

## Publications

### *International Journal*

1. Ishu Shukla, Y. K. Baghel and V. K. Patel, 2022, “Effect of V-cut on the performance of longitudinal vortex generator using CFD”, Songklanakarin Journal of Science and Technology (Accepted).
2. Y. K. Baghel, J. Kumar and V. K. Patel, 2021, “CFD Analysis of the Flow Characteristics of In-Line Drip Emitter with Different Labyrinth Channels”, Journal of The Institution of Engineers: Series A, Springer, Vol. 102, issue 1, pp 111-119.
3. Y. K. Baghel and V. K. Patel, 2021, “CFD Modeling for the Influence of Fly Ash Particle Size on the Different Properties of High Concentrated Slurry Transportation in Horizontal Pipe”, Walailak Journal of Science and Technology (Accepted).
4. G. Tiwari, J. Kumar, V. Prasad and V. K. Patel, 2020, “Utility of CFD in the Design and Performance Analysis of Hydraulic Turbines”, Energy Reports Journal, Elsevier, Vol. 6, issue C, pp 2410-2429.
5. J. Kumar, G. Tiwari, A. Rawat and V. K. Patel, 2020, “Computational Investigation of Erosion Wear on Industrial Centrifugal Pump Handling Solid-Water Flows”, Journal of Tribology in Industry, Vol. 42, No. 3, pp 382-399.
6. P. Sharma and V. K. Patel, 2020 “Computational Investigation of the Thermo-Fluidic Effects of Inserting Twisted Tape with Alternating Twists with Notches”, Materials Today: Proceedings Journal, Elsevier, Vol. 28, Part 3, pp 1968-1972.
7. A. Pratap, Y. K. Baghel and V. K. Patel, 2020 “Effect of Impingement Height on the Enhancement of Heat Transfer with Circular Confined Jet Impingement using Nanofluids”, Materials Today: Proceedings Journal, Elsevier Vol. 28, Part 3, pp 1656-1661.
8. G. Tiwari, J. Kumar, V. Prasad and V. K. Patel, 2020, “Surface Roughness Effects on the Hydrodynamics of Cavitating Turbulent Flow Through a Low Head Prototype Francis Turbine” Ocean Engineering, Elsevier (Under Review).
9. J. Kumar, G. Tiwari, A. Rawat and V. K. Patel, 2020, “Effect of Swirl Vanes Angle on Erosion Behavior of AISI 316 Pipe Bend”, Materials Today: Proceedings Journal, Elsevier, Vol. 26, Part 2, pp 781-786.
10. G. Tiwari, J. Kumar, V. Prasad and V. K. Patel, 2020, “Derivation of Cavitation Characteristics of a 3MW Prototype Francis Turbine through Numerical Hydrodynamic Analysis”, Materials Today: Proceedings Journal, Elsevier, Vol. 26, Part 2, pp 1439-1488.
11. Y. K. Baghel, Jitendra Kumar, B. Kishor, A. Rawat and V. K. Patel, 2020 “Effect of Hot Forging on the Slurry Erosion Wear of AISI 316 and AISI 410 Steel”, Materials Today: Proceedings Journal, Elsevier, Vol. 26, Part 2, pp 1740-1745.

12. A. Shrivastava and V. K. Patel, 2019 “Effect of Injection Angle of Primary and Secondary Holes on the Mixing and Combustion in a Can Type Combustor using CFD”, SN Applied Sciences, Springer Nature journal, Vol. 1, issue 7, 786.
13. G. Tiwari, V. Prasad, S. N. Shukla and V. K. Patel, 2019 “Hydrodynamic Analysis of a Low Head Prototype Francis Turbine for Establishing an Optimum Operating Regime using CFD” Journal of Mechanical Engineering and Sciences, Vol.14, issue 2, pp 6625-6641.
14. V. K. Patel, P. Sharma and K. Saxena, 2017 “Computational Study of Turbulent Convective Heat Transfer in Circular Pipe using Trapezoidal Ribs” IOP Journal of Material Science and Engineering, Vol. 234, Issue 1, 012003.
15. R. Verma, V. K. Patel and A. Pal, 2016, “Numerical Analysis on Aerodynamic Behaviour of a Hemispherical Structure under Different Wind Loading”, International Journal of Engineering Research and Application, Vol. 6, Issue 4 (5), pp 21-25.
16. V. K. Patel, S. N. Singh and V. Seshadri, 2013 “Effect of Blockage and Location on Mixing of Swirling Coaxial Jets in a Nonexpanding Circular Confinement”, International Journal of Turbo & Jet-Engines, Vol. 30, Issue 2, pp 153-171.
17. A. R. Paul, P. Ranjan, V. K. Patel and A. Jain, 2012 “Comparative studies on flow control in rectangular S-duct diffuser using submerged-vortex generators” Aerospace Science and Technology, Elsevier, Vol.28, Issue 1, pp 332-343.
18. A. R. Paul, P. Ranjan, V. K. Patel and A. Jain, 2011 “Flow Control in Rectangular S-Duct Diffuser Using Submerged Vortex Generators” International Review of Aerospace Engineering (IREASE), Vol. 4, N. 2, pp 76-86.

#### *National and International Conferences*

19. K. Saxena, N. Bhadauria and V. K. Patel “Computational Analysis on the Flow Behaviour and Performance Evaluation of Single and Double Offset Butterfly Valves”, *International Conference on Futuristic Advancements in Materials, Manufacturing and Thermal Sciences (ICFAMMT-22)*, ID-179, 20-22 January 2022, IITRAM, Ahmedabad & SAC, ISRO, Ahmedabad, India.
20. I. Shukla, Y. K. Baghel, and V. K. Patel “Computational Analysis of Heat Transfer Enhancement in a Circular Tube with Longitudinal Vortex Generator”, *48th National Conference on Fluid Mechanics & Fluid Power (FMFP-2021)*, ID-03/266, 27-29 December 2021, BITS Pilani, Rajasthan, India.
21. J. Kumar, M. Singh, G. Tiwari, and V. K. Patel “Numerical Analysis for Deriving Erosion Characteristics of Pipe Bend Materials AISI 316 and AISI 431”, *48th National Conference on Fluid Mechanics & Fluid Power (FMFP-2021)*, ID-13/127, 27-29 December 2021, BITS Pilani, Rajasthan, India.

22. G. Tiwari, J. Kumar, S. N. Shukla, V. Prasad, and V. K. Patel “Multi-Fidelity CFD Approach for Hydrodynamic Performance Analysis of a Prototype Francis Turbine- A Comparative Study”, *48th National Conference on Fluid Mechanics & Fluid Power (FMFP-2021)*, ID-10/125, 27-29 December 2021, BITS Pilani, Rajasthan, India.
23. P. Sharma and V. K. Patel, “Computational Investigation of the Thermo-Fluidic Effects of Inserting Twisted Tape with Alternating Twists with Notches”, *International Conference on Aspects of Materials Science and Engineering (ICAMSE 2020)*, Panjab University, Chandigarh, May 29-30, 2020.
24. A. Pratap, Y. K. Baghel and V. K. Patel, “Effect of impingement height on the enhancement of heat transfer with circular confined jet impingement using nanofluids”, *International Conference on Aspects of Materials Science and Engineering (ICAMSE 2020)*, Panjab University, Chandigarh, May 29-30, 2020.
25. Jitendra Kumar, G. Tiwari, A. Rawat and V. K. Patel, “Effect of Swirl Vanes Angle on Erosion Behavior of AISI 316 Pipe Bend”, *10<sup>th</sup> International Conference on Materials Processing and Characterization (ICMPC-2020)*, GLA University, Mathura, 21-23 February 2020.
26. G. Tiwari, J. Kumar, V. Prasad and V. K. Patel, “Derivation of Cavitation Characteristics of a 3MW Prototype Francis Turbine through Numerical Hydrodynamic Analysis”, *10<sup>th</sup> International Conference on Materials Processing and Characterization (ICMPC-2020)*, GLA University, Mathura, 21-23 February 2020.
27. Y. K. Baghel, J. Kumar, B. Kishor, A. Rawat and V. K. Patel, Effect of Hot Forging on the Slurry Erosion Wear of AISI 316 and AISI 410 Steel, *10<sup>th</sup> International Conference on Materials Processing and Characterization (ICMPC-2020)*, GLA University, Mathura, 21-23 February 2020.
28. J. Kumar, Y. K. Baghel, R. Shrivastava and V. K. Patel, “Effect of Additives on Erosion Behaviour of Slurry Pumps Material”, *2<sup>nd</sup> International Conference on Mechanical Materials and Renewable Energy (ICMMRE-2019)*, ID-58, 6-7 December 2019, SMU Sikkim.
29. Y. K. Baghel, J. Kumar and V. K. Patel, “Effect of Surface Hardness of the Material on the Slurry Erosion Wear of AISI 420”, *2<sup>nd</sup> International Conference on Mechanical Materials and Renewable Energy (ICMMRE-2019)*, ID-65, 6-7 December 2019, SMU Sikkim.
30. G. Tiwari, S. N. Shukla, V. Prasad and V. K. Patel “Numerical Investigation of Hydrodynamics of the Cavitating Turbulent Flow in a Low Head Prototype Francis Turbine” *ICMMRE 2019*, ID- 21, 6-7 December 2019, SMU Sikkim.
31. G. Tiwari, V. Prasad, S. N. Shukla and V. K. Patel “Hydrodynamic Analysis of a Low Head Prototype Francis Turbine for Establishing an Optimum Operating Regime using CFD”, *International conference on advances in mechanical engineering and nanotechnology (ICAMEN 2019)*, ID-DE3332, 8- 9 March, 2019, Manipal University Jaipur.

32. G. Tiwari, V. Prasad, S. N. Shukla and V. K. Patel “Derivation of Complete Performance Characteristics of a Low Head Prototype Francis Turbine Using CFD”, *International Conference on Recent Innovations and Developments in Mechanical Engineering (IC-RIDME 2018)*, ID-201, 8- 10 November, 2018, NIT Meghalaya, Shillong, India.
33. Y. K. Baghel and V. K. Patel “Experimental and Computational Analysis of Heat Transfer by a Turbulent Air Jet Impingement on a Flat Surface”, *International Conference on Recent Innovations and Developments in Mechanical Engineering (IC-RIDME 2018)*, ID-234, 8- 10 November, 2018, NIT Meghalaya, Shillong, India.
34. G. Tiwari, V. Prasad and V. K. Patel “Computational Analysis of a Low Head Francis Turbine Draft Tube for Varying Load Conditions”, *Proc. of Symposium and Workshop for Analytical Youth in Applied Mechanics (SWAYAM) 2018*, ID-17, 4-6 July, 2018, BITS Pilani, K. K. Birla Goa Campus, India.
35. Y. Yadaw, J. Kumar and V. K. Patel “Effect of Twisted Tape on Bend Erosion”, *Proc. of Symposium and Workshop for Analytical Youth in Applied Mechanics (SWAYAM) 2018*, ID-26, 4-6 July, 2018, BITS Pilani, K. K. Birla Goa Campus, India.
36. V. K. Patel, P. Sharma and K. Saxena “Computational Study of Turbulent Convective Heat Transfer in Circular Pipe using Trapezoidal Ribs” *2017 International Conference on Advanced Technologies in Design, Mechanical and Aeronautical Engineering (ATDMAE2017)*, ID-T007, 12-14 July 2017, NTU Singapore, Singapore.
37. Y. K. Baghel and V. K. Patel “Analysis of Heat Transfer Characteristic of a Solar Air Heater with Artificial Roughness on Absorber Plate Using CFD”, *Proc. of 3<sup>rd</sup> Indian Conference on Applied Mechanics (INCAM) 2017*, ID-63, 05-07 July 2017, MNNIT Allahabad, India.
38. A. Shrivastava, M. Singh and V. K. Patel “Effect of Increase in Expansion Ratio on CRZ in a Swirling Coaxial Jets”, *Proc. of 3<sup>rd</sup> Indian Conference on Applied Mechanics (INCAM) 2017*, ID-69, 05-07 July 2017, MNNIT Allahabad, India.
39. S. K. Shah and V. K. Patel “Computational Study on Effect of Upstream Swirl Induction on Erosion in Pneumatic Conveying Pipeline Bend”, *Proc. of 3<sup>rd</sup> Indian Conference on Applied Mechanics (INCAM) 2017*, ID-103, 05-07 July 2017, MNNIT Allahabad, India.
40. P. Kumar and V. K. Patel “Design and Performance of Modified Cone Flowmeter”, *Proc. of 3<sup>rd</sup> Indian Conference on Applied Mechanics (INCAM) 2017*, ID-158, 05-07 July 2017, MNNIT Allahabad, India.
41. G. Tiwari, V. K. Patel and V. Prasad “CFD Approach for Analyzing the Effects of Rotor Stator Interaction in a 3MW Mixed Flow Prototype Francis Turbine”, *Proc. of 3<sup>rd</sup> Indian Conference on Applied Mechanics (INCAM) 2017*, ID-184, 05-07 July 2017, MNNIT Allahabad, India.

42. P. Sharma, V.C. Joshi, U. Kumar and V. K. Patel “CFD Analysis of the Swirl Decay in Circular Pipe with Twisted Tape Inserts”, *Proc. of 3<sup>rd</sup> Indian Conference on Applied Mechanics (INCAM) 2017*, ID-239, 05-07 July 2017, MNNIT Allahabad, India.
43. A. Shrivastava and V. K. Patel “CFD Analysis of Turbulent Mixing Characteristics of Passive Scalar Inside a Micro Gas Combustor”, *Proc. of IEEE International conference on AMIAMS2017*, ID-47, 03-05 February 2017, MNNIT Allahabad, India.
44. V. K. Patel, A. Shrivastava and A. Negi “Enhancing Heat Transfer in Plate Fin and Tube Heat Exchangers using Vortex Generator Behind the Tube”, *Proc. 6th International and 43rd National Conference on Fluid Mechanics & Fluid Power*, ID-521, 15-17 December 2016, MNNIT Allahabad, India.
45. V. K. Patel, Y. K. Baghel and S. Kumar “Effect of Air Inlet Velocity and Turbulent Intensity on Breakage of Fuel Jet in Air Blast Atomizer using Population Balance Model”, *Proc. 6th International and 43rd National Conference on Fluid Mechanics & Fluid Power*, ID-518, 15-17 December 2016, MNNIT Allahabad, India.
46. V. K. Patel, P. Sharma and A. Negi “Augmentation of Heat Transfer in Plate Fin and Tube Heat Exchangers with Vortex Generators”, *Proc. 6th International and 43rd National Conference on Fluid Mechanics & Fluid Power*, ID-493, 15-17 December 2016, MNNIT Allahabad, India.
47. V. K. Patel, J. Kumar and R. C. Srivastava “Experimental Analysis on the Effect of Blade Angle on the Performance Characteristics of Tangential Turbine Flow Meter”, *Proc. 6th International and 43rd National Conference on Fluid Mechanics & Fluid Power*, ID-487, 15-17 December 2016, MNNIT Allahabad, India.
48. A. Kulkarni and V. K. Patel “Effect of Pre-Heating on the Atomization of Liquid Fuel in Air Blast Atomizer using Eulerian- Lagrangian Approach”, *Proc. 6th International and 43rd National Conference on Fluid Mechanics & Fluid Power*, ID-300, 15-17 December 2016, MNNIT Allahabad, India.
49. V. K. Patel, S. N. Singh and V. Seshadri, “Effect of Preheating on the Flow Characteristics of Swirling Multicoaxial Jets in an Expanded Confinement”, *11<sup>th</sup> International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT2015)*, pp. 303-308, 20-23 July 2015, Kruger National Park, South Africa.
50. V. K. Patel, S. N. Singh and V. Seshadri, “Effect of Blockage and its Location on the Flow Characteristics of Heated Swirling Coaxial Jets in a Non-expanding Confinement”, *5th International and 41st national Conference on Fluid Mechanics & Fluid Power*, Ref. No. 234, 12-14 December 2014, IIT Kanpur, India.
51. R. Verma, V. K. Patel, A. K. Lall and A. Pal, 2014, “CFD Analysis on the Aerodynamic Behaviour of hemispherical Structures”, *5th International and 41st national Conference on Fluid Mechanics & Fluid Power*, Ref. No. 226, 12-14 December 2014, IIT Kanpur, India.

52. V. K. Patel and A. R. Paul, “Experimental Studies on ‘Fishtail’ Vortex Generators”, *Proc. The 11th Asian International Conference on Fluid Machinery & the 3rd Fluid Power Technology Exhibition*, AICFM\_FM\_012, 21-23 November 2011, IIT Madras, Chennai, India.
53. S. N. Singh, V. Seshadri, V. K. Patel and L. Singh, “Optimization of Nozzle Geometry for the Best Performance of Self Entraining Diffuser Using CFD”, *Proc. of 38<sup>th</sup> NCFMFP 2011-CFD-15*, 15-17 December, 2011, MANIT Bhopal.
54. C. B. Prajapati, V. K. Patel, S. N. Singh and V. Seshadri, “CFD Analysis of Permanent Pressure Loss for Different Types of Flow Meters in Industrial Application”, *Proc. 4th International and 37th National Conference on Fluid Mechanics & Fluid Power*, FMFP10-CF-41, 16-18 December 2010, IIT Madras, Chennai, India.
55. S. N. Singh, V. Seshadri, S. Chandel, A. K. Sharma and V. K. Patel “Effect of Position and Orientation of Primary Holes on the Mixing in a Combustor Model with and without Swirl”, *Proc. 4th International and 37th National Conference on Fluid Mechanics & Fluid Power*, FMFP10-EM-18, 16-18 December 2010, IIT Madras, Chennai, India.
56. V. K. Patel, A. Dewangan, S. N. Singh and V. Seshadri, “CFD Analysis on the Use of Adjustable Wedge Element for Balancing Flow in the Pulverized Coal Pipelines in Thermal Power Plant”, *Proc. 16<sup>th</sup> ISME Conference*, ISME10-TI-7, 02-04 December, 2010, IIT-Delhi, New Delhi, India.
57. S. Chandel, S. N. Singh, V. Seshadri and V. K. Patel, “Environment Friendly Mode of Disposal of Fly Ash in Thermal Power Plants”, *Proc. International Conference on Advances in Renewable Energy (ICARE 2010)*, Vol. II, Ref. No. 191, pp. 228-234, 24-26 June 2010, MANIT, Bhopal.

### **Books/Book chapters Published**

1. Y. K. Baghel, and V. K. Patel, 2020, “Experimental and Computational Analysis of Heat Transfer by a Turbulent Air Jet Impingement on a Flat Surface”, Chapter in *Advances in Mechanical Engineering Book*, pp. 85-96, Springer.
2. G Tiwari, V. Prasad, S.N. Shukla, V. K. Patel, 2020, “Derivation of Complete Performance Characteristics of a Low Head Prototype Francis Turbine Using CFD”, Chapter in *Advances in Mechanical Engineering Book*, pp.1581-1591, Springer.
3. K. K. Shukla, A. K. Upadhyay and V. K. Patel, 2017, “Proceedings of 3rd Indian Conference on Applied Mechanics-2017 (INCAM-2017)”.

### **Poster Presentations/Workshops Attended**

1. Workshop on, “Energy, Environment and Multiphase Flows”, held on 24-26 February, 2020 at IIT Kanpur.
2. Workshop on, “Gender Sensitivity at Work Place” held on 27 March, 2017 at MNNIT Allahabad.

3. Workshop on, "Teaching Learning Assessment: Techniques and Practices" held on 24-25 March, 2017 at MNNIT Allahabad.
4. International Workshop on, "Energy, Propulsion and Environment", held on 08-11 March, 2017 at IIT Kanpur.
5. Workshop on, "Faculty Orientation Programme", held on 12-13 January, 2013, at MNNIT Allahabad.
6. Workshop on, "Handling and Transportation of Fly Ash", held on May 19, 2012, at ITMMEC, Committee Room, IIT Delhi.
7. Workshop on, "Analysis of Manouvering of Underwater Vehicles", held on May 28<sup>th</sup>, 2011, at IIT Delhi.
8. Workshop on, "Advances in small scale heat exchangers and fuel cell thermal management for process, IT and energy industries", held on Jan 8-9, 2010, at Senate room, IIT Delhi.
9. Poster Presentation on "Basic Experiments in Fluids Mechanics" I<sup>2</sup>Tech 2011, IIT Delhi
10. Poster Presentation on "Studies on Flow Characteristics of Heated Coaxial & Multi-coaxial Jets" I<sup>2</sup>Tech 2011, IIT Delhi
11. Poster Presentation on "Flow Visualization Studies" I<sup>2</sup>Tech 2010, IIT Delhi
12. Poster Presentation on "Experiments in Fluid Mechanics" I<sup>2</sup>Tech 2010, IIT Delhi