

Dennis K. Killinger

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Specialization: Applied Physics: lasers and optics, Lidar remote sensing, Trace species detection; Laser atmospheric propagation, Free-Space-Optical Laser Telecommunication; Industrial and Medical applications of lasers and optical sensors; Technology Transfer and Applied R&D

Education:

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| Ph.D. in Physics | 1978 | University of Michigan |
| M.A. in Physics | 1969 | DePauw University |
| B.A. in Physics | 1967 | University of Iowa |

Professional Experience

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| 1987-present | <u>University of South Florida</u> Distinguished University Professor (2000 -) Professor of Physics Director, Laboratory for Atmospheric Lidar and Laser Sensor Studies |
| 1979-1987 | <u>MIT Lincoln Laboratory, Lexington Massachusetts</u> Research Physicist/Program Manager Quantum Electronics Group |
| 1977-1979 | <u>Ford Motor Company, Dearborn Michigan</u> Research Physicist, Post-Doc Scientific Research Laboratory |
| 1969-1972 | <u>Naval Avionics Facility, Indianapolis</u> Engineer/Microwave Propagation and Radar Systems |

Recent Professional Responsibilities (Narrative)

1. Director of research group in laser sensor and lidar development; funded programs (NASA, ONR, SBIR's). Interdisciplinary research projects with College of Marine Science and College of Medicine. Laser sensing of global oceans, trace chem/bio species, and optical spectra of the retina.
2. Chair of Information Technology Committee to advise and evaluate new computer and web based technology for Journal archiving, conference papers, video conferencing, and internet use for the Optical Society of America (1999-2003)
3. Member of National Academy/NRC Committee on Optical Science and Engineering (COSE) to assess future technology, trends in optics and lasers; Chair of subcommittee on Optical Sensing, Lighting, and Energy (1995-1998): Report Published by NRC.
4. General Conference Chair of CLEO: Conference on Lasers and Electro Optics 1997
5. Co-Principle Investigator and Technical Director of DOE funded \$13,200,000 Technology Deployment Center (TDC) for Technology Transfer/Economic Development at USF and the DOE Pinellas Plant to fund development of engineering prototypes and creation of new start-up companies. (1994-2001).

Professional Responsibilities (Chronological List)

Member: Coherent Laser Radar Conference Organizing Committee, July 2008
Conf. Chair: Laser Applications to Chemical, Security, and Environmental Analysis, OSA (2008)
Keynote Address: OSA Congressional R&D Caucus (2006)
Web Course (archived) Laser Focus World: Optical Techniques for Homeland Security (2005)
Chair Elect: OSA Tellers Committee - Election Oversight (2005-2008)
Conf. Chair: OSA Conf. Laser Applications to Chemical, Security, Environment (Tampa, 2007)
Member: Tech. Comm. International. Symposium on Spectral Sensing Research (2006)
Co-Chair: OSA Conf. Coherent Optical Technologies and Applications (2006)
Member: Committee for Coherent Laser radar Conference (Japan, 2005)
Co-Chair: Material Research Society Symp: Adv. Devices and Mat. for laser remote sensing (2005)
CLEO: Committee on Active Optical Sensing (2004)
Reviewer: Louisiana Board of Regents (2004)
Keynote Address: Photon Forum: Chemical and Biological Agent Sensing (2004)
SPIE Short Course: Optoelectronics for Homeland Security (2003, 2004, 2005)
SPIE Industrial Course: Remote Sensing and Chem/Bio Sensing (2004)
NIH minority/disability fellowship review committee (2003-2004)
OSA Short Course: Bio-Photonics for Homeland Security (2004)
Co-Chair: SPIE Conf. Optical Tech. for Industrial, Environmental and Bio Sensing (2003)
Keynote Address: Optoelectronics Opportunities in Homeland Security, Laser Focus; Jan. 2003
Co-Chair: Optical Sensors for Homeland Security, Optical Society of America (Feb.2003)
NSF Committee on Photonics Education, member (2002-2004)
Chair, Conference on Urban Standoff Detection of Bio and Chemical Agents (2002)
Florida Photonics Cluster Industry Association; Board of Directors (2000-2005)
Planning Committee, SuperComm Conference (2002)
Editorial Advisory Board, Encyclopedia of Optics (1999-2003)
NOAA Technical Assessment Advisory Committee (1999-2002)
International Commission for Optics: Program Committee/Light for Life (1999)
Chair, OSA Information Technology Committee (1999-2003)
OSA Fellows and Honorary Members Committee (1998, 2001)
EPA Advanced Measurement Initiative Panel (1998)
Chair, CLEO LEAP (Laser and Electro-Optics Application Program) 1998
NASA Headquarters: Earth Systems Science Advisory Committee/Technology (1997-2001)
NASA New Millinium Program (NMP) Science Working Group (1996-1999)
NSF Proposal Review Panel SBIR:E-Beam and Novel Process (1997)
NASA ESSP Review Panel (1996-1997)
NRC Manufacturing Process Controls (Sensors) Panel (1996-1998)
OSA Adolf Lomb Medal Prize Committee (1997, 1998)
Chair, OSA Applied Optics Journal Review Board (1996-1998)
CLEO Steering Committee: IEEE Representative (1995-1998)
General Co-Chair, 1997 CLEO (Conference On Lasers and Electro-Optics)
National Academy/NRC: Committee on Optical Science and Engineering;
Executive Committee (1995-1997)
Technical Program Co-Chair, 1995 OSA/IEEE Conference on Lasers and Electro-Optics (CLEO)
OSA Allen Prize Committee (1994)
SURA Board of Trustees, University representative to
Southeastern University Research Association 1993-1996
Author, Chapter on "Atmospheric Optics" for
Handbook of Optics (Optical Society of America)
Plenary Address: IEEE/OSA OPTCON (Boston, 1992).
Course "Laser/LIDAR Sensing"
New Mexico State University, 1990, 1991
Course: LIDAR/Laser Remote Sensing, SPIE, 1992.
NASA/Langley: Laboratory Directors Program Review Board, 1986, 1992
AMS Committee on Laser Atmosphere Studies (1990-1993)
Topical Editor, Optics Letters (1989-1993)
Member, OSA Society Objectives and Policy Comm. (1989-1992)
Member, NASA/FAA Panel on Windshear Detection (1991)
Associate Editor, Applied Optics (1984-1989)
Member, NASA Review Panel: Spaceborne laser sensors for EOS
(Earth Observing Satellite) (1985-1988).
Member NASA Review Panel: Laser in Space Technology Experiment

(LITE) (1986-present).
Co-Author/Editor: Optical and Laser Remote Sensing (Springer, 1983)
Conference Chairman or Co-Chairman:
Optical and Laser Remote Sensing/Monterey/ARO '82;
Optical Tech. for Remote Probing of the Atmosphere/OSA '83;
Optical Remote Sensing/OSA-1985.
Laser and Optical Remote Sensing/OSA-1987.
Technical Subcommittee Chairman: CLEO 1984, CLEO 1985, LEOS 1989
Member, Technical Committee: Coherent Laser Radar 1983,
OSA Annual Meeting 86, CLEO 88, CLEO 89, OE-LASE 89, LEOS 90,
LEOS 91, CLEO 91, Coherent Laser Radar 1991, CLEO 92,
Coherent Laser Radar '93
Founder/Organizer of first OSA Conference on Laser Remote Sensing (1983)

Awards:

Professorial Excellence Award (1998)
Governor's Award for Outstanding Contribution to Science and
Technology/Electro-Optics and Lightwave (1990)
Outstanding Faculty Research Award, USF Sigma Xi (1993)
Who's Who: American Men and Women in Science (1994-2007)

Society Affiliations:

Fellow, Optical Society of America (OSA)
Member, American Physical Society
Senior Member, Institute of Electrical and Electronics Engineers (IEEE)
Member, SPIE
Member, Sigma Pi Sigma
Member, Sigma Xi
Member, American Association for Advancement of Science (AAAS)

University Related Experience:

College of Engineering Dean Search Committee (2006-2007)
University Constitution Committee (2005-2006)
USF Research Foundation Audit Committee (2005-2007)
Board of Directors: USF Research Foundation (2004-2007)
Chair/Convener: Distinguished University Professors (2003-2005)
College of Arts and Sciences Advisory Committee (2002-2004)
Board of Trustees Work Group on Research and Scholarship (2002-2005)
President's Task Force on University Values, Vision and Goals (2001)
Provost Search Committee (2000-2001)
Research Conflict of Interest Committee: Independent Substantive Review Committee (1999-2003)
Bioengineering Institute Board (1999-2001)
University Intellectual Property Committee (1999-2001)
College Salary Equity Committee (1999)
College Graduate Council (1998-2001); Chair (1999-2000)
University Research Council (1998-2001)
College Prof. Excellence Program Evaluation Committee (1996)
Special Assistant to VP of Research: New Program Development and Tech Transfer (1994-1996)
Board of Trustees: Southeastern University Research Association (1993-1996)
University Representative: Conference on Demographic and Economic Trends in
Research (1995)
Environmental Policy and Science Degree Program Committee
(1993-1996); Executive Committee
College Faculty Mentor for Junior Faculty (1995-1999)
Multiversity Forum: Women in Science (1994)
College Tenure & Promotion Committee: CAS, Member (1993-1995), Chairman (1995)
Chairman, University Outstanding Dissertation Award Comm. (1994)
Physics Department Graduate Committee, Chair (1997), 1998, 2000, 2001, 2003, 2004
Physics Department Faculty Advisory Committee: 1988, Chair (1989, 1990), 1991, 1992, 1993, Chair
(1994, 1995), 1998, 1999, 2000, Chair(2001), 2002, 2005
Physics Department Educational Policy Committee:
1988, 1989, Chair (1990, 1991), 1992, 1993, 1994, Chair (1995, 1996)
President's "Year of Discovery" Committee, 1992

Grad Students (Directed Thesis and Dissertation):

N. Kotheke (1989 M.S.)
N. Simms (1990 M.S.)
M. Vaidyanathan (1992 Ph.D.)
R. Fink (1992 M.S.)
W. Wilcox (1992 M.S.)
T. Taczak (1993 M.S.)
C. He (1994 Ph.D.)
C. Hazzi (1995 M.S.)
S. Harrell-Klein (1995 Ph.D.)
W. Wilcox (1995 Ph.D.)
T. Taczak (1996 Ph.D.)
M. Mawicke (1997 M.S.)
P. Mamidipudi (1997 M.S.)
V. Nase (1997 M.S.)
V. Sivaprakasam (1999 M.S.)
A. Ouisse (2000, Ph.D. Co-Major Advisor: University de Rennes, France)
L. Richards (2001 M.S.)
V. Sivaprakasam (2002, Ph.D.)
P. Mamidipudi (2002, Ph.D.)
A. Makoui (2002, M.S.)
M. Arena (2002, M.S.)
S. Rozzo (2002, M.S.)
A. Pal (2005, M.S.)

Courses Taught: Quantum Mechanics I, II; Laser Physics; Non-Linear Optics; General Physics I, II
Modern Physics; Laser Remote Sensing of the Atmosphere; Optical and Laser Sensors

Other Student Supervision

Undergraduate Senior Thesis
Gifted High School Summer Research students in Laser Lab (each summer: 1988-2003)
M.S. Thesis Research Director: Grad. Students, Lund Institute/Sweden (1995-1996)
Graduate Student Intern on Tech. Transfer Policy Issues (1996)

Industrial Affiliations / Consulting:

U.S. Air Force
U.S. Army
Litton Laser Systems
Spectron Development Laboratory/TITAN (Newport Beach, CA)
Schwartz-Electro Optics (Orlando, FL)
TASC (Boston, MA)
Science and Technology Corporation (Norfolk, VA)
United Technology Applied Optics (West Palm Beach, FL)
Laser Imaging Systems (Punta Gorda, FL)
Alliant/Hercules Aerospace Corp. (Clearwater, FL)

Technology Transfer and Research Issues:

Technical Director and Co-P.I.: Technology Deployment Center (1993-1999) / Faculty Tech Transfer for Prototype Development with private industry.

University Representative at DOE Defense Conversion and Technology Transfer Initiative Workshops (1996).

University Representative to White House Office of Science and Technology Policy Southeastern Science Policy Colloquium (1996).

Principal Investigator on ten different Small Business Independent Research (SBIR) grants with small companies for product development (1988-1998).

University representative at National Conference on the Advancement of Research (NCAR): Restructuring of the R&D Enterprise (1996).

Development of new atmospheric spectroscopy software code (USF HITRAN PC) sold by commercial software firm. Involved CRADA agreements with U.S. Air Force Phillips Lab and National Institute of Science and Technology.

Current Scholarly Research

1. UV Laser Induced Fluorescence detection of plastics and trace organic/bio/chem compounds in water
2. Optical spectroscopy of the retina for disease diagnosis
3. Optical detection of biological spores

Patents:

Differential Spectroscopic Imaging of the Human Retina, US Patent# 6,709,109 (2004)
Open path free space optical communication system and methods utilizing wavelengths between atmospheric and gaseous absorption, US Patent #7126971 (2006)
System and Method for Multi-Beam Laser Vibrometry Triangulation Mapping of Underground Sources, US Patent#7,190,635 (2007)

Dennis K. Killinger

Refereed Journal and Book Publications

1. Intensity and Pressure Dependence of Resonance Fluorescence of OH Induced by a Tunable UV Laser, D.K. Killinger, C.C. Wang, and M. Hanabusa, *Phys. Rev. A* 13, 2145 (1976).
2. Pulsewidth Dependence of Ozone Interference in the Laser Fluorescence of OH in the Atmosphere, M. Hanabusa, C.C. Wang, S. Japar, D.K. Killinger, and W. Fisher, *J. Chem. Phys.* 66, 2118 (1977).
3. Hydroxyl Radical Measurements in a Photochemical Reactor by Laser-Induced Fluorescence, C.H. Wu, C.C. Wang, S.M. Japar, L.I. Davis, Jr., M. Hanabusa, D.K. Killinger, H. Niki, and R. Weinstock, *Int. J. Chem. Kinetics* VIII, 765 (1976).
4. Absorption Measurements of OH using a CW Tunable Laser, D.K. Killinger and C.C. Wang, *Chem. Phys. Lett.* 52, 374 (1977).
5. Simultaneous Determination of Rotational and Translational Temperature of OH in a Gas Discharge, C.C. Wang and D.K. Killinger, *Phys. Rev. Lett.* 39, 929 (1977).
6. Photoacoustic and Absorption Spectrum of Airborne Carbon Particulate Using a Tunable Dye Laser, S.M. Japar and D.K. Killinger, *Chem. Phys. Lett.* 66, 207 (1979).
7. Effect of Rotational Excitation on the Band Oscillator Strength of OH, C.C. Wang and D.K. Killinger, *Phys. Rev. A* 20, 1495 (1979).
8. Direct Measurement of the Gibbs Free Energy of OH Using a CW Tunable Laser, D.K. Killinger and C.C. Wang, *J. Chem. Phys.* 71, 1582 (1979).
9. Rotational Dependence in the Linewidth of the Ultraviolet Transitions of OH, C.C. Wang, D.K. Killinger, and C.M. Huang, *Phys. Rev. A* 22, 188 (1980).
10. The Use of Photoacoustic Spectroscopy to Characterize and Monitor Soot in Combustion Processes, D.K. Killinger, J. Moore, and S.M. Japar, in *Laser Probes for Combustion Chemistry*, D.R. Crosley, Editor (ACS Symposium Series, 1980).
11. Remote Sensing of CO using Frequency-Doubled CO₂ Laser Radiation, D.K. Killinger, N. Menyuk, and W.E. DeFeo, *Appl. Phys. Lett.* 36, 402 (1980).
12. Remote Sensing of NO using a Differential-Absorption Lidar, N. Menyuk, D. K. Killinger, and W.E. DeFeo, *Appl. Optics* 19, 3282 (1980).
13. Temporal Correlation Measurements of Pulsed Dual CO₂ Lidar Returns, N. Menyuk and D.K. Killinger, *Optics Letters* 6, 301 (1981).
14. Effect of Turbulence Induced Correlation on Laser Remote Sensing Errors, D.K. Killinger and N. Menyuk, *Appl. Phys. Lett.* 38, 968 (1981).
15. Remote Probing of the Atmosphere using a CO₂ DIAL System (Invited Paper), D.K. Killinger and N. Menyuk, *J. Quantum Elect.* QE-17, 1917 (1981).
16. Spectrophone Measurements of Diesel Vehicle Particulate Material, S.M. Japar, J. Moore, D.K. Killinger, and A.C. Szkarlat, in Light Absorption by Aerosol Particles, H.E. Gerber and E.E. Hindman, Eds, (Spectrum Press, 1982).

PUBLICATIONS cont.

17. Laser Remote Sensing of Hydrazine, MMH, and UDMH using a Differential-Absorption CO₂ Lidar, N. Menyuk, D.K. Killinger, and W.E. DeFeo, Appl. Optics 21, 2275 (1982).
18. Limitations of Signal Averaging due to Temporal Correlation in Laser Remote Sensing Measurements, N. Menyuk, D.K. Killinger, and C.R. Menyuk, Appl. Optics 21, 3377 (1982).
19. Experimental Comparison of Heterodyne and Direct Detection for Pulsed Differential-Absorption CO₂ Lidar, D.K. Killinger, N. Menyuk, and W.E. DeFeo, Appl. Optics 22, 682 (1983).
20. Assessment of Relative Error Sources in IR Dial Measurement Accuracy, N. Menyuk and D.K. Killinger, Appl. Optics 22, 2690 (1983).
21. Optical and Laser Remote Sensing, D. K. Killinger and A. Mooradian, ed. Springer-Verlag, Optical Sciences Vol. 39 (1983).
22. Limitations of Laser Transmission Measurements Due to correlated Atmospheric Effects, N. Menyuk and D.K. Killinger in Laser Beam Propagation in the Atmosphere, SPIE Vol. 410 (1983).
23. Remote Sensing of Hydrazine Compounds Using a Mini-TEA CO₂ Laser DIAL System, N. Menyuk, D.K. Killinger, and W.E. DeFeo, in Optical and Laser Remote Sensing, D.K. Killinger and A. Mooradian, eds. (Springer-Verlag, Optical Sciences, Vol. 39, 1983).
24. Signal Averaging Limitations in Heterodyne and Direct Detection Laser Remote Sensing Measurements, N. Menyuk, D.K. Killinger, and C.R. Menyuk, in Optical and Laser Remote Sensing, D.K. Killinger and A. Mooradian, eds. (Springer-Verlag, 1983).
25. Error Reduction in Laser Remote Sensing: Combined Effects of Cross Correlation and Signal Averaging, N. Menyuk, D.K. Killinger, and C.R. Menyuk, Appl. Optics 24, 118 (1985).
26. Frequency Tuning Characteristics of a Q-Switched Co:MgF₂ Laser, S. Lovold, P.F. Moulton, D.K. Killinger, and N. Menyuk, J. Quantum Elect. QE-21, 202 (1985).
27. Laser Remote Sensing of Atmospheric Ammonia Using a CO₂ Lidar System, A.P. Force, D.K. Killinger, W.E. DeFeo, and N. Menyuk, Appl. Optics 24, 2837 (1985).
28. Laser Remote Sensing of the Atmosphere (Invited Review paper), D.K. Killinger and N. Menyuk, Science 235, 37 (1987).
29. Atmospheric Remote Sensing of Water Vapor, HCl and CH₄ using a continuously tunable Co:MgF₂ laser, N. Menyuk and D.K. Killinger, Applied Optics 26, 3061 (1987).
30. Eye-Safe 2.1 μm Ho Lidar for Measuring Atmospheric Density Profiles, N. Sugimoto, N. Sims, K. Chan, and D.K. Killinger, Optics Letters 15, 302 (1990).
31. Optimal Heterodyne Detector Array Size for 1 μm Coherent LIDAR Propagation Through Atmospheric Turbulence, N. Sugimoto, K. Chan, and D.K. Killinger, Applied Optics, 30, 2609 (1991).
32. Video Camera Measurements of Atmospheric Turbulence Using the Telescope Image of a Distant Light Source, N. Sugimote, K. Chan, and D. K. Killinger, Applied Optics, 30, 365 (1991).
33. Short-Pulse, Coherent 1-GHz Doppler Nd: YAG LIDAR, K. Chan and D.K. Killinger, Invited Paper, Optical Engineering, 30, 49 (1991).

PUBLICATIONS cont.

34. Heterodyne Doppler 1 μm LIDAR Measurement of Reduced Effective Telescope Aperture Due to Atmospheric Turbulence, K.P. Chan, D.K. Killinger, and N. Sugimoto, *Applied Optics* 30, 2617, (1991).
35. Tunable 2.1 μm Ho Lidar for simultaneous Range-Resolved Measurements of Atmospheric Water Vapor and Aerosol Backscatter Profiles, S. Cha, K.P. Chan, and D.K. Killinger, *Applied Optics* 30, 3938 (1991).
36. Enhanced Detection of Atmospheric Turbulence Distorted 1 μm Coherent LIDAR Returns Using a two-dimensional Heterodyne Detector Array, K. Chan and D. Killinger, *Optics Letters* 16, 1219 (1991).
37. Performance Characteristics of Acousto-Optic Q-Switched Tunable 2.1 μm Ho: YSGG laser, Y. Saito, Kin, P. Chan, and D. K. Killinger, *Japanese Journal of Optics*, 20 No. 8, p. 612-616 (1991).
38. Useful Receiver Telescope Diameter of Ground-Based and Airborne 1,2 and 10 μm Coherent Lidars in the Presence of Atmospheric Turbulence, K.P. Chan and D.K. Killinger, *Applied Optics* 31, 4915 (1992).
39. Recent Studies on Near-Infrared Solid-State Heterodyne Lidars, N. Sugimoto, K.P. Chan, and D.K. Killinger, *The Review of Laser Engineering (Laser Soc. of Japan)*, 19, 159 (1991).
40. Coherent 1 μm Lidar Measurements of Atmospheric Turbulence Induced Spatial Decorrelation Using a Multi-Element Heterodyne Detector Array, K.P. Chan and D.K. Killinger, *Applied Optics* 31, 1505 (1992).
41. Coherent Summation of Spatially Distorted Laser Doppler Signals Using A Two-Dimensional Heterodyne Detector Array, K.P. Chan and D.K. Killinger, *Optics Letters* 17, 1237 (1992).
42. "Atmospheric Optics", Chapter in *OSA Handbook of Optics*, D.K. Killinger, J. H. Churnside, and L. S. Rothman (McGraw - Hill, 1994).
43. Tunable 1.7 μm laser spectrometer for optical absorption measurements of CH_4 , C_2H_4 , and high temperature HCl, M. Vaidyanathan and D.K. Killinger, *Applied Optics* 32, 847 (1993).
44. Absorption Strength and Pressure broadened linewidth measurements of the 1.73 μm (2-0) Band of HCl at High Temperatures, M. Vaidyanathan and D.K. Killinger, *J. Quant. Spect. and Radiative Transfer*, 49, 659 (1993).
45. Recent Advances in LIDAR/Laser Atmospheric Sensing, D.K. Killinger and R. Menzies, *IEEE LEOS Newsletter* 7, 18 (1993).
46. Dual-polarization modes and self-heterodyne noise in a single-frequency 2.1 μm microchip Ho, Tm: YAG laser, C. He and D.K. Killinger, *Optics Letters* 19, 396 (1994).
47. Development of an eye-safe LIDAR System using a 2.1 μm Ho Laser, Y. Saito, K.P. Chan, and D.K. Killinger, *The Review of Laser Engineering* 22, 197 (1994).
48. IR Lasers Tune into the Environment, R.T. Menzies and D.K. Killinger, *IEEE Circuits and Devices*, 10, 24 (1994).

PUBLICATIONS cont.

49. Intrapulse temporal and wavelength shifts of a high-power 2.1 μm Ho: YAG laser and their potential influence on atmospheric lidar measurements, M. Vaidyanathan and D.K. Killinger, *Applied Optics* 33, 7747 (1994).
50. Tunable Diode Laser Spectroscopy, Lidar, and Dial Technique for Environmental and Industrial Measurements, A. Fried, D. Killinger, and H. Schiff, ed. SPIE vol. 2112 (1994).
51. The Technology Deployment Center: Bridging the Technology Gap, R. Streeter, D.K. Killinger, and W. Swartz, NATO ASI Proceedings: Defense Conversion Strategies, Kluwer Academic Publishing (1995).
52. Lasers for Lidar Applications, D.K. Killinger, *The Review of Laser Engineering* 23, 89 (1995).
53. High Power Eye Safe 1.57 μm OPO Lidar for Atmospheric Boundary Layer Measurements, S. Harrell, W. Wilcox, D. Killinger, G. Rives, and R. Schwarz, SPIE Vol. 2365, *Optical Sensing for Environmental and Process Monitoring* (1995).
54. Florida's Tech Deployment Offsets Defense Downturn , G. W. Hagen, R. B. Streeter, D. K. Killinger, and W. E. Swartz, *Forum for Applied Research and Policy*, Vol. II, p. 75 (1996).
55. Development of a tunable, narrow-linewidth CW 2.06 μm Ho: YLF laser for remote sensing of atmospheric CO_2 and H_2O , T. Taczak and D. K. Killinger, *Applied Optics* 37,8460 (1998)
- 59 Report Harnessing Light:: Optical Science and Engineering for the 21st Century, Co-Author on COSE and Lead Author on Chapter on Optical Sensing, Lighting and Energy, National Academy Press (July, 1998).
60. Manufacturing Process Controls for the Industries of the Future, Co-Author on Report from NRC Panel on Manufacturing Process Controls/Committee on Industrial Technology Assessments, National Academy Press (1998).
61. Optimal Detector Selection for a 1.5 micron KTP OPO Atmospheric Lidar, P. Mamidipudi and D.K. Killinger, SPIE Aerospace Pup. 3707, *Laser Radar Technology and Applications* (1999).
62. Geometrical detector considerations in laser sensing applications, D. Killinger, SPIE Aerospace Pub. 4153, *Lidar Remote Sensing for Industry and Environment Monitoring* (2000).
63. Lidar and Laser Remote Sensing: Chapter, D. K. Killinger, Handbook of Vibrational Spectroscopy, (John Wiley, 2001)
64. Preserving Defense Technologies: A Strategy for Economic Conversion, R. Streeter, G. Hagen, E. Patenaude, and D.K. Killinger , *Defense and Peace Economics*, Vol. 12, pp 569 (2001).
65. Optical Wireless Laser Communications: Free Space Optics: Chapter, D.K. Killinger, IEEE Encyclopedia of Telecommunications (John Wiley, 2002).
66. Free Space Optics for Laser Communication through the Air, Invited Feature Article, *Optics and Photonics News*, OSA p.36-42 (Oct. 2002).
67. Effect of polarization and geometrical factors on quantitative laser-induced fluorescence-to-Raman intensity ratios of water samples and a new calibration technique, Vasanthi Sivaprakasam and Dennis K. Killinger, *J. Opt. Soc. Am. B* 20, 1980 (2003).
68. Tunable ultraviolet Laser-induced fluorescence detection of trace plastics and dissolved organic compounds in water, Vasanthi Sivaprakasam and Dennis K. Killinger, *Applied Optics* 42, 6739 (2003).

PUBLICATIONS cont.

69. Development and Initial Calibration of a portable Laser Induced Fluorescence system used for insitu measurements of trace plastics and organics in seawater and the Gulf of Mexico, Vasanthi Sivaprakasam, Robert Shannon, Caiyan Luo, Paula G. Coble, Jennifer Boehme, and Dennis K. Killinger, Applied Optics 42, 6747 (2003).
70. Optics in chemical and biological weapons detection, Dennis Killinger, Defense section of Optics Report ;on-line Journal: www.opticsreport.com, (August 19, 2003).
71. Tunable UV LIF of Terbium-doped bacteria endospores, Anali Makoui and Dennis K. Killinger, SPIE: Optical Based Biological and Chemical Sensing , Vol. 5617-61 (2004).
72. Advanced Devices and Materials for Laser Remote Sensing, Ed. A. Aksnes, F. Amzajerdian, D. Killinger, L. Merhari, MRS Symposium Proceeding, Vol. 883 (2005)
73. Optical based Sensing for Homeland Security: Remote Imaging and Chem/Bio Agent Sensing, 1-hour web broadcast, archived, Laser Focus World, August, 2005
74. Water Monitoring with Laser Fluorescence, Dennis Killinger and Vasanthi Sivaprakasam, Invited Review , OSA Optics and Photonics News, p35, January 2006
75. Laser induced fluorescence studies of water processed by a reverse osmosis purification unit, Anna Sharikova and D. Killinger, Chemical and Biological Sensors for Industrial and Environmental Security, SPIE Vol. 5934 OB, 2005
76. Laser induced fluorescence LIF Lifetime studies of Terbium-doped DPA, Anali Makoui and D. Killinger, Chemical and Biological Sensors for Industrial and Environmental Security, SPIE Vol. 5934 OB, 2005
77. Detecting chemical, biological, and explosive agents, SPIE Newsroom, archived invited paper, August 2006.

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Conference Presentations and Invited Seminars

1. Intensity and Pressure Dependence of OH Laser Induced Fluorescence, APS March Meeting, Atlanta, GA (1976).
2. OH Spectroscopy Using a CW Tunable Laser, APS March Meeting, Washington D.C. (1978).
3. The Use of Photoacoustic Spectroscopy to Characterize and Monitor Carbonaceous Particulate Formation in Combustion Processes, ACS Meeting, Chicago, Illinois (1978).
4. Development and Preliminary Operation of a 5 and 10 micron DIAL System, Ninth Int. Laser Radar Conf., Munich, Germany (1979).
5. Remote Sensing of CO Using Frequency Doubled CO₂ Laser Radiation, OSA Annual Meeting, Rochester, NY (1979).
6. Remote Sensing of NO Using a Differential-Absorption Lidar, Conf. on Lasers and Electro-Optics (CLEO), San Diego, CA (1980).
7. Determination of Band Oscillator Strength and Linewidth of the Ultraviolet Transitions of OH. Eleventh Int. Quantum Elect. Conf., Boston, MA (1980).
8. DIAL Measurements of Ethylene, OSA Topical Meeting: Coherent Laser Radar for Atmospheric Sensing, Aspen, CO (1980).
9. Temporal Decorrelation of Differential-Absorption Lidar Returns, Tenth Int. Laser Radar Conf., Silver Spring, MD (1980).
10. Laser Remote Sensing of CO, NO, C₂H₄, IRIS Active IR Sensor Meeting, Boston, MA (1980).
11. Comparative Sensitivity of Dual Laser and Single Laser Remote Sensing of Atmospheric Species, OSA Annual Meeting, Kissimmee, FL (1981).
12. Effect of Turbulence Induced Correlation on Laser Remote Sensing Errors, CLEO, Washington D.C. (1981).
13. Simultaneous Heterodyne and Direct Detection CO₂ DIAL Measurements, Eleventh Int. Laser Radar Conf., Madison, WI (1982).
14. Limitations of Signal Averaging of DIAL Measurements due to Temporal Correlation, Eleventh Int. Laser Radar Conf., Madison, WI (1982).
15. Remote Sensing of Hydrazine Compounds Using a DIAL Mini-TEA CO₂ Laser, ARO: Workshop on Optical and Laser Remote Sensing, Monterey, CA (1982).
16. Laser Remote Sensing of the Atmosphere, Seminar: Department of Physics, Georgia Institute of Technology, Atlanta, GA (1982).
17. Analytical Comparison of Optimized Heterodyne and Direct Detection CO₂ Lidar for Atmospheric Remote Sensing, OSA Topical Meeting: Coherent Laser Radar Technology and Applications, Aspen, CO (1983).
18. Comparison of Heterodyne and Direct Detection CO₂ DIAL Measurements, OSA Topical Meeting: Optical Techniques for Remote Probing of the Atmosphere, Lake Tahoe, NV (1983).
19. Effects of Differential Reflectivity, Background Interference, and Signal Fluctuations on IR DIAL Measurement Accuracy, OSA Topical Meeting: Optical Techniques for Remote Probing of the Atmosphere, Lake Tahoe, NV (1983).

20. Laser Remote Sensing Using Heterodyne and Direct Detection IR Lidar, CLEO, Baltimore, MD (1983).
21. Laser Remote Sensing and Spectral Identification of Complex Molecules, OSA Annual Meeting, New Orleans, LS (1983).
22. Limitations of Optical Detection Measurements, Seminar: Department of Physics, University of Arkansas, Fayetteville, AK (1983).
23. Laser Remote Sensing of Atmospheric Species Using IR Differential Absorption Lidar, Seminar: Dept. of Earth and Planetary Sciences, Harvard University, Cambridge, MA (1984).
24. Laser Sources for Remote Sensing: Future Directions and Perspectives, 12th Int. Laser Radar Conf., Aix-en Provence, France (1984).
25. Remote Sensing Using a Continuously Tunable Co:MgF₂ Laser, NDRE, Oslo, Norway (1984).
26. Laser Probing of the Atmosphere, OSA Section Meeting, Boston, MA (1984).
27. Laser Remote Sensing of Atmospheric Species, Optics and Quantum Electronics Seminar, MIT, Cambridge, MA (1984).
28. Application of Coherent Lidar to Remote Sensing of Atmospheric Species, OSA Topical Meeting: Optical Remote Sensing of the Atmosphere, Lake Tahoe, NV (1985).
29. Accuracy of Heterodyne and Direct Detection CO₂ DIAL Systems, ARO Meeting on Remote Sensing for Chemical Defense, Myrtle Beach (1985).
30. DIAL Measurements of Atmospheric Water Vapor, HCl, and CH₄ Using a Continuously Tunable 1.7 μm Co:MgF₂ Laser, OSA Topical Meeting (Cape Cod 1987)
31. Enhanced Direct-Detection of CO₂ LIDAR Returns Using a Laser Pre-Amplifier, OSA Topical Meeting-Laser and Optical Remote Sensing: Instrumentation and Techniques (Cape Cod) 1987.
32. LASER Remote Sensing of High Temperature Gases, ONR Workshop (Arnold AFB) 1987.
33. Laser Remote Sensing of Hazardous Chemicals: American Chemical Manuf. Assoc. Workshop, Houston (1988).
34. Spaceborne LIDAR Remote Sensing of the Atmosphere, NASA IN-STEP 88 Workshop, Atlanta (1988).
35. LIDAR Diagnostics of Rocket Plumes, ONR/NASA Workshop (Ames Research Center) 1988.
36. LASER and LIDAR Techniques: United Technology Applied Optics Center (West Palm Beach) 1989.
37. LIDAR Remote Sensing for EPA Applications (Invited Overview) EPA Workshop (Las Vegas) April, 1989.
38. Optical Design Criteria for Optimization of Nd:YAG Coherent LIDAR,. Sugimoto, K. Chan, and D.K. Killinger, OSA Annual Meeting, Orlando (1989).

39. Eye-Safe 2 μm Ho: YSGG LIDAR for Atmospheric Aerosal Profiling, N. Sugimoto, N. Sims, and D.K. Killinger, IEEE LEOS'89 Conf., Orlando (1989).
40. Development of Short Pulse (~ 10 NS) Coherent Doppler 1.06 μm Nd: YAG LIDAR, K. Chan, N. Sugimoto, and D.K. Killinger, IEEE LEOS'89 Conf., Orlando (1989).
41. Future Directions in LIDAR Atmospheric Technology, D.K. Killinger, Invited Overview, International Symposium on Japanese Pacific Climatic Study (JAPACS), Tsukuba Science City, JAPAN, Oct. 19-20, (1989).
42. Optimal Heterodyne Detector Array Size for 1 μm Coherent LIDAR, N. Sugimoto, K. Chan, and D.K. Killinger, OSA Conf., Optical Remote Sensing of the Atmosphere, Lake Tahoe (1990).
43. Eye-Safe 2.1 μm Ho LIDAR for Measuring Atmospheric Aerosols and Water Vapor, N. Sugimoto, S. Cha, K. Chan, and D.K. Killinger, OSA Conf., Opt. Rem. Sens. of the Atmosphere, Lake Tahoe (1990).
44. Short-Pulse Coherent Doppler Nd:YAG LIDAR at 1.06 μm , K. Chan, N. Sugimoto, and D.K. Killinger, OSA Conf., Opt. Remote Sens. of the Atmos., Lake Tahoe (1990).
45. Tunable 2.1 μm Ho Laser for DIAL Remote Sensing of Atmospheric Water Vapor, S. Cha, N. Sugimoto, K. Chan, and D.K. Killinger, OSA Conf., Advanced Solid State Lasers, Salt Lake City (1990).
46. Effect of Telescope Aperture Size on Coherent 1 μm Doppler LIDAR, K. Chan and D.K. Killinger, Conf. on Lasers and Electro Optics, Anaheim (1990).
47. Laser Remote Sensing of the Atmosphere: New Laser Sources and Spectroscopy, Physics Colloquium, Univ. of Kansas, March 19, 1990.
48. Effect of Telescope Aperture Size on Coherent 1 μm Doppler LIDAR, Conf. on Lasers and Electro-Optics (CLEO '90) May 25, 1990.
49. Development of 2.1 μm Ho LIDAR for Aerosol, Water Vapor, and Wind Measurement, International Laser Radar Conf. (Tomsk, USSR) July, 1990.
50. New Solid State LIDAR Measurements, ARO Workshop on Remote Sensing of the Planetary Boundary Layer, April, 1990.
51. Eye-Safe Ho and other New Solid-State Lasers for Differential-Absorption LIDAR (DIAL) Remote Measurements of Atmospheric Species, Invited Paper, APS Int. Laser Science Conf., Sept., 1990.
52. New Solid-State LIDAR Systems for Atmospheric Remote Sensing, Invited Paper, IEEE LEOS '90, Nov. 1990.
53. Solid-State LIDAR Measurements at 1 and 2 μm , Invited Paper SPIE OE/LASE '91 (Jan., 1991).
54. Development of Solid-State Laser Radars at 1 and 2 μm , Japan Laser Sensing Symposium, Sendai, Japan (May, 1991).
55. Enhanced Heterodyne Detection of 1 μm Nd:YAG Coherent LIDAR Using a 2-Dimensional Detector Array, OSA Topical Meeting on Coherent Laser Radar, Aspen (July, 1991).
56. Development of 1 and 2 μm Coherent Doppler LIDAR for Atmospheric Sensing, SPIE Aerospace Conf., Orlando April, 1991).

57. Emerging Laser Technology for Laser Remote Sensing Applications, (Invited Paper) IEEE/LEOS Conf. San Jose (Nov. 1991).
58. Advances in 1 to 2 μm Solid-State LIDAR/DIAL Technology: Laser Sources, Optical Detectors, and Fiber Amplifiers (Invited Paper) OSA/Optical Remote Sensing of the Atmosphere Conf. Williamsburg (Nov. 1991).
59. 2.1 μm Ho Lidar Measurements of the Temporal and Spatial variability in the range-resolved extinction and backscatter coefficient of the atmosphere, OSA/Optical Remote Sensing of the Atmosphere, Williamsburg (1991).
60. Tunable 1.7 μm Laser Spectrometer for the Remote Detection of Atmospheric CH_4 , C_2H_4 and High Temperature HCl, OSA/Optical Remote Sensing of the Atmosphere, Williamsburg (1991).
61. Development of Solid-State Laser Radars at 1 and 2 μm , Japan Laser Sensing Symposium, Sendai (May 30, 1991).
62. Laser Sensors and New Laser Sources, AMOCO Research Center (June, 1991).
63. Emerging Laser Technology for LIDAR/Laser Remote Sensing Technology (Invited), IEEE Laser and Electro-Optics Symposium, San Jose (Nov., 1991).
64. Fiber Optic Coupled Tunable Laser 1.7 μm Sensor for Detection of Atmospheric and Environmental Gases, AWMA Optical Remote Sensing Conf.: Applic. to Environmental and Industrial Prob., Houston (April, 1992).
65. Eye-Safe Ho LIDARS for Windshear Detection, NASA 2 μm Workshop, Washington, D.C. (May, 1992).
66. Measurements of Atmospheric Refractive Parameters Using a Multi-Element Detector 1 μm Coherent Doppler LIDAR, International Sym. for Wave Propagation in Random Media, Seattle (Aug. 1992).
67. Emerging Solid State Laser Technology for LIDAR/DIAL Remote Sensing (Invited) 16th Int. Laser Radar Conf., MIT/Boston (July, 1992).
74. Influence of Intrapulse Wavelength Shifts of a High Power Q-switched 2.1 μm Ho:YA6 laser on Atmospheric Lidar Measurements, Conf. on Lasers and Electro-Optics (CLEO), (May, 1993).
75. HITRAN-PC and NIST/EPA Database for Accurate Prediction of Atmospheric background and Environmental Gas Spectra, HITRAN Spectroscopic Database Conf./AFGL, June (1993).
76. Emerging Laser Sources and Deflector Technology for 1 and 2 μm Coherent Doppler LIDAR, OSA Coherent Laser Radar Conf., Paris, July (1993).
77. Tunable Solid-State and Semiconductor Lasers for Open Path Measurements of Atmospheric Gases, AWMA/SPIE Optical Sensing for Environmental Monitoring/Atlanta, Oct. (1993).
78. Use of the HITRAN molecular database in generating noise free reference spectra for field measurements, AWMA/SPIE Optical Sensing for Environmental Monitoring/Atlanta, Oct. (1993).
79. Laser remote Sensing with Tunable Sources, Los Alamos Invited Seminar, Oct. (1993).
80. Optical and Laser Measurements of Environmental Gases, Phillip Petroleum Co, Invited Lecture Oct (1993).

81. Spectroscopy and Remote Sensing of the Atmosphere using Tunable Lasers, Lawrence Livermore Nat. Lab/Sandia Lab Invited Seminar, Nov. (1993).
82. Tunable Single-Frequency Ho Lasers for Coherent LIDAR, NASA 2 μm Laser Workshop, Wash. D.C. Nov. (1993).
83. HITRAN Spectroscopy Database, IEEE OPTCON Lecture Series, San Jose, Nov. (1993).
84. Pump and Stress induced dual polarization wavelength shifts in a single frequency 2.1 μm Ho, Tm: YAG Microchip laser, OSA Advanced Solid-State Laser Conf., Salt Lake City, Feb. (1994).
85. Computer Simulation Studies of an atmospheric tunable lidar/DIAL system, Int. Laser Radar Conf. Sendai/Japan, July (1994).
86. High resolution spectral studies of Ho lasers for lidar/DIAL applications, Int. Laser Radar Conf. Sendai/Japan, July (1994).
87. High Power Eye-Safe 1.57 micron OPO Lidar for Atmospheric Boundary Layer Measurements, SPIE Conf. on Optical Sens. for Environment and Process Monitoring, Virginia (1994).
88. High-Resolution Spectral Studies for LIDAR: Invited Talk, LEOS, Boston (1994).
89. Dial Measurements of CO₂ using a tunable, narrow-linewidth 2.066 micron Ho, Tm: YLF Laser, OSA Topical Meeting: Opt. Remote Sensing of the Atmosphere, Salt Lake City (1995).
90. Atmospheric LIDAR using a High Energy 1.57 micron Optical Parametric Oscillator; Opt. Remote Sensing of the Atmosphere, Salt Lake City (1995).
91. The Technology Deployment Center: Bridging the Technology Gap, R. Streeter, D. Killinger, and W. Swartz; NATO Advanced Study Institute on Defense Conversion Strategies, Scotland (July, 1995).
92. Technology Transfer as a Vehicle for Economic Development; Society of Research Administrators Conf. on Invention and Reinvention of Research Administration, Charleston (1996).
93. DoD Lidar Applications and Optical Remote Sensing of Chemical Species: Defense Sciences Research Council, LaJolla (1996).
94. Continuously tunable, CW 2.066 μm Ho:YLF laser and DIAL system for atmospheric CO₂ and H₂O measurements, OSA Advanced Solid State Lasers Topical Meeting, Orlando (1997).
95. Range-resolved Lidar measurements of the atmosphere using an eye-safe infrared KTP optical OSA Optical Remote Sensing of the Atmosphere, Santa Fe (1997).
96. Wavelength Tunable Lidar and DIAL Computer Simulations, OSA Remote Sensing of the Atmosphere, Santa Fe (1997).
97. Atmospheric CO₂ and H₂O concentration measurements using a continuously tunable, CW 2.066 μm Ho:YLF laser based DIAL system, CLEO '97 Conference on Lasers and Electro-Optics, Baltimore (1997).
98. Invited Plenary/Tutorial: Environmental Applications of Lidar and Optical Remote Sensing, CLEO '97- Pacific Rim/Japan (1997).
99. Review of CO₂ laser long-path Lidar atmospheric turbulence effects, Invited talk: SPIE Conference on Laser Radar Techniques, London (1997).
100. Tunable UV Laser Induced Fluorescence Spectroscopy of Trace Plastic Compounds Dissolved in Seawater, CLEO Conference, San Francisco (1998).

101. M-squared Laser Beam and Telescope Overlap Factors for a 1.5 micron KTP OPO Laser, 19th International Laser Radar Conference, Annapolis (1998).
102. Development of a 1.55 micron High Power, Eye Safe KTP OPO Lidar for Atmospheric Aerosol Measurements, IEEE International Geoscience and Remote Sensing Symposium, Seattle (1998).
103. Solid-State Laser studies and enhanced lidar detection techniques for Wake vortex detection, NASA Kennedy Space Center/Partners in Education and Research Conf. (1998)
104. Coherent Doppler Lidar Detector Array enhancements to SNR, Working Group: Space Based Lidar Winds, Key West (1999)
105. Optical Heterodyne Detector Array Techniques for Wind Lidar Measurements, WC44.41, APS March Meeting, Atlanta (1999)
106. Tunable UV Laser Induced Fluorescence of Seawater to Detect Trace Amounts of Organic Compounds, WC44.31, APS March Meeting (1999).
107. UV Laser induced fluorescence sensitivity dependence on PMT and CCD detector selection, collection optics, and excitation polarization, CLEO Baltimore (1999).
108. Detector and Calibration studies for UV laser induced fluorescence detection of trace chemical concentrations in aqueous solutions, Eng. Foundation: Optics in Biotechnology, Medicine, and Surgery, Kona, Hawaii (1999)
109. Comparison of detector and UV laser sources for a compact UV laser induced fluorescence system, OSA Annual Meeting, Santa Clara (1999).
110. Detector Array Considerations for Heterodyne Lidar, 20th International Laser Radar Conference, Vichy, France (July, 2000).
111. Detector Array Considerations for Laser Remote Sensing, IEEE/LEOS Remote Sensing (West Palm Beach (July, 2000).
112. Geometrical Detector Considerations in Laser Sensing Applications, SPIE Conference: Remote Sensing of Atmosphere, Environment, and Space, Sendai, Japan (Oct. 2000)
113. Heterodyne Multi-Detectors for Atmospheric and Vibration Mitigation, Lincoln Lab and DARPA Conference on Airborne Optical Communication Systems (Nov. 2, 2000)
114. Laser and Optical Signals in Space, USF Engineering : Wireless Seminar (April, 2001).
115. Development of Compact UV Laser Induced Fluorescence Instrument and Preliminary Measurements of Organics in the Gulf of Mexico, Ocean Sciences Conference, Honolulu (Feb., 2002)
116. Multi-aperture coherent Doppler lidar for mitigation of turbulence and vibration induced speckle effects, CLEO 2002, Long Beach (May, 2002)
117. Laser Remote Sensing of the Environment: Sensitivity and Accuracy, Conference on Reducing Biological Threats and Countering Terrorism, Albuquerque (March 2002)
118. Multi-Detector Processing of vibration influenced lidar returns, NASA Working Group on Space Based Lidar Winds, Key West, (January 2002)
119. UV Laser Induced Fluorescence portable system for the detection of plastic and organic compounds in water, OSA Topical Meeting on Laser Applications to Chemical and Environmental Analysis, Boulder , (Feb 2002)
120. Development of Compact UV Laser Induced Fluorescence Instrument and Preliminary Measurements of Organics in the Gulf of Mexico, Ocean Sciences Meeting, Honolulu, (Feb. 2002)

- 121 High Speed UV laser induced fluorescence system for the detection of organic compounds using multi beam excitation, Conference on Lasers and Electro-Optics, Long Beach (May 2002)
- 122 Optoelectronics Opportunities for Homeland Security, Invited Keynote , Laser Focus Marketplace Seminar, San Jose (Jan 27, 2003)
- 123 Laser enhanced spectroscopic detection of biological endospores, OSA Conf: Optics in the Southeast, Orlando (Nov. 13, 2003)
- 124 Laser induced fluorescence real-time sensing of trace plastics and dissolved organic compounds in water/seawater, OSA Conf. Laser applications to chemical and environmental analysis, Annapolis (Feb. 9-11, 2004).
- 125 Tunable UV LIF of Terbium-doped bacteria endospores, SPIE Conf. Optical based biological and chemical sensing for Defense, London (Oct. 25-28, 2004).
- 126 Chemical and Biological Agent Sensing, Invited Keynote, Photon Forum, Laser Focus World/Industry/University , Tucson (April 5-7, 2004).
- 127 Tunable UV LIF of Terbium doped bacteria endospores, NSF Conf.: Bacterial Spores: Challenges and Future Directions for Biodefense, Argonne National Lab (Nov. 14-16, 2004)
- 128 Laser induced fluorescence studies of water processed by a reverse osmosis purification unit, SPIE Optics East, Boston, Oct. 23-26, 2005
- 129 Laser induced fluorescence LIF Lifetime studies of Terbium-doped DPA, SPIE Optics East, Boston, Oct. 2005
- 130 Coherent summation of multiple detector heterodyne 1.55 micron lidar signals, 13th Coherent Laser radar Conference, Kamakura Japan, Oct. 2005
- 131 Laser Doppler Vibrometry measurements of metal structural beams and detection of metal fatigue, 13th Coherent Laser radar Conference, Kamakura Japan, Oct. 2005
- 132 Real-time laser fluorescence sensing of DOCs in processed water, GE Water Symposium, Schenectady NY, August 2, 2005
- 133 Optical Remote Sensing and Optical Communication, USF Electrical Engineering Wireless Seminar, Feb. 16, 2005
- 134 Optics and Photonics: Keystone Technologies for Sensors in Homeland Security, Invited Keynote to US Congressional Research and Development Caucus for Optical Society of America, Oct. 6 2005
- 135 Fluorescence Lifetime Studies of Terbium Doped Dipicolinic Acid (DPA) using a High PRF UV Laser, Conf. on Lasers and Electro-Optics (CLEO), Long Beach, May 25, 2006
- 136 LIF detection of trace species in water using different UV laser wavelengths, ISSSR 2006 Conference, Bar Harbor, May 30, 2006.
- 137 New spectroscopic methods for stand-off detection of biological and biopolymer weapons, Invited Overview, DTRA Biotech workshop for Advanced Systems and Concepts (ASCO), Ft. Belvoir, June 14, 2006

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Dennis K. Killinger Biography (2006)

Dr. Dennis K. Killinger is a Distinguished University Professor and Professor of Physics at the University of South Florida. He has close to 40 years experience in laser and optical remote sensing, laser radar/Lidar, trace species detection, applied laser spectroscopy, laser physics, and laser communication. He received the BA degree from the University of Iowa, MA degree from De Pauw University, and Ph.D. degree in Physics from the University of Michigan.

He was a program manager at Lincoln Laboratory during the 1980s and led the team in the development of tunable CO₂, Ti:S, and Co:MgF₂ lasers and DIAL/lidar systems for the remote sensing of trace gas plumes in the atmosphere. Since 1987, he has been a professor at the University of South Florida and director of the Lidar Remote Sensing laboratory developing new tunable laser sources and integrating their use into DIAL/lidar for remote sensing of atmospheric gases and the use of tunable lasers as spectroscopic sensors for medical and industrial applications.

His accomplishments include the first observation and detailed theoretical study of the limitations to the accuracy of DIAL/lidar remote sensing due to atmospheric turbulence, the DIAL/lidar remote sensing of CO, NO, and ammonia gas plumes given off by remote vehicles, first direct comparison of heterodyne and direct detection lidar returns, the first demonstration of the limitation of telescope size for coherent lidar and the increased S/N through the use of coherent summation of multi-detector coherent arrays, and more recently the use of laser backscatter to map retinal disease and laser induced fluorescence detection of trace species.

He was special assistant to the VP of Research, Co-PI and founder of the Technology Deployment Center which oversaw the economic conversion of the DOE Pinellas Plant. Dr. Killinger has authored over 200 papers and research reports, holds several research patents on laser spectroscopic applications, and has been PI/Co-PI on over 15 million dollars in grants at USF. He is actively involved in the use of optics and photonics for homeland security, and has given short courses for SPIE and OSA on "Optical-Electronics for Homeland Security", was co-founder of the first OSA conference on Optical Sensing for Homeland Security (2003), has recently given an archived 1 hr web-broadcast course for Laser Focus World on "Optical Based Sensing for Homeland Security: Imaging and Chem/Bio Agent Sensing", and presented a keynote presentation for OSA to the US Congressional R&D Caucus in 2005 entitled "Optics and Photonics: Keystone Technologies for Sensors in Homeland Security".

Dr. Killinger is a Fellow of the Optical Society of America, Senior Member of the IEEE, past associate editor of Applied Optics and Optics Letters, and past member of the National Academy/NRC Committee on Optical Science and Engineering.