Durgamadhab (Durga) Misra

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Fellow of the Electrochemical Society

Education

Ph.D., Electrical Engineering, University of Waterloo, Waterloo, Canada, 1988
M.S., Management, New Jersey Institute of Technology, 1997
M.A.Sc., Electrical Engineering, University of Waterloo, Waterloo, Canada, 1985
M.Tech., Solid-State, IIT Delhi, India, 1983
M.S., Physics, Utkal University, Bhubaneswar, India, 1981
B.S., Physics, Utkal University, Bhubaneswar, India, 1978

Academic Experience

New Jersey Institute of Technology,	2002 - Professor, Electrical & Computer Eng. Dept.
Newark, NJ	2006 – 2008 Associate Chair for Graduate Studies, ECE Dept
	2002 – Director, Graduate Program: MS Electrical Eng
	1993 - 2002 Associate Professor, Elect & Comp Eng Dept
	1996 - 1997 Director, Microelectronics Research Center,
	1988 - 1993 Assistant Professor, Elect & Comp Eng Dept
University of Waterloo, Canada	1991 & 1992 Visiting Research Professor, Electrical Eng
	1985 – 1988 Research Assistant
	1984 – 1988 Teaching Assistant

Industrial Experience

Bell Labs, Lucent Technologies, NJ	1997 - 1998 Visiting Professor in VLSI Research Dept
Sarnoff Corporation, Princeton, NJ	1990 – 1990 Visiting Professor at SEMATECH Center of Excellence in Plasma Processing
Cement Research Corporation, New Delhi, India	1983 – 1983 Research Engineer

Consulting Experience

Keystone Venture Capital 2000-2001 High Speed CMOS Circuits
Lucent Technologies 1996-1998, Plasma Process Induced Damage, Murray Hill, NJ
Infinite Computer Technologies 1996-1998, Non-volatile Random Access Memory, Alexandria
Rubicon, Inc., 1997-1998, Development of Circuits for Ferroelectric Memory, Princeton, NJ Memory
Semiconductor Assembly Council, 1996-1997, Development of a Standard Qualifying Die Mountain View, CA

Honors and Awards

- Board Member, The Electrochemical Society Board of Governors 2008 – 2010
- Fellow of the Electrochemical Society (ECS), Class of 2006
- Excellence in Teaching Award, New Jersey Institute of Technology, 2005
- Chair, Dielectric Science and Technology Division 2008 – 2010
- Southern Area Chair, IEEE Region 1 2008 - 2010
- 2008 Leadership Award, IEEE Princeton, Central Jersey Section (Conference Chair, Sarnoff Symposium)
- Chair, IEEE EDS SRC, North America East (Regions 1, 2, 3 and 7) 2006 - Present
- IEEE Electron Device Society Distinguish Lecturer, 2005 - Present
- IEEE Regional Activities Board Leadership Award (International) November 2004.
- IEEE North Jersey Section Service Award as Chair, December 1, 2004.
- Associate Editor, IEEE Circuits and Devices Magazine.

Honors and Awards *(continues)*

- IEEE Region 1 Award for Distinguish Service for NJ Section and Service to ED Society, 2002.
- Awards Committee Chair, Thomas D. Callinan Award, Electrochemical Society, May 2000-02.
- IEEE North Jersey Section Award for "Distinguish Service and Leadership, 2003.
- Symposium Chair, Dielectric Science & Technology Division, ECS, May 2002-2004.
- Secretary, Dielectric Science & Technology Division, Electrochemical Soc., May 2004-2006.
- Program Chair, International Conference on Information Technology, India, Dec. 21-23, 2000.
- National Science Foundation Panel Review Member, June 1998, May 2001 and Oct. 2003.
- Board Member, National Institute of Science & Technology, India.
- Certificate of Achievement by McNair Achievement Program, NJIT, April 14, 2000.
- Certificate of Achievement by University Research Experience Program, NJIT, April 17, 1998.
- Recognition award by The Minority Academic Carriers Program, State of New Jersey, 1997.
- Recognition award by The Minority Academic Carriers Program, State of New Jersey, 1996.
- Canadian Commonwealth Scholarship Sept. 1983-July, 1988 at University of Waterloo.
- Dean of Graduate Studies Scholarship Sept.85 & May86 at Univ. of Waterloo.

Awards Received by My Students

1. PhD Student Wei Zhong received ECE Department **Hashimoto Award for Best Dissertation** in 2001, $2,500.
2. Undergraduate Student Nasif Akand received ECE Department **Best Senior Project Award**, May 3, 2001, $250.
3. Undergraduate Student Rafal Korczeniewski received **Honorable Mention** for Senior Project, First Industry-University Senior Project with Lucent Technologies, May 3, 2001.
4. **Best Poster Paper Award** in Ninth Annual UNI-Tech Conference, Newark, NJ, April 2000.
5. Tias Kundu, ***IEEE North Jersey Section Best Graduate Student Research Presentation*** for her presentation on "Deuterium Passivation At The Interface of Si And SiO_2- Reliability Of Thin Oxides," IEEE North Jersey Student Presentation Contest held at Fairleigh Dickinson University in March 2003.
7. Purushothamn Srinivas, ***IEEE North Jersey Section Honorable Mention Graduate Student Research Presentation*** for his presentation "Study on Degradation of N-MOSFETs due To Hot Electron Effect," IEEE North Jersey Student Presentation Contest held at Fairleigh Dickinson University in March 2003.
9. Reenu Garg, ***The Electrochemical Society Student Travel Award and GSA Travel Award*** to present her paper "Properties of Thermally Evaporated HfO_2," at 203rd Meeting of the Electrochemical Society, (Abstract #54), Paris, France April 27-May 2, 2003.
10. Ami Patel, ***Electrical and Computer Engineering Department Senior Design Project Poster Presentation Workshop - 2nd BEST POSTER PRESENTATION*** for her Poster "Passivation of Silicon Nanocrystals through Computer Simulation" May 2003.
11. Purushothaman Srinivasan, **2003 International Semiconductor Device Research Symposium Student Award** (Registration Waiver) to present his paper "Screening of Si-H bonds during plasma processing," at 2003 International Semiconductor Device Research Symposium (ISDRS), December 10-12, Washington, DC, 2003.
12. Purushothaman Srinivasan, ***The Inter University Microelectronics Center (IMEC), Belgium Student Travel Award and a Scholarship*** to work on a Research Project "Noise in High-K Dielectrics for sub 45nm CMOS Devices," October 1, 2004 to January 31, 2005.
13. Naser Chowdhury, ***The Electrochemical Society Student Travel Award*** to present his paper "Time Dependent Dielectric Breakdown of Thermally Evaporated HfO_2 for Nanoscale Devices," at 206th Meeting of the Electrochemical Society, Honolulu, HI, October 3-8, 2004.
14. Naser Chowdhury, ***GSA Achievement Travel Award*** to present his paper "Charge Trapping Characteristics of $TiN/HfSi_xO_y/SiO_2/p$-Si MOS Devices under Stress," at the International Workshop on Electrical Characterization and Reliability for High-K Devices, Austin, TX, November 4-5, 2004.
15. Waqas Mahmood, ***Gold Award Winner, Fall 2004, Senior Design Project Presentation,*** for his project "Charge Trapping and Time Dependent Dielectric Breakdown (TDDB) of $HfSi_xO_y$ Gate Stack under Constant Current and Voltage Stress." December 9, 2004.

16. Tias Kundu, ***IEEE North Jersey Section 1st Prize for Graduate Student Research Presentation*** for her paper presentation on “Hydrogen / Deuterium Implantation For Si/SiO_2 Interface Passivation,” IEEE North Jersey Student Presentation Contest held at FDU on March 22, 2005.
19. Purushothaman Srinivasan, ***IEEE North Jersey Section 2nd Prize for Graduate Student Research Presentation*** for his paper presentation on “Modeling And Simulation of SiGe Photodiode for Optical Communication Applications,” IEEE North Jersey Student Presentation Contest held at FDU on March 22, 2005.
21. Waqas Mahmood, ***Saul K. Fenster Innovation in Design Award*** for his project “Charge Trapping and Time Dependent Dielectric Breakdown (TDDB) of HfSixOy Gate Stack under Constant Current and Voltage Stress.” April 8, 2005.
22. Purushothaman Srinivasan, ***The Electrochemical Society Student Travel Award*** to present his paper “1/f Noise Performance of NMOSFETs with Hf-Based Gate Dielectrics,” at 207th Meeting of the Electrochemical Society, Quebec City, Canada, May 15-20 2005.
23. Purushothaman Srinivasan and Naser Chowdhury ***First Prize in the PhD category at the* Einstein Expo, *a Student Research Conference at The City College of New York*** for "Study of electrically active traps in high-k dielectrics" The posters were evaluated by four Nobel laureates and eminent professors working in various research areas.
24. Purushothaman Srinivasan, ***GSA Achievement Travel Award*** to present his paper “1/f Noise Performance of NMOSFETs with Hf-Based Gate Dielectrics,” at 207th Meeting of the Electrochemical Society, Quebec City, Canada, May 15-20 2005.
25. Purushothaman Srinivasan, ***The Inter University Microelectronics Center (IMEC), Belgium Student Travel Award and a Scholarship*** to work on a Research Project “Noise in High-K Dielectrics for sub 45nm CMOS Devices,” June 1, 2005 to January 15, 2006.
26. Tias Kundu ***The Electrochemical Society Student Travel Award*** to present her paper “Annealing Effect On Reliability Of SiO_2 For Deuterium Implanted Silicon Annealing,” at the 208th Meeting of the Electrochemical Society, Los Angeles, October 16-21, 2005.
27. Naser Chowdhury, ***The Electrochemical Society Student Travel Award*** to present his paper “Evidence of Deep Energy States from Low Temperature Measurements and its Role in Charge Trapping in Metal Gate/Hf-Silicate Gate Stacks, at the 208th Meeting of the Electrochemical Society, Los Angeles, October 16-21, 2005.
28. Reenu Garg, ***The Electrochemical Society Student Travel Award*** to present her paper “Effect of Nitridation on Ge/HfO_2 Interface, at the 208th Meeting of the Electrochemical Society, Los Angeles, October 16-21, 2005.
29. P. Srinivasan, ***The Electrochemical Society Student Travel Award*** to present his paper “Effect of Nitridation on 1/f Noise in n-MOSFETs with High-k Dielectric, at the 208th Meeting of the Electrochemical Society, Los Angeles, October 16-21, 2005.
30. Purushothaman Srinivasan, **Winner of HASHIMOTO fellowship,** 2005-2006, ECE Department, Newark College Of Engineering, New Jersey Inst. of Technology.
31. N. A. Chowdhury, ***ISDRS Travel Award and Registration Waiver*** to present his paper “Trapping in Deep Defects under Substrate Hot Electron Stress in TiN/Hf-silicate Based Gate Stacks”, at the International Semiconductor Device Research Symposium (ISDRS), Bethesda, Maryland, Dec., 2005.
32. N. A. Chowdhury, ***2006 Summer Intern at SEMATECH,*** Austin, TX to work on his research.
33. P. Srinivasan, ***2006 Summer Intern at IBM T.J. Watson Research Center*** to work on his research.
34. Purushothaman Srinivasan, ***IEEE North Jersey Section 1st Prize for Graduate Student Research Presentation*** for his paper presentation on “*Low-frequency 1/f Noise Performance in MOSFET Devices*,” IEEE North Jersey Student Presentation Contest held at **NJIT on March 21, 2006.**
35. Nilufa Rahim, ***The Electrochemical Society - Student Travel Award*** to present her paper “Role of Bulk HfO_2 and Interfacial SiO_2 Layer in Breakdown Characteristics of TiN/HfO_2/SiO/Si Gate Stacks,” at the 210th Meeting of the Electrochemical Society, Washington, DC, October 7-12, 2007.
36. Nilufa Rahim, ***Best Research Award*** in Newark College of Engineering on **"GSA Research Day"** for her poster “Breakdown characteristics of metal gate/HfO2 based multi layer gate stacks,” November 14, 2007.
37. Nilufa Rahim, ***Selected to Present a Poster at the National Science Foundation*** (NSF) headquarters on

February 29 at the NSF GK-12 Annual Meeting. The NSF committee reviewed around 100 abstracts and chose 30 to be presented.

38. Nilufa Rahim, ***Graduate Students Association - Student Travel Award*** to present her paper "NBTI Behavior of Ge/HfO_2/Al Gate Stacks," at the IEEE International Reliability Physics Symposium, 2008.
39. Nilufa Rahim, ***The Bronze Award at the CIE-GNYC (Chinese Institute of Engineers- Greater NY Chapter) Annual Convention*** at Marriot Hotel, Newark Liberty Airport for her paper "Breakdown studies of metal gate/high-k dielectric on Si substrate."

RESEARCH

Research Interests

Solid State Electronic Devices and Materials includes Nanoscale semiconductor devices; Device reliability due to advanced fabrication principles; Understanding and minimization of process-induced damage mechanisms in semiconductor devices; High-K and Very Large Scale Integration (VLSI) design includes CMOS Circuits and Imagers.

Research Collaboration with Industries

IMEC, Belgium
SEMATECH, Austin, TX
IBM TJ Watson Research Center, Yorktown Heights, NY
Lucent Technologies, Murray Hill, NJ
Infinite Computer Technologies, Alexandria, VA
Rubicon, Inc., Princeton, NJ
Sarnoff Corporation, Princeton, NJ
Semiconductor Assembly Council, Mountain View, CA
Amkor Electronics Inc., Chandler, AZ
Radiation Monitoring Devices, Watertown, MA
Alphatel, Mendham, NJ
Affiliated Engineering Laboratories, Inc., Edison, NJ

Research Collaboration with Federal Laboratories

Naval Research Laboratories, Washington, DC
ARMY Research Laboratory, Ft Monmouth, NJ

Publication of Edited Books

1. S. Kar, D. Landheer, M. Houssa, D. Misra, S. Van Elshocht, H. Iwai (Editors), *Physics and Technology of High-k Gate Dielectrics 6*, **ECS Transactions**, Vol. 16, No. 5, Pennington, NJ, (ISBN 978-1-56677-651-6), 530 pages, October 2008.
2. **D. Misra**, H. Iwai, Y. Obeng, T. Chikyow, J. Vanhellemont (Editors), *Dielectrics for Nanosystems 3: Materials Science, Processing, Reliability, and Manufacturing*, **ECS Transactions,** Vol. 13 No. 2, (ISBN: 978-1-56677-627-1) Pennington, NJ 405 pages, May 2008.
3. S. Kar, S. De Gendt, M. Houssa, D. Landheer, **D. Misra**, and H. Iwai (Editors), *Physics and Technology of High-k Gate Dielectrics 5*, **ECS Transactions**, Vol. 11, No. 4, Pennington, NJ, (ISBN 978-1-56677-570-0), 552 pages, October 2007.
4. S. Kar, S. De Gendt, M. Houssa, D. Landheer, H. Iwai, and D. Misra (Editors) Physics and Technology of High-k Gate Dielectrics 4, **ECS Transactions,** Vol. 3, No. 3, Pennington, NJ, October 2006.

5. P. Mascher, K. Wörhoff, and D. Misra, (Editors), Science and Technology of Dielectrics for Active and Passive Photonic Devices, **ECS Transactions,** Vol. 3, No. 11, (Online) Pennington, NJ, October 2006.
6. H. Z. Massoud, J. H. Stathis, T. Hattori. D. Misra, and I. Baumvol (Editors), Physics and Chemistry of SiO_2 and Si-SiO_2 Interface-5 **ECS Transactions** Vol. 1 No. 1, October 2005, Pennington, NJ (ISBN 1-56677-431-4).
7. S. Kar, D. Misra, H. Iwai. M. Houssa, D. Landheer, W. Tsai, S. De Gendt, and A. Chin (Editors), High Dielectric Constant Gate Stacks III, **ECS Transactions**, Vol. 1, No. 5 Pennington, NJ, March 2006.
8. D. Misra and H. Iwai, Dielectrics for Nanosystems – II: Materials Science, Processing, Reliability, and Manufacturing, **ECS Transactions** Vol. 2 No. 1, May 2006, Pennington, NJ (ISBN 1-56677-438-1).
9. L. Cook, D. Misra, S. Mukhopadhyay, W. Wong.Ng, O. Leonte, and K. Sundaram (Editors), Interfaces in Electronic Materials, Electrochemical Society Proceedings Volume, PV-2003-31, 334 pages, 2006 (ISBN 1-56677-425-X).
10. J.L. Davidson, P.J. Hesketh, **D. Misra**, and S. Shoji, (Editors), M*icrofabicated Ststems and MEMS-VII,* Electrochemical Society Proceedings Volume PV-2004-09, 340 pages, 2004 (ISBN 1-56677-272-5).
11. S. Kar, R. Singh, **D. Misra**, H. Iwai, M. Houssa, J. Morais, and D. Landheer, Physics and Technology of High-k Gate Dielectrics II, Electrochemical Society Proceedings Volume PV-2003-22, (ISBN 1-56677-405-5), 490 pages, October 2003.
12. S. Kar, **D. Misra**, R. Singh, F. Gonzalez, Physics and Technology of High-k Gate Dielectrics I, Electrochemical Society Proceedings Volume PV-2002-28, (ISBN 1-56677-395-4), 304 pages, 2003.
13. **D. Misra**, K. Worhoff, and P. Mascher, Dielectrics in Emerging Technologies, Electrochemical Society Proceedings Volume PV-2003-1, (ISBN 1-56677-346-6), 436 pages, April 2003.
14. R. E. Sah, K. B. Sundaram, M. J. Deen, D. Landeer, W. D. Brown, and **D. Misra**, Silicon Nitride and Silicon Dioxide Thin Insulating Films (7th), Electrochemical Society Proceedings Volume PV-2003-2, (ISBN 1-56677-347-4), 636 pages, April 2003.
15. M.J. Deen, **D. Misra** and J. Ruzyllo (Editors), Integrated Optoelectronics, Electrochemical Society Proceedings Volume PV-2002-4, 444 pages, 2002 (ISBN 1-56677-370-5).
16. P.J. Hesketh, S.S. Ang, J.L. Davidson, H.G. Hughes, and **D. Misra**, (Editors), M*icrofabicated Ststems and MEMS-VI,* Electrochemical Society Proceedings Volume PV-2002-6, 260 pages, 2002 (ISBN 1-56677-272-5).
17. K.B. Sundaram, M.J. Deen, D. Landheer, W.D. Brown, **D. Misra**, M.D. Allendorf and R.E. Sah, (Editors), *Silicon Nitride and Silicon Dioxide Thin Insulating Films - VI,* Electrochemical Society Proceedings Volume PV-2001-7, 286 pages, 2001 (ISBN 1-56677-3136-X).
18. R.K. Ghosh, and **D. Misra** (Editors), CIT 2000, Proceedings of the Third International Conference on Information, Tata McGraw-Hill Publishing, New Delhi, 308 pages, 2001. (ISBN 0-07-043546-4).
19. P.J. Hesketh, S.S. Ang, W.E. Bailey, J.L. Davidson, H.G. Hughes, **D. Misra**, (Editors), M*icrofabicated Ststems and MEMS-V,* Electrochemical Society Proceedings Volume PV-2000-19, 394 pages, 2000 (ISBN 1-56677-286-9).
20. K.B. Sundaram, M.J. Deen, W.D. Brown, R.E. Sah, E. Poindexter, **D. Misra**, M.D. Allendorf, and S.I. Raider, (Editors), *Silicon Nitride and Silicon Oxide Insulating Film - V*, Electrochemical Society Proceedings Volume PV-99-6, 284 pages, 1999. (ISBN 1-56677-228-1)
21. G.S. Mathad, D.W. Hess, Y. Horiike, T. Lii, **D. Misra,** and L. Simpson, (Editors), *Plasma Etching Processes For Sub-Quarter Micron Devices*, Electrochemical Society Proceedings Volume PV-99-30, 378 pages, 1999. (ISBN 1-56677-253-2)
22. G.S. Mathad, **D. Misra**, K.B. Sundaram, (Editors), *Plasma Processing - XII,* Electrochemical Society Proceedings Volume PV-98-4, 292 pages, 1998. (ISBN 1-56677-198-6)

Feature Book Chapters

20. **D. Misra**, Damage Due to Reactive Ion Etching - A Review, Trends in Electrochemistry, Editor: J. Menon, Publisher: Research Trends, Trivandrum, India, 1992, pp. 25-37.
21. **D. Misra,** "MIS, MIM, and MSM STRUCTURES." Wiley Encyclopedia of Electrical and Electronics Engineering: Semiconductor Manufacturing, Edited by J.G. Webster, John Wiley & Sons, Inc. New York (Published: September 26, 2001).

Refereed Journal Publications

1. N. A. Chowdhury, G. Bersuker, C. Young, R. Choi, S. Krishnan and D. Misra, "Breakdown characteristics of metal gate/HfO_2 based high-k gate stacks," ***Microelectronic Engineering***, vol. 85, No. 1, pp. 27-35, 2008.

2. N. Rahim and D. Misra, “Temperature Effects on Breakdown Characteristics of Hig-k Gate Dielectrics with Metal Gates”, accepted in ***IEEE Transactions on Device and Materials Reliability,*** August 2008.
3. N. Rahim and D. Misra, “Role of Hydrogen in Ge/HfO2/Al Gate Stacks Subjected to Negative Bias Temperature Instability,” ***Applied Physics Letters***, vol. 92, 023511, 2008.
4. N. Rahim and D. Misra, “TiN/HfO_2/SiO_2/Si Gate Stack Breakdown: Contribution of HfO_2 and Interfacial SiO_2 Layer” ***Journal of Electrochemical Society,*** **155** (10) G194-G198, 2008.
5. P. Srinivasan, B.P. Linder, V. Narayanan, D. Misra and E. Cartier, Impact of high-κ and SiO_2 interfacial layer thickness on low-frequency (1/f) noise in aggressively scaled metal gate/HfO_2 n-MOSFETs: role of high-κ phonons, ***Microelectronic Engineering***, vol. 84, No. 9-10, pp. 2274-2277, 2007.
6. N. A. Chowdhury and D. Misra, “Charge Trapping at Deep States in Hf-Silicate based High-k Gate Dielectrics,” Accepted for **Journal of Electrochemical Society,** vol. 154, No. 2, pp. G30-G37, 2007.
7. N. A. Chowdhury, D. Misra, G. Bersuker, C. Young, and R. Choi, “Role of Interfacial Layer on Breakdown of TiN/High-k Gate Stacks,” **Journal of Electrochemical Society**, vol. 154, No. 12, pp. G298-G306, 2007.
8. C. Claeys, E. Simoen , P. Srinivasan, D. Misra, “Impact of gate-dielectric interface on the low-frequency noise of thin gate oxide n-channel metal-oxide-semiconductor field-effect-transistors”, **Solid State Electronics,** vol. 51, No. 4, pp. 627-632, 2007.
9. P. Srinivasan, F. Crupi, E. Simoen, P. Magnone, C. Pace, D. Misra, and C. Claeys, “Interfacial layer quality effects on low-frequency noise (1/f) 3 in p-MOSFETs with advanced gate stacks,” ***Microelectronics Reliability,*** vol. 47, No. 4-5, pp. 501-504, 2007.
10. N.A. Chowdhury, D. Misra and N. Rahim, “Negative Bias Temperature Instability in TiN/Hf-Silicate Based Gate Stacks,” **International Journal of High Speed Electronics and Systems,** vol. 17, No. 1, pp. 129-141, 2007.
11. N. A. Chowdhury, P. Srinivasan and D. Misra, “Trapping in deep defects under substrate hot electron stress in TiN/Hf-silicate based gate stacks,” **Solid-State Electronics**, vo. 51, No. 1, pp. 80-88, 2007.
12. D. Misra, R. Garg, P. Srinivasan, N. Rahim, N.A. Chowdhury, “Interface Characterization of High-K Dielectrics on Ge Substrates, Accepted for **Materials Science and Semiconductor Processing,** vol. 9, No. 4-5, pp. 741-748, 2006.
13. P. Srinivasan, E. Simoen, B. DeJaeger, C. Claeys and D. Misra, “1/f noise performance of MOSFETs with HfO_2 and metal gate on Ge-on-Insulator substrates,” **Materials Science and Semiconductor Processing,** vol. 9, No. 4-5, pp. 721-726, 2006.
14. R. Garg, D. Misra, S. Guha “Effect of Ge Surface Nitridation on the Ge/HfO_2/Al MOS Devices,” Accepted for **IEEE Transaction of Device and Materials Reliability**, vol. 6, No. 3, pp. 455-460, September 2006.
15. T. Kindu and D. Misra, “Electron Transport Model in Photodetectors For High Speed Imaging,” **Semiconductor Science and Technology**, vol. 20, No. 11, pp. 1122-1126, November 2005.
16. P. Srinivasan, N.A. Chowdhury, and D. Misra, Charge Trapping in Ultra-thin Hafnium Silicate / Metal Gate Stacks, **IEEE Electron Device Letters**, vol. 26, No. 12, pp. 913-915, December 2005.
17. M. Kim, R. Brukh, S. Kishore, S. Mitra and D. Misra, “Design and Fabrication of Heated Microchannels,” **Sensors and Materials**, vol. 18, No. 1, pp. 035– 048, January 2006.
18. R. Garg, D. Misra and P. K. Swain, “Ge MOS Devices with Thermally Evaporated HfO_2 As Gate Dielectric,” ***Journal of Electrochemical Society***, vol. 153, No. 2, pp. F29-F34, February 2006.
19. P. Srinivasan, E. Simoen, L. Pantisano, C. Claeys and D. Misra, Low-Frequency (1/F) Noise Performance of N-And P-MOSFETS with Poly-Si / Hf-Based Gate Dielectrics, ***Journal of Electrochemical Society***, vol. 153, No. 4, pp. G324-329, April 2006.
20. T. Kindu and D. Misra, “Enhanced SiO_2 Reliability on Deuterium Implanted Silicon,” ***IEEE Transaction on Device and Materials Reliability***, vol. 6, No. 2. June 2006.
21. P. Srinivasan, E. Simoen, R. Singanamalla, H.Y. Yu, C. Claeys, and D. Misra, “Gate Electrode Effects on Low-Frequency (1/f) Noise in p-MOSFETs with High-K Dielectrics,” ***Solid State Electronics,*** vol. 50, No. 6, pp. 992-998, June 2006.
22. P. Srinivasan, E. Simoen, Z. M. Rittersma, W. Deweerd, L. Pantisano, C. Claeys and D. Misra, “Effect of Nitridation on Low-Frequency (1/f) Noise in N- And P- MOSFETs With HfO_2 Gate Dielectrics,” ***Journal of Electrochemical Society***, Vol. 153, No. 9, pp. G819-G825, 2006
23. F.Crupi**,** P. Srinivasan, P. Magnone, E.Simoen, C. Pace, D. Misra, C. Claeys – “Impact of the interfacial layer on the low-frequency noise (1/f) behavior of MOSFETs in advanced gate stacks,” ***IEEE Electron Device Letters,*** vol. 27, No. 8, pp.688-691, August 2006.
24. N. A. Chowdhury, R. Garg, and D. Misra, “Charge Trapping and Interface Characteristics of Thermally Evaporated HfO_2,” **Applied Physics Letters,** vol. 85, No. 15, pp. 3289-3291, October 11, 2004.

25. T. Kundu and D. Misra, “Si-SiO_2 Interface Passivation Using Hydrogen And Deuterium Implantation, **Electrochemical and Solid-State Letters**, vol. 8, No. 2, pp. G35-G37, 2005.
26. P. Srinivasan, E. Simoen, L. Pantisano, C. Claeys, D. Misra, “Low frequency noise performance of MOSFETs with metal gate Hf-based dielectrics,” **Microelectronic Engineering**, vol. 77(6), June 2005.
27. R. Garg, N. A. Chowdhury, M. Bhaskaran, P. K. Swain and D. Misra, “Electrical Characteristics of Thermally Evaporated HfO_2,” **Journal of Electrochemical Society**, vol. 151, No. 10, pp. F215-F219, 2004.
28. P.Srinivasan, B.Vootukuru, and D. Misra, “Screening of Si-H bonds during plasma processing,” **Solid-State Electronics**, vol. 48(10-11), pp. 1809-1814, 2004.
29. M. Bhaskaran, P. K. Swain, and D. Misra, “Thermally Evaporated ZrO2,” **Electrochemical and Solid-State Letters,** vol. 7, No. 6, pp. F38-F40, 2004.
30. Ralph Bucher, and D. Misra, “A Synthesizable VHDL Model of the Exact Solution for Three-dimensional Hyperbolic Positioning System,” **VLSI Design Journal**, vol. 15, No. 2, pp. 507-520, November 2002.
31. R.K. Jarwal and D. Misra, “Interface Hardening with Deuterium Implantation,” **Journal of Electrochemical Society,** vol. 149, No. 8, pp. G446-G450, August 2002.
32. D. Misra, "Effect of Reverse Biased Floating Voltage at Source and Drain on Plasma Damage," **IEEE Transaction on Electron Devices,** vol. 49, No. 6, pp. 1090-1093, June 2002
33. R.K. Jarwal and D. Misra, “Reliability of Thin Oxides Grown on Deuterium Implanted Silicon Substrate,” **IEEE Transaction on Electron Devices,** vol. 48, No. 5, pp 1015-1016, May 2001.
34. R.K. Jarwal, D. Misra and J.L. Lawrance, “Charge Transfer in a Multi-Implant Pinned-Buried Photodetector,” **IEEE Transaction on Electron Devices**, vol. 48, No. 5, pp. 858-862, May 2001.
35. D. Misra and R.K. Jarwal, “Metal-Oxides-Semiconductor Diodes on Deuterium-Implanted Silicon Substrate,” **Applied Physics Letters,** vol. 76, No. 21, pp. 3076-3078, May 2000.
36. D. Misra and S. Kishore, “Gate Oxides Grown on Deuterium Implanted Silicon Substrate,” **IEEE/ECS Electrochemical and Solid-State Letters**, vol. 2, No. 12, pp. 637-639, December 1999.
37. D. Misra**,** "Charge-Trapping Properties of Gate Oxide Grown on Nitrogen-Implanted Silicon Substrate," **Applied Physics Letters**, vol. 75, No. 15, pp. 2283-2285, October 1999.
38. P.K. Swain, S. Madapur, and D. Misra "Plasma Process-Induced Band Gap Modifications of Strained SiGe Heterostructure," **Applied Physics Letters**, vol. 74, No. 21, pp. 3173-3175, May 1999.
39. K.P.Cheung, D. Misra, J. I. Colonell, C-T. Liu, Y. Ma, C-P. Chang, W-Y-C. Lai, R. Liu and C-S. Pai, “Plasma damage immunity of thin gate oxide grown on very lightly N+ implanted silicon,” **IEEE Electron Device Letters,** vol. 19, no. 7, pp. 231, 1998.
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2. D. Misra, “Reliability Concerns for sub-45nm CMOS Devices with High-K Gate Dielectrics,” IEEE EDS Distinguished Lecture at National Technical University of Athens, Athens, Greece for EDS Greece Mini-Colloquium hosted by EDS Europe, Africa, and Middle East Regions/Chapters Subcommittee (SRC-EAM), June 2, 2008.
3. D. Misra, “Reliability of High-k Gate Dielectrics in sub-45nm CMOS Devices,” IEEE EDS Distinguished Lecture at School of Engineering Sciences, Simon Fraser University, Vancouver, Canada, May 23, 2008.
4. D. Misra, “VLSI Design and CMOS Technology Evolution," IEEE EDS Distinguished Lecture at Nalanda Institute of Technology for EDS Bhubaneswar Chapter, Bhubaneswar, Orissa, India, March 14, 2008.
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8. D. Misra, Deuterium at the Si-Dielectric Interface in Nanoscale Devices, IEEE Distinguished Lecturer, February 21, 2007, IEEE NJ Section Electron Devices, Circuits and Systems Chapters, at NJIT
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12. **D. Misra**, Effect of Dry Etching to Si1-xGex Devices, Naval Research Laboratory, Washington, DC, June 25, 1993.
13. **D. Misra**, "Physics of IC Design and Technology," Institute of Physics, Bhubaneswar, India, June 14, 1991.
14. **D. Misra**, "Basic VLSI Design" and "Wafer Monitoring by Infrared Camera During Plasma Etching," Central Research Laboratory of Bharat Electronics Ltd, Bangalore, India, June 4-5, 1991.
15. **D. Misra**, "VIMDE - A Vertically Integrated Multi-Chip-Module Design environment," AT&T Engineering Expo'91, Princeton, NJ, March 5, 1991.
16. **D. Misra**, "Introduction to VLSI Design" IEEE Seminar Series, NJIT IEEE Students' Chapter, November, 1990.
17. **D. Misra,** "Signal Processing for Integrated Sensors," Presented at NJIT Microelectronics Seminar Series and Sigma Xi Lectures Fall 90, Newark, NJ, October 3, 1990.
18. **D. Misra**, "Integrated Magnetic Field Sensor," Presented at NJIT Day, SIEMENS Corporated Research Inc., Princeton, NJ, October 1989.
19. **D. Misra**, "Tungsten Silicide as Micromechanical Material," NATO Advanced Study Institute, Boca Raton, FL, July 17-28, 1989.
20. **D. Misra**, "A study of RIE-induced surface damage in VLSI applications," Microelectronics Seminar Series - Fall 86, Sponsored by Alberta Microelectronics Center and Department of Electrical Engineering, University of Alberta, Edmonton, Canada, October 1986.

Research Grants and Contracts

1. **NSF-4: (Co-PI)** A Research Experience for Undergraduates Site for Computer Networking and Security, Amount: $300,000, Duration: March 1, 2006 to February 28, 2009.

2. **NASA/California Institute of Technology, Jet Propulsion Laboratory: (PI)** Back-Illuminated CMOS Imager Technology, NMO 715652, $37,196.00, July 6, 2005 to September 30, 2007.
3. D. Misra, PI, **National Science Foundation** Award No. ECS 0140584, Passivation of Silicon Dangling Bonds by Deuterium Implantation, $268,000, May 1, 2002 to April 30, 2006.
4. D. Misra, PI, **NSF REU Supplement** to ECS 0140584, $12,000, May 1, 2002 to April 30, 2003.
5. D. Misra, PI, **NSF REU Supplement** to ECS 0140584, $6,000, May 1, 2003 to April 30, 2004.
6. D. Misra, PI, Research in MEMS Using Bonded Wafers, **Sarnoff Corporation,** $4,800.00, June 1, 2001 to December 2002.
7. D. Misra, Co-PI, New Jersey Center for Optoelectronics, **New Jersey Commission on Science and Technology,** $75,000.00 (NJIT), March 1, 2001 to February 28, 2002 (With H. Grebel).
8. D. Misra, PI, A Micro-concentrator Interface for Real-time VOCs Sensors, **Center for Airborne Organics, An EPA Research Center at MIT,** with Prof. S. Mitra from Chem Eng. $59,355.00, July 1, 2000 to December 31, 2001 (Amount allotted: Half of the total amount).
9. D. Misra, Co-PI, New Jersey Center for Optoelectronics, **New Jersey Commission on Science and Technology,** $75,000.00 (NJIT share), March 1, 2000 to February 28, 2001 (with Prof. Grebel & Amount allotted: $22,372).
10. D. Misra, Co-PI, Acquisition of Instrumentation for Deep Reactive Ion Etching of Bonded Ultra-Thin Silicon Wafers, **National Science Foundation,** $467,380.00, July 15, 1998 to June 30, 1999 (With Prof.s Farmer and Mitra).
11. D. Misra, PI, Research Experience for Undergraduates (REU) Supplement Grant for Device And Materials Processing, **National Science Foundation**, $10,000.00, January 1, 1999 to December 31, 2000.
12. D. Misra, PI, Acquisition of Specialized Instrumentation for Research & Development of Materials, Devices and Processes, **National Science Foundation**, $55,000.00, July 15, 1998 to June 30, 1999.
13. D. Misra, Co-PI, New Jersey Center for Optoelectronics, **New Jersey Commission on Science and Technology,** $85,000.00 (NJIT share), March 1, 1998 to February 28, 1999 (with Prof. Grebel & Amount allotted: $22,000).
14. D. Misra, PI, Fabrication of Students' VLSI design projects tiny-chips through MOSIS, **National Science Foundation**, an educational supplemental grant of $1,785, October 1997 to April 30, 1998.
15. D. Misra, PI, Investigation of Gate Oxides Grown on Light Deuterium Implanted Silicon Substrate, **Microelectronics Research Center**, NJIT, $10,000, March 1, 1998 to June 30, 1999.
16. D. Misra, PI, Air-gap Capacitance to Improve Interconnect Delay, **Microelectronics Research Center**, NJIT, $10,000, March 1, 1998 to June 30, 1999.
17. D. Misra, PI, "Two Part Nonvolatile Random Access Memory Using Conducting Polymer," **Infinite Computer Technologies** (**Air Force Office of Scientific Research , STTR Program**), $19,152.00, January 1, 1997 to December 31, 1997.
18. D. Misra, PI, "Two Part Nonvolatile Random Access Memory Using Indium," **Rubicon Inc.** (**National Science Foundation, SBIR Program**), $19,885.00, June 1, 1997 to November 30, 1997.
19. D. Misra, PI, "Silicon Photodetectors for Radiation Monitoring," **Radiation Monitoring Devices, Inc**., $19,000.00, Sept. 1, 1996 to Jan. 31, 1997.
20. D. Misra, PI, "Research for Advanced CMOS Process," **Sarnoff Corporation**, $24,000.00, December 1996 to May 1997.
21. D. Misra, PI, "Design and Fabrication of Test Structures to Study the Reliability of Semiconductor Packaging," (Graduate Student Support & Training in Clean room) **Amkor Electronics Inc.,** $74,000, July 1, 1996 to March 31, 1997.
22. D. Misra, PI, Equipment Grant, "Upgrade to 6" Wafer Processing," **Amkor Electronics Inc.,** $15,000 (cash award), January 1997.
23. D. Misra. PI, "DLTS Measurement System," **Lucent Technologies (Allentown, PA)** Equipment donation, Equivalent cost $10,000.00, May 1997.
24. D. Misra, PI, Research Experience for Undergraduates, **National Science Foundation**, a supplemental grant of $10,000, Jan. 1, 1995 to Dec. 31, 1995
25. D. Misra, PI, Damage Elimination using an in-situ Contactless Sensor and Real Time Process Monitor During Plasma Etching in Microelectronic Manufacturing, **Center for Manufacturing Systems**, $20,000, July 1, 1995 to June 30, 1996.
26. D. Misra, PI, Study of Defects and Process Induced Damage in Si1-xGex Materials, **National Science Foundation,** $141,000.00, September, 1, 1992 to June 30, 1996.
27. D. Misra, PI, Study of Dry Etching Induced Damage in Silicon Dioxide, **SEMATECH Center of Excellence in**

NJ, $15,000, Aug. 1, 93 to Nov 30, 1993.

28. D. Misra, Co-PI, Very-High-Frame-Rate Solid-State Sensor, **New Jersey Commission on Science and Technology,** $75,000, W.F. Kosonocky PI, July 1, 1993 to June, 30, 1994 (Amount allotted: $30,000).
29. D. Misra, Co-PI, Design, Simulation and Prototype Fabrication of a Digital Compression Chip, **Digital Compression Technology, Inc.** $130,000, Jan 4, 1993 to Dec 31, 1993. (Amount allotted: $36,000).
30. D. Misra, PI, Use of MOSIS for fabrication of VLSI chips, **National Science Foundation,** an educational supplemental grant of $4,750, October, 1991 to August 1992.
31. D. Misra, PI, Pre-Small Business Innovation Research Program, **Consortium For Surface Processing (ATC/SEM),** $5,000, October 1, 1991 - November 30, 1992.
32. D. Misra, PI, VLSI Design and Signal Processing Laboratory, **Sun Microsystems Inc.** $12,295, June 1, 1992, Equipment.
33. D. Misra, PI, RIE Processed Micromechanical Systems (Cantilevers) Using Silicides, **Consortium For Surface Processing (ATC/SEM),** $27,600, June 1, 1989 - May 31, 1990.
34. D. Misra, PI, Use of MOSIS for fabrication of VLSI chips for Small Projects, **National Science Foundation,** an educational supplemental grant of $5,500, October, 1990 to August 1991.
35. D. Misra, PI, Circuit Design, Analysis And Testing of A Novel CMOS Magnetic Field Sensor With A Temperature Compensation Scheme, **SIEMENS Corporate Research, Inc.**$10,000, (June 1, 1989 - May 31, 1990).
36. D. Misra, PI, VIMDE - A Vertically Integrated Multi-Chip-Module Design Environment, **AT&T Foundation,** $22,000, May 31, 1990.
37. D. Misra, PI, Electrical Breakdown Phenomena in Micromechanical Structures, **Consortium For Surface Processing (ATC/SEM),** $14,295, June 1, 1991 - May 31, 1992.
38. D. Misra, PI, VLSI Design Softwares, Autologic etc, **Mentor Graphics Corporation,** $370,000.00, January 1992.
39. D. Misra, Co-PI, Wafer Monitoring During Plasma Etching by IR Camera, **SEMATECH Center of Excellence for Plasma Etching, Semiconductor Research Corporation,** $30,000, with Prof. W.F. Kosonocky CP, July 1, 1989 - June 30, 1990 (Amount allotted: $10,000).
40. D. Misra, Co-PI, Trade-Off Study and Design of a Foveating Image Sensor For High Speed data Capture, **Rutgers University CAIP Center** $15,000, with Prof. W.F. Kosonocky, CP, July 1, 1988 - June 30, 1989 (Amount allotted: $8,000).

TEACHING

Courses Taught

FED 101 Fundamental of Engineering Design: Electrical Engineering Module
EE 291 Electrical Engineering Laboratory
EE 310 Cooperative Education and Internship
EE 405 Electrical Engineering Principle
EE 413 Introduction To Professional Engineering Practice
EE 463 Microelectronics Devices
EE 478 VLSI Semiconductor Circuits (Introduced New Course)
ECE 648 Digital Microelectronics
ECE 650 Electronic Circuits (Analog)
ECE 658 VLSI Design – I (Introduced New Course)
ECE 758 VLSI Design – II (Introduced New Course)
ECE 789 Introduction to Design Using VHDL (Introduced initially as a Special Topic Course)

Short Courses:

1. **D. Misra,** Introduction to VLSI Design Using VHDL, A Two Days Intensive Course at **Computer Science Department, Texas A&M University**, College Station, Texas, June 14-15, 1999.
2. **D. Misra,** "Introduction to VLSI Design and VHDL," at Sarnoff Corporation, Princeton, New Jersey, May 18, 1998 to July 7, 1998 (8 weeks), **Sponsored by Sarnoff Corporation**.
3. D. **Misra,** Two Days Intensive Course on "Principles and Recent Advances in VLSI Design - Use of VHDL as VLSI Design Tool," at National Institute of Science and Technology, Palur Hills, Berhampur, India, July 20th and

21st, 1998, **Sponsored by Council for Industrial and Scientific Research (CSIR), India.**

New Courses Developed:

ECE 475-001 VLSI Semiconductor Circuits.
ECE 658-101 VLSI Design - I.
ECE 758 VLSI Design – II.

Other Teaching Related Activities

- Nominated by ECE Department for Excellence in Teaching Award for Graduate Instruction.
- Course Supervisor for the courses ECE 475 (since Fall 1990) and ECE 658 (since Fall 1988).
- Receiving $1,500 to $5,000 per year from **National Science Foundation/DARPA** to fabricate students' designs as part of their course projects.
- Received Grants as PI and Co-PI for instructional laboratory development.
- Contributing to the Computer Engineering program through CAD services.
- First time introduced VHDL course at NJIT.

GRADUATE STUDENT ADVISING

Post-Doctoral Fellows

R.K. Jarwal, January 1999 to Present, **Research Work:** Simulation of Ultra High Frame Rate Imager) and CMOS Device Physics and reliability, Supported by New Jersey Center for Optoelectronics.
P.K. Swain, March 1995 to May 1997, **Research Work:** Processing of SiGe Devices and materials, as per NSF proposal, **Development Work:** Developed the CMOS process in NJIT clean room.

Doctoral Students

P. Srinivasan, Reliability Study of Nanoscale MOS Transistors with High-K Gate Dielectrcis"
PhD Thesis, Expected Graduation Date: May 2007.
N.A. Chawdhury, "Low Temperature Trapping Characteristics of HfO_2 Gate Dielectrics"
PhD Thesis, Expected Graduation Date: December 2006.
R. Garg, "Ge MOS Devices with Thermally Evaporated HfO_2 as Gate Dielectrics"
PhD Thesis, Graduation Date: January 2006.
T. Kundu, "Isotope Effect at Si/SiO_2 Interfaces,"
PhD Thesis, Graduation Date: August 2005.
M. Kim, "Microconcentrator Interface for Chemical Sensors," Supported by MRC, Jointly supervised by Dr. S. Mitra of Chem. Eng.
PhD Thesis, Graduation Date: Summer 2002.
Wei Zhong, "Process Induced Damage and Defects
to Materials and Devices," Supported by NSF and Anadigics.
PhD Thesis, May 2001. **Winner of ECE Department's 2001 Hashimoto Award.**
Current Employment: Anadigics, Warren, NJ
R.K. Kabra, "Design and Characterization of Ultra High Frame Rate Burst Image Sensors," Supported by PSI Inc and Sarnoff Corp.
PhD Thesis, January 1998
Current Employment: Sarnoff Corporation, Princeton, NJ.
K.R. Linga, Design, "Fabrication and Characterization of High Performance InGaAs/InP Focal Plane Arrays in the 1-2.6μm Wavelength Region," Supported by PSI Inc and Epitaxx.
PhD Thesis, May 1997, Current Employment: President, InPhot Inc., NJ

Masters Graduates

Amrita Banerjee, MS Thesis Title: Fabrication And Characterization Of High Performance Si-SiO$_2$ Back Illuminated CMOS Photodiode Array, August 2006.
Jagtar S. Dhillon, MS Project Title:
Ravishankar B. Bannigidadmath, MSEE, Project Title**:** Performance Evaluation of Low Power SRAM in Deep Submicron Technology, January 2005.
Don Guelich, MSEE, Project Title**:** Custom Dither ASIC for "Full Color" on 18-bit LCD , August 2005.
Purushothaman Srinivas, "VLSI Architecture for Deadlock Avoidance in Wormhole Networks," M.S. Thesis: January 2004.
Soumya Das Sharma, "Chip Design for Multicast Oriented Routing Algorithm," M.S. Project: January 2004.
Bhawar Patel, "MOSFET Degradation with Reverse Biased Source and Drain During High-Field Injection," M.S. Thesis: Aug 2003.
Harsha R. Sipuram, "Low power transceiver design for mobile wireless chemical and biological sensors, M.S. Thesis: May 2003
Y. Ramakrishna Vadapalli, "An Interface chip for SWA based chemical sensor in ad-hoc networks," M.S. Thesis: January 2003
Vishnu Mandava, "VLSI Design Of Stability Routing Protocol For Sensors In Manets," M.S. Thesis, January 2003.
Reenu Garg, "Chip Design for Multicast Oriented Routing Algorithm," M.S. Project: January 2003.
Damanjeet Chandok, "Video Processing in a Machine Vision System," M.S. Project: January 2003
K. Gururaj, "VLSI Architecture for Deadlock Avoidance in Wormhole Networks," M.S. Thesis, August 2002.
S. Polturi, "Hyperbolic Position Location Estimator with TDOA from Four Stations," M.S. Thesis, Fall 2001.
R. Bucher, "A Synthesizable Low Power VHDL Model of the Exact Solution of Three Dimensional Hyperbolic Positioning System," M.S. Project, January 2000.
S. Kishore, "Investigation of Gate Oxides Grown on Light Deuterium Implanted Silicon Substrate," M.S. Thesis, August 1999.
P. Mohare, "Generic Emulation of Microprocessors," M.S. Thesis, May 1999.
S. Madapur, "Design, Simulation and Fabrication of a Two-Part Non Volatile Random Access Memory Circuit," M.S. Thesis, January 1998.
S. Ganesh, "Design, Simulation and Fabrication of a MEMS In-situ, Contactless Sensor to Detect Plasma Induced Damage During Reactive Ion Etching," M.S. Thesis, January 1997.
Y. Qiu, "The Study of SiGe-Channel Heterostructure MOS Device," M.S. Thesis, May 1996.
P. Patel, "Design of Neuron Cell Using FPGA." M.S. Project, May 1996.
J. Shah, Graduated, "Automation of Reactive Ion Etching Process using a MC 68000 Microprocessor," M.S. Thesis, August 1993.
B. Wang, "Three Dimensional Magnetic Sensors and Array in BiCMOS Technology" M.S. Thesis, January 1993.
L. Simhadri, "A Verilog Model for VLSI Implementation of Mathematical Morphology Operations," M.S. Project, May 1992.
A. Shah, "A Novel Micromachined Beam-Diaphragm Structure for High Performance Pressure Transducers," M.S. Thesis, August 1991.
V. Satyanarayana, "A 4-Bit BiCMOS Full Adder for ALU," M.S. Project, May 1991.
O. Ezebuiroch, "Offset Cancellation in a MAGFET," M.S. Project, May 1991.
T. Jaswal, "A CMOS Logic Circuit to Reduce Substrate Current/Hot Carrier Effect," M.S. Thesis, May 1991.
S. Patel, An n-Channel MOSFET with Schottky Source and Drain," M.S. Project, December 1990.
M. Zhang, "3-D Magnetic Field Sensor Design Based on Standard IC Technology," M.S. Thesis, December 1990.
D.K. Sampath, "A Novel CMOS Magnetic Field Sensor with Temperature Compensation Scheme," M.S. Thesis, December 1990.
V.S. Simhadri, "A Novel Schottky Barrier MOSFET for VLSI Applications," M.S. Thesis, August 1990.
B. Pathak, "Investigation of Micromechanical Properties of Tungsten Silicide Thin Films," M.S. Thesis, August 1990.
M.D. Bunyan, "Damage Effects in Si-SiO2 Structures Due to Reactive Ion Etching," M.S. Thesis, May 1990.
Y. Chakravarthy, "A 512x512 Random Addressable Variable Resolution Image Sensor." M.S. Thesis, March 1990.

PROFESSIONAL ACTIVITIES:

The Electrochemical Society (ECS)

- Fellow of Electrochemical Society
- Serving as the Vice-Chair of the Dielectric Science and Technology Division of the Society 2006-2008.
- Served as the Secretary of the Dielectric Science and Technology Division of the Society 2004-2006.
- Serving in the **Executive Committee** of the **Dielectric Science and Technology Division** of the Society.
- Awards Committee Member, Solid State Science & Technology Award, Electrochemical Society, May 2000.
- Chair, Awards Committee, Thomas D. Callinan Award, Electrochemical Society, May 2000-2004.
- Chair, Membership Committee of Dielectric and Science Division of Electrochemical Society in May 1998 to May 2001.
- Providing Travel Grants and Awarded Memberships to Students all over the world to present a paper in all the ECS meetings since October 1998.

International Symposiums at ECS

- Co-organizer & Session Chair, F1 – Second International Symposium on High Dielectric Constant Materials: Material Science, Processing, Manufacturing and Reliability Issues (S. Kar, R. Singh, **D. Misra**, H. Iwai, M. Houssa, J. Morais, D. Landheer), 204th Meeting – Orlando, FL, October 12-16, 2003 in collaboration with the Electronic Division of American Ceramic Society.
- Co-organizer & Session Chair, H1 – Interfaces in Electronic Materials (L.P. Cook, **D. Misra**, S.M. Mukhopadhyay, O. Leonte, K. Sundaram, W. Wong-Ng), 204th Meeting – Orlando, FL, October 12-16, 2003 in collaboration with the Electronic Division of American Ceramic Society.
- Co-organizer & Session Chair, H1 - First International Symposium on High Dielectric Constant Materials: Material Science, Processing, Manufacturing and Reliability Issues, 202nd Meeting - Salt Lake City, UT, October 20-24, 2002
- Co-organizer & Session Chair, H2 - Emerging Technologies in Nanoelectronics (D. Misra, K.B. Sundaram and S. Seal), 202nd Meeting - Salt Lake City, UT, October 20-24, 2002
- Co-organizer & Session Chair, F1 - Science and Technology of Dielectrics in Emerging Fields (D. Misra, K. Worhoff, P. Mascher), 203rd Meeting - Paris, France, April 27-May 2, 2003.
- Co-organizer & Session Chair, G1 - Seventh International Symposium on Silicon Nitride and Silicon Dioxide Thin Insulating Films (R.E. Sah, K.B. Sundaram, M.J. Deen, D. Landheer, W.D. Brown, D. Misra), 203rd Meeting - Paris, France, April 27-May 2, 2003.
- Co-organizer, International Symposium on *Silicon Nitride and Silicon Dioxide Thin Insulating Films – VI* at the 199th Meeting of Electrochemical Society at Washington, DC March 25-29, 2001.
- D. Misra: Session Chair, International Symposium on *Silicon Nitride and Silicon Dioxide Thin Insulating Films – VI* at the 199th Meeting of Electrochemical Society at Washington, DC March 25-29, 2001.
- Co-organizer, International Symposium on Microfabricated Systems And MEMS-V at the 198th Meeting of Electrochemical Society at Phoenix, Arizona October 22-27, 2000.
- D. Misra: Session Chair, International Symposium on Microfabricated Systems and MEMS V, 198th Meeting of Electrochemical Society, Phoenix, Arizona, October 22-27, 2000.
- Co-organizer, International Symposium on Plasma Etching Processes For Sub-Quarter Micron Devices at the 196th Meeting of Electrochemical Society and 1999 Joint International Meeting at Honolulu, Hawaii, October 17-22, 1999. Chaired a Session in the Symposium.
- Co-organizer, International Symposium Interconnects And Contact Metallization For ULSI at the 196th Meeting of Electrochemical Society and 1999 Joint International Meeting at Honolulu, Hawaii, October 17-22, 1999. Chaired a Session in the Symposium.
- Co-organizer, Student Poster Session at the 196th Meeting of Electrochemical Society and 1999 Joint International Meeting at Honolulu, Hawaii, October 17-22, 1999. Chaired the Session in the Symposium.

23 • Co-organizer, International Symposium on Fifth
International Symposium On Silicon Nitride And Silicon Dioxide Thin Insulating Films, Processes and Reliability at the 195th Meeting of Electrochemical Society at Seattle, WA, May 1999. Chaired a Session in the Symposium.

- Organizer, Student Poster Session at the 195th Meeting of Electrochemical Society at Seattle, WA, May 1999. Chaired a Session in the Symposium.
- Co-organizer, International Symposium on Interconnect and Contact Metallization: Materials, Processes and

Reliability at the 194th Meeting of Electrochemical Society at Boston, MA, November 1998. Chaired a Session in the Symposium.

- Co-organizer, Fifth International Symposium on Quantum Confinement: Nanostructures at the 194th Meeting of Electrochemical Society at Boston, MA, November 1998. Chaired a Session in the Symposium.
- Co-organizer, International Symposium on Microstructures and Microfabricated Systems IV at the 194th Meeting of Electrochemical Society at Boston, MA, November 1998. Chaired a Session in the Symposium.
- Organizer, Student Poster Session at the 194th Meeting of Electrochemical Society at Boston, MA, November 1998. Chaired a Session in the Symposium.
- Co-organizer, International Symposium on Plasma Processing at the 193rd Meeting of Electrochem Soc at San Diego, CA, May 1998. Chaired a Session in the Symposium.
- Organizer, Student Poster Session at the 193rd Meeting of Electrochemical Society at San Diego, CA, May 1998. Chaired a Session in the Symposium.

Institute of Electrical and Electronics Engineers (IEEE)

- Associate Editor, IEEE Circuits and Device Magazine.
- Special Section Editor (Column Editor: ***Device Unlimited*)**, IEEE C&Devices Magazine
- Senior Member of the IEEE
- Chair, North Jersey Section of IEEE 2003 and 2004.
- EXCOM Member IEEE Electron Device Society, 2004.
- Editorial Board Meeting, IEEE Circuits and Devices Magazine, Orlando, FL, Nov. 18, 2000.
- Editorial Board Meeting, IEEE C and D Magazine, San Francisco, CA, June 23, 2001.
- Treasurer, IEEE North Jersey Section, for 2001 and 2002.
- 2000 (elected) Member at Large of the North Jersey Section of the IEEE.
- Presently serving as the Associate Chair of Electron Device Society and Circuit and Systems division of the North Jersey Section of IEEE.
- Represented North Jersey Section of IEEE since 1997 the National Meeting of the Electron Device Society at IEDM.
- Organizing seminars at NJIT campus for IEEE.
- A constant reviewer of articles for International Journals such as IEEE Transaction on Electron Devices, IEEE Electron Device Letters.
- Session Chair, VLSI Technology Session, VLSI Design 2001, 14th International Conference on VLSI Design, January 5, 2001.
- D. Misra: Program Committee Member, Int. Conf. on VLSI Design, 01, 02, 03, 04 & 05

International Conference on Information Technology

- D. Misra: Program Committee Member, International Conference on Information Technology, 2001, 2002, 2003, 2004.
- D. Misra: Session Chair, Session for Keynote Papers, International Conference on Information Technology, Bhubaneswar, India, Dec. 21-23, 2000.
- Served as the **Program Chair** of International Conference on Information Technology, CIT'2000, in Bhubaneswar, India, December 21-23, 2000.

24 • Served as the **Tutorial Chair** of International Conference on Information Technology, CIT'99, in Bhubaneswar, India, December 20-22, 1999.

- Served in the **Technical Program Committee** of International Conference on Information Technology, CIT'98, in Bhubaneswar, India, December 21-23, 1998.
- Submitted a proposal to NSF to support CIT’2000.

Reviewing Activities

- Regular Reviewer of articles for International Journals:
  - IEEE Transaction on Electron Devices
  - IEEE Electron Device Letters
  - IEEE/ECS Electrochemical and Solid-State Letters
  - IEEE Transaction on Circuit and Systems

Applied Physics Letter (AIP)
Journal of Applied Physics (AIP)
Journal of Vacuum Science and Technology (AVS)
Journal of the Electrochemical Society
Journal of Physics D: Applied Physics
Journal of Micromechanics and Microengineering
Material Science in Semiconductor Processing
Nanotechnology
Semiconductor Science & Technology
Grant Proposals for National Science Foundation.

- Awarded Membership of The Institute of Physics, London, 2000 for Reviewing Activities.
- Served as a Panel Member in Enabling Technology Division (ECS) of NSF in June 1998 to review 24 proposals.
- Served as a Panel Member in Enabling Technology Division (ECS) of NSF in May 2001 to review 8 individual MRI proposals and 34 proposals in the panel.
- Served as a Panel Member in Enabling Technology Division (ECS) of NSF in October 2003 to review 21 individual career proposals in the panel.

University Service

- Provided an outstanding service with leadership as the Acting Director of Microelectronics Research Center in 1996-97 Academic Year.
- Provided an outstanding service as a Mentor for University Research Experience program for Undergraduates in Equal Opportunity Program, New Jersey State Minority Academic Career Program, McNair Fellow Program (99-00) for last several years (since 1995-96).

University Committees

- Served in the University Research Committee
- Serving in the Graduate Studies Committee for Best Thesis
- Served in the Academic Computing Committee
- Served as the Library Committee

Departmental Committees

- Director, Graduate Program: MS Electrical Engineering.
- Area Coordinator: Solid-State, VLSI and Elecro-Optics Systems
- Served in the Chairperson Search Committee (elected)
- Currently serving in (i) Committee of Committees (elected), (ii) Doctoral Committee, (iii) Financial Aid Committee.
- Served as the Computer Engineering Faculty Search Committee for two academic years in 1997-98 and 1998-99.
- Served as the Chair of the departmental A&V committee.
- Served as the Assistant Director of the Electronic Imaging Center at NJIT and established the VLSI/CAD facility for the Center.

PUBLIC SERVICE

- Secretary Treasurer, Orissa Society of Americas, New York Chapter, 2002-2004.
- Participated as a Panel Member at the One day Workshop on Rebuilding Orissa (India) after Killer Cyclone on Saturday, February 5, 2000, University of Maryland, College Park, MD.
- An active volunteer member at the “Sustainable Economic and Educational Developmental Society (SEEDS) [http://www.seedsnet.org]. SEEDS has been active to promote educational and economic progress and development for the common folks particularly in Orissa, but in the developing world in general. SEEDS in principle, also would take stand against social evils and injustices whenever possible. SEEDS best hope that these, in turn, would indirectly bring about and foster the other important ingredient – political consciousness and empowerment-- among the people.
- Serving as a fund raiser and volunteer for the Orissa Cyclone Relief Program

- Served as Vice President of Orissa Society of Americas' New York Chapter 1998-2000.
- Served as an advisor to Association of Indian Students at NJIT.
- Served as an organizer for the 25th National Convention of Orissa Society of Americas in 1994.
- Member SPIE, Sigma Xi.