



Sadegh Dabiri

Ph.D. University of California, Irvine – 2009

Assistant Professor

Agricultural and Biological Engineering
Purdue University
West Lafayette, IN 47907-2093
Phone: (765) 496-2044
dabiri@purdue.edu

Research Areas:

Computational fluid dynamics of multiphase flows including turbulent bubbly flow, cavitation and bubble dynamics, sprays and liquid atomization, heat transfer, mixing in supercritical conditions, and solid particles transport in fluids.

Selected Publications (last 5 years):

- G. Tryggvason, S. Dabiri, "Direct Numerical Simulation of Shock Propagation in Bubbly Liquids," *Shock Wave Science and Technology Reference Library*, Vol. 8, Can F. Delale (editor). p. 117. Springer 2013.
- S. Dabiri, A. Doostmohammadi, M. Bayareh, A.M. Ardekani "Numerical simulation of the buoyant rise of a suspension of drops in a linearly stratified fluid," *International Journal of Multiphase Flow*, 69, 817, 2015.
- S. Dabiri, G. Tryggvason, "Heat transfer in turbulent bubbly channel flows," *Chemical Engineering Science*, 122, 106-113, 2015.
- A. Doostmohammadi, S. Dabiri, A.M. Ardekani "A numerical study of the dynamics of a particle settling at moderate Reynolds numbers in a linearly stratified fluid," *Journal of Fluid Mechanics*, 750, 5-32, 2014.
- S. Dabiri, S. Schmid, G. Tryggvason, "Fully resolved numerical simulations of fused deposition modeling," *Proceedings of ASME 2014 International Manufacturing & Science and Engineering Conference (MSEC2014-4107)*, Jun. 9-14, 2014, Detroit, Michigan.
- M. Bayareh, S. Dabiri, A.M. Ardekani, "Interaction between a pair of drops ascending in a linearly stratified fluid," *Proceedings of ASME 2013 Fluids Engineering Summer Meeting (FEDSM2013-16046)*, Jul. 7-11, 2013, Incline Village, Nevada.
- M.. Bayareh, A. Doostmohammadi, S. Dabiri, A.M. Ardekani, "On the rising motion of a drop in stratified fluids," *Physics of Fluids*, 25 (10), article no. 103302, 2013.
- S. Dabiri, J. Lu, G. Tryggvason, "Transition between regimes of a vertical channel bubbly upflow due to bubble deformability," *Physics of Fluids*, 25 (10), article no. 102110, 2013.
- G. Tryggvason, S. Dabiri, B. Aboulhasanzadeh, J. Lu, "Multiscale considerations in DNS of multi-phase flows," *Physics of Fluids*, 25 (3), article no. 031302, 2013.
- S. Dabiri, G. Tryggvason, "Turbulent bubbly channel flow and its effect on heat transfer," *Proceedings of ASME 2013 Fluids Engineering Summer Meeting (FEDSM2013-16217)*, Jul. 7-11, 2013, Incline Village, Nevada.
- M. Rohani, S. Dabiri, F. Jabbari, D. Dunn-Rankin, "Modeling the breakup of liquid jets subject to pure and composite disturbances," *Atomization and Sprays*, 22 (7), 543-559, 2012.
- G. Wu, S. Dabiri, M.T. Timko, A.F. Ghoniem, "Fractionation of multi-component hydrocarbon droplets in water at supercritical or near-critical conditions," *Journal of Supercritical Fluids*, 72, 150-160, 2012.
- S. Dabiri, G. Wu, M.T. Timko, A.F. Ghoniem, "Mixing of single-component hydrocarbon droplets and supercritical water," *Journal of Supercritical Fluids*, 67, 29-40, 2012.
- S. Dabiri, G. Tryggvason, J. Lu "DNS studies of turbulent bubbly flows in vertical channels," *Proceedings of ASME 2012 Fluids Engineering Summer Meeting (FEDSM2012-72111)*, Jul. 8-12, 2012, Rio Grande, Puerto Rico.
- D. Jarrahbashi, W.A. Sirignano, S. Dabiri, "Transient high-pressure fuel injection processes," *23rd Annual Conference on Liquid Atomization and Spray Systems*, May 15-18, 2011, Ventura, California.
- S. Dabiri, W.A. Sirignano, D.D. Joseph, "Interaction between a cavitation bubble and shear flow," *Journal of Fluid Mechanics*, 651, 93-116, 2010.
- S. Dabiri, W.A. Sirignano, D.D. Joseph, "A numerical study on the effects of cavitation on the orifice flow," *Physics of Fluids*, 22 (4), article no. 042102, 2010.