

PRABAL TALUKDAR

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Present Address

Dr. Prabal Talukdar
Department of Mechanical Engineering
Indian Institute of Technology Delhi
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Education

- **Doctor of Philosophy** (Ph.D.) Department of Mechanical Engineering. **Indian Institute of Technology**, Guwahati, India. *Title of Thesis*: Combined Radiation, Conduction and/or Convection Heat Transfer in Participating Media.
- **Master of Technology** (M.Tech.) Department of Mechanical Engineering. **Indian Institute of Technology**, Guwahati, India. *Title of Thesis*: Analysis of Conduction-Radiation Problem in Participating Media using Collapsed Dimension Method
- **Bachelor of Engineering** (B.E.). First class with honors, Department of Mechanical Engineering. **Assam Engineering College**, Gauhati University, Assam, India

Experience

- ✦ **Professor -HAG** (from July 2023 – till date) Indian Institute of Technology Delhi
- ✦ **Professor** (from Jan 2017 – June 2023) Indian Institute of Technology Delhi
- ✦ **Associate Professor** (from Dec, 2010 - Jan, 2017) Indian Institute of Technology Delhi
- ✦ **Assistant professor**: (from Feb, 2007 - Nov, 2010) Indian Institute of Technology Delhi
- ✦ **Post doctoral Fellow**: (from September 2005- January 2007) University of Saskatchewan, Saskatoon, Canada.
- ✦ **Research Associate**: (from September 2003 –August 2005) Institute of Fluid Mechanics (LSTM), University of Erlangen-Nuremberg, Germany
- ✦ **Scientific Collaborator**: (from February 2002-April 2003) Institute of Fluid Mechanics (LSTM), University of Erlangen-Nuremberg, Germany (*part of PhD work*)

Guest Positions held:

- ✦ **Visiting Scholar**: (June-July 2008) at University of Saskatchewan, Saskatoon, Canada.
- ✦ **Visiting Scholar**: (June-July 2009) at University of Saskatchewan, Saskatoon, Canada

- ✦ **Visiting Scholar:** (June-July 2010) at University of Saskatchewan, Saskatoon, Canada
- ✦ **DAAD Fellow:** (June-July 2011) at Technical University of Freiberg, Germany
- ✦ **Guest Researcher:** (June-July 2012) at Technical University of Freiberg, Germany
- ✦ **Guest Professor:** (June-July 2013) at Technical University of Freiberg, Germany
- ✦ **Guest Professor:** (June-July 2014) at Technical University of Freiberg, Germany
- ✦ **Visiting Professor** (June 2017) at Thai Nguyen University of Technology, Vietnam
- ✦ **Visiting Professor** (July 2023) at University Malaya, Kuala Lumpur, Malaysia

Areas of Interest

- Modelling of Radiation through Participating Media
- Heat Transfer through Foams and Other Porous Media
- Convective Drying of Food
- Computational Fluid Dynamics (CFD) and Heat Transfer in Reheating Furnaces
- Solidification and Heat Transfer in Continuous Casting Process
- Heat Transfer through Thermal Protective Fabrics
- Moisture Transfer in Buildings
- Inverse Heat Transfer

Patent Application:

1	Indian Patent No.:	422081
	Indian Patent Application number:	3581/DEL/2014
	Indian filing date:	08/12/2014
	Patent Granting Date	16/02/2023
	Title:	Hybrid rotary desiccant wheel with multiple desiccant types
	Co-inventor:	Dr. Selvaraji Muthu, Prof. Sanjeev Jain

2	Indian Patent No.:	488431
	Application number:	201711009514
	Indian filing date:	18/03/2017
	Patent Granting Date	24/12/2023
	Title:	Apparatus for measurement of heat transfer through thermal protective clothing
	Co-inventor:	Prof. Udayraj, Prof. A Das, Prof. R. Alagirusamy

3	Indian Application No.:	202211058364
	Indian filing date:	October 12, 2022
	Title:	Apparatus for determining the performance of firefighter clothing under wind driven conditions
	Co-inventor:	Bhavna Rajput, Tarun Kumar, Bahni Ray, Apurba Das

4	Indian Application No.:	202211072988
	Indian filing date:	December 16, 2022
	Title:	Multidirectional Thermal Protective Performance Testing Instrument
	Co-inventor:	A Das, Prof. R. Alagirusamy, Sudhanshu Maurya

Involvement in Sponsored Research/Consultancy Projects

Completed projects as a Principal Investigator at IIT Delhi:

1. **Development of an algorithm for inverse problem of forced convection and gas radiation in duct flows**
Funding agency: DST, India
Period: 2009-2012
Grant Amount: 16.96 Lakh
2. **Development of a Heat Transfer Model for Reheat Furnaces to Increase Performance and Efficiency'**
Funding agency: DST, India under the Indo-Portuguese programme of cooperation in science & technology
Period: 2011-2014
Grant Amount: 4.3 Lakh
3. **Modeling effective thermal conductivity of porous medium with consideration of dispersion and radiation**
Funding agency: SERB, DST, Govt. of India
Period: 2012-2015
Grant Amount: 23 Lakh
4. **Characterization of drying kinetics of food materials subjected to convective drying: Model development and experimental studies**
Funding agency: CSIR, HRDG, Govt. of India
Period: 2013-2016
Grant Amount: 14.1 Lakh
5. **Thermal design of a heat sink for an LED bulb**
Funding Agency: Cube26
Period: August 216 – September 2016
Grant Amount: Rs. 1,21,900
6. **Mathematical Modelling Engine (MME) for simulation of the Reheating Furnace**
Funding agency: NISST
Period: 2014-2016
Grant Amount: 20 Lakh
7. **Development of a numerical model for the determination of mold heat flux distribution using inverse heat transfer method**
Funding Agency: TATA R&D
Period: August 2015 – September 2016
Grant Amount: 6.5 Lakh
8. **Cooling method for the Electric Motors using heat pipe**
Project no: FT/03/1676/2013
Funding agency: TMEIC, Japan
Period: April 2013 – March 2014
9. **Determination of heat transfer coefficient over different surfaces rotor, stator and different valves and Casings of a steam turbine**
Funding agency: BHEL, Haridwar
Period: 2015-2016
Grant Amount: 27 Lakhs
10. **Development of a numerical model for the determination of thermal stresses in the mould of billet continuous caster**

Funding Agency: Iron and Steel Making Group, Tata Steel R&D
Period: Jan 2017 – March 2018
Grant Amount: 10 lakh

11. **Development of a numerical model for performance prediction of fire protective ensemble**
Funding agency: ARMAREB, DRDO
Period: Sept 2017 – Sept 2019
Grant Amount: 17 lakh

Completed projects as a Co-Principal Investigator at IIT Delhi:

12. **Design and Development of a Unified Modeling System for Seamless Weather and Climate Predictions of Monsoons**
Funding agency: Ministry of Earth Sciences, Govt. of India
Period: 2011-2015

On-going projects as Principal Investigator at IIT Delhi:

13. **A study on the thermo-mechanical behaviour of thin slab continuous casting of steel**
Funding agency: SERB, DST, Govt. of India
Period: 2021-2024
Grant Amount: 27 Lakhs

On-going projects as a Co-Principal Investigator at IIT Delhi:

14. **Design and development of an instrument for analyzing performance of fire protective clothing and determining second degree burn time for skin**
Funding Agency: SERB, DST
Period: 2016 - 2019
Grant Amount: 34 lakh
15. **Design and Development of Extreme Cold Climate Clothing for defence Personnel**
Funding Agency: DRDO
Period: Nov 2017- Oct 2022
Grand Amount: 7 Cr
PI: Prof. R. S. Rengasamy
16. **Design and Development of Extreme Heat Protective Clothing for Defence applications**
Funding Agency: DRDO
Period: Nov 2017-Oct2022
Grand Amount: 76.64 lakhs
PI-Prof. Apurba Das

Publications – 185 (= 109 + 76)

Contributed Book Chapters (1)

1. C. James, C. J. Simonson, Prabal Talukdar, **Transient heat and moisture transfer in a bed of gypsum boards**, Chapter 2.3 of Annex 41 Subtask 2 Final Report “Experimental analysis of moisture buffering” (S. Roels, editor), 67-120, 2008

Referred International Journal (Total = 108)

1. Sonika Sharma, Prabal Talukdar, **Implementation of Deep Neural Networks for performance prediction and optimization of a porous volumetric solar receiver considering mechanical safety**, *Applied Thermal Engineering*, 232, September 2023, 121096
2. P. Jayakrishna, Saurav Chakraborty, S. Ganguly, P. Talukdar, **Numerical investigation on role of vertical electromagnetic brake system in reducing remelting effect and improving thermal characteristics in thin slab continuous casting**, *International Journal of Thermal Sciences*, 192, Part B, October 2023, 108434
3. Abhishek Sit, Rhena Wulf, Tobias Fieback, Prabal Talukdar, **Identification of Spectral Radiative Properties of Closed Cell Polymeric Foams using Coupled Monte Carlo-Particle Swarm Optimization Method**, *International Journal of Thermal Sciences*, 189, July 2023, 108263
4. Nandyala Mahesh, Neetu Singh, Prabal Talukdar, **Computational modeling of nanoparticle infusion, different distribution patterns, and temperature elevations during magnetic hyperthermia of breast cancer**, *Thermal Science and Engineering Progress*, 40 (1) May 2023, 101756
5. Sonika Sharma, Prabal Talukdar, **Dynamic Performance Characteristics of a Porous Volumetric Solar Receiver Under Transient Solar Flux Conditions**, *ASME Journal of Solar Energy Engineering*, 145(4): 041009, Aug 2023
6. Nandyala Mahesh, Neetu Singh, Prabal Talukdar, **A mathematical model of intratumoral infusion, particle distribution and heat transfer in cancer tumors: *In-silico* investigation of magnetic nanoparticle hyperthermia**, *International Journal of Thermal Science*, 183, January 2023, 107887
7. Vikrant Dupade, B. Premachandran, R. S. Rengasamy, Prabal Talukdar, **Survival time of humans in extreme cold climate: Experimental, numerical and parametric study on ambient temperature, fabric insulation and metabolic heat**, *ASME Journal of Heat Transfer*, 145(7): 071201, July 2023
8. Bhavna Rajput, Tarun Kumar, Bahni Ray, Apurba Das, Prabal Talukdar, **Experimental Study of the effect of different airgap orientations on performance of Fire protective clothing**, *Heat Transfer Engineering*, Published Feb 2023
9. Bhavna Rajput, Nandyala Mahesh, Rochak Rathaur, Tathagata Das, Bahni Ray, Apurba Das, Prabal Talukdar, **Performance analysis of multilayer flame-retardant fabric ensembles for different exposure conditions using numerical modelling**, *Journal of Textile Institute*, Published Dec 2022
10. Bhavna Rajput, Tarun Kumar, Bahni Ray, Apurba Das, and Prabal Talukdar, Experimental Study of the effect of different airgap orientations on performance of Fire protective clothing, *Heat Transfer Engineering*, Published Feb 2022
11. P. Jayakrishna, Saurav Chakraborty, S. Ganguly, P. Talukdar, **Computational investigation of the transient cyclic thermal distortion of funnel shaped mould in thin slab continuous casting process**, *Thermal Science and Engineering Progress*, 36, 101508, 2022
12. Sonika Sharma, Prabal Talukdar, **Thermo-mechanical analysis of a porous volumetric solar receiver subjected to concentrated solar radiation**, *Solar Energy*, 247(41-54), November 2022
13. Nandyala Mahesh, Neetu Singh, Prabal Talukdar, ***In-silico* investigation of magnetic nanoparticle hyperthermia treatment to estimate the power density and concentration**

- required to achieve the therapeutic effect**, *International Communications in Heat and Mass Transfer*, 137 (October 2022) 106295
14. Punit Singh, Saurav Chakraborty and Prabal Talukdar **A novel non-intrusive imaging technique to quantify shrinkage of Elephant Foot Yam during convective drying**, *ASME Journal of Thermal Science and Engineering Applications*, 15(5): 050903, May 2023,
 15. Vikrant Dupade, B. Premachandran, R. S. Rengasamy, Prabal Talukdar, **Effect of ambient temperature, metabolic heat, and clothing insulation on the required external active heating for the survival of humans exposed to sub-zero temperatures**, *Journal of Textile Institute*, <https://doi.org/10.1080/00405000.2022.2109108>, Published Aug 2022
 16. Vikrant Dupade, B. Premachandran, R. S. Rengasamy, Prabal Talukdar, **Estimation of Temperature-Dependent Effective Thermal Conductivity and Specific Heat of Thermally Bonded High Bulk Nonwoven Exposed to Sub-Zero Temperature**, *ASME Journal of Thermal Science and Engineering Applications*, 14(6):061014, Jun 2022
 17. Vikrant Dupade, Ranjana Kumari, B. Premachandran, R. S. Rengasamy, Prabal Talukdar, **Effect of layering sequence and ambient temperature on thermal insulation of multilayer high bulk nonwoven under extreme cold temperatures**, *Journal of Industrial Textiles*, April 2022, Vol. 51(2S) 2709S–2730S, <https://doi.org/10.1177%2F15280837221097284>
 18. Bhavna Rajput, Ritambhara Dubey, Bahni Ray, Apurba Das, Prabal Talukdar, **Numerical Modeling of Simultaneous Heat and Moisture Transport in Fire Protective Suits Under Flash Fire Exposure and Evaluation of Second-Degree Burn Time**, *ASME Journal of Heat Transfer*, May 2022, 144(5): 051201
 19. Nandyala Mahesh, Neetu Singh, Prabal Talukdar, **A mathematical model for understanding nanoparticle biodistribution after intratumoral injection in cancer tumors**, *Journal of Drug Delivery Science and Technology*, 68, Feb 2022, 103048
 20. Pedduri Jayakrishna, Saurav Chakraborty, Suvankar Ganguly & Prabal Talukdar (2021), **Modelling of thermofluidic behaviour and mechanical deformation in thin slab continuous casting of steel: an overview**, *Canadian Metallurgical Quarterly*, 2021, 60 (4), DOI: 10.1080/00084433.2021.2014712
 21. Jayakrishna Pedduri, Anand S Vaka, Saurav Chakraborty, Suvankar Ganguly and Prabal Talukdar, **Interfacial Heat Flux Estimation in a Funnel-Shaped Mould and Analysis of Solidification Characteristics in Thin Slab Continuous Casting**, *ASME Journal of Heat Transfer*, December 2021, 143: 122401-1
 22. Vijayalakshmi Yerramalle, B. Premachandran, Prabal Talukdar, **Mixed convection from a heat source in a channel with a porous insert: A numerical analysis based on local thermal non-equilibrium model**, *Journal of Thermal Science and Engineering Progress*, accepted July 2021, October, 2021, 25, 101010
 23. Vinod Kumar Singh, Gaurav Singhal, and Prabal Talukdar, **Thermo-Fluid Design Simulation of Nd³⁺ POCl₃ Transverse Flow Liquid Laser Cavity**, *ASME Journal of Thermal Science and Engineering Applications*, 13(6):061014, Dec 2021
 24. Vijayalakshmi Yerramalle, B. Premachandran, Prabal Talukdar, **Pore scale numerical investigation of mixed convection from an isolated heat source in a channel with a porous insert**, *ASME Journal of Heat Transfer*, February 2021, 143(2): 022701
 25. Anand S Vaka, Suvankar Ganguly and Prabal Talukdar, **Novel inverse heat transfer methodology for estimation of unknown interfacial heat flux of a continuous casting mould:**

- A complete three-dimensional thermal analysis of an industrial slab mould**, *International Journal of Thermal Science*, 160, February 2021, 106648
26. Jayakrishna Pedduri, Saurav Chakraborty, Suvankar Ganguly and Prabal Talukdar, **A novel method for determining the three dimensional variation of non-linear thermal resistance at the mold-strand interface in billet continuous casting process**, *International Communications in Heat Mass Transfer*, 119, December 2020, 104984
 27. Saurav Chakraborty and Prabal Talukdar, **Optimal design of a pusher type reheating furnace with coal burners using an efficient numerical model**, *Heat Transfer Engineering*, Accepted August 2020
 28. Abhisek Sit and Prabal Talukdar, **A Fully Parallel Coupled Monte Carlo-Finite Volume Method for Coupled Conduction-Radiation Heat Transfer in Multi-dimensional Geometries**, *Computational Thermal Sciences*, 12 (6), 2020, 509-527
 29. Anand S Vaka and Prabal Talukdar, **Novel inverse heat transfer technique for estimation of properties and location-specific process parameters of roof-mounted solar PV plants**, *Journal of Thermal Science and Engineering Progress*, 14, Oct 2020, 100657
 30. Vijayalakshmi Yerramalle, B. Premachandran, Prabal Talukdar, **Numerical Investigation of Performance of Interface Conditions for Fluid Flow through a Partially Filled Porous Channel**, *Journal of Thermal Science and Engineering Progress*, 20, Dec 2020, 100628
 31. Saurav Chakraborty, Suvankar Ganguly and Prabal Talukdar, **Determination of thermal resistance at mould-strand interface due to shrinkage in billet continuous casting – development and application of a novel integrated numerical model**, *International Journal of Thermal Sciences*, 152, June 2020, 106305
 32. Punit Singh and Prabal Talukdar, **Determination of thermophysical and desorption properties of Elephant Foot Yam using composition based and fast sorption method**, *Journal of Thermal Science and Engineering Progress*, 18, Aug 2020, 100508
 33. Punit Singh and Prabal Talukdar, **Drying characteristics of elephant foot yam and performance evaluation of convective dryer in kinetically and equilibrium controlled regime under varying conditions**, *ASME Journal of Thermal Science and Engineering Applications*, 12(5), Oct 2020, 051005 (9 pages)
 34. Punit Singh and Prabal Talukdar, **Determination of shrinkage characteristics of cylindrical potato during convective drying using novel image processing technique** *Heat and Mass Transfer*, **56**, 1223–1235, 2020
 35. Vipul Patel and P. Talukdar, **Determination of Heat Transfer Coefficient and Thermal Dispersion of a Representative Porous Structure based on Pore Level Simulations**, *Heat Transfer Engineering*, 41 (21), 2019
 36. Saurav Chakraborty, Suvankar Ganguly and Prabal Talukdar **Determination of optimal taper in continuous casting billet mould using thermo-mechanical models of mould and billet**, **Journal of Material Processing**, *Journal of Materials Processing Technology*, 270, 132 – 141, 2019
 37. Punit Singh and Prabal Talukdar, **“Design and performance evaluation of a convective drier and prediction of drying characteristics of potato under varying conditions”**, *International Journal of Thermal Sciences*, 142, 176-187, August 2019

38. Punit Singh and Prabal Talukdar, “**Determination of desorption isotherms of potato using gravimetric method and fast isotherm method**” *Heat Transfer Engineering*, published online 19 Jan 2019
39. Ajay Chhabra, Prabal Talukdar, **Investigation of heat transfer in one-dimensional models of polymeric foams by using a ray-splitting and tracing technique**, *Int. J of Numerical Method for Heat and Fluid Flow*, 29 (1), 146-164, 2019
40. Udayraj, Prabal Talukdar, Apurba Das, R. Alagirusamy, **Design and development of a test method for analyzing protective performance of gloves exposed to radiant heat based on CFD analysis**, *Heat Transfer Engineering*, 40 (1-2), 2019
41. Vipul M. Patel, Miguel A.A. Mendes, Prabal Talukdar, Subhashis Ray, **Development of Correlations for Effective Thermal Conductivity of a Tetrakaidecahedra Structure in Presence of Combined Conduction and Radiation Heat Transfer**, *Int. J Heat Mass Transfer*, 127, 843–856, 2018
42. Vipul M. Patel and Prabal Talukdar **Determination of radiative properties and effective thermal conductivity of representative and actual open cell foam structures**”, *International J Thermal Sciences*, 132, 117–128, 2018
43. Udayraj, Prabal Talukdar, Apurba Das, R. Alagirusamy, **Numerical Investigation of the Effect of Air Gap Orientations and Heterogeneous Air Gap in Thermal Protective Clothing on Skin Burn**, *International J Thermal Sciences*, 121, 313-321, Nov. 2017
44. Udayraj, Saurav Chakraborty, Suvankar Ganguly, E.Z.Chacko, S.K. Ajmani, Prabal Talukdar, **Estimation of surface heat flux in continuous casting mould with limited measurement of temperature**, *International Journal of Thermal Sciences*, 118, 435 – 447, August 2017
45. Saurav Chakraborty, Aviral Rajora, Sandeep Pal Singh, Prabal Talukdar, **Heat transfer and discrete phase modelling of coal combustion in a pusher type reheating furnace**, *Applied Thermal Engineering*, 116, 66–78, April 2017
46. Udayraj, Prabal Talukdar, Apurba Das, R. Alagirusamy, **Numerical modeling of heat transfer and fluid motion in air gap between clothing and human body: effect of air gap orientation and body movement**, *Int. J. Heat Mass Transfer*, 105, 271 – 291, May 2017
47. Udayraj, Prabal Talukdar, Apurba Das, R. Alagirusamy, **Effect of structural parameters on thermal protective performance and comfort characteristic of fabrics**, *Journal of Textile Institute*, DOI:10.1080/00405000.2016.1255123, November 2016
48. Udayraj, Prabal Talukdar, Apurba Das, R. Alagirusamy, **Simultaneous estimation of thermal conductivity and specific heat of thermal protective fabrics using experimental data of high heat flux exposure**, *Applied Thermal Engineering*, 107, 785 – 796, August 2016
49. Miguel A.A. Mendes, Philip Roessger, Ulrich Gross, Rhena Wulf, Dimosthenis Trimis, Subhashis Ray, Pitt Goetze, Prabal Talukdar, Eric Werzner, Cornelius Demuth, **Measurement and simplified numerical prediction of effective thermal conductivity of open-cell ceramic foams at high temperature**, *Int. J Heat Mass Transfer*, 102, 396 – 406, 2016
50. Vipul M Patel, Prabal Talukdar, **Evaluation of radiative properties of a representative foam structure using blocked-off region approach integrated with finite volume method**, *International Journal of Thermal Sciences*, 108, 89 – 99, 2016
51. Udayraj, Prabal Talukdar, Apurba Das, R. Alagirusamy, **Heat and Mass Transfer through Thermal Protective Clothing - A Review**, *International Journal of Thermal Sciences*, 106, 32-56, August 2016

52. Udayraj, Prabal Talukdar, Apurba Das, R. Alagirusamy, **Development of correlations and artificial neural network models to predict second degree burn time for thermal protective fabrics**, *Journal of Textile Institute*, DOI:10.1080/00405000.2016.1163917, March 2016
53. Udayraj, Prabal Talukdar, Apurba Das, R. Alagirusamy **Estimation of Radiative Properties of Thermal Protective Clothing**, *Applied Thermal Engineering*, 100, 788-797, May 2016
54. Selvaraji Muthu, Prabal Talukdar and Sanjeev Jain, **Modelling and parametric simulation of coupled heat and mass transfer phenomena in a rotary desiccant wheel**, *ASME Journal of Thermal Science and Engineering Applications*, 8(1), 011013-1 to 011013-9, Nov 2015
55. Udayraj, Konica Mulani, Prabal Talukdar, Apurba Das, R. Alagirusamy, **Performance Analysis and Feasibility Study of Ant Colony Optimization, Particle Swarm Optimization and Cuckoo Search Algorithms for Inverse Heat Transfer Problems**, *Int. J. Heat Mass Transfer*, 89, 359-378, October 2015
56. Tiago Morgado, Pedro J. Coelho and Prabal Talukdar, **Assessment of uniform temperature assumption in zoning on the numerical simulation of a walking beam reheating furnace**, *Applied Thermal Engineering*, 76, 496-508, 2015
57. Ajit K Parwani, Prabal Talukdar, PMV Subbarao, Estimation of boundary heat flux using experimental data of temperature in a 2D turbulent forced convection flow field, *Heat and Mass Transfer*, 51(3), 411-421, 2015
58. Udayraj, Prabal Talukdar , R. Alagirusamy, Apurba Das, **Heat Transfer Analysis and Second degree Burn Prediction in Human Skin Exposed to Flame and Radiant Heat Using Dual Phase Lag Phenomenon**, *Int. J. Heat Mass Transfer*, 78, 1068-1079, November 2014
59. VP Chandramohan, Prabal Talukdar, **Deformation of Potato during Convective Drying**, *Applied Mechanics and Materials*, 592, 2728-2732, 2014
60. Miguel A.A. Mendes, Valeria Skibina, Prabal Talukdar, Rhena Wulf, Dimosthenis Trimis, Ulrich Gross and Subhashis Ray, **Experimental verification of simplified conduction-radiation models for evaluation of effective thermal conductivity of open-cell metal foams at high temperatures**, *Int. J. Heat Mass Transfer* , 78, 112–120, November 2014
61. Md. Ateeque, Udayraj, Ranjeet K. Mishra, V.P. Chandramohan, Prabal Talukdar, Numerical modeling of convective drying of food with spatially dependent transfer coefficient in a turbulent flow field, *Int. J. Thermal Sciences*, 78, 145-157, 2014
62. A. Parwani, Prabal Talukdar and P.M.V. Subbarao, **Estimation of transient boundary flux for a developing flow in a parallel plate channel**, *Int. J. of Numerical Methods for Heat and Fluid Flow*, 24 (3), 522-544, 2014.
63. Vinod K. Singh, Prabal Talukdar and P. Coelho, Performance evaluation of two heat transfer models of a walking beam type reheat furnace, *Heat Transfer Engineering*, 36, 1-11, 2014.
64. A. Parwani, Prabal Talukdar and P.M.V. Subbarao , **A hybrid approach using CGM and DE algorithm for estimation of boundary heat flux in a parallel plate channel**, *Numerical Heat Transfer, Part A*, 65, 461-481, 2014
65. S. Pachpute, B. Premachandran, Prabal Talukdar, **A numerical study of combined forced convection and gas radiation from a circular cylinder in cross flow**, *Heat Transfer Engineering*, 35 (18), 2014

66. V.P. Chandra Mohan and Prabal Talukdar, **Experimental studies for convective drying of potato**, *Heat Transfer Engineering*, 35 (11-12), 2014.
67. Miguel A.A. Mendes, Prabal Talukdar, and Subhashis Ray and Dimosthenis Trimis, **Detailed and simplified models for evaluation of effective thermal conductivity of open-cell porous foams at high temperatures in presence of thermal radiation**, *Int. J. Heat Mass Transfer*, 68, 612–624, January 2014
68. Vinod K. Singh, Prabal Talukdar , **Comparisons of different heat transfer models of a walking beam type reheat furnace**, *International Communication in Heat and Mass Transfer*, 47, 20-26, October 2013
69. A. Parwani, Prabal Talukdar and P.M.V. Subbarao , **Simultaneous estimation of strength and position of a heat source in a participating medium using DE algorithm**, *Journal of Quantitative Spectroscopy and Radiative Transfer*, 127, 130-139, Sept. 2013
70. Prabal Talukdar, Miguel A.A. Mendes, Ritesh Kumar Parida, Dimosthenis Trimis and Subhashis Ray, **Modelling of conduction-radiation in a porous medium with blocked-off region approach** , *Int. J. Thermal Sciences*, 72, 102-114, Oct. 2013
71. Vaibhav Vashistha and Prabal Talukdar, **Numerical studies for performance evaluation of a permeable ceiling panel for regulation of indoor humidity**, *Energy and Building*, 62, 158–165, July 2013
72. A. Parwani, Prabal Talukdar and P.M.V. Subbarao, **Performance evaluation of hybrid differential evolution approach for estimating the strength of a heat source in a radiatively participating medium**, *Int. J. Heat Mass Transfer*, 56(1-2), 552-560, Jan. 2013.
73. V.P. Chandra Mohan and Prabal Talukdar, **Design of an experimental set up for convective drying: experimental studies at different drying temperature**, *Heat and Mass Transfer*, 49 (1), 31-40, 2013
74. A. Parwani, Prabal Talukdar and P.M.V. Subbarao, **Estimation of inlet temperature of a developing fluid flow in a parallel plate channel**, *Int. J. Thermal Sciences*, 57, 126-134, 2012
75. M. Shah, Prabal Talukdar and PMV Subbarao, **Modelling of gas radiation with different shapes of heat source in three dimensional enclosures with convective boundary condition**, *Heat Transfer Engineering*, 33(7), 651-660, 2012
76. A. Khandelwal, Prabal Talukdar and S. Jain, **Energy savings in a building using regenerative evaporative cooling**, *Energy and Building*, 43, 581-59, 2011
77. Prabal Talukdar, **Effect of bouyancy and non-gray radiation on fluid flow and heat transfer through a horizontal rectangular duct**, *Numerical Heat Transfer*, Part A, 59 (3), 185 – 208, 2011
78. S. Roels, Prabal Talukdar, C. James, C. J. Simonson, **Reliability of material data measurements for hygroscopic buffering**, *Int. J. Heat Mass Transfer*, 53, 5355-5368, 2010
79. V.P. Chandra Mohan and Prabal Talukdar, **Three dimensional numerical modeling of simultaneous heat and moisture transfer in a moist object subjected to convective drying**, *Int. J. Heat Mass Transfer*, 53, 4638-4650, 2010
80. M. Fauchoux, M. Bansal, Prabal Talukdar, C. J. Simonson, D. Torvi, **Testing and Modelling of a Novel Ceiling Panel for Maintaining Space Relative Humidity by Moisture Transfer**, *Int. J. Heat Mass Transfer*, 53, 3961-3968, 2010.

81. C. James, C. J. Simonson, Prabal Talukdar, S. Roels, **Numerical and experimental data set for benchmarking hygroscopic buffering**, *Int. J. Heat Mass Transfer*, 53, 3638-3654, 2010.
82. Prabal Talukdar, C. J. Simonson, D. A. Torvi, C. M. J. Sawcyn, **Coupled CFD and radiation simulation of air gaps in bench top protective fabric test**, *Int. J. Heat Mass Transfer*, 53, 526-539, 2010
83. P. Parthasarathy, Prabal Talukdar, V. Ratna Kishore, **Enhancement of heat transfer with porous/solid insert for a laminar flow of participating gas in a 3-D square duct**, *Numerical Heat Transfer*, 56 (9), pp. 764-784, 2009
84. C. R. Iskra, C. James, Prabal Talukdar and C. J. Simonson, **Convective mass transfer coefficients for gypsum and wood paneling**, *Journal of ASTM International*, 6(4) 2009 DOI: 10.1520/JAI102036
85. S. Roels, C. James, Prabal Talukdar, C. J. Simonson. **Reliability of transient heat and moisture modeling for hygroscopic buffering**, *ASHRAE Transactions*, 115(2):111-125, 2009
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2. Dupade, V., Premachandran, B., Rengasamy, R. S., & Talukdar, P, Studies on the thermal resistance of multi-layer high bulk non-woven under extreme cold temperatures. International Conference on Multiphase Flow and Heat Transfer, Lisbon, Portugal, March 26-28, 2023.
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8. Punit Singh and Prabal Talukdar, **Prediction of drying characteristics of potato cube during convective drying process**, *25th National and 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC-2019)*, December 28-31, 2019, IIT Roorkee, Uttarakhand, India.
9. Punit Singh and Prabal Talukdar, **Determination of drying and shrinkage characteristics of porous food material in convective drying: Model development and experimental studies**, *DFD2019, 72nd Annual Meeting of the American Physical Society, Division of fluid dynamics*, November 23 – 26, 2019, Seattle, Washington, USA.
10. Ritambhara Dubey, Bhavna Rajput, Aitihya Chaliha, Bahni Ray and Prabal Talukdar, **Numerical Modelling of Transient Heat Transfer in a Multi-layer Protective Clothing System During Flash Fire Exposure**, *25th National and 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC-2019)*, 28-30 December 2019, IIT Roorkee, Uttarakhand, India
11. Punit Singh, Dalbir Singh and Prabal Talukdar, **A 3-D Numerical Modeling of Cylindrical Potato During Convective Drying Using Conjugate Approach**, *5th International Conference on Computational Methods for Thermal Problems "THERMACOMP2018"*, July 9-11, 2018, Indian Institute of Science, Bangalore, INDIA.
12. Ananda S Vaka and Prabal Talukdar, **Novel Inverse Heat Transfer Techniques for Estimation of Unknown Furnace Mould Heat Flux**, *Fifth International Conference on Computational Methods for Thermal Problems, ThermaComp2018*, July 9-11, 2018, Indian Institute of Science, Bangalore, INDIA
13. Saurav Chakraborty, Sajal Randhar, Abhimanyu Baruah and Prabal Talukdar **Effect of Coal flow rate and Burner Location in a Pusher Type Reheating Furnace**, *24th National and 2nd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC-2017)*, 27-30 December 2017, BITS Pilani, Hyderabad Campus
14. Punit Singh, Prabal Talukdar, **Characterization of shrinkage during convective drying of food materials using image processing technique**, *24th National and 2nd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC-2017)*, 27-30 December 2017, BITS Pilani, Hyderabad Campus
15. Dalbir Singh Arya, Punit Singh, Prabal Talukdar **Coupled CFD and simultaneous heat and moisture transfer model for convective drying of potato**, *24th National and 2nd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC-2017)*, 27-30 December 2017, BITS Pilani, Hyderabad Campus
16. Abhisek Sit, Prabal Talukdar, **A combined Monte Carlo and FVM model for one-dimensional heat transfer in polymer foams**, *24th National and 2nd International ISHMT-ASTFE Heat and*

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 19. Vipul M. Patel, Prabal Talukdar, **A combined analytical-numerical model to determine radiative properties of tetrakaidecahedra cell structure**, Proceedings of CHT-17, ICHMT International Symposium on Advances in Computational Heat Transfer, May 28 - June 1, 2017, Napoli, Italy
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 21. Udayraj, Prabal Talukdar, Apurba Das, R. Alagirusamy, **Determination of Extinction Coefficient and Scattering Albedo of Woven Fabrics**, 8th International symposium on Radiative Transfer, RAD-16, June 6-10, 2016, Cappadocia, Turkey
 22. Ajit K Parwani, Risav Saingar, Jasvir Viridi, Prabal Talukdar, **Estimation of boundary heat flux in a parallel plate channel with turbulent flow field using inverse heat transfer techniques**, *23rd National and 1st International ISHMT-ASTFE Heat and Mass Transfer Conference*, December 17-20, 2015, LPSC, ISRO, Thiruvananthapuram, India
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 24. A.K. Parwani, Rakshit Sharma, Saurabh Duhan, Prabal Talukdar, **Performance evaluation of DEA and GA for estimation of heat flux in a parallel plate channel**, *17th ISME conference on Advances in Mechanical Engineering*, 3 – 5 October, 2015, IIT Delhi
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 30. Md. Ateeque and Prabal Talukdar, **Modeling of convective drying with consideration of shrinkage**, 22nd National and 11th ISHMT-ASME Heat and Mass Transfer Conference, December 27-30, 2013, IIT Kharagpur.
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 32. S. Muthu, Prabal Talukdar and S. Jain, **Modelling and parametric simulation of coupled heat and mass transfer phenomena in a rotary desiccant wheel**, 22nd National and 11th ISHMT-ASME Heat and Mass Transfer Conference, December 27-30, 2013, IIT Kharagpur
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 40. Sharad Pachpute, B. Premachandran, Prabal Talukdar, **Numerical simulation of combined convection and radiation heat transfer over a circular cylinder and tube bank**, 21st National and 10th ISHMT-ASME Heat and Mass Transfer Conference, December 27-30, 2011, IIT Madras
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 42. M. Fauchoux, Prabal Talukdar, C. J. Simonson, D. Torvi, **CFD Modelling with bouyancy effects for a heat and moisture transfer ceiling panel**, ASME-JSME 8th Thermal Engineering Joint Conference AJTEC2011, March 13-17, 2011, Honolulu, Hawaii, USA
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 47. A. Khandelwal, Prabal Talukdar and S. Jain, **Transient simulation of an air conditioned building using enthalpy wheel as energy conservation measure**, ISHMT-ASME, January 4-6, 2010, IIT Bombay
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 52. Prabal Talukdar and C. J. Simonson, **Numerical Simulation of Mixed Convection Heat and Mass Transfer for Laminar Flow in a 3-D Square Duct**, *19th National & 8th ISHMT-ASME Heat and Mass Transfer Conference*, January 3-5, 2008, Hyderabad, India.

53. O. F. Osanyintola, Prabal Talukdar and C. J. simonson, **Transient moisture transfer between spruce plywood and humid air**, *International Building Physics Conference*, 2006, Montreal, Canada.
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55. Z. Al-Hamamre, S. Diezinger, P.Talukdar, F. von Issendorff, D. Trimis, **Combustion of Low Calorific Gases from Landfills and Waste Pyrolysis Using Porous Medium Burner Technology**, WasteEng05, Albi, France, May 17-19, 2005.
56. S. C. Mishra, Prabal Talukdar, D. Trimis and Franz Durst, **Computational Efficiency Improvements of the Discrete Transfer Method for Solving Radiative Transport Problems with Participating Medium**, In *proceedings of the Seventeenth National Heat and Mass Transfer Conference and sixth ISHMT/ASME Heat and Mass Transfer Conference*, January 5-7, 2004, Kalpakkam, India
57. Prabal Talukdar, S. C. Mishra, D. Trimis and Franz Durst, **Heat Transfer Characteristics of a Porous Radiant Burner under the Influence of a Two-Dimensional Radiation Field**, *Eurotherm Seminar 73, Computational Thermal Radiation in Participating Media*, 15-17 April, 2003, Mons, Belgium
58. S. C. Mishra, Prabal Talukdar, D. Trimis and Franz Durst, **Effect of Temperature Dependent Thermal Conductivity on Two-Dimensional Conduction and Radiation Heat Transfer**, *Eurotherm Seminar 73, Computational Thermal Radiation in Participating Media*, 15-17 April, 2003, Mons, Belgium
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63. S. C. Mishra and Prabal Talukdar, **Analysis of Conduction-Radiation Heat Transfer in a Participating Medium with flux Boundary**, In paper No. *NHTC2001-20230*, *35th National Heat Transfer Conference*, Anaheim, California, USA, 2001
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65. P Mahanta, S. C. Mishra and Prabal Talukdar, **Improvements to the Collapsed Dimension Method of Calculating Radiative Heat Transfer**, In *Proceedings of the Fifteenth National Heat and Mass Transfer Conference and Fourth ISHMT/ASME Heat and Mass Transfer Conference*, Pune, pp. 673-676, January 2000
66. Prabal Talukdar and S. C. Mishra, **Analysis of Conduction-Radiation Problem in Absorbing-Emitting Media Using Collapsed Dimension Method**, In *Paper No. NHTC2000-12129*, *34th National Heat Transfer Conference*, Pittsburgh, PA, USA, 2000

1. A.K. Parwani, Rakshit Sharma, Saurabh Duhan, Prabal Talukdar, **Performance evaluation of DEA and GA for estimation of heat flux in a parallel plate channel**, *17th ISME conference on Advances in Mechanical Engineering*, 3 – 5 October, 2015, IIT Delhi
2. Vipul patel and Prabal Talukdar, **Volumetric heat transfer coefficient of idealised foam structure**, *17th ISME conference on Advances in Mechanical Engineering*, 3 – 5 October, 2015, IIT Delhi
3. A.K. Parwani, A. S. Bhadauria, N. Jina, Prabal Talukdar, **Testing and formulation of algorithm for inverse heat transfer problems**, Golden Jubilee National Conference on Modeling and Simulation in Heat Transfer and Fluid Flow. **Paper No.** June 11 - 12, 2010, **N.I.T. Jamshedpur India.**
4. A. K. Parwani, Prabal Talukdar and P. M. V. Subbarao, Estimation of inlet temperature of a fluid flowing in a parallel plate channel using inverse method, Sixteenth ISME Conference on Mechanical Engineering for Sustainable Development, IIT Delhi, Dec 2 - 4, 2010, India.
5. A. K. Parwani, Prabal Talukdar and P. M. V. Subbarao, Estimation of inlet temperature for developing flow in parallel plate channel utilizing DE algorithm, National Conference on Emerging Trends in Mechanical Engineering, Nov. 29-30, 2012, Bhopal, India.

Non-Referred Conference Proceedings (7)

6. Prabal Talukdar, **Transient heat and moisture transfer through hygroscopic building materials**, Acreconf 2009, Feb. 20 & 21, 2009, New Delhi, India
7. C. James, Prabal Talukdar and C. J. Simonson, **IEA/ECBCS Annex 41 subtask 2 common exercise on transient heat and moisture transfer in a bed of gypsum boards**, *Proceedings of the IEA ECBCS Annex 41 Closing Seminar*, 12 pages, Lyngby, Denmark, June 19 (invited paper), 2008.
8. C. James, Prabal Talukdar, C. J. Simonson **Common Exercise on Transient Heat and Moisture Transfer in a Bed of Gypsum Boards**, IEA/ECBCS Annex 41 Subtask 2, , IEA Annex 41, Technical University of Denmark in Lyngby, Denmark, June 15-18, 2008, Copenhagen, <http://conferences.dtu.dk/conferenceDisplay.py?confId=16>
9. C. James, C. J. Simonson, Prabal Talukdar, **Annex 41 Report for Common Exercise Subtask 2**, IEA Annex 41, Florianopolish, Brazil, April, 2007 (63 pages)
10. Prabal Talukdar and C. J. Simonson, **Transient heat and mass transfer within gypsum**, Annex 41, Kyoto Meeting, Japan, 3-5th April, 2006.
11. O. F. Olalalekan, Prabal Talukdar, and C. Simonson **Experimental and numerical studies of transient heat and moisture transfer within spruce plywood**; Annex 41, Trondheim Meeting, Norway, 26-28th October, 2005
12. S. Diezinger, M. Steven, Prabal Talukdar, Z. Al-Hamamre, F. von Issendorff, D. Trimis, **Numerische und experimentelle Untersuchung von Verbrennungsvorgängen niederkalorischer Gase in Porenbrennern**, 22 Deutscher Flammentag; Braunschweig, Germany, September, 2005

Editorial/Reviewer of International Journals/conferences/projects/thesis

- **Associate Editor, ASME Journal of Thermal Science and Engineering Applications**
- **Associate (Lead) Editor, Journal of Enhanced Heat Transfer (An Official Journal of the American Society of Thermal and Fluids Engineers)**
- **Guest Editor for a special issue in Heat Transfer Engineering**

Reviewer of Journals

- ✦ Journal of Quantitative Spectroscopy and Radiative Transfer, Elsevier (2007, 2010², 2013², 2014³, 2016²)
- ✦ International Journal of Heat and Mass Transfer (2009, 2010², 2011,2013⁶, 2014,2015,2016)
- ✦ ASME Journal of Heat Transfer (2010, 2016)
- ✦ Numerical Heat Transfer, Part A (2007,2008,2010,2012²)
- ✦ International Journal of Thermal Sciences, Elsevier (2005, 2007, 2008², 2010², 2011,2013³, 2015, 2016², 2017³)
- ✦ International Journal of Numerical Methods for Heat & Fluid Flow, Emerald (2006, 2010)
- ✦ Infrared Physics & Technology, Elsevier (2005)
- ✦ Chemical Engineering Communications, Taylor & Francis (2006)
- ✦ Heat and Mass Transfer, Springer (2006, 2007)
- ✦ Heat Transfer Engineering (2007, 2010)
- ✦ AIAA Journal of Thermophysics and Heat Transfer (2008², 2014, 2016)
- ✦ Journal of Environmental Management (2008)
- ✦ Energy and Building (2009)
- ✦ Journal of Institute of Engineers (2009)
- ✦ Computers and Fluids (2008)
- ✦ Desalination and Water Treatment (2010)
- ✦ Asia – Pacific Journal of Chemical Engineering (2010)
- ✦ Applied Energy (2014)
- ✦ Journal of Mechanical Engineering Science, Sage (2014)
- ✦ Journal of Thermal Biology, Elsevier (2014)
- ✦ Journal of the Institution of Engineers, Series C (2014)
- ✦ Meccanica, Springer (2014)
- ✦ Journal of Ceramic Science and Technology (2016)

Conference

- ✦ 15th IHTC conference, Kyoto, Japan, 2015
- ✦ 19th National & 8th ISHMT-ASME Heat and Mass Transfer Conference, 2008, Hyderabad, India.
- ✦ 8th Nordic Symposium on Building Physics 2008
- ✦ 20th National & 8th ISHMT-ASME Heat and Mass Transfer Conference, 2010, IIT Bombay,
- ✦ 21st National & 10th ISHMT-ASME Heat and Mass Transfer Conference, 2011, IIT Madras, India.
- ✦ Second Symposium on Heat-Air-Moisture Transport: Measurements and Implications in Buildings, April 19-20, 2009, Vancouver, B.C. Canada

Projects:

- ✦ Three DST projects

Thesis:

Outside India:

- ✚ PhD thesis from KU Leuven, Belgium
- ✚ One M.Phil thesis from University of Sydney

India:

- ✚ PhD thesis from IIT Kanpur, IIT Roorkee, IIT Bombay, IIT Guwahati, IIT Ropar, IIT Gandhinagar, IIT (ISM) Dhanbad, DTU, NIT Jamshedpur, NIT Rourkela, NIT Warangal, Jamia Milia Islamia University, Kalaslingam University, Jadavpur University,

Honors and Awards

- **Included in the list of Top 2% scientists published recently by Stanford University.**
- **CEA Chair Professor (2022-26)**
- 2018 Best Reviewer for ASME Journal of Thermal Science and Engineering Applications
- J.M. Mahajan young teacher award for best teacher at Department of Mechanical Engineering, IIT Delhi
- DAAD Fellowship for short research stay at Technical University of Freiberg, Germany, June-July 2011
- Fellowship awarded by Institute of Fluid Mechanics, University of Erlangen-Nuremberg, Germany for Ph. D. work
- Post-doctoral fellowship awarded by Institute of Fluid Mechanics, University of Erlangen-Nuremberg, Germany.
- Selected for Marquis who's who in science and engineering 2006.
- National Merit Scholarship from matriculation (10th class) onwards
- College Honor in 5th and 7th semester of Bachelor of Engineering

List of Completed/on-going student projects

Ph.D Students

Completed (=14)

1. Dhirgham A.H. Alkhafagi (Main-supervisor: Dr. A. Rahim, Jamia Milia Islamia) **Title of the work:** An aerodynamic study of diffuser-combustor flow interaction, January 2010 (**External Guidance**)
2. Mitesh Shah (co-supervisor: Prof. P.M.V. Subbarao), **Title of the work:** studies on gray gas radiation from reconstructed flame in a cubical enclosure, November 2012.
3. Chandra Mohan V.P., **Title of the work :** Experimental Studies and Numerical Modeling of Simultaneous Heat and Mass Transfer during Convective Drying of Moist Object, November 2012
4. Ajit K. Parwani (Co-supervisor: Prof. PMV Subbarao), **Title of the work:** development of an efficient model for inverse conjugate heat transfer problems, November 2013
5. Udayraj (Co-supervisor: Prof. A. Das, Prof. R. Alagiruswami), **Title of the work: Development of Fire Protective Clothing and its Performance Characterization with Numerical and Experimental Studies**, October, 2017
6. Vipul Patel, Title of the work: **Development of numerical model for the evaluation of effective thermal properties of porous foam structures**, October, 2018
7. Saurabh Chakraborty, Title of the work: **Quality assessment and thermo mechanical modelling of steel billet in continuous casting and reheating process**, September 2019
8. Vijaylaxmi (Co-supervisor: Dr. B. Premachandran), Title of the work: **Experiments and modeling of jet impingement heat transfer in a porous media**, August 2020
9. Punit Singh, Title of the work: **Characterization of drying kinetics of food materials subjected to convective drying: Model development and experimental studies**, October 2020
10. Anand S. Vaka, Title of the work: **Development of an efficient model for complex problems using inverse heat transfer technique**, May 2022

11. Jaya Krishna P., Title of the work: **Analysis of Thermo-Mechanical Phenomena for Performance Evaluation and Heat Transfer Characterization in Continuous Casting**, October, 2022
12. Mahesh Nandyala, Title of the work: **Computational Investigations on the Hyperthermia Thermal Therapy of Cancer Tumors using Magnetic Nanoparticles**, May 2023
13. Abhishesk Sit, Title of the work: **Pore-level numerical study of coupled conduction-radiation heat transfer in foams**, June 2023
14. Vikrant Dupade: Title of the work: **Modelling of heat transfer through thermal protective clothing in Extreme Cold Climate**, December 2023

On-going (=7)

15. Bhavna Rajput, Title of the work: **Study of Heat and Moisture Transfer through Thermal Protective Clothing (Thesis submitted)**
16. Sonika Sarma: Area: Modelling of Solar Volumetric absorber
17. Md. Tabbish: Area: Continous Casting
18. Vikash Kumar, Drying
19. Amit Kumar, Heat Transfer through Fabric
20. Laxmi Rani, Bio-heat transfer
21. Hitesh, Bio-heat transfer

M. Tech/MSR Students: (26 defended)

2022-23

1. Harshit Gupta (2021MET2866), **Title of the work:** Thermal and hydraulic Performance enhancement of Latent Heat Storage System using combined Metal Foam and fins

2019-20

1. Ayush Bhardwaj, 2018MET2795, **Title of the work:** Development of 2D numerical model of molten metal within a Billet Continuous Caster, involving turbulent flow, solidification & thermal shrinkage of metal
2. Naman Kumar Jain, 2018MET2857, **Title of the work:** Determination of thermal properties of food product during convection drying process

2016-17

3. Mayank K Sharma, **Title of the work:** Evaluation of radiative properties of metal foams by Monte Carlo method.
4. Dalbir Singh Arya, **Title of the work:** Coupled fluid flow, heat and mass transfer modeling of convective drying

2015-16

5. Mr Ajay Kumar Chhabra, **Title of the work:** Modelling of heat transfer in one-dimensional semitransparent multi-phase Media, MS(R) thesis.

2013-14

6. Saurabh Duhan, **Title of the work:** Implementation of genetic algorithm for estimation of boundary heat flux in an inverse forced convection problem

7. Rakshit Sharma, **Title of the work:** Estimation of boundary conditions for forced convection and/or radiation problems using differential evolution algorithm
8. Praveen Yadav, **Title of the work:** Development of a numerical model for walking beam type reheat furnace

2012-13

9. Md. Ateeque, **Title of the work:** Numerical modeling of convective drying
10. Shikhar Upadhyaya, **Title of the work:** Development of heat transfer and combustion model in pusher type reheat furnace.

2011-2012

11. Ranjeet Kr. Mishra, **Title of the work:** Studies on convective drying of food products
12. Ritesh Kr. Parida, **Title of the work:** Modeling of Conduction Radiation interaction through porous medium
13. Telang Mithun Banduji, **Title of the work:** Development of a numerical model for estimation of inlet Temperature of a duct with backward facing step
14. Vinod Kr. Singh, **Title of the work:** Numerical modeling of heat transfer in walking beam type reheat furnace

2010-2011

15. Ananad Srinivasan, **Title of the work:** Enhancement of heat transfer for turbulent and non-gray fluid flowing in a duct with a porous insert
16. Umang Srivastav, **Title of the work:** Heat Transfer modelling of a reheat furnace
17. Deepak Yadav, **Title of the work:** CFD simulation of a room with a HAMP and radiant panel
18. Sharad Kr. Pashupate, **Title of the work:** Study of heat transfer and fluid flow over a bed of circular cylinders

2009-2010

19. Saurabh Mani, **Title of the work:** CFD modelling of microclimate inside a room with HAMP
20. Nagraj Sogale, **Title of the work:** Techno-Economic Optimization of Water Supply Project (co-supervisor: Prof. S. Jain)

2008-2009

21. Mohit Bansal, **Title of the work :** Performance evaluation of heat and moisture transfer panel
22. Ankur Khandelwal, **Title of the work** Energy conservation measures for a building using Transys. (co-supervisor: Prof. S. Jain)
23. P. Parthasarathy, **Title of the work:** Enhancement on heat transfer for a laminar flow in a 3D square duct with solid and porous inserts: convection-to-radiation converter (co-supervisor: Prof. Anjan Ray)
24. Ritesh Kumar, **Title of the work:** CFD analysis of flue gas duct of 500MW pulverized coal boiler (co-supervisor: Prof. P.M.V. Subbarao)

2007-2008

25. Rakesh Kumar Patre, **Title of the work :** Coupled CFD and diffusion model for moisture transfer in a bed of Gypsum
26. N. Vijayanand, **Title of the work :** Interaction of mixed convection and radiation in duct flow

B. Tech Students

Completed

1. RANIT HALDER, PUNJALA VARUN DATTA, **Title of the work:** Characterisation of solidification process in the mould of a continuous caste, December 2017
2. RITESH SINGH, SAMBHAV JAIN, **Title of the work:** Back propagation ANN modelling for prediction of convective drying characteristics, December 2017
3. JAYESH BANKOTI, SHALINEE KUMARI MEENA, **Title of the work:** Inverse estimation of temperature profile inside a reheating furnace, December 2017
4. Akshay Kumar, Harshit Dutt, **Title of the work:** Determination of fluid flow and heat transfer characteristics of a porous media, May, 2016
5. G.V. Ramanakanth Reddy, E. Seshu, **Title of the work:** Modelling of heat transfer enhancement in flow channels using baffles, December, 2015 (only Part 1)
6. M. Sai Munesh, **Title of the work:** Numerical investigation of volumetric heat transfer coefficient in a porous media, May 2015
7. Anupam Yadav, Deepak Mishra, **Title of the work:** Interaction of solar radiation with clouds, December, 2014 (Only Part 1)
8. Utkarsh Sharma, **Title of the work:** Temperature profile determination of a continuous slab in reheat furnace, December 2014 (only Part 1)
9. Rohit Singh and Ram Kumar Puniya, **Title of the work:** Mathematical modelling for heat transfer analysis in the pusher type reheat furnace, December 2013 (Only Part 1)
10. Rahul Arora and Rishabh Gupta, **Title of the work:** Combined CFD and diffusion modeling of moist object subjected to convective drying, May 2012
11. Samrat Sah, Ashish Kumar and Satyandra Meena, **Title of the work:** Algorithm for inverse problems of conduction and radiation using FVM, May 2011
12. Abhineeb Singh Bahaduria and Naveen Jeena, **Title of the work:** Testing and formulations of algorithm for inverse heat transfer problems. May 2010
13. Aditya Pal and Ch. Vineeth, (co-supervisor: Dr. S. Ghosh) **Title of the work:** Simulation of grinding temperature, April 2010
14. Abhineet Bhandari and Ankush Tambi, **Title of the work:** Find Feasibility of higher order scheme with finite volume method for radiative transfer equation, April 2009
15. Atul Kumar Tirkey and Dheer Singh Meena (co-supervisor: Dr. P. M. V. Subbarao), **Title of the work :** Numerical analysis of combined convection and radiation in a cavity, April 2008
16. Sandeep Garg, Ajay Bhatia and Prasun Jain (co-supervisor: Dr. P. M. V. Subbarao), **Title of the work :** Software development for calculation of view factors, April 2008

List of Graduate Courses taught

MTech

- Conduction and Radiation
- Computational Heat Transfer
- Thermal System Simulation and Design
- Thermal Design
- Advanced Heat and Mass Transfer
- Numerical Methods

BTech

- Thermodynamics
- Heat and Mass Transfer
- Energy Conversion (course-coordinator: Prof. S. Jain)
- Turbo-machinery (course-coordinator: Prof. P.M.V. Subbarao)
- Thermal Science Laboratory
- Heat Exchangers
- Introduction to Mechanical Engineering

- Seminar course

Invited and guest lectures

1. **“Heat and moisture transfer through building materials”**, Department of Mechanical Engineering, University of Saskatchewan, Jan 2007
2. **“Possibility of coupling RTE with HOC scheme”**, Department of Mathematics, IIT Guwahati, 2008
3. **“Coupled Radiation and CFD for Heat Transfer Problems”**, Nanyang Technological University, Singapore, 13th April 2010
4. **“Heat Transfer Modelling”**, CFEES, DRDO, 7th Dec, 2010
5. Three days Faculty development programme **on Heat Transfer**, Lovely Professional University, Jalandhar, India, July, 2011
6. **“Interaction of Conduction and Radiation within Porous Media using Finite Volume Method”** Technical University of Freiberg, Germany, July 2012
7. **“Interaction of Conduction and Radiation within Porous Media using Finite Volume Method”**, Technical University of Lisbon, Portugal, October 2012
8. **“An overview of heat transfer for practical application”**, Kalasalingam University, Tamilnadu, India, Jan 29, 2013
9. **“A lecture on Heat and Mass Transfer”**, TIT group of Institutions, Bhopal, India, Feb 15, 2013
10. **“Radiative heat transfer: Fundamentals and Modeling”**, Guest lectures, Technical University of Freiberg, Germany, July 8, 9 & 11, 2013
11. **“Heat Transfer through fire protective clothing subjected to flash fire”**, Workshop on Comfort in Protective Clothing, Department of Textile Technology, IIT Delhi, August 17, 2013
12. **“Detailed and Simplified Modeling of Heat Transfer inside Porous Media at High Temperatures”**, Technical University of Freiberg, Germany, July 8, 2014
13. **“Burn Prediction in Human Skin - applications in Fire retardant clothing”**, QIP/CEP Program on "Sizing, Fit and Design of Functional Clothing", November 3 -7, 2014, Department of Textile Technology, IIT Delhi
14. **“Radiation Heat Transfer – Importance, Modeling and Recent Applications”**, TEQIP sponsored short course on Advances in Mechanical Engineering, Giani Zail Singh Campus, PTU Bathinda, 27 October, 2014
15. **“FVM method for solution of diffusion and convection-diffusion equation”**, Short Term Training Program on "An Engineering Approach to Computational Fluid Dynamics", 15 – 19 December, 2014, SVIT, Vasad, Gujrat
16. **“Radiation Heat Transfer – Importance, Modeling and Recent Applications”**, TEQIP sponsored conference, Giani Zail Singh Campus, PTU Bathinda, 27 October, 2014
17. **“Modelling of heat transfer through porous media at high temperature”** Two week Faculty Development Programme on Advance development in Mechanical Engineering, Dronacharya College of Engineering, Gurgaon, 26th March, 2015
18. **“Modelling of Inverse Problems”**, Invited lecture at TATA Steel R&D, Jamshedpur, 18th June, 2015
19. **“Modeling of Heat Transfer inside Porous Media at High Temperatures”** One week FDP at ITS, Greater Noida, 7th January, 2016
20. **Keynote lecture, “Mathematical modelling of a reheating furnace”**, 1st International Conference on Latest Developments in Materials, Manufacturing and Quality Control (MMQC – 2016), Giani Zail Singh Campus, PTU Bathinda, 12-13th Feb, 2016
21. **“Heat Transfer through Fire Protective Fabrics”**, Invited lecture at Shiv Nadar University, 14th April, 2016
22. **“Fundamentals of Natural Convection, Boiling and Condensation, Heat Exchangers”**, CEP course to LG, 8th September, 2016
23. **“Numerical modelling of heat transfer in a reheating furnace**, Invited lecture at IITRAM, 5th October, 2016
24. **“Heat Transfer through Thermal Protective Fabric - A Few Critical Insight”**, Keynote speech, A national conference on SUSTAINABLE MECHANICAL ENGINEERING: TODAY AND BEYOND, March 25 – 26, 2017, Tezpur University

25. **“Design of Thermal Systems”** Invited lecture on FDP at Moradabad Institute of Technology, 6th May, 2017
26. **Pore Scale Modelling of Heat Transfer through Foams at High Temperature**, Workshop on “Advances in Heat Transfer and Refrigeration”, IITRAM, 13th Jan, 2018
27. **Development of a numerical model for the determination of mould heat flux distribution using inverse heat transfer method**, TEQIP III sponsored workshop on "Inverse Problems and Applications", 10th July, 2018, NITK
28. InterPore Symposium : Flow and Transport in Porous Media, Inaugural Meet of Indian Chapter of InterPore”, IIT Delhi
29. QIP Sponsored 1 Day brainstorming session on **“Issues and challenges for Application of Heat Transfer in Human”**, IIT BHU, 17th March, 2018
30. **“Comparison of finite volume method and Monte Carlo ray tracing technique to evaluate extinction coefficient of representative open cell foam structures”**, International Conference on Recent Advances in Fluid and Thermal Sciences (iCRAFT2018), BITS Pilani Dubai Campus, Dubai, 5-7 Dec, 2018
31. **Quality assessment and thermo-mechanical modelling of steel billet in continuous casting**, Keynote Speaker - 2nd International Conference on Mechanical, Materials and Renewable Energy” (ICMMRE 2019) on 6th -7th December 2019, Sikkim Manipal University
32. **Pressure Velocity Coupling**, One week STTP on “Fundamentals and Applications of CFD” September 7 - 13, 2020, SVNIT Surat
33. **Pore Scale Modelling of Heat Transfer through Foams at High Temperature**, Five-day e-Workshop on **“Modelling and Simulation in Thermal Engineering”** organized by the Department of Mechanical Engineering, NIT Hamirpur, 30th Oct. - 03rd Nov. 2020
34. **Inverse heat transfer technique for continuous casting problems**, Key note speech at *ISTAM-2022*, Indian Institute of Technology (IIT) Mandi, 14-16 December 2022

Conference attended and organized

- **Coordinated a CEP course on Thermal System Design for BEL, Ghaziabad, Oct. 19-21, 2015**
- **Organizing Secretary, 17th ISME conference on Advances in Mechanical Engineering, October 3-4, 2015, IIT Delhi**
- **Coordinator, Three day short term course on Advances in Computational Heat Transfer during 21-23 May, 2015.**
- **Served as Organizing Secretary, 10th Indo-German Winter academy, December 13-20, 2011, IIT Delhi**
- **Session Chair, Thermacomp 2018, July 9 -11, IISc Bangalore**
- **Session Chair, International Conference on Recent Advances in Fluid and Thermal Sciences (iCRAFT2018), BITS Pilani Dubai Campus, Dubai, 5-7 Dec, 2019**
- **Session Chair, 8th International and 47th National Conference on Fluid Mechanics and Fluid Power, Indian Institute of Technology Guwahati, India, 9 -11 December 2020**
- **8th International symposium on Radiative Transfer, RAD-16, June 6-10, 2016, Cappadocia, Turkey**
- **23rd National and 1st International ISHMT-ASTFE Heat and Mass Transfer Conference, December 17-20, 2015, LPSC, ISRO, Thiruvananthapuram, India**
- **15th International Heat Transfer Conference, August 10-15, 2014, Kyoto, Japan**

- 13th Indo-European Winter academy, December 3-9, 2014, IIT Kanpur
- 22nd National & 11th ISHMT-ASME Heat and Mass Transfer Conference, Dec 28-30, 2013, IIT Kharagpur, India
- 12th Indo-European Winter academy, December 9-15, 2013, IIT Guwahati
- ICHTA 2013 : International Conference on Heat Transfer and Applications, WASET, Dubai, March 5 - 6, 2013
- 11th Indo-German Winter academy, December 11-17, 2012, CMERI, Durgapur
- Eurotherm seminar No: 95, Computational Thermal Radiation in Participating Media, April 18-20, 2012, Nancy, France
- 21st National & 10th ISHMT-ASME Heat and Mass Transfer Conference, Dec 28-30, 2011, IIT Madras, India.
- 20th National & 9th ISHMT-ASME Heat and Mass Transfer Conference, January 4-6, 2010, IIT Bombay, India.
- 19th National & 8th ISHMT-ASME Heat and Mass Transfer Conference, January 3-5, 2008, Hyderabad, India.
- Acreconf 2009, Feb. 20 & 21, 2009, New Delhi, India
- Sixteenth National Heat and Mass Transfer Conference and Fifth ISHMT/ASME Heat and Mass Transfer Conference, January 3-5, 2002, Kolkata, India
- International Symposium on Recent Trends of Heat and Mass Transfer, January 6-8, 2002, Indian Institute of Technology, Guwahati, India
- Moist Engineering, Annex41, October 26-28, Trondheim, Norway

Administrative Responsibilities held:

1. Time table in-charge from August 2009 – August 2010
2. Programme Coordinator from September 2010-August 2013
3. Associate Warden of Zanskar Hostel, from April 2010 – September 2010
4. Warden of Zanskar Hostel from September 2010 – July 1, 2014
5. Lab-in-charge of Refrigeration and A/C
6. Store and Purchase in-charge, January 2014 – continuing
7. Coordinator of IIT Delhi – Ishan Vikash Programme, 2015-17
8. Member of BHM for selection of hostels in terms of cleanliness, maintenance etc. for 2014-15, 2015-16.
9. Open house coordinator for the department – 2015, 2016
10. Vice-chairman, Proctorial team 2016, 2017
11. Vice-chairman, Tryst 2018
12. Vice Chairman, GATE 2019-21
13. Chairman, Gate 2022
14. Nodal Coordinator, PMRF, 2023-25