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Journal Publications

- Ayushman Srivastava, **Abhishek Kundu**, Akshoy Ranjan Paul (**2025**) A study on the performance of a needle-free micro-shock tube device using different pressure ratios and stand-off distance **Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science I.F: 1.7**, doi:10.1177/09544062251404833, **SCIE, Q2, Role: Corresponding Author**
- Murugan Thangadurai, **Abhishek Kundu**, Satya Prakash Singh, C. Jayarami Reddy, Harshita Vanam (**2025**) A comparative study on shock tube-generated blast waves interaction with generic objects and their reattachment behind objects **Physics of Fluids** 37:096147. **I.F: 4.3**, doi:10.1063/5.0288323, **SCIE, Q1, Role: Corresponding Author**
- Adithya Ajay, **Abhishek Kundu** (**2025**) Numerical investigation on the effect of cowl angle in the supersonic intake performance **The Aeronautical Journal** 129(1336):1702-1721. **I.F: 1.6**, doi:10.1017/aer.2025.7, **SCIE, Q2, Role: Corresponding Author**
- Ayushman Srivastava, **Abhishek Kundu**, Akshoy Ranjan Paul (**2025**) Numerical Analysis of the influence of driver gases on the penetration depth of particles using a micro-shock tube-based needle-free delivery device **International Journal of Computational Methods** 22(07):2550013. **I.F: 1.6**, doi:10.1142 /S0219876225500136, **SCIE, Q2, Role: Corresponding Author**
- **Abhishek Kundu**, Murugan Thangadurai (**2024**) A study on the interaction of shock tube-generated blast waves with a shock tube-generated blast waves with a circular object at different pressure ratios **European Journal of Mechanics / B Fluids** 109:145-161. **I.F: 2.5**, doi:10.1016/j.euromechflu.2024.10.001, **SCIE, Q2, Role: First Author**
- Murugan Thangadurai, Konstantinos Kontis, Craig White, **Abhishek Kundu** (**2024**) Compressible vortex loops and their interactions **Progress in Aerospace Sciences** 150(1)(101048). **I.F: 16.2**, doi: 10.1016/j.paerosci.2024.101048, **SCIE, Q1, Role: Other Author**
- Soham Das, Soumya Kanti Biswas, **Abhishek Kundu**, Ranjan Ghadai, Spandan Guha (**2024**) Investigation of mechanical morphological structural and electrochemical properties of PVD TiAlN coating: A detail experimental and its correlation with an analytical approach using the least square method **Applied Surface Science Advances** 24(100638). **I.F: 8.7**, doi: 10.1016/j.apsadv.2024.100638, **SCIE, Q1, Role: Other Author**
- Murugan Thangadurai, **Abhishek Kundu**, Gautam Biswas (**2024**) Numerical simulation of the interaction between a planar shock wave and a backward-facing triangular bubble containing gases with different Atwood numbers **Physics of Fluids** 36(046119). **I.F: 4.3**, doi:10.1063/5.0206408, **SCIE, Q1, Role: Other Author**
- **Abhishek Kundu** (**2024**) Breakdown regime of a shielded vortex interacting with a standing normal shock: a numerical study. **Shock Waves** 34:1-16. **I.F: 1.8**, doi:10.1007/s00193-024-01163-8, **SCIE, Q2, Role: First** & **Corresponding Author**

- **Abhishek Kundu**, Murugan Thangadurai, Gautam Biswas (**2024**) A study on dynamics of shock-accelerated forward-facing triangular bubbles at different Atwood numbers **Physics of Fluids** 36(016110). **I.F: 4.3**, doi:10.1063/5.0177273, **SCIE, Q1, Role: First Author**
- Sambal Dwivedi, **Abhishek Kundu** (**2023**) A study on the effect of non-uniform spacing on the performance of forced convection cooling of discrete heaters: A numerical investigation **International Journal of Heat and Fluid Flow** 105(109263):1-14. **I.F: 3.1**, doi:10.1016/j.ijheatfluidflow.2023.109263, **SCIE, Q1, Role: Corresponding Author**
- **Abhishek Kundu**, Murugan Thangadurai (**2022**) A study on the effect of driver section length on the flow field inside a two-dimensional closed-ended viscous shock tube: A numerical investigation **European Journal of Mechanics / B Fluids** 98:92-101. **I.F: 2.5**, doi:10.1016/j.euromechflu.2022.11.008, **SCIE, Q2, Role: First Author**
- Murugan Thangadurai, **Abhishek Kundu**, Inderpal Singh Sandhu, Moloy Narayan Das (**2022**) Numerical simulation of high peak overpressure blast wave through shock tube and its interaction with a rectangular object **European Journal of Mechanics / B Fluids** 97:162-172. **I.F: 2.5**,doi:10.1016/j.euromechflu.2022.10.007, **SCIE, Q2, Role: Corresponding Author**
- **Abhishek Kundu**, Gautam Biswas (**2022**) Analysis of multipolar vortices in the interaction of a shock with a strong moving vortex. **Computers and Fluids** 248(105686):1-8. **I.F: 3.0**, doi:10.1016/j.compfluid.2022.105686, **SCIE, Q1, Role: First Author**
- Murugan Thangadurai, **Abhishek Kundu**, Gautam Biswas (**2022**) Analysis of shock wave-boundary layer interaction in a shock tube using higher order scheme. **Computers and Fluids** 236(105305):1-13. **I.F: 3.0**, doi:10.1016/j.compfluid.2022.105305, **SCIE, Q1, Role: Other Author**
- **Abhishek Kundu**, Murugan Thangadurai, Gautam Biswas (**2021**) Investigation on shear layer instabilities and generation of vortices during shock wave and boundary layer interaction. **Computers and Fluids** 224 (104966):1-8. **I.F: 3.0**, doi:10.1016/j.compfluid.2021.104966, **SCIE, Q1, Role: First Author**
- **Abhishek Kundu** (**2021**) Numerical simulation of a shock-helium bubble interaction. **Shock Waves** 31:19-30. **I.F: 1.8**, doi:10.1007/s00193-021-00996-x, **SCIE, Q2, Role: First** & **Corresponding Author**
- **Abhishek Kundu**, Sudipta De (**2019**) High resolution numerical simulation of shock accelerated Refrigerent-22 bubble. **Computers and Fluids** 193:104289. **I.F: 3.0**, doi:10.1016/j.compfluid.2019.104289, **SCIE, Q1, Role: First** & **Corresponding Author**
- **Abhishek Kundu**, Sudipta De (**2017**) Navier-Stokes simulation of shock-heavy bubble interaction: Comparison of upwind and WENO schemes. **Computers and Fluids** 157:131-145. **I.F: 3.0**, doi:10.1016/j.compfluid.2017.08.025, **SCIE, Q1, Role: First Author**
- **Abhishek Kundu**, Sudipta De (**2017**) Navier-Stokes simulation of slipstream evolution in steady shock reflection. **Journal of Visualization** 20:515-518. **I.F: 2.3**, doi:10.1007/s12650-016-0407-1, **SCIE, Q2, Role: First Author**
- **Abhishek Kundu**, Sudipta De, Murugan Thangadurai, C. L. Dora, Debopam Das (**2016**) Numerical visualization of shock tube-generated vortex-wall interaction using a fifth-order upwind scheme. **Journal of Visualization** 19:667-678. **I.F: 2.3**, doi:10.1007/s12650-016-0362-x, **SCIE, Q2, Role: First Author**

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- Murugan Thangadurai, Sudipta De, **Abhishek Kundu**, Inderpal Singh Sandhu, D R Saroha Interaction of a Shock Tube generated Blast Wave with Solid Obstacles. Presented in **11 th International High Energy Material Conference & Exhibits**, Held on November 23-25, 2017 Pune, India.
- **Abhishek Kundu**, Arnab Basu A class of third-order compact upwind schemes for compressible flow with shocks and vortices. Presented in **National Conference on Frontiers in Modern Physics**, Held on August 16-17, 2018 Adamas University, Kolkata, India.
- **Abhishek Kundu**, Sudipta De Numerical simulation of shock tube-generated vortex: Comparison of upwind and WENO scheme. Presented in **Fluid Mechanics and Fluid Power (FMFP) conference**, Held on December 10-12, 2018 IIT Bombay, Mumbai, India.
- Anton Shershnev, **Abhishek Kundu**, Alexey Kudryavtsev Murugan Thangadurai, Sudipta De Numerical simulation of viscous shock tube flow with shock-capturing and hybrid high-resolution schemes. Presented in **High Energy Processes in Condensed Matter**, Held on April 2-5, 2019 Novosibirsk, Russia.
- **Abhishek Kundu**, Murugan Thangadurai, Sudipta De Navier-Stokes simulation of shock tube generated blast wave interaction with a rectangular object at higher shock Mach number. Presented in **16th Asian Congress of Fluid Mechanics (ACFM)**, Held on December 13-17, 2019 Bengaluru, India.
- Ansab Khan, **Abhishek Kundu**, Akshoy Ranjan Paul Numerical simulation of interaction of blast wave generated from Cannon with wall at different pressure ratio. Proceedings of **International conference on Thermofluids**, pp 137-143, 2020.
- Kshitij Bajpai, **Abhishek Kundu** Effect of intermixing on thermal performance of converged-diverged microchannel heat sink used in high heat flux applications. Presented in **International conference on progressive research in Industrial & Mechanical Engineering**, Held on August 5-7, 2021 NIT Patna, India.
- Vivek Kumar, **Abhishek Kundu** Numerical simulation of a Lid-Driven cavity problem by solving general pressure equation using OPENFOAM: A solver validation. Presented in **International conference on Mechanical Engineering**, Held on November 25-26, 2021 NSUT New Delhi, India.
- Datti Ganapathi, **Abhishek Kundu** Numerical simulations of an interaction of a blast wave produced from a shock tube with an object placed at various positions. Presented in **International conference on Mechanical Engineering**, Held on November 25-26, 2021 NSUT New Delhi, India.

- **Abhishek Kundu**, Anupam Sinha, Gautam Biswas, Murugan Thangadurai Heat transfer enhancement using rectangular-winglet-type vortex-generators on the annular fins. Presented in **26th National and 4th International conference of Heat and Mass Transfer (IHMTC-2021)**, Held on December 17-20, 2021 IIT Madras, India.
- **Abhishek Kundu**, Murugan Thangadurai Interaction of shock tube generated blast wave with a rectangular object at two pressure ratios: Numerical simulations and their comparison. Presented in **48th National Fluid Mechanics and Fluid Power Conference (FMFP-2021)**, Held on December 27-29, 2021 Bits Pilani, India.
- Nihal Pandey, **Abhishek Kundu** Numerical studies on effect of blast load by placing an object at the exit of a shock tube. Presented in **13th International High Energy Materials conference** & **Exhibits**, Held on May 26-28, 2022 TBRL (DRDO) Chandigarh, India.
- Sachin Kumar Singh, **Abhishek Kundu** Numerical simulation of shock wave diffraction over curved walls. Presented in **13th International High Energy Materials conference** & **Exhibits**, Held on May 26-28, 2022 TBRL (DRDO) Chandigarh, India.
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- **Abhishek Kundu**, Murugan Thangadurai, Pawan Kumar Karn, Debopam Das Navier-Stokes Simulation of a Strong Shock-vortex Interaction. Presented in **34 th International symposium on shock waves**, Held on July 16-21, 2023 DAEGU, Korea.
- Murugan Thangadurai, **Abhishek Kundu**, Prahlad Joshi, Amar Yadav, Debopam Das, Sashi Kanta Panigrahi A comparative study on the blast wave mitigation in different composite materials using shock tube experiments. Presented in **34 th International symposium on shock waves**, Held on July 16-21, 2023 DAEGU, Korea.
- **Abhishek Kundu**, Murugan Thangadurai, Sambal Dwivedi Numerical study on the effect of reflected blast waves on the transient jet characteristics inside an enclosure. Presented in **Asian Computational Fluid Dynamics Conference**, Held on October 30 - November 02, 2023 Bengaluru, India.
- Himanshu Kishnani, **Abhishek Kundu** A numerical study on the effect of solid boundaries on the density-driven laminar flows. Presented in **27 th National and 5 th International ISHMT-ASTFE Heat and Mass Transfer Conference**, Held on December 14-17, 2023 IIT Patna, India.

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- Himanshu Kishnani, **Abhishek Kundu** A numerical study on the effect of various forces on rising bubbles in a confinement. Presented in **10th International and 50th National Conference on Fluid Mechanics and Fluid Power (FMFP)**, Held on December 20-22, 2023 IIT Jodhpur, India.
- Abhishek Garg, **Abhishek Kundu** Effect of velocity and aspect ratio on one- and two-way coupled fluid-structure interaction problems. Presented in **10th International and 50th National Conference on Fluid Mechanics and Fluid Power (FMFP)**, Held on December 20-22, 2023 IIT Jodhpur, India.
- Adithya Ajay, **Abhishek Kundu** Effects of cowl angle on the performance of supersonic intake. Presented in **14th International High Energy Materials Conference and Exhibits - Expedition towards excellence in energetics**, Held on February 01-03, 2024 HEMSI Thiruvananthapuram, DRDO India.
- Ayushman Srivastava, **Abhishek Kundu**, Akshoy Ranjan Paul A comparative analysis of flow characteristics inside a closed-ended micro-shock tube using both pressure-based and density-based algorithms. Presented in **International Conference on Thermofluids and Manufacturing Science**, Held on March 07-08, 2024 KIIT Bhubaneswar, India.
- Senthilkumar Subramanian, Murugan Thangadurai, **Abhishek Kundu**, Konstantinos Kontis Effect of spanwise grooved surfaces on the flow field inside an isolator of a scramjet engine. Presented in **AIAA SCITECH 2025 Forum**, Held on January 06-08, 2025 Orlando, USA.
- Ayushman Srivastava, **Abhishek Kundu**, Akshoy Ranjan Paul Application of the literature-derived modified penetration model to quantify drug particle depth in the viable epidermis post stratum corneum transit. Presented in **70th Congress of the Indian Society of Theoretical and Applied Mechanics (ISTAM)**, Held on December 10-12, 2025 VIT Bhopal, India.