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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

Research Technician, Physics, Louisiana State University, 1975, Responsible for developing hardware 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:

1. 2001 Nominated, Professor the Year, University of Maine, by Sigma Phi Epsilon fraternity.
2. 2000 Professor of the Year, University of Maine, elected by Alpha Phi sorority
3. 1987-1988 NASA-ASEE (American Society for Engineering Education) summer faculty fellow, NASA Ames Research Center, Moffett Field, CA
4. 1986 University of Maine Summer Faculty Research Fellow
5. 1984 - present Harlow Shapley Lecturer in astronomy for the American Astronomical Society. (See explanation of Harlow Shapley Program on next page.)

6. 1980 - 1981 NASA-ASEE Summer Faculty Fellow at NASA Ames Research Center, California
7. 1979 University of Maine Summer Faculty Research Fellow
8. 1977 Honorable Mention - Gravity Research Foundation Essay "On the Ergoregion Instability", with B.F. Schutz
9. 1976 Rotary International Fellow, University College, Cardiff, Wales
10. 1974 Outstanding Student, Erice Advanced Sch. of Astrophysics, Sicily

Professional Memberships:

Fellow, Royal Astronomical Society
 Full Member, American Astronomical Society
 Full Member, International Astronomical Union

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 edition, with William J. Kaufmann, III (deceased). Published by W.H. Freeman & Co., 1996 Undergraduate College Textbook. Released in March, 1996, it became the best selling introductory college astronomy text of the 1990s.

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

Discovering the Universe 5th edition, with William J. Kaufmann, III (deceased). Published by W.H. Freeman & Co., 2000 Undergraduate College Textbook. Presently the best selling introductory college astronomy text in the world.

Discovering the Universe 6th edition, with William J. Kaufmann, III (deceased). To appear Summer 2002, Published by W.H. Freeman & Co., Undergraduate College Textbook.

Discovering the Essential Universe 1st edition. Published by W.H. Freeman & Co., 2001, Undergraduate College Textbook.

Heavenly Errors, 2001, Columbia University Press, June 2001. Book about common misconceptions in astronomy.

Editorial Activity

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

Member, Review Committee, *Earth and Sky* radio show.

Magazine Articles:

1. "Forces that Shape Spiral Galaxies," December 1987, with Larry Marschall, Astronomy Magazine, Kalmbach Publishers
2. "Star Birth: Against the Odds," September 1988, with Steve Stahler, Astronomy Magazine, Kalmbach publishers
3. "Galactic Collisions on your Computer," December 1988, with Michael Schroeder, Astronomy Magazine
4. "The Earth Without the Moon," (February) 1991, Astronomy Magazine
5. "Life Near the Center of the Galaxy," (April) 1991, Astronomy Magazine
6. "Seeing the World Through Infrared Eyes," (June) 1991, Astronomy Magazine
7. "Life Around a Larger Sun," (May) 1992, Astronomy Magazine
8. "A New Slant On Earth," (July) 1992, Astronomy Magazine
9. "Life on a Metal-Poor Earth," (October) 1992, Astronomy Magazine
10. "Life on an Older Earth," (March) 1993, Astronomy Magazine
11. "Facts and Fiction about Planetary Rings" July 1998 (cover story) Astronomy Magazine
12. "Ashes to Ashes, Dust to Dust" (on stellar evolution) January 2001 Astronomy Magazine
13. "Black Holes Aren't Black" April 2001 Astronomy Magazine
14. "Facts and Fiction about Asteroids" to appear in Astronomy Magazine
15. "Facts and Fiction about Star Colors" to appear in Astronomy Magazine

Other Trade Publications:

1. **Stellar 28** Constellation board game, Kendall/Hunt 1981. Used to teach the constellations.
2. **AST-109 Course skeleton**, 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.

Research Articles

1. "Magnetic Levitation of Cylinder Type Gravity Wave Detectors", Univ. of Maryland, Technical Report 75-036
2. "Discussion of the Application of Laser Interference Techniques to Cylinder Type Gravity Wave Detectors", Univ. of Maryland, Technical Report 75-085
3. "On the Ergoregion Instability", with B.F. Schutz, Essay submitted to the 1977 Gravity Research Foundation Award Competition, Honorable Mention received.
4. "On the Existence of Ergoregions in Rotating Stars", with B.F. Schutz, 1978, Monthly Notices of the Royal Astronomical Society, 182, 69-76.
5. "On the Ergoregion Instability", with B.F. Schutz, 1978 Proceedings of the Royal Society of London, A. 364, 211-226
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.
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.
8. "On Stochastic Self-Propagating Star Formation in Spiral Galaxies", Abstract in the Bulletin of the American Astronomical Society, Feb. 1980
9. "Computer Modeling of Disk Galaxies Using Self Gravitating Particle Dynamics", 1980, in Collected papers at NASA/ASEE Summer Faculty Institute.

10. "Profiles of the Stochastic Self-Propagating Star Formation Process", 1981, Monthly Notices of the Royal Astronomical Society, 194, 169-181.
11. "Three Dimensional Computer Simulations of Dwarf Galaxies", 1983, Astrophysical Journal, 266, 543-554.
12. "Three Dimensional Stochastic Self-Propagating Star Formation Simulations of Spiral Galaxies", with T. Statler and B.F. Smith, 1983, Astrophysical Journal, 270, 79-87.
13. "Stellar Evolution in N-Body Simulations of Disk Galaxies", 1983, Astrophysical Journal, 274, 595-610.
14. "Three Dimensional SSPSF Simulations of Disk Galaxies", 1982, Abs. in the Bulletin of the American Astronomical Society, 14, 660.
15. "Three Dimensional SSPSF Simulations of Dwarf Galaxies", 1983, Abstract in the Bulletin of the American Astronomical Society, 15, 886.
16. "Bursts of Star Formation in Computer Models of Dwarf Galaxies", 1984, Astrophysical Journal, 284, 90-101.
17. "Star Formation in Young Galactic Clusters", with Michael Schroeder, 1987, Astrophysical Journal, 326, 756-760.
18. "Coupled N-Body and Hydrodynamic Simulations of Disk Galaxies", 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.
19. "Three Dimensional Stochastic Simulations in Flocculent Galaxies", with Dana Balser, 1987, Astrophysical Journal, 328, 499-518.
20. "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. "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. "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. "Relaxation Times in 2 Dimensional Galaxy Simulations", with Michael Schroeder, 1989, Nov. 15 Astrophysical Journal.

24. "Photometry of the Young Open Cluster Trumpler 37", May 1989, Astronomical Journal, **99**, 1536-1547.
25. "Numerical Simulations of Nonequilibrium Galactic Evolution in Disk Galaxies", with Steve Shore, Astronomy and Astrophysics, 1990.
26. "Dynamical Effects of Giant Molecular Clouds on N-Body Simulations", with Peter Shorey, 1989 (December), Bulletin of the American Astronomical Society, **21**, 1126
27. "Numerical Simulations of Nonequilibrium Stochastic Evolution of Disk Galaxies," with Steven Shore, Astronomy and Astrophysics (European Journal), November, 1990, **237**, 345.
28. "The Extraordinary Radio Source 3C 442," with Frazer Owen, The Astrophysical Journal, **382**, 108-114, Nov 1991.
29. "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
30. "N-body Simulations of Disk Galaxies: Parameters - Revisited," with Andrew Rivers and Peter Shorey, 1993, Bulletin of the American Astronomical Society.
31. "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.
32. "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.
33. "Misconceptions About Astronomy: Their Origins and Effects on Teaching," Neil F. Comins, 1993, Bulletin of the American Astronomical Society, Vol **25**, No. 4, p1430.
34. "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.
35. "What If the Moon Didn't Exist and Other Questions Students Learn From," for **Keynote speech** at Astronomical Society of Pacific meeting, June 1995
36. "Addressing Misconceptions in the Classroom," for poster paper at Astronomical Society of Pacific meeting, June 1995
37. "What If the Moon Didn't Exist?" January, 1996, teaching article in Universe in the Classroom, published by the Astronomical Society of the Pacific

38. "One Armed Spiral Waves in Galaxy Simulations With Counter-Rotating Stars," 1997, Neil F. Comins, R.V.E. Lovelace, Thomas Zeltwanger, & Peter Shorey, The Astrophysical Journal Letters, Vol **484**, 133
39. "Identifying and Addressing Astronomy Misconceptions in the Classroom," in New Trends in Astronomy Teaching, IAU Symposium 162, 1998, Oxford University Press
40. "Sloshing of Disk Galaxies," Neil F. Comins, Thomas Zeltwanger, R.V.E. Lovelace, Astrophysical Journal543, 669, 2000
41. "A Method to Help Students Overcome Astronomy Misconceptions" Nov. 2000, The Physics Teacher V. 38, No. 8.
42. "Persistent Spiral Structure in Disk Galaxy Simulations," January 2001, Bulletin, American Astronomical Society

Delivered Research Papers:

1. 1978 (May), "Secular Instabilities in Rigidly Rotating Stars", Dept. of Applied Math and Astronomy, Univ. College, Cardiff, Wales
2. 1978 (June), "Gravity Waves Detection and Detectors", Physics Dept, UM
3. 1978 (October), "Differential Forms in Physics and Astronomy", Chemistry Dept., UM
4. 1979 (January), "Radio Astronomy" I.E.E.E.
5. 1979 (March), "The New Jupiter-Voyager I", Physics Dept., UM
6. 1979 (April), "On the Self Propagating Star Formation Process in Spiral Galaxies (SSPSF)", New England Section of the American Physical Society, Bates College
7. 1980 (June), "New Results on the SSPSF Process", NASA Ames Research Center
8. 1980 (August), "Computer Simulations of Spiral Galaxies", NASA Ames Research Center
9. 1980 (Oct), "Progress on Spiral Galaxy Simulations", Physics Dept, UM
10. 1981 (April), "Computer Simulations of Spiral Galaxies, Maine Phys. Assoc., Colby College
11. 1981 (April), "SSPSF in Spiral Galaxies", Astro. Dept., St. Mary's U, Halifax, Nova Scotia

12. 1981 (August), "Simulations of Coupled Gravitational N-Body and Stellar Evolution Effects in 2-dimensional Disk Galaxy Models", NASA Ames Research Center
13. 1981 (August), "Three Dimensional SSPSF", Division of Dynamical Astronomy, American Astronomical Society, Boulder Colorado
14. 1982 (June), "3 Dimensional Computer Simulations of Star Formation in Dwarf Galaxies" Semi-annual Meeting of the American Astronomical Society, RPI, Troy, NY
15. 1983 (January), "Coupled N-body and Stellar Evolution Simulations of Disk Galaxies" Semi-annual Meeting of the American Ast. Society, Boston, MA
16. 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
17. 1984 (June), "Advanced Computer Models of Spiral Galaxies" NASA Ames Res. Center
18. 1984 (November), "Computer Models of Galactic Evolution" Astronomy Department, Boston University
19. 1985 (July), "New and Unexpected Results of N-Body Computer Models of Disk Galaxies" Livermore Lab
20. 1985 (January), "New SSPSF Models of Disk Galaxy Evolution" Semi-annual meeting of the American Astronomical Society
21. 1985 (January), "The Discovery of an Optical Tail in NGC 7236/37" Ibid
22. 1985 (March), "New N-Body Models of Disk Galaxies" Astronomy Dept., St. Mary's Univ., Halifax, Nova Scotia
23. 1985 (April), "Computer Models of Disk Galaxies", Physics Dept., Syracuse Univ., N.Y.
24. 1985 (May), "The Inflationary Universe" Physics Dept., Youngstown State Univ., Youngstown OH
25. 1986 (February), "New Computer Models of Galaxies", Physics Dept., Rochester Institute of Technology, Rochester NY
26. 1986 (June), "Combined N-Body and Hydrodynamic Simulations of Disk Galaxies", Institute for Advanced Study", Princeton, NJ
27. 1987 (March), "Computer Models of Galaxies", Physics Dept., University of Moncton, New Brunswick, Canada

28. 1987 (April), "3C442 Radio Observations of Intergalactic Gas Surrounding an Interacting System of Elliptical Galaxies", New Mexico Inst. of Mining and Technology, Socorro, NM
29. 1988 (June), "NASA-ASEE Grad Student Program", Amer. Soc. for Eng. Ed., Portland, OR
30. 1988 (December) "Long Lived Spiral Structure in Disk Galaxy Simulations", Physics Department, Manchester Univ., Manchester, England
31. 1988 (August), "Simulations of Galactic Evolution", NASA Ames Research Center
32. 1989 (December) "Dynamical Effects of Giant Molecular Clouds on N-Body Simulations", with Peter Shorey, Meeting of American Astronomical Society
33. 1993 (June) "N-body Simulations of Disk Galaxies: Parameters - Revisited, with Andrew Rivers and Peter Shorey, Meeting of the American Astronomical Society
34. 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
35. 1994 (Jan) "Relaxation and Thermalization in Spiral Galaxies Mediated by Spiral Wave Scattering," R.G. Hohlfeld, D. Shalit, N.F. Comins, and G.v.H.Sandri, Meeting of the American Astronomical Society
36. 1994 (Jan) "Misconceptions About Astronomy: Their Origins and Effects on Teaching," Neil F. Comins, Meeting of the American Astronomical Society
37. 1997 (March) "Addressing Misconceptions in the Classroom," Conn. High School Teachers Association meeting
38. 1997 (June) Panelist on Teaching Astronomy, Astronomical Society of the Pacific meeting, Chicago, IL
39. 1997 (July) "Identifying and Addressing Astronomy Misconceptions in the Classroom," IAU 162 Conference on Teaching Astronomy, London, England
40. 1998 (August) "Biodiversity and Astronomy," Rockland, ME
41. 2000 (January) "Sloshing in High Speed Galaxy Interactions," AAS Meeting, Atlanta Georgia
42. 2000 (January) "An In-Your-Face Approach to Student Misconceptions About Astronomy," AAS Meeting, Atlanta, GA

43. 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
44. 2001 (January) “Sustained Spiral Structure in Spiral Galaxies,” AAS Meeting, San Diego, CA.