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| **Sathyabhama A**  Associate Professor Door No.17-40/3 PUNYA  Dept. of Mech. Engg. Ganeshanagar Padre  NITK Surathkal Srinivasnagar PO, Surathkal  Srinivasnagar, Mangalore-575025  Mangalore-575025 DK, Karnataka, India | [bhama72@gmail.com](mailto:bhama72@gmail.com)  [sathyabhama@nitk.edu.in](mailto:sathyabhama@nitk.edu.in)  +91-824-2473683 (O)  +91-9448134433(M) |

**Education:**

PhD (Mechanical Engineering) – 2012

NITK Surathkal

Thesis: “Experimental investigation of bubble point temperature and boiling heat transfer coefficient for ammonia-water and ammonia-water-salt mixtures”

M.Tech (Heat Power Engineering) – 1998

KREC Surathkal

Thesis: “Optimisation of Shell and Tube Heat Exchangers”

B.E (Mechanical Engineering) - 1994

PESCE Mandya

Project: “Fabrication of a critical aircraft component using NC technology”

**Professional Experience:**

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| Positions held | Employer/place of work | Duration | Area/nature of work |
| Associate Professor | NITK Surathkal | 16/05/2018 to till date | Teaching UG/PG students, Guiding UG/PG/PhD project works, Organising conference/workshops, Development of Laboratories, handling Consultancy/R&D projects |
| Assistant Professor | NITK Surathkal | 19/11/2012 to 15/05/2018 | Teaching UG/PG students, Guiding UG/PG/PhD project works, Organising conference/workshops, Development of Laboratories, handling Consultancy/R&D projects |
| Associate Professor | MSRIT, Bangalore | 15/05/2012 –17/11/2012 | Teaching UG students, Guiding UG project works, Organising conference/workshops, handling Consultancy/R&D projects |
| Assistant Professor | MSRIT, Bangalore | 23/10/2000-14/05/2012 | Teaching UG students, Guiding UG project works, Organising conference/workshops, handling Consultancy/R&D projects |
| Asst. Engineer | TCE, Bangalore | 1.5 years (1998 March-1999 Sept) | Consultants in Power plant equipments, preparing Specification of turbine and auxiliaries, checking the design data from the manufacturer |
| Asst. Lecturer | NITK, Surathkal | 1.5 years (1994 Dec- 1996 July) | Teaching UG students, Guiding UG project works |

**Guidance to Students (PG and Ph. D)**

PhD: Completed-09, Ongoing-04

PG: Completed- 19 Ongoing-03

**Funded projects:**

* Principal investigator of project titled “**Investigation of enhanced pool boiling methods for cooling of micro-electronic devices**” sponsored by **DST SERB,** Sanction orderSR/S3/MERC-0009/2010 Amount: Rs. 19.9 lakh (Completed 2010-2015)
* Principal investigator of project titled “**Visualization of boiling heat transfer on grooved surface**” sponsored by **CSIR** Sanction order22/661/14/EMR-II Amount Rs. 20 lakh (Completed 01/10/2014-30/09/2017)
* Principal investigator of project titled “**Experimental and Numerical Investigation of Effect of Leading edge Protuberances on the Performance of Wind Turbine Blade**” sponsored by **DST SERB** Sanction orderEMR/2015/000879 Amount Rs. 66 lakh (Completed May 2016-May 2020)
* Principal Investigator of project titled “Development of ternary mixture based solar absorption refrigeration system” funded by KSTePS, VGST Karnataka grant order KSTePS/VGST/2021-22/K-FIST(L1)/GRD-1048/117/2022-23/13 Amount 15 lakhs (March 2023- March 2025)
* Principal investigator of project titled “Investigation into the effect of water on the boiling heat transfer coefficient of NH3/LiNO3 mixture” sponsored by DST SERB, Sanction order CRG/2023/003920**,** Amount: Rs. 47.08 lakh (2024-2027)

**Publications:**

International Journal

1. Sathyabhama A, Rupam Kumar Sinha, C. Jayapal Reddy, Numerical and Experimental Investigation into the Effect of Leading-Edge Protuberances on the Aerodynamic Performance of Wind Turbine, International Journal of Fluid Mechanics Research,

DOI: 10.1615/InterJFluidMechRes.2025055704

1. Jeena Joseph, Surya Sridhar, A. Sathyabhama, Jayakrishnan Radhakrishnan, “Analyzing dynamic stall on tubercle mounted VAWT blades: A simplistic experimental approach using an oscillating rig, Sustainable Energy Technologies and Assessments 71 (2024) 103962

https://doi.org/10.1016/j.seta.2024.103962

1. Ganesh Kolapkar, A. Sathyabhama, “Effect of salt on the performance of ammonia absorption refrigeration cycle: A simulation study” International Communications in Heat and Mass Transfer, 157 (2024) 107730,

[doi.org/10.1016/j.icheatmasstransfer.2024.107730](https://doi.org/10.1016/j.icheatmasstransfer.2024.107730)

1. A.V.V.R. Prasad Yandapalli, Sathyabhama A, Sarada Kuravi, Krishna Kota, “Liquid-infused surfaces for mitigation of corrosion and inorganic scaling”, Materials Today Communications 39 (2024) 108865

<https://doi.org/10.1016/j.mtcomm.2024.108865>

1. K. Madan, A. Sathyabhama “Effect of RIBS/FINS and Aspect Ratio on Flow Boiling Characteristics in Conventional Channels”, ASME Journal of Thermal Science and Engineering Applications March 2024, Vol. 16 / 031001-1 to 031001-9

<https://doi.org/10.1115/1.4064168>

1. Rajan Jaswal, A. Sathyabhama, Kuldeep Singh, A.V.V.R. Prasad Yandapalli, “Experimental and numerical investigation of pool boiling heat transfer from finned surfaces”, Applied Thermal Engineering 233 (2023) 121167

<https://doi.org/10.1016/j.applthermaleng.2023.121167>

1. Addisu Frinjo Emma, A. Sathyabhama, Ajay Kumar Yadav, “Extraction and characterization  
   of biodiesel derived from the coffee husk and its effect on diesel engine performance and emission  
   characteristics”, International Journal of Energy for a Clean Environment 24(6):19–40 (2023)

DOI: 10.1615/InterJEnerCleanEnv.2022043949

1. A.V.V.R. Prasad Yandapalli, Erick Moreno Resendiz, Sarada Kuravi, Sathyabhama Alangar,  
   Krishna Kota, “Enhanced boiling heat transfer of water on a liquid-infused surface” Applied Thermal Engineering 226 (2023) 120219

<https://doi.org/10.1016/j.applthermaleng.2023.120219>

1. Suhas Badakere Gopalakrishna, Chidanand Kishor Mangrulkar, Kiran Kumar Kapse Umashankar and Sathyabhama Alangar, “Numerical investigation on subcooled boiling heat transfer coefficient of water ethanol mixture by CISCAM technique”, Journal of Mechanical Science and Technology 37 (4) 2023 pp: 2055-2067

DOI 10.1007/s12206-023-0341-9

1. C. Jayapal Reddy and A. Sathyabhama “Comparative Study on the Effect of Leading Edge  
   Protuberance of Different Shapes on the Aerodynamic Performance of Two Distinct Airfoils”, *Journal of Applied Fluid Mechanics*, Vol. 16, No. 1, pp. 157-177, 2023

https://doi.org/10.47176/jafm.16.01.1334

1. Ganesh Kolapkar, A. Sathyabhama, “Aspen Plus simulation of NH3-H2O-NaOH and NH3-H2O-KOH ternary cycles”, International Communications in Heat and Mass Transfer 138 (2022) 106422

<https://doi.org/10.1016/j.icheatmasstransfer.2022.106422>

1. Madan Krishnegowda, Sathyabhama Alangar, “Experimental investigation on flow boiling characteristics of the ethanol–water mixture in conventional channels”, Heat and Mass Transfer (2023) 59, pp; 779-802

https://doi.org/10.1007/s00231-022-03295-y

1. A. Sathyabhama, Aditi Marathe, Shyam Rangapure, & Alok Potadar “Aerodynamic analysis of wing with leading edge protuberances using Prandtl’s lifting line theory”, International Journal of Fluid Mechanics Research, 49(4):31–48 (2022)
2. Jeena Joseph, A. Sathyabhama, Surya Sridhar “Experimental and numerical analysis of  
   humpback whale inspired tubercles on swept wings” Aircraft Engineering and Aerospace Technology, 94/10 (2022) 1577–1592

DOI 10.1108/AEAT-04-2021-0114

1. Addisu Frinjo Emma, Sathyabhama Alangar, 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
2. A. Sathyabhama, B. K. Sreejith, “Numerical Investigation on the Effect of Leading-Edge  
   Tubercles on the Laminar Separation Bubble” Journal of Applied Fluid Mechanics, Vol. 15, No. 3, pp. 767-780, 2022

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1. Jeena Joseph, A. Sathyabhama, “Leading edge tubercle on wind turbine blade to mitigate problems of stall, hysteresis, and laminar separation bubble”, Energy Conversion and Management,255 (2022) 115337

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1. Pranali Waghare, A. Sathyabhama, “Performance analysis of ammonia-based vapour absorption refrigeration system” Materials Today: Proceedings, [Volume 51, Part 3](https://www.sciencedirect.com/journal/materials-today-proceedings/vol/51/part/P3), 2022, Pages 1503-1509

https://doi.org/10.1016/j.matpr.2021.10.279

1. Jeena Joseph, A. Sathyabhama, “Experimental study on the effect of tubercle on aerodynamic characteristics of swept wing at low Reynolds number”, Iranian journal of science and technology, transactions of Mechanical Engineering, available online 07 Oct 2021

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1. A Sathyabhama, AM Rajiv, IS Sandeep, SS Kumar, CH Akash “[Experimental and Computational Analysis of Bio-Inspired Winglets for Micro Air Vehicles](https://scholar.google.co.in/citations?view_op=view_citation&hl=en&user=f7ytAjsAAAAJ&cstart=20&pagesize=80&citation_for_view=f7ytAjsAAAAJ:JV2RwH3_ST0C)” Journal of Applied Fluid Mechanics 14 (5), 1363-1376, 2021 Rating Q2

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1. Jeena Joseph, A. Sathyabhama, **“**Numerical Study on the Effect of Leading Edge Tubercle on  
   Symmetrical Airfoil at Low Reynolds Number” The International Journal of Engineering and Science (IJES) 23-19 – 1805, PP 65-71, 2020
2. Rashmi P. Shetty, A. Sathyabhama, P. Srinivasa Pai, “An efficient online sequential extreme learning machine model based on feature selection and parameter optimization using cuckoo search algorithm for multi-step wind speed forecasting” Soft Computing, 25:1277–1295, 2021, https://doi.org/10.1007/s00500-020-05222-x
3. B. K. Sreejith, A. Sathyabhama, “Experimental and numerical study of laminar separation bubble formation on low Reynolds number airfoil with leading‑edge tubercles”, Journal of the Brazilian Society of Mechanical Sciences and Engineering (2020) 42:171

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1. B.G. Suhas, A. Sathyabhama, Kavadiki Veerabhadrappa, R. Suresh Kumar and U. Kiran Kumar “A wallheat flux partitioning analysis for subcooled flow boiling of water-ethanol mixture in conventional channel”, Frontiers in Heat and Mass Transfer (FHMT), 13, 16 (2019), pp. 1-8

DOI: 10.5098/Hmt.13.16

1. Avdhoot Walunj, Alangar Sathyabhama, “Experimental Investigation on Transient Pool Boiling Heat Transfer from Rough Surface and Heat Transfer Correlations”, International Journal of Heat and Technology Vol. 37, No. 2, June, 2019, pp. 545-554

doi.org/10.18280/ijht.370223 (Scopus)

1. Rashmi P. Shetty, A. Sathyabhama, P. Srinivasa Pai, “Efficient modelling and simulation of wind power using online sequential learning algorithm for feed forward networks”, Journal of Mechanical Engineering Research & Developments (JMERD) 42(1) (2019) 109-115

DOI: http://doi.org/10.26480/jmerd.01.2019.109.115(Scopus)

1. Avdhoot Walunj A. Sathyabhama, “Bubble dynamics and enhanced heat transfer during high pressure pool boiling on rough surface”, Journal of Thermophysics and Heat Transfer, 2019, 33:2, pp. 309–321

DOI: 10.2514/1.T5495 (SCI)

1. A. Sathyabhama, “Boiling of saturated water on grooved surface”, Thermal Science-International scientific journal, 23,2B, (2019) 1095-1104

doi.org/10.2298/TSCI180105203S

1. Rashmi P. Shetty, A. Sathyabhama, P. Srinivasa Pai, “Comparison of modeling methods for wind power prediction: a critical study”, Front. Energy, 2020, 14(2): 347–358

Doi.org/10.1007/s11708-018-0553-3 (SCIE)

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doi.org/10.1016/j.cep.2018.03.025 (SCI/Scopus)

1. B. K. Sreejith, A. Sathyabhama, “Numerical study on effect of boundary layer trips on aerodynamic performance of E216 airfoil”, Engineering Science and Technology, an International Journal, 21 (2018) 77–88

doi.org/10.1016/j.jestch.2018.02.005 (Scopus)

1. Avdhoot Walunj, A. Sathyabhama, “Comparative Study of Pool Boiling Heat Transfer from Various Microchannel Geometries” Applied Thermal Engineering, 128 (2018) 672-683

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1. Suhas B.G, Sathyabhama A, “Experimental study on forced convective and subcooled flow boiling heat transfer coefficient of water-ethanol mixtures: an application in cooling of heat dissipative devices”, *Heat Mass Transfer,* 54 (2018) 277-290

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1. A Sathyabhama, S. P. Prashanth, “Bubble dynamics and boiling heat transfer from a vibrating heated source”, ELK Asia Pacific Journal of Applied Thermal Engineering, 3(1) 2017
2. Sathyabhama, A., Prashanth S. P., “Effect of surface vibration on boiling heat transfer from a copper flat circular disc” Journal of Enhanced heat transfer, 23(4):299–314 (2016)

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# A Sathyabhama, Athul Dinesh, “Effect of compound enhancement technique on pool boiling heat transfer coefficient”, Heat Pipe Science and Technology, 7(3−4) 251−264 (2016)

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1. A Sathyabhama, Athul Dinesh, “Augmentation of heat transfer coefficient in pool boiling using compound enhancement techniques”, Applied Thermal Engineering, Elsevier Publication, 119 (2017) 176–188

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1. Suhas B.G, Sathyabhama A , “Experimental investigation of heat transfer coefficient and correlation development for subcooled flow boiling of water-ethanol mixture in conventional channel”, *Journal of Thermal Science and Engineering Applications*, ASME, 9(2017) 041003-1- 041003-11

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DOI: 10.1007/s00231-016-1803-8 Impact factor: 0.946 (SCI/Scopus/SCIE)

1. Sathyabhama A, “Nucleate pool boiling heat transfer from a flat-plate grooved surface”, Journal of Enhanced heat transfer, Begell house publication 22(3), 2015, pp: 247-265

DOI: 10.1615/JEnhHeatTransf.2015014319 Impact factor: 0.244

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1. Suhas B.G, Sathyabhama A, “Numerical analysis of single phase pressure drop and forced convective heat transfer coefficient of water-ethanol mixture: An application in cooling of HEV Battery module” Heat transfer asian research *Wiley Publication* **45** (7), 2016, pp: 680–698,

DOI 10.1002/htj.21183

1. Avdhoot Walunj, A. Sathyabhama, “Dynamic Pool Boiling Heat Transfer due to Exponentially Increasing Heat Input-A Review, Procedia Technology 25 (2016) 1137 – 1145

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1. Sathyabhama A, “Effect of salt on boiling heat transfer of ammonia-water mixture”, Heat Mass Transfer, *Springer-link publication*, 48(3), 2012, pp: 497-503

DOI: 10.1007/s00231-011-0898-1 (SCI/Scopus/SCIE)

1. Sathyabhama A, T.P. Ashok Babu, “Experimental investigation of pool boiling heat transfer in ammonia/water/lithium nitrate solution” Experimental Heat Transfer, A Journal of Thermal Energy Generation, Transport, Storage, and Conversion, *Taylor & Francis Publication,* 25:2, 2012, pp: 127-138

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1. Sathyabhama A, “Prediction of boiling heat transfer coefficient of ammonia/water mixture” EJEST, *SERC Publication, 10(1) 2011, pp.31-41*
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DOI:10.1115/1.4004258 (Scopus/SCIE)

1. Sathyabhama A, T. P. Ashok Babu "Vapour Liquid Equilibrium of Ammonia-Water-Lithium Nitrate Solutions" Heat Transfer-Asian Research, *Wiley Publication*, 40(6), 2011, pp: 483-494

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1. Sathyabhama A, T.P. Ashok Babu, “Experimental investigation in pool boiling heat transfer of ammonia/water mixture and heat transfer correlations”, International Journal of Heat and Fluid Flow, *Elsevier Publication*, 32(3), June, 2011, pp: 719-729

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**National Journal**

1. A. Sathyabhama, Pranali Waghare, “Optimization of absorption refrigeration system using Taguchi method” Air conditioning and refrigeration journal, Vol. 25, No. 5, Sept-Oct 2022, pp. 76-81
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3. Sathyabhama A, “Heat transfer in pool boiling of H2O/LiBr mixture”, Journal of Thermal Engineering and Applications, Vol.1, Issue 1, 2014, pp. 7-12

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* + - 1. Sathyabhama A, Harshavardhan Sai, Jayapal Reddy C, Ramakrishna N Hegde, “Aerodynamic Performance of Wing with Leading Edge Protuberances under Static and Dynamic Conditions”, proceedings of Symposium on Applied Aerodynamics and Design of Aerospace Vehicle (SAROD 2024), December 12-14, 2024, VSSC, ISRO, Thiruvananthapuram, India, pp 64-69
      2. Sathyabhama A, Pranali Waghare, Ramakrishna N Hegde, “ASPEN PLUS simulation of NH3/H2O and NH3/LiNO3 vapour absorption refrigeration systems”, Proceedings of the 27th National and 5th International ISHMT-ASTFE Heat and Mass Transfer Conference December 14-17, 2023, IIT Patna, Patna-801106, Bihar, India, pp 103-108

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      6. Rashmi P Shetty, Sathyabhama A and Srinivasa Pai P., “Wind power prediction and modelling-A comparison of feed forward neural networks” Proceedings of the Global Conference on Advanced Smart and Sustainable Technologies in Engineering (GCASSTE-2020), 30th and 31st Jan 2020, at MITE Mangalore
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      11. Avdhoot Walunj, A. Sathyabhama, “Effect of Surface Roughness on Pool Boiling Characteristics under Variable Heat Supply”, Proceedings of 12th International conference on Thermal Engineering: Theory and Applications (ICTEA 2019), PDPU, Gandhinagar, Gujarat Feb. 23-26, 2019
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      13. Rashmi P Shetty, Sathyabhama A and Srinivasa Pai P., Wind speed Forecasting in different seasons using ELM batch learning algorithm in Indian context, In proceedings of International conference on Emerging Trends in Engineering, NMAM, Institute of Technology, Nitte, Karnataka, May 14−15 2018, Published in International Journal of Engineering and Technology, Vol 7, 705-709.
      14. Avdhoot Walunj, A. Sathyabhama,” Bubble Dynamics in Pool Boiling on Rough Surface Under Exponential Heat Supply”, 3rd Thermal and Fluids Engineering Conference (TFEC) at Nova Southeastern University, Florida, 4-7 March 2018, pp. **329-337**
      15. Avdhoot Walunj, A. Sathyabhama,” Influence of Surface Roughness on Pool Boiling Heat Transfer”, 2nd International Conference on Advances in Mechanical Engineering at S.R.M. Institute of Science and Tech., Chennai, 22-24 March 2018 (IOP Conf. Series: Materials Science and Engineering 402 (2018) 012081)

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**National conference**

1. Jeena Joseph, Surya S, A. Sathyabhama, “A Comparison on the Effect of Leading Edge Tubercle on Straight and Swept Wing at Low Reynolds Number Proceedings of the 46th National Conference on Fluid Mechanics and Fluid Power (FMFP) December 9-11, 2019, PSG College of Technology, Coimbatore, India
2. Jeena Joseph, A. Sathyabhama, “Numerical study on the effect of leading edge tubercle on symmetrical airfoil at low Reynolds number, Proceedings of the National Conference on Computational Modeling of Fluid Dynamics Problems (CMFDP-2019) NIT Warangal, India, Jan 18-20, 2019
3. Raghavendra S, Jayapal reddy C, Sathyabhama A, “A Review on the Effect of Leading Edge Protuberances on the Performance of Wind Turbine Blade” Proceedings of the National Conference on Advances in Thermal Engineering September23-24, 2016, Jadavpur University, Kolkata, India pp: 5-7
4. Rashmi. P. Shetty, A. Sathyabhama, and Srinivasa. Pai. P, “Wind turbine power optimization studies using Particle swarm optimization”, Proceedings of 8th National Conference on Advances in Energy Conversion Technologies, held at Manipal Institute of Technology, Manipal during January 28 – 30, 2016, pp. 1-5
5. Suhas B.G and A. Sathyabhama, "Influence of operating parameters on the battery module cooling in hybrid electric vehicles", Proceedings of FMFP 2014 held at IIT Kanpur during Dec. 12-14, 2014
6. Krishnan V, Sathyabhama A, “Study of enhanced boiling heat transfer using extended surfaces for applications in cooling of electronic devices” Proceedings of NCEDAR 2012 “National Conference on Electronic Design Assembly and Reliability 2012”  organized by IPC India on Dec 5th& 6th 2012 at the J N Tata Auditorium, IISC campus Bangalore.
7. Sathyabhama A, Krishnan V. “Pool boiling heat transfer to water/lithium bromide mixture” Proceedings of National conference on “Innovations and Emerging trends in Mechanical Engineering” IETME 2012 at Nagarjuna college of Engineering and Technology, Bangalore, pp. 113-116.
8. Sathyabhama A, T.P. Ashok Babu “Theoretical performance analysis of ammonia/water vapour absorption refrigeration system” Proceedings of national conference on ETIMES-2007(Dec. 19-20,2007) held at BIT, Sathyamangalam, page 274-279
9. Sathyabhama A, T.P. Ashok Babu “Effect of salt on vapour pressure of ammonia-water solutions” Proceedings of National conference on ‘Trends in Mechanical Engg.’TIME-2007(Sept. 5-6, 2007) held at A.G.Awate college of Engg. Hadaspur, Pune, page 95-100
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12. R.N. Hegde, Sathyabhama A “Application of nanofluids as heat transport agents-A review” Proceedings of national conference held at SIT Tumkur

**Book chapter**

1. Madan, K., Singh, K., Sathyabhama, A. (2023). Modelling of Subcooled Boiling in Corrugated Pipes. In: Banerjee, J., Shah, R.D., Agarwal, R.K., Mitra, S. (eds) Recent Advances in Fluid Dynamics. Lecture Notes in Mechanical Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-19-3379-0\_12

**Patent filed**

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| --- | --- |
| Patent Number | 515403 |
| Filing date | 10/10/2017 |
| Grant date | 26/02/2024 |
| Title | A PASSIVE LEADING EDGE MICRO PROTUBERANCE STRIP |
| Inventors | 1.      Sathyabhama A  2.      Raghavendra S |

**Professional Association:**

* Life Member ISTE (LM 31183)
* Life Member ISHMT (861)
* Editorial member of Journal of Thermal Engineering and Applications
* Reviewer for many journals

# Awards & Citations received

* Distinguished Women in Engineering, 2017, by Venus International foundation, Chennai.
* Award for research publication (ARP) by KSTePS, VGST Karnataka for the year 2017-18 issued on 24th November 2018 by Bharat Ratna Prof. C.N.R. Rao., FRS at JNCASR, Jakkur, Bengaluru
* IREDA-NIWE award for best research work in wind energy by NIWE, MNRE, Govt. of India for the year 2020 issued on 15th June 2022 by Sri. R K Singh, honorable minister for Power at Atal Akshay Urja Bhavan, MNRE, New Delhi

**Any other relevant information**

* Received DST Travel grant to present paper in The Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems (IEEE - ITHERM 2014) at **Walt Disney World Swan & Dolphin Hotel, Lake Buena Vista (Orlando), FL USA,** From 27/05/2014 To 30/05/2014
* Visited Department of Mechanical and Aerospace Engineering, University of California, Los Angeles, USA for research interaction with Prof. Vijay Dhir for a period of 09 days (from June 27, 2016 to July 05, 2016). Also visited University of Southern California, Los Angeles, USA.
* Certified energy manager from BEE, India