

TREWS

Sanjay Banerjee, Ph.D.

Selected Testifying Experience (**represented the underlined party in each case**)

1. Freescale vs. Marvell (Case No. 12-CV-644 in W.D. Texas; **deposed**), DRAM, Brian Mack, Quinn Emanuel, 2014
2. Cypress vs. GSI (3:13-CV-02013-JST in Northern District of CA, **expert report, deposed**, settled), Semiconductor Memory architecture, Brent Yamashita, DLA Piper, 2014
3. Crocus vs. NYU (Case IPR2014-00047 Patent 6,980,469 B2, **deposed**), STTMRAM, Stephanie Schoenwald, Steptoe & Johnson, 2014
4. HSM vs. Qualcomm (Case 1:11-CV-00770-RGA in Delaware), settled, Memory sense amps, Drew Koning, Cooley, 2014, settled.
5. Spanion vs. Macronix (ITC 337-TA-893, **testified at ITC**), settled, Flash memory, Janice Jabido, Ropes and Gray, 2014
6. TPL vs. Seiko, Dell, HP, Acer, Newegg, Brother (ITC Investigation No. 337-TA-841; **testified at ITC** on behalf of all 6 respondents and won), Flash memory, Matt Hertko, Kirkland Ellis, Hogan Lovells, Kenyon, Banner Witkoff, Webb, 2013
7. Intellectual Ventures vs. Hynix (C.A. No. 10-1066 (SLR) (MPT), District of Delaware, Non-testifying expert), DRAMs, Brian Mack, Quinn Emanuel 2012
8. Smart Modular vs. Netlist (Case No. 2:12-CV-02319-MCE-EFB in Eastern District of California, **deposed**), Memory modules, Ed Sikorski, DLA, 2012.
9. Microsoft vs. Motorola (**deposed in ITC case** 337-TA-744 and won) Flash memory file systems, Brian Mack, Quinn Emanuel, 2011
10. Rambus vs. Samsung (Case C 05-00334 RMW; **testified in Northern District of California** and won), RDRAM, Jennifer Polse, Munger Tolles, 2008
11. Fujitsu Limited & Fujitsu Microelectronics America, Inc. vs. Nanya Technology Corporation, settled, DRAM, Shore Chan Bragalone, 2007
12. Toshiba America vs. Hynix Semiconductor, settled, DRAM, Townsend & Townsend & Crew 2005
13. Sandisk vs. STMicroelectronics, Case 337-TA-526, **Testified at ITC**, lost, Flash memory, Wilson Sonsini, 2004
14. Motorola vs. STMicroelectronics, ICs, Settled, Jones Day, 2004
15. Varian vs. Nissin (Case No.: 04-CA-375 (LY), Western District of Texas); **Deposed**; Ion implanter, settled before trial, Shearson Lehman, 2004

Sanjay Banerjee is the Cockrell Family Regents Chair Professor of Electrical and Computer Engineering and Director, Microelectronics Research Center, at the University of Texas at Austin. He is also the Director of the South West Academy of Nanoelectronics, one of three centers in the US to develop a replacement for MOSFETs. He received his B.Tech from the Indian Institute of Technology, Kharagpur, and his M.S. and Ph.D. from the University of Illinois at Urbana-Champaign in 1979, 1981 and 1983 respectively, all in electrical engineering. As a Member of the Technical Staff, Corporate Research, Development and Engineering of Texas Instruments Incorporated from 1983-1987, he worked on polysilicon transistors and dynamic random access trench memory cells used by Texas Instruments in the world's first 4Megabit DRAM. He has been Assistant Professor (1987-90), Associate Professor (1990-93), and Professor (1993-) at The University of Texas at Austin. He has over 1000 archival refereed publications/talks, 10 books/chapters, and 30 U.S. patents, and has supervised over 60 Ph.D. and 70 MS students. His students have received 10 Best Papers Awards at various conferences, and he has presented over 100 invited talks. He received the Engineering Foundation Advisory Council Halliburton Award, 1991, the Texas Atomic Energy Fellowship (1990-1997), Cullen Professorship (1997-2001) and the Hocott Research Award from UT Austin (2007). He has won the IEEE Grove Award (2014), Distinguished Alumnus Award, IIT (2005), Industrial R&D 100 Award (2004), ECS Callinan Award, 2003, IEEE Millennium Medal, 2000, NSF Presidential Young Investigator Award in 1988, and several SRC Inventor Recognition and Best Paper Awards. He was a Distinguished Lecturer for IEEE Electron Devices Society, and the General Chair of the IEEE Device Research Conference, 2002. He is a Fellow of IEEE, APS and AAAS. He is active in the areas of beyond-CMOS nanoelectronic transistors based on 2D materials and spintronics, fabrication and modeling of advanced MOSFETs, and solar cells.

Sanjay Kumar Banerjee

Current Position: Cockrell Family Regents Chair in
Electrical and Computer Engineering, 1999-
Director, Microelectronics Research Center, 1999-

Education: University of Illinois, PhD (Electrical Engineering), 1983
University of Illinois, MS (Electrical Engineering), 1981
Indian Institute of Technology at Kharagpur, India, B. Tech (Electronics), 1979

Professional Engineer: Texas

Previous Positions: Cullen Trust Endowed Professorship in Engineering No.1, 1997-2001
University of Texas, Associate Director, Microelectronics Research Center, 1996-99
University of Texas, Professor, September 1993-
University of Texas, Associate Professor, September 1990- August 1993
University of Texas, Assistant Professor, September 1987- August, 1990
Texas Instruments, Corporate R& D, Member of Technical Staff, 1983-August 1987

Honors and Awards:

IEEE Andrew Grove Award (2014)
Fellow of American Association for Advancement of Science (2007)
Hocott Research Award, Univ. of Texas, 2007
Fellow, American Physical Society, 2006
Distinguished Alumnus Award, IIT, 2005
Industrial R&D 100 Award (with R.Singh) 2004
Electrochemical Society Thomas D. Callinan Award, 2003
Micron Professorship (2003- 10)
IEEE Millennium Medal, 2001
SRC Inventor Recognition Awards, 1994, 2000, 2009
Best Paper Awards, SRC 1998, 2006, 2009, 2010,2014, 2015
Who's Who Listings (Marquis)
Cullen Professorship, Univ. of Texas, 1997- 2001
Distinguished Lecturer for the IEEE Electron Devices Society (1997-2003), Adcom
Member till 1998
Fellow of IEEE, 1996
Engineering Foundation Advisory Council Halliburton Award, 1991
Texas Atomic Energy Centennial Fellowship, 1990-97
NSF Presidential Young Investigator Award, 1988
Best Paper Award, IEEE International Solid State Circuits Conference, 1986
Jagadis Bose and National Science Talent Search Scholarships, India, 1974-79
Institute Medal and Swapan Saha Prize for Highest Ranking Undergraduate (ECE),
I.I.T., India, 1979
Phi Kappa Phi

Professional Society and Major Government Committees:

Technical Advisory Board: Applied Novel Devices (current) AstroWatt, DSM Semiconductors, Cambrios, Nanocoolers Inc., BeSang Memories, Organic ID and ITU Ventures; Gerson Lehmann Group, NY; Austin Community College; Asia Pacific IIIT; Rochester Institute of Technology, HSMC Foundry

IEEE Dan Noble Award Committee, 2010-13 (Chair, 2012-13)

Congressional round-table panel member on nanotechnology, Feb. 2008

Member on International Technology Roadmap for Semiconductors

Siemens Westinghouse Science Talent Contest Judge, 2003

Morgan & Claypool Publishers, Lectures in Electronic Materials & Devices, Series Editor

SISPAD, Program Committee, 2005-6

Electrochemical Society Symposium on SiGe, Program Committee, 2004

IRPS, Program Committee, 2005

12th Int. Workshop on Physics of Semiconductor Devices, Int. Advisory Committee

Int. Advisory Committee, Int. Conf. on MEMS and Nanotechnology, IIT, 2005

Program Committee, International SiGe Technology and Device Meeting, 2004-2012

IEEE Device Research Conference Technical Program Chair, 2000-01, General Chair, 2001-02

Editorial Board, Elsevier Science, 2001

IEDM Program Committee, Modeling and Simulation, Session Chair, 2001-03

ECS Session Chair, Toronto, Canada, May 2000

Program Committee, IEEE Int. Conf. Communications, Computers, Devices, Kharagpur, 2000.

IEEE Device Research Conference Program Committee/Local Arrangements Chair, 1999-2000

NSF Workshop Co-Organizer for "Front and Back-end Processes", Austin, TX 1999

Eleventh Int. Ion Implant Tech. Meet. Program Committee and Publications Chair, 1995-1996.

IEEE Symposium on VLSI Technology, Committee Member, 1992-98

NSF Workshop Organizer for "Silicon-Germanium Devices", Austin, TX 1999

IEEE University Government Industry Microelectronics Symp., General Chairman, 1994-1995

IEEE International Electron Devices Meeting, (Device Technology/ Session Chair: 1989-90)

IEEE Conf. on Electromagnetic Field Computation, Chair Comp. in Electron Dev., CA, 1992

Panel Member, SRC Conference on Integration of Novel Processes, 1991

Sponsored Research:

Grant title: "Three-Dimensional IC Technology,"

Co-Principal Investigator: S. Banerjee

Other Investigators: D.L. Kwong

Sponsoring Agency: Texas Advanced Technology Program

Duration: June 1988-August 1990.

Grant title: "High Speed Devices and VLSI Structures by Laser-Enhanced Epitaxy,"

Principal Investigator: S. Banerjee

Sponsoring Agency: Texas Advanced Technology Program

Duration: June 1988-August 1990.

Grant title: "Optoelectronic Devices by Photo-enhanced Chemical Vapor Deposition,"

Principal Investigator: S.Banerjee
Sponsoring Agency: National Science Foundation PYI
Duration: August 1988- July 1993.

Grant title: "GaAs-on-Si MESFET Modeling,"
Principal Investigator: S.Banerjee
Sponsoring Agency: Texas Instruments, Inc.
Duration: December 1988- August 1989.

Grant title: "Understanding and Modeling of Unit Processes"
Co-Investigator: S.Banerjee
Other Investigators: W.Adcock (PI), A.Tasch (Co-PI), I.Trachtenberg (Co-PI),
D.Kwong, J.Lee, T.Edgar and J.Ekerdt
Sponsoring Agency: SEMATECH and SRC
Duration: December 1988- August 1993.

Grant title: "RPCVD Epitaxial Silicon and Insulators for Use in 3-D CMOS Integrated
Circuits,"
Co-Investigator: S.Banerjee
Other Investigators: A.Tasch (P.I.), A.Cowley and R.Jones
Sponsoring Agency: Office of Naval Research
Duration: Sept. 1987- March 1990.

Grant title: "Ballistic and Quantum Transport in Si Devices at Cryogenic Temperatures"
Principal Investigator: S.Banerjee
Other Investigators: J.Lee
Sponsoring Agency: Texas Advanced Technology Program
Duration: November 1989- November 1991.

Grant title: "Polysilicon Transistor Modeling,"
Principal Investigator: S.Banerjee
Sponsoring Agency: Motorola
Duration: September, 1991-August, 1993.

Grant title: "Acquisition of High Resolution Transmission Electron Microscope,"
Principal Investigator: L.Rabenberg
Other Investigators: S.Banerjee, J.Goodenough, A.Heller, P.Ho and A.Manthiram
Sponsoring Agency: National Science Foundation
Duration: 10/92-10/93

Grant title: "Atomic Layer Epitaxy of Group IV Semiconductors,"
Co-Principal Investigator: S.Banerjee
Other Investigators: A.Tasch (P.I.), A.Cowley, J.Ekerdt and R.Jones
Sponsoring Agency: Office of Naval Research
Duration: February 1991-August 1996.

- Grant title:** "Materials and Bulk Processes"
 Co-Investigator: S.Banerjee
 Other Investigators: A.Tasch (PI), D.Kwong, J.Lee
 Sponsoring Agency: SRC/ SEMATECH
 Duration: September 1993- August 1998.
- Grant title:** "Synthesis, Growth and Analysis of Electronic Materials,"
 Co-Investigator: S.Banerjee
 Other Investigators: J.White (P.I) and 11 others from ECE, Chemistry and Physics
 Sponsoring Agency: National Science
 Duration: March 1991- March, 1996.
- Grant title:** "Transport in MOSFETs"
 Principal Investigator: S.Banerjee
 Sponsoring Agency: Motorola
 Duration: August, 1993-August, 1994.
- Grant title:** "Flash EEPROMs"
 Principal Investigator: S.Banerjee
 Sponsoring Agency: AMD
 Duration: May, 1993-December, 1996.
- Grant title:** "LDO Thin Film Transistors"
 Principal Investigator: S.Banerjee
 Sponsoring Agency: Micron
 Duration: March, 1993- April, 1995.
- Grant title:** "Ultra Shallow Junction Technology"
 Principal Investigator: S.Banerjee
 Sponsoring Agency: SEMATECH
 Duration: January 1994- December 1996.
- Grant title:** "SIMS Analysis of Polysilicon-on-Silicon"
 Principal Investigator: S.Banerjee
 Sponsoring Agency: SEMATECH
 Duration: September 1994- August 1995.
- Grant title:** "RTP Implant Monitors"
 Principal Investigator: S.Banerjee
 Sponsoring Agency: SEMATECH
 Duration: September 1995- August 1996.
- Grant title:** "Ultra-shallow Junction Formation and 2-D Dopant Profiling"
 Principal Investigator: S.Banerjee
 Other Investigators: K.Shih
 Sponsoring Agency: Texas Higher Education Coordinating Board

Duration: January 1996- December 1997.

Grant title: "Analysis of Deep Submicron MOSFETs"

Principal-Investigator: S.Banerjee

Other Investigators: A.Tasch

Sponsoring Agency: Semiconductor Research Corporation

Duration: October 1998- September 1999.

Grant title: "Unrestricted Grant"

Principal Investigator: S.Banerjee

Sponsoring Agency: Various Donors

Duration: No expiration

Grant title: "Synthesis, Growth and Analysis of Electronic Materials,"

Co-Investigator: S.Banerjee

Other Investigators: J.White (P.I) and 11 others from ECE, Chemistry and Physics

Sponsoring Agency: National Science Foundation STC

Duration: March 1996- February, 2002.

Grant title: "Ultra-shallow Junction Process Integration"

Principal Investigator: S.Banerjee

Sponsoring Agency: SEMATECH

Duration: September 1997- December 2001.

Grant title: "Si and Ge Thin Film CVD, Modeling and Control"

Co-Principal Investigator: S.Banerjee

Other Investigators: J.Ekerdt (P.I.), M.Downer, I.Trachtenberg; Univ. of Wisconsin

Sponsoring Agency: Dept. of Defense-MURI

Duration: July 1995-July 2000

Grant title: "Ultra-shallow Junction Technology"

Principal Investigator: S.Banerjee

Sponsoring Agency: Texas Higher Education Coordinating Board

Duration: January 1998- August 2000.

Grant title: "Channel Engineering in Si-Ge-C MOSFETs "

Principal-Investigator: S.Banerjee

Other Investigators: A.Tasch

Sponsoring Agency: Semiconductor Research Corporation

Duration: October 1997- September 2000.

Grant title: "Advanced Annealing"

Principal Investigator: S.Banerjee

Sponsoring Agency: Texas Higher Education Coordinating Board

Duration: January 2000- December 2001.

- Grant title:** "Quantum Transport in Heterostructure MOSFETs "
Principal-Investigator: S.Banerjee
Other Investigators: A.Tasch
Sponsoring Agency: Semiconductor Research Corporation
Duration: October 1999- September 2002.
- Grant title:** "Front End Processing"
Principal-Investigator: S.Banerjee
Other Investigators: A.Tasch, D.Kwong, J.Lee
Sponsoring Agency: SRC/ SEMATECH
Duration: April 1998- March 2001.
- Grant title:** "Vertical Si-Ge-C MOSFETs "
Principal-Investigator: S.Banerjee
Sponsoring Agency: Semiconductor Research Corporation
Duration: September 2000-August 2003.
- Grant title:** "Compact Modeling of Gate Current"
Principal-Investigator: S.Banerjee
Other Investigators: F.Register
Sponsoring Agency: Semiconductor Research Corporation
Duration: July 2000- September 2003.
- Grant title:** "Ion Implantation Modeling"
Principal-Investigator: S.Banerjee
Other Investigators: A.Tasch
Sponsoring Agency: Semiconductor Research Corporation
Duration: July 2000- September 2001.
- Grant title:** "Front End Processing"
Principal-Investigator: S.Banerjee
Other Investigators: D.Kwong, J.Lee, F.Register
Sponsoring Agency: SRC/ SEMATECH
Duration: April 2001- March 2003.
- Grant title:** "MARCO Focus Center on Device Structures"
Principal-Investigator: S.Banerjee
Other Investigators: D.Kwong (with MIT, Stanford, UC Berkeley)
Sponsoring Agency: DARPA/SRC
Duration: Award announced February 2001 (3 year contract)
- Grant title:** "SiGe Flash EEPROMS with Quantum Dot Gates"
Principal Investigator: S.Banerjee
Sponsoring Agency: Texas Higher Education Coordinating Board
Duration: January 2002- December 2003.

- Grant title:** "MARCO Focus Center on Device Structures"
Principal-Investigator: S.Banerjee
Other Investigators: D.Kwong (with MIT, Stanford, UC Berkeley)
Sponsoring Agency: DARPA/SRC
Duration: Sept. 2003 (3 year contract)
- Grant title:** "High mobility Ge-channel MOSFETs "
Principal-Investigator: S.Banerjee
Sponsoring Agency: Semiconductor Research Corporation
Duration: September 2003-August 2006.
- Grant title:** "Monte Carlo and Quantum transport "
Principal-Investigator: S.Banerjee
Co-PI: L.F.Register
Sponsoring Agency: Semiconductor Research Corporation
Duration: September 2003-August 2006.
- Grant title:** "NIRT on Quantum Dot Memories "
Principal-Investigator: S.Banerjee
Other Investigators: J.Ekerdt, F.Register, G.Hwang
Sponsoring Agency: NSF
Duration: September 2003-August 2007.
- Grant title:** "High mobility Ge-channel MOSFETs "
Principal-Investigator: S.Banerjee
Sponsoring Agency: Texas Higher Education Coordinating Board
Duration: January 2004-Dec. 2005.
- Grant title:** "Advanced Materials Research Center"
Principal-Investigator: S.Banerjee
Other Investigators: 15 others
Sponsoring Agency: Texas
Duration: January 2004- Dec.2005
- Grant title:** "Advanced Processing and Prototyping Center"
Principal-Investigator: S.Banerjee
Other Investigators: 18 others
Sponsoring Agency: DARPA
Duration: 2005- Dec.2006
- Grant title:** "SiGe Nanostructures"
Co-Principal-Investigator: S.Banerjee,
Other Investigators: R.Huang
Sponsoring Agency: DOE
Duration: 2006- Dec.2009

- Grant title:** "Dopant Diffusion Modeling"
Principal-Investigator: S.Banerjee,
Other Investigators: G.Hwang
Sponsoring Agency: SRC
Duration: 2006- Dec.2009
- Grant title:** "NNIN "
Principal-Investigator: S.Banerjee
Sponsoring Agency: NSF
Duration: January 2004- August.2015
- Grant title:** "MARCO MSD Focus Center "
Principal-Investigator: S.Banerjee
Sponsoring Agency: DARPA/SRC
Duration: Sept. 2007-2012
- Grant title:** "CERA"
Principal-Investigator: S.Banerjee
Co-PIs: F.Register, R.Ruoff, E.Tutuc, A.Macdonald, D.Akinwande
Sponsoring Agency: DARPA/IBM
Duration: Sept. 2007-2012
- Grant title:** "NASCENT ERC ", 200k\$ per year
Principal-Investigator: Bonneau, Sreenivasan
Banerjee (Device Thrust Leader)
Sponsoring Agency: NSF
Duration: January 2013- Feb.2018
- Grant title:** "SWAN"
Principal-Investigator: S.Banerjee,
Other Investigators: F.Register, A.MacDonald and 15 others from 6 schools
Sponsoring Agency: SRC-NRI
Duration: 2006- Dec.2017
- Grant title:** "NSF-NNCI "
Principal-Investigator: S.Banerjee
Sponsoring Agency: NSF
Duration: Sept. 2015- August.2020

Ph.D.'s supervised:

K.Park, 1991
T.Hsu, 1991
S.Lian, Materials Science and Engineering, 1991
S.Batra, 1992
S.Yoganathan, 1992
B.Fowler, 1992
D.Kinosky, Materials Science and Engineering, 1993
S.Bhattacharaya, 1993
C.Li, 1994
L.Jung, 1994
A.Mahajan, 1994
C.Hu, 1995
I.Manna, 1995
A.Sultan, 1996
D.Samara, 1997
S.John, 1998
J.Liu, 1999
R.Sharma, 1999
E.Quinones, 1999
D.Kencke, 2000
Christine Ouyang (with Tasch), 2000
Xiangdong Chen, 2001
Taehoon Kim, 2001
Siva Mudanai (with Tasch), 2001
Geng Wang (with Tasch), 2001
Yang Chen (with Tasch), 2001
Xin Wang, 2002
Hong-Jyh Li, 2002
Sung –Bo Hwang (with Edgar), 2002
Di Li (with Tasch), 2002
Yang-Yu Fan, (with Register) 2002
Zhonghai Shi, 2002
Tat Ngai, 2002
Dong-Won Kim, 2003
Xiao Chen (with Rabenberg), 2003
Puneet Kohli, Fall 2003
David Onsongo, Spring 1999 - Fall 2003
Kartik Jayanarayan, Spring 2004
Tongsheng Xia, (with Register), Spring 2005
Taras Kirichenko (with Hwang), Spring 2005
James Chen, 2005
Swaroop Ganguly (with MacDonald), 2006
Fei Lei (with Register), 2006
Li Lin (2006)
Sagnik Dey (2006)
X.Fan (with Register) 2006

Y.Liu (2006)
 D.Kelly (2006)
 *Fan, Xiaofeng, Fall 2006
 Ghosh, Bahniman, Spring 2007
 Joshi, Sachin Vineet, Spring 2007
 Kelly, David Quest, Fall 2006
 Liu, Yueran, Fall 2006
 Sarkar, Joy, Fall 2007
 Donnelly, Joseph, Spring 2009
 Shahrjerdi, Davood, Fall 2008
 Tang, Shan, Fall 2008
 Zaman, Rownak, Fall 2008
 Kong, Ning, Fall 2009
 Kim, Yonghyun, Spring 2010
 Liu, Hai, Spring 2010
 Basu, Dipanjan, 2010
 Lee, Tackhwi, 2010
 Lee, Se Hoon, 2011
 Ferdousi, Fahmida, 2011
 Jamil, Mustafa, 2011
 David, John, 2011
 Yum, Jung Hwan, 2012
 Kim, Seyoung, 2012 (with Tutuc)
 Chang, Jiwon, 2013 (with Register)
 Jadaun, Priyamvada, 2013 (with Register)
 Zhai, Yujia, 2013 (with Willson)
 Ramon, Michael, 2013 (with Akinwande)
 Emmanuel Oneyagam, 2014
 Sayan Saha, 2015
 U.Roy (with Register, 2015)
 Jason Mantey (2015)
 Chris Corbet (with Tutuc, 2015)

Master's supervised:

T.Hsu, 1989
 S. Batra, 1989
 D.Bullock, 1990
 S.Bhattacharya, 1990
 B.Fowler, 1990
 K.Picone, 1991
 J.Shen, 1991 (Report Option)
 R.Kovelamudi, 1992 (Report Option)
 S.Krishnan, 1992
 L.Jung, 1992
 M.Lobo, 1992
 S.Ngaoram, 1993
 A.Khan, 1993 (Report Option)
 D.Samara, 1993
 I.Manna, 1993

A.Mahajan, 1993
 A.Sultan, 1993
 D.Khanderkar, 1993 (Report Option)
 H.Taufique, 1994 (Report Option)
 S.Madireddi, Mechanical Engineering, 1994 (Report, with I.Busch-Vishniac)
 S.John, 1995
 J.Fretwell, Materials Science & Eng., 1995 (Report, with A.Tasch)
 M.Craig, 1995
 J.Williamson, 1995
 K.Reddy, 1995
 J.Damiano, 1995
 R.Gupta, 1995
 D.Kencke, 1996
 J.Zaman, 1996
 E.Quinones, 1996
 K.Hassan, 1996
 A.Lentvorski, 1997 (Report)
 S.Oswal, 1998
 C.Seal, 1998
 V.Agarwal, 1999
 S.Raghu Nandan, 1999
 S.Ravi, 1999
 T.Ngai, 1999
 X.Chen, 1999
 V.Medina, 1999
 H.Rahman, 1999
 C.Twu, 2000
 Stimit Oak, 2001
 Gaurav Shrivastava, 2001
 Wanqiang Chen, 2001
 Swaroop Ganguly, 2001
 Taras Kirichenko, 2002
 Randall Deppensmith, 2002
 Mukund Swaminathan, 2002
 Li Lin, 2003
 Sachin Joshi, ECE-MFG, Fall 2004
 David Kelly, Fall 2003
 Doreen Ahmad, 2005
 Sachin Joshi, 2006
 Isaac M Wiedmann, Fall 2005
 Sowmya Ramachandran, Fall 2005
 Kong, Ning, Spring 2007
 Lee, Se Hoon, Spring 2007
 Nanda, Aditi Kartik, Spring 2007
 Ferdousi, Fahmida, Spring 2008
 Jain, Nitesh, Spring 2008
 Jamil, Mustafa, Spring 2008

Jayan, Baby Reeja, Spring 2008
Kim, Seyoung, Summer 2008
Onyegam, Emmanuel U., Fall 2007
Vora, Nikhil Sudhir, Spring 2008
Chang, Jiwon, Spring 2009
Jadaun, Priyamvada, Summer 2009
Varahramyan, Kamran, Fall 2008
Kaur, Shagandeep, Spring 2010
Zhai, Yu-Jia, Spring 2010
Saha, Sayan, 2010
Rik Dey, 2014
Nima, Asoudegi, 2015

Postdocs: Samit Ray, Mark Loewe, Amitava Das, Sabrina Grannan, Freek Prins, W.C.Jung, M.Palard, C.Mao, Bhagawan Sahu, Mathew Gilbert, J.Lee, D.Ahn, Domingo Ferrer, Samaraesh Gucchait, Aparna Gupta, Anupam Roy, Sushant Sonde, Sarmita Majumdar, Bahniman Ghosh, Rudy Ghosh

In progress:

Corbet, Christopher
Mantey, Jason
Onyegam, Emmanuel
Ramon, Michael
Hema Chandra Mova
Yu-jia Zhai
Urmimala Roy
Nima Assoudeghi
William Hsu
Dax Crum
Sangwoo Kang

Books and Invited Book Chapters:

1. Solid State Electronic Devices, 5th Ed. (2000), 6th Ed. (2005), 7th Ed. (2015), Prentice-Hall by B.Streetman and S.Banerjee
2. Effect of Surface Nitridation on the Electrical Characteristics of Germanium High- κ /Metal Gate Metal-Oxide-Semiconductor Devices, D. Q. Kelly, J. J.-H. Chen, S. Guha, and S. K. Banerjee. Invited Book chapter, Springer, 2007.
3. SiGe HFETs, S.Banerjee, The Silicon Heterostructure Handbook, 2005, Edited by John Cressler.
4. High-k Gate Dielectrics, Y.Fan. S.Mudanai, L. Register and S.Banerjee, 2003
5. Device Miniaturization and Simulation, S.Banerjee and B.Streetman in ULSI Devices, John Wiley, 2000 (C.Chang and S.Sze editors)
6. Dopant Diffusion, S.Banerjee in Handbook of Semiconductor Manufacturing Technology, Marcel Dekker, 2000, 2006 (Y.Nishi, B.Doering and J.Kilby editors).
7. Silicon-germanium Devices, S.Banerjee, Elsevier, 2001.
8. Novel 3D CMOS, S.Dey and S.Banerjee, Solid State Electronics Trends, 2009
9. X. Mou, L. F. Register and S. K. Banerjee, "Ultra-low-power pseudospintronics devices via exciton condensation in coupled two-dimensional material systems," in Nanoscale Materials and Devices for Electronics, Photonics and Solar Energy, Ed. Stephen Goodnick, Anatoli Korkin and Robert Nemanich, Springer, 2015
10. D. Reddy, L. F. Register and S. K. Banerjee, "Bilayer pseudoSpin Field Effect Transistor (BiSFET)" in "Beyond CMOS Logic Switches," T.-J. King and K. Kuhn, Eds., Cambridge: Cambridge Univ. Press, 2015.

Patents:

United States Patent 8188460, 2012

Bi-layer pseudo-spin field-effect transistor

United States Patent 8,198,707, 2012

Establishing a uniformly thin dielectric layer on graphene in a semiconductor device without affecting the properties of graphene

United States Patent 8,008,649, 2011

Incorporating gate control over a resonant tunneling structure in CMOS to reduce off-state current leakage, supply voltage and power consumption

US Patent 6,744,083, 2004

Submicron MOSFET having asymmetric channel profile

US Patent 6,420,219, 2002

Thin film transistor and method

US06320202

Bottom gated thin film transistors comprising Ge in a channel region

US06,319,799, 11/20/2001

High mobility heterojunction transistor and method

US06,313,486, 11/06/2001
Floating gate transistor having silicon germanium channel layer

US06,313,487, 11/06/2001
Vertical channel floating gate transistor having SiGe channel layer

US06214652
Thin film transistor and method of forming thin film transistors

US06,200,839
Methods of making thin film transistors

US06166398 12/26/2000 Thin film transistors

US06017782 01/25/2000 Thin film transistor and method of forming thin film transistors

US05985703 11/16/1999 Method of making thin film transistors

US05977560 11/02/1999
Thin film transistor constructions with polycrystalline silicon-germanium alloy doped with carbon in the channel region

US05953596 09/14/1999
Methods of forming thin film transistors

US05936262 08/10/1999 Thin film transistors

US05904513 05/18/1999 Method of forming thin film transistors

US05665981 09/09/1997
Thin film transistors and method of promoting large crystal grain size in the formation of polycrystalline silicon alloy thin films

US05548132 08/20/1996
Thin film transistor with large grain size DRW offset region and small grain size source and drain and channel regions

US05546340 08/13/1996
Non-volatile memory array with over-erase correction

US05436474 07/25/1995
Modulation doped field effect transistor having built-in drift field

US05432366 07/11/1995 P-I-N MOSFET for ULSI applications

US05109259 04/28/1992 Multiple DRAM cells in a trench

US05066607 11/19/1991

Method of making a trench DRAM cell with dynamic gain

US04999811 03/12/1991

Trench DRAM cell with dynamic gain

US04969019 11/06/1990 Three-terminal tunnel device

US04864374 09/05/1989

Two-transistor dram cell with high alpha particle immunity

US04713678 12/15/1987

dRAM cell and method

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JOHN MARKERT, MUSTAFA JAMIL, SANJAY BANERJEE, APS March Meeting 2008,
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Epitaxial Graphene by using Carbon Implant on the Si(111) Substrate" MRS Spring 2008.
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874. Leonard F. Register and Sanjay K. Banerjee, "Southwest Academy of Nanotechnology (SWAN)," The Eight International Nanotechnology Conference on Communication and Cooperation, Tsukuba, Japan, May 8-11, 2012, **Invited**

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877. Novel Transistor Concepts Based on 2D Systems- Graphene and Topological Insulators, Sanjay Banerjee and Frank Register, NSF/AFOSR 2D Workshop, Washington DC, May 2012, **Invited**.
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