CURRICULUM VITAE

DENNIS R. ALEXANDER
Kingery Professor of Engineering

PERSONAL DATA:

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EDUCATION:

B.S., Nuclear Engineering, Kansas State University 1971
M.S., Nuclear Engineering, Kansas State University 1973
Ph.D., Nuclear Engineering, Kansas State University 1976

Post Ph.D.:

Laser Applications Short Course, George Washington University, Washington, D.C., January, 1978

Two-week Contemporary Optics Short Course, University of Rochester Institute of Optics, Rochester, NY, July, 1980

Laser Droplet and Particulate Sizing Short Course, Spectron Development Laboratories, Costa Mesa, CA, November, 1981

EMPLOYMENT RECORD:

Professor of Electrical Engineering, University of Nebraska - Lincoln, 8/93 to present
Kingery Professor of Electrical Engineering, University of Nebraska – Lincoln, 8/92 to present
Director, Center for Electro-Optics, University of Nebraska - Lincoln, 6/88 to present
Professor of Mechanical Engineering, University of Nebraska - Lincoln, 8/86 to 8/93
Associate Professor of Mechanical Engineering, University of Nebraska - Lincoln, 8/79 to 8/86
Assistant Professor of Mechanical Engineering, University of Nebraska - Lincoln, 1/76 to 8/79
Graduate Research Assistant, Kansas State University, 1/74 to 12/75
Half-time Instructor, Kansas State University, 9/73 to 1/74
Graduate Research Assistant, Kansas State University, 6/71 to 9/73
Research Scientist, Amoco Research Center, Tulsa, Oklahoma, 1981
Summer Research Faculty Fellowship, University of Nebraska, 1976, 1977, 1979, 1980
Visiting Staff Member (VSM), Los Alamos Scientific Laboratory, Los Alamos, New Mexico, 1978

MAJOR ACADEMIC APPOINTMENTS:

Advisory Board Mechanical Nuclear Engineering, Kansas State University, 2001-2008.
College of Engineering Strategic Planning Committee, 2004-2005
Academic Senate Executive Committee, June 2003 - 2009
College of Engineering & Technology Promotion and Tenure Committee, Chairman, 2003 to 2004.
College of Engineering & Technology Promotion and Tenure Committee, 2003 to 2007.
Executive Graduate Council, 1993-1996
Outstanding Research and Creative Award (ORCA) Selection Committee 1992-1996
University Committee for Academic and Administrative Computing Review, 1993
Member of State of Nebraska Experimental Programs to Stimulate Competitive Research Committee, EPSCoR, 1991 to January 1, 2007.
Member of State of Nebraska EPSCoR Grants Committee, 1992 to January 1, 2005.
Member of Center Directors' Committee for faculty and staff positions in Engineering Research Centers, 1989 to present
Numerous Departmental Committee Assignments (Graduate Committee, Promotion and Tenure, Secretary, Chairman Search Committees, etc.), 1976 to present
Member of Faculty Research Advisory (FRAC) Search Committee for Director of Engineering Research Center, 1988
Engineering College Faculty Research Advisory Committee (FRAC) - Chairman 1989
Engineering College Faculty Research Advisory Committee (FRAC) - 1987 to 1995
Member of University Central Radiation Safety Committee, 1976-1985
Chairman of University Central Radiation Safety Committee, 9/78-9/80 2 year appointment
Member of Engineering College Dean Search Committee, 3/79
Chairman, Department of Mechanical Engineering Head Search, 3/85-1/86

PROFESSIONAL SOCIETIES AND ORGANIZATIONS:

International Geophysical and Remote Sensing Symposium (IGARSS)
American Society of Mechanical Engineers (ASME)
American Society of Engineering Education (ASEE)
Pi Tau Sigma
Tau Beta Pi
Fine Particle Society
Society of Photo Optical Instrumentation Engineers (SPIE)
American Institute for Astronautics and Aeronautics (AIAA)
Optical Society of America (OSA) - Student Chapter
Faculty Advisor, 1992-present
American Nuclear Society (ANS)
Society of the Sigma Xi
Institute of Liquid Atomization and Spray Systems (ILASS)

TEACHING AND CITATIONS:

Inventor Award, Wireless Laparoscopy, University of Nebraska Medical Center, October 7, 2010
University of Nebraska University Wide Teaching Award, April 29, 2010
Holling Family Master Teaching Award, May 10, 2010.
Holling Family Distinguished Senior Faculty Teaching Award, College of Engineering, April 2005
College of Engineering Teaching Award at Professor Level, 1997
Electrical Engineering High School Recruiting, 1995-present
Faculty Advisor for Nebraska Student Chapter of the Optical Society of America (OSA), 1992-present
Kingery Professor of Engineering, 1992-present
NSF Research Experience for Undergraduates (REU) Project, 1995-2005.
College of Engineering Service Award at Professor Level, 1994
Mechanical Engineering Service Award, 1992
College of Engineering Research Award, Professor Rank, 1990
Mechanical Engineering Outstanding Research Award, 1987, 1988 and 1989
College of Engineering, $1,000 Halliburton Distinguished Teaching Award, 1979
Faculty Adviser for ASME Student Section, 1976-1979
Faculty Appreciation Award-Engineering Open House Over 150 presentations to junior high, high school students and civic groups, 1976-present
Summer High School Intern Program, 1993, 1994, 1995, 1996, 1997
Mentoring Program for Jr. High Students, 1992
ERDA and DOE Energy Education Workshop, August 1977, August 1980
UNL Saturday Engineering, Spring, 1979 and 1980
UNL Extension publication on energy, 1979

PATENTS:

1. Patent on Forming Fine Particles (U.S. Patent No. 5044565, September 3, 1991)
2. Patent on Forming Fine Particles (U.S. Patent No. 5176328, June 10, 1993)
3. Patent on Apparatus for Forming Fine Particles (U.S. Patent No. 5390864, February 21, 1995)
4. Patent on Apparatus for Forming Fine Particles (U.S. Patent No. 5553791, September 10, 1996)
5. Patent on Method of Bonding Metal to a Non-Metal Substrate (U.S. Patent No. 5586714, December 24, 1996)
6. Patent on Apparatus and Method for Detection and Concentration Measurement of Trace Metals Using Laser Induced Breakdown Spectroscopy (U.S. Patent No. 5847825, December 8, 1998)
7. Patent on Femtosecond Laser Utilization Methods and Apparatus and Method for Producing Nanoparticles (U.S. Patent No. 6489589), January 22, 2003
8. Patent on Optical Communications by Frequency Content of Femtosecond Laser Pulses, (U.S. Patent No. 6,583,911), June. 24, 2003.

9. Patent on Laser Machining of Materials (U.S. Patent No. 6, 864,457), March 8, 2005.
10. Patent Royalties from Advanced Materials, Inc. and Attochron Inc.
11. Patent, "Nanoparticle/quantum dot based optical diode", (U.S. Patent No. 7868302) January 11, 2011.
12. Patent Pending, "Wireless Laparoscopy", UNeMed Managing patenting process, June, 2011.
13. Provisional Patent Application, "Femtosecond Surface Modification Methods for Increasing Surface Area and the Release of Small Bubbles, Standstill Licensing Agreement with Photonic Solutions, Inc., April 15, 2011.
14. Provisional Patent Application, "Enhanced Signal to Noise Ration Laser Induced Breakdown Spectroscopy (LIBS)",Provisional Application, July17, 2012.
15. Office Action, "Collinear Dual Pulse and Dual Focus Femtosecond Laser Machining and Enhanced LIBS Spectroscopy," Filed Response to First office action 5/3/12
16. Patent Pending (waiting for patent to be issued), "Femtosecond Nanomachined High Surface Electrodes for Super Capacitors and Other Applications," May 17, 2012.
17. Exclusively Licensed, "Technical Information for a Cell Phone Triggered Animal Trapper", June, 2007. (UNL receives Royalities).
18. Patent Granted, Remote Chemical and Elemental Analysis by Ultra Fast Spectroscopy no. 8189190, August 2012.

Note: The University of Nebraska has now filed a patent infringement of our femtosecond laser machining patent. Filed in Ohio against Johnson and Johnson and Norman Optics. This has the potential to bring in millions of dollars. The suit is on a contingent basis with the law firm.

PUBLICATIONS:

1. D. R. Alexander, ``Radiation Effects on Natural Rock Salt--`Project Salt Vault,' Lyons, Kansas," Kansas State University, Masters Thesis, 1973.

2. D. R. Alexander, ``Delayed-Neutron Yield Calculations for the Neutron-Induced Fission of 235U as a Function of the Incident-Neutron Energy," *Kansas State University, Ph.D. Dissertation*, 1975.

3. D. R. Alexander and M. S. Krick, ``Total Delayed-Neutron Yield Calculations for the Neutron Induced Fission of 235U," *Bull. Am. Phys. Soc.*, **4**, 655, 1976.

4. D. R. Alexander and M. S. Krick, ``Delayed-Neutron Yield Calculations for the Neutron-Induced Fission of 235U as a Function of the Incident-Neutron Energy," *Nucl. Sci. Eng.*, **62**, 627-635, 1977.

5. D. R. Alexander and Y. K. Peng, ``Calculated Time-Dependent Six Delayed-Neutron Group Yields for Thermal Fission of 235U," *Nucl. Sci. Eng.*, **70**, 184-191, 1979.

6. J. Boellstorff and D. R. Alexander, ``Comparison of Zircon and Glass Fission-Track Ages from Tephra Horizons," *Geology*, **8**, No. 10, 468-470, 1980.

7. F. A. Rockenbach and D. R. Alexander, ``Interaction of Water Drops with a Liquid Film Flowing over Cylindrical and Various Inclined Flat Plate Surfaces," *Proceedings of the ANS-ASME International Topical meeting on Nuclear Reactor Thermal Hydraulics*, Saratoga Springs, N.Y., October 5-8, 1980.

8. D. R. Alexander and F. A. Rockenbach, ``Drop Collisions with Liquid Flowing Films on Simulated LWR Control Rod Guide Tubes," *Proceedings of the International Center for Heat and Mass Transfer International Seminar*, Dubrovnik, Yugoslavia, September 1-5, 1980.

9. J. Boellstorff and D. R. Alexander, ``Calibration of Neutron Dosimeters for Fission Track Dating," *Proceedings of the Fission Track Dating Workshop*, Pisa, Italy, September 10-12, 1980.

10. J. Nelson, R. Douglas and D. Alexander, ``Natural Convection in a Spherical Annulus Filled with Heat Generating Fluid," *Proceedings of the Seventh International Heat Transfer Conference*, Munich, Fed. Rep. of Germany, p. 171, September, 1982.

11. K. A. Morrison and D. R. Alexander, ``Particle Concentration Measurements by Laser Imaging for Turbulent Dispersion," *Particulate Science and Technology, an International Journal*, **2**, No. 4, 1984.

12. K. D. Ahlers and D. R. Alexander, ``A Microcomputer-Based Digital Image Processing System Developed to Count and Size Laser-Generated Small Particle Images," *Optical Engineering*, **24**, No. 6, 1060-1065, 1985.

13. D. R. Alexander, J. K. Wiles, S. A. Schaub and M. P. Seeman, ``Effects of Non-Spherical Drops on a Phase Doppler Spray Analyzer," SPIE *(Society of Photo-Optical Instrumentation Engineers) Particle Sizing and Spray Analysis*, **573**, 67-72, 1985.

14. K. D. Ahlers and D. R. Alexander, ``A Flexible High-Speed Digital Image Processing System," *SPIE Particle Sizing and Spray Analysis*, **573**, 84-90, 1985.

15. D. R. Alexander, J. G. Armstrong, S. A. Schaub, J. P. Barton, M. A. Emanuel, ``Nonlinear Response by Aerosol Particles To 10.6 (microns) Laser Radiation," *Proceedings of the 1986 Scientific Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, Maryland, June, 1986.

16. D. R. Alexander and J. G. Armstrong, ``Explosive Vaporization of Aerosol Drops Under Irradiation by a CO$_2$ Laser Beam," *Appl. Opt.*, **26**, No. 3, 533-538, 1987.

17. D. R. Alexander, J. P. Barton, S. A. Schaub, and M. Emanuel, ``Experimental and Theoretical Analysis of the Interaction of CO_2 Laser Radiation with Fluid Cylinders and Adjacent Spheres," *Proceedings of the 1987 CRDEC Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, Maryland, June, 1987.

18. J. P. Barton, D. R. Alexander and S. A. Schaub, ``Internal and Near-Surface Electromagnetic Fields for a Spherical Particle Irradiated by a Focused Laser Beam," *J. of Appl. Phys.*, **64**, No. 4, 1632-1639, 1988.

19. J. P. Barton, D. R. Alexander, and S. A. Schaub, ``Experimental and Theoretical Analysis of Liquid Droplets Moving Through a Focused CO_2 Laser Beam," *Proceedings of the 1988 U.S. Army CRDEC Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, Maryland, June, 1988.

20. D. R. Alexander, D. E. Poulain, J. P. Barton, S. A. Schaub, and J. Zhang, ``Interaction of Excimer Laser Radiation With Solid Particles,*'' Proceedings of the 1988 U.S. Army CRDEC Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, Maryland, June, 1988.

21. D. R. Alexander, ``Spray Characterization of a NASA MOD-1 Nozzle," *Proceedings of the International Congress on Application of Lasers and Electro-Optics* (ICALEO), Santa Clara, California, November, 1988.

22. J. P. Barton, D. R. Alexander and S. A. Schaub, ``Internal Fields of a Spherical Particle Illuminated by a Tightly-focused Laser Beam: Focal Point Positioning Effects at Resonance," *J. of Appl. Phys.*, **65**, No. 8, 2900-2906, April, 1989.

23. S. A. Schaub, D. R. Alexander, J. P. Barton and M. A. Emanuel, ``Focused Laser Beam Interactions with Methanol Droplets: Effects of Relative Beam Diameter," *Appl. Opt.*, **28**, No. 9, 1666-1669, May, 1989.

24. S. A. Schaub, D. R. Alexander and J. P. Barton, ``Theoretical Model for the Image Formed by a Spherical Particle in a Coherent Imaging System: Comparison to Experiment," *Optical Engineering*, **28**, No. 5, 565-571, May, 1989.

25. D. R. Alexander, S. A. Schaub, J. Zhang, D. E. Poulain and J. P. Barton, ``Scattering of Incident KrF Laser Radiation Resulting from the Laser Induced-Breakdown of H_2O Droplets," *Opt. Lett.*, **14**, No. 11, 548-550, June, 1989.

26. S. A. Schaub, J. P. Barton and D. R. Alexander, ``Simplified Scattering Coefficient Expressions for a Spherical ParticleLocated on the Propagation Axis of a Fifth-Order Gaussian Beam," *Appl. Phys. Lett.*, **55**, No. 26, 2709-2711, December, 1989.

27. J. P. Barton and D. R. Alexander, ``Fifth-Order Corrected Electromagnetic Field Components for a Fundamental Gaussian Beam," *J. of Appl. Phys.*, **66**, No. 7, 2800-2802, October, 1989.

28. J. P. Barton, D. R. Alexander and S. A. Schaub, ``Theoretical Determination of Net Radiation Force and Torque for a Spherical Particle Illuminated by a Focused Laser Beam," *J. of Appl. Phys.*, **66**, No. 10, 4594-4602, November, 1989.

29. S. A. Schaub, D. R. Alexander, D. E. Poulain and J. P. Barton, ``Measurement of Hypersonic Velocities Resulting from the Laser-induced Breakdown of Aerosols Using

an Excimer Laser Imaging System," *Rev. Sci. Instrum.*, **60**, No. 12, 3688-3691, December, 1989.

30. J. P. Barton, D. R. Alexander and S. A. Schaub, ``Electromagnetic Field Calculations for a Tightly-Focused Laser Beam Incident Upon a Spherical Particle," *Proceedings of the 1989 U.S. Army CRDEC Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, Maryland, June 26-30, 1989.

31. D. R. Alexander, J. P. Barton, S. A. Schaub and G. Holtmeier, ``Nonlinear Effects of Excimer Laser Interaction with Water Droplets," *Proceeding of the 1989 CRDEC Scientific Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, Maryland, June, 1989.

32. D. E. Poulain, D. R. Alexander, J. P. Barton, S. A. Schaub and J. Zhang, ``Interactions of Intense Ultraviolet Laser Radiation with Solid Aerosols," *J. of Appl. Phys.*, **67**, No. 5, 2283-2288, March, 1990.

33. D. R. Alexander and D. Gutierrez, ``Spray Characterization of a NASA MOD-1 Nozzle," *Journal of Laser Applications*, **2**, No. 1, 49-54, January/February, 1990.

34. R. M. Narayanan, S. E. Green and D. R. Alexander, ``Mid-Infrared Reflectance Characteristics of Selected Benchmark Soil Samples," *Proceedings of the USNC/URSI Commission F Meeting*, Boulder, Colorado, **98**, January 3-5, 1990.

35. D. R. Alexander, S. A. Schaub and J. P. Barton, ``Modeling of a Coherent Imaging System: Application to Focus Determination in Aerosol Sizing," *Proceedings of the 2nd International Congress on Optical Particle Sizing*, Tempe, Arizona, 1990.

36. J. P. Barton, W. Ma, S. A. Schaub and D. R. Alexander, ``Theoretical Determination of the Electromagnetic Fields for a Laser Beam Incident Upon Two Adjacent Spherical Particles of Arbitrary Arrangement," *Proceedings of the 2nd International Congress on Optical Particle Sizing*, Tempe, Arizona, 1990.

37. R. M. Narayanan, S. E. Green and D. R. Alexander, ``Soil-type Identification Using Active Mid-Infrared Reflectance Characteristics," *Proceedings of the IGARSS '90*, College Park, Maryland, **673**, May, 1990.

38. R. M. Narayanan, S. E. Green and D. R. Alexander, ``Mid-Infrared Backscatter Spectra of Selected Agricultural Crops," *Proceedings SPIE*, **1379**, 116-122, 1990.

39. D. R. Alexander, J. P. Barton, S. A. Schaub and G. M. Holtmeier, ``Nonlinear Interaction of KrF Laser Radiation with Small Water Droplets," *Appl. Opt.*, **30**, No. 12, 1455-1460, April, 1991.

40. D. R. Alexander, ``Phase Doppler Particle Analyzer and Laser Imaging Methods for Atomization and Particle Sizing Studies," *Journal of the Citizen Ambassador Program Gas Turbine Technology Delegation to Europe*, April 9-28, 1991.

41. J. P. Barton and D. R. Alexander, ``Electromagnetic Field Calculations for a Tightly-Focused Laser Beam Incident Upon a Microdroplet: Applications to Nonlinear Optics," *Proceedings SPIE*, **1497**, 64-77, May, 1991.

42. D. R. Alexander, D. E. Poulain, S. A. Schaub, and J. P. Barton, ``Nonlinear Laser Interactions with Saltwater Aerosols," *Proceedings SPIE*, **1497**, 90-97, May, 1991.

43. D. R. Alexander, G. M. Holtmeier, K.-D. Song and J. P. Barton, ``Laser Interaction with a Metallic Filament: Ablation Dynamics and Plasma Formation," *Proceedings of the 1990 U.S. Army CRDEC Scientific Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, Maryland, 211-233, June, 1991.

44. J. P. Barton and D. R. Alexander, ``Electromagnetic Fields for a Beam Incident Upon a Nonspherical Particle," *Proceedings of the 1990 CRDEC Scientific Conference on Obscuration and Aerosol Research, Aberdeen Proving Ground*, Maryland, 259-275, June, 1991.

45. J. P. Barton and D. R. Alexander, ``Electromagnetic Fields for an Irregularly Shaped Near-Spherical Particle Illuminated by a Focused Laser Beam," *J. of Appl. Phys.*, **69**, No. 12, 7973-7986, June, 1991.

46. R. M. Narayanan, S. E. Green, and D. R. Alexander, ``Moisture Effects on the Mid-Infrared Laser Reflectance from Soils," *Progress in Electromagnetics Research Symposium, PIERS Proceedings*, Cambridge, MA, **243**, July, 1991.
47. J. P. Barton, W. Ma, S. A. Schaub and D. R. Alexander, ``Electromagnetic Field for a Beam Incident on Two Adjacent Spherical Particles," *Appl. Opt.*, **30**, No. 33, 4706-4715, November, 1991.

48. S. A. Schaub, D. R. Alexander and J. P. Barton, ``Theoretical Model of the Laser Imaging of Small Aerosols: Applications to Aerosol Sizing," *Appl. Opt.*, **30**, No. 33, 4777-4784, November, 1991.

49. R. M. Narayanan, S. E. Green and D. R. Alexander, ``Soil Classification Using Mid-Infrared Off-Normal Active Differential Reflectance Characteristics," *Photogrammetric Engineering & Remote Sensing*, **58**, No. 2, 193-199, 1992.

50. G. M. Holtmeier, D. R. Alexander and J. P. Barton, ``High Intensity Ultraviolet Laser Interaction with a Metallic Filament," *J. of Appl. Phys.*, **71**, No. 2, 557-563, January, 1992.

51. D. Liu, D. R. Alexander, B. Robertson and K. Lee, ``Nanoparticle Generation and Femtosecond Laser Pulse Solid Interactions," January 24, 1992.

52. S. A. Schaub, D. R. Alexander, and J. P. Barton, ``Glare Spot Image Calculations for a Spherical Particle Illuminated by a Tightly Focused Beam," *J. Opt. Soc. Am. A*, **9**, No. 2, 316-330, February, 1992.

53. D. R. Alexander (Charles J. Murray, Midwest Technical Editor), ``Laser Atomizes Aerosol Sprays," *Design News*, **48**, No. 3, 191-192, 1992.

54. R. M. Narayanan, E. D. VonRentzell and D. R. Alexander, ``Discrimination Between Road and Soil Surfaces Using CO_2 Laser Reflectances," *Proceedings of SPIE Symposium on Characterization, Propagation and Simulation of Sources and Backgrounds II*, W. R. Watkins and D. Clement (Eds.), Orlando, FL, **1687**, April, 1992.

55. R. M. Narayanan, E. D. VonRentzell and D. R. Alexander, ``Ti:Sapphire Laser Reflectance Measurements of Natural and Artificial Targets," *Proceedings of the Joint IEEE/URSI Commission F Meeting*, Houston, TX, **7**, May, 1992.

56. S. A. Schaub and D. R. Alexander, ``Analysis of the Effects of Particle Trajectory on the Performance of a Phase/Doppler Particle Analyzer," *Proceedings of the 5th Annual ILASS Conference*, p. 172, San Ramon, CA, May 18-20, 1992.

57. D. R. Alexander and J. Zhang, ``Scattering Models for Raman and Fluorescent Particle Temperature Measurements," *Proceedings of the 5th Annual ILASS Conference*, **198**, San Ramon, CA, May 18-20, 1992.

58. R. M. Narayanan, S. E. Green and D. R. Alexander, ``Mid-Infrared Backscatter Characteristics of Various Benchmark Soils," *IEEE Transactions on Geoscience and Remote Sensing*, **30**, No. 3, 516-530 May, 1992.

59. J. P. Barton and D. R. Alexander, ``The Effects of Particle Nonsphericity on Internal Electromagnetic Field Distribution," *Proceedings of the 1991 CRDEC Scientific Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, Maryland, 191-200, June, 1992.

60. J. Zhang and D. R. Alexander, ``Hybrid Inelastic Scattering Models for Particle Thermometry: Unpolarized Emissions," *Applied Optics*, **31**, No. 33, 7132-7139, November, 1992.

61. J. Zhang and D. R. Alexander, ``Hybrid Inelastic Scattering Models for Particle Thermometry: Polarized Emissions," *Applied Optics*, **31**, No. 33, 7140-7146, November, 1992.

62. J. P. Barton, P. B. Cheekati, D. R. Alexander, and L. C. Liou, ``Modeling of a High Energy Laser Pulse Focused Within an Aerosol Spray," *Proceedings of 1993 SPIE Conference on Laser Applications in Combustion and Combustion Diagnostics*, **1862**, Los Angeles, CA, January, 1993.

63. D. Liu, P. He, D. R. Alexander and J. A. Woollam, ``Femtosecond Thermomodulation Measurements of Co/Cu and Ag/Cu Multilayer Films," *Appl. Physics Letters*, **62**, No. 3, 249-251, January 18, 1993.

64. S. A. Schaub, D. R. Alexander and J. P. Barton, ``Interaction of an Arbitrary Incident Field with Homogeneous Spherical Particles: Applications to Aerosol Diagnostics," *Trends in Optical Engineering*, **1**, 61-80, 1993.

65. J. P. Barton, D. R. Alexander and S. A. Schaub, ``Electromagnetic Field Calculations for a Beam Focused on a Layered Particle," *Proceedings of the 1992 CRDEC Scientific Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, MD, 277-287, June, 1993.

66. R. M. Narayanan, S. E. Green and D. R. Alexander, ``Mid-Infrared Laser Reflectance of Moist Soils," *Applied Optics*, **32**, No. 30, 6043-6052, October 20, 1993.

67. S. A. Schaub, D. R. Alexander and J. P Barton, ``Theoretical Analysis of the Effects of Particle Trajectory and Structural Resonances on the Performance of a Phase-Doppler Particle Analyzer," *Applied Optics*, **33**, No. 3, 473-483, January 20, 1994.

68. D. R. Alexander, R. D. Kubik, R. Kalwala, and J. Barton, ``Real and Imaginary Index-of-Refraction Measurements for RP-1 Rocket Fuel," *Proceedings of the SPIE Conference on Laser Applications in Combustion and Combustion Diagnostics II*, Los Angeles, CA, 161-173, January 25-26, 1994.

69. D. R. Alexander, D. E. Poulain, M. U. Ahmad, R. D. Kubik, and E. R. Cespedes, ``Environmental Monitoring of Soil Contaminated with Heavy Metals Using Laser-Induced-Breakdown Spectroscopy," *Proceedings of the IGARSS '94 Conference*, Pasadena, CA, 767-769, August 8-12, 1994.

70. K. D. Song and D. R. Alexander, ``Excimer Laser Produced Plasmas in Copper Wire Targets and Water Droplets," *Journal of Applied Physics*, **76**, No. 6, 3297-3301, September 15, 1994.

71. K. D. Song and D. R. Alexander, ``Propagation Velocities of Laser-Produced Plasmas from Copper Wire Targets and Water Droplets," *Journal of Applied Physics*, **76**, No. 6, 3302-3312, September 15, 1994.

72. R. F. Spalding, M. E. Burbach, M. E. Exner, L. Parra-Vicary, and D. R. Alexander, ``Sprinkler Irrigation: A VOC Remediation Alternative," *Technology: Journal of the Franklin Institute*, **331A**, 231-241, October, 1994.

73. D. R. Alexander, R. Kawala, R. D. Kubik, and S. A. Schaub, ``Complex Index-of-Refraction Measurements for RP-1 Liquid Rocket Fuel," *Optical Engineering*, **34**, No. 3, 913-921, March, 1995.

74. D. E. Poulain and D. R. Alexander, ``Influences on Concentration Measurements of Liquid Aerosols by Laser-Induced Breakdown Spectroscopy," *Applied Spectroscopy*, **49**, No. 5, 569-579, May, 1995.

75. D. Liu and D. R. Alexander, ``High Intensity Femtosecond Laser Pump-Probing Measurements of a Cu Surface," *Applied Physics Letters*, **67**, No. 25, 3726-3728, December, 1995.

76. D. R. Alexander and M. S. Khlif, ``Laser Marking Using Organo-metallic Films," *Optics and Lasers in Engineering*, **25**, 55-70, 1996.

77. D. R. Alexander, D. E. Poulain, M. D. Ahmad, R. D. Kubik, and E. R. Cespedes, ``Influences on Detectability of Heavy Metals in Soils by Laser-Induced Breakdown Spectroscopy," *Proceedings of the IGARSS '96 Conference*, Lincoln, NE, 857-859, May 27-31, 1996.

78. V. Curicuta, D. R. Alexander, R. DeAngelis, B. Robertson, and D. E. Poulain, ``Laser Method of Bonding Metals to Ceramics," *Trends in Optics and Photonic Series Vol. 9, Lasers and Optical Techniques for Manufacturing ('96)*, Optical Society of America, Washington, DC, 1996.

79. D. R. Alexander, D. E. Poulain, and E. R. Cespedes, ``Detection Limits of Heavy Metals in Soils by Laser-Induced Breakdown Spectroscopy," *Trends in Optics and Photonics Series Vol. 8, Environmental Monitoring and Instrumentation ('96)*, Optical Society of America, Washington, DC, 1996.

80. B. A. Arneson, C. E. Wold, D. Doerr, M. K. Woehrer and D. R. Alexander, ``AT Cut Quartz Resonator Overtone Selection through a Novel Laser Milling Method," *Proceedings of the 19th Piezoelectric Devices Conference & Exposition*, August 1997.

81. D. R. Alexander, M. L. Rohlfs, and J. C. Stauffer, ``Chemical Aerosol Detection Using Femtosecond Laser Pulses," *Proceedings of the SPIE Conference, Electro-Optical Technology for Remote Chemical Detection and Identification II*, Orlando, FL, April 21, 1997.

82. J. X. Ma, D. R. Alexander, and D. E. Poulain, ``Laser Spark Ignition and Combustion Characteristics of Methane-air Mixtures," *Combustion and Flame*, **112**, 492-506, 1998.

83. V. Curicuta and D. R. Alexander, ``Laser Bonding of Metals to Ceramics," *Proceedings of Progress in Rapid Prototyping Manufacturing and Rapid Tooling International Conference*, (Addendum), Beijing, China, 755-764, July 1998.

84. D. E. Poulain, D. R. Alexander, S. A. Schaub and J. K. Krause, ``Detection of Buried Objects Using Infrared Imaging of Laser Heated Soils," *Optics and Lasers in Engineering*, **31**, 503-516, 1999.

85. D. W. Doerr and D. R. Alexander, ``Sub-micron Patterning of Aluminum Films by Laser Ablation," *SPIE, Micromachining and Microfabrication Process Technology V*, Vol. 3874, Santa Clara, CA, September 20-22, 1999.

86. D. E. Poulain, D. R. Alexander, and J. R. Krause, ``Evaluation of Rebar Corrosion in Concrete by Active Thermal Sensing," *Proceedings of International Bridge Management Conference*, Denver, CO, 1, B-7/1-15, April 26-28, 1999.

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17. D. R. Alexander, D. E. Poulain, J. P. Barton, S. A. Schaub, and J. Zhang, ``Interaction of Excimer Laser Radiation With Solid Particles,'' Presentation at the *1988 U.S. Army CRDEC Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, Maryland, June, 1988.

18. D. R. Alexander and J. P. Barton, ``Gaussian Laser Beam Illumination of a Spherical Particle at Resonance Conditions," Presentation at *19th European Conference on Laser Interaction with Matter*, Madrid, Spain, October 3, 1988.

19. D. R. Alexander, ``Spray Characterization of a NASA MOD-1 Nozzle," Presentation at the *International Congress on Application of Lasers and Electro-Optics (ICALEO)*, Santa Clara, California, November, 1988.

20. D. R. Alexander, S. A. Schaub, J. Zhang, D. E. Poulain, and J. P. Barton, ``Laser Induced Breakdown of H_2O Droplets at 0.248 μm," Presentation at the *Workshop on the Physics of Directed Energy Propagation in the Atmosphere*, Las Cruces, New Mexico, February 28-March 1, 1989.

21. J. P. Barton, D. R. Alexander, and S. A. Schaub, ``Electromagnetic Fields for a Focused Laser Beam Incident Upon a Spherical Particle," Presentation at the Workshop on the *Physics of Directed Energy Propagation in the Atmosphere*, Las Cruces, New Mexico, February 28-March 1, 1989.

22. J. P. Barton, D. R. Alexander and S. A. Schaub, ``Electromagnetic Calculations for a Tightly-focused Laser Beam Incident Upon a Spherical Particle," Poster presentation at the *1989 CRDEC Scientific Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, Maryland, June, 1989.

23. D. R. Alexander, J. P. Barton, S. A. Schaub and G. Holtmeier, ``Nonlinear Effects on Excimer Laser Interaction with Water Droplets," Presented at the *1989 CRDEC Scientific Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, Maryland, June, 1989.

24. D. R. Alexander, D. E. Poulain, S. A. Schaub, J. Zhang and J. P. Barton, ``Interaction of Intense λ = 248 nm KrF Laser Radiation with Solid Particles and Thin Wires," Presentation at the *20th Annual Meeting of the Fine Particle Society*, Boston, Massachusetts, August 23, 1989.

25. R. M. Narayanan, S. E. Green and D. R. Alexander, ``Mid-Infrared Reflectance Characteristics of Selected Benchmark Soil Samples," Presentation at the *USNC/URSI Commission "F" Meeting*, Boulder, Colorado, January 3-5, 1990.

26. D. R. Alexander, S. A. Schaub and J. P. Barton, ``Modeling of a Coherent Imaging System: Application to Focus Determination in Aerosol Sizing," Presentation at the *2nd International Congress on Optical Particle Sizing*, Tempe, Arizona, March 5-8, 1990.

27. J. P. Barton, W. Ma, S. A. Schaub and D. R. Alexander, ``Theoretical Determination of the Electromagnetic Fields for a Laser Beam Incident upon two Adjacent Spherical Particles of Arbitrary Arrangement," Presentation at the *2nd International Congress on Optical Particle Sizing*, Tempe, Arizona, March 5-8, 1990.

28. R. M. Narayanan, S. E. Green and D. R. Alexander, “Soil-type Identification Using Active Mid-Infrared Reflectance Characteristics,” Presentation at the *URSI/USNC Commission “F” Meeting*, Washington, D. C., May, 1990.

29. D. R. Alexander, J. P. Barton, G. M. Holtmeier and K. D. Song, ``Laser Interaction with a Metallic Filament: Ablation Dynamics and Plasma Formation," Presented at the *1990 U.S. Army CRDEC Scientific Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, Maryland, June 25-27, 1990.

30. J. P. Barton and D. R. Alexander, ``Electromagnetic Field for a Beam Incident Upon a Nonspherical Particle," Presentation at the *1990 U.S. Army CRDEC Scientific Conference on Obscuration and Aerosol Research*, Aberdeen, Maryland, 1990.

31. R. M. Narayanan, S. E. Green and D. R. Alexander, ``Mid-Infrared Backscatter Spectra of Selected Agricultural Crops," Presentation at the *SPIE Symposium on Optics in Agriculture*, Boston, Massachusetts, November, 1990.

32. J. P. Barton and D. R. Alexander, ``Electromagnetic Field Calculations for a Tightly Focused Laser Beam Incident upon a Microdroplet," invited paper presentation at the *SPIE's Optical Engineering SOUTHCENTRAL '91 Nonlinear Optics Conference*, Dallas, Texas, May, 1991.

33. D. R. Alexander, D. E. Poulain, S. A. Schaub, and J. P. Barton, ``Nonlinear Laser Interactions with Saltwater Droplets," presentation at the *SPIE's Optical Engineering SOUTHCENTRAL '91 Nonlinear Optics Conference*, Dallas, Texas, May, 1991.

34. R. M. Narayanan, S. E. Green, and D. R. Alexander, ``Moisture Effects on the Mid-Infrared Laser Reflectance from Soils," *Progress in Electromagnetics Research Symposium*, Presentation at PIERS Conference, Cambridge, MA, July, 1991.

35. D. R. Alexander, ``Applied Laser Research Activities in the Center for Electro-Optics," Applied Research Laboratory, Penn State University, State College, Pennsylvania, January 14, 1991.

36. D. R. Alexander, ``Nonlinear Laser Interactions with Aerosol Droplets," Physics Department, University of Nebraska-Lincoln, Lincoln, Nebraska, February 7, 1991.

37. D. R. Alexander and S. A. Schaub, ``Digital Image Processing of Aerosol Particles," Presentation at the *Visual Information Processing Symposium*, University of Nebraska-Lincoln, Lincoln, Nebraska, February 8, 1991.

38. D. R. Alexander, ``Phase Doppler Particle Analyzer and Laser Imaging Methods for Atomization and Particle Sizing Studies," presentation as a delegate during the *Citizen Ambassador Program Gas Turbine Technology Delegation to Europe*, April 9-28, 1991.

39. J. Zhang, D. R. Alexander and J. P. Barton, ``Hybrid Inelastic Scattering Models for Particle Thermometry: Unpolarized Emissions," Poster Presentation at the *1991 CRDEC*

Scientific Conference on Obscuration and Aerosol Research, Aberdeen Proving Ground, Maryland, June 24-27, 1991.

40. J. Zhang, D. R. Alexander and J. P. Barton, ``Hybrid Inelastic Scattering Models for Particle Thermometry: Polarized Emissions," Poster Presentation at the *1991 CRDEC Scientific Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, Maryland, June 24-27, 1991.

41. J. P. Barton and D. R. Alexander, ``Recent Progress Concerning Electromagnetic Field Calculations for a Beam Incident on an Arbitrary Particle," Presentation at the *1991 CRDEC Scientific Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, Maryland, June 24-27, 1991.

42. D. R. Alexander, ``Optical Diagnostics - Laser Induced Breakdown Spectroscopy" and ``Non-Propellant Aerosol Generation - Production of Fine Particles," a two-part presentation at 3M, Minneapolis, Minnesota, July 17, 1991.

43. D. R. Alexander, ``Optical Diagnostics - Laser Induced Breakdown Spectroscopy" and ``Non-Propellant Aerosol Generation - Production of Fine Particles," a two-part presentation at the Dow Chemical Company, Midland, Michigan, August 15, 1991.

44. D. R. Alexander, ``Optical Diagnostics - Laser Induced Breakdown Spectroscopy" and ``Non-Propellant Aerosol Generation - Production of Fine Particles," a two-part presentation at the *UNL Mechanical Engineering Department Research Seminar*, October 11, 1991.

45. D. R. Alexander and S. A. Schaub, ``Forming Fine Particles by Laser Atomization, U.S. Patent #5,044,565," Presentation at the *Design News Design Engineering Show and Conference*, Chicago, IL, February 24-27, 1992.

46. D. R. Alexander, ``Executive Summary of Selected Activities in the Center for Electro-Optics," presentation to the *NRI Scientific Advisory Committee*, University of Nebraska, Wick Alumni Center, Lincoln, NE, March 17, 1992.

47. D. R. Alexander, ``Laser Atomization and Optical Temperature Measurements of Laser Heated Droplets," Presentation at the Engineering Mechanics Department, University of Nebraska, Lincoln, NE, March 31, 1992.

48. R. M. Narayanan, E. D. VonRentzell and D. R. Alexander, ``Discrimination Between Road and Soil Surfaces Using CO_2 Laser Reflectances," presentation at the *Conference on Characterization, Propagation and Simulation of Sources and Backgrounds II at OE/Aerospace Sensing '92*, Orlando, Florida, April, 1992.

49. S. A. Schaub and D. R. Alexander, ``Analysis of the Effects of Particle Trajectory on the Performance of a Phase/Doppler Particle Analyzer," Presentation at the *5th Annual ILASS Conference*, San Ramon, CA, May 18-20, 1992.

50. D. R. Alexander and J. Zhang, ``Scattering Models for Raman and Fluorescent Particle Temperature Measurements," presentation at the *5th Annual ILASS Conference*, San Ramon, CA, May 18-20, 1992.

51. R. M. Narayanan, E. D. VonRentzell and D. R. Alexander, ``Ti:Sapphire Laser Reflectance Measurements of Natural and Artificial Targets," presentation at the *IGARSS '92 Symposium*, Houston, TX, May, 1992.

52. D. R. Alexander, J. C. Stauffer, S. A. Schaub and J. P. Barton, "Femtosecond Imaging and Glare Spot Observations for Small Aerosol Particles," presentation at the *1992 CRDEC Scientific Conference on Obscuration and Aerosol Research,* Aberdeen Proving Ground, MD, June 22-26, 1992.

53. J. P. Barton, D. R. Alexander and S. A. Schaub, ``Electromagnetic Field Calculations for a Beam Focused on a Layered Particle," presented at the *1992 CRDEC Scientific Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, MD, June 22-26, 1992.

54. D. R. Alexander, R. D. Kubik, and E. Bahar, ``Use of a New Polarimetric Optical Bistatic Scatterometer to Measure the Transmission and Reflection Mueller Matrix for Arbitrary Incident and Scatter Directions," presented at the *1992 CRDEC Scientific Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, MD, June 22-26, 1992.

55. D. R. Alexander, ``Laser Atomization for Forming Fine Particles (Patent #5,044,565)," presented at the *American Association for Aerosol Research (AAAR) 1992 Annual Meeting*, San Francisco, CA, October 12-16, 1992.

56. D. R. Alexander, ``Importance of Lasers in Industry, Research and Education," Guest Speaker at *1992 Engineering and Technology Alumni Association Reunion*, October 10, 1992.

57. J. P. Barton, P. B. Cheekati, D. R. Alexander, and L. C. Liou, ``Modeling of a High Energy Laser Pulse Focused within an Aerosol Spray," *Proceedings of 1993 SPIE Conference on Laser Applications in Combustion and Combustion Diagnostics*, Los Angeles, CA, 1992.

58. K. D. Song and D. R. Alexander, ``Characteristics of Laser Induced Plasma and Defocusing Effects on Target Materials," presented at the *6th International Symposium on Transport Phenomena in Thermal Engineering*, Seoul, Korea, May 9-13, 1993.

59. D. R. Alexander and Jianxue Ma, ``UV Laser Ignition for Natural Gas Engines," presented at the *Engineering Foundation Conference on Future Prospects for UV and VUV Lasers*, February 27 - March 4, 1994.

60. D. R. Alexander, ``Use of Lasers for Detection of Heavy Metals and Aerosols for Remediation of Volatile Organic Compounds (VOCs)," *IANR*, March 11, 1994.

61. R. F. Spalding, M. E. Burbach, M. E. Exner, L. Parra-Vicary, and D. R. Alexander, ``Sprinkler Irrigation: A VOC Remediation Alternative," presented at the *Dixy Lee Ray*

Memorial Symposium on Science-Based Environmental Management, Seattle, WA, August 30 –September 2, 1994.

62. D. Liu and D. R. Alexander, ``Femtosecond Pump Probing Techniques," presented at the *University of Inner Mongolia,* Physics Dept., China, October, 1994.

63. S. L. Rohde, D. R. Alexander, D. Doerr, T. Voiles, D. Liu, B. Robertson, and A. Lateef, ``Nanostructured Films and Particles Produced by Femtosecond Pulsed-Laser Ablation," presented at the *41st National Symposium of the American Vacuum Society*, Denver, CO, November 23-27, 1994.

64. D. R. Alexander and L. Olson, ``Computational and Experimental Studies on Laser Processing of Ceramic Material: Laser Precision Cracking," presented at *Northboro Research and Development Center*, Northboro, MA, February 17, 1995.

65. D. R. Alexander, ``Development of an Applied Engineering Photonics Laboratory in Mechanical Engineering," presented at the *ASEE Annual Conference and Exposition*, Anaheim, CA, June 25-28, 1995.

66. D. R. Alexander, ``Laser Detection of Toxic Materials," presented to the *Mechanical Engineering Colloquium*, Lincoln, NE, November 10, 1995.

67. D. R. Alexander, ``Super Computer and Graphics Capabilities in the Center for Electro-Optics," presented at the *Kansas Computer Planning Committee (KCPC) Meeting*, January 26, 1996.

68. D. Doerr and D. R. Alexander, ``Femtosecond Laser Production of Nanostructures," presented at the *Optical Society of America Annual Meeting, ILS-XII* and *Optics & Imaging in the Information Age Meetings*, Rochester, New York, October 20-24, 1996.

69. M. Rohlfs and D. R. Alexander, `` Scattering of Femtosecond Pulses by a Dielectric Sphere: Theory Compared with Measurement," presented at the *Optical Society of America Annual Meeting, ILS-XII* and *Optics & Imaging in the Information Age Meetings*, Rochester, New York, October 20-24, 1996.

70. D. E. Poulain and D. R. Alexander, ``Detection Limits of Heavy Metals in Soils," presented at the *Optical Society of America Annual Meeting, ILS-XII and Optics & Imaging in the Information Age Meetings*, Rochester, New York, October 20-24, 1996.

71. V. Curicuta and D. R. Alexander, ``Laser Bonding of Metals to Ceramics," poster presentation at the *Optical Society of America Annual Meeting, ILS-XII and Optics & Imaging in the Information Age Meetings*, Rochester, New York, October 20-24, 1996.

72. S. R. Rohde, D. R. Alexander, D. Doerr, M. Nassir and A. L. Alimohammed, ``Comparative Study of Nanosecond and Femtosecond Pulsed-Laser Ablation in the Production of Thin Films and Particles," *International Conference on Metallurgical Coatings and Thin Films (ICMCTF 97)*, San Diego, CA, March, 1997.

73. D. R. Alexander, M.L. Rohlfs, and J.C. Stauffer, ``Chemical Aerosol Detection Using Femtosecond Laser Pulses," *SPIE 11th Annual Symposium on Aerospace/Defense Sensing, Simulation and Controls*, Orlando, Florida, April 21, 1997.

74. D. R. Alexander, ``Femtosecond Laser Interaction with Small Aerosols: Time Dependent Solution," 1997 *Scientific Conference on Obscuration and Aerosol Research*, Aberdeen Proving Ground, MD, June 25, 1997.

75. V. Curicuta, D. R. Alexander, S. Gasser, R. J. De Angelis, B. W. Robertson, and Elizabeth A. Kalawa, ``Interfacial Characteristics of Laser Bonded Metals to Ceramics," *IEEE/LEOS Cleo/Pacific Rim'97 Conference*, Chiba, Japan, July 14-18, 1997.

76. J. X. Ma, D. R. Alexander, and D. E. Poulain, ``Laser Spark Ignition and Combustion Characteristics of Methane-Air Mixtures," *IEEE/LEOS Cleo/Pacific Rim '97 Conference*, Chiba, Japan, July 14-18, 1997.

77. T. Smith, D. W. Doerr, M. K. Woehrer, and D. R. Alexander, ``Selected overtone resonator with coupled resonant cavities," *19th Piezoelectric Devices Conference*, Kansas City, MO, August 20-22, 1997.

78. D. R. Alexander, ``Femtosecond Laser Ablation and Production of Nanostructures," invited presentation for the *AVS 44th National Symposium*, San Jose, California, October 20-24, 1997.

79. D. R. Alexander, ``Optical Technologies: Their Applications to Non Destructive Evaluation of Bridges and Roads, *U.S. Department of Transportation, Blue Ribbon University Lecture Series*, January 23, 1998

80. D. R. Alexander and D. E. Poulain, ``Detection and Location of Buried Metallic and Non-Metallic Objects Using Laser-Based Thermal Wave Echo Imaging, *SPIE, Detection and Remediation Technologies for Mines and Mine-Like Targets III*, Orlando, FL, April 13-17, 1998.

81. D. R. Alexander, V. Curicuta, et al., ``Laser Bonding of Metals to Ceramics," *ICRPM, The First International Conference on Rapid Prototyping & Manufacturing '98*, Beijing, China, July 21-23, 1998.

82. D. R. Alexander, ``Femtosecond Micromachining and Communication Applications," invited presentation, *17th International Congress on Applications of Lasers & Electro-Optics*, Orlando, FL, November 16- 19, 1998.

83. D. R. Alexander, ``Non-Destructive Evaluation of Rebar Using Infrared Imaging Techniques." *Mid America Transportation Center Distinguished Lecture and Transportation Seminar Series, Spring 1999*, Lincoln, NE, February 10, 1999.

84. D. R. Alexander, ``Technologies for Detecting Land Mines by Thermal Wave Imaging," *United Nations-Lincoln Chapter*, Lincoln, NE, April 26, 1999.

85. D. E. Poulain, D. R. Alexander, and J. R. Krause, ``Evaluation of Rebar Corrosion in Concrete by Active Thermal Sensing," *International Bridge Management Conference*, Denver, CO, April 26-28, 1999.

86. D. W. Doerr and D. R. Alexander, ``Sub-Micron Patterning of Aluminum Films by Laser Ablation," *SPIE, Micromachining and Microfabrication Process Technology V*, Santa Clara, CA, September 20-22, 1999.

87. D. E. Poulain and D. R. Alexander, ``Femtosecond Laser-Induced Breakdown Spectroscopy," *OSA*, Santa Clara, CA, September 26-30, 1999.

88. D. R. Alexander and Mark L. Rohlfs, ``Propagation of Ultra-Short Femtosecond Laser Pulses in Aerosols," *IGARSS 2000*, Honolulu, HI, July 22-28, 2000.

89. D. R. Alexander, D. Doerr, B. Mihulka, ``Femtosecond Laser Nano-Machining and the Production of Nano-Scale Particles," LIBS 2000 Conference Pisa, Italy, October 2000.

90. D. R. Alexander, ``Femtosecond Laser Induced Breakdown Spectroscopy," to be presented at the *International Conference on Lasers 2000*, Albuquerque, NM, December 4-8, 2000.

91. D. R. Alexander, "Propagation of Ultra-Short Femtosecond Laser Pulses in Aerosols," *Ultra-short Laser Workshop for DOD Applications,* Kirtland AFB, NM, March 21-22, 2001.

92. D. R. Alexander, "Femtosecond Laser Nanomachining and Nanofabrication," *EEp-2A Panel/IMECE 2001*, New York, NY, November 10-12, 2001.

93. D. R. Alexander, "Femtosecond Laser Nanomachining and Nanofabrication," *NSF-EC Nanomanufacturing and Processing Workshop,* San Juan, Puerto Rico, January 5-7, 2002.

94. D. R. Alexander, "Femtosecond Laser Drilling of High Aspect Ratio 1 Micron Holes in Silicon," *SPIE's International Symposium High-Power Laser Ablation 2002,* Taco, NM, April 21-26, 2002.

95. D. R. Alexander, "Femtosecond Laser Pulse Propagation Through Aerosol Clouds," to be presented at the *IGARSS 2002 24th Canadian Symposium on Remote Sensing*, Toronto, Canada, June 24-28, 2002.

96. D. R. Alexander, NSF EPSCoR NARO meeting, Tulsa, OK, August 14, 2002.

97. D. R. Alexander, "Earmark Presentation," presented to Carolyn Fuller, Lincoln, NE, November 20, 2002.

98. D. R. Alexander, "Ultra Short Femtosecond Laser Propagation and Nano-machining/Nano-fabrication of Small Scale Systems," presented to General Bolton, Washington, D.C., December 6, 2002.

99. D. R. Alexander, “Nanoscale-Based Biological and Chemical Detection Systems,” presented to the Legislative Staff, Washington, D.C., January 14, 2003.

100. D. R. Alexander, “The Nanotechnology Roundtable Discussion,” presented to Jonathan Furasek, Lincoln, NE, February 10, 2003.

101. D. R. Alexander, “Ultra-Short Femtosecond Lasers and Some Interesting Applications,” presented to Dr. Prem Paul, Lincoln, NE, February 11, 2003.

102. D. R. Alexander, “Remote Detection of Land Mines,” presented to Kim Wellman, Lincoln, NE, February 20, 2003

103. D. R. Alexander, “Nano-Machining/Nano-Manufacturing Remote Sensing Core Research Facility,” presented Dr. Prem Paul, Lincoln, NE, February 26, 2003.

104. D. R. Alexander, “NRI Presentation – Core Facilities Upgrade and Maintenance,” presented to Dr. Prem Paul, Lincoln, NE, March 5, 2003.

105. D. R. Alexander, “College of Engineering and Technology’s Core Facilities,” presented at the University of Nebraska-Lincoln, to Vice-Chancellor for Research, Dr. Prem Paul, Lincoln, NE, April 18, 2003.

106. Y.F. Lu, L.P. Li, J. Shi and D.W. Doerr, “Nanomanufacturing Using Laser Beam in Combination with Scanning Probe Microscope and Self-Assembled Nanoparticles,” First International Symposium on Nanomanufacturing, Boston, MA, April 24-26, 2003.

107. Y.F. Lu, L.P. Li, J. Shi, D.W. Doerr, and D.R. Alexander, “Laser-Assisted Nanofabrication,” *Oklahoma NSF ESPSCoR Annual Conference* (Oklahoma State University Student Union, Stillwater, Oklahoma, USA).

108. L.P. Li, Y.F. Lu, F.W. Doerr, J. Shi and J.C. Li, “Fabrication of Hemospherical Cavity Arrays on Silicon Substrate Using Laser-Assisted Nanoimprinting,” NSF Workshop on Research Needs in Thermal Aspects of Material Removal, Stillwater, OK, June 10-12, 2003.

109. D. R. Alexander and C. Thatipamula, “Short Time Fluorescence from Corn and Soybean Plants,” to be presented at the *Nebraska Academy of Sciences 2003 (NSGC)*, Nebraska Wesleyan Campus, Lincoln, NE, April 25, 2003.

110. D. R. Alexander, “Elementary Career Fair,” presented at George W. Norris Elementary School, Hickman, NE, May 2, 2003.

111. D. R. Alexander, “Short Time Fluorescence from Corn and Soybean Plants,” to be presented at the *IGARSS 2003Centre de Congres Pierre Baudis*, Toulouse, France, July 21-25, 2003.

112. D. R. Alexander, “Ultra-Short Femtosecond Laser for Durable Nano & Micro Fabrication,” presented to the University of Arkansas, August 22, 2003.

113. L.P. Li, Y.F. Lu, D.W. Doerr, D.R. Alexander, J. Shi, and K.G. Zhu, "Fabrication of Hemispherical Cavity Arrays on Silicon Substrates Using Laser-Assisted Nanoimprinting," *Laser Microfabrication Conference, ICALEO* 2003 (22nd International Congress on Applications of Lasers and Electro-optics, Jacksonville, Florida, October 13 – 16, 2003.

114. D. R. Alexander, "Ultra-short Femtosecond Lasers for Durable Nano and Micro Fabrication," *Toyota*, Lincoln, NE, October 23, 2003.

115. Y.F. Lu, L.P. Li, K.K. Mendu, J. Shi, D.W. Doerr, and D.R. Alexander, Invited talk, "Fabrication of 2-D and 3-D Photonic Bandgap Structures Using Laser-Assisted Imprinting of Self-Assembled Particles," Symposium R: 3D Nanoengineered Assemblies, MRS Spring Meeting 2004 (Materials Research Society), San Francisco, California, April 12-16, 2004.

116. J. Schiffern and D.R. Alexander and D. Doerr, "Concentric rings formed by multipulse ablation of silicon and kovar," presented at the *41st Annual SES Technical Meeting*, Lincoln, NE, October 10-13, 2004.

117. D.R Alexander and D. Doerr, "Femtosecond Laser Micromachining of Quartz," presented at the *41st Annual SES Technical Meeting*, Lincoln, NE, October 10-13, 2004.

118. N.R. Tadepalli and D.R. Alexander and D. Doerr and C. Thatipamula and H. Zhang, "Micromachining of aluminum alloy using 9 femtosecond laser pulses," presented at the *41st Annual SES Technical Meeting*, Lincoln, NE, October 10-13, 2004.

119. N. Singh and D.R. Alexander and J. Schiffern and D. Doerr, "Blackening of metal surfaces by femto-second laser machining," presented at the *41st Annual SES Technical Meeting*, Lincoln, NE, October 10-13, 2004.

120. N.R. Tadepalli and D.R. Alexander and D. Doerr and R. Kagita and J. Li and J. Schiffern, "Measurement of femtosecond pulse stretching in microscope objective," presented at the *41st Annual SES Technical Meeting*, Lincoln, NE, October 10-13, 2004.

121. R. Kagita and D.R. Alexander and D. Doerr and N.R. Tadepalli and C. Thatipamula and J. Schiffern, "Micromachining of Aerogel Using Ultrashort Femtosecond Laser and Subsequent Investigation and Improvement of Aerogel Cut Transparency," presented at the *41st Annual SES Technical Meeting*, Lincoln, NE, October 10-13, 2004.

122. J. Shi and Y. Lu and R.S. Cherukuri and K.K. Mendu and D. Doerr and D.R. Alexander, "Laser-assisted local coating of DLC films on W-tips from benzene solution," presented at the *41st Annual SES Technical Meeting*, Lincoln, NE, October 10-13, 2004.

123. L. Li and Y. Lu and D. Doerr and D.R. Alexander, "Laser Nanoimprinting of Hemispherical Cavity Arrays on Silicon and Metal Substrates and Self-assembled Dual-size Nanoparticles," presented at the *41st Annual SES Technical Meeting*, Lincoln, NE, October 10-13, 2004.

124. D.R. Alexander, D. Doerr, J. Li, and H. Zhang, "Femtosecond Laser Propagation Through Aerosol Clouds for Improved Communications and Remote Sensing Applications," presented at *IGARSS 2004*, Anchorage, Alaska, September 21-24, 2004.

125. D.R. Alexander, "Femtosecond LIBS: Nanoscale depth profiling," presented at LIBS 2004 3rd International Conference, Malaga, Spain, September 27-28, 2004.

126. Y.F. Lu, L.P. Li. J. Shi, D.W. Doerr, and D.R. Alexander, "Nanomanufacturing Using Laser Beam in Combination with Scanning Probe Microscope and Self-Assembled Nanoparticles", First International Symposium on Nanomanufacturing, (24-26 April 2003, MIT, Boston, USA)

127. Y.F. Lu, L.P. Li. J. Shi, D.W. Doerr, and D.R. Alexander, "Laser-Assisted Nanofabrication", Oklahoma NSF EPSCoR Annual Conference (Oklahoma State University Student Union, Stillwater, Oklahoma, USA)

128. L.P. Li, Y.F. Lu, D.W. Doerr, D.R. Alexander, J. Shi and J.C. Li, "Fabrication of Hemispherical Cavity Arrays on Silicon Substrate Using Laser-Assisted Nanoimprinting", (NSF Workshop on Research Needs in Thermal Aspects of Material Removal, June 10-12, 2003, Advanced Technology Research Center, Oklahoma State University, Stillwater, USA)

129. L.P. Li, Y.F. Lu, D.W. Doerr, D.R. Alexander, J. Shi and K.G. Zhu, "Fabrication of Hemispherical Cavity Arrays on Silicon Substrates Using Laser-Assisted Nanoimprinting", Laser Microfabrication Conference, ICALEO 2003 (22nd International Congress on Applications of Lasers and Electro-Optics, 13-16 October 2003, Adam's Mark Hotel, Jacksonville, Florida, USA)

130. Y.F. Lu, L.P. Li, K.K. Mendu, J. Shi, D.W. Doerr, D.R. Alexander, **Invited talk**, "Fabrication of 2-D and 3-D Photonic Bandgap Structures Using Laser-assisted Imprinting of Self-assembled Particles", Symposium R: 3D Nanoengineered Assemblies, MRS Spring Meeting 2004 (Materials Research Society, 12-16 April 2004, San Francisco, USA)

131. L.P. Li, Y.F. Lu, K.K. Mendu, D.W. Doerr, D.R. Alexander, "Laser-Assisted Nanoimprinting Using Self-Assembled Nanoparticles on Silicon Substrates", 2004 Annual Meeting of the Nebraska Academy of Science (NAS) Aeronautics & Space Science Section (16 April 2004, Nebraska Wesleyan Campus, Lincoln, NE)

132. J. Shi, Y.F. Lu, R.S. Cherukuri, K.K. Mendu, D.W. Doerr, D.R. Alexander, L.P. Li, and X.Y. Chen, "Laser-Assisted Nanoscale Local Deposition of Diamond-Like Carbon Films on W Tips", 2004 Annual Meeting of the Nebraska Academy of Science (NAS) Aeronautics & Space Science Section (16 April 2004, Nebraska Wesleyan Campus, Lincoln, NE)

133. L.P. Li, Y.F. Lu, K. K. Mendu, D.W. Doerr, D.R. Alexander, "Laser-assisted nanoimprinting using self-assembled nanoparticles", Conference on Lasers and Electro

Optics / Quantum Electronics and Laser Science Conference (CLEO/QELS 2004, 16-21 May 2004, Moscone Center West San Fracisco, CA, USA)

134. K.K. Mendu, Y.F. Lu, L. P. Li, D. W. Doerr and D. R. Alexander, "Fabrication of 3-D photonic bandgap structures on silicon using laser assisted-nanoimprinting", Laser Microfabrication Conference, ICALEO 2004 (23rd International Congress on Applications of Lasers and Electro-Optics, 4-7 October 2004, San Francisco, CA, USA)

135. N. Batta, Y.F. Lu, D.W. Doerr, D.R. Alexander, "Steam laser cleaning of nanoparticles from silicon substrates", Laser Microfabrication Conference, ICALEO 2004 (23rd International Congress on Applications of Lasers and Electro-Optics, 4-7 October 2004, San Francisco, CA, USA)

136. R. S. Cherukuri, Y.F. Lu, J. Shi, D.W. Doerr and D.R. Alexander, "Near-field optical enhancement of laser irradiated tips", Laser Microfabrication Conference, ICALEO 2004 (23rd International Congress on Applications of Lasers and Electro-Optics, 4-7 October 2004, San Francisco, CA, USA)

137. K. K. Mendu, Y.F. Lu, L. P. Li, D. Doerr and D. Alexander, "Laser Assisted Multiple Layer Nanoimprinting In Silicon Substrates", Symposium on Microscale and Nanoscale Laser Materials Processing (Society of Engineering Science Annual Meeting 2004, 10-13 October 2004, Lincoln, Nebraska, USA)

138. J. Shi, Y.F. Lu, R. S. Cherukuri, D. W. Doerr, D. R. Alexander, L. P. Li, "Local Deposition of Diamond-like Carbon Films on Tungsten Tips by KrF Excimer Laser", Symposium on Microscale and Nanoscale Laser Materials Processing (Society of Engineering Science Annual Meeting 2004, 10-13 October 2004, Lincoln, Nebraska, USA)

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142. Neha Singh, Dennis R. Alexander, John Schiffern, " Blackening of metal surfaces by femtosecond laser ablation," 88th OSA Annual Meeting, Rochester, N.Y, October 10-14, 2004.

143. N. Batta, Y. F. Lu, X. W. Wang, J. Shi, D. W. Thompson, D. W. Doerr, D. R. Alexander, "Monitoring of steam laser cleaning using optical-probe techniques", The Sixth International Symposium on Laser Precision Microfabrication (LPM 2005, 4-8 April 2005, Radisson Fort Magruder Hotel and Conference Center Williamsburg, Virginia, USA)

144. H. Wang, K. K. Mendu, **Y. F. Lu**, J. Shi, D. R. Alexander, D. W. Doerr, "Laser-assited fabrication of 3-D structures on polymer film", The Sixth International Symposium on Laser Precision Microfabrication (LPM 2005, 4-8 April 2005, Radisson Fort Magruder Hotel and Conference Center Williamsburg, Virginia, USA)

145. D. Alexander, D. Doerr, N. Singh, Q. Peng, J. Schiffern, "Femtosecond Laser Production of Silicon Nanoparticles and Metal Surfaces having Nanostructures that are Broadband Absorbers." INVITED PAPER,(ICCE-12) Tenerife, Spain, August 1-6, 2005

146. D. Alexander, J.S. Deogun, H.S. Hamza, J. Bruce III, C. Zulke, B. Koch, P. Le, "Quantum Dots Based Technology for multiple wavelength conversion" LEOS IEEE 18th, October 23-27, Sydney, Australia

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149. Dennis R. Alexander, John Bruce III, "Femtosecond LIBS for Detection of Biological/Chemical Agents Nanomorphing/Stratigraphy ", Pacificchem 2005 Congress, **INVITED**, Honolulu, Hawaii, December, 2005.

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151. D. Alexander, S. Mao, R. Russo, M. Richardson and R. Fedosejev, "Particle Generation in FS Laser Interactions," MURI Kickoff Meeting, August 8, 2006.

152. D. Alexander, John Schiffern, David Doerr, "Dual Pulse Femtosecond Laser Fundamentals for the Detection of Biological, Chemical, and Explosives," LIBS 2006, September 4-9, Montreal Canada.

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156. D. Alexander, "All Optical Multicast Devices and Switches Based on Nanotechnology and Micro Ring Cavities," Verizon, Invited, November 14, 2007.

157. Dennis R. Alexadner, John Schiffern, and Victor A. Rivas, "Femtosecond laser Modified Surfaces for Enhanced Broadband Absorbers," Southeast Ultrafast Conference (SEUFC), January 10th and 11th 2008, University of Arkansas.

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161. E. Jackson, D. Admiraal, D. Alexander, J. Stansbury, J. Guo, D. Rundquist, and M. Drain. "Thermal Imaging for Discharge and Velocity Measurements in Open Channels," Proceedings 33rd Congress of the *International Association of Hydraulic Research*, Vancouver, Canada,2009.

162. J. Bruce III, D. R. Alexander, "Fundamentals Associated with Collinear Dual Beam Dual Focus Femtosecond LIBS," LIBS 2009, New Orleans, July 13-15, 2009.

163. Troy Anderson, John Bruce III, and Dennis Alexander, "The Use of A "Bulls eye" Focal Distribution in a Dual-Pulse Arrangement for Efficient Interaction with Ejected Nanoparticles for Analytical LIBS," LIBS 2010, Memphis, Tennessee, August, 2010.

164. John Bruce III, Troy Anderson, and Dennis Alexander, "Spatial Distribution of LIBS Plasma Emission Using A Dual Pulse Arrangement," LIBS 2010, Memphis, Tennessee, August, 2010.

165. Troy Anderson, John Bruce III, and Dennis Alexander, "The Role of Nanoparticles and Dual Pulse Dual Focus in the Enhancement of LIBS Sensors for Detection ECBN, 27th Army Science Conference, November 28-December 2, Orlando, Florida, 2010.

166. Craig Zuhlke, and John Bruce III, "Femtosecond Laser Production of Nanoparticles and Their Subsequent Layered Aggregate Growth Using a Line Focused Beam," 18th International Conference on Composites or Nano Engineering, Anchorage Alaska, ICCE July 4-10, 2010.

167. Dennis R. Alexander, and John Bruce III, "Fundamentals of femtosecond laser induced breakdown spectroscopy: effects of focus location and short time emissions on the entrainment of atmospheric species," 2010 International Chemical Congress of Pacific Basin Societies, Honolulu, Hawaii, Sept. 15, 20, 2010.

168. Dennis R. Alexander, "Modeling the Single-Cycle Laser Pulse Interaction with Matter," **Invited Lecture**, University of Tennessee Space Institute, March 24, 2011.

169. Dennis R. Alexander, "Femtosecond Laser Surface Modification Processes for Producing Super-Hydrophobic/Super-Hydrophilic Material Properties" **Invited Lecture**, University of South Dakota, Chemistry Department, Smart Grid Presentation to All South Dakota Schools, November, 2011.

170. T. Anderson, C. Zuhlke, J. Bruce III, D. Alexander, C. Parigger, "Evidence of near-field filaments and how sample location affects femtosecond LIBS," NASLIBS 2011: 3rd North American Symposium on Laser-Induced Breakdown Spectroscopy, Clearwater, USA, July 18-20, 2011.

171. J. Bruce III, T. Anderson, D. Alexander, "An investigation of dual pulse femtosecond LIBS on aluminum", NASLIBS 2011: 3rd North American Symposium on Laser-Induced Breakdown Spectroscopy. Clearwater, USA. July 18-20, 2011.

172. Troy Anderson, Craig Zuhlke, Dennis R. Alexander ,"Growth Mechanisms for Multi-Scale Surface Features on Metals Fabricated Using Ultrashort Pulse Laser Irradiation, Workshop on Laser Micro and Nano Structuring: Funadamentals and Applications, December 10 2012, La MinNas, France

173. Kruse, C., Zuhlke, C. A., Tsubaki, A., Anderson, T., Wang, X., Downer, M. C., Alexander, D., Gogos, G., Ndao, S., "Pool Boiling Heat Transfer Enhancement from Femtosecond Laser Surface Processed Inconel 740H," Abstract submitted to ASME 2015 InterPACKICNMM, San Francisco, California, July 2015

174. T. P. Anderson, C. Wilson, C., C. A. Zuhlke, C. Kruse, A. Hassebrook, I. Somanas, S. Ndao, G. Gogos, and D. Alexander, "Tailoring liquid/solid interfacial energy transfer: fabrication and application of multiscale metallic surfaces with engineered heat transfer and electrolysis properties via femtosecond laser surface processing techniques," Proc. SPIE 8968, Laser-based Micro- and Nanoprocessing VIII, 89680R, 6 March 2014

175. C. A. Zuhlke, T. P. Anderson, and D. R. Alexander, "Understanding the formation of self-organized micro/nanostructures on metal surfaces from femtosecond laser ablation using stop-motion SEM imaging," Proc. SPIE 8968, Laser-based Micro- and Nanoprocessing VIII, 89680C, 6 March 2014

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177. L. Koester, J. A. Turner, C. Zuhlke, D. Alexander, B. Wilson, C. Tarawneh, A. J. Fuller, "Near-race Ultrasonic Inspection of Tapered Roller Bearing Components for Non-metallic Defects." Proceedings of the ASME 2012 Rail Transportation Division Fall Technical Conference. ASME, Omaha, NE, 2012

178. L. Koester, C. Zuhlke, D. Alexander, A. Fuller, B. M. Wilson, J. A. Turner, “Near Race Ultrasonic Detection of Subsurface Defects in Bearing Rings,” Bearing Steel Technology: Advances and State of the Art in Bearing Steel Quality Assurance, J. M. Beswick, Ed., ASTM International, Tampa, FL, 2012

179. Invited Keynote Presentation: C. A. Zuhlke, T. P. Anderson, C. Wilson, C. Kruse, D. R. Alexander, G. Gogos, S. Ndao, “Understanding the Formation of Self-Organized Micro/Nanostructures from Femtosecond Laser Ablation used to Enhance Two-phase Heat Transfer,” Invited Presentation to ASME International Conference on Nanochannels, Microchannels, and Minichannels (ICNMN), Chicago, IL August 2014

180. Invited Keynote Presentation: S. Ndao, “State-of-the-Art of Functionalized Micro/Nano Engineered Two-phase Heat Transfer Surfaces,” Invited Presentation to ASME International Conference on Nanochannels, Microchannels, and Minichannels (ICNMN), Chicago, IL August 2014

181. D. R. Alexander, T. P. Anderson, C. A. Zuhlke, N. Rowse, “Simultaneous Disabling and Real Time Damage Assessment of Optical Sensors”, High Energy Laser-Joint Technology Office (HEL-JTO), Annual Contractors Review Presentation, April 30, 2014, Albuquerque, New Mexico

182. C. A. Zuhlke, J. Bruce III, T. P. Anderson, D. R. Alexander, and C. Parigger, “Focusing Phenomena of Femtosecond Laser Radiation Interacting with Material”, 22nd International Conference on Spectral Line Shapes, Tullahoma, Tennessee, April 21-26, 2014

183. T. P. Anderson, C. A. Zuhlke, C. Kruse, C. Wilson, A. Hassebrook, I. Somanas, S. Ndao, G. Gogos, D. R. Alexander, “Tailoring Liquid/Solid Interfacial Energy Transfer: Fabrication and Application of Multiscale Metallic Surfaces With Engineered Heat Transfer and Electrolysis Properties Via Femtosecond Laser Surface Processing Techniques”, SPIE Photonics West, San Francisco, CA, February 2014

184. C. A. Zuhlke, T. P. Anderson, D. R. Alexander, “Understanding the Formation of Self-Organized Micro/nanostructures on Metal Surfaces from Femtosecond Laser Ablation Using Stop-motion SEM Imaging,” SPIE Photonics West, San Francisco, CA, February 2014

185. C. Zuhlke, T. Anderson N., Rowse, D. Alexander, “Physics and Material Dynamics Resulting From Sequenced Multi-Pulse Femtosecond Laser Interactions with Metallic

Surface", High Power Laser Ablation and Beamed Energy Propulsion (HPLA/BEP), Santa Fe, NM, April 21-25, 2014

186. T. P. Anderson, "Fabrication of Biomimetic Multiscale Metallic Surfaces via Femtosecond Laser Surface Processing", Invited Lecture for UNL Mechanical and Materials Engineering Symposium Series, Dec. 3, 2013

187. C. A. Zuhlke, J. Bruce III, T. Anderson, D. R. Alexander, and C. Parigger, "Fundamental understanding of the dependence of the LIBS signal strength on the complex focusing dynamics o femtosecond laser pulses either side of focus," Invited presentation, Southeast Ultra-Fast Laser Conference, Baton Rouge, LA, Jan. 8-9, 2014

188. C. Kruse, T. Anderson, C. Wilson, C. Zuhlke, D. R. Alexander, G. Gogos, S. Ndao, "Enhanced Pool-boiling Heat Transfer and Critical Heat Flux using Femtosecond Laser Surface Processing," Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems (ITHERM), Orlando, FL, May 2014

189. C. Kruse, A. Hassebrook, T. Anderson, C. Wilson, C. Zuhlke, D. R. Alexander, G. Gogos, S. Ndao, "Self-propelled droplets from bioinspired directional microstructured surfaces", Poster at ASME International Conference on Nanochannels, Microchannels, and Minichannels (ICNMN), Chicago, IL August 2014

190. C. Kruse, A. Hassebrook, T. Anderson, C. Wilson, C. Zuhlke, D. R. Alexander, G. Gogos, S. Ndao, "Self-propelled droplets from bioinspired directional microstructured surfaces," International Heat Transfer Conference, Kyoto, Japan, August 2014

191. A. Hassebrook, C. Kruse, T. Anderson, C. Wilson, C. Zuhlke, D. R. Alexander, G. Gogos, S. Ndao, "Effects of Droplet Diameter on the Leidenfrost Temperature of Laser Processed Multiscale Structured Surfaces," Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems (ITHERM), Orlando, FL, May 2014

192. C. A. Zuhlke, J. Bruce III, T. Anderson, D. R. Alexander, and C. Parigger, "Fundamental understanding of the dependence of the LIBS signal strength on the complex focusing dynamics of femtosecond laser pulses either side of focus," Conference Presentation, 40th Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) SCIX conference, Milwaukee, WI, October 2014

193. C. Kruse, T.P. Anderson, C. Wilson, C. A. Zuhlke, D. R. Alexander, G. Gogos, S. Ndao, "Controlling the Leidenfrost Temperature Through Laser-Assisted Surface Micro/Nano Texturing", ASME Summer Heat Transfer Conference, Minneapolis, MN, July 18, 2013

194. C. A. Zuhlke, T. P. Anderson, and D. R. Alexander, "Understanding the formation of self-organized micro/nanostructures on metal surfaces from femtosecond laser ablation using stop motion SEM imaging" Poster Presentation, UNL Graduate Office Research Fair/EE Graduate Research Poster Competition, Lincoln, NE, April, 2013 (honorable mention poster)

195. T. P. Anderson, C. A. Zuhlke, K. Bay, C. Wilson, and D. R. Alexander, “Growth Mechanisms for Multi-Scale Surface Features on Metals Fabricated Using Ultrashort Pulse Laser Irradiation,” presented at the Laser Micro and Nanostructuring: Fundamentals and Applications Conference, Palaiseau, France. December 10-12, 2012

196. C. A. Zuhlke, D. R. Alexander, R. Lai, T. P. Anderson, and T. Smith, “Use of Femtosecond Laser Pulses to Modify Metal Surfaces for use as Psuedocapacitor Electrodes” Poster Presentation, UNL Graduate Office Research Fair/EE Graduate Research Poster Competition, Lincoln, NE, April, 2012 (second place poster)

197. J. Bruce III, T. P. Anderson, and D. R. Alexander, “An investigation of dual pulse femtosecond LIBS on aluminum,” presented at the North American Symposium on Laser-Induced Breakdown Spectroscopy (NASLIBS), 2011

198. T. P. Anderson, C. A. Zuhlke, J. Bruce III, D. R. Alexander, and C. Parigger, “Evidence of near-field filaments and how sample location affects femtosecond LIBS,” presented at the North American Symposium on Laser-Induced Breakdown Spectroscopy (NASLIBS), 2011

199. C. A. Zuhlke, D. R. Alexander, R. Lai, T. P. Anderson, and T. Smith, “Storage of Alternative Energy Using New Supercapacitors Utilizing Femtosecond Laser Surface Modification Technologies” Poster Presentation, UNL Graduate Student Poster Session/EE Graduate Research Poster Competition, Lincoln, NE, April, 2011

200. C. A. Zuhlke, D. R. Alexander, J. C. Bruce III, “Femtosecond Laser Production of Nanoparticles and Their Subsequent Layered Aggregate Growth Using a Line Focused Beam,” Conference Presentation, 18th International Conference on Composites or Nano Engineering, Anchorage, AK, July 2010.

201. Koester, L., Turner, J. A., Zuhlke, C., Alexander, D., Wilson, B., Tarawneh, C., Fuller, A. J., "Near-race Ultrasonic Inspection of Tapered Roller Bearing Components for Non-metallic Defects." Proceedings of the ASME 2012 Rail Transportation Division Fall Technical Conference. ASME, Omaha, NE, 2012.

202. Koester, L., Zuhlke, C., Alexander, D., Fuller, A., Wilson, B. M., Turner, J. A. “Near Race Ultrasonic Detection of Subsurface Defects in Bearing Rings,” Bearing Steel Technology: Advances and State of the Art in Bearing Steel Quality Assurance, J. M. Beswick, Ed., ASTM International, Tampa, FL 2012.

203. Anderson, T. P., Zuhlke, C. A., Wilson, C., Kruse, C., Ianno, N., Ndao, S., Gogos, G., Alexander, D. R., “Understanding the physical and material dynamics of multipulse femtosecond laser interactions with surfaces,” Proc. SPIE, Laser-induced Damage in Optical Materials, pp. 888518, 2013.

204. Anderson, T. P., Wilson, C., Zuhlke, C. A., Kruse, C., Hassebrook, A., Somanas, I., Ndao, S., Gogos, G., and Alexander, D., “Tailoring liquid/solid interfacial energy transfer: fabrication and application of multiscale metallic surfaces with engineered heat transfer and electrolysis properties via femtosecond laser surface processing techniques,” Proc. SPIE 8968, Laser-based Micro- and Nanoprocessing VIII, 89680R, 6 March 2014.

205. Zuhlke, C. A., Anderson, T. P., and Alexander, D. R., "Understanding the formation of self-organized micro/nanostructures on metal surfaces from femtosecond laser ablation using stop-motion SEM imaging," Proc. SPIE 8968, Laser-based Micro- and Nanoprocessing VIII, 89680C, 6 March 2014.

206. Hassebrook, A., Kruse, C., Wilson, C., Anderson, T., Zuhlke, C., Alexander, D., Gogos, G., and Ndao, S., "Effects of Droplet Diameter on the Leidenfrost Temperature of Laser Processed Multiscale Structured Surfaces," ITHERM Conference Proceedings, 2014.

207. Kruse, C. M., Anderson, T. P., Wilson, C., Zuhlke, C. A., Alexander, D. R., Gogos, G., and Ndao, S., "Enhanced Pool-Boiling Heat Transfer and Critical Heat Flux Using Femtosecond Laser Surface Processing," ITHERM Conference Proceedings., 2014.

208. Zuhlke, C. A., Anderson, T. P., Li, P., Lucis, M. J., Roth, N., Shield, J. E., Terry, B., Alexander, D. R. (2015). "Superhydrophobic metallic surfaces functionalized via femtosecond laser surface processing for long term air film retention when submerged in liquid." Proc. SPIE 9351, Laser-based Micro- and Nanoprocessing IX, 93510J (12 March 2015); doi: 10.1117/12.2079164

209. Anderson, T. P., Wilson, C., Zuhlke, C. A., Kruse, C. M., Gogos, G., Ndao, S., & Alexander, D. R. (2015). "Enhancing vapor generation at a liquid-solid interface using micro/nanoscale surface structures fabricated by femtosecond laser surface processing." Proc. SPIE 9351, Laser-based Micro- and Nanoprocessing IX, 93510D (12 March 2015); doi: 10.1117/12.2079828

210. Kruse, C., Anderson, T., Zuhlke, C., Alexander, D., Gogos, G., Ndao, S., "Pool Boiling Heat Transfer Enhancement with Metallic Femtosecond Laser Processed Surfaces: Study of Nanoparticle Effects," 9th International Conference on Boiling and Condensation Heat Transfer, Boulder, Colorado, April 2015

211. Hassebrook, A., Lucis, M. J., Shield, J. E., Zuhlke, C. A., Anderson, T. P., Alexander, D. R., Gogos, G., Ndao, S. (2015). "Thermal Stability of Rare Earth Oxide Coated Superhydrophobic Microstructured Metallic Surfaces." In Proceedings of the ASME 2015 International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems and ASME 2015 13th International Conference on Nanochannels, Microchnnels, and Minichannels (pp. 1–7).

212. Hansen, S., Wright, S., Wallace, S., Hamilton, T., Alexander, D., Zuhlke, C., Roth, N., Sanders, J., "Laser Processed Condensing Heat Exchanger Technology Development," 47th International Conference on Environmental Systems 16-20 July 2017, Charleston, South Carolina.

213. C. A. Zuhlke, D. R. Alexander, R. Lai, T. Anderson, T. Smith, "Storage of Alternative Energy Using New Supercapacitors Utilizing Femtosecond Laser Surface Modification Technologies," Poster Presentation, Nebraska Research and Innovation Conference, Lincoln, NE, October, 2010.

214. A. Hamza, S. Yadav, S. Samal, J. Deogun, and D. Alexander, “OWCell: optical wireless cellular data center network architecture,” IEEE International Conference on Communications (ICC), 2017. (under review)

215. A. Hamza, J. Deogun and D. Alexander, “Rearrangeable non-blocking multicast FSO switch using fixed switching elements,” IEEE Global Communications Conference (GLOBECOM), pp.1–6, 2015.

216. A. Hamza, J. Deogun and D. Alexander, “Evolution of data centers: a critical analysis of standards and challenges for FSO links,” IEEE Conference on Standards for Communications & Networking, pp.112–117, 2015.

217. A. Hamza, J. Deogun and D. Alexander, “CSOWC: a unified Classification framework for Standardizing Optical Wireless Communications,” IEEE Conference on Standards for Communications & Networking, pp.100–105, 2015.

218. A. Hamza, J. Deogun and D. Alexander, “Free Space Optical Data Center Architecture Design with Fully Connected Racks,” IEEE Global Communications Conference (GLOBECOM), pp.2192–2197, 2014.

219. A. Hamza, J. Deogun and D. Alexander, “Free space optical multicast crossbar switch with non-movable switching elements,” in Advanced Photonics for Communications, Optical Society of America, p.JT3A.13, 2014.

220. Hansen, S., Wright, S., Wallace, S., Hamilton, T., Alexander, D., Zuhlke, C., Roth, N., Sanders, J., “Laser Processed Condensing Heat Exchanger Technology Development,” 47th International Conference on Environmental Systems 16-20 July 2017, Charleston, South Carolina

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