CURRICULUM VITAE

December 16, 2009

Name: Kevin John Webb

Personal:

Date of Birth:	July 7, 1956
Place of Birth:	Stawell, Victoria, Australia
Citizenship:	United States, Australia
Wife's Name:	Karin Frida Kerstin Ejendal
Children's Names:	Frida, Anna, and Nicholas

Education:

Degree	*Date*	*School*
Ph. D.	1984	University of Illinois, Urbana-Champaign
M.S.E.E.	1981	University of California, Santa Barbara
M.Eng.	1983	Royal Melbourne Institute of Technology
B.Eng.	1978	Royal Melbourne Institute of Technology

Ph.D. Thesis Title: Investigation of Planar Waveguides and Components for Millimeter-Wave Integrated Circuits; Adviser: Raj Mittra

Honors and Memberships:

- Fellow of the Institute of Electrical and Electronics Engineers, 2005
- Fellow of the Optical Society of America, 2005
- Erskine Fellowship, University of Canterbury, New Zealand, 2007
- Fellow of The Electromagnetics Academy
- Member of the American Physical Society
- 1986 University of Maryland George Corcoran Memorial (Teaching) Award for Significant Contribution to Electrical Engineering Education.
- Member Tau Beta Pi
- Member Eta Kappa Nu
- Member Phi Kappa Phi
- Commonwealth post-graduate research award, Royal Melbourne Institute of Technology, 1979
- Bachelor's degree with highest distinction, Royal Melbourne Institute of Technology, 1978
- Siemens award for outstanding student, Royal Melbourne Institute of Technology, 1975
- Listed, Who's Who in America
- Listed, Who's Who in Electromagnetics

Professional Experience:

[July 1999 -]	Professor, School of Electrical and Computer Engineering, Purdue University, West Lafayette, IN
[June 2006 - Aug. 2007]	Visiting Professor Royal Institute of Technology (KTH), Stockholm
[Jan. 2003 - Dec. 2003]	Visiting Professor, Dept. of Chemistry, Massachusetts Institute of Technology, Cambridge, MA
[Jan. 1990 - Jun. 1999]	Associate Professor, School of Electrical and Computer Engineering, Purdue University, West Lafayette, IN
[Aug. 1984 - Dec. 1989]	Assistant Professor, Electrical Engineering Department, University of Maryland, College Park, MD

Ph. D. Thesis Supervision Completed:

[1] W. A. Huting, June 1989, "Characterization of Continuous Waveguide Transitions Using a Combined Finite Element Method and Coupled Differential Equation Technique."

[2] L. Carin, August 1989, "Characterization of Monolithic Millimeter-wave Components and VLSI Interconnects."

[3] G. W. Slade, July 1993, "Finite Element Modeling of Electromagnetic Transmission Lines in Two and Three Dimensions."

[4] B. Lichtenberg, December 1994, "Finite Element Modeling of Wavelength-scale Diffractive Elements."

[5] Y. Liu, May 1995, "Boundary Conditions and Formulations for Finite Element Electromagnetic Modeling."

[6] T. Haq, August 1995, "Design and Fabrication of Compact Waveguide Mode Control Devices."

[7] K. C. Huang, August 1995, "Characterization of Resonant Tunneling Diodes."

[8] J. S. Reynolds, February 1996, "Optical Sensing in Diffuse Media."

[9] C. A. Thompson, August 1996, "Optical Diffusive Imaging Using Raman Spectroscopy and Laser Speckle."

[10] E. B. Cohen, January 1998, "The Velocity Modulation Transistor - Operation, Development and Application."

[11] J. C. Ye, February 1999, "Estimation and Reconstruction for the Optical Diffusion Nonlinear Inverse Problem."

[12] H. J. Ueng, December 1999, "Characterization of Nonalloyed Ohmic Contacts."

[13] M. A. Webster, December 2002, "Random Media Characterization From Laser Speckle Frequency Correlations." Mark Webster received the 2002 Motorola outstanding graduate student award from the School of Electrical and Computer Engineering.

[14] J.-W. Lee, May 2003 (Dec. 2002 defense), "Characterization of AlGaN/GaN High Electron Mobility Transistors and Their Application in Microwave Push-Pull Amplifiers."

[15] S. Lee, June 2004, "Intrinsic Noise Characteristics of Gallium Nitride High Electron Mobility Transistors." Sungjae Lee received the 2004 Motorola outstanding graduate student award from the School of Electrical and Computer Engineering.

[16] A. B. Milstein, August 2004, " Imaging of Near-Infrared Fluorescence, Absorption, and Scatter in Turbid Media."

[17] S. Oh, May 2005, "Nonlinear Multigrid Inversion Algorithms with Applications to Statistical Image Reconstruction." Seungseok Oh received a Silver 2003 Humantech Thesis Prize, at the event hosted by Samsung Electronics, Korea, for a paper entitled "A general framework for nonlinear multigrid inversion."

[18] M. Yang, August 2005, "Field Transformation in Irregular Waveguide Structures and Analysis of Left-Handed Material."

[19] J. Li , December 2005, "Nanophotonic Signal Processing Structures."

[20] Z. Wang, December 2008."Characterization of Random Media and Related Information Retrieval."

M.S. Thesis Supervision Completed:

[1] C. J. Clark, August 1986, "Investigation of new optoelectronic CW microwave source."

[2] L. Carin, December 1986, "Computational analysis of cascaded coaxial and circular waveguide discontinuities."

[3] Q. Xu, May 1987, "Modal analysis of microstrip discontinuities."

[4] P. W. Grounds, November 1987, "Numerical analysis of the finite Frequency Selective surface."

[5] G. W. Slade, June 1989, "Finite Element Analysis of Integrated Waveguides."

[6] A. Caroglanian, August 1989, "Numerical and Experimental Study of Curved and Planar Frequency Selective Surfaces with Arbitrary Illumination."

[7] S. S. Patrick, April 1990, "Finite Difference Analysis of Dielectric Waveguides: A Variational Approach in Terms of the Magnetic Field Vector."

[8] M. S. Carroll, May 1992, "Resonant Tunneling Diode Fabrication and DC Characterization."

[9] G. E. Starnes, August 1992, "Resonant Tunneling Diode Impedance Characterization for Oscillator Applications."

[10] R. P. Lyle, May 1994, "AlGaAs/GaAs Compound Semiconductor Multiple Quantum Well Optical Reflection Modulators."

[11] S. Lee, August 2000, "Microwave Distributed Power Amplifiers Using Gallium Nitride and Silicon Carbide Transistors."

[12] T. Gerke, August, 2004, "Frequency-resolved interferometer measurements of polarized wave propagation in scattering media."

Research Book Contributions and Books Published:

Book Chapters:

[1] S. Lee and K. J. Webb, Low Noise Amplifiers," Wiley Encyclopedia of RF and Microwave Engineering, 2004.

Research Book Contributions:

[1] Picosecond Electronics and Optoelectronics II, F. J. Leonburger, C. Lee, F. Capasso, and H. Morkoc (Ed), Springer-Verlag, 1987, C. J. Clark, E. A. Chauchard, K. J. Webb, K. Zaki, C. H. Lee, P. Polak-Dingels, H. A. Hung, and H. C. Huang, "A new optoelectronic microwave source," pp. 269-271.

[2] H. A. Hung, T. T. Lee, P. Polak-Dingels, E. Chauchard, K. J. Webb, C. H. Lee and H. C. Huang, "Characterization of GaAs monolithic circuits by optical techniques," *Proc. SPIE*, Vol. 1102, pp. 98-106, 1987.

[3] Picosecond Electronics and Optoelectronics, Vol. 4, T.C.L.G. Sollner and D. Bloom (Ed), Optical Society of America, March 8-10, 1989; E. Chauchard, G. Treacy, K. J. Webb, C. H. Lee, H. A. Hung, H. C. Huang, and P. Polak-Dingels, "Comparison of electro-optic and photo-conductive sampling using a 28 GHz monolithic amplifier," pp. 52-56.

[4] T. Haq, K. J. Webb, and N. C. Gallagher, "Aperiodic grating structure for TE_{11} to TM_{11} mode conversion," *SPIE Proc.*, Vol. 2622, pp. 207-214, 1995.

[5] B. Lichtenberg, K. J. Webb, and N. C. Gallagher, "Finite element simulation of wavelength scale optical elements," *SPIE Proc.*, Vol. 2622, 196-206, 1995.

[6] J. S. Reynolds, M. G. Erickson, and K. J. Webb, "Inexpensive instrumentation for frequency domain detection and localization of heterogeneities utilizing diffusing optical waves," *SPIE Proc.*, Vol. 2633, pp. 230-237, 1995.

[7] C. A. Thompson, J. S. Reynolds, F. LaPlant, D. Ben-Amotz, and K. J. Webb, "Detection of heterogeneities within a scattering medium using Raman spectroscopy," *SPIE Proc.*, Vol. 2622, pp. 400-404, 1995.

[8] J. S. Reynolds, F. P. LaPlant, C. A. Thompson, K. J. Webb, and D. Ben-Amotz, "Quantitative Raman spectroscopic study of acetonitrile in a scattering medium," Trends in Optics and Photonics on Biomedical Optical Spectroscopy and Diagnostics, *Optical Society of America*, May 1996, pp. 147-150.

[9] T. Haq, K. J. Webb, and N. C. Gallagher, "Computer generated microwave holograms as phase shifters," *SPIE Proc.*, Vol 3010-51, Diffractive and Holographic Device Technologies and Applications IV, 1997.

[10] J. C. Ye, K. J. Webb, R. Millane and T. J. Downar, "Weighted cost function reconstruction in optical diffusion imaging," *SPIE Proc.*, Vol. 3171, Signal and Image Processing and Mathematical Imaging, pp. 118-127, 1997.

[11] R. P. Millane, J. C. Ye, C. A. Bouman, and K. J. Webb, "Efficient algorithms for Bayesian optical diffusion imaging," *Proc. Image and Vision Computing New Zealand 1999*, D. Pairman and H. North (eds.), Landcare Research, Lincoln, NZ, pp. 223-228, 1999.

[12] K. J. Webb, J. C. Ye, C. A. Bouman, and R. P. Millane, "Nonlinear multigrid optimization for soft tissue imaging using a Bayesian optical diffusion approach," *Proc. OSA/NIH Workshop on In Vivo Optical Imaging*, Optical Society of America, 2000.

[13] A. B. Milstein, S. Oh, K. J. Webb, C. A. Bouman, and R. P. Millane, "Three-dimensional optical diffusion tomography using iterative coordinate descent optimization," *Photon Migration, Optical Coherence Tomography, and Microscopy*, S. Andersson-Engels and M. Kaschke Eds., Proc. SPIE vol 4431, 2001.

[14] M. A. Webster, K. J. Webb, and A. M. Weiner, "Optical diffusion imaging data from speckle pattern frequency correlations," *Diagnostic Optical Spectroscopy in Biomedicine*, T. Papazoglou and G. Wagnieres Eds., SPIE Vol. 4432, 2001.

[15] S. Oh, A. B. Milstein, K. J. Webb, C. A. Bouman, and R. P. Millane, "Three-dimensional Bayesian optical diffusion tomography: source-detector calibration," *Biomedical Optics: Optical Biopsy*, Proc. SPIE Vol. 4613, 2002.

[16] J.-W. Lee and K. J. Webb, "Broadband push-pull microwave power amplifier using AlGaN/GaN HEMTs on SiC," *Silicon Carbide and Related Materials 2001*, pp. 1515-1518, Trans Tech Publications, Zurich, Switzerland, 2002.

[17] L. Yuan, J. A. Cooper, K. J. Webb, and M. R. Melloch, "Demonstration of IMPATT diode oscillators in 4H-SiC," *Silicon Carbide and Related Materials 2001*, pp. Trans Tech Publications, Zurich, Switzerland, 2002.

[18] R. P. Millane, A. M. Milstein, Q. Zhang, S. Oh, K. J. Webb, C. A. Bouman, and D. A. Boas, "Imaging fluorescence parameters by Bayesian optical diffusion tomography," in "Image reconstruction from incomplete data II," P. J. Bones, M. A. Fiddy and R. P. Millane (Eds), Proc. SPIE Vol. 4792, 2002.

[19] S. Oh, A. B. Milstein, C. A. Bouman, and K. J. Webb, "Multigrid algorithms for optimizations and inverse problems," Proceedings of SPIE/IS&T Conference on Computational Imaging, 2003.

[20] A. B. Milstein, S. Oh, K. J. Webb, and C. A. Bouman, "Estimation of kinetic model parameters in optical diffusion tomography," Proceedings of SPIE/IS&T Conference on Computational Imaging, 2004.

[21] S. Oh, A. B. Milstein, C. A. Bouman, and K. J. Webb, "Multigrid inversion with variable resolutions of data and parameter spaces," Proceedings of SPIE/IS&T Conference on Computational Imaging, 2004.

[22] K. J. Webb, "Information in multiply scattered light," P. J. Bones, M. A. Fiddy and R. P. Millane (Eds), Proc. SPIE Vol. 5562, 2004.

[23] S. Oh, C. A. Bouman, and K. J. Webb, "Multigrid inversion algorithms for Poisson noise model-based tomographic reconstruction," *Computational Imaging*, Proc. of SPIE, 2005.

Magazine Articles:

[1] A. Milstein, S. Oh, C. Bouman, K. Webb, J. Stott, D. Boas, and R. Millane, "Hidden pictures: nonlinear Bayesian inversion methods reveal detail in fluorescence optical diffusion tomography images," *Optical Engineering Magazine,* Vol. 4, No. 2, pp. 26-28, Feb. 2004.

[2] H. Liu and K. J. Webb, "Nanoimaging; bilayer metamaterial lens breaks the diffraction limit," *Laser Focus World*, vol. 45, no. 9, pp. 35-38, 2009.

Serial Journal Regular Articles:

[1] K. J. Webb and R. Mittra, "Dielectric waveguide grating filter," *Arch. Elek. Ubertragung.,*, Vol. 38, pp. 51-54, Jan./Feb. 1984.

[2] E. G. Farr, K. J. Webb, and R. Mittra, "Studies in fin-line antenna design for imaging array applications," *Arch. Elek. Ubertragung.*, Vol. 39, No. 2, pp. 87-89, 1985.

[3] K. J. Webb and R. Mittra, "Solution of the fin-line step discontinuity problem using the generalized variational technique," *IEEE Trans. Microwave Theory Tech.*, Vol. 33, pp. 1004-1010, Oct. 1985.

[4] C. Clark, E. Chauhard, K. Webb, K. Zaki, C. Lee, H. Hung and H. Huang, "Studies of a new optoelectronic microwave source," *IEEE/OSA J. Lightwave Technol.*, Vol. 5, No. 3, pp. 388-397, March 1987.

[5] D. Butler, E. A. Chauchard, K. J. Webb, K. A. Zaki, C. H. Lee, P. Polak-Dingels, H. A. Hung, and H. C. Huang, "A CW 20 GHz optoelectronic source with phased array applications," *Microwave and Optical Tech. Lett.*, Vol. 1, pp. 119-123, Jun. 1988.

[6] L. Carin, K. J. Webb, and S. Weinreb, "Matched windows in circular waveguide," *IEEE Trans. Microwave Theory Tech.*, Vol. 36, pp. 1359-1362, Sept. 1988.

[7] K. J. Webb, A. Caroglanian, P. W. Grounds, and R. Mittra, "Numerical convergence in dichroic problems," *Microwave and Optical Tech. Lett.*, Vol. 1, pp. 317-320, Nov. 1988.

[8] Q. Xu, K. J. Webb, and R. Mittra, "Study of modal solution procedures for microstrip step-discontinuities," *IEEE Trans. Microwave Theory Tech.*, Vol. 37, pp. 381-387, Feb. 1989.

[9] H. A. Hung, P. Polak-Dingels, K. J. Webb, T. Smith, H. C. Huang, and C. H. Lee, "Millimeter-wave monolithic integrated circuit characterization by a picosecond optoelectronic technique," *IEEE Trans. Microwave Theory Tech.*, Vol. 37, pp. 1223-1231 Aug. 1989.

[10] L. Carin and K. J. Webb, "Characteristic impedance of multilevel, multiconductor hybrid mode microstrip," *IEEE Trans. Magnetics*, Vol. 25, pp. 2947-2949, Jul. 1989.

[11] G. W. Slade and K. J. Webb, "A vectorial finite element analysis for integrated waveguide," *IEEE Trans. Magnetics*, Vol. 25, pp. 3052-3054, Jul. 1989.

[12] W. A. Huting and K. J. Webb, "Numerical analysis of rectangular and circular waveguide tapers," *IEEE Trans. Magnetics*, Vol. 25, pp. 3095-3097, Jul. 1989.

[13] L. Carin and K. J. Webb, "An equivalent circuit model for terminated hybrid-mode multiconductor transmission lines," *IEEE Trans. Microwave Theory Tech.*, Vol. 37, pp. 1784-1793, Nov. 1989.

[14] W. A. Huting and K. J. Webb, "Numerical solution of the continuous waveguide transition problem," *IEEE Trans. Microwave Theory Tech.*, Vol. 37, pp. 1802-1808, Nov. 1989.

[15] A. Caroglanian, P. W. Grounds, and K. J. Webb, "Finite and infinite frequency selective surfaces: experiments and models," *J. Electromagnetic Waves and Applic.*, Vol. 3, No. 5, pp. 409-419, 1989.

[16] G. W. Slade, L. Carin, Q. Xu, S. E. Borchardt, and K. J. Webb, "A study of slotline leaky-wave antennas," *IEEE Trans. Antennas Propagat*, Vol. 38, pp. 411-414, 1990.

[17] L. Carin and K. J. Webb, "Isolation effects in single and dual plane VLSI interconnects," *IEEE Trans. Microwave Theory Tech.*, Vol. 38, pp. 396-404, Apr. 1990.

[18] K. J. Webb, P. W. Grounds, and R. Mittra, "Convergence in the spectral domain formulation of waveguide and scattering problems," *IEEE Trans. Antennas Propagat.*, Vol. 38, pp. 869-877, June 1990.

[19] L. Carin and K. J. Webb, "Pulse propagation on multi-layered circuit level interconnects," *J. Electromagnetic Waves and Applications*, Vol. 4, No. 3, pp. 229-245, 1990.

[20] A Caroglanian and K. J. Webb, "Study of curved and planar frequency selective surfaces with non-planar illumination," *IEEE Trans. Antennas Propagat.*, Vol. 39, pp. 211-217, Feb. 1991.

[21] W. A. Huting and K. J. Webb, "Comparison of mode matching and differential equation techniques in the analysis of waveguide transitions," *IEEE Trans. Microwave Theory Tech.*, Vol. 39, pp. 280-286, Feb. 1991.

[22] P. W. Grounds and K. J. Webb, "Numerical analysis of finite frequency selective surfaces with rectangular patches of various aspect ratios," *IEEE Trans. Antennas Propagat.*, Vol. 39, pp. 569-575, May 1991.

[23] G. W. Slade and K. J. Webb, "Convergence in microwave circuit parameters obtained from a vector finite element analysis," *IEEE Trans. Magnetics*, Vol. 27, pp. 4048-4051, Sept. 1991.

[24] S. S. Patrick and K. J. Webb, "Behavior of a magnetic field vector-based finite difference analysis for optical waveguides," *IEEE Trans. Magnetics*, Vol. 27, pp. 3883-3885, Sept. 1991.

[25] G. W. Slade and K. J. Webb, "Computation of characteristic impedance for multiple microstrip transmission lines using a vector finite element method," *IEEE Trans. Microwave Theory Tech.*, Vol. 40, pp. 34-40, Jan. 1992.

[26] S. S. Patrick and K. J. Webb, "A variational vector finite difference solution for dielectric waveguides," *IEEE Trans. Microwave Theory Tech.*, Vol. 40, pp. 692-698, Apr. 1992.

[27] D. L. Goeckel, K. J. Webb, and N. C. Gallagher, "Massively parallel iterative determination of stratified dielectric parameters from scattered-field measurements," *J. Opt. Soc. Am. A*, Vol. 10, No. 5, pp. 1093-1100, May 1993.

[28] K. Huang, M. S. Carroll, G. Starnes, R. Lake, D. B. Janes, K. J. Webb, and M. Melloch, "Numerically-generated resonant tunneling diode equivalent circuit parameters," *J. Applied Physics*, Vol. 16, pp. 3850-3857, Sept. 15, 1994.

[29] D. B. Meade, G. W. Slade, A. F. Peterson, and K. J. Webb, "Comparison of local radiation boundary conditions for the scalar Helmholtz equation with general boundary shapes," *IEEE Trans. on Antennas Propagat.*, Vol. 43, pp. 6-10, Jan. 1995.

[30] T. Haq, K. J. Webb, and N. C. Gallagher, "Scattering optimization method for the design of compact mode converters for waveguides," *IEEE Trans. Microwave Theory and Techniques*, Vol. 43, pp. 559-565, Mar. 1995.

[31] C. A. Thompson, J. S. Reynolds, F. P. LaPlant, D. Ben-Amotz, and K. J. Webb, "Raman spectroscopic studies of diamond in Intralipid," *Optics Lett.*, Vol. 20, pp. 1195-1198, May 1995.

[32] Y. Liu and K. J. Webb, "Variational propagation constant expressions for lossy inhomogeneous anisotropic waveguides," *IEEE Trans. Microwave Theory Tech.*, Vol. 43, pp. 1765-1772, Aug. 1995.

[33] D. B. Janes, K. J. Webb, M. S. Carroll, G. E. Starnes, K-C. Huang, J. Shenoy, and M. R. Melloch, "DC and microwave characterization of integrated resonant tunneling diodes," *J. Appl. Phys.*, Vol. 78, pp. 6616-6625, Dec. 1995.

[34] E. B. Cohen, D. B. Janes, K. J. Webb, J. N. Shenoy, J. M. Woodall, and M. R. Melloch, "A 2 DEG/low-temperature-grown GaAs dual channel heterostructure transistor," *Superlattices and Microstructures*, Vol. 17, No. 4, pp. 345-349, 1995.

[35] V. R. Kolagunta, D. B. Janes, G. L. Chen, K. J. Webb, and M. R. Melloch, "Vertical three-terminal structures in semiconductor heterostructure quantum wells using a novel sidewall gating technique," *Superlattices and Microstructures*, Vol. 17, No. 4, pp. 339-343, 1995.

[36] K-C. Huang, D. B. Janes, K. J. Webb, and M. R. Melloch, "An improved two-layered TLM contact resistance characterization method," *IEEE Trans. Electron Dev.*, Vol. 43, No. 5, pp. 676-684, May 1996.

[37] J. S. Reynolds, A. Przadka, S. Yeung, and K. J. Webb, "Optical diffusion imaging: a comparative numerical and experimental study," *Appl. Optics*, Vol. 35, No. 19, pp. 3671-3679, July 1996.

[38] B. Lichtenberg, K. J. Webb, D. B. Meade, and A. F. Peterson *(Invited Paper)*, "Comparison of two-dimensional conformal radiation boundary conditions," *Electromagnetics*, Vol. 16, No. 4, pp. 359-384, July-Aug., 1996.

[39] T. Haq, K. J. Webb, and N. C. Gallagher, *(Invited Paper)*, "Synthesis of waveguide mode control devices based on aperiodic grating," *J. Opt. Soc. of Am. A*, Vol. 13, pp. 1501-1505, July 1996.

[40] V. R. Kolagunta, G. L. Chen, D. B. Janes, K. J. Webb, and M. R. Melloch, "Self-aligned sidewall gated resonant tunneling transistors," *Appl. Phys. Lett.*, Vol. 69, No. 3, pp. 374-376, July 1996.

[41] J. S. Reynolds, C. A. Thompson, K. J. Webb, F. P. LaPlant, and D. Ben-Amotz, "Frequency domain modeling of reradiation in highly scattering media," *Applied Optics*, Vol. 36, pp. 2252-2259, April 1997.

[42] T. Haq, K. J. Webb, and N. C. Gallagher, "Compact circular waveguide mode converters," *Microwave and Optical Tech. Lett.*, Vol. 13, pp. 251-255, Dec. 1996.

[43] C. A. Thompson, K. J. Webb, and A. M. Weiner, "Diffusive media characterization using laser speckle," *Applied Optics*, Vol. 36, pp. 3726-3734, June 1, 1997.

[44] Y. Liu and K. J. Webb, "A hybrid numerical boundary condition and its approximations for electromagnetic scattering problems," *J. Electromag. Waves & Applic.*, Vol. 11, 1433-1451, 1997.

[45] E. B. Cohen, K. J. Webb, D. B. Janes, and M. R. Melloch, "Real space transfer in a velocity modulated transistor," *Appl. Phys. Lett.*, Vol. 70, pp. 2864-2866, May 1997.

[46] M. G. Erickson, J. S. Reynolds, and K. J. Webb, "Comparison of single and dual interfering source configurations in optical diffusion imaging," *J. Opt. Soc. Am A.*, Vol. 14, No. 11, pp. 3083-3092, Nov. 1997.

[47] A. Przadka, K. J. Webb, D. B. Janes, and H. C. Liu, "Microwave measurement of shot noise in resonant tunneling diodes," *Appl. Phys. Lett.*, Vol. 71, No. 4, pp. 530-532, July 1997.

[48] C.A. Thompson, K. J. Webb, and A.M. Weiner, "Imaging of inhomogeneities embedded within scattering media using laser speckle," *J. Opt. Soc. Am. A*, Vol. 14, No. 9, pp. 2269-2277, September 1997.

[49] H. J. Ueng, V. R. Kolagunta, D. B. Janes, K. J. Webb, D. T. McInturff, and M. R. Melloch, "Annealing stability and device application of nonalloyed ohmic contacts using a low temperature grown GaAs cap on thin n^+ GaAs layers," *Appl. Phys. Lett.*, Vol. 71, No. 17, pp. 2496-2498, Oct. 1997.

[50] L. Carin, G. W. Slade, and K. J. Webb, "Mode Coupling and Leakage effects in finite size printed interconnects," *IEEE Trans. Microwave Theory Tech.*, Vol. 46, No. 5, pp. 450-457, May 1998.

[51] A. Przadka, K. J. Webb, and D. B. Janes, "Two-port noise and impedance measurements for two-terminal devices with a resonant tunneling diode example," *IEEE Trans. Microwave Theory Tech.*, Vol. 46, No. 9, pp. 1215-1220, Sept. 1998.

[52] M. Maheswaran, K. J. Webb, and H. J. Siegel, "A modified conjugate gradient squared algorithm for the solution of electromagnetic scattering problems on MIMD machines," *The Journal of Supercomputing*, 14, pp. 257-280, 1999.

[53] J. C. Ye, R. P. Millane, K. J. Webb, and T. J. Downar, "Importance of the $\bigtriangledown D$ term in frequency-resolved optical diffusion imaging," *Opt. Lett.*, Vol. 23, pp. 1423-1425, Sept. 1998.

[54] T. Haq, K. J. Webb, and N. C. Gallagher, "Optimized irregular structures for spatial and temporal field transformation," *IEEE Trans. Microwave Theory Tech.*, Vol. 46, pp. 1856-1867, Nov. 1998. *Invited* paper.

[55] J. C. Ye, K. J. Webb, T. J Downar, and R. P. Millane, "Fréchet derivative and image reconstruction in optical diffusion tomography," *J. Opt. Soc. Am. A*, vol. 16, no. 7, pp. 1814-1826, July 1999.

[56] J. C. Ye, K. J. Webb, C. A. Bouman, and R. P. Millane, "Optical diffusion tomography using iterative coordinate descent optimization in a Bayesian framework," *J. Opt. Soc. Am. A*, vol. 16, no. 10, pp. 2400-2412, Oct. 1999.

[57] J. D. McKinney, M. A. Webster, K. J. Webb, and A. M. Weiner, "Characterization and imaging in optically scattering media using laser speckle and a variable coherence source," *Optics Lett.*, vol. 25, no. 1, pp. 4-6, Jan. 2000.

[58] J. C. Ye, C. A. Bouman, K. J. Webb, and R. P. Millane, "Nonlinear multigrid algorithms for Bayesian optical diffusion tomography," *IEEE Trans. Image Processing*, vol. 10, no. 6, pp. 909-922, June 2001.

[59] B. M. Green, S. Lee, K. Chu, K. J. Webb, and L. F. Eastman, "High efficiency monolithic Gallium Nitride distributed amplifier," *IEEE Microwave Guided Wave Lett.*, vol. 10, No. 7, pp. 270-272, July 2000.

[60] Y. Liu and K. J. Webb, "On detection of the interior resonance errors of surface integral equation boundary conditions for electromagnetic scattering problems," *IEEE Trans. Antennas Propagat.*, vol. 49, pp. 939-943, June 2001.

[61] H. J. Ueng, D. B. Janes and K. J. Webb, "Error analysis leading to design criteria for transmission line model characterization of ohmic contacts," *IEEE Trans. Electron Dev.*, vol. 48, no. 4, pp. 758-766, April 2001.

[62] L. Yuan, J. A. Cooper, M. R. Melloch, and K. J. Webb, "Experimental demonstration of a silicon carbide IMPATT oscillator," *IEEE Electron Dev. Lett.*, vol. 22, no. 6, pp. 266-268, June 2001.

[63] K. J. Webb, E. B. Cohen, and M. R. Melloch, "Fabrication and operation of a velocity modulation transistor," *IEEE Trans. Electron Dev.*, Vol. 48, No. 12, pp. 2701-2709, Dec. 2001.

[64] H. J. Ueng, N.-P. Chen, D. B. Janes, K. J. Webb, D. T. McInturff and M. R. Melloch, "Temperature-dependent behavior of low-temperature-grown GaAs nonalloyed ohmic contacts," *J. Applied Phys.*, Vol. 90, No. 11, pp. 5637-5641, Dec. 2001.

[65] J.-W. Lee and K. J. Webb, "Broadband GaN HEMT push-pull microwave power amplifier," *IEEE Microwave Wireless Comp. Lett.*, Vol. 11, No. 9, pp. 367-369, Sept. 2001.

[66] B. M. Green, V. Tilak, H. Lim, J. A. Smart, K. J. Webb, J. R. Shealy, and L. F. Eastman, "High-power broadband AlGaN/GaN HEMT MMIC's on SiC substrates, *IEEE Trans. Microwave Theory Tech.*, Vol. 49, No. 12, pp. 2486-2493, Dec. 2001.

[67] M. A. Webster, K. J. Webb, and A. M. Weiner, "Temporal response of a random medium from laser speckle frequency correlations," *Phys. Rev. Lett.*, Vol. 88, No. 3, pp. 033901(-1-4), Jan. 2002.

[68] A. B. Milstein, S. Oh, J. S. Reynolds, K. J. Webb, C. A. Bouman, and R. P. Millane, "Three-dimensional Bayesian optical diffusion imaging using experimental data," *Optics Lett.*, Vol. 27, No. 2, pp. 95-97, Jan. 2002.

[69] S. Oh, A. B. Milstein, R. P. Millane, C. A. Bouman, and K. J. Webb, "Source-detector calibration in three-dimensional Bayesian optical diffusion tomography," *J. Opt. Soc. Am. A*, Vol. 19, No. 10, pp. 1983-1993, Oct. 2002.

[70] S. Lee, K. J. Webb, V. Tilak, and L. F. Eastman, "Intrinsic noise equivalent circuit parameters for AlGaN/GaN HEMTs," *IEEE Trans. Microwave Theory Tech.*, Vol. 51, No. 5, pp. 1567-1577, May 2003.

[71] A. B. Milstein, S. Oh, K. J. Webb, C. A. Bouman, Q. Zhang, D. A. Boas, and R. P. Millane, "Fluorescence optical diffusion tomography," *Applied Optics*, Vol. 42, pp. 3081-3094, June 2003.

[72] M. A. Webster, K. J. Webb, A. M. Weiner, J. Y. Xu, and H. Cao, "Temporal response of a random medium from speckle intensity frequency correlations," *J. Opt. Soc. Am. A*, Vol. 20, No. 11, pp. 2057-2070, Nov. 2003.

[73] J. Lee, L. F. Eastman, and K. J. Webb, "Gallium nitride push-pull microwave power amplifiers," *IEEE Trans. Microwave Theory Tech.*, Vol. 51, No. 11, pp. 2243-2249, Nov. 2003.

[74] M. Yang, J. Li, and K. J. Webb, "Irregular functional electromagnetic field transformation waveguide elements," *Appl. Phys. Lett.*, Vol. 83, No. 14, pp. 2736-2738, Oct. 2003.

[75] J. Lee and K. J. Webb, "A temperature-dependent nonlinear analytic model for AlGaN-GaN HEMTs on SiC," *IEEE Trans. Microwave Theory Tech.*, Vol. 52, No. 1, pp. 2-9, Jan. 2004.

[76] M. Yang, J. Li, and K. J. Webb, "Functional waveguide mode transformers," *IEEE Trans. Microwave Theory Tech.*, Vol. 52, No. 1, pp. 161-169, Jan. 2004.

[77] A. B. Milstein, J. J. Stott, S. Oh, D. A. Boas, R. P. Millane, C. A. Bouman, and K. J. Webb, "Fluorescence optical diffusion tomography using multiple frequency data," *J. Opt. Soc. Am. A*, Vol. 21, No. 6, pp. 1035-1049, June 2004.

[78] M. A. Webster, T. D. Gerke, A. M. Weiner, and K. J. Webb, "Spectral and temporal speckle field measurements from a random medium," *Opt. Lett.*, Vol. 29, No. 13, pp. 1491-1493, July 2004.

[79] S. Oh, A. B. Milstein, C. A. Bouman, and K. J. Webb, "A general framework for nonlinear multigrid inversion," *IEEE Trans. Image Processing*, Vol. 14, No. 1, pp. 125-140, Jan. 2005.

[80] K. J. Webb, M. Yang, D. W. Ward, and K. A. Nelson, "Metrics for negative refractive index materials," *Phys. Rev. E*, Vol. 70, pp. 035602(R), 2004.

[81] S. Lee and K. J. Webb, "The influence of transistor nonlinearities on noise properties," *IEEE Trans. Microwave Theory Tech.*, Vol. 53, No. 4, pp. 1314-1321, April, 2005.

[82] A. B. Milstein, M. D. Kennedy, P. S. Low, C. A. Bouman, and K. J. Webb, "Detection and localization of a fluorescent mouse tumor in a turbid medium," *Applied Optics*, Vol. 44, No. 12, pp. 2300-2310, Apr. 2005.

[83] A. B. Milstein, K. J. Webb, and C. A. Bouman, "Estimation of kinetic model parameters in fluorescence optical diffusion tomography," *J. Opt. Soc. Am. A*, Vol. 22, No. 7, pp. 1357-1368, July, 2005.

[84] T. D. Gerke, M. A. Webster, A. M. Weiner, and K. J. Webb, "Frequency-resolved interferometer measurements of polarized wave propagation in random media," *J. Opt. Soc. Am. A*, Vol. 22, No. 12, pp. 2691-2699, Dec. 2005.

[85] M. Yang and K. J. Webb, "Poynting Vector Analysis of a Superlens," *Opt. Lett.*, Vol. 30, No. 18, pp. 2382-2384, Sept. 2005.

[86] S. Oh, C. A. Bouman, and K. J. Webb, "Multigrid tomographic inversion with variable resolution data and image spaces," *IEEE Trans. Im. Proc.*, Vol. 15, Issue 9, pp. 2805-2819, Sept. 2006.

[87] D. W. Ward, K. A. Nelson, and K. J. Webb, "On the physical origins of the negative index of refraction," *New J. Phys.*, Vol. 7, pp. 213-, Oct. 2005.

[88] M. Yang, H. Chen, K. J. Webb, S. Minin, S. L. Chuang, and G. R. Cueva, "Demonstration of Mode Conversion in an Irregular Waveguide," *Opt. Lett.*, Vol. 31, No. 3, pp. 383-385, Feb. 2006.

[89] K. J. Webb and J. Li, "Analysis of transmission through small apertures in conducting films," *Phys. Rev. B*, Vol. 73, pp. 33401, 2006.

[90] K. J. Webb and J. Li, "Resonant slot optical guiding in metallic nanoparticle chains," *Phys. Rev. B* Vol. 72, 201402R, 2005; also in the Virtual J. of Nanoscale Science and Technology, Dec. 5, 2005: http://www.vjnano.org.

[91] K. J. Webb and J. Li, "Waveguide cavity surface-enhanced Raman scattering," *Phys. Rev. B*, Vol. 73, pp. 073404, 2006; also in the Virtual J. of Nanoscale Science and Technology, Feb. 27, 2006: http://www.vjnano.org.

[92] J. Li, G. J. Burke, D. A. White, C. A. Thompson, and K. J. Webb, "Design of near-field irregular diffractive optical elements using a multi-resolution direct binary search method," *Opt. Lett.*, Vol. 31, Issue 9, pp. 1181-1183, May 2006.

[93] K. J. Webb and M. Yang, "Sub-wavelength imaging with a multi-layer silver film structure," *Opt. Lett.*, Vol. 31, Issue 14, pp. 2130-2132, July 2006.

[94] K. J. Webb and M. Yang, "Generation and control of optical vortices using left-handed materials," *Phys. Rev. E*, Vol. 74, 016601, 2006.

[95] H. Chen and K. J. Webb, "Silicon-on-insulator irregular waveguide mode converters," *Opt. Lett.*, Vol. 31, Issue 14, pp. 2145-2147, July 2006.

[96] Z. Wang, M. A. Webster, A. M. Weiner, and K. J. Webb, "Polarized temporal impulse response for scattering media from third-order frequency correlations of speckle intensity patterns," *J. Opt. Soc. Am. A*, Vol. 23, Issue 12, pp. 3045-3053, Dec. 2006.

[97] K. J. Webb and J. Li, "Resonant waveguide field enhancement in dimers," *Opt. Lett.*, Vol. 31, Issue 22, pp. 3348-3350, Nov. 2006.

[98] S. Lee and K. J. Webb, "A correlated diffusion noise model for the field-effect transistor," *IEEE Trans. Computer Aided Design of Integrated Circuits*, Vol. 26, No. 10, pp. 1782-1789, Oct. 2007.

[99] Z. Wang, A. M. Weiner, and K. J. Webb, "Interferometry from a scattering medium," *Opt. Lett.*, Vol. 32, Issue 14, pp. 2013-2015, July, 2007.

[100] G. Cao, V. Gaind, C. A. Bouman, and K. J. Webb, "Localization of an absorbing inhomogeneity in a scattering medium in a statistical framework," *Opt. Lett.*, Vol. 32 No. 20, pp. 3026-3028, Oct. 2007.

[101] K. J. Webb and L. Thylén, "A perfect lens material condition with a material having adjacent absorptive and gain resonances," *Opt. Lett.*, Vol. 33, No. 7, pp. 747-749, Apr. 2008.

[102] J. Li and K. J. Webb, "The influence of granularity in a negative refractive index lens," *Phys. Rev. A*, Vol. 78, pp. 015803 (1-4), 2008.

[103] K. J. Webb and A. Ludwig, "A semiconductor quantum dot mixture as a lossless negative dielectric constant optical material," *Phys. Rev. B*, Vol. 78, pp. 153303 (1-4), 2008.

[104] Shivanand, H. Liu, and K. J. Webb, "Imaging performance of an isotropic negative dielectric constant slab," *Opt. Lett.*, Vol. 33, No. 21, pp. 2562-2564, Nov. 2008.

[105] H. Liu, Shivanand, and K. J. Webb, "Imaging properties of a planar uniaxial slab," *Opt. Lett.*, Vol. 33, No. 21, pp. 2568-2570, Nov. 2008.

[106] H. Liu, Shivanand, and K. J. Webb, "Optical circuits from anisotropic films," *Phys. Rev. B*, Vol. 79, No. 9, pp. 094203, Mar. 2009.

[107] H. Liu, Shivanand, and K. J. Webb, "Subwavelength imaging with non-magnetic anisotropic bilayers," '*Opt. Lett.*, Vol. 34, No. 14, pp. 2243-2245, July 2009.

[108] V. Gaind, K. J. Webb, S. Kularatne, and C. A. Bouman, "Towards *in vivo* imaging of intramolecular fluorescence resonance energy transfer parameters," *J. Opt. Soc. Am. A*, Vol. 26, No. 8, pp. 1805-1813, Aug. 2009. Highlighted in OSA Spotlight on Optics.

[109] G. Cao, C. A. Bouman, and K. J. Webb, "Non-iterative MAP reconstruction using sparse matrix representations," *IEEE Trans. Image Proc.* , Vol. 18, No. 9, pp. 2085-2099, Sept. 2009.

[110] J. Li and K. J. Webb, "Terahertz field enhancement in doped semiconductor slot cavities," *J. Appl. Phys.* (to appear).

Pending Journal Publications (Under Review, Revision, Preparation):

[111] Z. Wang, A. M. Weiner, and K. J. Webb, "Coherent incident field information from speckle correlations over source position with thick random scattering media."

[112] K. J. Webb and Shivanand, "Negative electromagnetic field energy in dispersive materials."

[113] E. R. Statz, K-H. Lin, K. A. Nelson, M. Yang, and K. J. Webb, "Direct measurement of THz electric fields within a frequency dependent TM mode converter," *Opt. Lett.*

[114] V. Gaind, S. Kularatne, P. S. Low, and K. J. Webb, "Deep tissue imaging of intramolecular fluorescence resonance energy transfer parameters," *Opt. Lett.*

[115] A. Ludwig and K. J. Webb, "On the accuracy of effective medium parameter extraction procedures for optical metamaterials," *Phys. Rev. B.*

[116] H. Liu and K. J. Webb, "An anisotropic metamaterial leaky waveguide," *Phys. Rev. B.*

[117] H. Liu and K. J. Webb, "Approximate Green's function for a uniaxially anisotropic slab," *Opt. Lett.*

Conference Proceedings and Presentations:

[1] K. J. Webb, E. G. Farr and R. Mittra, "Dielectric waveguide filters for millimeter waves," Digest of the fifth annual *Electromagnetics, Propagation and Communication Affiliates Workshop*, p. 9, University of Illinois, April 7,8 1983.

[2] E. G. Farr, K. J. Webb and R. Mittra, "Studies in fin-line antenna design for phased array applications," Digest of the sixth annual *Electromagnetics, Propagation and Communication Affiliates Workshop*, p. 8, University of Illinois, April 5,6 1984.

[3] K. J. Webb and R. Mittra, "An overview of the spectral domain analysis of fin-line discontinuities using the method of moments," pp. 64-66, *Proc. IEEE Antennas and Propagation and Microwave Theory and Techniques Benjamin Franklin Symposium on Advances in Antenna and Microwave Technology*, Philadelphia, PA, May 8, 1985.

[4] K. J. Webb and R. Mittra, "Conjugate gradient iterative solution of an integral equation with a small number of Green's function terms: the fin-line discontinuity problem," *Digest of 1985 North American Radio Science (URSI) Meeting*, p. 161, June 17-21, Vancouver, Canada.

[5] K. J. Webb and R. Mittra, "A variational solution of the fin-line discontinuity problem," pp. 311-316, *Proc. European Microwave Conf.*, Paris, France, September 1985.

[6] K. J. Webb and R. Mittra, "Numerical solution of planar integrated circuit discontinuities with unknowns in the plane of the metalization," Digest of 1986 *North American Radio Science (URSI) Meeting*, p. 172, June 9-13, Philadelphia, PA.

[7] C. Clark, E. Chauchard, K. Webb, K. Zaki, C. Lee, H. Hung and H. Huang, "Generation of CW microwaves by an optoelectronic technique," pp. 605-608, *Proc. 11th Int. Conference on Infrared and Millimeter Waves*, October 20-24, 1986, Tirrenia-Pisa, Italy.

[8] K. J. Webb, L. Carin, and Q. Xu, "Numerical analysis of planar high frequency integrated circuit geometries," pp. C26-C30, Digest of the *IEEE workshop on Electromagnetic Field Computation*, October 20-21, 1986, Schenectady, NY.

[9] C. J. Clark, E. A. Chauchard, K. J. Webb, K. Zaki, C. H. Lee, P. Polak-Dingels, H. A. Hung, H. C. Huang, "A new optoelectronic microwave source," Digest of the *Topical Meeting on Picosecond Electronics and Optoelectronics*, pp. 176-178, January 14-16, 1987, Incline Village, Nevada.

[10] C. J. Clark, E. A. Chauchard, K. J. Webb, K. Zaki, C. H. Lee, P. Polak-Dingels, H. Hung, H. Huang, "Monolithic microwave and millimeter-wave phased array applications of a new optoelectronic source," pp. 74-76, *Proc. Antennas and Propagation and Microwave Theory and Techniques Benjamin Franklin Symposium on Advances in Antenna and Microwave Technology*, Cherry Hill, NJ, March 21, 1987.

[11] L. Carin, K. J. Webb, and Q. Xu, "A theoretical study of cross-talk associated with high speed digital integrated circuits," pp. 81-84, *Proc. Antennas and Propagation and Microwave Theory and Techniques Benjamin Franklin Symposium on Advances in Antenna and Microwave Technology*, Cherry Hill, NJ, March 21, 1987.

[12] L. Carin, Q. Xu, K. J. Webb, and J. McClintock, "Analysis of VLSI interconnect structures," pp. 625-628, *Proc. 1987 IEEE Microwave Theory and Techniques Society International Microwave Symposium*, Las Vegas, NV, June 9-11, 1987.

[13] Q. Xu, K. J. Webb, and R. Mittra, "Modal analysis of shielded microstrip discontinuities," Digest of *North American Radio Science (URSI) Meeting*, p. 29, Blacksburg, VA, June 15-19, 1987.

[14] G. W. Slade, L. Carin. Q. Xu, and K. J. Webb, "Experimental results for a W-band leaky-wave finline antenna," *Digest of North American Radio Science (URSI) Meeting*, p. 154, Blacksburg, VA, June 15-19, 1987.

[15] P. Grounds and K. J. Webb, "Analysis of a finite frequency selective surface," Digest of *North American Radio Science (URSI) Meeting*, p. 254, Blacksburg, VA, June 15-19, 1987.

[16] H.A. Hung, T. Smith, H.C. Huang, P. Polak-Dingels, K. J. Webb, and C.H. Lee, "Optical electronic characterization of monolithic millimeter-wave integrated circuits," *Proc. 12th Int. Conference on Infrared and Millimeter Waves*, pp. 87-88, December 14-18, 1987, Orlando, FL.

[17] D. Butler, E.A. Chauchard, K. J. Webb, K.A. Zaki, C.H. Lee, P. Polak-Dingels, H.A. Hung, and H.C. Huang, "A new optoelectronic continuous wave millimeter-wave source," *Proc. 12th Int. Conference on Infrared and Millimeter Waves*, pp. 140-141, December 14-18, 1987, Orlando, FL.

[18] P. Polak-Dingels, H.A. Hung, T. Smith, H.C. Huang, K. J. Webb, and C.H. Lee, "On-wafer characterization of monolithic millimeter-wave integrated circuits by a picosecond optical electronic technique," *Proc. of IEEE Microwave Theory and Techniques Society International Microwave Symposium*, pp. 237-240, New York, NY, May 25-27, 1988.

[19] P. W. Grounds and K. J. Webb, "Numerical analysis of finite frequency selective surfaces," *Digest of the IEEE Antennas and Propagation Society (AP-S) Symposium*, pp. 746-749, Syracuse, NY, June 1988.

[20] K. J. Webb, P. W. Grounds, and R. Mittra, "Aspects of convergence in the spectral domain formulation of EM problems," *Digest of the URSI Symposium*, p. 284, Syracuse, NY, June 1988.

[21] W. A. Huting, J. A. Krill, and K. J. Webb, "New developments in circular overmoded waveguide," *Digest of the North American Radio Science (URSI) Meeting*, p. 202, Syracuse, NY June 1988.

[22] P. Polak-Dingels, H. A. Hung, K. J. Webb, T. Smith, H. C. Huang, and C. H. Lee, "An optoelectronic technique for S-parameter measurements of millimeter-wave monolithic integrated circuits," *Digest of the 13th Conference on Infrared and Millimeter Waves*, pp. 69-70, Dec. 1988, Honolulu, Hawaii.

[23] L. Carin and K. J. Webb, "Hybrid mode analysis of multi-layered microstrip," *Digest of IEEE Computational Electromagnetics Conference*, p. 75, Washington, DC, Dec. 12-14, 1988.

[24] G. W. Slade and K. J. Webb, "A vectorial finite element analysis for integrated structures," *Digest of IEEE Computational Electromagnetics Conference*, p. 136, Washington, DC, Dec. 12-14 1988.

[25] W. A. Huting and K. J. Webb, "Numerical solution of the waveguide transition problem," *Digest of IEEE Computational Electromagnetics Conference*, p. 155, Washington, DC, Dec. 12-14, 1988.

[26] E. Chauchard, G. Treacy, K. Webb, C. Lee, H. Hung, H. Huang, and P. Polak-Dingels, "Comparison of electro-optic and photoconductive sampling using a 28 GHz monolithic amplifier," *Digest of the IEEE Picosecond Electronics and Optoelectronics Conference*, pp. 75-77, March 8-10, 1989, Salt Lake City, Utah.

[27] H. A. Hung, T. T. Lee, P. Polak-Dingels, E. Chauchard, K. J. Webb, C. H. Lee, and H. C. Huang, "Characterization of GaAs monolithic circuits by optical techniques," *Digest of Society of Photo-Instrumentation Engineers Meeting on Optical Technology for Microwave Applications 4*, vol. 1102, pp. 98-106, Mar. 28-29, 1989, Orlando, FL.

[28] K. J. Webb, *(Invited Speaker)*, "On-wafer optoelectronic characterization of MMIC's," *page published handout at IEEE Electro Conference*, New York, Apr. 11-13, 1989.

[29] K. J. Webb, *(Invited Speaker)*, E. A. Chauchard, P. Polak-Dingels, C. H. Lee, H. Hung, and H. Huang, "A time-domain network analyzer which uses optoelectronic techniques," *Digest of IEEE Microwave Theory and Techniques Society International Microwave Symposium*, pp. 217-220, Long Beach, CA, Jun. 13-15, 1989.

[30] A. Caroglanian and K. J. Webb, "Curved and planar frequency selective surfaces with arbitrary illumination," *Digest of IEEE Antennas and Propagation Society Meeting*, pp. 1060-1063, San Jose, CA Jun. 26-30, 1989.

[31] G. W. Slade, L. Carin and K. J. Webb, "Effects of conductor thickness on the characteristics of multiconductor microstrip," *Digest of Progress of Electromagnetics Research Symposium (PIERS)*, p. 247,248 Boston, MA, Jul. 25-26, 1989.

[32] L. Carin, G. W. Slade, and K. J. Webb, "Modal transition phenomena in shielded microstrip with anisotropic substrates," *Digest of 1990 IEEE Microwave Theory and Techniques Society Symposium*, pp. 677-680, Dallas TX, May 8-10.

[33] A. Caroglanian and K. J. Webb, "Application of the infinite FSS spectral domain method in solving finite planar FSS problems with arbitrary illumination," *Digest of 1990 IEEE Antennas and Propagation Society Symposium*, p. 112, Dallas TX, May 7-11.

[34] G. W. Slade, L. Carin, and K. J. Webb, "Mode transitions in dual microstrip on sapphire and Epsilam-10 substrates," *Digest of 1990 North American Radio Science (URSI) Meeting*, p. 228, Dallas TX, May 7-11.

[35] G. W. Slade and K. J. Webb, "Computation of microwave circuit parameters using a vector finite element analysis," *IEEE Computational Electromagnetics Conference*, Toronto, Oct. 22-24, 1990, p. DB-9.

[36] S. S. Patrick and K. J. Webb, "A vectorial finite difference method for dielectric waveguides based upon a variational approach," *IEEE Computational Electromagnetics Conference*, Toronto, Oct. 22-24, 1990, p. PA-10.

[37] K. J. Webb, "Interconnect modeling," presented at the *Semiconductor Research Corporation (SRC) TRC on IC Package Design, Analysis and Simulation*, Stanford University, May 17, 1991.

[38] G. W. Slade and K. J. Webb, "Numerical aspects of computing circuit parameters of multiconductor transmission lines on substrates with tensor permittivities using a vector finite element method," *Proceedings of Progress in Electromagnetic Research Symposium*, p. 307, Boston, MA, July 1-5, 1991.

[39] G. W. Slade and K. J. Webb, "Calculation of attenuation in waveguides with general cross-sections using the finite element method," *Digest of the North American Radio Science Meeting*, p. 397, London, Ontario, Canada, June 24-28, 1991.

[40] G. W. Slade, L. Carin and K. J. Webb, "Dispersion and circuit properties of striplines on anisotropic substrates: numerical and experimental results," *Digest of the North American Radio Science Meeting*, p. 398, London, Ontario, Canada, June 24-28, 1991.

[41] K. J. Webb, "Modeling interconnects for the twenty-first century," Semiconductor Research Corporation *TRC on Package Design, Analysis and Simulation Systems*, University of Arizona, Tucson, May 13, 1992 (2 pages).

[42] D. B. Meade, G. W. Slade, A. F. Peterson, and K. J. Webb, "Analytic evaluation of the accuracy of several conformable local absorbing boundary conditions," *Digest of 1992 IEEE Antennas and Propagation Symposium Digest*, pp. 540-543, July 18-25, Chicago, IL.

[43] G. W. Slade and K. J. Webb, "Waveguide radiation boundary condition for three dimensional finite element models," *Digest of the 1992 IEEE Conference on Electromagnetic Field Computation*, p. MOD2, Aug. 3-5, Claremont, CA.

[44] D. L. Goeckel, K. J. Webb, N. C. Gallagher, T. A. Gosink, and J. J. Kelley, "Microwave and optical measurements and parallel computation for the determination of sea ice characteristics," *Proceedings of the 8th International Symposium on Okhotsk Sea and Sea Ice*, Mombetsu, Hokkaido, Japan, Jan. 31 - Feb. 5, 1993, P-29, pp. 533-537.

[45] D. L. Goeckel, K. J. Webb, and N. C. Gallagher, "Inverse scattering computations for stratified media problems using massively parallel computers," *Digest of 1993 IEEE Antennas and Propagation Symposium*, pp. 524-427, Ann Arbor, June 27 - July 2, 1993.

[46] D. B. Meade, A. F. Peterson, and K. J. Webb, "Radiation boundary conditions for the vector Helmholtz equation," *Digest of North American Radio Science (URSI) Meeting*, p. 255, Ann Arbor, June 27-July 2, 1993.

[47] G. W. Slade and K. J. Webb, "Computing port parameters and eigenmodes for structures loaded with general lossy materials," *Digest of North American Radio Science (URSI) Meeting*, p. 183, Ann Arbor, June 27-July 2, 1993.

[48] L. Carin, G. W. Slade, K. J. Webb, and A. A. Oliner, "Packaged printed transmission lines: modal phenomena and relation to leakage," *Digest of IEEE Microwave Theory and Techniques Symposium*, pp. 1195-1198, Atlanta, June 14-18, 1993.

[49] K. J. Webb *Invited Speaker*, 1993 *IEEE Microwave Theory and Techniques Symp. Workshop on Combined Self-Consistent Particle Transport Simulation and Full Wave Dynamic Field Simulation for Monolithic Solid State Device and Circuit Calculations*, "Electromagnetic interconnect and packaging modeling," and "Integrated resonant tunneling diodes," Atlanta, June 18, 1993.

[50] K. J. Webb, G. W. Slade, Y. Liu, and M. Gerhold, "Field modeling of interconnects," *Digest of Semiconductor Research Corporation TECHCON*, pp. 170-172, Sept. 28-30, 1993, Atlanta.

[51] G. W. Slade, M. Gerhold, Y. Liu, and K. J. Webb, "Field modeling of interconnects - poster," *Semiconductor Research Corporation TECHCON*, Sept. 28-30, 1993, Atlanta.

[52] R. Lyle, M. Aquilina, A. Kuver, M. Austin, K. Webb, M. Melloch, and D. Nolte, "Fabrication and testing of novel hybrid Fabry-Perot surface-normal optical modulators," *Australian Compound Optoelectronic Materials and Devices Conference*, 6-8 Dec. 1993, Australian National University, Canberra.

[53] R. Lyle, R. Egan, A. Clark, A. Kuver, M. Austin, and K. Webb, "Design and fabrication of MOCVD-grown III-V blue light modulators," *IREE 18th Australian Conference on Optical Fibre Technology*, Nov. 28 - Dec. 1, 1993, Wollongong, NSW.

[54] T. Haq, K. J. Webb, and N. C. Gallagher, "Aperiodic gratings in waveguides," *Optical Society of America Annual Meeting*, June 6-8, 1994, Rochester, NY.

[55] T. Haq, K. J. Webb, and N. C. Gallagher, "Scattering optimization synthesis of compact mode converters for waveguides," *Digest of IEEE Antennas and Propagation Symposium*, pp. 1668-1671, Seattle, WA, June 19-24, 1994.

[56] B. Lichtenberg, Y. Liu, J. Reynolds, K. Webb, and D. Meade, "Applications and performance of a local conformal radiation boundary condition," *Digest of IEEE Antennas and Propagation Symposium*, pp. 406-409, Seattle, WA, June 19-24, 1994.

[57] D. B. Meade, Y. Liu, B. Lichtenberg, and K. J. Webb, "A comparison of radiation boundary condition strategies for Helmholtz equations," *Proceedings of IMACS Conference* (4 pages), Atlanta, GA, July 1994.

[58] B. Lichtenberg, N. Gallagher, and K. Webb, *(Invited Speaker)* "Finite element simulation of wavelength scale optical devices," Presented at the *Optical Society of America Annual Meeting*, Dallas, TX, Oct. 2-7, 1994.

[59] J. Reynolds, S. Yeung, A. Przadka, J. Walters, K. Webb, and N. Gallagher, "Frequency domain detection and localization of heterogeneities in tissue-like media," Presented at *Optical Society of America Annual Meeting*, Dallas, TX, Oct. 2-7, 1994.

[60] J. S. Reynolds and K. J. Webb, "Optical diffusion imaging," *First Purdue Workshop on Medical Imaging*, Aug. 30, 1994.

[61] T. Haq, K. J. Webb *(Invited Speaker)*, and N. C. Gallagher, "Aperiodic grating for TE_{02} to TE_{01} conversion in a highly overmoded circular waveguide," *Digest of the Optical Society of America Topical Meeting on Signal Recovery and Synthesis*, pp. 31-33, Mar. 12-17, 1995, Salt Lake City, Utah.

[62] D. B. Janes, V. R. Kolagunta, G. Chen, and K. J. Webb, "Fabrication of vertical three-terminal structures in semiconductor heterostructure quantum wells using a novel sidewall gating technique," Presented at *the American Physical Society Meeting*, March 1995, San Jose, CA.

[63] T. Haq, K. J. Webb, and N. C. Gallagher, "Aperiodic grating structure for TE_{11} to TM_{11} mode conversion," Presented at *Society of Photo-Instrumentation Engineers Meeting*, Chicago, IL, May 18-19, 1995.

[64] J. S. Reynolds, M. Erickson, K. J. Webb, and N. C. Gallagher, "Inexpensive instrumentation for frequency domain detection and localization of heterogeneities utilizing diffusing optical waves," Presented at *Society of Photo-Instrumentation Engineers Meeting*, Chicago, IL, May 18-19, 1995.

[65] C. A. Thompson, J. S. Reynolds, F. P. LaPlant, D. Ben-Amotz, and K. J. Webb, "Raman measurements in Intralipid," Presented at *Society of Photo-Instrumentation Engineers Meeting*, Chicago, IL, May 18-19, 1995.

[66] B. Lichtenberg, K. J. Webb, and N. C. Gallagher, "Finite element simulation of wavelength scale optical elements," Presented at *Society of Photo-Instrumentation Engineers Meeting*, Chicago, IL, May 18-19, 1995.

[67] T. Haq, K. J. Webb, and N. C. Gallagher, "TE_{11} to TM_{11} compact mode converter for circular waveguide," *Digest of IEEE Microwave Theory and Techniques Society International Microwave Symposium*, pp. 1613-1615, May 15-19, 1995, Orlando, FL.

[68] J. S. Reynolds, M. G. Erickson, K. J. Webb, and N. C. Gallagher, "Optical diffusion imaging with single and multiple sources," *Digest of OSA/IEEE/APS Conf. on Lasers and Electro-Optics*, p. 298, May 22-26, 1995, Baltimore, MD.

[69] C. A. Thompson, J. S. Reynolds, F. P. LaPlant, D. Ben-Amotz, and K. J. Webb, "Raman spectroscopic detection of inhomogeneities embedded within a scattering medium," *Digest of OSA/IEEE/APS Conf. on Lasers and Electro-Optics*, p. 96, May 22-26, 1995, Baltimore, MD.

[70] T. Haq, K. J. Webb, and N. C. Gallagher, "Application of the scattering optimization method for the design of circular waveguide mode converters," *Digest of IEEE Antennas and Propagation Symposium and International Radio Science Meeting*, pp. 718-721, June 18-23, 1995, Newport Beach, CA.

[71] N. Kapadia, B. Lichtenberg, J. A. B. Fortes, J. L. Gray, H. J. Siegel, and K. J. Webb *(Invited Speaker)*, "Parallel solution of unstructured sparse finite element equations," *Digest of IEEE Antennas and Propagation Symposium and International Radio Science Meeting*, pp. 1330-1333, June 18-23, 1995, Newport Beach, CA.

[72] Y. Liu and K. J. Webb, "Detection of the interior resonance errors of surface integral boundary conditions for scattering problems," *Digest of IEEE Antennas and Propagation Symposium and International Radio Science Meeting*, pp. 1029-1032, June 18-23, 1995, Newport Beach, CA.

[73] Y. Liu and K. J. Webb, "An exact hybrid numerical boundary condition for electromagnetic scattering problems," *Digest of IEEE Antennas and Propagation Symposium and International Radio Science Meeting*, pp. 1480-1483, June 18-23, 1995, Newport Beach, CA.

[74] J. S. Reynolds, M. G. Erickson, and K. J. Webb, "Imaging in highly scattering media with RF-modulated optics," Presented at *Workshop on Applications of Radio Science*, Canberra, Australia, June 25-27, 1995.

[75] T. Haq, K. J. Webb, and N. C. Gallagher, "Optimization-based waveguide mode conversion," Presented at *Workshop on Applications of Radio Science*, Canberra, Australia, June 25-27, 1995.

[76] K-C. Huang, V. Kolagunta, A. Przadka, H. Ueng, N-P. Chen, D. B. Janes, K. J. Webb, M. R. Melloch, and J. Woodall, "High-speed applications of quantum electronic devices," Presented at *Workshop on Applications of Radio Science*, Canberra, Australia, June 25-27,1995.

[77] V. Kolagunta, G. Chen, D. B. Janes, K. J. Webb, and M. R. Melloch, "Vertical three-terminal structures in semiconductor heterostructure quantum wells using a novel sidewall gating technique," *Proc. 8th Int. Conf. on Superlattices, Microstructures and Microdevices*, p. I-1 (3 pages), Cincinnati, Aug. 20-25, 1995.

[78] K-C. Huang, D. B. Janes, K. J. Webb, and M. R. Melloch, "A study of physically-based equivalent circuit model of resonant tunneling diodes," *Proc. 8th Int. Conf. on Superlattices, Microstructures and Microdevices*, p. XVII-2 (2 pages), Cincinnati, Aug. 20-25, 1995.

[79] E. B. Cohen, J. N. Shenoy, D. B. Janes, K. J. Webb, J. M. Woodall, and M. R. Melloch, "A 2 DEG/low-temperature-grown GaAs dual channel heterostructure transistor," *Proc. 8th Int. Conf. on Superlattices, Microstructures and Microdevices*, p. I-6 (3 pages), Cincinnati, Aug. 20-25, 1995.

[80] J. S. Reynolds, M. G. Erickson, and K. J. Webb, "Optical diffusion: scanning, source configuration, boundary conditions, and resolution," Presented at *Optical Society of America Annual Meeting*, Portland, OR, Sept. 10-15, 1995.

[81] K. J. Webb, Y. Liu, B. Lichtenberg, T. Haq, and N. C. Gallagher, "Optical applications of the finite element method," Presented at *Optical Society of America Annual Meeting*, Portland, OR, Sept. 10-15, 1995.

[82] C. A. Thompson, K. J. Webb, and A. M. Weiner, "Speckle characterization of diffuse media," Presented at *Optical Society of America Annual Meeting*, Portland, OR, Sept. 10-15, 1995.

[83] D. B. Janes, V. R. Kolagunta, G. Chen, K. J. Webb, and M. R. Melloch, "Resonant tunneling devices with direct sidewall gates," Digest of *The Electrochemical Society 3rd. Int. Symp. on Quantum Confinement*, Chicago, IL, Oct. 8-13, 1995 (2 pages).

[84] V. Kolugunta, D. B. Janes, G. Chen, K. J. Webb, and M. R. Melloch, "Side-gated resonant tunneling transistors," *International Semiconductor Device Research Symposium*, Charlottesville, VA, Dec. 6-8, 1995.

[85] J. S. Reynolds, F. P. LaPlant, C. A. Thompson, K. J. Webb, and D. Ben-Amotz, "Raman measurements of concentrations in scattering media," *Optical Society of America Topical Meeting on Biomedical Optical Spectroscopy and Diagnostics*, March 18-22, 1996, Orlando.

[86] A. Przadka, H. Ueng, N. Chen, K. Webb, D. Janes, and M. Melloch, "Broadband microwave noise characterization of resonant tunneling diodes," *American Physical Society Meeting*, March 1996, St. Louis, MO.

[87] V. Kolagunta, G. Chen, D. Janes, K. Webb, and M. Melloch, "Sidewall gated resonant tunneling diodes for low-dimensional device studies," *American Physical Society Meeting*, March 1996, St. Louis, MO.

[88] E. Cohen, D. Janes, K. Webb, M. Melloch, D. McInturff, and J. Woodall, "Dual-channel double-gated real space transfer device," *American Physical Society Meeting*, March 1996, St. Louis, MO.

[89] V. R. Kolagunta, G. L. Chen, D. B. Janes, K. J. Webb, and M. R. Melloch, "Three terminal resonant tunneling devices with direct sidewall gates," *Third International Symposium on Nanostructures and Mesoscopic Systems*, Santa Fe, NM, May 19-24, 1996.

[90] A. Przadka, H. Ueng, K. J. Webb, D. B. Janes, and M. R. Melloch, "Microwave measurements of the intrinsic shot noise in a double barrier resonant tunneling diode," *Third International Symposium on Nanostructures and Mesoscopic Systems*, Santa Fe, NM, May 19-24, 1996.

[91] T. Haq and K. J. Webb, "Smooth surface discretization for the design of waveguide mode converters," Presented at *IEEE Antennas and Propagation and Radio Science Symposium*, July 21-26, 1996, Baltimore, MD.

[92] C. A. Thompson, K. J. Webb, and A. M. Weiner, "Imaging of inhomogeneities within scattering media using laser speckle," *Optical Society of America Annual Meeting*, Oct. 20-24, 1996, Rochester, NY.

[93] T. Haq, K. J. Webb *(Invited Speaker)*, and N. C. Gallagher, "Computer generated microwave holograms as phase shifters," *SPIE Photonics West*, San Jose, CA, Feb. 8-14, 1997. Oral paper withdrawn, but paper published in SPIE Vol. 3010-51, Diffractive and Holographic Device Technologies and Applications IV, 1997.

[94] A. Przadka, K. J. Webb, D. B. Janes, and H. C. Liu, "Suppressed noise in resonant tunneling diodes at microwave frequencies," *American Physical Society March Meeting*, Kansas City, MO, Mar. 17-21, 1997.

[95] K. J. Webb, E. B. Cohen, D. B. Janes, M. Melloch, and C. Wilshere, "Real space transfer between two semiconductor channels connected in parallel," *American Physical Society March Meeting*, Kansas City, MO, Mar. 17-21, 1997.

[96] J. C. Ye, K. J. Webb, T. J. Downar, and R. P. Millane, "Weighted cost-function reconstruction in optical diffusion imaging," *Proc. Society of Photo-Instrumentation Engineers*

Symp. on Signal and Image Processing and Mathematical Imaging, Vol. 3171, pp. 118-127, San Diego, CA July 27 - Aug. 1, 1997.

[97] E. B. Cohen, K. J. Webb, D. B. Janes, and M. R. Melloch, "Demonstration of a velocity modulated transistor," *Device Research Conference*, Fort Collins, CO, June 23-25, 1997.

[98] V. Kolagunta, H. J. Ueng, D. B. Janes, K. J. Webb, D. I. McInturff, M. R. Melloch, and J. M. Woodall, "Study of low-temperature grown GaAs cap layers in device applications," *39th Materials Research Conference*, Fort Collins, CO, June 25-27, 1997.

[99] A. M. Weiner and K. J. Webb *(Invited Presentation)*, "Optical Speckle Imaging," *Optical Society of America Annual Meeting*, Oct. 12-17, 1997, Long Beach, CA.

[100] J. C. Ye, K. J. Webb, R. Millane, and T. J. Downar, "A weighted distorted born iterative method for optical diffusion imaging," *Optical Soc. Am. Annual Meeting*, Oct. 12-17, 1997, Long Beach, CA.

[101] M. G. Erickson, J. S. Reynolds, and K. J. Webb, "Numerical evaluation of interfering photon density waves for imaging in highly scattering media," *Optical Society of America Annual Meeting*, Oct. 12-17, 1997, Long Beach, CA.

[102] J. C. Ye, K. J. Webb, R. P. Millane, and T. J. Downar, "Optimal parameter updating for optical imaging," *IEEE Int. Conf. on Image Processing*, Chicago, Oct. 4-7, 1998, pp. 390-393.

[103] J. C. Ye, R. P. Millane, K. J. Webb, and T. J. Downar, "The effect of the $\bigtriangledown D$ term in optical diffusion imaging," *Optical Society of America Signal Recovery and Synthesis Topical Meeting*, Kona, Hawaii, June 1998.

[104] K. J. Webb *(Invited Speaker)*, "Optimized mesoscopic optical diffractive elements," *Optical Society of America Annual Meeting*, Baltimore, MD, Oct. 1998.

[105] J. C. Ye, K. J. Webb, R. P. Millane, and T. J. Downar, "Unified parameter estimation algorithm for diffusion imaging using the optimal search," *Optical Society of America Annual Meeting*, Baltimore, MD, Oct. 1998.

[106] J. C. Ye, C. A. Bouman, and K. J. Webb, "A localized relaxation algorithm for Bayesian diffusion tomography using the generalized Gaussian Markov random field prior model," *Optical Society of America Annual Meeting*, Baltimore, MD, Oct. 1998.

[107] E. B. Cohen, D. B. Janes, K. J. Webb, and M. R. Melloch, "A technique for determination of free carrier concentration profiles in backgated heterostructures," *40th. Electronic Materials Conference*, Charlottesville, VA, June 24-26, 1998.

[108] H-J. Ueng, V. R. Kolagunta, D. B. Janes, K. J. Webb, D. T. McInturff, M. R. Melloch, and J. M. Woodall, "Low temperature GaAs-based nonalloyed ohmic contacts as planar injectors for devices," em 40th Electronic Materials Conference, Charlottesville, VA, June 24-26, 1998.

[109] M. Maheswaran, K. J. Webb, and H. J. Siegel "Reducing the synchronization overhead in parallel nonsymmetric Krylov algorithms on MIMD machines," *1998 International Conference on Parallel Processing (ICPP '98)*, co-sponsors: International Association for Computers and Communications and The Ohio State University, pp. 405-413, Minneapolis, MN, Aug. 1998.

[110] J. McKinney, M. Webster, K. J. Webb, and A. M. Weiner, "Characterization of thick scattering media via speckle measurements using a tunable coherence source," *IEEE Conf. on Lasers and Electro-Optics*, Baltimore, MD, May 23-28, 1999.

[111] N. P. Chen, H-J. Ueng, D. B. Janes, K. J. Webb, and M. R. Melloch, "A model for contact resistance of a non-alloyed ohmic contact utilizing low-temperature-grown GaAs," *American Physical Society Meeting*, March 20-29, 1999, Atlanta, GA.

[112] N. P. Chen, D. B. Janes, K. J. Webb, and M. R. Melloch, "Experimentally verified conduction model for a low-resistance non-alloyed ohmic contact utilizing low-temperature-grown GaAs," *Electronic Materials Conference*, June 30-July 2, 1999, University of California, Santa Barbara.

[113] J. C. Ye and K. J. Webb, "Comparative analysis of the variational PDE and Born-type integral equation approaches for optical diffusion tomography," *IEEE Antennas and Propagation Symposium and National Radio Science Meeting*, July 11-16, 1999, Orlando, FL.

[114] J. C. Ye, C. A. Bouman, K. J. Webb and R. P. Millane, "Optical diffusion tomography using iterative coordinate descent optimization in a Bayesian framework," *SPIE Conference on Mathematical Modeling*, *Bayesian Estimation, and Inverse Problems*, Denver, CO, July 1999.

[115] C. A. Bouman, J. C. Ye, K. J. Webb, and R. P. Millane, "Fast Inverse Algorithms for Optical Diffusion Tomography," (invited paper) NSF conference on *DSP for Sampled Coherent Aperture Systems: Challenges, Synergies and Extensions,* Charlottesville, Virginia, July 7-9, 1999.

[116] J. C. Ye, C. A. Bouman, R. P. Millane, and K. J. Webb, "Nonlinear multigrid optimization for Bayesian diffusion tomography," *IEEE International Conference on Image Processing*, October 25-28, 1999, Kobe, Japan.

[117] K. J. Webb *(Invited Speaker)*, J. C. Ye, C. A. Bouman, and R. P. Millane, "Optimization-based optical diffusion tomography," *Optical Society of America Annual Meeting*, Sept. 26 - Oct. 1, 1999, Santa Clara, CA.

[118] M. A. Webster, J. D. McKinney, A. M. Weiner and K. J. Webb, "Coherence requirements for laser speckle imaging in diffuse media," *Optical Society of America Annual Meeting*, Sept. 26 - Oct. 1, 1999, Santa Clara, CA.

[119] K. J. Webb, S. Lee, and J. Lee, "Gallium nitride broadband distributed power amplifier," *1st Gallium Nitride Electronic Device Workshop*, Cornell Univ., Ithaca, NY, August 16-17, 1999.

[120] K. J. Webb, J. C. Ye, C. A. Bouman, and R. P. Millane, "Nonlinear multigrid optimization for soft tissue imaging using a Bayesian optical diffusion approach," *NIH Workshop on In Vivo Optical Imaging*, Bethesda, MD, September 16-17, 1999.

[121] R. P. Millane, J. C. Ye, C. A. Bouman, and K. J. Webb, "Efficient algorithms for Bayesian optical diffusion imaging," *Imaging and Vision Computing '99*, Aug. 30-31, 1999, The University of Canterbury, Christchurch, New Zealand.

[122] J. C. Ye, C. A. Bouman, R. P. Millane, and K. J. Webb *(Invited Speaker)*, "Nonlinear multigrid optical diffusion tomography," *OSA Biomedical Topical Meetings: Workshop on Diffuse Optical Tomography*, April 2-5, 2000, Miami, FL.

[123] M. A. Webster, J. D. McKinney, A. M. Weiner, and K. J. Webb, "Using laser speckle statistics and a variable coherence source for imaging in diffuse media," *OSA Biomedical Topical Meetings*, April 2-5, 2000, Miami, FL.

[124] M. A. Webster, J. D. McKinney, A. M. Weiner, and K. J. Webb, "Obtaining photon transit time distribution of diffuse media using laser speckle statistics for imaging applications," *IEEE Conference on Lasers and Electro-Optics*, May 5 - 12, 2000, San Francisco, CA.

[125] S. Lee, B. Green, K. Chu, K. J. Webb, and L. F. Eastman, "Demonstration of a high efficiency nonuniform monolithic gallium nitride distributed amplifier," *IEEE International Microwave Symposium*, June 11-16, 2000, Boston, MA.

[126] R. P. Millane, C. A. Bouman, K. J. Webb, and J. C. Ye, "Multigrid Bayesian methods for optical diffusion tomography," *SPIE International Symposium on Optical Science and Technology (Image Reconstruction and Incomplete Data)*, July 30 - August 4, 2000, San Diego, CA.

[127] K. J. Webb, J. C. Ye, C. A. Bouman, and R. P. Millane, "Optical diffusion imaging using nonlinear multigrid optimization," *European Conference on Lasers and Electro-Optics*, September 10-15, 2000, Nice, France.

[128] K. J. Webb, M. A. Webster, J. D. McKinney, and A. M. Weiner, "Variable coherence in determining the scattering parameters of diffuse media using laser speckle," *International Quantum Electronics Conference*, September 10-15, 2000, Nice, France.

[129] L. Yuan, J. A. Cooper, M. R. Melloch, and K. J. Webb, "Design, fabrication, and characterization of the first SiC IMPATT diodes," ONR Microwave Workshop, South Padre Island, TX, October 23 - 25, 2000.

[130] C. A. Bouman, J. C. Ye, K. J. Webb, and R. Millane *(Invited Paper)*, "Nonlinear multigrid optimization with applications to optical diffusion tomography," *34th Annual Conference on Information Sciences and Systems*, March 15-17, 2000, Princeton, NJ.

[131] S. Lee, B. M. Green, J. Lee, K. J. Webb, and L. F. Eastman, "High efficiency GaN cascode-connected HEMT nonuniform distributed amplifier," *Proc. Cornell/IEEE Conference on Advanced Concepts in High Performance Devices,* pp. 79-81, Aug. 2000.

[132] R. P. Millane, C. A. Bouman, K. J. Webb, and J. C. Ye, "Multigrid optimization and application to optical diffusion imaging," *Proc. Image and Vision Computing New Zealand 2000*, M.J. Cree and A. Steyn-Ross (Eds), Waikato University, Hamilton, NZ, 62-67, 2000.

[133] R. P. Millane, C. A. Bouman, K. J. Webb, and J. C. Ye, "Nonlinear multigrid optimization for image reconstruction," *New Zealand Mathematics Colloquium 2000*, Hamilton, NZ, 27-29 Nov. 2000.

[134] B. M. Green, V. Tilak, S. Lee, H. Kim, J. A. Smart, K. J. Webb, J. R. Shealy, and L. F. Eastman, "High power broadband AlGaN/GaN HEMT MMICs on SiC substrates," *IEEE International Microwave Symposium*, Phoenix, AZ, May 20-25, 2001.

[135] J.-W. Lee and K. J. Webb, "A low-loss planar microwave balun with an integrated bias scheme for push-pull amplifiers," *IEEE International Microwave Symposium*, Phoenix, AZ, May 20-25, 2001.

[136] J.-W. Lee, S. Lee and K. J. Webb, "Scalable large-signal device model for high power-density AlGaN/GaN HEMTs on SiC," *IEEE International Microwave Symposium*, Phoenix, AZ, May 20-25, 2001.

[137] K. J. Webb, M.-C. Yang, and J.-H. Li, "Synthesis and performance of irregular field transformation Elements," *IEEE Antennas and Propagation International Symposium and USNC/URSI National Radio Science Meeting*, Boston, MA, July 8-13, 2001.

[138] A. B. Milstein, S. Oh, K. J. Webb, and C. A. Bouman, "Three-dimensional optical diffusion imaging in a Bayesian framework," *IEEE Conference on Lasers and Electo-Optics*, Baltimore, MD, May 6-11, 2001 (CLEO Technical Digest pp. 400-401).

[139] M. A. Webster, K. J. Webb, and A. M. Weiner, "Time-domain response of a diffusive medium from speckle pattern frequency correlations," *Quantum Electronics and Laser Science (QELS) Symp.*, Baltimore, MD, May 6-11, 2001 (Digest pp. 142-143).

[140] K. J. Webb, A. Milstein, S. Oh, C. A. Bouman, and R. P. Millane, "Three-dimensional optical diffusion imaging with detector noise," *CLEO/Europe European Conference on Biomedical Optics*, Munich, Germany, June 18-21, 2001.

[141] K. J. Webb, M. A. Webster, and A. M. Weiner, "Optical diffusion imaging data from speckle pattern frequency correlations," *CLEO/Europe European Conference on Biomedical Optics*, Munich, Germany, June 18-21, 2001.

[142] L. Yuan, M. R. Melloch, J. A. Cooper, and K. J. Webb, "An X-band silicon carbide IMPATT diode," *59th Device Research Conference*, University of Notre Dame, IN, June 25-27, 2001 (Digest pp. 207-208).

[143] J.-W. Lee, S. Lee and K. J. Webb, "Demonstration of push-pull operation of AlGaN/GaN HEMTs on SiC," *59th Device Research Conference*, University of Notre Dame, IN, June 25-27, 2001 (Digest pp. 203-204).

[144] K. J. Webb, M.-C. Yang, and J.-H. Li, "Synthesis of irregular field transformation structures," *Optical Society of America Annual Meeting, Long Beach*, CA, Oct. 14-18, 2001.

[145] S. Oh, A. Milstein, J. S. Reynolds, K. J. Webb, C. A. Bouman and R. P. Millane, "Reconstructing optical diffusion images from multiple modulation frequency measurements," *Optical Society of America Annual Meeting, Long Beach*, CA, Oct. 14-18, 2001.

[146] M. A. Webster, K. J. Webb, and A. M. Weiner, "Frequency dependent correlations of speckle patterns from a scattering medium," *Optical Society of America Annual Meeting, Long Beach*, CA, Oct. 14-18, 2001.

[147] J.-W. Lee and K. J. Webb, "Broadband push-pull microwave power amplifier using AlGaN/GaN HEMTs on SiC," *International Conference on Silicon Carbide and Related Materials*, Tsukuba, Japan, Oct. 28 - Nov. 2, 2001 (Digest pp. 683-684).

[148] L. Yuan, J. A. Cooper, K. J. Webb, and M. R. Melloch, "Demonstration of IMPATT diode oscillators in 4H-SiC," *International Conference on Silicon Carbide and Related Materials*, Tsukuba, Japan, Oct. 28 - Nov. 2, 2001 (Digest pp. 723-724).

[149] S. Oh, A. B. Milstein, R. P. Millane, C. A. Bouman, and K. J. Webb, "Three-dimensional Bayesian optical diffusion tomography with source-detector calibration," *IEEE and Optical Society of America Symposium on Signal Recovery and Synthesis*, Albuquerque, NM, Nov. 5-8, 2001.

[150] M. A. Webster, K. J. Webb, and A. M. Weiner, "Third order speckle intensity correlations for obtaining the temporal response of a diffusely scattering medium," *IEEE and Optical Society of America Symposium on Signal Recovery and Synthesis*, Albuquerque, NM, Nov. 5-8, 2001.

[151] J.-W. Lee, B. M. Green, S. Lee, J. R. Shealy, L. F. Eastman, and K. J. Webb, "Broadband GaN push-pull microwave power amplifiers," *International Semiconductor Device Research Symposium*, Washington, DC, Dec. 5-7, 2001

[152] A. B. Milstein, S. Oh, K. J. Webb, C. A. Bouman, R. P. Millane, "Three-dimensional Bayesian optical diffusion tomography," *SPIE Conference on Optical Biopsy IV*, San Jose California, January 21-23, 2002.

[153] M. Yang and K. J. Webb, "Functionality of optical field transformation in irregular waveguide structures," *IEEE/OSA Conf. Lasers and Electro-Optics*, May 20-24, 2002, Long Beach, CA.

[154] A. B. Milstein, S. Oh, K. J. Webb, C. A. Bouman, and R. P. Millane, "Imaging of fluorescence, absorption, and scattering properties in diffuse media using pump and emission wavelength measurements," Digest of the *IEEE/OSA Conf. Lasers and Electro-Optics*, pp. 558-559, May 20-24, 2002, Long Beach, CA.

[155] M. A. Webster, K. J. Webb, and A. M. Weiner, "Third order speckle intensity frequency correlations for random media characterization," *IEEE/OSA Conf. Lasers and Electro-Optics*, May 20-24, 2002, Long Beach, CA.

[156] A. B. Milstein, S. Oh, K. J. Webb, C. A. Bouman, and R. P. Millane, "Three-dimensional Bayesian optical diffusion tomography with fluorescence," *OSA Biomedical Topical Meetings (Advances in Optical Imaging and Photon Migration)*, April 7-10, Miami Beach, FL.

[157] A. B. Milstein, Q. Zhang, S. Oh, K. J. Webb, C. A. Bouman, R. P. Millane, and D. A. Boas, "Fluorescence imaging in optical diffusion tomography," Digest of *IEEE Int. Symp. on Biomedical Imaging: Macro to Nano*, pp. 58-61, July 7-10, 2002, Washington, DC.

[158] M. Yang and K. J. Webb, "High functionality mode transformers with bandwidth control and mode selectivity," *IEEE Int. Microwave Symp.*, June 2-7, 2002, Seattle WA.

[159] S. Lee, V. Tilak, K. J. Webb and L. F. Eastman, "Intrinsic noise characteristics of AlGaN/GaN HEMTs," *IEEE Int. Microwave Symp.*, June 2-7, 2002, Seattle WA.

[160] J.-W. Lee and K. J. Webb, "Analysis and design of low-loss planar microwave baluns having three symmetric coupled lines," *IEEE Int. Microwave Symp.*, June 2-7, 2002, Seattle WA.

[161] M. Yang and K. J. Webb, "Synthesis of irregular waveguide field transformation elements using a multi-resolution algorithm," *IEEE Int. Antennas and Propagation and Radio Science (URSI) Symp.*, San Antonio, TX, June 16-21, 2002.

[162] J. Li and K. J. Webb, "Synthesis of multilayer aperiodic scattering structures," *IEEE Int. Antennas and Propagation and Radio Science (URSI) Symp.*, San Antonio, TX, June 16-21, 2002.

[163] S. Lee, K. J. Webb, V. Tilak, and L. F. Eastman, "Intrinsic AlGaN/GaN HEMT noise from a measurement-based equivalent circuit model," 2002 International Device Research Conference, Santa Barbara, CA, June 24-26, 2002 (*Late News Paper*).

[164] K. J. Webb, A. B. Milstein, M. D. Kennedy, K. N. Jallad, C. A. Bouman, and P. S. Low, "Folate conjugate fluorescence labeling for tumor localization," National Institutes of Health Workshop on Optical Imaging, Bethesda, MD, Sept. 26-27, 2002.

[165] M. Yang, H. Chen, J. Li, and K. J. Webb, "Wavelength-scale rectangular waveguide field transformer realization," *OSA Annual Meeting*, Orlando, FL, Sept. 29 - Oct. 3, 2002.

[166] S. Oh, A. B. Milstein, C. A. Bouman, and K. J. Webb, "Multigrid algorithms for optimization and inverse problems," *SPIE Conference on Computational Imaging*, San Jose, CA, Jan. 22-24, 2003.

[167] M. Yang, J. Li, H. Chen and K. J. Webb, "Near-field functional field transformation structures," *IEEE/OSA Conf. Lasers and Electro-Optics*, Baltimore, MD, June 1-6, 2003.

[168] A. B. Milstein, S. Oh, C. A. Bouman, and K. J. Webb, "Imaging from time-resolved fluorescence in turbid media," *IEEE/OSA Conf. Lasers and Electro-Optics*, Baltimore, MD, June 1-6, 2003.

[169] M. Yang, J. Li, H. Tsai, and K. J. Webb, "Field transformation in irregular waveguides," *American Physical Society Meeting*, March 3-7, 2003, Austin, TX.

[170] M. Yang, J. Li, H. Tsai, and K. J. Webb, "Wavelength-scale functional waveguide mode conversion," a Conference on Lasers and Electro-Optics, Pacific Rim, Taiwan, Dec. 2003.

[171] S. Oh, A. B. Milstein, C. A. Bouman, and K. J. Webb, "Nonlinear multigrid inversion," *2003 IEEE Conference on Image Processing*, Sept. 2003, Barcelona, Spain.

[172] S. Oh, A. B. Milstein, C. A. Bouman, and K. J. Webb, "Adaptive nonlinear multigrid inversion with applications to Bayesian optical diffusion tomography," Proc. IEEE Workshop on Statistical Signal Processing, St. Louis, MO, Sept. 2003.

[173] D. W. Ward, E. Statz, M. Yang, K. A. Nelson, and K. J. Webb *(Invited Speaker)*, "Imaging and waveguide elements with periodic or negative refractive index materials," *Progress in Electromagnetics Research Symp. and DARPA Workshop on Left-Handed Materials*, Honolulu, Oct. 13-16, 2003.

[174] T. D. Gerke, M. A.Webster, A. M. Weiner, and K. J. Webb, "Random and ensemble optical fields from scattering media using frequency-resolved interferometer measurements," *CLEO/IQEC Conference*, San Francisco, California, May 16-21, 2004.

[175] Z. Wang, M. A. Webster, K. J. Webb, and A. M. Weiner, "Study of scattering media with polarized coherent light," *CLEO/IQEC Conference*, San Francisco, California, May 16-21, 2004.

[176] A. B. Milstein, S. Oh, C. A. Bouman, and K. J. Webb, "Mutual information as a performance measure for fluorescence optical diffusion tomography," *CLEO/IQEC Conference*, San Francisco, California, May 16-21, 2004.

[177] D. W. Ward, E. Statz, K. J. Webb, and K. A. Nelson, "The role of multiferroics in the negative index of refraction," *Fundamental Physics of Ferroelectrics*, 2004 conference.

[178] Z. Wang, T. D. Gerke, M. A. Webster, A. M. Weiner, and K. J. Webb, "Polarization properties of speckle from scattering media," *American Physical Society Meeting*, Montreal, Quebec, Canada, March 22-26, 2004.

[179] M. Yang, J. Li, H. Chen, K. J. Webb, P. Kondratko, S. L. Chuang, and G. Cueva, "Nanometer-scale optical signal processing using irregular conducting-wall waveguides," *American Physical Society Meeting*, Montreal, Quebec, Canada, March 22-26, 2004.

[180] S. Lee, K. J. Webb, and L. F. Eastman, "The Influence of transistor nonlinearities on intrinsic noise," *IEEE International Microwave Symposium*, Fort Worth, Texas, June 6-11, 2004.

[181] S. Lee and K. J. Webb, "Numerical noise model for the AlGaN/GaN HEMT," *IEEE International Microwave Symposium*, Fort Worth, Texas, June 6-11, 2004.

[182] A. B. Milstein, S. Oh, C. A. Bouman, and K. J. Webb, "Estimation of kinetic model parameters in optical diffusion tomography," Proc. of the *SPIE/IS&T Conference on Computational Imaging*, San Jose, CA, Jan. 2004.

[183] S. Oh, A. B. Milstein, C. A. Bouman, and K. J. Webb, "Multigrid inversion with variable resolution data and parameter spaces," Proc. of the *SPIE/IS&T Conference on Computational Imaging*, San Jose, CA, Jan. 2004.

[184] A. Milstein, S. Oh, K. J. Webb, C. A. Bouman, "Direct reconstruction of kinetic parameter images in fluorescence optical diffusion tomography," *IEEE ISBI*, Washington, DC, April 15-18, 2004.

[185] K. J. Webb *(Invited Speaker)*, "Information in multiply scattered light,"*Image Reconstruction from Incomplete Data*, SPIE, Aug. 2-6, 2004, Denver CO.

[186] M. Yang, J. Li, H. Chen, K. J. Webb, and G. Cueva, "Field transformation and phase control in μm-scale metallic waveguides," *OSA Frontiers in Optics*, Oct. 10-14, 2004, Rochester, NY.

[187] Z. Wang, M. A. Webster, A. M. Weiner, and K. J. Webb, "Polarization-dependent characterization of scattering media using intensity correlations," *OSA Frontiers in Optics*, Oct. 10-14, 2004, Rochester, NY.

[188] A. B. Milstein, S. Oh, C. A. Bouman, and K. J. Webb, "Kinetic fluorescence optical diffusion tomography," *OSA Frontiers in Optics*, Oct. 10-14, 2004, Rochester, NY.

[189] S. Oh, C. A. Bouman, and K. J. Webb, "Multigrid inversion algorithms for Poisson noise model-based tomographic reconstruction", SPIE Conf. on Computational Imaging III, San Jose, California, Jan. 2005.

[190] K. J. Webb and J. Li, "The physical basis of enhanced transmission through small apertures in metallic films," *American Physical Society Meeting*, March 21-25, 2005, Los Angeles, CA.

[191] K. J. Webb and J. Li, "Nanoparticle material and geometry requirements for surface-enhanced Raman scattering," *American Physical Society Meeting*, March 21-25, 2005, Los Angeles, CA.

[192] K. J. Webb, M. Yang, D. W. Ward, and K. A. Nelson, "Imaging potential of a negative refractive index lens," *American Physical Society Meeting*, March 21-25, 2005, Los Angeles, CA.

[193] D. W. Ward, K. A. Nelson, and K. J. Webb, "Negative refraction in the polariton regime: an illustration of a nonlinear process in negative refractive materials," *American Physical Society Meeting*, March 21-25, 2005, Los Angeles, CA.

[194] D. W. Ward, E. R. Statz, K. A. Nelson, and K. J. Webb, "Polaritonic bandgap materials fabricated and tested with femtosecond laser machining and polariton imaging," *CLEO/IQEC Conference*, May 23-26, 2005, Baltimore, MD.

[195] K. J. Webb, M. Yang, D. W. Ward, and K. A. Nelson, "Resolution limits of a negative refractive index lens," *CLEO/IQEC Conference*, May 23-26, 2005, Baltimore, MD.

[196] S. Oh, A. B. Milstein, C. A. Bouman, and K. J. Webb, "Nonlinear multigrid inversion for optical diffusion tomography," *CLEO/IQEC Conference*, May 23-26, 2005, Baltimore, MD.

[197] A. B. Milstein, C. A. Bouman, K. J. Webb, M. D. Kennedy, and P. S. Low, "A statistical approach for detection and localization of a fluorescing mouse tumor in Intralipid," *CLEO/IQEC Conference*, May 23-26, 2005, Baltimore, MD.

[198] K. J. Webb, M. Yang, D. W. Ward, and K. A. Nelson, "Impact of loss on the performance of a negative refractive index lens," *Progress in Electromagnetics Research Symp.*, Aug. 22-26, 2005, Hangzhou, China.

[199] K. J. Webb and J. Li, "A Model for Surface-enhanced Raman scattering," *Progress in Electromagnetics Research Symp.*, Aug. 22-26, 2005, Hangzhou, China.

[200] K. J. Webb (*Invited Speaker*), "Loss in negative index materials and vortex generation," *Workshop on Metamaterials and Negative Refraction*, Zhejiang University, China, Aug. 27-29, 2005.

[201] K. J. Webb (*Invited Speaker*), M. Yang, J. Li, H. Chen, S. Minin, S. L. Chuang, and G. R. Cueva, "Irregular field transformation structures," *OSA Frontiers in Optics*, Oct. 16-20, 2005, Tucson, AZ.

[202] K. J. Webb and J. Li, "A model for the influence of granularity in a negative refractive index metamaterial lens," *American Physical Society March Meeting*, Baltimore, MD, March 13-17, 2006.

[203] Z. Wang, M. A. Webster, A. M. Weiner, and K. J. Webb, "Polarized temporal impulse response for scattering media using speckle frequency intensity correlations," *CLEO/IQEC Conference*, Long Beach, CA, May 21-26, 2006.

[204] K. J. Webb and J. Li, "Surface-enhanced Raman scattering from a resonant waveguide mode," *CLEO/IQEC Conference*, Long Beach, CA, May 21-26, 2006.

[205] M. Yang, H. Chen, K. J. Webb, S. Minin, S. L. Chuang, and G. R. Cueva, "Demonstration of near-field waveguide mode conversion with an irregular waveguide," *CLEO/IQEC Conference*, Long Beach, CA, May 21-26, 2006.

[206] G. Cao, C. A. Bouman, and K. J. Webb, "A Novel Reconstruction Algorithm for Optical Tomography Using Stored Matrix Techniques," *ASILOMAR Conf.*, 2006.

[207] Z. Wang, A. M. Weiner and K. J. Webb, "Interferometry in a random medium with two coincident input beams," *OSA Frontiers in Optics*, Oct. 2006, Rochester, NY.

[208] K. J. Webb and J. Li, "A model for the influence of granularity in a negative refractive index lens," *Nanometa Conf.*, Seefeld, Austria, Jan. 8-11, 2007.

[209] K. J. Webb, "Causal and dispersive properties of negative refractive index media," *Nanometa Conf.*, Seefeld, Austria, Jan. 8-11, 2007.

[210] G. Cao, C. A. Bouman, and K. J. Webb, "Fast reconstruction for optical tomography using sparse matrix representations,", *Proceedings of 2007 IEEE International Symposium on Biomedical Imaging*, April 12-15, 2007.

[211] Z. Wang, A. M. Weiner and K. J. Webb, "Multiple input and random medium information retrieval from second order intensity correlations," *CLEO/IQEC Conference*, Baltimore, MD, May 8-10, 2007.

[212] K. J. Webb and J. Li, "The influence of granularity on the subwavelength performance of a negative refractive index lens," *CLEO/IQEC Conference*, Baltimore, MD, May 8-10, 2007.

[213] G. Cao, C. A. Bouman and K. J. Webb, "Inhomogeneity localization in scattering media based on an optical diffusion model," *CLEO/IQEC Conference*, Baltimore, MD, May 8-10, 2007.

[214] Z. Wang, A. M. Weiner, and K. J. Webb, " Information with light in random media from spatial speckle correlations over excitation position," *CLEO/IQEC Conference*, San Jose, CA, May 4-9, 2008.

[215] H. Liu, Shivanand, and K. J. Webb, "Subwavelength imaging opportunities with a non-magnetic slab lens," *CLEO/IQEC Conference*, San Jose, CA, May 4-9, 2008.

[216] G. Cao, V. Gaind, C. A. Bouman, and K. J. Webb, "A model-based non-iterative reconstruction approach for optical," Tomography," *OSA Frontiers in Optics*, Rochester, NY, Oct. 19-23, 2008.

[217] V. Gaind, G. Cao, K. J. Webb, and C. A. Bouman, "Fluorescence resonance energy transfer imaging in scattering media using optical diffusion tomography," *OSA Frontiers in Optics*, Rochester, NY, Oct. 19-23, 2008.

[218] Z. Wang, A. M. Weiner, and K. J. Webb, "Spatial intensity correlations of light scattered by a thick random medium," *OSA Frontiers in Optics*, Rochester, NY, Oct. 19-23, 2008.

[219] H. Liu, Shivanand, and K. J. Webb, "Anisotropic route to optical circuits," *OSA Frontiers in Optics*, Rochester, NY, Oct. 19-23, 2008.

[220] K. J. Webb, A. Ludwig, H. Liu, and Shivanand, "Ultrasmall imaging and spectroscopic elements," *DOE UITI*, Park City, UT, Dec. 2-4, 2008.

[221] V. Gaind, K. J. Webb, S. Kularatne, and C. A. Bouman, "Imaging fluorescence resonance energy transfer in scattering media using optical diffusion tomography," *CLEO/IQEC*, Baltimore, MD, May 31 - June 5, 2009.

[222] H. Liu, Shivanand, and K. J. Webb, "Subwavelength imaging with non-magnetic anisotropic bilayers," *CLEO/IQEC*, Baltimore, MD, May 31 - June 5, 2009.

[223] Z. Wang, J. A. Newman, A. M. Weiner, and K. J. Webb, "Imaging through thick random media with a speckle intensity correlation over excitation position," *CLEO/IQEC*, Baltimore, MD, May 31 - June 5, 2009.

[224] H. Liu, Shivanand, and K. J. Webb, "Spectrometers based on anisotropic metamaterials," *CLEO/IQEC*, Baltimore, MD, May 31 - June 5, 2009.

[225] V. Gaind, K. J. Webb, S. A. Kularatne, and P. S. Low, "*In vivo* imaging of targeted drug delivery to tumors based on fluorescence resonance energy transfer and optical diffusion tomography," *OSA Frontiers in Optics*, Oct. 11-15, 2009, San Jose, CA.

[226] H. Liu and K. J. Webb, "Approximate Green's function for a uniaxially anisotropic slab," *OSA Frontiers in Optics*, Oct. 11-15, 2009, San Jose, CA.

[227] K. J. Webb, A. Ludwig, H. Liu, and Shivanand, "Ultrasmall imaging and spectroscopic elements," *DOE UITI*, Clearwater Beach, FL, Dec. 2-3, 2009.

Patents:

[1] T. Haq, K. J. Webb, and N. C. Gallagher, "Design Method for Compact Waveguide Mode Control and Converter Devices," United States Patent 5,942,956, issued August 24, 1999 (based upon Provisional Application No. 60/010,160, filed Jan. 18, 1996).

Invited Lectures:

- University of Illinois, "Aspects of convergence in the spectral domain formulation," March 1987.
- Royal Melbourne Institute of Technology, Australia, "EM research at the Univ. of Maryland," July 1987.
- Stanford University, "Interconnect modeling," presented at the Semicond. Res. Corp. TRC on IC Package Design, Analysis and Simulation, May 17, 1991.
- University of Illinois, "Interconnect modeling," June 1991.

- University of Arizona, "Modeling interconnects for the twenty-first century," Semic. Res. Corp. *TRC on Package Design*, Analysis and Simulation Systems, University of Arizona, Tucson, May 13, 1992.
- Varian, Palo Alto, CA, "Compact waveguide mode converters, June 1, 1994.
- University of Illinois, "Photon diffusion," February 21, 1995.
- Defence Science and Technology Organization, Adelaide, Australia, "Diffusive optics," June 28, 1995.
- Los Alamos National Laboratory, Los Alamos, NM, "Diffusive media characterization and imaging using laser speckle," Aug. 1, 1996.
- University of Delaware, "Optimized irregular electromagnetic mode transformation," September 26, 1996.
- University of Delaware, "Optical and microwave characterization of polymers," September 26, 1996.
- University of Illinois, "Material characterization and imaging using laser speckle," May 6, 1997.
- Royal Melbourne Institute of Technology, "The velocity modulated transistor (VMT) - the world's fastest FET," April 8, 1998.
- University of Melbourne, "Optical speckle imaging and material characterization on highly scattering media," April 30, 1998.
- Pennsylvania State University, "Microwave power amplifiers," April 28, 2000.
- University College, London, "Two measures for optical imaging in scattering media: modulated light and coherence exhibited in speckle," May 18, 2000.
- Institut National Polytechnique de Grenoble, "High power density microwave devices and circuits," September 18, 2000.
- University of Illinois, "Optimized, irregular optical diffractive elements," May 1, 2001.
- Harvard University (Massachusetts General Hospital), "Three-dimensional optical diffusion imaging," July 13, 2001.
- Royal Melbourne Institute of Technology, "Electromagnetic field transformers," and "A SiC IMPATT," Feb. 27, 2002.
- University of Canterbury (Dept. of Physics and Astronomy), "Speckle intensity frequency correlations for random media characterization," March 15, 2002.
- University of Canterbury (Dept. Electrical and Computer Engineering), "Imaging of absorption, scatter and fluorescence in scattering media," March 15, 2002.
- Massachusetts Institute of Technology (Dept. of Chemistry), "Functional EM field transformers, light in scattering media, and microwave semiconductor devices," September 9, 2002.

- Massachusetts Institute of Technology (Spectroscopy Laboratory), "Characterization of scattering media: optical diffusion tomography and speckle correlations in frequency," October 21, 2002.
- Courant Inst. Mathematical Sciences, New York University, "Nonlinear multigrid inversion for Bayesian optical diffusion tomography," March 13, 2003.
- Royal Melbourne Institute of Technology, Sept. 28, 2004: "Can we build a perfect lens using material with a negative refractive index?"
- Illinois State University, Dept. Physics, March 30, 2005: "Optical diffusion tomography."
- University of Illinois, Urbana, May 3, 2005: "Imaging potential of a negative refractive index lens."
- University of California, Berkeley, Nov. 1, 2006: "Light in scattering media: from finding cancer to building a better lens"
- Royal Institute of Technology, Stockholm (Kista), Nov. 14, 2006: "Subwavelength control of light"
- Royal Institute of Technology, Stockholm, Dept. of Theoretical Chemistry, Nov 23, 2006: "Characterizing and imaging scattering media"
- Royal Institute of Technology, Stockholm, Dept. of Theoretical Chemistry, Dec. 13, 2006: "Subwavelength control of light"
- IEEE lecture, Royal Melbourne Institute of Technology, Australia, Feb. 21, 2007: "Subwavelength control of light"
- University of Canterbury, New Zealand, Mar. 22, 2007: "Medical imaging with light"
- University of Canterbury, New Zealand, Mar. 23, 2007: "Subwavelength control of light"
- Royal Institute of Technology, Stockholm, AlbaNova Center (Physics), June 7, 2007: "Medical imaging with light"
- Pennsylvania State University, University Park, PA, January 29, 2008: "Subwavelength Control of Light"
- Stanford University, Stanford, CA, January 26, 2009: "Thoughts on Biophotonics and Nanophotonics"
- University of Michigan, Ann Arbor, MI, March 13, 2009: "Thoughts on Biophotonics and Nanophotonics"
- University of California, Berkeley, CA, October 16, 2009: "Perspectives on Nanophotonics"
- University of Melbourne, Australia, November 4, 2009: "Perspectives on Biophotonics and Nanophotonics"

Professional Society Activities:

Program Committee and Secretary for the IEEE Computational Electromagnetics Conference held in Bethesda, MD, Dec. 12-14, 1988 (arranged for reviews of all submitted papers for journal publication).

Session Chairman, IEEE Computational Electromagnetics Fields Conference, Bethesda, MD, Dec. 12-14, 1988.

Session Chairman, IEEE Antennas and Propagation and Radio Science Meeting, San Jose, CA, June 26-30, 1989.

Session Chairman, IEEE Computational Electromagnetic Fields Conference, Toronto, Oct. 22-24, 1990.

Program Committee and Session Chairman, Workshop on Packaging, Interconnects, Optoelectronics for the Design of Parallel Computers, Schaumburg, IL, March 18-19, 1992.

Session Chairman, Time Domain Methods II, IEEE Antennas and Propagation and Radio Science Meeting, Ann Arbor, MI, June 28 - July 2, 1993.

Session Chairman, Waveguide Structures, IEEE Antennas and Propagation and Radio Science Meeting, Seattle, WA, June 19-24, 1994.

Session Chairman, Diffractive Optics, Optical Society of America Annual Meeting, Dallas, TX, Oct. 2-7, 1994.

Session Chairman, MM Waves and Dielectric Resonator Antennas, IEEE Antennas and Propagation Society International Symposium, Newport Beach, CA, June 19-22, 1995.

Session Chairman, Hybrid Methods, IEEE Antennas and Propagation Society International Symposium, Newport Beach, CA, June 19-22, 1995.

Symposium Organizer and Chairman: Optical Diffusion Imaging, Optical Society of America Annual Meeting, Long Beach, CA, Oct. 12-17, 1997.

Session Chairman, OSA Biomedical Topical Meetings: Workshop on Diffuse Optical Tomography, April 2-5, 2000, Miami, FL.

Presider, Diffuse Optical Tomography, OSA Annual Meeting, Long Beach, CA, Oct. 15-19, 2001.

Presider, Analog Optical Computing, OSA Annual Meeting, Long Beach, CA, Oct. 15-19, 2001.

Session Chairman: Waveguide Media, IEEE Antennas and Propagation Society International Symposium, Boston, MA, July 12, 2001.

Session Charmian: Session 105, "Spiral, Helical, Horn and Other Antennas," 2002 IEEE AP-S International Symposium and URSI National Radio Science Meeting, San Antonio, Texas, on 16-21 June 2002.

Proposer of and chairman for special session on "Wide bandgap devices and their application in high power circuits," 2002 IEEE Int. Microwave Symposium, Seattle, WA, June 2-7, 2002.

IEEE Society Memberships: Microwave Theory & Techniques, Antennas and Propagation, Lasers and Electro-Optics, Electron Devices.

Activities as a Referee:

Journals:

IEEE Proceedings
IEEE Microwave and Guided Wave Letters
IEEE Transactions on Antennas and Propagation
IEEE Transactions on Circuits and Systems
IEEE Transactions on Electromagnetic Compatibility
IEEE Transactions on Electron Devices
IEEE Electron Device Letters
IEEE Transactions of the Industry Applications Society
IEEE Transactions on Magnetics
IEEE Transactions on Microwave Theory and Techniques
IEEE Transactions on Education
IEEE Journal of Quantum Electronics
IEEE Microwave and Wireless Letters
IEEE Trans. Medical Imaging
Applied Optics
Optics Letters
Optics Express
Journal of the Optical Society of America
Journal of Biomedical Optics
Optics Communications
Journal of Optics A
Journal of Electromagnetic Waves and Applications
International Journal of Modeling and Simulation
Applied Physics Letters
New Journal of Physics
Superlattices and Microstructures
Inverse Problems
Physical Review

Publishers:

Holt Rinehart and Winston; 1987
Prentice Hall; 1990, 1993
MacMillan Publishing Co.; 1993
Van Nostrand Reinhold; 1992

Funding Agencies:

National Science Foundation

National Institutes of Health

Army Research Office

American Association for the Advancement of Science; review of NSF EPSCoR proposal

Editorial Positions:

Editorial Board, *IEEE Transactions on Microwave Theory and Techniques*, 1987 - present

Guest editor for special issue of the *Journal of Electronic Imaging* on *Imaging through scattering media*, 2003.

Associate Editor of *Applied Optics*, 2003 - 2006.

Special Projects, Short Courses, Etc. –Contribution:

- Chairman of Purdue Electrical Engineering Industrial Institute Workshop emphasizing "Fields and Optics," Oct. 21, 22, 1991.
- Faculty adviser for the Purdue Solar Car Club, 1992-1993.
- Presented 5 year Fields and Optics Area Review to the EE Graduate Committee, 2/16/94.
- K. J. Webb *Invited Speaker*, 1993 *IEEE Microwave Theory and Techniques Symp. Workshop on Combined Self-Consistent Particle Transport Simulation and Full Wave Dynamic Field Simulation for Monolithic Solid State Device and Circuit Calculations*, "Electromagnetic interconnect and packaging modeling," and "Integrated resonant tunneling diodes," Atlanta, June 18, 1993.
- Short course "Biomedical Optical Imaging," International Symposium on Biomedical Imaging, Arlington, VA, 15 April, 2004 (C. A. Bouman and K. J. Webb). Course handout consisting of slides.

School Committee Activities:

Maryland (1985-89):

Electrical Engineering Computer Committee (1 year)

Electrical Engineering Graduate Studies and Research Committee (1 year)

Electrical Engineering Academic Affairs Committee (3 years)

Electrical Engineering Undergraduate Affairs Committee (1 year)

Electrical Engineering Department Council (1 year)

Purdue:

Member of Fields and Optics and Solid State Devices & Materials Area Committees

Electrical Engineering Graduate Committee, 1991-94

Chairman of the Fields and Optics Area, 1992-96

Electrical and Computer Engineering Curriculum Committee, Spring 1996 - Spring 1997

Electrical and Computer Engineering Qualifying Exam Committee, Fall 1998 -

Electrical and Computer Engineering Computer Resources Committee (Chairman) Fall 1999 -

Engineering-Wide Committee Activities:

Maryland:

Electrical Engineering representative on Engineering Computing Facilities Review Committee, 1988.

Purdue:

Secretary and member of the Engineering Academic Personnel Grievance Committee, 1993-94.

Member of Engineering Committee on Faculty Relations, 1995-97.

Member of the Engineering Academic Personnel Grievance Committee, 2001-2002

University-Wide Committee Activities:

Purdue:

Member of Campus Grievance Committee, 1990-91

Other Activities:

- Coordinator for University of Maryland Electrical Engineering Co-op Student Program; 1986-89.
- Conception and Organization of Fields and Optics Seminar, Spring 1990.
- Office of Naval Research Workshop on the "Electromagnetic Properties of Sea Ice," 5-6 Dec. 1991, Univ. of WA Pack Forest Lodge, Seattle, WA.
- Instructor for, and founder of, the Purdue (Goju Ryu) Karate Club; 1990 - present.
- Organization of Solid State Seminar Series, Fall 1994, Spring 1995, Fall 1995.
- Hosted undergraduate intern Kathy Lee during Summer 1995 under the auspices of the NSF/MRSEC Center for Technology Enabling Heterostructures.
- Supervised NSF undergraduate research interns, Summer 1996: Jon Kruger (noise in quantum devices); Cathleen Wilshere (models for real space transfer transistors).
- Faculty adviser for the Phi Kappa Theta Fraternity, Fall 1998 - present.