



International Symposium on Fluids and Thermal Engineering

**FLUTE - 2021**



**Theme: Thermal Management of Electronic Devices and Components**

on

22nd July 2021

Organized by

**DEPARTMENT OF MECHANICAL ENGINEERING**

Amity School of Engineering & Technology, Amity University Uttar Pradesh Noida

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## PLENARY SPEAKERS



**Dr. Sameer Khandekar**

Professor and Head  
Department of Mechanical Engineering  
Indian Institute of Technology Kanpur

Plenary Talk:

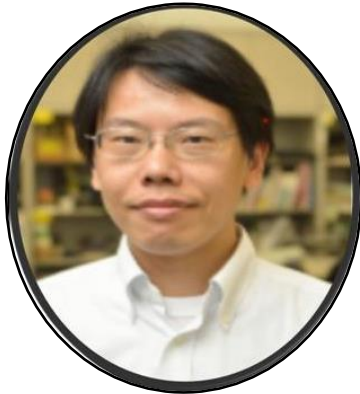
**Recent Developments in Thermal Management of Engineering Systems using passive mode of cooling.**

09:20 AM - 10:00 AM IST

22nd July 2021 (Thursday)

**Prof. Sameer Khandekar** is affiliated to the Department of Mechanical Engineering, Indian Institute of Technology Kanpur, India, since September 2004. He completed M. Tech. program from IIT Kanpur, India (1998-2000) in Fluid-Thermal Engineering and subsequently earned doctoral degree from University of Stuttgart, Germany (2000-2004). Earlier, after his undergraduate studies in Mechanical Engineering from Government Engineering College, Jabalpur (MP), he worked as a marine power plant engineer on board sea-going merchant ships for four years (1994-1998). At present, Prof. Khandekar is an occupant of *Sir M. Visvesvaraya Chair* at IIT Kanpur. He is also a Fellow of the Indian National Academy of Engineering (elected in 2019) and Fellow of Institution of Engineers (India) since 2016. He is a recipient of P. K. Kelkar Research Fellowship from IIT Kanpur in 2008, DAAD Fellowship (2011), Prof. K. N. Seetharamu Award from the Indian Society of Heat and Mass Transfer in 2010, George Grover Medal from the International Heat Pipe Committee in 2007, and Young Scientist Award (Department of Atomic Energy, India, 2005). Prof. Khandekar is Associate Editor of International Journal of Thermal Sciences and Interfacial Phenomena and Heat Transfer. He is also an executive member of the International Heat Pipe Committee and Indian Heat and Mass Transfer Society. He has served as an invited faculty member at five international universities at Germany, France, Brazil, Russia and Thailand. He has also served as academic senate member of one central and one state funded autonomous engineering institutes. He has over eighty-five research publications in international journals, over one hundred publications/ presentations in international conferences, including 16 Keynote lectures/Invited Talks, eight patents, and four books to his credit. His

current research interests are in experimental microscale phase-change thermo-fluidic systems, evaporation, boiling, condensation, heat pipes and energy systems. He has served as the Associate Dean (Innovation and Incubation) and coordinator of the SIDBI Innovational and Incubation Center, IIT Kanpur during 2015 - 2017. He is also the President of Shiksha Sopan, a voluntary organization (registered NGO), serving the underprivileged sections of the society in and around IIT Kanpur.



**Dr. Chaobin DANG**

University of Fukui, Japan; The University of Tokyo, Japan

Plenary Talk:

**Recent Progress in the High Heat Flux Electronic Cooling**

10:00 AM - 10:40 AM IST  
22nd July 2021 (Thursday)

**Dr. Chaobin DANG** received his master's degree from Beijing University of Aeronautics and Astronautics in 1997 and his Ph. D. degree from the University of Tokyo in 2003. He then joined National Institute of Advanced Industrial Science and Technology (AIST) as a researcher in 2003. He returned the University of Tokyo in 2005 as a lecturer at Institute of Environmental Studies and was promoted to an associate professor in 2010. His research interests include Solar energy utilization, comprehensive evaluation of Low GWP refrigerant, Micro heat exchanger, Two phase flow and heat transfer, Supercritical fluids heat transfer, Ejector air conditioning system, Optical fiber temperature / humidification sensor, Membrane technology, etc. He is a member of Japan Society of Mechanical Engineers (JSME), Japan Society of Refrigerating and Air Conditioning Engineers (JSRAE), and Japan Society of Heat Transfer. He has been rewarded with science award of JSRAE (2019, 2018, 2015, 2014, 2007 and 2004), Asian academic award of JSRAE (2007), and Technology Improvement Award of Science, Technology, and Industry for Chinese Aviation Department (1996).



**Dr. Atul Srivastava**

Professor, Department of Mechanical Engineering  
Indian Institute of Technology Bombay

Plenary Talk:

**Growth mechanisms of single vapor bubble and heat transfer from surfaces of varying wettability.**

02:10 PM - 02:50 PM IST  
22nd July 2021 (Thursday)

**Dr. Atul Srivastava** has Teaching and research experience of more than 17 years (in which 10 years at IIT Bombay; 7 years at RRACT, Indore). He has 8 Sponsored projects from DST, CSIR, BRNS, BRFST, Cummins India Ltd. etc. He has guided 12 PhD Completed and 7 are Ongoing PhD under his guidance. Also he has guided 46 M.Tech, 3 Post doc and 2 are ongoing Post doc fellows He has published Book chapters (4), Review articles (2), International journals (125); Conferences (80). His Editorial

responsibilities include as Associate Editor, Case Studies in Thermal Engineering (Elsevier). and Guest Editor for two special issues of J. of Flow Visualization and Image Processing (2017-2018). His Current research Interests include Two phase flows; Droplets and interfacial heat transfer; Laser-based non-intrusive measurements; Optical tomography; Bio-heat transfer. His accomplishments include Swarnajayanti Fellowship 2015 from Department of Science and Technology, Government of India, 2, Prof. V.M.K. Sastri Best Paper Award 2017, 24th National and 2nd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTTC-2017), BITS Pilani-Hyderabad Campus, India; 3. JSPS Post-doctoral Research Fellowship 2008-2010 Japan Society for Promotion of Sciences, Japan; 4. Innovative Student Projects Award (Doctoral level) 2007, Indian National Academy of Engineering (INAE); 5. Best PhD Thesis Award 2006, National Laser Symposium-06, Indian Laser Association (ILA); 6. Dr. K.S. Krishnan Research Fellowship 2004, Dept. of Atomic Energy, Board of Research in Nuclear Sciences (BRNS), India.; 7. As part of the worldwide celebration of International Year of Light 2015, the homepage of Optics and Photonics Society of Singapore highlighted the research group work.



### **Prof. Kannan Lakshminarayanan**

Professor of Practice  
IIT Madras

Founder Director  
Motorz Design and Manufacturing Private Limited,  
Chennai

Plenary Talk:

### **EV Motor and Controller Thermal Management**

02:50 PM - 03:30 PM IST  
22nd July 2021 (Thursday)

**Kannan Lakshminarayanan** is currently a Professor of Practice in the department of Engineering Design at the Indian Institute of Technology, Madras where he leads a team designing and developing High Efficiency Traction Motors for electrical vehicles. His overarching research objectives revolve around electro-mechanical engineering for making products that impact livelihoods and sustainability. He is the founder and director of Fractal Foundation – a one of a kind “ideas accelerator” focused on bringing new technologies to the market, including Microspin and Skillveri. In addition, Kannan’s passion for innovation-driven engineering led him to co-found and direct tech companies like Vortex and Motorz. Kannan received the Distinguished Alumnus Award of the Indian Institute of Technology Madras 2014, in recognition of his innovations and transformative work in sustainable solutions for rural India.



**Dr. Amrit Ambirajan**

Professor – Research IISc Bangalore  
ISRO (Retd.)

Plenary Talk:

**Loop Heat Pipes for Thermal Management**

03:30 PM - 04:10 PM IST  
22nd July 2021 (Thursday)

**Dr. Amrit Ambirajan** completed his Btech and M.S. from IIT-Madras in 1988 and 1991 respectively and the PhD in Mechanical Engineering from the Missouri University of Science and Technology, Rolla in 1997. He worked as a post-doctoral fellow at Penn State University for one year. Subsequently, he joined the Thermal Systems Group at U. R. Rao Satellite Centre in 1998 where he worked till 2019, leaving as deputy division head of the thermal testing division. His work at URSC included the thermal design and analysis of INSAT-3A, LHP flight experiment on GSAT-19, mini-LHP flight experiment on GSAT-29 and Pulse Tube Cryocooler flight experiment on GSAT-29. His other major field of work at URSC was thermal property measurements. He is a mentor in thermal management to Motorz Pvt. Ltd. Currently he is a research professor in the Department of Mechanical Engineering at the Indian Institute of Science, Bangalore. His research interests include thermal management, two-phase heat transport devices, contact conductance, radiation heat transfer, thermoacoustic devices, refrigeration, solar thermal devices and air pollution monitoring. He has published over 60 papers in various international conferences and peer reviewed journals. He won the ISRO team excellence award in 2017. He is a fellow of the Indian National Academy of Engineering.



**Dr. Zhixiong (James) Guo**

Mechanical and Aerospace Engineering  
Rutgers University, New Brunswick, USA

Plenary Talk:

**Near Junction Hot Spot Cooling for GaN-Based Device**

04:10 PM - 04:50 PM IST  
22nd July 2021 (Thursday)

**Dr. Zhixiong Guo** is a Professor of Mechanical and Aerospace Engineering at Rutgers University-New Brunswick, NJ, USA. He graduated top one in Engineering Physics from Tsinghua University, China in 1989; and has worked in KAIST, South Korea, and Tohoku University, Japan before moving to the USA. After receiving a Ph.D. degree in Mechanical Engineering from NYU-Tandon School of Engineering, he joined the faculty at Rutgers in 2001. Dr. Guo is an expert in heat transfer. He explores not only the extremes of very small length, time, and strength scales in the fundamental study of thermal energy transport and laser applications, but also the technological developments of large-scale industrial practice. He is the author/co-author of over 250 archival journal and conference papers. He served as K-18 Technical Committee Chair for ASME, Technical Program Chair and Conference General Co-Chair in several international conferences. Dr. Guo is a Fellow of ASME. He is the Editor-in-Chief for Journal of Enhanced

Heat Transfer, the Managing Editor for Heat Transfer Research, and an editorial board member for Applied Thermal Engineering and for Frontiers in Energy. He was a former Associate Editor for ASME Journal of Heat Transfer (2013-2019). Prof. Guo was bestowed the Rutgers Board of Trustees Award for Excellence in Research in 2018, the university's highest honor for outstanding research contributions to a discipline or to society by a tenured faculty member.



**Dr. Pradip Dutta**

J.R.D. TATA Chair Professor,  
Department of Mechanical Engineering,  
Indian Institute of Science, Bangalore

Plenary Talk:

**Pulsating Heat Pipes and its application for thermal management of battery systems**

04:50 PM - 05:30 PM IST  
22nd July 2021 (Thursday)

Prof. Dutta received his B. Tech. from IIT Kharagpur in 1983, M. Tech from IIT Madras in 1987, and Ph.D. from Columbia University in 1992, all in Mechanical Engineering. He held faculty positions at Columbia University and at the Tennessee Tech. University, before joining the Indian Institute of Science (IISc) as a faculty member in 1996. Currently, he is a Professor of Mechanical Engineering at IISc. Prof. Dutta's research group focuses on the development of advanced energy technologies related to solar energy, cooling of electronics, spacecraft thermal management, and on thermal technologies related to phase change. Prof. Dutta has been elected Fellow of the ASME, ASTFE and Fellow of all the four National Academies of India in science and engineering. Among his several awards, he has received Distinguished Alumnus Awards both from IIT Kharagpur and IIT Madras, Outstanding Teacher Award from the Indian National Academy of Engineering, VASVIK Award for Industrial Research, IISc Alumni Award for Excellence in Engineering Research, and INAE Chair Professorship Award. He is a J.C. Bose National Fellow, awarded by the Department of Science and Technology. Currently, he is the President of the Indian Society for Heat and Mass Transfer (ISHMT). He has served as an Associate Editor of ASME Journal of Electronic Packaging and is currently serving as Associate Editors of IEEE Transactions on Components and Packaging Technology, and of Thermal Science and Engineering Progress (Elsevier). At IISc, he has been Chair of Mechanical Engineering Department (2015-2020), co-founder of the National Facility for Semisolid Forming, co-Director of the General-Motors-IISc Collaborative Research Lab, and co-Lead of the India-US Consortium called Solar Energy Research Institute for India and the United States (SERIIUS).





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**PANEL DISCUSSION**

**10:40 AM - 12:00 Noon (Thursday)**



**Dr. Anandaroop Bhattacharya**

Associate Professor – Mechanical Engineering,  
Indian Institute of Technology Kharagpur

**Dr. Anandaroop Bhattacharya** is B. Tech. (Hons) Mechanical Engineering in 1997 from Indian Institute of Technology Kharagpur and Master of Science in Mechanical Engineering from University of Colorado at Boulder, USA. Dr. Anandaroop is Ph.D in Thermal and Fluids Sciences from University of Colorado at Boulder, USA. His research area includes Electronic Packaging and Cooling, Microscale Transport Phenomena, Flow in Porous Media, Energy Engineering and Gas Turbine Heat Transfer. Dr. Anandaroop has published more than 100 articles in refereed journals and conferences. He has filled more than 25 patents. He is supervised 15 PhDs, 15 M.Tech. dissertation and 22 B.Tech. projects. He has more than 15 funded research projects.



**Dr. Sanjay Vijayaraghavan**

GE Global Research Centre

**Dr. Sanjay Vijayaraghavan** is PhD in “Thermodynamic Analysis of Alternate Binary Working Fluids and Configurations for a Combined Power and Cooling Cycle” from University of Florida USA. He is special of Electronics Cooling, Heat Transfer, Thermodynamics, Energy Conversion, Solar Energy Conversion. Dr. Sanjay is working at GE Global Research Bangalore. He patented “Chimney-based cooling mechanism for

computing devices” which is a mechanism to described for chimney-based cooling of computer components. A method of embodiments of the invention includes determining heat-emitting components of a computing device. The method further includes coupling a chimney to one or more of the heat-emitting components such that chimney effect of the chimney is used to guide air associated with a component in and out of the chimney.



**Dr. Suman Basu**

Mahindra Electric Mobility

**Dr. Suman Basu** is working as Head - Energy Systems at Mahindra Electric Mobility Limited Bengaluru. He is PhD in PEM Fuel Cells from Penn State University. He is B.Tech. from Indian Institute of Technology, Kanpur, M.Tech. from Jadavpur University. Dr. Basu is involved in technical/product development assignment, implementing expertise to innovate or improve products and processes within the broad scope of mechanical and electrochemical engineering. He is dedicated, resourceful and innovative technical leader in li-ion cell and module design, electric vehicle battery pack design, battery thermal management, BMS algorithms, novel cooling concepts, multiphase flow, fuel cell design.



**Mr. Krishnakumar Varadarajan**

Intel Bangalore

**Mr. Krishnakumar Varadarajan** is working as Thermal platform architect at Intel. He is Master of Science in Thermal and Fluid Systems from The University of Texas at Austin. He worked at ELGI EQUIPMENTS LTD to design and development of micro compressors and new product initiatives.



**Dr. Gaurav Singhal**

Scientist - F  
Laser Science and Technology Centre  
DRDO, New Delhi

**Dr. Gaurav Singhal** is a Mechanical Engineer and has completed his Doctorate in 2008 from IIT, Delhi. He is a recipient of prestigious Indo-US Science and Technology Fellowship (IUSSTF) for the year 2011 under which he has carried out his Post-doctoral research at Cockrell School of Engineering, University of Texas, Austin, USA in the field of Aerospace Engineering and Sciences. He is a senior scientist with Defence Research and Development Organization. His research interests include lasers sources, compact thermal systems for laser applications, high speed unsteady flows, turbulent mixing and CFD techniques. He has more than 100 publications with more than 40 in international refereed journals.





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**KEYNOTE SPEAKERS**



**Dr. Parmod Kumar**

Indian Institute of Technology Mandi

Keynote Talk:

**Towards understanding the characteristics of film boiling heat transfer over curved surfaces**

**Dr. Parmod Kumar** is an Assistant Professor in the School of Engineering at Indian Institute of Technology Mandi, H.P. He also worked as faculty in the Department of Mechanical Engineering at National Institute of Technology Hamirpur, H.P. prior to joining IIT Mandi. He did his PhD from the Department of Mechanical and Industrial Engineering, IIT Roorkee. The work of his PhD is related to the study of different entrainment phenomena associated with applications of multiphase flow. His research expertise is Multiphase Flow, Entrainment Dynamics, Probes and Instrumentation, Computational Fluid Dynamics, Solar-Thermal Energy Systems and Waste Heat Recovery. His research work is published in journals of international repute such as Physics of Fluids, Chemical Engineering Science and Industrial and Engineering Chemistry Research, etc. He is a reviewer of many journals of international repute in the area of fluid dynamics and heat transfer. He is also handling sponsored research projects in the broad domain of multiphase flow.



**Dr. Bahni Ray**

Department of Mechanical Engineering  
Indian Institute of Technology Delhi

Keynote Talk:

**Analysis of micro-channel heat exchanger with fractal geometry**

**Dr. Bahni Ray** is an Assistant Professor in Mechanical Engineering Department, IIT Delhi. She completed her doctorate in IIT Kanpur after which she did her Postdoc in City College of New York and Johns Hopkins University. Her research covers the fundamental study of droplets, bubbles, and particles. She has authored 18 international papers in reputed journals. She is currently mentoring 10 graduate students at IIT Delhi. Her current research areas deal with 1) nanoparticle interaction during the printing of nanocomposite ink, 2) in-house code development for particle and two fluid systems, 3) exploring pollution mitigation techniques, 4) investigating potential of compound parabolic collectors for solar cooling and 5) making effective thermal protective clothing.



**Dr. Balkrishna Mehta**

Indian Institute of Technology Bhilai

Keynote Talk:

**Dr. Mehta** is PhD and M. Tech. from Department of Mechanical Engineering Indian Institute of Technology Kanpur and BE from Department of Mechanical Engineering Bhilai Institute of Technology, Raipur. He is Post-Doctorate from ENSMA France. His Research Interests include Experimental heat transfer in two-phase flow in mini/micro-systems, Heat pipes and Thermosyphons Heat transfer of ferrofluids in presence of magnetic field, Droplet dynamics and evaporation of ferrofluid, InfraRed thermography.



### **Dr. Mukesh Ranjan**

Scientific Officer – F  
Facilitation Centre for Industrial Plasma Technologies  
Institute for Plasma Research Gandhinagar

#### **Keynote Talk:**

Thermal Management of Engineering Systems via Spontaneous Drop Motion on Wettability Gradient Surfaces

**Dr. Mukesh Ranjan** is PhD in Ion Beam and Material Research from Technical University, Dresden (Germany) in 2010, under the supervision of Dr. Stefan Facsko and Prof. W. Moeller (HZDR, Germany). He is M.Tech from IIT- Kanpur and M.Sc. from IIT Roorkee. He is experienced in Ion induced nanopatterning and their applications, Plasma diagnostics and PVD coatings and characterizations (AFM, SEM, TEM, XRD, Ellipsometry etc.). His academic achievements include 1. Graduate Aptitude Test in Engineering (GATE -99) With 97.06 Percentile in physics (AIR: 39), 2. UGC/CSIR June'99 (National Eligibility Test (NET)) Exam qualified under CSIR Scholarship, 3. Joint Entrance Screening Test (JEST-2000) Exam qualified with 96 percentiles, 4. Free ship award during M.Sc. at IIT Roorkee and during MTech. at IIT Kanpur based on merit, 5. Indal Scholarship during B.Sc. and award of U.P Board Fellowship in 12th based on merit. He is awarded and recognized with 1. Recipient of Department of Atomic Energy (DAE)-Young Achiever Award 2015, 2. Recipient of DST FAST Track Young Scientist funding award 2012, 3. Cover page highlight of Journal of Physics: Condensed matter (April 2014), 4. Several best posters awards in National and international conferences, 5. Delivered several invited talks (~ 50) and session chairs in National and International conferences, 6. Guest scientist at various international organizations like HZDR (Germany), INFN (Italy), Loughborough University (UK), University of Nebraska (US). He has completed total of 30 applied plasma physics projects for ISRO, CSIR, DRDO, DAE, DST, IITs and private industries and he has completed 5 Bilateral projects (Indo-Germany, Indo-Italy, Indo-UK). He supervised two PhD Thesis and guided four postdoctoral fellows, guided 40 Master's Thesis (M.Sc./MTech. /MCA) under various fellowships (NFP, INSA, SSP-IPR), doctoral committee member of 6 PhD students. He published more than 80 Peer-reviewed articles (41 Journal, 38 Proceedings), and 4 book chapters.



### **Dr. Manoj K. Moharana**

Department of Mechanical Engineering  
National Institute of Technology Rourkela

#### **Keynote Talk:**

**Conjugate heat transfer in microscale heat transfer devices.**

**Dr. Moharana** graduated in Mechanical Engineering in 1999, did his Master's in Thermal Engineering from IIT Kharagpur, India, and Ph.D. in Mechanical Engineering from IIT Kanpur, India in the year 2006, and 2012 respectively. He is the recipient of the DAAD fellowship to carry out research at IKE, University of Stuttgart, Stuttgart, Germany during Oct-Dec 2009. He has also received international travel grants for visiting China, Germany, Canada, and the USA. Besides, he has also visited Singapore, and Croatia for presenting his research works on international platforms.

Presently he is serving as a faculty member at the Department of Mechanical Engineering, National Institute of Technology Rourkela, India since 2012. His research interest includes microscale heat transfer, two-phase flow, heat pipe, and Computational Fluid Dynamics. He has also developed teaching video materials on Computational Fluid Dynamics, Conduction and Radiation, and Heat Transfer. He had also served as Head of AN Khosla Centre for Technology Enabled Learning at the National Institute of Technology Rourkela.



**Dr. Hemantkumar B. Mehta**

Department of Mechanical Engineering  
SVNIT, SURAT

Keynote Talk:

**Towards the Performance Improvement of MCHS**

**Dr. Hemantkumar B. Mehta** is Associate Professor at Department of Mechanical Engineering, S.V. National Institute of Technology Surat. In addition, he is Associate Dean (Research and Consultancy), Central Public Information Officer (CPIO), RTI Cell and Cryogenics Lab In-charge in Department of Mechanical Engineering, SVNIT Surat. He is PhD and M. Tech. from SVNIT Surat. His research interest includes Fluid Flow and Heat Transfer, Two-Phase Flow through microscale channels, Pulsating Heat Pipe, Heat Sink, Jet Impingement, Experimental, Numerical (CFD) and Optimization of thermal systems.



**Dr. Elizaveta Gatapova**

Kutateladze Institute of Thermophysics,  
Siberian Branch of Russian Academy of Sciences,  
Novosibirsk, Russia

Keynote Talk:

**Microjets cooling for microelectronic devices**

**Dr. Elizaveta Gatapova** is a Senior Researcher at Kutateladze Institute of Thermophysics in Novosibirsk, Russia. She received her Ph.D. from Kutateladze Institute of Thermophysics in 2005 on the topic of application of shear-driven liquid films to cooling technology. Her current research broadly focuses on thermal management of electronics. She is interested in the fundamentals of the following: evaporation and heat transfer in microsystems, non-equilibrium effects at the liquid-vapor interface, wettability of nanostructured surfaces, contact line dynamics and rupture of thin liquid films. She has 6 patents and authored more than 60 publications. Her investigations were supported by the President of the Russian Federation in 2007, 2009 and 2012. Dr Gatapova is a recipient of INTAS (EU) and BELSPO (Belgium) Fellowships, several awards for young scientist and Academina award for women in science from Siberian Branch of the Russian Academy of Sciences and INTEL. She is PI of several national and cooperative projects. She is expert of the European Commission research and innovation programs and several Russian funds.



### **Dr. Siddharth Y. Paralikar**

Director and C.E.O.  
Golden Star Technical Services Pvt. Ltd. Pune

Keynote Talk:

#### **Heat Pipes and their Industrial Applications**

**Dr. Siddharth Paralikar** completed his graduation in (BE) Mechanical Engineering in the year 2014 and Masters (M.Tech) in Energy in the year 2017 from University of Pune. He is currently a director and CEO at Golden Star Technical Services Pvt. Ltd. (Pune), who provide heat management solutions to various industries. Golden Star's primary focus is on providing passive thermal solutions to these industries through heat pipes and heat pipe based products. Along with solutions to industries, he provides technical consultancy to B.Tech, M.Tech and Ph.D. students for their research projects. He has been associated with various academic and research institutions as a provider of heat pipe based systems. He has also been a part of international Industry-Academia Collaborative Projects with Phase Change Thermal Systems Laboratory at IIT Kanpur. Apart from the above, He is also a director of two upcoming social enterprises, one of which is founded with Prof. Sameer Khandekar. You can get in touch with him through email on [siddharth.gstspl@gmail.com](mailto:siddharth.gstspl@gmail.com) and over the phone on +91-7588232067.



### **Dr. Rishi Raj**

Department of Mechanical Engineering  
Indian Institute of Technology Patna

Keynote Talk:

#### **Boiling based thermal management strategies for earth and reduced gravity applications**

**Dr. Rishi Raj** is an Associate Professor in the Department of Mechanical Engineering at IIT Patna. He has a B.Tech. degree in Mechanical Engineering from IIT Guwahati in 2006 and Ph.D. from the University of Maryland College Park in 2010. Prior to joining IIT Patna in 2013, he was the Battelle Postdoctoral Fellow in the Device Research Laboratory at MIT, USA. His research group at IIT Patna investigates thermal and fluid transport during liquid-vapor phase change for various earth and space-based energy and thermal management applications. His research is supported by grants from the ISRO, SERB, DST-Nano Mission, DST Bilateral Schemes, MHRD, and New Leaf Dynamic Technologies (P) Ltd, among others. He has published over 50 journal articles, 70 conference articles, 3 book chapters, and 5 patents (issued/pending). His research has been recognized with the Prof. P K Sharma Best Paper Award during IHMTC 2019, 2019 INSA Medal for Young Scientist, 2018 INAE Young Engineer Award, and Young Associate Award from Indian Academy of Sciences in 2018, among others.





**Mr. Vikram Dadhich**

Siemens Industry Software (India) Pvt. Ltd. Bengaluru

Keynote Talk:

**Effective Thermal Management: Trends & Technologies**

**Mr. Vikram Dadhich** is having fifteen years of experience in CFD domain. Has been with Siemens for over four years now. He is graduated from The National Institute of Engineering, Mysore in 2001, Currently working senior Application support Engineer Supporting client on Simcenter Flotherm. Clients include, Alstom, Boeing, Intel, Cisco, Dell, Juniper Networks, Magnetti Marreli, and many more. Also support clients from Aerospace domain on Simcenter STAR-CCM+. He is also the training manager for India and SEA delivering and managing the technical aspects training on Simcenter Flotherm & Simcenter STAR-CCM+. His previous experience has been with ANSYS Fluent and ANSYS CFX for around ten years.



**Dr. Madhusree Kole**

Institute Post-Doctoral Fellow  
Phase-Change Thermal Systems Laboratory  
Department of Mechanical Engineering  
IIT Kanpur

Keynote Talk:

**Nanofluids: Prospects and Challenges in Thermo-fluid Engineering**

**Dr. Madhusree Kole** is presently working as an Institute Post-Doctoral Fellow in the Department of Mechanical Engineering, IIT Kanpur, under the supervision of Prof. Sameer Khandekar. Prior to this, she worked as an Assistant Professor of Physics for a period of six years and five months in Dr. B. C. Roy Engineering College, Durgapur, West Bengal, India. She received her Ph. D degree from Cryogenic Engineering Centre, IIT Kharagpur in 2013 on the topic entitled ‘Thermophysical Properties, Pool Boiling Characteristics, and Heat Pipe Application of Nanofluids’. She has published 17 and 2 research papers in different reputed International and National Journals, respectively. Her papers are well cited, and total citations have crossed 1600 with an h-index of 12 and i-10 index of 12. She has presented 9 more papers in various National and International Conferences. Very recently, she is honoured to be ranked within world’s top 2% Scientists and Researchers, 2019 and in Global AD (Alper-Doger) Scientific Index 2021 list. She received the ‘Thermophysical Society of India Founder President Gold Medal Award’ twice in 2009 and 2011, respectively. Her research interests include: Thermophysical properties, Nanofluids, Heat transfer, Ferrofluids, and Air-ferrofluid two phase flow.





### **Mr. Rakesh Pandey**

Industry - Portfolio Development Leader  
Siemens Digital Industry Software, Bengaluru,  
Karnataka

Keynote Talk:

**Mr. Rakesh Pandey** is B.E. (Mechanical) from Pune University and EGMP from IIM Bangalore. He did Behavioral Science with Psychometrics, IISc Bangalore. Mr. Rakesh is Lean Six Sigma Green Belt from QAI. Mr. Pandey comes with 22+ years of hands-on experience in providing end to end solutions to manufacturing companies. This includes right from Design, Simulation, PLM, ALM, MES, QMS, MI to IIoT. He has led end-to-end PLM implementation at domestic and international customers. Prior to joining Siemens, he was heading the Manufacturing business unit at Xchanging (now DXC) with prime responsibility of managing and growing the P&L for the vertical. He has played roles right from solution architecture, pre-sale, sales to leadership role in wining and successfully implementation of enterprise applications for various manufacturing industries:

- Automotive (CNH, Eicher, Tesla Motors, John Deere, Ashok Leyland, Endurance, JBM, Sandhar, Tata Motors, Mahindra, Motherson, Ather),
- CPG (Britannia), Apparel (New Balance, Trent-Tata, S Oliver),
- Pharma (Himalaya),
- IE (GE-Masoneilan, ELGI, CRI Pumps, Metso Papers),
- Ship Building (PIPAVAV, Keppel Shipping),
- Hi-Tech (LG, Linkwell)
- Education (BVB COE, Cranfield University, IIT Jodhpur).
- Aerospace (HAL, ADA)



### **Dr. Ghanshyam Singh**

Professor, Department of Mechanical Engineering,  
Jaypee University of Engineering and Technology,  
Guna, INDIA

Keynote Talk:

**Thermal Management of Electronic Devices using  
Jet Impingement and Phase Change Materials**

**Dr. Ghanshyam Singh** obtained his B.E. in Mechanical Engineering from Barkatullah University, Bhopal, and completed Masters and Ph.D. from Thermodynamics and Combustion Engineering Lab. IIT Madras in 2004. His field of interests are Experimental and Computational Fluid Dynamics, Heat Transfer, Combustion & Gasification, Jet Mixing and Mixing Control. He joined General Electric, Bangalore in December 2001 and served there for nearly seven years in the Advanced Combustion Engineering Group. During this period he was responsible to develop processes for the CFD analysis of Gas Turbine Combustors and to mentor his team members on CFD simulation, and Turbulence, Heat Transfer, Fuel Spray and

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Combustion Modeling. In November 2008 he joined Thermax Ltd., Pune as Principal Scientist and was responsible to identify, assess and explore newer business avenues related to Combustion & Gasification, Heat Transfer and Wind Energy. He established an international consortium for optimizing gasification technology for high ash Indian coal under FP7 program of European Commission and drove biomass gasification project to become full-fledged business unit in the near future. During this period he closely worked with the international and national organizations such as ECN (Energy research Center of Netherlands), IIT Madras and MNRE for technology transfer, scale up, customization and funding. During the same period he also worked as visiting faculty in the department of The School of Energy Studies at the University of Pune for two years. He joined Agni Bio Power, Mohali (a startup having offices in Pune and Mohali) in March 2012 to explore the business opportunity in Biomass Processing and Utilization. Subsequently he took career transition from industrial to academic and joined MPCT Gwalior as Director and before joining Jaypee University of Engineering and Technology, Guna he briefly worked with ITM University Gwalior and MVN University, Palwal as head of the mechanical engineering department and Jaypee University, Anoopshahr as Professor and Dean (Students Welfare).

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**Joining Link:** <https://amityuni.live/89956340543>

Please feel free to share among your students and colleagues.

Looking forward to seeing you in FLUTE 2021 on Thursday 22<sup>nd</sup> July 2021..!

Best regards,

**General Chair – FLUTE 2021**

-Basant

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*Keep your eyes on the stars and your feet on the ground (Theodore Roosevelt)*