Georgeanne Purvinis, Ph. D. Assistant Professor

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Qualifications Summary

Experienced scientist specializing in optics and electromagnetic systems and components across the spectrum including visible, infrared, THz, millimeter, microwave, RF, and acoustic signal propagation. Electronics and Engineering Program Lead at Kauai Community College since 2012.

Teaching Experience

Assistant Professor, Electronics/Engineering ***Kauai Community College, Lihue, HI*** ***August 2012 – Present***

Dr. Purvinis teaches a very broad range of electronics and undergraduate engineering classes including AC/DC and digital electronics, applied optics, CCNA (Cisco Certified Network Associate) classes, programming (C, C#, C++, RISC Assembly, Python), and robotics. Teaches on-line programming classes. Principal investigator of projects funded by NASA, NOAA, DOE, and HDOA, which provide enriched hands-on experiences for students.

Adjunct Lecturer ***University of Texas, Arlington, TX*** ***1998-2004***

Taught graduate level "Advanced Fiber Optic Communication Systems."

Research

Senior Research Scientist ***Battelle Memorial Institute, Columbus, OH*** ***2004-2012***

Additional to TS work, Dr. Purvinis researched a variety of subjects such as resonant photonic devices, quantum cryptography and information processing, design of PPLN devices for entanglement, optical communication components, material breakdown studies, miniature acoustic sensors, polarimetry based sensing of glucose or other optically active materials (live animal study) requiring significant LabVIEW and Matlab programming, ellipsometry, photonic ADCs, photonic/mm wave meta materials, and high speed optical communication systems. Dr. Purvinis also was a program manager for various projects over time such as for a carbon nanotube solar cell project, deep ocean optical inductive connector IRAD project, QKD IRAD project, FSO (Free Space Optical) systems, and SiO_2 deposition project. Dr. Purvinis is proficient with solid state lasers, mode-locked Ti:Saph, CO_2, semiconductor lasers and detectors, fiber optic lasers, clean room processes, and associated test equipment for electronic, RF, micro- and milli-meter waves, and optical operation, trouble shooting, and testing.

Telecommunications Product Development Engineer ***Tellabs (Marconi, Reltec), Bedford, TX*** ***1995-1998***

Awarded four patents. Responsible for the design and specification of telecommunication access systems that deliver high speed data, POTS, and analog CATV and digital QAM or QPSK satellite video using multiple wavelengths over various optical fiber systems (FTTH, FTTC, FTTx) with emphasis on 1550nm transport. Proficient with network analyzers, CATV analyzers, OTDRs, single and mass fusion splicers, optical spectrum analyzers, and interferomic microscopes for connector inspection.

Graduate Research Assistant ***University of Texas, Arlington, TX*** ***1998-2004***

Researched topics in anisotropic materials and nonlinear optics.

Gap in employment devoted to family ***1990-1995***

Engineer ***Lockheed Martin, Orlando, FL*** ***1986-1990***

Designed ASICS and tested microwave telemetry systems.

Electronic Technician ***Repco Inc., Orlando, FL*** ***1983-1984***

Tested CB radios and fabricated PC boards.

Education

Ph.D. (Electrical Engineering), University of Texas at Arlington.

"Theory and experiment of linear and nonlinear optical media and waveguides with anisotropy and dichroism," 2004.

M.S.E.E., University of Central Florida.

"Analysis of Asymmetric Microwave Striplines using Method of Moments."

B.S.E.E., University of Central Florida.

Service Activities

Principal Investigator/Program Manager for grant funded KCC Apiary Projects since 2014.
Committees: Assessment Committee, Health and Wellness Committee

Other Professional Activities

Patents

- US Patent number 7,218,817. Nonlinear Optical Guided Mode Resonance Filter. Granted 5/15/2007.
- US Patent number 6,466,728. Attenuator for Fiber Optic Cables. Granted 10/15/2002.
- US Patent number 6,427,045. Splice tray for use in splicing fiber optic cables and housing therefore. Granted 7/30/2002.
- US Patent number 6,366,717. Apparatus for distribution of optical fiber transmission paths. Granted 4/2/2002.
- US Patent number 6,366,712. Apparatus and method for combining two separate RF signals on a single optical fiber with monitoring and alarm capabilities. Granted 4/2/2002.

Selected Publications and Presentations

- L. Oesterling, D. Hayford, G. Friend (Purvinis), "Comparison of commercial and next generation quantum key distribution: Technologies for secure communication of information," Homeland Security (HST), 2012 IEEE Conference on Technologies for, 13-15 November 1012, Waltham, MA.
- Thomas Galford, Georgeanne Purvinis, "A Plea for the Standardization of Underwater Connectors," OCEANS 2011-MTS/IEEE Kona, September 22, 2011, Waikoloa, HI.
- Georgeanne Purvinis, Brent D. Cameron, Douglas M. Altrogge, "Noninvasive Polarimetric-Based Glucose Monitoring: An in Vivo Study," Journal of Diabetes Science and Technology, March 2011, Volume 5, Issue 2: pages 380-387.
- Christopher Baer, Mark Alten, Greg Bixler, Lee Fredette, Jason Owens, Georgeanne Purvinis, Jason Schaefer, Gabe Stout, "Non-contact Wet-mateable Connector", OCEANS 2009, MTS/IEEE Biloxi - Marine Technology for Our Future: Global and Local Challenges.
- G. Purvinis, S. Krak, C. Baer, J. Labosky, "Global Deep Ocean Sensor Network on Submarine Cables", OCEANS 2008 - MTS/IEEE Kobe Techno-Ocean, April 8, 2008., Kobe, Japan.
- G. Purvinis and T. Maldonado, *Chapter 13: Electro-Optic Modulators, The Handbook of Optics, Volume 1*, Third Ed, McGraw-Hill, 2010.
- G. Purvinis, P. Priambodo, M. Zhou, M. Pomerantz, T. Maldonado, R. Magnusson, "Second-harmonic generation in resonant waveguide gratings incorporating ionic self-assembled monolayer polymer films," Optics Letters, 29, May 2004, 1108-1110.
- G. Purvinis, T. Maldonado, M. Pomerantz, T. Black, N. Dallas, M. Zhou, M. Sudduth, M. Rege, "ISAMS: Fabrication and characterization of planar waveguide nonlinear devices," presented at Conference on Lasers and Electro-Optics (CLEO), June 3, 2003, Baltimore, MD.
- Le, Kevin; Maldonado, Theresa; Pomerantz, Martin; Zhou, Ming; Punyapu, Ajay; Purvinis, Georgeanne; Dallas, Natalya, "ISAM films deposited on fiber core, potential for photonic applications," Frontiers in Optics (FiO) 2003 paper: WX2.
- M. Pomerantz, T. Maldonado, T. Black, D. Johnson, L.Waller, G. Purvinis, M. Sudduth, "Ionic Self-Assembled Thin Films for Second Order NLO Applications," Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.) 2002, 43(No. 2) 562-563.

Miscellaneous

- Licensed Amateur Radio Extra Class - AH6UH , Licensed Private Pilot SEL VFR