

Resume



Name : Dr. Varun
Designation : Associate Professor
Department : Mechanical Engineering
Qualification : PhD
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Other Profile Links

Research Gate Link :

Personal Web Link :

Google Scholar Link :

Research Profile

Research Interests : Renewable Energy (Small Hydro, Solar thermal and Bioenergy), Turbo-machines, Computational Fluid Dynamics, Heat Transfer, Life Cycle Assessment

Brief Research Profile : My research centers around Renewable energy, Heat Transfer. My approach is guided by formal and mathematically rigorous methods. The consequences, nonetheless, go beyond purely theoretical interests, and they bring about new opportunities and ideas in modern energy management.

Qualification

Name of the Degree	Year Of Passing	Institute/University
PhD	2010	NIT Hamirpur
M. Tech.	2004	IIT Roorkee
B. E.	2002	MJP Rohilkhand University

Publications

Year	Journal	Publication	Indexed In
2019	Transactions of ASME Journal of Energy Resources Technology	Impact of Binary Biofuel Blend on Lubricating Oil Degradation in a Compression Ignition Engine	Science Citation Index
2019	Transactions of ASME J Solar Energy Engineering	Simulation of flow and heat transfer in triangular cross-sectional solar assisted air heater	Science Citation Index Expanded/Web of Science
2019	Renewable Energy (Elsevier)	Performance improvement and development of correlation for friction factor and heat transfer using computational fluid dynamics for ribbed triangular duct solar air heater	Science Citation Index Expanded
2018	Transactions of ASME J Heat Transfer	Effect of Rounded Corners on the Heat Transfer and Fluid Flow through Triangular Duct	Science Citation Index Expanded
2018	Fuel (Elsevier)	Effect of bio-lubricant on wear characteristics of cylinder liner-piston ring and cam-tappet combination in simulated environment	SciSearch/Science Citation Index Expanded
2018	Proceedings IMechE Part J: Engineering Tribology	Effects of Dual Biofuel Approach for total elimination of Diesel on injection system by reciprocatory frequency monitor	Science Citation Index Expanded
2018	Renewable and Sustainable Energy Reviews (Elsevier)	An Intense Review on the Latest Advancements of Earth Air Heat Exchangers	SciSearch/Science Citation Index Expanded
2018	Renewable Energy (Elsevier)	Investigation of heat transfer augmentation and friction factor in triangular duct solar air heater due to forward facing chamfered rectangular ribs: A CFD based analysis	SciSearch/Science Citation Index Expanded
2018	Renewable and Sustainable Energy Reviews (Elsevier)	Impact of modified parameters on diesel engine characteristics using biodiesel: a review	SciSearch/Science Citation Index Expanded
2018	Journal of Mechanical Science and Technology (Springer)	Numerical investigation of heat transfer and friction factor in ribbed triangular duct solar air heater using computational fluid dynamics (CFD)	Science Citation Index Expanded (SciSearch)
2018	Renewable Energy (Elsevier)	, Assessment of diesel engine combustion, performance and emission characteristics fuelled with dual fuel blends	SciSearch/Science Citation Index Expanded
2018	Journal of Mechanical Science and Technology (Springer)	A parametric study of the 2D model of solar air heater with elliptical rib roughness using CFD	Science Citation Index Expanded (SciSearch)
2017	Experimental Heat Transfer (Taylor & Francis)	Heat Transfer and Friction Factor Correlation Development for Double Pass Solar Air Heater Having V-Shaped Ribs as Roughness Elements	Science Citation Index Expanded
2017	Journal of Mechanical Science and Technology (Springer)	Feasibility of a new non-edible feedstock in diesel engine: Investigation of performance, emissions and combustion characteristics	Science Citation Index Expanded (SciSearch)
2017	Institution of Engineers India Series-C	Numerical simulation of flow through equilateral triangular duct under constant wall heat flux boundary condition	Scopus
2017	International Journal of Green Energy (Taylor & Francis)	Heat transfer augmentation and flow characteristics in ribbed triangular duct solar air heater: An experimental analysis	Science Citation Index Expanded
2017	Transactions of ASME J Solar Energy Engineering	Experimental and CFD study on fluid flow and heat transfer in triangular passage solar air heater of different configurations	Science Citation Index Expanded/Web of Science
2017	International Communications in Heat and Mass Transfer	Effect of apex angle variation on thermal and hydraulic performance of roughened triangular duct	Science Citation Index

Year	Journal	Publication	Indexed In
2017	Renewable and Sustainable Energy Reviews (Elsevier)	Modification in combustion chamber geometry of CI engines for suitability of biodiesel: a review	SciSearch/Science Citation Index Expanded
2017	Fuel (Elsevier)	Influence of temperature on tribological performance of dual biofuel	SciSearch/Science Citation Index Expanded
2017	Fuel (Elsevier)	Impact of dual biofuel approach on engine oil dilution in CI engines	SciSearch/Science Citation Index Expanded
2017	Solar Energy (Elsevier)	A parametric analysis of rectangular rib roughened triangular duct solar air heater using computational fluid dynamics	Science Citation Index Expanded
2017	Heat Transfer-Asian Research (Wiley)	Simulation of combustion space heat transfer of glass melting furnace	Scopus
2016	Institution of Engineers India Series-C (Springer)	Heat Transfer Enhancement in a Solar Air Heater with Roughened Duct having Arc-Shaped Elements as Roughness Element on the Absorber Plate	Scopus
2016	Renewable and Sustainable Energy Reviews (Elsevier)	A Review on Methodology For Complete Elimination of Diesel from CI Engines Using Mixed Feedstock	SciSearch/Science Citation Index Expanded
2016	International Journal of Ambient Energy (Taylor & Francis)	Evaluation of the effects of engine parameters on performance and emissions of diesel engine operating with biodiesel blend	Scopus
2016	Renewable and Sustainable Energy Reviews (Elsevier)	Thermal and Fluid dynamic characteristic of flow through triangular cross-sectional duct: A Review	SciSearch/Science Citation Index Expanded
2016	IMechE Part L: Journal of Materials: Design and Applications (Sage)	Study on the Sliding Wear Behaviour of Hybrid Aluminium Matrix Composites Using Taguchi Design and Neural Network	Science Citation Index Expanded
2016	Solar Energy (Elsevier)	Experimental investigation of heat transfer augmentation using multiple arcs with gap on absorber plate of solar air heater	Science Citation Index Expanded
2016	Renewable and Sustainable Energy Reviews (Elsevier)	Heat Transfer Augmentation Using Twisted Tape Inserts: A Review	SciSearch/Science Citation Index Expanded
2016	International Journal of Ambient Energy (Taylor & Francis)	Silt erosion study on the performance of an impulse turbine in small hydropower	Scopus
2016	Renewable and Sustainable Energy Reviews (Elsevier)	Carbonyl and aromatic hydrocarbon emissions from diesel engine exhaust using different feedstock: A review	SciSearch/Science Citation Index Expanded
2016	Arabian Journal of Science and Engineering (Springer)	Heat transfer and friction factor study of a solar air heater having multiple arcs with gap shaped roughness element on absorber plate	Science Citation Index Expanded
2015	Renewable and Sustainable Energy Reviews (Elsevier)	A thermodynamic review of solar air heaters	Science Citation Index Expanded
2015	International Journal of Sustainable Energy (Taylor & Francis)	Multi Objective Optimization of Hybrid Power Generation System for a Commercial market in Moradabad District of Uttar Pradesh, India	Scopus
2015	Arabian Journal of Science and Technology (Springer)	Dry Sliding Wear Characteristics of SiC and Al ₂ O ₃ NanoparticulateAluminium Matrix Composite Using Taguchi Technique	Science Citation Index Expanded
2015	Applied Energy (Elsevier)	Evaluation of endurance characteristics for a modified diesel engine runs on jatropa biodiesel	Science Citation Index
2015	World Academy of Science Engineering and Technology	Heat transfer and friction factor study for triangular duct solar air heater having discrete v shaped ribs	International Science Index
2015	ELK- Asia Pacific Journals	Improvement in thermal efficiency of a CI engine using a waste heat recovery technique	Indian Science
2015	Indian Journal of Engineering and Materials Science	Effect of Different Reinforcements on Sliding Wear of Aluminium Matrix Composites Using Taguchi Design of Experimental Technique	Indian Science
2015	Institution of Engineers India Series-C (Springer)	Solar Absorption refrigeration system for air-conditioning of a classroom building in a northern India	Scopus
2014	Walailak Journal of Science and Technology	Unit Sizing and cost analysis of renewable energy based hybrid power generation system-A case study	Scopus
2014	Experimental Thermal and Fluid Science (Elsevier)	Heat Transfer and Friction Factor correlations for Multiple Arc Shape Roughness elements on the Absorber Plate used in Solar Air Heaters	Scopus
2014	Journal of Mechanical Science and Technology (Springer)	A review of researches on thermal exhaust heat recovery with radiation recuperators in high temperature applications	Science Citation Index Expanded
2014	Walailak Journal of Science and Technology	Particle Impaction and Flow through an Infinite Array of Cylinders	Scopus
2014	Solar Energy (Elsevier)	Exergetic performance evaluation of solar air heater having arc shape oriented protrusions as roughness element	Science Citation Index Expanded
2014	Solar Energy (Elsevier)	Effect of artificial roughness on heat transfer and friction characteristics having multiple arc shaped roughness element	Science Citation Index Expanded
2014	IMechE Part J: Engineering Tribology (Sage)	Analysis of tribological performance of biodiesel	Science Citation Index Expanded
2014	IMechE Part J: Engineering Tribology (Sage)	Comparison of micro size ceramic particulate filler (SiC, Al ₂ O ₃ andCenospehere) composites on mechanical, sliding wear and seizure behaviour	Science Citation Index Expanded
2014	International Journal of Ambient Energy (Taylor & Francis)	Effect of Silt Particles on Erosion of Turgo Impulse Turbine Blades	Scopus
2014	Walailak Journal of Science and Technology	Effective Efficiency of Solar Air Heaters of Different Types of Roughness Geometries over Absorber Plate	Scopus
2014	Journal of Mechanical Science and Technology (Springer)	Effect of Jet Diameter on Erosion of Turgo Impulse Turbine runner	Science Citation Index Expanded
2014	Journal of Thermal Analysis and Calorimetry (Springer)	Experimental investigation of the performance of an indirect mode natural convection solar dryer for drying Fenugreek Leaves	Science Citation Index Expanded
2013	Thermal and Fluid Science (Elsevier)	Nusselt Number and Friction Factor Correlations for Solar Air Heater Duct having Protrusions as Roughness Elements on Absorber plate	Scopus
2013	Renewable and Sustainable Energy Reviews (Elsevier)	Performance and Emission Characteristics of Biodiesel from different Origins: A Review	Science Citation Index Expanded
2013	International Journal of Hydropower and Dams	Effect of nozzle angle on erosion and performance of Turgo impulse turbine	Scopus
2013	Renewable and Sustainable Energy Reviews (Elsevier)	Numerical modeling of compression ignition engine: A review	Science Citation Index Expanded
2013	Journal of Renewable and Sustainable Energy (AIP)	Heat transfer and friction characteristics of double pass solar air heater having V-shaped roughness on the absorber plate	Science Citation Index Expanded
2013	Hydro Nepal	Experimental Investigation of Erosion and Performance of Turgo Impulse Turbine	Scopus

Year	Journal	Publication	Indexed In
2013	Energy for Sustainable Development (Elsevier)	Optimization of grid independent hybrid PV-diesel-battery system for power generation in remote villages of Uttar Pradesh, India	Science Citation Index Expanded
2013	Walailak Journal of Science and Technology	FEM Analysis of Turgo Impulse TurbineBlade	Scopus
2013	Hydro Nepal	Effect of silt size, concentration on erosion of turgo turbine blades	Scopus
2013	World Academy of Science, Engineering and Technology	Effect of Head and Scheme on GHG Emissions from Mini Hydropower system in India	International Science Index
2012	TERI Information Digest on Energy and Environment	Energy saving parameters in household sectors of Uttar Pradesh, India	Science Citation Index Expanded
2012	Renewable and Sustainable Energy Reviews (Elsevier)	Stochastic Techniques Used for Optimization in Solar Systems: a Review	Science Citation Index Expanded
2012	Energy (Elsevier)	A particle Swarm Optimization Algorithm for Optimization of Thermal Performance of a Smooth flat plate solar air heater	Science Citation Index Expanded
2012	International Journal of Ambient Energy (Taylor & Francis)	Optimal Design of Hybrid PV-Diesel-Battery System for Power Generation in Moradabad District of Uttar Pradesh India	Scopus
2012	Renewable and Sustainable Energy Reviews (Elsevier)	Progress in Renewable Energy under Clean development mechanism in India	Science Citation Index Expanded
2012	Sustainable Cities and Society (Elsevier)	Life Cycle Environmental Assessment of a Building in northern India - A case study	Science Citation Index Expanded
2012	Journal of Renewable and Sustainable Energy (AIP)	Heat transfer and friction characteristics of dimple-shaped roughness element arranged in angular fashion (arc) on the absorber plate of solar air heater	Science Citation Index Expanded
2012	Distributed Generation and Alternate Energy (Taylor & Francis)	Sizing analysis and cost optimization of hybrid solar-diesel-battery based electric power generation system using simulated annealing technique	Scopus
2012	Energy (Elsevier)	Life Cycle GHG Emissions Estimation from different types of SHP schemes in India	Science Citation Index Expanded
2012	Solar Energy (Elsevier)	Correlations for Solar Air Heater Duct with Dimpled Shape Roughness Elements on Absorber Plate	Science Citation Index Expanded
2012	International Journal of Heat and Mass Transfer (Elsevier)	Performance analysis of metallic concentric tube recuperator in parallel flow arrangement	Science Citation Index
2012	Journal of Institution of Engineers India - Series C (Springer)	Heat transfer and frictional characteristics of rectangular channel air heater duct having protrusion as roughness elements	Scopus
2011	Renewable and Sustainable Energy Reviews (Elsevier)	Life cycle Assessment of Buildings: A Review	Science Citation Index Expanded
2011	Renewable and Sustainable Energy Reviews (Elsevier)	Small Hydropower for sustainable energy development in India	Science Citation Index Expanded
2011	Energy Science and Technology	Experimental investigation of centrifugal pump working as turbine for small hydropower systems	Science Citation Index Expanded
2011	Renewable and Sustainable Energy Reviews (Elsevier)	A Thermodynamic Review on Solar Box Type Cookers	Science Citation Index Expanded
2011	Renewable and Sustainable Energy Reviews (Elsevier)	Life cycle Assessment of Sugar Industry: A Review	Science Citation Index Expanded
2011	Solar Energy (Elsevier)	Optimization of smooth flat plate solar air heater using stochastic iterative perturbation technique	Science Citation Index Expanded
2010	Renewable and Sustainable Energy Reviews(Elsevier)	Solar Stills: A Review	Science Citation Index Expanded
2010	Renewable and Sustainable Energy Reviews(Elsevier)	Life Cycle Assessment of Solar PV based Electricity Generation Systems: A Review	Science Citation Index Expanded
2010	Applied Energy (Elsevier)	Thermal Performance Optimization of a Flat Plate Solar Air Heater Using Genetic Algorithm	Science Citation Index
2010	Journal of Heat and Mass Transfer (Springer)	Performance Analysis of Metallic Radiation Recuperator with Counter Flow Arrangement	Science Citation Index Expanded
2010	Renewable and Sustainable Energy Reviews (Elsevier)	A Figure of Merit for Evaluating Sustainability of Renewable Energy Systems	Science Citation Index Expanded
2010	Renewable and Sustainable Energy Reviews (Elsevier)	Reverse Running Pumps Analytical, Experimental and Computational Study: A Review	Science Citation Index Expanded
2010	International Journal of Green Energy (Taylor & Francis)	Life Cycle Energy and GHG Analysis of Hydro Electric Power Development in India	Science Citation Index Expanded
2009	Renewable and Sustainable Energy Reviews (Elsevier)	LCA of Renewable Energy for Electricity Generation Systems-A Review	Science Citation Index Expanded
2009	Asian Journal of Water, Environment and Pollution	Performance of A Venturi Scrubbers in Intermediate Drop Reynolds Number Regime for Small Particles at Different Throat Length and Throat Gas Velocity	Scopus
2009	Renewable Energy (Elsevier)	Performance Prediction of Solar Air Heater having roughened duct provided with Transverse and Inclined Ribs as artificial roughness	Science Citation Index Expanded
2009	Renewable and Sustainable Energy Reviews(Elsevier)	Energy, economics and environmental analysis of Renewable Energy Systems	Science Citation Index Expanded
2008	Renewable Energy (Elsevier)	Investigation of thermal performance of solar air heater having roughness elements as a combination of inclined and transverse ribs on the absorber plate	Science Citation Index Expanded
2008	Renewable and Sustainable Energy Reviews (Elsevier)	Review on mathematical modeling of latent thermal energy storage system using phase change materials	Science Citation Index Expanded
2007	Renewable and Sustainable Energy Reviews (Elsevier)	Review of Augmentation of Energy Needs Using Renewable Energy Sources in India	Science Citation Index Expanded
2007	Energy (Elsevier)	Effective Efficiency of Solar Air Heaters Having Different Roughness Geometry on Absorber Plate	Science Citation Index Expanded
2007	Solar Energy (Elsevier)	A Review on roughness geometry used in solar air heaters	Science Citation Index Expanded
2007	Renewable Energy (Elsevier)	Rural electrification of a remote island with renewable energy sources	Science Citation Index Expanded
2019	Journal of Energy Resources Technology	Binary Biodiesel Blend Endurance Characteristics in a Compression Ignition Engine	SCI
2019	Journal of Thermal Science and Engineering Applications	Effect of dimple intrusions and curvature radius of rounded corner triangular duct on Fluid flow and heat transfer	SCIE

Year	Journal	Publication	Indexed In
2019	Journal of Energy Storage	Performance evaluation and optimization of solar assisted air heater with discrete multiple arc shaped ribs	SCIE
2020	Journal of Energy Resources Technology	Enhancing diesel engine performance and reducing emissions using binary biodiesel fuel blend	SCI
2020	Journal of Heat Transfer	A note on the comparative analysis between rectangular and modified duct heat exchanger	SCI
2020	Journal of Cleaner Production	Sustainability assessment of hydropower projects	SCIE
2020	Journal of Heat Transfer	A Comparison of Simplified One-Dimensional and Two-Dimensional Analytical Models for Predicting Metallic Recuperator Performance	SCI

Edited Book/Book Chapter

Type	Title	Publisher	Authors	ISBN/ISSN No.	Year
Chapter	Water Footprints of Hydropower Projects	Springer Nature	HimanshuNautiyal, Varun Goel, Paramvir Singh	978-981-13-2739-1	2018
Chapter	Effect of VOCs on human health	Springer Nature	VipinSoni, Paramvir Singh, Venu Shree and Varun Goel,	978-981-10-7184-3	2018
Chapter	Solar Food Processing and cooking methodologies	Springer Nature	Saxena A, Varun Goel, Mehmet Karakilcik	978-981-10-7205-5	2018
Chapter	Life Cycle Assessment of an Academic Building: A Case Study	Elsevier	HimanshuNautiyal, Venu Shree, Paramvir Singh, SourabhKhurana, Varun Goel	978-0-12-812849-7	2018
Chapter	Carbon Foot Print Estimation from Building Sector in India	CRC Press	Venu Shree, Varun and HimanshuNautiyal	978-1-4822-6222-3	2016
Chapter	Environmental Impacts of Packaging Material	Springer	Varun, Aashish Sharma and HimanshuNautiyal	978-981-287-911-0	2016
Chapter	Clean Development Mechanism: A key to sustainable development	Springer	HimanshuNautiyal and Varun	978-81-322-2055-8	2015
Chapter	Recycling Potential of Building Materials: A Review	Springer	HimanshuNautiyal, Venu Shree, SourabhKhurana, Niraj Kumar, Varun	978-981-287-642-3	2015
Chapter	Small Hydropower: A promising source of electricity generation	Studium Press	Singal SK and Varun	1-62699-072-7	2015
Chapter	Cabon Footprint and Energy Estimation of the Sugar Industry: An Indian case study	Springer	Varun and Manish Kumar Chauhan	978-981-4585-74-3	2014
Chapter	Computational Studyof Various Longitudinal Fin Profiles	Springer	Pankaj Dhaka, Prashant Kumar and Varun	978-81-322-1870-8	2014

Research Projects

Role	Project Type	Title	Funding Agency	From	To	Amount	Status	Co-Investigator
PI	Research Project	Effect of Apex Angle on Heat transfer and friction characteristics having roughness elements on triangular duct used in solar air heaters	DST	14/08/2012	10/06/2016	6.48 lacs	Completed	-
Co-PI	Research Project	Solar Thermal Collection Efficiency improvement using multi-staging of parabolic dish collector	State Council for Science, Technology & Environment H.P.	29/03/2018	28/03/2020	5.35 lacs	On-going	Dr. Santosh Bopche

Research Supervision

Programme Name	Scholar Name	Research Topic	Status	Year	Co-Supervisor
Ph.D	Muneesh Sethi	Thermohydraulic performance of solar air heater using dimple shape as roughness element	Awarded	2013	Dr. N. S. Thakur
Ph.D	Harshdeep Sharma	Performance assessment of high temperature metallic annular recuperator	Awarded	2014	Dr. Anoop Kumar
Ph.D	Sourabh Khurana	Study of Silt erosion and Performance of Turgo impulse turbine for SHP system	Awarded	2014	Dr. Anoop Kumar
Ph.D	Nitin Agarwal	Design and optimization of renewable energy based hybrid power generation system for rural electrification in India	Awarded	2014	Dr. Anoop Kumar
Ph.D	Sanjay Yadav	Thermohydraulic performance of protrusions used as roughness elements in rectangular solar air heaters	Awarded	2015	Dr. Siddhartha
Ph.D	Niraj Kumar	Experimental investigation on feasibility of biodiesel blend (B40) in a modified compression ignition engine	Awarded	2015	Dr. S. R. Chauhan
Ph.D	Kiran Ikka	Mechanical and tribological characterization of particulate filled aluminium matrix composites	Awarded	2016	Dr. S. R. Chauhan
Ph.D	A. P. Singh	Heat transfer and friction characteristics study of multiple arc shaped roughness element used in solar air heaters	Awarded	2015	Dr. Siddhartha
Ph.D	Paramvir Singh	Experimental Investigation of Diesel Engine Characteristics by Using Dual Biofuel Approach for Complete Elimination of Diesel	Submitted	2018	Dr. S. R. Chauhan
Ph.D	Navneet Arya	Heat Transfer Augmentation	On going	2018	-
Ph.D	Rajat Kumar	Thermal Management	On going	2019	-
Ph.D	Akshay Thakur	Solar Energy	On Going	2020	-

Patents

Name	Reg./Ref.No.	Date Of Award/Filing	Organization	Status
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Teaching

Programme Name	Subjects Taught	From	To	Credits
Lecturer	MED, MIT MORADABAD	06/08/2004	31/07/2007	3 years
Assistant Professor	MED, NIT HAMIRPUR	01/08/2007	06/05/2019	11 years
Associate Professor	MED, NIT Hamirpur	06/05/2019		1 year

Administrative Responsibilities

Position Held	Organization	From	To	Remarks
Assistant Warden	NIT Hamirpur	31/07/2009	14/09/2011	14
Chairman SUGC	NIT Hamirpur	06/01/2016	28/09/2016	09
FI (Transport)	NIT Hamirpur	08/05/2018	30/04/2020	2011,28
FI (Institute Time Table)	NIT Hamirpur	01/05/2019		09
Coordinator	Chemical Engg Deptt.	08/05/2013		2016,30
Associate Dean (Research Projects & Collaborations)	NIT Hamirpur	30/04/2020	15/09/2020	04
Nodal Officer (NIRF & AISHE)	NIT Hamirpur	15/09/2020		2020,,15

Expert Talks

Title	Place	Year	Description
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Professional Activities

Name of Activity	Role	Duration	Organization
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Courses Organized

Category	Type	Title	Venue	From	To	Designation
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Date :

Place :

Signature