

**Jack R. East, Fellow, IEEE**

Research Scientist

Department of Electrical Engineering and Computer Science

UNIVERSITY OF MICHIGAN

**Role in the Center: Co-Investigator****Areas of Research:** Microwave, Millimeter-wave and VHS device modeling, Fabrication and evaluation.

1301 Beal Avenue

Ann Arbor, MI, 48109-2122

Phone: (734) 763-0212

Fax: (734) 763-9324

E-mail: jeast@umich.edu

**A. PROFESSIONAL PREPARATION**

University of Michigan

Electrical Engineering, B.S., 1969

University of Michigan

Electrical Engineering, M.S., 1970

University of Michigan

Electrical Engineering, Ph.D., 1986

**B. APPOINTMENTS**

Research Scientist, EECS Department, University of Michigan

1993-present

Associate Research Scientist, EECS Department, University of Michigan

1982-1993

Assistant Research Scientist, EECS Department, University of Michigan

1979-1982

**C. SYNERGISTIC ACTIVITIES**

Dr. East has 30 years of experience working on numerical simulation of RF semiconductor devices, device fabrication and RF measurement and characterization at microwave, millimeter wave and THz frequencies. Over this period he has been the co-chairman for 18 Ph.D. students. He has published 5 book chapters and more than 70 papers in refereed journals on device physics, numerical analysis of semiconductor structures, RF characterization and communications. He is an external reviewer for IEEE Transactions on Microwave Theory and Techniques, IEEE Transactions on Electron Devices, IEEE Microwave and Guided Wave Letters and Solid State Electronic and is a member of the technical program committee for the International Symposium on Space Terahertz Technology.

His research interests include: fabrication, design and analysis of microwave solid-state devices and circuits; modeling of transport and interfaces in semiconductors; microwave and millimeter-wave measurements; design and fabrication of terahertz structures; numerical modeling; and analysis and optimization of digital communications systems.

**D. RELATED PUBLICATIONS**

1. "Schottky Diode Frequency Multipliers," The RF and Microwave Handbook, CRC Press, 2001
2. "Characterization of Amplifier Nonlinearities and Their Effect in Communications Systems," with W. Stark and G. Haddad, RF Technologies by T. Itoh, G. Haddad and J. Harvey, John Wiley and Sons, 2001.
3. "The RF and Microwave Handbook", contributor and member of editorial board, CRC Press, 2001.
4. "RF and Microwave Semiconductor Device Handbook," ", contributor and member of editorial board, CRC Press, 2003.
5. "Two Terminal Active Devices for Terahertz Sources", G. Haddad, J. East and H. Eisele in Terahertz Sensing Technology, D. Woolard, W.R. Loerop and M. Shur (Eds), Vol. 1, World Scientific, 2003.
6. "Planar Doped Barrier Devices for Subharmonic Mixers," with T. Lee and G. Haddad, Microwave and Optical Technology Letters, vol. 4, No. 1, p. 53, 5 January 1991.
7. "Bias Circuit Instabilities and Their Effect On The DC Current vs. Voltage Characteristics of Double Barrier Resonant Tunneling Diodes," with C. Kidner, I. Mehdi and G. Haddad, Solid State Electronics, vol. 34, No. 2, p. 149, February 1991.
8. "Improved Millimeter-Wave Mixer Performance Analysis at Cryogenic Temperatures," with P. Siegel and I. Mehdi, IEEE Microwave and Guided Wave Letters, vol. 1, No. 6, pp. 129-131, June 1991.
9. "Characterization of Resonant Tunneling Diodes for Microwave and Millimeter-Wave Detection," with I. Mehdi and G. Haddad, IEEE Transactions on Microwave Theory and Techniques, vol. MTT-39, pp.

1876-1879, November 1991.

10. "Novel Heterojunction Varactors," with M. Frerking. Proceedings of the IEEE Special Issue on Terahertz Technology, vol.80 No. 11, pp. 1860-1863, November 1992.
11. "Current Saturation Effects in Varactors," with E. Kollberg, T. Tolmunen and M. Frerking, IEEE Transactions on Microwave Theory and Techniques. Vol. 40, no. 5, pp.831-838, May, 1992.
12. "Use of Self-Bias to Improve Power Saturation and Intermodulation Distortion in CW Class B HBT Operations," with D. Teeter and G. Haddad, Microwave and Guided Wave Letters, pp. 174-176, May 1992.
13. "Ohmic Contact Study for Quantum Effect Transistors and Heterojunction Bipolar Transistors with In-GaAs Contact Layers," with W. Chen, J. Cowles, G. Haddad, G. Munns and K. Eisenbeiser, Vac. Sci. Technol. B, vol. 10, No. 6, pp. 2354-2360, Nov/Dec,1992.
14. "Large-Signal Numerical and Analytic HBT Models," with D. Teeter, R. Mains and G. Haddad. IEEE Trans. on Electron Devices, vol. ed-40, No. 5, pp. 837-845, May 1993.
15. "Large Signal HBT Characterization and Modeling at Millimeter Wave Frequencies," with D. Teeter and G. Haddad, IEEE Transactions on Microwave Theory and Techniques, Vol. 41, no. 6, pp 1087-1093, June/July, 1993.
16. "A Micromachined High-Q X Band Resonator," with J. Papapolymerou, J. Cheng and L. Katehi, Microwave and Guided Wave Letters, Vol. 7, No. 6, pp 168-170, June, 1997.
17. "GaAs vs. Quartz FGC Lines for MMIC Applications," with J. Papapolymerou and L. Katehi, IEEE Transactions on Microwave Theory and Techniques, Vol. 46, No. 11, pp. 1790-1793, Nov. 1998.
18. "An Efficient Fourier Transform Algorithm for Multitone Harmonic Balance," with V. Borich and G. Haddad, IEEE Transactions on Microwave Theory and Techniques, Vol. 47, No. 2, pp. 182-188, February, 1999.
19. "W-band Finite Ground Coplanar Monolithic Multipliers," with J. Papapolymerou, F. Bruuchler and L. Katehi, IEEE Transactions on Microwave Theory and Techniques, Vol. 47, No. 5, pp. 614-619, May, 1999.
20. "High Efficiency Class-A Power Amplifiers With a Dual-Bias-Control Scheme," with K. Yang and G. Haddad, IEEE Transactions on Microwave Theory and Techniques, Vol. 47, No. 8, pp. 1426-1431, August, 1999.
21. "Nonlinear Amplifier Effects in Communications Systems," with C. Liang, J. Jong and W. Stark, Transactions on Microwave Theory and Techniques, Vol. 47, No. 8, pp. 1461-1466, August, 1999.
22. "Gradient Optimization of RF Amplifiers for Digital Communications," with V. Borich and G. Haddad, International Journal of RF and Microwave Computer Aided Engineering, vol. 6, Nov. 2000, pp. 353-365.
23. "A Finite Ground Coplanar Line-To-Silicon Micromachined Waveguide," with J. Becker, Y. Lee and L. Katehi, submitted to IEEE Trans. On Microwave Theory and Techniques, in review.
24. "Frequency Selective Surface Based Bandpass Filters in the Near-Infrared Region", with S. Govindaswamy, F. Terry, E. Topsakal, J. Volakis and G. Haddad, Microwave and Optical Technology Letters, Vol. 41, number 4, pp. 266-269, May, 2004.
25. "Dual Frequency-Selective Surfaces for Near-Infrared Bandpass Filters," with S. Govindaswamy, F. Terry, E. Topsakal, J. Volakis and G. Haddad, Microwave and Optical Technology Letters, Vol. 43, number 3, pp. 95-98, Oct, 2004.