

## Sagar Ranjan Panda

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### PROFILE SUMMARY

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I am a Ph.D. scholar at Indian Institute of Science, Bangalore. I have expertise in the following areas,

- Gas turbine combustor development
- CFD modeling for reacting flows
- Chemical kinetics
- Reaction mechanism development and optimization
- Turbulent flows study
- Gas turbine reactor network modeling
- Laminar flame speed experimental and numerical study

### RESEARCH AREA

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In my Doctoral research, I have worked on,

- Gas turbine combustion chamber experimental setup.
- Hot flow and cold flow numerical (CFD) and experimental study in a Single Can Reverse flow gas turbine combustor.
- Design and modification of the combustion chamber for alternative fuel operation with experimental and numerical study.
- Laminar flame speed experimental and numerical analysis for alternative fuels.
- Skeletal and reduced chemical kinetic mechanism generation from the detailed mechanism for CFD analysis.

### EDUCATION

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| 2017-     | Indian institute of Science, Bengaluru, Karnataka<br><b>PhD (Ongoing), Expected Thesis submission: January 2023.</b><br>Thesis title: <b>Adaptation and characterization of ATF gas turbine combustor for bio-derived Producer gas operation.</b><br>Thesis advisor: <b>Prof. S. Dasappa</b> |
| 2010-2013 | Indira Gandhi Institute of Technology, Sarang, Dhenkanal, Odisha<br>B.Tech. in Mechanical Engineering<br>Project: Fractural strength characterization of Al-Si alloy   |
| 2008-2010 | Institute of Textile Technology, Cuttack, Odisha<br>Diploma in Mechanical Engineering  |

### SKILLS

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Design – Solid works, Auto CAD, Space Claim  
CFD – ANSYS Fluent  
Chemical Kinetics – ANSYS Chemkin  
Python (Beginner)

## **EXPERIENCE**

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Project Assistant at Centre for Nano Science and Engineering, IISc, Bengaluru, from 2016-2017, working on Gallium Nitride device fabrication, dicing, and packaging.

## **INDUSTRIAL EXPERIENCE**

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1-year advance machining course at CTTC, Bhubaneswar, Odisha on CNC Part Programming, EDM and Wire EDM, Conventional Turning, CNC Turning, Conventional Milling, CNC Milling, Conventional Surface Grinding, CNC Grinding.

## **ARTICLE PUBLICATION**

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### **Published**

1. **Panda, S. R.**, Shivapuji, A. M., & Srinivasaiah, D. (2022). Generation of skeletal and reduced reaction mechanisms for bio-derived syngas generated from biomass gasification—Experimental and numerical approach. *International Journal of Hydrogen Energy*.

### **Under Review**

1. **Panda, S. R.**, Shivapuji, A. M., & Srinivasaiah, D. (2022). Ex-situ characterization of a Single Can Reverse flow gas turbine combustor for bio-derived Syngas fuelled operation – Combustor casing development. *International Journal of Hydrogen Energy*.

### **Under Preparation**

1. **Panda, S. R.**, Shivapuji, A. M., & Srinivasaiah, D. (2022). “Cold flow numerical and experimental validation of velocity flow field in a reverse flow gas turbine combustion chamber” – To be submitted in *The Journal of Applied Thermal Engineering*.
2. **Panda, S. R.**, Shivapuji, A. M., & Srinivasaiah, D. (2022). “Temperature and Emission analysis in a reverse flow gas turbine combustor for Producer gas combustion-Experiment and Numerical study” – To be submitted in *The Journal of Applied Thermal Engineering*.
3. **Panda, S. R.**, Shivapuji, A. M., & Srinivasaiah, D. (2022). “Gas turbine reactor network analysis for the prediction of CO and NO<sub>x</sub> in a reverse flow gas turbine combustion chamber-Experiment and Numerical approach” – To be submitted in *The Journal of Fuels*.

## **CONFERENCE**

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1. **Panda, S. R.**, Shivapuji, A. M., & Srinivasaiah, D. (2022). Adaptation of ATF gas turbine combustor for bio-derived Syngas combustion. **30<sup>th</sup> European Biomass Conference & Exhibition (EUBCE)**, 09<sup>th</sup> -12<sup>th</sup> May, Marseille, France.
2. **Panda, S. R.**, Shivapuji, A. M., & Srinivasaiah, D. (2022). In-situ fluid dynamic characterization of a gas turbine combustor for operation with low-btu gas from biomass. **16<sup>th</sup> International conference on combustion (INCOS)**, 08<sup>th</sup> -11<sup>th</sup> September, Aydin, Turkey.