

Dr. Daniel B. Olsen, P.E.


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EDUCATION

Ph.D. Mechanical Engineering, Colorado State University, May 1999

MS Mechanical Engineering, Oregon State University, March 1990

BS Physics, Eastern Oregon State College, June 1987

P.E. License, State of Colorado, #38140, inactive.

EXPERIENCE

Associate Professor, Mechanical Engineering Department

Colorado State University, Fort Collins, CO, August 2006 to Present

Research in the area of applied thermal science. Project management, engineering analysis, experimental evaluation, data analysis, and report and proposal writing in support of industrial natural gas engine (bore 20 to 48 cm) research programs. Teaching duties include Introduction to Thermal Science MECH237, Thermodynamics MECH337, Mechanics and Thermodynamics of Flow Processes MECH342, Heat and Mass Transfer MECH344, Introduction to Internal Combustion Engines MECH437, Vapor Power Systems MECH481A2, Thermodynamics MECH538, Turbomachinery MECH557, and Theory/Control - Internal Combustion Engines ME661. Emphasis of research is to reduce emissions and increase efficiency for industrial natural gas engines.

Consulting, 1999 - present

Los Alamos National Labs: Performed thermal analysis, heat exchanger modeling, and heat exchanger design in support of thermo-acoustic natural gas liquefier development.

Cryenco, Inc.: Consulting in support of a DOE 500 gpd natural gas liquefier program. Functioned as an integral part of design team at Cryenco, with primary responsibility for design of the natural gas burner subsystem.

Enginuity, LLC: Performed compressible flow analysis in support of natural gas fuel injector design.

Advanced Engine Technologies Corporation: Analytical and modeling in support of program with Orange County Sanitation District to reduce formaldehyde emissions from large bore 4-stroke engines used for power generation.

Coerr Environmental Corporation: Write technical memorandum titled "Pilot Fuel Ignition Systems for Reciprocating Internal Combustion Natural Gas Engines" ultimately to be used for EPA input in the classification of engines operating with pilot fuel ignition systems.

Malcolm Pirnie, Inc.: Performed review of Catalytic Oxidizer/Gas Cleaning Drawing Package.

Wärtsilä Automation North America, Inc.: Safety review of retrofit Bi-Fuel system for Diesel engines.

Davis, Graham, & Stubbs LLP: Testified as an expert witness in O₃-zone rulemaking hearing.

Dresser-Rand Enginuity: Provide technical and market analysis for specification of electronic prechamber fuel valve.

Research Scientist, Engines and Energy Conversion Laboratory, www.engr.colostate.edu/eecl/

Colorado State University, Fort Collins, CO, May 1999 to August 2006

Research in the area of applied thermal science. Project management, engineering analysis, experimental evaluation, data analysis, and report and proposal writing in support of industrial natural gas engine (bore 20 to 48 cm) research programs. Teaching duties include Introduction to Thermal Science ME237 and ME337, Heat and Mass Transfer ME344, and Introduction to Internal Combustion Engines ME437.

Ph.D. Candidate/Research Assistant in Mechanical Engineering (Thermal Science)

Colorado State University, Fort Collins, CO, June 1995 to May 1999

Research in the area of combustion science. Ph.D. dissertation title: "Experimental and Theoretical Development of a Tracer Gas Method for 2-Stroke and 4-Stroke Internal Combustion Engines". Dissertation work includes

tracer gas chemical kinetic modeling with Chemkin-II and application of the tracer gas method for measuring trapping efficiency to a large-bore 2-stroke natural gas IC engine and an automotive size 4-stroke gasoline IC engine.

Experience with a Superflow SF-730 data acquisition system, SF-801 water brake dynamometer, and engine combustion analysis. Projects not directly related to dissertation include preliminary design of an engine humidity control system, flow visualization of gas fuel injector flow with bromine gas, IC engine model development for a 6-stroke cycle, and formaldehyde formation analysis in natural gas IC engines. Carried out literature reviews on formaldehyde formation in large-bore natural gas engines and on mixing in large-bore natural gas engines. Participated in in-cylinder sampling testing on large-bore natural gas engine to study formaldehyde formation and scavenging. Other projects include a literature review on parametric emission monitoring (PEMS), catalyst testing and evaluation on a large-bore natural gas engine, and data analysis and report writing for in-cylinder sampling test data.

Mechanical Engineer, Fluid Handling Product Development

Micropump Corporation, Vancouver, WA, February 1994 to May 1995

Lead engineer for development of centrifugal pumps for cooling x-ray tubes; participated in developing a low flow piston pump for chemical metering and gear pumps for kidney dialysis machines; developed a gear pump controlled with an integral oval gear flowmeter.

Design Engineer, Mechanical Cryocooler Development

Ball Aerospace, Boulder, CO, March 1992 to February 1994

Performed contamination analysis (included diffusion analysis to predict outgassing of nonmetallics, testing gas samples with a gas chromatograph (GC), and analyzing GC test data to identify and quantify contamination constituents), flexural bearing characterization, and fault tree reliability analysis on a 30 Kelvin Stirling cryocooler; wrote a Quick BASIC program for communicating with the cryocooler electronics module via an RS-232 interface; mechanical design and thermal and vibration analysis for integrating a Stirling cryocooler to a germanium sensor; contamination analysis and gas purification system sizing and testing for a 3.5 W 65 K Joule-Thompson cryocooler.

Engineer, Mechanical Cryocooler Development

Stirling Technology Company, Richland, WA, March 1990 to February 1992

Responsibility for design, analysis, test and evaluation of thermodynamic, mechanical and electromechanical systems; layout design, support analysis, detail design, assembling, testing and evaluation for dual opposed Stirling cryocooler compressors; designed a vibration balance motor for an 80 K Stirling cryocooler expander; thermodynamic and vibration testing for an 80 K Stirling cryocooler; developed a 1/3 W, 80 K pulse tube cryocooler (included numerical modeling, parametric design, layout design, detail design, assembly, instrumenting, test and evaluation, and report writing).

Masters Student/Teaching Assistant, Mechanical Engineering

Oregon State University, Corvallis, OR, October 1988 to March 1990

Teaching Assistant in the Mechanical Engineering Department. Masters Project was to analyze the dynamic stability of a man powered three wheel vehicle by solving the system differential equation set, mapping the effects of design parameters on stability, and proposing adjustments to the design.

Engineer, Compressor Design

University of Washington Tri-Cities, Richland, WA, June 1989 to Dec. 1989

Layout design, support analysis, detail design, assembly, testing and evaluation for a Stirling cryocooler research compressor.

Research Engineer, Semi-conductor Device Analysis

Matrix Sciences Inc., Richland, WA, Dec. 1988 to Sept. 1989

Semiconductor device (solar cell) testing; computer code development for numerical analysis of semi-conductor performance.

NORCUS Appointee, Computer Programming

Battelle Northwest, Richland, WA, June 1987 to Oct. 1987

FORTRAN computer code development on a VAX computer for numerical simulation in radiation dosimetry; data analysis of computer generated data.

NORCUS Appointee, Engineering Assistant

United Nuclear Corp., Richland, WA, June 1985 to Sept. 1985

Lotus 123-program development for inventory on cranes and hoists; drafting and detail design for an electric motor test stand.

PATENTS

Carl D. Beckett, Kevin O'Hara, Daniel B. Olsen, Steven E. Soar, and Glenn E. Siemer, "Axial Cam Driven Valve Arrangement for an Axial Cam Driven Parallel Piston Pump System", U.S. Patent No. 5,733,105, March 31, 1998.

Carl D. Beckett, Kevin O'Hara, and Daniel B. Olsen, "Rotary Control Valve for a Piston Pump", U.S. Patent No. 5,718,570, Feb. 17, 1998.

Todd Bandhauer, Thomas Bradley, Daniel B. Olsen, Troy Holland, and Jonas Alder, "Ultra-high temperature engine waste heat recovery system", U.S. Patent No. 62, 146, 699, April 13, 2015.

PUBLICATIONS

JOURNALS

1. Olsen, D. B., Puzinauskas, P. and Dautrabande, O., "Development and Evaluation of Tracer Gas Methods for Measuring Trapping Efficiency in 4-Stroke Engines", *SAE Transactions*, Volume 107-4, Paper No. 981382, 1998.
2. Mitchell, Charles E. and Olsen, Daniel B., "Formaldehyde Formation in Large Bore Natural Gas Engines Part 1: Formation Mechanisms", *Journal of Engineering for Gas Turbines and Power*, Volume 122, Issue 4, pp. 603-610, October 2000.
3. Olsen, Daniel B. and Mitchell, Charles E., "Formaldehyde Formation in Large Bore Engines Part 2: Factors Affecting Measured CH₂O", *Journal of Engineering for Gas Turbines and Power*, Volume 122, Issue 4 pp. 611-616, October 2000.
4. Olsen, Daniel B., Holden, Jason C., Hutcherson, Gary C. and Willson, Bryan D., "Formaldehyde Characterization Utilizing In-Cylinder Sampling in a Large Bore Natural Gas Engine", *Journal of Engineering for Gas Turbines and Power*, Volume 123, Issue 3, pp. 669-676, July 2001.
5. Olsen, D. B., Hutcherson, G. C., Willson, B. D., and Mitchell, C. E., "Development of the Tracer Gas Method for Large Bore Natural Gas Engines: Part 1 – Method Validation", *Journal of Engineering for Gas Turbines and Power*, Volume 124, Issue 3 pp. 678-685, July 2002.
6. Olsen, D. B., Hutcherson, G. C., Willson, B. D., and Mitchell, C. E., "Development of the Tracer Gas Method for Large Bore Natural Gas Engines: Part 2 – Measurement of Scavenging Parameters", *Journal of Engineering for Gas Turbines and Power*, Volume 124, Issue 3 pp. 686-694, July 2002.
7. Puzinauskas, P.V., Olsen, D.B. and Willson, B.D., "Mass Integration of Fast-Response NO Measurements for a Two-Stroke Large-Bore Natural Gas Engine", *International Journal of Engine Research*, Vol. 4, No. 3, 2003.
8. Puzinauskas, P.V., Olsen, D.B. and Willson, B.D., "Cycle Resolved NO Measurements in a Two-Stroke Large Bore Natural Gas Engine", *Journal of Engineering for Gas Turbines and Power*, Vol. 126, 2004.
9. DeFoort, M., Olsen, D. and Willson, B., "The Effect of Air/Fuel Ratio Control Strategies on Nitrogen Compound Formation in 3-Way Catalysts", *International Journal of Engine Research*, Vol. 5, No. 1, 2004.
10. K Evans, D Olsen, and B Willson, "Fuel and Ignition Control Methodologies for Engines with Articulated Connecting Rods", *International Journal of Engine Research*, Vol. 6, No. 3, pp. 207-214, 2005.

11. Jessica Adair, Daniel Olsen and Allan Kirkpatrick, "Exhaust Tuning for Large Bore 2-Stroke Cycle Natural Gas Engines", *International Journal of Engine Research*, Vol. 7, Issue 2, pp. 131-141, Apr. 2006.
12. Jess W. Gingrich, Daniel B. Olsen, Paulius Puzinauskas and Bryan D. Willson, "Precombustion Chamber NOx Emission Contribution to an Industrial High-Speed, Natural Gas Engine", *International Journal of Engine Research*, Vol. 7 Issue 1, pp. 41-49, Feb. 2006.
13. Olsen, D.B. and Kirkpatrick, A.T., "Experimental Examination of Prechamber Heat Release in a Large Bore Natural Gas Engine", *Journal of Engineering for Gas Turbines and Power*, Vol. 130, No. 5, September 2008.
14. Olsen, D.B. and Lisowski, J.M., "Prechamber NOx formation in low BMEP 2-stroke cycle natural gas engines", *Applied Thermal Engineering*, Vol. 29, pp. 687-694, 2009.
15. Malenshek M., Olsen D.B., "Methane number testing of alternative gaseous fuels", *Fuel*, Volume 88, pp. 650-656, 2009.
16. Sachin Joshi, Daniel B. Olsen, Cosmin Dumitrescu, Paulius V. Puzinauskas, Azer P. Yalin, "Laser Induced Breakdown Spectroscopy for In-Cylinder Equivalence Ratio Measurements in Laser Ignited Natural Gas Engines", *Applied Spectroscopy*, Volume 63, Number 5, 2009.
17. Simpson, D. and Olsen, D.B., "Precombustion Chamber Design for Low NOx Emissions from Large Bore NG Engines" *Journal of Engineering for Gas Turbines and Power*, Vol. 132, No. 12, August 2010.
18. Olsen, Daniel B., Kohls, Morgan and Arney, Gregg, "Impact of Oxidation Catalysts on Exhaust NO2/NOx Ratio from Lean-burn Natural Gas Engines", *Journal of the Air & Waste Management Association*, Volume 60, July 2010.
19. Joshua Schmitt and Daniel B. Olsen, "Control of an Industrial SCR Catalyst Using Ceramic NOx Sensors", *Energy and Power Engineering*, Vol. 3, pp. 317-324, 2011.
<http://www.scirp.org/journal/PaperInformation.aspx?PaperID=6435>
20. Daniel B. Olsen and Bryan D. Willson, "The Effect of Retrofit Technologies on Formaldehyde Emissions from a Large Bore Natural Gas Engine", *Energy and Power Engineering*, Vol. 3, pp. 574-579, 2011.
<http://www.scirp.org/journal/PaperInformation.aspx?PaperID=7390>
21. David A Hodgson, Peter M Young, Charles W Anderson, Douglas C Hittle, William S Duff, and Daniel B Olsen, "Using Steady State Predictions to Improve the Transient Response of a Water to Air Heat Exchanger", *ASHRAE Transactions*, Vol. 118, No. 2, 2012.
22. Mathew D. Ruter, Daniel B. Olsen, Mark V. Scotto and Mark A. Perna, "NOx Reduction from a Large Bore Natural Gas Engine via Reformed Natural Gas Prechamber Fueling Optimization", *Fuel*, Vol. 91, pp. 298-306, 2012.
23. Aparna Arunachalam and Daniel B. Olsen, "Experimental Evaluation of Knock Characteristics of Producer Gas", *Biomass and Bioenergy*, Vol. 37, pp.169-176, February 2012.
24. A. Lakshminarayanan, D. B. Olsen, and P.E. Cabot, "Performance and Emission Evaluation of Triglyceride-Gasoline Blends in Agricultural Compression Ignition Engines", *Applied Engineering in Agriculture*, Vol. 30 (4), pp. 523-534, 2014.
25. Nettles-Anderson, S., Olsen, D.B., Johnson, J.J. and Enjalbert, J.-N., "Performance of a Direct Injection IC Engine on SVO and Biodiesel from Multiple Feedstocks", *Journal of Power and Energy Engineering*, Vol. 2, No. 8, 2014. <http://dx.doi.org/10.4236/jpee.2014.28001>.
26. A. Drenth, D. B. Olsen, P. E. Cabot, and J. J. Johnson, "Compression Ignition Engine Performance and Emission Evaluation of Industrial Oilseed Biofuel Feedstocks Camelina, Carinata, and Pennycress Across Three Fuel Pathways", *Fuel*, Vol. 136, pp. 143-155, 2014.
27. Brie Hawley, Christian L'Orange, Daniel B. Olsen, Anthony J. Marchese, and John Volckens. "Oxidative Stress and Aromatic Hydrocarbon Response of Human Bronchial Epithelial Cells Exposed to Petro- or Biodiesel Exhaust Treated with a Diesel Particulate Filter", *Toxicological Sciences*, July 2014.
28. Clay Bell, Daniel Zimmerle, Daniel Olsen, Thomas Bradley, and, Peter Young, "Dynamic Turbocharged Diesel Engine Model with Experimental Validation", *Journal of Engineering for Gas Turbines and Power*, Manuscript in Review, Submitted June 2015.

29. Wan Nurdiyana Wan Mansor, Daniel Olsen, and Jennifer Vaughn, "Computation Modeling of Diesel and Dual Fuel Engine Using Converge CFD", *Jurnal Teknologi*, Vol. 72, No. 1, 2015.
30. A.C. Drenth, D.B. Olsen, and K. Deneff, "Fuel property quantification of triglyceride blends with an emphasis on industrial oilseeds camelina, carinata, and pennycress", *Fuel*, Vol. 153, pp. 19-30, August 2015.
31. Marc E. Baumgardner, Timothy L. Vaughn, Arunachalam Lakshminarayanan, Daniel Olsen, Matthew A. Ratcliff, Robert L. McCormick, and Anthony J. Marchese, "Combustion of Lignocellulosic Biomass Based Oxygenated Components in a Compression Ignition Engine", *SAE Transactions*, Vol. 29 (11), pp. 7317-7326, September 2015.
32. A. C. Drenth, K. Deneff, P. E. Cabot, and D. B. Olsen, "Evaluation of Industrial Corn Oil as an On-Farm Biofuel Feedstock", *Applied Engineering in Agriculture*, Vol. 31 (5), 2015.
33. Wan Nurdiyana W.M, Jennifer V. and Daniel O., "Effects of Diesel Displacement on the Emissions Characteristics of a Diesel Derivative Dual Fuel Engine", *Journal of Engineering and Applied Sciences*, Asian Research Publishing Network, Vol. 10, No. 20, November, 2015.
34. Clay Bell, Daniel Zimmerle, Thomas Bradley, Daniel Olsen, and Peter Young, "Scalable turbocharger performance maps for dynamic state-based engine models", *International Journal of Engine Research*, Vol. 17 (7), pp. 705-712, 2016.
35. Juan Pablo GÓMEZ MONTOYA, Andrés A. AMELL, and Daniel B. OLSEN, "Prediction and measurement of the critical compression ratio and methane number for blends of biogas with methane, propane and hydrogen", *Fuel* (accepted/in press), 2016.

CONFERENCE PROCEEDINGS

36. Olsen, D. B., Riggle, P. and Gedeon, D., "The Development of a Low Vibration, Long Life Pulse Tube Employing Flexural Bearings", Proceedings of the 27th Intersociety Energy Conversion Engineering Conference, 1992.
37. Olsen, D. B. and Mitchell, C. E., "Factors Affecting Measured Formaldehyde Emission in Large Bore Natural Gas Engines", Proceedings ASME-ICE Spring Technical Conference, ICE-Vol. 30-1, Paper No. 98-ICE-80, 1998.
38. Mitchell, C. E. and Olsen, D. B., "Formaldehyde Formation Mechanisms in Large Bore Natural Gas Engines", Proceedings ASME-ICE Spring Technical Conference, ICE-Vol. 30-1, Paper No. 98-ICE-81, 1998.
39. Olsen, D. B., Holden, J. C., Hutcherson, G. C., and Willson, B. D., "Formaldehyde Characterization Based on In-Cylinder Sampling", Proceedings of the GRI Gas Industry Air Toxics Conference, 1999.
40. Olsen, D. B., Holden, J. C., Hutcherson, G. C., and Willson, B. D., "Formaldehyde Characterization Utilizing In-Cylinder Sampling in a Large Bore Natural Gas Engine", Proceedings ASME-ICE Spring Technical Conference, ICE-Vol. 34-1, Paper No. 2000-ICE-254, 2000.
41. Olsen, D. B., Hutcherson, G. C., Willson, B. D., and Mitchell, C. E., "Development of the Tracer Gas Method for Large Bore Natural Gas Engines: Part 1 – Method Validation", Proceedings ASME-ICE Spring Technical Conference, ICE-Vol. 34-1, Paper No. 2000-ICE-255, 2000.
42. Olsen, D. B., Hutcherson, G. C., Willson, B. D., and Mitchell, C. E., "Development of the Tracer Gas Method for Large Bore Natural Gas Engines: Part 2 – Measurement of Scavenging Parameters", Proceedings ASME-ICE Spring Technical Conference, ICE-Vol. 34-1, Paper No. 2000-ICE-256, 2000.
43. Steyskal, Michele, Olsen, Daniel and Willson, Bryan, "Development of PEMS Models for Predicting NO_x Emissions from Large Bore Natural Gas Engines, SAE International Spring Fuels & Lubricants, Special Publication SP-1625, Paper No. 2001-01-1914, 2001.
44. Daniel B. Olsen, Dan B. Mastbergen, and Bryan D. Willson, "Investigation of the Fuel Injection Process For Large Bore NG Engines: Part 1 PLIF Imaging", GMRC Gas Machinery Conference, Austin, Texas, October 2001.
45. Olsen, Daniel B., Mastbergen, Dan B., and Willson, Bryan D., "Planar Laser Induced Fluorescence Imaging of Gas Injection from Fuel Valves for Large Bore Natural Gas Engines", Proceedings ASME-ICE Fall Technical Conference, Vol. 37, No. 2, pp. 17-24, Paper No. 2001-ICE-409, 2001.

46. Olsen, Daniel B. and Willson, Bryan D., "The Effect of Parametric Variations on Formaldehyde Emissions from a Large Bore Natural Gas Engine", Proceedings ASME-ICE Spring Technical Conference, ICE-Vol. 38, Paper No. 2002-ICE-446, 2002.
47. Daniel B. Olsen and Bryan D. Willson, "The Impact of Cylinder Pressure on Fuel Jet Penetration and Mixing", GMRC Gas Machinery Conference, Nashville, Tennessee, October 2002.
48. Paul Pusinauskas, Daniel B. Olsen and Bryan D. Willson, "Fast NO Measurements in a Two-Stroke Large Bore Natural Gas Engine", GMRC Gas Machinery Conference, Nashville, Tennessee, October 2002.
49. Morgan DeFoort, Daniel Olsen and Bryan Willson, "The Effect of Air/Fuel Ratio Control Strategies on Nitrogen Compound Formation in NSCR Catalysts", GMRC Gas Machinery Conference, Nashville, Tennessee, October 2002.
50. Morgan DeFoort, Daniel Olsen and Bryan Willson, "Performance Evaluation of Oxidation Catalysts for Natural Gas Reciprocating Engines", GMRC Gas Machinery Conference, Nashville, Tennessee, October 2002.
51. Olsen, Daniel B. and Willson, Bryan D., "The Impact of Cylinder Pressure on Fuel Jet Penetration and Mixing", Proceedings ASME-ICE Fall Technical Conference, Vol. 39, pp. 233-239, Paper No. ICEF2002-502, 2002.
52. Adair, J., Kirkpatrick, A., Olsen, D.B. and Gitano-Briggs, H., "Simulation of the Airflow Characteristics of a Two-Stroke Natural Gas Engine with an Articulated Crank", ASME ICE Spring Technical Conference, #ICES2003-552, 2003.
53. Jacob Brown, John Mizia, Daniel B. Olsen and Bryan D. Willson, "On-Engine Demonstration of Micro-Pilot Ignition System for a Cooper-Bessemer GMV-4TF", Proceedings ASME-ICE Fall Technical Conference, Sept. 2003.
54. Jess W. Gingrich, Daniel B. Olsen, Bryan D. Willson, and Paulius Puzinauskas, "Precombustion Chamber NO_x Emission Contribution to an Industrial, High-Speed, Natural Gas Engine", GMRC Gas Machinery Conference, Salt Lake City, Utah, October 2003.
55. Daniel Olsen, Morgan DeFoort, Bryan Willson, Gregg Arney and Laura Kinner, "Measurement of NSCR Reduction Efficiencies for HAPS, PAH, and BTEX Compounds", GMRC Gas Machinery Conference, Salt Lake City, Utah, October 2003.
56. Daniel B. Olsen and Bryan D. Willson, "Experimental Evaluation of Fuel Injector Nozzles in a Large Bore Optical Engine", GMRC Gas Machinery Conference, Salt Lake City, Utah, October 2003.
57. Kirk Evans, Daniel Olsen and Bryan Willson, "Fuel & Ignition Control for Articulated Engine Bank Optimization", GMRC Gas Machinery Conference, Salt Lake City, Utah, October 2003.
58. Scott A. Chase, Daniel B. Olsen, and Bryan D. Willson, "Investigation of Micro-Pilot Fuel Ignition System for Large Bore Natural Gas Engines", GMRC Gas Machinery Conference, Albuquerque, NM, October, 2004.
59. Joel Lentz, Jeff Hoss, Daniel Olsen & Bryan Willson, "Mixing & Combustion Investigations in a Large Bore Optical Engine", GMRC Gas Machinery Conference, Albuquerque, NM, October, 2004.
60. David L. Ahrens, Azer P. Yalin, Daniel B. Olsen, and Gi-Heon Kim, "Development of an Open Path Laser Ignition System for a Large Port Natural Gas Engine: Part 1 System Design", ASME Internal Combustion Engine Division 2005 Spring Technical Conference, Paper # ICES2005-1060, April 5-7, 2005, Chicago, IL.
61. Daniel B. Olsen, Jessica L. Adair, and Bryan D. Willson, "Precombustion Chamber Design and Performance Studies for a Large Bore Natural Gas Engine", ASME Internal Combustion Engine Division 2005 Spring Technical Conference, Paper # ICES2005-1057, April 5-7, 2005, Chicago, IL.
62. Allan Kirkpatrick, Gi-Heon Kim and Daniel Olsen, "CFD Modeling of the Performance of a Prechamber for Use in a Large Bore Natural Gas Engine", ASME Internal Combustion Engine Division 2005 Spring Technical Conference, Paper # ICES2005-1049, April 5-7, 2005, Chicago, IL.
63. David L. Ahrens, Daniel B. Olsen, and Azer P. Yalin, "Development of an Open Path Laser Ignition System for a Large Port Natural Gas Engine: Part 2 Single Cylinder Demonstration", ASME Internal Combustion Engine Division 2005 Fall Technical Conference, Paper # ICES2005-1317, September 11-14, 2005, Ottawa, Canada.

64. Azer P. Yalin, Morgan W. Defoort, Sachin Joshi, Daniel Olsen, Bryan Willson, Yuji Matsuura and Mitsunobu Miyagi, "Laser Ignition of Natural Gas Engines using Fiber Delivery", ASME Internal Combustion Engine Division 2005 Fall Technical Conference, Paper # ICEF 2005-1336, September 11-14, 2005, Ottawa, Canada.
65. Daniel B. Olsen, Kirk Evans and Mark Noall, "Field Application of Micro-Liter Diesel Pilot Ignition to a Worthington SUTC Large Bore Natural Gas Engine", GMRC Gas Machinery Conference, Covington, Kentucky, October 2005.
66. Justin M. Lisowski, Daniel B. Olsen, and Azer P. Yalin, "Visible Flame Imaging of Prechamber Initiated Combustion in a Large Bore Natural Gas Engine", GMRC Gas Machinery Conference, Oklahoma City, OK, October 2006.
67. Daniel B. Olsen, Ryan K. Palmer, and Charles E. Mitchell, "Modeling of Formaldehyde Formation from Crevices in a Large Bore Natural Gas Engine", Proceedings of 2007 ASME/IEEE Joint Rail Conference & Internal Combustion Engine Spring Technical Conference, Paper #JRCICE2007-40130, March 13-16, 2007.
68. Daniel B. Olsen and Allan T. Kirkpatrick, "Experimental Examination of Prechamber Heat Release in a Large Bore Natural Gas Engine", Proceedings of 2007 ASME/IEEE Joint Rail Conference & Internal Combustion Engine Spring Technical Conference, Paper #JRCICE2007-40133, March 13-16, 2007.
69. Sule Amadu and Daniel B. Olsen, "Operating Characteristics of an NSCR Catalyst on an 80 kW Cummins-Onan Genset", GMRC Gas Machinery Conference, Albuquerque, NM, October, 2008.
70. Martin Malenshek, Brett Wilson, and Daniel B. Olsen, "Assessment of Knock Characteristics of Alternative Gas Fuels through Methane Number Measurement", GMRC Gas Machinery Conference, Albuquerque, NM, October, 2008.
71. Dean Simpson and Daniel B. Olsen, "Precombustion Chamber Design for Low NOx Emissions from Large Bore NG Engines", GMRC Gas Machinery Conference, Albuquerque, NM, October, 2008.
72. Syndi L. Nettles-Anderson and Daniel B. Olsen, "Survey of Straight Vegetable Oil Composition Impact on Combustion Properties", SAE 2009 World Congress, Paper # 2009-01-0487, Detroit, MI, Apr 20-23, 2009.
73. Olsen, Daniel B., Kohls, Morgan and Arney, Gregg, "Exhaust NO2/NOX Ratio from Lean-burn Natural Gas Engines", GMRC Gas Machinery Conference, Atlanta, GA, October, 2009.
74. Casey Quinn, Daniel Zimmerle, and Daniel B. Olsen, "Flare Gas Utilization at Combined Oil-Gas Well Sites", Proceedings of the ASME 4th International Conference on Energy Sustainability, Paper # ES2010-90041, May 17-22, 2010, Phoenix, Arizona.
75. Mathew D. Ruter, Daniel B. Olsen, Mark V. Scotto, and Mark A. Perna, "Performance of a Large Bore Natural Gas Engine with Reformed Natural Gas Prechamber Fueling", Proceedings of the ASME 2010 Internal Combustion Engine Division Fall Technical Conference, Paper # ICEF2010-35162, September 12-15, 2010, San Antonio, Texas.
76. C.J. Kreutzer, D.B. Olsen, and R.J. Bremmer, "Evaluation of a Lean-Burn Natural Gas Engine Operating on Variable Methane Number Fuel", Proceedings of the ASME 2011 Internal Combustion Engine Division Fall Technical Conference, Paper # ICEF2011-60071, October 2-5, 2011, Morgantown, WV.
77. G. Arney, D.B. Olsen, and R. Mayces, "Challenges in Retrofitting Selective Catalytic Reduction (SCR) Systems to Existing Stationary Natural Gas Fired Engines", GMRC Gas Machinery Conference, Nashville, TN, Oct 2-5, 2011.
78. D.B. Olsen, G. Arney and A. Reining, "Oxidation Catalyst Performance Considerations: Catalyst Temperature, Space Velocity, and Fouling", GMRC Gas Machinery Conference, Nashville, TN, Oct 2-5, 2011.
79. Hodgson, David A., Young, Peter M., Anderson, Charles W., Duff, William S., Hittle, Douglas C., and Olsen, Daniel B., Smoothly Combining Steady State Predictions with PI Control, ASME 2012 5th Annual Dynamic Systems and Control Conference Joint, v 1, p 403-411, 2012.
80. Daniel B. Olsen, Benjamin Neuner, Koushik Badrinarayanan, and Gregg Arney, "Performance Characteristics of Oxidation Catalysts for Lean-Burn Natural Gas Engines", 2013 Gas Machinery Conference, Albuquerque, NM, October 6-9, 2013.
81. Timothy Vaughn, Brie Hawley, Jessica Tryner, Arunachalam Lakshminarayanan, Daniel Olsen, Matthew Ratcliff, Robert L. McCormick and Anthony J. Marchese, "Characterization of Gaseous and Particulate Emissions from the

- Combustion of Cellulosic Biomass Based Oxygenated Components in a Compression Ignition Engine”, Western States Fall Technical Meeting, Western States Section of the Combustion Institute, Fort Collins, CO, October 7-8, 2013.
82. D. Wise, R. Seiser, D. Olsen, and R. Cattolica, “Producer Gas and Natural Gas Performance in a CFR Engine”, Western States Fall Technical Meeting, Western States Section of the Combustion Institute, Fort Collins, CO, October 7-8, 2013.
 83. A.Lakshminarayanan, and D. Olsen, “Performance and Emission Evaluation of Straight Vegetable Oils in a Tier – II Diesel Engine”, Western States Fall Technical Meeting, Western States Section of the Combustion Institute, Fort Collins, CO, October 7-8, 2013.
 84. John M. Gattoni and Daniel B. Olsen, “DEVELOPMENT OF A NOX SENSOR MINIMIZATION CONTROL ALGORITHM FOR CONTROL OF GAS ENGINES WITH NSCR”, Proceedings of the ASME Internal Combustion Engine Fall Technical Conference, Paper ICEF2013-19158, Dearborn, Michigan, October 13-16, 2013.
 85. Daniel M. Wise, Daniel B. Olsen, and Myoungjin Kim, “Development of a Lean Burn Methane Number Measurement Technique for Alternative Gaseous Fuel Evaluation”, Proceedings of the ASME Internal Combustion Engine Fall Technical Conference, Paper ICEF2013-19220, Dearborn, Michigan, October 13-16, 2013.
 86. Daniel M. Wise, Daniel B. Olsen, and Myoungjin Kim, “Characterization of Methane Number for Producer Gas Blends”, Proceedings of the ASME Internal Combustion Engine Fall Technical Conference, Paper ICEF2013-19221, Dearborn, Michigan, October 13-16, 2013.
 87. W. Mansor, Vaughn, J. S., and Olsen, D. B., “Experimental Evaluation of Diesel and Dual Fuel Combustion in a 6.8 Liter Compression Ignition Engine”, Western States Spring Technical Meeting, Western States Section of the Combustion Institute, Pasadena, CA, March 24-25, 2014.
 88. W. Mansor, Vaughn, J. S., and Olsen, D.B., “Emissions and Efficiency Evaluations of a 6.8 Liter Derivative Fuel Engine”, Proceedings of The Canadian Society for Mechanical Engineering International Congress, Toronto, Ontario, Canada, June 1-4, 2014.
 89. Daniel B. Olsen, Matthew R. Luedeman, Cody D. Lanham, and Kenneth Gilbert, “Development and Testing of a Timed Power Cylinder Lube Oil Injection System”, 2014 Gas Machinery Conference, Nashville, TN, October 5-8, 2014.
 90. John C. Vronay, Tracy Staller, Shazam Williams, Brendan Filby, and Daniel Olsen, “Applications of Dithering Control for NSCR Catalysts”, 2014 Gas Machinery Conference, Nashville, TN, October 5-8, 2014.
 91. John Finke, Daniel B. Olsen, Earl Glover, and Kent Hanson, “Comparison of Dithering and Steady State NSCR Catalyst Control on a 7.5L Rich Burn Engine”, Gas Machinery Conference, Denver, CO, October 2-5, 2016.
 92. John W. Ladd, Daniel B. Olsen, Greg Beshouri, and Tom Wick, “Impact of Fuel Composition and Operating Parameters on Knock in Uncontrolled 2-SC Pipeline Engines”, Gas Machinery Conference, Denver, CO, October 2-5, 2016.
 93. Fan Zeng, John Finke, Daniel Olsen, Angelica White, and Keith L. Hohn, “Modeling of Three-way Catalytic Converter Performance with Exhaust Mixtures from Dithering Natural Gas-fueled Engines”, Gas Machinery Conference, Denver, CO, October 2-5, 2016.

Poster Presentations

94. Syndi Nettles-Anderson and Dr. Daniel B. Olsen, “Straight Vegetable Oil Use in Compression Ignition Engines for Agricultural and 3rd World Markets”, Poster session presented at: Colorado Center for Biorefining and Biofuels Poster Session, February 2008.
95. Syndi Nettles-Anderson, Dr. Daniel B. Olsen, Dr. Jerry Johnson, and Nicholas Enjalbert, “Engine Durability Testing of Unrefined Straight Vegetable Oil”, Poster session presented at: Customized Energy Solutions, April 2011.
96. L. Arunachalam, Dr. Daniel B. and Dr. Perry Cabot, “The Big Squeeze Fuel”, Poster session presented at: Arkansas Valley Farm/Ranch/Water Symposium & Trade Show, Feb. 2, 2012.

97. Timothy Vaughn, Aaron Drenth, Arunachalam Lakshminarayanan, Daniel Olsen, Robert McCormick, and Anthony J. Marchese, "Characterization of Gaseous and Particulate Emissions from the Combustion of Cellulosic Biomass Based Oxygenated Components in a Compression Ignition Engine", Poster session presented at: 35th Combustion Symposium, San Francisco, CA, Aug 3-8, 2014.

Trade Publications

98. Daniel B. Olsen, Kirk Evans, and Mark Noall, "Micropilot tests progress, durability an issue", *Oil & Gas Journal*, Vol. 104, No. 3, pp. 64-68, 2006.
99. Daniel B. Olsen, Matthew R. Luedeman, and Cody D. Lanham, "Development and Testing of a Timed Power Cylinder Lube Oil Injection System", *Compressor Tech*², 2015.