REFERENCES

Abdollahi, A.; Darvanjooghi, M.H.K.; Karimipour, A.; Safaei, M.R., Experimental study to obtain the viscosity of CuO-loaded nanofluid: effects of nanoparticles' mass fraction temperature and basefluid's types to develop a correlation, *Meccanica*, vol.53, pp.3739–3757, 2018.

Afrand, M., Experimental study on thermal conductivity of ethylene glycol containing hybrid nano-additives and development of a new correlation, *Appl. Therm. Eng*., vol.110, pp.1111–1119, 2017.

Aghabozorg, M.H.; Rashidi, A.; Mohammadi, S., Experimental investigation of heat transfer enhancement of Fe_2O_3-CNT/water magnetic nanofluids under laminar, transient and turbulent flow inside a horizontal shell and tube heat exchanger, *Exp. Therm. Fluid Sci*., vol.72, pp.182–189, 2016.

Aghayari, R.; Maddah, H.; Pourkiaei, S.M.; Ahmadi, M.H.; Chen, L.; Ghazvini, M., Theoretical and experimental studies of heat transfer in a double-pipe heat exchanger equipped with twisted tape and nanofluid, *Eur. Phys. J. Plus*, 135:252, 2020. https://doi.org/10.1140/epjp/s13360-020-00252-8

Akhtari, M.; Haghshenasfard, M.; Talaie, M.R., Numerical and experimental investigation of heat transfer of γ-Al_2O_3/water nanofluid in double pipe and shell and tube heat exchangers, *J. Numer. Heat Transfer*, vol.63, pp.941–958, 2013.

Akilu, S.; Sharma, K.V.; Baheta, A.T.; Mamat, R., A review of thermophysical properties of water based composite nanofluids, *Renew Sustain Energy Rev*., vol.66, pp.654–678, 2016.

Akilu, S.; Baheta, A.T.; Sharma, K.V., Experimental measurements of thermal conductivity and viscosity of ethylene glycol-based hybrid nanofluid with TiO_2-CuO/C inclusions, *J. Mol. Liq.*, vol.246, pp.396-405, 2017.

Akyurek, E.F.; Gelis, K.; Sahin, B.; Manay, E., Experimental analysis for heat transfer of nanofluid with wire coil turbulators in a concentric tube heat exchanger, *Results in Physics*, vol.9, pp.376–389, 2018.

Albadr, J.; Tayal, S.; Alasadi, M., Heat transfer through heat exchanger using Al_2O_3 nanofluid at different concentrations, *Case Studies Therm. Eng*., vol.1, pp.38–44, 2013.

Anoop, K.; Cox, J.; Sadr, R., Thermal evaluation of nanofluids in heat exchanger, *Int. Commun. Heat Mass Transfer*, vol.49, pp.5–9, 2013.

Asadi, M., Asadi, A., Dynamic viscosity of MWCNT/ZnO–engine oil hybrid nanofluid: An experimental investigation and new correlation in different temperatures and solid concentrations, *Int. Commun. Heat Mass Transfer*, vol.76, pp.41–45, 2016.

Askari, S.; Lotfi, R.; Seifkordi, A.; Rashidi, A.M.; Koolivand, H., A novel approach for energy and water conservation in wet cooling towers by using MWNTs and nanoporous graphene nanofluids, *Energ. Convers. Manag*., vol.109, pp.10–18, 2016.

Azmi, W.H.; Sharma, K.V.; Mamat, R.; Najafi, G.; Mohamad, M.S., The enhancement of effective thermal conductivity and effective dynamic viscosity of nanofluids – A review, *Renew. Sustain. Energ. Rev.*, vol.53, pp.1046-1058, 2016.

Baba, M.S.; SitaRama Raju, A.V.; Rao, M.B., Heat transfer enhancement and pressure drop of Fe_3O_4–water nanofluid in a double tube counter flow heat exchanger with internal longitudinal fins, *Case Studies in Thermal Engineering*, vol.12, pp.600–607, 2018.

Babita.; Sharma, S.K.; Gupta, S.M., Preparation and evaluation of stable nanofluids for heat transfer application : A review, *Exp Therm Fluid Sci*., vol.79, pp.202–204, 2016.

Bahiraei, M.; Jamshidmofid, M.; Heshmatian, S., Entropy generation in a heat exchanger working with a biological nanofluid considering heterogeneous particle distribution, *Adv. Powder Technol.*, vol.28, pp.2380–2392, 2017.

Bahiraei, M.; Mazaheri, N.; Hassanzamani, S.M., Efficacy of a new graphene–platinum nanofluid in tubes fitted with single and twin twisted tapes regarding counter and co-swirling flows for efficient use of energy, *Int. J. Mech. Sci.*, vol. 7403(18), pp. 31297-9, 2018. https://doi.org/10.1016/j.ijmecsci.2018.10.036

Bahmani, M.H.; Sheikhzadeh, G.; Zarringhalam, M.; Akbari, O.A.; Alrashed, A.A.A.A.; Shabani, G.A.S.; Goodarzi, M., Investigation of turbulent heat transfer and nanofluid flow in a double pipe heat exchanger, *Adv. Powder Technol*., vol.29, pp.273–282, 2018.

Barzegarian, R.; Aloueyan, A.; Yousefi, T., Thermal performance augmentation using water based Al_2O_3-gamma nanofluid in a horizontal shell and tube heat exchanger under forced circulation, *Int. Commun. Heat Mass Transfer*, vol.86, pp.52–59, 2017.

Bashirnezhad, K.; Bazri, S.; Safaei, M.R.; Goodarzi, M.; Dahari, M.; Mahian, O.; Dalkilica, A.S.; Wongwises, S., Viscosity of nanofluids: A review of recent experimental Studies, *Int. Commun. Heat Mass Transfer*, vol.73, pp.114–123, 2016.

Bazdidi-Tehrani, F.; Khanmohamadi, S.M.; Vasefi S.I., Evaluation of turbulent forced convection of non-Newtonian aqueous solution of CMC/CuO nanofluid in a tube with twisted tape inserts, *Adv. Powder Technol*., vol. 31, pp.1100-1113, 2020.

Beydokhti, A.K.; Heris, S.Z., Thermal optimization of combined heat and power (CHP) systems using nanofluids, *Energy*, vol.44, pp.241-247, 2012.

Boyaghchi, F.A.; Chavoshi, M.; Sabeti, V, Optimization of a novel combined cooling, heating and power cycle driven by geothermal and solar energies using the water/CuO (copper oxide) nanofluid, *Energy*, vol.91, pp.685-699, 2015.

Bozorgan, N., Performance of helical coil heat recovery exchanger using nanofluid as coolant, *Int J. Adv. Desig. Manuf. Techno.l*, vol.9, pp.127-137, 2016.

Chaurasia, S.R; Sarviya, R.M., Thermal Performance Analysis of CuO/water Nanofluid Flow in a Pipe with Single and Double Strip Helical Screw Tape, *Appl. Therm. Eng*., vol.166, pp.114631, 2020.

Chun, B.H.; Kang, H.U.; Kim, S.H., Effect of alumina nanoparticles in the fluid on heat transfer in double-pipe heat exchanger system, *Korean J. Chem. Eng*., vol.25, pp.966-971, 2008.

Dalkılıç, A.S.; Acikgoz, O.; Gümüs, M.A.; Wongwises, S., Determination of optimum velocity for various nanofluids flowing in a double-pipe heat exchanger, *Heat Transfer Eng*., vol.38, pp.11-25, 2017.

Dalkılıç, A.S; Türk, O.A.; Mercan, H.; Nakkaew, S.; Wongwises, S., An experimental investigation on heat transfer characteristics of graphite-SiO_2/water hybrid nanofluid flow in horizontal tube with various quad-channel twisted tape inserts, *Int. Commun. Heat Mass Transfer*, vol.107, pp.1–13, 2019.

Dardan, E.; Afrand, M.; Isfahani, A.H.M, Effect of suspending hybrid nano-additives on rheological behavior of engine oil and pumping power, *Appl. Therm. Eng*., vol.109, pp.524–534, 2016.

Darzi, A.A.R.; Farhadi. M.; Sedighi, K., Heat transfer and flow characteristics of Al_2O_3–water nanofluid in a double tube heat exchanger, *Int. Commun. Heat Mass Transfer*, vol.47, pp.105–112, 2013.

Dharmalingam, R.; Sivagnanaprabhu, K.K.; Yogaraja, J.; Gunasekaran, S.; Mohan, R., Experimental investigation of heat transfer characteristics of nanofluid using parallel flow, counter flow and shell and tube heat exchanger, *Arch. Mech. Eng*., vol. LXII, pp.509-522, 2015.

Dirker, J., Meyer, J.P., Heat Transfer Coefficients in Concentric Annuli, *J. Heat Transfer*., vol.124, pp. 1200-1202, 2002.

El-Maghlany, W.M.; Hanafy, A.A.; Hassan, A.A.; El-Magid, M.A., Experimental study of Cu–water nanofluid heat transfer and pressure drop in a horizontal double-tube heat exchanger, *Exp. Therm. Fluid Sci*., vol.78, pp.100-111, 2016.

Elias, M.M.; Miqdad, M.; Mahbubul, I.M.; Saidur, R.; Kamalisarvestani, M.; Sohel, M.R.; Hepbasli, A.; Rahim, N.A.; Amalina, M.A., Effect of nanoparticle shape on the heat transfer and thermodynamic performance of a shell and tube heat exchanger, *Int. Commun. Heat Mass Transfer*, vol.44, pp.93–99, 2013.

Elshazly, K.M.; Sakr, R.Y.; Ali, R.K.; Salem, M.R., Effect of γ-Al_2O_3/water nanofluid on the thermal performance of shell and coil heat exchanger with different coil torsions, *Heat Mass Transfer*, vol.53, pp.1893–1903, 2017.

Esfahani, M.R.; Languri, E.M., Exergy analysis of a shell-and-tube heat exchanger using graphene oxide nanofluids, *Exp. Therm. Fluid Sci*., vol.83, pp.100–106, 2017.

Esfahani, N.N.; Toghraie, D.; Afrand, M., A new correlation for predicting the thermal conductivity of ZnO–Ag (50%–50%)/water hybrid nanofluid: An experimental study, *Powder Technol*., vol.323, pp.367–373, 2018.

Esfe, M.H.; Arani, A.A.A.; Rezaie, M.; Yan, W.M.; Karimipour, A., Experimental determination of thermal conductivity and dynamic viscosity of Ag–MgO/water hybrid nanofluid, *Int. Commun. Heat Mass Transfer*, vol.66, pp.189–195, 2015.

Esfe, M.H.; Wongwises, S.; Naderi, A.; Asadi, A.; Safaei, M.R.; Rostamian, H.; Dahari, M.; Karimipour, A., Thermal conductivity of Cu/TiO_2–water/EG hybrid nanofluid: Experimental data and modeling using artificial neural network and correlation, *Int. Commun. Heat Mass Transfer*, vol.66, pp.100–104, 2015.

Esfe, M.H.; Yan, W.M.; Akbari, M.; Karimipour, A.; Hassani, M., Experimental study on thermal conductivity of DWCNT-ZnO/water-EG nanofluid, *Int. Commun. Heat Mass Transfer*, vol.68, pp.248-251, 2015.

Esfe, M.H.; Alirezaie, A.; Rejvani, M., An applicable study on the thermal conductivity of SWCNT-MgO hybrid nanofluid and price-performance analysis for energy Management, *Appl. Therm. Eng*., vol.111, pp.1202–1210, 2017.

Esfe, M.H.; Esfandeh, S.; Saedodin, S.; Rostamian, H., Experimental evaluation, sensitivity analyzation and ANN modeling of thermal conductivity of ZnO-MWCNT/EG-water hybrid nanofluid for engineering applications, *Appl. Therm. Eng*., vol.125, pp.673–685, 2017.

Esfe, M.H., Arani, A.A.A., Esfandeh, S., Experimental study on rheological behavior of monograde heavy-duty engine oil containing CNTs and oxide nanoparticles with focus on viscosity analysis, *J. Mol. Liq*., vol.272, pp.319–329, 2018.

Esfe, M.H., Raki, H.R., Emami, M.R.S., Afrand, M., Viscosity and rheological properties of antifreeze based nanofluid containing hybrid nano-powders of MWCNTs and TiO_2 under different temperature conditions, *Powder Technol.*, vol.342, pp.808–816, 2019.

Farajollahi, B.; Etemad, S.G.; Hojjat, M., Heat transfer of nanofluids in a shell and tube heat exchanger, *Int. J. Heat Mass Transfer*, vol.53, pp.12–17, 2010.

Fares, M.; AL-Mayyahi, M.; AL-Saad, M., Heat transfer analysis of a shell and tube heat exchanger operated with graphene nanofluids, *Case Studies in Thermal Engineering*, vol.18, pp. 100584, 2020. https://doi.org/10.1016/j.csite.2020.100584.

Fazeli, S.A.; Hashemi, S.M.H.; Zirakzadeh, H.; Ashjaee, M., Experimental and numerical investigation of heat transfer in a miniature heat sink utilizing silica nanofluid, *Superlattices Microstruct*, vol.51, pp.247–264, 2012.

Fule, P.J.; Bhanvase, B.A.; Sonawane, S.H., Experimental investigation of heat transfer enhancement in helical coil heat exchangers using water based CuO nanofluid, *Adv Powder Technol*., vol.28, pp.2288–2294, 2017.

Ghozatloo, A.; Rashidi, A.; Niassar, M.S., Convective heat transfer enhancement of graphene nanofluids in shell and tube heat exchanger, *Exp. Therm. Fluid Sci*., vol.53, pp.136–41, 2014.

Godson, L.; Deepak, K.; Enoch, C.; Jefferson, B.; Raja, B., Heat transfer characteristics of silver/water nanofluids in a shell and tube heat exchanger, *Arch. Civil Mech. Eng*., vol.14, pp. 489–496, 2014.

Goodarzi, M.; Kherbeet, A.S.; Afrand, M.; Sadeghinezhad, E.; Mehrali, M.; Zahedi, P.; Wongwises, S.; Dahari, M., Investigation of heat transfer performance and friction factor of a counter-flow double-pipe heat exchanger using nitrogen-doped, graphene-based nanofluids, *Int. Commun. Heat Mass Transfer*, vol.76, pp.16-23, 2016.

Goodarzi, M.; Toghraie, D.; Reiszadeh, M.; Afrand, M., Experimental evaluation of dynamic viscosity of ZnO–MWCNTs/engine oil hybrid nanolubricant based on changes in temperature and concentration, *J. Therm. Anal. Calorim.*, vol. 136, pp. 513-525, 2018.

Haddad, Z.; Abid, C.; Oztop, H.F.; Mataoui, A., A review on how the researchers prepare their nanofluids, *Int J Therm Sci*., vol.76, pp.168–189, 2014.

Hajabdollahi, H., Ahmadi, P., Dincer, I., Exergetic optimization of shell-and-tube heat exchangers using NSGA-II, *Heat Transfer Eng*., vol.33(7), pp. 618–628, 2012.

Hamdeh, N.H.; Almitani, K.H., Solar liquid desiccant regeneration and nanofluids in evaporative cooling for greenhouse food production in Saudi Arabia, *Solar Energy*, vol.134, pp.202–210, 2016.

Hamid, K.A.; Azmi, W.H.; Nabil, M.F.; Mamat, R.; Sharma, K.V., Experimental investigation of thermal conductivity and dynamic viscosity on nanoparticle mixture ratios of TiO_2-SiO_2 nanofluids, *Int. J. Heat Mass Tranfer*, vol.116, pp.1143–1152, 2018.

Hamid, K.A; Azmi, W.H.; Mamat,R.; Sharma, K.V., Numerical investigation for turbulent heat transfer of TiO_2–SiO_2 nanofluids with wire coil inserts, *Numerical Heat Transfer A: Applications*, vol.75, pp. 271-289, 2019.

Hamid, K.A; Azmi, W.H.; Mamat,R.; Sharma, K.V., Heat transfer performance of TiO_2-SiO_2 nanofluids in a tube with wire coil inserts, *Appl. Therm. Eng*.,vol.152, pp. 275–286, 2019.

Haque, A.K.M.M.; Kim, S.; Kim, J.; Noh, J.; Huh, S.; Choi, B.; Chung, H.; Jeong, H., Forced convective heat transfer of aqueous Al_2O_3 nanofluid through shell and tube heat exchanger, *J. Nanosci. Nanotechnol*., vol.18, pp. 1730–1740, 2018.

Harandi, S.S.; Karimipour, A.; Afrand, M.; Mohammad Akbari, M.; D'Orazio, A., An experimental study on thermal conductivity of F-MWCNTs–Fe_3O_4/EG hybrid nanofluid: Effects of temperature and concentration, *Int. Commun. Heat Mass Transfer*, vol.76, pp. 171–177, 2016.

Hosseini, S.M.; Vafajoo, L.; Salman, B.H., Performance of CNT-water nanofluid as coolant fluid in shell and tube intercooler of a LPG absorber tower, *Int. J. Heat Mass Transfer*, vol.102, pp. 45–53, 2016.

Hosseinian, A.; Isfahani, A.H.M.; Shiran, E., Experimental investigation of surface vibration effects on increasing the stability and heat transfer coefficient of MWCNTs-water nanofluid in a flexible double pipe heat exchanger, *Exp. Therm. Fluid Sci*., vol.90, pp. 275-285, 2018.

Hu, P.; Fei, W.S.; Chen, Z., Thermal Conductivity of AlN–Ethanol Nanofluids, *Int J Thermophys*, vol.29, pp. 1968–1973, 2008.

Huang, H.; Zhu, J.; Yan, B., Comparison of the performance of two different dual-loop organic Rankine cycles (DORC) with nanofluid for engine waste heat recovery, *Energy Convers. Manag.*, vol.126, pp. 99–109, 2016.

Huminic, G.; Huminic, A., Heat transfer characteristics in double tube helical heat exchangers using nanofluids, *Int. J. Heat Mass Transfer*, vol.54, pp. 4280–4287, 2011.

Huminic, G.; Huminic, A. Application of nanofluids in heat exchangers : A review. *Renew Sustain Energy Rev*., vol,16, pp. 5625–5638. 2012.

Huminic, G.; Huminic, A., Heat transfer and entropy generation analyses of nanofluids in helically coiled tube-in-tube heat exchangers, *Int. Commun. Heat Mass Transfer*, vol.71, pp. 118–125, 2016.

Hussein, A.M., Thermal performance and thermal properties of hybrid nanofluid laminar flow in a double pipe heat exchanger, *Exp. Therm. Fluid Sci*., vol.88, pp. 37–45, 2017.

Incropera, F.P., DeWitt, P.D., Bergman, T.L., Lavine, A.S., Fundamentals of Heat and Mass Transfer, *John-Wiley & Sons*, 2006.

Jafari, S.M.; Saramnejad, F.; Dehnad, D., Designing and application of a shell and tube heat exchanger for nanofluid thermal processing of liquid food products, *J. Food Process Eng.*, vol.41, no. E12658, 2018.

Jafarimoghaddam, A.; Aberoumand, S.; Aberoumand, H.; Javaherdeh, K., Experimental study on Cu/Oil nanofluids through concentric annular tube: A correlation, *Heat Transfer Asian Res*., vol.46, pp. 251-260, 2017.

Kakac, S., Liu, H.T., Pramuanjaroenkij, A., Heat exchanger selection rating and thermal design, third ed., *CRC Press, New York*, pp. 491–540, 2012.

Khoshvaght-Aliabadi, M.; Eskandari, M., Influence of twist length variations on thermal–hydraulic specifications of twisted-tape inserts in presence of Cu–water nanofluid, *Exp. Therm. Fluid Sci.*, vol. 61, pp. 230–240, 2015.

Khoshvaght-Aliabadi, M.; Davoudi, S.; Dibaei, M.H., Performance of agitated-vessel U tube heat exchanger using spiky twisted tapes and water based metallic nanofluids, *Chem. Eng. Res. Design*, vol.133, pp. 26–39, 2018.

Kline, S.J., McClintock, F.A., Describing uncertainties in single-sample experiments. *Mech. Eng.*, vol.75, pp. 3–8, 1953.

Kolhapure, K.B.; Patil, U.S., Experimental investigation of refrigeration system using Al_2O_3/Water nanofluids as cooling medium, *Int. J. Research Aeronautical Mech. Eng*., vol.4, pp. 86-95, 2016.

Kumar, P.C.M.; Kumar, J.; Tamilarasan, R.; Nathan, S.S.; Suresh, S., Heat transfer enhancement and pressure drop analysis in a helically coiled tube using Al_2O_3/water nanofluid, *J. Mech. Sci. Techonol.*, vol.28, pp. 1841-1847, 2014.

Kumar, D.; Amirtham, V.A., A review on preparation, characterization, properties and applications of nanofluids, *Renew Sustain Energy Rev*., vol.60, pp. 21–40, 2016.

Kumar, N.; Sonawane, S.S., Experimental study of Fe_2O_3/water and Fe_2O_3/ethylene glycol nanofluid heat transfer enhancement in a shell and tube heat exchanger, *Int. Commun. Heat Mass Transfer*, vol.78, pp. 277–284, 2016.

Kumar, N.T.R.; Bhramara, P.; Sundar, L.S.; Singh, M.K.; Sousa, A.C.M., Heat transfer, friction factor and effectiveness of Fe_3O_4 nanofluid flow in an inner tube of double pipe U-bend heat exchanger with and without longitudinal strip inserts, *Exp. Therm. Fluid Sci*., vol.85, pp. 331–343, 2017.

Kumar, N.T.R.; Bhramara, P.; Addis, B.M.; Sundar, L.S.; Singh, M.K.; Sousa, A.C.M., Heat transfer, friction factor and effectiveness analysis of Fe_3O_4/water nanofluid flow in a double pipe heat exchanger with return bend, *Int. Commun. Heat Mass Transfer*, vol.81, pp. 155–163, 2017.

Kumar, N.; Sonawane, S.S.; Sonawane, S.H., Experimental study of thermal conductivity, heat transfer and friction factor of Al_2O_3 based nanofluid, *Int. Commun. Heat Mass Transfer*, vol.90, pp. 1–10, 2018.

Kumar V, Sarkar J., Numerical and experimental investigations on heat transfer and pressure drop characteristics of Al_2O_3-TiO_2 hybrid nanofluid in minichannel heat sink with different mixture ratio, *Powder Technol*., vol.345, pp. 717–727, 2019.

Kumaresan, V.; Velraj, R.; Das, S.K., Convective heat transfer characteristics of secondary refrigerant based CNT nanofluids in a tubular heat exchanger, *Int. J. Refrig*., vol.35, pp. 2287-2296, 2012.

Kumaresan, V.; Khader, S.M.A.; Karthikeyan, S.; Velraj, R., Convective heat transfer characteristics of CNT nanofluids in a tubular heat exchanger of various lengths for energy efficient cooling/heating system, *Int. J. Heat Mass Transfer*, vol.60, pp. 413–421, 2013.

Leong, K.Y.; Saidur, R.; Mahlia, T.M.I.; Yau, Y.H., Modeling of shell and tube heat recovery exchanger operated with nanofluid based coolants, *Int. J. Heat Mass Transfer*, vol.55, pp. 808–816, 2012.

Ling, Z.; He, Z.; Xu, T.; Fang, X.; Gao, X.; Zhang, Z., Experimental and Numerical Investigation on non-Newtonian nanofluids flowing in shell side of helical baffled heat exchanger combined with elliptic tubes, *Appl. Sci*., vol.7, pp. 1-17, 2017.

Lotfi, R.; Rashidi, A.M.; Amrollahi, A., Experimental study on the heat transfer enhancement of MWNT-water nanofluid in a shell and tube heat exchanger, *Int. Commun. Heat Mass Transfer*, vol.39, pp. 108–111, 2012.

Lu, L.; Liu, Z.H.; Xiao, S.H., Thermal performance of an open thermosyphon using nanofluids for high-temperature evacuated tubular solar collectors Part 1: Indoor experiment, *Solar Energy*, vol.85, pp. 379–387, 2011.

Maddah, H.; Alizadeh, M.; Ghasemi, N.; Alwi, S.R.W., Experimental study of Al_2O_3/water nanofluid turbulent heat transfer enhancement in the horizontal double pipes fitted with modified twisted tapes, *Int. J. Heat Mass Transfer*, vol.78, pp. 1042–1054, 2014.

Manglik, R.M., Bergles, A.E., Heat transfer and pressure drop correlations for twisted tape inserts in isothermal tubes: Part II—Transition and turbulent flows. *J. Heat Transfer*, vol. 115, pp. 890–896, 1993.

Mohammed, H.A.; Hasan, H.A.; Wahid, M.A., Heat transfer enhancement of nanofluids in a double pipe heat exchanger with louvered strip insert, *Int. Commun. Heat Mass Transfer*, vol.40, pp. 36–46, 2013.

Moldoveanu, G.M., Huminic, G., Minea, A.A., Huminic, A., Experimental study on thermal conductivity of stabilized Al_2O_3 and SiO_2 nanofluids and their hybrid, *Int. J. Heat Mass Transfer*, vol.127, pp. 450–457, 2018.

Mostafizur, R.M.; Aziz, A.R.A.; Saidur, R.; Bhuiyan, M.U.H., Investigation on stability and viscosity of SiO_2–CH_3OH (methanol) nanofluids, *Int. Commun. Heat Mass Transfer*, vol.72, pp. 16–22, 2016.

Nabil, M.F.; Azmia, W.H.; Hamida, K.A.; Mamata, R.; Hagosa, F.Y., An experimental study on the thermal conductivity and dynamic viscosity of TiO_2-SiO_2 nanofluids in water: Ethylene glycol mixture, *Int. Commun. Heat Mass Transfer*, vol.86, pp. 181–189, 2017.

Naik, M.T.; Fahad, S.S.; Sundar, L.S.; Singh, M.K., Comparative study on thermal performance of twisted tape and wire coil inserts in turbulent flow using CuO/water nanofluid, *Exp. Thermal Fluid Sc*., vol.57, pp. 65-76,2014.

Naik, B.A.K.; Vinod, A.V., Heat transfer enhancement using non-Newtonian nanofluids in a shell and helical coil heat exchanger, *Exp. Therm. Fluid Sci*., vol.90, pp.132-142, 2018.

Nallusamy, S.; Prabu, N.M., Heat Transfer Enhancement Analysis of Al_2O_3-Water Nanofluid through Parallel and Counter Flow in Shell and Tube Heat Exchangers, *Int. J. Nanosci*., vol.16, pp. 17500201-17500207, 2017.

Nanan, K., Thianpong, C., Promvonge, P., Eiamsa-ard, S., Investigation of heat transfer enhancement by perforated helical twisted-tapes, *Int. Commun. Heat Mass Transfer.*, vol. 52, pp. 106–112, 2014.

Pak, B.C.; Cho, Y.I., Hydrodynamic and heat transfer study of dispersed fluids with submicron metallic oxide particles, *Exp. Heat Transfer*, vol.11, pp. 151–170, 1998.

Pinto, R.V.; Fiorelli, F.A.S., Review of the mechanisms responsible for heat transfer enhancement using nanofluids, *Appl. Therm. Eng.*, vol.108, pp. 720–739, 2016.

Prasad, P.V.D.; Gupta, A.V.S.S.K.S.; Deepak, K., Investigation of Trapezoidal-Cut Twisted Tape Insert in a Double Pipe U-Tube Heat Exchanger using Al_2O_3/Water Nanofluid**,** *2nd Int. Confer. Nanomater. Techonol*., CNT, 2014.

Raei, B.; Shahraki, F.; Jamialahmadi, M.; Peyghambarzadeh, S.M., Experimental study on the heat transfer and flow properties of Υ-Al_2O_3/water nanofluid in a double-tube heat exchanger, *J. Therm. Anal. Calorim.*, vol.127, pp. 2561–2575, 2017.

Raja, M.; Arunachalam, R.M.; Suresh, S., Experimental studies on heat transfer of alumina/water nanofluid in a shell and tube heat exchanger with wire coil insert, *Int. J. Mech. Mater. Eng*., vol.7, pp. 16–23, 2012.

Raja, M.; Vijayan, R.; Dineshkumar, P.; Venkatesan, M., Review on nanofluids characterization, heat transfer characteristics and applications, *Renew Sustain Energy Rev*., vol.64, pp. 163–173, 2016.

Rao, V.V.; Reddy, M.C., Experimental investigation of heat transfer coefficient and friction factor of ethylene glycol water based TiO_2 nanofluid in double pipe heat exchanger with and without helical coil inserts, *Int. Commun. Heat Mass Transfer*, vol.50, pp. 68–76, 2014.

Rostamian, S.H.; Biglari, M.; Saedodin, S.; Esfe, M.H., An inspection of thermal conductivity of CuO-SWCNTs hybrid nanofluid versus temperature and concentration using experimental data, ANN modeling and new correlation, *J. Mol. Liq.*, vol.231, pp. 364-369, 2017.

Safaei. M.R.; Ranjbarzadeh, R.; Hajizadeh, A.; Bahiraei, M.; Afrand, M.; karimipour, A., Simultaneous effects of cobalt ferrite and silica nanoparticles on the thermal conductivity of antifreeze: new hybrid nanofluid for refrigeration condensers, *Int. J Refrig*. vol. 102, pp. 86-95, 2018.

Sahu, M., Sarkar, J., Steady-state energetic and exergetic performances of single-phase natural circulation loop with hybrid nanofluids, *J. Heat Transfer*, vol. 141, pp. 082401-1-11, 2019.

Said, Z.; Rahman, S.M.A.; Assad, M.E.H.; Alami, A.H., Heat transfer enhancement and life cycle analysis of a Shell-and-Tube Heat Exchanger using stable CuO/water nanofluid, *Sustainable Energy Technologies and Assessments*, pp. 306–317, 2019.

Salehi, J.M.; Heyhat, M.M.; Rajabpour, A., Enhancement of thermal conductivity of silver nanofluid synthesized by a one-step method with the effect of polyvinylpyrrolidone on thermal behavior., *Appl. Phys. Lett*., vol.102, pp. 231907-1-3, 2013**.**

Salem, M.R.; Ali, R.K.; Sakr, R.Y.; Elshazly, K.M., Effect of γ-Al_2O_3/water nanofluid on heat transfer and pressure drop characteristics of shell and coil heat exchanger with different coil curvatures, *J. Therm. Sci. Eng. Appl.*, vol.7, pp. 1-9, 2015**.**

Sarafraz, M.M.; Hormozi, F., Intensification of forced convection heat transfer using biological nanofluid in a double-pipe heat exchanger, *Exp. Therm. Fluid Sci*., vol.66, pp. 279–289, 2015.

Sarafraz, M.M.; Hormozi, F.; Nikkhah, V., Thermal performance of a counter-current double pipe heat exchanger working with COOH-CNT/water nanofluids, *Exp. Therm. Fluid Sci*., vol.78, pp. 41–49, 2016.

Sarkar, J., Performance of nanofluid-cooled shell and tube gas cooler in transcritical CO_2 refrigeration systems, *Appl. Therm. Eng*., vol.31, pp. 2541-2548, 2011**.**

Sarkar, J., Performance evaluation of using water-based nanofluids as coolants in the gas cooler of a transcritical CO_2 refrigerant system, *J. Enhanced Heat Transfer*, vol.20, pp. 389-397, 2013**.**

Sarkar, J., Performance improvement of double-tube gas cooler in CO_2 refrigeration system using nanofluids, *Therm. Sci*., vol.19, pp. 109-118, 2015**.**

Sarkar, J.; Ghosh, P.; Adil, A., A review on hybrid nanofluids: Recent research, development and applications, *Renew Sustain Energy Rev*., vol.43, pp. 164–177, 2015**.**

Shahrul, I.M.; Mahbubul, I.M.; Saidur, R.; Khaleduzzaman, S.S.; Sabri, M.F.M.; Rahman, M.M., Effectiveness study of a shell and tube heat exchanger operated with nanofluids at different mass flow rates, *Numer. Heat Transfer*, vol.65, pp. 699–713, 2014**.**

Shahrul, I.M.; Mahbubul, I.M.; Saidur, R.; Sabri, M.F.M., Experimental investigation on Al_2O_3–W, SiO_2–W and ZnO–W nanofluids and their application in a shell and tube heat exchanger, *Int. J. Heat Mass Transfer*, vol.97, pp. 547–558, 2016**.**

Shahrul, I.M.; Mahbubul, I.M.; Saidur, R.; Khaleduzzaman, S.S.; Sabri, M.F.M., Performance evaluation of a shell and tube heat exchanger operated with oxide based nanofluids, *Heat Mass Transfer*, vol.52, pp. 1425–1433, 2016**.**

Shahsavar, A.; Bahiraei, M., Experimental investigation and modeling of thermal conductivity and viscosity for non-Newtonian hybrid nanofluid containing coated CNT/Fe_3O_4 nanoparticles, *Powder Technol*, vol.318, pp. 441–450, 2017.

Shirvan, K.M.; Mamourian, M.; Mirzakhanlari, S.; Ellahi, R., Numerical investigation of heat exchanger effectiveness in a double pipe heat exchanger filled with nanofluid: A sensitivity analysis by response surface methodology, *Powder Technol*., vol.313, pp. 99–111, 2017.

Sidik, N.A.C.; Mohammed, H.A.; Alawi, O.A.; Samion, S, A review on preparation methods and challenges of nanofluids, *Int. Commun. Heat Mass Transfer*, vol.54, pp. 115-125, 2014**.**

Sidik, N.A.C.; Mahmud Jamil, M.; Aziz Japar, W.M.A.; Muhammad Adamu, I., A review on preparation methods, stability and applications of hybrid nanofluids, *Renew Sustain Energy Rev*., vol.80, pp. 1112–1122, 2017.

Singh, B.P.; Menchavez, R.; Takai, C.; Fuji, M.; Takahashi, M., Stability of dispersions of colloidal alumina particles in aqueous suspensions, *J. Colloid Interf. Sci*., vol.291, pp.181–186, 2005.

Singh, B.P.; Nayak, S.; Samal, S.; Bhattacharjee, S.; Besra, L., Characterization and Dispersion of Multiwalled Carbon Nanotubes (MWCNTs) in Aqueous Suspensions: Surface Chemistry Aspects, *J. Disper. Sci. Technol*, vol.33. pp. 1021–1029, 2012.

Soltani, O.; Akbari, M., Effects of temperature and particles concentration on the dynamic viscosity of MgO-MWCNT/ethylene glycol hybrid nanofluid: Experimental study, *Physica E*, vol.84, pp. 564-570, 2016.

Sonawane, S.S.; Khedkar, R.S.; Wasewar, K.L., Study on concentric tube heat exchanger heat transfer performance using Al_2O_3–water based nanofluids, *Int. Commun. Heat Mass Transfer*, vol.49, pp. 60–68, 2013.

Sozen, A.; Variyenli, H.I.; Ozdemir, M.B.; Gürü, M.; Aytaç, I., Heat transfer enhancement using alumina and fly ash nanofluids in parallel and cross-flow concentric tube heat exchangers, *J. Eng. Inst.*, vol.89, pp. 414-424, 2016.

Sozen, A.; Variyenli, H.I.; Ozdemir, M.B.; Gürü, M., Improving the thermal performance of parallel and cross-flow concentric tube heat exchangers using fly-ash nanofluid, *Heat Transfer Eng*., vol.37, pp. 805-813, 2016.

Srinivas, T.; Vinod, A.V., Heat transfer intensification in a shell and helical coil heat exchanger using water-based nanofluids, *Chem. Eng. Process*, vol.102, pp. 1–8, 2016**.**

Sui, D; Langåker, V.H.; Yu, Z., Investigation of thermophysical properties of nanofluids for application in geothermal energy, *Energy Procedia*, vol.105, pp. 5055–5060, 2017.

Sundar, L.S.; Hortiguela, M.J.; Singh, M.K.; Sousa, A.C.M., Thermal conductivity and viscosity of water based nanodiamond (ND) nanofluids: An experimental study, *Int Commun Heat Mass Transf*, vol.76, pp. 245–255, 2016.

Tan, Y.; He, Z.; Xu, T.; Fang, X.; Gao, X.; Zhang, Z., Experimental investigation of heat transfer and pressure drop characteristics of non-Newtonian nanofluids flowing in the shell-side of a helical baffle heat exchanger with low-finned tubes, *Heat Mass Transfer*, vol.53, pp. 2813–2827, 2017.

Toghraie, D.; Chaharsoghi, V.A.; Afrand, M., Measurement of thermal conductivity of ZnO–TiO_2/EG hybrid nanofluid, *J Therm Anal Calorim.*, vol. 125, pp. 527–535, 2016**.**

Tora, E.A.H., Nanofluids as a cooling agent for Rankine power cycle. *2nd International Conference on Energy Systems & Technologies, Cairo, Egypt*, pp. 18-21, 2013.

Vafaei, M.; Afrand, M.; Sina, N.; Kalbasi, R.; Sourani F.F.; Teimouri, H., Evaluation of thermal conductivity of MgO-MWCNTs/EG hybrid nanofluids based on experimental data by selecting optimal artificial neural networks, *Physica E*, vol.85, pp. 90–96, 2017.

Vasconcelos, A.A.; Gómez, A.O.C.; Filho, E.P.B.; Parise, J.A.R., Experimental evaluation of SWCNT-water nanofluid as a secondary fluid in a refrigeration system, *Appl. Therm. Eng*., vol.111, pp. 1487-1492, 2017.

Wang, B.; Xiong, X.; Renab, H.; Huang, Z., Preparation of MgO nanocrystals and catalytic mechanism on phenol ozonation, *RSC Adv*., vol.7, pp. 43464–43473, 2017.

Wu, Z.; Wang, L.; Sundén, B., Pressure drop and convective heat transfer of water and nanofluids in a double-pipe helical heat exchanger, *Appl. Therm. Eng*., vol.60, pp. 266-274, 2013.

Wu, Z.; Wang, L.; Sunden, B.; Wadso, L., Aqueous carbon nanotube nanofluids and their thermal performance in a helical heat exchanger, *Appl. Therm. Eng.*, vol.96, pp. 364–371, 2016.

Xuan, Y., Li, Q., Investigation on convective heat transfer and flow features of nanofluids, *J. Heat Transfer*, vol.125, pp. 151-155, 2003.

Yarmand, H.; Gharehkhani, S.; Ahmadi, G.; Shirazi, S.F.S.; Baradaran, S.; Montazer, E.; Zubir, M.N.M.; Alehashem, M.S.; Kazi, S.N.; Dahari, M., Graphene nanoplatelets-silver hybrid nanofluids for enhanced heat transfer. *Energy Convers Manag.*, vol.100, pp. 419–428, 2015.

Yarmand, H.; Gharehkhani, S.; Shirazi, S.F.S.; Goodarzi, M.; Amiri, A.; Wail Sami Sarsam, W.S.; Alehashem, M.S.; Dahari, M.; Kazi, S.N., Study of synthesis, stability and thermo-physical properties of graphene nanoplatelet/platinum hybrid nanofluid, *Int. Commun. Heat Mass Transfer*, vol.77, pp. 15–21, 2016.

Yu, W.; Xie, H.; Li, Y.; Chen, L., Experimental investigation on thermal conductivity and viscosity of aluminum nitride nanofluid, *Particuology*, vol.9, pp. 187–191, 2011.

Zamzamian, A.; Oskouie, S.N.; Doosthoseini, A.; Joneidi, A.; Pazouki, M., Experimental investigation of forced convective heat transfer coefficient in nanofluids of Al_2O_3/EG and CuO/EG in a double pipe and plate heat exchangers under turbulent flow, *Exp. Therm. Fluid Sci.*, vol.35, pp. 495–502, 2011.