

CHRISTOS G. CHRISTODOULOU
IEEE Fellow
Distinguished Professor of Electrical and Computer Engineering

Associate Dean for Research
School of Engineering
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EDUCATION Ph.D. Electrical Engineering- May 1985, North Carolina State University
 M.S. Electrical Engineering - Dec. 1981, North Carolina State University
 B.S. Physics and Math- May 1979, American University in Cairo

RESEARCH INTERESTS: Wireless Communications, numerical techniques in electromagnetics, smart antennas, neural network and machine learning applications in electromagnetics, Cognitive Radio, Reconfigurable antennas, RF/Photonic antennas, and high power microwave antennas.

PROFESSIONAL EXPERIENCE

April 2014- present	Associate Dean for Research, School of Engineering, University of New Mexico
Jan 2012- April 2014	Director for COSMIAC, University of New Mexico
July 2005- present	Professor, University of New Mexico
Jan 99- July 2005	Professor and Chair of ECE Department, University of New Mexico
Fall 96 - Fall 98	Professor, University of Central Florida
Fall 93- Fall 95	Associate Chair, ECE Department, University of Central Florida
Summer 1994	Acting Chair, ECE Department, University of Central Florida
Summer 1993	Acting Chair, ECE Department, University of Central Florida
1993-1996	Director of Honors Program, College of Engineering, Central Florida
1990-1996	Associate Professor at the University of Central Florida
Summer 90	Research Fellow, NASA Langley Research Center
1985-1990	Assistant Professor at the University of Central Florida

PROFESSIONAL MEMBERSHIP

- Fellow Member of the IEEE
- Member of International Union of Radio Science (URSI) Commission B.
- Member of the IEEE, Antennas and Propagation Society.
- Member of the IEEE, Microwave Theory and Techniques Society.
- ASEE Member
- Member of HKN and Tau Beta Pi

UNIVERSITY ACTIVITIES

Courses Taught

- 1) Introduction to Electrical Engineering
- 2) Principles of Electrical Engineering
- 3) Electrical Circuits and Devices
- 4) Electric Networks
- 5) Engineering Honors Seminar
- 6) Basic Electromagnetics
- 7) Microwave Engineering (New course at UNM)
- 8) Antennas I

- 9) Antennas II
- 10) Fiber Optics
- 11) Advanced Electromagnetics
- 12) Microwave Solid State Devices
- 13) Numerical Techniques in Electromagnetics (new course at UNM)
- 14) RF Electronics (new course at UNM)

CONSULTING ACTIVITIES

Martin Marietta (Orlando)
MITRE Corporation (Massachusetts).
Sy Corporation (Alabama)
SeaSpace Corp. (California)
Virtual EM (Michigan)
E-systems (Tampa)
Lockheed-Martin (Texas)
Air Force Philips Research Lab
K&W Wireless
TPL

PUBLICATIONS

Journals

- 1) Christodoulou C.G. and J.F. Kauffman, "On an Algorithm for the Analysis of the radiation Patterns of Dual Reflector and Segmented Reflector Antennas", *IEEE Transactions on Antennas and Propagation*, vol. AP-33, pp. 1101-1108, October 1985
- 2) Christodoulou C.G. and J.F. Kauffman, "On the Scattering of Electromagnetic Waves from Infinite Rectangular Conducting Grids", *IEEE Transactions on Antennas and Propagation*, vol. AP-34, pp. 144-154, February 1986.
- 3) Christodoulou C.G. and R.J. Middelveen, "On the Application of the Secant Method to the Spectral Iterative Approach", *Applied Computational Electromagnetics Society Journal*, vol. 3, No. 1, pp. 103-119, Spring 1988.
- 4) Christodoulou C.G., P.K. Kwan, R. Middelveen and P. F. Wahid, "Scattering from Stacked Gratings and Dielectrics for Various Angles of Wave Incidence", *IEEE Transactions on Antennas and Propagation*, vol. 36, pp. 1435-1442, October 1988.
- 5) Christodoulou C.G., S.X. Yin and J.F. Kauffman, "Effects of the Schottky Impedance of Wire Contact-Points on the Reflection Properties of a Mesh", *IEEE Transactions on Antennas and Propagation*, vol. 36, pp. 1714-1721, December 1988.
- 6) Christodoulou C.G., R.J. Middelveen and J.F. Kauffman, "Scattering from Periodic strip gratings Via the Secant-Spectral Iterative Method", *IEEE Transactions on Antennas and Propagation*, vol. 37, pp. 407-410, March 1989.
- 7) Yin S.X., C.G. Christodoulou and M. Hamid, "Radiation Pattern of a Test Reflector Antenna from Near Field Measurements over the Focal Region of a coupled Lens or Offset Reflector", *IEEE Transactions on Antennas and Propagation*, vol. 37, pp. 794-796, June 1989.
- 8) Shi X. and C.G. Christodoulou, "Microwave Properties of Cascaded Arbitrarily Oriented Metallic Gratings and of Gratings Cascaded with Lossy Dielectric Slabs", *Journal of Electromagnetic Waves and Applications*, vol. 4, No. 6, pp. 521-531, 1990.
- 9) Dunn D.S, G.L. Dunn and C.G. Christodoulou, "A Simple X-Band Waveguide-to-Microstrip E-Probe Transition", *Microwave and Optical Technology Letters*, vol. 3, no. 5, pp. 172-175, May 1990.

- 10) Uhing J., Thomas S. and C.G. Christodoulou, "A Statistical Approach for Calculating the Concatenated Connector Loss in Fiber-Optic Links", *Microwave and Optical Technology Letters*, vol. 3, no. 8, pp. 290-294, August 1990.
- 11) Burns H.N., C.G. Christodoulou and G.D. Boreman, "Design of a Pulsed Laser Rangefinder Receiver", *Optical Engineering Journal*, vol. 30, no. 3, pp. 323-329, March 1991.
- 12) Murphy R.A., C.G. Christodoulou and R.L. Phillips, "Electromagnetic Scattering from a Finite Cylinder with Complex Permittivity", *Journal of Electromagnetic Waves and Applications*, vol. 5, No. 9, pp. 983-996, 1991.
- 13) Nguyen Cam and C.G. Christodoulou, "On the Analysis of Microwave MESFET Mixers", *Microwave and Optical Technology Letters*, vol. 4, no. 8, pp. 307-311, July 1991.
- 14) Johnson E.G. and C.G. Christodoulou, "Electromagnetic Scattering by Aperiodic Strip Gratings", *Journal of Electromagnetic Waves and Applications*, vol. 6, No. 2, pp. 219-234, 1992.
- 15) P.F. Wahid, C.G. Christodoulou, and K.A. Rutkowski, "Radiated Fields of Microstrip Patch at Arbitrary Angular Positions", *Microwave and Optical Technology Letters*, vol. 5, no. 1, pp. 7-10, Jan. 1992.
- 16) Nguyen Cam and C.G. Christodoulou, "An Efficient Implementation of the Harmonic Balance Technique for Solving Nonlinear Microwave Problems", *International Journal of Infrared and Millimeter Waves*, vol. 13, no. 5, May 1992
- 17) Durham T. E. and C.G. Christodoulou, "Electromagnetic Radiation From Structures Consisting of Combined Body of Revolution and Arbitrary Surfaces", *IEEE Transactions on Antennas and Propagation*, pp. 1061-1067, Sept. 1992.
- 18) Murphy R.A., C.G. Christodoulou, and R.L. Phillips, "Bistatic Scattering from a Finite Lossy Cylinder", *Microwave and Optical Technology Letters*, vol. 6, no. 1, pp. 76-81, Jan. 1993.
- 19) Christodoulou C. G. and W. S. Arceneaux, "On the Evaluation of an Indoor Far-field Conductive Chamber", *Journal of Electromagnetic Waves and Applications*, vol. 7, No. 2, pp. 247-262, 1993.
- 20) Christodoulou C.G. and J. C. Schmidt, "Some Focusing Properties of Chirped Gratings at Microwave Frequencies", *Microwave and Optical Technology Letters*, vol. 6, no. 8, pp. 507-512, June 1993.
- 21) Christodoulou C.G. and C.D. Cook, "Analysis of Electrically Small Hyperbolic Subreflectors Utilizing the Geometrical Theory of Diffraction", *Journal of Electromagnetic Waves and Applications*, vol. 7, No. 7, pp. 987-1004, 1993.
- 22) Christodoulou C.G., "Electromagnetic Scattering from Skew-Symmetric Metallic Grids", *Journal of Electromagnetic Waves and Applications*, vol. 6, no. 13, pp. 777-782, October 1993.
- 23) Ho C.S, J. J. Liu, M. Georgiopoulos, G. L. Heileman, and C.G. Christodoulou, "Analog Circuit Design and Implementation of an Adaptive Resonance Theory (ART) Neural Network Architecture", *International Journal of Electronics*, vol. 76, no. 2, pp. 271-291, 1994.
- 24) Durham T. E. and C.G. Christodoulou, "A Method for Treating Junctions between Bodies of Revolution and Arbitrary Surfaces", *IEEE Transactions on Antennas and Propagation*, vol. 42., no. 2, pp. 213-219, Feb. 1994.
- 25) Christodoulou C. G, and F. N. Grey, "Scattering from Metallic Gratings made of Various Conductivity Profile", *Journal of Electromagnetic Waves and Applications*, vol. 8, No. 2, pp. 205-220, 1994.

- 26) Christodoulou, C. G., J. Huang, M.G. Georgiopoulos, and J.J. Liou, "On the Application of a Neural Network in the Design of Cascaded Gratings", *Microwave and Optical Technology Letters*, vol. 8, no. 4, pp. 171-175, March 1995.
- 27) Christodoulou, C. G., J. Huang, M.G. Georgiopoulos, and J.J. Liou, "Design of Gratings and Frequency Selective Surfaces Using ARTMAP Neural Networks", *Journal of Electromagnetic Waves and Applications*, vol. 9, No 1-2, pp. 17-36, Feb. 1995.
- 28) Durham T. E. and C.G. Christodoulou, "Integral Equation Analysis of Dielectric Bodies of Revolution in the Presence of Arbitrary Surfaces", *IEEE Transactions on Antennas and Propagation*, vol. 43., no. 7, pp. 674-680, July 1995.
- 29) Buris N.E, C.G. Christodoulou, and J.F. Kauffman, "Focal Region Fields of Distorted Reflectors", *IEEE Transactions on Antennas and Propagation*, vol. 43, no. 12, pp. 1478-1482, Dec. 1995.
- 30) Ho C.S, J. J. Liu, M. Georgiopoulos, and C.G. Christodoulou, "A Mixed Analog/Digital VLSI Design and Simulation of an Adaptive Resonance Theory (ART) Neural Network Architecture", *Computer Simulation*, vol. 66, n. 1, pp. 31-39, Jan. 1996
- 31) Dogariu A., G.D. Boreman, C. G. Christodoulou, and D. Kotter, "Dipole-on-Dielectric Model for Infrared Lithographic Spiral Antennas", *Optics Letters*, pp. 309-311, March 1996.
- 32) Ely J., C. G. Christodoulou, "Optimizing Spiral Antenna Performance with Conductive Plane Backing and Choice of Dielectric Material", *Microwave and Optical Technology Letters*, vol. 12, no.4, pp. 183-187, July 1996.
- 33) Boreman G. D., A. Dogariu, C. G. Christodoulou, and D. Kotter, "Modulation Transfer Function of Antenna-Coupled Infrared Detector Arrays", *Applied Optics*, July 1996.
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- 35) Liu Youcheng, C. G. Christodoulou and N.E. Buris, "Analysis of Frequency Selective Surfaces on Ferrite Substrates", *Journal of Electromagnetic Waves and Applications*, vol. 11, pp. 593-607, 1997.
- 36) Gomez-Tagle J. and C.G. Christodoulou, "Bandwidth Enhancement for Stacked Concentric Ring Microstrip Antennas", *IEEE Transactions on Antennas and Propagation*, vol. 45, no. 11, pp. 1626-1635, Nov. 1997
- 37) El Zooghby A., C. G. Christodoulou, and M. Georgiopoulos, "Performance of Radial Basis Function Networks for Direction of Arrival Estimation with Antenna Arrays", *IEEE Transactions on Antennas and Propagation*, vol. 45, no. 11, pp. 1611-1617, Nov. 1997.
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- 39) El Zooghby A., C.G. Christodoulou and M. Georgiopoulos, "Neural Network-based Adaptive Beamforming for one and two Dimensional Antenna Arrays", *IEEE Transactions on Antennas and Propagation*, Dec. 1998.
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- 41) Turner G. M. and C.G. Christodoulou, "FDTD Analysis of Periodic Phased Array Antennas", *IEEE Transactions on Antennas and Propagation*, pp. 661-667, April 1999.

- 42) El Zooghby A., C.G. Christodoulou and M. Georgiopoulos, "A Neural-Network-based Linearly Constrained Minimum Variance Beamformer", *Microwave and Optical Technology Letters*, pp. 451-455, June 1999.
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- 44) El Zooghby A., C.G. Christodoulou and M. Georgiopoulos, "A Neural Network-based Smart Antenna for Multiple Source Tracking", *IEEE Transactions on Antennas and Propagation*, vol. 48, no. 5, pp. 768-776, May 2000.
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- 46) Gomez-Tagle, M.T. Chryssonallis and C.G. Christodoulou, "FDTD analysis of finite-sized linear phased arrays of stacked microstrip Arrays", *Electrical Engineering, Springer-Verlag*, vol. 83, no. 3, pp. 123-128, 2001.
- 47) Joler M. and C. G. Christodoulou, "Laboratories Accessible Through the Internet", *IEEE Microwave Theory and Techniques Magazine*, vol. 2, pp. 99-103., Dec. 2001.
- 48) Qian J., R. P. Joshi, K. H. Schoenbach,, M. Laroussi, Edl Schamiloglu, and C . G. Christodoulou, "Percolative Model Of Electric Breakdown In Liquid Dielectrics", *IEEE Special Issue on Trans. Plasma Science*, vol. 30, no. 5, pp. 1931-1938, Oct. 2002
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- 52) Gomez-Tagle J. and C. G. Christodoulou, "FDTD Analysis of Finite Phased Arrays of Stacked Microstrip Antennas", *IEEE Transactions on Antennas and Propagation*, vol. 51, no. 8, pp. 2057-2062, Aug. 2003
- 53) C. Christodoulou (editor), "*Applied Computational Electromagnetics Society Journal*". Volume 18, Number 2. Special Issue on Neural Network Applications in Electromagnetics, July 2003
- 54) Tzeremes G., T.S. Liao, P.K. L. Yu, and C. G. Christodoulou, "Computation of Equivalent Circuit Models of Optically Driven CPW Fed Slot Antennas for Wireless Communications", *IEEE Antennas and Wireless Propagation Letters*, vol. 2, no. 10, pp. 140-142, 2003.
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- 56) Karr B. A., T.E. Durham, M.T. Chryssomallis, J.A. Kralovec, G.K. Gothard and C.G. Christodoulou, "Integral Equation Analysis and Investigation of a Broadband Cavity-Backed Array Antenna", *IEEE Transactions on Antennas and Propagation*, vol. 52, no. 7, pp. 1913 – 1916, July 2004.
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- 60) Tzeremes G., P.Kirawanich, C. G. Christodoulou, and N. E. Islam, "Transmission lines as radiating elements in aperture interactions for electromagnetic topology simulations", *IEEE Antennas and Wireless Propagation Letters*, vol. 3, no. 15, pp. 283-286, 2004.
- 61) Patnaik A., D. Anagnostou, C.G. Christodoulou, and James C. Lyke, "Modeling frequency reconfigurable antenna array using neural networks", *Microwave and Optical Technology Letters*, February 2005.
- 62) Kirawanich, P., G. Tzeremes, C.G. Christodoulou, S. Joe Yakura, and N.E.Islam, "Electromagnetic Wave Penetrating Through Apertures; Comparison of Electromagnetic Topology Technique with FDTD Method", *IEEE Antennas and Wireless Propagation Letters*, vol. 4, pp. 151 – 154, 2005.
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- 382) Youssef Tawk, Michel Chahoud, Marwan Fadous, Elias Hanna, Joseph Costantine, Firas Ayoub, and Christos G. Christodoulou, "3D Printed Miniaturized Quadrifilar Helical Antenna", *ICEAA*, Cairns, Australia, Sept. 2016.

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G.D. Boreman, I. Codreanu, C. Fumeaux, M. Gritz, C. Christodoulou, " *Wavelength-tunable coupled antenna uncooled infrared (IR) sensor*", US Patent 6,310,346 (2001)

G.D. Boreman, A. Dogariu, C. Christodoulou, C. Fumeaux, " *Polarization-tunable antenna-coupled infrared detector*", US Patent #6,037,590 (2000)

Anagnostou, and C. Christodoulou , " *Reconfigurable Multifrequency Antennas with RF MEMS Switch*", US Patent #7,589,674

Marwan S. Al-Haik, Christos G. Christodoulou, Claudia C. Luhrs, Jonathan Phillips, " *Processing and Simulation of Hybrid Composite as Electromagnetic Shielding Material*",

Sameer D. Hemmady, Ganesh Balakrishnan, Christos G. Christodoulou, and Youssef Tawk, " *Optically Pumped Reconfigurable Antenna Systems (OPRAs)*"

Olga Lavrova, Christos Christodoulou, Ganesh Balakrishnan , and Sang Han, " *Multi-Source Optimal Reconfigurable Energy Harvester*" (STC Ref. 2012-052)

Tawk, Christodoulou and Costantine, " *Reconfigurable Filtenna*" (STC ref. No. 2012-068-01)

Costantine, Tawk, Atwood, Christodoulou, Rivera " *Detection of Failures in Switch Reconfigurable Antenna Arrays Using Embedded Sensing Lines*", (STC Ref. No. 2012-079-01).

Anthony Ernest and Christos Christodoulou, " *A Deployable Bottom Fed Conical Log-Spiral Antenna Design for CubeSat Applications*" (STC ref. 2012-106)

Costantine, Tawk and Christodoulou, " *Reconfigurable Elevation and Controlled Tilt (REaCT) Antenna*" (STC ref. 2013-019).

Tawk, Costantine, and Christodoulou, " *A Modified Quadrifilar Helix Antenna*", STC Ref 2017-016

BOOKS:

1. ***“Neural network applications in electromagnetics”***, Christodoulou and Georgiopoulos, Artech House, Jan. 2001
2. ***“Antennas: Fundamentals and Concepts”***, Christodoulou and Wahid, SPIE, August 2001
3. ***“Support Vector Machines for Adaptive Antenna Array Processing and Electromagnetics”***, Martinez-Ramon and Christodoulou, Morgan & Claypool, October 2006.
4. ***“Radio Wave Propagation and Adaptive Antennas for Wireless Communication Links: Terrestrial, Atmospheric and Ionospheric”***, Blaunstein and Christodoulou, John Wiley, October 2006.
5. ***“Reconfigurable Antennas: Design, Optimization and Analysis Using Graph Models”*** Costantine, Tawk, and Christos Christodoulou, Morgan & Claypool , 2013
6. ***“Radio Propagation and Adaptive Antennas for Wireless Communication Networks”***, Blaunstein and Christodoulou, John Wiley, May 2014.
7. ***“Antenna Design for Cognitive Radio”***, Tawk, Costantine and Christodoulou, Artech House, June 2016
8. ***“Introduction to Radio Engineering”***, Blaunstein, Christodoulou, Sergeev, CRC Press, to appear end of September 2016

BOOK CHAPTERS:

- 1) “Adaptive Interference Cancellation with Neural Networks” in *Wireless Personal Communications: Emerging Technologies for Enhanced Communications*, The Kluwer International Series in Engineering and Computer Science., by El Zooghby A. H., C. G. Christodoulou, and M. Georgiopoulos, 1998
- 2) “Antennas” in *John Wiley Encyclopedia of Electrical and Electronics Engineering*, by C. G. Christodoulou and P. F. Wahid, vol. 1, pp. 563-572, 1999.
- 3) “Applications of Neural Networks in Smart Antennas for Mobile Communications”, by C. G. Christodoulou, M. Georgiopoulos and A.H. El Zooghby, *in Applied Computational Intelligence*, Mary Lou Lou Padgett Nicolaos B. Karayiannis (eds). CRC Press, LLC, Jan. 2000.
- 4) “Antenna Radiation Patterns” in *John Wiley Encyclopedia of Electrical and Electronics Engineering*, by M. Chryssomallis and C. G. Christodoulou , 2001
- 5) “Finite Difference Time Domain Methods: Numerical Methods of Antenna Design” in *Handbook on Antennas in Wireless Communications*, by Atef Elsherbeni , C. G. Christodoulou, and Javier Gomez Tagle. CRC Press, chapter 7, 2001
- 6) “Antennas for Mobile Communications”, in *Wiley Encyclopedia of Telecommunications*, editor John Proakis, John Wiley & Sons, Inc., by M. Chryssomallis and C. G. Christodoulou, April 2003.
- 7) “Antenna Radiation Patterns” in *John Wiley Encyclopedia of of RF and Microwave Engineering*, by M. Chryssomallis and C. G. Christodoulou , 2004
- 8) “Antennas” in *John Wiley Encyclopedia of of RF and Microwave Engineering* , by C. G. Christodoulou and P. F. Wahid, 2004

- 9) "Comparison of Kernel Method for Smart Antenna Array Processing", in *Kernel methods in bioengineering, communications and image processing*, C. Christodoulou, M. Martínez-Ramón, edited by G. Camps-Valls, J. L. Rojo- Álvarez, M. Martínez-Ramon. Idea Group, 2006.
- 10) "Smart Antennas: Arrays, Adaptive Arrays and Algorithms", in *Modern Antenna Handbook*, by C. G. Christodoulou and J. Tsoulos, Wiley Interscience, 2008.
- 11) "Neural Networks for Antennas", in *Modern Antenna Handbook*, by C. G. Christodoulou and A. Patnaik, Wiley Interscience, 2008.
- 12) "Kernel Methods for Smart Antennas", M. Martínez-Ramón, A. Navia-Vázquez, R. Jordán and C. G. Christodoulou, in *Intelligent Systems: Techniques and Applications*, Shaker Publishing, Netherlands, 2008.
- 13) M. Al-Husseini, K. Kabalan, Ali El-Hajj and C. G. Christodoulou , "Cognitive Radio: UWB Integration and Related Antenna Design", in *New Trends in Technologies: Control, Management, Computational Intelligence and Network Systems*, Book edited by: Meng Joo Er, ISBN: 978-953-307-213-5, Publisher: In Tech, Publishing date: November 2010
- 14) M. Al-Husseini, K. Kabalan, Ali El-Hajj and C. G. Christodoulou, " Reconfigurable Microstrip Antennas for Cognitive Radio", in *Advancement in Microstrip Antennas with Recent Applications*, pp. 337-368, InTech 2013.
- 15) J. Costantine, Y. Tawk and C. G. Christodoulou, "Reconfigurable Antennas and their Applications", in the *Handbook of Antenna Technologies*, edited by Zhi Ning Chen, Springer, 2015.
- 16) "Antennas" in *John Wiley Encyclopedia of Electrical and Electronics Engineering*, by C. G. Christodoulou, P. F. Wahid, and M. T. Chryssomallis, 2015.
- 17) "Antenna Radiation Patterns" in *John Wiley Encyclopedia of Electrical and Electronics Engineering*, by M. T. Chryssomallis and C. G. Christodoulou , 2015

SHORT COURSES:

- "*Neural Network Applications in Antennas*", IEEE APS/URSI Symposium Atlanta , June 1998.
- "*Smart Antennas* ", IEEE Conference on Antenna and Propagation for Wireless Communications, Waltham, MA, Nov. 2000.
- "*Phased Arrays and Multibeam Antennas for Wireless* ", IEEE Conference on Phased Arrays Systems and Technology 2003, Waltham. MA, Oct. 2003.
- "*Phased Arrays and Multibeam Antennas for Wireless* ", IEEE Conference on Antennas and Propagation, Monterrey CA, June 2004.
- "Applications of Artificial Neural Networks to Antenna Design and Analysis", IASTED Conference on Antennas, Propagation, and Radar, Banff, Canada, July 2004
- "*Neural Networks and their Applications to Electromagnetic Modeling*", IEEE/ACES Conference, Hawaii, April 2005.
- "*Antenna Design and Challenges in Cognitive Radio*",_IEEE Conference on Antennas and Propagation,, Chicago, July 2012
- "*Antennas in Cognitive Radio Applications*", European Conference on Antennas and Propagation, April 2013, Sweden

GRANTS AWARDED

A **NASA** grant entitled "Large Reflector Antenna Study", August 1985 to July 31, 1986. (\$ 40,000). Langley Research Center, Hampton, VA.

An "**In House Research Program**" grant from UCF entitled "Electromagnetic Scattering from Skew-Symmetric Metallic Grids", Summer 86.(\$ 5,000).

A **CREOL** Research entitled "A Hybrid-optical computer for controlling the amplitude and phase of a phased array antenna", covering a period of time from January to May 1987 (\$ 7,904).

A **FHTIC** grant entitled "Neural Network-based Adaptive Array Antennas" for Jan. 1 1990 - Dec. 1993 (\$ 126,431).

A **Martin Marietta** grant to support work in "Neural network-based adaptive sensor arrays", Jan 1990 (\$ 10,000).

A **UCF/EIES** grant entitled "Investigation of A Circular Array of Microstrip Patch Antennas" for Jan. 1 to June 30, 1990 (\$ 17,797).

A **NAVY** grant entitled "Tactical Electronics Test Simulation System Project. Phase I: Requirements Analysis and Feasibility Assessment", for Aug. 1990 to May 1, 1991 (\$460,000).

A **NAVY** grant entitled "Tactical Electronics Test Simulation System Project. Phase IIa : Analysis", for May 1 to August 30, 1991 (\$ 200,000).

A **FHTIC** grant entitled "Neural Network-based Adaptive Array Antennas", for Jan 1 1991 - December 1993 (\$106, 431).

A **DSR**-(Special program) grant entitled "Neural Technology and Applications", July, 1992 (\$5,000).

A **Navy Training Systems Center** grant entitled, "NTSC Technology Transfer Project", for Jan. 93 to May 93 (\$12,000).

A **NASA** grant entitled, "Analysis of Magnetic Field Levels at Kennedy Space Center", \$50,000, for August 1993- August 1994.

A **Harris Co.** grant to support work in "Neural network-based applications", 1993 (\$10,000)

A **Florida Tech. Research Investment Fund** award entitled "Neural Network-based Adaptive Sensor Systems", for Jan 1 to Dec. 31, 1994 (\$25,000).

A **UCF Strategic Planning** award entitled, "UCF High Technology Transfer Incubator for Undergraduate Education", for the A.Y 94-97 (\$ 33,000).

A **DOD/NAVY/NAWCTSD** grant entitled, "NAWC(TSD) Technology Transfer Project", 1994 - 1996(\$23,990).

A **Spaceport Florida Authority** grant entitled "Design of a Microstrip Antenna Array for a Direct Broadcast Satellite Receiver", for 95-97, (\$40,000).

A **Spaceport Florida Authority grant** entitled, "Definition of University/Community College Role By Identification of Florida's Space-Related Academic Capabilities and Involvement in the Customer Service Center Development at Cape Canaveral Air Station", Summer 95, (\$2,500).

A **Lockheed/Idaho Technologies** grant entitled, "Cross Analysis for Infrared Microantenna Arrays", Summer 95, (\$24,929).

A **Harris Corporation** donation of microwave and antenna equipment worth \$129,702 in 1995.

A **NASA** grant entitled, "A Study for a Bistatic Radar System as a Wind Profiler at KSC", July 96-April 97 (\$25,000).

A **NASA** grant entitled "A low loss Microstrip Antenna for Radiometric Applications", April 97- April 99 (\$126,000).

An **Raytheon/E-Systems** grant entitled "Active impedance simulation for stacked microstrip array antennas", April 97- April 99 (\$65,000).

A **Neural Ware** software grant entitled "Neural Computing at the University of Central Florida", 1997-1998 (\$94,950).

A **Sandia National Laboratory** grant entitled "Ground Penetrating Radar", May-September 1999 (\$40,000).

An **AFOSR** grant entitled "VSSE Research Support for Chalcogenide-based Materials", July-Sept. 99 (\$34,737).

An **AFOSR** grant entitled "Radiation Effects on Space Based Opto-electronic Materials and Devices", 10/01/1999-9/30/2001, (\$420,810), with Omar Manasreh.

A **DARPA** (under a sub-contract with the Albuquerque High Performance Computing Center), entitled "Wireless networking", for the year 2000. Co-principal Investigators: C.T. Abdallah, G.L. Heileman, and C. Christodoulou, (\$100,000)

A **Sandia National Laboratory** contract entitled "Broadband Antennas for DQW PAT FIR Detectors", for 2000-2001, (\$30,000).

A **Mission Research Corporation** grant entitled, "Exploitation of Chalcogenide Materials for Analog Electronic Applications", 9/01/2000-7/15/2001, (\$27,748)

"A Study of the evolution of Capture Cross Sections of Irradiation-Induced Defects at Near the Si-SiO₂ Interface", subcontract from **Prairie View A&M University**, 3/1-8/3/2000, (\$15,000) with Art Edwards

An **AFOSR-MURI** grant entitled "Basic Research Leading to Compact Portable Pulsed Power", June 2001-June 2006, (\$5 million), with Edl Schamiloglu

A **Ball Aerospace** contract entitled "Satellite Communications", May 15-December 30, 2001, (\$99,000)

A **Mission Research Corporation** grant entitled, "Space Electronics Modeling, Development, and Experimentation", 9/01/2000-7/15/2005, (\$320,000)

Medview contract "3-D simulation Tool", (2001-2002), (\$120,000)

An **NSF** grant entitled, "Smart RF/Photonic Antennas" for Ultra-High Capacity Wireless", 9/01/2001-9/1/2005, (\$173,000)

A **Sandia National Laboratory** contract entitled "Modeling and Analysis of RF/Microwave Components and sub-circuits for an L-Band Radar" for 2002-2003, (\$35,736)

A **Mission Research Corporation** grant entitled "BADGERS-UNM-5" 12/01/2002-06/30/2003,

(\$15,000)

HP Mobility Grant (\$127,000), R. Jordan, C. Christodoulou, C. Abdallah, M. Pattichis., HP Univ. Mobile Technology Extension Grant ID.

HP Mobility Grant II (\$ 120,000), R. Jordan, C. Christodoulou, C. Abdallah, M. Pattichis, HP Univ. Mobile Technology Extension Grant ID

A **Sandia National Laboratory** contract entitled “Modeling and Analysis of RF/Microwave Components and sub-circuits for an L-Band Radar” for 2003-2004, (\$49,000)

A **Sandia National Laboratory** contract entitled “Modeling of Photonic Band gap structures” for 2004-2006, (\$100K)

An **AFRL** contract entitled "Assessing Performance and Dysfunction of Computer Networks" (7/2004-7/2005) \$99,352

An **NSF** grant entitled "Improving Graduation Rates of Financially Needy Engineering, Computer Sciences, and Mathematics Students through Scholarships, and Academic and Professional Preparation," with Elsa Castillo, Steven A. Peralta. (Oct. 1 ,2004- Sept. 30, 2008) for a total of \$394,268.

A **DTRA** contract entitled “High Power Electromagnetic (HPEM) Threat Analysis”, for July 2004-MAy 2006 (\$475,000)

An **NSF** Major Research Instrumentation grant entitled “Acquisition of Process Equipment for Bio-MEMS Research, Training and Commercialization”, with J.E. Wood, H.T. Weaver, J. Chen, and J.C. Heinrich , 2005 (\$620,000)

A **Virtual EM Inc** contract “Development of Novel Knowledge-based Space time Adaptive Processing (STAP) techniques using Support Vector Machines”, 8/01/05-8/06 (\$40,000).

An **ATK** contract, “New Technology for Space Applications”, 7/1/05-31/05/06 (\$80,000)

A **Los Alamos** contract, “Switch Blade” , 10/1/05- 09/30/07 (\$61,000)

An **AFRL- BAA VS-05-01**” award, “Reconfigurable Parallel Computer Architectures for Space Applications”, 2005-2012 (\$3.4 M) with Pattichis.

ONR- BAA "Directed Energy Microwaves for the Remote Destruction of IED's", April 2006 - March 31 2009, (\$1.2 M) with Schamiloglu and Gilmore.

An **ADTI** contract “Education and Research in FPGAs for Space Applications”, June 2, 2006 through February 28, 2007 (\$59,962).

An **AFOSR** grant, “Modeling and Prototyping UWB antennas for bio-electromagnetic effects”, 4/1/06-11/30/08 (\$476,339)

A **Sandia National Laboratory** contract entitled “Analysis of Photonic Band gap structures “, for 1/8/07 through 12/31/11 (409,610).

An **RDTech** contract entitled “Automated Ship and Small Craft Classification Tools for ISAR Imagery for 11/1/06 to 6/1/07 (\$23K).

A High Performance Technologies, Inc. (HPTI) contract, “Improved pre-processor for FETI-EM”, 01/01/2007-06/30/2007 (\$26K).

A High Performance Technologies, Inc. (HPTI) contract, “CMEX” 01/07/2007-06/30/2008 (\$28.5K)

Virtual EM -SBIR , “Adaptive Algorithms for Anti-jamming, Based on machine Intelligence”, (Feb-May 2008) (\$30K)

A New Mexico Tech contract, “FMAC Support Activity at the University of New Mexico”, 06/2007- 9/30/2008, (\$478,995)

An **AFRL BAA-VS-06-05** proposal, “FMAC Support Activity at the University of New Mexico”, 8/21/08-07/31/2013 (\$5M)

A **Los Alamos** contract, “Switch Blade”, April/1/08- 8/30/09 (\$50,000)

An **AFRL BAA** proposal, “ Real-time Reconfigurable Systems for Space Applications”, 12/1/2008-7/30/2015 (\$2,568,848).

AFOSR , “A Reconfigurable R/F Photonics Unit Cell for Integrated Optics”, (\$ 450,000).

ONR- “Directed Energy Microwaves for Remote Neutralization of IED’s”, with Edl Schamiloglu (\$1.5M)

NSF- “STEPs in the Right Direction: Transforming Engineering/Computer Science Education at the University of New Mexico”, with Tariq Kraishi (\$2M)

An **AFRL** proposal, “NanoSatellite Spacecraft Development”, 9/29/2011 - 12/28/12 (\$98,412)

IPA –AFRL, 5/1/2010/-4/30/2013 (\$189K)

NSF- “Sustainable Energy Pathways”, 9/15/2012- 08/31/2016, Co-PI (\$1.5M) with Olga Lavrova

MASINT – “Wideband Microwave Random Sensor Array for Detection and Monitoring RF Energy “ 9/23/2012- 09/24/2013 (\$154k)

AFRL – “FDTD Modeling and Counteraction to Scintillation Effects in the Ionosphere” , 02/24/12-02/24/14 (\$95K)

AFRL – “Ionospheric Modeling ”, 02/29/12 - 05/29/13 (\$99,882K)

Sandia – “Nano-Electromechanical and Nano-Optomechanical Devices & Applications”, 04/13/12-12/31/12 (\$25K)

K&A Wireless “Cognitive Radio Applications”, with Jayaweera, 07/01/2012-06/30/2013 (\$55K)

AFOSR - MURI- “Innovative use of Metamaterials in Confining, Controlling, and Radiating Intense Microwave Pulses”, Co-PI with Schamiloglu (PI) 06/01/12-05/31/17 (\$7.5 M)

AFRL – "Ionosphere-Thermosphere Coupling-Data Analysis and Numerical Simulation Study" , 10/18/2012-10/18/2013 (\$89,485)

AFRL – “FDTD Modeling and Counteraction to Scintillation Effects in the Ionosphere”, 02/24/12-02/24/14 (\$100K)

Army STTR Phase I,- “Low Cost Chaos Radar”, 2013, (\$55,000), with Sudharman Jayaweera.

Army STTR Phase II,- “Low Cost Chaos Radar”, 11/01/12-10/31/14 (\$254,000), with Sudharman Jayaweera.

ONR- “Slotted Waveguide and Antenna Study for HPM and RF Applications”, 2/1/13-1-04/17, (\$739, 716)

LEIDOS- “Responsive Space Spacecraft Technologies (RSST)”, 12/1,/2013-11/30/2014
(\$109K)

AFOSR -“Renewal of Understanding the Effects of Energy input from the Solar Wind to the Magnetosphere-ionosphere-thermosphere System”, (\$340K)

AFRL – “Characterization of Rain Attenuation and Depolarization at W/V Bands”, 04/1/2014-9/30/2016, (\$207K)

AFRL – “Deployable Modular Antennas for Small Satellites”, 03/30/2015-1/30/2018, (\$447K)

BlueCom Systems STTR – “Wideband Autonomous Cognitive Radio for Space Applications”, 6/17/2015 - 6/16/2016, (\$46,634)

Sandia National Laboratories- “ Small Business Technical assistance “, 01/01/2014-12/30/2015, (\$51K).

Army - "Wideband Autonomous Cognitive Radios (WACRs) for Spectrally-efficient and Agile Multiband/Multimode Communications", Systems Engineering Directorate, White Sands Missile, US ARMY, with S. K Jayaweera (PI), 09/01/16 - 10/01/19 (\$499,999)

AFRL – “Terrestrial Link Experiment for the Characterization of Rain Attenuation and Depolarization at V/W Bands”, 8/30/2016-5/31/2020 (\$1,931,267)

Army- “A Wideband Autonomous Cognitive Radio Development and Prototyping System”, equipment grant with S. K. Jayaweera (PI), 08/15/16-08/14/17, (\$480,361).

Ph.D STUDENTS SUPERVISION (as Major Advisor)

1) Cam Nguyen	Computer-aided Nonlinear Analysis of Microwave and Millimeter Wave Amplifiers and Mixers.	Fall 1990 (UCF)- Currently a professor at Texas A&M.
2) Timothy Durham	Integral Equation Analysis of Composite Bodies of Revolution and Arbitrary Surfaces with Application to Cavity-Backed Antennas.	Fall 1992 (UCF)- He is with Harris Corporation, Melbourne, FL.
3) Youcheng Liu	Frequency Selective Surfaces on Ferrite Substrates.	Spring 1996 (UCF) -with DME, Orlando, Florida
4) Gregory Turner	FDTD Analysis of Periodic Phase Array Antennas	Fall 1997 (UCF) -with Harris Corporation, Melbourne, FL.
5) Ahmed EL Zooghby	Neural network-based Adaptive Array Antennas for Cellular and Mobile Satellite Communications	Spring 1999 (UCF) - with Qualcomm, San Diego.
6) T. Gomez-Tagle	FDTD analysis of finite array microstrip antennas of arbitrary shape and orientations.	Summer 1999 (UCF)- with Apple
7) Madjid Khodier	Analysis and Design of Broadband Antennas for the Double Quantum Well	Fall 2001 (UNM) – Professor, Jordan University

	Terahertz Detector	of Science and Technology
8) George Tzeremes	Smart RF/Photonic Antennas for Ultra-High Capacity Wireless Communications	Fall 2004 – with the European Space Agency (ESA), Netherlands.
9) Dimitrios Anagnostou	Re-configurable Fractal Antennas with RF-MEMS Switches and Neural Networks	Spring 2005- Associate Professor, South Dakota School of Mines.
10) Miroslav Joler	Analysis of Parallel-Plate Blumlein Line for Compact Pulsed-Power Systems	Spring 2006 – Professor at the University of Rijeka, Croatia.
11) Luke Feldner	Reconfigurable RF MEMS Antenna Arrays and Electrically Small Antennas	Fall 2006 – with Sandia National Labs
12) Matthew Higgins	Models for Electromagnetic Coupling of Lightning onto multiconductor cables in underground cavities	Spring 2008 –with Sandia National Labs
13) Mehmet Su	Proximity Field Nanopatterning for Large Area 3D Photonic Nanostructures: Forward and Inverse Problem Modeling	Summer 2008 – With Stellar Science, Ltd- Albuquerque.
14) Jesse Lai	Investigation into the Use of High-Efficiency Switched Mode Class E Power Amplifiers for High Dynamic Range, Pulse Mode Applications.	Fall 2008- with Sandia National Labs
15) Naga Devarapalli	Rectangular Waveguide Narrow-Wall Longitudinal Aperture Antenna Arrays for High Power Applications.	Summer 2009- Professor at IIT, Ropar, India.
16) Tom Atwood	RF Channel Characterization for Cognitive Radio using Machine Learning Algorithms.	Fall 2009 - with Sandia National Labs
17) Joseph Costantine	Design, Optimization and Analysis of Reconfigurable Antennas.	Fall 2009 – Professor, American University in Beirut, Lebanon.
18) Junghoon Kim	A Compact RF/Photonic Antenna using a Quantum Dot Mode Locked Laser as a Source.	Fall 2010 – with Lam Research Corporation, CA.
19) Nan Xu	Applications of Support Vector Machines in Electromagnetic Problems.	Spring 2011 – with Nokia, san Diego.
20) Youssef Tawk	Analysis, Design and Implementation of Front-End Reconfigurable Antenna Systems.	Spring 2011 – Professor at Notre Dame University, Beirut, Lebanon.
21) Prasanth Kumar	Electromagnetic Pulse Technology: Biological and Terahertz Applications	Spring 2011 – with Lam Research Corporation, CA.
22) Ben Pulford	LOCSET Phase Locking: Operation,	Fall 2011 – With Air Force

	Diagnostics, and Applications	Research Lab – Kirtland.
23) Eyad T. Al Zuraiqi	Neural Network Field Programmable gate Array (FPGA) Controllers for Reconfigurable Antennas	Spring 2012 – Professor, Yarmouk University, Jordan.
24) Cecil Richard Compeau	An Ultrawideband Dual-Linear Polarization Feed for Solar Microwave Observation	Fall 2013 – Professor at Texas State University
25) Julie Lawrance	Metal Plate Lenses for High Power Microwave Applications Including a Novel HPM Zoom Antenna	Fall 2014 - With Air Force Research Lab – Kirtland.
26) Timothy Buckley	Wireless Communication System for Data transfer and Wireless Power Transmission	Fall 2014 – with the Buckley Institute of Technology, Denver, Co.
27) Derek Doyle	Analysis, Implementation and Considerations for Liquid Crystals a Reconfigurable Antennas Solution (LiCRAS)	Fall 2015 - With Air Force Research Lab-Kirtland
28) Chris Woerhle	Liquid Crystal Phase Shifters for Space Applications	Fall 2015 - with Sandia National Labs

Current PhD students

- 29) Maria Elizabeth Zamudio
- 30) George Atmatzakis
- 31) Hamide Faraji
- 32) Xuyan Pan
- 33) Firas Ayoub
- 34) Nicholas Tarasenko
- 35) David Hensley
- 36) Arjun Gupta
- 37) Grant Heileman
- 38) Matthew Landavazo
- 39) Daniel Guillette

M.S. THESES (Chair)

Completed

- 1) “The Secant-Corrector Spectral Iterative Method for Analyzing Scattering from Planar Periodic Structures”, by **Robert Middleveen**, Spring 86.
- 2) “Design of Two-Layer, Capacitively Coupled, Microstrip Patch Antenna Element for Broadbanding Applications”, by **Robert Cock**. Fall 86.
- 3) “Electromagnetic Scattering from Stacked Gratings”, by **Kwan Pok**, Fall 86.
- 4) “Automated Q-Factor Measurements Via a Network Analyzer”, by **Fadi Ayoub**, Summer 86
- 5) “Optical Interferometric Formation of a Phased Array Antenna Footprint”, by **Jack Sherwood**, Spring 88
- 6) “Microwave Spectral Properties of cascaded Rotating Metallic gratings”, by **X. Shi**, Spring 89.

- 7) "Analysis and design of a Pulsed GaAs Laser Rangefinder Receiver", by **Hoyt N. Burns**, Spring 89.
- 8) "RF Imaging Methodology for Characterization of Complex Low Observable Test Specimens", by **Phillip Hermann**, Summer 89.
- 9) "Design and Analysis of a Rectangular Waveguide-to-Microstrip E-probe Transition", by **Daniel S. Dunn**, Fall 89.
- 10) "Electromagnetic Scattering by an Aperiodic Stip Grating", by **Eric G. Johnson**, Fall 89.
- 11) "A Statistical Approach for Estimating the Loss Contribution of Concatenated Connectors in Fiber-Optic Links", by **James G. Uhing**, Spring 1990.
- 12) "Analysis of Electrically Small Hyperboloid Subreflector", by **David Cook**, Spring 1990.
- 13) "A Circular Array of Microstrip Patches", by **Kim Rutkowski**, Summer 90.
- 14) "Plane Wave Analysis and Evaluation of an Indoor Far Field Conductive Chamber", by **Wally S. Arseneaux**, Fall 1990.
- 15) "Electromagnetic Scattering from a finite Cylinder with Complex Permittivity at Arbitrary Orientation", by **Robert A. Murphy**, Fall 1990.
- 16) "Power Amplifier Design with GaAs MESFET", by **Sophia Chen**, May 91.
- 17) "Analysis of Coherent Interference Suppression", by an Adaptive Linear Array Antenna", by **Michelle Morisson**, May 91.
- 18) "Millimeter-wave, High Range Resolution Target Generation Using a Programmable Microwave Phase Shifter", by **Frank St. John**, May 1991.
- 19) "Multipath Propagation of Pulse Signals in Airborne application systems", by **Paul Watson**, April 1, 1992.
- 20) "Electromagnetic Focusing Properties of Chirped Gratings", by **Jeff C. Schmidt**, July 17, 1992.
- 21) "Scattering from Metallic Gratings made of Various Conductivity Profiles", by **Frank E. Grey**, Fall 92.
- 22) "Analysis of a Broadband Microstrip Dipole Antenna", by **Mary-Beth Selby**, Fall 93.
- 23) "A Standardized Method of Specifying and Analyzing Square Spiral Microstrip Antennas", **Jay Ely**, Spring 95.
- 24) "Design of a two-layer microstrip microstrip array antenna for DBS Applications", **Charles Stroupe**, Spring 95.
- 25) "Analysis of Planar Antennas Structures Using the Finite Element Method", **Rue Hestand**, Summer 95
- 26) "FDTD Analysis of Microstrip Antennas on Ferrite Substrates", by **Tamara Spreckic**, Summer 95.
- 27) "Mitigation of Magnetic Fields from Panelboards from 60 Hz Line Currents and its Harmonics", by **Patrick Hannan**, Summer 96.
- 28) "Cavity Model Analysis of Microstrip Ring Antennas using Green's Functions", by **Javier Gomez-Tagle**, Summer 96.

- 29) "A Bistatic Radar System as a Wind Profiler at KSC", by **Steve Vergenz**, Summer 1997.
- 30) "FDTD Analysis of stacked microstrip patch antennas", **Sue Hwang**, Fall 1997
- 31) "Interface Development and Modification of CBS3DS Radar Cross Section Analysis Tool Using FEMAP Finite Element Modeler and MATLAB Plotting", **Matthew Telep**, Fall 97.
- 32) "Design of a Foldable Series-fed Antenna for Radiometric Applications", **Riad Mahbub** , Summer 98.
- 33) "Antenna Synthesis using Neural Networks", **Shaheed Reza**, Summer 98.
- 34) "Analysis of the Effects of Cone Angle on a Cavity Backed Log-Periodic Array Antenna", **Brian Karr**, Fall 98.
- 35) "Automatic target recognition using neural networks", **Sameh W. Tawadrous**, Fall 99.
- 36) "A Procedure for Locating and Identifying Buried Unexploded Ordnance Using Curve Fitting Techniques and Neural Network Pattern Classification", **David Clark**, Fall 2001.
- 37) " Remotely Controlled Measurements, Devices, and Simulations Convenient for Real-time Multi-user Collaboration", **Miroslav Joler**, Fall 2001
- 38) "The Use of Weibull Statistical Model For Describing Multipath Phenomena in Mobile Communications", **George Tzeremes**, Spring 2002.
- 39) "Fractal Antennas with RF MEMS", **Dimitris Anagnostou**, Fall 2002.
- 40) "Crystal Oscillator Designed using Current Conveyors", **Gavin Corcoran**, Fall 2002.
- 41) "Application of Chalcogenide Materials to RF Antenna Design", **David Vreeland**, Sum. 2003.
- 42) "A New Approach in Designing High Efficiency RF Medium to High Power Class E Amplifiers" **Greg Wouters**, Fall 2003
- 43) "Determination of Antenna Type and Orientation Through the Use of ARTMAP Neural Networks", **Kevin Rock**, Spring 2004
- 44) "A Low Loss RF MEMS Ku-Band Integrate Switched Filter Bank", **Isak Reines**, Summer 2004
- 45) "Design of an L-band Phase-locked Loop Microwave Synthesizer", **Jeff Bach**, Summer 2004.
- 46) "Design, Analysis and Optimization of the Cactus Antenna", **Vassiliki Zachou**, Fall 2005
- 47) "Using the Transfer Matrix Approach in Modeling Photonic Bandgap Materials ", **Miena Armanius**, Spring 2006
- 48) "Mind Bending Light Benders: High Performance Computing Applications in Photonic Band Gap Material Simulations", **Mehmet Su**, Spring 2006
- 49) "Investigating the Lifetime of RF MEMS Ohmic Switches using a Lifetime Test Station", **Andrew Carton**, Summer 2006.
- 50) "Improvement of the electromagnetic enhancement in SERS", **Chao Zhang**, Summer 2007.
- 51) "Analysis and Design of Reconfigurable Multi-Band Stacked Microstrip Patch Antennas (MSAs) for Wireless Applications", **Mahmoud A. Alayesh**, Fall 2007

- 52) "Modeling of Metallic Nano Particle Antennas for SERS-Sensing Applications", **Bo Yin** ,
Fall 2008
- 53) "Analysis, Design and Implementation of a Reconfigurable Fractal Volumetric Left-handed Metamaterial",
Teofilo De La Mata , Fall 2008
- 54) "FPGA Controlled Reconfigurable Antenna", **Severn Shelley**, Fall 2009.
- 55) "Polarization Diverse Tracking Antenna with High Sensitivity" , **Michael Pace**, Fall 2009.
- 56) "The Fundamental Resonant Frequency and Radiation Characteristics of Wide Angle Conical Antennas",
Julie Lawrance, Fall 2010
- 57) "Failure Detection and Correction in Switch Reconfigurable Antenna Arrays", Manuel Rivera, Fall 2010
- 58) "Reconfigurable Filtenna for Cognitive Radio Applications", **María Elizabeth Zamudio Moreno**, Fall
2011
- 59) "A Deployable Bottom Fed Conical Log-Spiral Antenna Design for Cubesat Applications",
Anthony Ernest, Spring 2012
- 60) "Photonic Generation of Microwave Signals: A Quantum Dot Mode Locked Laser as a Microwave Source",
George Atmatzakis, Summer 2012.
- 61) "S band Narrow-wall Slotted Waveguide Antenna For High-power Applications", **Xuyuan Pan**, Spring
2013
- 62) " An Approach for In-situ Scan Impedance Characterization of Phased Arrays", **Thomas Christian** , Spring
2013
- 63) "Realization of Temperature Compensated Aluminum Nitride Microresonator Filters with Bandwidth
Beyond k_t^2 Limit, **Janet Nguyen**, Summer 2013.
- 64) "Contributions towards a Coherent Chaotic Oscillator at 100 MHz and 70GHz Antennas for Automotive
Radar Systems", **Firas Ayoub**, Summer 2013
- 65) "Randomly Spaced Smart Antennas", **Maialen Ciaurriz**, Fall 2013
- 66) "Broadband PIFA Rectenna Design for a Multi-source Energy Harvesting Device", **Jillian Erickson**, Fall
2013
- 67) "Millimeter Wave Propagation Impairments, Models, and On-ground Experimentation",
Christopher Romero, Fall 2013
- 68) "Analysis, Design and Implementation of Liquid Crystals for Circular Polarized Microwave Applications",
Christopher Woerlhe, Fall 2013
- 69) "Explosive Safety with Regards to Electrostatic Discharge", **Francis Martinez**, Spring 2014
- 70) "Examining 3D Printed Antennas for Space Based Applications", **Kathreen Belvin**, Spring 2015.
- 71) "FPGA Implementation of a Real Time Cyclostationary Feature Detector for OFDM Signals", **Sean
Hamlin**, Spring 2016.

Current MS students

72) Nadine Maroun Daoud
73) Michael Chin
74) Jordan Keeley
75) Brian Zuffelt

M.S PROJECT Students (Completed)

Constantia Lambrinos
Derek Lamppa
Deanna Fernandez
David Vigliano
Stacy L. Kerns
Phillip Mazzei
Raymond Renfrow
Brett Stephens

Post Doctoral Fellows

Y. Xian
Amalendu Patnaik
Joseph Costantine
Youssef Tawk
M. Su
Eyad AL Zuraiqi
Yanshi Huang (Current)
Hyun Ju Connor
Yong Shi

AWARDS and HONORS

Distinguished Professor- University of New Mexico
IEEE Fellow, 2002
IEEE Outstanding Engineering Educator 2012 (Albuquerque Section)
Gardner-Zemke Professor (Teaching award) 2008-2010
Outstanding Senior Teacher 2009 (UNM- School of Engineering)
Lawton-Ellis Service award- 2007
Outstanding Senior Researcher 2006 (UNM- School of Engineering)
Outstanding Teacher, Electrical Engineering , UCF, 1989.
Outstanding Teacher, Electrical Engineering, UCF, 1990.
Outstanding Teacher, College of Engineering, UCF, 1990.
Outstanding Researcher, Electrical Engineering, UCF, 1992.
Outstanding Researcher, Electrical and Computer Engineering, UCF, 1994.
Outstanding Advisor, Electrical and Computer Engineering, UCF, 1995.
Outstanding Advisor, College of Engineering, UCF, 1995.
UCF Teaching Incentive Award, 1994
UCF Teaching Incentive Award, 1997
Excellence in Graduate Teaching Award, Electrical and Computer Engineering, UCF, 1998
Excellence in Graduate Teaching Award, College of Engineering, UCF, 1998
NASA Summer Faculty Fellowship, 1990
Senior Member IEEE, Oct. 1990.
The Price Waterhouse Up and Comer Award in Education in Central Florida (April 1990).
Outstanding Engineer of the Year (91) for the AP/MTT Chapters of the IEEE Orlando Section
Elected Member in Commission B of the International Union of Radio Science, 91 .
General Chair for f the International IEEE Symposium on Antennas/URSI 1999, Orlando, Florida.

PROFESSIONAL ACTIVITIES AND RECOGNITION

(Local, National, and International)

IEEE Fellow

Series Editor for Artech House for the area of Antennas and Propagation, 2013-present
Chair, Awards and Fellows Committee – IEEE Antennas and Propagation Society, 2011-2013

IEEE Distinguished Lecturer, 2007-2010

John Kraus Antenna APS Award 2010

Selected as NRC Research Advisor under the National Academies/AFRL Program to advise Faculty members or researchers from anywhere in the world.

Keynote Speaker - Third IEEE International Symposium on Microwave, Antennas and Propagation

EMC Technologies (MAPE) for Wireless Communications, Beijing, China, October 2009

Board of Directors for GWEC (Global Wireless Education Consortium) 2002-2006

Antennas and Propagation Series Editor for Artech House (2013-now)

Associate Editor, for IEEE Transactions on Antennas and Propagation, 2001-2007

Associate Editor for the Antennas and Propagation Magazine 2000-2011

Associate Editor for the Antennas and Wireless Propagation Letters 2007-now

Associate Editor for the Inter. Journal of RF and Microwave Computer-Aided Engineering (2003-2009)

Member of the Editorial board of the International Journal of Signal and Imaging systems Engineering (2008-now)

Editor of a Special Issue on "Reconfigurable Systems" in the IEEE Proceedings 2015.

Editor of a Special Issue on "Synthesis and Optimization Techniques in Electromagnetics and Antenna System Design", IEEE Transactions on Antennas and Propagation, 2007.

Editor on ACES Special Issue on "Neural Network Applications in Electromagnetics", July 2003.

Member of the Technical Committee Program – IMOC, Brazil 2005 and 2007

Member of the Technical Committee Program – HUT-ICCE, Hanoi-Vietnam 2007 and 2008

Member of the Technical Committee Program MAPE 2007, Hangzhou, China 2007.

Member of the International advisory Committee -IEEE Workshop on Anti-counterfeiting, Security and Identification, Xiamen, China 2007.

Member of the International board of Advisors for the International Workshop on Imaging Systems and Techniques, Chania, Greece, September 2008

Member of the Technical Committee Program – LAPC, UK-2007 and 2008

Member of Technical Program Committee for the JOINT IAPR INTERNATIONAL WORKSHOPS ON Structural and Syntactic Pattern Recognition, and Statistical Techniques in Pattern Recognition December, 2008 – Orlando, Florida, USA

Member of the International Board of Directors, Imaging Systems and Techniques, Shenzhen, China, May 2009

Reviewer for IEEE Transactions on Antennas and Propagation

Reviewer for IEEE Transactions on Microwave Theory and Techniques

Reviewer for IEEE Transaction on Vehicular Communications

Reviewer for Journal of Applied Optics

Reviewer for Journal of Electromagnetic Waves and Applications

Reviewer for Inter. Journal of RF and Microwave Computer-Aided Engineering

Reviewer for Radio Science

Reviewer for Advances in Engineering Research Journal

Reviewer for Applied Computational Electromagnetics Society Journal

Reviewer for NSF

Reviewer for the Electronics and Telecommunications Research Institute Journal

Served in several Technical Program Committees for the IEEE AP-S International Symposia and URSI Radio Science Meetings

Chaired **several** Technical Sessions for the IEEE Antennas and Propagation Symposia for the last 30 years.

Secretary for IEEE AP/MTT in 1987 (Orlando Chapter).

Vice-chair for IEEE AP/MTT (Orlando Chapter) in 1988.

Chair for IEEE AP/MTT in 1989 (Orlando Chapter).

Local Arrangements person for IEEE AP/MTT Orlando Chapter in 94-95.

Vice-Chair for IEEE AP/MTT Orlando Chapter 95-96.

IEEE Microwaves Theory and Techniques Steering committee member, 1995 Symposium, in Orlando

Secretary for IEEE Orlando Section 95-96.

Treasurer for IEEE Orlando Section 96-97.
Vice-Chair for IEEE Orlando Section 97-98.
Chair for IEEE AP/MTT for 1995-1996 (Orlando Chapter).
Technical Committee Vice-chair for 1996 IEEE SouthCon in Orlando, Florida.
Member of the International Program Committee (3 members) for the Croatian Symposium KoREMA (Croatian Society for Communications, Computing, & Electronics) in 1996.
Technical Committee Chair, for IEEE SoutEastCon '98, Orlando, Florida.
Local arrangements Chair for BETECH 98, Orlando Florida.
Technical Committee Member for the 1998 IEEE APS/URSI Symposium, Atlanta, GA
General Chair of IEEE APS/URSI 1999 Symposium in Orlando, Florida, 1999
Co-Chair of the IEEE APS Conference on Antennas and Propagation for Wireless Communications, Waltham, Massachusetts, Nov. 2000.
IEEE student Advisor for 2000-2001 at UNM
Conference Chair , IASTED Antennas propagation and Radar Conference, Banff , Canada 2004
Technical Program Committee Co- Chair of IEEE APS/URSI/AMEREM Symposium in Albuquerque, NM, 2006.

COMMITTEE SERVICE

Departmental Level

IEEE student Advisor - UCF (1986)
Chair of EM group (ECE Department). 1985-1993- UCF
Member of the undergraduate committee. 1989-1990 -
Member of the executive committee , 1990-1995
Member of the personnel committee , 1991-1992
Member of the EE Chairman's evaluation committee 1991
Chair of EE and CPE undergraduate committees (1993,1994)
Chair of EE undergraduate committee (fall 94-present)
ECE administrative committee (1994-1995).
Member of the ECE Space committee (1994-present)
Member of the ECE Chair's search committee.(1994-1995).
Acting Chair (summer 93) - UCF
Acting Chair (summer 94) - UCF
Member of the ECE personnel committee 96-97
Chair of the ECE Recruiting Committee 96-97
Member of computer engineering search committee (software), Summer 97.
ECE Seminar Series Coordinator 1998.
Member of ECE Graduate Committee 1997-1998.

College Level

Tau Beta Pi Advisor 2007-2012.
Member of the Dean's Advisory committee. 1989-1991.
Member of the ad-hoc college committee on PE issue.
College Honors and Awards Committee 1991-1992.
College Strategic planning Committee 92-93
College Personnel Committee(alternate) 92-94
College Undergraduate committee 93-present
Director of the Honors Program, College of Engineering (1993-1996).
College Personnel Committee (1994-1995).
Chair of the COE Strategic Planning Committee. (1994-1995).
TIP committee 1995-1996.
College recruiting committee (1996-1997).
College search committee for a STAC director (1996)
Chair of the COE Professional Excellence Program (PEP) committee 96-97.
Chair of the COE Professional Excellence Program (PEP) committee 97-98.
College Research Committee 1997-1998.

Chair of search committee for Chemical and Nuclear Engineering Department Chair, 2001
SOE undergraduate recruiting committee 2005-2006

University Level

Faculty Senate Steering Committee.1989-1990
Assistant Marshall for December 1989 Commencement.
Senate (new programs and curriculum Committee) 92-94
Senate Faculty representative for summer 1992 graduation ceremony.
SACS student developmental services committee (1994).
University LEADS program committee (1994-1995).
University Strategic Planning Task Force II Committee - (Academic Review Subcommittee) (1995-1996).
New programs and curriculum Committee 96-97
Faculty Senate (1997-1999).
Budget and Finance Committee 1997-1998
Faculty Senate Undergraduate Committee (at UNM) 1999-2001
Faculty Senate Teaching Enhancement Committee (at UNM) 1999-2002
Faculty Senate Academic Freedom and Tenure Committee
VPR search Committee 2014-2015
AFRL-UNM Advisory committee 2011-now