CURRICULUM VITAE

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ASSISTANT PROFESSOR,
DEPT. OF MECHANICAL ENGINEERING
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Details of educational qualifications:

Degree	School / College / Institute	University /Institution	Subjects/ specialization	Year
Ph. D.	Indian Institute of Technology, Kharagpur	IIT KHARAGPUR	CFD, HEAT TRANSFER	2013
M. TECH.	Indian Institute of Technology, Kharagpur	IIT KHARAGPUR	THERMAL SCIECE AND ENGG.	2008
B. E. (AMIE)	INSTITUTION OF ENGINEERS (INDIA)	INSTITUTION OF ENGINEERS (INDIA)	MECH. ENGG.	2004
B.Sc.	CUSAT, Kochi (MOU with Indian Navy)	CUSAT, Kochi	Marine Technology	2005
DIPLOMA	Govt. Polytechnic Dumka, Jharkhand	SBTE Patna, Bihar	MECH. ENGG.	1999

Details of employments:

Organisation / Institute	Position held	Nature of duties / work	Date of joining	Date of leaving
National Institute of Technology Karnataka, Surathkal	Assistant. Professor	Teaching and Research	01-05-2009	Till date
IIT Kharagpur	Institute Research scholar	Research	06-01-2009	30-04-2009
Essar Steel Ltd. (Essar Learning Centre), Surat	FACULTY (Sr. ENGINEER)	Teaching and Research	01-07-2008	02-01-2009
Indian Navy	Engineering Artificer (JCO)	Operation and Maintenance of Naval Ship's machineries (IC Engine, Ref.& A/C plant, etc.)	05-02-2000	15-07-2006

Special Awards/Honours received:

Year	Name of Award/Honour	Name of Organisation
2006	MHRD scholarship (GATE: percentile = 99%, AIR: 233) for M. Tech.	IIT Kharagpur
2007	PARAKRAM MEDAL	INDIAN NAVY
2012	PhD synopsis submitted in 1yr 11 months and obtained provisional degree in 2 yrs 05 months.	IIT Kharagpur

Research Interests:

- Supercritical Fluids, CFD, Heat transfer, Solar energy, Bioheat transfer, Refrigeration & Air Conditioning, I.C. Engine.

SPONSORED PROJECTS:

Project details	Status
1. Funding agency: **SERB**, New Delhi, under Core Research Grant Title: **Design and development of Supercritical carbon dioxide based naturally circulated solar thermal collector.** PI: Ajay Kumar Yadav, Co-PI: Dr. M. R. Ramesh Funding amount: 23.8 Lakh Duration: 3 years (2022-25) Status: On-going	Ongoing (as PI)
2. Title: Development of cost effective Radiofrequency ablation system and magnetic hyperthermia equipment for thermal therapies of cancerous tumors. Funding Agency: **IMPRINT-2 project**, **SERB**, MHRD, New Delhi PI: Dr. Ajay Kumar Yadav Co-PIs: Dr. PU Saxena, KMC Attavar, MAHE, Manipal.; Dr. B. Satish Rao, School of Life Sciences, MAHE, Manipal; Dr. U. Sripathi & Dr. Laxminidhi, Dept of E&C, NITK. Duration: 3 years (2018-21); Funding amount: INR **49 lakh**	Ongoing (as PI)
3. Title: Development of a solar based humidifier/dehumidifier linked with ground water Funding Agency: **DST**-TMD-CERI, New Delhi PI: Dr. Ajay Kumar Yadav; Co-PI: Dr. Anish S. Funding amount: INR 29.02 Lakh; Duration: 3 years (2017-20)	Completed as PI
4. Title: Numerical and experimental studies on two phase carbon dioxide based natural circulation loops Funding Agency: **DST-SERB**, New Delhi; Amount: INR 25.84 Lakh; PI: Dr. Ajay Kumar Yadav; Duration: 3 years (2014-17).	Completed as sole PI

No. of scholars under guidance:

PhD: 05 (Degree awarded); 02 (thesis submitted), 07 (ongoing);
M. Tech.: 04 (ongoing), 19 (completed);

Ongoing Research:

- CFD/experimental studies on supercritical carbon dioxide based solar water heater
- CFD/experimental studies on subcritical/supercritical carbon dioxide based natural circulation loops
- CFD/experimental studies on Biodiesel based Common Rail Diesel Engine
- Solar based humidifier/dehumidifier
- Radio frequency ablation technique for the treatment of tumors,

Membership of Professional societies:

- Life Member of Indian Society for Heat and Mass Transfer (ISHMT NO. 832)
- Associate member of Institution of Engineers (India), No. AM128157-5

Reviewer of Journals:

International J. of Heat and Mass Transfer (Elsevier), International Communications in Heat and Mass Transfer (Elsevier), Applied Thermal Engg. (Elsevier), Energy (Elsevier), Solar Energy (Elsevier), International J of energy research (Wiley), ASME (TSEA & JHT), Sadhana (Springer), Biofuels (Taylor and Francis), Environmental sciences and Pollution Research (Springer),.

List of Selected Publications: Total: 99

Journal: 38, Book chapters: 04; Conferences: 57

INTERNATIONAL JOURNALS:

38. Madagonda K. Biradar, Dipal N. Parmar, Ajay Kumar Yadav, CFD and Exergy Analysis of Subcritical/Supercritical CO2 Based Naturally Circulated Solar Thermal Collector, **Renewable Energy**, 189 (2022) 865-880, (Elsevier, SCIE, IF: 8.01). Rating: Q1.

37. Addisu Frinjo Emma, A Sathyabhama, Ajay Kumar Yadav, "Extraction and characterization of coffee husk biodiesel and investigation of its effect on performance, combustion, and emission characteristics in a diesel engine", **Energy Conversion and Management: X,** 14 (2022) 100214, (Elsevier)

36. Srijit Sen, Tarun Hegde, Arumuga Perumal D., Ajay Kumar Yadav, A Numerical Approach for Natural Convection with Curved Obstacles in an Enclosure using Lattice Boltzmann Method, **ASME Open Journal of Engineering**, 2022. (Accepted) ASME.

35. K. Nidhul, Ajay Kumar Yadav, Anish S., Arunachala U. Chandavar, "Thermo-hydraulic and exergetic performance of a cost-effective solar air heater: CFD and experimental study", **Renewable Energy**, 184 (2021) 627-641, (Elsevier, SCIE, IF: 8.01). Rating: Q1.

34. K. Nidhul, Ajay K. Yadav, Anish S., Sachin Kumar, "Critical review of ribbed solar air heater and performance evaluation of various V-rib configuration", **Renewable and Sustainable Energy Reviews**, 142, (2021), 110871, https://doi.org/10.1016/j.rser.2021.110871, (Elsevier, SCIE, IF: 14.98). Rating: Q1.

33. K. Nidhul, Sachin Kumar, Ajay Kumar Yadav, Anish S., "Computational and experimental studies on the development of an energy-efficient drier using ribbed triangular duct solar air heater", **Solar Energy**, 209 (2020) 454-469, https://doi.org/10.1016/j.solener.2020.09.012, (Elsevier, SCIE, IF: 5.74) Rating: Q1.

32. Nidhul K., Ajay Kumar Yadav, Anish S., Arunachala U. C. "Efficient design of an artificially roughened solar air heater with semi-cylindrical side walls: CFD and exergy analysis", **Solar Energy**, 207 (2020), 289-304. https://doi.org/10.1016/j.solener.2020.06.054. (SCIE, IF: 5.74) Rating: Q1.

31. Shankar V Kodate, Ajay Kumar Yadav, Kumar G. N., "Investigation of Preheated Preheated Dhupa Seed oil Biodiesel as an Alternative Fuel on the Performance, Emission and Combustion in a CI Engine", **Energy**, 231 (2021) 120874. https://doi.org/10.1016/j.energy.2021.120874, SCI, IF: 7.15, Elsevier.

30. Nidhul K., Sachin Kumar, Ajay Kumar Yadav and Anish S., "Enhanced thermo-hydraulic performance in a V-ribbed triangular duct solar air heater: CFD and exergy analysis", **Energy**, 200 (2020) 117448, https://doi.org/10.1016/j.energy.2020.117448 (SCI, IF: 7.15), Rating: Q1.

29. Nidhul Kottayat, Sachin Kumar, Ajay Kumar Yadav and Anish S., "Influence of rectangular ribs on exergetic performance in a triangular duct solar air heater, **ASME Journal of Thermal Science and Engineering Applications**", (2020), DOI: https://doi.org/10.1115/1.4046057 (scopus, IF:1.5), Rating: Q1.

28. Tabish Wahidi, Rajat A. Chandavar, Ajay Kumar Yadav, "Supercritical CO2 Flow Instability in Natural Circulation Loop: CFD Analysis", **Annals of Nuclear Energy**, 160 (2021) 108374, https://doi.org/10.1016/j.anucene.2021.108374, SCIE, IF: 1.78, Elsevier

27. Sthavishtha Bhopalam R., D. Arumuga Perumal, Ajay K. Yadav, "Computational appraisal of fluid flow behavior in two-sided oscillating lid-driven cavities", **International Journal of Mechanical Sciences**, 196 (2021), 106303, https://doi.org/10.1016/j.ijmecsci.2021.106303, (Elsevier, SCI, IF: 5.33). Rating: Q1.

26. Pawan Karki, D. Arumuga Perumal, Ajay K. Yadav "Comparative studies on air, water and nanofluids based Rayleigh Benard natural convection using Lattice Boltzmann Method: CFD and exergy analysis", **Journal of Thermal Analysis and Calorimetry**, (2020), doi: 10.1007/s10973-020-10496-2, Accepted (SCI, IF: 4.63) Rating: Q1.

25. Tabish Wahidi, Ajay K Yadav, "Instability Mitigation by Integrating Twin Tesla Type Valves in Supercritical Carbon dioxide based Natural Circulation Loop", **Applied Thermal Engineering**, 182 (2021) 116087, https://doi.org/10.1016/j.applthermaleng.2020.116087, (Elsevier, SCIE, IF: 5.30) Rating: Q1.

24. Thippeswamy L.R. and Ajay Kumar Yadav, "Heat transfer enhancement using CO2 in a natural circulation loop", **Nature Scientific Reports**, 10 (2020) 1507, https://doi.org/10.1038/s41598-020-58432-6. (Scopus, IF: 4.381), Rating: Q1.

23. Tabish Wahidi, Rajat A. Chandavar, Ajay kumar Yadav, "Stability Enhancement of Supercritical CO2 based Natural Circulation Loop using a Modified Tesla Valve", **The Journal of Supercritical Fluids,** 166 (2020) 105020, https://doi.org/10.1016/j.supflu.2020.105020. (Elsevier, SCIE, IF: 4.58) Rating: Q1.

22. Srivatsa T., Tabish Wahidi, Ajay kumar Yadav and Arun M., "Comparative Computational Appraisal of Supercritical CO2 based Natural Circulation Loop: Effect of Heat-Exchanger and Isothermal Wall", **Journal of Thermal Analysis and Calorimetry**, (2020), DOI : 10.1007/s10973-020-09854-x, Accepted (SCI, IF: 4.63), Rating: Q1.

21. Thippeswamy L.R. and Ajay Kumar Yadav, "Effect of Loop Tilting on the Heat Transfer and Pressure Drop in Two Phase CO2 Based Natural Circulation Loop: An Experimental Study", **ASME Journal of Thermal Science and Engineering Applications**, 13 (2021) 021021, https://doi.org/10.1115/1.4047820, (Scopus, IF:1.5), Rating: Q1.

20. Shankar V Kodate, A.K. Yadav, Kumar G. N., "Combustion, Performance and Emission Analysis of Preheated KOME Biodiesel as an Alternate Fuel for a Diesel Engine", **Journal of Thermal Analysis and Calorimetry**, (2020), DOI :10.1007/s10973-020-09814-5, Accepted (SCI, IF: 4.63), Rating: Q1

19. Ajay Kumar Yadav, Teja Donepudi, Siddani Bhargav Sriram, "Numerical and Experimental Investigation of Melting Characteristics of Phase Change Material-RT58", **Thermal Science and Engineering Progress**, 17 (2020) 100378, https://doi.org/10.1016/j.tsep.2019.100378.(Scopus- Elsevier)

18. Isac Rajan, D. Arumuga Perumal, Ajay Kumar Yadav, Fluid flow characteristics in double-sided lid-driven microcavity using lattice Boltzmann method, Computational Thermal Sciences, 11 (6) (2019), 565-577; DOI: 10.1615/ComputThermalScien.2019028960. (scopus).

17. Pawan Karki, Ajay Kumar Yadav, D. Arumuga Perumal, Study of adiabatic obstacles on natural convection in a square cavity using Lattice Boltzmann method, ASME Journal of Thermal Science and Engineering Applications, 11(2019), 034502 (16 pages), doi: 10.1115/1.4041875, ASME (scopus, IF:1.5)., Rating: Q1

16. Tabish Wahidi, Ajay Kumar Yadav, Effect of subcritical and supercritical phase on the steady state behavior of CO2 based natural circulation loop, International Journal of Mechanical and Production Engineering Research and Development, 9 (2019) 151-157. (scopus).

15. Sthavishtha Bhopalam R., D. Arumuga Perumal, Ajay Kumar Yadav, Computation of fluid flow in double sided cross-shaped lid-driven cavities using Lattice Boltzmann method, European Journal of Mechanics - B/Fluids, 70 (2018), 46-72, (SCIE, IF= 2.18) Rating: Q1.

14. Venkatesh T. Lamani, Ajay Kumar Yadav, Kumar G. N., Combustion, performance and tail pipe emissions of common rail diesel engine fuelled with waste plastic oil-diesel blends, Journal of Thermal Science and Engineering Applications, 10 (2018),051007-051007-9, doi: 10.1115/1.4039965, ASME (IF:1.5).

13. Ajay Kumar Yadav, Neeraj, Performance analysis of refrigerants R1234yf, R1234ze and R134a in ejector based refrigeration cycle, International Journal of Air-Conditioning and Refrigeration, 26(3) (2018) 1850026, doi: 10.1142/S2010132518500268. scopus.

12. Venkatesh T. Lamani, Ajay Kumar Yadav, Kumar G. N., Performance, emission and combustion characteristics of twin cylinder common rail diesel engine fuelled with butanol-diesel blends, Environmental Science and Pollution Research, 24 (2017):23351-23362, DOI: 10.1007/s11356-017-9956-7; Springer. (SCI, IF: 4.22), Rating: Q1,

11. Venkatesh T. Lamani, Ajay Kumar Yadav, Kumar G. N., Effect of exhaust gas recirculation rate on performance, emission and combustion characteristics of common rail diesel engine fuelled with n-butanol-diesel blends, Biofuels, (2017), DOI: 10.1080/17597269.2017.1369631, Taylor and Francis..IF=2.96. scopus, Rating: Q2

10. Venkatesh T. Lamani, Ajay Kumar Yadav, Kumar G. N., Influence of low-temperature combustion and dimethyl ether-diesel blends on performance, combustion, and emission characteristics of common rail diesel engine: a CFD study, Environmental Science and Pollution Research, 24 (2017), 15500–15509; DOI: 10.1007/s11356-017-9113-3, Springer. (SCI, IF: 4.22), Rating: Q1.

9. Ajay Kumar Yadav, M. Ram Gopal and Souvik Bhattacharyya, Transient analysis of subcritical/supercritical carbon dioxide based natural circulation loop with end heat exchangers: Experimental study, Heat and Mass Transfer, 53 (2017), 2951-2960; DOI: 10.1007/s00231-017-2038-z; Springer. (SCI, IF: 2.46), Rating: Q1.

8. Venkatesh T. Lamani, Aditya U. Baliga M, Ajay Kumar Yadav, Kumar G. N., Effect of bioethanol-diesel blends, exhaust gas recirculation rate and injection timing on performance, emission and combustion characteristics of common rail diesel engine, Biofuels, (2017), DOI: 10.1080/17597269.2017.1329493, Taylor and Francis.IF=2.96. Scopus, , Rating: Q2.

7. Ajay Kumar Yadav, Souvik Bhattacharyya and M. Ram Gopal, Optimum Operating Conditions for Subcritical/Supercritical Fluid Based Natural Circulation Loops, ASME Journal of Heat Transfer, 138 (2016) 112501-(1-9). doi: 10.1115/1.4031921; IF: 2.02. SCIE, Scopus, Rating: Q1.

6. Ajay Kumar Yadav, M. Ram Gopal and Souvik Bhattacharyya, Effect of Tilt Angle on Subcritical/Supercritical Carbon Dioxide Based Natural Circulation Loop With Isothermal Source and Sink, Journal of Thermal Science and Engineering Applications, 8 (2016) 011007-(1-8). doi: 10.1115/1.4030702; (ASME), IF: 1.5. Scopus, Rating: Q1

5. Ajay Kumar Yadav, M. Ram Gopal and Souvik Bhattacharyya, Transient analysis of subcritical/supercritical carbon dioxide based natural circulation loops with end heat exchangers: Numerical studies, Int. Journal of Heat and Mass Transfer, 79 (2014) 24-33. DOI: 10.1016/j.ijheatmasstransfer.2014.07.068. (Elsevier), IF: 5.58, SCI/scopus, Rating: Q1

4. Ajay Kumar Yadav, Souvik Bhattacharyya, M. Ram Gopal, On the suitability of carbon dioxide in forced circulation type secondary loops, Int. Journal of Low-Carbon Technologies, 9 (2014) 85-90. DOI:10.1093/ijlct/cts064. (Oxford Univ Press), IF: 2.46, SCIE/Scopus.

3. Ajay Kumar Yadav, M. Ram Gopal and Souvik Bhattacharyya, CO2 based natural circulation loops: new correlations for friction and heat transfer, Int. Journal of Heat and Mass Transfer, 55 (2012) 4621-4630. DOI: 10.1016/j.ijheatmasstransfer.2012.04.019. (Elsevier), IF: 5.58. SCI/scopus, Rating: Q1

2. Ajay Kumar Yadav, M. Ram Gopal and Souvik Bhattacharyya, CFD analysis of a CO2 based natural circulation loop with end heat exchangers, Applied Thermal Engineering, 36 (2012) 288-295. DOI: 10.1016/j.applthermaleng.2011.10.031. (Elsevier), IF: 5.30. SCI/scopus, Rating: Q1

1. Ajay Kumar Yadav, M. Ram Gopal, Souvik Bhattacharyya, Computational fluid dynamic analysis of a supercritical CO2 based natural circulation loop with end heat exchangers, Int. Journal of Advances in Engineering Sciences and Applied Mathematics, 4 (2012), 119-126. DOI: 10.1007/s12572-012-0062-2. (Springer) ESCI.

BOOK CHAPTERS (04):

1. Venkatesh T. Lamani, Ajay Kumar Yadav, Kumar G.N, CFD simulation of a common rail diesel engine with biobutanol-diesel blends for various injection timings, Springer Proceed. in Energy, Biofuels and Bioenergy, (2016), ISBN: 978-3-319-47255-3, 337951_1_En, (14).

2. Venkatesh T. Lamani, Ajay Kumar Yadav, G.N. Kumar, Spray and combustion characterization in common rail direct injection (CRDI) engine - a review, Fire Research and Engineering, (2015) pp 451-66, Narosa Publishing House, New Delhi. ISBN: 978-81-8487-395-5.

3. Tabish Wahidi and Ajay kumar Yadav, Numerical Instability Assessment of Natural Circulation Loop Subjected to Different Heating Conditions, Springer Book publication, 2021.

4. Srivatsa T., Tabish Wahidi, Ajay kumar Yadav and Arun M., Comparative Numerical Appraisal of Subcritical and Supercritical CO2 based Natural Circulation Loop, Springer Book publication, 2021

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