

2006-2007 :: Ph.D.in Electrical Engineering - Microelectronics

1. Mission Statement: The mission of the PhD degree program in Electrical Engineering is to provide students with an advanced education in electrical engineering and prepare them for long and successful professional and/or research careers in industry, government, or academia. We provide our students with the expertise to contribute in research and development (R&D) independently, formulate novel problems, develop creative solutions to novel and existing problems, and serve as system architects and leaders of design teams.

2. Objectives:

2.1 Knowledge: Broad in EE, detailed in microelect.: Students will demonstrate a broad knowledge of electrical engineering and a focused understanding of microelectronics.

2.1.1 Related General Education Outcome Item(s): 2. Mathematics; 3. Quantitative Methods; 4. Natural Science; 10. Foundational Knowledge in Discipline(s); 11. Advanced Knowledge in Discipline(s)

2.1.2 Related Strategic Plan Item(s): I-1 Research Enterprise Initiative; II-1 The Education of Leaders; III-2 Innovative Centers and Institutions

2.1.3 Related Institutional Priority Item(s): SP-6 Increase Number of PhD's Granted; SP-7 Enhance Graduation Rates; COM-3 Sustain Progress toward Tier One Status in terms of programs, research and faculty quality; COM-4 Enhance research, graduate education and technology-driven economic development; CMP-1 Increase number of faculty and grad students in engineering, physical sciences & technology

2.1.4 Student Related Objective: Yes - This is a student related objective.

2.2 Create solutions to practical problems: Students will apply their knowledge and analytical skills to create effective and novel solutions to practical problems.

2.2.1 Related General Education Outcome Item(s): 1. Communication; 11. Advanced Knowledge in Discipline(s); 12. Guided Research; 13. Independent Research; 14. Ongoing Research; 15. Research & Design; 16. Independent Thought

2.2.2 Related Strategic Plan Item(s): I-1 Research Enterprise Initiative; II-1 The Education of Leaders; III-2 Innovative Centers and Institutions

2.2.3 Related Institutional Priority Item(s): SP-6 Increase Number of PhD's Granted; SP-7 Enhance Graduation Rates; COM-3 Sustain Progress toward Tier One Status in terms of programs, research and faculty quality; COM-4 Enhance research, graduate education and technology-driven economic development; CMP-1 Increase number of faculty and grad students in engineering, physical sciences & technology

2.2.4 Student Related Objective: Yes - This is a student related objective.

2.3 Communicate effectively and work collaboratively: Students will communicate effectively and work both collaboratively and independently.

2.3.1 Related General Education Outcome Item(s): 1. Communication; 15. Research & Design

2.3.2 Related Strategic Plan Item(s): I-1 Research Enterprise Initiative; II-1 The Education of Leaders; III-2 Innovative Centers and Institutions

2.3.3 Related Institutional Priority Item(s): SP-6 Increase Number of PhD's Granted; SP-7 Enhance Graduation Rates; COM-3 Sustain Progress toward Tier One Status in terms of programs, research and faculty quality; COM-4 Enhance research, graduate education and technology-driven economic development; CMP-1 Increase number of faculty and grad students in engineering, physical sciences & technology

2.3.4 Student Related Objective: Yes - This is a student related objective.

3. Measures & Findings:

3.1 Qualifying examination: For each cohort, outcomes a, b, d and e were assessed on a scale of 1 (worst) to 5 (best).

3.1.1 Success Criteria: Goal will be met if an average of 3.5 or higher is recorded for every examination cohort.

3.1.2 Related Objective(s): Knowledge: Broad in EE, detailed in microelect.

3.1.3 Results Related To Success Criteria: For each examination cohort, a grade of 210 out of 300 (3.5 from scale of 1-5) was recorded for a passing student.

3.1.4 Achievement Level: Met

3.1.5 Further Action: No

3.2 Alumni Survey: The Alumni Survey is conducted every year and is spearheaded by a focus group meeting and survey distributions. This process allows UTD to collect both quantitative and qualitative data.

3.2.1 Success Criteria: Average of responses for outcomes a, b, d and e is at least 4.5 (on a scale of 1-6 used by the survey instrument).

3.2.2 Related Objective(s): Knowledge: Broad in EE, detailed in microelect.

3.2.3 Results Related To Success Criteria: No alumni survey was conducted. However, metrics for alumni survey were defined.

3.2.4 Achievement Level: Not Met

3.2.5 Further Action: No

3.3 Dissertation proposal defense: For a large sample of proposals, outcomes c, e and g were assessed on a scale of 1 (worst) to 5 (best).

3.3.1 Success Criteria: Goal will be met if an average of 3.5 or higher is recorded in proposals that measure outcomes b, c and e.

3.3.2 Related Objective(s): Create solutions to practical problems

3.3.3 Results Related To Success Criteria: A sample of size 18 (Ph.D. candidates for Spring 06, Fall 06, Spring 07) was considered.

The average score for outcome c: 4.2

The average score for outcome e: 4.53

The average score for outcome g: 4.64

Based on this result, the outcome meets the set expectation for PLG2.

3.3.4 Achievement Level: Met

3.3.5 Further Action: No

3.4 Alumni Survey: The Alumni Survey is conducted every year and is spearheaded by a focus group meeting and survey distributions. This process allows UTD to collect both quantitative and qualitative data.

3.4.1 Success Criteria: Average of responses for outcomes c, e and g is at least 4.5 (on a scale of 1-6 used by the survey instrument).

3.4.2 Related Objective(s): Create solutions to practical problems

3.4.3 Results Related To Success Criteria: No alumni survey was conducted. However, metrics for alumni survey were defined.

3.4.4 Achievement Level: Not Met

3.4.5 Further Action: No

3.5 Assessment of PhD graduates for best dissertation: For a sample of dissertations, outcome f was assessed on a scale of 1 (worst) to 5 (best).

3.5.1 Success Criteria: Goal will be met if an average of 3.5 or higher is recorded in dissertations that measure outcome f. Students' research should have the potential to produce at least one high quality research paper publishable in a peer-reviewed conference or a journal in Electrical engineering.

3.5.2 Related Objective(s): Communicate effectively and work collaboratively

3.5.3 Results Related To Success Criteria: A sample of five dissertations in 2006 and Spring 2007 were classified under microelectronics distinction. The average score for outcome f was determined to be 3.8, which meets our expectation.

3.5.4 Achievement Level: Met

3.5.5 Further Action: No

3.6 Alumni Survey: The Alumni Survey is conducted every year and is spearheaded by a focus group meeting and survey distributions. This process allows UTD to collect both quantitative and qualitative data.

3.6.1 Success Criteria: Average of responses for outcome g is at least 4.5 (on a scale of 1-6 used by the survey instrument).

3.6.2 Related Objective(s): Communicate effectively and work collaboratively

3.6.3 Results Related To Success Criteria: No alumni survey was conducted. However, metrics for alumni survey were defined.

3.6.4 Achievement Level: Not Met

3.6.5 Further Action: Yes

5. Closing the Loop:

5.1 Conduct Alumni Survey for Graduate Students: Alumni surveys were not conducted in an official manner for MSEE program. However, metrics for the survey were identified in Spring 07.

5.1.1 Related Objective(s): Knowledge: Broad in EE, detailed in microelect.; Create solutions to practical problems; Communicate effectively and work collaboratively

5.1.2 Related Measure(s): Alumni Survey; Alumni Survey; Alumni Survey

5.1.3 Responsible Person: John Hansen & Sook Kim

5.1.4 Target Date: survey to be completed by 5/1/08

5.1.5 Priority: Medium Priority

6. Analysis:

6.1 Program/Unit Strengths:

6.1.1 Objectives/Outcomes Exceeded or Met: EE department has produced 25 Ph.D.s in 2006. Approximately, 50% of the Ph.D. production is generally attributed to the faculty with research emphasis in the microelectronics area. Such a relatively large number of Ph.D. graduates is a testimony to the strength of the EE department in terms of its highly productive, research-oriented faculty who are supportive of Ph.D. education. Majority of the Ph.D. graduates (> 90%) have produced conference and/or journal publication in their respected fields. Furthermore, EE program has a diverse research profile, ranging from theoretical research in communications and signal processing to device level research, with a research expenditure which is in excess of \$14,000,000 for 2006.

6.2 Program / Unit Weaknesses:

6.2.1 Objectives / Outcomes Partially or Not Met: A reasonable level of attention must be given to Ph.D. student recruiting to sustain growth in the department. Furthermore, the department should continue to monitor the quality of dissertations (in terms of set outcomes and scholarly publications).

7. Report:

7.1 Executive Summary: An assessment of courses was conducted in Fall 2006. The following are detailed outcomes of the process:

- * Specific Data Available From Assessment (Ms. Linda Wilson, (972)883-6630, llw051000@utdallas.edu maintains the data repository)
- For each core as well as majority of special topics courses, the following materials were collected (the items below are available in the course folder for each course):
- * Instructor's self assessment of the class using rubrics which are pertinent to the program learning goals
 - * Comment section of student course evaluation forms
 - * Course-update form, which is filled out by the individual course owner and other stakeholders (teachers of the course).
 - * Evidence the assessment data were reviewed by faculty and appropriate administrators.
- On May 2, 2007, a meeting was held at Erik Jonsson School of Engineering and computer science, where folders for the MSEE courses were reviewed by the faculty of the EE department. Furthermore, each course owner, along with other members of the faculty involved with teaching the course, filled out and signed a course update form. The signed course-update forms may be found in the course folders. Ms. Linda Wilson ((972)883-6630, llw051000@utdallas.edu) maintains the data repository. Furthermore, Prof. Kiasaleh (Kamran@utdallas.edu, (972)883-2990) reviewed the outcomes of the individual course assessments provided by instructors to draw conclusions regarding the MSEE program assessment. EE department head, John Hansen ((972)883-2190, jxh052100@utdallas.edu), was apprised of the result of the assessment process.
- * Evidence of Improvements.
- As a result of the assessment process, it was determined that alumni surveys were not conducted for Ph.D. degree recipients in Microelectronics. An action plan was initiated to create the metrics for the survey by May 2007 and conduct the survey by May 2008. The survey will be conducted by Dr. Sook Kim ((972) 883-2993, sookkim@utdallas.edu) and the collected information will reside with her office.

7.2 Top 3 Program/Unit Accomplishments: Awards and Grants received by the EE faculty in 2006:

- * N. Al-Dhahir, The IEEE 2006 Donald G. Fink Award for most outstanding review journal paper published in all IEEE Transactions and journals.
- * P. Balsara, 2nd Best Entry Award at the Chip Design Contest, 19th IEEE International Conference on VLSI Design (VLSI 06), Hyderabad, India, January 3-7, 2006.
- * R. M. Wallace, et. al., High-k Gate Dielectrics: Current Status and Materials Properties Considerations, Journal of Applied Physics, 89 (2001) 5243 (>1400 citations). This paper was recognized in 2005 by the Semiconductor Research Corporation as the top ranked influential research paper for the semiconductor industry sponsored by the SRC based upon peer citations. The work was selected among the 45 high impact Applied Physics Review papers for the 75th Anniversary of the American Institute for Physics.
- * B. Frenslley and J. Hansen, Elected as Fellows of IEEE
- * J. Hansen, Distinguished Lecturer 2005-2006 Signal Processing Society.
- * P. Balsara, Second Prize in the VLSI Chip design contest at the 19th IEEE Intl. Conf. on VLSI Design, Jan. 2006
- * N. Al-Dhahir, Interference Cancellation for Mobile OFDM Receivers, Texas Instruments Inc., 4/2006 to 4/2008, \$70, 000.

- * N. Al-Dhahir, Novel OFDM Interference Mitigation Architecture and Algorithms, Semiconductor Research Corporation (SRC), 6/2006 to 6/2007, \$50, 000.
- * P. Balsara, "Digital Radio Processor Research," Texas Instruments, Inc. 2006-2007, \$80,000.
- * P. Balsara, "Digital Radio Processor," Texas Instruments, 2005-2006, \$96,000.
- * J. Fonseka, Trellis Phase Communications Inc., Amount: \$25K, period 2006-2008.
- * B. Frensley, Predictive Modeling for Intersubband Quantum Devices Grown by MBE, AFOSR-STTR Phase II program in collaboration with Intelligent Epitaxy and PhotoDigm, \$113,009, Sep. 1, 2006 through Aug 31, 2008.
- * B. Gnade, Electronic Textiles, Military Tech, \$276,000, 10/2006 10/2007.
- * B. Gnade, Electronic Textile Sensors for Stress Measurement in Soldiers, AFOSR (SPRING), \$149,000, 10/2006 09/2008, Co-PI with R. Jafari
- * B. Gnade, SWAN Nanometrology, Nanoelectronics Research Consortium, \$300,000, 11/2006 10/2009, Co-PI with M. Kim
- * B. Gnade, Multi-faceted Scientific Strategies Toward Better Solid State Lighting with Phosphorescent OLEDs, Dept.of Energy, \$541,364, 09/2006-08/2009, subcontract from UNT
- * B. Gnade, Limits of Organic TFTs for RFID Applications, Texas Instruments, \$25,000, 07/2006-01/2007
- * MJ Goeckner, Development of a Plasma Exciter - Part 1 Verity Instruments, 20,100 3/07-6/07, Upon completion of part 1 Title: Development of a Plasma Exciter - Part 2 Verity Instruments, \$126,570 6/07-5/08
- * W. Hu, \$250K, Moncrief Foundation, Dallas, Nanotubular Capsules for Ultra-sensitive Breast Cancer Detection , PI (multi-PI with JM. Gao), 10/06-open.
- * W. Hu, \$150K (+\$30K UT Dallas matching), AFOSR/Spring Program, High-density nanoscale organic light emitting diodes by nanoimprint technology for near-field biosensing , PI, 10/06-4/08.
- * W. Hu, \$100K (+\$33K UT Dallas matching), Texas Advanced Research Program, Controlled cell growth on biomimetic multi-level nanoscale polymer scaffolds , PI (with K. Luebke), 06/06-05/08
- * W. Hu, \$15K, UT Dallas-UT Arlington collaboration fund, Advanced DNA Microarray Technologies based on Homologous Strand Exchange and Magnetic Nanomanipulation , Co-PI (with S. Levene and P. Liu), 04/06-04/07.
- * N. Kehtarnavaz, Overexposure Correction for Images Captured by Cell-phone Cameras, Texas Instruments \$30,000.
- * N. Kehtarnavaz,, Low-power Video Coding, Texas Instruments \$15,000.
- * P. Loizou, N. Kehtarnavaz, M. Torlak, H. Lee, A. Sharma, Open Architecture Research Interface for Cochlear Implants, NIH Contract \$1,300,000 (2006-2009)
- * N. Kehtarnavaz, Digital Camera Imagepipe Improvement, Texas Instruments \$120,000 (2004-2007)
- * N. Kehtarnavaz and I. Panahi, LabVIEW-based Educational/Research Program in Signal and Image Processing, National Instruments \$150,000 (2004-2007)
- * K. Kiasaleh, Poras Balsara, and Dinesh Bhatia, A Software-Defined Emergency Radio, submitted to National Institute of Justice, \$394,103.00 (requested), \$199,907 (granted for the first year, the second year subject to approval), start date: Sep. 2006, 12 months.
- * K. Kiasaleh, Novel Architectures for QAM modulation with Phase Errors, Restricted Research Gift from Texas Instruments, start date:9/2006, 12 months, \$30,000: Co-PI: Murat Torlak
- * J.Kim, Development of Core Technology for 50nm MOSFET Fabrication COSAR(Consortium Of Semiconductor Advanced Research) (subcontract from Hanyang U.), \$120,523 (EJS Match: \$80,000), 9/2005 -8/2007
- * J. Kim and M. Kim, Stand-Alone Nanotube Device Technology, CNMT (Center for Nano-Materials and Technology) (subcontract from Kookmin U.), \$190,000 (EJS Match: \$50,000) 10/2005 2/2007, (\$160,730)
- * M.J. Kim, GOALI: Nanoscale characterization and development of ultra low-k dielectric xerogel films, NSF (subcontract from UNT), 08/2004-07/2007, \$245,227.

- * M.J. Kim, Characterization of Nanoscale Lattice Strain in CMOS Devices with Advanced TEM Techniques, SRC, 07/2004-06/2006, \$70,000.
- * B.E. Gnade, R.M. Wallace and M.J. Kim, Role of Microstructure on Metal Gates, SRC, 07/2004-06/2007, \$105,000.
- * M.J. Kim, KATECH-UTD International Collaboration on Nanotechnology, KATECH, 09/2004-06/2006, \$286,980.
- * M.J. Kim, Development of electron beam lithography-based nanowires, KETI, 07/2005-06/2007, \$439,560.
- * M.J. Kim, Integration and Defect Analysis: CdTe/Si System, Army-NVESD, 09/2005-08/2006, \$25,000.
- * M.J. Kim, Nanocharacterization of Si CMOS Devices with STI Structure: Phase I, Micron Technologies, Inc., 10/2005-03/2006, \$5,000.
- * M.J. Kim, International Research Collaboration on Nanotechnology, KATECH, 09/2005-08/2007, \$300,000.
- * M.J. Kim, Stand-alone Nanotube Device Technology, CNMT (subcontract from Kookmin Univ.), 10/2005-03/2008, \$180,000.
- * H. Lee (UTD) and Shashank Priya (UTA), UTD-UTA Joint Institutional Seed Research Program, \$20,000 4/15/2006-4/14/2007, Human Powered Wireless Sensor Network,
- * H. Lee, Texas Instruments Inc. \$40,000, 01/01/2006-12/31/2006 High-Performance Power Management Integrated Circuits
- * H. Lee, Texas Instruments Inc. \$21,000, 01/01/2006-12/31/2006 High-Speed High-Efficiency Switched Regulator for Cellular Handset Power Amplifiers,
- * J. B. Lee, Imaging islets in implantable microcapsules, UTSW/NIH (National Institute of Health) 10/1/06 9/30/09, \$ 250,000 (a subcontract from UTSW, a total award of \$ 750,000 awarded to UTSW)
- * J. B. Lee, NIRT: Active Nanostructure Enabled On-Chip Spectroscopy System for Cancer Detection CU-Boulder/NSF, 9/1/06 8/31/10 \$ 339,963 (a subcontract from CU-Boulder)
- * R. Lehmann, Received recognition in Who's Who Among America's Teachers for teaching at UTD.
- * J. Liu, DARPA (Subcontract from Zyvex, Corp.), \$280,591, 04/01/2006-3/31/2007, Ultra Low-Power Implantable Wireless Nerve Firing Sensor
- * J. Liu, Texas Instruments, Inc., \$60,000, 01/01/2006-12/31/2006 High-Speed Data Communication Circuit Design
- * J. Liu, UTD-UTA Joint Institutional Seed Research Program, \$10,000, 4/1/2006-3/31/2007 Low-Cost RF Components for Reconfigurable Wireless Sensors
- * P. Loizou, Optimizing speech coding strategies for noise and music, National Institutes of Health, \$280K (April 2006-April 2007) 2nd year of support (total award: \$1.5M)
- * A. Nosratinia, National Science Foundation: Methods and algorithms for resilient packet header, compression" (PI), 9/15/2006 to 9/15/2008, \$165,000
- * A. Nosratinia, National Science Foundation: NeTS-NR: Protocols and algorithms for cooperative wireless networks" (PI), 10/1/2004 to 9/30/2008, \$450,000.
- * A. Nosratinia, National Science Foundation: Methods and algorithms for resilient packet header compression," 9/15/2006 to 9/15/2008, \$165,000
- * G.S. Lee, D. J. Yang and L. Overzet, KITECH Local lab. Korean Institute of Industrial Technology (KITECH) \$72,137. 12/05 11/07.
- * G.S. Lee, D. J. Yang and L. Overzet, Continuous Growth and Harvesting of Carbon Nanotubes. Korean Institute of Industrial Technology (KITECH) \$900,000. 10/06 9/10.
- * A. A. Milani and G. Kannan, Flight Path of a Turboprop Airplane, International Student Challenge Problem, Acoustic Society of America, May 2006. The paper won the 2nd place (Announced on Dec 8, 2006).
- * I. Panahi, National Instruments Inc, Austin, TX, (01/01/04 to 01/01/07), \$25K for 2006, (Total: \$75K, \$25K/Year)
- * I. Panahi, UTSW Medical Center, Dallas, TX, (09/01/05 to 09/01/06), \$62.5K, Noise Reduction in fMRI environment - Gulf War Illness Research Program (3) I. Panahi,

- National Instruments, Inc. Austin, TX, (01/01/07 to 01/01/10), \$75,000, \$25K/Year,
LabVIEW-based Educational/Research Program in Signal and Image Processing .
- * I. Panahi, University of Texas Southwestern Medical Center, US Dept. of VA (01/01/07 to 01/01/09), \$200K, \$100K/Year, Noise Reduction in fMRI environment - Gulf War Illness Research Program, US Dept. of VA.
 - * R. Sangireddy, IRIS Technologies, US\$ 15,000.00, 2006-2007.
 - * R. Sangireddy, Research in Computer Systems Architecture, IRIS Technologies, US\$ 12,000.00, 2006-2007.
 - * Design of Vertical Handoff Decision Algorithm in Multiple Wireless Networks
 - * M. Saquib, Gift Proposal, SNRLabs, Richardson, TX, \$7,500, Emergency Beacon for First Responder Radios
 - * M. Saquib, Q. Liang (UT-Arlington) and M. Saquib, Collaborative UTA - UTD Joint Institutional, 1 Year; \$20,000 (UT-Dallas Share: \$10,000)
 - * E. Vogel, Metrology for Extreme CMOS Devices National Institute of Standards and Technology, 09/2006 - 09/2009, \$348,159
 - * Bruce Gnade and Robert Wallace, Assemblers for Nanotechnology Applications and Manufacturing: Enabling the Nanotechnology Era, NIST (subcontract from Zyvex), \$275,000 10/2003 -12/2006
 - * R.M.Wallace, Diffusion of Gate Stack Constituents, Semiconductor Research Corporation, 4/2004 - 4/2006. (\$160,730)
 - * W.Kirk (UTA) and R.M.Wallace (UTD), Mobility Degradation Mechanisms in Advanced High-k CMOS Devices, Texas Advanced Technology Program (\$190,037/2years UTD portion: \$64,237) 1/2004 - 8/2006
 - * R.M.Wallace and B.E.Gnade, Hf-based metal gate stack stability research, Semiconductor Research Corporation, 7/2004 - 7/2007 (\$105,000/3 years + EJS match \$105,000/3years)
 - * B.E.Gnade, R.M.Wallace and M.J.Kim, Role of Microstructure in Metal Gates, Semiconductor Research Corporation, 7/2004-7/2007 (\$105,000/3 years + EJS match \$105,000/3years)
 - * R.M.Wallace, Atomic Probe Microscope, Von Ehr Foundation (\$536,830)
 - * R.M.Wallace and B.E.Gnade, Hydrogen barrier studies for FeRAM devices, Semiconductor Research Corporation, (\$105,000/3 years + EJS match \$123,000/3years) 7/2005-7/2008.

7.3 Research Activities or Publications: N. Al-Dhahir

Novel Full-Diversity High-Rate Space-Time Block Codes for 2 and 4 Transmit Antennas
S. Das, N. Al-Dhahir, and A.R. Calderbank
IEEE Communications Letters, (March 2006) 171-173
Optimal Training Signals for MIMO OFDM Channel Estimation
H. Minn and N. Al-Dhahir
IEEE Transactions on Wireless Communications, (April 2006) 1158-1168
Optimum DCT-Based Multi-Carrier Transceivers
N. Al-Dhahir, H. Minn, and S. Satish
IEEE Transactions on Communications, (May 2006) 911-921
Optimal Training Signals for MIMO OFDM Channel Estimation
in the Presence of Frequency Offset and Phase Noise
H. Minn, N. Al-Dhahir, and Y. Li
IEEE Transactions on Communications, (October 2006) 1754-1759
Space-Time Coding for Wireless Communications : Principles and Practice
N. Al-Dhahir, A.R. Calderbank, and S. Diggavi
In MIMO Communications Book Edited by E. Biglieri
Cambridge University Press, (2006) 140-185
"Single-Carrier Frequency Domain Equalization for Broadband Cooperative Communications"
M. Uysal, H. Mheidat, and N. Al-Dhahir
IEEE Wireless Communications and Networking Conference (WCNC)
(March 2006) 1578-1584
"Design and Performance of a DCT-MCM Transceiver for Broadband Communications"

S. Satish, N. Al-Dhahir, H. Minn
 IEEE SECON Conference
 (March 2006) 175-180
 "Pilot Designs for Consistent Frequency Offset Estimation in OFDM Systems"
 H. Minn, Y. Li, N. Al-Dhahir, and A.R. Calderbank
 IEEE International Conference on Communications (ICC)
 (June 2006) 4566-4571
 "Time-Reversal Space-Time Equalization for Amplify-and-Forward Relaying"
 H. Mheidat, M. Uysal and N. Al-Dhahir
 IEEE International Conference on Communications (ICC)
 (June 2006) 1705-1711
 "Distributed Space-Time Block Coded OFDM for Relay-Assisted Transmission"
 H. Mheidat, M. Uysal, and N. Al-Dhahir
 IEEE International Conference on Communications (ICC)
 (June 2006) 4513-4519
 System with Multiple Antennas"
 M. Islam, M. Saquib, N. Al-Dhahir
 IEEE International Conference on Communications (ICC)
 (June 2006) 5451-5456
 "New Diversity-Embedding STBC Constructions"
 S. Das, N. Al-Dhahir
 IEEE Signal Processing Advances in Wireless Communications (SPAWC) Workshop
 (June 2006)
 "New Full-Diversity High-Rate Space-Time Block Codes Based on Selective Power Scaling"
 S. Das, N. Al-Dhahir, A.R. Calderbank, J. Chui
 EUSIPCO Conference
 (September 2006)
 "OFDM Interference Mitigation Algorithms for Doubly-Selective Channels"
 S. Lu, R. Kalbasi, and N. Al-Dhahir
 IEEE Vehicular Technology Conference (VTC)
 (September 2006)
 "Mobile OFDM Receiver Design with Application to DVB-H"
 R. Kalbasi, S. Lu, and N. Al-Dhahir
 IEEE Vehicular Technology Conference (VTC)
 P. Balsara
 IIP2 and DC Offsets in the Presence of Leakage at LO Frequency
 I. Elahi, K. Muhammad & P. T. Balsara
 IEEE Transactions on Circuits and Systems-II, vol. 53, No. 8, Aug. 2006, pp. 647-651.
 A Non-Redundant Ternary CAM Circuit for Network Search-Engines
 M. J. Akhbarizadeh, M. Nourani, Deepak-Sarathi V. & P. T. Balsara
 IEEE Transactions on VLSI Systems, vol. 14, No. 3, March 2006, pp. 268-278.
 1.3V 20ps Time-to-Digital Converter in 90nm CMOS
 R. Staszewski, S. Vemulapalli, P. Vallur, J. Wallberg & P. T. Balsara
 IEEE Transactions on Circuits and Systems-II, vol. 53, No. 3, March 2006, pp. 220-224.
 I/Q Mismatch Compensation Using Adaptive Decorrelation in a Low-IF Receiver in 90nm
 CMOS Process
 Elahi, K. Muhammad & P. T. Balsara
 IEEE Journal on Solid-State Circuits, vol. 41, No. 2, February 2006, pp. 395-404.
 A Fixed-Point Implementation for QR Decomposition
 C. Singh, S. Honnavara Prasad and P.T. Balsara
 Proceeding of the 5th IEEE Dallas Circuits and Systems Workshop (DCAS 06),
 Richardson, Texas. Oct. 29-30, 2006, pp. 75-78.
 Phase Noise Reduction in High Speed Frequency Divider
 R. Prakash, S. Akhtar and P.T. Balsara
 Proceeding of the 5th IEEE Dallas Circuits and Systems Workshop (DCAS 06),
 Richardson, Texas. Oct. 29-30, 2006, pp. 83-86

All-Digital PLL with Variable Loop Type Characteristics
R. B. Staszewski, J. Wallberg and P.T. Balsara
Proceeding of the 5th IEEE Dallas Circuits and Systems Workshop (DCAS '06),
Richardson, Texas. Oct. 29-30, 2006, pp. 115-118.

Parallel Correction and Adaptation Engines for I/Q Mismatch Compensation
I. Elahi, K. Muhammad and P. T. Balsara
The Sixth Emerging Information Technology Conference,
Dallas, Texas, August 10-12, 2006. 4 pgs.

A Generalized Signal Reconstruction Method for Designing Interpolation Filters
I. L. Syllaios, P. T. Balsara & O. Eliezer
Proceedings of the IEEE International Conference on Circuits and Systems (ISCAS), Kos,
Greece, May 2006, pp. 5768-5771.

Generic Network Interfaces for Plug and Play NoC Based Architecture
S. Singh, S. Bhoj, D. Balasubramanian, T. Nagda, D. Bhatia and P. T. Balsara
International Workshop on Applied Reconfigurable Computing (ARC2006)
Delft, The Netherlands, March 1-3, 2006, Lecture Notes in Computer Science, Springer-Verlag,
pp. 287-298.

A Wide-Range High-Resolution Compact CMOS Time to Digital Converter,
V. Ramakrishnan and P.T. Balsara
Proceedings of the 19th IEEE International Conference on VLSI Design (VLSI '06)
Hyderabad, India, January 3-7, 2006, pp. 197-202.

Exploring Logic Block Granularity in Leakage Tolerant FPGAs
R. Konar, R. Bharadwaj, D. Bhatia and P.T. Balsara
Proceedings of the 19th IEEE International Conference on VLSI Design (VLSI '06),
Hyderabad, India, January 3-7, 2006, pp. 754-757

All-Digital Frequency Synthesizer in Deep-submicron CMOS
R. B. Staszewski & P. T. Balsara
Wiley-Interscience, John Wiley & Sons, Hoboken, New Jersey,
Sept. 2006. ISBN 0-471-77255-0.

D. Bhatia
Abhiman Hande, Todd Polk, William Walker, Dinesh Bhatia, Self-Powered Wireless Sensor
Networks for Remote Patient Monitoring in Hospitals Sensors 2006, 6, 1102-1117, ISSN
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H. Minn
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Y. Jiang, H. Minn, X. Gao, X. You, and Y. Li
accepted in IEEE Transactions on Wireless Communications.
Two Novel Iterative Joint Frequency-Offset and Channel Estimation Methods for OFDMA
Uplink
X. Fu, H. Minn, and C. D. Cantrell
accepted in IEEE Transactions on Communications.
Pilot Designs for Consistent Frequency Offset Estimation in OFDM Systems
Y. Li, H. Minn, N. Al-Dhahir, and R. Calderbank
accepted in IEEE Transactions on Communications.
A New Ranging Method for OFDMA Systems
X. Fu, Y. Li, and H. Minn
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X. Fu and H. Minn
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H. Minn, N. Al-Dhahir, and Y. Li
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7. Optimal Periodic Training Signal for Frequency Offset Estimation in Frequency-Selective
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H. Minn, X. Fu, and V. K. Bhargava
IEEE Transactions on Communications, 54 6 (June 2006) 1081-1096.
8. Improved Maximum Likelihood Frequency Offset Estimation Based on Likelihood Metric
Design
H. Minn and P. Tarasak
IEEE Transactions on Signal Processing, 54 6 (June 2006) 2076-2086.
Optimum DCT-Based Multicarrier Transceivers for Frequency-Selective Channels
N. Al-Dhahir, H. Minn, and S. Satish
IEEE Transactions on Communications, 54 5 (May 2006) 911-921.
Optimal Training Signals for MIMO OFDM Channel Estimation
H. Minn and Naofal Al-Dhahir
IEEE Transactions on Wireless Communications, 5 5 (May 2006) 1158-1168.
A Combined Timing and Frequency Synchronization and Channel Estimation for OFDM
H. Minn, V. K. Bhargava, and K. B. Letaief
IEEE Transactions on Communications, 54 3 (Mar. 2006) 416-422.

A Game Theoretic Solution for Exploiting Multiuser Diversity in Cooperative Slotted Aloha
C. Comaniciu, D. Wang, H. Minn, and N. Al-Dhahir
accepted in IEEE International Conference on Communications (ICC 2007)
Glasgow (June 24-28, 2007)

MIMO OFDM Frequency Offset Estimator with Low Computational Complexity
Y. Jiang, H. Minn, X. Gao, and X. You
accepted in IEEE International Conference on Communications (ICC 2007)
Glasgow (June 24-28, 2007)

Synchronization in MB-OFDM-based UWB Systems
T. Jacobs, Y. Li, H. Minn, and R. M. A. P. Rajatheva
accepted in IEEE International Conference on Communications (ICC 2007)
Glasgow (June 24-28, 2007)

An Opportunistic STBC-OFDM Scheme with Reduced PAR in the Presence of Frequency Offset
D. Wang, H. Minn, and N. Al-Dhahir
accepted in IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2007)
Honolulu (Apr. 15-20, 2007)

Consistent Pilot Designs for Frequency Offset Estimation in MIMO OFDM Systems
Y. Li and H. Minn
accepted in IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2007)
Honolulu (Apr. 15-20, 2007)

Frequency Offset Estimation for MB-OFDM-based UWB Systems in Time-Variant Channels
Y. Li, H. Minn, and M. Z. Win
accepted in IEEE Wireless Communications and Networking Conference (WCNC 2007)
Hong Kong, (Mar. 11-15, 2007).

A Distributed Opportunistic Access Scheme for OFDMA Systems
D. Wang, H. Minn, and N. Al-Dhahir
IEEE Global Communications Conference (Globecom 2006)
San Francisco, (Nov. 27 – Dec. 1, 2006).

8. Two Novel Iterative Joint Frequency-Offset and Channel Estimation Methods for OFDMA Uplink
X. Fu, H. Minn, and C. D. Cantrell
IEEE Global Communications Conference (Globecom 2006)
San Francisco, (Nov. 27 – Dec. 1, 2006).

9. Line Search Based Iterative Joint Estimation of Channels and Frequency Offsets for Uplink OFDMA Systems
Y. Na and H. Minn
IEEE Global Communications Conference (Globecom 2006)
San Francisco, (Nov. 27 – Dec. 1, 2006).

10. Robust Pilot Design for Consistent Carrier Frequency Offset Estimation
Y. Li, H. Minn, N. Al-Dhahir, and R. Calderbank
IEEE Military Communications Conference (MILCOM 2006)
Washington D.C., (Oct. 23-25, 2006).

11. An Exact Error Probability Analysis of OFDM Systems with Frequency Offset
P. Dharmawansa, R. M. A. P. Rajatheva, and H. Minn
IEEE Military Communications Conference (MILCOM 2006)
Washington D.C., (Oct. 23-25, 2006).

Pilot Designs for Consistent Frequency Offset Estimation in OFDM Systems
H. Minn, Y. Li, N. Al-Dhahir, and R. Calderbank
IEEE International Conference on Communications (ICC 2006),
Turkey, 10 (June 11-15, 2006) 4566-4571.

13. Frequency Offset Estimation for MB-OFDM-based UWB Systems
Y. Li, T. Jacobs, and H. Minn
IEEE International Conference on Communications (ICC 2006)

Turkey, 10 (June 11-15, 2006) 4729-4734.
14.A DCT-Based Broadband Multicarrier Transceiver
S. Satish, N. Al-Dhahir, and H. Minn
IEEE Southeast Conference (SECON 2006)
Reston VA, (Mar. 31-Apr. 2, 2006) 175-180.

A. Nosratinia

H. Shah, A. Hedayat, and A. Nosratinia,

"Performance of concatenated channel codes and orthogonal space-time block codes

7.4 Instructional/Training Activities (presented or received): The following courses
were offered in Spring 2007,

EE1102
EE2300
EE2310
EE3101
EE3102
EE3110
EE3111
EE3120
EE3150
EE3300
EE3301
EE3302
EE3310
EE3311
EE3320
EE3341
EE3350
EE4301
EE4310
EE4330
EE4368
EE4381
EE4382
EE4387
EE4360
EE4361
EE4365
EE4361
EE4367
EE4390

7.5 Public Service: N. Al-Dhahir

Editor for IEEE Transactions on Communications (Area : Wireless Communications).

P. Balsara

General Chair, 5th IEEE Dallas Circuits and Systems Workshop, Dallas, TX, Oct. 29-30. 2006.

Program Committee, First International Workshop on Interconnect Design and Variability,
Bangalore, India,

Dec. 28-29, 2006

D. Bhatia

Program Committee, IEEE International Conference on Field Programmable Technology,
Kitakyushu, Japan, December 2007.

Program Committee, 17th International Conference on Field Programmable Logic, Amsterdam,
Holland, August 2007.

Activities Chair and Member of Executive Committee, IEEE Dallas Chapter, 2007.

Program Committee, IEEE 2nd International Workshop on Reconfigurable Computing
Education, Porto Alegre, Brasil, May 2007.

Publicity Chair, Fifth IEEE Dallas Circuit and Systems Workshop, Dallas, October 29-30 2006.
Program Committee, Fourteenth International Conference on Advanced Computing & Communications (ADCOM 2006), Suratkal, India, December 2006.

Program Committee, IEEE International Conference on Field Programmable Technology, Bangkok, Thailand, December 2006.

Program Committee, 16th International Conference on Field Programmable Logic, Madrid, Spain, August 2006.

C. Cantrell

Expert witness for Winstead, Sechrest & Minick

K. Cho

Editor, conference organizer, etc. (2 journal editorial boards)

Editorial Board Member of Computer Modeling in Engineering & Science (2002-present)

Editorial Board Member of Journal of Computational and Theoretical Nanoscience (2003-present).

Consulting on Nanomaterials Modeling to Nanostellar Inc.

J. Fonseka

Reviewer for IEEE Transactions on Communications, IEEE Transactions on Vehicular Technology, IEEE Communication Letters, and IEE Proceedings-Communications

Member, Undergraduate Curriculum Committee

Member, Committee on Effective Teaching

B. Gnade

Proposals Reviewed

a) R.B. van Dover, Complex Amorphous Oxides, NSF proposal # 0604909 (January 2006).

Bruce Gnade 2006 Annual Report of Professional Activities and Accomplishments

12

b) H. Baumgart, Investigation of High Dielectric Constant ZrO₂ Ultra Thin Films Grown by Atomic

Layer Deposition, NSF Proposal # 0606401 (reviewed January 2006)

c) T. Gustasson, Structural Studies of Thin Films for Applications in Microelectronics, NSF proposal # 606126 (Feb. 2006).

d) David Gidley GOALI: characterization of Porosity at the Nanoscale, NSF proposal # 604819

(March 2006).

e) T. Gustasson, Pan American Advanced Study Institute on Materials for Micro- and Nanoelectronics, NSF proposal # 617426 (March 2006).

f) S. E. Pavlovich, Elements of field emission video screens, CRDF proposal ISTC #3490 (May

2006).

g) D. Burton, SBIR/STTR Phase II: High Thermal Conductivity Carbon Composite for Electronics

Cooling, NSF proposal #646434 (October 2006).

h) W. Nachtrab, SBIR/STTR Phase II: A New production Method for Ta fibers for Use in Electrolytic Capacitors with Improved Performance and Packaging Options, NSF proposal #646417

(October 2006).

i) T. Xiao, SBIR/STTR Phase II: Nanomagnetic Paste for Miniaturized Ultrahigh Frequency DCto-

DC Converter, NSF proposal #646436 (October 2006).

j) H. Hu, SBIR/STTR Phase II: Nanoporous Catalytic Mixed Oxide Membranes for Removal of

Hazardous Air Pollutants, NSF proposal #646426 (October 2006).

k) W.N. Thurmes, SBIR/STTR Phase II: Bistable FLCs using Siloxanes, NSF proposal #646465

(October 2006).

l) S.C. Tan, SBIR/STTR Phase II: Millimeter Wave Planar Structure and Antennas Fabricated from

a Novel Polymer System , NSF proposal #646449 (October 2006).

m) I.M. Tiginyanu, Enforcing the infrastructure of the National Center for Materials Study and Testing in Moldova with technological facilities for micro- opt- and nano electronic device fabrication:
the purchase of a mask alignment and UV exposure lithography system , CRDF proposal #060616
(November 2006).

n) V.P. Berzan, Devices for scientific research of the energy conversion efficiency of the renewable energy sources in climate environment of the Republic of Moldova , CRDF proposal #060620
(November 2006).

o) C. Turta, Gamma-resonance spectroscopy Mossbauer Spectroscopy , CRDF proposal #060615
(November 2006).

p) S.C. Railean, New equipment for scientific researches , CRDF proposal #060628
(November 2006).

f) consultant activities
Nanolumens, Inc. Atlanta GA
M. Goeckenr
Reviewed submissions for J. Vac. Sci. Technol.
Reviewed submissions for Plasma Sources Science and Technology.
Reviewed submissions for RSI.
Reviewed proposals to NSF program in Plasma Science
Local Organizing Committee - ICMI Conference 2006.
Program Committee AVS Plasma Science Division (2006 conference)
Consultant activities:
On design of oil well tools (Local company)
W. Hu
Panelist of National Science Foundation s program: Nanoscale Interdisciplinary Research Teams (NIRT), 2006.
Paper review service for IEEE Transaction on Nanotechnology
Paper review service for Journal of Vacuum Science & Technology
Paper review service for Surface and Coating Technology
Paper review service for Nanotechnology
B. Hunt
Associate Editor of System and Control Letters
Referee for IEEE Conference on Decision and Control (1 paper)
Incoming Faculty Sponsor for TSPE Student Chapter
N. Kehtarnavaz
Coeditor-in Chief, Journal of Real-Time Image Processing
Initiated the establishment of this new journal published by Springer
Resolved various issues to bring it into publication status
Dallas Chapter Chair, IEEE Signal Processing Society
Sponsored 10 seminars held at UTD, one being Signal Processing Society
Distinguished Lecturer
Updated and maintained webpages for the Dallas Chapter
Conference Chair, SPIE Real-Time Image Processing Conference, Jan 2006
Reviewed and organized all the submitted papers
Program Committee Member, IEEE Symposium on Image Analysis and Interpretation, March 2006 Reviewed papers
Steering Committee Member, IEEE Symposium on Computer-Based Medical Systems, June 2006
Program Committee Member, IEEE Conference on Systems, Man, and Cybernetics, Oct 2006 Reviewed papers
Program Committee Member, 10th World Multi-Conference on Systemics,

Cybernetics, and Informatics, July 2006 Reviewed papers

SPIE Fellow and IEEE Senior Member

Provided three reference letters for faculty promotion at other schools

Listed in Who's Who in America, 2006

Served as a consultant to Kettering University and Humboldt State University

K. Kiasaleh

Reviewed manuscripts for

* Optical Engineering

* IEEE Photonics Technology Letters

Served as an expert on National Science Foundation (NSF) panel for evaluating phase I SBIR proposals

J. Kim

Editorial Board, Electronic Materials Letters (2005 Present)Member: Materials Research Society, American Vacuum Society, Electrochemical Society, IEEE, Korean Institute of Metals and Materials, Korean Ceramic Society, Korean Materials Research SocietyPapers Reviewed 2006Journal of Vacuum Science and Technology1. # 31423 (Nov. 2006)

Etch Induced Sidewall Damage Evaluation in Porous Low-k MSQ Films, by B.Kong, T.Choi, S.Sirard, D.Kim, N.LeeAdvanced Functional Materials1. Manuscript number adfm.200600877 (Oct. 2006) Nanoparticle Coating for Advanced Optical, Mechanical and Rheological Properties, Hakim et al.Microelectronics Engineering1. MEE-D-06-00271 (Nov. 2006) Growth and Structural Properties of Crystalline LaAlO₃ on Si (001), Ahnet al.2. MEE-D-06-00274 (Nov. 2006) High-quality high-k HfON formed with plasma jet assisted PVD process and application as tunnel dielectric for flash memories, T.P. Ma et al

M. Kim

Served as an instructor: High Resolution Electron Microscopy (HREM) Annual Winter School at Arizona State University a week long intensive course for training of graduate students and technical professionals.Provided technical support to the following faculty for their research programs (not resulted in joint-publication:Prof. J. Duggan, Physics, University of North TexasProf. A. Neogi, Physics, University of North TexasMr. R. Croley, OSP, University of North TexasProf. M. Johnson, Physics, University of OklahomaProf. R. Kovacevic, Manufacturing, Southern Methodist UniversityPapers reviewed: CuO Nanoparticle Filled Vinyl-Ester Resin Nanocomposites: Fabrication, Characterization and Property Analysis, Z. Guo, X. Liang, T. Pereira, R. Scaffaro and H.T. Hahn, Composites Science and Technology. X-ray Metrology for High-k Atomic Layer Deposited Hf_xZr_{1-x}O₂ films, D.H. Triyoso, M. Raymond, J.J. Gallegos, Microelectronic Engineering. Growth and Structural Properties of Crystalline LaAlO₃ on Si (001), J.W. Reiner, A. Posadas, M. Wang, T.P. Ma and C.H. Ahn, Microelectronic EngineeringProposals reviewed:UTD-UTA Presidential Joint Research Program Review PanelCommittee member:Microscopy Society of America, Undergraduate Education Committee

H. Lee

Technical committee co-chair of IEEE Solid-State Circuits Society-Dallas Chapter

2006Technical program committee member of IEEE International Symposium of Circuits and Systems, 2006Chair of lecture session Bandgap References for IEEE International Symposium of Circuits and Systems, 2006Review committee member of IEEE International Symposium of Circuits and Systems, 2006Reviewer of IEEE International Symposium of Circuits and Systems, 2006Reviewer of IEEE Journal of Solid-State Circuits, 2006Reviewer of IEEE Transactions on Circuits and Systems I, 2006Reviewer of IEEE Transactions on Circuits and Systems II, 2006

J. B. Lee

Serving as a technical program committee member for IEEE Sensors ConferenceServing as a technical program committee member for SPIE's International Symposium on Microtechnologies for the New Millennium ConferencesServed as a conference chair for the TEXMEMS 2006 ConferenceServed as a session chair for the 2006 International Conference on Nano Science and Nano TechnologyServed as a member of editorial board

of Transactions on Electrical and Electronic Materials
 Served as a reviewer for Journal of Micromechanics and Microengineering
 Served as a review panel member for NSF SBIR programs two times
 Samsung Telecommunications America, Richardson, TX, Served as a consultant for their interests in MEMS for cell phone applications

J. Liu

Associate Editor of IEEE Transactions on Circuits and Systems II, 2004 - present
 Proposal Reviewer for National Sciences and Engineering Research Council of Canada, 2006
 Member of Technical Program Committee and Session Chair (Analog Signal Processing) for IEEE International Symposium on Circuits and Systems, 2005 - present
 Reviewer for IEEE Journal of Solid-State Circuits, IEEE Transactions on Circuits and Systems II, IEEE Transactions on Microwave Theory and Techniques, IEEE Circuits and Systems Magazine

P. Loizou

Associate Editor of IEEE Signal Processing Letters, 2006-
 Member of IEEE Speech Technical Committee, 2006-
 Regular member of NIDCD/NIH Study Section (AUD) for R01 applications, 2006-
 Invited member of a NIDCD/NIH Study Section for R03 and R01 applications, April and Nov 2005.
 Associate Editor of IEEE Transactions of Speech and Audio Processing, 1999-2002
 Member of Industrial Technology Track technical committee for ICASSP conference, 2001-2205
 Member of North Texas Cochlear Implant Group at Callier Center/UTD.
 Served as a reviewer for numerous IEEE publications, including IEEE Signal Processing Letters and IEEE Transactions on Speech and Audio Processing. Also served as a reviewer for the Journal of Acoustical Society of America, and Ear and Hearing journals.

H. Minn

(1) Editor for the IEEE Transactions on Communications.
 (2) Technical Program Committee Member in IEEE WCNC 2005, IEEE VTC (Fall) 2005, ICCAS 2005, IEEE GLOBECOM 2005, IEEE IWCMC 2006 (MIMO Systems & Networks Symposium), ICUWB 2006, IEEE Globecom 2006, IEEE WCNC 2007, IEEE ICC 2007, IEEE Globecom 2008.
 (3) Reviewer in IEEE Transactions on Communications, IEEE Transactions on Wireless Communications, IEEE Journal on Selected Areas in Communications, IEEE Transactions on Vehicular Technology, IEEE Communications Letters, IEEE Signal Processing Letters, IEEE Globecom, ICC, VTC, WCNC, ICCAS, ICCS.
 (4) Session Chair in IEEE WCNC 2005, New Orleans; IEEE VTC 2005, Dallas; IEEE GLOBECOM 2005, St. Louis; ICICS 2005, Thailand; ICC 2006, Turkey; IEEE GLOBECOM 2006, San Francisco.
 (5) Technical Committee Member in IEEE Technical Committee on Communications Theory IEEE Technical Committee on Personal Communications IEEE Technical Committee on Radio Communications.

A. Nosratinia

Associate Editor of IEEE Transactions on Image Processing.
 Associate Editor of IEEE Transactions on Wireless Communications
 Associate Editor of IEEE Signal Processing Letters
 Associate Editor IEEE Wireless Communications
 Active Student Recruitment. Continued operation of a highly successful web-based graduate student recruitment system. This system has increased the quality of potential graduate students available to us. I both recruit my own students, as well as help other faculty with their recruitment.
 Reviewed articles for various technical journals

M. Nourani

NSF Panel: Served as a member of NSF grant review panel.
 Technical Program Committee Member: International Design and Test Workshop (IDT-2006), International Conference on Information Technology (ICT-2006), Computer Society of Iran Conference (CSICC-2006).
 Journal Referee: Transactions on Computer Aided Design of Integrated Circuits and Systems, Transactions on Very Large Scale Integration Systems, Transactions on Reliability, Transactions on Networking, Transactions on Computers, Transactions on Design Automation of Electronic Systems and Journal of Electronic Testing, IEEE Design & Test Magazine, IEEE Micro Magazine and IEE Proceedings.
 Conference Referee: Design Automation Conference (DAC), International test Conference (ITC), VLSI Test Symposium (VTS), Design Automation and Test in Europe (DATE), International

Conference on Computer Design (ICCD), International Conference on Communication (ICC), International Conference on Computer Communications and Networks (ICCCN), International Symposium on Circuits and Systems (ISCAS), Midwest Symposium in Circuits and Systems (MWSCAS), Global Telecommunication Conference (Globecom), Iranian Conference on Electrical Engineering (ICEE) and Computer Society of Iran Conference (CSICC).

L. Overzet

Reviewed article submissions for various Journals (examples: Appl. Phys. Lett., J. Vac. Sci. Technol., Plasma Sources Science Technol., IEEE Transactions on Plasma Science, Thin Solid Films and The Journal of the Electrochemical Society.) Reviewed research proposals for a variety of funding agencies. Executive Committee member of the GEC (Gaseous Electronics Conference). Program committee member for Dry Process Symposium (Japan). Plano Science fair judge. Wrote numerous letters supporting research proposals, green card applications, Senior member upgrades (IEEE) and Professional Engineering applications.

Issa Panahi

Co-Founder of the IEEE-Dallas Chapter of Engineering in Medicine and Biology Society (EMBS), Aug. 2006. Vice-Chair of the IEEE-Dallas Chapter of Engineering in Medicine and Biology Society (EMBS), 2006, 2007. Program-Chair of the IEEE-Dallas Chapter of Signal Processing Society, 2006. Reviewer for the IEEE Transactions on Signal Processing, Communication, Circuits and Systems. Member. IEEE Societies: Signal Processing (SPS), Engineering in Medicine and Biology (EMBS), LEOS. Received the 2005 Outstanding Service Award of the IEEE Dallas Section.

B. Pervin

Served as Secretary of the Dallas Chapter of the IEEE-Computer Society; appointed Secretary of the Dallas Chapter of the IEEE-Signal Processing Society. P. K. Rajasekaran Reviewed articles for IEEE-SPS, and other speech conferences.

R. Sangireddy

Member of Technical Program Committee, The IEEE International Workshop on Next Generation Wireless Networks 2006 [6]. IEEE WoNGen 0 Member of Technical Program Committee, 5th International Trusted Internet Workshop 2006 [TIW-2006]. Technical paper reviewer, IEEE Transactions on Parallel and Distributed Systems, August 2006. Technical paper reviewer, IEEE Communications Letters, October 2006. M. Saquib 10/2004 - present Associate editor, IEEE Transactions on Wireless Communications (EDICS: Wireless Communications - Cross-layer protocols, UWB, MIMO channel, Wireless Techniques and Fading, Interference Suppression, etc.) 10/2002 - present Associate editor, IEEE Communications Letter (EDICS: Wireless Communications - UWB, MIMO channel, Wireless Techniques and Fading, Interference Suppression, etc.) Technical program co-chair, Signal Processing for Communications Symposium, IEEE Global Telecommunications Conference Technical program co-chair, First International Conference on Next-Generation Wireless Systems (ICNEWS 2006) Technical program committee member, Wireless Communications Symposium, IEEE International Conference on Communications Technical program committee member, Phy/MAC Symposium, IEEE Wireless Communications and Networking Conference NSF panelist, Theoretical Foundation (TF) Cluster Review Panel, Reviewer for IEEE Transactions on Communications, Vehicular Technology, Information Theory, Signal Processing and Wireless Personal Communications, Systems and Control Letters, and others Reviewer for various conferences, including IEEE International Conference on Communications, IEEE Vehicular Technology Conference, IEEE Military Communications Conference, IEEE International Symposium on Circuits and Systems, and IEEE International Symposium on Information Theory

L. Tamil

Member, MTBC SIG on RFIDs Member, Organizing committee on RFID Symposium a collaborative effort of UTD SoM and EJS of ECS. Consulted for Lighthouse Capital Partners on Technical feasibilities of ideas for Investment decisions. Consulted for Mr. Tom Lardner on Technical matter relating to investing.

E. Vogel

Program Committee - IEEE International Reliability Physics Symposium (2006) Ex-Officio Chair - IEEE Semiconductor Interface Specialists Conference (2006) Program Committee - Dielectrics - Workshop on Dielectrics in Microelectronics (2006) Co-organizer - FIAP Focus Session on Emerging Research Devices and Materials for the Microelectronics Industry - American Physical Society Spring Meeting (2007) Senior Member of the Institute for Electrical and Electronics Engineers Member: Materials Research Society, American Physical Society Papers Reviewed 1. Impact of High K Gate Dielectrics on the Device and Circuit Performance of Nanoscale FinFETs, IEEE Elec. Dev. Lett., V. Ramgopal Rao et al. 2. Electron Detrapping Characteristics in PBT-Stressed nMOSFETs with Ultrathin HfSiON Gate Dielectrics, IEEE Elec. Dev. Lett., A. Nakajima et al. 3. High-k Al₂O₃-HfTiO Nanolaminates with less than 0.8 nm equivalent oxide thickness, IEEE Elec. Dev. Lett., V. Mikhelashvili et al.

R. M. Wallace

Elected Executive Committee, Electronic Materials and Processing Division, AVS (2005-2007) Program Committee Advanced Gate Stacks International Conference on Solid State Devices and Materials, Kobe, Japan (2005) Continued on the Editorial Board - Journal of Materials Science: Senior Member of the Institute for Electrical and Electronics Engineers Member: Materials Research Society, American Vacuum Society, Electrochemical Society, American Society for Testing and Materials Papers Reviewed 2006 Applied Physics Letters High Temperature Stability of Lanthanum Silicate Dielectric on Si (001) "by Jur, et al (12/2006) Formation of Low-leakage-current Ultra-thin SiO₂ Films Using Low temperature Neutral Beam Oxidation" by Samukawa, et al. (11/2006) Post-metal deposition annealing of TaN/Hf_{1-x}Si_xO₂/Si/GaAs gate stacks, by Zhang et al (9/2006) Electron energy barriers at interfaces of GaAs(100) with LaAlO₃ and Gd₂O₃, by Afans ev, et al. (6/2006) Effects of defects near the HfO_xNy/Si(100) interface on carrier lifetime in silicon and electrical characteristics of metal-oxide-semiconductor devices, by Cheng, et al. (4/2006) Electron Device Letters "Impact of the Nitrogen Content in Thin PVD-TaN Gate Electrode Films in Poly-Si/TaN/HfO₂/SiO₂ Transistors", by Kazuhiko Yamamoto, et al (3/2006) "All-Implanted GaAs MOSFETs with Directly-Deposited HfO₂ Gate Dielectrics", by Koester et al. (11/2006) "Thermal stability of metal electrodes and its impact on gate dielectric characteristics", by Park et al. (12/2006) Journal of the Electrochemical Society High-Temperature Stability Of Lanthanum Silicate Gate Dielectric MIS Devices With Ta And TaN Electrodes, by Lichtenwalner, et al. (4/2006) Electrochemical and Solid State Letters Sub-nanometer Equivalent Oxide Thickness Zirconium doped Hafnium Oxide High-k Gate Dielectric, by Kuo, et al. (12/2006) Dependence of electrical properties on interfacial layer thickness of Ta₂O₅ films, by Myoung, et al. (8/2006) Improved Dielectric and Interfacial Properties of Low Temperature Processed Hf rich Hf-Ti-O Gate Dielectrics, by Ramani, et al. (9/2006) Thin Solid Films Interfacial microstructure of NiSi₃/HfO₂/SiO_x/Si gate stacks by Gribelyuk, et al. (4/2006) IEEE Transactions on Electron Devices Characterization of high-k hafnium oxide gate dielectric by LI-ALD by Taechakumput, et al. (4/2006) Microelectronics Engineering Compositionally graded Hf-silicate high-k gate dielectric for 50nm DRAM with high thermal stability, by Hyun, et al (11/2006). Thermal and Plasma Enhanced Atomic Layer Deposition Ruthenium and Electrical Characterization as a Metal Electrode, by Park, et al. (11/2006) Electrochemical and Solid-State Letters Sub-nanometer Equivalent Oxide Thickness Zirconium doped Hafnium Oxide High-k Gate Dielectric, by Yan, et al. (12/2006) Improved Dielectric and Interfacial Properties of Low Temperature Processed Hf rich Hf-Ti-O Gate Dielectrics, by Ramani (9/2006) Dependence of electrical properties on interfacial layer thickness of Ta₂O₅ films, by Lee et al. (8/2006) R.M. Wallace 2006 Annual Report of Professional Activities and Accomplishments Solid State Electronics InGaAs channel layers with record mobility exceeding 12,000 cm²/Vs for use in high-k, by Droopad et al. (5/2006) Materials Today Gate Stack technology for Nano Scale Devices: Current and Future Challenges, by Lee, et al. (3/2006)

7.6 Other External Activities: Lectures abroad

M.J. Goeckner, A short study of Plasma Science (4 total lectures), Sungkyunkwan University (SKKU) Suwon, Korea, December 2006

M.J. Goeckner, S. Sant, C. Nelson, E. Joseph, B. Zhou and L.J. Overzet, In-situ studies of gas-phase chemistry in CF₄/C₄F₈ plasmas in the modified Gaseous Electronics Conference (mGEC) system, Sungkyunkwan University, Suwon, Korea, May 2006

L. Tamil, "Body Area Sensor Network," Indian Institute of Technology, Nanyang Technological University, Singapore, May 30, 2006.

L. Tamil, "Body Area Sensor Network," Indian Institute of Technology, Chennai, India, June 12, 2006.

L. Tamil, "Body Area Sensor Network," Indian Institute of Science, Bangalore, India, June 17, 2006.

L. Tamil, "Body Area Sensor Network," Tech Mahendra, Bangalore, India, June 18, 2006.

L. Tamil, "Body Area Sensor Network," Indian Institute of Technology, Mumbai, India, June 19, 2006.

L. Tamil "Multi-terabit Photonic Switching and Routing," Indian Institute of Technology, Chennai, July 18, 2006.

L. Tamil "Body Area Sensor Network," Institute for Infocomm, Research, ASTAR, Singapore, July 27, 2006.

7.7 Contributions to UTD: The mission of the Department of Electrical Engineering is to provide education in the theory and practice of modern electrical engineering. We prepare our graduates to have rewarding and successful careers in a diverse range of electrical engineering fields, including materials, devices, circuits, digital systems, signal/speech/image processing, and communications. The mission of the EE program is aligned with the UTD's mission in providing an educational environment that is responsive to local as well as national needs. To that end, the EE department continues to educate students in areas of Electrical Engineering, critical to the economical interests of the community at large.

In 2006, the EE program continued to award a large number of Baccalaureate degrees in Electrical Engineering. This fact, coupled with the proximity of UTD to one of the largest concentration of high-tech industries in Texas, allows EE program to be an active participant in the economical development of the local community, thereby contributing in a substantial manner to the mission of the university.

7.8 Top 3 Program / Unit Challenges: The challenges for the EE program are as follows:

- * Increased funding to support an expanding student and faculty base
- * Maintaining a steady growth in student population majoring in Electrical Engineering