

DAFTAR PUSTAKA

- Allen Crabtree, M. S. (1993). *THERMOPHYSICAL PROPERTIES OF SATURATED LIGHT AND HEAVY WATER FOR ADVANCED NEUTRON SOURCE APPLICATIONS*.
- Ambrosini, W., & Ferreri, J. C. (2000). *Stability analysis of single-phase thermosyphon loops by finite-difference numerical methods*. 201, 11–23.
- Antariksawan, A. R., Widodo, S., Juarsa, M., Haryanto, D., Kusuma, M. H., & Putra, N. (2018). Numerical study on natural circulation characteristics in FASSIP-02 experimental facility using RELAP5 code. *IOP Conference Series: Earth and Environmental Science*, 105(1).
<https://doi.org/10.1088/1755-1315/105/1/012090>
- Auria, F. D., Del Nevo, A., & Muellner, N. (2010). *Joint ICTP-IAEA Course on Natural Circulation Phenomena and Passive Safety Systems in Advanced Water Cooled Reactors*.
- Battistini, A., Cammi, A., Lorenzi, S., Colombo, M., & Fairweather, M. (2021). Development of a CFD – LES model for the dynamic analysis of the DYNASTY natural circulation loop. *Chemical Engineering Science*, 237, 116520. <https://doi.org/10.1016/j.ces.2021.116520>
- Broxtermann, P., & Allelein, H. J. (2013). Simulation of AP1000's passive containment cooling with the German containment code system COCOSYS. *Nuclear Engineering and Design*, 261, 326–332.
<https://doi.org/10.1016/j.nucengdes.2012.09.038>
- Cammarata, L., Fichera, A., & Pagano, A. (2003). Stability maps for rectangular circulation loops. *Applied Thermal Engineering*, 23(8), 965–977.
[https://doi.org/10.1016/S1359-4311\(03\)00027-9](https://doi.org/10.1016/S1359-4311(03)00027-9)
- Catrawedarma, I., Deendarlianto, & Indarto. (2021). Statistical Characterization of Flow Structure of Air–water Two-phase Flow in Airlift Pump–Bubble Generator System. *International Journal of Multiphase Flow*, 138(103596).
<https://doi.org/10.1016/j.ijmultiphaseflow.2021.103596>
- Cengel, Y. A. (2002). *Complete Solution Manual to Accompany Heat Transfer Second Edition*. 1300. <http://www.mhhe.com/catalogs/rep/>.
- Chen, W., Fang, X., Xu, Y., & Su, X. (2015). An assessment of correlations of forced convection heat transfer to water at supercritical pressure. *Annals of Nuclear Energy*, 76, 451–460. <https://doi.org/10.1016/j.anucene.2014.10.027>
- Cheng, H., Lei, H., Zeng, L., & Dai, C. (2019). Experimental investigation of single-phase natural circulation in a mini-loop driven by heating and cooling fluids. *Experimental Thermal and Fluid Science*, 103(March 2018), 182–190.
<https://doi.org/10.1016/j.expthermflusci.2019.01.003>
- Cho, Y. J., Bae, S. W., Bae, B. U., Kim, S., Kang, K. H., & Yun, B. J. (2012). Analytical studies of the heat removal capability of a passive auxiliary feedwater system (PAFS). *Nuclear Engineering and Design*, 248, 306–316.
<https://doi.org/10.1016/j.nucengdes.2012.03.046>
- Churchill, S. W. (1977). Friction-Factor Equation Spans All Fluid-Flow Regimes.

- In *Chemical Engineering (New York)* (Vol. 84, Issue 24, pp. 91–92).
- Coleman., & Steele. (2018). *EXPERIMENTATION, VALIDATION, AND UNCERTAINTY ANALYSIS FOR ENGINEERS*. Hoboken, NJ, USA : Wiley, [2018].
- D'Auria, F., & Frogheri, M. (2002). Use of a natural circulation map for assessing PWR performance. *Nuclear Engineering and Design*, 215(1–2), 111–126. [https://doi.org/10.1016/S0029-5493\(02\)00045-6](https://doi.org/10.1016/S0029-5493(02)00045-6)
- Davani, M. E., Mohebbi, J., Abad, N., & Mollaabbasi, R. (2014). Determination of Nusselt Number of Herschel Bulkley Nanofluids by Using CMA-ES Algorithm. *Iranian Journal of Chemical Engineering*, 11(2), 17–28.
- De Kerpel, K., De Schampheleire, S., De Keulenaer, T., & De Paepe, M. (2015). Two-phase flow regime assignment based on wavelet features of a capacitance signal. *International Journal of Heat and Fluid Flow*, 56, 317–323. <https://doi.org/10.1016/j.ijheatfluidflow.2015.09.002>
- Elperin, T., & Klochko, M. (2002). Flow regime identification in a two-phase flow using wavelet transform. *Experiments in Fluids*, 32, 674–682. <https://doi.org/10.1007/s00348-002-0415-x>
- Frank P. Incopera, D. P. D. (2015). Fundamentals of Heat and Mass Transfer. In *Fluid Mechanics and its Applications* (Vol. 112). https://doi.org/10.1007/978-3-319-15793-1_19
- Garibaldi, P., & Misale, M. (2008). Experiments in single-phase natural circulation miniloops with different working fluids and geometries. *Journal of Heat Transfer*, 130(10). <https://doi.org/10.1115/1.2948393>
- Ho, C. J., Chiou, S. P., & Hu, C. S. (1997). Heat transfer characteristics of a rectangular natural circulation loop containing water near its density extreme. *International Journal of Heat and Mass Transfer*, 40(15), 3553–3558. [https://doi.org/10.1016/S0017-9310\(97\)00007-0](https://doi.org/10.1016/S0017-9310(97)00007-0)
- International Atomic Energy Agency. (2005). *Natural circulation in water cooled nuclear power plants : phenomena models and methodology for system reliability assessments*. International Atomic Energy Agency.
- International Atomic Energy Agency. (2009a). Passive Safety Systems and Natural Circulation in Water Cooled Nuclear Power Plants. In *IAEA-TECDOC-1624*. Publishing Section International Atomic Energy Agency Vienna International Centre.
- International Atomic Energy Agency. (2009b). Passive Safety Systems and Natural Circulation in Water Cooled Nuclear Power Plants. In *IAEA-TECDOC-1624* (pp. 1–147). Publishing Section International Atomic Energy Agency Vienna International Centre.
- International Atomic Energy Agency. (2014). *Advances in Small Modular Reactor Technology Developments*.
- International Atomic Energy Agency. (2016). Design Safety Considerations for Water Cooled Small Modular Reactors Incorporating Lessons Learned from the Fukushima Daiichi Accident. In *IAEA TECDOC SERIES* (pp. 1–110). Nuclear Power Technology Development Section International Atomic Energy Agency Vienna International Centre.
- Jain, V., Nayak, A. K., Vijayan, P. K., Saha, D., & Sinha, R. K. (2010).

- Experimental investigation on the flow instability behavior of a multi-channel boiling natural circulation loop at low-pressures. *Experimental Thermal and Fluid Science*, 34(6), 776–787.
<https://doi.org/10.1016/j.expthermflusci.2010.01.007>
- Johnsson, F., Zijerveld, R. C., Schouten, J. C., Van Den Bleek, C. M., & Leckner, B. (2000). Characterization of fluidization regimes by time-series analysis of pressure fluctuations. *International Journal of Multiphase Flow*, 26(4), 663–715. [https://doi.org/10.1016/S0301-9322\(99\)00028-2](https://doi.org/10.1016/S0301-9322(99)00028-2)
- Juarsa, M., Antariksawan, A. R., Kusuma, M. H., Haryanto, D., & Putra, N. (2018). Estimation of natural circulation flow based on temperature in the FASSIP-02 large-scale test loop facility. *IOP Conference Series: Earth and Environmental Science*, 105(1). <https://doi.org/10.1088/1755-1315/105/1/012091>
- Juarsa, M., Antariksawan, A. R., Kusuma, M. H., Widodo, S., & Putra, N. (2019). The effect of power and cooler flow on time responds of flow stability in natural circulation phenomenon using FASSIP-01 loop. *AIP Conference Proceedings*, 2062. <https://doi.org/10.1063/1.5086555>
- Juarsa, M., Antariksawan, A. R., Widodo, S., Kusuma, M. H., Rohman, A. N., Giarno, & Subki, M. H. (2018). Backward phenomenon on natural circulation flow based on power differences in FASSIP-01 loop. *AIP Conference Proceedings*, 2001. <https://doi.org/10.1063/1.5049996>
- Juarsa, M., Witoko, J. P., Giarno, Haryanto, D., & Purba, J. H. (2018). An experimental analysis on Nusselt number of natural circulation flow in transient condition based on the height differences between heater and cooler. *Atom Indonesia*, 44(3), 123–130.
<https://doi.org/10.17146/aij.2018.876>
- Kim, J. M., & Lee, S. Y. (2000). Experimental observation of flow instability in a semi-closed two-phase natural circulation loop. *Nuclear Engineering and Design*, 196(3), 359–367. [https://doi.org/10.1016/S0029-5493\(99\)00296-4](https://doi.org/10.1016/S0029-5493(99)00296-4)
- Kim, J., Park, C., Lee, S., & Hwang, D. H. (2022). Development of Evaluation Methodology to Enhance Cavity Flooding Strategy on Operating Pwr Power Plant. *SSRN Electronic Journal*, 187. <https://doi.org/10.2139/ssrn.4211148>
- Kim, Y. S., Bae, S. W., Cho, S., Kang, K. H., & Park, H. S. (2016). Application of direct passive residual heat removal system to the SMART reactor. *Annals of Nuclear Energy*, 89, 56–62. <https://doi.org/10.1016/j.anucene.2015.11.025>
- Kumar, N., Doshi, J. B., & Vijayan, P. K. (2011). Investigations on the role of mixed convection and wall friction factor in single-phase natural circulation loop dynamics. *Annals of Nuclear Energy*, 38(10), 2247–2270.
<https://doi.org/10.1016/j.anucene.2011.06.004>
- Lioce, D., Asztalos, M., Alemberti, A., Barucca, L., Frogheri, M., & Saiu, G. (2012). AP1000 passive core cooling system pre-operational tests procedure definition and simulation by means of Relap5 Mod. 3.3 computer code. *Nuclear Engineering and Design*, 250, 538–547.
<https://doi.org/10.1016/j.nucengdes.2012.05.028>
- Misale, M., Garibaldi, P., Passos, J. C., & de Bitencourt, G. G. (2007). Experiments in a single-phase natural circulation mini-loop. *Experimental*

- Thermal and Fluid Science*, 31(8), 1111–1120.
<https://doi.org/10.1016/j.expthermflusci.2006.11.004>
- Moffat, R. J. (1988). Describing the Uncertainties in Experimental Results. *Experimental Thermal and Fluid Science*, 1(1), 3–17.
- Montalvo, C., & García-Berrocal, A. (2015). Improving the in situ measurement of RTD response times through Discrete Wavelet Transform in NPP. *Annals of Nuclear Energy*, 80, 114–122.
<https://doi.org/10.1016/j.anucene.2015.02.004>
- Nguyen, V. T., Euh, D. J., & Song, C. H. (2010). An application of the wavelet analysis technique for the objective discrimination of two-phase flow patterns. *International Journal of Multiphase Flow*, 36(9), 755–768.
<https://doi.org/10.1016/j.ijmultiphaseflow.2010.04.007>
- Nuclear Regulation. (2011). *Japanese earthquake and tsunami: Implications for the UK Nuclear Industry Interim*.
- P. K. Vijayan, V. K. Bhojwani, M. H. Bade, M. Sharma, A. K. Nayak, D. S. and R. K. S. (2001). INVESTIGATIONS ON THE EFFECT OF HEATER AND COOLER ORIENTATION ON THE STEADY STATE, TRANSIENT AND STABILITY BEHAVIOUR OF SINGLE - PHASE NATURAL CIRCULATION IN A RECTANGULAR LOOP. In *BHABHA ATOMIC RESEARCH CENTRE MUMBAI, INDIA* (Issue 8).
- P.K. Vijayan, A. K. N. (2010). *IAEA course on natural circulation phenomena and passive safety systems in advanced water cooled reactors*.
- Park, H. S., Choi, K. Y., Cho, S., Yi, S. J., Park, C. K., & Chung, M. K. (2008). Experimental study on the natural circulation of a passive residual heat removal system for an integral reactor following a safety related event. *Annals of Nuclear Energy*, 35(12), 2249–2258.
<https://doi.org/10.1016/j.anucene.2008.09.006>
- Pilkhwal, D. S., Ambrosini, W., Forgione, N., Vijayan, P. K., Saha, D., & Ferreri, J. C. (2007). Analysis of the unstable behaviour of a single-phase natural circulation loop with one-dimensional and computational fluid-dynamic models. *Annals of Nuclear Energy*, 34(5), 339–355.
<https://doi.org/10.1016/j.anucene.2007.01.012>
- Rowinski, M. K., White, T. J., & Zhao, J. (2015). Small and Medium sized Reactors (SMR): A review of technology. *Renewable and Sustainable Energy Reviews*, 44, 643–656. <https://doi.org/10.1016/j.rser.2015.01.006>
- Ryu, K. H., Ban, B. M., Lee, T. H., Lee, J., Lee, S. H., Cho, J. H., Ko, S. ho, & Kim, J. H. (2018). Natural circulation characteristics under various conditions on heavy liquid metal test loop. *International Journal of Thermal Sciences*, 132(July 2017), 316–321.
<https://doi.org/10.1016/j.ijthermalsci.2018.06.015>
- Sahu, M., Sarkar, J., & Chandra, L. (2023). Experimental thermal-hydraulic characteristics of single-phase natural circulation loop using water-based hybrid nanofluids. *International Journal of Thermal Sciences*, 187(October 2022), 108198. <https://doi.org/10.1016/j.ijthermalsci.2023.108198>
- Seker, S., Turkcan, E., Upadhyaya, B. R., & Erbay, A. S. (1998). Applications of wavelet transforms for nuclear power plant signal analysis. *Iaea-Iwg-Nppci--*

98/2, 135–147.

- Sharma, M., Vijayan, P. K., Pilkhwal, D. S., & Asako, Y. (2014). Natural convective flow and heat transfer studies for supercritical water in a rectangular circulation loop. *Nuclear Engineering and Design*, 273, 304–320. <https://doi.org/10.1016/j.nucengdes.2014.04.001>
- Sheng, C., & Zhou, T. (2012). Application and analysis of wavelet transform and edge detection in critical heat flux of natural circulation. *Advanced Materials Research*, 354–355, 333–337. <https://doi.org/10.4028/www.scientific.net/AMR.354-355.333>
- Swapnalee, B. T., & Vijayan, P. K. (2011). A generalized flow equation for single phase natural circulation loops obeying multiple friction laws. *International Journal of Heat and Mass Transfer*, 54(11–12), 2618–2629. <https://doi.org/10.1016/j.ijheatmasstransfer.2011.01.023>
- Swapnalee, B. T., Vijayan, P. K., Sharma, M., & Pilkhwal, D. S. (2012). Steady state flow and static instability of supercritical natural circulation loops. *Nuclear Engineering and Design*, 245, 99–112. <https://doi.org/10.1016/j.nucengdes.2012.01.002>
- Thomas, S., & Sobhan, C. B. (2018). Stability and Transient Performance of Vertical Heater Vertical Cooler Natural Circulation Loops with Metal Oxide Nanoparticle Suspensions. *Heat Transfer Engineering*, 39(10), 861–873. <https://doi.org/10.1080/01457632.2017.1338859>
- Tian, X., Chen, S., Chen, L., Li, H., Shi, L., Li, D., Luo, X., Zhu, L., Li, W., & Kang, X. (2023). Visualized experimental study on pressure drop oscillations of a natural circulation system under low pressure condition. *Progress in Nuclear Energy*, 159(August 2022). <https://doi.org/10.1016/j.pnucene.2023.104665>
- Vajpayee, V., Mukhopadhyay, S., & Tiwari, A. P. (2018). Wavelet operator for multiscale modeling of a nuclear reactor. *Nuclear Engineering and Technology*, 50(5), 698–708. <https://doi.org/10.1016/j.net.2018.02.003>
- Vijayan, P. K., Austregesilo, H. (1994). *Scaling laws for single-phase natural circulation loops*. 152, 331–347.
- Vijayan, P. K. (2002). Experimental observations on the general trends of the steady state and stability behaviour of single-phase natural circulation loops. In *Nuclear Engineering and Design* (Vol. 215). www.elsevier.com/locate/nucengdes
- Vijayan, P. K., & Date, A. W. (1992). The limits of conditional stability for single-phase natural circulation with throughflow in a figure-of-eight loop. *Nuclear Engineering and Design*, 136(3), 361–380. [https://doi.org/10.1016/0029-5493\(92\)90034-S](https://doi.org/10.1016/0029-5493(92)90034-S)
- Vijayan, P. K., Gartia, M. R., Nayak, D. S. P. A. K., & Saha, D. (2005). *Steady State Flow in Single-Phase and Two-Phase Natural Circulation Loops*. 1–17.
- Vijayan, P. K., Sharma, M., & Saha, D. (2007). Steady state and stability characteristics of single-phase natural circulation in a rectangular loop with different heater and cooler orientations. *Experimental Thermal and Fluid Science*, 31(8), 925–945. <https://doi.org/10.1016/j.expthermflusci.2006.10.003>

- Wahidi, T., & Yadav, A. K. (2021). Instability mitigation by integrating twin Tesla type valves in supercritical carbon dioxide based natural circulation loop. *Applied Thermal Engineering*, 182(116087), 1–14. <https://doi.org/10.1016/j.applthermaleng.2020.116087>
- Wang, J. Y., Chuang, T. J., & Ferng, Y. M. (2013). CFD investigating flow and heat transfer characteristics in a natural circulation loop. *Annals of Nuclear Energy*, 58, 65–71. <https://doi.org/10.1016/j.anucene.2013.01.015>
- Welander, P. (1967). On the oscillatory instability of a differentially heated fluid loop. *Journal of Fluid Mechanics*, 29(1), 17–30. <https://doi.org/10.1017/S0022112067000606>
- Wilson, D., Iacovides, H., & Craft, T. (2023). LES and Unsteady RANS Computations of Natural Convection Cooling Loops. *Chemical Engineering Research and Design*. <https://doi.org/10.1016/j.cherd.2023.04.025>
- Zou, J., Li, Q., Tong, L. L., & Cao, X. W. (2014). Assessment of passive residual heat removal system cooling capacity. *Progress in Nuclear Energy*, 70, 159–166. <https://doi.org/10.1016/j.pnucene.2013.09.011>
- Zvirin, Y. (1982). A review of natural circulation loops in pressurized water reactors and other systems. *Nuclear Engineering and Design*, 67(2), 203–225. [https://doi.org/10.1016/0029-5493\(82\)90142-X](https://doi.org/10.1016/0029-5493(82)90142-X)