## Academic Profile of Dr.Arvind Pattamatta


CONTACT INFORMATION

HTTP Lab 104
Department of Mechanical
Engineering, IIT Madras
Chennai 600 036

*Voice:* (044) 2257 4654
*Fax:* (412) 2257-4650
*E-mail:* arvindp@iitm.ac.in
Research Website: www.mt2rl.in


RESEARCH INTERESTS

Microscale energy transport, Phase change heat transfer, Multiphase flows, Electronics and Battery thermal management, Computational Fluid Dynamics and Heat Transfer.

Multiscale Thermal Transport Research Laboratory ($MT^2RL$) website - https://www.mt2rl.in/

EDUCATION

**State University of New York at Buffalo**, Buffalo, NY

Ph.D. 2009 Department of Aerospace Engineering

**Indian Institute of Science**, Bangalore, India

M.Tech. 2003 Department of Aerospace Engineering

**University of Madras**, Chennai, India

B.E. 2001 Department Aeronautical Engineering

PROFESSIONAL EXPERIENCE

**Secretary**,
*Indian Society for Heat and Mass Transfer (ISHMT)* **2022 - Present**

**Professor**,
*Department of Mechanical Engineering, IIT Madras, India* **2021 - Present**

**Treasurer**,
*Indian Society for Heat and Mass Transfer (ISHMT)* **2018 - 2021**

**Visiting Professor**,
*SUNY, Binghamton, NY* **May - July 2018**

**JSPS Invitational visiting Faculty**,
*$I^2$CNER, Kyushu University* **May - July 2017**

**Associate Professor**,
*Department of Mechanical Engineering, IIT Madras, India* **2015 - 2021**

**Humboldt Visiting Scientist/ Postdoctoral Fellow**,
*Institute for Technical Thermodynamics, TU Darmstadt* **2013 - 2014**

**Assistant Professor**,
*Department of Mechanical Engineering, IIT Madras, India* **2010 - 2015**

**Principal Scientist**,
*Heat and Mass Transfer Center of Excellence, Thermax Limited, Pune, India* **2009 - 2010**

**Graduate Research Assistant**,
*Department of Mechanical and Aerospace Engineering, State University of*

*New York at Buffalo, Buffalo, NY* **2005 - 2009**

**Design Engineer**,
*Advanced Combustion Engineering, GE Transportation, Bangalore, India* **2003 - 2005**

## Honors and Awards

**Invitational fellowship**, Alexander von Humboldt Stiftung to conduct research at TTD, TU Darmstadt, May-July 2024
**Invitational fellowship**, Japan Society for Promotion of Science (JSPS) to visit Kyushu University, May-July 2017
**Visiting professorship**, German Academic Exchange Service (DAAD) to visit TU Darmstadt, June-August 2016
**Young Engineer Award (YEA)**, Indian National Academy of Engineering (INAE), 2015
**Humboldt Postdoctoral Fellowship**, Alexander von Humboldt Stiftung to conduct research at TTD, TU Darmstadt, 2013-2014
**Visiting professorship**, German Academic Exchange Service (DAAD) to visit TU Darmstadt, June-August 2011
**Certification on 'Teaching and Learning'** , Organized by the Center for Continuing Education, IIT Madras in collaboration with Texas A and M university, 2010
**Certificate in High Performance Computing**, SUNY Buffalo, 2009
**Certification from teaching proficiency workshop**, SUNY Buffalo, 2008
**Certification from future faculty training workshop**, SUNY Buffalo, 2008
**Six Sigma Green Belt**, Certified from GE India, 2004
**Received 'Project of the Month' Award**, GE India, 2004

## Courses Taught

### Undergraduate Courses

- Thermodynamics
- Heat Transfer
- Thermal Power Engineering
- Mechanical Engineering Lab

### Graduate Courses

- Advanced Heat and Mass Transfer
- Convective Heat Transfer
  NPTEL Webcourse: http://nptel.ac.in/courses/112106170/
- Micro and Nanoscale Energy Transport
  NPTEL Webcourse: http://nptel.ac.in/courses/112106222/
- Thermal Engineering Lab

## Invited Lectures

- Invited Keynote Speaker at the 13th Australasian Heat and Mass Transfer Conference, Curtin University, 26-27 June 2025.
- Invited Keynote Speaker in the International Workshop on 'Multiscale Multiphysics Systems' IIT Madras, January 6-7, 2025.
- Invited Keynote Speaker in the workshop on 'Multiphase Flows and Applications to Heat Transfer' IIT Madras, 23-24 February 2025.
- Invited Keynote Speaker in the workshop on Interfacial Engineering at Multiple Spatio-temporal Scales, IISc Bangalore, 29-31 January 2024.
- Invited Keynote Speaker in the two-Day Workshop on 'Thermal Management Techniques: Innovations and Insights', IIT Madras, 10-11 January 2024.
- Invited Keynote Speaker in the $27^{th}$ National and $5^{th}$ International ISHMT-ASTFE Heat and Mass Transfer Conference at IIT Patna,14-17 December, 2023.

- Invited Speaker in the short course Measurement Techniques for Interfacial Phenomena held at Mechanical Engineering Department, IIT Madras, 6-8, March, 2023.
- Invited Speaker in the One week Short term course (online) (sponsored by TEQIP-III) Computational Fluid Dynamics For Solving Engineering Problems held at Mechanical Engineering department, MNIT Jaipur, 7 – 11 August, 2020.
- Invited Speaker in the pre-conference workshop on "Nanofluids" organized during Indian Conference on Applied Mechanics (INCAM) held at Indian Institute of Science Bangalore, July 2, 2019.
- Invited Speaker for a short term course on 'Radiation Heat Transfer' held at Jawaharlal Nehru technological University Kakinada (JNTUK), May 9-14, 2019.
- Keynote Speaker in National Conference on " Critical Heat Flux and Mutiphase Flow"at IIT(BHU), Varanasi, jointly Organized by IIT(BHU) IIT(Bombay), 22nd - 23rd December, 2018
- Invited lecture titled "Insights into the Thermo-hydrodynamics of a Unit cell Model of a Pulsating Heat Pipe (PHP) through Experiments and CFD", TEQIP Workshop held at NITK Surathkal, September 6, 2018.
- Invited speaker on "Thermocapillarity in Microfluidics' for a short term course on 'Microfluidics based healthcare diagnostics and interfacial phenomena", held between Nov 6-11, 2017 at IIT Madras.
- Invited lecture titled "Insights into the Thermo-hydrodynamics of a Unit cell Model of a Pulsating Heat Pipe (PHP) through Experiments and CFD", 106th Institute Interest Seminar Series, International Institute for Carbon Neutral Energy Research, Kyushu University, June 8, 2017.
- Invited Lecture titled "Numerical Investigation on the Thermo-Hydrodynamics of liquid-gas-solid interfaces: Selected Case Studies", at IIT Ropar on May 5, 2017.
- Guest lecture on "Heat Transfer Characteristics of nano particulate suspensions", at School of Mechanical Engineering, VIT University, Vellore, February 1, 2017.
- Invited lecture during Faculty Development Training Programme on "Thermal Engineering", held on December 13, 2016 at University College of Engineering Villupuram.
- Invited lecture titled "Insights into the Thermo-hydrodynamics of a Unit cell Model of a Pulsating Heat Pipe (PHP) through Experiments and CFD", Indo-French Workshop on Phase-Change Thermal Systems, November 29 to December 01, 2016, Khajuraho (MP), India.
- Invited lecture on "Modeling Tools for Simulation of heat transfer in Nanofluids and flow boiling in micro-channels", Workshop on Micro Nano Fluidics and Engg., IIT Madras, September 3, 2016.
- Invited Talk in TEQIP-II Sponsored FDP on "Computational Fluid Dynamics", at College of Engineering Adoor between January 11-15, 2016.
- Guest lecture on "Lattice Boltzmann Methods for the Simulation of fluid and heat transport Phenomena' during AICTE sponsored National conference on 'Advances in Computational Methods for Simulation of Transport Processes in Engineering", between 24th to 26th June 2015, Sri Venkateswara college of Engineering, Sriperumbudur.
- Invited Talk on "Pulsating Heat Pipes: An Alternative Passive Reactor Containment Cooling System", by the Division of Arms Control Disarmament and International Security (ACDIS), University of Illinois at Urbana Champaign, April 15-17, 2013.
- Invited Lecture on "Heat Exchanger Design", organized for BHEL, IIT Madras, Feb 23, 2013.
- Invited Lecture on Micro/Nano scale heat transfer at Short Term Course on "Recent Advancements in Microfluidics", IIT Madras, Jan 17, 2013.
- "Lattice Boltzmann Methods", A Three day workshop at the Centre for Converging Technologies, University of Rajasthan, Dec 2011
- "Modeling energy transport in nanostructures", CTFD Division, National Aerospace Lab, Bangalore, India, May 13, 2009.
- "Modeling thermal energy transport in nanostructures", IBM Semiconductor R and D Center, Vermont, Dec 23, 2008.
- "Nanoscale Heat Transfer in Thermoelectric Materials", Department of Mechanical and Aerospace Engineering, State University of New York at Buffalo, Buffalo, NY, Feb 7, 2008.

## Conferences & Workshops Organised

- Organized a Gian course on "Multiphase Heat Transfer: from Fundamentals to Applications" with Prof. Marco Marengo, University of Pavia, Italy, January 2025.
- Organized a two-day Workshop on 'Multiphase Flows and Applications to Heat Transfer' on 6-7 January 2025.
- Co-organized a two-day Workshop on 'Thermal Management Techniques: Innovations and Insights' with Prof. Marco Marengo, University of Pavia, on 10-11 January 2024.
- Co-chaired Professor Arcot Ramachandran Centenary Symposium on Heat Transfer and Energy Systems with Prof. C. Balaji, IIT Madras, on 11 December 2023.
- Co-organized a short course on "Measurement Techniques for Interfacial Phenomena" with Prof. Cameron Tropea, TU Darmstadt, Germany, on March 6-8, 2023.
- Organizing secretary for the ISHMT-ASTFE Heat and Mass transfer conference (IHMTC-2021) conducted by IIT Madras.
- Organized a Gian course on "Special Topics in Micro Scale Flow and Heat Transport" with Dr Peter Stephan, TU Darmstadt, Germany, June 2023.
- Co-organized a two-day workshop on "Nanoengineered interfaces for energy and health care" organized by Dept. of Mechanical Engineering, IIT Madras, 16-17 March 2020.
- Co-organized a three-day workshop on "Next Generation Electronic Systems: Heterogeneous Integration, Thermal and Power Management, Related Machine Learning" co-hosted by Binghamton University, IIT Madras and IIT Ropar, October 6, 7 & 8, 2020.
- Resource Person for the One day workshop on "Research Proposal Writing" conducted by the German Academic Exchange Service (DAAD), August 2019, Colombo, Sri Lanka.
- Coordinated the pre-conference workshop on "Fluid flow and heat transfer at Micro/Nanoscales" organized during the Indian Conference on Applied Mechanics (INCAM) held at Indian Institute of Science Bangalore, July 2, 2019.
- Co-Organized a joint workshop between IIT Madras and SUNY Binghamton titled 'Energy Optimization in Data Centers' on Feb 5, 2019.
- Served as a member of Organizing Committee for "Fourth Engineers Conclave-2016 (EC-2016)" held jointly with IIT Madras and INAE on Sep 1-3, 2016.
- Organized an Indo-German workshop titled "Modeling and Measurement Techniques for Micro-Scale Flows" at IIT Madras between Feb 23-25, 2015.

## Academic and Administrative Responsibilities

- Co-ordinator of the ISRO-IITM S Ramakrishnan Center of Excellence for Research in Fluid and Thermal Sciences since 2025.
- Served as a chairman of the undergraduate Mechanical Engineering Department course committee for the academic year of 2020-2021.
- Served as a guest editor for a special issue of Indian Conference on Applied Mechanics (INCAM-2019) Conference on fluid mechanics in the International Journal of Advances in Engineering Sciences and Applied Mathematics.
- Organized Massive Open Online Course (MOOC) on Micro and nanoscale energy transport on NPTEL platform in 2017.
- Served as a member on the technical committee for Asian Symposium on Computational Heat Transfer (ASCHT-2017). Also served as a Guest Editor for a Special issue on computational heat transfer and fluid dynamics in the International Journal of Advances in Engineering Sciences and Applied Mathematics.
- Served as a guest editor for a Special issue of ISHMT-ASTFE Heat and Mass transfer conference-2017 in the Journal of Enhanced Heat Transfer.
- Served as the Head of the Heat Transfer and Thermal Power Laboratory at IIT Madras 2016-2019.
- Served in the Doctoral and Master's Research Committees for several PhD and M.S Students at IIT Madras.
- External examiner for evaluating PhD thesis at various universities across India.
- Committee member for evaluating Master's and Bachelor's students final year projects in the Department of Mechanical Engineering.
- Served in the Mechanical Engineering Department Examination Invigilation Committee.

## Research Collaborators

- Prof. Peter Stephan, Head of the Institute for Technical Thermodynamics at TU Darmstadt, Germany.
- Dr. Axel Sielaff, TU Darmstadt, Germnay.
- Prof. Martin Geier, TU Braunschweig, Germany
- Dr. Harish Sivasankaran, University of Tokyo
- Prof. Chandraveer Singh, University of Toronto
- Prof. Cameron Tropea, TU Darmstadt, Germnay.
- Prof. Bahgat Sammakia, Department of Mechanical Engineering at SUNY Binghamton, NY.
- Prof. Yasuyuki Takata, Department of Mechanical Engineering at Kyushu University, Japan.
- Prof. Ramesh Narayanaswamy, Department of Mechanical Engineering at Curtin University, Australia.
- Prof. Marco Marengo, University of Pavia, Italy
- Prof. Manish Tiwari, University College London, UK.
- Dr. Daniel Orejon, University of Edinburgh, Scotland.
- Dr. Alexandros Askounis, University of East Anglia, UK.
- Prof. Sarit K. Das, IIT Madras.
- Prof. C. Balaji, IIT Madras.
- Dr. Pallab Sinha Mahapatra, IIT Madras.

## Research Guidance

**Postdoctoral Fellows:**

1. Dr. Satyanand Abraham (2017-2020).

2. Dr. Laxman Malla (2021-2023).

**Ph. D. Completed:**

| S.No. | Name | Title of Thesis | Year |
|---|---|---|---|
| 1 | Savithri | Investigation into the role of slip mechanism during convective heat transfer in nanofluids using lattice boltzmann method | 2014 |
| 2 | Purbarun Dhar | Augmented thermophysical and elecro magnetic transport propoerties of graphene nanosuspensions | 2015 |
| 3 | Chinige Sampath Kumar | Experimental and numerical investigations on convective heat transfer enhancement of impinging jets in conjunction with porous media | 2018 |
| 4 | Sangamesh Godi | Experimental and numerical investigations on fluid flow and heat transfer characteristics of turbulent wall jets | 2019 |
| 5 | Ganesh Guggilla | Coalescence and evaporation dynamics of multiple droplet impingement over a heated surface | 2020 |
| 6 | Akash A.R | Evaluation of the thermohydraulic performance of nanofluid coolants for application in automotive radiator | 2021 |
| 7 | K Srinivasa Sagar | Thermocapillary migration dynamics of droplets in different configurations: fluid column, capillary tube and on a solid surface | 2021 |
| 8 | Tejaswi Josyula | Investigation into the contact line dynamics, thermal patterns, and internal flow in evaporating sessile water drops | 2021 |
| 9 | Ritesh Gaur | Thermal management of turbine vane trailing edge using innovative surface roughness element | 2023 |
| 10 | R Ananda Prasanna | Experimental and numerical investigations on the three dimensional slot film cooling of an annular combustor | 2023 |
| 11 | Praveen Dhanalakota | Thermal Performance Investigation of Enhanced Flat Thermosyphon Heat Sinks | 2024 |

**M.S. Completed**

| S.No. | Name | Title of Thesis | Year |
|---|---|---|---|
| 1 | Manoj Siva | Investigation of flow and temperature maldistribution in parallel microchannel systems. | 2013 |
| 2 | Deepchand Negi | Investigation of heat transfer augmentation over dimpled surfaces using impinging jet flows with application to electronics cooling. | 2014 |
| 3 | Ankur Chattopadhyay | Numerical investigation of energy transport s in nanostructureusing Lattice Boltzmann Method. | 2014 |
| 4 | Sivasai Vadri | Numerical heat transfer characteristics of $Al_2O_3-$ water nanofluid through porous media in free and force conversion regimes. | 2015 |
| 5 | Pranit Joshi | Experimental and numerical investigation on buoyancy induced convective heat transfer for various types of nano suspensions. | 2017 |
| 6 | Anand Takawale | Experimental investigation on flow regimes and thermal performance of flat plate and capillary tube pulstating heat pipes. | 2018 |
| 7 | Desh Deepak Dixit | Influence of external magnetic field on natural convection heat transfer in nanoparticle suspensions. | 2019 |
| 8 | Ujas Patel | Droplet evaporation and combustion :Effect of air turbulence, fuel composition and nanoparticle addition. | 2019 |
| 9 | Adapa Buchi Raju | An improvised hybrid slot-effusion configuration for cooling enhancement in an annular combustor liner | 2022 |
| 10 | Gokul Radhakrishnan | Study of Distributed Machine Learning Methods for Two-phase Flows | 2024 |
| 11 | Monu Kumar | Spray and Thermal Behavior of Atomized Nozzles for Electronic Cooling Applications | 2025 |
| 12 | Mohd Zahid | Experimental study of condensation and frosting on wettability engineered metallic surfaces | 2025 |

**PhD Ongoing**

1 Hemanth D.

2 Moitur Rahman

3 Viraj Dusane

4 Shuchi Chaurasia

5 Midhun Abraham

6 Ambreena Abass (Co-guide with Dr. Pallab Sinha Mahapatra)

7 Sujatha (Co-guide with Prof. Sarit K. Das)

## Publications

### Book Published

1) Fundamentals of Nano- and Microscale Heat Transport published by Ane Books Pvt.Ltd, 2023
2) Modelling Energy Transport in Nanostructures by LAP Lambert Academic Publishing, 2013.

### Journal Papers

1. **Pattamatta, A.**, Madnia, C.K., 2009a. Modeling heat transfer in Bi2Te3–Sb2Te3 nanostructures. International Journal of Heat and Mass Transfer 52, 860–869. https://doi.org/10.1016/j.ijheatmasstransfer.2008.09.004
2. **Pattamatta, A.**, Madnia, C.K., 2009b. A Comparative Study of Two-Temperature and Boltzmann Transport Models for Electron-Phonon Nonequilibrium. Numerical Heat Transfer, Part A: Applications 55, 611–633. https://doi.org/10.1080/10407780902821540
3. **Pattamatta, A.**, Madnia, C.K., 2009c. Modeling Thermal Transport in Nanoparticle Composites. Journal of Thermophysics and Heat Transfer 23, 608–615. https://doi.org/10.2514/1.39505
4. **Pattamatta, A.**, Madnia, C.K., 2009d. Modeling Electron-Phonon Nonequilibrium in Gold Films Using Boltzmann Transport Model. Journal of Heat Transfer 131, 082401. https://doi.org/10.1115/1.3111258
5. **Pattamatta, A.**, Madnia, C.K., 2010. Modeling Carrier-Phonon Nonequilibrium Due to Pulsed Laser Interaction With Nanoscale Silicon Films. Journal of Heat Transfer 132, 082401. https://doi.org/10.1115/1.4001101
6. **Pattamatta, A.**, 2010a. Modeling thermal resistance in carbon nanotube contacts. International Journal of Thermal Sciences 49, 1485–1492. https://doi.org/10.1016/j.ijthermalsci.2010.05.003
7. **Pattamatta, A.**, 2010b. Numerical Simulations of Non-equilibrium Energy Transport in Nanostructures using Boltzmann Transport Equation. International Journal of Micro-Nano Scale Transport 1, 189–218. https://doi.org/10.1260/1759-3093.1.3.189
8. Savithiri, S., **Pattamatta, A.**, Das, S.K., 2011. Scaling analysis for the investigation of slip mechanisms in nanofluids. Nanoscale Res Lett 6, 471. https://doi.org/10.1186/1556-276X-6-471
9. **Pattamatta, A.**, Singh, G., 2012. Assessment of turbulence models in the prediction of flow field and thermal characteristics of wall jet. Frontiers in Heat and Mass Transfer 3. https://doi.org/10.5098/hmt.v3.2.3005

10. Siva, V.M., **Pattamatta, A.**, Kumar Das, S., 2013. A Numerical Study of Flow and Temperature Maldistribution in a Parallel Microchannel System for Heat Removal in Microelectronic Devices. Journal of Thermal Science and Engineering Applications 5, 041008. https://doi.org/10.1115/1.4024700

11. Kuthati, S., **Pattamatta, A.**, 2013. Thermal Conductivity and Thermal Interface Resistance Measurements of Thin Films using $3\omega$ Method. International Journal of Micro-Nano Scale Transport 4, 85–106. https://doi.org/10.1260/1759-3093.4.3-4.85

12. Dilawar, M., **Pattamatta, A.**, 2013. A parametric study of oscillatory two-phase flows in a single turn Pulsating Heat Pipe using a non-isothermal vapor model. Applied Thermal Engineering 51, 1328–1338. https://doi.org/10.1016/j.applthermaleng.2012.11.025

13. Dhar, P., Ansari, M.H.D., Gupta, S.S., Siva, V.M., Pradeep, T., **Pattamatta, A.**, Das, S.K., 2013a. Percolation network dynamicity and sheet dynamics governed viscous behavior of polydispersed graphene nanosheet suspensions. J Nanopart Res 15, 2095. https://doi.org/10.1007/s11051-013-2095-2

14. Dhar, P., Sen Gupta, S., Chakraborty, S., **Pattamatta, A.**, Das, S.K., 2013b. The role of percolation and sheet dynamics during heat conduction in poly-dispersed graphene nanofluids. Appl. Phys. Lett. 102, 163114. https://doi.org/10.1063/1.4802998

15. **Pattamatta, A.**, Freystein, M., Stephan, P., 2014. A parametric study on phase change heat transfer due to Taylor-Bubble coalescence in a square minichannel. International Journal of Heat and Mass Transfer 76, 16–32. https://doi.org/10.1016/j.ijheatmasstransfer.2014.04.017

16. Mahendranath Reddy, G.V., **Pattamatta, A.**, 2014. A study of 'thermophoresis-like' force on a heated trapezoidal nano-object confined between parallel plates. International Journal of Heat and Mass Transfer 70, 54–60. https://doi.org/10.1016/j.ijheatmasstransfer.2013.10.050

17. Manoj Siva, V., **Pattamatta, A.**, Das, S.K., 2014a. Investigation on Flow Maldistribution in Parallel Microchannel Systems for Integrated Microelectronic Device Cooling. IEEE Trans. Compon., Packag. Manufact. Technol. 4, 438–450. https://doi.org/10.1109/TCPMT.2013.2284291

18. Manoj Siva, V., **Pattamatta, A.**, Das, S.K., 2014b. Effect of flow maldistribution on the thermal performance of parallel microchannel cooling systems. International Journal of Heat and Mass Transfer 73, 424–428. https://doi.org/10.1016/j.ijheatmasstransfer.2014.02.017

19. Dhar, P., **Pattamatta, A.**, Das, S.K., 2014. Trimodal charge transport in polar liquid-based dilute nanoparticulate colloidal dispersions. J Nanopart Res 16, 2644. https://doi.org/10.1007/s11051-014-2644-3

20. Chattopadhyay, A., **Pattamatta, A.**, 2014a. Energy transport across submicron porous structures: A Lattice Boltzmann study. International Journal of Heat and Mass Transfer 72, 479–488. https://doi.org/10.1016/j.ijheatmasstransfer.2014.01.040

21. Chattopadhyay, A., **Pattamatta, A.**, 2014b. A Comparative Study of Submicron Phonon Transport Using the Boltzmann Transport Equation and the Lattice Boltzmann Method. Numerical Heat Transfer, Part B: Fundamentals 66, 360–379. https://doi.org/10.1080/10407790.2014.915683

22. Negi, D.S., **Pattamatta, A.**, 2015. Profile shape optimization in multi-jet impingement cooling of dimpled topologies for local heat transfer enhancement. Heat Mass Transfer 51, 451–464. https://doi.org/10.1007/s00231-014-1420-3

23. Kumar, C.S., **Pattamatta, A.**, 2015. A numerical study of convective heat transfer enhancement with jet impingement cooling using porous obstacles. J Enh Heat Transf 22, 303–328. https://doi.org/10.1615/JEnhHeatTransf.v22.i4.30

24. Savithiri.S, **Pattamatta, A.**, Das, S.K., 2015. A Single-Component Nonhomogeneous Lattice Boltzmann Model for Natural Convection in Al 2 O 3 /Water Nanofluid. Numerical Heat Transfer, Part A: Applications 68, 1106–1124. https://doi.org/10.1080/10407782.2015.1023100

25. Recklin, V., **Pattamatta, A.**, Stephan, P., 2015. Experimental investigation on the thermo-hydrodynamics of oscillatory meniscus in a capillary tube using FC-72 as working fluid. International Journal of Multiphase Flow 75, 82–87. https://doi.org/10.1016/j.ijmultiphaseflow.2015.05.011

26. **Pattamatta, A.**, Sielaff, A., Stephan, P., 2015. A numerical study on the hydrodynamic and heat transfer characteristics of oscillating Taylor bubble in a capillary tube. Applied Thermal Engineering 89, 628–639. https://doi.org/10.1016/j.applthermaleng.2015.06.051

27. Dhar, P., Sengupta, S., **Pattamatta, A.**, Das, S.K., 2015. Bridging Thermal and Electrical Transport in Dielectric Nanostructure-Based Polar Colloids. IEEE Trans. Nanotechnology 14, 889–895. https://doi.org/10.1109/TNANO.2015.2460999

28. Chinige, S.K., Ghanta, N., **Pattamatta, A.**, 2015. An optimization study of heat transfer enhancement due to jet impingement over porous heat sinks using the lattice boltzmann method. J Por Media 18, 1009–1020. https://doi.org/10.1615/JPorMedia.2015012176

29. Savithiri, S., Dhar, P., **Pattamatta, A.**, Das, S.K., 2016. Particle–fluid interactivity reduces buoyancy-driven thermal transport in nanosuspensions: A multi-component Lattice Boltzmann approach. Numerical Heat Transfer, Part A: Applications 70, 260–281. https://doi.org/10.1080/10407782.2016.1173458

30. Joshi, P., **Pattamatta, A.**, 2016. An Experimental Study on Buoyancy Induced Convective Heat Transfer in a Square Cavity using Multi-Walled Carbon Nanotube (MWCNT)/Water Nanofluid. J. Phys.: Conf. Ser. 745, 032033. https://doi.org/10.1088/1742-6596/745/3/032033

31. Ghanta, N., **Pattamatta, A.**, 2016. Modeling of compressible phase-change heat transfer in a Taylor-Bubble with application to pulsating heat pipe (PHP). Numerical Heat Transfer, Part A: Applications 69, 1355–1375. https://doi.org/10.1080/10407782.2016.1139980

32. Dhar, P., Katiyar, A., Maganti, L.S., **Pattamatta, A.**, Das, S.K., 2016. Superior dielectric breakdown strength of graphene and carbon nanotube infused nano-oils. IEEE Trans. Dielect. Electr. Insul. 23, 943–956. https://doi.org/10.1109/TDEI.2015.005477

33. Dhar, P., Katiyar, A., **Pattamatta, A.**, Das, S.K., 2017a. Large electrorheological phenomena in graphene nano-gels. Nanotechnology 28, 035702. https://doi.org/10.1088/1361-6528/28/3/035702

34. Dhar, P., Katiyar, A., **Pattamatta, A.**, Das, S.K., 2017b. Anomalous room temperature magnetorheological behavior of colloidal graphene nanogels. Colloids and Surfaces A: Physicochemical and Engineering Aspects 530, 218–226. https://doi.org/10.1016/j.colsurfa.2017.07.071

35. Joshi, P.S., Mahapatra, P.S., **Pattamatta, A.**, 2017. Effect of particle shape and slip mechanism on buoyancy induced convective heat transport with nanofluids. Physics of Fluids 29, 122001. https://doi.org/10.1063/1.4996824

36. Joshi, P.S., **Pattamatta, A.**, 2017. Buoyancy induced convective heat transfer in particle, tubular and flake type of nanoparticle suspensions. International Journal of Thermal Sciences 122, 1–11. https://doi.org/10.1016/j.ijthermalsci.2017.07.030

37. Savithiri, S., **Pattamatta, A.**, Das, S.K., 2017. Rayleigh–Benard convection in water-based alumina nanofluid: A numerical study. Numerical Heat Transfer, Part A: Applications 71, 202–214. https://doi.org/10.1080/10407782.2016.1257302

38. Shah, N., Dhar, P., Chinige, S.K., Geier, M., **Pattamatta, A.**, 2017. Cascaded collision lattice Boltzmann model (CLBM) for simulating fluid and heat transport in porous media. Numerical Heat Transfer, Part B: Fundamentals 72, 211–232. https://doi.org/10.1080/10407790.2017.1377530

39. Kumar, C.S., Mohankumar, S., Geier, M., **Pattamatta, A.**, 2017. Numerical investigations on convective heat transfer enhancement in jet impingement due to the presence of porous media using Cascaded Lattice Boltzmann method. International Journal of Thermal Sciences 122, 201–217. https://doi.org/10.1016/j.ijthermalsci.2017.08.020

40. Ansu, U., Godi, S.C., **Pattamatta, A.**, Balaji, C., 2017. Experimental investigation of the inlet condition on jet impingement heat transfer using liquid crystal thermography. Experimental Thermal and Fluid Science 80, 363–375. https://doi.org/10.1016/j.expthermflusci.2016.08.028

41. Chinige, S.K., Ghanta, N., **Pattamatta, A.**, 2018. Multiobjective optimization study of jet impingement heat transfer through a porous passage configuration. Numerical Heat Transfer, Part A: Applications 73, 446–465. https://doi.org/10.1080/10407782.2018.1449511

42. Vadri, S.S., Karaiyan, A.P., **Pattamatta, A.**, 2018a. Numerical Investigation of Forced Convective Heat Transfer Characteristics of a Porous Channel Filled With -Water Nanofluid in the Presence of Heaters and Coolers. Heat Transfer Engineering 39, 985–997. https://doi.org/10.1080/01457632.2017.1357786

43. Vadri, S.S., Prakash, K.A., **Pattamatta, A.**, 2018b. Numerical investigation of natural-convection heat transfer characteristics of al2o3-water nanofluid flow through porous media embedded in a square cavity. Heat Trans Res 49, 719–745. https://doi.org/10.1615/HeatTransRes.2018015790

44. Ravindra, V., Chinige, S.K., Anupindi, K., **Pattamatta, A.**, 2018. Unsteady mixed convection past a circular cylinder using ghost fluid cascaded lattice Boltzmann method (GF-CLBM). Int J Adv Eng Sci Appl Math 10, 281–290. https://doi.org/10.1007/s12572-018-0232-y

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## Conference Papers

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