



## Dr.Sathisha H.M.

Assistant Professor

### CONTACT

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Professional Experiences:13

Teaching: 8

Industry: 1

Research: 5

### Courses Taught:

Thermodynamics,  
Heat Transfer,  
Fluid Mechanics,  
Turbomachines,  
Computational Fluid Dynamics  
Numerical Methods

### ABOUT ME

I have received PhD from Indian Institute of Technology (IIT) Guwahati in the department of Mechanical Engineering and specialized in Fluids and Thermal Engineering. The research activities involved in the field of redox flow batteries with a strong focus on analytical and numerical modelling of the all-vanadium redox flow batteries. I have studied the performance of the all vanadium redox flow battery analytically and numerically.

My research area includes, Energy storage systems (Redox flow batteries), Heat and mass transfer analysis of vegetables and fruits, Heat treatment processes simulation, Computational Fluid Dynamics and Renewable energy systems.

I was working as Assistant Professor in the of Department of Mechanical Engineering at BMS College of Engineering, Bangalore (July 2016 to September 2018). Recently I started collaborative research with Thermet Solutions Pvt Ltd Bangalore. Research activity involving development of mathematical and experimental models to analyse cooling characteristics of various heat treatment processes of different materials.

### RESEARCH INTERESTS:

Computational Fluid Dynamics,  
Numerical Heat Transfer,  
Numerical Modeling of Redox Flow Battery  
CFD Analysis of Lithium Ion Battery  
Thermal Management of Battery

### EDUCATION

- Ph.D – Thermal Engineering  
University Name: IIT Guwahati  
Year of Graduation: 2015
- M.E/M.Tech. - Thermal Engineering  
Institute/University Name: NITK Surathkal  
Year of Graduation: 2010
- B.E., - Mechanical Engineering  
Institute: PESIT Bangalore (VTU)  
Year of Graduation: 2007

## PUBLICATIONS

### International Journals

1. Managuli S.C., Aswath., **Sathisha, H.M.**, and K.N. Seetharamu, 2020, “Experimental and Numerical Simulation of Heat and Mass Transfer Along with Stresses in Fruits”, *International Journal of Advanced Science and Technology*, ISSN:2005-4538, Volume-29, Issue- 9s, pp. 6738-6751.
2. Managuli S.C., Aswath., **Sathisha, H.M.**, and K.N. Seetharamu, 2020, “Experimental and Numerical simulation of Heat and Mass Transfer along with Stresses in Solonum Melongena (Brinjal)”, *International Journal of Test Engineering and Management*, ISSN: 0193-4120, Volume-83, Issue- May -June 2020 , pp. 17718-17726.
3. Managuli S.C., Aswath., **Sathisha, H.M.**, and K.N. Seetharamu, 2019, “Numerical Simulation of Heat and Mass Transfer Along with Shrinkages in Brinjal(Eggplant/Solonummelongena)”, *International Journal of Recent Technology And Engineering (IJRTE)*, ISSN:2277-3878, Volume-8, Issue-4, 2867-2872.
4. **Sathisha, H.M.**, and Dalal, A., 2018, “An unsteady model to study the effects of porosity and temperature in all-vanadium redox flow battery with mass transfer and ion diffusion”, Sudipta De, *Sustainable Energy Technology and Policies, A Transformational Journey*, (Volume 2, pp-379-396),: Springer.
5. **Sathisha H.M.**, Amaresh Dalal.,2017, 3D Unsteady Numerical Simulation of All-Vanadium Redox Flow Battery. In: Saha A., Das D., Srivastava R., Panigrahi P., Muralidhar K. (eds) *Fluid Mechanics and Fluid Power – Contemporary Research. Lecture Notes in Mechanical Engineering*. Springer, New Delhi, pp 457-466.
6. **Sathisha H. M.**, and Dalal, A., 2015, “2D Unsteady Simulation of All-Vanadium Redox Flow Battery”, *ASME Journal of Thermal Science and Engineering Applications*, vol. 8(1), pp. 011019 (1-14).

### International Conferences

1. Sathisha, H. M., and Dalal, A., 2013, “Simplified Mathematical Model to Evaluate the Performance of the All-Vanadium Redox Flow Battery”, Paper No: HT2013-17366, *ASME Summer Heat Transfer Conference*, Minneapolis, MN, USA.
2. Sathisha, H. M., and Dalal, A., 2013, “2D Transient Numerical Simulation of All-Vanadium Redox Flow Battery”, Paper No: HMTTC1300282, *22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference*, IIT Kharagpur, India.
3. Sathisha, H. M., and Dalal, A., 2014, “3D Unsteady Numerical Simulation of All-Vanadium Redox Flow Battery”, Paper No: 528, *5th International and 41st National Conference on Fluid Mechanics and Fluid Power*, IIT Kanpur, India.
4. Sathisha, H. M., and Dalal, A., 2015, “A Lumped Thermal Model for the Allvanadium Redox Flow Batteries”, Paper No: IHMTTC2015-613, *1st ISHMT-ASTFE and 23rd National Heat and Mass Transfer Conference*, ISRO, Trivandrum, India
5. Sathisha H.M, P Kondaiah, RavikiranKadoli and AppuKuttan K.K., 2010, “Investigation on free vibration due to laminar flow of lubricant in a pipe”, *International Conference on Frontiers in Mechanical Engineering (FIME)*, NITK Surathkal. India.
6. Sangamesh C Managuli, Aswatha, Sathisha H.M, and K N Seetharamu., 2017, “Constitutive Modelling, Analysis of Heat and Mass Transfer in Chicken and Fish meat sample to reduce Uncooked centre area ” Paper No: IHMTTC2017-03-0529, *Proceedings of the 24th National and 2nd International ISHMT-ASTFE, Heat and Mass Transfer Conference (IHMTTC-2017)*, BITS Pilani, Hyderabad, India
7. Yogesh Gowda M.C., Sathisha H M, Bharath Raj L., and T S Prasanna Kumar,2020, “Experimental study of cooling characteristics to analyse quenching phenomenon of non-heat treatable material with different quenchants”, *International Conference on Trends in Mechanical Engineering Sciences (ICTMES)*, MCE, Hassan, India.

## **FDP/STTP/ WORKSHOPS/CONFERENCES/SEMINARS CONDUCTED:**

1. From the department of Mechanical we have organized One Week FDP on CFD at NIE Mysore in the year 2020. I worked as main coordinator to organize the event.
2. From the department of Mechanical we have organized One Week FDP on Turbomachines at NIE Mysore in the year 2020. I was main coordinator to organize the event.

## **OTHER INFORMATION:**

**(Patents Filed/ Membership/Administration/Consultancy/Evaluator/Research Guidance and funding/Awards/Key Roles/Invited Talks Delivered, etc)**

1. I have received research grant of 18.3 Lakhs from DST SERB-TARE Scheme.
2. One of my research scholar awarded Ph.D degree from VTU University, in the year 2022.
3. I have delivered technical talk on Case studies on numerical modeling of Vanadium Redox flow battery FDP Conducted by Govt. Polytechnic Udupi, March 2023
4. I am working as Institute level Career Guidance Cell Coordinator at NIE Mysore