop, Yukawa Institute, Kyoto, Japan, November 2004, Progress of Theoretical Physics Supplement **160**, 314 (2005), cond-mat/0504692.
45. Low energy theory of a single vortex and electronic quasiparticles in a d -wave superconductor, P. Nikolić and S. Sachdev, Proceedings of “8th International Conference on Materials and Mechanisms of Superconductivity and High Temperature Superconductors”, Dresden, Germany, July 9-14, 2006, Physica C **460-462**, 256 (2007), cond-mat/0607137.
46. Quantum criticality and black holes, S. Sachdev and M. Müller, Plenary talk at the 25th International Conference on Low Temperature Physics, Amsterdam, Aug 8-13, 2008, Journal of Physics: Condensed Matter **21**, 164216 (2009).
47. Relativistic magnetotransport in graphene, M. Müller, L. Fritz, S. Sachdev, and J. Schmalian, Advances in Theoretical Physics: Landau Memorial Conference, Chernogolovka 2008, AIP Conference Proceedings **1134**, 170 (2009), [arXiv:0810.3657](#).
48. The new iron age, C. Xu and S. Sachdev, Nature Physics **4**, 898 (2008).
49. Exotic phases and quantum phase transitions: model systems and experiments, S. Sachdev, Rapporteur talk, *Quantum Theory of Condensed Matter: Proceedings of the 24th Solvay Conference on Physics*, Bertrand Halperin editor, World Scientific (2010), [arXiv:0901.4103](#)
50. Where is the quantum critical point in the cuprate superconductors ?, S. Sachdev, Proceedings of the International Conference on Quantum Criticality and Novel Phases, Dresden, Germany, August 2nd to August 5th, 2009, Physica Status Solidi B **247**, 537 (2010); [arXiv:0907.0008](#).
51. Quantum criticality and the phase diagram of the cuprates, S. Sachdev, Physica C **470**, S4 (2010), Proceedings of the 9th International Conference on Materials and Mechanisms of Superconductivity, Tokyo, Sep 7-12, 2009, [arXiv:0910.0846](#).
52. Finite temperature dissipation and transport near quantum critical points, S. Sachdev, contributed chapter to the book *Developments in Quantum Phase Transitions*, edited by Lincoln Carr, [arXiv:0910.1139](#).
53. Tensor networks - a new tool for old problems, S. Sachdev, a Viewpoint article on current research, *Physics* **2**, 90 (2009).
54. Graphene: Relativistic transport in a nearly perfect quantum liquid, M. Müller, L. Fritz, S. Sachdev, and J. Schmalian, [arXiv:0910.5680](#).
55. Quantum phase transitions of antiferromagnets and the cuprate superconductors, S. Sachdev, Lectures at the Les Houches School on Modern theories of correlated electron systems, France, May

- 11-29, 2009; published in *Modern Theories of Many-Particle Systems in Condensed Matter Physics*, D. C. Cabra, A. Honecker, and P. Pujol eds, Lecture Notes in Physics v. 843, Springer, Berlin (2012); [arXiv:1002.3823](#).
56. Condensed matter and AdS/CFT, S. Sachdev, Lectures at the 5th Aegean summer school, From gravity to thermal gauge theories: the AdS/CFT correspondence, September 21-26, 2009, [arXiv:1002.2947](#).
57. Instabilities near the onset of spin density wave order in metals, M. A. Metlitski and S. Sachdev, contribution to the special issue on “Fermiology of Cuprates”, edited by Mike Norman and Cyril Proust, *New J. Phys.* **12**, 105007 (2010); [arXiv:1007.1968](#).
58. Dilute Fermi and Bose Gases, S. Sachdev, contribution to Lecture Notes in Physics, “BCS-BEC crossover and the Unitary Fermi Gas”, edited by W. Zwerger; [arXiv:1105.1793](#)
59. Quantum Criticality, S. Sachdev and B. Keimer, *Physics Today* **64**, no. 2, 29 (2011); [arXiv:1102.4628](#).
60. Strange metals and the AdS/CFT correspondence, S. Sachdev, *Journal of Statistical Mechanics* (2010) P11022, Plenary talk at Statphys 24, Cairns, Australia, July 2010; [arXiv:1010.0682](#).
61. The landscape of the Hubbard model, S. Sachdev, TASI (Boulder, June 2010) and Chandrasekhar (Bangalore, December 2010) lectures in *String Theory and Its Applications, TASI 2010, From meV to the Planck Scale*, edited by Michael Dine, Thomas Banks, and Subir Sachdev, World Scientific, Singapore (2011); [arXiv:1012.0299](#).
62. What can gauge-gravity duality teach us about condensed matter physics?, S. Sachdev, *Annual Review of Condensed Matter Physics* **3**, 9 (2012); [arXiv:1108.1197](#).
63. Strange and Stringy, S. Sachdev, *Scientific American* **308**, 44 (January 2013), <http://qpt.physics.harvard.edu/c63.pdf>.
64. Antiferromagnetism in metals: from the cuprate superconductors to the heavy fermion materials, S. Sachdev, M. A. Metlitski, and M. Punk, *Proceedings of SCES 2011, Journal of Physics: Condensed Matter* **24**, 294205 (2012).
65. The quantum phases of matter, S. Sachdev, Rapporteur presentation at the 25th Solvay Conference on Physics, “The Theory of the Quantum World,” Brussels, Oct 19-22, 2011, [arXiv:1203.4565](#).
66. Entangling superconductivity and antiferromagnetism, S. Sachdev, *Science* **336**, 1510 (2012).
67. Comment on “Symmetry classification of bond order parameters in cuprates”, A. Allais, J. Bauer, and S. Sachdev, [arXiv:1407.3281](#).

68. The enigma of the pseudogap phase of the cuprate superconductors, D. Chowdhury and S. Sachdev, in *Quantum Criticality in Condensed Matter: Phenomena, Materials and Ideas in Theory and Experiment: 50th Karpacz Winter School of Theoretical Physics*, J. Jędrzejewski Editor, World Scientific (2015), [arXiv:1501.00002](https://arxiv.org/abs/1501.00002).

Talks

For powerpoint/pdf files of all talks since 1999, see the web page <http://qpt.physics.harvard.edu/talks/talks.html>

In addition to numerous seminars at universities and institutes, departmental colloquia have been presented at Brandeis, University of British Columbia, Brown, UC Santa Cruz, Caltech, Chicago, CCNY, Columbia, University of Connecticut, Cornell, Duke, Harvard, University of Illinois at Chicago, Indiana, University of Iowa, Lawrence Berkeley Laboratory, University of Massachusetts, McMaster, University of North Carolina, Penn State, Rice, St. Andrews, Santa Barbara, Simon Fraser University, Stanford, Tennessee, Texas, Toronto, University of Virginia, Waterloo, Wesleyan, and Wisconsin.

Invited talks at conferences are listed below.

- Speaker at the Symposium on Quasi-Crystals and Metallic Glasses at the Meeting of the American Crystallographers Association, Hamilton, Ontario - June 1986.
- NATO Advanced Research Workshop on Incommensurate Materials, Boulder, Colorado - July 1986.
- Coauthor of a talk presented by M.A. Paalanen at the meeting of the American Physical Society, New York - March 1987.
- Participant of the Workshop on Glassy Dynamics and Relaxation Kinetics, July 1987 at the Institute for Theoretical Physics, Santa Barbara.
- Invited talk at the Magnetism and Magnetic Materials Conference, Chicago, Nov 1987.
- Coauthor with R.N. Bhatt of an invited talk at the International Conference on Magnetism, Paris, July 1988.
- Talk presented at the Aspen Summer Workshop on Correlated Electron Systems, July 1988
- Seven lectures on antiferromagnetism presented at a Workshop on Electronic Correlation and Disorder Effects in Metals, Puri, India, January 1989
- Invited talk presented at the APS Meeting in St. Louis, March 1989, on "Local Moment Formation in Disordered Metals".
- Invited talk presented at the Anniversary Adriatico Research Conference on the Interface between Quantum Field Theory and Condensed Matter Physics, June 20-23 1989, Trieste, Italy.
- Invited talk at the US-USSR Conference on the "Frontiers in Condensed Matter Theory", 4-8 Dec 1989, New York.
- Invited talk at the Workshop on Strongly Correlated Electron Systems, Trieste, June 1990
- Invited participant at the 'Frontiers of Science' symposium of the National Academy of Science, November 1990.

- Invited talk presented at the Aspen Winter Physics Conference on ‘Disorder, interactions, superconductivity and the metal-insulator transition’, January 1991.
- Invited talk at the ‘Workshop on Metal-Insulator Transitions in Doped Semiconductors’, Cornell University, June 1991.
- Invited talk at the Workshop on Strongly Correlated Electron Systems, Trieste, July 1991.
- Talk presented at the Aspen Summer Workshop on Quantum Magnetism, August 1991.
- Invited long-term participant at the Workshop on Quantum Phase Transitions, Institute for Theoretical Physics, Santa Barbara, February-June 1992.
- Invited talk on “Frustrated quantum Heisenberg antiferromagnets” at APS March meeting in Indianapolis, 1992.
- Invited speaker at the International Conference on Quantum Phase Transitions, July 1-6, 1992, Santa Barbara.
- Invited talk at the Gordon conference on “Localized magnetic excitations in metals”, Wolfeboro N.H., Aug 20, 1992.
- Lecturer at the summer school on “Low dimensional quantum field theories for condensed matter physicists”, Trieste, 24 Aug to 4 Sep 1992.
- Invited talk at the Gordon conference on “Condensed matter physics”, Wolfeboro N.H., June 26, 1993.
- Invited talk at the “Workshop on Electronic Properties of Disordered Systems”, Argonne, Aug 23, 1993.
- Co-author of invited talk presented by my postdoc A. Chubukov at the Aspen Winter Conference on “Superconductivity”, January 1994.
- Co-director and Lecturer at a Spring School on “Quantum Phases”, Trieste, 3 May - 10 June 1994.
- Invited talk at the 72nd Statistical Mechanics meeting at Rutgers University, December 15,16 1994.
- Invited talk on “Quantum spin glasses” at the APS March 1995 meeting in San Jose.
- Co-director of Workshop on “Quantum coherence and incoherence in strongly-correlated systems”, Trieste, July 1995.
- Invited plenary talk at the 19th IUPAP International Conference on Statistical Physics (Statphys 19), Xiamen, China, 31 July - 4 August 1995.
- Invited talk at the Symposium on “Exactly Soluble Models in Statistical Mechanics: Historical perspectives and current status”, March 30-31, 1996, Northeastern University, Boston.

- Invited talk at the International Conference on “Non-Fermi Liquid behavior in Metals”, June 17-21, 1996, Institute of Theoretical Physics, Santa Barbara, California.
- Co-director and Lecturer of Workshop on “Disorder and interactions in quantum systems and their classical analogs”, Trieste, Italy, July 1-19, 1996.
- Lecturer at the El Escorial Summer School on “Strongly Correlated Magnetic and Superconducting Systems”, July 15-19, 1996, Madrid, Spain.
- Invited talk at the International Conference on “Quantum Coherence in Strongly Correlated Fermion Systems”, July 22-26, 1996, Pisa, Italy.
- Invited talk at the workshop on the “Physics and Chemistry of Spin Gap Systems”, Hakone Japan, Nov 28 - Dec 1, 1996.
- Invited talk at the Royal Society Discussion Meeting on the “Metal-Non Metal transition in macroscopic and microscopic systems”, London, March 5-6, 1997.
- Invited participant at the Royal Society/Ciba Foundation Discussion Meeting on the “Metal-Non Metal transition in reduced dimensions”, London, March 7, 1997.
- Invited talk at on “Random quantum Heisenberg magnets” at the APS March meeting in Kansas City, 1997.
- Lecturer at the NATO Advanced Study Institute on “Dynamical Properties of unconventional magnetic systems”, Geilo, Norway, April 2-12, 1997.
- Invited speaker at the International conference on “Quantum field theory in low dimensions”, Institute for Theoretical Physics, Santa Barbara, June 2-7, 1997.
- Co-organizer of workshop on “Quantum phase transitions in random systems”, Aspen, July 7 - August 8, 1997.
- Speaker at the US-Japan workshop on “Systems with Strong Quantum Fluctuations”, Santa Cruz, December 11-13, 1997.
- Speaker at the Symposium on “Recent Trends in Modern Physics and Chemistry”, Max-Planck Institute for the Physics of Complex Systems, Dresden, Germany, March 17, 1998.
- Invited speaker at the “National Seminar on Condensed Matter Physics”, Leiden, Holland, May 15, 1998.
- Invited lectures presented at the Asia-Pacific Center for Theoretical Physics international conference on “Highlights of Condensed Matter Physics”, Seoul, Korea, June 12-16, 1998.

- Co-chair of the Gordon Research conference on “Correlated Electron Systems”, Plymouth State College, New Hampshire, July 19-24, 1998.
- Invited talk at the Institute for Theoretical Physics conference on “Disorder and Interactions in Quantum Hall and Mesoscopic Systems”, Santa Barbara, August 9-13, 1998.
- Invited speaker at the “Symposium on Correlated Electron Systems and Quantum Magnetism”, Indian Institute of Science and the Jawaharlal Nehru Center for Advanced Scientific Research, Bangalore, India, September 14-16, 1998.
- Invited talk presented at the Euroconference “Magnetism Today”, Evora, Portugal, October 4-9, 1998.
- Invited talk presented at the Tenth Annual Frontiers of Science Symposium of the National Academy of Sciences, Irvine, CA, November 19-21, 1998.
- Invited talk presented at the Aspen Winter Conference on “Quantum Criticality”, January 3-10, 1999.
- Invited speaker at the “Workshop on Exotic Oxides”, Brookhaven National Laboratory, March 18-20, 1999.
- Invited lecturer at the workshop on “Theoretical Methods for Strongly Correlated Fermions”, University of Montreal, May 26-30, 1999.
- Invited speaker at the conference on the “Physics and Chemistry of Novel Materials: Strongly Correlated Electron Systems” Monte Verita, Switzerland, June 6-11, 1999.
- Invited lecturer at the Institut Henri Poincare (Paris) during the workshop on “Fermions Fortement Correles”, June 15-July 8, 1999.
- Invited speaker at the “Workshop on quantum effects in magnetic systems” at the Lorentz center of Leiden University, The Netherlands, June 21-23, 1999.
- Half-plenary speaker at the 22nd International Conference on Low Temperature Physics, Helsinki, August 4-11, 1999.
- Invited speaker at the Conference on “Magnetic Phenomena in Novel Materials and Geometries”, Institute for Theoretical Physics, Santa Barbara, August 16 - 20, 1999.
- Invited speaker at the “Workshop on Magnetic Excitations in Strongly Correlated Electrons”, Hamamatsu, Japan, Aug 19-22, 1999.
- Invited speaker at the international conference on “Spin ladders and low-dimensional strongly correlated systems”, Brasilia, Brazil, September 20-24, 1999.
- Invited speaker at the “Workshop on the Physics of Ultra-Thin Films near the Metal-Insulator Transition”, December 3-4, 1999, Brown University, Providence.

- Invited speaker at the International Workshop on “Microscopic Theories of Phase Transitions: Quantum Versus Thermal Fluctuations” at the Physikzentrum Bad Honnef, Germany, 13-15 December 1999.
- Invited talk presented at the March Meeting of the American Physical Society, March 20-24, 2000.
- Invited Lecturer at the NATO Advanced Study Institute/EC Summer School on New Theoretical Approaches to Strongly Correlated Systems, Newton Institute, Cambridge, UK, April 10-20, 2000.
- Lecture series at the Department of Physics, University of Indiana, Bloomington, May 3-5, 2000.
- Lecturer at the “Troisième Cycle de la Physique en Suisse Romande”, EPFL Laussane, May 31, June 8, and June 15, 2000.
- Invited speaker at the Workshop on “Interacting Electrons in Disordered Metals”, Lorentz Center, Leiden University, June 1-7, 2000.
- Invited speaker at the Gordon Research Conference on Correlated Electron Systems, June 26-30, 2000.
- Invited speaker at the Workshop on Strongly Correlated Electron Systems, ICTP, Trieste, Italy, July 17-23, 2000.
- Invited speaker at the International Congress on Mathematical Physics, 17-22 July 2000, Imperial College, London, UK.
- Invited speaker at the Conference on High Temperature Superconductivity, Institute for Theoretical Physics, Santa Barbara CA, August 14-18, 2000.
- Invited speaker at the Workshop on Opportunities in Materials Theory, National Science Foundation, Washington, October 4-6, 2000.
- Invited speaker at the 13th International Symposium on Superconductivity, Tokyo, October 14-16, 2000.
- Invited speaker at the meeting of the Canadian Institute for Advanced Research, Harrison, Canada, December 8-10, 2000.
- Invited speaker at the conference on Research Perspectives in Condensed Matter Physics, S.N. Bose Center for Basic Sciences, Calcutta, India, 2-4 January, 2001.
- Lectures at the Workshop on Quantum Fluctuations and Phase Transitions, National Center for Theoretical Sciences, Taiwan, January 11-13, 2001.
- Invited speaker at the Workshop on Magnetically Mediated Superconductivity, April 19-21, 2001, Boston College, Boston.

- Invited speaker at 6th International Conference on the Spectroscopy of Novel Superconductors, May 13-17, 2001, Chicago.
- Invited speaker at the Minerva-ISF Workshop on “Advances in High Temperature Superconductivity”, May 21-24, 2001, Ramat-Gan, Israel.
- Plenary speaker and member of program committee of the 11th International Conferences on Recent Progress in Many-Body Theories, UMIST, Manchester, UK from Mon 9 to Friday 13 July, 2001.
- Invited speaker at the International Conference on “Magnetic Correlations, Metal-Insulator Transitions and Superconductivity in Novel Materials”, Dresden, Germany, July 16-20, 2001.
- Co-director of the Satellite Workshop on “Defects in Correlated Electron Systems”, Dresden, Germany, July 22-25, 2001.
- Lecturer at the International Summer School on Fundamental Problems in Statistical Physics X, August-September 2001, Altenberg, Germany.
- Plenary speaker at the Mexican Meeting on Experimental and Mathematical Physics, Colegio Nacional, Mexico City, September 2001.
- Invited talk at Physical Phenomena in High Magnetic Fields IV, Santa Fe, October 19-25, 2001, cond-mat/0110329.
- Invited talk at the Workshop on Correlated Electron Systems, Lorentz Center, Leiden, October 29-Nov 9, 2001.
- Invited talk at “Beyond BEC: Ultracold Atoms beyond Mean-field Physics”, ITAMP Harvard, November 2-3, 2001.
- Invited talk at the Meeting of the Canadian Institute for Advanced Research, Victoria, BC, November 29-December 2, 2001.
- Invited lectures at the Winter School on Theoretical Physics, Jerusalem, 30 December 2001-8 January 2002.
- Summary talk at the Aspen Winter conference on “Quantum Coherence and Dissipation”, February 8-15, 2002.
- Invited talk the APS March Meeting, Indianapolis, 20 March 2002.
- Invited talk at “Spins and Interactions in Mesoscopic Systems”, conference at the Theoretical Physics Institute, University of Minnesota, May 10-12, 2002.
- Invited speaker at the International Conference on “Field Theory and Statistical Systems”, Rome, 10-15 June, 2002.

- Key note speaker at the American Conference on Neutron Scattering, Knoxville, June 23-27, 2002.
- Perspective and overview talk at the Gordon Research Conference on Correlated Electron Systems, Waterville, Maine, June 29- July 3 2002.
- Invited talk at “Quantum Phases at the Nanoscale”, Erice, Sicily, July 15-20, 2002.
- Invited talk at the International Conference on Theoretical Physics Paris, UNESCO, 22-27 July 2002.
- Invited lectures at the “Workshop on Emergent Materials and Highly Correlated Electrons”, Trieste, Italy, 5-16 August 2002.
- Invited talk at the “23rd International Conference on Low Temperature Physics”, August 20 - 27, 2002 Hiroshima, Japan.
- Plenary talk at the APCTP-ICTP Conference on Condensed Matter Physics, September 25-28, 2002 POSTECH, Pohang, Korea.
- F. A. Matsen Endowed Regents Lecture on the Structure of Matter at the University of Texas at Austin, October 9, 2002.
- Invited talk at the “9th International Workshop on Oxide Electronics”, St. Pete’s Beach, Florida, October 20-23, 2002.
- Invited talk at the “Conference on Realistic Theories of Correlated Electron Materials”, Kavli Institute for Theoretical Physics, Santa Barbara, November 18-22, 2002.
- Invited talk at the Aspen winter workshop on “Complex Quantum Order”, February 9-15, 2003.
- Organizer and speaker at a symposium on “Phases and phase transitions of quantum materials” at the annual meeting of the American Association for the Advancement of Science, Denver, February 15, 2003.
- Invited talks at the Workshop on Quantum Criticality, Institute for Complex Adaptive Matter, New York, March 20-23, 2003.
- Invited external speaker at the Mid Term Review Meeting of the Cold Quantum Gases European Network, Camogli, Italy, March 29- April 1, 2003.
- Invited speaker at the Conference on Correlation Effects in Bose Condensates and Optical Lattices, University of Minnesota, Minneapolis, May 2-4, 2003.
- Invited speaker at the Quantum Materials Program Meeting of the Canadian Institute for Advanced Research, Vancouver, May 16-19, 2003.
- Invited speaker at Workshop on Non-Fermi Liquid Behavior and Quantum Phase Transitions, Lorentz Center, Leiden, May 21, 2003.

- Invited speaker and advisory board member, Symposium of the Dutch Research School of Theoretical Physics, Dalfsen, May 22-23, 2003.
- Invited speaker and program committee member, 7th International Conference on Materials and Mechanisms of Superconductivity and High Temperature Superconductors, Rio de Janeiro, May 25-29, 2003.
- Invited speaker at the ESF workshop on Fermi Liquid Instabilities in Correlated Metals, Dresden, June 11-13, 2003.
- Plenary speaker at the Annual Meeting of the Danish Physical Society, Nyborg, Denmark, June 13, 2003.
- Invited speaker at NORDITA meeting on Strongly Correlated Systems, Copenhagen, June 14, 2003.
- 4 lectures at the Boulder School for Condensed Matter and Materials Physics: Frontiers of Magnetism, July 8-15, 2003.
- Invited speaker at NIST meeting on Theory, Modeling, and Neutron Scattering, Gaithersburg, August 12-14, 2003.
- Invited speaker at International Workshop on Field Theory Methods in Correlated Nanoscale Systems, Brookhaven, August 26-30, 2003.
- Invited speaker at Workshop on Topological Phases in Condensed Matter Physics, American Institute of Mathematics, Palo Alto, September 7-11, 2003.
- Plenary speaker at the Swiss Workshop on Materials with Novel Electronic Properties, Les Diablerets, September 29 - October 1, 2003.
- Lecture series at the Workshop on High- T_c Superconductivity & Quantum Critical Phenomena, The Interdisciplinary Center of Theoretical Studies, Chinese Academy of Sciences, Beijing, October 20-26, 2003
- Invited speaker at the Institute for Complex Adaptive Matter “Electronic Mayonnaise” Conference, La Jolla, December 11-13, 2003.
- Invited talk at the American Physical Society meeting, Montreal, March 2004.
- Coordinator of the workshop on “Exotic order and criticality in quantum matter”, Kavli Institute of Theoretical Physics, Santa Barbara, March 29 - July 2, 2004.
- Invited talk at the 91st Statistical Mechanics Conference, Rutgers University, May 16-18, 2004.
- Invited talk at the Gordon Research Conference on Correlated Electrons, Mount Holyoke College, June 20-25, 2004.

- Three lectures at The Boulder School in Condensed Matter and Materials Physics: Quantum Coherence in Atomic and Condensed Matter Systems, July 5-9, 2004.
- Invited talk at International Conference on Spectroscopies in Novel Superconductors, Sitges, Spain, July 11-16, 2004.
- Invited speaker at the International Conference on Statistical Physics of Quantum Systems - novel orders and dynamics, Sendai, Japan, July 17-20, 2004
- Plenary speaker at the International Conference on Strongly Correlated Electronic Systems, Karlsruhe, Germany, July 26-30, 2004.
- Co-organizer and speaker at the International Workshop on Frustrated Magnetism, Montauk, September 13-17, 2004.
- Presentation at the Conference on The Future of Physics, Kavli Institute for Theoretical Physics, October 7-9, 2004.
- Invited talk at “Valence Bonds in Condensed Matter”, Princeton Center for Complex Materials Symposium, December 3, 2004.
- Invited talk at the conference on “Quantum Phase Transitions”, Kavli Institute for Theoretical Physics, January 18-21, 2005.
- Invited talk at the Mottness and Quantum Criticality Workshop, Tobago, West Indies, June 8-19, 2005.
- Invited lecturer at the ICAM Advanced Workshop on “Strongly Correlated Electrons: Diverse Examples and Unifying Themes”, August 8-20, 2005, Institut Scientifique de Cargese, Corsica (France)
- Invited speaker at the XVIIth Indian-Summer School on Effective Field Theories, Rez/Prague, September 9-13, 2005.
- Invited speaker at the Canadian Institute for Advanced Research meeting on Quantum Materials, Perimeter Institute, Waterloo, November 17-19, 2005.
- Lecturer at the MIT Theoretical Physics Retreat, Plymouth, New Hampshire, January 25-27, 2006.
- Invited speaker, Quantum Computing and Many-Body Systems, Key West, Florida, January 21-February 3 2006.
- Invited talk at the APS March meeting, Baltimore, March 13-17, 2006.
- Invited speaker, Itzykson meeting on Strongly Correlated Electrons, Saclay, France, June 21-23, 2006.
- Invited speaker, 8th International Conference on Materials and Mechanisms of Superconductivity and High Temperature Superconductors, Dresden, Germany, July 9-14, 2006.

- Invited speaker, International Conference on Physics near the Mott transition, Indian Institute of Science, Bangalore, July 24-28, 2006.
- Invited speaker, International Workshop on Strongly Correlated Transition Metal Compounds II, Cologne, Germany, September 11-14, 2006.
- Invited speaker, Greater Boston Area Statistical Mechanics Meeting, Brandeis University, October 21, 2006.
- Director's colloquium, Los Alamos National Laboratory, January 23, 2007.
- Invited speaker at the conference on Strongly Correlated Phases in Condensed Matter and Degenerate Atomic Systems, Kavli Institute for Theoretical Physics, February 2007.
- Distinguished Lecture Series, Technion, Israel, March 2007.
- Invited speaker, A.I. Larkin Memorial conference, Chernogolovka, Russia, June 27, 2007.
- Invited speaker, ICAM Workshop: Superfluid Universe, Aspen, August 18, 2007
- Invited speaker, Conference on Topological Quantum Computing, Hamilton Institute, Dublin, September 11, 2007.
- 3 Lectures at Conference on Correlated Electrons & Frustrated Magnetism, International Centre for Theoretical Sciences, Goa, India, November 25 - December 5, 2007.
- Lectures at the Winter School in Theoretical Physics, Condensed Matter Physics and Quantum Information with Cold Atoms, Institute for Advanced Studies, Hebrew University, December 26, 2007 - January 4, 2008.
- Invited speaker, Winter conference on New Horizons in Condensed Matter Physics, Aspen, February 8, 2008.
- Western Ontario conference on condensed matter physics, Perimeter Institute, Waterloo, April 24, 2008.
- For talks since April 2008, please see <http://qpt.physics.harvard.edu/talks/talks.html>