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About

Dr. Usman is working as Assistant Professor in the NUST Balochistan Campus. Dr. Usman has a PhD in General and Fundamental Mechanics. Dr. Usman has published 47 research articles & conference papers having a citation count of 838, carried out 0 projects and filed 0 intellectual property.

Qualifications

PhD in General and Fundamental Mechanics University of Science and Technology Beijing , China	2017 - 2021
MS in Applied Mathematics International Islamic University , Pakistan	2014 - 2016
MSc in Mathematics Mirpur University of Science and Technology , Pakistan	2010 - 2012
BSc in Mathematics Board of Intermediate and Secondary Education, Mirpur AJK , Pakistan	2008 - 2010

Experience

Assistant Professor NUST Balochistan Campus	2024- Present
Assistant Professor NUST Balochistan Campus	2022 - 2022
Senior Teacher Sideeq Public School , Sideeq Public School Asghar Mall Road Rawalpindi	2017 - 2017
Lecturer Iqra College of Excellence , Iqra College of Excellence for Boys Kotli AJK	2013 - 2014

Research Articles

A numerical investigation of heat and mass transfer in the bioconvective Oldroyd B nanofluid flow through the porous stretching Riga surface with gyrotactic microorganism Muhammad Zulfiqar Muhammad Bilal Arain Muhammad Zubair Usman Hadil Alhazmi Case Studies in Thermal Engineering, Volume:72, Article Number:106431 Impact Factor: 6.4 Quartile: 1 DOI: https://doi.org/10.1016/j.csite.2025.106431	2025
MHD natural convection in a differentially heated cavity filled with a Cu-water nanofluid using FVM Mohamed Sadek Kehil Mohamed Kherief Nacereddine Usman Farid Berrahil Abdelkader Filali Adil Darvesh Mohamed Kezzar Abuzar Ghaffari Mohamed Rafik Sari Taseer Muhammad Ibrahim Mahariq Case Studies in Thermal Engineering, Volume:72, Article Number: 106350 Impact Factor: 6.4 Quartile: 1 DOI: https://doi.org/10.1016/j.csite.2025.106350	2025
Nanoparticle Aggregation Effects on MHD Nanofluid Flow Over a Permeable Sheet with Stretching/Shrinking and Thermal Radiation Mohamed Kezzar Sihem Gherieb Usman Sahar Ahmed Idris Mohamed Rafik Sari Abeer A. Shaaban Ibrahim Mahariq Advanced Theory and Simulations, Pages 1-18 Impact Factor: 2.900 Quartile: 1 DOI: https://doi.org/10.1002/adts.202401512	2025

FEM-based numerical study for enhanced electrical and thermal effectiveness in photovoltaic thermal systems with attached trapezoidal flow channels <i>Huda M Alshanbari Usman Dana Mohammad Khidhir Taseer Muhammad Hamiden Abd El-Wahed Khalifa</i> <i>Case Studies in Thermal Engineering</i> , Volume:69, Article Number: 105997, Pages:17 Impact Factor: 6.4 Quartile: 1 Citations: 2 DOI: https://doi.org/10.1016/j.csite.2025.105997	2025
A numerical simulation of electrically conducting Sisko fluid flow with melting heat transfer, nonlinear convection and variable thermal conductivity constraints over an inclined electromagnetic sheet <i>Shakil Bhuiyan MD. Shamshuddin Usman Torikul Islam M. Ferdows</i> <i>ZAMM Zeitschrift fur Angewandte Mathematik und Mechanik</i> , Volume:105, Issue:2, Article Number e202200464 Impact Factor: 2.300 Quartile: 1 DOI: https://doi.org/10.1002/zamm.202200464	2025
Mathematical modeling and numerical simulations of convective heat transport in a stagnant flow of water-based copper, aluminum oxide and MWCNTs nanofluid upon a stretching spinning disk <i>Usman R. S. Varun Kumar W. A. Khan Esraa M. AL-Jobani Ehab El Sayed Massoud</i> <i>ZAMM Zeitschrift fur Angewandte Mathematik und Mechanik</i> , Volume105, Issue 1, Article Number e202400476 Impact Factor: 2.300 Quartile: 1 Citations: 2 DOI: https://doi.org/10.1002/zamm.202400476	2025
Numerical study of heat transfer in a 3D triangular prism with a rotating cylinder using ternary hybrid nanofluids and a new regression model <i>Usman Zhipeng Xia Jianhong Wang Abid Ali Memon Taseer Muhammad</i> <i>Nonlinear Dynamics</i> , Pages 1-32 Impact Factor: 5.200 Quartile: 1 Citations: 3 DOI: https://doi.org/10.1007/s11071-024-10559-1	2024
Investigation of convective heat transport in a Carreau hybrid nanofluid between two stretchable rotatory disks <i>MD. Shamshuddin Zahir Shah Usman Anwar Saeed Mansoor H. Alshehri Narcisa Vrinceanu Elisabeta Antonescu</i> <i>Open Physics</i> , Volume: 22, Issue: 01, Pages:14 Impact Factor: 1.800 Quartile: 2 Citations: 1 DOI: https://doi.org/10.1515/phys-2024-0078	2024
Exploring the thermal behavior of Cu-water and CuO-water power-law nanofluids on a rotating circular disc: A computational analysis <i>Abuzar Ghaffari Irfan Mustafa Maria Qibtia Usman Taseer Muhammad Hammad Khalil Ijaz Ali</i> <i>Case Studies in Thermal Engineering</i> , Volume 63, Article Number 105227 Impact Factor: 6.400 Quartile: 1 Citations: 3 DOI: https://doi.org/10.1016/j.csite.2024.105227	2024
Thermal transportation of radiative cathode nanotube-based nanofluid on a stretching/shrinking wedge with varying magnetism and heat source <i>P. K. Pattnaik Usman Subhajit Panda Abuzar Ghaffari Taseer Muhammad</i> <i>ZAMM-Zeitschrift fur Angewandte Mathematik und Mechanik</i> , Pages 1-14 Impact Factor: 2.300 Quartile: 1 Citations: 3 DOI: https://doi.org/10.1002/zamm.202301083	2024
Ohmic Dissipation on Jeffery-Hamel Flow of an Electrically Conducting Second-Grade Fluid in Converging and Diverging Channels Under Velocity Slip Effects: Semi-Analytical Simulations via ADM <i>Maissa Slimane Tich Tich Mohamed Kezzar Usman Somayah Abdualziz Alhabeeb Hamiden Abd El-Wahed Khalifa Sami Znaidia Mohamed Rafik Sari</i> <i>Advanced Theory and Simulations</i> , Pages 1-11 Impact Factor: 2.900 Quartile: 1 Citations: 1 DOI: https://doi.org/10.1002/adts.202400825	2024
Investigating the enhanced cooling performance of ternary hybrid nanofluids in a three-dimensional annulus-type photovoltaic thermal system for sustainable energy efficiency <i>Usman Muhammad Shoaib Khan Jianhong Wang Abid Ali Memon Taseer Muhammad</i> <i>Case Studies in Thermal Engineering</i> , Volume 60, Article Number 104700 Impact Factor: 6.400 Quartile: 1 Citations: 21 DOI: https://doi.org/10.1016/j.csite.2024.104700	2024
Numerical study of MHD flow over stretching cylinder with variable Prandtl number and viscous dissipation in ternary hybrid nanofluids with velocity and thermal slip conditions	2024

Impact Factor: 1.8 | **Quartile:** 2 | **Citations:** 15
DOI: 10.1142/S0217984924504657

Numerical study of electroconductive non-Newtonian hybrid nanofluid flow from a stretching rotating disk with a Cattaneo–Christov heat flux model 2024

MD. Shamshuddin S.O. Salawu O. Anwar Bég Usman Tasveer A. Bég S. Kuharat
Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering, Pages 1-12
Impact Factor: 2.400 | **Quartile:** 3 | **Citations:** 13
DOI: <https://doi.org/10.1177/09544089241258019>

Thermal analysis of 3D Darcy–Forchheimer flow of SWCNT–MWCNT/sodium alginate on Riga plate 2024

Himanshu Upreti J. Prakash Usman Alok Kumar Pandey Dharmendra Tripathi
Journal of Thermal Analysis and Calorimetry, Volume 149, Issue 9, Pages 3891-3911
Impact Factor: 4.400 | **Quartile:** 1 | **Citations:** 20
DOI: <https://doi.org/10.1007/s10973-024-12975-2>

MHD nanofluid flow between porous convergent-divergent channel with velocity slip and nanoparticle aggregation 2024

Mohamed Kezzar Abuzar Ghaffari Amar Dib Usman Mohamed Rafik Sari Taseer Muhammad
Engineering Science and Technology, an International Journal, Volume 52, Article Number 101679
Impact Factor: 5.700 | **Quartile:** 1 | **Citations:** 17
DOI: <https://doi.org/10.1016/j.jestch.2024.101679>

Exploration of nonlinear radiative heat energy on Buongiorno modeled nano liquid toward an inclined porous plate with heat source and variable chemical reaction 2023

Yijie Li Usman MD. Shamshuddin Govind. R. Rajput A. Ghaffari Taseer Muhammad
Numerical Heat Transfer, Part A: Applications, Pages 1-20
Impact Factor: 2.0 | **Quartile:** 3 | **Citations:** 6
DOI: <https://doi.org/10.1080/10407782.2023.2290086>

A scientific report on Stokes' second problem for a transient nanofluid model with a heated boundary in the presence of a magnetic field 2023

Farwa Asmat W.A. Khan Usman Ilyas Khan Taseer Muhammad
Journal of Magnetism and Magnetic Materials, Volume 586, Article Number 171171
Impact Factor: 2.7 | **Quartile:** 3 | **Citations:** 10
DOI: <https://doi.org/10.1016/j.jmmm.2023.171171>

Theoretical exploration of heat transport in a stagnant power-law fluid flow over a stretching spinning porous disk filled with homogeneous-heterogeneous chemical reactions 2023

Zhihong He Muhammad Bilal Arain Usman W.A. Khan Ali Rashash R Alzahrani Taseer Muhammad A.S. Hendy Mohamed R. Ali
Case Studies in Thermal Engineering, Volume 50, Article Number 103406
Impact Factor: 6.8 | **Quartile:** 1 | **Citations:** 24
DOI: <https://doi.org/10.1016/j.csite.2023.103406>

Artificial neural network modeling of mixed convection viscoelastic hybrid nanofluid across a circular cylinder with radiation effect: Case study 2023

Syed M. Hussain Rahimah Mahat Nek Muhammad Katbar Dr. Imran Ullah R.S. Varun Kumar B.C. Prasannakumara Wasim Jamshed Mohamed R. Eid
Waqar A. Khan Usman Rabha W. Ibrahim Sayed M. El Din
Case Studies in Thermal Engineering, <https://www.sciencedirect.com/journal/case-studies-in-thermal-engineering>
Impact Factor: 6.8 | **Quartile:** 1 | **Citations:** 42
DOI: 10.1016/j.csite.2023.103487

Mathematical analysis for energy transfer of micropolar magnetic viscous nanofluid flow on permeable inclined surface and Dufour impact 2023

Mohamed R. Eid Wasim Jamshed B. Shankar Goud Usman Rabha W. Ibrahim Sayed M. El Din Assmaa Abd-Elmonem Nesreen Sirelkhtam Elmki Abdalla
Case Studies in Thermal Engineering, Volume 49, Article Number 103296
Impact Factor: 6.8 | **Quartile:** 1 | **Citations:** 18
DOI: <https://doi.org/10.1016/j.csite.2023.103296>

A numerical investigation of bio-convective electrically conducting water-based nanofluid flow on the porous plate with variable wall temperature 2023

Shuhe Sun Shuguang Li Muhammad Bilal Arain Usman Khalid Ali Khan Sidra Shaheen
Numerical Heat Transfer; Part A: Applications, Pages 1-15

Impact Factor: 2.0 Quartile: 3 Citations: 9 DOI: https://doi.org/10.1080/10407782.2023.2242579	
Computational Examination of Non-Darcian Flow of Radiative Ternary Hybridity Casson Nanoliquid Through Moving Rotary Cone <i>Fuzhang Wang Tanveer Sajid Nek Muhammad Katbar Wasim Jamshed Usman Mohamed R Eid Assmaa Abd-Elmonem Siti Suzilliana Putri Mohamed Isa Sayed M El Din Ayesha Amjad Gilder Cieza Altamirano</i> <i>Journal of Computational Design and Engineering</i>, Volume 10, Issue 4, Pages: 1657-1676 Impact Factor: 4.9 Quartile: 1 Citations: 28 DOI: https://doi.org/10.1093/jcde/qwad057	2023
Heat and mass transport in an electrically conducting nanofluid flow over two-dimensional geometries <i>Usman Waqar A. Khan Naseem Uddin Taseer Muhammad</i> <i>Heliyon</i> , Volume 9, Issue 8, Article Number e18377 Impact Factor: 4.0 Quartile: 2 Citations: 10 DOI: https://doi.org/10.1016/j.heliyon.2023.e18377	2023
Numerical investigation of photovoltaic thermal energy efficiency improvement using the backward step containing Cu-Al₂O₃ hybrid nanofluid <i>Abid Ali Memon Usman W.A. Khan Taseer Muhammad</i> <i>Alexandria Engineering Journal</i> , Volume 75, Pages 391-406 Impact Factor: 6.8 Quartile: 1 Citations: 34 DOI: https://doi.org/10.1016/j.aej.2023.06.003	2023
Non-similar solution for a power-law fluid flow over a moving wedge <i>Irfan Mustafa Saba Shahbaz Usman Abuzar Ghaffari Taseer Muhammad</i> <i>Alexandria Engineering Journal</i> , Volume 75, Pages 287-296 Impact Factor: 6.626 Quartile: 1 Citations: 20 DOI: 10.1016/j.aej.2023.05.077	2023
Chebyshev spectral approach to an exponentially space-based heat generating single-phase nanofluid flowing on an elongated sheet with angled magnetic field <i>MD. Shamshuddin T. M. Agbaje K. K. Asogwa G. Makanda Usman</i> <i>Numerical Heat Transfer, Part B: Fundamentals</i>, Pages 1-19 Impact Factor: 1.0 Quartile: 4 Citations: 21 DOI: https://doi.org/10.1080/10407790.2023.2230355	2023
A numerical investigation of a photovoltaic thermal system contained a trapezoidal channel with transport of silver and titanium oxide using the water as base fluids <i>Metib Alghamdi Abid Ali Memon Usman Taseer Muhammad Mohamed R. Ali</i> <i>Case Studies in Thermal Engineering</i>, Volume 47, Article Number 103056 Impact Factor: 6.268 Quartile: 1 Citations: 30 DOI: 10.1016/j.csite.2023.103056	2023
Solar Radiative and Chemical Reactive Influences on Electromagnetic Maxwell Nanofluid Flow in Buongiorno Model <i>Fuzhang Wang Wasim Jamshed Usman Rabha W. Ibrahim Nesreen Sirelkhtam Elmki Abdalla Assmaa Abd-Elmonem Syed M. Hussain</i> <i>Journal of Magnetism and Magnetic Materials</i> , Volume 576, Article ID:170748 Impact Factor: 3.097 Quartile: 3 Citations: 38 DOI: 10.1016/j.jmmm.2023.170748	2023
Entropy generation and flow characteristics of Powell Eyring fluid under effects of time sale and viscosities parameters <i>Mohsan Hassan Muhammad Ahsan Usman Metib Alghamdi Taseer Muhammad</i> <i>Scientific Reports</i> , Volume 13, Issue 1, Article Number: 8376 Impact Factor: 4.996 Quartile: 2 Citations: 13 DOI: https://doi.org/10.1038/s41598-023-35630-6	2023
A semi-analytical approach to investigate the entropy generation in a tangent hyperbolic magnetized hybrid nanofluid flow upon a stretchable rotating disk <i>Shamshuddin Anwar Seed Kanayo Kenneth Asogwa Usman Wasim Jamshed</i> <i>Journal of Magnetism and Magnetic Materials</i> , Volume 574, Article Number 170664 Impact Factor: 3.097 Quartile: 3 Citations: 45 DOI: https://doi.org/10.1016/j.jmmm.2023.170664	2023

- Entropy and thermal case description of monophasic magneto nanofluid with thermal jump and Ohmic heating employing finite element methodology** 2023
- Xianqin Zhang Dezhi Yang Nek Muhammad Katbar Wasim Jamshed Ikram Ullah Mohamed R. Eid Usman Zehba Raizah Rabha W. Ibrahim Hamiden Abd El-Wahed Khalifa Sayed M. El Din
- Case Studies in Thermal Engineering*, Volume 45, Article Number 102919
- Impact Factor:** 6.268 | **Quartile:** 1 | **Citations:** 16
- DOI:** <https://doi.org/10.1016/j.csite.2023.102919>
- Heat and mass transmission in a boundary layer flow due to swimming of motile gyrotactic microorganisms with variable wall temperature over a flat plate** 2023
- Nahid Fatima Walid Belhadj Kottakkaran Sooppy Nisar Usman Mohammed Kbiri Alaoui Muhammad Bilal Arain Nouman Ijaz
- Case Studies in Thermal Engineering*, Volume 45, Article Number 102953
- Impact Factor:** 6.268 | **Quartile:** 1 | **Citations:** 42
- DOI:** <https://doi.org/10.1016/j.csite.2023.102953>
- Sisko fluid modeling and numerical convective heat transport analysis over-stretching device with radiation and heat dissipation** 2023
- Torikul Islam M. Ferdows MD. Shamshuddin Marei Saeed Alqarni Usman
- Numerical Heat Transfer, Part A: Applications*, Pages 1-19
- Impact Factor:** 2.569 | **Quartile:** 2 | **Citations:** 11
- DOI:** <https://doi.org/10.1080/10407782.2023.2200046>
- Thermal analysis in an electrically conducting fluid with multiple slips and radiation along a plate: A case study of Stokes' second problem** 2023
- Farwa Asmat W.A. Khan Usman MD Shamshuddin S.O. Salawu Mohamed Bouye
- Case Studies in Thermal Engineering*, Volume 44, Article Number 02831
- Impact Factor:** 6.268 | **Quartile:** 1 | **Citations:** 26
- DOI:** <https://doi.org/10.1016/j.csite.2023.102831>
- Analysis of the forced convection via the turbulence transport of the hybrid mixture in three-dimensional L-shaped channel** 2023
- Nevzat Akkurt Tim Shedd Abid Ali Memon Usman Mohamed R. Ali Mohamed Bouye
- Case Studies in Thermal Engineering*, Volume 41, Article Number 102558
- Impact Factor:** 6.268 | **Quartile:** 1 | **Citations:** 30
- DOI:** <https://doi.org/10.1016/j.csite.2022.102558>
- A case study of heat transmission in a Williamson fluid flow through a ciliated porous channel: A semi-numerical approach** 2023
- Usman S. Shaheen M.B. Arain Kottakkaran Sooppy Nisar Ashwag Albakri MD Shamshuddin Fouad Othman Mallawi
- Case Studies in Thermal Engineering*, Volume 41, Article Number 102523
- Impact Factor:** 6.268 | **Quartile:** 1 | **Citations:** 74
- DOI:** <https://doi.org/10.1016/j.csite.2022.102523>
- Partial differential equations of entropy analysis on ternary hybridity nanofluid flow model via rotating disk with hall current and electromagnetic radiative influences** 2022
- Khalid Fanoukh Al Oweidi Faisal Shahzad Wasim Jamshed Usman Rabha W. Ibrahim El Sayed M. Tag El Din Afrah M. AlDerea
- Scientific Reports*, Volume 12, Article Number 20692
- Impact Factor:** 4.996 | **Quartile:** 2 | **Citations:** 37
- DOI:** <https://doi.org/10.1038/s41598-022-24895-y>
- Comprehensive examination of radiative electromagnetic flowing of nanofluids with viscous dissipation effect over a vertical accelerated plate** 2022
- Shankar Goud Bejawada Yanala Dharmendar Reddy Wasim Jamshed Usman Siti Suzilliana Putri Mohamed Isa Sayed M. El Din Kamel Guedri M. Israr Ur Rehman
- Scientific Reports*, Volume 12, Article Number 20548
- Impact Factor:** 4.996 | **Quartile:** 2 | **Citations:** 13
- DOI:** <https://doi.org/10.1038/s41598-022-25097-2>
- Partial differential equations modeling of thermal transportation in Casson nanofluid flow with arrhenius activation energy and irreversibility processes** 2022
- Khalid Fanoukh Al Oweidi Wasim Jamshed Usman Siti Suzilliana Putri Mohamed Isa Sayed M. El Din Kamel Guedri Refed Adnan Jaleel B. Shankar Goud Imran Ullah
- Scientific Reports*, Vol:12, Article number: 20597
- Impact Factor:** 4.996 | **Quartile:** 2 | **Citations:** 20
- DOI:** <https://doi.org/10.1038/s41598-022-25010-x>

- A forced convection of water-aluminum oxide nanofluids in a square cavity containing a circular rotating disk of unit speed with high Reynolds number: A Comsol Multiphysics study** 2022
Usman Abid Ali Memon Haris Anwaar Taseer Muhammad Ahmad Ayyad Alharbi Ali Saleh Alshomrani Yaser Rajeh Aladwani
Case Studies in Thermal Engineering, Volume 39, Article Number 102370
Impact Factor: 6.268 | **Quartile:** 1 | **Citations:** 30
DOI: <https://doi.org/10.1016/j.csite.2022.102370>
- Galerkin finite element analysis for magnetized radiative-reactive Walters-B nanofluid with motile microorganisms on a Riga plate** 2022
Usman Faisal Shahzad Wasim Jamshed Rabha W. Ibrahim Farheen Aslam El Sayed M. Tag El Din Hamiden Abd El-Wahed Khalifa Fayza Abdel Aziz ElSeabee
Scientific Reports, Volume 12, Issue 1, Article Number 18096
Impact Factor: 4.996 | **Quartile:** 2 | **Citations:** 14
DOI: <https://doi.org/10.1038/s41598-022-21805-0>
- Boundary-layer flow of heat and mass for Tiwari-Das nanofluid model over a flat plate with variable wall temperature** 2022
Han-Xiang Bao Muhammad Bilal Arain Sidra Saheen Hasan Izhar Khan Usman Mustafa Inc Shao-Wen Yao
Thermal Science, Volume 26, Special Issue 1, Pages S39-S47
Impact Factor: 1.971 | **Quartile:** 3 | **Citations:** 11
DOI: <https://doi.org/10.2298/TSCI22S1039B>
- A forced convection of water aluminum oxide nanofluid flow and heat transfer study for a three dimensional annular with inner rotated cylinder** 2022
Usman Abid Ali Memon Metib Alghamdi Taseer Muhammad
Scientific Reports, Volume 12, Issue 1, Article Number 16735
Impact Factor: 4.996 | **Quartile:** 2 | **Citations:** 23
DOI: <https://doi.org/10.1038/s41598-022-21004-x>
- Mixed convection radiated flow of Jeffery-type hybrid nanofluid due to inclined oscillating surface with slip effects: a comparative fractional model** 2022
Sami Ullah Khana Usman Ali Raza Afshan Kanwala Khurram Javid
Waves in Random and Complex Media, Pages 1-22
Impact Factor: 4.051 | **Quartile:** 2 | **Citations:** 16
DOI: <https://doi.org/10.1080/17455030.2022.2122628>
- The Forced Convection Analysis of Water Alumina Nanofluid Flow through a 3D Annulus with Rotating Cylinders via $\kappa - \epsilon$ Turbulence Model** 2022
Marei Saeed Alqarni Abid Ali Memon Haris Anwaar Usman Taseer Muhammad
Energies, Volume 15, Issue 18, Article Number 6730
Impact Factor: 3.252 | **Quartile:** 3 | **Citations:** 22
DOI: [10.3390/en15186730](https://doi.org/10.3390/en15186730)

Book Chapters

- Unsteady Heat and Mass Transfer in a Stagnant Flow Towards a Stretching Porous Sheet with Variable Fluid Properties** 2023
Usman Irfan Mustafa Abuzar Ghaffari M. Saleem Iqbal
 In: *Book on Mathematical Modelling of Fluid Dynamics and Nanofluids*, Chapter 8, Pages 117-137
Citations: 4
DOI: [10.1201/9781003299608-8](https://doi.org/10.1201/9781003299608-8)