

Edward T. Yu

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Citizenship: United States

Research Interests

Edward Yu directs a research laboratory concerned generally with the characterization, understanding, and application of physical phenomena in solid-state materials and device structures at nanometer to atomic length scales. Current research interests in his group include the following:

- photovoltaics and other technologies for energy harvesting, generation, and storage
- nanoscale imaging and characterization techniques, particularly based on proximal probes
- oxide materials and devices
- solid-state nanostructure physics and devices generally

Education

6/91	Ph.D., Applied Physics, California Institute of Technology ADVISOR: Professor Thomas C. McGill
6/86	A.M., Physics, Harvard University
6/86	A.B., Physics (<i>summa cum laude</i>), Harvard University

Professional Experience

2009 – present	PROFESSOR and JUDSON S. SWEARINGEN REGENTS CHAIR IN ENGINEERING, The University of Texas at Austin
2009 – present	ADJUNCT PROFESSOR, Electrical and Computer Engineering University of California, San Diego
1998 – 2009	PROFESSOR, Electrical and Computer Engineering University of California, San Diego
2008 – 2009	ASSOCIATE DIRECTOR, Center for Energy Research University of California, San Diego
1996 – 1998	ASSOCIATE PROFESSOR, Electrical and Computer Engineering University of California, San Diego
1992 – 1996	ASSISTANT PROFESSOR, Electrical and Computer Engineering University of California, San Diego
1/2000 – 6/2000	VICE-CHAIR, Electrical and Computer Engineering University of California, San Diego
Winter 1999	VISITING PROFESSOR, Electrical Engineering Stanford University
Winter 1999	VISITING ASSOCIATE, Applied Physics California Institute of Technology
9/1991 – 9/1992	POSTDOCTORAL FELLOW, IBM T. J. Watson Research Center ADVISOR: Dr. Jean-Marc Halbout
6/91 – 8/91	POSTDOCTORAL FELLOW, California Institute of Technology ADVISOR: Professor Thomas C. McGill

Academic and Professional Honors

2012	Fellow, IEEE
2009	Fellow, AVS
2003	Outstanding Speaker Award, Tri-Services Workshop on Process Induced Defects in Wide Bandgap Semiconductors
2003	Outstanding Speaker Award, ONR Workshop on Extended Defects in Wide Gap Semiconductors II
2000 – 01	Member, Defense Science Study Group
1995 – 98	Office of Naval Research Young Investigator Award
1995 – 97	Alfred P. Sloan Research Fellowship
1995 – 99	National Science Foundation CAREER Award
1997	ECE Graduate Teaching Award
1989 – 91	AT&T Bell Laboratories Ph.D. Scholarship
1986 –89	National Science Foundation Graduate Fellowship
1985	Phi Beta Kappa, Harvard University

Professional Activities**Member:**

Chair, DARPA Defense Sciences Research Council (DSRC), 2012 – 14
 Associate Chair/Chair-elect, DARPA Defense Sciences Research Council (DSRC), 2010 – 12
 Member, DARPA Defense Sciences Research Council (DSRC), 2007 –
 Fellow, DARPA Defense Sciences Research Council (DSRC), 2005-2007
 Member, Defense Science Study Group (DSSG), 2000-2001
 Program Chair, AVS Nanometer-Scale Science and Technology Division, 2003-04; Division Chair, 2002-03; Vice-Chair/Chair-elect, 2001-02; Member-at-Large, Division Board, 1998-2000
 General Chair, TMS Electronic Materials Committee, 2005–07; Vice-Chair/Program Chair, 2003-05; Secretary, 2001–03; Past Chair, 2007-09; Member, 1998-2009; Member-at-Large, 2009 – present
 American Physical Society
 Fellow, American Vacuum Society (AVS)
 Böhmische Physical Society
 Fellow, IEEE
 Materials Research Society

Conference Chair:

Program Chair, Conference on Physics and Chemistry of Semiconductor Interfaces (PCSI), 2002
 Program Chair, Electronic Materials Conference, 2004 and 2005
 General Chair, Electronic Materials Conference, 2006 and 2007

Program Committee Member (partial list):

Electronic Materials Conference, 1995-present
 Conference on Physics and Chemistry of Semiconductor Interfaces (PCSI), 2001-
 CIMTEC 2010, 5th Forum on New Materials (International Advisory Board), 2010
 SPIE Optics+Photonics: Solar Energy + Technology, Next Generation (Nano) Photonic and Cell Technologies for Solar Energy Conversion, 2010
 International Conference on InP and Related Materials, 2009
 International Conference on Nitride Semiconductors (ICNS-7), 2007

Sixth International Conference on Nanometer-Scale Science and Technology, 2000
AVS National Symposium, Nanometer-Scale Science and Technology Division, 1999-2000,
2003-04
SPIE Symposium on Instrumentation and Techniques for Nanoscale Materials and
Applications, 1999-2000
IEEE MTT-S International Microwave Symposium, 1994

Symposium Organizer:

1998 Spring Meeting, Materials Research Society
2001 Spring Meeting, Materials Research Society
2002 Fall Meeting, Materials Research Society

Guest Editor:

MRS Bulletin Special Issue on Nanoscale Characterization of Materials (August 1997)
MRS Bulletin Special Issue on Photon Management in Photovoltaics (June 2011)

Editorial Board Member:

International Journal of Modern Physics B/Modern Physics Letters B
Materials Science and Engineering Reports
IEEE Transactions on Nanotechnology

Reviewer:

Applied Physics Letters, IEEE Transactions on Microwave Theory and Techniques, IEEE Electron Device Letters, IEEE Transactions on Electron Devices, IEEE Transactions on Nanotechnology, Journal of Applied Physics, Journal of Vacuum Science and Technology, Micron, Nano Letters, Nature Communications, Nature Nanotechnology, Physical Review B, Review of Scientific Instruments, etc.
National Science Foundation, UC MICRO program, UC SMART program, etc.

Teaching Experience**University of California, San Diego****1992-1993:**

ECE 5B: Our Natural and Artificial Environment – Computers (W, introductory/nonmajor level)
ECE 121C: Electromagnetism III (S, senior level)

1993-1994:

ECE 239: Nanometer-Scale Probes and Devices (F, advanced graduate level)
ECE 5B: Our Natural and Artificial Environment – Computers (W, introductory/nonmajor level)
ECE 121C: Electromagnetism III (S, senior level)
ECE 138: Introduction to Semiconductor Devices (S, senior level)

1994-95:

ECE 138: Introduction to Semiconductor Devices (F, senior level)
ECE 5B: Our Natural and Artificial Environment – Computers (W, introductory/nonmajor level)
ECE 121C: Electromagnetism III (S, senior level)

1995-96:

ECE 103: Fundamentals of Devices and Materials (F, junior level)
ECE 5B: Our Natural and Artificial Environment – Computers (W, introductory/nonmajor level)

1996-97:

ECE 103: Fundamentals of Devices and Materials (F, junior level)
ECE 136: Fundamentals of Semiconductor Device Fabrication (W, senior level)
ECE 230C: Solid State Electronics III (S, graduate level)

1997-98:

ECE 103: Fundamentals of Devices and Materials (F, junior level)
ECE 134: Electronic Materials Science of Integrated Circuits (W, senior level)
ECE 230C: Solid State Electronics III (S, graduate level)

1998-99:

ECE 103: Fundamentals of Devices and Materials (F, junior level)
Sabbatical leave (W)
ECE 230C: Solid State Electronics III (S, graduate level)

1999-2000:

ECE 103: Fundamentals of Devices and Materials (F, junior level)
ECE 136: Fundamentals of Semiconductor Device Fabrication (W, senior level)
ECE 230C: Solid State Electronics III (S, graduate level)

2000-2001:

ECE 103: Fundamentals of Devices and Materials (F, junior level)
ECE 134: Electronic Materials Science of Integrated Circuits (W, senior level)
ECE 230C: Solid State Electronics III (S, graduate level)

2001-2002:

ECE 103: Fundamentals of Devices and Materials (F, junior level)
Course relief due to heavy University service (W)
ECE 230C: Solid State Electronics III (S, graduate level)

2002-2003:

ECE 103: Fundamentals of Devices and Materials (F, junior level)
Course relief due to heavy University service (W)
ECE 230C: Solid State Electronics III (S, graduate level)

2003-2004:

ECE 135A: Semiconductor Physics (F, senior level)
ECE 135B: Electronic Devices (W, senior level)
ECE 230C: Solid State Electronics III (S, graduate level)

2004-2005:

ECE 135A: Semiconductor Physics (F, senior level)
ECE 236A: Semiconductor Heterostructure Materials (F, graduate level)
ECE 135B: Electronic Devices (W, senior level)
ECE 230C: Solid State Electronics III (S, graduate level)

2005-2006:

ECE 236A: Semiconductor Heterostructure Materials (F, graduate level)
Sabbatical leave (W)

ECE 230C: Solid State Electronics III (S, graduate level)
ECE 294: Solid-State Electronics Graduate Seminar (S, graduate level)

2006-2007:

ECE 135A: Semiconductor Physics (F, senior level)
ECE 236A: Semiconductor Heterostructure Materials (W, graduate level)
ECE 230C: Solid State Electronics III (S, graduate level)

2007-2008:

ECE 212A: Principles of Nanoscience (F, graduate level)
ECE 236A: Semiconductor Heterostructure Materials (W, graduate level)
ECE 230C: Solid State Electronics III (S, graduate level)

2008-2009:

ECE 212A: Principles of Nanoscience (F, graduate level)
ECE 135B: Electronic Devices (W, senior level)
ECE 230C: Solid State Electronics III (S, graduate level)

The University of Texas at Austin

2009-2010:

EE 396K-23: Semiconductor Heterostructures (F, graduate level)
EE 396V: Advanced Solid-State Materials and Nanostructures (S, graduate level)

2010-2011:

EE 302: Introduction to Electrical Engineering (F, freshman level)
EE 396K-23: Semiconductor Heterostructures (S, graduate level)

2011-2012:

EE 302: Introduction to Electrical Engineering (F, freshman level)
EE 396K-23: Semiconductor Heterostructures (S, graduate level)

2012-2013:

EE 302: Introduction to Electrical Engineering (F, freshman level)
EE 396K-23: Semiconductor Heterostructures (S, graduate level)

2013-2014:

EE 302: Introduction to Electrical Engineering (F, freshman level)
EE 396K-23: Semiconductor Heterostructures (S, graduate level)

2014-2015:

EE 302: Introduction to Electrical Engineering (F, freshman level)
EE 396K-23: Semiconductor Heterostructures (S, graduate level)

2015-2016:

EE 302: Introduction to Electrical Engineering (F, freshman level)
EE 396K-23: Semiconductor Heterostructures (S, graduate level)

Departmental and University Service

University of California, San Diego

1992-1993:

Examiner, ECE Graduate Comprehensive Exam (Quantum Theory, Spring 1993)

1993-1994:

Examiner, ECE Graduate Comprehensive Exam (Quantum Theory, Fall 1993, Spring 1994)
Undergraduate Academic Advisor, Engineering Physics Program

1994-1995:

Member, ECE Undergraduate Affairs Committee
Member, ECE Graduate Admissions Committee
Initiator and Coordinator, ECE WWW site
Coordinator, Materials Science Graduate Qualifying Exam, Spring 1995
Undergraduate Academic Advisor, Engineering Physics Program

1995-1996:

Member, Executive Committee, UCSD Materials Science Program
Member and Chair, ECE Web Site Committee
Member, ECE Undergraduate Affairs Committee
Member, ECE Computer Committee
Member, ECE Graduate Admissions Committee
Undergraduate Academic Advisor, Engineering Physics Program
Faculty Advisor, UCSD IEEE Student Chapter

1996-1997:

Member, Executive Committee, UCSD Materials Science Program
Member and Chair, ECE Web Site Committee
Member, ECE Undergraduate Affairs Committee
Member, ECE Computer Committee
Member, ECE Graduate Admissions Committee
Undergraduate Academic Advisor, Engineering Physics Program
Faculty Advisor, UCSD IEEE Student Chapter

1997-1998:

Member, Executive Committee, UCSD Materials Science Program
Member and Chair, ECE Web Site Committee
Member, ECE Undergraduate Affairs Committee
Member, ECE Computer Committee
Member, ECE Graduate Admissions Committee
Undergraduate Academic Advisor, Engineering Physics Program
Faculty Advisor, UCSD IEEE Student Chapter

1998-1999:

Member, Executive Committee, UCSD Materials Science Program
Member and Chair, ECE Web Site Committee
Member, ECE Undergraduate Affairs Committee
Member, ECE Computer Committee
Member, ECE Graduate Admissions Committee

Undergraduate Academic Advisor, Engineering Physics Program
Faculty Advisor, UCSD IEEE Student Chapter

1999-2000:

Vice Chair/Student Affairs, ECE Department (Winter & Spring 2000)
Member, Executive Committee, UCSD Materials Science Program
Search Committee Member, Kazuo Iwama Chair in Materials Science
Search Committee Member, Director of the Center for Magnetic Recording Research
Member, UCSD University Graduate Fellowship Committee
Member and Chair, ECE Graduate Affairs Committee
Member, ECE Graduate Admissions Committee
Undergraduate Academic Advisor, Engineering Physics Program
Faculty Advisor, UCSD IEEE Student Chapter

2000-2001:

Member, Executive Committee, UCSD Materials Science Program
Search Committee Member, Kazuo Iwama Chair in Materials Science
Member, Committee on Ethos and Culture of the Jacobs School of Engineering, UCSD
Member and Chair, ECE Graduate Affairs Committee
Member, ECE Graduate Admissions Committee
Undergraduate Academic Advisor, Engineering Physics Program
Faculty Advisor, UCSD IEEE Student Chapter

2001-2002:

Member, Executive Committee, UCSD Materials Science Program
Member, UCSD Academic Senate Committee on Academic Personnel*
Chair, Sunset Review Committee for UCSD Center for Magnetic Recording Research
Search Committee (observing member), Kazuo Iwama Chair in Materials Science
Search Committee (observing member), ECE Electronic Devices and Materials faculty search
Member (FWS) and Chair (F), ECE Graduate Affairs Committee
Member, ECE Graduate Admissions Committee
Member, ECE Faculty Council**
Undergraduate Academic Advisor, Engineering Physics Program
Faculty Advisor, UCSD IEEE Student Chapter

2002-03:

Member, Executive Committee, UCSD Materials Science Program
Vice-Chair, UCSD Academic Senate Committee on Academic Personnel*
Member, University of California Committee on Academic Personnel (WS)
Search Committee (observing member), ECE Electronic Devices and Materials faculty search
Member, ECE Graduate Affairs Committee
Member, ECE Graduate Admissions Committee
Undergraduate Academic Advisor, Engineering Physics Program

* This is the committee that reviews and makes recommendations for personnel actions (appointment, promotion, acceleration, etc.) for all academic personnel at UCSD, including SOM and SIO. Approximately 600 cases/year are considered.

** This is the ECE faculty advisory committee to the Department Chair.

2003-04:

Member, Executive Committee, UCSD Materials Science and Engineering Program
Member (F), UCSD Academic Senate Committee on Academic Personnel*
Member, ECE Graduate Affairs Committee
Member, ECE Graduate Admissions Committee
Member, ECE Computer Committee
Undergraduate Academic Advisor, Engineering Physics Program

2004-05:

Member, Executive Committee, UCSD Materials Science and Engineering Program
Vice-Chair, UCSD Academic Senate Committee on Admissions
Member, ECE Graduate Affairs Committee
Chair, ECE Graduate Admissions Committee
Member, ECE Departmental Faculty Recruiting Committee
Member, ECE Faculty Search Committee in Micro/Nanotechnology
Member, ECE Faculty Workload Committee
Member, CMRR Endowed Chair Search Committee
Member (1), Chair (1), ECE Department ad hoc faculty review committees
Undergraduate Academic Advisor, Engineering Physics Program and ECE Devices/Materials option

2005-06:

Member, University of California IUCRP Executive Committee on Electronic Manufacturing/New Materials
Member, Executive Committee, UCSD Materials Science and Engineering Program
Chair (F), Member (W,S), ECE Graduate Admissions Committee
Member, ECE Departmental Faculty Recruiting Committee
Member, ECE Faculty Search Committee in Nano Devices/Materials
Member, ECE Faculty Workload Committee
Member, CMRR Endowed Chair Search Committee
Member (2), ECE Department ad hoc faculty review committees
Undergraduate Academic Advisor, Engineering Physics Program and ECE Devices/Materials option

2006-07:

Member, University of California IUCRP Executive Committee on Electronic Manufacturing/New Materials
Member, Executive Committee, UCSD Materials Science and Engineering Program
Member (F), UCSD Academic Senate Committee on Committees
Member, UCSD Ethics Program Work Group
Chair, ECE Graduate Admissions Committee
Chair, ECE Faculty Search Committee in Nanotechnology
Member, ECE Committee on Charting the Course IV (long-range planning)
Member (3), ECE Department ad hoc faculty review committees
Undergraduate Academic Advisor, Engineering Physics Program and ECE Devices/Materials option
Graduate Academic Advisor, Applied Physics/Electronic Devices and Materials area

2007-08:

Member, University of California IUCRP Executive Committee on Electronic Manufacturing/New

Materials

Member, Executive Committee, UCSD Materials Science and Engineering Program

Member and Vice Chair, UCSD Academic Senate Committee on Admissions

Chair, ECE Space Committee

Member, ECE Faculty Search Committee in Nanotechnology

Chair (1), Member (1), ECE Department ad hoc faculty review committees

Undergraduate Academic Advisor, Engineering Physics Program and ECE Devices/Materials option

Graduate Academic Advisor, Applied Physics/Electronic Devices and Materials area

2008-09:

Associate Director, UCSD Center for Energy Research

Chair, UCSD Academic Senate Committee on Admissions

Member, UCSD Academic Senate Council

Member, UCSD Academic Senate-Administration Council

Member, UCSD Enrollment Planning Committee

Member, University of California IUCRP Executive Committee on Electronic Manufacturing/New Materials

Member, Executive Committee, UCSD Materials Science and Engineering Program

Member, ECE Faculty Search Committee

Member, Mechanical & Aerospace Engineering Faculty Search Committee in Energy

Chair (1), ECE Department ad hoc faculty review committees

Undergraduate Academic Advisor, Engineering Physics Program and ECE Devices/Materials option

Graduate Academic Advisor, Nanoscale Devices & Systems area

The University of Texas at Austin**2010-11:**

Member, Cockrell School Promotion and Tenure Committee

Member, Cockrell School Hocott Award Committee

Member, EERC Space Policy Committee

Member, ECE Faculty Search Committee

Member, ECE Faculty Expectations Committee

2011-12:

Chair, Cockrell School Promotion and Tenure Committee

Member, Cockrell School Awards Committee

Member, EERC Space Policy Committee

Member, ECE Faculty Expectations Committee

Member, ECE Teaching Awards Committee

Member, ECE Faculty Search Committee

2012-13:

Chair, ECE Faculty Search Committee

Member, EERC Space Policy Committee

Member, ECE Faculty Expectations Committee

2013-14:

Member, ECE Faculty Search Committee, Dula Cockrell Centennial Chair in Engineering
Member, EERC Space Policy Committee

2014-15:

Member, ECE Faculty Search Committee, Dula Cockrell Centennial Chair in Engineering
Member, EERC Space Policy Committee
Member, Texas Materials Institute Facilities Committee
Member, University of Texas Faculty Council
Member, University of Texas Faculty Grievance Committee
Member, University of Texas Faculty Building Advisory Committee

2014-15:

Chair, ECE Faculty Search Committee
Member, ECE Search Committee, Dula Cockrell Centennial Chair in Engineering
Member, EERC Space Policy Committee
Member, Texas Materials Institute Facilities Committee
Member, University of Texas Faculty Council
Member, University of Texas Faculty Grievance Committee
Member, University of Texas Faculty Parking and Transportation Services Committee

Personnel Supervised:**Current Graduate Students:**

Christopher Brennan [B.S., University of Massachusetts at Amherst; Ph.D. candidate (Electrical Engineering) 2012 -]
Heng-Lu Chang [B.S., National Taiwan University; Ph.D. candidate (Electrical Engineering) 2014 -]
Gabriel Cossio [B.S., UT Austin; Ph.D. candidate (Electrical Engineering) 2014 -]
Li Ji [B.S., Xiamen University; Ph.D. candidate (Electrical Engineering) 2011 -]
Soonil Lee [B.S., M.S., Yonsei University; Ph.D. candidate (Electrical Engineering) 2015 -]
Zhongjian Zhang [B.S., Princeton University; Ph.D. candidate (Electrical Engineering) 2011-]

Current Postdoctoral Fellows and Visitors:**Current Undergraduate Students:**

Alexander Mo
Kalhan Koul

Research Group Alumni:

Anton Arriagada [B.S. (EE), Cal Poly Pomona, June 2006; subsequently graduate student at UCSD]
Sara G. Bodde [B.S. (ChE), UCSD, June 2002, subsequently graduate student at UCSD]
Mark Cerutti [B.S. (EE), UCSD, June 2004; subsequently graduate student at UCSD]
Michael Clovis [B.S., UCSD, June 1997; subsequently at Intel (Oregon)]
Dr. Xiaozhong Dang [Postdoctoral fellow, UCSD, 1998-2000; currently at Western Digital (Fremont, CA)]
Dr. Vaishno Dasika [Postdoctoral fellow, UT Austin, 2011-14; currently at Texas Instruments]
Dr. Shadi A. Dayeh [Ph.D., UCSD, December 2008; currently Assistant Professor at UC San Diego]
Jennie Lou de Quinto [B.S. (EE), UCSD, June 2003; subsequently graduate student at USC]
Kristel Deems [B.S., UT Austin, May 2013; currently graduate student at UC Berkeley]

Dr. Daniel Derkaes [Ph.D., UCSD, March 2009; currently at Emcore Corporation]
Matthew Dicken [B.S., UCSD, June 2003; subsequently graduate student at Caltech]
Ryan Donohue [B.S., UCSD, June 1996; subsequently enrolled as EE graduate student at Stanford]
Alex Dunlap [B.S. (EE) San Jose State University; currently graduate student at Georgia Tech]
Bin Feng [M.S., UCSD, June 2005; currently at General Photonics (Chino, CA)]
Marzella Goerig [visiting graduate student, UT Austin, 2013; currently graduate student at TU Clausthal]
Stephen Hamann [B.S. candidate, EE, UCSD]
Byron Ho [B.S., UCSD, June 2008; subsequently graduate student at UC Berkeley]
Dr. Chengqing Hu [Ph.D., UT Austin, August 2015; currently at Intel]
Dr. Ronald X. Hu [Postdoctoral fellow, UCSD; subsequently at Nokia (San Diego, CA)]
Jennifer J. Kim [M.S., UCSD, June 1995; subsequently at Conexant (San Diego, CA)]
Li Jen Ko [B.S., UCSD, June 1996; subsequently graduate student in EE at UCLA]
Dr. Jeremy Law [Ph.D., UCSD, October 2009; subsequently postdoctoral fellow at UCSB]
Dr. Albert Y. Lew [Ph.D., UCSD, June 1997; currently at Texas Instruments (Dallas, TX)]
Dr. Mo Li [graduate student, UCSD, 2001-03; currently Assistant Professor at University of Minnesota]
Dr. Ping-Chun Li [Ph.D., UT Austin, June 2014; currently at Intel (Oregon)]
Dr. Xiaohan Li [Ph.D., UT Austin, June 2015; currently at NanoFlex Power]
Dr. Swee Hoe Lim [Ph.D., UCSD, July 2009; currently at Epiworks]
Mark Llorente [B.S., University of California, Berkeley; Ph.D. candidate (Materials Science, UCSD), 2008 -]
Warren Mar [B.S. (EE/Physics), UCSD, June 2005; subsequently graduate student at Stanford University]
Peter Matheu [M.S., UCSD, June 2007; subsequently graduate student at University of California, Berkeley]
Christopher W. McKinney [C. Phil., UCSD, June 2002, currently at City of San Diego, CA]
Adam McMullen [undergraduate ECE student at Rice University]
Dr. Claiborne McPheeters [Ph.D., UT Austin, May 2012; currently at Emcore Corporation]
Dr. Eric J. Miller [Ph.D., UCSD, June 2003; currently at Boeing Satellite Systems (El Segundo, CA)]
Dr. Cengiz S. Ozkan [Postdoctoral fellow, UCSD; currently Professor at UC Riverside]
Dr. Keunwoo Park [Ph.D., UT Austin, December 2013; currently at Intel (Oregon)]
Scott Petersen [B.S., UCSD, December 1997; subsequently at Systems Engineering Associates]
Dr. Edward J. Preisler [B.S., UCSD, June 1998; Ph.D. in Applied Physics at Caltech, 2003]
Dr. Sourobh Raychaudhuri [Ph.D., UCSD, January 2009; currently research staff member at PARC]
Dr. Paul A. Rosenthal [Ph.D., UCSD, December 2002; currently at Boeing Satellite Systems (El Segundo, CA)]
Wesley T. Salzillo [M.S., UCSD, 2000; currently at St. Albert's Priory (Oakland, CA)]
Ted Sanders [B.S., EE, UCSD, 2010; currently graduate student at Stanford University]
Dr. Daniel M. Schaadt [Ph.D., UCSD, June 2003; currently Professor at TU Clausthal, Germany]
Jonathan Shaw [B.S. (EE), UCSD, June 2006; currently at IBM]
Dr. Blake Simpkins [Ph.D., UCSD, June 2004; currently at Naval Research Laboratory (Washington, DC)]
Dr. Kurt V. Smith [Ph.D., UCSD, December 2000; currently at Transphorm (Santa Barbara, CA)]
Dr. Brett L. Stein [Ph.D., UCSD, December 1998; currently at Neuberger Investment Management]
Ruifeng Sun [M.S., UCSD, 2003; subsequently graduate student at University of Oregon]
Song Sun [M.Eng., UCSD, 2009]
Jonathan Talcott [M.S., UCSD, 2004, currently at Rockwell Collins (Des Moines, IA)]
Professor Cunda Wang [Visiting researcher, UCSD; Professor of Applied Physics, Tianjin University]
Raymond Yakura [M.S., UCSD, June 1998; currently at Teradyne (Agoura Hills, CA)]
Dr. Hongtao Zhang [Ph.D., UCSD, June 2006, currently at Oracle, Inc.]
Dr. Xiaotian Zhou [Ph.D., UCSD, June 2007, subsequently at Spansion, Inc. (Sunnyvale, CA)]

Dr. Lei Zhu [Ph.D., UCSD, June 2009, postdoc, 2009-11; currently at BNP Paribas]

Dr. Songlin Zuo [Ph.D., UCSD, June 2002; currently at Qualcomm, Inc. (San Diego, CA)]

Publications of Edward T. Yu

• denotes publication with ETY or member of ETY group as first author

REFEREED JOURNAL PUBLICATIONS:

1. • E. T. Yu and T. C. McGill, "III-V/II-VI Double-Barrier Resonant Tunneling Structures," *Appl. Phys. Lett.* **53**, 60 (1988).
2. • E. T. Yu, D. H. Chow, and T. C. McGill, "Commutativity of the GaAs/AlAs (100) Valence Band Offset," *Phys. Rev. B* **38**, 12764 (1988).
3. • E. T. Yu, M. K. Jackson, and T. C. McGill, "Hole Tunneling Times in GaAs/AlAs Double Barrier Heterostructures," *Appl. Phys. Lett.* **55**, 744 (1989).
4. • E. T. Yu, D. H. Chow, and T. C. McGill, "Commutativity of the GaAs/AlAs (100) Valence Band Offset," *J. Vac. Sci. Technol. B* **7**, 391 (1989).
5. D. A. Collins, D. H. Chow, D. Z.-Y. Ting, E. T. Yu, J. R. Soderstrom, and T. C. McGill, "Large Peak-to-Valley Current Ratios in Triple Barrier Heterostructures," *Solid-State Electron.* **32**, 1095 (1989).
6. • E. T. Yu, E. T. Croke, T. C. McGill, and R. H. Miles, "Measurement of the Valence Band Offset in Strained Si/Ge (100) Heterojunctions by X-Ray Photoelectron Spectroscopy," *Appl. Phys. Lett.* **56**, 569 (1990).
7. J. R. Soderstrom, E. T. Yu, M. K. Jackson, Y. Rajakarunanyake, and T. C. McGill, "Two Band Modelling of Narrow Bandgap and Interband Tunneling Devices," *J. Appl. Phys.* **68**, 1372 (1990).
8. D. H. Chow, E. T. Yu, J. R. Soderstrom, D. Z.-Y. Ting, and T. C. McGill, "Negative Differential Resistance Due to Resonant Interband Tunneling of Holes," *J. Appl. Phys.* **68**, 3744 (1990).
9. D. Z.-Y. Ting, E. T. Yu, D. A. Collins, D. H. Chow, and T. C. McGill, "Modeling of Novel Heterojunction Tunnel Structures," *J. Vac. Sci. Technol. B* **8**, 810 (1990).
10. • E. T. Yu, E. T. Croke, D. H. Chow, D. A. Collins, M. C. Phillips, T. C. McGill, J. O. McCaldin, and R. H. Miles, "Measurement of the Valence Band Offset in Novel Heterojunction Systems: Si/Ge (100) and AlSb/ZnTe (100)," *J. Vac. Sci. Technol. B* **8**, 908 (1990).
11. D. A. Collins, D. H. Chow, D. Z.-Y. Ting, E. T. Yu, J. R. Soderstrom, and T. C. McGill, "Evidence for Coherent Interaction Between Quantum Well States in AlAs/GaAs Triple Barrier Heterostructures," *Superlattices and Microstructures* **8**, 455 (1990).
12. D. A. Collins, E. T. Yu, Y. Rajakarunanyake, J. R. Soderstrom, D. Z.-Y. Ting, D. H. Chow, and T. C. McGill, "Experimental Observation of Negative Differential Resistance from an InAs/GaSb Interface," *Appl. Phys. Lett.* **57**, 683 (1990).
13. D. Z.-Y. Ting, D. A. Collins, E. T. Yu, D. H. Chow, and T. C. McGill, "Large Peak Current Densities in Novel Resonant Interband Tunneling Heterostructures," *Appl. Phys. Lett.* **57**, 1257 (1990).
14. D. A. Collins, D. Z.-Y. Ting, D. H. Chow, E. T. Yu, J. R. Soderstrom, Y. Rajakarunanyake, and T. C. McGill, "Interband Tunneling in InAs/GaSb/AlSb Heterostructures," *J. Cryst. Growth* **111**, 664 (1991).
15. M. C. Phillips, E. T. Yu, Y. Rajakarunanyake, J. O. McCaldin, D. A. Collins, and T. C. McGill, "Characterization of CdSe/ZnTe Heterojunctions," *J. Cryst. Growth* **111**, 820 (1991).

16. D. Z.-Y. Ting, E. T. Yu, and T. C. McGill, "The Role of Heavy-Hole States in Interband Tunnel Structures," *Appl. Phys. Lett.* **58**, 292 (1991).
17. • E. T. Yu, D. A. Collins, D. Z.-Y. Ting, D. H. Chow, and T. C. McGill, "Demonstration of Resonant Transmission in InAs/GaSb/InAs Interband Tunneling Devices," *Appl. Phys. Lett.* **57**, 2675 (1990).
18. D. Z.-Y. Ting, E. T. Yu, and T. C. McGill, "Band Structure Effects on Interband Tunnel Structures," *J. Vac. Sci. Technol. B* **9**, 2405 (1991).
19. • E. T. Yu, M. C. Phillips, J. O. McCaldin, and T. C. McGill, "Measurement of the CdSe/ZnTe Valence Band Offset by XPS," *J. Vac. Sci. Technol. B* **9**, 2233 (1991).
20. D. Z.-Y. Ting, E. T. Yu, and T. C. McGill, "Effect of Band Mixing on Hole Tunneling Times in GaAs/AlAs Double Barrier Heterostructures," *Phys. Rev. B* **45**, 3576 (1992).
21. D. Z.-Y. Ting, E. T. Yu, and T. C. McGill, "Multiband Treatment of Quantum Transport in Interband Tunnel Devices," *Phys. Rev. B* **45**, 3583 (1992).
22. • E. T. Yu, M. C. Phillips, D. H. Chow, D. A. Collins, M. W. Wang, J. O. McCaldin, and T. C. McGill, "Interfacial Reactions and Band Offsets in the AlSb/GaSb/ZnTe Material System," *Phys. Rev. B* **46**, 13379 (1992).
23. • E. T. Yu, M. B. Johnson, and J.-M. Halbout, "Electrical Profiling of Si (001) p-n Junctions by Scanning Tunneling Microscopy," *Appl. Phys. Lett.* **61**, 201 (1992).
24. R. M. Feenstra, E. T. Yu, J. M. Woodall, P. D. Kirchner, C. Lin, and G. D. Pettit, "Cross-Sectional Imaging and Spectroscopy of GaAs Doping Superlattices by Scanning Tunneling Microscopy," *Appl. Phys. Lett.* **61**, 795 (1992).
25. • E. T. Yu, M. B. Johnson, V. P. Kesan, J.-M. Halbout, and S. S. Iyer, "Cross-Sectional Scanning Tunneling Microscopy of MBE-Grown Si p-n Junctions and Si/SiGe Superlattices," *J. Cryst. Growth* **127**, 435 (1993).
26. • E. T. Yu, M. B. Johnson, A. R. Powell, J.-M. Halbout, and S. S. Iyer, "Scanning Tunneling Microscopy and Spectroscopy of Si-Based Heterostructures," *J. Vac. Sci. Technol. B* **11**, 1149 (1993).
27. • E. T. Yu, J.-M. Halbout, A. R. Powell, and S. S. Iyer, "Scanning Tunneling Microscopy and Spectroscopy of Si/SiGe (001) Superlattices," *Appl. Phys. Lett.* **61**, 3166 (1992).
28. M. W. Wang, M. C. Phillips, J. F. Swenberg, E. T. Yu, J. O. McCaldin, and T. C. McGill, "n-CdSe/p-ZnTe Based Wide Band-Gap Light Emitters – Numerical Simulation and Design," *J. Appl. Phys.* **73**, 4660 (1993).
29. • E. T. Yu, J. O. McCaldin, and T. C. McGill, "Band Offsets in Semiconductor Heterojunctions," *Solid State Phys.* **46**, 1 (1992).
30. M. W. Wang, J. F. Swenberg, R. J. Miles, M. C. Phillips, E. T. Yu, J. O. McCaldin, R. W. Grant, and T. C. McGill, "Measurement of the MgSe/Cd_{0.54}Zn_{0.46}Se Valence Band Offset by X-ray Photoelectron Spectroscopy," *J. Cryst. Growth* **138**, 508 (1994).
31. M. W. Wang, J. F. Swenberg, M. C. Phillips, E. T. Yu, J. O. McCaldin, R. W. Grant, and T. C. McGill, "X-Ray Photoelectron Spectroscopy Measurement of Valence Band Offsets for Mg-Based Semiconductor Compounds," *Appl. Phys. Lett.* **64**, 3455 (1994).

32. • A. Y. Lew, E. T. Yu, D. H. Chow, and R. H. Miles, "Scanning Tunneling Microscopy of InAs/Ga_{1-x}In_xSb Superlattices," *Appl. Phys. Lett.* **65**, 201 (1994).
33. • A. Y. Lew, C. H. Yan, R. B. Welstand, J. T. Zhu, C. W. Tu, E. T. Yu, and P. K. L. Yu, "Interface Structure in Arsenide/Phosphide Heterostructures Grown by Gas-Source MBE and Low-Pressure MOVPE," *J. Elec. Mater.* **26**, 64 (1997).
34. • A. Y. Lew, C. H. Yan, C. W. Tu, and E. T. Yu, "Characterization of Arsenide/Phosphide Heterostructure Interfaces by Scanning Tunneling Microscopy," *Appl. Surf. Sci.* **104**, 522 (1996).
35. C. H. Yan, A. Y. Lew, E. T. Yu, and C. W. Tu, "P₂ Induced P/As Exchange on GaAs During Gas-Source Molecular-Beam Epitaxy Growth Interruption," *J. Cryst. Growth* **164**, 77 (1996).
36. • E. T. Yu, K. Barmak, P. Ronsheim, M. B. Johnson, P. McFarland, and J.-M. Halbout, "Two-Dimensional Profiling of Shallow Junctions in Si Metal-Oxide-Semiconductor Structures Using Scanning Tunneling Spectroscopy and Transmission Electron Microscopy," *J. Appl. Phys.* **79**, 2115 (1996).
37. • A. Y. Lew, C. H. Yan, C. W. Tu, and E. T. Yu, "Characterization of Arsenide/Phosphide Heterostructure Interfaces Grown by Gas-Source Molecular-Beam Epitaxy," *Appl. Phys. Lett.* **67**, 932 (1995).
38. • A. Y. Lew, E. T. Yu, and Y.-H. Zhang, "Atomic-Scale Structure of InAs/InAsSb Superlattices Grown by Modulated Molecular-Beam Epitaxy," *J. Vac. Sci. Technol. B* **14**, 2940 (1996).
39. • B. L. Stein, E. T. Yu, E. T. Croke, A. T. Hunter, T. Laursen, A. E. Bair, J. W. Mayer, and C. C. Ahn, "Band Offsets in Si/Si_{1-x-y}Ge_xC_y Heterojunctions Measured by Admittance Spectroscopy," *Appl. Phys. Lett.* **70**, 3413 (1997).
40. Y.-H. Zhang, A. Y. Lew, E. T. Yu, and Y. Chen, "Microstructural Properties of InAs/InAs_{1-x}Sb_x Superlattices and InAs_{1-x}Sb_x Ordered Alloys Grown by Modulated Molecular Beam Epitaxy," *J. Cryst. Growth* **175/176**, 833 (1997).
41. • E. T. Yu, "Nanoscale Characterization of Semiconductor Materials and Devices Using Scanning Probe Techniques," *Mat. Sci. Eng. Repts.* **R17**, 147 (1996).
42. • A. Y. Lew, S.-L. Zuo, E. T. Yu, and R. H. Miles, "Anisotropy and Growth-Sequence Dependence of Atomic-Scale Interface Structure in InAs/Ga_{1-x}In_xSb Superlattices," *Appl. Phys. Lett.* **70**, 75 (1997).
43. Q. Z. Liu, L. Shen, K. V. Smith, E. T. Yu, S. S. Lau, N. R. Perkins, and T. F. Kuech, "Epitaxy of Al Films on GaN Studied by Reflection High Energy Electron Diffraction and Atomic Force Microscopy," *Appl. Phys. Lett.* **70**, 990 (1997).
44. • B. L. Stein, E. T. Yu, E. T. Croke, A. T. Hunter, T. Laursen, A. E. Bair, J. W. Mayer, and C. C. Ahn, "Measurement of Band Offsets in Si/Si_{1-x}Ge_x and Si/Si_{1-x-y}Ge_xC_y Heterojunctions," *J. Vac. Sci. Technol. B* **15**, 1108 (1997).
45. • E. T. Yu, "Cross-Sectional Scanning Tunneling Microscopy," *Chemical Reviews* **97**, 1017 (1997).
46. P. M. Asbeck, E. T. Yu, S. S. Lau, G. J. Sullivan, J. Van Hove, and J. M. Redwing, "Piezoelectric Charge Densities in AlGaIn/GaN HFET's," *Electronics Letters* **33**, 1230 (1997).
47. • E. T. Yu and S. J. Pennycook, "Nanoscale Characterization of Materials," *MRS Bulletin* **22**, 17 (1997).

48. • E. T. Yu, "Atomic-Scale Characterization of Semiconductor Heterostructures By Cross-Sectional Scanning Tunneling Microscopy," *MRS Bulletin* **22**, 22 (1997).
49. • A. Y. Lew, S. L. Zuo, E. T. Yu, D. H. Chow, and R. H. Miles, "Correlation Between Atomic-Scale Structure and Mobility Anisotropy in InAs/Ga_{1-x}In_xSb Superlattices," *Phys. Rev. B* **57**, 6534 (1998).
50. • E. T. Yu, G. J. Sullivan, P. M. Asbeck, C. D. Wang, D. Qiao, and S. S. Lau, "Measurement of Piezoelectrically Induced Charge in GaN/AlGaN Heterostructure Field-Effect Transistors," *Appl. Phys. Lett.* **71**, 2794 (1997).
51. • B. L. Stein, E. T. Yu, E. T. Croke, A. T. Hunter, T. Laursen, A. E. Bair, J. W. Mayer, and C. C. Ahn, "Electronic Properties of Si/Si_{1-x}Ge_xC_y Heterojunctions," *J. Vac. Sci. Technol. B* **16**, 1639 (1998).
52. • S. L. Zuo, W. G. Bi, C. W. Tu, and E. T. Yu, "Atomic Scale Compositional Structure of InAsP/InP and InNAsP/InP Heterostructures Grown by Molecular-Beam Epitaxy," *J. Vac. Sci. Technol. B* **16**, 2395 (1998).
53. • C. D. Wang, L. S. Yu, S. S. Lau, E. T. Yu, W. Kim, A. Botchkarev, and H. Morkoc, "Deep level defects in n-type GaN grown by molecular-beam epitaxy," *Appl. Phys. Lett.* **72**, 1211 (1998).
54. • S. L. Zuo, W. G. Bi, C. W. Tu, and E. T. Yu, "A scanning tunneling microscopy study of atomic-scale clustering in InAsP/InP heterostructures," *Appl. Phys. Lett.* **72**, 2135 (1998).
55. • E. T. Yu, "Cross-Sectional Scanning Tunneling Microscopy of Atomic-Scale Structure in Semiconductor Heterostructures," *Micron* **30**, 51 (1999).
56. • X. Z. Dang, D. J. Qiao, C. D. Wang, L.S. Yu, S. S. Lau, E. T. Yu, and J. M. Redwing, "Persistent photoconductivity and defect levels in n-type AlGaIn/GaN heterostructures," *Appl. Phys. Lett.* **72**, 2745 (1998).
57. • B. L. Stein, E. T. Yu, E. T. Croke, A. T. Hunter, T. Laursen, J. W. Mayer, and C. C. Ahn, "Deep-level transient spectroscopy of Si/SiGeC heterostructures," *Appl. Phys. Lett.* **73**, 647 (1998).
58. • E. T. Yu, X. Z. Dang, L. S. Yu, D. Qiao, P. M. Asbeck, S. S. Lau, G. J. Sullivan, K. S. Boutros, and J. M. Redwing, "Schottky barrier engineering in III-V nitrides via the piezoelectric effect," *Appl. Phys. Lett.* **73**, 1880 (1998).
59. • D. M. Schaadt, E. T. Yu, S. Sankar, and A. E. Berkowitz, "Charge storage in Co nanoclusters embedded in SiO₂ by scanning force microscopy," *Appl. Phys. Lett.* **74**, 472 (1999).
60. C. H. Yun, N. W. Cheung, Y. Zheng, R. J. Welty, Z. F. Guan, K. V. Smith, P. M. Asbeck, E. T. Yu, and S. S. Lau, "Transfer of patterned ion-cut silicon layers," *Appl. Phys. Lett.* **73**, 2772 (1998).
61. C. Shi, P. M. Asbeck, and E. T. Yu, "Piezoelectric polarization associated with dislocations in wurtzite GaN," *Appl. Phys. Lett.* **74**, 573 (1999).
62. • S. L. Zuo, E. T. Yu, A. A. Allerman, and R. M. Biefeld, "Cross-sectional scanning tunneling microscopy of InAsSb/InAsP superlattices," *J. Vac. Sci. Technol. B* **17**, 1781 (1999).
63. • E. T. Yu, P. M. Asbeck, S. S. Lau, X. Z. Dang, and G. J. Sullivan, "Spontaneous and piezoelectric polarization effects in III-V nitride heterostructures," *J. Vac. Sci. Technol. B* **17**, 1742 (1999).

64. • E. T. Yu, S. L. Zuo, W. G. Bi, C. W. Tu, A. A. Allerman, and R. M. Biefeld, "Nanometer-scale compositional structure in III-V semiconductor heterostructures characterized by scanning tunneling microscopy," *J. Vac. Sci. Technol. A* **17**, 2246 (1999).
65. • X. Z. Dang, R. J. Welty, D. Qiao, P. M. Asbeck, S. S. Lau, E. T. Yu, K. S. Boutros, and J. M. Redwing, "Fabrication and characterization of enhanced barrier AlGaIn/GaN heterostructure field-effect transistor," *Electronics Letters* **35**, 602 (1999).
66. • X. Z. Dang, P. M. Asbeck, E. T. Yu, G. J. Sullivan, M. Y. Chen, B. T. McDermott, K. S. Boutros, and J. M. Redwing, "Measurement of drift mobility in AlGaIn/GaN heterostructure field-effect transistor," *Appl. Phys. Lett.* **74**, 3890 (1999).
67. P. M. Asbeck, E. T. Yu, S. S. Lau, W. Sun, X. Dang, and C. Shi, "Enhancement of base conductivity via the piezoelectric effect in AlGaIn/GaN HBT's," *Solid State Electronics* **44**, 211 (2000).
68. • D. M. Schaadt, E. T. Yu, S. Sankar, and A. E. Berkowitz, "A monolithic field-effect-transistor-amplified magnetic field sensor," *Appl. Phys. Lett.* **75**, 731 (1999).
69. • K. V. Smith, E. T. Yu, J. M. Redwing, and K. S. Boutros, "Scanning capacitance microscopy of AlGaIn/GaN heterostructure field-effect transistor epitaxial layer structures," *Appl. Phys. Lett.* **75**, 2250 (1999).
70. • P. A. Rosenthal, E. T. Yu, R. L. Pierson, and P. J. Zampardi, "Characterization of Al_xGa_{1-x}As/GaAs heterojunction bipolar transistor structures using cross-sectional scanning force microscopy," *J. Appl. Phys.* **87**, 1937 (2000).
71. • K. V. Smith, E. T. Yu, J. M. Redwing, and K. S. Boutros, "Local electronic properties of AlGaIn/GaN heterostructures probed by scanning capacitance microscopy," *J. Elec. Mater.* **29**, 274 (2000).
72. • D. M. Schaadt, E. T. Yu, S. Sankar, and A. E. Berkowitz, "Proximal probe characterization of nanoscale charge transport properties in Co/SiO₂ multilayer structures," *J. Elec. Mater.* **29**, 1299 (2000).
73. • D. M. Schaadt, E. T. Yu, S. Sankar, and A. E. Berkowitz, "Characterization and analysis of a novel hybrid magnetoelectronic device for magnetic field sensing," *J. Vac. Sci. Technol. A* **18**, 1834 (2000).
74. • E. J. Miller, X. Z. Dang, H. H. Wieder, P. M. Asbeck, E. T. Yu, G. J. Sullivan, and J. M. Redwing, "Trap characterization by gate-drain conductance and capacitance dispersion studies in an AlGaIn/GaN HFET," *J. Appl. Phys.* **87**, 8070 (2000).
75. • K. V. Smith, X. Z. Dang, E. T. Yu, and J. M. Redwing, "Charging effects in AlGaIn/GaN heterostructures probed using scanning capacitance microscopy," *J. Vac. Sci. Technol. B* **18**, 2304 (2000).
76. • E. J. Miller, X. Z. Dang, and E. T. Yu, "Gate leakage current mechanisms in AlGaIn/GaN heterostructure field-effect transistors," *J. Appl. Phys.* **88**, 5951 (2000).
77. • K. V. Smith, E. T. Yu, C. Elsass, B. Heying, and J. S. Speck, "Localized variations in electronic structure of AlGaIn/GaN heterostructures grown by molecular-beam epitaxy," *Appl. Phys. Lett.* **79**, 2749 (2001).
78. • D. M. Schaadt, E. J. Miller, E. T. Yu, and J. M. Redwing, "Lateral variations in threshold voltage of an Al_xGa_{1-x}N/GaN heterostructure field-effect transistor," *Appl. Phys. Lett.* **78**, 88 (2001).

79. • X. Z. Dang, E. T. Yu, E. J. Piner, and B. T. McDermott, "Influence of surface processing and passivation on carrier concentrations and transport properties in AlGa_xN/GaN heterostructures," *J. Appl. Phys.* **90**, 1357 (2001).
80. • D. M. Schaadt, E. J. Miller, E. T. Yu, and J. M. Redwing, "Quantitative analysis of nanoscale electronic properties in an Al_xGa_{1-x}N/GaN heterostructure field-effect transistor structure," *J. Vac. Sci. Technol. B* **19**, 1671 (2001).
81. • E. J. Miller and E. T. Yu, "Influence of the dipole interaction energy on clustering in In_xGa_{1-x}N alloys," *Appl. Phys. Lett.* **78**, 2303 (2001).
82. B. B. Maranville, A. L. Shapiro, F. Hellman, D. M. Schaadt, and E. T. Yu, "Miscut-angle dependence of perpendicular magnetic anisotropy in thin epitaxial CoPt₃ films grown on vicinal MgO," *Appl. Phys. Lett.* **81**, 517 (2002).
83. L. Jia, E. T. Yu, D. Keogh, S. S. Lau, P. M. Asbeck, P. Miraglia, A. Roskowski, and R. F. Davis, "Polarization charges and polarization-induced barriers in Al_xGa_{1-x}N/GaN and In_yGa_{1-y}N/GaN heterostructures," *Appl. Phys. Lett.* **79**, 2916 (2001).
84. • E. J. Miller, D. M. Schaadt, E. T. Yu, C. Poblenz, C. Elsass, and J. S. Speck, "Reduction of reverse-bias leakage current in Schottky diodes on GaN grown by molecular-beam epitaxy using surface modification with an atomic force microscope," *J. Appl. Phys.* **91**, 9821 (2002).
85. • B. S. Simpkins, D. M. Schaadt, E. T. Yu, and R. J. Molnar, "Scanning Kelvin probe microscopy of surface electronic structure in GaN grown by hydride vapor phase epitaxy," *J. Appl. Phys.* **91**, 9924 (2002).
86. • S. L. Zuo, Y. G. Hong, E. T. Yu, and J. F. Klem, "Cross-sectional scanning tunneling microscopy of GaAsSb/GaAs quantum well structures," *J. Appl. Phys.* **92**, 3761 (2002).
87. • E. J. Miller, E. T. Yu, C. Poblenz, C. Elsass, and J. S. Speck, "Direct measurement of the polarization charge in AlGa_xN/GaN heterostructures using capacitance-voltage carrier profiling," *Appl. Phys. Lett.* **80**, 3551 (2002).
88. • D. M. Schaadt and E. T. Yu, "Scanning capacitance spectroscopy of an AlGa_xN/GaN heterostructure field-effect transistor: analysis of probe tip effects," *J. Vac. Sci. Technol. B* **20**, 1671 (2002).
89. • E. J. Miller, D. M. Schaadt, E. T. Yu, P. Waltereit, C. Poblenz, and J. S. Speck, "Reverse-bias leakage current reduction in GaN Schottky diodes by electrochemical surface treatment," *Appl. Phys. Lett.* **82**, 1293 (2003).
90. • P. A. Rosenthal, Y. Taur, and E. T. Yu, "Direct measurement and characterization of n⁺ super-halo implants in a 120 nm gate-length Si metal-oxide-semiconductor field-effect transistor using cross-sectional scanning capacitance microscopy," *Appl. Phys. Lett.* **81**, 3993 (2002).
91. • B. S. Simpkins and E. T. Yu, "Influence of AlN Buffer on Electronic Properties and Dislocation Microstructure of AlGa_xN/GaN Grown by Molecular Beam Epitaxy on SiC," *J. Vac. Sci. Technol. B* **21**, 1818 (2003).
92. • B. S. Simpkins, E. T. Yu, P. Waltereit, and J. S. Speck, "Correlated scanning Kelvin probe and conductive atomic force microscopy studies of dislocations in gallium nitride," *J. Appl. Phys.* **94**, 1448 (2003).

93. • E. J. Miller, D. M. Schaadt, E. T. Yu, X. L. Sun, L. J. Brillson, P. Waltereit, and J. S. Speck, "Origin and microscopic mechanism for suppression of leakage currents in Schottky contacts to GaN grown by molecular-beam epitaxy," *J. Appl. Phys.* **94**, 7611 (2003).
94. • E. J. Miller, E. T. Yu, P. Waltereit, and J. S. Speck, "Analysis of reverse bias leakage current mechanisms in GaN grown by molecular beam epitaxy," *Appl. Phys. Lett.* **84**, 535 (2004).
95. • B. S. Simpkins, E. T. Yu, U. Chowdhury, M. M. Wong, T. G. Zhu, D. W. Yoo, and R. D. Dupuis, "Local conductivity and surface photovoltage variations due to magnesium segregation in p-type GaN," *J. Appl. Phys.* **95**, 6225 (2004).
96. • H. Zhang, E. J. Miller, E. T. Yu, C. Poblenz, and J. S. Speck, "Analysis of interface electronic structure in $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{GaN}$ heterostructures," *J. Vac. Sci. Technol. B* **22**, 2169 (2004).
97. • H. Zhang, E. J. Miller, E. T. Yu, C. Poblenz, and J. S. Speck, "Measurement of polarization charge and conduction band offset at $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{GaN}$ heterojunction interfaces," *Appl. Phys. Lett.* **84**, 4644 (2004).
98. • D. M. Schaadt, E. T. Yu, V. Vaithyanathan, and D. G. Schlom, "Nanoscale current transport in epitaxial SrTiO_3 on $\text{n}^+\text{-Si}$ (001) investigated with conductive atomic force microscopy," *J. Vac. Sci. Technol. B* **22**, 2030 (2004).
99. • X. Zhou, E. T. Yu, D. Florescu, J. C. Ramer, D. S. Lee, and E. A. Armour, "Observation of subsurface monolayer thickness fluctuations in InGaN/GaN quantum wells by scanning capacitance microscopy and spectroscopy," *Appl. Phys. Lett.* **85**, 407 (2004).
100. • D. M. Schaadt, B. Feng, and E. T. Yu, "Enhanced semiconductor optical absorption via surface plasmon excitation in metal nanoparticles," *Appl. Phys. Lett.* **86**, 063106 (2005).
101. • X. Zhou, E. T. Yu, D. I. Florescu, J. C. Ramer, D. S. Lee, S. M. Ting, and E. A. Armour, "Observation of In concentration variations in InGaN/GaN quantum-well heterostructures by scanning capacitance microscopy," *Appl. Phys. Lett.* **86**, 202113 (2005).
102. • X. Zhou, E. T. Yu, D. I. Florescu, J. C. Ramer, D. S. Lee, S. M. Ting, and E. A. Armour, "Imaging of thickness and compositional fluctuations in InGaN/GaN quantum wells by scanning capacitance microscopy," *J. Vac. Sci. Technol. B* **23**, 1808 (2005).
103. • H. Zhang, E. J. Miller, and E. T. Yu, "Analysis of leakage current mechanisms in Schottky contacts to GaN and $\text{Al}_{0.25}\text{Ga}_{0.75}\text{N}/\text{GaN}$ grown by molecular-beam epitaxy," *J. Appl. Phys.* **99**, 023703 (2006).
104. • H. Zhang and E. T. Yu, "Demonstration and analysis of reduced reverse bias leakage current via design of nitride semiconductor heterostructures grown by molecular beam epitaxy," *J. Appl. Phys.* **99**, 014501 (2006).
105. • X. Zhou, E. T. Yu, D. S. Green, and J. S. Speck, "Dependence of local electronic structure in p-type GaN on crystal polarity and presence of inversion domain boundaries," *J. Vac. Sci. Technol. B* **24**, 245 (2006).
106. • B. S. Simpkins, H. Zhang, and E. T. Yu, "Defects in nitride semiconductors: from nanoscale imaging to macroscopic device behavior," *Materials Science and Semiconductor Processing* **9**, 308 (2006).
107. • S. Raychaudhuri and E. T. Yu, "Critical dimensions in coherently strained coaxial nanowire heterostructures," *J. Appl. Phys.* **99**, 114308 (2006).

108. • X. Zhou, S. A. Dayeh, D. Aplin, D. Wang, and E. T. Yu, "Scanned electrical probe characterization of carrier transport behavior in InAs nanowires," *J. Vac. Sci. Technol. B* **24**, 2036 (2006).
109. • S. Raychaudhuri and E. T. Yu, "Calculation of critical dimensions for wurtzite and cubic zincblende coaxial nanowire heterostructures," *J. Vac. Sci. Technol. B* **24**, 2053 (2006).
110. • X. Zhou, S. A. Dayeh, D. Aplin, D. Wang, and E. T. Yu, "Direct observation of ballistic and drift carrier transport regimes in InAs nanowires," *Appl. Phys. Lett.* **89**, 053113 (2006).
111. • D. Derkacs, S. H. Lim, P. Matheu, W. Mar, and E. T. Yu, "Improved performance of amorphous silicon solar cells via scattering from surface plasmon polaritons in nearby metallic nanoparticles," *Appl. Phys. Lett.* **89**, 093103 (2006).
112. • S. A. Dayeh, D. P. R. Aplin, X. Zhou, P. K. L. Yu, E. T. Yu, and D. Wang, "High electron mobility InAs nanowire field-effect transistors," *Small* **3**, 326 (2007).
113. • S. A. Dayeh, C. Soci, P. K. L. Yu, E. T. Yu, and D. Wang, "Influence of surface states on the extraction of transport parameters from InAs nanowire field-effect transistors," *Appl. Phys. Lett.* **90**, 162112 (2007).
114. • S. H. Lim, W. Mar, P. Matheu, D. Derkacs, and E. T. Yu, "Photocurrent spectroscopy of optical absorption enhancement in silicon photodiodes via scattering from surface plasmon polaritons in gold nanoparticles," *J. Appl. Phys.* **101**, 104309 (2007).
115. • X. Zhou, S. A. Dayeh, D. Wang, and E. T. Yu, "Analysis of local carrier modulation in InAs nanowire field-effect transistors," *J. Vac. Sci. Technol. B* **25**, 1427 (2007).
116. • S. A. Dayeh, C. Soci, P. K. L. Yu, E. T. Yu, and D. Wang, "Transport properties of InAs nanowire field-effect transistors: the effects of surface states," *J. Vac. Sci. Technol. B* **25**, 1432 (2007).
117. • X. Zhou, S. A. Dayeh, D. Wang, and E. T. Yu, "Scanning gate microscopy of InAs nanowires," *Appl. Phys. Lett.* **90**, 233118 (2007).
118. • S. A. Dayeh, E. T. Yu, and D. Wang, "III-V nanowire growth mechanism: V/III ratio and temperature effects," *Nano Lett.* **7**, 2486 (2007).
119. • S. A. Dayeh, E. T. Yu, and D. Wang, "Excess indium and substrate effects on the growth of InAs nanowires," *Small* **3**, 1683 (2007).
120. • S. A. Dayeh, E. T. Yu, and D. Wang, "Growth of InAs nanowires on SiO₂ substrates: nucleation, evolution and role of Au nanoparticles," *J. Phys. Chem. C* **111**, 13331 (2007).
121. • J. J. M. Law, E. T. Yu, B. A. Haskell, P. T. Fini, S. Nakamura, J. S. Speck, and S. P. DenBaars, "Characterization of nanoscale electronic structure in nonpolar GaN using scanning capacitance microscopy," *J. Appl. Phys.* **103**, 014305 (2008).
122. C. Novotny, E. T. Yu, and P. K. L. Yu, "InP nanowire/polymer hybrid photodiode," *Nano Lett.* **8**, 775 (2008).
123. • D. Derkacs, W. V. Chen, P. M. Matheu, S. H. Lim, P. K. L. Yu, and E. T. Yu, "Nanoparticle-induced light scattering for improved performance of quantum-well solar cells," *Appl. Phys. Lett.* **93**, 091107 (2008).

124. • P. Matheu, S. H. Lim, D. Derkacs, C. McPheeters, and E. T. Yu, "Metal and dielectric nanoparticle scattering for improved optical absorption in photovoltaic devices," *Appl. Phys. Lett.* **93**, 113108 (2008).
125. • S. A. Dayeh, D. Susac, K. L. Kavanagh, E. T. Yu, and D. Wang, "Field dependent transport properties in InAs nanowire field effect transistors," *Nano Lett.* **8**, 3114 (2008).
126. • S. A. Dayeh, P. Chen, Y. Jing, E. T. Yu, S. S. Lau, and D. Wang, "Vertical integration and electrical isolation of InAs nanowires on insulator on silicon," *Appl. Phys. Lett.* **93**, 203109 (2008).
127. • S. A. Dayeh, E. T. Yu, and D. Wang, "Transport coefficients of InAs nanowires as function of their diameter," *Small* **5**, 77 (2009).
128. • J. J. M. Law, S. A. Dayeh, D. Wang, and E. T. Yu, "Scanning capacitance characterization of potential screening in InAs nanowire devices," *J. Appl. Phys.* **105**, 014306 (2009).
129. • S. A. Dayeh, D. Susac, K. L. Kavanagh, E. T. Yu, and D. Wang, "Structural and room temperature transport properties of zincblende and wurtzite InAs nanowires," *Adv. Func. Mater.* **19**, 2102-08 (2009).
130. • S. H. Lim, D. Derkacs, and E. T. Yu, "Light scattering into silicon-on-insulator waveguide modes by random and periodic nanodot gold arrays," *J. Appl. Phys.* **105**, 073101 (2009).
131. • S. A. Dayeh, E. T. Yu, and D. Wang, "Surface Diffusion and Substrate - Nanowire Adatom Exchange in InAs Nanowire Growth," *Nano Lett.* **9**, 1967-72 (2009).
132. • S. Raychaudhuri, S. A. Dayeh, D. Wang, and E. T. Yu, "Precise semiconductor nanowire placement through dielectrophoresis," *Nano Lett.* **9**, 2260-66 (2009).
133. A. Arriagada, E. T. Yu, and P. Bandaru, "Determination of thermal parameters of one-dimensional nanostructures through a thermal transient method," *J. Therm. Anal. Calorim.* **97**, 1023-26 (2009).
134. • C. O. McPheeters, C. J. Hill, S. H. Lim, D. Derkacs, D. Z. Ting, and E. T. Yu, "Improved performance of In(Ga)As/GaAs quantum dot solar cells via light scattering by nanoparticles," *J. Appl. Phys.* **106**, 056101 (2009).
135. • S. H. Lim and E. T. Yu, "Ultraviolet and solar-blind spectral imaging with subwavelength transmission gratings," *Appl. Phys. Lett.* **95**, 161107 (2009).
136. • J. J. M. Law, E. T. Yu, G. Koblmuller, F. Wu, and J. S. Speck, "Low defect-mediated reverse-bias leakage in (0001) GaN via high-temperature molecular-beam epitaxy," *Appl. Phys. Lett.* **96**, 102111 (2010).
137. L. Q. Wang, E. Yu, Y. Taur, and P. Asbeck, "Design of tunneling field-effect transistors based on staggered heterojunctions for ultralow-power applications," *IEEE Electron Device Lett.* **31**, 431 (2010).
138. W. Melitz, J. Shen, S. Lee, J. S. Lee, A. C. Kummel, R. Droopad, and E. T. Yu, "Scanning tunneling spectroscopy and Kelvin probe force microscopy investigation of Fermi energy level pinning mechanism on InAs and InGaAs clean surfaces," *J. Appl. Phys.* **108**, 023711 (2010).
139. • L. Zhu and E. T. Yu, "Influence of surface treatment and interface layers on electrical spin injection efficiency and transport in InAs," *J. Vac. Sci. Technol. B* **28**, 1164 (2010).
140. D. Hu, C. O. McPheeters, E. T. Yu, and D. M. Schaadt, "Improvement of performance of InAs quantum dot solar cell by inserting thin AlAs layers," *Nanoscale Res. Lett.* **6**, 83 (2011).

141. • L. Zhu and E. T. Yu, “Ballistic transport and electrical spin signal enhancement in a nanoscale three-terminal spintronic device,” *Appl. Phys. Lett.* **98**, 142115 (2011).
142. • E. T. Yu and J. van de Lagemaat, “Photon management for photovoltaics,” *MRS Bulletin* **36**, 424 (2011).
143. • K. W. Park, H. P. Nair, A. M. Crook, S. R. Bank, and E. T. Yu, “Scanning capacitance microscopy of ErAs nanoparticles embedded in GaAs pn junctions,” *Appl. Phys. Lett.* **99**, 133114 (2011).
144. • P. C. Li, Y. Zhao, A. Alu, and E. T. Yu, “Experimental realization and modeling of a subwavelength frequency-selective plasmonic metasurface,” *Appl. Phys. Lett.* **99**, 221106 (2011).
145. J. H. Yum, G. Bersuker, T. Akyol, D. A. Ferrer, M. Lei, K. W. Park, T. W. Hudnall, M. C. Downer, C. W. Bielawski, E. T. Yu, J. Price, J. C. Lee, and S. K. Banerjee, “Epitaxial ALD BeO: Efficient Oxygen Diffusion Barrier for EOT Scaling and Reliability Improvement,” *IEEE Trans. Electron Devices* **58**, 4384 (2011).
146. • C. O. McPheeters, D. Hu, D. M. Schaadt, and E. T. Yu, “Semiconductor heterostructures and optimization of light trapping structures for efficient thin-film solar cells,” *J. Opt.* **14**, 024007 (2012).
147. • K. W. Park, V. D. Dasika, H. P. Nair, A. M. Crook, S. R. Bank and E. T. Yu, “Conductivity and structure of ErAs nanoparticles embedded in GaAs pn junctions analyzed via conductive atomic force microscopy,” *Appl. Phys. Lett.* **100**, 233117 (2012).
148. • C. O. McPheeters and E. T. Yu, “Computational analysis of thin film InGaAs/GaAs quantum well solar cells with back side light trapping structures,” *Opt. Express* **20**, A864 (2012).
149. • P. C. Li and E. T. Yu, “Wide-angle wavelength-selective multilayer optical metasurfaces robust to interlayer misalignment,” *J. Opt. Soc. Am. B* **30**, 27 (2013).
150. • K. W. Park, H. P. Nair, A. M. Crook, S. R. Bank, and E. T. Yu, “Quantitative scanning thermal microscopy of ErAs/GaAs superlattice structures grown by molecular beam epitaxy,” *Appl. Phys. Lett.* **102**, 061912 (2013).
151. Y.-F. Chang, L. Ji, Z.-J. Wu, F. Zhou, Y. Wang, F. Xue, B. Fowler, E. T. Yu, P. S. Ho, and J. C. Lee, “Oxygen-induced bi-modal failure phenomenon in SiO_x-based resistive switching memory,” *Appl. Phys. Lett.* **103**, 033521 (2013).
152. • X. H. Li, P. C. Li, D. Z. Hu, D. M. Schaadt, and E. T. Yu, “Light trapping in thin-film solar cells via scattering by nanostructured antireflection coatings,” *J. Appl. Phys.* **114**, 044310 (2013).
153. • P. C. Li and E. T. Yu, “Large-area omnidirectional antireflection coating on low-index materials,” *J. Opt. Soc. Am. B* **30**, 2584 (2013).
154. • P. C. Li and E. T. Yu, “Flexible, low-loss, large-area, wide-angle, wavelength-selective plasmonic multilayer metasurface,” *J. Appl. Phys.* **114**, 133104 (2013).
155. • C. Hu, M. D. McDaniel, J. G. Ekerdt, and E. T. Yu, “High ON/OFF Ratio and Quantized Conductance in Resistive Switching of TiO₂ on Silicon,” *IEEE Electron Device Lett.* **34**, 1385 (2013).
156. Y.-F. Chang, L. Ji, Y. Wang, P.-Y. Chen, F. Zhou, F. Xue, B. Fowler, E. T. Yu, and J. C. Lee, “Investigation of edge- and bulk-related resistive switching behaviors and backward-scan effects in SiO_x-based resistive switching memory,” *Appl. Phys. Lett.* **103**, 193508 (2013).

157. • C. Hu, K. W. Park, A. Posadas, J. L. Jordan-Sweet, A. A. Demkov, and E. T. Yu, "Voltage-controlled ferromagnetism and magnetoresistance in LaCoO₃/SrTiO₃ heterostructures," *J. Appl. Phys.* **114**, 183909 (2013).
158. A. K. Satpati, N. Arroyo-Curras, L. Ji, E. T. Yu, and A. J. Bard, "Electrochemical Monitoring of TiO₂ Atomic Layer Deposition (ALD) by Chronoamperometry and Scanning Electrochemical Microscopy (SECM)," *Chem. Mater.* **25**, 4165 (2013).
159. • X. H. Li, P. C. Li, D. Z. Hu, D. M. Schaadt, and E. T. Yu, "Angular dependence of light trapping in In_{0.3}Ga_{0.7}As/GaAs quantum-well solar cells," *J. Appl. Phys.* **115**, 044303 (2014).
160. • L. Ji, Y.-F. Chang, B. Fowler, Y.-C. Chen, T.-M. Tsai, K.-C. Chang, M.-C. Chen, T.-C. Chang, S. M. Sze, E. T. Yu, and J. C. Lee, "Integrated One Diode - One Resistor Architecture in Nano-Pillar SiO_x Resistive Switching Memory by Nano-Sphere Lithography," *Nano Lett.* **14**, 813 (2014).
161. T. Q. Ngo, A. B. Posadas, M. D. McDaniel, C. Hu, J. Bruley, E. T. Yu, A. A. Demkov, and J. G. Ekerdt, "Epitaxial c-axis oriented BaTiO₃ thin films on SrTiO₃-buffered Si (001) by atomic layer deposition," *Appl. Phys. Lett.* **104**, 082910 (2014).
162. M. D. McDaniel, T. Q. Ngo, A. Posadas, C. Hu, S. Lu, D. J. Smith, E. T. Yu, A. A. Demkov, and J. G. Ekerdt, "A chemical route to monolithic integration of crystalline oxides on semiconductors," *Adv. Mater. Interfaces* **1**, 1400081 (2014).
163. • P. C. Li, J. C. Chang, A. LaPorta, and E. T. Yu, "Fabrication of large area birefringent nanocylinders for optical torque wrench via nanosphere lithography," *Nanotechnology* **25**, 235304 (2014).
164. • C. Hu, M. D. McDaniel, A. Posadas, A. A. Demkov, J. G. Ekerdt, and E. T. Yu, "Highly controllable and stable quantized conductance and resistive switching mechanism in single-crystal TiO₂ resistive memory on silicon," *Nano Lett.* **14**, 4360 (2014).
165. • X. H. Li, V. D. Dasika, P.-C. Li, L. Ji, S. R. Bank, and E. T. Yu, "Minimized open-circuit voltage reduction in GaAs/InGaAs quantum well solar cells with bandgap-engineered graded quantum well depths," *Appl. Phys. Lett.* **105**, 123906 (2014).
166. N. Gao, W. Lin, X. Chen, K. Huang, S. Li, J. Li, H. Chen, X. Yang, L. Ji, E. T. Yu, and J. Kang, "Quantum state engineering with ultra-short-period (AlN)_m/(GaN)_n superlattices for narrowband deep-ultraviolet detection," *Nanoscale* **6**, 14733 (2014).
167. • V. D. Dasika, E. M. Krivoy, H. P. Nair, S. J. Maddox, K. W. Park, D. Jung, M. L. Lee, E. T. Yu, and S. R. Bank, "Increased InAs quantum dot size and density using bismuth as a surfactant," *Appl. Phys. Lett.* **105**, 253104 (2014).
168. • X. Li, P.-C. Li, L. Ji, C. Stender, C. McPheeters, S. R. Tatavarti, K. Sablon, and E. T. Yu, "Subwavelength nanostructures integrated with polymer-packaged III-V solar cells for omnidirectional, broad-spectrum improvement of photovoltaic performance," *Prog. Photovolt: Res. Appl.* **23**, 1398 (2015).
169. • L. Ji, M. D. McDaniel, S. Wang, A. B. Posadas, X. H. Li, H. Huang, J. C. Lee, A. A. Demkov, A. J. Bard, J. G. Ekerdt, and E. T. Yu, "A silicon-based photocathode for water reduction with an epitaxial SrTiO₃ protection layer and a nanostructured catalyst," *Nature Nanotechnol.* **10**, 84 (2015).
170. M. D. McDaniel, C. Hu, S. Lu, T. Q. Ngo, A. Posadas, A. Jiang, D. J. Smith, E. T. Yu, A. A. Demkov, and J. G. Ekerdt, "Atomic layer deposition of crystalline SrHfO₃ directly on Ge (001) for high-k dielectric applications," *J. Appl. Phys.* **117**, 054101 (2015).

171. • K. W. Park, E. M. Krivoy, H. P. Nair, S. R. Bank, and E. T. Yu, "Cross-sectional scanning thermal microscopy of ErAs/GaAs superlattices grown by molecular beam epitaxy," *Nanotechnology* **26**, 265701 (2015).
172. • Z. J. Zhang, D. C. Dillen, E. Tutuc, and E. T. Yu, "Strain and hole gas induced Raman shifts in Ge-SixGe1-x core-shell nanowires using tip-enhanced Raman spectroscopy," *Nano Lett.* **15**, 4303 (2015).
173. • C. J. Brennan, J. Nguyen, E. T. Yu, and N. Lu, "Interface Adhesion between 2D Materials and Elastomers Measured by Buckle Delaminations," *Adv. Mater. Interfaces* doi: 10.1002/admi.201500176 (2015).
174. • X. H. Li, P.-C. Li, L. Ji, C. Stender, S. R. Tatavarti, K. Sablon, and E. T. Yu, "Integration of subwavelength optical nanostructures for improved antireflection performance of mechanically flexible GaAs solar cells fabricated by epitaxial liftoff," *Sol. Energy Mater. Solar Cells* **143**, 567 (2015).
175. H.-Y. Hsu, L. Ji, H. S. Ahn, J. Zhao, E. T. Yu, and A. J. Bard, "A liquid junction photoelectrochemical solar cell based on p-type MeNH3PbI3 perovskite with 1.05V open-circuit photovoltage," *J. Am. Chem. Soc.* **137**, 14758 (2015).
176. K. Huang, W. Pan, J. F. Zhu, J. C. Li, N. Gao, C. Liu, L. Ji, E. T. Yu, and J. Kang, "Asymmetric light reflectance from metal nanoparticle arrays on dielectric surfaces," *Sci. Rep.* **5**, 18331 (2015).

CONFERENCE AND BOOK PUBLICATIONS (PARTIAL LIST):

1. D. H. Chow, J. R. Soderstrom, D. A. Collins, D. Z.-Y. Ting, E. T. Yu, and T. C. McGill, "Novel InAs/GaSb/AlSb Tunnel Structures," in *Quantum-Well and Superlattice Physics III*, SPIE Vol. 1283 (Society of Photo-Optical Instrumentation Engineers, Bellingham, Washington, 1990), p. 2.
2. • E. T. Yu, E. T. Croke, T. C. McGill, and R. H. Miles, "Measurement of the Strain Dependence of the Si/Ge (100) Valence Band Offset," in *Growth of Semiconductor Structures and High T_c Thin Films on Semiconductors*, SPIE Vol. 1285 (Society of Photo-Optical Instrumentation Engineers, Bellingham, Washington, 1990), p. 212.
3. • E. T. Yu, M. C. Phillips, D. H. Chow, D. A. Collins, and T. C. McGill, "Measurement of Band Offsets in III-V/II-VI Semiconductor Heterostructures," *Bull. Am. Phys. Soc.* **35**, 416 (1990).
4. D. A. Collins, D. H. Chow, E. T. Yu, D. Z.-Y. Ting, J. R. Soderstrom, Y. Rajakarunanayake, and T. C. McGill, "InAs/GaSb/AlSb: The Material System of Choice for Novel Tunneling Devices," in *Resonant Tunneling in Semiconductors*, ed. by L. L. Chang and E. E. Mendez (Plenum Press, New York, 1991), p. 515 (1991).
5. D. Z.-Y. Ting, E. T. Yu, D. A. Collins, D. H. Chow, and T. C. McGill, "Modeling InAs/GaSb/AlSb Interband Tunnel Structures," in *Computational Electronics: Semiconductor Transport and Device Simulation* (Kluwer Academic Publishers, Dordrecht, Netherlands, 1991), p. 189.
6. • E. T. Yu, Y. Rajakarunanayake, M. C. Phillips, J. O. McCaldin, and T. C. McGill, "Heterojunction Approaches to Light Emitters: The Role of Band Offsets," Extended Abstracts of the 22nd Conference on Solid State Devices and Materials, Sendai, Japan (1990).
7. D. Z.-Y. Ting, E. T. Yu, and T. C. McGill, "Theoretical Studies of Current Transport in Interband Tunnel Structures Using the Effective Bond Orbital Model," 1990 International Electron Devices Meeting Technical Digest, 31.6.1 (1990).
8. M. B. Johnson, H. W. M. Salemink, O. Albrechtsen, and E. T. Yu, "Atomic Scale View of Epitaxial Layers with Cross-Sectional STM," in *Low-Dimensional Systems: New Concepts*, Proceedings of the Seventh International Winter School, Mauterndorf, Austria (Springer-Verlag, New York, 1992), p. 108.
9. R. M. Feenstra, A. Vaterlaus, E. T. Yu, P. D. Kirchner, C. L. Lin, J. M. Woodall, and G. D. Pettit, "Cross-Sectional Scanning Tunneling Microscopy of GaAs Doping Superlattices: Pinned vs. Unpinned Surfaces," in *Semiconductor Interfaces at the Sub-Nanometer Scale*, ed. by H. W. M. Salemink and M. D. Pashley, Proceedings of the NATO Advanced Research Workshop on Physical Properties of Semiconductor Interfaces at Sub-Nanometer Scale, Riva del Garda, Italy (Kluwer Academic Publishers, The Netherlands, 1993) p. 127.
10. M. B. Johnson, U. Maier, H. P. Meier, H. Salemink, E. T. Yu, and S. S. Iyer, "Atomic-Scale View of Epitaxial Layers with Cross-Sectional STM," in *Semiconductor Interfaces at the Sub-Nanometer Scale*, ed. by H. W. M. Salemink and M. D. Pashley, Proceedings of the NATO Advanced Research Workshop on Physical Properties of Semiconductor Interfaces at Sub-Nanometer Scale, Riva del Garda, Italy (Kluwer Academic Publishers, The Netherlands, 1993).
11. • A. Y. Lew, E. T. Yu, D. H. Chow, and R. H. Miles, "Cross-Sectional Scanning Tunneling Microscopy of III-V Heterostructures Grown by Molecular-Beam Epitaxy," *Mat. Res. Soc. Symp. Proc.* **340**, 241 (1994).
12. • A. Y. Lew, C. H. Yan, C. W. Tu, and E. T. Yu, "Investigation of Arsenide/Phosphide Heterostructures by Scanning Tunneling Microscopy," *Bull. Am. Phys. Soc.* **40**, 256 (1995).

13. • A. Y. Lew, S. L. Zuo, E. T. Yu, and R. H. Miles, "Anisotropy in Atomic-Scale Interface Structure and Mobility in InAs/GaInSb Superlattices," *Mat. Res. Soc. Symp. Proc.* **448**, 147 (1997).
14. Q. Z. Liu, K. V. Smith, E. T. Yu, S. S. Lau, N. R. Perkins, and T. F. Kuech, "On the Epitaxy of Metal Films on GaN," *Mat. Res. Soc. Symp. Proc.* **449**, 1079 (1997).
15. Q. Z. Liu, L. S. Yu, K. V. Smith, F. Deng, C. W. Tu, P. M. Asbeck, E. T. Yu, and S. S. Lau, "Metal-GaN Contact Technology (Invited)," *Electrochemical Society Proceedings* **97-34**, 11 (1998).
16. • E. T. Yu, "Nanoscale Characterization of Device Structures by Scanning Tunneling Microscopy (Invited)," 1997 Conference on Challenges in Predictive Process Simulation Meeting Abstracts, Tu-1910 (1997).
17. • E. T. Yu, P. M. Asbeck, S. S. Lau, and G. J. Sullivan, "Piezoelectric Effects in AlGaIn/GaN Heterostructure Field-Effect Transistors (Invited)," *Electrochemical Society Proceedings* **98-2**, 468 (1998).
18. • X. Z. Dang, E. T. Yu, K. S. Boutros, and J. M. Redwing, "Characterization of defect levels in n-type Al_{0.15}Ga_{0.85}N/GaN heterostructures," 40th Electronic Materials Conference Abstracts, p. 42 (1998).
19. • P. A. Rosenthal, E. T. Yu, R. L. Pierson, and P. J. Zampardi, "Cross-sectional Kelvin probe force microscopy of epitaxial layers for heterojunction bipolar transistors," 40th Electronic Materials Conference Abstracts, p. 6 (1998).
20. • E. T. Yu, X. Z. Dang, L. S. Yu, D. Qiao, P. M. Asbeck, S. S. Lau, G. J. Sullivan, K. S. Boutros, and J. M. Redwing, "Piezoelectric enhancement of Schottky barrier heights in GaN/AlGaIn HFET structures," 56th Annual Device Research Conference Digest, p. 116 (1998).
21. • E. T. Yu, S. L. Zuo, and A. Y. Lew, "An atomic-scale view of semiconductor heterostructures using scanning tunneling microscopy (Invited)," Proceedings of the 5th International Conference on Solid-State and Integrated Circuit Technology, p. 657 (1998).
22. • D. M. Schaadt, E. T. Yu, S. Sankar, and A. E. Berkowitz, "Nanoscale charge transport properties of Co/SiO₂ multilayer structures and their application in a novel magnetic field sensor," 41st Electronic Materials Conference Abstracts, p. 23 (1999).
23. • K. V. Smith, E. T. Yu, J. M. Redwing, and K. S. Boutros, "Local electronic structure of AlGaIn/GaN heterostructures probed by scanning capacitance microscopy," 41st Electronic Materials Conference Abstracts, p. 27 (1999).
24. C. C. Shi, P. M. Asbeck, and E. T. Yu, "Surface potential effects due to the piezoelectric charge associated with dislocations in GaN," 41st Electronic Materials Conference Abstracts, p. 27 (1999).
25. C. H. Yun, A. B. Wengrow, N. W. Cheung, Y. Zheng, R. J. Welty, Z. F. Guan, K. V. Smith, P. M. Asbeck, E. T. Yu, and S. S. Lau, "**Ion-cut silicon layer transfer with patterned implantation of hydrogen**," *Electrochemical Society Proceedings* **99-3**, 125 (1999).
26. • X. Z. Dang, P. M. Asbeck, E. T. Yu, K. S. Boutros, and J. M. Redwing, "Long time-constant trap effects in nitride heterostructure field-effect transistors," *Mat. Res. Soc. Symp. Proc.* **622**, T.28.1-6 (2000).
27. • K. V. Smith and E. T. Yu, "Analysis of localized charge trapping behavior in AlGaIn/GaN heterostructures," *Proceedings of the IEEE 27th International Symposium on Compound Semiconductors*, 1 (2000).

28. • D. M. Schaadt and E. T. Yu, "Frequency response of trap states in an $\text{Al}_x\text{Ga}_{1-x}\text{N}/\text{GaN}$ heterostructure field-effect transistor measured at the nanoscale by dC/dV spectroscopy," *Mat. Res. Soc. Symp. Proc.* **680E**, E5.1.1 (2001).
29. L. Jia, D. Keogh, L. S. Yu, S. S. Lau, E. T. Yu, P. M. Asbeck, P. Miraglia, A. Roskowski, and R. F. Davis, "I-V characteristics of polarization-induced barriers in AlGaIn/GaN heterostructures," *2001 International Semiconductor Device Research Symposium Proceedings*, p. 201 (2001).
30. L. S. Yu and E. T. Yu, "Characterization of Schottky contacts on nitride semiconductors," in *III-V Nitride Semiconductors: Applications and Devices*, E. T. Yu and O. Manasreh, eds. (Taylor & Francis, 2003), pp. 67-105.
31. • E. T. Yu, "Spontaneous and piezoelectric polarization effects in nitride heterostructures," in *III-V Nitride Semiconductors: Applications and Devices*, E. T. Yu and O. Manasreh, eds. (Taylor & Francis, 2003), pp. 161-191.
32. C. Wetzel, E. T. Yu, J. S. Speck, A. Rizzi, and Y. Arakawa, eds., *GaN and Related Alloys – 2002* (Materials Research Society, 2003), xxi+862pp.
33. • B. S. Simpkins, E. T. Yu, P. Waltereit, and J. S. Speck, "Distinguishing negatively-charged and highly conductive dislocations in gallium nitride using scanning Kelvin probe and conductive atomic force microscopy," *Mat. Res. Soc. Symp. Proc.* **743**, 35 (2003).
34. • S. A. Dayeh, D. Susac, P. Chen, Y. Jing, K. L. Kavanagh, S. S. Lau, E. T. Yu, and D. Wang, "Optimal Control over the InAs Nanowire Growth for System Integration and their Structural and Transport Properties," *Proceedings of IEEE International Conference on Nanotechnology* (2008).
35. • J. J. M. Law, S. A. Dayeh, D. Wang, and E. T. Yu, "Scanning Capacitance Characterization of Potential Screening in InAs Nanowire Devices," *Proceedings of IEEE International Conference on Nanotechnology* (2008).
36. • E. T. Yu, D. Derkacs, S. H. Lim, P. Matheu, and D. M. Schaadt, "Plasmonic nanoparticle scattering for enhanced performance of photovoltaic and photodetector devices," *Proc. SPIE* **7033**, 70331V-1-9 (2008).
37. • D. Derkacs, W. V. Chen, P. Matheu, S. H. Lim, P. K. L. Yu, and E. T. Yu, "Coupling of light scattered by nanoparticles into waveguide modes in quantum-well solar cells," *Proc. SPIE* **7047**, 704703-1-10 (2008).
38. • C. O. McPheeters, C. J. Hill, D. Hu, S. H. Lim, D. Derkacs, D. Z. Ting, D. M. Schaadt, S. D. Gunapala, and E. T. Yu, "Toward high-efficiency quantum dot solar cells: optimized gratings for ultrathin waveguide devices," *Proc. SPIE* **7772**, 777209-1-7 (2010).
39. J. H. Yum, G. Bersuker, D. A. Ferrer, T. Akyol, M. Lei, K. W. Park, T. W. Hudnall, M. C. Downer, C. W. Bielawski, E. T. Yu, J. Price, P. Kirsch, R. Jammy, J. C. Lee, and S. K. Banerjee, "ALD beryllium oxide: novel barrier layer for high performance gate stacks on Si and high mobility substrates," *Proc. 2011 IEEE Int'l Electron Devices Meeting* 28.2.1-4 (2011).
40. • C. O. McPheeters, D. Hu, X. Li, D. M. Schaadt, and E. T. Yu, "Performance benefits for thin-film solar cells incorporating semiconductor heterostructures and light trapping," *Proc. 2012 IEEE Photovoltaic Specialists Conference* 444 (2012).
41. • X. Li, P.-C. Li, D. Hu, D. M. Schaadt, C. Stender, C. McPheeters, R. Tatavarti, K. Sablon, and E. T. Yu, "Integrated Optical Nanostructures for Wide-angle Antireflection and Light Trapping in III/V Solar Cells," *Proc. 2014 IEEE Photovoltaic Specialists Conference* 2238 (2014).

42. • E. T. Yu, C. Hu, M. D. McDaniel, A. B. Posadas, A. A. Demkov, and J. G. Ekerdt, “Resistive switching characteristics and controllable quantized conductance in single-crystal anatase TiO₂ on Si (001),” *ECS Trans.* **64** (8), 147 (2014).

Research Presentations of Edward T. Yu and Group (Partial List)

1. E. T. Yu, D. H. Chow, and T. C. McGill, "Commutativity of the GaAs/AlAs (100) Valence Band Offset," presented at the 1988 Molecular-Beam Epitaxy Workshop, West Lafayette, IN (1988).
2. D. A. Collins, D. H. Chow, D. Z.-Y. Ting, E. T. Yu, J. R. Soderstrom, and T. C. McGill, "Large Peak-to-Valley Current Ratios in Triple Barrier Heterostructures," presented at the 1989 Conference on Hot Carriers in Semiconductors, Phoenix, AZ (1989).
3. D. H. Chow, J. R. Soderstrom, D. A. Collins, D. Z.-Y. Ting, E. T. Yu, and T. C. McGill, "Novel InAs/GaSb/AlSb Tunnel Structures," presented at the 1990 SPIE Conference on Quantum-Well and Superlattice Physics III, San Diego, CA (1990).
4. E. T. Yu, E. T. Croke, T. C. McGill, and R. H. Miles, "Measurement of the Strain Dependence of the Si/Ge (100) Valence Band Offset," presented at the 1990 SPIE Conference on Growth of Semiconductor Structures and High T_c Thin Films on Semiconductors, San Diego, CA (1990).
5. D. Z.-Y. Ting, E. T. Yu, D. A. Collins, D. H. Chow, and T. C. McGill, "Modeling of Novel Heterojunction Tunnel Structures," presented at the 1990 Conference on Physics and Chemistry of Semiconductor Interfaces, Clearwater, FL (1990).
6. E. T. Yu, E. T. Croke, D. H. Chow, D. A. Collins, M. C. Phillips, T. C. McGill, J. O. McCaldin, and R. H. Miles, "Measurement of the Valence Band Offset in Novel Heterojunction Systems: Si/Ge (100) and AlSb/ZnTe (100)," presented at the 1990 Conference on Physics and Chemistry of Semiconductor Interfaces, Clearwater, FL (1990).
7. E. T. Yu, M. C. Phillips, D. H. Chow, D. A. Collins, and T. C. McGill, "Measurement of Band Offsets in III-V/II-VI Semiconductor Heterostructures," presented at the 1990 American Physical Society March Meeting, Anaheim, CA (1990).
8. D. A. Collins, D. H. Chow, E. T. Yu, D. Z.-Y. Ting, J. R. Soderstrom, Y. Rajakarunanayake, and T. C. McGill, "InAs/GaSb/AlSb: The Material System of Choice for Novel Tunneling Devices," presented at the 1990 NATO Advanced Workshop on Resonant Tunneling in Semiconductors, El Escorial, Spain (1990).
9. D. Z.-Y. Ting, E. T. Yu, D. A. Collins, D. H. Chow, and T. C. McGill, "Modeling InAs/GaSb/AlSb Interband Tunnel Structures," presented at the 1990 Workshop on Computational Electronics, Urbana, IL (1990).
10. D. A. Collins, D. Z.-Y. Ting, D. H. Chow, E. T. Yu, J. R. Soderstrom, Y. Rajakarunanayake, and T. C. McGill, "Interband Tunneling in InAs/GaSb/AlSb Heterostructures," presented at the 1990 International Conference on Molecular-Beam Epitaxy, La Jolla, CA (1990).
11. E. T. Yu, Y. Rajakarunanayake, M. C. Phillips, J. O. McCaldin, and T. C. McGill, "Heterojunction Approaches to Light Emitters: The Role of Band Offsets," presented at the 22nd Conference on Solid State Devices and Materials, Sendai, Japan (1990). (*Invited*)
12. M. C. Phillips, E. T. Yu, Y. Rajakarunanayake, J. O. McCaldin, D. A. Collins, and T. C. McGill, "Characterization of CdSe/ZnTe Heterojunctions," presented at the 1990 International Conference on Molecular-Beam Epitaxy, La Jolla, CA (1990).

13. D. Z.-Y. Ting, E. T. Yu, and T. C. McGill, "Theoretical Studies of Current Transport in Interband Tunnel Structures Using the Effective Bond Orbital Model," presented at the 1990 International Electron Devices Meeting, San Francisco, CA (1990).
14. D. Z.-Y. Ting, E. T. Yu, and T. C. McGill, "Band Structure Effects on Interband Tunnel Structures," presented at the 1991 Conference on Physics and Chemistry of Semiconductor Interfaces, Long Beach, CA (1991).
15. E. T. Yu, "Measurements of Heterojunction Band Offsets and Investigations of Novel Resonant Tunneling Structures," seminar presented at IBM T. J. Watson Research Center, February 1991 (1991).
16. E. T. Yu, "Measurements of Heterojunction Band Offsets and Investigations of Novel Resonant Tunneling Structures," seminar presented at General Electric Corporate Research and Development Center, February 1991 (1991).
17. E. T. Yu, M. C. Phillips, J. O. McCaldin, and T. C. McGill, "Measurement of the CdSe/ZnTe Valence Band Offset by XPS," presented at the 1991 Conference on Physics and Chemistry of Semiconductor Interfaces, Long Beach, CA (1991).
18. E. T. Yu, "Measurements of Heterojunction Band Offsets and Investigations of Novel Resonant Tunneling Structures," seminar presented at Department of Electrical and Computer Engineering, University of California, San Diego, April 1991 (1991).
19. E. T. Yu, M. C. Phillips, M. W. Wang, D. H. Chow, J. O. McCaldin, and T. C. McGill, "Measurement of the AlSb/ZnTe Valence Band Offset by X-Ray Photoelectron Spectroscopy," presented at the 1991 Electronic Materials Conference, Boulder, CO (1991).
20. M. B. Johnson, H. W. M. Salemink, O. Albrektsen, and E. T. Yu, "Atomic Scale View of Epitaxial Layers with Cross-Sectional STM," presented at the Seventh International Winter School, Mauterndorf, Austria (1992).
21. E. T. Yu, "Electronic Profiling of Semiconductor Devices by Scanning Tunneling Microscopy," seminar presented at Hughes Research Laboratories, Malibu, CA, June 1992 (1992).
22. E. T. Yu, "Electronic Profiling of Semiconductor Materials and Devices by Scanning Tunneling Microscopy," seminar presented at California Institute of Technology, Pasadena, CA, July 1992 (1992).
23. E. T. Yu, M. B. Johnson, V. P. Kesan, J.-M. Halbout, and S. S. Iyer, "Cross-Sectional Scanning Tunneling Microscopy of MBE-Grown Si p-n Junctions and Si/SiGe Superlattices," presented at the 1992 International Conference on Molecular-Beam Epitaxy, Schwäbisch Gmünd, Germany (1992).
24. E. T. Yu, M. B. Johnson, A. R. Powell, J.-M. Halbout, and S. S. Iyer, "Scanning Tunneling Microscopy and Spectroscopy of Si-Based Heterostructures," presented at the 1992 Symposium of the American Vacuum Society, Chicago, IL (1992).
25. R. M. Feenstra, A. Vaterlaus, E. T. Yu, P. D. Kirchner, C. L. Lin, J. M. Woodall, and G. D. Pettit, "Cross-Sectional Scanning Tunneling Microscopy of GaAs Doping Superlattices: Pinned vs. Unpinned Surfaces," presented at the NATO Advanced Research Workshop on Physical Properties of Semiconductor Interfaces at Sub-Nanometer Scale, Riva del Garda, Italy (1992).
26. M. B. Johnson, U. Maier, H. P. Meier, H. Salemink, E. T. Yu, and S. S. Iyer, "Atomic-Scale View of Epitaxial Layers with Cross-Sectional STM," presented at the NATO Advanced Research Workshop on Physical Properties of Semiconductor Interfaces at Sub-Nanometer Scale, Riva del Garda, Italy (1992).

27. E. T. Yu, "Electronic Profiling of Semiconductor Devices by Scanning Tunneling Microscopy," seminar presented at Department of Electrical and Computer Engineering, University of California, San Diego January 1993 (1993).
28. E. T. Yu, "Electronic Profiling of Semiconductor Materials and Devices by Scanning Tunneling Microscopy," seminar presentation at Hughes Technology Center, Carlsbad, CA, January 1993 (1993).
29. E. T. Yu, "Electronic Profiling of Semiconductor Materials and Devices by Scanning Tunneling Microscopy," seminar presentation at Naval Command, Control and Ocean Surveillance Center, San Diego, CA, April 1993 (1993).
30. E. T. Yu, A. Y. Lew, D. H. Chow, and R. H. Miles, "Cross-Sectional Scanning Tunneling Microscopy of InAs/GaInSb Infrared Superlattices," presentation at 6.1Å Workshop, Santa Barbara, CA, December 1993 (1993).
31. M. W. Wang, J. F. Swenberg, R. J. Miles, M. C. Phillips, E. T. Yu, J. O. McCaldin, R. W. Grant, and T. C. McGill, "Measurement of the MgSe/Cd_{0.54}Zn_{0.46}Se Valence Band Offset by X-ray Photoelectron Spectroscopy," presented at 6th International Conference on II-VI Compounds and Related Optoelectronic Materials, Newport, RI (1993).
32. A. Y. Lew, E. T. Yu, D. H. Chow, and R. H. Miles, "Cross-Sectional Scanning Tunneling Microscopy of III-V Heterostructures Grown by Molecular-Beam Epitaxy," presented at the 1994 Materials Research Society Spring Meeting, San Francisco, CA (1994).
33. E. T. Yu, "Cross-Sectional Scanning Tunneling Microscopy of Semiconductor Materials and Devices," seminar presentation at University of California at Santa Barbara, April 1994 (1994).
34. E. T. Yu, A. Y. Lew, D. H. Chow, R. H. Miles, and J. N. Schulman, "Interfacial Properties of InAs/GaInSb Superlattices Studied by Cross-Sectional STM," presentation at the Engineering Foundation Conference on Surfaces and Interfaces in Mesoscopic Devices, Kona, HI, April 1994 (1994).
35. E. T. Yu, "Cross-Sectional Scanning Tunneling Microscopy of Semiconductor Materials and Devices," seminar presentation at University of California at Los Angeles, June 1994 (1994).
36. E. T. Yu, "Atomic-Scale Imaging of Electronic and Optoelectronic Devices," seminar presentation, Photonics Society of Chinese-Americans, San Diego, CA, July 1994 (1994).
37. A. Y. Lew, E. T. Yu, D. H. Chow, and R. H. Miles, "Cross-Sectional Scanning Tunneling Microscopy of InAs/GaInSb Superlattices," presentation at 27th Annual Symposium of the Southern California Chapter of the American Vacuum Society, Pasadena, CA, September 1994 (1994).
38. E. T. Yu, "Cross-Sectional Scanning Tunneling Microscopy of Semiconductor Materials and Devices," seminar presentation at Arizona State University, Tempe, AZ, November 1994 (1994).
39. E. T. Yu, "Cross-Sectional Scanning Tunneling Microscopy of Semiconductor Materials and Devices," seminar presentation at University of California at Berkeley, February 1995 (1995).
40. A. Y. Lew, C. H. Yan, C. W. Tu, and E. T. Yu, "Investigation of Arsenide/Phosphide Heterostructures by Scanning Tunneling Microscopy," presented at the 1995 American Physical Society March Meeting, San Jose, CA (1995).
41. A. Y. Lew, C. H. Yan, R. B. Welstand, J. T. Zhu, C. W. Tu, E. T. Yu, and P. K. L. Yu, "Interface Structure in Arsenide/Phosphide Heterostructures Grown by Gas-Source MBE and Low-Pressure MOVPE," presented at the 1995 Electronic Materials Conference, Charlottesville, VA (1995).

42. A. Y. Lew, C. H. Yan, C. W. Tu, and E. T. Yu, "Characterization of Arsenide/Phosphide Heterostructure Interfaces by Scanning Tunneling Microscopy," presented at the 1995 International Conference on Formation of Semiconductor Interfaces, Princeton, NJ (1995).
43. E. T. Yu, "Cross-Sectional Scanning Tunneling Microscopy of Semiconductor Heterostructures and Devices," seminar presentation at Hughes Research Laboratories, Malibu, CA, July 1995 (1995).
44. C. H. Yan, A. Y. Lew, E. T. Yu, and C. W. Tu, " P_2 Induced P/As Exchange on GaAs During Gas-Source Molecular-Beam Epitaxy Growth Interruption," presented at the 1995 Conference on Chemical Beam Epitaxy, La Jolla, CA (1995).
45. E. T. Yu, A. Y. Lew, R. B. Welstand, C. H. Yan, J. T. Zhu, C. W. Tu, P. K. L. Yu, D. H. Chow, R. H. Miles, and Y.-H. Zhang, "Cross-Sectional Scanning Tunneling Microscopy of Arsenide/Antimonide and Arsenide/Phosphide Semiconductor Heterostructures," presented at the 1996 Materials Research Society Spring Meeting, San Francisco, CA (1996). (*Invited*)
46. E. T. Yu, "Cross-Sectional Scanning Tunneling Microscopy of Semiconductor Heterostructures and Devices," seminar presentation at Stanford University, Stanford, CA, April 1996 (1996).
47. A. Y. Lew, E. T. Yu, and Y.-H. Zhang, "Atomic-Scale Structure of InAs/InAsSb Superlattices Grown by Modulated Molecular-Beam Epitaxy," presented at the 1996 Conference on Physics and Chemistry of Semiconductor Interfaces, La Jolla, CA (1996).
48. B. L. Stein, E. T. Yu, E. T. Croke, A. T. Hunter, T. Laursen, A. E. Bair, J. W. Mayer, and C. C. Ahn, "Band Offsets in Si/Si_{1-x-y}Ge_xC_y Heterojunctions Measured by Admittance Spectroscopy," presented at the 1996 Electronic Materials Conference, Santa Barbara, CA (1996).
49. E. T. Yu, "Atomic-Scale Characterization of Semiconductor Heterostructures and Devices," presented at 1996 Defense Sciences Research Council Summer Conference, La Jolla, CA, July 1996 (1996). (*Invited*)
50. Y.-H. Zhang, A. Y. Lew, E. T. Yu, and Y. Chen, "Microstructure Properties of InAs/InAs_{1-x}Sb_x Superlattices and InAs_{1-x}Sb_x Ordered Alloys Grown by Modulated Molecular Beam Epitaxy," presented at the 1996 International Conference on Molecular-Beam Epitaxy, Malibu, CA (1996).
51. A. Y. Lew, S. L. Zuo, E. T. Yu, and R. H. Miles, "Anisotropy in Atomic-Scale Interface Structure and Mobility in InAs/GaInSb Superlattices," presented at the 1996 Materials Research Society Fall Meeting, Boston, MA (1996).
52. Q. Z. Liu, K. V. Smith, E. T. Yu, S. S. Lau, N. R. Perkins, and T. F. Kuech, "On the Epitaxy of Metal Films on GaN," presented at the 1996 Materials Research Society Fall Meeting, Boston, MA (1996).
53. B. L. Stein, E. T. Yu, E. T. Croke, A. T. Hunter, T. Laursen, A. E. Bair, J. W. Mayer, and C. C. Ahn, "Measurement of Band Offsets in Si/Si_{1-x}Ge_x and Si/Si_{1-x-y}Ge_xC_y Heterojunctions," presented at the 1997 Conference on Physics and Chemistry of Semiconductor Interfaces, Research Triangle Park, NC, (1997).
54. E. T. Yu, "Cross-Sectional Scanning Tunneling Microscopy of Semiconductor Heterostructures and Devices," seminar presentation at University of Texas at Austin, April 1997 (1997).
55. E. T. Yu, "Band Offsets in Si/SiGeC Heterojunctions," invited presentation/discussion leader, Workshop on Growth and Device Applications of SiGeC Alloys, Austin, TX, April 1997 (1997). (*Invited*)
56. E. T. Yu, A. Y. Lew, S. L. Zuo, D. H. Chow, R. H. Miles, and Y.-H. Zhang, "Atomic-Scale Structure of Semiconductor Interfaces and Alloy Layers Studied by Scanning Tunneling Microscopy," presented at the 1997 Scanning Microscopy Conference, Chicago, IL (1997). (*Invited*)

57. E. T. Yu, "Electronic Properties of Si/SiGeC Heterostructures," presented at the Bohmische Physical Society Symposium, Tempe, AZ, June 1997 (1997). (*Invited*)
58. E. T. Yu, "Cross-Sectional Scanning Tunneling Microscopy for Nanoscale Characterization of ULSI Devices," presented at 1997 Conference on Challenges in Predictive Process Simulation, Wandlitz, Germany, August 1997 (1997). (*Invited*)
59. P. M. Asbeck, G. J. Sullivan, E. T. Yu, S. S. Lau, and B. McDermott, "Role of the Piezoelectric Effect in AlGaIn/GaN HFET Behavior," presented at the 1997 Device Research Conference, Ft. Collins, CO (1997).
60. Q. Z. Liu, L. S. Yu, K. V. Smith, D. Qiao, C. D. Wang, C. W. Tu, P. M. Asbeck, E. T. Yu, and S. S. Lau, "Metal-GaN Contact Technology," presented at 1997 International Meeting of The Electrochemical Society, Paris, France, September 1997 (1997). (*Invited*)
61. B. L. Stein, E. T. Yu, E. T. Croke, A. T. Hunter, T. Laursen, A. E. Bair, J. W. Mayer, and C. C. Ahn, "Electronic Properties of Si/Si_{1-x-y}Ge_xC_y Heterojunctions," presented at the 2nd International Symposium on Silicon Heterostructures: from Physics to Devices, Barga, Italy, September 1997 (1997).
62. E. T. Yu, S. L. Zuo, A. Y. Lew, W. G. Bi, and C. W. Tu, "Atomic-Scale Characterization by Cross-Sectional Scanning Tunneling Microscopy," presented at 1998 ICMCTF, San Diego, CA, Spring 1998. (*Invited*)
63. E. T. Yu, S. L. Zuo, A. Y. Lew, R. H. Miles, W. G. Bi, and C. W. Tu, "Atomic-Scale Properties of Semiconductor Heterostructures Probed by Scanning Tunneling Microscopy," presented at 9th CIMTEC – World Ceramics Congress and Forum on New Materials, Florence, Italy, June 1998. (*Invited*)
64. E. T. Yu, "Atomic Scale Characterization of Semiconductor Heterostructures and Devices," Materials Research Lecture seminar presentation at California Institute of Technology, 19 November 1997.
65. E. T. Yu, "Atomic Scale Characterization of Semiconductor Heterostructures and Devices," seminar presentation at Sandia National Laboratories, 14 January 1998.
66. S. L. Zuo, W. G. Bi, C. W. Tu, and E. T. Yu, "Atomic Scale Compositional Structure of InAsP/InP Heterostructures Grown by Molecular-Beam Epitaxy," presented at the 1998 Conference on Physics and Chemistry of Semiconductor Interfaces (1998).
67. E. T. Yu, P. M. Asbeck, X. Z. Dang, L. S. Yu, D. Qiao, S. S. Lau, and G. J. Sullivan, "Piezoelectric effects in GaN/AlGaIn heterostructure field effect transistors," presented at the 28th State-of-the-Art Program on Compound Semiconductors, San Diego, CA (1998). (*Invited*)
68. S. L. Zuo, W. G. Bi, C. W. Tu, E. T. Yu, A. A. Allerman, and R. M. Biefeld, "Scanning tunneling microscopy of InAsP/InP and InAsP/InAsSb heterostructures," presented at the 1998 Spring Meeting of the Materials Research Society, San Francisco, CA (1998).
69. E. T. Yu, "Cross-Sectional Scanning Tunneling Microscopy of Semiconductor Heterostructures," presented at the 1998 Workshop on New Trends and Developments in Surface Science and Scanning Probe Microscopy, San Francisco, CA, May 29, 1998. (*Invited*)
70. E. T. Yu, "STM Studies of Atomic-Scale Properties of Semiconductor Heterostructures," presented at ICSICT '98, Beijing, China, October 1998. (*Invited*)
71. E. T. Yu, "Atomic-Scale Characterization of Semiconductor Heterostructures," presented at 1998 National Symposium of the American Vacuum Society, Baltimore, November 1998. (*Invited*)

72. P. A. Rosenthal, E. T. Yu, R. L. Pierson, and P. J. Zampardi, "Cross-sectional Kelvin probe force microscopy of epitaxial layers for heterojunction bipolar transistors," presented at Electronic Materials Conference, Charlottesville, VA, June 1998.
73. X. Z. Dang, E. T. Yu, K. S. Boutros, and J. M. Redwing, "Characterization of defect levels in n-type $\text{Al}_{0.15}\text{Ga}_{0.85}\text{N}/\text{GaN}$ heterostructures," presented at the Electronic Materials Conference, Charlottesville, VA, June 1998.
74. E. T. Yu, X. Z. Dang, L. S. Yu, D. Qiao, P. M. Asbeck, S. S. Lau, G. J. Sullivan, K. S. Boutros, and J. M. Redwing, "Piezoelectric enhancement of Schottky barrier heights in GaN/AlGaIn HFET structures," presented at the 1998 Device Research Conference, Charlottesville, VA, June 1998.
75. E. T. Yu, "Nanoscale characterization of materials and devices by scanning probe techniques," presented at US-Finland Workshop on Microstructuring Science and Technology, Espoo, Finland, August 1998. *(Invited)*
76. E. T. Yu, "Cross-sectional scanning tunneling microscopy of InAs/GaInSb and InAsP/InAsSb superlattices for infrared applications," presented at the Second Workshop on Characterization, Future Opportunities and Applications of 6.1Å III-V Semiconductors, Washington, DC, August 1998. *(Invited)*
77. X. Z. Dang, P. M. Asbeck, E. T. Yu, G. J. Sullivan, M. Y. Chen, B. T. McDermott, and K. S. Boutros, "Drift mobility in AlGaIn/GaN heterostructure field-effect transistors," presentation at the 1998 Materials Research Society Fall Meeting, Boston, December 1998.
78. E. T. Yu, "Probing electronic materials and device structures at the atomic scale," Department of Physics Condensed Matter Seminar, UCSD, November 1998.
79. E. T. Yu, "Probing electronic materials and device structures at the atomic scale," Department of Materials Science and Engineering Colloquium, UCLA, November 1998.
80. S. L. Zuo, E. T. Yu, A. A. Allerman, and R. M. Biefeld, "Cross-sectional scanning tunneling microscopy of InAsSb/InAsP superlattices," presented at the 1999 Conference on Physics and Chemistry of Semiconductor Interfaces, San Diego, January 1999.
81. E. T. Yu, "Spontaneous and piezoelectric polarization effects in III-V nitride heterostructures," presented at 1999 Conference on Physics and Chemistry of Semiconductor Interfaces, San Diego, January 1999. *(Invited)*
82. P. M. Asbeck, E. T. Yu, S. S. Lau, and W. Sun, "Enhancement of base conductivity via the piezoelectric effect in AlGaIn/GaN heterostructure bipolar transistors," presentation at the Workshop on Wide Bandgap Bipolar Devices, Panama City Beach, FL, January 1999.
83. E. T. Yu, "Probing electronic materials and device structures at the atomic scale," Laboratory Colloquium at HRL Laboratories, Malibu, CA, 28 January 1999.
84. E. T. Yu, "Probing electronic materials and device structures at the atomic scale," seminar presentation at Jet Propulsion Laboratory, Pasadena, CA, 2 February 1999.
85. E. T. Yu, "Spontaneous and piezoelectric polarization effects in III-V nitride heterostructures," seminar presentation at Xerox Palo Alto Research Center (PARC), 26 February 1999.
86. E. T. Yu, "Polarization effects in III-V nitride heterostructure materials and device engineering," seminar presentation at Stanford University, 4 March 1999.

87. E. T. Yu, "Probing electronic materials and device structures at the atomic scale," seminar presentation at University of California at Berkeley, 5 March 1999.
88. E. T. Yu, "Polarization effects in III-V nitride heterostructure materials and device engineering," seminar presentation at HP Labs, Palo Alto, CA, 19 March 1999.
89. E. T. Yu, "Probing electronic materials and device structures at the atomic scale," seminar presentation at Stanford University, 18 March 1999.
90. E. T. Yu, "Probing electronic materials and device structures at the nanometer scale," seminar presentation at California Institute of Technology, 14 April 1999.
91. Y. Zheng, Z. F. Guan, R. J. Welty, K. V. Smith, P. M. Asbeck, E. T. Yu, S. S. Lau, T. Hoechbauer, R. D. Verda, M. Nastasi, T. E. Haynes, C. H. Yun, A. B. Wengrow, and N. W. Cheung, "Patterned ion-cut techniques for semiconductors," presentation at 1999 Spring MRS Meeting, San Francisco, April 1999.
92. D. M. Schaadt, E. T. Yu, S. Sankar, and A. E. Berkowitz, "Charging and discharging of Co/SiO₂ multilayer structures investigated by scanning force microscopy," presentation at 1999 Spring MRS Meeting, San Francisco, April 1999.
93. C. C. Shi, P. M. Asbeck, and E. T. Yu, "Surface potential effects due to the piezoelectric charge associated with dislocations in GaN," presentation at 1999 Electronic Materials Conference, Santa Barbara, CA, July 1999.
94. D. M. Schaadt, E. T. Yu, S. Sankar, and A. E. Berkowitz, "Nanoscale charge transport properties of Co/SiO₂ multilayer structures and their application in a novel magnetic field sensor," presentation at 1999 Electronic Materials Conference, Santa Barbara, CA, July 1999.
95. K. V. Smith, E. T. Yu, J. M. Redwing, and K. S. Boutros, "Local electronic structure of AlGaIn/GaN heterostructures probed by scanning capacitance microscopy," presentation at 1999 Electronic Materials Conference, Santa Barbara, CA, July 1999.
96. P. M. Asbeck, E. T. Yu, S. S. Lau, and W. Sun, "Vertical Transistors Implemented with GaN-Based Materials: Prospects and Progress," presentation at XXVIth General Assembly of the International Union of Radio Science, Toronto, Canada, August 1999. (*Invited*)
97. E. T. Yu, "Probing materials and devices at the atomic scale," presentation at the TEKES Nanotechnology Workshop, Helsinki, Finland, September 1999. (*Invited*)
98. E. T. Yu, "Probing materials and devices at the atomic scale," seminar presentation at VTT Electronics Laboratory, Espoo, Finland, September 1999.
99. D. M. Schaadt, E. T. Yu, S. Sankar, and A. E. Berkowitz, "Novel hybrid magnetoelectronic device for magnetic field sensing," presentation at 1999 National Symposium of the American Vacuum Society, Seattle, October 1999.
100. E. T. Yu, K. V. Smith, X. Dang, P. M. Asbeck, and S. S. Lau, "Polarization effects and nanoscale electronic properties in nitride semiconductor heterostructures," presentation at 1999 MRS Fall Meeting, Boston (1999). (*Invited*)
101. E. T. Yu and S. L. Zuo, "STM studies of semiconductor alloy layer and interface structure at the atomic scale," presentation at 1999 MRS Fall Meeting, Boston (1999). (*Invited*)

- 102.K. V. Smith, E. T. Yu, K. S. Boutros, and J. M. Redwing, "Charging effects in AlGa_N/Ga_N heterostructures probed using scanning capacitance microscopy," presentation at the 27th Conference on Physics and Chemistry of Semiconductor Interfaces, Salt Lake City, January 2000.
- 103.B. B. Maranville, A. Shapiro, F. Hellman, D. M. Schaadt, and E. T. Yu, "Perpendicular magnetic anisotropy of CoPt₃ on vicinal substrates," presentation G26.011 at 2000 March Meeting of the American Physical Society, Minneapolis, MN (2000).
- 104.X. Z. Dang, P. M. Asbeck, E. T. Yu, G. J. Sullivan, K. S. Boutros, and J. M. Redwing, "Long time constant trap effects in AlGa_N/Ga_N HFET's," presentation at 2000 MRS Spring Meeting, San Francisco (2000).
- 105.K. V. Smith, X. Z. Dang, E. T. Yu, J. M. Redwing, D. A. Keough, C. Elsass, B. Heying, and J. S. Speck, "Comparison of charge trapping effects in AlGa_N/Ga_N heterostructures based on Al composition, doping and growth technique," presentation at 2000 Electronic Materials Conference, Denver, CO (2000).
- 106.P. A. Rosenthal, E. T. Yu, and P. J. Zampardi, "Structural and electronic properties of AlGaAs/GaAs heterojunction bipolar transistors characterized using cross-sectional scanning force microscopy," presentation at 2000 Electronic Materials Conference, Denver, CO (2000).
- 107.E. T. Yu et al., "Charge trapping effects in AlGa_N/Ga_N HEMT structures," presentation at ONR/NRL Workshop on Traps in AlGa_N/Ga_N HEMT's, Washington, DC (2000). (*Invited*)
- 108.E. T. Yu, "Polarization effects and nanoscale electronic properties in nitride semiconductors," seminar presentation at Wright-Patterson Air Force Base, OH, June 2000.
- 109.D. M. Schaadt, E. T. Yu, S. Sankar, and A. E. Berkowitz, "Hybrid magnetoelectronic device for magnetic field sensing," presentation at 2000 Symposium on Spin Electronics, Halle, Germany (2000).
- 110.E. T. Yu, "Polarization effects and nanoscale electronic properties in nitride semiconductors," seminar presentation at Lucent Technologies Bell Laboratories, Murray Hill, NJ, July 2000.
- 111.E. T. Yu, K. V. Smith, D. M. Schaadt, E. J. Miller, and B. S. Simpkins, "Characterization of nanoscale electronic properties in nitride semiconductors," presentation at 27th International Symposium on Compound Semiconductors, Monterey, CA (2000). (*Invited*)
- 112.E. T. Yu, "Characterization of local electronic properties in nitride semiconductors," presentation at ONR Workshop on Polarization Effects on Semiconductors, Glacier National Park, MT (2000). (*Invited*)
- 113.E. T. Yu et al., "Nanoscale electronic properties in nitride semiconductor heterostructures," presentation at 2000 AVS National Symposium, Boston, MA (2000). (*Invited*)
- 114.D. M. Schaadt, E. J. Miller, E. T. Yu, and J. M. Redwing, "Quantitative analysis of nanoscale electronic properties in an Al_xGa_{1-x}N/GaN heterostructure field-effect transistor structure," presentation at the 28th Conference on Physics and Chemistry of Semiconductor Interfaces, Orlando, FL, January 2001.
- 115.E. J. Miller and E. T. Yu, "Influence of the dipole interaction energy on clustering in InGa_N," presentation at 2001 MRS Spring Meeting, San Francisco, April 2001.
- 116.D. M. Schaadt, E. T. Yu, and J. M. Redwing, "Frequency response of trap states in an Al_xGa_{1-x}N/GaN heterostructure field-effect transistor measured at the nanoscale by dC/dV spectroscopy," presentation at 2001 MRS Spring Meeting, San Francisco, April 2001.

117. P. M. Asbeck, E. T. Yu, S. S. Lau, L. Jia, D. Keogh, D. Qiao, E. Miller, P. Miraglia, A. Roskowski, and R. F. Davis, "Polarization-induced energy barriers in electronic devices," presentation at 2001 MRS Spring Meeting, San Francisco, April 2001. (*Invited*)
118. E. T. Yu, "Probing electronic materials and devices at the nanoscale," seminar presentation at UCSD Department of Physics, La Jolla, CA, May 2001.
119. E. T. Yu, D. M. Schaadt, K. V. Smith, and E. J. Miller, "Scanning capacitance characterization of AlGa_xN/GaN heterostructures," presentation at 2001 GaN Electronics Workshop, Santa Barbara, CA, May 2001. (*Invited*)
120. E. T. Yu, D. M. Schaadt, and K. V. Smith, "Nanoscale characterization of nitride heterostructures by scanning capacitance microscopy," presentation at ONR Workshop on Near-Surface Effects in Semiconductor Substrates, Kodiak, AK, August 2001. (*Invited*)
121. E. J. Miller, D. M. Schaadt, E. T. Yu, C. Poblentz, C. R. Elsass, P. Waltereit, and J. S. Speck, "Characterization and local passivation of reverse-bias leakage paths in an AlGa_xN/GaN heterostructure," presentation at 2001 MRS Fall Meeting, Boston, December 2001.
122. E. T. Yu, "Nanoscale engineered photonic structures as strategic materials for defense applications," presentation at Institute for Defense Analyses, Arlington, VA, December 2001.
123. D. M. Schaadt and E. T. Yu, "Scanning capacitance spectroscopy of an Al_xGa_{1-x}N/GaN heterostructure field-effect transistor structure: analysis of probe tip effects," presentation at 29th Conference on Physics and Chemistry of Semiconductor Interfaces, Santa Fe, NM, January 2002.
124. E. J. Miller, E. T. Yu, C. Poblentz, C. R. Elsass, and J. S. Speck, "Direct measurement of the polarization charge in AlGa_xN/GaN heterostructures using capacitance-voltage carrier profiling," presentation at 29th Conference on Physics and Chemistry of Semiconductor Interfaces, Santa Fe, NM, January 2002.
125. E. T. Yu, E. J. Miller, D. M. Schaadt, C. Poblentz, C. Elsass, and J. S. Speck, "Electrical properties of extended defects in nitride semiconductors characterized by scanning probe microscopy," presentation at ONR Workshop on Extended Defects in Wide Gap Semiconductors: Electrical and Optical Effects, Belize, January 2002. (*Invited*)
126. P. M. Asbeck, E. T. Yu, S. S. Lau, L. Jia, and L. S. Yu, "Leakage currents through potential barriers in nitride materials and influence of polarization effects," presentation at ONR Workshop on Extended Defects in Wide Gap Semiconductors: Electrical and Optical Effects, Belize, January 2002. (*Invited*)
127. E. T. Yu, E. J. Miller, and D. M. Schaadt, "Scanning probe characterization of nanoscale charge transport," Workshop on Induced Collective Phenomena in Semiconductors, Indianapolis, IN, March 2002.
128. E. T. Yu, "Probing electronic materials and devices at the nanometer scale," seminar presentation at Department of Electrical Engineering, Ohio State University, Columbus, OH, April 9, 2002.
129. B. S. Simpkins and E. T. Yu, "Polarization effects and local electronic properties in nitride heterostructures," seminar presentation at Raytheon RF Components, Andover, MA, April 29, 2002.
130. E. T. Yu, "Probing electronic materials and devices at the nanometer scale," seminar presentation at Department of Materials Science and Engineering, Stanford University, May 17, 2002.
131. E. J. Miller, D. M. Schaadt, C. W. McKinney, E. T. Yu, P. Waltereit, C. Poblentz, and J. S. Speck, "Reverse-bias leakage current reduction in GaN Schottky diodes by surface modification with an atomic

- force microscope,” presentation at the 44th Electronic Materials Conference, Santa Barbara, CA, June 27, 2002.
- 132.E. T. Yu, “Probing electronic materials and devices at the nanometer scale,” seminar presentation at National Renewable Energy Laboratory, Golden, CO, August 23, 2002.
- 133.E. T. Yu, “Probing electronic materials and devices at the nanometer scale,” seminar presentation at Department of Materials Science and Engineering, Carnegie Mellon University, September 13, 2002.
- 134.B. S. Simpkins, E. T. Yu, P. Waltereit, and J. S. Speck, “Correlated scanning Kelvin probe and conducting atomic force microscopy studies of dislocations in gallium nitride,” presentation at 2002 Fall MRS Meeting, Boston, MA, December 2002.
- 135.B. S. Simpkins and E. T. Yu, “Influence of AlN buffer on electronic properties and dislocation microstructure of AlGaIn/GaN grown by molecular-beam epitaxy on SiC,” presentation at 30th Conference on Physics and Chemistry of Semiconductor Interfaces, Salt Lake City, UT, January 2003.
- 136.E. T. Yu, “Probing electronic materials and devices at the nanometer scale,” Materials Research Lecture at California Institute of Technology, Pasadena, CA, February 19, 2003.
- 137.E. T. Yu, E. J. Miller, D. M. Schaadt, and B. S. Simpkins, “Electronic properties of defects in GaN characterized by scanning probe microscopy,” ONR Workshop on Characterization of Defects in Wide Bandgap Semiconductors, Hawaii, March 2003. (*Invited*)
- 138.J. P. McGuire, C. Ciuti, L. J. Sham, and E. T. Yu, “Spintronics of an InAs surface layer with ferromagnetic gates,” presentation at 2003 March Meeting of the American Physical Society, Austin, TX, March 2003.
- 139.E. T. Yu, “Probing electronic materials and devices at the nanometer scale,” seminar presentation at SPAWAR Systems Center, San Diego, May 2003.
- 140.B. S. Simpkins, E. T. Yu, U. Chowdhury, M. M. Wong, T. G. Zhu, D. W. Yoo, and R. D. Dupuis, “Local conductivity and surface potential measurements of Mg-doped p-GaN,” presentation at 45th Electronic Materials Conference, Salt Lake City, UT, June 2003.
- 141.E. T. Yu, B. S. Simpkins, E. J. Miller, and D. M. Schaadt, “Influence of dislocations on charge distributions and carrier transport in nitride semiconductors,” ONR Workshop on Extended Defects in Wide Gap Semiconductors II, Irvington, VA, July 2003. (*Invited, received Outstanding Speaker Award*)
- 142.E. T. Yu, E. J. Miller, D. M. Schaadt, and B. S. Simpkins, “From microscopic characterization to processes for defect mitigation in nitride semiconductors,” Tri-Services Workshop on Process Induced Defects in Wide Bandgap Semiconductors, Grants Pass, OR, August 2003. (*Invited, received Outstanding Speaker Award*)
- 143.E. T. Yu, E. J. Miller, D. M. Schaadt, and B. S. Simpkins, “Nanoscale characterization and mitigation of defects in nitride semiconductors,” presentation at 2003 International Symposium on Compound Semiconductors, San Diego, August 2003. (*Invited*)
- 144.E. T. Yu, “Defects and nanoscale electronic structure in nitride semiconductors,” seminar presentation at Raytheon RF Components, Andover, MA, December 2003.
- 145.H. Zhang, E. J. Miller, E. T. Yu, C. Poblenz, and J. S. Speck, “Capacitance-voltage measurement of polarization charge and conduction-band offset at the $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{GaN}$ heterojunction interface,”

- presentation at 31st Conference on Physics and Chemistry of Semiconductor Interfaces, Kona, HI, January 2004.
146. D. M. Schaadt, E. T. Yu, V. Vaithyanathan, and D. G. Schlom, "Nanoscale current transport in epitaxial SrTiO₃ on n⁺-Si imaged with conductive atomic force microscopy," presentation at 31st Conference on Physics and Chemistry of Semiconductor Interfaces, Kona, HI, January 2004.
147. E. T. Yu, "Probing electronic materials and devices at the nanometer scale," colloquium presentation at Department of Electrical and Computer Engineering, University of California at Riverside, January 2004.
148. E. T. Yu, B. S. Simpkins, P. Waltereit, and J. S. Speck, "Electrical properties of dislocations in MBE-grown n-GaN," presentation at 2004 Workshop on Compound Semiconductor Materials and Devices (WOCSEMMAD), Pasadena, CA, February 2004.
149. X. Zhou, E. T. Yu, D. I. Florescu, J. C. Ramer, D. S. Lee, and E. A. Armour, "Capacitance-voltage and scanning probe studies of InGaN/GaN quantum-well structures," presentation at 46th Electronic Materials Conference, Notre Dame, IN, June 2004.
150. E. T. Yu, X. Zhou, D. I. Florescu, J. C. Ramer, D. S. Lee, and E. A. Armour, "Scanned probe characterization of nanoscale structure in InGaN/GaN quantum wells," presentation at AFOSR Workshop on Nanoscale Issues in Nitride Semiconductors, Anchorage, AK, August 2004. (*Invited*)
151. E. T. Yu, "Characterization for next-generation electronics," presentation at Next Generation Electronics Workshop, Adelphi, MD, November 2004. (*Invited*)
152. X. Zhou, E. T. Yu, D. I. Florescu, J. C. Ramer, D. S. Lee, S. M. Ting, and E. A. Armour, "Nanoscale imaging of InGaN thickness fluctuations and In clustering in InGaN/GaN quantum-well structures using SCM," presentation at 2004 Fall Meeting of the Materials Research Society, Boston, MA, November 2004.
153. E. T. Yu, "Probing electronic materials and devices at the nanometer scale," colloquium presentation at Department of Materials Science and Engineering, University of California at Irvine, December 2004.
154. X. Zhou, E. T. Yu, D. I. Florescu, J. C. Ramer, D. S. Lee, S. M. Ting, and E. A. Armour, and W. E. Quinn, "Imaging of monolayer fluctuations and In clustering in InGaN/GaN quantum wells by scanning capacitance microscopy," presentation at 32nd Conference on Physics and Chemistry of Semiconductor Interfaces, Bozeman, MT, January 2005.
155. E. T. Yu and X. Zhou, "Nanoscale imaging of electronic structure in InGaN/GaN quantum wells," presentation at International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, May 2005. (*Invited*)
156. H. Zhang, E. J. Miller, and E. T. Yu, "Analysis of leakage current mechanisms in GaN and AlGaN/GaN Schottky diodes," presentation at 47th Electronic Materials Conference, Santa Barbara, CA, June 2005.
157. S. A. Dayeh, D. Aplin, X. Zhou, P. K. L. Yu, E. T. Yu, and D. Wang, "Synthesis and characterization of InAs nanowires," presentation at 47th Electronic Materials Conference, Santa Barbara, CA, June 2005.
158. E. T. Yu, "Research prospects in wide band gap semiconductors," presentation at 2005 Defense Sciences Research Council Summer Conference, San Diego, CA, July 2005.
159. E. T. Yu, B. S. Simpkins, X. Zhou, H. Zhang, E. J. Miller, and D. M. Schaadt, "Nanoscale electronic structure of defects in nitride semiconductors imaged by scanned probe microscopy," presentation at 11th

- International Conference on Defects – Recognition, Imaging, and Physics in Semiconductors (DRIP XI), Beijing, China, September 2005. (*Invited*)
- 160.R. D. Yang, X. Zhou, A. Sharoni, C. Colesniuc, J. Park, E. T. Yu, I. K. Schuller, and A. C. Kummel, “Impedance spectroscopy and scanning Kelvin probe microscopy studies of charge injection and transport in phthalocyanine thin films,” presentation at 2005 Fall Meeting of the Materials Research Society, Boston, MA, November 2005.
- 161.X. Zhou, S. A. Dayeh, D. Aplin, D. Wang, and E. T. Yu, “Scanned electrical probe characterization of carrier transport behavior in InAs nanowires,” presentation at 33rd Conference on Physics and Chemistry of Semiconductor Interfaces, Cocoa Beach, FL, January 2006.
- 162.S. Raychaudhuri and E. T. Yu, “Calculation of critical dimensions in coherently strained coaxial nanowire heterostructures,” presentation at 33rd Conference on Physics and Chemistry of Semiconductor Interfaces, Cocoa Beach, FL, January 2006.
- 163.E. T. Yu, “Seeing the very small: nanoscience and nanotechnology in electronic devices,” seminar presentation, San Diego Chapter of IEEE, San Diego, CA, March 2006.
- 164.E. T. Yu, “Batteries and portable communications – some perspectives from the ‘field’,” presentation at DSRC Workshop II on 100% Efficient Electronics, Arlington, VA, March 2006.
- 165.S. A. Dayeh, D. Aplin, E. T. Yu, P. K. L. Yu, and D. L. Wang, “Growth mechanism and optimization of InAs nanowires synthesized by OMVPE,” presentation at 48th Electronic Materials Conference, University Park, PA, June 2006.
- 166.R. D. Yang, X. Zhou, E. T. Yu, and A. C. Kummel, “Trap energy determination by analysis of isothermal gated space-charge-limited current in organic thin-film transistors,” presentation at 48th Electronic Materials Conference, University Park, PA, June 2006.
- 167.E. T. Yu, “Prospects for realization of electrically pumped Si lasers,” presentation at DSRC Summer Conference, San Diego, CA, July 2006.
- 168.E. T. Yu, “Seeing the very small: nanoscience and nanotechnology in electronic devices,” seminar presentation, Department of Mechanical Engineering, Northwestern University, Evanston, IL, September 2006.
- 169.X. Zhou, S. A. Dayeh, D. Wang, and E. T. Yu, “Scanning gate microscopy characterization of InAs nanowires,” presentation at 34th Conference on Physics and Chemistry of Semiconductor Interfaces, Salt Lake City, UT, January 2007.
- 170.S. A. Dayeh, C. Soci, P. K. L. Yu, D. Wang, and E. T. Yu, “Interface state effects on the transport properties of InAs nanowire field-effect transistors,” presentation at 34th Conference on Physics and Chemistry of Semiconductor Interfaces, Salt Lake City, UT, January 2007.
- 171.E. T. Yu, “Seeing the very small: nanoscience and nanotechnology in electronic devices,” seminar presentation, Department of Materials Science & Engineering, UCLA, January 2007.
- 172.E. T. Yu, “Seeing the very small: nanoscience and nanotechnology in electronic devices,” Department Colloquium, Department of Physics, Arizona State University, Tempe, AZ, March 2007.
- 173.S. A. Dayeh, P. K. L. Yu, E. T. Yu, and D. Wang, “Field-, diameter-, and surface state-dependent transport behavior in semiconductor nanowires,” presentation at 2007 MRS Spring Meeting, San Francisco, CA, April 2007.

174. E. T. Yu, D. Derkacs, S. H. Lim, W. Mar, P. Matheu, and D. M. Schaadt, "Increasing efficiency of photovoltaics via surface plasmon polariton scattering effects in metal nanoparticles," presentation at Nanotech 2007 Conference, Santa Clara, CA, May 2007. (*Invited*)
175. S. A. Dayeh, P. K. L. Yu, E. T. Yu, and D. Wang, "III-V nanowire growth mechanisms: VLS or VSS," presentation at 49th Electronic Materials Conference, Notre Dame, IN, June 2007.
176. S. A. Dayeh, E. T. Yu, and D. Wang, "Optimum control over the Vapor-Liquid-Solid nanowire morphology through surface kinetics," presentation at 2007 MRS Fall Meeting, Boston, MA, November 2007.
177. S. A. Dayeh, E. T. Yu, and D. Wang, "Room temperature electron transport properties in InAs nanowires," presentation at 2007 MRS Fall Meeting, Boston, MA, November 2007.
178. S. A. Dayeh, D. Wang, and E. T. Yu, "Mechanistic studies and precise control of III-V nanowire growth," presentation at 35th Conference on Physics and Chemistry of Semiconductor Interfaces, Santa Fe, NM, January 2008.
179. E. T. Yu, "Exploiting nanoscale phenomena in solid-state devices: New concepts for energy and electronics," presentation at UCSD Jacobs School of Engineering Corporate Affiliates Program Board Meeting, La Jolla, CA, February 2008.
180. S. A. Dayeh, S. M. Eichfeld, Y. Jing, P. Chen, E. T. Yu, D. Wang, J. M. Redwing, and S. S. Lau, "Vertically-aligned Si nanowires on silicon on insulator," presentation at 2008 Spring MRS Meeting, San Francisco, CA, April 2008.
181. S. A. Dayeh, Y. Jing, P. Chen, E. T. Yu, D. Wang, and S. S. Lau, "Integration of vertically and electrically isolated III-V nanowires on silicon," presentation at 2008 Spring MRS Meeting, San Francisco, CA, April 2008.
182. J. Law, S. Dayeh, D. Wang, and E. T. Yu, "Scanning capacitance characterization of potential screening in InAs nanowires," presentation at 2008 Electronic Materials Conference, Santa Barbara, CA, June 2008.
183. S. Dayeh, D. Susac, K. Kavanagh, E. T. Yu, and D. Wang, "Structural and electronic properties of zincblende and wurtzite InAs nanowires," presentation at 2008 Electronic Materials Conference, Santa Barbara, CA, June 2008.
184. D. Z. Hu, C. McPheeters, E. T. Yu, and D. M. Schaadt, "Enhanced optical absorption via excitation of surface plasmon resonances in metal nanoparticles placed on a semiconductor device," presentation at Summer School on Plasmonics, Porquorolles Island, France, 2008.
185. J. Law, S. Dayeh, D. Wang, and E. T. Yu, "Scanning capacitance characterization of potential screening in InAs nanowire devices," presentation at 8th International Conference on Nanotechnology (2008 IEEE NANO), Arlington, TX, August 2008.
186. S. A. Dayeh, D. Susac, P. Chen, Y. Jing, K. Kavanagh, E. T. Yu, and D. Wang, "Optimal control over the InAs nanowire growth for system integration and their structural and transport properties," presentation at 8th International Conference on Nanotechnology (2008 IEEE NANO), Arlington, TX, August 2008.
187. E. T. Yu, D. Derkacs, S. H. Lim, P. Matheu, D. M. Schaadt, W. V. Chen, and P. K. L. Yu, "Plasmonic nanoparticle scattering for enhanced performance of photovoltaic and photodetector devices," presentation at 2008 SPIE Optics+Photonics Conference, San Diego, CA, August 2008. (*Invited*)

- 188.E. T. Yu, D. Derkacs, W. V. Chen, and P. K. L. Yu, "Quantum well and plasmonic nanostructures for high-efficiency photovoltaics," presentation at 2008 SPIE Optics+Photonics Conference, San Diego, CA, August 2008. (*Invited*)
- 189.E. T. Yu, "Seeing the very small: imaging and solid-state device engineering at the nanoscale," presentation at Korea University workshop on materials science and engineering, Seoul, Korea, August 2008. (*Invited*)
- 190.E. T. Yu, D. Derkacs, W. V. Chen, and P. K. L. Yu, "Plasmonic scattering enhancement of quantum-well solar cells," presentation at 2008 OSA Frontiers in Optics Conference, Rochester, NY, October 2008. (*Invited*)
- 191.D. Derkacs, W. V. Chen, P. K. L. Yu, and E. T. Yu, "Improved performance of quantum well solar cells via nanoparticle light scattering," presentation at Fall MRS Conference, Boston, MA, December 2008.
- 192.E. T. Yu, "Seeing the very small: imaging and solid-state device engineering at the nanoscale," Department of Electrical and Computer Engineering seminar, University of Texas, Austin, TX, December 2008.
- 193.L. Zhu and E. T. Yu, "Magnetoresistance amplification in a three-terminal ferromagnet/semiconductor spintronic device," presentation at 36th Conference on Physics and Chemistry of Semiconductor Interfaces, Santa Barbara, CA, January 2009.
- 194.E. T. Yu, "Exploiting nanowires and nanoparticles for photovoltaics," presentation at Workshop on Research Frontiers and Capability Gaps for Controlling and Designing Functional Materials, Los Alamos, NM, January 2009. (*Invited*)
- 195.E. T. Yu, "Exploiting nanoscale phenomena in solid-state devices: New concepts for energy and electronics," Department of Physics seminar, University of California, Davis, CA, February 2009.
- 196.E. T. Yu, "New technologies for solar energy harvesting: current reality and future potential," presentation at La Jolla Research and Innovation Summit, La Jolla, CA, April 2009. (*Invited*)
- 197.E. T. Yu, "Seeing the very small: imaging and solid-state device engineering at the nanoscale," Department of Electrical and Computer Engineering Distinguished Lecture Series, University of Texas, Austin, TX, April 2009.
- 198.J. J. M. Law, G. Koblmuller, F. Wu, J. S. Speck, and E. T. Yu, "Low dislocation-mediated reverse bias leakage in (0001) GaN via novel high-temperature MBE growth," presentation at 51st Electronic Materials Conference, University Park, PA, June 2009.
- 199.E. T. Yu, "New approaches for high-efficiency photovoltaics: solid-state device engineering at the nanoscale," presentation at Applied Materials, Santa Clara, CA, July 2009.
- 200.E. T. Yu, "Seeing the very small: imaging and solid-state device engineering at the nanoscale," Department of Physics/IGERT seminar, University of Texas at Austin, Austin, TX, September 2009.
- 201.E. T. Yu, "Plasmonic and nanoparticle scattering effects in high-efficiency photovoltaics," presentation at 2009 International Workshop on Physics of Semiconductor Devices, Delhi, India, December 2009. (*Invited*)
- 202.E. T. Yu, "Engineering of plasmonic effects in photodetectors and high-efficiency photovoltaics," presentation at 2010 IEEE International Nanoelectronics Conference, Hong Kong, China, January 2010. (*Invited*)

- 203.P. Asbeck, L. Wang, S. Gu, Y. Taur, and E. T. Yu, "Tunneling MOSFET's based on III-V staggered heterojunctions," presentation at 2010 Spring MRS Meeting, San Francisco, CA, April 2010. (*Invited*)
- 204.D. Z. Hu, C. O. McPheeters, E. T. Yu, and D. M. Schaadt, "Influence of monolayer AlAs on solar cells with InAs quantum dots embedded in InGaAs/GaAs matrix," presentation at International Conference on Superlattices, Nanostructures, and Nanodevices (ICSNN-2010), Beijing, China, 2010.
- 205.K. W. Park, A. Crook, H. Nair, S. R. Bank, and E. T. Yu, "Scanned probe characterization of self-assembled ErAs/GaAs semimetal/semiconductor nanostructures grown by molecular-beam epitaxy," presentation at 52nd Electronic Materials Conference, Notre Dame, IN, June 2010.
- 206.A. Crook, H. Nair, K. W. Park, E. T. Yu, and S. R. Bank, "Overgrowth investigation of epitaxial semimetallic nanoparticles for photonic devices," presentation at 52nd Electronic Materials Conference, Notre Dame, IN, June 2010.
- 207.C. O. McPheeters, C. J. Hill, D. Hu, S. H. Lim, D. Derkacs, D. Z. Ting, D. M. Schaadt, S. D. Gunapala, and E. T. Yu, "Toward high-efficiency quantum dot solar cells: optimized gratings for ultrathin waveguide devices," presentation at 2010 SPIE Optics+Photonics Conference, San Diego, CA, August 2010.
- 208.H. P. Nair, A. M. Crook, K. W. Park, D. A. Ferrer, S. K. Banerjee, E. T. Yu, and S. R. Bank, "Investigation of MBE-grown ErAs nanoparticle morphology for high-performance optical and electronic devices," presentation at 2010 North American Molecular-Beam Epitaxy Conference, Breckenridge, CO, September 2010.
- 209.A. M. Crook, H. P. Nair, K. W. Park, E. T. Yu, and S. R. Bank, "Investigating the MBE overgrowth of semimetallic nanoparticles for nanophotonics," presentation at 2010 North American Molecular-Beam Epitaxy Conference, Breckenridge, CO, September 2010.
- 210.E. T. Yu, "Solid-state nanostructures for high-efficiency photovoltaics," IEEE Distinguished Lecture, El Paso, TX, September 2010.
- 211.K. W. Park, H. P. Nair, A. M. Crook, V. Dasika, S. R. Bank, and E. T. Yu, "Scanning probe microscopy studies of GaAs pn junctions with embedded ErAs nanoparticles," presentation at 38th Conference on Physics and Chemistry of Semiconductor Interfaces, San Diego, CA, January 2011.
- 212.E. T. Yu, "Exploiting plasmonic and nanostructure-based scattering effects for photovoltaic devices," presentation at Lawrence Workshop on Epitaxy, Tempe, AZ, February 2011. (*Invited*)
- 213.E. T. Yu, "Seeing the very small: imaging and solid-state device engineering at the nanoscale," Materials Science & Engineering Department Colloquium, University of Texas at Dallas, April 2011.
- 214.E. T. Yu, C. O. McPheeters, and P. C. Li, "Exploiting interactions among metal, dielectric, and semiconductor nanostructures for photovoltaic devices," presentation at 2011 Villa Conference on Interaction Among Nanostructures, Las Vegas, NV, April 2011. (*Invited*)
- 215.E. T. Yu, C. O. McPheeters, D. Derkacs, and S. H. Lim, "Exploiting Nanostructure-based Scattering Effects in High-efficiency Photovoltaic Devices," presentation at 2011 Spring Meeting of the Materials Research Society, San Francisco, CA, April 2011. (*Invited*)
- 216.H. Tang, P. Rannou, R. A. Mesch, L. Zhu, E. T. Yu, J. C. Lee, and C. G. Willson, "Mobility enhancement in mesophases of liquid crystalline organic semiconductors," presentation at Organic Microelectronics and Optoelectronics Workshop VII, San Francisco, CA, July 2011.

- 217.E. T. Yu, "Light trapping and quantum semiconductor structures for high-efficiency photovoltaics," presentation at OSA Conference on Optics for Solar Energy, Austin, TX, November 2011. (*Invited*)
- 218.P. K. L. Yu, E. T. Yu, and D. Wang, "Advances in semiconductor nanostructures for photonic applications," presentation at 20th International Symposium on Processing and Fabrication of Advanced Materials, Hong Kong, China, December 2011. (*Invited*)
- 219.E. T. Yu, C. O. McPheeters, X. Li, D. Hu, and D. M. Schaadt, "Nanostructured III-V solar cells: light trapping and quantum semiconductor structures for high-efficiency photovoltaics," presentation at NNIN Workshop on Materials and Manufacturing for Energy and Electronics, Austin, TX, January 2012. (*Invited*)
- 220.C. Hu, K. W. Park, A. Posadas, A. A. Demkov, and E. T. Yu, "Voltage-controlled magnetoresistance in a LaCoO₃/SrTiO₃ heterostructure," presentation at 39th Conference on Physics and Chemistry of Semiconductor Interfaces, Santa Fe, NM, January 2012.
- 221.E. T. Yu, "Seeing the very small: imaging and solid-state device engineering at the nanoscale," Electrical & Computer Engineering Department Colloquium, Texas Tech University, February 2012.
- 222.E. T. Yu, C. O. McPheeters, X. Li, D. Hu, and D. M. Schaadt, "Quantum-well and quantum-dot structures for high-efficiency photovoltaics," presentation at American Physical Society March Meeting, Boston, MA, February 2012. (*Invited*)
- 223.P. C. Li, Y. Zhao, A. Alu, and E. T. Yu, "Wide angle, wavelength-selective plasmonic multilayer metasurfaces," presentation at 2012 Spring Meeting of the Materials Research Society, San Francisco, CA, April 2012.
- 224.C. O. McPheeters, D. Hu, X. Li, D. M. Schaadt, and E. T. Yu, "Performance benefits for thin film solar cells incorporating semiconductor heterostructures and light trapping," presentation at IEEE Photovoltaic Specialists Conference, Austin, TX, June 2012.
- 225.P. C. Li and E. T. Yu, "Wide-angle wavelength selective optical metasurfaces," presentation at 2012 Electronic Materials Conference, State College, PA, June 2012.
- 226.K. W. Park, V. D. Dasika, H. P. Nair, A. M. Crook, S. R. Bank, and E. T. Yu, "Scanned probe characterization of ErAs/GaAs nanostructures below the resolution limit via statistical analysis," presentation at 2012 Electronic Materials Conference, State College, PA, June 2012.
- 227.V. D. Dasika, H. P. Nair, E. M. Krivoy, K. W. Park, E. T. Yu, and S. R. Bank, "InAs quantum dot growth using Bi as a surfactant," presentation at 2012 Electronic Materials Conference, State College, PA, June 2012.
- 228.E. T. Yu, "Photonic control and plasmonics for photovoltaics," presentations at 2012 Inter-Continental Advanced Materials for Photonics Summer School on Renewable & Sustainable Energy, Boulder, CO, August 2012. (*Invited*)
- 229.E. T. Yu, "Light trapping and quantum semiconductor structures for high efficiency photovoltaics," presentation at IEEE Colloquium on Energy Harvesting Devices, College Park, MD, September 2012. (*Invited*)
- 230.D. Wang, B. Washom, E. T. Yu, and P. K. L. Yu, "A Green Campus project and advances in semiconductor nanostructures for photovoltaic applications," presentation at IEEE International Conference on Solid-State and Integrated Circuit Technology," Xian, China, October 2012. (*Invited*)

231. K. W. Park, H. P. Nair, S. R. Band, and E. T. Yu, "Proximal probe characterization of thermal conductivity in ErAs/GaAs superlattice grown by molecular beam epitaxy," presentation at 40th Conference on Physics and Chemistry of Semiconductor Interfaces, Waikoloa, HI, January 2013.
232. J. C. Chang, M. de Messieres, P. C. Li, O. I. Kulaeva, V. M. Studitsky, E. T. Yu, and A. La Porta, "Mechanical stability of mononucleosome revealed by optical torque wrench," presentation at 57th Annual Meeting of the Biophysical Society, Philadelphia, PA, February 2013.
233. V.D. Dasika, E.M. Krivoy, H.P. Nair, S.J. Maddox, K.W. Park, D. Jung, M.L. Lee, E.T. Yu, and **S.R. Bank**, "InAs Quantum Dot Growth using Bismuth as a Surfactant for Optoelectronic Applications," presentation at Conf. on Lasers and Electro Optics (CLEO), San Jose, CA, June 2013.
234. K.W. Park, H.P. Nair, E.M. Krivoy, **S.R. Bank**, and E.T. Yu, "Thermal characterization of rare earth/III-V superlattice and nanocomposite structures using scanned probe microscopy," presentation at 2013 Electronic Materials Conference, South Bend, IN, June 2013.
235. Y.-F. Chang, L. Ji, P.-Y. Chen, F. Zhou, F. Xue, B. Fowler, E. T. Yu, and J. C. Lee, "Study of SiO_x-based resistive switching memory by nanosphere lithography," presentation at IEEE Semiconductor Interface Specialists Conference, Arlington, VA, December 2013.
236. L. Ji, M. D. McDaniel, S. Wang, A. Posadas, J. G. Ekerdt, A. A. Demkov, A. J. Bard, and E. T. Yu, "Efficient and stable photoelectrochemical water splitting with metal-insulator-semiconductor photoelectrodes grown by molecular beam epitaxy," presentation at 41st Conference on Physics and Chemistry of Semiconductor Interfaces, Santa Fe, NM, January 2014.
237. Y.-F. Chang, L. Ji, F. Zhou, B. Fowler, E. T. Yu, and J. C. Lee, "High-density nano-pillar SiO_x-based resistive switching memory using nano-sphere lithography to fabricate a one diode - one resistor 1D-1R architecture," presentation at 21st International Symposium on VLSI Technology, Systems, and Applications, Hsinchu, Taiwan, April 2014.
238. L. Ji, Y.-F. Chang, F. Zhou, F. Xue, B. Fowler, T.-M. Tsai, K.-C. Chang, T.-C. Chang, J. C. Lee, and E. T. Yu, "Study of SiO_x-based resistive switching memory by nanosphere lithography," presentation at Spring Meeting of the Materials Research Society, San Francisco, CA, April 2014.
239. P. C. Li and E. T. Yu, "Large-Area, Flexible, Wavelength-Selective Three-Dimensional Optical Metasurface," presentation at Spring Meeting of the Materials Research Society, San Francisco, CA, April 2014.
240. X. Li, P.-C. Li, D. Hu, D. M. Schaadt, C. Stender, C. McPheeters, R. Tatavarti, K. Sablon, and E. T. Yu, "Integrated Optical Nanostructures for Wide-angle Antireflection and Light Trapping in III/V Solar Cells," presentation at IEEE Photovoltaic Specialists Conference, Denver, CO, June 2014.
241. L. Ji, Y.-F. Chang, B. Fowler, Y.-C. Chen, T.-M. Tsai, K.-C. Chang, M.-C. Chen, T.-C. Chang, S. M. Sze, E. T. Yu, and J. C. Lee, "Resistive Switching of SiO_x with One Diode-One Resistor Nanopillar Architecture Fabricated via Nanosphere Lithography," presentation at 72nd Device Research Conference, Santa Barbara, CA, June 2014.
242. V. D. Dasika, H. P. Nair, S. R. Bank, and E. T. Yu, "Raman spectroscopy investigation of nitrogen incorporation in GaSbN," presentation at 56th Electronic Materials Conference, Santa Barbara, CA, June 2014.
243. Z. Zhang, D. Dillen, E. Tutuc, and E. T. Yu, "Strain and hole gas induced Raman shifts in Ge-Si_xGe_{1-x} core-shell nanowires using tip-enhanced Raman spectroscopy," presentation at 56th Electronic Materials Conference, Santa Barbara, CA, June 2014.

244. E. T. Yu, "Seeing (and using) the very small: imaging and solid-state device engineering at the nanoscale," Materials Science & Engineering seminar, University of Texas at Austin, September 2014.
245. E. T. Yu, C. Hu, M. D. McDaniel, A. B. Posadas, A. A. Demkov, and J. G. Ekerdt, "Resistive switching characteristics and controllable quantized conductance in single-crystal anatase TiO₂ on Si (001)," presentation at 226th Meeting of the Electrochemical Society, Cancun, Mexico, October 2014. (*Invited*)
246. X. Li, P.-C. Li, C. Stender, R. Tatavarti, K. Sablon, and E. T. Yu, "Integrated optical nanostructures for wide angle antireflection and light trapping in III/V solar cells," presentation at 6th World Conference on Photovoltaic Energy Conversion, Kyoto, Japan, November 2014.
247. X. Li, V. D. Dasika, P.-C. Li, L. Ji, S. R. Bank, and E. T. Yu, "Minimized reduction in open-circuit voltage for GaAs/InGaAs quantum well solar cells with bandgap-engineered graded quantum well depths," presentation at 6th World Conference on Photovoltaic Energy Conversion, Kyoto, Japan, November 2014.
248. C. Hu, M. D. McDaniel, A. B. Posadas, A. A. Demkov, J. G. Ekerdt, and E. T. Yu, "Resistive switching mechanism and controllable quantized conductance in single crystal TiO₂ epitaxial oxides on Si (001)," presentation at Fall Meeting of the Materials Research Society, Boston, MA, December 2014.
249. L. Ji, M. McDaniel, L. Tao, X. Li, A. Posadas, Y.-F. Chang, A. Demkov, J. Ekerdt, D. Akinwande, R. Ruoff, J. Lee, and E. Yu, "Atomic Scale Engineering of Metal-Oxide-Semiconductor Photoelectrodes for Energy Harvesting Application Integrated with Graphene and Epitaxial SrTiO₃," presentation at 2014 IEEE International Electron Devices Meeting (IEDM), San Francisco, CA, December 2014.
250. E. T. Yu, C. Hu, L. Ji, M. D. McDaniel, S. J. Wang, X. H. Li, H. Huang, A. B. Posadas, A. J. Bard, A. A. Demkov, J. G. Ekerdt, and J. C. Lee, "Exploiting nanoscale phenomena in epitaxial oxides grown on silicon," presentation at KAUST Workshop on Functional Nanomaterials, Jeddah, Saudi Arabia, March 2015. (*Invited*)
251. E. T. Yu, C. Hu, M. D. McDaniel, A. B. Posadas, A. A. Demkov, and J. G. Ekerdt, "Epitaxial Oxides on Silicon for Resistive Switching Memories with Controllable Conductance Quantization," presentation at CMOS Emerging Technologies Research Conference, Vancouver, Canada, May 2015. (*Invited*)
252. E. T. Yu, "Imaging and solar energy harvesting using solid-state nanostructures," ECE Department seminar, Rice University, November 2015.
253. E. T. Yu, "Imaging, electron transport, and energy harvesting using solid-state nanostructures," ECE Department colloquium, University of Minnesota, February 2016.

Professional References

Available upon request.