TEXAS STATE VITA

I. Academic/Professional Background

A. Name: Karl D. Stephan Title: Professor

B. Educational Background

Degree	Year	University	Major	Thesis/Dissertation
Ph.D.	1983	University of Texas at Austin	Electrical Engineering	A Study of Microwave and Millimeter-Wave Quasioptical Planar Mixers
M. Eng.	1977	Cornell University	Electrical Engineering	
B.S.	1976	California Institute of Technology	Electrical Engineering	

C. University Experience

Position	University	Dates
Adjunct Associate Professor	University of Texas at Austin	2002 – present
Professor	Texas State University - San Marcos	2009 - present
Associate Professor	Texas State University – San Marcos	2000 – 2008
Associate Professor	University of Massachusetts Amherst	1990 – 2000
Assistant Professor	University of Massachusetts Amherst	1983 - 1990

D. Relevant Professional Experience

Position	Entity	Dates
Consultant	Millitech, Inc.	1992
Consultant	MIT Lincoln Laboratories	1990
Student Engineer	Hughes Aircraft, Inc.	1982
RF Engineer	Scientific-Atlanta, Inc.	1979 – 1981
Development Engineer	Motorola, Inc.	1977 - 1979

E. Other Professional Credentials (licensure, certification, etc.)

II. TEACHING

A. Teaching Honors and Awards:

None.

B. Courses Taught:

1. At University of Massachusetts Amherst: Freshman, junior, and senior-level electrical engineering, microwave engineering, semiconductor devices; graduate-level courses in quantum mechanics, microwave metrology.

2. At Texas State University: TECH 2370 (Electricity/Electronics Fundamentals), TECH 3370 (Audio Frequency Communications), TECH 4372 (Electronic Instrumentation), TECH 4373 (Industrial Electronics), TECH 4374 (Digital Electronics), ENGR 3373 (Circuits and Devices), US 1100 (Freshman Seminar), ENGR 3373 (Circuits and Devices), EE 3340 (Fields & Waves/Electromagnetics), EE 3350 (Electronics I), EE 4350 (Electronics II), EE 4355 (Analog & Mixed-Signal Design), EE 5350 (Advanced Electronic Circuit Design), EE 4356 (Power Electronics)

C. Graduate Theses/Dissertations or Exit Committees (if supervisor, please indicate):

Co-supervisor for M. S. of Andres DeLaGarza, graduated Dec. 2019, Dept. of Physics, Texas State University

Supervisor for M. S. of Sagar Ghimire, “Spectroscopic Measurements of Natural and Artificial Light Sources,” (2010), Dept. of Engineering Technology, Texas State University—San Marcos.

All of the following theses/dissertations were at the University of Massachusetts Amherst:

Supervisor for Ph. D. of: J.-F. Zhao, "Tensor Permittivity Measurements of Anisotropic Dielectric Films at Millimeter Wavelengths" (1990); L. S.-C. Wong, "Shot Noise Enhancement and Suppression in Multiple Quantum Well Resonant Tunnelling Diodes" (1996).

Co-chair of Ph. D. committee of G. M. Hegazi, "Optimization of Low Noise Millimeter-Wave Front Ends" (1986).

Supervisor for M. S. of: M. J. Moskowitz, 1985; S.-L. Young, 1989; W. P. Shillue, 1990; C. L. Woo, 1990; T. Wu, 1992.

Member of two Ph. D. and 4 M. S. committees 1983-1999.

D. Courses Prepared and Curriculum Development:

1. At University of Massachusetts Amherst:
   Developed microwave metrology course, introduction to engineering course.

2. At Texas State University-San Marcos:
   Developed EE 4355 (Analog & Mixed-Signal Design), EE 3340 (Fields & Waves, Electromagnetics), ENGR 3373 (Circuits and Devices), ethics module for US 1100 course, extensive redesign of TECH 4374 (Digital Electronics). Taught EE 4390, EE 4391 (1st- and 2nd-semester senior design course sequence), EE 3350 (Electronics I), EE 4350 (Electronics II), EE 5350 (Advanced Electronic Circuit Design), EE 4356 (Power Electronics)

E. Funded External Teaching Grants and Contracts:

NSF CCLI Grant DUE-0127085, "Enhancement of Digital, Control, and Microelectronics Courses for a New Manufacturing Engineering Program" ($139,237, 2001-2004). Co-PIs: Karl D. Stephan, Vedaraman Sriraman.

F. Submitted, but not Funded, External Teaching Grants and Contracts:

None.

G. Funded Internal Teaching Grants and Contracts:

None.

H. Submitted, but not Funded, Internal Teaching Grants and Contracts:

None.

I. Other:

None.

III. SCHOLARLY/CREATIVE

A. Works in Print (including works accepted, forthcoming, in press)

1. Books (if not refereed, please indicate)

a. Scholarly Monographs:

None.

b. Textbooks:

K. D. Stephan, Analog and Mixed-Signal Electronics (New York: Wiley, 2015), 536 pages, ISBN 978-1118782668.

c. Edited Books:

None.

d. Chapters in Books:

1. **K. D. Stephan**, “Digital Video Recorder,” (1 paragraph) “Electronics,” (12 pages) and “Image Orthicon,” (1 paragraph), articles in World Book Encyclopedia (2006).

2. **P. Goldsmith, T. Itoh, and K. D. Stephan**, "Quasi–optical techniques," Chapter 7 in Handbook of Microwave and Optical Components, vol. 1 (New York: Wiley, 1989), ed. Kai Chang, pp. 344–363; included in modified form in Handbook of RF/Microwave Components and Engineering (New York: Wiley, 2003), ed. Kai Chang, pp. 387-426.

3. **Karl D. Stephan**, "Waveguides, Electromagnetic," in Magill's Survey of Science: Physical Science Series, Supplement (Pasadena, CA: Salem Press, 1998), ed. T. A. Tombrello, pp. 3164-3171.

4. **Karl D. Stephan**, "Telegraphy," in Magill's Survey of Science: Applied Science Series, Supplement (Pasadena, CA: Salem Press, 1998), ed. D. R. Franceschetti, pp. 3256-3262.

5. **Karl D. Stephan**, "Beam-Control Arrays," Chap. 10 in Active and Quasi-Optical Arrays for Solid-State Power Combining (New York: Wiley, 1997), ed. R. A. York and Z. B. Popovic, pp. 377-407.

6. **Karl D. Stephan**, "Microwave Communications," in Magill's Survey of Science: Applied Science (Pasadena, CA: Salem Press, 1993), ed. F.N. Magill, pp. 1704–1711.

e. Creative Books:

None.

2. Articles

a. Refereed Journal Articles:

Submitted, awaiting review:

Accepted, in press:

Published:

1. **K. D. Stephan**, **R. Sonnenfeld, and J. Bertoloni**, "Evaluation of video evidence of possible ball lightning," Quarterly Journal of the Royal Meteorological Society, e5038 (18 pages), published online June 2025, http://doi.org/10.1002/qj.5038; in print as vol. 151, no. 772, October 2025 part A, e5038.

2. **K. D. Stephan,** "Window damage as evidence for energy and power content of ball lightning," Jour. of Atmos. and Solar-Terr. Phys., vol. 261, 106300 (7 pages), July 2024, https://doi.org/10.1016/j.jastp.2024.106300.
3. **K. D. Stephan, R. Sonnenfeld, A. DeGroot, N. Cortez, and R. Toledo-Gonzalez,** "First measurements of Wind-Turbine Perturbations of Fair-Weather Electric Fields," Jour. of Atmos. and Solar-Terr. Phys., vol. 261, 106298 (7 pages), July 2024, https://doi.org/10.1016/j.jastp.2024.106298.
4. **K. D. Stephan,** "An economical smoke chamber and light-sheet microscope system for experiments in fluid dynamics and electrostatics," American Journal of Physics, vol. 91, no. 4, pp. 316-323, April 2023, https://doi.org/10.1119/5.0122766.
5. **K. D. Stephan,** "Modeling the Neuruppin ball lightning incident," Journal of Atmospheric and Solar-Terrestrial Physics, vol. 244, 106038 (8 pages), Feb. 2023, https://doi.org/10.1016/j.jastp.2023.106038.
6. **M. L. Shmatov and K. D. Stephan,** "Questions regarding alleged laboratory creation of ball lightning," Jour. of Atmospheric and Solar-Terrestrial Physics, vol. 242, 105995 (4 pages), Dec. 2022, https://doi.org/10.1016/j.jastp.2022.105995.
7. **K. D. Stephan, Richard Sonnenfeld, Alexander G. Keul,** "First comparisons of ball-lightning report website data with lightning-location-network data," Jour. of Atmospheric and Solar-Terrestrial Physics, vol. 240, 105953(10 pages), Sept. 2022, https://doi.org/10.1016/j.jastp.2022.105953.
8. **K. D. Stephan and Mikhail L. Shmatov**, "Hazards to aircraft crews, passengers, and equipment from thunderstorm-generated X-rays and gamma-rays," Radiation, vol. 1, no. 3, pp. 162-173 (2021), DOI https://doi.org/10.3390/radiation1030015.
9. **R. P. Cameron, W. Löffler, and K. D. Stephan**, "Theoretical proposal for the experimental realisation of a monochromatic electromagnetic knot," Journal of Optics (IOP), vol. 23, 064006, May 2021, DOI https://doi.org/10.1088/2040-8986/abfc33.
10. **K. D. Stephan and Gyula Klima**, "Artificial intelligence and its natural limits," AI & Society, vol. 36, no. 1, pp. 9-18, Feb. 2021, DOI 10.1007/s00146-020-00995-z.
11. **K. D. Stephan, A. E. De La Garza, and Yue Hua**, "Dispersion and attenuation characteristics of steady-state microwave plasma waveguide," AIP Advances, vol. 10, 045036 (9 pages), April 2020, https://doi.org/10.1063/1.5124737.
12. **M. L. Shmatov and K. D. Stephan**, "Advances in Ball Lightning Research," Journal of Atmospheric and Solar-Terrestrial Physics, vol. 195, 105115 (17 pages), Sept. 2019.
13. **K. D. Stephan and José M. Hernandez-Guerrero,** "Electrostatic pendulum showing electrohydrodynamic-force-induced oscillation," Journal of Applied Physics, vol. 122, 243302 (9 pages), 2017.
14. **K. D. Stephan, Robert J. C. McLean, Gian DeLeon, and Vadim Melnikov,** "Effect of feed-gas humidity on nitrogen atmospheric-pressure plasma jet for biological applications," Technology and Health Care, vol. 24, pp. 943-948, Nov. 2016.
15. **K. D. Stephan, Rozlyn Krajcik, and Rolf J. Martin,** "Fluorescence caused by ionizing radiation from ball lightning: observation and quantitative analysis," Jour. of Atmospheric and Solar-Terrestrial Physics, vol. 148, pp. 32-38, Oct. 2016.
16. **K. D. Stephan and Gil Sheleg,** "Directional propagation of resistive-barrier discharge above water," IEEE Trans. on Plasma Science, vol. 43, pp. 501-505, Feb. 2015.
17. **K. D. Stephan**, **Shelby Dumas, Laurence Komala-Noor, and Jonathan McMinn,** "Initiation, growth and plasma characteristics of 'Gatchina' water plasmoids," Plasma Sources Science and Technology, vol. 22, 025018 (10 pages), 2013.
18. **K. D. Stephan**, "Authority in engineering education," American Journal of Engineering Education, vol. 3, no. 2, pp. 123-136, Fall 2012.

19. **K. D. Stephan**, “Implications of the visual appearance of ball lightning for luminosity mechanisms,” Journal of Atmospheric and Solar-Terrestrial Physics, vol. 89, pp. 120-131, Nov. 2012 (doi.org/10.1016/j.jastp.2012.09.001).
20. **K. D. Stephan, K. Michael, M. G. Michael, L. Jacob, and E. P. Anesta,** “Social implications of technology: the past, the present, and the future” (invited paper), Proceedings of the IEEE, vol. 100, pp. 1752-1781, May 2012.
21. **K. D. Stephan, S. Ghimire, R. Smith, L. Komala-Noor, and N. Massey**, “Transverse stabilization of atmospheric-pressure DC glow plasma in air with resistive barrier,” IEEE Trans. Plasma Science, vol. 39, pp. 1919-1926, Oct. 2011.
22. **K. D. Stephan, J. Klier, L. Komala-Noor, and J. Bunnell**,“Quantitative intensity and location measurements of an intense long-duration luminous object near Marfa, Texas,” Journal of Atmospheric and Solar-Terrestrial Physics, vol. 73, pp. 1953-1958, Aug. 2011 (doi: 10.1016/j.jastp.2011.06.002).
23. **K. D. Stephan, S. Ghimire, J. Bunnell, and W. Stapleton,** "Spectroscopy applied to observations of terrestrial light sources of uncertain origin," American Journal of Physics, vol. 77, no. 8, pp. 697-703, Aug. 2009.
24. **K. D. Stephan and N. Massey**,"Burning molten metallic spheres: one class of ball lightning?" Journal of Atmospheric and Solar-Terrestrial Physics, vol. 70 pp. 1589-1596, 2008.
25. **K. D. Stephan**,"Electrostatic charge bounds for ball lightning models," Physica Scripta, vol. 77, 035504 (5 pages), Mar. 2008.
26. **K. D. Stephan**, "We've Got to Talk: Emergency Communications and Engineering Ethics," IEEE Technology and Society Magazine, vol. 26, no. 3 pp. 42-48, Fall 2007.
27. **K. D. Stephan, L.-Y. Wang, and E. Ryza**, “Microwave Radiometry for Cement Kiln Temperature Measurements,” Journal of Microwave Power and Electromagnetic Energy, vol. 40, no. 3, pp. 140-144, 2007.
28. **K. D. Stephan, J. B. Mead, D. M. Pozar, L.-Y. Wang, and J. A. Pearce**, “A Near-Field Focused Microstrip Array for a Radiometric Temperature Sensor,” IEEE Trans. on Antennas and Propagation, vol. 55, no. 4, pp. 1199-1203, Apr. 2007.
29. **K. D. Stephan,** “Notes for a History of the IEEE Society on Social Implications of Technology,” (invited paper), IEEE Technology and Society Magazine, vol. 25, no. 4, pp. 5-14, Winter 2006.
30. **K. D. Stephan**, “Microwave generation of stable atmospheric-pressure fireballs in air,” Physical Review E, vol. 74, no. 5, 055401(R) (4 pages), Nov. 2006.
31. **K. D. Stephan and John A. Pearce**, “Microwave Radiometry for Continuous Non-Contact Temperature Measurements During Microwave Heating,” Journal of Microwave Power & Electromagnetic Energy, vol. 40, no. 1, pp. 49-61, 2005.
32. **K. D. Stephan**, “Radiometry Before World War II,” IEEE Antennas and Propagation Magazine, vol. 47, no. 6, pp. 28-37, Dec. 2005.
33. **K. D. Stephan and V. Sriraman**, “Globalizing Manufacturing Engineering Education,” IEEE Technology & Society Magazine, vol. 24, no. 3, pp. 16-22, Fall 2005.
34. **K. D. Stephan**, “How Ethics was Specialized Away,” Academic Questions, vol. 16, no. 4, pp. 31-40, Fall 2003.
35. **K. D. Stephan and John A. Pearce,** "Low-Cost Remote Temperature Sensor for Microwave and RF Heating Using Microwave Radiometry," Journal of Microwave Power & Electromagnetic Energy, vol. 37, no. 2, pp. 113-124, Fall 2002.
36. **K. D. Stephan,** "All This and Engineering Too: History of Accreditation Requirements for Non-Technical Curriculum Content in U. S. Engineering Education 1933-2000," by IEEE Technology & Society Magazine, vol. 21, no. 3, pp. 8-15, Fall 2002.

37. **K. D. Stephan,** "Is Engineering Ethics Optional?" IEEE Technology & Society Magazine, vol. 20, no. 4, pp. 6-12, Winter 2001/2002.
38. **K. D. Stephan,** "Experts at Play: Magnetron Research at Westinghouse, 1930-1934," Technology & Culture, vol. 42, no. 4, pp. 737-749, Oct. 2001.
39. **K. D. Stephan,** "A Survey of Ethics-Related Instruction in U. S. Engineering Programs," by ASEE Jour. of Engineering Education, vol. 88, no. 4, pp. 459-464, Oct. 1999 (also see erratum, vol. 89, p. 1, Jan. 2000).
40. **K. D. Stephan,** "How Ewen and Purcell Discovered the 21-cm Interstellar Hydrogen Line," by IEEE Antennas and Propagation Magazine, vol. 41, no. 1, pp. 7-17, Feb. 1999.
41. **K. D. Stephan,** "Liberté! Egalité! Télégraphie!---The French Cable Station in Orleans, Massachusetts," (invited paper) IEEE Antennas and Propagation Magazine, vol. 38, no. 5, pp. 30-37, Oct. 1996.
42. **K.D. Stephan, F.H. Spooner, and P.F. Goldsmith,** "Quasioptical millimeter-wave hybrid and monolithic PIN-diode switches," IEEE Trans. on Microwave Theory and Techniques, vol. 41, pp. 1791-1798, Oct. 1993.
43. **K.D. Stephan, S.-C. Wong, E.R. Brown, K.M. Molvar, A.R. Calawa, and M.J. Manfra,** "5 mW parallel-connected resonant-tunneling diode oscillator," Electronics Letters, vol. 28, pp. 1411–1412, July 16, 1992.
44. **E.R. Brown, C.D. Parker, K.M. Molvar, and K.D. Stephan,** "A quasioptically stabilized resonant-tunneling-diode oscillator for the millimeter- and submillimeter-wave regions," IEEE Trans. on Microwave Theory and Tech., vol. 40, pp. 846–850, May 1992.
45. **K.D. Stephan, E.R. Brown, C.D. Parker, W.D. Goodhue, C.L. Chen, and T.C.L.G. Sollner,** "Resonant-tunneling diode oscillator using a slot-coupled quasioptical open resonator," Electronics Letters, vol. 27, pp. 647–649, April 11, 1991.
46. **W.P. Shillue and K.D. Stephan,** "A technique for the measurement of mutual impedance of monolithic solid-state quasioptical oscillators," Microwave and Optical Technology Letters, vol. 3, pp. 414–416, Dec. 1990.
47. **J.-F. Zhao, K.D. Stephan, S.C. Wong, and R.S. Porter,** "Tensor permittivity measurements of thin films at millimeter wavelengths," Int'l. Journal of Infrared and Millimeter Waves, vol. 9, pp. 1093—1106, Dec. 1988.
48. **W. A. Morgan Jr. and K.D. Stephan,** "An X–band experimental model of a millimeter–wave interinjection–locked phased array system," IEEE Trans. on Antennas and Propagation, vol. 36, pp. 1641—1645, Nov. 1988.
49. **K.D. Stephan, S.L. Young, and S.C. Wong,** "Microstrip circuit applications of high-Q open microwave resonators," IEEE Trans. on Microwave Theory and Tech., vol. 36, pp. 1319–1327, Sept. 1988.
50. **K.D. Stephan and S.L. Young,** "Mode determination of planar coupled millimeter–wave oscillators by quasioptical injection locking," Microwave and Optical Technology Letters, vol. 1, pp. 156–160, July 1988.
51. **K.D. Stephan and S.L. Young,** "Mode stability of radiation–coupled interinjection–locked oscillators for integrated phased arrays," IEEE Trans. on Microwave Theory and Tech., vol. MTT–36, pp. 921—924, May 1988.
52. **K.D. Stephan and S.L. Young,** "Open cavity resonator as high–Q microstrip circuit element," Electronics Letters, vol. 23, pp. 1028–1029, Sept. 1987; also erratum, v. 23, p. 1397, Dec. 1987.
53. **M. Stennes, K.D. Stephan, H. Campbell, C.P. Smith, and R.M. Zilberstein,** "Investigation of thick–film technology for microwave applications," Microelectronics Journal, vol. 18, pp. 29–36, Sept.–Oct. 1987.

54. **K.D. Stephan and W.A. Morgan, Jr.,** "Analysis of inter–injection–locked oscillators for integrated phased arrays," IEEE Trans. on Antennas and Propagation, vol. AP–35, pp. 771–781, July 1987.
55. **K.D. Stephan,** "Inter–injection–locked oscillators for power combining and phased arrays," IEEE Trans. on Microwave Theory and Tech., vol. MTT–34, pp. 1017–1025, Oct. 1986.
56. **K.D. Stephan and T. Itoh,** "Inexpensive short–range microwave telemetry transponder," Electronics Letters, vol. 20, pp. 877–878, Oct. 1984.
57. **K.D. Stephan and T. Itoh,** "A planar quasi–optical subharmonically pumped mixer characterized by isotropic conversion loss," IEEE Trans. on Microwave Theory and Tech., vol. MTT–32, pp. 97–101, Jan. 1984.
58. **K.D. Stephan, N. Camilleri, and T. Itoh,** "A quasi–optical polarization–duplexed balanced mixer for millimeter–wave applications," IEEE Trans. on Microwave Theory and Tech., vol. MTT–31, pp. 164–170, Feb. 1983 (also see erratum, vol. MTT–31, p. 504, June 1983).

b. Non-refereed Articles:

1. **K. D. Stephan,** "Could ball lightning be magnetic monopoles?" Arxiv.org, August 2024, https://arxiv.org/abs/2408.10289.
2. **K. D. Stephan,** "A Pro-Abortion Epiphany," Human Life Review, vol. 50, no. 2, Spring 2024, pp. 11-16.
3. **K. D. Stephan,** "Extension of relativistic-microwave theory of ball lightning including long-term losses and stability," Arxiv.org, August 2016, https://arxiv.org/abs/1608.00450.
4. **K. D. Stephan,** "Are there experts in engineering ethics?" IEEE Potentials, vol. 31, no. 4, pp. 17-18 and 27, July-August 2012.
5. **K. D. Stephan,** "Friedrich Dessauer's Engineering Life Well Lived," P. E.: The Magazine for Professional Engineers, p. 10, June 2008.
6. **K. D. Stephan,** "Engineering Ethics Needed Now," Appliance Manufacturer, vol. 48, p. 260, Dec. 2000.
7. **K. D. Stephan,** "Examining scrambling," in July 1981 issue of Communications Engineering Digest (cable TV trade publication), reprinted in October 15, 1981 issue of Telephone Engineer and Management.

3. Conference Proceedings

a. Refereed Conference Proceedings:

1. **K. D. Stephan,** "A Tale of Two Papers: Early Contributions to Coupled Oscillator Array Theory," *2009 Intl. Symposium on Antennas & Propagation & USNC/URSI Natl. Radio Science Meeting*, paper 321.1 (4 pages, CD-ROM proceedings only), June 1-5, 2009.
2. **K. D. Stephan,** "Microwave-Assisted Investigation of Luminous Atmospheric-Pressure Plasmoids," International Microwave Power Institute 41st Annual International Microwave Symposium Proceedings, pp. 98-101, Vancouver, BC, Canada, Aug. 1-3, 2007.
3. **K. D. Stephan, J. A. Pearce, L. Wang, and E. Ryza,** "Cement Kiln Temperature Measurements Using Microwave Radiometry," 2005 IEEE MTT-S International

Microwave Symposium, paper TU3A-6 (CD-ROM proceedings only, 4 pages), Long Beach, Cal., June 13-17, 2005.

4. **K. D. Stephan, J. A. Pearce, L. Wang, and E. Ryza,** "Temperature Measurements Through Dust or Steam for Energy-Intensive Industries," IETC 2005 Industry Energy Technology Conference, paper 17.pdf (CD-ROM proceedings only, 5 pages), New Orleans, La., May 11-12, 2005.
5. **K. D. Stephan and J. A. Pearce,** "Continuous Non-Contact Remote Temperature Sensing During Microwave Heating With Microwave Radiometry," International Microwave Power Institute Proceedings of the 38th Annual Microwave Heating Symposium, pp. 38-41, Toronto, Canada, July 14-16, 2004.
6. **K. D. Stephan and Vedaraman Sriraman,** "A Digital Electronics Course Using CPLDs for Manufacturing Engineers," (12 pages), Proc. of the 2004 ASEE Annual Conf. and Exposition, poster session 1532 (CD-ROM proceedings only), Salt Lake City, Utah, June 20-23, 2004.
7. **K. D. Stephan and Vedaraman Sriraman,** "Globalizing Manufacturing Engineering Education," (7 pages), Proc. of the 2004 International Symposium on Technology and Society, session 4 (CD-ROM proceedings only), Worcester, Mass., June 17-19, 2004.
8. **K. D. Stephan, J. A. Pearce, Lingyun Wang, and Eric Ryza,** "Prospects for Industrial Remote Temperature Sensing Using Microwave Radiometry," Proc. of the 2004 IEEE MTT-S International Microwave Symposium, session WE4B-1, pp. 651-654, Fort Worth, Texas, June 6-12, 2004.
9. **K. D. Stephan and Vedaraman Sriraman,**"Digital and Control Labs for a New Manufacturing Engineering Curriculum," American Society for Engineering Education Conference Proceedings, session 1526 (CD-ROM proceedings only), Nashville, TN, June 22-25, 2003.
10. **K. D. Stephan,** "What Does Evolutionary Computing Say About Intelligent Design?" Progress in Complexity, Information, and Design: The Journal of the International Society for Complexity, Information, and Design, vol. 1.4, Oct.-Dec. 2002 (online publication, 28 pages, http://www.iscid.org/pcid/2002/1/4/stephan_evolutionary_computing.php).
11. **K. D. Stephan and John A. Pearce,** "Microwave Remote Temperature Sensing for Use in Microwave and RF Heating," International Microwave Power Institute Proceedings of the 37th Annual Microwave Heating Symposium, pp. 63-66, Atlantic City, NJ, July 24-26, 2002.
12. **K. D. Stephan and John A. Pearce,** "Antennas and Reflectors for Near-Field Radiometric Remote Sensing of Temperature in Industrial Applications," IEEE Antennas and Propagation Society International Symposium, vol. 4, pp. 302-305, San Antonio, TX, June 16-21, 2002.
13. **K. D. Stephan,** "All This and Engineering Too: History of Accreditation Requirements for Non-Technical Curriculum Content in U. S. Engineering Education 1933-2000," Proceedings, International Symposium on Technology & Society, pp. 155-161, Stamford, CT July 6-7, 2001.
14. **K. D. Stephan and John A. Pearce,** "Simple Low-Cost 12-GHz Radiometer for Volume Temperature Measurements," International Microwave Power Institute Symposium Program & Proceedings, 36th Microwave Symposium, pp. 71-74, San Francisco, CA, Apr. 18-20, 2001.

15. **K. D. Stephan,** "Engineering Ethics Education in the U. S.: Where It Is and Where It Should Go," Frontiers in Education 2000 Annual Conference Proceedings (CD-ROM only), paper S1F-7, 1 page, Kansas City, MO, Oct. 18-21, 2000.
16. **K. D. Stephan,** "Technologizing the Home: Mary Pennington and the Rise of Domestic Food Refrigeration," 1999 IEEE International Symposium on Technology and Society (Women and Technology: Historical, Societal, and Professional Perspectives), pp. 290-294, New Brunswick, NJ, July 29-31, 1999.
17. **K. D. Stephan,** "Women, Food, and CFCs: A Technological Literacy Course Based on the History of Refrigeration," 1999 Am. Soc. for Eng. Education Annual Conference Proceedings, paper 3661, 10 pages, Charlotte, NC, June 20-23, 1999 (CD-ROM proceedings only).
18. **K. D. Stephan,** "Mary Engle Pennington, Food Refrigeration Engineer," 1996 Am. Soc. for Eng. Education Annual Conference Proceedings, paper 3161, 7 pages, Washington, DC, June 23-26, 1996 (CD-ROM proceedings only).
19. **K. D. Stephan,** "Back to the future: the telegraph as an introduction to electrical and computer engineering," Frontiers in Education 25th Annual Conference, pp. 4a5.8-4a5.11, Atlanta, GA, Nov. 1-4, 1995 (full paper).
20. **G. R. Huguenin, C.-T. Hsieh, J. E. Kapitsky, E. L. Moore, K. D. Stephan, and A. S. Vickery,** "Contraband detection through clothing by means of millimeter-wave imaging," SPIE Proc. 1942 Underground and Obscured Object Imaging and Detection, Orlando, FL, pp. 117-128, 15-16 April 1993.
21. **K.D. Stephan and P.F. Goldsmith,** "W-band quasioptical integrated PIN diode switch," 1992 IEEE MTT–S Intl. Microwave Symp. Dig., pp. 591–594, Albuquerque, New Mexico, June 1–5, 1992.
22. **K.D. Stephan, S.C. Wong, and E.R. Brown**, "Lossy-line stabilization of negative-resistance diodes for integrated-circuit oscillators," Proceedings of the Second Int'l. Symp. on Space Terahertz Technology, pp. 154-162, Pasadena, Calif., Feb. 26–28, 1991.
23. **K.D. Stephan and T. Itoh,** "Recent efforts on planar components for active quasi-optical applicatons," 1990 IEEE Int'l. Microwave Symp. Dig., pp. 1205–1208, Dallas, Tex., May 1990.
24. **W.P. Shillue, S.C. Wong, and K.D. Stephan,** "Monolithic IMPATT oscillator stabilized by open-cavity resonator," 1989 IEEE Int'l. Microwave Symp. Dig., pp. 739–740, Long Beach, Calif, June 1989.
25. **K.D. Stephan and S.L. Young,** "Quasioptical microwave and millimeter–wave power combining," SPIE (vol. 947) Conf. on Interconnection of High Speed and High Frequency Devices and Systems, Newport Beach, Calif., pp. 52-56, March 1988.
26. **K.D. Stephan and S.L. Young,** "The open-cavity millimeter-wave resonator as a high–Q microstrip circuit element," Digest of the Twelfth Int'l. Conf. on Infrared and Millimeter Waves, p. 42, Lake Buena Vista, Fla., Dec. 1987.
27. **W.A. Morgan, Jr. and K.D. Stephan,** "Inter–injection locking — a novel phase control technique for monolithic phased arrays," Digest of the Twelfth International Conference on Infrared and Millimeter Waves, pp. 81–82, Lake Buena Vista, Fla., Dec. 1987.
28. **S.L. Young and K.D. Stephan,** "Stabilization and power combining of planar microwave oscillators with an open resonator," 1987 IEEE Int'l. Microwave Symp. Dig., pp. 185–188, Las Vegas, Nev., June 1987.

29. **S.L. Young and K.D. Stephan,** "Radiation coupling of inter–injection–locked oscillators," SPIE (vol. 791) Conf. on Millimeter Wave Technology IV and Radio Frequency Power Sources, pp. 69–76, Orlando, Fla., May 1987.
30. **K.D. Stephan,** "Quasi–optical mixer measurements,"Conf. on Millimeter Wave/Mic-rowave Measurements and Standards for Miniaturized Systems, U.S. Army Missile Command, Redstone Arsenal, Alabama, Nov. 6–7, 1986.
31. **K.D. Stephan and J. Hubert,** "Inter–injection–locked oscillators with applications to spatial power combining and phased arrays," 1986 IEEE International Microwave Symp. Dig., pp. 159–162, Baltimore, Md., June 1986.
32. **G. Hegazi and K.D. Stephan,** "Analysis and measurements of a quasi–optical slot–ring mixer," Digest of the Tenth International Conference on Infrared and Millimeter Waves, pp. 183–184, Lake Buena Vista, Fla., Dec. 1985.

b. Non-refereed:

K. D. Stephan, "The Library Apocalypse Is Coming," *Academic Questions*, vol. 39, No.1, Spring 2026, pp. 56-63.

R. Sonnenfeld, K. Stephan, A. G. Keul, I. Edelman, and S. Jimenez, "Applying Modern Meteorological Tools to the Study of Ball Lightning," *2020 American Geophysical Union Fall Meeting* (online only), Dec. 10, 2020, poster accessible at https://doi.org/10.1002/essoar.10505247.1.

K. D. Stephan and Sandra Merryman, "Christian Ethics and the Educational Evaluation of Professional Ethics: Conflict or Opportunity?" 2006 National Faculty Leadership Conference (CD-ROM proceedings of Education Track only, 10 pages), Washington, D. C., June 22-24, 2006.

K.D. Stephan, "N-rays, super-dielectrics, and microwaves faster than light: improbable discoveries in electromagnetics," IEEE Antennas and Propagation Magazine, vol. 35, no. 3, pp. 13-18, June 1993; reprinted by The Radioscientist and Bulletin, vol. 5, no. 1, pp. 3-9, Mar. 1994.

K.D. Stephan and T. Itoh, "Quasi–optical microwave and millimeter–wave mixers," IEEE Society on Microwave Theory and Techniques Newsletter, pp. 17–27, no. 113, Fall 1985.

K.D. Stephan and G. Perks, "Quasi–optical slot–ring mixer noise figure measurements," 1985 IEEE Int'l. Microwave Symp. Dig., pp. 643–644, St. Louis, Mo., June 1985.

K.D. Stephan and T. Itoh, "Isotropic conversion loss as a measure of quasi–optical mixer efficiency," Digest of the Eighth Int'l Conf. on Infrared and Millimeter Waves, Paper No. TH3.3, Miami Beach, Fla., Dec. 1983.

T. Itoh and K.D. Stephan, "Quasi–optical planar mixers for millimeter-wave imaging applications," SPIE (vol. 423) Conf. on Millimeter Wave Technology II, pp. 35–39, San Diego, CA, Aug. 1983.

K.D. Stephan, N. Camilleri, and T. Itoh,"Quasi–optical polarization–duplexed balanced mixer," 1982 IEEE Int'l. Microwave Symp. Dig., pp. 376–378, Dallas, Tex., June 1982.

4. Abstracts:

1. **K.D. Stephan,** "New device/circuit integration," 1992 IEEE Antennas and Prop. Soc. Intl. Symp. Dig., p. 1267, Chicago, Ill., July 18–25, 1992 (abstract only).

5. Reports:

6. Book Reviews:

1. **K. D. Stephan,** "The Franklin Stove: An Unintended American Revolution," by Joyce E. Chaplin (2025), *IEEE Technology and Society Magazine*, vol. 45, pp. 51-53, no. 1, March 2026.
2. **K. D. Stephan,** "Frostbite: How Refrigeration Changed Our Food, Our Planet, and Ourselves," by Nicola Twilley (2024), *IEEE Technology and Society Magazine*, vol. 44, pp. 70-72, no. 1, March 2025.
3. **K. D. Stephan**, "Bad Blood: Secrets and Lies in a Silicon Valley Startup," by J. Carryrou (2018), *IEEE Technology and Society Magazine*, vol. 38, pp. 10-12, no. 3, 2019.
4. **K. D. Stephan**, "Refrigeration Nation," by J. Rees (2013), *IEEE Technology and Society Magazine*, vol. 36, pp. 15-17, no. 4, 2017.
5. **K. D. Stephan**, "The Cybernetics Moment," by R. R. Kline (2015), *IEEE Technology and Society Magazine*, vol. 35, pp. 20-22, no. 2, 2016.
6. **K. D. Stephan**, "Nanotechnology: Ethical and Social Implications," A. S. Khan, ed., *IEEE Technology and Society Magazine*, vol. 33, pp. 10-12, no.1, 2014.=
7. **K. D. Stephan**, "Lessons Amid the Rubble: An Introduction to Post-Disaster Engineering", by S. K. A. Pfatteicher (2010), *IEEE Technology and Society Magazine*, vol. 31, pp. 6-7, no. 1, 2012.
8. **K. D. Stephan**, "Society, Ethics, and Technology, 4th edition", by M. E. Winston and R.D. Edelbach (2009), *IEEE Technology and Society Magazine*, vol. 30, pp. 5-6, no. 2, 2011.

7. Other:

K. D. Stephan, "Changing the Culture of Contraception," *The Human Life Review*, vol. 51, no. 1, pp. 36-44, Winter 2025.

K. D. Stephan,"A Pro-Abortion Epiphany," *The Human Life Review*, vol. 50, no. 2, pp. 11-16, Spring 2024.

K. D. Stephan, 'Response to Rosalind Williams essay," Technology & Culture, vol. 42, no. 4, Oct. 2001, pp. 839-846.

K. D. Stephan, "The Vacuum Tube Museum at Manhattan College," review in Antenna newsletter of "Mercurians" section of the Society for the History of Technology, p. 11, May 1999.

K. D. Stephan, "The French Cable Station Museum in Orleans, Massachusetts," review in Antenna newsletter of "Mercurians" section of the Society for the History of Technology, April 1996.

K. D. Stephan, "Microwaves Faster than Light Redux," letter to editor of IEEE Antennas and Propagation Magazine, vol. 36, no. 5, p. 72, Oct. 1994.

B. Works not in Print

1. Papers Presented at Professional Meetings:

K. D. Stephan, R. Sonnenfeld, and J. Bertoloni, "Implications of Closeup Video of Possible Ball Lightning," talk presented at Texas Section Conference of American Physical Society, Southern Methodist University, Dallas, TX, Oct. 18, 2024.

W. A. Lyons, R. Sonnenfeld, K. Stephan, A. Keul, C. Vagasky, T. Nelson, H. Schyma, P. Smith, T. Pruss, C. Riske, and D. Robinson, "Ball lightning: is it or isn't it?" paper 8.5 (15 minute video presentation), 11th Conference on Meteorological Applications of Lightning Data, 2023 American Meteorological Society Conference, 8-12 January 2023, Denver, Colorado.

K. D. Stephan and R. Sonnenfeld, "Correlation of lightning location network data with Internet-collected ball lightning case studies," poster presented Dec. 12, 2022 at the 2022 American Geophysical Union Fall Meeting, Chicago, Illinois, Dec. 12-16, 2022.

K. D. Stephan, "Observing cloud-to-ground lightning in the act: prospects for systematic imaging of lightning-strike contact points," 99th Annual Meeting of the American Meteorological Society, Phoenix, Arizona, Jan. 6-10, 2019.

Korede F. Akinpelumi (presenter), Matt Beaudry, K. D. Stephan, and Gary T. Rochelle, "SO_3 generation for amine aerosol tests," International Energy Agency Greenhouse Gas R&D program 4th Post Combustion Capture Conference, Birmingham, Alabama, Sept. 5-8, 2017.

K. D. Stephan, "How the relativistic-microwave theory explains ball lightning motion," International Symposium on Lightning and Storm-Related Phenomena, Aurillac, France, May 10-11, 2017.

K. D. Stephan, Rozlyn Krajcik, and Rolf J. Martin, "Evidence of strong short-wave UV radiation from ball lightning," First International Symposium on Lightning and Storm-Related Phenomena, Aurillac, France, July 2-3, 2015.

K. D. Stephan, Robert McLean, Gian DeLeon, and Vadim Melnikov, "Biological and chemical evaluation of biocidal plasma jets," Am. Phys. Society Texas Section Regional Meeting, College Station, TX, Oct. 17-19, 2014.

K. D. Stephan and Gil Sheleg, "Further investigations of 'slow lightning,'" 66th Annual American Physical Society Gaseous Electronics Conference, Princeton, NJ, Oct. 3, 2013.

K. D. Stephan, Shelby Dumas, and Jonathan McMinn, "Slow lightning in water plasmoids," 65th Annual American Physical Society Gaseous Electronics Conference, Austin TX, Oct. 26, 2012.

K. D. Stephan and Laurence Komala-Noor, "RF emission spectra from Rydberg matter at room temperature," Am. Phys. Society Texas Section Regional Meeting, Nacogdoches, TX, Mar. 3-5, 2011.

K. D. Stephan and Sagar Ghimire, "Plasma on the rocks: atmospheric-pressure normal glow plasma enhanced by natural basalt," Am. Phys. Society Texas Section Regional Meeting, San Marcos, TX, Oct. 22-24, 2010.

K. D. Stephan, "Forces that may explain ball lightning's motion," Atmosphere-Ionosphere-Safety/International Symposium on Ball Lightning, Kaliningrad, Russia, July 7-12, 2008.

K. D. Stephan, "What Marfa lights probably aren't," Am. Phys. Soc. Texas/Four Corners Regional Meeting, San Angelo, TX, Mar. 23-25, 2006.

2. Invited Talks, Lectures, and Presentations:

K. D. Stephan, "Could Ball Lightning Be Magnetic Monopoles?" invited talk delivered at Univ. of Texas at Arlington Department of Physics, Mar. 19, 2025.

K. D. Stephan, "Could Ball Lightning Be Magnetic Monopoles?" invited talk delivered at Univ. of Kansas Department of Physics, Apr. 14, 2025.

K. D. Stephan, "Cranes and Lifting: History and Hazards," ethics talk delivered to the Structural Engineers Association of Texas Austin Chapter in connection with Professional Development Hours, Dec. 7, 2017.

3. Consultancies:

4. Workshops:

5. Other Works not in Print:

a. Works “submitted” or “under review”

b. Works “ in progress”

c. Other works not in print

1. **K. D. Stephan**, "The Man Who Understood Lightning," guest blog on *Scientific American* website, Mar. 2, 2016, http://blogs.scientificamerican.com/guest-blog/the-man-who-understood-lightning/

C. Grants and Contracts

1. Funded External Grants and Contracts:

1. Julian Schwinger Foundation Grant #JSF-16-04-0000, "Investigation of Novel Propagation Modes in Plasma-Enclosed Waveguide," ($50,000), Dec. 2017-Dec. 2019, K. D. Stephan, PI, no-cost extension granted until June 2020.

2. Julian Schwinger Foundation Grant #07030001, "Experimental Investigation of Ball Lightning Formation Mechanisms," ($25,000), Jan 2008-Dec. 2008, K. D. Stephan, PI.

3. As adjunct associate research professor at UT Austin, I submitted a proposal successfully as a subcontractor to ProSensing, Inc., the primary contractor on a Dept. of Energy STTR Phase I proposal, which resulted in approx. $45,000 of funding in 2005-2006 expended at UT.

4. U. S. Dept. of Energy Grant #DE-FG36-02GO12064, "Remote Temperature Measurement in Hostile Industrial Environments with Microwave Radiometry," ($278,727), 2002-2005, K. D. Stephan, PI.

5. University of Massachusetts Amherst: Grants and contracts totaling approx. $350,000 in period 1983-1999 funded by U. S. Army Research Office, Raytheon Inc., and other sources.

2. Submitted, but not Funded, External Grants and Contracts:

A. Submitted, awaiting review:

Department of the Air Force, Enigma Labs STTR, "Collaboration with Texas State University," $110,000 (total to Texas State $33,000), K. D. Stephan, co-I (submitted summer 2025, decision pending as of January 14, 2026.

B. Submitted and declined:

Department of the Air Force, Enigma Labs STTR, "Collaboration with Texas State University," $110,000 (total to Texas State $33,000), K. D. Stephan, co-I (submitted summer 2024, declined Dec. 2024).

Air Force Office of Scientific Research, "Ball Lightning Detection and Characterization Network,", $473,089 (collaboration with New Mexico Tech, total to Texas State $246,642), K. D. Stephan, PI (submitted May 2023, declined Sept. 2024).

Texas Department of Transportation, “Rapid Field Detection of Moisture Content for Base and Subgrade,” $251,265, K. D. Stephan, PI (submitted Mar. 2011, declined 2011).

Julian Schwinger Foundation, “Experimental investigation of luminous spheroids near Marfa, Texas,” declined 2010.

3. Funded Internal Grants and Contracts:

1. Research Enhancement Grant, "Development and Test of a Steam Plasma Jet for Biodecontamination," ($8,000), submitted Oct. 2013, awarded for 2014.

2. Research Enhancement Grant, “Production and Analysis of Hydrogen Spectra in Water-Bearing Plasmoids,” ($8,000), 2012.

3. Research Enhancement Grant, “Large-area atmospheric-pressure glow plasmas formed with natural and artificial dielectrics,” ($8,000), 2009.

4. Research Enhancement Grant, "Generation and Analysis of Stable Free-Space Atmospheric-Pressure Microwave-Induced Plasmoids," ($8,000), 2007.

5. Research Enhancement Grant, "Microwave Radiometry for Industrial and Consumer Applications", ($8,000), 2001.

4. Submitted, but not Funded, Internal Grants and Contracts:

D. Fellowships, Awards, Honors:

IV. SERVICE

A. University:

Served on College Review Committee of the Texas State University College of Science and Engineering, 2012

Served on College Review Committee of the Texas State University College of Fine Arts and Communication, 2007

B. Departmental:

Chair, Ingram School of Engineering Personnel Committee, Jan. 2013 - Aug. 2015.

Electrical Engineering Program Advisor, Ingram School of Engineering, Sept. 2012 - Aug. 2015.

Departmental representative on College Research Enhancement Grant Committee, 2003, 2004, 2005, 2010, 2012, 2015, 2019, 2020, 2021, 2023, 2024.

Departmental representative on College Scholarship Committee, 2003-2007.

Service on numerous department faculty search committees and Senior Faculty (personnel) committee.

C. Community:

D. Professional:

Member, Board of Directors of the National Institute for Engineering Ethics, 2008-2014.

Historian of IEEE Antennas and Propagation Society, 2004-2013.

Treasurer of Institute of Electrical and Electronics Engineers (IEEE) Society on Social Implications of Technology, 2001-2007.

E. Organizations

1. Honorary:

2. Professional:

Life Senior Member, Institute of Electrical and Electronics Engineers
Member, American Physical Society
Member, Society for the History of Technology
Member, National Institute of Scholars

F. Services Honors and Awards:

updated Aug. 1, 2026