ALEXANDER N. CARTWRIGHT

Education

PhD, University of Iowa**,** 1995
Major: Electrical and Computer Engineering
Thesis Title: "Nonlinear optical properties of hetero *n-i-p-i* device structures"

BS, University of Iowa, 1989 (with Highest Distinction)
Major: Electrical and Computer Engineering
(Transferred to University of Iowa in 1985 from Kirkwood Community College;
Initial major Accounting; Transferred to Engineering in fall 1985)

Kirkwood Community College, 1983-1984
Major: Business/Accounting

Employment History

The State University of New York (SUNY), System Administration
Sept. 2014 – present: Provost and Executive Vice Chancellor

SUNY Polytechnic Institute
Sept. 2016 – Nov. 2016: Officer-in-Charge

SUNY Downstate Medical University
July 2016: Officer-in-Charge

Research Foundation for SUNY (RFSUNY)
Jan. 2015 – June 2016: Interim President

University at Buffalo, The State University of New York

University at Buffalo Administrative Positions:
Jan. 2012 – Sept. 2014: Vice President for Research and Economic Development
Jan. 2011 – Jan. 2012: Vice President for Research

April 2011 – Sept. 2014:	Operations Manager, Research Foundation for the State University of New York
July 2010 – Jan. 2011:	Interim Vice President for Research
Oct. 2010 – Sept. 2014:	Acting Executive Director of the New York State Center of Excellence in Bioinformatics and Life Sciences
July 2009 – June 2010:	Chair, Electrical Engineering Department
July 2009 – June 2010:	Inaugural Chair, Biomedical Engineering Department
Aug. 2007 – July 2009:	Vice Provost for Strategic Initiatives
Aug. 2006 – July 2007:	Director of UB2020 Integrated Nanostructured Systems Initiative
Aug. 2002 – present:	Director, Institute for Lasers, Photonics and Biophotonics
Sept. 1999 – present:	Co-Director, Electronics Packaging Laboratory (EPL)
Sept. 2001 – Aug. 2008:	Director, National Science Foundation Integrative Graduate Education and Research Traineeship in "Biophotonics: Materials and Applications"
Dec. 1999 – Aug. 2002:	Deputy Director, Institute for Lasers, Photonics and Biophotonics

University at Buffalo Faculty Appointments:

Aug. 2005 – present:	Professor of Electrical Engineering, University at Buffalo (UB)
July 2009 – present:	Professor of Biomedical Engineering, UB
Aug. 2005 – present:	Adjunct Professor of Physics, UB
Aug. 2000 – July 2005:	Associate Professor of Electrical Engineering, UB
Aug. 1995 – July 2000:	Assistant Professor of Electrical Engineering, UB

University of Iowa

Mar. 1995 – Aug. 1995:	Postdoctoral Scientist, Laboratory for Photonics and Quantum Electronics, U. of Iowa
Aug. 1989 – Feb. 1995:	Research Assistant, Laboratory for Photonics and Quantum Electronics, U. of Iowa

Professional and Academic Honors/Awards

2017 Full Member, Sigma Xi: The Scientific Research Honor Society
2016 Fellow, American Association for the Advancement of Science
2015 Fellow, National Academy of Inventors
2014 Fellow, SPIE – The International Society for Optics and Photonics
2013 Society of Manufacturing Engineers Awardee for "Innovations that Could Change the Way you Manufacture" (1 of 5 awardees internationally)
2010 Exceptional Scholar Award for Sustained Achievement, University at Buffalo
2009 Elevated to Senior Member status, IEEE
2009 School of Engineering and Applied Sciences Faculty Excellence Award, University at Buffalo
2006 Faculty in Leadership Participant (1 of 4 participants), University at Buffalo
2003 Most Valuable Workshop Contribution, First International Workshop on Indium Nitride
2002 State University of New York Chancellor's Award for Excellence in Teaching
2000 University at Buffalo Top 100 Federal Grantee
2000 Department of Defense, Office of Naval Research Young Investigator Award
1998 National Science Foundation CAREER Award

1996, 1997, 1998 University at Buffalo Reifler Award
1993 NATO Advanced Studies Institute Travel Award
1989 NCR Most Promising Student Scholarship
1987-1989 Exxon Honors Scholarship, Caterpillar Honors Scholarship, State of Iowa Scholarship

Administrative Experience

Sept 2014 – present: Provost and Executive Vice Chancellor, SUNY

- The Provost and Executive Vice Chancellor (OPEVC) serves as the chief academic officer of the SUNY system, supporting the Chancellor and Board of Trustees in carrying out their oversight responsibilities of the 64-campus system. As Provost, responsibilities include oversight of all academic programs, policy and assessment; enrollment management and student success; global affairs; and SUNY's comprehensive research enterprise. The Provost is also charged with linking faculty scholarship to opportunities for improving student success and completion, student-faculty research, engagement and partnerships.
- Managing an administrative portfolio with an office budget of $150 million and 300 employees that includes:
    - Office of Institutional Research and Data Analytics
    - Academic Programs and Planning
    - Office of Diversity, Equity and Inclusion
    - Enrollment and Student Success
    - Academic Affairs
    - Presidential Search and Evaluation
    - Open SUNY (online learning)
    - University Wide Programs (Educational Opportunity Program, Empire Innovation Professors, High Needs Degree Programs, Workforce Development Center, etc.)
    - Sponsored Programs Office
    - SUNY Press
    - Office of Global Affairs
    - Information Technology
    - Rockefeller Institute of Government
    - NYS Small Business Development Center
    - Academic Budget
- Key Accomplishments and Ongoing Efforts:
    - Internal Engagement with SUNY Leadership:
        - Established a Provost's Advisory Group of eight Presidents to engage them on planning and implementation of new initiatives, evaluating existing initiatives, informing the agenda for regular meetings of all Presidents, and refining System goals
        - Organized Presidents' Meetings beginning with the September 2015 meeting
        - Participates in presidential evaluations with Chancellor
        - Planned several presidential transitions

- Leading presidential search process
- Established an advisory group of Campus Chief Academic Officers to ensure that they are informed, brainstorm solutions to key challenges, and encourage collaboration

- External Engagement
  - Represented SUNY at numerous national conferences, initial meetings with external contacts: AASCU, APLU, USU, University Research Foundations, NASH, UUP, SOMOS, state legislators, congressional representatives
  - Represented SUNY at Congressional and White House meetings on key academic and research issues

- Established SUNY emphasis of investments on three strategic focus areas:
  - Diversity, Equity & Inclusion
  - Completion/Student Success
  - Impact on State and National Challenges (research in emerging areas)

- Implementing a System-wide Diversity, Equity and Inclusion Policy
  - Chaired Diversity Task Force that created a broad system-wide policy designed to address key areas including: campus climate; faculty, student and administrative recruitment and retention; cultural competency trainig; professional development and mentoring, and more.
  - Policy implementation includes appointing a Chief Diversity Officer at every institution, a Diversity Advisory Board, launching mentoring network, dual-career couple initiative, executed first administration of new student information survey giving students the opportunity to self-identify, etc.

- Implemented SUNY Excels performance improvement framework
  - Developed process and reviewed campus Performance Improvement Plans
  - Transitioned from a Performance Management System to SUNY Excels (a framework focused on access, completion, success, inquiry, engagement); facilitating campus/faculty support and campus participation on System-wide data working group; System-wide steering committee empaneled featuring faculty governance and distinguished faculty; established framework for guiding continuous improvement; developed a Performance Improvement Plan template; worked with campuses to approve campus Performance Improvement Plans; and currently developing a System-wide Performance Improvement Plan.
  - Co-lead the creation and distribution of a $100M Investment fund (competitive investment to support completion) with final awards aligned with performance improvement plans

- Developed the Completion Agenda strategy
  - Aligned with overarching strategies relevant to campus and System SUNY Excels goals.
  - Implementing a system wide Educational Effectiveness and Strategic Enrollment strategy for achieving increased completions from 93,000 to 150,000 per year by 2025

- Positioned to demonstrate impact on state and national needs

- Expanding Research and Economic Development efforts to show direct impact on State and National Needs
  - Defined and affirmed priorities and goals (set new targets for sponsored research, redefined System administrative structure for research including appointment of a Vice Chancellor for Research and Economic Development, graduate education, workforce development, economic impact, and partnerships.)
- Expanding Philanthropic Activity of the System office
  - Worked with Foundations to attract support for key academic initiatives
  - Created industry partnership strategy and coordinated partnerships
- Implementing Applied Learning as a System-wide requirement
  - Established a Provost's Advisory Committee on Applied Learning - a group with representatives from every campus charged with leading a workgroup on their campus.
- Implementing Seamless Transfer System-wide
  - Extensive effort expended on seamless transfer: instituted increased transparency and communication about the waiver review process, established a waiver appeals process, reconvened the Student Mobility Steering Committee, led by the Presidents of SUNY faculty governance, to advise on appeals; made final determination that credits caps would apply to AAS and AOS programs
  - Continued development of transfer pathways
  - Implemented DegreeWorks to advise students of transfer of courses
- Created and Implementing a New SUNY Internationalization Strategy
  - Engaged external review of current efforts
  - Elevated reporting status of office
  - Focused office on "Global Learning for All"
- Continue to Assess and Oversee:
  - University-wide Honorary Degree Program
  - Distinguished Faculty Appointments

Jan 2015 – June 2016: Interim President, Research Foundation for SUNY (RF)

- Transitioned RF leadership; appointed as RF Interim President; conducted a broad review; initiated discussion about refocusing priorities on core responsibilities; removed research and economic development from Presidential role; extensive board relations with both the RF Board of Directors and the SUNY Board of Trustees.
- Initiated and/or completed implementation of initiatives to reduce administrative burden on PIs and increase efficiency and effectiveness of RF operations around the system
- Moved forward on supporting a culture of innovation across the SUNY system with updates to policies, practices and systems:
  - Updated patents and inventions policy
  - New industry sponsored research agreement models

- Continuation of Technology Accelerator Fund
- Technology Transfer Toolbox to provide tech transfer professionals at campuses and central office to make data-driven decisions about patenting, licensing, and
- SUNY TURBO (Turning University Research into Business Opportunities) program to help launch and support start-up companies based on SUNY innovations and SUNY Innovation Showcase event to help SUNY start-ups pitch to venture capitalists
- Academic Industry Roundtable event around clinical and translational research

- Supported a focus on learning & development and diversity & inclusion for the people on sponsored projects and in research administration and technology transfer & commercialization at SUNY:
  - Symposium event for over 200 staff who work in research administration across the SUNY system geared toward improving knowledge in sponsored programs, compliance, HR, finance, audit, legal, innovation, and information technology.
  - Mentoring program
  - Leadership academy
  - System-wide wellness program
  - Orientation to the RF
  - Included RF in Diversity & Inclusion initiative at SUNY
- Ensured that SUNY, through the RF, is in compliance with new or changed laws and regulations:
  - Federal OMB Uniform Guidance to replace Circulars A-21, A-110, A-133
  - Fair Labor Standards Act
- Strengthened governance and relationships between RF Central, SUNY System, and campus leadership
  - Oversaw transition from one position (SUNY Vice Chancellor for Research/RF President) to two separate positions
  - Actively engaged with both SUNY Trustees and RF Board of Directors through this transition
  - Helped to recruit new RF President
  - Maintained strong leadership and engagement with RF leadership team throughout interim period
  - Established campus RF operations manager (OM) monthly call-in sessions and created OM data dashboard
  - Oversaw development and Board approval for two RF annual operating plans
  - Oversaw development of Key Performance Indicators dashboard to provide leadership with interactive data on SUNY research and innovation
- Provided RF support for programs to increase campus collaboration to grow activity
  - Networks of Excellence – oversaw program review to reconfigure and right-size the program
  - Established workgroup to assess and propose mechanism for creating a Clinical Trials Alliance for all of SUNY
  - SUNY STEM undergraduate passport – to provide research opportunities to undergraduate students
- Helped maintained strong public perception of RF

- Worked to strengthen RF financial position

University at Buffalo, The State University of New York

Jan 2012 – Sept. 2014: Vice President for Research and Economic Development
Jan 2011 – Jan. 2012: Vice President for Research
July 2010 – Jan. 2011: Interim Vice President for Research

- The Office of the Vice President for Research and Economic Development (OVPRED) works with other senior leaders in supporting the university's vision as an AAU public research institution. The Vice President develops effective and innovative strategies to best achieve UB's research goals, ensuring resources that are aligned with the university's education and service missions. The Vice President manages UB's research enterprise, including research funding, policy and compliance, research communications, research support, technology transfer and industry/university relations.
- Managing an administrative portfolio that includes:
    - Office of Research Advancement (ORA).
    - Office of Sponsored Projects Services (SPS) – providing complete pre- and post-award services for UB Principal Investigators and the UB research community.
    - Division of Comparative Medicine/Laboratory Animal Facility (DCM/LAF).
    - Office of Economic Development (OED).
    - UB Office of Science, Technology Transfer and Economic Outreach (STOR).
    - Office of Research Compliance.
    - VPR Information Systems.
- Leading the University's research and economic development operations with
    - Eight campus research centers and institutes.
- More than 100 staff members reporting through the OVPRED.
- The OVPRED has partnered with university leaders, faculty and industry in launching several successful major initiatives, including:
    - 2014: New York State Buffalo Genomic Medicine Center - $47.5M over 5 years recommended by Governor Cuomo in the 2014 State of the State Address. A consortium of the University at Buffalo, New York Genome Center and associated industrial partners.
    - 2013: National Science Foundation Science and Technology Center (NSF STC) on Biology with X-Ray Free Electron Lasers (BioXFEL) awarded October 2013, $25M award for 5 years.
    - 2013: Led the establishment of the University at Buffalo's Institute for Research and Education in eNergy, Environment and Water (RENEW) – a $15M, 5 year investment in upwards of 20 new faculty positions to build on existing strengths within the university and to establish UB as a world leader in energy, water and environment. Engaged a faculty advisory group and facilitated the leading deans to develop a strategic vision for the institute.
    - 2012: Secured a second New York State Center of Excellence designation, in Materials Informatics.

- 2013: Established the Office of Research Advancement in conjunction with the Vice Provost for Strategic Initiatives.
- 2012-2014: Active participant in the planning team for the "Realizing UB2020" strategic planning process led by the Provost and President.
- 2013-2014: Led the "Research and Innovation" Task Force to implement strategic initiatives in "Realizing UB2020."
- 2011-2014: Member of the Regional Economic Development Council Advanced Manufacturing Implementation Team that focuses on the establishment of Buffalo Manufacturing Works.
- 2012-2014: Active participant in AAU Research Officers and APLU Council on Research Policy and Graduate Education (Executive Committee).
- Active participant in Congressional visits to Senators and Representatives.
- 2013: Partnered with local business leaders to recruit Sentient Sciences, LLC to Western New York.

Oct. 2010 – Sept. 2014: Acting Executive Director of the New York State Center of Excellence in Bioinformatics and Life Sciences, UB

- As Acting Executive Director, provide strategic leadership for UB's New York State Center of Excellence in Bioinformatics and Life Sciences, which houses faculty from the Schools of Medicine and Biological Sciences, Engineering and Applied Sciences, Public Health and Health Professions, Pharmacy and Pharmaceutical Sciences, and the College of Arts and Sciences. In addition, the Center of Excellence is home to the New York State Center of Advanced Technology in Biomedical Sciences and the Center for Computational Research. This unique Center also houses business partners (9).

  The Executive Director oversees all research, education and outreach activities of the Center, in addition to managing the Center's space and core facilities.

- Major Accomplishments include:
  - Establishment of a management team to oversee facilities, space and personnel needs.
  - Established an Internal Advisory Committee of Deans that provides guidance on the program for the Center of Excellence.

April 2011 – Sept. 2014: Operations Officer, The Research Foundation for SUNY

- The VPRED brings innovative thinking to his role as a Research Foundation Operations Officer. Reporting to the President of The Research Foundation for SUNY (RF), the RF Operations Officer serves as the top level RF executive on campus, responsible for supporting SUNY's research mission and successfully implementing the RF's strategic plan. The Operations Officer supervises all Research Foundation operations on campus, including:
  - Sponsored program administration services to the SUNY community (faculty, students, and staff) and stewardship to our sponsors;
  - Creating an environment that supports and increases funding for sponsored programs;
  - Supporting increased technology transfer and commercialization activities on behalf of SUNY efforts to revitalize New York's economy;

- Supports business offices that process RF transactions.

July 2009 – June 2010: Chair, Department of Electrical Engineering

- Assumed administrative leadership and was responsible for:
  - Teaching assignments.
  - Space assignments.
  - Discretionary salary increases.
  - Hiring of new faculty:
    - Hired two new Assistant Professors (Gesualdo Scutari & Qiaoqiang Gan).
    - Hired a new Associate Professor in collaboration with Physics department (Steven Durbin).
  - Reviewed and redistributed workload for all staff in department (one technician, one administrative assistant, and three secretaries).
  - Supervised five staff members.

July 2009 – June 2010: Inaugural Chair, Department of Biomedical Engineering

- Collaborated in designing a new interdisciplinary department and implemented the plan
  - Hired three new department faculty members (Julian Lippmann, Debanjan Sarkar, Chulhung Kim).
  - Worked with Dean of the School of Medicine and Biomedical Sciences and Dean of School of Engineering and Applied Sciences to identify and appoint initial list of twelve faculty from across the University.
  - Hired the Assistant to the Chair of the department.
  - Identified affiliated faculty who would help with the proper delivery of the BME undergraduate curriculum.

July 2007 – June 2009: Vice Provost for Strategic Initiatives

- Implemented administrative structure for eight strategic strengths at UB. Strength administrative structure included i) a Dean's advisory committee, and ii) a faculty advisory committee. Identified UB2020 strategic strengths included:
  - Artistic Expression and Performing Arts
  - Civic Engagement and Public Policy
  - Cultures and Texts
  - Extreme Events: Mitigation and Response
  - Health and Wellness Across the Lifespan
  - Information and Computing Technology
  - Integrated Nanostructured Systems
  - Molecular Recognition in Biological Systems and Bioinformatics
- Coordinated management of strategic strengths through a committee that included eight strategic strength faculty advisory committee chairs (one per strategic strength).
- Developed review process for assessing progress of the eight diverse strategic strengths. This included procedures to track investments in UB2020 Strategic Strengths.

- Chaired committee responsible for providing a strategic plan for a newly purchased UB Downtown Gateway building located at the developing downtown campus.
- Established the UB2020 strategic strengths resource center.
- Organized the planning process for implementation of several strategic strengths.
- Developed a model university process for inter-disciplinary hiring. This included processes for multi-department and multi-school hires.
- Facilitated implementation of Strategic Strengths in collaboration with upper administration (Deans, VPs, Provost and President) and faculty leaders (including negotiations of strategic plan, hiring plans and infrastructure investments).

August 2006 – June 2007: Faculty Leadership Program

- Faculty Leadership Fellow reporting to Provost.
- Developed a plan for organization of strategic strengths (as part of UB2020 strategic planning process).
- Proposed administrative structure for strategic strengths.

July 2006 – June 2007: Faculty Advisory Committee Chair, Integrated Nanostructured Systems (A UB2020 Strategic Strength)

- Responsible for organizing effort of the University at Buffalo's Strategic Strength in Integrated Nanostructured Systems.
- Developed the budget model for the strength.
- Organized the planning of research themes and associated faculty hires. The hiring plan included 29 distinct hires across five academic units at the University at Buffalo (the schools of Engineering and Applied Sciences, Pharmacy and Pharmaceutical Sciences, Medicine and Biological Sciences, Dental Medicine and the College of Arts and Sciences).
- Worked with the five Academic Deans and the Vice President for Research to implement the research initiatives and faculty hires.

Board Memberships

February 2016 – present: Member of the Carnegie Pathways Advisory Board
October 2015 – present: Member of the New York State Photonics Board
January 2012 – Sept. 2014: Member of the Buffalo Niagara Enterprise Board of Directors.
October 2011 – Sept. 2014: Member of the CUBRC Board of Directors.
October 2011 – Sept. 2014: Member of the Buffalo 2020 Corporation Board of Directors.
Chair: December 2011 - present
Spring 2008 – Sept. 2014: Member of the New York Sea Grant Institute Board of Governors.
Executive Committee: 2012 - 2014
Chair: April 2012 - 2014
Vice Chair: Jan. 2012 - April 2012
January 2012 – Sept. 2014: Member of the Hauptman-Woodward Institute Board of Directors.

Professional Memberships and Activities

Society Memberships:

Fellow, American Association for the Advancement of Science
American Society for Engineering Education (ASEE)
Eta Kappa Nu
Senior Member, Institute of Electrical and Electronics Engineers (IEEE)
Materials Research Society (MRS)
Fellow, National Academy of Inventors
Optical Society of America (OSA)
Full Member, Sigma Xi: The Scientific Research Honor Society
Fellow, SPIE – The International Society for Optics and Photonics

Journal Editorships:

Associate Editor, Journal of Nanophotonics
Editor, Light: Science & Applications

Journal Reviewer:

Advanced Materials, Applied Physics Letters, IEEE Electron Devices, IEEE Journal of Quantum Electronics, IEEE Photonics Technology Letters, IEEE Transactions on Advanced Packaging, IEEE Transactions on Components and Advanced Packaging, IEEE Transactions on Education, Journal of Applied Physics, Journal of Crystal Growth, Optics Communications, Optics Letters, Optics Express, Physica E-Low-Dimensional Systems & Nanostructures, Solid State Communications and others.

Conference Organization:

February 2017: Co-Chair of "Nanoscale Imaging, Sensing, and Actuation for Biomedical Applications XIII," SPIE Photonics West, BiOS Annual Conference, San Francisco, CA, January 28 – February 2, 2017.

February 2016: Co-Chair of "Nanoscale Imaging, Sensing, and Actuation for Biomedical Applications XII," SPIE Photonics West, BiOS Annual Conference, San Francisco, CA, February 13-18, 2016.

February 2015: Co-Chair of "Nanoscale Imaging, Sensing, and Actuation for Biomedical Applications XI," SPIE Photonics West, BiOS Annual Conference, San Francisco, CA, February 7-12, 2015.

February 2014: Co-Chair of "Nanoscale Imaging, Sensing, and Actuation for Biomedical Applications X," SPIE Photonics West, BiOS Annual Conference, San Francisco, CA, February 1-6, 2014.

February 2013: Co-Chair of "Nanoscale Imaging, Sensing and Actuation for Biomedical Applications IX," SPIE Photonics West, BiOS Annual Conference, San Francisco, CA, February 2-7, 2013.

January 2012: Co-Chair of "Nanoscale Imaging, Sensing and Actuation for Biomedical Applications VIII," SPIE Photonics West, BiOS Annual Conference, San Francisco, CA, January 21-26, 2012.

January 2011: Co-Chair of "Nanoscale Imaging, Sensing and Actuation for Biomedical Applications VII," SPIE Photonics West, BiOS Annual Conference, San Francisco, CA, January 22-27, 2011.

January 2010: Co-Chair of "Nanoscale Imaging, Sensing and Actuation for Biomedical Applications VI," SPIE Photonics West, BiOS Annual Conference, San Francisco, CA, January 23-28, 2010.

January 2009: Co-Chair of "Nanoscale Imaging, Sensing and Actuation for Biomedical Applications V," SPIE Photonics West, BiOS Annual Conference, San Jose, CA, January 24-29, 2009.

March 2008: Co-Chair of "Magnetic Excitations in Semiconductors – A Bridge to the Next Decade," MagEx 2008, Buffalo, NY, March 6-8, 2008.

January 2008: Co-Chair of "Nanoscale Imaging, Sensing and Actuation for Biomedical Applications IV," SPIE Photonics West, BiOS Annual Conference, San Jose, CA, January 19-24, 2008.

April 2007: Co-Chair of "Symposium XX: Hybrid Functional Materials for Optical Applications," MRS Annual Meeting, San Francisco, CA, April 9-13, 2007.

January 2007: Co-Chair of "Nanoscale Imaging, Spectroscopy, Sensing and Actuation for Biomedical Applications IV," SPIE Photonics West, BiOS Annual Conference, San Jose, CA, January 20-25, 2007.

January 2006: Co-Chair of "Nano/Biophotonics and Biomedical Applications," SPIE Photonics West, BiOS Annual Conference, San Jose, CA, January 21-26, 2006.

January 2005: Co-Chair of "Nano/Biophotonics and Biomedical Applications," SPIE Photonics West, BiOS Annual Conference, San Jose, CA, January 22-27, 2005.

December 2004: Chair of Symposium "Novel Materials for Nanophotonics," MRS Annual Meeting, Boston, MA, November 29-December 3, 2004.

August 2004: Co-Chair of "Nanophotonic Materials," SPIE – The International Society for Optical Engineering, Annual Meeting, Denver, CO, August 2-6, 2004.

January 2004: Chair of "Nano/Biophotonics and Biomedical Applications," SPIE Photonics West, BiOS Annual Conference, San Jose, CA, January 24-29, 2004.

August 2003: Program Committee, IEEE Nanotechnology Conference, IEEE-Nano 2003, San Diego, CA, August 12-14, 2003.

August 2003: Chair of "Organic and Hybrid Materials for Nanophotonics," SPIE The Annual Meeting, San Diego, CA, August 3-8, 2003.

April 2001: SPIE Opto-NorthEast and Imaging 2001, Conference Chair for Optoelectronic and Photonic Devices, Rochester, NY, April 10-11, 2001.

Fall 1999 – Spring 2000: Member of the American Society for Engineering Education (ASEE) technical committee for the St. Lawrence Sectional Meeting, Alfred, NY, March 30-April 1, 2000.

Spring 1999 – January 2000: Member of the international program committee (IPC) for the International Conference on Simulation and Multimedia in Engineering Education 2000, San Diego California, January 23-27, 2000.

Service

Scientific Service:

January – February, 2014: Reviewer for Department of Energy, Basic Energy Sciences, Early Career Research Program 2014.

April 2013 and May 2014: Member of the American Association for the Advancement of Science's Review Panel for the EPSCoR program of South Dakota. Interviews held in Sioux Falls, SD.

January – March, 2013: Reviewer for Department of Energy, Basic Energy Sciences, Early Career Research Program 2013.

September24-25, 2012: Member of the NSF IGERT review panel, Arlington, VA.

January – March, 2012: Reviewer for Department of Energy, Basic Energy Sciences, Early Career Research Program 2012.

February 1-3, 2012: Member of the NSF Division of Materials Research, Electronic and Photonic Materials Panel 4, Arlington, VA.

January 17, 2010: Member of the NSF STTR Review panel on "Photovoltaics," Arlington, VA.

November 4-6 2009: Member NIH review panel for P41 program reverse site visit for Duke University Photonics Center, Washington, DC.

September 17, 2009: Member of the NSF SBIR Review panel on "Magnetic and Sensor Materials," Arlington, VA.

November 2008: Member of the Natural Sciences and Engineering Research Council of Canada (NSERC) site review team for the Major Resource Support (MRS) Program. One of

5 team members to review The Laboratory of Micro and Nanofabrication (LMN), Institut National de la Recherche Scientifique (INRS).

March 2008: Member of the site review committee for the National Institutes of Health, National Institute of Biomedical Imaging and Bioengineering (NIBIB) Technology Resource Center in Biophotonics and Nanosensing at Duke University.

February 2007: Member of National Science Foundation's Review Panel for the Directorate for Engineering's Division of Electrical, Communications and Cyber Systems (ECCS) focused on Nanoscale Exploratory Research Teams for Active Nanostructures and Nanosystems, NSF, Arlington, VA.

April 2004: Member of National Science Foundation's CREST program Review Panel, NSF, Arlington, VA.

April 2004: Member of National Science Foundation's Spintronics Panel for Electrical and Communications Systems (ECS), unsolicited proposal, NSF, Arlington, VA.

November 2003: Member of National Science Foundation's Review Panel for Directorate for Engineering's Division of Electrical and Communications Systems, CAREER Panel, *Electronics, Photonics, and Device Technologies*, NSF, Arlington, VA.

October 2003: Member of National Science Foundation's Review Panel for Directorate for Engineering's Division of Electrical and Communications Systems, CAREER Panel, *Electronics, Photonics, and Device Technologies*, NSF, Arlington, VA.

November 2002: Member of National Science Foundation's Review Panel for Directorate for Engineering's Division of Electrical and Communications Systems, CAREER Panel, *Electronics, Photonics, and Device Technologies*, NSF, Arlington, VA.

November 2001: Member of National Science Foundation's Review Panel for Directorate for Engineering's Division of Electrical and Communications Systems, CAREER Panel, *Electronics, Photonics, and Device Technologies*, NSF, Arlington, VA.

July 2001: Member of National Science Foundation's Review Panel for Directorate for Undergraduate Education, *Course, Curriculum and Laboratory Innovation*, (NSF-CCLI #2), NSF, Arlington, VA.

April 2000 – April 2001: Secretary, St. Lawrence Section of the American Society for Engineering Education.

December 2000: National Science Foundation Workshop on "The Future Revolution in Optical Communications and Networking," Washington, D. C., (one of approximately 70 invited nationwide).

November 2000: Reviewer of the National Science Foundation's Award #9752693, "Hands-on Laboratory Projects for Non-Engineers: Learning Scientific Principles in the Context of Everyday Technology," John Krupczak, Hope College, Holland, MI.

May 2000: Member of National Science Foundation's Review Panel for Directorate for Engineering's Division of Electrical and Communications Systems, *Electronics, Photonics, and Device Technologies*, (NSF-EPDT #4), NSF, Arlington, VA.

August 1999: Member of National Science Foundation's Review Panel for the Directorate for Education and Human Resources' Division of Undergraduate Education *Course Curriculum and Laboratory Improvement* Program, (ILI-27), Washington, DC.

May 1999: Member of National Science Foundation's Review Panel for Directorate for Engineering's Division of Electrical and Communications Systems, *Electronics, Photonics, and Device Technologies*, (NSF-EPDT #1), Washington, DC.

March 1998: Member of National Science Foundation's Review Panel for Directorate for Engineering's Division of Electrical and Communications Systems *Physical Foundations of Enabling Technologies* Program, (NSF-PFET #2), Washington, DC.

January 1998: Member of National Science Foundation's Review Panel for the Directorate for Education and Human Resources' Division of Undergraduate Education *Instrumentation and Laboratory Improvement* Program, (ILI-27), Washington, DC.

Community Service

Summer 2010 – Offer Summer Camp, "Innovation Station" for 8-11 year olds, July 26-30, 2010; Camp focused on Basic Physics and Engineering of Optical Sciences.

Spring 2010 – 7th & 8th Grade Science Presentation, "Nanostructured Optical Devices," 2010.

Spring 2007 – UB Engineer's Week Presentation, "Nanoengineering: Past and Future," 2007.

Spring 2007 – Integrated Nanostructured Systems East Aurora High School campus visit.

Fall 1995-Present: Fall Campus Visit Program, UB Open House, UB Preview Day, Take your Daughters to Work Day.

Spring 2006: Third grade "Light Lab" Explore Lab, Country Parkway Elementary School, Williamsville, NY.

Spring 2006: Mentor for the State University of New York Louis Stokes Alliance for Minority Participation Program.

Fall/Spring 2005-2006: Mentor for three students in the State University of New York Collegiate Science & Technology Entry Program.

Fall 2005: Third Grade Science Laboratory, Country Parkway Elementary School, Williamsville, NY.

Summer 2005: Mentor for State University of New York Louis Stokes Alliance for Minority Participation Program.

Spring 2000: Guest Lecturer, Orchard Park School Eighth Grade Science Assembly, "Lasers and Photonics."

Summer 1999: Mentor for State University of New York Louis Stokes Alliance Louis Stokes for Minority Participation

Summer 1997: Mentor for State University of New York Louis Stokes Alliance for Minority Participation.

Summer 1996: Supervised SEAS Buffalo-Area Engineering Awareness for Minorities (BEAM) Honors Research Summer Program Student.

University Service

November 2012 – September 2014: Member, Council on Research Policy and Graduate Education (CRPGE) Executive Committee.

Fall 2011 – Spring 2012: Member, University at Buffalo Provost and Executive Vice President for Academic Affairs Search Committee.

Fall 2011 – Spring 2012: Member, President of the Research Foundation / SUNY Vice Chancellor for Research Search Committee.

Spring 2012 – Fall 2012: Member, Dean of the School of Engineering and Applied Sciences Search Committee.

March 2011: Participant in the 25th Annual Science Exploration Day.

Fall 2007 – Spring 2009: Member, Provost's Vast Potential Working Group

A coterie of deans and faculty, at the behest of the provost, engaged in a discussion regarding the vast potential of the Buffalo Niagara Region. The conversation focused, in large measure, on the unique attributes of our region.

Fall 2007 – June 2010: Member, Committee on Environmental Stewardship.

Created in November 2007 to lead UB's work toward fulfilling UB's President's endorsement of the American College and University Presidents Climate Commitment (ACUPCC) and in pursuit of a broader agenda for sustainable development and design on our three campus centers.

Fall 2006 – Spring 2009: Member, Development Program Advisory Council.

Fall 2002 – Spring 2007: Chair of ILPB Executive Committee.

Spring 2002 – present: Director: Institute for Lasers, Photonics and Biophotonics.

Spring 2001 – Spring 2007: Member of the University at Buffalo Faculty Senate's Budget Priorities Committee.

This committee advised the President in the development of the university budget, recommended criteria for the allocation of the university budget funds related to the development and implementation of programs related to the academic mission and recommended and reported regularly to the faculty senate.

Fall 1999 – present: Serving as member of the Graduate School Fellowship Committee.

Spring 1999 – present: Director: CAPEM/MRIF Ultrafast Laser Facility.

Fall 2007 – July 2009: Vice Provost for Strategic Initiatives.

Fall 2006 – July 2009: Member, University at Buffalo's Strategic Strengths Advisory Committee, Advisory to the University at Buffalo Provost (Satish Tripathi).

Fall 2007 – May 2009: Chair, UB Downtown Gateway Committee.

Fall 2006 – Spring 2008: Member, University at Buffalo's Research Advisory Council (RAC), Advisory to the Vice President for Research (Jorge Jose).

Fall 2006 – Fall 2007: Director, UB2020 Integrated Nanostructured Systems Initiative.

Integrated Nanostructured Systems at UB aims to transform nanoscience discoveries into integrated technologies that advance information processing and storage, biomedical diagnostics and therapy, and renewable energy sources for the benefit of industry, human health, the environment, and society.

Fall 2006 – Spring 2007: Faculty in Leadership Program, Mentor: Provost Satish Tripathi.

Spring 2005: Chair: White Paper Committee for UB2020 Foci of Excellence on Nanomaterials (Integrated Nanostructured Systems).

Fall 2004 – Spring 2005: Member; University at Buffalo Task Force on Centers and Institutes.

Fall 2004 – Spring 2005: Member; University at Buffalo Task Force on Research Incentives and Support.

May 1997 – January 2005: Center for Advanced Photonics and Electronic Materials. Actively participated in center activities for the University at Buffalo center focusing on photonic and opto-electronic materials.

April 1997, 1998, 1999, 2000, 2001, 2002, 2003: Judge for Sigma Xi Annual Student Research Competition. Sponsored by the Vice Provost for Graduate Education and Research.

Fall 2002: Member; SUNY Sensor Planning Committee.

Fall 2001 – Fall 2002: Member; SUNY Faculty Senate Graduate Research and Education Committee.

Fall 1999 – Spring 2002: Member; Advisory Board of the Institute for Research and Education on Women and Gender.

Spring 1997 – Fall 2001: Served as a SEAS representative to the Provost's Junior Faculty Advisory Council.

Fall 1999 – May 2000: Serving as alternate for the School of Engineering and Applied Sciences representatives to the University Faculty Senate.

Fall 1999: Served as faculty representative in the University at Buffalo Mission Review Process (one of only two faculty members invited to participate).

September 1995 – May 1997: Center for Electronic and Electro-optic Materials, University at Buffalo; actively participated in center activities.

Faculty Service

Fall 1998 – Spring 2014: Serving as the Freshmen Mentor for declared Engineering Freshmen for the School of Engineering and Applied Science (SEAS) Computing Committee.

Fall 2007 – June 2009: Member: EE Executive Committee

Fall 2006 – Spring 2007: Vice Chair, SEAS Faculty Personnel Committee

Fall 2005 – Fall 2006: Member: SEAS Faculty Personnel Committee

Fall 2005 – Spring 2006: Chair, SEAS Dean Search Committee.

Spring 1999 – Fall 2003: Associate Director: Center for Active-learning of Microelectronics in Administration and Photonics.

Fall 1998 – Fall 2003: Serving as the Faculty Advisor for the University at Buffalo American Society for Engineering Education Student Club (UB-ASEE).

Fall 2002 – Spring 2003: Member: SEAS Research Advisory Committee.

Summer 1998 – Spring 2000: Serving as the Electrical Engineering Representative to the School of Engineering and Applied Science (SEAS) Computing Committee.

Departmental Service

Spring 1996 – present: Director: Laboratory for Advanced Spectroscopic Evaluation.

Spring 2008 – June 2009: Member: Electrical Engineering Research Space Group.

Fall 2007 – June 2009: Member: New SEAS Building and Space Committee.

Fall 2005 – Spring 2007: EE Course Scheduling.

Fall 2005 – Spring 2007: Member: New SEAS Building, Department Committee.

Fall 2003 – Spring 2007: Member: Awards Committee.

Spring 2006 – Summer 2006: Chair: Electrical Engineering Faculty Search.

Fall 2005 – Spring 2006: Member: Faculty Recruitment Bio Committee.

Fall 2004 – Spring 2006: Chair: Electrical Engineering Graduate Curriculum Committee.

Fall 2004 – Spring 2006: Member: Graduate Admissions Committee.

Fall 2003 – Spring 2006: Member: Staff Duties & Evaluation Committee.

Spring 2003 – Spring 2006: Member: Undergraduate Curriculum Committee.

Summer 1999 – Spring 2006: Electrical Engineering Graduate Committee.

Fall 2001 – Spring 2005: Member: Electrical Engineering Space Committee.

Fall 2004 – 2005: Electrical Engineering Graduate Seminar Coordinator.

Fall 2002 - Spring 2003: Member: Accreditation Board for Engineering and Technology Committee.

Fall 2000 – Fall 2002: Director: Financial Aid and Teaching Assistants.

Fall 2001 – Spring 2002: Member: Electrical Engineering Search Committee.

Fall 2001 – Spring 2002: Member: Electrical Engineering Chair Search Committee.

Summer 1998 – Spring 2000: Electrical Engineering Webmaster.

Fall 1999: Electrical Engineering Course Revitalization Committee.

Summer 1998 – Fall 1999: Electrical Engineering Year 2000 Coordinator.

Spring 1998: Electrical Engineering Planning Committee.

Spring 1998: Electrical and Computer Engineering Curriculum Reform Committee.

Spring 1995 - Spring 1997: Graduate Seminar Coordinator.

Fall 1996: Head of ECE Strategic Planning Sponsored Research Subcommittee.

Education

Courses Taught

Fall 2016: EE 598 – Individual Problems: *1 student*
EE 699 – Dissertation (PhD): *1 student*

Spring 2016: EE 699 – Dissertation (PhD): *1 student*

Fall 2015: EE 699 – Dissertation (PhD): *2 students*
PHY 600 – Graduate Research (PhD): *1 student*

Spring 2015: EE 499 – Independent Study: *1 student*
EE 699 – Dissertation (PhD): *2 students*
PHY 600 – Graduate Research (PhD): *1 student*

Fall 2014: EE 699 – Dissertation (PhD): *5 students*
PHY 600 – Graduate Research (PhD): *1 student*

Spring 2014: EE 598 – Independent Study: *1 student*
EE 699 – Dissertation (PhD): *3 students*
PHY 600 – Graduate Research (PhD): *1 student*

Fall 2013: EE 598 – Independent Study: *1 student*
EE 699 – Dissertation (PhD): 5 *students*
PHY 600 – Graduate Research (PhD): *1 student*

Spring 2013: EE 699 – Dissertation (PhD): *4 students*
PHY 600 – Graduate Research (PhD): *1 student*

Fall 2012: EE 699 – Dissertation (PhD): *4 students*
PHY 600 – Graduate Research (PhD): *1 student*

Spring 2012: EE 499 – Independent Study: *2 students*
EE 699 – Dissertation (PhD): *7 students*
PHY 600 – Graduate Research (PhD): *1 student*

Fall 2011: EE 699 – Dissertation (PhD): *7 student*
PHY 600 – Graduate Research (PhD): *1 student*

Spring 2011: EE 699 – Dissertation (PhD): *9 students*

Fall 2010: EE 598 – Individual Problems: *4 students*
EE 699 – Dissertation (PhD): *9 students*

Spring 2010: EE 598 – Individual Problems (MS): *4 students (PhD) 1 student*
EE 599 – Masters Research: *1 student*
EE 699 – Dissertation (PhD): *6 students*
EE 701 – Special Topics: *1 student*

Fall 2009: EE 202 – Circuit Analysis I: *161 students*
EE 494 – Senior Capstone Project: *2 students*
EE 598 – Individual Problems (MS): *4 students, (PhD) 1 student*
EE 599 – Masters Research: *1 student*
EE 699 – Dissertation (PhD): *4 students*

Spring 2009: EE 598 – Individual Problems (PhD): *2 students*
EE 699 – Dissertation (PhD): *4 students*

Fall 2008: EE 202 – Circuit Analysis I: *159 students*
EE 498 – Undergraduate Research: *1 student*
EE 598 – Individual Problems (MS): *1 student, (PhD) 2 students*
EE 699 – Dissertation (PhD): *3 students*

Spring 2008: EE 598 – Individual Problems (MS): *1 student, (PhD) 2 students*
EE 599 – Masters Research: *1 student*
EE 699 – Dissertation (PhD): *3 students*

Fall 2007: EE 202 – Circuit Analysis I: *158 students*
EE 598 – Individual Problems (MS): *1 student,* (PhD): *1 student*
EE 699 – Dissertation (PhD): *2 students*
PHY 600 – Graduate Research (PhD): *1 student*

Spring 2007: EE 490/590 – Consumer Optoelectronics: *8 students/16 students*
EE 598 – Individual Problems (MS): *2 students,* (PhD): *2 students*
EE 599 – Masters Research: *1 student*
EE 699 – Dissertation (PhD): *5 students*
PHY 600 – Graduate Research (PhD): *1 student*
UE 141 – Integrated Nanostructured Systems Freshman Seminar Series: 7 students

Fall 2006: EE 489/589 – Lasers & Photonics: *10 students/11 students*
EE 598 – Individual Problems (MS): *1 student*
EE 599 – Masters Research: *6 students*
EE 699 – Dissertation (PhD): *5 students*
PHY 600 – Graduate Research (PhD): *1 student*
UE 141 – Integrated Nanostructured Systems Freshman Seminar Series: *9 students*

Spring 2006: EE 494/594 – Consumer Optoelectronics: *12 students/6students*
EE 499 – Independent Study: *1 student*
EE 598 – Individual Problems (PhD): *1 student*
EE 599 – Masters Research: *2 students*
EE 699 – Dissertation (PhD): *8 students*
PHY 600 – Graduate Research (PhD): *1 student*

Fall 2005: EE 492 – Lasers and Photonics: *18 students*
EE 598 – Individual Problems (PhD): *5 students*
EE 599 – Masters Research: *2 students*
EE 699 – Dissertation (PhD): *7 students*
PHY 600 – Graduate Research (PhD): *1 student*

Spring 2005: EE 494/594 – Consumer Optoelectronics: *14 students/17students*
EE 499 – Independent Study: *2 students*
EE 586 – EE Graduate Seminar: 73 *students*
EE 720 – Thesis (PhD): *2 students*
EE 730 – Individual Problems: *3 students*
EE 740 – Dissertation (PhD): *7 students*

Fall 2004: EE 492 – Lasers and Photonics: *27 students*
EE 499 – Independent Study: *3 students*
EE 585 – EE Graduate Seminar: 88 *students*
EE 720 – Thesis (PhD): *4 students*
EE 730 – Individual Problems: *2 students*
EE 740 – Dissertation (PhD): *8 students*

Spring 2004: EE 494/594 – Consumer Optoelectronics: *16 students/9students*
EE 499 – Independent Study: *2 students*
EE 511 – Problems in Biomedical Engineering: *12 students*
EE 710 – Engineering Project: *1 student*
EE 720 – Thesis (MS): *3 students*
EE 730 – Individual Problems: *4 students*
EE 740 – Dissertation (PhD): *9 students*

Fall 2003: EE 202 – Circuit Analysis I: *175 students*
EE 492 – Lasers and Photonics: *21 students*
EE 710 – Engineering Project: *2 students*
EE 720 – Thesis (MS): *2 students*
EE 730 – Individual Problems: *4 students*
EE 740 – Dissertation (PhD): *7 students*

Spring 2003: EE 511 – Problems in Biomedical Engineering: *21 students*
EE 710 – Engineering Project: *1 student*
EE 720 – Thesis (MS): *2 students*
EE 730 – Individual Problems: *1 student*
EE 740 – Dissertation (PhD): *11 students*

Fall 2002: Sabbatical

EE 499 – Independent Study: *1 student*
EE 710 – Engineering Project: *1 student*
EE 720 – Thesis (MS): *2 students*
EE 730 – Individual Problems: *7 students*
EE 740 – Dissertation (PhD): *8 students*

Spring 2002: EE 494/594 – Consumer Optoelectronics: *5 students/12 students*
EE 499 – Independent Study: *2 students*
EE 710 – Engineering Project: *3 students*
EE 720 – Thesis (MS): *2 students*
EE 730 – Individual Problems: *6 students*
EE 740 – Dissertation (PhD): *7 students*

Fall 2001: EE 492 – Lasers and Photonics: *12 students*
EE 499 – Independent Study: *1 student*
EE 566 – Optical Communications: *21 students*
EE 710 – Engineering Project: *1 student*
EE 730 – Individual Problems: *2 students*
EE 740 – Dissertation (PhD): *5 students*

Spring 2001: EE 494/594 – Consumer Optoelectronics: *10 students/5 students*
EE 710 – Engineering Project: *4 students*
EE 720 – Thesis (MS): *1 student*
EE 730 – Individual Problems: *4 students*
EE 740 – Dissertation (PhD): *4 students*

Fall 2000: EE 492 – Lasers and Photonics: *17 students*
EE 499 – Independent Study: *1 student*
EE 720 – Thesis (MS): *3 students*
EE 730 – Individual Problems: *5 students*
EE 740 – Dissertation (PhD): *2 students*
UE 151 – Honors Seminar on Consumer Electronics: *27 students*

Spring 2000: EE 494/594 – Consumer Optoelectronics: *10 students/6 students*
EE 499 – Independent Study: *1 student*
EE 502 – Individual Problems (MS): *1 student*

EE 560 – Thesis (MS): *3 students*
EE 660 – Dissertation (PhD): *2 students*

Fall 1999: EE 492 – Lasers and Photonics: *27 students*
EE 499 – Independent Study: *1 student*
EE 501 – Individual Problems (MS): *3 students*
EE 545 – Engineering Project (MS): *1 student*
EE 559 – Thesis (MS): *5 students*
EE 659 – Dissertation (PhD): *1 student*

Spring 1999: EAS 230 – Higher Level Language (C++): *69 students*
EE 494/594 – Consumer Optoelectronics: *16 students/3students*
EE 499 – Independent Study: *1 student*
EE 502 – Individual Problems (MS): *1 student*
EE 560 – Thesis (MS): *3 students*
EE 660 – Dissertation (PhD): *1 student*

Fall 1998: ECE 492/592 – Lasers and Photonics: *8 students/5 students*
ECE 499 – Independent Study: *3 students*
ECE 501 – Individual Problems (MS): *2 students*
ECE 559 – Thesis (MS): *1 student*
ECE 659 – Dissertation (PhD): *1 student*

Spring 1998: EAS 230 – Higher Level Language (C++): *56 students*
ECE 494/594 – Laser Electronics 2: *5 students/2 students*
ECE 499 – Independent Study: *1 student*
ECE 502 – Individual Problems (MS): *2 students*
ECE 602 – Individual Problems (Phd): *1 student*
ECE 660 – Dissertation (PhD): *1 student*

Fall 1997: ECE 492/592 – Laser Electronics: *5 students/9 students*
ECE 499 – Independent Study: *4 students*
ECE 501 – Individual Problems (MS): *1 student*
ECE 559 – Thesis (MS): *1 student*
ECE 601 – Individual Problems (Phd): *1 student*
ECE 659 – Dissertation (PhD): *1 student*

Spring 1997: EAS 230 – Higher Level Language (C++): *69 students*
ECE 499 – Independent Study: *6 students*
ECE 502 – Individual Problems (MS): *1 student*
ECE 504 – Supervised Research (MS): *1 student*
ECE 560 – Thesis: *1 student*
ECE 586 – ECE Graduate Seminar: *39 students*

Fall 1996: ECE 494/594 – Laser Electronics 2: *4 students/2 students*
ECE 499 – Independent Study: *6 students*
ECE 501 – Individual Problems (MS): *1 student*
ECE 585 – ECE Graduate Seminar: *44 students*

Spring 1996: ECE 492/592 – Laser Electronics: *10 students/6 students*
ECE 499 – Independent Study: *2 students*

ECE 502 – Individual Problems (MS): *1 student*
ECE 602 – Individual Problems (PhD): *1 student*

Fall 1995: ECE 202 – Circuit Analysis I: *41 students*

ECE 499/EE499: Undergraduate independent Study: These projects range from programming applications for the laboratory to the design and implementation of experimental apparatus.

Research Supervision:

Postdoctoral Researchers

Tim Thomay: Main contact in the Cartwright lab and is responsible for all aspects of research in the Laboratory for Applied Spectroscopic Evaluation.

Previous Postdoctoral Researchers

Sung Jin Kim: Responsible for Ultrafast Spectroscopy, and Solar Cell Fabrication and Characterization.

Maurice Cheung: Optical Properties of Wide Bandgap III-nitrides, Zinc Oxide and III-N/Zinc Oxide Heterostructures.

Fei Chen, Primary Responsibility: Ultrafast Spectroscopy of III-N Materials and Devices.

Hans Andreas Nickel, Primary Responsibility: CAPEM/MRIF Ultrafast Laser Facility.

Current PhD Students (expected graduation date listed)

Alec Cheney: 5/2018 (expected)
Borui Chen: 5/2017 (expected)

Graduated PhD Students

February 2016 - Joe Murphy, *"Time-Resolved Spectroscopy of Low-Dimension Semiconductor Structures"*

February 2016 - Tianmu Zhang, *"Energy Harvesting Applications and Spectroscopy of Nanocrystals"*

May 2015 – Tania Moein, *"Metamaterials: Enhancing Efficiency of Photovoltaics"*

May 2014 – Xi Wang, *"Metamaterials on Fibers: Nanofabrication for Optical Applications"*

September 2013 – Bin Zhou, *"Optical Properties of DNA Biomaterial and Application to UV-Photoconductors"*

September 2012 – Huina Xu, *"Optically Selective Nanostructures and Optical Sensing Applications"*

September 2012 – Ke Liu, *"Graded Photonic Bandgap Structures and Applications"*

September 2012 – Prateek Sharma, *"EMCCD Based X-Ray Imaging System"*

September 2011 – Bin Qu, *"EMCCD Based X-Ray Imaging System"*

May 2011 – DongHo Lee, *"Low Cost Solution Based Solar Cells"*

September 2008 – Sung Jin Kim, "*Nanostructured Devices for Next Generation Photovoltaics"*

December 2007 – Ram Thapa, *"Hybrid Inorganic: Organic Light-emitting Diodes: Fabrication and Characterization"*

September 2007 – Zhou Lu, *"E-Beam Lithography of Nanoscale Structures for Sensors"*

September 2007 – Daniel Kaputa, *"Optical Trapping, Delivery, and Imaging of Nanoparticles in Cells"*

February 2007 – Maurice Cheung, "*Development of Visible and UV Devices Using Alternative Substrates*"

September 2006 – Vamsy Chodavarapu, *"Integrated CMOS Photonic Sensor Systems for In-Vivo Monitoring of Biomarkers"*

September 2005 – Paul Sweeney "*Piezoelectricity and Indium Segregation in III-Nitride Heterostructure Devices*"

September 2005 – Vincent Hsiao, "*Composite Nanostructured Liquid Crystals for Optical Switching*"

September 2004 – Fei Chen*,* "*Ultrafast spectroscopy of InN epilayers and InGaN/GaN Heterostructures*"

February 2004 – Madalina Furis*, "Time-Resolved Photoluminescence Spectroscopy of Nitride Emitters"*

September 2003 – Heng Liu, *"Phase Reconstruction of Phase Shifted Moiré Interferograms Using Continuous Wavelet Transforms"*

February 2001 – Ying Zhao*, "Thermomechanical Behavior of Ball Grid Array Solder Joints under Thermal and Vibration Loading: Testing and Modeling"*

Current Masters Students

None at this time.

Graduated Masters Students

February 2008 – Elizabeth Nio, non-thesis option, researched on holographic polymeric photonic bandgap structures.

June 2007 – Dae Yu Kim, *"Design of CCD and EMCCD Sensors Readout Circuitry for Digital X-ray Imaging"*

September 2006 – Jason Bowker, *"The Fabrication of a Linear Polarizer and an Angle Dependant Reflection Grating by means of Holographic Lithography"*

September 2006 – Nihal Shastry, *"Sigma Delta A/D Modulator Design for SOC Implementation of a Glucose Biosensor"*

September 2005 – Rana Bhowmick, *"An Integrated CMOS Optical Detector for Chemical and Biological Sensors"*

August 2005 – Sarojini Ramakrishnan, *"Reflectance Spectroscopy of Skin and application in Skin Biometry"*

August 2005 – Preeti Gupta, *"Photonic Crystal Based Optical Circuitry"*

June 2005 – Gurinder Singh, *"Ultrafast Spectroscopy Core-shell and Hybrid Quantum Well-quantum Dot Heterostructures"*

June 2005 – Sharat Chikkerur, *"Online Fingerprint Verification System"*

February 2005 – Preeti Joshi, *"A Wireless Sensor Network using Multiple Protocols"*

September 2004 – Bhanu S. Nandamuri, *"Data Acquisition and Processing using MPLAB"*

April 2004 – Emmanuel T. Nishanth, *"Detection of Proteins Using an Evanescent Wave Fiber Optic Sensor: Application to signal Transducers and Activators of Transcription 3 (STAT3)"*

September 2003 – Sreeja Raghanuth, *"Real-Time Adaptive Alignment of Free-Space Optical Interconnects for Integrated Circuits"*

February 2003 – Vamsy Chodavarapu, *"Photonics Simulations using Java"*

February 2003 – Christian Körner, *"Intraband Lasers for Communications"*

September 2002 – Michael Pan, *"Organic Light Emitting Diodes"*

February 2002 – Menq Pan, Project, *"Reflection and Differential Reflection Measurements of III-N Heterostructures"*

September 2001 – Pratibha Gopalam, *"Frameworks for Java™ Simulation Tools and E-Laboratories"*

June 2001 – Heng Liu, Project, "*Phase Shifting Moiré Interferometry for Electronic Packaging"*

June 2001 – Matthew Blasczak, Masters Thesis, *"An Experimental Whole Field Ultrafast Interferometric Technique for Nondestructive Evaluation and Material Characterization"*

June 2001 – Tatsuya Saito, Project, *"CW Photoluminescence of III-N Materials"*

December 2000 – Maurice Cheung, *"Numerical Monte Carlo Simulations of III-N Heterostructures"*

June 2000 – David Vu, *"Image Processing to Enhance and Automate Determination of Strain in Electronic Packaging*"

December 1999 – Paul Sweeney, Non-thesis option to continue for PhD

August 1997 – Christian H. Wengerter, *"Differential Reflection Measurements of Quantum Well Structures for Optical Modulators"*

Current Supported Research Assistants

Borui Chen (PhD), Alec Cheney (PhD)

Graduate Committees

February 2016 – Dengxin Ji (Electrical Engineering, PhD)
August 2014 – Jinwei Zeng (Electrical Engineering, PhD)
December 2013 – Swetadri Vasan Setlur Nagesh, (Electrical Engineering, PhD)
May 2013 – Apra Pandey, (Electrical Engineering, PhD)
May 2013 – Fatema Alali, (Electrical Engineering, PhD)
May 2012 – Ethan Gibson, (Electrical Engineering, PhD)
August 2011 – Vincent Whiteside, (Physics, PhD)
August 2011 – Kangsun Lee, (Electrical Engineering, PhD)
August 2011 – Ying Huang, (Electrical Engineering, PhD)
May 2011 – Bicheng Chen, (Civil, Structural and Environmental Engineering, PhD)
September 2010 – Wing Cheung Law, (Electrical Engineering, MS)
September 2008 – Chinmay Joshi, (Electrical Engineering, MS)

September 2008 – Yili Quan, (Electrical Engineering, PhD)
June 2007 – Jong-Uk Bae, (Electrical Engineering, MS)
September 2006 – Bhanu Jaiswal, (Electrical Engineering PhD)
September 2006 – Sirisha Karri, (Electrical Engineering PhD)
September 2005 – Cibu Jose, (Electrical Engineering, MS)
September 2005 – Gaurav Puri, (Electrical Engineering, MS)
September 2005 – Harishankar Jayakumar, (Electrical Engineering, MS)
June 2005 – Kiriti Bhagavathula, (Electrical Engineering, MS)
February 2005 – Arunkumar Vedavyasan, (Electrical Engineering, MS)
February 2005 – Michael Davenport, (Electrical Engineering, PhD)
February 2005 – Massoud Momeni, (Electrical Engineering, MS)
February 2005 – Shwetha Shekar, (Electrical Engineering, MS)
September 2004 – Pavan Kumar Rudravaram, (Computer Science & Engineering, MS)
September 2004 – Shubhrangshu Sengupta, (Electrical Engineering, MS)
June 2004 – Hua Ye, (Civil, Structural and Environmental Engineering, PhD)
September 2003 – Supriya P. Khanolkar, (Electrical Engineering, MS)
September 2003 – Lihong Teng (Electrical Engineering, PhD)
February 2003 – Hong Tang, (Civil, Structural and Environmental Engineering, PhD)
February 2003 – Ye Pu (Mechanical Engineering, PhD)
September 2002 – Jin-Hyuk Jeung (Electrical Engineering, MS)
August 2001 – Shu-Zee Lo (Electrical Engineering, MS)
February 2001 – Tao Tang (Electrical Engineering, MS)
December 2000 – Zhiyong Yuan, (Electrical Engineering, MS)
December 2000 – Bryan Mihalick (Chemical Engineering, MS)
August 2000 – MiRan Park (Electrical Engineering, PhD)
June 2000 – Elena Guliants (Electrical Engineering, PhD)
August 1997 – Boguslaw Swedek (Chemistry PhD)
July 1997 – Gary Edgar Ruland (Chemistry PhD)
February 1997 – Jens Christoph Egerer (Electrical and Computer Engineering, MS)
May 1996 – Seong-Ryong Ryu (Physics PhD)

Undergraduate Students

Supervised undergraduate students that included eight NASA scholarships winners, one NSF Graduate Research Fellowship winner, two Department of Defense Graduate Fellowship winners, and three Presidential Fellowship winners, and ten Senior Scholars. Topics have included and will include (listed as: **student name**, title of work, funding source, and research period, associated fellowship either for the work or due to the work):

1) **Tara Feuerstein**, "*Development of Nanophotonic Demonstration Modules,*" NSF, Summer Research Program, Summer 2010.
2) **Cecilia Simon**, "*Development of Nanophotonic Demonstration Modules,*" NSF, Summer Research Program, Summer 2010.
3) **Erin Jacklin**, *"Flexible Photonic Bandgap Structures for Sensing Applications,"* NIH Summer Research Program, Summer 2009.
4) **Claire Lochner**, *"Flexible Solar Cells,"* Honors Program, Fall 2008.
5) **Rene Van Ee**, SUNY Louis Stokes Alliance for Minority Participation, Summer 2007.
6) **Jamar Drue**, SUNY Louis Stokes Alliance for Minority Participation, Summer 2007.

7) **Aggery Jacobs**, "*Development and Testing of Data Acquisition and Analysis Software*," SUNY Louis Stokes Alliance for Minority Participation, Fall 2006, Spring 2007.
8) **Akinbode Oluwaseyi**, "*Photoluminescence of Zinc Oxide,*" SUNY Louis Stokes Alliance for Minority Participation, Summer 2006.
9) **Hanan Basat**, *"Quantum Efficiency and Quantum Yield Measurements of Nanoparticles,"* SUNY Collegiate Science and Technology Entry Program, Spring 2006.
10) **Lai Cheung**, *"Quantum Efficiency and Quantum Yield Measurements of Nanoparticle,"* SUNY Collegiate Science and Technology Entry Program, Spring 2006.
11) **Ebow Cobbina**, *"Readout Interfaces for Integrated Sensors Systems,"* SUNY Collegiate Science and Technology Entry Program, Spring 2006.
12) **Jose Caraballo**, "*Readout Interfaces for Integrated Sensors Systems*," SUNY Louis Stokes Alliance for Minority Participation, Fall 2005.
13) **Erin Hopkins**, *"Tailoring Polymeric Photonic Bandgap Devices for Biosensing Applications,"* NASA Undergraduate Research Scholarship, Fall 2005.
14) **Mark Cianchetti**, *"E-Beam Lithography,"* NSF Sponsored Summer Research Experience for Undergraduates, Summer 2005.
15) **Zachary Lochner,** *"Electron Beam Nanolithography,"* NSF Sponsored Summer Research Experience for Undergraduates, Summer 2005.
16) **Nicholas Robinson**, *"Readout Interfaces for Integrated Sensor Systems,"* NSF Sponsored Summer Research Experience for Undergraduates, Summer 2005.
17) **Bizzy Abis ola Abdullai,** *"Optical Sensor for Oxygen Detection,"* SUNY Louis Stokes Alliance for Minority Participation, Summer 2005.
18) **Evan Haas**, *"Biologically Inspired Smart Sensor System (BIS^3) for Health Monitoring*," NASA Undergraduate Fellowship, Fall 2003 - Summer 2004.
19) **Aaron Vallet**, *"Nanoparticle-polymer light emitting diodes,"* NSF Sponsored Summer Research Experience for Undergraduates, Summer 2004.
20) **Matthew Watkins**, *"Creating hybrid organic-inorganic InP quantum dot LED devices*," NSF Sponsored Summer Research Experience for Undergraduates and NASA Undergraduate Scholarship, Summer 2003.
21) **Paul Couchman**, *"Hybrid Materials and Devices,"* NASA Undergraduate Scholarship, Fall 2002 – Spring 2003.
22) **Helen Shibru**, *"Measuring the bandgap energy of III-N Heterostructures using Reflectance Spectroscopy,"* NSF Sponsored Summer Research Experience for Undergraduates, Summer 2003
23) **Anthony Guetta,** *"Simulation of Carrier Dynamics in III-N Materials*,*"* NASA Undergraduate Scholarship, Fall 2001 – Spring 2002 (NSF Graduate Fellowship).
24) **Kerry Courtright**, *"Java Applet Development,"* NSF Research Experience for Undergraduates, Spring 2002.
25) **Xin Hu**, *"Molecular Dynamics Simulation of Growth of III-N Materials*,*"* NASA Undergraduate Scholarship, Spring 2001 (NSF Graduate Fellowship).
26) **Mark Andrews**, *"Development of Laser System for Photoluminescence of III-N Heterostructures*," NASA Undergraduate Scholarship and NSF Research Experience for Undergraduates, Fall 2000 – Spring 2001 (NSF Graduate Fellowship).
27) **Xin Hu**, *"Control and Data Acquisition using Labview,"* NSF Research Experience for Undergraduates, Fall 2000.

28) **Stanley Bileschi**, *"Microphotoluminescence of III-N Heterostructures*," School of Engineering and Applied Sciences Senior Scholarship, Fall 1999 – Spring 2000.
29) **Daniel Grasso**, *"Monte Carlo Simulations of III-N Heterostructure Devices,"* School of Engineering and Applied Sciences Senior Scholarship, Fall 1999 – Spring 2000.
30) **Carrie Harder**, *"Reflection and Transmission of III-N Materials,"* NASA Undergraduate Scholarship and School of Engineering and Applied Sciences Senior Scholarship, 2000 (NSF Graduate Fellowship).
31) **Filipe Mora**, *"Optical Properties of GaN Based Materials,"* State University of New York Louis Stokes Alliance for Minority Participation, Summer 1999.
32) **John Choi**, *"GaN based Spatial Light Modulators,"* NASA Undergraduate Scholarship and School of Engineering and Applied Sciences Senior Scholarship, Fall 1998 – Spring 1999 (National Defense Science and Engineering Graduate Fellowship).
33) **Carrie Harder**, *"Microcontrolled Beam Profiler*,*"* NSF Research Experience for Undergraduates, Carrie Harder, Fall 1999 – Summer 2000.
34) **Nathan Merkel**, *"Ultrafast Imaging of Bonding Interfaces,"* NASA Undergraduate Scholarship and School of Engineering and Applied Sciences Senior Scholarship, Fall 1997 – Spring 1998.
35) **Dai Vu**, *"Laser Applications in Microelectronic Fabrication,"* School of Engineering and Applied Sciences Senior Scholarship, Spring 1998.
36) **Christopher Striemer,** *"Time-resolved Frequency Upconversion,"* NASA Undergraduate Scholarship and NSF Research Experience for Undergraduates, Fall 1996 – Spring 1997 (National Defense Science and Engineering Graduate Fellowship).
37) **Matthew Blasczak**, *"Fourier Optics and Imaging,"* School of Engineering and Applied Sciences Senior Scholarship, Fall 1996 – Spring 1997 (University at Buffalo Presidential Fellowship).
38) **Michael Albright**, *"Data Acquisition and System Control Software*, NASA Undergraduate Scholarship and School of Engineering and Applied Sciences Senior Scholarship, Fall 1996 – Spring 1997 (University at Buffalo Presidential Fellowship).
39) **Menq Pan**, *"Java Educational Applet Programming*,*"* NASA Undergraduate Scholarship, Fall 1996 – Spring 1997.
40) **Ross Padak,** *"C++ and Java Programming*,*"* Fall 1997.
41) **Jon Drury,** *"C++ and Java Programming*,*"* Fall 1997.
42) **Keith Nowicki,** *"C++ and Java Programming*,*"* Fall 1997.
43) **Matthew Matteo,** *"C++ and Java Programming*,*"* Fall 1996.

Current Undergraduate Students

None at this time.

Placement of Students

Graduate Students

Josephy Murphy, Postdoctoral Research Fellow, University of Wyoming
Tianmu Zhang, Postdoctoral Research Fellow, University at Buffalo
Tania Moein, Postdoctoral Research Fellow, Swinburne University of Technology, Australia
Xi Wang, Postdoctoral Fellow, University of California Berkeley, Berkeley, CA
Prateek Sharma, Design Engineer, Itron Incorporated, West Union, SC
Huina Xu, Application Development Engineer, KLA-Tencor, Milpitas, CA
Ke Liu, RF System Application Engineer, Litepoint, Sunnyvale, CA
Dong Ho Lee, Samsung Electronics, Seoul, South Korea
Bin Qu, Animage LLC, Pleasanton, CA
Sung Jin Kim, Assistant Professor, University of Miami, Miami, FL
Maurice Cheung – Post-doc, McGill University, Montreal, Canada
Ram Thapa, Post-doc, The University of Texas – Pan American, Edinburg, TX
Elizabeth Nio, Solar Cell Test Engineer, Stion Corporation, San Jose, CA
Zhou Lu, Engineer, Panasonic, Boston, MA
Daniel Kaputa, Signal Analyst, Moog, Buffalo, NY
Nihal Shastry, PDK Development Engineer, Simucad, Santa Clara, California
Vamsy Chodavarapu, Assistant Professor, McGill University, Montreal, Canada
Vincent Hsiao, Associate Professor, Department of Applied Materials and Optoelectronic Engineering, National Chi Nan University, Taiwan
Sarojini Ramakrishnan, Qualcomm Incorporated, San Diego, California.
Fei Chen, Optical Engineer, Lexmark, Lexington, KY
Michael Pan, Army Research Laboratory, Space and Missile Defense Command, Huntsville, Alabama.
Madalina Furis, Assistant Professor, Dept. of Physics, University of Vermont
Sreeja Raghanuth, Southern California Institute of Technology at Anaheim, California
Heng Liu, KLA-Tencor, San Jose, California
Priyadarsini Krishnan, MBA Candidate - Class of 2008, Kellogg School of Management Northwestern University
Sundari Nagarathnam, Cypress Systems, Minneapolis, Minnesota
Christian Wengerter, Panasonic R&D Center, Germany
Matthew Blasczak, Symbol Technologies, Long Island, NY
Pratibha Gopalam, Philips Research India, India
Dai Vu, Anderson Consulting
Menq Pan, self-employed
Ying Zhao, Sr. Reliability Engineer, Analog Devices, Norwood, MA

Undergraduate researchers currently pursuing PhDs at other Institutions:

Claire Lochner, 2011 Graduate, UC Berkeley, NSF Fellowship
Erin Jacklin, 2011 Graduate, Columbia, SMART Fellowship
Both PhD Candidates

Undergraduate researchers who were awarded PhDs at other Institutions:

Amy Turner, 2009, NSF Graduate Research Fellowship Award, Senior Scholar Award, and Presidential Fellowship, PhD Candidate, Cornell University, Advisor: Michal Lipson.

Stanley Bileshi, 2000 National Science Foundation Graduate Fellow, PhD 2006, Massachusetts Institute of Technology.

John Choi, 1999 DOD Graduate Research Fellow, PhD 2007, CalTech University, Advisor: Amnon Yariv.

Carrie Harder, 2001 National Science Foundation Graduate Fellow, PhD 2007, University of Dayton.

Daniel Grasso, PhD 2005, University of Illinois, Advisor: Kent Choquette.

Xin Hu, 2001 NSF Graduate Fellowship, PhD 2006, Massachusetts Institute of Technology.

Thomas Prunty, PhD 2006, Cornell University, Advisor: Prof. J. R. Shealy.

Christopher Striemer, 1998 DOD Graduate Research Fellow, PhD, University of Rochester, Advisor: Philippe Fauchet.

Research Grant Support

(*Abbreviations: AFOSR – Air Force Office of Scientific Research; ARO – Army Research Office; NIH - National Institutes of Health; NSF - National Science Foundation; ONR – Office of Naval Research*)

Current Research Grant Support

1. "Atomic Layer Deposition for Large-Area Sub-10 Nanometer Patterning for Super Absorbing Optical Devices," NSF, PIs: Qiaoqiang Gan, CoPI: A. N. Cartwright, 4/1/16-3/31/19, NSF Award CMMI156057, $299,999 (Co-PI, 40%).

Previous Research Grant Support

1. "Targeted MSP: The University at Buffalo/Buffalo Public School (UB/BPS) Interdisciplinary Science and Engineering Partnership," NSF, PIs: J. Gardella, CoPI's: A. N. Cartwright, D. Maclsaac, D. Sykes, X. Liu, 9/1/2011-8/30/2016, NSF Award DUE1102998, $9,800,000 (Co-PI, 15%).
2. "Optical Physics and Imaging Science: Spin-Optics in Metamaterials," ARO, PI: N.M. Litchinitser, CoPI: A.N. Cartwright, 8/15/2011-8/14/2016, ARO W911NF1110333, $1,400,000 (Co-PI, 40%).
3. "Submicron Remote Imaging using Specialty Fiber Coupled Hyperlens," NSF, PI: N.M. Litchinitser, Co-PI: A.N. Cartwright, 8/01/2012-10/31/2015, NSF Award ECCS1231852, $426,207 (Co-PI, 50%).
4. "Laser Materials Lifetime Tests," BerrieHill Research Corporation, PI: A.N. Cartwright, 4/30/2012-12/31/2014, $45,000 (PI, 100%).
5. "Solid State X-ray Image Intensifier Development," NIH, PI: S. Rudin, Co-PIs: D. Bednarek, A.N. Cartwright, D. Dashkoff, A. DelBalso, K. Hoffmann, L.N. Hopkins, C. Ionita, E. Levy, A. Siddiqui, A.H. Titus, 1/01/2008-12/31/2013, NIH Award 5R01EB008425, $2,659,346, (Co-PI, 10%).
6. "Technology Accelerator Fund Class of 2012: Graded Polymeric Photonic Bandgap Gratings for Compact Multispectral Analyzer," Research Foundation for SUNY, PI: A.N. Cartwright, 11/01/12-08/31/13, $35,000.
7. "Realtime Sensing of Wound Microenvironment," NIH, PI: A.N. Cartwright, Co-PIs: F.V. Bright, R. Hard, W. Hicks, Jr., 04/01/2009-03/31/2013, NIH Award 5R21EB00950602, $462,484 (PI, 25%).
8. "Biopolymer Based Optoelectronic Devices," BerrieHill Research Corporation, PI: A.N. Cartwright, 6/01/2010–05/31/2012, $132,000 (PI, 100%).
9. "Energy and Sensor Informatics," AFOSR, PI: A.N. Cartwright, Co-PI: N.M. Litchinitser, 5/01/2010–04/30/2012, AFOSR Award FA95501010216, $782,000 (PI, 60%).
10. "NUE: Nanophotonics Modules for Diverse Curricular Incorporation," NSF, PI: A.H. Titus, CoPIs: A.N. Cartwright, V. Mitin, 10/01/2009-9/30/2011, NSF Award EEC-0939281, $199,036, (Co-PI, 30%).

11. "Novel Flexible Plastic-Based Solar Cells - Continuation," AFOSR, PI: P.N. Prasad, Co-PI: A.N. Cartwright, 8/15/2009–8/14/2012, AFORS Award FA95500910361, $304,000 (CO-PI, 50%).
12. "MRI: Acquisition of a Dual Beam/Focused Ion Beam System for Research and Education," NSF, PI: G. Strasser, Co-PIs: J.A. Gardella, Jr., M.T. Swihart, Y.K. Yoon, 08/01/2009–07/31/2010, NSF Award CBET-0922992, $1,096,411 (Senior Personnel).
13. "Burn Fluid Analysis as a Prognosticator of Aberrant Wound Repair and Keloid Formation," DoD, PI: J.A. Gardella, Jr., Co-PIs: Frank V. Bright, Bahattin Koc, A.N. Cartwright, 09/01/2008–10/31/2011, DoD Award 57-1132-01, $296,056 (Co-PI, 20%).
14. "UB CAT: Synthesis and Evaluation of Graphene Films for Medical Device Applications," UB CAT, PI: S. Banerjee, Co-PI: A.N. Cartwright, 07/01/2009–06/30/2010, $30,000 (Co-PI, 50%).
15. "Interdisciplinary Science Research-Based Curricular Innovations for Middle and High School Science and Teacher Professional Development," John H. Oishei Foundation, PI: J.A. Gardella, Co-PIs: A.N. Cartwright, C.K. Josef, X. Liu, H. Luo, S. Singh, 11/01/2006–10/31/2009, $480,000 (Co-PI, 5%).
16. "MRI: Acquisition of an Imaging Time of Flight Secondary Ion Mass Spectrometer (ToF-SIMS)," NSF, PI: J.A. Gardella, Co-PIs: F.V. Bright, A.N. Cartwright, H. Luo, M.T. Swihart, 9/01/2006–8/31/2009, NSF Award CHE-0619728, $905,195 (Co-PI, 10%).
17. "Novel Flexible Plastic-Based Solar Cells," AFOSR, PI: P.N. Prasad, Co-PIs: A.N. Cartwright, with R. Raffaelle, RIT, 6/01/2006–6/29/2009, AFOSR Award FA95500610398, $450,000 (Co-PI, 30%).
18. "Program in Odor-Based Screening," John R. Oishei Foundation, PI: F.V. Bright, Co-PIs: A.N. Cartwright, V. Govindaraju, W.L. Hicks, Jr., A.H. Titus, 3/01/2006–3/31/2009, $400,000 (Co-PI, 25%).
19. "IGERT: Biophotonics -Materials and Applications," NSF, PI: A.N. Cartwright, Co-PIs: E.J. Bergey, D.A. Kofke, B.D. McCombe, P.N. Prasad, 9/01/2001–08/31/2008, NSF Award DGE-0114330, $3,077,334 (Co-PI, 20%).
20. "SENSORS: Solid State Imprinted Xerogel Arrays Integrated with Smart CMOS Detectors for Biological Agents," NSF, PI: A.H. Titus, Co-PIs: A.N. Cartwright, F.V. Bright, 09/15/2003–8/31/2008, NSF Award CBET-0330240, $300,000 (Co-PI, 33%).
21. "Porous Polymer Gratings for Sensing Applications," Sterbutzel Fund, University at Buffalo, A.N. Cartwright, M.T. Swihart, 6/01/2005–12/31/2007, $80,000, (PI, 50%).
22. "Nanomedicine," John R. Oishei Foundation, P.N. Prasad, 7/01/2004–6/30/2007, $925,000 (Participant in program).
23. "A Biologically Inspired Smart Sensor System (BIS^3) for Health Monitoring," Johnson & Johnson, PI: A.H. Titus, Co-PI: A.N. Cartwright, 4/01/2004–11/1/2007, $180,000 (Co-PI, 50%).
24. "The IT Collaboratory," New York State Office of Science, Technology, and Academic Research (NYSTAR), joint project between Rochester Institute of Technology, Alfred

University, and University at Buffalo, University at Buffalo PIs: Paras N. Prasad, A.N. Cartwright, H. Luo, B.D. McCombe, P.L. Liu, C. Basaran, 6/01/01–5/31/2006, $14,000,000 (Co-PI, 20%)

25. "New Generation Materials and Structures for Nanophotonics and Nanoelectronics," AFOSR Defense University Research Initiative on Nanotechnology, P.N. Prasad, A.N. Cartwright, B.D. McCombe, H. Luo and H. Suga, 5/01/2001–4/30/2006, AFOSR Award F496200110358, $4,972,152 (Co-PI, 15%)
26. "REU Site: Transdisciplinary Undergraduate Research Initiative On Nanostructured Semiconductors (TURIONS)," NSF, PI: M.T. Swihart, Co-PI: A.N. Cartwright, 4/01/03–3/31/2006, NSF Award DMR-0243833, $306,000 (Co-PI, 50%).
27. "Highly Selective Solid State Multianalyte Biosensors," UB IRCAF, T. Connell, A.H. Titus, F.V. Bright, A.N. Cartwright, 11/01/2004–10/31/2005, $28,000, (Co-PI, 25%).
28. "Spin Electronics: III-V/Mn Ferromagnetic Semiconductors for Device Applications," NSF, H. Luo, A.N. Cartwright, B.D. McCombe, 3/15/2002, 11/01/2002–10/31/2005, NSF Award ECS-0224206, $300,000 (Co-PI, 33%).
29. "Fuel Cell Inspection System," ENgR Systems through The Center for Industrial Effectiveness (TCIE), A.N. Cartwright, D. Hopkins, V. Govindaraju, 2/01/2005–12/31/2005, $75,000, (PI 50%).
30. "MRI: Acquisition of a Nanostructure Fabrication and Characterization System for Research and Education," NSF, B. D. McCombe, H. Luo, A.N. Cartwright, P.N. Prasad, A.H. Titus, 7/01/2002–10/31/2005, DMR-0216136, $342,048, (University match of $146,592 for a total cost of $488,640) (Co-PI, 20%).
31. "Spintronics and Spin-Photonics in Ferromagnetic InAs/GaSb-based Heterostructures," DARPA, B.D. McCombe, PI; Co-PI; H. Luo, J.K. Furdyna, N. Tolk, L. Molenkamp, J.A. Meyer, 10/01/2000–9/31/2005, $5,883,610 (Participant in program)
32. "Toxic Industrial Chemicals," CUBRC, A.N. Cartwright, F.V. Bright, 6/01/2004–11/30/2004, $16,724, (PI, 50%).
33. "Advanced Nanoparticle Technologies for Novel Photodetectors and Emitters," IRCAF, V. Mitin, F.V. Bright, M.T. Swihart, A.N. Cartwright, 10/1/2003–9/30/2004, $40,000 (Co-PI, 25%).
34. "Continuation of the Routing/Packaging Study," Intel Corp., A.H. Titus, A.N. Cartwright, 6/01/2003–5/31/2004, $51,869 (co-PI, 25%).
35. "Development of an Imprinted Xerogel with Integrated Emission Sites for Sensing in Aqueous Environments," CUBRC, A.N. Cartwright, A.H. Titus, F.V. Bright, 9/01/2003–7/31/2004, $85,000 (PI, 33%).
36. "Unobtrusive Biometric Sense, Transmit, Assess, and Respond Systems (UB-STARS)," UB Center for Advanced Technologies, A.H. Titus, V. Govindaraju, F.V. Bright, A.N. Cartwright, 9/01/2003–7/31/2004, $125,000 (Co-PI, 25%).
37. "MRI: Acquisition of Equipment for an Enhanced Multiuser Ultrafast Laser Facility for Research and Education," NSF, A.N. Cartwright, F.V. Bright, B.D. McCombe, 1/14/2003, 8/01/2003–7/31/2004, NSF Award DMR-0315539, $162,332 (NSF $100,000, UB $62,332) (PI, 50%).

38. "Charge Transfer Dyes for Polymeric and Sensing Applications," Infotonics, P.N. Prasad, A.N. Cartwright, E. Bergey, F.V. Bright, A. Raisenan, 4/3/2002, 6/01/2002–12/31/2003, $400,000 (Co-PI, 20%).
39. "Market Analysis, Laser Spectrum Analyzer," Imaging and Sensing Technologies, N. Randell, A.N. Cartwright, 2/14/2003–5/14/2003, $7,062 (Co-PI, 100%).
40. "Exploiting Piezoelectric Fields in III-N Heterostructure Devices," ONR Young Investigator Program, A.N. Cartwright, 6/1/2000–9/30/2003, ONR Award N00014-00-1-0508, $300,000 (PI, 100%).
41. "GOALI: Reliability of Interfaces in Microelectronic Packaging," NSF, C. Basaran, T. Dishongh, and A.N. Cartwright, 10/1/1999–9/31/2003, NSF Award CMS-9908016, $220,000 (Co-PI, 50%).
42. "Semiconductor and Photonics Learning Modules based on Consumer Product Case Studies," NSF, C.R. Wie and A.N. Cartwright, 9/1/1999–8/31/2003, NSF Award DUE-9950794, $285,000 (Co-PI 50%).
43. "Comparative Study of Crenulation in Printed Circuit Boards," Intel Corporation, A.N. Cartwright, 1/01/2002–12/31/2002, $36,092 (PI, 100%).
44. "Laser-Mechanics & Damage Imaging Laboratory: Instrumentation Proposal," ONR DURIP Program, C. Basaran and A.N. Cartwright, 4/1/2000 – 3/31/2001, ONR Award N000140010534, $150,000 (Co-PI, 50%).
45. "Optoelectronics Laboratory," ILX Lightwave, A.N. Cartwright, 1/1/2000–12/31/2000, $9,850 (PI, 100%).
46. "Growth and Characterization of Gallium Nitride Heterostructures," Center for Advanced Photonic and Electronic Materials, State University of New York at Buffalo, A.N. Cartwright, T. J. Mountziaris, A. Petrou, B. Weinstein, 7/1/1999–6/30/2000, $21,000 (PI, 25%).
47. "REU: Optical Characterization of Visible Spatial Light Modulators," NSF, A.N. Cartwright, 6/1/1999–5/31/2000, $10,000, NSF Award ECS 9733720 (PI, 100%).
48. "II-VI Optoelectronic Devices," Center for Advanced Photonic and Electronic Materials Seed Grant Program, State University of New York at Buffalo, A.N. Cartwright and H. Luo, 5/1/1998–4/30/1999, $20,000 (PI, 50%).
49. "REU: Optical Characterization of Visible Spatial Light Modulators," NSF, A.N. Cartwright, 6/1/1998–5/31/1999, $10,000, NSF Award ECS 9733720 (PI, 100%).
50. "CAREER: Visible Spatial Light Modulators," NSF, A.N. Cartwright, 4/1/1998–3/31/2003, $200,000, NSF Award ECS 9733720 (PI, 100%).
51. "Pulsed-Laser Transparency Imaging," Engineering Foundation, A.N. Cartwright, 10/1/1996–12/30/1997, $20,000 (PI, 100%).
52. "Future directions of II-VI semiconductors," Conferences in the Disciplines, A.N. Cartwright, 7/1/1996–6/30/1997, $2,000 (PI, 100%).

Previous Other Grant Support

1. "NYS Center of Excellence in Bioinformatics and Life Sciences-Phase 5-9," NYS Division of Science, Technology and Innovation (NYSTAR), Empire State Development, 12/1/12–6/30/15, $4,361,665. (PI role transferred to another faculty member when appointed Provost and Executive Vice Chancellor)

2. "NYS Center of Excellence in Materials Informatics (CMI)," NYS Division of Science, Technology and Innovation (NYSTAR), Empire State Development, PI: A.N. Cartwright, 10/1/2013–6/30/2015, $1,372,333. (PI role transferred to another faculty member when appointed Provost and Executive Vice Chancellor)
3. "Center for Advanced Technology in Biomedical and Bioengineering," NYS Department of Economic Development, PI: M. LaVigne, Co-PI: A.N. Cartwright, 07/01/13–06/30/14, $1,173,150. (PI role transferred to another faculty member when appointed Provost and Executive Vice Chancellor)
4. "NYS Center of Excellence in Materials Informatics (CMI)," NYS Division of Science, Technology and Innovation (NYSTAR), Empire State Development, PI: A.N. Cartwright, 04/01/12–09/30/13, C120186, $200,000.
5. "Center for Advanced Technology in Biomedical and Bioengineering," NYS Department of Economic Development, PI: M. LaVigne, Co-PI: A.N. Cartwright, 07/01/12-06/30/13, C120135, $921,200.
6. "NYS Center of Excellence in Bioinformatics and Life Sciences-Phase 4," Empire State Development Corporation, PI: A. N. Cartwright, 07/14/12-11/30/12, W884, $815,666.
7. "NYS Center of Excellence in Bioinformatics and Life Sciences-Phase 3," Empire State Development Corporation, PI: A. N. Cartwright, 06/11/11-07/13/12, W876, $1,155,666.
8. "NYS Center of Excellence in Bioinformatics and Life Sciences-Phase 2," Empire State Development Corporation, PI: A. N. Cartwright, 01/28/10-10/07/11, W874, $1,179,166.
9. "Biomedical Engineering Project," National Grid, PI: A. N. Cartwright, 08/01/09-12/31/11, $250,000 (PI, 100%).

Research Grants Pending

None at this time.

Grant Support: Donations (Total: $350,000)

1. "Spectroscopy Laboratory for Multidisciplinary Research Instrument Facility," Technoventures, LLC, Donation of equipment for a state of the art spectroscopy laboratory, A.N. Cartwright, F.V. Bright, Center for Advanced Photonic and Electronic Materials, School of Engineering and Applied Science, College of Arts and Sciences, Office of the Vice President for Research, Office of the Provost $350,000 (PI, 75%).

Intellectual Property

Patents

1. "Temporally Addressable Detection Array," Albert H. Titus, Frank V. Bright, Alexander N. Cartwright, Patent No.: US 8,501,098, August 6, 2013.
2. "Sensor and method of sensing having an energy source and detector on the same side of the sensor substance," Albert H. Titus, Frank V. Bright and Alexander N. Cartwright, Patent No.: US 7,897,108 B1, Mar. 1, 2011.
3. "pH-Change Sensor and Method," Vamsy P. Chodavarapu, Alexander N. Cartwright, Albert H. Titus, Rachel M. Bukowski, Frank V. Bright, Patent No.: US 7.794,584 B2, Sep. 14, 2010.
4. "Resorbable Laminated Repair Film and Method of Using Same," W. L. Hicks, Jr., Rena Bizios, Frank V. Bright, Joseph A. Gardella, Jr., Robert Hard, Jamson S. Lwebuga-Mukasa, Alexander N. Cartwright, Bahattin Koc, US Patent No.: US 7,417,174 B2, Aug. 26, 2008.

Patent Applications

1. "Photonic Bandgap Structures for Multispectral Imaging Devices," Q. Gan, A. Cartwright, K. Liu and H. Xu, ed: WO Patent 2,013,066,606, 2013.
2. "Method for Diagnosis of Physiological States by Detecting Patterns of Volatile Analytes," F. Bright, A. Cartwright, V. Govindaraju, W. Hicks and A. Titus, ed: WO Patent 2,008,121,183, 2008.

Companies Licensing / Developed Technology

1. Solexant, 2385 Bering Dr., San Jose, CA 95131, USA
2. Senz-IT Technology, 4340 Von Karman, Suite 200, Newport Beach, CA
3. TheraSyn-DM, Buffalo, NY

Publications and Presentations

Publications

Journal Articles

(NOTE: IN THIS FIELD, AUTHORS ARE LISTED BY INSTITUTION WITH PROFESSORS LISTED LAST FOR THEIR INSTITUTION. THE INSTITUTION THAT CONTRIBUTES THE MOST IS LISTED FIRST.)

1. J. R. Murphy, S. Delikanli, T. Scrace, P. Zhang, T. Norden, T. Thomay, A. N. Cartwright, H. V. Demir, and A. Petrou, "Time-resolved photoluminescence study of CdSe/CdMnS/CdS core/multi-shell nanoplatelets," *Appl. Phys. Lett.*, 108, 242406, doi: 10.1063/1.4953840 (2016).
2. J.K.D. Mapas, T. Thomay, A.N. Cartwright, J. Ilavsky, and J. Rzayev "Ultrahigh Molecular Weight Linear Block Copolymers: Rapid Access by Reversible-Deactivation Radical Polymerization and Self-Assembly into Large Domain Nanostructures," Macromolecules, **49** (10), 3733-3738, (2016).
3. B. Chen, D. Ji, A. Cheney, N. Zhang, H. Song, X. Zeng, T. Thomay, Q. Gan, A. Cartwright, "Flat metallic surface gratings with sub-10 nm gaps controlled by atomic-layer deposition," *Nanotechnology*, **27**(37), 374003, (2016).
4. E. C. Tehan, R. M. Bukowski, V. P. Chodavarapu, A. H. Titus, A. N. Cartwright, and F. V. Bright, "Creating Diversified Response Profiles from a Single Quenchometric Sensor Element by Using Phase-Resolved Luminescence," *Sensors*, **15**, 760-768, (2015).
5. S. Delikanli, M. Z. Akgul, J. R. Murphy, B. Barman, Y. Tsai, T. Scrace, P. Zhang, B. Bozok, P. L. Hernandez-Martinez, J. Christodoulides, A. N. Cartwright, A. Petrou, and H. V. Demir, "Mn2+-Doped CdSe/CdS Core/Multishell Colloidal Quantum Wells Enabling Tunable Carrier-Dopant Exchange Interactions," *ACS Nano*, **9**, 12473-12479, (2015).
6. B. Barman, R. Oszwaldowski, L. Schweidenback, A. H. Russ, J. M. Pientka, Y. Tsai, W. C. Chou, W. C. Fan, J. R. Murphy, A. N. Cartwright, I. R. Sellers, A. G. Petukhov, I. Zutic, B. D. McCombe, and A. Petrou, "Time-resolved magnetophotoluminescence studies of magnetic polaron dynamics in type-II quantum dots," *Physical Review B*, **92**, 035430 (2015).
7. B. Zhou, K. Liu, X. Liu, K. Y. Yung, C. M. Bartsch, E. M. Heckman, F. V. Bright, M. T. Swihart, and A. N. Cartwright, "Enhanced Performance from a Hybrid Quenchometric Deoxyribonucleic Acid (DNA) Silica Xerogel Gaseous Oxygen Sensing Platform," *Applied Spectroscopy*, **68**, 1302-1305, (2014).
8. C. Yuan, G. Chen, L. Li, J. A. Damasco, Z. Ning, H. Xing, T. Zhang, L. Sun, H. Zeng, A. N. Cartwright, P. N. Prasad, and H. Agren, "Simultaneous Multiple Wavelength Upconversion in a Core-Shell Nanoparticle for Enhanced Near Infrared Light Harvesting in a Dye-Sensitized Solar Cell," *ACS Applied Materials & Interfaces*, **6**, 18018-18025, (2014).
9. B. J. Schultz, R. V. Dennis, J. P. Aldinger, C. Jaye, X. Wang, D. A. Fischer, A. N. Cartwright, and S. Banerjee, "X-ray absorption spectroscopy studies of electronic structure recovery and nitrogen local structure upon thermal reduction of graphene oxide in an ammonia environment," *RSC Advances*, **4**, 634-644, (2014).

10. X. Liu, Y. Li, B. Zhou, X. Wang, A. N. Cartwright, and M. T. Swihart, "Shape-Controlled Synthesis of SnE (E = S, Se) Semiconductor Nanocrystals for Optoelectronics," *Chemistry of Materials*, **26**, 3515-3521, (2014).
11. T. Lin, X. Liu, B. Zhou, Z. Zhan, A. N. Cartwright, and M. T. Swihart, "A Solution-Processed UV-Sensitive Photodiode Produced Using a New Silicon Nanocrystal Ink," *Advanced Functional Materials*, **24**, 6016-6022, (2014).
12. B. Barman, Y. Tsai, T. Scrace, J. R. Murphy, A. N. Cartwright, J. M. Pientka, I. Zutic, B. D. McCombe, A. Petrou, I. R. Sellers, R. Oszwaldowski, A. Petukhov, W. C. Fan, W. C. Chou, and C. S. Yang, "Conventional vs Unconventional Magnetic Polarons: ZnMnTe/ZnSe and ZnTe/ZnMnSe Quantum Dots," in *Spintronics VII*. vol. 9167, H. J. Drouhin, J. E. Wegrowe, and M. Razeghi, Eds., ed, 2014.
13. B. Zhou, K. Liu, X. Liu, K. Y. Yung, C. M. Bartsch, E. M. Heckman, F. V. Bright, Frank, M. T. Swihart, and A. N. Cartwright, "Enhanced Performance from a Hybrid Quenchometric Deoxyribonucleic Acid (DNA) Silica Xerogel Gaseous Oxygen Sensing Platform," *Applied Spectroscopy*, **68** (11), 1302-1305 (2014).
14. J. Sun, X. Wang, T. Xu, Z. A. Kudyshev, A. N. Cartwright, and N. M. Litchinitser, "Spinning Light on the Nanoscale," *Nano Letters*, **14 (**5), 2726-2729 (2014).
15. T. Moein, D. Ji, H. Zeng, K. Liu, Q. Gan and A.N. Cartwright, "Holographic Photopolymer Linear Variable Filter with Enhanced Blue Reflection," *ACS Applied Materials & Interface,* **6** (5), 3081-3087 (2014).
16. J. Sun, J. Zeng, X. Wang, A. N. Cartwright, and N. M. Litchnitser, "Concealing with Structured Light," Scientific Reports, **4**, 4093 (2014).
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