Krishn Chandra | 44, Pipra, Sahjanwa, Gorakhpur (U.P.) - 273209, India

Mobile: +91 9415511269, Telephone: 0522-3650810 Email: kchandraiitk@gmail.com

CURRICULUM VITAE

Personal Details

Date of Birth:	02-02-1990
Nationality:	Indian
Marital Status:	Single
ORCID:	0000-0001-9164-5071

Education

01/11/2018 – 27/06/2022 University of Campania "Luigi Vanvitelli", Italy

- PhD in Mechanical Engineering (Energy Conversion)
- Thesis title: Prototype Development of Spark-Ignited Genset Engine Fuelled with Methanol-Gasoline Blends.
- **Research Area**: Combustion, Regulated Emission, Unregulated Emission, Microscopic and Macroscopic Spray Characterization, Particulate Characterization & Soot Morphology.

21/07/2014 – 02/11/2016 Indian Institute of Technology Kanpur (IIT Kanpur), India

- M. Tech in Mechanical Engineering (Fluid and Thermal Sciences)
- Thesis title: "Combustion Visualization and Particulate Characterization of Waste Cooking and Karanja Biodiesel Fuelled Engine."
- **Research Area**: Biodiesel, Combustion visualization, Microscopic and Macroscopic Spray Characterization, Soot & Particulate Characterization, Trace Metals, Elemental Carbon (EC)/Organic Carbon (OC) and Total Carbon (TC) from Engine Exhaust.

July/2005 – June/2009 Uttar Pradesh Technical University Lucknow, India

- B. Tech in Mechanical Engineering

Current Position

Position:	Project Scientist
Starting date:	21/02/2024
Institute/University:	Indian Institute of Technology Kanpur (IIT Kanpur), India
Department:	Mechanical Engineering

Previous Positions

01/10/2023 – 20/02/2024	Research Fellow at University of Campania Luigi Vanvitelli, Italy
01/10/2022 – 30/09/2023	Research Fellow at University of Campania Luigi Vanvitelli, Italy
July/2018 – December/2018	Assistant Professor at Babasaheb Bhimrao Ambedkar University, Lucknow, India

August/2017 – June/2018	Assistant at Chandra Shekhar Azad University of Agriculture and Technology, Etawah, India
August/2013 – June/2014	Lecturer at R.R. Institute of Modern Technology, Lucknow, India
September/2009 – July/2013	Lecturer at Sagar Institute of Technology and Management Barabanki, India
June/2008 – July/2008	Two months internship at "Diesel Locomotive Works" Varanasi, India
June/2007 – July/2007	Two months internship at "Diesel Locomotive Works" Varanasi, India

CV Summary

- Worked as a Research Fellow in the department of engineering at the University of Campania Luigi Vanvitelli, Italy, from 01 October 2022 to 20 February 2023.
- Proficient in conducting experimental tasks and limited exposure to numerical simulations.
- Showcased the capability to manage individual projects, conduct independent experimental studies, and compile reports effectively.
- Able to independently arrange the experimental setup for engines, plan experiments, and execute them effectively.
- Capable of operating advanced equipment, including sophisticated engines, combustion data acquisition systems, analyzers for regulated and unregulated emissions, and various sensors.
- Familiar with liquid fuels like methanol, biodiesel, fossil fuels, and combinations thereof through practical experience.

International Visit

- Visited the "Engine Research Laboratory" at the Indian Institute of Technology Kanpur (IIT Kanpur), India, to conduct experiments during the Ph.D. program from September 4, 2020, to June 7, 2022.
- Concluded a two-month internship (from December 1, 2019, to January 31, 2020) at the "Engine Research Laboratory" at the Indian Institute of Technology Kanpur (IIT Kanpur), India, as part of the Ph.D. program.
- Visited **Engine LAB** at Korea Advanced Institute of Science & Technology (KAIST), Daejeon, South Korea in 2016 as part of the master's degree program.
  - Objectives
    - ✓ Effects of various biodiesel fuels on combustion and emission characteristics in a compression ignition engine.
    - ✓ In-cylinder combustion and spray visualization and soot processes of biodiesel engine.
    - ✓ Investigate the morphological and compositional characteristics of particulate matter from biodiesel combustion and compare it with diesel fuel.

Skills

- Combustion and performance characterization
- Spray visualization in an optical engine as well as a constant volume spray chamber (CVSC)
- In-cylinder combustion visualization in an optical engine
- Phase Doppler Interferometer (PDI) operation for microscopic spray characterization
- Particulate matter (PM) and trace metals characterization from an engine.
- Regulated and unregulated emissions characterization

- **Software Skills:** Ansys-Fluent, Tecplot for data visualization and CFD post-processing, Python (basics), MatLab (basics), LaTeX, Origin Lab for data analysis and graph plotting.
- **Languages:** English, Hindi and Italian (A1 Level)

Research Projects

Indo- Korea" joint research project, where the collaborator was "Engine Lab" at the Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea.

Objectives of this research project*:*

- Impact of different biodiesel fuels on combustion and emission characteristics in an optical compression ignition engine.
- Visualizing in-cylinder combustion and spray, as well as understanding soot processes in a biodiesel engine.
- Examine the morphology and compositional characteristics of soot generated from the combustion of pure biodiesel and its blends and make comparisons with diesel fuel.

Contracts, Technological or Transfer Merits

Contributed to an industry-focused project titled "Prototype Development of an Engine for Utilizing Methanol (M100) in Genset Engines (3kW and 7 kW) in collaboration with Honda Power Products India.

The project aimed to achieve the following objectives:

- To develop technologies for methanol fuel injection in exiting gasoline genset engines.
- To optimize ECU Mapping using closed-loop control of different parameters such as injection, spark timing, etc.
- Jet modification was performed with a carbureted engine.
- Microscopic and macroscopic spray investigations using Phase Dopler Interferometry (PDI) for injector development.
- Performance, combustion, emissions, and particulate matter (soot morphology) characterization were studied.

Publications / Book Chapter / Conference

1. **Chandra, K**., Sabet, S., Kaya, H., Buonomo, B., & Manca, O. (2023). A transient numerical approach for phase change material effect on mixed convection in an open cavity. International Communications in Heat and Mass Transfer, 148, 107051.
2. Kumar, D., Sonawane, U., **Chandra, K**. and Agarwal, A.K., 2022. Experimental investigations of methanol fumigation via port fuel injection in preheated intake air in a single cylinder dual-fuel diesel engine. *Fuel*, *324*, p.124340.
3. Agarwal, A.K. and **Chandra, K.**, 2022. Di-ethyl ether-diesel blends fuelled off-road tractor engine: Part-I: Technical feasibility. *Fuel*, *308*, p.121972.
4. Patel, C., **Chandra, K.**, Hwang, J., Agarwal, R.A., Gupta, N., Bae, C., Gupta, T. and Agarwal, A.K., 2019. Comparative compression ignition engine performance, combustion, and emission characteristics, and trace metals in particulates from Waste cooking oil, Jatropha and Karanja oil derived biodiesels. *Fuel*, *236*, pp.1366-1376.
5. Patel, C., Hwang, J., **Chandra, K.**, Agarwal, R.A., Bae, C., Gupta, T. and Agarwal, A.K., 2019. In-cylinder spray and combustion investigations in a heavy-duty optical engine fueled with waste cooking oil, Jatropha, and Karanja biodiesels. *Journal of Energy Resources Technology*, *141*(1).

6. **Chandra, K.**, Agarwal, A.K., Manca, O. and Unich, A., 2022. Waste Heat Recovery Potential from Internal Combustion Engines Using Organic Rankine Cycle. In *Advanced Combustion for Sustainable Transport* (pp. 331-364). Springer, Singapore.

Conference/Workshops

1. Presented conference paper "Prototype Development of Methanol-Gasoline Blend Fueled Spark Ignited Genset Engine" in "VI International Conference on Sustainable Energy and Environmental Challenges (SEEC)-2021" Organized by International Society for Energy Environment and Sustainability, Lucknow, India from December 27-29, 2021.
2. ISEES International Workshop on Sustainable Energy, Environment & Safety with Railway Centric Theme-2015, Lucknow, India
3. All India seminar on Energy Management in Indian Perspective: Efficiency Improvement and Energy Conversion in Power & Utilities & Emerging Technologies in the Alternative Energy for Power Generation- 2008 Engineers Bhawan, Lucknow, India

Award

- Awarded "Best M.Tech Thesis Award" in ISEES International Conference on Sustainable Energy and Environmental Challenges (SEEC)-2017, Center of Innovative and Applied Bioprocessing (CIAB), Mohali, India.

Declaration

I do hereby declare that the above particulars furnished by me are true to the best of my knowledge and belief.

Date: 01st May 2024

Krishn Chandra