Peter J. Delfyett, Jr., Ph.D.

University Board of Trustee Chair Professor of Optics, ECE & Physics
University of Central Florida
CREOL, The College of Optics & Photonics

EDUCATION

Ph.D., October, 1988, The City University of New York
M.Phil., October, 1987, The City University of New York
M.S., May, 1983, The University of Rochester, New York
B.E. (E.E.), February, 1981, The City College of New York

RESEARCH & TEACHING EXPERIENCE

2003-Present

University Board of Trustee Chair Professor of Optics, EECS & Physics
The School of Optics & Center for Research & Education in Optics & Lasers (CREOL)
University of Central Florida
Orlando, Florida 32816

2002-2003

University Distinguished Professor of Optics, EECS & Physics
The School of Optics & Center for Research & Education in Optics & Lasers (CREOL)
University of Central Florida
Orlando, Florida 32816

1999- 2002

Professor,
The School of Optics & Center for Research & Education in Optics & Lasers (CREOL)
Department of Electrical & Computer Engineering
Department of Physics
University of Central Florida
Orlando, Florida 32816

1993-1999

Associate Professor, Electrical and Computer Engineering and Department of Physics
Center for Research and Education in Optics and Lasers (CREOL)
University of Central Florida
Orlando, Florida 32816

1988-1993

Bell Communications Research
Member of the Technical Staff
Ultrafast Optics and Optical Signal Processing Research
Red Bank, NJ 07701

1984-1988

Dept. of Electrical Engineering
Research Assistant
Institute for Ultrafast Spectroscopy and Lasers
The City University of New York 10031

1981-1984

Dept. of Electrical Engineering
Research Assistant
University of Rochester, New York 14627

SELECTED RESEARCH ACCOMPLISHMENTS

Conceived and demonstrated the first real time optical pulse shaping system using injection locked VCSELS that can be reconfigured at the repetition rate of the laser, representing a million fold increase in update rate as compared to conventional liquid crystal spatial light modulators.

Invented the first ever true linear interferometric optical intensity modulator. This was achieved by recognizing that the phase modulation response of an injection locked oscillator produce "arcsine" phase modulation, thus when combined in one arm of an interferometer, the resulting intensity modulation is linear.

Conceived and demonstrated the first coherent receiver architecture for optical code division multiple access that uses only simple photodetection with out the need of a thresholding device. This greatly reduces the power requirement on the transmitted light signals by orders of magnitude.

Invented a new method to overcome the fundamental limitation of gain saturation for the generation and amplification of ultrashort pulses from gain media with short gain lifetime. The resulting method showed an increase in the amplification of nearly 1000 fold.

Demonstrated multiwavelength modelocking to 168 channels operating at over 6 GHz per channel. This represents an aggregate data rate of over 1 trillion bits of information per second being generated/transmitted by a single semiconductor laser diode. This work was featured in the New York Times, October 10^{th} , 2002.

Invented a novel architecture for all optical arbitrary waveform generators and optical synthesizers (patent pending).

Extended the concept of chirped pulse amplification to a new regime, where the amplified stretched pulses are of temporal durations that are many times longer that the energy storage time of the amplifying media. In this case, we have increased the amplifying efficiency by a factor equal to the ratio of the stretch pulse duration to the storage time, e.g., 20 nsec/200 psec = 100 fold. (patent pending).

Investigated the operation of a 'breathing dispersion managed soliton modelocked ring semiconductor diode laser.

Discovered a fundamental relationship between the timing stability of modelocked lasers and the linewidth of the optical longitudinal modes of the laser. This result provides a simple recipe for developing ultrastable optical clocks.

Invented a new technique for the suppression of supermode noise in harmonically modelocked lasers. The technique provides suppression of supermode noise spurs to below -140 dBc/Hz (instrumented limited). The resulting performance provides for the generation of trains of ultrastable optical pulses at 10 GHz rates with timing fluctuations of ~ 18 fsec. (Patent pending).

Invented a method to actively control the spectral emission of novel hybrid WDM-OTDM transmitters for ultrahigh-speed communications and signal processing applications. The developed technology demonstrates rapid WDM channel configuration for select and broadcast scenarios, with simultaneous channel to channel power stabilization. The system has been demonstrated at 16 WDM channels and 10 Gb/s/channel (160 Gb/s aggregate). (Patent pending).

Invented a novel method to suppress mode partion noise in multiwavelength modelocked lasers. The mode suppression resulted in reducing the bit error rate performance from $\sim 10^{-3}$ to 10^{-15} (error free). (Patent pending).

Demonstrated high capacity optical transmission (50 Gb/s) in *multimode* fiber (record performance) using cost effective gallium arsinide lasers and silicon photodetectors. This technology can be deployed as a cost effective solution to access networks, owing to the simplicity of packaging optoelectronics devices with multimode fiber.

Performed the first experiments to measure the pulse – to – pulse carrier (wavelength) jitter from a 1550 nm 10 GHz harmonically modelocked diode laser. The results showed a 1% fluctuation of the relative carrier between two consecutive pulses which implies a residual carrier phase jitter of 50 attoseconds. These results show the potential that semiconductor laser can provide in applications requiring precisely timed sequences of optical impulses.

Constructed a 10 GHz modelocked diode laser with ~43 femtosecond of residual timing jitter (10 Hz- 10 MHz), the lowest reported to date of any modelocked diode laser.

Developed three independent techniques to modify and control the spectral emission from modelocked semiconductor lasers. This result shows that spectral output can be changed to optimize the laser performance depending on its use in applications.

Demonstrated an all optical parallel to serial converter. This is a key signal processing step for novel 'time-stretched' optical sampling for photonic analog to digital converters.

Extended the development of our multiwavelength modelocked semiconductor laser to be comprised of commercially available off the shelf components, consistent with the needs of system planners.

Demonstrated the functionality of an all-optical clock recovery oscillator based on passively modelocked semiconductor lasers. The clock oscillator allows for the generation of precision timed optical pulses to be synchronized with an input optical data stream, thus eliminating the need of costly high speed electronic components, and cumbersome optical to electronic conversion.

Demonstrated ultrafast all-optical switching of synchronous, parallel multiple wavelength data from a multiwavelength modelocked diode laser using a nonlinear optical loop mirror. The resulting demonstration suggests the potential for realizing an all-optical data link operating at 100 Gbit/s.

Extended the operation of our new multiwavelength modelocked diode laser (below) to operate with over 20 independent wavelengths at 5 Gbit/s for an overall aggregate data rate exceeding 100 Gbit/s from a single semiconductor diode laser. This technology will allow for cost effective, high data rate links and networks, using both WDM and TDM data formats.

Discovered a new method for establishing phase coherence between multiple channels of a modelocked multiwavelength semiconductor diode laser. The result may lead to new modelocking methods for active modelocked diode lasers.

Invented a new method for generating a multiplicity of wavelengths with variable wavelength separation and tunability, from a modelocked semiconductor laser diode. The results show that simple, low cost laser diodes can be employed in advanced WDM-TDM networks with data rates exceeding 10 GHz.. **(Patent Pending).**

Performed the first experiments to simultaneously measure the temporal and spectral dynamics of a hybrid modelocked semicondutor laser, while undergoing modelocked operation. The results pave the way towards developing methods for generating extermely high power, ultrashort duration optical pulses from semicondutor laser diodes.

Developed the first ultrafast semiconductor laser diode seeded Cr:LiSAF regenerative amplifier system. This system produced 800 fsec, 1 mJ optical pulses, which were then used to generate a broadband continuum, spanning 400 nm to over 1660 nm. This system demonstrated a cost savings of 80% ($100,000) for the initial seed source laser system.

Invented a novel semiconductor absorbing material, which helps produce extremely short optical pulses from semiconductor diode lasers. This new material enabled a three fold improvement from previous pulse generation experiments. **(United States Patent Awarded).**

Invented a novel all optical timing recovery laser, suitable for future lightwave communication networks. The invented system may allow for very fast, efficient and cost effective telecommunication and computer networks.

Invented a novel compact disc optical memory which increases the data storage density and simultaneously increases the data transfer rate, resulting in a fast archival optical mass storage data system.

Developed the worlds most powerful modelocked semiconductor laser capable of producing optical pulses as short as 200 femtoseconds in duration with over 160 watts of peak power.

Utilized a high power modelocked diode laser system to distribute a master optical timing signal to over 1024 ports while maintaining less than 12 picoseconds of timing jitter between the individual ports. This result represented the largest fanout with the minimum timing jitter ever obtained from an optically distributed clocking network.

Performed the first femtosecond time resolved nonlinear optics experiment in which the nonlinearity was induced with a compact diode laser source. This experiment allowed for the first ever observation of the nonlinear optical effect due to hot carrier thermalization in a semiconductor laser device.

Performed the first ever pulse compression experiment which utilized independent control over both the quadratic and cubic phase distortion of a subpicosecond optical pulse. Using this technique, optical pulse of 290 fsec were generated, which was a world record.

Constructed an actively modelocked semiconductor laser with an external semiconductor laser amplifier. This produced optical pulses 15 picoseconds in duration with over 3 watts of peak power, and showed the capability of semiconductor lasers as potential light sources for use in applied nonlinear optics.

Observed the intracavity pulse dynamics of a hybrid modelocked semiconductor laser system. This showed large pulse shaping mechanisms which occur in the modelocking process of semiconductor lasers. These measurements were the first ever of its kind.

Synchronized two separate femtosecond hybrid mode-locked semiconductor laser systems and maintained the synchronization to within 3 picoseconds without the use of any sophisticated control electronics.

Developed a novel measurement technique which measures both low and high frequency timing jitter on ultrashort optical pulses and simultaneously measured optical pulse shape information, using a standard rotating mirror autocorrelator.

Constructed and tested a single shot wavelength independent autocorrelator for the measurement of ultrashort laser pulses. The autocorrelator utilizes a suitable nonlinear optical material and degenerate four wave mixing in the 90 degree phase conjugate geometry. Depending on the relaxation time of the nonlinear optical material, either the intensity correlation or coherence correlation can be measured.

Employed degenerate phase conjugation in investigating the dynamics of optically induced transient gratings in ZnSe. Several decay mechanisms were identified. The dynamics of a secondary or impurity grating was found to depend upon the incident laser pulse intensity.

Extended the spectroscopic technique of Raman Induced Phase Conjugation Spectroscopy into the picosecond regime while simultaneously extending the spectral bandwidth of the technique from ~ 500 wavenumbers to several thousands of wavenumbers by utilizing a single 30 picosecond pulse of light.

Invented a technique which generates 2 picosecond bursts of a white light continuum utilizing a 30 psec laser pulse in a 5 cm. cell of D_2O**. (US Patent Awarded).**

Developed the first time resolved nonlinear laser spectroscopic technique which can simultaneously monitor both the temporal evolution and spectral characteristics of Raman active vibrational modes, spanning thousands of wavenumbers, with a single laser pulse *in real time.*

Investigated the temperature dependence of the lifetime of the optical phonon at 1086 cm^{-1} in calcite from 5K to 300K utilizing the single shot real time phonon dephasing measurement tool. The main conclusion of this work showed that the four phonon anharmonic processes contribute significantly and are necessary to explain the experimentally observed temperature dependence of the 1086 cm^{-1} mode in calcite.

Measured the spectral and temporal characteristics of the third order nonlinear susceptibility of $LiNbO_3$ using Raman Induced Phase Conjugation Spectroscopy and the real time phonon dephasing measurement technique from 100 to 700 wavenumbers. Large and fast nonlinear susceptibilities were observed. This work shows that $LiNbO_3$ has the potential to lie at the heart of an all optical multispectral optical processor which utilizes Raman Induced Phase Conjugation. The optical processing techniques can be performed in real time, with repetition rates in excess of a terahertz.

Developed an oblique 3 dimensional nondegenerate four wave mixing technique similar to Raman Induced Phase Conjugation Spectroscopy. This new geometry allows the spatial separation of the nonlinear scattered signal, which leads to an increase of twenty five times the normal scattered signal in Raman Induced Phase Conjugation.

Generated, recorded and reconstructed far field X-band microwave holograms. The holograms were recorded by sampling the far field diffraction pattern of an object in a collimated beam of microwave radiation. The resulting sampled data was entered into a computer and reconstructed by utilizing optical diffraction theory and fast Fourier transform algorithms.

Created devices and techniques for generating broad and narrow band, picosecond microwave pulses, suitable for microwave spectroscopy and holography. The temporal duration of the microwave pulses could be varied by appropriately designing the device.

Developed an image processing computer package which simulates optical Fourier transforms techniques for image processing, pattern recognition, and holography. These techniques were used to analyze x-ray photographs of the implosion of solid deuterium pellets induced by laser irradiation at The Laboratory for Laser Energetics, Univ. of Rochester.

Conducted a research project to detect optical signals in a noise background utilizing holography and optical Fourier transform and correlation techniques.

SUMMARY OF QUALIFICATIONS

Diversified and progressive experience spanning high-speed optical transmission, OTDM & DWDM technologies, optical frequency combs, low noise mode-locked lasers, ultrafast nonlinear optics, high power semiconductor diode lasers, picosecond electrical pulse generation, microwave holography, optical and digital image processing. Garnered expertise in the development and application of c.w. and ultrafast laser sources, and streak camera systems. Engaged in experiments in femtosecond pulse generation from diode lasers, multiwavelength generation from diode lasers, gain dynamics in diode lasers, optical gain switching in diode lasers, synchronization of ultrafast diode laser systems, timing jitter measurement techniques, optical clock distribution for supercomputer applications, all optical clock recovery techniques for lightwave networks, novel pulse compression and correlation techniques, Raman spectroscopy, nonlinear four wave mixing, phase conjugation, transient phonon dynamics in crystals, free carrier recombination and diffusion in semiconductors, and picosecond continuum generation, and photonic analog to digital and digital to analog conversion techniques.

HONOR SOCIETIES

1. Tau Beta Pi, The National Engineering Honor Society
2. Eta Kappa Nu, The National Engineering Honor Society forElectrical Engineers
3. Sigma Xi, The Scientific Research Society

PROFESSIONAL SOCIETIES

1. **Fellow**, Institute of Electrical and Electronics Engineers (IEEE – Photonics Society, 2000)

2. **Fellow**, Optical Society of America (OSA, 1999)
3. **Fellow**, American Physical Society (APS, 2011)
4. **Fellow,** African Scientific Institute.
5. New York Academy of Sciences
6. Society of Photo Optical Instrumentation Engineers (SPIE)
7. National Society of Black Physicists

PROFESSIONAL ACTIVITIES

1. **APS** Public Policy Committee (2013-2016)
2. **President**, National Society of Black Physicists (2008-2012)
3. **OSA – FiO Program Chair (2013)**
4. **IEEE ABET Accredidation Committee for Photonics** (2011-2012)
5. NSF PREM External Advisory Committee (2011-) **NSF PREM Norfolk State University**
6. **NSF ERC** - E3S External Advisory Board (2011-) NSF Berkeley
7. **IEEE Edison Award** Committee Member **(2008-)**
8. **American Physical Society – Committee on Minorities (COM) -** Member
9. **National Research Council – NIST EEEL Assessment Panel (Chairperson – 2007)**
10. **NSF - LIGO Review Panel Member (2006, 2007, 2009)**
11. Conference Chair SPIE Security, Defense & Sensing: Enabling Photonic Technologies….(2008 - 2012)
12. Technical Program Committee – Microwave Photonics Conference 2008
13. IEEE Journal of Selected Topics in Quantum Electronics (JSTQE) **Editor-in-Chief** (2001 – 2006)
14. **OSA Board of Directors** (2004 – 2008)
15. CLEO Long Range Planning – **Chairperson** (2007-2009)
16. CLEO Steering – IEEE LEOS Representative (2007-)
17. OSA Public Policy – **Chairperson** (2005 - 2009)
18. OSA Public Policy Committee (2004 - 2009)
19. APS District Advocate
20. OSA CLEO 2006 **General Chair** (2006)
21. IEEE LEOS **General Chair** (2005)
22. IEEE Lasers and Electro Optics Society (LEOS) Newsletter, **Executive Editor (1995-2001)**
23. IEEE Lasers and Electro Optics Society (LEOS), **Board of Governors (2000 – 2002)**
24. IEEE Photonics Technology Letters, **Associate Editor (1995 – 2003)**
25. OSA – Ultrafast Electronics and Optoelectronics 2005 **General Chair**
26. OSA-CLEO 2004 **Program Co-Chair**
27. OSA – CLEO Steering Committee (2002-2004).
28. IEEE – LEOS Annual Meeting – **Program Chair 2003**
29. **National Research Council** – Committee on Electronics & Electrical Engineering – National Institute of Standards & Technology (NIST) (2002-2005)
30. **National Academy of Science** – Committee on Atomic, Molecular and Optical Science (CAMOS) (2002-2005)
31. **National Academy of Engineering** - First Symposium on Frontiers of Engineering
32. National Science Foundation – Member, Committee of Visitors
33. National Science Foundation's Scientists & Engineers in the Schools (Founding Member).
34. National Science Foundation's Back to School Program.
35. NSF-OSA-SPIE Hands-On Optics National Advisory Board (2004-2007).
36. NSF- National Visiting Board – Photon 2 - New England Board of Higher Education.
37. OSA- Optics & Photonics News –Optical Fiber Communications - **Guest Editor** (2003).
38. S.E.E.ing the Future Institute (NSF, Science Services, Dartmouth, Dow Chemical)
39. National Science Foundation Site Review Panel Member, Science and Technology Center Program, , University of Washington, Seattle 2001.
40. IEEE Technical Advisory Board; Newsletter Committee
41. IEEE/LEOS Education Committee – 1994-present
42. Orlando Science Center – Science Advisory Board
43. Orlando Science Center – Presidential Science Advisory Council
44. CLEO 2004 Postdeadline Paper Session Presider

45. SPIE Defense and Homeland Security ’04, Program Committee Member, Orlando April 2002
46. SPIE Defense and Homeland Security’04, Session Chair, Orlando April 2002
47. SPIE Aerosense ’02, Program Committee Member, Orlando April 2002
48. SPIE Aerosense ’02, Session Chair, Orlando April 2002
49. CLEO Steering Committee (2001 – 2004)
50. OSA Selection Committee (2002-2005) –for selection nominations for OSA President and Board positions.
51. OSA- Optics & Photonics News –Optical Fiber Communications - **Guest Editor** (2002).
52. OSA **Program Chair** - Ultrafast Electronics and Optoelectronics 2003.
53. IEEE LEOS 2002 Session Chair, Glasgow, Scotland, 2002.
54. SPIE Aerosense ’02, Program Committee Member, Orlando April 2002
55. SPIE Aerosense ’02, Session Chair, Orlando April 2002
56. OSA Technical Committee – Ultrafast Electronics and Optoelectronics 2001
57. NSF-SPIE-OSA Education Workshop, SPIE Annual Meeting, San Diego, CA 2001.
58. SPIE Aerosense ’01, Program Committee Member, Orlando April 2001
59. SPIE Aerosense ’01, Session Chair, Orlando April 2001
60. OSA- Optics & Photonics News –Optical Fiber Communications - **Guest Editor** (2001).
61. LEOS 2000 Annual Meeting, Technical Committee, Ultrafast Electronics & Optoelectronics
62. LEOS 2000 Annual Meeting, Session Chair, Devices & Technology
63. LEOS 2000 Annual Meeting, Session Chair, Ultrahigh-Speed Transmission and Ultrafast Optoelectronics
64. SPIE Award Committee 1999-2002
65. SPIE Aerosense ’00, Program Committee Member, Orlando
66. CLEO 2000 – Session Chair, Ultrafast Nonlinear Propagation and Devices
67. CLEO 2000 – Session Chair, Novel Ultrafast Physics & Applications
68. CLEO 2000 – Session Chair, Ultrafast Semiconductor Measurements
69. CLEO 2000 – Session Chair, Ultrafast Semiconductor Devices
70. CLEO 2001, **Chair**, Technical Committee - Ultrafast Optics, Optoelectronics & Applications
71. CLEO 2000, **Chair**, Technical Committee - Ultrafast Optics, Optoelectronics & Applications
72. OSA Technical Committee –Topical Meeting on Ultrafast Phenomena 2000.
73. IEEE/LEOS Annual Meeting Technical Committee – Ultrafast Electronics & Optoelectronics 1999
74. OSA Ultrafast Electronics and Optoelectronics Technical Organizing Committee, 1999
75. OSA Technical Program Committee – Advanced Semiconductor Lasers and Applications 1999
76. OSA Annual Meeting Symposium Organizer “Ultrafast Communications”, 1999
77. Optical Fiber Communication (OFC) Workshop Organizer on Optical Communication Education and Research in Academia, 1999.
78. International Committee on Non-Ionizing Radiation Protection (ICNIRP) –International Safety Standards of Superluminescent Diodes
79. CLEO Technical Committee - Ultrafast Phenomena 1999
80. SPIE Aerosense ’99, Program Committee Member
81. OSA Max Born Award Committee 1997-1999
82. CLEO Technical Committee - Ultrafast Phenomena 1998
83. SPIE Aerosense ’98, Program Committee Member
84. OSA Ultrafast Electronics and Optoelectronic Technical Organizing Committee - 1997
85. APS ILS Conference Sub Committee Chair - Laser Applications 1996
86. SPIE -Aerosense ’97, Program Committee Member
87. OSA Ultrafast Electronics and Optoelectronics Technical Organizing Committee, 1995
88. OSA Ultrafast Phenomena Program Committee Member, 1996
89. SPIE - Aerosense ’96, Program Committee Member
90. SPIE Photonics West ‘96, Ultrafast Lasers Technical Organizing Committee, 1996
91. SPIE Photonics West ‘96, Semiconductor Lasers Technical Organizing Committee, 1996
92. National Science Foundation Site Review Panel Member, Center for Ultrafast Optical Science, University of Michigan, Ann Arbor, 1996.
93. SPIE Photonics West ‘95, Ultrafast Lasers Technical Organizing Committee, 1995
94. SPIE Aerosense, 95, Program Committee Member
95. OSA Annual Meeting, Symposium Organizer on Ultrafast Laser Diodes, 1994.
96. OSA Annual Meeting Session Presider, 1994

97. CLEO Session Presider, 1994.
98. OSA Inaugural Forum, Research Center for Optical Physics, Hampton University,`93, Steering Committee.
99. IEEE LEOS 1993 Annual Meeting; Ultrafast Optoelectronics, Steering Committee.
100. National Science Foundation Site Review Panel Member, Optoelectronic Computing Center, University of Colorado, Boulder, 1993.
101. SPIE O/E LASE '94, Program Committee, Ultrafast Pulse Generation and Measurement, , Los Angeles, CA.
102. CLEO '91, Session Presider, Baltimore, MD, 1991
103. OSA Annual Meeting, Session Presider, San Jose, CA, 1991
104. OSA Annual Meeting, Technical Organizing C`ommittee, San Jose, CA, 1991

NEWS RELEASES

More than 60 print publication on "Optical Clocking with Laser Diodes". This news release was broadcast on national and international radio, including CBS News, National Public Radio, Voice of America, and local New Jersey television. Below are a few sample titles. Complete news articles from the 60 publications are available upon request.

1. "Laser Advance for Computers" in "The New York Times".
2. "Bellcore Sees Faster Speeds for Computers" in "The Wall Street Journal".
3. "Upgraded Computer Clock" in "USA Today".
4. "Optical Clocks Give Computers More Zip" in "Popular Science".
5. "Bellcore Uses Laser Beam to Beat The Clock" in "Byte Magazine".
6. "Let There Be Light Beams" in "Information Week".
7. "Researchers Take Electronic Pulse On Next Generation of Computers", in "The Washington Post".
8. "New Bellcore `Laser Clock' May Let Computers Work 10 Times Faster", in "The New Jersey Star Ledger".
9. "Laser Boosts Computer Speed", in "The Chicago Tribune".

PUBLICITY ARTICLES

1. Optics & Photonics News, Recent Research Highlights; "Generation of sub-picosecond high power optical pulses from a hybrid mode-locked semiconductor laser" by P. J. Delfyett, et al., vol 1, No. 12, pg. 68, (1990).
2. Optics & Photonic News, Optics in 91; "Optical clock distribution using a mode-locked semiconductor laser diode system", by P. J. Delfyett, et al., vol 2, No. 12, (1991).
3. Optics & Photonics News, Optics in '92; "200 femtosecond optical pulse generation from a hybrid mode-locked semiconductor diode laser-amplifier system", P. J. Delfyett, et al., vol 3, no. 12, (1992).
4. Optics & Photonics News; Recent Research Highlights; "200 femtosecond optical pulse generation and intracavity pulse evolution in a hybrid mode-locked semiconductor diode laser-amplifier system", P. J. Delfyett, et al., vol 3, no. 7, pg. 44, (1992).
5. "Short, sharp shock for optical processing", P. J. Delfyett, in Physics World, pg. 24, June 1992.
6. Laser Focus World, "Diode Laser Seeds Regenerative Amplifier" June, 1995.
7. "UCF Engineering Professor Attracts National Recognition" in *The Orlando Sentinal*, Section D, December 17, 1996.
8. "External cavity amplifier targets printing, imaging and telecom" in *Photonics Spectra*, pg. 56 March 1998
9. "OSA Meeting shows technical strength", in Optoelectronics Report pg 1-2, vol.
10. "Debate over Internet backbone heats up", in EE Times, www.eet.com/news/98/1027/debate/html, posted 11:45pm, EDT 9/18/98
11. "Multiwavelength diode laser enables high speed network" in "Photonics On-Line", http://news.photonicsonline.com/technical-features, posted 2/19/99.
12. Design News Engineer of the Year Nominee
13. University of Rochester – ECN Network News
14. UCF Reports - Distinguished Researcher of the Year
15. Careers in Engineering (paper)
16. Careers in Engineering (electronic)
17. CSPAN – Broadcast 1/29/99 – High Data Rate Communications
18. National Public Radio – Broadcast WFIT – 89.5 – May 1, 1999 "Future Fiber Optic Technology for the Next Generation Information Era" on "The Digital Age".

19. *Mainstreetweek.com* News Media Broadcast
20. Nation Press Conference – National Science Foundation 50th Anniversary and the Scientists and Engineers in the School Program.
21. Electronics, photonics vie for optical-net switching, in EE Times, www.eet.com/story, Posted 08/07/00 6:37 pm)
22. At the speed of light, in Black Family, published by the Orlando Sentinel.
23. Highlighted in US Black Engineer Magazine for the 2000 Black Engineer of the Year Award (2000).
24. Photonics, Electronics vie for switching, in EE Times August 14, 2000.
25. Newsbrief on WDBO 580 AM Orlando, FL, on "NSF Scientists and Engineers in the Schools Week" September 27, 2000.
26. "Scientist Shows Kids the Light" in the Orlando Sentinel, September 29th, 2000.
27. Crossroads on Campus: University of Central Florida– WMFE – TV Interview
28. NSF Key-Note Speaker for the NSF PECASE Award Ceremony.
29. NSF Representative in the Scientists and Engineers in the Schools Program (in Freeport, Texas).
30. Optics & Photonics News – Introduction to the Special Issue on Fiber Optics (2001)
31. Optics & Photonics News – Introduction to the Special Issue on Fiber Optics (2002)
32. Optics & Photonics News – Introduction to the Special Issue on Fiber Optics (2003)
33. "Research dollars roll into state" in Orlando Sentinel, Local & State Section, B1 & B5, September 30, 2002
34. "Billions of blinks from a laser to keep computers in time" in The New York Times, Circuits Section (Oct. 10, 2002).
35. "Florida scientists create cost saving laser" Optics & Photonics News, pg. 8, (2002).
36. "Single laser matches transmission record" http://www.photonics.com/spectra/tech/read.asp?techid=1454
37. "Another brain claims terabit speeds" September 5, 2002, at Lightreading.com http://www.lightreading.com/document.asp?doc_id=20751&site=lightreading
38. Maddux Report – Record Smashing at UCF – Jan/Feb 2003.
39. Florida Trends Research Florida, June 2003, pp 4-7..
40. IEEE Communications
41. "UCF's efforts to secure reseach grants pay off", in Orlando Sentinel, Local and State, B1,B3 (July 13, 2003).
42. "Modelocked ring laser produces 274 fsec pulses"; Photonics Spectra, pg 85, October 2003. http://www.photonics.com/spectra/research/XQ/ASP/preaid.149/QX/read.htm
43. Voice of America - Internet Radio Broadcast – Trends in Optics & Photonics; Host T. ONeal. (2/06/04)
44. "System measures Raman gain in bulk glasses," Photonics Spectra, September 2003.
45. Orlando Business Journal, Nov. 14-20 2003, pg 33.
46. Orlando Sentinel, Sunday October 12, 2003, Money Section H, pg. H1.
47. "From Corporate High Rise to Ivory Tower", National Society of Black Engineers Magazine, Sept/Oct Issue 2003, pp 72-76.
48. Boston.com: Americans try to make science fun for kids, http://www.boston.com/news/education/k_12/articles/2004/07/17/americans_try_to_make_science_fun_for_kids
49. Los Angeles Times: Americans Try to Make Science Fun for Kids, http://www.latimes.com/news/science/wire/sns-ap-apn-jazzed-by-science,1,379832.story?coll=sns-ap-science-headlines
50. ABC News: Americans Try to Make Science Fun for Kids, http://abcnews.go.com/wire/US/ap20040717_1323.html
51. Miami Herald: Americans Try to Make Science Fun for Kids, http://www.miami.com/mld/miamiherald/9180316.htm
52. Syracuse Post-Standard/Herald American/Herald-Journal: Americans try to make science fun for kids, http://www.syracuse.com/newsflash/lateststories/index.ssf?/base/national-1/10901087402180 40.xml
53. New York Times: Americans Try to Make Science Fun for Kids, http://www.nytimes.com/aponline/science/AP-APN-Jazzed-by-Science.html
54. Kansas City Star: Americans Try to Make Science Fun for Kids, http://www.kansascity.com/mld/kansascity/9180316.htm
55. Florida Trend Magazine–"Trendsetters – University Research & tech Transfer", Seeing the Light, pg, 18, October 2005.
56. SPIE Newsroom 2009 (Ibrihim): Semiconductor laser diode produces stabilized optical frequency combs; SPIE Newsroom, 10.1117/2.1200904.1588 (May 2009)
57. SPIE Newsroom 2011 (Mandridis): Diode laser produces low noise chirped pulses, SPIE Newsroom; 10.1117/2.120112.003549 (March 2011)
58. Laser Focus World 2011 (Sharad): VCSELs generate high speed optical arbitrary waveforms; Laser Focus World Vol 47, Iss. 12 9, Dec 2011.
59. Nature Photonics (Umar): Optical Metrology: Range and Speed; Nature Photonics, Vol 5, p. 444, Auguest 2011.
60. Nature Photonics (Josue): Scaling down frequency, Nature Photonics Vol 5, Dec (2011) 725

PATENTS AWARDED

1. "Generation of 2 psec Tunable Radiation", United States Patent 4,972,423. (11/20/90)
2. "Optical pulse-shaping device and method, and optical communications station and method ", United States Patent 5,166,818. (11/24/92).
3. "Broadband Absorber having Multiple Quantum Wells of Different Thicknesses", United States Patent 5,265,107. (11/23/93).
4. "Self Starting Femtosecond Ti:Sapphire Laser with Intracavity MQW Saturable Absorber" US Patent 5,434,873 (7/18/95).
5. "Modelocked Laser Diode and Solid State Regenerative Amplifier" US Patent 5,469,454 (11/21/95).
6. "Ultrafast Pulse Slicer and Demultiplexer with Gain for Use in Solid State Regenerative Amplifier Systems" US Patent 5,546,415 (8/13/96).
7. "Semiconductor Laser Diode Mount Mechanism" US Patent 5,652,763 (7/29/97).
8. Three Dimensional Optical Imaging Colposcopy, US Patent 5,921,926 (7/13/99).
9. Optical disk readout method using optical coherence tomography and spectral interferometry, US Patent 6,072,765. (6/6/00).
10. Three Dimensional Optical Imaging Colposcopy, US Patent 6,141,577. (10/31/00).
11. Multi-wavelength Modelocked Semiconductor diode laser, US Patent 6,256,328. (7/03/01).
12. Hybrid WDM-TDM Optical Communication Link US Patent. 6,314,115 (11/06/01).
13. Hybrid WDM-TDM Optical Communication Link, US Patent 6,647,031. (11/11/03)
14. Multiwavelength modelocked lasers, US Patent 6,661,816. (12/09/03)
15. Photonic arbitrary waveform generator. US Patent 6,671,289 (12/30/03).
16. Method for reducing amplitude noise in multiwavelength modelocked lasers. US Patent 6,690,686 (2/10/04).
17. Ultralow noise optical clock for high speed sampling applications US Patent 6,735,299. (5/11/04)
18. Programmable multiwavelength laser, US Patent 6,801,551 (10/05/2004).
19. Extreme chirped pulse optical amplifier and laser US Patent 7,095,772 (8/22/06).
20. Controlling pulse energy of an optical amplifier by controlling pump diode current" US Patent 7,143,769 (12/05/06).
21. Ablative material removal with a preset rate or volume or depth - US Patent 7,367,969 (2008)
22. System and method for high precision length measurement - US Patent 7,460,242 (2008)
23. Ultralow noise modelocked laser and sine wave source – US Patent 7,492,795 (2009)
24. Extreme chirped/stretched pulse amplification and laser, US Patent 7,558,302 (2009)
25. Extreme chirped/stretched pulse amplification and laser, US Patent 7,561,605 (2009)
26. Optical frequency self stabilization in a coupled optoelectronic oscillator , US Patent 7,697,579 (2010)
27. Phase chip frequency-bins optical code division multiple access , US Patent 7,729,616 (2010)
28. Matched Optical Waveforms for detection and identification of biological pathogens; OAWG Patent (co-Harris) PCT/US 2008053679; US 7,755,755 (2010)
29. Extreme chirped pulse amplification and phase control, US Patent 7,777,940. (2010)
30. High Precision Measurement of the Free Spectral Range of an Etalon, US Patent 7,800,763. (2010)
31. Mode-locked optical amplifier as a source for a wdm-WDM hierarchy architecture (US 7,848,655) (2011)
32. Signal processing using spectrally phase encoded optical frequency combs US 7,917,039 (2011)
33. Systems and methods for generating a tunable laser beam, US 7,929,582 (2011)
34. Ultralow noise mode-locked laser and sinewave source US 7,978,740 (2011)
35. Radio frequency (RF) signal receiver using optical processing and associated methods US 8,116,638 (2012)
36. Gain flattening filter for multiwavelength generation (patents pending)
37. Length metrology using optical frequency combs and spectral interferometry (patent pending).
38. FM Laser Radar based on Extreme Chirped Pulse Stretching (Patent pending)
39. Stretching Patent for Raydiance (UCF)
40. Signal Processing using Combs (3 Architectures)
41. Optoelectronic XNOR logic gate for data mining applications
42. Injection locked semiconductor lasers for optical pulse shaping and waveform synthesis
43. Injection Locked Mode-Locked Laser with Long-Term Feedback Stabilization
44. The linear modulator (resonant cavity linear interferometric modulator)
45. An optoelectronic oscillator using a high finesse etalon

TECHNOLOGY TRANSFER AGREEMENTS

1. High Power Ultrafast Laser Diode to Laser Ionics, Inc., Orlando, Florida.
   Publications/ Publicity Articles Relating to this Agreement
   "Collaboration helps CREOL Staffer to Market Laser", in Orlando Business Journal, May 6, 1994.
   "Laser Ionics Readies Fast, Compact Source" in New Technology Week, June 6, 1994.
   "UCF, Business Team to Create Model Laser" in UCF Reports, 1994.
   "Ultrafast Pulsed Diode Laser Introduced", in Laser Reports, August 15, 1994.
2. Multiwavelength modelocked diode laser – licensed to Sarnoff Corporation, Princeton, N.J.
3. "Ultrashort pulse technology and chirped pulse amplification technology" – Licensed to Raydiance, Inc (2005).
4. Stabilized modelocked lasers to "Terabyte Mining".

AWARDS

1. **Fellow** - IEEE Lasers & Electro-Optics Society (IEEE/LEOS) – for the development and application of high speed photonic device technology based on modelocked semiconductor diode lasers.
2. **Fellow** – Optical Society of America – for pioneering work in ultrahigh data rate modelocked semiconductor lasers.
3. **Fellow** – American Physical Society – for pioneering contributions to the understanding of the physics and implementation of ultrafast diode lasers.
4. **American Physical Society's Edward Bouchet Award (2011)**- For significant scientific contributions in the area of ultrafast optical device physics and semiconductor diode based ultrafast lasers, and for his exemplary and continuing efforts in the career development of underrepresented minorities in science and engineering."
5. **2013 University of Central Florida Research Incentive Award**
6. **2013 Award for Faculty Excellence in Mentoring Doctoral Students in the Engineering, Physical Sciences, and Life Sciences** – The University of Central Florida
7. **2012 Excellence in Graduate Teaching Award** – The College of Optics & Photonics, Univ. Central FL.
8. **Excellence in Education** – The Black History Committee of Orange County, FL (2007).
9. **Award of Recognition, Keynote Speaker** – Optical Society of Korea, Annual Meeting (2006).
10. **Science Spectrum Trailblazers 2006** – Science Spectrum Magazine 2006
11. **Science Spectrum Trailblazers 2005** – Science Spectrum Magazine 2005.
12. **50 Most Important Blacks in Research Science** – Career Communications Group (Science Spectrum Magazine 2004).
13. **Technology Innovation Award** – Economic Development Commission (2003).
14. University of Central Florida – Millionaire's Club (Funding over $1M in FY 2008 - $1.0M)
15. University of Central Florida – Millionaire's Club (Funding over $1M in FY 2006 - $1.6M)
16. University of Central Florida – Millionaire's Club (Funding over $1M in FY 2005 - $1.8M)
17. University of Central Florida – Millionaire's Club (Funding over $1M in FY 2004 - $2.9M)
18. University of Central Florida – Millionaire's Club (Funding over $1M in FY 2003 - $2.6M).
19. University of Central Florida – Millionaire's Club (Funding over $1M in FY 2002 - $1.2M).
20. University of Central Florida – "Lonely Spouse Award" (for writing 28 proposals and winning 17 in FY 2002)
21. University of Central Florida - Nguzo Saba Award (2001)
22. Central Florida Chamber of Commerce – Award of Appreciation (2001)
23. UCF – Black Female Development Circle – Award of Appreciation (2001)
24. UCF Honor as 1st African American Professor promoted to the rank of Full Professor.
25. Univerisity of Central Florida Research Incentive Award
26. **University of Central Florida 2001 Pegasus Professor Award – This is the highest honor bestowed by the University**.
27. University of Central Florida - Nguzo Saba Award (2000)
28. Recipient of the **"2000 Black Engineer of the Year Award – Outstanding Alumnus Award"** for outstanding technical achievements selected from past winners.
29. National Science Foundation's Scientists and Engineers in the Schools 2000.
30. **2000 Graduate Teaching Award**" – School of Optics, University of Central Florida

31. The **National Science Foundation's Presidential Early Career Award for Scientists and Engineers** (1996-2001).
32. **1999 University Distinguished Researcher Award** – University of Central Florida
33. **1999 Distinguished Researcher Award** – Institutes and Centers – University of Central Florida
34. Design News – Engineering Achievement Award Nominee (1998)
35. Engineering Expo`95 **Research Award**, University of Central Florida
36. Recipient of the **"1993 Black Engineer of the Year Award -- Most Promising Engineer"** for outstanding technical achievements with less than 5 years of professional experience.
37. Recipient of the **"New Jersey 1992 Black Achievement Award"** for outstanding work accomplishments and community service.
38. Recipient of the Bellcore **"Award of Appreciation"** for outstanding technical achievements (1990).
39. Recipient of the **"Bellcore Synergy Award"** for both technical and community achievements (1993).
40. Recipient of the **"Award of Appreciation of the YMCA Minority Achievement Program"** (1993).

SCHOLARSHIP AND RESEARCH AWARDS

1. Institute for Ultrafast Spectroscopy and Lasers Research Award (1987).
2. CUNY Northeast Resource Center Research Award (1986).
3. CUNY Graduate Professional Opportunities Program Award (1984-1988).
4. University of Rochester Tuition Scholarship and Research Assistantship Award (1983-1984).
5. University of Rochester Minority Research Fellowship (1982-1983).
6. University of Rochester Tuition Scholarship and Teaching Assistantship Award (1981-1982).

SELECTED RESEARCH GRANTS AND CONTRACTS AWARDED

1. National Science Foundation-Presidential Early Career Award for Scientists and Engineers $500,000 **(PI). (1997)**
2. NIST - Semiconductor Modelocked Laser Developement - $20,000 **(PI). (1997)**
3. National Science Foundation -- Research Initiation Award - $100,000 **(PI). (1995)**
4. Army Research Office DURIP Equipment Grant - $103,000 (co-PI) **(1994)**
5. Air Force Office of Scientific Research DURIP Equipment Grant - $82,000 (co-PI**) (1994)**
6. National Science Foundation -- Research Experience for Undergraduates - $184,000 (co-PI) **(1995)**
7. National Science Foundation -- Ultrahigh Speed Photonics for Networking, Instrumentation and Signal Processing - $310,000 **(PI). (1996)**
8. Florida Hospital – Development of Optical Coherence Tomography - $16,000 (co-PI). **(1998).**
9. Orlando Science Center – Light Power - $82,000 (co-PI). **(1994)**
10. Department of Defense - Air Force -- High Speed Multiwavelength Optical Sources - $76,000 **(PI). (1996)**
11. National Science Foundation Academic Research Infrastructure - $100,000 **(PI). (1995)**
12. NIST-SBIR -- Ultrafast Semiconductor Laser Diode - $12,000 **(PI). (1995)**
13. ARPA-MURI -- Optical Amplifiers for Telecommunications - $1,200,000 **(PI). (1996)**
14. Air Force Rome Labs: All Optical Clock Recovery for Advanced Photonic Networks - $36,500 **(PI). (1996)**
15. UCF: Ultrahigh-speed Communication and Data Links for the I-4 Corridor - $35,000 **(PI). (1997)**
16. NSF Research Experience for Undergraduates (renewed for 5 Years) - $305,000 (co-PI) **(1998).**
17. SPAWAR – Advanced E/O Technology Development - $ 250,000 (co-PI). **(1999)**
18. DARPA (Sarnoff Corp) - Photonic Analog to Digital Converter Technology using Multiwavelength Diode Lasers $500,000. **(PI). (1999)**
19. AFRL – Development of a Compact Modelocked Laser Clock for Photonic A to D Converters - $250,000 **(PI). (1999).**
20. Technology Capital Funding – Development of Semiconductor Optical Amplifiers for Telecommuniactions Applications - $100,000. **(PI). (1999).**
21. National Science Foundation – Combined Research and Curriculum Development - $375,000 (co-PI). **(1999)**
22. DURIP – Development of a Test Facility for Spray Cooled Semiconductor Laser Diode Pumps -$105,000 (co-PI) **(1999).**
23. NSF - Femtosecond and Multiwavelength Generation from Semiconductor Optical Amplifiers – Fundamental Physics and Applications - $210,000 **(PI). (2000)**

24. NSF Information Technology Research Scalable Information Infrastructure for Pervasive Computing and Access (ITR – SI) Semiconductor Optical Amplifier Based High Capacity Optical Information Device Technologies and Applications - $275,000 **(PI). (2001)**
25. NSF- Novel Raman Optical Amplifiers - $500,000 (co-PI) **(2002)**
26. NSF – Integrated Graduate Research and Traineeship (IGERT) - $350,000 (co-PI) **(2001)**
27. DARPA – Photonic Arbitrary Waveform Generation via Spectral Synthesis - $2,000,000 **(PI)**. **(2002)**
28. Infinite Photonics – Ultrashort, ultrahigh peak power from GCSEL lasers - $2,000,000 **(PI). (2002)**
29. MURI-Optical Clocks - $450,000 **(PI) (2002)**
30. DARPA – Chip Scale WDM Technologies - $ 400,000 **(PI) (2003)**
31. AFRL - Stablized Modelocked Optical Clocks - $50,000 **(PI). (2002)**
32. DARPA – Optical Code Division Multiplexing Technologies - $960,000 **(PI)**. **(2003)**
33. DARPA – Ultrashort pulse lasers for biological ablation - $234,275 (co-PI**) (2002)**
34. NSF Research Experience for Undergraduates – (co-PI). **(2003)**
35. DARPA – Fhoenics Ultrashort Laser Program - $8,000,000 **(PI). (2003)]**
36. DARPA – MARCO: Interconnect Focus Center - Optical Clock Generation, Multiplication and Distribution (co PI - $450,000) **(2004)**
37. DARPA University Opto Center – CONSRT – Femtosecond Optical Pulse & Comb Generation using Quantum Dots. (co-PI $450,000) **(2004)**
38. DARPA – Optical Arbitrary Waveform Generation - $1,800,000 (PI – 2005).
39. NSF- STC – (w/ University of Washington) $366,000 (2005).
40. Lucent: $166,000 (2007)
41. Raydiance: $30,000 (2006)
42. Darpa Phobiac: $1,000,000 (2007)
43. Raydiance – Laser Radar $150,000 (2007).
44. DTO – Signal Processing $300,000 (2007)
45. (A COMPLETE LIST OF CONTRACTS BETWEEN 2007 & 2013 WILL BE PROVIDE UPON REQUEST)
46. Darpa – Linear Modulator $350,000 (2010)
47. Darpa – in conjunction with MIT-Lincoln – Low noise clocks for Darpa RADER Program $200,000 (2010)
48. Darpa – in conjunction with Harris Corporation – Stabilized Optical Frequency Combs for Synthetic Aperture Imaging - $175,000 (2010).

U.S. FEDERAL EXPERT WITNESS

1. Federal Expert Witness on Microwave Radar (US Federal Court, Orlando, FL)

SELECTED COMMUNITY SERVICE

1. Science Advisory Board Member, *Orlando Science Center*, Orlando, Florida (1994-2001)
2. National Science Foundation's Scientists and Engineers in the Schools (2000)
3. National Science Foundation's Back to School Program (2000)
4. S.E.E.ing the Future Institute (NSF/Science Services/Dartmouth/Dow Chemical) (2000)
5. Faculty Advisor National Society of Black Engineers (1999-2001)
6. UCF College of Engineering SPACE Program (1995-2001)
7. UCF Pre-SPACE Summer Camp (2000)
8. UCF – DBCC NIH Bridge Program Daytona Community College Bridge Program (1999-2001)
9. UCF College of Engineering SECME Summer Program (1999-2001)
10. UCF-FGAMP - Florida Georgia Alliance for Minority Participation (1999)
11. Mentor/Tutor - Oviedo High School, Oviedo Florida (1996-2001)
12. Mentor/Tutor – Stenstrom Elementary & Lawton Chiles Middle School (1997-2001)
13. Mentor – Pack 90 Boy Scouts of America Orlando, Florida (1999)
14. Laser Applications in Science Education (1995, 1996) at CREOL, UCF.
15. Orange County Schools TEACH-IN '95 (1995).
16. Lecturer, LIFE (Learning Institute for Elders) at University of Central Florida, (1994 -Present).
17. Mentor for the NJ YMCA Black Achievers Program (1992).
18. Chairperson, Advisory Board Committee of the NJ YMCA Minority Achievers Program (1993).
19. Lecturer, Bell Communications Research Teacher's Institute, (1991-1993).

20. Mentor, Bell Communications Research STEP (Summer Technical Education Program) (1988-1993)
21. Traveling Lecturer, Public Schools of New York City, Harlem, N.Y. (1984-1988)

STUDENTS GRADUATED:

Doctoral Degrees:

1. Hong Shi (PhD EE): High Speed Multiple Wavelength Modelocked Semiconductor Laser for Advanced Optical Telecommunications. (1998)
2. Brian Mathason (PhD EE): All Optical Clock Recovery and Multiwavelength Switching using Semiconductor Optical Amplifiers for High Speed Optical Signal Processing. (2000)
3. Sangyoun Gee (PhD Physics): Ultrafast High Power Pulse Generation and Dynamics of External Cavity Modelocked Semiconductor Diode Lasers (2000)
4. Christopher DePriest (PhD Physics): Ultralow Jitter Modelocked Optical Pulse Streams for Photonic Analog to Digital Converters (PACT) (2002)
5. Tolga Yilmaz (PhD Optics): Modelocked External Cavity Semiconductor Laser Noise Characterization and Application to Photonic Arbitrary Waveform Generation. (2003).
6. Michael Mielke (PhD Optics): Multiwavelength Modelocked Semiconductor Lasers for Photonic Access Network Applications (2003)
7. Bojan Resan (PhD Optics) – Dispersion Managed Breathing Mode Semiconductor Modelocked Ring Laser: Experimental Study, Numerical Simulations and Applications. (2004)
8. Kyungbum Kim (PhD Optics): Extreme Chirped Pulse Amplification (2006)
9. Robert Stegeman (PhD Optics): Direct nonlinear optics measurements of raman gain in bulk glasses and estimates of fiber performance " (2006)
10. Luis Archundia (PhD Optics): Ultrafast Time Resolved Gain Dynamics of Multiwavelength Modelocked Diode Lasers (2006)
11. Myoung Taek Choi (PhD Optics): Low Noise Quantum Dot Modelocked Diode Lasers (2006)
12. Wangkuen Lee (PhD Optics): Synchronized Mode-locked Semiconductor Lasers and Applications in Coherent Communications (2007)
13. Shinwook Lee (PhD Optics): High Power Mode-locked Semiconductor Lasers and their Applications (2008)
14. Franklyn Quinlan (PhD Optics): Low Noise High Repetition Rate Semiconductor Based Mode-locked Laserr for Signal Processing and Coherent Communications (2008).
15. Sarper Ozharar (PhD Optics): Stable Optical Frequency Comb Generation and Applications in Arbitrary Waveform Generation, Signal Processing and Optical Data Mining (2008).
16. Ji-Myung Kim (PhD Optics): Quantum Dot Mode-locked Semiconductor Lasers (2010).
17. Ibrahim T. Ozdur (PhD Optics): Low Noise Narrow Optical Linewidth Semiconductor based Optical Comb Source and Low Noise RF Signal Generation (2011).
18. Dimitri Mandridis (PhD Optics 2011): Low Noise and Low Repetition Rate Semiconductor based Mode-Locked Lasers
19. Nazanin Hoghooghi (PhD Optics 2012): Injection -locked Semiconductor Lasers for Realization of Novel RF Photonics Components.
20. Mohammad Umar Piracha (PhD EE 2012): A Laser Radar Employing Linearly Chirped Pulses from a Mode-locked Laser for Long Range, Unambiguous, Sub-millimeter Resolution Ranging and Velocimetry.
21. Josue Davila-Rodriguez (PhD Optics 2013): External cavity mode-locked semiconductor lasers for the generation of ultra-low noise multi-gigahertz frequency combs anda applcations in multi-heterodyne detection of arbitraruy optical waveforms
22. Charles Williams (PhD Optics 2013): Injection Locking of Semiconductor Mode-locked Lasers for Long-Term Stability of Widely Tunable Frequency Combs.
23. Abhijeet Ardey (Planned December 2013)
24. Dat Nguyen (Planned August 2013)
25. Sharad Bhooplapur (Planned December 2013).

Master's Thesis

1. Wesley Webb (MS Optics) – The Design & Development of an Actively Modelocked External Cavity Semiconductor Diode Laser (1999)
2. Ikuko Nitta (MS Optics)– Development of a Hybrid WDM-TDM Optical Transmitter for High Speed Signal Processing and Communication Applications. (2000)

3. Alex Yusim (MS Physics)– Ultrafast Semiconductor Diode Seeded Solid State Regenerative Amplifier System (1997).
4. Jennifer Evans (MS Optics)– Non-Thesis; Research Activity on Thin Film Optical Antireflection Coatings. (2001)
5. Karen Oliver (MSEE) – Non Thesis, Research Activity on Dispersion Measurements (1999)
6. Eric Park (MS Physics) – Multiwavelength 1550 nm Laser Diodes (1997).
7. Trino Cruz (MS Computer Science): Controller for Multiwavelength Laser Diode Intracavity Spectral Filter
8. Luis Archundia (MS Optics) (2000)
9. Michael Mielke (MS Optics) Multiwavelength Diode Laser - Mode Partion Noise Suppression (2000).
10. Bojan Resan (MS Optics) Dispersion Managed Modelocked Ring Diode Laser (2001).
11. Erica Wells (MS Optics) (2003).
12. Shaan Mitra (MS Optics) (2004).
13. Hennock Legasse (MS Optics)
14. Max Obando (MS Optics)

Bachelors Thesis

1. Aubir Torres (BSEE)– Spectral Interferometry for Measuring Dispersion in Femtosecond Diode Laser Optics (1996).
2. Karen Oliver (BSEE) – Interferometric Measurements of Dispersion using Fourier Transform Correlation Techniques (1997).

Student Awards (Awards received by students under my supervision)

Michael Mielke (CLEO New Focus – First Place - $10,000)
Michael Mielke (Student of the Year – 2003)
Tolga Yilmaz (IEEE LEOS Travel Award)
Karen Oliver (NSBE – Student Research – First Place)
Bojan Resan (Leos Travel & LEOS Scholarship)
Kyungbum Kim (LEOS Travel Award)
Kyungbum Kim (DEPS Scholarship Award)
Leonard Kisimbi – Best Poster Presentation – Graduate Level, National Society of Black Physicists
Franklyn Quinlan – Student of the Year (2009)
Dimitri Mandridis – Student of the Year (2011)
Nazanin Hoghoohi - Newport Travel Award, CLEO (sole winner in US, 2012)
Nazanin Hoghoohi- Semifinalist – Maiman Outstanding Student Paper Competition (2012)
Nazanin Hoghoohi – Student of the Year (2012)
Umar Piracha (Student of the Year –Runner up)
Umar Piracha IEEE Outstanding Engnieering Graduate Student Award
Umar Piracha- IEEE Scholarship ($1000)
Umar Piracha – IEEE Photonics Society Travel Grant (2011)
Umar Piracha – SPIE Education Scholarship ($2000) (2009)
Sharad Bhooplapur – Incubic/ Milton Chang Travel Award (2012)
Josue Davila-Rodriguez – APS DLS Travel Award (2012)
Josue Davila-Rodriguez – Incubic/Milton Chang Travel Award (2011)
Josue Davila-Rodriguez - Incubic/Milton Chang Travel Award (2010)
Josue Davila-Rodriguez – Department of Education, Mexico – Supplementary Educational Scholarship
Charles Williams – SPIE Educational Scholarship in Optical Science and Engineering (2010)
Charles Williams – SPIE Educational Scholarship in Optical Science and Engineering (2011)

PUBLICATIONS

1. "Determination of Temporal Correlation of Ultrafast Laser Pulses Using Phase Conjugation", J. Buchert, R. Dorsinville, P. Delfyett, S. Krimchansky and R. R. Alfano, Optics Comm., Vol. 52, 433-437, (1985).
2. "Picosecond Raman Induced Phase Conjugation Spectroscopy", R. Dorsinville, P.J. Delfyett, and R.R. Alfano, in Ultrafast Phenomena V, Springer Verlag, 521-523, (1986).
3. "Picosecond Raman Induced Phase Conjugation in Liquids and Solids", R. Dorsinville, P. Delfyett, and R. R. Alfano, Applied Optics, Vol. 26, 3655-3658, (1987).
4. "Real Time Phonon Dephasing Measurements Using a Raman Induced Phase-conjugation and Streak Camera Method", P.J. Delfyett, R. Dorsinville, and R.R. Alfano, Optics Letters, Vol 12, 1002-1004, (1987).
5. "Ultrafast Laser Technology", Peter J. Delfyett, S.K. Gayen and R.R. Alfano, Encyclopedia of Physical Science and Technology,Vol. 14, 169-190, Academic Press, (1987).
6. "Generation of 3 psec Pulses from the Spectral Selection of a Supercontinuum Pulse generated in a Liquid", R. Dorsinville, P. Delfyett, and R.R. Alfano, Applied Optics, Vol. 27, 16-18, (1988).
7. "Multiphonon Dephasing of the 1086 cm^{-1} Mode in Calcite", P.J. Delfyett, R. Dorsinville, and R.R. Alfano, Phys. Rev. B, vol. 39, no. 6, 3845-3853, (1989).
8. "Spectral and Temporal Measurement of the Nonlinear Third Order Susceptibility in $LiNbO_3$, P.J. Delfyett, R. Dorsinville, and R.R. Alfano, Phys Rev B, vol. 40, no. 3, 1885-1891, (1989).
9. "High Peak Power Picosecond Pulse Generation from AlGaAs External Cavity Mode-locked Semiconductor Laser and Traveling Wave Amplifier", P. J. Delfyett, C. -H. Lee, G. A. Alphonse, and J. C. Connolly, Appl. Phys. Lett, vol. 57, no. 10, 971-973, (1990).
10. "Semiconductor Injection Lasers", P. J. Delfyett and C. -H. Lee, Encyclopedia of Lasers and Optical Technology, pp. 587-601, Academic Press, Inc., (1991).
11. "Generation of Subpicosecond High Power Optical Pulses from a Hybrid Modelocked semiconductor Laser", P. J. Delfyett, C.-H. Lee, L. T. Florez, N. G. Stoffel, T. J. Gmitter, N. C. Andreadakis, G. A. Alphonse, and J. C. Connolly, Optics Lett, vol. 15, no. 23, 1371-1373, (1990).
12. "Hot Carrier Thermalization Induced Self-phase Modulation in Semiconductor Traveling Wave Amplifiers", P. J. Delfyett, Y. Silberberg, and G. A. Alphonse, Appl. Phys. Lett, vol. 59, no. 1, 10-12, (1991).
13. "Subpicosecond 38W Optical Pulses from a Hybrid Modelocked Semiconductor Laser System" P. J. Delfyett, C.-H. Lee, L. Florez, N. Stoffel, N Andreadakis, T. Gmitter, G. Alphonse, and J. Connolly, in Ultrafast Phenomena VII, Springer Verlag Series in Chemical Physics, Vol. 53, pp 78-80, (1990), Springer -Verlag Berlin, Heidelberg.
14. "Ultrafast Laser Technology", P. J. Delfyett, S. K. Gayen, and R. R. Alfano, in "Encyclopedia of Lasers and Optical Technology", Academic Press, Inc., pp. 711-732, (1990).
15. "Optical Clock Distribution using a Modelocked Semiconductor Laser Diode System", P. J. Delfyett, D. H. Hartman, and S. Z. Ahmad, I.E.E.E. Journ. Light. Tech., vol. 9, no. 12, pp 1646-1649, (1991).
16. "Generation of High Power Femtosecond Optical Pulses from a Semiconductor Diode Laser System", P. J. Delfyett, L. Florez, N. Stoffel, T. Gmitter, N. Andreadakis, G. Alphonse, in "Picosecond Electronics and Optoelectronics, vol. 9, pp. 185-187, (1991),
17. "Ultrafast Laser Technology", Peter J. Delfyett, S. K. Gayen and R. R. Alfano, Encyclopedia of Physical Science and Technology, Academic Press, Inc. Vol 17, pp.119-143, (1992).
18. “Lasers, Semiconductor Injection” P. J. Delfyett C.-H. Lee, Encyclopedia of Physical Science and Technology, vol. 8, 585-599, (1992).
19. "Femtosecond Optical Pulse Generation from Semiconductor Diode Lasers; Techniques and Applications", P. J. Delfyett, in "Recent Advances in the Uses of Light in Physics, Chemistry, Engineering and Medicine", SPIE Proceedings, vol 1599, pp xx-xx, (1991).
20. "Limits on Amplification of Picosecond Pulses by Using Semiconductor Laser Traveling-Wave Amplifiers", C.-H. Lee and P. J. Delfyett, IEEE Journ. Quant. Electr., vol 27, no. 5, 1110-1114, (1991).
21. "Generation of Subpicosecond High Power Optical Pulses from a Hybrid Modelocked semiconductor Laser", P. J. Delfyett, C.-H. Lee, L. T. Florez, N. G. Stoffel, T. J. Gmitter, N. C. Andreadakis, G. A. Alphonse, and J. C. Connolly, in "Ultrafast Laser Technology", Edited by T. R. Gosnell and A. J. Taylor, SPIE, (1991).
22. “200 Femtosecond Optical Pulse Generation and Intracavity Pulse Dynamics in a Hybrid Mode-locked Semiconductor Laser System", P. J. Delfyett, G. A. Alphonse, and W. Ceislik, Optics Letters, Vol. 17, 670-672, (1992).

23. "High Power Ultrafast Laser Diodes", P. J. Delfyett, L.T. Florez, N. Stoffel, T. Gmitter, N.C. Andreadakis,Y. Silberberg, J. P. Heritage, G. Alphonse, IEEE J. Quant. Electr. Special Issue on Ultrafast Optics and Electronics, vol. 28, no. 10, pp. 2203-2219, (1992).
24. "Effects of Carrier Heating on the Wavelength Chirp of Ultrashort Laser Pulses in Semiconductor Traveling Wave Amplifiers", K. Sutkus. K. Shum, R. R. Alfano, P. J. Delfyett, IEEE Photonics Technology Letters, vol. 6, no. 3, 372, (1994).
25. "High Speed Performance of 1.5 μm Compressive-Strained Multiple-Quantum-Well Gain-Coupled Distributed Feedback Laser", C. E. Zah, P. J. Delfyett, R. Bhat, C. Caneau, F. Favire, B. Pathak, P. Lin, A. Gozdz, N. Andreadakis, M. Koza, M. Iqbal, H. Izadpanah, T. P. Lee, Electronics Letters, vol 29, 857-858, (1993).
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129. Next Generation Photonic Technologies for Data and Information Access Networks, MilCom Annual Review Meeting, Orlando, FL, August 1999. (INVITED)
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142. "Ultrafast optics for information systems", P. J. Delfyett – Optics and Information Technical Group Meeting, SPIE Annual Meeting, San Diego, CA 2000. **(INVITED PANEL**).
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165. Hybrid WDM – OTDM Technologies for Networking, Instrumentation & Signal Processing, National Science Foundation EPSCoR Electronics, Photonics, and Device Technologies (EPDT) Grantees Workshop, Fayetteville, Arkansas, August 16-17, 2001 **(INVITED).**
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433. "Ultralow Noise, Etalon Stabilized, 10 GHz Optical Frequency Comb Based on a Slab-Coupled Waveguide Amplifier," J. Davila-Rodriguez, I. Ozdur, C. Williams, D. Mandridis, P. J. Delfyett, J. Plant, and P. W.

Juodawlkis, in CLEO:2011 - Laser Applications to Photonic Applications, OSA Technical Digest (CD) (Optical Society of America, 2011), paper CTuV5.

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435. "Low noise stabilized chirped pulse Theta laser for photonic ADC" Mandridis, D.; Williams, C.; Ozdur, I.; Delfyett, P.J.; CLEO:2011 - Laser Applications to Photonic Applications, OSA Technical Digest (CD) (Optical Society of America, 2011), Paper CThI3.
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437. "A high resolution, chirped pulse lidar for simultaneous range and velocity measurements" M. U. Piracha, D. Nguyen, I. Ozdur and Peter J. Delfyett, in *CLEO:2011 - Laser Applications to Photonic Applications*, OSA Technical Digest (CD) (Optical Society of America, 2011), paper CMG.
438. "Temporal shaping of Parabolic chirped pulses with 27 dB extinction ratio for fiber chirped pulse amplification systems", D. Nguyen, M.U. Piracha, Mandridis, P. J. Delfyett, in *CLEO:2011 - Laser Applications to Photonic Applications*, OSA Technical Digest (CD) (Optical Society of America, 2011), paper JWA34.
439. "Analysis of spur-free dynamic range of a semiconductor resonant cavity linear interferometric intensity modulator," N. Hoghooghi and P. J. Delfyett, Conference on Lasers and Electro-Optics (CLEO) and Quantum Electronics and Laser Science (QELS), paper CThY5, 2011.
440. "4 GHz Hybrid Mode-Locked Fiber Laser Using PDMS/SWCNT Thin Film Composite," I. Hernandez-Romano, J. Davila-Rodriguez, D. Mandridis, J. J. Sanchez-Mondragon, P. J. Delfyett, and D. A. May-Arrioja, in CLEO:2011 - Laser Applications to Photonic Applications, OSA Technical Digest (CD) (Optical Society of America, 2011), paper CMK4.
441. "Fabrication of PDMS/SWCNT thin films as saturable absorbers," I. Hernandez-Romano, J. Davila-Rodriguez, D.A. May-Arrioja, J.J. Sanchez-Mondragon, and P.J. Delfyett, Journal of Physics: Conference Series, vol. 274, Jan. 2011, p. 012118.
442. "Ultrafast Coherent Optical Signal Processing Technologies and Applications using Stabilized Optical Frequency Combs" P. J. Delfyett, **(Invited)** APS DAMOP Annual Meeting; Bouchet Award, **Plenary Session**
443. "Frequency combs with multi-gigahertz spacing from semiconductor mode-locked lasers and applications in multi-heterodyne detection for the measurement of arbitrary optical waveforms," J. Davila-Rodriguez, C. Williams, M. Bagnell, and P. J. Delfyett, in International Summer Session: Lasers and Their Applications, (Optical Society of America, 2011), paper Tu11.
444. "Ultrafast coherent optical signal processing technologies and applications using stabilized optical frequency combs" P. J. Delfyett, **Keynote Address**, SPIE International Symposium's Nanophotonics and Macrophotonics For Space Environments V (NMSE V) Conference (OP 516), SPIE Annual Meeting, San Diego (2011)
445. "Dependence of RF frequency on injected optical frequency of an injection locked coupled opto-electronic oscillator" Williams, C.; Mandridis, D.; Davila-Rodriguez, J.; Klee, A.; Delfyett, P.J.; Photonics Conference (PHO), 2011 IEEE Digital Object Identifier: 10.1109/PHO.2011.6110634, Publication Year: 2011 , Page(s): 477 - 478
446. "Chirped pulse lidar using a mode locked laser source for metrology" M. U. Piracha, D. Nguyen, I. Ozdur and Peter J. Delfyett, IEEE Photonics Society Annual Meeting, 2011
447. "Direct comparison of semiconductor and erbium-based frequency stabilized harmonically mode-locked lasers," A. Klee; D. Mandridis; C. Williams; P. J. Delfyett, P.J.; , " *Photonics Conference (PHO), 2011 IEEE* , vol., no., pp.887-888, 9-13 Oct. 2011
448. "Ultrafast Coherent Optical Signal Processing: Key Technologies & Applications – Part I", P. J. Delfyett; http://www.osa.org/SummerSession/Presentation-Delfyett-8311.pdf;
449. "Ultrafast Coherent Optical Signal Processing: Key Technologies & Applications – Part II", P. J. Delfyett; http://www.osa.org/SummerSession/Presentation-Delfyett-8511.pdf
450. "Ultra Low Noise Mode-locked Lasers for Heterogeneous Integration" , P. J. Delfyett, DARPAPresenters Day E-PHI, May, 2011 (Invited).
451. "Ultrafast Photonic Technologies - From the Lab to Market", P. J. Delfyett, ENSPIRE, Office of Research and Commercialization, Univ. Central Florida, June 30th , 2011 (INVITED)
452. "How to do research – UCF Graduate Research Seminar" P. J. Delfyett (Feb, 22, 2012) (Invited)
453. UCF 25th Anniversary

454. "Ultrafast Coherent Optical Signal Processing using Stabilized Optical Frequency Combs from Mode-locked Semiconductor Diode Lasers", P. J. Delfyett, OSA Traveling Lecture, Hampton University, March 2, (2012) (Invited).
455. "Ultrafast Coherent Optical Signal Processing using Stabilized Optical Frequency Combs from Mode-locked Semiconductor Diode Lasers", P. J. Delfyett, OSA Traveling Lecture, Norfolk State University, March 2, (2012) (Invited).
456. "An All-diode Ultralow Noise 10 GHz Frequency Comb and MOPA System with 0.39 W Output Power Based on Slab-Coupled Optical Waveguide Amplifiers", J. Davila-Rodriguez, M. Bagnell, C. Williams, P. J. Delfyett, J. Plant, P. Juodawlkis, in CLEO:2012 - Laser Science to Photonic Applications, San Jose, California, p. CTu3N.6 (2012).
457. "120 dB.Hz$^{2/3}$ Spur Free Dynamic Range from a Resonant Cavity Interferometric Linear Intensity Modulator N. Hoghooghi; J. Davila-Rodriguez; S. Bhooplapur; P. J. Delfyett, in CLEO:2012 - Laser Science to Photonic Applications, San Jose, California, p. CTu2A.2 (2012).
458. "Coherent Optical Measurement of the Modulation Dynamics of Injection-Locked VCSELs", S. P. Bhooplapur, N. Hoghooghi, and P. J. Delfyett, in CLEO:2012 - Laser Science to Photonic Applications, San Jose, California, p. CW3N.6 (2012).
459. "A Linear Technique for Discrimination of Optically Coded Waveforms Using Optical Frequency Combs", S. P. Bhooplapur, and P. J. Delfyett, in CLEO:2012 - Laser Science to Photonic Applications, San Jose, California, p. CF2I.5 (2012).
460. "An Active Feedback Pulse Shaping Technique with Spectral Phase and Intensity Modulation to Generate Transform Limited, Parabolic Pulses for CPA systems", D. Nguyen, M. U. Piracha, K. Kim, M. Hamamoto, M. Mielke, P. J Delfyett, in CLEO:2012 - Laser Science to Photonic Applications, San Jose, California, CTu3M.8 (2012).
461. "A Chirped Fiber Bragg Grating with Ripple Free Group Delay and its Application in Laser Ranging", M. U. Piracha, D Nguyen, P. J. Delfyett, in CLEO:2012 - Laser Science to Photonic Applications, San Jose, California, CM2F.6 (2012)
462. "Stabilization of an Injection Locked Harmonically Mode Locked Laser via Polarization Spectroscopy for Frequency Comb Generation", C. Williams, J. Davila-Rodriguez, K. Bagnell, P. J. Delfyett, in CLEO:2012 - Laser Science to Photonic Applications, San Jose, California, p. JTh2A50, (2012)
463. "Feedback in Coupled-Resonance Optical Waveguides" M. Weed, C. Williams, P. J. Delfyett, W. Schoenfeld, in CLEO:2012 - Laser Science to Photonic Applications, San Jose, California, p CM3M.4, (2012).
464. "Towards Linear Interferometric Intensity Modulator for Photonic ADCs Using an Injection Locked AlInGaAs Quantum Well Fabry-Pérot Laser", E. Sarailou, A. Ardey, N. Hoghooghi, P. J. Delfyett, in CLEO:2012 - Laser Science to Photonic Applications, San Jose, California,p. CM1A.7 (2012)
465. "Octave-spanning Infrared Supercontinuum Generation in Robust Chalcogenide Nano-tapers", S. Shabahang, G. Tao, M. Piracha, D. Nguyen, P. Delfyett, A. Abouraddy, 2012 Nonlinear Photonics (NP) Topical Meeting.
466. "Ultralow Noise Mode-locked Semiconductor Diode Based Fiber Lasers" Peter Delfyett, SIAM Conference on Nonlinear Waves and Coherent Structures, Univ. Washington, June 13-16 (2012) **(INVITED).**
467. "Coherent Optical Signal Processing for Space Based Applications using Stabilized Optical Frequency Combs", P. J. Delfyett, NASA Goddard Space Flight Center, Greenbelt MD, June (2012). **(INVITED).**
468. "Tunable Frequency Combs for Photonic Applications", C. Williams, J. Davila-Rodriguez, K. Bagnell and P. J. Delfyett, TuA4, IEEE Avionics, Photonics and Fiber Optics (AVFOP), TuA4 Cocoa Beach, FL (2012).
469. "Coherent Optical Signal Processing using Stabilized Optical Frequency Combs", P. J. Delfyett, M. Bragnell, S. Bhooplapur, J. Davila-Rodriguez, N. Hoghooghi, I. Ozdur, M. U. Piracha and C. Williams, TuC1, IEEE Avionics, Photonics and Fiber Optics (AVFOP), Cocoa Beach, FL (2012). **(INVITED)**
470. "Highly Stable Optoelectronic Oscillator with a 100,000 Finesse Etalon as a Photonic Filter", M. Bagnell, J. Davila-Rodriquez, and P.Delfyett, TuC5, IEEE Avionics, Photonics and Fiber Optics (AVFOP), Cocoa Beach, FL (2012).
471. "High Resolution, Chirped Pulse Lidar with Spectral Phase Modulation for Two Fold Improvement in Range Resolution", M. U. Piracha, D. Nguyen and P. J. Delfyett, WA3, IEEE Avionics, Photonics and Fiber Optics (AVFOP), Cocoa Beach, FL (2012).
472. "Low Noise Subpicosecond Pulse Generation from a 22 GHZ AlInGaAs Multiple Quantum Well Laser by Direct RF Modulation", E. Sarailou, A. Ardey and P. J. Delfyett, WD4, IEEE Avionics, Photonics and Fiber Optics (AVFOP), Cocoa Beach, FL (2012).

473. "All-Diode Generation and Amplification of 10 GHz Pulse-Trains from Coupled-Cavity Mode-Locked Lasers Using Slab-Coupled Waveguide Amplifiers", J. Davila-Rodriguez, C. Williams, P. J. Delfyett,WD5, IEEE Avionics, Photonics and Fiber Optics (AVFOP), Cocoa Beach, FL (2012).
474. "Optical and RF Stabilization of a Coupled Cavity Colliding Pulse Mode-Locked Laser via Four-Wave Mixing", A. Ardey, J. Kim, E. Sarailou and P. J. Delfyett, ThB4, IEEE Avionics, Photonics and Fiber Optics (AVFOP), Cocoa Beach, FL (2012).
475. "Measuring the Modulation Properties of Injection-Locked VCSELS Using Coherent Optical Demodulation", S. Bhooplapur, N. Hoghooghi and P. J. Delfyett, ThB5, IEEE Avionics, Photonics and Fiber Optics (AVFOP), Cocoa Beach, FL (2012).
476. "Multiheterodyne Detection for Self-Referenced Characterization of Complex Arbitrary Waveforms from Largely Detuned Optical Frequency Combs", A. Klee, J. Davila-Rodriguez, M. Bagnell and P. J. Delfyett, ThD1, IEEE Avionics, Photonics and Fiber Optics (AVFOP), Cocoa Beach, FL (2012).
477. "Sub-Picosecond, Transform Limited Pulse Generation in Fiber CPA Systems Utilizing Spectral Pulse Shaping with Adaptive Feedback Loop, D. Nguyen, M. U. Piracha and P. J. Delfyett, ThD3, IEEE Avionics, Photonics and Fiber Optics (AVFOP), Cocoa Beach, FL (2012).
478. "Injection-Locked Fabry-Pérot Laser for True Linear Intensity Modulation", E. Sarailou, A. Ardey, N. Hoghooghi and P. J. Delfyett, ThD5, IEEE Avionics, Photonics and Fiber Optics (AVFOP), Cocoa Beach, FL (2012).
479. "Measurement of the Spur-Free Dynamic Range of an Analog Link with a Semiconductor Resonant Cavity Interferometric Linear Intensity Modulator, N. Hoghooghi, S. Bhooplapur, J. Davila-Rodriguez and P. J. Delfyett, ThD6, IEEE Avionics, Photonics and Fiber Optics (AVFOP), Cocoa Beach, FL (2012).
480. "Tunable Optoelectronic Oscillator with 10^5 Finesse Fabry Perot Etalon as a Photonic Filter and Optical Frequency Reference", M. Bagnell, J. Davila-Rodriguez and P. J. Delfyett, MC2, IEEE Photonics Conference (2012).
481. "Simultaneous Measurements of the Optical Phase & Amplitude Modulation of Injection-Locked VCSELs Modulated at GHz Rates", S. Bhooplapur, N. Hoghooghi and P. J. Delfyett, MN5, IEEE Photonics Conference (2012).
482. "Effects of Injection Power and Frequency Detuning on Noise Characteristics of an Injection-Locked VCSEL", N. Hoghooghi, S. Bhooplapur and P. J. Delfyett, MS4, IEEE Photonics Conference (2012).
483. "Injection Locked VCSELs for Microwave Photonic Applications in Analog RF Links and Real Time Arbitrary Waveform Generation", P. J. Delfyett, S. Bhooplapur, N. Hoghooghi and E. Sarailou, TuS1, IEEE Photonics Conference (2012). **(INVITED)**
484. "Direct RF Synchronization of a 22 GHz Monolithic AlInGaAs Quantum Well Laser with Sub-picosecond Pulse Generation", E. Sarailou, A. Ardey and P. J. Delfyett,TuV2, IEEE Photonics Conference (2012).
485. "Self-referenced Spectral Phase Retrieval of Dissimilar Optical Frequency Combs via Multiheterodyne Detection", A. Klee, J. Davila-Rodriguez, M. Bagnell and P. J. Delfyett,WI2, IEEE Photonics Conference (2012).
486. "Comparison of Semiconductor-based, Etalon-Stabilized 10 GHz Frequency Comb Sources", J. Davila-Rodriguez, I. Ozdur and P. J. Delfyett,WI4, IEEE Photonics Conference (2012).
487. "Compensation of Group Delay Ripple in Chirped Fiber Bragg Gratings and its Application in Chirped Pulse Laser Radar", M. U. Piracha, D. Nguyen and P. J. Delfyett, WBB3, IEEE Photonics Conference (2012).
488. "Spectral Pulse Shaping with Adaptive Feedback in Fiberized CPA Systems for Sub-Picosecond, High Contrast Pulses", D. Nguyen, M. U. Piracha and P. J. Delfyett, ThQ5, IEEE Photonics Conference (2012).
489. "Using Injection-Locked VCSELs as Modulators: A Real-Time Experimental Measurement of Optical Phase Amplitude Modulation", S. Bhooplapur, N. Hoghooghi, P. J. Delfyett; FW1D5, Frontiers in Optics 2012, Rochester NY, (2012).
490. "Injection Locked Coupled Cavity Mode-locked Quantum Dot Laser for Coherent Communication", A. Ardey, J. Kim, E. Sarailou1, P. J. Delfyett, FW5E2, Frontiers in Optics 2012, Rochester NY, (2012).
491. "Stabilized Optical Freuency Combs – Techniques and Applications", P. J. Delfyett, 30th Anniversary of the Institute of Ultrafast Spectroscopy and Lasers, The City College New York, Oct 2012. **(INVITED)**
492. "Overcoming Adversity in Research Careers",P. J. Delfyett, IONS, OSA-SPIE International Network of Optics Students, The City College of New York and Columbia University, October, 2012. (**INVITED)**
493. "Injection Locked Diode Lasers Physics & Applications" P. J. Delfyett, AFOSR Workshop on Nonequilibrium Dynamics in Semiconductors, Arje Nachman, Sponsor. **(INVITED).**

494. "Ultrafast Coherent Optical Signal Processing using Stabilized Optical Frequency Combs from Mode-locked Diode Lasers", P. J. Delfyett, Univ. California Santa Barbara ECE Inst for Energy Efficiency Seminar (12/5/12) **(INVITED).**
495. "Ultrafast Coherent Optical Signal Processing using Stabilized Optical Frequency Combs from Mode-locked Diode Lasers" Townes Laser Institute Winter School March 2013 **Invited.**
496. "Optical Frequency Combs using Ultrafast Diode Lasers: Techniques and Applications", P. J. Delfyett, J. Davila-Rodriguez, S. Bhooplapur, C. Williams, A. Klee, CLEO Europe **(Invited)**
497. "Optical Frequency Combs and Their Application in Microwave Photonics and Coherent Signal Processing", Peter J. Delfyett, J. Davila-Rodriguez, A. Klee, S. Bhooplapur, C. Williams, CLEO 2013 **(Invited)**
498. "Absolute Frequency Stability Measurements of a Semiconductor-based, Etalon-stabilized 10 GHz Optical Frequency Comb", J. Davila-Rodriguez and P. J. Delfyett, CLEO (2013)
499. "Dual-Comb Metrology for Semiconductor Optical Frequency Comb Characterization", A. Klee, J. Davila-Rodriguez, C. Williams, and P. J. Delfyett, CLEO (2013)
500. "Photonic Filtering for High-Frequency Optoelectronic Oscillator Operation", M. Bagnell, and P. J. Delfyett
501. "Four-Wave Mixing Mediated Stabilization of an Orthogonally Coupled Monolithic CPM Laser", A. Ardey, E. Sarailou, and P. J. Delfyett, CLEO (2013)
502. **UCF Commencement Speech 50th Anniversary – Peter J. Delfyett,** Graduation Ceremony of the College of Engineering and Computer Science, and The College of Arts and Humanities (2013)
503. "Accurate Self-Referenced Retrieval Algorithm for Dual-Comb Metrology", A. Klee and P. J. Delfyett, Frontiers in Optics (2013)
504. "Frequency Stability of a 10GHz Optical Frequency Comb from a Semiconductor Based Mode-locked Laser with an Intra-cavity 10,000 Finesse Etalon", J. Davila-Rodriguez, K. Bagnell, P. J. Delfyett, Frontiers in Optics (2013)
505. "Low Threshold Supercontinuum Generation in HighlyNonlinear Robust Step-Index Chalcogenide Nanotaper", S. Shabahang, G. Tao, M. P. Marquez, P. J. Delfyett, and A. F. Abouraddy, Frontiers in Optics (2013).
506. "High Frequency Optoelectronic Oscillator Operation via Photonic Filtering with an Ultra-High Finesse Fabry-Perot Etalon" Marcus Bagnell, and Peter J. Delfyett. Frontiers in Optics (2013)
507. "Real-time Spectral Filtering and Interferometric Spectral Phase Compensation in a Feedback Fiberized High Power Chirped Pulse Amplification System", D. Nguyen, M. U. Piracha, M. Bagnell and P. J. Delfyett, Frontiers in Optics (2013)
508. "High Power Pulse Generation in Fiber CPA System via Active Feedback Spectral Compensation", D. Nguyen, M. U. Piracha, M. Bagnell and P. J. Delfyett, IEEE Photonics Society Meeting (2013)

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