

# Himadri Sekhar Basu, M.Tech.

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## PERSONAL INFORMATION

DATE OF BIRTH:    📅 12th May 1993  
PLACE OF BIRTH:    📍 Gourhati, Arambagh, Hooghly, West Bengal-712613, India  
CORRESPONDENCE ADDRESS:    📍 Room No. 201, Microfluidics Laboratory, School of Mechanical Sciences, Indian Institute of Technology Bhubaneswar, Khordha, Odisha-752050, India

## CAREER OBJECTIVE

To utilise my potential skills and knowledge, as a research scholar, in the best possible way towards the betterment and development of humanity by joining a research environment.

## AREA OF INTEREST

Microfluidics, Electro-hydrodynamics, Flow Instabilities, Non-conventional Energy, Fuel cell, Heat Transfer, Experimental and Numerical techniques in Fluid Mechanics, Multi-phase flow

## WORK EXPERIENCE

- 08/2017 – 10/2017    📌 **Junior Research Fellow at IIT BHUBANESWAR, Bhubaneswar**  
*CHF enhancement in pool boiling*  
Performing experiments on enhancement of critical heat flux in pool boiling through surface modification.
- 01/2017 – 05/2017    📌 **Teaching Assistant at IIT BHUBANESWAR, Bhubaneswar**  
*Introduction to manufacturing processes*  
Worked as teaching assistant under Dr. Ankur Gupta and instructed undergraduate students to use various machine tools like, lathe etc. in workshop for different machining operations.
- 05/2016 – 05/2017    📌 **Research Assistant at IIT BHUBANESWAR, Bhubaneswar**  
*Hybrid LB-FD simulation for study of electrokinetic instability*  
Developed a general numerical framework as a part of master's thesis project under the guidance of Dr. Sasidhar Kondaraju using hybrid lattice-Boltzmann-Finite Difference scheme to simulate electrokinetic flow instabilities observed in micro-TAS and FASS devices. This scheme solves the two dimensional coupled Ohmic model governing equations described by Lin et al. (2004).

## EDUCATION

- 2018 – Present    📌 **Doctor of Philosophy in MECHANICAL ENGINEERING**  
Indian Institute of Technology Bhubaneswar, Odisha, India

## EDUCATION (continued)

- 2015 – 2017    ■ **Master of Technology in THERMAL SCIENCE AND ENGINEERING**  
**Indian Institute of Technology Bhubaneswar**, Odisha, India  
Thesis title: “Hybrid lattice Boltzmann-Finite Difference simulation for study of electrokinetic instability” | Advisor: Dr. Sasidhar Kondaraju  
CGPA: 8.74/10
- 2010 – 2014    ■ **Bachelor of Technology in MECHANICAL ENGINEERING**  
**Jalpaiguri Government Engineering College**, West Bengal, India  
CGPA: 7.91/10

## ACHIEVEMENTS

- 2015 – 2017    ■ **MHRD Scholarship for postgraduate students admitted through GATE**,  
GATE: 743 (99.145 percentile),  
by Ministry of Human Resource Development (MHRD), Government of India  
(₹12400/month)
- 2011 – 2014    ■ **MHRD Scholarship For College And University Students**,  
(for students in West Bengal securing over 80% in their 12<sup>th</sup> Examination)  
by Government of West Bengal, India (₹10000/year)
- 2008    ■ **National Talent Search Examination**, by NCERT, Government of India  
Cleared 2<sup>nd</sup> Stage examination

## SKILLS

Languages	■	BENGALI:	Mother tongue
		ENGLISH:	Fluent (TOEFL score: 6.5, CEFR Level: B2)
		HINDI:	Fluent
		JAPANESE:	Basic Knowledge
Coding	■	C, C++, FORTRAN 90/95, Python, MATLAB, L <sup>A</sup> T <sub>E</sub> X	
Web Development	■	HTML, CSS, JavaScript	
Software Package	■	ANSYS (Fluent), SolidWorks, LibreOffice	
Misc.	■	LINUX, UBUNTU, Academic research, teaching, training	

## Research Publications

### Journal Articles

- 1 Basu, H. S., Kondaraju, S. & Bahga, S. S. (2023). Lattice boltzmann finite-difference-based model for fully nonlinear electrohydrodynamic deformation of a liquid droplet. *Phys. Rev. E*, 107, 065305. doi:10.1103/PhysRevE.107.065305
- 2 Basu, H. S., Bahga, S. S. & Kondaraju, S. (2020). A fully coupled hybrid lattice boltzmann and finite difference method-based study of transient electrokinetic flows. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 476(2242), 20200423. doi:10.1098/rspa.2020.0423

### Conference Proceedings

- 1 Basu, H. S., Bahga, S. S. & Kondaraju, S. (2019). A fully coupled hybrid lattice boltzmann-finite difference method for transient electrokinetics. In *28th international conference on discrete simulation of fluid dynamics*. DSFD.

## CO-CURRICULAR ACTIVITIES

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2011-2012 ■ Taught science subjects to high school students in JYOTI,  
The Free Night School, JGEC.

## Declaration

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I hereby declare that the above information is true to the best of my knowledge and belief.

Himadri Sekhar Basu.

## REFEREES

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