



Dr. Zahir Uddin Ahmed

Professor

Research Area

Education

Biography

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PhD in Engineering

Edith Cowan University, Australia (2016)

Thesis Title: [An experimental and numerical study of surface interactions in swirling jets](#)

MESc in Mechanical Engineering

The University of Western Ontario, Canada (2010)

Thesis Title: [Axisymmetric and non-axisymmetric annular jet stability](#)

B.Sc in Mechanical Engineering

Khulna University of Engineering & Technology (KUET), Bangladesh (2002) Group: Mechanical Engineering, Merit Position:

1st, Achievement: Awarded Prime Minister Gold Medal

Service Records

- **Maintenance Engineering**
AP (Dhaka) Ltd. From 01-01-1970 to 01-01-1970
- **Technical Engineer**
YKK (Bangladesh) Pte. Ltd. From 01-01-1970 to 01-01-1970
- **Lecturer**
Department/Section: Mechanical Dept.
Khulna University of Engineering & Technology (KUET) From 01-01-1970 to 01-01-1970
- **Assistant Professor**
Department/Section: Mechanical Dept.
Khulna University of Engineering & Technology (KUET) From 01-01-1970 to 01-01-1970
- **Associate Professor**
Department/Section: Mechanical Dept.
Khulna University of Engineering & Technology (KUET) From 01-01-1970 to 01-01-1970
- **Professor**
Department/Section: Mechanical Dept.
Khulna University of Engineering & Technology (KUET) From 01-01-1970 to 01-01-1970

Research Interest

Publication

Books

Journals

28. Debnath, S., Khan, M. T. and Ahmed, Z. U. (2023), "Substrate Characteristics of Multiple Arrays of Turbulent Swirling Impinging Jets," **Journal of Flow Visualization & Image Processing**, Begell House Inc., vol30, no.5
27. Suja, S. B., Islam, M. R. and Ahmed, Z. U. (2023), "Swirling jet impingements for thermal management of high concentrator solar cells using nanofluids," **International Journal of Thermofluids**, Elsevier, vol19, pp.100387
26. Islam, M. R., Ahmed, Z. U. and Hossain, K. A. (2023), "Numerical analysis of LOx-BioLPG combustion in high-pressure liquid rocket engine propulsion system," **South African Journal of Chemical Engineering**, Elsevier, vol45, pp.83-99
25. Ahmed, Z. U. and Al-Abdeli, Y. M. A. (2023), "Temperature uniformity, correlations and the flow field in swirling impinging jets," **Journal of Thermal Science**, Springer Nature, vol32, no.2, pp.662-679
24. Debnath, S., Khan, M. T. and Ahmed, Z. U. (2022), "Investigation on Circular Array of Turbulent Impinging Round Jets at Confined Case: A CFD Study," **Journal of Engineering Advancements**, Scien PG, vol3, no.4, pp.144-154
23. Dey, A., Ahmed, Z. U. and Alam, M. R. (2022), "Thermal and exergy analysis of Pin-finned heatsinks for nanofluid cooled high concentrated photovoltaic thermal (HCPV/T) hybrid systems," **Energy Conversion and Management: X**, Elsevier, vol16, pp.100324
22. (2023), "Thermal characteristics of arrays of swirling impinging jets: Effect of Reynolds number, impingement distance, and jet-to-jet separation," **Heat Transfer**, Wiley, vol52, no.1, pp.585-608
21. Ahmed, Z. U., Raihan, M. R., Ghaffari, O. and Ikhlaq, M. (2022 (In press)), "Thermal and hydraulic performances of porous microchannel heat sink using nanofluids," **ASME Journals**, vol14, no.7, pp.071012:14
20. Khan, M. T. and Ahmed, Z. U. (2022), "Effect of nanofluids on heat transfer characteristics of an aerodynamic swirl nozzle for isothermal and adiabatic conditions," **Australian Journal of Mechanical Engineering**, Taylor & Francis
19. Mashud, M. and Ahmed, S. M. J. a. Z. U. (2021), "Optimization of low speed wind turbine blade profile on the basis of lift coefficient," **Journal of Engineering and Applied Sciences**, APRN, vol16, no.2, pp.112-120
18. Debnath, S., Khan, M. H. U. and Ahmed, Z. U. (2020), "Turbulent swirling impinging jet arrays: A numerical study on fluid flow and heat

- transfer," **Thermal Science and Engineering Progress**, Elsevier, vol19, pp.100580(12)
17. Islam,S. M. ,Khan,M. T. and Ahmed,Z. U. (2020) , " Effect of geometric parameters on flow characteristics of a swirl nozzle," **Progress in Computation Fluid Dynamics**, Inderscience, vol20, no.5, pp.249-262
 16. Khan,M. T. ,Islam,S. M. and Ahmed,Z. U. (2020) , " Near-wall and turbulence behavior of swirl flows through an aerodynamic swirl nozzle," **Journal of Engineering Advancements**, ScienPG, vol1, no.2, pp.43-52
 15. Khan,M. H. U. and Ahmed,Z. U. (2019) , " Fluid flow and heat transfer characteristics of multiple swirling impinging jets at various impingement distances," **International Journal of Thermofluid Science and Technology**, IJTF, vol6, no.4, pp.060403(12)
 14. Joty,S. M. ,Ahmed,Z. U. and Das,B. K. (2018) , " Optimal sizing of a stand-alone PV/Wind/ICE/Battery for application in a university campus of Bangladesh," **International Journal of Industrial Electronics and Electrical Engineering**, IRAJ, vol6, no.10, pp.53-59
 13. Ahmed,Z. U. ,Al-Abdeli,Y. M. A. and Guzzomi,F. G. (2017) , " Flow field and thermal behaviour in swirling and non-swirling turbulent impinging jets," **International Journal of Thermal Science**, Elsevier, vol114, pp.241-256
 12. Baki,B. A. ,Khayat,R. E. and Ahmed,Z. U. (2016) , " Thermal convection of viscoelastic shear-thinning fluids," **Fluid Dynamics Research**, IOPScience, vol48, no.6, pp.061406(25)
 11. Ahmed,Z. U. ,Al-Abdeli,Y. M. A. and Guzzomi,F. G. (2016) , " Heat transfer characteristics of swirling and non-swirling impinging turbulent jets," **International Journal of Heat and Mass Transfer**, Elsevier, vol102, pp.991-1003
 10. Ahmed,Z. U. ,Al-Abdeli,Y. M. A. and Guzzomi,F. G. (2016) , " Correction of dual-wire CTA data in turbulent swirling and non-swirling jets," **Experimental Thermal and Fluid Science**, Elsevier, vol70, pp.166-175
 9. Ahmed,Z. U. ,Al-Abdeli,Y. M. A. and Guzzomi,F. G. (2015) , " Impingement pressure characteristics of swirling and non-swirling turbulent jets," **Experimental Thermal and Fluid Science**, Elsevier, vol68, pp.722-732
 8. Ahmed,Z. U. ,Al-Abdeli,Y. M. A. and Matthews,M. T. (2015) , " The effect of inflow conditions on the development of non-swirling versus swirling impinging turbulent jets," **Computers & Fluids**, Elsevier, vol118, pp.255-273
 7. Niknami,M. , Ahmed,Z. U. , Baki,B. A. and Khayat,R. E. (2015) , " A combined spectral-amplitude-perturbation approach for systematic mode selection in thermal convection," **International Journal of Numerical Methods for Heat & Fluid Flow**, Emerald Group, vol25, no.4, pp.782-802
 6. Ahmed,Z. U. , Khayat,R. E. , Maissa,P. and Mathis,C. (2013) , " Non-axisymmetric annular curtain stability," **Physics of Fluids**, American Institute of Physics, vol25, no.8, pp.082104(37)
 5. Ahmed,Z. U. ,Baki,B. A. and Khayat,R. E. (2013) , " Combined spectral-perturbation approach for systematic mode selection in thermal convection," **Journal of Heat Transfer**, ASME Journals, vol135, pp.111007(12)
 4. Ahmed,Z. U. ,Khayat,R. E. and Mathis,P. M. a. C. (2012) , " Axisymmetric annular curtain stability," **Fluid Dynamics Research**, IOPScience, vol44, no.3, pp.031401(14)
 3. Ahmed,Z. U. and Khayat,R. E. (2012) , " Three dimensional film stability and draw resonance," **Journal of Fluids Engineering**, ASME Journals, vol134, no.10, pp.101302(14)
 2. Wakil,M. A. and Ahmed,Z. U. (2012) , " Effects of inertia and process parameters on isothermal high-speed two-layer filament jet flow," **International Journal of Mechanical Engineering**, vol2, no.5, pp.19-27
 1. Wakil,M. A. , Ahmed,Z. U. , Rahman,M. H. and Arifuzzaman,M. (2012) , " Study on fuel properties of various vegetable oil available in Bangladesh and biodiesel production," **International Journal of Mechanical Engineering**, vol2, no.5, pp.10-17

Conference

21. Suja,S. B. , Pranto,M. R. I. , Turna,R. N. and Ahmed,Z. U. (2020) , "Conjugate heat transfer analysis of different CPU cooling processes using computational fluid dynamics," **Int. Conf. on Mech. Indust. Energy Engg.**
20. Saha,J. ,Rahat,N. and Ahmed,Z. U. (2020) , "Numerical analysis of wall characteristics for turbulent swirling jets impinged on a concave surface," **Int. Conf. on Mech. Indust. Energy Engg.**
19. Debnath,S. and Ahmed,Z. U. (2020) , "Computational analysis of multiple non-swirling and swirling impinging air jets," **Int. Conf. on Mech. Indust. Energy Engg.**
18. Islam,S. M. ,Khan,M. T. and Ahmed,Z. U. (2019) , "Implementation of an eco-friendly earth-to-air heat exchanger for cooling effect using renewable energy sources," **Int. Conf. Mech. Engg. Renew. Energy**
17. Ahmed,Z. U. ,Joty,S. M. and Mashud,M. (2019) , "Comparative study of NACA 4412 and NACA 4421 profiles for low speed wind turbine blade," **Int. conf. Mech. Engg. Renew. Energy**
16. Masbah-Ul-Hakim,M. and Ahmed,Z. U. (2019) , "Numerical simulation of liquid jets impinging on an isothermal stationary substrate and hydraulic jump," **Int. Conf. Mech. Indust. Mater. Engg.**
15. Islam,K. R. and Ahmed,Z. U. (2018) , "Effect of inertia and gravity on three dimensional non-isothermal film stability," **Int. Conf. on Mech. Indust. Energy Engg.**
14. Debnath,S. , Khan,M. H. U. , Ahmed,Z. U. and Alam,M. M. (2018) , "The effect of swirl on array of turbulent impinging jets," **Int. Conf. on Mech. Indust. Energy Engg.**
13. Joty,S. M. ,Ahmed,Z. U. and Das,B. K. (2018) , "Optimal sizing of a stand-alone PV/Wind/ICE/Battery for application of a university campus in Bangladesh," **Int. Conf. Sci. Engg. Tech.**
12. Ahmed,Z. U. and Al-Abdeli,Y. M. A. (2017) , "Flow characteristics due to jet impact at low swirl intensity," **Int. Conf. Engg. Res. Innov. Educ.**
11. Islam,M. M. ,Tasnim,S. and Ahmed,Z. U. (2017) , "Numerical study of a swirl nozzle at moderate Reynolds numberNumerical study of a swirl nozzle at moderate Reynolds number," **Int. Conf. Mech. Engg. Renew. Energy**
10. Khan,M. H. U. and Ahmed,Z. U. (2017) , "Numerical investigation of arrays of circular swirling impinging jets," **Int. Conf. Mech. Engg. Renew. Energy**
9. Ahmed,Z. U. , Khan,M. H. U. , Khayat,R. E. and Tasnim,S. (2017) , "Effect of flow confinement on the hydrodynamics and heat transfer characteristics of swirling impinging jets," **Int. Conf. Mech. Engg.**
8. Tasnim,S. , Islam,M. M. , Joty,S. M. and Ahmed,Z. U. (2017) , "A numerical study on the fluid structure interaction of a wind turbine blade," **Int. Conf. Mech. Indust. Mater. Engg.**
7. Albaalbaki,B. ,Khayat,R. E. and Ahmed,Z. U. (2016) , "Thermal convection of Phan-Thien Tanner fluids," **Proceedings of the Canadian Society for Mechanical Engineering International Congress**
6. Thomas,B. , Ahmed,Z. U. , Al-Abdeli,Y. M. A. and Matthews,M. T. (2012) , "The optimisation of a turbulent swirl nozzle using CFD," **Proceedings of Australian Combustion Symposium**
5. Rahman,M. M. , Ahmed,Z. U. , Wakil,M. A. and Jalil,M. A. (2011) , "Falling film flow along vertical plate with temperature-dependent properties," **Int. Conf. Mechanical Engg.**
4. Ahmed,Z. U. and Wakil,M. A. (2011) , "Effects of gravity and fluid properties on isothermal high speed two-layer filament jet flow," **Int. Conf. Mechanical Engg.**
3. Ahmed,Z. U. and Khayat,R. E. (2010) , "Axisymmetric annular curtain stability with viscous gas media," **Int. Conf. on Mech., Indust.**

Energy Engg.

2. Ahmed,Z. U. and Khayat,R. E. (2010) , "Role of inertia and gravity on three dimensional film casting and stability," **13th Asian Congr.of Fluid Mech.**

1. Molla,S. A. , Ahmed,Z. U. , Wakil,M. A. and Inam,M. I. (2010) , "Formation of air pollution in IC engine and its controlling measures," **Int. Conf. on Mech. Indust. Energy Engg.**