

Department of Mechanical Engineering, MUST AJK

Faculty Research Publications in the year 2020

Bashir, M.A., Giovannelli, A., **Amber, K.P.**, Khan, M.S., Arshad, A. & Daboo, A.M., (2020), “High temperature phase change materials for short-term thermal energy storage in the solar receiver: Selection and analysis”, *Journal of Energy Storage*, 30, p.101496.

Amber, K.P., Akram, W., **Bashir, M.A.**, Khan, M.S., Kousar, A., (2020), Experimental performance analysis of two different passive cooling techniques for solar photovoltaic installations. *Journal of thermal analysis and calorimetry*, <https://doi.org/10.1007/s10973-020-09883-6>

Daabo, A. M., Bellos, E., Pavlovic, S., **Bashir, M. A.**, Mahmoud, S., & Al-Dadah, R. K. (2020). Characterization of a Micro Thermal Cavity Receiver-Experimental and Analytical Investigation. *Thermal Science and Engineering Progress*, 100554.

Giovannelli, A., Archilei, E.M., Di Lorenzo, G., Salvini, C., **Bashir, M.A.** and Messina, G., 2020. Design of power-blocks for medium-scale supercritical carbon dioxide plants. *International Journal of Energy Research*.

Amber, K.P., Aslam, M.W., Kousar, A., **Khan, M.S.**, **Chaudhary, G.Q.** and Amar, M., 2020. Energy Usage Intensity of Bank Building Stock: A Case Study in Pakistan. *ASME Journal of Engineering for Sustainable Buildings and Cities*, 1(2).

Amber, K. P., Ahmad, R., **Chaudhary, G. Q.**, **Khan, M. S.**, **Akbar, B.**, & **Bashir, M. A.** (2020). Energy and environmental performance of a higher education sector—a case study in the United Kingdom. *International Journal of Sustainable Energy*, 1-18.

Abid, M., **Khan, M.S.**, Ratlamwala, T.A. and **Amber, K.P.**, (2020). Thermo-environmental investigation of solar parabolic dish-assisted multi-generation plant using different working fluids. *International Journal of Energy Research*.

Arshad, A., Jabbar, M., Sardari, P. T., **Bashir, M. A.**, Faraji, H., & Yan, Y. (2020). Transient simulation of finned heat sinks embedded with PCM for electronics cooling. *Thermal Science and Engineering Progress*, 100520.

Saleem, A.S., Cheema, T.A., Ullah, R., Ahmad, S.M., Chattha, J.A., **Akbar, B.** and Park, C.W., (2020). Parametric study of single-stage gravitational water vortex turbine with cylindrical basin. *Energy*, p.117464.

Rafiq, N., Ali, A., Khurshid, H., **Akbar, B.**, Tarar, Z.H., Nazir, F., Javed, H., Ahmed, I. and Ahmed, M., (2020). Assessment of antibacterial potential of methanol, n-hexane, ethyl acetate and chloroform *Moringa oliefera* leaf extracts. *Pure and Applied Biology*. Vol. 9, Issue 3, pp1946-1953.

Arain, H., Sharif, A., **Akbar, B.** and **Younis, M.Y.**, 2020. Dynamic connection between inward foreign direct investment, renewable energy, economic growth and carbon emission in China: evidence from partial and multiple wavelet coherence. *Environmental Science and Pollution Research*, pp.1-19.

Khan, M.Z.U., Uddin, E., **Akbar, B.**, Akram, N., Naqvi, A.A., Sajid, M., Ali, Z., Younis, M. and García Márquez, F.P., (2020). Investigation of Heat Transfer and Pressure Drop-in Microchannel Heat Sink Using Al₂O₃ and ZrO₂ Nanofluids. *Nanomaterials*, 10(9), p.1796.

Khan, M.S., Yan, M., Ali, H.M., **Amber, K.P.**, **Bashir, M.A.**, **Akbar, B.** and Javed, S., (2020). Comparative performance assessment of different absorber tube geometries for parabolic trough solar collector using nanofluid. *J Therm Anal Calorim*.

Sohail Ahmed, Mubashar Ali, Abdullah Baz, Hosam Alhakami, **Bilal Akbar**, Imran Ali Khan, Adeel Ahmed and Muhammad Junaid, (2020) “A Design of Packet Scheduling Algorithm to Enhance QoS in High-Speed Downlink Packet Access (HSDPA) Core Network” *International Journal of Advanced Computer Science and Applications(IJACSA)*, 11(4), <http://dx.doi.org/10.14569/IJACSA.2020.0110478>

Usman Latif, Ehtisham Ali, Emad Uddin*, Zaib Ali, Mushtaq Khan, Samiur Rehman Shah and **Md. Yamin Younis**, (2020) Experimental Investigation of Energy Harvesting Eel in the Wake of Bluff Body under Ocean Waves., *Journal of Engineering for the Maritime Environment*, <https://doi.org/10.1177/1475090220949334>

Ammar Naseem, Emad Uddin, Zaib Ali, Samiur Rehman Shah, Jawad Aslam, Muhammad Sajid, Ali Abbas Zaidi, Adeel Javed, **Yamin Younis**, (2020), Effect of vortices on power output of vertical axis wind turbine (VAWT) *Sustainable Energy Technologies and Assessments*, Vol. 37, No. 2

Bo Hu, Hua Zhang, **Muhammad Yamin Younis**, (2020), Suction controlled topological transition in laminar juncture flow, , *Fluid Dynamics*, Vol. 55, no. 3, pp. 377–390

Khan, M.Z.U., Uddin, E., **Akbar, B., Akram, N.**, Naqvi, A.A., Sajid, M., Ali, Z., Younis, M. and García Márquez, F.P., 2020. Investigation of Heat Transfer and Pressure Drop in Microchannel Heat Sink Using Al₂O₃ and ZrO₂ Nanofluids. *Nanomaterials*, 10(9), p.1796.

Arzpeyma, M., Mekhilef, S., Newaz, K.M.S., Horan, B., Seyedmahmoudian, **M., Akram, N.** and Stojcevski, A., (2020). Solar chimney power plant and its correlation with ambient wind effect. *Journal of Thermal Analysis and Calorimetry*, 141(2), pp.649-668.

Ahmed, W., Chowdhury, Z.Z., Kazi, S.N., Johan, M.R., **Akram, N.** and Oon, C.S., (2020). Effect of ZnO-water based nanofluids from sonochemical synthesis method on heat transfer in a circular flow passage. *International Communications in Heat and Mass Transfer*, 114, p.104591.

Ahmed, W., Chowdhury, Z.Z., Kazi, S.N., Johan, M.R., **Akram, N.**, Oon, C.S. and Abdelrazek, A.H., (2020). Characteristics investigation on heat transfer growth of sonochemically synthesized ZnO-DW based nanofluids inside square heat exchanger. *Journal of Thermal Analysis and Calorimetry*, pp.1-18.

Soudagar, M.E.M., Kalam, M.A., Sajid, M.U., Afzal, A., Banapurmath, N.R., **Akram, N.**, Mane, S.D. and Saleel C, A., 2020. Thermal analyses of minichannels and use of mathematical and numerical models. *Numerical Heat Transfer, Part A: Applications*, 77(5), pp.497-537.

Akram, N., Sadri, R., Kazi, S.N., Zubir, M.N.M., Ridha, M., Ahmed, W., Soudagar, M.E.M. and Arzpeyma, M., (2020). A comprehensive review on nanofluid operated solar flat plate collectors. *Journal of Thermal Analysis and Calorimetry*, 139(2), pp.1309-1343.

Conference Paper (2019-2020)

Effect of corner modification on flow characteristics of a 3D square cylinder. Ahmad Hammad, Emad Uddin, Zaib Ali, Syed Atif Iqrar and **Muhammad Yamin Younis**, (ASEM19) Jeju Island, Korea, September 17 - 21, **2019**.

Soudagar, M.E.M., Nik-Ghazali, N.N., Badruddin, I.A., Kalam, M.A., Kittur, M.I., **Akram, N.**, Ullah, M.A., Khan, T.Y. and Mokashi, I., **2019**, August. Production of honge oil methyl ester (HOME) and its performance test on four stroke single cylinder VCR engine. In *AIP Conference Proceedings* (Vol. 2142, No. 1, p. 200006). AIP Publishing LLC.

Research Projects 2020

1-Project Title: A real time wireless monitoring system for Total Dissolve Salts (TDS) level of boiler system in Industries

Principal Investigator: **Engr. Dr. Khuram Pervez Amber**

Project approved: **ORIC MUST, AJK**

2-Project Title: Waste heat recovery baffle for domestic gas/wood/coal fired water geysers

Principal Investigator: **Engr. Dr. Yamin Younis**

Project approved: **ORIC MUST, AJK**

3-Project Title: Transforming Municipal Solid Waste into Eco-Friendly Renewable Fuel

Principal Investigator: **Engr. Dr. Khuram Pervez Amber**

Submitted in: **HEC Local Challenge Fund 2020**

4- Project Title: Renewable Energy & Energy Efficiency Based Solutions for Commercial & Industrial Sectors of Pakistan to Promote Economic Growth and Climate Change Mitigation

Principal Investigator: **Engr. Dr. Muhammad Anser Bashir**

Submitted in: **HEC Local Challenge Fund 2020**

5- Project Title: Solar Umbrella with an Evaporative Cooling System for Traffic Wardens

Principal Investigator: **Engr. Dr. Khuram Pervez Amber**

Submitted in: **Pakistan Council for Science and Technology (PCST) 2020**

6- Project Title: Development of high temperature solar receiver for Dish-Micro gas turbine system

Principal Investigator: **Engr. Dr. Muhammad Anser Bashir**

Submitted in: **Pakistan Council for Science and Technology (PCST) 2020**

Research Publications in Year 2019

Bashir, M.A., Giovanelli, A., H. M. Ali (2019) “Design of high temperature solar receiver integrated with short-term thermal storage for Dish-MGT systems”, *Solar Energy* 190, pp. 156-166.

Bashir M.A., Giovanelli, A., (2019) “Design optimization of PCM integrated solar receiver: A numerical parametric study”, *Applied Thermal Engineering*, *Volume 160*, September 2019, 114008

Khan, M. S., Abid, M., Ali, H. M., Amber, K. P., **Bashir, M. A.**, & Javed, S. (2019). Comparative performance assessment of solar dish assisted s-CO₂ Brayton cycle using nanofluids. *Applied Thermal Engineering*, 148, 295-306.

Javed, S., Ali, H. M., Babar, H., Khan, M. S., Janjua, M. M., & **Bashir, M. A.** (2019). Internal convective heat transfer of nanofluids in different flow regimes: A comprehensive review. *Physica A: Statistical Mechanics and its Applications*, 122783

Khan, M. S., Abid, M., Ali, H. M., Amber, K. P., **Bashir, M. A.**, & Javed, S. (2019). Comparative performance assessment of solar dish assisted s-CO₂ Brayton cycle using nanofluids. *Applied Thermal Engineering*, 148, 295-306.

Khurshid, H., Rafiq, M., Nazir, F., Ali, I., Ahmed, M., **Akbar, B.**, Ahmed, M. and Ali, A., (2019). 14. Antimicrobial properties of hydrogen peroxide and potash alum alone and in combination against clinical bacterial isolates. *Pure and Applied Biology (PAB)*, 8(4), pp.2238-2247.

Akbar, B., Amber, K.P., Kousar, A., Aslam, M.W., Bashir, M.A. and Khan, M.S., 2020. Data-driven predictive models for daily electricity consumption of academic buildings.

Nouman Ali, Bushra Zafar, Muhammad Kashif Iqbal, Muhammad Sajid, **Muhammad Yamin Younis**, Saadat Hanif Dar, Muhammad Tariq Mahmood, Ik Hyun Lee, Modeling global geometric spatial information for rotation invariant classification of satellite images, , *PLOS ONE*, 14(7): e0219833. (2019)

Bo Hu, Hua Zhang, **Muhammad Yamin Younis**, Saddle point of separation/attachment and topology transition in laminar juncture flows, , *Journal of Visualization*, Volume 22, Issue 4 (2019), pp 713–727

Muhammad Y. Younis*· Hua Zhang, Bo Hu, Emad Uddin and Jawad Aslam, Horseshoe vortex control using low-drag vortex generators, , *Wind and Structures an International Journal*, Vol. 28, No. 6 (2019), 355-367

Imran Shah, Emad Uddin, Aamir Mubashar, Muhammad Sajid, **Muhammad Yamin Younis**, Hudair Samad, Kyung Hyun choi, Numerical Investigation of Surface Acoustic Wave (SAW) interacting with a droplet for Point-of-Care Devices, *International Journal of Acoustics and Vibration*, Vol. 24, No. 4, (2019) pp: 632-637

Akram, N., Sadri, R., Kazi, S.N., Ahmed, S.M., Zubir, M.N.M., Ridha, M., Soudagar, M., Ahmed, W., Arzpeyma, M. and Tong, G.B., 2019. An experimental investigation on the performance of a flat-plate solar collector using eco-friendly treated graphene nanoplatelets–water nanofluids. *Journal of Thermal Analysis and Calorimetry*, 138(1), pp.609-621.

Ahmed, S.M., Kazi, S.N., Khan, G., **Akram, N.**, Dahari, M., Zubir, M.N.M., Ahmad, P. and Zaharinie, T., (2019). Experimental investigation on drag reduction of flowing crop suspensions of the pulp fibers in circular pipe heat exchanger. *Particulate Science and Technology*.

Abid, M., **Khan, M. S.**, & Ratlamwala, T. A. H. (2019). Thermodynamic Performance Evaluation of a Solar Parabolic Dish Assisted Multigeneration System. *Journal of Solar Energy Engineering*, 141(6), 061014.

Khan, M. S., Abid, M., & Ratlamwala, T. A. H. (2019). Energy, Exergy and Economic Feasibility Analyses of a 60 MW Conventional Steam Power Plant Integrated with Parabolic Trough Solar Collectors Using Nanofluids. *Iranian Journal of Science and Technology, Transactions of Mechanical Engineering*, 43(1), 193-209.

Abid, M., **Khan, M. S.**, & Ratlamwala, T. A. H. (2019). Comparative energy, exergy and exergo-economic analysis of solar driven supercritical carbon dioxide power and hydrogen generation cycle. *International Journal of Hydrogen Energy*.

Chaudhary, G. Q., Ali, M., Ashiq, M., Ali, H. M., & **Amber, K. P.** (2019). Experimental and model based performance investigation of a solid desiccant wheel dehumidifier in subtropical climate. *THERMAL SCIENCE*, 23(2), 975-988.