

Electrical Engineering Publications During Calendar Year 2006

I. Books

Furuya, J. Su, I. Takeuchi, **V. K. Varadan**, J. Ulicny, *Materials and Devices for Smart Systems*, Materials Research Society Press, 2006

Gardner, J., **V. K. Varadan** and O. Awadelkarim, *Microsensors, MEMS and Smart Devices*, John Wiley, 2006 (Chinese)

Liou, W. W. and Y. Fang *Microfluid Mechanics*; **Omar Manasreh** – Book Series Editor.

Paiella, Roberto, Ed., *Optoelectronic Devices Based on Intersubband Transitions in Semiconductor Quantum Structures*; **Omar Manasreh** – Book Series Editor.

Tomm, Jens W. and Juan Jiménez, Eds., *Screening and Packaging Techniques for Highly Reliable Quantum-well High-power Laser Arrays*, **Omar Manasreh** – Book Series Editor.

Ulrich, R. K. and W. D. Brown, Eds., *Advanced Electronic Packaging, 2nd Edition*, IEEE/Wiley-Interscience, 840 pages, 2006.

Varadan, V. K., K. J. Vinoy and S. Gopalakrishnan, *Smart Material Systems and MEMS*, John Wiley, 2006

II. Chapters

Abraham, J. K. and V. K. Varadan, “Modelling of Passive Wireless Sensors for RFID Tag Applications”, In *Smart Electronics, MMES, BioMEMS and Nanotechnology*, SPIE, vol. 6172, pp. 617204-1 -617204-10, 2006

Ang, S. S., and L. Schaper, “Electrical Considerations, Modeling, and Simulation”, In *Advanced Electronic Packaging*, R. K. Ulrich and W. D. Brown, Eds., John Wiley and Sons, Inc., Hoboken, NJ, Chapter 6, 61 pages, 2006.

Brown, W. D., “Introduction and Overview of Microelectronic Packaging”, In *Advanced Electronic Packaging*, R. K. Ulrich and W. D. Brown, Eds., John Wiley and Sons, Inc., Hoboken, NJ, Chapter 1, 27 pages, 2006.

Brown, W. D., and R. K. Ulrich, “Materials for Microelectronic Packaging”, In *Advanced Electronic Packaging*, R. K. Ulrich and W. D. Brown, Eds., John Wiley and Sons, Inc., Hoboken, NJ, Chapter 2, 28 pages, 2006.

Chen, L., J. Xie, M. Srivatsan and V. K. Varadan, “Magnetic nanotubes and their potential use in neuroscience applications”, *Smart Electronics, MMES, BioMEMS and Nanotechnology*, SPIE, vol. 6172, pp. 61720J-1 -61720J-10, 2006.

Chintakuntla, R. R., **J. K. Abraham** and V. K. Varadan, "Nanowire Array For Wireless Neural Probe: Modeling and Simulation", In *Smart Electroncis, MMES, BioMEMS and Nanotechnology*, SPIE, vol. 6172, pp. 61720I-1 -61720I-10, 2006.

Jung, S., **T. Ji** and V. K. Varadan, "Organic Thin Film Based Sensor Applications", In *Smart Electroncis, MMES, BioMEMS and Nanotechnology*, SPIE, vol. 6172, pp. 617209-1 -617209-10, 2006.

Parkerson, J., and L. Schaper, L., "Design Considerations", In *Advanced Electronic Packaging*, R. K. Ulrich and W. D. Brown, Eds., John Wiley and Sons, Inc., Hoboken, NJ, Chapter 11, 50 pages, 2006.

Roychowdhury, J. and **H. A. Mantooth**, "EDA for IC Implementation, Circuit Design, and Process Technology - Analog Simulation: Circuit Level (Including Radio Frequency Methods and Noise) and Behavioral Level", In *Electronic Design Automation for Integrated Circuits Handbook*, vol. II, Chapter 14, CRC Press, New York, 2006.

Sridhar, C., **J. Xie**, J. K. Abraham and V. K. Varadan, "Synthesis of Oriented ZnO Nanostructure Arrays for Solar Cell Applications", In *Smart Electroncis, MMES, BioMEMS and Nanotechnology*, SPIE, vol. 6172, pp. 617208-1 -617208-10, 2006

Whitchurch, A. K. and **V. K. Varadan**, "Neuroelectronics and Neurosurgery", In *Smart Electroncis, MMES, BioMEMS and Nanotechnology*, SPIE, vol. 6172, pp. 61720S-1 -61720S-10, 2006

Yoon, H., R. R. Chintakuntla, V. K. Varadan and P. B. Ruffin, "Aligned Nanowire Structure on Silicon and Flexible Substrates and Their Applications", In *Smart Electroncis, MMES, BioMEMS and Nanotechnology*, SPIE, vol. 6172, pp. 61720H-1 -61720H-10, 2006

III. Refereed Articles

Albarghouti, Marwan, **Hameed Naseem**, and Mowafak Al-Jassim, "TEM Investigation of the Role of a Nano-oxide Layer in Aluminum-Induced Crystallization of a-Si:H," *Electrochemical and Solid State Letters*, Vol. 9, No. 7, p. G225, 2006.

Ang, S. S., M.R. Hoque, C-C Chen, and D. Woodward, "A Sample and Hold Current Measurement Integrated Circuit for Neural Recording," *International Journal of Electronics*, vol. 93, no. 12, pg. 793-803, December 2006.

Brown, Bill, Dennis Hess, Vimal Desai, and M. Jamal Deen, "Dielectric Science and Technology", *The Electrochemical Society Interface*, pp. 21-24, Spring 2006. (Invited)

Debey, R., D. S. Bag, V. K. Varadan, D. Lal and G. N. Mathur, "Polyaniline Coating On Glass and PMMA Microspheres", *Reactive and Functional Polymers*, 66, pp. 441-445, 2006.

DeCuir, E. A., Jr., **Emil Fred**, B. S. Passmore, A. Muddasani, M. O. Manasreh, Jinqiao Xie, Hadis Morkoç, M. E. Ware, and G. J. Salamo, "Near-infrared Wavelength Intersubband Transitions in GaN/AlN Short Period Superlattices," *Appl. Phys. Lett.*, 89, 2006.

El-Shenawee, Magda, and Eric Miller, "Spherical Harmonics Microwave Algorithm for Shape and Location Reconstruction of Breast Cancer Tumor," *IEEE Trans. Medical Imaging*, vol. 25, no. 10, pp. 1258-1271, October 2006

Faraone, L, **V. K. Varadan** and L. Pulfrey, "Microelectronics, MEMS and Nanotechnology", *Journal of Smart Materials and Structures*, 15, pp. 1, 2006.

Hoque, M. R., T. Ahmad, T. R. McNutt, **H. A. Mantooth** and M. M. Mojarradi, "A Technique to Increase the Efficiency of High Voltage Charge Pumps," *IEEE Trans. Circuits and Syst. – Express Letters*, pp. 364-368, May 2006.

Hossain, Maruf, Harry Meyer, **Husam Abu-Safe**, Hameed Naseem, and William Brown, "The Effect of Hydrogen in the Mechanism of Aluminum-Induced Crystallization of Sputtered Amorphous Silicon Using Auger Microanalysis", *Thin Solid Films*, Vol. 510, pp. 184-190, 2006.

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Hossain, Maruf, **Husam H. Abu-Safe**, Hameed Naseem, and William D. Brown, "Characterization of Hydrogenated Amorphous Silicon Thin Films Prepared By Magnetron Sputtering", *Journal of Non-Crystalline Solids*, Vol. 352, Issue 1, pp. 18-23, 2006.

Hossain, Maruf, **Husam Abu-Safe**, Hameed Naseem, and William Brown, "The Effects of Hydrogen on Aluminum-Induced Crystallization of Sputtered Hydrogenated Amorphous Silicon", *The Journal of Electronic Materials*, Vol. 35, No. 1, pp. 113-117, 2006.

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Lee, W., and C. S. Curry, "A Performance Analysis of OFDM Systems In Excessively Dispersive Multipath Channels," *KICS/IEEE Journal of Communications and Networks*, vol. 8, no. 3, pp. 323-329, Sept. 2006.

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Liar, E. B., **S. S. Ang**, A. A. O.Tay, H. H. Feng, R.Nagarajan, V.Kripesh, "Fatigue and Bridging Study of High-aspect-ratio Multi-copper-column Flip-chip Interconnects through Solder Joint Shape Modeling," *IEEE Transactions on Components and Packaging, Part A: Packaging Technology*, vol. 29, no. 3, pg. 560-569, September 2006.

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Rowbotham, T., J. Patel, T. Lam, S. Burkett, L. Cai, and L. Schaper, "Back Side Exposure of Variable Size Through-Silicon Vias," *J. Vac. Sci. Technol. B*, Vol. 24, No. 5, pp. 2460-2466, 2006.

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Sohraby, Kazem, "An Adaptive Algorithm For Active Queue Management", *Springer Journal of Combinatorial Optimization*, vol. 12, no. 1-2, pp. 151-162, September 2006.

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IV. Unrefereed Publications and Conference Proceedings

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V. Invited Lectures

Burkett, Susan, “Materials Aspects to Consider in the Fabrication of TSVs,” Materials Research Society (MRS) International Symposium, Symposium Y (3D Integration), Boston, MA, Nov. 29, 2006.

Burkett, Susan, “Undergraduate Education at NSF: Trends in Engineering Education Programs,” Electric Energy Curriculum Workshop, National Dissemination Educational Material for Power Electronics and Electric Drives, Orlando, FL, Feb. 18, 2006.

Burkett, Susan, NSF, “University/Community College Partnerships,” Design, Service, and Manufacturing Grantees and Research Conference, St. Louis, MO, July 25, 2006.

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Jung, S., T. Ji and V. K. Varadan, “A Novel Strain Sensor Using Organic Semiconductor Films On Polymeric Substrates”, *International Conference on Smart Materials, Devices and Systems*, Australia, December 14, 2006 (invited paper presentation)

Naseem, Hameed A., Husam H. Abu-Safe, Marwan Barghouti, Maruf Hussain, Khalil Sharif, Ram Kishore, Adnan Al-Shariah, and William D. Brown, "Large Grain Polycrystalline and Epitaxial Silicon Films Formed At Low Temperature Using Metal Induced Crystallization Of Hydrogenated Amorphous Silicon", *Proc. Global Conference on Renewable Energy Approaches for Desert Regions [GCREADER]*, Le Royal Hotel, Amman, Jordan, 18-22 September 2006. (Keynote Address)

Varadan, V. K., "The Role of Nanotechnology and Wireless Sensors in Medicine", *International Conference on Multifunctional Nano Composites*, Honolulu, Hawaii, September 2006 (plenary talk)

Varadan, V. K., "The Role of Nanotechnology and Engineering in Monitoring and Control of Cardiovascular and Neurological Disorders", *International Conference on Smart Materials, Nano- and Micro Smart Systems*, Adelaide, Australia, December 2006 (plenary talk)

Varadan, V. K., "BioMEMS and Wireless Devices for Control and Monitoring of Neurological Disorders", Nizam Institute of Medical Sciences, Hyderabad, India, October 2006 (plenary talk)

VI. Other Lectures, papers, and oral presentations

Burkett, Susan, "NSF Opportunities and Programs," *UA College of Engineering luncheon for female graduate students*, Fayetteville, AR, May 2, 2006.

El-Shanawee, Magda, "Breast Cancer Research at the University of Arkansas-Fayetteville Microwave Technique for the Early Detection of Breast Cancer," *The Scientific and Industrial Committees of the Arkansas Biosciences Institute Conference (ABI)*, Little Rock, October 28, 2006.

Mantooth, H. A., M. M. Mojarradi and R. W. Johnson, "Emerging Capabilities in Electronics Technologies for Extreme Environments Part II – Low Temperature Electronics," *IEEE Power Electronics Society Newsletter*, vol. 18, no. 2, pp. 10-13, 2nd quarter, Apr. 2006.

Mantooth, H. A., and C. Vemulapally, "Model Generation and Characterization Tools for Multidisciplinary Systems," *Electric Ship Research and Development Consortium Workshop*, Feb. 2006.

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Mantooth, H. A., “An Integrated Environment for Model Creation and Characterization,” *VTB User’s Conference*, University of South Carolina, 14 slides, Oct. 2006.

Puligalla, S., S. Penumarthy, and V.V. Varadan, “Orientation Effects and Homogenization Volumes for SRR Metamaterials”, IEEE Ap- URSi Symposium, Albuquerque, NM, July 2006

Talapanuri, Gokul, Shruti Pandaraju, Douglas Woten*, and Magda El-Shenawee, ”Breast Cancer Detection using Microwave Imaging,” Poster presented in the Symposium of the Arkansas Biosciences Institute Conference (ABI), Little Rock, October 28, 2006.

Varadan, V. V., “Extraction of the Complex Effective Properties of Symmetric and Non-symmetric Metamaterials Using Free Space Measurement Data”, Imperial College, London, UK, April 3, 2006

Varadan, V. V., “Extraction of the Complex Effective Properties of Metamaterials Using Free Space Measurement Data”, Progress in Electromagnetics research (PIER), Cambridge, MA March 27, 2006

Varadan, V. V., “Re-engineering the Life Sciences for the 21st Century”, Wichita State University, July 28, 2006

Varadan, V. V., “Experimental Extraction of the Effective Properties of Metamaterials”, Duke University, January 12, 2006

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Varadan, V. V., “5-110 GHz Free Space Materials Characterization”, National Institutes of Standards & Technology, Boulder, Co, March 10, 2006

Varadan, V. V., “Microwave Scanning for IEDs”, NSF Workshop On Detecting and Countering IEDs and Related Threats, June 5-6, 2006.

Yoon, H., D. Despande, R. R. Chintakuntala and V. K. Varadan, “Enzyme Electrodes Immobilized on Hetero-Structured Metallic Nanowire Array For Glucose Sensing”, *International Conference on Biomedical Applications of Micro-and Nano-Engineering III*, Adelaide, Australia, December 2006