

Subir Sachdev

Brief Curriculum Vitae

Complete C.V.: <http://qpt.physics.harvard.edu/cv.pdf>.

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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 January 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.
- **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**, 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, 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.
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.
- 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, American Physical Society, January 1983.
- 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

- Homi Bhabha Memorial Public Lecture, IISER Pune, November 14, 2017.
- Distinguished lecture, Texas A&M University, November 9, 2017.
- Biard Lecture, California Institute of Technology, Pasadena, November 2, 2017.
- 13th Homi Bhabha Public Lecture, Tata Institute of Fundamental Research, Mumbai, January 17, 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 and Postdocs

See <http://qpt.physics.harvard.edu/students.html>.

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

See <http://qpt.physics.harvard.edu/teaching.html>

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 Blatter, 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 all journal publications, see <http://qpt.physics.harvard.edu/publications.html>

Talks

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