

CURRICULUM VITAE: **Christine Caragianis Broadbridge**

CONTACT INFORMATION: Southern CT State University
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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

ACADEMIC/ADMINISTRATIVE EXPERIENCE:

9/18-present	Executive Director, Research & Innovation (founding Director SCSU Division of Research & Innovation)
11/13-present	Director, CSCU-CNT (CT State Colleges and Universities Center for Nanotechnology); Founding Director.
7/22-present	Immediate Past President, CT Academy of Science and Engineering (CASE).
8/05-present	Professor of Physics, Southern Connecticut State University; (Coordinator of Engineering Programs; 9/01-9/16)
2/98-present	Visiting Fellow, Yale University, Department of Applied Physics (22-present) Department of Electrical Engineering (98-22) Visiting Fellow, Yale University.
9/05-present	Education Director and Researcher, CRISP; (Founding Education Director; NSF MRSEC at Yale/SCSU 2006-2018).
7/20-6/22	President, CT Academy of Science and Engineering (CASE).
7/19-7/20	Vice President, CT Academy of Science and Engineering (CASE); President Elect
8/16-8/18	Dean, School of Graduate Studies, Research, and Innovation (SCSU; Interim)
9/14-8/18	Director of STEM Initiatives, Southern Connecticut State University Founding Director, Office of STEM Innovation and Leadership
9/08-1/15	Chairperson, Department of Physics, Southern Connecticut State University
8/05-1/08	Visiting Research Scientist, University of Connecticut, Institute of Materials Science (IMS)
1/04-8/04	Interim Chairperson of Physics, Southern Connecticut State University
March 2023	

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
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 Founding Director for UTECI
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

AWARDS & PROFESSIONAL ACCOMPLISHMENTS:

Election, Materials Research Society, Board of Directors (Three-year term starting Jan 2023)
Nomination, Materials Research Society, Board of Directors (June 2022).
Visiting Fellow; Yale University; January 1998-present (annual nomination; review and re-appointment)
Connecticut Academy of Science and Engineering (CASE), Vice President/President Elect (July 2019 – present).
Connecticut Academy of Science and Engineering (CASE), Governance Council; Nomination and Election (2014-)
Connecticut Academy of Science and Engineering (CASE), Membership Committee; Nomination and Election
(2016-present); Committee Chair; July 2019 – present.
HERS Leadership Institute, Wellesley, 2017.
Connecticut Academy for Arts and Sciences (CAAS), nomination and election September, 2017.
Connecticut Science Center STEM Achievement Award, 2016, nomination.
Connecticut Materials and Manufacturing Professional of the Year, awarded April 2014.
NHMA Workforce Enhancement Committee, Honorary member, appointment July 2013- present.
Connecticut Women’s Hall of Fame Honoree: Outstanding Women of Science in Academia, awarded Oct. 2008.
Connecticut Academy for Science and Engineering (CASE), Membership nomination and election Jan 2008.
Sigma Pi Sigma (National Honor Society for Physics) – at AIP National; Election September 2007.
Connecticut Technology Council Women of Innovation for Academic Leadership; awarded March 2006.
ARC Accelerated Summer Program – CT Teaching Certification, Physics, 7-12, 1998.
Loctite Summer Fellowship, June 1998
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 Engineering Honor Society
ETA KAPPA NU Electrical and Computer Engineering Honor Society
PHI KAPPA PHI Academic 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, “RaMP (Research and Mentoring Postbac): Connecting genotypes to phenotypes” \$3M UConn Primary (SCSU PI; \$174K; 8/22-7/26).

BioPath Skills Institute and Career Success Initiative, CT Next, \$138K, 07/22-12/22, PI.

National Science Foundation, “Collaborative Research: RUI: Integral Field Unit Speckle Imager”, \$542K, 9/22-8/25; co-PI

Alexion Corporation, Alexion presenting sponsorship for May 4, 2022 Connecting Students and Professionals of Color, BioPath research support, \$12K, PI.

Werth Nanotechnology Industry Academic Fellowship Endowment, Werth Family Foundation, \$3M (\$2M Werth IAF Endowment; \$1M SCSU Day of Caring Match), 3/22-3/29, PI.

BioPath Skills Institute and Career Success Initiative, CT Next New Haven Innovation Collaborative, \$63K, 07/21-07/22, PI.

CT State Board of Education, \$227,585, “Institute for Real-World Education and Curriculum Development (IRWECA)”, July 2021-Dec 2023, PI

National Science Foundation, “Gateway to OwlsTeach: A TEAM Approach to Recruiting, Preparing, and Retaining STEM Teachers, \$1,445K, 3/21-3/26; co-PI.

BioPath Skills Institute, CT Next New Haven Innovation Collaborative, \$260K, 01/21-12/21, PI

BioPath/Elm City Innovation Collaborative Professional Skills Development and Instrumentation in BioScience, CT Next, \$112K, 07/20 - 06/2021; co-PI.

Werth Entrepreneurship Industry Academic Fellowship Program, Werth Family Foundation, \$500K, 12/19-12/22; PI.

BioPath/Elm City Innovation Collaborative Summer Research Experiences and Instrumentation in BioScience, CT Next, \$188K per year, 06/18 - 06/2020; co-PI.

National Science Foundation, “Center for Research on Innovative Structures and Phenomena” \$13.0M (SCSU; \$1.8M), 9/11-9/17, co-PI (Senior researcher and education director).

Yale University; “Center for Research on Interface Structures and Phenomena Bridge Funding”; \$33,500; 09/18 – 09/19

Alexion Corporation; “Alexion Experiential Learning Program”; \$15,000; 09/18-09/19

City of New Haven; “BioPath Implementation”; \$100,000; Fall 2016 – present.

National Science Foundation, “Integrating Computer Science in the Biology, Chemistry, Earth and Energy Sciences Curriculum”, \$1.25M, DRL, 09/2017 - 08/2020, Co-PI with EdAdvance, Litchfield County Primary.

National Science Foundation, “Skills 21 STEM Starter: An Incubator and Launch Pad to STEM Entrepreneurship and Careers”, \$1.2M, ITEST, 09/2016 - 09/2019, Co-PI with EdAdvance, Litchfield County Primary.

National Science Foundation, “Connecticut Academy of Digital Arts and Sciences”, \$1.2M, ITEST, 07/01/2010 - 05/31/2014, Co-PI with Education Connection, Litchfield County Primary.

National Science Foundation, “Symposium EEE: Towards a lab-to-classroom Initiative: San Francisco, CA; Spring 2013”, \$14K, 03/15/2013 – 02/28/2014, PI.

Werth Family Foundation; “Werth Nanotechnology Industry Academic Fellowship Program”, \$67K/yr., 2014-2024, Project Director.

Department of Energy, “CSUS Initiative for Nanotechnology Related Equipment, Faculty Development and Curriculum Development”; \$750K - CSUS (\$370K SCSU SEM), September 2010 – June 2012; Project Coordinator and Director CSUS Nanotechnology Center.

National Science Foundation, “MRI: Acquisition of an Analytical Scanning Electron Microscope for an Interdisciplinary Multi-user Facility”, \$359K, October 2010 – September 2012; Instrumentation at Trinity College in Hartford; co-PI.

National Science Foundation, “Pathways to Academic Excellence”, NSF S-STEM \$593K, 2/10 – 2/15, co-PI.

National Science Foundation, “Materials Research Science and Engineering Center for Research on Interface Structures and Phenomena”, \$7.5M (SCSU; \$1.5M), 9/05-9/11, co-PI

CT Office for Workshop Competitiveness, Nanotechnology Initiative Grant, \$106K, 7/08 – 7/09, co-PI.

Brookhaven National Laboratory, Center for Functional Nanomaterials, Funded proposals: “Atomic Origin of the Magneto-electronic coupling in LSMO/PZT Multiferroic Heterostructures Probed by STEM-EE, January 2010 – present and “Atomic Structure of Crystalline Oxides on Silicon Interfaces and Films, May 2007 – September 2009.

USDA, Maryland, Equipment Donation for Materials Characterization Laboratory, SCSU, of Philips 400T Transmission Electron Microscope, (Estimated Replacement -- \$214,000), September 2003, PI.

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

Philips Semiconductor, Equipment Donation for Materials Characterization Laboratory, SCSU, Cambridge 240 Scanning Electron Microscope, (Estimated Replacement -- \$100,000), July 2002, PI.

Loctite Corporation; Equipment Donation for Materials Characterization Laboratory, SCSU, Rudolf Auto-El Ellipsometer, (Estimated Replacement -- \$15,000), May 2002, PI.

Equipment Donation for Materials Characterization Laboratory, SCSU, Philips X-Ray Diffractometer, (Estimated Replacement -- \$10,000), August 2000, PI.

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

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), PI.

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), PI.

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

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

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

REGIONAL/NATIONAL SERVICE/PROFESSIONAL PARTICIPATION:

Materials Research Society (MRS), Nomination and Election Board of Directors (July; Sept 2022)
Materials Research Society (MRS) Board of Directors start of three-year term (Jan 2023)
Connecticut Academy of Science and Engineering (CASE); Governance Council (2016 – present)
Connecticut Academy of Science and Engineering (CASE); Executive Committee (2018 – present)
Chair, Center for 21st Century Skills at EDUCATION Advance Advisory Board (2012-present)
Steering Committee, New Haven Science Fair (NHSF) (2013 – present)
Connecticut Micro and Optoelectronic Consortium (CMOC) Advisory Committee (1997 – present)
CMOC Symposium; conference organizer and session Chair (1997 – present)
Quinnipiac University; Industrial Engineering Advisory Board member (October 2014 – present).
Member, Workforce Enhancement Committee, New Haven Manufacturers Association (2013 – present)
Great Science for All; Board of Directors (2017 – present)
Connecticut Academy of Science and Engineering Nomination and Election Committee (2014 – 2020)
Governor’s Advisory Council on Nanotechnology: by appointment (9/05 – 7/10)
CSUS Nanotechnology Curriculum Committee; 6/08 – 8/16; Coordinator (7/10 – 8/13)
Connecticut Nanotechnology Curriculum Committee: by appointment (1/06 – 8/13)
CT Space Grant Consortium, SCSU Campus Representative (June 2014 – Oct 2014)

National Science Foundation; review of grants and Centers of Excellence, 2-3 panels/yr. (2005-present)
Materials Research Society [MRS] annual conference attendance and national committees (2011 – present);
(1) Strategic Planning; (2) Science Enthusiasts (3) Public Outreach and (4) Diversity
National Advisory Board Member – STEM Achievement in Baltimore Elementary Schools [SABES]; NSF; Math Science Partnership Grant; John’s Hopkins & Baltimore School System [\$7.4M] (2013-2020)
National Advisory Board Member–University of Wisconsin – Puerto Rico Partnership for Research and Education in Materials; NSF Center of Research Excellence (9/2018 – 2022)
National Advisory Board Member–Princeton Materials Research Science and Engineering Center; NSF Center of Research Excellence (9/2016 – 2020)
National Advisory Board Member–Brandeis Materials Research Science and Engineering Center; NSF Center of Research Excellence (9/2011 – 2020)
Science Foundation of Ireland (SFI); Grant Reviewer; 2013 and 2014.
Symposium Organizer and Session Chair; Materials Research Society, 2013 Spring Meeting, March 2013.
Chair, MRSEC Education Directors Network (9/11 – 9/12)
Vice Chair, MRSEC Education Directors Network (9/10 – 9/11)
Society of Physics Students; National Council (7/05 – 7/11)
Society of Physics Students; Councilor Zone 1 (New England) (7/05 – 7/11)
Society of Physics Students; Diversity Committee Chair (7/10 – 7/11)
External review Committee, Simmons College, Boston Massachusetts, Spring 2009

PROFESSIONAL AFFILIATIONS/PARTICIPATION:

Materials Research Society (MRS) (General Membership; Diversity and Outreach Committees)
Association of Research Integrity Officers (ARIO)
PRIM&R Public Responsibility in Medicine and Research
American Physical Society (APS)
Microscopy Society of America (MSA)

Connecticut Academy of Science and Engineering (CASE)
Connecticut Academy of Arts and Sciences (CAAS)
Tau Beta Pi [National Engineering Honor Society]
Sigma Pi Sigma [National Physics Honor Society]
National Science Teachers Association (NSTA)
Connecticut Association of Science Teachers (CSTA)
Connecticut Association of Science Supervisors (CSSA)
Materials Information Society (ASM International)
Society of Women Engineers (SWE)

SERVICE TO UNIVERSITY AND DEPARTMENT (SCSU):

Physics Department Graduate Committee, (program start-9/16; 9/18-present)
Honorary Degree Selection Committee, (4/2017 – present)
Faculty Senate Elected Senator for Physics, Member Study Policy Committee (9/2021-12/22)
Southern Early College Steering Committee (11/21-present)
School of Graduate and Professional Studies Advisory Board (6/21 – present)
Provost’s Advisory Council on Enhancing Scholarship (PACES), (5/19 – present), (by appointment)
Research Scholarship Advisory Committee (RSAC), (9/15 – present), (by appointment; Ex-officio)
Strong 21st Century Communications Magnet and SCSU University School/Barack H. Obama Magnet University;
Planning Committee; (9/16 – present)
Co-chair, Research Compliance Task Force, (9/16 – present)
Program Director, NSF MRSEC CRISP at SCSU Research Experiences for Undergraduates, (1/06 – present)
Program Director, Werth Industry Academic Fellowship Program, (9/13 – present)
Co-Director, Center for Mathematics and Science (9/19-present) (with Carrie-Anne Sherwood)
Facility Manager, CRISP NanoCharacterization Facility at SCSU, (9/05 – present)
University Strategic Plan Implementation Team, subcommittee co-chair, (9/16 – present)
Chair, Market Pay Adjustment Committee, (3/2018 – 2/2021)
Chair, Search Committee; Associate Dean of STEM; April – August 2019
Chair, Search Committee; Associate VP of Strategic Initiatives and Outreach; Nov 2017 – April 2018
Strategic Enrollment Management Council, subcommittee chair, (1/17 – 8/2020)
Co-chair, Arts and Sciences Strategic Planning Committee, (9/15 – 9/16), (by appointment)
Coordinator CSUS Nanotechnology Working Group, (5/10-5/2016)
Liberal Education Program; Tech Fluency and Critical Thinking Assessment Committees (2011- 2016)
SCSU New Building Advisory Committee, (9/09 – 9/15), (by appointment)
“Pathways to Academic Excellence”, NSF S-STEM Implementation Committee, (12/09 – 1/2016)
Search Committee; SCSU Vice President and Provost for Academic Affairs; (9/2013 – 12/13)
Search Committee; Physics Department, 2 tenure track searches; (2014-15)
Title IX Conference Committee “Equity in Action: The Enduring Legacy of Title IX”; Oct 22, 2013
Department Representative, Pre-Med. Advisory Committee, (9/02 – 9/13)
Chair, Search Committee; Technician, CSCU Center for Nanotechnology (9/2013 – 1/14)
Graduate Prioritization Committee (December 2012 – May 2013)
Search Committee; Connecticut State Colleges and Universities [CSCU] President (6/12 – 12/12)
Research Scholarship Advisory Committee (RSAC), (9/08 – 9/11), (by appointment)
Search Committee Dean of the Graduate School, SCSU, (4/10 – 6/10)
Faculty Advisor, Society of Physics Enthusiasts (9/00 – 1/05; 1/05 elected Advisor for New England)
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, 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)
Chair, Curriculum Committee, Department of Physics, (1/02 – 1/04)
Student Life Committee, (Elected Univ. wide election, 5/04 – 5/07),
Academic Strategic Plan; Faculty Advisory Comm., (by appt. 5/02 – 5/04, re-elected Univ. 5/04 – 5/07)

Co-chair; Academic Strategic Plan; Faculty Advisory Committee, (5/06 – 5/07)
University Strategic Planning Committee, (by appointment, 1/06 – 5/07);
Co-Chair; University Strategic Planning Committee student life working group, (by appointment, 1/06 – 9/06)
Chemical Hygiene Policy Task Force, (4/04-present), (by appointment)
Search Committee Vice President for Institutional Advancement, (9/04 – 1/05), (by appointment)
Honors College Faculty, Physics Department Representative, (8/00 – present)
Promotion and Tenure Committee, (9/05 – 9/08), (University election)
Chairperson, Physics Department (9/08 – 1/2015), (Department election) [interim Chair spring 04]

REFEREED JOURNALS, PROCEEDINGS, BOOKS EDITED:

Co-Editor, “Nanostructures for Electronics, Photonics, Biosensors and Emerging Systems Applications, International Journal of High-Speed Electronics and Systems (IJHSES). Selected Topics in Electronics and Systems, World Scientific, Vol. 66, <https://doi.org/10.1142/13263> (2023)

R. Srivastava, S. Rishabh, A. Kumar, R. Singhal, J. Scanley, C. Broadbridge, R. Gupta, “Waste Citrus Reticulata Assisted Preparation of Cobalt Oxide Nanoparticles for Supercapacitors Application”. *Nanomaterials* (Basel) 2022 Nov 22;12(23):4119. doi: 10.3390/nano12234119

R. Singhal, B. Saini, M. Kiehnle-Benitez, T. Sadowski, C. Broadbridge, J. Scanley, P. K. LeMaire, R. K. Sharma, “Effect of Multi-Wall Carbon Nanotubes on Electrochemical Performance of MnO₂” *AIP Advances* **12**, 085306 (2022).

Co-Editor, “Nanotechnology for Electronics, Biosensors, Additive Manufacturing and Emerging Systems Applications”, International Journal of High-Speed Electronics and Systems (IJHSES). Selected Topics in Electronics and Systems, World Scientific, Vol. 65, <https://doi.org/10.1142/9789811242823> (2022)

Szeligowski RV, Scanley JA, Broadbridge CC, Brady SP. Road salt compromises functional morphology of larval gills in populations of an amphibian. *Environ Pollut*. 2021 Oct 30;118441. doi: 10.1016/j.envpol.2021.118441. Epub ahead of print. PMID: 34728326 (2021)

R. Singhal, D. Thorne, P. LeMaire, X. Martinex, C. Zhao, R. Gupta, D. Uhl, E. Scanley, C. Broadbridge, R. Sharma, “Synthesis and Characterization of CuS, CuS/graphene Oxide Nanocomposite for Supercapacitor Applications”. *AIP Advances* **10**, 035307-; doi: 10.1063/1.5132713 (2020)

Co-Editor, “Nanotechnology for Electronics, Photonics, Biosensors, and Emerging Technologies”, International Journal of High Speed Electronics and Systems (IJHSES). Selected Topics in Electronics and Systems, World Scientific, Vol. 64; <https://doi.org/10.1142/12017> (2020)

R. Singhal, J. Fagnoni, D. Thorne, P. LeMaire, X. Martinez, C. Zhao, R. Gupta, D.Uhl, E. Scanley, C. C. Broadbridge, M. Manivannan, R. Pandey, “Study of MnO₂-Graphene Oxide nanocomposites for supercapacitor applications”. *MRS Advances*, **4**(13), 777-782. doi:10.1557/adv.2019.86 (2019).

Co-Editor, “High Performance Logic and Circuits for High-Speed Electronic Systems”, International Journal of High Speed Electronics and Systems (IJHSES). Selected Topics in Electronics and Systems, World Scientific, Vol. 62, 2019; <https://doi.org/10.1142/11502>

Co-Editor, “High Performance Materials and Devices for High-Speed Electronic Systems”, International Journal of High Speed Electronics and Systems (IJHSES). Selected Topics in Electronics and Systems, World Scientific, Vol. 61, 2018; <https://doi.org/10.1142/11156>

P. Bordeenithikasem, J. Liu, S. Kube, Y. Li, T. Ma, B.E. Scanley, C. C. Broadbridge, J. Vlassak, J. Singer, and J. Schroers, “Determination of Cooling Rates in Metallic Glass Forming Alloy Libraries Through Laser Spike Annealing,” *Scientific. Rep.* **7**, 7155; doi:10.1038/s41598-017-07719-2 (2017).

- S. Sohn, Y. Liu, Y. Liu, P. Gong, S. Prades-Rodel, A. Blatter, B. Scanley, C. C. Broadbridge, J. Schroers, “Nobel metal high entropy alloys”, *Scripta Materialia*, vol. 126, pp. 23-30, doi:10.1016/j.scriptamat.2016.08.017. (2017).
- Granucci, N., Jenkins, C., Bauer, M., Gard, A., Pinkerton, B., & Broadbridge, C. “Teaching Materials Science and Engineering (MSE) in the Pre-College Classroom as a Vehicle for NGSS Implementation”, *MRS Advances*, 1-6. doi:10.1557/adv.2017.102. (2017).
- Co-Editor, “Microelectronics and Optoelectronics”, International Journal of High Speed Electronics and Systems (IJHSES). Selected Topics in Electronics and Systems, World Scientific, Vol. 60, 2017; <https://doi.org/10.1142/10771>
- Y. Liu, J. Padmanabhan, B. Cheung, J. Liu, Z. Chen, B. Scanley, D. Wesolowski, M. Presley, C. Broadbridge, S. Altman, U. Schwarz, T. Kyriakides, J. Schroers, “Combinatorial development of antibacterial Zr-Cu-Al-Ag thin film metallic glasses”, *Scientific. Rep.* 6, 26950; doi:10.1038/srep26950 (2016).
- L. Kornblum, E. Jin, D. P. Kumah, A. T. Ernst, C. C. Broadbridge, C.H. Ahn, F. J. Walker, “Oxide 2D Electron Gases as a Route for High Carrier Densities on (001) Si”, *Appl. Phys. Letters*, **106**, 201602; doi: 10.1063/1.4921437. (2015).
- K. F. Dahlberg, K. Woods, C. Jenkins, C. C. Broadbridge and T. C. Schwendemann. “Patterned Deposition of Nanoparticles Using Dip Pen Nanolithography For Synthesis of Carbon Nanotubes”. *MRS Proceedings*, 1752, mrsf14-1752-mm09-02 doi:10.1557/opl.2015.250. (2015).
- J. Liu, Y. Liu, P. Gong, Y. Li, K. Moore, E. Scanley, F. Walker, C. Broadbridge and J. Schroers, “Combinatorial exploration of color in Gold-based Alloys”, *Gold Bulletin*, Springer publishing on-line journal, DOI 10.1007/s13404-015-0167-z. (2015)
- N. Ferrari, C. Jenkins, J. Garofano, D. Day, T. Schwendemann and C. Broadbridge. “Research Experiences for Students: Interdisciplinary skill development to prepare the future workforce for success.” *MRS Proceedings*, 1762, mrsf14-1762-aaa08-03 doi:10.1557/opl.2015.154. (2015).
- E. N. Jin, L. Kornblum, D. P. Kumah, K. Zou, C. C. Broadbridge, J. H. Ngai, C. H. Ahn, and F. J. Walker. “A high density two-dimensional electron gas in an oxide heterostructure on Si (001)”, *Appl. Phys. Letters Materials* 2, 116109; doi: 10.1063/1.4902433. (2014)
- B. E. Scanley, T. E. Sadowki, C. I. Pelligra, M. E. Kreider, C.O. Osuji and C. C. Broadbridge. “Use of the Gabor Filter for Edge Detection in the Analysis of Zinc Oxide Nanowire Images”, *Microsc. Microanal.* 20 (Suppl 3), p. 830; doi: 10.1017/S143192761400587X. (2014)
- C. C. Broadbridge, T. Sadowski, J. Garofano and J. DaPonte, “Microscopy and Team-based Interdisciplinary Materials Research to Achieve 21st Century Skills”, *Microsc. Microanal.* 20 (Suppl 3), p. 2146; doi: 10.1017/S143192761401246X. (2014)
- C. Jenkins, M. Cruz, J. Depalma, M. Conroy, B. Benardo, M. Horbachuk, T. Sadowski, C. Broadbridge, Todd C. Schwendemann. “Characterization of Carbon Nanotube Growth via CVD Synthesis from a Liquid Precursor”, *International Journal of High Speed Electronics and Systems*, Vol. 23, No. 1; 1420001 (7 pages) doi: 10.1142/S0129156414200018. (2014)
- D. A. Day, N. Ferrari and C. Broadbridge. “The Role of Collaborative Student Research on the Development of 21st Century Skills”, *2014 MRS Proceedings*, 1657, mrsf13-1657-qq02-05 doi:10.1557/opl.2014.400. (2014)
- D. A. Day, C. Guo, N. Ferrari, H. Edgecumbe and C. Broadbridge. “Optimizing K-14 Instruction to Infuse 21st Century Skills”, *2013 MRS Proceedings*, 1583, doi: 10.1557/opl.2013.776. (2013)
- D. A. Day, E. Abbasi, B. Liang, S. Bhat, S. DeMeo, J. Garofano, L. Grober, N. Ferrari and C. Broadbridge. “The

Effectiveness of Multimedia and Activity-Based Supplemental Teaching Resources in Materials Science Education”, *2012 MRS Proceedings*, 1472, mrss12-1472-zz03-04, doi:10.1557/opl.2012.1209. (2012)

D. Su, Q. Meng, C. A. F. Vaz, M-G Han, Y. Segal, F. J. Walker, M. Sawicki, C. Broadbridge and C. Ahn, “Origin of 90° domain wall pinning in PbOZr_{0.2}Ti_{0.8}O₃ heteroepitaxial thin films”, *Appl. Phys. Letters.*, 99, 102902 (2011).

J. Garofano, T. Sadowski, J. Daponte, C. Broadbridge, “Team Based Interdisciplinary Research Using Electron Microscopy”, *2011 MRS Proceedings*, volume 1320, doi.org/10.1557/opl.2011.578 (2011)

D. P. Kumah, J. W. Reiner, Y. Segal, A.M. Kopak, Z. Zhang, D. Su, Y. Zhu, M. S. Sawicki, C.C. Broadbridge, C. H. Ahn, and F. Walker, “The atomic structure and polarization of strained SrTiO₃/Si”, *Appl. Phys. Letters.*, 97, 251902 (2010).

A. M. Kolpak, F. J. Walker, J. W. Reiner, Y. Segal, D. Su, M. S. Sawicki, C. C. Broadbridge, Z. Zhang, Y. Zhu, C. H. Ahn and S. Ismail-Beigi, “Interface-Induced Polarization and Inhibition of Ferroelectricity in Epitaxial SrTiO₃/Si”, *Phys. Rev. Lett.*, 105, 217601 (2010).

H.-Q. Wang, E. I. Altman, C. Broadbridge, Y. Zhu, and V. Henrich, Determination of electronic structure of oxide-oxide interfaces by photoemission spectroscopy,” *Advanced Materials*, doi:10.1002/adma.200903759. (2010)

D. Su, B. Yang, N. Jiang, M. Sawicki, C. Broadbridge, M. Couillard, J. W. Reiner, F. J. Walker, C. H. Ahn, and Y. Zhu, “Valence Electron Energy-Loss spectroscopy of Ultrathin SrTiO₃ Films Grown on Silicon (100) Single Crystal”, *Appl. Phys. Letters.*, 96, 121914 (2010).

C. Broadbridge, J. Garofano, E. Altman, Y. Khalil, V. Henrich, Y. Segal, M.-R. Padmore, P. Michael and F. Walker, “Research Grade Instrumentation for Nanotechnology and MSE Education,” *Mater. Res. Soc. Symp. Proceedings*, Vol. 1233, 2010 Materials Research Society, 1233-PP10-03. (2010)

D. Day, Z. Yu, Z. Wang, J. Dalecki, A. Jadbabaie, E. Feng, T. Mattessich, C. Broadbridge, M. Reed and R. Munden, “Authentic Science Research and the Utilization of Nanoscience in the Non-Traditional Classroom Setting,” *Mater. Res. Soc. Symp. Proceedings*, Vol. 1233, 2010 Materials Research Society, 1233-PP04-32. (2010)

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INVITED LECTURES, PRESENTATIONS, PANELS AND PROCEEDINGS:

C. C. Broadbridge, "Sustainable Nanotechnology Education Addressing Global Problems at the Nanoscale", Nanoscale Science and Engineering Grantees Conference, December 7-8, 2022, Virtua; Invited.

S. Gagnon, R. Tucci, M. Santo, R. Abazi, P. LeMaire, E. Scanley, C. Broadbridge, R. Singhal, Systematic studies of MnO₂/MWCNT Nanocomposite for supercapacitor applications, Bulletin of the American Physical Society, Volume 64, 10, 2019.

C. C. Broadbridge, C. Jenkins, I. Canning, "BioPath – A City-University-Industry Partnership Targeting Regional Workforce Needs", Materials Research Society 2017 Fall meeting, Boston, MA, November 28, 2017.

C. C. Broadbridge, "NSF MRSEC: Increasing Diversity in Materials Science through Team Based Interdisciplinary Research", 2015 SACNAS Conference, Washington, DC, Oct 30, 2015 (*Introductory presentation and session chair*).

C. C. Broadbridge, C. Jenkins, J. Garofano, “CRISP MRSEC: Achievement of 21st Century Skills via Team Based Interdisciplinary Research in Materials Science”, 2014 SACNAS Conference, Los Angeles, CA, Oct 18, 2014. (*Invited*)

N. Ferrari, C. Jenkins, J. Garofano, D. Day, T. Schwendemann, C. Broadbridge, “Research Experiences for Students: Interdisciplinary Skill Development to Prepare the Future Workforce”, Materials Research Society 2014 Fall meeting, Boston, MA, Dec 3, 2014.

C. Broadbridge and Robert Klancko, “Building Bridges – Manufacturers and Teachers Collaborate for Student Access to STEM”, CT Learns and Works Conference, Waters Edge Resort, Westbrook CT, Friday May 16, 2014 (*Invited*).

Roundtable, Greater New Haven Chamber of Commerce Executive Orientation, “Leveraging Higher Education Systems: Opportunities to Build / Improve Workforce and “Building Partnerships Between Higher Ed & Businesses”; Gateway Community College, Feb. 26, 2019.

Presentation, SCSU Foundation Board Meeting, “Student Research Conferences at Southern CT State University”; SCSU, Feb. 27, 2019.

Panel, Sino-American Pharmaceutical Professionals (SARA – CT 5th Annual Conference; Pharma in the Digital Age; “CT BioScience Community: Success Stories”; Yale School of Management, Sept 29, 2018.

Panel, Science and Technology Research Opportunities; BioCT, University of New Haven, Nov 7, 2018.

Panel, STEM Leadership Academy, Southern CT State University, July 1, 2019.

D. A. Day, N. Ferrari and C. Broadbridge. “The Role of Collaborative Student Research on the Development of 21st Century Skills”, Materials Research Society 2013 Fall Meeting, Boston, MA, Dec 2, 2013.

C. Broadbridge, M. Enjalran and T. Schwendemann, “Physics and Nanotech: Programs Targeting Local Industry/Academic Needs”, New Haven Manufacturers Association Regional Meeting; “Leveraging Technology for Manufacturers’ Profitable Growth”; Graduate Club, New Haven, CT, Nov 7, 2013 (*Invited*).

C. Broadbridge, “21st Century Skills and Educating the Next Generation Workforce for Expedited Innovation and Deployment”, American Vacuum Society 60th International Symposium and Exhibition, Long Beach, CA, Oct 27 – Nov 1, 2013, (*Invited*).

C. Broadbridge, “Educating a Competitive Future Workforce: Interdisciplinary Team Based Research and the Development of 21st Century Skill”; University of Florida Gainesville, Oct. 2, 2013 (*Invited*)

C. Broadbridge, “Materials Science and Nanotechnology: Interdisciplinary with Huge Potential”, SCSU Foundation Board, SCSU, June 25, 2012.

C. Broadbridge, “Materials Science and Nanotechnology: Interdisciplinary with Huge Potential”, Convent of the Sacred Heart Academy Science Symposium, Greenwich CT, April 4, 2012.

B. Niedzielski, C. Broadbridge, J. DaPonte and M. Gherasimova, “Comparison of the Ability of Quantitative Parameters to Differentiate Surface Texture of Atomic Force Microscopy Images”, *SPIE Conference on Visualization and Data Analysis 2010*, San Francisco, CA., SPIE Proceedings Vol. 7538, January 2010.

M. Sawicki, P. Munhutu, J. DaPonte, C. Broadbridge; A. Lehman; T. Sadowski; E. Garcia; C. Heyden; L. Mirabelle and P. Benjamin, “Computer assisted analysis of microscopy images”, *SPIE Conference on Visualization and Data Analysis 2009*, San Jose, CA., SPIE Proceedings Vol. 7243, January 2009.

C. C. Broadbridge, “CRISP Interdisciplinary Science Professional Development”, invited talk at the American Chemical Society Northeast Regional Meeting 2009, Hartford Hilton, Hartford, CT, Oct 7, 2009.

J. Reiner, A. Kolpack, Y. Segal, F. Walker, S. Ismail-Beigi, C. Ahn, M. Sawicki, C. Broadbridge and D. Su, "Crystal Oxides on Silicon", Invited Presentation and abstract published in Proceedings of the 2009 Connecticut Symposium on Microelectronics and Optoelectronics, Yale University, March 11, 2009.

C. C. Broadbridge, "Materials Science and Nanotechnology", Key Note Address, Manufacture Your Future Careers Expo, CT Expo Center, Hartford, CT, June 2008.

R A. Munden, A. Vacic, C. C. Broadbridge, and M. A. Reed, "Aligned Gallium Nitride Nanowire Growth by Chemical Beam Epitaxy Method." Materials Research Society, Abstract published and poster presented Fall Meeting 2008 (Boston, MA), LL3.7.

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J. S. DaPonte, J.S. and C. Broadbridge, "A Faculty-Student Approach Encouraging Interest in STEM Careers", Nineteenth International Conference on College Teaching and Learning, Jacksonville, Florida April 14 - 18, 2008.

M. Sawicki, C. Broadbridge, F. Walker, A. Lehman and J. Lehman, "Microscale and Nanoscale Specimen Preparation", Presentation and abstract published in Proceedings of the 2008 Connecticut Symposium on Microelectronics and Optoelectronics, University of Connecticut, April 9, 2008.

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C. Tirrell, M. Enjalran, M. Sawicki, P. Carter, J. Lehman, S. Walck and C. C. Broadbridge, "Computational modeling of the electric field line distribution surrounding focus ion beam thinned TEM specimens", Presentation and abstract published in Proceedings of the 2007 Connecticut Symposium on Microelectronics and Optoelectronics, Yale University, March 21, 2007.

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J. McGuinness, D. Day, C. Caragianis-Broadbridge, A. Lehman, G.Lesley, S. Luo, S. Calvin, “TEM Size Distribution Study for Platinum Nanoparticles: Impact of Preparation Techniques”, poster presentation at the Fall Meeting of the Materials Research Society, Dec. 2005.

R. Fitzsimmons, R. Koekkoek, C. Caragianis-Broadbridge, A. Lehman and K. Cummings, “An Exploration of Microscopy for Educational Applications in the High School Physics Classroom”, poster presentation at the Fall Meeting of the Materials Research Society, Dec. 2005.

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. Caragainis-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 $\text{SrBi}_2\text{Ta}_2\text{O}_9$ with Cross-Sectional Atomic Force Microscopy”, *Microscopy and Microanalysis 2002*, Presentation and abstract published in Proceedings of the Microscopy Society of America, August 2002.

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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.

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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_2 Interface Properties by Depositing Ultra-thin Si Nitride Layer Prior to Formation of SiO_2 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.

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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 29th ASEE/IEEE Frontiers in Education Conference, San Juan, Puerto Rico, November 1999.

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“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 SiO₂ formed from Metastable Ge_{1-x}Si_xO₂”, 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 SiO₂ formed from Metastable Ge_{1-x}Si_xO₂”; 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 SiO₂ 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_{1-x}Ge_x”, ASM/TMS Materials Week, Rosemont, Illinois, International Conference on Synthesis and Processing of Advanced Materials; Invited lecture, Oct. 1994.

RESEARCH INSPIRED WORKSHOPS ORGANIZED AND IMPLEMENTED

Making Connections Between the Future of Manufacturing and Teaching and Learning; July 21-21, 2022, SCSU, ManufactureCT, Assa Abloy and Eli Whitney (co-lead by Jim Gildea Bigelow Tea).

Connecting Materials and Manufacturing to the New State Standards; July 22-23, 2021; SCSU, ManufactureCT and Platt Tech (co-lead by Jim Gildea of Bigelow Tea).

Connecting Materials and Manufacturing to the New State Standards; July 23-25, 2019; SCSU, NHMA and Platt Tech (co-lead by Larry Smith of Bridgeport Fittings).

Gearing up for the Future: the 6th Annual Materials and Manufacturing Teacher’s Institute; July 24 – 27, 2018; SCSU, NHMA and Platt Tech (co-lead by Robert Klancko).

The Magic of Applied Science & Engineering: the 5th Annual Materials and Manufacturing Teacher’s Institute; July 25 – 27, 2017; SCSU, NHMA and Platt Tech (co-lead by Robert Klancko).

Materials and Manufacturing Teachers’ Institute 2.0: A New Approach; July 26 – July 28, 2016; SCSU, NHMA and Platt Tech (co-lead with Robert Klancko).

Bringing STEM & Manufacturing Careers into Your Classroom; Nov. 21, 2015, CT Science Teachers Association (CSTA) Annual Conference, Hamden Middle School, Hamden, CT., (co-presented workshop with P. Dimoulas).

CRISP Presents: Analyzing and Interpreting Data; Nov. 14, 2015; SCSU, (led workshop for presenters Marie Nabbout Cheiban, Adam Goldberg, Karen Cummings and Maria Diamantis).

Materials and Manufacturing Teachers’ Institute: How Things are Made – Networking with Local Industry to Bring Ideas Back to Your Classroom; July 28 – July 30, 2015; SCSU, NHMA and Platt Tech (co-lead with Robert Klancko).

Next Generation Science Standards Workshop – Analyzing and Interpreting Data, July 27, 2015, SCSU (led workshop for presenters Marie Nabbout Cheiban, Adam Goldberg and Scott Graves).

Finding FOCIS: A Framework for Examining Lessons and Learning Activities; Nov. 8, 2014, Yale Peabody (led workshop for presenter Robert Tai (University of Virginia))

Materials and Manufacturing Teachers' Institute: How Things are Made – Networking with Local Industry to Bring Ideas Back to Your Classroom; July 29 – July 31, 2014; SCSU, NHMA and Platt Tech (co-lead with Robert Klancko).

Scientific Modeling with Connections to the Common Core; May 31, 2014, SCSU (co-lead with Nicole Granucci and CCSA as co-facilitators)

Materials and Manufacturing Follow-up Workshop: How Things are Made and Networking with Local Industry to Bring Ideas Back to Your Classroom; Feb 8, 2014, SCSU (co-lead with Bob Klancko)

A 21st Century Approach to Teaching Electricity and Magnetism – Real World Applications: December 7, 2013, Peabody Museum, Yale University (with Karen Cummings)

Materials and Manufacturing Teachers' Institute: How Things are Made – Networking with Local Industry to Bring Ideas Back to Your Classroom; July 29 – Aug 1, 2013; SCSU, NHMA and Platt Tech (co-lead with Robert Klancko).

Special Education in Teaching Science; CRISP/NHPS Professional Development Workshop, November 5, 2013, Peabody Museum, Yale University.

A 21st Century Approach to Teaching Electricity and Magnetism: Content and Pedagogy; February 2, 2013, Peabody Museum, Yale University.

A Collaborative 21st Century Approach to Implementing the Current Science Curriculum; October 6, 2012; Peabody Museum, Yale University.

Materials Science, Nanotechnology and New Haven Science Fair; March 3, 2012; SCSU.

Next Generation Standards and New Haven Public Schools Professional Development Focus Group, Jan 27, 2012; SCSU.

How to ask a Research Question, one day workshop, Jan, 2010; SCSU

Seeing is Believing IV: “Nano-Fabrication”, one day workshop, November 2009; Yale University.

Seeing is Believing III: “Nano-Photonics”, one day workshop, November 2009; Yale University.

Seeing is Believing II: “Why Plastics”, one day workshop, April 2009; SCSU.

Seeing is Believing I: “Nanotechnology and Materials Science”; one day workshop, March 2009; SCSU.

Nanotechnology and Materials Science: two-day workshop, July 2008; SCSU.

INTERNAL GRANTS (CSU):

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

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

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”, PI.

EXAMPLES OF COURSES TAUGHT:

Materials Science and Engineering (SCSU)
Advanced Experimental Physics II (SCSU)
Senior Capstone (SCSU)
Nanotechnology Special Topics (SCSU)
Physics for Engineering I and II (SCSU)
General Physics (SCSU)
Conceptual Physics – Lecture and L-Course (SCSU)
Physics for Today – Critical Thinking and the Scientific Method (SCSU)
Critical Thinking and Science for Future Leaders (SCSU)
Modern Physics – writing intensive course (SCSU)
Solid State Physics (SCSU)
Quantum Mechanics (SCSU)
Integrated Science Experience Graduate Level (SCSU)
Laboratory Science Practice Graduate Level (SCSU)
Special Project in Science Education 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)