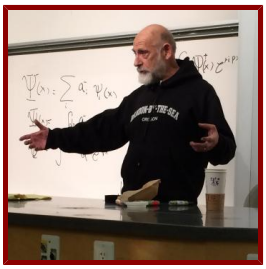
Stanford



# Leonard Susskind

Felix Bloch Professor of Physics

### CONTACT INFORMATION

- **Administrative Contact**

  Zhenhua Wang

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## Bio

### BIO

Leonard Susskind is the Felix Bloch professor of Theoretical physics at Stanford University. His research interests include string theory, quantum field theory, quantum statistical mechanics and quantum cosmology. He is a member of the National Academy of Sciences of the USA, and the American Academy of Arts and Sciences, an associate member of the faculty of Canada's Perimeter Institute for Theoretical Physics, and a distinguished professor of the Korea Institute for Advanced Study.

Susskind is widely regarded as one of the fathers of string theory, having, with Yoichiro Nambu and Holger Bech Nielsen, independently introduced the idea that particles could in fact be states of excitation of a relativistic string. He was the first to introduce the idea of the string theory landscape in 2003.

### ACADEMIC APPOINTMENTS

- Professor, Physics

### ADMINISTRATIVE APPOINTMENTS

- Director, Stanford Institute for Theoretical Physics, (2009- present)

### HONORS AND AWARDS

- J. J. Sakurai Prize for Theoretical Particle Physics, American Physical Society (1998)

### BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, National Academy of Sciences (2000 - present)

### PROFESSIONAL EDUCATION

- Ph.D., Cornell University , Physics (1965)
- B.S., City College of New York , Physics (1962)

### LINKS

- The Theoretical Minimum lecture series: http://theoreticalminimum.com
- Publications on arXiv: http://arxiv.org/find/all/1/all:+AND+leonard+susskind/0/1/0/all/0/1
- Publications on INSPIRE: http://inspirehep.net/search?ln=en&p=leonard+susskind

# Teaching

## COURSES

**2023-24**

- Advanced Topics in Quantum Mechanics: PHYSICS 134, PHYSICS 234 (Win)
- The Early Universe: PHYSICS 362 (Spr)

**2022-23**

- The Early Universe: PHYSICS 362 (Spr)

**2021-22**

- Cosmology and Extragalactic Astrophysics: PHYSICS 361 (Win)

**2020-21**

- Classical Electrodynamics: PHYSICS 220 (Win)

## STANFORD ADVISEES

**Doctoral Dissertation Advisor (AC)**

Adel Rahman

# Publications

## PUBLICATIONS

- **THE WORLD AS A HOLOGRAM** *JOURNAL OF MATHEMATICAL PHYSICS*
  Susskind, L.
  1995; 36 (11): 6377-6396
- **Quantum Gravity in the Lab. I. Teleportation by Size and Traversable Wormholes** *PRX QUANTUM*
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  2023; 4 (1)
- **Quantum physics A holographic wormhole in a quantum computer** *NATURE*
  Brown, A. R., Susskind, L.
  2022; 612 (7938): 41-42
- **Entanglement in De Sitter space** *JOURNAL OF HIGH ENERGY PHYSICS*
  Shaghoulian, E., Susskind, L.
  2022
- **De Sitter Holography: Fluctuations, Anomalous Symmetry, and Wormholes** *UNIVERSE*
  Susskind, L.
  2021; 7 (12)
- **Complexity and momentum** *JOURNAL OF HIGH ENERGY PHYSICS*
  Susskind, L., Zhao, Y.
  2021
- **Complexity and Newton's Laws** *FRONTIERS IN PHYSICS*
  Susskind, L.
  2020; 8

- **The Python's Lunch: geometric obstructions to decoding Hawking radiation** *JOURNAL OF HIGH ENERGY PHYSICS*
  Brown, A. R., Gharibyan, H., Penington, G., Susskind, L.
  2020
- **Complexity geometry and Schwarzian dynamics** *JOURNAL OF HIGH ENERGY PHYSICS*
  Lin, H. W., Susskind, L.
  2020
- **Complexity geometry of a single qubit** *PHYSICAL REVIEW D*
  Brown, A. R., Susskind, L.
  2019; 100 (4)
- **Complexity of Jackiw-Teitelboim gravity** *PHYSICAL REVIEW D*
  Brown, A. R., Gharibyan, H., Lin, H. W., Susskind, L., Thorlacius, L., Zhao, Y.
  2019; 99 (4)
- **Falling toward charged black holes** *PHYSICAL REVIEW D*
  Brown, A. R., Gharibyan, H., Streicher, A., Susskind, L., Thorlacius, L., Zhao, Y.
  2018; 98 (12)
- **Teleportation through the wormhole** *PHYSICAL REVIEW D*
  Susskind, L., Zhao, Y.
  2018; 98 (4)
- **Second law of quantum complexity** *PHYSICAL REVIEW D*
  Brown, A. R., Susskind, L.
  2018; 97 (8)
- **de Sitter Space as a Resonance** *PHYSICAL REVIEW LETTERS*
  Maltz, J., Susskind, L.
  2017; 118 (10)
- **Quantum complexity and negative curvature** *PHYSICAL REVIEW D*
  Brown, A. R., Susskind, L., Zhao, Y.
  2017; 95 (4)
- **Copenhagen vs Everett, Teleportation, and ER=EPR** *FORTSCHRITTE DER PHYSIK-PROGRESS OF PHYSICS*
  Susskind, L.
  2016; 64 (6-7): 551-564
- **Holographic Complexity Equals Bulk Action?** *PHYSICAL REVIEW LETTERS*
  Brown, A. R., Roberts, D. A., Susskind, L., Swingle, B., Zhao, Y.
  2016; 116 (19)
- **Complexity, action, and black holes** *PHYSICAL REVIEW D*
  Brown, A. R., Roberts, D. A., Susskind, L., Swingle, B., Zhao, Y.
  2016; 93 (8)
- **Entanglement is not enough** *FORTSCHRITTE DER PHYSIK-PROGRESS OF PHYSICS*
  Susskind, L.
  2016; 64 (1): 49-71
- **Addendum to computational complexity and black hole horizons** *FORTSCHRITTE DER PHYSIK-PROGRESS OF PHYSICS*
  Susskind, L.
  2016; 64 (1): 44-48
- **The typical-state paradox: diagnosing horizons with complexity** *FORTSCHRITTE DER PHYSIK-PROGRESS OF PHYSICS*
  Susskind, L.
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- **ER=EPR, GHZ, and the consistency of quantum measurements** *FORTSCHRITTE DER PHYSIK-PROGRESS OF PHYSICS*
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  2016; 64 (1): 72-83
- **Computational complexity and black hole horizons** *FORTSCHRITTE DER PHYSIK-PROGRESS OF PHYSICS*
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  2016; 64 (1): 24-43
- **Localized shocks** *JOURNAL OF HIGH ENERGY PHYSICS*
  Roberts, D. A., Stanford, D., Susskind, L.
  2015
- **Complexity and shock wave geometries** *PHYSICAL REVIEW D*
  Stanford, D., Susskind, L.
  2014; 90 (12)
- **Deconfinement transition as black hole formation by the condensation of QCD strings** *PHYSICAL REVIEW D*
  Hanada, M., Maltz, J., Susskind, L.
  2014; 90 (10)
- **Cool horizons for entangled black holes** *FORTSCHRITTE DER PHYSIK-PROGRESS OF PHYSICS*
  Maldacena, J., Susskind, L.
  2013; 61 (9): 781-811
- **Full speed ahead** *NEW SCIENTIST*
  Ananthaswamy, A., Susskind, L.
  2013; 217 (2904): 30-31
- **String Theory** *FOUNDATIONS OF PHYSICS*
  Susskind, L.
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- **Tree-like structure of eternal inflation: A solvable model** *PHYSICAL REVIEW D*
  Harlow, D., Shenker, S. H., Stanford, D., Susskind, L.
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- **Multiverse interpretation of quantum mechanics** *PHYSICAL REVIEW D*
  Bousso, R., Susskind, L.
  2012; 85 (4)
- **Topological phases of eternal inflation** *PHYSICAL REVIEW D*
  Sekino, Y., Shenker, S., Susskind, L.
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- **Census taking in the hat: FRW/CFT duality** *PHYSICAL REVIEW D*
  Sekino, Y., Susskind, L.
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- **Darwin's legacy** *PHYSICS WORLD*
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- **The Census Taker's Hat** *Meeting on Quantum Mechanics of Fundamental Systems - The Quest for Beauty and Simplicity*
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- **Fast scramblers** *JOURNAL OF HIGH ENERGY PHYSICS*
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- **STRINGS, BLACK-HOLES, AND LORENTZ CONTRACTION** *PHYSICAL REVIEW D*
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- **THE STRETCHED HORIZON AND BLACK-HOLE COMPLEMENTARITY** *PHYSICAL REVIEW D*
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  Susskind, L.
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- **FLUID-DYNAMICS, CHERN-SIMONS THEORY, AND THE QUANTUM HALL-EFFECT** *INTERNATIONAL JOURNAL OF MODERN PHYSICS B*
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- **2-DIMENSIONAL QUANTUM COSMOLOGY** *NUCLEAR PHYSICS B*
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