CURRICULUM VITAE

Dr. Shubhankar Chakraborty

Department of Mechanical Engineering
Indian Institute of Information Technology Design and Manufacturing Kancheepuram
Chennai – 600127
Tamilnadu, India
Email – shubhankar04045@gmail.com
Mobile – +919831865718, +918637001052

Current Position

Assistant Professor in the Department of Mechanical Engineering at Indian Institute of Information Technology Design and Manufacturing Kancheepuram

Permanent Address

Flat F3, Kallol Apartment
38N Bhuban Mohan Roy Road
Kolkata – 700008
West Bengal
India

Research Interest

1. Inverse heat transfer and other inverse problems
2. Multisensor data fusion and Image processing
3. Multiphase flow
4. Boiling
5. Natural circulation loop

Teaching Interest

1. Thermodynamics
2. Heat Transfer
3. Refrigeration and Air conditioning
4. Gas Turbine

Fellowship

1. 2017 – NPDF (SERB)
2. 2012 – CSIR SRF
3. 2008 – GATE

Academic qualification

PhD	Department of Mechanical Engineering , Indian Institute of Technology Kharagpur	2010 – 2016	*Thesis title:* Multisensor Measurements and Data Fusion in Inverse Heat Transfer and Multiphase Flow	
M. Tech	Department of Mechanical Engineering , Indian Institute of Technology Kharagpur	2008 – 2010	*Thesis title:* Flow Boiling in Parallel Channel Loop and Structured Heat Sink	CGPA 8.83 out of 10
BE	Department of Mechanical Engineering Jadavpur University	2004 – 2008		81.59%
Higher Secondary	WBCHSE	2002 – 2004		83.80%
Secondary	WBBSE	2000 – 2002		86.75%

Teaching Experience

Ad-hoc Faculty in the Department of Mechanical Engineering, at National Institute of Technology Jamshedpur, India (July, 2016 to July, 2017)

Research Experience

National post-doctoral Fellow at IISc Bangalore From October, 2017 to May 2018

Research activities

PhD:

1. Reconstruction of internal hot spot of a circular disk using Bayesian inference and MCMC technique. The estimation has been made using both synthetic as well as experimental measurement
2. Modelling of electrical and optical sensor for two phase flow
3. Reconstruction of Taylor bubble shape using measurement from multiple electrical and optical sensor and data fusion
4. Study of bubble dynamics and characterization of two phase flow by image processing and machine learning technique

M. Tech:

1. Uniquely designed heat sink has been manufactured and some qualitative and quantitative study has been performed to see the benefits and the limitation of that heat sink.

2. A natural circulation loop with a parallel channel heat sink is modelled. Homogeneous equilibrium model has been used to get the steady state behaviour for different heating in two channels.

Post thesis submission/ Curremt research activity:

1. Evaporation of sessile droplet.
2. An experimental investigation to study flow characteristics of downward air –water two-phase system and comparison with its upward counterpart through image as well as signal processing
3. An experimental study of bubbling through a submerged orifice under various parametric conditions
4. A theoretical study to develop a fire pump with non-overloading characteristics

Technical Expertise

1. Fabricated in-house test setups
2. Used different electrical as well as optical sensors to measure two phase flow
3. Capable of handling different data acquisition systems
4. Have expertise of high speed photography and image processing
5. Have following software expertise:
    a. MatLab
    b. Fluent, Cfx
    c. Autocad
    d. Solidworks
    e. Image Pro plus
    f. LabView

Organisational Experience

1. **Research Scholar Representative** to Institute Senate in Indian Institute of Technology Kharagpur. 2013 – 2014
2. **General Secretary, Maintenance** in the Achrya Jagadish Chandra Bose Hall of residence, Indian Institute of Technology Kharagpur. 2011 – 2012
3. Organised **NI LabVIEW** workshop in the Department of Mechanical Engineering, Indian Institute of Technology Kharagpur. 2010
4. Member of the organising team of **22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference** December, 2013 Indian Institute of Technology Kharagpur. 2013

Publications

Patent

Method And System For Reconstruction Of Moving Voids, by Shubhankar Chakraborty, Partha Roy Chaudhuri*, P. K. Das, Indian Patent, Application No.: 201631003910 dated February 03, 2016* (Published)

Journal

1. A unique methodology of objective regime classification for two phase flow based on the intensity of digital images, **Shubhankar Chakraborty**, P. K. Das, Experimental Thermal and Fluid Science, 99, 537-546, 2018
2. Controlling Self Assembly and Topology at Micro-Nano Length-scales using Contact Free Mixed Nanocolloid Droplet Architecture , Raju, Lijun T., Shubhankar Chakraborty, Binita Pathak, and Saptarshi Basu. *Langmuir*, 34 (18), 5323–5333 (2018).
3. Visualization and flow regime identification of downward air-water flow through a 12 mm diameter vertical tube using image analysis, Akhilesh Peddu, **Shubhankar Chakraborty**, P. K. Das., International Journal of Multiphase Flow, 100, 1-15(2018)
4. Reconstruction of elongated bubbles fusing the information from multiple optical probes through a Bayesian Inference Technique, **Shubhankar Chakraborty**, P. Roy Chaudhuri, P. K. Das, Review of Scientific Instruments, 87 (7), 075109 (2016)
5. Flow boiling in a heat sink embedded with hexagonally linked minichannels, **Shubhankar Chakraborty**, OP Sahu, P. K. Das, *ASME J. of Heat Transfer,* 138 (8), 081504-081504-8 (2016)
6. Model based reconstruction of an axisymmetric moving void using multiple conductivity probes, **Shubhankar Chakraborty**, P. K. Das, *Chemical Engineering Science,* 146, 64-75 (2016)
7. Steady State Performance of a Rectangular Natural Circulation Loop with Differentially Heated Parallel Channels*,* **Shubhankar Chakraborty**, P. K. Das, ASME J. of *Thermal Science and Engineering Applications,* 8(1), 011022 (2015)
8. Application of Bayesian Inference Technique for the reconstruction of an isothermal hot spot inside a circular disc from peripheral temperature measurement - a critical assessment, **Shubhankar Chakraborty**, P.K.Das, *International Journal of Heat and Mass Transfer,* 88, 456-469, (2015)
9. Critical Heat Flux During Flow Boiling in Mini And Microchannel-A State of the Art Revie, P. K. Das, **Shubhankar Chakraborty**, S. Bhaduri *Frontiers in Heat and Mass Transfer* 3, 013008(1-17) (2012)

Conference

1. Identification of transient internal heat source using modified levenberg–marquardt algorithm, **Shubhankar Chakraborty**, P. K. Das, *24th National and 2nd International ISHMTASTEF Heat and Mass Transfer Conference, December 27-30, 2017, BITS Pilani Hyderabad Campus, India,* **IHMTC2017-19-1363**
2. Characterization of bubbly flow through the fusion of multiple features extracted from high speed images, **Shubhankar Chakraborty**, P. K. Das, *Proceeding of IEEE 1st*

International Conference on Control, Measurement and Instrumentation, January 8-10, 2016, Kolkata, India, **366-370**

3. Reconstruction of an internal heat source using heat flux sensor and Bayesian inference technique, **Shubhankar Chakraborty**, Monika Pani, P. K. Das, *Proceeding of 23rd National and 1st International ISHMTASTEF Heat and Mass Transfer Conference, December 17-20, 2015, Thiruvananthapuram, India,* **IHMTC2015-254**
4. Steady State Performance of a Rectangular Natural Circulation Loop with Differentially Heated Parallel Channels, **Shubhankar Chakraborty**, P. K. Das, *Proceedings of the 22nd National and 11th International ISHMT-ASME Heat and Mass Transfer Conference December 28-31, 2013, IIT Kharagpur, India* **HMTC1300115** (2013).
5. Prediction of Curved Interface for Stratified Gas-Liquid Flow Fusing Data from Multiple Conductivity Probe, **Shubhankar Chakraborty**, P. K. Das, S. Mukhopadhyay *8th International Conference on Multiphase Flow, ICMF 2013, Jeju, Korea* **ICMF-2013-161** (2013).

Personal Details :

Date of Birth : 01.10.1986
Gender : Male
Nationality : Indian