



Dr. Bireswar Paul

Designation	Assistant Professor Department of Mechanical Engineering Motilal Nehru National Institute of Technology Allahabad Allahabad – 211 004, Uttar Pradesh, INDIA
Specialization:	Thermal Engineering
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ACADEMIC QUALIFICATION:

Degree	Year	University/Institute	% Marks	Div.
Ph. D.	2014	Jadavpur University	--	I
M.E. (Power Engineering)	2009	Jadavpur University	86.2% (CGPA 9.28/10)	I (1 st)
B.E. (Mechanical Engineering)	2006	NIT, Agartala	78.2%	ID
H.S. (+2 Stage)	2002	T.B.H.S.E	75.9%	I
Secondary Examination	2000	T.B.S.E	68.4%	I

EXPERIENCE:

Institute	Designation	Duration
Motilal Nehru National Institute of Technology, Allahabad	Assistant Professor	November, 2012 onwards
Jadavpur University, Kolkata	Guest Faculty	January, 2010 to March, 2010
National Institute of Technology, Agartala	Assistant Professor	August, 2009 to December, 2009

MAJOR AREAS OF INTERESTS:

- Flame synthesis of carbon nanoparticles and nanostructure.
- IC engine, combustion and pollution
- Characterization of the ultra-fine particles formed during the combustion of liquid fuel in laboratory and engine environment.
- Combustion analysis of different types of flames.

COURSES TAUGHT:

- **UG Level:** Heat and Mass Transfer, Engineering Thermodynamics, Thermal Engineering and Power Plant Engineering.
- **PG Level:** Gas Turbine & Jet Propulsion and Advanced Gas Dynamics.

ACHIEVEMENT:

- Has been selected for the prestigious **CSIR DIRECT SRF fellowship** in March, 2010.
- First class **1st** in Master of Power Engineering, **Gold Medalist**.
- Qualified **GATE** in Mechanical Engg. 2007.

MEMBERSHIP OF LEARNED SOCIETIES:

- Life member of Combustion Institute – Indian Section (**CI-IS**)
- Life member of Indian Society of Heat and Mass Transfer (**ISHMT**)
- Life member of International Association of Engineers (**IAENG**)

ADMINISTRATIVE RESPONSIBILITIES

- Dy. O.C. **IC Engine** laboratory respectively from July, 2013 to October, 2015.
- O.C. **Steam Power Engineering** laboratory from January, 2015 onwards.
- NBA representative of the department from 03rd April, 2014 to 18th April, 2017.
- O.C. **RAC** laboratory from 15th October, 2015 onwards.

PUBLICATIONS:

International Journal

1. **Paul B.** and Datta A. Burner Development for the Reduction of NO_x Emissions from Coal Fired Electric Utilities. **Recent Patents on Mechanical Engineering** 1(3) (2008) 175-189.
2. **Paul B.**, Datta A., Datta A. and Saha A. Occurrence and Characterization of Carbon Nanoparticles below the Soot Laden Zone of a Partially Premixed Flame. **Combustion and Flame** 156 (2009) 2319–2327.
3. Bhattacharya A., Manna D., **Paul B.**, Datta A. Biomass integrated gasification combined cycle power generation with supplementary biomass firing: Energy and exergy based performance analysis. **Energy** 36 (2011) 2599-2610.
4. **Paul B.**, Datta A., Datta A. and Saha A. Optical characterization of nano-sized organic carbon particles emitted from a small gasoline engine. **Particuology** 11 (2013) 249 – 255.
5. **Paul B.** and Datta A. Emission of Hydrophilic Soot Precursor Particulates from a Small Gasoline Engine at Different Load Conditions. **Journal of the Energy Institute** 86 (2013) 78 – 84.
6. **Paul B.**, Datta A., Datta A. and Saha A. A comparison of chemical structures of soot precursor nanoparticles from liquid fuel combustion in flames and engine. **Journal of Nanoparticle Research** (2013) 15:1550.
7. **Bireswar Paul** and Amitava Datta. FTIR Characterization of Soot Precursor Nano-particles from Different Heights of an Isooctane/Air Premixed Flame. **Intl. Journal of Advances in Engg. Sciences and Applied Mathematics** 6 (1) (2014) 97-105.
8. Ajay Singh and **Bireswar Paul**. Numerical Study of Convection Heat Transfer using Nanofluid in the Developing Region of a Tube Flow. **Journal of Advances in Mechanical Engineering and Science** 1(3), (2015) 14 – 20.
9. Manish Kumar, **Bireswar Paul** and Dhananjay Singh Yadav, 2016. Effect of moisture content and equivalence ratio on the gasification process for different biomass fuel. *International Journal of Mechanical Engineering & Technology (IJMET)*. Volume:7, Issue:6, Pages: 209-220.
10. Kushwaha, G., Saraswati, S., and **Paul, B.** (2016) Effect of different lubricating oil on the adsorption/desorption process of fuel in oil layer in an SI engine. *Lubr. Sci.*, 29: 73–91. doi: [10.1002/lvs.1358](https://doi.org/10.1002/lvs.1358).

International Conference

1. **Paul B.** and Datta A. Formation and Growth of Carbon Nano-particles in LPG/Air Partially Premixed Flames. **8TH-ASPACC-2010**. pp. 373-379. The conference held at Taramati Baradari Cultural Complex from 10th-13th December 2010, Hyderabad, India
2. **Paul B.** and Datta A. Nano-Sized Carbon Particulates In The Gasoline Engine Exhaust. Proceedings of the International Conference on Mechanical Engineering 2011, Paper No. ICME 11-TH-03, **ICME-2011**, 18-20 December 2011, Dhaka, Bangladesh.
3. **Paul B.**, Datta A., Datta A. and Saha A. Spectroscopic Study of the Engine Emitted Nano-Organic Carbon Particles Using UV-Absorption, Fluorescence and FTIR. International Conference on Nanoscience and Technology 2012, **ICONSAT-2012**, January 20th-23rd, Hotel Taj Krishna, Hyderabad, India. Poster Presentation.
4. **Paul B.**, Datta A., Datta A. and Saha A. A Spectroscopic Study of the Nano-Organic Carbon Particles from ISO-Octane Flame and Gasoline Engine. 16th **ETH-Conference on Combustion Generated Nanoparticles**, June 24th-27th 2012, Zurich, Switzerland. Poster Presentation.
5. **Bireswar Paul** and Amitava Datta. Particulate Emission from Gasoline Engines. Proceedings of the 1st KIIT International Symposium on Advances in Automotive Technology. Invited paper 4. pp. xxxi – xxxvi. **KIIT SAAT – 2013**, 11th – 12th January, KIIT University, Bhubaneswar, Odisha, India.
6. **Bireswar Paul** and Amitava Datta. Chemical Structures of Soot Precursor Nanoparticles in Liquid Fuel Flame. **9th Asia-Pacific Conference on Combustion**, Gyeongju Hilton, Gyeongju, Korea, 19-22 May 2013.
7. Dhananjay Singh Yadav and **Bireswar Paul**. Numerical analysis of methane-air laminar diffusion flame with CO₂ dilution. **Global Conference on Renewable Energy (GCRE 2015)**. 04 – 06 March 2016. Organised by: Department of Mechanical Engineering, NIT, Patna, India and Weentech, United Kingdom.
8. Abhishek Raj, J.C. Mohanta, **Bireswar Paul**, Mohd. Nayab Zafar. Design of a new improved intake manifold for f-SAE car. 19th International Conference on Recent Development In Mechanical, Production, Industrial and Automobile Engineering (**ICMPIAE 2016**). 12th June, 2016 Delhi. Organized by: TECHNICAL RESEARCH ORGANISATION INDIA. ISBN: 978-93-85225-66-6.
9. Bharti, A., **Paul, B.**, “Heat transfer analysis of solar parabolic trough collector”, Proceedings of the 6th International and 43rd National Conference on Fluid

- Mechanics and Fluid Power FMFP, 2016, MNNIT, Allahabad, Paper ID - 524, 15th - 17th December, 2016.
10. Bharti, A., **Paul, B.**, “Design of solar parabolic trough collector”, Proceedings of the International Conference on Advances in Mechanical, Industrial, Automation and Management Systems (AMIAMS) 2017, MNNIT, Allahabad, Paper ID - 103, 3rd-5th February, 2017.
 11. Kushwaha G, Kishore C, **Paul B.**, and Saraswati S, "Effect of engine oil properties on exhaust hydrocarbon emission" Proceedings of the 1st International and 18th ISME Conference, February 23rd – 25th, 2017, NIT Warangal, Warangal, 2017, Paper ID: ISME-TE-077.

National Conference

1. **Paul B.** and Datta A. Effect of engine load condition on the emission of nano-sized organic carbon particles from S.I. Engine. Proceedings of the 22nd National Conference on IC Engines and Combustion, **NCICEC-2011**, pp. 334-339, NIT-Calicut, Kerala, India: 10-13, December, 2011.
2. Mohit Kumar Wagdre, J. C. Mohanta, **B. Paul**. Solidification and thermal analysis of aluminium alloy casting with different sand mould. National Conference on Product Design and Manufacturing (**NCPDM 2015**), November 21-22, 2015. MNNIT Allahabad, Allahabad, UP, India.

Conference & Workshop attended:

1. Attended one-week Workshop on “**High Resolution X-ray and Electron Diffraction**” supported by **TEQIP** and **DST (FIST)** at **IIT Kanpur** from 01 – 05 February, 2016.
2. One-week Short Term Course on "Application of Soft Computing Methods in Engineering - **ASCME-2014**" organized by Department of Mechanical Engineering, Motilal Nehru National Institute of Technology Allahabad during May 26-30, 2014.
3. Attended a two day Sensitization Workshop on “**Intellectual Property Rights**”, organized by **IPR cell Motilal Nehru National Institute of Technology Allahabad**. The workshop was held on February 6 – 7, 2014.
4. Attended a two day **Faculty Orientation Programme** under **TEQIP – II** at MNNIT Allahabad. The workshop was organized during January 12-13, 2013.
5. Presented a poster on “Characterization of Nano-organic Carbon Particles from ISO-Octane Flame and Gasoline Engine Exhaust: A Spectroscopic

Approach” as a young researcher in the **Humboldt Kolleg (colloquium) on “Education and Development” at N.I.T., Agartala**. The event was sponsored by the Alexander von Humboldt Foundation, Germany and was held on 23rd to 26th January, 2014.

6. Presented a poster in the **INDO-US Workshop on Biofuels: Combustion and Fuel Injection**, June 22 -23, 2011 in the Department of Mechanical Engineering, **IISc, Bangalore**. Title of the poster “Evidence of Nano-sized Organic Carbon Particles in the LPG/air Partially Premixed Flame and at Gasoline Engine Exhaust”.
7. Presented a paper titled “Existence of Carbon Nanoparticle in Partially Premixed LPG/air Flame”, in the **FOSET ACADEMIC MEET, 2010**. The paper has been awarded third position.
8. Presented a paper titled “Thermodynamic Analysis of Supplementary Fired Biomass Integrated Combined Cycle Power Generation”, in the **FOSET ACADEMIC MEET, 2011**. The paper has been awarded third position.

B. Tech Project Supervised:

Completed:

1. Performance and Emission Analysis of SI Engine using Inert Gas. Group of five students. Session 2013-14.
2. CFD analysis of heat transfer augmentation for flow through tube using various inserts. Group of three students. Session 2014-15.
3. Design, fabrication and measurement of laminar burning velocity of gaseous fuel-air mixture. Group of three students. Session 2014-15.
4. Fluid flow and heat transfer analysis of the heat collector element of Parabolic Solar Collector. Group of three students. Session 2015-16.
5. Design and fabrication of experimental setup to evaluate the combustion characteristics of bio-fuel. Group of three students. Session 2015-16.
6. Production and evaluation of burning characteristics of biofuels. Group of two students. Session 2016-17.
7. Analysis of parabolic trough collector. Group of five students. Session 2016-17.
8. Study and performance analysis of domestic LPG cook stove with biogas dilution. Group of two students. Session 2016-17.

M. Tech Thesis Supervised:

Completed:

1. Numerical study of convection heat transfer of nano fluid in the developing region of a tube flow. **Mr. Ajay Singh** (Reg. No. 2013CC06). Session 2014-15.
2. Solidification and thermal analysis of alluminium alloy casting with different sand moulds. **Mr. Mohit Kumar Wagdre** (Reg. No. 2013CC18). Session 2014-15.
3. Design of down draft biomass gasifier and equilibrium modelling for different biomass fuels. **Mr. Manish Kumar** (Reg. No. 2014TH06). Session 2015-16.
4. Numerical simulation of convection heat transfer using nanofluid in a circular tube: A two phase flow approach. **Mr. Sachin Kumar Garg** (Reg. No. 2014TH02). Session 2015-16.
5. Design of Intake Manifold and its Performance Analysis. **Mr. Abhisek Raj** (Reg. No. 2014PD17). Session 2015-16.

Ph. D Thesis Supervised

Ongoing: 03

Research Projects ongoing/completed:

1. Flame synthesis of carbon nanotubes and nanofibers. Institute funded project. 2.20 Lakhs. Ongoing.

Short Term Course Organized:

1. *TEQIP-II* sponsored One-Week Short Term Course (STC) on “*Alternative Sources of Energy for Sustainable Development (ASESD 2017)*” during **March 27th--31st, 2017**.

Keynote Lectures Delivered:

1. TEQIP-II Sponsored Short Term Course on “*EMERGING TRENDS IN THERMAL ENGINEERING (ETITE-2017)*” **February 27th - 03rd March, 2017**, Mechanical Engineering Department, Madan Mohan Malaviya University of Technology, Gorakhpur-273010, (U.P.) INDIA.
2. TEQIP-II sponsored One-Week Short Term Course (STC) on “*Alternative Sources of Energy for Sustainable Development (ASESD 2017)*” during **March 27th--31st, 2017**. Department of Mechanical Engineering, MNNIT Allahabad, Allahabad-211004, UP.