

Publications of Rinku Mukherjee (COMPLETE)

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Refereed Journal Articles

References

- [1] Kumar, G. V., and Mukherjee, R., "Separation Lines for Laminar Separation Bubble and Propagation of Stall over Finite Wing at Transition Regime Reynolds Number," *Fluid Dynamics*, 2024. <https://doi.org/10.1134/S0015462824602043>.
- [2] Palanivel, H., and Mukherjee, R., "Airfoil-shaped vortex generators for separation control and drag reduction on wind turbine blades," *Acta Mechanica*, Vol. 235, No. 12, 2024, pp. 7765–7787. <https://doi.org/10.1007/s00707-024-04126-3>.
- [3] Ravindra A Shirsath, and Mukherjee, R., "Experimental and computational investigations of aerodynamic characteristics of a finite rectangular wing-in-ground effect," *Proceedings of the Institution of Mechanical Engineers, Part G: Journal of Aerospace Engineering*, Vol. 237, No. 5, 2023, pp. 1007–1024. <https://doi.org/10.1177/09544100221114700>.
- [4] J. Egambaravel, Vashist, T., and Mukherjee, R., "Study of Rayleigh–Bénard Convection in Jet-A fuel with non-Oberbeck–Boussinesq effect," *International Journal of Thermal Sciences*, Vol. 185, 2023, p. 108021. <https://doi.org/10.1016/j.ijthermalsci.2022.108021>.
- [5] Roy, Aritrans, and Mukherjee, R., "Delay or control of flow separation for enhanced aerodynamic performance using an effective morphed surface," *Acta Mechanica*, 2022. <https://doi.org/10.1007/s00707-022-03165-y>.
- [6] A. Roy, and R. M., "Experimental Study on the Behaviour of Local Laminar Separation Bubble at a Rectangular Wing Section," *Fluid Dynamics*, Vol. 56, No. Suppl 1, 2021, pp. S1–S18. <https://doi.org/10.1134/S0015462821060136>.
- [7] Gireesh, Yanamashetti, Singh, D. B., Suryanarayana, G. K., and Mukherjee, R., "Effect of Aerospike on Unsteady Transonic Flow over a Blunt Body," *Journal of Spacecraft and Rockets*, Vol. 58, No. 6, 2021, pp. 1806–1818. <https://doi.org/10.2514/1.A34928>.
- [8] Aritrans Roy, and Mukherjee, R., "Three dimensional rectangular wing morphed to prevent stall and operate at design local two dimensional lift coefficient," *Aerospace Science and Technology*, Vol. 107, 2020, p. 106312. <https://doi.org/10.1016/j.ast.2020.106312>.
- [9] M. Gunasekaran, and Mukherjee, R., "Aerodynamic analysis of wings in Chevron and V formation flights," *European Journal of Mechanics - B/Fluids*, Vol. 84, 2020, pp. 193–206. <https://doi.org/10.1016/j.euromechflu.2020.06.007>.
- [10] Yanamashetti, Gireesh, Singh, D. B., Suryanarayana, G. K., and Mukherjee, R., "Passive Control of Transonic Flow over a Blunt Body Using Aerospikes," *Journal of Spacecraft and Rockets*, Vol. 57, No. 5, 2020, pp. 945–955. <https://doi.org/10.2514/1.A34668>.
- [11] Aritrans Roy, R Vinoth Kumar, and Mukherjee, R., "Experimental validation of numerical decambering approach for flow past a rectangular wing," *Proceedings of the Institution of Mechanical Engineers, Part G: Journal of Aerospace Engineering*, Vol. 234, No. 9, 2020, pp. 1564–1582. <https://doi.org/10.1177/0954410020916311>.
- [12] M. Gunasekaran, and Mukherjee, R., "Aerodynamic analysis of basic and extended lead-trail formation using numerical technique," *European Journal of Mechanics - B/Fluids*, Vol. 79, 2020, pp. 480–491. <https://doi.org/10.1016/j.euromechflu.2019.11.001>.
- [13] Aritrans Roy, and Mukherjee, R., "Unsteady 3D Post-Stall Aerodynamics Accounting for Effective Loss in Camber Due to Flow Separation," *International Journal of Mechanical, Industrial and Aerospace Sciences*, Vol. 11.0, No. 6, 2018. <https://doi.org/10.5281/zenodo.1317078>.
- [14] Samuel, B Antony, and Mukherjee, R., "A study of the unsteady aerodynamics of a wing at high angles of attack using decambering to model separated flow," *Sādhanā*, Vol. 43, 2018, pp. 1–11. <https://doi.org/10.1007/s12046-018-0894-y>.
- [15] M. Gunasekaran, and Mukherjee, R., "Behaviour of trailing wing(s) in echelon formation due to wing twist and aspect ratio," *Aerospace Science and Technology*, Vol. 63, 2017, pp. 294–303. <https://doi.org/10.1016/j.ast.2017.01.009>.
- [16] Gireesh Yanamashetti, Suryanarayana, G. K., and Mukherjee, R., "Development of Flow over Blunt-Nosed Slender Bodies at Transonic Mach Numbers," *Journal of Physics: Conference Series*, Vol. 822, 2017, p. 012071. <https://doi.org/10.1088/1742-6596/822/1/012071>.
- [17] Samuel B Antony, and Mukherjee, R., "High-Alfa Aerodynamics with Separated Flow Modeled as a Single Nascent Vortex," *Journal of Physics: Conference Series*, Vol. 822, 2017, p. 012005. <https://doi.org/10.1088/1742-6596/822/1/012005>.
- [18] Aziz, H., and Mukherjee, R., "Vortex Interaction and Roll-Up in Unsteady Flow past Tandem Airfoils," *Journal of Applied Fluid Mechanics*, Vol. 9, No. 6, 2016, pp. 3087–3100. <https://doi.org/10.29252/jafm.09.06.24439>.
- [19] G. Vasanth Kumar, and Mukherjee, R., "A Numerical Unsteady Analysis of a Plunging Wing," *Journal of Aerospace Sciences and Technologies*, Vol. 68, No. 3, 2016.

- [20] Vasanth Kumar, G., and Mukherjee, R., "Separation lines for Laminar Separation Bubble and Propagation of Stall over Finite Wing at Transition Regime Reynolds Number," *Fluid Dynamics*, edited by S. T. Surzhikov, Springer, British Virgin Islands, 2024.
- [21] Gunasekaran, M., and Mukherjee, R., "Numerical Analysis Of an Echelon Formation Exhibiting Post-Stall Behavior," *Journal of Basic and Applied Research International*, Vol. 11, No. 4, 2015, pp. 217–240.
- [22] Hossain Aziz, and Mukherjee, R., "Unsteady Aerodynamics of Multiple Airfoils in Configuration," *International Journal of Aerospace and Mechanical Engineering*, Vol. 4, No. 10, 2010, pp. 930 – 941.
- [23] Mukherjee, R., and Gopalarathnam, A., "Poststall prediction of multiple-lifting-surface configurations using a decambering approach," *Journal of Aircraft*, Vol. 43, No. 3, 2006, pp. 660–668. <https://doi.org/10.2514/1.15149>.

AIAA Meet Papers

- [1] Shiladitya Bhowmick, Hariprasanth Palanivel, V Kalyana Chakravarthy, and Rinku Mukherjee, "Aerodynamic Design of Inverse Diamond-Back Joined Wing on a Slender Body at Subsonic and Supersonic Mach Numbers," *AIAA SciTech Forum*, 2025. <https://doi.org/10.2514/6.2025-0254>.
- [2] Vasanth Kumar G, Hariprasanth Palanivel, and Rinku Mukherjee, "Pressure Hysteresis on a Cambered Wing that Undergoes Stall and Returns to Pre-Stall Regime," *AIAA SciTech Forum*, 2025. <https://doi.org/10.2514/6.2025-1076>.
- [3] Hariprasanth Palanivel, Vasanth Kumar G, and Rinku Mukherjee, "Aerodynamics of Airfoil-Shaped Vortex Generators with Change in Aspect Ratio of 3D Wind Turbine Blade," *AIAA SciTech Forum*, 2025. <https://doi.org/10.2514/6.2025-0841>.
- [4] Shiladitya Bhowmick, Mukherjee, R., and Chakravarthy, V. K., "Aerodynamic Investigation of a Novel Diamond-Back Morphing Wing Configuration," *AIAA SCITECH 2023 Forum*, 2023. <https://doi.org/10.2514/6.2023-2456>.
- [5] Ravindra A. Shirsath, and Mukherjee, R., "Experimental Investigations of the Aerodynamic Characteristics of a Finite Rectangular Wing in Ground Effect," *AIAA SCITECH 2022 Forum*, 2022. <https://doi.org/10.2514/6.2022-1978>.
- [6] Aritras Roy, and Mukherjee, R., "Control of Laminar Boundary-Layer Separation on a Rectangular Wing using Decambering Approach," *AIAA SCITECH 2022 Forum*, 2022. <https://doi.org/10.2514/6.2022-0711>.
- [7] Vasanth Kumar, and Mukherjee, R., "Study of Separation of Three-Dimensional Boundary Layer using Critical Point Theory," *AIAA Scitech 2021 Forum*, 2021. <https://doi.org/10.2514/6.2021-1995>.
- [8] Aritras Roy, and Mukherjee, R., "Time Series Behaviour of Laminar Separation Bubbles at Low Reynolds Number," *AIAA Scitech 2021 Forum*, 2021. <https://doi.org/10.2514/6.2021-1197>.
- [9] Aritras Roy, and Mukherjee, R., "Numerical Morphing of a Rectangular Wing to Prevent Flow Separation," *AIAA Scitech 2020 Forum*, 2020. <https://doi.org/10.2514/6.2020-1765>.
- [10] Antony B. Samuel, and Mukherjee, R., "Prediction of Post-Stall Aerodynamic Characteristics of wing(s) with separated flow modeled as a Single Nascent Vortex," *54th AIAA Aerospace Sciences Meeting*, 2016. <https://doi.org/10.2514/6.2016-0306>.
- [11] M Gunasekaran, and Mukherjee, R., "Reduction of Induced Drag in Con guration Flight using Wing Twist at Post-Stall Angles of Attack," *54th AIAA Aerospace Sciences Meeting*, 2016. <https://doi.org/10.2514/6.2016-1779>.
- [12] Egambaravel Jeyapandian, and Mukherjee, R., "Linear Stability Analysis of Laminar Separation Bubble over NACA0012 airfoil at Low Reynolds Numbers," *52nd Aerospace Sciences Meeting*, 2014. <https://doi.org/10.2514/6.2014-0253>.
- [13] Vasanth Kumar, and Mukherjee, R., "A Numerical Study of the Unsteady Motion of a Wing using N-Body Approximation," *52nd Aerospace Sciences Meeting*, 2014. <https://doi.org/10.2514/6.2014-1108>.
- [14] M. Gunasekaran, and Mukherjee, R., "A Numerical Study of the Aerodynamics of Cessna 172 Aircrafts in Echelon formation," *52nd Aerospace Sciences Meeting*, 2014. <https://doi.org/10.2514/6.2014-1107>.
- [15] Ravindra Shirsath, Hossain Aziz, and Mukherjee, R., "A Numerical Study of Tandem Pitching Airfoils," *51st AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition*, 2013. <https://doi.org/10.2514/6.2013-793>.
- [16] Hossain Aziz, and Mukherjee, R., "Unsteady Aerodynamics of Multiple Airfoils in Configuration," *29th AIAA Applied Aerodynamics Conference*, 2011. <https://doi.org/10.2514/6.2011-3523>.
- [17] Mukherjee, R., and Gopalarathnam, A., "Post-Stall Prediction of Multiple-Lifting-Surface Configurations Using a Decambering Approach," *42nd AIAA Aerospace Sciences Meeting and Exhibit*, 2011. <https://doi.org/10.2514/6.2004-219>.
- [18] Mukherjee, R., Gopalarathnam, A., and Kim, S., "An Iterative Decambering Approach for Post-Stall Prediction of Wing Characteristics from Known Section Data," *41st Aerospace Sciences Meeting and Exhibit*, 2003. <https://doi.org/10.2514/6.2003-1097>.

APS DFD Presentation

- [1] Vipul Dalela, and Mukherjee, R., "An Experimental Investigation of Flow past a Wing at high Angles of Attack," Vol. 62, No. 14, 2017. URL <http://meetings.aps.org/link/BAPS.2017.DFD.A17.7>.

Asian Congress of Fluid Mechanics (ACFM) Meet Papers

- [1] Vasanth Kumar, G., and Mukherjee, R., "Investigation of Flow Separation Lines Over a Finite Wing," *Proceedings of 16th Asian Congress of Fluid Mechanics*, 2021.
- [2] Gireesh Yanamashetti, G. K. S., and Mukherjee, R., "Development of Flow Over Blunt-Nosed Slender Bodies at Transonic Mach Numbers," *Proceedings of 15th Asian Congress of Fluid Mechanics, Kuching, Malaysia*, 2016.
- [3] Antony B. Samuel, and Mukherjee, R., "High-Alfa Aerodynamics with Separated Flow Modeled as a Single Nascent Vortex," *Proceedings of 15th Asian Congress of Fluid Mechanics, Kuching, Malaysia*, 2016.
- [4] Hossain Aziz, and Mukherjee, R., "Unsteady aerodynamics of suddenly accelerated multiple airfoils," *Proceedings of 13th Asian Congress of Fluid Mechanics, Dhaka Bangladesh*, 2010.

Conferences

- [1] Mukherjee, R., "Morphing Of Lifting Surfaces For Improved Aerodynamic Efficiency," *4th International Forum on Aerospace and Aeronautics and Physics and Astronomy, Budapest*, 2024.
- [2] Hariprasanth Palanivel, and Mukherjee, R., "CFD Study of Tip Vortices Induced by Different Vortex Generator Shapes for Stall Control on Wind Turbine Blade," *10th National Conference on Wind Engineering (NCWE10), VIT Chennai, India*, 2024.
- [3] Hariprasanth Palanivel, and Mukherjee, R., "Controlling Separation on Wind Turbine Blade using Airfoil-Shaped Vortex Generators," *15th International Symposium on Experimental and Computational Aerothermodynamics of Internal Flows (ISAF15), IIT Madras, Chennai, India*, 2023.
- [4] Hariprasanth Palanivel, and Mukherjee, R., "Passive Flow Control using Three different Vortex Generators to delay Stall on a 3D Wind Turbine Blade," *16th International Conference on Wind Engineering (ICWE16), Florence, Italy*, 2023.
- [5] Ravindra A. Shirsath, and Mukherjee, R., "Aerodynamic Characteristics of Finite Rectangular Wings in Formation with Ground Effect," *Fluid Mechanics and Fluid Power (FMFP), IIT Roorkee India*, 2022.
- [6] Vasanth Kumar, G., and Mukherjee, R., "Study of Separation Lines and Flow Patterns in 3D Boundary Layer over Sphere using Experimental and Numerical Analysis," *Proceedings of the 9th International and 49th National Conference on Fluid Mechanics and Fluid Power*, Fluid Mechanics and Fluid Power, FMFP, IIT Roorkee, Roorkee-247667, Uttarakhand, India, 2022.
- [7] Roy, Aritras, and Mukherjee, R., "Effect of Airfoil Section on Unsteady Aerodynamics of a Rectangular Wing at High Angles of Attack," *Fluid Mechanics and Fluid Power, BITS Pilani*, 2021.
- [8] Roy, Aritras, and Mukherjee, R., "Near-Wake Flow Structures of a Rectangular Wing at the Onset of Stall," *International Conference on Theoretical Applied Computational and Experimental Mechanics, IIT Kharagpur*, 2021. <https://doi.org/10.1201/9781003324539>.
- [9] Ravindra A. Shirsath, and Mukherjee, R., "Computational Investigations of Aerodynamic Properties for Flow Past NACA 0012 3D Wing in Ground Proximity," *Fluid Mechanics and Fluid Power, IIT Guwahati, India*, 2020.
- [10] Vasanth Kumar, G., and Mukherjee, R., "Tip Vortices over Wing Surface using Oil Flow Visualization," *Proceedings of the 8th International and 47th National Conference on Fluid Mechanics and Fluid Power*, Fluid Mechanics and Fluid Power, FMFP, IIT Guwahati, Assam, India, 2020.
- [11] Aritras Roy, R. M., "Unsteady 3D Post-Stall Aerodynamics Accounting for Effective Loss in Camber Due to Flow Separation," *20th International Conference on Aerospace Engineering, Classification of Flying Vehicles and Flight Software, NYC, USA*, 2018.
- [12] Aritras Roy, and Mukherjee, R., "Experimental Study of Leading Edge Laminar Separation Bubble for Flow past a Rectangular Wing," *FMFP, IIT Bombay*, 2018.
- [13] Gireesh Yanamashetti, G. K. S., and Mukherjee, R., "Control of Pressure Field Around Nose Region of a Launch Vehicle Using an Aerodisk and an Aerospike at Transonic Mach numbers," *FMFP, IIT Bombay*, 2018.
- [14] Ravindra A. Shirsath, and Mukherjee, R., "Effect of Ground Proximity on the Aerodynamic Characteristics of NACA 0012 Airfoil Using Computational Fluid Dynamics," *FMFP, IIT Bombay*, 2018.
- [15] Vipul Dalela, A., and Mukherjee, R., "An Experimental Validation of Numerical Post-Stall Aerodynamic Characteristics of a Wing," *ICTACEM, Dec, IIT Kharagpur*, 2017.

- [16] M. Gunasekaran, and Mukherjee, R., "Numerical Analysis of the Post-Stall Aerodynamics of Chevron formation," *INCAM (Indian Conference on Applied Mechanics)*, 2015.
- [17] Vasanth Kumar, G., and Mukherjee, R., "Numerical Simulation of Unsteady Motion and Wing-Wake Interaction Using Vortex Methods," *15th AeSICFD Symposium*, Aeronautical Society of India, AeSI, IISc Bangalore, 2013.
- [18] Mukherjee, R., and Hossain Aziz and Ravindra A. Shirsath, "Unsteady Aerodynamics of Tandem Pitching Airfoils," *Proc. of 14th. Annual CFD Symposium, Bangalore*, 2012.
- [19] Egambaravel J., and Mukherjee, R., "Transition Prediction in Laminar Separation Bubble over NACA0012 airfoil," *Proc. of 14th. Annual CFD Symposium, Bangalore*, 2012.
- [20] Ravindra A. Shirsath, and Mukherjee, R., "Unsteady aerodynamics of tandem airfoils pitching in phase," *Proc. of 2nd. Intl. Conference on Mechanical, Production and Automobile Engg., Singapore*, 2012.
- [21] Ravindra A. Shirsath, and Mukherjee, R., "Unsteady aerodynamics of multiple airfoils in formation," *20th Annual Conference of the CFD Society of Canada, Canada*, 2012.
- [22] Hossain Aziz, and Mukherjee, R., "Unsteady aerodynamics of multiple airfoils in configuration," *Proc. of Intl. Conference on Mechanical and Aerospace Engg., WASET, Vol. 71, pp 94-105, Paris, France*, 2010.
- [23] Hossain Aziz, and Mukherjee, R., "Unsteady Aerodynamics of multiple airfoils suddenly set into motion with different velocities," *Proc. of 4th Intl. Conference on Fluid Mechanics and Fluid Power, IIT Madras, India*, 2010.
- [24] Hossain Aziz, and Mukherjee, R., "Unsteady Aerodynamics of multiple airfoils suddenly set into motion with different chord lengths," *Proc. of 5th Intl. Conference on Theoretical, Applied, Computational & Experimental Mechanics, IITKGP, India*, 2010.
- [25] Egambaravel J. and Mukherjee, R., "Non-unique solutions in prediction of post-stall aerodynamics," *3rd International Congress on Computational Mechanics and Simulation (ICCMS09), IIT Bombay*, 2009.
- [26] J. Egambaravel, and Mukherjee, R., "Hysteresis effects on Medium Aspect Ratio Wings in Post- Stall regime," *3rd International Congress on Computational Mechanics and Simulation (ICCMS09), IIT Bombay*, 2009.
- [27] Hossain Aziz, and Mukherjee, R., "Aerodynamic characteristics of a wing-tail and wing-canard configuration," *3rd International Congress on Computational Mechanics and Simulation (ICCMS09), IIT Bombay*, 2009.
- [28] Hossain Aziz, and Mukherjee, R., "Aerodynamics of a Cessna 172 aircraft flying in echelon formation," *International Conference on Recent and Emerging Advanced Technologies in Engineering(iCREATE09), Sepang, Malaysia*, 2009.

Books

- [1] Mukherjee, R., *Decambering: A numerical tool to predict post-stall aerodynamic data*, Lambert Academic Publishing, 2009.
- [2] Mukherjee, R., *Gas Dynamics*, In Progress.