**BIO-DATA**

1. Name and full correspondence address:

Dr. Sudhakar Subudhi, Department of Mechanical and Industrial Engineering, IIT Roorkee, Roorkee-247667, India.

1. Email(s) and contact number(s):

[subudfme@iitr.ac.in](mailto:subudfme@iitr.ac.in) or [subudhi2@yahoo.com](mailto:subudhi2@yahoo.com), Phone number: 01332284763

3. Institution: IIT Roorkee

4. Date of Birth: 14-06-1974

5. Gender: M

6. Category: Gen

7. Whether differently abled: No

8. Academic Qualification (Undergraduate Onwards)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Degree | Year | Subject | University/Institution | % of marks |
| 1 | B.Tech. | 2000 | Mechanical | OUAT, Bhubaneswar | 72.3 |
| 2 | MSc(Engg.) | 2003 | Heat transfer and Fluid mechanics | IISc Bangalore | 6.3(CGPA) |
| 3 | PhD | 2009 | Heat transfer and Fluid mechanics | IISc Bangalore | 6(CGPA) |

9. Ph.D thesis title: Experiments on natural ventilation in a room and real source – sink pairs

Guide’s Name: Prof. J. H. Arakeri

Institute/Organization/University: IISc Bangalore

Year of Award: 2009

10. Work experience (in chronological order)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sl. No. | Position | Organization/Institution | Date of joining | Date of leaving | Duration |
| 1 | Scientist-SC | ISRO Satellite Centre, Bangalore | 26-09-2007 | 20-05-2010 | 2 years 8 months |
| 2 | Assistant Professor | National Institute of Technology Calicut | 21-05-2010 | 12-10-2012 | 2 years 5 months |
| 3 | Assistant Professor | Indian Institute of Technology Roorkee | 15-10-2012 | 28-04-2016 | 3years 6months |
| 4 | Associate professor | Indian Institute of Technology Roorkee | 29-04-2016 | continuing |  |

11. Professional Recognition/ Award/ Prize/ Certificate, Fellowship received by the applicant.

1. Indo-US S&T Forum Bhaskar Advanced Solar Energy Fellowship and visited to University of Notre Dame, USA, 2014
2. Best paper award for the paper titled “Fluid mechanics and heat transfer of Natural Ventilation”, 8th ISHMT-ASME conference, January 3-5, 2008, Hyderabad, India.
3. OUAT Merit Scholarship in B.Tech (It is given to first ten top rankers at the University)
4. Best student award in 10th standard
5. NRTS Scholarship in 7th standard

12. Publications

Publications in Journals

1. Sudhakar subudhi, KR Sreenivas & Jaywant H Arakeri,"Real Source-Sink Pair", International Journal of Heat & Mass Transfer, Vol.55, page.1650-1660, 2012.
2. Sudhakar subudhi & Jaywant H Arakeri,"Plumes dynamics and heat transfer over horizontal grooved surfaces", Experimental Heat Transfer, Vol.25, page.58-76, 2012.
3. Sudhakar subudhi & Jaywant H Arakeri,"Flow Visualization in Turbulent Free Convection over Horizontal Smooth and Grooved Surfaces", International Communication in Heat and Mass Transfer, Vol.39, page.414-418, 2012.
4. Sudhakar subudhi, KR Sreenivas & Jaywant H Arakeri, "Natural ventilation in a model room”, Transactions in ASME: Journal of Thermal Science and Engineering Applications, Vol.4, page.011003-1-9, 2012.
5. Sudhakar Subudhi, K R Sreenivas & Jaywant H Arakeri, “Study of submerged jet for suction of fluid”. Transactions in ASME: Journal of Fluids Engineering, Vol.134, page.094502-1-6, 2012.
6. Sudhakar Subudhi, K R Sreenivas & Jaywant H Arakeri, “Removal of unwanted fluid”. Heat and Mass Transfer, Vol.49, page.95-106, 2013.
7. Sudhakar Subudhi, K R Sreenivas & Jaywant H Arakeri, “Study of buoyant jets in natural ventilation”. International Journal of Heat and Mass Transfer, Vol.64, page.91-97, 2013.
8. Sudhakar Subudhi & Mihir Sen, “Review of Ranque-Hilsch vortex tube experiments using air”. Renewable and Sustainable Energy Reviews, Vol.52, page.172-178,2015.
9. L Gangadhara Kiran Kumar, Shailesh Ranjan Kumar & Sudhakar Subudhi, “Experimental study of the turbulent free convection over horizontal smooth or grooved surfaces in an open cavity”. Heat and Mass Transfer, Vol.52, page.245-253,2016.
10. Deepak Khurana, Rajesh Choudhury & Sudhakar Subudhi, “A critical review of forced convection heat transfer and pressure drop of Al2O3, TiO2 and CuO Nanofluids”. Heat and Mass Transfer **(accepted**). DOI 10.1007/s00231-016-1810-9*.*
11. Rajesh Choudhury, Deepak Khurana, Aditya Kumar & Sudhakar Subudhi, “Stability analysis of Al2O3/Water nanofluids”. Journal of Experimental Nanoscience (**accepted**).
12. Rajesh Choudhury & Sudhakar Subudhi, “Aspect ratio dependence of turbulent natural convection in Al2O3/water nanofluids”. Applied Thermal Engineering (**accepted**).
13. Deepak Khurana, Rajesh Choudhury & Sudhakar Subudhi, “Investigation of Thermal Conductivity and Viscosity of Al2O3/Water Nanofluids using Full Factorial Design and Utility Concept”. Nano (**accepted**).
14. Devang Marvania & Sudhakar Subudhi, “Compressed Air Powered Engine”. Renewable and Sustainable Energy Reviews (**accepted**).

Publications in Conferences

1. Rajesh Choudhary, Sudhakar Subudhi, ‘Study of Natural Convection in an Enclosure with Water and α-Al2O3/Water Nanofluid for different Aspect Ratios using Statistical Analysis’, ICMF2016, May 22-27, 2016, Firenze, Italy.
2. Deepak Khurana,Aditya Kumar, Sudhakar Subudhi**, ‘**Experimental investigation of forced convection heat transfer under turbulent flow with water based Al2O3 and TiO2 nanofluids**’,** 42nd National Conference on Fluid Mechanics and Fluid Power (FMFP2015), December 14-16, 2015, NITK Surathkal, Karnataka, India.
3. Deepak Khurana, Aditya Kumar, Rajesh Choudhary**,** Sudhakar Subudhi**, ‘**Time dependent suspention stability of TiO2/water and Al2O3/water nanofluids’, 23rd National Heat and Mass Transfer Conference and 1st International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC 2015), 17-20 December, 2015, ISRO, Thiruvananthapuram, India.
4. Rajesh Choudhary, Adarsh Saini, Sudhakar Subudhi**, ‘**Experimental investigation of natural convection in an enclosure with water and α – Al2O3/water nanofluid for different aspect ratios**’,** 42nd National Conference on Fluid Mechanics and Fluid Power (FMFP2015), December 14-16, 2015, NITK Surathkal, Karnataka, India.
5. Deepak Khurana, Aditya Kumar, Rajesh Choudhary**,** Sudhakar Subudhi**, ‘**Effect of zeta potential and sonication time on the stability of water based α-Al2O3 nanofluid’, 23rd National Heat and Mass Transfer Conference and 1st International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC 2015), 17-20 December, 2015, ISRO, Thiruvananthapuram, India.
6. Sudhakar Subudhi, ‘Mathematical modeling of stack-driven natural ventilation in buildings’, ASME 2014 8th International Conference on energy sustainability, June 29-July 2, 2014, Boston, USA.
7. Sudhakar Subudhi, ‘Modifications of evaporative cooler using solar assisted desiccants’, ASME 2014 8th International Conference on energy sustainability, June 29-July 2, 2014, Boston, USA.
8. Sudhakar Subudhi and Jaywant H. Arakeri, ‘Turbulent free convection over grooved surfaces’, ASME International Mechanical Engineering Congress Exposition (IMECE), November 15-16, 2013, Sandiego, USA.
9. Sudhakar Subudhi and V. Ramakrishnan “Thermal conductivity measurements of Carbon Phenolic material by calorimetric approach”, 30th International Thermal Conductivity Conference/18th International Symposium of Thermal expansion (30th ITCC-18th ITES-2009) , Aug 29th - Sep 2nd, 2009 , Pittsburg, USA.
10. Sudhakar Subudhi, Jaywant H. Arakeri and K.R. Sreenivas, ‘Experiments with Real Source-Sink pairs’, 12th Asian Congress of Fluid Mechanics, August18-21, 2008, Daejeon, Korea.
11. Sudhakar Subudhi and Jaywant H. Arakeri, ‘Turbulent free convection over horizontal grooved surfaces’, Conference & Euromech Colloquim #480 on High Rayleigh number convection, September4-8, 2006, Trieste, Italy.
12. Sudhakar Subudhi and Jaywant H. Arakeri, ‘Turbulent free convection over grooved surfaces’, 11th Asian Congress of Fluid Mechanics, May22-25, 2006, Kual Lumpur, Malaysia.
13. Sudhakar Subudhi, Jaywant H. Arakeri and K.R. Sreenivas, ‘Experiments with Real Source-Sink pairs’, IISc-Centenary – International Conference on Advances in Mechanical Engineering, July2-4, 2008, IISc, Bangalore, India.
14. Sudhakar Subudhi, Jaywant H. Arakeri and K.R. Sreenivas, ‘Fluid mechanics and heat transfer of Natural Ventilation’, 19th National & 8th ISHMT-ASME conference, January3-5, 2008, Hyderabad, India.(**Best paper award**).
15. Sudhakar Subudhi, Jaywant H. Arakeri and K.R. Sreenivas, ‘Real Source-Sink interactions’, International symposium-Fluid Days, December31,2007-January1, 2008, JNCASR, Bangalore, India.
16. Sudhakar Subudhi, Jaywant H. Arakeri and K.R. Sreenivas, ‘Experiments in Natural ventilation using water’, National conference of Research Scholars in Mechanical Engineering, March23-24, 2007, IIT Kanpur, India.
17. Sudhakar Subudhi and Jaywant H. Arakeri, ‘Turbulent free convection over grooved surfaces’, Symposium on Advances in fluid mechanics, July24-25, 2003, JNCASR, Bangalore, India.

13. Detail of patents. S.No Patent Title Name of Applicant(s) Patent No. Award Date Agency/Country Status

14. Books/Reports/Chapters/General articles etc. S.No Title Author’s Name Publisher Year of Publication

15. Any other Information (maximum 500 words)

**Professional training received**

1. 2-week ISTE Workshop on "Heat Transfer", November 29-December 10, 2011, IIT Bombay.
2. AICTE sponsored Faculty Development Programme on "Advances in Hybrid Energy Systems", June 26- July 2, 2011, NIT Calicut.
3. 2-week ISTE Workshop on "Thermodynamics in Mechanical Engineering", June 14-24, 2011, IIT Bombay.
4. AICTE sponsored Faculty Development Programme on Alternative Energy options for IC Engines", June 28-July 3, 2010, NIT Calicut.
5. AICTE sponsored Faculty Development Programme on "Renewable Energy", June 21-26, 2010, NIT Calicut.
6. 2-week AICTE sponsored Faculty Development Programme on "Numerical Methods",May 22- June 2, 2010, NIT Calicut.
7. A NITC-NITK Joint initiative Workshop on “Strategies to attain excellence in impact making research and development (SAEIMRD)”, February 3-4, NIT Calicut.
8. 2-week ISTE Workshop on "Computational Fluid Dynamics", March 12-16, 2012, IIT Bombay.

**Other activities**

1. Installation of “Temperature sensors calibration lab” at ISRO Satellite Centre, Bangalore
2. Lab-in charge for Hydraulics Lab, NIT Calicut
3. Programme Officer for NSS for NIT Calicut
4. Reviewers for journals:
5. Experimental heat transfer (Taylor and Francis),
6. Heat and Mass Transfer (Springer),
7. ASME-Micro/Nanoscale heat and mass transfer conference,March 3-6, 2012, Atlanta, USA
8. 2013 ASME Mechanical Engineering Congress and Exposition, Nov. 15-21, 2013, Sandiego, USA
9. [ASME 2014 8th International Conference on Energy Sustainability](javascript:%20document.CallForPapers.LevelID.value=1;%20document.CallForPapers.LevelOrdinal.value=1;%20document.CallForPapers.submit();), June 30-July 2, 2014, Boston, USA
10. Editor for “Trends in Mechanical Engineering”-STM journals.
11. Member for Doctoral Committee of Mechanical Engineering Department, NIT Calicut.
12. Member for Monitoring Committee for the DRDO project “Design and Development of Electro-magnetically Driven Miniature Cryocooler for IR Sensor Array”.
13. Member for Final year B.Tech Project Evaluation Committee of Mechanical Engineering Department, NIT Calicut.
14. Faculty Advisor for B.Tech Mechanical students.

**Thesis Supervised**

1. Degree: PhD

(i) Title: Study of natural convection heat transfer in Al2O3/water nanofluids.

Year awarded: February 2016.

Name of the student: Mr. Rajesh Kumar, IIT Roorkee

(ii) Title: Experimental investigation of convective heat transfer characteristics and pressure drop in forced convection using nanofluids

Year awarded: Continuing

Name of the student: Mr. Deepak Khurana, IIT Roorkee.

(iii) Title: Natural convection in magnetic nanofluids

Year awarded: Continuing

Name of the student: Mr. Aditya Kumar, IIT Roorkee.

(iv) Title: Single storage tank for dil. and conc. CaCl2 solution for liquid desiccant cooling systems

Year awarded: Continuing

Name of the student: Mr. Geleta Fekadu Daba, IIT Roorkee.

2. Degree: Master of Technology

(i) Title: Computational Analysis of Globe type Control Valve Performance

Year Awarded: 2011

Name of the student: Bony Johns, NIT Calicut

(ii) Title: Study on ventilation using solar assisted desiccant wheel

Year Awarded: 2014

Name of the student: Surendra Singh, IIT Roorkee

(iii) Title: Natural convection in a rectangular cavity filled with water

Year Awarded: 2014

Name of the student: Ashvini Kumar Mishra, IIT Roorkee

(iv) Title: Effect of nano particle concentration on pressure drop and heat transfer in pipe flow

Year Awarded: 2015

Name of the student: Aditya Kumar, IIT Roorkee

(v) Title: CFD simulation of a deformed nuclear reactor channel under heat up condition with hydrogen generation

Year Awarded: 2015

Name of the student: Arun Jain, IIT Roorkee

3. Degree: Bachelor of Technology

(i) Title: Modification of evaporative cooler using solar assisted desiccants

Year Awarded: 2014

Name of the students: Sahil Kansal, Manohar Gupta and Rahul Kumar

(ii) Title: Power generation from thermoelectric rooftop solar collector

Year Awarded: 2014

Name of the students: Saurav Agarwal, Navreet Singh and Gurleen Singh

(iii) Title: Study of vortex tube for cooling purposes

Year Awarded: 2015

Name of the students: K. B. Meitei, Namonarayan Meena and Mukul Gupta