

## CURRICULUM VITAE

### **AJAY KUMAR YADAV, PhD**

ASSISTANT PROFESSOR,  
DEPT. OF MECHANICAL ENGG.,  
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Date of Birth: Feb 23, 1979



### 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 SCIENCE AND ENGG.	2008
B. E. (AMIE)	INSTITUTION OF ENGINEERS (INDIA)	INSTITUTION OF ENGINEERS (INDIA)	MECH. ENGG.	2004

### 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
2010	Senior Research Fellow (CSIR)	IIT Kharagpur & CSIR
2012	PhD synopsis submitted in 1yr 11 months and obtained provisional degree in 2 yrs 05 months.	IIT Kharagpur
2014	FAST TRACK project for Young Scientist	DST, New Delhi

### Research Interests:

- CFD, Heat and mass transfer, Cryogenics, Nanofluids, Bioheat transfer, Refrigeration & Air Conditioning, Solar energy, I.C. Engine.

### ONGOING SPONSORED PROJECTS:

#### **1. 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 46 lakh

#### **2. 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)

#### **3. Title: Numerical and experimental studies on two phase carbon dioxide based natural circulation loops**

Funding Agency: DST, New Delhi;

Amount: INR 25.84 Lakh; PI: Dr. Ajay Kumar Yadav; Duration: 3 years (2014-17).

### No. of scholars under guidance:

PhD: 01 (completed), 07 (ongoing);

M. Tech.: 02 (ongoing), 07 (completed);

### Ongoing Research:

- CFD/experimental studies on Biodiesel based Common Rail Diesel Engine
- CFD/experimental studies on carbon dioxide based solar water heater
- Solar based humidifier/dehumidifier
- Radio frequency ablation technique for the treatment of tumors,
- Magnetic hyperthermia for the treatment brain tumor
- CFD/experimental studies on Two phase carbon dioxide based natural circulation loops (NCL)
- Solidification and Melting

### 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

### Editorial Board Member:

- Asian Journal of Applied Research
- Asian Journal of Multidisciplinary Research

### Reviewer of Journals:

International J. of Heat and Mass Transfer (Elsevier), Applied Thermal Engg. (Elsevier), Sadhana (Springer), Biofuels (Taylor and Francis), Environmental sciences and Pollution Research (Springer), Energy (Elsevier).

### List of Selected Publications:

#### **International Journals:**

17. Pawan Karki, Ajay Kumar Yadav, D. Arumuga Perumal, Study of adiabatic obstacles on natural convection in a square cavity using Lattice Boltzmann method, Journal of Thermal Science and Engineering Applications, 2018, ASME. doi: 10.1115/1.4041875.
16. Isac Rajan, D. Arumuga Perumal, Ajay Kumar Yadav, Fluid flow characteristics in double-sided lid-driven microcavity using lattice Boltzmann method, Computational Thermal Sciences, 2019
15. 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.
14. Sthavishtha Bhopalaram 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, Elsevier.
13. 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. ASME.
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.
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.
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. (IF: 2.8), (SCI Indexed).
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.
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. (Scopus Indexed)
7. Ajay Kumar Yadav, Souvik Bhattacharyya and M. Ram Gopal, Optimum Operating Conditions for Subcritical/Supercritical Fluid Based Natural Circulation Loops, Journal of Heat Transfer, 138 (2016) 112501-(1-9). doi: 10.1115/1.4031921; (ASME), IF: 1.9. (Scopus/SCIE Indexed)
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:1.0). (Scopus Indexed)
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: 3.5, (Scopus Indexed)
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), (Scopus Indexed)
3. Ajay Kumar Yadav, M. Ram Gopal and Souvik Bhattacharyya, CO<sub>2</sub> 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: 3.5, (Scopus Indexed).
2. Ajay Kumar Yadav, M. Ram Gopal and Souvik Bhattacharyya, CFD analysis of a CO<sub>2</sub> 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: 3.4. (Scopus Indexed).
1. Ajay Kumar Yadav, M. Ram Gopal, Souvik Bhattacharyya, Computational fluid dynamic analysis of a supercritical CO<sub>2</sub> 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)

#### **International/National Conferences: Total no. of papers: 35**

#### **BOOK CHAPTERS:**

1. 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.
2. 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 Proceeding in Energy, Biofuels and Bioenergy, (2016), ISBN: 978-3-319-47255-3, 337951\_1\_En, (14).

Date: Mar 25, 2019

(Ajay Kumar Yadav)