

CURRICULUM VITAE

Zeynep Çelik-Butler
Electrical Engineering Department
Nanofab Building, room 202A
University of Texas at Arlington
Arlington, TX 76019-0172
Tel: (817) 272-1309
FAX: (817) 272-7458

E-Mail: zbutler@uta.edu
<http://www.ee.uta.edu/eedept/Faculty/cbutler.htm>

Personal Information:

Female, U.S. Citizen, married, two daughters

Current Research Interests:

Reliability and noise issues in deep-sub-micron MOSFETs and bipolar transistors; CAD tools for noise in advanced CMOS and BiCMOS technologies. Design, fabrication, characterization, and modeling of novel uncooled infrared detectors, microsensors and microelectromechanical systems.

Education:

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| 1987 | Ph.D. in Electrical Engineering
University of Rochester, Rochester, NY. |
| 1984 | M.S. in Electrical Engineering
University of Rochester, Rochester, NY. |
| 1982 | B.S. in Electrical Engineering with honors
Bogazici University, Istanbul, Turkey |
| 1982 | B.S. in Physics with honors
Bogazici University, Istanbul, Turkey |

Leadership Positions:

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| 2005 – present | Director of Nanotechnology Research and Teaching Center
Electrical Engineering Department
University of Texas at Arlington, Arlington, TX 76019 |
| 2003 – 2004 | Interim Director of Nanotechnology Research and Teaching Center
Electrical Engineering Department
University of Texas at Arlington, Arlington, TX 76019 |
| 1996-1999 | Assistant Dean for Graduate Studies and Research
School of Engineering and Applied Science
Southern Methodist University, Dallas, TX 75275 |

Academic Experience:

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| 2002 – Present | Professor, Electrical Engineering Department
University of Texas at Arlington, Arlington, TX 76019 |
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Spring 2001	Visiting Professor, University of Florida, Electrical and Computer Engineering, Gainesville, FL.
1999-2002	Professor, Electrical Engineering Department Southern Methodist University, Dallas, TX 75725
1993-1999	Associate Professor, Electrical Engineering Department Southern Methodist University, Dallas, TX 75725
1987-1993	Assistant Professor and Holder of J. Lindsay Embrey Trustee Professorship (1990-1993) Electrical Engineering Department Southern Methodist University, Dallas, TX 75275
Sep. 1984- May 1985	Laboratory Teaching Assistant Department of Electrical Engineering University of Rochester, Rochester, NY 14627
Sep. 1982- May 1983	Lab. Teaching Asst., Recitation Lecturer Department of Electrical Engineering University of Rochester, Rochester, NY 14627

Industrial Experience:

Fall 2000	Visiting Senior Member of the Technical Staff, Raytheon Systems Co. Dallas, TX.
Spring 2001	Visiting Senior Member of the Technical Staff, DRS IR Technologies Dallas, TX.

Honors and Awards:

2006	UTA Outstanding Research Achievement Award
2003	IEEE - Electron Devices Society, Service Recognition Award for 2002.
2001	SMU Graduate Student Council Outstanding EE Faculty Award for 2000-2001
1998 - present	IEEE-Electron Devices Society Distinguished Lecturer
1997	Sigma Xi Research Award for SMU Chapter
1997	SMU Graduate Student Council Outstanding EE Faculty Award for 1996-1997
1997	IEEE-Electron Devices Society, Dallas Section Outstanding Service Award
1996	SMU Graduate Student Council Outstanding EE Faculty Award for 1995-1996
1996-1997	Listed in Marquis Who's Who in American Education, 5th Edition
1996	IEEE - Electron Devices Society, Service Recognition Award for 1994 - 1996.
1995	IEEE-Electron Devices Society, Dallas Section Outstanding Service Award
1990-1993	J. Lindsay Embrey Trustee Professorship in Engineering
1985-1987	Eastman Kodak Predoctoral Fellowship

1983-1984	IBM Predoctoral Fellowship
June 1982	Ranked 3rd in Graduation College of Arts and Sciences Bogazici University, Istanbul, Turkey
June 1982	Graduated with Honors in Electrical Engineering. and Physics, Bogazici University, Turkey

Theses:

1987	Ph.D. Thesis "1/f Noise in Semiconductor Devices" Advised by Thomas Y. Hsiang
1982	B.S. Thesis "Design and Implementation of Video Motion Detection System" Advised by Omer Cerid

Patents:

1. "Uncooled YBaCuO Thin Film Infrared Detector", by Donald P. Butler, Zeynep Çelik-Butler, and Pao Chuan Shan. 1996. Patent #: 5572060.
2. "Amorphous YBaCuO Thin Film Infrared Bolometer for Uncooled Infrared Detection", by Donald P. Butler, Zeynep Çelik-Butler, Pao Chuan Shan, and Agha Jahanzeb. 1998. Patent #: 5821598.
3. "Uncooled YBaCuO Thin Film Infrared Detector (Divisional Application for Pyroelectric Effect)", by Donald P. Butler, Zeynep Çelik-Butler, and Pao Chuan Shan. 1997. Patent #: 5672903.
4. "Uncooled Amorphous YBaCuO Thin Film Infrared Detection", by Donald P. Butler, Zeynep Çelik-Butler, Pao Chuan Shan, and Agha Jahanzeb. 1998. Patent #: 5850098.

Research Activities:

Refereed Journal Publications: (# of citations as of 2004)

1. "Study of 1/f Noise in N-MOSFETs: Linear Region," Z. Çelik and T. Y. Hsiang, *IEEE Tran. Electron Devices*, vol. ED-32, p. 2797, 1985. (36)
2. "Spectral Dependence of $1/f^{\gamma}$ Noise on Gate Bias in N-MOSFETs," Z. Çelik-Butler and T. Y. Hsiang, *Solid-State Electronics*, vol. 30, p. 419, 1987. (35)
3. "Spatial Correlation Measurements of 1/f Noise in Semiconductors," Z. Çelik-Butler and T. Y. Hsiang, *Solid-State Electronics*, vol. 31, p. 241, 1988. (3)
4. "Determination of Si-SiO₂ Interface Trap Density by 1/f Noise Measurements," Z. Çelik-Butler and T. Y. Hsiang, *IEEE Tran. Electron Devices*, vol. 35, p. 1651, 1988. (20)
5. "Reply to 'Comments on 'Determination of Si-SiO₂ Interface Trap Density by 1/f Noise Measurements'," Z. Çelik-Butler and T. Y. Hsiang, *IEEE Tran. Electron Devices*, vol. 37, p. 825, 1990. (1)

6. "1/f Noise in HgCdTe Field-Effect Transistors," Z. Çelik-Butler, S. Alamgir and S. R. Borrello, *Solid State Electronics*, vol. 33, p. 585, 1990. (2)
7. "Characterization of Electromigration Parameters in VLSI Metallizations by 1/f Noise Measurements," Z. Çelik-Butler, W. Yang, H. H. Hoang and W. R. Hunter, *Solid State Electronics*, vol. 34, p. 185, 1991. (21)
8. "A Model for Electromigration and Low-Frequency Noise in Thin Metal Films," Z. Çelik-Butler and W. Yang, *Solid State Electronics*, vol. 34, p. 911, 1991. (12)
9. "Measurements of Noise and Temperature Coefficient of Resistance on YBaCuO Thin Films in Magnetic Field," Z. Çelik-Butler, W. Yang and D. P. Butler, *Applied Physics Letters*, vol. 60, p. 246, 1992. (8)
10. "Prediction of Electromigration Failure in W / Al-Cu VLSI Interconnections by 1/f Noise Measurements," Z. Çelik-Butler and M. Ye, *Solid-State Electronics*, vol. 35, p. 1209, 1992. (14)
11. "Conversion Loss of a YBa₂Cu₃O₇ Grain Boundary Mixer at 20 GHz," D. P. Butler, J. Wang, W. Yang, A. Bhandari and Z. Çelik-Butler, *Applied Physics Letters*, vol. 61, p. 333, 1992. (7)
12. "A 1/f Noise Model Based on Fluctuating Defect States," S. R. Borrello and Z. Çelik-Butler, *Solid-State Electronics*, vol. 36, p. 407, 1993. (3)
13. "Two-Level Noise Switching in YBa₂Cu₃O₇ Microbridges," D. P. Butler, Z. Çelik-Butler and J. Wang, *Solid-State Electronics*, vol. 36, p. 1507, 1993.
14. "Conversion Gain and Noise of YBa₂Cu₃O₇ Weak-Link Mixers" D. P. Butler, J. Wang, A. Bhandari and Z. Çelik-Butler, *IEEE Transactions on Applied Superconductivity*, vol. 3, p. 2269, 1993.
15. "1/f Noise in HgCdTe Metal-Insulator-Semiconductor Infrared Detectors," W. He and Z. Çelik-Butler, *J. Vacuum Science Technology B*, vol. 11, p. 1833, 1993. (2)
16. "Modeling of High-T_c Superconductor Parametric Amplifiers and Mixers," J. Wang, D. P. Butler, and Z. Çelik-Butler, *Physica C*, vol. 231, p. 272, 1994.
17. "Temperature Dependence of 1/f Fluctuations in HgCdTe MIS Infrared Detectors," W. He, Z. Çelik-Butler, *IEEE Tran. Electron Devices*, vol. 42, p. 160, 1995. (3)
18. "Low-Frequency Noise and Hall Effect Studies on YBa₂Cu₃O_{7- δ} Thin Films," A. Jahanzeb and Z. Çelik-Butler, *IEEE Tran. on Applied Superconductivity*, vol. 5, p. 1416, 1995.
19. "1/f Noise Measurements as a Characterization and Testing Technique in Solid-State Devices" Z. Çelik-Butler, A. Jahanzeb, W. He, R. Zhang, *J. on Communications*, vol. 46, p. 11, 1995.
20. "Studies and Implications of the Hall-Effect in Superconducting and Semiconducting YBa₂Cu₃O_{7- δ} Thin Films," A. Jahanzeb, P.C. Shan, Z. Çelik-Butler and D. P. Butler, *Journal of Applied Physics*, vol. 78, p. 6658, 1995. (3)
21. "Semiconducting YBaCuO Thin Films for Uncooled Bolometers," P. C. Shan, Z. Çelik-Butler, D. P. Butler and A. Jahanzeb, *Journal of Applied Physics*, vol. 78, p. 7334, 1995. (19)
22. "1/f Noise and Dark Current Components in HgCdTe MIS Detectors," W. He, and Z. Çelik-Butler, *Solid-State Electronics*, vol. 39, p. 127, 1996. (2)

23. "1/f Noise and Electromigration in Multi-layered Via Structures," R. Zhang, Z. Çelik-Butler, N. Patel, *Solid-State Electronics*, vol. 39, p. 281, 1996. (2)
24. "1/f Noise as an Electromigration Characterization Tool for W-plug Vias Between TiN/Al-Cu/TiN Metallizations," Z. Çelik-Butler, *Solid-State Electronics*, vol. 39, p. 999, 1996. (3)
25. "The Investigation of Semiconducting YBaCuO Thin Films: A New Room Temperature Bolometer," P. C. Shan, Z. Çelik-Butler, D. P. Butler, A. Jahanzeb, C. Travers, W. Kula, and R. Sobolewski, *Journal of Applied Physics*, vol. 80, pp 7118-7123, 1996. (24)
26. "Charge Transport in Amorphous and Tetragonal Semiconducting YBaCuO Thin Films," Z. Çelik-Butler, P. C. Shan, D. P. Butler, A. Jahanzeb, C. M. Travers, W. Kula, R. Sobolewski, *Solid-State Electronics*, vol. 41, pp. 895-899, 1997. (6)
27. "Hall-Effect in Semiconducting Epitaxial and Amorphous Y-Ba-Cu-O Thin Films," P. C. Shan, A. Jahanzeb, D. P. Butler, Z. Çelik-Butler, W. Kula, and R. Sobolewski, *Journal of Applied Physics*, vol. 81, pp. 6866-6873, 1997. (6)
28. "Fabrication of Semiconducting YBaCuO Surface Micromachined Bolometer Arrays," C. M. Travers, A. Jahanzeb, D. P. Butler, Z. Çelik-Butler, *IEEE/ASME Journal of Microelectromechanical Systems*, vol. 6, pp. 271-276, 1997. (10)
29. "A Semiconductor YBaCuO Microbolometer for Room Temperature IR Imaging," A. Jahanzeb, C. M. Travers, Z. Çelik-Butler, D. P. Butler, and S. Tan, *IEEE Transactions on Electron Devices*, vol. 44, pp. 1795-1801, 1997. (30)
30. "Strong Pyroelectric Response in Semiconducting Y-Ba-Cu-O and its Application to Uncooled Infrared Detection," A. Jahanzeb, C. M. Travers, D. P. Butler, Z. Çelik-Butler, J. E. Gray. *Applied Physics Letters*, vol. 70, pp. 3495-3497, 1997. (10)
31. "Dielectric and Pyroelectric Response in Nb/ YBaCuO /Nb Heterostructures," J. E. Gray, Z. Çelik-Butler, D. P. Butler, *Ferroelectrics*, vol. 209, pp. 517-539, 1998. (7)
32. "Micromachined YBCO Capacitor Structures as Uncooled Pyroelectric Infrared Detectors," D. P. Butler, Z. Çelik-Butler, A. Jahanzeb, J. E. Gray, C. M. Travers, *Journal of Applied Physics*, vol. 84, pp. 1680-1687, 1998. (10)
33. "Semiconducting YBaCuO Pyroelectric Infrared Detectors on Suspended Si₃N₄ Films," J. Gray, D. P. Butler, and Z. Çelik-Butler, *Electronic Letters*, vol. 34, pp. 2164-2166, 1998. (2)
34. "Pyroelectric Effect in Y-Ba-Cu-O Thin Films Under Laser Illumination," D. P. Butler, Z. Çelik-Butler, R. Adam, and R. Sobolewski, *Journal of Applied Physics*, vol. 85, pp. 1075-1079, 1999. (5)
35. "MgO Sacrificial Layer for Micromachining Uncooled Y-Ba-Cu-O IR Microbolometers on Si₃N₄ Bridges," J. Gray, Z. Çelik-Butler, and D. P. Butler, *IEEE Journal of Microelectromechanical Systems*, vol. 8, pp. 192-199, 1999. (4)
36. "Channel Length Scaling of 1/f Noise in 0.18 μm Technology MDD n-MOSFETs," Z. Çelik-Butler, P. Vasina, *Solid State Electronics*, vol. 43, pp. 1695-1701, 1999. (11)
37. "Cryogenic Performance of Semiconducting Y-Ba-Cu-O for Infrared Detection," M. Almasri, D. P. Butler, Z. Çelik-Butler, R. Adam, R. Sobolewski, *Superconductor Science and Technology*, vol. 12, pp. 751-754, 1999.

38. "A Method for Locating the Position of Oxide Traps Responsible for Random Telegraph Signals in Sub-micron MOSFETs," Z. Çelik-Butler, P. Vasina, N. V. Amarasinghe, *IEEE Transactions on Electron Devices*, vol. 47, pp. 646-648, 2000. (9)
39. "Complex Random Telegraph Signals in 0.06 μm^2 MDD n-MOSFETs," N. V. Amarasinghe, and Z. Çelik-Butler, *Solid-State Electronics*, vol. 44, pp. 1013 – 1019, 2000. (11)
40. "Characterization of Oxide Traps in 0.15 μm^2 MOSFETs using RTS," N. V. Amarasinghe, Z. Çelik-Butler, P. Vasina, *Microelectronics Reliability*, vol. 40, pp. 1875-1881, 2000. (7)
41. "Effects of Quantization on RTS observed in 0.23 μm^2 MOSFETs," F. Wang, Z. Çelik-Butler, **Invited**, *Microelectronics Reliability*, vol. 40, pp. 1823 – 1831, 2000. (6)
42. "Room Temperature Semiconducting YBaCuO Microbolometers with Ti Absorber," A. Yaradanakul, Z. Çelik-Butler, and D. P. Butler, *International Journal of Advanced Manufacturing*, vol. 3(2) , pp. 13-27, 2000.
43. "An Improved Physics-Based 1/f Noise Model for Deep Sub-Micron MOSFETs," Fang Wang, and Z. Çelik-Butler, *Solid State Electronics*, vol. 45, pp. 351-367 2001. (8)
44. "Self-Supporting Infrared Microbolometers With Low-Thermal Mass," M. Almasri, D. P. Butler, and Z. Çelik-Butler, *IEEE/ASME Journal of Microelectromechanical Systems*, vol. 10, pp. 469-476, 2001. (8)
45. "Dielectric loss and related noise of pyroelectric modified lead titanate arrays," V. Leonov, D. P. Butler, Z. Çelik-Butler, K. R. Udayakumar, C. M. Hanson, and H. R. Beratan, *Solid State Electronics*, vol. 45, pp. 735-741, 2001. (8)
46. "Extraction of Oxide Trap Properties Using Temperature Dependence of Random Telegraph Signals in Sub-micron MOSFETs," N. V. Amarasinghe, Z. Çelik-Butler and A. Keshavarz, *Journal of Applied Physics*, vol. 89, pp. 5526-5532, 2001. (12)
47. "Low-Frequency Noise In Deep-Submicron Metal-Oxide Semiconductor Field-Effect Transistors," Z. Çelik-Butler, INVITED Special Topics on Noise in Semiconductors, *IEE Proceedings on Circuits, Devices and Systems*, vol. 149, pp. 23 – 31, 2002. (3)
48. "Investigation of Temperature Coefficient of Resistance and Crystallization of Semiconducting YBaCuO Thin Films Using Pulsed Laser Annealing," A. Yildiz, D. P. Butler, Z. Çelik-Butler, C-U Kim, *Journal of Vacuum Science and Technology B*, vol. 20, pp. 548 – 553, 2002. (2)
49. "Uncooled Infrared Microbolometers on a Flexible Substrate," A. Yaradanakul, D. P. Butler, and Z. Çelik-Butler, *IEEE Transactions on Electron Devices*, vol. 49, pp. 930 – 933, 2002.
50. "Uncooled Multi-Mirror Broadband Infrared Microbolometers," M. Almasri, Z. Çelik-Butler, D. P. Butler, Alp Yaradanakul, Ali Yildiz, *IEEE/ASME Journal of Microelectromechanical Systems*, vol. 11, pp. 528 – 535, 2002. (2)
51. "Temperature Dependence of 1/f Noise in Polysilicon Emitter Bipolar Transistors," E. Zhao, Z. Çelik-Butler, F. Thiel and R. Dutta, *IEEE Transactions on Electron Devices*, vol. 49, pp. 2230 – 2236, 2002. (8)
52. "Model for Random Telegraph Signals in Sub-Micron MOSFETs," N. V. Amarasinghe, Z. Çelik-Butler, F. Wang and A. Zlotnicka, *Solid State Electronics*, vol. 47, pp. 1443-1449, 2003. (3)

53. "Crystallization and Pyroelectric Effect of Semiconducting YBaCuO Thin Films Deposited on Substrates at Different Temperatures," A. Yildiz, D. Butler, Z. Çelik-Butler and, C.-U. Kim, *Journal of Vacuum Science and Technology B*, vol. 21, pp. 837-842, 2003.
54. "Microbolometers on a Flexible Substrate for Infrared Detection," A. Yildiz, Z. Çelik-Butler, D. P. Butler, *IEEE Sensors Journal*, vol. 4, pp. 112-117, 2004. (2)
55. "Origin of 1/f Noise in Lateral PNP Bipolar Transistors," E. Zhao, Z. Çelik-Butler, F. Thiel and R. Dutta, *Microelectronics Reliability*, vol. 44, pp. 89-94, 2004.
56. "Flexible Microbolometers Promise Smart Fabrics with Imbedded Sensors," A. Mahmood, D. P. Butler and Z. Çelik-Butler, *Laser Focus World*, pp. 99-103, April, 2004.
57. "Low-Frequency Noise in Sub-Micron MOSFETs with HfO_x, HfO₂/Al₂O₃ and HfAlO_x Gate Stacks," B. Min, S. P. Devireddy, Z. Çelik-Butler, F. Wang, A. Zlotnicka, H. H. Tseng and P. J. Tobin, *IEEE Transactions on Electron Devices* vol. 51, pp. 1679 - 1687, 2004. (3)
58. "Effect of Interfacial Oxide Thickness on 1/f Noise in Polysilicon Emitter BJTs," M. M. Hoque, Z. Çelik-Butler, D. Lan, D. Weiser, J. Trogolo, and K. Green, *IEEE Transactions on Electron Devices* vol. 51, pp. 1504-1513, 2004.
59. "Micromachined Infrared Bolometers on Flexible Polyimide Substrates," S. A. Dayeh, D. P. Butler and Z. Çelik-Butler, *Sensors and Actuators* vol. A118, pp. 49-56, 2005
60. "Low Frequency Noise Characteristics of HfSiON Gate-Dielectric MOSFETs, B. Min, S. P. Devireddy and Z. Çelik-Butler, L. Colombo, A. Shanware, K. Green, J. J. Chambers and M. R. Visokay, *Applied Physics Letters*, vol. 86, p. 082102, 2005.
61. "1/f Noise in PNP Polysilicon Emitter Bipolar Transistors," M. M. Ul Hoque, Z. Çelik-Butler, J. Trogolo, D. Weiser and K. Green, *Journal of Applied Physics*, vol. 97, p. 084501, 2005.
62. "Low Frequency Noise in TaSiN/ HfO₂ nMOSFETs and the Effect of Stress Relieved Pre-Oxide Interfacial Layer" S. P. Devireddy, B. Min, Z. Çelik-Butler, H.-H. Tseng, P. Tobin, F. Wang and A. Zlotnicka, *IEEE Transactions on Electron Devices*, vol. 53, pp. 538-544, 2006.
63. "Micromachined Bolometers on Polyimide," A. Mahmood, Z. Çelik-Butler, and D. Butler, accepted for publication in *Sensors and Actuators*.
64. "Impact of Interfacial Layer on Low Frequency Noise of HfSiON Dielectric MOSFETs," B. Min, S. P. Devireddy, Z. Çelik-Butler, A. Shanware, L. Colombo, K. Green, J. J. Chambers, M. R. Visokay, and A.L.P. Rotondaro, *IEEE Transactions on Electron Devices*, vol. 53, pp. 1459-1466, 2006.
65. "Dependence of Low Frequency Noise in SiGe Heterojunction Bipolar Transistors on the Dimensional and Structural Features of Extrinsic Regions," M. M. Ul Hoque, Z. Çelik-Butler, S. Martin, C. Knorr and C. Bulucea, accepted for publication in *Solid State Electronics*.
66. "Flexible Sensors: a Review," Z. Çelik-Butler and D. P. Butler, accepted for publication in *Journal of Nanoelectronics and Optoelectronics*.
67. "Improved Low Frequency Noise Characteristics of Sub-micron MOSFETs with TaSiN/TiN Gate on ALD HfO₂ Dielectric," S. P. Devireddy, B. Min and Z. Çelik-Butler, F. Wang, A. Zlotnicka, H. H. Tseng and P. J. Tobin, accepted for publication in *Microelectronics Reliability*.

68. "Micromachined Integrated Pressure-Thermal Sensors on Flexible Substrates," V. Shamanna, S. Das, Z. Çelik-Butler, D. P. Butler, and K. L. Lawrence accepted in *Journal of Micromechanics and Microengineering*.

Books and Book Chapters:

1. "Uncooled IR Detector Arrays," Z. Çelik-Butler and D. P. Butler, **Invited**, *Wiley Encyclopedia of Electrical and Electronics Engineering*, 1998 Edition, Editor: John G. Webster, ISBN: 0-471-13946-7.
2. "Yttrium Barium Copper Oxide as an Infrared Radiation Sensing Material" Z. Çelik-Butler, D. P. Butler and R. Sobolewski, **Invited**, *Handbook of Advanced Electronic and Photonic Materials* Vol. 3, Academic Press, 2000, Editor: H. S. Nalwa, ISBN: 0-12-513753-2.
3. "IR Detector Arrays, Uncooled," Z. Çelik-Butler and D. P. Butler, **Invited**, *Engineering Superconductivity*, Wiley-Interscience, 2001, Editor: Peter J. Lee, ISBN: 0-471-41116-7.
4. "Random Telegraph Signals in Deep Sub-Micron MOSFETs," Z. Çelik-Butler and N. V. Amarasinghe, **Invited** book chapter in *Noise and Fluctuation Control in Electronic Devices*, 2002, Editor: Alexander Balandin, ISBN: 1-58883-005-5.
5. "Smart Skin," Z. Çelik-Butler and D. P. Butler, book chapter submitted on March 31, 2006 to McGraw-Hill 2007 Yearbook of Science & Technology, **Invited**.

Electronic Publications:

1. "Room Temperature Operation of a YBaCuO Microbolometer," Z. Çelik-Butler, D. P. Butler, A. Jahanzeb, C. M. Travers, J. E. Gray, *SPIE CD-ROM series, Vol 1: Infrared Technology*. edited by Dr. Glenn D. Boreman, 1998.
2. "IR Detection at Room Temperature Using Semiconducting YBaCuO," D. P. Butler, A. Jahanzeb, P. C. Shan, C. M. Travers, Z. Çelik-Butler, *SPIE CD-ROM series, Vol 1: Infrared Technology*. edited by Dr. Glenn D. Boreman, 1998.
3. "Crystallization and Pyroelectric Effect of Semiconducting YBaCuO Thin Films Deposited on Substrates at Different Temperatures," A. Yildiz, D. Butler, Z. Çelik-Butler and, C.-U. Kim, *Virtual Journal of Applications of Superconductivity*, April 1, 2003.

Papers and Book Chapters in Review and Preparation:

1. "Self Packaged Micromachined Infrared Detectors," A. D. Dave, Z. Çelik-Butler, and D. P. Butler, submitted to *Sensors & Actuators* on May 2, 2006.
2. "Device Level Vacuum-Packaged Microbolometers," A. Mahmood, D. P. Butler and Z. Çelik-Butler, submitted to *IEEE Sensors Journal* on July 5, 2006.
3. "Smart Skin: Multifunctional Sensor Arrays on Flexible Substrates," Z. Çelik-Butler and D. P. Butler, *Encyclopedia of Nanoscience and Nanotechnology*, Edited by H. S. Nalwa, *Editor-in-Chief, Journal of Nanoscience and Nanotechnology*, in preparation.

Refereed Conference Papers: (These papers require review and acceptance by experts in the field.)

1. "Determination of Si-SiO₂ Interface Properties by Low-Temperature 1/f Noise Measurements," Z. Çelik-Butler, The Electrochemical Society-American Vacuum Society 7th Annual Symp. Electronic Materials, Processing and Characterization, Dallas, Texas, June 6-7, 1988.
2. "Characterization of Electromigration in VLSI Metallization Layers by Low-Frequency Noise Measurements," Z. Çelik-Butler and W. Yang, The Electrochemical Society-American Vacuum Society 8th Annual Symp. Electronic Materials, Processing and Characterization, Dallas, Texas, June 5-6, 1989.
3. "Detection of Electromigration in VLSI Metallization Layers by Low-Frequency Noise Measurements," Z. Çelik-Butler, W. Yang, H. H. Hoang, W. R. Hunter, *IEEE 1989 International Electron Devices Meeting (IEDM) Technical Digest*, p. 681, 1989.
4. "A Model for Electromigration and Low-Frequency Noise in Thin Metal Films," W. Yang, and Z. Çelik-Butler, The Electrochemical Society-American Vacuum Society 9th Annual Symp. Electronic Materials, Processing and Characterization, Dallas, Texas, June 4-5, 1990.
5. "Characterization of YBa₂Cu₃O_{7-δ} Thin Films By Low-Frequency Noise Measurements," S. M. Alamgir, Z. Çelik-Butler, W. Yang, J. Wang, and D. P. Butler, 1990 Applied Superconductivity Conference, Snowmass Village, Colorado, Sep. 24-28, 1990.
6. "Characterization of YBa₂Cu₃O_{7-δ} Thin Films Using Low-Frequency Noise Measurements," S. M. Alamgir, Z. Çelik-Butler, W. Yang, J. Wang, and D. P. Butler, The Electrochemical Society-American Vacuum Society 10th Annual Symp. Electronic Materials, Processing and Characterization, Dallas, Texas, June 3-4, 1991.
7. "Low-Frequency Noise Measurements on YBa₂Cu₃O_{7-δ} Thin Films," Z. Çelik-Butler, S. M. Alamgir, W. Yang, J. Wang, and D. P. Butler, *Proc. 1991 International Conference on Noise in Physical Systems and 1/f Fluctuations*, p. 27, Ed. T. Musha, S. Sato, M. Yamamoto, Kyoto, Japan, Nov. 24-27, 1991.
8. "Conversion Gain and Noise of YBa₂Cu₃O₇ Weak-Link Mixers," D. P. Butler, J. Wang, A. Bhandari, Z. Çelik-Butler, 1992 Applied Superconductivity Conference, Chicago, Illinois, Aug. 23 - 28, 1992.
9. "Investigation of Low-Frequency Noise and Electromigration Failure in Multilayered Metallizations," Z. Çelik-Butler, *Proc. 5th van der Ziel Symp. on Quantum 1/f Noise and Other Low-Frequency Fluctuations in Electronic Dev.*, St. Louis, Missouri, May 22-23, 1992, AIP Conference Proceedings 282, p. 49, 1992.
10. "Sources of 1/f Noise in HgCdTe Integrating MIS Capacitors," W. He, Z. Çelik-Butler, 12th International Conf. on Noise in Physical Systems and 1/f Fluctuations, August 16 - 20 1993, St. Louis, MO, *AIP Conference Proceedings 285*, p. 437, 1993.
11. "Low - Frequency Noise Measurements as a Characterization and Testing Tool in Microelectronics," Z. Çelik-Butler, **INVITED**, 12th International Conf. on Noise in Physical Systems and 1/f Fluctuations, August 16 - 20 1993, St. Louis, MO, *AIP Conference Proceedings 285*, p. 200, 1993.
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- Frequency Fluctuations in Electronic Dev., St. Louis, Missouri, May 27-28, 1994, *AIP Conference Proceedings* 371, p. 70, 1994.
13. "1/f Noise and Hall Effect Studies on YBa₂Cu₃O_{7- δ} Thin Films," A. Jahanzeb and Z. Çelik-Butler, 1994 Applied Superconductivity Conf., October 16 - 21, 1994, Boston, MA.
 14. "Low-Frequency Noise and Tunneling Currents in HgCdTe MIS Infrared Detectors," W. He and Z. Çelik-Butler, *Proc. 13th International Conf. on Noise in Physical Systems and 1/f Fluctuations*, pp. 499-502, Ed.: V. Bareikis, R. Katilius, May 29-June 2, 1995, Palanga, Lithuania.
 15. "Low-Frequency Fluctuations in Semiconducting and Superconducting YBa₂Cu₃O_x Thin Films," A. Jahanzeb, P. C. Shan, Z. Çelik-Butler and D. P. Butler, *Proc. 13th International Conf. on Noise in Physical Systems and 1/f Fluctuations*, pp. 115-118, Ed.: V. Bareikis, R. Katilius, May 29-June 2, 1995, Palanga, Lithuania.
 16. "IR Detection at Room Temperature Using Semiconducting YBaCuO," D. P. Butler, A. Jahanzeb, P. C. Shan, C. Travers, Z. Çelik-Butler, SPIE's International Symposium on Optical Science, Engineering, and Instrumentation, August 4-9, 1996, Denver, CO, published in *SPIE Proc. Vol. 2816, Infrared Detectors for Remote Sensing: Physics, Material and Devices*, Eds: R.E. Longshore and J. W. Baar, pp. 46-57, 1996.
 17. "Room Temperature Operation of a YBaCuO Microbolometer," Z. Çelik-Butler, D. P. Butler, A. Jahanzeb, C. M. Travers, J. E. Gray, SPIE's Photonics West'97, International Symposium on Photodetectors: Materials and Devices II, February 8 - 14, 1997, San Jose, CA, Published in *SPIE Proc. Vol. 2999, Photodetectors: Materials and Devices II*, Eds: G. J. Brown, M. Razeghi, 1997.
 18. "Noise in Semiconducting YBaCuO Microbolometers and its Implications," Z. Çelik-Butler, A. Jahanzeb, D. P. Butler, C. M. Travers, *Proc. Of 14th International Conference on Noise in Physical Systems and 1/f Fluctuations*, Editors: C. Claeys and E. Simoen. pp. 309-312. ICNF'97, July 14 - 18, 1997. Leuven, Belgium.
 19. "Uncooled Infrared Microbolometers and Pyroelectric Detectors Using Semiconducting YBCO," J. E. Gray, Z. Çelik-Butler, D. P. Butler, A. Jahanzeb, SPIE 43rd Annual Meeting, The International Symposium on Optical Science, Engineering and Instrumentation, Infrared Technology and Applications XXIV, July 19 - 24, 1998, San Diego, CA. Published in *SPIE Proc. Vol. 3436: Infrared Technology and Applications XXIV*, Eds: B. F. Andresen and M. Strojnik, pp. 555-566, 1998.
 20. "Noise in Sub-Micron MOSFETs," Z. Çelik-Butler, P. Vassina, C. Barros, **INVITED**, Proc. 7th van der Ziel Symp. on Quantum 1/f Noise and Other Low-Frequency Fluctuations in Electronic Dev., St. Louis, Missouri, August 7-8, 1998. , *AIP Conference Proceedings* 466, p. 84, 1999.
 21. "1/f Noise in 0.18 μ m Technology MDD n-MOSFETs", Z. Çelik-Butler, P. Vassina, **INVITED**, *Proc. Of 15th International Conference on Noise in Physical Systems and 1/f Fluctuations*, pp. 331-335, Editor: C. Surya. ICNF'99, August 23 - 26, 1999. Hong Kong.
 22. "Characterization of RTS in Deep Submicron MDD MOSFETs", Z. Çelik-Butler, N. V. Amarasinge, *Proc. Of 15th International Conference on Noise in Physical Systems and 1/f Fluctuations*, pp. 340-343, Editor: C. Surya. ICNF'99, August 23 - 26, 1999. Hong Kong.
 23. "Free Standing Amorphous Semiconducting YBaCuO Detectors for Uncooled IR Detection and the Effects of Doping", M. Almasri, D. P. Butler, and Z. Çelik-Butler, SPIE 44th Annual Meeting, The International Symposium on Optical Science, Engineering and Instrumentation, Growth and

- Characterization of Materials for IR Detectors III, 18-23 July 1999, Denver, Co. Published in *SPIE Proc. Vol. 3794: Materials and Electronics for High-Speed and Infrared Detectors*, Eds: S. M. Goodnick, W. F. Kailey, R. E. Longshore, and Y. H. Zhang, pp. 66-75, 1999.
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 25. "Cryogenic Performance of Semiconducting Y-Ba-Cu-O for Infrared Detection," M. Almasri, D.P. Butler, Z. Çelik-Butler, R. Adam, R. Sobolewski, International Superconductive Electronics Conference (ISEC'99) Berkeley, CA, June 21-26, 1999.
 26. "Uncooled YBaCuO Microbolometers for Advanced Broad-Band IR and FIR Radiation Detection," D. P. Butler, and Z. Çelik-Butler, NanoSpace 2000. *Proc. of NanoSpace 2000*, available on CDROM by NASA. League City, Texas. January 23 – 28, 2000.
 27. "Cooled and uncooled Infrared detectors based on Yttrium Barium Copper Oxide," R. Sobolewski, D. P. Butler, Z. Çelik-Butler, Proc. The International Conference on Advanced Optical Materials and Devices, Vilnius, Lithuania, August 16 – 19, 2000.
 28. "Semiconducting YBaCuO Bolometers for Uncooled IR Detection," D.P. Butler, M. Almasri, and Z. Celik-Butler, 14th SPIE Annual International Symposium on Aerospace/Defense Sensing, Simulation, and Controls (AEROSENSE): Infrared Detectors and Focal Plane arrays VI, Ed: E. L. Dereniak, Orlando, FL, 24-28 April, 2000, *SPIE*, vol. 4028, pp 17-26, 2000.
 29. "Temperature Dependence of RTS Noise in Sub-micron MOSFETs," Z. Çelik-Butler and N. V. Amarasinghe, INVITED, Proc. 8th van der Ziel Symp. on Quantum 1/f Noise and Other Low-Frequency Fluctuations in Electronic Dev., St. Louis, Missouri, June 6-7, 2000.
 30. "Mismatch and Flicker Noise Characterization of Tantalum Nitride Thin film Resistors for Wireless Applications," H. Thibieroz, P. Shaner, Z. Çelik-Butler, International Conference on Microelectronic Test Structures (ICMTS), Kobe, Japan, March 20 – 22, 2001.
 31. "YBaCuO Microbolometers for Broad-band IR Sensing," Z. Çelik-Butler, D. P. Butler, M. Almasri, A. Yardanakul, A. Yildiz, SPIE Annual International Symposium on Aerospace/Defense Sensing, Simulation, and Controls (AEROSENSE): Infrared Technology and Applications XXVII, Ed: Gabor Fulop, Orlando, FL, April 16 - 20, 2001, *SPIE*, vol. 4369, pp. 264-273, 2001.
 32. "Fabrication of Micromachined Devices on Flexible Substrates," A. Yaradanakul, A. Yildiz, D. P. Butler, and Z. Çelik-Butler, IEEE Emerging Technologies Symposium on Broad-Band Communications for the Internet Era, Richardson, TX, September 10-11, 2001.
 33. "Effects of Charge Quantization on Random Telegraph Signals in Deep-Sub-micron MOSFETs" Z. Çelik-Butler, INVITED, 16th International Conference on Noise in Physical Systems and 1/f Fluctuations, Gainesville, FL, October 22 – 25, 2001.
 34. "Model for RTS Noise in Sub-micron MOSFETs" Z. Çelik-Butler, N. V. Amarasinghe, H. Thibieroz, A. Zlotnicka, 16th International Conference on Noise in Physical Systems and 1/f Fluctuations, Gainesville, FL, October 22 – 25, 2001.
 35. "Infrared Sensors on Flexible Substrates for Smart Skin," Z. Çelik-Butler, D. P. Butler, A. Yardanakul, A. Yildiz, SPIE Annual International Symposium on Aerospace/Defense Sensing, Simulation, and Controls (AEROSENSE): Infrared Detectors and Focal Plane Arrays VII, Ed: E. L. Dereniak, R. E. Sampson, Orlando, FL, April 1 - 5, 2002, *SPIE*, vol. 4721, pp. 260-268, 2002.

36. "Uncooled Micromachined Bolometer Arrays on Flexible Substrates," D. P. Butler, Shadi A. Dayeh, Z. Çelik-Butler, and Patty Wisian-Neilson, SPIE Annual International Symposium on Aerospace/Defense Sensing, Simulation, and Controls (AEROSENSE); Infrared Technology and Applications XXIX, Orlando, FL, April 21-25, 2003.
37. "1/f Noise and RTS in Advanced Bipolar Technologies," Z. Çelik-Butler, MD M. Hoque, E. Zhao, D. Lan, D. Weiser, K. Green, J. Trogolo, **INVITED**, *SPIE Fluctuations and Noise, Noise in Devices and Circuits*, Santa Fe, NM, June 1 – 4, 2003, *Proc. SPIE* vol. 5113, pp. 120-132, 2003, Ed: M. J. Deen, Z. Çelik-Butler and M. E. Levinshtein.
38. "The Effect of Fluctuations in the Interface Recombination Current on 1/f Noise of Gated Lateral BJTs," G. Romas, MD M. Hoque, and Z. Çelik-Butler, *SPIE Fluctuations and Noise, Noise in Devices and Circuits*, Santa Fe, NM, June 1 – 4, 2003, *Proc. SPIE* vol. 5113, pp. 147-158, 2003, Ed: M. J. Deen, Z. Çelik-Butler and M. E. Levinshtein.
39. "Advanced Experimental Methods for Noise Research in Nanoscale Electronic Devices," Z. Çelik-Butler, **INVITED**, NATO-Advanced Research Workshop, Brno University of Technology, Czech Republic, August 14-16, 2003.
40. "Temperature Dependence of 1/f Noise in Poly-emitter and Lateral BJTs" Z. Çelik-Butler, E. Zhao, F. Thiel, and R. Dutta, **INVITED**, *17th International Conference on Noise and Fluctuations*, pp. 371-379, Prague, Czech Republic, August 18-22, 2003.
41. "Modeling of RTS in Nanoscale MOSFETs" Z. Çelik-Butler, E. Zhao, F. Thiel, and R. Dutta, *17th International Conference on Noise and Fluctuations*, pp. 313-316, Prague, Czech Republic, August 18-22, 2003.
42. "Micromachined Infrared Sensor Arrays on Flexible Polyimide Substrates," A. Mahmood, S. Dayeh, D. P. Butler, and Z. Çelik-Butler, *IEEE Emerging Telecommunication Technologies Symposium*, Richardson, TX, September 26-27, 2003.
43. "Micromachined Infrared Sensor Arrays on Flexible Polyimide Substrates," A. Mahmood, S. Dayeh, D. P. Butler and Z. Çelik-Butler, *IEEE International Conference on Sensors*, Toronto, Canada, October 22 – 24, 2003.
44. "Wafer Level Self-Packaged Infrared Microsensors," A. Dave, A. Mahmood, Z. Çelik-Butler and D. P. Butler, *Proc. SPIE Defense and Security Symposium; Infrared Technology and Applications XXX*, vol. 5406, pp. 473-482, Orlando, FL, April 12-16, 2004.
45. "Micromachined Infrared Sensors with Device-Level Encapsulation" A. Dave, Z. Çelik-Butler and D. P. Butler, *Proc. SPIE Defense and Security Symposium; Infrared Technology and Applications XXXI*, vol. 5783, pp. 460-479, Orlando, FL, March 28 – April 1, 2005.
46. "Low frequency noise characteristics of TaSiN/HfO₂/SRPO SiO₂ MOSFETs," S. P. Devireddy, Z. Çelik-Butler, H.-H. Tseng, P. J. Tobin, F. Wang and A. Zlotnicka, *Proc. 18th International Conference on Noise and Fluctuations*, pp. 311-314, September 19-23, 2005; Salamanca, Spain.
47. "Effect of base/collector implant and emitter-poly overlap on low frequency noise in SiGe HBTs," M. M. Ul Hoque, Z. Çelik-Butler, S. Martin, C. Knorr and C. Bulucea, *Proc. 18th International Conference on Noise and Fluctuations*, pp. 261-264, September 19-23, 2005; Salamanca, Spain.
48. "Different Noise Mechanisms in High-k Dielectric Gate Stacks," Z. Çelik-Butler, **INVITED**, *Proc. SPIE Fluctuations and Noise, Noise in Devices and Circuits*, vol. 5844, pp. 177-184, Austin, TX, May 24-26, 2005.

49. "Flicker Noise in Nitrided High-k Dielectric NMOS Transistors," B. Min, S. V. Devireddy, Z. Celik Butler, A. Shanware, K. Green, J. Chambers, M. Visokay, L. Colombo, *Proc. SPIE Fluctuations and Noise, Noise in Devices and Circuits*, vol. 5844, pp. 31-40, Austin, TX, May 24-26, 2005.
50. "Comparison of 1/f noise in complementary NPN and PNP polysilicon emitter bipolar transistors," M. M. Hoque, Z. Çelik Butler, J. Trogolo, D. Weiser and K. Green, *Proc. SPIE Fluctuations and Noise, Noise in Devices and Circuits*, vol. 5844, pp. 120-131, Austin, TX, May 24-26, 2005.
51. "Flicker Noise characteristics of MOSFETs with HfO₂, HfAlO_x and Al₂O₃/HfO₂ gate dielectrics," S. P. Devireddy, B. Min, Z. Celik Butler, F. Wang, A. Zlotnicka, H.-H. Tseng, and P. J. Tobin, *Proc. SPIE Fluctuations and Noise, Noise in Devices and Circuits*, vol. 5844, pp. 208-217, Austin, TX, May 24-26, 2005.
52. "Device-level vacuum packaged micromachined infrared detectors on flexible substrates" A. Mahmood, D. P. Butler, Z. Çelik-Butler, Proc. IEEE Sensors Conf., Irvine, CA, Oct. 31 – Nov 3, 2005.

Other Conference Papers: (These papers require review and acceptance by the conference technical committee, not external reviewers)

53. "1/f Noise Measurements in Short Channel MOSFETs," Z. Çelik and T. Y. Hsiang, March Meeting of the American Physical Society, Baltimore, Maryland, March 25–29, 1985. *Bulletin of the American Physical Society*, vol. 30, p. 611, 1985.
54. "Gate Bias Dependence of 1/f Noise in N-Channel MOSFETs," Z. Çelik, Conf. IEEE Electron Device Activities in Western New York, Rochester, NY, 8 October 1985.
55. "Characterization of HgCdTe-ZnS Interface by Low-Frequency Noise Measurements," S. Alamgir, and Z. Çelik-Butler, March Meeting of the American Physical Society, March 11-16, 1990. *Bulletin of the American Physical Society*, vol. 35, p. 520, 1990.
56. "The Theory of Electromigration and 1/f^γ Noise in Thin Metal Films," W. Yang, and Z. Çelik-Butler, March Meeting of the American Physical Society, March 11-16, 1990. *Bulletin of the American Physical Society*, vol. 35, p. 444, 1990.
57. "Microwave Mixing with YBa₂Cu₃O₇ Microbridges", D. P. Butler, J. Wang, A. Bhandari, Z. Çelik-Butler, 1992 Spring Meeting of the American Physical Society Texas Section, San Marcos, Texas, March 6-7, 1992. *Bulletin of the American Physical Society*, vol. 37, p. 1901, December 1992.
58. "Frequency Conversion with High-T_c Superconducting Microbridges," J. Wang, D. P. Butler, and Z. Çelik-Butler, March Meeting of the American Physical Society, March 22- 26, 1993, Seattle, WA. *Bulletin of the American Physical Society*, vol. 38, p. 688, 1993.
59. "Extraction of HgCdTe-ZnS Interface Trap Density in MIS Capacitors Using 1/f Noise Measurements." W. He and Z. Çelik-Butler, March Meeting of the American Physical Society, March 22- 26, 1993, Seattle, WA. *Bulletin of the American Physical Society*, vol. 38, p. 644, 1993.
60. "Dark Current Dependence of 1/f Noise in HgCdTe MIS Infrared Detectors," W. He, Z. Çelik-Butler, March Meeting of the American Physical Society, Pittsburgh, PA, March 21–25, 1994. *Bulletin of the American Physical Society*, vol. 39, p. 759, 1994.

61. "Infrared Detection with Semiconducting YBaCuO," Z. Çelik-Butler, Invited Contributor, National Science Foundation Conference on Women & Science, December 13 - 15, 1995, Washington DC.
62. "Semiconducting YBaCuO Films for Room Temperature Bolometric Applications," A. Jahanzeb, Z. Çelik-Butler, D. P. Butler, P. C. Shan, 1996 Spring Meeting of the Materials Research Society, April 8 - 12, 1996, San Francisco, California.
63. "Room Temperature Microbolometers with Ti Absorber," Z. Çelik-Butler, A. Yaradanakul, and D. P. Butler, TEXMEMS II, Dallas, Texas, May 16th, 2000.
64. "Self-Supporting Semiconducting YBaCuO Uncooled IR Detectors," M. Almasri, D. P. Butler, and Z. Çelik-Butler, TEXMEMS II, Dallas, Texas, May 16th, 2000.
65. "Multi-color Uncooled Thermal Focal Plane Array with Thermal MEM-Chopping," V. N. Leonov, Z. Çelik-Butler and D. P. Butler, TEXMEMS II, Dallas, Texas, May 16th, 2000.
66. "Uncooled Microbolometers Based on Semiconducting YBaCuO for Broad-Band IR Radiation Detection," D. P. Butler, Z. Çelik-Butler, M. Almasri, A. Yaradanakul, A. Yildiz, NanoTech 2000, Houston, TX, Sept. 24-28 2000.
67. "Uncooled Semiconducting YBaCuO Microbolometers for Visible through FIR Detection, M. Almasri, D. P. Butler, Z. Çelik-Butler, A. Yildiz, and A. Yaradanakul, TEXMEMS III, Dallas, Texas, June 7th, 2001.
68. "Room Temperature Infrared Microbolometers on a Flexible Substrate," A. Yaradanakul, Z. Çelik-Butler, and D. P. Butler, TEXMEMS III, Dallas, Texas, June 7th, 2001.
69. "Semiconducting YBaCuO Infrared Microbolometers on a Flexible Substrate," A. Yildiz, Z. Çelik-Butler, and D. P. Butler, TEXMEMS IV, Lubbock, Texas, July 11th, 2002.
70. "Uncooled Semiconducting YBaCuO Microbolometers on Rough Substrates," S. Dayeh, D. P. Butler, Z. Çelik-Butler, and Ali Yildiz, TEXMEMS IV, Lubbock, Texas, July 11th, 2002.
71. "Micromachined Infrared Microsensors on a Flexible Substrate," S. A. Dayeh, Z. Çelik-Butler and D. P. Butler, TEXMEMS V, University of Texas at Arlington, Texas, May 6th, 2003.
72. "Surface Micromachined Microbolometers on Polyimide (PI) Substrates," A. Mahmood, D. P. Butler, Z. Çelik-Butler, TEXMEMS V, University of Texas at Arlington, Texas, May 6th, 2003.
73. "Surface Micromachined Infrared Microsensors with Wafer-Level Encapsulation," Aasutosh Dave, Z. Çelik-Butler and D. P. Butler, TEXMEMS VI, Texas A&M University, Texas, Sept. 9th, 2004.
74. "Integrated Pressure and Infrared Sensors on Flexible Substrates for Smart Skin Applications," S. Das, V. Shamanna, Z. Çelik-Butler and D. P. Butler, TEXMEMS VI, Texas A&M University, Texas, Sept. 9th, 2004.
75. "Device level vacuum packaged micromachined microbolometers on flexible substrates," A. Mahmood, D. P. Butler and Z. Çelik-Butler, TEXMEMS VI, Texas A&M University, Texas, Sept. 9th, 2004.

Invited Talks Outside of Conferences:

1. "Low-Frequency Noise Measurements as a Characterization and Testing Tool in VLSI Systems," IEEE Electron Device Society-Dallas Section Meeting; Dallas, Texas, September 21, 1989.

2. "Low-Frequency Noise Techniques for Characterization and Testing in VLSI Circuits," Rochester Section of IEEE - Annual Joint Chapters Seminar, Rochester, New York, February 15, 1990.
3. "Low - Frequency Noise Measurements as a Characterization and Testing Tool in Microelectronics," Z. Çelik-Butler, 12th International Conf. on Noise in Physical Systems and 1/f Fluctuations, August 16 - 20 1993, St. Louis, MO.
4. "Infrared Imaging Research at Southern Methodist University," Technical Club of Dallas, November 19, 1996, Dallas, TX.
5. "Noise in Semiconductor Devices" IEEE TechCon'98 Region 5, April 17, 1998, Forth Worth, TX.
6. "Infrared Detection Research at SMU", Sigma Xi Lecture Series Invited Speaker, December 2, 1998, Dallas TX.
7. "1/f Noise in Deep Sub-Micron MOSFETs" University of North Texas, Materials Science Department, November 10, 1999.
8. "Micromachined Broad-Band Y-Ba-Cu-O Bolometers," Z. Çelik-Butler, D. P. Butler, M. Almasri, A. Yaradanakul and A. Yildiz, IEEE MetroCon, September 27, 2000.
9. "Noise Modeling of Advanced MOSFETs for Mixed Signal Applications" Texas Instruments, January 17, 2001.
10. "YBaCuO microbolometers for broad-band IR sensing," IEEE-Microwave Theory and Techniques invited speaker – Electron Devices Society Distinguished Lecture, Dallas, TX, February 21, 2001.
11. "Random Telegraph Signal Noise Modeling in MOSFETs," Compact Modeling Council, Embassy Suites Hotel, Dallas TX, March 25, 2001.
12. "Noise Measurements and Modeling on Advanced Sub-Micron MOSFETs," IEEE Electron Devices Society Distinguished Lecture, Orlando, FL, April 18, 2001.
13. "Measurements and Modeling of Random Telegraph Signals in Sub-micron MOSFETs," IEEE Gainesville Section, EDS Distinguished Lecture, University Florida in Gainesville, FL, April 24, 2001.
14. "Noise and Reliability in Advanced Microelectronic and Nanoelectronic Devices," IEEE-Maine Section, EDS Distinguished Lecture, National Semiconductor, Portland, ME, August 9, 2002.
15. "Noise Modeling in Nanoscale Devices," Texas Systems Day, University of Texas at Arlington, September 28, 2002.
16. "Women Faculty in Engineering, Great Strides, Some set-Backs," IEEE-Women in Engineering Forum, Fairmont Hotel, Dallas TX, February 12, 2003.
17. "Advanced Experimental Methods for Noise Research in Nanoscale Electronic Devices," *NATO Advanced Research Workshop*, Brno, Czech Republic, August 14 - 16, 2003.
18. "Noise and Reliability in Advanced Microelectronic and Nanoelectronic Devices," IEEE-EDS Distinguished Lecture, University of Toronto, Toronto, Canada, July 22, 2003.
19. "Smart Skin," Mid-Cities Technical Club Meeting, Arlington, TX, March 3, 2004

20. "Progress Report on Strategic Partnership for Research in Nanotechnology (SPRING), UTA," Air Force Office of Scientific Research Program Review, Morgantown WV, August 5, 2004.
21. "Smart Skin: Multifunctional Sensory Arrays on Flexible Substrates," Strategic Partnership for Research in Nanotechnology (SPRING) Workshop II, University of Texas at Dallas, November 12, 2004
22. "Noise and Reliability of High-k Gate Stacks," IEEE-EDS Distinguished Lecture, Pickle Center, UT-Austin, May 26, 2005.
23. "Measurements and Modeling of Low-Frequency Noise in Advanced CMOS and Bipolar Technologies," Semiconductor Research Corporation e-Workshop, May 19, 2005.
24. "Noise and Reliability of High-k Dielectric Stacks," IEEE Metrocon, Fort Worth TX, September 14, 2005.
25. "Smart Skin: Multisensory Arrays on Flexible Substrates," Freescale Semiconductor Co., Tempe, AZ, January 13, 2006.
26. "Self Packaged Flexible Electronics, IEEE-EDS Distinguished Lecture, Tempe AZ, January 13, 2006.
27. "Nano-Bio Interface," BIODFW Regional Alliance, Southwestern Medical Center, Dallas TX, April 20, 2006.

Published Reviews:

1. "Review of *Semiconductor Fundamentals-Modular Series on Solid-State Devices Vol. 1*", Z. Celik-Butler, IEEE Circuits and Devices, vol. 6, No: 1, p. 50, 1990.

Publicity Related to Work:

1. "Infrared detector uses YBaCuO as active material -- Well-known superconductor has ideal characteristics for night-vision applications," By Gail Robinson, EE Times, December 1, 1997.
2. "Yttrium-based material forms uncooled IR detectors," By Kristin Lewotsky, Photonics Online, January 26, 1998.
3. "Thin films make new IR detector," Optical Materials and Engineering News, February 1998.
4. "Infrared innovation," By Alan Goldstein, Dallas Morning News, Business Section, March 23, 1998.
5. "Demand for 'uncool' infrared imaging heats up," Technology Business, Nov/Dec 1998.
6. "Uncooled IR Detector Could Enable Cheaper Cameras," Photonics Technology World, Michael D. Wheeler, March 1999.
7. "Alumnus-Alumna, Husband-Wife Team Flourish in Academia," University of Rochester ECE Network- 2000/2001, March 2001.
8. "SMU Peels Back Layers of 'Smart Skin' Project," Dallas-FortWorth TechBiz, Pavan Lall, September 3, 2001.
9. "Smaller, Smaller, Smallest," SMU Daily Campus, De'Borah Bankston, September 6, 2001.
10. "Professors' Project Gives NASA a 'FIRST' ", SMU Daily Campus, De'Borah Bankston, September 25, 2001.
11. "Detect and Defend," Dallas Morning News, Alexandra Witze, December 31, 2001.
12. "Researchers Hope to Make Second Skin," Shorthorn, Mark Barrera, October 2, 2002.

13. "UTA Researchers Develop Sensors to Think Smart," Fort Worth Business Press, Gail Bennison, January 30, 2004.
14. "Beyond Sensible Shoes, Flexible Fabric of Microsensors May Lead to Smart Clothing," PC Magazine Alexandra Robbins, March 22, 2004.
15. "Akıllı giysi mucidi Türk," Sabah Newspaper, Turkey, Dilek Şanlı, March 24, 2004.
16. KTVT/CBS Channel 11 News Story "Smart Skin," 7 March 2004.
17. "Smart Skin," PC Magazine Special Double Issue: The Top Technologies to Watch, Cade Metz, p. 111, July 2004.
18. "High Profile – Zeynep Çelik-Butler," Dallas Morning News, Alexandra Witze, May 22, 2005.

Grants and Contracts:

Current Grants and Contracts:

1. Principal Investigator, (with Donald P. Butler) "Self-Packaged MEMS Devices," Semiconductor Research Corporation, June 1, 2006 – May 31, 2009, \$180,000.
2. Principal Investigator, (with John Priest) "Pre-Concept Design and Manufacturing Cost Study of Smart CPR Sensors, Laerdal Co., March 10, 2006 – June 30, 2006.
3. Principal Investigator, (with Donald P. Butler) "Electronic Sensitive Skin with Integrated Tactile, Infrared, Flow Sensors on Flexible Substrates," National Science Foundation, August 15, 2004 – July 31, 2007, \$211,449.
4. Principal Investigator, "Noise Modeling at Quantum Level for Advanced CMOS Technologies, Semiconductor Research Corporation, April 1, 2004 – March 31, 2007, \$180,000.
5. Principal Investigator, "Analysis and Modeling of Interface Generated Noise in High-k Dielectric Gate Stacks," Texas Higher Education Coordinating Board, Advanced Technology Program, January 1, 2004 – August 31, 2006, \$135,930.

Completed Grants and Contracts:

1. Principal Investigator, "Measurements and Modeling of Noise in Advanced Bipolar Technologies," Texas Instruments – SRC – August 1, 2001 – December 31, 2005, \$210,000+\$35,342+ \$40,000.
2. Principal Co-Investigator, (with Donald P. Butler) "Semiconducting YBaCuO Uncooled Focal Plane Arrays," Air Force Office of Research / Missile Defense Agency, January 1, 2003 – December 31, 2005, \$181,806.
3. Principal Co-Investigator, (with Donald P. Butler) "Antenna Couple Infrared Detectors," Lockheed Martin Co, November 1, 2004 – May 30, 2005, \$30,370.
4. Principal Co-Investigator, (with Donald P. Butler) "Self-Packaged Flexible Electronics" Semiconductor Research Corporation, January 1, 2005-December 31, 2005, \$40,000.
5. Principal Co-Investigator, (with Donald P. Butler), "Antenna Coupled Microbolometers" Lockheed Martin Co., November 1, 2004 – May 30, 2005. \$30,370.
6. Principal Co-Investigator, (with Donald P. Butler and Patty Wisian-Neilson), "Micromachined Infrared Sensors on Flexible Substrates" National Science Foundation, August 1, 2001 – December 31, 2004. \$300,000.

7. Principal Investigator, "Compact, Scalable Computer Models for Noise in Advanced CMOS and Bipolar Technologies," Texas Higher Education Coordinating Board, Advanced Technology Program, January 1, 2002 – August 31, 2004, \$148,290.
8. Principal Investigator, "Noise Performance and Modeling of Bipolar Transistors," Legerity, March 1, 2001- December 31, 2002, \$47,263.
9. Principal Co-Investigator, (with Donald P. Butler), "Broad-Band Pyroelectric IR Detectors For FIRST (Far-Infrared Spectroscopy of the Troposphere) Program", NASA-Langley Research Center, September 7, 2001 – August 31, 2002, \$261,000.
10. Principal Co-Investigator, (with Donald P. Butler), "Small Grants for Exploratory Research (SGER): Sensors on Flexible Substrates for Smart Skin," National Science Foundation, October 1, 2000 – March 31, 2002. \$70,000.
11. Principal Co-Investigator, (with Donald P. Butler), "Short Term Innovative Research on Sensors on Flexible Substrates," Army Research Office, October 1, 2000 – June 30, 2001. \$19,958.
12. Principal Investigator, "Noise Performance and Modeling of Sub-Micron MOSFETs," Motorola, March 15, 2000 – August 31, 2001, \$44,882.
13. Principal Investigator, (with Donald P. Butler), "Uncooled Yttrium Barium Copper Oxide Thermal Detectors for Advanced Broad-Band IR and FIR Radiation Detection", NASA, September 27, 1999 – November 30, 2000, \$110,122.
14. Principal Co-Investigator, (with Donald P. Butler), "GOALI: Systems Integration of Uncooled YBaCuO IR Detectors," National Science Foundation, September 1, 1998 - August 31, 2001, \$199,908.

Principal Co-Investigator, (with Donald P. Butler), "Investigation of Dielectric and Pyroelectric Properties of Semiconducting YBaCuO for Uncooled IR Detection," Army Research Office, September 1, 1998 - August 31, 2001. (partially funded at the level of \$50,000, MIPRed through NSF).

Principal Investigator, (with Donald P. Butler), Research Experience for Undergraduates Supplemental Grant for GOALI: Systems Integration of Uncooled YBaCuO IR Detectors,, National Science Foundation, January 1, 1999 - August 31, 2001, \$10,000.
15. Principal Investigator, "Measurements and Modeling of Noise in Next Generation Sub-micron MOSFETs," National Science Foundation, June 1, 1998 - May 31, 2001, \$127,054.

Principal Investigator, Research Experience for Undergraduates Supplemental Grant for Measurements and Modeling of Noise in Next Generation Sub-micron MOSFETs, National Science Foundation, January 1, 1999 - May 31, 2001, \$10,000.
16. Principal Co-Investigator, (with Donald P. Butler), "Noise Performance of Thermally Isolated Pyroelectric Infrared Detectors," Raytheon/TI Systems, July 1, 1998 – July 31, 2000. \$96,222.
17. Principal Co-Investigator, (with Donald P. Butler), "Acquisition of Laser Ablation System", National Science Foundation, Academic Research Infrastructure, Sep. 1996 - Aug. 1999, \$155,000.

Principal Co-Investigator, (with Donald P. Butler), Research Experience for Undergraduates Supplemental Grant I, National Science Foundation, January 1997 - August 1999, \$9,994.

Principal Co-Investigator, (with Donald P. Butler), Research Experience for Undergraduates Supplemental Grant II, National Science Foundation (Continuation), Jan. 1998 - August 1999, \$10,000.

18. Principal Investigator, "Measurements and Modeling of Noise in MOSFETs," Texas Instruments, June 1, 1997 - May 31, 1999, \$15,000.

19. Principal Investigator, "Measurements and Modeling of Noise in MOSFETs, Phase II" Texas Instruments, January 1998 - May 31, 1999, \$15,000 (continuation).

20. Principal Co-Investigator, (with Donald P. Butler), "Uncooled Infrared Detection with $\text{YBa}_2\text{Cu}_3\text{O}_x$ Thin Films," National Science Foundation, March. 1995 - October 1998. \$273,527.

Principal Co-Investigator, (with Donald P. Butler), "Uncooled Infrared Detection with $\text{YBa}_2\text{Cu}_3\text{O}_x$ Thin Films," Army Research Office, May 15, 1995 - October 31, 1998. \$36,769.

Principal Co-Investigator, (with Donald P. Butler), Research Experience for Undergraduates Supplemental Grant I, National Science Foundation, Nov. 1995 - October 31, 1998, \$9,994.

Principal Co-Investigator, (with Donald P. Butler), Research Experience for Undergraduates Supplemental Grant II, National Science Foundation (Continuation), Nov. 1996 - October 31, 1998, \$9,994.

Principal Co-Investigator, (with Donald P. Butler), Research Experience for Undergraduates Supplemental Grant III, National Science Foundation (Continuation), Jan. 1998 - October 31, 1998, \$3,250.

21. Principal Co-Investigator, (with Donald P. Butler), "Systems Integration of SMU YBaCuO Infrared Detectors with MSI Technology," Midwest Superconductivity Inc., April 15, 1998 - December 31, 1998, \$25,826 with an option of additional \$10,045.

22. Principal Co-Investigator, (with Donald P. Butler), " $\text{YBa}_2\text{Cu}_3\text{O}_x$ Thin Film Bolometers for Room Temperature Infrared Detection," National Science Foundation, Sept. 1994 - Feb. 1996. \$49,455.

Principal Co-Investigator, (with Donald P. Butler), Research Experience for Undergraduates Supplemental Grant, National Science Foundation, Jan. 1995 - Feb. 1996, \$10,000.

23. Principal Investigator, "Low-Frequency Noise Measurements as a Characterization and Testing Tool in Solid-State Devices," National Science Foundation, Sep. 1992 - Feb. 1995, \$195,025.

Principal Investigator, Research Experience for Undergraduates Supplemental Grant, National Science Foundation, Jan. 1993 - Dec. 1993, \$10,000.

24. Principal Investigator, "Noise and Performance of HgCdTe Infrared Detectors," Texas Higher Education Coordinating Board, Advanced Technology Program, Jan. 1992-Dec. 1993, \$142,000 (excluding indirect charges).

- Principal Investigator, Supplemental Grant for Under-represented Minorities, Advanced Technology Program, Sep. 1992-May 1994, \$9,388
25. Principal Investigator, "Detection of Electromigration in VLSI Metallization Layers by Low-Frequency Noise Measurements," Texas Higher Education Coordinating Board, Advanced Technology Program, Jan. 1990-Aug. 1992, \$130,812 (excluding indirect charges).
 26. Principal Co-Investigator (with Donald P. Butler), "High T_c Superconductor Millimeter Wave Detectors and Mixers," Texas Higher Education Coordinating Board, Advanced Technology Program, Jan. 1990-Aug. 1992, \$181,347 (excluding indirect charges).
 27. Supporting Investigator, (P.I.: Milton Gosney) "Engineering Research Equipment: DC / Low-Frequency Device Characterization Equipment," National Science Foundation, Aug. 1991-July 1992, \$52,607.
 28. Principal Investigator, "Fabrication of High T_c Superconductor Thin-Film Microbridges for Millimeter-Wave Detection and Mixing," National Science Foundation, Career Advancement Award, Sep. 1989-Dec. 1990, \$54,674.
 29. Principal Investigator, "Characterization of Electromigration in VLSI Metallizations by Low-Frequency Noise Measurements," Texas Instruments, Sep. 1989-Dec. 1991, \$43,282 .
 30. Principal Investigator, "The Origin of $1/f$ Noise in $Hg_{1-x}Cd_xTe$ Devices," Texas Instruments, June 1989-Aug. 1991, \$23,000 (excluding indirect charges).
 31. Principal Investigator, " $1/f$ Noise in $Hg_{1-x}Cd_xTe$ Devices," Texas Instruments, June 1988-Sep. 1989, \$20,000 (excluding indirect charges).
 32. Principal Investigator, "Electromigration and $1/f$ Noise Measurements in VLSI Metallizations," Texas Instruments, Sep. 1988-Aug. 1989, \$15,000 (excluding indirect charges).
 25. Principal Investigator, Southern Methodist University Seed Grant, June 1988, \$2,000.
 26. Principal Investigator, Southern Methodist University, School of Engineering and Applied Science Research Start-up Grant., Sep. 1987, \$20,000.

New Laboratories Set-up:

1. Microsensors Laboratory: Two low-temperature Dewars, two closed-cycle Li-He refrigerators, various cryogenic inserts, microprocessor-based programmable temperature controllers, temperature sensors, multimeters, oscilloscopes, power supplies, pulse generators and fiber optic instrumentation support the low temperature device characterization and superconductivity research. The optical characterization facilities include an Oriel MS257 spectrometer/monochromator, two IR sources, a calibrated pyroelectric detector, various fiberoptic components, laser diodes and Oriel 7 GHz photodiodes. The monochromator/spectrometer and IR sources allow the characterization of devices and materials from 1 - 12 μm . Four computer workstations are used as system controllers for data acquisition and modeling. (with Donald P. Butler)
2. Noise and Reliability Laboratory: This facility is used for the computerized I-V, C-V, and noise characterization of devices. It consists of two dynamic signal analyzers, lock-in amplifiers, various programmable multimeters, programmable LCR meters, plotters and printers, and system controllers. In addition, there is a complete computer controlled Hewlett-Packard low-frequency and dc device characterization system that is also capable of device

modeling and design. The lab contains a 6 ft x 6 ft low frequency shielded room with a noise attenuation of 100 dB to electric fields and plane waves from 14 kHz to 10 GHz and 30 dB to magnetic fields at 60 Hz. This lab is designed for computer controlled data acquisition and processing.

Teaching Activities:

Courses at SMU:

- EE2320: Electronic Circuits I: A study of basic circuit elements and models for sophomores.
- EE2350: Circuit Analysis I: A study of basic circuit elements and models for sophomores.
- EE3311: Solid-State Devices: Physical principles of semiconductor devices such as diodes, BJTs, MISFETs, and JFETs for junior and seniors. For the first time, laboratory experiments involving device parameter extraction and PSPICE device modeling were introduced in 2001.
- EE4311: Senior Design Courses taught to Christine Travers, Stephan Tan, Trisha Salvador, Mary Elizabeth Oppenheim.
- EE4312: Senior Design Courses taught to Christine Travers, Stephan Tan, Trisha Salvador, Mary Elizabeth Oppenheim.
- EE4390-P70: Senior Design Project given to Denise Younger, Spr. 1990: Design and implementation of low-noise AC/DC power supply.
- EE5310: Introduction to Semiconductors: Physics of semiconductors, quantum mechanics, energy band theory, equilibrium carrier statistics, carrier transport. Senior undergraduate and first year graduate level.
- EE5312: Semiconductor Processing Lab.: Hands-on device fabrication projects. Senior undergraduate and first year graduate level.
- EE5314/7314
- ME5314/7314: Introduction to Microelectromechanical Systems and Devices. A new course developed for EE and ME students wanting to learn about this very innovative and rapidly advancing field of MEMS. Topics include micro-actuators, micro-sensors, micro-accelerators, MEMS design. Senior undergraduate and first year graduate level.
- EE8310: Electronic Processes: Crystal structures, band theory, solutions to Boltzmann transport eqn., scattering and recombination mechanisms. High level graduate.
- EE8390-P70: Reading Course for Noise in Solid-State Devices: Taught to the graduate students, entering into the device noise research.
- EE839X-P70: Reading Course for IR Detectors: Taught to the graduate students, entering into the IR detection research

New Courses Developed at UTA

EE5349 Introduction to MEMS: This course develops the basics for microelectromechanical devices and systems including microactuators, microsensors, and micromotors, principles of operation, different micromachining techniques (surface and bulk micromachining), IC-derived microfabrication techniques, thin-film technologies as they apply to MEMS.

New Courses Developed at SMU

- EE2350: Circuit Analysis I: developed a SPICE project and integrated the computer usage in the course.
- EE4311: Senior Design Course taught to NSF-REU undergraduate students.
- EE4312: Senior Design Course taught to NSF-REU undergraduate students. Among these students, Ms. Christine Travers developed micromachining capabilities in our

- laboratories. She co-authored 4 journal publications and 3 conference papers as an undergraduate student through this work.
- EE5312: Semiconductor Processing Lab.: first taught Fall 1987. Developed with the help of another assistant and full professor. Involved setting-up processing equipment and clean-room facilities, designing projects and photolithography masks, developing course material.
- EE5314/7314: Introduction to Microelectromechanical Systems and Devices. Developed for EE and ME students. Covers design, analysis and implementation of MEMS. Laboratory component to be added at a future date when funds become available. Taught for the first time in Spring 1999.
- EE4390-P70: Senior Design Project given to Denise Younger, Spr. 1990: Design and implementation of low-noise AC/DC power supply.
- EE8390-P70: Reading Course for Noise in Solid-State Devices: Taught to the graduate students, entering into the device noise research.
- EE839X-P70: Reading Course for IR Detectors: Taught to the graduate students, entering into the IR detection research
- EE8310: Electronic Processes. Although this course existed before, the course is redesigned to include the recent advances in GaAs materials and Boltzmann Transport Equation.

Selected Student Comments in Instructor Evaluations:

- She is very enthusiastic about the course and the material, which rubs off on the student.
- I like how she encourages questions. She really wanted to make sure that every student understood what was going on in the course.
- Her honesty and humor. Very pleasant attitude. Prompt availability of homework solutions.
- She talked a lot about how things would apply in "real world" situations, instead of just showing things on paper.
- Outstanding knowledge of material and proper pacing
- Sincere effort to explain each question or concern
- Best instructor in this school.
- Always well prepared, always able to answer questions of students, presentation of material clear.
- Good sense of humor. Compassion.
- Very willing to talk to students outside of class and explain problems to students.
- Excellent use of lab facilities.
- She has great office hours: all day long.
- She enjoys the subject matter and has a good understanding of it.

Professional Activities:

Editorial Activities

- Member of Editorial Board, Journal of Nanoelectronics and Optoelectronics, American Scientific Publishers. 2005-present.
- Guest Editor, Special Issue on Noise in Circuits and Systems, Fluctuation and Noise Letters, World Scientific Publishing Company, August 2004
- Editor, Fluctuation and Noise Letters, World Scientific Publishing Company, 1999-2005
- Editor, Proceedings of SPIE vol. 5113 – Noise in Devices and Circuits 2003.

Conference Organizing Committees and Chairs:

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| January 2006 | Session Chair, Workshop on Piezoelectric Energy Harvesting, University of Texas at Arlington, TX. |
|--------------|---|

May 2005	Symposium Co-Chair, SPIE Symp. Fluctuations and Noise (FaN'2005) Austin, TX.
March 2005	Conference Co-Chair, Smart Electronics, MEMS, BioMEMS, and Nanotechnology, SPIE Smart Structures and Materials, San Diego, CA.
March 2004	Conference Co-Chair, Smart Electronics, MEMS, BioMEMS, and Nanotechnology, SPIE Smart Structures and Materials, San Diego, CA.
2003-present	Member, International Advisory Committee, International Conference on Noise and Fluctuations, ICNF.
May 2003	Conference Co-Chair, Program Chair and Session Chair, TEXMEMS V, University of Texas at Arlington, TX.
2000-present	TEXMEMS (Texas Area – Microelectromechanical Systems) Workshop Executive Board.
August 2003	Conference Organizing Committee and Session Chairperson, 17 th International Conf. on Noise in Physical Systems and 1/f Fluctuations, Prague, Czech Republic.
June 2003	Conference Co-Chair and Session Chair, SPIE Conference on Noise in Devices and Circuits in the Symposium on Fluctuation and Noise (FaN'2003), Santa Fe, NM.
October 2001	Conference Organizing Committee and Session Chairperson, 16 th International Conf. on Noise in Physical Systems and 1/f Fluctuations, Gainesville, FL.
June 2001	TEXMEMS III Workshop, Session Chair, U. Texas in Dallas, June 6, 2001.
May 2000	TEXMEMS II Workshop General Chair, Dallas, TX. May 16, 2000.
August 1999	Conference Organizing Committee and Session Chairperson, 15 th International Conf. on Noise in Physical Systems and 1/f Fluctuations, Hong Kong.
August 1998	Conference Organizing Committee and Session Chairperson, 7 th van der Ziel Symp. on Quantum 1/f Noise and Other Low-Frequency Fluctuations in Electronic Dev., St. Louis, MO
July 1997	Session Chairperson, 13th International Conf. on Noise in Physical Systems and 1/f Fluctuations, Leuven, Belgium.
August 1993	Conference Organizing Committee and Session Chairperson, 12 th International Conf. on Noise in Physical Systems and 1/f Fluctuations, St. Louis, MO.
May 1992	Conference Organizing Committee and Session Chairperson, 5 th van der Ziel Symp. on Quantum 1/f Noise and Other Low-Frequency Fluctuations in Electronic Dev., St. Louis, MO
Dec. 1988, 1989	Session Chairperson, IEEE International Electron Devices Meetings
June 1989	Session Chairperson, 8th Annual Symp. on Electronic Materials, Processing and Characterization, Dallas, Texas. American Vacuum Society, Electrochemical Society, North Texas Material

Characterization Society

June 1989,
1990, 1991,
1992

Technical Committee, Annual Symp. on Electronic Materials, Processing and Characterization. American Vacuum Society, Electrochemical Society, North Texas Material Characterization Society

Service to Profession:

2001-present Chairman, IEEE Electron Devices Society Dallas Section
1998-present Member, IEEE Electron Devices Society, National Membership Committee
1997-2003 Student Activities Chairman, IEEE Dallas Section
1998-2001 Member, IEEE Electron Devices Society, Technical Committee on Electronic Materials.

1996 - 1997 Secretary, Executive Committee, IEEE Dallas Section
1994-1996 Chairman, IEEE Electron Devices Society, Dallas Section
1993-1994 Vice-Chairman, IEEE Electron Devices Society, Dallas Section
1989-1992 Treasurer, IEEE Electron Devices Society, Dallas Section

1987-present Technical reviewer for
National Science Foundation
Air Force Office of Scientific Research
IEEE Transactions on Electron Devices
IEEE Sensors Journal
IEEE Journal of Microelectromechanical Systems
Solid-State Electronics
Sensors and Actuators
Review of Scientific Instruments
Journal of Applied Physics
Applied Physics Letters

Professional Society Memberships:

1984-present Member of the American Physical Society
1984-present Senior Member of the IEEE
1987-present Life Member of Eta Kappa Nu
1996-present Member of American Society of Engineering Education

Service to University:University of Texas at Arlington

2004-2005 Member, Research Integrity Committee
2003-2004 Chair, Electrical Engineering Faculty Search Committee
Fall 2003 Chair, Adhoc Committee on Misconduct in Research and Scholarship
2003-present Electrical Engineering Strategic Planning Committee
2002-2003 Electrical Engineering Faculty Search Committee

Southern Methodist University

2001-2002 Dedman College of Sciences and Humanities, Tenure and promotion Committee
2001-2002 SMU Sigma Xi president elect
2001-2002 Member of University Research Council
2001-2002 Member of Faculty Senate

2001-2002	Member of Faculty Senate Subcommittee on Faculty Benefits
1994-2002	EE representative for Science and Engineering Library
1996-1999	Assistant Dean of Graduate Studies and Research, School of Engineering and Applied Science.
1997-2000	Chairperson, University-wide SACS Committee on Library and Other Learning Resources.
1997-2000	Member, SACS self-study steering committee
1997-1998	Chairperson, Ad-hoc Committee on Integrity of Distance Education
1995-1997	Member, Electrical Engineering Chairperson Search Committee
1997	Member, Ad-hoc Committee on Central University Library Renovations
1996-1999	Member (non-voting), SEAS Academic Affairs Committee
1994-1996	Chairperson, Faculty Senate Subcommittee on Libraries
1995-1996	Member, Faculty Senate
1994-1995	Chairperson, E.E. Department Ad-hoc Comm. on Ph.D. Degree Requirements
1991-1996	Member, Selection Committee for Hyer Honor Society
1993-1994	Member, Faculty Senate Executive Committee
1992-1994	Member, Faculty Senate Subcommittee on Libraries
1992	Member, Faculty Senate Task Force on Athletics
1991-1992	Member, School of Engineering & Applied Sc., Student Affairs Committee
1991-1992	Member, University Benefits Council
1991, 1993	Designed, prepared and published a EE Graduate Programs Pamphlet
1990-1992	Member, Faculty Senate Subcommittee on Faculty Benefits
1988-1991	IEEE Student Branch Advisor
1989	Member, Ad-hoc Comm. for advising SEAS Academic Priorities Task Force on Foreign Language Requirements in Engineering Schools.
1988-1989	Member, Electrical Engineering Dept., Faculty Search Committee
1988-1989	Member, School of Engineering & Applied Sc., Faculty Affairs Committee
1988	Designed, prepared and published an EE Graduate Programs Poster.
1988-2002	Participated in Freshman Phone-a-Thons
1988-2002	Participated in interviewing prospective Presidential Scholars

Current Graduate Student Supervision:

1. Md. Shahriar Rahman, Ph.D. student, started in Spring 2006.
2. Vijaya Krishnan Ambravaneswaran, M.S. Thesis student, started in Spring 2006.
3. Suraj Kumar Patil, Ph.D. student, started in Fall 2004.
4. Tanvir Hasan Morshed, Ph.D. student, started in Fall 2004.
5. Siva Prasad Devireddy, Ph.D. student, started in Spring 2003.
6. Asish Bhattacharjee, Part-time Ph.D. student, started in Fall 1998.
7. Gregory Romas, Part-time Ph.D. student, started in Summer 1998.

Post-Doctoral Associates:

1. Lin Ren, 1997 (Ph.D., 1993, Eindhoven University of Technology, Netherlands). Worked on noise measurements of sub-micron MOSFETs under the sponsorship of Texas Instruments, Phase I.
2. Catherine Barros, 1997-1998, (Ph.D., 1993, University of Montpellier, France). Worked on noise measurements of sub-micron MOSFETs under the sponsorship of Texas Instruments, Phase II.
3. Petr Vasina, 1998, (Ph.D., 1997, Technical University of Brno, Czech Republic.) Worked on noise measurements of sub-micron MOSFETs under the sponsorship of Texas Instruments, Phase III.
4. Vladimir Leonov, 1998 - 2000, (Ph.D., 1997, Thermal Detector Laboratory of S.I.Vavilov State Optical Institute, St. Petersburg, Russia.) Worked under the sponsorship of Raytheon TI Systems on the thermal and noise properties of uncooled pyroelectric thin films.

Ph.D. Theses Supervised:

1. Sharif Alamgir, Ph.D. 1991, "1/f Noise Measurements on HgCdTe MISFETs and on YBaCuO Superconductor Thin Films."
2. Wiyi Yang, Ph.D. 1992, "Characterization and Noise Investigations of Al Alloy and High Critical Temperature Superconducting Thin Films."
3. Jiang-Lin Wang, Ph.D. 1994, "Fabrication and Characterization of High Temperature Superconductive Mixers."
4. Wenmu He, Ph.D 1995, "Low-Frequency Noise in HgCdTe Metal-Insulator-Semiconductor Devices."
5. Pao Chuan Shan, Ph.D. 1996, "Fabrication and Characterization of Uncooled YBaCuO Bolometers."
6. Nudiatha Vibhavia Amarasinghe, Ph.D. 2001, "Random telegraph Signals in Submicron MOSFETs."
7. Alparslan Yaradanakul, Ph.D. 2002, "Uncooled IR Sensors."
8. Ali Yildiz, Ph.D. 2002, "Semiconducting YBaCuO Infrared Microbolometers on a Flexible Substrate."
9. Md. Mazhar Ul Hoque, Ph.D. 2005, "Identification and Modeling of 1/f Noise in Advanced Bipolar Technologies."
10. Bigang Min. Ph.D. 2005, "Low Frequency Noise Measurements and Modeling for High-k Gate Dielectric MOSFETs."

M.S. Thesis Supervised:

1. Agha Jahanzeb, M.S., 1995, "Transport and 1/f Noise Properties of YBa₂Cu₃O_{7- δ} Thin Films," Ph.D. 1997, SMU.
2. John E. Gray, M.S., 1998 "Uncooled Infrared Detection Using Semiconducting YBaCuO."
3. Fang Wang, M.S., 2000 "Noise Measurements and Modeling in Deep Sub-micron Devices."
4. Enhai Zhao, M.S., 2003 "Noise in Polysilicon-Emitter and Lateral BJTs,"
5. Aasutosh Dave, M.S., 2005 "Device Level Self-Packaged Infrared Microsensors,"
6. Vinayak Shamanna, M.S., 2005 "Design, Simulation and Fabrication of Micromachined Piezoresistive Pressure Sensors on Flexible Substrates."

Other M.S. and Ph.D. Committees served as a member:

1. Chwan Chang Chen, Ph.D., 1990, EE, SMU; Member of Ph.D. Committee (Advisor: Dr. Milton Gosney)
2. Cheng Liang Huang, Ph.D., 1991, EE, SMU; Member of Ph.D. Committee (Advisor: Dr. Donald Butler)
3. Pradipto Mukherjee, M.S., 1989, CSE, SMU; Member of M.S. Committee (Advisor: Dr. Murat Tanik)

4. Maher Abuzaid, Ph.D., 1991, EE, SMU; Member of Ph.D. Committee (Advisor: Dr. Jerome Butler)
5. Songjiang Wu, Ph.D., 1997, EE, SMU; Member of Ph.D. Committee (Advisor: Dr. Donald Butler)
6. Weijia Qi, Ph.D., EE, SMU; Member of Ph.D. Committee (Advisor: Dr. Donald P. Butler)
7. Ge Li, M.S., 1995, Physics, SMU; Member of M.S. Committee (Advisor: Dr. Fred Olnes)
8. Randy Lehmann, Ph.D., 1996, EE, SMU; Member of Ph.D. Committee (Advisor: Dr. Jerome Butler)
9. Haydar Bilhan, Ph.D., 2000, EE, SMU; Member of Ph.D. Committee (Advisor: Dr. Gosney)
10. Agha Jahanzeb, Ph.D., 1997, EE, SMU; Member of Ph.D. Committee (Advisor: Dr. Donald Butler)
11. Maher Saraj, Ph.D., 1998, EE, SMU; Member of Ph.D. Committee. (Advisor: Milton Gosney).
12. Mahmoud Almasri, Ph.D., 2001, EE, SMU; Member of Ph.D. Committee (Advisor: Dr. Donald Butler).
13. Sunil Bhardwaj, M.S., ECE, U. Florida; Member of M.S. Committee (Advisor: Toshi Nishida).
14. Jonghwan Lee, Ph.D., ECE, U. Florida; Member of Ph.D. Committee (Advisor: Gijs Bosman).
15. Wei Han, Ph.D., 2002, Chem, SMU; Member of Ph.D. Committee, (Advisor: Edward Biehl)
16. Monica Rege, M.S., 2002, EE, UTA; Member of M.S. Committee, (Advisor: Theresa Maldonado)
17. Shadi Dayeh, M.S. 2002, EE. SMU, Member of M.S. Committee (Advisor: Dr. Donald Butler).
18. Vivek Gupta, M.S. 2003, EE. UTA, Member of M.S. Committee (Advisor: Dr. Venkat Deverajan).
19. Darshak Udeshi, M.S. 2004, EE. UTA, Member of M.S. Committee (Advisor: Dr. Meng Tao)