Curriculum Vitae of

STEPHEN D. GEDNEY

PRESENT ADDRESS: Department of Electrical Engineering
University of Colorado Denver
Campus Box 110
P.O. Box 173364
Denver, CO 80217-3364

EDUCATION:

Ph.D.: Electrical Engineering, University of Illinois at Urbana-Champaign, Illinois, 1991.
M.S.: Electrical Engineering, University of Illinois at Urbana-Champaign, Illinois, 1987.
B.Eng.: Electrical Engineering (Honors), McGill University, Montreal, Quebec, Canada, 1985.

PROFESSIONAL EXPERIENCE:

University of Colorado Denver **September, 2014 – present**
Dept. of Electrical Engineering
Professor and Department Chair

University of Colorado Denver **June 2017 – December 2017**
College of Engineering and Applied Science
Interim Dean

University of Kentucky **1991 – August, 2014**
Dept. of Electrical and Computer Engineering

Professor	7/01 – present
Associate Professor	7/97 – 6/01
Assistant Professor	7/91 – 6/96

Alpha Omega Electromagnetics, LLC **2004/2005**
Ellicott City, MD
Visiting Professor (Sabbatical leave)

Hughes Research Laboratories (HRL), Malibu CA. **1996, 1997**
Visiting Professor

Jet Propulsion Laboratory **Summers 1992 & 1993**
California Institute of Technology, Pasadena, CA
Summer Faculty Fellow

University of Illinois **1987 - 1991**
Dept. of Electrical and Computer Engineering
Graduate Research Assistant

US Army Corp of Engineers **1985 - 1987**
Construction Engineering Research Laboratory, Champaign, IL
Graduate Research Assistant

HONORS AND AWARDS:

- Don and Karen White Professorship, UC Denver, 2014 - present
- IEEE Fellow, 2004 (for contributions to the field of Computational Electromagnetics)
- Colorado First, Volunteer of the Year award, 2016
- Reese Terry Endowed Professorship, University of Kentucky 2002- 2014
- Tau Beta Pi, Electrical Engineering Outstanding Teacher of the Year Award, 2012-2013
- Visiting Professor, Hughes Research Laboratories, Fall 1996, Summer 1997
- Tau Beta Pi, Electrical Engineering Outstanding Teacher of the Year Award, 1995-1996
- NASA/ASEE Summer Faculty Fellow Award, 1992 and 1993
- NSF CAREER Award, 1996-2000
- Harold L. Olesen Award for excellence in undergraduate teaching by a graduate student, 1989-1990

AREAS OF RESEARCH AND SPECIALIZATION:

Computational Electromagnetics, with emphasis in:

- High-order, fast, integral equation solution techniques
- High-order time-dependent methods for the solutions of Maxwell's equations
- Analysis and design of passive microwave circuits, packaging, and antennas
- Underwater magnetic signature modeling of marine vessels
- Parallel computational methods in electromagnetics
- Electromagnetic scattering by complex bodies and periodic structures

PROFESSIONAL AFFILIATIONS:

- Institute of Electrical and Electronics Engineers (IEEE); Member since 1984, SM(97), F(04)
- IEEE Antennas and Propagation Society
- IEEE Microwave Theory and Techniques Society
- IEEE Magnetics Society
- Applied Computational Electromagnetics Society (ACES), Life Member

EDITORIAL SERVICES:

- Associate Editor, *IEEE Transactions on Antennas and Propagation* (1997 - 2004)
- Reviewer for IEEE Transactions on Antennas and Propagation, IEEE Transactions on Microwave Theory and Techniques, IEEE Transactions on Electromagnetic Compatibility, IEEE Antennas and Wave Propagation Letters, IEEE Microwave and Wireless Component Letters, IEE Proc. H, Electromagnetics, Radio Science, Journal of Computational Physics

PROFESSIONAL SERVICE:

- Administrative positions
  Advisory Committee Member, IEEE Antennas and Propagation Society (2000-2003)
  Membership Committee Chairman, IEEE Antennas and Propagation Society (1995 - 2002)
  Associate Editor, *IEEE Transactions on Antennas and Propagation* (1997 - 2004)
- Professional Society Services
  Session Chair, IEEE Symposium on Antennas and Propagation (1992 – 2012)

- Member, Technical Program Committee, IEEE International Symposium on Antennas and Propagation, Chicago, IL, July 2012.
- Member, International Scientific Committee, Radio and Antenna Days of the Indian Ocean, 2013, and 2014
- Member of Scientific Committee, RADIO 2011 and RADIO 2012 symposia
- Raj Mittra Travel Grant Committee, IEEE Antennas and Propagation Society, 2012 - present
- Short Course: The Finite Difference Time-Domain Modeling and Applications, ACES Symposium, Monterey, 1997, and IEEE AP Symposium, Atlanta, 1997.
- Proposal Reviews, including general NSF proposals, NSF Engineering Research Center programs.

RESEARCH FUNDING:

Title, Sponsor	*Dates*	*Award*
Advanced System for Assessing the Multi-Physical Properties of Magnetic Materials (PI) (ONR DURIP AWARD # N00014-17-1-2328)	**6/1/2017 - 5/31/2018**	**$381,506**
***Advanced Underwater Electric and Magnetic Modeling* (PI) (ONR Award # N000141612941)**	**9/1/2016 – 8/31/2019**	**$799,854**
Ship Magnetic Signature due to Rotating Machinery using Equivalent Source Models (PI) (ONR Award N00014-15-1-2258)	6/1/15 – 12/31/16	$100,000
Non-Uniform Loading of Surface Vessels, Office of Naval Research (PI) (ONR Award # N00014-14-1-0161)	1/1/14 – 12/31/16	$400,215
Magneto-Stress Analysis of Complex Structures (PI), Office of Naval Research (PI) (ONR Award # N00014-14-1-0252)	2/24/14 – 2/25/16	$263,478
Closed Loop Degaussing of Surface Vessel, Office of Naval Research (PI) (ONR Award # N00014-13-1-0414)	2/01/13 – 12/31/13	$50,000
DGFETD Enhancements, ERC Inc. (PI), (Award # RS121317)	1/01/13 – 9/13/13	$118,568
Magstrom Enhancement, Office of Naval Research (ONR AWARD # N00014-13-1-0344) (PI)	2/01/13 – 8/31/13	$63,287
MagnetoStress Analysis, Office of Naval Research (ONR AWARD# N00014-11-1-0584) (PI)	6/1/11 – 5/31/13	$396,967
MScatCpp, Air Force Research Laboratory (ERC, Inc., PO# RS110485) (PI)	6/10/11 – 6/9/12	$150,000
Photoconductive Antennas for Terahertz Spectroscopy and Imaging, Kentucky Science and Education Foundation (#KSEF-2489-RDE-014) (co-PI)	7/1/11 – 6/30/14	$90,000
Large Scale Topside Electromagnetic Modeling, Office of Naval Research (ONR AWARD# N00014-04-1-0625) (co-PI. Robert J. Adams, PI))	7/1/11 – 12/31/14	$698,413
TEMPUS: Coupling to Circuits for Hazards of Electromagnetic Radiation to Ordinance (HERO), Hypercomp Inc., Phase I STTR sponsored by AFRL (PI)	5/15/10 – 2/14/11	$30,000
Large Scale Electromagnetic Modeling for Bottom-Side Signatures, Office of Naval Research (ONR Grant N00014-04-1-0485) (Co-PI)	6/1/08 – 5/31/11	$450,000
Modular Fast Direct Library for ESA Design on Large Platforms (Phase II), Nanosonic Corp (Co-PI)	8/1/07 – 7/31/09	$375,000
Study of the Impact of the Level of Detail (LOD) and the Level of Resolution (LOR) of Virtual Target Models, High Performance Technologies (PI)	8/1/06 – 7/31/07	$60,000
The Discontinuous Galerkin Finite-Element Time-Domain Method, Aerospace Corporation, (PI)	7/31/05 – 12/31/09	$192,089
A high-order Discontinuous Galerkin Finite-Element Solution of Maxwell's Equations, Alpha Omega Electromagnetics, LLC (PI)	6/05 5/07	$25,000

A Systematic Numerical Convergence Study of Typical Computational Electromagnetics Scheme, (High Performance Technologies) (PI)	8/1/05 – 7/31/06	$25,019
High-Order Fast Integral Equation Solution Methods, Alpha Omega Electromagnetics, LLC (PI)	8/15/04 – 5/15/05	$54,000
Fast High Order Parasitic Extraction for Integrated Mixed Signal Microsystems(DARPA - NEOCAD) (PI), Subcontracted through HRL Laboratories	8/28/01-9/1/03	$159,828
Advanced Electromagnetic Modeling, DARPA (PI), *Virtual Electromagnetic Testrange - Wide Band CEM Technique*	1/01 - 1/04	$305,000
Automated Design of High-Q Resonant Microwave Filters via Full-Wave Analysis (PI), HRL Laboratories	5/99-12/02	$53,000
Fast High-Order Boundary Element Solutions of Planar Microwave Circuit Devices, U.S. Army Research Office (PI) DAAD19-99-1-0093	5/99 –8/03	$232,500
STIR: A High-Order Sparse Matrix Nystrom Algorithm for the Analysis of Planar Microwave Circuits, , U.S. Army Research Office (PI) DAAG55-98-1-0460	6/98 – 1/99	$20,000
Advanced microwave circuit and packaging design, HRL Laboratories, LLC, 3011 Malibu Canyon Rd, Malibu, CA (PI)	1/98 – 1/00	$75,000
NSF CAREER AWARD*: Full-Wave Analysis of Electronic Packaging*, National Science Foundation (PI) ECS-9624628	7/96-6/00	$210,000 (base)
Large Scale Analysis of Integrated Microwave Circuit Devices, Hughes Research Laboratory (PI)	8/96-12/98	$62,000
CAREER Matching, National Science Foundation (PI)	8/96-1/97	$62,000
Full-Wave Analysis of Monolithic Integrated Circuits, Jet Propulsion Laboratory, JPL/NASA Contract 959534 (PI)	9/92 - 2/96	$69,000
Full Wave Analysis of Complex Microwave Circuit Devices, Army Research Office Grant # DAAHO4-94-G-0243 (PI)	7/94 - 12/97	$172,000
Research Initiation Award: The Full Wave Analysis of High Speed Electrical Interconnects for VLSI Packaging on High Performance Multiprocessor Computers, National Science Foundation Award # ECS-9309179 (PI)	8/93 - 8-96	$90,000
Parallel FEM Algorithms for the Solution of Electromagnetic Boundary Value Problems on Distributed Memory Multiprocessor Supercomputers, Center for Computational Science, University of Kentucky (Co-PI)	7/93 - 7/96	$35,000
Rigorous Computational Analysis of Miniature Telecommunications Components on High Performance Massively Parallel Computers, Kentucky Space Grant Consortium (PI)	8/93 - 6/94	$5,000
NASA/ASEE Summer Faculty Fellowship, Jet Propulsion Laboratory (PI)	5/93 - 8/93	$10,000
NASA/ASEE Summer Faculty Fellowship, Jet Propulsion Laboratory (PI)	5/92 - 8/92	$10,000

PUBLICATIONS

Google Scholar

REFEREED JOURNAL ARTICLES:

(Students in bold)

[1] **P. Hosseini**, M. Gołkowski, **H. T. Chorsi**, S. D. Gedney, and R. C. Moore, "Using Eccentricity to Locate Ionospheric Exit Points of Magnetospheric Whistler Mode Waves," *IEEE Transaction on Geoscience and Remote Sensing*, in press, 2018 (DOI: 10.1109/TGRS.2018.2847605)

[2] **N. Hendijani**, S. D. Gedney, R. McConnell, M. J. Roberts, J. C. Young, R. J. Adams, "A Broad-Band Huygens Surface Source Model for Near-Field to Near-Field Transformations", *IEEE Transactions on Electromagnetic Compatibility,* vol. 60, pp. 1-11, published: October 2017 (DOI: 10.1109/TEMC.2017.2757452).

[3] **M. T. Chorsi**, **H. T. Chorsi** and S. D. Gedney, "Radial-contour mode microring resonators: Nonlinear dynamics," International Journal of Mechanical Sciences, vol. 130, pp. 258-266, September 2017.

[4] **H. T. Chorsi, M. T. Chorsi** and S. D. Gedney, "A Conceptual Study of Microelectromechanical Disk Resonators," *IEEE Journal on Multiscale and Multiphysics Computational Techniques*, vol. 2, no. 1, pp. 29-37, Feb. 2017.

[5] **H. T. Chorsi** and S. D. Gedney, "Tunable Plasmonic Optoelectronic Devices Based on Graphene Metasurfaces," *IEEE Photonics Technology Letters*, vol. 29, no. 2, pp. 228-230, Jan. 15, 2017.

[6] **H. T. Chorsi** and S. D. Gedney, "Efficient high-order analysis of bowtie nanoantennas using the locally corrected Nystrom method," Optics Express, vol. 23, no. 24, pp. 31452-31459, November, 2015

[7] **A. S. Maxworth**, M. Golkowski, M. B. Cohen, R. C. Moore, **H. T. Chorsi**, S. D. Gedney, and **R. Jacobs** "Multistation observations of the azimuth, polarization, and frequency dependence of ELF/VLF waves generated by electrojet modulation," Radio Science, vol. 50, no. 10, pp. 1008-1026, October, 2015.

[8] J. C. Young, R. J. Adams, and S. D. Gedney, "Well-Conditioned Nyström-Discretization of the Volume Integral Equation for Eddy Current Analysis," IEEE Transactions on Magnetics, Volume: 51, Issue: 2, Article# 7000406 (6 pages), Feb. 2015

[9] J. C. Young, **D. Boyd**, S. D. Gedney, T. Suzuki, J. Liu, "A DGFETD Port Formulation for Photoconductive Antenna Analysis," IEEE Antennas and Wireless Propagation Letters, vol. 14, pp. 386-389, 2015

[10] J. C. Young, S. D. Gedney, R. J. Adams, C. Schneider, and C. Burgy, "A Stepped Non-Linear Solver for Non-Linear Magnetic Materials with Hysteresis," IEEE Transactions on Magnetics, vol. 51, no. 6, article number 7301106 (6 pages), June 2015.

[11] J. C. Young, S. D. Gedney, and R. J. Adams, "Eddy Current Analysis using a Nyström-Discretization of the Volume Integral Equation," IEEE Transactions on Magnetics, vol. 49, no. 12, pp. 5676-5681, Dec. 2013.

[12] J. C. Young, S. D. Gedney, and R. J. Adams, "Quasi-Mixed-Order Prism Basis Functions for Nystrom-Based Volume Integral Equations," IEEE Transactions on Magnetics, vol. 48, no. 10, pp. 2560-2566, Oct. 2012.

[13] **Bo Zhao**, J. C. Young, and S. D. Gedney, "SPICE Lumped Circuit Sub-Cell Model for the Discontinuous Galerkin Finite Element Time-Domain Method," IEEE Transactions on Microwave Theory and Techniques, vol. 60, no. 9, pp. 2684-2692, Sept. 2012.

[14] J. C. Young, **Y. Xu**, R. J. Adams, and S. D. Gedney "High-Order Nystrom Implementation of an Augmented Electric Field Integral Equation," IEEE Antennas and Wireless Propagation Letters, vol. 11, pp. 846-849, 2012.

[15] S. D. Gedney, J. C. Young, **T. C. Kramer**, and J. A, Roden "A Discontinuous Galerkin Finite Element Time-Domain Method Modeling of Dispersive Media," IEEE Transactions on Antennas and Propagation, vol. 60, no. 4, 1969-1977, April 2012.

[16] J. C. Young and S. D. Gedney, "A Locally Corrected Nyström Formulation for the Magnetostatic Volume Integral Equation," IEEE Transactions on Magnetics, vol. 47, no. 9, pp. 2163-2170, Sept. 2011.

[17] R. Martin, D. Komatitsch, S. D. Gedney, "A High-Order Time and Space Formulation of the Unsplit Perfectly Matched Layer for the Seismic Wave Equation Using Auxiliary Differential Equations (ADE-PML)," CMES – Computer Modeling in Engineering and Sciences, vol. 56, no. 1, pp. 17-41, January 2010.

[18] S. D. Gedney & **B. Zhao**, "An Auxiliary Differential Equation Formulation for the Complex-Frequency Shifted PML," IEEE Transactions on Antennas and Propagation, vol. 58, no. 3, pp. 838-847 March 2010.

[19] S. D. Gedney, C. Luo, **J. A. Roden**, R. D. Crawford, **B. Guernsey**, J. A. Miller, **T. Kramer,** E. W. Lucas, "The Discontinuous Galerkin Finite-Element Time-Domain Method Solution of Maxwell's Equations," Applied Computational Electromagnetic Journal, vol. 24, no. 2, pp. 129-142, April 2009.

[20] R. J. Adams, **Y. Xu, X. Xu, J.-S. Choi**, S. D. Gedney, and F. X. Canning, "Modular fast direct electromagnetic analysis using local-global solution modes," IEEE Transactions on Antennas and Propagation, vol. 56, no. 8, pp. 2427-2441, Aug. 2008.

[21] R. Martin, D. Komatitsch, and S. D. Gedney "A Variational Formulation of a Stabilized Unsplit Convolutional Perfectly Matched Layer for The Isotropic or Anisotropic Seismic Wave Equation," CMES-Computer Modeling in Engineering and Sciences, vol. 37, no. 3, pp. 274-304, Dec. 2008.

[22] **Y. Xu, X., Xu**, R. J. Adams, S. D. Gedney, F. X. Canning, "Sparse direct solution of the electric field integral equation using nonoverlapped localizing LOGOS modes," Microwave and Optical Technology Letters, Vol. 50, No. 2, pp 303-307, 2008.

[23] **Charles T. Wolfe**, and Stephen D. Gedney, "Implementation of a Domain Decomposition Method on a High Performance Parallel Platform for the Solution of Large Electromagnetic Problems," Electromagnetics, vol. 27, No. 2-3, pp. 109-122, Feb-Apr. 2007

[24] **W.-H Tang** and S.D. Gedney, "An efficient application of the DCIM for Quasi-3D microwave circuits in layered media," IEEE Transactions on Microwave Theory and Techniques, vol. 55, no. 8, pp. 1723 - 1729, August 2007.

[25] **Charles T. Wolfe** and Stephen Gedney, "Preconditioning the FETI Method for Accelerating the Solution of Large EM Scattering Problems," IEEE Antennas and Wireless Propagation Letters, vol. 6, pp. 175-178, 2007.

[26] S. D. Gedney, **W. H. Tang, R. Hanneman, J. Hannemann,** and P. Petre, "Quadrature Sampled Pre-Corrected FFT for the analysis of Circuits in Layered Media," Electromagnetics, vol. 27, no. 2, pp. 109 – 122, Feb. – April, 2007.

[27] **W.-H Tang** and S.D. Gedney, "An efficient evaluation of near singular surface integrals via the Khayat-Wilton transform", Microwave and Optical Technology Letters, vol. 48, no. 8, pp. 1583 – 1586, Aug. 2006.

[28] **A. Zhu**, R. J. Adams, F. X. Canning, and S. D. Gedney, "Schur Factorization of the Impedance Matrix in a Localizing Basis," Journal of Electromagnetic Waves and Applications, vol. 20, pp. 351-362, no. 3, February 2006.

[29] **A. Zhu**, R. J. Adams, F. X. Canning, and S. D. Gedney, "Sparse Solution of an Integral Equation Formulation of Scattering from Open PEC Targets," Microwave and Optical Technology Letters, pp. 476-480, vol. 48, No. 3, March 2006.

[30] **Zhu**, S. D. Gedney, and J. L. Visher, "A study of combined field formulations for material scattering for a locally corrected Nyström discretization," IEEE Transactions on Antennas and Propagation, pp. 4111 – 4120, vol. 53, December 2005.

[31] S. D. Gedney, **A. Zhu**, and C. C. Lu, "Study of Mixed-Order Basis Functions for the Locally-Corrected Nyström Method," IEEE Transactions on Antennas and Propagation, vol. 52 no. 1, pp. 2996-3004, November 2004.

[32] Eliane Becache, Peter Petropoulos, and Stephen Gedney, "On the long-time behavior of unsplit Perfectly Matched Layers," IEEE Transactions on Antennas and Propagation, Vol. 52, pp. 1335-1342, May 2004.

[33] S. D. Gedney, "Implementing the Locally Corrected Nyström method," Applied Computational Electromagnetics Society Newsletter, Vol. 18, no. 3, pp. 15-27, Nov. 2003.

[34] **A. Zhu** and S. D. Gedney, "A Quadrature Sampled Pre-Corrected FFT for the Electromagnetic Scattering from Inhomogeneous Objects," IEEE Antennas and Wireless Propagation Letters, Vol. 2, no. 1, pp. 50-53, 2003.

[35] S. D. Gedney, "On Deriving a Locally Corrected Nyström Scheme from a Quadrature Sampled Moment Method," IEEE Transactions on Antennas and Propagation, vol. 51, no. 9, pp. 2402-2412, Sept. 2003

[36] **G. Liu** and S. D. Gedney, "High-Order Moment Method Solution for the Scattering Analysis of Penetrable Bodies," Electromagnetics, vol. 23, no. 4, pp. 331-346, 2003.

[37] S. D. Gedney and C. C. Lu, "High-Order Solution for the Electromagnetic Scattering by Inhomogeneous Dielectric Bodies," Radio Science, vol. 38, no. 1, art. no. 1015, 2003.

[38] Stephen D. Gedney, **Aiming Zhu , Wee-Hua Tang, Gang Liu**, and Peter Petre , "A Fast, High-Order Quadrature Sampled Pre-Corrected FFT for Electromagnetic Scattering," Microwave and Optical Technology Letters, vol. 36, no. 5, pp. 343-349, March 5, 2003.

[39] C**.T. Wolfe** and S. D. Gedney, "Using the MPI Library with Computational Electromagnetic Domain Decomposition Methods," Applied Computational Electromagnetics Society Newsletter, Volume 17, no 1, pp 18-26, March 2002.

[40] S. D. Gedney, "Comment on "On the Matching Conditions of Different PML Schemes Applied to Multilayer Isotropic Dielectric Media", Microwave and Optical Technology Letters, vol. 30, pp. 289-291, August 20, 2001.

[41] S. D. Gedney, "High-Order Method of Moment Solution of the Scattering by Three-Dimensional PEC Bodies using Quadrature Based Point Matching," Microwave and Optical Technology Letters, vol. 29, pp. 303-309, June 5, 2001.

[42] S. D. Gedney, **G. Liu, J. A. Roden, and A. Zhu**, "Perfectly Matched Layer Media With CFS For An Unconditionally Stable ADI-FDTD Method," IEEE Transactions on Antennas and Propagation, vol. 49, November, 2001.

[43] **G. Liu** and S. D. Gedney, "High-Order Nyström Solution of the Volume EFIE for TE-Wave Scattering," Electromagnetics, vol. 21, pp. 1-14, January-February 2001.

[44] **J. A. Roden** and S. D. Gedney, "Convolution PML (CPML): An Efficient FDTD Implementation of the CFS-PML for Arbitrary Media," Microwave and Optical Technology Letters, vol. 27, No. 5, pp. 334-339, December 5, 2000.

[45] S. D. Gedney, L. Hamilton, P. Petre, and D. Yap, "Full-Wave CAD Based Design of a Finite Ground CPW Directional Filter," International Journal of RF and Microwave Computer-Aided Engineering, Vol. 10, No. 5, pp. 308-318, September 2000.

[46] **G. Liu** and S. D. Gedney,"Perfectly Matched Layer Media for an Unconditionally Stable Three-Dimensional ADI-FDTD Method," IEEE Microwave and Guided Wave Letters, vol. 10, pp. 261-263, July 2000.

[47] **G. Liu** and S. D. Gedney, "High-Order Nyström Solution of the Volume EFIE for TM-Wave Scattering," Microwave and Optical Technology Letters, vol. 25, No. 1, pp. 8-11, April 5, 2000.

[48] S. D. Gedney and **J. Alan Roden**, "Numerical Stability of non-orthogonal FDTD methods," IEEE Transactions on Antennas and Propagation, Vol. 48, pp. 231-239, Feb. 2000.

[49] **C. T. Wolfe, U. Navsariwala**, and S. D. Gedney "A Parallel Finite-Element Tearing and Interconnecting Algorithm for Solution of the Vector Wave Equation with PML Absorbing Medium," IEEE Transactions on Antennas and Propagation, vol. 47, pp. 278-284, Feb. 2000.

[50] **J. Alan Roden** and S. D. Gedney, "The efficient implementation of the surface impedance boundary condition in general curvilinear coordinates," IEEE Transactions on Microwave Theory and Techniques, vol. 47, pp. 1954-1963, October 1999.

[51] **X. Lou**, S. D. Gedney, and M. Avison, "End Cap Design for Bird Cage Coils in Nuclear Magnetic Resonance Imaging," IEEE Transactions on Magnetics, vol. 35, No. 3, pp. 1939 – 1946, May 1999.

[52] **Shashi K. Mazumdar**, James E. Lumpp, and Stephen D. Gedney, "Performance Modeling of the Finite-Difference Time-Domain Method on High Performance Parallel Systems," Applied Computational Electromagnetic Journal, vol. 13, No. 2, pp. 147-159, 1998.

[53] **J. Alan Roden**, Stephen D. Gedney, **Paul Harms**, Jim Maloney, Morris Kessler, and Ed Kuster, "Time Domain Analysis of Periodic Structures at Oblique Incidence: Orthogonal and Non-Orthogonal FDTD Implementations," IEEE Transactions on Microwave Theory and Techniques, vol. 46, pp. 420-427, April 1998.

[54] **U. Navsariwala**, and S. D. Gedney, "An efficient implementation of the finite-element time-domain algorithm on parallel computers using a finite-element tearing and interconnecting algorithm," Microwave and Optical Technology Letters, vol. 16, n. 4, pp. 204-208, November 1997.

[55] **J. Alan Roden** and Stephen Gedney, "Efficient Implementation of the Uniaxial Based PML Media in Three-Dimensional Non-orthogonal Coordinates Using the FDTD Technique," Microwave and Optical Technology Letters, vol. 14, n. 2, pp. 71-75, February 5, 1997.

[56] Stephen D. Gedney, "An anisotropic perfectly matched layer absorbing media for the truncation of FDTD Lattices," IEEE Transactions on Antennas and Propagation, vol. 44, pp. 1630-1639, December 1996

[57] Stephen D. Gedney, "An Anisotropic PML Absorbing Media for FDTD Simulation of Fields in Lossy Dispersive Media," Electromagnetics, vol. 16, pp. 399-415, July/August 1996.

[58] S. D. Gedney, Faiza Lansing, and Dan Rascoe, "A full-wave analysis of passive monolithic integrated circuit devices using a generalized Yee-algorithm," IEEE Transactions on Microwave Theory and Techniques, vol. 44, pp. 1393-1400, August 1996.

[59] **J. A. Roden**, C. Paul, B. Smith, and S. D. Gedney, "Finite-Difference Time-Domain Analysis of Lossy Transmission Lines," IEEE Transactions on Electromagnetic Compatibility, vol. 38, pp. 15-24, Feb. 1996.

[60] Stephen D. Gedney and **Umesh Navsariwala**, "An unconditionally stable implicit finite-element time-domain solution of the vector wave equation," IEEE Microwave and Guided Wave Letters, vol. 5, pp. 332-334, October 1995.

[61] Stephen D. Gedney, "Finite-difference time-domain analysis of microwave circuit devices on high performance vector/parallel computers," IEEE Transactions on Microwave Theory and Techniques, vol. 43, pp. 2510-2514, October 1995.

[62] Stephen D. Gedney, Faiza Lansing, and Dan Rascoe, "Full Wave Analysis of Microwave Monolithic Circuit Devices Using a Generalized Yee Algorithm Based on Unstructured Grids," NASA Tech Brief# NPO-19186, NASA/JPL, Pasadena, CA, March 1995.

[63] Stephen D. Gedney and **Umesh Navsariwala**, "A comparison of the performance of the finite difference time-domain, finite element time-domain, and planar generalized Yee-algorithms on high performance parallel computers," International Journal on Numerical Modeling (Electronic Networks, Devices and Fields), Vol. 8, pp. 265-276, May-August 1995.

[64] Stephen D. Gedney and Faiza Lansing, "A parallel planar generalized Yee-algorithm for the analysis of microwave circuit devices," International Journal on Numerical Modeling (Electronic Networks, Devices and Fields), Vol. 8, pp. 249-264, May-August 1995.

[65] **Xiaoming Lou**, Charles D. Smith, Stephen Gedney, Jian Li, and Prasad Kadaba, "On the performance of tubular surface coils in nuclear magnetic resonance imaging and spectroscopy," IEEE Transactions on Nuclear Science, vol. 42, pp. 41-47 Feb. 1995.

[66] Hassan Hejase, Stephen Gedney, and Keith Whites, "Effect of a finite ground plane on radiated emissions from a circular loop antenna," IEEE Transactions on Electromagnetic Compatibility, vol. 36, pp. 364-371, November 1994

[67] Stephen D. Gedney and Jin-Fa Lee, "Mixed element formulation for the efficient solution of electromagnetic scattering problems," IEEE Transactions on Magnetics, vol. 29, pp. 1632-1635, March 1993.

[68] Stephen D. Gedney and Raj Mittra, "Electromagnetic transmission through a inhomogeneously filled slot in a thick conducting screen - arbitrary incidence," IEEE Transactions on Electromagnetic Compatibility, vol. 34, pp. 404-415, November 1992.

[69] Stephen D. Gedney, Jin-Fa Lee and Raj Mittra, "A combined FEM/MoM approach to analyze the plane wave diffraction by arbitrary gratings," IEEE Transactions on Microwave Theory and Techniques, vol. MTT-40, pp. 363-370, February 1992.

[70] Stephen D. Gedney and Raj Mittra, "Analysis of the electromagnetic scattering by thick gratings using a combined FEM/MoM technique," IEEE Transactions on Antennas and Propagation, vol. AP-39, pp. 1605-1614, November 1991.

[71] Stephen D. Gedney and Raj Mittra, "The use of the FFT for the efficient solution of the problem of electromagnetic scattering by a body of revolution," *IEEE Transactions on Antennas and Propagation*, Vol. TAP-38, pp. 313-322, March 1990.

JOURNAL PAPERS IN PRESS OR IN REVIEW:

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