

Publications

2014

1. Annamalai, S., Neal, C., Ouellet, F., Rollin, B., Jackson, T.L. & Balachandar, S. (2014). Numerical Simulation of Explosive Dispersal of Particles in Cylindrical Geometry. Slides available online on the IWPCTM 2014 website - <https://iwpcmtm.llnl.gov/index.html>.
2. Annamalai, S., Parmar, M., Mehta, Y., & Balachandar, S. (2014). Modeling of hydrodynamic forces on a finite-sized spherical particle due to a planar shock wave. *Bulletin of the American Physical Society*, 59.
3. Akiki, G., & Balachandar, S. (2014). Immersed Boundary Methods on Non-Uniform Grids for Simulation of a Fully Resolved Bed of Particles in a Near-Wall Turbulent Flow. *Bulletin of the American Physical Society*, 59.
4. Rollin, B., Annamalai, S., Neal, C., Jackson, T., & Balachandar, S. (2014). Numerical Study of Explosive Dispersal of Particles. *Bulletin of the American Physical Society*, 59.
5. Jackson, T., Sridharan, P., Zhang, J., & Balachandar, S. (2014). Shock propagation over a deformable particle. *Bulletin of the American Physical Society*, 59.
6. Annamalai, S., Parmar, M. K., Ling, Y., & Balachandar, S. (2014). Nonlinear Rayleigh–Taylor Instability of a Cylindrical Interface in Explosion Flows. *Journal of Fluids Engineering*, 136(6), 060910.
7. Annamalai, S., Balachandar, S., & Parmar, M. K. (2014). Mean force on a finite-sized spherical particle due to an acoustic field in a viscous compressible medium. *Physical Review E*, 89(5), 053008.
8. Mankbadi, M. R., & Balachandar, S. (2014). Multiphase effects on spherical Rayleigh–Taylor interfacial instability. *Physics of Fluids (1994-present)*, 26(2), 023301.
9. Kumar, N., Pascoe, C., Rudolph, D., Lam, H., George, A., and Stitt, G. (2014). Multi-scale, Multi-objective, Behavioral Modeling & Emulation of Extreme-scale Systems. Workshop on Modeling & Simulation of Systems & Applications, Seattle, WA, August 13-14, 2014.
10. Zunino, H., Adrian, R.J., Ding, L., and Prestridge, K. (2014). New in-situ, non-intrusive calibration. 67th Annual Meeting of the APS Division of Fluid Dynamics, San Francisco, CA, November 23-25, 2014.
11. Adrian, R.J., Wu, X., Moin, P., Baltzer, J.R. (2014). Osborne Reynolds pipe flow: direct numerical simulation from laminar to fully-developed turbulence. 67th Annual Meeting of the APS Division of Fluid Dynamics, San Francisco, CA, November 23-25, 2014.
12. Adrian, R. co-authored several presentations. These include: *Triple Pulse Particle Image Velocimeter/Accelerometer Measurements of Flow-Structure Interaction* (S. Gogineni), *Effect of Small Roughness Elements on Thermal Statistics of Turbulent Boundary Layer at Moderate Reynolds Number* (A. Doosttalab), *Multi-Scale Coherent Structure Interactions in Rayleigh-Benard Convection* (P. Sakievich), and *New in-situ, non-intrusive calibration* (H.A. Zunino). *Optimization and Application of Surface Segmentation Technique for Tomographic PIV* (L. Ding). 2014 67th Annual Meeting of APS Division of Fluid Dynamics. *Bulletin of the American Physical Society*, 59.
13. Chen Q., R. J. Adrian, Q. Zhong, D. Li, X. Wang (2014). “Experimental study on the role of spanwise vorticity and vortex filaments in the outer region of open-channel flow”, *J. Hydraulic Res.*, 1-14.

14. Matsumura, Y. and Jackson, T.L. (2014). Numerical simulation of fluid flow through random packs of cylinders using immersed boundary method. *Physics of Fluids*, Vol. 26, 043602.
15. Matsumura, Y. and Jackson, T.L. (2014). Numerical simulation of fluid flow through random packs of polydisperse cylinders. *Physics of Fluids*, Vol. 26, 123302.
16. Anderson, M.J., Jackson, T.L., Wasistho, B., and Buckmaster, J. (2014). A physics-based hot-spot model for pore collapse in HMX. 15th International Detonation Symposium, San Francisco, CA, July 13-18, pp. 951-961.
17. Anderson, M.J., Jackson, T.L., Wasistho, B., and Buckmaster, J. (2014). A physics-based hot-spot model for pore collapse in HMX. 46th JANNAF Combustion Subcommittee Meeting, Albuquerque, NM, December 8-11, 2014.
18. Chen Q., R. J. Adrian, Q. Zhong, D. Li, X. Wang (2014). “Experimental study on the role of spanwise vorticity and vortex filaments in the outer region of open-channel flow”, *J. Hydraulic Res.*, 1-14.
19. Hengxing Tan and Sanjay Ranka (2014). Thermal-aware Scheduling for Data Parallel Workloads on Multi-Core Processors, Proceedings of ISCC 2014.

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20. Sridharan, P., Jackson, T.L., Zhang, J. and Balachandar, S. (2015). Shock interaction with one-dimensional array of particles in air. *Journal of Applied Physics*, Vol. 117, 075902.
21. Thakur, S., Neal, C., Mehta, Y., Sridharan, P., Jackson, T.L. and Balachandar, S. (2015). Microscale Simulations of Shock Interaction with Large Assembly of Particles for Developing Point-Particle Models. SHOCK15 Meeting, American Physical Society.
22. Zhang, J., Jackson, T.L., Sridharan, P. and Balachandar, S. (2015). Towards a mass and volume conserving interface reinitialization scheme for a diffuse interface methodology (for shock-particle interaction). *AIP Conf. Proc.* 1793, 150005 (4 pages).
23. G. Akiki, T.L. Jackson, S. Balachandar (2015). Mean and Fluctuating Force Distribution in a Random Array of Spheres. *Bulletin of the American Physical Society*, Vol. 60.
24. T.L. Jackson, P. Sridharan, J. Zhang, S. Balachandar (2015). Numerical Simulation of Shock Interaction with Deformable Particles Using a Constrained Interface Reinitialization Scheme. *Bulletin of the American Physical Society*, Vol. 60.
25. Diggs, A., Balachandar, S. (2015). Modeling and Simulation Challenges in Eulerian-Lagrangian Computations of Shock-Driven Multiphase Flows, *Bulletin of the American Physical Society*, Vol. 60.
26. McGrath, T., St. Clair, J. and Balachandar, S. (2015). An extended pressure equilibrium model for multiphase flows – application to shock-induced particle dispersion. *APS Shock Compression of Condensed Matter*.
27. Zhang, J., Jackson, T.L. and Balachandar, S. (2015). Numerical simulation of shock/detonation deformable particle interaction with constrained interface reinitialization. *APS Shock Compression of Condensed Matter*.
28. Annamalai, A. and Balachandar, S. (2015). Mean force on a finite-sized rigid particle, droplet, or bubble in a viscous compressible medium. *Physics of Fluids*, Vol. 27(10), 103304.
29. Annamalai, S., Balachandar, S. and Mehta, Y. (2015). Analytic expressions for first order correction to inviscid unsteady forces due to surrounding particles in a multiphase flow. *APS DFD abstracts*.

30. Matsumura, Y., Jenne, D. and Jackson, T.L. (2015). Numerical simulation of fluid flow through random packs of ellipses. *Physics of Fluids*, Vol. 27, 023301.
31. Jackson, T.L., Buckmaster, J., Zhang, J. and Anderson, M. (2015). Pore collapse in an energetic material from the micro-scale to the macro-scale. *Combustion Theory and Modeling*, Vol. 19(3), pp. 347-381.
32. Gillman, A., Amadio, G., Matous, K. and Jackson, T.L. (2015). Third-order thermomechanical properties for packs of Platonic solids using statistical micromechanics. *Proceedings of the Royal Society of London A*, Vol. 471, 20150060.
33. Sakievich, P.J., Peet Y.T., Adrian, R.J. (2015). Large-scale, coherent structures in wide-aspect ratio, turbulent, Rayleigh-Benard convection. *Ninth International Symposium on Turbulence and Shear Flow Phenomena*. July 2015.
34. Wu, X., Moin, P., Adrian, R.J., Baltzer, J.R. (2015). Osborne Reynolds pipe flow: Direct simulation from laminar through gradual transition to fully developed turbulence. *Proc Natl Acad Sci U.S.A.* 2015 Jun 30; 112(26):7920-4. DOI: 10.1073/pnas.1509451112. Epub 2015 Jun 15.
35. Chojnicki K. N., A. B. Clarke, J.C. Phillips, R. J. Adrian (2015). The evolution of volcanic plume morphologies from short-lived eruptions. *Geology*, v. 43 no. 8 p. 707-710. July 10, 2015, DOI:10.1130/G36642.1.
36. J. Zhang, T.L. Jackson (2015). Detonation initiation with thermal deposition due to pore collapse in energetic materials - Towards the coupling between micro- and macroscales. *Bulletin of the American Physical Society*, Vol. 60.
37. Zhang, J. and Jackson, T.L. (2015). Detonation Initiation with Thermal Deposition due to Pore Collapse in Energetic Materials - Towards the Coupling between Micro- and Macroscale. AIAA Paper No. 2015-4097, 51st AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, 27-29 July 2015, Orlando, FL.
38. Amadio, G. and Jackson, T.L. (2015). A new packing code for creating microstructures of propellants and explosives. AIAA Paper No. 2015-4098, 51st AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, 27-29 July 2015, Orlando, FL.
39. Banerjee, T., Ranka, S., (2015). A Genetic Algorithm Based Autotuning Approach for Performance and Energy Optimization, The 6th International Green and Sustainable Computing Conference, 2015.
40. N. Kumar, M. Shringarpure, T. Banerjee, J. Hackl, S. Balachandar, H. Lam, A. George, S. Ranka, (2015). CMT-bone: A mini-app for Compressible Multiphase Turbulence Simulation Software. Workshop on Representative Applications, co-located with IEEE Cluster 2015, Chicago, IL, USA, Sep 8-11 2015.
41. Dylan Rudolph and Greg Stitt (2015). An Interpolation-Based Approach to Multi-Parameter Performance Modeling for Heterogeneous Systems, IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP), July 2015.
42. N. Kumar, C. Hajas, A. George, H. Lam, G. Stitt (2015). Multi-scale, "Multi-objective Behavioral Emulation of Future-gen Applications and Systems", 2015 Salishan Conference on High-Speed Computing, April 27-30, 2015, Gleneden Beach, Oregon.
43. N. Kumar, A. George, H. Lam, G. Stitt, S. Hammond (2015). "Understanding Performance and Reliability Trade-offs for Extreme-scale Systems using Behavioral Emulation", Workshop on Modeling & Simulation of Systems and Applications (ModSim 2015), August 12-14, 2015, Seattle, Washington.

44. N. Kumar, M. Shringarpure, T. Banerjee, J. Hackl, S. Balachandar, H. Lam, A. George, S. Ranka (2015). CMT-bone: A mini-app for Compressible Multiphase Turbulence Simulation Software. Workshop on Representative Applications, co-located with IEEE Cluster 2015, Chicago, IL, USA, Sep 8-11 2015.

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45. Annamalai, S., Rollin, B., Ouellet, F., Neal, C., Jackson, T.L. and Balachandar, S. (2016). Effects of initial perturbations in the early moments of an explosive dispersal of particles. *ASME Journal of Fluids Engineering*, Vol. 138, 070903 (9 pages).
46. Sridharan, P., Jackson, T.L., Zhang, J., Balachandar, S., and S. Thakur (2016). Shock interaction with deformable particles using a constrained interface reinitialization scheme. *Journal of Applied Physics*, Vol. 119, 064904, 18 pages.
47. Akiki, G., and Balachandar, S. (2016). Immersed boundary method with non-uniform distribution of Lagrangian markers for a non-uniform Eulerian mesh. *Journal of Computational Physics*. Vol. 307, pp. 34-59. DOI 10.1016/j.jcp.2015.11.019.
48. Mehta, Y., Jackson, T. L., Zhang, J., and Balachandar, S., (2016). “Numerical investigation of shock interaction with one-dimensional transverse array of particles in air”. *Journal of Applied Physics* 119(10), p. 104901.
49. Mehta, Y., Neal, C., Jackson, T. L., Balachandar, S., and Thakur, S., (2016). “Shock interaction with three-dimensional face centered cubic array of particles”. *Phys. Rev. Fluids*, Vol. 1, 054202 (27 pages).
50. Akiki, G., Jackson, T.L., and Balachandar, S. (2016). Force variation within arrays of mono-disperse spherical particles. *Physical Review Fluids*, Vol. 1, 044202 (29 pages).
51. Ling, Y., Balachandar, S. and Parmar, M. (2016). Interphase heat transfer and energy coupling in turbulent dispersed multiphase flows. *Physics of Fluids*, Vol. 28(3), 033304.
52. McGrath, T., St. Clair, J. and Balachandar, S. (2016). A compressible two-phase model for dispersed particle flows with application from dense to dilute regimes. *Journal of Applied Physics*, Vol. 119(17), 174903.
53. Diggs, A. and Balachandar, S. (2016). Evaluation of methods for calculating volume fraction in Eulerian-Lagrangian multiphase flow simulations. *Journal of Computational Physics*, Vol.313, pp. 775-798.
54. Schwarzkopf, J.D., Balachandar, S. and Butler, W.T. (2016). Compressible multiphase flow. *Multiphase Flow Handbook*, Vol. 455.
55. Koneru, R., Rollin, B., Ouellet, F., Annamalai, S. and Balachandar, S. (2016). Simulations of shock wave interaction with a particle cloud. *APS DFD abstracts*.
56. Neal, C., Mehta, Y., Salari, K., Jackson, T.L. and Balachandar, S. (2016). Shock interaction with random spherical particle beds. *APS DFD abstracts*.
57. Akiki, G., Jackson, T.L., Balachandar, S. (2016). Pairwise interaction extended point particle (PIEP) model for a random array of spheres. *APS DFD abstracts*.
58. Mehta, Y., Neal, C., Jackson, T.L. and Balachandar, S. (2016). Shock particle interaction – fully resolved simulations and modeling. *APS DFD abstracts*.
59. Ouellet, F., Park C., Rollin, B. and Balachandar, S. (2016). A multi-fidelity surrogate model for handling real gas equations of state. *APS DFD abstracts*.
60. Akiki, G., Jackson, T.L. and Balachandar, S. (2016). Quantifying and modeling the force variation within random arrays of spheres. *ASME 2016 IMECE abstracts*.

61. Zhang, J. and Jackson, T.L. (2016). Direct detonation initiation with thermal deposition due to pore collapse in energetic materials – Towards the coupling between micro- and macroscale. *Combustion Theory and Modelling*, 1218053.
62. C. Park, & N. H. Kim, (2016). Safety envelope for load tolerance of structural element design based on multi-stage testing. *Advances in Mechanical Engineering*, 8(9).
63. C. Park, R. T. Haftka, & N. H. Kim, (2016). Remarks on multi-fidelity surrogates. *Structural and Multidisciplinary Optimization*, 1-22.
64. Y. Zhang, C. Park, N. H. Kim., R. T. Haftka (2016). “Function Prediction at One Inaccessible Point using Converging Lines”, *Journal of Mechanical Design*, accepted for publication in Jan 2017.
65. Doosttalab A., G. Araya, J. Newman, R. J. Adrian, K. Jansen, L. Castillo (2016). “Effect of small roughness elements on thermal statistics of a turbulent boundary layer at moderate Reynolds number” *J. Fluid Mech.* 787, 84-115.
66. Doosttalab A., S. Dharmarathne, M. Tutkun M., R. J. Adrian, L. Castillo (2016). “Analysis of velocity structures in a transitionally rough turbulent boundary layer” Chapter 5 in A. Pollard et al. (eds.), *Whither Turbulence and Big Data in the 21st Century*, DOI 10.1007/978-3-319-41217-7_5.
67. Ding L, R J Adrian (2016). N-pulse Particle Image Velocimetry-accelerometry for Unsteady Flow-structure Interaction” *Measurement Science and Technology* 28(1).
68. Sakievich, P., Y. Peet and R. J. Adrian (2016). “Large-Scale Thermal Motions of Turbulent Rayleigh-Bénard Convection in a Wide Aspect-Ratio Cylindrical Domain”, *Int’l. J. Heat and Fluid Flow*, <http://dx.doi.org/10.1016/j.ijheatfluidflow.2016.04.011>.
69. Chaudhury, R, V. Atlasman, G. Pathangey, N. Pracht, R. J. Adrian and D. H. Frakes (2016). “A high performance pulsatile pump for aortic flow experiments in 3-dimensional models”, *Cardiovascular Engineering & Technology* 7(2), DOI:10.1007/s13239-016-0260-3.
70. Chaudhury, R, R. J. Adrian and D. H. Frakes (2016). “Prediction of flow and velocity waveforms in in vitro cardiovascular flow experiments”, *IEEE Trans. on Biomed. Engr.*, Vol. 63.
71. T. Banerjee, J. Hackl, M. Shringarpure, T. Islam, S. Balachandar, T. Jackson and S. Ranka (2016). “CMT-bone – A Proxy Application for Compressible Multiphase Turbulent Flows”, *HiPC*.
72. M. Gadou, T. Banerjee and S. Ranka (2016). “Multiobjective Optimization of CMT-bone on Hybrid Processors”, *IGSC*.
73. N. Kumar, C. Pascoe, C. Hajas, H. Lam, G. Stitt, and A. George (2016). “Behavioral Emulation for Scalable Design-Space Exploration of Algorithms and Architectures”, 2016 Workshop on Exascale Multi/Many Core Computing Systems (E-MuCoCoS), June 23, 2016, Frankfurt, Germany.
74. C. Pascoe, N. Kumar, K. Alli, H. Lam, G. Stitt, and A. George (2016). “FPGA-Pipelined Discrete-Event Simulations for Accelerated Behavioral Emulation of Extreme-Scale Systems”, *Workshop on Modeling & Simulation of Systems and Applications (ModSim 2016)*, August 10-11, 2016, Seattle, Washington.

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75. Annamalai, S., Balachandar, S. Sridharan, P. and Jackson, T.L. (2017). Pressure evolution equation for the particulate phase in inhomogeneous compressible disperse multiphase flows. *Physical Review Fluids*, Vol. 2, 024301 (23 pages).

76. Akiki, G., Jackson, T.L., and Balachandar, S. (2017). Pairwise interaction extended point-particle model for a random array of monodisperse spheres. *Journal of Fluid Mechanics*, Vol. 813, pp. 882-928.
77. P. Crittenden & S. Balachandar (2017). The impact of the form of the Euler equations for radial flow in cylindrical and spherical coordinates on numerical conservation and accuracy, submitted to *Shockwaves* (2017).
78. F. Ouellet, C. Park, B. Rollin, and S. Balachandar, S. (2017). Analysis of a Multi-Fidelity Surrogate for Handling Real Gas Equations of State, Proceedings of the 20th Biennial APS Conference on Shock Compression of Condensed Matter, St-Louis, MO.
79. Moore, W.C., Akiki, G., Balachandar, S. (2017). A Hybrid Point-Particle Force Model That Combines Physical and Data-Driven Approaches, to be submitted.
80. Akiki, G., Moore, W. C., Balachandar, S. (2017). "Pairwise-interaction extended point-particle model for particle-laden flows," *Journal of Computational Physics*, Vol. 351, pp. 329-357.
81. Hughes, K., Diggs, A., Littrell, D., Balachandar, S., Haftka, R., Kim, N., Park, C. (2017). Uncertainty quantification of experiments on a small number of explosively driven particles. 55th AIAA Aerospace Sciences Meeting, 1463.
82. Nili, S., Park, C., Haftka, R., Balachandar, S. and Kim, N. (2017). Sensitivity analysis of force models for a four-way coupled Eulerian-Lagrangian dispersed multiphase flow. 23rd AIAA Computational Fluid Dynamics Conference, 3800.
83. Thakur, S., Neal, C., Mehta, Y., Sridharan, Jackson, T.L., and Balachandar, S. (2017). Microscale simulations of shock interaction with large assemble of particles for developing point-particle models. *AIP Conference Proceedings* 1793(1), 150007.
84. Diggs, A. and Balachandar, S. (2017). Modeling and simulation challenges in Eulerian-Lagrangian computations of multiphase flows, *AIP Conference Proceedings*, 1793(1), 150008.
85. Zhang, J., Jackson, T.L. and Balachandar, S. (2017). Towards a mass and volume conserving interface reinitialization scheme for a diffuse interface methodology (for shock particle interaction), *AIP Conference Proceedings*, 1793(1), 150005.
86. Annamalai, S. and Balachandar, S. (2017). Faxen form of time-domain force on a sphere in unsteady spatially varying viscous compressible flows. *Journal of Fluid Mechanics*. Vol.816, pp. 381-411.
87. McGrath, T., St. Clair, J. and Balachandar, S. (2017). Modeling compressible multiphase flows with dispersed particles in both dense and dilute regimes, *Shock Waves*, 1-12.
88. Zwick, D., Sakhaee, E., Balachandar, S. and Entezari, A. (2017). Accurate signal reconstruction for higher order Lagrangian-Eulerian back-coupling in multiphase turbulence, *Fluid Dynamic Research*, Vol. 49(5), 055507.
89. Aref, H. and Balachandar, S. (2017). *A first course in computational fluid dynamics*, Cambridge University Press.
90. Nili, S., Park, C., Haftka, R., Kim, N. and Balachandar, S. (2017). Effect of Finite Particle Size on Convergence of Point Particle Models in Euler-Lagrange Multiphase Dispersed Flow, *Bulletin of the American Physical Society* 62.
91. Zwick, D., Hackl, J. and Balachandar, S. (2017). Scalable Methods for Eulerian-Lagrangian Simulation Applied to Compressible Multiphase Flows, *Bulletin of the American Physical Society* 62.

92. Garno, J., Ouellet, F., Koneru, R., Balachandar, S. and Rollin, B. (2017). Predictive Capability of the Compressible MRG Equation for an Explosively Driven Particle with Validation, *Bulletin of the American Physical Society* 62.
93. Marjanovic, G., Hackl, J., Annamalai, S., Jackson, T.L. and Balachandar, S. (2017). Fully resolved simulations of expansion waves propagating into particle beds, *Bulletin of the American Physical Society* 62.
94. Ouellet, F., Park, C., Koneru, R., Balachandar, S. and Rollin, B. (2017). A Multi-Fidelity Surrogate Model for the Equation of State for Mixtures of Real Gases, *Bulletin of the American Physical Society* 62.
95. Koneru, R., Rollin, B., Ouellet, F., Park, C. and Balachandar, S. (2017). Euler-Lagrange Simulations of Shock Wave-Particle Cloud Interaction, *Bulletin of the American Physical Society* 62.
96. Moore, C., Akiki, G. and Balachandar, S. (2017). A Hybrid Physics-Based Data-Driven Approach for Point-Particle Force Modeling, *Bulletin of the American Physical Society* 62.
97. Liu, K. and Balachandar, S. (2017). Pairwise Interaction Extended Point-Particle (PIEP) model for multiphase jets and sedimenting particles, *Bulletin of the American Physical Society* 62.
98. Mehta, Y., Salari, K., Jackson, T.L., Balachandar, S. and Thakur, S. (2017). Strong Shock Propagating Over a Random Bed of Spherical Particles, *Bulletin of the American Physical Society* 62.
99. Durant, B., Hackl, J. and Balachandar, S. (2017). Long-time stability effects of quadrature and artificial viscosity on nodal discontinuous Galerkin methods for gas dynamics, *Bulletin of the American Physical Society* 62.
100. Hackl, J., Shringarpure, M., Fischer, P. and Balachandar, S. (2017). Shock capturing in discontinuous Galerkin spectral elements via the entropy viscosity method, *Bulletin of the American Physical Society* 62.
101. Osborne, B., Jackson, T.L. and Balachandar, S. (2017). Density Discontinuity Interaction with a Structured Array of Particles, *Bulletin of the American Physical Society* 62.
102. Zhang, J. and Jackson, T.L. (2017). Direct detonation initiation with thermal deposition due to pore collapse in energetic materials – Towards the coupling between micro- and macroscale. *Combustion Theory and Modelling*, Vol. 21(2), pp. 248-273; 1218053.
103. Jackson, T.L., and Zhang, J. (2017). Density-based kinetics for mesoscale simulations of detonation initiation in energetic materials. *Combustion Theory Modelling*, Vol. 21(4), pp. 749-769; 1296975.
104. Zhang, J., Jackson, T.L., and Jost, A.M.D. (2017). Effects of Air Chemistry and Stiffened EOS of Air in Numerical Simulations of Bubble Collapse in Water. *Physical Review Fluids*, Vol. 2, 053603.
105. Jackson, T.L., Antoine, A.M.D., Zhang, J., Sridharan, P. and Amadio, G. (2017). Multi-dimensional mesoscale simulations of detonation initiation in energetic materials with density-based kinetics. *Combustion Theory Modelling*, 1401121 (25 pages).
106. Jackson, T.L. and Zhang, J. (2017). Mesoscale simulations of energetic materials using density-based kinetics. *SIAM Sixteenth International Conference on Numerical Combustion*, April 3-5, Orlando, Florida.
107. B.T. Bojko, M.L. Gross, and T.L. Jackson (2017). Investigating coupled micro and mesoscale combustion models in 3D numerical simulations of heterogeneous propellants.

- JANNAF Paper, presented at the 2017 48th Combustion JANNAF Joint Meeting, Newport News, VA, December 4-7.
108. M. Gadou, T. Banerjee and S. Ranka, "Multiobjective evaluation and optimization of CMT-bone on multiple CPU/GPU systems", in preparation (2017).
 109. Ouellet, F., Annamalai, S. and Rollin, B., (2017). January. Effect of a bimodal initial particle volume fraction perturbation in an explosive dispersal of particles. In AIP Conference Proceedings (Vol. 1793, No. 1, p. 150011). AIP Publishing.
 110. Fernández-Godino, M. G., Park, C., Kim, N. H., & Haftka, R. T. (2016). Review of multi-fidelity models. *arXiv preprint arXiv:1609.07196*.
 111. H. Zunino, R.J. Adrian, A.B. Clarke, B.A. Johnson (2017). "Exploring the Early Structure of a Rapidly Decompressed Particle Bed," American Physical Society Division of Fluid Dynamics Meeting, Denver, CO, November 2017.
 112. B.A. Johnson, H. Zunino, R.J. Adrian, A.B. Clarke (2017). "Gas and particle motions in a rapidly decompressed flow," American Physical Society Division of Fluid Dynamics Meeting, Denver, CO, November 2017.
 113. R.J. Adrian, X. Wu, P. Moin (2017). "Turbulent spots and scalar flashes in pipe transition," American Physical Society Division of Fluid Dynamics Meeting, Denver, CO, November 2017.
 114. C. Park, R. T. Haftka, and N. H. Kim (2017). Low-Fidelity Scale Factor Improves Bayesian Multi-Fidelity Prediction by Reducing Bumpiness of Discrepancy Function, submitted to *Structural Multidisciplinary Optimization*.
 115. N. Qui, C. Park, Y. Gao, J. Fang, G. Sun, and N. H. Kim (2017). Sensitivity-Based Parameter Calibration and Model Validation under Model Error, *ASME Journal of Mechanical Design*, 140(1), 011403.
 116. Bae, S., Kim, N. H., Park, C. and Kim, Z. (2017). Confidence Interval of Bayesian Network and Global Sensitivity Analysis. *AIAA Journal*, 55(11), pp. 3916-3924.
 117. Zhang, Y., Kim, N.-H., Park, C., and Haftka, R. T. (2017). "Multi-Fidelity Surrogate Based on Single Linear Regression," arXiv preprint arXiv:1705.02956.
 118. Tania Banerjee, Jason Hackl, Mrugesh Shringarpure, Tanzima Islam, S. Balachandar, Thomas Jackson, Sanjay Ranka (2017). "A New Proxy Application for Compressible Multiphase Turbulent Flows", Elsevier Sustainable Computing: Informatics and Systems, Volume 16, 2017, Pages 11-24.
 119. Mohamed Gadou, Tania Banerjee, Meena Arunachalam, Sanjay Ranka (2017). "Multiobjective evaluation and optimization of CMT-bone on multiple CPU/GPU systems", *Journal of Sustainable Computing: Informatics and Systems*, 2017.
 120. Y. Zhang, A. Neelakantan, N. Kumar, C. Park, R. Haftka, N. H. Kim, and H. Lam (2017). "Multi-fidelity Surrogate Modeling for Application/Architecture Co-design", Performance Modeling, Benchmarking and Simulation of High Performance Computer Systems (PMBS17), Denver, CO, Nov. 13, 2017.
 121. C. Pascoe, S. Chenna, G. Stitt, H. Lam (2017). "A FPGA-Pipelined Approach for Accelerated Discrete-Event Simulation of HPC Systems", Heterogeneous High-performance Reconfigurable Computing (H2RC), Denver, CO, Nov. 13, 2017.

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122. Mehta, Y., Neal, C., Salari, K., Jackson, T., Balachandar, S., & Thakur, S. (2018). "Propagation of a strong shock over a random bed of spherical particles," *Journal of Fluid Mechanics*, 839, 157-197. doi:10.1017/jfm.2017.909.
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