

Profile Page



Name : Dr Satyender Singh
Designation : Assistant Professor Grade-i
Department : Mechanical Engineering
Qualification : Post Doctoral Research Fellow: Mutliphase Flow (CMFD) & Microfluidics (Computational Fluid Dynamics Lab., IIT Bombay)
Ph.D: Thermal and Fluid Engineering
M. Tech: Computational Fluid Dynamics & Heat Transfer
B. Tech: Mechanical Engineering
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Research Interests :

Computational Multi-Fluid Dynamics (CMFD), Analytical & Numerical (FDM & FVM) Code Development for Thermal Performance Prediction of Thermal Systems, Microfluidics, Microchannels, Experimental Fluid Dynamics and Heat Transfer, Drag Reduction and Heat Transfer in Microchannels with Hydrophobic and Superhydrophobic Surfaces, Design and Optimization of Thermal Systems, Technology for Rural Development.

Other Profile Links :

Google Scholar Link :

Dr. Satyender Singh [Click Here](#)

Personal Web Link :

Publons [Click Here](#)

Research Gate [Click Here](#)

Vidwan [Click Here](#)

Scopus [Click Here](#)

Journal Publications :

Year	Journal	Publication
2022	International Journal of Fluid Mechanics Research, 49, 49-67	Satyender Singh, Utilizing microcavity shapes for drag reduction in microchannels

2022	Journal of Energy Storage, 103619	G Verma, S Singh, S Chander, P Dhiman, Numerical investigation on transient thermal performance predictions of phase change material embedded solar air heater
2022	Applied Thermal Engineering 205, 118044	Satyender Singh, Utilising fractional porous interface for high thermal performance of serpentine wavy channel solar air heater
2021	International Journal of Energy Research, 1-67	Subbarao Chamarthi, Satyender Singh, A comprehensive review of experimental investigation procedures and thermal performance enhancement techniques of solar air heaters
2021	Journal of Energy Storage 39, 102642	Geeta Verma, Satyender Singh, Computational multiphase iterative solution procedure for thermal performance investigation of phase change material embedded parallel flow solar air heater
2020	Journal of Energy Storage, 32, 102002	Satyender Singh, Bharat Singh Negi, Numerical thermal performance investigation of phase change material integrated wavy finned single pass solar air heater
2020	Energy Sources, Part A: Recovery, Utilization, And Environmental Effects, 1-17	Satyender Singh, Shailendra Kumar Chaurasiya, Bharat Singh Negi, Efficient design of a wavy channel embedded with porous media for solar air heating
2020	Renewable Energy, 154, 1327-1345	Satyender Singh, Shailendra Kumar Chaurasiya, Bharat Singh Negi, Subhash Chander, Magdalena Nems, Sushant Negi, Utilizing circular jet impingement to enhance thermal performance of solar air heater.
2020	Journal of Energy Storage 27 101080	Satyender Singh, Thermohydraulic performance of double pass solar thermal collector with inline, staggered and hybrid fin configurations.
2020	Renewable Energy, 145, 1361-1387	Satyender Singh, Experimental and numerical investigations of a single and double pass porous serpentine wavy wiremesh packed bed solar air heater.
2019	Journal of Energy Storage, 21, 713–723	Satyender Singh, Laxmikant Dhruw, Subhash Chander, Experimental investigation of a double pass converging finned wire mesh packed bed solar air heater.
2019	Journal of Energy Storage 25,100896	Satyender Singh, Ankit Singh, Subhash Chander, Thermal performance of a fully developed serpentine wavy channel solar air heater.
2018	Journal of Energy Storage, 20, 316–336	Satyender Singh, Thermal performance analysis of semicircular and triangular cross-sectioned duct solar air heaters under external recycle.
2018	Journal of Energy Storage, 16, 167-186	Singh S, Dhiman P., Analytical and experimental investigations of packed bed solar air heaters under the collective effect of recycle ratio and fractional mass flow rate.
2018	Progress in Computational Fluid Dynamics, 18 (1), 19-32.	Kant K, Singh S, Dhiman P., Fluid Flow and Heat transfer Characteristics within a Rectangular Microchannel Array of Different Manifold Shapes – Modelization and Optimization Using CFD and Response Surface Methodology.
2018	Journal of Renewable and Sustainable Energy, 10, 055901.	Josyula T, Singh S, Dhiman P., Numerical investigation of a solar air heater comprising longitudinally finned absorber plate and thermal energy storage system.
2017	International Journal of Sustainable Energy, 36 (3), 242-258.	Dhiman P, Singh S., Thermal and thermo-hydraulic performance investigation of double pass packed bed solar air heaters under external recycle.
2017	International Journal of Sustainable Energy, 36 (1), 78-100.	Dhiman P, Singh S., Thermal performance assessment of recyclic double-pass flat and V-corrugated plate solar air heaters.
2016	Heat Transfer Engineering, 37, 1302-1317.	Singh S, Dhiman P., Thermal and thermohydraulic efficiency of recyclic-type double pass solar air heaters with fins and baffles.
2016	Renewable and Sustainable Energy Reviews, 53, 1010-31.	Singh S, Dhiman P., Thermal performance of double pass packed bed solar air heaters- A comprehensive review.

2016	Journal of Energy Storage, 5, 33-47.	Singh S, Dhiman P., Exergoeconomic Analysis of Recyclic Packed Bed Solar Air Heater- Sustained Air Heating System for Buildings.
2015	Journal of Solar Energy Engineering, Transactions of the ASME, 138, 011009-7.	Singh S, Dhiman P., Double duct packed bed solar air heater under combined single and recyclic double air pass.
2015	Journal of Solar Energy Engineering, Transactions of the ASME, 138, 011006-9.	Singh S, Dhiman P., Thermal Performance analysis of a Rectangular Longitudinal Finned Solar Air Heater with Semicircular Absorber Plate.
2015	Journal of Energy Engineering, 141, 04014031-11	Singh S, Dhiman P., Using an Analytical Approach to Investigate Thermal Performance of Double Flow Packed Bed Solar Air Heaters with External Recycle.
2015	International Journal of Thermal Sciences, 87, 215-227.	Dhiman P, Singh S., Recyclic double pass packed bed solar air heaters.
2015	Energy and Buildings, 104, 25–35.	Kaushal M, Dhiman P, Singh S, Patel HR., Finite volume and response surface methodology based performance prediction and optimization of a hybrid earth to air tunnel heat exchanger.
2014	Energy, 72, 344-359.	Singh S, Dhiman P., Thermal and thermohydraulic performance evaluation of a novel type double pass packed bed solar air heater under external recycle using an analytical and RSM combined approach.
2013	International Journal of Renewable Energy Technology, 4, 12-18.	Singh S, Dhiman P., A Numerical evaluation of thermal performance of double flow packed bed solar air heaters.
2011	Applied Energy, 12, 189–93.	Dhiman P, Thakur NS, Kumar A, Singh S., An analytical model to predict the thermal performance of a novel parallel flow packed bed solar air heater.

Conference Publications :

Year	Conference	Publication
2021	Recent Advances in Mechanical Engineering, Proceedings of ICROME 2020. NIT Silchar	BS Negi, S Singh, S Negi, Multiphase Numerical Modeling of PCM Integrated Solar Collector
2021	Materials Today: Proceedings, (International Conference & Exposition on Mechanical, Material and Manufacturing Technology), CVR COLLEGE OF ENGINEERING, Telangana, INDIA.	Satyender Singh, Manjeet Kharub, Jagdeep Singh, Jaspreet Singh, Vivek Jangid, Brief survey on mechanical failure and preventive mechanism of turbine blades
2018	19th ISME Conference on Advances in Mechanical Engineering (Mechanical Systems and Sustainability), NIT Jalandhar	Satyender Singh, Ankit Singh and Laxmikant Dhruw, Heat transfer and fluid dynamics in a developed and undeveloped wavy channel solar air heater
12/2019	International Conference on Advancements and Futuristic Trends in Mechanical and Materials Engineering (December 5-7, 2019), IIT Ropar	S Singh, S Chamerthi, Thermal performance improvement of combined single and recyclic double pass packed bed solar air heaters: An analytical treatment

Book/Chapter Publications :

Type	Title	Publisher	Authors	ISBN/ISS N No.	Year
Book	Energy Storage Systems: An Introduction	Nova Science Publishers, NY, USA	Satyender Singh	978-1-53618-873-8	2021

Book Chapter	Latent Heat Storage with Embedded Porous Media	Nova Science Publishers, Inc. 415 Oser Avenue, Suite N Hauppauge, NY, 11788 USA	Satyender Singh, Shailendra Kumar Chaurasiya and Subhash Chander	978-1-536 18-873-8	2021
Book Chapter	Integrated Energy Storage Systems with Solar Collectors	Nova Science Publishers, Inc. 415 Oser Avenue, Suite N Hauppauge, NY, 11788 USA	Bharat Singh Negi, Satyender Singh and Subhash Chander	978-1-536 18-873-8	2021
Book Chapter	Thermal Energy Storage Systems	Nova Science Publishers	Satyender Singh	978-1-536 16-827-3	2020

Research Projects :

Role	Project Type	Title	Funding Agency	From	To	Amount	Status	Co-Investigator
Co-PI	Research	Improving the Conductive Heat Transfer Efficiency of Thermal Base Plate inside a Thermal Vacuum Chamber	ISRO	2020	2022	29,30,000	Ongoing	Prof. Subhash Chander & Dr. Dwesh K. Singh
Coordinator	Consultancy	CFD solution for Desilting Basin of Hydropower plant, Rabada, South Africa	Vertex Intentional PVT LTD, India	21.02.2019	21.06.2019	INR 4,80,000	Completed	Prof. Subhash Chander

Events Organized :

Category	Type	Title	Venue	From	To	Designation
STC	International	Multi-Scale Computational Fluid Dynamics: Fundamentals and Applications	NIT Jalandhar	21.09.2020	25.09.2020	Coordinator
STC	National	Happiness and Yoga in Engineering Practice	NIT Jalandhar	22.06.2020	26.06.2020	Coordinator

Professional Affiliations :

Designation	Organization
Reviewer	Applied Energy, Elsevier.
Reviewer	Applied Thermal Engineering, Elsevier.

Reviewer	Heat and Mass Transfer, Springer.
Reviewer	Journal of Solar Energy Engineering, Transactions of the ASME.
Reviewer	Energy Conversion and Management, Elsevier.
Reviewer	Sustainable Energy Technologies and Assessments, Elsevier.
Reviewer	Engineering Science and Technology, an International Journal, Elsevier.
Reviewer	Heat Transfer - Asian Research, Wiley.
Member	American Society of Thermal and Fluids Engineers (ASTFE).
Reviewer	Desalination and Water Treatment, Taylor & Francis.
Reviewer	Energy Sources, Part A: Recovery, Utilization, and Environmental Effects (Taylor and Francis).
Reviewer	International Journal of Energy Research, Wiley
Reviewer	Energy, Elsevier
Reviewer	Solar Energy, Elsevier
Reviewer	Solar Energy Materials & Solar Cells, Elsevier
Reviewer	Journal of Thermal Science and Engineering Applications, Transactions of the ASME.
Reviewer	World Journal of Engineering, Emerald.
Reviewer	International Journal of Green Energy, Taylor & Francis.
Reviewer	Energy Storage, Wiley
Reviewer	Alexandria Engineering Journal-Elsevier.
Reviewer	Journal of Energy Storage, Elsevier
Reviewer	Journal of Thermal Analysis and Calorimetry (JTAC), Springer
Reviewer	Journal of Building Engineering, Elsevier
Reviewer	International Journal of Heat and Mass Transfer, Elsevier
Reviewer	Energy and Building, Elsevier

PhD Supervised :

Scholar Name	Research Topic	Status	Year	Co-Supervisor
Shailendra Kumar Chaurasiya (PhD)	Thermohydraulic performance analysis of solar air heater with and without integrated thermal energy storage	Ongoing	2019	
Subbarao Chamarthi (PhD scholar)	Thermohydraulic performance of curved channel solar air heaters	Ongoing	2018	Prof. Subhash Chander

PG Dissertation Guided :

Student Name	Dissertation Title	Status	Year	Co-Supervisor
Mr. Vaibhav Nagale	Development of Numerical Procedure using Non-Orthogonal Mesh for the Thermal Performance Prediction of a Serpentine Wavy PCM Assisted Solar Collector	Ongoing	2022	Dr Sanjay Kumar
Geeta Verma	Computational Iterative Solution Procedure for Transient Thermal Performance Investigation of Phase Change Material Embedded Parallel flow Solar Air Heater	Completed (Currently PhD scholar at NIT Durgapur)	2021	
Bharat Singh Negi	Numerical Investigation on Thermal Performance of PCM Integrated Wavy Finned Single Pass Solar Air Heater	Completed (UI Designer in FanClash)	2020	

Laxmikant Dhruw	Thermal performance of converging finned solar air heater	Completed , Currently PhD scholar at IIT Jodhpur	2019	Prof. Subhash Chander
Ankit Singh	Thermal Performance of a Fully Developed Serpentine Wavy Channel Solar Air Heater	Completed , Currently PhD scholar at IIT Jodhpur	2019	Prof. Subhash Chander
Satish Kumar Singh	Performance Analysis of Vapour Compression Refrigeration System With MWCNT Nano Refrigerants	Completed	2019	Dr. Dwesh K. Singh

Admin. Responsibilities :

Position Held	Organization	From	To
Institute Ranking coordinator	NIT Jalandhar	2019	2020
Departmental Timetable coordinator	NIT Jalandhar	2018	2020
Associate Dean (Research & Consultancy)	NIT Jalandhar	2021	
Ranking activities coordinator, IIC	NIT Jalandhar	2019	

Award and Honours :

Title	Activity	Given by	Year
Delivered Expert Lecture on "Introduction to CFD"	STC on "Computational Fluid Dynamics" from 17-22 August 2020, in the Department of Mechanical Engineering at NIT Srinagar.	NIT Srinagar	2020
Best Reviewer Award	Review	Sustainable Energy Technologies and Assessments, Elsevier.	2013-2014