

References

- Abdalla, K. L., & Berenyi, S. G. (1969). VAPOR INGESTION PHENOMENON IN WEIGHTLESSNESS. *National Aeronautics and Space Administration, TN D-5210.*
<http://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/19690015539.pdf>
- Ahmad, T., & Hassan, I. (2006). Experimental Investigation on the Onset of Gas Entrainment from a Stratified Two-Phase Region Through Multiple Branches Mounted on a Curved Surface. *Journal of Fluids Engineering, 128(4)*, 726.
<http://doi.org/10.1115/1.2201645>
- Ahmed, M., Hassan, I., & Esmail, N. (2003). Modeling of the Onset of Gas Entrainment Through a Finite-Side Branch. *Journal of Fluids Engineering, 125(5)*, 902.
<http://doi.org/10.1115/1.1601256>
- Ahmed, M., Hassan, I., & Esmail, N. (2004). The onset of gas pull-through during dual discharge from a stratified two-phase region: Theoretical analysis. *Physics of Fluids, 16(9)*, 3385–3392. <http://doi.org/10.1063/1.1771619>
- Andaleeb, A. F., Hassan, I., Saleh, W., & Ahmad, T. (2006). Modeling of the Onset of Gas Entrainment From a Stratified Two-Phase Region Through Branches on a Curved Surface. *Journal of Fluids Engineering, 128(4)*, 717.

<http://doi.org/10.1115/1.2201614>

Bartley, J. T., Soliman, H. M., & Sims, G. E. (2008). Experimental investigation of the onsets of gas and liquid entrainment from a small branch mounted on an inclined wall. *International Journal of Multiphase Flow*, 34(10), 905–915.
<http://doi.org/10.1016/j.ijmultiphaseflow.2008.04.003>

Bowden, R. C., & Hassan, I. G. (2007). Flow Field Characterization at the Onset of Gas Entrainment in a Single Downward Discharge Using Particle Image Velocimetry. *Journal of Fluids Engineering*, 129(12), 1565. <http://doi.org/10.1115/1.2801356>

Bowden, R. C., & Hassan, I. G. (2009). Modeling the Onset of Gas Entrainment in a Single Downward Discharge From a Stratified Gas-Liquid Region With Liquid Crossflow. *Journal of Fluids Engineering*, 131(3), 31304.
<http://doi.org/10.1115/1.3059586>

Bowden, R. C., & Hassan, I. G. (2011). The onset of gas entrainment from a flowing stratified gas-liquid regime in dual discharging branches. Part I: Flow visualization and related phenomena. *International Journal of Multiphase Flow*, 37(10), 1358–1370. <http://doi.org/10.1016/j.ijmultiphaseflow.2011.06.008>

Guyot, M. K., Ormiston, S. J., & Soliman, H. M. (2014). CFD modelling of two-phase discharge from a stratified region through a small side branch. *MATEC Web of Conferences*, 18, 5. <http://doi.org/10.1051/matecconf/20141803007>

Hassan, I. G. (1995). *Single, Dual And Triple Discharge From A Large, Stratified, Two-Phase Region Through Small Branches*. A Ph.D. Thesis, University of Manitoba.

Hassan, I. G., Soliman, H. M., Sims, G. E., & Kowalski, J. E. (1996a). Discharge from a smooth stratified two-phase region through two horizontal side branches located in the same vertical plane. *International Journal of Multiphase Flow*, 22(6), 1123–1142. [http://doi.org/10.1016/0301-9322\(96\)00036-5](http://doi.org/10.1016/0301-9322(96)00036-5)

Hassan, I. G., Soliman, H. M., Sims, G. E., & Kowalski, J. E. (1996b). Experimental investigation of the two-phase discharge from a stratified region through two side branches oriented horizontally. *Experimental Thermal and Fluid Science*, 13(2), 117–128.

Hassan, I. G., Soliman, H. M., Sims, G. E., & Kowalski, J. E. (1997). Single and multiple discharge from a stratified two-phase region through small branches. *Nuclear Engineering and Design*, 176(3), 233–245. [http://doi.org/10.1016/S0029-5493\(97\)00150-7](http://doi.org/10.1016/S0029-5493(97)00150-7)

Hassan, I. G., Soliman, H. M., Sims, G. E., & Kowalski, J. E. (1998). Two-Phase Flow From a Stratified Region Through a Small Side Branch. *Journal of Fluids Engineering*, 120(3), 605. <http://doi.org/10.1115/1.2820707>

IAEA. (2003). *Accident Analysis for Nuclear Power Plants with Pressurized Water Reactors- Safety Reports Series No. 29*. International Atomic Energy Agency. Vienna.

Kline, S. J., & McClintock, F. A. (1953). Describing uncertainties in single-sample experiments. *Mechanical Engineering*, 75, 3–8.

Kowalski, J. E., & Krishnan, V. S. (1987). Two-Phase Flow Distribution in a Large Manifold. *Proceedings of AIChE Annual Meeting*. Retrieved from <http://linkinghub.elsevier.com/retrieve/pii/S0029549310003419>

Lee, J. Y., Hwang, S. H., Kim, M., & Park, G. C. (2007). Onset condition of gas and liquid entrainment at an inclined branch pipe on a horizontal header. *Nuclear Engineering and Design*, 237(10), 1046–1054. <http://doi.org/10.1016/j.nucengdes.2007.01.002>

Lubin, B. T., and Springer, G. S. (1967). The Formation of a Dip on the Surface of a Liquid Draining From a Tank. *Journal of Fluid Mechanics*, 240(29), 385–390. Retrieved from <http://linkinghub.elsevier.com/retrieve/pii/S0029549310003419>

Lubin, B. T., & Hurwitz, M. (1966). Vapour Pull-Through at a Tank Drain with and without Dielectopheretic Baffling. *Conference on Long Term Cryo-Propellant Storage in Space, NASA Marshall Space Center, Huntsville, Ala.*

Maier, M. R., Soliman, H. M., & Sims, G. E. (2001). Onsets of entrainment during dual discharge from a stratified two-phase region through horizontal branches with centrelines falling in an inclined plane: Part 2 - Experiments on gas and liquid entrainment. *International Journal of Multiphase Flow*, 27(6), 1029–1049. [http://doi.org/10.1016/S0301-9322\(00\)00060-4](http://doi.org/10.1016/S0301-9322(00)00060-4)

Moffat, R. J. (1988). Describing the uncertainties in experimental results. *Experimental Thermal and Fluid Science*, 1(1), 3–17. [http://doi.org/10.1016/0894-1777\(88\)90043-X](http://doi.org/10.1016/0894-1777(88)90043-X)

Parrott, S. D., Soliman, H. M., Sims, G. E., & Krishnan, V. S. (1991). Experiments on the onset of gas pull-through during dual discharge from a reservoir. *International Journal of Multiphase Flow*, 17(1), 119–129. [http://doi.org/10.1016/0301-9322\(91\)90074-D](http://doi.org/10.1016/0301-9322(91)90074-D)

Perry, R. H., Green, D. W., & Maloney, J. O. (1999). *Perry's Chemical Engineers' Handbook*.

Reimann, M., & Khan, J. (1984). Flow Through a Small Break at the Bottom of a Large Pipe with Stratified Flow. *Nuclear Engineering and Design*, 88, 297–310.

Saleh, W., Bowden, R. C., Hassan, I. G., & Kadem, L. (2009). A Hybrid Model to Predict the Onset of Gas Entrainment With Surface Tension Effects. *Journal of Fluids Engineering*, 131(1), 11305. <http://doi.org/10.1115/1.2969465>

Schrock, V. E., & Revankar. (1986). Steam-water Critical Flow Through Small Pipes From Stratified Upstream Regions. In *Proceedings of the Eighth International Heat Transfer Conference, San Fansisco, CA*. (Vol. 5, pp. 2307–2311).

Smoglie, C., & Reimann, J. (1986). Two-phase flow through small branches in a horizontal pipe with stratified flow. *International Journal of Multiphase Flow*, 12(4), 609–625. [http://doi.org/10.1016/0301-9322\(86\)90063-7](http://doi.org/10.1016/0301-9322(86)90063-7)

Taylor, G. (1950). The Instability of Liquid Surfaces when Accelerated in a Direction Perpendicular to their Planes. I. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 201(1065), 192–196. <http://doi.org/10.1098/rspa.1950.0052>

Yonomoto, T., & Tasaka, K. (1988). New Theoretical Model for Two-Phase Flow Discharged from Stratified Two-Phase Region through Small Break. *Journal of Nuclear Science and Technology*, 25(5), 441–455.

<http://doi.org/10.1080/18811248.1988.9733612>

Yonomoto, T., & Tasaka, K. (1991). Liquid and gas entrainment to a small break hole from a stratified two-phase region. *International Journal of Multiphase Flow*, 17(6), 745–765. [http://doi.org/10.1016/0301-9322\(91\)90054-7](http://doi.org/10.1016/0301-9322(91)90054-7)

Zuber, N. (1980). *Problems in small break LOCA*. Division of Reactor Safety Research, Office of Nuclear Regulatory Research, U. S. Nuclear Regulatory Commission, Washington, D.C.