Curriculum Vitae

TONGHUN LEE

Associate Professor
Department of Mechanical Engineering
Department of Chemical Engineering & Material Science, adjunct
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RESEARCH INTEREST

Combustion & Propulsion: plasma enhanced combustion, hypersonic air-breathing propulsion systems
Alternative Energy Sources: next-generation renewable biofuels, hydrogen based power generation
Laser and Optical Diagnostics: high-speed laser diagnostics of chemical and physical parameters in reactive flows

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EDUCATION

Ph.D. Mechanical Engineering, Stanford University (Stanford, USA) **M.S.** Mechanical Engineering, Stanford University (Stanford, USA) *Advisor: Dr. Ronald K. Hanson*	03/2002–06/2006 09/2000–03/2002
B.S. Mechanical Engineering, Yonsei University (Seoul, Korea)	03/1993–03/2000
Brebeuf College High School (Toronto, Canada)	03/1989–04/1992
Chungdam Junior High School (Seoul, Korea)	04/1984–12/1988
St. Paul's Elementary School (London, Great Britain)	09/1980–03/1984

HONORS and AWARDS (since 2006)

Defense University Research Instrumentation Program Award (**DURIP**), Department of Defense	2011
ONR Young Investigator Program Award, Office of Naval Research	2011
Air Force Summer Faculty Fellow, Air Force Research Laboratory	2011, 2010, 2009
Teacher Scholar Award, Michigan State University	2011
Presidential Early Career Award for Scientists and Engineers (**PECASE**), White House	2010
SAE Ralph R. Teetor Educational Award, SAE International	2010
Withrow Teaching Excellence Award, John D. and Dortha J. Withrow Endowment	2009
AFOSR Young Investigator Program Award, Air Force Office of Scientific Research	2008
IRGP New Faculty Award 2006, Michigan State University	2006
Bernard Lewis Fellowship, Combustion Institute	2006

WORK EXPERIENCE

Associate Professor, Department of Mechanical Engineering, Michigan State University *Adjunct appointment, Department of Chemical Engineering & Material Science*	07/2011–present
Assistant Professor, Department of Mechanical Engineering, Michigan State University *Adjunct appointment, Department of Chemical Engineering & Material Science*	08/2006–06/2011
Research Assistant (Ph.D. Candidate), Stanford University *High Temperature Gasdynamics Laboratory, HTGL*	09/2000–06/2006
Military Intelligence (Seoul, Korea)	07/1995–09/1997

Defense and Security Command

RESEARCH EXPERIENCE

Aerospace Propulsion Division, Propulsion Directorate (Wright Patterson Air Force Base) 06/2011–08/2011
Air Force Summer Faculty Fellow (collaborator: Dr. Campbell Carter, Dr. Jim Gord, Dr. Sukesh Roy)
Development of high speed (kHz) PLIF system for detection of chemical species during combustion

Gas Turbine Division, Propulsion Directorate (Wright Patterson Air Force Base) 05/2010–07/2010
Air Force Summer Faculty Fellow (collaborator: Dr. Campbell Carter, Dr. Jim Gord, Dr. Sukesh Roy)
Development of high speed (kHz) PLIF system for nitric oxide detection

Aerospace Propulsion Division, Propulsion Directorate (Wright Patterson Air Force Base) 05/2009–07/2009
Air Force Summer Faculty Fellow (collaborator: Dr. Campbell Carter)
Laser diagnostics for plasma assisted combustion system

Physical Chemistry Institute (PCI), Univ. of Heidelberg (Heidelberg, Germany) 04/2003–06/2003
Visiting researcher: Research group of Dr. Christof Schulz and Prof. Yurgen Wolfrum.
Laser diagnostics for NOx detection (sponsored by Volkswagen Corp.)

High Temperature Gasdynamics Laboratory, HTGL (Stanford, USA) 09/2000–06/2006
Ph.D. and M.S. degree. Advisor: Professor Ronald K. Hanson (http://hanson.stanford.edu)
Laser diagnostics development for practical high-pressure combustion systems

FUNDING

Total Amount: $13.3M , Personal Share: $4.31M

AFOSR Presidential Early Career Award for Scientists & Engineers (PECASE), AFOSR 10/2011
"Study of Next Generation Propulsion Systems using Advanced High Speed Laser Diagnostics"
($1.0M, 100%, **PI**)

Alternative Biofuel Research, Defense Logistics Agency 9/2011
"Biofuels as a JP-8 Supplement and Replacement Fuel for Aviation and Ground Applications"
($5.0M, 15%, **CO-PI**)

Defense University Research Instrumentation Program, Air Force Office of Scientific Research 6/2011
"Multi-Spectral High Speed PLIF/PIV/RST Imaging" ($412K, 100%, **PI**)

University Research Grant, Denso North American Foundation 6/2011
"Energetically Enhanced Ignition Systems for Internal Combustion Engines" ($100K, 100%, **PI**)

Air Force Summer Faculty Fellowship, Air Force Research Laboratory 6/2011
"Multi-Spectral High Speed Laser Diagnostics of Plasma Enhanced Combustion Systems" ($12K, 100%, **PI**)

Strategic Partnership Grant (SPG), MSU Foundation 6/2011
"Dynamic Optimization of Plasma Assisted Combustion" ($400K, 33%, **CO-PI**)

ONR Young Investigator Program, Office of Naval Research 3/2011
"Ignition and Oxidation of Bio-Derived Future Navy Fuels" ($480K, 100%, **PI**)

Air Force UAV Engine Research Project, Air Force Office of Scientific Research 9/2010
"Optimization of a Small-scale Engine Using Plasma Enhanced Ignition" ($340K, 33%, **PI**)

Collaborative High Speed Imaging System Development, Air Force Research Laboratory 7/2010
"UV High Speed Imaging of Nitric Oxide" ($45K, 100%, **PI**)

Air Force Summer Faculty Fellowship, Air Force Research Laboratory 5/2010
"High Speed Laser Diagnostics of a Scramjet Combustor" ($12K, 100%, **PI**)

Advanced Propulsion System Development, Department of Energy ARPA-E 10/2009
"Wave Disc Engine" (Total Project : $2.5M, 15%, **CO-PI**)

Air Force Summer Faculty Fellowship, Air Force Research Laboratory 5/2009
"Laser Diagnostics Study of Plasma Enhanced Flames in a Microwave Cavity" ($11K, 100%, **PI**)

AFOSR Young Investigator Program, Air Force Office of Scientific Research 10/2008
"Laser Diagnostics Study of Plasma Assisted Combustion for Scramjet Applications" ($304K, 100%, **PI**)

International Collaboration, Sogang University, Korea 10/2008
"Development of Fuel/Oxidizer Supply Modules for Ultralight Portable Fuel Cells" ($235K, 100%, **PI**)

Powertrain Research, Toyota Motor Engineering & Manufacturing, USA 08/2008
"Advanced Ignition System Development" ($6K, 100%, **PI**)

Advanced Biofuel Research, Department of Energy 08/2007
"Novel Biofuel Formulation and Combustion" ($2.5M, 15%, **CO-PI**)

IRGP New faculty, Michigan State University 11/2006
"Laser Diagnostics of Thermal Oxidation and Plasma-Induced Partial Oxidation of Ethanol" ($40K, 100%, **PI**)

TEACHING EXPERIENCE

Course Instructor, ME422 Combustion (MSU) 08/2008–
Fall semester: 2008, 2009, 2010, 2011

Course Instructor, ME201 Thermodynamics (MSU) 02/2007–
Spring semester: 2007, 2010, 2011, Fall Semester 2008

Course Instructor, ME322 Fluid Dynamics (MSU) 01/2012–
Spring semester: 2012

Design Team Advisor, ME481 Mechanical Engineering Design (MSU) 08/2006–12/2010
Project supervision for 'Design Day' presentation and display

Lab TA, ME367 Spectroscopy Lab (Stanford University) 01/2001–04/2001

RESEARCH GROUP - CURRENT

(Postdoctoral Scholar)

Elisa Toulson
Ph.D. Degree: University of Melbourne (Mechanical Engineering)
M.S. Degree: University of Melbourne (Energy Studies)
B.S. Degree: University of California, San Diego (Chemical Engineering)
Research: ***Chemical Kinetics and Combustion of Generation II Biofuels***

(Graduate Students)

Bryce Thelen (Ph.D. Candidate)
B.S. Degree: Michican State University (Mechanical Engineering)
Research: ***Plasma Enhanced Combustion for Small –Scale UAV Scale Engine***
Expected Graduation: December, 2014

Stephen Hammack (Ph.D. Candidate)
B.S. Degree: Michican State University (Mechanical Engineering)
Research: ***High Speed PLIF for Diagnostics of Plasma Enhanced Hypersonic Combustion***
Expected Graduation: December, 2013

Dae Keun Chun (Ph.D. Candidate)
B.S. Degree: Michican State University (Mechanical Engineering)
Research: ***Development of a Wavedisk Engine***
Expected Graduation: December, 2013

Daniel Valco (Ph.D. Candidate)
B.S. Degree: Ohio State University (Chemical Engineering)

Research: ***Ignition and Combustion Studies of Bio-Derived Future Naval Fuels***
Expected Graduation: August, 2015

Joshua Kuhlman (M.S. Candidate)
B.S. Degree: University of California at Urvine (Mechanical Engineering)
Research: ***Shock Tube Studies of Alternative Bio-derived Fuels***
Expected Graduation: August, 2013

(Undergraduate Interns)

Steven Gerdeman – Professorial Assitant (Freshman, Honors College)

RESEARCH GROUP – FORMER STUDENTS

(Graduate Students)

Casey Allen (Ph.D.) – graduation: December, 2011
B.S. Degree: University of Iowa (Chemical Engineering)
Research: ***Chemical Kinetics and Combustion of Biofuels using Rapid Compression Machine***

Xing Rao (Ph.D.) – graduation: December, 2010
B.S. & M.S. Degree: Tsinghua University, China (Precision Instruments and Mechanology)
Research: ***Laser Diagnostics of Plasma Assisted Combustion***

Zach Williamson (M.S.)
B.S. Degree: US Naval Academy (Mechanical Engineering)
Research: ***Laser Diagnostics of Miniature Fuel Cells***

(Undergraduate Interns)

David Ruddock – Summer Research Intern
Shangyun Shi – Summer Research Intern
Mark Holmes – Professorial Assistant
Daniel Joseph Tepe – Professorial Assitant
Jeffery Narkis – Professorial Assitant
Brandon Gray – Summer Research Intern

GRADUATE STUDENT COMMITTEES

Xing Rao (Ph.D. Degree), Advisor: Dr. Tonghun Lee	2010
Araz Banaeizadeh (Ph.D. Degree), Advisor: Dr. Farhard Jaberi	2010
Rajat Basu (M.S. Degree), Advisor: Dr. Manoochehr Koochesfahani	2008
Daniel Swain (Ph.D. Degree), Advisor: Dr. Nobert Mueller	current
Gueng Wei Sun (Ph.D. Degree), Advisor: Dr. Nobert Mueller	current

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EDUCATIONAL OUTREACH

Research Experience for Teachers (RET-Site), National Science Foundation 2010–2012
Development of advanced curriculum and local high school teacher research participation

Alternative Energy Workshop, Michigan State University Design Day Each Semester 2008–2011
Seminar series and hands on workshop

Detroit Area Pre-College Engineering Program (DAPCEP), Michigan State University 2007–2011
Alternative energy seminar and workshop in collaboration with the Diversity Programs Office

Michigan-Louis Stokes Alliance for Minority Participation (MI-LSAMP), NSF 2007–2011
Alternative energy seminar and workshop in collaboration with the Diversity Programs Office

Women in Engineering Seminar, Michigan State University 2007–2011
Alternative energy seminar and workshop specifically for inspiring women in education for freshman class

Science, Engineering, and Technology (SET) day, Michigan State University 2008–2010
Advanced energy workshop and demonstration for high school level students

International Science High School Exchange Program, Michigan State University 2010
Alternative energy seminar and workshop for Seoul National Science High School

Career Day Participation, Local High Schools 2006–2010

SERVICE WITHIN THE UNIVERSITY

Undergraduate Curriculum Committee, Department of Mechanical Engineering 2010–
Development and assessment of undergraduate curriculum
ABET review preparation (summer 2010)

Department Chair Search Committee, Department of Mechanical Engineering Spring, 2009
Mechanical Engineering Department nationwide search

Faculty Search Committee, Department of Mechanical Engineering Fall, 2007
Composite Vehicle Research Center junior faculty search

Laser Safety Program, Office of Radiation, Chemical, and Biological Safety 2011
Establishment of safety training and test program

SERVICE WITHIN THE ACADEMIC COMMUNITY

Conference Activity, NASA-Air Force Hypersonics Conference (Williamsburg, Virginia) 06/2011
Invited Speaker

Conference Activity, 49th Aerospace Sciences Meeting (Orlando, Florida) 01/2011
Reviewer, session organizer, session chair

Conference Activity, 33rd International Combustion Symposium (Beijing, China) 08/2010
Reviewer, podium presenter

Conference Activity, NASA-Air Force Hypersonics Conference (Cleveland, Ohio) 06/2010
Invited Speaker

Conference Activity, 48th Aerospace Sciences Meeting (Orlando, Florida) 01/2010
Reviewer, session chair, 'Combustion and Propellants' panel and 'Plasma Combustion Workshop' participation

Conference Activity, AFOSR Combustion Diagnostics Review Meeting (Washington D.C.) 06/2009
Invited Speaker

Conference Activity, 6th U.S. National Combustion Meeting (Ann Arbor, Michigan) 04/2009
Reviewer, podium presenter

Conference Activity, 48th Aerospace Sciences Meeting (Orlando, Florida) 01/2009
Reviewer, session chair, 'Plasma Combustion Workshop' participation

Conference Activity, 32nd International Combustion Symposium (Montreal, Canada) 08/2008
Reviewer, podium presenter

Conference Activity, 31st International Combustion Symposium (Heidelberg, Germany) 08/2006
Reviewer, podium presenter

Professional Journal and Academic Society Review Activities
Combustion and Flame
Combustion Science and Technology
Proceedings of the Combustion Symposium
Applied Optics
Applied Physics B
Journal of Heat Transfer

IEEE Transactions on Plasma Science
Applied Spectroscopy
Experimental Thermal and Fluid Sciences
Aerosol Science and Technology
Journal of Chemical Kinetics
Petroleum Research Fund (American Chemical Society)
Air Force Office of Scientific Research
Office of Naval Research
National Science Foundation
American Society of Mechanical Engineers

PROFESSIONAL SOCIETIES AND ASSOCIATIONS PARTICIPATION

Member of the Combustion Institute
Senior Member of the American Institute of Aeronautics and Astronautics (AIAA)
Member of the American Society for Engineering Education (ASEE)
Member of the American Society of Mechanical Engineers (ASME)
Member of the SAE International (SAE)

PUBLICATIONS: Full Articles in Refereed Journals

1. C. Allen, D. Valco, E. Toulson, T. Edwards, T. Lee, ***Ignition Behavior and Surrogate Modeling of JP-8 and of Camelina and Tallow Hydrotreated Renewable Jet Fuels at Low Temperatures***, Proc. Comb. Symp. 34, submitted (2012)
2. S. Hammack, S. Kostka, A. Lynch, C. Carter, T. Lee, ***High-Speed Simultaneous PLIF and Chemiluminescence of OH in a Microwave Plasma Enhanced Flame***, Proc. Comb. Symp. 34, submitted (2012)
3. S. Hammack, J. Gord, C. Carter, T. Lee, ***Nitric Oxide PLIF at 10 kHz in a seeded flow, a plasma discharge, and a flame***, Proc. Comb. Symp. 34, submitted (2012)
4. C. Allen, E. Toulson, T. Edwards, T. Lee, ***Application of a Novel Charge Preparation Approach to Testing the Autoignition Characteristics of JP-8 and Camelina Hydroprocessed Renewable Jet Fuel in a Rapid Compression Machine***, Combustion and Flame, submitted (2011)
5. Z. Williamson, D. Kim, D. Chun, C. Squibb, T. Lee, ***Evaluation of fin structure effects on a heated air-breathing polymer electrolyte membrane (PEM) fuel cell***, Int. J. Heat & Mass Trans., submitted (2011).
6. C. Allen, E. Toulson, D. Tepe, H. Schock, D. Miller, T. Lee, ***An Investigation of the Influence of Fatty Ester Composition on Biodiesel Combustion***, Biomass & Bioenergy, submitted (2011).
7. C. Allen, E. Toulson, D. Hung, H. Schock, D. Miller, T. Lee, ***Ignition Characteristics of Diesel and Canola Biodiesel Sprays in the Low Temperature Combustion Regime***, Energy & Fuels, 25 (7), 2895-2908 (2011).
8. S. Hammack, C. Carter, T. Lee, ***Direct Coupled Plasma Assisted Combustion using a Microwave Waveguide Torch***, IEEE Transactions, Special Issue on Plasma Science, 39, 12, 3300-3306 (2011).
9. Z. Williamson, D. Kim, D. Chun, C. Squibb, T. Lee, ***Experimental Evaluation of Cell Temperature Effects on Miniature Air Breathing Fuel Cells***, Applied Thermal Engineering, 31 (17-18), 3761-3767 (2011).
10. X. Rao, S. Hammack, T. Grotjohn, J. Asmussen, C. Carter, T. Lee, ***Microwave Plasma Coupled Re-Ignition of Methane and Oxygen Mixture under Auto-Ignition Temperature***, IEEE Transactions, Special Issue on Plasma Science, 39, 12, 3307-3313 (2011).
11. X. Rao, S. Hammack, C. Carter, T. Lee, ***Laser Diagnostics Imaging of Energetically Enhanced Flames using Direct Microwave Plasma Coupling***, IEEE Transactions on Plasma Science, 39, 11, 2354-2355 (2011).
12. E. Toulson, C. Allen, J. McFarlane, D. Miller, H. Schock, T. Lee, ***Modeling the Auto-Ignition of Fuel Blends with a Multi-Step Model***, Energy and Fuels, 25 (2), 632-639 (2011).
13. X. Rao, S. Hammack, C. Carter, I. Matveev, T. Lee, ***Combustion Dynamics of Plasma Enhanced Premixed and Non-Premixed Flames***, IEEE Transactions, Special Issue on Plasma Science, 38, 12, 3265-3271, (2010).
14. E. Toulson, C. Allen, D. Miller, T. Lee, ***Optimization of a Multi-step Model for the Autoignition of Dimethyl Ether in a Rapid Compression Machine***, Energy and Fuels, 24 (6), 3510-3516 (2010) .
15. X. Rao, K. Hemawan, C. Carter, I. Wichman, T. Grotjohn, J. Asmussen, T. Lee, ***Combustion Dynamics for Energetically Enhanced Flames using Microwave Energy Coupling***, Proc. Comb. Symp. 33, 2, 3233-3240

(2010).

16. C. Allen, G. Mittal, C.J. Sung, E. Toulson, T. Lee, ***An Aerosol Rapid Compression Machine for Studying Energetic-Nanoparticle-Enhanced Combustion of Liquid Fuels***, Proc. Comb. Symp. 33, 2, 3367-3374 (2010).
17. L. Ma, W. Cai, L. Kranendonk, T. Lee, ***Characterization of composite nanoparticles using an improved light scattering program for coated spheres***, Computer Physics Communications, 181, 978-984 (2010).
18. E. Toulson, C. Allen, D. Miller, T. Lee, ***Modeling the Auto-Ignition of Oxygenated Fuels using a Multi-Step Model***, Energy and Fuels, 24 (2), 888-896 (2010) .
19. X. Rao, I. Matveev, T. Lee, ***Nitric Oxide Formation in a Premixed Flame with High Level Plasma Energy Coupling***, IEEE Transactions, Special Issue on Plasma Science, 37, 12, 2303-2313 (2009).
20. K. Hemawan, I. Wichman, T. Lee, T. Grotjohn, J. Asmussen, ***Compact microwave re-enrant cavity applicator for plasma-assisted combustion***, Review of Scientific Instrument, 80, 053507 (1-9) (2009).
21. J. Yoo, T. Lee, J.B. Jeffries, R.K. Hanson, ***Detection of Trace Nitric Oxide Concentrations Using 1-D Laser-Induced Fluorescence imaging*** , Applied Physics B. 91, 661-667 (2008).
22. T. Lee, W. G. Bessler, J. Yoo, C. Schulz, J.B. Jeffries, R.K. Hanson, ***Fluorescence Quantum Yield of Carbon Dioxide for Quantitative UV Laser-Induced Fluorescence in high-pressure flames***, Applied Physics B. 93, 677-685 (2008).
23. T. Lee, J.B. Jeffries, R.K. Hanson, ***Experimental Evaluation of Strategies for Quantitative Laser-Induced-Fluorescence Imaging of Nitric Oxide in High-Pressure Flames (1−60bar)***, Proc. Comb. Inst. 31, 757-764 (2007).
24. T. Lee, W. G. Bessler, H. Kronemayer, C. Schulz, J. B. Jeffries, R. K. Hanson, ***Quantitative temperature measurements in high-pressure flames with multi-line NO-LIF thermometry***, Applied Optics 44-31, 6718-6728 (2005).
25. J.B. Jeffries, C. Schulz, D.W. Mattison, M.A. Oehlschlaeger, W.G. Bessler, T. Lee, D.F. Davidson, and R.K. Hanson, ***UV Absorption of CO_2 for Temperature Diagnostics of Hydrocarbon Combustion Applications***, Proc. Comb. Inst. 30, 1591-1599 (2005).
26. W.G. Bessler, M. Hofmann, F. Zimmermann, G. Suck, J. Jakobs, S. Nicklitzsch, T. Lee, J. Wolfrum, and C. Schulz. ***Quantitative in-cylinder NO-LIF imaging in a realistic gasoline engine with spray-guided direct injection***, Proc. Comb. Inst. 30, 2667-2674 (2005).
27. T. Lee, W.G. Bessler, C. Schulz, M. Patel, J. B. Jeffries, R. K. Hanson, ***UV Planar Laser Induced Fluorescence Imaging of Hot Carbon Dioxide in a High-Pressure Flame***, Appl. Phys. B **79**, 427-430 (2004).
28. W.G. Bessler, C. Schulz, T. Lee, J.B. Jeffries, R.K. Hanson, ***Carbon dioxide UV laser-induced fluorescence in high-pressure flames***, Chem. Phys. Lett. 375, 344-349 (2003).
29. W.G. Bessler, C. Schulz, T. Lee, J.B. Jeffries, R.K. Hanson, ***Strategies for laser-induced fluorescence detection of nitric oxide in high-pressure flames: III. Comparison of A-X Strategies***, Appl. Opt. 42-24, 4922-4936(2003).
30. W.G. Bessler, C. Schulz, T. Lee, J.B. Jeffries, R.K. Hanson, ***Strategies for laser-induced fluorescence detection of nitric oxide in high-pressure flames: II. A-X (0,1) excitation***, Appl. Opt. 42-12, 2031-2042 (2003).
31. W.G. Bessler, C. Schulz, T. Lee, J.B. Jeffries, R.K. Hanson, ***Strategies for laser-induced fluorescence detection of nitric oxide in high-pressure flames: I. A-X (0,0) excitation***, Appl. Opt. 41-18, 3547-3557 (2002).
32. W.G. Bessler, C. Schulz, T. Lee, D.-I. Shin, M. Hofmann, J. B. Jeffries, J. Wolfrum, R. K. Hanson, ***Quantitative NO-LIF imaging in high-pressure flames***, Appl. Phys. B 75, 97-102, 0946-2171. (2002).

PUBLICATIONS: Conference Proceedings

1. S. Hammack, T. Lee, C. Carter, ***Simultaneous Planar OH Imaging of Microwave Plasma Enhanced Combustion at 10 kHz***, 50th Aerospace Sciences Meeting, Nashville TN, Jan., AIAA-2012-0243 (2012).
2. Z. Williamson, D. Kim, D. Chun, C. Squibb, T. Lee, ***Experimental Evaluation of Cell Temperature Effects on Miniature, Air Breathing PEM Fuel Cells***, Proceedings of ASME 2011 5th International Conference on Energy Sustainability & 9th Fuel Cell Science, Engineering and Technology Conference, Washington D.C., (2011).
3. S. Hammack, X. Rao, C. Carter, Z. Williamson, T. Lee, ***Laser Diagnostics of Plasma Enhanced Flames in a Waveguide Microwave Discharge System***, 49th Aerospace Sciences Meeting, Orlando FL, Jan., AIAA-2011-1019 (2011).
4. C. Allen, E. Toulson, T. Lee, ***An Experimental Investigation of the Autoignition Characteristics of***

Camelina-Based Hydroprocessed Renewable Jet Fuel, 49th Aerospace Sciences Meeting, Orlando FL, Jan., AIAA-2011-0604 (2011).

5. X. Rao, K. Hemawan, C. Carter, T. Grotjohn, J. Asmussen, T. Lee, ***Plasma Enhanced Combustion using Microwave Energy Couping in a Re-entrant Cavity Applicator***, paper AIAA-2010-0651 at 48th Aerospace Sciences Meeting, Orlando FL, Jan. (2010).
6. C. Allen, T. Lee, ***Energetic-Nanoparticle-Enhanced JP-8 Combustion in an Aerosol Rapid Compression Machine***, 6th U.S. National Combustion Meeting, Ann Arbor MI, May. (2009).
7. C. Allen, T. Lee, ***Energetic-Nanoparticle-Enhanced Combustion of Liquid Fuels in a Rapid Compression Machine***, paper AIAA-2009-0227 at 47th Aerospace Sciences Meeting, Orlando FL, Jan. (2009).
8. X. Rao, I. Matveev, T. Lee, ***Nitric Oxide Fomation during Ignition and Combustion of a Transient Arc Plasmatron***, paper AIAA-2009-0228 at 47th Aerospace Sciences Meeting, Orlando FL, Jan. (2009).
9. J. Yoo, T. Lee, J.B. Jeffries, R.K. Hanson, ***Detection of trace NO concentration using 1-D NO-LIF imaging***, The 2007 Joint Meeting of the US sections of the combustion institute, University of California San Diego, CA. (2007).
10. T. Lee, W.G. Bessler, H. Kronemayer, C.Schulz, J.B. Jeffries, R.K. Hanson, ***Quantitative temperature measurements in high-pressure flames with multi-line nitric oxide (NO)-LIF thermometry***, The 2005 Joint Meeting of the US sections of the combustion institute, Drexel University, PA. (2005).
11. W. G. Bessler, H. Kronemayer, C. Schulz , T. Lee, J. B. Jeffries, and R. K. Hanson, ***Quantitative multi-line NO-LIF temperature imaging in flames over a wide pressure range,*** in Laser Applications to Chemical and environmental analysis, OSA Technical Digest Series (Optical Society of America, Washington, DC, 2004).
12. G. Suck, J. Jakobs, S. Nicklitzsch, T. Lee, W. G. Bessler, M. Hofmann, F. Zimmermann, C. Schulz, ***NO laser-induced fluorescence imaging in the combustion chamber of a spray-guided direct-injection gasoline engine***, SAE 04SFL-102 (2004).
13. T. Lee, J.B. Jeffries, R.K. Hanson, W.G. Bessler, C. Schulz, ***Carbon dioxide UV laser-induced fluorescence imaging in high-pressure flames***, paper AIAA-2004-0386 at 42nd Aerospace Sciences Meeting, Reno (AIAA) , NV, Jan. (2004).
14. W.G. Bessler, T. Lee, C. Schulz, J.B. Jeffries, R.K. Hanson, ***Strategies for quantitative NO-concentration and temperature measurements by NO LIF in high pressure flames***, 3rd Joint Meeting of the US sections of the combustion institute, Chicago, (2003).
15. W.G. Bessler, T. Lee, C. Schulz, J.B. Jeffries, R.K. Hanson, ***UV laser-induced fluorescence of carbon dioxide in high-pressure flames***, 3rd Joint Meeting of the US sections of the combustion institute, Chicago, (2003).
16. T. Lee, J.B. Jeffries, R.K. Hanson, W.G. Bessler, C. Schulz, ***Quantitative NO-LIF Temperature Imaging in High-Pressure Flames***, paper AIAA-2003-0583 41st Aerospace Sciences Meeting, Reno, NV, Jan. (2003).
17. T. Lee, D.-I. Shin, J.B. Jeffries, R.K. Hanson, W.G. Bessler, C. Schulz, ***Laser-Induced Fluorescence Detection of NO in High-pressure Flames with A-X(0,0), (0,1), and (0,2) excitation***, paper AIAA-2002-0399 at 40th Aerospace Sciences Meeting, Reno, NV, Jan. (2002).
18. W.G. Bessler, C. Schulz, T. Lee, D.-I. Shin, M. Hofmann, J.B. Jeffries, J. Wolfrum, R.K. Hanson, ***Quantitative NO-LIF imaging in high-pressure flames***, First International Conference on Optical and Laser Diagnostics (ICOLAD), City University, London. 16-20 Dec., (2002).
19. W.G. Bessler, C. Schulz, D.-I. Shin, T. Lee, J.B. Jeffries, R.K. Hanson, ***Strategies for NO Laser-Induced Fluorescence in Methane/Air Flames at Pressures between 1 and 60 bar***, in Laser Applications to Chemical and Environmental Analysis, OSA Technical Digest Series (Optical Society of America, Washington DC, Feb., (2002).
20. W.G. Bessler, C. Schulz, T. Lee, J.B. Jeffries, R.K. Hanson, ***Laser-induced-fluorescence detection of nitric oxide in high-pressure flames with A-X(0,1) excitation***, Western States Section of the Combustion Institute, Spring Meeting, Oakland, CA. (2001).

Presentations (*invited)

1. ***Simultaneous Planar OH Imaging of Microwave Plasma Enhanced Combustion at 10 kHz***, 50th Aerospace Sciences Meeting, Nashville TN, Jan. (2012)
2. ****Laser Diagnostics of Plasma Enhanced Flames and Oxidation of Bio-Derived Fuels***, MechSE Seminar Series, University of Illinois at Urbana Champaign, Dec. (2012)
3. ****Laser Diagnostics of Plasma Enhanced Flames and Oxidation of Bio-Derived Fuels***, AE Seminar Series, Georgia Institute of Technology, Dec. (2012)
4. ****Ignition and Oxidation of Bio-Derived Future Naval Fuels***, ONR Alternative Fuels Program Review Meeting, Arlington VA., Nov., (2011)

5. ***Laser Diagnostics of a Direct Coupled Plasma Discharge for Combustion Enhancement***, NASA-Air Force Hypersonics Conference, Williamsburg VA, Jun., (2011).
6. ***Laser Diagnostics of Plasma Enhanced Flames in a Waveguide Microwave Discharge System***, 49th Aerospace Sciences Meeting, Orlando FL, Jan. (2011).
7. ***An Experimental Investigation of the Autoignition Characteristics of Camelina-Based Hydroprocessed Renewable Jet Fuel***, 49th Aerospace Sciences Meeting, Orlando FL, Jan. (2011).
8. ***Direct Coupled Plasma Discharge for Combustion Enhancement***, NASA-Air Force Hypersonics Conference, NASA GLENN, June, (2010).
9. ***Plasma Enhanced Combustion using Microwave Energy Couping in a Re-entrant Cavity Applicator***, paper AIAA-2010-0651 at 48th Aerospace Sciences Meeting, Orlando FL, Jan. (2010).
10. ***Laser Diagnostics of Plasma Enhanced Flames***, AFOSR Combustion Diagnostics Review Meeting, Air Force Office of Scientific Research, Washington DC, June, (2010).
11. ***Energetic-Nanoparticle-Enhanced Combustion of Liquid Fuels in a Rapid Compression Machine,*** 47th Aerospace Sciences Meeting, Orlando FL, Jan. (2009)
12. ***Nitric Oxide Fomation during Ignition and Combustion of a Transient Arc Plasmatron,*** 47th Aerospace Sciences Meeting, Orlando FL, Jan. (2009)
13. ***Laser Diagnostics in High Pressure Propulsion Systems***, Department of Mechanical Engineering, Marquette University (11/2008)
14. ***Laser Diagnostics of Novel Fuels in High Pressure Combustion Environments***, Department of Mechanical Engineering, Case Western Reserve Seminar Series (11/2007)
15. ***Laser Diagnostics of Novel Fuels in High Pressure Combustion Environments***, Sloan Automotive Laboratory, Massachusetts Institute of Technology, (07/2007)
16. ***Laser Diagnostics of Plasma Energy Coupling to High Pressure Combustion Environments***, Plasma Science and Fusion Center Seminar, Massachusetts Institute of Technology, (07/2007)
17. ***Strategies for UV Nitric Oxide LIF Imaging in High-Pressure Combustion Systems***, Plasma Institute, Department of Mechanical Engineering, Drexel University (11/2006)
18. ***Strategies for UV Nitric Oxide LIF Imaging in High-Pressure Combustion Systems***, High Pressure Combustion Laboratory Seminar, Department of Mechanical and Nuclear Engineering, The Pennsylvania State University (12/2006)
19. T. Lee, J.B. Jeffries, R.K. Hanson, ***Experimental Evaluation of Strategies for Quantitative Laser-Induced-Fluorescence Imaging of Nitric Oxide in High-Pressure Flames (1−60bar)***, 31st International Symposium on Combustion, University of Heidelberg (08/2006).
20. ***Strategies for UV Nitric Oxide LIF Imaging in High-Pressure Combustion Systems***, CRF Seminar, Sandia National Labs (10/2005)
21. ***Quantitative temperature measurements in high-pressure flames with multi-line nitric oxide (NO)-LIF thermometry***, The 2005 Joint Meeting of the US sections of the combustion institute, Drexel University, PA (03/2005).
22. ***Carbon Dioxide UV-LIF in High Pressure Flames***, The Thermal and Fluid Sciences Affiliates Conference, Stanford University USA (02/2004)
23. ***Laser Based Diagnostics for Gaseous Flows***, TSD Thermosciences Seminar, Thermosciences Division, Stanford University USA (Spring/2003)
24. ***Carbon Dioxide UV-LIF in High Pressure Flames***, Gordon Research Conference on Combustion Laser Diagnostics, Oxford University UK (08/2003)
25. ***Quantitative Temperature Imaging in High-Pressure Flames with Multi-Line Laser-Induced Fluorescence of NO***, Gordon Research Conference on Combustion Laser Diagnostics, Oxford University UK (08/2003)
26. ***Quantitative Multi-line Temperature Imaging in High Pressure Flames A-X(0,0), (0,1), and (0,2) excitation***, AIAA 41st Aerospace Sciences Meeting, Reno, NV. (01/2003)
27. ***Quantitative Imaging of Nitric Oxide in High Pressure Flames***, TSD Thermosciences Seminar, Thermosciences Division, Stanford University (Spring/2002)
28. ***LIF of Nitric Oxide in High Pressure Flames***, TSD Thermosciences Seminar, Thermosciences Division, Stanford University (Fall/2001)