

Neil Francis Comins
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Professional Experience:

Professor, Physics and Astronomy, U. of Maine, 1990-present

Associate Professor, Physics and Astronomy, U. of Maine 1984-1990

Assistant Professor, Physics and Astronomy, U. of Maine 1978-1984

Director, U. of Maine Planetarium, 1978 – 1984

Director, U of Maine Observatory, 1978 – 1984

Research Technician, Physics, Louisiana State University, 1975, Responsible for developing hardware and software for the LSU low temperature gravity wave experiment.

Educational Background:

Ph.D. in Astrophysics and General Relativity, University College, Cardiff, Wales, 1978

M.S. in Astrophysics, University of Maryland, College Park, MD, 1975

B.S. in Engineering Physics, Cornell University, Ithaca, N.Y., 1972

Honors:

20. 2016 Invited guest at UN General Assembly symposium NOVUS Summit, New York, NY
19. 2010 Featured Speaker, *Festival of Ideas*, Edmonton, Alberta
18. 2008 – present *Renaissance Weekend* participant
17. 2008 Teaching Professor of the Year, College of Liberal Arts and Science, Univ. of Maine.
16. 2006 Show based on my book *What if the Moon Didn't Exist?* opened in theater at Huis Ten Bosch resort in Nagasaki, Japan. I cut the ribbon to open the theater on a red carpet using gold-plated scissors. Still playing!

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15. 2005 *What if the Moon Didn't Exist?* selected as theme for Mitsubishi's pavilion at the World Expo, Aichi, Nagoya, Japan
14. 2001 Nominated, Professor the Year, University of Maine, by Sigma Phi Epsilon fraternity.
13. 2001 – 2015 Trustee, Challenger Learning Center, Bangor, ME
12. 2000 Professor of the Year, University of Maine, elected by Alpha Phi sorority
11. 1987-1988 NASA-ASEE (American Society for Engineering Education) summer faculty fellow, NASA Ames Research Center, Moffett Field, CA
10. 1986 University of Maine Summer Faculty Research Fellow
9. 1984 Elected member of *Sigma Xi* science research honor society.
8. 1984 - present Harlow Shapley Lecturer in astronomy for the American Astronomical Society.
7. 1983 My graduate research cited in Chandrasekhar's Physics *Nobel Prize* lecture.
6. 1980 - 1981 NASA-ASEE Summer Faculty Fellow at NASA Ames Research Center, California
5. 1979 University of Maine Summer Faculty Research Fellow
4. 1977 Honorable Mention - Gravity Research Foundation Essay "On the Ergoregion Instability", with B.F. Schutz
3. 1976 Rotary International Fellow, University College, Cardiff, Wales
2. 1974 Outstanding Student, Erice Advanced Sch. of Astrophysics, Sicily
1. 1968 National Merit Scholar

Professional Memberships:

Fellow, Royal Astronomical Society
Full Member, American Astronomical Society
Full Member, International Astronomical Union
Member, Author's Guild
Member, Sigma Xi scientific research society
Mentor, The Mentor Project

PUBLICATIONS:

Books:

What If The Moon Didn't Exist?: Voyages To Worlds The Earth Might Have Been published December, 1993 by HarperCollins. The book explores how the Earth would have been different under different astronomical conditions as well as how our present Earth might be different as a result of human activities. Published in hardback and paperback, it has gone through seven printings. Translated into Hungarian and Japanese, where it was a best seller for six months.

Discovering the Universe 4th – 11th editions, replacing William J. Kaufmann, III (deceased). Published by W.H. Freeman & Co., 1996 – present Undergraduate College Textbook. Released in March, 1996, the 4th edition was the best-selling introductory college astronomy text of the 1990s. Translated into German, French, Portuguese.

Discovering the Universe media edition, with William J. Kaufmann, III (deceased). Published by W.H. Freeman & Co., 1998 Undergraduate College Textbook.

Discovering the Essential Universe 1st – 6th editions. Published by W.H. Freeman & Co., 2001 - present, Undergraduate College Textbook.

Heavenly Errors: Misconceptions About the Real Nature of the Universe, 2001, Columbia University Press, June 2001. Book about common misconceptions in astronomy. Translated into Japanese and German.

The Hazards of Space Travel: A Tourist Guide 2007 Villard Press. Translated into Japanese and Korean.

Discovering the Universe: From the Stars to the Planets with William J. Kaufmann, III (deceased) Published by W.H. Freeman & Co., Undergraduate College Textbook.

What if the Earth Had Two Moon? and Nine Other Thought-provoking Speculations on the Solar System 2010, St. Martin's Press

The Traveler's Guide to Space: For One-Way Settlers and Round Trip Tourists, 2017, Columbia University Press. Translated into Mandarin, Cantonese, Italian, Turkish. Nominated for the Eugene M. Emme Astronautical Literature Award.

Editorial Activity

Member, Editorial Board, *Annual Editions*, 98-99, 99-00, 00-01, 01-02 02-03 03-04 Published by Dushkin/McGraw Hill

Member, Review Committee, *Earth and Sky* radio show 1996 - 2008.

Book reviewer, *American Journal of Physics* 2013 - present

Article Reviewer: *Astrophysical Journal*; *Astronomy and Astrophysics*; *American Journal of Physics*; *Astronomy Education Review*; *California Space Institute*; *NSF*; *NASA*; *Harcourt, Brace, Jovanovich*; *West Educational Publishing*; *McGraw-Hill Publishing*; *Wadsworth Publishing*; *Academic Press*; *Houghton-Mifflin Publishing*, *The Physics Teacher*

Magazine Articles:

19. *A Student's Guide to General Relativity* book review of book by Norman Gray, April 2019 (American Journal of Physics)
18. *What Really Causes Tides*, 2017 *In the Trenches* (National Assoc. of Geoscience Teachers)
17. *Space Tourism Now and in the Near Future*, (March 16) 2017 *Mechanix Illustrated*
16. *Taking on Astronomy Misconceptions Isn't Easy*, with Andrej Favia and David Batuski, August 2016, *Physics Today*
15. *What would happen to Earth if the Moon was only half as massive?* 2008, *Scientific American* on-line.
14. *Get the Hole story* (June) 2002 *Astronomy Magazine*
13. *Beyond the Pale*, (May) 2002 *Astronomy Magazine*
12. *We are all star stuff*, (January) 2001 *Astronomy Magazine*
11. *Facts and Fiction about Planetary Rings*, (July) 1998 (cover story) *Astronomy Magazine*
10. *Life on an Older Earth*, (March) 1993, *Astronomy Magazine*
9. *Life on a Metal-Poor Earth*, (October) 1992, *Astronomy Magazine*
8. *A New Slant On Earth*, (July) 1992, *Astronomy Magazine*
7. *Life Around a Larger Sun*, (May) 1992, *Astronomy Magazine*
6. *Seeing the World Through Infrared Eyes*, (June) 1991, *Astronomy Magazine*
5. *Life Near the Center of the Galaxy*, (April) 1991, *Astronomy Magazine*
4. *The Earth Without the Moon*, (February) 1991, *Astronomy Magazine*

3. *Galactic Collisions on your Computer*, December 1988, with Michael Schroeder, *Astronomy Magazine*
2. *Star Birth: Against the Odds*, September 1988, with Steve Stahler, *Astronomy Magazine*, Kalmbach publishers
1. *Forces that Shape Spiral Galaxies*, December 1987, with Larry Marschall, *Astronomy Magazine*, Kalmbach Publishers

Other Publications:

3. *Stellar 28* Constellation board game, Kendall/Hunt 1981. Used to teach the stars and constellations.
2. AST-109 Course skeleton book, used to help college students organize their astronomy lecture notes. Based on the paradigm adopted by most medical schools for most of their courses. Published by Kendall/Hunt.
1. *Astronotes: Organizing for Success* 2010 Freeman Custom Publishing, then U. M. Press.

Research Articles:

51. *Triggering interest with Minecraft: Effects of a hybrid summer camp on STEM interest and engagement.* Lane, H. C., Yi, S., Gadbury, M., Comins, N., Henhapl, J., Rivera-Rogers, A., & Ginger, J (2021). *Technology, Mind, and Behavior: Innovations in Remote Instruction.*
50. *A Taxonomy of Minecraft Activities for STEM* H. Chad Lane, Sherry Yi, Brian Guerrero, Neil F. Comins, (2017), Proceedings of the 25th International Conference on Computers in Education. New Zealand: Asia-Pacific Society for Computers in Education
49. *Minecraft as a Sandbox for STEM Interest Development: Preliminary Results* H. Chad Lane, Sherry YI, Brian Guerrero, Neil Comins, Chen, W. et al. (Eds.) (2017). Proceedings of the 25th International Conference on Computers in Education. New Zealand: Asia-Pacific Society for Computers in Education
48. *A Direct Examination of College Student Misconceptions in Astronomy II. Validity of the Astronomy Beliefs Inventory.* with Andrej Favia, Geoffrey Thorpe. 2015, Vol 1, No.3 Journal and Review of Astronomy Education and Outreach.
47. *A Direct Examination of College Student Misconceptions in Astronomy I. The New Instrument* with Andrej Favia, Geoffrey Thorpe, David Batuski. 2014, Vol 1 No.1, Journal and Review of Astronomy Education and Outreach.

46. *The elements of item response theory and its framework in analyzing introductory astronomy college student misconceptions. I. Galaxies*, with A. Favia and G.L. Thorpe, 2012
arXiv:1206.2302
45. *A Mechanism for the Present-Day Creation of a New Class of Black Holes*, with A.P. Hayes, 2011,
arXiv: 1104-2501
44. *Persistent Spiral Structure in Disk Galaxy Simulations*, January 2001, Bulletin, American
Astronomical Society
43. *An In-Your-Face Approach to Student Misconceptions About Astronomy*, January 2000, Bulletin of
the American Astronomical Society, Vol. 31, p 1530
42. *A Method to Help Students Overcome Astronomy Misconceptions*, Nov. 2000, The Physics Teacher
V. 38, No. 8.
41. *Sloshing in High-Speed Galaxy Interactions*, Neil F. Comins, Thomas Zeltwanger, R.V.E.
Lovellace, Astrophysical Journal 543, 669, 2000
40. *Identifying and Addressing Astronomy Misconceptions in the Classroom*, in New Trends in
Astronomy Teaching, IAU Symposium 162, 1998, Oxford University Press
39. *One Armed Spiral Waves in Galaxy Simulations With Counter-Rotating Stars*, 1997, Neil F.
Comins, R.V.E. Lovellace, Thomas Zeltwanger, & Peter Shorey, The Astrophysical Journal Letters,
Vol 484, 133
38. *What If the Moon Didn't Exist?* January, 1996, teaching article in Universe in the Classroom,
published by the Astronomical Society of the Pacific
37. *Addressing Common Astronomy Misconceptions in the Classroom*, for poster paper at
Astronomical Society of Pacific meeting, June 1995
36. *What If the Moon Didn't Exist and Other Questions Students Learn From*, for Keynote speech at
Astronomical Society of Pacific meeting, June 1995
35. *Misconceptions About Astronomy: Their Origins*, Neil F. Comins, in the Proceedings of the Third
International Seminar on Misconceptions in Science and Mathematics, June 1993, Cornell
University, Ithaca, N.Y.
34. *Misconceptions About Astronomy: Their Origins and Effects on Teaching*, Neil F. Comins, 1993,
Bulletin of the American Astronomical Society, Vol 25, No. 4, p1430.
33. *Relaxation and Thermalization in Spiral Galaxies Mediated by Spiral Wave Scattering*, R.G.
Hohlfeld, D. Shalit, N.F. Comins, and G.v.H. Sandri, 1993, Bulletin of the American Astronomical
Society, Vol 25, No. 4, p1411.

32. *Coupled Cloud/Star Simulations of Disk Galaxies*, M.J. Currier, N.F. Comins, and P.A. Shorey, 1993, Bulletin of the American Astronomical Society, Vol 25, No. 4, p1411.
31. *N-body Simulations of Disk Galaxies: Parameters - Revisited*, with Andrew Rivers and Peter Shorey, 1993, Bulletin of the American Astronomical Society.
30. *Implementation of Particle-in-Cell Stellar Dynamics Codes on the Connection Machine-2*, Robert Hohlfeld, Neil Comins, Dan Shalit, Peter Shorey, 1993, Journal of Supercomputing, 7, 417-436
29. *The Extraordinary Radio Source 3C 442*, with Frazer Owen, The Astrophysical Journal, 382, 108-114, Nov 1991.
28. *Numerical Simulations of Nonequilibrium Stochastic Evolution of Disk Galaxies*, with Steven Shore, Astronomy and Astrophysics (European Journal), November, 1990, 237, 345.
27. *Numerical Simulations of Nonequilibrium Galactic Evolution in Disk Galaxies*, with Steve Shore, Astronomy and Astrophysics, 1990.
26. *Photometry of the Young Open Cluster Trumpler 37*, May 1989, Astronomical Journal, 99, 1536-1547.
25. *Relaxation Times in 2 Dimensional Galaxy Simulations*, with Michael Schroeder, 1989, Nov. 15 Astrophysical Journal.
24. *Long-Lived Spiral Structure in Spiral Galaxy Simulations*, With Michael Schroeder. 1989, in Proceeds of the Conf.. on Disk System Dynamics, Manchester, Eng., Dec. 1988.
23. *Coupled Three Dimensional N-Body and Hydrodynamic Simulations*, in the proceedings of the NASA-ASEE Summer Faculty Fellows, NASA Ames Research Center, Moffett Field, CA. August 1988
22. *Three Dimensional N-Body Simulations*, in the proceedings of the NASA-ASEE Summer Faculty Fellows, NASA Ames Research Center, Moffett Field, CA. August 1987
21. *Dynamical Effects of Giant Molecular Clouds on N-Body Simulations*, with Peter Shorey, 1989 (December), Bulletin of the American Astronomical Society, 21, 1126
20. *Numerical Simulations of Galactic Structure and Helium Abundance Evolution in Disk Galaxies*, with Dana Balser, 1987, Astrophysical Journal, 328, 499-518.
19. *The gravitational interaction between N-body (star clusters) and hydrodynamic (ISM) codes in disk galaxy simulations*, with Michael Schroeder, 1987, in Proceedings of the Conference on Super Computers in N-Body Simulations of Galaxies, Institute for Advanced Study, Princeton, N.J.

18. *Star Formation in Very Young Galactic Clusters*, with Michael Schroeder, 1987, *Astrophysical Journal*, 326, 756-760.
17. *Observable Parameters Using N-Body Models of Kalnajs Omega Discs*, with JJE Hayes, 1984, *Journal of the Royal Astronomical Society of Canada*, Vol 78, No. 5, p212
16. *Bursts of Star Formation in Computer Simulations of Dwarf Galaxies*, 1984, *Astrophysical Journal*, 284, 90-101.
15. *Three Dimensional SSPSF Simulations of Dwarf Galaxies*, 1983, Abstract in the *Bulletin of the American Astronomical Society*, 15, 886.
14. *Stellar Evolution in N-Body Simulations of Disk Galaxies*, 1983, *Astrophysical Journal*, 274, 595-610.
13. *Three Dimensional Stochastic Self-Propagating Star Formation Simulations of Spiral Galaxies*, with T. Statler and B.F. Smith, 1983, *Astrophysical Journal*, 270, 79-87.
12. *Three Dimensional Computer Simulations of Star Formation in Dwarf Galaxies*, 1983, *Astrophysical Journal*, 266, 543-554.
11. *Three Dimensional SSPSF Simulations of Disk Galaxies*, 1982, Abs. in the *Bulletin of the American Astronomical Society*, 14, 660.
10. *Profiles of the Stochastic Self-Propagating Star Formation Process*, 1981, *Monthly Notices of the Royal Astronomical Society*, 194, 169-181.
9. *Computer Modeling of Disk Galaxies Using Self Gravitating Particle Dynamics*, 1980, in *Collected papers at NASA/ASEE Summer Faculty Institute*.
8. *On Stochastic Self-Propagating Star Formation in Spiral Galaxies*, Abstract in the *Bulletin of the American Astronomical Society*, Feb. 1980
7. *On Secular Instabilities of Rigidly Rotating Stars in General Relativity II. Numerical Results*, 1979, *Monthly Notices of the Royal Astronomical Society*, 189, 255-278.
6. *On Secular Instabilities of Rigidly Rotating Stars in General Relativity I. Theoretical Formalism*, 1979, *Monthly Notices of the Royal Astronomical Society*, 189, 233-254.
5. *On the Ergoregion Instability*, with B.F. Schutz, 1978 *Proceedings of the Royal Society of London*, A. 364, 211-226
4. *On the Existence of Ergoregions in Rotating Stars*, with B.F. Schutz, 1978, *Monthly Notices of the Royal Astronomical Society*, 182, 69-76.

3. *On the Ergoregion Instability*, with B.F. Schutz, Essay submitted to the 1977 Gravity Research Foundation Award Competition, Honorable Mention received.
2. *Discussion of the Application of Laser Interference Techniques to Cylinder Type Gravity Wave Detectors*, Univ. of Maryland, Technical Report 75-085
1. *Magnetic Levitation of Cylinder Type Gravity Wave Detectors*, Univ. of Maryland, Technical Report 75-036

Funded Grants

29. 2019 NSF, Fostering Enduring Interest in STEM through Exoplanet Education and Interactive Exploration and Creation of Potentially Habitable Worlds, with Chad Lane, UIUC; Jorge Gallego, UC Boulder; NOVA labs, PBS, David Condon.
28. 2017 NSF, Fostering Interest in Science through Interactive Exploration of Astronomy What-If Simulations, with Chad Lane, UIUC
27. 2011 US Dept. of Energy, “Supernova Simulations at Los Alamos”
26. 2008 Maine Space Grant Consortium, “Black Hole Formation in Supernovae”
25. 2006 NASA/Maine Space Grant Consortium, “The Formation of Mini-Black Holes as a Result of Supernovas. II”
24. 2005 NASA/Maine Space Grant Consortium, “The Formation of Mini-Black Holes as a Result of Supernovas. I”
23. 2004 NASA/Maine Space Grant Consortium, Travel to present invited papers in Cosmos in the Classroom
22. 2003 NASA/Maine Space Grant Consortium, Summer Research in Astronomy for High School Students
21. 1991 Cornell National Supercomputer time, “Disk Galaxy Simulations”
20. 1991 Sun Microsystems “Computer Models of Galaxies”
19. 1990 Very Large Array, “Data Reduction of NGC 7236/37 Observations”
18. 1988 NASA Graduate Student Fellowship, Michael Schroeder
17. 1988 NASA-ASEE Summer Faculty Fellowship, NASA Ames Research Center, Moffett Field, CA

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16. 1988 Bird and Bird Foundation grant
15. 1987 NASA-ASEE Summer Faculty Fellowship, NASA Ames Research Center, Moffett Field, CA
14. 1987 NASA Graduate Student Fellowship, Michael Schroeder
13. 1986 University of Maine, Summer Faculty Fellowship, "Combined N-Body and Hydrodynamic Simulations of Disk Galaxies."
12. 1985 Very Large Array, "Further Radio Study of the Radio-Bright Galaxy NGC 7236/37 II.
11. 1985 Very Large Array, "Further Radio Study of the Radio-Bright Galaxy NGC 7236/37 I.
10. 1984 Kitt Peak National Observatory, 4-m telescope, "Further Photometric Studies of Binary Galaxies"
9. 1984 Very Large Array "A Radio Study of the Radio-Bright Galaxy NGC 7236/37
8. 1984 UM Faculty Research Fund, "Observations and Simulations of Binary Galaxies"
7. 1983 Kitt Peak National Observatory "A Photometry Study of Binary Galaxies" on 1-m telescope
6. 1983 American Astronomical Society "Computer Simulations of Galactic Evolution"
5. 1982 AAS-NASA Small Research Grant
4. 1981 NASA-ASEE Summer Faculty Fellowship at NASA Ames Research Center, Moffett Field, CA
3. 1980 Research Corporation Grant to study Galactic Evolution
2. 1980 NASA-ASEE Summer Faculty Fellowship at NASA Ames Research Center, Moffett Field, CA
1. 1978 University of Maine Faculty Summer Research Grant

Professional Meeting Attendance:

52. 2021 STEM for All Video Showcase (virtual)
51. 2020 Aspen Center for Physics (virtual)

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50. 2019 NSF AISL PI Meeting, Alexandria, VA
49. 2018 STEM for All *Transforming the Educational Landscape* e-conference
48. 2015 Semi-Annual meeting of the American Astronomical Society, Seattle, WA
47. 2013 Semi-Annual meeting of the American Astronomical Society, Long Beach, CA
46. 2011 North Carolina Section, American Association of Physics Teachers, Raleigh, NC
45. 2010 Chandrasekhar Centenary Meeting, Chicago, IL
44. 2010 Astronomical Society of the Pacific, Boulder, CO
43. 2010 National Science Teachers Association, Phil. PA
42. 2010 Semi-Annual meeting of the American Astronomical Society, Wash. D.C.
41. 2009 New England Section meeting of American Physical Society/American Association of Physics Teachers, Durham, NH
40. 2008 Semi-Annual meeting of the American Astronomical Society, Austin, TX
39. 2007 Semi-Annual meeting of the American Astronomical Society, Seattle, WA
38. 2006 Semi-Annual meeting of the American Astronomical Society, Wash. DC
37. 2004 Cosmos in the Classroom astronomy education conference, Tufts Univ., Boston, MA.
36. 2002 10th Annual Meeting of the Puerto Rico Louis Stokes Alliance for Minority Participation, Ponce, PR.
35. 2001 Teaching Astronomy Conference, Tufts Univ., Boston, MA.
34. 2001 Semi-Annual meeting of the American Astronomical Society, San Diego, CA.
33. 2000 Semi-Annual meeting of the American Astronomical Society, Atlanta, GA.
32. 2000 American Association of Physics Teachers, Guelph, Ontario.
31. 1996 Semi-Annual meeting of the American Astronomical Society, San Antonio, TX.
30. 1996 LIGO Gravity Wave Conference, Boston, MA.
29. 1996 Int. Astronomical Union (IAU) conf. 162 on Teach Astronomy, London, England.

28. 1996 First Int. LISA Conference, on Gravity Waves, Rutherford Appleton Lab, Chilton, England.
27. 1994 Semi-Annual meeting of the American Astronomical Society, Washington, DC.
26. 1993 Semi-Annual meeting of the American Astronomical Society, Berkeley, CA.
25. 1989 Semi-Annual meeting of the American Astronomical Society, Boston, MA.
24. 1988 Assessment in Education, Sugarloaf, ME.
23. 1988 American Society for Engineering Education, Portland, OR.
22. 1988 “Dynamics of Astrophysical Disks”, Manchester, England.
21. 1986 “Use of Supercomputers on Galaxy Modeling”, Inst. for Advanced Study, Princeton, NJ.
20. 1986 “The U.S. Interferometric Gravity Wave Experiments”, Harvard, Cambridge, MA.
19. 1986 “Excellence in Teaching”, UM.
18. 1985 National Science Foundation Meeting to Review Undergraduate Education.
17. 1984 Semi-Annual meeting of the American Astronomical Society, Tucson, AZ.
16. 1983 Semi-Annual meeting of the American Astronomical Society, Chicago, IL.
15. 1983 Semi-Annual meeting of the American Astronomical Society, Boston, MA.
14. 1982 Semi-Annual meeting of the American Astronomical Society, RPI, Troy, NY.
13. 1982 Semi-Annual meeting of the American Astronomical Society, Boulder, CO.
12. 1982 June Institute on Astrophysics, Univ. of Toronto, Toronto, Canada.
11. 1982 Division of Dynamical Astronomy of the American Astronomical Society, Boulder, CO.
10. 1982 Annual meeting of the Canadian Astronomical Society, Univ. of Toronto, Toronto, Canada.
9. 1981 New England Sectional Meeting of the American Physical Society, B.U., Boston, MA.
8. 1981 June Institute on Astrophysics, Univ. of Toronto, Toronto, Canada.
7. 1980 New England Sectional Meeting of the American Physical Society, MIT, Boston, MA.

6. 1980 NASA Ames Research Center Space Science Colloquium Series, Moffett Field, CA.
5. 1980 Maine Physics Association Meeting, Colby College, ME.
4. 1979 New England Sectional Meeting of the American Physical Society, Bates College, ME.
3. 1979 Conference on Galaxies, Yale Univ., New Haven, CT.
2. 1978 Conference on Rotating Stars, Cambridge Univ., England.
1. 1978 Conference on Instabilities in Stars, Royal Society, London, England.

Delivered Research Papers:

58. 2017 *Investigation and Visualization of the Correlation between Minimal Surface and Relativistic String Dynamics in Bosonic Strong Theory*, with Graham Van Goffrier, Univ. of Maine CUGR symposium
57. 2015 *Generation of Composite Galaxies in Dynamic Equilibrium* with Robbie Fasano, January 2015 AAS Meeting, Seattle, WA
56. 2015 *Effects of the Earth's atmosphere and human neural processing of light on the apparent colors of stars* with Michael Savino, January 2015 AAS Meeting, Seattle, WA
55. 2013 *Warping of Disk Galaxies by Passing Galaxies* with Nicholas Palestini, January 2013 AAS Meeting, Long Beach, CA
54. 2013 *Thermally Driven Convection of a Stellar Plasma*, with Lori Spalsbury, January 2013 AAS Meeting, Long Beach, CA
53. 2013 *Effects of the Earth's Atmosphere and Human Neural Processing of Light on the Apparent Colors of stars*, with Michael Savino, January 2013 AAS Meeting, Long Beach, CA
52. 2011 *Properties of the Moon*, Webinar for Lunar and Planetary Institute,
51. 2010 *Inertial Effects from Companion Galaxies Driving Warps in Disk Galaxies*, with Nicholas Palestini, Ermano F. Borra, Robert G. Hohlfield, January 201 AAS Meeting, Washington, DC
50. 2010 *Properties of the Moon* Webinar for Lunar and Planetary Institute,
49. 2010 (August) The "What if?" Workshop, ASP Cosmos in the Classroom 2010, Boulder, CO.

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48. 2010 (March) *Addressing Astronomy Misconceptions in the Classroom* National Science Teachers Association Meeting, Phil. PA
47. 2005 *Refining Understanding: Redesigning an Introductory Lesson on Time*, with AL Traxler, DJ Batuski, and JR Thompson., January 2005 AAS Meeting
46. 2005 *Student Understanding of Time in an Introductory Astronomy Laboratory*, with AL Traxler, DJ Batuski, and JR Thompson., January 2005 AAS Meeting
45. 2001 (January) *Sustained Spiral Structure in Spiral Galaxies*, AAS Meeting, San Diego, CA.
44. 2000 (January) *Elements of Teaching From Both a Teacher's and a Student's Perspective*, AAS Meeting, Atlanta, GA. Invited Chair of Session on Teaching Astronomy
43. 2000 (January) "An In-Your-Face Approach to Student Misconceptions About Astronomy," AAS Meeting, Atlanta, GA
42. 2000 (January) "Sloshing in High Speed Galaxy Interactions," AAS Meeting, Atlanta Georgia
41. 1998 (August) "Biodiversity and Astronomy," Rockland, ME
40. 1997 (July) "Identifying and Addressing Astronomy Misconceptions in the Classroom," IAU 162 Conference on Teaching Astronomy, London, England
39. 1997 (June) Panelist on Teaching Astronomy, Astronomical Society of the Pacific meeting, Chicago, IL
38. 1997 (March) "Addressing Misconceptions in the Classroom," Conn. High School Teachers Association meeting
37. 1994 (Jan) "Misconceptions About Astronomy: Their Origins and Effects on Teaching," Neil F. Comins, Meeting of the American Astronomical Society
36. 1994 (Jan) "Relaxation and Thermalization in Spiral Galaxies Mediated by Spiral Wave Scattering," R.G. Hohlfield, D. Shalit, N.F. Comins, and G.v.H.Sandri, Meeting of the American Astronomical Society
35. 1994 (Jan) "Coupled Cloud/Star Simulations of Disk Galaxies," M.J. Currier, N.F. Comins, and P.A. Shorey, Meeting of the American Astronomical Society
34. 1993 (June) "N-body Simulations of Disk Galaxies: Parameters - Revisited, with Andrew Rivers and Peter Shorey, Meeting of the American Astronomical Society
33. 1989 (December) "Dynamical Effects of Giant Molecular Clouds on N-Body Simulations", with Peter Shorey, Meeting of American Astronomical Society

32. 1988 (August), "Simulations of Galactic Evolution", NASA Ames Research Center
31. 1988 (December) "Long Lived Spiral Structure in Disk Galaxy Simulations", Physics Department, Manchester Univ., Manchester, England
30. 1988 (June), "NASA-ASEE Grad Student Program", Amer. Soc. for Eng. Ed., Portland, OR
29. 1987 (April), "3C442 Radio Observations of Intergalactic Gas Surrounding an Interacting System of Elliptical Galaxies", New Mexico Inst. of Mining and Technology, Socorro, NM
28. 1987 (March), "Computer Models of Galaxies", Physics Dept., University of Moncton, New Brunswick, Canada
27. 1986 (June), "Combined N-Body and Hydrodynamic Simulations of Disk Galaxies", Institute for Advanced Study", Princeton, NJ
26. 1986 (February), "New Computer Models of Galaxies", Physics Dept., Rochester Institute of Technology, Rochester NY
25. 1985 (May), "The Inflationary Universe" Physics Dept., Youngstown State Univ., Youngstown OH
24. 1985 (April), "Computer Models of Disk Galaxies", Physics Dept., Syracuse Univ., N.Y.
23. 1985 (March), "New N-Body Models of Disk Galaxies" Astronomy Dept., St. Mary's Univ., Halifax, Nova Scotia
22. 1985 (January), "The Discovery of an Optical Tail in NGC 7236/37" Semi-annual meeting of the American Astronomical Society
21. 1985 (January), "New SSPSF Models of Disk Galaxy Evolution" Semi-annual meeting of the American Astronomical Society
20. 1985 (July), "New and Unexpected Results of N-Body Computer Models of Disk Galaxies" Livermore Lab
19. 1984 (November), "Computer Models of Galactic Evolution" Astronomy Department, Boston University
18. 1984 (June), "Advanced Computer Models of Spiral Galaxies" NASA Ames Res. Center
17. 1983 (July), "Stellar Evolution in Computer Models of Disk Galaxies" Annual Meeting of the Division of Dynamical Astronomy of the American Astronomical Society, Chicago, IL
16. 1983 (January), "Coupled N-body and Stellar Evolution Simulations of Disk Galaxies" Semi-annual Meeting of the American Astronomical Society, Boston, MA

15. 1982 (June), "3 Dimensional Computer Simulations of Star Formation in Dwarf Galaxies" Semi-annual Meeting of the American Astronomical Society, RPI, Troy, NY
14. 1981 (August), "Three Dimensional SSPSF", Division of Dynamical Astronomy, American Astronomical Society, Boulder Colorado
13. 1981 (August), "Simulations of Coupled Gravitational N-Body and Stellar Evolution Effects in 2-dimensional Disk Galaxy Models", NASA Ames Research Center
12. 1981 (April), "SSPSF in Spiral Galaxies", Astro. Dept., St. Mary's U, Halifax, Nova Scotia
11. 1981 (April), "Computer Simulations of Spiral Galaxies, Maine Phys. Assoc., Colby College
10. 1980 (Oct), "Progress on Spiral Galaxy Simulations", Physics Dept, UM
9. 1980 (August), "Computer Simulations of Spiral Galaxies", NASA Ames Research Center
8. 1980 (June), "New Results on the SSPSF Process", NASA Ames Research Center
7. 1979 (April), "On the Self Propagating Star Formation Process in Spiral Galaxies (SSPSF)", New England Section of the American Physical Society, Bates College
6. 1979 (March), "The New Jupiter-Voyager I", Physics Dept., UM
5. 1979 (January), "Radio Astronomy" I.E.E.E.
4. 1978 (October), "Differential Forms in Physics and Astronomy", Chemistry Dept., UM
3. 1978 (June), "Gravity Waves Detection and Detectors", Physics Dept, UM
2. 1978 (May), "Secular Instabilities in Rigidly Rotating Stars", Dept. of Applied Math and Astronomy, Univ. College, Cardiff, Wales
1. 1977 "The Ergoregion instability," Department of Applied Mathematics and Theoretical Physics, University of Cambridge (*presented to Stephen Hawking and his group*)

Radio and TV Appearances

155. KFGO, Bob Harris, January 8, 2020
154. BBC podcast "What if the Earth had 2 Moons?"
<https://www.bbc.co.uk/sounds/play/m0004mcb>
153. BBC, On "What if the Moon Didn't Exist?" Feb 14, 2019

152. KFGO, Bob Harris, November 1, 2018
151. KFGO, Bob Harris, April 7, 2018
150. KFGO, Bob Harris, May 30, 2017
149. Public Radio, PRI, *Living on Earth*, with Steve Curwood. April 28, 2017
148. MPBN, Irwin Gratz, April 18, 2017
147. KFGO, Bob Harris, January 3, 2017
146. KFGO, Bob Harris, March 22, 2016
145. MPBN, On gravitational radiation, March 1, 2016
144. WZON, On gravitational radiation, February 16, 2016
143. WLBY, On gravitational radiation, February 15, 2016
142. KFGO, Bob Harris, Feb. 4, 2016
141. KFGO, Bob Harris, July 23, 2015
140. MBBN, Irwin Gratz, July 1, 2015
139. MPBN, Irwin Gratz, February 15, 2015
138. KFGO, Bob Harris, Jan 26, 2015
137. KFGO, Bob Harris, Nov 14, 2014
136. KFGO, Bob Harris, Oct 27, 2014
135. MPBN, Irwin Gratz, June 23, 2014
134. KFGO, Bob Harris, May 19, 2014
133. KFGO, Bob Harris, March 4, 2014
132. KFGO, Bob Harris, December 4, 2013
131. MPBN, Irwin Gratz, November 20, 2013
130. NHK TV (Japan), March 10, 2013
129. Irish National Radio, October 4, 2012
128. KFGO, Bob Harris, August 9, 2012
127. WZON, Don Cookson, August 6, 2012
126. National Public Radio, July 26, 2012
125. NewsTalk Radio, Ireland, Sean Montrief, May 26, 2010
124. KNEW, May 14, 2010

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123. MPBN, Bill Green's Maine, May 10, 2010
122. MPBN (Maine Public Broadcasting Network), Irwin Gratz, May 5, 2010
121. WXBR SciFi Overdrive, David Durica, April 29, 2010
120. KFGO, Bob Harris, April 26, 2010
119. WBAI, Michio Kaku, April 24, 2010
118. WQUB, March 24, 2010
117. KFGO, Bob Harris, August 29, 2008
116. KSCJ, Randy Renshaw, August 29, 2008
115. KGLI, Mark Hahn, August 28, 2008
114. WDST, Greg Gattine, August 20, 2008
113. WSBA, Dennis Gerkin, August 6, 2008
112. KAIR, Rachel Lehear, August 6, 2008
111. WOCA, Larry Whitler, July 30, 2008
110. WSIU, Jeff Williams, July 28, 2008
109. WRIV, Bruce Tria, July 25, 2008
108. WVOX, Bob Marrone, July 24, 2008
107. WDWS, Gary O'Brien, July 21, 2008
106. WQUB, Jim Lenz, July 21, 2008
105. WOON, Don Brunelle, July 18, 2008
104. WTAG, Sherman Whitman, July 17, 2008
103. WOND, Dan Williams, July 16, 2008
102. WBGZ, Ron Block, July 14, 2008
101. WBNR, Bruce Owens, July 2, 2008
100. WBET, Collin Gillis, July 1, 2008
99. WTMR, Michael Roberts, July 1, 2008
98. WWCK, Rusty Thomas, June 26, 2008
97. KAHI, Mary Jane Popp, June 25, 2008
96. WFLA, Jeff Fisher, June 21, 2008
95. WCCC, P.J. Lamoreaux, June 20, 2008

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94. WTRC, Paul Weaver, June 18, 2008
93. WRON, Joe Parisi, June 14, 2008
92. WILY, Tootie Cooksey, June 13, 2008
91. WNAV, Bill Lusby, June 12, 2008
90. WKCT, Roy Brassfield, June 11, 2008
89. WICH, Stu Briar, June 9, 2008
88. WNTN, Sybil Tonkonogy, June 9, 2008
87. WVTM, Bob Cadmore, June 9, 2008
86. WTBQ, Frank Truatt, June 6, 2008
85. WICO, Bill Reddish, May 22, 2008
84. WNAV, Bill Lusby, May 22, 2008
83. WBZ, Jordan Rich, May 20, 2008
82. WESB, Ann Holiday, May 16, 2008
81. WDRC, Brad Davis, May 14, 2008
80. WICC, Dave Smith, May 13, 2008
79. WVOX, Art Zuckerman, May 12, 2008
78. WXLM, Lee Elci, May 5, 2008
77. WJTN, Jim Roselle, April 28, 2008
76. WILL, Afternoon Magazine, August 15, 2007
75. KUT, Jennifer Stayton show, June 14, 2007
74. MPBN, May 30, 2007
73. WCSH, "207" May 22, 2007
72. KBUL, May 18, 2007
71. WFON, John and Mary show, May 18, 2007
70. 2UE radio, Australia, Clive Robertson show, May 3, 2007
69. WABI TV April 4, 2007
68. MPBN, January 28, 2004
67. WDST, November 9, 2003
66. BBC, July 30, 2003

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65. NPR, April 4, 2002.
64. NPR, with Michio Kaku, August 24, 2001.
63. KQMS, The Ken Murray Show, August 21, 2001.
62. WERU, The Helen York show, August 17, 2001.
61. KSRK, The Karen Grant show, August 9, 2001.
60. WILL, Focus 580, Urbana, IL, July 26, 2001.
59. CBC, 2000.
58. WCHL, Bob Grady, Chapel Hill, NC, April 25, 1996.
57. WERU, Kathy Melio, Blue Hill, ME, August 8, 1995.
56. KLIF, Ed Bush, June 30, 1995.
55. KTAR, Pat McMann, June 26, 1995.
54. KABC, Ira Fistell, Los Angeles, CA, June 5, 1995.
53. KQSB, Frances Lewin, Santa Barbara, CA, May 27, 1995.
52. KPCC, Larry Mateau, Pasadena, CA, Air Talk, May 25, 1995.
51. KVON, Barry Martin, April 7, 1995.
50. KFGO, Bob Harris, Fargo, N.D. March 21, 1995.
49. Sun Radio Network, Florida, Stan Anderson, March 17, 1995.
48. WABI, Bangor, ME, January 2, 1995.
47. WLBZ TV, Bangor, ME, December 13, 1994.
46. KTLA Radio, August 4, 1994.
45. KTAR Radio, Frank Berenowski, July 25, 1994.
44. WLBZ TV on *What If the Moon Didn't Exist?* July 20, 1994.
43. MPBN on *What If the Moon Didn't Exist?* July 20, 1994.
42. WABI TV, Bangor ME, on Comets July 15, 1994.
41. Maine Public Broadcasting (MPBN) on Comets July 8, 1994.
40. WVII TV Bangor, ME on Comets June 30, 1994.
39. WFNT Perry Right Talk Radio, Flint Michigan, May 20, 1994.
38. WCWP, Dr. Jerry Borden & Co. April 11, 1994.
37. KTAR Talk Radio with Dr. Fred Beranowski, Tucson, AZ March 26, 1994.

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36. WMAJ John Fredrickson, State College, PA, March 18, 1994.
35. NPR Talk of the Nation, Feb. 4, 1994.
34. Talk Radio, Perry Right, Jan. 25, 1994.
33. Mutual Radio, Jim Bohannon Show, Washington, D.C., Jan. 14, 1994.
32. Sky Radio, Bill Thompson/USA Today, Washington, D.C., Jan. 13, 1994.
31. WAMU Derick McGinty Show, Washington, D.C., Jan. 12, 1994.
30. WDWS Talk Radio w/Stevie Jay, Champaign, IL, Jan. 7, 1994.
29. WWTN, Teddy Bart's Round Table, Nashville, TN, Jan. 4, 1994.
28. WRC Talk Radio Jan. 3, 1994.
27. KPFK (Pacifica) Radio Hour 25/Warren James, Hollywood, CA, Nov. 29, 1993.
26. WJNO radio, West Palm Beach, FL, on life on Earth and elsewhere in the universe, June 18, 1993.
25. WLBSZ TV, Bangor, discussing a total lunar eclipse, December 3, 1992.
24. WLBSZ TV, Halley's comet, January 12, 1986.
23. Maine Public Broadcasting Network (MPBN), Halley's comet, January 8, 1986.
22. WLBSZ TV Halley's comet, January 6, 1986.
21. WLBSZ TV, four talks on Halley's comet, December, 1985.
20. WVII TV, Halley's comet, October, 1985.
19. Maine Public Broadcasting radio series on astronomy, weekly, January – June, 1984
18. WABI TV talk on Saturn, November 15, 1983.
17. Maine Public Broadcasting talk on Comets, September 6, 1983
16. WABI TV talk on comets, May 11, 1982.
15. **Good Morning America**, discussing where Sun first strikes U.S., May 5, 1982
14. WLBSZ TV talk on Voyager mission to Saturn, March 28, 1982.
13. WVII TV talk on Seasons, March 6, 1981.
12. WLBSZ TV and WGUY radio talks on my successful effort to rebuild the University Planetarium. March 2, 1980
11. MPBN (Maine Public Broadcasting) talk on the Grand Alignment of the planets. April 28, 1980
10. WGUY Interview on the Planetarium, April 25, 1980
9. WABI Talk on Einstein, April 23, 1980.
8. WMEH Talk on Space Missions April 16, 1980.

7. MPBN on Astronomy in UM. July 23, 1979
6. WABI Talk on Skylab. July 11, 1979
5. WPBC Talk on Skylab. July 10, 1979
4. WMEH Talk on Skylab July 10, 1979
3. WLBY Talk on Astronomy Nights II. April 17, 1979
2. WMEB Talk on Jupiter. April 5, 1979
1. WLBY TV Talk on Eclipse. March 3, 1979

Newspaper and Other Interviews

6. David Goldsmith, *Project Moonhut*, on line, 2018.
5. Peter J. Brown, *OnSat Magazine*, March 24, 1994.
4. Lynn Flewelling, *Preview*, (Downeast Maine Newspaper), March 21, 1994.
3. Danielle Peck, BBC, March 10, 1994
2. Science Correspondent, *London Daily Telegram*, Feb. 11, 1994.
1. Meredith Goad, *Maine Sunday Telegram*, Dec 6, 1993.

Public Talks and Other Activities:

161. 2021 (April) Pembroke, ME, library (virtual) *Updates on Gravitational Radiation*
160. 2020 (October) Renaissance Weekend Saturday Night *Common misconceptions about the Cosmos*
159. 2020 (September) Lewiston, ME, library *What if the Moon Didn't Exist?*
158. 2020 (August) *Fireside Chat* Motivating young people to study STEM topics using Minecraft
157. 2020 (June-July) Judge, International Moon Mark competition
156. 2020 (May) Elmcrest Elementary School, Liverpool NY, "The Career of an Astronomer"
155. 2020 (March) On-line Mentor Program talk *What if the Moon Didn't Exist?*
154. 2018 (October) Pembroke, ME, library *Famous people I have known*
153. 2018 (May) Brunswick, ME Maine Space Day
152. 2017 (October) University of Illinois UC *What if the Moon Didn't Exist?* (on youtube)
151. 2017 (October) University of Maine (University Club) *What if the Moon Didn't Exist?*
150. 2017 (October) Fundy Audubon Society, Lubec, ME *The Cassini Mission*
149. 2017 (October) Pembroke, ME, library *Eclipses*
148. 2017 (April) Harlow Shapley Lecture: West Chester University *The Traveler's Guide to Space*

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- 147 2017 (April) Harlow Shapley Lecture: West Chester University *What if the Moon Didn't Exist?*
- 146 2017 (April) Harlow Shapley Lecture: West Chester University *Gravitational Radiation* (x3)
- 145 2017 (April) West Chester University (PA) *The Traveler's Guide to Space*
- 144 2016 (November) Pembroke, ME, library *Gravitational Radiation*
- 143 2016 (November) UM, consultant for play *Constellation*
- 142 2016 (October) Dirigo Pines *Gravitational Radiation*
- 141 2016 (September) Daytona Beach, FL, *What if the Moon Didn't Exist?*
- 140 2016 (September) Daytona Beach, FL, *Gravitational Radiation*
- 139 2016 (May) Brunswick, ME Maine Space Day
- 138 2016 (April) UM Physics colloquium *Gravitational Radiation*
- 137 2015 (September) Audubon Talk *Pluto*
- 136 2015 (September) Jessup Memorial Library, *What if the Earth were a Moon?*
- 135 2014 (September) Audubon Talk *What Really Causes the Tides*
134. 2014 (September) Maine Astronomy Club *What if the Moon Didn't Exist?*
- 133 2014 (September) Dirigo Pines *Life on Other Planets*
- 132 2014 (May) Auburn, ME Maine Space Day
131. 2014 (March) UM Math Department *The (Correct Explanation of) Tides*
130. 2013 (September) Audubon Talk *The Big Bang and evolution of the Universe*
129. 2013 (June) Geneva, NY *What if the Earth Had Two Moons?*
128. 2013 (May) Lewiston, ME Maine Space Day
127. 2013 (March) St. Cloud, MN, *Misconceptions about Astronomy and What if the Moon Didn't Exist?*
126. 2012 (November) Audubon Talk, *The Sun and Stellar Evolution*
125. 2012 (September) Orono High School, *Space Travel*
124. 2012 (September) Lunar Planetary Institute *Moon*
123. 2012 (May) Maine Space day
122. 2011 (November) Audubon Talk *Hazards of Space Travel*
121. 2011 (October) Brunswick, ME library, *Travel to Mars*
120. 2011 (April) Harlow Shapley lecture

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119. 2011 (March) NCS AAPT, Raleigh, NC *Tides*
118. 2011 (January) Dirigo Pines, Orono, ME *What if the Earth had two moons?*
117. 2011 (May) SUNY Potsdam, Potsdam, NY *Misconceptions in Astronomy* and *What if the Moon Orbitied Backwards?*
116. 2010 (November) *Are we alone in the universe?* Debate with Father Jose Funes, Vatican astronomer, Festival of Ideas, Edmonton, Alberta
115. 2010 (May) Maine Space Day, Bath, ME
114. 2010 (March) “What if the Earth were a moon?” Pisgah Astronomical Research Institute, Charleston, NC
113. 2010 (March) Harlow Shapley lecture, Guilford Technical Comm. Coll, Greensboro, NC. *Science Errors on TV: A Personal Story?*
112. 2009 (November) Audubon Society *New Planet Formation*
111. 2009 (October) Harlow Shapley Lecture, Keystone College, La Plume, PA *What if the Moon Didn't Exist?*
110. 2009 (September) Bangor High School, *Astronomy*
109. 2009 (April) Maine Space Day, Windham, ME
108. 2009 (March) College of the Atlantic, *Why the Sun shines*
107. 2008 (November) Audubon Society *Mars Lander*
106. 2008 (July) “Astronomy Misconceptions” Penobscot Valley Stargazers, Brewer, ME
105. 2008 (February) *History Channel* interview
104. 2007 (October) Portsmouth, NH, show for *History Channel*
103. 2007 (October) Audubon Society, *Hazards of Space Travel*
102. 2007 (October) Bog Boardwalk, Bangor ME talk for Penobscot Valley Stargazers
101. 2007 (September) Book signing, University of Maine bookstore
100. 2007 (August) filmed a TV show on the Moon
99. 2007 (May) Space Day, Brunswick, ME 5 talks
98. 2006 (August) appeared in TV show “What if the Moon Didn’t Exist” aired on several networks
97. 2005 (Apr) First Western speaker at the Friday club of Mitsubishi Presidents and CEOs, Tokyo, Japan
96. 2005 (February) Bangor Power Squadron, talk on Common Misconceptions about Science.

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95. 2005 (Jan.) Mitsubishi World Expo Pavilion consultation, Tokyo, Japan.
94. 2004 (Oct) Audubon Society of Downeast Maine, "Latest results of Mars and Saturn Missions"
93. 2004 (Feb) Orono Public Library, "Misconceptions about Astronomy."
92. 2003 (March) Harlow Shapley Lectures (2) MSSM, Limestone, ME
91. 2003 (November) Harlow Shapley Lectures (3), SUNY Ulster County, Stone Ridge, NY
90. 2003 (October) Lecture, Bangor High School
89. 2003 (September) Audubon Society of Downeast Maine, "Black Holes"
88. 2003 (March) Castine Men's Club, "Astronomy Misconceptions."
87. 2003 (May) Bangor Paddle Club, "Tides."
86. 2003 (March) "Astronomy Misconceptions," Castine Men's Club.
85. 2003 (February) Misconceptions about Astronomy," Orono Public Library.
84. 2002 (December) "A World of Misconceptions," Nature Club of Brewer, ME.
83. 2002 (December) "Insights into Astronomy," Masonic Temple, Bangor, ME.
82. 2002 (November) "Common Misconceptions about Astronomy," Blue Hill Audubon Society, Blue Hill, ME.
81. 2002 (September) "The Fate of the Sun," Schoodic Chapter, Maine Audubon, Calais, ME.
80. 2002 (September) Audubon Society of Downeast Maine, Calais, "Fate of the Universe."
79. 2002 (September) Consulting, Bangor High School, telescope project.
78. 2002 (October) Judging, High School math competition, Old Town HS.
77. 2002 (November) Blue Hill Audubon Society, Blue Hill, "Common Misconceptions about Astronomy."
76. 2002 (December) Masonic Temple, Bangor, "Insights into Astronomy."
75. 2002 (December) Nature Club, Brewer, "A World of Misconceptions."
74. 2002 (May) "Misconceptions About Astronomy," Job Corps, Bangor, ME
73. 2001 (September) "The Effects of Tsunamis," Schoodic Chapter, Maine Audubon, Calais, ME.
72. 2001 (April) "Misconceptions About Astronomy," "Gravitational Radiation," and "What If The Moon Didn't Exist?" SUNY Fredonia, Fredonia, NY
71. 2000 (September) "The Fate of the Universe," Schoodic Chapter, Maine Audubon, Calais, ME.
70. 2000 (April) *What If the Moon Didn't Exist?* and "Black holes," Unity College, Unity, ME.

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69. 2000 (March) *What If the Moon Didn't Exist?*, "History of an Astronomical Discovery," and "Computer Models of Galaxies," Deerfield Academy, Deerfield, MA.
68. 1999 (Sept) "Living in Outer Space," Down East Chapter of the Maine Audubon Society, Calais, ME.
67. 1999 (Oct) Talk on "Writing Nonfiction," at 5th Street School, Bangor, ME.
66. 1998 (Sept) Talk on "The Fate of the Universe," Downeast Chapter of the Maine Audubon Society, Calais, ME.
65. 1998 (Sept) Talks on "Misconceptions about Cosmology," and "What If The Moon Didn't Exist?" Bennington College, VT, Harlow Shapley Visiting Lectureship.
64. 1998 (April) Talks on *What If the Moon Didn't Exist?* "Misconceptions in Astronomy," and "Gravitational Wave Detectors," University of Northern Michigan. Harlow Shapley Visiting Lectureship.
63. 1997 (December) Public lecture and book signing, American Museum of Natural History, New York, NY
62. 1997 (Dec) Talk on "Hubble Space Telescope Update," Kiwanis, Brewer, ME.
61. 1997 (Sept) Talk on "Ozone Depletion," Down East Chapter of the Maine Audubon Society, Calais, ME.
60. 1996 (Sept) Talk on "Comets, Meteoroids, and Asteroids," Down East Chapter of the Maine Audubon Society, Calais, ME.
59. 1996 (April) Book signing, The Intimate Bookstore, Chapel Hill, NC
58. 1996 (April) Public lecture and book signing, Morehead Planetarium, Chapel Hill, NC
57. 1995 (Sept) Talk on "The Hubble Space Telescope," Down East Chapter of the Maine Audubon Society, Calais, ME.
56. 1994 (Sept) Talk on "Accuracy in Science Over the Ages," Down East Chapter of the Maine Audubon Society, Calais, ME.
55. 1994 (July) National Audubon Society, Portland, ME
54. 1994 (May) Maine State Physics Teachers meeting, Orono, ME
53. 1994 (May) Keynote Address/Maine Science and Math Teachers Assoc. annual meeting, The Samoset, Rockland, ME

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52. 1994 (April) Support for Science Students meeting, Orono, ME
51. 1994 (April) Book signing, Univ. of Maine Bookstore, Orono, ME
50. 1994 (March) Lecture, Orono/Old Town Kiwanis Club
49. 1994 (February) Book signing, Border's Bookstore, Framingham, MA.
48. 1994 (February) Book signing, Boston Museum of Science
47. 1994 (January) Book signing, Olsen's Books, Washington, D.C.
46. 1993 (November) Public Lecture on the book and signing, Griffith Park Observatory, Hollywood, CA
45. 1993 (June) Talk on "Misconceptions in Physics and Astronomy," Maine Physics Teachers Meeting, Orono, ME.
44. 1993 (May) Talk on myths in astronomy at the Eddington, ME elementary school.
43. 1993 (April) Harlow Shapley lectures at Jamestown Community College, Jamestown, N.Y. including talk on 'What If The Moon Didn't Exist?'
42. 1993 (February) University of Maine, Panel discussion on whether U.S. should establish space station Freedom.
41. 1993 (January) University of Maine Panel discussion on whether life exists elsewhere in the universe,
40. 1993 (December) Book signing, Univ. of Maine Bookstore, Orono, ME
39. 1992 (September) Talk on "Misconceptions in Astronomy," Down East Chapter of the Maine Audubon Society, Calais, ME.
38. 1992 (May) "This Year in Astronomy," to Maine Physics Teachers Association.
37. 1991 (September) Talk on "What the Earth Would be Like if it Were Closer to the Center of the Milky Way Galaxy," Down East Chapter of the Maine Audubon Society, Calais, ME.
36. 1990 (September) Talk on "The Earth Without a Moon," Down East Chapter of the Maine Audubon Society, Calais, ME.
35. 1990 (March) Harlow Shapley lectures at Bristol Community College, Fall River, MA.
34. 1989 (September) Talk on Extinction of the Dinosaurs, Down East Chapter of the Maine Audubon Society, Calais, ME.
33. 1988 (November) Harlow Shapley lectures at Gustavus Adolphus College, Minnesota.

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32. 1987 (September) Talk on Gravity Wave Experiments, Audubon Society, Calais, Maine.
31. 1987 (April) 3 Harlow Shapley lectures at Lyndon State College, Vermont.
30. 1987 (February) 2 Harlow Shapley lectures in New Brunswick, Canada.
29. 1986 (December) Talk on Uranus, Kiwanis Club, Bangor, Maine.
28. 1986 (November) Public Lecture on Big Bang Cosmology, Univ. of Maine.
27. 1986 (September) Talk on Aurora Borealis, Audubon Society, Calais, Maine.
26. 1986 (April) 3 Harlow Shapley lectures, Framingham State College, Framingham, MA.
25. 1986 (March) Cruise Ship **Ocean Princess**, Ship's Astronomer for Halley's Comet Cruise.
24. 1986 (February) Talk on Halley's Comet, Nat. Audubon Society, Southwest Harbor, ME.
23. 1985 (September) Talk on Halley's comet, Kiwanis, Orono, ME.
22. 1985 (February) three Harlow Shapley lectures, Youngstown State Univ., Youngstown, OH.
21. 1984 (October) Talk on Nuclear Winter, University of Maine.
20. 1984 (April) two Public lectures in planetarium on black holes and cosmology.
19. 1984 (March) two Public Lectures on Saturn and Jupiter, at 'Astronomy Nites', Orono, ME.
18. 1983 (November) Telescope Techniques, Mount Desert Island, ME.
17. 1983 (February) Talk to Scouts on Planets and Stars, Maine.
16. 1982 (December) Talk of galaxies, Nokomis High School, Maine.
15. 1982 (April) Talk on Cosmology and Black Holes to Women's club of Orono.
14. 1982 (January) Talk on Voyager Missions to Kiwanis, Orono, Maine.
13. 1982 (January) Talk on Cosmology to Kiwanis, Hampden, Maine.
12. 1981 (October) Talk on Voyager Space Missions to Lionette's Club, Bangor, Maine
11. 1981 (March) resource for *Reader's Digest* on Astronomy in Maine.
10. 1980 (November) Bucksport Career Day Speaker.
9. 1979 (November) Talk on Cosmology at Nokomis High School.
8. 1979 (July-August) Talks on Astronomy for National Park Service, Cadillac MT.
7. 1979 (April) Astronomy Nights II at UM, Public Astronomy on Campus. Arranged by me.
6. 1979 (February) Observatory Night for Boy Scouts.
5. 1979 (January) Talk on Astronomy to Boy Scouts, Orono.
4. 1979 (January) Board member, and later VP, of Mount Desert Island Astronomical Association.

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3. 1978 (November) Astronomy Nights I at UM, Public Astronomy. Arranged and organized by me.
2. 1978 (November) Discuss building an observatory on Isle Au Haute.
1. 1978 (September) Talk on Cosmology, Nokomis High School.