

DAVID O. LIGNELL

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EDUCATION AND PROFESSIONAL PREPARATION

- **Postdoctoral**
Sandia National Laboratories, Mar.-Dec., 2008
Research: *Development of a modern one-dimensional turbulence code*
Advisor: Alan R. Kerstein
 - **Graduate**
University of Utah,
Ph.D. Chemical Engineering, 2008
Thesis: *Direct numerical simulation of soot formation and transport in turbulent nonpremixed ethylene flames*
Advisors: Philip J. Smith, Jacqueline H. Chen
 - **Undergraduate**
University of Utah,
B.S. Chemical Engineering, 2001
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APPOINTMENTS AND PROFESSIONAL EXPERIENCE

- **Associate Professor** September 2015—present
Chemical Engineering Department,
Brigham Young University, Provo, Utah
 - **Assistant Professor** January 2009—August 2015
Chemical Engineering Department,
Brigham Young University, Provo, Utah
 - **Adjunct Assistant Professor** September 2012—present
Chemical Engineering Department,
University of Utah, Salt Lake City, Utah
 - **Postdoctoral Researcher** March—Dec. 2008
Combustion Research Facility,
Sandia National Laboratories, Livermore, California
 - **Graduate Student Intern** June 2005—March 2008
Combustion Research Facility,
Sandia National Laboratories, Livermore, California
 - **Graduate Research Assistant** September 2003—June 2005
Chemical Engineering Department,
University of Utah, Salt Lake City, Utah
 - **Engineer** June 2001—August 2003
Reaction Engineering International,
Salt Lake City, Utah
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ACADEMIC AWARDS

- John Zink Graduate Scholarship (2004)
- Wayne Brown Graduate Fellowship (2003)
- John Zink Undergraduate Scholarship (2001)

- Nuclear Engineering Program Undergraduate Scholarship (1999)
- National Dean's List (1998)
- Materials Science Freshman Scholarship (1996)

TEACHING

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|-------------|----------------------------|---|
| • ChEn 263 | Computational Tools | Fall 2014, 2015, 2016, 2017, 2018 |
| • ChEn 541 | Computer Design Methods | Winter 2009, 2011, 2013, 2015, 2017, 2019 |
| • ChEn 633 | Combustion Processes | Winter 2010, 2012, 2014, 2016, 2018 |
| • ChEn 641 | Combustion Modeling | Spring 2011, 2013, 2015 |
| • ChEn 374 | Fluid Mechanics | Fall 2009, 2010, 2011, 2012, 2013 |
| • ChEn 391 | Career Skills | Winter 2013, Fall 2013 |
| • ChEn 791R | Graduate Seminar | Winter 2012 |
| • ChEn 793R | Special Topics—Probability | Winter 2015 |
| • ChEn 793R | V&V UQ | Fall 2015 |

STUDENTS ADVISED

Current Graduate Students

- Kamron Brinkerhoff, Ph.D.
- Victoria Lansinger, Ph.D.

Past Graduate Students

- Alexander Josephson, Ph.D. 2018
- Guangyuan Sun, Ph.D. 2015
- Derek Harris, M.S. 2013
- Abinash Paudel, M.S. 2013
- Elizabeth Monson, M.S. 2012
- Dan Smyth, Ph.D., 2011

Undergraduate Research Assistants

- **Current:** Joshua Frei, C. Paxton Gray, Brett Siddoway, Sally Jensen, Keturah Oldham, Kyle Primavera, Isaac Wheeler
- **Past:** Alessandro Perego, Jeremy Johansen, Calvin Howell, Tanner Jaspersen, Sierra Andersen, Mikel Zaitzeff, Justin Ward, Neal Gaffin, Keslee Deem, Sarah Skousen, Carl Prince, Kevin Stevens, Seth Babcock, Steven Lanham, David Sifuentes, Amber White, Garrison Fredline, Chris Werner, Adam Lewis, Gavin Wardle, Abinash Paudel, Taylor Ralston, Hans Schmutz, Devin Rappleye, Sayantan Ghosh, Suman Pokharel, Ryan Hintze, Spencer Bowman

PROFESSIONAL SERVICE AND MEMBERSHIPS

- Associate Chair, Chemical Engineering, BYU, 2016-present
- AIChE Student Advisor, Chemical Engineering, BYU, 2015-present
- Faculty Search Committee Chair, BYU, Dec. 2018-present
- BYU AIChE Regional Conference, student advisor, BYU, 2017-present
- Conference Organizer, Fall 2015 Meeting of the WSSCI at BYU, October 5-6, 2015
- Graduate Committee, Chemical Engineering, BYU, 2009-2016
- Web Committee, Chemical Engineering, BYU, 2009-2016, Chair 2012-2016
- Program Chair, Western States Section of the Combustion Institute, 2014-present
- Board Member, Western States Section of the Combustion Institute, 2010-present
- Mini-symposium Organizer, Advances and Applications in One-Dimensional Turbulence Simulation, SIAM 14th International Conference on Numerical Combustion, 2013

- Mini-symposium Organizer, Stochastic simulation of turbulent flows using one-dimensional turbulence, SIAM Conference on Computational Science and Engineering, 2015
- Reviewer: BYU ORCA grant applications, and other graduate research grant applications
- Reviewer: Combustion and Flame, Environmental Engineering Science, Proceedings of the Combustion Institute, Aerosol Science and Technology, Journal of Propulsion and Power, International Journal of Wildland Fire, Combustion Science and Technology, Combustion Theory and Modelling, Energy and Fuels, Flow Turbulence and Combustion, Active Flow and Combustion Control, Wiley-Interscience textbook proposal, NSF OCI-Petascale proposal.
- Reviewer: NSF 2015, 2016
- Reviewer: DOE 2017
- Member of the Combustion Institute
- Member American Institute of Chemical Engineers (AIChE)
- Member of the American Physical Society (APS), 2012-2013
- Member of the Society for Industrial and Applied Mathematics (SIAM), 2013, 2015
- Member of the American Society for Engineering Education (ASEE), 2012

RESEARCH GRANTS

• DOE-NNSA	2014-2019	\$405,974
• NSF	2014-2018	\$205,213
• SNL	2014	\$28,082
• DOD-DTRA	2011-2014	\$215,800
• DOE-NNSA	2010-2014	\$180,000
• BYU Graduate Mentoring	2010-2011	\$4,000
• USDA Forest Service	2009-2012	\$150,000
• BYU Engineering	2009	\$20,000

JOURNAL ARTICLES

1. A.J. Josephson, E.M. Hopkins, **D.O. Lignell**, R.R. Linn, "Reduction of a detailed soot model for simulation of pyrolyzing solid fuel combustion," submitted to Combustion Theory and Modelling, November, 2018.
2. J.A. Medina M. H. Schmidt, **D.O. Lignell**, "Application of the one dimensional turbulence model to incompressible channel and pipe flow," Theoretical and Computational Fluid Dynamics, submitted April 17, 2018.
3. A.J. Josephson, R.R. Linn, **D.O. Lignell**, "Modeling soot formation from solid complex fuels," Combustion and Flame, 196:265-283 (2018).
4. **D.O. Lignell**, V.B. Lansinger, J. Medina, M. Klein, A.R. Kerstein, H. Schmidt, M. Fistler, M. Oevermann, "One-dimensional turbulence modeling for cylindrical and spherical flows: model formulation and application," submitted to Theoretical and Computational Fluid Dynamics, November 20, 2017.
5. A.J. Josephson, N.D. Gaffin, S.T. Smith, T.H. Fletcher, **D.O. Lignell**, "Modeling soot consumption with Bayesian statistics," *Energy and Fuels*, 31(10):11291-11303 (2017).
6. A. Abdelsamie, **D.O. Lignell**, D. Thevenin, "Comparison between ODT and DNS for ignition occurrence in turbulent premixed jet combustion: Safety-relevant applications," *Zeitschrift Fur Physikalische Chemie*, 231(10):1709-1735 (2017).
7. J. Udy, S. Maddux, D. Peterson, S. Heilner, K. Stevens, **D.O. Lignell**, J.D. Hedengren, "Review of injection optimization for enhanced oil recovery," *Processes*, 5(3):34-59 (2017).
8. C. Han, **D.O. Lignell**, E.R. Hawkes, J.H. Chen, H. Wang, "Examination of differential molecular diffusion in DNS of turbulent non-premixed flames," *International Journal of Hydrogen Energy* 42(16):11879-11892 (2017).
9. H. Ghiassi, **D.O. Lignell**, J. Lighty, "Soot oxidation by OH: theory development, model, and experimental validation," *Energy and Fuels*, 31(3):2236-2245 (2017).

10. G. Sun, J.C. Hewson, **D.O. Lignell**, "Evaluation of stochastic particle dispersion modeling in turbulent round jets," *International Journal of Multiphase Flow*, 89:108-122 (2017).
11. A.J. Josephson, **D.O. Lignell**, A.L. Brown, T.H. Fletcher, "Revision to modeling soot derived from pulverized coal," *Energy and Fuels*, DOI: 10.1021/acs.energyfuels.6b01007 (2016).
12. E.I. Monson, **D.O. Lignell**, M.A. Finney, C. Werner, Z. Jozefik, A.R. Kerstein, R.S. Hintze, Simulation of an ethylene wall fire using the spatially-evolving one-dimensional turbulence model, *Fire Technology, Special Issue on Validation and Fire Modeling*, 52(1):167-196 (2016), (online 2014).
13. A.W. Abboud, B.B. Schroeder, T. Saad, S.T. Smith, D.D. Harris, **D.O. Lignell**, A numerical comparison on precipitating turbulent flows between large-eddy simulation and one-dimensional turbulence, *AIChE Journal*, 61(10):3185-3197 (2015).
14. G. Sun, **D.O. Lignell**, J.C. Hewson, C. Gin, Particle dispersion in homogeneous turbulence using the one-dimensional turbulence model, *Physics of Fluids*, 26:103301 (2014).
15. **D.O. Lignell**, G.C. Fredline, and A.D. Lewis, Comparison of one-dimensional turbulence and direct numerical simulation of soot formation and transport in a nonpremixed ethylene jet flame, *Proceedings of the Combustion Institute*, DOI 10.1016/j.proci.2014.05.046, (2014).
16. B.B. Schroeder, D.D. Harris, S.T. Smith, and **D.O. Lignell**, A theoretical framework for multiple-polymorph particle precipitation in highly supersaturated systems, *Crystal Growth and Design*, DOI 10.1021/cg401892b, (2014).
17. A. Krisman, J.C.K. Tang, E.R. Hawkes, **D.O. Lignell**, J.H. Chen, A DNS evaluation of mixing models for transported PDF modelling of turbulent nonpremixed flames, *Combustion and Flame*, in press, DOI 10.1016, (2014).
18. **D.O. Lignell**, A.R. Kerstein, G. Sun, E.I. Monson, Mesh adaption for efficient multiscale implementation of one-dimensional turbulence, *Theoretical and Computational Fluid Dynamics* 27(3):273-295 (2013).
19. E.D. Gonzalez-Juez, A.R. Kerstein, and **D.O. Lignell**, Reactive Rayleigh-Taylor turbulent mixing: a one-dimensional-turbulence study, *Geophysical and Astrophysical Fluid Dynamics*, DOI:10.1080/03091929.2012.736504 (2013).
20. **D.O. Lignell**, and D.S. Rappleye, One-dimensional turbulence simulation of flame extinction and reignition in planar ethylene jet flames, *Combustion and Flame*, 159:2930-2943 (2012).
21. E.D. Gonzalez-Juez, A.R. Kerstein, and **D.O. Lignell**, Fluxes across double-diffusive interfaces: a one-dimensional-turbulence study, *Journal of Fluid Mechanics*, 677:218-254 (2011).
22. **D.O. Lignell**, J.H. Chen, and H.A. Schmutz, Effects of Damkohler number on flame extinction and reignition in turbulent nonpremixed flames using DNS, *Combustion and Flame* 158:949-963 (2010).
23. **D.O. Lignell**, J.C. Hewson, and J.H. Chen, A-priori analysis of conditional moment closure modeling of a temporal ethylene jet flame with soot formation using direct numerical simulation, *Proceedings of the Combustion Institute*, 32:1491-1498 (2009).
24. **D.O. Lignell**, J.H. Chen, and P.J. Smith, Three-dimensional direct numerical simulation of soot formation and transport in a temporally-evolving, nonpremixed ethylene jet flame, *Combustion and flame*, 155:316-333 (2008).
25. **D.O. Lignell**, J.H. Chen, P.J. Smith, T. Lu, and C.K. Law, The effect of flame structure on soot formation and transport in turbulent nonpremixed flames using direct numerical simulation, *Combustion and Flame*, 151:2-28 (2007), **Feature article**.
26. C.L. Senior, **D.O. Lignell**, A.F. Sarofim, and A. Mehta, Modeling arsenic partitioning in coal-fired power plants, *Combustion and Flame*, 147:209-221 (2006).
27. P. Jiang, **D.O. Lignell**, K.E. Kelly, J.S. Lighty, A.F. Sarofim, and C.J. Montgomery, Simulation of the evolution of particle size distributions in a vehicle exhaust plume with unconfined dilution by ambient air, *Journal of the Air and Waste Management Association*, 55:437-445 (2005).

PEER REVIEWED CONFERENCE PAPERS

1. **D.O. Lignell**, M.J. Memmott, A.A. Andersen, "Involving high school students in an engineering fluid mechanics course project," ASEE Rocky Mountain Section Conference, September 22-23, 2017, Brigham Young University, Provo, UT, USA.

2. M. Fistler, **D.O. Lignell**, A.R. Kerstein, M. Oevermann, "Numerical studies of turbulent particle-laden jets using spatial approach of one-dimensional turbulence," ILASS-Europe 28th Conference on Liquid Atomization and Spray Systems, September 6-8, 2017, Valencia, Spain.
 3. **D.O. Lignell**, J.H. Chen, and E.S. Richardson, "Terascale direct numerical simulations of turbulent combustion: fundamental understanding towards predictive models," (**Invited paper**), *Journal of Physics: Conference Series*, 125:1-10 (2008) (doi:10.1088/1742-6596/125/1/012031).
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INVITED PRESENTATIONS

1. **D.O. Lignell**, "Questions and research in turbulent combustion," Brigham Young University, October 15, 2018, Provo, Utah, USA.
 2. **D.O. Lignell**, simulation and modeling of turbulent combustion," Brigham Young University, November 16, 2017, Provo, Utah, USA.
 3. **D.O. Lignell**, Multiscale simulation of turbulent flows using One-Dimensional Turbulence (ODT), Sandia National Laboratories, July 11, 2017, Albuquerque, NM, USA.
 4. **D.O. Lignell**, Detailed simulations of soot formation in nonpremixed jet flames, AFOSR/ARO/NSF Basic Combustion Research Review, June 10, 2016, Arlington, VA, USA.
 5. **D.O. Lignell**, Simulation of turbulent reacting flows using ODT, DNS, and LES, Chemical and Environmental Engineering Graduate Seminar, University of California, Riverside, October 30, 2015, Riverside, CA, USA.
 6. **D.O. Lignell**, Multiscale simulation of turbulent reacting flows using DNS and ODT, Chemical Engineering Graduate Seminar, Arizona State University, October 7, 2013, Tempe AZ, USA.
 7. **D.O. Lignell**, Multiscale simulation of turbulent flames--soot, fire, and flame extinction and reignition, (**poster**), *32nd Annual Combustion Research Meeting, U.S. DOE, Office of Basic Energy Sciences*, May 31-June 3, 2011, Warrenton, VA, USA.
 8. **D.O. Lignell**, Research and graduate school at Brigham Young University, *Chemical Engineering Undergraduate Seminar*, January 26, 2010, The University of Utah, Salt Lake City, UT, USA.
 9. **D.O. Lignell**, Direct numerical simulation of soot formation and transport in turbulent nonpremixed ethylene flames, *Chemical Engineering Department Seminar*, February 14, 2008, Brigham Young University, Provo, UT, USA.
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CONFERENCE PAPERS and PRESENTATIONS

1. M. Klein, **D.O. Lignell**, H. Schmidt, "Stochastic modeling of temperature and velocity statistics in spherical-shell convection", EGU Conference on Recent developments in Geophysical Fluid Dynamics: Waves, Turbulence, and Transport, April 7-12, 2019, Vienna, Austria.
2. M. Klein, **D.O. Lignell**, H. Schmidt, "Map-based modeling of turbulent convection: Application of the One-Dimensional Turbulence Model to planar and spherical geometries" (poster), International Conference on Rayleigh-Benard Turbulence, May 14-18, 2018, Enschede, Netherlands.
3. A.J. Josephson, **D.O. Lignell**, R. Linn, V.B. Lansinger, "Simplified modeling for soot formation from solid fuels," Spring Meeting of the Western States Section of the Combustion Institute, March 25-27, 2018, Bend, Oregon, USA.
4. J. Frei, **D.O. Lignell**, "Hierarchical parcel swapping: A novel solution to an old problem," AIChE Rocky Mountain Regional Student Conference, March 23-24, 2018, Provo, Utah, USA.
5. M. Klein, H. Schmidt, **D.O. Lignell**, "Map-based modeling of high-Ra turbulent convection in planar and spherical geometries," *Conference on Modelling Fluid Flow*, September 4-7, 2018, Budapest, Hungary.
6. **D.O. Lignell**, A.R. Kerstein, J. Ward, A. Perego, "A new mixing model for turbulent reacting flows using Hierarchical Parcel Swapping (HiPS)," *AIChE Annual Meeting*, October 29-November 3, 2017, Minneapolis, Minnesota, USA.

7. **D.O. Lignell**, A.J. Josephson, B. Isaac, K. Brinkerhoff, "Large Eddy Simulation of soot formation in oxy-coal combustion," *AICHE Annual Meeting*, October 29-November 3, 2017, Minneapolis, Minnesota, USA.
8. **D.O. Lignell**, V.B. Lansinger, A.R. Kerstein, "A cylindrical formulation of the One-Dimensional Turbulence (ODT) model for turbulent jet flames," *AICHE Annual Meeting*, October 29-November 3, 2017, Minneapolis, Minnesota, USA.
9. A.J. Josephson, E. Hopkins, R.R. Linn, **D.O. Lignell**, "Modeling soot formation from complex fuels," *2017 Fall Meeting of the Western States Section of the Combustion Institute*, October 2-3, 2017, Laramie, Wyoming, USA.
10. M. Fistler, **D.O. Lignell**, A.R. Kerstein, M. Oevermann, "Numerical study of stochastic particle dispersion using One-Dimensional Turbulence," *ILASS-Americas 29th Annual Conference on Liquid Atomization and Spray Systems*, May 2017, Atlanta, GA, USA.
11. E.D. Gonzalez-Juez, A. Dasgupta, S. Arshad, M. Oevermann, **D.O. Lignell**, "Effect of the turbulence modeling in large-eddy simulations of nonpremixed flames undergoing extinction and reignition," *55th AIAA Aerospace Sciences Meeting*, January 2017, Gaylord, Texas, USA.
12. A.J. Josephson, R.R. Linn, **D.O. Lignell**, "Detailed modeling of soot formation from solid fuels," *9th FM Global Open Source CFD Fire Modeling Workshop*, May 9-10, 2017, Norwood, Massachusetts, USA.
13. A.J. Josephson, T.H. Fletcher, **D.O. Lignell**, "Modeling soot in coal systems," *10th Meeting of the U.S. Joint Sections of the Combustion Institute*, April 23-26, 2017, University of Maryland, College Park, Maryland, USA.
14. J.B. Ward, **D.O. Lignell**, "Hierarchical parcel swapping (HIPS)—A comprehensive subgrid model for turbulent reacting flows," *UCUR conference*, February 17, 2017, Utah Valley University, Orem, Utah, USA.
15. S.A. Skousen, V. Lansinger, **D.O. Lignell**, "Simulations of soot formation using a one-dimensional turbulence model," *UCUR conference*, February 17, 2017, Utah Valley University, Orem, Utah, USA.
16. N. Gaffin, A.J. Josephson, **D.O. Lignell**, "Soot consumption," *UCUR conference*, February 17, 2017, Utah Valley University, Orem, Utah, USA.
17. A.J. Josephson, **D.O. Lignell**, N. Gaffin, "Soot nucleation and consumption in oxy-coal systems," *AICHE Annual Meeting*, November 13-18, 2016, San Francisco, California, USA.
18. A.J. Josephson, **D.O. Lignell**, N. Gaffin, "Soot consumption in oxy-coal systems," *2016 Spring Meeting of the Western States Section of the Combustion Institute*, March 21-22, 2016, Seattle, Washington, USA.
19. A.J. Josephson, **D.O. Lignell**, "Soot formation and secondary pyrolysis in oxy-coal combustion with large eddy simulation," *AICHE Annual Meeting*, November 10, 2015, Salt Lake City, Utah, USA.
20. V.B. Lansinger, **D.O. Lignell**, J.C. Hewson, "One-dimensional turbulence modeling of soot in turbulent, nonpremixed flames," *AICHE Annual Meeting*, November 10, 2015, Salt Lake City, Utah, USA.
21. C. Shen, **D.O. Lignell**, T.H. Fletcher, "Flame merging experiments in oxy-coal combustion using large eddy simulation," *2015 Fall Meeting of the Western States Section of the Combustion Institute*, October 5-6, 2015, Brigham Young University, Provo, Utah, USA.
22. A.J. Josephson, **D.O. Lignell**, "Simulating soot formation in oxy-coal combustion using large eddy simulation," *2015 Fall Meeting of the Western States Section of the Combustion Institute*, October 5-6, 2015, Brigham Young University, Provo, Utah, USA.
23. V.B. Lansinger, **D.O. Lignell**, J.C. Hewson, "Soot formation in round ethylene jet flames using one-dimensional turbulence," *2015 Fall Meeting of the Western States Section of the Combustion Institute*, October 5-6, 2015, Brigham Young University, Provo, Utah, USA.
24. A.J. Josephson, B.J. Isaac, **D.O. Lignell**, T.H. Fletcher, "Large eddy simulation of an oxy-coal combustor," *9th Meeting of the U.S. Joint Sections of the Combustion Institute*, May 17-20, 2015, Cincinnati, Ohio, USA.
25. J.C. Hewson, **D.O. Lignell**, S.P. Kearney, D.R. Guildenbecher, V. Lansinger, "One-dimensional turbulence simulation of soot and enthalpy evolution in ethylene jet diffusion flames," *9th Meeting of the U.S. Joint Sections of the Combustion Institute*, May 17-20, 2015, Cincinnati, Ohio, USA.
26. C. Shen, **D.O. Lignell**, T.H. Fletcher, "Flame merging experiments in low speed, nonpremixed natural gas flames," *9th Meeting of the U.S. Joint Sections of the Combustion Institute*, May 17-20, 2015, Cincinnati, Ohio, USA.

27. C. Li, **D.O. Lignell**, J.H. Chen, T. Lu, "Detection of local extinction and reignition in nonpremixed ethylene-air flames using chemical explosive mode analysis," *9th Meeting of the U.S. Joint Sections of the Combustion Institute*, May 17-20, 2015, Cincinnati, Ohio, USA.
28. J.C. Hewson, **D.O. Lignell**, S.P. Kearney, D.R. Guildenbecher, V. Lansinger, "One-dimensional turbulence simulation of soot and enthalpy evolution in ethylene jet flames," *F.M. Global Fire Modeling Workshop*, May 6, 2015, Norwood, MA, USA.
29. **D.O. Lignell**, B.J. Isaac, A. Josephson, T.H. Fletcher, J. Thornock, "Large eddy simulation of soot formation in an oxy-coal combustor," *15th International Conference on Numerical Combustion*, April 19-22, 2015, Avignon, France.
30. **D.O. Lignell**, J.C. Hewson, "One-dimensional turbulence simulation: overview and application to soot formation in nonpremixed flames," *SIAM Conference on Computational Science and Engineering*, March 13-18, 2015, Salt Lake City, Utah, USA.
31. T.H. Fletcher, **D.O. Lignell**, T. Holland, A.J. Josephson, A. Richards, "Coal particle combustion," (**poster**), *Stewardship Science Academic Program Symposium*, March 11-12, 2015, Santa Fe, NM, USA.
32. G. Sun, **D.O. Lignell**, J.C. Hewson, Particle time-temperature histories in turbulent flames studied through stochastic modeling, *35th International Symposium on Combustion*, (**poster**), August 4-8, 2014, San Francisco, CA, USA.
33. **D.O. Lignell**, Direct and stochastic simulation of turbulent reacting flows, *Utah Fluids Conference*, July 27-28, 2014, Utah State University, Logan, UT, USA.
34. J.C. Hewson, **D.O. Lignell**, G. Sun, Statistics of particle time-temperature histories in turbulent reacting flows, *DTRA Basic Research Technical Review*, July, 2014, Springfield, VA, USA.
35. **D.O. Lignell**, E.I. Monson, G. Fredline, R.S. Hintze, C. Werner, M.A. Finney, Z. Jozefik, A.R. Kerstein, LES, ODT, and experimental investigation of vertical ethylene wall fires, *FM Global Open Source CFD Fire Modeling Workshop*, May 15-16, 2014, Norwood, MA.
36. G. Sun, **D.O. Lignell**, J.C. Hewson, and C.R. Gin, Numerical simulation of two-way coupling mechanism in particle-laden turbulent flow based on one-dimensional turbulence model, *APS Division of Fluid Dynamics 66th Annual Meeting*, November 24-26, 2013, Pittsburgh, PA, USA.
37. D.D. Harris and **D.O. Lignell**, Kinetic model for stable amorphous calcium carbonate, *AIChE Annual Meeting*, November 6, 2013, San Francisco, CA, USA.
38. J.C.K. Tang, E.R. Hawkes, **D.O. Lignell**, A. Krisman, J.H. Chen, Mixing model evaluation for transported PDF modelling of non-premixed ethylene flames, *Proceedings of the Australian Combustion Symposium*, November 6-8, 2013, Perth, Australia.
39. J.C. Hewson, C. Gin, **D.O. Lignell**, G. Sun, Statistics of particle time-temperature histories in turbulent reacting flows, *DTRA Basic Research Technical Review*, July 24, 2013, Springfield, VA, USA.
40. G. Sun, **D.O. Lignell**, J.C. Hewson, C.R. Gin, Numerical investigation of one- and two-way interaction between jets and dispersed particles (**poster**), *DTRA Basic Research Technical Review*, July 24, 2013, Springfield, VA, USA.
41. A. Paudel, **D.O. Lignell**, M.A. Finney, G. Sun, R.S. Hintze, E.I. Monson, Application of one-dimensional turbulence to model fire spread through biomass fuel beds, *8th Meeting of the U.S. Joint Sections of the Combustion Institute*, May 19-22, 2013, Park City, UT, USA.
42. **D.O. Lignell**, A. Lewis, Soot formation in turbulent flames-comparison of ODT and DNS, *8th Meeting of the U.S. Joint Sections of the Combustion Institute*, May 19-22, 2013, Park City, UT, USA.
43. **D.O. Lignell**, J.C. Hewson, G. Sun, A. Paudel, One-dimensional turbulence simulation: advances and combustion applications, *SIAM 14th International Conference on Numerical Combustion*, April 8-10, 2013, San Antonio, TX, USA.
44. J.C. Hewson, **D.O. Lignell**, G. Sun, A. Paudel, Particle Dispersion in one-dimensional turbulence, *SIAM 14th International Conference on Numerical Combustion*, April 8-10, 2013, San Antonio, TX, USA.
45. G. Sun, **D.O. Lignell**, and J.C. Hewson, A stochastic model of particle dispersion in turbulent reacting gaseous environments, *APS Division of Fluid Dynamics 65th Annual Meeting* November 18-20, 2012, San Diego, CA, USA.
46. A. Paudel, **D.O. Lignell**, E.I. Monson, and M.A. Finney, Stochastic simulation of fire spread in solid fuel beds, *AIChE Annual Meeting*, October 28-November 2, 2012, Pittsburgh, PA, USA.

47. G. Sun, **D.O. Lignell**, and J.C. Hewson, Detailed simulations of Lagrangian particle transport in turbulent reacting flows, (**poster**), *AICHE Annual Meeting*, October 28-November 2, 2012, Pittsburgh, PA, USA.
48. D.D. Harris and **D.O. Lignell**, Simulation of reaction and mixing processes in turbulent aqueous CaCO₃ precipitation, (**poster**), *AICHE Annual Meeting*, October 28-November 2, 2012, Pittsburgh, PA, USA.
49. J.C. Hewson, **D.O. Lignell**, G. Sun, Statistics of particle time-temperature histories in turbulent reacting flows, *DTRA Basic Research Technical Review*, July 23-August 2, 2012, Springfield, VA, USA.
50. G. Sun, **D.O. Lignell**, and J.C. Hewson, Lagrangian particle transport in turbulent flows, (**poster**), *DTRA Basic Research Technical Review*, July 23-August 2, 2012, Springfield, VA, USA.
51. D.D. Harris and **D.O. Lignell**, Resolved simulation of calcium carbonate crystallization using the one-dimensional turbulence model, *AICHE Annual Meeting*, October 16-21, 2011, Minneapolis, MN, USA.
52. **D.O. Lignell**, D. Rappleye, Validation of one-dimensional turbulence simulation of extinguishing planar ethylene jet flames, *7th Meeting of the U.S. Joint Sections of the Combustion Institute*, March 20-23, 2011, Georgia Institute of Technology, Atlanta, GA, USA.
53. E.I. Monson, **D.O. Lignell**, Simulation of an ethylene wall fire using the one dimensional turbulence model, *7th Meeting of the U.S. Joint Sections of the Combustion Institute*, March 20-23, 2011, Georgia Institute of Technology, Atlanta, GA, USA.
54. **D.O. Lignell**, E.I. Monson, M.A. Finney, Modeling flame structure in wildland fires using the one-dimensional turbulence model, *6th International Conference on Forest Fire Research*, November 15-18, 2010, Coimbra, Portugal.
55. **D.O. Lignell**, D.S. Rappleye, A comparison of one-dimensional turbulence (ODT) and direct numerical simulation (DNS) of non-premixed flames with extinction, *AICHE Annual Meeting*, November 7-12, 2010, Salt Lake City, UT, USA.
56. E.I. Monson, **D.O. Lignell**, Simulation of an ethylene wall fire using the one-dimensional turbulence model (**poster**), *AICHE Annual Meeting*, November 7-12, 2010, Salt Lake City, UT, USA.
57. **D.O. Lignell**, E.I. Monson, Using ODT to model flame propagation in wildland fire fuel beds, *24th Annual ACERC Conference*, Brigham Young University, February 25-26, 2010, Provo, UT, USA.
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