Profile Page

Name	:	Dr Rajan Kumar Rana
Designation	:	Assistant Professor
Department	:	Mechanical Engineering
Qualification	:	Ph.D. Mechanical Engineering (Thermal Engineering) (IIT Mandi) M.Tech. Mechanical Engineering (Thermal Engineering) (NIT Jalandhar) B.Tech. Mechanical Engineering (HPU Shimla)
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Research Interests :

Microfluidics, Nanofluidics, Convective Heat Transfer, Computational Fluid Dynamics, MEMS Design and Microchannel Cooling, Optimization in Thermal Devices and Energy Management

Other Profile Links :

Google Scholar Link :

Google Scholar Click Here

Personal Web Link :

ResearchGate Click Here

Journal Publications :

Year	Journal	Publication
2020	Physics of Fluids, Editor's Pick, (Accepted)	P Tyagi, R Kumar, PK Mondal, A review of the state-of-the-art nanofluids spray and jet impingement cooling
2020	Iranian Journal of Science and Technology: Transactions of Mechanical Engineering	Effect of Density Variation on Rarefied and Non-rarefied Gaseous Flows in Developing Region of Microtubes
2020	International Journal of Exergy, Vol. 31, No. 1	K. Kumar, R. Kumar, R. S. Bharj, Entropy generation analysis due to heat transfer and nanofluid flow through microchannels: a review
2020	International Journal of Energy Research, Vol. 44, Issue 8, Pages 6149-6169	Rajan Kumar, Vipul Deshmukh, Rabinder Singh Bharj, Performance enhancement of photovoltaic modules by nanofluid cooling: A comprehensive review
2020	Journal of Non-Equilibrium Thermodynamics, 45, Issue 4, 333–342	Krishan Kumar, Rajan Kumar and Rabinder Singh Bharj, Circular Microchannel Heat Sink Optimization Using Entropy Generation Minimization Method

2020	Journal of Non-Equilibrium Thermodynamics (De Gruyter) 45(1): 1–17	Prathvi Raj Chauhan, Krishan Kumar, Rajan Kumar, Mohammad Rahimi-Gorji, Rabinder Singh Bharj, Effect of Thermophysical Property Variation on Entropy Generation towards Micro-Scale
2020	Journal of Mechanical Engineering (JMechE), Vol 17(1), 49-62	Design and development of the front wheel hub for all-terrain vehicle (ATV)
2020	Journal of Energy Storage 32, 101876	Rajan Kumar, Paidi Praveen, Samikhshak Gupta, Juttu Saikiran, Rabinder SinghBharj, Performance evaluation of photovoltaic module integrated with phase change material-filled container with external fins for extremely hot climates
2019	Journal of Thermal Analysis and Calorimetry, 140, 1919–1934	Rajan Kumar, Shripad P. Mahulikar, Heat transfer characteristics of water flowing through micro-tube heat exchanger with variable fluid properties
2019	Journal of Thermal Engineering (in press)	R. Kumar, Physical effects of variable fluid properties on gaseous slip-flow through a micro-channel heat sink
2019	Journal of Mechanical Engineering, Vol 16(2), 41-52, 2019	G.N. Singh, R. S. Bharj, R. Kumar, Numerical investigation on performance and emission characteristics of a diesel engine fired with methanol blended diesel fuel
2019	Thermal Science and Engineering Progress, (Elsevier) Vol. 13, 100365-1-10	P.R. Chauhan, R. Kumar, R.S. Bharj, Optimization of the circular microchannel heat sink under viscous heating effect using entropy generation minimization method
2018	Annales de Chimie. Science des Materiaux, Vol. 42, No. 3, pp. 363-385	P.R. Chauhan, R. Kumar, A comprehensive review on heat transfer enhancement and pressure drop characteristics of nanofluid flow through micro-channels
2018	Heat Transfer Engineering (Taylor and Francis) Vol. 39, No. 4, pp. 374-390	R. Kumar, S.P. Mahulikar, Physical effects of variable thermophysical fluid properties on flow and thermal development in micro-channel
2018	Journal of Engineering Thermophysics, Vol. 27, No. 4, pp 456–473	R. Kumar, S.P. Mahulikar, Variable fluid property effect on heat transfer and frictional flow characteristics of water flowing through microchannel
2017	Journal of Heat Transfer, Transactions of the ASME, Vol. 139, No. 7, pp. 071701-1–10	R. Kumar, S.P. Mahulikar, Numerical reexamination of Chilton-Colburn Analogy for thermophysical fluid properties
2017	Heat Transfer - Asian Research (Wiley Periodicals, Inc.) Vol. 46, No. 7, pp. 1029–1040	R. Kumar, S.P. Mahulikar, Physical effects of variable fluid properties on laminar gas-microconvective flow
2015	International Journal of Thermal Sciences (Elsevier) Vol. 98, pp. 179–191	R. Kumar, S.P. Mahulikar, Effect of temperature-dependent viscosity variation on fully developed laminar microconvective flow
2015	Fluid Dynamics Research (IOP Publishing) Vol. 47, No. 6, pp. 065501-1–21	R. Kumar, S.P. Mahulikar, Frictional flow characteristics of microconvective flow for variable fluid properties

Conference Publications :

Year	Conference	Publication
2018	19th ISME Conference on Advances in Mechanical Engineering (Mechanical Systems and Sustainability)	Prathvi Raj Chauhan, Rajan Kumar, Krishan Kumar, Heat transfer and pressure drop characteristics of water flowing through rectangular microchannels

Book/Chapter Publications :

Type	Title	Publisher	Authors	ISBN/ISSN No.	Year

Chapter	Agricultural Waste Derived 2nd Generation Ethanol Blended Diesel Fuel in India: A Perspective	Springer, Singapore	Rabinder Singh Bharj, Gurkamal Nain Singh, Rajan Kumar	978-981-15-0417-4	2020
Chapter	On-Board Post-Combustion Emission Control Strategies for Diesel Engine in India to Meet Bharat Stage VI Norms	Springer, Singapore	Rabinder Singh Bharj, Rajan Kumar, Gurkamal Nain Singh	978-981-13-3275-3	2018

Research Projects :

Role	Project Type	Title	Funding Agency	From	To	Amount	Status	Co-Investigator
Co-PI	Minor Project	Experimental study of thermal performance based thermal comfort assessment of a novel solar air heater with semicircular glass cover and super hydrophobic absorber plate for western Himalayan region in India	TEQIP-III	Dec 2018	Dec 2019	3 Lakhs	Onging	Dr. Satyender Singh and Dr. Sanjay

Events Organized :

Category	Type	Title	Venue	From	To	Designation
e-STC	International	Multi-Scale Computational Fluid Dynamics: Fundamentals and Applications	Dr. B R Ambedkar NIT Jalandhar	21/09/2020	25/09/2020	Coordinator

Professional Affiliations :

Designation	Organization
Reviewer	Physics of Fluids
Reviewer	International Journal of Thermal Sciences
Reviewer	Aerospace Science and Technology
Reviewer	Journal of Thermal Engineering
Reviewer	Journal of the Brazilian Society of Mechanical Sciences and Engineering
Academic expert member	Board of Study (BOS) Committee for Mechanical Engineering batch 2019 at INDUS INTERNATIONAL UNIVERSITY Una

Editorial board member	International Journal of Mechanical Engineering and Applications
Reviewer	Journal of Thermal Analysis and Calorimetry

PhD Supervised :

Scholar Name	Research Topic	Status	Year	Co-Supervisor
Praveen Kumar Tyagi	Spray Cooling	Ongoing	2019	
Krishan Kumar	Microscale Fluid Flow and Heat Transfer	Ongoing	2018	Dr. R S Bharj

PG Dissertation Guided :

Student Name	Dissertation Title	Status	Year	Co-Supervisor
Vipul Deshmukh	Nanofluid cooling	Ongoing	2020	Dr RS Bharj
Sanchit Sangra	Waste Utilization	Ongoing	2020	Dr RS Bharj
Prathvi Raj Chauhan	ANALYSIS OF ENTROPY GENERATION IN LAMINAR MICRO-CONVECTIVE FLUID FLOW	Completed	2019	Dr. RS Bharj
Sarthak Baweja	Combustion and performance investigation on single cylinder 4 stroke CI Engines fuelled with Mustard Oil Biodiesel and Diesel.	Completed	2019	Mr. Ajay Trehan

Award and Honours :

Title	Activity	Given by	Year
Mukhiya Mantri Protsahan Yojna (One-time Incentive).		Govt. of Himachal Pradesh (State Sponsored Schemes)	2014