

Frederick D. Tappert, Curriculum Vitae

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Personal

- Professor of Applied Marine Physics, Rosenstiel School of Marine and Atmospheric Science, University of Miami, 4600 Rickenbacker Causeway, Miami, Florida 33149.
- Citizenship: USA; Social Security Number: 210-30-2880; Date of Birth: April 21, 1940; Married.
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Higher Education

- Pennsylvania State University, B. S., Engineering Science, 1962.
- Princeton University, Ph. D., Physics, 1967. Dissertation title: “Kinetic theory of equilibrium plasmas”; Advisor: Professor Edward A. Frieman.

Professional Experience

- Member of the Technical Staff, Bell Laboratories, Whippany, New Jersey, 1967–1974. Research in plasma physics and high altitude nuclear effects, UHF radar propagation, solitons in optical fibers, and ocean acoustic surveillance systems.
- Senior Research Scientist, Courant Institute of Mathematical Sciences, New York University, New York, New York, 1974–1978. Research in controlled fusion, nonlinear and stochastic waves, and ocean acoustics.
- Professor, Division of Applied Marine Physics, RSMAS, University of Miami, Miami, Florida, 1978–present. Research in theory and numerical modeling of wave propagation and scattering; predictability of wavefields.

Consulting Services

1. Los Alamos National Laboratory (visiting Staff Member), Los Alamos, NM, 1974–1986.

2. Stanford Research Institute (JASON), La Jolla, CA, Summer 1974,1975.
3. Science Applications International Corp., La Jolla, CA, and McLean, VA, 1974–1985.
4. Applied Mathematics Summer Institute, Hanover, NH, 1975–1977.
5. Atlantic Oceanographic and Meteorological Laboratory, NOAA, Miami, FL, 1980–1982.
6. Daubin Systems Corporation, Miami, FL, 1980–1986.
7. Department of Astrogeophysical Science, University of Colorado, Boulder, CO, Summer 1982.
8. Naval Underwater Systems Center, New London, CT, Summers 1983 and 1984.
9. Department of Computer Science, Yale University, CT, 1984.
10. Acoustics Program, Penn State University, PA, 1984.
11. Science Applications International Corporation, McLean, VA, Summers 1986 and 1987.
12. Argotec, Inc., Ft. Lauderdale, FL, 1986–1987.
13. ODSI Defense Systems, Inc., Arlington, VA, 1986–1987.
14. Syntec Engineering and Computer Systems, Inc., Mystic, CT, Summer 1988.
15. Naval Ocean Systems Center, San Diego, CA, Summers 1989 and 1990.
16. Systems Integrated, Inc., San Diego, CA, 1990–1992.
17. MAC Systems, Inc., Miami, FL, 1991–1995.
18. Universal Computing, San Diego, CA, 1992–1994.
19. Areté Associates, Inc., San Diego, CA, Summer 1993
20. Applied Research Laboratory, Penn State University, PA, Summers 1994 and 1995.
21. Naval Underwater Warfare Center, Newport, RI, Summer 1996.
22. Winstar Telecommunications Corp., Hernden, VA, 1998–2000

Editorial Responsibilities

- Editorial Board, SIAM J. Appl. Math., 1976–1980.
- Translation Editor, Soviet Physics Doklady, 1978.
- Reviewer of journal articles and proposals, 1970–present.

Professional Society Membership (current)

1. American Physical Society (since 1965).
2. American Association for the Advancement of Science (since 1970).
3. Society for Industrial and Applied Mathematics (since 1971).
4. American Geophysical Union (since 1975).
5. Acoustical Society of America (since 1976), **Fellow**, 1983.

Honors and Awards

1. Member of Sigma Xi Scientific Honorary Society.
2. Listed in Who's Who in American Science (since 1970).
3. Listed in Who's Who in America (since 1985).
4. Listed in Who's Who in the World (since 1999).
5. Elected Fellow of the Acoustical Society of America, 1983.

Teaching (at University of Miami)

1. Introduction to Underwater Acoustics
2. Advanced Underwater Acoustics
3. Applied Underwater Acoustics
4. Advanced Wave Hydrodynamics
5. Waves in the Ocean Environment
6. Numerical Methods in Marine Science
7. Analytical Methods in Marine Science
8. Physics and Energy
9. Classical Mechanics
10. Advanced Topics
11. Special Problems

Thesis and Dissertation Supervision as Chairman

1. Lewis B. Dozier, Ph. D., Mathematics, New York University, 1977, "Statistics of normal mode amplitudes in a randomly fluctuating ocean."
2. Alan Beilis, Ph. D., Physics, New York University, 1978, "Coupled mode analysis of multiple rough surface scattering."
3. Marvin S. Kruger, Ph. D., Physics, New York University, 1980, "Stochastic wave-kinetic theory of radiation transport in a plasma."
4. William C. Zimmerman, M. S., Ocean Engineering, University of Miami, 1981, "Numerical modeling of acoustic propagation through ocean finestructure."
5. Dong-Shan Ko, M. S., Ocean Engineering, University of Miami, 1981, "Simulation of propagation in a fluctuating ocean using the radiation transport equation."
6. George R. Legters, Ph. D., Physics, University of Miami, 1981, "Long-range acoustic multipath identification."
7. Thomas L. Clarke, Ph. D., Interdepartmental Program, University of Miami, 1982, "Wave propagation in focusing random media."
8. Gustavo J. Goñi, Ph. D., Applied Marine Physics, University of Miami, 1991, "Ray and wave chaos in underwater acoustics."
9. Xin Tang, M. S., Applied Marine Physics, University of Miami, 1992, "Head waves and rough bottom scattering."
10. Wei Li, M. S., Applied Marine Physics, University of Miami, 1993, "Rough sea-surface forward scattering."
11. Michael A. Wolfson, Ph. D., Applied Mathematics, University of Arizona, 1994, "Kinetic theory of waves in random media and ameliorization of classical chaos."
12. Xin Tang, Ph. D., Applied Marine Physics, University of Miami, 1996, "Effects of internal waves on sound pulse propagation in the Straits of Florida."
13. Jun He, M. S., Applied Marine Physics, University of Miami, 1997, "Forward high-frequency surface bubble loss in the isovelocity case."
14. William M. Sanders, Ph. D., Applied Marine Physics, University of Miami, 1998, "Environmental effects on the performance of bottom-mounted passive acoustic surveillance networks."

Publications

Juried articles:

1. H. P. Eubank, P. Noll, and F. Tappert, "Plasma density measurements with atomic beams," *Nucl. Fusion* **5**, 68–72 (1965).
2. F. D. Tappert and C. M. Varma, "Asymptotic theory of self-trapping of heat pulses in solids," *Phys. Rev. Lett.* **25**, 1108–1111 (1970).
3. D. Montgomery and F. Tappert, "Kubo conductivity of a strongly magnetized two-dimensional plasma," *Phys. Rev. Lett.* **27**, 1419–1421 (1971).
4. F. D. Tappert and N. J. Zabusky, "Gradient-induced fission of solitons," *Phys. Rev. Lett.* **27**, 1774–1776 (1971).
5. D. Montgomery and F. Tappert, "Conductivity of a two-dimensional guiding center plasma," *Phys. Fluids* **15**, 683–687 (1972).
6. F. D. Tappert, "Improved Korteweg-deVries equation for ion acoustic waves," *Phys. Fluids* **15** 2446–2447 (1972).
7. F. D. Tappert and C. N. Judice, "Recurrence of nonlinear ion acoustic waves," *Phys. Rev. Lett.* **29**, 1308–1311 (1972).
8. I. M. Besieris and F. D. Tappert, "Wave-packet spreading on a random transmission line," *J. Appl. Phys.* **44**, 2119–2121 (1973).
9. I. M. Besieris and F. D. Tappert, "Propagation of frequency modulated pulses in a randomly stratified plasma," *J. Math. Phys.* **14** 704–707 (1973).
10. A. Hasegawa and F. Tappert, "Transmission of stationary nonlinear optical pulses in dispersive dielectric fibers. I. Anomalous dispersion," *Appl. Phys. Lett.* **23**, 142–144 (1973).
11. A. Hasegawa and F. Tappert, "Transmission of stationary nonlinear optical pulses in dispersive dielectric fibers. II. Normal dispersion," *Appl. Phys. Lett.* **23**, 171–172 (1973).
12. I. M. Besieris and F. D. Tappert, "Kinetic equations for the quantized motion of a particle in a randomly perturbed potential field," *J. Math. Phys.* **14**, 1829–1836 (1973).
13. S. M. Flatté and F. D. Tappert, "Calculation of the effect of internal waves on oceanic sound transmission," *J. Acoust. Soc. Am.* **58**, 1151–1159 (1975).
14. J. F. Lam, B. Lippmann, and F. Tappert, "Moment Theory of self-trapped laser beams with nonlinear saturation," *Optics Comm.* **15**, 419–421 (1975).
15. I. M. Besieris and F. D. Tappert, "Stochastic wave-kinetic theory in the Liouville approximation," *J. Math. Phys.* **17**, 734–743 (1976).
16. F. Tappert, "Diffractive ray tracing of laser beams," *J. Opt. Soc. Am.* **66**, 1368–1373 (1976).

17. J. F. Lam, B. Lippmann, and F. Tappert, "Self-trapped laser beams in plasma," *Phys. Fluids* **20**, 1176–1179 (1977).
18. F. D. Tappert, "The parabolic approximation method," in *Wave Propagation and Underwater Acoustics*, Lecture Notes in Physics, Vol. 70, edited by J. B. Keller and J. S. Papadakis (Springer-Verlag, New York, 1977), Chap. V, pp. 224–287.
19. F. D. Tappert, "Laser fusion," in *Mathematical Aspects of Production and Distribution of Energy*, Proc. Symp. Appl. Math., Vol. 21, edited by P. D. Lax (American Mathematical Society, Providence, RI, 1977), pp. 55–74.
20. L. B. Dozier and F. D. Tappert, "Statistics of normal mode amplitudes in a random ocean. I. Theory," *J. Acoust. Soc. Am.* **64**, 353–365 (1978).
21. L. B. Dozier and F. D. Tappert, "Statistics of normal mode amplitudes in a random ocean. II. Computations," *J. Acoust. Soc. Am.* **64**, 533–547 (1978).
22. I. M. Besieris, W. B. Stasiak, and F. D. Tappert, "A kinetic formulation of the three-dimensional quantum harmonic oscillator under a random perturbation," *J. Math. Phys.* **19**, 359–369 (1978).
23. H. L. Wilson and F. D. Tappert, "Acoustic propagation in random oceans using the radiation transport equation," *J. Acoust. Soc. Am.* **66**, 256–274 (1979).
24. A. Beilis and F. D. Tappert, "Coupled mode analysis of multiple rough surface scattering," *J. Acoust. Soc. Am.* **66**, 811–826 (1979).
25. F. D. Tappert and D. Lee, "A range refraction parabolic equation," *J. Acoust. Soc. Am.* **76**, 1797–1803 (1984).
26. L. Nghiem-Phu and F. D. Tappert, "Modeling of reciprocity in the time domain using the parabolic equation method," *J. Acoust. Soc. Am.* **78**, 164–171 (1985).
27. L. Nghiem-Phu and F. D. Tappert, "Parabolic equation modeling of the effects of ocean currents on sound transmission and of reciprocity in the time domain," *J. Acoust. Soc. Am.* **78**, 642–648 (1985).
28. F. D. Tappert, "Parabolic equation modeling of shear waves," *J. Acoust. Soc. Am.* **78**, 1905–1906 (1985).
29. M. G. Brown and F. D. Tappert, "Causality, caustics and the structure of transient wavefields," *J. Acoust. Soc. Am.* **80**, 251–255 (1986).
30. F. D. Tappert and L. Nghiem-Phu, "Modeling of pulse response functions of bottom interacting sound using the parabolic equation method," in *Ocean Seismo-Acoustics*, edited by T. Akal and J. M. Berkson (Plenum Publishing Corp., 1986), pp. 129–137.
31. M. G. Brown and F. D. Tappert, "Catastrophe theory, caustics and travelttime diagrams in seismology," *Geophys. J. R. Astr. Soc.* **88**, 217–229 (1987).
32. D. R. Palmer, M. G. Brown, F. D. Tappert, and H. F. Bezdek, "Classical chaos in nonseparable wave propagation problems," *Geophys. Res. Lett.* **15**, 569–572 (1988).

33. M. G. Brown, F. D. Tappert, G. J. Goñi, and K. B. Smith, "Chaos in underwater acoustics," in *Ocean Variability & Acoustic Propagation*, ed. J. Potter and A. Warn-Varnas (Kluwer Academic Pub, Netherlands, 1991), pp. 139–160.
34. M. G. Brown, F. D. Tappert, and G. J. Goñi, "An investigation of sound ray dynamics in a range dependent model of the ocean volume using an area-preserving mapping," *Wave Motion* **14**, 93–99 (1991).
35. F. D. Tappert, M. G. Brown, and G. J. Goñi, "Weak chaos in an area preserving mapping for sound ray propagation," *Phys. Lett. A*, **153**, 181–185 (1991).
36. M. G. Brown, F. D. Tappert, and S. E. R. B. Sundaram, "Chaos in small amplitude surface gravity waves over slowly varying bathymetry," *J. Fluid Mech.* **227**, 35-46 (1991).
37. R. A. Pappert, R. A. Paulus, and F. D. Tappert, "Sea echo in tropospheric ducting environments," *Radio Sci.* **27**, 189–209 (1992).
38. K. B. Smith, M. G. Brown, and F. D. Tappert, "Ray chaos in underwater acoustics," *J. Acoust. Soc. Am.* **91**, 1939–1949 (1992).
39. K. B. Smith, M. G. Brown, and F. D. Tappert, "Acoustic ray chaos induced by mesoscale ocean structure," *J. Acoust. Soc. Am.* **91**, 1950–1959 (1992).
40. M. A. Wolfson and F. D. Tappert, "Chaos in an acoustic propagation model," in *The Chaos Paradigm: Developments and Applications in Engineering and Science*, edited by R. A. Katz (AIP Conf. Proc. **296**, AIP Press, New York, 1994), pp. 277–288.
41. F. D. Tappert, J. L. Spiesberger, and L. Boden, "New full-wave approximation for ocean acoustic travel time predictions," *J. Acoust. Soc. Am.* **97**, 2771–2782 (1995).
42. J. L. Spiesberger and F. D. Tappert, "Kaneohe acoustic thermometer further validated with rays over 3700 km and the demise of the idea of axially trapped energy," *J. Acoust. Soc. Am.* **99**, 173–184 (1996).
43. F. D. Tappert and X. Tang, "Ray chaos and eigenrays," *J. Acoust. Soc. Am.* **99**, 185–195 (1996).
44. K. B. Smith, W. S. Hodgkiss, and F. D. Tappert, "Propagation and analysis issues in the prediction of long-range reverberation," *J. Acoust. Soc. Am.* **99**, 1387–1404 (1996).
45. F. D. Tappert and M. G. Brown, "Asymptotic phase errors in parabolic approximations to the one-way Helmholtz equation," *J. Acoust. Soc. Am.* **99**, 1405–1413 (1996).
46. F. D. Tappert, "Comment on 'Ray chaos in underwater acoustics in view of local instability'," *J. Acoust. Soc. Am.* **99**, 2433–2434 (1996).
47. M. G. Brown and F. D. Tappert, "Comment on 'Overcoming ray chaos'," *J. Acoust. Soc. Am.* **100**, 1234–1239 (1996).
48. M. G. Brown, J. Viechnicki, and F. D. Tappert, "On the measurement of modal group time delays in the deep ocean," *J. Acoust. Soc. Am.* **100**, 2093–2102 (1996).

49. F. D. Tappert, K. B. Smith, and M. A. Wolfson, "Analysis of the split-step Fourier algorithm for the solution of parabolic wave equations," *Math. Model. Sci. Comp.*, in press (2000).
50. X. Tang and F. D. Tappert, "Effects of internal waves on sound pulse propagation in the Straits of Florida," *IEEE J. Ocean. Engr.* **22**, 245–255 (1997).
51. F. D. Tappert, X. Tang, and D. B. Creamer, "Large acoustic scintillations in the Straits of Florida," *J. Acoust. Soc. Am.*, in revision (2000).
52. F. D. Tappert, "Inhomogeneous absorption and geometric acoustics," *J. Acoust. Soc. Am.* **103**, 1282–1287 (1998).
53. F. D. Tappert, J. L. Spiesberger, and M. A. Wolfson, "Study of a novel range-dependent propagation effect with application to the axial injection of signals from the Kaneohe source," *J. Acoust. Soc. Am.*, in revision (2000).
54. M. A. Wolfson and F. D. Tappert, "Study of horizontal multipaths and ray chaos due to ocean mesoscale structure," *J. Acoust. Soc. Am.*, **107**, 154–162 (2000).
55. F. D. Tappert, "Theory of explosive beam spreading due to ray chaos," *J. Acoust. Soc. Am.*, in revision (2001).
56. J. A. Colosi, F. D. Tappert, and M. Dzieciuch, "Further analysis of intensity fluctuations from a 3252-km acoustic propagation experiment in the eastern North Pacific Ocean," *J. Acoust. Soc. Am.*, in press (2001).

Reports and other works:

1. J. Y. T. Tang and F. D. Tappert, "Nonlinear interaction of finite amplitude waves. Part I," Bell Laboratories Technical Report, 48 pages, September, 1969.
2. J. Y. T. Tang and F. D. Tappert, "Nonlinear interaction of finite amplitude waves. Part II," Bell Laboratories Technical Report, 84 pages, October, 1969.
3. F. D. Tappert and I. M. Besieris, "Stochastic wave kinetic equation and its application to wave packet spreading," *Symposium on Electromagnetic Wave Theory*, edited by L. A. Vainstein (Nauka Press, Moscow, USSR, 1971), pp. 230–234.
4. F. D. Tappert, "Monte-Carlo simulation of pulse propagation in randomly striated plasmas," *Proceedings of the DNA High Altitude Nuclear Effects Symposium* (Defense Nuclear Agency, Washington, D. C., 1971), Vol. 7, pp. 365–382.
5. A. N. Delfico, N. E. Romain, and F. D. Tappert, "SHARP: Geometrical propagation code for the simulation and evaluation of radar tracking performance," Bell Laboratories Technical Memorandum No. TM-73-6215-5, April 1973.
6. F. D. Tappert, "Numerical Solutions of the Korteweg-deVries equation and its generalizations by the split-step Fourier method," *Lectures in Applied Mathematics*, Volume 15 (American Mathematical Society, New York, 1974), pp. 215–216.

7. F. D. Tappert, "Some applications of the parabolic equation method," *International Workshop on Low-Frequency Propagation and Noise, Woods Hole, Massachusetts, 14–19 October 1974* (Department of the Navy, Washington, D. C., 1977), Vol. 1, pp. 155–197.
8. R. H. Hardin and F. D. Tappert, "Analysis, simulation, and models of ionospheric scintillation," Bell Laboratories Technical Memorandum No. TM-74-6215-1, March 1974.
9. S. M. Flatté and F. D. Tappert, "Calculation of the effect of internal waves on oceanic sound transmission," Stanford Research Institute Report JSR-74-8, August 1975.
10. R. N. Buchal and F. D. Tappert, *A Variable Range Step in the Split-Step Fourier Algorithm*, AESD Tech. Memo, November, 1975.
11. F. D. Tappert, "Theory of pulse spreading in dispersive random sound channels," unpublished Courant Institute report, October 1976.
12. F. D. Tappert, "Laser Fusion," *Proceedings of Symposia in Applied Mathematics*, Volume 21 (American Mathematical Society, New York, 1977), pp. 55–74.
13. A. Beilis, F. D. Tappert, and H. W. Kutschale, "Multiple surface scattering from the ice covered Arctic Ocean," Lamont-Doherty Geological Observatory Technical Report No. CU-2-79, March 1979.
14. H. L. Wilson and F. D. Tappert, "Acoustic propagation in surface ducts using the radiation transport equation," *Ocean 79, San Diego, California, 17–19 September 1979* (Combined Conference Proceedings of IEEE and MTS, 1979), pp. 84–91.
15. L. Nghiem-Phu and F. D. Tappert, "Pulse response of propagation channels near caustics," in *NORDA Parabolic Equation Workshop*, Edited by J. A. Davis, D. White, and R. C. Cavanagh, NORDA Tech. Note **143**, September 1982.
16. S. C. Daubin, L. Nghiem-Phu, and F. D. Tappert, "The parabolic equation as an on-board operational model," Daubin Systems Corporation Technical Report No. 02–84, August 1984.
17. F. D. Tappert and D. Lee, "A range refraction parabolic equation," in *Recent Progress in the Development and Application of the Parabolic Equation*, edited by P. D. Scully-Power and D. Lee, NUSC Technical Document **7145**, 7 May 1984), pp. 5-1 to 5-24.
18. F. D. Tappert, D. Lee, and H. Weinberg, "The hybrid parabolic equation — ray model," in *Recent Progress in the Development and Application of the Parabolic Equation*, edited by P. D. Scully-Power and D. Lee, NUSC Technical Document **7145**, 7 May 1984), pp. 6-1 to 6-14.
19. G. A. Kriegsmann, D. Lee, and F. D. Tappert, "A variable density parabolic equation," in *Recent Progress in the Development and Application of the Parabolic Equation*, edited by P. D. Scully-Power and D. Lee, NUSC Technical Document **7145**, 7 May 1984), pp. 7-1 to 7-13.
20. L. Nghiem-Phu, S. C. Daubin, and F. D. Tappert, "Source localization by CW acoustic retrogradation," Daubin Systems Corporation Technical Report No. 05–85, October 1985.

21. F. D. Tappert, "High angle PE and travel time modifications," SYNTEK Engineering and Computer Systems, Inc., Rockville, MD 20852, Progress Report on Project 501M54, September, 1988.
22. G. J. Goñi, F. D. Tappert, and M. G. Brown, "Numerical Experiments on the Standard Mapping," Rosenstiel School of Marine and Atmospheric Science, Technical Report No. RSMAS-TR-89-005, December 1989.
23. F. D. Tappert, "Full-wave model of sea surface scattering effects on radar performance," Systems Technology Corporation Technical Report No. 4036, NUSC, San Diego, CA, October 1990.
24. F. D. Tappert, "Basic design principles of the PEPC model for microwave radar," University of Miami Report to NOSC, December 1991.
25. F. D. Tappert and K. B. Smith, "Two-way PE reverberation model: Spiky echoes and backscatter from sub-bottom structures," ONR-ARSRP Symposium, Woods Hole, MA, 23-25 September 1991.
26. F. D. Tappert and K. B. Smith, "Simulations of bottom reverberation in the Natural Acoustic Laboratory, Part I," ONR-ARSRP Research Symposium, Scripps Institution of Oceanography, San Diego, CA, April 1992.
27. K. B. Smith and F. D. Tappert, "Simulations of bottom reverberation in the Natural Acoustic Laboratory, Part II," ARSRP Research Symposium, Scripps Institution of Oceanography, San Diego, CA, April 1992.
28. K. B. Smith and F. D. Tappert, "UMPE: The University of Miami Parabolic Equation Model, Version 1.1," Marine Physical Laboratory, SIO, Technical Memorandum No. 432, February 1993.
29. F. D. Tappert, "Physics of the PE Reverb Model," ONR-ARSRP Research Symposium, La Jolla, CA, 23-25 March 1993.
30. L. Nghiem-Phu, K. B. Smith, and F. D. Tappert, "FastPE, SlowPE, YourPE, MiPE: What are the Real Issues?," in *PE WORKSHOP II: Proceedings of the Second Parabolic Equation Workshop*, edited by S. A. Chin-Bing, D. B. King, J. A. Davis, and R. B. Evans (Naval Research Laboratory, Stennis Space Center, 1993), pp. 249-264.
31. F. D. Tappert, "Parabolic Equation Modeling with the Split-Step Fourier Algorithm in Four Dimensions," in *Proceedings 16th International Congress on Acoustics* (Acoustical Society of America, NY, 1998), Vol. III, pp. 2095-2096.

Abstracts:

1. F. D. Tappert, "Dissipationless shock waves as described by the Korteweg-deVries equation," *Bull. Am. Phys. Soc.* **14**, 1059 (1969).
2. F. D. Tappert and N. J. Zabusky, "Temporal discretization errors in many-body numerical simulations," Third Annual Numerical Plasma Simulation Conference, Stanford University, CA (1969).

3. F. D. Tappert and N. J. Zabusky, "Shoal-induced fission of solitary waves," *Trans. Am. Geophys. Soc.* **51**, 310 (1970).
4. F. D. Tappert, "Derivation of the collisionless wave kinetic equation," *SIAM Rev.* **13**, 281 (1971).
5. F. D. Tappert, "The self-consistent wave kinetic equation," *SIAM Rev.* **13**, 282 (1971).
6. R. H. Hardin and F. D. Tappert, "New theoretical-numerical results on a model nonlinear dispersive wave equation," *SIAM Rev.* **13**, 283 (1971).
7. D. Montgomery and F. D. Tappert, "Conductivity of a guiding center plasma," *Bull. Am. Phys. Soc.* **16**, 1276 (1971).
8. F. D. Tappert, "Monte-Carlo simulation of pulse propagation in randomly striated plasmas," *Fifth Conference on Numerical Simulation of Plasma*, University of Iowa, Iowa City, IO, p. 29 (1971).
9. F. D. Tappert, G. S. Deem, N. J. Zabusky, and R. H. Hardin, "Computer emulations of two-dimensional turbulence: Spectra, vorticity, diffusivity," *Heat Transfer and Thermal Design Symposium*, Bell Laboratories, Whippany, N. J., p. 197 (1971).
10. F. D. Tappert, "Canonical equations in the theory of nonlinear dispersive wave propagation in one dimension," *URSI Spring Meeting, National Res. Council, Washington D. C.*, p. 114 (1971). **[Invited]**
11. F. D. Tappert, "Applications of fast Fourier transforms in the numerical simulation of wave propagation," *Trans. Amer. Nucl. Soc.* **15**, 277 (1972). **[Invited]**
12. F. D. Tappert and C. N. Judice, "Recurrence of nonlinear ion acoustic waves," *Bull. Am. Phys. Soc.* **17**, 991 (1972).
13. F. D. Tappert and R. H. Hardin, "Applications of the split-step Fourier method to the numerical solution of nonlinear and variable coefficient wave equations," *SIAM Rev.* **15**, 423 (1973).
14. F. D. Tappert, "Numerical solutions of a canonical nonlinear dispersive wave equation," *SIAM Rev.* **16**, 140 (1974).
15. F. D. Tappert, "Parabolic equation method in underwater acoustics," *J. Acoust. Soc. Am. Suppl.* **55**, S34 (1974). **[Invited]**
16. F. D. Tappert and R. H. Hardin, "Computer simulation of long-range ocean acoustic propagation using the parabolic equation method," *Eighth International Congress on Acoustics*, London, UK (1974).
17. F. D. Tappert, "Numerical solutions of the two-dimensional nonlinear Schroedinger equation," *NSF Research Workshop on Contact Transformations*, Nashville, TN (1974). **[Invited]**
18. F. D. Tappert, "Relativistic nonlinear optical instabilities of electromagnetic waves in plasma," *Bull. Am. Phys. Soc.* **19**, 890 (1974).

19. F. D. Tappert, "Filamentation of high power laser beams and pulses in plasmas," Seventh Conf. on Numerical Simulation of Plasmas, Courant Institute, NYU, N. Y. (1975).
20. F. D. Tappert, "Laser fusion," Notices Am. Math. Soc. **22**, A741 (1975). [Invited]
21. F. D. Tappert, "Nonlinear plasma waves," Conf. on the Theory and Applications of Solitons, Tucson, AZ (1976).
22. F. D. Tappert, "Filamentation of laser beams in plasma," Bull. Am. Phys. Soc. **21**, 73 (1976).
23. F. D. Tappert, J. F. Lam, and B. A. Lippmann, "Moment theory of self-trapped laser beams in plasma with nonlinear saturation," Bull. Am. Phys. Soc. **21**, 75 (1976).
24. F. D. Tappert and L. B. Dozier, "Theory of pulse spreading in dispersive random sound channels," J. Acoust. Soc. Am. Suppl. **60**, S33 (1976).
25. L. B. Dozier and F. D. Tappert, "Coupling coefficients between acoustic wave normal modes and internal wave normal modes," J. Acoust. Soc. Am. **60**, S33 (1976).
26. F. D. Tappert and I. M. Besieris, "Focusing of laser beams in randomly fluctuating plasmas," Bull. Am. Phys. Soc. **21**, 1066 (1976).
27. I. M. Besieris and F. D. Tappert, "Transport of laser beams in randomly fluctuating plasmas," Bull. Am. Phys. Soc. **21**, 1066 (1976).
28. L. B. Dozier and F. D. Tappert, "Statistics of normal mode amplitudes in a random ocean," J. Acoust. Soc. Am. Suppl. **61**, S12 (1977).
29. F. D. Tappert, "Solitons in dense plasmas: are they relevant to laser fusion," Bull. Am. Phys. Soc. **22**, 1075 (1977). [Invited]
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