

## Curriculum Vitae

### *Dr. Manish Mishra*

**Designation** - Associate Professor in Mechanical & Industrial Engineering  
Indian Institute of Technology Roorkee

**Qualification** - BE (Mechanical), ME (Energy Systems & Pollution), PhD

**Date of Birth** - 2-4-1970

**Address** –

(Off) Associate Professor,  
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#### EDUCATIONAL QUALIFICATION

Exam. Passed	Board/University	Yr of Passing	Division & %
Higher Secondary	Board of Secondary Education, MP, Bhopal	1986	First, 82.8%
BE (Mechanical)	Govt. Engg. College, Raipur	1991	First Div. with Honours, 79.4%
ME (Energy Systems & Pollution)	Govt. Engg. College, Raipur	1994	First Div. with Honours, 78.5%
PhD	IIT Kharagpur	2004	

#### EXPERIENCE

Post Held	Institution	Period From-To	Duration	Remarks
Associate Professor, Mech & Ind Engg	Indian Institute of Technology Roorkee	From 22-10-2012 till date	5 Yrs +	
Assistant Professor, Mech & Ind Engg	Indian Institute of Technology Roorkee	From 9-7-2008 to 22-10-2012	4 Yrs +	
Associate Professor, Mechanical Engg	National Institute of Technology Raipur	From 30-11-2003 to 8-7-2008	4-1/2 Yrs	
Lecturer, Mechanical Engg	Govt. Engg. College, Raipur (Now NIT Raipur)	From 30-11-93 to 30-11-2003	10 Yrs	PSC 92 – Merit – 03

#### SHORT TERM COURSES ORGANIZED

1	Recent Trends in Thermo-Fluids Engineering – From Modeling to Experimentation	QIP	Jul 2-7, 2012
2	Energy Resources	CEP: Govt of Uttarakhand	Jan 6-10, 2014

**SEMINAR / SHORT COURSES ATTENDED**

	<b>Title</b>	<b>Place / Institution</b>	<b>Period</b>
1	XI <sup>th</sup> Young Scientist Congress	RDVV Jabalpur	Feb 28-Mar1, 1996
2	XII <sup>th</sup> Young Scientist Congress	GGDUniv. Bilaspur	Feb 28-Mar2, 1997
3	XIII <sup>th</sup> Young Scientist Congress	JU Gwalior	Feb 28-Mar2, 1998
4	Environmental degradation & Its Remedial Measures	IE(I), GEC Raipur	Jan 13-Jan 30, 1995
5	Induction Training Programme for Teachers in Engineering	AICTE , IT BHU, Varanasi	May 8-May 29, 1995
6	Information Technology & Networking	ISTE, GEC Raipur	Sep 22- Oct 6, 1997
7	Modelling & Simulation of Rotor Bearing Systems	CEP, IIT Kharagpur	Dec 21-Jan 2, 1999-2000
8	National Workshop on Role of Technical Education in Promoting Gandhian Vision of Rural Industrialisation	KVIC, AICTE, DST, Wardha	Feb 28 – Mar 2, 2003
9	Basics of Networking	IIT Kanpur	July 6 – July 10, 2004
10	Industrial Applications of Biomass Gasification Technology For Energy Auditors, Consultants and Prospective Users	At Raipur by Ministry of Non-conventional Energy Sources and CESR Indore	July 17 – July 19, 2004
11	One Day Workshop on “Return on Investment”	Canada India Institute-Industry Linkage Project, Raipur	July 21, 2004
12	One Day Workshop on “Work Place Education Phase-II”	Canada India Institute-Industry Linkage Project, Raipur	September 23, 2004
13	National Workshop on Industry – Institute Interaction	TEQIP, NIT Rourkela	Nov 30 – Dec 1, 2006
14	Energy Efficiency Capacity Building Program for Various Stakeholders	Sponsored by World Bank & IREDA at Raipur	Feb 12 – Feb 14, 2007

**DISTINCTIONS / PRIZES / AWARDS**

1. Recipient of Gauss Medal – Topped in Higher Secy Exam, St. Paul's H.S.School, Raipur, 1986.
2. Third in order of Merit – Univ Exam, BE III Yr (Mech) 1989, First in GEC Raipur
3. Second in order of Merit – Univ Exam, BE IV Yr (Mech) 1990
4. Second in order of Merit – Univ Exam, ME (Mech) 1994
5. GATE 91 – 95.48 percentile; GATE 92 – 95.52 percentile; GATE 93 – 98.26 percentile

**ADMINISTRATIVE RESPONSIBILITIES**

	<b>Portfolio</b>	<b>Duration</b>
1	Member, University Exam Committee	1994
2	Member, Stock Verification (Workshop)	1994
3	Teacher Guardian, SC/ST Students	1995
4	Member, Stock Verification (Library)	1996

5	Member, BBA Counselling Team	1998
6	Prof. I/C PTDC Admission	1998
7	Prof I/C, Departmental Sessional & Exam Work	1994-1999
8	Prof I/C, Departmental UG, PG Admission	1994-1999
9	Prof I/C, PG Seminar	1994-1999, 2003-04
10	Prof. I/C PG Computer Lab	Mar 17, 1997-July 7, 1999
11	Prof. I/C Heat Engine & Heat Transfer Lab	2003-05
12	Prof I/C Departmental Practical Examinations	2003-05
13	Prof I/C Final Yr Results	2003-04
14	Member, Audit committee, Autonomous College	2003
15	Member, counselling and college admission	2003, 2004
16	Member, internal counselling	2003
17	Member, Contract appointment scrutiny committee	2003, 2005
18	Back up, Industry Linkage Officer for Work Place Education / Industrial Training	2004
19	Dy. Superintendent, Autonomous examination	2004
20	Co-ordinator, centre for excellence	2004
21	Member, Scrutiny Committee, Opening of New Polytechnics in CG	2004, 2005, 2006
22	Co-ordinator, BUDGET, Technical Education, CG	2004, 2005, 2006
23	OSD, at Directorate of Technical Education, CG	2005-2006
24	Co Coordinator, Project for Development of HMT Lab under FIST	2006-2007
25	Coordinator, TEQIP, NIT Raipur	2007
26	Dy Presiding Officer, JEE 2007, AIEEE 2007	2007
27	Dy Controller, Autonomous Examinations	2004-2005, 2007
28	I/c Head of the Department, Electronics & Telecommunications Engg	2007-08
<b>IIT Roorkee</b>		
29	Co-ordinator, Thermodynamics MI-101	Spring 2010, 2012
30	Co-coordinator, Manufacturing Practice MI-102	2009
31	Co-coordinator, Work-package IITR, Pan-IIT Solar Thermal Project	2009 – 2010
32	OC, Solar & Aerodynamics Lab	2010 – 2012
33	Warden, Rajiv Bhavan	2011-2014
34	OC, Maintenance, MIED	2012 – 2015
35	OC, Refrigeration & Air-conditioning Lab	2012 – till date
36	Chairman, <b>Planning, Information and Special Events Cell, MIED</b>	2012 – 2016
37	Member, Time Table Committee	2015 – 2017
38	Member – Editorial Committee – Institute Annual report	2011- 2016
39	Departmental Representative - ERP	2014 – 2016
40	Executive Member, Faculty Forum IIT Roorkee	2013-2015
41	Vice Chairman, GATE-JAM 2018	2017-till date

**MEMBERSHIP OF PROFESSIONAL BODIES**

1. Life Member, Indian Society for Technical Education (LM-22237)
2. Life Member, Indian Society for Heat & Mass Transfer (M-567)
3. Member, International Association of Engineers (IAENG)(106816)
4. Member, International Solar Engineering Society (ISES)
5. Associate Member, Institution of Engineers (India) - AM 110276-4

**FIELD OF INTEREST**

Heat Transfer, Fluid Mechanics, Computational Methods, Conventional and Non-Conventional Energies, Heat Exchanger Design, Design of Thermal Systems, Application of soft computing tools in thermal engineering, Solid Desiccant based Air-Conditioning.

**COURSE DEVELOPED**

Design of Heat Exchanger (PG), Design of Thermal Systems (PG/UG), Modeling & Simulation (PG/UG), Heat Exchanger Technology (UG)

**DOCTORAL RESEARCH**

Numerical and Experimental Studies on Crossflow Heat Exchangers.

**SPONSORED PROJECT**

S.N	Title of Project	Funding Agency	Funding (Rs in Lakh)	Year of start and period	Name of PI / CI	Status
<b>Sponsored Research</b>						
11	Optimization of Three-Fluid Heat Exchanger Performance – A Numerical & Experimental Investigation	CSIR	21.96	2017 (3 Yrs)	-	Ongoing
10	Development of cold storage powered by Pico Hydro Power and its demonstration at selected site	DST	19.00	2017 (2 Yrs)	Dr R.P.Saini (PI)	Ongoing
9	Investigation on Hydrogen Generation from a PHWR Disassembled Channel	BRNS	48.18	2016 (2 Yrs)	Dr P.K.Sahoo	Ongoing
8	Investigations of the Effect of Temperature and Flow Nonuniformities on the Performance of Three-Fluid Compact Heat Exchanger	DST	22.42	2014 (3 Yrs) Extended	Dr P.K.Jha	Ongoing
7	Heat up and Quenching Studies of PHWR Specific Debris Experiments for PHWR	BARC (MoU)	41.65	2016 (2 Yrs)	Dr P.K.Sahoo	Ongoing
6	CFD Simulation of a deformed reactor channel under heat up condition	BRNS	14.95	2013 (2 Yrs) Extended	Dr P.K.Sahoo	Ongoing
5	Coolability of The Debris Bed: An Experimental Investigation of Sam Scenario for PHWR	BRNS (MoU)	49.51	2 Years (2016)	Dr P.K.Sahoo (PI)	Ongoing
4	Detailed Heat Transfer Investigation	GTRE	76.00	2014	Dr A Tariq (PI)	Completed

	inside Rectangular Duct with Matrix Cooling Using Liquid Crystal Thermography	(GATET)		(2 years)	Dr D Saxena	
3	Manipulation of flow field over a square prism for vortex load reduction using feed-back control	DST	36.60	2011 (3 years)	Dr S. Dutta (PI) Dr B.K.Gandhi	Completed
2	Numerical & Experimental Studies on Modified Design & Performance of Solar Air Heater	MHRD FIG-A	3.60	2009 (2 years)	-	Completed
1	Infrastructure development of Heat Transfer Laboratory	DST (FIST)	11.00	2006 (2 years)	-	Completed (NIT Raipur)
<b>Consultancy</b>						
1	Vetting of Central Air-Conditioning Design For PROVN of OTM ACCN for Headquarter SWC (Phase-I) at Jaipur	Design Action Group, Delhi	0.54	2016	Dr I.D.Singh	Completed
2	Technical Scrutiny of Cold Chain Infrastructure (07 projects)	NHB	6.00	2012-14	-	Completed

#### PhD THESIS / MTech PROJECT GUIDANCE

	Completed / Submitted	In Progress
Ph.D.	05 + 01 (S)	04
M.Tech.	21	01

#### DETAILS OF THESIS (M.Tech/Ph.D.) SUPERVISION

	Degree	Title of Thesis	Year awarded/ Submitted	Name of student/scholar	Co-supervisors
<b>PhD</b>					
1.	PhD	Investigations on Aerothermal Characteristics of Surface Mounted Turbulence Promoters	2017 (S)	Naveen Sharma	Dr. A. Tariq
2.	PhD	Performance Study of a Solid-Desiccant Vapor compression Hybrid Air-Conditioning System	2017	D.B. Jani	Dr P.K.Sahoo
3	PhD	Numerical and Experimental Investigations on Parallel Flow Three-Fluid Heat Exchanger	2015	Sanjay Kumar Singh	Dr P.K.Jha
4	PhD	Investigation of Heat Transfer in Concentric and Eccentric Horizontal Cylindrical Annuli	2013	Kishor Kulkarni	Dr P.K.Sahoo
5	PhD	Optimisation of Thermal Cycles Based on Finite-Time-Thermodynamics	2012	Rahul Salhotra (NIT Raipur)	--
6	PhD	Thermohydraulic Characteristics of Solar Air Heater with Surface Mounted Obstacles	2011	Adisu Bekele Alemayehu	Dr S. Dutta
7	PhD	Nonuniformities in Three-Fluid Plate-Fin Heat Exchangers	Ongoing	Harpreet Kaur Aasi	-
8	PhD	Investigation on Hydrogen Generation from a PHWR Disassembled Channel	Ongoing	Rohit Kumar	
9	PhD	Effect of Nanofluids in Three-Fluid Heat Exchanger Performance	Ongoing	Tarikayehu Amanuel	

10	Phd	Optimization of Tubular and Plate-Fin Heat Exchangers	Ongoing	Mohan Hari Soni (NIT Raipur)	Dr S.L.Sinha (NIT Raipur)
<b>MTech</b>					
1	MTech	Plate Heat Exchangers – Design and Performance Studies	2018 (Ongoing)	Sanjeev Sahdev	
2	MTech	Design and Performance Studies of Regenerative Heat Exchangers	2017	Ruchi Mittal	
3	MTech	PHWR Disassembled Channel – An Investigative Study	2016	Sudhir Sariyal	Dr P K Sahoo
4	MTech	Heated Main Stream Methodology to Find the Heat Transfer Coefficient Variation Over a Flat Plate Using LCT	2015	Vaibhav Sharama	Dr A Tariq
5	MTech	Numerical and Experimental Investigation of Compact Heat Exchanger	2014	Anjana Pachori	Dr P.K.Sahoo
6	MTech	CFD Simulation of Deformed Reactor Channel Under Heat Up Condition	2014	Rohit Agarwal	Dr P.K.Sahoo
7	MTech	Heat Transfer and Fluid Flow Investigation Over Rib Turbulators and Matrix Structures	2014	Narendra Singh Sikarwar	Dr A. Tariq
8	MTech	Design and Performance Analysis of Desiccant Air-Conditioning System	2013	Manoj Gwalwanshi	Dr P.K.Sahoo
9	MTech	Flow and Heat Transfer Characteristics Behind Surface Mounted Vortex Generators	2013	Ashish Baghel	Dr A. Tariq
10	MTech	An Improved Data Reduction Method For Transient Liquid Crystal Thermography	2012	Gulshan Zameer Shah	Dr A. Tariq
11	MTech	Study of Pool Boiling of Refrigerant Over a Horizontal Tube	2012	Atul Ranjan	Dr Ravi Kumar
12	MTech	Transient Behaviour of Two-Fluid Crossflow Compact Heat Exchanger	2011	Surendra Prasad	Dr A. Tariq
13	MTech	Numerical Investigation of the Performance of Solar Air Heater with Surface Mounted Obstacles	2011	Bhupendra Pandey	Dr S. Dutta
14	MTech	Performance Evaluation of Solar Air Heater with Surface Mounted Obstacles	2011	Ashwani Goyal	Dr S. Dutta
15	MTech	Modeling of Thermomechanical Stresses in Two-Roll Strip Casting Process	2010	Vineet Kumar	Dr P.K.Jha
16	MTech	Investigation of Mixing in Tundish in Continuous Casting Steel Making Process	2010	Shiv Mohan Meena	Dr P.K.Jha
17	MTech	Design Optimisation of Plate-Fin Heat Exchanger Using Genetic Algorithm	2008	Anil Raghuvanshi (NIT Raipur)	-
18	MTech	Experimental Investigations on Gas-Solid Fluidisation	2007	Saurabh Kumar (NIT Raipur)	-
19	MTech	Study of Some Optimisation Techniques for Design Optimisation of Tubular and Plate-Fin Heat exchanger	2006	Izaz Beig Mirza (NIT Raipur)	-
20	MTech	Design Optimisation and Performance Evaluation of Counterflow Tubular and Plate-Fin Heat Exchanger	2005	Mohan Hari Soni (NIT Raipur)	-
21	MTech	Energy Management of Rolling Mill	1995	Prabhash Jain (NIT Raipur)	-
22	MTech	Performance Evaluation of Updraft Gasifier	1994	M.D.Kayarkar (NIT Raipur)	-

## REVIEWER

ASME – Journal of Heat Transfer (**ASME**)

Heat Transfer Engineering, International Journal of Sustainable Energy (**Taylor & Francis**)

Energy, Renewable Energy, International Journal of Heat and Mass Transfer, International Journal of Thermal Science, Applied Thermal Engineering, Chemical Engineering Research & Design (**Elsevier**)

Heat Transfer Asian Research (**Wiley**)

International Journal of Exergy, International Journal of Intelligent Defence Support Systems (**Inderscience**)

**Conferences:** ISHMT-ASME, ISHMT-ASTFE, FMFP

**Book:** 'Heat Transfer' by PS Ghoshdastidar (Oxford University Press), 2nd Ed, 2012

## LIST OF RESEARCH PUBLICATIONS

### Journals

1. **Experimental Investigation of Flow Structure due to Truncated Prismatic Rib Turbulators Using Particle Image Velocimetry** Naveen Sharma, Andallib Tariq, Manish Mishra, Experimental Thermal & Fluid Science, Elsevier, vol. 91, **2018**, pp. 479-508.
2. **Experimental Investigation of Heat Transfer Enhancement in a Rectangular Duct with Pentagonal Ribs** Naveen Sharma, Andallib Tariq, Manish Mishra, Heat Transfer Engineering, Taylor & Francis, **2018**, (Accepted for publication)
3. **Aerothermal Characteristics of Solid and Permeable Pentagonal Rib Turbulators** Naveen Sharma, Andallib Tariq, Manish Mishra, ASME Journal of Heat Transfer, **2018**, (Accepted for publication)
4. **Application of Artificial Neural Network for Predicting Performance of Solid Desiccant Cooling Systems - A Review** D.B.Jani, Manish Mishra, P.K.Sahoo, Renewable & Sustainable Energy Reviews, vol. 80, **2017**, pp. 352-366.
5. **A Critical Review on Solid Desiccant Based Hybrid Cooling Systems** D.B.Jani, Manish Mishra, P.K.Sahoo, International Journal of Air-Conditioning and Refrigeration (World Scientific), vol. 25 (2), **2017**, pp. 1730002:1-10 (DOI: <http://dx.doi.org/10.1142/S2010132517300026>)
6. **Performance Prediction of Rotary Solid Desiccant Dehumidifier in Hybrid Air-Conditioning System Using Artificial Neural Network** D.B.Jani, Manish Mishra, P.K.Sahoo, Applied Thermal Engineering, Vol. 98, **2016**, pp. 1091-1103.
7. **Performance Analysis of Hybrid Solid Desiccant Vapour Compression Air- Conditioning System in Hot and Humid Weather of India**, D.B.Jani, Manish Mishra, P.K.Sahoo, Building Services Engineering Research and Technology (SAGE), 37(5), pp-523-538, **2016**. (DOI: 10.1177/0143624416633605)
8. **Solid Desiccant Air Conditioning - A State of the Art Review** D.B.Jani, Manish Mishra, P.K.Sahoo, Renewable & Sustainable Energy Reviews, vol. 60, **2016**, pp. 1451–1469.
9. **Performance Prediction of Solid Desiccant – Vapor Compression Hybrid Air-Conditioning System Using Artificial Neural Network** D.B.Jani, Manish Mishra, P.K.Sahoo, Energy, vol.113, **2016**, pp. 618-629.
10. **Performance of Co-Current and Counter-Current Parallel Flow Three-Fluid Heat Exchanger Due to Perturbations in Flow**, Sanjay Kumar Singh, Manish Mishra, P. K. Jha, International Journal of Global Energy Issues (Inderscience), vol. 39 (3/4), **2016**, pp. 144-156.
11. **Experimental investigation on solid desiccant - vapor compression hybrid air- conditioning system in hot and humid weather**, D.B.Jani, Manish Mishra, P.K.Sahoo, Applied Thermal Engineering, vol. 104, **2016**, pp. 556-564.
12. **Exergy Analysis of Solid Desiccant- Vapor Compression Hybrid Air Conditioning System** D.B.Jani, Manish Mishra, P.K.Sahoo, International Journal of Exergy (Inderscience), vol. 20 (4), **2016**, pp. 517-535.
13. **Experimental Investigations on Thermo-Hydraulic Behaviour of Triple Concentric-Tube Heat Exchanger**, Sanjay Kumar Singh, Manish Mishra, P. K. Jha, Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering, 229(4) 299-308, **2015**. (DOI: 10.1177/0954408914531118)



14. **Performance Studies of Hybrid Solid Desiccant Vapour Compression Air- Conditioning System for Hot and Humid Climates**, D.B.Jani, [Manish Mishra](#), P.K.Sahoo, [Energy and Buildings](#), Vol. 102 **2015**, pp. 284-292.
15. **Transient Behaviour of Co-Current Parallel Flow Three-Fluid Heat Exchanger**, Sanjay Kumar Singh, [Manish Mishra](#), P. K. Jha, [International Communications in Heat Mass Transfer](#), Vol. 52, **2014**, pp. 46-50.
16. **Performance Characteristics of Solar Air Heater with Surface Mounted Obstacles**, Adisu Bekele, [Manish Mishra](#), S. Dutta [Energy Conversion and Management](#), 85, **2014**, pp. 603-611. (<http://dx.doi.org/10.1016/j.enconman.2014.04.079>)
17. **Nonuniformities in Compact Heat Exchangers – Scope for Better Energy Utilization: A Review**, Sanjay Kumar Singh, [Manish Mishra](#), P. K. Jha, [Renewable & Sustainable Energy Reviews](#), Vol. 40, **2014**, pp. 583-596.
18. **Heat transfer augmentation in solar air heater using delta shaped obstacles mounted on the absorber plate** Adisu Bekele, [Manish Mishra](#), S. Dutta [International Journal of Sustainable Energy](#), Vol. 32 (1), Feb. **2013**, pp. 53-69. (DOI:10.1080/14786451.2011.598637).
19. **Large Scale Solar Water Heating Systems Analysis in Ethiopia: A Case Study** Adisu Bekele, Demiss Alemu, [Manish Mishra](#), [International Journal of Sustainable Energy](#), Vol. 32 (4), Feb. **2013**, pp. 207-228. (DOI:10.1080/14786451.2011.605951).
20. **Optimization of Cooling Load for a Lecture Theatre** K. Kulkarni, P.K. Sahoo, [Manish Mishra](#), [Energy and Buildings](#), [Vol. 43\(7\)](#), July **2011**, pp. 1573-1579. (DOI:10.1016/j.enbuild.2011.02.015).
21. **Effect of Delta Shaped Obstacles on the Thermal Performance of Solar Air Heater** Adisu Bekele, [Manish Mishra](#), S. Dutta [Advances in Mechanical Engineering](#), Vol. 2011, **2011**, pp. 1-10. (DOI:10.1155/2011/103502).
22. **Transient Behaviour of Crossflow Heat Exchangers Due to Sinusoidal Excitation** [Manish Mishra](#), P.K. Das, Sunil Sarangi, [ASME-Journal of Heat Transfer](#) vol. 132 (9), **2010**, pp. 091801/1-9. (doi:dx.doi.org/10.1115/1.4001605)
23. **The Effect of Temperature Nonuniformities on Transient Behaviour of Three-Fluid Crossflow Heat Exchanger** [Manish Mishra](#), P.K.Sahoo, [Engineering Letters](#) Volume 18 (3), Aug. **2010**, pp. 297-302.
24. **Thermoeconomic Optimisation of Crossflow Plate-Fin Heat Exchanger Design Using Genetic Algorithm** [Manish Mishra](#) and P.K. Das, [International Journal of Exergy](#) vol. 6 (6), **2009**, pp. 847-852.
25. **Second Law Based Optimisation of Crossflow Plate-Fin Heat Exchanger Design Using Genetic Algorithm** [Manish Mishra](#), P.K. Das, Sunil Sarangi, [Applied Thermal Engineering](#) vol. 29, **2009**, pp. 2983-2989.
26. **Dynamic Behaviour of Three-Fluid Crossflow Heat Exchangers** [Manish Mishra](#), P.K. Das, Sunil Sarangi, [ASME Journal of Heat Transfer](#), vol. 130 (1), **2008**, pp. 011801/1-6. (doi: <http://dx.doi.org/10.1115/1.2401616>)
27. **Effect of Temperature and Flow Nonuniformity on Transient Behaviour of Crossflow Heat Exchanger** [Manish Mishra](#), P.K. Das, Sunil Sarangi, [International Journal of Heat and Mass Transfer](#) vol. 51, **2008**, pp. 2583-2592.
28. **Transient Behaviour of Crossflow Heat Exchangers Due to Perturbations in Temperature and Flow** [Manish Mishra](#), P.K. Das, Sunil Sarangi, [International Journal of Heat and Mass Transfer](#), vol. 49 (5-6), **2006**, pp. 1083-1089.
29. **Optimum Design of Crossflow Plate-Fin Heat Exchangers Through Genetic Algorithm** [Manish Mishra](#), P.K. Das, Sunil Sarangi, [International Journal of Heat Exchangers](#), Vol. 5 (2), August **2004**, pp. 379-402.
30. **Transient Behaviour of Crossflow Heat Exchangers with Longitudinal Conduction and Axial Dispersion** [Manish Mishra](#), P.K. Das, Sunil Sarangi, [ASME Journal of Heat Transfer](#), vol. 126, **2004**, pp. 425-433. (doi: <http://dx.doi.org/10.1115/1.1738422>).
31. **Effect of End Heat Exchanger Parameters on the Performance of a Natural Circulation Loop** N.M.Rao, [Manish Mishra](#), B.Maiti, P.K.Das, [International Communications in Heat Mass Transfer](#), Vol. 29(4), **2002**, pp. 509-518.

#### Book Chapters/ Monographs

1. **Solar Assisted Solid Desiccant – Vapor Compression Hybrid Air-Conditioning System** D.B.Jani, [Manish Mishra](#), P.K.Sahoo, [Monograph on “Applications of Solar Energy” \(Springer\)](#) Eds: Himanshu Tyagi, Prodyut Chakraborty, Satvasheel Powar and Avinash Kumar Agarwal, [by International Society for Energy, Environment and Sustainability \(ISEES\)](#), Chap. 10, **2018**, pp. 233-250.
2. **Detailed Heat Transfer Investigation inside a Rectangular Duct with an Array of Ventilated Rib Turbulators**, Naveen Sharma, Andallib Tariq, [Manish Mishra](#), **Book Chapter (73)** - In: Saha A., Das D., Srivastava R., Panigrahi P., Muralidhar K. (eds) [Fluid Mechanics and Fluid Power – Contemporary Research, Lecture Notes in Mechanical Engineering \(Proceedings of](#)



## Conferences:

1. **Experimental Study of Detailed Heat Transfer and Fluid Flow Characteristics in a Rectangular Duct with Solid and Slitted Pentagonal Ribs**, Naveen Sharma, Andallib Tariq, Manish Mishra, The 5<sup>th</sup> ASME Gas Turbine India Conference, Bangalore, India, Dec. 7-8, **2017**
2. **Effect of Flow Perturbation on Transient behaviour of Three Fluid Crossflow Heat Exchanger**, Harpreet Kaur Aasi, Manish Mishra, 44<sup>th</sup> National Conference on Fluid Mechanics and Fluid Power, Amrita University, Kollam, India; Dec.14-16, **2017**.
3. **Experimental Study of Aerothermal Performance in Rectangular Duct with Trapezium Ribs**, Naveen Sharma, Andallib Tariq, Manish Mishra, 24<sup>th</sup> National Heat and Mass Transfer Conference and 2<sup>nd</sup> International ISHMT-ASTFE Heat and Mass Transfer Conference, BITS-Pilani, Hyderabad Campus, India, Dec. 27-30, **2017**.
4. **CFD Analysis of Post-Blow down Thermal Behavior of a 19-Pin Fuel Bundle**, Rohit Kumar, Manish Mishra, P.K.Sahoo, Onkar Gokhale, D. Mukhopadhyay, 24<sup>th</sup> National Heat and Mass Transfer Conference and 2<sup>nd</sup> International ISHMT-ASTFE Heat and Mass Transfer Conference, BITS-Pilani, Hyderabad Campus, India, Dec. 27-30, **2017**.
5. **Numerical Investigation of Triple Concentric Tube Heat Exchanger Using Al<sub>2</sub>O<sub>3</sub>-Water Nanofluids**, Tarikayehu Amanuel, Manish Mishra, 24<sup>th</sup> National Heat and Mass Transfer Conference and 2<sup>nd</sup> International ISHMT-ASTFE Heat and Mass Transfer Conference, BITS-Pilani, Hyderabad Campus, India, Dec. 27-30, **2017**.
6. **Experimental Study of Heat Transfer Augmentation in Rectangular Duct with Different Rib Turbulators**, Narendra Sikarwar, Naveen Sharma, Andallib Tariq, Manish Mishra, 6<sup>th</sup> International and 43<sup>rd</sup> National Conference on Fluid Mechanics and Fluid Power, MANIT Allahabad, India; Dec.15-17, **2016**.
7. **Detailed Flowfield Investigation in a Rib Turbulated Channel Using PIV Measurements**, Naveen Sharma, Andallib Tariq, Manish Mishra, 6<sup>th</sup> International and 43<sup>rd</sup> National Conference on Fluid Mechanics and Fluid Power, MANIT Allahabad, India; Dec.15-17, **2016**.
8. **Fluid Flow and Heat Transfer Investigation Over Surface Mounted Obstacles in A Solar Air Heater**, Adisu Bekele, Sushanta Dutta, Manish Mishra, International Conference on Renewable Energy Sources and Sustainability (RESUS 2015) Université des Mascareignes, Mauritius Mar 3-5, **2015**.
9. **Study of Parallel Flow Three-Fluid Compact Heat Exchanger Due to Perturbations in Flow**, Sanjay Kumar Singh, Manish Mishra, P.K.Jha, International Conference on Renewable Energy Sources and Sustainability (RESUS 2015) Université des Mascareignes, Mauritius Mar 3-5, **2015**.
10. **Numerical Simulation of Rotary Desiccant Dehumidifier for Hybrid Solid Desiccant – Vapor Compression Air-Conditioning System**, D.B.Jani, Manish Mishra, P.K.Sahoo, The 24th IIR International Congress of Refrigeration - ICR2015, Yokohama, Japan, Aug. 16-22, **2015**.
11. **Experimental Investigations on Hybrid Solid Desiccant – Vapor Compression Air-Conditioning System for Indian Climate**, D.B.Jani, Manish Mishra, P.K.Sahoo, The 24th IIR International Congress of Refrigeration - ICR2015, Yokohama, Japan, Aug. 16-22, **2015**.
12. **Effect of Regeneration Temperature on the Performance of Solid Desiccant and Vapor Compression Hybrid Air-Conditioning System**, D.B.Jani, Manish Mishra, P.K.Sahoo, 4<sup>th</sup> National Conference on Refrigeration and Air-Conditioning, (NCRAC-2015) IIT Chennai & Rajalakshmi Engineering College, Chennai, India, Oct. 28-30, **2015**.
13. **Detailed Heat Transfer Investigation inside a Rectangular Duct with an Array of Ventilated Rib Turbulators**, Naveen Sharma, Andallib Tariq, and Manish Mishra, 42<sup>nd</sup> National Conference on Fluid Mechanics and Fluid Power, NIT Surathkal, Dec. 14-16, **2015**.
14. **Effect of Pentagonal Ribs on Local Heat Transfer and Friction Factor in a Rectangular Channel**, Naveen Sharma, Andallib Tariq, Manish Mishra, 23<sup>rd</sup> National Heat and Mass Transfer Conference and 1st International ISHMT-ASTFE Heat and Mass Transfer Conference, Thiruvananthapuram, Kerala, India, Dec. 17-20, **2015**.
15. **Experimental Response Time to Step Change in Flow Rates on Triple Concentric-Tube Heat Exchanger**, Sanjay Kumar Singh, Manish Mishra, P. K. Jha, 23<sup>rd</sup> National Heat and Mass Transfer Conference and 1st International ISHMT-ASTFE Heat and Mass Transfer Conference, Thiruvananthapuram, Kerala, India, Dec. 17-20, **2015**.
16. **Study of Underformed Fuel Channel of IPHWR in LOCA With Low Steam Flow**, Rohit Agarwal, P.K.Sahoo, Manish Mishra, New Horizons in Nuclear Reactor Thermal Hydraulics and Safety (NRTHS), Mumbai, India, January 13-15, **2014**.
17. **Detailed Heat Transfer Investigation inside a Rectangular Duct with an Array of Ventilated Rib Turbulators**, Naveen Sharma, Andallib Tariq, Manish Mishra, 5<sup>th</sup> International and 41<sup>st</sup> National Conference on Fluid Mechanics and Fluid Power, IIT Kanpur, India; Dec.12-14, **2014**.

18. **Numerical Investigation of the Effect of Lateral Conduction in Transient Heat Transfer Measurements**, Naveen Sharma, Andallib Tariq, Manish Mishra, International Conference on Advances in Chemical Engineering (ACE 2013), Feb. 22-24, **2013**. IIT Roorkee, India.
19. **Transient Behaviour of Co-Current Parallel Flow Three-Fluid Compact Heat Exchanger with Wall Longitudinal Conduction**, Sanjay Kumar Singh, Manish Mishra, P. K. Jha, International Conference on Advances in Chemical Engineering (ACE 2013), Feb. 22-24, **2013**. IIT Roorkee, India.
20. **Solid Desiccant Cooling - An Overview**, D.B.Jani, Manoj Gwalwanshi, Manish Mishra, P.K.Sahoo, International Conference on Advances in Chemical Engineering (ACE 2013), Feb. 22-24, **2013**. IIT Roorkee, India.
21. **Performance Characteristics of Solar Air Heater with Surface Mounted Obstacles**, Adisu Bekele, Manish Mishra, Sushanta Dutta, Proceedings of ECOS 2013 - The 26th International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems, Jul. 16-19, **2013**, Guilin, China.
22. **Transient Behaviour of Parallel-Flow Three-Fluid Compact Heat Exchangers With Longitudinal Conduction and Axial Dispersion**, Sanjay Kumar Singh, Manish Mishra, P. K. Jha, 23<sup>th</sup> National and 12<sup>th</sup> International ISHMT-ASME Heat and Mass Transfer Conference, Dec. 28-30, **2013**, Kharagpur, India.
23. **Simulation of Desiccant Cooling Systems Using TRNSYS**, D.B.Jani, Manish Mishra, P.K.Sahoo, 23<sup>th</sup> National and 12<sup>th</sup> International ISHMT-ASME Heat and Mass Transfer Conference, Dec. 28-30, **2013**, Kharagpur, India.
24. **Investigation of Heat Transfer Between Pressure Tube and Calandria Tube of IPHWR**, Kishor Kulkarni, P.K.Sahoo, Manish Mishra, 23<sup>th</sup> National and 12<sup>th</sup> International ISHMT-ASME Heat and Mass Transfer Conference, Dec. 28-30, **2013**, Kharagpur, India.
25. **Finite-Time-Thermodynamic Optimization of Irreversible Stirling and Ericsson Heat Engines**, Rahul Salhotra, Manish Mishra, 23<sup>th</sup> National and 12<sup>th</sup> International ISHMT-ASME Heat and Mass Transfer Conference, Dec. 28-30, **2013**, Kharagpur, India.
26. **A New Heater-Foil Experimental Methodology to Evaluate Heat Transfer Coefficient by Using Liquid Crystal Thermography**, Shah Gulshan Zameer, Tariq, Andallib and Mishra Manish. ASME-2012 International Mechanical Engineering Congress & Exposition, Houston, USA, IMECE 2012. Nov. 9-15, 2012.
27. **CFD Based Performance Analysis of A Solar Air Heater Duct With Surface Mounted Delta Shaped Obstacles** Adisu Bekele, Sushanta Dutta, Manish Mishra, First National Conference on Advances in Mechanical Engineering (NCAME-2011), UIET, Panjab University, Chandigarh, May 20- 21, **2011**.
28. **Finite-Time Thermodynamics Based Ecological Optimization of Irreversible Stirling and Ericsson Heat Pumps Using Genetic Algorithm** Rahul salhotra, Amit Pathak, Manish Mishra, The 23rd IIR International Congress of Refrigeration, Prague, Czech Republic, August 21 – 26, **2011**.
29. **Modeling and Simulation of Heat Transfer Between Concentric Horizontal Cylinders At High Temperature Difference With Small Annular Gap**, Kishor Kulkarni, P.K.Sahoo, Manish Mishra, International Conference on Advances in Modeling, Optimization and Computing (AMOC -2011), IIT Roorkee, Dec. 5-7, **2011**.
30. **Nonuniformity Models For Temperature and Flow and Their Effects in Dynamic Behaviour of Three-Fluid Crossflow Heat Exchangers**, Sanjay Kumar Singh, Manish Mishra, P.K. Jha, International Conference on Advances in Modeling, Optimization and Computing (AMOC -2011), IIT Roorkee, Dec. 5-7, **2011**.
31. **Nonuniformities in Compact Heat Exchanger - A State of the Art Review**, Sanjay Kumar Singh, Manish Mishra, P.K. Jha, International Conference on Advances in Modeling, Optimization and Computing (AMOC -2011), IIT Roorkee, Dec. 5-7, **2011**.
32. **Optimization of Heat Pumps Based on Finite-Time-Thermodynamics Using Genetic Algorithm** R. Salhotra and Manish Mishra, 20<sup>th</sup> National and 9<sup>th</sup> International ISHMT-ASME Heat and Mass Transfer Conference, Mumbai, Jan 4-6 **2010**, 1227-1231.
33. **Performance Improvement of Solar Air Heater – A Numerical Study** Addisu Bekele, S. Dutta and Manish Mishra, 20<sup>th</sup> National and 9<sup>th</sup> International ISHMT-ASME Heat and Mass Transfer Conference, Mumbai, Jan 4-6 **2010**, 993-1000.
34. **Transient Behaviour of Three-Fluid Crossflow Heat Exchanger: The Effect of Flow Non-Uniformities** Manish Mishra, 20<sup>th</sup> National and 9<sup>th</sup> International ISHMT-ASME Heat and Mass Transfer Conference, Mumbai, Jan 4-6 **2010**, 702-707.
35. **Liquid Desiccant Air Conditioning: A State of The Art Review** Kishor Kulkarni, P.K.Sahoo, Manish Mishra, International Conference on 'Advances in Renewable Energy', ICARE- 2010, Bhopal, June 24-26, **2010**.
36. **The Effect of Temperature Nonuniformities on Transient Behaviour of Three-Fluid Crossflow Heat Exchanger** Manish Mishra, P.K.Sahoo, The 2010 International Conference of Mechanical Engineering: World Congress of Engineering 2010, London, U.K., 30 June - 2 July, **2010**.
37. **Design Optimisation of Tubular Heat Exchanger Through Graphical Technique** M.H.Soni, I.B.Mirza, R. Salhotra, Manish Mishra, National Conference on 'Mechanical and Production Systems in 21<sup>st</sup> Century', Jabalpur Engineering College, Jabalpur, Nov. 29-30, **2007**.

38. **Dynamic Behaviour Of Three-Fluid Crossflow Heat Exchanger With Large Core Capacity** Manish Mishra, P.K. Das, Sunil Sarangi, International Conference on Advances in Energy Research' (ICAER) 2007, IIT Bombay, Dec 12-14, **2007**.
39. **Transient Behaviour of Crossflow Heat Exchangers - The Effect of Axial Dispersion** Manish Mishra, P.K. Das, Sunil Sarangi, 18<sup>th</sup> National & 7<sup>th</sup> International ISHMT-ASME Heat and Mass Transfer Conference, IIT Guwahati, India, Jan 4 - 6, **2006**.
40. **Dynamic Behaviour Of Three-Fluid Crossflow Heat Exchanger With Large Core Capacity** Manish Mishra, P.K. Das, Sunil Sarangi, Proceedings of the ... ASME/JSME Thermal Engineering Joint Conference 2003 (6), 304, **2003**.
41. **Experimental Investigation of Heat Transfer & Flow Friction Characteristics of Compact Plate Fin Heat Exchangers** I. Ghosh, Manish Mishra, P.K. Das, S. Sarangi BSME-ASME International Conference on Thermal Engineering, Dhaka, 31 December 2001 – 2 January **2002**, 274-279.
42. **Optimisation of Crossflow Plate-Fin Heat Exchanger Design Using Genetic Algorithm** Manish Mishra, P.K. Das, Sunil Sarangi, BSME-ASME International Conference on Thermal Engineering, Dhaka, 31 December 2001 – 2 January **2002**, 267-273.
43. **Steady State Analysis and Optimum Conditions of a Natural Circulation Loop With End Heat Exchangers** N.M.Rao, Manish Mishra, B.Maiti, P.K.Das, 16<sup>th</sup> National and 5<sup>th</sup> International ISHMT-ASME Heat and Mass Transfer Conference, Calcutta, Jan 3-5 **2002**, 888-893.
44. **Design of an Experimental Rig for Study of Heat Transfer and Flow Friction Characteristics of Compact Plate Fin Heat Exchangers** I. Ghosh, Manish Mishra, P. K. Das, S. Sarangi, 18<sup>th</sup> International Cryogenic Engineering Conference, Mumbai Feb.**2000**.
45. **Dynamic Behaviour of Crossflow Heat Exchangers – A State of the Art Review** Manish Mishra, Indranil Ghosh, P. K. Das, Sunil Sarangi, presented at 18<sup>th</sup> International Cryogenic Engineering Conference, Mumbai, Feb.**2000**.
46. **Effect of End Heat Exchanger Parameters on the Performance of a Natural Circulation Loop** N.M.Rao, Manish Mishra, B.Maiti, P.K.Das, 26<sup>th</sup> National Conference on Fluid Mechanics and Fluid Power, Kharagpur, **1999**, 412-418.