CURRICULUM VITAE
Michael E. Gruchalla

Education:

MSEE, 1980, University of New Mexico,
Albuquerque, New Mexico.

BSEE, 1968, University of Houston,
Houston, Texas.

Training and Professional Experience:

Subject-Matter Expert and Principal Engineer, Fiore Industries
Albuquerque, New Mexico, September, 2017 – Present.

Subject-Matter Expert and Principal Engineer, EG&G/URS,
Albuquerque, New Mexico, March, 2008 – September, 1017.

Principal Engineer and Electrical Authority Having Jurisdiction ("EAHJ"),
Honeywell FM&T/NM, Albuquerque, New Mexico, March, 2005 –
March, 2008.

Senior Staff Engineer, Honeywell FM&T/NM (Previously AlliedSignal)
Albuquerque, New Mexico, October, 1994 – March, 2005.

Engineering Specialist, EG&G EM, Inc.
Albuquerque, New Mexico, 1987 - 1994.

Project Manager/Group Leader, EG&G WASC, Inc.
Albuquerque, New Mexico, 1974 - 1987.

Captain/Electrical Engineer,
United States Air Force, 1968 - 1974.

Professional Certifications:

Licensed Professional Engineer, State of Texas.

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AWARDS

1. Selected as Principal Engineer ("PE"), Subject-Matter Expert ("SME") and Principal Investigator ("PI") for SBIR Phase I engineering research study, September, 2017 – September, 2018, to determine feasibility of development of high-power (>10 kW), extremely wide-bandwidth (>18 octaves) RF power amplifiers to be applied in critical commercial and military venues to assess and verify vulnerabilities critical systems to high levels of electromagnetic radiation, and to verify compliance of systems to meet National Standards implemented to assure survivability and uninterrupted operation of critical systems to high levels of electromagnetic radiation and high levels of electromagnetic interference "(EMI"). Note: The content of this paper and associated presentations may be classified as sensitive National Security Information and may comprise matter that is controlled under the Arms Export Control Act ("AECA"), controlled under International Traffic in Arms Regulations ("ITAR"), and may also be controlled as UCNI, and therefore publication may be limited to cognizant government individuals and agencies having formally-authorized Need to Know basis.

2. Selected as Principal Engineer ("PE"), Subject-Matter Expert ("SME") and Principal Investigator ("PI") for engineering research study, March, 2015 – October, 2016, to determine feasibility of development of high-power (>1 kW), extremely wide-bandwidth (>18 octaves), balanced 50-Ohm to 200-Ohm RF transformer to be applied in critical commercial and military venues to assess and verify vulnerabilities critical systems to high levels of electromagnetic radiation, and to verify compliance of systems to meet National Standards implemented to assure survivability and uninterrupted operation of critical systems to high levels of electromagnetic radiation and high levels of electromagnetic interference "(EMI"). Note: The content of this paper and associated presentations may be classified as sensitive National Security Information and may comprise matter that is controlled under the Arms Export Control Act ("AECA"), controlled under International Traffic in Arms Regulations ("ITAR"), and may also be controlled as UCNI, and therefore publication may be limited to cognizant government individuals and agencies having formally-authorized Need to Know basis.

3. Personal invitation from Bill Gates and Paul Allen of Microsoft to attend the Microsoft MITS 40th Anniversary Reunion, June 12-14, 2015, Seattle, Washington, USA, for all the individuals who at MITS contributed to the development of the Altar 8800 and the early success of Microsoft. The Altair 8800 has been recognized by many as the first personal computer, and those who contributed to its development recognized as the founders of the worldwide personal-computer industry.

4. Elevated to IEEE Life Senior Member, January, 2013. Commendation: "IEEE Life Senior Membership is reserved for those who have been part of the IEEE community for a sustained period of time. Earning this status recognizes your achievements in technology, as well as the significant impact you have had on the growth and development of IEEE. … IEEE Life Senior Members are among the most active and engaged volunteers. They serve as reviewers, editors, and conference organizers. They participate in development of standards, organize and participate in local meetings, and serve in leadership roles at all levels of the organization. … We are grateful for your loyalty."

5. Recipient of Defense Programs 2011 Award of Excellence "For Significant Contributions to the Stockpile Stewardship Program," Donald L. Cook, NNSA Deputy Administrator for Defense Programs.

6. Recipient of URS Award of Excellence, January 2011, presented by John Bozarth, URS Vice President Engineering Life Cycle Services, "For your Technical Excellence and Outstanding Customer Support to the Stockpile Steward program. Your willingness to undertake the most difficult tasks, your exceptional leadership, and your expertise have been recognized by URS."

7. Recipient of 2009 award of recognition for "HiFES Panel 8 Subsystem … For outstanding dedication and technical excellence in the delivery of the Panel 8 Subsystem for the HiFES satellite program," Jerry L. McDowell, Sandia Vice president, Defense Systems and Assessments.

8. Recipient of the Honeywell Significant Technical Achievement Reward and Recognition Award (Honeywell FM&T "STARR" Award), 2006, for novel design and implementation of a compact, high-performance, very high-efficiency, radiation-tolerant poly-phase motor-drive system for critical satellite pointing and tracking applications.

9. Recipient of the Honeywell Significant Technical Achievement Reward and Recognition Award (Honeywell FM&T "STARR" Award), 2005, for novel design and implementation of a Particle Detection Test System comprising a very novel sensor design for validation of the performance of critical nuclear weapon components.

10. Recipient of the Honeywell Significant Technical Achievement Reward and Recognition Award (Honeywell FM&T "STARR" Award), 2000, for novel design of a high-performance sensor and sensor interface electronics for very low-noise, very wide dynamic-range measurement of beam profile and beam halo in charged-particle-beam linear accelerators.

11. Recipient of the 1994 EG&G General Manager's Vision Award for Community Involvement related to career-long service in educational outreach and community service.

12. Received personal Letter of Commendation from Secretary James D. Watkins, Secretary of Energy, Department of Energy, October, 1991 for "Innovative, Dedicated Service to the Department of Energy and the Country."

13. Recipient of the 1991 Research and Development Magazine R&D-100 Research Award for research and novel developments in Ultra-High Performance Cathode-Ray Tube System.

14. Recipient of the Air Force Commendation Medal, 1973 for dedicated service as an officer and scientist/engineer in the United States Air Force.

PROFESSIONAL MEMBERSHIPS AND ACTIVITIES

1. Tau Beta Pi, Engineering Honor Society, Texas Epsilon Chapter.

2. Eta Kappa Nu, Engineering Honor Society, Epsilon Epsilon Chapter.

3. Institute of Electrical and Electronic Engineers, Senior Member.

4. Sigma Xi Scientific Research Society.

5. Instrument Society of America.

6. Editorial Review Board, Communications Technology, Inc., Ham Radio Magazine.

7. Advisory Board Working Group, Electronics Engineering Technology, Albuquerque Technological-Vocational Institute.

8. Editorial Review Board, CQ Communications, Inc., Communications Quarterly.

9. Institute of Electrical and Electronic Engineers Intellectual Property Committee.

10. Chair of the Honeywell KO Electrical Authority Having Jurisdiction charged with assuring electrical safety in all aspects of the work environment.

11. Listed in Marquis Who's Who In Science and Engineering.

12. Listed in Marquis Who's Who In The West.

13. Educational Outreach – Network with interested high-school students to help them understand what engineering and other scientific careers involve.

14. Educational Outreach – Develop and present High-School Level instructional series teaching fundamentals of Personal Computer system hardware.

15. Educational Outreach – Professional Mentor - Act as mentor to high-school students to promote math and science education and to bring the students into the professional environment in order to give them the opportunity to directly experience the engineering profession by performing actual engineering tasks.

16. Professional Mentor – Provide science and engineering guidance to colleagues and customers to aid in understanding of complex science and engineering issues to provide the individuals the ability and experience to develop effective, high-performance solutions to complex engineering and other scientific challenges.

17. Electric Auto Association – Established the Albuquerque Chapter of the Electric Auto Association (EAA) and served as Vice President of the Albuquerque Chapter of the EAA, 1993 to 1999.

18. Vice-president of Lobo Internet Services, Ltd., Albuquerque, New Mexico.

PUBLICATIONS

1. Gruchalla, M. E., "Sample Time Integrator," Electrical Engineering Times, January, 1978.

2. Gruchalla, M. E., Optimized Preamplifier for Bismuth Position Detectors, Dayton: University of Dayton, 1979.

3. Gruchalla, M. E., "Measure Wide-Band Noise Using a Standard Oscilloscope," EDN, June, 1980.

4. Gruchalla, M. E., Dual Channel Fiber-Optic Trigger System, Masters Thesis, and Albuquerque: University of New Mexico, 1980.

5. Gruchalla, M. E., Optimized Preamplifier for Bismuth Photo Detectors, Orlando: International Laser Systems, 1981.

6. Gruchalla, M. E., Optimized Preamplifier for InSb Photovoltaic Detectors, Albuquerque: University of New Mexico, 1981.

7. Motil, W., P. Johnson, G. Sower, A. Bonham, and M. Gruchalla, "The Cable Artery System - Design and Application in Aircraft EMP Testing," Alexandria: Conference on Instrumentation for Nuclear Weapons Effects, Naval Surface Weapons Center, July, 1982.

8. Johnson, P., G. Sower, A. Bonham, M. Gruchalla, G. Kahn, and W. Motil, "Instrumentation Effects Upon EMP Induced Wire Current Responses in Aircraft," Alexandria: Conference on Instrumentation for Nuclear Weapons Effects, Naval Surface Weapons Center, July, 1982.

9. Gruchalla, M. E., "Electrical Grounding in Large Instrumentation Systems," New York: Proceedings of the 1982 EOS/ESD Symposium, Illinois Institute of Technology Research Institute, September, 1982.

10. Sower, G., A. Bonham, M. Gruchalla, and B. Pressley, "Instrumentation for EMP Measurements," Zurich, Switzerland: Proceedings of the 1983 EMC Symposium, March, 1983.

11. Gruchalla, M. E., "Practical Problems of Fiber Optics in Field Applications," Instrumentation in the Aerospace Industry, Vol. 29, Instrument Society of America, May, 1983.

12. Gruchalla, M. E., "Specifying Critical Components for Fiber-Optic Data Collection Systems," Industrial Technology, September, 1983.

13. Gruchalla, M. E., "Grounding in Instrumentation Systems," Measurements and Control, Issue 102, December, 1983, pp. 136-151.

14. Gruchalla, M. E., "Grounding in Instrumentation Systems," Medical Electronics, Issue 84, December, 1983, pp. 80-95. Co-released with Measurements and Control release.

15. Gruchalla, M. E., The Design of a High-Performance, Phase-Locked Motor Control System for Shuttered Video Applications, Albuquerque: Miletus Associates, March, 1984.

16. Gruchalla, M. E., "Build Your Own Audio to Microwave Amplifier," Cover feature, Ham Radio, Vol. 17, No. 3, March, 1984, pp. 12-28.

17. Gruchalla, M. E., "A High-Speed, Log-Weighted Peak Level Recorder," Record of the 1984 NEM Symposium, July, 1984.

18. Gruchalla, M. E., "A Portable Programmable Pulser for Direct-Drive Testing," Record of the 1984 NEM Symposium, July, 1984.

19. Gruchalla, M. E., An Optimized Preamplifier System for a GeAu Photoconductive Optical Detector, Albuquerque: Dynalectron, Inc., July, 1984.

20. Gruchalla, M. E., "Build A Better Box," Ham Radio, Vol. 17, No. 8, August, 1984, pp. 45-48.

21. Gruchalla, M. E., "Defining The Decibel," Ham Radio, Vol. 18, No. 2, February, 1985, pp. 51-55.

22. Gruchalla, M., A. Bonham, J. Gibson, and P. Johnson, "A Portable Programmable Pulser and High-Speed, Log-Weighted Peak-Level Recorder for Direct Drive Testing," Zurich, Switzerland: Proceedings of the 1985 EMC Symposium, March, 1985.

23. Gruchalla, M. E., The Design of a Portable Electroencephalographic Data Acquisition System, Albuquerque: Miletus Associates, October, 1985.

24. Gruchalla, M. E., A. J. Bonham, and J. L. Gibson, "Performance of Linear Amplifier Systems in Direct-Drive Applications," Record of the 1986 NEM Symposium, May, 1986.

25. Gruchalla, M. E., and G. D. Sower, "Performance of Large Current Drivers," Record of the 1986 NEM Symposium, May, 1986.

26. Gruchalla, M. E., A. J. Bonham, and J. L. Gibson, "Automated Switching for Direct-Drive Pin-Drive Testing," Record of the 1986 NEM Symposium, May, 1986.

27. Gruchalla, M. E., "A Universal Analog Breadboard," Ham Radio, June, 1986.

28. Gruchalla, M. E., "NE5205 Wideband RF Amplifier," Ham Radio, September, 1986.

29. Gruchalla, M. E., "Power Distribution Safety in Instrumentation Systems," EMC Technology, Vol. 6, No. 1, January-February, 1987, pp. 17-34.

30. Gruchalla, M. E., "Fiber Optics - A Brief Introduction," Record of the Winter Meeting of the Western Regional Strain Gage Committee of the Society for Experimental Mechanics, Livermore, February, 1987.

31. Gruchalla, M. E., "Understanding Noise Figure," Ham Radio, Vol. 20, No. 4, April, 1987, pp. 89-95.

32. Gruchalla, M. E., "Automatic Multi-Pin Test Systems (AMPTS) For Direct Pin-Injection Testing," ITEM 1987, April 1987, pp. 22-33.

33. Gruchalla, M. E., "An Automated Multi-Pin Test System For Direct Pin-Drive Testing," Proceedings of the IEEE IMTC/87 Conference, April, 1987, pp. 171-177.

34. Gruchalla, M. E., "The Automatic Multi-Pin Test System For EMP Direct-Drive Testing," Proceedings of the ISA 33rd International Instrumentation Symposium, May, 1987, pp. 399-408.

35. Gruchalla, M. E., "Magnetic Current Drivers For Bulk-Injection Testing," Proceedings of the EMC Expo 87, San Diego, May, 1987.

36. Gruchalla, M. E., "An Automated Multi-Pin Test System For Direct Pin-Drive Testing," Invited paper (original copyright by the IEEE IMTC/87), Proceedings of the EMC Expo 87, San Diego, May, 1987.

37. Gruchalla, M. E., "An Automatic Multi-Pin Test System For Direct Pin-Drive Testing," Record of The Instrumentation for Nuclear Weapons Effects Conference (original copyright by the IEEE IMTC/87), Arlington, October, 1987.

38. Gruchalla, M. E., "Dynamic Range," ITEM 1988, April, 1988, pp. 87-98.

39. Gruchalla, M. E., "A Simple And Effective Procedure For Measurement Of Wide-Bandwidth Noise," ITEM 1989, April, 1989, pp. 272-288.

40. Gruchalla, M. E., "Magnetic Drivers For Bulk-Injection Testing," ITEM Update 1989, November, 1989, pp. 44-64.

41. Gruchalla, M. E., "Effective Noise Temperature, Part 1," Ham Radio, February, 1990, pp. 58-63.

42. Gruchalla, M. E., "Effective Noise Temperature, Part 2," Ham Radio, March, 1990, pp. 33-41.

43. Gruchalla, M. E., "Linear Amplifiers for Direct-Drive Testing," ITEM 1990, April, 1990, pp. 82-102.

44. Gruchalla, M. E. and G. D. Sower, "Meaningful Specifications for Magnetic Current Drivers," Record of the 1990 Nuclear EMP Meeting, May, 1990.

45. Gruchalla, M. E., "The Traveling-Wave Amplifier," Communications Quarterly, Spring Issue, Vol. 1 No. 2, 1991, pp. 95-100.

46. Gruchalla, M. E., "Fiber Optics," Communications Quarterly, Summer Issue, Vol. 1, No. 3, 1991, pp. 11-25 (cover feature).

47. Gruchalla, M. E., "Optimizing Amplifier Gain-Bandwidth Product," Communications Quarterly, Summer Issue, Vol. 1, No. 4, 1991, pp. 68-72.

48. Gruchalla, M. E., "Software - An American Industry At Risk?," Communications Quarterly, Winter Issue, Vol. 2, No. 1, 1992, pp. 99-105.

49. Gruchalla, M. E., "High-Frequency Bypass Capacitors," Communications Quarterly, Fall Issue, Vol. 3, No. 4, 1993, pp. 45-66.

50. Hagen, E. C., J. Champeny, M. E. Gruchalla, C. Hudson, S. Kocimski, W. Kuhlow, R. Mobley, N. Norris, M. Prokop, J. Spector, J. Thomas, "Ultra-High-Performance Cathode Ray Tube," Laser Tech Briefs, Spring Issue, 1994.

51. Gruchalla, M. E., "Using Inexpensive Digital Panel Meters," Communications Quarterly, Spring Issue, Vol. 6, No. 2, 1996, pp. 59-78.

52. Gruchalla, M. E., Invited Professional Testimony, United States House of Representatives Science Committee Hearing "Patent System and Modern Technology Needs: Meeting the Challenge of the 21st Century," House Science Committee Subcommittee on Technology, Congressional Record, June 6, 1996, Washington, DC.

53. Gruchalla, M. E., "Complex Impedance Measurements," Communications Quarterly, Fall Issue, Vol. 8, No. 4, 1998, pp. 33-43.

54. Gruchalla, M. E., "Image Scanning – How Much Resolution is Enough?," Communications Quarterly, Summer Issue, Vol. 9, No. 3, 1999, pp. 9-24.

55. Gruchalla, M. E., "The Simple Diode RF Detector," Communications Quarterly, Cover Feature Article, Fall Issue, Vol. 9, No. 4, 1999, pp. 7-14.

56. Ander, Mark E., Tom Summers and Michael E. Gruchalla, "LaCoste & Romberg gravity meter: System analysis and instrumentation errors," Geophysics, November-December, Vol. 64, No. 6, 1999, pp. 1708-1719.

57. Gilpatrick, J. D., D. Barr, D. Bruhn, L. Day, J. Ledford, M. Peck, R. Shurter, M. Settler, R. Valdiviez, J. Kamperschroer, D. Martinez, J. O'Hara, M. Gruchalla, D. Madsen, "Beam Diagnostic Instrumentation for a 6.7-MeV Proton Beam Halo Experiment," XX International Linac Conference, Monterey, California, August, 2000.

58. Barr, D., L. Day, J. D. Gilpatrick, D. Kerstiens, M. Stettler, R. Valdiviez, M. Gruchalla, J. O'Hara, J. Kamperschroer, "Beam-Profile Instrumentation for Beam Halo Measurement: Overall Description, Operation, and Beam Data," 5th European Workshop on Diagnostics and Beam Instrumentation, Grenoble, France, May, 2001.

59. Barr, D., L. Day, J. Douglas Gilpatrick, Robert B. Shurter, Matthew Stettler, Robert Valdiviez, Derwin Martinez, Michael Gruchalla, James O'Hara, "Design and Experience with the WS/HS Assembly Movement Using LabVIEW VIs, National Instrument Motion Controllers, and Compumotor Electronic Drive Units and Motors," 2001 Particle Accelerator Conference (PAC 2001), Chicago, USA, June, 2001.

60. Sellyey, William, J. Douglas Gilpatrick, Michael E. Gruchalla, Pilar S. Marroquin, "Experience with Photomultiplier Based Beam Loss Monitors (PMBLM) at the Low Energy Demonstration Accelerator (LEDA)," 2001 Particle Accelerator Conference (PAC 2001), Chicago, USA, June, 2001.

61. Gilpatrick, J., D. Barr. P. Colestock, L. Day, W. Sellyey, R. B. Shurter, M. Stettler, R. Valdiviez, J. Kamperschroer, M. Gruchalla, J. O'Hara, "Experience with the Low Energy Demonstration Accelerator (LEDA) Halo Experiment Beam Instrumentation," 2001 Particle Accelerator Conference (PAC 2001), Chicago, USA, June, 2001.

62. Gruchalla, Michael, Dean S. Barr, Lisa A. Day, Douglas Gilpatrick, Matthew W. Stettler, Derwin G. Martinez, James F. O'Hara, "Beam Profile Wire-Scanner/Halo-Scraper Sensor Analog Interface Electronics," 2001 Particle Accelerator Conference (PAC 2001), Chicago, USA, June, 2001.

63. Day, L. A., D. Barr, J. D. Gilpatrick, D. M. Kerstiens, M. W. Stettler, J. Kamperschroer, M. E. Gruchalla, J. F. O'Hara, "Automated Control and Real-Time Data processing for Wire Scanner/Halo Scraper Measurements," 2001 Particle Accelerator Conference (PAC 2001), Chicago, USA, June, 2001.

64. Gilpatrick, J., D. Barr, L. Day, M. Stettler, R. Valdiviez, J Kamperschroer, D. Martinez, M. Gruchalla, J. O'Hara, "Beam-Profile Instrumentation for Beam-Halo Measurement: Overall Description and Operation," 2001 Particle Accelerator Conference (PAC 2001), Chicago, USA, June, 2001.

65. Gruchalla, Michael E., "Meeting United States Energy Demands – A Brief Review of the Magnitude of the Challenge," Invited Paper, Albuquerque IEEE Section, 2006, Albuquerque, New Mexico.

66. Gruchalla, Michael E., "The Accelerating Universe – An Alternate Heuristic Thesis," Unpublished Paper in Progress, 1980 – 2008.

67. Gruchalla, Michael E., P. Chacon, D. Gilpartick, D. Martinez, "LANSCE Wire Scanner AFE: Analysis, Design, and Fabrication," 2010 Beam Instrumentation Workshop (BIW10), Santa Fe, USA, May 2010.

68. Gilpatrick, J. Douglas, P. Chacon, M Gruchalla, D. Martinez, J. Power, B. Smith, M. Taylor, "LANSCE Harp Upgrade: Analysis, Design, Fabrication, and Analysis," 2010 Beam Instrumentation Workshop (BIW10), Santa Fe, USA, May 2010.

69. McCrady, Rodney C., B. Blind, J. D. Gilpatrick, M. Gruchalla, C. Pillai, J. F. Power, L. J. Rybrcyk, J. Sedillo, "LANSCE Beam Instrumentation and the LANSCE Refurbishment Project," 2010 Beam Instrumentation Workshop (BIW10), Santa Fe, USA, May 2010.

70. Gruchalla, Michael, P. Chacon, J.D. Gilpatrick, D. Martinez, J. D. Sedillo, "LANSCE-R Wire-Scanner Analog Frontend Electronics (AFE)," 2011 Particle Accelerator Conference (PAC11), New York, USA, March 2011.

71. Gruchalla, Michael, P. Chacon, J.D. Gilpatrick, D. Martinez, S. Rodriguez, D. Satler, J. D. Sedillo, B. Smith, "LANSCE-R Wire-Scanner System," 2011 Particle Accelerator Conference (PAC11), New York, USA, March 2011.

72. Sedillo, J., J.D. Gilpatrick, M. Gruchalla, F. Gonzales, V. Kutac, D. Martinez, "First Test Results of the New LANSCE Wire Scanner," 2011 Particle Accelerator Conference (PAC11), New York, USA, March 2011.

73. Rodriguez Esparza, S., Y.K. Batygin, J.D. Gilpatrick, M.E. Gruchalla, A.J. Maestas, C. Pillai, J.L. Raybun, F.D. Sattler, J.D. Sedillo, B.G. Smith, "LANSCE Wire Scanning

Diagnostics Device Prototype," 2011 Particle Accelerator Conference (PAC11), New York, USA, March 2011.

74. Rodriguez, S., B. Smith, A. Maestas, J. Raybun, J. Martinez, D. Sattler, J.D. Gilpatrick, J. Sedillo, M. Gruchalla , "Mechanical Design and Evaluation of the MP-11-Like Wire Scanner Prototype," 2012 International Particle Accelerator Conference (IPAC2012), New Orleans, Louisiana, USA, May 2012.

75. Sedillo, J.D., J.D. Gilpatrick, D. Martinez, S. Rodriguez Esparza, M.E. Gruchalla, "Software Development for a CompactRIO-based Wire Scanner Control and Data Acquisition System," 2012 International Particle Accelerator Conference (IPAC2012), New Orleans, Louisiana, USA, May 2012.

76. Gilpatrick, J.D., Y.K. Batygin, F. Gonzales, M.E. Gruchalla, V.G. Kutac, D. Martinez, C. Pillai, S. Rodriguez Esparza, J.D. Sedillo, B.G. Smith, "Wire Scanner Beam Profile Measurements: LANSCE Facility Beam Development," 2012 International Particle Accelerator Conference (IPAC2012), New Orleans, Louisiana, USA, May 2012.

77. Gilpatrick, J.D., M.E. Gruchalla, D. Martinez, C. Pillai, S. Rodriguez Esparza, J.D. Sedillo, B.G. Smith, "Wire Scanner Beam Profile Measurements for the LANSCE Facility," 2012 International Particle Accelerator Conference (IPAC2012), New Orleans, Louisiana, USA, May 2012.

78. Gruchalla, Michael E., Douglas Gilpatrick, James Daniel Sedillo, Derwin Martinez, "Wide-bandwidth Capture of Wire-scanner Signals," 2012 International Particle Accelerator Conference (IPAC2012), New Orleans, Louisiana, USA, May 2012.

79. **Se**dillo, J.D., J.D. Gilpatrick, S. Rodriguez Esparza, M.E. Gruchalla, "LANSCE Wire Scanner System Prototype: Switchyard Test," 2012 International Particle Accelerator Conference (IPAC2012), New Orleans, Louisiana, USA, May 2012.

80. Gruchalla, M.E., Thuot, M, "Managing Electromagnetic Interference in Large Instrumentation Environments," Invited Paper, 2014 International Beam Instrumentation Conference (IBIC 2014), Monterey, California, USA, May 31, 2015 (Conference date September, 2014).

81. J. Sedillo,J. Nguyen,J.D. Gilpatrick, M. Gruchalla, Lansce 1L Harp Data Acquisition System Upgrade, Invited Paper, 2014 International Beam Instrumentation Conference (IBIC 2014), Monterey, California, May 31, 2015 (Conference date September, 2014).

82. Gruchalla, M.E., "Engineering, Design and Fabrication of 50-Ohm to 200-Ohm, High-Power, Balanced RF Transformer," invited paper, United States Air Force, Kirtland AFB, Albuquerque, New Mexico, October 22, 2016 (limited distribution).

PRESENTATIONS

1. Gruchalla, M., "Developments in Fiber-Optic Data Links," IEEE 1978 NEM Symposium, Albuquerque, May, 1978.

2. Gruchalla, M., "Fiber Optics in Field Applications," IEEE 1982 NEM Symposium, Albuquerque, May, 1982.

3. Gruchalla, M., "Grounding is Large Instrumentation Systems," Forth Annual Electrical Overstress/Electrostatic Discharge Symposium, Orlando, September, 1982.

4. Gruchalla, M., "Practical Considerations for Field Applications of Fiber-Optic Systems," invited presentation at the 1983 ISE Symposium, Albuquerque, April, 1982.

5. Gruchalla, M., "Practical Problems of Fiber Optics in Field Applications," 29th International Instrumentation Symposium, Albuquerque, May, 1983.

6. Gruchalla, M., "Grounding and Power Distribution in Instrumentation Systems," invited presentation at the 1984 ISE Symposium, Albuquerque, May, 1984.

7. Gruchalla, M., "Practical Problems of Fiber Optics in Field Applications," invited presentation at the 1984 ISE Symposium, Albuquerque, May, 1984.

8. Gruchalla, M., "A High-Speed, Log-Weighted Peak Level Recorder," IEEE 1984 NEM Symposium, Baltimore, July 1984.

9. Gruchalla, M., "A Portable Programmable Pulser for Direct-Drive Testing," IEEE 1984 NEM Symposium, Baltimore, July, 1984.

10. Gruchalla, M., "Practical Problems of Fiber Optics in Field Applications," invited presentation at AMP Special Industries Fiber-Optic Work Shop, Albuquerque, July, 1984.

11. Gruchalla, M. "Practical Aspects of Fiber Optics in Field Applications," invited presentation at Optoelectronic System Consultants' Fiber Optic Work Shop, Albuquerque, September, 1984.

12. Gruchalla, M., "A Portable Programmable Pulser and High-Speed, Log-Weighted Peak-Level Recorder for Direct Drive Testing," 1985 EMC Symposium, Zurich, Switzerland, March, 1985.

13. Gruchalla, M., "A Portable Programmable Pulser for Direct-Drive Testing," 1985 EMC Symposium EMP Work Shop, Zurich, Switzerland, March, 1985.

14. Gruchalla, M., "Performance of Linear Amplifier Systems in Direct-Drive Applications," IEEE 1986 NEM Symposium, Albuquerque, May, 1986.

15. Gruchalla, M., "Performance of Large Current Drivers," IEEE 1986 NEM Symposium, Albuquerque, May, 1986.

16. Gruchalla, M., "Automated Switching for Direct-Drive Pin-Drive Testing," IEEE 1986 NEM Symposium, Albuquerque, May, 1986.

17. Gruchalla, M., "Fiber Optics - A Brief Introduction," Invited Presentation, Western Regional Strain Gage Committee of the Society for Experimental Mechanics Winter Meeting, Livermore, February, 1987.

18. Gruchalla, M. E., "An Automatic Multi-Pin Test System For Direct Pin-Drive Testing," IEEE Instrumentation and Technology Conference, Boston, April, 1987.

19. Gruchalla, M. E., "The Automatic Multi-Pin Test System For EMP Direct-Drive Testing," ISA 33rd International Instrumentation Symposium, Las Vegas, May, 1987.

20. Gruchalla, M. E., "Magnetic Current Drivers For Bulk-Injection Testing," EMC Expo 87, San Diego, May, 1987.

21. Gruchalla, M. E., "An Automated Multi-Pin Test System For Direct Pin-Drive Testing," Invited paper (originally presented at the IEEE IMTC/87 Conference), EMC Expo 87, San Diego, May, 1987.

22. Gruchalla, M. E., "An Automated Multi-Pin Test System For Direct Pin-Drive Testing," Instrumentation for Nuclear Weapons Effects Conference (originally presented at the IEEE IMTC/87 Conference), Arlington, October, 1987.

23. Gruchalla, M. E. and G. D. Sower, "Meaningful Specifications for Magnetic Current Drivers," Nuclear Electromagnetic Conference, Albuquerque, May, 1990.

24. Gruchalla, M. E., "A Practical Example Of An Engineering Problem," An Educational-Outreach presentation presented to high-school students in order to give them a working understanding of the engineering discipline, and how such skills as mathematics, physics, chemistry, organization, communication, as well as virtually all other skills offered at the high-school level are necessary in an engineering or other scientific discipline, 1988 to present.

25. Gruchalla, M. E., "Personal Computer System Hardware," An Instructional Educational-Outreach series providing a hands-on presentation presented to numerous high-school level classes including Career Enrichment Center (CEC) and the Southwest Indian Polytechnic Institute (SIPI), 1990 to present.

26. Gruchalla, M. E., Invited Professional Testimony, United States House of Representatives Science Committee Hearing "Patent System and Modern Technology Needs: Meeting the Challenge of the 21st Century," House Science Committee Subcommittee on Technology, June 6, 1996, Washington, DC.

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