Shivam Kumar Pandey
Mechanical Engineering
Indian Institute of Technology, Bhubaneswar
Specialization: Thermal Science and Engineering

E-mail: skp21@iitbbs.ac.in
Dual-degree (BTech + MTech)
Male
DOB: 20-03-2001

Education

2018-Present **5-year dual degree with BTech in Mechanical Engineering and MTech in Thermal Science and Engineering, Indian Institute of Technology, Bhubaneswar**
BTech Thesis: Lattice Boltzmann modelling for droplet generation in a co-flow microchannel.
Maintained a CGPA of **8.58/10.00** at the end of the fourth year.

2018 **Maharishi Arvind Sikshan Sansthan, Chandauli, Uttar Pradesh**
First-class result with an overall score of **89%**.

2016 **Kendriya Vidyalaya Mughalsarai, Uttar Pradesh**
Maintained a perfect CGPA of **10.0/10.0**.

List of Publications

[1]. SK Pandey, K Tewari, V Athawale and A Bhattacharya. "Effect of internal channels on encapsulated PCM with constant volume", Proceedings of the 1st International Conference in Fluid Thermal and Energy Systems, June 9-11, 2022, NIT Calicut, Kerala, India, ICFTES2022–ES–126.

Under Review

[1]. K Tewari, SK Pandey, V Athawale and A Bhattacharya. "Effect of internal channels on encapsulated PCM in a packed bed system", Journal of Energy Storage.

Internship Experience

Numerical analysis of droplet impact on solid surface **May 2021 – July 2021**
Guide: Dr. Binita Pathak, **IIT BHU, Varanasi**

- Numerically studied the droplet spread and used UDF to implement Kistler's dynamic contact angle of a droplet impacting a solid surface in ANSYS Fluent.
- Captured kinematic, spreading, retracting and equilibrium phases during droplet impact over a dry flat substrate.
- Validated the model using experimentally determined results of the group.

Major and Minor Projects

Lattice Boltzmann modelling for droplet generation in a co-flow microchannel **August 2021 – May 2022**
Guide: Dr. Sasidhar Kondaraju, **IIT Bhubaneswar**

- Implemented **lattice Boltzmann method** into both the single-component and multi-component flow problems using **C language**.
- Validated the **Taylor's deformation** in droplet shearing by showing a linear relationship between **deformation index** and **capillary number**.
- Generated droplets and observed the effect of **flow ratio** and **surface tension** on different droplet breakup regimes and droplet diameter.

Vibrational analysis of a locomotive with multiple degrees of freedom **May 2020 – June 2020**
Guide: Self-guided

- Obtained **different modes of vibration vs time** for a locomotive system with multiple freedom of vibration.
- Solved the second order equation of motion and obtained the plots for respective modes of vibration using **MATLAB**.

Scholastic Achievements

- Nominated for the **best B. Tech project award 2022** along with only 4 students in all disciplines, after getting Ex grade (top 1%) in both semesters.
- Presented a conference paper at the **1st International Conference in Fluid Thermal and Energy Systems (ICFTES'22)**.
- Changed my branch to **Mechanical Engineering** along with top **23 students** in all disciplines.
- Secured an AIR of **9709** in **JEE Advanced 2018** out of about **150,000** qualified students.
- Secured an AIR of **18452** in **JEE Mains 2018** out of about **1.2 million** students appeared.
- Secured an AIR of **432** in **UPSEE 2018** out of about **200,000** students appeared.

Skills

- Knowledge of basic **image processing** for analyzing experimental results using **MATLAB**.
- Experienced working with **CAD/CAE** softwares like **Solidworks** and **ANSYS**.
- Worked with programming languages like **C**, **Fortan-90** and **Python**.

Referees

Dr. Sasidhar Kondaraju
IIT Bhubaneswar
sasidhar@iitbbs.ac.in

Dr. Anirban Bhattacharya
IIT Bhubaneswar
anirban@iitbbs.ac.in

Dr. Venugopal Arumuru
IIT Bhubaneswar
venugopal@iitbbs.ac.in