

Curriculum Vitae

DR. MICHEL A. REECE

Associate Professor

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EXECUTIVE SUMMARY :

i. Research/ Scholarship

Center of Microwave, Satellite and RF Engineering (COMSARE), Director

- Serves as Center Director since 2007
- PI or Co-PI on over \$8M of externally funded research grants
- Served as research advisor and mentor to over 50 undergraduate and graduate students
- 7 PhD advisees (3 graduated, 4 current)
- Direct fiscal management of over \$1.7M of externally funded research grants
- Oversee the maintenance and operation of 2 laboratory facilities that contain over \$1M of equipment
- Directs research in the areas of RF/microwave/sub-mm-wave/ MIC and MMIC electronic circuit designs, high frequency semiconductor (ie. GaAs, GaN) device characterization and modeling, reconfigurable front-end analog electronics, sub-THz electronic component characterization, circuit design and testing

ii. Service

Electronic Devices, Circuits and Systems Concentration Track(EDCSC) (Department of ECE)

- ECE Graduate Program Coordinator
- Past Committee Chair for EDCSC
- Establish core RF/Microwave courses for undergraduate and graduate students
- Establish on-line curriculum for sophomore level ECE course

School of Engineering Alumni Association Task Force (AATF)

- Serves as AATF Chair 2014- Present
- Solicited and managed Alumni donations
- Hosted fundraising event that raised \$1.7K in donations

iii. Outreach

Shiloh After-School Tutoring Program (SAST), Director

- Serves as the Director of SAST since 2006
- Awarded \$15K from Baltimore's Youth and Children Program

A. Education:

Doctor of Engineering, Electrical Engineering, Morgan State University, May 2003.

Master of Science, Electrical Engineering, The Pennsylvania State University, May 1997.

Bachelor of Science, Electrical Engineering, Morgan State University, May 1995.

B. PROFESSIONAL and RESEARCH EXPERIENCE :

- 2013- 2014 The Chicago School of Professional Psychology NSF OURS Leadership Certificate Program
- 2014- Institute of Electronics and Electrical Engineers (IEEE) International Microwave Symposium (IMS) 2014 Steering Committee Member
- 2010- Member, INCREASE (Interdisciplinary Consortium for Research and Educational Access in Science and Engineering)
- 2010-2011 Institute of Electronics and Electrical Engineers (IEEE) International Microwave Symposium (IMS) 2011 Steering Committee Member
- 2008 NSF Review Panelist for the Course, Curriculum Laboratory Improvement Grant, Arlington, Virginia
- 2007 - COMSARE Research Director, Morgan State University, Dept. of ECE, Baltimore, Maryland
- 2006 - Assistant Professor, Morgan State University, Dept. of ECE, Baltimore, Maryland
- 2004-2009 Adjunct Professor, Johns Hopkins University, Engineering Professional Program, Columbia, Maryland
- 2003-2006 Post-doctoral Researcher, Johns Hopkins University Applied Physics Laboratory, Space Department, Laurel, Maryland
- 2003-2004 Engineering Consultant, Morgan State University, Dept. of ECE, Baltimore, Maryland
- 2002-2003 COMSARE Research Center Deputy Director, Morgan State University, Dept. of ECE, Baltimore, Maryland
- 1999-2001 Graduate Research Assistant, Morgan State University, Dept. of ECE, Baltimore, Maryland
- 1997-1998 Electrical Engineer, Northrop Grumman Corporation, Baltimore, Maryland

C. TEACHING AND COURSE DEVELOPMENT ACTIVITIES:

MORGAN STATE UNIVERSITY, AUGUST 2006-PRESENT

Associate Professor

Course Title: Materials and Devices

Course Number: EEGR215.001

Developed and presented lectures on fundamental semiconductor device physics concepts. Provide instruction to sophomore-level students on topics relating to modern physics, crystal structure, charge transport, and pn junction diode statistics. Developed on-line content that adheres to 'Quality Matters' requirements.

Course Title: Introduction to Microwaves

Course Number: EEGR443.001

Developed and presented lectures on fundamental transmission line theory. Provide instruction to senior-level students on topics relating to Smith Chart, S-parameters, active and passive components, and measurement techniques.

Course Title: Special Topics in Microwaves

Course Number: EEGR444.001

Developed and presented lectures on specialized topics relating to the design of microwave circuits using active devices (ie. Transistors). Provide instruction to senior-level students on topics relating to the design of amplifiers, development of transistor device models and the use of circuit and electromagnetic simulation tools.

Course Title: Active Microwave Circuits

Course Number: EEGR535.185

Developed and presented lectures on topics relating to the design of microwave circuits using active devices (ie. Transistors). Provide instruction to graduate students on topics relating to the design, fabrication and test of amplifiers, oscillators, mixers and provide laboratory experiences using microwave measurement equipment.

Course Title: Microwave Transmission

Course Number: EEGR532.185

Developed and presented lectures on topics relating to the design of microwave circuits using passive components. Provide instruction to graduate students on topics relating to the design, fabrication and test of couplers and filters and provide laboratory experiences using microwave measurement equipment.

JOHNS HOPKINS UNIVERSITY, SEPTEMBER 2005-2009

Adjunct Faculty (Graduate Engineering Professional Program)

Course Title: Microwave Monolithic Integrated Circuit (MMIC) Design

Course Number: EE525.787

Developed and presented lectures on chip level design based upon the Triquint .5um GaAs pHEMT process. Provide instruction on processing, simulation, layout, design rule checking, packaging, and testing.

Course Title: RF and Microwave Circuits I

Course Number: EE525.774

Developed and presented lectures on microwave theory and fundamentals on microstrip design of integrated circuits. Monitor student's progress in understanding

the design of couplers, mixers, and filters. Discuss techniques for calibration and measurement.

MORGAN STATE UNIVERSITY, SEPTEMBER 2002-MAY 2003

CAMRA(Center of Advanced Microwave and Research Applications) Training Director

- Communicated with CAMRA research center directors concerning student training performance and retention
- Established training modules for core CAMRA training in circuit analysis, RF microwave calibration and measurement, and device characterization
- Presented training module and additional informational materials to each research center Training Representative
- Established training performance criteria (evaluations)
- Established training schedule for CAMRA students and trainers
- Created and maintained a database of training modules, evaluations, and performance
- Coordinated PACE(Pre-Freshmen Accelerated Curriculum in Engineering) summer projects among CAMRA Research Centers
- Coordinated career, personal and professional development workshops/lectures.

D. RESEARCH EXPERIENCE:

JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY, NOVEMBER 2003- JULY 2006

Post Doctoral Researcher

- Harmonic generation analysis of nonlinear device contributions to harmonic generation
- First iteration design of a 1.5 Watt Ka-band SSPA for Solar Probe study
- Development of advanced neural network modeling techniques for pHEMTS
- Assist in technology transfer of NEXUS to JHUAPL
- Development of a standard methodology for the development of highly efficient, high power SSPAs for Ka-Band applications

MORGAN STATE UNIVERSITY, MAY 2003- DECEMBER 2004

Engineering Consultant

- Development of highly efficient SSPA designs for Ka-band applications
- Development of the infrastructure of the Academic, Training, and Career Management Office for CAMRA student services
- Maintenance of student services and programs that integrates research, technical training, and academics within the CAMRA student's undergraduate curriculum

MORGAN STATE UNIVERSITY, SEPTEMBER 2002-MAY 2003

COMSARE Deputy Director

- Monitor undergraduate student academics, research, and training activities.
- Assist in academic and professional advisement

- Develop research projects for undergraduate student participation
- Manage research projects relating to circuit design, device characterization and measurement within COMSARE research center

MORGAN STATE UNIVERSITY, 1999-2001

COMSARE Graduate Researcher

- Assisted in the development of training modules for COMSARE Research Training Infrastructure.
- Presented a lecture series concerning microwave calibration and measurement using Agilent's Vector Network Analyzer.
- Designed, simulated and tested a broadband MMIC amplifier using .25um GaAs PHEMTs based on Triquint Texas Foundry Process. Designed, simulated and sent out to fabrication a C-Band Class F MMIC amplifier.
- Developed an HPRoot model for GaAs PHEMT devices based on Triquint Texas Foundry Process for Boeing IR&D.

Project Manager

- Development of statement of work for research contracts between JHUAPL and COMSARE for the development of neural network device models for high efficiency solid-state power amplifiers
- Assist in proposal writing for research grants and contracts
- Manage and assign research tasks to undergraduate researchers. Create and manage research budgets \$60K-\$135K

E. STUDENT DISSERTATIONS and MASTERS PROJECTS (graduated only)

PhD Students (Doctoral Advisor or Co-Advisor)

- Dontae Ryan, Morgan State University, October 2012
- Caroline Waiyaki, Morgan State University, October 2012
- Duane Harvey, Morgan State University, May 2012

Master of Engineering Students (Advisor)

- Surya Khanal, Morgan State University, May 2016
- Odeneho Anaman, Morgan State University, May 2016
- Ryan Banks, Morgan State University, December 2015 [Master of Science (Thesis)]
- Asia Mason, Morgan State University, May 2014
- David Pattawi, Morgan State University, December 2012,
- Vincent Dfijo, Morgan State University, May 2012
- Luis Burbano, Morgan State University, December 2011
- Ryan Janak, Morgan State University, December 2010
- Orlando Walker, Morgan State University, May 2010
- Johann Richter, Morgan State University, May 2010

F. UNIVERSITY SERVICE:

- Student Chapter of Society of Women Engineers (SWE) at Morgan State University, **Faculty Advisor**, 2007 – Present
- Electronic Devices, Circuits and Systems Track, **Committee Chair**, 2013- 2016
- Faculty Institute Committee, **Member**, 2010-2013
- School of Engineering Tenure Review Committee, **Member**, 2014
- Morgan State University(MSU) Online Director, **Faculty Search Committee Member**, 2014
- Morgan State University Intellectual Property Committee, **Member**, 2012-2013
- MSU School of Engineering Strategic Plan Committee, **Faculty Team Lead**, 2012
- MSU ECE Department Industrial Advisory Board Industrial Committee, **Committee Chair**, 2007 - 2010
- MSU Junior Science, Humanities Symposium, **Faculty Judge**, 2007 & 2008 & 2015

G. INVITED TALKS:

- Reece, M. A., "Introduce a Girl to Engineering Day," Western High School, Baltimore, MD, February 2013.
- Reece, M. A., "Strategies for Winning Proposals," Grant Writing Workshop, Office of Sponsored Programs, Morgan State University, Baltimore, MD. Fall 2012
- Reece, M. A., "Integrating Research in the 21st Century Classroom," MSU Faculty Institute, Fall 2011.
- Reece, M. A., IEEE Baltimore Section Communications Society Meeting "State of Adaptable RF Front-End Component Technology for Software Defined Radio Applications", November 8, 2011.
- Reece, M. A., "COMSARE: An Overview", INCREASE Workshop, Brookhaven National Laboratory, July 2010.
- Reece, M. A., "State of Adaptable Front-End Components for Software Defined Radio Applications", HBCU- OMI, Cleveland, Ohio, July 2009.
- Reece, M. A., "Telemetry above 15GHz Briefing," San Antonio, Texas, March 2009
- Reece, M. A., "Neural Network Modeling for Ka-Band SSPA Applications," WAMI Wireless Seminar Series, Florida, November 2008.
- Reece, M. A., "Life After the Doctorate," Morgan State University, Baltimore, MD, March 2007.
- Reece, M. A., "Things you should know while working on your degree", Morgan State University, Baltimore, MD, January 2007.

H. HONORS and AWARDS:

NASA Silver Recognition Award (2012)

Dean's Award for Outstanding Research Achievement (2009)

National Women of Color Technology Student Leadership Award (2005)

ONR Faculty Fellowship Recognition Award (2004)

First Female Doctoral Degree Recipient at MSU School of Engineering (2003)

ONR Faculty Fellowship Fellow (2001-2003)

I. PUBLICATIONS:

Book Chapter:

1. J. Ladeji-Osias, C. Hohmann, S. Hargett, L. Brown, C. Hughes-Darden, **M. Reece**.(2015) The Impact of Undergraduate Research in STEM at Morgan State University on the Production of Doctoral Degrees in Engineering and the Sciences. In J. McClinton, M. Melton, C. Jackson, K. Engerman (Eds.), *Infusing Undergraduate Research into Historically Black Colleges and Universities Curricula, Diversity in Higher Education, Volume 17* (pp. 143- 175). United Kingdom: Emerald Books Publishing.

Referred Articles:

1. Wallis, B., Bokulic, B., Sequiera, H., Upshur, J., White, C., **Reece, M. A.**, "Advances in Ka-band power amplifier technology for space communication systems," Johns Hopkins University Applied Physics Laboratory Technical Digest, December 2004: pg. 295-304.

Magazine Articles:

1. Duwel, A. ; Franklin, R. ; Frolik, J. ; Ghosal, M. ; Grady, M. ; Henderson, R. ; **Reece, M.** ; Weatherspoon, M. ; Weller, T., "IMS2014 Project "Connects" Undergraduate Students to the Microwave Field [MTT-s Society News], Microwave Magazine, IEEEVolume: 15 , Issue: 7, 2014 , Page(s): 118 – 120.

Conference Proceedings:

1. Michel Reece, Caroline Waiyaki, Shaynee Contee, "K-band GaN Power Amplifier Design with a Harmonic Suppression Power Combiner," IEEE Topical Conference on RF/Microwave Power Amplifiers for Radio and Wireless Applications (PAWR), Phoenix, Arizona, January 2017, To be published.
2. Christine F. Hohmann, Kemi Ladeji-Osias, **Michel Reece**, Cleo Hughes-Darden, Lisa Brown and Stella Hargett, "Common denominators for successful STEM graduate school preparation in the School of Engineering (SoE) and the School of Computer, Mathematics and Natural Sciences (SCMNS) at Morgan State University (MSU)," Understanding Interventions that Broaden Participation in Science Careers, San Diego, 2015.
3. Waiyaki, C., **Reece, M. A.**, Viverios, E., " Linearity and Efficiency Improvement Using Harmonic Suppression Power Combiner in GaN S-band Power Amplifier Design," 12th WSEAS International Conference on Telecommunications and Informatics, Baltimore, MD., September 2013.
4. **M. Reece**, T. Rone, C. White, " Implementation of Cooperative Learning Techniques to Increase Minority Student Interest in RF/Microwave Engineering," ASEE Conference, June 2012.
5. Ryan, Dontae, **Reece, M. A.**, "Bias Adaptation Load Line Analysis for Adaptable Power Amplifiers," GOMACTech, Reno, NV, March 2010.
6. Karangu, C., Ogunniyi, A., Henriquez, S., **Reece, M.**, White, C., "Device Modeling using Neural Network Techniques for Solid State Power Amplifier Applications," Proceedings of the IEEE Sarnoff Symposium, April 2008.

7. Chikando, E., White, C., **Reece, M. A.**, " Ultra Wide-Stopband Planar Microstrip Bandpass Filter Above Defected Ground Structure," Proceedings of the IEEE Sarnoff Symposium, Princeton, NJ, 2007.
8. **Reece, M. A.**, Wallis, B., Upshur, J., Davis, B., White, C., "Comparison of Large-Signal pHEMT Models for Nonlinear, Wideband MMIC Amplifier Circuit Design for Microwave and Millimeter-Wave Applications," Proceedings of the 10th Ka and Broadband Utilization Conference, Vicenza, Italy, September 2004: pg. 559-566.
9. **Reece, M.A.**, White, C., "*Development of a New Integrated Student Agency to Increase the Number of Minorities with Advanced Degrees in Engineering: ATMO*," Proceedings of the 2004 ASEE Annual Conference and Exposition, June 20-23rd, Salt Lake City, Utah, 2004.
10. **Reece, M. A.**, White, C. and Davis, B., Bayne, M., Thompson, W. L., Walker, L., "A Ka-Band MMIC Amplifier Design Utilizing Adaptable Knowledge-Based Neural Network Techniques," IEEE Region 4 Electro/Information Technology Conference, Indianapolis, IN, 2003.
11. **Reece, M.A.**, White, C., Penn, J., Davis, B., Bayne, M., Thompson, W. L., Walker, L., "A Ka-Band Class F MMIC Amplifier Design Utilizing Adaptable Knowledge-Based Neural Network Modeling Techniques." IEEE MTT-S International Microwave Symposium, Philadelphia, PA, 2003.
12. Davis, B., **Reece, M.A.**, Bayne, M., Thompson, W., White, C., Richardson, N. L., and Walker, L., "*Dynamically Configurable pHEMT Model Using Neural Networks for CAD*." IEEE MTT-S International Microwave Symposium, Philadelphia, PA, 2003.
13. Bayne, M., Thompson, W., White, C., Davis, B., **Reece, M. A.**, Richardson, N.L., and Walker, L., "*A Neural Network Model for a High Electron-Mobility Transistor*," Symposium on Nano-Device Technology, Singapore May 2002.

J. PRESENTATIONS at CONFERENCES:

1. Cohen, N., Whitney, J., Ryan, D., **Reece, M. A.**, "An Adaptive Power Amplifier and Control Subsystem for use in Space-Based Software-Defined Radio," 47th Asilomar Conference on Signals, Systems and Computers, November 2013
2. Waiyaki, C., **Reece, M. A.**, Viverios, E., " Linearity and Efficiency Improvement Using Harmonic Suppression Power Combiner in GaN S-band Power Amplifier Design," 12th WSEAS International Conference on Telecommunications and Informatics, Baltimore, MD., September 2013.
3. M. Reece, T. Rone, C. White, " Implementation of Cooperative Learning Techniques to Increase Minority Student Interest in RF/Microwave Engineering," ASEE Conference, June 2012.
4. Waiyaki, C., **Reece, M. A.**, White, C., "S-band Power Amplifier Implementing a Novel Power Divider with Enhanced Harmonic Suppression", Innovative STEM Conference March 2012.
5. Seabron, E., **Reece, M. A.**, "Optimization Method to Improve Gain-Noise Tradeoffs in Cascade Low Noise Amplifier (LNA) Designs", Innovative STEM Conference March 2012

6. *Caroline W. Waiyaki, Dr. Michel A. Reece and Edward Viveiros, "S-band Power Amplifier Implementing a Novel Power Divider with Enhanced Harmonic Suppression", GOMAC, Las Vegas, Nevada, March 2012.*
7. *Waiyaki, C., M. Reece, C. White, "5-W Microwave Integrated Circuits (MIC) Gallium Nitride (GaN) Class F Power Amplifier Operating at 2.8 GHz", Innovative STEM Conference, March 2011.*
8. *Ryan, Dontae, Reece, M. A., "Linearity Analysis for Adaptable Power Amplifiers using the Loadline Translation," GOMAC, Orlando, Fla., March 2011.*
9. *Jegede, B., Reece, M., "Developing a large signal model for 0.15um Triquint 200um GaAs pHEMT at class A, B and AB bias points", PACE Research Symposium, Morgan State University, July 2008.*
10. *Burbano, L., Reece, M., "Development of a User-Defined Model in Agilent's Advanced Design System (ADS)", PACE Research Symposium, Morgan State University, July 2008.*
11. *Djifo, V., Reece, M., "Extraction of the extrinsic circuit parameters (ie. Rs, Rd, Rg, Ls, Ld, Lg) for an equivalent circuit model for a FET using Matlab", PACE Research Symposium, Morgan State University, July 2008.*
12. *Waiyaki, C., Reece, M., "Implementation of Novel Power Combining Techniques on SSPA (SOLID STATE POWER AMPLIFIER) Chip Designs to Improve Efficiency and Power Performance", PACE Research Symposium, Morgan State University, July 2008.*
13. *Janak, R., Reece, M., "Investigation of a Design on an Ultra Wideband Low-Noise-Amplifier (LNA) for First Responders", PACE Research Symposium, Morgan State University, July 2008.*
14. *Richter, J., Reece, M., "Optimization of a Novel Ka-Band 4-Way Power Combiner", PACE Research Symposium, Morgan State University, July 2008.*
15. *Sugrim, S., Reece, M., "Simulation of Planar Combiners using Agilent's Advance Design System (ADS) Momentum", PACE Research Symposium, Morgan State University, July 2008.*
16. *Collins, M., Reece, M., "Calculation of the High Frequency Dispersion Resistance, Rc, for a GaAs pHEMT using Matlab", HBCU-UP, Morgan State University, July 2008.*
17. *Bowling, R., Reece, M., "Development and Implementation of Verilog-A Models for Linear and Nonlinear Electrical Components", SCMNS, Morgan State University, April 2008.*
18. *Waiyaki, C., Reece, M., "Simulation of Novel Power Combining Techniques on SSPA (SOLID STATE POWER AMPLIFIER) Chip Designs to Improve Efficiency and Power Performance", SCMNS, Morgan State University, April 2008.*
19. *Hawkins, T., Reece, M., "An Automated Simulation System," SCMNS, Morgan State University, April 2008.*
20. *Ryan, D., Reece, M., "Verification of an Adaptive Power Control Technique for an Amplifier Gate Bias", SCMNS, Morgan State University, April 2008.*
21. *Richter, J., Reece, M., "Optimization of a Novel Ka-Band 4-way Power Combiner in Ansoft Designer", SCMNS, Morgan State University, April 2008.*
22. *Janak, R., Reece, M., White, C., "Investigation of a Design of an Ultra Wideband Low-Noise-Amplifier (LNA) for First Responders", PACER, Johns Hopkins University, August 2008.*

23. Karangu, C., Ogunniyi, A., Henriquez, S., **Reece, M.**, White, C., "Device Modeling using Neural Network Techniques for Solid State Power Amplifier Applications," Proceedings of the IEEE Sarnoff Symposium, April 2008.
24. Chikando, E., White, C., **Reece, M. A.**, " Ultra Wide-Stopband Planar Microstrip Bandpass Filter Above Defected Ground Structure," Proceedings of the IEEE Sarnoff Symposium, Princeton, NJ, 2007.
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28. **Reece, M. A.**, White, C. and Davis, B., Bayne, M., Thompson, W. L., Walker, L., "A Ka-Band MMIC Amplifier Design Utilizing Adaptable Knowledge-Based Neural Network Techniques," IEEE Region 4 Electro/Information Technology Conference, Indianapolis, IN, 2003.
29. **Reece, M.A.**, White, C., Penn, J., Davis, B., Bayne, M., Thompson, W. L., Walker, L., "A Ka-Band Class F MMIC Amplifier Design Utilizing Adaptable Knowledge-Based Neural Network Modeling Techniques." IEEE MTT-S International Microwave Symposium, Philadelphia, PA, 2003.
30. Davis, B., **Reece, M.A.**, Bayne, M., Thompson, W., White, C., Richardson, N. L., and Walker, L., "*Dynamically Configurable pHEMT Model Using Neural Networks for CAD*." IEEE MTT-S International Microwave Symposium, Philadelphia, PA, 2003.
31. Bayne, M., Thompson, W., White, C., Davis, B., **Reece, M. A.**, Richardson, N.L., and Walker, L., "*A Neural Network Model for a High Electron-Mobility Transistor*," Symposium on Nano-Device Technology, Singapore May 2002.