

## Profile Page



Name : Dr Subhash Chander  
Designation : Professor  
Department : Mechanical Engineering  
Qualification : PhD Thermal Engineering (Indian Institute of Technology Delhi)  
Master of Engineering Mechanical Engineering with specialization in Rotodynamic Machines (Punjab Engineering College Chandigarh)  
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### **Research Interests :**

Heat Transfer, Fluid Mechanics, Combustion, Renewable Energy, Computational Fluid Dynamics

Sub Areas of Research: Experimental and computational studies on direct flame impingement heat transfer, Experimental and computational investigations on swirling impinging iso-thermal jets and flames, Experimental and computational studies on heat transfer enhancement in solar air heater with artificial rib roughness, Experimental and computational studies on spray impingement cooling, Experimental and computational studies on electronic component cooling.

### **Other Profile Links :**

#### **Google Scholar Link :**

Dr Subhash Chander [Click Here](#)

### **Journal Publications :**

Year	Journal	Publication
2020	Transactions of the ASME, Journal of Thermal Science and Engineering Applications, 031021-1-12 / Vol. 12, June 2020	Parampreet Singh, Ratna Kishore Velamati and Subhash Chander, "A Numerical Investigation on Fluid Dynamics and Heating Characteristics of Co-and-Counter Rotating Multiple Swirling Impinging Flames Arranged in 3 x 3 Inline Array"

2020	Combustion Science and Technology, Vol. 192, NO. 4, 701–727, 2020	Parampreet Singh and Subhash Chander, Effect of Interactions on Flow Field and Heat Transfer Characteristics for Three Co-Rotating Dual Swirling Flames Impinging on a Flat Surface
2020	Heat and Mass Transfer, Volume 56, pages 2303–2311 (2020)	Dwesh K. Singh, Ravinder Kumar and Subhash Chander. "An experimental approach to study thermal and tribology behavior of LPG refrigerant and MO lubricant appended with ZnO nanoparticles in domestic refrigeration cycle"
2020	Applied Thermal Engineering, Vol. 181 (2020) 115936, 1-13	Girish Sapra and Subhash Chander, "Effect of Operating and Geometrical Parameters of Tangential Entry Type Dual Swirling Flame burner on Impingement Heat Transfer"?
2020	Renewable Energy, Volume 154, July 2020, Pages 1327-1345	Satyender Singh, Shailendra Kumar Chaurasiya, Bharat Singh Negi, Subhash Chander, Magdalena Nem and Sushant Negi, "Utilizing circular jet impingement to enhance thermal performance of solar air heater"
2020	Transactions of the ASME, Journal of Heat Transfer, AUGUST 2020, Vol. 142 / 081301-1-15	Parampreet Singh, Ratna Kishore Velamati and Subhash Chander, "CFD Analysis of Aerodynamics and Impingement Heat Transfer from Hexagonal Arrays of Multiple Dual-Swirling Impinging Flame Jets"
2020	Heat and Mass Transfer, 56:365–384, 2020	Parampreet Singh, Ratna Kishore Velamati and Subhash Chander, "Experimental and Computational Analysis of a Row of Three Co-Swirling Impinging Flames"
2020	Heat and Mass Transfer (Accepted for Publication on: 24/11/2020)	Girish Sapra and Subhash Chander, "Effect of Enclosure on Heat Transfer Characteristics of Dual Swirling Flame Impinging on a Flat Surface"?
2019	Journal of Energy Storage, 21 (2019), 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 (2019), 100896	Satyender Singh, Ankit Singh and Subhash Chander, "Thermal Performance of a Fully Developed Serpentine Wavy Channel Solar Air Heater"
2019	International Journal of Heat and Mass Transfer, 144 (2019) 118657, pp:1-16	Parampreet Singh, Ratna Kishore Velamati, Prathap C, M Akram and Subhash Chander, "Study of Flow Patterns and Impingement Heat Transfer for an Annular Array of Eight Co-rotating Dual-Swirling Flames"
2019	International Journal of Thermal Sciences, 144 (2019), 191-211	Parampreet Singh and Subhash Chander, "Study of flow field and heat transfer characteristics for an interacting pair of counter-rotating dual-swirling impinging flames"
2018	International Journal of Heat and Mass Transfer, Vol.: 124, pp.:90–108	Parampreet Singh and Subhash Chander, "Heat transfer and fluid flow characteristics of a pair of interacting dual swirling flame jets impinging on a flat surface"
2017	Fuel (Elsevier), Volume: 210, Pages: 15-22, 2017	Akash Deep, Sarbjot Singh Sandhu, Subhash Chander, "Experimental Investigations on the Influence of Fuel Injection Timing and Pressure on Single Cylinder CI Engine Fueled With 20% Blend of Castor Biodiesel in Diesel",
2017	Environmental Progress & Sustainable Energy, 36 (4), 1139-1150, 2017	Akash Deep, Sarbjot Singh Sandhu, Subhash Chander, "Experimental Investigations on Castor Biodiesel as an Alternative Fuel for Single Cylinder Compression Ignition Engine"
2017	Journal of Scientific and Industrial Research, Vol. 76, February 2017, page 116-118	Akash Deep, Sarbjot Singh Sandhu, Subhash Chander, "Optimization of Reaction Parameters of Transesterification of Castor Oil"
2016	Renewable Energy, Vol. 91, June 2016, pp.484-500.	Narinderpal Singh Deo, Subhash Chander and J.S. Saini, "Performance Analysis of Solar Air Heater Duct Roughened with Multigap V-Down Ribs Combined with Staggered Ribs"

2016	SAE Technical Paper, Issue: 2016-01-1340.	Vikram Dang, Subhash Chander, "Numerical Simulation of Heat Transfer Characteristics of Methane/air Swirling Turbulent Flame impinging on Flat Surface"
2016	American Journal of Heat and Mass Transfer (2016) Vol. 3 No. 4 pp. 259-279.	Narinderpal Singh Deo, Subhash Chander and J.S. Saini, "Effect of Alterations in V-down Rib on the Performance of an Artificially Roughened Solar Air Heater Duct"
2015	Renewable and Sustainable Energy Reviews, Vol. 43 (2015), pp.1159-1166.	Sukhmeet Singh, Subhash Chander and J.S. Saini, "Thermo-Hydraulic Performance Due to Relative Roughness Pitch Iin V-Down Rib With Gap in Solar Air Heater Duct—Comparison With Similar Rib Roughness Geometries"
2015	Open Journal of Heat, Mass and Momentum Transfer, 2015, 3(1), pp. 1-13.	Satpal Singh and Subhash Chander, "Evaluation of Heating Capabilities of Dual Swirling Flame under Fuel Lean Conditions"
2015	International Journal of Thermal Sciences, Vol. 89 (2015), pp. 1-12.	Satpal Singh and Subhash Chander, "Heat Transfer Characteristics of Dual Swirling Flame Impinging On a Flat Surface"
2015	International Journal of Applied Engineering Research, 10(78):213-219, July 2015	Vikram Dang, Subhash Chander, "Computational Study on Flow Structure and Combustion of Open Methane/air Swirling Flame"
2014	BioChip J. (2014), pp. 1-11.	Harish Palani Naga Surya, Sajeesh Parayil, Utsab Banerjee, Subhash Chander and Ashis Kumar Sen, "Alternating and Merged Droplets in a Double T-junction Microchannel"
2014	International Journal of Heat and Mass Transfer, Vol. 77 (2014), pp. 995-1007.	Satpal Singh and Subhash Chander, "Heat Transfer Characteristics of Dual Flame with Outer Swirling and Inner Non-Swirling Flame Impinging on a Flat Surface"
2014	International Journal of Mathematical, Computational, Physical and Quantum Engineering, Vol. 8 (2) 2014, pp: 340-343.	Jyoti Bharj, Sarabjit Singh, Subhash Chander, Rabinder Singh, "Role of dispersion of multiwalled carbon nanotubes on compressive strength of cement paste"
2014	Indian Journal of Pure & Applied Physics, Vol. 52 2014, pp: 35-38.	Jyoti Bharj, Sarabjit Singh, Subhash Chander, Rabinder Singh, "Experimental study on compressive strength of cement-CNT composite paste"
2012	Experimental Thermal and Fluid Science, Volume 41, September 2012, Pages 165-176.	Gurpreet Singh, Subhash Chander, Anjan Ray, "Heat transfer characteristics of natural gas/air swirling flame impinging on a flat surface"
2012	Applied Energy, Volume 97, September 2012, Pages 907-912.	Sukhmeet Singh, Subhash Chander and J.S. Saini, "Investigations on thermo-hydraulic performance due to flow-attack-angle in V-down rib with gap in a rectangular duct of solar air heater"
2012	Energy, Volume 37, Issue 1, January 2012, Pages 749-758.	Sukhmeet Singh, Subhash Chander and J.S. Saini, "Exergy based analysis of solar air heater having discrete V-down rib roughness on absorber plate"
2011	Energy, Volume 36, Issue 8, August 2011, Pages 5053-5064.	Sukhmeet Singh, Subhash Chander and J.S. Saini, "Heat Transfer and Friction Factor Correlations of Solar air Heater Ducts Artificially Roughened with Discrete V-down Ribs"
2011	Journal of Renewable and Sustainable Energy, Vol. 3, 023107 (2011).	Sukhmeet Singh, Subhash Chander, J.S. Saini, "Thermal and Effective Efficiency Based Analysis of Discrete V-Down Rib Roughened Solar Air Heaters"
2011	Journal of Renewable and Sustainable Energy, Vol. 3, 013108 (2011).	Sukhmeet Singh, Subhash Chander, J.S. Saini, "Heat Transfer and Friction Factor of Discrete V-Down Rib Roughened Solar Air Heater Ducts"

2011	International Journal of Heat and Mass Transfer, Volume 54, Issues 5-6, February 2011, Pages 1179-1186.	Subhash Chander and Anjan Ray, "Experimental and Numerical Study on the Occurrence of Off-Stagnation Peak in Heat Flux for Laminar Methane/Air Flame Impinging on a Flat Surface"
2008	International Journal of Heat and Mass Transfer, Volume 51, Issues 13-14, 1 July 2008, Pages 3595-3607.	Subhash Chander and Anjan Ray, "An Experimental and Numerical Study of Stagnation Point Heat Transfer for Methane/Air Laminar Flame Impinging on a Flat Surface"
2007	Experimental Thermal and Fluid Science, Volume 32, Issue 2, November 2007, Pages 707-721.	Subhash Chander and Anjan Ray, "Heat Transfer Characteristics of Methane/Air Flame Impinging Normally to a Cylindrical Surface"
2007	International Journal of Heat and Mass Transfer, Volume 50, Issues 3-4, February 2007, Pages 640-653.	Subhash Chander and Anjan Ray, "Heat Transfer Characteristics of Three Interacting Flame Jets Impinging on Flat Surface"
2006	Annals of the Assembly for International Heat Transfer Conference 13, Volume 13 - IHTC-13, Begell House Inc., 2006	Subhash Chander, Abhineesh Das, Arpit Jain and Anjan Ray, "Effect Of Slot Burner Aspect Ratio on Heat Transfer Characteristics For Methane/Air Flame Impinging on a Flat Surface"
2006	Fuel and Energy Abstracts, Volume 47, Issue 2, March 2006, Page 107.	Chander, S. and Ray A., Flame impingement heat transfer: a review,
2006	Experimental Heat Transfer, Vol. 19(1), pp. 15-38, 2006.	Subhash Chander and Anjan Ray, "Influence of Burner Geometry on Heat Transfer Characteristics of Methane/air Flame Impinging on Flat Surface"
2005	Energy Conversion and Management, Vol. 46(18-19), pp. 2803-2837, 2005.	Subhash Chander and Anjan Ray, "Flame Impingement Heat Transfer – A Review"
2005	IE (I) Journal-MC, Vol.85, pp.169-178, 2005.	Subhash Chander and Raman Bedi, "A Simplified Optimum Design of Axial Flow Compressor Stage"

### Conference Publications :

Year	Conference	Publication
2013	ASME 2013 International Mechanical Engineering Congress & Exposition(IMECE13) November 15-21, 2013, San Diego, CA, USA (Paper Number: IMECE2013-63968).	Subhash Chander and Gurpreet Singh, "Effect of Helical Vane Swirler Geometry on Heat Transfer Characteristics for Compressed Natural Gas/Air Swirling Flame Impinging on a Flat Surface"
2013	ASME 2013 International Mechanical Engineering Congress and Exposition San Diego, California, USA, November 15–21, 2013, Volume 8A: Heat Transfer and Thermal Engineering, Paper No. IMECE2013-64178, pp. V08AT09A021; 11 pages doi:10.1115/IMECE2013-64178.	Gurpreet Singh and Subhash Chander, "Effect of Swirl Intensity on Heat Transfer Characteristics of Swirling Flame Impinging on a Flat Surface"
2010	14th International Heat transfer Conference, August 8-13, 2010, Washington, DC, USA.	Arun Kaushal, Gurpreet Singh, Subhash Chander and Anjan Ray, "Heat Transfer Characteristics of Low Reynolds Number Turbulent Swirling LPG/Air Flame Impinging on a Flat Surface"
2010	International Conference on Methods and Models in Science And Technology (ICM2ST-10), AIP Conf. Proc. November 6, 2010 Volume 1324, pp. 389-393.	Jyoti Bharj, Sarabjit Singh, Subhash Chander, and Rabinder Singh, "Flame Synthesis of Carbon Nanotubes using Domestic LPG"

2010	Proceedings of the 4th International & 37th National Conference on Fluid Mechanics and Fluid Power FMFP2010 December 16-18, 2010, IIT Madras, Chennai, India.	Anubhav Sinha and Subhash Chander, “Numerical Investigation of Flame Jet Impingement on a Flat Plate”
2010	National Conference on Advancements and Futuristic Trends in Mechanical and Materials Engineering (February 19-20, 2010), Yadavindra College of Engineering, Punjabi University Guru Kashi Campus, Talwandi Sabo, Punjab, INDIA.	Gurpreet Singh and Subhash Chander, “Flow Structure And Heat Transfer Of Impinging Swirling Isothermal Gas Jets - A Review”
2010	Proceedings of National Conference on Futuristic Trends in Mechanical Engineering, 29th-30th Oct, 2010, GNDEC Ludhiana (Punjab) INDIA	Sateesh Pagoti, Gurpreet Singh and Subhash Chander, “Heat Transfer Characteristics of Intermittent Laminar CNG/Air Premixed Flame Impinging on a Flat Surface”
2010	Proceedings of ISME National Conference on “Mechanical Engineering for Sustainable Development” from 2nd to 4th December, 2010 at Indian Institute of Technology (IIT) Delhi.	Gurpreet Singh, Subhash Chander, “Heat Transfer Characteristics of Turbulent Swirling Flame Impinging on a Flat Surface”
2009	Proceedings of 2009 ASME Summer Heat Transfer Conference, July 19-23, 2009, Westin St. Francis, San Francisco, California USA. Proceedings of the ASME Summer Heat Transfer Conference 2009, HT2009 3, pp. 63-71.	Subhash Chander and Anjan Ray, “Investigation of Flame Structure for Laminar Methane/Air Flame Impinging on a Flat Surface”
2008	Proceedings of the ASME Summer Heat Transfer Conference, HT 2008, 3, pp. 235-242, August 10-14, 2008, Hyatt Regency Riverfront Jacksonville, Florida, USA.	Subhash Chander and Anjan Ray, “A Combined Experimental and Numerical Study of Heat Transfer Characteristics for Methane/Air Flame Impinging Normally on a Flat Surface”
2007	Proceedings of the 24th ASM Heat Treating Society Conference, September 17-19, 2007 COBO Center, Detroit, Michigan, USA, pp. 23 - 32.	Subhash Chander and Anjan Ray, “Heat Transfer Characteristics of Laminar Methane/Air Flame Impinging on a Flat Surface”
2006	Proceedings of 18th National and 7th ISHMT-ASME Heat and Mass Transfer Conference, January 4-6, 2006, at IIT Guwahati pp. 126 -134.	Subhash Chander and Anjan Ray, “Effect of Inter-Jet Spacing On Heat Transfer Characteristics for Three Methane/Air Jets Impinging On a Flat Surface”
2006	13th International Heat transfer Conference at Sydney, Australia, 13-18 August, 2006.	Subhash Chander, Abhineesh Das, Arpit Jain and Anjan Ray, “Effect Of Slot Burner Aspect Ratio On Heat Transfer Characteristics For Methane/Air Flame Impinging On A Flat Surface”
2005	2005 ASME Summer Heat Transfer Conference, July 17-22, 2005, Westin St. Francis, San Francisco, CA, USA HT 2005, 2005, p 213-220.	Subhash Chander and Anjan Ray, “Investigation of Effect of Burner Diameter on Heat Transfer Characteristics of Methane/ Air Flame Impinging on a Flat Surface”
2004	Proceedings of National Conference on Air Breathing Engines and Propulsion (NCABE-2004), at IIT, Kanpur, November, 5-7,2004, pp. 367-377.	Ankush, G., Subhash, C. and Ray, A., “An Experimental Study of Flame Impingement Heat Transfer Impinging Normally to the Flat Surface”
2001	Proceedings of National Conference on Advances in Mechanical Engineering, JNTU Anantapur, 2001, pp. 1-7.	Subhash Chander and Dinesh Shukla, “Recent Advances in Gas Turbine Blade Cooling”

### Book/Chapter Publications :

Type	Title	Publisher	Authors	ISBN/ISS N No.	Year
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Heating, - energy- and power station technology	Flame Jet Impingement On A Plane Surface - A Numerical Study	LAP Lambert Academic Publishing ( 2012-08-15 )	Anubhav Sinha Subhash Chander	ISBN-13: 978-3-659-20253-7	2012
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### Research Projects :

Role	Project Type	Title	Funding Agency	From	To	Amount	Status	Co-Investigator
Principle Investigator	Research Project (S-TIC_AC-0134)	Improving the Conductive Heat Transfer Efficiency of Thermal Base Plate inside a Thermal Vacuum Chamber	ISRO	01/03/2020	01/03/2022	30 Lacs	Ongoing	Dr. Satyender Singh and Dr. Dwesh Kumar Singh
Investigator	Consultancy Project	CFD simulation of Flow of water at the Intake Section and CFD simulation of Desilting basin	M/s VERTEX INTERNATIONAL PRIVATE LIMITED, Delhi 11006 (India)	21/02/2019	21/05/2019	04 Lacs + GST	Complete	Dr. Satyender Singh

### Events Organized :

Category	Type	Title	Venue	From	To	Designation
STC	National	IC Engine Fuels & Combustion Technologies, Sponsored by TEQIP II	IT Park, NIT, Jalandhar	14-12-13	18-12-13	Chief Coordinator

### Professional Affiliations :

Designation	Organization
Life Member	Combustion Institute (India)
Life Member	Indian Society of Technical Education
Life Member	Indian Society of Mechanical Engineers

### PhD Supervised :

Scholar Name	Research Topic	Status	Year	Co-Supervisor
Akashdeep	Study on Performance, Emissions and Combustion Characteristics of Single Cylinder C.I. Engine Using Optimized Castor Biodiesel and Diesel Blend	PhD Complete	2018	Dr. SS Sandhu (NIT Jalandhar)

Ravinder Kumar	Flow Condensation Heat Transfer Characteristics of Refrigerants using Nanoparticles in Horizontal Smooth Tube	PhD in Progress	2018	Dr. Dwesh K Singh
Subbarao Chamarthi	Thermohydraulic Performance Investigation of Curved Channel Solar Air Heaters	PhD in Progress	2018	Dr. Satyender Singh
Narinderpal Singh Deo	Performance Analysis of a Solar Air Heater Roughened With Multi-Gap V- Down Ribs Combined With Staggered Ribs	PhD Complete	2017	NA
Girish Sapra	Heat Transfer Characteristics of Multiple Swirling Impinging Flames	PhD in Progress	2017	NA
Parampreet Singh	Experimental and Numerical Investigation on Heat Transfer Characteristics of Arrays of Dual Swirling Impinging Flames	PhD Complete	2016	NA
Satpal Singh	Stability and Heat Transfer Characteristics of Dual Swirling Flames Impinging on a Flat Surface	PhD Complete	2015	NA
Jyoti Bharj	Synthesis and Characterization of Multi-walled Carbon Nanotubes using Diffusion Flame and its Applications	PhD Complete	2015	Professor Sarbjit Singh (NITJ)
Gurpreet Singh	Heat Transfer Characteristics of Swirling Impinging Premixed Flame Jets using Helical Vane Swirlers	PhD Complete	2012	NA
Sukhmeet Singh	Heat Transfer and Fluid Flow Characteristics of Artificially Roughened Solar Air Heater with Circular V-Down Rib having Gap	PhD Complete	2011	Prof. JS Saini (Ex-Prof, IITR)
Rabinder Singh Bharj	Performance Optimization of Spark Ignition Hybrid Fuel Vehicle Using Gasoline and LPG	PhD Complete	2009	Dr. Nirmal Singh (BCET Gurdaspur)

### Admin. Responsibilities :

Position Held	Organization	From	To
Hostel Warden	NIT Jalandhar	03/10/2006	28/10/2010
Chief Warden	NIT Jalandhar	29/10/2010	02/09/2012
Head (Department of Mechanical Engineering)	NIT Jalandhar	03/09/2012	04/09/2014
Associate Dean Students Welfare	NIT Jalandhar	31/01/2015	24/01/2017
Associate Dean Students Welfare	NIT Jalandhar	24/01/2018	Till Date