

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

- **Professor** September 2020
Chemical Engineering Department,
Brigham Young University, Provo, Utah
 - **Associate Professor** September 2015—August 2020
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)
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TEACHING

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|-------------|----------------------------|---|
| • ChEn 263 | Computational Tools | Fall 2014, 2015, 2016, 2017, 2018, 2019 |
| • ChEn 285 | Materials and Fluids Lab | Winter 2020 |
| • ChEn 541 | Computer Design Methods | Winter 2009, 2011, 2013, 2015, 2017, 2019 |
| • ChEn 633 | Combustion Processes | Winter 2010, 2012, 2014, 2016, 2018, 2020 |
| • ChEn 641 | Combustion Modeling | Spring 2011, 2013, 2015, 2019 |
| • 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 |
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STUDENTS ADVISED

Current Graduate Students

- Masoomeh Behrang, Ph.D.
- 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:** Sally Jensen, Keturah Oldham, Isaac Wheeler, Katherine Butler
 - **Past:** Carlos Vergara, Braydon Hunt, Wesley Arnold, T.J. Mix, Joshua Frei, C. Paxton Gray, Brett Siddoway, Kyle Primavera, Jackson Udy, Brigham Hansen, Sage Maddux, Donald Peterson, Spencer Heilner, Kevin Stevens, Jeremy Johansen, Alessandro Perego, Justin Ward, Neal Gaffin, Mikel Zaitzeff, Calvin Howell, Tanner Jaspersen, Sierra Anderson, Keslee Deem, Sarah Skousen, Carl Prince, Kevin Stevens, Seth Babcock, Steven Lanham, David Sifuentes, Amber White, Garrison Fredline, Chris Werner, Gavin Wardle, Adam Lewis, Spencer Bowman, Ryan Hintze, Taylor Ralston, Sayantan Ghosh, Suman Pokharel, Hans Schmutz, Abinash Paudel, Devin Rappleye
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PROFESSIONAL SERVICE AND MEMBERSHIPS

- Associate Chair, Chemical Engineering, BYU, 2016-present
- AIChE Student Advisor, Chemical Engineering, BYU, 2015-present
- Fall 2020 Teaching Committee, Chair, College of Engineering, BYU, May 2020-present
- BYU Remote Learning Taskforce, BYU, March 2020-present
- Faculty Search Committee Chair, BYU, Dec. 2018-August 2019
- STEMFI Peer Teaching Partner, BYU, 2019-2020
- BYU AIChE Regional Conference, student advisor, BYU, 2017-2018
- 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; organized WSSCI programs: Caltech 2014, BYU 2015, U. Washington 2016, U. Wyoming 2017, Oregon State 2018, Sandia Albuquerque 2019, Stanford 2020.
- Program Chair, US National Combustion Meeting, Pasadena CA, 2019.
- 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
- Mini-symposium Co-Organizer, Map-based stochastic methods for accurate modeling of turbulent heat and mass transfer, 14th WCCM ECCOMAS Congress, 2020.
- Reviewer: BYU ORCA grant applications, and other graduate research grant applications
- Reviewer: BYU NASA Graduate Space Grant Fellowships, 2019.
- 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, Physics of Fluids, International Journal of Environmental Technology and Management, International Journal of Heat and Fluid Flow, Wiley-Interscience textbook proposal.
- Reviewer: NSF 2015, 2016, NSF OCI-Petascale 2011
- Reviewer: DOE 2017, 2018
- 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	2014-2020	\$405,974
• Conoco Phillips	2018-2019	\$3,000
• 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

David O. Lignell

1. M. Fistler, A.R. Kerstein, D.O. Lignell, M. Oevermann, "Turbulence modulation in particle-laden, stationary homogeneous isotropic turbulence using One-Dimensional Turbulence," *Physical Review Fluids*, 5:044308 (2020).
2. J.A. Medina M. H. Schmidt, **D.O. Lignell**, "Application of the one dimensional turbulence model to incompressible channel and pipe flow," **submitted** to the *Journal of Applied Mathematics and Mechanics*, May, 2019, in review.
3. 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," *Combustion Theory and Modelling*, DOI: 10.1080/13647830.2019.1656823, (2019).
4. **D.O. Lignell**, M.J. Memmott, A.A. Andersen, "STEM outreach to high school students through a chemical engineering fluid mechanics course project," *Transactions on Techniques in STEM Education*, 4(1):50-59, (2018).
5. A.J. Josephson, R.R. Linn, **D.O. Lignell**, "Modeling soot formation from solid complex fuels," *Combustion and Flame*, 196:265-283 (2018).
6. **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.
7. 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).
8. 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).
9. 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).
10. C. Han, **D.O. Lignell**, E.R. Hawkes, J.H. Chen, H. Wang, "Examination of the effect of differential molecular diffusion in DNS of turbulent non-premixed flames," *International Journal of Hydrogen Energy* 42(16):11879-11892 (2017).
11. 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).
12. 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).
13. 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).
14. 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).
15. 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).
16. 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).
17. **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).
18. B.B. Schroeder, D.D. Harris, S.T. Smith, and **D.O. Lignell**, "Theoretical framework for multiple-polymorph particle precipitation in highly supersaturated systems," *Crystal Growth and Design*, DOI 10.1021/cg401892b, (2014).
19. 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 161(8):2085-2106, (2014).
20. **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).

21. 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*, 107:506-525 (2013).
22. **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).
23. 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).
24. **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).
25. **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).
26. **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).
27. **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**.
28. 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).
29. 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).

INVITED PRESENTATIONS

1. **D.O. Lignell**, Near-wall turbulence and mixing/combustion modeling, UTRC Workshop, June 16, 2019, Phoenix, Arizona, USA.
2. **D.O. Lignell**, Questions and research in turbulent combustion, Brigham Young University, October 15, 2018, Provo, Utah, USA.
3. **D.O. Lignell**, Simulation and modeling of turbulent combustion, Brigham Young University, November 16, 2017, Provo, Utah, USA.
4. **D.O. Lignell**, Multiscale simulation of turbulent flows using One-Dimensional Turbulence (ODT), Sandia National Laboratories, July 11, 2017, Albuquerque, NM, USA.
5. **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.

6. **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.
7. **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.
8. **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.
9. **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.
10. **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.

CONFERENCE PAPERS and PRESENTATIONS

1. Rakhi, **D.O. Lignell**, H. Schmidt, "A stochastic approach to investigate a spatially developing turbulent boundary layer with uniform blowing," 91st Annual Meeting of the International Association of Applied Mathematics and Mechanics, March 16-20, 2020, Kassel, Germany.
2. T. Starick, **D.O. Lignell**, H. Schmidt, "Stochastic modeling of a lifted methane/air jet flame with detailed chemistry," 91st Annual Meeting of the International Association of Applied Mathematics and Mechanics, March 16-20, 2020, Kassel, Germany.
3. **D.O. Lignell**, T. Starick, I. Wheeler, J. Frei, "Stochastic simulation of turbulent reacting flows with variable Schmidt numbers," *2019 Fall Meeting of the Western States Section of the Combustion Institute*, October 14-15, 2019, Albuquerque, New Mexico, USA.
4. K. Brinkerhoff, A.J. Josephson, J. Thornock, A. Fry, **D.O. Lignell**, "The effect of soot in oxy-coal combustion systems," *2019 Fall Meeting of the Western States Section of the Combustion Institute*, October 14-15, 2019, Albuquerque, New Mexico, USA.
5. **D.O. Lignell**, I. Wheeler, "Use of the Hierarchical Parcel Swapping method to simulation turbulent subgrid reacting flows with variable Schmidt numbers," AICHE Annual Meeting, November 10-16, 2019, Orlando, Florida, USA.
6. T. Starick, **D.O. Lignell**, H. Schmidt, "Towards a simple mixing model for reacting flows using Hierarchical Parcel Swapping (HiPS)," 17th European Turbulence Conference, September 3-6, 2019, Torino, Italy.
7. T.H Fletcher, **D.O. Lignell**, A.J. Josephson, A. Richards, D. Gunderson, T. Holland, "Advances in modeling coal pyrolysis, char combustion, and soot formation from coal tar," 9th International Symposium on Coal Combustion (ISCC-9), July 21-24, 2019, Qingdao, China.
8. **D.O. Lignell**, A.R. Kerstein, A. Perego, T. Starick, J. Frie, H. Schmidt, "Application of the Hierarchical Parcel Swapping (HiPS) model to turbulent reacting flows," 11th Meeting of the U.S. Joint Sections of the Combustion Institute, March 24-27, 2019, Pasadena, California, USA.
9. K. Brinkerhoff, A. Josephson, B. Isaac, J. Thornock, **D.O. Lignell**, "The effect of soot in oxy-coal combustion systems," (poster), 11th Meeting of the U.S. Joint Sections of the Combustion Institute, March 24-27, 2019, Pasadena, California, USA.
10. 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.
11. 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.
12. 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.

13. 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.
14. 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.
15. **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.
16. **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.
17. **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.
18. 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.
19. 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.
20. 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.
21. 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.
22. 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.
23. 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.
24. 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.
25. N. Gaffin, A.J. Josephson, **D.O. Lignell**, "Soot consumption," *UCUR conference*, February 17, 2017, Utah Valley University, Orem, Utah, USA.
26. 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.
27. 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.
28. 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.
29. 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.
30. 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.
31. 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.

32. 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.
33. 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.
34. 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.
35. 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.
36. 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.
37. 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.
38. **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.
39. **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.
40. 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.
41. 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.
42. **D.O. Lignell**, Direct and stochastic simulation of turbulent reacting flows, *Utah Fluids Conference*, July 27-28, 2014, Utah State University, Logan, UT, USA.
43. 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.
44. **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.
45. 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.
46. D.D. Harris and **D.O. Lignell**, Kinetic model for stable amorphous calcium carbonate, *AIChE Annual Meeting*, November 6, 2013, San Francisco, CA, USA.
47. 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.
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