

NAME, TITLE
AND ADDRESS: **Dr. George C. Giakos**

Tenured Associate Professor Electrical Engineering
Tenured Associate Professor Biomedical Engineering

Director
Optical Electronics, Photonic Devices, and
Communications Networks Laboratory

Imaging Systems, Sensors, and Nanoengineering
Laboratory

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EDUCATION:

Ph.D.Electrical Engineering and Computer Engineering, Marquette University;
Milwaukee, WI, USA, 1991
M.S in Space Nuclear Physics, Ohio University, Athens, OH, USA, 1986
Graduate Diploma Nuclear Instrumentation, University of Edinburgh, UK, 1979
Laurea in Applied Physics, University of Turin, Italy; 1978;

AREA OF
RESEARCH:

Optical electronics and photonic devices, biophotonics, optical communications, imaging systems and techniques, imaging detectors and artificial intelligence, smart sensors and embedded systems, optical network architecture, integrated optics, semiconductor detectors, SAW devices, nanotechnology and BioMEMS devices

AWARDS:

NASA Faculty Fellowship, 2001
NATO Advanced Study Institute, Invited Lecturer, Crema, Italy, 2001
NASA Faculty Fellowship, 2000
International School of Physics Enrico Fermi Fellowship, Italy, 1987

PATENT AWARDS

1. US Patent, 6,207,958, "Multimedia Detectors for Medical Imaging", March 23, 2001.
2. . US Patent 6, 316, 773, on "Multidensity and Multi-atomic Number Detector Media with Gas-Electron Multiplier, for Imaging Applications", November 13, 2001.
- 3 . US Patent 6, 069, 362, on "Multidensity and Multi-atomic Number Detector Media for Applications", May 30, 2000.
- 4 . European Patent 99918933.5-2213, on "Multidensity and Multi-atomic Number Detector Media for Applications", December 28, 2000.

NATIONAL SERVICE

Associate Editor in IEEE Transactions on Instrumentation and Measurement.
 National Chairman of IEEE Technical Committee on "Imaging Systems" for
 Instrumentation and Measurements Society.
 Editorial Board of Bio-Instrumentation and Technology Journal
 Guest Editor, IEEE Transactions on Instrumentation and Measurement

EXPERIENCE

Academic:

	1999 -present	Associate Professor with tenure, Dept. of Electrical Engineering, The University of Akron, OH, USA
		Director, Optical Electronics, Photonic Devices, and Communications Networks Laboratory
Laboratory	1994-present	Director, Imaging Systems, Sensors and Nanoengineering
	1994-1999	Assistant Professor, Dept. of Biomedical Engineering, The University of Akron, OH, USA
	1992-1994	PostDoctoral Research Associate for NIH funded research, Associate Director and Chief Engineer of Medical Imaging Research Laboratory, Dept. of Biomedical Engineering, University of Tennessee, Memphis, TN
	1986-1991	Teaching and Research Assistant Department of Electrical Engineering/Physics Marquette University
	1985-1986	Teaching Assistant Department of Physics Ohio University

Industrial:

	1998-present	GOODYEAR, consultant
	1982-1985	Entrepreneur, Nubi Technology, Inc. Marketing, design, development, testing and manufacturing of RF active and passive systems, scientific instrumentation, and industrial sensors

Military	1980-1981	Hellenic Armed Forces, (22 months)
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INVITED SEMINARS-LECTURES

- NATO Advanced Study Center, “Neural Networks For Image Processing In Measurement, Instrumentation and Related Industrial Applications”, Crema, Italy, October 2001
- Design of an Optical Integrated Thin-Film Sensor For Nanotechnology and Biomedical Applications, NASA, 2001
- “Development of An Optical Wireless System for WLAN Applications” University of Calcutta, India, December, 2001,
- “Optimization of an Optical Wireless System”, IMEKO, Lisbon, Portugal, September 2001
- “Emerging Technologies for the New Millenium”, Cleveland Clinic, February 2001
- “A Novel Calibration Technique for Signal Characterization of an Integrated Optical Thin Film Sensor”, NASA Glenn Center, Summer 2000
- “Imaging of a Metallic Rotating Engine Shaft at High Temperatures: System Design Principles”, NASA Glenn Center, Summer 2000
- “New Perspectives by in Imaging Devices by Applying Integrated Optics Techniques”, NASA Glenn Center, Summer 2000
- "Emerging Sensor Technologies", GOODYEAR Technical Center, Akron, OH, November, 1998.
- "Hybrid Detection Trends in Medical Imaging", Physics Seminar, Herzberg Laboratory of Physics, Carleton University, Ottawa, Canada, May 1997
- Workshop on CdZnTe and CdZnTe Medical Applications, E-MRS Room Temperature Semiconductors, Invited Lecturer, Vienna, October 1999.
- "Novel Imaging Modalities", IEEE Akron- Local Chapter, March 1997.
- "A Hybrid X-ray/Microwave Detector for Medical Imaging, Progress in Electromagnetics Research Symposium (PIERS) 95, sponsored by MIT/Washington, Seattle), July 1995.

Invited Seminars at the following universities/institutions

University of Washington
 University of Tennessee
 NASA
 Carleton University, Canada
 Cleveland Clinic
 Cleveland State University
 NATO

CHAIR OF SYMPOSIA/
 TECHNICAL SESSIONS/PANELS

Organized three Sessions on "Imaging Systems" and “Neural-Fuzzy Networks”, for the IEEE Instrumentation and Measurement Technology Conference, Budapest, Hungary, May 2001.

Organizing Committee Member of the Nanotechnology and BioMEMS Conference, Columbus, OH, October 2000.

Organizing Committee Member of the IEEE Instrumentation and Measurement Technology Conference, Baltimore, MD, May 2000.

Organized the Session on "Imaging Systems" for the IEEE Instrumentation and Measurement Technology Conference, Baltimore, MD, May 2000.

Organized the Session on "Imaging Techniques" for the IEEE Instrumentation and Measurement Technology Conference, Baltimore, MD, May 2000.

Organized the Session on "Fuzzy Neural Networks and Imaging" for the IEEE Instrumentation and Measurement Technology Conference, Venice, Italy, May 1999.

Organized the Session on "Ultrasound Imaging Systems" for the IEEE Instrumentation and Measurement Technology Conference, Venice, Italy, 1999.

Guest Editor in IEEE Instrumentation and Measurement Magazine (1999).

Organized and Chaired the Session on "Imaging Systems" for the IEEE Instrumentation and Measurement Technology Conference, Venice, Italy, 1999.

Program Committee 1998 Annual Meeting of the Biomedical Engineering Society, Cleveland, OH, October 1998

Scientific Reviewer for the Department of Defense United States Army Medical Research and Materiel Command (USAMRMC) 1997 Breast Cancer Research Program (BCRP).

Organized and Chaired the Session on "Imaging Systems" for the IEEE Instrumentation and Measurement Technology Conference, S. Paul, MN, May 21-26, 1998.

Organized and Chaired the Session on "Imaging Systems" for the IEEE Instrumentation and Measurement Technology Conference, Ottawa, Canada, May 19-21, 1997.

Technical Committee Member in Progress in Electromagnetic Research Symposium (PIERS 95).

Session Organizer and Session Chair in PIERS 95; session title: "Excited Applications of Electromagnetism", July 1995.

Program Committee Co-Chair in SPIE International Symposium on Optics, Imaging and Instrumentation, San Diego, 1994.

Organized and Chaired the session on "Recent Advances and Emerging Technologies: High Resolution Metrology and Advanced Detection Techniques", SPIE International Symposium on Optics, Imaging and Instrumentation, San Diego, 1994.

Organized and Chaired the session on "Imaging-3, Electromagnetic Interactions with Tissue" for the 1993 Annual Fall Meeting of the Biomedical Engineering Society (BMES).

Nominated for the Excellence in Research Award of the Sigma Xi, the Scientific Research Society (1994).

Invited Speaker on Diagnostic Imaging Technical Education Center DITTEC 95, Cleveland, OH, May 1995. Presented invited lectures on "Diagnostic Imaging Techniques", and "Helical/Spiral CT Scanning"

TEACHING ACTIVITIES

Designed and taught at the University of Akron the following undergraduate and graduate courses:

Electrical Engineering

Optical Communication Networks	Physical Electronics
Optical Electronics and Photonic Devices	Microelectronic Design
Optical Network Architecture	Imaging System Engineering

Biomedical Engineering

Bioinstrumentation	Biomedical Nanotechnology
Principles of Image Science	Biomedical Optics and Imaging
Imaging Detectors and Sensors	Fabrication and Design of Microsensors
Diagnostic Imaging Techniques	Confocal Microscopy
Medical Imaging Devices	Physics of Medical Imaging
Design of Medical Imaging Systems	

SCIENTIFIC SOCIETIES/HONORS

IEEE Senior Member. Sigma Xi, The Scientific Research Society: Member, IEEE Instrumentation and Measurements Society, IEEE Nuclear Science, IEEE Antennas and Propagation, AAPS, New York Academy of Science, SPIE (The Society of Photo-Optical Instrumentation Engineers), Who is Who in Science and Engineering, Millenium Edition, 2000.

REVIEWER

IEEE, U.S Army, NASA, Bioinstrumentation and Technology Journal

PEER-REVIEW PUBLICATIONS

- [1] G. C. Giakos , N. Patnekar , L. Fraiwan , J. Carletta, “An Optical Polarimetric Imaging System for Surface Defect Detection of Aircraft Engines”, IEEE Transactions on Instrumentation and Measurement, in review.
- [2] G.C. Giakos, S. Chowdhury, N. Shah, S. Vedantham, A.G. Passerini, S. Suryanarayanan, N. Shah, K. Mehya, S. Sumrain, and C. Scheiber, “Signal-to-Noise Measurements Utilizing a Novel Dual-Energy Multimedia Detector”, IEEE Transactions on Instrumentation and Measurement, vol. 50, pp. 911-914, August, 2001.
- [3] G.C. Giakos, K. Meehan, and M. Tuma, “Design of an Enhanced Fluorescence via Cross Coupling Principles towards the Design of an Optical Integrated Thin-Film Sensor for Nanotechnology and Biomedical Applications, IEEE Transactions on Instrumentation and Measurement, in review.
- [4] G.C. Giakos, K. Meehan, and M. Tuma, Exploitation of Enhanced Fluorescence via Cross Coupling Principles towards the Design of an Optical Integrated Thin-Film Sensor for Nanotechnology and Biomedical Applications, Proc. IEEE Instrumentation and Measurement Technology Conference, page 117-124, Budapest, Hungary, 2001.
- [5] G.C. Giakos, N. Patnekar, L.W. Fraiwan, S. Sumrain, N. Reddy, and K. Mehta, “Optimization of an Optical Wireless System”, Proc. IMEKO, Proc. Of International Measurements Confederation, Lisbon, Portugal, September 2001 (invited)

- [6] G.C. Giakos, R. Guntupalli, J. Odogba, N. Sha, S. Vedantham, S. Suryanarayanan, S. Chowdhury, A.G. Passerini, R. Nemer, K. Mehta, S. Sumrain, N. Patnekar, M. Sridhar and F. Russo, "Pulse Timing Optimization of II-IV Direct Type Semiconductors for Flat-Panel Pulsed X-Ray Imaging", IEEE Transactions on Instrumentation and Measurement, December 2001.
- [7] G.C. Giakos, R. Guntupalli, N. Shah, S. Vedantham, S. Suryanarayanan, S. Chowdhury, A.G. Passerini, K. Mehta, S. Sumrain, N. Patnekar, E.A. Evans, R. Ederf, and F. Russo, "Contrast Sensitivity and Dynamic Range Measurements of CdZnTe Semiconductors for Direct Type Flat-Panel Imaging", IEEE Transactions on Instrumentation and Measurement, December 2001.
- [8] G.C. Giakos, N. Sha, S. Chowdhury, and F. Russo, "Novel Detection Trends for Digital Mammography", Proc. Of International Measurements Confederation, IMEKO 2000, XVI World Congress, Vienna, Austria, September 25-28, 2000 (invited)
- [9] G.C. Giakos, R. Guntupalli, R. Nemer, J. Odogba, N. Shah, S. Vedantham, S. Suryanarayanan, A. G. Passerini, R. Nemer, K. Mehta, S. Sumrain, N. Patnekar, and M. Sridhar, "Optimization of the Temporal Response of II-IV Direct Type Semiconductor Detectors for Flat-Panel Pulsed X-Ray Imaging", IEEE Transactions on Instrumentation and Measurement, (in press), 2001.
- [10] G.C. Giakos, N. Sha, and S. Chowdhury, "A Novel Sensor for X-Ray Imaging Applications", IEEE Transactions on Instrumentation and Measurement, vol. 44, pp.252-256, April 2000.
- [11] C. Scheiber, and G.C. Giakos, "Medical Applications of CdZnTe Detectors", Nuclear Instruments and Methods in Physical Research, NIM (A), vol. 458, p 12-25, February 2001.
- [12] G.C. Giakos, R. Guntupalli, J. Odogba, N. Sha, S. Vedantham, S. Suryanarayanan, S. Chowdhury, A.G. Passerini, R. Nemer, K. Mehta, S. Sumrain, N. Patnekar, M. Sridhar and F. Russo, "Pulse Timing Optimization of II-IV Direct Type Semiconductors for Flat-Panel Pulsed X-Ray Imaging", Proc. IEEE Instrumentation and Measurement Technology Conference, Baltimore, MD, May 2000.
- [13] G.C. Giakos, R. Guntupalli, N. Shah, S. Vedantham, S. Suryanarayanan, S. Chowdhury, A.G. Passerini, K. Mehta, S. Sumrain, N. Patnekar, E.A. Evans, R. Ederf, and F. Russo, "Contrast Sensitivity and Dynamic Range Measurements of CdZnTe Semiconductors for Direct Type Flat-Panel Imaging", Proc. IEEE Instrumentation and Measurement Technology Conference, Baltimore, MD, May 2000.
- [14] G.C. Giakos, S. Chowdhury, N. Shah, S. Vedantham, A.G. Passerini, S. Suryanarayanan, N. Shah, K. Mehya, S. Sumrain, and C. Scheiber, "Dual-Energy Measurements Utilizing a Novel Multimedia Detector", Proc. IEEE Instrumentation and Measurement Technology Conference, Baltimore, MD, May 2000.
- [15] G.C. Giakos, S. Vedantham, S. Chowdhury, J. Odogba, A. Dasgupta, R. Guntupalli, S. Suryanarayanan, M. Sridhar, M. Khyati and N. Shah, "Timing Characteristics of a CdZnTe Detector Based X-Ray Imaging System", IEEE Transactions on Instrumentation and Measurement, vol. 48, No. 5, October, 1999.
- [16] G.C. Giakos, "A New Class of Sensors Utilizing Electromagnetic Lens Design Principles", XXVI General Assembly on International Union of Radio Science (URSI) Proc., University of Toronto, August 1999, 1999.

- [17] G.C. Giakos, M. Pastorino, F. Russo, S. Chowdhury, N. Shah, and W. Davros, "Noninvasive Imaging for the New Century", IEEE Instrumentation and Measurement Magazine, pp. 32-49, May 1999.
- [18] G.C. Giakos, "A Novel Collector for Imaging Detector Applications", Proc. IEEE Instrumentation and Measurement Technology Conference, vol. 1, pp. 160-163, May 1999.
- [19] G.C. Giakos, and S. Chowdhury, "Line Spread Function of a Multimedia Detector for X-Ray Digital Imaging", Proc. IEEE Instrumentation and Measurement Technology Conference, vol. 3, pp. 1431-1436, 1999.
- [20] G.C. Giakos, "Key Paradigms of Emerging Imaging Sensor Technologies", IEEE Transactions on Instrumentation and Measurement, vol. 40, No. 6, pp. 1-9, December 1998, (invited).
- [21] G.C. Giakos, A. Dasgupta, S. Suryanarayanan, S. Chowdhury, R. Guntupalli, S. Vedantham, B. Pillai, and A. Passalaqua, "Sensitometric Response of CdZnTe Detectors for Chest Radiography", IEEE Transactions on Instrumentation and Measurement, vol. 47, no. 1, pp.252-255, 1998.
- [22] G.C. Giakos, S. Vedantham, S. Chowdhury, Jibril Odogba, A. Dasgupta, S. Vedantham, D.B. Sheffer, R. Nemer, R. Guntupalli, S. Suryanarayanan, V. Lozada, R.J. Endorf, and A. Passalaqua, "Study of Detection Efficiency of CdZnTe Detectors for Digital Radiography", IEEE Transactions on Instrumentation and Measurement, vol. 47, no. 1, pp. 244-251, 1998.
- [23] G.C. Giakos, "Emerging Imaging Sensor Technologies: From Aerospace to Healthcare", IEEE Instrumentation and Measurement Magazine, pp. 16, 19, December 1998.
- [24] G.C. Giakos, "Expanding the Role of Imaging Technologies", IEEE Instrumentation and Measurement Magazine, December 1998 (Guest Editor).
- [25] G.C. Giakos, and S. Chowdhury, "Multimedia Imaging Detectors Operating on Gas-Solid State Ionization Principles", IEEE Transactions on Instrumentation and Measurement, vol. 40, No. 5, pp. 1-9, October 1998.
- [26] G.C. Giakos, and S. Chowdhury, "Multimedia Detection Principles", Annals of Biomedical Engineering, vol. 26, pp. 9, October 1998.
- [27] . Giakos, S. Suryanarayanan, S. Chowdhury, R. Guntupalli, J. Odogba, R. Sobnosky, "Dependence of the Sensitometric Response of a CdZnTe Digital Radiographic Detector on the Irradiation Geometry", Annals of Biomedical Engineering, vol. 26, pp. 7, October 1998.
- [28] Giakos, R. Guntupalli, S. Chowdhury, S. Suryanarayanan, J. Odogba, R. Sobnosky, "Time Domain Characterization of a CdZnTe Detector System for CT Imaging Applications", Annals of Biomedical Engineering, vol. 26, pp. 8, October 1998.
- [29] G.C. Giakos, S. Suryanarayanan, J. Odogba, R. Guntupalli, S. Chowdhury, V. Lozada, B. Pillai, and A. Dasgupta, "Modulation Transfer Function (MTF) Measurement of CdZnTe Detectors for Digital Radiography and Computed Tomography", Proc. IEEE Instrumentation and Measurement Technology Conference, pp. 456-461, May 1998.
- [30] G.C. Giakos, S. Vedantham, S. Suryanarayanan, S. Chowdhury, R. Guntupalli, J. Odogba, V. Lozada, B. Pillai, and D.B. Sheffer, "Image Analysis of CdZnTe Detectors for Digital Radiography", Proc. IEEE Instrumentation and Measurement Technology Conference, pp. 358-363, May 1998.

- [31] G.C. Giakos, "A Slot-Scanned Detector Operating on Gas-Solid State Imaging Principles", Proc. IEEE Instrumentation and Measurement Technology Conference, pp. 352-357, May 1998.
- [32] G. C. Giakos, B. Pillai, S. Chowdhury, S. Vedantham, A. Dasgupta, D.B. Sheffer, A. Passalacqua, and R.J. Endorf, "Signal dependence on Irradiation Geometry of CdZnTe Detectors for Digital X-Ray Imaging", Journal of X-ray Science and Technology, vol. 7, 1997.
- [33] G. C. Giakos, B. Pillai, S. Chowdhury, S. Vedantham, A. Dasgupta, D.B. Sheffer, A. Passalacqua, and R.J. Endorf, "Cd_{1-x}Zn_xTe Detectors for Digital X-Ray Chest Imaging", Journal of X-ray Science and Technology, vol. 7, 1997.
- [34] G. C. Giakos, B. Pillai, S. Chowdhury, S. Vedantham, A. Dasgupta, D.B. Sheffer, W.J. Davros, A. Passalacqua, and R.J. Endorf, "Contrast Study of CdZnTe Detectors for Digital Mammography", Journal of X-ray Science and Technology, vol. 7, pp. 1-10, 1997.
- [35] G.C. Giakos, S. Vedantham, and J. Odogba, "Collection Efficiency of CdZnTe Detectors", Proc. 8. G.C. Giakos, S. Vedantham, and J. Odogba, "Collection Efficiency of CdZnTe Detectors", Proc. IEEE Instrumentation and Measurement Technology Conference, pp. 8-11, May 1997.
- [36] G.C. Giakos, B. Pillai, S. Chowdhury, A. Dasgupta, R. Guntupalli and S. Suryanayanan, "Sensitometric Response of CdZnTe Detectors for Digital Radiography", Proc. IEEE Instrumentation and Measurement Technology Conference, pp 12-15, May 1997.
- [37] G.C. Giakos, A. Dasgupta, and S. Chowdhury, "Design and Optimization of a Dual-Energy Gas Microstrip Detector", Proc. IEEE Instrumentation and Measurement Technology Conference, pp. 2-7, May 1997.
- [38] S. Vedantham, G.C. Giakos, A. Dasgupta, B. Pillai, S. Chowdhury, P. Ghotra, "Electrical Characterization of CdZnTe Imaging Detectors for Digital Radiography", Proc. Int. Soc. Opt. Eng. (SPIE), pp. 499-505, 1997.
- [39] G. C. Giakos, B. Pillai, S. Vedantham, S. Chowdhury, A. Dasgupta, D.B. Richardson, P. Ghotra, R.J. Endorf, A. Passalacqua, and W.J. Davros, "Optimization of Cd_{1-x}Zn_xTe Detectors for Digital Radiography", Journal of X-ray Science and Technology, pp. 37-49, 1997.
- [40] G. C. Giakos, B. Pillai, S. Vedantham, S. Chowdhury, J. Odogba, A. Dasgupta, V. Vega-Lozada, R.Guntupalli, S. Suryanarayanan, R.J. Endorf, A. Passalacqua, and S. Kollipara, "Electric Field Dependence on Charge Collection of CdZnTe X-Ray Detectors", Journal of X-ray Science and Technology, vol. 7, 198-210, 1997.
- [41] S. Chowdhury, G.C. Giakos, A. Dasgupta, P. Ghotra, B. Pillai, S. Vedantham, D.B. Richardson, A. Passalacqua, R.J. Endorf, "Evaluation of Gas-Microstrip Dual-Energy System", Proc. Int. Soc. Opt. Eng. (SPIE), pp. 488-498, 1997.
- [42] B. Pillai, G.C. Giakos, A. Dasgupta, S. Chowdhury, S. Vedantham, P. Ghotra, A. Passalacqua, R.J. Endorf, and W.J. Davros, "Contrast Resolution Study of CdZnTe for Medical Imaging", Proc. Int. Soc. Opt. Eng. (SPIE), pp. 451-458, 1997.
- [43] G.C. Giakos, S. Chowdhury, A. Dasgupta, A. Dasgupta, P. Pillai, P. Ghotra, S. Suryanarayanan, and J. Odogba, "Study of A Gas Microstrip Detector for Medical Applications", Proc. Int. Soc. Opt. Eng. (SPIE), pp. 459-468, 1997.

- [44] G.C. Giakos, S. Vedantham, S. Chowdhury, and B. Pillai, "Novel Hybrid Imaging Modalities", Proc. Int. Soc. Opt. Eng. (SPIE), pp. 476-476, 1997.
- [45] A. Dasgupta, G.C. Giakos, S. Chowdhury, B. Pillai, S. Vedantham, S. Suryanarayanan, R.K. Guntupalli, B. Pillai, P. Ghotra, D.B. Richardson, A. Passalaqua, R.J. Endorf, "Evaluation of a CdZnTe Dual-Energy System", Proc. Int. Soc. Opt. Eng. (SPIE), pp. 469-475, 1997.
- [46] F.A. DiBianca, C. Rodriguez, S. Devidas, D. Emerson, M. Waleed Gaber, G. Giakos, R. Gold, L. Jordan, R. Kaufman, S. Kollipara, J. Laughter, A. Mahmud, S. Nagarajan, Q. Peng, P. Price, J. Sebes, H. Zeman, and Z. Zhu, "Initial Clinical Performance of a Large-Field KCD Digital Radiography System", Int. Soc. Opt. Eng. (SPIE), vol. 2708, pp. 826-835, 1996.
- [47] R.J. Endorf, V. Schmithorst, S. Kulatunga, D.C. Spelic, F.A. DiBianca, C. Rodriguez, H.D. Zeman, Z. Zhu, and G.C. Giakos, "Dual-Energy Imaging Using a Kinesthetic Charge Detector", Int. Soc. Opt. Eng. (SPIE), vol. 2708, pp. 837-848, 1996.
- [48] G.C. Giakos, S. Chowdhury, B. Pillai, P. Ghotra, S. Vedantham, A. Dasgupta, F.A. DiBianca, S. Devidas, and R.J. Endorf, "Progress in Gas Detector Technology for Medical Imaging Research", Int. Soc. Opt. Eng. (SPIE), vol. 2708, pp. 771-780, 1996.
- [49] G.C. Giakos, S. Chowdhury, B. Pillai, P. Ghotra, S. Vedantham and A. Dasgupta, "Novel Multimedia Detectors for Medical Imaging", Int. Soc. Opt. Eng. (SPIE), vol. 2708, pp. 759-770, 1996.
- [50] G. C. Giakos, "Society Committee on Imaging Systems Report", IEEE Instrumentation and Measurement Society NewsLetter, pp. 18-19, Spring 1996.
- [51] G.C. Giakos, S. Devidas, B. Pillai, F.A. DiBianca, S. Chowdhury, P. Ghotra, S. Nagarajan, L.M. Jordan and R.J. Endorf, "Enhanced X-Ray Detectors Using Polar Dopants for KCD Digital Radiography", Journal of X-ray Science and Technology, pp. 188-204, pp. 188-204, 1996.
- [52] G. C. Giakos, B. Pillai, P. Ghotra, S. Chowdhury, S. Vedantham, F.A. DiBianca, M. Jordan, S. Devidas, S. Nagarajan and R.J. Endorf, "Line Spread Function of Kinesthetic Charge Detectors Operating at High Gas Pressures", Journal of X-ray Science and Technology, pp. 343-358 December 1996.
- [53] G.C. Giakos, P. Ghotra, B. Pillai, R.B. Richardson, A.M. Passalaqua, L. Seetharaman, F.A. DiBianca, R.J. Endorf, and S. Devidas, "Ion Polar Collisions in Gas-Filled KCD Imaging Detectors", Int. Soc. Opt. Eng. (SPIE), pp. 330-341, 1995.
- [54] G.C. Giakos, D.B. Richardson, P. Ghotra, B. Pillai, L. Seetharaman, A.M. Passalaqua, F.A. DiBianca, R.J. Endorf and S. Devidas, "Real Portal Imaging Devices Operating on High-Pressure Gaseous-Electronics Principles", Int. Soc. Opt. Eng. (SPIE), pp. 342-353, 1995.
- [55] S. Devidas, F.A. DiBianca, and G.C. Giakos, "Use of Mixed Media to Improve the Performance of Kinesthetic Charge Detectors", Int. Soc. Opt. Eng. (SPIE), pp. 354-366, 1995.
- [56] R.J. Endorf, S. Kulatunga, D.C. Spelic, S.R. Thomas, F.A. DiBianca, H.D. Zeman and G.C. Giakos, "Preliminary Performance Characteristics of a Dual-Energy KCD", Int. Soc. Opt. Eng. (SPIE), pp. 607-615, 1995.
- [57] F.A. DiBianca, S. Devidas, G.C. Giakos, S. Kollipara, J. Laughter, A. Mahmud, S. Nagarajan, Q. Peng, C. Rodriguez, and H. Zeman, "Imaging Performance of a Large-Field Kinesthetic Charge Detector for Digital Radiography", Int. Soc. Opt. Eng. (SPIE), pp. 402-413, 1995.

- [58] G.C. Giakos and T.K. Ishii, "Experimental Demonstration of the Apparent Wavelength", IEEE Transactions on Education, vol. 38, pp. 104-107, 1995.
- [59] George C. Giakos, "An X-ray/Microwave Hybrid Detector for Medical Imaging", Proc. Progress in Electromagnetics Research Symposium (PIERS 1995), pp. 186 (Invited Paper), 1995.
- [60] George C. Giakos, "Molecular Bioelectromagnetics: An Emerging Field", Proc. Progress in Electromagnetics Research Symposium (PIERS 1995), pp. 187, 1995.
- [61] George C. Giakos, Permjit Ghotra and Lakshmi Seetharaman, "Local Electric Fields and Image Quality Improvement", Proc. Progress in Electromagnetics Research Symposium (PIERS 1995), pp. 188, 1995.
- [62] G. C. Giakos, F.A. DiBianca, R. J. Endorf, D. J. Wagenaar, S. Devidas, H. Zeman, J. Laughter, S. Nagarajan, A. Mahmud, and S. Kollipara, "Engineering Aspects of a Kinesthetic Charge Detector", Journal of X-ray Science and Technology, pp. 181-201, vol. 5, 1995.
- [63] G.C. Giakos and T.K. Ishii, "Microwave Optics and Pulsed Wave Detection", Advanced Microwave and Millimeter Wave Detectors Conference, Proc. SPIE International Symposium in Optics, Imaging and Instrumentation, San Diego, pp. 119-131, 1994.
- [64] G.C. Giakos and T.K. Ishii, "Composite Propagation Experiments on Pulsed Microwaves", Advanced Microwave and Millimeter Wave Detectors Conference, Proc. SPIE International Symposium in Optics, Imaging and Instrumentation, San Diego, pp. 34-45, 1994.
- [65] G.C. Giakos, "Engineering and Physical Concepts of the Wave Permittivity", Advanced Microwave and Millimeter Wave Detectors Conference, Proc. SPIE International Symposium in Optics, Imaging and Instrumentation, San Diego, pp. 259-270, 1994.
- [66] G.C. Giakos and T.K. Ishii, "Observed Precursor of Pulsed Radio Waves", Advanced Microwave and Millimeter Wave Detectors Conference, Proc. SPIE International Symposium in Optics, Imaging and Instrumentation, San Diego, pp. 271-282, 1994.
- [67] R.J. Endorf, S. Kulatunga, D.C. Spelic, S.R. Thomas, F.A. DiBianca, G.C. Giakos, H.D. Zeman, "Clinical Applications of a Dual Energy KCD", Proc. SPIE, International Symposium on Biomedical Optics, pp. 222-233, vol. 2132, January 1994, Los Angeles, CA.
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PATENT DISCLOSURES

1. US Patent Disclosure on a Novel Light Processor for Communications and Imaging, 2000.
2. US Patent Disclosure on "Efficient Signal detection Modes and Techniques", 1998.
3. PCT Application No. PCT/US97/02042, International Patent Application, entitled "Multimedia detectors for Medical Imaging", 1997.
5. US Patent Disclosure on "Hybrid Detectors for Medical Imaging", 1997.
6. US Patent Disclosure on "Hybrid Photoamplifiers", 1997.
7. US Patent Disclosure on "Medical Imaging Detectors utilizing Gas-Microstrip Principles", 1996.

FUNDED GRANTS

- 1) "Development of a Real-Time Optical Polarimetric Imaging System for Aerospace Applications", NASA, \$70,000, 2001, (PI)
- 2) The Ohio Board Of Regents Enhancement Grant, \$15,000, 2001, PI
- 3) "The Ohio BioMEMS Consortium on Medical Therapeutics Microdevices", September 1999, The Ohio Board of Regents 1999 Hayes Investment Fund Competition, \$1,500,000 (Co-PI). (University of Akron: \$100,000)
- 4) "Low-Dose X-ray Fluoroscopy with CdZnTe Imaging Arrays", National Institutes of Health, established Consortium between University of Akron, Department of Biomedical Engineering, Akron, OH, University of Massachusetts Medical School, Worcester, MA, University of Arizona, Health Sciences Center, Tucson, AZ, NASA/Goddard Space Flight Center, Greenbelt, MD, submitted 1-28-2000, \$2,844,753
- 5) "A Novel Collector for Direct-Ionization Semiconductor Detectors", Ohio Aerospace Institute Collaborative Core Research Program, July 1999, \$30,000 (PI).
- 6) G.C. Giakos, "A New Solid State Detector for Digital Radiography", Institute of Biomedical Engineering Research (IBER), January 1998, \$12,500 (PI).
- 7) G.C. Giakos, "Feasibility Study of a Digital Radiographic Detector", UA Faculty Research Grant, spring 1998, \$3,500.
- 8) G.C. Giakos, P.I., "A Low-Cost but Effective Hybrid Photoamplifier for Imaging Application", UA Faculty Research Grant, spring 1997-spring, 1998, \$3,500, (PI).

- 9) G.C. Giakos, P.I., "Hybrid Gas-Microstrip Detectors for Biomedical Imaging", Institute of Biomedical Engineering Research (IBER), January 1997, \$10,500, (PI).
- 10) G.C. Giakos, P.I., "Image Processing and Computer Networking of Radiological Images", Cleveland Clinic Foundation, June 1997, \$12,000, (PI).
- 11) G.C. Giakos, P.I., "Computer Networking and Imaging Algorithms", Cleveland Clinic Foundation, August 1997, \$3,000, (PI).
- 12) G.C. Giakos, P.I., A. Passalacqua: Consultant, "Pilot Studies on the Applicability of Gas-Microstrip (MS) Detectors to Quantitative Auto Radiography, Society of Nuclear Medicine, Pilot Research Grant Application, April 26, 1995, \$5,000, (PI).
- 13) G.C. Giakos, P.I., "Hybrid Detectors for Positron Emission Tomography", Research Faculty Project Grant, October 20, 1995, \$3500, (PI).
- 14) G.C. Giakos, P.I., "A High Resolution Imaging Detector", Research Faculty Project Grant, October 21, 1994, \$3,050, (PI).
- 15) G. C. Giakos, A Picker Dynamic Camera-4, Gamma Camera with Image Programmer, All-Tech Services, 1997, grant equipment: \$35,000, (PI).
- 16) G.C. Giakos, Ausonics Alpha LF Mammography Unit, Express Systems and Parts Network, Inc., 1997, grant equipment: \$12,000, (PI).

ACADEMIC MATTERS AND COMMITTEES

- Member of the College of Engineering Retention, Tenure, and Promotion Committee, 2001
- Member of the Strategic Steering Committee of the University of Akron (2000).
- Elected member of the Graduate Council of the University of Akron (1999-2002).
- Group Leader of the " Nanotechnology Instrumentation" Group for the College of Engineering of the University of Akron, for the NSF Multidisciplinary Proposal of the University of Akron, February 2001.
- Member of the Graduate Curriculum Committee (College of Engineering, University of Akron).
- University Radiation Safety Committee, 2000
- Library Committee (1998-1999)
- University Committee for the Electrical Engineering Program (1996)
- Graduate Scholarship Committee (1994-1997)
- Acted as Mentor in behalf of the IEEE Akron-Canton Section for the senior design project for electrical engineering students of the University of Akron, entitled "Micromouse Project". This

project is expected to cover Contributed in the Micromouse Robot Design and to cover several areas of electrical engineering such as Sensors, Robotics, Control, Machine Vision, Power, Electronics, Motors, and Artificial Intelligence.

Thesis and Dissertations

1. N. Shah, "A Novel Collector for Direct-Ionization Imaging Sensors", M.S, University of Akron, August 2000.
2. S. Chowdhury, "Experimental Evaluation of a Novel Multimedia Sensor for Dual-Energy Imaging", Ph.D. Dissertation, University of Akron, December 1999.
3. J. Odogba, "Characterization Study of a Cadmium Zinc Telluride Scanning Image Detector System", Ph.D. Dissertation, December 1999.
4. S. Suryanarayanan. Zero Frequency Detective Quantum Efficiency Measurements of a CdZnTe Detector for Digital Radiography, M.S, University of Akron, M.S, University of Akron, May, 1999.
5. S. Vedantham, "Assessment of Cadmium Zinc Telluride for X-Ray Imaging", December 1997.
6. B. Pillai, "An Experimental Evaluation of Cadmium Zinc Telluride Detector for Digital Radiography, M.S, University of Akron, May, 1998.
7. Amlan Dasgupta, "A Dual-Energy Cadmium Zinc Telluride Detector System for Digital Radiography, M.S, University of Akron, August 1998.
8. R. Guntupalli, "Evaluation of a Semiconductor Detector for CT Applications", M.S, University of Akron, August 1998.
9. S. Chowdhury, "Signal Production of Gas-Microstrip Detectors for Medical Imaging, M.S, University of Akron, M.S Thesis, May 1995.

Research in Progress:

- N. Patnekar, "Optical Wireless for Telemedicine", MS. Research
 S. Sumrain, "A Novel Light Processor for Communications", MS. Research
 L. Luai, "An Integrated Optical Sensor utilizing Surface Plasmon Waves", Doctoral Research
 M. Khyati, "Efficient Passivation Techniques for Imaging Semiconductor Sensors"

Graduate Student Current Employment

S. Chowdhury	Siemens
J. Odogba	General Electric
N. Shah	Perking Elmer
S. Vedantham	(Research Engineer) University of Massachusetts Medical Center
S. Suryanarayanan	(Research Engineer) University of Massachusetts Medical Center
R. Guntupalli	Roper Scientific
B. Pillai	Beckman Instruments
A. Dasgupta	National Semiconductors