**RICHARD BRYANT MILES**

**Title:** Robert Porter Patterson Professor of Mechanical and Aerospace Engineering

**Address:** D 412 Engineering Quadrangle, Olden Street, Princeton University, Princeton NJ 08544

**Office Tel:** 609-258-5131

**Office FAX:** 609-258-1139

**E-mail:**  miles@princeton.edu

**Home page:** http://www.princeton.edu/mae/people/faculty/miles/

**Citizenship:** U.S.A.

**EDUCATION:**

 1972 Ph.D. Stanford University, Electrical Engineering

 1967 M.S. Stanford University, Electrical Engineering

 1966 B.S. Stanford University, Electrical Engineering

**EMPLOYMENT**

2011 - Robert Porter Patterson Professor of Mechanical and Aerospace Engineering

1982-2011 Professor, Department of Mechanical & Aerospace Engineering, Princeton University

2002 Acting Chair, Department of Mechanical & Aerospace Engineering, Princeton University (Spring)

1980-1996 Chairman, Engineering Physics, Princeton University

1995 (Spring) Visiting Professor, University of Marseilles, Marseilles, France

1995 (Spring) Visiting Research Scientist, CNRS, France

1978-1982 Associate Professor, Department of Mechanical and Aerospace

 Engineering, Princeton University

1972-1978 Assistant Professor, Department of Mechanical and Aerospace Engineering, Princeton University

Summer 1972 NSF Research Associate, Department of Electrical Engineering, Stanford University

1969-1972 Research Associate and Hertz Fellow, E.L. Ginzton Microwave Lab, Stanford University

1968-1969 Teaching Assistant, Department of Electrical Engineering, Stanford University

1966-1968 Research Associate, System Techniques Lab, Stanford University

**PROFESSIONAL AFFILIATIONS:**

**Current:**

Member, National Academy of Engineering

Member, Board of Directors, Fannie & John Hertz Foundation

Member, Board of Directors, Precision Optics Corporation, Inc.

Member, Board of Trustees, Pacific University, Forest Grove OR

Member, AIAA Plasma Dynamics and Lasers Technical Committee

Member, Commercial Spaceflight Federation Suborbital Applications Research Group

Chairman and Representative for the AIAA, Elmer A. Sperry Board of Award 2009 - 2012

US Representative, International Liaison Group on MHD Energy Conversion

 Chairman 18th International Conference on MHD Energy Conversion, Hawaii, June 27-30, 2011

Princeton Representative of the NJ Space Grant Consortium

Advisor, Princeton Student Chapter of the AIAA

Founder. Plasma TEC, Inc.

**Past:**

Chair, Princeton/Hertz Joint Fellowship Program Committee 1993 - 2008

Director of Graduate Studies, Department of Mechanical & Aerospace Engineering, Princeton, New Jersey 1994-2000

Chairman, Optical Society of America Ellis R. Lippincott Award 2008 Selection Committee

National Judge, Siemens Westinghouse Competition Finalists(2004, 2005)

Member, Selection Committee for the Franklin Institutes’ Bower Award and Prize for Achievement in

 Science, 2003

Chairman, AIAA Aerodynamic Measurement Technology Technical Committee, '92-'94

Chairman, DoE Basic Energy Sciences Combustion Diagnostics Program Review, Oct. '92

Chairman, 1986 Gordon Conference on Vibrational Spectroscopy

Member, numerous NSF, DOD and DOE review panels.

**EXPERTISE:**

The use of lasers, electron beams, microwaves, electric discharges and magnetic devices to control, accelerate, extract power and precondition air and other gas mixtures for subsonic, supersonic and hypersonic fluid dynamics, standoff molecular detection and propulsion applications. Research is facilitated by the development of advanced laser diagnostics, which include temperature, velocity and density imaging by spectrally filtered Rayleigh scattering, molecular flow tagging by nonlinear excitation, standoff detection of selected atoms and molecules by radar scattering from laser generated ionization, and molecular detection by UV laser excited backward lasing in air. Current research is examining: microwave control of flame propagation; laser localized microwave energy addition for ignition control and lean combustion operation; stand-off detection of explosives, hazardous gases and greenhouse gases by laser/microwave techniques; flow velocity measurement by laser ionization tagged radar anemometry; molecular tagging of air and nitrogen by femtosecond laser electronic excitation; the role of high-power microwaves, nanosecond high voltage pulses, surface dielectric barrier discharges, electron beams and lasers in driving and controlling aerodynamic phenomena; MHD boundary layer control and power extraction for supersonic and hypersonic vehicle applications; magnetic and laser interactions with high speed materials; shape morphing high temperature ceramic materials for hypersonic applications; and plasma energy deposition for flow control and drag reduction for high speed vehicles.

**PROFESSIONAL ASSOCIATION/SOCIETY MEMBERSHIPS:**

American Physical Society, Life Member

Institute of Electrical & Electronic Engineers, Sr Member

American Institute of Aeronautics & Astronautics, Fellow

Optical Society of America, Fellow

**AWARDS, HONORS:**

 Fannie and John Hertz Fellow, 1969-1972

 Fellow of the Optical Society of America (elected 1998)

Discover Magazine Awards for Technical Innovation, Finalist 1999: "Electron Beam Heated,

 Hypersonic Wind Tunnel" Richard B. Miles, Lead Inventor.

 AIAA Aerodynamic Measurement Technology Award and Medal, (2000).

 Fellow of the AIAA (elected 2000)

Outstanding Paper Award from the AIAA Ground Testing Technical Committee, (2000) with P.J. Erbland, and D. Rizzetta, AIAA-2000-2379

 Frontiers in Spectroscopy Lecturer (2005), Ohio State University

Best Paper Award, AIAA Plasmadynamics and Lasers Technical Committee, (2007) with D.F. Opiats, G. Neretti, A.V. Likhanskii,, S. Zaidi, M.N. Shneider, and S.O. Macheret, AIAA-2007-4532

Lasers in Aerospace Lecture, AFOSR Laser Fest Celebrating 50 Years of the Laser, (2010)

 Malina Lecture, Texas A& M University, (2011)

 National Academy of Engineering (elected 2011)

 AIAA Plasmadynamics and Lasers Award and Medal, (2012)

**PATENTS:**

 #4,277,170 Laser Beacon and Optical Detector System for Aircraft

 Collision Hazard Determination, Issued July 7, 1981, Richard B. Miles

 #4,988,190 Absorption Line Filter Window and Method for Velocity

 Measurements by Light Scattering, Issued Jan. 29, 1991, Richard B. Miles

 #5,110,204 Velocity Measurement by the Vibrational Tagging of Diatomic

 Molecules," Issued May 5, 1992, Richard B. Miles and Walter R. Lempert

 #6,191,386 Method and Apparatus for Initiating, Directing and Constricting Electrical Discharge Arcs, (with The Ohio State University) Issued Feb. 20, 2001, Charles E, Albright, Joseph W Rich, Richard B. Miles Walter R. [Lempert.](http://www.patentstorm.us/inventors-patents/Walter_R__Lempert/1593803/1.html) Sergey O. Macheret.

 #6,307,626 Resonant Dispersion Raman Spectrometer, Issued October 23, 2001. Richard B. Miles, Walter R. Lempert, and Noah Finkelstein

 #6,483,077 Method and Apparatus for Initiating, Directing and Constricting Electrical Discharge Arcs,(with The Ohio State University) Issued November 19, 2002, Charles E, Albright, Joseph W Rich, Richard B. Miles Walter R. [Lempert.](http://www.patentstorm.us/inventors-patents/Walter_R__Lempert/1593803/1.html) Sergey O. Macheret,

#7,560,869 Method and Apparatus for Remotely Monitoring Properties of Gases and Plasmas, Richard B. Miles and Mikhail Shneider (July 14, 2009)

 #7,728,295 Method and Apparatus for Detecting Surface and Sub Surface Properties of Materials, Richard B. Miles, Arthur Dogariu, Alexandre Goltsov, Mikhail N. Shneider, and Zhili Zhang. (June 1, 2010)

 #7,744,039 Method of Generating and Controlling Gas Flows by Weakly Ionizing the Gas and Electrostatically Charging a Dielectric Surface (with Boeing), Richard B. Miles, Sergey O. Macheret, Mikhail N. Shneider, Alexandre Likhanskii, Joseph Silkey. (June 29, 2010)

**Provisional and Pending Patents:**

* + - 1. Femtosecond Optimal Dynamic Discrimination Imaging of Atomic and Molecular Species
			2. Laser Initiated Combustion Driven Ignition
			3. Air Laser
			4. Ultra-lean combustion by pulsed microwave
			5. Femtosecond Laser Electronic Excitation Tagging (FLEET)
			6. Method for Coherent Microwave Radiation from a Laser Induced Plasma (with Lockheed Martin ATL)

**CONSULTING (2012):**

Princeton Scientific Instruments, Princeton, NJ

PlasmaTEC, Princeton, NJ

Boeing Research and Technology, Seattle WA

Spectral Energies, Dayton, OH

Richard B. Miles LLC, Princeton NJ

Teledyne Scientific and Imaging, LLC

MetroLaser, Inc.

**INVITED LECTURES (Since 2005)**

Jan. 6, 2005 “Spectral Methods for Imaging High-Speed Fluid Flow,” 35th Winter

 Colloquium on the Physics of Quantum Electronics, Snowbird, Utah

Jan. 11, 2005 “Plasma Enhanced Hypersonic Performance Enabled by MHD Power Extraction”, AIAA Aerospace Sciences Meeting, Reno Nev.

Feb. 16, 2005 Frontiers in Spectroscopy “Using Atoms for Quantitative Imaging of Complex flows”, Spectroscopy Institute, Ohio State University

Feb. 18, 2005 Frontiers in Spectroscopy “Measurement of Gas Properties by Incoherent and Coherent Rayleigh Scattering”, Spectroscopy Institute, Ohio State University.

Mar. 8, 2005 “Standoff Detection” Texas A&M University, Institute for Quantum Studies

May 31, 2005 “Sharp Cutoff Filters for Imaging Spectroscopy”, International Laser Center, Moscow State University, Moscow

July 19, 2005 “New Technologies: Filtered Imaging and Laser Guided Welding”, NSF Workshop on Manufacturing Technologies for US Competitiveness, Lincoln, Nebraska

Aug. 29, 2005 “Shock Control and Power Extraction by MHD Processes in Hypersonic flows” AFOSR Contractors Meeting, Long Beach, CA

Sept. 15, 2005 “Plasma-MHD Modeling” AFOSR Workshop on Hypersonics, University of Minnesota

Jan. 6, 2006 “Plasma Aerodynamics, Hypersonics, and Diagnostics”, Sandia National Labs, Combustion Research Facility, Livermore Calif.

April 18, 2006 Morphing Structures for Hypersonics, Boeing Corporation, Huntington Beach, California

May 19, 2006 “RADAR REMPI in Argon and Air: A new approach to detection, spectroscopy, and the dynamics of laser induced plasmas”, Joint Princeton / Texas A&M Molecular Physics Symposium, Princeton, NJ

June 19, 2006 “RADAR REMPI: A new approach to detection, spectroscopy, and the dynamics of gases for combustion, fluid dynamics, and homeland defense” Air Force Research Lab, Dayton, Ohio

June 20, 2006 “Morphing Structures for Hypersonic Engines”, Air Force Research Labs, Dayton, Ohio.

July 11, 2006 “Morphing Structures for Hypersonic Engines”, Lockheed Skunk Works, Palmdale, California

August, 2006 “MARIAH Sponsored 1 Megawatt Experiments at Sandia”, MSE Technology Applications, Butte MT.

Sept 16, 2006 “Third Harmonic in Phase Matched Metal Vapors”, Harris Fest, Celebration in honor of Steve Harris, Stanford University

Oct 23, 2006 “Imaging Flow Structure, Temperature and Species with Atomic and Molecular Filters”, Tokyo Institute of Technology

Oct 24, 2006 “Radiatively Driven Hypersonic Wind Tunnel”, Japan Aerospace Exploration Agency

Oct 26, 2006 “MHD Power Extraction and Control for High Speed Vehicles”, Special Invited Lecture: Conference on Frontiers of Technology and Engineering, Nagaoka, Japan

Nov 7, 2006 “MHD Power Extraction and Control for High Speed Vehicles”, PPPL- SEAS Workshop

April 7, 2007 “Coherent Microwave Scattering from Resonant Multiphoton Laser Generated Micro Plasmas”, Symposium on "Quantum mechanics, informatics, control and quantum materials engineering" .Princeton University.

April 25, 2007 "Steering High Speed Projectiles with Plasmas", Picatinny Arsenal, NJ

May 10, 2007 “RADAR REMPI: A New Approach to Detection, Spectroscopy and the Dynamics of Gases for Combustion, Fluid Dynamics and Homeland Defense”, CLEO/QELS 2007, Baltimore, Maryland.

July 16, 2007 “RADAR REMPI for the Detection of Trace Species” TAMU/Princeton Summer School on Quantum Optics and Molecular Physics, Casper WY.

Aug 12-16, 2007 Radar REMPI for Combustion and Flow Diagnostics, 2007 Gordon Research Conference on Laser Diagnostics, Oxford, UK

Aug 19-21, 2007 “Applications of RADAR REMPI and Filtered Rayleigh Scattering for Combustion Diagnostics” 1st International SAOT (School in Advanced Optical Technologies) Workshop on Optical Metrology”, Erlangen, Germany

Nov 2, 2007 “RADAR REMPI” The Middleton Meeting on Classical, Semiclassical and Quantum Noise, Princeton NJ

Feb 8, 2008 “Radar REMPI for Gas Property Measurements and for Trace Molecule Detection,” Princeton Plasma Physics Laboratory

Mar 17, 2008 “Ultra High Sensitivity Detection of NO Photo-fragments by Radar REMPI,” LACSEA 2008 meeting, St. Petersburg, Fl

June 24, 2008 “Seedless Velocimetry in Air by Vibrational Excitation and by Laser Induced Ionization” AIAA-2008-3753, 38th Fluid Dynamics Conference and Exhibit, Seattle, Washington

June 30, 2008 “Microwave Radar and Radar-REMPI methods for a gas and gas flow diagnostics,” 14th International Conference on the Methods of Aerophysical Research (ICMAR), Novosikersk, Russia (Plenary paper -given by M. Shneider)

July 17, 2008 The Combination of Lasers and Radar for High Sensitivity Standoff Trace Gas Detection. Presented to the Defense Science Research Council, Santa Cruz, Calif.

Sept 7, 2008 Non Thermal Atmospheric Pressure Plasmas for Aeronautic Applications. Hakone XI Conference, Oleron Island, France.

February 10, 2009 Dielectric Barrier Discharge (DBD) Plasma Actuators for Aerodynamic Control, NASA Langley

April 20, 2009 Simultaneous Multiple Species Imaging by Femtosecond Multiphoton Laser Induced Fluorescence, SPIE Conference on Nonlinear Optics and its Applications, Invited paper 7354-05, Prague, Czech Republic.

June 16, 2009 Gas Phase Spectroscopy for Medical Diagnostics, Charles E. Flowers Society, Prince William sound, Alaska.

Sept. 16, 2009 Power Extraction and Flow Control with MHD in Cold Air, 17th International Conference on MHD Energy Conversion, 14-17 September 2009, Shonan Village Cente, Kanagawa, Japan

Oct 12, 2009 Current Needs and Challenges in Plasma-Assisted Combustion and Aerodynamic Flow Control, Aerospace Thematic Workshop: Fundamentals of Aerodynamic Flow and Combustion Control by Plasmas, Les Houches – Mont-Blanc, France October 11-16, 2009 Les Houches – Mont-Blanc, France

June 28, 2010 Hypersonic Inlet Optimization by Shape Morphing Woven Ceramic Surface, 2010 National Space and Missile Materials Symposium, Scottsdale, AZ. (June 28-July2, 2010)

July 18, 2010 Backward Propagating Atomic Oxygen Laser in Air, Texas – Wyoming Quantum Summer School (Casper, WY, July 18-31, 2010)

July 19, 2010 Direct Measurement of Electron Loss Rate in Air and Ppb Standoff Detection of Nitric Oxide and Other Species in Air Texas – Wyoming Quantum Summer School (Casper, WY, July 18-31, 2010)

Aug 6, 2010 Lasers in Aerospace, AFOSR LaserFest Celebrating 50 Years of the Laser, Washington DC

Sept 7, 2010 Performance of Shape Morphing, Woven Ceramic Hypersonic Inlet, Evans Memorial Conference (September 7-9, 2010) – University of California, Santa Barbara

Feb. 21, 2011 Plasma Flow Control, Fundamentals, Modeling, And Applications Keynote Lecture, Conference on Plasma Flow Control: Fundamentals, Modeling and Applications, von Karman Institute for Fluid Dynamics , Rhode Saint-Genese, Belgium

Feb. 21, 2011 Limitations and Potential of Flow Control with Dielectric Barrier Discharges, Conference on Plasma Flow Control: Fundamentals, Modeling and Applications, von Karman Institute for Fluid Dynamics , Rhode Saint-Genese, Belgium

April 21, 2011 Electron Beam Driven Hypersonic Wind Tunnel Melina Lecture, Texas A&M University

May 3, 2011 FLETA: Femtosecond Laser Excitation Tagged Anemometry, Workshop on Turbulence in High-Speed Flow, Princeton University

July 26, 2011 Femtosecond laser electronic excitation tagging (FLEET) and lasing in air, The 2011 TAMU-Princeton Summer School on Quantum Science and Engineering, Jackson, WY

Aug 23, 2011 Microwave Driven Ultra Lean Combustion and Flame Propagation Enhancement, DARPA Workshop on Atmospheric Pressure Weakly Ionized Plasmas for Energy Technologies, Flow Control and Materials Processing, Princeton, NJ

Nov 15, 2011 Air Laser and New Nonlinear Optics Methods for Diagnostics of Air Flows and for Trace Gas Detection, University of Illinois, Urbana Champaign

Feb 28, 2012 The Compelling Need for Low Cost Hypersonic Testing in the Atmosphere, Next Generation Suborbital Researchers Conference, Palo Alto, CA Feb 26-28, 2012

June 26, 2012 Overcoming the Limitations of Surface Dielectric Barrier Discharge Devices for Flow Control AIAA Plasma Dynamics and Lasers Award Talk, AIAA Plasma Dynamics and Lasers Meeting, New Orleans, LA.

July 13, 2012 Advanced Methods for Unseeded, Nonintrusive Flow Diagnostics of Velocity and Temperature in Air and in Combusting Environments. GE Global Research Workshop on Advanced Engine Diagnostics.

Sept 5, 2012 Opportunities for Future Investments in Fluid Dynamics, Presentation to Army Research Office Mechanical Sciences Coordinating Group Meeting

Sept 25, 2012 Velocity, Temperature and Species Imaging inAir and in Combustion Environments by Femtosecond Lasere Electronic Excitation Tagging (FLEET), Ecole Polytechnique, Paris

Sept 26, 2012 Pulsed Microwave Coupling to Flames and Laser Produced Plasmas for Hydrocarbon Ignition and Combustion Enhancement, Ecole Centrale, Paris

Jan 8, 2013 “Femtosecond Laser Electronic Excitation Tagging (FLEET)  for Imaging Flow Structure in Unseeded Hot or Cold Air or Nitrogen,” Invited talk, AIAA Aerospace Sciences Meeting, Dallas Texas.

Mar.19, 2013 “Phase Matched and Non-Phase Matched Nonlinear Optics,” Russian Quantum Canter Spring School, March 18-22, 2013, Moscow, Russia

**PUBLICATIONS**

**A. Books/Chapters in Books**

1. J. Gelfand, R.B. Miles, E. Rohlfing and H. Rabitz, "Time Resolved Photoacoustic Detection of Collisional Relaxation of Vibrationally Excited HD Molecules," Time Resolved Vibrational Spectroscopy, Ed. G.H. Atkinson, (Academic Press, 1982), p. 9.
2. R.B. Miles and D.M. Nosenchuck, "Three-Dimensional Quantitative Flow Diagnostics," Advances in Fluid Mechanics Measurements, Ed. M. Gad-el-Hak, Lecture Notes in Engineering, Springer-Verlag, New York, 1989.
3. Kenichi Iga, Fundamentals of Laser Optics, Richard B. Miles, Technical Editor, Plenum Publishing, NY, 1994.
4. Richard B. Miles, "Planar Laser Imaging," Chapter 5, pp. 93-122 in "Flow Visualization--Techniques and Examples," Edited by A.J. Smits and T.T. Lim, Imperial College Press, London, November 2000.
5. Richard B. Miles, "Flow Field Diagnostics," Chapter 7, in Applied Combustion Diagnostics, Edited by Katharina Kohse-Hoeinghaus and Jay Jeffries, Taylor & Francis, New York, 2002.

**B. Publications in Refereed Journals and Review Articles**

1. J.W. Goodman, R.B. Miles and R.B. Kimball, "Comparative Noise Performance of Photographic Emulsions in Holographic and Conventional Imagery," J. Opt. Soc. Amer. 58, May 1968, p. 609.
2. J.F. Young, R.B. Miles and S.E. Harris, "Pump Linewidth Requirement for Optical Parametric Oscillators," J. Appl. Phys. 42, January 1971, p. 497.
3. J.F. Young, J.E. Murray, R.B. Miles and S.E. Harris, "Q-Switched Laser with Controllable Pulse Length," Appl. Phys. Letts. 18, February 1971, p. 129.
4. R.B. Miles, R.B. Kimball and W.H. Frey, "The Engineer as a Radical?" IEEE Trans. on Aerospace and Electronic Systems AES-7, July 1971, p. 578.
5. S.E. Harris and R.B. Miles, "Proposed Third Harmonic Generation in Phase-Matched Metal Vapors," Appl. Phys. Letts. 19, November 1971, p. 385.
6. J.F. Young, G.C. Bjorklund, A.H. Kung, R.B. Miles and S.E. Harris, "Third Harmonic Generation in Phase Matched Rb Vapor," Phys. Rev. Letts. 27, December 1971, p. 1551.
7. R.B. Miles and S.E. Harris, "Optical Third Harmonic Generation in Alkali Metal Vapors," IEEE J. Quant. Electronics QE-9, Spring 1973, page 470.
8. R.B. Miles, "Resonant Doppler Velocimeter," Phys. of Fluids 18, June 1975, page 751.
9. R.B. Miles, G. Laufer and G. Bjorklund, "Coherent Anti-Stokes Raman Scattering in a Hollow Dielectric Waveguide," Appl. Phys. Letts. 30, April 1977, page 317.
10. E. Rey, M. Kamal, R.B. Miles and B.S.H. Royce, "Semiconductivity and Stability of PdO," J. of Mat. Sci. 13, 1978, page 812.
11. R.B. Miles, E. Udd and M. Zimmermann, "Quantitative Flow Visualization in Sodium Vapor Seeded Hypersonic Helium," Appl. Phys. Letts. 32, 1978, page 317.
12. G. Laufer and R.B. Miles, "Angularly Resolved Coherent Raman Spectroscopy (ARCS), Optics Communications 28, February 1979, page 250.
13. G. Laufer, R.B. Miles and D. Santavicca, "Angularly Resolved Coherent Raman Spectroscopy (ARCS) in Gases," Optics Communications 31, November 1979, page 242.
14. R.B. Miles, "Laser Beacon System for Aircraft Collision Hazard Determination," Applied Optics 19, July 1980, page 2098.
15. R.B. Miles, J. Gelfand and E. Wilczek, "Thin Filament Interferometric Microphone," J. of Appl. Phys. 51, August 1980, page 4543.
16. E. Rohlfing, J. Gelfand, R.B. Miles, H. Rabitz and A. DePristo, "Modelling of Relaxation Measurements on Highly Vibrationally Excited HD Using Direct Overtone Pumping and Photoacoustic Detection," Chem. Phys. 51, September 1980, page 121.
17. A. DePristo, H. Rabitz and R.B. Miles, "The Selective Preparation of Excited Vibrational States Using the Stimulated Resonance Raman Effect," J. of Chem. Phys. 73, November 1980, page 4798.
18. M. Zimmermann and R.B. Miles, "Hypersonic Helium Flow Field Measurements with the Resonant Doppler Velocimeter," Appl. Phys. Letts. 37, November 1980, page 885.
19. R. Miles, G. Laufer, C. Paddock and G. Faris, "Picosecond Double Pass Amplifier," Appl. Optics 19, November 1980, page 3595.
20. M. Zimmermann and R.B. Miles, "Low Temperature Helium-Sodium Collision Rate Measurements," J. of Physics B14, February 1981, page L85.
21. E.A. Rohlfing, J. Gelfand, R.B. Miles and H. Rabitz, "Observation of Collisional Relaxation from HD v=5 and v=6 by Direct Overtone Pumping and Photoacoustic Detection," J. Chem. Phys. 5, November 1981, page 4893.
22. R.B. Miles, S.G. Webb and E.L. Griffith, "Hemispherical Field of View, Nonimaging Narrow Band Spectral Filter," Optics Letters 6, December 1981, page 616.
23. J. Terner, D.F. Voss, C. Paddock, R.B. Miles, and T.G. Spiro, “Picosecond Time-Resolved Resonance Raman-Spectroscopy of the Photolysis of Oxy-Hemoglobin,” Biophysical Journal, Vol. 37, No. 2, 1982, p A92.
24. J. Terner, D.F. Voss, C. Paddock, R.B. Miles and T.G. Spiro, "Picosecond Resonance Raman Spectrum of the Oxyhemoglobin Photoproduct: Evidence for an Electrochemically Excited State," J. Phys. Chem. 86, 1982, page 859.
25. E.A. Rohlfing, J. Gelfand and R.B. Miles, "Time Domain Photoacoustic Relaxation Measurements: Vibrational Energy Transfer for HD in V-4, 5, and 6," J. Appl. Phys. 53, August 1982, page 5420.
26. D.F. Voss, C.A. Paddock and R.B. Miles, "Picosecond Surface Raman Spectroscopy Beyond the Damage Limit," Appl. Phys. Lett. 41, July 1982, page 51.
27. S. Cheng, M. Zimmermann and R.B. Miles, "Separation of Time-Averaged Turbulence Components by Laser-Induced Fluorescence," Physics of Fluids 26, 1983, p. 874.
28. S. Cheng, M. Zimmermann and R.B. Miles, "Supersonic-Nitrogen Flow Field Measurements with the Resonant Doppler Velocimeter," Appl. Phys. Lett. 43, 1983, page 143.
29. C.A. Paddock, G.F. Russell, D.F. Voss and R.B. Miles, "Multiple Pulse Injection of a Picosecond Regenerative Ring Amplifier," J. Appl. Phys. 55, 1984, page 1793.
30. E.A. Rohlfing, H. Rabitz, J. Gelfand and R.B. Miles, "Mechanisms and Rate Constants for the Vibrational Relaxation of HD (v=4,5, and 6) in Collisions with HD, 4He, and D2," J. Chem. Phys. 81, 1984, page 820.
31. C.A. Paddock, G.F. Russell, and R.B. Miles, "Angle Resolved Second Harmonic Generation from Silver and Copper Surfaces," Surface Science 172, 1986, page 578.
32. C.W. Clark, M.G. Littman, T.J. McIlrath, R. Miles, C.H. Skinner, S. Suckewer and E. Valeo, "Possibilities for Achieving X-Ray Lasing Action by Use of High-Order Multiphoton Processes," J. of the Opt. Soc. of America B 3, March 1986, page 371.
33. G. Russell and R.B. Miles, "Display and Perception of Three-Dimensional Space Filling Data," Applied Optics 26, March 1987, page 973.
34. R. Miles, C. Cohen, J. Connors, P. Howard, S. Huang, E. Markovitz, and G. Russell, "Velocity Measurements by Vibrational Tagging and Fluorescent Probing of Oxygen," Optics Letters 12, 1987, page 861.
35. R. Miles, J. Connors, P. Howard, E. Markovitz and G. Roth, "Proposed Single-Pulse Two-Dimensional Temperature and Density Measurements of Oxygen and Air," Optics Letters 13, 1988, page 195.
36. T.G. Kreutz, J. Gelfand, R.B. Miles, and H. Rabitz, "A Time Domain Photoacoustic Study of the Collisional Relaxation of Vibrationally Excited H2," Chemical Physics 124, 1988, page 359.
37. R. Miles, J. Connors, E. Markovitz, P. Howard and G. Roth, "Instantaneous Supersonic Velocity Profiles in an Underexpanded Jet by Oxygen Flow Tagging," Physics of Fluids A 1, 1989, p. 389.
38. R.B. Miles, J.J. Connors, E.C. Markovitz, P.J. Howard, and G.J. Roth, "Instantaneous Profiles and Turbulence Statistics of Supersonic Free Shear Layers by Raman Excitation + Laser-Induced Electronic Fluorescence (RELIEF) Velocity Tagging of Oxygen," Experiments in Fluids 8, 1989, p. 17.
39. M. Smith, A. Smits, and R. Miles, "Compressible Boundary Layer Density Cross Sections by UV Rayleigh Scattering," Optics Letters 14, 1989.
40. R. Miles and W. Lempert, "Two-Dimensional Measurement of Density, Velocity, and Temperature of Turbulent Air Flows from UV Rayleigh Scattering," Applied Physics B B51, July 1990, p. 1.
41. W.R. Lempert, B. Zhang, R.B. Miles, and J.P. Looney, "Stimulated Raman Scattering and CARS in High-Pressure Oxygen," JOSA B 7, May 1990, p. 715.
42. W.R. Lempert, G. Diskin, V. Kumar, I. Glesk, and R. Miles, "Two- Dimensional Imaging of Molecular Hydrogen in H2/Air Diffusion Flames Using Two-Photon Laser-Induced Fluorescence," Optics Letters 16, May 1, 1991, p. 660.
43. R. Miles, W. Lempert, and B. Zhang, "Turbulent Structure Measurements by RELIEF Flow Tagging," Fluid Dynamics Research 8, 1991, pp. 9-17.
44. F.K. Owen, R.B. Miles, and R. Menon, "Tracking a Particle's Progress," Aerospace America, November 1992.
45. R.B. Miles, D. Zhou, B. Zhang, Z-S She, and W.R. Lempert, "Fundamental Turbulence Measurements by RELIEF Flow Tagging," AIAA Journal 31, 1993, pp. 447-452.
46. B. Zhang, W.R.Lempert, R.B. Miles, and G. Diskin, "Efficient Vibrational Raman Conversion in O2 and N2 Cells by Use of Superfluorescence Seeding," Optics Letters 18, 1993, pp. 1132-1134.
47. R. Miles, J. Forkey, N. Finkelstein, and W. Lempert, "Precision Whole-Field Velocity Measurements with Frequency-Scanned Filtered Rayleigh Scattering," Proceedings of the 7th International Symposium on Applications of Laser Techniques to Fluid Mechanics, Lisbon, Portugal, July 11-14, 1994.
48. Richard B. Miles, Garry L. Brown, Walter R. Lempert, Richard Yetter, George J. Williams, Jr., Seymour M. Bogdonoff, Douglas Natelson, and Jeffrey R. Guest, "Radiatively Driven Hypersonic Wind Tunnel," AIAA Journal 33, No. 8, August 1995, pp. 1463-1470.
49. J.N. Forkey, N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "Demonstration and Characterization of Filtered Rayleigh Scattering for Planar Velocity Measurements," AIAA Journal 34, March 1996, pp. 442-448.
50. Scott R. Harris, Walter R. Lempert, Leslie Hersch, C.L. Burcham, D.A. Saville, R.B. Miles, K. Gee and R.P. Haughland, "Quantitative Measurements of Internal Circulation in Droplets Using Flow Tagging Velocimetry," AIAA Journal 34, March 1996, pp. 449-454.
51. R.B. Miles and W.R. Lempert, "Quantitative Flow Visualization in Unseeded Flows," Annual Review of Fluid Mechanics 29, 1997, pp. 285-326 (Invited).
52. J.N. Forkey, W.R. Lempert, and R.B. Miles, "Observation of a 100 MHz Frequency Variation Across the Output of a Frequency-Doubled, Injection-Seeded, Unstable Resonator, Q-Switched Nd:YAG Laser," Optics Letters 22, February 15, 1997, pp. 230-232.
53. N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "Narrow-Linewidth Passband Filter for Ultraviolet Rotational Raman Imaging," Optics Letters, 22, April 15, 1997, pp. 537-539.
54. Christoph J. Meinrenken, Walter D. Gillespie, Sergey Macheret, Walter R. Lempert, and Richard B. Miles, "Time Domain Modeling of Spectral Collapse in High Density Molecular Gases," J. Chemical Physics 106, May 22, 1997, pp. 8299-8309.
55. A. Noullez, G. Wallace, W. Lempert, R.B. Miles, and U. Frisch, "Transverse Velocity Increments in Turbulent Flow Using the RELIEF Technique," J. Fluid Mechanics 339, 1997, pp. 287-307.
56. J.N. Forkey, W.R. Lempert, and R.B. Miles, "Corrected and Calibrated I2 Absorption Model at Frequency-Doubled Nd:YAG Laser Wavelengths," Applied Optics 36, Sept. 20, 1997, pp. 6729-6738.
57. Walter D. Gillespie, Christoph J. Meinrenken, Walter R. Lempert, Richard B. Miles, "Interbranch Line-Mixing in CO2 (1001) and (0201) Combination Bands," J. Chem. Phys. 107:16, Oct. 22, 1997, pp. 5995-6004
58. N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "Narrow Linewidth Passband Filters and UV Laser Source for Rotational Raman Imaging," SPIE Vol. 3172, San Diego, CA, July 28-31, 1997, pp. 656-665.
59. J.N. Forkey, W.R. Lempert, and R.B. Miles, "Accuracy Limits for Planar Measurements of Flow Field Velocity, Temperature and Pressure Using Filtered Rayleigh Scattering," Experiments in Fluids, Vol. 24, No. 2, pp. 151-162 (1998).
60. N.D. Finkelstein, A.P. Yalin, W.R. Lempert, and R.B. Miles, "Dispersion Filter for Spectral and Spatial Resolution of Pure Rotational Raman Scattering," Optics Letters, Vol. 23, No. 20, October 15, 1998, pp. 1615-1617.
61. D.A. Akimov, A.M. Zheltikov, N.I. Koroteev, R.B. Miles, A.N. Naumov, D.A. Sidorov-Biryukov, and A.B. Fedotov, “Imaging of the Spatial Distribution of Atoms in an Optical Breakdown Plasma with One-Dimensional Coherent Hyper-Raman Scattering,” Quantum Electronics, vol. 28, No. 12, 1998, pp. 1076-1081.
62. D.A. Akimov, A.B. Fedotov, N.I. Koroteev, R.B. Miles, A.N. Nauov, D.A. Sidorov-Biryukov, and A.M. Zheltikov, "One-Dimensional Coherent Four-Wave Mixing as a Way to Image the Spatial Distribution of Atoms in a Laser-Produced Plasma," Optics Letters, Vol. 24, No. 7, April 1, 1999, pp. 478-480.
63. A.P. Yalin and R.B. Miles, "Ultraviolet Filtered Rayleigh Scattering Temperature Measurements with a Mercury Filter," Optics Letters, Vol. 24, No. 9, May 1, 1999, pp. 590-592.
64. Y.Z. Ionikh, N.V. Chernysheva, A.V. Meshchanov, A.P. Yalin, and R.B. Miles, "Direct Evidence for Thermal Mechanism of Plasma Influence on Shock Wave Propagation," Physics Letters A, Vol. 259, No. 5, August 23, 1999, pp. 387-392.
65. P.F. Barker, J.H. Grinstead, and Richard B. Miles, "Single-Pulse Temperature Measurement in Supersonic Air Flow with Predissociated Laser-Induced Thermal Gratings," Optics Communications, Vol. 168, Sept. 1, 1999, pp. 177-182.
66. P. Wu, W.R. Lempert, and R.B. Miles, "MHz Pulse-Burst Laser and Visualization of Shockwave/Boundary Layer Interaction," AIAA Journal J., Vol. 38, No. 4, April 2000, pp. 672-679.
67. A.P. Yalin, R.B. Miles, "Temperature Measurements by Ultraviolet Filtered Rayleigh Scattering Using a Mercury Filter." J. Thermophysics and Heat Transfer, Vol. 14, No. 2, April-June 2000, pp. 210-215.
68. R.B. Miles, J. Grinstead, R.H. Kohl, and G. Diskin, "The RELIEF Flow Tagging Technique and its Application in Engine Test Facilities and for Helium/Air Mixing Studies," Measurement Science & Technology Special Edition on Molecular Tagging Velocimetry, Vol. 11 (2000), pp. 1272-1281. **(Invited)**
69. R.B. Miles, Z. Tang, S. Zaidi, A. Yalin, and N. Finkelstein, "High Signal-to-Noise Detection of Rotational Raman Scattering Through Refluorescent and Dispersive Atomic Filters," J. of Raman Spectroscopy--Nikolai Ivanovich Koroteev Memorial Issue , Vol. 31, (2000), pp. 843-849. **(Invited)**
70. A.P. Yalin, P.F. Barker, and R.B. Miles, "Characterization of Laser Seeding Using Group Velocity Dispersion in an Atomic Vapor Filter," Optics Letters, Vol. 25, No. 7, April 1, 2000, pp. 502-504.
71. Z. Tang and R.B. Miles, "One- and Two-Photon, Optogalvanic Spectroscopy of Argon and Neon for Wavelength Calibration in the Near Infrared," Optics Communications, Vol. 184, Oct. 15, 2000, pp. 411-416.
72. A.M. Zheltikov, A.M. Naumov, P. Barker, R. Miles et al., "Controlling Dispersion and Transmission Spectra of Hybrid Resonant-Gas-Filled, Photonic Crystal Optical Components," Opt. Spectroscopy, Vol. 89, No. 2, August 2000, pp. 282-286
73. D.A. Akimov, A.B. Fedotov, N.I. Koroteev, R.B. Miles, A.N. Naumov, D.A. Sidorov-Biryukov, and A.M. Zheltikov, "Line-by-Line Imaging of Laser-Produced Plasmas Using One-Dimensional Coherent Four-Wave Mixing," J. Raman Spectroscopy, Vol. 31, No. 8-9, Aug-Sept. 2000, pp. 677-687.
74. Z. Tang and R.B. Miles, “One and Two Photon Optogalvanic Spectroscopy of Argon and Neon for the Wavelength Calibration in the Near Infrared,” Optic Communications, Vol. 184, No. 5-6, Oct. 15, 2000, pp. 411-416.
75. P. Wu and R.B. Miles, "High Energy, Pulse-Burst Laser System for MHz-Rate Flow Visualization," Optics Letters, Vol. 25, No. 22, Nov. 15, 2000, pp. 1639-1641.
76. R.B. Miles, A. Yalin, Z. Tang, S. Zaidi, and J. Forkey, "Flow Field Imaging Through Sharp-Edged Atomic and Molecular Notch Filters," J. Measurement Science Technology Vol. 12 **(**APRIL2001) pp. 442-451.
77. S.O. Macheret, M.N. Shneider, and R.B. Miles, "Modeling of Discharges Generated by Electron Beams in Dense Gases: 'Fountain' and 'Thunderstorm' Regimes," Physics of Plasmas, Vol. 8, May 2001, pp. 1518-1528.
78. R.B. Miles, W. Lempert, and J. Forkey, "Laser Rayleigh Scattering," J. of Measurement Science & Technology, Vol. 12, (MAY 2001) R33-R51 **Invited** (Published by the Institute of Physics Publishing, Bristol, England).
79. S.O. Macheret, M.N. Shneider, and R.B. Miles, "Electron Beam Generated Plasmas in Hypersonic Magnetohydrodynamic Channels," AIAA Journal, Vol. 39, No. 6, June 2001, pp. 1127-1138.
80. P.F.P. Wu, and R.B. Miles, “Megahertz Visualization of Compression-Corner Shock Structures,” AIAA J., Vol. 39, No. 8, August 2001, pp. 1542-1546.
81. S.O. Macheret, Y.Z. Ionikh, N.V. Chernysheva, A.P. Yalin, L. Martinelli, and R.B. Miles, "Shock Wave Propagation and Dispersion in Glow Discharge Plasmas," Physics of Fluids, Vol. 13, No. 9, September 2001, pp. 2693-2705.
82. A.B. Fedotov, A.N. Naumov, J.W. Haus, R.B. Miles, D.A. Sidorov-Biryukov, N.V. Chigarev, and A.M. Zheltikov, “A Planar Hollow Corrugated Photonic Band-Gap Waveguide: Coupled Modes and Transmission Spectrum, Laser Phys, Vol. 11, No. 9, Sept, 2001, pp. 1009-1013.
83. A.N. Naumov, A. A. Podshivalov, K.N. Drabovich, R.B. Miles, and A.M. Zheltikov, “Theory of Doppler-Free Spectroscopy with Lambda-Thick Vapor Cells,” Physics Letters A, Vol. 289, No. 4-5, October 22, 2001, pp. 207-212.
84. S.O. Konorov, D.A. Akimov, A.N. Naumov, A.B. Fedotov, R.B. Miles, J.W. Haus and A.M. Zheltikov, “Coherent Anti-Stokes Raman Scattering of Slow Light in a Hollow Planar Periodically Corrugated Waveguide,” JETP Letters, Vol. 75, No. 2, 2002, pp. 66-70.
85. S.O. Macheret, M.N. Shneider, and R.B. Miles, "Magnetohydrodynamic Control of Hypersonic Flows and SCRAMJET Inlets Using Electron Beam Ionization," AIAA Journal, Vol. 40, No. 1, January 2002, pp. 74-81.
86. X. Pan, P.F. Barker, A. Meschanov, J.H. Grinstead, M.N. Shneider, and R.B.Miles, “Temperature Measurements by Coherent Rayleigh Scattering,” Optics Letters, Vol. 27, No. 3, February 1, 2002, pp. 161-163.
87. S.O. Macheret, M.N. Shneider, and R.B. Miles, "MHD Power Extraction from Cold Hypersonic Air Flows with External Ionizers," Journal of Propulsion and Power, Vol. 18, No. 2, March-April 2002, pp. 424-431.
88. S.O. Konorov, D.A. Akimov, A.N. Naumov, A.B. Fedotov, R.B. Miles, J.W. Haus, and A.M. Zheltikov, “Coherent Anti-Stokes Raman Scattering of Slow Light in a Hollow Planar Photonic Band-Gap Waveguide,” Laser Physics, Vol. 12,No. 4, April 2002, pp. 818-824.
89. A.B. Fedotov, A.N. Naumov, D.A. Sidorov-Biryukov, N.V. Chigarev, A.M. Zheltikov, J.W. Haus and R.B. Miles, “Photonic-Bandgap Planar Hollow Waveguide,” J. Opt. Soc. Am. B, Vol. 19 No. 5, May 2002, pp. 1162-1168.
90. S.H. Zaidi, Z. Tang, A.P. Yalin, P. Barker, R.B. Miles, “Filtered Thomson Scattering in an Argon Plasma,” AIAA Journal, Vol. 40, No. 6, June 2002, pp. 1087-1093.
91. A.P. Yalin, Y.Z. Ionikh, and R.B. Miles, “Gas Temperature Measurements in Weakly Ionized Glow Discharges with Filtered Rayleigh Scattering,” Applied Optics, Vol. 41, No. 18, June 20, 2002, pp. 3753-3762.
92. S.O. Macheret, M.N. Shneider, and R.B. Miles, "Modeling of Air Plasma Generation by Repetitive High-Voltage Nanosecond Pulses," IEEE Transactions on Plasma Science, Vol. 30, No. 3, Part 2, June 2002, pp. 1302-1314.
93. S.O. Konorov, D.A. Akimov, A.N. Naumov, R.B. Miles, et al., “Coherent Anti-Stokes Raman Scattering in Hollow Planar Periodic Corrugated Waveguide: A Role of Photon Band Gap,” IZV Akad. Nauk. FiZ, Vol. 66, No. 8, August 2002, pp. 1078-1084.
94. X. Pan, M.N. Shneider, and R.B. Miles, “Coherent Rayleigh-Brillouin Scattering,” Physical Review Letters, Vol. 89, No. 18 (article #183001), Oct. 28, 2002.
95. S.O. Konorov, D.A. Akimov, A.N. Naumov, R.B. Miles, et al., “Bragg Resonance-Enhanced Coherent Anti-Stokes Raman Scattering in a Planar Photonic Band-Gap Waveguide,” J. Raman Spectroscopy, Vol. 33, No. 11-12, Nov.-Dec. 2002, pp. 955-961.
96. I.G. Girgis, G.L. Brown, and R.B. Miles, “Fluid Mechanics of a Mach 7-12, Electron Beam-Driven, Missile-Scale Hypersonic Wind Tunnel: Modeling and Predictions,” Physics of Fluids, Vol. 14, No. 11, November 2002, pp. 4026-4039.
97. S.O. Konorov, D.A. Sidorov-Biryukov, I. Bugar, D. Chorvat, Jr., D. Chorvat, E.E. Serebryannikov, M.J. Bloemer, M. Scalora, R.B. Miles, and A.M. Zheltikov, “Limiting of Microjoule Femotosecond Pulses in Air-Guided Modes of a Hollow Photonic-Crystal Fiber,” Physical Review A, Vol. 70, 2004, p.70.
98. S.H. Zaidi, M.N. Shneider, and R.B. Miles, “Shock-Wave Mitigation Through Off-Body Pulsed Energy Deposition,” AIAA Journal, Vol. 42, No. 2, February 2004, pp. 326-331.
99. X.G. Pan, M.N. Shneider, and R.B. Miles, “Coherent Rayleigh-Brillouin Scattering in Molecular Gases,” Phys. Rev. A, Vol. 69, No. 3, March 2004, Article #033814.
100. S.O. Macheret, M.N. Shneider, R.B. Miles, “Magnetohydrodynamic and Electro-hydrodynamic Control of Hypersonic Flows of Weakly Ionized Plasmas,” AIAA Journal, Vol. 42, No. 7, 2004, pp .1378-1387.
101. M.N. Shneider, P.F. Barker, X. Pan, and R.B. Miles, “Coherent Rayleigh Scattering in the High Intensity Regime,” Optics Communications, Vol. 239, Sept. 2004, pp. 205-211.
102. J. Poggie, P.J. Erbland, A.J. Smits and R.B. Miles, “Quantitative Visualization of Compressible Turbulent Shear Flows Using Condensate-Enhanced Rayleigh Scattering,” Experiments in Fluids, Vol. 37, No. 3, Sept 2004, pp 438-454.
103. S.O. Macheret, M.N. Shneider, and R.B. Miles, “Scramjet Inlet Control by Off-Body Energy Addition: A Virtual Cowl,” AIAA Journal, Vol. 42, Nov. 2004, pp. 2294-2302.
104. S.O. Macheret, M.N. Shneider, and R.B. Miles, “Analysis of Magnetohydrodynamic Control of Scramjet Inlets,” AIAA Journal, Vol. 42, Nov. 2004, pp. 2303-2310.
105. X.G. Pan, M.N. Shneider, and R.B. Miles, “Power Spectrum of Coherent Rayleigh-Brillouin Scattering in Carbon Dioxide,” Physical Review A, Vol. 71, 2005, Article #045801.
106. D.A. Zheltikova, M. Scalora, A.M. Zheltikov, M.J. bloomer, M.N. Shneider, G. D’Aguanno, and R.B. Miles, “Switching Intense Laser Pulses Guided by Kerr-Effect-Modified Modes of a Hollow-Core Photonic Crystal Fiber,” Physical Review E, Vol. 71, Article #026609, Feb. 2005.
107. L. Qian, S.H. Zaidi, and R.B. Miles, “Narrow Linewidth Ultraviolet Source for Rayleigh and Raman Applications, AIAA J. Vol. 43, No. 3, March 2005, pp. 451-457.
108. S.O. Konorov, E.E. Serebryannikov, A.B. Fedotov, R.B. Miles, and A.M. Zheltikov, “Phase-Matched Waveguide Four-Wave Mixing Scaled to Higher Peak Powers with Large-Core-Area Hollow Photonic-Crystal Fibers,” Physical Review E, Vol. 71, Article #057603, May 2005.
109. V. Kocharovsky, S. Cameron, K. Lehmann, R. Lucht, R. Miles, Y. Rostovtsev, W. Warren, G.R. Welch, and M.O. Scully, “Gain-Swept Super-Radiance Applied to the Stand-Off Detection of Trace impurities in the Atmosphere,” Proceedings of the National Academy of Sciences of the United States of America (PNAS), Vol. 102, No. 22, May 32, 2005, pp. 7806-7811.
110. M.N. Shneider and R.B. Miles, “Microwave Diagnostics of Small Plasma Objects,” J. of Applied Physics, Vol. 98, Article #033301, Aug. 1, 2005.
111. S.O. Konorov, A.B. Fedotov, and A.M. Zheltikov, “Phase-Matched Four-Wave Mixing and Sensing of Water Molecules by Coherent Anti-Stokes Raman Scattering in Large-Core-Area Hollow Photonic-Crystal Fibers,” J. Optical Society America B, Vol. 22, No. 9, Sept. 2005, pp. 2049-2053. 
112. R. C. Murray, S.H. Zaidi, Mario R. Carraro, Leonid M. Vasilyak, Sergey O. Macheret, Mikhail N. Shneider, and Richard. B. Miles, “Magnetohydrodynamic Power Generation Using Externally Ionized, Cold, Supersonic Air as Working Fluid”, AIAA Journal, 44 (1),: Jan 2006, pp 119-127.
113. R.B. Miles, L. Qian and S.H. Zaidi, “Imaging Flow Structure and Species with Atomic and Molecular Filters,” Optics and Lasers in Engineering, Vol. 44, Issues 3-4, March-April 2006, pp. 240-260.
114. A. M. Zheltikov, M. N. Shneider, and R. B. Miles, “Radar Return Enhanced by a Grating of Species Selective Multiphoton Ionization as a Probe for Trace Impurities in the Atmosphere”, Applied Physics B – Lasers and Optics 83 (1): Apr 2006, pp 149-153.
115. Girgis IG, Shneider MN, Macheret SO, et al.” Steering moments creation in supersonic flow, by off-axis plasma heat addition”  JOURNAL OF SPACECRAFT AND ROCKETS 43 (3): 607-613 MAY-JUN 2006
116. Murray RC, Zaidi SH, Macheret SO, et al. “Microwave diagnostics of a repetitive, short-pulse-sustained, weakly ionized, air plasma under the influence of a magnetic field”, IEEE TRANSACTIONS ON PLASMA SCIENCE 34 (3): 1004-1012 Part 3 JUN 2006
117. Zhang ZL, Shneider MN, Miles RB
Microwave diagnostics of laser-induced avalanche ionization in air
JOURNAL OF APPLIED PHYSICS 100 (7): Art. No. 074912 OCT 1 2006
118. Qian LP, Zaidi SH, Miles RB
One GHz linewidth, 33 line per mm, wide angle imaging filter at the potassium resonant line
OPTICS EXPRESS 14 (23): 11113-11127 NOV 13 2006
119. Steeves CA, Wadley HNG, Miles RB, et al. A magnetohydrodynamic power panel for space reentry vehicles  JOURNAL OF APPLIED MECHANICS-TRANSACTIONS OF THE ASME 74 (1): 57-64 JAN 2007
120. R. B. Miles, Z. Zhang, S.H. Zaidi, M.N. Shneider, “Microwave Scattering from Laser Ionized Molecules: A New Approach to Nonintrusive Diagnostics” AIAA Journal, 54 (3), March 2007, pp 513-515.
121. Z.Zhang, M. N. Shneider and R.B. Miles, “Coherent Microwave Rayleigh Scattering from Resonant Enhanced Multi-photon Ionization in Argon”, Physical Review Letters, 98 (26) paper number 265005, June 29, 2007
122. M.N. Shneider, S.O. Macheret, and R.B. Miles, “Electric Charge Buildup in Hypersonic Wind tunnels with Electron Beam Energy Addition”, AIAA Journal, 45 (7), July 2007, pp 1556-1561.
123. Likhanskii AV, Shneider MN, Macheret SO, et al. “Modeling of dielectric barrier discharge plasma actuators driven by repetitive nanosecond pulses”  PHYSICS OF PLASMAS 14 (7): Art. No. 073501 JUL 2007
124. Musin RR, Shneider MN, Zheltikov AM, et al. “Guiding radar signals by arrays of laser-induced filaments: finite-difference analysis” APPLIED OPTICS 46 (23): 5593-5597 AUG 10 2007
125. Macheret SO, Shneider MN, Miles RB **“**Optimum performance of electron beam driven magnetohydrodynamic generators for scramjet inlet control” AIAA JOURNAL 45 (9): 2157-2163 SEP 2007
126. Mikhail N. Shneider, Zhili Zhang, and Richard B. Miles, **“Plasma induced by resonance enhanced multiphoton ionization in inert gas”** J. Appl. Phys. 102, 123103 (2007)
127. A.V. Likhanskii, M.N. Shneider, S.O. Macheret, and R.B. Miles.,”Modeling of dielectric barrier discharge plasma actuator in air,” JOURNAL OF APPLIED PHYSICS   Volume: 103   Issue: 5 Article Number: 053305   Published: MAR 1 2008
128. D.F. Opaits, A. V. Likhanskii, G. Neretti, S. Zaidi, M. N.Shneider, R. B. Miles and S. O. Macheret, “Experimental Investigation of Dielectric Barrier Discharge Plasma Actuators Driven by Repetitive High-Voltage Nanosecond Pulses with DC or Low Frequency Sinusoidal Bias.” JOURNAL OF APPLIED PHYSICS, Vol. 104, Issue 4, Article number 043304 (2008)
129. D.F. Opaits, M.N. Shneider, R.B. Miles, “Surface Charge in Dielectric Barrier Discharge Plasma Actuators,” PHYSICS OF PLASMAS Volume: 15 Issue: 7 Article Number: 073505 (JUL 2008)
130. MN Shneider, SO Macheret, SH Zaidi, IG Girgis, and RB Miles, ”Virtual shapes in supersonic flow, control with energy addition, “ JOURNAL OF PROPULSION AND POWER   Volume: 24   Issue: 5   Pages: 900-915 (SEP-OCT 2008)
131. DF Opaits, MN Shneider, RB Miles, “Electrodynamic effects in nanosecond-pulse-sustained long dielectric-barrier-discharge plasma actuators’” APPLIED PHYSICS LETTERS   Volume: 94   Issue: 6 Article Number: 061503   ( FEB 9 2009)
132. R.B. Miles, D.F. Opaits, M.N. Shneider, S.H. Zaidi, and S.O. Macheret,   Non-thermal atmospheric pressure plasmas for aeronautic applications, Eur. Phys. J. Appl. Phys. **47**, 22802 (2009)
133. Chiranjeev S. Kalra, Mikhail N. Shneider and Richard B. Miles, Numerical Study of Boundary Layer Separation Control using Magnetogasdynamic Plasma Actuators, Physics of Fluids, Volume 21, Issue 10, pp. 106101-106101-9 (2009).
134. Steeves CA, Timpano KH, Maxwell PT, et al.
Design and Manufacture of a Morphing Structure for a Shape-Adaptive Supersonic Wind Tunnel Nozzle JOURNAL OF APPLIED MECHANICS-TRANSACTIONS OF THE ASME   Volume: 76   Issue: 3 Article Number: 031012   Published: MAY 2009
135. Emanuel S. Stockman, Sohail H. Zaidi, Richard B. Miles, Campbell D. Carter, and Michael D. Ryan, Measurements of combustion properties in a microwave enhanced flame, Combustion and Flame, Volume 156, Issue 7, July 2009, Pages 1453-1461
136. A. Shashurin, M. N. Shneider, A. Dogariu, R. B. Miles, and M. Keidar, Temporal behavior of cold atmospheric plasma jet, Appl. Phys. Lett. 94, 231504 (2009); Published 11 June 2009
137. Opaits DF, Shneider MN, Howard PJ, et al. Study of streamers in gradient density air: Table top modeling of red sprites GEOPHYSICAL RESEARCH LETTERS   Volume: 37 Article Number: L14801   Published: JUL 22 2010
138. Shneider MN, Zheltikov AM, Miles RB Long-lived laser-induced microwave plasma guides in the atmosphere: Self-consistent plasma-dynamic analysis and numerical simulations JOURNAL OF APPLIED PHYSICS   Volume: 108   Issue: 3 Article Number: 033113   Published: AUG 1 2010
139. Giffin A, Shneider MN, Miles RB , Potential micrometeoroid and orbital debris protection system using a gradient magnetic field and magnetic flux compression APPLIED PHYSICS LETTERS   Volume: 97  Issue: 5 Article Number: 054102   Published: AUG 2 2010

# Chiranjeev S. Kalra, Sohail H. Zaidi, Richard B. Miles and Sergey O. Macheret, “Shockwave–turbulent boundary layer interaction control using magnetically driven surface discharges,” Experiments in Fluids, DOI 10.1007/s00348-010-0898-9 (August 2010)

1. Sergey Leonov, *Joint Institute for High Temperature RAS, Moscow, 125412, Russia,* Dmitry Opaits, Richard Miles *Princeton University, Princeton, NJ, USA,* Victor Soloviev *MIPT, Dolgoprudnyi, Moscow region, 141700, Russia,* “Time-Resolved Measurements of Plasma-Induced Momentum in Air and Nitrogen under DBD Actuation”, PHYSICS OF PLASMAS  Volume: 17   Issue: 11     Article Number: 113505   DOI: 10.1063/1.3494279 Published: NOV 2010
2. Michael JB, Dogariu A, Shneider MN, and Miles RB, ”Subcritical microwave coupling to femtosecond and picosecond laser ionization for localized, multipoint ignition of methane/air mixtures” JOURNAL OF APPLIED PHYSICS   Volume: 108   Issue: 9 Article Number: 093308 NOV 1 2010
3. J. Roslund, O. M. Shir, A. Dogariu, R. Miles, and H. Rabitz, “Control of nitromethane photoionization efficiency with shaped femtosecond pulses,” *J. Chem. Phys*. 134, 154301 (2011)
4. A. Dogariu and R. B. Miles, “Detecting localized trace species using Radar REMPI,” *Appl. Opt.* **50,** A68 (2011)
5. Arthur Dogariu, James Michael, Marlan O. Scully, and Richard B. Miles, “High Gain Backward Lasing in Air” Science, 331, p 442-445 (Jan 28, 2011)
6. P. R. Hemmer, R. B. Miles, P. Polynkin, T. Siebert, A.V. Sokolov, P. Sprangle, and M. O. Scully, “Standoff Spectroscopy via Remote Generation of a Backward-Propagating Laser Beam”, PNAS vol. 108 no. 8 3130-3134 (Feb. 22, 2011)
7. A. M Zheltikov, M. N. Shneider, A. A Voronin, R. B Miles, ”Laser Control of Free-Carrier Density in Solids Through Field-Enhanced Multiphonon Tunneling Recombination,”J. Appl. Physics, 109 ([3](http://ieeexplore.ieee.org/xpl/tocresult.jsp?isnumber=5709798)), 033109 - 033109-7 (Feb 2011)
8. R. Miles, P Howard, C. Limbach, S. Zaidi, (Princeton University), S. Lucato, B. Cox, D. Marshall, (Teledyne Scientific Company), A.M. Espinosa, D. Driemeyer (Boeing Phantom Works), “ A Shape Morphing Ceramic Composite for Variable Geometry Scramjet Inlets. Journal of the American Ceramic Society, Vol. 94, No. S1 – supplement to Vol. 94 No. 5. Pages S35 – S41. (June 2011)
9. J. Michael, M. R. Edwards, A. Dogariu, and R. B. Miles, “Femtosecond laser electronic excitation tagging for quantitative velocity imaging in air,” *Appl. Opt.* 50, 5158 (2011)
10. A.A. Tropina, J. B. Michael, M.N. Shneider and R.B. Miles, “Ignition Delay Time and Laminar Flame Velocity for a Combined Laser-Microwave System”, IEEE Transactions on Plasma Science, Vol. 39, No. 12, Pages 3263-3268 (Dec 2011).
11. R.B. Miles, A. Dogariu and J. Michael, “Bringing Bombs to Light”, IEEE Spectrum, Vol. 49, No. 2, February 2012, pages 39-43.
12. M. N. Shneider and R.B. Miles., “Laser Induced Avalanche Ionization in Gases or Gas Mixtures with Resonantly Enhanced Multiphoton Ionization or Femtosecond Laser Pulse Pre-Ionization.” Physics of Plasmas  Volume: 19 Issue: 8  Article Number: 083508    Published: AUG 2012
13. S. B. Leonov, A. A. Firsov, M. A. Shurupov, J. B. Michael, M. N. Shneider, R. B. Miles, and N. A. Popov, “Femtosecond Laser Guiding of a High-Voltage Discharge and the Restoration of Dielectric Strength in Air and Nitrogen,” Phys. Plasmas 19, 123502 (2012) (published on-line Dec 6, 2012)
14. M. N. Shneider and R.B. Miles.,“Coherent Microwave Radiation from a Laser Induced Plasma,” Applied Physics Letters 101, 264105 (2012) (published on-line Dec 27, 2012)

**C. Published Conference Proceedings**

1. R.B. Miles and B.B. Lusignan, "Demeter, An Earth Resources Satellite Program," 19th Congress of the International Astronautical Federation, Paper E-182, New York, October 1968.

2. W. Bottoms and R.B. Miles, "Catalytic Conversion of Water to Hydrogen Utilizing Visible Light," Second NASA Conference on Laser Energy Conversion, NASA Ames, January 1975, NASA SP-395, 1975, page 23.

3. R.B. Miles, "Resonant Doppler Velocimeter," AGARD Conference Proceedings #193 on Applications of Non-Intrusive Instrumentation in Fluid Flow Research, AGARD CP-193, Paper 19, 1976.

4. R.B. Miles, J.J. Gelfand and B.S.H. Royce, "Proposed Photoenhanced Electrolysis by Evanescent Excitation," American Institute of Aeronautics and Astronautics, Progress , Series 61, 1978, page 658.

5. L.M. Sweet, R.B. Miles, S.G. Webb and E.Y. Wong, "Wide Field of View Laser Beacon System for Three-Dimensional Aircraft Position Measurement," ASME Paper #81- WA/DSC-0, Proceedings of the 102nd Winter Annual Meeting, November 15-20, 1981, Washington, D.C., 9 pp.

1. L.M. Sweet, R.B. Miles and E.Y. Wong, "Digital Detection and Processing of Laser Beacon Signals for Collision Hazard Warning," St. Louis, MO, November 17-19, 1981. Proceedings of AIAA/IEEE 4th Digital Avionics Systems Conference, New York: American Institute of Aeronautics and Astronautics, 1981.
2. J. Terner, T.G. Spiro, D.F. Voss, C. Paddock and R.B. Miles, "Picosecond Time-Resolved Raman Spectroscopy or the Photolysis Product of Oxyhemoglobin,"Picosecond Phenomena III (Springer-Verlag, 1982). Proceedings of the Third International Conference on Picosecond Phenomena, Garmisch-Partenkirchen, Germany, June 16-18, 1982, page 327.
3. M. Zimmermann and R.B. Miles, "Spatially Resolved Flow Visualization of a Detached Shock and Wake Using the Resonant Doppler Velocimeter," Ann Arbor, MI, Sept. 6-9, 1983, Flow Visualization III, Proceedings of the Third International Symposium on Flow Visualization, W.J. Yang, Ed., University of Michigan, Ann Arbor, MI Sept 6-9, 1983, page 449.
4. M. Zimmermann, S. Cheng, and R.B. Miles, "Velocity Selective Flow Visualization in a Free Supersonic Nitrogen Jet with the Resonant Doppler Velocimeter," Ann Arbor, MI, September 6-9, 1983, Flow Visualization III, Proceedings of the Third International Symposium on Flow Visualization, W.J. Yang, Ed., University of Michigan, Ann Arbor, MI, Sept. 6-9, 1983, page 460.
5. G. Russell and R. Miles, "Volumetric Visualization of Three-Dimensional Data," NASA Conference on Spatial Displays and Spatial Instrumentation, Monterey, CA, August 31-Sept. 3, 1987.
6. R. Miles, G. Russell, J. Connors, E. Markovitz, "Acquisition and Visualization of Three-Dimensional Fluid Dynamic Data," Prepared for NSF Workshop on Image Processing and Analysis, Columbus, OH, October 16-18, 1987.
7. R. Miles, J. Connors, E. Markovitz, and G. Roth, "Coherent Anti-Stokes Raman Scattering (CARS) and Raman Pumping Lineshapes in High Fields," SPIE Meeting, Los Angeles, CA, January 11-15, 1988. SPIE Vol 912, Pulsed Single-Frequency Lasers: Technology and Applications, Ed. L. Rahn and W. Bischel, 1988, Paper #912-26, page 184.
8. R.B. Miles, J.J. Connors, E.C. Markovitz, P.J. Howard, and G.J. Roth, "Instantaneous Profiles and Turbulence Statistics of Supersonic Free Shear Layers by Raman Excitation + Laser-Induced Electronic Fluorescence (RELIEF) Velocity Tagging of Oxygen," presented at the Eleventh Symposium on Turbulence, Rolla, MO, October 17-19, 1988.
9. G. Russell and R.B. Miles, "Volumetric Visualization," Proceedings of the 1988 Princeton Symposium on Visualization in Scientific Computing.
10. R. Miles, "Velocity, Vorticity, and Structure--The Present State of Laser Diagnostics in High-Speed (Unseeded) Air," Proceedings of the 17th International Symposium on Shock Waves and Shock Tubes, Lehigh University, Bethlehem, PA, July 17-21, 1989. (Invited Paper),
11. R. Miles, "Density Cross Sections and Velocity Profiles in High-Speed Air by UV Rayleigh Scattering and by Raman Excitation + Laser-Induced Electronic Fluorescence (RELIEF)," Proceedings of the ICALEO '89 Meeting, Orlando, FL, October 15-20, 1989. (Invited Paper).
12. M. Smith, V. Kumar, A. Smits, and R. Miles, "The Structure of Supersonic Turbulent Boundary Layers as Revealed by Line Profiles and Density Cross Sections," presented at the Seventh Symposium on Turbulent Shear Flows, Stanford University, Stanford, CA, 1989.
13. M. Smith, V. Kumar, A. Smits, and R. Miles, "The Structure of the Instantaneous Density Field in Supersonic Turbulent Boundary Layers," Tenth Australasian Fluid Mechanics Conference, University of Melbourne, Melbourne, Australia, December 11-15, 1989.
14. R. Miles, "Density Structure and Velocity Correlations in Supersonic Air by Rayleigh Scattering and RELIEF," 72nd Semiannual Meeting of the Supersonic Tunnel Association, Princeton, New Jersey, October 4, 1989.
15. R. Miles and W. Lempert, "Flow Diagnostics in Unseeded Air," 28th Aerospace Sciences Meeting, Reno, Nevada, January 8-11, 1990, AIAA Paper #90-0624,
16. G.S. Diskin, W.R. Lempert, and R.B. Miles, "Species and Velocity Visualization of Unseeded Heated Air and Combusting Hydrogen Jets Using Laser and Flashlamp Sources," AIAA 26th Joint Propulsion Conference, Paper #AIAA 90-1849, Orlando, Florida, July 16-18, 1990.
17. R.B. Miles and W.R. Lempert, "Velocity and Density Fields in Turbulent Unseeded Air," Fifth International Symposium on Applications of Laser Techniques to Fluid Mechanics, Lisbon, Portugal, July 1990.
18. R. Miles, W. Lempert, and J. Forkey, "Imaging Turbulent Structure in High-Speed Air by Filtered Rayleigh Scattering," 12th Symposium on Turbulence, September 24-26, 1990, University of Missouri, Rolla, MO.
19. W. Lempert, B. Zhang, and R. Miles, "A Single Laser Apparatus for Writing Patterns into Unseeded Air," ICALEO'90, November 4-9, 1990, Boston, MA.
20. J. Forkey, W. Lempert, and R. Miles, "Flow Field Diagnostics by Spectrally Filtered Rayleigh Scattering," ICALEO'90, November 4-9, 1990, Boston, MA.
21. R. Miles, W. Lempert, and J. Forkey, "Instantaneous Velocity Fields and Background Suppression by Filtered Rayleigh Scattering," Paper #AIAA-91-0357, AIAA 29th Aerospace Sciences Meeting, January 7-10, 1991, Reno, Nevada.
22. W. Lempert, B. Zhang, G. Diskin, and R. Miles, "Simplifications of the RELIEF Flow Tagging System for Laboratory Use," Paper #AIAA-91-0356, AIAA 29th Aerospace Sciences Meeting, January 7-10, 1991, Reno, NV.
23. G. Diskin, W. Lempert, V. Kumar, I. Glesk, and R. Miles, "Species Imaging in Combusting Hydrogen Jets by Single and Two-Photon Fluorescence and Rayleigh Scattering with Laser and Flashlamp Sources, Paper #AIAA-91-0463,AIAA 29th Aerospace Sciences Meeting, Jan 7-10, 1991, Reno Nevada.
24. B.R. Tibbetts, R.B. Miles, W.R. Lempert, and P.D. Kenefick, Jr., "Optically-Based Air Data System," Tenth National Aero-Space Plane Technology Symposium, April 23-26, 1991.
25. R. Miles, W. Lempert, G. Diskin, and V. Kumar, "Imaging Hydrogen Flames by Two-Photon, Laser-Induced Fluorescence," Paper #AIAA-91-1493, AIAA 22nd Fluid Dynamics, Plasma Dynamics, & Lasers Conference, June 24 - 26, 1991, Honolulu, Hawaii.
26. R. Miles, W.R. Lempert, B. Zhang, J. Forkey, and I. Glesk, "Rayleigh Imaging and Flow Tagging in Ground Test Facilities," Proceedings 14th International Congress on Instrumentation in Aerospace Simulation Facilities, IEEE Publication 91 CH3028-8, p. 255, IEEE Aerospace and Electronic Systems Society, Oct. 27-31, 1991.
27. R.B. Miles, "Quantitative Visualization of Velocity and Density Fields in Unseeded Air Flows," Experimental and Numerical Flow Visualization, FED Vol. 128, p. 29, Ed. By B. Khalighi, M.J. Braun, C.J. Freitas, 1991 American Society of Mechanical Engineers (ASME) Winter Annual Meeting, Atlanta, Georgia, December 1-6, 1991.
28. R. Miles, W. Lempert, and B. Zhang, "Fundamental Turbulence Measurements by RELIEF Flow Tagging," Paper #AIAA 92-0007, AIAA 30th Aerospace Sciences Meeting-Aerodynamic Measurement Technology Section, Reno, Nevada, January 1992.
29. R. Miles, A. Smits, E. Markovitz, J. Connors, G. Roth, P. Howard, M. Smith, V. Kumar, and W. Lempert, "Instantaneous Velocity Profiles and Density Cross Sections in Supersonic Shear Layers," Princeton University, Princeton, NJ (Oct. 24-27, 1988), International Workshop on the Physics of Compressible Turbulent Mixing, Advances in Compressible Turbulent Mixing, p. 237, Ed. W.P. Dannevik, A.C.Buckingham, C.E. Leith, January 1, 1992.
30. R. Miles, W. Lempert, and J. Forkey, "Filtered Rayleigh Imaging of Velocity, Temperature, and Density in Hypersonic Flows for the Study of Boundary Layers, Shock Structure, Mixing Phenomena, and the Acquisition of In-Flight Air Data," New Trends in Instrumentation for Hypersonic Research, ONERA, France, April 27-May 1, 1992. Proceedings published in NATO ASI SERIES E: Applied Sciences, Vol. 224, "New Trends in Instrumentation for Hypersonic Research," (Kluwer Academic Publishers, The Netherlands), p. 391, Ed. A. Boutier, 1993.
31. R.B. Miles, J.N. Forkey, and W.R. Lempert, "Filtered Rayleigh Scattering Measurements in Supersonic/Hypersonic Facilities," Paper #AIAA-92-3894, AIAA 17th Aerospace Ground Testing Conference, Nashville, TN, July 6-8, 1992.
32. W.R. Lempert, K. Magee, P. Ronney, D.M. Nosenchuck, R.B. Miles, K. Gee, and R.P. Haugland, "Flow Tagging in Water by PHoto-Activated Nonintrusive Tracking Of Molecular Motion (PHANTOMM)," Paper #AIAA-93- 0517, AIAA 31st Aerospace Sciences Meeting, January 11-14, 1993, Reno, Nevada.
33. R.B. Miles, W.R. Lempert, B. Zhang, and D. Zhou, "Local Time-Averaged and Instantaneous Temperature Measurements by RELIEF Flow Tagging," AIAA Paper #AIAA-93-0514, AIAA 31st Aerospace Sciences Meeting, January 11-14, 1993, Reno, Nevada.
34. G.S. Diskin, W.R. Lempert, B. Zhang, and R.B. Miles, "Stokes Seeding of a Raman Shifting Cell for Use in RELIEF Velocimetry," AIAA Paper #AIAA™ 93-0515, AIAA 31st Aerospace Sciences Meeting, January 11-14, 1993, Reno, Nevada.
35. J. Forkey, S. Cogne, A. Smits, S. Bogdonoff, W.R. Lempert, and R.B. Miles, "Time-Sequenced and Spectrally Filtered Rayleigh Imaging of Shock Wave and Boundary Layer Structure for Inlet Characterization," Paper #AIAA-93-2300, AIAA/SAE/ASME/ASEE 29th Joint Propulsion Conference and Exhibit, June 28-30, 1993, Monterey, CA.
36. N. Finkelstein, J. Gambogi, W.R. Lempert, R.B. Miles, G.A. Rines, A. Finch, and R.A. Schwarz, "The Development of a Tunable, Single-Frequency Ultraviolet Laser Source or UV Filtered Rayleigh Scattering, Paper #AIAA-94-0492, AIAA 32nd Aerospace Sciences Meeting & Exhibit, January 10-13, 1994, Reno, Nevada.
37. R. Miles, A. Noullez, G. Wallace, D. Zhou, and W. Lempert, "Comparison of RELIEF Flow Tagging and Hot-Wire Velocimetry for Fundamental Studies of Turbulent Free Jets," Paper #AIAA-94-0496, AIAA 32nd Aerospace Sciences Meeting & Exhibit, January 10-13, 1994, Reno, Nevada.
38. J.N. Forkey, W.R. Lempert, S.M. Bogdonoff, and R.B. Miles, and G. Russell, "Volumetric Imaging of Supersonic Boundary Layers Using Filtered Rayleigh Scattering Background Suppression," Paper #AIAA 94-0491, AIAA 32nd Aerospace Sciences Meeting & Exhibit, January 10-13, 1994, Reno, Nevada.
39. R. Miles, W. Lempert, J. Forkey, N. Finkelstein, and P. Erbland, "Quantifying High- Speed Flows by Light Scattering from Air Molecules," Paper #AIAA-94-2230, 25th AIAA Fluid Dynamics Conference, June 20-23, 1994, Colorado Springs, CO. (Invited Paper.)
40. R. Miles, G. Brown, W. Lempert, D. Natelson, R. Yetter, J. Guest, G. Williams, and S. Bogdonoff, "Radiatively Driven Hypersonic Wind Tunnel," Paper #AIAA-94-2472, 18th AIAA Aerospace Ground Testing Conference, June 20-23, 1994, Colorado Springs, CO. (Invited Paper.)
41. Richard B. Miles, Joseph N. Forkey, Noah Finkelstein, and Walter R. Lempert, "Precision Whole-Field Velocity Measurements with Frequency-Scanned Filtered Rayleigh Scattering," 7th International Symposium on Applications of Laser Techniques to Fluid Mechanics, Lisbon, Portugal, July 11-14, 1994.
42. Walter R. Lempert, Scott Harris, Kevin Magee, Christopher L. Burcham, Dudley Saville, Richard B. Miles, Kyle R. Gee, and Richard P. Haughland, "Flow Tagging in Water Using PHoto-Activated Nonintrusive Tracking Of Molecular Motion (PHANTOMM)," 7th International Symposium on Applications of Laser Techniques to Fluid Mechanics, Lisbon, Portugal, July 11-14, 1994.
43. J.N. Forkey, N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "Control of Experimental Uncertainties in Filtered Rayleigh Scattering Measurements," Paper #AIAA-95-0298, AIAA 33rd Aerospace Sciences Meeting and Exhibit, Reno, Nevada, January 9-12, 1995.
44. W.R. Lempert, S.R. Harris, C.L. Burcham, D.A. Saville, and R.B. Miles, "Quantitative Flow Visualization of Internal Circulation in Droplets by PHANTOMM (PHoto-Activated, Nonintrusive Tracking Of Molecular Motion) Flow Tagging," Paper #AIAA-95-0168, AIAA 33rd Aerospace Sciences Meeting and Exhibit, Reno, Nevada, January 9-12, 1995.
45. S. Macheret, G. Williams, G. Comas, C. Meinrenken, W. Lempert, and R. Miles, "Energy Addition and Thermalization Issues in a Radiatively-Driven Hypersonic Wind Tunnel," Paper #95-2142, 30th AIAA Thermophysics Conference, San Diego, CA, June 19-22, 1995.
46. W.R. Lempert, P-F Wu,B. Zhang, R.B. Miles, J.L. Lowrance, V. Mastrocola, and W.F. Kosonocky, "Pulse Burst Laser System for High-Speed Flow Diagnostics," Paper #AIAA-96-0179, AIAA 34th Aerospace Sciences Meeting, Reno, Nevada, January 15-18, 1996.
47. J.H. Grinstead, W.R. Lempert, N.D. Finkelstein, and R.B. Miles, "Frequency-Modulated Filtered Rayleigh Scattering (FM-FRS): A New Technique for Real-Time Velocimetry," Paper #AIAA-96-0302, AIAA 34th Aerospace Sciences Meeting, Reno, Nevada, January 15-18, 1996.
48. N.D. Finkelstein, W.R. Lempert, R.B. Miles, A. Finch, and G. Rines, "Cavity Locked, Injection Seeded, Titanium:Sapphire Laser and Application to UltraViolet Flow Diagnostics," Paper #AIAA-96-0177, AIAA 34th Aerospace Sciences Meeting, Reno, Nevada, January 15-18, 1996.
49. G.S. Diskin, W.R. Lempert, and R.B. Miles, "Observation of Vibrational Relaxation Dynamics in  Oxygen Following Stimulated Raman Excitation to the v=1 Level: Implications for the RELIEF Flow Tagging Technique," Paper #AIAA-96-0301, AIAA 34th Aerospace Sciences Meeting, Reno, Nevada, January 15-18, 1996.
50. R.B. Miles and W.R. Lempert, "Three-Dimensional Diagnostics in Air and Water by Molecular Tagging and Molecular Scattering," Paper #AIAA-96-1963, 27th AIAA Fluid Dynamics Conference, New Orleans, LA, June 17-20, 1996 (Invited).
51. G.L. Brown, A.P. Ratta, R.W. Anderson, L. Martinelli, W.R. Lempert, S.M. Bogdonoff, and R.B. Miles, "Fluid Mechanics in a Radiatively-Driven Hypersonic Wind Tunnel--Prediction and Preliminary Experiment," Paper #AIAA-96-2199, 19th AIAA Advanced Measurement and Ground Testing Technology Conference, New Orleans, LA, June 17-20, 1996 (Invited).
52. A.P. Yalin, W.R. Lempert, M.R. Etz, P.J. Erbland, A.J. Smits, and R.B. Miles, "Planar Imaging in a Mach 8 Flow Using Sodium Laser-Induced Fluorescence," Paper #AIAA-96-2270, 19th AIAA Advanced Measurement and Ground Testing Technology Conference, New Orleans, LA, June 17-20, 1996.
53. S.R. Harris, M. Biage, R.B. Miles, A.J. Smits, W.R. Lempert, "PHANTOMM Flow Tagging Measurements in Complex 3D Flows," Paper #AIAA-96-1966, 27th AIAA Fluid Dynamics Conference, New Orleans, LA, June 17-20, 1996.
54. N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "A Narrow Passband, Imaging, Refluorescence Filter for Non-Intrusive Flow Diagnostics," Paper #AIAA-96-2269, 19th AIAA Advanced Measurement & Ground Testing Technology Conference, New Orleans, LA, June 17-20, 1996.
55. J.H. Grinstead, W.R. Lempert, G.J. Germann, and R.B. Miles, "From Laboratory to Large-Scale Facility: Scaling of the RELIEF Velocimetry Technique," Paper #AIAA-96-2223, 19th AIAA Advanced Measurement & Ground Testing Technology Conference, New Orleans, LA, June 17-20, 1996.
56. S. Macheret, C. Meinrenken, G. Williams, W. Gillespie, W. Lempert, and R. Miles, "Radiative Energy Addition to High Pressure Supersonic Air," Paper #AIAA-96-1984, 27th AIAA Fluid Dynamics Conference, New Orleans, LA, June 17-20, 1996.
57. G.S. Diskin, W.R. Lempert, and R. Miles, "A 3-Level Model for Schumann-Runge O2 Laser-Induced Fluorescence," Paper #AIAA 96-1991, 27th AIAA Fluid Dynamics Conference, New Orleans, LA, June 17-20, 1996.
58. R.B. Miles, W.R. Lempert, J. Forkey, and N. Finkelstein, "Optical Diagnostics for Flows with Density Variations," IUTAM Symposium on Variable Density Low Speed Turbulent Flows, Institut de Recherche sur les Phénomènes Hors Equilibre, Marseille, France, July 8-10, 1996 (Invited).
59. S.R. Harris, R.B. Miles, and W.R. Lempert, "Observations of Fluid Flow Produced in a Closed Cylinder by a Rotating Lid Using the PHANTOMM (PHoto-Activated Nonintrusive Tracking Of Molecular Motion) Flow Tagging Technique," Paper #204, 8th International Symposium on Applications of Laser Techniques to Fluid Mechanics, Lisbon, Portugal, July 8-11, 1996.
60. M. Biage, S.R. Harris, W.R. Lempert, and A.J. Smits, "Quantitative Velocity Measurements in Turbulent Taylor-Couette Flow by PHANTOMM Flow Tagging," Paper #221, 8th International Symposium on Applications of Laser Techniques to Fluid Mechanics, Lisbon, Portugal, July 8-11, 1996.
61. R.B. Miles, "Rayleigh Imaging Through Atomic and Molecular Filters for Quantitative Flow Visualization," Paper #I-00026, 1996 Optical Society of America Annual Meeting, Rochester, New York, October 20-25, 1996 (Invited).
62. Mark L. Baumgartner, Peter J. Erbland, Michael R. Etz, Azer Yalin, Brian K. Muzas, Alexander J. Smits, Walter R. Lempert, and Richard B. Miles, "Structure of a Mach 8 Turbulent Boundary Layer," Paper # AIAA 97-0765, AIAA 35th Aerospace Sciences Meeting, Reno, NV, Jan. 6-9, 1997.
63. P.J. Erbland, M.L. Baumgartner, A.P. Yalin, M.R. Etz, B. Muxzas, W.R. Lempert, A.J. Smits, and R.B. Miles, "Development of Planar Diagnostics for Imaging Mach 8 Flow Fields Using Carbon Dioxide and Sodium Seeding," Paper #AIAA 97-0154, AIAA 35th Aerospace Sciences Meeting, Reno, NV, Jan. 6-9, 1997.
64. J.H. Grinstead, N.D. Finkelstein, R.B. Miles, and W.R. Lempert, "Doppler Velocimetry in a Supersonic Jet Using Frequency-Modulated Filtered Light Scattering," Paper #AIAA 97-0499, AIAA 35th Aerospace Sciences Meeting, Reno, NV, Jan. 6-9, 1997.
65. N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "Mercury Vapor Filter Technology and Ultraviolet Laser Source for Flow Field Imaging," Paper #AIAA 97-0157, AIAA 35th Aerospace Sciences Meeting, Reno, NV, Jan. 6-9, 1997.
66. Scott R. Harris, Richard B. Miles, and Walter R. Lempert, "Comparisons Between Flow Tagging Measurements and Computations in a Complex Rotating Flow," Paper #AIAA 97-0852, AIAA 35th Aerospace Sciences Meeting, Reno, NV, Jan. 6-9, 1997.
67. Walter R. Lempert, Ping-Fan Wu, and Richard B. Miles, "Filtered Rayleigh Scattering Measurements Using a MHz Rate Pulse-Burst Laser System," Paper #AIAA 97-0500, AIAA 35th Aerospace Sciences Meeting, Reno, NV, Jan. 6-9, 1997.
68. Sergey O. Macheret, Richard B. Miles, and Gordon L. Nelson, "Feasibility Study of a Hybrid MHD/Radiatively Driven Facility for Hypersonic Ground Testing," Paper AIAA 97-2429, 28th AIAA Plasmadynamics & Lasers Conference, Atlanta, GA, June 23-25, 1997.
69. Walter R. Lempert, Noah D. Finkelstein, Ping-Fan Wu, and Richard B. Miles, "Imaging Fluid Phenomena with Atomic and Molecular Vapor Filters," Paper #AIAA-97-2520, 32nd AIAA Thermophysics Conference, Atlanta, GA, June 23-25, 1997.
70. Pingfan Wu, Walter R. Lempert, and Richard B. Miles, "Tunable Pulse-Burst Laser System for High-Speed Imaging Diagnostics," Paper #AIAA-98-0310, AIAA 36th Aerospace Sciences Meeting, Reno, NV, Jan. 12-15, 1998.
71. Walter R. Lempert, Scott R. Harris, and Richard B. Miles, "Miniaturization of Caged Dye Flow Tagging Velocimetry for Microgravity Droplet Diagnostics," Paper #AIAA-98-0512, AIAA 36th Aerospace Sciences Meeting, Reno, NV, Jan. 12-15, 1998.
72. Zhen Tang, Walter R. Lempert, and Richard B. Miles, "Flow Tagging of Helium by Multiphoton Excitation," Paper #AIAA-98-0308, AIAA 36th Aerospace Sciences Meeting, Reno, NV, Jan. 12-15, 1998.
73. A.P. Yalin, N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "Ultraviolet Rotational Raman Spectroscopy with Atomic Resonance Filters," Paper #AIAA-98-0311, AIAA 36th Aerospace Sciences Meeting, Reno, NV, Jan. 12-15, 1998.
74. P. Erbland, M. Etz, W. Lempert, A. Smits, and R. Miles, "Optical Refraction from High Mach Number Turbulent Boundary Layer Structures," Paper #AIAA-98-0399, AIAA 36th Aerospace Sciences Meeting, Reno, NV, Jan. 12-15, 1998.
75. D.A. Akimov, A.B. Fedotov, N.I. Koroteev, R.B. Miles, A.N. Naumov, D.A. Sidorov-Biryukov, and A.M. Zheltikov, "One-Dimensional Coherent Four-Wave Mixing as a Way to Image the Spatial Distribution of Atoms in a Laser-Produced Plasma," ICONO'98, Laser Spectroscopy and Optical Diagnostics: Novel Trends and Applications in Laser Chemistry, Biophysics, and Biomedicine, June 29-July 3, 1998, Moscow, Russia, SPIE Vol. 3732.
76. G.L. Brown, R.W. Anderson, A.E. Morgan, P.F. Barker, R.J. Lipinski, and R.B. Miles "The Fluid Mechanics of a Radiatively Driven Wind Tunnel: Predictions and Experiment," Paper #AIAA-98-2747, 29th Plasmadynamcis and Lasers Conference, Albuquerque, NM, June 15-18, 1998.
77. P.F. Barker, J.H. Grinstead, A.E. Morgan, P.J. Howard, G.L. Brown, and R.B. Miles "Optical Diagnostics for the Radiatively-Driven Wind Tunnel," Paper #AIAA-98-2612, 20th AIAA Advanced Measurement and Ground Testing Technology Conference, Albuquerque, NM, June 15-18, 1998.
78. A.E. Morgan, P.F. Barker, R.W. Anderson, J.H. Grinstead, G.L. Brown, and R.B. Miles "Preliminary Experiments in the Development of the Radiatively-Driven Wind Tunnel," Paper #AIAA-98-2498, 20th AIAA Advanced Measurement and Ground Testing Technology Conference, Albuquerque, NM, June 15-18, 1998.
79. R.B. Miles and G.L. Brown, "Energy Addition Mechanisms for Radiatively-Driven Wind Tunnel: Predictions & Experiments," Paper #AIAA-98-2748, 29th Plasmadynamics and Lasers Conference, Albuquerque, NM, June 15-18, 1998.
80. S.O. Macheret, M.N. Shneider, R.B. Miles, R.L. Lipinski, and G.L. Nelson, "MHD Acceleration of Supersonic Air Flows Using Electron Beam-Enhanced Conductivity," Paper #AIAA-98-2922, 29th Plasmadynamics and Lasers Conference, Albuquerque, NM, June 15-18, 1998.
81. V.P. Chiravalle, R.B. Miles, and E.Y. Choueiri, "Laser Propulsion Using a Molecular Absorber," 34th AIAA/ASAME/SAE/ASEE Joint Propulsion Conference & Exhibit, Cleveland, OH, July 13-15, 1998.
82. P. Erbland, M. Etz, M. Huntley, A. Smits, and R.B. Miles, "Imaging the Evolution of Turbulent Structures in a Hypersonic Boundary Layer," Paper #AIAA-99-0769, 37th AIAA Aerospace Sciences Meeting, Reno, NV, Jan. 11-14, 1999.
83. R.W. Anderson, G.L. Brown, and R. Miles, "Performance Characterization of a Radiatively Driven Hypersonic Wind Tunnel," Paper #AIAA-99-0822, 37th AIAA Aerospace Sciences Meeting, Reno, NV, Jan. 11-14, 1999.
84. P. Barker, J. Grinstead, A. Morgan, R. Anderson, P. Howard, G. Brown, R. Miles, R.Lipinski, K. Reed, G. Pena, and L. Schneider, "Radiatively Driven Wind Tunnel Experiment with a 30 KW Electron Beam," Paper #AIAA-99-0688, 37th AIAA Aerospace Sciences Meeting, Reno, NV, Jan. 11-14, 1999.
85. S.R. Harris, W.R. Lempert, and R.B. Miles, "PHANTOMM Flow Tagging Measurements in a Swirling, Turbulent Flow," Paper #AIAA-99-0556, 37th AIAA Aerospace Sciences Meeting, Reno, NV, Jan. 11-14, 1999.
86. A. Yalin, Y. Ionikh, and R. Miles, "Ultraviolet Filtered Rayleigh Scattering Temperature Measurements Using a Mercury Filter," Paper #AIAA-99-0642, 37th AIAA Aerospace Sciences Meeting, Reno, NV, Jan. 11-14, 1999.
87. P.F. Barker, J.H.Grinstead, and R.B. Miles, "Temperature Measurement in a Supersonic Air Flow with Resonant Laser-Induced Thermal Gratings," Paper #AIAA-99-0644, 37th AIAA Aerospace Sciences Meeting, Reno, NV, Jan. 11-14, 1999.
88. S. Macheret, L. Martinelli, and R. Miles, "Shock Wave Propagation and Structure in Nonuniform Gases and Plasmas," Paper #AIAA-99-0598, 37th AIAA Aerospace Sciences Meeting, Reno, NV, Jan. 11-14, 1999.
89. M.N. Shneider, S.O. Macheret, and R.B. Miles, "Electrode Sheaths and Boundary Layers in Hypersonic MHD Channels," Paper #AIAA-99-3532, 30th AIAA Plasmadynamics & Lasers Conference, Norfolk, VA, June 28-July 1, 1999.
90. Z. Tang and R.B. Miles, "Resonant Enhanced Multiphoton Ionization of Neutral Argon," Paper #AIAA-99-3669, 30th AIAA Plasmadynamics & Lasers Conference, Norfolk, VA, June 28-July 1, l999.
91. A. Yalin, Y. Ionikh, and R. Miles, "Temperature Measurements in Glow Discharges with Ultraviolet Filtered Rayleigh Scattering," Paper #AIAA-99-3431, 30th AIAA Plasmadynamics and Lasers Conference, Norfolk, VA, June 28-July 1, 1999.
92. S.O. Macheret, M.N. Shneider, and R.B. Miles, "New Types of Electron Beam Generated Electric Discharges in Dense Gases: A "Fountain" and a "Thunderstorm," Paper #AIAA-99-3721, 30th AIAA Plasmadynamics & Lasers Conference, Norfolk, VA, June 28-July 1, 1999.
93. S.O. Macheret, M.N. Shneider, and R.B. Miles, "Electron Beam Generated Plasmas in Hypersonic MHD Channels," Paper #AIAA-99-3635, 33rd AIAA Thermophysics Conference, Norfolk, VA, June 28-July 1, l999. **(Invited)**
94. S.O. Macheret, P.F. Barker, K. Waichman, R.B. Miles, E. Ploenjes P. Palm, I.V. Adamovich, W.R. Lempert, and J.W. Rich, "Optically Pumped and Controlled Electric Discharges, Paper #AIAA-99-3636, 33rd AIAA Thermophysics Conference, Norfolk, VA, June 28-July 1,1999.
95. M.S. Costantino, R.B. Miles, G. Nelson, and M.L. Laster, "Hypersonic Ground Test Capabilities for T&E Testing Above Mach 8: A Case Where S&T Meets T&E," ITEAM 1999 Conference, "T&E and S&T-Forging Partnerships for the Future of Aerospace, University of Tennessee Space Institute, Tullahoma, TN, Oct. 12-15, 1999.
96. S.O. Macheret, Y.Z. Ionikh, L. Martinelli, P.F. Barker, and R. B. Miles, "External Control of Plasmas for High-Speed Aerodynamics," Paper #AIAA-99-4853, AIAA 9th International Space Planes and Hypersonic Systems and Technologies Conference and 3rd Weakly Ionized Gases Workshop, Norfolk, VA, Nov. 1-5, 1999.
97. S.O. Macheret, M.N. Shneyder, and R. B. Miles, "MHD Power Extraction from Cold Hypersonic Air Flow with External Ionizers," Paper #AIAA-99-4800, AIAA 9th International Space Planes and Hypersonic Systems and Technologies Conference and 3rd Weakly Ionized Gases Workshop, Norfolk, VA, Nov. 1-5, 1999.
98. Z. Tang, S.H. Zaidi, and R.B. Miles, "Density Gradient Rubidium Dispersive Absorption Filter for Low Wave Number Raman and Thomson Scattering," Paper #AIAA-2000-0644, 38th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 10-13, 2000.
99. M.B. Huntley, P. Wu, R.B. Miles, and A.J. Smits, "MHz Rate Imaging of Boundary Layer Transition on Elliptic Cones at Mach 8," Paper #AIAA-2000-0379, 38th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 10-13, 2000.
100. P. Wu and R.B. Miles, "MHz Rate Visualization of Separation Shock Wave Structure," Paper #AIAA-2000-0647, 38th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 10-13, 2000.
101. A.P. Yalin, Y. Ionikh, A. Meshchanov, and R.B. Miles, "2-D Temperature Fields in Glow Discharges Measured with Ultraviolet Filtered Rayleigh Scattering," Ppaer #AIAA-2000-0375, 38th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 10-13, 2000.
102. Y. Ionikh, N.V. Chernysheva, A.P. Yalin, S.O. Macheret, L. Martinelli, and R.B. Miles, "Shock Wave Propagation Through Glow Discharge Plasmas: Evidence of Thermal Mechanism of Shock Dispersion," Paper #AIAA-2000-0714, 38th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 10-13, 2000.
103. B. McAndrew, P. Barker, and R.B. Miles, "Development of a Supersonic Plasma Wind Tunnel," Paper #AIAA-2000-0533, 38th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 10-13, 2000.
104. K.S. Raman, R.W. Anderson, G.L. Brown, R.B. Miles, and M. Costantino, "An Ultrahigh Pressure, Ultrahigh Reynolds Number Blowdown Wind Tunnel: Design and Preliminary Experiments," Paper #AIAA-2000-0534, 38th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 10-13, 2000.
105. P. Barker, J. Grinstead, P. Howard, R. Anderson, G. Brown, R. Miles, R. Lipinski, G. Pena, L. Schneider, and R. Howard, "A 150 kW Electron Beam Heated Radiatively Driven Wind Tunnel Experiment," Paper AIAA-2000-0159, 38th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 10-13, 2000.
106. G.A. Simmons, G.L. Nelson, R. Miles, G. Brown, P. Barker, S. Macheret, M. Costantino, and R. Kipinski, "Progress Toward a Radiative and MHD Driven, High Enthalpy, High Pressure, Long Duration Test Facility," Paper #AIAA-2000-0158, 38th Aerospace Sciences Meeting and Exhibit, Reno, NV, January 10-13, 2000.
107. S.O. Macheret, M.N. Shneider, and R.B. Miles, "MHD Power Generation and Control of Hypersonic Flows Ionized y Electron Beams," Second Workshop on Magneto- and Plasma Aerodynamics for Aerospace Applications, Institute Of High Temperatures, Russian Academy of Sciences, Moscow, Russia, April 5-7, 2000.
108. S.O. Macheret, Yu.Z. Ionikh, N.V. Chernysheva, A.P. Yalin, L. Martinelli, B. McAndrew, P.F. Barker, M.N. Shneider, and R.B. Miles, "Shock Propagation in Weakly Ionized Gaes and Plasma Control of High-Speed Flows," Second Workshop on Magneto- and Plasma Aerodynamics for Aerospace Applications, Institute Of High Temperatures, Russian Academy of Sciences, Moscow, Russia, April 5-7, 2000.
109. R.B. Miles, G.L. Brown, S.O. Macheret, and P.F. Barker, "The MARIAH II Radiatively Heated/MHD-Driven Hypersonic Wind Tunnel Concept," Second Workshop on Magneto- and Plasma Aerodynamics for Aerospace Applications, Institute Of High Temperatures, Russian Academy of Sciences, Moscow, Russia, April 5-7, 2000.
110. R.B. Miles, "Flow Control by Energy Addition into High-Speed Air," AIAA-2000-2324, Fluids 2000, Denver, CO, June 19-22, 2000. **(Invited)**
111. M. Costantino, R. Miles, G. Brown, and K. Raman, "Ultrahigh Pressure Driver and Nozzle Survivability in the RDHWT/MARIAH II Hypersonic Wind Tunnel," AIAA-2000-2275, Fluids 2000, Denver, CO, June 19-22, 2000. **(Invited)**
112. P. Barker, P. Howard, B. Anderson, R. Miles, G. Brown, R. Lipinski, G. Pena, J. Grinstead, and R. Howard, "Proof-of-Principle Energy Addition Experiments for the RDHWT/MARIAH II Hypersonic Wind Tunnel," AIAA-2000-2276, 21st AIAA Advanced Measurement Technology and Ground Testing, 31st AIAA Plasmadynamics and Lasers, 34th AIAA Thermophysics, and Fluids 2000 Conferences, Denver, CO, June 19-22, 2000. **(Invited)**
113. S.O. Macheret, M.N. Shneider, and R.B. Miles, "Modeling of Air Plasma Generation by Electron beams and High-Voltage Pulses," AIAA-2000-2569, 31st AIAA Plasmadynamics and Lasers Conference, Denver, CO, June 19-22, 2000.
114. R.W. Anderson, G.L. Brown, and R.B. Miles, "Performance Models and Predictions for the RDHWT/MARIAH II Hypersonic Wind Tunnel," AIAA-2000-2274, 21st AIAA Aerodynamic Measurement Technology and Ground Testing Conference, Denver, CO, June 19-22, 2000. **(Invited)**
115. P.J. Erbland, D. Rizzetta, and R.B. Miles, "Numerical and Experimental Investigation of CO2 Condensate Behavior in Hypersonic Flow," AIAA-2000-2379, 21st AIAA Aerodynamic Measurement Technology and Ground Testing Conference, Denver, CO, June 19-22, 2000**. "Outstanding Paper Award"** from the AIAA Ground Testing Technical Committee, June 2000.
116. R.B. Miles, S. Matte, X. Pan, and G. Diskin, "La Methode RELIEF de Marquage des Ecoulemets et ses Applications dans L'Etude des Phenomenes de Transport et de Melange," 7th Congres Francophone de Velocimetrie Laser, Marseille France, Sept. 19-22, 2000.
117. S. Zaide, Z. Tang, A. Yalin, P. Barker, and R. Miles, "Filtered Thomson Scattering in an Argon Plasma," Paper #AIAA-2001-0415, 39th AIAA Aerospace Sciences Meeting & Exhibit, Reno, NV, Jan. 8-11, 2001.
118. S. Macheret, M. Shneider, and R. Miles, "MHD Control of External Supersonic Flow with Electron Beam Ionization," Paper #AIAA-2001-0492, 39th AIAA Aerospace Sciences Meeting & Exhibit, Reno, NV, Jan. 8-11, 2001.
119. P. Barker, A. Meschanov, and R. Miles, "Temperature Measurements in Plasmas Using Coherent Rayleigh Scattering," Paper #AIAA-2001-0416, 39th AIAA Aerospace Sciences Meeting & Exhibit, Reno, NV, Jan. 8-11, 2001.
120. S. Macheret, M. Shneider, and R. Miles, "Potential Performance of Supersonic MHD Power Generators," Paper #AIAA-2001-0795, 39th AIAA Aerospace Sciences Meeting & Exhibit, Reno, NV, Jan. 8-11, 2001.
121. R. Miles, A. Smits, M.B. Huntley, P. Wu, and R. Tolboom, "Three-Dimensional Imaging of Hypersonic Flow at MHz Rate, Paper #AIAA-2001-0846, 39th AIAA Aerospace Sciences Meeting & Exhibit, Reno, NV, Jan. 8-11, 2001.
122. V. Chiravalle, R. Miles, and E. Choueiri, "Numerical Simulation of Microwave Sustained Supersonic Plasmas for Application to Space Propulsion," Paper #AIAA-2001-0962, 39th AIAA Aerospace Sciences Meeting & Exhibit, Reno, NV, Jan. 8-11, 2001.
123. I.G. Girgis, G.L. Brown, R.B. Miles, and R.J. Lipinski, "Fluid Mechanics of a Mach 7-12 Electron Beam Driven, Missile-Scale, Hypersonic Wind Tunnel: Modeling and Predictions," Paper #AIAA-2001-2777, 31st AIAA Fluid Dynamics Conference & Exhibit, Anaheim, Ca, June 11-14, 2001.
124. S.O. Macheret, M.N. Shneider, and R.B. Miles, "Energy-Efficient Generation of Nonequilibrium Plasmas and their Applications to hypersonic MHD Systems," Paper AIAA-2001-2880, 32nd AIAA Plasmadynamics and Lasers Conference and 4th Weakly Ionized Gases Workshop, Anaheim, CA, June 11-14, 2001.
125. S.O. Macheret, M.N. Shneider, and R.B. Miles, "Modeling of Plasma Generation in Repetitive Ultra-short DC, Microwave, and Laser Pulses," Paper AIAA-2001-2940, 32nd AIAA Plasmadynamics and Lasers Conference and 4th Weakly Ionized Gases Workshop, Anaheim, CA, June 11-14, 2001.
126. R.B. Miles, S.O. Macheret, L. Martinelli, R. Murray, M. Shneider, Yu.Z Ionikh, J. Kline and J. Fox, "Plasma Control of Shock Waves in Aerodynamics and Sonic Boom Mitigation," Paper AIAA-2001-3062, AIAA Plasmadynamics and Lasers Conference and 4th Weakly Ionized Gases Workshop, Anaheim, CA, June 11-14, 2001.
127. B. McAndrew, R. Murray, M. Shneider, R. Miles, J. Kline and J. Fox, "Comparison of Numerical and Experimental Results from Localized Microwave-Driven Plasma Energy Addition into a Mach 3 Flow," Paper AIAA-2001-3061, AIAA Plasmadynamics and Lasers Conference and 4th Weakly Ionized Gases Workshop, Anaheim, CA, June 11-14, 2001.
128. R.B. Miles, S.O. Macheret, and M.N. Shneider, "High Efficiency, Nonequilibrium Air Plasmas Sustained by High Energy Electrons," Paper #869, PPPS-2001, ICOPS 2001, Las Vegas, NV, June 17-22, 2001.
129. S.O. Macheret, M.N. Shneider, and R.B. Miles, "Dynamics of Plasmas Sustained by Repetitive Ultrahigh Voltage DC or Subpicosecond Laser Pulses," Paper #766, PPPS-2001, ICOPS 2001, Las Vegas, NV, June 17-22, 2001.
130. S. Zaidi, Z. Tang, and R.B. Miles, "Rubidium Filtered Thomson Scattering Measurement in an Atmospheric Pressure Argon Arc," Paper #339, PPPS-2001, ICOPS 2001, Las Vegas, NV, June 17-22, 2001.
131. X. Pan. L. Qian, M.N. Shneider, and R.B. Miles, "Plasma Measurements Using Ponderomotive Forces to Perturb the Translational Motion of Particles," Paper #340, PPPS-2001, ICOPS 2001, Las Vegas, NV, June 17-22, 2001.
132. M.N. Shneider, S.O. Macheret, and R.B. Miles, "Properties of Electron Beam Generated, Steady-State, Weakly Ionized Plasmas in Air," Paper #682, PPPS-2001, ICOPS 2001, Las Vegas, NV, June 17-22, 2001.
133. I.G. Girgis, M.N. Shneider, S.O. Macheret, G.L. Brown, and R.B. Miles, “Creation of Steering Moments in Supersonic Flow by Off-Axis Plasma Heat Addition,” Paper AIAA-2002-0129, 40th AIAA Aerospace Sciences Meeting & Exhibit, Reno, NV, Jan. 14-17, 2002.
134. R.B. Miles, L. Martinelli, S.O. Macheret, M. Shneider, I.G. Girgis, S.H. Zaidi, D.K. Mansfield, M. Siclari, P. Smereczniak, R. Kashuba, and P. Vogel, “Suppression of Sonic Boom by Dynamic Off-Body Energy Addition and Shape Optimization,” Paper AIAA-2002-0150, 40th AIAA Aerospace Sciences Meeting & Exhibit, Reno, NV, Jan. 14-17, 2002.
135. B. McAndrew, J. Fox, J. Kline, M.D. Bowie, and R. Miles, “Supersonic Flow Control by Microwave-Driven Plasma Discharges,” I. Girgis, M. Shneider, S. Macheret, G. Brown, and R. Miles, “Creation of Steering Moments in Supersonic Flow by Off-Axis Plasma Heat Addition,” Paper AIAA-2002-0354, 40th AIAA Aerospace Sciences Meeting & Exhibit, Reno, NV, Jan. 14-17, 2002.
136. I.G. Girgis, G.L. Brown, R.B. Miles, “Heat Transfer and Boundary Layer Growth for Ultra-High Reynolds Number Compressible Turbulent Boundary Layers for a Radiatively-Driven, Hypersonic Wind Tunnel,” Paper AIAA-2002-0575, 40th AIAA Aerospace Sciences Meeting & Exhibit, Reno, NV, Jan. 14-17, 2002.
137. M.N. Shneider, S.O. Macheret, and R.B. Miles, “Nonequilibrium Magnetohydrodynamic Control of SCRAMJET Inlets,” Paper #AIAA-2002-2251, 33rd AIAA Plasmadynamics and Lasers Conference, Maui, Hawaii, May 20-23, 2002.
138. S.O. Macheret, M.N. Shneider, and R.B. Miles, “Magnetohydrodynamic and Electrohydrodynamic Control of Hypersonic Flows of Weakly Ionized Plasmas,” Paper #AIAA-2002-2249, 33rd AIAA Plasmadynamics and Lasers Conference, Maui, Hawaii, May 20-23, 2002.
139. S.H. Zaidi, M.N. Shneider, D.K. Mansfield, Y.Z. Ionikh, and R.B. Miles, “Influence of Upstream Pulsed Energy Deposition on a Shockwave Structure in Supersonic Flow,” Paper #AIAA-2002-2703, 22nd AIAA Aerodynamic Measurement Technology and Ground Testing Conference, St. Louis, MO, June 24-26, 2002.
140. G.L. Brown, I. G. Girgis, and R.B. Miles, “Predictions for the Heat Transfer and Boundary Layer Growth in the Radiatively-Driven Hypersonic Wind Tunnel and Comparisons with Experiment at Ultra-High Reynolds Number, “ (Invited) Paper #AIAA-2002-3128, 22nd AIAA Aerodynamic Measurement Technology and Ground Testing Conference, St. Louis, MO, June 24-26, 2002.
141. I.G. Girgis, G.L. Brown, R.B. Miles, and R.J. Lipinski, “Inviscid and Viscous Predictions for an E-Beam Heated Hypersonic Wind Tunnel,” (Invited) Paper #AIAA-2002-3129, 22nd AIAA Aerodynamic Measurement Technology and Ground Testing Conference, St. Louis, MO, June 24-26, 2002.
142. D.K. Mansfield, J.H. Grinstead, P.J. Howard, G.L. Brown, I. Girgis, R.B. Miles, R. Lipinski, G. Pena, L. Schneider, and R. Howard, “1 2 MW Radiatively-Driven Hypersonic Wind Tunnel Experiment, Paper #AIAA-2002-3130, 22nd AIAA Aerodynamic Measurement Techn . & Ground Testing Conf., St. Louis, MO, June 24-26, 2002.
143. V.P. Chiravalle, R.B. Miles, and E.Y. Choueiri, “A Numerical Study of a Two-Stage Microwave Electrothermal Thruster,” Paper #AIAA-2002-3663, AIAA 38th Joint Propulsion Conference, Indianapolis, In, July 7-10, 2002.
144. X. Pan, M.N. Shneider, and R.B. Miles, “Coherent Rayleigh-Brillouin Scattering in Monatomic Gases in the Kinetic Regime,” Paper #AIAA-2002-3235, 22nd AIAA Aerodynamic Measurement Technology and Ground Testing Conference, St. Louis, MO, June 24-26, 2002.
145. S. Macheret, M. Shneider, and R. Miles, “Scramjet Inlet Control by Off-Body Energy Addition: A Virtual Cowl,” Paper #AIAA-2003-0032, 41st AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan. 6-9, 2003.
146. B. McAndrew, J. Kline, and R. Miles, “Aerodynamic Control of A Symmetric Cone in Compressible Flow Using Microwave-Driven Discharges,” Paper #AIAA-2003-0033, 41st AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan. 6-9, 2003.
147. R. Miles, “A 1 MW Radiatively-Driven, Hypersonic Wind Tunnel Experiment,” Paper #AIAA-2003-0090, 41st AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan. 6-9, 2003.
148. S. Macheret, M. Shneider, and R. Miles, “Comparative Analysis of MHD and Plasma Methods of Scramjet Inlet Control,” Paper #AIAA-2003-0170, 41st AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan. 6-9, 2003.
149. J. Kline, S. Zaidi, R. Murray, M. Shneider, S. Macheret, and R. Miles, “Nonequilibrium Ionization Techniques for MHD Power Extraction in High-Speed Flows,” Paper #AIAA-2003-1049, 41st AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan. 6-9, 2003.
150. J. Luff, D. Mansfield, S. Zaidi, R. Miles, H. Aschoff, “Development of a Tunable Megahertz, Pulse-Burst Alexandrite Laser System,” AIAA-2003-3746, 34th AIAA Plasmadynamics & Lasers Conference, Orlando, FL, June 23-26, 2003.
151. S. Macheret, M. Shneider, R. Miles, J. Silkey, and P. Smereczniak, “Optimum Performance of Electron Beam-Driven MHD Generators for SCRAMJET Inlet Control,” AIAA-2003-3763, 34th AIAA Plasmadynamics & Lasers Conference, Orlando, FL, June 23-26, 2003.
152. M. Shneider, S. Macheret, S. Zaidi, I. Girgis, and R. Miles, “Steady and Unsteady Supersonic Flow Control with Energy Addition,” AIAA-2003-3862, 34th AIAA Plasmadynamics & Lasers Conference, Orlando, FL, June 23-26, 2003.
153. M. Shneider, S. Macheret, and R. Miles, “Electric Charge Build-up in Hypersonic Wind Tunnels with Electron Beam Energy Addition,” AIAA-2003-4035, 34th AIAA Plasmadynamics & Lasers Conference, Orlando, FL, June 23-26, 2003.
154. S. Zaidi, C. Wyckham, R. Miles, and A. Smits, “Characterization of Optical Wave Front Distortion Due to Boundary Layer at Hypersonic Speeds,” AIAA-2003-4251, 16th AIAA Computational Fluid Dynamics Conference, Orlando, FL, June 23-26, 2003.
155. R. Miles, “Struck with the Power of Dumb Ideas,” Oral Presentation, 16th AIAA Computational Fluid Dynamics Conference, Orlando, FL, June 23-26, 2003.
156. R. Murray, S. Zaidi, J. Kline, M. Shneider, S. Macheret, and R. Miles, “Investigation of a Mach 3, Cold Air, MHD Channel,” AIAA-2003-4282, 34th AIAA Plasmadynamics & Lasers Conference, Orlando, FL, June 23-26, 2003.
157. V.P. Chiravalle, S.H. Zaidi, E.Y. Choueiri, and R.B. Miles, “Laser-Induced Fluorescence Measurements of a Two-Stage Microwave Electrothermal Thruster Plume,” AIAA-2003-4294, 34th AIAA Plasmadynamics & Lasers Conference, Orlando, FL, June 23-26, 2003.
158. C.M. Wyckham, S.H. Zaidi, R.B. Miles, and A.J. Smits, "Characterization of Optical Wavefront Distortions Due to a Boundary Layer at Hypersonic Speeds," AIAA-2003-4308, 34th Plasmadynamics and Lasers Conference, Orlando, FL, June 23-26, 2003.
159. X. Pan, M. Shneider, S. Zaidi, and R. Miles, “Bulk Viscosity Measurements Using Coherent Ryaleigh-Brillouin Scattering,” AIAA-2004-0017, 42nd AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 5-8, 2004.
160. L. Qian, L. Vasilyak, S.H. Zaidi, S.O. Macheret, and R.B. Miles, “Ultra-Narrow Linewdith, 254nm Mercury Lamp, Pumped by Nanosecond Electrical Pulser,” AIAA-2004-0020, 42nd AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 5-8, 2004.
161. S. Zaidi, R. Murray, M. Carraro, L. Vasilyak and R. Miles, “Diagnostics of Short-Pulsed, Sustained Plasmas in a Cold Air MHD Channel,” AIAA-2004-0708, 42nd AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 5-8, 2004.
162. R.C. Murray, L.M. Vasilyak, M.R. Carraro, S.H. Zaidi, M.N. Shneider, S.O. Macheret, R.B. Miles, “Observation of MHD Effects with Nonequilibrium Ionization in Cold Supersonic Air Flows,” AIAA-2004-1025, 42nd AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 5-8, 2004.
163. D.K. Mansfield, P. Howard, J.D. Luff, R. Miles, G. Brown and I. Girgis, R.J. Lipinski, G.E. Pena, and L.X. Schneider, J. Grinstead, and R. Howard, “Summary of the e-Beam Coupled 1 MW Radiatively-Driven Hypersonic Wind Tunnel Experiments,” AIAA-2004-1134, 42nd AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 5-8, 2004.
164. I. Girgis, G. Brown, D. Mansfield, and R. Miles, “Unsteady Numerical Simulation of the 1MW Radiatively-Driven Hypersonic Wind Tunnel Experiment,” AIAA-2004-1136, 42nd AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 5-8, 2004.
165. S.O. Macheret, M.N. Shneider, and R.B. Miles, “MHD Power Generation in SCRAMJET Engines in Conjunction with Inlet Control,” AIAA-2004-1197, 42nd AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 5-8, 2004.
166. R.B. Miles, D.K. Mansfield, I. Girgis, G.L. Brown, R. Lipinski and T. Lockner, “RDHWT/MARIAH II Energy Addition Modeling and Experiments Review,” AIAA-2004-2480, Joint AIAA Aerodynamic Measurement Technology and Testing Conference and AIAA Ground Test Conference, Portland Oregon, June 28-July 1, 2004.
167. S.O. Macheret, M.N. Shneider, R.C. Murray, S.H. Zaidi, L.M. Vasilyak, and R.B. Miles, “RDHWT/MARIAH II MHD Modeling and Experiments Review,” AIAA-2004-2485, 24th AIAA Aerodynamic Measurement Technology and Ground Testing Conference, Portland, Oregon, June 28-July 1, 2004.
168. S.H. Zaidi, S.O. Macheret, Y. Ju, R.B. Miles, and D.J. Sullivan, “Increased Speed of Premixed Laminar Flames in a Microwave Resonator,” AIAA-2004-2721, 35th AIAA Plasmadynamics and Lasers Conference, Portland, Oregon, June 28-July 1, 2004.
169. D.J. Sullivan, J.F. Kline, S.H. Zaidi, and R.B. Miles, “A 300 W Microwave Thruster—Design and Performance Testing,”, AIAA-2004-4122, 40th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, Fort Lauderdale, FL, July 11-14, 2004.
170. D.J. Sullivan, S.H. Zaidi, S.O. Macheret, Y. Ju, and , R.B. Miles, “Microwave Techniques for the Combustion Enhancement of Laminar Flames,” AIAA-2004-3713, 40th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, Fort Lauderdale, FL, July 11-14, 2004.
171. Y. Ju, S. O. Macheret, M. N. Shneider, R. B. Miles D. J. Sullivan, “Numerical Study of the Effect of Microwave Discharge on the Premixed Methane Air Flame,” AIAA 2004-3707, 40th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, 11-14 July 2004, Ft Lauderdale, FL
172. S. Macheret, M. Shneider, and R. Murray, “Ionization in Strong Electric Fields and

Dynamics of Nanosecond-Pulse Plasmas,” Paper #AIAA-2005-0202, 43rd AIAA

Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 10-13, 2005.

1. S. Zaidi, T. Smith, L. Qian, and R. Miles, “Magnetically Guided Laser Ablation for High

 Specific Impulse Thrusters,” Paper #AIAA-2005-0365, 43rd AIAA Aerospace Sciences

 Meeting and Exhibit, Reno, Nevada, Jan. 10-13, 2005.

1. R.B. Miles, “Plasma-Enhanced, Hypersonic Performance Enabled by MHD Power

 Extraction,” Paper #AIAA-2005-0561 (INVITED), 43rd AIAA Aerospace Sciences

 Meeting and Exhibit, Reno, Nevada, Jan. 10-13, 2005.

1. S. Zaidi, L. Qian, and R. Miles, “Narrow Linewidth Potassium Imaging Filter for Near

 Infrared Detection of Missile Plumes,” Paper #AIAA-2005-0825, 43rd AIAA

 Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 10-13, 2005.

1. M. Shneider and S. Macheret, “Hypersonic Aerodynamic Control and Thrust Vectoring by Nonequilibrium Cold- Air MHD Devices,” Paper #AIAA-2005-0979, 43rd AIAA

 Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 10-13, 2005.

1. S. Zaidi, S. Macheret, Y. Ju, R. Miles, D. Sullivan and P.C. Efthimion, “Microwave-Assisted Hydrocarbon Flame Speed Enhancement, Paper #AIAA-2005-0992, 43rd AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 10-13, 2005.
2. C. Steeves, M. Shneider, S. Macheret, R. Miles, H. Wadley, and A. Evans, “Electrode Design for Magnetohydrodynamic Power Panels on Re-Entering Space Vehicles, Paper #AIAA-2005-1340, 43rd AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 10-13, 2005.
3. R.B. Miles, S.O. Macheret, C. Steeves, M.N. Shneider, S.H. Zaidi, T. Smith, G.V. Candler, “Near Surface MHD Processes Enabled by Multifunctional Structural Devices,” Proceedings of the15th International Conference on MHD Energy Conversion and 6th International Workshop on Magnetoplasma Aerodynamics, Ed. V.A. Bityurin, Moscow, IVTAN, 2005, 2 volumes, Moscow, May 24-27, 2005, pp. 417-421.
4. S.O. Macheret, M.N. Shneider, R.C. Murray and R.B. Miles, “Plasmas Sustained by Repetitive High-Voltage Short Pulses: Fundamental Kinetics and Applications to MHD Processes,” Proceedings of the15th International Conference on MHD Energy Conversion and 6th International Workshop on Magnetoplasma Aerodynamics, Ed. V.A. Bityurin, Moscow, IVTAN, 2005, 2 volumes, Moscow, May 24-27, 2005, pp. 565-582.
5. M.N. Shneider and S.O. Macheret, “Modeling Plasma and MHD Effects in Hypersonic Propulsion Flowpath,” Paper #AIAA-2005-5051, 36th AIAA Plasmadynamics and Lasers Conference, Toronto, Ontario, Canada, June 6-9, 2005.
6. S.O. Macheret, M.N. Shneider, and R.B. Miles, “Energy Efficiency of Plasma-Assisted Combustion in Ram/Scramjet Engines,” Paper #AIAA-2005-5371, 36th AIAA Plasmadynamics and Lasers Conference, Toronto, Ontario, Canada, June 6-9, 2005.
7. N. Barlow, C.A. Steeves, M.N. Shneider, S.O. Macheret, R.B. Miles, and A.G. Evans, “Modeling of Near-Electrode Layers for MHD Power Panels on Re-Entering Space Vehicles, Paper #AIAA-2005-5047, 36th AIAA Plasmadynamics and Lasers Conference, Toronto, Ontario, Canada, June 6-9, 2005.
8. A. Smits and R. Miles, “Seymour M. Bogdonoff and the Princeton Gas Dynamics Laboratory,” AIAA-2006-492 (Invited), AIAA 44th Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 9-12, 2006.
9. L. Qian, S. Zaidi, and R. Miles, “Imaging Filter for the Detection of Potassium D Lines Radiation,” AIAA-2006-832, AIAA 44th Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 9-12, 2006.
10. W. Beck, E. Stockman, S. Zaidi, and R. Miles, “Rayleigh Scattering Measurements for Obtaining Spatially-Resolved Absolute Gas Densities in Large-Scale Facilities,” AIAA-2006-835, AIAA 44th Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 9-12, 2006.
11. S. Zaidi, T. Smith, S. Macheret, and R. Miles, “Snowplow Surface Discharge in Magnetic Field for High Speed Boundary Layer Control,” AIAA-2006-1006, AIAA 44th Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 9-12, 2006.
12. S.Zaidi, E. Stockman, X. Qin, Z. Zhao, S. Macheret, Y. Ju, and R. Miles, “Measurement of Hydrocarbon Flame Speed Enhancement in High Q Microwave Cavity,” AIAA-2006-1217, AIAA 44th Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 9-12, 2006.
13. A. Likhanskii, M. Shneider, S. Macheret and R. Miles, “Modeling of Interaction Between Weakly Ionized Near-Surface Plasmas and Gas Flow,” AIAA-2006-1204, AIAA 44th Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 9-12, 2006.
14. Z. Zhang, M. Shneider, S. Zaidi, and R. Miles, “Microwave Diagnostics of Small Volume Laser-Induced Plasma,” AIAA-2006-1357, AIAA 44th Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 9-12, 2006.
15. Z. Zhang, M. Shneider, and R. Miles,”Diagnostics by RADAR REMPI: Microwave Scattering from Laser-Induced Small Volume Plasmas”, AIAA-2006-2971, 25th AIAA Aerodynamic Measurement Technology and Ground Testing Conference, San Francisco, CA, June 5-8, 2006
16. S.O. Macheret, M.N. Shneider, and R.B. Miles, “Modeling of Thermionic Devices with Plasmas Sustained by Repetitive Pulses”, AIAA-2006-3385, 37th AIAA Plasmadynamics and Lasers Conference, San Francisco, CA, June 5-8, 2006
17. C. Kalra, S.Zaidi, B. Aldermen, R. Miles, and Y. Murty, “Magnetically Driven Discharges for Shock-Wave Induced Boundary Layer Control,” AIAA-2007-222, 45th AIAA Aerospace Sciences Conference in Reno January 8 – 11, 2007
18. A. Likhanskii, M. Shneider, S. Macheret and R. Miles, “Optimization of Dielectric Barrier Discharge Plasma Actuators at Atmospheric and Subatmospheric Pressures”,AIAA-2007-0633, 45th AIAA-2007-633, AIAA Aerospace Sciences Conference in Reno January 8 – 11, 2007
19. S. Zaidi and R. Miles, W. Beck, and J. Kline, “Characterization of a Resonance Enhanced NO Imaging Cell,” AIAA-2007-873, 45th AIAA Aerospace Sciences Conference in Reno January 8 – 11, 2007
20. Z. Zhang, M. Shneider and R. Miles,” Microwave Scattering from a Plasma Produced by REMPI in Argon”, AIAA-2007-876, 45th AIAA Aerospace Sciences Conference in Reno January 8 – 11, 2007
21. E. Stockman, S. Zaidi, and R. Miles, “Pulsed Microwave Enhancement of Laminar and Turbulent Hydrocarbon Flames,”, AIAA-2007-1348, 45th AIAA Aerospace Sciences Conference in Reno January 8 – 11, 2007
22. B. Pivtorak, M. Shneider, and R. Miles, “Plasma Kinetics in Inert Gas Filled Thermionic Devices,” AIAA-2007-1355, 45th AIAA Aerospace Sciences Conference in Reno January 8 – 11, 2007
23. C.S. Kalra, S.H. Zaidi, B.J. Alderman, and R.B. Miles, “Non-Thermal Control of Shock-Wave Induced Boundary Layer Separation using Magneto-Hydrodynamics,” AIAA-2007-4138, 38th Plasma Dynamics and Lasers Conference, Miami FL, 25-28 June 2007.
24. M.N. Shneider, Z. Zhang, and R.B. Miles, “Theory of Plasmas Induced by Resonant Enhanced Multi-Photon Ionization (REMPI) in Inert Gas,” AIAA-2007-4381, 38th Plasma Dynamics and Lasers Conference, Miami FL, 25-28 June 2007.
25. Z. Zhang, M.N. Shneider, S. Zaidi, and R.B. Miles, “Experiments on Microwave Scattering of REMPI in Argon, Xenon and Nitric Oxide,” AIAA-2007-4375, 38th Plasma Dynamics and Lasers Conference, Miami FL, 25-28 June 2007.
26. D.F. Opiats, G. Neretti, A.V. Likhanskii,, S. Zaidi, M.N. Shneider, R.B. Miles, and S.O. Macheret, “Experimental Investigation of DBD Plasma Actuators Driven by Repetitive High Voltage Nanosecond Pulses with DC or Low Frequency Sinusoidal Bias,” AIAA-2007-4532, 38th Plasma Dynamics and Lasers Conference, Miami FL, 25-28 June 2007. (Best Paper Award)
27. A.V. Likhanskii, M.N. Shneider, D.F. Opiats, R.B. Miles, and S.O. Macheret, “Numerical Modeling of DBD Plasma Actuators and the Induced Air Flow**,”** AIAA-2007-4533,38th Plasma Dynamics and Lasers Conference, Miami FL, 25-28 June 2007.
28. E. Stockman, S. Zaidi, and R.B. Miles, “Hydrocarbon Flame Speed Enhancement with High Power Pulsed Microwaves” AIAA-2007-4601, 38th Plasma Dynamics and Lasers Conference, Miami FL, 25-28 June 2007.
29. E. Stockman, S. Zaidi and R. Miles, Mechanisms of Hydrocarbon Laminar Flame Speed Enhancement with Microwaves AIAA-2008-1364, AIAA Aerospace Sciences Meeting, Reno Nevada, Jan7-10, 2008.
30. Z. Zhang, M. Shneider, S. Zaidi, and R. Miles Temperature Measurement of Flame by RADAR REMPI of Nitric Oxide, AIAA-2008-245, AIAA Aerospace Sciences Meeting, Reno Nevada, Jan7-10, 2008.
31. C. Kalra, S. Zaidi, B. Alderman and R. Miles, Inducing and Controlling Boundary Layer Separation with Upstream Motion of Surface Discharges in Magnetic Fields AIAA-2008-1092, AIAA Aerospace Sciences Meeting, Reno Nevada, Jan7-10, 2008.
32. Chiranjeev S. Kalra, Mikhail N. Shneider and Richard B. Miles Numerical Study of Shockwave Induced Boundary Layer Separation Control Using Plasma Actuators, , AIAA-2008-1095, AIAA Aerospace Sciences Meeting, Reno Nevada, Jan 7-10, 2008.
33. Alexandre V. Likhanskii, Vladimir V. Semak,*The Pennsylvania State University, University Park, PA,* Mikhail N. Shneider, Dmitry F. Opaits, Richard B. Miles, *Princeton University, Princeton, NJ,* and Sergey O. Macheret *Lockheed Martin Aeronautics Company, Palmdale, CA,* Parallel code development and numerical investigation of surface charge build-up in DBD plasma actuators. AIAA-2008-1380, AIAA Aerospace Sciences Meeting, Reno Nevada, Jan 7-10, 2008.
34. D. Opaits, G. Neretti, S. Zaidi M. Shneider, and R.B. Miles, Princeton University, Princeton, NJ; A. Likhanskii, Penn State University, University Park, PA and S. Macheret, Lockheed Martin, Palmdale, CA
DBD Plasma Actuators Driven by a Combination of Low Frequency Bias Voltage and Nanosecond Pulses, AIAA-2008-1372, AIAA Aerospace Sciences Meeting, Reno Nevada, Jan 7-10, 2008.
35. K. Timpano and S. Zaidi, Princeton University, Princeton, NJ; C. Steeves, University of California Santa Barbara, Santa Barbara, CA; L. Martinelli, Princeton University, Princeton, NJ; A. Evans, University of California Santa Barbara, Santa Barbara, CA; R. Miles, Princeton University, Princeton, NJ
Design and Test of a Morphing Supersonic Nozzle, AIAA-2008-851, AIAA Aerospace Sciences Meeting, Reno Nevada, Jan7-10, 2008.
36. M. Shneider, Z. Zhang and R. Miles, Simultaneous Resonant Enhanced Multi- Photon Ionization and Electron Avalanche Ionization in Gas Mixtures, AIAA-2008-1107, AIAA Aerospace Sciences Meeting, Reno Nevada, Jan 7-10, 2008.
37. A. Likhanskii and V. Semak, M. Shneider, D. Opaits, R. Miles, and S. Macheret, Multiprocessor Modeling of DBD Plasma Actuator, AIAA-2008-4284, 38th Fluid Dynamics Conference and Exhibit, Seattle, Washington, June 23-26, 2008
38. C. Kalra, M. Shneider and R. Miles, Effect of Vibrational Mode Excitation of N2 in Plasma Actuators on Shockwave Induced Boundary Layer Separation Control.,AIAA-2008-4223
39th Plasmadynamics and Lasers Conference, Seattle, Washington, June 23-26, 2008 .
39. B. Alderman, P. Howard, M. Shneider, B. Pivtorak, S. Zaidi and R. Miles, Thermionic Power Conversion for Scramjets and Reentry Vehicles Using Nanosecond Voltage Pulses , AIAA-2008-4098, 39th Plasmadynamics and Lasers Conference, Seattle, Washington, June 23-26, 2008
40. R. B. Miles, Seedless Velocimetry in Air by Vibrational Excitation and by Laser Induced Ionization, AIAA-2008-3753, 38th Fluid Dynamics Conference and Exhibit, Seattle, Washington, June 23-26, 2008.
41. R. B. Miles\_, D. Opaits, M. N. Shneider, S. H. Zaidi,“Non-Thermal Atmospheric Pressure Plasmas for Aeronautic Applications”, HAKONE XI Oleron Island September 7-12, 2008.

|  |
| --- |
|  |

1. D. Opaits and M. Shneider, A. Likhanskii, S. Zaidi, Princeton University, Princeton, NJ; S. Macheret, and R. Miles, “Improving Thrust by Suppressing Charge Build- Up in Pulsed DBD Plasma Actuators”, AIAA-2009-487, 47th AIAA Aerospace Sciences Meeting, Orlando FL, Jan 5-9, 2009
2. E. Stockman, J. Michael, A. Fuller, S. Zaidi and R. Miles, “Toward High Q, Evanescent Coupled Microwave Controlled Combustion”, AIAA-2009-491, 47th AIAA Aerospace Sciences Meeting, Orlando FL, Jan 5-9, 2009
3. Z. Zhang, S. Zaidi, C. Brennan, A. Dogariu, M. Shneider and R. Miles, “Radar REMPI Detection of NO2 by NO Photo- Fragments”, AIAA-2009-525, , 47th AIAA Aerospace Sciences Meeting, Orlando FL, Jan 5-9, 2009
4. A. Likhanskii and V. Semak, D. Opaits, M. Shneider, R. Miles, and S. Macheret, “The role of the photoionization in the numerical modeling of the DBD plasma actuator”, AIAA-2009-841, 47th AIAA Aerospace Sciences Meeting, Orlando FL, Jan 5-9, 2009
5. C. Kalra, S. Zaidi, M. Shneider and R. Miles, “Study of Shockwave Boundary Layer Separation Control Using Surface Plasma Actuator: Computational and Experimental Approaches”, AIAA-2009-1002, 47th AIAA Aerospace Sciences Meeting, Orlando FL, Jan 5-9, 2009
6. Arthur Dogariu, Sohail Zaidi, Owen Williams, Richard Miles, “Velocity Measurements in Unseeded Air Flows by Microwave Scattering from a Laser Generated Microvolume Plasma”, AIAA-2009-4228, 40th AIAA Plasmadynamics and Lasers Conference, San Antonio, Texas, June 22-25, 2009
7. Dmitry Opaits, Alexandre Likhanskii, Sohail Zaidi, Mikhail Shneider, Sergey Macheret, Richard Miles, “Suppression of Dielectric Barrier Discharge Charge Build up Using a Partially Conducting Thin Film”, AIAA-2009-4189, 39th AIAA Fluid Dynamics Conference, San Antonio, Texas, June 22-25, 2009
8. A. Likhanskii, Tech-X, Boulder, CO; M. Shneider and D. Opaits, Princeton University, Princeton, NJ; S. Macheret, Lockheed Martin Corporation, Palmdale, CA; and R. Miles, Princeton University, Princeton, NJ, Limitations of the DBD effects on the external flow , AIAA-2010-470, 48th AIAA Aerospace Sciences Meeting, Orlando, FL Jan 4-7, 2010
9. J. Michael, A. Dogariu, R. Miles and M. Shneider, Princeton University, Princeton, NJ,
Laser- Initiated, Microwave Driven Ignition in Methane/Air Mixtures, AIAA-2010-650, 48th AIAA Aerospace Sciences Meeting, Orlando, FL Jan 4-7, 2010
10. C. Kalra, S. Zaidi and R. Miles, Princeton University, Princeton, NJ, Velocity Measurements in Synthetic Jet Using Magnetically Driven Surface Discharges , AIAA-2010-831, 48th AIAA Aerospace Sciences Meeting, Orlando, FL Jan 4-7, 2010
11. M. Shneider and R. Miles, Princeton University, Princeton, NJ, Laser- Induced Avalanche Ionization in Gases with REMPI Or Femtosecond Laser Pulse Pre- Ionization , AIAA-2010-1154, 48th AIAA Aerospace Sciences Meeting, Orlando, FL Jan 4-7, 2010
12. B. Alderman, S. Zaidi and R. Miles, Princeton University, Princeton, NJ, Pulsed Thermionic Power Conversion with Positive Work Function Difference, AIAA-2010-1344, 48th AIAA Aerospace Sciences Meeting, Orlando, FL Jan 4-7, 2010
13. A. Giffin, M. Shneider, C. Kalra and R. Miles, Princeton University, Princeton, NJ, Effects of a Conducting Sphere Moving Through a Gradient Magnetic Field , AIAA-2010-1537, 48th AIAA Aerospace Sciences Meeting, Orlando, FL Jan 4-7, 2010
14. D. Opaits, S. Zaidi, R.Miles, and M. Shneider, Princeton University, Princeton, NJ; A. Likhanskii, Tech-X Corporation, Boulder, CO; M. Edwards, Princeton university, Princeton, NJ; S. Macheret, Lockheed Martin Corporation, Palmdale, CA, Surface plasma induced wall jets, AIAA-2010-469, 48th AIAA Aerospace Sciences Meeting, Orlando, FL Jan 4-7, 2010
15. S. Zaidi, M. Edwards, D. Opatis, R. Miles, “DBD Surface Discharge Measurement and Mitigation in Moving Air”, AIAA-2011-156, 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition 4 - 7 Jan 2011 Orlando World Center Marriott Orlando, Florida
16. M. Shneider, Princeton University, Princeton, NJ; A. Zheltikov, Moscow State University, Moscow, Russian Federation; R. Miles, Princeton University, Princeton, NJ, “Tailoring the Air Plasma with Double Laser Pulses,” AIAA-2011-1207, 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition 4 - 7 Jan 2011 Orlando World Center Marriott Orlando, Florida
17. J. Michael, A. Dogariu, M. Shneider, R. Miles, “Time- Resolved Temperature Measurements of Laser-Designated, Microwave Driven Ignition,” AIAA-2011-1020, 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition 4 - 7 Jan 2011 Orlando World Center Marriott Orlando, Florida AIAA-2011-1020
18. S. Leonov, Russian Academy of Sciences, Moscow, Russian Federation; D. Opaits, R. Miles, Princeton University, Princeton, NJ; V. Solov'ev, Moscow Institute of Physics and Technology, Dolgoprudny, Russian Federation, “Time-Resolved Measurements of Plasma-Induced Momentum of Air and N2 under DBD Actuation”, AIAA-2011-1141, 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition 4 - 7 Jan 2011 Orlando World Center Marriott Orlando, Florida
19. A. Tropina, J. Michael, M. Shneider, R. Miles, “Methane-Air Mixture Ignition by Combined Laser and Microwave Discharges,” AIAA-2011-1211, 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition 4 - 7 Jan 2011 Orlando World Center Marriott Orlando, Florida
20. A. Dogariu, S. Zaidi, R. Miles, “Differential Laser Ionization Tagged Radar Anemometry (LITRA)”, AIAA-2011-1229, 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition 4 - 7 Jan 2011 Orlando World Center Marriott Orlando, Florida
21. A. Dogariu, M. Shneider, R. Miles, “Measurement of Electron Loss Rates in Atmospheric Pressure Air by Radar REMPI,” AIAA-2011-1324, 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition 4 - 7 Jan 2011 Orlando World Center Marriott Orlando, Florida
22. Arthur Dogariu Princeton University, Princeton, NJ; James Michael Princeton University, Princeton, NJ; Richard Miles Princeton University, Princeton, NJ, “High gain atomic oxygen lasing in air,” AIAA-2011-4001, 42nd AIAA Plasmadynamics and Lasers Conference in conjunction with the 18th International Conference on MHD Energy Conversion (ICMHD), Honolulu, Hawaii, June 27-30, 2011
23. James Michael Princeton University, Princeton, NJ; Matthew Edwards Princeton University, Princeton, NJ; Richard Miles Princeton University, Princeton, NJ, “Localized microwave plasma grid by laser-designation,”AIAA-2011-4000 , 42nd AIAA Plasmadynamics and Lasers Conference in conjunction with the 18th International Conference on MHD Energy Conversion (ICMHD), Honolulu, Hawaii, June 27-30, 2011
24. Christopher Limbach Princeton University, Princeton, NJ; Mikhail Shneider Princeton University, Princeton, NJ; Richard Miles Princeton University, Princeton, NJ, “Hypersonic Vehicle MHD Power Extraction Concept Utilizing Mach Stem Thermal Ionization”, AIAA-2011-3595, 42nd AIAA Plasmadynamics and Lasers Conference in conjunction with the 18th International Conference on MHD Energy Conversion (ICMHD), Honolulu, Hawaii, June 27-30, 2011
25. Celine Stein Princeton University, Princeton, NJ; Arthur Dogariu Princeton University, Princeton, NJ; Richard Miles Princeton University, Princeton, NJ, “Sulfur hexafluoride detection by Radar Resonance Enhanced Multiphoton Ionization,” AIAA-2011-3457, 42nd AIAA Plasmadynamics and Lasers Conference in conjunction with the 18th International Conference on MHD Energy Conversion (ICMHD), Honolulu, Hawaii, June 27-30, 2011
26. James Michael Princeton University, Princeton, NJ; Richard Miles Princeton University, Princeton, NJ, “Ultra-lean combustion sustained by pulsed subcritical microwaves,” AIAA-2011-3446, 42nd AIAA Plasmadynamics and Lasers Conference in conjunction with the 18th International Conference on MHD Energy Conversion (ICMHD), Honolulu, Hawaii, June 27-30, 2011
27. J. B. Michael; M. R. Edwards; A. Dogariu; R. B. Miles,“Velocimetry by Femtosecond Laser Electronic Excitation Tagging (FLEET) of Air and Nitrogen”, AIAA-2012-1053, AIAA Aerospace Sciences Meeting, Nashville, TN, Jan 9-12, 2012
28. S. McGuire; S. Zaidi; A. Dogariu; P. Howard; R. B. Miles, “Measuring the Velocity of a Supersonic Airflow with Laser Ionization Tagged Radar Anemometry (LITRA)”, AIAA-2012-0989, AIAA Aerospace Sciences Meeting, Nashville, TN, Jan 9-12, 2012
29. A. S. Rubin; S. Zaidi; R. B. Miles, “Thrust Vectoring of a Laser-Ablated Aluminum Plasma Using Permanent Magnets”, AIAA-2012-0197, AIAA Aerospace Sciences Meeting, Nashville, TN, Jan 9-12, 2012
30. A. Tropina; M. N. Shneider; R. B. Miles, “Influence Of Turbulent Pulsations on the Deviation from Ionization Equilibrium”. AIAA-2012-0661, AIAA Aerospace Sciences Meeting, Nashville, TN, Jan 9-12, 2012
31. J. B. Michael; T. Chng; S. Zaidi; A. Dogariu; R. B. Miles, “ Species Concentration Measurements in a Pulsed Subcritical Microwave-Enhanced Flame”,  AIAA-2012-0378, AIAA Aerospace Sciences Meeting, Nashville, TN, Jan 9-12, 2012
32. D. J. Sullivan; J. Kline; M. Salamon; R. B. Miles; S. Zaidi, “An Optically Interrogated, Microfabricated Pillar Array for Wall Shear Stress Sensing”, AIAA-2012-0259, AIAA Aerospace Sciences Meeting, Nashville, TN, Jan 9-12, 2012
33. [Christopher Limbach](http://arc.aiaa.org/action/doSearch?action=runSearch&type=advanced&result=true&prevSearch=%2Bauthorsfield%3A%28Limbach%2C+Christopher%29), [Luigi Martinelli](http://arc.aiaa.org/action/doSearch?action=runSearch&type=advanced&result=true&prevSearch=%2Bauthorsfield%3A%28Martinelli%2C+Luigi%29), [Richard Miles](http://arc.aiaa.org/action/doSearch?action=runSearch&type=advanced&result=true&prevSearch=%2Bauthorsfield%3A%28Miles%2C+Richard%29) “Adjoint Optimization of Mass, Momentum and Energy Addition in Steady Supersonic Flow.” AIAA 2012-2811 [6th AIAA Flow Control Conference](http://arc.aiaa.org/doi/book/10.2514/MFLC12), New Orleans, LA June 25-28, 2012.
34. James Michael, Arthur Dogariu, Richard Miles Strongly Correlated Atomic Oxygen Lasing In Air With Nanosecond Pumping AIAA 2012-3089 43rd AIAA Plasmadynamics and Lasers Conference, New Orleans, LA June 25-28, 2012.
35. [Sergey Leonov](http://arc.aiaa.org/action/doSearch?action=runSearch&type=advanced&result=true&prevSearch=%2Bauthorsfield%3A%28Leonov%2C+Sergey%29), [Yu Isaenkov](http://arc.aiaa.org/action/doSearch?action=runSearch&type=advanced&result=true&prevSearch=%2Bauthorsfield%3A%28Isaenkov%2C+Yu%29), [Alexander Firsov](http://arc.aiaa.org/action/doSearch?action=runSearch&type=advanced&result=true&prevSearch=%2Bauthorsfield%3A%28Firsov%2C+Alexander%29), [Michail Shurupov](http://arc.aiaa.org/action/doSearch?action=runSearch&type=advanced&result=true&prevSearch=%2Bauthorsfield%3A%28Shurupov%2C+Michail%29), [James Michael](http://arc.aiaa.org/action/doSearch?action=runSearch&type=advanced&result=true&prevSearch=%2Bauthorsfield%3A%28Michael%2C+James%29), [A. Dogariu](http://arc.aiaa.org/action/doSearch?action=runSearch&type=advanced&result=true&prevSearch=%2Bauthorsfield%3A%28Dogariu%2C+A.%29), [Mikhail Shneider](http://arc.aiaa.org/action/doSearch?action=runSearch&type=advanced&result=true&prevSearch=%2Bauthorsfield%3A%28Shneider%2C+Mikhail%29), [Richard Miles](http://arc.aiaa.org/action/doSearch?action=runSearch&type=advanced&result=true&prevSearch=%2Bauthorsfield%3A%28Miles%2C+Richard%29) “Femtosecond Laser Guiding of High-Voltage Discharge and the Restoration of Dielectric Strength” AIAA 2012-3178 [43rd AIAA Plasmadynamics and Lasers Conference](http://arc.aiaa.org/doi/book/10.2514/MPLC12), New Orleans, LA June 25-28, 2012.

|  |
| --- |
|  |

**D. Published Abstracts of Conferences, Reports, etc.**

1. R.B. Miles (Project Leader), Joseph H. Lane (Editor), et al. (71 co-authors), "DEMETER, An Earth Resource Observation System," (Stanford University, Stanford, CA, June 1968).

2. R.B. Miles, "Optical Third Harmonic Generation in Metal Vapors," Stanford University Microwave Laboratory Report No. 2069, 1972.

3. G.C. Bjorklund, D.S. Carson, S.E. Harris, A.H. Kung, R.B. Miles and J.F. Young, "Generation of Ultraviolet Radiation in Phase Matched Metal Vapors," VII International Quantum Electronics Conference, Montreal, Canada, May 1972. Digest of Technical Papers, Paper D.1, IEEE Publication #72CHO-609-1-QECON, 1972, page 19.

4. J.L. Boulnois and R.B. Miles, "Time Dependent Kinetics of CO-EDL with Multi-Level Pumping," 4th Conference on Chemical and Molecular Laser, St. Louis, MO, October 1974, IEEE J. of Quantum Electronics,QE-11, Paper TD9, August 1975, page 707.

5. R.B. Miles, "Resonant Doppler Velocimeter," 1975 IEEE/OSA Conference on Laser Engineering and Applications, Washington, D.C. (May 1975), IEEE J. of Quantum Electronics, QE-11, Paper 9.7, September 1975, page 35D.

6. L.M. Sweet, A. Jones and R.B. Miles, "The Technology-Community Inference: A Game Approach," ASME Winter Annual Meeting, Houston, Texas, 1975.

7. R.B. Miles, J. Gelfand and B.S.H. Royce, "Photo-Enhanced Electrolysis by Evanescent Excitation: Hydrogen and Hydrogen Isotope Production," AMS Report No. 1344, August 1977.

8. M. Zimmermann, E. Udd and R.B. Miles, "Velocity Profile Visualization in Sodium Vapor Seeded Hypersonic Helium," CLEO'78 Technical Digest, Paper ThJJ4, Washington, D.C., Optical Society of America, 1978.

9. R.B. Miles and M. Zimmermann, "Flow Diagnostics and Visualization with the Resonant Doppler Velocimeter," 31st Annual Meeting of the American Physical Society Division of Fluid Dynamics, Los Angeles, California, November 1978. Bull. Am. Phys. Soc. 23, Paper BB2, New York, American Institute of Physics, October 1978, page 994.

10. L.M. Sweet, T.O. Williams and R.B. Miles, "Development of a New Transportation Component to an Interactive Technology/Society Course," MAE Report No. 1442, July 1979.

11. J.J. Gelfand, R.B. Miles and H. Rabitz, "Relaxation Measurements from Highly Vibrationally Excited Hydrogenic Molecules by Direct Overtone Pumping," Topical Meeting on Photoacoustic Spectroscopy, Ames, Iowa, August 1979. Technical Digest, Paper ThC4, Washington, D.C., Optical Society of America, 1979.

12. R.B. Miles, J. Gelfand and E. Wilczek, "Thin Film Interferometric Microphone," Topical Meeting on Photoacoustic Spectroscopy, Ames, Iowa, August 1979, Technical Digest, Paper WC6, Washington, D.C., Optical Society of America, 1979.

13. M. Zimmermann and R.B. Miles, "Measurement of Hypersonic Helium Flow Properties with the Resonant Doppler Velocimeter," 1979 IEEE/OSA Conference on Laser Engineering and Applications, Washington, D.C., May-June 1979, IEEE J. of Quantum Electronics, QE-15, Paper 3.7, September 1979, page 18D.

14. R.B. Miles, "Laser Collision Warning for General Aviation," Hangar Flying, 1980, p. 12.

1. E.A. Rohlfing, J. Gelfand, R.B. Miles, H. Rabitz and A. DePristo, "Collisional Vibrational Relaxation from Highly Vibrationally Excited HD Molecules," Symposium on Inelastic Molecular Collisions, New York, March 1980. Bulletin of the American Physical Society 25, Paper GC- 17, New York: American Institute of Physics, 1980, page 290.
2. M. Zimmermann, S. Cheng and R.B. Miles, "Measurements of Supersonic Nitrogen Flow Properties with the Resonant Doppler Velocimeter," 1981 IEEE/OSA Conference on Lasers and Electro-Optics, Washington, D.C., June 1981, CLEO'81 Technical Digest, Paper WO2, Washington, D.C., Optical Society of America, 1981, page 62.
3. E.A. Rohlfing, H. Rabitz, J. Gelfand and R.B. Miles, "Observation of Collisional Relaxation from HD v=5 and HD v=6 by Direct Overtone Pumping and Photoacoustic Detection," Abstract of Papers, 18th American Chemical Society National Meeting, Paper PHYS-29, New York: American Chemical Society, 1981.
4. M. Zimmermann, S. Cheng and R.B. Miles, "Characterization of a Free Supersonic Nitrogen Jet with the Resonant Doppler Velocimeter," 34th Meeting of the American Physical Society, Division of Fluid Dynamics, Monterey, CA, November 1981. Bulletin of the American Physical Society 26.
5. R.B. Miles, L.M. Sweet, S.G. Webb, E.Y. Wong and G. Russell, "Laser Beacon Systems for Simultaneous Range, Azimuth and Elevation Measurements," New Orleans, LA, December 14-18, 1981. Technical Digest of the International Conference on Lasers'81, Paper C5, 1981.
6. D. Voss, C. Paddock and R.B. Miles, "Picosecond Nonlinear Surface Spectroscopy," New Orleans, LA, December 14-18, 1981. Technical Digest of the International Conference on Lasers '81, Paper C5, 1981.
7. M. Zimmermann, S. Cheng and R.B. Miles, "Flow Visualization in Supersonic Air with the Resonant Doppler Velocimeter," Phoenix, AZ, 1982, CLEO'82 Technical Digest, Paper ThS4, Washington, D.C.: Optical Society of America, 1982.
8. P.B. Kelly, R.B. Miles, H. Rabitz and J. Gelfand, "An Analysis of the Preparation of Vibrationally Excited Oxygen by Stimulated Resonance Raman Pumping," Las Vegas, NV, June 1982, Abstracts of Paper, 169th American Chemical Society National Meeting, Paper PHYS 132, New York: American Chemical Society, 1982.
9. E.A. Rohlfing, J. Gelfand, R.B. Miles and H. Rabitz, "Time-Resolved Photoacoustic Detection of Collisional Relaxation of Vibrationally Excited Molecules," Lake Placid, NY, August 16-24, 1982, Abstracts of the International Conference on Time-Resolved Vibrational Spectroscopy, Paper D1, Syracuse, NY: Syracuse University, 1982.
10. R.B. Miles, "Turbulence Measurements in High-Speed Flow by Resonant Fluorescence," MAE Report #1565, May 1982.
11. S. Cheng, M. Zimmermann and R.B. Miles, "Separation of Temperature, Density and Velocity Fluctuations Using the Resonant Doppler Velocimeter," American Physical Society, Division of Fluid Dynamics, New Brunswick, NJ, November 21-23, 1982, Bulletin of the American Physical Society 27, Paper AD7, New York: American Physical Society, 1982.
12. R.B. Miles and M. Zimmermann, "The Resonant Doppler Velocimeter: A Tool for Flow Field Visualization and Quantitative Point Measurements," New Orleans, LA, December 13-17, 1982, Technical Digest of the International Conference on Lasers '82, Paper JJ-5, 1982.
13. M. Zimmermann and R.B. Miles, "Separation of Time-Averaged Turbulence Components Using the Resonant Doppler Velocimeter," Baltimore, MD, May 17-20, 1983, Technical Digest of the Conference on Lasers and Electro-Optics '83, Paper WN3, 1983.
14. M. Zimmermann and R.B. Miles, "Spatially Resolved Visualization of a High Speed Air Flow Around the Model by Laser Induced Fluorescence," Baltimore, MD, May 17-20, 1983, Technical Digest of the Conference on Lasers and Electro-Optics '83, Paper TUM3, 1983.
15. C. Paddock, G. Russell, D.F. Voss and R.B. Miles, "Picosecond Nd:YAG Regenerative Ring Amplifier," Baltimore, MD, May 17-20, 1983, Technical Digest of the Conference on Lasers and Electro-Optics '83, Paper THB2, 1983.
16. P.B. Kelly, R. Cohen, R.B. Miles and J. Gelfand, "Pulsed Laser Excitation and Photoacoustic Detection of the 1-0 Oxygen Schumann- Runge Band," Ohio State University, June 13-17, 1983, Molecular Spectroscopy Symposium.
17. R.B. Miles, D.A. Santavicca and M. Zimmermann, "Nonintrusive Flow Measurements on a Re-Entry Vehicle," Final Contract Report for NASA-Langley, NASA Contractors Report No. 172142, November 1983.
18. J. Gelfand, R.B. Miles, E.A. Rohlfing, and H. Rabitz, "Mechanisms and Rate Constants for the Vibrational Relaxation of HD (v=4,5, and 6) in Collisions with HD, 4He, and D2," Ohio State University, June 1984, Molecular Spectroscopy Symposium.
19. J. Gelfand, R.B. Miles, H. Rabitz, T.G. Kreutz and E.A. Rohlfing, "Mechanisms for the Vibrational Relaxation of HD (v=4,5, and 6) in Collisions with HD, 4He, and D2," Philadelphia, PA, September 1984, Abstracts of Papers, 188th American Chemical Society National Meeting, Paper PHYS 222, New York: American Chemical Society, 1984.
20. R. Miles, A. Smits, and M. Zimmermann, "Separation of Turbulent Parameters by Laser Induced Fluorescence: A Computer Simulation," American Physical Society, Division of Fluid Dynamics, Providence, RI, November 18-20, 1984, Bulletin of the American Physical Society 19, Paper CK4, New York: American Physical Society, 1984.
21. R. Miles, "Experimental Evaluation of Rayleigh Scattering Signals for a Simulated Entry Environment," Final Contract Report, NASA Contract #L71486B, MAE Report #1686.
22. R. Miles, "Applications of the Resonant Doppler Velocimeter in Flow Visualization and Turbulence," San Francisco, CA, November 26-30, 1984, Technical Digest of the International Conference on Lasers '84, Paper L6, 1984.
23. C.A. Paddock, G.F. Russell, and R.B. Miles, "A Study of the Dephasing

 of Second Harmonic Generation at Metal Surfaces Due to Roughness," San Francisco, CA, November 26-30, 1984, Technical Digest of the International Conference on Lasers '84, Paper 05, 1984.

1. J. Gelfand, T. Kreutz, E. Rohlfing, R.B. Miles and H. Rabitz Mechanisms and Rate Constants for the Vibrational Relaxation of HD," San Francisco, CA, November 26-30, 1984, Technical Digest of the International Conference on Lasers '84, Paper V-4, 1984.
2. R. Cohen, J. Gelfand, and R.B. Miles, "The Resonant Raman Spectrum of O2 as a Function of the Wavelength of the Excitation Laser in the Vicinity of the 1-0 R(3) Transition in the Schumann-Runge Band," March 25-29, 1985, General Meeting of the American Physical Society, (Poster Presentation).
3. T. Kreutz, J. Gelfand, and R.B. Miles, "Overtone Stimulated Raman Pumping of H2 from v=0 to v=2 and Subsequent Time Domain Photoacoustic Detection of Vibrational Relaxation," April 1985, Molecular Spectroscopy Symposium, Columbus, Ohio (Poster Presentation).
4. R.B. Miles, "The Application of a Resonant Doppler Velocimeter to the Measurement of Off-Body Flow Field in Supersonic and Transonic Flows," Boeing Commercial Aircraft Corporation, Final Technical Report, MAE Report #1705, June 1985.
5. R.B. Miles, A. Smits and M. Zimmermann, "Measurement of Separate Velocity, Pressure, and Temperature Components in Turbulent Nitrogen Supersonic Flows," June 1985, U.S. Air Force Office of Scientific Research, Contract #AFOSR-83-0224, MAE Report #1707.
6. T.G. Kreutz, J. Gelfand and R.B. Miles, "Overtone Stimulated Raman Pumping of H2 from v=0 to v=2 and Subsequent Time Domain Photoacoustic Detection of Vibrational Relaxation," Proceedings of the 4th International Conference on Photoacoustic, Thermal, and Related Sciences, Quebec, 1985.
7. R. Miles, "Multi-Point Oxygen Flow Tagging by Raman Excitation + Laser Induced Electronic Fluorescence," November 24-26, 1985, Thirty-Eighth Meeting of the Division of Fluid Dynamics, American Physical Society, Bulletin of the American Physical Society 30, Paper CH-3, page 1720, New York: American Physical Society, 1985.
8. R. Miles, "Oxygen Flow Tagging by Raman Excitation + Laser Induced Electronic Fluorescence," June 1986, CLEO'86-IQEC'86, Conference on Lasers and Electro-Optics, San Francisco, CA (Invited Paper).
9. G. Russell and R.B. Miles, "Analytical Visualization of 3D Fluid Dynamic Structures," Thirty-Ninth Meeting of the Division of Fluid Dynamics, American Physical Society, Bulletin of the American Physical Society 31, page 1722, Paper DG-5, Columbus, OH, November 1986.
10. R. Miles, J. Connors, S. Huang, E. Markovitz and G. Russell, "Time- Resolved Velocity Profiles by Vibrational Tagging of Oxygen," CLEO'87/IQEC'87, Conference on Lasers and Electro-Optics, Baltimore, MD, April 27-May 1, 1987.
11. R. Miles, "Demonstration of Two-Dimensional Temperature Maps of Flow Fields Representative of Hypersonic Test Environments," Report to Lockheed-California Company, MAE Report #1794T, October 1987.
12. R. Miles, J. Connors, E. Markovitz, G. Roth and P. Howard, "Instantaneous 2D Temperature and Density Measurements in Oxygen and Air," 40th Anniversary Meeting of the Division of Fluid Dynamics of the American Physical Society, Eugene, OR, November 22-24, 1987.
13. R. Miles, "Instantaneous Supersonic Velocity Profiles by Oxygen Tagging," 1988 AFOSR Contractors Meeting on Turbulence, University of Southern California, Los Angeles, CA June 18-30, 1988.
14. E. Markovitz, J. Connors, G. Roth, P. Howard, and R. Miles, "Instantaneous and Time-Averaged Turbulent Structure in the Free Shear Layer of an Underexpanded Supersonic Air Jet," 4lst Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, Buffalo, New York, November 20-22, 1988.
15. J. Connors, E. Markovitz, G. Roth, P. Howard, and R. Miles, "Instantaneous Velocity Profiles and Density Cross Sections in High-Speed Air by RELIEF," 41st Annual Meeting of the Division of Fluid Dynamics of the American Physical Society, Buffalo, New York, November 20-22, 1988.
16. R. Miles, J. Connors, V. Kumar, E. Markovitz, G. Roth, M. Smith, and A. Smits, "Velocity Profiles and Density Cross Sections in Supersonic Shear Layers by Simultaneous Flow Tagging and Rayleigh Scattering," presented at the Conference on Lasers and Electro-Optics 1989, Baltimore, MD, April 24-28, 1989.
17. J. Poggie, W. Konrad, D.R. Smith, M.W. Smith, W. Lempert, R.B. Miles, and A.J. Smits, "The Effects of Reynolds Number on the Large-Scale Density Structures in High-Speed Turbulent Boundary Layers," 42nd Annual Meeting of the Division of Fluid Dynamics of the APS, NASA Ames Research Center, November 19-21, 1989.
18. R. Miles, W. Lempert, and J. Forkey, "Instantaneous Two-Dimensional Velocity Images Through an Iodine Filter Window," 1990 Conference on Lasers and Electro-Optics (CLEO), Anaheim, CA, May 1990.
19. W.R. Lempert, B. Zhang, and R.B. Miles, "Stimulated Raman Scattering and CARS in High-Pressure Oxygen--Implications for High-Speed Flow Diagnostics," 1990 Conference on Lasers and Electro-Optics (CLEO), Anaheim, CA, May 1990.
20. R.B. Miles, "RELIEF and Other Methods of Instantaneous Flow Measurements in Turbulent, Unseeded Air," EUROMECH 260 Colloquium, Poitiers, France, September 5-7, 1990. (Invited)
21. R. Miles and W. Lempert, "New Methods for Field Measurements of Density, Velocity, Vorticity, and Temperature in High-Speed Turbulent Flows of Unseeded Air," Turbulence Data Workshop, Tokyo, Japan, October 8-10, 1990. (Invited).
22. J. Forkey, W.R. Lempert, and R.B. Miles, "Flow Field Diagnostics by Spectrally Filtered Rayleigh Scattering," American Physical Society, 43rd Annual Meeting, Division of Fluid Dynamics, November 18-20, 1990, Cornell University, Ithaca, New York.
23. W.R. Lempert, B. Zhang, and R.B. Miles, "A Single Laser Apparatus for Writing Patterns into Unseeded Air," American Physical Society, 43rd Annual Meeting, Division of Fluid Dynamics, November 18-20, 1990, Cornell University, Ithaca, New York.
24. W.R. Lempert, B. Zhang, and R.B. Miles, "Vibrational Stimulated Raman Scattering Measurements in Oxygen/Helium Mixtures," CLEO/QELS'91, May 13-17, 1991, Baltimore, MD.
25. R.B. Miles, "Filtered Rayleigh Scattering--A Route to Whole Field Velocity, Temperature, and Density, CLEO/QELS'91, May 13-17, 1991, Baltimore, MD (Invited).
26. R. Miles, W. Lempert, J. Forkey, "Filtered Rayleigh Scattering for Turbulence Diagnostics," AFOSR Meeting on Turbulence Structure and Control," Ohio State University, April 1-3, 1991.
27. R. Miles, "Aeronautics Applications of Photonics," Lasers and Electro- Optics Society Meeting on Spaceborne Photonics," Newport Beach, CA, July 22-24, 1991 (Plenary).
28. R. Miles, L. Zhang, B. Zhang, C-S She, and W. Lempert, "Statistical Properties of Fully Developed Turbulence by RELIEF Line Tagging," 44th Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Scottsdale, Arizona, November 24-26, 1991.
29. W.R. Lempert, G.L. Brown, P.G. Felton, and R.B. Miles, "PHoto-Activated Nonintrusive Tracking of Molecular Motion (PHANTOMM) in Water," 44th Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Scottsdale, Arizona, November 24-26, 1991.
30. J. Yao and R.B. Miles, "The Calculation of Non-Collinear Phase Match for Biaxial Crystal in Three-Wave Interaction," Poster Presentation, 1991 Annual Meeting of the Optical Society of America, San Jose, California.
31. R. Miles and R.L. McKenzie, "Aerodynamic Measurement Technology," Special Report, submitted to AIAA Aerospace America, October 1991.
32. B. Zhang, W. Lempert, and R. Miles, "Efficient Stokes Conversion in Oxygen-Helium Raman Cell with Super-Fluorescent Seeding," Paper #ThK3, Nonlinear Optics Session, 8th Interdisciplinary Laser Science Conference IILS'92), Albuquerque, New Mexico, September 20-25, 1992.
33. W.R. Lempert, J. Forkey, and R. Miles, "Quantitative Flow Field Imaging in Supersonic Air Using Filtered Rayleigh Scattering," 13th Symposium on Turbulence, University of Missouri, Rolla, Missouri, Sept. 21-23, 1992.
34. W. Lempert, J. Forkey, and R. Miles, "Measurement of Velocity, Temperature, and Density in a Mach 5 Free Jet by Filtered Rayleigh Scattering," Bulletin of the American Physical Society, 37, November 1992, 1992 Annual Meeting of the Division of Fluid Dynamics, Florida State University, Tallahasse, Florida, November 22-24, 1992.
35. W.R. Lempert, J. Forkey, N. Finkelstein, and R. Miles, "Optically-Based Air Data Using Doppler-Shifted, High Spectral Resolution LIDAR," OSA High Resolution Spectroscopy First Topical Meeting, January 18-21, 1993, Salt Lake City, Utah.
36. W.R. Lempert and Richard B. Miles, "Flow Tagging Velocimetry in Water Using PHoto-Activated Nonintrusive Tracking Of Molecular Motion (PHANTOMM)," ONR Nonequilibrium Turbulence Workshop, March 10-12, 1993, Tempe, Arizona.
37. R.B. Miles, D. Zhou, W.R. Lempert, and Z-S She, "Inertial Subrange and Dissipation Scale Measurements in Nonequilibrium Turbulent Flow by RELIEF Flow Tagging," ONR Nonequilibrium Turbulence Workshop, March 10-12, 1993, Tempe, Arizona.
38. J.N. Forkey, W.R. Lempert, and R.B. Miles, "Filtered Rayleigh Scattering Measurements of Velocity, Temperature, and Density in Supersonic Flow," CLEO/QELS'93 Conference, May 2-7, 1993, Baltimore, MD.
39. B. Zhang, W.R. Lempert, and R.B. Miles, "Efficient Vibrational Raman Conversion in N2 and O2 Cells Using Super-Fluorescence Seeding," CLEO/QELS'93 Conference, May 2-7, 1993, Baltimore, MD.
40. S. Cogne, J. Forkey, W. Lempert, R.B. Miles, and A.J. Smits, "The Evolution of Large-Scale Structures in a Supersonic Turbulent Boundary Layer," 1993 ASME Fluids Engineering Conference, Symposium on Transitional and Turbulent Compressible Flows, June 20-24, 1993, Washington, DC.
41. R.B. Miles, "Shedding Light on Turbulence," 46th Annual Meeting of the Division of Fluid Dynamics, The American Physical Society, November 21-23, 1993, Albuquerque, New Mexico (Invited Talk).
42. W.R. Lempert, J. Grinstead, N. Finkelstein, and R.B. Miles, "Frequency Modulated-Filtered Rayleigh Scattering (FM-FRS): A New Velocimetry Technique," CLEO'95 Conference, Optical Society of America, Postdeadline Paper, May 22-26, 1995, Baltimore, MD.
43. N. Finkelstein, W.R. Lempert, and R.B. Miles, "Mercury Vapor Filter and UV Laser System for Rayleigh LIDAR," Paper #C-00252, CLEO'95 Conference, Optical Society of America, May 22-26, 1995, Baltimore, MD.
44. W.R. Lempert, S.R. Harris, L. Hirsch, and R.B. Miles, "Flow Tagging Velocimetry Measurements Using Caged Dye Photo-Activated Fluorophores," Paper #CFN1, CLEO'95, Optical Society of America, May 22-26, 1995, Baltimore, MD.
45. Richard B. Miles, Allain Noullez, Grant Wallace, and Walter Lempert, "Turbulent Structure and Scaling Parameters by RELIEF in a High-Speed Free Air Jet," 48th Annual Meeting American Physical Society, Division of Fluid Dynamics, Nov. 19-21, 1995.
46. Richard B. Miles, "500,000 Frames/Second Digital Imaging of Shockwave/Boundary Layer Dynamics on a 14 Degree Angle Wedge," Gallery of Fluid Motion, 49th Annual Meeting Division of Fluid Dynamics of the American Physical Society, Syracuse University, Syracuse, NY, November 24-26, 1996.
47. R.B. Miles, S.O. Macheret, and P. Efthimion, "Mechanisms of Shock Propagation and Stability Control in Low Temperature Plasmas," Workshop on Weakly Ionized Gases, USAF Academy, Colorado, June 9-13, 1997.
48. N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "Narrow Linewidth Passband Filters and UV Laser Source for Rotational Raman Imaging," Paper #SPIE-3172-88, Proceedings of the SPIE Annual Meeting, San Diego, CA, July 27-August 1, 1997.
49. R.B. Miles, "Aerodynamics of Ionized Flow," AFOSR-Sponsored Workshop on Understanding and Control of Ionized High-Speed Flows," Princeton University, February 26-27, 1998.
50. S. Macheret, L. Martinelli, and R. Miles, "Shock Wave Propagation in Nonuniform Plasmas and Gases, 2nd Weakly Ionized Gases Workshop, Norfolk, VA, April 24-25, 1998.
51. D.A. Akimov, A.B. Fedotov, N.I. Koroteev, R.B. Miles, A.N. Naumov, D.A. Sidorov-Biryukov, and A.M. Zheltikov, "Nonlinear Optical Imaging and Tagging of Atoms and Molecules in Plasmas and Gas Flows," CLEO/IQEC 1998, San Francisco, CA, May 3-8, 1998.
52. A. Yalin, N. Finkelstein, and R.B. Miles, "Ultraviolet Rotational Raman Spectroscopy with a Dispersive Atomic Resonance Filter," Postdeadline Paper, CLEO/IQEC 1998, San Francisco, CA, May 3-8, 1998.
53. R. Miles, S. Macheret, Y. Ionikh, N. Finkelstein, and A. Yalin, "Measurement of the Temperature Profile of a Weakly Ionized Plasma by Rayleigh Scattering Imaged Through an Atomic Filter," 25th Anniversary IEEE International Conference on Plasma Science (ICOPS), Raleigh, NC, June 2, 1998.
54. P.C. Efthimion, S.O. Macheret, and R.B. Miles, "High Pressure Uniform Plasma Formation," 25th Anniversary IEEE International Conference on Plasma Science (ICOPS), Raleigh, NC, June 2, 1998.
55. S.O. Macheret, R.B. Miles, and K. Waichman, "Air Plasma Control and Guiding Using Laser Excitation of Molecular Metastable States," 25th Anniversary IEEE International Conference on Plasma Science (ICOPS), Raleigh, NC, June 2, 1998 (Invited).
56. R. Miles, Invited Talk, "Linear & Nonlinear Optical Processes for Imaging Complex Flows," 13th U.S. National Congress of Applied Mechanics, Gainesville, FL, June 21-26, 1998.
57. R. Miles, Keynote Lecture, "Linear and Nonlinear Optical Processes for Imaging Complex Flows," XVI International Conference on Coherent & Nonlinear Optics (ICONO'98), Moscow, Russia, June 29-July 3, 1998.
58. R. Miles, Short Course, "Advanced Optical Diagnostics for Quantitative Fluid Imaging," XVI International Conference on Coherent & Nonlinear Optics (ICONO'98), Moscow, Russia, June 29-July 3, 1998.
59. C. Honore, J.H. Grinstead, W.R. Lempert, and R.B. Miles, "L'application du Diagnostic RELIEF aux Grands Instruments," 6th Congres Francophone Velocimetrie Laser, Saint-Louis, France, Sept. 22-25, 1998.
60. S.R. Harris, W.R. Lempert, and R.B. Miles, "Flow Tagging Measurements of a Vortical, Turbulent Flow Inside A Cylindrical Cavity," APS Meeting, Philadelphia, PA, Nov. 22-24, 1998.
61. L. Martinelli, S. Macheret, and R.B. Miles, "Modeling of Shock Propagation in Nonuniform Gases and Plasmas," APS Meeting, Philadelphia, PA, Nov. 22-24, 1998.
62. R.W. Anderson, G.L. Brown, and R.B. Miles, "Prediction of the Fluid Mechanics for Laser or Electron Beam Energy Addition to the Supersonic Nozzle Flow of a hypersonic Wind Tunnel," APS Meeting, Philadelphia, PA, Nov. 22-24, 1998.
63. A. Morgan, P. Barker, G. Brown, and R. Miles, "Experiments on Laser and Electron Beam Energy Addition to a Supersonic Flow for a Hypersonic Wind Tunnel," APS Meeting, Philadelphia, PA, Nov. 22-24, 1998.
64. P. Barker and R. Miles, "Temperature Measurement in Supersonic Flows by Predissociative Transient Thermal Gratings," APS Meeting, Philadelphia, PA, Nov. 22-24, 1998.
65. M. Shneider, S. Macheret, R. Miles, "Near-Electrode Sheaths in Hypersonic MHD Flows," APS Meeting, Philadelphia, PA, Nov. 22-24, 1998.
66. R.B. Miles, A. Yalin, Z. Tang, "High Resolution and High Throughput Resonant Dispersion Filter for Rotational Raman Imaging," Poster Session, Gordon Research Conference on Laser Diagnostics in Combustion, II Ciocco, Italy, June 20-25, 1999.
67. P. Barker, J. Grinstead, R. Miles, "Temperature Measurement in Unseeded Supersonic Air Flows by Predissociated Laser-Induced Thermal Gratings," Poster Session, Gordon Research Conference on Laser Diagnostics in Combustion, II Ciocco, Italy, June 20-25, 1999.
68. A. Yalin, Y. Ionikh, R. Miles, "Temperature Measurements in Glow Discharges Using Ultraviolet Filtered Rayleigh Scattering," #DT1.08, APS 52nd Annual Gaseous Electronics Conference, Norfolk, VA, Oct. 5-8, 1999.
69. S.O. Macheret and R.B. Miles, "Laser-Induced Vibrational Excitation of Molecules as a Tool of Ionization Enhancement in Air Plasmas," IWP4.27, APS 52nd Annual Gaseous Electronics Conference, Norfolk, VA, Oct. 5-8, 1999.
70. R. Miles, P. Barker, J. Zou, and S. Macheret, "Laser Control of Microwave-Driven Filamentary Discharges," IWP13.89, APS 52nd Annual Gaseous Electronics Conference, Norfolk, VA, Oct. 5-8, 1999.
71. Z. Tang and R.B. Miles, "Multiphoton Resonant Enhanced Ionization of Neutral Argon," NR2.03, APS 52nd Annual Gaseous Electronics Conference, Norfolk, VA, Oct. 5-8, 1999.
72. S.O. Macheret, M.N. Shneider, and R.B. Miles, "Modeling of Air Plasmas Generated by Electron Beams: "Fountain" and Thunderstorm" Discharges," NR2.05, APS 52nd Annual Gaseous Electronics Conference, Norfolk, VA, Oct. 5-8, 1999.
73. P. Barker, R. Miles and J. Grinstead, "Coherent Rayleigh Scattering in Weakly Ionized Gases with Nearly-Degenerate Four-Wave Mixing," QF1.01, APS 52nd Annual Gaseous Electronics Conference, Norfolk, VA, Oct. 5-8, 1999.
74. Y.Z. Ionikh, N.V. Chernysheva, S.O. Macheret, and R.B. Miles, "Coexistence of Contracted and Diffuse Plasma in Steady-State Glow Discharges," QF2.01, APS 52nd Annual Gaseous Electronics Conference, Norfolk, VA, Oct. 5-8, 1999.
75. Y. Ionikh, A. Meshchanov, A. Yalin, and R. Miles, "Direct Proof of the Thermal Nature of the Effect of a Discharge Plasma on Shock Wave Propagation," QF2.02, APS 52nd Annual Gaseous Electronics Conference, Norfolk, VA, Oct. 5-8, 1999.
76. Pingfan Wu, Mark Huntley, Richard B. Miles and Alexander J. Smits, "MHz-Rate Imaging of Mach 8 Boundary Layer Transition Over 4:1 Elliptic Cone," Video Presentation, Gallery of Fluid Motion, 1999 APS/DFD Meeting, New Orleans, LA, November 21-23, 1999.
77. A.P. Yalin, Y. Ionikh, and R.B. Miles, "Temperature Fields in Glow Discharges Measured with Ultraviolet Filtered Rayleigh Scattering," IEEE International Conference on Plasma Science (ICOPS 2000), New Orleans, LA, June 4-7, 2000.
78. M.N. Shneider, S.O. Macheret, and R.B. Miles, "Kinetics of Air Plasmas Generated by Electron Beams," IEEE International Conference on Plasma Science (ICOPS 2000), New Orleans, LA, June 4-7, 2000.
79. P.F. Barker, B. McAndrew, S.O. Macheret, and R.B. Miles, "Control of Sub-Critical Microwave Filamentary Plasmas in Dense Gases," IEEE International Conference on Plasma Science (ICOPS 2000), New Orleans, LA, June 4-7, 2000.
80. S.O. Macheret, M.N. Shneider, and R.B. Miles, "Dynamics of Electric Discharge Supported by High-Voltage Nanosecond Pulses at Low and Intermediate Pressures," IEEE International Conference on Plasma Science (ICOPS 2000), New Orleans, LA, June 4-7, 2000.
81. R.B. Miles, "Review of Princeton Air Plasma Ramparts MURI Program," AFOSR MURI Project Review, Columbus, OH., April 19, 2000.
82. R.B. Miles, "RDHWT/MARIAH II Program (An R&D Program for an Advanced M=8-15 Hypersonic Wind Tunnel)," Briefing to DDR&E, Washington, DC., July 18, 2000.
83. R.B. Miles, "MARIAH II--Solution, Technology Status, and Future Plans," Briefing to Senator Conrad Burns, Butte, MT, Aug. 19, 2000.
84. R.B. Miles, "Microwave-Driven Air Plasma Studies for Drag Reduction and Power Extraction in Supersonic Air," AFOSR 2000 Contractors' Meeting in Unsteady Aerodynamics & Hypersonics, Monterey, CA, Sept. 6-7, 2000.
85. R.B. Miles, "Novel Trends in Nonlinear Laser Spectroscopy and Optical Diagnostics," XVII International Conference on Coherent and Nonlinear Optics (ICONO), Belarus Cultural Center, Minsk, Belarus, June 26-July 1, 2001 (Invited Keynote Speaker).
86. R.B. Miles, “Gordon Research Conference—Laser Diagnostics in Combustion,” Queen’s College, London, England, Aug. 17-22, 2003.
87. R.B. Miles, “High Brightness, Ultra-Narrow Linewidth Hg Source for Diagnostics,” ICIASF’03, Gottingen, Germany, Aug. 25-28, 2003.
88. R.B. Miles “Coherent Rayleigh-Brillouin Scattering,” 12th International Laser Physics Workshop, LPHYS-03, Hamburg, Germany. Aug. 28-29, 2003
89. “Shock Control and Power Extraction by MHD Processes in Hypersonic Air Flows,” (with Sergey Macheret), Unsteady Aerodynamics and Hypersonics, AFOSR Contractors’ Meeting, Destin, Florida, Sept. 8-12, 2003.
90. R. B. Miles “MHD in Cold Air for SCRAMJET Inlet Control and Power Extraction: Experiments and Theory,” The International Liaison Group on Magnetohydrodynamics (ILG-MH) International Workshop on Applied Magnetohydrodynamics—State of the Art, University of Bologna, Bologna, Italy. Sept. 25, 2003

1. R. B. Miles “Neutral Gas Temperature Measurement by Incoherent and Coherent Rayleigh Scattering,” 56th Annual Gaseous Electronics Conference, San Francisco, CA. Oct. 21-24, 2003
2. R. B. Miles “Ultra-Narrow Pass-Band, High Resolution, Wide Field-of-View Imaging with Atomic Filters,” Laser Physics Workshop, Seminar 5: Nonlinear Optics & Spectroscopy (LPHYS’04), Trieste, Italy. July 15, 2004
3. R. B. Miles “Flow Visualization by Filtered Molecular and Particle Scattering,” 11th International Symposium on Flow Visualization, University of Notre Dame, Notre Dame, Indiana. August 9-12, 2004
4. R. B. Miles “Laser Detection of Biohazards and Cancer Tissue,” Charles E. Flowers Society, Yosemite, CA, Sept. 16, 2004
5. R.B. Miles “Spectral Methods for Imaging High-Speed Fluid Flow,” 35th Winter Colloquium on the Physics of Quantum Electronics, Snowbird, Utah Jan. 6, 2005
6. C S Kalra, S H Zaidi, S O Macheret, R B Miles; Magnetically accelerated non-equilibrium surface discharge for boundary layer control, Poster: Gordon Conference on Plasma Processing Science, July 16-21, 2006
7. Dmitry F. Opaits, Alexander D. Critien, Mikhail N. Shneyder, Sergey O. Macheret, and Richard B. Miles Experimental investigation of boundary layer control by dielectric barrier discharge, poster: Gordon Conference on Plasma Processing Science, July 16-21, 2006
8. G. Simmons and R. B. Miles, editors, “U.S Army MARIAH Hypersonic Wind Tunnel Development Program: 2006 1 MW Energy Addition Experiments”. Contract # W31P4Q-04-C-R173. Contractor: MSE Technology Applications, Inc. Butte, MT, Program Manager, David Micheletti,. March 2007.
9. R. B. Miles, Z. Zhang, S. Zaidi, and M. Shneider, "Ultra High Sensitivity Detection of NO Photo-Fragments by Radar REMPI," in *Laser Applications to Chemical, Security and Environmental Analysis*, OSA Technical Digest (CD) (Optical Society of America, 2008), paper LWC4.
10. Opaits, Dmitry; Likhanskii, Alexandre; Zaidi, Sohail; Shneider, Mikhail; Macheret, Sergey; Miles, Richard, Parametric Studies on Thrust Produced by Pulsed DBD Plasma Actuators American Physical Society, 61st Annual Gaseous Electronics Conference, October 13-17, 2008, abstract #MWP.109
11. Shneider, Mikhail; Zhang, Zhili; Miles, Richard, Optical Breakdown Based on Resonant Enhanced Multi-Photon Ionization and Electron Avalanche Ionization in Gas Mixtures, American Physical Society, 61st Annual Gaseous Electronics Conference, October 13-17, 2008, abstract #GW3.003
12. A. Dogariu, J. Michael, E. Stockman, and R. B. Miles, "Atomic Oxygen Detection Using Radar REMPI," in *Conference on Lasers and Electro-Optics/International Quantum Electronics Conference*, OSA Technical Digest (CD) (Optical Society of America, 2009), paper CFU4, May 31, 2009
13. Opaits, Dmitry; Shneider, Mikhail; Miles, Richard; Macheret, Sergey, V-I Characteristics and Power Measurements in Asymmetric Dielectric Barrier Discharges, American Physical Society, 62nd Annual Gaseous Electronics Conference, October 20-23, 2009, abstract #KTP.096
14. J. B. Michael, A. Dogariu, M. N. Shneider, and R. B. Miles, Laser-initiated, microwave driven ignition in methane/air mixtures, Eastern States Section of the Combustion Institute University of Maryland College Park, October 18-21, 2009
15. Shneider, Mikhail; Miles, Richard, Laser Induced Avalanche Ionization in Gases with REMPI or Femtosecond Pre-Ionization, American Physical Society, 62nd Annual Gaseous Electronics Conference, October 20-23, 2009, abstract #PW3.003
16. Shashurin, Alexey; Shneider, M. N.; Dogariu, A.; Miles, R. B.; Stepp, M. A.; Keidar, M., Physical and biological aspects of cold plasma jet interaction with tissue, American Physical Society, 51st Annual Meeting of the APS Division of Plasma Physics, November 2-6, 2009, abstract #NP8.039
17. Arthur Dogariu, Patrick M. Madden, and Richard B. Miles Detecting Trace Species in Air Using Radar REMPI Laser Applications to Chemical, Security and Environmental Analysis (LACSEA) San Diego, California February 3, 2010 Trace Gas and Remote Sensing (LMC)
18. Arthur Dogariu, Richard B. MilesPpb Standoff Detection of Nitric Oxide in Air,*; Princeton Univ., USA.* *Conference on Lasers and Electro-Optics/International Quantum Electronics Conference*, (Optical Society of America, 2010), post deadline paper
19. Arthur Dogariu, Mikhail N. Shneider, and Richard B. Miles Direct measurement of electron loss rate in air *Conference on Lasers and Electro-Optics/International Quantum Electronics Conference*, (Optical Society of America, 2010) contributed paper
20. J. Michael, A. Dogariu, M. Shneider, and R. B. Miles “Laser-initiated Microwave Driven Plasma for Ignition” 6th International Workshop and Exhibition on Plasma Assisted Combustion (IWEPAC), 13 -15 September 2010 Neckar, Germany
21. C. Limbach, S. Zaidi, P. Howard, R. Miles Princeton University; S. dos Santos e Lucato, Teledyne Scientific Company,”Test of a Morphing Hypersonic Inlet with Ceramic Matrix Composite Surface in a Mach 8 Tunnel” 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition 4 - 7 Jan 2011 Orlando World Center Marriott Orlando, Florida (oral presentation)
22. A. Dogariu, J. Michael, M. O. Scully, and R. B. Miles, “High Gain Backward Lasing of Oxygen in Air,” 41st Winter Colloquium on The Physics of Quantum Electronics, Snowbird, UT (2011).
23. A. Dogariu, J. B. Michael, M. O. Scully, and R. B. Miles, “Remote air lasing for trace detection,” *Proc. SPIE* **8024**, (2011).
24. A. Dogariu, C. Stein, A. Glaser, and R. B. Miles, “Long range trace detection by Radar REMPI,” *Proc. SPIE* **8024**, (2011).
25. A. Dogarui, J.B. Michael and R.B. Miles, “Correlations and Collisions in Air Lasing”, 42nd Winter Colloquium on the Physics of Quantum Electronics, Snowbird, UT Jan 2-6, 2012.
26. Arthur Dogariu, James Michael, and Richard Miles, “Remote Backwards Emission in Air Via Stimulated Emission in Atomic Oxygen.” Laser Applications to Chemical, Security and Environmental Analysis San Diego, CA January 30, 2012
27. Dmitri Voronine, Andrew Traverso, Rodrigo Sanchez-Gonzalez, Luqi Yuan, Michael Grubb, Kai Wang, Alexei Zheltikov, Arthur Dogariu, James Michael, Richard Miles, Yuri Rostovtsev, Vladimir Sautenkov, Alexei Sokolov, Simon North, Marlan Scully “[Superradiant light source for atmospheric remote sensing](http://meetings.aps.org/link/BAPS.2012.MAR.K1.238)”, Bulletin of the American Physical Society, Feb 28, 2012
28. Sokolov, Alexei V; Yuan, Luqi; Traverso, Andrew J; Sanchez-Gonzalez, Rodrigo; Grubb, Michael P; Wang, Kai; Voronin, Dmitri V; Zheltikov, Aleksei; Dogariu, Arthur; Michael, James; Miles, Richard B; Rostovtsev, Yuri; Sautenkov, Vladimir A; North, Simon W; Scully, Marlan O, “Non-adiabatic Atomic Coherence at Work in the Oxygen Laser Source for Atmospheric Remote Sensing”, CLEO: Science and Innovations (CLEO: S and I) 2012 paper: CM2F.3, May 6, 2012
29. Arthur Dogariu, James Michael, Alexei V. Sokolov, Marlan O. Scully, and Richard B. Miles, Forward-backward pulse correlation in air laser emission for atmospheric remote sensing, CLEO: Science and Innovations (CLEO: S and I) 2012 paper: CM2F.4, May 6, 2012
30. Top of Form