

Dr Prakash Chandra Mishra

Associate Professor

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Google Scholar : <https://scholar.google.co.in/citations?user=K4jRUaUAAAAJ&hl=en>



Educational background

PhD (DPhil) (Mechanical Engineering, 2005 - 2008)

- Wolfson School of Mechanical and Manufacturing Engineering, Loughborough University, UK
- Thesis title: Transient thermoelastohydrodynamics of piston compression ring and cylinder liner contact
- Supervisors: Prof. Homer Rahnejat, Dr S Balakrishnan and Dr. Paul King
- Major: Engine Tribology and dynamics

Master of Technology (Industrial Tribology and Maintenance Engineering, 2003 - 2005)

- Indian Institute of Technology (IIT) Delhi, India
- Thesis title: Analysis of elliptic bore journal bearing.
- Supervisors: Dr Raj Kumar Pandey and Prof. Krishna Athre
- Major: Tribological modeling

Bachelor of Engineering (Mechanical Engineering, 1991 - 1995)

- Indira Gandhi Institute of Technology Sarang, India

Positions held.

- **Continuing:** Associate Professor, VSSUT Burla since 21st September-2017
- *1st January 2014 – 20th September 2017, Associate Professor (II), KIIT University, Bhubaneswar-24*
- *29th November 2010 - 31st December 2013, Associate Professor (I), KIIT University, Bhubaneswar-24*
- *22nd April 2009 – 15th February 2010, post-Doctoral research associate, Loughborough University, UK*
- *1st September 1998 – 15th July 2003, Lecturer, CV Raman College of Engineering Bhubaneswar-751052.*

Teaching expertise (total >15 years)

- Courses handled: **UG-** IC Engine, Design of Machine Element (I&II), Solid Mechanics (I&II), Engine Tribology, Automotive Engineering, Contact Mechanics and Tribology, Engineering Mechanics, Workshop practice, **PG-**Composite Materials, Advanced Mechanics of Solid and Structure

Research Expertise

- **Research Area** Energy, Engine Efficiency and Sustainability, Engine Tribology, Emission and Friction Modelling, Machine Design, , Finite difference, Finite Element, Numerical Analysis,
- **Sponsored research project (1+1):** Advanced Engine Technology for Sustainable Development of Automotive Industry, AICTE RPS Grant (17.8 lakhs) and KIIT University Seed Grant of 10 lakhs for GREEN ENGINE TECHNOLOGY CENTER development.
- **PhD guidance:** 1 completed, 1 synopsis submission and 1 ongoing; **MTech guidance:** 12 completed, 1 ongoing; **BTech guidance:** 18 completed and 1 ongoing.
- **Editorial Responsibility:** *Review Editor for Frontiers in Mechanical Engineering (Engine and Automotive Engineering section), *Frontiers Topic Editor (Sustainable Automotive Engine Technology

Material Design Manufacturing and fueling trend), *Topical Advisory Panel, MDPI-Lubricants* Act as reviewer for, European Journal of Applied Mathematics (A Cambridge Journal), Energy Conversion Management, Tribology transaction (STLE USA), Tribology Letters, IMechE part – D and IMechE part- C, Meccanica, Springer, Applied Soft computing, Tribology International, Indian journal of engineering and material science, Journal of Zhejiang University Science- A, Springer, International workshop on material and mechanical engineering, Xianning, China and many other journals.

- **Research role:** Research Co-ordinator, School of Mechanical Engineering, KIIT University (Till: 5/11/2012), In-charge of Research and Consultancy SME, KIIT University (in past), Faculty Advisor, VSS Space Innovation Centre VSUUT Burla (At present).
- **Convener,** 1st and 2nd and 3rd KIIT International Symposium on advances in Automotive Technology- 2013,14(KIIT SAAT-2013,14) (Link: <http://www.kiit.ac.in/kiitsaat/>)
- **Short term courses attended-8**

Journal Publications

Sl No	Authors, year of publication, and Title	Journal details	SCI/SCOPUS	Contribution
1.	PC Mishra , A Roychoudhury, A Banerjee, Nu Saha, S Das, A Das. Coated Piston Ring pack and Cylinder liner Elastodynamics in correlation to Piston Subsystem Elastohydrodynamic: Through FEA modelling	MDPI-Lubricants , 2023; accepted	SCIE-Q2 IF: 3.584	Corresponding/ Lead author
2.	Mishra et al. Environmental Sustainability Assessment of Gasoline and Methanol Blended Smart Fuel for Reduced Emission Formation	Environment, Development and Sustainability (Under review)	SCI	Corresponding/ Lead author
3.	Pradhan SK, Gupta A, Mishra PC . Investigating into the Effects of Bore Irregularities on the Hydrodynamic Performance Journal Bearing Using Response Surface Methodology. DOI: 10.24874/ti.1431.01.23.03	Tribology in Industry , Accepted (SNIP-1.41)	SCOPUS (CS 2.4)	Corresponding/ Lead author
4.	Predictive Evaluation of Lubrication Performance in Rough Elliptic Bore Hydrodynamic Journal Bearing	IMechE, Part.C, Journal of Mech.Engg.Sc(Under review)	SCI	Corresponding/ Lead author
5.	Saha N, Mishra PC . Modified Whale Algorithm-Based Optimization for Fractional Order Concurrent Diminution of Torque Ripple in Switch Reluctance Motor for EV Applications. <i>Processes</i> . https://doi.org/10.3390/pr11041226	MDPI-Processes ,2023; 11(4):1226.	SCIE-Q2 IF: 3.352	Corresponding/ Lead author
6.	Saha N, Mishra PC . A Multi-Objective Hybrid BESSA Optimization Scheme for Parameter Extraction from PV Modules. . https://doi.org/10.3390/app13084705	MDPI-Applied Sciences ,2023; 13(8):4705.	SCIE-Q2 IF: 2.838	Corresponding/ Lead author
7.	Biswal S, Mishra PC . Piston Compression Ring Elastodynamics and Ring–Liner Elastohydrodynamic Lubrication Correlation Analysis. https://doi.org/10.3390/lubricants10120356	MDPI-Lubricants , 2022; 10(12):356.	SCIE-Q2 IF: 3.584	Corresponding/ Lead author
8.	Mishra PC , Gupta A, Samanta S, Ishaq RB, Khoshnaw F. Framework for Energy-Averaged Emission Mitigation Technique Adopting Gasoline-Methanol Blend Replacement and Piston Design Exchange. https://doi.org/10.3390/en15197188	MDPI-Energies . 2022; 15(19):7188.	SCIE-Q1 IF: 3.252	Corresponding/ Lead author
9.	<i>Pradhan, S.K.; Kumar, R.; Mishra, P.C.</i> Grey-Fuzzy Hybrid Optimization for Thermohydrodynamic Performance Prediction of Misaligned Rough Elliptic Bore Journal Bearing. . https://doi.org/10.3390/lubricants10100274	MDPI-Lubricants , 2022, 10, 274	SCIE-Q2 IF: 3.584	Corresponding/ Lead author
10.	<i>Pradhan, S.K.; Kumar, R.; Mishra, P.C.</i> Computer Simulation and Optimization Elliptic Bore Journal Bearing, 2022, DOI: 10.24874/ti.1179.09.21.01	Tribology in Industry 44(1):322-333.	SCOPUS (CS 2.4)	Corresponding/ Lead author
11.	<i>Pradhan, S.K.; Mishra, P.; Mishra, P.C.</i> Application of artificial neural network for lubrication performance evaluation of rough elliptic bore journal bearing. https://doi.org/10.1093/jcde/qwab004	Journal of Computational Design and Engineering , Oxford Academic, Volume 9, Issue 2, April 2022, Pages 279– 295	SCI - Q1 (IF 6.167)	Corresponding/ Lead author
12.	Mishra, PC , Ishaq, R. and Khoshnaw, F. (2020) Mitigation Strategy of Carbon Dioxide Emissions through Multiple Muffler design exchange and Gasoline-Methanol blend replacement.	Journal of Cleaner production , ELSEVIER,286, 125460.	SCI - Q1 (IF 11.072)	Corresponding/ Lead author

	https://doi.org/10.1016/j.jclepro.2020.125460			
13.	Mishra PC , Gupta A, Bose A, Kumar A (2020) Methanol and petrol blended alternate fuel for future sustainable engine: A performance and emission analysis. https://doi.org/10.1016/j.measurement.2020.107519	Measurement: ELSEVIER, 155,107519	SCI - Q1 (IF 5.131)	First and Corresponding Author
14.	Gupta A, Mishra, PC (2019) Optimization of emission characteristics of spark ignition engine with chambered straight muffler running in methanol blend: An engine development technique for environmental sustainability. https://doi.org/10.1016/j.jclepro.2019.117778	Journal of Cleaner production , ELSEVIER, 238,117778	SCI - Q1 (IF 11.072)	Corresponding/ Lead author
15.	Mishra PC , Kar S, Mishra H (2018) Effect of perforation on exhaust performance of a turbo pipe type muffler using methanol and gasoline blended fuel: A step to NO _x control. https://doi.org/10.1016/j.jclepro.2018.02.236	Journal of Cleaner Production: ELSEVIER, 183,869-879.	SCI - Q1 (IF 11.072)	First and Corresponding Author
16.	Sahu P, Mishra PC (2019) Combined experimental and FEM analysis of adhesive bonded single lap joint with Al-alloy flat adherends and pre-embedded artificial defects. https://doi.org/10.1007/s42452-019-1535-8	SN Appl. Sci. Springer Nature, 1 , 1455.	SCOPUS/ ESCI	Corresponding/ Lead author
17.	Mishra P C (2020) Thermal Modelling of Thin Lubricant Film Within Piston Compression Ring and Rough Cylinder Liner Conjunction. doi:10.3389/fmech.2019.00068	Front. Mech. Eng. , Frontiers, 5:68.	SCOPUS/WOS (CS 3.0)	Sole Author
18.	Mishra PC and Kumar S (2019) Modelling for Design Optimization of Piston Crown Geometry Through Structural Strength and Lubrication Performance Correlation Analysis. doi: 10.3389/fmech.2019.00017 .	Front. Mech. Eng. , Frontiers, 5:17.	SCOPUS/ WOS (CS 3.0)	First and Corresponding Author
19.	Gupta A and Mishra PC (2017) Optimization of emission characteristics of petrol engine running on alternate fuel and fitted with chambered type muffler: Combined CFD and experimental methods.	Oxidation Communications , 41(1)	SCI - (IF 0.48)	Corresponding/ Lead author
20.	Dhal AK, Mishra PC (2017) Computational Fluid Dynamics Model for Geometric Optimization of Reflective Sound Cancellation Type Exhaust Muffler.	Journal of Balkan Tribological Association , 4(1310-4772):592	SCI - (IF 0.737)	Corresponding/ Lead author
21.	Kumar S and Mishra PC (2016) Finite element modeling for structural strength of quadcopter type multi-mode vehicle. https://doi.org/10.1016/j.ast.2016.03.020	Aerospace Science and Technology: ELSEVIER, 53, pp.252-266.	SCI - Q1 (IF 5.457)	Corresponding/ Lead author
22.	Mishra PC , Kar S, Mishra H, Gupta A (2016) Modeling for combined effect of muffler geometry modification and blended fuel use on exhaust performance of a four-stroke engine: A Computational Fluid Dynamics approach. DOI: 10.1016/j.applthermaleng.2016.08.00	Applied Thermal Engineering: ELSEVIER,108(5), pp.1105-1118	SCI - Q1 (IF 6.465)	First and Corresponding Author
23.	Mishra PC (2015) Modeling for route cause of engine friction loss: Transient elasto-hydrodynamics of piston compression ring and cylinder liner lubricated contact. https://doi.org/10.1016/j.apm.2014.10.011	Applied Mathematical Modeling: ELSEVIER, 39(8), pp.2234-2260.	SCI - Q1 (IF 5.336)	Sole Author
24.	Mishra PC (2013) Mathematical modeling of stability in rough elliptic bore misaligned journal bearing considering thermal and non-Newtonian effects. https://doi.org/10.1016/j.apm.2012.11.020	Applied Mathematical Modeling: ELSEVIER, 37(8), pp.5896-5912.	SCI - Q1 (IF 5.336)	Sole Author
25.	Mishra PC (2012) Tribodynamic modeling of piston compression ring and cylinder liner conjunction in high pressure zone of engine cycle. DOI:10.1007/s00170-012-4390-y	International Journal of Advanced Manufacturing Technology: Springer, 66(5-8), pp. 1075-1085.	SCI - Q2 (IF 3.563)	Sole Author
26.	Mishra PC , Rahnejat H and King PD (2009) Tribology of ring-bore conjunction subjected to mixed regime of lubrication. DOI: 10.1243/09544062JMES1220 .	IMEchE, Part.C, Journal of Mech.Engg.Sc. , 223, pp.987-998.	SCI - Q2 (IF 1.758)	First Author
27.	Mishra PC , Rahnejat H and Balakrishnan S (2008) Tribology of Piston compression ring and cylinder contact at reversal. DOI: 10.1243/13506501JET410 .	IMEchE, Part.J, Engineering Tribology , 222(7), pp.815-826.	SCI - Q2 (IF 1.818)	First Author
28.	Mishra PC (2007) Thermal Analysis of Elliptic Bore Journal Bearing. DOI: 10.1080/10402000601105573 .	Tribology Transaction: STLE, 50, pp 137-144.	SCI - Q3 (IF 2.145)	Sole Author
29.	Mishra PC , Pandey RK, Athre K (2006) Temperature Profile of an Elliptic Bore Journal Bearing,	Tribology International: ELSEVIER, 40 , 2007, pp 453-	SCI - Q1 (IF 5.62)	First and Corresponding

	DOI: http://dx.doi.org/10.1016/j.triboint.2006.04.009 .	458.		Author
30	Mishra PC (2011) Thermal analysis of elliptic bore journal bearing considering shaft misalignment. DOI:http://dx.doi.org/10.2474/trol.6.239	Tribology Online , Japanese Societies of Tribologists, 6 (5), 239-246.	SCI /WOS (IF 0.828)	Sole Author
31.	Mishra PC (2014) Effect of surface forces on Ultra-thin film lubrication. http://dx.doi.org/10.1155/2014/612195	. ISRN Tribology: Hindawi	(CS 2.6)	Sole Author
32.	Mishra PC (2013) Modeling for friction of four stroke four-cylinder petrol engine.	Tribology in Industry , 35(3), pp.237-245.	SCOPUS (CS 2.4)	Sole Author
32	Mishra PC (2014) Analysis of a rough elliptic bore journal bearing using expectancy model of roughness characterization.	Tribology in Industry , 36(2), pp.211-219.	SCOPUS (CS 2.4)	Sole Author
33	Mishra PC (2012) Isothermal analysis of elliptic bore journal bearing considering isotropic roughness.	International Journal of Mechanical & Mechatronics Engineering , 12(4), pp.24-31.	SCOPUS (CS 1.4)	Sole Author
34	Mishra PC (2014) A review on piston compression ring tribology.	Tribology in Industry , 36(3), pp.269-280.	SCOPUS (CS 2.4)	Sole Author
35	Mishra PC et al. (2015) FEM analysis for coating strength of a piston compression ring in contact with cylinder line: A Tribodynamic analysis.	Tribology in Industry , 37(1), pp.42-54.	SCOPUS (CS 2.4)	Corresponding/ Lead author
36	Gupta A and Mishra PC (2018) Emission and Friction Analysis of IC Engine Running in Methanol Blend. https://doi.org/10.24874/ti.2018.40.01.02	Tribology in Industry , 40(1), pp.10-18.	SCOPUS (CS 2.4)	Corresponding/ Lead author
37	Kumar M, Chandravanshi ML, Mishra PC (2021) Geometrical analysis of elliptic bore journal bearing lubricated with Newtonian fluid, https://doi.org/10.1063/5.0050234 .	AIP Conference Proceedings 2341, 020032.	SCOPUS	Third author
38	Roychoudhury A, Banerjee A, Mishra PC , Khoshnaw F (2020) An FEA Material Strength Modelling of a Coated Engine Piston. https://doi.org/10.1016/j.matpr.2020.11.387	Materials Today: Proceedings: ELSEVIER . 44(1), pp.1320-1325.	SCOPUS (CS -1.9)	Corresponding/ Lead author
39	Pradhan SK, Kumar R, Mishra PC (2020). Material Modeling and Optimization of Rough Elliptic bore Journal bearing.	Materials Today: Proceedings: ELSEVIER . 44(1), pp.1021-1027.	SCOPUS (CS -1.9)	Corresponding/ Lead author
40	Tiwari P, Mishra PC , Khoshnaw F. Finite Element Modelling for Failure Prevention of Coated Piston Compression Ring. DOI: 10.4018/IJMMME.299057.	International Journal of Manufacturing, Materials, and Mechanical Engineering (IJMMME) IGI Global, 2022, 12(1), page-15	SCOPUS/WOS	Corresponding/ Lead author
41	Mishra PC. , Rahnejat H and King PD (2010) Tribology of piston compression ring. <i>ISBN: 13: 978 1 84569 361 9.</i>	Tribology and Dynamics of Engine and Powertrain. Woodhead publishing, Cambridge, UK	SCOPUS	First Author
42	Mishra PC , Rahnejat H (2010) Tribology of big end bearing.: <i>ISBN: 13: 978 1 84569 361 9.</i>	Tribology and Dynamics of Engine and Powertrain. Woodhead publishing, Cambridge, UK	SCOPUS	First Author

Professional Membership, Awards and Honors

- Fellow Institution of Engineers from 2016 (F-1211621),
- Life Member of Indian Science Congress Association from 2016 (L29393),
- Doctoral fellow Engineering and Physical Science Research Council, UK (2005-2010),
- Member of International Association of Engineers (113568)
- Best Faculty award and Gold Medal in 2016 from KIIT University Bhubaneswar

Administrative Responsibility

- Member, Board of studies, School of Mechanical Engineering, KIIT University. (In past)

- Member, Central Technical Purchase Committee, KIIT University (in past)
- Member, Board of studies, Department of Mechanical Engineering, VSSUT Burla. (At present)
- Faculty Advisor, Entrepreneurial development cell, VSSUT Burla (In past)
- Faculty Advisor, VSS Space Innovation Centre, VSSUT Burla (At present)
- Warden ATRI Hall of Residence, VSSUT Burla. (At present)

Declaration

The information furnished above is true to best my knowledge.

Dr. Prakash Chandra Mishra

21st of April.2023
