

Muhammad K Akbar, PhD, PE
Professor & Interim Chair
Mechanical & Manufacturing Engineering
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Executive Summary

My research, teaching, and service activities directly support the university and departmental missions through scholarly endeavors, high-quality teaching, meaningful service, and the preparation of a diverse population of engineers and scientists. The hurricane storm surge research activities are directly impacting coastal populations who are constantly under the threat of hurricanes. The NASA project that I am performing will reduce the carbon footprint and global warming caused by traditional aircraft. My teaching is well recognized at various levels within the university. For example, I was recognized as an outstanding teacher within the College of Engineering. My teaching consistently ranks higher at the department, college, and university levels. I do not volunteer for any service, but I get things done when asked – and as is evident, I have been asked often!

EDUCATION

Georgia Institute of Technology	Mechanical Engineering	Ph.D.	2004
University of Alabama	Engineering Science & Mechanics	M.S.	2001
Bangladesh University of Engineering & Technology	Mechanical Engineering	M.Sc.	1998
Bangladesh University of Engineering & Technology	Mechanical Engineering	B.Sc.	1995

PROFESSIONAL EXPERIENCE

Professor & Interim Chair	Tennessee State University	9/24 – present
Associate Professor	Tennessee State University	9/18 – 8/24
Assistant Professor	Tennessee State University	9/12 – 8/18
Senior Research Associate	Jackson State University	8/08 – 8/12
Visiting Assistant Professor	Georgia Institute of Technology	1/05 – 8/08
Graduate Research Assistant	Georgia Institute of Technology	8/01 – 12/04
Graduate Research Assistant	University of Alabama	1/99 – 5/01
Lecturer/Assistant Professor	Bangladesh University of Engineering & Technology	9/96 – 12/98

AREAS OF EXPERTISE

- Aerodynamic Study for NH₃-Propelled Carbon-Free Aircraft Design
 - Hurricane Storm Surge Model Development
 - Computational Fluid Dynamics
 - Thermal Fluids
 - Gas Turbine Film Cooling
 - Microchannel / Minichannel Flow
 - Multiphase Flow
 - Delayed Detached Eddy Simulation Turbulence Model Development
 - Fluid Structure Interaction
 - Solar Energy
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DEPARTMENT, COLLEGE AND UNIVERSITY SERVICE

- 2012 – Present: TSU Graduate Faculty
- 2016 – Present: Curriculum Committee, Mechanical and Manufacturing Engineering
- 2014 – Present: Website Committee, Mechanical and Manufacturing Engineering
- 2014 – Present: ABET Preparation Team, Mechanical and Manufacturing Engineering
- 2022 – Present: Faculty co-advisor for ASME Student Chapter at TSU
- 2022 – Present: BS in Biomedical Engineering Letter of Notification & New Academic Program Proposal preparer and submitter, College of Engineering
- 2022 – Present: ENCS SACSCOC assessment preparer, College of Engineering
- 2023 – Present: ENCS External Review Organizer, College of Engineering
- 2020 – 2023: Graduate Program Co-Coordinator, College of Engineering
- 2018 – 2022: Faculty advisor for ASME Student Chapter at TSU
- 2020 - 2021: Faculty Search Committee for Robotics and Systems Dynamics position
- 2018 – 2021: T&P Committee, College of Engineering
- 2019 - 2020: Faculty Search Committee for Thermal Sciences position
- 2017-2019: Participated in different ENCS PhD Committees lead by Dr. Williams
- 2017 - 2018: Faculty Search Committee for Material Science and Manufacturing position
- 2014 - 2018: University Faculty Senator, College of Engineering representative
- 2014 – 2016: Curriculum Committee, Data Science Concentration in the College of Engineering
- Science Olympiad Judge at TSU on March 2, 2019
- Science Olympiad Judge at TSU on March 3, 2018
- Science Olympiad Judge for Invitational Event held in Hume Fogg Academic Magnet High School on January 10th, 2015.
- Event Supervisor for ‘Bottle Rocket’ event in Tennessee State University Science Olympiad Regional Tournament held on March of 2016 and 2017.

PROFESSIONAL SERVICE AND MEMBERSHIPS

- 2016 – Present: Reviewer, Journal of Marine Science and Engineering
- 2015 – Present: Reviewer, Microfluidics and Nanofluidics
- 2017 – Present: Reviewer, Remote Sensing
- 2018 – Present: Reviewer, energies
- 2019 – Present: Reviewer, Entropy
- 2017 – Present: Reviewer, Waters
- 2015 – 2020: Reviewer, Journal of Thermal Engineering
- 2014 – 2018: Computers and Fluids
- 2016 – 2019: Chemical Engineering Science
- 2015 – 2019: Session organizer for ASME's International Mechanical Engineering Congress and Exposition (IMECE), Topic 13-5.
- 2014 – 2019: Faculty Advisor, Student Veterans of America, TSU chapter
- 2004-Present: ASME member

PROFESSIONAL DEVELOPMENT WORKSHOP PARTICIPATION

1. ASHRAE Professional Development, “HVAC Design: Level II—Applications”, Online, April 3-5, 2023.
 2. ASHRAE Professional Development, “HVAC Design: Level I—Essentials”, Online, March 6-10, 2023.
 3. National Effective Teaching Institute - 1A, 2020, “National Effective Teaching Institute Workshop,” San Diego, CA, January 3-5, 2020.
 4. NSF Workshop, 2013, “Ubiquitous Hands-On Learning: The Future of Engineering Education Center for Mobile
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Hands-On STEM,” Georgia Tech, Virginia Tech, RPI, Rose Hulman, Howard, Morgan State, U. Albany. Atlanta, Georgia. June 26, 2013.

HONORS, AWARDS, AND APPRECIATIONS

1. Registered Professional Engineer (PE) in the state of Tennessee.
2. Excellence in Teaching Award, 2022, College of Engineering, Tennessee State University.
3. Exceptional Commitment to Students via Education and Mentorship Award 2018, College of Engineering, Tennessee State University.
4. ‘2018 Research Mentorship Award Winner’, 40th Annual University-Wide Research Symposium, Tennessee State University
5. Dr. Muhammad Akbar’s Graduate Student Ms. Kyra Bryant received best thesis award in the state of Tennessee by Tennessee Conference of Graduate Schools (TCGS) (Tennessee State University Newsroom, February 12, 2017): <http://tnstatenewsroom.com/archives/19632>
6. 2016 Research Mentorship Award Winner, 38th Annual University-Wide Research Symposium, Tennessee State University
7. Dr. Muhammad Akbar in the NEWS: TSU Professor Creates Simulation Model to Predict Storm Surge in the Event of Hurricanes. (Tennessee State University Newsroom, June 16, 2014) <http://tnstatenewsroom.com/archives/15649>
8. Outstanding Teacher Award 2006, Georgia Institute of Technology Savannah, Georgia.
9. One of my journal papers (“*On gas–liquid two-phase flow regimes...*”) was among the most cited articles in the *International Journal of Multiphase Flow* (Elsevier) for the period 2002-2005.
10. Outstanding M.S. graduate research assistant of the year 2001, Aerospace Engineering and Mechanics Department, The University of Alabama, Tuscaloosa, Alabama.

FUNDED RESEARCH GRANTS (Total \$1,691,679; as a PI: \$1,401,679, as a Co-PI: \$290,000)

1. **Muhammad Akbar (TSU PI):** CarbonLess Electric Aviation (CLEAN) Funded by NASA, **July 1, 2023, to June 30, 2026. Project budget is \$8 million, Led by Tennessee Technological University; TSU portion is \$690,957.**
2. **Muhammad Akbar (PI):** Excellence in Research: Effect of Hurricane Structure, Track, and Landfall Features on Storm Surges (TSU Grants Account # 222481-13940-250). Funded by the National Science Foundation, **May 15, 2020 to May 30, 2024, \$406,331+\$50,887 (supplement).**
3. **Woong Yeol Joe (PI), Muhammad Akbar (Co-PI):** Design and Manufacturing of Advanced Multi-dimensional Mesostructured Composite Skins for Morphing Wings (TSU Grants Account # 222385/13490/250). Air Force Research Laboratory, September 1, 2016 to August 31, 2018. **\$200,000.**
4. **Lonnie Sharpe (PI), Roger Painter (Co-PI), Muhammad Akbar (Co-PI):** Film Cooling Processes for Gas Turbine Blades Using Numerical Simulation Methods (TSU Grants Account # 222308/13490/250). Air Force Research Laboratory, January 1, 2015 to December 31, 2015. **\$90,000.**
5. **Muhammad Akbar (PI):** Research Initiation Award: Development and Study of an Implicit Model for Rapid and Accurate Simulation of Hurricane Storm Surge (TSU Grants Account # 222285-86/13490/250). Funded by the National Science Foundation, June 15, 2014 to May 31, 2017, **\$209,403.**
6. **Muhammad Akbar (PI):** Implicit Solver for ADCIRC Storm Surge Model (TSU Grants Account# 222288/13490/250). Funded by the Department of Homeland Security, May 01, 2014 to March 30, 2015. Amount **\$44,101.**

PUBLICATIONS IN PEER-REVIEWED TECHNICAL JOURNALS

(Years Highlighted in Red are since tenure at TSU, Full Papers in supporting documents section 7-B)

1. Hou J, Akbar MK, Samad MD, Ouyang L. Spatiotemporal Deep Learning to Forecast Storm Surge Water Levels and Storm Trajectory: Case Study Hurricane Harvey. *Journal of Marine Science and Engineering*. 2025; 13(9):1780. <https://doi.org/10.3390/jmse13091780>
 2. Myat, A., Rahman, M. M., & Akbar, M. (2025). Nanofluid-Enhanced HVAC&R Systems (2015–2025):
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- Experimental, Numerical, and AI-Driven Insights with a Strategic Roadmap. *Sustainability* (2071-1050), 17(16).
3. Jo, B. W., Saha, A. K., Akbar, M., Rahman, M. M., Barrit, E., Vasselbehagh, A., & Kim, T. (2024). Towards the Conversion to Electrified Commercial Aircraft, the Boeing 737 Max 800 Field Data Analysis. In *AIAA AVIATION FORUM AND ASCEND 2024* (p. 3629).
 4. Shamsu, M., & Akbar, M., Understanding the Effects of Wind Intensity, Forward Speed, and Wave on the Propagation of Hurricane Harvey Surges. *Journal of Marine Science and Engineering*, **2023**; 11(7), 1429. <https://doi.org/10.3390/jmse11071429>
 5. Baldwin, Michael R., S. Mostafa Ghiaasiaan, and Muhammad K. Akbar. "Periodic Flow Through Regenerator Fillers Made from Packed Spherical Microparticles." *Journal of Thermophysics and Heat Transfer* 37, no. 1 (**2023**): 16-24.
 6. Musinguzi A, Reddy L, Akbar MK. Evaluation of Wave Contributions in Hurricane Irma Storm Surge Hindcast. *Atmosphere*. **2022**; 13(3):404. <https://doi.org/10.3390/atmos13030404>
 7. Musinguzi A, Shamsu M, Akbar MK, Fleming JG. Understanding the Effects of Wind Intensity, Forward Speed, Pressure and Track on Generation and Propagation of Hurricane Irma Surges around Florida. *Journal of Marine Science and Engineering*. **2021**; 9(9):963. <https://doi.org/10.3390/jmse9090963>
 8. Musinguzi A, Akbar MK. Effect of Varying Wind Intensity, Forward Speed, and Surface Pressure on Storm Surges of Hurricane Rita. *Journal of Marine Science and Engineering*. **2021**; 9(2):128. <https://doi.org/10.3390/jmse9020128>
 9. Musinguzi, A., Akbar, M. K., Fleming, J. G., & Hargrove, S. K. (**2019**). Understanding Hurricane Storm Surge Generation and Propagation Using a Forecasting Model, Forecast Advisories and Best Track in a Wind Model, and Observed Data—Case Study Hurricane Rita. *Journal of Marine Science and Engineering*, 7(3), 77.
 10. Alsaidi, B., Joe, W. Y., & Akbar, M. (**2019**). Simplified 2D Skin Lattice Models for Multi-Axial Camber Morphing Wing Aircraft. *Aerospace*, 6(8), 90.
 11. Alsaidi, B., Joe, W. Y., & Akbar, M. (**2019**). Computational Analysis of 3D Lattice Structures for Skin in Real-Scale Camber Morphing Aircraft. *Aerospace*, 6(7), 79.
 12. Alghamdi, A., Akbar, M.K. (**2018**) Implementation of an Implicit Solver in ADCIRC Storm Surge Model. *J. Mar. Sci. Eng.* 6, 62.
 13. Traum, M. J., Hadi, F., & Akbar, M. K. (**2018**). Extending “Assessment of Tesla Turbine Performance” Model for Sensitivity-Focused Experimental Design. *Journal of Energy Resources Technology*, 140(3).
 14. Alghamdi, A., Akbar, M. (2017). Profiling and Evaluation of Implicit and Explicit Storm Surge Models. *Int. J. Comput. Theory Eng*, 9, 417-421.
 15. Akbar, M., Kanjanda, S., Musinguzi, A. (2017). Effect of Bottom Friction, Wind Drag Coefficient, and Meteorological Forcing in Hindcast of Hurricane Rita Storm Surge Using SWAN+ADCIRC Model. *Journal of Marine Science and Engineering*, 5(3), 38.
 16. Akbar, M. K., Luetlich, R. A., Fleming, J. G., & Aliabadi, S. K. (2017). CaMEL and ADCIRC Storm Surge Models—A Comparative Study. *Journal of Marine Science and Engineering*, 5(3), 35.
 17. Akbar, M., Alsaidi, B., Painter, R., Sharpe, L., Ghiaasiaan, M. The Effects of Coolant Pipe Geometry and Flow Conditions on Turbine Blade Film Cooling, *Journal of Thermal Engineering* (accepted for publication on Dec 7, 2016).
 18. Bryant, K. M., Akbar, M. (2016). An Exploration of Wind Stress Calculation Techniques in Hurricane Storm Surge Modeling. *Journal of Marine Science and Engineering*, 4(3), 58.
 19. Akbar, M.K., Aliabadi, S. “Hybrid Numerical Methods to Solve Shallow Water Equations for Hurricane Induced Storm Surge Modeling”. *Environmental Modelling & Software*, Volume 46, August 2013, Pages 118–128.
 20. Akbar, M.K., Aliabadi, S., Patel, R, and Watts, M. “Fully Automated and Integrated Multi-Scale Forecasting Scheme for Emergency Preparedness”. *Environmental Modelling & Software*, Volume 39, January 2013, Pages 24-38.
 21. Aliabadi, S., Akbar, M.K., Patel, R. “Hybrid Finite Element / Volume Method for Shallow Water Equations”. *Int. J. Num. Meth. Fluids*. 83 (2010), 13, 1719–1738.
 22. Akbar, M.K., Rahman, M., S.M. Ghiaasiaan. "Particle Transport in a Small Square Enclosure under Laminar Natural Convection Induced by Temperature Gradient". *J. Aerosol Sci.*, 40 (2009) 747 - 761.
 23. Akbar, M.K., and Ghiaasiaan, S.M., “Simulation of Taylor Flow in Capillaries Based on the Volume-of-Fluid Technique”, *Ind. Eng. Chem. Res.* 45(15), July 2006, 5396-5403.
 24. Akbar, M.K., and Ghiaasiaan, S.M., “A CFD Model for Aerosol Transport in Rising Gas Bubbles,” *J. Aerosol Sci.*, 37, 2006, 735–749.
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25. Akbar, M.K., and Ghiaasiaan, S.M., "Radiation Heat Transfer and Soot Thermophoresis in Laminar Tube Flow," Numerical Heat Transfer, Part A, Volume 47, Issue 7, 2005, 653 - 670.
26. Akbar, M.K., and Ghiaasiaan, S.M., "Modeling the Gas Absorption in a Spray Scrubber with Dissolving Reactive Particles", Chem. Eng. Sci., 59(5), March 2004, 967-976.
27. Akbar, M.K., Ghiaasiaan, S.M., and Karrila, S., "An Experimental Study of Interfacial Surface Area Concentration in a Short Column Subject to Paper Pulp-Water-Gas Three-phase Flow," Chem. Eng. Sci., 59(5), March 2004, 1079-1086.
28. Akbar, M.K., Yan, J., and Ghiaasiaan, S.M., "Mechanism of Gas Absorption Enhancement in a Slurry Droplet Containing Reactive, Sparingly Soluble Micro Particles", Int. J. Heat and Mass Transfer, 46, 2003, 4561-4571.
29. Akbar, M.K., and Ghiaasiaan, S.M., "Stability of stratified gas-liquid two-phase flow in a horizontal annular channels," Experimental Thermal and Fluid Science, 28, 2003, 17-21.
30. Akbar, M.K., Plummer, D.A., and Ghiaasiaan, S.M., "On gas-liquid two-phase flow regimes in microchannels," Int. J. Multiphase Flow, 29, 2003, 855-865.

PUBLICATIONS/PRESENTATIONS IN CONFERENCES

- I. Shamsu, M., Akbar, K. "Understanding the Effects of Wind Intensity, Forward Speed, and Wave on the Propagation of Hurricane Harvey Surges" ADCIRC Users Group Meeting 2023, Baton Rouge, Louisiana. June 8 · 9am - June 9 · 5pm CDT, **2023**.
 - II. Bryant, K., Musinguzi, A., Akbar, M., & Fleming, J. G. (**2020, May**). Hurricane Storm Surge from Irma and Maria in Puerto Rico and the Virgin Islands: Analyzing Wind, Pressure, Track, Forward Speed, Rain, and the Saffir-Simpson Scale. In 34th Conference on Hurricanes and Tropical Meteorology. AMS.
 - III. Bryant, K., Musinguzi, A., & Akbar, M. (**2019, January**). The Saffir-Simpson Scale: Simple, Straightforward, and Insufficient. In 99th American Meteorological Society Annual Meeting. AMS.
 - IV. Alsaidi, Bashir, Muhammad Akbar, Sara La, W. Yeol Joe, Hangil You, Seongik Kim, and Gunjin Yun. "Modeling and Stress Analysis of Composite Skin Structure for Camber Morphing Wing." In 2018 Multidisciplinary Analysis and Optimization Conference, p. 2934. **2018**.
 - V. Traum, Matthew J., Muhammad K. Akbar, Mohammad Habibi, Fatemeh Hadi, S. Keith Hargrove, and W. Yeol Joe. "Introducing the TOP-DOWN-TOP Pedagogy: Systems Thinking that Inspires, Engages, & Promotes Persistence." (**2018**).
 - VI. Bryant, K., Alghamdi, A., Musinguzi, A., and Akbar, M. "Incorporating Rainfall into Storm Surge Prediction for Hurricane Irma" 33rd Conference on Hurricanes and Tropical Meteorology, 16-20 April **2018**, Ponte Vedra Beach, Florida.
 - VII. La, S., Joe, W.J., Akbar, M.K. Surveys on Skin Design for Morphing Wing Aircraft: Status and Challenges (Control ID#: 2795396). AIAA Science and Technology Forum and Exposition (SciTech **2018**). Kissimmee, Florida, 8-12 January **2018**.
 - VIII. Alsulami, A., Akbar, M.K., Joe, W.J. A Comparative Study: Aerodynamics of Morphed Airfoils Using CFD Techniques and Analytical Tools," IMECE2017- 72269, Proceedings of the ASME 2017 International Mechanical Engineering Congress and Exposition (IMECE2017), Tampa, Florida, USA, November 3-9, 2017.
 - IX. Alamri, S., Alamri, T., Almutairi, S., Akbar, M.K., Hadi, F., Traum, M.J. "Evaluating Forced Versus Natural Convection for Solar Concentrating Hybrid Photovoltaic-Thermoelectric Power Systems Made from Small Up-Cycled Satellite Dishes," IMECE2017-70839, Proceedings of the ASME 2017 International Mechanical Engineering Congress and Exposition (IMECE2017), Tampa, Florida, USA, November 3-9, 2017.
 - X. Alghamdi, A., Akbar, M.K. Profiling and Evaluation of Implicit and Explicit Storm Surge Models (Paper ID: D0006). 2017 10th International Conference on Environmental and Computer Science (ICECS 2017), Ottawa, Canada, September 13-15, 2017.
 - XI. Alrabie, M.S., Altamimi, F.N., Altarrgemy, M.H., Hadi, F., Akbar, M.K., Traum, M.J. "Method to Design a Hydro Tesla Turbine for Sensitivity to Varying Laminar Reynolds Number Modulated by Changing Working Fluid Viscosity," PowerEnergy2017-3442, Proceedings of the 2017 ASME Power and Energy Conference, Charlotte, North Carolina, June 25-30, 2017.
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- XII. Bryant, K., Akbar, K. "An Exploration of Wind Stress Calculation Techniques in Hurricane Storm Surge Modeling" 14th International Conference on Estuarine and Coastal Modeling. ECM14. June 13th-15th, 2016, University of Rhode Island, Kingston, Rhode Island, USA.
- XIII. Kanjanda, S., Akbar, K. "The Effect of Bottom Friction, Surface Roughness, and Meteorological Forcing in Hurricane Storm Surge Simulation Using SWAN+ADCIRC Model" 14th International Conference on Estuarine and Coastal Modeling. ECM14. June 13th-15th, 2016, University of Rhode Island, Kingston, Rhode Island, USA.
- XIV. Tegegne, A., Akbar, K. (2016). Design of an Efficient Catalytic Converter with Increased Flow Rate and Minimum Pressure Drop using CFD Techniques. Emerging Researchers National Conference. Washington DC, February 25-28, 2016.
- XV. Warner, B., Tegegne, A., Akbar, K. "Design of an Efficient Catalytic Converter Using CFD Techniques" Proceedings of the ASME 2016 International Mechanical Engineering Congress and Exposition. IMECE2016, Paper# IMECE2016-67181, November 11th-17th, 2016, Phoenix, Arizona, USA.
- XVI. Akbar, M.K. Evaluation of Tides and Hurricane Surges in the Gulf of Mexico by using CaMEL Implicit Storm Surge Model. 19th Annual ADCIRC Model Workshop, National Oceanic and Atmospheric Administration, Silver Spring, Maryland. March 30-31, 2015.
- XVII. Akbar, M., Hitchcock, T., Schuetz, C. Effect of Heat Extraction from a Photovoltaic Module by Natural and Forced Air Circulation with and without Pre-Cooling of Air. AIAA-2014-2551, 11th AIAA/ASME Joint Thermophysics and Heat Transfer Conference, 2014, Atlanta, Georgia, USA
- XVIII. Akbar, M. Finite Element Method Based Model to Solve Three Dimensional Heat Conduction Equations for Photovoltaic Modules. AIAA 2014-2551, 11th AIAA/ASME Joint Thermophysics and Heat Transfer Conference, 2014, Atlanta, Georgia, USA
- XIX. Akbar, M.K., Aliabadi, S. Parallel Finite Element Methods in Nonlinear Structural Dynamics Modeling for Fluid-Structure Interaction. 24th International Conference on Parallel Computational Fluid Dynamics. Atlanta, GA, USA. May 21-25, 2012.
- XX. Aliabadi, S., Akbar, M. Hybrid Finite Element and Volume Methods for Shallow Water Equations in Environmental Modeling. 11th US National Congress on Computational Mechanics. Minneapolis and St. Paul, Minnesota, USA, July 25-28, 2011.
- XXI. Aliabadi, S., Akbar, M. Hybrid Finite Element / Volume Method to Solve Shallow Water Equations for Storm Surge Modeling. Hurricanes, Major Disasters, Coastal Protection and Rapid Recovery in Texas and Gulf Coast Region, 3rd Annual Conference (THC-2011). University of Houston, Houston, Texas, USA, August 5, 2011.
- XXII. Akbar, M.K., and Aliabadi, S. "Multi-Scale and Multi-Physics Integrated Hurricane, Water Surge, and Overland Flow Modeling in Parallel Platform", ADCIRC 2010 Workshop, ERDC, Vicksburg, MS, April 16-17, 2010.
- XXIII. Akbar, M.K., and Aliabadi, S. "Integrated Hurricane and Overland Flow Modeling in Parallel Platform", 21st International Conference on Parallel Computational Fluid Dynamics—(ParCFD 2009), May 18-22, 2009, Moffett Field, CA.
- XXIV. Rahman, M. and Akbar, M.K., "Particle Transport in a Small Square Enclosure Under Natural Convection Induced By High Temperature Gradient". *Inaugural International Conference of the Engineering Mechanics Institute*, Minneapolis, May 18-21, 2008.
- XXV. Stewart, B. K., Akbar, M. K., and Ghiaasiaan, S.M. 2005, "Thin-film Evaporative Cooling of a Side-pumped Solid state Laser Diode Oscillator for Space-based LIDAR Applications." *Proc. SPIE- The International Society for Optical Engineering*. Paper Number: SPIE2005-598405.
- XXVI. Akbar, M.K., and Ghiaasiaan, S.M., 2004, "Radiation Heat Transfer and Soot Thermophoresis in Laminar Tube Flow," *ASME Heat Transfer/Fluids Engineering Summer Conference*, Charlotte, North Carolina. Paper Number: HT-FED2004-56686.
- XXVII. Akbar, M.K., Sharif, M.A.R., and Bradt, R.C., 2000, "Turbulent Dispersed Particulate Flow in a Zigzag Channel," *ASME Design Engineering Technical Conferences*, Baltimore, Maryland. Paper Number: DETC2000/CIE-14675.
- XXVIII. Akbar, M.K., Sharif, M.A.R., and Bradt, R.C., 2001, "Particle Trajectory Calculation in Turbulent Flow Through a Zigzag Channel," *4th International Conference On Multiphase Flow*; New Orleans, Louisiana. Paper Number: ICMF2001-834.
- XXIX. Akbar, M.K., Sharif, M.A.R., and Bradt, R.C., 2001, "Effect of Forces on a Particle in a Straight Channel Turbulent Flow," *4th International Conference On Multiphase Flow*; New Orleans. Louisiana, Paper Number: ICMF2001-947.

TECHNICAL REPORTS

- A. Akbar, M.K. "Excellence in Research: Effect of Hurricane Structure, Track, and Landfall Features on Storm Surges," NSF Final Report, June 30, 2025.
 - B. Akbar, M.K. "RIA: Research Initiation Award: Development and Study of an Implicit Model for Rapid and Accurate Simulation of Hurricane Storm Surge," NSF Final Report, August 18, 2017.
 - C. Sharpe, L., Painter, R., Akbar, M., Alsaïdi, B. "Film Cooling Processes for Gas Turbine Blades Using Numerical Simulation Methods" Air Force Research Laboratory, February 6, 2016.
 - D. Akbar, M.K. "'Implicit Solver for ADCIRC Storm Surge Model," Enrichment Program for Minority Serving Institution Faculty February 15, 2015.
 - E. Watts, M., Aliabadi, S., and Akbar, M.K. "Development of an Ensemble Modeling System for the Simulation of Realistic Levee Overtopping Flows from Hurricanes", SERRI Report 80005-1, Nov. 2011.
 - F. Aliabadi, S., and Akbar, M.K. "(MSFP)² Multi-Purpose, Multi-Scale Storm Surge And Flood Forecasting For Planning And Preparedness", SERRI Report 70004-01, Nov. 2010.
 - G. Ghiaasiaan, S.M., Karrila, S., Xie, T., and Akbar, M.K. "Bubble Size Control to Improve Oxygen-Based Bleaching," Final Report, Georgia Institute of Technology, presented to US Department of Energy, 2004.
 - H. Ghiaasiaan, S.M., and Akbar, M.K. "Modeling of Thin Film Evaporative Cooling," Final Report, Georgia Institute of Technology, presented to NASA Langley Research Center, September 2004.
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