12TH INTERNATIONAL CONFERENCE ON

THERMAL ENGINEERING: THEORY & APPLICATIONS

February 23-26, 2019

School of Technology,
Pandit Deendayal Petroleum University,
Gandhinagar, Gujarat, India

PROGRAM BOOKLET

PANDIT DEENDAYAL PETROLEUM UNIVERSITY

Ryerson University

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A MESSAGE FROM THE DESK OF DIRECTOR GENERAL, PDPU

I am extremely happy to note that The 12th International Conference on Thermal Engineering: Theory & Applications (ICTEA 2019) is organized between February 23 and 26, 2019 by Pandit Deendayal Petroleum University and Ryerson University, Toronto (Canada) at the PDPU Campus. Heartening to note is also the fact that a total of 220 national and international researchers from India and abroad are going to share their research results with the audience in their interactive sessions. Additionally, the conference is also addressed by very eminent experts in this area coming from all over the world. Their presence at the conference, and their learned discussions with participants would also pave way for further international exchanges, joint researches, and collaborations, which would finally lead to, I am sure, a very enriching experience to all.

We look forward to welcoming you at the Conference.

With Best Wishes,

Prof. C. Gopalkrishnan
Director General
Pandit Deendayal Petroleum University

A MESSAGE FROM DIRECTOR SOT'S DESK

School of Technology always intends to focus on technological education, research and service that anticipates, and meets, the need of tomorrow's world. It is expected that School of Technology will care about issues that technology can make difference whether these issues are of health, security, economic well-being or sustainability of world and values. As a part of these efforts we are organizing the 12th International Conference on Thermal Engineering: Theory and Applications (ICTEA 2019) at Pandit Deendayal Petroleum University.

Finally, I hope to receive enthusiastic response from all the researchers and scientists at the 12th International Conference on Thermal Engineering: Theory and Applications (ICTEA 2019) in Gandhinagar.

We look forward to greet you at the conference!

Dr. T. P. Singh
Director,
School of Technology,
Pandit Deendayal Petroleum University

A History of the ICTEA

The ICTEA conference series was inspired to help provide an opportunity for professional development of scientists and engineers in the Middle East, including the Gulf region and North Africa. Scientific / technical meetings dedicated to contacts between the academics and researchers in regional institutions of higher learning and their counterparts abroad are scarce. The purpose of starting a biannual international conference is to meet this need and to provide a well structured platform to boost research activity and productivity in the region as well as providing a point of contact and networking. Such a conference can serve as a focal point for the gathering of scientists and engineers who hail from this region and who are working abroad in Europe, North America and other industrialized parts of the world. Thermal Engineering was selected as an umbrella title for the Conference series because of its encompassing meaning and because this research area is of great importance to the region. Topics related to environment, energy, petroleum, and construction are obvious examples of thermal engineering applications which are crucial to the economic development of the region. At the time the decision was made to hold the first Conference on Thermal Engineering in Beirut from 31 May to 4 June in 2004, was poised to emerge from its long period of arrested development. The country had come out of a long civil war and the long and arduous process of rebuilding Lebanon had started. Beirut had experienced an explosive growth and rebuilding activity during the decade preceding 2004 with billions of dollars of investment and had regained some of its past glory and glitter worthy of its nickname “Paris of the East” of the 1950’s and 1960’s before the civil war. It was felt that the opportunity to start this exercise in Beirut to be rotated later to elsewhere could not be passed up.

The 1st International Conference on Thermal Engineering held under the patronage of his Excellency Mr. Emile Lahoud the President of Lebanon was successful beyond the expectations of the organizers. The success of the conference could not have been achieved without the support of the Lebanese and the Canadian Governments. A large audience of scientists attended the meeting held in the Movenpick hotel on the Corniche. Selected peer reviewed papers appeared in January 2006 in a special issue of the Journal of Applied Mechanics (Transactions of ASME – American Society of Mechanical Engineers) dedicated to ICTEA and edited by Dennis Siginer. The next ICTEA duplicated and even eclipsed the success of the 1st ICTEA. It was held in the United Arab Emirates in Hilton Al Ain on January 3-6, 2006 under the high patronage of his Excellency Sheikh Nahyan Bin Mubarak Al Nahyan with support of the UAE University. The 3rd ICTEA was held with an even larger attendance in Amman, Jordan at the Le Royale Hotel in the heart of Amman under the patronage of the Prime Minister of Jordan, his Excellency, Dr. Ma’roof al Bakheit. The growing success of the conference series and the rapid recognition it gained and

continues to gain is quite gratifying to its organizers and benefactors. The 4th ICTEA was held in Abu Dhabi in the United Arab Emirates on the campus of the Petroleum Institute in January 2009 comprised of 177 papers with participation spread geographically further afield that ever before.

The 5th ICTEA was held in Marrakesh in Morocco. More than 120 papers were presented from May 10-14, 2010. The Organizing Committee did not spare any efforts to ensure a smooth-running meeting with social activities. The Technical Program Committee worked very hard to review and edit papers and present an excellent Technical Program. The 6th ICTEA was held in Istanbul, Turkey. Large number of papers were presented from May 29 to June 1, 2012. Selected papers published in two scientific journals with a special issue, the first is the International Journal of Thermal Science and the second is the Journal of Fluid Dynamics and Material processing. The 7th ICTEA was held in Marrakesh, Morocco in May 2014. Very large number of scientists from MENA region attended the conference and two ASME special issues journals are in preparation. The 8th ICTEA was held in Amman Jordan. Very good number of scientists attended the conference which was held in the campus of the German-Jordanian University. The 9th International Conference on Thermal Engineering washeld in Abu Dhabi, UAE in Collaboration with Alhosn University. The 10thInternational Conference on Thermal Engineering was held in Muscat Oman, in collaboration with Sultan Qaboos University.

The 11th International Conference on Thermal Engineering was held in Doha Qatar in collaboration with Texas A&M University, Doha campus. Different keynote speaker talks related to energy were presented and two special issues were published one in the ASME Journal of Thermal Science and Engineering and the other is in Thermal Science and Engineering Progress. Good attendance from industries and universities were present.

Prof. S. S. Kachhwaha

Prof. M. Z. Saghir

KEYNOTE SPEAKERS











YOGESH JALURIA

Heat and Mass Transfer in the Deposition of Microscale Thin Films

Prof. Yogesh Jaluria is Board of Governors Professor and Distinguished Professor at Rutgers, the State University of New Jersey. His research work is in the field of thermal science and engineering, covering areas like convection, fires, materials processing, thermal management of electronics, energy, and optimization of thermal systems. He is the author/co-author of nine books and editor/coeditor of thirteen conference proceedings, ten books, and seven special issues of archival journals. He has contributed over 500 technical articles, including over 210 in archival journals. He received the prestigious 2007 Kern Award from AIChE, the 2003 Robert Henry Thurston Lecture Award from ASME, and the 2002 Max Jakob Memorial Award, the highest international recognition in heat transfer, from ASME and the AIChE. He received the 2000 Freeman Scholar Award, the 1999 Worcester Reed Warner Medal and the 1995 Heat Transfer Memorial Award all from ASME. He has served as Department Chairman and as Dean of Engineering. He was the Editor of the Journal of Heat Transfer (2005-2010), and Computational Mechanics (2003-2005). He is an Honorary Member of ASME and a Fellow of AAAS and APS. He is currently the President of the American Society of Thermal and Fluids Engineers (ASTFE).

SANJEEV CHANDRA

Transport Phenomena During Spray Painting of Cars

Sanjeev Chandra is a Professor in the Department of Mechanical and Industrial Engineering at the University of Toronto, which he joined after receiving his Ph.D. from Cornell Universityin 1990. Prof. Chandra is known internationally for his research on the dynamics of droplets and sprays and is one of the founders of the Centre for Advanced Coating Technologies at the University of Toronto. His research spans the areas of fluid mechanics, heat transfer and materials science and has also been applied in spray coating, spray cooling, spray painting, ink-jet printing, electronic cooling and waste heat recovery. Prof. Chandra has published over 250 papers in referred journals and international conference proceedings. He has written an undergraduate textbook on thermodynamics and several chapters for books on the subjects of thermal spray coating, heat transfer and sprays. In 2010 he was awarded the TheBrockhouse Canada Prize for Interdisciplinary Research, awarded by the Natural Sciences and Engineering Research Council of Canada to recognize outstanding collaborative research. In 2015 he was awarded the Jules Stachiewicz Medal by the Canadian Society for Mechanical Engineering for outstanding contributions to heat transfer. He is a Fellow of the Canadian Academy of Engineering, the American Society of Mechanical Engineers, the Canadian Society for Mechanical Engineering and the American Association for the Advancement of Science.

MILIND V. RANE

Scope for Energy Conservation and Use of Renewable Energy in HVAC&R

Prof. M.V.Rane completed his PhD from the University of Maryland at College Park, USA, and joined IIT Bombay in 1994 after working for a couple of years at Energy Concepts Co. at Annapolis, Maryland.Currently he is an Institute Chair Professor Mechanical Engineering.His research interests are in the areas of Energy Conservation, HVAC&R and Alternate Energy Resources.He has handled over 120consultancy projects and 20 sponsored projects.He has over 90 papers to his credit and has delivered over 100 invited lectures.Over 95 M Tech and 18 Doctoral Thesis have been guided by him.His group at the Heat Pump Laboratory at IIT Bombay has filed over 32 Indian Patents, 16 Indian Patents have been granted,sixhave been defended and awaiting grantandbalance 14 are awaiting examination.Three European Patentshave been granted and seven PCT have been filed.Over 25 technologies have been Transferred / Products Licensed / Commercialized.He was the Past President and is Life Member ISHRAE Mumbai Chapter & Member of ASHRAE.He has received several awards for technology development.Some of them are NeenaSaxena for Technology Development and Commercialization; Bry-Air for Product Design; Dr. P K Patwardhan Technology Development; VASVIK Technology Development and Eureka Business Plan.

RACHID BENNACER

3D Structured insulators and heat exchangers: Equivalent or not?

Prof. Dr. Ing. R. Bennacer, is an Engineer in Mechanical field (1989), and he got his PhD thesis at Pierre et Marie Curie University (Paris 6) in 1993. He worked as lecturer in the University Paris XI (1993/94), became an associate professor at CergyPontoise University in 1994 and full Professor in 2008. He moved as senior Professor to the prestigious school EcoleNormaleSuperieure (Paris-Saclay) since 2010. He becomes an Exceptional National Class Professor since 2017. He is also adjunct professor at Tianjin Uni. Of comm. (China) and UMBB Univ. He assumed several responsibilities, director of the LEEVAM research team (2003-2007), Licence degrees (2008-2010), Aggregation title (2010-2011), Master research degree (2011 2013), Transfer and Environmental Research Unit (CNRS LMT-Lab) (since July 2012) and dean of Civil/ Environmental department (Oct. 2012/Sep. 2016). His present research activity is within the LMT laboratory where he manages Transfer and Environmental Research Unit. His Research field covers wide spectrum and several domains. It covers the building material for energy applications or on durability aspect, renewable and energy system. The expertise covers the direct numerical simulation including CFD coupling on multi-scales. The previous approach is consolidated by analytical or reduction approach in order to identify the instabilities and global behavior bifurcation and similarity controlling parameters in multiphysics situations. He published around 10 book chapters and more than 150 referenced international journals.

SANTANU BANDYOPADHYAY

Recent Extensions of Pinch Analysis for Conserving Resources

Prof. SantanuBandyopadhyay is currently Institute Chair Professor, Department of Energy Science and Engineering, at the Indian Institute of Technology Bombay (IIT Bombay), India. He is currently serving the institute as Associate Dean-II (Infrastructure Planning and Support). He obtained his B.Tech. (Hons.) in Energy Engineering from IIT Kharagpur in 1992, and M.Tech. and Ph.D. in Energy Systems Engineering from IIT Bombay in 1995 and 1999, respectively. He then joined the Heat and Mass Transfer Division of M/s Engineers India Limited, New Delhi. In 2001, he joined the Department of Energy Science and Engineering (Formally, Energy Systems Engineering), IIT Bombay. He was the Head of this department from 2012 to 2015. His research interest includes Process integration, Pinch Analysis, Industrial energy conservation, Modelling and simulation of energy systems, Design and optimization of renewable energy systems, etc. Since 1994, Prof. Bandyopadhyay has been associated with and contributed towards various developmental, industrial, and research activities involving different structured approaches to process synthesis, energy integration and conservation as well as renewable energy systems design. He is an internationally well-known researcher from India on Pinch Analysis, an analytical tool for industrial resource conservation. He is currently one of the Editors-in-Chief for Process Integration and Optimization for Sustainability (Springer Nature) as well as Associate Editor for Clean Technologies and Environmental Policy (Springer Nature), and INAE Letters (Springer Nature). He is a fellow of Indian National Association of Engineering (INAE).

SUJOY KUMAR SAHA

Advances in Heat Transfer Enhancement

Prof. Sujoy Kumar Saha has earned his Ph.D. in 1991 from Indian Institute of Technology Bombay, India. Before that he has done his graduation followed by a Master's Degree, both in Mechanical Engineering from Jadavpur University, India in 1981 and 1983, respectively. Currently Dr. Saha is Professor of Mechanical Engineering at Indian Institute of Engineering Science and Technology, Shibpur. Prof. Saha was a visiting scientist in Dalhousie University,Canada during June 2000-May 2001. He was a UNESCO Fellow in ENEA, Italy in 2009. Prof.Saha is a Fellow of ASME and IMechE, London. He is a Member of the Scientific Council of International Centre for Heat and Mass Transfer and the Assembly of Experimental Heat Transfer, Fluid Mechanics and Thermodynamics. He is engaged in the Editorial Boards of several reputed International Heat Transfer Journals.

MARCELLO LAPPA

Towards new contact-less techniques for the control of inertial particles dispersed in a fluid

Dr. Marcello Lappa is the Director of the MSc course in Mechanical Engineering at the University of Strathclyde (Glasgow, UK). He has authored 3 international books (2004, Elsevier Science, Cambridge; 2009, John Wiley & Sons, Chichester; 2012, John Wiley & Sons, Chichester) and more than 100 publications (in peer reviewed journals or as book chapters, most of which as single author) in the fields of fluid motion and stability behavior, incompressible and compressible fluid-dynamics, organic and inorganic materials sciences and crystal growth, multiphase flows, solidification, high-temperature gas-dynamics, particle dynamics, biotechnology and biomechanics, methods of numerical analysis in computational fluid dynamics and heat/mass transfer, high performance computing. The current value of his Hirsch index is 19 (computed with Scopus).He holds a qualification of Full Professor in Aeronautical, Aerospace and Naval Engineering (sub-field: Fluid Dynamics).He is also a Fellow of The Higher Education Academy (HEA) of the United Kingdom. At the University of Strathclyde he currently leads a group consisting of several Research Associates and PhD Students. Over recent years he has attracted more than 1.5 Million £of external funding for the execution of microgravity experiments. His innovation is recognized internationally through consistent invitations to seat in the Steering Committees of several conferences (ICTEA, ICCES, ICFVM, ParCFD, ICOME, ICCMREA, AMT, ICMAPH) and act as a Reviewer for several funding bodies (EPSRC-UK, DFG-Germany, FNRD-Belgium, GIF-Israel, ANVUR-Italy) . Since 2005 he serves as the Editor-in-Chief of the International Scientific Journal “Fluid Dynamics & Materials Processing”, which is currently abstracted and Indexed in SCOPUS and the Emerging Sources Citation Index (ESCI) of Web of Science (Thomson Reuters/Clarivate Analytics Master Journal List).

HUSSAM JOUHARA

Heat pipe heat exchangers - advances and applications

HussamJouhara is a professor of thermal engineering at Brunel University London, UK. His research experience spans across various domains with a specific focus on developing novel energy systems and heat exchangers for various applications. Having worked in academia and the industry, Professor Jouhara managed to gain unique expertise in working on applied heat exchangers and energy-related research activities with direct support from EU and UK research councils and various national and international industrial partners. He managed to gain internationally-recognized expertise in designing and manufacturing various types of heat exchangers, including heat pipes and heat pipe-based heat exchangers for low, medium and high temperature domains. His work in the field of heat pipe-based heat exchangers resulted in novel designs for recouperators, steam generators & condensers and flat heatpipes (for solar collectors, chilled display cabinets' shelves and fuel cells& battery packs thermal management). These have been implemented across various industries including, but not limited to: food, solar energy harvesting, electronics thermal management and low to high industrial waste heat recovery and Energy from waste. He has also developed manufacturing and design capabilities for small to large companies in the UK and overseas. Over the last few years, he has successfully managed to achieve new designs for industrial waste heat recovery and many thermal systems that have enhanced the performance of many processes in various continents.His latest innovationincludes the inverse heat pipe, theHome Energy Resources Unit (HERU) and heat pipe based crude oil heaters. Professor Jouhara is well published with over 140 international publications, 16 published/granted patents, a book on energy efficient buildingsand many book chapters and editorials in the heat transfer field. He is a Fellow of the Institution of Mechanical Engineering in the UK (IMechE) and Engineering Ireland (IEI) in addition to being a member of many other professional institutions.

MOHAMED EL GANAOUI

Doctor and Engineer discussion/dispute on Heat and Mass Transfer

Prof. M. El.Ganaoui, is a full professor at the University of Lorraine and researcher in the Jacques Villermaux Federation for mechanics, energy and processes (FR 28 63/LERMAB). He is heading the research in energy in the Henri Poincaré Institute of Technology in Longwy. Previously, he was an Ass. Professor in the University of Limoges and the SPCTS UMR 6638 CNRS laboratory where he was responsible for the Physics Department (2004-2010) and the international cooperation service (2006-2010) in the Faculty of science and technology. His research aims to understand heat and mass transfers through modeling and numerical simulation with a specific activity in the field of the solid -liquid-vapor phase change. Applications concern materials and energy and benefit to energy systems including phenomena for sustainable building (Eco-materials). He teaches the mechanics of continuous media, heat transfers, and numerical methods. He was advisor of more than 25 Ph.D. Thesis with strong international interaction noticeably in the Euro-Mediterranean context. He participated/managed the PAI Australia, Canada, Maghreb (Tassili, Utique, Volubilis), China (Xugangqi). El Ganaoui has participated in the Edition of more than 10 special issues and conference proceedings, co-authored over than 150 publications in journals (rank A) and participated in more than 100 international conferences including ten he co-organized. He is member of many international scientific societies in mechanics and heat transfers.

SANJEEV JAIN

Sustainability Conundrum Habitat for Humanity: Myth or Reality?

Sanjeev Jain is a Professor of Mechanical Engineering at IIT Delhi, India. He worked in industry for a few years before joining IIT Delhi faculty in 1996. His research interest include Solar cooling, Building energy efficiency, natural refrigerants, decentralized energy systems, intelligence in nature.

MUTHUKUMAR PALANISAMY

Hydrogen - A Future Green Energy Carrier

Prof. P. Muthukumar received PhD degree in Mechanical Engineering from IIT, Madras during 2005. He joined at IIT, Guwahati as Assistant Professor in January 2006 and became Professor in January 2015. He received DAAD (German Academic Exchange Service) research fellowships in three times during 2008, 2010 and 2012. He is the recipient of Young Engineer Award - 2010 in Mechanical Engineering from Institute of Engineers India (IE1). He received Bhaskara Advanced Solar Energy Fellowship (BASE Fellowship) from Indo - U.S. Science and Technology Forum, Jan 2014 and also received Er. M.P. Baya National Award 2015 from IE1. He is the Fellow of Institute of Engineers (India). He is one of the commission member to represent India in the International Institute of Refrigeration (IIR). He served as the President, Indian Society of Heating, Refrigerating and Air Conditioning Engineers (ISHRAE), Guwahati sub-chapter. He is also the recipient of Fulbright-Nehru Academic & Professional Excellence Award 2017 from United States-India Educational Foundation (USIEF) and also received Mechanical Engineering Design National Award from National Design & Research Forum (NDRF), 2017. Prof. P. Muthukumar has about 200 research publications in peer reviewed Journals and conference proceedings and has five national patents to his credit. He supervised 12 PhD, 40 M. Tech and 25 B. Tech Theses. Currently, 15 PhD and 6 M. Tech students are working under him. He has delivered over 150 key note/invited talks around the world. He is a reviewer for more than 50 international journals. Prof. Muthukumar has successfully completed 11 research projects funded by various government agencies and 5 consultancy projects funded by industries. Currently, he is handling 5 research and 1 consultancy projects. His specialization includes refrigeration, hydrogen storage, metal hydride based thermal machines, porous medium combustion and thermal energy storage.

PROGRAM SCHEDULE

SATURDAY FEBRUARY 23, 2019	
2– 3:30 PM	Registration
3:30 - 5 PM	Inauguration Function (PDPU Auditorium)
5 - 6 PM	High Tea and Networking
6 - 7:30 PM	Cultural Program
7:30 - 10:30 PM	Dinner

SUNDAY FEBRUARY 24, 2019	
8 - 9 AM	Registration
9 - 9:30 AM	Invited Speaker: Prof S. BANDYOPADHYAY, INDIA
9:30 - 10 AM	Invited Speaker: Prof S. CHANDRA, CANADA
10 -10:30 AM	Invited Speaker: Prof Y. JALURIA, USA
10:30 - 11 AM	Coffee Break
SUNDAY 1.1 | Session: Renewable Energy I	
11 - 11:15 AM	**Estimation of Uncertainty In offshore Wind Energy Production** Garlapati Nagababu, Hardik Jani, Ravi Patel, Pranay Joshi, M. Prasad Kantipudi, Surendra Singh Kachhwaha
11:15 - 11:30 AM	**Theoretical And Experimental Analysis of Solar Thermal Driven Water Evaporation System For Multiple Applications** Prakash Prajapati, Gaurav Patel, Dr. Sagarkumar Agravat
11:30 - 11:45 AM	**FRT Effect On 800 kW Grid Tied Wind Energy Conversion System** Siddharth Joshi, Vivek Pandya, Bhinal Mehta
11:45 - 12 PM	**Analysis of Selecting Suitable General Circulation Models For Wind Energy Via Uncertainty And Model Reliability Factor At Indian offshore Locations** Abhinaya Srinivas Bhasuru, Nagababu Garlapati, Surendra Singh Kachhwaha, Hardik K Jani, Ravi P Patel
12 - 12:15 PM	**Geothermal Resources At Gujarat As Energy Substitute** Prafulla Sarolkar
12:15 - 12:30 PM	**Influence of Techno-Economic Factors on The Levelized Cost of Electricity of Wind and Solar Power Projects In India** Alok Das, Hardik Jani, Garlapati Nagababu, Surendra Singh Kachhwaha
12:30 - 1:30 PM	Lunch Break

Session: Renewable Energy II	
1:30 - 1:45	**Modeling & Simulation Analysis of 800 kW Hawt** Shyam Sakaria, Mark Tailor, Siddharth Joshi
1:45 - 2 PM	**Low Engine Speed Torque Improvement In Natural Gas Engine Using Turbocharging : An Experimental Observations** Pritesh Suple, Chandrakant Sonawane, Sukrut Thipse, Jaywant Mohite, Nanso Chougule
2 - 2:15 PM	**Wind and Wave Energy Resource Assessment Along Shallow Water Region of Indian Coast** Ravi Patel, Garlapati Nagababu, Hardik Jani, Surendra Singh Kachhwaha, Seemanth M.
2:15 - 2:30 PM	**An experimental investigation on Multi-V & Protrusion Element on Absorber Plate of Solar Air Heater** Sanjay Sharma, Varun Dutta, MEswaramoorthy
2:30 - 2:45 PM	**Comparative Study of Prediction Methods For Hybrid Solar and Wind System** Harsh Vasani, Ravirajsinh Vaghela, Siddharth Joshi
2:45 - 3 PM	Coffee Break
3 - 3:30 PM	Invited Speaker: Prof S. JAIN, INDIA
Session: Renewable Energy III	
3:30 - 3:45 PM	**ICS Solar Water Heater Based On Optimized Symmetric CPC Reflectors** Olfa Helal, Raouf Benrjab, Bechir Chaouachi
3:45 - 4 PM	**Performance Comparison of Different Phase Change Materials For Solar Cooking During off Sun Sunshine Hours** Susheel Bhandari, Garima Gupta, Prashi Upreti, Manish Negi
4 - 4:15 PM	**Natural Ventilation And Effect of Roof Angle on Indoor Temperature** Sumeet Kumar Dubey, Sripathi Anirudh R, Dibakar Rakshit
4:15 - 4:30 PM	**Heliostats For Low Wind Area** Rakesh Singhai, Nitin Banker, Harender Simhar
4:30 - 4:45 PM	**Investigation On Comparative Performance Analysis of Cooled And Uncooled Photovoltaic Module** Vaishak S, Purnanand V Bhale
4:45 - 5 PM	**Comparative Study of Meteorological and Reanalysis Wind Data For offshore Wind Resource Assessment** Hardik Jani, Garlapati Nagababu, Ravi Patel, Surendra Singh Kachhwaha

SUNDAY 1.2 | Session: Internal Flow and Heat Transfer I	
11 - 11:15 AM	**Effect of V Cuts In Perforated Twisted Tape Insert Fitted In Heat Exchanger Tube** Bipin Kumar, Manoj Kumar, Anil Kumar Patil, Siddharth Jain
11:15 - 11:30 AM	**Design and Development of Test Facility For Film Cooling Applications** Krishna Anand V G, Parammasivam K M
11:30 - 11:45 AM	**Numerical Investigation of Thermal-Hydraulic Characteristics of Radiator of Transformer** Ruturaj Dongare, Mandar Tendolkar, Sachin Paramane
11:45 - 12 PM	**Dynamics of Hot Streaks And Its Effect on Flow Distribution In Transformer Winding** Deepak Gupta, Nitin Gulhane, Sachin Paramane
12 - 12:15 PM	**Performance Analysis And Optimization of Plate Type Heat Exchanger In Dairy Industries** Niyant Thakkar, Mithilesh Kumar
12:15 - 12:30 PM	**Temperature Diagnostics And Calorimetry For High Heat Flux Testing of Plasma Facing Components** Vinay Menon, Mohit Sharma, Samir Khirwadkar, Kedar Bhope, Sunil Belsare, Sudhir Tripathi, Mayur Mehta, Prakash Mokaria
12:30 - 1:30 PM	Lunch Break
Session: Air Conditioning and Refrigeration I	
1:30 - 1:45	**Life Cycle Costing (LCC) of a Hybrid Evaporative Cooling System For A High-Rise Building In India** Venkateswara RaoV, Santanu Prasad Datta
1:45 - 2 PM	**An Experimental Investigation of Defrost Heaters Applied To Domestic Refrigerators** Harshang Shah, Trupal Patel, Karan Kapoor
2 - 2:15 PM	**Study of Plate Heat Exchanger Performance Working With Three Types of Refrigerants** Mustafa Abdulhussain
2:15 - 2:30 PM	**Thermodynamic Optimization of Ejector Refrigeration System** Kiran Mansuriya, Vivek K. Patel
2:30 - 2:45 PM	**Relative Significance of an Individual Parameter for Pulsating Heat Pipe Performance** Vipul M. Patel, Hemant B. Mehta
2:45 - 3 PM	Coffee Break
3 - 3:30 PM	Invited Speaker: Prof S. JAIN, INDIA

Session: Biofuels and Internal Combustion Engines I	
3:30 - 3:45 PM	**Numerical Analysis of Gasoline Fuel With Laser Ignited Spark Ignition** Shrimantini Patil, Milankumar Nandgaonkar
3:45 - 4 PM	**Effects of Combustion Chamber Geometry On Biodiesel Fuelled PCCI Engine Emissions** Girish Bhiogade, J.G. Suryawanshi
4 - 4:15 PM	**Effect of Angle Variation in Y Shape Producer Gas Carburetor on a Dual fuel CI engine** Satish Suryawanshi, Ravindra Yarasu
4:15 - 4:30 PM	**Comparative Analysis of Mechanical Stirring And Process Intensification Techniques For Biodiesel Production** Anvita Sharma, Pravin Kodgire, Surendra Singh Kachhwaha
4:30 - 4:45 PM	**Experimental Investigation on In-Situ Biodiesel Production Using Hybrid Intensification And CI Engine Testing** Kartikkumar Thakkar, Surendra Singh Kachhwaha, Pravin Kodgire, Seshasai Srinivasan
4:45 - 5 PM	**Conversion of Diesel Engine To Mechanically Operated Gasoline Direct Injection Spark Ignition Engine** Shrikrushna. Chincholkar, Jiwak Suryawanshi, ARehman
5 - 5:15 PM	**Optimization of Biodiesel Production Using Supercritical Solvent By Taguchi'S Technique And CI Engine Testing** Pavit Shah, Kartikkumar Thakkar, Pravin Kodgire, Surendra Singh Kachhwaha
5:15 - 5:30 PM	**Biodiesel Production From Castor Seeds (Ricinus Communis) Oil Using Hydrodynamic Cavitation** Utkarsh Mistry, Kartikkumar Thakkar, Pravin Kodgire, Surendra Singh Kachhwaha
5:30 - 5:45 PM	**Experimental Investigation of 25 cm2 Direct Methanol Fuel Cells Under Different Operating Parameters** Kevin R, Rahul Raju, Richy Raju, Rincemon Reji, Rajesh Baby
5:45 - 6 PM	**Effect Investigation of Thermal Energy Storage on Performance of Catalytic Converter** Gargee Pise, M.R Nandgaonkar, Swaroopsinh Bore, Ashok Pise
6 - 6:15 PM	**Thai-Capri Technology for Heavy Crude Reserves** Ankit Singh, Tanya Ann Mathews, Karmita Dalawat, Jatin Agarwal, Maunish Shah

SUNDAY 1.3 | Session: Biofuels and Internal Combustion Engines II	
11 - 11:15 AM	**Finite Element Analysis on The Suitability of Different Al Alloys For Piston In An Internal Combustion Engine** Raypati Subbarao, Satya Vart Gupta
11:15 - 11:30 AM	**CFD Analysis of Exhaust Manifold to Improve The Engine Performance** T.S. Sravan Kumar, S. Nagarjuna Reddy, Harish Rajan
11:30 - 11:45 AM	**Multicomponent Gasoline-Alcohol Blends For Si Engines – An Overview** Samhita Priyadarsini Gundala, Vinay Kumar Domakonda, Farooq Shaik, Nageswara Rao B
11:45 - 12 PM	**Sono-Chemical Biodiesel Production From Beef Processing Industrial Sludge in The Presence of Nano-KF-Al2O3** Vijayakumar B, Sivakumar P, Ramesh K, Himanshu Choksi, Sakthisaravanan A, Anirbid Sircar
12 - 12:15 PM	**Improvement and Standardization of the Flow Characteristics of Fine Particulate Coal Slurry Using Coarse Bio-char Particles for Combustion & Gasification Applications** Harmanpreet Singh, Satish Kumar, Saroj Kumar Mohapatra
12:15 - 12:30 PM	**Heat Release Dynamics on Burning Hydrogen Containing Fuels in a Combustion Chamber Model** KhAlhussan, M.S. Assad, O.G. Penyazkov
12:30 - 1:30 PM	Lunch Break
Session: Renewable Energy IV	
1:30 - 1:45	**Activation Kinetic Study On Esterification of Palm Fatty Acid Distillate Using Heterogeneous Catalyst Derived From Peanut Shell** Sakthisaravanan A, Sivakumar P, Periyasamy S, Himanshu Choksi, Vijayakumar B, Anirbid Sircar
1:45 - 2 PM	**Numerical Study On Performance Improvements of Small Scale Wind Turbine** Naitik Ghutla, Meher Venkata Ramakrishna Malladi, Surendra Singh Kachhwaha, Nagababu Garlapati, Amit Sant
2 - 2:15 PM	**Performance of A Wire Mesh Packed Solar Air Heater Having Discrete Fins** Lokesh Varshney, Akhilesh Joshi, Tarun Singh Samant
2:15 - 2:30 PM	**Energy Savings in Laminar Duct Flow using Compound Inserts** M.S. Emani, A.K. Bharti, H. Rajan, S.K. Saha
2:30 - 2:45 PM	**Energy and Exergy Assessment of Low Temperature Organic Rankine Cycle Using R123 as The Working Fluid** Suhas Upadhyaya, Veershetty Gumtapure
2:45 - 3 PM	Coffee Break
3 - 3:30 PM	Invited Speaker: Prof S. JAIN, INDIA

Session: Melting and Solidification	
3:30 - 3:45 PM	**Heat Transfer And Melting Behavior of Phase Change Material In A Ceramic Capsule For Latent Heat Storage System** Shunichi Tazawa, Selvan Bellan
3:45 - 4 PM	**Effect of Geometry On Heating And Cooling Characteristics For Thermal Energy Storage- A Computational Study** Santosh Chavan, Veershetty Gumtapure, Arumuga Perumal D
4 - 4:15 PM	**Numerical Investigation of PCM Based Heat Sinks Under Constant And Variable Heat Load Conditions** Sunku Prasad J, Saurabh Dongare, Anandalakshmi R, Muthukumar P
4:15 - 4:30 PM	**Heat Transfer With Phase Change In U-Shaped Crystallizer For Freeze Desalination** Parul Sahu, Srinivas Krishnaswamy, Nawal Kishore Pande
4:30 - 4:45 PM	**Augmentation of Heat Transfer In Horizontal Shell And Tube Type Latent Heat Storage** Bhavesh Vaghela, Digant Mehta, Manish Rathod, Jyotirmay Banerjee
4:45 - 5 PM	**Effect of Time-Dependent Volumetric Heat Flux On Heat Transfer Performance Inside Pcm Based Heat Sink** Nadezhda Bondareva, Mikhail Sheremet
5 - 5:15 PM	**A Novel Framework For The Estimation of Interfacial Heat Transfer Coefficient Using Bat Algorithm During Solidification of Metal Casting** Vishweshwara P S, Gnanasekaran N, Arun M

SUNDAY 1.4 | Session: Nano/Micro Heat Transfer I	
11 - 11:15 AM	**Specific Heat Capacity and Lattice Thermal Conductivity of Aluminum Based Phase Change Materials ALSI And Alge: A Quantum Mechanical Calculation** Ujjawal Jha, Hardik Kagada, Satyam Shinde, Prafulla Jha
11:15 - 11:30 AM	**Comparative Study of Hybrid Nanofluid With Regular Nanofluid During Natural Convection In Cavity Using Two-Phase Lattice Boltzmann Method** Dhrubajyoti Kashyap, Anoop K Dass
11:30 - 11:45 AM	**Hydrodynamic Performance of Graphene Oxide Nanofluid in Heat Spreader Integrated Microchannel** Narendran G, Gnanasekaran N, Arumuga Perumal D
11:45 - 12 PM	**Thermal-Hydraulic Optimization of a Nanofluid Based Microchannel Heat Sink** Shreyash Thacker, Vivek Patel
12 - 12:15 PM	**Preparation and Charactersization of Magnetic Nanoparticles-Enhanced Phase Change Material for Thermal Storage** K. Sravani, K. prasannavenkatesan, R. Parameshwaran
12:15 - 12:30 PM	**Heat Enhancement using Nanofluid in Microchannels** G. A. kilic, M. Z. Saghir
12:30 - 1:30 PM	Lunch Break
Session: Nano/Micro Heat Transfer II	
1:30 - 1:45	**Nano-Enhanced PCM For Low Temperature Thermal Energy Storage Systems** Rajat Saxena, Charu Dwivedi, Viresh Dutta, S.C. Kaushik, Dibakar Rakshit
1:45 - 2 PM	**Numerical Simulation of Flow And Heat Transfer Characteristics of Nanofluids In a Mini Enclosure** Amal Chummar, Harish Rajan
2 - 2:15 PM	**Investigation of Particle Size Effect on Thermal Conductivity Enhancement of Distilled Water-Al2O3 Nanofluids** Yogesh Kokate, Sandipkumar Sonawane
2:15 - 2:30 PM	**Effects of Porous Media Under Multiple Flows with Constant Plate Heat Flux: Applications in Electronics Cooling** Christopher Welsford, Cayley Delisle, M. Ziad Saghir
2:30 - 2:45 PM	**Effect of Surface Roughness On Pool Boiling Characteristics Under Variable Heat Supply** Avdhoot Walunj, A. Sathyabhama
2:45 - 3 PM	**Coffee Break**
3 - 3:30 PM	**Invited Speaker:** Prof S. JAIN, INDIA

Session: Nano/Micro Heat Transfer III	
3:30 - 3:45 PM	**Heat Transfer Analysis of Triple Tube Heat Exchanger Using Water And Titanium-Dioxide Nanofluid** Asif Afzal, Abdul Razak Rk, Mohammed SameeAd, Mohammed Kareemulla, Yashawantha Km, Shareef Raju
3:45 - 4 PM	**Evaluation of Heat Transfer Characteristics of Fe3O4 Nanofluids in Mini-Channel Heat Sinks** Amala Ranga Babu Jonnalagadda, Nageswara Reddy Pereddy
4 - 4:15 PM	**Thermal Stress Analysis of Transformer Oil Based Nanofluid** Mihir Bhatt, Praghnesh Bhatt
4:15 - 4:30 PM	**A Review on Enhancement of Thermophysical Properties of Paraffin Wax PCM With Nanomaterials** Harshil Raval, Jatin Patel, Anurag Mudgal
4:30 - 4:45 PM	**Assessment of Characteristics of Sio2 Thin Film Nano Coated Surface: Physical Vapor Deposition Method** Santhosh Kumar Dubba, Bhisham Kumar Dhurandhar, Manoj Kumar Rangaswamy
4:45 - 5 PM	**Heat Transfer Enhancement And Parametric Study of Nanofluids Incorporated Into Parabolic Trough Collectors** Nishant Modi, Harshang Shah, Bhargav Pandya

MONDAY FEBRUARY 25, 2019	
8 - 9 AM	Registration
9 - 9:30 AM	Invited Speaker: Prof M. LAPPA, UK
9:30 - 10 AM	Invited Speaker: Prof R. BENNACER, FRANCE
10 -10:30 AM	Invited Speaker: Prof S. KUMAR SAHA, INDIA
10:30 - 11 AM	Coffee Break

Monday 2.1 | Session: Multi-Phase Flow & Heat Transfer I	
11 - 11:15 AM	**Thermal Design of Intrusive Probe For Alumina Particle Collection In Solid Rocket Motor Plumes** Ullekh Pandey, Prem Anand Pr, Anoop P, Chacko M J, Shine S R,
11:15 - 11:30 AM	**Pressure Drop And Heat Transfer Characteristics of Dilute Gas-Solid Suspension Carrying Small Sized Particles In Horizontal Pipe** Santosh Kumar Senapati, Sukanta Kumar Dash
11:30 - 11:45 AM	**Numerical Modelling of Two Phase Closed Thermosyphon Flexible Heat Pipe** Chandrakant Sonawane, Pritam Gole, Anandkumar Pandey
11:45 - 12 PM	**An Experimental Study On The Improvement of Steam Condensation Heat Transfer In A Heat Exchanger** Jong Wook Lee, WonSeok Kim
12 - 12:15 PM	**CFD Analysis of Multiphase Flow Hydrodynamics In Rotating Packed Bed** Saurabh Kumar, Sandeep Kumar, D. Srinivasa Murthy
12:15 - 12:30 PM	**Semi Analytical Model For Bubble Departure Diameter Prediction For Triangular Grooved Surface** Sathyabhama Alangar
12:30 - 1:30 PM	Lunch Break
Session: Multi-Phase Flow and Heat Transfer II	
1:30 - 1:45	**Slot Mist Jet Impingement Cooling on a Cylindrical Surface** Jishnu Handique, Dushyant Singh
1:45 - 2 PM	**Critical Accident Scenario Analysis of Pressurized Water Reactor** Amit Suthar, Manish Kumar
2 - 2:15 PM	**Challenges In Multiphase Simulation of Condensation of Vapor In Presence of Non-Condensable Gases In Compact Heat Exchangers** Vatsal Patel, Rajesh Patel
2:15 - 2:30 PM	**A Study on the Onset of Annular Two-Phase Flow In a Microchannel** Ramanzani Kalule, Sandip Kumar Sarma, AshifIqbal, Manmohan Pandey
2:30 - 2:45 PM	**Effect of Regulated Draining With Non-Condensable Gas on Liquid Temperature Evolution In a Cryogenic Tank** Mebin Abraham Cherian, Jeswin Joseph, Gagan Agrawal, Deepak K Agarwal, T John Tharakan, Jacob Elias
2:45 - 3 PM	Coffee Break
3 - 3:30 PM	Invited Speaker: Prof H. JOUHARA, UK

Session: Multi-Phase Flow and Heat Transfer III	
3:30 - 3:45 PM	**Performance Enhancement of a Single Door Domestic Refrigerator by Incorporating Section Doors inside Refrigerated Space** Devendra Dandotiya, Nitin D Banker
3:45 - 4 PM	**Modeling of Ice Slurry Flow Through Horizontal 90O Elbow Bend Pipe** K. S. Rawat, A. K. Pratihar
4 - 4:15 PM	**CFD Simulation of Fluidized Dense Phase Pneumatic Conveying** Yassin Alkassar, Rajeshwar Verma, Vijay K Agarwal, R. K. Pandey, Niranjana Behera
4:15 - 4:30 PM	**Thermo-Hydrodynamic Study of Subcooled And Critical Heat Flux Flow Boiling** Ram Kumar Pal, Manoj Kumar Moharana
4:30 - 4:45 PM	**Experimental Investigations on the Melting of a ADblue Solution in a Rectangular Tank** Z. Hu, D. Gobin, A. Grados, L. Royon
4:45 - 5 PM	**Design of Experimental Setup For Visualization Studies of Two Phase Liquid Nitrogen** Gaurav Kumar Singh, Rakesh Patel, Rohit Panchal, Hiren Nimawat, Subrata Pradhan, Vipul Tanna
Monday 2.2 |	**Session: Numerical Method in Fluid Flow and Heat Transfer I**
11 - 11:15 AM	**Effect of Supercritical Co2 Based Natural Circulation Loop For Low Temperature Applications: Cfd Analysis** Tabish Wahidi, Pranay P Nagrani, Ajay Kumar Yadav
11:15 - 11:30 AM	**Ablation Study In Rocket Nozzles** Anshul Suri, Ankit Bansal
11:30 - 11:45 AM	**Numerical Investigation of Natural Convection Inside a Cube At Sub-Atmospheric Pressure** Sumit Bhore, Arvind Deshpande, Mandar Tendolkar, Vivek Singh
11:45 - 12 PM	**Review of Aerodynamic Aids To Reduce Drag In Trucks** Deep Shah, Mit Patel
12 - 12:15 PM	**Numerical Investigation On Natural Convection From Three Horizontal Cylinder Arranged In Vertical Array** Manoj Kumar Dash, Sukanta Kumar Dash
12:15 - 12:30 PM	**Numerical Simulation on Flow Over Circular Cylinder With Heated Splitter Plate** Arun Vijay, Ajith Kumar S
12:30 - 1:30 PM	Lunch Break

Session: Numerical Method in Fluid Flow and Heat Transfer II	
1:30 - 1:45	**Visualization of Boiling Phenomena During Immersion Quenching With Simultaneous Measurement of Heat Flux** Abhaya Simha N R, ArjunT, Seetharamu K N,Krishna V
1:45 - 2 PM	**Active Thermal Management of Li-Ion Batteries Using Wavy-Channel** Bharath R Bhardwaj, Sumanth Shashidhara, Babu Rao Ponangi, KrishnaV, Seetharamu K N,
2 - 2:15 PM	**Computational Fluid Dynamics Modeling of Combustion Chamber Using Biodiesel** Satish Bhele
2:15 - 2:30 PM	**Numerical Study On Mixed Convective Laminar Flow Over Backward Facing Inclined Step** Ravindra Prasad Govindu, Ajith Kumar S
2:30 - 2:45 PM	**Numerical Study of Intentional Flow Maldistribution In Minichannel Heatsink Under Non Uniform Heating** Sanjeev Kumar, Pawan Kumar Singh
2:45 - 3 PM	Coffee Break
3 - 3:30 PM	Invited Speaker: Prof H. JOUHARA, UK
Session: Numerical Method in Fluid Flow and Heat Transfer III	
3:30 - 3:45 PM	**Fluid Flow and Thermal Performance In Circular, Elliptical And Mixed Tube Bundle Cross Flow Heat Exchanger** Aneesh K Mohanan, Prasad B.V. S. S. S, Vengadesan S
3:45 - 4 PM	**Computational Study of Effect of Mixed Convection on A Heat Generating Electronic Chip In a Square Enclosure** Aurovinda Mohanty, Ankita Pujahari
4 - 4:15 PM	**Two Dimensional Monte Carlo Solver For Rarefied Flows** Raviraj Awasthi, Pranav Nath, Deepak Kumar Agarwal
4:15 - 4:30 PM	**Analytical Simulation of Helicon Discharge For RF Power Driven Plasma Engine** Meher Venkata Ramakrishna Malladi, Pranav Nath, Deepak Kumar Agarwal
4:30 - 4:45 PM	**Analysis For Heatlines and Entropy Generation For Distributed Heating In Various Cavities with Identical Area** Tanmay Basak, Debayan Daqs
4:45 - 5 PM	**Thermo-Fluid Analysis of a Device for Medical Applications** Amit Kumar Shaw, Sanjeev Soni

Monday 2.3 | Session: Transport Phenomena/Enhanced Oil Recover	
11 - 11:15 AM	**Entropy Generation Due To Natural Convection In Porous Medium With Different Shapes of Partitions** Jayesh Subhash Chordiya, RamVinoy Sharma
11:15 - 11:30 AM	**Simulation of Water Flooding of Petroleum Reservoir Using CMG** Pratiksha Khurpade, Somnath Nandi, Pradeep Jadhav, Lalit Kshirsagar
11:30 - 11:45 AM	**Investigation of Nanoparticle Injection to a Tissue Through Porous Media** Sanjeev Soni, Himanshu Tyagi
11:45 - 12 PM	**Numerical Simulation of Porous Plug With Volumetric Heat Source By Openfoam** Chanakya G., Ankur Garg, Pradeep Kumar
12 - 12:15 PM	**CMG Simulation And Experimental Verification of Asphaltene Precipitation of Iranian Crude** Reza Hashemi, Lalit Kshirsagar, Somnath Nandi, Pradeep Jadhav, Elias Ghaleh Golab
12:15 - 12:30 PM	**Thai-Capri Technology For Heavy Crude Reserves** Ankit Singh,Tanya Mathews, Karmita Dalawat, Jatin Agarwal, Maunish Shah
12:30 - 1:30 PM	Lunch Break
Session: Single Phase Liquid Cooling	
1:30 - 1:45	**Conjugate Heat Transfer Analysis of Model of Cold Plate Used In High End Computing Server** Mohan Labade, Vikas Kumar, Mangesh Chowdhari
1:45 - 2 PM	**Angled Fin Effect on PCM Melting for Latent Heat Storage** Z. Qin, C.Ji, Z. Low and F. Duan
2 - 2:15 PM	**Highly Accurate Finite Difference Scheme For SPLHeat Conduction Model of General Body** Tadkeshwar Nath Mishra, Bankteshwar Tiwari
2:15 - 2:30 PM	**CFD Analysis of a Liquid Cooled Variable Channel Width Single Layered Minichannel Heat Sink** Nirav Patel, Hemankumar Mehta
2:30 - 2:45 PM	**Graphene Based Phase Change Material (GPCM) Melting Process In a Square Enclosure And Enhanced Potential For Thermal Energy Storage** Nagaraju Dora, Siva Subrahmanyam Mendu, Ramsai Chigurupati
2:45 - 3 PM	Coffee Break
3 - 3:30 PM	**Invited Speaker: Prof H. JOUHARA, UK**

Session: Polymer Science/Non Newtonian Flow	
3:30 - 3:45 PM	**Thermal Processing of Bioglasses For Hemostatic Applications** Malvika Nagrath, Saidur Rahman, Andrew Mendonca, Adel Alhalawani, Mark Towler
3:45 - 4 PM	**Demulsification of Water-in-Crude Oil Emulsion: An experimental Approach for Reduction of Water Content of the Crude Oil for Refinery Use** Dhruvang Maheshwari, Rincy Anto, Uttam K. Bhui
4 - 4:15 PM	**Improvement in Hydrophilicity and Performance of Polymeric Ultrafiltration Membrane For Removal of Natural Organic Material From Water** Bharti Saini, Manish Sinha
4:15 - 4:30 PM	**Visualization of Heatlines for Natural Convection in non-Newtonian Fluids** L. Mishra, R. P. Chhabra
4:30 - 4:45 PM	**Rheological Analyses of Aluminum Oxide Based Water Nanofluid** Ashutosh Pare, Subrata Kumar Ghosh
4:45 - 5 PM	**Effect of Prandtl Number On Natural Convection From An** Isothermal Wavy Vertical Plate In Non-Newtonian Power-Law Fluids Subhasisa Rath, Sukanta Kumar Dash
5 - 5:15 PM	**Hotspots Analyses In Disc Brakes Caused By Thermoelastic Instability** Asif Afzal, Mohammed Sirajuddin, Mohan Kumar, B.H. Maruthi Prashanth, M.I. Navaneeth
Monday 2.4 |	**Session: Numerical Method in Fluid Flow & Heat Transfer IV**
11 - 11:15 AM	**Evaluation of Droplet Spread On Surface Using Dynamic Contact Angle Model** Ashutosh Joshi, Kathankumar Khalasi, Jyotirmay Banerjee
11:15 - 11:30 AM	**DSMC Simulation of Rarefied Gas Flow Over a Forward-Facing Step** Deepak Nabapure, Ram Chandra Murthy Kalluri
11:30 - 11:45 AM	**Computation of a Compartment Fire With Smagorinsky Sub-Grid Scale Model** Bhisham Kumar Dhurandher
11:45 - 12 PM	**Pressure Transient Analysis For Valve Chattering in a System of a Process Plant** Varun Hassija, K. Natesan, K. Velusamy
12 - 12:15 PM	**Investigations On Oscillating Motion of Ethanol Charged Pulsating Heat Pipe Using Single Slug-Plug Approach** Dolee Shanishchara, Hemantkumar Mehta
12:15 - 12:30 PM	**Design of Grid Tied Microgrid For Pandit Deendayal Petroleum University** Palak Patel, Amit Sant, Bharat Patel
12:30 - 1:30 PM	Lunch Break

Session: Novel Phase Change Cooling Techniques	
1:30 - 1:45	**Design, Development and Testing of SS/Acetone Screen Mesh Flexible Heat Pipe** Jigneshsinh Rathod, Vikas Lakhera
1:45 - 2 PM	**Pool Boiling Heat Transfer Performance On Annealing Micro/-Nanostructured Surface** Sudev Das
2 - 2:15 PM	**Numerical Simulation of V-Bend Pulsating Heat Pipe** Bibhu Bhusan Sha, Jaykumar Joshi, Manoj Kumar Moharana
2:15 - 2:30 PM	**Theoretical And Experimental Study on the Influence of Thermo-Electric Cooling Dehumidifier On Humidification-Dehumidification Water Desalination System** Vivek Patel, Vatsal Patel, Nidhi Trapasia, Dr. Rajesh Patel, Dr. Jatin Patel
2:30 - 2:45 PM	**Performance Enhancement of Unitary and Packaged Air Conditioners With Phase Change Material** Nageswara Reddy Pereddy
2:45 - 3 PM	Coffee Break
3 - 3:30 PM	**Invited Speaker: Prof H. JOUHARA, UK**
Session: Renewable Energy V	
3:30 - 3:45 PM	**Enhancement of Hydrothermal Performance in Laminar Flow through a Channel using Spiral Ribs and Twisted-tapes** A.K. Bharti, H. Ranjan, M.S. Emani, S.K. Saha
3:45 - 4 PM	**Thermo-Fluids in Non-Circular Hydrothermally Enhanced Channels** H. Ranjan, M.S. Emani, A.K. Bharti, S.K. Saha
4 - 4:15 PM	**Design And Development of Mixed Mode Forced Convection Solar Dryer For Drying of Curcuma Zeodaria** D.V.N. Lakshmi, Muthukumar Palanisamy
4:15 - 4:30 PM	**Evaluation of Flat Plate Solar Collector With Integral Fin Extruded Aluminium Tubes** Suyog Wani, Kandadai Srinivasan, Pradip Dutta

TUESDAY FEBRUARY 26, 2019	
8:30 - 9 AM	Invited Speaker: Prof P. MUTHUKUMAR, INDIA
9 - 9:30 AM	Invited Speaker: Prof M. ELGANAOUI, FRANCE
9:30 - 10 AM	Invited Speaker: Prof. M. V. RANE, INDIA
10 -10:30 AM	Coffee Break

Tuesday 3.1 | Session: Energy Management and Energy Systems I	
10:30 - 10:45 AM	**Development of Insulation Unit For Reducing Heat Losses In Gas Stoves** Ashish Roongta, Ravi Kumar Meena, J.V. Tirkey, Shailendra Kumar Shukla
10:45 - 11 AM	**Review of Trigeneration Systems** Sunil Bagade, Mahesh Shelar, Sharad Mahajan
11 - 11:15 AM	**Development of Maintenance Strategy For Thermal Power Plant Using Graph Theoretic Approach** Nikhil Dev, Sandeep Kumar, Rajesh Attri
11:15 - 11:30 AM	**Experimental Study About Effect of Temperature On Valve Regulated Lead Acid (Vrla) Battery** Jaydeep Manojkumar Bhatt
11: 30 - 11:45 AM	**Investigating the Influence of Application of Vapour Recompression Technique On Ethyl Levulinate Reactive Distillation** Savyasachi Shrikhande, G. Uday Bhaskar Babu, G S Nirmala, Zainal Ahmad, Dipesh Patle
11:45 - 12 PM	**Design and Implementation of BLDC Motor Controller For Energy Efficient Fan** Binit Patel, Kishan S, Vipin Shukla
12 -1 PM	Lunch Break
Session: Energy Management &Energy Systems II	
1- 1:15 PM	**Optimum Working Temperature of The Supercapacitor In A Hybrid Energy Storage System For Electric Vehicle Application** Vima Mali, Brijesh Tripathi
1:15 - 1:30 PM	**Energy And Exergy Analysis of 82 MWE Cogeneration Thermal Power Plant** Tushar Patel, Surendra Singh Kachhwaha, Pravin Kodgire, Nikhil Dev
1:30 - 1:45 PM	**Parametric Evaluation of Gas Turbine System With Exergy Method** Nishant Modi, Parth Mody

Session: Energy Management & Energy Systems III	
1:45 - 2 PM	**Thermodynamic Optimization of Stirling Heat Engine With Methane Gas Using Finite Speed Thermodynamic Model** Ankit Ginoya, Vivek Patel, Anurag Mudgal
2 - 2:15 PM	**Binary Classification of The Static Security of The Power System Using Support Vector Machine** Astik Dhandhia, Vivek Pandya
2:15 - 2:30 PM	**Energy Storage Design Using Physics-Based Models In Standalone PV-Battery Hybrid Systems** Mayur Bonkile, Santanu Bandyopadhyay, Venkatasailanathan Ramadesigan
2:30 - 2:45 PM	**Thermal Modeling of A Closed High Pressure Feedwater Heater Design With Dry Wall Safety Margin** Jarvish Shah, Ram Kushwaha, Satish Jadhav, Surendra Kachhwaha
2:45 - 3 PM	**Pinch Analysis Approach For Multiple Objective Segregated Targeting Problems** Sheetal Jain, Santanu Bandyopadhyay
3 - 3:15 PM	**Analysis of Compressed Air Energy Storage System** Abhishek Dahiya, Nitin Banker, Jishnu Bhattacharya
3:15 - 3:30 PM	Coffee Break
Session: Biological/Biomedical Devices	
3:30 - 3:45 PM	**Transient Temperature Study During 3D Scanning In HIFU Thermal Ablation** Pragya Gupta, Atul Srivastava
3:45 - 4 PM	**Analytical Overview of Heat Exchange In Human Upper Respiratory Airways** Bharat Soni, Ameeya Nayak

Tuesday 3.2 | Session: Air Conditioning & Refrigeration II	
10:30 - 10:45 AM	**Energy Exergy And Entransy Analyses of An Air Cooled Condenser Employed In A Vapour Compression Chiller** Kiran Naik Bukke, Muthukumar Palanisamy
10:45 - 11 AM	**Evaluating Environment With Assistive Technology Due to Effective Integration of Solar With Geothermal Cooling** Naimik Shah, Dhairya Vyas, Kashish Shah,Mit Shah
11 - 11:15 AM	**Performance Study of a Solar Assisted Vapour Compression-Absorption Cascaded Refrigeration System** Arshad S herasiya, Bhavesh Patel, Surendra Singh Kachhwaha, Nishith Desai
11:15 - 11:30 AM	**Potential of Atmospheric Water Generator For Water Recovery In Coastal Regions of India** Krunal Patel, Jatin Patel, Anurag Mudgal
11: 30 - 11:45 AM	**Thermo-Economic Optimization of Waste Heat Recovery Single Effect LIBR/H2O Absorption Refrigeration System** Bhaumik Modi, Bhavesh Patel, Anurag Mudgal
11:45 - 12 PM	**Experimental Investigations on Liquid Desiccant Cooling Systems For Hot And Humid Climates** Kamal Kumar Ghosh, Chandrakant R Sonawane
12 -1 PM	Lunch Break
Session: Air Conditioning and Refrigeration III	
1- 1:15 PM	**A Novel Approach of Angular Air Distribution System For Hospital Operation Theatre** Swati Rahate, Avinash Sarode
1:15 - 1:30 PM	**Feasibility and Pre-Conceptual Studies For Cryogenic Gaseous Helium Circulation System For HTS Applications** Mahesh Ghate, Vipul Tanna
1:30 - 1:45 PM	**Effects of Geometric as Well As Heat Transfer Parameters On Adsorption Characteristics of Co2 and Activated Carbon Pair** Gautam Singh, Satyabrata Sahoo
1:45 - 2 PM	**Review and Performance Investigation of Thermally Activated Rotary Desiccant Wheel Dehumidifier** Bhushan Behede, Siddhartha Chakrabarti, Uday Wankhede
2 - 2:15 PM	**Simulation of Heat Transfer in Regenerative Cooling System of Combustion Chamber on Hydrocarbon Fuel** L.S. Yanovskiy, A.V. Baikov, M.V. Gordin, V.E. Sorokin, A.A. Molokanov, Z. Weixing, A.S. Surovezhko, S.I. Martynenko

Session: Advance in Computational Characterisation	
2:15 - 2:30 PM	**Sizing and Placement of Single Distribution Generator in Radial Distribution Network: An Analytical Study** Gargi Trivedi, Anilkumar Markana
2:30 - 2:45 PM	**Thermodynamic Optimization of Solar Energy Based Brayton Heat Engine: A Multi Objective Approach** Vivek Patel, Bansi Raja
2:45 - 3 PM	**Setpoint Tracking Control Using Modified Higher Order Sliding Mode Control: Application To Robotic Manipulator** Dhaval R. Vyas, Anilkumar Markana
3 - 3:15 PM	**Lattice Boltzmann Simulations For Micro-Macro Interactions During Isothermal Drying of Capillary Porous Media** Debashis Panda, Piyush Sharma, Githin Tom Zachariah, Vikranth Kumar Surasani
3:15 - 3:30 PM	**Flow Behavior of Spherical Particles In Screw Feeder Using DEM** Dheeraj Minglani, Ram Dayal, Abhishek Sharma, Jyeshthraj Joshi
3:30 - 3:45 PM	**Effect of Various Key Process Parameters On The Reboiler Heat Duty of Co2 Capture Unit** Anirban Dey
3:45 - 4 PM	Coffee Break
4 - 4:15 PM	**Simulation of 3D Plasma Flow And Plasma Detachment In Magnetic Nozzle** Rahul Ranjan, Pranav Nath, Rajesh Sadanandan, Umesh R. Kadhane
Session: Waste Management and Waste disposal	
4:15 - 4:30 PM	**Valorization of Waste Biomass By Co-Gasification: A Comprehensive Review** Nikhil Vyas, Sarvesh Agrawal, Jignesh Mardiya, Maharishi Patel, Akshay Vala, Manan Shah
4:30 - 4:45 PM	**Heat Integration in Water Networks With Non-Isothermal Mixing** Shweta Kamat, Santanu Bandyopadhyay
4:45 - 5 PM	**Intermediate Pyrolysis of Coconut Shell: Isolated Fractions of Bio-Tar** Kiran Kumar Dasari, Veershetty Gumtapure

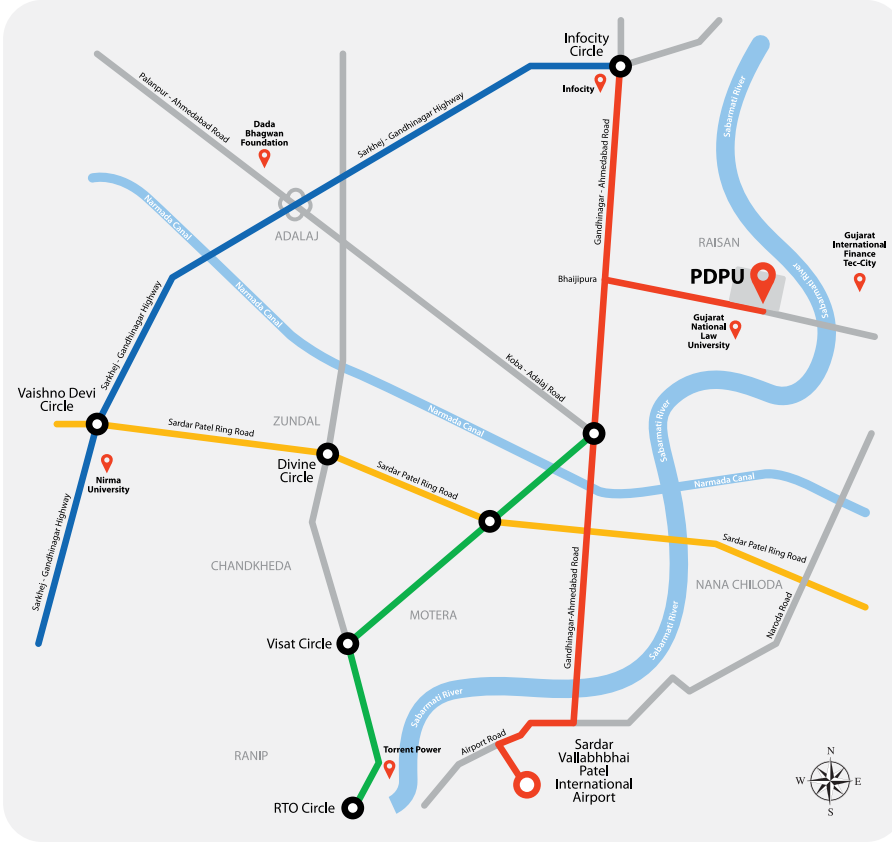
Tuesday 3.3	Session: Numerical Method in Fluid Flow and Heat transfer V
10:30 - 10:45 AM	**Numerical Simulation to Study The Effect of Cone Angle on The Heat Transfer, Fluid Flow And Pressure Drop Characteristics of Conical Spiral Tube** Dipak Saksena, Vikas Lakhera
10:45 - 11 AM	**Numerical Investigation of Heat Conducting Walls Influence on Natural Convective-Radiative Heat Transfer With A Heat-Generating Source** Nikita Gibanov, Mikhail Sheremet
11 - 11:15 AM	**Effect of Flow Rate on a Two-Stage Axial Flow Turbine With Respect to Losses And Performance** Subbarao Rayapati
11:15 - 11:30 AM	**The Numerical Solution of Hyperbolic Equations In Nuclear Shock Wave Propagation** Vishal Dahakane
11: 30 - 11:45 AM	**Grid Adaption Technique Using Wavelets in The Simulation of Thermal Regenerators** Gaurav Kumar, D. S. Murthy
11:45 - 12 PM	**Early Stage Spanwise Instability of Flow Past An Inclined Infinitely Long Flat Plate** Kohei Fukuda, Ronald M. Barron, Ram Balachandar
12 -1 PM	Lunch Break
Session: Renewable Energy VI	
1- 1:15 PM	**The Status And Impact of National Biogas And Manure Management Programme At Aizawl In North-East India** Bishal Dey, Bidesh Roy, Nand Kumar
1:15 - 1:30 PM	**Adsorption of Co2 Onto Activated Carbon: An Thermodynamic Approach** Vinod Kumar Singh, Anil Kumar E.
1:30 - 1:45 PM	**Comparative Performance Evaluation of Modified Passive Solar Still Having Sensible Heat Storage For Textile Wastewater Purification** Pinakeen Patel, Rajesh Kumar, Rameshkumar Bhoraniya
1:45 - 2 PM	**Development of Optimum Power Point Equations For Variable Speed HAWT On Complex Plane** Rahul Jobanputra, Sanjay Mangala Gopal, Arvind Deshpande
2 - 2:15 PM	**Effect of Variable Acceptance Angle And Absorber Geometry On Flux Concentration of Solar Compound Parabolic Collector** Sainath Waghmare

Session: Environmental Engineering	
2:15 - 2:30 PM	**Estimation of Temperature Dependent Binary Interaction Parameters of Unloaded Solvents For Co2 Capture** Sweta Balchandani, Anirban Dey, Bishnupada Mandal, Swapnil Dharaskar
2:30 - 2:45 PM	**Groundwater Hot-Springs Analysis of Bakreshwar And Tantaloi Geothermal Fields For Its Industrial Application** Harsh Patel, Parth Viramgama, Dhairya Varanava, Deep Maheshwari, Manna Butani, Manan Shah
2:45 - 3 PM	**Design of Effective Ventilation System In Road Tunnels Using CFD** Ebin Babu, Harish Rajan
3 - 3:15 PM	**Effect of Initial PH And Applied Current Density On Removal Efficiency of Cod of Coking Wastewater From Gasifier Plants** Pinakeen Patel, Vivek Patel, Anurag Mudgal
3:15 - 3:30 PM	**Removal of Heavy Metals Using Low Cost Adsorbent From Ground Water** Parwathi Pillai, Paurush Banwasi, Yogesh Lakhtaria, Nilaksh Kakadiya, Zeel Timaniya, Swapnil Dharaskar
3:30 - 3:45 PM	**Assessment of Energy From Biogas Plant For Development of Smart Green Village** Bhisham Kumar Dhurandher, Santhosh Kumar Dubba, Vinod Kumar Singh
3:45 - 4 PM	Coffee Break
4 - 4:15 PM	**CFD Analysis of Effective Cooling System For Electric Vehicle Battery** Mathew George, Abhin Mv, Harish Rajan
4:15 - 4:30 PM	**Computational Analysis of Thermodiffusion In Ternary Liquid Mixtures** Gaganpreet Sidhu, Seshasai Srinivasan, Ziad Saghir
4: 30 - 4:45 PM	**Emission Control Equipment** Laxmikant Narkhede

Tuesday 3.4 | Session: Heat transfer I	
10:30 - 10:45 AM	**Studies On Applications of Radioisotopes In Computational Imaging Techniques (NDT&E)** Tanvi Menaria
10:45 - 11 AM	**Natural Convection on Aluminum casted V-Shaped Fin Array without Cut and for Different Cuts at Nose** Rohit. R. Kolekar, Amar.B. Patil, Dr. Dhananjay. R.Dolas
11 - 11:15 AM	**Effect of Surface Oxidation on Directional Spectral Emissivity of Aluminum Alloy Al 6061 With Different Roughnesses** Sumeet Kumar, C. V. Krishnamurthy, Krishnan Balasubramaniam
11:15 - 11:30 AM	**Influence of Different Collector Types On Performance of Nh3-Nascn Type Absorption Refrigeration System** Nishant Modi, Bhargav Pandya,Vinay Kumar, Jatin Patel, Ankit Ginoya
11: 30 - 11:45 AM	**Numerical Study on Single Slot Jet Impingement on Hemispherical Convex Dimple Surface** Rahul Mondal, Dushyant Singh
11:45 - 12 PM	**Microstructural Analysis of Heat Treated Steels** Gaganpreet Sidhu, Seshasai Srinivasan, Sanjiwan Bhole
12 -1 PM	Lunch Break
Session: Heat transfer II	
1- 1:15 PM	**Computation of Magneto Hydrodynamic Buoyant Flows of Liquid Metal in Vertical Channel** Shivprasad Shirodkar, Harish Rajan
1:15 - 1:30 PM	**Numerical Simulation of Buoyant Flows From Heat Source Block in a Ventilated Rectangular Enclosure** Tushar Agrawal, Rahul Khandelwal, Vaibhav Khandelwal, HarishRajan
1:30 - 1:45 PM	**Numerical Simulation of Buoyancy Driven Flow In Square Enclosure With Dual Heated Cylinders** Abhishek Velpuru, Harish Rajan
1:45 - 2 PM	**Assessment and Development of Subcooled CHF Models For Single Sided Heating Condition Relevant To ITER Divertor Geometry** Mohit Sharma, Vinay Menon, Samir Khirwadkar
2 - 2:15 PM	**Experimental Study of Fluid Flow Characteristics of Impinging Jet On Concave Surface** V.V. Nagathan, B.M.Angadi Angadu, Omkar Patil

Session: Heat transfer III	
2:15 - 2:30 PM	**Design Challenges in Vertical Tube Evaporator to Reduce Maintenance for Small Scale Multi-Effect Desalination** Rahul Deharkar, Anurag Mudgal, Mohil Bhatt,Mehul Choksi, Dhrumin Bhavsar
2:30 - 2:45 PM	**A Numerical Investigation of Pentagon Sectioned Transverse Rib Roughened Solar Air Heater** Ankit Singh Bisht, Robin Thapa,Vijay Singh Bisht
2:45 - 3 PM	**Experimental Investigation of Laminar Heat Transfer in Chaotic Heat Exchangers. Comparison of Four Geometries** Seyed Amir Barhani, Luc L. Humberset, Remy Osipian, Laurent Royon, KamelAzzouz, André Bontemps
Session: Compressible/Incompressible Flow	
3 - 3:15 PM	**Flow Over A Backward Facing Step With And Without Step Inclination** Abhinav R, Shine S R
3:15 - 3:30 PM	**Optimizing the Geometry of a Cone in subsonic flow for Reducing Drag** Ghazal Hosseinzadeh, Kamyar Mansour
3:30 - 3:45 PM	Coffee Break
3:45 - 4 PM	**Simulation Study on Ventilation of an Indoor Substation** Babak Fakhim, Masud Behnia, M. Ziad Saghir
4 - 4:15 PM	**An experimental investigation of the wing flutter** Kamyar Mansour, Sepehr Assa'di
4:15 - 4:30 PM	**Aerodynamic and Structural Analysis of Bio-mimetic Corrugated Wing** Md. Akhtar khan, Chinmaya Padhy
4:30 - 4:45 PM	**Numerical Study on Slot Mist Jet Impingement Cooling on a Flat Plate** Bikram Kumar Pani, Dushyant Singh
4:45 - 5 PM	**Wake Characteristics of Shallow Flow Past A Bed Mounted Cylinder** Vesselina Roussinova, Ram Balachandar, Ronald Barron, Mehdi Heidari
5 - 5.50 pm	Closing Ceremony

ROUTE MAP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Infocity
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Dada Bhagwan Foundation
Sarkhej - Gandhinagar Highway
Gandhinagar - Ahmedabad Road
Sabarmati River
ADALAJ
Narmada Canal
RAISAN
Gujarat International Finance Tec-City
PDPU
Bhaijipura
Gujarat National Law University
Kobe - Adalaj Road
Vaishno Devi Circle
Sardar Patel Ring Road
ZUNDAL
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