BIO-DATA

1. Name: **Dr. Mrityunjay Kumar Sinha**
2. Address for correspondence:

Professor
Department of Mechanical Engineering
National Institute of Technology,
Jamshedpur
Jharkhand , INDIA -831014
Email: mksinha.me@nitjsr.ac.in
Ph.No: +91 6572 374022(o)
M.No: +91 9006771843

3. **Highest Qualification**: Ph.D. (I.I.T Kharagpur)

4. **Teaching and Research Experience: 23 Years.**

5. **Subject taught at UG level**: Fluid Mechanics, Thermodynamics, Heat and Mass Transfer, Computational Fluid Dynamics, Refrigeration and air conditioning.

6. **Subject taught at PG level**: Computational Methods in Engineering, Finite Element Analysis, Computational Fluid Flow and Heat Transfer, Advanced Fluid Mechanics. Computational Fluid Dynamics.

7. **Research Publication in Journals:**

1. Sangita, **M.K. Sinha** and R.V. Sharma, 2013," Natural convection in a Spherical Porous Annulus: The Brinkman Extended Darcy Flow Model "Transport in Porous Media, Volume 100, Issue 2, pp.321-335, 2013, DOI 10.1007/s 11242-013-0218-y.
2. Sangita, **M.K. Sinha** and R.V. Sharma, 2014," Influence of Property Variation on Natural Convection in a Gas Saturated Porous Annulus" Transport in Porous Media, Vol.104, Issue 3, pp. 521-535, DOI 10.1007/s11242-014- 0346-z.
3. **M.K. Sinha** & S.K. Dash, 2013, "Numerical Investigation of Natural Convection for Vertical flat plate with fins", Computational Thermal Sciences, 5(2), 119-126
4. Pardeep & **M.K. Sinha**, 2014, "Numerical Analysis of Header Configuration of the Plate-Fin Heat Exchanger", International Journal of Modern Engineering Research, 4(4),36-40.
5. Krishna Kumar Singh and **M. K. Sinha**, 2015,"Natural Convection around a Cylindrical Heat

Sink with Longitudinal Plate Fins", International Journal of Innovative Research in Advanced Engineering (IJIRAE), 9(2), 20 - 26.

6. Sangita, **M.K. Sinha** and R.V. Sharma ,2016,"Numerical Study of Natural Convection in a Spherical Porous Annulus", Journal of Porous Media, Vol. 19, Issue 3, pp. 277 - 286.

7. Krishna Kumar Singh and **M. K. Sinha**, 2016, "Parametric Effects on a Heat Sink with Branched Fins under Natural Convection", International Journal of Scientific & Engineering Research, 7(6), 229-236.

8. Pardeep, Mayank Srivastav , Dhaval Patel, **M. K. Sinha**, 2016, 'CFD analysis of the Factors affecting the Satellite drop formation', IJARSE, 5(8), 707-713.

9. Mayank Srivastava, Pardeep, **M. K. Sinha**, 2016, "CFD Analysis of CPU Cooling of Desktop Computers", IJATES, Volume 04, Issue No. 08, pp. 693-700.

10. Krishna Kumar Singh and **M. K. Sinha**, 2016,"Analysis of Entropy Generation minimization in Radial Heat Sink", Indian Journal of Science and Technology, 9(38), pp.1-7.

11. Krishna Kumar Singh and **M. K. Sinha**, 2017," Performane optimization of a Heat Sink with branched fins", JP Journal of Heat and Mass Transfer, 14(1), pp.97-117

12. Krishna Kumar Singh and **M. K. Sinha**, 2017, "Optimization of design parameters in a Cylindrical Heat Sink with branched fins under Natural Convection", Journal of Engineering, Design & Technology, 15(2), pp.242-253.

13. Mayank Srivastava & **M. K. Sinha**, 2017, "Heat Balance Intethemagral Method for Cylindrical and Spherical Encapsulated Phase Change Thermal Energy Storage System", International Journal of Mechanical Engineering and Technology, 8(12), pp.890-898.

14. Pardeep, Mayank Srivastava, **M.K.Sinha**, 2017, "Numerical Simulation of Dynamics of Drop Formulation at Vertical Capillary Tube", Lecture Notes in Mechanical Engineering, Springer Singapore, vol. IV, pp-371-384,

15. Mayank Srivastava, **M.K. Sinha**,2017, "Computational analysis of encapsulated phase Change materials latent heat thermal energy storage system", Journal Europeen des Systemes Automatises, 50(3), 227-239.

16. Pardeep, **M.K. Sinha**,2018,"A new approach to determine the diabetic level in patients", U.P.B. Bull. Series D, Vol.80, Iss.1, pp. 71-84.

17. Mayank Srivastava & **M. K. Sinha**, 2018, "Computational Analysis of

Encapsulated Thermal Energy Phase change Storage System: Cylindrical and Spherical Geometry", International Journal of Mechanical Engineering and Technology, 9(5),pp.662-668.

18. Pardeep, **M.K.Sinha** ,2018, "Numerical investigation of the drop formation mechanism and study of the droplet's pressure contour ". International Journal of Mechanical and Production Engineering Research and Development, 8(1), pp 299-306.

19. Pardeep. B, **M.K.Sinha**, 2018,"Numerical analysis of various parameters on the Dynamics of drop formation", Journal of Engineering and Applied Sciences, 13(12), 4305-4313.

20. Pardeep. B, **M.K.Sinha**, 2018,"Influence of the wettability nature of the nozzle wall on the dynamics of drop formation", International Journal of Heat and Technology, 36(3), pp 1005-1009.

21. Mayank Srivastava, **M.K.Sinha**, 2018, "Mathematical analysis of phase change Thermal energy storage system and effect of stefan's number on TESS performance", Advances in Modelling and Analysis A, 55(4), 217-221.

22. Pardeep, B. and **Sinha, M.K**., 2019. "Computational Investigation of Various Transition Stages in the Drop Formation Process". In *Advances in Interdisciplinary Engineering*, Lecture Notes in Mechanical Engineering (pp. 249-261). Springer, Singapore.
https://doi.org/10.1007/978-981-13-6577-5_25

23. Srivastava, M. and **Sinha, M.K**., 2019 "Mathematical Modeling for the Performance of Encapsulated Phase Change TESS and Effect of Stefan's Number", Mathematical modeling of Engineering Problems, 6(2), pp. 280-284.
https://doi.org/10.18280/mmep.060216

24. Pardeep, B., S.J.Chithambaram, A. Singh, P.Kumar., S.K.Khatkar and **M.K. Sinha.**, 2020, "Investigation of drop's instability under different transition stage on axisymmetric flow model", Computers and Fluids, 210, pp.104673-
https://doi.org/10.1016/j.compfluid.2020.104673.

8. Publication in Conference Proceedings :

1. Asghar Mahfooz Alam, M.K.Sinha and R.V.Sharma ,"Numerical Analysis of Natural Convection in Spherical Porous Annuli",In Proceeding of Natural Conference on Modeling and

Simulation in heat Transfer and Fluid Flow, July 9-10, 2010,N.I.T. Jamshedpur.

2. Sangita, M.K. Sinha and R.V. Sharma, "Numerical Simulation of Natural Convection in a Spherical Porous Annulus" In Proceedings of International Congress on Computational Mechanics and Simulations, December 9-12, 2012, I.I.T, Hyderabad

3. Sunil K. Gupta and M. K. Sinha, "A CFD analysis of vertical plate with square pin fin heat sink in natural convection, In Proceedings of International Congress on Computational Mechanics and Simulations, December 9-12, 2012, I.I.T, Hyderabad.

4. M.K. Sinha, Manish Kumar and Kumar Priyank, 2012, Turbulence Modelling in CFD Simulation of Intake Manifold for a 4 cylinder Engine, 9th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics, HEFAT, Malta.16-18 July 2012, 1747-1753

5. M.K.Sinha & S.K.Dash, 2014, Laminar Natural Convection Heat Transfer from an Isothermal Vertical Ribbed Plate", 10th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics, HEFAT 2014, Orlando, Florida (USA).14-16 July 2014, 126 -132

6. S. Samanta, M.K.Sinha, V.Bhushan and P.Kumar, 2014, "Modelling of Heat Transfer in Human Eye using Computational Fluid Dynamics Technique" 10th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics, HEFAT2014, Orlando, Florida (USA), 14-16 July 2014, 149 -157

7. Sangita, M.K.Sinha & R.V.Sharma, 2014, "Numerical Simulation of Natural Convection in a Spherical Porous Annulus", 10th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics, HEFAT2014, Orlando, Florida(USA).14-16 July 2014, 158 -163

8. Sangita, M.K.Sinha & R.V.Sharma, 2015, "Effect of a Diathermal Partition wall on Natural Convection in a Spherical Porous Annulus", Proceeding of CHT-15, ICHMT International Symposium on Advances in Computational Heat Transfer, Rutgers University, Piscataway, USA. May 25-29.

9. M.K.Sinha and S.K.Dash, 2015, "Heat Transfer Augmentation Factor from a Uniformly Heated Vertical Plate in Laminar Convection", Proceedings of the 23rd National Heat and Mass Transfer Conference and 1st International ISHMT-ASTFE Heat and Mass Transfer Conference IHMTC-2015, Trivandrum, Kerala, India, December 17-20.

10. Krishna Kumar Singh and M. K. Sinha, 2016, "Numerical Investigation of Natural Convection Heat Transfer from Vertical Cylindrical Heat Sink ", Proceeding of the 22nd Conference on Mechanical Engineering and Technology, COMET'16, IIT (BHU), Varanasi, India, January 15-17.

11. Mayank Srivastava, Pardeep Bishnoi &M.K. Sinha., " CFD Analysis of CPU for cooling of desktop computers", International conference on Recent innovations in

science, Management , Education and Technology,Sirsa, Haryana, Aug./ 27/2016

12. Pardeep Bishnoi, Dhaval Patel, Mayank Srivastava &M.K. Sinha.," CFD Analysis of the factor affecting the satellite drop formation", International conference on Recent innovations in science, Management, Education and Technology, Sirsa, Haryana, Aug./ 27/2016.

13. M.K. Sinha &Mayank Srivastava," Numerical Investigation of thermal energy storage system with phase change materials", International Conference on Fluid Mechanics, Heat Transfer and Thermodynamics, London, March 14-15, 2017.

14. Pardeep Bishnoi, Mayank Srivastava &M.K. Sinha.," Numerical investigation of pressure and velocity field contours of dynamics of drop formation", International Conference on Fluid Mechanics, Heat Transfer and Thermodynamics, London, March 14-15, 2017.

15. Gaurav Kumar and M. K. Sinha.," Review on Numerical and Experimental Investigation of Turbulence Flow in Bend", National Conference on Materials, Mechanics & Modelling, NIT Jamshedpur, August 29-30, 2020.
16. M. Srivatava, G,P. Dessai, D. Srivastava, P. Bishnoi. M. K. Sinha., "Thermal Analysis of Solar Air Heater by using Pebbles as an Absorber Materials", National Conference on Materials, Mechanics & Modelling, NIT Jamshedpur, August 29-30, 2020.
17. Pardeep. B., M. Srivastava, A. Singh, M. Shau, M. K. Sinha.," Computational Study on the Dynamics of Drop Generation under Different Ambient Conditions", National Conference on Materials, Mechanics & Modelling, NIT Jamshedpur, August 29-30, 2020.

9. Ph.D. guided:

1. Sangita, "Numerical Studies on Natural Convection in a Spherical Porous Annulus", Department of Mechanical Engineering, N.I.T. Jamshedpur, 2016.

2. Krishna Kumar Singh, "Numerical Simulation of Heat Transfer and Fluid Flow in Heat Sink", Department of Mechanical Engineering, N.I.T. Jamshedpur, 2019.

3. Pardeep, "Numerical Simulation of Dynamics Drop Formation from a Capillary Tube" Department of Mechanical Engineering, N.I.T. Jamshedpur, 2020.

4. Mayank Srivastava, "Analytical and Computational Analysis of Encapsulated Phase Change Thermal Energy Storage System", Department of Mechanical Engineering, N.I.T. Jamshedpur, 2020. (Submitted)
5. Akhilesh Kumar, "Study of Numerical Simulation of Heat Transfer and Fluid Flow in Heat Sink with Perforation", (Ongoing.).
6. Shailendra Kumar Prasad, "Numerical Simulation of the Heat Exchanger by using ANN", (Ongoing.).

10. M.Tech Thesis Guidance:

1. Abhale prakash Bansi, "Transient Freezing with Cooling of a Flowing Liquid within Thermally Developing Region of a Radiatevely Cooled Circular Duct", Department of Mechanical Engineering, R.I.T. Jamshedpur, 2001-2002.
2. Dalgobind Mahto, "Managing Qualitative Improvement in Productivity Through Systematic Design of Safety Features & Safety Initiatives", Department of Mechanical Engineering, R.I.T. Jamshedpur, 2002
3. Susanta Kumar Ghatak, "Productivity Improvement through Heuristic and Assembly Line Balancing Technique- A case study ",Department of Mechanical Engineering, R.I.T. Jamshedpur, 2003
4. Palash Biswas, "Study of the Effect of Design Parameters on the Performance Parameters of MEMS Gas Turbine Engine", Department of Mechanical Engineering, N.I.T. Jamshedpur, 2004.
5. Ajay Kumar Pathak, "A case Study Computer Aided Product and Tool Graphics of Bearing Rings ", Department of Mechanical Engineering, N.I.T. Jamshedpur, 2005.
6. Shadeb-ur-rehman,"Numerical Simulation of Resistance Spot Welding using FEA Technique", Department of Mechanical Engineering, N.I.T. Jamshedpur, 2006
7. Asghar Mahfooz Alam," Numerical Analysis of Natural Convection in Spherical Porous Annuli", Department of Mechanical Engineering, N.I.T. Jamshedpur, 2010
8. Sunil kumar Gupta, "CFD Analysis of PIN FIN Heat Sink in Natural Convection", Department of mechanical Engineering, N.I.T. Jamshedpur, 2011.
9. Shailendra Kumar Prasad, "Numerical Analysis of Plate Fin Heat Sink in Natural Convection" , Department of Mechanical Engineering, N.I.T. Jamshedpur 2012.
10. Paritosh Kumar, "Numerical Investigation of Natural Convection around a Radial Heat Sink", Department of Mechanical Engineering, N.I.T. Jamshedpur, 2013.

11. Pardeep, “Design of Header Configuration of the Plate Fin Heat Exchanger”, Department of Mechanical Engineering, N.I.T. Jamshedpur, 2014.

12. Mayank Srivastava, ”CFD analysis of CPU for cooling of desktop computers”, Department of Mechanical Engineering, N.I.T. Jamshedpur, 2014.

13. Dhaval Kumar B. Patel, “CFD Analysis of the Satellite Droplet formation”, Department of Mechanical Engineering, N.I.T. Jamshedpur, 2015.

14. Ravi Ratan, “CFD Analysis of Drop formation”, Department of Mechanical Engineering, N.I.T. Jamshedpur, 2015.

15. Jayesh Chordiya, "Design of Phase Change Energy Storage in Different Geometries", Department of Mechanical Engineering, N.I.T. Jamshedpur, 2016.

16. Gauri Shankar Nandan, "Biot's Variational Technique for Phase Change Thermal Energy Storage", Department of Mechanical Engineering, N.I.T. Jamshedpur, 2016.

17. Pinjari Jaffer, “Capability Enhancement of cell to carryout Heat rejection Trails of Diesel Engines”, Department of Mechanical Engineering, N.I.T. Jamshedpur, 2017.

18. Deepak Kumar, “Development of Layer Descent model for the Iron Blast Furnace”, Department of Mechanical Engineering, N.I.T. Jamshedpur, 2017.

19. PhalDessai Gaurak Madhu, ”Study of Internal Phenomenon of the Blast Furnace Dripping Zone”, Department of Mechanical Engineering, N.I.T. Jamshedpur, 2017.

20. Kamlesh Kumar, "CFD Analysis of Pin-fin Heat Sink in Vertical Flat Plate by Natural Convection", Department of Mechanical Engineering, N.I.T. Jamshedpur, 2018.

21. Bolesetty Shanmukh, "Simulation of Solar Powered Water Pumping System using Induction Motor", Department of Mechanical Engineering, N.I.T. Jamshedpur, 2018.

22. Rashi Gupta, "Oil Analyis of Ajinkya BS IV Engines to Evaluate oil Degradation at the End of Recommended ODI", Department of Mechanical Engineering, N.I.T. Jamshedpur, 2018.

23. Piyush Pratap Singh,” Optimization of a Coupled Power Plant and Refrigeration Plant by Finite Time Thermodynamics” ,Department of Mechanical Engineering, N.I.T. Jamshedpur, 2019.

24. Vikash Khoiwal, “Modeling and Simulation of Hybrid Solar and Wind Power Generation with Improved Power Quality”, Department of Mechanical Engineering, N.I.T. Jamshedpur, 2019.

25. Abhishek Kumar, “Modeling and Simulation of Grid connected PV system”, Department of Mechanical Engineering, N.I.T. Jamshedpur, 2019.

26. Avinash Kumar,” Numerical Analysis of Natural Convection on Flat Plate Heat Sink”, Department of Mechanical Engineering, N.I.T. Jamshedpur, 2020.

11. Books Published/ Chapter published in Book:

S No.	Title of Chapter	Book Series/Publisher/Year	E-ISBN /H ISBN/ISSN
1	Numerical simulation of dynamics of the drop formation at a vertical capillary tube	Lecture Notes in Mechanical Engineering /Application of Fluid Dynamics. Springer Singapore/IV, pp-371-384,2017-18	978-981-10-5329-0 / 978-981-10-5328-3 2195-4356
2.	Computational Investigation of Various Transition Stages in the Drop Formation Process	Lecture Notes in Mechanical Engineering/ Advances in Interdisciplinary Engineering, Springer-Singapore/ doi.org/10.1007/978-981-13-6577-5_25, 2019	978-981-13-6577-5/ 978-981-13-6576-8

12. Member of Professional Bodies: LMISHMT, FIE(India), LMISTE, C.Eng.(India)