

Betty Lise Anderson

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Education

Ph.D.	Electrical Engineering/Materials Science, University of Vermont	1990
MS.	Electrical Engineering/Materials Science, University of Vermont	1988
BSEE	Electrical Engineering, Syracuse University	1978

Experience

• The Ohio State University, Assistant Professor	1990-1996
• The Ohio State University, Associate Professor	1996-2004
• The Ohio State University, Professor	2004-Present
• The Ohio State University, Associate Chair	2009-Present
• The Ohio State University, Director of Outreach	2008-Present
• C. S Draper Laboratories, Member of Technical Staff	1984-1986
• GTE Laboratories, Member of Technical Staff	1980-1984
• Tektronix, Inc., Optoelectronic Component Engineer	1978-1980
• Syracuse Institute for Enabling Education	1972-1974

Honors and Awards

• Dean's Award for Distinguished Outreach Achievements	2016
• Faculty Mentoring Award	2016
• Fellow, SPIE	2015
• University Outreach and Engagement Award, The Ohio State University	2015
• Distinguished Community Engagement Award, The Ohio State University	2015
• QS Wharton Stars Reimagine Education Award (Shortlisted), University of Pennsylvania	2015
• Ohio State University Road Scholar	2015
• Women in Engineering Faculty Award for Outreach and Engagement (OSU)	2014
• L. C. Smith Prize for Engineering and Technology Writing (Honorable Mention), Syracuse University	2013
• Faculty Diversity Excellence Award	2012

Honors and Awards (continued)

- Academic Partner in Excellence, New Albany High School 2011
- Senior Member, Optical Society of America 2010
- Innovators Award," Ohio State College of Engineering 2007
- Outstanding Woman in Technology: TopCAT (Top Contributors to the Advancement of Technology)," Columbus Technology Council (Now Tech Columbus) 2006
- Senior Member, IEEE

Books

- B. L. Anderson, R. L. Anderson, Fundamentals of Semiconductor Devices, McGraw-Hill, second edition 2017
- B. L. Anderson, R. L. Anderson, Fundamentals of Semiconductor Devices, McGraw-Hill 2005

Peer-Reviewed Journal Publications

1. Y. Chi, B. L. Anderson, "Resolving Spatial Modes of Lasers via Matrix Completion," *Optics Letters*, **38**(19), pp. 3957-3960, 2013
2. Y. Shi, B. L. Anderson, "Robert Cell-Based Optical Delay Elements for White Cell True-Time Delay Devices," **31**(7), pp. 1006-1014, April 1, 2013
3. B. L. Anderson, J. G. Ho, W. D. Cowan, O. Blum-Spahn, A. Y. Yi, D. J. Rowe, M. R. Flannery, D. L. McCray, P. Chen, and D. J. Rabb, "Hardware Demonstration of Extremely Compact Optical True Time Delay Device for Wideband Electronically Steered Antennas," *Journal of Lightwave Technology*, **29**(9), pp. 1343-1353, May 1, 2011.
4. L. Wang, A. Mahmoud, B. L. Anderson, D. D. Koch, C. J. Roberts, "Total corneal power estimation: Ray tracing method vs. Gaussian optics formula," *Investigative Ophthalmology & Visual Science*, **52**(3), pp. 1716-1722, March 1, 2011.
5. D. Rabb, B. L. Anderson, "Optical cross-connect based on the spherical Fourier cell," *Journal of Lightwave Technology*, **27**(14), pp. 2737-2743, July 2009.
6. F. Abou-Galala, B. L. Anderson, "Real-time all-optical performance monitoring using optical bit-shape correlation," *Applied Optics*, Vol. 48, No. 7, March 1, 2009.
7. D. Rabb, O. Blum-Spahn, W. Cowan, B. L. Anderson, "Optical Fourier cell for true time delay," *Journal of Lightwave Technology*, **27**(7), pp. 879-886, April 2009.

8. C. Warnky, R. Mital, B. L. Anderson, "Demonstration of a quartic cell, a free-space true-time delay device based on the White cell," *IEEE Journal of Lightwave Technology*, **24** (1-), pp. 3849-3855-816, 2006.
9. V. Argueta-Diaz, B. L. Anderson, "Design and simulation of microoptical devices (spot displacement devices) for free-space all-optical OXC systems," *IEEE Journal on Selected Topics in Quantum Electronics*, **12**(4), pp. 804-816, 2006.
10. V. Argueta-Diaz, B. L. Anderson, "Optical cross-connect system based on the White cell and 3-state MEMS: experimental demonstration of the quartic cell" *Applied Optics*, **45**(19) pp 4658-4668, July 2006.
11. B. L. Anderson, D. J. Rabb, C. M. Warnky, F. M. Abou-Galala, "Binary Optical True Time Delay Based on the White Cell: Design and Demonstration," *Journal of Lightwave Technology*, **24**(4) pp. 1886-1895, 2006.
12. R. Mital, C. M. Warnky, B. L. Anderson, S. A. Collins, Jr., "Design and Demonstration of a Higher Order Polynomial Cell—Octic Cell," *Journal of Lightwave Technology*, **24**(2), pp. 982-990, February, 2005.
13. B. L. Anderson, A. Durrezi, D. Rabb, F. Abou-Galala, "Real-Time All-Optical Quality of Service Monitoring Using Correlation and a Network Protocol to Exploit It," *Applied Optics*, **42**(5) pp. 1121-1130, March 2004.
14. S. Kunathikom, B. L. Anderson, S. A. Collins, Jr., "Design of delay elements in binary optical true-time delay devices," *Applied Optics*, **42** (35) pp. 6984-6994, December 2003.
15. R. L. Higgins, B. L. Anderson, S. A. Collins, Jr., "Switching engine in binary optical true-time delay device based on the White cell," *Applied Optics*, **42**(23), pp. 4747-4757, May 6, 2003.
16. V. Argueta-Diaz, B. L. Anderson, "Reconfigurable Photonic Switch Based On A Binary System Using The White Cell And Micromirror Arrays," *IEEE Journal on Selected Topics in Quantum Electronics*, **9**(2), pp. 594-602, March-April 2003.
17. B. L. Anderson, F. Abou-Galala, V. Argueta-Diaz, G. Radhakrishnan, R. Higgins, "Optical cross-connect based on tip/tilt micromirrors in a White cell," *IEEE Journal of Special Topics in Quantum Electronics*, **9**(2), pp.579-593, March/April, 2003.
18. A. E. Rader, B. L. Anderson, "Demonstration of a linear optical true-time delay device using a microelectromechanical mirror array," *Applied Optics*, **42**(8), pp. 1409-1416, 2003
19. B. L. Anderson, Rashmi Mital, "Polynomial-Based Optical True-Time Delay Devices Using MEMS" *Applied Optics*, **41**(26), pp. 5449-5461, 2002.
20. B. L. Anderson, C. D. Liddle, "Optical true-time delay for phased array antennas: demonstration of a quadratic White cell," *Applied Optics*, **41**(23), pp. 4912-4921, 2002.
21. C.M. Warnky, B. L. Anderson, C. A. Klein, "Determining spatial modes of lasers using spatial coherence measurements," *Applied Optics*, **39**(33), pp. 6109-6117, November 2000.

22. B. L. Anderson, L. J. Pelz, S. A. Ringel, B. D. Clymer, S. A. Collins, Jr., "Photonics Laboratory with Emphasis on Technical Diversity," *IEEE Transactions on Education*, Vol. 41, No. 3, pp. 194- 292, August 1998.
23. L. J. Pelz, B. L. Anderson, "Robustness of spatial coherence multiplexing under receiver misalignment," *Applied Optics*, **37**(5), pp. 815-820, 1998.
24. B. L. Anderson, S. A. Collins, Jr., C. A. Klein, E. A. Beecher, S. B. Brown, "Photonicallly Produced True-Time Delays for Phased Antenna Arrays," *Applied Optics*, **36** (32), pp. 8493-8503, 1997.
25. Y. T. Wu, B. L. Anderson, "Spurious momentum mismatch introduced by an approximate model in acousto-optic interactions," *Applied Physics Letters*, **68** (22), pp. 3066-3068, 1996.
26. M. C. Hastings, B. L. Anderson, B. C. Chiu, D. E. Holcomb, "Effects of gamma radiation on high-power laser diodes," *IEEE Transactions on Nuclear Science*, **43** (3), pp. 2141-2149, June 1996.
27. B. L. Anderson, L. J. Pelz, "Spatial coherence modulation for free space communication," *Applied Optics*, Vol. 34, No. 32, pp. 7443-7450, 1995.
28. K. M. Taylor, B. L. Anderson, "Misalignment Losses In Fiber Optic Joints Due To Angular Misalignment For Arbitrary Energy Distribution," *Optical Engineering*, Vol. 34, No. 12, pp. 3471-3479, 1995.
29. L. J. Pelz, B. L. Anderson, "Practical use of the spatial coherence functions for determining laser transverse mode structure," *Optical Engineering*, Vol. 34, No. 11, pp. 3323-3328, 1995.
30. B. L. Anderson, Z. Qi, "On the use of microbend fiber optic mode strippers: a cautionary note," *Optics and Photonics News Engineering and Laboratory Notes*, November, 1995.
31. D. C. Butzer, B. D. Clymer, B. L. Anderson, "Highly efficient interconnection for use with a multistage optical switching network with orthogonally polarized data and address information," *Applied Optics*, Vol. 34, No. 11, pp. 1788-1800, 1995.
32. B. L. Anderson, J. A. Brosig, "New approach to microbending fiber optic sensors: varying the spatial frequency," *Optical Engineering*, Vol. 4. No 1, pp 208-213, 1995.
33. . L. Anderson, "Vertical cavity ring laser," *IEEE Photonics Technology Letters*, Vol. 6, No. 3, pp. 330-333, 1994.
34. B. L. Anderson, T. B. De Vore, B. C. Clymer, "Use of Laser Diode Arrays in Holographic Interconnections," *Applied Optics*, **31**(35) pp.7411-7416, 1992.
35. B.L. Anderson and P.L. Fuhr, "Twin-Fiber Interferometric Method for Measuring Spatial Coherence," *Optical Engineering*, **32**(5), pp. 926-932, 1993.

Patents

1. Devices and Methods for Implementing an Optical Switching Engine," B. L. Anderson, D. Rabb, US Patent No. 10,324,355, issued June 18, 2019.
2. "Optical Delay Elements Created from Variations of the Robert Cell," Y. Shi, B. L. Anderson, U. S. Patent No. 9.746.654. Issued August 29, 2017.
3. "Apparatus And Method For Providing True Time Delay In Optical Signals Using A Fourier Cell," David Rabb (student, on his dissertation work) US Patent 7,911,671, Issued March 22, 2011
4. "Spectroscopic Optical System," R. Higgins, B. L. Anderson, US Patent 7,873,397 issued January 18, 2011. (assignee Diramed).
5. B. L. Anderson, V. Argueta-Diaz, "Optical Spot Displacement Apparatus," US Patent 7,660,499, issued February 9, 2010.
6. B. L. Anderson, V. Argueta-Diaz, C. M. Warnky, "Methods, Systems, and Devices for Steering Optical Beams," US Patent 7,633,670, issued December 15, 2009.
7. B. L. Anderson, D. Rabb, "Apparatus And Method For Providing An Optical Cross-Connect" US Patent 7,630,598, issued December 8, 2009.
8. B. L. Anderson, S. A. Collins, Jr., Methods, systems, and apparatuses for optically generating time delays in signals, US Patent Number 7,430,347, September 30, 2008.
9. A. Duressi, B. L. Anderson, "Method and Apparatus for monitoring the quality of optical links." US Patent 7,236,238, issued June 26, 2007.
10. B. L. Anderson, "Optical correlation device and method," US Patent 6,952,306, Issued October 4, 2005.
11. V. Argueta-Diaz, "Method and apparatus for combining optical beams." Notice of allowance received July, 2005. Note I had no direct role in this patent other than the student was my advisee at the time and I asked him to "come up with something."
12. B. L. Anderson, "Optical Circulator with large number of ports and no polarization-based components," US Patent 6,766,073, issued July 20, 2004.
13. S. A. Collins, Jr., B. L. Anderson, "Using fibers as delay elements in optical true-time delay devices based on the White cell," US Patent 6,674,939. Issued January 6, 2004.
14. S. A. Collins, Jr., B. L. Anderson, "Device and method for producing optically controlled incremental time delays," US Patent Number 6,525,889, Issued February 25, 2003.
15. B. L. Anderson, S. A. Collins, Jr. "Device for optical interconnection," US Patent 6,266,176, issued July 24, 2001.
16. S. A. Collins, Jr., B. L. Anderson, "Device and method for producing optically controlled incremental time delays," US Patent Number 6,388,815, issued May 14, 2002.

17. V. Argueta-Diaz, B. L. Anderson, S. A. Collins, Jr., "Binary Optical Interconnection," US Patent 6,760,140 B1, issued July 6, 2004.
18. B. L. Anderson, S. A. Collins, Jr. "Using fiber as a shifting element in optical interconnection devices based on the White cell." U.S. Patent 6,724,951, issued April 20, 2004

Professional Organizations

- SPIE Fellow
- Optical Society of America Senior Member
- IEEE Senior Member
- American Society for Engineering Education Member
- American Association for the Advancement of Science Member

Editorships

- *IEEE Journal or Quantum Electronics*, Associate Editor 2004-2010

Professional Society Service

- *IEEE Humanitarian Engineering Committee*, Member 2016-2018
- *SPIE Award Committee*, Member 2015-present