

BIOGRAPHICAL SUMMARY OF SANTOSH K. KURINEC

Business Address

Department Head
Microelectronic Engineering
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Education

- Ph.D (Physics, 1980): University of Delhi, Delhi, India. Thesis Dissertation: Magnetic Materials and Devices.
- M.S. (Physics): 1972; University of Delhi, Delhi, India (Specialization: Solid State Devices)
- B.S (Physics Honors): 1970: University of Delhi, Delhi, India
- National Science Talent Scholar

Professional and Academic Experience

- Rochester Institute of Technology, 2001-present: Department Head, Microelectronic Engineering, Director, Center for Advanced Device Research.
- IBM T.J. Watson Research Center, Visiting Scholar, 2009-Present
- Rochester Institute of Technology 1996-present: Professor, Microelectronic Engineering,
- Rochester Institute of Technology, 1988- 1996: Associate Professor, Microelectronic Engineering,
- Florida A&M/Florida State University, 1986-1988: Assistant Professor, Electrical Engineering, Tallahassee, FL.
- University of Florida, 1985-1986: Post Doctoral Research Associate, Materials Research and Engineering, Gainesville, FL.
- National Physical Laboratory, 1980-1985: Scientist, Division of Materials, New Delhi, India.

Partial List of Professional Activities

- Senior Member, IEEE, 1990-Present
- President, Western New York Society of Materials Research Society
- Associate Editor, IEEE Transactions on Education, 2007-
- Committee Organizer, International Semiconductor Device Research Symposium, 2007
- Conference Chair, Semiconductor Technology 2020, Rochester, NY, 2007
- Moderator on Nanotechnology Breakout Session, World Science Forum, 2006, New York
- Invited Speaker, Semiconductor Industry Association Public Policy Meeting, 2007, 2008
- Invited Speaker, Tech Fair, United States Patent Trademark Office, 2007
- Conference Chair: Annual Microelectronic Engineering Conferences 1996-2005.
- *Imaging 99, June 1999, Organized and Chaired the Symposium on Display Materials.*
- Workshop on Nanotechnology and MEMS Education, February 24, 2004
- American Chemical Society's 32nd Northeast Regional Meeting Secondary School Teacher and Student Event, November 3, 2004
- Reviewer, NSF ECS, EEC, SBIR and DMR
- Reviewer, IEEE Transactions, Thin Solid Films, J. Mat Res.
- Outreach for K-12 – Nanotechnology and Microelectronics Forum

Awards

- Rochester Institute of Technology Trustee Scholarship Award, 2008
- Engineer of the Year Award Finalist, Rochester Engineering Society, 2007
- Town of Henrietta Award for Outstanding Education Initiative, 2007 for the Microelectronic Engineering program
- Center for Electronic and Imaging Systems (CEIS) - New York State Technology and Advanced Research (NYSTAR) Technology Transfer Award, 2005 for the development of models for charge injection devices operated in time domain integration mode for CIDTEC company in Liverpool, NY.
- RIT Principal Investigator Millionaire Award, February 2006

Field of Research & Education Interest

Semiconductor Devices and Materials, Resonant Tunnel Devices, Magnetic Tunnel Devices, Phase Change Memory Materials for Non Volatile Memory and Reconfigurable Electronics, Molecular Electronics, Photovoltaics, Promoting Engineering Education

Recent Collaborators

Sandip Tiwari, NNIN, Cornell, Tom Theis, D. K Sadana, Jim Hannon, IBM Watson, Kris Campbell, BSU, Tony Heinz, Columbia University, Igor Zutic, SUNY Buffalo, Marc Heynes, IMEC Belgium, A. Lochtefeld, AmberWave Systems, Ian Steff, Semiconductor Industry Association, Amitabh Jain, Texas Instruments, Philip Thompson, NRL, Paul Berger, Ohio State University.

Selected Publications

1. Record PVCr GaAs-based Tunnel Diodes Fabricated on Si Substrates using Aspect Ratio Trapping, S. Rommel, D. Pawlik, P. Thomas, M. Barth, K. Johnson, S. Kurinec, A. Seabaugh, Z. Cheng, J. Li, J. Park, J. Hydrick, J. Bai, M. Carroll, J. Fiorenza, A. Lochtefeld, International Electron Device Meeting, December 2008.
2. Nanotechnology in education: top-down and bottom-up approach, Mariotti D, Jackson M, Lewis E, Schulte T, Kurinec S, iNEER Special Volume: Innovations 2008, World innovations in engineering education and research (2008) 261
3. Optical, Electrical, and Structural Properties of Sputtered Aluminum Alloy Thin Films with Copper, Titanium and Chromium Additions, Lance Barron, Jason Neidrich and Santosh Kurinec, Thin Solid Films, 2006, Volume 515, Issues 7-8, 26 February 2007, Pages 3363-3372
4. Synthesis and Electrophoretic Deposition of Magnetic Nickel Ferrite Nanoparticles, Santosh Kurinec, Nkiruka Okeke, Surendra Gupta, Heng Zhang, T. Danny Xiao, J. Mater Sci (2006) 41: 8181-8185.
5. Cathodic Electrophoretic Deposition of Ceramic Nano-particle Manganese Zinc Ferrite Cody Washburn, Jacob Jorne, and Santosh Kurinec, Electrophoretic Deposition: Fundamentals and Applications II. Edited by A. R. Boccaccini, O. Van der Biest, R. Clasen, Trans Tech Publications, Key Eng. Mater. Vol. 314 (2006). 127-132.
6. Application of Magnetic Ferrite Electrodeposition and Copper Chemical Mechanical Planarization for On-Chip Analog Circuitry, Cody Washburn, Daniel Brown, Jay Cabacungan, Jayanti Venkataraman and Santosh K. Kurinec, Proc Mat. Res. Soc. Symp. : Materials. Integration and Technology for Monolithic Instruments, pp 157-162, 2005.
7. Monolithically Integrated Si/SiGe Resonant Interband Tunneling Diodes/CMOS Demonstrating Low Voltage MOBILE Operation S.Sudirgo, R.P. Nandgaonkar, B. Curanovic, J. Hebding, R. Saxer, K.D. Hirschman, S.S. Islam, S.L. Rommel, S.K. Kurinec, P.E. Thompson, N. Jin, and P.R. Berger, *Solid State Electronics*, vol. 48, 10-11, pp. 1907-1910, Oct.-Nov.,2004.
8. A 3-Terminal Si-Based Negative Differential Resistance Circuit Element with Adjustable Peak-To-Valley Current Ratios S. Y. Chung, N. Jin, R. Yu, P. R. Berger, P. E. Thompson, R. Lake, S. Rommel, S. K. Kurinec, *Appl. Phys. Lett.*, vol. 84 , pp. 2688-2690, April 2004.
9. Monolithic Vertical Integration of Si/SiGe HBT and Si-Based Resonant Interband Tunneling Diode Demonstrating Latching Operation and Adjustable Peak-To-Valley Current Ratios (Invited Talk) S. Y. Chung, N. Jin, R. Yu, P. R. Berger, P. E. Thompson, R. Lake, S. Rommel, S. K. Kurinec, *International Electron Device Meeting*, 2003.
10. Diffusion Barrier Cladding in Si/SiGe Resonant Interband Tunneling Diodes and Their Patterned Growth on PMOS Source/Drain Regions N. Jin, S.Y. Chung, A.T. Rice, P.R. Berger, R. Yu, P.E. Thompson, C. Rivas, R. Lake, S. Sudirgo, J.J. Kempisty, B. Curanovic, S.L. Rommel, K.D. Hirschman, S.K. Kurinec, P.H. Chi, and D.S. Simons, *IEEE Trans. Elec. Dev.*, vol. 50, pp. 1876-1884, 2003.
11. Electrophoretic Deposition of Monochrome and Color Phosphor Screens for Information Displays J. Talbot, Esther Sluzky and Santosh K. Kurinec, *Journal of Materials Science*, 39(3), pp 771-778, February 2004
12. Unit Cell Indexing of Luminescent Type I Tantalum Zinc Oxide, Santosh K. Kurinec, Philip Rack, Michael Potter and Tom Blanton, *Journal of Materials Research*, Vol 15, No. 6, June 2000, p.1320