A. Books

1. *An Experimental Approach to Nonlinear Dynamics and Chaos*, N. B. Tufillaro, T. A. Abbott, and J. P. Reilly, Addison-Wesley, 1992 (ISBN: 0-201554-41-0).

2. *Chaos and Nonlinear Dynamics*, Edited by R. C. Hilborn and N. B. Tufillaro, American Association of Physics Teachers, 1999 (ISBN: 0-917853-93-8).

3. *GNU Plotting Utilities: Programs and Functions for Drawing and Plotting Data*, R. S. Maier and N. B. Tufillaro, Free Software Foundation, 2000 (ISBN: 0-595137-91-1).

4. *Behavioral Modeling from the Perspective of Nonlinear Dynamics*, book chapter in "Fundamentals of Nonlinear Behavioral Modeling for RF and Microwave Circuits," John Wood and David Root Editors, ArTech House Publishers 2005 (ISBN: 1-580537-75-8).

B. Hydrology Papers:

1. N. Tufillaro, J. Dorighi, M. Collier, and John Selker, Measuring stream dynamics with fiber optics, Agilent Measurement Journal 1 (3), 68-74 (2007).

2. J. Selker et. al., Supplementary material to "Taking the temperature of ecological systems with fiber optics," EOS Trans. AGU, 89 (20), 187, 13 May 2008.

C. Physics Papers:

1. N. B. Tufillaro, T. A. Abbott, and D. J. Griffiths, Swinging Atwood's Machine, American Journal of Physics 52 (10), 895 (1984).

2. N. B. Tufillaro, Motions of a swinging Atwood's machine, Journal de Physique 46, 1495 (1985).

3. N. B. Tufillaro, Collision orbits of a swinging Atwood's machine, Journal de Physique 46, 2053 (1985).

4. N. B. Tufillaro, Integrable motion of a swinging Atwood's machine, American Journal of Physics 54 (2), 142 (1986).

5. N. B. Tufillaro and A. M. Albano, Chaotic dynamics of a bouncing ball, American Journal of Physics 54 (10), 939 (1986).

6. N. Abraham, A. Albano, B. Das, R. Gioggia, T. Mello, M. Tarroja, and N. B. Tufillaro, Definitions of chaos and measuring its characteristics, in SPIE Proceedings on Optical Chaos, J. Chrostowski and N. B. Abraham eds. 667, 2 (1986).

7. N. B. Tufillaro, T. M. Mello, Y. M. Choi, and A. M. Albano, Period doubling boundaries of a bouncing ball, Journal de Physique 47, 1477 (1986).

8. K. Wiesenfeld and N. B. Tufillaro, Suppression of period doubling in the dynamics of a bouncing ball, Physica 26D, 321 (1987).

9. T. M. Mello and N. B. Tufillaro, Strange attractors of a bouncing ball, American Journal of Physics 55 (4), 316 (1987).

10. N. B. Tufillaro, A. Nunes, and J. Casasayas, Unbounded orbits of a swinging Atwood's machine, American Journal of Physics 56 (12), 1117 (1988).

11. N. B. Tufillaro, R. Ramshankar, and J. P. Gollub, Order-disorder transition in capillary ripples, Physical Review Letters 62 (4), 422 (1989).

12. J. Casasayas, N. B. Tufillaro, and A. Nunes, Infinity manifold of a swinging Atwood's machine, European Journal of Physics 10 (10), 173 (1989).

13. N. B. Abraham, A. M. Albano, and N. B. Tufillaro, Introduction to measures of complexity and chaos, in NATO ASI Series B: Proceedings of the international workshop on Quantitative Measures of Dynamical Complexity in Nonlinear Systems, Bryn Mawr, PA, USA June 22-24, 1989. N. B. Abraham, A. M. Albano, T. Passamante, and P. Rapp eds., (Plenum Press: New York, 1990).

14. J. Casasayas, A. Nunes, and N. B. Tufillaro, Swinging Atwood's machine: integrability and dynamics, Journal de Physique 51, 1693 (1990).

15. N. B. Tufillaro, Nonlinear and chaotic string vibrations, American Journal of Physics 57 (5), 408 (1989).

16. G. B. Mindlin, X-J Hou, H. G. Solari, R. Gilmore, and N. B. Tufillaro, Classification of strange attractors by integers, Physical Review Letters 64 (20), 2350 (1990).

17. T. C. A. Molteno and N. B. Tufillaro, Torus doubling and chaotic string vibrations: experimental results, The Journal of Sound and Vibration 137 (2), 327 (1990).

18. N. B. Tufillaro, H. G. Solari, and R. Gilmore, Relative rotation rates: fingerprints for strange attractors, Physical Review A vol 41 (10), pages 5717-5720, 15 May 1990.

19. N. B. Tufillaro, Torsional parametric oscillations in wires, European Journal of Physics 11, 122 (1990).

20. N. B. Tufillaro, R. Holzner, L. Flepp, E. Brun, M. Finardi, and R. Badii, Template analysis for a chaotic NMR-laser, Physical Review A 44 (8), R4786 (1991).

21. P. Melvin and N. B. Tufillaro, Templates and framed braids, Physical Review A 44 (6), R3416 (1991).

22. N. B. Tufillaro, Discrete dynamical models showing pattern formation in subaqueous bedforms, International Journal of Bifurcations and Chaos 3 (3), 779-784 (1993).

23. N. B. Tufillaro, Teardrop and heart orbits of a swinging Atwood's machine, The American Journal of Physics 62 (3), 231-233 (1994).

24. R. Brown, N. Rulkov, and N. B. Tufillaro, Synchronization of chaotic systems: the effects of additive noise and drift in the dynamics and driving, Physical Review E 50 (6), 4488-4508 (1994).

25. N. B. Tufillaro, Braid analysis of a bouncing ball, Physical Review E 50 (6), 4509-4522 (1994).

26. R. Brown, N. Rulkov, and N. B. Tufillaro, The effects of additive noise and drift in the dynamics of the driving on chaotic synchronization, Physics Letters 162A, 201-205 (1994).

27. N. B. Tufillaro, Topological organization of (low-dimensional) chaos, in NATO-ASI proceedings, From statistical physics to statistical inference and back, J.-P. Nadal and P. Grassberger editors, Kluwer Academic Publishers (1994).

28. N. B. Tufillaro, P. Wyckoff, R. Brown, T. Schreiber, and T. Molteno, Topological time series analysis of a string experiment and its synchronized model, Physical Review E 51 (1), 164-174 (1995).

29. A. Nunes, J. Casasayas, and N. B. Tufillaro, Periodic orbits of the integrable swinging Atwood's machine, American Journal of Physics 63 (2), 121-126 (1995).

30. N. B. Tufillaro, P. Wyckoff, R. Brown, T. Schreiber, and T. Molteno, Topological time series analysis of a string experiment and its synchronized model, Physical Review E 51 (1), 164-174 (1995).

31. R. Hilborn and Nicholas B. Tufillaro, Nonlinear Dynamics Resource Letter I, The American Journal of Physics, September 1997.

32. D. M. Walker and N. B. Tufillaro, Phase Space Reconstruction using Input-Output Time Series Data, Physical Review E. 60 (4), 4008-4013, October 1999.

33. D. M. Walker, R. Brown, and N. B. Tufillaro, Constructing transportable behavioral models for nonlinear electronic devices, Physics Letts. A. (255) 4-6 (1999) pp 236-242.

34. L. Barford, N. Tufillaro, D. Usikov, L. Marochnik, and R. McCutcheon, Calibration of Hubble Space Telescope Focal-Length Variations Using the Embedding Technique. 2001 Flight Mechanics Symposium (NASA), Edited by John P. Lynch, NASA Goddard Space Flight Center, Greenbelt, Maryland, June 19-21 2001.

35. N. B. Tufillaro, Generating a fractal using a capacitor, American Journal of Physics, June 2001, page 721.

36. N. B. Tufillaro, Book Review: The Topology of Chaos by Gilmore and Lefranc, The American Journal of Physics, Vol. 71 (5), pages 508-510, May 2003.

37. T. C. A. Molteno and N. B. Tufillaro, An experimental investigation into the dynamics of a string, American Journal of Physics, September 2004, Vol. 72 No 9 pages 1157-1169.

38. B. Spears and N. Tufillaro, A chaotic lock-in amplifier, American Journal of Physics, Vol. 76 (3), pages 213-217, March 2008.

D. Electrical Engineering Papers:

1. D. Schreurs, J. Wood, N. Tufillaro, D. Usikov, L. Barford, and D. Root, The construction and evaluation of behavioral models for microwave devices based on time-domain large-signal measurements. 2000 IEDM Technical Program (International Electron Devices Meeting) 13 December 2000, San Francisco, CA.

2. D. Schreurs, N. Tufillaro, J. Wood, D. Usikov, L. Barford, and D. Root, Development of time-domain behavioral models for microwave devices and ICs from vectorial large-signal measurements and simulations. GAAS 2000 1-6 October 2000, Paris, France. 30th European Microwave Conference, GAAS Wireless Technologies 2000. Proc. European GaAs and related III-V compounds applications symposium.

3. N. B. Tufillaro and D. M. Walker, Behavioral models of microwave circuits with fading memory. 56th ARFTG Conference Proceedings Boulder, Colorado, 30 November 2000.

4. N. B. Tufillaro, Measurement driven models of nonlinear electronic components. 55th Proc. Automatic RF Techniques Group Conference (ARFTG) Conference Digest 15-16 June 2000, Boston, MA.

5. D. M. Walker, N. B. Tufillaro, and Paul Gross, Radial basis models for feedback systems with fading memory. IEEE Transactions on Circuits and Systems I, vol. 48 no. 9 pages 1147-1151, September 2001.

6. D. Schreurs, S. Vandenberghe, J. Wood, N. Tufillaro, L. Barford, and D. E. Root, Automatically controlled coverage of the voltage plane of quasi-unilateral devices, 57th ARFTC Proceedings, USA pp. 86-90, 24-25 May 2001.

7. D. Root, J. Wood, A. Pekker, N. Tufillaro, and D. Schreurs, Proceedings of 2002 IEEE International Workshop on Behavioral Modeling and Simulation October 6-8, Santa Rosa, California. Systematic Behavioral Modeling of Nonlinear Microwave/RF Circuits in the Time Domain Using Techniques from Nonlinear Dynamical Systems (2002).

8. D. E. Root, J. Wood, and N. Tufillaro, New Techniques for Non-linear Behavioral Modeling of Microwave/RF IC's from Simulation and and Nonlinear Microwave Measurements. Proceedings of the 40th Design Automation Conference (DAC) 2003, Anaheim, CA, USA, June 2003.

9. D. Schreurs, J. Wood, N. Tufillaro, L. Barford, and D. E. Root, Construction of behavioural models for microwave devices from time-domain large-signal to speed-up high-level design simulations. International Journal of RF and Microwave Computer-aided engineering 13 (1): 54-61, Jan 2003.

10. J. Wood, D. Root, and N. Tufillaro, A behavioral modeling approach to nonlinear model-order reduction for RF/Microwave ICs and Systems, IEEE Transactions on Microwave Theory and Techniques, Vol. 52, No. 9, September 2004, 2274-2284.

11. L. Barford, N. Tufillaro, S. Jefferson, and A. Khoche, Model-based test for analog integrated circuits, IEEE Instrumentation and Measurement Technology Conference Proceedings, 1-3 May 2007.

E. Chemical Engineering Papers:

1. A. D. Harvey III, D. H. West, and N. B. Tufillaro, Evaluation of Laminar Mixing in Stirred Tanks Using a Discrete Time Particle Mapping Procedure, Chemical Engineering Science 55 (2000) 667-684.

F. Popular Writings:

1. N. B. Tufillaro, Cellular automata program, in Who Got Einstein's Office? by Ed Regis (Addison Wesley, New York, 1987).

2. J. P. Reilly and N. B. Tufillaro, Worlds within worlds – an introduction to cellular automata, The Physics Teacher, February, 88 (1990).

3. N. B. Tufillaro, Guest comment: A generation lost?, American Journal of Physics (September, 1994).

G. Theses

1. N. B. Tufillaro, "Smiles and Teardrops," Senior Thesis Reed College Physics, 1982.

2. N. B. Tufillaro, "Chaotic dynamics of a bouncing ball," M.A. Thesis Bryn Mawr College, 1988.

3. N. B. Tufillaro, "Chaotic themes from strings," Ph.D. Thesis Bryn Mawr College, 2000.

H. Technical (Bell Labs, Dow Hewlett-Packard Labs, Agilent) and Academic Reports.

1. N. B. Tufillaro, N. K. Dutta, D. P. Wilt, and R. J. Nelson, Photoluminescence characterization of channeled substrate laser wafers, Bell Laboratories Technical Memorandum 83-52321-40 (1983).

2. N. B. Tufillaro and G. A. Ross, Ode – A program for the numerical solution of ordinary differential equations, Bell Laboratories Technical Memorandum 83-52321-39 (1983).

3. N. B. Tufillaro, Computers and Physics at Bryn Mawr College (17 May 1985).

4. N. B. Tufillaro, Notes on defect driven chaos in capillary ripples (1988).

5. A. Harvey, D. West, D. Kronholm, M. Frank, and N. Tufillaro, Computation of Chaotic Laminar Mixing in Stirred Tanks with Multiple Impellers, (DOW Chemical Technical Report).

6. N. B. Tufillaro, A dynamical systems approach to behavioral modeling, (HPL-1999-22).

7. R. Brown, N. Tufillaro, and D. Walker, Constructing transportable behavioral models for nonlinear electronic devices, (HPL-1999-23).

8. N. Tufillaro and D. Walker, Phase space reconstruction using input-output time series data, (HPL-1999-24).

9. N. B. Tufillaro, Symbolic dynamics in mathematics, physics, and engineering, (HPL-1999-28).

10. A. Harvey, D. West, and N. Tufillaro, Evaluation of laminar mixing in stirred tanks using a discrete time particle mapping, (HPL-1999-56).

11. D. M Walker and N. B. Tufillaro, Nonlinear Modeling of a Bi-Polar Junction Transistor (HPL-1999-73).

12. D. M. Walker and N. B. Tufillaro, Reconstructing the Dynamics of FET Oscillators Using Radial Basis Functions (HPL-1999-74).

13. D. M. Walker and N. B. Tufillaro, Phase-space reconstruction and approximating relative degree from input-output time series data (HPL-1999-75).

14. N. Tufillaro, D. Usikov, L. Barford, D. Walker, and D. Schreurs, Measurement drive models of nonlinear electronic components, (AGL-2000-2).

15. D. Walker and N. Tufillaro, Radial basis models for feedback systems with fading memory, (AGL-2000-12).

I. Preprints (e-prints):

1. N. B. Tufillaro Comment on "Bouncing ball with finite restitution: Cluttering, locking and chaos."

2. N. B. Tufillaro and T. Abbott, Follow the bouncing ball — an introduction to chaos.

3. N. B. Tufillaro, Braid analysis of (low dimensional) chaos.

J. Software and Manuals:

1. N. Tufillaro and G. Ross, Ode User's Manual, Reed College 1980.

2. N. Tufillaro, Enzyme Kinetics Utilities (Eadie-Hofstee Package), Reed College 1981.

3. N. Tufillaro, Aesthetic measure — utilities for polygons, Reed College 1981.

4. N. Tufillaro, Chaos Experiment: Bouncing Ball Lab Manual, Bryn Mawr College Junior Lab (25 September 1986).

5. N. Tufillaro, Chaos Experiment: Quadratic Map Lab Manual, Bryn Mawr College Junior Lab (28 September 1986).

6. N. Tufillaro and T. Abbott, The Quadratic Map Program for the Macintosh Computer, Addison-Wesley Educational Software, 1990.

7. N. Tufillaro and T. Abbott, The Bouncing Ball Program for the Macintosh Computer, Addison-Wesley Educational Software, 1990.

8. R. S. Maier and N. B. Tufillaro, The GNU plotutils package (online programs and User's Manual, Free Software Foundation).

K. NSF Grants:

1. NSF PHY-9513071. Improved Techniques for Modeling Nonlinear Systems with Few Degrees of Freedom: Topological Procedures. $24,100.

2. NSF PHY-9724707. Input-Output modeling of nonlinear systems. $340,504.

3. NSF EAR/IF Collaborative Research Grant: A scalable system of image sensors for watershed gauging and monitoring (in preparation, N. Tufillaro, J. Selker — OSU and A. Kruger — U. of Iowa).

L. Patents

1. United States Patent 6,775,646, 10 August 2004, Nicholas Tufillaro and David Walker, Excitation signal and radial basis function methods for use in extraction of nonlinear black-box behavioral models.

2. United States Patent 6,850,871 1 February 2005 Lee Barford, Linda Kamas, Nicholas Tufillaro, and Daniel Usikov, Method and apparatus for extraction of nonlinear black-box models from embeddings of the time-domain measurements.

3. United States Patent 6,892,155 10 May 2005 Kevin Gee and Nicholas Tufillaro, Method for the rapid estimation of figures of merit for multiple devices based on nonlinear modeling.

4. United States Patent Application 20050102124 12 May 2005 David Root, Nicholas Tufillaro, John Wood, and Jan Verspecht Method for generating a circuit model.

5. United States Patent Application 20050105682 19 May 2005 John Heumann, Colin Fox, David Gines, and Nicholas Tufillaro, Highly constrained tomography for automated inspection of area arrays.

6. United State Patent Application 20070139054, Published 21 June 2007 Nicholas Tufillaro and Gregory D. VanWiggeren Stimulation-response measurement system and method using a chaotic lock-in amplifier.

7. United State Patent Application 20070185671, Published 9 August 2007 Lee Barford, Nicholas Tufillaro, and Ajay Khoche Excitation signal generator for improved accuracy of model-based testing.

8. United State Patent Application 20070219739, Published 20 September 2007 Brian Spears, John Wood, and Nicholas Tufillaro Mixer measurement system and method using a chaotic signal.

9. United States Patent 7,295,961 13 November 2007 David Root, Nicholas Tufillaro, John Wood, and Jan Verspecht Method for generating a circuit model.