

Steven H. Strogatz

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Employment

2023– Susan and Barton Winokur Distinguished Professor for the Public Understanding of Science and Mathematics
2021–2022 Distinguished Visiting Professor, National Museum of Mathematics
2017– Stephen H. Weiss Presidential Fellow
2009– Professor of Mathematics
2009–2014 Professor of Mechanical and Aerospace Engineering
2007–2023 Jacob Gould Schurman Professor of Applied Mathematics
2005–2012 Director, Center for Applied Mathematics
2000–2009 Professor of Theoretical and Applied Mechanics
1994–2000 Associate Professor of Theoretical and Applied Mechanics, Cornell
1993–1994 Associate Professor of Applied Mathematics, MIT
1989–1993 Assistant Professor of Applied Mathematics, MIT
1986–1989 NSF Postdoc in Mathematical Sciences, Harvard and Boston University

Education

1986 Ph. D., Applied Mathematics, Harvard University
1986 M.A., Mathematics, Cambridge University
1982 B. A., first class honours, Mathematics, Cambridge University
1980 A. B., summa cum laude, Mathematics, Princeton University

Research Interests

Nonlinear dynamics and complex systems applied to physics, biology, and social science

Honors and Awards

2023 Eric and Wendy Schmidt Award for Excellence in Science Communications
Awarded by the National Academies of Sciences, Engineering, and Medicine, in partnership with Schmidt Futures. Top Prize, Research Scientist: Later Career. “Strogatz’s skill in making complex topics relatable and engaging is truly commendable, and his contributions serve as a beacon in the realm of making mathematics accessible and fascinating to a wider public. He reveals, with superb quality, the wonder and depth of math, managing to be both entertaining and thought-provoking for a wide range of audiences.”
2023 Susan and Barton Winokur Distinguished Professor for the Public Understanding of Science and Mathematics
2021 Distinguished Visiting Professor for the Public Dissemination of Mathematics,

National Museum of Mathematics

- 2021 Honorary Degree, Doctor of Laws (honoris causa), Dalhousie University
- 2019 Finalist for Royal Society Science Book Prize
Infinite Powers was one of six books shortlisted for the Royal Society Science Book Prize sponsored by Insight Investment, “celebrating the very best in popular science writing from around the world for a non-specialist audience.”
- 2019 George Pólya Prize for Mathematical Exposition
“For extensive and brilliant works conveying the fascination and the impact of mathematics to the general public through numerous books, newspaper and magazine articles, and radio, television, web, and video appearances, and for his important and influential textbook on nonlinear dynamics and chaos.” Awarded by the Society for Industrial and Applied Mathematics.
- 2018 Fellow of the Network Science Society
One of seven fellows elected in the inaugural class. “For seminal work on small-world networks, chimera states, and synchronization phenomena in networks.”
- 2017 Stephen H. Weiss Presidential Fellow
Cornell’s highest teaching award.
- 2016 Fellow of the American Mathematical Society
“For contributions to nonlinear dynamics and complex systems, and for the promotion of mathematics in the public sphere.”
- 2015 Joseph Priestley Award
“Presented by Dickinson College in memory of Joseph Priestley, discoverer of oxygen, to a distinguished scientist whose work has contributed to the welfare of humanity. The award, first presented in 1952, recognizes outstanding achievement and contribution to our understanding of science and the world.” Past recipients include Francis Crick, Margaret Mead, and Linus Pauling.
- 2015 Lewis Thomas Prize for Writing About Science
“Honors the rare individual who bridges the worlds of science and the humanities—whose voice and vision can tell us about science’s aesthetic and philosophical dimensions, providing not merely new information but cause for reflection, even revelation.” Past recipients include Lewis Thomas, Oliver Sacks, and Freeman Dyson. Awarded by Rockefeller University.
- 2014 Fellow of the American Physical Society
“For seminal work on complex networks, nonlinear oscillators, and synchronization phenomena.”
- 2014 Euler Book Prize, *The Joy of x*
“The Euler Book Prize is awarded annually to an author or authors of an outstanding book about mathematics. The Prize is intended to recognize authors of exceptionally well written books with a positive impact on the public’s view of mathematics and to encourage the writing of such books.” Awarded by the Mathematical Association of America.
- 2013 AAAS Mani L. Bhaumik Award for Public Engagement with Science
“For his exceptional commitment to, and passion for, conveying the beauty and importance of mathematics to the general public.” Past recipients include Carl Sagan, Neil deGrasse Tyson, John Allen Paulos, and E.O. Wilson. Awarded by the American Association for the Advancement of Science.

- 2012 Fellow of the American Academy of Arts and Sciences
- 2009 Fellow of the Society for Industrial and Applied Mathematics
“For investigations of small-world networks and coupled oscillators and for outstanding science communication.”
- 2008 Highly Cited Paper in Physics
For “Collective dynamics of small-world networks,” which ranked #6 on the list of most highly cited papers in physics for 1998-2008.
- 2007 Jacob Gould Schurman Professor
A university-wide endowed chair at Cornell.
- 2007 Communications Award from the Joint Policy Board for Mathematics
A lifetime award, presented jointly by the four major American mathematical societies, “to reward journalists and other communicators who, on a sustained basis, bring accurate mathematical information to non-mathematical audiences. The award recognizes a significant accumulated contribution to the public understanding of mathematics.”
- 2006 Tau Beta Pi Teaching Award
“Professor of the Year” in the College of Engineering.
- 2001 Robert ’55 and Vanne ’57 Cowie Teaching Award, College of Engineering
- 2000 President’s Award for Outstanding Contributions in Support of Underrepresented Minorities
- 1997 J.P. and Mary Barger ’50 Teaching Award, College of Engineering
- 1991 E. M. Baker Award for Excellence in Undergraduate Teaching
MIT’s highest teaching prize.
- 1990 NSF Presidential Young Investigator
- 1986 NSF Postdoctoral Fellowship in Mathematical Sciences
- 1982 Senior Scholarship and Tripos Prize, Trinity College, Cambridge, England
- 1980 Marshall Scholar, Trinity College, Cambridge

Prize Lectures and Named Lectures

- 2022 Ulam Lectures, Santa Fe Institute
- 2022 Reiss Lectures, Northwestern University
- 2020 Serge Lang Lecture, University of California, Berkeley
- 2019 Dresden Lectures, Swarthmore College
- 2019 Franke Lecture, Franke Program in Science and the Humanities, Yale University
- 2018 Sowers Distinguished Lecture, Virginia Tech
- 2012 Evnin Lecture, Princeton University
- 2011 Louis Clark Vanuxem Lecture, Princeton University
“...a series of public lectures before the University annually on subjects of scientific interest.... Lecturers have included Edwin P. Hubble on “The Exploration of Space” (1931-1932); James B. Conant on “The Mobilization of American Scientists for the War”; and Carl Sagan on “Extraterrestrial Life” (1972-1973).
- 2011 Simons Lecture Series, MIT

“The Department of Mathematics annually presents the Simons Lecture Series to celebrate the most exciting mathematical work by the very best mathematicians of our time.”

- 2010 Gerald and Judith Porter Public Lecture, Joint Mathematics Meetings, Washington, DC
2009 Rouse Ball Lecture, University of Cambridge
Previous lecturers include Einstein, Dirac, Pauli, Mandelbrot, Lorenz, and numerous Nobel laureates and Fields Medalists.
2001 I. E. Block Community Lecture, SIAM Annual Meeting, San Diego

Professional Activities

Judge, Strogatz Prize for Math Communication, National Museum of Mathematics (2020-2023)

AMS-MAA-SIAM Committee on the Porter Public Lecture (2017-2020)

Euler Book Prize Committee, Mathematics Association of America (2015)

Science Advisory Board, Quanta Magazine, Simons Foundation (2013–2023)

Judge, Math-O-Vision (2013-2014)

Judge, Rosenthal Prize for Innovation in Mathematics Teaching, Museum of Mathematics (2012-2014)

Advisory Council, Museum of Mathematics (2010-present)

Advisory Board, SIAM Dynamical Systems Activity Group (2006-2007)

External Faculty, Santa Fe Institute (2004-2010)

Editorial Boards:

Archimede (Italy), International Committee (2016-present)

Notices of the American Mathematical Society (2013-2015)

Math Horizons (2013–present)

Co-Editor, Princeton Studies in Complexity (2004-present)

Journal of Nonlinear Science (2003-2006)

International Journal of Bifurcation and Chaos (1999-present)

SIAM Review (1997-2002)

SIAM Journal on Applied Mathematics (1995–1998)

Co-Organizer (with M. Silber), SIAM Conference on Applications of Dynamical Systems (1997)

Director, SIAM Activities Group on Dynamical Systems (1996-1999)

Co-Chairman (with L. Keshet), Gordon Research Conference on Theoretical Biology (1992)

Grants

Grants with Strogatz as PI or co-PI

“Transdisciplinary Research in Principles of Data Science (TRIPODS) Program: Data Science for Improved Decision-Making: Learning in the Context of Uncertainty, Causality, Privacy, and Network Structures,” Co-PI, National Science Foundation, 10/1/2017-9/30/2020, \$1,496,655.

“Research Training Grant: Dynamics, Probability, and Partial Differential Equations in Pure and Applied Mathematics,” Principal Investigator, National Science Foundation, 9/1/2017-8/31/2022, \$2,494,525.

“Nonlinear dynamics of oscillator networks,” Principal Investigator, National Science Foundation, 7/1/2015-6/30/2018, \$400,575.

Cyber-Enabled Discovery and Innovation Program, “CDI Type II: Complex dynamics in the Internet: A computational analytic approach,” Co-Principal Investigator, National Science Foundation CCF-0835706, 2008-2012, \$1,500,000.

“Nonlinear dynamics of oscillator networks,” Principal Investigator, National Science Foundation, 2004-2007, \$524,061.

Integrative Graduate Education and Research Training (IGERT) grant, “Program in Nonlinear Systems,” Co-Principal Investigator, National Science Foundation DGE-0333366, 2003-2008, \$3,436,000.

“Nonlinear dynamics of oscillator networks,” Principal Investigator, National Science Foundation, 2000-2003, \$312,042.

Integrative Graduate Education and Research Training (IGERT) grant, “Program in Nonlinear Systems,” Principal Investigator, National Science Foundation, 1998-2003, \$2,245,997.

“Mutual synchronization of biological oscillators,” Principal Investigator, National Science Foundation, 1996-1999, \$180,000.

“Synchronization and communication in nonlinear optical systems,” Co-Principal Investigator, National Science Foundation, 1996-1999, \$268,123.

“Nonlinear dynamics of oscillator arrays,” Principal Investigator, National Science Foundation, 1995-1998, \$180,000.

“Large systems of coupled nonlinear oscillators in physics and biology,” Principal Investigator, National Science Foundation, 1992-1995, \$75,000.

National Science Foundation Presidential Young Investigator Award, 1990–1995, \$205,000 (\$125,000 base grant + \$40,000 grant from AT&T + \$40,000 matching money from NSF).

“Large systems of coupled nonlinear oscillators,” Principal Investigator, National Science Foundation, 1989–1991, \$37,000.

Grants led by others (in which Strogatz was neither PI nor Co-PI)

“Exploiting Ecology and Evolution to Prevent Therapy Resistance in Egfr-Driven Lung Cancer,” (Subcontract from Case Western Reserve University), Principal Investigator, National Institutes of Health, 12/01/2019- 11/30/2024, \$271,096.

“Collaborative Research: Compsustnet: Expanding the Horizons of Computational Sustainability,” National Science Foundation, 12/15/2015-11/30/2021, \$8,070,800

Teaching and Mentoring

Teaching Awards

- 2017 Stephen H. Weiss Presidential Fellow (Cornell's highest teaching award)
- 2012 Department of Mathematics Teaching Award, Cornell
- 2009 Swanson Teaching Award, College of Engineering, Cornell
- 2006 Tau Beta Pi Teaching Award ("Professor of the Year", College of Engineering, Cornell)
- 2001 Robert '55 and Vanne '57 Cowie Excellence in Teaching Award, College of Engineering
- 1997 J.P. and Mary Barger '50 Teaching Award, College of Engineering, Cornell (1997)
- 1991 E. M. Baker Award for Outstanding Teaching (1991) (MIT's highest teaching prize)

Courses taught at Cornell

- Calculus for the Life and Social Sciences (Math 1106)
- Mathematical Explorations (Math 1300)
- Mathematics and Politics (Math 1340)
- Multivariable Calculus (Math 1920)
- Differential Equations for Engineers (Math 2930)
- Advanced Engineering Analysis (TAM 3100)
- Introduction to Analysis (Math 3110)
- History of Mathematics (Math 4030)
- Differential Equations and Dynamical Systems (Math 4200)
- Nonlinear Dynamics and Chaos (Math 4210/MAE5790)
- Applied Complex Analysis (Math 4220)
- Intermediate Dynamics (TAM 5700)
- Methods of Applied Mathematics (TAM 6100, 6110)
- Asymptotics and Perturbation Methods (TAM 6130)
- Complex Systems (TAM 6780)
- Applied Dynamical Systems (Math 7170/TAM 7760)

Courses taught at MIT

- 18.02 Calculus
- 18.04 Complex Variables
- 18.085 Mathematical Methods for Engineers
- 18.311 Principles of Applied Mathematics
- 18.385 Nonlinear Dynamics and Chaos

Diversity

Co-PI of Cornell's Summer Mathematics Institute, (2006-2013), a summer "boot camp" for mathematically talented women and minority undergraduates who are headed for graduate school and desire a stronger foundation in analysis and algebra.

Ph.D. Students and Their Current Affiliations

Students at MIT

1. Shinya Watanabe (Applied Mathematics, 1995)
2. Mauricio Barahona (Physics, 1996)
3. Guillermo Goldsztein (Applied Mathematics, 1997)

Ibaraki University
Imperial College
Georgia Tech

Students at Cornell

4. Duncan Watts (Theoretical and Applied Mechanics, 1997)
5. M.K. Stephen Yeung (Theoretical and Applied Mechanics, 1999)
6. Duncan Callaway (Theoretical and Applied Mechanics, 2001)
7. Joel Ariaratnam (Applied Mathematics, 2002)
8. Michelle Girvan (Physics, 2003)
9. Daniel Wiley (Applied Mathematics, 2006)
10. Danny Abrams (Theoretical and Applied Mechanics, 2006)
11. Sam Arbesman (Computational Biology, 2008)
12. Erik Martens (Theoretical and Applied Mechanics, 2009)
13. Lauren Childs (Applied Mathematics, 2010)
14. Seth Marvel (Applied Mathematics, 2011)
15. Tim Novikoff (Applied Mathematics, 2013)
16. Kathryn Montovan (Applied Mathematics, 2013)
17. Isabel Kloumann (Applied Mathematics, 2016)
18. Danielle Toupo (Applied Mathematics, 2016)
19. Ian Lizarraga (Applied Mathematics, 2017)
20. Kevin O’Keeffe (Applied Mathematics, 2017)
21. Bertrand Ottino-Löffler (Applied Mathematics, 2018)
22. Irena Papst (Applied Mathematics, 2021)
23. David Hathcock (Physics, 2022)
24. Ekaterina Landgren (Applied Mathematics, 2022)
25. Stephen Cowpar (Applied Mathematics, 2022)
26. Max Lipton (Mathematics, 2023)

Penn
U. San Francisco
UC Berkeley
St. Martin’s Press
U. Maryland
US Government
Northwestern U.
Lux Capital
Tech Univ. Denmark
Virginia Tech
U. Michigan
Perceptron
Bennington College
Facebook
Intel
University of Sydney
Apple
Rockefeller
McMaster
IBM
CU Boulder/NOAA
Everi Holdings Inc.
MIT

Master's Students

- John Weisenfeld (Theoretical and Applied Mechanics, 1997)
Lindsay Mercer (Applied Mathematics, 2019)

Postdoctoral Fellows

- Ricardo Oliva (2001)
Basant Sharma (2004)
Marc Timme (2005)
Alice Nadeau, NSF Postdoctoral Fellow (2019-22)
Jonas Juul, Cornell CAM Postdoctoral Fellow (2021-2022)
Yuanzhao Zhang, Schmidt Fellow (2021-present)

Science Communication and Outreach

■ Essays

New York Times series:

Steven Strogatz on The Elements of Math (a 15-part online series in 2010)

From Fish to Infinity (January 31, 2010)

Rock Groups (February 7, 2010)

The Enemy of My Enemy (February 14, 2010)

Division and Its Discontents (February 21, 2010)

The Joy of X (February 28, 2010)

Finding Your Roots (March 7, 2010)

Square Dancing (March 14, 2010)

Think Globally (March 21, 2010)

Power Tools (March 28, 2010)

Take It to the Limit (April 4, 2010)

Change We Can Believe In (April 11, 2010)

It Slices, It Dices (April 18, 2010)

Chances Are (April 25, 2010)

Group Think (May 2, 2010)

The Hilbert Hotel (May 9, 2010)

Me, Myself and Math (a six-part online New York Times series in 2012)

Singular Sensations (September 10, 2012)

Friends You Can Count On (September 17, 2012)

Proportion Control (September 24, 2012)

It's My Birthday Too, Yeah (October 1, 2012)

Dangerous Intersection (October 8, 2012)

Visualizing Vastness (October 15, 2012)

New York Times Op-Eds:

The real scientific hero of 1953. *New York Times* (March 4, 2003).

How the blackout came to life. *New York Times* (August 25, 2003).

A journey to baseball's alternate universe. (with Sam Arbesman) *New York Times* (March 30, 2008).

Math and the city. *New York Times* (May 19, 2009).

Loves me, loves me not (Do the math). *New York Times* (May 26, 2009).

Like water for money. *New York Times* (June 2, 2009).

New York Times Science Times:

One Giant Step for a Chess-Playing Machine. *New York Times* (December 26, 2018).

How Pi Made Us Modern. *New York Times* (March 14, 2019).

The Math Equation That Tried to Stump the Internet. *New York Times* (August 2, 2019).

That Vexing Math Equation? Here's an Addition. *New York Times* (August 5, 2019).

Who's Afraid of Big Numbers? (with Aiyana Green) *New York Times* (June 17, 2021).

Huffington Post:

S. Strogatz. The 3 Most Confusing Things Your Math Teacher Ever Told You. Huffington Post, (December 13, 2012).

S. Strogatz. Could you park safely on the world's steepest street? Huffington Post (August 22, 2014).

S. Strogatz and C. Ratti. Taking rides with strangers. Huffington Post (September 2, 2014).

The New Yorker:

S. Strogatz. Why Pi Matters. The New Yorker (March 13, 2015).

S. Strogatz. Einstein's First Proof. The New Yorker (November 19, 2015).

Scientific American:

S.H. Strogatz and I. Stewart. Coupled oscillators and biological synchronization. Scientific American 269 (6), December, 102–109 (1993).

S. Strogatz. Commuting. Scientific American. October (2012).

S. Strogatz. Outsmarting a virus with math. Scientific American 320 (4), April, 70–73 (2019).

Quanta Magazine:

S. Strogatz. Usain Bolt's split times and the power of calculus. Quanta Magazine (April 3, 2019).

S. Strogatz. How infinite series reveal the unity of mathematics. Quanta Magazine (January 24, 2022).

S. Strogatz. How Isaac Newton discovered the binomial power series. Quanta Magazine (August 31, 2022).

Engadget:

S. Strogatz. How calculus is helping unravel DNA's secrets. Engadget (April 20, 2019).

BBC Science Focus:

S. Strogatz. John Bardeen: the greatest physicist you (probably) never heard of. BBC Science Focus (September 18, 2019).

American Scientist:

S. Strogatz. From a Swinging Chandelier to Global Positioning Systems. American Scientist 109 (2), March/April, 106–109 (2021).

■ Podcast, Radio, and Internet Appearances

Host of *The Joy of x* podcast

(a podcast for Quanta Magazine; conversations with leading scientists and mathematicians about their careers and inner lives)

Season 1:

1. Priya Natarajan on Black Holes and Mapping the Universe (1/22/20)
2. Alex Kontorovich on the Absolute Truth of Pure Math (1/28/20)
3. Leslie Vosshall on Designer Mosquitoes and Dude Walls (2/4/20)
4. Robbert Dijkgraaf on Exploring Quantum Reality (2/11/20)
5. Corina Tarnita and the Deep Mathematics of Social Insects (2/18/20)
6. John Urschel: From NFL Player to Mathematician (2/25/20)
7. Janna Levin on Seeing and Hearing Black Holes (3/3/20)
8. Tadashi Tokieda's Special Kind of Magic (3/10/20)
9. Cori Bargmann on the Genetics of Transparent Worms, Supertasters and Cancer (3/17/20)
10. Rebecca Goldin and Brian Nosek on Hard Truths in Math and Psychology (3/24/20)
11. Brian Keating's Quest for the Origin of the Universe (3/31/20)
12. Moon Duchin on Fair Voting and Random Walks (4/7/20)

Season 2:

1. Neil Shubin on *Tiktaalik*, Ballistic Tongues and Evolution (3/2/21)
2. Bonnie Bassler on Talkative Bacteria and Eavesdropping Viruses (3/8/21)
3. Frank Wilczek on the Strong Force, Quarks and Dark Matter (3/15/21)
4. Sharon Glotzer's Deep Curiosity About Order From Chaos (3/22/21)
5. Federico Ardila on Math, Music and the Space of Possibilities (3/29/21)
6. Rediet Abebe on Using Algorithms for Social Justice (4/5/21)
7. Trachette Jackson Fights Cancer With Math (4/12/21)
8. Melanie Mitchell Takes AI Research Back to Its Roots (4/19/21)
9. Emery Brown and the Truth About Anesthesia (4/26/21)
10. Amie Wilkinson Sees the Dynamic Chaos in Puff Pastry (5/3/21)
11. Charlie Marcus Knows That Quantum Facts Aren't Complicated (5/10/21)
12. Eve Marder on the Crucial Resilience of Neurons (5/17/21)

Host of *The Joy of Why* podcast

(a podcast for Quanta Magazine; conversations with leading scientists and mathematicians about big unanswered questions in science and mathematics)

Season 1:

1. Why Do We Die Without Sleep? (3/22/22)
2. Untangling Why Knots Are Important (4/6/22)
3. Why Is Inflammation a Dangerous Necessity? (4/20/22)
4. Where Do Space, Time and Gravity Come From? (5/4/22)
5. Will the James Webb Space Telescope Reveal Another Earth? (5/18/22)

6. How Could Life Evolve from Cyanide? (6/1/22)
7. What Is Life? (6/15/22)
8. Can Computers Be Mathematicians? (6/29/22)
9. How Do Mathematicians Know Their Proofs Are Correct? (7/13/22)
10. Why Do We Get Old, and Can Aging Be Reversed? (7/27/22)
11. What Is Quantum Field Theory and Why Is It Incomplete? (8/10/22)
12. Why and How Do We Dream? (8/24/22)

Season 2:

1. How Will the Universe End? (2/22/23)
2. Can We Program Our Cells? (3/8/23)
3. Is There Math Beyond the Equal Sign? (3/22/23)
4. What Has the Pandemic Taught Us About Vaccines? (4/5/23)
5. How Can Some Infinities Be Bigger Than Others? (4/19/23)
6. Is Perpetual Motion Possible at the Quantum Level? (5/3/23)
7. Are There Reasons to Believe in a Multiverse? (5/17/23)
8. What Is the Nature of Consciousness? (5/31/23)
9. What Causes Giant Rogue Waves? (6/14/23)
10. What Can Jellyfish Teach Us About Fluid Dynamics? (6/28/23)
11. Can Math and Physics Save an Arrhythmic Heart? (7/12/23)
12. Does Nothingness Exist? (7/26/23)

Radiolab

- Zeroworld (12/29/23)
- The Middle of Everything Ever (12/9/22)
- Breaking Benford (11/13/20)
- Infective Heredity (9/20/18)
- For the Love of Numbers (5/2/14)
- What a Slinky Knows (9/10/12)
- Loops (10/4/11)
- The Good Show (12/14/10)
- Limits (4/16/10)
- Numbers (10/9/09)
- Are We Coins? (6/29/09)
- Yellow Fluff and Other Curious Encounters (12/12/08)
- (So-Called) Life (3/14/08)
- Emergence (2/18/05)

LA Theatre Works

- "Proof" - explores themes of women in math, the nature of genius, creativity, proof, intuition, and elegance
- "Arcadia" - about the history and significance of chaos theory and fractal geometry as they relate to the play
- "Six Degrees of Separation" - about human connections, the small-world effect, and networks

Science Friday

“Steven Strogatz On The ‘Infinite Powers’ Of Calculus” (3/29/19)
“Does Math Matter?” (7/3/15)
“Hello, Stranger, Wanna Share a Cab?” (9/5/14)
"Celebrating irrational, transcendental pi" (3/14/14)
"Steven Strogatz: The Joy of x" (10/5/12)
"Steven Strogatz Talks Math" (2/26/10)
"Scientists Debate 'Six Degrees of Separation'" (1/25/08)

Other radio, podcast, and Internet appearances

Daniel and Jorge Explain the Universe, “Why is math so important for physics?” (11/15/22)
Night Science, “Steven Strogatz on ruthless simplification,” (2/7/22)
Person Place Thing, with Randy Cohen (1/1/22)
Science Diction, “Algebra: From Broken Bones to Twitter Feuds” (10/19/21)
Shane Parrish, Knowledge Project (1/7/20)
The Beauty of Calculus, Yale University (5/1/19)
BBC Radio 4, “The Trouble Sum Weather” (11/27/19)
Curiosity Daily Podcast, “Can Calculus Solve Quantum Physics?” (11/18/19)
Curiosity Daily Podcast, “How calculus is different” (11/11/19)
Curiosity Daily Podcast, “Why you should care about calculus” (11/4/19)
Big Picture Science, “Math’s Paths,” (7/15/19).
BBC Inside Science with Adam Rutherford, “How Maths Underpins Science,” (5/30/19)
Quirks and Quarks, “No, really, calculus can be beautiful and this mathematician will tell you why,” (5/24/19)
Scientific American podcast, Science Talk with Steve Mirsky, “Secrets of the Universe Revealed!” (5/23/19)
Something You Should Know podcast, “The Math that Changed Your World,” (4/29/19)
#AmWriting podcast (4/10/19)
Mindscape podcast with Sean Carroll (4/9/19)
Clear and Vivid, Alan Alda Podcast (3/26/19)
Clear and Vivid, Steven Strogatz Bonus – What to Do When Things Keep Changing! (3/26/19)
Talk Nerdy podcast with Cara Santa Maria (4/25/17)
“Steven Strogatz Brings Math To The Traumatized And Perplexed” - WBUR Edify (4/10/17)
“Teach Better Podcast Episode 45: Inspiring Students With Steven Strogatz” (1/2/17)
“Deep Dive: Is Math Important?” - The Aspen Institute, Aspen Ideas Festival (6/30/15)
“Morality, Math and Movies” - Cain & Cupp, Radio interview (10/11/14)
“Should We Start Sharing Taxis?” - WNYC, The Brian Lehrer Show (9/3/14)
VIP (Very Important Puzzler) on NPR/WNYC quiz show Ask Me Another (8/2/13)
"The heart of the beat" - CBC Radio Ideas (4/22/13)
"The Joy of x" - GigaOm (10/16/12)
"The Joy of x" - Literary New England (10/8/12)
"Pi: A window on infinity" -- Colin McEnroe Show (3/14/11)
Ideas Network -- Wisconsin Public Radio (6/24/10)
"Swarm in here ... or is it just me?" -- SETI (6/21/10)
"Math for the nonmathletic" -- Colin McEnroe Show (3/15/10)
"Who are You Connected To?" -- Morning Edition (6/4/98)

■ Television and Film Appearances

From Zero to Infinity, NOVA – PBS (11/16/22)

A Trip to Infinity, Netflix (9/14/22)

How Kevin Bacon Cured Cancer (also known as Connected: The Power of Six Degrees)

Documentary about networks, aired on ABC Australia, Oct. 28, 2008; Discovery Canada, Jan. 8, 2009; Discovery Science Channel US, Feb. 15, 2009; BBC Two, United Kingdom, May 5, 2009. 2009 winner of the Australian Museum Eureka Prize, the most prestigious award in Australian science. 2010 winner of Best Film, SCINEMA Festival of Science Film Competition.

Sync: The Emerging Science of Spontaneous Order

C-SPAN BookTV, 92nd St Y, Mar. 25, 2003, conversation with Alan Alda

■ Selected Video Appearances

Veritasium, “What The Prisoner’s Dilemma Reveals About Life, The Universe, and Everything” (12/23/23)

3Blue1Brown podcast, “Steven Strogatz: In and out of love with math” (8/7/21)

Veritasium, “The Secret of Synchronization” (3/31/21)

Numberphile Podcast, “The C-Word (talking Calculus with Steven Strogatz)” (6/17/19)

Numberphile, “Newton Goes Prime Time (bonus footage with Steven Strogatz)” (6/17/19)

3Blue1Brown: “The Brachistochrone, with Steven Strogatz” (April 11, 2016)

The Infinite Mind: Exploring Mathematical Genius,
92nd St Y and World Science Festival (March 11, 2016).

Induction speech at American Academy of Arts and Sciences (10/6/12)

Simons Lecture Series, Mathematics Department, MIT (2011).
 (“The Department of Mathematics annually presents the Simons Lecture Series to celebrate the most exciting mathematical work by the very best mathematicians of our time.”)

1. Coupled oscillators that synchronize themselves
2. Social networks that balance themselves
3. Blogging about math for the New York Times

Louis Clark Vanuxem Lecture, Princeton University (2011).

TED Talk on how things in nature tend to sync up (Monterey, CA, Feb. 2004)

Parabolas (etc.) from WNYC/NPR Radio Lab
(a video inspired by Radio Lab episode “Yellow fluff and other curious encounters.”)

A Well-Lighted Place (interview about writing)

Math for the Masses (lecture about writing "The Elements of Math" blog for the NY Times)

The Calculus of Friendship (trailer on YouTube)

SEED Magazine: Salon with architect and designer Carlo Ratti, SEED Magazine, 12/08

A Simple Rhythm -- Documentary by Tess Girard about synchronization in nature
(aired at Calgary International Film Festival and Vancouver International Film Festival, 2010). Trailer on Vimeo: <https://vimeo.com/22698451>

■ Selected Press

Cornell Chronicle (11/21/23) Mathematician Steven Strogatz receives national award for science communication

National Academies (11/2/23) National Academies Announce 2023 Recipients of Eric and Wendy Schmidt Awards for Excellence in Science Communications

Nature Reviews Physics (8/2/23) 25 years of small-world network theory

Quanta Magazine (7/24/23) New Proof Shows That ‘Expander’ Graphs Synchronize

New York Times (6/26/23) The Terror of Threes in the Heavens and on Earth

Abacus (6/14/23) The Beautiful Cover of the Japanese edition of The Calculus of Friendship

Cornell Chronicle (5/31/23) Mathematical model that ‘changed everything’ turns 25

Cornell Chronicle (5/31/23) \$5M gift establishes A&S outreach professorship

Cornell Daily Sun (6/24/22) Prof. Steven Strogatz Explores Big Questions in New Podcast “The Joy of Wh(y)”

Harpers Magazine (3/22) Bright Flight: The mysteries of firefly synchrony

New York Times (1/28/22) How a Mathematician Spends His Sundays

Cornell Chronicle (11/29/21) Modeling suggests friendships may lead to lopsided elections

Phys. Org (11/4/21) When is a 'basin of attraction' like an octopus?

NPR All Things Considered (7/8/21) Firefly Light Shows Don't Just Dazzle. Swarms Can Also Synchronize Their Flashes.

Nature Physics (4/1/19) Geometry for mechanics

Ars Technica (10/30/18) New study sheds light on what caused Millennium Bridge to wobble

New York Times (8/10/18) What’s the Right Number of Taxis (or Uber or Lyft Cars) in a City?

Medium.com (7/27/18) Friends, Brains and Crickets: A (Scientific) Love Story

Nature, News and Views (6/19/18) Twenty years of network science

Science News (5/23/18) Fleets of self-driving taxis could be choreographed to cut traffic

Cornell Chronicle (4/25/18) Strogatz, Bethe research papers named to top-50 list

The Atlantic (4/5/18) The Scientific Paper is Obsolete

Quanta (3/1/18) Why Don’t Patients Get Sick in Sync? Modelers Find Statistical Clues

SIAM News (3/1/18) Self-organization in Space and Time

The Atlantic (2/20/18) The Controversial Theory That Explains the Structure of the Internet

Nature Physics 14 (2/1/18), p. 108 The discovery of skewness

Plus Magazine (1/22/18) Spaghetti, chance, and typhoid

National Public Radio, 13.7 Cosmos & Culture (11/18/17) The big idea behind big data

Physicsworld.com (11/14/2017) Putting a damper on wobbly bridges

New York Times (4/19/17) How Six Degrees Became a Forever Meme

Nature (3/6/17) Taxi-sharing in cities follows universal maths law

Nautilus (2/17/17) How to Understand Extreme Numbers

Technology Review (1/13/17) Mathematical Model Reveals the Patterns of How Innovations Arise

Business Insider (6/8/16) An Ivy League professor explains chaos theory, the prisoner's dilemma, and why math isn't really boring

The Atlantic (7/1/15) The Dilemma of Math

Science (5/29/15) Rock-paper-scissors may explain evolutionary 'games' in nature

New York Times (4/2/15) The Problem With Math Problems: We’re Solving Them Wrong

Wall Street Journal (10/19/14) Billionaires and Mathematicians Crack Jokes at the Geekiest Event of the Season -- Wall Street’s Wealthy ‘Quants’ Gather At Geeky Fundraiser for Math

The Atlantic (10/6/14) Teaching math to people who think they hate it

New York Times (9/1/14) If 2 New Yorkers Shared a Cab...

U.S. News (9/1/14) Going My Way? Taxi-Sharing Offers Big Benefits, Study Finds

Washington Post (8/1/14) The Mathematics of Discovering New Things

Wired (August 2014) The Mathematics of Novelties and Innovations

Physics Today (October 2012) Exotic chimera dynamics glimpsed in experiments

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Science News (9/22/12) When networks network

New York Times (11/9/10) Voices: What's next in science

Harvard Business Review (4/29/10) The best New York Times business columnist you've never heard of

Nature Physics (2010) News and Views: Spontaneous synchrony breaking
O, The Oprah Magazine (9/18/09) Social not-working: The perils of too much communication
New York Times (11/8/05) All together now: Synchrony explains swaying
Discovery News (8/21/03) Language's status drives its survival
New York Times (12/26/00) First cells, then species, now the web
New York Times (6/16/98) Mathematicians prove that it's a small world
Nature (6/4/98) News and Views: It's a small world
New York Times (1/6/98) Flirting male crabs found to wave claws in unison
New York Times (8/13/91) A mystery of nature: Mangroves full of fireflies blinking in unison
New York Times (1/8/85) Strange scroll-like wave is linked to biological processes

■ Book reviews of *Infinite Powers*

J. Ewing, Forbes (2/15/20)

<https://www.forbes.com/sites/johnewing/2020/02/15/should-i-take-calculus-in-high-school/>

A. Ananthaswamy, "From counting with stones to artificial intelligence: the story of calculus."

Nature (April 2, 2019) <https://www.nature.com/articles/d41586-019-01038-4>

M. Wertheim, "How calculus makes the modern world work," Washington Post, May 10, 2019.

https://www.washingtonpost.com/outlook/how-calculus-makes-the-modern-world-work/2019/05/10/a065100a-6693-11e9-8985-4cf30147bdca_story.html

S. Roell, Five Books, <https://fivebooks.com/book/infinite-powers-calculus-steven-strogatz/>

S. Mirsky, "Calculus reveals the universe – and can make a tuna melt sandwich: A new book that can make you love calculus," Scientific American, June 2019, p. 78

M.J. Barany, "To Infinity and Beyond: The Power of Calculus." LA Review of Books

<https://lareviewofbooks.org/article/to-infinity-and-beyond-the-power-of-calculus/#!>

N. Shadbolt, "The Best Science Books of 2019." Five Books

<https://fivebooks.com/best-books/science-2019-royal-society/>

K. Yates, "The Best Math Books of 2019." Five Books

<https://fivebooks.com/best-books/best-math-books-2019-kit-yates/>

D. Richeson, "*Infinite Powers: How Calculus Reveals the Secrets of the Universe* by Steven Strogatz, Houghton Mifflin Harcourt, Boston, 2019". The College Mathematics Journal, 50:4, 307-312, DOI: [10.1080/07468342.2019.1656942](https://doi.org/10.1080/07468342.2019.1656942)

<https://www.tandfonline.com/doi/full/10.1080/07468342.2019.1656942>

■ Other Outreach

Aspen Ideas Festival, Aspen, CO, June 28-30 (2015)

National Math Festival, Smithsonian Institution, Washington DC (April 18, 2015).

Adviser and interviewee on MATHematics Illuminated (2007-08)

A 13-part video and web-based educational series, produced by Oregon Public Broadcasting and funded by the Annenberg Foundation. The series won a WebVisionary Award in 2008, in the “educational/resource” category.

Science adviser, Radio Lab, WNYC (2006-present)

Science consultant, “QED” – a Broadway play about Richard Feynman (2001-2002).

Interviewed and quoted by the New York Times, Washington Post, Baltimore Sun, National Journal, and San Jose Mercury Sun, about how “six degrees of separation” makes us all feel personally affected by the World Trade Center attack (September 2001).

Publications

■ Books

S. Strogatz. *Infinite Powers: How Calculus Reveals the Secrets of the Universe* (Houghton Mifflin Harcourt, Boston, 2019).

New York Times Best Seller (May 2019). Shortlisted for the 2019 Royal Society Insight Investment Science Book Prize.

S.H. Strogatz. *Nonlinear Dynamics and Chaos: with Applications to Physics, Biology, Chemistry, and Engineering. Second Edition* (Perseus Books, Cambridge, Massachusetts, 2014).

S. Strogatz. *The Joy of x : A Guided Tour of Math, From One to Infinity* (Houghton Mifflin Harcourt, Boston, 2012).

Winner of the 2014 Euler Book Prize from the Mathematical Association of America. Translated into 19 languages.

S. Strogatz. *The Calculus of Friendship: What a Teacher and a Student Learned About Life While Corresponding About Math* (Princeton University Press, Princeton, New Jersey, 2009).

S. Strogatz. *Sync: The Emerging Science of Spontaneous Order* (Hyperion, New York, 2003).

Featured on Amazon's list of Customers' Favorites in science for 2003. Selected as a "Best Book of the Year" by *Discover* magazine in 2003. Won the Anomalist Award for the best science book of 2003. Translated into German, Italian, Korean, Japanese, Chinese, and Russian. The Korean edition was named "Best Science Book of 2005" by Ministry of Science & Technology Korea and received the "Best Science Book Award" given by Asia Pacific Center for Theoretical Physics.

S.H. Strogatz. *Nonlinear Dynamics and Chaos: with Applications to Physics, Biology, Chemistry, and Engineering* (Perseus Books, Cambridge, Massachusetts, 1994).

S.H. Strogatz. *The Mathematical Structure of the Human Sleep-Wake Cycle*. Lecture Notes in Biomathematics, Vol. 69 (Springer-Verlag, New York, 1986).

■ Books Edited

M. Golubitsky, D. Luss, and S.H. Strogatz, editors. *Pattern Formation in Continuous and Coupled Systems* (Volume 115, IMA Volumes in Mathematics and its Applications) Springer-Verlag, New York (1999).

■ Software and Workbooks

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■ Book Chapters

S.H. Strogatz. A comparative analysis of models of the human sleep-wake cycle. In: *Lectures on Mathematics in the Life Sciences*, Vol. 19: ed. G. Carpenter, American Mathematical Society, Providence, pp. 1-37 (1987).

S.H. Strogatz. Norbert Wiener's brain waves. In *Frontiers in Mathematical Biology*, edited by S. Levin. *Lecture Notes in Biomathematics*, Vol. 100, Springer-Verlag, New York, pp. 122-138 (1994).

S.H. Strogatz. Fermi's 'little discovery' and the future of chaos and complexity theory. In: *The Next Fifty Years: Science in the First Half of the Twenty-First Century* (edited by John Brockman, Vintage Books, New York, 2002).

S. Strogatz. The math of the real world. In: *Curious Minds: How a Child Becomes a Scientist* (edited by John Brockman, Pantheon Books, New York, 2004).

S. Strogatz. A walk down Mercer Street. In: *My Einstein: Essays by Twenty-four of the World's Leading Thinkers on the Man, His Work, and His Legacy* (edited by John Brockman, Pantheon Books, New York, 2006).

S. Strogatz. The end of insight. In: *What is Your Dangerous Idea? Today's Leading Thinkers on the Unthinkable* (edited by John Brockman, Harper Perennial, New York, 2007), pp.130-131.

S. Strogatz. Understanding sleep. In: *What Are You Optimistic About? Today's Leading Thinkers on Why Things are Good and Getting Better* (edited by John Brockman, Harper Perennial, New York, 2007), pp. 337-339.

V. Loreto, V.D.P. Servedio, S.H. Strogatz, and F. Tria. Dynamics on expanding spaces: Modeling the emergence of novelties. In: *Creativity and Universality in Language*, eds. M. Degli Esposti et al., *Lecture Notes in Morphogenesis*, Springer International Publishing, Switzerland (2016).

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S. Strogatz. Topology of zig-zag chromatin. *Journal of Theoretical Biology* 103, 601-607 (1983).

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