

2020 JOURNAL PUBLICATIONS

Note that CoMFRE affiliates are identified by **bold** names.

First Quarter:

- J.K. Bothell, N. Machicoane, D. Li, T.B. Morgan, A. Aliseda, A.L. Kastengren, and T.J. **Heindel**, "Comparison of X-ray and optical measurements in the near-field of an optically dense coaxial air-assisted atomizer", International Journal of Multiphase Flow, 2020, Vol. 125. Paper 103219, <https://doi.org/10.1016/j.ijmultiphaseflow.2020.103219>
- A. Chausalkar, C-B. M. Kweon, S-C. **Kong**, and J.B. **Michael**, "Leidenfrost behavior in drop-wall impacts at combustor-relevant ambient pressures", International Journal of Heat and Mass Transfer, 2020, 153, 119571. <https://doi.org/10.1016/j.ijheatmasstransfer.2020.119571>
- W. Dong, W. Li, K. Vessalas and K. **Wang**, "Mechanical and conductive properties of smart cementitious composites with conductive rubber crumbs", ES Materials & Manufacturing, 2020, 7, DOI: 10.30919/esmm5f711
- B. Kong and R. O. **Fox**, "A moment-based kinetic theory model for polydisperse gas-particle flows", Powder Technology, 2020, 365, 92-105.
- G. Li, J. Zhou, J. Yue, X. Gao, and K. **Wang**, "Effects of nano-SiO₂ and secondary water curing on the carbonation and chloride resistance of autoclaved concrete", Construction & Building Materials, 2020, 235, 117465
- J. Liu, K. **Wang**, Q. Zhang, G. Lomboy, L. Zhang, and J. Liu, "Effects of ultrafine powders on the properties of lubrication layer and highly flowable concrete", ASCE J. of CE Materials, 32: 5, May 2020. [https://doi.org/10.1061/\(ASCE\)MT.1943-5533.0003193](https://doi.org/10.1061/(ASCE)MT.1943-5533.0003193); <https://ascelibrary.org/doi/10.1061/%28ASCE%29MT.1943-5533.0003193>
- N. Panicker, A. **Passalacqua**, and R.O. **Fox**, "Computational study of buoyancy driven turbulence in statistically homogeneous bubbly flows", Chemical Engineering Science, 2020, 216, 115546. <https://doi.org/10.1016/j.ces.2020.115546>
- A. **Passalacqua**, F. Laurent, and R. O. **Fox**, "A second-order realizable scheme for moment advection on unstructured grids", Computer Physics Communications, 2020, 248, 106993.
- H. Qin, K. Manikandan GD, K. Wi, X. Zhang, and K. **Wang**, "Characterizing cement mixtures for concrete 3D printing", Manufacturing Letters, Accepted 3/4/2020
- M. Ray, F. Chowdhury, A. Sowinski, P. Mehrani, A. **Passalacqua**, "Eulerian modeling of charge transport in bi-disperse particulate flows due to triboelectrification", Physics of Fluids, 2020, 32, 023302. <https://doi.org/10.1063/1.5140473>; <https://aip.scitation.org/doi/10.1063/1.5140473>
- Y. Sargam, K. **Wang**, and J. Alleman, "Effects of modern concrete materials on thermal conductivity", ASCE J. of Civil Engineering Materials, 2020, 32(2). [https://doi.org/10.1061/\(ASCE\)MT.1943-5533.0003026](https://doi.org/10.1061/(ASCE)MT.1943-5533.0003026); <https://ascelibrary.org/doi/10.1061/%28ASCE%29MT.1943-5533.0003026>
- G. Shallcross, R. O. **Fox**, and J. Capecelatro, "A volume-filtered description of compressible particle-laden flows", International Journal of Multiphase Flows, 2020, 122, 103138.

- K. Wi, V. Suresh, K. **Wang**, B. Li, and H. Qin, “Quantifying quality of 3D printed clay objects using a 3D structured light scanning system”, *Additive Manufacturing*, 2020, 32, 100987. <https://doi.org/10.1016/j.addma.2019.100987>
- F. Zhang, J. Xia, G. Li, Z. Guo, H. Chang, and **K. Wang**, “Degradation of axial ultimate load-bearing capacity of circular thin-walled concrete-filled steel tubular stub columns after corrosion”, *Materials J.* 2020, 13(3):795. <https://doi.org/10.3390/ma13030795>

Second Quarter:

- G. Avalos, **Pelin G. Geredeli**, Boris Muha: "Wellposedness, spectral analysis and asymptotic stability of a multilayered heat-wave-wave system", *Journal of Differential Equations* 2020, 269(9):7129-7156. <https://doi.org/10.1016/j.jde.2020.05.035>
- A.D. Ilgun, **A. Passalacqua**, R.O. Fox, A quadrature-based conditional moment closure for mixing-sensitive reactions, *Chemical Engineering Science*. 226 (2020) 115831. <https://doi.org/10.1016/j.ces.2020.115831>.
- D. Minglani, A. Sharma, H. Pandey, R. Dayal, J.B. Joshi, S. Subramaniam, 2020. “A Review of Granular Flow in Screw Feeders and Conveyors”; *Powder Technology* 366:369-381.
- B.B Patel, MC. McNamara, L.S. Pesquera-Colom, E.M. Kozik, J. Okuzonu, N.N. Hashemi, D.S. Sakaguchi, “Recovery of Encapsulated Adult Neural Progenitor Cells from Microfluidic-Spun Hydrogel Fibers Enhances Proliferation and Neuronal Differentiation”, *ACS Omega* 2020, 5, 14, 7910–7918, <https://doi.org/10.1021/acsomega.9b04214>.
- A.H. Wrede, M.C. McNamara, R. Baldwin, J. Luo, R. Montazami, A. Kanthasamy, **N.N. Hashemi**, “Characterization of Astrocytic Response after Experiencing Cavitation In Vitro”, *Global Challenges* (2020) 1900014 , <https://doi.org/10.1002/gch2.201900014>.

Third Quarter:

- J.K. Bothell, T.B. Morgan, and **T.J. Heindel**, “Image-Based Feedback Control for a Coaxial Spray,” *ASME Journal of Fluids Engineering*, 142(11): Paper 114501, 2020. <https://doi.org/10.1115/1.4048131>.
- **P.G. Geredeli**, “A time domain approach for the exponential stability of a linearized compressible flow-structure PDE system”, *Mathematical Methods in the Applied Sciences*, 2020. <https://doi.org/10.1002/mma.6833>.
- A.D. Ilgun, **R.O. Fox**, and **A. Passalacqua**, “Solution of the first-order conditional moment closure for multiphase reacting flows using quadrature-based moment methods”, *Chemical Engineering Journal*, 2020. <https://doi.org/10.1016/j.cej.2020.127020>
- A.D. Ilgun, A. Passalacqua, R.O. Fox, “Application of quadrature-based moment methods to the conditional moment closure”, *Proceedings of the Combustion Institute*, 2020. Corrected proof: <https://doi.org/10.1016/j.proci.2020.07.075>.
- E.L. Johnson, M.C.H. Wu, F. Xu, N.M. Wiese, M.R. Rajanna, A.J. Herrema, **B. Ganapathysubramanian**, T.J.R. Hughes, M.S. Sacks, and **M-C. Hsu**, “Thinner biological tissues induce leaflet flutter in aortic heart valve replacements”, *Proceedings of the National Academy of Sciences*, 117:19007–19016, 2020. <https://doi.org/10.1073/pnas.2002821117>

- E.L. Johnson and **M-C. Hsu**, “Isogeometric analysis of ice accretion on wind turbine blades”, *Computational Mechanics*, 66:311–322, 2020. <https://doi.org/10.1007/s00466-020-01852-y>
- N. Kozak, F. Xu, M.R. Rajanna, L. Bravo, M. Murugan, A. Ghoshal, Y. Bazilevs, **M-C. Hsu**, “High-fidelity finite element modeling and analysis of adaptive gas turbine stator–rotor flow interaction at off-design conditions”, *Journal of Mechanics*, 2020. <https://doi.org/10.1017/jmech.2020.28>
- N. Kozak, M.R. Rajanna, M.C.H. Wu, M. Murugan, L. Bravo, A. Ghoshal, **M-C. Hsu**, Y. Bazilevs, “Optimizing gas turbine performance using the surrogate management framework and high-fidelity flow modeling”, *Energies*, 13:4283, 2020. <https://doi.org/10.3390/en13174283>
- D.W. Laurence, E.L. Johnson, **M-C. Hsu**, R. Baumwart, A. Mir, H.M. Burkhart, G.A. Holzapfel, Y. Wu, C-H. Lee, “A pilot in silico modeling-based study of the pathological effects on the biomechanical function of tricuspid valves”, *International Journal for Numerical Methods in Biomedical Engineering*, 36:e3346, 2020. <https://doi.org/10.1002/cnm.3346>
- C.J. Ross, **M-C. Hsu**, R. Baumwart, A. Mir, H.M. Burkhart, G.A. Holzapfel, Y. Wu, C-H. Lee, “Quantification of load-dependent changes in the collagen fiber architecture for the strut chordae tendineae-leaflet insertion of porcine atrioventricular heart valves”, *Biomechanics and Modeling in Mechanobiology*, 2020. <https://doi.org/10.1007/s10237-020-01379-4>
- K. Zhu, S.J. Barkley, C.E. Dedic, **T.R. Sippel**, **J.B. Michael**, "Two-photon laser-induced fluorescence of sodium in multiphase combustion," *Applied Optics*, 59:5632-5641, 2020. <https://doi.org/10.1364/AO.392710>.

Fourth Quarter:

- Bothell, J.K., T.B. Morgan, A.L. Kastengren, and **T.J. Heindel**, “Determining spray axial velocity from focused X-ray radiography” *Atomization and Sprays*, 30(6): 389-400, 2020. <https://doi.org/10.1615/AtomizSpr.2020034840>
- Bryngelson, S.H., T. Colonius, and **R.O. Fox**, “QBMMlib: A library of quadrature-based moment methods” *SoftwareX*, 12:100615, 2020. <https://doi.org/10.1016/j.softx.2020.100615>
- **Fox, R.O.**, “Effect of the conditional scalar dissipation rate in the conditional moment closure” *Physics of Fluids*, 32:115118, 2020. <https://doi.org/10.1063/5.0030092>
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- Lattanzi, A.M., V. Tavanashad, **S. Subramaniam**, and J. Capecelatro, “Stochastic models for capturing dispersion in particle-laden flows” *Journal of Fluid Mechanics*, 903, 2020. <https://doi.org/10.1017/jfm.2020.625>
- Minglani, D., A. Sharma, H. Pandey, R. Dayal, J. Joshi, B. Jyeshtharaj, and **S. Subramaniam**, “A review of granular flow in screw feeders and conveyors” *Powder Technology*, 366:369-381, 2020. <https://doi.org/10.1016/j.powtec.2020.02.066>
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- Tavanashad, V., **A. Passalacqua**, and **S. Subramaniam**, “Particle-resolved simulation of freely evolving particle suspensions: Flow physics and modeling” *International Journal of Multiphase Flow*, 135:103533, 2020.
<https://doi.org/10.1016/j.ijmultiphaseflow.2020.103533>.
- Tavanashad, V., and **S. Subramaniam**, “Fully resolved simulation of dense suspensions of freely evolving buoyant particles using an improved immersed boundary method” *International Journal of Multiphase Flow*, 132: 103396, 2020.
<https://doi.org/10.1016/j.ijmultiphaseflow.2020.103396>
- Yeh, H.-L., and **J. Juárez**, “Ultrasound-enhanced diffusion and streaming of colloids in porous media” *Experimental Thermal and Fluid Science*, Available online 2020.
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