

## VITA

### JOHN L. VOLAKIS, Chope Chair Professor

2004 President, IEEE Antennas and Propagation Society (>10,000 members).  
2015-17 Chair USNC/URSI Commission B  
2010-14 IEEE-wide Fellows Evaluation Comt.  
2003-16 Director, OSU ElectroScience Laboratory (163 people with 29 faculty/researchers & 9 support staff]  
Google h-index: 49 (>11,000 citations; >4700 since 2010); <http://scholar.google.com/citations?hl=en&user=JakmyDIAAAAJ>  
ISI h-index as of Sept 2014: 33 (>4700 citations)

2012 IEEE Institute article on bio/career: <http://theinstitute.ieee.org/people/profiles/john-volakis-uncharted-waters>

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<http://esl.eng.ohio-state.edu/~volakis/>

### EDUCATION:

B.E., Summa Cum Laude, Youngstown State University, June 1978

M.Sc., The Ohio State University, December 1979

Ph.D., The Ohio State University, September 1982

### FAMILY:

- Born on 13 May 1956;  
grew up in a small farming village in Greece, and immigrated to the U.S.A. in late 1973.
- Married to Maria I. Papouras-Volakis, B.Sc./Pharm.D., The Ohio State Univ. 1985/2005
- Children: Leonithas (born 1986, B.Sc. from The Univ. of Michigan-Ann Arbor, Mechanical Engineering; Ph.D. candidate in Biomedical Engineering at Ohio State)  
Alexandro (born 1989, B.Sc. from The Ohio State Univ., Fisher Business College;  
now a Manager at Abercrombie & Fitch )

### PROFESSIONAL POSITIONS:

1/2003- Chope Chair Professor, Electrical and Computer Engineering  
The Ohio State University

1/2003-8/2016 Director, ElectroScience Laboratory

9/84-12/2003 The University of Michigan-Ann Arbor,  
Electrical Engineering and Computer Science Dept  
Director, Radiation Laboratory, 1998-2000  
Professor 1994-2003  
Associate Professor 1989-1994  
Assistant Professor 1984-1989

9/82-9/84 Rockwell International, North American Aircraft Operations (now Boeing), El Segundo and Lakewood, CA, Member of Technical Staff

## RECENT MAJOR AWARDS/INTERNATIONAL APPOINTMENTS

- 1996: Fellow of Institute of Electrical and Electronics Engineers (IEEE)
- 2011: Fellow, Applied Computational Electromagnetics Society.
- Listed by ISI among the top 250 most referenced authors, 2004.
- 1993 & 2003: General Chair of the IEEE International Antennas and Propagation Symposium in Ann Arbor, MI (1993) and in Columbus, OH (2003); Symposium attended by nearly 1700 registrants.
- 2004: President, IEEE Antennas and Propagation Society
- 2006-2010: IEEE Distinguished Lecturer
- 2005-2010: Comt. Member and Chair of the IEEE Antennas and Propagation Fellows Evaluation Cmt.
- 2010-2014: IEEE-wide Fellows Evaluation Comt (reviews about 800 fellows annually for appointment to this grade).
- 2010: Scott College of Engineering career award for teaching research and service, Ohio State Univ.,  
**Citation:** For pioneering contributions in education, including authorship of important texts and excellent mentoring of students, in research, including seminal contributions to computational electromagnetics and antenna design, and for leadership and distinctive service to the engineering profession.
- 2011: IEEE Chen-To Tai Distinguished Education Award(given to one individual annually)  
**Citation:** For exemplary contributions as an inspiring teacher and mentor, and for advancing electromagnetic technology.
- 2012-2014: Vice Chair for URSI B based on National Elections (United States National Committee on Radio Science);
- 2012: Chaired external review committee for the Technical University of Crete.
- 2013:Invited external committee member to oversee Italy-wide evaluation/selection of Electromagnetics/Optics candidates in 2013-14.
- 2013: IEEE Rudolf Henning Distinguished Mentoring Award, 2013 (given to one individual annually):  
**Nomination Comment from Prof. Mumcu (former Ph.D. advisee from OSU):** "During his 30 years of career in electromagnetics, microwaves, RF circuits and antennas, Prof. Volakis has sustained one of the largest research programs in the world and devoted his time to influence students to pursue a professional career in RF/Microwave Engineering. He has mentored more than 75 PhD students with 16 of them being faculty members and major universities throughout the world. I have always felt lucky to have him as my mentor - His unique guidance in my professional development has provided the motivation to complete my PhD degree and pursue further career opportunities in RF/Microwave Engineering."
- 2015-2017: Chair of URSI B (United States National Committee on Radio Science).
- 2014: IEEE Antennas and Propagation Society Distinguished Award, 2014 (given to one individual annually from across the world).  
**Award citation:** "For game-changing contributions to computational electromagnetics, radar scattering and antennas, and for educational leadership and service to the electromagnetics community."

## RESEARCH & SCHOLARSHIP ACTIVITIES

Volakis' research is in wireless technologies, antennas, medical sensing, novel materials, terahertz devices and applications, multi-physics engineering, computational methods, electromagnetic compatibility and interference, and biomedical engineering.

During his 32 years career, he has published over 350 journal articles in major refereed journals, nearly 650 conference papers and 24 book chapters. In addition, he co-authored 8 books:

1. *Approximate Boundary Conditions in Electromagnetics* (Institution of Electrical Engineers, London, 1995)
2. *Finite Element Method for Electromagnetics* (IEEE Press, New York, 1998),
3. *Frequency Domain Hybrid Finite Element Methods in Electromagnetics* (Morgan & Claypool, 2007)
4. *Antenna Engineering Handbook, ed.* (McGraw-Hill, 2007)
5. *Computational Methods for High Frequency Electromagnetic Interference* (Verlag, 2009)
6. *Small Antennas: Miniaturization Techniques* (McGraw Hill, 2010)
7. *Polymer-Ceramic Composites for Conformal Multilayer Antenna/RF Systems* (LAP Lambert Academic Publishing)
8. *Integral Equation Methods for Electromagnetics* (Scitech Publishing, 2012).

He has delivered short courses for numerous organizations on numerical methods, antennas, and frequency selective surfaces. In 2004, Volakis was listed by ISI among the top 250 most referenced authors in Computer Science. His current (July 2014) ISI Hirsch index is  $h=33$ , and the corresponding google-scholar index is  $h=49$ .

He has graduated/mentored over 80 Ph.D. students/post-docs, and co-authored with them 30 best paper/poster awards at conferences (since 2002). Among his Ph.D. students, 17 have become faculty members. He has been recognized with numerous technical awards throughout his career, and held several leadership positions, including elected President of the IEEE Antennas and Propagation Society in 2004, elected Chair of USNC/URSI B (2015-17), Chair of the IEEE APS Fellows Cmt (2004-2009), member of the IEEE-wide Fellows Evaluations Cmt (2009-pres.), and Chair of the USNC URSI-B Commission (2015-2017). For the past few years, Volakis has maintained a research funding at a level of \$4-6 Million per year for the past few years.

Volakis' group is known for (1) contributions to small and metamaterial antennas, (2) introducing and establishing the finite element-boundary integral method as a mainstream technique in electromagnetics, (3) introducing electronic textiles, and (4) for introducing popular diffraction coefficients for impedance/material edges and wedges. Leading texts in these areas were authored by Volakis and former students. They include finite element, diffraction and numerical method books in electromagnetics. In 2007, he edited the 1800pp, 4<sup>th</sup> edition, classic Antenna Engineering Handbook with 80 authors on all aspects of antennas and their applications. This book was the 2007-8 bestseller by McGraw-Hill Professional, and has enjoyed several printings. His recent Small Antennas book is another key and timely book in Electromagnetics. In 2012, he co-authored a basic text on integral equation methods for electromagnetics. This book was based on a coursepack originally handed-out to students in the late 1980s at the Univ. of Michigan, and was improved over the past 20 years.

His latest research entails terahertz and millimeter waves, medical sensors, neurosensing, electronic textiles, antenna design and miniaturization with emphasis on novel materials (polymers, periodic media, and metamaterials) for antennas, and body-worn wireless technologies. Through collaboration with mechanical and materials engineering faculty, he

pioneered material design and a new class of patented photonic crystals for high gain antennas. Also, his group realized the first carbon nanotube and electronic-textile antennas, having nearly equivalent performance to traditional rigid antennas. The flexibility of these technologies can open new directions in 3D flexible electronics (with particular impact on e-health applications). Through collaboration with microfabrication faculty he also contributed to an understanding of MEMS failure mechanisms based on asparity heating.

More recently, his research focused on terahertz and millimeter wave technologies. Specifically, he led an effort to develop a new terahertz laboratory equipped with \$3M equipment in all aspects of THz imaging, spectrometry, sources and communications. He is also part of a MURI to develop and test THz devices, and is part of another MURI on High Power Electromagnetic Metamaterial Devices.

During his career, he has led or participated in 5 MURIs. His recent research projects include: (1) antenna design and development (ultrawideband and narrowband), (2) medical/neuro sensing and body-worn communication technologies, (3) new materials/metamaterials for RF applications, (4) terahertz technologies, (5) mitigation of electromagnetic interference and coupling in automobiles and aircraft, and (6) hybrid electromagnetic simulation algorithms for antennas/antenna arrays, complex wireless environments, and mixed RF-digital signals, (7) imaging techniques and associated hardware realizations.

### **SERVICE ACTIVITIES (SINCE 1993)**

Chair, USNC/URSI B	2015-2017
External examiner for Italian-wide faculty selection cmt	2013-2014
Chair of review cmt for Technical University of Crete review	2012
Vice Chair, URSI Commission B	2012-2015
IEEE-wide committee for Fellows evaluation	2010-2014
Chair, IEEE Antennas and Propagat. Society Fellows Evaluation Cmt.	2005-2009
Convener to URSI General Assembly	2005, 2008
Advisory Cmt and co-organizer of International Workshop on Antennas and Wireless Applications	2005-2015
Track Chair for IEEE Vehicular Techn. Society Conference	2004-2005
Technical Committee Chair for URSI (Int. Union of Radio Science)	2004-2011
Technical Advisory member to International URSI	2002-
President and VP of IEEE Antennas and Propagation Society	2003-2005
Co-Chair, IEEE Antennas and Propagation Society Conference (1700 attendees)	2003
Chair and co-Organizer, Finite Elements Workshop	2002
IEEE Fellows Committee	1998-2004
IEEE Antennas and Propagation Administrative Committee	1996-98
Co-organizer of the 2000 Diffraction Days meeting	2000
JINA (France), Scientific Committee	2001-2005
Co-organizer of the International Finite Element Workshop	1994, 1998, 2000, 2002
Technical Committee, COMPUMAG (Computational EM) Conference	1994, 1995, 1998,2000,2001
Technical Committee, Advanced Computational Electromagnetics Conf.	1995, 1996
General Chairman, IEEE Antennas and Propagation International Symposium and Radio Science Meeting(with over 1000 attendees)	1993
Technical Committee, IEEE Antennas and Propagation Symposium	1988-pres
<b><i>Editorial Services</i></b>	
• Associate Editor, URSI Bulletin	2002-2010

- Associate for *J. Electromagnetics Waves and Applications* 1995-2008
- Associate Editor, *IEEE Antennas and Propagation Magazine* 1992-2007
- Associate Editor, *Radio Science* 1994-97
- Associate Editor, *IEEE Antennas and Propagation Transactions* 1989-93
- Guest Editor for Special Electromagnetics issue 1993,1998
- Guest Editor for Special *Radio Sci.* Issue 1996

#### ***Departmental Committees***

Executive Comt	2003-pres.
Awards Comt.	2010-pres.
Personnel Committee	2006-2009
Promotion and Tenure Cmets	2004-2008
EECS Dept., Financial Aid Chair	
Responsible for the \$800,000 Fellowship budget of the EECS Dept.	2001-2002
EECS Dept. Executive Committee	1997-99
Director, Radiation Laboratory	1998-00
EECS Dept. EE Division Graduate Committee	1990-2002
EECS Dept. Graduate Advisor	1994-97.
EECS Dept. Computing Organization Faculty Committee	1993-97

#### ***CoE Committees:***

Chair, Ohio State College of Engineering awards cmt	2015
Dean's Research Council	2012-pres.
Awards Committee Member	2012-pres.
College Centers Budget Guidance Cmt.	2012
College Ranking Review	2012
College of Engineering, Finance Cmt (OSU)	2005-06
CoE College strategic planning cmt	2005
ECE Dept Chair Search Committee	2004-2005
EECS Dept. Review Committee	96/97

#### ***U of M Committees***

University Tenure Committee, Chair	2000-01
SACUA Tenure Committee	1999-02
Senate Assembly	1994-97
Research Policies Committee	1994-97

### **EXAMPLE RESEARCH FUNDING**

- Current research funding is \$4-\$6 Million/year

Total research awards at Ohio State over the past 10 years is over \$50M.

He has served as PI for most of these awards. Below is a list for some of his major awards:

1. Multiphysics MEMS analysis and design (NSF, 2001-2005): Project involved the development of MEMS analysis and design capabilities to integrate electrical, mechanical and thermal physics. Worked with 2 mechanical engineering faculty.
2. Meta-Materials Design (funded by DARPA, 2001-2005): A multi-disciplinary project aimed at designing, developing and fabricating new synthetic materials for RF applications. Worked with Material Science, Mechanical and other RF Engineering faculty
3. Advanced multifunction RF system antenna isolation and simulation (funded by Office of Naval Research, 1998-2004). Project involved the development of antenna/array simulation and design tools for future DD21 ship platforms.

4. Electromagnetic compatibility and interference research studies (General Motor and HRL, 2001-2003). Project involved the development of EMI coupling analysis and verification/measurement methods aimed at understanding and mitigating coupling associated with future automobile electronic systems.
5. Electromagnetic Effects of RF pulses on Electronic Circuits and Systems (Air Force MURI, ended 2006). A 5- year MURI on the understanding of coupling mechanisms and their effects on electronic circuits. The project involved collaboration with 4 other Universities across several departments.
6. Antennas for wireless communication systems and automobile applications (funded by Air Force and General Motors, 1997-2003): Design, fabrication and testing of multifunctional antennas for pre-specified performance on airborne and automobile platforms.
7. Virtual electromagnetic testrange (VET) initiative (funded by DAPRA and Air Force, 2001-2004). An industry-university project to develop new fast algorithms for scattering and radiation by nonmetallic/composite structures.
8. Novel Materials for Antennas and RF Devices (MURI funded by the AFOSR)-2004-2009. A 5-year Multidisciplinary Univ. Research Initiative (MURI) project focused on the analysis, demonstration and design of novel magnetic photonic crystals for RF devices, antennas and sensors.
9. Center for Radio Frequency Systems (a joint University-Industry National Science Foundation Center)-2006-pres. A new NSF center to link industry and universities to educate future leaders in RF, and address next generation solutions in RF systems (from bits to receivers and antennas).
10. GAMECHANGER: Novel Materials for Load Bearing Antennas (MURI-like project funded by AFOSR)-2007-2010. Served as PI for this 3.5 years project focused on the development of novel materials for miniature, multifunctional antennas for future small vehicles such as UAVs.
11. DARPA Visibuilding (2006-2010): A 3-phase program to develop analyses, techniques and hardware for three dimensional imaging of building interiors.
12. Novel Materials for RF Applications (2009-2012):A 3-year program funded by Lockheed Martin's Corporate Program to develop a new class of magnetodielectric composites for phase shifters, leaky wave structures and miniature reconfigurable controllable antennas.
13. UWB metamaterial Antennas (2010-2012): A 3-phase program funded by AFRL to help companies transition new metamaterials antennas to real-world applications; Worked with Boeing and Lockheed Martin.
14. Ohio Research Scholars Program (2008-13): Served as PI for this \$8.5M State of Ohio award to enhance Ohio State's sensors area by hiring new faculty, constructing new facilities and purchasing new equipment.
15. TeraHertz Center (2010-2013): Served as PI for this \$3M 3<sup>rd</sup> Frontier award to establish a new Laboratory on Terahertz research and applications.
16. THz Device MURI (2011-2016): ONR MURI on III-N Devices and Architectures for Terahertz Electronics; Goal is to develop GaN THz devices operating above 1 THz. MURI is led by Patrick Fay at Notre-Dame and our group is focused on device testing and on developing THz sources.
17. Metamaterials and Metastructured UWB miniature conformal antennas (2010-2013): An ONR funded program to develop novel meta-structures for highly thin and conformal antennas exhibiting over 30:1 bandwidth. Focus is also on MIMO capabilities, low angle scanning, pattern re-configuration, and integration with wideband RFIC back-ends.
18. High Power Devices MURI (2012-2017): AFOSR MURI to develop high power Metamaterials in Confining, Controlling, and Radiating Intense Microwave Pulses. MURI is led by Edl Schamiloglu at the Univ. of New Mexico. Ohio State is focused on high power device miniaturizations.
19. Ultra Wideband Antenna Apertures with Adaptive Beam Forming (2013-2016): ONR grant to develop novel digital beam forming techniques over large bandwidths using on-site coding and reduced power digital to analog converters.

20. Physiological Studies of Brain Signals using a Wireless Neuro-Sensing-Diagnostic System (2013-2017): NSF Smart-Connected-Health program to create non-intrusive brain signal sensors to study causes of diseases such as Epilepsy and Parkinson; project is with Arizona State (Prof. J. Chae).

## COURSE TEACHING AND STUDENT EVALUATIONS

Q1= Overall, this was an excellent course

Q2= Overall, the instructor was an excellent teacher

	Student Evaluations	
	Q2	Q1
ECE 305, Math. Methods for Fields Analysis (Fall 84)		
ECE 631, Electromagnetic Scattering (Winter 85).	4.75/5	
EECS 331, Undergrad. Electromagnetics I (F85).	3.68/5	
EECS 631, Electromagnetic Scattering (W86).	4.5/5	
EECS 331, Undergrad. Electromagnetics I (F86).	4.07/5	
EECS 531, Antenna Theory (W87).	4.43/5	
EECS 331, Undergrad. Electromagnetics I (F87).	4.31/5	
EECS 631, Electromagnetic Scattering (W88).	4.25/5	
EECS 331, Undergrad. Electromagnetics I (F88)	3.76/5	
EECS 332, Undergrad. Electromagnetics II (W89)	4.09/5	
EECS 633, Antenna Theory II (F89)	3.88/5	
EECS 332, Undergrad. Electromagnetics II (W90)	4.17/5	
EECS 531, Antenna Theory (W91)	4.21/5	
EECS 633, Antenna Theory II (F91)	4.25/5	
EECS 332, Undergrad. Electromagnetics II (Spring92)	-----	
EECS 530, Electromagnetic Theory (F92)	4.19/5	
EECS 332, Undergrad. Electromagnetics II (W92)	4.09/5	
EECS 633, Numerical Methods in Electromagnetics (F93)	4.25/5	
EECS 332, Undergrad. Electromagnetics II (W93)	4.09/5	
EECS 633, Numerical Methods for Electromagnetics	4.67/5	
EECS 331, Undergrad. Electromagnetics I (F94)	4.63/5	
EECS 730, Special Course: Approx. Boundary Conditions for EM(W94)	-----	
+EECS 503, Introduction to Numerical Electromagnetics (Fall 1995)	3.93/5	4.00/5
EECS 531, Antenna Theory (W96)	4.56/5	4.27/5
EECS 503, Introduction to Numerical Electromagnetics (Fall 1996)	4.31/5	4.56/5
EECS 531, Antenna Theory (W97)	4.50/5	4.61/5
EECS (F97)		
EECS 531 Antenna Theory (W98)		
EECS 503 Introduction to Numerical Electromagnetics (Winter 1999)	3.93/5	4.00/5
EECS 530: Electromagnetic Theory I(Fall 1999)	4.56/5	4.56/5
EECS 633: Analytical and Numerical Methods for Electromagnetics(W 2000)	4.07/5	4.07/5
EECS 530: Electromagnetic Theory (Fall 2000)	3.72/5	3.75/5
EECS 531: Antenna Theory (Winter 2001)	4.0/5.	3.90/5
EECS 530: Electromagnetic Theory (Fall 2001)	4.00/5	4.00/5
EECS 503: Intro to Numerical Electromagnetics (W 2002)	4.4/5	4.5/5
EECS 530: Electromagnetic Theory (Fall 2002)	4.25/5	4.5/5
<u>Ohio State University Courses</u>		
EE 311: UG Electromagnetics (2003)	4.2/5.0	
EE 711: Antenna Theory (W2004)	4.0/5.0	
ECE 711: Antenna Theory (W2005)	4.2/5.0	

ECE 694Y/715: Introduction to Numerical Methods (A2005)	4.5/5.0
ECE 711: Antenna Theory (W2007)	4.2/5.0
ECE 711: Antenna Theory (W2008)	4.3/5.0
ECE 711: Antenna Theory (W2009)	4.4/5.0
ECE 711: Antenna Theory (W2010)	
ECE 711: Antenna Theory (W2011)	
ECE 6010: Electromagnetic Theory I (F2012)	5.0/5.0
ECE 6010: Electromagnetic Theory I (F2013)	4.8/5.0
ECE 5011: Antennas (W2015)—with Online students/Mixed classroom	

### **Some typical student comments**

#### Comments from Undergraduate Students

*Prof. Volakis is an excellent instructor. He has thorough knowledge of the material and explains topics well. In fact his explanations .. make up for the poor text explanations*

*.. I really enjoyed coming to class and my interest in the subject deepened. The best thing that Volakis does is [to] show enthusiasm about what he is teaching. Can't say that for too many Professors in EECS Very clear. Prof. Volakis explains everything in a very logical manner, starting from the very basics of the problem and leading to its end, rarely leaving out a step or explanation in lecture ... Demanding, but very systematic. ... Very organized ..His handouts were helpful as well as a lot of [his] examples.*

*Prof. Volakis was excellent overall. I found the way [he] ran the class, and gave explanations, very instructive and helpful. His explanations were clear and to the point; emphasizing the right material ... .. Has very good understanding of subject and gave very useful examples ...*

*Very enthusiastic, ... accessible ...encouraged students to arrive at solutions themselves.*

#### Comments from Graduate Students

##### **[from former Ph.D. students]**

*...I think you should be very proud of what you have achieved with all of us, and we are thankful. It really takes to leave you, to understand how much of you is there in actions, research, writing, pizza meetings, etc.*

*...If I have all the professors in this world lined up and I get to choose again, I Wouldn't change my adviser. It's that simple.*

*..In the world of dream squashers, I am so blessed to have Prof. Volakis as my advisor, personal guide and mentor. My deepest thanks goes to him for having faith in me and providing opportunities that will eventually help my dreams come true.*

**IEEE Henning Award Nomination Comment from former Ph.D. advisees:** *During his 30 years of career in electromagnetics, microwaves, RF circuits and antennas, Prof. Volakis has sustained one of the largest research programs in the world and devoted his time to influence students to pursue a professional career in RF/Microwave Engineering. He has mentored more than 75 PhD students with 16 of them being faculty members and major universities throughout the world. I have always felt lucky to have him as my mentor - His unique guidance in my professional development has provided the motivation to complete my PhD degree and pursue further career opportunities in RF/Microwave Engineering.*

##### **[from Class Students]**

*...As I always have considered you as one of the best teachers I had over a ~20 year period in school, I am especially happy that you are receiving this [IEEE Henning Mentoring] award.*



...Prof. Volakis does an excellent job of teaching the material. His explanations are always clear. Instructor is very good ... My interest in antennas was heightened greatly as a result.

...Great enthusiasm and very good teacher

...Instructor is a great teacher. Worthy to mention, we learnt not only knowledge and theory from this class, but also how to be a good person.

...Made subject of EM theory exciting and thought provoking. Added great depth not found in books.

...Prof. Volakis: your handouts were tremendous help [and] saved a lot of time and energy; [you ] taught the material in a way that was exciting; learned tremendous from HW assignments which were almost as valuable as lectures.

...Lectures got idea across to those with no EM background; talking about concepts first and then relating to math is always great; your HWs took many hours of life, but was worth it.

You are challenging, firm but fair.

...I was enrolled in the course ECE 5011 - Antennas in Spring 2015 and I would like to really thank you for offering us such a well organized course which gave us a perfect insight on the various antennas. Also the assignments, not only gave us insight on antenna design procedures, [but also] loved the practical knowledge you had imparted on us through the challenging real time scenario questions. The exams were really competitive and it was nicely designed to test the conceptual knowledge rather than memorizing formulas.

### **National/International Awards/Appointments**

Chair UNSC/URSI Commission B, 2015-2017

President, IEEE Antennas and Propagation Society, 2004

Vice Chair, Int. Union of Radio Science (URSI), 2012- 2014

IEEE-Wide Fellows Evaluation Cmt., 2010-2014

Fellow, Institute of Electrical and Electronics Engineers (IEEE)

Fellow, Applied Computational Electromagnetics Society (ACES)

Endowed Chair Professor at The Ohio State University (1/2003-pres.)

30 best paper/poster awards between 2002-2014

Research Excellence Award, College of Engineering, Univ. of Michigan-Ann Arbor (1998).

Service Excellence (2002) Award

Scott College of Engineering Career Award for Teaching Research and Service, Ohio State Univ., 2010  
(given to one senior faculty member annually)

IEEE Chen-To Tai Distinguished Education Award, 2011(given to one individual annually)

IEEE Rudolf Henning Distinguished Mentoring Award, 2013 (given to one individual annually)

IEEE Antennas Propagation Society Distinguished Achievement Award, 2014 (given to one individual annually)

### **PUBLICATIONS:**

#### **Books/Coursepacks**

1. J.L. Volakis and K. Sertel, *Integral Equation Methods for Electromagnetics*, Scitech Publishing, ISBN: 9781891121937, 391pp, 2012.
2. J.L. Volakis, C.C Chen and K. Fujimoto, *Small Antennas: Miniaturization Techniques and Applications*, 448pp, McGraw-Hill, 2010 (ISBN: 9780071625531).

3. Y. Bayram and J.L. Volakis, *Computational Methods for High Frequency Electromagnetic Interference*, VDM-Publishing (Verlag), 2009, 130pp. (ISBN-10: 3639140052 ISBN-13: 978-3639140057)
4. J.L. Volakis (ed.), *Antenna Engineering Handbook*, McGraw-Hill; 4th edition, 2007, ISBN-10: 0071475745, ISBN-13: 978-0071475747; this is an 1800pp comprehensive Handbook with 59 chapters from 80 authors on all aspects of Antenna Theory, Design, Fabrication and related topics from applications to manufacturing and computations.
5. Y. Zhou, J.L. Volakis, and C-C Chen, *Polymer-Ceramic Composites for Conformal Multilayer Antenna/RF Systems*, ISBN 978-3-8383-7979-1, LAP Lambert Academic Publishing, 184pp.
6. J.L. Volakis, K. Sertel and B. Usner, *Frequency Domain Hybrid Finite Element Methods in Electromagnetics*, Morgan & Claypool Publishing (ISBN: 1598290800), 2006; ISBN-10: 1598290800, ISBN-13: 978-1598290806)
7. J.L. Volakis, A. Chatterjee and L. Kempel, *Finite Element Methods for Electromagnetics*, IEEE Press, New York (ISBN 0-7803-3425-6) and Oxford Univ Press, London (0-19-850479-9), 1998.
8. T.B.A. Senior and J.L. Volakis, *Approximate Boundary Conditions in Electromagnetics*, IEE Press, New York and London, 1995
9. J.L. Volakis, Introduction to Numerical Electromagnetics, a 350pp coursepack for the courses EECS 503 at the U. of Michigan and ECE 715 at Ohio State; was introduced in 1994, and is one of the very first comprehensive introductory numerical methods course to date.

#### **Patents/Disclosures**

M. Nurnberger and J.L. Volakis, *Slot Spiral Antenna with Integrated Balun and Feed*, UM file 1172, U.S. patent no 5,815,122.

K. Sertel & J.L. Volakis, *Partially Coupled Transmission Line (TRL) Pair to emulate material anisotropy using printed Circuits*, U.S Patent 2009/0315634A1

C.-C. Chen, J.L. Volakis and I.J. Gupta, *Compact CRPA (R-CRPA) for GNSS Receivers*, patent disclosure, 2007

C.-C. Chen, J.L. Volakis and Y. Zhou, *Compact GPS Antenna Element and Array with a Single Feed*, patent disclosure, 2007

J. Zhao, C-C. Chen and J.L. Volakis, *Ultrawide Bandwidth Inverted-Hat Monopole Antenna with Multiple Elliptical Curvatures*, 2008, Disclosure OSU ID #09061S

J. Kasemodel, C-C. Chen and J.L. Volakis, *Non-symmetric Antenna Element for Phased Array Apertures*, Patent Disclosure, 2009

“Interweaved spiral array with a 10:1 bandwidth on a ground plane”, U.S. Provisional patent, Nov 15, 2009, Inventors I. Tzanidis, K. Sertel, J.L. Volakis, 2009

*Stretchable, Flexible, Conformal Multilayer Electronics and Antennas Based on Polymer Substrate and Metal, Conductive Material Coated Fibers*, Y. Bayram, L. Zheng and J.L. Volakis, patent appl. 2009

*Stretchable, Flexible, Conformal Multilayer Electronics and Antennas Based on Polymer Substrate, and Carbon Nanotube Threads*, Y. Bayram, Y. Zhou, J.L. Volakis, patent appl. 2009

*Conformal Electronic Devices* by Y. Bayram, L. Zhang, Z. Wang and J.L. Volakis, U.S. Provisional Patent Application Serial No. 61/434,479. Filed for full US patent, 01/2012.

*Highly Isolated Multi-Antenna System for Indoor Mobile Communications* by Ersin Yetisir, Chi-Chih Chen & John L. Volakis, OSU Disclosure, U.S. Provisional Patent in progress.

*Ultra wideband digital beamformer with local encoding for reduced analog to digital converters* by Elias Alwan, S. Balasubramanian, W. Khalil, K. Sertel & J.L. Volakis, U.S. provisional patent application number 61/705,930.

### **Paper Awards**

1. Best student paper award at the 2002 Applied Computational Electromagnetics Society (ACES) Conference; Conf paper: Z. Li, G. Kiziltas, J.L. Volakis and N. Kikuchi, “Material Design Optimization for Printed Antennas Using the Finite Element-Boundary Integral Method.”
2. First place best student paper award at the 2002 IEEE Int. Symposium on Antennas and Propagation; Conf Paper: D. Filipovic and J.L. Volakis, “Design of a multi-functional slot aperture (combo-antenna) for automotive applications.”
3. Best paper award at the IEEE EMC International Symposium 2003, Istanbul, Turkey; Conf. paper: E.S. Siah, K. Sertel, R.W. Kindt, J.L. Volakis and V.V. Liepa, “Fast Frequency Domain Computational EM tools for System Analysis of EMI/EMC topologies.”
4. Third place best student paper award at the 2003 IEEE Int. Symposium on Antennas and Propagation; Conf Paper: R. Kindt and J.L. Volakis, “A multi-cell array decomposition approach to composite finite array analysis.”
5. Best Student Paper Award at the 2004 Antenna Measurement Techniques Association (AMTA), Conf Paper: M. Lee, Chi-Chih Chen and John Volakis, “Antenna miniaturization using artificial transmission line,”
6. 2005 IEEE EMC Society Leo L. Beranek Student Grant Award, and Runner-Up of Best Student Paper Award; Conf Paper: “A Novel Technique for Concurrent On & Off - Board EMI Analysis of Mixed RF-Digital Circuits via Hybrid Scattering Parameters”, Y. Bayram, J.L. Volakis and P. Roblin.
7. 2005 ACES Conference best student paper award: *A Hybrid VSIE Method for Periodic Media and Metamaterials*,” by Brian C. Usner, Kubilay Sertel and John L. Volakis (received 3<sup>rd</sup> best paper award)
8. 2007 North American URSI Meeting best student paper finalist. *A UTD for the Radiation by Sources near thin planar Positive or Negative Material Structures with a Discontinuity* by Titipong T. Lertwiriayaprapa, P.H. Pathak and J.L. Volakis
9. 2008 2<sup>nd</sup> place best paper award at the North American URSI Meeting, *Miniature Antenna Design via Printed Coupled Lines emulating Degenerate Band Edge Crystals*, by G. Mumcu, K. Sertel, and J.L. Volakis.
10. 2008 best paper award at the International Antennas and Propagation (ISAP) conference, *An Approximate UTD Ray Solution of an Oblique EM Wave Diffraction at a Junction between Two Different thin Planar Material Slabs on Ground Plane*, by Titipong Lertwiriayaprapa, P.H. Pathak and J.L. Volakis
11. 2009 3<sup>rd</sup> place best paper award at the North American URSI Meeting, *Conductive Polymer-Carbon Nanotube Sheets for Conformal Load Bearing Antennas*, by Y. Zhou, Y. Bayram, J.L. Volakis and L. Dai.

12. 2009, 1<sup>st</sup> place best paper award at the Antennas Applications Symposium (Allerton, IL), *A novel non-symmetric tightly coupled element for wideband phased array apertures*, J.A. Kasemodel, C.C. Chen, J.L. Volakis.
13. 2010, 1<sup>st</sup> place best paper award at the IEEE Antennas and Propagation Conference (Toronto, Canada), *An Interweaved Spiral Array (ISPA) Providing a 10:1 Bandwidth over a Ground Plane*, I. Tzanidis, K. Sertel and J. L. Volakis
14. 2010, 2<sup>nd</sup> place best paper award at the IEEE Antennas and Propagation Conference (Toronto, Canada), *High Resolution Radar Imaging Utilizing a Portable Opportunistic Sensing Platform*, K. E. Browne, R. J. Burkholder and J. L. Volakis.
15. 2010 best paper award at the IEEE International Symposium on Phased Arrays Systems & Technology, Boston, MA, *Broadband Planar Wide-Scan Array Employing Tightly Coupled Elements and Integrated Balun*, Justin A. Kasemodel, Chi-Chih Chen, John L. Volakis.
16. 2011 3<sup>rd</sup> place for best paper award at the Antenna Measurement Techniques Association Symposium (AMTA) (Boston, MA), *Frequency and Impedance Agile Real-Time Tuning Network for 200-400 MHz Antennas*, N. J. Smith, C.C. Chen and J.L. Volakis.
17. 2012 best poster award at the International Wireless & Antennas Technologies (iWAT) conference: *Flexible Textile Antennas for Body-Worn Communication* by Zheyu Wang, Lanlin Zhang, Dimitris Psychoudakis and John L. Volakis.
18. 2012 best paper award at the IEEE Antennas and Propagation Symposium *6.3:1 Bandwidth Scanning Tightly Coupled Dipole Array with Co-Designed Compact Balun*, by Jon Doane, K. Sertel and J.L. Volakis.
19. 2012 2<sup>nd</sup> best student paper award at the Antenna Applications Symposium, *A Wideband Scanning Conformal Array with a Compact Compensating Balun*, by Jon Doane, K. Sertel and J.L. Volakis.
20. 2012 best poster award at the annual John D. Kraus Memorial award, *Determining the Relative Permittivity of Masses in the Human Body*, by Safa Salman, D. Psychoudakis and John Volakis.
21. 2<sup>nd</sup> place best student paper award at the 2013 USNC-URSI National Radio Science Meeting (Boulder, CO), *Computation of the Q Limits for Arbitrary-Shaped Antennas Using Characteristic Modes*, by Jeffrey Chalas, Kubilay Sertel and John Volakis
22. Best paper at the 2013 Wireless Innovation Forum on Wireless Communications Technologies and Software Defined Radio (SDR 2013): *Ultra-wideband Digital Beamformer with Significant SWAP-C Reduction*, by A. Alwan, S. Balasubramanian, J.G. Atallah, M. Larue, W. Khalil, K. Sertel, J. L. Volakis.
23. 2<sup>nd</sup> place best student paper award at the 2013 Allerton Antenna Applications Symposium: *Efficient Self Powered Auto-Tuned VHF Impedance Tuner for High Power Applications*, by N. J. Smith, C-C. Chen, and J. L. Volakis
24. 2<sup>nd</sup> place best paper award at the 2013 Antenna Measurements Techniques Association (AMTA): *Implementation of a Novel Low-Cost Low- Profile Ku-Band Antenna Array for Single Beam Steering from Space* by N. Host, C-C. Chen and J.L.Volakis.
25. 1<sup>st</sup> place best paper award at the 2013 IEEE International Symposium on Phased Array Systems & Technology: *Low Cost, Power Efficient, On-Site Coding Receiver (OSCR) for Ultra-Wideband Digital Beamforming* by Elias Alwan, W. Khalil and J.L. Volakis.

26. Best student paper award at the 2014 USNC-URSI National Radio Science Meeting (Boulder, CO), *Analytical and Experimental Evaluation of a Novel Wideband Transceiver with On-Site Coding* by Elias Alwan, W. Khalil and J.L. Volakis.
27. 2014 Premium Award for Best Paper in IET Microwaves, Antennas & Propagation, *Design of an Efficient Ambient WiFi Energy Harvesting System,* *IET Microwaves, Ant. & Propagat.*, pp. 1200-1206, 2012 by U. Olgun, C.-C. Chen and J.L. Volakis
28. 2014 IEEE EMBS BRAIN Grand Challenges Young Investigator award, "Fully-Passive Wireless Implants for Unobtrusive Brain Signal Monitoring," by Asimina Kiourti, Cedric Lee, Junseok Chae, and John L. Volakis.
29. 2<sup>nd</sup> place best paper award at the 2014 Antenna Measurements Techniques Association (AMTA), *Novel Phaseless Method for Gain Characterization of Circularly Polarized Antennas Operating in the mm-Wave and THz Bands*, Shubhendu Bharwaj, Niru K. Nahar and John L. Volakis.
30. 2014 IMWS-Bio 2014 Best Poster Award, *Fully-Passive and Wireless Detection of Very-Low-Power Brain Signals,* Cedric Lee, Asimina Kiourti, Junseok Chae and John L. Volakis.
31. 2015 2<sup>nd</sup> place best poster award at the annual John D. Kraus Memorial award, *UWB Digital Beamformer Realization Employing a Novel On-Site Coding using FPGAs*, Satheesh Bojja Venkatakrishnan, Elias Alwan, W. Khalil and J.L. Volakis.

#### **Chapters/Articles in Edited Books (some included in journals list)**

1. J.L. Volakis and K. Barkeshli, "Applications of the Conjugate Gradient FFT method to Radiation and Scattering," in *Application of Iterative Methods to Electromagnetics and Signal Processing*, ed. T. Sarkar, Elsevier Pub. Co., pp. 159-240, 1991.
2. J.L. Volakis and T.B.A. Senior, "Application of a Class of Generalized Boundary Conditions to Scattering by a Metal-Backed Dielectric Half Plane," in *Radar Cross Section of Complex Objects*, ed. W. R. Stone, IEEE Press: New York, 1990, pp. 419-427.
3. H.H. Syed and J.L. Volakis, "Multiple Diffractions Among Polygonal Impedance Cylinders," in *Radar Cross Section of Complex Objects*, ed. W.R. Stone, IEEE Press: New York, 1990, pp. 441-449.
4. J.L. Volakis and M.A. Ricoy, "H-polarization Diffraction by a Thick Metal-Dielectric Join," in *Radar Cross Section of Complex Objects*, IEEE Press: New York, 1990, pp. 481-491.
5. M.A. Ricoy, S. Kilberg and J.L. Volakis, "Simple Integral Equations for Two-Dimensional Scattering with Further Reduction in Unknowns," in *Moment Methods in Antennas and Scattering*, ed. R.C. Hansen, Artech-House: Norwood, MA., 1990.
6. J.D. Collins and J.L. Volakis and J.M. Jin, "A Combined Finite Element-Boundary Integral Formulation for Solution via CGFFT of Two-Dimensional Scattering Problems," in *Finite Elements for Wave Electromagnetics: methods and techniques*, pp. 272-278; eds. P. Silvester and G. Pelosi, IEEE Press: New York, 1994.
7. J.M. Jin and J. L. Volakis, "A Hybrid Finite Element Method Scattering and Radiation From Microstrip Patch Antennas and Arrays Residing in a Cavity," in *Finite Elements for*

- Wave Electromagnetics: methods and techniques*, pp. 299-305; eds. P. Silvester and G. Pelosi, IEEE Press: New York, 1994.
8. J.D. Collins, J.M. Jin and J.L. Volakis, "Eliminating Interior Cavity Resonances in Finite Element-Boundary Integral Methods for Scattering," in *Finite Elements for Wave Electromagnetics: methods and techniques*, pp. 313-315; eds. P. Silvester and G. Pelosi, IEEE Press: New York, 1994.
  9. A. Chatterjee, J.M. Jin and J.L. Volakis, "A Finite Element Formulation with Absorbing Boundary Conditions for Three Dimensional Scattering," in *Finite Elements for Wave Electromagnetics: methods and techniques*, pp. 485-490; eds. P. Silvester and G. Pelosi, IEEE Press: New York, 1994.
  10. J.L. Volakis, J. Gong and T. Ozdemir, "FEM Applications to Antennas," in *Finite Element Methods and Software in Electromagnetics* (eds. Itoh, Pelosi and Silvester), Wiley 1996.
  11. T.B.A. Senior and J.L. Volakis, "Approximate Boundary Conditions in Electromagnetics," in *Review of Radio Science*, Ed. R.Stone, Oxford, pp. 205-234, 1996
  12. J.L. Volakis, T.B.A. Senior, S.R. Legault, T. Ozdemir and M. Casciato, "Artificial absorbers for truncating finite element meshes," Chapter I, pp. 15-25, in *Direct and Inverse Electromagnetic Scattering*, eds. Serbest and Cloude, Addison Wesley Longman Ltd. (Pitman Research Series in Mathematics).
  13. J. L. Volakis, J.Gong and T. Ozdemir, "Hybrid Finite Elements for Electromagnetics," Chapter in *Computational Electromagnetics and its Applications*, eds. Campbell et.al. (pp. 252-287), Kluwer Academic Publishers, 1997.
  14. L.A. Andersen and J.L. Volakis, "Hierarchical Mixed-Order Tangential Vector Finite Elements for Triangular Elements," Chapter in book edited by N. Uzunoglu et.al. (pp. 164-174), Springer-Verlag, N.Y. 1998.
  15. J.L. Volakis, "Two Dimensional Finite Element-Boundary Integral Method," Chapter in book edited by N. Uzunoglu et.al. (pp. 175-182), Springer-Verlag, N.Y. 1998.
  16. T. Eibert, K. Sertel, D. Filipovic and J.L. Volakis, "Finite Element-Fast Integral Methods for Antenna Analysis," Chapter in book edited by N. Uzunoglu et.al. (pp. 183-197), Springer-Verlag, N.Y. 1998.
  17. T. Eibert and J.L. Volakis, "Antennas, Radar and Mobile Communications", Chapter in book edited by Sabatier, Wiley and Sons, 2001, pp. 384-406
  18. J.L. Volakis and T. Eibert, "Antenna Analysis Methods," chapter in *Encyclopedia of Telecommunications*, ed. J. Proakis (2004)
  19. C.C. Chen and J.L. Volakis, "Spiral Antennas: Overview, Properties and Miniaturization Techniques," in book edited Rod Waterhouse, Wiley & Sons, 2007
  20. T. Eibert and J.L. Volakis, "Introduction and Fundamentals to Antennas," Chapter 1 (30pp) in the 4<sup>th</sup> ed. *Antenna Engineering Handbook*, ed. J.L. Volakis.
  21. R. Emrick and J.L. Volakis, "Millimeter Wave and TeraHertz Antennas," Ch 23 (15pp) in the 4<sup>th</sup> ed. *Antenna Engineering Handbook*, ed. J.L. Volakis
  22. R. Burkholder, R. Marhefka, and J.L. Volakis, "Analytical Ray Methods for Through-Wall Radar Imaging," Chapter in book *Through-The-Wall Radar Imaging*, CRC press, ed. Moenes Amin, Dec. 2010, pp. pp. 269-306.
  23. G. Mumcu, K. Sertel, and J.L. Volakis, "Metamaterial Antennas," Chapter in book *Frontiers in Antennas*, McGraw-Hill, ed. Frank Gross., 2011, pp. 203-236.

- 24 Dimitris Psychoudakis, Chi-Chih Chen, Gil-Young Lee and John L. Volakis, “An Epidermal Sensor Paradigm - Inner Layer Tissue Monitoring,” ch. 19 in *Handbook of Biomedical Telemetry*, 2014.
- 25 Z. Wang, J.L. Volakis and A. Kiourti, “Embroidered Antennas for Communication Systems,” in *Electronic Textiles: Smart Fabrics and Wearable Technology*, Woodhead Publishing, 2015. (to appear)

## ARTICLES IN REFEREED JOURNALS

### 1982

1. J.L. Volakis and J.D. Young, "Phase Linearization of a Broadband Antenna Response in Time Domain," *IEEE Trans. Antennas Propagat.*, AP-30, March 1982, pp. 309-313.

### 1983

2. J.L. Volakis and L. Peters, Jr., "Improved Identification of Underground Targets Using Video-Pulse Radars by Elimination of Undesired Natural Resonances," *IEEE Trans. Antennas Propagat.*, AP-31, March 1983, pp. 334-340.

### 1985

3. J.L. Volakis and T.B.A. Senior, "Simple Expressions for a Function Occurring in Diffraction Theory," *IEEE Trans. Antennas Propagat.*, AP-33, June 1985, pp. 678-680.
4. J.L. Volakis, W.D. Burnside and L. Peters, Jr., "Electromagnetic Scattering from Appendages on a Smooth Surface," *IEEE Trans. Antennas Propagat.*, AP-33, July 1985, pp. 736-743.
5. J.L. Volakis and L. Peters, Jr., "Evaluation of Reflected Fields at Caustic Regions Using a Set of Geometrical Optics Equivalent Line Currents," *IEEE Trans. Antennas Propagat.*, AP-33, August 1985, pp. 860-866.

### 1986

6. J.L. Volakis, "A Uniform Geometrical Theory of Diffraction for an Imperfectly Conducting Half-plane," *IEEE Trans. Antennas Propagat.*, AP-34, Feb. 1986, pp. 172-180.
7. T.B.A. Senior and J.L. Volakis, "Scattering by an Imperfect Right-Angled Wedge," *IEEE Trans. Antennas Propagat.*, AP-34, May 1986, pp 681-689.
8. J.L. Volakis and M.I. Herman, "A Uniform Asymptotic Evaluation of Integrals," *Proc. of the IEEE*, July 1986, pp. 1043-1044.

### 1987

9. J.L. Volakis and M.A. Ricoy, "Diffraction by a Thick Perfectly Conducting Half Plane," *IEEE Trans. Antennas Propagat.*, AP-35, Jan. 1987, pp. 62-72.
10. J.L. Volakis, "Scattering by a Thick Impedance Half Plane," *Radio Sci.*, 22, Jan-Feb. 1987, pp. 13-25.
11. M. I. Herman and J. L. Volakis, "High Frequency Scattering by a Resistive Strip and Extensions to Conductive and Impedance Strips," *Radio Sci.*, 22, May-June 1987, pp. 335-349.
12. J. L. Volakis, "Revisions to A Uniform Geometrical Theory of Diffraction for an Impedance Half Plane," *IEEE Trans. Antennas Propagat.* AP-35, June 1987, pp. 742-744.
13. M.I. Herman, J.L. Volakis and T.B.A. Senior, "Analytic Expressions for a Function Occurring in Diffraction Theory," *IEEE Trans. on Antennas and Propagat.*, AP-35, Sept. 1987 pp.1083-1086.
14. J.L. Volakis, P.K. Wang and W.P. Harokopos, "Mapping of Electrostatic Fields Using the IBM Personal Computer," *IEEE Trans. on Education*, E-30, Nov. 1987, pp. 247-250.
15. T.B.A. Senior and J.L. Volakis, "Sheet Simulation of Dielectric Layers," *Radio Sci.*, 22, Dec. 1987, pp. 1261-1272.



16. J.L. Volakis and T.B.A. Senior, "Diffraction by a Thin Dielectric Half Plane," *IEEE Trans. on Antennas and Propagat.*, AP-35, Dec. 1987, pp. 1483-1487.

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17. T.J. Peters and J.L. Volakis, "Application of a Conjugate Gradient FFT Method to Scattering by Thin Material Plates" *IEEE Trans Antennas and Propagat.*, AP-36, April 1988, pp. 518-526.
18. M.I. Herman and J.L. Volakis, "High Frequency Scattering by a Double Impedance Wedge," *IEEE Trans. on Antennas and Propagat.*, AP-36, May 1988, pp. 664-678.
19. M.I. Herman and J.L. Volakis, "High Frequency Scattering from Polygonal Impedance Cylinders and Strips," *IEEE Trans. on Antennas and Propagat.*, AP-36, May 1988, pp. 679-689.
20. J.L. Volakis, "High Frequency Scattering by a Material Half-Plane and Strip," *Radio Sci.*, 23, pp. 450-462, May-June 1988.

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21. J.-M. Jin, J.L. Volakis and V.V. Liepa, "A comparative Study of the OSRC Approach in Electromagnetic Scattering," *IEEE Trans. on Antennas and Propagat.*, AP-37, pp. 118-124, Jan. 1989.
22. M.A. Ricoy and J.L. Volakis, "Integral Equations with Reduced Unknowns for the Stimulation of Two-Dimensional Composite Structures," *IEEE Trans. on Antennas and Propagat.*, AP-37, pp. 362-372, March 1989.
23. J.L. Volakis and T.B.A. Senior, "Application of a Class of Generalized Boundary Conditions to Scattering by a Metal-Backed Dielectric Half Plane," (invited paper) *Proceedings of the IEEE*, vol. 73, pp. 796-805, May 1989.
24. H.H. Syed and J.L. Volakis, "Multiple Diffractions Among Polygonal Impedance Cylinders," *IEEE Trans. on Antennas and Propagat.*, AP-37, pp. 664-672, May 1989.
25. M.A. Ricoy and J.L. Volakis, "E-polarization Diffraction by a Thick Metal-Dielectric Join," *J. of Electromagnetic Waves and Applications*, Vol. 3, No. 5, pp. 383-407, 1989.
26. T.B.A. Senior and J.L. Volakis, "Scattering by Gaps and Cracks," *IEEE Trans. on Antennas and Propagat.*, AP-37, pp. 744-750, June 1989.
27. K. Barkeshli and J.L. Volakis, "Improving the Convergence of the Conjugate Gradient FFT Method Using Subdomain Basis Functions," *IEEE Trans. on Antennas and Propagat.*, AP-37, pp. 893-900, July 1989.
28. K. Barkeshli and J.L. Volakis, "A Vector-Concurrent Application of a Conjugate Gradient FFT Algorithm to Electromagnetic Radiation and Scattering Problems," *IEEE Trans. on Magnetics*, 25, pp. 2892-2894, July 1989.
29. M.A. Ricoy, S.A. Kilberg and J.L. Volakis, "Integral Equations for Two-Dimensional Scattering with Further Reduction in Unknowns," *IEE Proceedings, part H*, Vol. 136, pp. 298-304, August 1989.
30. J.-M. Jin and J.L. Volakis, "A New Technique for Characterizing Diffraction by Inhomogeneously Filled Slot of Arbitrary Cross Section in a Thick Conducting Plane," *IEE Electronic Letters*, Vol. 25, No. 17, pp. 1121-1122, 17th Aug. 1989.
31. J.-M. Jin, J.L. Volakis and V.V. Liepa, "A Moment Method Solution of Volume-Surface Integral Equation Using Isoparametric Elements and Point-Matching," *IEEE Trans. Microwave Theory and Techniques*, MTT-37, pp. 1641-1645, Oct. 1989.

32. J.L. Volakis and M.A. Ricoy, "H-polarization Diffraction by a Thick Metal-Dielectric Join," *IEEE Trans on Antennas and Propagat.*, AP-37, pp. 1453-1462, Nov. 1989.
33. T.B.A. Senior and J.L. Volakis, "Derivation and Application of a Class of Generalized Boundary Conditions," *IEEE Trans. on Antennas and Propagat.*, AP-37, PP. 1566-1572, Dec. 1989.
34. T.J. Peters and J.L. Volakis, "On the Formulation and Implementation of the a Conjugate Gradient FFT Method," *J. of Electromagnetic Waves and Applications*, Vol. 3, No. 8, pp. 675-696, 1989.

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35. J.L. Volakis and J. Collins, "Electromagnetic Scattering From a Resistive Half-Plane on a Dielectric Interface," *Wave Motion*, Vol. 12, pp. 81-96, 1990.
36. J.-M. Jin and J.L. Volakis, "Electromagnetic Scattering by a Perfectly Conducting Patch Array on a Dielectric Slab," *IEEE Trans. Antennas and Propagat.*, AP- 38, pp. 556-563, April 1990.
37. K. Barkeshli and J.L. Volakis, "On the Implementation and Accuracy of the Conjugate Gradient Fourier Transform Method," *IEEE Transactions Antennas and Propagation Magazine*, Vol. 32, No.2, pp. 20-26, April 1990.
38. J.-M. Jin and J.L. Volakis, "TM Scattering by an Inhomogeneously Filled Aperture in a Thick Ground Plane," *IEE Proceedings, Part H*. Vol. 137, No. 3, pp. 153-159, June 1990.
39. J.L. Volakis and P.B. Katehi, "Research in Computational Electromagnetics at the University of Michigan," *IEEE Transactions Antennas and Propagation Magazine*, Vol. 32, pp. 16- 30, June 1990.
40. J.-M. Jin and J.L. Volakis, "TE Scattering by an Inhomogeneously Filled Aperture in a Thick Conducting Plane," *IEEE Trans. Antennas and Propagat.*, AP-38, pp. 1280-1286, August 1990.
41. K. Barkeshli and J.L. Volakis, "TE Scattering by a Two-Dimensional Groove in a Ground Plane Using Higher Order Boundary Conditions," *IEEE Trans. Antennas and Propagat.*, pp.1421-1428, October 1990.
42. J.L. Volakis, "TE Scattering by a Pair of Material Half Sheets," *J. of Electromagnetic Waves and Applications*, Vol. 4, No. 5, pp 441-461, 1990.
43. M.A. Ricoy and J.L. Volakis, "Derivation of Generalized Transition/Boundary Conditions for Planar Multiple Layer Structures," *Radio Sci.*, Vol. 25, pp. 391-405, July-Aug. 1990.
44. J.D. Collins and J.L. Volakis and J.M. Jin, "A Combined Finite Element-Boundary Integral Formulation for Solution via CGFFT of Two-Dimensional Scattering Problems," *IEEE Trans. Antennas and Propagat.*, AP-38, pp. 1852-1858, November 1990.
45. J.L. Volakis and H.H. Syed, "Application of Higher Order Boundary Conditions to Scattering by Multi-layer Coated Cylinders," *J. of Electromagnetic Waves and Applications.*, Vol. 4, No. 12, pp. 1157-1180, 1990
46. J. D. Collins, J.-M. Jin and J.L. Volakis, "A Combined Finite Element-Boundary Element Formulation for Solution of Two-Dimensional Problems via CGFFT," *Electromagnetics*, Vol 10, pp. 423-437, 1990.

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47. J.M. Jin and J.L. Volakis, "A Finite Element-Boundary Integral Formulation for Scattering by Three-Dimensional Cavity-Backed Apertures," *IEEE Trans. Antennas and Propagat.*, AP-39, pp.97-104, January 1991.
  48. M.A. Ricoy and J. L. Volakis, "Diffraction by a Multilayered Slab Recessed in a Ground Plane via a Generalized Impedance Boundary Condition," *Radio Sci.*, pp. 313-327, March-April 1991.
  49. K. Barkeshli and J.L. Volakis, "Electromagnetic Scattering by an Aperture Formed by a Rectangular Cavity Recessed in a Ground Plane," *J. of Electromagnetic Waves and Applications*, Vol. 5, No. 7, pp.715-734, 1991.
  50. J.M. Jin and J.L. Volakis, "Electromagnetic Scattering by and Transmission through a Three-Dimensional Slot in a Thick Conducting Plane," *IEEE Trans. Antennas and Propagat.*, AP-39, pp. 543-550, April 1991.
  51. K. Barkeshli and J.L. Volakis, "Scattering by a Narrow Filled Rectangular Groove," *IEEE Trans. Antennas and Propagat.*, AP-39, pp. 804-810, June 1991.
  52. J.M. Jin, J.L. Volakis and J.D. Collins, "A Finite Element-Boundary Element Method for Scattering by Two and Three Dimensional Structures," *IEEE Antennas and Propagat. Magazine* , Vol. 33, No.3, pp. 22-32, June 1991.
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  54. T.B.A. Senior and J.L. Volakis "Generalized Impedance Boundary Conditions in Scattering," *Proceedings of the IEEE.*, Vol. 79, No. 10, pp. 1413-1420, Oct. 1991.
  55. J.M. Jin and J. L. Volakis, "A Hybrid Finite Element Method Scattering and Radiation From Microstrip Patch Antennas and Arrays Residing in a Cavity," *IEEE Trans. Antennas and Propagat.*, AP-39, pp. 1598-1604, Nov. 1991
- 1992**
56. H.H. Syed and J.L. Volakis, "An Approximate Diffraction Coefficient for an Impedance Wedge at Skew Incidence," *Electromagnetics*, Vol. 12, No.1, pp.33-55, 1992.
  57. J.L. Volakis, "Alternative Field Representations and Integral Equations for Modeling Inhomogeneous Dielectrics," *IEEE Trans. Microwave Theory Tech.*, pp. 604-608, March 1992.
  58. K.Barkeshli and J.L. Volakis, "Scattering by Filled Grooves and Slits," *J. of Electromagnetic Waves and Applications*, Vol. 6, No.4, pp.459-474, 1992.
  59. J.M. Jin and J.L. Volakis, "A Biconjugate Gradient FFT Solution for Scattering by Planar Plates," *Electromagnetics*, Vol. 12, No.1, pp.105-119, 1992.
  60. J.M. Jin, J. L. Volakis, C.L. Yu and A. Woo, "Modeling of Resistive Sheets in the Context of Finite Element Solutions," *IEEE Trans. Antennas and Propagat.*, Vol. 40, pp. 727-731, June 1992.
  61. M.A. Ricoy and J.L. Volakis, "Diffraction by a Symmetric Material Junction Using Higher Order Impedance Boundary Conditions" *IEEE Trans. Antennas and Propagat.*, Vol. 40, pp. 742-754, July 1992.
  62. A. Chatterjee, J.L. Volakis and W.J. Kent, "Scattering by a Coated Thin Wire and a Finite Rectangular Groove Using a Physical Basis Model," *IEEE Trans. Antennas and Propagat.*, Vol. 40, pp. 761-769, July 1992.

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423. E. Irci, K. Sertel, J. L. Volakis, *Unidirectional Transmission Characteristics of Printed Magnetic Photonic Crystals*, APS-USNC/URSI, Session 525, San Diego, CA, July 2008.
424. J.-Y. Chung, K. Sertel and J. L. Volakis, "A non-invasive metamaterial characterization system using synthetic gaussian aperture", *XXIX URSI General Assembly*, Session A06.6, Chicago, IL., USA, 2008 (Wedn, 10am, Columbus IJ)
425. T. Lertwiriayaprapa, P. H. Pathak and J. L. Volakis, "An approximate utd ray solution for skew incidence diffraction by material coated wedges of arbitrary angle", *XXIX URSI General Assembly*, Session B02.3, Chicago, IL., USA, 2008. (Wedn, 2:20pm, Grand B)
426. Y. Bayram, J. L. Volakis and Z. Khan, "Hybrid s-parameters for emi/emc analysis of electronic systems", *XXIX URSI General Assembly*, Session EB.7, Chicago, IL., USA, 2008 (10:20am, Thursday, Columbus, CD)
427. J. L. Volakis & K. Sertel, "Antennas and RF components using dispersion engineered coupled microstrip transmission lines", *XXIX URSI General Assembly*, Session B04.8, Chicago, IL., USA, 2008. (Friday, 2:20pm, Grand B)
428. P. C. Chang, R. J. Burkholder, R. J. Marhefka and J. L. Volakis, "Diffraction coefficients for dielectric wedges and corners with application to monostatic building imaging", *XXIX URSI General Assembly*, Session B07.6, Chicago, IL., USA, 2008 (Monday, 10am, Grand B)

429. D. Psychoudakis, G. Y. Lee, C.-C. Chen and J. L. Volakis, "Body-worn diversity antennas for squad area networks (SAN)", *XXIX URSI General Assembly*, Session BCK.2, Chicago, IL., USA, 2008 (Tues, 1pm, Grand B)
430. S. Yarga, K. Sertel and J. L. Volakis, "Highly directive degenerate band edge crystal-type resonator antenna", *XXIX URSI General Assembly*, Session BDPS4.4, Chicago, IL., USA, 2008. (Thursday, 3:40pm, Poster)
431. Titipong Lertwiriaprapa, P.H. Pathak, and J.L. Volakis, "An approximate UTD ray solution of an oblique EM wave diffraction at a junction between two different thin planar material slabs on ground plane" 2008 International Symposium on Antennas and Propagation (ISAP'08), Taipei, Taiwan. (**won best paper award**)
432. Y. Zhou, Y. Bayram, L. Dai and J. L. Volakis, "Conductive Polymer-Carbon Nanotube Sheets for Conformal Load Bearing Antennas", 2009 USNC/URSI Meeting, BS1-4, Boulder, CO (won 3<sup>rd</sup> best paper award)
433. W. F. Moulder, J. L. Volakis, R. M. Emrick, "A Low-Cost Broadband 60 GHz Beamforming Array with Integrated CMOS Components", 2009 USNC/URSI Meeting, BS1-6, Boulder, CO.
434. J. Zhao, C. -C. Chen, J. L. Volakis, "Low-profile Inverted-hat Monopole Antennae for UWB Application", 2009 USNC/URSI, B1-4, Boulder, CO.
435. J.-Y. Chung, K. Sertel, J. L. Volakis, "Permittivity and Permeability Characterization of Engineered Composites", 2009 USNC/URSI Meeting, AS1-6, Boulder, CO
436. E. Irci, K. Sertel, J. L. Volakis, "Miniature Antenna Using Coupled Microstrip Lines Emulating Magnetic Photonic Crystals", 2009 USNC/URSI Meeting, BDS1-7, Boulder, CO.
437. G.-Y. Lee, D. Psychoudakis, C.-C. Chen, J. L. Volakis, "Diversity Evaluation for Multiple Body-Worn Antennas", 2009 USNC/URSI Meeting, BKS1-5, Boulder, CO.
438. P. C. Chang, R. J. Burkholder, J. L. Volakis, "Adaptive CLEAN with Target Refocusing for Through-Wall Image Improvement", 2009 USNC/URSI, C1-4, Boulder, CO.
439. Xi Yang, P. Roblin, D. Chaillot, S. Mutha, J. Strahler, J. Kim, M. Ismail, J. Wood and J. Volakis, "Fully Orthogonal Multi-Carrier Predistortion Linearization," 2009 IEEE International Microwave Symposium, Boston, MA, Proc. pp. 1077-1080, 7-12 June 2009.
440. S. Mutha, P. Roblin, D. Chaillot, Xi Yang, Jiwoo, Kim, Jeff Strahler, Roberto Rojas, John Volakis, "Techniques for Joint Balancing of IQ Modulator-Demodulator Chains in Wireless Transmitters," 2009 IEEE International Microwave Symposium, Boston, MA, Proc. pp. 221-224, 7-12 June 2009
441. Jing Zhao, Chi-Chih Chen, John L. Volakis, "Ultra-wideband Triple-Ellipse Inverted-Hat Antenna for Aircraft Communications," 2009 Applied Computational Electromagnetics Society (ACES) Conference, Monterey, CA, March 2009.
442. J. L. Volakis, K. Sertel, Y. Bayram, "25 Years of Progress in Integral and Hybrid Finite Element Methods for Electromagnetics: from Analysis to Design," 2009 Applied Computational Electromagnetics Society (ACES) Conference, Monterey, CA, March 2009.
443. Yijun Zhou, Chi-Chih Chen, John L. Volakis, "A Miniature Dual-band GPS Antenna with Slot Loading," 2009 Applied Computational Electromagnetics Society (ACES) Conference, Monterey, CA, March 2009.

444. V. Sarangan, J. Kunthong, X. Cai, S.T.S. Bukkapatnam, R. Komanduri, J.L. Volakis, 'A Low-cost, Small-footprint Wireless Sensor for Container Integrity Monitoring,' 6th IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON 2009), 2009
445. Yijun Zhou, Yakup Bayram, Liming Dai and John L. Volakis, "Conformal Load-Bearing Polymer-Carbon Nanotube Antennas and RF Front-Ends," 2009 IEEE Antennas and Propagation Symposium, Charleston, SC., June 1-7, 2009
446. K. Sertel, J.L. Volakis, and E. Irci, "Small Wideband Antennas Based on Magnetic Photonic Crystals," 3rd International Congress on Advanced EM Materials in Microwaves and Optics, London, UK, 1-4 Sept 2009.
447. N. Apaydin, K. Sertel, and J.L. Volakis, "3-D Artificial Media Exhibiting Degenerate Band Edge and Frozen Modes," 2009 IEEE Antennas and Propagation Society Symposium, June 2009, Charleston, SC.
448. G. Mumcu, K. Sertel, and J.L. Volakis, "Printed Degenerate Band Edge Antennas Loaded with Varactor Diodes," 2009 IEEE Antennas and Propagation Society Symposium, Charleston, SC, June 2009
449. S. Yarga, K. Sertel, and J.L. Volakis, "Non-reciprocal Radiation using Magnetic Photonic Crystals," 2009 IEEE Antennas and Propagation Society Symposium, Charleston, SC, June 2009.
450. E. Irci, K. Sertel, and J.L. Volakis, "Antenna Miniaturization Using Coupled Microstrip Lines Emulating Magnetic Photonic Crystals," 2009 IEEE Antennas and Propagation Society Symposium, Charleston, SC, June 2009
451. W. F. Moulder, R. M. Emrick, J. L. Volakis, "PTFE Based 60 GHz Array for Active CMOS Integration," APS/URSI-A, Session 110, Charleston, SC., 2009
452. T. Peng, K. Sertel, J. Volakis, "Fully Overlapping Domain Decomposition Method" APS/URSI-B, Session 125, Charleston, SC., 2009
453. Y. Bayram, J. L. Volakis, "EMI/EMC Analysis of "Black Box" Line Replaceable Units Via Hybrid Circuit/Computational EM Tools", URSI-E, Session 134, Charleston, SC., 2009
454. Y. Zhou, C.-C. Chen, J. L. Volakis, "A Compact 4-Element Dual-Band GPS Array" APS/URSI-A, Session 205, Charleston, SC., 2009
455. G. C. Trichopoulos, G. Mumcu, K. Sertel, L. H. Mosbacker, Y. Tang, Z. Zhang, P. Fay, J. Volakis, "A Focal Plane Imaging Array for High Sensitivity Direct Detection of Excised Tissue Characteristics", URSI-K, Session 209, Charleston, SC., 2009
456. M. Livadaru, C.-C. Chen, J. Volakis, "A Passive Matching Network Design for a Wideband VHF/UHF Antenna", URSI-A, Session IF213, Charleston, SC., 2009
457. G.-Y. Lee, D. Psychoudakis, C.-C. Chen, J. L. Volakis, "A Novel Evaluation Method for Body-Worn Radio Systems", APS, Session 220, Charleston, SC., 2009
458. K. E. Browne, R. J. Burkholder, J. L. Volakis, "Low-Cost Flat-Panel Array for Through Wall Opportunistic Sensing", APS/URSI, Session 225, Charleston, SC., 2009
459. S. Koulouridis, J. L. Volakis, "Non-Foster Circuits for Small Broadband Antennas", APS/URSI-B, Session 234, Charleston, SC., 2009
460. Y. Zhou, Y. Bayram, L. Dai, J. L. Volakis, "Conformal Load-Bearing Polymer-Carbon Nanotube Antennas and RF Front-Ends", APS/URSI, Session 301, Charleston, SC., 2009



461. E. Apaydin, Y. Zhou, S. Koulouridis, J. L. Volakis, D. Hansford, "Multilayer Printing on PDMS-Ceramic Composites for RF Integration and Packaging", APS, Session 311, Charleston, SC., 2009
462. U. Olgun, D. Psychoudakis, C.-C. Chen, J. L. Volakis, "High Gain Lightweight Array for Harmonic Portable RFID RADAR", APS/URSI, Session 327, Charleston, SC., 2009
463. H. Moon, C.-C. Chen, J. L. Volakis, "Quad Split Ultrawideband Inverted-Hat-Antenna with Pattern and Polarization Diversity", APS/URSI-B, Session 409, Charleston, SC., 2009
464. J. A. Kasemodel, C. C. Chen, J. L. Volakis, "A Miniaturization Technique for Wideband Tightly Coupled Phased Arrays", APS, Session IF416, Charleston, SC., 2009
465. J. Zhao, C.-C. Chen, J. L. Volakis, "A Novel Low-Profile Frequency-Independent Inverted-Hat Antenna for UWB Application", APS, Session 427, Charleston, SC., 2009
466. N. Apaydin, K. Sertel, J. L. Volakis, "3-D Artificial Media Exhibiting Degenerate Band Edge and Frozen Modes", APS, Session 502, Charleston, SC., 2009
467. I. Tzanidis, C.-C. Chen, J. L. Volakis, "Low Profile, Cavity Backed Spiral on Thin Ferrite Ground Plane for High Power Operation above 200MHz", APS, Session 506, Charleston, SC., 2009
468. R. J. Burkholder, J. L. Volakis, "Time-Reversal Radar Imaging Through Periodic Structures", APS/URSI-B, Session 510, Charleston, SC., 2009.
469. J.A. Kasemodel, C.C. Chen, J.L. Volakis, "A novel non-symmetric tightly coupled element for wideband phased array apertures," in *Proc. Antennas Applications Symposium*, Allerton, IL, Sept. 2009
470. Jing Zhao, Shenario Ezhil Valavan A, Chi-Chih Chen, John L. Volakis, "Compact 11-Ellipse Inverted-Hat Antenna for UWB Operations", 2009 Antenna Measurement and Techniques Association (AMTA), Salt Lake City, UT, November, 2009
471. Gil-Young Lee, Dimitris Psychoudakis, Chi-Chih Chen, and John L. Volakis, "Systematic Design Approach For Diversity Antenna Systems", 2009 Antenna Measurement and Techniques Association (AMTA), Salt Lake City, UT, November, 2009
472. J. Mahaffey, K. Sertel, and J. L. Volakis, "On the Implementation of Fast-Iterative Solvers on Graphical Processor Units," *URSI National Radio Science Meeting*, Boulder, CO, Jan 2010.
473. W. Moulder, W. Khalil, and J. L. Volakis, "60 GHz Volumetric Switched Beam Array," *URSI National Radio Science Meeting*, Boulder, CO, Jan 2010.
474. I. Tzanidis, K. Sertel, and J. L. Volakis, "Interweaved Spiral Array (ISPA) Providing a 10:1 Bandwidth in Conformal Installations," *URSI National Radio Science Meeting*, Boulder, CO, Jan 2010.
475. S. E. Amaldoss, D. Psychoudakis, C. C. Chen, and J. L. Volakis, "Low Profile Top-Loaded Cone Antenna for VHF to UHF Operation," *URSI National Radio Science Meeting*, Boulder, CO, Jan 2010.
476. William F. Moulder, Waleed Khalil and John L. Volakis, "Volumetric Switched Beam Array at the 60 GHz Band for High Data Rate Connectivity," GOMACTech, 2010.
477. J.L.Volakis, J.A. Kasemodel, C.C. Chen, K. Sertel and I Tzanidism Wideband Conformal Metamaterial Apertures," International Workshop on Antenna Technologies (IWAT), Lisbon, Portugal, March 2010.

478. J. L. Volakis, K. Sertel, I. Tzanidis , "Small Wideband Antennas Based On Photonic Crystals", EUCAP 2010, Barcelona, Spain, April 2010
479. D. Psychoudakis, G.-Y. Lee, C.-C. Chen, J. L. Volakis, "Military UHF Body-Worn Antennas for Armored Vests," EuCAP 2010, Barcelona, Spain, April 2010
480. K. E. Browne, R. J. Burkholder, J. L. Volakis, "Through-Wall Radar Imaging System Utilizing a Light-Weight Low-Profile Printed Array", EUCAP 2010, Barcelona, Spain, April 2010
481. J.L. Volakis, "Antennas and RF Sensors: Changing the Way with Live," Distinguished Lecture, EUCAP 2010, Barcelona, Spain, April 2010
482. Ugur Olgun, Chi-Chih Chen and John L. Volakis, "Wireless Power Harvesting with Planar Rectennas for 2.45 GHz RFIDs," URSI EM Theory Symposium, Berlin, Germany, 2010.
483. M. Chen, C-C. Chen, D. Psychoudakis, and J. L. Volakis, "Low Profile Spiral Antenna with Partially Coated Ferrite Ground Plane," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (abstract)
484. E. Irci, K. Sertel, and J. L. Volakis, "Miniature Multiband Microstrip Antenna Design via Dispersion Engineering," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (abstract)
485. T. Peng, K. Sertel, and J. L. Volakis, "3D Fully Overlapping Domain Decomposition Method for Modeling Fine Antenna Features in Large Platforms," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (abstract)
486. L. Zhang, Z. Wang, Y. Bayram, and J. L. Volakis, "Nanostructured Materials for Conformal RF Applications," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (abstract)
487. I. Tzanidis, K. Sertel, and J. L. Volakis, "An Interweaved Spiral Array (ISPA) Providing a 10:1 Bandwidth over a Ground Plane," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary)
488. L. Zhang, S. Yarga, K. Sertel, and J. L. Volakis, "Experimental Validation of Non-Reciprocal Properties Formed in Volumetric Magnetic Photonic Crystals," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (abstract)
489. I. Tzanidis, K. Sertel, and J. L. Volakis, "Finite Size, UltraWideband Conformal Dipole Array Antenna with 10:1 Bandwidth," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (**received student best paper award**).
490. J. Chalas, K. Sertel, and J. L. Volakis, "Antenna Optimization for UAV Platforms Using Characteristic Modes," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (abstract)
491. E. Alwan, I. Tzanidis, K. Sertel, and J. L. Volakis, "Equivalent Circuit Models for Tightly Coupled Interweaved Spiral Antenna Arrays," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (abstract)
492. J. A. Kasemodel, C-C. Chen, and J. L. Volakis, "Low-Cost, Planar and Wideband Phased Array with Integrated Balun and Matching Network for Wide-Angle Scanning," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary)
493. N. Apaydin, K. Sertel, and J. L. Volakis, "Demonstration of Unidirectional Printed Structures Emulating Magnetic Photonic Crystals," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary)

494. H. Moon, C-C. Chen, and J. L. Volakis, "Ultra Low Profile Wideband Antenna with Ferrite Loading," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary)
495. U. Olgun, C-C. Chen, and J. L. Volakis, "Low-Profile Planar Rectenna for Batteryless RFID Sensors," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary)
496. J. Zhao, C-C. Chen, and J. L. Volakis, "Low Profile Ultra-Wideband Antennas for Software Defined Radio," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary)
497. K. E. Browne, R. J. Burkholder, and J. L. Volakis, "High Resolution Radar Imaging Utilizing a Portable Opportunistic Sensing Platform," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary)
498. K. E. Browne, R. J. Burkholder, and J. L. Volakis, "Overcoming Practical Issues in Through-Wall Radar Imaging via a Novel Opportunistic Sensing Platform," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary) **(received 2<sup>nd</sup> place for best paper award)**.
499. P. C. Chang, R. J. Burkholder, and J. L. Volakis, "Time-Reversal Processing and Autofocus of Targets Behind Complex Wall," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary)
500. J. Zhao, C-C. Chen, D. Psychoudakis, and J. L. Volakis, "Broadband Characteristics of a Dome-Dipole Antenna," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary)
501. E. Irci, K. Sertel, and J. L. Volakis, "Ultrathin Miniature Antenna to Mitigate Platform Loading Effects," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary)
502. G. C. Trichopoulos, K. Sertel, and J. L. Volakis, "Slot Spiral Detector Array for Broadband THz Imaging," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary)
503. G-Y. Lee, D. Psychoudakis, C-C. Chen, and J. L. Volakis, "Multiple Antenna Design Method for Mobile Platform Diversity Systems," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary)
504. L. Yue, C. C. Chen, D. Psychoudakis, and J. L. Volakis, "Miniaturized 1" Dual-Band GPS Antenna Element," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary)
505. W. F. Moulder, W. Khalil, and J. L. Volakis, "60 GHz Volumetric Switched Beam Array," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (abstract)
506. Y. Bayram, F. Du, L. Dai, and J. L. Volakis, "Surface Conditioned Carbon Nanotube Conductive Sheet for Flexible and Conformal Antennas," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary)
507. J-Y. Chung, K. Sertel, and J. L. Volakis, "Broadband Permeability Characterization of Thin and Small Magnetic Composites with Patterned Anisotropy," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary)

508. N. K. Nahar, I. I. Tzanidis, K. Sertel, and J. L. Volakis, "Ultra Wideband Transparent RF Aperture for Electro-Optical Integration," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary),
509. Z. Wang, L. Zhang, Y. Bayram, and J. L. Volakis, "Embroidered E-Fiber-Polymer Composites for Conformal and Load Bearing Antennas," 2010 International IEEE APS/URSI Conference, Toronto, CA, July 2010 (4pp summary).
510. Justin A. Kasemodel, Chi-Chih Chen, John L. Volakis, "Broadband Planar Wide-Scan Array Employing Tightly Coupled Elements and Integrated Balun," 2010 IEEE International Symposium on Phased Arrays Systems & Technology, Boston, MA
511. N. Apaydin, K. Sertel, J. L. Volakis, "Experimental Verification of Unidirectional Propagation in Printed Magnetic Photonic Crystals ", 2011 USNC/URSI National Radio Science Meeting Boulder, Jan. 2011, Boulder, CO.
512. W. F. Moulder, I. Tzanidis, K. Sertel, J. L. Volakis, " Initial Characterization of a Conformal Metamaterial-Based Antenna Array", 2011 USNC/URSI National Radio Science Meeting Boulder, Jan. 2011, Boulder, CO.
513. E. Irci, K. Sertel, J. L. Volakis, " An Extremely Low-Profile, Compact and Broadband Tightly Coupled Patch Array", 2011 USNC/URSI National Radio Science Meeting Boulder, Jan. 2011, Boulder, CO.
514. M. Chen, C. C. Chen, D. Psychoudakis, J. L. Volakis, " Low Profile Spiral with Partially Coated Ferrite Ground Plane and Reactive Loading", 2011 USNC/URSI National Radio Science Meeting Boulder, Jan. 2011, Boulder, CO.
515. Nil Apaydin, Lanlin Zhang, Kubilay Sertel & John. L. Volakis, "Experimental Verification of Frozen Modes Supported on Printed Transmission Lines," European Conference Antennas and Propagat (EuCAP), Rome, Italy, 2011
516. Woon-Gi Yeo, Niru K. Nahar, Robert Lee and John L. Volakis, "New Frontiers for Commercial Applications of Terahertz," IEEE National Aerospace and Electronics Conference (NAECON), Dayton, OH, July 2011.
517. Jonathan Doane, Kubilay Sertel, and John Volakis, "Fundamental Bandwidth Limits for Planar Arrays over a Ground Plan," *2011 IEEE Antennas and Propagation Society International Symposium*, July 2011, Spokane, W
518. I. Tzanidis, K. Sertel and John L. Volakis," A Technique for Feeding Tightly Coupled Antenna Arrays," *2011 IEEE Antennas and Propagation Society International Symposium (APSURSI)*, July 2011, Spokane, WA
519. William F. Moulder, Kubilay Sertel, and John L. Volakis, "Finite Implementations of Superstrate-Enhanced Wideband Tightly Coupled Arrays," *2011 IEEE Antennas and Propagation Society International Symposium*, July 2011, Spokane, WA
520. J. Zhao, D. Psychoudakis, C-C. Chen, J. L. Volakis, "Ultra-Wideband Performance Optimization of a Body-of-Revolution Monopole Antenna", 2011 IEEE APS/URSI, July 2011, Spokane, WA.
521. E. Irci, K. Sertel, J. L. Volakis, "Bandwidth Enhancement of Low-Profile Microstrip Antennas Using Tightly Coupled Patch Arrays", 2011 IEEE APS/URSI, July 2011, Spokane, WA
522. S. Salman, D. Psychoudakis, J. L. Volakis, J. West, L. Paulsen, "Broadband Bowtie-Shaped Current Sheet Antenna Array", 2011 IEEE APS/URSI, July 2011, Spokane, WA

523. Z. Wang, L. Zhang, Y. Bayram, J. L. Volakis, "Multilayer Printing of Embroidered RF Circuits on Polymer Composites", 2011 IEEE APS/URSI, July 2011, Spokane, WA
524. N. Apaydin, K. Sertel, J. L. Volakis, "Magnetically Scanned Leaky Wave Antenna using Periodic Microstrip Lines on Ferrite Substrate", 2011 IEEE APS/URSI, July 2011, Spokane, WA
525. D. Psychoudakis, M. Livadaru, J. L. Volakis, "Non-Foster Matching and Miniaturization of a Monopole Antenna", 2011 IEEE APS/URSI, July 2011, Spokane, WA
526. E. A. Alwan, K. Sertel, J. L. Volakis, "An Equivalent Circuit Model for a 20:1 Coupled Array with Superstrate", 2011 IEEE APS/URSI, July 2011, Spokane, WA
527. L. Zhang, K. Sertel, J. L. Volakis, "Self-Biased Magnetic Photonic Crystals for Unidirectional Antennas", 2011 IEEE APS/URSI, July 2011, Spokane, WA
528. N. Smith, C-C. Chen, J. L. Volakis, "Wideband Impedance Agile Automatic Capacitive Matching Network", 2011 IEEE APS/URSI, July 2011, Spokane, WA
529. K. Browne, R. Burkholder, J. L. Volakis, "Non-Linear Optimization Methods for Enhancing Through-Wall Radar Imagery Forged via a Portable Wideband UHF Array", 2011 IEEE APS/URSI, July 2011, Spokane, WA
530. P. Chang, R. Burkholder, J. L. Volakis, "Wall Compensation and Multipath Exploitation for Near-Zone Microwave Imaging through Periodic Wall", 2011 IEEE APS/URSI, July 2011, Spokane, WA
531. T. Peng, Ku. Sertel, J. L. Volakis, "Fully Overlapping Domain Decomposition Method with h-Refinement for Finite Element Modeling of Small Features in Large Domains", 2011 IEEE APS/URSI, July 2011, Spokane, WA
532. U. Olgun, C-C. Chen, J. L. Volakis, "A Conformal Cylindrical Patch Array System with Omni-Directional Pattern", 2011 IEEE APS/URSI, July 2011, Spokane, WA
533. J. Chalas, K. Sertel, J. L. Volakis, "Computation of the Q Limits for Arbitrary-Shaped Antennas Using Characteristic Modes", 2011 IEEE APS/URSI, July 2011, Spokane, WA.
534. N. J. Smith, C.-C. Chen, J. L. Volakis, "Frequency and Impedance Agile Real-Time Tuning Network for 200-400 MHz Antennas", Antenna Measurement Techniques Association Symposium, Oct. 2011; won 3<sup>rd</sup> best prize for best paper award.
535. R. Burkholder and J.L. Volakis, "Imaging in High Clutter Environments," Loughborough Antennas and Propagation Conference, Loughborough, U.K., Nov. 13-15, 2011 (invited talk).
536. W. F. Moulder, K. Sertel, J. L. Volakis, "Superstrate-Enhanced Ultrawideband Tightly Coupled Array with Resistive Frequency-Selective Surface", 2012 USNC/URSI National Radio Science Meeting Boulder, Jan. 2012, Boulder, CO.
537. I. Tzanidis, K. Sertel, J. L. Volakis, "An Ultra-Wideband 7x7 Single-Polarized Tightly Coupled Dipole Array with Integrated Feed and Terminations", 2012 USNC/URSI National Radio Science Meeting Boulder, Jan. 2012, Boulder, CO.
538. H. Odabasi, F. L. Teixeira, "Isoimpedance Anisotropic Substrates for Planar Antenna Profile Reduction", 2012 USNC/URSI National Radio Science Meeting Boulder, Jan. 2012, Boulder, CO.
539. S. Salman, D. Psychoudakis, J. L. Volakis, "Determining the Relative Permittivity of Human Body Masses", 2012 USNC/URSI National Radio Science Meeting Boulder, Jan. 2012, Boulder, CO.

540. J. P. Doane, K. Sertel, J. L. Volakis, "Bandwidth Limits for Low Profile Scanning Arrays", 2012 USNC/URSI National Radio Science Meeting Boulder, Jan. 2012, Boulder, CO.
541. W.-G. Yeo, N. K. Nahar, R. Lee, J. L. Volakis, C. L. Hitchcock, "Terahertz Characterization of Biological Tissues", 2012 USNC/URSI National Radio Science Meeting Boulder, Jan. 2012, Boulder, CO.
542. Z. Wang, L. Zhang, Y. Bayram, D. Psychoudakis, J. L. Volakis, "Highly Flexible Textile Antennas on Organza and Polymer Substrates", 2012 USNC/URSI National Radio Science Meeting Boulder, Jan. 2012, Boulder, CO.
543. L. Zhang, D. Psychoudakis, J. L. Volakis, "Pixelated Dielectric Composite Substrates for Microwave Frequency Application", 2012 USNC/URSI National Radio Science Meeting Boulder, Jan. 2012, Boulder, CO.
544. L. Zhang, Z. Wang, D. Psychoudakis and J.L. Volakis, "E-fiber Electronics for Body-Worn Devices," *EuCAP 2012: the 6th European Conference on Antennas and Propagation*, Prague, Czech Republic, March 2012.
545. Zheyu Wang, Lanlin Zhang, Dimitris Psychoudakis and John L. Volakis, "Flexible Textile Antennas for Body-Worn Communication," International Wireless & Antennas Technologies (iWAT) conference, Tucson, AZ. (won best poster award), 2012.
546. John L. Volakis, Lanlin Zhang & J. L. Volakis "Embroidered Flexible RF Electronics," keynote presentation, International Wireless & Antennas Technologies (iWAT) conference, Tucson, AZ, 2012
547. Jeffrey Chalas, Kubilay Sertel, and John L. Volakis, "Evaluation of In-Situ Antenna Performance Using Characteristic Modes," 2012 The Applied Computational Electromagnetics Society (ACES) Conference, Columbus, OH.
548. Tao Peng, Kubilay Sertel, and John L. Volakis, "An Overview of Non-Overlapping and Fully Overlapping Domain Decomposition Methods," 2012 The Applied Computational Electromagnetics Society (ACES) Conference, Columbus, OH.
549. Tao Peng, Kubilay Sertel, and John L. Volakis, "Improving Convergence and Accuracy of Fully Overlapping Domain Decomposition Method," 2012 The Applied Computational Electromagnetics Society (ACES) Conference, Columbus, OH.
550. William F. Moulder, Kubilay Sertel, and John L. Volakis, "Finite Size Effects on the Performance of Ultrawideband Tightly Coupled Arrays," 2012 The Applied Computational Electromagnetics Society (ACES) Conference, Columbus, OH.
551. Ming Chen, Chi-Chih Chen, Dimitrios Psychoudakis, and John L. Volakis, "A Novel Textured Ferrite Ground Plane for Low Profile Spiral Antenna," 2012 The Applied Computational Electromagnetics Society (ACES) Conference, Columbus, OH.
552. N. Apaydin, L. Zhang, K. Sertel, and J.L. Volakis, "Nonreciprocal and Magnetically Scanned Leaky-wave Antenna Using Coupled Microstrip Lines," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
553. L. Zhang, Z. Wang and J.L. Volakis, "Embroidered Textile Circuits for Microwave Devices," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
554. Z. Wang, L. Zhang, D. Psychoudakis and J.L. Volakis, "GSM and Wi-Fi Textile Antenna for High Data Rate Communications," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.

555. E. Yetisir, D. Psychoudakis, J. L. Volakis, "Small Size Conformal UWB Arrays for MIMO and Diversity Applications" *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
556. Safa Salman, Dimitris Psychoudakis and John L. Volakis, "Determining the Relative Permittivity of Biological Tissues (dielectric bio-sensing and non-invasive diagnosis)," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012
557. Jon Doane, Kubilay Sertel and John L. Volakis "6.3:1 Bandwidth Scanning Tightly Coupled Dipole Array with Co-Designed Compact Balun," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012 (won best paper award).
558. W. Moulder, K. Sertel, and J.L. Volakis, "Finite Size Effects on Performance of Ultrawideband Tightly Coupled Arrays with Resistive Substrate Loading," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
559. W. Moulder, K. Sertel, and J.L. Volakis, "Compact Ultrawideband Beam-Steering Horn Antenna," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
560. E.A. Alwan, K. Sertel, and J.L. Volakis, "Circuit Model Based Optimization of Ultra-Wideband Arrays," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
561. J.P. Doane, K. Sertel, and J.L. Volakis, "Minimum Q for Arrays above a Ground Plane," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
562. N.J. Smith, C-C. Chen, and J.L. Volakis, "Real-Time Agile Impedance Tuner Maximizing Radiation Efficiency," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
563. I.Tzanidis, J.P. Doane, K. Sertel, and J.L. Volakis, "Wheeler's Current Sheet Concept and Munk's Wideband Arrays," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
564. N. Apaydin, K. Sertel, and J.L. Volakis, "Metamaterial-Based Slow Wave Structures for Travelling Wave Tubes," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
565. N. Host, C-C. Chen, and J.L. Volakis, "Reconfigurable Wave Velocity Transmission Lines for Phased Arrays," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
566. E.A. Alwan, K. Sertel, W. Khalil, and J.L. Volakis, "Cost and Power Efficient Ultra-Wideband Digital Beamforming for Cognitive Sensing," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
567. W-G. Yeo, V. Sanphuang, N.K. Nahar, and J.L. Volakis, "THz Transparent Metamaterials for Spectroscopic Measurements," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
568. J.L. Volakis, "Learning Electromagnetics and Diffraction Theory from Prof. Robert Kouyoumjian," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.

569. W-G. Yeo, N.K. Nahar, and J.L. Volakis, "Validation of CW THz Spectral Measurements," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
570. T. Peng, K. Sertel, and J.L. Volakis, "Spurious Fields Suppression in Domain Decomposition Algorithms Using Lagrange Multipliers," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
571. T. Peng, K. Sertel, and J.L. Volakis, "Convergence of a Fully Overlapping Domain Decomposition Method," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
572. G. Fontgalland, and J.L. Volakis, "Conformal Biomimetic Antenna Array for Direction Finding," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
573. G. Fontgalland, C-C. Chen, and J.L. Volakis, "Capacitively Excited and Fully Planar Small Size Printed Antenna," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
574. V. Sanphuang, N.K. Nahar, and J.L. Volakis, "Novel FSS Filters in Ka Band," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
575. U. Olgun, C-C. Chen, and J.L. Volakis, "Efficient Ambient WiFi Energy Harvesting Technology and Its Applications," *IEEE AP-S International Symposium and USNC/CNC/URSI Meeting*, Chicago, IL, USA, 2012.
576. Varittha Sanphuang, Niru K. Nahar, and John L. Volakis, "Broadband THz Filters for THz Sensing Devices," *IEEE National Aerospace and Electronics Conference (NAECON)*, Dayton, OH, July 2012.
577. Sai N. Tenneti, Niru K. Nahar, and John L. Volakis, "Increased Output Power 300 GHz Oscillator Based on Linear Superposition," *IEEE National Aerospace and Electronics Conference (NAECON)*, Dayton, OH, July 2012.
578. Jon Doane, K. Sertel and J.L. Volakis, "A Wideband Scanning Conformal Array with a Compact Compensating Balun," *Antenna Applications Symposium*, Allerton, Illinois, Sept 18-20, 2012; received 2<sup>nd</sup> best paper award.
579. L. Zhang, S. Salman & J.L. Volakis, "Embroidered Textiles for RF Electronics and Medical Sensors," *2012 IEEE Int. Conference on Wireless Information Technology and Systems (ICWITS)*, Maui, Hawaii, November 11-16, 2012.
580. E. A. Alwan, S. Balasubramanian, J. G. Atallah, M. Larue, W. Khalil, K. Sertel & J. L. Volakis, "Coding-Based Transceiver for Phased Array with Significant Hardware Reduction," *2012 IEEE Int. Conference on Wireless Information Technology and Systems (ICWITS)*, Maui, Hawaii, November 11-16, 2012.
581. E. A. Alwan, S. Balasubramanian, J.G. Atallah, M. Larue, W. Khalil, K. Sertel, J. L. Volakis, "Ultra-wideband Digital Beamformer with Significant SWAP-C Reduction," *Wireless Innovation Forum on Wireless Communications Technologies and Software Defined Radio (SDR 2013)*, January 2013.
582. Nil Apaydin, Panagiotis Douris, Kubilay Sertel, John L. Volakis, "Metamaterial Based Slow Wave Structure For Travelling Wave Tubes," *National Radio Science Meeting*, Session B1-3, Boulder, CO, January 2013.



583. Jonathan P. Doane, Kubilay Sertel, John L. Volakis , "Improved Scanning of Wideband Array Using a Reconfigurable Surface," National Radio Science Meeting, Session B2-1, Boulder, CO, January 2013.
584. Safa Salman, John L. Volakis, "Determining the Relative Permittivity of Deep Embedded Biological Tissues," National Radio Science Meeting, Session BK1-3, Boulder, CO, January 2013.
585. Jeffrey Chalas, Kubilay Sertel, John L. Volakis, "Computation of the Q Limits for Arbitrary Shaped Antennas Using Characteristics Modes," National Radio Science Meeting, Session B3-1, Boulder, CO, January 2013.
586. Shubhendu Bhardwaj, Niru Nahar, John L. Volakis, "Link Budget Analysis for 350 GHz Communication Link," National Radio Science Meeting, Session CD1-8, Boulder, CO, January 2013.
587. Will Moulder, Kubilay Sertel, John L. Volakis, "Ultrawideband Substrate-Loaded Tightly Coupled Array with Integrated Feed Structure," National Radio Science Meeting, Session BJ1-9, Boulder, CO, January 2013.
588. Safa Salman & John L. Volakis, "An In-vivo Electrical Property Based Health Monitoring Sensor," *European Antennas and Propagation Conference (EuCAP)*, Gotheberg, Sweden, April 2013.
589. Nathanael J. Smith, Chi-Chih Chen, and John L. Volakis, "Adaptive Tuning Topologies to Overcome Losses in Matching Circuits for Small Antennas," *European Antennas and Propagation Conference (EuCAP)*, Gotheberg, Sweden, April 2013.
590. G. Fontgalland<sup>\*,</sup> Z. Wang<sup>\*</sup> and John L. Volakis, "Small Biomimetic Array for Direction Finding and Superdirectivity," *Triennial URSI EM Theory Symposium*, Hiroshima, Japan, May 2013
591. J. P. Doane, Willam F. Moulder, Kubilay Sertel, and John L. Volakis, "Wideband, Wide Scanning Conformal Arrays with Practical Integrated Feeds," *Triennial URSI EM Theory Symposium*, Hiorshima, Japan, May 2013.
592. J.L. Volakis, "System Level Requirements and Antenna Designs for mm-wave Satellite Communications to Ka-Band and Moving Beyond," *Int. Microwave Symposium, WFK: Satcom and Aerospace Beyond Ka-Band: Progress and Challenges*, Seattle, WA, June 7, 2013.
593. J. Doane, K. Sertel, and J. L. Volakis, "Matching Bandwidth Limits for Linearly Polarized Scanning Arrays above a Ground Plane," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
594. N. Host, C.C. Chen, F. Miranda, and J. L. Volakis, "Reconfigurable Transmission Line for a Series-Fed Ku-Band Phased Array Using a Single Feed," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
595. M. Novak, D. Papantonis, K. Sertel, and J. L. Volakis, "Superstrate Enhanced Ultrawideband Array with Dual Polarization," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
596. W. Moulder, K. Sertel, and J. L. Volakis, "Feeding of a Wideband Superstrate-Enhanced Substrate Loaded Array," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013

597. M. Zuboraj, N. Apaydin, K. Sertel, and J. L. Volakis, "Dispersion Shaping of Double-Ring-Bar Slow-Wave Structures for Traveling Wave Tubes," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
598. N. Apaydin, L. Zhang, K. Sertel, and J. L. Volakis, "Nonreciprocal and Magnetically Scanned Leaky-wave Antenna Using Coupled CRLH Lines," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
599. Z. Wang, L. Zhang, and J. L. Volakis, "A 10:1 Bandwidth Textile-Based Conformal Spiral Antenna with Integrated Planar Balun," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
600. N. Smith, C. C. Chen, and J. L. Volakis, "Adaptive Tuning Topologies with Mechanical Tuning for Small Antennas," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
601. N. Ghalichechian, J. P. Doane, W. Hong, K. Sertel, and J. L. Volakis, "Characterization of SU-8 Using Terahertz Time-Domain Spectroscopy," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
602. V. Sanphuang, N. K. Nahar, and J. L. Volakis, "MEMS Tunable THz Filters for Sensing," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
603. S. Shao, L. Zhang, R. Burkholder, and J. L. Volakis, "Embedded UHF RFID Tag Antennas for Automotive Tire Sensing," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
604. E. A. Alwan, W. Khalil, and J. L. Volakis, "Ultra-Wideband On-Site Coding Receiver (OSCR) For Digital Beamforming Applications," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
605. S. Bhardwaj, N. K. Nahar, and J. L. Volakis, "A Concentric-Arrayed Radial Line Slot Array Antenna for THz Applications Optimized Using PSO Algorithm," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
606. S. Salman, L. Zhang, and J. L. Volakis, "An In-vivo Wrap-Around Permittivity Sensor for Deep Biological Tissue Monitoring," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
607. E. Yetisir, C. C. Chen, and J. L. Volakis, "Wideband MIMO Antennas with High Isolation for Personal Communications," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
608. G. Fontgalland, U. Olgun, and J. L. Volakis, "Low-profile vertically polarized printed antenna for body-worn applications," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
609. G. Fontgalland, U. Olgun, Z. Wang, and J. L. Volakis, "Biomimetic Bowtie Array for Beamwidth Reduction," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
610. J. L. Volakis, K. Sertel "Optimal Ultra Wideband Conformal Arrays," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
611. E. A. Alwan, M. LaRue, W. Khalil, and J. L. Volakis, "Experimental Validation of a Coding-Based Digital Beamformer," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013

612. Z. Wang, A. Kiourti, M. Zhang, L. Zhang, and J. L. Volakis, "A Wireless Communication System for Remote Medical Monitoring," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
613. J. Chalas, K. Sertel, and J. L. Volakis, "Design of in-Situ Antennas Using Platform Characteristic Modes," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013
614. M. Chen, C. C. Chen, and J. L. Volakis, "Reconfigurable 800-1500MHz Double Stub Tuner Using MEMS Capacitive Switches," *2013 IEEE Int. Symp. Antennas and Propagation (APS/URSI)*, Orlando, FL, 7-13 Jul. 2013.
615. Sai Tenneti, N. Nahar, and J.L. Volakis, "Full-Wave Electromagnetic Modeling of THz RTD-Gated HEMT," *2013 IEEE Int. Symp. Antennas and Propagation (APS URSI)*, Orlando, FL, 7-13 Jul. 2013
616. N. Host, C.-C. Chen, J.L. Volakis and F. Miranda, "Implementation of a Novel Low-Cost Low-Profile Ku-Band Antenna Array for Single Beam Steering from Space," 2013 AMTA, Columbus, OH.
617. N. J. Smith, C-C. Chen, and J. L. Volakis, "Efficient Self Powered Auto-Tuned VHF Impedance Tuner for High Power Applications," 2013 *Allerton Antenna Applications Symposium*.
618. E. Alwan, W. Khalil, and J. Volakis, "Low Cost, Power Efficient, On-Site Coding Receiver (OSCR) for Ultra-Wideband Digital Beamforming," in *IEEE International Symposium on Phased Array Systems & Technology*, Waltham, MA, October 2013.
619. W. Moulder, K. Sertel, and J. Volakis, "Developments in Realization of an Ultrawideband Substrate-Loaded Tightly Coupled Array," in *IEEE International Symposium on Phased Array Systems & Technology*, Waltham, MA, October 2013.
620. N. Host, C.-C. Chen, J. Volakis, and F. Miranda, "Low Cost Beam-Steering Approach for a Series-Fed Array," in *IEEE International Symposium on Phased Array Systems & Technology*, Waltham, MA, October 2013.
621. Sai N. Tenneti, Niru K. Nahar, and John L. Volakis, "Modeling of RTD-Gated GaN HEMTs at Terahertz Frequencies Using a Full-Wave Simulation Toolset Coupled with Particle-Based Equations," 2014 Radio Science Meeting (USNC URSI), Boulder, CO.
622. S. Bhardwaj, Niru Nahar, J.L. Volakis, "A Method of Phase-less Measurements for the Circularly Polarized Gain in the Millimeter Band," 2014 Radio Science Meeting (USNC URSI), Boulder, CO.
623. D. Papantonis, M. Novak and J.L. Volakis, "Ultra-Wideband TCDA-IB with Substrate Loading for Dual-Polarization," 2014 Radio Science Mtg (USNC/URSI), Boulder, CO.
624. D. Papantonis, M. Novak and J.L. Volakis, " Ultra-Wideband Bandwidth Reconfigurable Tightly Coupled Arrays," 2014 Radio Science Meeting (USNC/URSI), Boulder, CO.
625. M. R. Zuboraj, N. K. Nahar, K. Sertel, J. L. Volakis, "High Power Microwave Slow-Wave Structures for Relativistic Beams," 2014 Radio Science Meeting (USNC/URSI), Boulder, CO.
626. Elias A. Alwan, Waleed Khalil, and John L. Volakis,"Analytical and Experimental Evaluation of Novel Wideband Transceiver with On-Site Coding," 2014 Radio Science Meeting (USNC/URSI), Boulder, CO

627. Asimina Kiourti, Zheyu Wang, John L. Volakis, "A Wireless, Fully Passive Neurosensing System for Brain Signals Monitoring," 2014 Radio Science Meeting (USNC/URSI), Boulder, CO
628. Safa Salman, Asimina Kiourti & John L. Volakis, "An on-Body Wrap-Around Sensor for Monitoring Changes in Lungs," 2014 Radio Science Meeting (USNC/URSI), Boulder, CO
629. Markus Novak, and John L. Volakis, "Dual Polarized Tightly Coupled Dipole Array (TCDA) for UHF to Millimeter Wave Applications," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
630. Asimina Kiourti, Samuel Luther, and John L. Volakis, "Microwave Cavity with Controllable Temperature for Hyperthermia Treatment Investigations," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
631. Shuai shao, Asimina Kiourti, Robert Burkholder, and John L. Volakis, "Broadband and Flexible Textile RFID Tags for Tires," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
632. Zheyu Wang, Konstantinos Karathanasis, and John L. Volakis, "Axial Ratio Enhanced Ultra Wideband Slot Spiral on Hybrid EBGs," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
633. Varittha Sanphuang, Nima Ghalichechian, Niru K. Nahar, and John L. Volakis, "Phase Change Materials for Reconfigurable Systems," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
634. Roland Tallos, Zheyu Wang, and John L. Volakis, "Wi-Fi Energy Harvesting System Using Body-worn Antennas," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
635. Shuai Shao, Robert Burkholder, and John L. Volakis, "Physics-Based Approach for Antenna Design Optimization of RFID Tags Mounted on and Inside Material Layers," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
636. Dimitrios Papantonis, and John Volakis, "Dual-Polarization TCDA-IB with Substrate Loading," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
637. John L. Volakis, "Two Publications in the IEEE Antennas and Propagation Journals that Impacted my Career," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
638. Asimina Kiourti, Cedric Lee, Abe Akhiyat, Helen Schwerdt, Junseok Chae, and John L. Volakis, "Passive, On Chip and In Situ Detection of Neuron Potentials," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.

639. Satheesh Bojja Venkatakrishnan, Abe Akhiyat, Elias A. Alwan, Waleed Khalil, and John L. Volakis, "Realization of a Novel On-Site Coding Digital Beamformer using FPGAs," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
640. Nicholas Host, Chi-Chih Chen, John L. Volakis, and Felix Miranda, "2D Traveling Wave Array Employing a Trapezoidal Dielectric Wedge for Beam Steering," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
641. Nathanael Smith, Chi-Chih Chen, and John L. Volakis, "Far-Field Sensor for Adaptive Antenna Tuning," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
642. M. Zuboraj, Niru K. Nahar, and John L. Volakis, "A S-band High Power Traveling Wave Tube for RADAR application," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
643. Ersin Yetisir, Chi-Chih Chen, and John L. Volakis, "Wideband Dual-Polarized Omnidirectional Antenna with very High Isolation across 1.65-2.7 GHz," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
644. Varittha Sanphuang, Nima Ghalichechian, Niru K. Nahar, and John L. Volakis, "Reconfigurable THz Filters with Integrated Micro-Heater," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
645. Dimitrios Papantonis, Nathanael Smith, and John L. Volakis, "Bandwidth Reconfigurable Ultra-Wideband Arrays," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
646. Jeffrey Kula, Prabhakar Pathak, and John L. Volakis, "Reconfigurable Band Rejection Frequency Selective Structures," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
647. Elias A. Alwan, Abe Akhiyat, Waleed Khalil, and John L. Volakis, "Phase Characterization of a 2-Path On-Site Coding Digital Beamformer," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
648. Shubhendu Bhardwaj, Niru K. Nahar, and John L. Volakis, "Fixed Frequency Slotted Waveguide Beam Reconfigurable Antenna for mmWave Application," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
649. Konstantinos Karathanasis, Asimina Kiourti, and John L. Volakis, "A Wireless Body Area Network for Carefree Medical Sensing," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.

650. Jeffrey Chalas, Kubilay Sertel, and John L. Volakis, "NVIS Synthesis for Electrically Small Aircraft Using Characteristic Modes," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
651. Sai Tenneti, Niru Nahar, and John L. Volakis, "Full-Wave Optimization of Nitride-Based Resonant Tunneling Diodes for Terahertz Amplification," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
652. Shubhendu Bhardwaj, Niru K. Nahar, and John L. Volakis, "Analysis and Design of High Electron Mobility Transistors for THz Signal Generation," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
653. Jingni Zhong, Asimina Kiourti, and John L. Volakis, "Increasing the Efficiency of Electrically Small Antennas Across a Large Bandwidth Using Matching Networks," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, July 6-12, 2014.
654. Glauco Fontgalland, and John L. Volakis, "Tuning and Matching a Miniature Antenna Array," 2014 IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting, Memphis, TN, USA, July 6-12, 2014.
655. Asimina Kiourti, Cedric Lee, Junseok Chae, and John L. Volakis, "Fully-Passive Wireless Implants for Unobtrusive Brain Signal Monitoring," 2014 IEEE EMBS BRAIN Grand Challenges conference, Nov 12-14, Washington, DC
656. S. Bhardwaj, N. K. Nahar and J. L. Volakis, "Novel Phaseless Method for Gain Characterization of Circularly Polarized Antennas Operating in the mm-Wave and THz Bands," 2014 Antenna Measurements Techniques Association (AMTA), Tempe, AZ.
657. Cedric Lee, Asimina Kiourti, Junseok Chae and John L. Volakis, "Fully-Passive and Wireless Detection of Very-Low-Power Brain Signals," 2014 IMWS-Bio, London, Dec 2014 (won best poster award)
658. J.L. Volakis, Electronic and Medical Sensors, invited presentation at *Make @ OSU* Workshop sponsored by the Center for Clinical and Translations Science, May 20, 2014
659. J.L. Volakis, "Upcoming Technologies to Address Large Bandwidth Requirements, invited talk at Ohio Innovation Summit, 9 October 2014.
660. J.L. Volakis, "Textile Sensors for Non-invasive Health Monitorin," Keynote talk at 2014 IMWS-Bio, London, Dec 2014.
661. J.L. Volakis, E.A. Alwan, D. Papantonis, N. Novak, N. Ghalichechian, and W. Khalil, "Low Power Ultra-Wideband Digital Beamforming for UHF to Millimeter-Wave Applications," Keynote talk at 2015 Int. Woskshop on Antenna Technologies (iWAT), Seoul, S. Korea, March 2015.
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