

## **CURRICULUM VITAE**

**NAME:** Christine Caragianis Broadbridge  
Professor of Physics

**EDUCATIONAL  
BACKGROUND:** Ph. D., Engineering, Brown University, 1993  
Major Concentration: Materials Science  
Minor Concentrations: Electrical Sciences and  
Semiconductor Physics

M. S., Engineering, Brown University, 1991

B. S., Electrical Engineering, University of Rhode Island,  
1989

### **CAREER RESUME:**

9/05-present Education Director, CRISP (Center for Research on Interface Structures and Phenomena, an NSF MRSEC)

8/05-present Professor of Physics, Southern Connecticut State University

1/04-8/04 Interim Chairperson of Physics, Southern Connecticut State University

8/03-8/05 Associate Professor of Physics (with tenure), Southern Connecticut State University

8/00-8/03 Associate Professor of Physics, Southern Connecticut State University

2/98-present Visiting Research Fellow, Yale University, Department of Electrical Engineering

9/93-8/00 Assistant Professor of Engineering, Trinity College  
(Special appointment – non-tenure track)

6/95-8/00 Director, United Technologies/Trinity College Engineering Initiative (UTCEI), Trinity College

5/96-5/97 Visiting Assistant Professor of Engineering (Research), Brown University

9/91- 8/93 Research Assistant, Brown University, Department of Materials Science

9/92-1/93 Teaching Assistant, Brown University, Department of Materials Science

6/89-8/91 Research Assistant, Brown University, Department of Electrical Sciences

## REFEREED JOURNALS AND PROCEEDINGS:

S. Calvin, S.X. Luo, C.C. Broadbridge, J.K. McGuinness, E. Anderson, A. Lehman, K.H. Wee, S.A. Morrison, L.K. Kurihara. "Comparison of extended x-ray absorption fine structure (EXAFS) and Scherrer analysis of x-ray diffraction as methods for determining mean sizes of polydisperse nanoparticles" Appl. Phys. Lett. **87**, 233102 (2005).

J. Su, M. Gherasimova, G. Cui, H. Tsukamoto, J. Han, T. Onuma, M. Kurimoto, S. F. Chichibu, C. Broadbridge, Y. He, A. V. Nurmiko, "Growth of AlGaIn Nanowires by Metalorganic Chemical Vapor Deposition", Appl. Phys. Lett. **87**, 183108 (2005).

J. Su, G. Cui, M. Gherasimova, H. Tsukamoto, J. Han, D. Ciuparu, S. Lim, L. Pfeferle, Y. He, A. V. Nurmikko, C. C. Broadbridge and A. Lehman, "Catalytic growth of AlGaInN Nanowires and Nanostructures by MOCVD", Appl. Phys. Letters., **86** (2005).

J. Su, M. Gherasimova, G. Cui, J. Han, S. Lim, D. Ciuparu, L. Pfefferle, Y. He, A. V. Nurmikko, C. Broadbridge, A. Lehman, T. Onuma, M. Kuimoto, S. F. Chichibu, "Vapor-liquid-solid Growth of III-Nitride Nanowires and Heterostructures by Metal-Organic Chemical Vapor Deposition", GaN, AlN, InN and Their Alloys, (Materials Research Society, Boston, 2005), Vol. 831.

A. Chen, A. Yulius, J. M. Woodall and C. Caragianis-Broadbridge, "Parasitic LPE/MBE of InP on GaP", Appl. Phys. Letters., **85**, 3447(2004).

Y. X. Liu, C. Caragianis-Broadbridge, A.H. Lehman, J. McGuinness, and T.P.Ma; "Preparation, Microstructure and Physical Characteristics of Ferroelectric Pb<sub>5</sub>Ge<sub>3</sub>O<sub>11</sub> Thin Films for Memory Application", Ferroelectric Thin Films XII, (Materials Research Society, Boston, 2004), Vol. 784.

C. Caragianis-Broadbridge, J.-P. Han, T. P. Ma, A. H. Lehman, W. Zhu, Z. Luo, D. L. Pechkis, B. L. Laube; "Microstructure and Physical Characterization of Ferroelectric-gate Memory Capacitors with Various Buffer Layers", Transport and Microstructural Phenomena in Oxide Electronics, (Materials Research Society, San Francisco, 2001), Vol. 666.

X.W. Wang, H.M. Bu, B.L. Laube, C.Caragianis-Broadbridge and T.P. Ma, "Improving 4H-SiC/SiO<sub>2</sub> Interface Properties by Depositing Ultra-thin Si Nitride Layer Prior to Formation of SiO<sub>2</sub> and Annealing", Trans Tech Publications; Material Science Forum, Vols. 389-393, 993 (2001).

J. Han, X.Guo, C.Caragianis-Broadbridge Broadbridge,T.P. Ma, A. Ils, M Cantoni, J-M. Sallese, and P. Fazan, "Buffer Layer dependence of memory effects for SrBi<sub>2</sub>Ta<sub>2</sub>O<sub>9</sub> Memory Capacitor on Si"; Integrated Ferroelectrics, 34 (1-4): 1505-1512 2001.

C. Caragianis-Broadbridge, J. R. Miecznikowski, W. Zhu, Z. Luo, J. Han and A. Hein Lehman, "Microstructure and Electronic Properties of Thin Film Nanoporous Silica as a Function of Processing and Annealing Methods", Materials, Technology, and Reliability for Advanced Interconnects and Low-k Dielectrics, (Materials Research Society, San Francisco, 2000), Vol. 398.

D. Vernon, J. Rankin, C. Caragianis-Broadbridge, B. Laube; "A Novel Processing Route to Control Grain Growth in Submicron Alumina Compacts"; Journal of the American Ceramic Society, **82**, 11(1999).

C. Caragianis-Broadbridge, J. Blaser and D.C. Paine; "A Cross-sectional AFM Study of Nanocrystalline Ge Precipitates in SiO<sub>2</sub> Formed from Metastable Ge<sub>1-x</sub>Si<sub>x</sub>O<sub>2</sub>", J. Appl. Phys., **82**, 1626(1997).

J. M. Blaser, C. Caragianis-Broadbridge, B. L. Walden and D. C. Paine, "A Study of the Effect of Oxide Structure on the Synthesis of Nanocrystalline Ge from  $\text{Si}_{1-x}\text{Ge}_x\text{O}_2$ ", Thermodynamics and Kinetics of Phase Transformations, (Materials Research Society, Boston, 1996), Vol. 398.

C. Caragianis-Broadbridge, B. L. Walden, J. Blaser, C. Ow Yang, and D. C. Paine, "Low Temperature - High Pressure Oxidation of 3C - SiC", Structure and Properties of Interfaces in Ceramics, (Materials Research Society, Boston, 1995), Vol. 357.

D.C. Paine, T. Y. Kim, C. Caragianis, Y. Shigesato, "Nanocrystalline Ge Synthesis by the Chemical Reduction of Hydrothermally Grown  $\text{Si}_{0.6}\text{Ge}_{0.4}\text{O}_2$ ", Journal of Electronic Materials, **23**, 9(1994).

C. Caragianis, Y. Shigesato, and D. C. Paine, "Low Temperature Passivation of  $\text{Si}_{1-x}\text{Ge}_x$  Alloys by Dry High Pressure Oxidation," Journal of Electronic Materials, **23**, 9(1994).

Zvanut, M. E.; Carlos, N. E.; Paine, D. C.; Caragianis, C., "Atomic Structure of Ge-related Point Defects in Ge-incorporated Oxide Films", Appl. Phys. Letts., **63**, 3049(1993).

D. C. Paine, C. Caragianis, T. Y. Kim, Y. Shigesato and T. Ishahara, "Visible Photoluminescence from Nanocrystalline Ge Formed By  $\text{H}_2$  Reduction of  $\text{Si}_{0.6}\text{Ge}_{0.4}\text{O}_2$ ", Appl. Phys. Letts., **62**( 22), 2842(1993).

D. C. Paine, C. Caragianis, T. Y. Kim, Y. Shigesato, "Nanocrystalline Ge Synthesis by Reduction of  $\text{Si}_{1-x}\text{Ge}_x\text{O}_2$  formed by High Pressure Oxidation", MRS Symposium on Microcrystalline Semiconductors Materials Science and Devices, (Materials Research Society, Boston, 1993), Vol. 283.

C. Caragianis, Y. Shigesato, and D. C. Paine, "High Pressure Oxidation for Low Temperature Passivation of  $\text{Si}_{1-x}\text{Ge}_x$  Alloys", in The Physics and Chemistry of Si-SiO<sub>2</sub> and the Si-SiO<sub>2</sub> Interface 2, (Plenum Pub., N. Y., 1993), p. 71.

D. C. Paine, C. Caragianis, Y. Shigesato, "Nanocrystalline Germanium Synthesis from Hydrothermally Oxidized  $\text{Si}_{1-x}\text{Ge}_x$  Alloys", Appl. Phys. Lett., **60**(23), 8(1992).

C. Caragianis, D. C. Paine, A. F. Schwartzman, and Y. Shigesato, "Oxidation of  $\text{Si}_{1-x}\text{Ge}_x$  Alloys at Elevated Pressure", in MRS Symposium Proceedings Vol. 251, (MRS, Pittsburgh, 1992), p. 65.

C. Caragianis, D. C. Paine, C. Roberts, and E. Crisman, "High Pressure Oxidation of Strained  $\text{Si}_{1-x}\text{Ge}_x$  Alloys", Chemical Perspectives of Microelectronic Materials II, (MRS, Pittsburgh, 1991), p. 361.

D. C. Paine, C. Caragianis, A. F. Schwartzman, and Y. Shigesato, "Oxidation of  $\text{Si}_{1-x}\text{Ge}_x$  Alloys at Atmospheric and Elevated Pressure", J. Appl. Phys., **70**(9), 1991, p. 5076.

#### **INVITED LECTURES, PRESENTATIONS AND PROCEEDINGS:**

T. Sadowski, C. Caragianis-Broadbridge, J. DaPonte, "Digital Signal Processing of Microscopy Images", Presentation and abstract published in Proceedings of the 2005 Connecticut Symposium on Microelectronics and Optoelectronics, Yale University, March 17, 2005.

J. Su, M. Gherasimova, G. Cui, J. Han, Y. He, A. Nurmiko, T. Onuma, F. Chichibu, C. Broadbridge and A. Lehman, "Epitaxially Aligned GaN Nanowires and Nanobridges by MOCVD", Presentation and abstract published in Proceedings of the 2005 Connecticut Symposium on Microelectronics and Optoelectronics, Yale University, March 17, 2005.

J. McGuinness, C. Caragianis-Broadbridge, E. Anderson, D. Day, J. Lovering, S. X. Luo, S. Calvin, K. H. Wee, A. Lehman, S. A. Morrison and L.K. Kurihara, "Microscopy Study of Polydispersed Nanoparticles", Presented at the Fall Meeting of the Materials Research Society, Dec. 2004.

S. X. Luo, S. Calvin, J. McGuinness, E. Anderson, C. Caragianis-Broadbridge, K. H. Wee, A. Lehman, S. A. Morrison and L.K. Kurihara, “Comparison of Mean Nanoparticle Size Determination Methods: EXAFS, XRD, TEM,” presented at National Synchrotron Light Source Annual User’s Meeting in Upton, NY, May 16, 2004.

“Preparation, Microstructure and Physical Characteristics of Ferroelectric Thin Films for Memory Applications”, Presented at the CSU Faculty Research Conference, SCSU, April 24, 2004.

J. McGuinness, E. Anderson and C. Caragianis-Broadbridge, K. H. Wee and A. H. Lehman, S. X. Luo, S. Calvin, S.A. Morrison and K. Kurihara, “Transmission Electron Microscopy Study of Polydispersed Nanoparticles”, Presentation and abstract published in Proceedings of the 2004 Connecticut Symposium on Microelectronics and Optoelectronics, University of Connecticut, April 7, 2004.

Y. X. Lui, C. Caragianis-Broadbridge, A. H. Lehman, J. McGuinness, T. P. Ma, “Preparation, Microstructure and Physical Characteristics of  $Pb_5Ge_3O_{11}$  Thin Films for Memory Applications”, Presentation and abstract published in Proceedings of the 2004 Connecticut Symposium on Microelectronics and Optoelectronics, University of Connecticut, April 7, 2004.

S. X. Luo, S. Calvin, J. McGuinness, E. Anderson, C. Caragianis-Broadbridge, A. Lehman and L. K. Kurihara, “Comparison of Methods for Determining Mean Size of Polydispersed Nanoparticles (how small is small)”, Presented at the Annual APS March Meeting, March 26, 2004, Quebec, Canada.

“Studying Structure-Property Relationships at the Nanoscale: Methods and Challenges for the IC Industry”; invited lecture presented at UCONN Institute of Materials Science, Storrs, CT on March 24, 2004.

L. Toscano, C. Caragianis-Broadbridge, M.J.G. Lesley, “The Functionality of Thin Tin Deposits as a Solderability Preservative for Printed Circuit Boards”, Presentation and abstract published in Proceedings of the 2003 Connecticut Symposium on Microelectronics and Optoelectronics, University of Connecticut, April 2003.

“Advanced Methods of Materials Characterization with Applications to Dielectrics for Integrated Circuits”; invited lecture presented at Wesleyan University, Middletown, CT on November 15, 2002.

D. L. Pechkis, C. Caragianis-Broadbridge, A. H. Lehman, K. L. Klein, J.-P. Han, and T.P. Ma, “Thin Film Thickness Determination of Ferroelectric  $SrBi_2Ta_2O_9$  with Cross-Sectional Atomic Force Microscopy”, *Microscopy and Microanalysis 2002*, Presentation and abstract published in Proceedings of the Microscopy Society of America, August 2002.

J.-P. Han, C.J. Xie, K.-H. Kim, C.Caragianis-Broadbridge, D. L. Pechkis, Y.X. Liu, W. Tong, A.H. Lehman, and T. P. Ma, Temperature Dependence of Crystallinity, Strain, & Memory Effect of SBT/SiN/Si Structure, presented at Ferroelectrics 2002, Nara, Japan, May 28, 2002.

B. L. Laube, X. W. Wang, H. M. Bu, C. Caragianis-Broadbridge, T. P. Ma, “Angle Resolved X-ray Photoelectron Spectroscopy (ARXPS) of  $SiO_2$ /ultra-thin  $Si_3N_4$ /4H-SiC for Improved Channel Mobility in MOSFETs”, presented at Surface Analysis 2002, Vanderbilt University, Nashville, TN., May 20, 2002.

X. W. Wang, H. M. Bu, C. Caragianis-Broadbridge and T.P. Ma, “Improving 4H-SiC/ $SiO_2$  Interface Using an Interfacial Si Nitride Layer”, Presentation and abstract published in Proceedings of the 2002 Connecticut Symposium on Microelectronics and Optoelectronics, Yale University, March 2002.

C. Caragianis-Broadbridge, D. L. Pechkis, J.-P. Han, A. H. Lehman, K.L. Klein, C. J. Xie, W. Tong, K. – H. Kim, and T.P. Ma, “Impact of Annealing Temperature on the Microstructure and Physical Properties of

Ferroelectric-gate Memory Capacitors”, Presentation and abstract published in Proceedings of the 2002 Connecticut Symposium on Microelectronics and Optoelectronics, Yale University, March 2002.

D. L. Pechkis, C. Caragianis-Broadbridge, A. H. Lehman, K. L. Klein, J.-P. Han, and T.P. Ma, “Thin Film Thickness Determination of Ferroelectric SrBi<sub>2</sub>Ta<sub>2</sub>O<sub>9</sub> with Cross-Sectional Atomic Force Microscopy”, Presentation and abstract published in Proceedings of the 2002 Connecticut Symposium on Microelectronics and Optoelectronics, Yale University, March 2002.

L. M. Toscano, C. Caragianis-Broadbridge, M. J. G. Lesley, “The Functionality of Thin Tin Deposits as Solderability Preservative for Printed Circuit Boards”, Presentation and abstract published in Proceedings of the 2002 Connecticut Symposium on Microelectronics and Optoelectronics, Yale University, March 2002.

C. Wynschenk, S. Sinha, C. Caragianis-Broadbridge, K. Klein, A. Lehman, “Studies on the Growth Conditions for Silicon Nanowires”, Presentation and abstract published in Proceedings of the 2002 Connecticut Symposium on Microelectronics and Optoelectronics, Yale University, March 2002.

C. Caragianis-Broadbridge, “Impact of Processing Conditions on the Microstructural and Physical Characteristics of Ferroelectric-Gate Memory Capacitors”; presented at the Materials Research Society Fall Meeting; Boston, MA; November 2001.

X.W. Wang, H.M. Bu, B.L. Laube, C. Caragianis-Broadbridge and T.P. Ma, “Improving 4H-SiC/SiO<sub>2</sub> Interface Properties by Depositing Ultra-thin Si Nitride Layer Prior to Formation of SiO<sub>2</sub> and Annealing”, presented at the International Conference on Silicon Carbide and Related Materials 2001 (ICSCRM2001); Tsukuba, Japan; October 2001.

C. Caragianis-Broadbridge, D.L. Pechkis, E. Anderson, Jin-ping Han, W. Zhu, Z. Luo, T.P. Ma, A. Hein Lehman, K. L. Klein, and B. L. Laube, “Microstructural and Physical Properties of Thin Film Dielectrics on Silicon Substrates”, Presentation and article published in Proceedings of the 2001 Connecticut Symposium on Microelectronics and Optoelectronics, UCONN, April 3, 2001.

W. Zhu, T. Tamagawa, J. Kim, C. Caragianis-Broadbridge, X. W. Wang, and T.P. Ma, Characteristics of Ultra-Thin Hafnium Oxide Gate Dielectrics”, Presentation and abstract published in Proceedings of the 2001 Connecticut Symposium on Microelectronics and Optoelectronics, UCONN, April 3, 2001.

“An Overview: Advanced Methods of Materials Characterization”, Invited lecture presented at Yale University, Departments of Electrical Engineering and Applied Physics, November 30, 2000.

C. Caragianis-Broadbridge, A. Hein Lehman, J. R. Miecznikowski and K. Klein, “Properties of Thin Film Nanoporous Silica as a Function of Processing and Annealing Methods”, Microscopy and Microanalysis 2000, Presentation and abstract published in Proceedings of the Microscopy Society of America, Vol. 6, August 2000.

C. Caragianis-Broadbridge, Danae L. Stoane, “The United Technologies/Trinity College Engineering Initiative (UTCEI): A Proven Model for the Partnership of the Future”, Proceedings of the ICECE 2000 International Conference on Engineering and Computer Education, Sao Paulo, Brazil, August, 2000.

“The United Technologies/Trinity College Engineering Initiative (UTCEI): A Proven Model for the Partnership of the Future”, Workshop presentation at the Council on Undergraduate Research (CUR) National Conference, June 24, 2000; Wooster, Ohio.

J. Miecznikowski, C. Caragianis-Broadbridge, Wenjuan Zhu, Zhijiong Lu, and Jin-Ping Han, “Microstructure and Electronic Properties of Thin Film Silica Aerogels as a Function of Processing and Annealing Methods”, Presentation and abstract published in Proceedings of the 2000 Connecticut

Symposium on Microelectronics and Optoelectronics, United Technologies Research Center, East Hartford, CT; April 2000.

C. Caragianis-Broadbridge, D. Stoane, “The United Technologies/Trinity College Engineering Initiative: A Proven Model for the Accretion and Retention of Women and Minorities in the Fields of Engineering and Science”, Proceedings of the 29<sup>th</sup> ASEE/IEEE Frontiers in Education Conference, San Juan, Puerto Rico, November 1999.

C. Caragianis-Broadbridge, D. Stoane, “The United Trinity College Engineering Initiative (UTCEI): A Proven Model For The Partnership Of the Future”, presentation and manuscript published in Moving Individual Programs to Systemic Change: Proceedings of the 1999 WEPAN National Conference, San Antonio, Texas, June 5-8, 1999.

J. Miecznikowski, C. Newman, R. Churchwell, C. Caragianis-Broadbridge, and J. P. Han; “Impact of Deposition Method on the Microstructural Properties of Thin Film Silica Aerogels”, presentation and abstract published in Proceedings of the 1999 Connecticut Symposium on Microelectronics and Optoelectronics, Yale University, March 1999.

“Microstructural and Electrical Properties of Thin Film Silica Aerogels as a Function of Processing Method”; invited lecture presented at University of Rhode Island, February 22, 1999.

“Microstructural and Electrical Properties of Thin Film Silica Aerogels as a Function of Processing Method”; invited lecture presented at University of Connecticut, November 24, 1998.

“Fabrication and Characterization of Thin Film Silica Aerogels”, C. Caragianis-Broadbridge, Invited Lecture; Burleigh Instruments Annual Users Meeting; November 6, 1998.

“Impact of Deposition Method on the Microstructural and Electrical Properties of Thin Film Silica Aerogels”, C. Caragianis-Broadbridge, L. Carmona, M. Farag, M. Guillorn, F. Stellabotte, Presentation; *International Symposium on Vacuum, Thin Films, Surfaces/Interfaces and Processing*; Baltimore, MD; November 4, 1998.

“Fabrication and Characterization of Electronic and Optoelectronic Materials”; invited lecture presented at Loctite Corporation on August 11, 1998.

C. Caragianis-Broadbridge, L. Carmona, M. Farag, F. Stellabotte, Fabrication and Characterization of Thin Film Silica Aerogels, presentation and abstract published in Proceedings of the 1998 Connecticut Symposium on Microelectronics and Optoelectronics, Trinity College, March 1998.

C. Caragianis-Broadbridge, Renee N. Johnson, “The United Technologies/Trinity College Engineering Initiative (UTCEI): A Model For The Partnership Of the Future”, presentation and manuscript published in Impacting Change Through Collaboration: Proceedings of the Joint NAMEPA/WEPAN National Conference, Virginia, March 8-11, 1997.

C. Caragianis-Broadbridge, J. Blaser and D. Paine, “A Cross-sectional AFM/TEM study of Nanocrystalline Ge Precipitates in SiO<sub>2</sub> formed from Metastable Ge<sub>1-x</sub>Si<sub>x</sub>O<sub>2</sub>”, presentation and abstract published in Proceedings of the 1997 Connecticut Symposium on Microelectronics and Optoelectronics, Yale University, Spring 1997.

“A Cross-sectional AFM study of Nanocrystalline Ge Precipitates in SiO<sub>2</sub> formed from Metastable Ge<sub>1-x</sub>Si<sub>x</sub>O<sub>2</sub>”; invited lecture presented at Wesleyan University on October 30, 1997.

S. Srinivasan, R. B. LaComb, F. Jain, J. Mott, and C. Caragianis-Broadbridge, “Fabrication and Characterization of Resonant Tunneling Transistor Lasers”, presentation and abstracted published in

Proceedings of the 1996 Connecticut Symposium on Microelectronics and Optoelectronics, UCONN, Spring 1996.

C. Caragianis-Broadbridge, J. A. Cooper and J. Blaser, "AFM Study Of Ge Nanocrystals Suspended in SiO<sub>2</sub> Matrix", presentation and publication in Proceedings of the 1996 Connecticut Symposium on Microelectronics and Optoelectronics, UCONN, Spring 1996.

"Application of High Pressure Techniques for the Synthesis of Metastable Thin Film Oxides from Alloys of Si<sub>1-x</sub>Ge<sub>x</sub>", ASM/TMS Materials Week, Rosemont, Illinois, International Conference on Synthesis and Processing of Advanced Materials; Invited lecture, Oct. 1994.

**PROFESSIONAL ACCOMPLISHMENTS:**

ARC Accelerated Summer Program 1999, CT Teaching Certification, Physics, 7-12.

Loctite Summer Fellowship, June 1998

Visiting Fellow; Yale University; January 1998-present

Patricia Roberts Harris Fellowship, 1990-1993

Brown University Fellowship, 1989-1990

National Science Foundation Fellowship, 1989

Valedictorian Electrical Engineering, URI Class of 1989

TAU BETA PI Honor Society

ETA KAPPA NU Honor Society

PHI KAPPA PHI Honor Society

Outstanding Sophomore Engineer, 1986-1987

University Scholars Award, 1985-1989

U.R.I. Alumni Merit Scholarship, 1985-1989

Valedictorian Portsmouth High School, May 1985

**EXTERNAL GRANTS AND DONATIONS:**

National Science Foundation "Materials Research Science and Engineering Center for Research on Interface Structures and Phenomena", \$7.5M, 9/05-9/11, co-PI

USDA, Maryland, Equipment Donation for Materials Characterization Laboratory, SCSU, of Philips 400T Transmission Electron Microscope, September 2003.

National Science Foundation "Research Opportunity Award", "Inelastic Electron Spectroscopy Studies of Advanced Gate Dielectrics", \$42,648, 2/25/03 – 6/25/04.

Philips Semiconductor, Equipment Donation for Materials Characterization Laboratory, SCSU, Cambridge 240 Scanning Electron Microscope, July 2002.

Loctite Corporation; Equipment Donation for Materials Characterization Laboratory, SCSU, Rudolf Auto-EI Ellipsometer, May 2002.

Equipment Donation for Materials Characterization Laboratory, SCSU, Philips X-Ray Diffractometer, August 2000.

NASA Experimental Program to Stimulate Competitive Research (EPSCoR); May 1999-00, (\$3,500); May 2000-2001, (\$5,600).

National Science Foundation; "Microstructural, Optical and Electrical Properties of Thin Film Silica Aerogels as a Function of Processing Method", May 98 – April 01, (\$100,000), PI

National Science Foundation; “Acquisition of a Transmission Electron Microscope for Research and Research Training in the Liberal Arts College Environment”, 2 years, (\$221,000), co – PI

Supplemental Grant from NSF for Transmission Electron Microscope, (\$30,000), co – PI

United Technologies Corporation/Trinity College Engineering Initiative (UTCEI); 6 year – 1995-2001, (\$350,000), Director (June 1995 – August 2000).

Planning grant from United Technologies Corporation for the Hartford Regional High School Resource Center and UTCEI joint planning, 2-year, (\$50,000), (June 1995 – August 2000).

Intel Corporation; Equipment Donation for Transmission Electron Microscopy Facility Trinity College, (Estimated Replacement -- \$20,000), March 1999.

United Technologies Corporation; Equipment Donation of An Analytical Electron Microscope, (Estimated Replacement -- \$270,000), November 1996.

W. M. Keck Foundation; Grant for Development of Keck Optical Diagnostics and Communications Laboratory; 2 years, (\$200,000); co- PI, December 1993.

**INTERNAL GRANTS (CSU):**

Connecticut State University Research Grant, “Process-Property Relationships for Advanced Electronic Materials”, June 2001-June 2002, \$3,702.

Connecticut State University Research Grant, “Applications of Advanced Microscopy to Biological and Electronic Materials, June 2002-June 2003, \$3,349.

Faculty Development Grant, (co-PI with S. Sinha), “Applied Science and Technology Seminar Series”, \$1,500.

CSU Curriculum Development Grant, 2003, “Materials Science and Nanotechnology Modules for Undergraduate and High School Physics”.

**EXAMPLES OF COURSES TAUGHT:**

Advanced Experimental Physics II (SCSU)

Physics for Engineering I and II (SCSU)

General Physics (SCSU)

Conceptual Physics – Lecture and L-Course (SCSU)

Physics for the Life Sciences (SCSU)

Modern Physics – L-Course (SCSU)

Solid State Physics (SCSU)

Quantum Mechanics (SCSU)

Lab Science Practice Graduate Level (SCSU)

Engineering Materials (Trinity College and Brown University)

Linear Circuit Theory (Trinity College)

Fiber Optics (Trinity College)

Freshmen Seminar (Trinity College)

Semiconductor Electronics (Trinity College)

Senior Seminar; Engineering (Trinity College)

**SERVICE TO UNIVERSITY AND DEPARTMENT (SCSU):**

Faculty Advisor, Society of Physics Enthusiasts (9/00 –9/05)  
Faculty Senate, Physics Department Representative (9/01 –9/05)  
Faculty Senate, Technology Committee, (9/01 – 5/02); (9/03-9/05)  
Faculty Senate, Student Policy Committee, (9/02 – 5/03)  
Honors College Faculty, Physics Department Representative, (8/00 – present)  
Honors College, Curriculum Committee, (9/00 – 9/02)  
Enrollment Management Committee, (by University wide election 5/01 – 5/04); Chair (5/01-5/03)  
Registration Reform Team, (by appointment as Faculty Senate representative, 9/01-5/03)  
Academic Strategic Plan; Faculty Advisory Comm., (by Fac. Senate appt, re-elected Univ. wide election)  
Chair, Curriculum Committee, Department of Physics, (1/02 – 1/04)  
Department Representative, Pre-Med. Advisory Committee, (9/02 – present)  
Student Life Committee, (5/04 – present), (Elected Univ. wide election)  
Chemical Hygiene Policy Task Force, (4/04-1/05), (by appointment)  
Search Committee Vice President for Institutional Advancement, (9/04-5/05), (by appointment)  
Promotion and Tenure Committee (9/05-present)

**PROFESSIONAL AFFILIATIONS:**

Governors Advisory Council on Nanotechnology; by appointment; 9/05 - present  
Society of Physics Students; National Council; Elected for three year term starting July 2005.  
Connecticut Microelectronic and Optoelectronic Consortium (CMOC); Advisory Committee  
CMOC Symposium; conference organizer and session Chair (1997-2002)  
Connecticut Association of Physics Teachers  
Materials Research Society (MRS)  
Connecticut Microscopy Society  
American Physical Society (APS)  
Society of Women Engineers (SWE)