

A. Bruce Buckman - Curriculum Vitae

Title: Professor (Retired)

Electrical and Computer Engineering - The University of Texas at Austin

Current Business Address: 1800 Brookhaven Drive, Austin TX 78704-2149

Phone: 512-496-6816

Date of Birth: December 7, 1941

Citizenship: United States

Education:

- Massachusetts Institute of Technology, BS, Electrical Engineering, 1964
- University of Nebraska at Lincoln, MS, Electrical Engineering, 1966
- University of Nebraska at Lincoln, PhD, Electrical Engineering, 1968

Previous Academic Positions:

- University of Nebraska at Lincoln, Assistant Professor, Electrical Engineering, 1968-1973
- University of Nebraska at Lincoln, Associate Professor, Electrical Engineering, 1973-1974
- University of Texas at Austin, Associate Professor, Electrical and Computer Engineering, 1974-1995
- University of Texas at Austin, Professor, Electrical and Computer Engineering, 1995-2009

Other Professional Experience:

- Chief Scientist, Research Applications Inc., Austin TX. May-Sept. 1990. Principal Investigator for a Small Business Innovation & Research (SBIR) contract between RAI and the U.S. Navy to conduct proof-of-concept experiments with fiberoptic sensors based on novel interferometer technology. (See U.S. Patent 4,989,979 below).
- Scientist, Metamaterials LLC, Austin TX, June - Sept. 2009, R&D of composite electromagnetic materials.
- Expert witness: Patent, trade secret and other intellectual property litigation 2000 - present.

Consulting:

- MESA instruments, Austin, TX: Semiconductor waveguide phase-shifter, 1974.
- Eagle Signal, Austin, TX: Traffic signal optical collimator, 1976.

- Texas Research Institute, Austin, TX: Fiber-optics life testing methods; ellipsometric measurement of relative humidity, 1979-80.
- BEI, Inc., Little Rock, AR and Havatek, Inc., Austin, TX: Fiber-optic read-head for angular encoder, 1980.
- Western Electric, Inc., New York, NY: Expert witness (preliminary investigation) in patent litigation involving fiber-optic communications system, 1980.
- Technology Assessment Group, Inc., Schenectady, NY: Evaluation of VLSI capabilities of acquired company, 1981.
- Thernon Mfg. Co., San Marcos, TX: Distributed Solid State devices for heat trace monitoring and control, 1981-1986.
- Technology Assessment Group, Inc., Schenectady, NY: Fiber optics technology assessment for General Telephone and Electronics, 1982.
- Tracor Inc., Austin, TX: Fiber optic sensors for ocean applications, 1982
- Technology Assessment Group Inc., Schenectady, NY: Evaluation of fiberoptic gyroscope design for venture capitalist, 1983
- Trane, Inc. Los Angeles CA,: Fiber optic gyroscope evaluation, 1984
- Prime Software Innovations, Inc., Austin, TX: Educational software development, 1983-85
- U.S. Autotech Accessories, Inc. Los Angeles, CA: Optical tests of high-mounted automotive taillight for compliance with DOT standards, 1985
- Tracor, Inc. Austin, TX: Technological assessment of laser ranging apparatus for height determination of a parachute-dropped object, 1985
- Schlumberger Well Services, Inc., Austin, TX. Evaluation of fiber optic system for down-hole data transmission, 1986
- High End Systems, Austin, TX, Dichroic optical coatings, 1986
- Scientific Measurement Systems, Inc., Austin, TX,. Lightpipes, 1986-1987
- Thomas-Conrad Corporation, Austin TX. Fiberoptic Local Area Network hardware development, 1988-89
- Microelectronics and Computer Corporation (MCC), Austin TX. Guided-wave optical interconnect technology, 1990.
- Kent Hance, atty., Austin, TX. Evaluation of fiber optic component company for possible acquisition, 1991.
- IVPR, Inc., Houston, TX, Business plan preparation and technical competition analysis for fiber optic sensor company, 1991.
- Research Applications Inc. Austin TX. Fiber optic chemical sensor development, 1992.
- Microelectronics and Computer Corporation (MCC), Austin TX. Parallel high speed optical data link, 1993-4.
- Texas Research Institute, Austin, TX: Fiber-optic interferometric sensor, 1998.
- Xidex Corporation, Austin TX. Position-sensitive detectors for Atomic Force Microscopy applications, 1998-9
- Vinson and Elkins LLP, Austin TX. Expert witness, patent litigation, fiber-optic components, *3M vs. Seiko, et.al.* 2000-2001.
- Vinson and Elkins LLP, Austin TX. Expert witness with Markman hearing testimony, patent litigation, biomedical apparatus, *Urologix vs. ProstaLund, et.al.* 2002.
- Knobbe, Martens, Olson & Bear LLP, Irvine CA. Expert witness, patent litigation, light-emitting diode systems, *JamStrait Inc. vs. American Products Co. Inc.* 2003

- McDonnell, Boehnen, Hulbert and Berghoff LLP, Chicago, Ill. Expert witness with trial and deposition testimony, patent litigation, optical bio-sensing apparatus. *Corning, Inc. and Artificial Sensing Instruments AG vs. SRU Biosystems, LLC, SRU Biosystems Inc., and SRU Holdings LLC, 2004.*
- Ostrolenk, Faber, Gerb & Soffen, New York : Expert witness, patent litigation, electromagnetic radio-frequency identification tag reader instrumentation. *Avid Identification Systems, Inc. vs. Datamars SA, et.al. 2005*
- McDonnell, Boehnen, Hulbert and Berghoff LLP, Chicago, Ill.: Expert witness, inventorship lawsuit, optical instrumentation for biological and chemical sensor. *SRU Biosystems Inc. vs. Hobbs 2005*
- Greenberg Traurig LLP, Dallas TX: Expert witness, patent litigation, motion detector cameras. *IP Holdings, et.al. vs. Testa Associates, et.al. 2006*
- Baker Botts LLP, Houston TX. Expert witness with deposition testimony, patent litigation, feedback control of power supply circuits. *02 Micro vs. Samsung Electronics Co. et.al. 2006-2007.*
- Arnold LLP and Berg & Androphy LLP, Houston TX. 30-b-6 witness with deposition testimony, patent litigation, optical communications devices. *Cheetah vs. Infinerra 2006-2007.*
- Jones Day LLP, Dallas TX. Expert witness, patent, trade secret and inventorship litigation, optical systems for wafer and disc inspection. *KLA-Tencor vs. Arun Aiyer and Verity, Inc. 2007.*
- Locke, Liddell & Sapp LLP, Houston TX. Expert witness, patent litigation, feedback control for MEMS accelerometers. *I/O Inc. vs. Sercel 2007*
- Locke Lord Bissell & Liddell, Dallas TX. Expert witness, International Trade Commission Investigation, Investigation. No. 337-TA-625, 2008: automated animal-activated components
- Please see Expert Witness page for expert witness engagements after 2008, as well as a more detailed description of the cases and work performed.

Honors and Awards:

- Sigma Xi, 1967
- NASA Traineeship, 1966-68
- Eta Kappa Nu, 1974
- Biographical Listings:
 - American Men and Women of Science, 1969
 - Who's Who in the Midwest, 1970
 - Who's Who in the South & Southwest, 1975
 - Outstanding Young Men of America, 1978
 - Who's Who in Technology Today, 1979
- **Best Paper Award:** Vladimir Mancevski, Chellapan Narayanan, J. Kumar Pavuluri, Wanjun Wang, A. Bruce Buckman, and Ilene J. Busch-Vishniac, A High Precision, Six-Degree of Freedom, Single-Sided, Noncontact, Optical Sensor Suitable for Automated Assembly and Inspection, First World Automation Congress, Wailea, HI, August 1994

University Committee Assignments:

- **Administrative:**

- EE Dept. Graduate Advisor, June 1977-Sept. 1981
- ECE Co-op Advisor, 1984 - 2009

- **Committee assignments:**

- University Parking and Traffic Panel, 1976-78
- College of Engineering Safety Committee, 1977-78
- College of Engineering Athletic Award Committee, 1985-86
- College of Engineering Cooperative Education Committee, 1984-2009

Professional Society and Major Governmental Committees:

- Optical Society of America, Technical Advisory Committee for the Far Infrared 1976-78
- Program Chairman and Digest Editor, 1976 Region V IEEE Conference

Publications:

A. Refereed Archival Journal Publications

1. A.B. Buckman and N.M. Bashara, Secondary Emission from Thin Polymer Films Via Surface States, *Phys. Rev. Lett.* **17**, 577, (1966).
2. A.B. Buckman and N.M. Bashara, Ellipsometry for Modulated-Reflection Studies of Surfaces, *J. Opt. Soc. Am.* **58**, 700, (1968).
3. A. B. Buckman and N.M. Bashara, Electroreflectance Changes in Dielectric Constants of Au and Ag by Modulated Ellipsometry, *Phys. Rev.* **174**, 719, (1968).
4. A. B. Buckman and W.D. Bomberger, Optical Properties of Perylene Films in the Visible and Near UV, *J. Opt. Soc. Am.* **63**, 1432, (1973).
5. A. B. Buckman, N.H. Hong and D.W. Wilson, Large Refractive Index Change in PbI_2 Films by Photolysis at 150-180 C, *J. Opt. Soc. Am.* **65**, 914, (1975).
6. A. B. Buckman, Effective Electrooptic Coefficient of Multilayer Dielectric Waveguides: Modulation Enhancement, *J. Opt. Soc. Am.* **66**, 30, (1976).
7. A. B. Buckman, Theory of an Efficient Electronic Phase Shifter Employing a Multilayer Dielectric Waveguide Structure, *IEEE Trans. Microwave Theory Tech.* **MTT-25**, 480, (1977).
8. A. B. Buckman, On the Origin of the Large Refractive Index Change in Photolyzed PbI_2 Films, *J. Opt. Soc. Am.* **67**, 1123, (1977).
9. A. B. Buckman, Nonlinearity of Effective Index versus Bulk Index in Multilayer Dielectric Waveguides: Large Incremental Index Sensitivity, *J. Opt. Soc. Am.* **67**, 1187, (1977).
10. A. B. Buckman and C. Kuo, Fizeau Interferometry for Measuring Refractive Index and Thickness of Nearly Transparent Films, *Appl. Opt.* **17**, 3636-3640, (1978).

11. A. B. Buckman and C. Kuo, Excitation of Coupled-Surface-Plasmons in Structures Containing Very Thin Negative Permittivity Regions, *J. Opt. Soc. Am.* **69**, 343, (1979).
12. A. B. Buckman and S. Chao, Ellipsometric Characterization of the Glassy Layer at Co/Si Interface, *Surface Science* **96**, 346, (1980).
13. A. B. Buckman and R. Montgelas, A Waveguiding Surface Damage Layer in Li_2TaO_3 , *Applied Optics* **20**, 6, (1981).
14. A. B. Buckman and S. Chao, Optical Evidence for an Electronic Phase Transition at the Co-Si Interface, *J. Opt. Soc. Am.* **71**, 928, (1981).
15. A. B. Buckman, Polarization-selective Lateral Waveguiding in Layered Dielectric Structures, *J. Opt. Soc. Am.* **72**, 688, (1982).
16. A. B. Buckman, Mode Selection with a Three-Layer Dielectric Waveguide, *J. Opt. Soc. Am.* **73**, 33, (1983).
17. A. B. Buckman, Three-layer Dielectric Stripline Filter for Guided-Wave Applications, *SPIE Proceedings* **464**, 29, (1984).
18. A. B. Buckman, Analysis of a Novel Optical Fiber Interferometer with Common-mode Compensation, *IEEE J. Lightwave Tech.* **7**, 151 (1989)
19. A. B. Buckman and K. Park Common-mode Noise Reduction in Interferometric Fiberoptic Sensors using Electrooptic Feedback, *SPIE Proceedings*. **1169**, 64, (1989).
20. A. B. Buckman, D.G. Pritchett and K. Park, Sensitivity-Enhanced, Common-mode Compensated Mach-Zehnder Fiberoptic Sensor Circuit with Electrooptic Feedback, *Optics Lett.* **14**, 886, (1989).
21. A. B. Buckman, General Sensitivity Enhancement and Common-mode Compensation Principle for Interferometric Fiberoptic Sensors, *IEEE J. Lightwave Tech.* **8**, 1456, (1990).
22. A. B. Buckman, B.H. Tyrone, Jr. and A.J. Seltzer, Enhancing Fiber Optic Interferometer Precision Using Electro-optic Feedback and Common Mode Compensation, *Proceedings American Society for Precision Engineering (ASPE) Topical Meeting on Precision Interferometric Metrology*, pp. 18-21 (1992).
23. A. B. Buckman and Lisa Giullianelli, Direct Optical-to-Electrical Phase Conversion in a Fiber Optic Interferometer, *Proceedings American Society for Precision Engineering (ASPE) Topical Meeting on Precision Interferometric Metrology*, pp. 22-26 (1992).
24. C. Narayanan, A. B. Buckman, I. Busch-Vishniac, M.F. Becker, R.W. Bene, and R.M. Walser) Frequency-Multiplexed Multiple Beam Optical Position Detector using Phase Detection, *Proc. SPIE* **1918**, 205-214 (1993).
25. R.M. Walser, Alaka Valanju, W. Win, M.F. Becker, A.B. Buckman and R.W. Bene, New Smart Materials for adaptive Microwave Signature Control, *Proc. SPIE* **1916**, 128-139 (1993).
26. R.M. Walser, Alaka Valanju, W. Win, M.F. Becker, A.B. Buckman and R.W. Bene, "New Smart Materials for adaptive Microwave Signature Control", *Proc. SPIE*. **1916**, 128-139 (1993).
27. Michael F. Becker, A. Bruce Buckman, Rodger M. Walser, Thierry Lapine, Patrick Georges and Alain Brun, "Femtosecond Switching of the Solid-State Transition in the Smart System Material VO₂", *Proc. SPIE*. **2189**, 400-408 (1994)
28. Dahong Qian, Wanjun Wang, Ilene Busch-Vishniac and A. B. Buckman, A Novel Method To Measure Multiple Light Spots Positions on One Position-Sensitive Detector, *IEEE Trans. Instr. Meas.* **4**, 14 (1993).

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