Bin Guo

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RESEARCH INTERESTS

- Signal Processing and the Applications.
- Compressive Sensing Theory and the Applications.
- Microwave Imaging, Acoustic Imaging, and the Applications.
- Electromagnetic Theory and Computational Electromagnetics.

EDUCATION

Ph.D. Electrical and Computer Engineering, University of Florida, Gainesville, FL May, 2007
Research field: Microwave and Ultrasound Techniques for Breast Cancer Detection and Treatment
Research Advisor: Professor Jian Li, and Professor Henry Zmuda

M.S. Electronic and Information Engineering, Xian Jiaotong University, Xian, China April, 2000
Thesis title: "The Study of the Radiation Characteristics of Cavity Backed Antenna with FEM-BI Method"
Research Advisor: Professor Wenbing Wang

B.S. Electronic and Information Engineering, Xian Jiaotong University, Xian, China July, 1997

WORKING AND PROFESSIONAL EXPERIENCE

Research Associate, Department of ECE, University of Florida, Gainesville, FL October, 2009 – Present
Research Associate, Department of ECE, Duke University, Durham, NC May, 2007 – September, 2009
Research Assistant, Department of ECE, University of Florida, Gainesville, FL August, 2003 – May, 2007
Associate Scientist, Temasek Lab, National University of Singapore, Singapore April, 2002 – July, 2003
Lecturer, Department of EE, Xian Jiaoting University, Xian, China April, 2000 –April, 2002
Graduate Student, Department of EE, Xian Jiaotong University, Xian, China September, 1997 –April, 2000

TEACHING EXPERIENCE

Lecturer, Xian Jiaotong University, Xian, China April, 2000 – April, 2002
Teaching assistant, Xian Jiaotong University, Xian, China September, 1997 – January, 2000
Advisor of undergraduate students, Xian Jiaotong University, Xian, China September, 1997 – July, 2001

PROFESSIONAL AFFILIATION

- Member of IEEE, SPIE, and Sigma Xi
- Reviewer of *IEEE Transactions on Biomedical Engineering*
  IEEE Transactions on Microwave Theory and Techniques
  IEEE Microwave and Wireless Components Letters
  Journal of Electromagnetic Waves and Applications
  Biomedical Signal Processing and Control
  Bioelectromagnetics
  Digital Signal Processing

AWARDS

- Travel Award in the 8th Conference on Biomedical Thermoacoustics, Optoacoustics, and Acousto-optics, San Jose, California, January, 2007
- Best Student Paper Award in the 2005 Annual Asilomar Conference on Signals, Systems, and Computers in Pacific Grove, California.
- Graduate research fellowship, University of Florida, 2003-2005
- Poster Contest Award, External Research Review - Graduate Student Posters, University of Florida, 2005
- Excellent graduate student fellowship, Xian Jiaotong University, 1999-2000

PUBLICATIONS

Book Chapter

B. Guo and J. Li, "Adaptive and Robust Methods for Thermoacoustic and Photoacoustic Tomography," in Photoacoustic Imaging and Spectroscopy, (Lihong Wang Editor), CRC Press, March 2009

Journal

1. L. Du, L. Xu, J. Li, **B. Guo**, P. Stoica, C. Bahr, and L. Cattafesta III, "Covariance-based approaches to aeroacoustic noise source analysis," *Journal of the Acoustical Society of America*, to appear.
2. L. Carin, D. Liu, W. Lin, and **B. Guo**, "Compressive Sensing for Multi-Static Scattering Analysis," *Journal of Computational Physics*, vol. 228, no. 9, pp. 3464-3477, May 2009.
3. L. Carin, **B. Guo**, and D. Liu, "On Enhancing Classification Performance by Exploiting Multiple Scattering," *Applied Physics Letters*, vol. 93, no. 25, December 2008.
4. L. Carin, D. Liu, and **B. Guo**, "In Situ Compressive Sensing," *Inverse Problems*, vol. 24, no. 1, February 2008.
5. Y. Xie, **B. Guo**, J. Li, G. Ku, and L. V. Wang "Adaptive and Robust Methods Of Reconstruction (ARMOR) for Thermoacoustic Tomography," *IEEE Transaction on Biomedical Engineering*, vol.55, no. 12, pp. 2741-2752, December 2008.
6. **B. Guo**, and J. Li "Waveform Diversity Based Ultrasound System for Hyperthermia Treatment of Breast Cancer," *IEEE Transaction on Biomedical Engineering*, vol. 55, no. 2, pp. 822-826, February 2008.
7. **B. Guo**, J. Li, H. Zmuda, and M. Sheplak "Multi-Frequency Microwave Induced Thermal Acoustic Imaging for Breast Cancer Detection," *IEEE Transaction on Biomedical Engineering*, vol. 54, no. 11, pp. 2000-2010, November 2007.
8. **B. Guo**, J. Li, and H. Zmuda "A New FDTD Formulation for Wave Propagation in Biological Media With Cole-Cole Model," *IEEE Microwave and Wireless Components Letters*, vol 16, no. 12, pp. 633-635, Dec. 2006.
9. Y. Xie, **B. Guo**, J. Li, and P. Stoica "Novel Multi-static Adaptive Microwave Imaging Methods for Early Breast Cancer Detection," *EURASIP Journal on Applied Signal Processing*, no. 91961, pp. 1-13, Sep. 2006.
10. **B. Guo**, Y. Wang, J. Li, P. Stoica, and R. Wu, "Microwave imaging via adaptive beamforming methods for breast cancer detection," *Journal of Electromagnetic Waves and Applications*, Vol. 20, No. 1, pp. 53-63, 2006.
11. Y. Xie, **B. Guo**, L. Xu, J. Li, and P. Stoica, "Multi-Static Adaptive Microwave Imaging for Early Breast Cancer Detection," *IEEE Transactions on Biomedical Engineering*, vol 53, no. 8, pp. 1647-1656, Aug. 2006.
12. **B. Guo**, L. Xu, and J. Li, "Time reversal based microwave hyperthermia treatment of breast cancer," *Microwave and Optical Technology Letters*, vol. 47, no. 4, pp. 335-338, Nov., 2005.
13. X. T. Dong, N. V. Venkatarayalu, **B. Guo**, W. Y. Yin, B. Y. Gan, "General formulation of unconditionally stable ADI-FDTD method in linear dispersive media," *IEEE Transactions on Microwave Theory and Techniques*, vol. 52, no. 1, pp. 170-174, Jan. 2004.

14. X. T. Dong, X. S. Rao, Y. B. Gan, **B. Guo**, W. Y. Yin, "Perfectly matched layer-absorbing boundary condition for left-handed materials," *Microwave and Wireless Components Letters, IEEE* [*see also IEEE Microwave and Guided Wave Letters*] ,vol. 14 , no. 6, pp. 301-303, Jun. 2004.

15. **B. Guo**, X. T. Dong, W. Y. Yin, B. Y. Gan, "Dispersion characteristics of V-shaped microstrip lines," *Microwave and Optical Technology Letters*, vol. 38, no. 4, pp. 320-323, Jul. 2003.

16. W. Y. Yin, **B. Guo**, X. T. Dong, B.Y. Gan, "Effect of diverse anisotropy in multilayer superstrate-substrates on pulse propagation in shielded microstrip lines," *IEE Proceeding-Microwaves Antennas and Propagation*. vol. 150, no. 5, pp. 391-395, Oct. 2003.

17. W. Y. Yin, **B. Guo**, X. T. Dong, B.Y. Gan, "Distortion of pulse waves propagating in some ferrite microstrip transmission lines," *Journal of Electromagnetic Waves and Applications*. vol. 17, no. 10, pp. 1441-1457, Oct. 2003.

18. W. Y. Yin, **B. Guo**, X. T. Dong, B.Y. Gan, "Lossy effects on the transient propagation in LTCC coplanar waveguides (CPWS)," *Microwave and Optical Technology Letters*, vol. 39, no. 2, pp. 94-97, Oct. 2003.

19. W. Y. Yin, **B. Guo**, X. T. Dong, "Pulse wave propagating in coplanar waveguides (CPWS) on LTCC substrates," *Microwave and Optical Technology Letters*, vol. 37, no. 1, pp. 32-34, Apr. 2003.

20. W. Y. Yin, **B. Guo**, B.Y. Gan, L. W. Li, I. Wolff, "Constitutive parameter effects in some multilayered bianisotropic microstrip lines: clarification of magnetic groups of symmetry," *IEE Proceeding-Microwaves Antennas and Propagation*. vol. 150, no. 1, pp. 18-22, Feb. 2003.

21. W. Y. Yin, **B. Guo**, X. T. Dong, "Comparative study on the interaction of electromagnetic waves with multi-layer omega(chiro)ferrite slabs," *Journal of Electromagnetic Waves and Applications*. vol. 17, no. 11, pp. 15-29, Jan. 2003.

22. **B. Guo**, Z. S. Shi, W. B. Wang, "The Radiation Characteristics of the Cavity Backed Antenna in Conducting Cone", *Journal of systems engineering and electronics*, vol. 13, no. 2, pp. 7-12, Feb. 2002.

Conference

1. D. Vu, **B. Guo**, L. Xu, and J. Li, "SAR based adaptive GMTI," in Algorithms for Synthetic Aperture Radar Imagery XVI, Proceedings of the SPIE, 2010.

2. Y. Xie, **B. Guo**, J. Li, G. Ku, L. V. Wang, "Adaptive and robust techniques for thermoacoustic and photoacoustic tomography," *Photons Plus Ultrasound: Imaging and Sensing 2007: The Eighth Conference on Biomedical Thermoacoustics, Optoacoustics, and Acousto-optics*, San Jose, California, January, 2007

3. Y. Xie, **B. Guo**, J. Li, G. Ku, and L. V. Wang, "Adaptive and Robust Techniques (ART) for Thermoacoustic Tomography in Breast Cancer Detection," *2006 Annual Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, California, November 2006.

4. Y. Xie, **B. Guo**, J. Li, and P. Stoica, "On multi-static adaptive microwave imaging methods for early breast cancer detection," *2006 IEEE International Conference on Acoustics, Speech, and Signal Processing, ICASSP2006*, Toulouse, France, May 14-19, 2006.

5. **B. Guo**, L. Xu, and J. Li, "Time reversal based microwave hyperthermia treatment of breast cancer," *2005 Annual Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, California, November 2005.

6. Y. Xie, **B. Guo**, L. Xu, J. Li, and P. Stoica, "Multi-static adaptive microwave imaging for early breast cancer detection," *2005 Annual Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, California, November 2005. **First Place Winner for the Asilomar Conference Student Paper Contest.**

7. **B. Guo**, Y. Wang, J. Li, P. Stoica, and R. Wu, "Microwave imaging via adaptive beamforming methods for breast cancer detection," *Progress in electromagnetics research symposium PIERS 2005*, Hangzhou, China, Aug., 2005.

8. **B. Guo**, X. T. Dong, W. Y. Yin, B. Y. Gan, "Coupling in some edge-coupled microshield transmission lines," *Antennas and Propagation Society International Symposium*, vol. 4, pp. 324-327, Columbus, Ohio, Jun. 2003.

9. **B. Guo** and W. Wang, "The Radiation Characteristics of the Cavity Backed Antenna in Conduction Cone," *The 15th International Symposium on Antennas, Propagation and EM Theory*, Beijing, China, pp.269-272, Aug. 2000.

10. **B. Guo**, J. Fang and W. Wang, "The Study of the Radiation Characteristics for Cavity Backed Antennas," *1999 International Conference on Computational Electromagnetics and Its Applications*, Beijing, China, Nov. 1999.
11. X. T. Dong, **B. Guo**, W. Y. Yin, B. Y. Gan, "FDTD Modeling of 3D Metal-LTCC Structures for RF(MM)ICs," *Antennas and Propagation Society International Symposium*, vol. 4, pp. 116-119, Columbus, Ohio, June, 2003.

PRESENTATIONS (Presenter underlined)

1. "On Compressive Sensing for the Random Sensor Array Design." L. Carin, **B. Guo**, D. Liu, and W. Lin, *Compressive Sensing Workshop,* Duke University, Durham, NC, February 25-26, 2009
2. "Robust and adaptive techniques for thermoacoustic tomography," Y. Xie, **B. Guo**, J. Li, G. Ku, L. V. Wang, *Photons Plus Ultrasound: Imaging and Sensing 2007: The Eighth Conference on Biomedical Thermoacoustics, Optoacoustics, and Acousto-optics*, San Jose, California, January, 2007. **Selected for a Travel Award**
3. "Multi-static adaptive microwave imaging for early breast cancer detection." Y. Xie, **B. Guo**, L. Xu, J. Li, and P. Stoica, *2005 Annual Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, California, November 2005. **First Place Winner for the Asilomar Conference Student Paper Contest.**
4. "Time reversal based microwave hyperthermia treatment of breast cancer." **B. Guo**, L. Xu, and J. Li, *39th Asilomar Conference on Signals, Systems and Computers,* Monterey, CA, October, 2005
5. "Microwave imaging via adaptive beamforming methods for breast cancer detection." **B. Guo**, Y. Wang, J. Li, P. Stoica, and R. Wu, *Progress in electromagnetics research symposium PIERS 2005*, Hangzhou, China, August, 2005
6. "The Radiation Characteristics of the Cavity Backed Antenna in Conduction Cone." **B. Guo** and W. Wang, *The 15th International Symposium on Antennas, Propagation and EM Theory*, Beijing, China, August, 2000
7. "The Study of the Radiation Characteristics for Cavity Backed Antennas." **B. Guo**, J. Fang and W. Wang**,** *1999 International Conference on Computational Electromagnetics and Its Applications*, Beijing, China, November, 1999

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