GT India

ASME 2019 Gas Turbine India Conference

December 5 - 6, 2019

Indian Institute of Technology Madras, Chennai, India

Presented by The ASME International Gas Turbine Institute

FINAL PROGRAM

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)®

https://event.asme.org/GT-India

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ASME 2019
Gas Turbine India Conference
Indian Institute of Technology Madras, Chennai, 600036, Tamil Nadu, India

Message from the Conference Chair

The ASME International Gas Turbine Institute presents its 6th ASME Gas Turbine India Conference on December 5 – 6 at the Indian Institute of Technology Madras in Chennai. This 2-day event will bring together professionals, academia, and practitioners in the turbomachinery industry covering different application areas such as aviation, energy, and many more. I welcome the authors and panel speakers to present their papers and ideas which can spur more innovation to help define the future of turbomachinery in the region and globally. Our conference host, IIT Madras, is one of the premier engineering institutions in the country and boasts in research & development in the turbomachinery space. You can also look forward to interacting with many of the researchers at the 2-day conference.

Gas turbine technologies play a critical role across different industries and the need for continued research in those areas is unabated. In the aviation space, the need for improving fuel burn, reducing weight, and at the same time providing better reliability and time on wing is important. Academia, research labs and OEM's are continuing to push the boundaries of research to improve the state of the art in the industry. Similarly, in the case of energy industry, the transition towards renewable energy is happening at a rapid pace across the globe, however, this transition to green energy has its own challenges in terms of maintaining reliable and affordable on-demand electricity for the end consumers. This is where gas power based on turbomachinery technology is going to be play the complementary role of providing reliable and on-demand power for balancing renewables. Additionally, with significant shift happening in the O&G industry towards LNG development the access to gas is going to be even better in the coming years to help in the energy transition.

We sincerely thank all the organizations who have supported us over the years through generous sponsorships, all the authors, and speakers who have taken time to present their papers and perspectives to the turbomachinery community at large in the region. We appreciate the dedicated efforts of all the turbomachinery professionals across academia & industry who have provided their support as review chairs, vanguard chairs and session organizers. I would like to sincerely thank the conference core team members – Prof. Joseph Mathew from IISc, Prof. A.M. Pradeep of IIT Bombay, and Mr. Shraman Goswami from Honeywell Engines & Power Systems. I would also like to express my gratitude to the ASME staff for their dedicated support and guidance in making this conference a reality.

On behalf of the entire team, I would like to welcome you all to the conference to learn and to share about the latest technologies, best practices in the turbomachinery domain, and use this opportunity to network with researchers, industry professionals, and practitioners who play a role in the technology transformation happening in your respective areas.

Best Wishes!

Mr. Mariasundaram Antony
Conference Chair
GE Power

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Schedule at a Glance

Thursday, December 5, 2019

Registration	7:00 am - 5:00 pm
Technical Sessions	8:00 am - 10:00 am
Exhibit Hall Open	10:00 am - 2:00 pm
Coffee Break & Networking	10:00 am - 10:30 am
Inauguration & Keynote Address: Dr. Rubén Del Rosario, Auditorium	10:30 am - 11:30 am
Invited Speaker: Prof. Sudipta De *"Role of Renewables for Energy Transition"*, Room RJN202	11:45 am - 1:15 pm
Technical Sessions	11:45 am - 1:15 pm
Lunch & Networking	1:15 pm - 2:15 pm
Student Posters	8:00 am - 10.00 am 11:45 am - 1:15 pm 2:15 pm - 3:45 pm 4:00 pm - 6:00 pm
Technical Sessions	2:15 pm - 3:45 pm
Tutorial: Prof. Joseph Mathew *"LES for Turbomachines"*, Room RJN101	2:15 pm - 3:45 pm
Coffee Break & Networking	3:45 pm - 4:00 pm
Technical Sessions	4:00 pm - 6:00 pm
GT in Aviation: Gas Turbine Technology for 2025 for Growing Mobility Needs in the Face of Climate Change Challenges	4:00 pm - 6:00 pm
Conference Gala Dinner	6:00 pm - 8:00 pm

Friday, December 6, 2019

Registration	7:00 am - 3:45 pm
Technical Sessions	8:00 am - 10:00 am
Exhibit Hall Open	10:00 am - 2:00 pm
Coffee Break & Networking	10:00 am - 10:30 am
Keynote: Prof. Seung Jin Song, Auditorium	10:30 am - 11:30 am
Technical Sessions	11:45 am - 1:15 pm
Invited Speaker: Dr. Debasish Biswas *"Unsteady Turbulence Mechanism Associated with Turbo-Machineries"*, Annexe Hall	11:45 am - 1:15 pm
Lunch & Networking	1:15 pm - 2:15 pm
Technical Sessions	2:15 pm - 3:45 pm
Gas Turbines in Industrial and Land use Applications: Operational Flexibility for the 2022 Energy Demand	2:15 pm - 3:45 pm
Tutorial: Dr. Dheepa Srinivasan *"Additive Manufacturing"*, Room RJN101	2:15 pm - 3:45 pm

Dinner Event

Thursday, December 5, 6:00 - 8:00 pm at IIT Madras

Sponsored by: RWG REPAIR & OVERHAUL EXPERTISE

All registered conference attendees are welcome to attend the Dinner. Stop by the registration desk to confirm your participation.

The ASME GT India conference is a uniquely positioned conference in India to provide a platform for technical sharing and professional networking. The evening is led by the ASME GT India Executive Committee Members, celebrating the achievements of the group in the past year and sharing the future plans for the Group. An Award Ceremony follows to recognize the contribution of key volunteers to the GT India group at large. The casual atmosphere is the ideal setting to catch-up with your peers and to make new connections. We look forward to seeing you at the Dinner to interact and introduce you to the larger Gas turbine community.

Executive Committee Members

Chair	Vice Chair	Past Chair
Prof. Joseph Mathew Indian Institute of Science	**Sasikumar Muthusamy** Rolls-Royce	**Joseph Machnaim** General Aeronautics
Chair, Student Seminars	**Vice Chair, Student Seminars**	
Hiteshkumar Mistry GE Research	**Abdul Nassar** SoftInWay Turbomachinery	
Member	**Member**	**Member**
Prof. BVSSS Prasad IIT Madras	**Dr. Ravikanth Avancha** GE Aviation	**V Ramana Murthy** Gas Turbine Research Establishment

Gas Turbine Segment Leadership

Leader	Advisor
Nicole Key Purdue University	**Rubén Del Rosario** Crown Consulting Inc.

Conference Leadership

Conference Leadership Team

Conference Chair	Technical Program Chair	Review Chair
		
Mr. Mariasundaram Antony GE Power	**Prof. A M Pradeep** IIT Bombay	**Mr. Shraman N Goswami** Honeywell Engines & Power Systems

Vanguard Chairs

Ajay Behera, GE Power

Ashoke De, Indian Institute of Technology Kanpur

Chetankumar Mistry, IIT Kharagpur

Dhinagaran Ramachandran, Turbo Energy Tech Centre

Hemant Gajjar, TPL

Ramakumar Bomisetty, Dayanand Sagar University

Aravinda Reddy, GE Power

Dheepa Srinivasan, Pratt and Whitney

Ujjwal K. Saha, Indian Institute of Technology Guwahati

Ramesh T C, Quest Global

Hiteshkumar Mistry, GE India Technology Centre Pvt. Ltd.

Abdul Nassar, Softinway Turbomachinery Solutions Pvt Ltd

B.V.S.S.S. Prasad, Indian Institute of Technology Madras

Keynote Session

New Era of Aviation: what is real, what needs work…

Thursday, December 5, 10:30 - 11:30 am * Auditorium, IIT Madras

Dr. Rubén Del Rosario

Senior Director for Aerospace Systems, Crown Consulting Inc. (CCI)

Dr. Del Rosario leads Crown's efforts in technology development and engineering services for aerospace systems while establishing partnerships for research and development with commercial, state and federal government organizations. Previously Dr. Del Rosario served as the director of Aeronautics at the National Aeronautics and Space Administration's John. H. Glenn Research Center in Cleveland. In this capacity, he provided executive leadership for the management of all aeronautics R&D programs and projects at Glenn in support of the agency's Aeronautics Research Mission Directorate, overseeing the execution of a budget of more than $150M annually.

Del Rosario earned a Bachelor of Science in mechanical engineering from the University of Puerto Rico in Mayagüez, a Master of Science in industrial engineering and a Doctorate in Engineering from Cleveland State University and completed the Senior Executive Fellow Program from the Kennedy School of Government at Harvard University. He is a member of the ASME Gas Turbine Sector Leadership Team, an Associate Fellow of the American Institute of Aeronautics and Astronautics, and a Licensed Professional Engineer in the State of Ohio.

Keynote Session

Surface Roughness and Loss in Gas Turbines

Friday, December 6, 10:30 - 11:30 am * Auditorium, IIT Madras

Prof. Seung Jin Song

Professor, Department of Mechanical and Aerospace Engineering at Seoul National University (SNU)

Prof. Song teaches fluid mechanics and turbomachinery courses at undergraduate and graduate levels, and his current research interests include aerodynamics and fluid-structure interactions in turbomachinery, analysis of propulsion/power generation systems, and related areas of fluid mechanics.

He received his BS in Mechanical Engineering and Materials Science from Duke University and SM and ScD in Aeronautics and Astronautics from MIT. Before joining SNU, he was Assistant Professor of Aerospace Engineering at Inha University in Incheon, Korea. He has also been a visiting professor at the Swiss Federal Institute of Technology, Zurich, Switzerland, the University of California, Berkeley, CA, USA., the University of the Witwatersrand, Johannesburg, South Africa, and Karlsruhe Institute of Technology, Karlsruhe, Germany.

He received Best Paper Awards from the International Gas Turbine Institute (IGTI) of the American Society of Mechanical Engineers (ASME). In 2003, he received the Melville Medal, the highest academic honor bestowed by ASME. He has also been recognized for his teaching by receiving the Best Teacher Award from the College of Engineering at Seoul National University. He has served as Member (2010-2016) and Chair (2015) of the ASME IGTI Board of Directors and Associate Editor (2013-2019) of the ASME Journal of Turbomachinery.

Invited Speakers

Thursday, December 5, 11:45 am - 1:15 pm * RJN202

Prof. Sudipta De

Professor, Jadavpur University

Role of Renewables for Energy Transition

Sudipta De received his Ph.D. degree from Indian Institute of Technology (IIT), Kharagpur. He was a guest researcher at the Department of Energy Sciences, Lund University, Sweden for more than one year. Currently, he is Professor at the Mechanical Engineering Department, Jadavpur University, India. He was nominated senior scientist by Indian National Science Academy (INSA), New Delhi to Technical University of Munich, Germany in the field of sustainable energy under international bilateral exchange program of the Academy. He was the selected faculty under "India4EU" program with specialization in sustainable energy engineering and worked at the Royal Institute of Technology, Stockholm. He visited and delivered invited lectures in many programs/Institutes including Technical University of Berlin and Munich, Germany; Lund University, Royal Institute of Technology (KTH), Stockholm, Sweden; University of Bologna, Italy; University of Stavanger, Norway etc.

He received his research funding from different institutes including UGC, DST, Government of India; EU, Swedish Research Council, DFG-Germany; SIU and DIKU-Norway etc. He was faculty member from Jadavpur University for EU funded multi-country 'Project E-QUAL' and developed online course modules on 'Sustainable Energy'.

He is/was also member of several technical committees including that of Power and Energy Systems of The International Association of Science and Technology for Development (IASTED), Canada and international energy initiative "Explore Energy" by the Royal Institute of Technology, Sweden. He has published several international journal papers and eleven international books/invited chapters. He was an advisory editorial board member of book series by CRC press on Sustainable Energy Developments. He is/was the Coordinator of two Norwegian Collaborations; Co-PI of an EU funded Inno-Indigo project with Finland and Germany and another multi-country EU project on quality of higher education. He is also key resource person of Energy and Environment Committee and member of the Education Committee of the Bengal Chamber of Commerce and Industry, oldest Chamber of India. He has been elected fellow of West Bengal Academy of Science and Technology from 2018. He is also awardee of Indian National Science Academy (INSA) Teacher Award in 2019.

Invited Speakers

Friday, December 6, 11:45 am - 1:15 pm * Annexe Hall

Debasish Biswas

Chief Research Scientist, Toshiba Research and Development Center Mechanical Systems Laboratory

Unsteady Turbulence Mechanism Associated with Turbo-Machineries

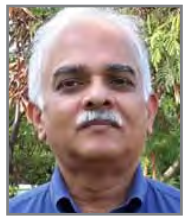
Biswas graduated from Indian Institute of Technology, Delhi, India and received his Doctor degree from Tokyo Institute of Technology, Japan in 1987.

He joined Toshiba Research and Development Center, Japan in 1987 and involved in the research and development of heavy electrical appliances, namely, Turbine, combustor, high voltage Gas circuit breaker, transformer etc. Field of research is physics-based modelling of turbulence phenomena, unsteady flow separation mechanism, flow with multi-physics namely, condensation phenomena, reaction mechanism (combustion, plasma), flow induced vibration, aero-acoustic phenomena, etc. All the above mentioned physical phenomena is strongly associated with flow mixing behavior and hence turbulence characteristics.

Awarded as Associate Fellow of AIAA (American Institute of Aeronautics and Astronautics) in 2007, also received awards from Gas Turbine Society of Japan, Japan Society of Mechanical Engineers, etc. Presently working as Chief Research Scientist in Mechanical Systems Laboratory of Toshiba Research and Development Center.

Tutorial

Thursday, December 5, 2:15 - 3:45 pm * RJN101



Prof. Joseph Mathew

Professor and Chair, Department of Aerospace Engineering, Indian Institute of Science, Bangalore

LES for Turbomachines

Dr. Joseph Mathew is Professor and Chair of the Department of Aerospace Engineering, Indian Institute of Science, Bangalore. He obtained his B. Tech from the Indian Institute of Technology Madras (1984), MS from the University of Missouri-Rolla (1986) and PhD from the Massachusetts Institute of Technology (1990), all three from Mechanical Engineering Departments. After post-doctoral positions at ICOMP, NASA Glenn Research Center, Cleveland, and National Aerospace Laboratories, Bangalore, he joined IISc as an Assistant Professor in 1995. His research interests are in Turbulence, transition, stability and wave propagation, computing with DNS/LES, and applications to turbomachinery, aeroacoustics and combustion. He has had research collaborations on LES with TU-Munich (2000-2011) and AFRL, Dayton (2004-5). He is a Fellow of the Indian National Academy of Engineering and an Associate Fellow of AIAA. He has been closely associated with ASME Gas Turbine conferences in India, serving as Review Chair in 2013 and 2015, and is currently Chair of the Executive Committee for ASME Gas Turbine India.

Tutorial

Friday, December 6, 2:15 - 3:45 pm * RJN101

Dr. Dheepa Srinivasan

Chief Engineer, Pratt and Whitney, United Technology Corporation India Private Limited,
Indian Institute of Science, Bangalore

Additive Manufacturing for Gas Turbine Components

Dr. Dheepa Srinivasan is the Chief Engineer, at Pratt and Whitney, United Technology Corporation India Private Limited, Indian Institute of Science, Bangalore. She is leading research activities at academic and industrial research sites in India for Pratt and Whitney.

Dheepa has more than 19 years of total work experience. In her previous role, she was working as Chief Technology Officer at INTECH DMLS, India first metal additive manufacturing company. Prior to that, she worked as a Principal Engineer at General Electric, Bangalore for over 17 years leading the research and development of high temperature materials and manufacturing technologies for gas turbines.

Dheepa has a PhD, in Metallurgical Engineering, from the Indian Institute of Science, Bangalore. She is the inventor of several new technologies having over 35 patents, and has developed more than 50 technologies / process applications that are now running in several gas turbines and steam turbines. She is a pioneer in the area of metal 3D printing or Additive manufacturing and has developed several applications for metal laser additive manufacturing as a unique technology enabler for gas turbine component repair and component life extension. She was recently awarded a certificate of excellence by the Govt. of India, Steel Ministry for her pioneering efforts in Additive Manufacturing.

Dheepa is an Adjunct faculty at the Indian Institute of Technology, Ropar, Visiting faculty at Vellore Institute of Technology, Vellore, and Research Professor at Vel Tech University, Chennai.

Panel Session

GT in Aviation: Gas Turbine Technology for 2025 for Growing Mobility Needs in the Face of Climate Change Challenges

Thursday, December 5, 4:00 – 6:00 pm * Auditorium

The panel discussion will be on Gas Turbines Applications in Aviation with the focus on Technology Developments to enhance efficiency and Carbon footprint reduction for the Aviation sector. Dr. S. N. Chakravarty, IIT Madras will chair and moderate the panel and set the tone of the discussion and invites each of the esteemed panelists from Rolls Royce India, Boeing India and GE Aviation to share their presentation. Post all presentations, Satya Chakravarthy, session moderator, would take questions from the audience to panelists and elicit best points.

Panelists

Vikram Reddy
General Manager, Aviation Engineering
GE India

Dr. Kallappa Pattada
Leader
Boeing Research & Technology-India

Sasikumar M
Head Component Engineering
Rolls Royce India

Dr. S. Ramachandra
Scientist-G
GTRE-DRDO

Moderator

Satya Chakravarthy
Professor
Aerospace Engineering,
Indian Institute of Technology Madras

Panel Session

Gas Turbines in Industrial and Land use Applications: Operational Flexibility for the 2022 Energy Demand

Friday, December 6, 2:15 am – 3:45 pm * Auditorium

The panel discussion will be on Gas Turbines Applications in Industrial Sectors with the focus on Technology Developments to enhance Operability and Maintainability and Life Cycle cost reduction for the sector. Dr. Dibakar Rakshit, IIT Delhi will moderate the panel and set the tone of the discussion followed by inviting each of the esteemed panelists from Siemens Power & Gas, ONGC, EIL, Oil India, Pipeline Infra Limited & RWG to share their views / presentation. Post all presentations, Dr. Rakshit, session moderator, will would take questions from the audience to panelists and elicit best points.

Panelists

Mick Conway
Business Development Manager
RWG

Mr. Jayanta Bordoloi
CGM & HOD
Electrical Engineering
OIL India Limited
FHQ, Duliajan, Assam

Mr. Sanjay Mazumdar
Chief General Manager
(Technical)
Engineers India Ltd.

Pradeep Kumar Chauhan
Head Maintenance and & Materials
Pipeline Infra Limited

Panelists

Jimmy Joseph
ONGC, National Oil Co.

Dr. Stefan Becher
Global Head - R&D,
Siemens Power & Gas

Moderator

Dr. Dibakar Rakshit
Associate Professor
Centre for Energy Studies,
IIT Delhi

Student Poster Session and Judges

Thursday, December 5, 8:00 - 10 am *11:45 am - 1:15 pm *2:15 - 3:45 pm * 4:00 - 6:00 pm * Foyer

GTIndia2019- 2381 Flow Direction Simulator
Krishna Thakkar, Akanksha Kesarwani, Anubhav Bhargava, Vinayak Malhotra, SRM Institute of Science and Technology

GTIndia2019- 2563 Analysis of Blade Vibration Signal Measured by Tip Timing Sensors
Yutaek Oh, Hong Yoo, Hanyang University

GTIndia2019- 2787 Study of Wall Jet In Particle Behavior And Its Applications In Reverse Thrust
Kavya Venkateshwaran, Vedhashree M, SRM Institute of Science and Technology

GTIndia2019- 2791 Evolution of Heat Exchangers Trend In Gas Turbines
Hari Kiran Thaniparthi, Ganesha Sai Velidi, Nandeeswar Peta, University College of Engineering Kakinada

GTIndia2019- 2792 Feasibility and Thermodynamic Optimisation Study for a Micro Gas Turbine Power Plant for Space or In-Orbit Applications
Aurthur Vimalachandran Thomas Jayachandran, Andrey Yurevich Tkachenko, Samara University

GTIndia2019- 2799 Electric Propulsion System for Airavat - The Roadable Vehicle
Sai Subhankar Varanasi, Amit Kumar, Tuhin Bandopadhyay, Chetankumar Mistry, Indian Institute of Technology Kharagpur

GTIndia2019- 2800 CFD Analysis and Experimental Validation of a LVAD Model for Hemolysis
Abhijith J Kumar, Aswin Sivadas, Martin Antony, Federal Institute of Science and Technology

GTIndia2019- 2801 Development of Sector Annular Cascade Tunnel for Variable Area LP Turbine Nozzle Testing
Hardikkumar Bhavsar, Chetankumar Mistry, Indian Institute of Technology, Kharagpur

GTIndia2019- 2803 Applications and Challenges of Using Supercritical CO2 in Turbomachines
Hemant Kumar, Chetankumar Mistry, Indian Institute of Technology, Kharagpur

GTIndia2019- 2804 Industry 4.0: A Benefits and Challenges on 4th Industrial Revolution in India
Bhavik Pandya, Megha Karia, V.V.P.Engineering College; Kamlesh Sangani, Sanjaybhai Rajguru College of Engineering

GTIndia2019- 2805 Numerical Analysis of PTO Damping for a Point Absorber Wave Energy Converter
Suman Kumar, Abdus Samad, IIT Madras

GTIndia2019- 2806 Flight Optimization of Missile Using Linear Matrix Inequality (LMI) Approach
Samarpan Deb Majumder, Institute of Engineering and Management

GTIndia2019- 2808 Damping Analysis of an Impulse Turbine for Wave Energy Conversion
Rishav Raj, Abdus Samad, Anandanarayanan R, IIT Madras

GTIndia2019- 2807 Technology Poster
Jay Gajera, GTU

GTIndia2019- 2810 Study on Conversion of Conventional Low Bypass Engine to Variable Cycle Engine
Kaviya S, Chetankumar Mistry, IIT Kharagpur

GTIndia2019- 2812 Design and Development of Cough Assistive Device with Chronic Obstructive Pulmonary Disease
Nandakuamr R, Ashika S, Swetha K, Meenakshi R, Dhanasekaran Sandhiya D, PSG College of Technology

GTIndia2019- 2813 Experimental Study of Spray and Atomization in High Speed Slinger Atomizer
Arnab Chakraborty, Srikrishna Sahu, IIT Madras

GTIndia2019- 2820 Turbomachinery Development for 100 kW Test Loop
Lakshminarayanan Seshadri, Mechanical Engineering,Indian Institute of Science; Vijay Biradar, IISc Bangalore; Pramod Kumar, Indian Institute of Science

GTIndia2019- 2823 Investigation of Premixed Flame Near Rich Blow-off Condition
Somnath De, Achintya Mukhopadhyay, Swarnendu Sen, Jadavpur University; Piyush Agarwal, Rajasthan Technical University

GTIndia2019- 2818 Thermal Barrier Effects Of 8YSZ Coatings On Al-11Si Alloy Plates, Validation Through Simulation And Microstructural Investigation
Kevin Lobo Ivan, S Arhan Basha, Christ Deemed University

GTIndia2019- 2819 One Dimensional CFD Analysis of Gas Turbine Combustor
S Arhan Basha, Joel Sajan, B Mathew, Manohar Joel Mura, Christ (Deemed to be University)

GTIndia2019- 2824 Extraction of Ceramic Grade Oxides from Aluminum Dross by Successive Leaching of AlN and Synthesis of Refractories from the Reclaimed Oxides
Sylvester Avijit Gomes, Sushmit Bhattacharjee, Christ (Deemed to be University) Faculty of Engineering

GTIndia2019- 2822 Synthesis of Nano YSZ Powders for TBC Applications in Gas Turbines
Sreejai Srideep, Gowtham Sanjai S, Moturu Sai Sumanth, Anantha Krishna B, CHRIST(Deemed to be Univeristy)

GTIndia2019- 2828 Residual Stresses Analysis on Plasma Spray Coated Thermal Barrier Coatings
Prabhu Akhil M, Souvik Ghosh, Christ (Deemed to be University)

GTIndia2019- 2830 Thermo-Acoustic Characterization of an Industrial Swirl Burner with Imperfect Boundary Condition
Sharan Sreedeep, Vikram Ramanan, Satya Chakravarthy, Indian Institute of Technology Madras

GTIndia2019- 2826 Air Pollution Detector
Keerthivasan S, Madhan kumar B, Swetha S, Sneha M, Sneha Priya R, PSG College of Technology

GTIndia2019- 2833 Fuel Flexibility Studies in a Non-premixed Swirl Burner: Effect of CO2 Dilution
Rajat Kumar Gohiya, Prakash R S, Rajesh Sadanandan, Indian Institute of Space Science and Technology

THANK YOU ASME GAS TURBINE INDIA CONFERENCE STUDENT POSTER JUDGES!

Many thanks to the Student Poster Judges for their diligent and meticulous judging efforts.

Sankar Kumar J	**Murugesan Seerangan**	**Quamber Hussain Nagpurwala**
Scientist F	Consulting Engineer	Ramaiah University of Applied Sciences
Compressor Group, GTRE	Mechanical Component, GE Power	

Invited Speakers

Thursday, December 5, 2019

RNJ202 **8:00am – 9:00am**

15-3 Flexible Gas Power: Building for Tomorrow
*by **Mahendhra M.**, GE Power*

RNJ202 **9:00am – 10:00am**

15-4 Simulation Driven Innovation in the Gas Turbine Thermo Fluid System Design
*by **Aditya Jayanthi,** Altair*

RNJ202 **2:15pm – 3:45pm**

15-5 Gas Turbine Functional Safety (OEM view)
*by **Prashant Pathak,** SIEMENS*

15-6 Double, Triple Turn Capable Blade & Vanes for a Power Gas Turbine
*by **Debdulal Das,** SIEMENS*

TRACK 1 Compressors, Fans and Pumps

Track Organizer: **Chetankumar Mistry**, *IIT Kharagpur, Kharagpur, India*

1-1 AXIAL FLOW COMPRESSOR AND FAN - 1

Hall III **8:00am - 10:00am**

Session Organizer: **Dilipkumar Bhanudasji Alone**, *CSIR-NAL, Bangalore, India*

Session Co-Organizer: **Vadlamani Nagabhushana Rao**, *IIT Madras, Chennai, India*

An Experimental Investigation of Blade-type Swirl Distortion Generator and Its Effect on a Low-speed Axial Compressor

Technical Paper Publication. GTIndia2019-2303

Xuegao Wang, *Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China*, ***Jun Hu***, *College of Energy and Power Engineering,Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China*, ***Bao-feng Tu***, *Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China*, ***Zhiqiang Wang***, *Nanjing University of Aeronautics and Astronautics, Nanjing Jiangsu, Jiangsu, China*, ***Jin Guo***, *Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China*

Application of Proper Orthogonal Composition Method in Unsteady Flow Field Analysis of Axial Compressor

Technical Paper Publication. GTIndia2019-2305

Kai Zhang, A.J. Wang, *Shanghai Jiao Tong University, Shanghai, China*

Estimation of the influence of the inlet nonuniformity on the performance of a fan of a turbofan engine

Technical Paper Publication. GTIndia2019-2391

Grigorii Popov, Oleg Baturin, Yulia Novikova, Vasilii Zubanov, Andrei Volkov, *Samara National Research University, Samara, Russia*

TRACK 2 Turbines

Track Organizer: **B.V.S.S.S. Prasad**, *Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

2-2 TURBINE DESIGN: AERO AND THERMAL - 1

Hall II **8:00am - 10:00am**

Session Co-Organizer: **Lakshmi Sankar**, *Georgia Institute of Technology, Atlanta, GA, United States*, **Jechiel Jagoda**, *Georgia Institute of Technology, Atlanta, GA, United States*

Effect Of Guide Vane Fillets On Wave Energy Harvesting Impulse Turbine

Technical Paper Publication. GTIndia2019-2409

Gautam Maurya, Tapas K Das, *Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*, ***Prasad V. Dudhgaonkar***, *National Instituite of Ocean Technology, Chennai, India*, ***Abdus Samad***, *IIT Madras, Chennai, Tamil, India*

Scale-Adaptive Simulations of High-Pressure Turbine Guide Vane

Technical Paper Publication. GTIndia2019-2446

Guoliang Wang, Dongdong Zhong, Ning Ge, Rongfei Yang, *Nanjing University of Aeronautics and Astronautics, Nanjing, China*

Investigation of a Variable geometry turbine nozzle for diesel engine turbochargers

Technical Paper Publication. GTIndia2019-2601

Anuj Srivastava, *Bharat Forge Ltd, PUNE, MAHARASHTRA, India*, ***Kuldeep Kumar, Ganesh Banda***, *Bharat Forge Ltd., Pune, India*

Local-Correlation Based Zero-Equation Transition Model For Turbomachinery

Technical Paper Publication. GTIndia2019-2615

Jatinder Pal Singh Sandhu, *IIT Madras, Chennai, Tamil Naidu, India*

TRACK 3 Heat Transfer

Track Organizer: **Ramakumar Bomisetty**, *Dayanand Sagar University, Bangalore, India*

3-2 GENERAL HEAT TRANSFER

Annexe Hall **8:00am - 10:00am**

Session Organizer: **Seetharamu K N**, *PES University, Bangalore, Karnataka, India*

Session Co-Organizer: **C. K. Umesh**, *Department of Mechanical Engineering, University Visvesvaraya College of Engineering, Bengaluru, India*

Accurate prediction of buffer air temperatures using lumped heat transfer method

Technical Paper Publication. GTIndia2019-2519

Pavan kumar Gandla, Naresh Nidamanuri, *Cyient Ltd, Hyderabad, Telangana, India*

Enclosure Phenomenon In Varying Flow Forced Convection

Technical Paper Publication. GTIndia2019-2656

Ribhu Bhatia, *Politecnico Di Milano, Milan, Milano, Italy*, ***Sambit Supriya Dash***, *SRM University, Chennai, India*, ***Vinayak Malhotra***, *SRM Institute of Science and Technology, Chennai, India*

Investigation of Performance of Fins Geometry on a Vertical Cylinder

Technical Paper Publication. GTIndia2019-2752

N.P. Yadav, Ayush Srivastava, *BIET Jhansi, Jhansi, India*

Heat Transfer Enhancement in Duct with Rectangular Fin Arrays

Technical Paper Publication. GTIndia2019-2761

Md. Islam, Imad Barsoum, *Khalifa University of Science and Technology, Abu Dhabi, - Abu Dhabi, United Arab Emir.*

TRACK 4 Combustion, Fuels and Emissions

Track Organizer: **Ashoke De**, *Indian Institute of Technology Kanpur, Kanpur, Uttar Pradesh, India*

4-1 GAS TURBINE COMBUSTION-I

RJN102 **8:00am - 10:00am**

Session Organizer: **Saptarshi Basu**, *IISc Bangalore, Bangalore, Karnataka, India*

Session Co-Organizer: **Swetaprovo Chaudhuri**, *Indian Institute of Science Bangalore, Bangalore, India*

Combustor Modeling and Design Modification of a Micro Gas Turbine Combustor with a Rotating Casing for Syngas Fuel

Technical Paper Publication. GTIndia2019-2463

Maaz Ajvad, *Chang Gung University, Taoyuan City, Taiwan*, ***Hsin-Yi Shih***, *Chang Gung University, Taoyuan, OTHER, Taiwan*

CONTROL OF LEAN BLOWOUT IN PARTIALLY PREMIXED SWIRL-STABILIZED COMBUSTOR USING A FUEL RICH CENTRAL PILOT CONFIGURATION

Technical Paper Publication. GTIndia2019-2478

Somnath De, Prasanna Mondal, Gourav M Sardar, Rakin B Bokhtiar, Arijit Bhattacharya, Achintya Mukhopadhyay, swarnendu sen, *Jadavpur University, kolkata, West Bengal, India*

LEAN BLOWOUT PHENOMENA AND PRIOR DETECTION OF LEAN BLOWOUT IN A PREMIXED MODEL ANNULAR COMBUSTOR

Technical Paper Publication. GTIndia2019-2491

Arijit Bhattacharya, Bikash Gupta, Satyajit Hansda, Zohadul Haque, Ashish kumar, Manohar Kumar Mishra, Somnath De, Achintya Mukhopadhyay, swarnendu sen, *Jadavpur University, kolkata, West Bengal, India*

Experimental and Numerical Analysis of Combustion in Gas Turbines

Technical Paper Publication. GTIndia2019-2496

MSN Murthy, *Indian Navy, Vizag, India*, ***Subhash Kumar***, *IIT Bombay, Mumbai, Maharashtra, India*, ***Sheshadri Sreedhara***, *Indian Institute of Technology,, Mumbai, Maharashtra, India*

TRACK 5 Structures and Dynamics

Track Organizer: **Ramesh T C**, *Quest Global, Bangalore, India*

5-2 ROTORS - 1

Hall I **8:00am - 10:00am**

Session Organizer: **Gnanasambantham Arumugam**, *QuEST Global Engineering Services Pvt Ltd, Bangalore, Karnataka, India*

Vibration Mitigation of Rotors Suspended on Low-Cost Hybrid Gas Foil Bearing

Technical Paper Publication. GTIndia2019-2539

Kamal Kumar Basumatary, Karuna Kalita, Sashindra Kumar Kakoty, *Indian Institute of Technology Guwahati, Guwahati, ASSAM, India*, ***Seamus Garvey***, *University Of Nottingham, Nottingham, United Kingdom*

Modal analysis and dynamic responses of a hysteretically damped axle shaft with a transverse crack

Technical Paper Publication. GTIndia2019-2387

Shravankumar Chandrasekaran, Yash Sarda, Thamarai Selvan V, *SRM IST, Kattankulathur, India*

Random Field Modeling And Analysis of Rotor Bladed Disc Sector Using A Data Driven PCE Based Approach

Technical Paper Publication. GTIndia2019-2497

Rahul Kumar, *IIT Madras, Chennai, India*, ***Sayan Gupta***, *Indian Institute of Technology Madras, Chennai, India*, ***Shaikh Faruque ALI***, *Indian Institute of Technology Madras, Tamilnadu, India*

TRACK 6 Renewable Energy (Solar, Wind)

Track Organizer: **Ujjwal K. Saha**, *Indian Institute of Technology Guwahati, Guwahati, India*

6-2 VERTICAL WIND TURBINE 1

RJN101 **8:00am - 10:00am**

Session Organizer: **Anupam Dewan**, *Indian Institute of Technology Delhi, New Delhi, India*

Session Co-Organizer: **Ranjan Das**, *Indian Institute of Technology Ropar, Rupnagar, India*

Investigation on flow characteristics and performance of a vertical axis wind turbine with deflector plates

Technical Paper Publication. GTIndia2019-2471

KARTHIK SELVA KUMAR KARUPPASAMY, *INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI, ASSAM, India*, ***Vinayak Kulkarni, Niranjan Sahoo***, *Indian Institute of Technology Guwahati, Guwahati, India*

Metaheuristic Optimization of Dual-Element Vertical Axis Wind Turbine using Genetic Algorithm

Technical Paper Publication. GTIndia2019-2490

Sushrut Kumar, *Delhi Technological University, Delhi, India*, ***Priyam Gupta***, *Delhi Technological University, Noida, Uttar Pradesh, India*, ***Raj Kumar Singh***, *Delhi Technological University, New Delhi, Delhi, India*

EXPERIMENTAL AND NUMERICAL ASSESSMENT OF CROSS FLOW VERTICAL AXIS WIND TURBINE

Technical Paper Publication. GTIndia2019-2427

Seralathan Sivamani, *Hindustan Institute of Technology and Science, Tamil Nadu, Tamilnadu, India*, ***Micha Prem Kumar T, Rian Leevinson J, Lokesh Reddy B.V, Hariram V***, *Hindustan Institute of Technology and Science, Chennai, Tamilnadu, India*

Savonius Wind Turbine Blade Profile Optimization by Coupling CFD Simulations with Simplex Search Technique

Technical Paper Publication. GTIndia2019-2442

Ankit Agrawal, Divyeshkumar D. Kansagara, Deepak Sharma, Ujjwal K. Saha, *Indian Institute of Technology Guwahati, Guwahati, India*

TRACK 8 Emerging Technologies (Hybrid Electric Propulsion, UAV,...)

Track Organizer: **Dhinagaran Ramachandran**, *Turbo Energy Tech Centre, Bangalore, India*

8-1 EMERGING TECHNOLOGIES 1

RJN201 **8:00am - 10:00am**

Session Organizer: **Ranganathan R S**, *Turbo Energy Private Ltd, Chennai, India*

Session Co-Organizer: **Seran Krishnamoorthy**, *Turbo Energy Pvt. Ltd., Chennai, India*

Parametric study for adoption of Variable Cycle Engine concept for low bypass ratio Turbofan Engine

Technical Paper Publication. GTIndia2019-2683

Kaviya S, Chetankumar Mistry, *IIT Kharagpur, Kharagpur, India*

Potential Applications of Fuel Cells for Hybrid Electric Aircrafts Case Study

Technical Paper Publication. GTIndia2019-2421

Sreedhar Kari, *Rolls Royce India Pvt Ltd, Bangalore, Karanataka, India*, ***George Thorne, Janos Szeki***, *Rolls-Royce, BRISTOL, United Kingdom*, ***Chris Hall***, *Rolls-Royce, Kristinehamn, Sweden*, ***Lindsey Mortimer***, *Rolls-Royce, Derby, United Kingdom*, ***Robby Gerbeth***, *Rolls-Royce, Friedrichshafen, Germany*

Acoustic Investigation on Unmanned Aerial Vehicle's Rotor using CFD-MRF Approach

Technical Paper Publication. GTIndia2019-2430

Ramesh M, Vijayanandh R, *Kumaraguru College of Technology, Coimbatore, Tamil Nadu, India*

Experimental Analysis of Part Electric Gas Turbine - A Novel Hybrid Propulsion Concept

Technical Paper Publication. GTIndia2019-2498

MSN Murthy, *Indian Navy, Vizag, India*, ***Subhash Kumar***, *IIT Bombay, Mumbai, Maharashtra, India*, ***Sheshadri Sreedhara***, *Indian Institute of Technology, Mumbai, Maharashtra, India*

TRACK 10 Materials & Manufacturing (including Coatings, Composites, CMCs, Additive Manufacturing)

Track Organizer: **Dheepa Srinivasan**, *Pratt and Whitney, Bengaluru, India*

10-1 ADVANCED MANUFACTURING AND COATINGS

Auditorium **8:00am - 10:00am**

Session Organizer: **Christ P Paul**, *Raja Ramanna Centre for Advanced Technology, Indore, India*

Simulation of Laser Cutting of Functionally Graded Material used in Aviation Industry

Technical Paper Publication. GTIndia2019-2445

***Subha Nath**, Jadavpur University, Kolkata, West Bengal, India, **Apurba Das**, Netaji Subhash Engineering College, Kolkata, West Bengal, India, **Kazuaki Inaba**, Tokyo Institute of Technology, Tokyo, Japan, **Amit Karmakar**, Jadavpur University, Kolkata, India*

MICROSTRUCTURE, RESIDUAL STRESS AND WEAR BEHAVIOUR OF ADDITIVELY MANUFACTURED MATERIALS - COLD SPRAY L605 AND DMLD IN718 AND MARAGING STEEL FOR GAS TURBINE FUEL NOZZLE REPAIR

Technical Paper Publication. GTIndia2019-2579

***HARIHARAN SUNDARAM**, GENERAL ELECTRIC, Kuwait, Kuwait, Kuwait, **Dheepa Srinivasan**, Pratt and Whitney, Bengaluru, India, **James Baummer**, GENERAL ELECTRIC, Greenville, SC, United States*

Effect of Process Parameters on Laser Directed Energy Deposition of Copper

Technical Paper Publication. GTIndia2019-2453

***Sunil Yadav**, Homi Bhabha National Institute, RRCAT, Indore, India, **Christ P Paul**, Raja Ramanna Centre for Advanced Technology, Indore, India, **Arackal N Jinoop**, Homi Bhabha National Institute, Raja Ramanna Centre for Advanced Technology, Indore, Madhya Pradesh, India, **Saurav K Nayak**, Homi Bhabha National Institute, RRCAT, Indore, India, **Arun K Rai**, Raja Ramanna Centre for Advanced Technology, Indore, India, **Kushvinder S Bindra**, LDIAD, Indore, India*

The effect of Temperature on Formability of AA6061-T6 alloy material under stretching Operation

Technical Paper Publication. GTIndia2019-2710

***Raman Goud Rachala**, Gokaraju Ramgaraju Institute of Engineering and Technology, Nallakunta, Hyderabad, Telangana, India, **Aryan Rachala**, Osmania College of Engineering, Osmania University, Hyderabad, Telangana, India*

13-1 KEYNOTE BY DR. RUBEN DEL ROSARIO, CROWN CONSULTING INC.

Auditorium **10:30am - 11:30am**

Session Organizer: **Mariasundaram Antony**, *GE Power, Bangalore, India*

Keynote by Dr. Ruben Del Rosario, Crown Consulting Inc.

Technical Presentation. GTIndia2019-2836

***Ruben Del Rosario**, Crown Consulting, Inc., Winfield, IL, United States*

TRACK 1 Compressors, Fans and Pumps

Track Organizer: **Chetankumar Mistry**, *IIT Kharagpur, Kharagpur, India*

1-4

AXIAL FLOW COMPRESSOR AND FAN - 2

Hall III **11:45am - 1:15pm**

Session Organizer: **Dilipkumar Bhanudasji Alone**, *CSIR-NAL, Bangalore, India*

Session Co-Organizer: **Vadlamani Nagabhushana Rao**, *IIT Madras, Chennai, India*

Complex gas dynamic optimization of a three spool axial compressor of an industrial gas turbine engine

Technical Paper Publication. GTIndia2019-2394

***Grigorii Popov**, Samara National Research University, Samara, Russia, **Igor Egorov**, Moscow Aviation Institute (National Research University), Moscow, Russia, **Dmitrii Dmitriev, Evgenii Goriachkin, Andrei Volkov**, Samara National Research University, Samara, Select State/ Province, Russia*

Effect of stator variability in axial compressor performance

Technical Paper Publication. GTIndia2019-2504

***Kirubakaran P**, Gas Turbine Research Establishment, DRDO, Bangalore, Karnataka, India, **Naveen Kumar NR**, Vellore Institute of Technology, Vellore, Tamil Nadu, India, **Vidyadeesh Pandurangi**, Gas Turbine Research Establishment, DRDO, Bangalore, Karnataka, India, **Ajay Pratap**, GTRE, Bangalore, India*

TRACK 2 Turbines

Track Organizer: **B.V.S.S.S. Prasad**, *Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

2-7 TURBINE DESIGN: AERO AND THERMAL -2

Hall II **11:45am - 1:15pm**

Session Organizer: **S Satish Kumar**, *National Aerospace Laboratories, Bangalore, India*

Session Co-Organizer: **JVR Prasad**, *Georgia Institute of Technology, Atlanta, GA, United States*

Numerical Prediction of Cooling Performance Sensitivity of 1st Stage Nozzle Guide Vane Under Aerothermal Conditions

Technical Paper Publication. GTIndia2019-2628

***Prasert Prapamonthon**, Institute of Mechanics, CAS, Beijing, China, **Bo Yin**, Institute of Mechanics Chinese Academy of Sciences, Beijing, China, **Guowei Yang**, Institute of Mechanics, Chinese Academy of Sciences, Beijing, China, **Mohan Zhang**, School of Engineering Science, University of Chinese Academy of Sciences, Beijing, China*

Identification of Wake Convection and Flow Outline in the Interface Region of Blade Rows with Axial Gap in a Counter Rotating Turbine

Technical Paper Publication. GTIndia2019-2634

***Subbarao Rayapati**, NITTTR Kolkata, Kolkata, West Bengal, India, **M Govardhan**, Indian Institute of Technology Madras, Chennai, Tamilnadu, India*

Studies on the Outline of Flow Improvement with Speed Ratio in a Counter Rotating Turbine

Technical Paper Publication. GTIndia2019-2636

***Subbarao Rayapati**, NITTTR Kolkata, Kolkata, West Bengal, India, **M Govardhan**, Indian Institute of Technology Madras, Chennai, Tamilnadu, India*

TRACK 3 Heat Transfer

Track Organizer: **Ramakumar Bomisetty**, *Dayanand Sagar University, Bangalore, India*

3-3 COMBUSTOR AND AFTERBURNERS

Annexe Hall **11:45am - 1:15pm**

Session Organizer: **Venkateswara Babu Chadalavada**, *General Electric, Bangalore, India*

Session Co-Organizer: **Rajesh Kumar Panda**, *Power Grid Corporation of India Ltd, Gurgaon, India*

Development of Film Cooled Thruster for Rocket Application

Technical Paper Publication. GTIndia2019-2320

avanish kumar, *Drdl,Hyderabad, Hyderabad, India*, ***V Venkateswarlu, P Satyaprasad, M Raghavendra Rao***, *DRDL, hyderabad, India*

Conjugate Heat Transfer Analysis of Military Aero Engine Combustor Liner with Impingement and Effusion Cooling

Technical Paper Publication. GTIndia2019-2480

Batchu Suresh, *Gas Turbine Research Establishment, Bangalore, India*, ***Chinmayee Panigrahi***, *Jain (Deemed-to-be University), Bangalore Rural District,, India*, ***Antonio Davis***, *Jain (Deemed-to-be-University), Bangalore Rural District, Karnataka, India*, ***Kesavan V***, *Gas Turbine Research Establishment, Bangalore, India*, ***Kishore Prasad Deshkulkarni***, *Gas Turbine Research Establishment, DRDO, Bangalore, Karnataka, India*

Experimental and Numerical Investigations of Thermal Hydraulic Performance in Ribbed Channel for Combustor Liner

Technical Paper Publication. GTIndia2019-2724

Divya Bihari, Sanjay Bokade, *Rajiv Gandhi Institute of Technology, Mumbai, Maharashtra, India*

TRACK 4 Combustion, Fuels and Emissions

Track Organizer: **Ashoke De**, *Indian Institute of Technology Kanpur, Kanpur, Uttar Pradesh, India*

4-8 PREMIXED AND NON-PREMIXED COMBUSTION

RJN201 **11:45am - 1:15pm**

Session Organizer: **Sudarshan Kumar**, *Indian Institute of Technology Bombay, Mumbai, Maharastra, India*

Session Co-Organizer: **Hrishikesh Gadgil**, *IIT Bombay, Mumbai, Maharashtra, India*

Characterisation of Burner Stabilized Premixed and Non-premixed Flame using Digital Image Processing

Technical Paper Publication. GTIndia2019-2558

Tarik Hassan, *Jadavpur University, Kolkta, India*, ***Sourav Sarkar***, *Department of Mechanical Engineering,Jadavpur University, Kolkata, West Bengal, India*, ***Achintya Mukhopadhyay, swarnendu sen***, *Jadavpur University, Kolkata, West Bengal, India*

EXPERIMENTAL ANALYSIS OF BIOGAS COMBUSTION WITH DIFFERENT FOAM MATERIALS IN A POROUS MEDIA BURNER

Technical Paper Publication. GTIndia2019-2667

SANGJUKTA DEVI, Niranjan Sahoo, *Indian Institute of Technology Guwahati, Guwahati, ASSAM, India*, ***P Muthukumar***, *Indian Institute of Technology, Guwahati, Guwahati, Assam, India*

Studies on the Dynamics of Three-inline Non-premixed Turbulent Oxy-Methane Flame Jets

Technical Paper Publication. GTIndia2019-2410

Tamal Jana, *IIT Kharagpur, Kharagpur, India*, ***Mrinal Kaushik***, *Indian Institute of Technology Kharagpur, Kharagpur, India*

TRACK 5 Structures and Dynamics

Track Organizer: **Ramesh T C**, *Quest Global, Bangalore, India*

5-1 DYNAMICS-1

Hall I **11:45am - 1:15pm**

Session Organizer: **Rajkumar Kodari**, *Robert Bosch Engineering & Business Solutions Pvt Ltd., Bangalore, India*

Dynamic Characteristics of a Flexible Coupling

Technical Paper Publication. GTIndia2019-2604

Mohit Aggarwal, J.K Dutt, *Indian Institute of Technology Delhi, New Delhi, New Delhi, India*, ***Saurabh Chandraker***, *National Institute of Technology Surathkal, Mangalore, India*

Dynamic behavior of string subjected to travelling mass

Technical Paper Publication. GTIndia2019-2608

SHAKTI JENA, *VARDHAMAN COLLEGE OF ENGINEERING, HYDERABAD, Telangana, Iceland*, ***Sarella Naresh Kumar***, *JNTU KAKINADA ANDRA PRADESH, KAKINADA, India*, ***Hemanth Cheedella***, *VARDHAMAN COLLEGE OF ENGINEERING, Hyderabad, India*

Dynamic Analysis For End Conditions Of Shell Side Non Planer Pipings Of STHE

Technical Paper Publication. GTIndia2019-2775

NITIN PAGAR, *Department of Technology,S.P. Pune University,Ganeshkhind,Pune, Pune, Maharashtra, India*, ***S.H. Gawande***, *M.E.S. College of Engineering, Pune, Pune, India*

TRACK 6 Renewable Energy (Solar, Wind)

Track Organizer: **Ujjwal K. Saha**, *Indian Institute of Technology Guwahati, Guwahati, India*

6-1 HORIZONTAL WIND TURBINE 1

Auditorium **11:45am - 1:15pm**

Session Organizer: **Niranjan Sahoo**, *Indian Institute of Technology Guwahati, Guwahati, India*

Session Co-Organizer: **Vinayak Kulkarni**, *Indian Institute of Technology Guwahati, Guwahati, India*

Experimental Analysis of Vortex Induced Vibration in the Bladeless Small Wind Turbine

Technical Paper Publication. GTIndia2019-2484

Micha Prem Kumar T, Lasoodawanki Kharsati, Nakandhrakumar R.S, *Hindustan Institute of Technology and Science, Chennai, Tamilnadu, India*, ***Seralathan Sivamani***, *Hindustan Institute of Technology and Science, Tamil Nadu, Tamilnadu, India*, ***Hariram V***, *Hindustan Institute of Technology and Science, Chennai, Tamilnadu, India*

Near Wake Regime Study On Wind Turbine Blade Tip Vortex

Technical Paper Publication. GTIndia2019-2493

Ojing Siram, Niranjan Sahoo, *Indian Institute of Technology Guwahati, Guwahati, IIT GUWAHATI, India*

Novel Turbercle For A Wind Turbine Blade Operating At Low Reynold's Number

Technical Paper Publication. GTIndia2019-2541

Deeksha Rao, *MS Ramaish University of Applied Sciences, Bengaluru, India*, ***Mahesh Varpe***, *MSRUAS Bangalore, Bangalore, India*

TRACK 7 Inlets and Exhausts

Track Organizer: **Aravinda Reddy**, *GE Power, Bangalore, India*

7-1 INLETS AND EXHAUSTS 1

RJN101 **11:45am - 1:15pm**

Session Organizer: **Debasish Biswas**, *Toshiba Research and Development Center, Kawasaki, Kanagawa, Japan*

Parametric Analysis and Performance Evaluation of 2D Scramjet Inlet

Technical Paper Publication. GTIndia2019-2324

Aniruddha Kane, Ravi K. Peetala, *VISVESVARAYA NATIONAL INSTITUTE OF TECHNOLOGY, Nagpur, Maharashtra, India*

Estimation of the hydraulic losses in the inlet shaft of a land-based gas turbine

Technical Paper Publication. GTIndia2019-2389

Oleg Baturin, *Samara National Research University, Samara, Select State/Province, Russia*, ***Daria Kolmakova***, *Samara State Aerospace University, Samara, Select State/Province, Russia*, ***Alexander Krivtsov, Grigorii Popov, Andrei Volkov***, *Samara National Research University, Samara, Select State/Province, Russia*

Numerical Study to Improve the Thermal Efficiency of Gas Turbine Cycle Using the Phase Change Material Melting Strategy

TRACK 8 Emerging Technologies (Hybrid Electric Propulsion, UAV,...)

Track Organizer: **Dhinagaran Ramachandran**, *Turbo Energy Tech Centre, Bangalore, India*

8-2 EMERGING TECHNOLOGIES 2

RJN102 **11:45am - 1:15pm**

Session Organizer: **Ranganathan R S**, *Turbo Energy Private Ltd, Chennai, India*

Session Co-Organizer: **Ramesh Kannan**, *Turbo Energy Private Ltd, Chennai, India*

Experimental Study of Self- Adjustable Flap for Fixed Wing MAV

Technical Paper Publication. GTIndia2019-2512

Anand Verma, Vinayak Kulkarni, *Indian Institute of Technology Guwahati, Guwahati, Assam, India*

COMPARATIVE ANALYSIS OF PROPULSIVE SYSTEM IN MULTI-ROTOR UNMANNED AERIAL VEHICLE

Technical Paper Publication. GTIndia2019-2429

Balaji S, Vijayanandh R, Prabhagaran P, *Kumaraguru College of Technology, Coimbatore, India*

Brayton Cycle Supercritical CO2 Power Block for Industrial Waste Heat Recovery

Technical Paper Publication. GTIndia2019-2347

Sharath Sathish, *Triveni Turbines Limited, Bangalore, Karanataka, India*, ***Pramod Kumar***, *Indian Institute of Science, Bangalore, India*, ***Logesh Nagarathinam, Lokesh Swami, Adi Narayana Namburi***, *Triveni Turbines Limited, Bangalore, Karnataka, India*, ***Subbarao B V***, *Indian Institute of Science, Bangalore, Karnataka, India*, ***Pramod Chandra Gopi***, *Triveni Turbines Limited, Bangalore, Karnataka, India*

TRACK 15 Invited Sessions

15-1 ROLE OF RENEWABLES FOR ENERGY TRANSITION

RJN202 **11:45am - 1:15pm**

Role of Renewables for Energy Transition

Technical Presentation. GTIndia2019-2839

Sudipta De, *Jadavpur University, Kolkata, India*

TRACK 1 Compressors, Fans and Pumps

Track Organizer: **Chetankumar Mistry**, *IIT Kharagpur, Kharagpur, India*

1-5 AXIAL FLOW COMPRESSOR AND FAN - 3

Hall III 2:15pm - 3:45pm

Session Organizer: **Vadlamani Nagabhushana Rao**, *IIT Madras, Chennai, India*

Session Co-Organizer: **Dilipkumar Bhanudasji Alone**, *CSIR-NAL, Bangalore, India*

Computational study to understand the effect of total pressure distribution on performance of small size counter-rotating axial-flow fan stage for electrical propulsion

Technical Paper Publication. GTIndia2019-2521

Tuhin Bandopadhyay, *Indian Institute of Technology, Kharagpur, Kharagpur, West Bengal, India*, ***Chetankumar Mistry***, *IIT Kharagpur, Kharagpur, India*

Performance Evaluation of Contra-Rotating Fans Operating under Different Speed Combinations

Technical Paper Publication. GTIndia2019-2569

Navjot Joshi, *Indian Institute of Technology Bombay, Mumbai, Maharashtra, India*, ***Manas Madasseri Payyappalli***, *Indian Institute of Technology Bombay, Mumbai MH, India*, ***A. M. Pradeep***, *Indian Institute of Technology Bombay, Mumbai, Maharashtra, India*

The Effect of Tip Clearance and Hub Rotation on The Performance of an Axial Compressor Stator

Technical Paper Publication. GTIndia2019-2622

Chao Jiang, Jun Hu, Jiayu Wang, *College of Energy and Power Engineering,Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China*, ***Jun Li***, *Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China*, ***Rong Xu***, *Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China*

TRACK 3 Heat Transfer

Track Organizer: **Ramakumar Bomisetty**, *Dayanand Sagar University, Bangalore, India*

3-1 HEAT TRANSFER: MISC.

Hall II **2:15pm - 3:45pm**

Session Organizer: **Giridhara Babu Yepuri**, *CSIR-National Aerospace Laboratories, Bangalore, Karnataka, India*

Session Co-Organizer: **Anish S**, *National Institute of Technology Karnataka, Mangalore, Karnataka, India*

SENSITIVIY ANALYSIS ON GAS TURBINE VANE TEMPERATURE DISTRIBUTION USING A ROBUST 1-D FLUID FLOW AND HEAT TRANSFER SIMULATOR

Technical Paper Publication. GTIndia2019-2335

Masoud Darbandi, Ramin Jalali, *Sharif University of Technology, Tehran, Choose Country Then State, Islamic Republic Of Iran*

Comparison of Various Jet Impingement Configurations on Leading Edge of a Gas Turbine Blade

Technical Paper Publication. GTIndia2019-2462

Alankrita Singh, B.V.S.S.S. Prasad, *Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

LABYRINTH SEAL WITH VARIABLE HEIGHT TEETH TIPS FOR EFFICIENT LEAKAGE CONTROL

Technical Paper Publication. GTIndia2019-2561

Hasham Chougule, Abhay Naik, *Honeywell Technology Solutions, Bangalore, India*, ***Mohammed Qizar***, *Honeywell, Hyderabad, India*

3-6 THERMODYNAMIC CYCLE ANALYSIS

Annexe Hall **2:15pm - 3:45pm**

Session Organizer: **Md. Islam**, *Khalifa University of Science and Technology, Abu Dhabi, - Abu Dhabi, United Arab Emir.*

Session Co-Organizer: **Muralidhar Manavalan**, *Honeywell Aerospace, Bangalore, India*

Effect of deaerator parameters on simple and reheat gas/steam combined cycle with different cooling medium

Technical Paper Publication. GTIndia2019-2400

Mayank Maheshwari, *B B D University, Lucknow, India*, ***Onkar Singh***, *HARCOURT BUTLER TECHNICAL UNIVERSITY, KANPUR, India*

Entropy Generation Analysis of Mixed Convection Flow in a Nanofluid Filled Porous Cavity Using a Two-Component Lattice Boltzmann Method

Technical Paper Publication. GTIndia2019-2544

Dhrubajyoti Kashyap, Anoop K Dass, *Indian Institute of Technology Guwahati, Guwahati, Assam, India*

Energy and Exergy Analysis of a Gas Turbine Power Plant Integrated with Vapor Adsorption Refrigeration System

Technical Paper Publication. GTIndia2019-2570

Sanchit Agarwal, Darshika Gupta, *Shiv Nadar University, Gautam Budh Nagar, Uttar Pradesh, India*, ***Devendra Dandotiya***, *Presidency University, Bangalore, Bangalore, Karnataka, India*, ***Nitin Banker***, *Ahmedabad University, Ahmedabad, Gujarat, India*

TRACK 4 Combustion, Fuels and Emissions

Track Organizer: **Ashoke De**, *Indian Institute of Technology Kanpur, Kanpur, Uttar Pradesh, India*

4-4 MULTI-PHASE COMBUSTION-I

RJN102 **2:15pm - 3:45pm**

Session Organizer: **Srinibas Karmakar**, *IIT Kharagpur, Kharagpur, India*

Session Co-Organizer: **swarnendu sen**, *Jadavpur university, kolkata, west bengal, India*

Numerical Study of Primary Jet Breakup in a Simplex Swirl Atomizer using Dual Grid Coupled Level Set VOF Method

Technical Paper Publication. GTIndia2019-2411

Krishna Kant, *Indian Institute of Technology Hyderabad, Hyderabad, Telangana, India*, ***Mayank Kumar***, *Indian Institute of Technology Hyderabad, EDDUMAILARAM, TELANGANA, India*, ***Rajesh Reddy***, *Shiv Nadar University, Noida, Uttar Pradesh, India*, ***Raja Banerjee, Narasimha Mangadoddy***, *Indian Institute of Technology Hyderabad, Hyderabad, TELANGANA, India*, ***Surya Vanka***, *University of Illinois, Champaign, IL, United States*

Effect of Liquid/Gas Density Ratio on Primary Jet Breakup of Pressure Swirl Atomizer: Experimental & Numerical Study

Technical Paper Publication. GTIndia2019-2513

Edin Michael, Santhosh Kumar Keerthi, *IIT Hyderabad, Sangareddy, Telangana, India*, ***Krishna Kant***, *Indian Institute of Technology Hyderabad, Hyderabad, Telangana, India*, ***Pankaj Kolhe***, *IIT Hyderabad, Sangareddy, Telangana, India*, ***Raja Banerjee***, *Indian Institute of Technology Hyderabad, Hyderabad, TELANGANA, India*, ***Satya Chakravarthy***, *IIT Madras, CHENNAI, India*

Burning characteristics of boron/JP10 nanofuel droplets

Technical Paper Publication. GTIndia2019-2618

Eshwar Chandra, *IIT MADRAS, Chennai, Tamilnadu, India*, ***Ujas Patel, Vinu Ravikrishnan***, *Indian Institute of Technology, Madras, Chennai, India*, ***Srikrishna Sahu***, *IIT Madras, Chennai, Tamil Nadu, India*

TRACK 5 Structures and Dynamics

Track Organizer: **Ramesh T C**, *Quest Global, Bangalore, India*

5-7 ROTORS - 2

RJN201 **2:15pm - 3:45pm**

Session Organizer: **Murugesan Seerangan**, *GE, Bangalore, India*

Experimental Investigation of Active Control of Cracked Rotor-Bearing System Equipped with Magnetic Bearing

Technical Paper Publication. GTIndia2019-2647

Nilakshi Sarmah, *IIT GUWAHATI, GUWAHATI, ASSAM, India*, ***Rajiv Tiwari***, *Indian Institute of Technology Guwahati, Guwahati, Assam, India*

Finite Element Model based Full Spectrum Response Analysis of a Cracked Rotor with Internal and External Damping

Technical Paper Publication. GTIndia2019-2650

Dipendra Roy, *IIT GUWAHATI, GUWAHATI, India*, ***Rajiv Tiwari***, *Indian Institute of Technology Guwahati, Guwahati, Assam, India*

Dynamic Characterization of an Additive Manufactured Turbine Wheel of Turbocharger

Technical Paper Publication. GTIndia2019-2457

PANNEER SELVAM R, *GTRE-DRDO/NIT(Trichy), BANGALORE, India*, ***Muthukannan Duraiselvam***, *National Institute of Technology,, Tiruchirapalli, India*, ***Sanjay G. Barad, Dilip Kumar***, *Gas Turbine Research Establishment, DRDO, BANGALORE, India*

TRACK 6 Renewable Energy (Solar, Wind)

Track Organizer: **Ujjwal K. Saha**, *Indian Institute of Technology Guwahati, Guwahati, India*

6-6 VERTICAL WIND TURBINE 2

Auditorium **2:15pm - 3:45pm**

Session Organizer: **Anupam Dewan**, *Indian Institute of Technology Delhi, New Delhi, India*

Session Co-Organizer: **Ranjan Das**, *Indian Institute of Technology Ropar, Rupnagar, India*

DETERMINING THE OPTIMAL LOCATION OF VENT AUGMENTERS IN AN ELLIPTICAL-BLADED SAVONIUS WIND ROTOR

Technical Paper Publication. GTIndia2019-2344

Nur Alom, *Indian Institute of Technology Guwahati, India, Guwahati, India*, ***Ujjwal K. Saha***, *Indian Institute of Technology Guwahati, Guwahati, India*

OPTIMIZATION OF AERODYNAMIC PARAMETERS OF AN ELLIPTICAL-BLADED SAVONIUS WIND ROTOR USING MULTI-OBJECTIVE GENETIC ALGORITHM

Technical Paper Publication. GTIndia2019-2346

Nur Alom, *Indian Institute of Technology Guwahati, India, Guwahati, India*, ***Ranjan Das***, *Indian Institute of Technology Ropar, Rupnagar, India*, ***Ujjwal K. Saha***, *Indian Institute of Technology Guwahati, Guwahati, India*

A Differential Evolution-Based Inverse Method to Optimize Blade Configurations in Elliptical-Bladed Savonius Wind Turbines

Technical Paper Publication. GTIndia2019-2352

Nur Alom, *Indian Institute of Technology Guwahati, India, Guwahati, India*, ***Ranjan Das***, *Indian Institute of Technology Ropar, Rupnagar, India*, ***Ujjwal K. Saha***, *Indian Institute of Technology Guwahati, Guwahati, India*

TRACK 7 Inlets and Exhausts

Track Organizer: **Aravinda Reddy**, *GE Power, Bangalore, India*

7-2 INLETS AND EXHAUSTS 2

Hall I **2:15pm - 3:45pm**

Session Organizer: **Rohit Chouhan**, *Rolls Royce, bangalore, India*

Flow Interactions in Low Bypass Ratio Multi-spool Turbofan Engines

Technical Paper Publication. GTIndia2019-2572

Vishwas Verma, *Indian Institute of Technology Bombay, Mumbai, Maharashtra, India*, ***Gursharanjit Singh***, *University of London, London, United Kingdom*, ***A. M. Pradeep***, *Indian Institute of Technology Bombay, Mumbai, Maharashtra, India*

RANS Based Iso-thermal CFD Analysis of the flow field created by a radial swirler in a conical nozzle

Technical Paper Publication. GTIndia2019-2726

Rampada Rana, *GTRE-DRDO, Bangalore, India*, ***Sonu Kumar***, *Indian Institute of Science Bangalore, Bangalore, karnataka, India*, ***Nagalingam Muthuveerappan***, *GTRE, DRDO, Bangalore, India*

TRACK 16 Tutorials

Track Organizer: **Aravinda Reddy**, *GE Power, Bangalore, India*

16-1 LES FOR TURBOMACHINES

RJN101 **2:15pm - 3:45pm**

Introduction to Large Eddy Simulations

Tutorial. GTIndia2019:2834

Prof. Joseph Mathew, *Indian Institute of Science*

TRACK 1 Compressors, Fans and Pumps

Track Organizer: **Chetankumar Mistry**, *IIT Kharagpur, Kharagpur, India*

1-7 AXIAL FLOW COMPRESSOR AND FAN - 4

Hall III **4:00pm - 6:00pm**

Session Organizer: **Dilipkumar Bhanudasji Alone**, *CSIR-NAL, Bangalore, India*

Session Co-Organizer: **Vadlamani Nagabhushana Rao**, *IIT Madras, Chennai, India*

IMPACT OF SWEEP ON PART SPEED PERFORMANCE OF AN AXIAL COMPRESSOR ROTOR WITH CIRCUMFERENTIAL CASING GROOVES

Technical Paper Publication. GTIndia2019-2575

Shraman N. Goswami, *Honeywell, Bangalore, India*, ***M. Govardhan***, *Indian Inst of Technology Madras, Chennai, Tamilnadu, India*

Effect of Various Trench Designs on Axial Compressor Blade Tip Aerodynamics

Technical Paper Publication. GTIndia2019-2592

Ashwin Ashok, Patur Ananth Vijay Sidhartha, *IIST, Trivandrum, Kerala, India*, ***Shine SR***, *IIST, Thiruvananthapuram, Kerala, India*

DESIGN, FABRICATION AND ANALYSIS OF A ELECTRIC DUCTED FAN

Technical Paper Publication. GTIndia2019-2620

Sumanth Siddhartha S, Jigme Tsering, P. Vasantha Kumar, *Hindustan Institute of Technology and sciencce, Chennai, Tamilnadu, India*

IMPACT OF SINUSOIDAL TIP GAPS ON AXIAL COMPRESSOR ROTOR PERFORMANCE: A FLOW FIELD INVESTIGATION

Technical Paper Publication. GTIndia2019-2574

Shraman N. Goswami, *Honeywell, Bangalore, India*, ***Ashima Malhotra***, *Honeywell Technology Solutions, Bangalore, Karnataka, India*

TRACK 2 Turbines

Track Organizer: **B.V.S.S.S. Prasad**, *Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

2-5 POWER PLANT AND CYCLES

Annexe Hall **4:00pm - 6:00pm**

Session Organizer: **Ramesh Kannan**, *Turbo Energy Private Ltd, Chennai, India*

Session Co-Organizer: **A. T. Sriram**, *Ramaiah University of Applied Sciences, Bangalore, Karnataka, India*

Exergy analysis of a combined Gas Turbine and Organic Rankine Cycle based power and absorption cooling system

Technical Paper Publication. GTIndia2019-2351

Joy Nondy, Tapan Gogoi, *Tezpur University, Tezpur, Assam, India*

PERFORMANCE EVALUATION OF A GAS AND STEAM TURBINE BASED CO-GENERATION PLANT: A CASE STUDY

Technical Paper Publication. GTIndia2019-2358

Tapan Gogoi, Uddipta Gautam, *Tezpur University, Tezpur, Assam, India*

COMPARATIVE ASSESSMENT OF SAVONIUS WATER TURBINE WITH CONVENTIONAL SAVONIUS WIND TURBINE

Technical Paper Publication. GTIndia2019-2459

Neelam Kumar Sarma, *National Institute of Technology Silchar, Silchar, Select State/Province, India*, ***Agnimitra Biswas***, *NIT Silchar, Silchar, India*, ***Rahul Dev Misra***, *National Istitute of Technology, Silchar, Silchar, India*

A comparative study of scroll expander performance using CO2 and zeotropic mixtures as working fluids

Technical Paper Publication. GTIndia2019-2711

Arun Kumar Narasimhan, *University of South Florida, Tampa, FL, United States*, ***Diego Guillen Perez***, *Clean Energy Research Center, University of South Florida, Tampa, FL, United States*, ***D. Yogi Goswami***, *Univ Of South Florida, Tampa, FL, United States*

2-8 TURBINE DESIGN: AERO AND THERMAL -3

Hall II **4:00pm - 6:00pm**

Session Organizer: **Lakshmi Sankar**, *Georgia Institute of Technology, Atlanta, GA, United States*

Session Co-Organizer: **S Satish Kumar**, *National Aerospace Laboratories, Bangalore, India*

Numerical Study of Part Clearance and Free Stream Turbulence on High End-Wall LP Turbine Nozzle Annular Cascade

Technical Paper Publication. GTIndia2019-2663

Hardikkumar Bhavsar, *Indian Institute of Technology, Kharagpur, Kharagpur, India*, ***Chetankumar Mistry***, *IIT Kharagpur, Kharagpur, India*

A Study of Flow Behaviour in Radial and Mixed Flow Turbines with Variable Nozzle Vanes for a Turbocharger

Technical Paper Publication. GTIndia2019-2587

Ramesh Kannan, *Turbo Energy Private Ltd, Chennai, India*, ***B.V.S.S.S. Prasad***, *Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*, ***Sridhara Koppa***, *Turbo Energy Private Limited, Kanchipuram District, India*

Sensitivity of cascade pressure distribution for inverse design of turbine blade

Technical Paper Publication. GTIndia2019-2631

Nanthini R, *IITM, Chennai, Tamil Nadu, India*, ***B.V.S.S.S. Prasad***, *Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*, ***Y V S S Sanyasiraju***, *IITM, Chennai, India*

The Study on Effect of the Number of Nozzle Vanes in a Radial Flow Turbine for the Turbocharger

Technical Paper Publication. GTIndia2019-2729

Ramesh Kannan, *Turbo Energy Private Ltd, Chennai, India*, ***B.V.S.S.S. Prasad***, *Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*, ***Sridhara Koppa***, *Turbo Energy Private Limited, Kanchipuram District, India*, ***Libin George***, *Turbo Energy Private Ltd, Bangalore, India*, ***Kuppusamy Karuppanan***, *Turbo Enrgy Pvt. Ltd., Paiyanur, India*

TRACK 4 Combustion, Fuels and Emissions

Track Organizer: **Ashoke De**, *Indian Institute of Technology Kanpur, Kanpur, Uttar Pradesh, India*

4-5 THEORETICAL AND COMPUTATIONAL COMBUSTION-I

RJN102 **4:00pm - 6:00pm**

Session Organizer: **SANTANU DE**, *IIT Kanpur, Kanpur, Uttar Pradesh, India*

Session Co-Organizer: **Sourav Sarkar**, *Department of Mechanical Engineering,Jadavpur University, Kolkata, West Bengal, India*

CFD Based Taguchi Optimization Of The Performance Of A Gas Turbine Combustor

Technical Paper Publication. GTIndia2019-2323

Mukund Pandey, *GTRE, DRDO, Bangalore, India*, ***G Sivaramakrishna***, *GTRE DRDO, Bangalore, India*, ***Raju D Navindgi, Nagalingam Muthuveerappan***, *GTRE, DRDO, Bangalore, India*

Influence of Lewis Number on Heat Release Rate in Premixed Syngas Flames

Technical Paper Publication. GTIndia2019-2438

Kedar Bhide, Sheshadri Sreedhara, *IIT Bombay, Mumbai, India*

Modeling Combustion in a Rearward-Facing Step using Hybrid RANS/LES method

Technical Paper Publication. GTIndia2019-2522

Ishan Verma, *ANSYS Software Pvt. Ltd., Pune, maharastra, India*, ***Rakesh Yadav***, *ANSYS, San Diego, CA, United States*, ***Pravin Nakod***, *ANSYS Inc, India, India*, ***Patrick Sharkey***, *Ansys, Canonsburg, PA, United States*, ***shaoping li***, *ANSYS, Lebanon, NH, United States*, ***Ellen Meeks***, *ANSYS, Inc., San Diego, CA, United States*

Flamelet Generated Manifold Simulation of Turbulent Non-Premixed Bluff Body Flames.

Technical Paper Publication. GTIndia2019-2525

Ishan Verma, *ANSYS Software Pvt. Ltd., Pune, maharastra, India*, ***Rakesh Yadav***, *ANSYS, San Diego, CA, United States*, ***Pravin Nakod***, *ANSYS Inc, India, India*, ***Patrick Sharkey***, *Ansys, Canonsburg, PA, United States*, ***shaoping li***, *ANSYS, Lebanon, NH, United States*, ***Ellen Meeks***, *ANSYS, Inc., San Diego, CA, United States*

TRACK 5 Structures and Dynamics

Track Organizer: **Ramesh T C**, *Quest Global, Bangalore, India*

5-4 FATIGUE & TESTING

RJN101 **4:00pm - 6:00pm**

Session Organizer: **Srinivasan J**, *QuEST Global, Bangalore, India*

Advanced Models for Fatigue Life Estimation of Combustor Components for Gas Turbine Application

Technical Paper Publication. GTIndia2019-2380

Dileep Sivarama Iyer, *Rolls Royce India Pvt. Ltd, Banglore, India*, ***Nikhil Chandran Pillai***, *Rolls Royce, Banglore, India*

Comparative study of force prediction techniques using multi component accelerometer force balance for high enthalpy ground testing

Technical Paper Publication. GTIndia2019-2666

Abhishek Kamal, Gagan Chandra Das, *Indian Institute of Technology, Guwahati, Guwahati, Assam, India*, ***Vinayak Kulkarni, Niranjan Sahoo***, *Indian Institute of Technology Guwahati, Guwahati, India*

Experimental Investigations on Meridional and Circumferential Stresses of Bellows Due to Internal Pressure

Technical Paper Publication. GTIndia2019-2771

NITIN PAGAR, *Department of Technology, S.P. Pune University,Ganeshkhind,Pune, Pune, Maharashtra, India*, ***S.H. Gawande***, *M.E.S. College of Engineering, Pune, Pune, India*

Numerical Simulation And Experimental Validation Of Frequency Based Fault Detection And Localization In A Planetary Gearbox Under Dynamic Condition

Technical Paper Publication. GTIndia2019-2523

NITHIN VENKATARAM, *Ramiah University of Applied Sciences, Bangalore, India*, ***Harish K B, Rahul Cadambi***, *Ramaiah University of Applied Sciences, Bangalore, India*, ***Arun R Rao***, *M. S. Ramaiah University of Applied Science, Bangalore, India*

TRACK 6 Renewable Energy (Solar, Wind)

Track Organizer: **Ujjwal K. Saha**, *Indian Institute of Technology Guwahati, Guwahati, India*

6-5 HORIZONTAL WIND TURBINE 2

RJN201 **4:00pm - 6:00pm**

Session Organizer: **Niranjan Sahoo**, *Indian Institute of Technology Guwahati, Guwahati, India*

Session Co-Organizer: **Vinayak Kulkarni**, *Indian Institute of Technology Guwahati, Guwahati, India*

MODELLING AND CONTROL OF THE HYDRAULICALLY ACTUATED HORIZONTAL AXIS WIND TURBINE PITCH SYSTEM

Technical Paper Publication. GTIndia2019-2378

Paladugu Venkaiah, *NIT Meghalaya, Yerragonda palem, Andhra Pradesh, India*, ***Bikash Sarkar***, *NIT Meghalaya, Shillong, India*

Effect Of Tubercles Shapes On The Aerodynamic Performance Of a Wind Turbine Blade Operating At Low Reynolds Number

Technical Paper Publication. GTIndia2019-2548

D.S. swasthika, *M. S. Ramaiah University of Applied Sciences, Bengaluru, KARNATAKA, India*, ***Mahesh Varpe***, *MSRUAS Bangalore, Bangalore, India*

Feasibility of an Offshore Wind Farm in the North Sea Region

Technical Paper Publication. GTIndia2019-2783

Auraluck Pichitkul, Lakshmi Sankar, *Georgia Institute of Technology, Atlanta, GA, United States*, ***Jechiel Jagoda***, *School of Aerospace Engineering, Atlanta, GA, United States*

CFD Simulation of Ducted Dual Rotor Wind Turbine for Small-Scale Applications

Technical Paper Publication. GTIndia2019-2326

Amr Mohamed, *Faculty of Engineering, Ain Shams University, Cairo, Egypt, Cairo, Al Qahirah, Egypt*, ***Ahmed El Baz***, *British University In Egypt (BUE), Al Shorouk City, Egypt*, ***Nabil Mahmoud, Ashraf Hamed***, *Faculty of Engineering, Ain Shams University, Cairo, Egypt, Cairo, Egypt*, ***Ahmed El-kohly***, *Ain Shams, Cairo, Egypt*

TRACK 8 Emerging Technologies (Hybrid Electric Propulsion, UAV,...)

Track Organizer: **Dhinagaran Ramachandran**, *Turbo Energy Tech Centre, Bangalore, India*

8-3 EMERGING TECHNOLOGIES 3

Hall I **4:00pm - 6:00pm**

Session Organizer: **Ramesh Kannan**, *Turbo Energy Private Ltd, Chennai, India*

Session Co-Organizer: **Prasanth Vengala**, *Turbo Energy Private Limited, Kanchipuram, Tamil Nadu, India*

Brayton cycle as an alternate power conversion option for sodium cooled fast reactor

Technical Paper Publication. GTIndia2019-2455

***Jofred Joseph, Satish Kumar, Tanmay Vasal, N Theivarajan**, IGCAR Kalpakkam, Chennai, Tamilnadu, India*

Supercritical Carbon Dioxide Turbomachinery Options For Kilowatt To Gigawatt Level Power Generation

Technical Paper Publication. GTIndia2019-2472

***Lakshminarayanan Seshadri**, Mechanical Engineering,Indian Institute of Science, Karnataka, India, **Harini Nivetha Raja**, Indian Institute of Technology Madras, Chennai, Tamil Nadu, India, **Pramod Kumar**, Indian Institute of Science, Bangalore, India, **Abdul Nassar**, Softinway Turbomachinery Solutions Pvt Ltd, Banglore, Karnataka, India, **Gaurav Giri**, SoftInWay Turbomachinery Solutions Pvt. Ltd, Bengaluru, Karnataka, India, **Leonid Moroz**, Softinway Inc., Burlington, MA, United States*

Modelling Of Gas Cooler For S-CO2 Brayton Power cycle

Technical Paper Publication. GTIndia2019-2612

***Pramod Kumar**, Indian Institute of Science, Bangalore, India, **Jayesh Gupta**, DHIO Research and Engineering Private Limited, Bengaluru, Karnataka, India, **Vivek Pandey**, Indian Institute of Science Bangalore, Bengaluru, Karnataka, India, **Lakshminarayanan Seshadri**, Mechanical Engineering,Indian Institute of Science, Karnataka, India, **Ravishankar Mariayyah**, Dassault Systemes Private Limited, Chennai, Tamil Nadu, India, **Santhosh N.L.**, DHIO Research and Engineering Private Limited, Bengaluru, Karnataka, India*

A Comprehensive analysis of the Fiber Laser application in cleaning process of corrosion layers for Iron-based sample

Technical Paper Publication. GTIndia2019-2404

***Mayur Shelar, Kaushik Bawankar, Shailesh Madake, Pradyumna Dhamangaonkar**, College of Engineering Pune, Pune, Maharashtra, India*

TRACK 14 Panel Discussions

14-1 GT IN AVIATION: GAS TURBINE TECHNOLOGY FOR 2025 FOR GROWING MOBILITY NEEDS IN THE FACE OF CLIMATE CHANGE CHALLENGES

Auditorium **4:00pm - 6:00pm**

Technical Presentation. GTIndia2019-2840

Session Organizer: **Satya Chakravarthy,** *Professor, Aerospace Engineering, Indian Institute of Technology Madras*

FRIDAY, DECEMBER 6, 2019

TRACK 1 Compressors, Fans and Pumps

Track Organizer: **Chetankumar Mistry**, *IIT Kharagpur, Kharagpur, India*

1-2 CENTRIFUGAL COMPRESSOR

Hall III **8:00am - 10:00am**

Session Organizer: **Q H Nagpurwala**, *Rtd.MSRUAS Bangalore, Bangalore, India*

Session Co-Organizer: **Vadlamani Nagabhushana Rao**, *IIT Madras, Chennai, India*

The concept of a multi-level optimization model of the centrifugal compressor workflow

Technical Paper Publication. GTIndia2019-2392

***Grigorii Popov**, Samara National Research University, Samara, Russia, **Igor Egorov, Evgenii Marchukov**, Moscow Aviation Institute (National Research University), Moscow, Russia, **Andrei Volkov, Oleg Baturin**, Samara National Research University, Samara, Select State/ Province, Russia*

Numerical Performance and Flow Field Study of Centrifugal Compressor with Supercritical Carbon-Dioxide (SCO2)

Technical Paper Publication. GTIndia2019-2668

***Hemant Kumar**, Indian Institute of Technology, Kharagpur, Kharagpur, West Bengal, India, **Chetankumar Mistry**, IIT Kharagpur, Kharagpur, India*

Multi-point Optimization of a Centrifugal Compressor Wheel

Technical Paper Publication. GTIndia2019-2673

***Dhinagaran Ramachandran**, Turbo Energy Tech Centre, Bangalore, India, **Libin George, Balamurugan Mayandi, Chaithanya A V**, Turbo Energy Private Ltd, Bangalore, India, **Ranjith Garigipati**, ESTECO Software India Pvt Ltd,, Pune, India*

DESIGN AND DEVELOPMENT OF DIESEL TURBO-CHARGER COMPRESSOR WITH LOW-PRESSURE RATIO FOR LOW BMEP ENGINES

Technical Paper Publication. GTIndia2019-2685

***Franklinpraveen S**, Turbo Energy Pvt. Ltd., Bangalore, India, **Dhinagaran Ramachandran**, Turbo Energy Tech Centre, Bangalore, India, **Balamurugan Mayandi**, Turbo Energy Private Ltd, Bangalore, India, **Tamilarasan Kashirajan**, Turbo Energy Pvt. Ltd., Kanchipuram, India, **Alagarsamy V, Saravanan Boolingam**, Turbo Energy Private Ltd, Chennai*

TRACK 2 Turbines

Track Organizer: **B.V.S.S.S. Prasad**, *Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

2-3 ACCESSORIES AND AUXILIARIES

Hall II **8:00am - 10:00am**

Session Organizer: **Karthik Srinivasan**, *Rolls-Royce India Private Limited, Bangalore, Karnataka, India*

Session Co-Organizer: **Mahendran, M**, *GE Aviation, Bangalore, India*

Sealing In Fabricated Shrouds Of Aero-Derivative Power Turbine For Industrial Applications

Technical Paper Publication. GTIndia2019-2339

Srinidhi Katti, *Baker Hughes, a GE company, Bengaluru, Karnataka, India*, ***Simone Colantoni, Girolamo Tripoli***, *Baker Hughes, a GE company, Florence, Italy*

Kishor Kumar, *N A L, Bangalore, India*, ***Felix Jesuraj***, *National Aerospace Laboratories, Bangalore, India*

Leakage and Windage Heating in Stepped Labyrinth Seals

Technical Paper Publication. GTIndia2019-2426

Kali Charan Nayak, Nomesh P Kandaswamy, *Rolls-Royce India Pvt LTD, Bangalore, India*, ***Syed Faheemulla***, *Rolls-Royce, Bangalore, India*

Parametric Studies on Gas Turbine Labyrinth Seal for the Secondary Air Flow Optimization at Static and Rotating Conditions

Technical Paper Publication. GTIndia2019-2397

Karthick Raja K, *Amrita Vishwa Vidyapeetham, kollam, India*, ***Giridhara Babu Yepuri***, *CSIR- National Aerospace Laboratories, BANGALORE, KARNATAKA, India*, ***J S Jayakumar***, *Amrita Vishwa Vidyapeetham, Kerala, India*,

Liquid atomization in a high speed slinger atomizer

Technical Paper Publication. GTIndia2019-2616

Arnab Chakraborty, Srikrishna Sahu, *IIT Madras, chennai, Tamil Nadu, India*

2-4 COMPUTATIONAL ANALYSIS

Annexe Hall **8:00am - 10:00am**

Session Organizer: **Vimala Narayanan**, *Gas Turbine Research Establishment, Bangalore, India*

Session Co-Organizer: **Subbarao Rayapati**, *NITTTR Kolkata, Kolkata, West Bengal, India*

Design and Development of a Radial Turbine for Low Flow Turbocharging

Technical Paper Publication. GTIndia2019-2692

Dhinagaran Ramachandran, *Turbo Energy Tech Centre, Bangalore, India*, ***Srinivasa Rao Billa***, *Turbo Energy Pvt. Ltd., Bangalore, India*, ***Balamurugan Mayandi***, *Turbo Energy Private Ltd, Bangalore, India*, ***Perumal Balappan***, *Turbo Energy Private Ltd, Chennai, India*, ***Shyamaprasad Kanthila, Neeraj Srivastava***, *Turbo Energy Private Ltd, Bangalore, India*

CFD Study for the Particle Transport and Deposition in Secondary Air Systems

Technical Paper Publication. GTIndia2019-2423

Kali Charan Nayak, Nomesh P Kandaswamy, *Rolls-Royce India Pvt LTD, Bangalore, India*, ***John Irving***, *Rolls-Royce Plc, Derby, United Kingdom*, ***Guy Snowsill***, *Rolls-Royce, Dersyshire, United Kingdom*, ***Benjamin Littley***, *Rolls-Royce, Derby, United Kingdom*

Numerical Analysis of Turbulent Mixing In Cross Flow Configurations

Technical Paper Publication. GTIndia2019-2506

Kashyap Patel, CHAINA RAM, *Apollo Institute of Engineering, Ahmedabad, Gujarat, India*, ***Vishal Rasaniya***, *Apollo Institute of Engineering and Technology, Ahmedabad, Gujarat, India*

Numerical Study Of Vortices And Their Interactions In The Passage Of Rotor Blade With Tip Gap

Technical Paper Publication. GTIndia2019-2733

Sachin Singh Rawat, B.V.S.S.S. Prasad, *Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

TRACK 3 Heat Transfer

Track Organizer: **Ramakumar Bomisetty**, *Dayanand Sagar University, Bangalore, India*

3-7 RIB AND FILM COOLING

RJN202 **8:00am - 10:00am**

Session Organizer: **Batchu Suresh**, *Gas Turbine Research Establishment, Bangalore, India*

Session Co-Organizer: **Arun K Pujari**, *IIPE, Visakhapatnam, India*

A Comparative Study of Heat Transfer characteristics and Pressure Drop in Matrix Structures

Technical Paper Publication. GTIndia2019-2550

Anjana N. Prajapati, *Indian Institute of Technology, Ahmedabad, Gujarat, India*, ***Andallib Tariq***, *Indian Institute of Technology, Roorkee, Roorkee, Uttarakhand, India*

COMPUTATIONAL STUDY OF MIST ASSISTED FILM COOLING ON A FLAT PLATE

Technical Paper Publication. GTIndia2019-2637

Mallikarjuna Rao Pabbi Setty, *IIT Madras, chennai, India*, ***B.V.S.S.S. Prasad***, *Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

FLUID THERMAL NETWORK STUDIES ON COOLED NOZZLE GUIDE VANE

Technical Paper Publication. GTIndia2019-2651

Pol Reddy Kukutla, B.V.S.S.S. Prasad, *Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

Detailed Heat Transfer Characteristics of Matrix Cooling Channels with Rib Angle 35o using Liquid Crystal Thermography

Technical Paper Publication. GTIndia2019-2551

Anjana N. Prajapati, *Indian Institute of Technology, Ahmedabad, Gujarat, India*, ***Andallib Tariq***, *Indian Institute of Technology, Roorkee, Roorkee, Uttarakhand, India*

TRACK 4 Combustion, Fuels and Emissions

Track Organizer: **Ashoke De**, *Indian Institute of Technology Kanpur, Kanpur, Uttar Pradesh, India*

4-2 GAS TURBINE COMBUSTION-II

RJN101 **8:00am - 10:00am**

Session Organizer: **Sathesh Mariappan**, *Indian Institute of Technology Kanpur, Kanpur, U.P., India*

Session Co-Organizer: **Varunkumar S**, *IIT Madras, Chennai, India*

Conjugate Heat Transfer Analysis of a Small Annular Combustor with Centrifugal Fuel Injection System

Technical Paper Publication. GTIndia2019-2356

Rampada Rana, *GTRE-DRDO, Bangalore, India*, ***Alosri Prajwal***, *MVJ College of Engineering, Bangalore, India*, ***G Sivaramakrishna***, *GTRE DRDO, Bangalore, India*, ***Raju D Navindgi, Nagalingam Muthuveerappan***, *GTRE, DRDO, Bangalore, India*

On Effect Of The Flare Angle On The Behaviour Of The Flow Field Of Twin-Radial Swirlers/High Shear Injector

Technical Paper Publication. GTIndia2019-2537

Sonu Kumar, *Indian Institute of Science Bangalore, Bangalore, karnataka, India*, ***Saptarshi Basu***, *IISc Bangalore, Bangalore, Karnataka, India*, ***Swetaprovo Chaudhuri***, *Indian Institute of Science Bangalore, Bangalore, India*

Experimental and Numerical Analysis of Turbulent Swirl Flow Structures in Double Swirler Burner

Technical Paper Publication. GTIndia2019-2739

Dhanalakshmi Sellan, *IIT Hyderabad, Hyderabad, Telangana State, India*, ***Raju Murugan***, *IIT Hyderabad, Kandi, Sangareddy, Kandi, Sangareddy, Telangana State, India*, ***Saravanan Balusamy***, *Indian Institute of Technology Hyderabad, Hyderabad, India*

Phenomena based model for predicting ignition probability for gas-turbine combustors

Technical Paper Publication. GTIndia2019-2307

Sourabh Shrivastava, *ANSYS Inc., Pune, Select State/Province, India*, ***Pravin Nakod***, *ANSYS Inc, India, India*

4-9 MULTI-PHASE COMBUSTION-II

RJN102 **8:00am - 10:00am**

Session Organizer: **Abhijit Kushari**, *IIT Kanpur, Kanpur, India*

Session Co-Organizer: **Vaibhav Arghode**, *IIT Kanpur, Kanpur, India*

EXPERIMENTAL INVESTIGATION OF FLOW BLURRING ATOMIZER AT NEAR FIELD USING PARTICLE IMAGE VELOCIMETRY

Technical Paper Publication. GTIndia2019-2635

Raju Murugan, *IIT Hyderabad, Kandi, Sangareddy, Kandi, Sangareddy, Telangana State, India*, ***Dhanalakshmi Sellan***, *IIT Hyderabad, Hyderabad, Telangana State, India*, ***Pankaj Kolhe***, *IIT Hyderabad, Sangareddy, Telangana, India*

EXPERIMENTAL STUDY OF FLOW FIELD EFFECT ON SPRAY AND FLAME STRUCTURE IN SWIRL STABILIZED COMBUSTOR

Technical Paper Publication. GTIndia2019-2639

Raju Murugan, *IIT Hyderabad, Kandi, Sangareddy, Kandi, Sangareddy, Telangana State, India*, ***Dhanalakshmi Sellan***, *IIT Hyderabad, Hyderabad, Telangana State, India*, ***Pankaj Kolhe***, *IIT Hyderabad, Sangareddy, Telangana, India*

Comparison of Atomization Characteristics of Jet A-1 and Alternative Aviation Fuels Using High Speed Imaging Technique

Technical Paper Publication. GTIndia2019-2747

Manish Kumar, *Indian Institute of Technology, Kharagpur, KHARAGPUR, India*, ***Srinibas Karmakar***, *IIT Kharagpur, Kharagpur, India*

Experimental investigation of droplet velocity fields from elliptic injectors in subsonic cross flow

Technical Paper Publication. GTIndia2019-2772

Ather Uzair Alvi, Amit Thakur, *PES University, Bangalore, India*, ***Srinivas Jangam, Pratheesh Kumar P, Venkat Iyengar***, *CSIR-National Aerospace Laboratories, Bangalore, India*

TRACK 5 Structures and Dynamics

Track Organizer: **Ramesh T C**, *Quest Global, Bangalore, India*

5-3 BEARINGS

Hall I **8:00am - 10:00am**

Session Co-Organizer: **Baskaran Bhuvaraghan**, *GE, Bengaluru, Karnataka, India*

Estimation of Active Magnetic Bearings (AMB) Dynamic Parameters and Residual Mass Imbalance Using FEM with PID Controller and Identification Algorithm of a Flexible Rotor System Fully Levitated on AMB

Technical Paper Publication. GTIndia2019-2595

Bala Murugan S, R K Behera, *NIT Rourkela, Rourkela, Odisha, India*

Analysis of Aerostatic Thrust Bearing for sCO2 Turbomachinery

Technical Paper Publication. GTIndia2019-2643

Ashutosh Patel, Aanand K. Balasubramanian, Vijay Biradar, Shreyas Srivatsa, *IISc Bangalore, Bangalore, KARNATAKA, India*, ***Pramod Kumar***, *Indian Institute of Science, Bangalore, India*, ***Venkata R Sonti***, *Indian Institute of Science, Bengaluru, Karnataka, India*

Investigations on the Effect of Bearing Clearance in Turbocharger Fully Floating Hydro-Dynamic Bearing System

Technical Paper Publication. GTIndia2019-2768

Lokesh Chandrasekaran, Praveen Kumar S, *Turbo Energy Private Limited, Chennai, Tamil Nadu, India*, ***Prasanth Vengala***, *Turbo Energy Private Limited, Kanchipuram, Tamil Nadu, India*, ***D A Subramani***, *Turbo Energy Private Ltd, Chennai, India*

A NUMERICAL STUDY ON THE EFFECT OF UNBALANCE AND MISALIGNMENT FAULT PARAMETERS IN A RIGID ROTOR LEVITATED BY ACTIVE MAGNETIC BEARINGS

Technical Paper Publication. GTIndia2019-2384

Prabhat Kumar, *IIT Guwahati, Guwahati, India*, ***Rajiv Tiwari***, *Indian Institute of Technology Guwahati, Guwahati, Assam, India*

TRACK 9 GT Operation and Maintenance

Track Organizer: **Hemant Gajjar**, *TPL, Bharuch, GUJARAT, India*

9-1 INDUSTRIAL GT O&M

Auditorium **8:00am - 10:00am**

Session Organizer: **Dhinagaran Ramachandran**, *Turbo Energy Tech Centre, Bangalore, India*

Session Co-Organizer: **Srinivasa Rao Billa**, *Turbo Energy Pvt. Ltd., Bangalore, India*

CASE STUDY OF A GAS TURBINE CHRONIC FAILURE AT SAUDI ARABIA

Technical Paper Publication. GTIndia2019-2328

Abdullah AlKhudhayr, *Saudi Aramco, AlAhsa, Saudi Arabia*, ***Abdulrahman Aladel***, *Saudi Aramco, Udhailiyah, Saudi Arabia*

Online Automatic Degradation Diagnosis of Gas Turbine Bearings based on Unsupervised Machine Learning

Technical Paper Publication. GTIndia2019-2367

Pallabi Kakati, *Shiv Nadar University, Greater Noida, India*, ***Devendra Dandotiya, Rajendrakumar Savanur***, *Presidency University, Bangalore, Bangalore, Karnataka, India*

Artificial Intelligence Based Gas Turbine Compressor Wash: A Predictive Approach

Technical Paper Publication. GTIndia2019-2434

Shaiju M.Raghavan, *NTPC Ltd, Mumbai, India*, ***Arun Palatel***, *National Institute of Technology Calicut, Calicut (Kozhikode),Kerala, Kerala, India*, ***Jayaraj Simon***, *National Institute of Technology Calicut, Calicut, Kerala, India*

An Integral Approach to Designing of an Optimized and Reliable Anti-icing System under Off-Design Operating Regimes in a Gas Turbine

Technical Paper Publication. GTIndia2019-2695

Nishit Mehta, *SoftInWay Turbomachinery Solutions Private Limited, Bengaluru, Karnataka, India*, ***Olga Altukhova***, *SoftInWay Inc., Burlington, MA, United States*, ***Abdul Nassar***, *Softinway Turbomachinery Solutions Pvt Ltd, Banglore, Karnataka, India*, ***Leonid Moroz***, *Softinway Inc., Burlington, MA, United States*

TRACK 11 Analytics & Digital Solutions for Gas Turbines/Rotating Machinery

Track Organizer: **Ajay Behera**, *GE Power, Bangalore, India*

11-1 SESSION-1: GAS TURBINE DIGITAL SOLUTIONS

RJN201 **8:00am - 10:00am**

Session Organizer: **Kallappa Pattada**, *Boeing Research and Technology, Bangalore, Karnataka, India*

Session Co-Organizer: **Niranjan Sarangi**, *GTRE, DRDO, Bangalore, Karnataka, India*

Modified Brayton cycle for Turbofans

Technical Paper Publication. GTIndia2019-2433

Chirag Singhal, *Department of Mechanical Engineering, Aligarh Muslim University, Aligarh, Uttar Pradesh, India*, ***Sameer Hasan***, *Aligarh Muslim University, Aligarh, Uttar Pradesh, India*, ***MF Baig***, *Department of Mechanical Engineering, Aligarh Muslim University, Aligarh, Uttar Pradesh, India*

EFFECT OF PARTIAL TEXTURE ON THE HYDRODYNAMIC PERFORMANCE OF MESO SCALE AIR BEARINGS FOR MESOSCALE TURBO-MACHINES

Technical Paper Publication. GTIndia2019-2517

NILESH HINGAWE, SKYLAB BHORE, *MNNIT ALLAHABAD, PRAYAGRAJ, PRAYAGRAJ, Uttar Pradesh, India*

Thermal Analysis Validation Using Machine Learning

Technical Paper Publication. GTIndia2019-2605

Krishna Nelanti, Raviraj Barapu, Suresh Thiraviyam, Naresh Nidamanuri, *Cyient Ltd, Hyderabad, Telangana, India*

Nonlinear interactions within a flexible rotating shaft

Technical Paper Publication. GTIndia2019-2766

Kartheek Amaroju, *OENA, IIT Kharagpur, Kharagpur, West Bengal, India*, ***kiran vijayan***, *OENA, IIT Kharagpur, Khara, West Bengal, India*

TRACK 13 Keynote Lectures

13-2 KEYNOTE BY PROFESSOR SEUNG JIN SONG, SEOUL NATIONAL UNIVERSITY

Auditorium **10:30am - 11:30am**

Session Organizer: **Mariasundaram Antony**, *GE Power, Bangalore, India*

Keynote by Professor Seung Jin Song, Seoul National University

Technical Presentation. GTIndia2019-2837

Seung Jin Song, *Seoul National University, Seoul 151-744, Korea (Republic)*

TRACK 2 Turbines

Track Organizer: **B.V.S.S.S. Prasad**, *Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

2-1 TURBINE DESIGN: STRUCTURES AND DYNAMICS - 1

Hall II **11:45am - 1:15pm**

Session Organizer: **Kali Charan Nayak**, *Rolls-Royce India Pvt LTD, Bangalore, India*

Session Co-Organizer: **Anuj Srivastava**, *Bharat Forge Ltd, PUNE, MAHARASHTRA, India*

Turbine Rear Frame Design For An Aero Derivative Gas Turbine

Technical Paper Publication. GTIndia2019-2364

Anil Kumar Chippa, *Baker Hughes, a GE Company (BHGE), BANGALORE, Select One, India*, ***Babu Santhana Gopalakrishnan***, *BHGE, Bangalore, India*, ***Federico Casadio, Gianfranco Pittella***, *Baker Hughes, a GE Company (BHGE), Florence, Italy*

Design And Development of Aeroderivative Gas Turbine Lifting And Handling Structures

Technical Paper Publication. GTIndia2019-2379

Milind Ghumre, *BHGE, Bangalore, KARNATAKA, India*, ***Ramesh Kammalapalli***, *BHGE, Hyderabad, India*, ***Gianfranco Pittella***, *Baker Hughes, a GE Company (BHGE), Florence, Italy*, ***Babu Santhana Gopalakrishnan***, *BHGE, Bangalore, India*

TOWARDS VISUALISATION OF CAPACITY, BEARING THRUST LOAD AND REACTION VARIATION WITH AEROFOIL SKEW IN A GAS TURBINE

Technical Paper Publication. GTIndia2019-2441

Karthik Srinivasan, *Rolls-Royce India Private Limited, Bangalore, Karnataka, India*, ***Soumyik Bhaumik, Lakshmanan Valliappan***, *Rolls Royce India Pvt Ltd, Bangalore, India*

TRACK 3 Heat Transfer

Track Organizer: **Ramakumar Bomisetty**, *Dayanand Sagar University, Bangalore, India*

3-5 HEAT EXCHANGERS -1

RJN202 **11:45am - 1:15pm**

Session Organizer: **Ranganayakulu Chennu**, *Aeronautical Development Agency, Bangalore, India*

Session Co-Organizer: **Ashokkumar M**, *GM, Bangalore, India*

EXPERIMENTAL STUDY OF SURFACE CHANGES EFFECTS FOR DRAG REDUCTION IN A HEAT EXCHANGER WITH TRIANGULAR AND SQUARE ARRANGEMENT

Technical Paper Publication. GTIndia2019-2369

Arash Mirabdolah Iavasani, Ali Najaf Khani, Mahdi Zakizade, Armen Adamian, *Islamic Azad University, Central Tehran Branch, Tehran, Islamic Republic Of Iran*

Transient Response Characteristics of a Surface Junction Probe

Technical Paper Publication. GTIndia2019-2536

ANIL KUMAR ROUT, Niranjan Sahoo, Pankaj Kalita, Vinayak Kulkarni, *Indian Institute of Technology Guwahati, Guwahati, India*

Heat Transfer Enhancement with Vortex Generators

Technical Paper Publication. GTIndia2019-2560

Md. Islam, *Khalifa University of Science and Technology, Abu Dhabi, Abu Dhabi, United Arab Emir.*, ***Liang Guangda***, *Khalifa University, abu Dhabi, Abu Dhabi, United Arab Emir.*, ***Sami Ainane, Shrinivas Bojanampati***, *Khalifa University of Science and Technology, Abu Dhabi, United Arab Emir.*

TRACK 4 Combustion, Fuels and Emissions

Track Organizer: **Ashoke De**, *Indian Institute of Technology Kanpur, Kanpur, Uttar Pradesh, India*

4-6 THEORETICAL AND COMPUTATIONAL COMBUSTION-II

RJN102 **11:45am - 1:15pm**

Session Organizer: **Sheshadri Sreedhara**, *IIT Bombay, Mumbai, Maharashtra, India*

Session Co-Organizer: **Neeraj Kumbhakarna**, *IIT Bombay, Mumbai, Maharashtra, India*

Simulation of CO Emission in Primary and Secondary Zone of a Small Gas Turbine Combustion Chamber Using CFD and Reactors Network

Technical Paper Publication. GTIndia2019-2594

Ivan Zubrilin, N. I. Gurakov, A. S. Semenikhin, Oleg V. Kolomzarov, S.G. Matveev, Vladislav Anisimov, *Samara national research university, Samara, Russia*

Unsteady Non-Reacting and Reacting Flow Simulations of a Triangular Bluff-Body Flameholder

Technical Paper Publication. GTIndia2019-2603

Manoj Mannari, A. T. Sriram, *Ramaiah University of Applied Sciences, Bangalore, Karnataka, India*, ***Gursharanjit Singh***, *GTRE, Bangalore, Karnataka, India*, ***S Ganesan***, *Gas Turbine Research Establishment, Bangalore, India*

TRACK 5 Structures and Dynamics

Track Organizer: **Ramesh T C**, *Quest Global, Bangalore, India*

5-5 DYNAMICS-2

RJN201 **11:45am - 1:15pm**

Session Organizer: **Shivananda K**, *QuEST Global Engineering PVT LTD, Bangalore, India*

Free Vibration Characteristics of Sandwich Conical Shells with FGM Face Sheets: A Finite Element Approach

Technical Paper Publication. GTIndia2019-2545

Tripuresh Deb Singha, *Govt. College of Engineering and Textile Technology, Serampore, Hooghly, West Bengal, India*, ***Apurba Das***, *Netaji Subhash Engineering College, Kolkata, West Bengal, India*, ***Gopal Agarwal***, *Jadavpur University, West Bengal, India*, ***Tanmoy Bandyopadhyay, Amit Karmakar***, *Jadavpur University, Kolkata, West Bengal, India*

Time dependent low velocity impact response of turbomachinery blade made of porous exponential FGM

Technical Paper Publication. GTIndia2019-2785

Apurba Das, *Netaji Subhash Engineering College, Kolkata, West Bengal, India*, ***Gopal Agarwal***, *Jadavpur University, West Bengal, India*, ***Kazuaki Inaba***, *Tokyo Institute of Technology, Tokyo, Japan*, ***Amit Karmakar***, *Jadavpur University, Kolkata, India*

Analysis of Static and Dynamic Performance Parameters of Two-Lobe Journal Bearing Operating with Non-Newtonian Lubricant

Technical Paper Publication. GTIndia2019-2412

ASHUTOSH KUMAR, *INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI, NORTH GUWAHATI, India*, ***Sashindra Kumar Kakoty***, *INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI, Guwahati, Assam, India*

TRACK 6 Renewable Energy (Solar, Wind)

Track Organizer: **Ujjwal K. Saha**, *Indian Institute of Technology Guwahati, Guwahati, India*

6-3 GENERAL RENEWABLES

Auditorium **11:45am - 1:15pm**

Session Organizer: **Dhiman Chatterjee**, *Indian Institute of Technology Madras, Chennai, India*

Session Co-Organizer: **Abdus Samad**, *IIT Madras, Chennai, Tamil, India*

Thermodynamic Analysis and Performance Enhancement of Air and CO2 based Compressed Gas Storage Systems

Technical Paper Publication. GTIndia2019-2489

***Abhishek Dahiya**, Shiv Nadar University, Gautam Buddha Nagar, Uttar Pradesh, India, **Jishnu Bhattacharya**, Indian Institute of Technology, Kanpur, Kanpur, Uttar Pradesh, India, **Nitin Banker**, Ahmedabad University, Ahmedabad, Gujarat, India*

PERFORMANCE ENHANCEMENT OF A HYDRAULIC SAVONIUS TURBINE BY OPTIMIZING OVERLAP AND GAP RATIOS

Technical Paper Publication. GTIndia2019-2670

***Emeel Kerikous**, OVGU, Magdeburg, Germany, **Dominique Thévenin**, Magdeburg University, Magdeburg, Germany*

PERFORMANCE IMPROVEMENT OF A COMBINED POWER AND COOLING CYCLE FOR LOW TEMPERATURE HEAT SOURCES USING INTERNAL HEAT RECOVERY AND SCROLL EXPANDER

Technical Paper Publication. GTIndia2019-2715

***Martina Leveni**, University of Rome Niccolo' Cusano, Rome, Italy, **Arun Kumar Narasimhan**, University of South Florida, Tampa, FL, United States, **Eydhah Almatrafi**, King Abdulaziz University, Rabigh, Saudi Arabia, **D. Yogi Goswami**, Univ Of South Florida, Tampa, FL, United States*

TRACK 9 GT Operation and Maintenance

Track Organizer: **Hemant Gajjar**, *TPL, Bharuch, GUJARAT, India*

9-2 AERO GT O&M 1

RJN101 **11:45am - 1:15pm**

Session Organizer: **Srinivasa Rao Billa**, *Turbo Energy Pvt. Ltd., Bangalore, India*

Session Co-Organizer: **Joseph Machnaim**, *General Aeronautics, Bangalore, India*

Modelling, Analysis and Flight Testing of a Military Turbofan Engine under Windmilling Conditions

Technical Paper Publication. GTIndia2019-2353

***Balaji Budharaju**, Aeronautical Development Agency(ADA), Bangalore, India, **NAGABATTULA OM PRAKASH RAJ, Mahesh P Padwale, Ravishankar GP**, Aeronautical Development Agency, BANGALORE, India*

Performance Simulation of an Engine Retrofitted with Thrust Vectoring Capabilities

Technical Paper Publication. GTIndia2019-2448

***Ramraj Harikanth Sundararaj, T. Chandra sekar, Rajat Arora, A.N Rao**, Indian Institute of Technology Kanpur, Kanpur, Outside US and Canada, India, **Abhijit Kushari**, IIT Kanpur, Kanpur, India*

Engine Start characteristics of cold soaked aircraft at high altitude

Technical Paper Publication. GTIndia2019-2488

***SANTHOSH KASRAM, Sajath Kumar Manoharan, Mahesh P Padwale, Ravishankar GP**, AERONAUTICAL DEVELOPMENT AGENCY, BANGALORE, India*

TRACK 10 Materials & Manufacturing (including Coatings, Composites, CMCs, Additive Manufacturing)

Track Organizer: **Dheepa Srinivasan**, *Pratt and Whitney, Bengaluru, India*

10-2 MATERIALS BEHAVIOR AND COMPONENT LIFTING

Hall III **11:45am - 1:15pm**

Session Organizer: **Karthikeyan S**, *Materials Engineering Department, Bangalore, India*

Computational Analysis On The Use Of Various Nimonic Alloys As Gas Turbine Blade Materials

Technical Paper Publication. GTIndia2019-2398

***Subbarao Rayapati**, NITTTR Kolkata, Kolkata, West Bengal, India, **Nityanando Mahato**, Brainware University, Kolkata, West Bengal, India*

Effect of Laser Energy Density on Bulk Properties of SS 316L Structures built by Laser Additive Manufacturing using Powder Bed Fusion

Technical Paper Publication. GTIndia2019-2452

***Saurav K Nayak**, Homi Bhabha National Institute, RRCAT, Indore, India, **S K Mishra, Christ P Paul**, Raja Ramanna Centre for Advanced Technology, Indore, India, **Arackal N Jinoop**, Homi Bhabha National Institute, Raja Ramanna Centre for Advanced Technology, Indore, Madhya Pradesh, India, **Sunil Yadav**, Homi Bhabha National Institute, RRCAT, Indore, India, **Kushvinder S Bindra**, LDIAD, Indore, India*

TRACK 11 Analytics & Digital Solutions for Gas Turbines/Rotating Machinery

Track Organizer: **Ajay Behera**, *GE Power, Bangalore, India*

11-2 SESSION-2: GAS TURBINE ANALYTICS

Hall I **11:45am - 1:15pm**

Session Organizer: **Niranjan Sarangi**, *GTRE, DRDO, Bangalore, Karnataka, India*

Session Co-Organizer: **Kallappa Pattada**, *Boeing Research and Technology, Bangalore, Karnataka, India*

MBSE Model on Gas Turbine Tip Clearance Control

Technical Paper Publication. GTIndia2019-2365

***Guruprasad Kulkarni**, Rolls-Royce India Pvt. Ltd., Bengalore, India, **Sebastian Price**, Rolls-Royce India Private Limited, Bangalore, India*

Automatized 3D-scanning application for the virtualization of large components

Technical Paper Publication. GTIndia2019-2388

***Stephan Mönchinger**, Fraunhofer IPK, Berlin, Berlin, Germany, **Marvin M. Schmidt**, Technical University of Berlin, Berlin, Berlin, Germany, **Sebastian Dreßen**, Siemens AG, Berlin, Berlin, Germany, **Patrick Wissmann**, Siemens AG, München, Bayern, Germany, **Rainer Stark**, Fraunhofer IPK, Berlin, Berlin, Germany*

Application of Data Analytics in Gas turbine engines

Technical Paper Publication. GTIndia2019-2557

***DANTESWARA RAO TALURU, Rajendra Allabanda**, CYIENT, Hyderabad, Telangana, Telangana, India*

TRACK 15 Invited Sessions

15-2 UNSTEADY TURBULENCE MECHANISM ASSOCIATED WITH TURBO-MACHINERIES

Annexe Hall **11:45am - 1:15pm**

Session Organizer: **Debasish Biswas**, *Toshiba Research and Development Center, Kawasaki, Kanagawa, Japan*

Unsteady Turbulence Mechanism Associated with Turbo-Machineries

Technical Presentation. GTIndia2019-2835

Debasish Biswas, *Toshiba Research and Development Center, Kawasaki, Kanagawa, Japan*

TRACK 1 Compressors, Fans and Pumps

Track Organizer: **Chetankumar Mistry**, *IIT Kharagpur, Kharagpur, India*

1-6 AXIAL FLOW COMPRESSOR AND FAN - 5

Hall II **2:15pm - 3:45pm**

Session Organizer: **Dilipkumar Bhanudasji Alone**, *CSIR-NAL, Bangalore, India*

Session Co-Organizer: **Vadlamani Nagabhushana Rao**, *IIT Madras, Chennai, India*

Numerical Simulation Studies on the Performance of a Diffuser attached with Last Stage Compressor Outlet Guide Vanes

Technical Paper Publication. GTIndia2019-2629

A. T. Sriram, *Ramaiah University of Applied Sciences, Bangalore, Karnataka, India*

EFFECT OF TIP GAP VARIATION ON THE PERFORMANCE OF THE TRANSONIC FAN STAGE WITH TANDEM STATOR

Technical Paper Publication. GTIndia2019-2648

Ananthakrishnan Kaliyaperumal, Shyama Prasad Das, *IIT Madras, Chennai, Tamilnadu, India*, ***B.V.S.S.S. Prasad***, *Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

Design of High Transonic Axial Compressor Stage for Small Gas Turbine Applications

Technical Paper Publication. GTIndia2019-2690

S Satish Kumar, *National Aerospace Laboratories, Bangalore, India*, ***Lakshya Kumar***, *CSIR-NAL, Bangalore, India*, ***Kumaran R Senthil***, *National Aerospace Laboratories, Benguluru, Karnataka, India*, ***VEERA SESHA KUMAR***, *CSIR-National Aerospace Laboratories, Bangalore, India*, ***M T Shobhavathy***, *National Aerospace Laboratories, Bangalore, India*

TRACK 2 Turbines

Track Organizer: **B.V.S.S.S. Prasad**, *Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

2-6 TURBINE DESIGN: STRUCTURES AND DYNAMICS -2

Hall III **2:15pm - 3:45pm**

Session Organizer: **Anuj Srivastava**, *Bharat Forge Ltd, PUNE, MAHARASHTRA, India*

Session Co-Organizer: **Kali Charan Nayak**, *Rolls-Royce India Pvt LTD, Bangalore, India*

Investigation of Structural Integrity in a Circumferential Entry Blade of a Turbine Rotor

Technical Paper Publication. GTIndia2019-2507

Shreyas Puttappa Mulagund, *Kshipra Simulations Pvt. Ltd., Bangalore, Karnataka, India*, ***Suresh Babu AS***, *Ghousia College of Engineering, Bengaluru, Karnataka, India*, ***Kumar Kenche Gowda***, *Kshipra Simulations Pvt. Ltd., Bengaluru, Karnataka, India*

Effect Of Snubbers And Lacing Wire On Aerodynamic Performance Of Last Stage Steam Turbine

Technical Paper Publication. GTIndia2019-2509

Sreekumar Parameshwaran, *M.S. Ramaiah University of Applied Sciences, Bangalore, India*, ***Mahesh Varpe***, *MSRUAS Bangalore, Bangalore, India*

TRACK 3 Heat Transfer

Track Organizer: **Ramakumar Bomisetty**, *Dayanand Sagar University, Bangalore, India*

3-9 HEAT EXCHANGERS -2

RJN202 **2:15pm - 3:45pm**

Session Organizer: **Ranganayakulu Chennu**, *Aeronautical Development Agency, Bangalore, India*

Session Co-Organizer: **Ashokkumar M**, *GM, Bangalore, India*

Comparison of Thermal Performance of New Surface Roughness Element with Pin-fin in a Rectangular Channel

Technical Paper Publication. GTIndia2019-2702

Ritesh Gaur, S Ganesan, *Gas Turbine Research Establishment, Bangalore, India*, ***B.V.S.S.S. Prasad***, *Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

Parametric Behaviour of Closed Loop Pulsating Heat Pipe in Presence of Water as a Working Fluid

Technical Paper Publication. GTIndia2019-2744

N.P. Yadav, *BIET Jhansi, Jhansi, India*, ***Madhuri Madhuri***, *BIET, Jhansi, India*, ***Anil Kumar***, *Mechanical Enginerring, Jhansi, India*

TRACK 4 Combustion, Fuels and Emissions

Track Organizer: **Ashoke De**, *Indian Institute of Technology Kanpur, Kanpur, Uttar Pradesh, India*

4-10 COMBUSTION NOISE, EMISSION AND FUEL

RJN102 **2:15pm - 3:45pm**

Session Organizer: **Achintya Mukhopadhyay**, *Jadavpur University, Kolkata, West Bengal, India*

Session Co-Organizer: **Sirshendu Mondal**, *NIT Durgapur, WB, India, Durgapur, India*

Asymmetric transverse acoustic excitation of a hollow cone spray sheet with air swirl

Technical Paper Publication. GTIndia2019-2580

***Rohit R. Bhattacharjee**, Indian Institute of Technology, Chennai, Tamil Nadu, India, **Aravind I. Babu**, National Center For Combustion Research & Development, and Indian Institute of T, CHENNAI, India, **Satya Chakravarthy**, IIT Madras, CHENNAI, India*

Simulation of Pollutant Emissions In a Small-Sized Combustion Chamber With a Gas Fuel for Various Regime Modes

Technical Paper Publication. GTIndia2019-2687

***N. I. Gurakov, Ivan Zubrilin, Ivan V. Chechet, Vladislav M. Anisimov, Sergey S. Matveev, D. V. Idrisov, M. Yu Anisimov**, Samara National Research University, Samara, Samara region, Russia*

Model order identification of combustion instability using Lipschitz indices

Technical Paper Publication. GTIndia2019-2694

***Salil Harris, Aniruddha Sinha, Sudarshan Kumar**, Indian Institute of Technology Bombay, Mumbai, Maharashtra, India*

TRACK 5 Structures and Dynamics

Track Organizer: **Ramesh T C**, *Quest Global, Bangalore, India*

5-9 ROTORS -3

Annexe Hall **2:15pm - 3:45pm**

Session Organizer: **Gnanasambantham Arumugam**, *QuEST Global Engineering Services Pvt Ltd, Bangalore, Karnataka, India*

Dynamic Parameters Estimation and Fault Identification From Random Response of Rolling Element Bearing in a Rotor Bearing System

Technical Paper Publication. GTIndia2019-2565

***Pankaj Kumar**, Bharat Heavy Electrical Limited, Nagpur, India, **S Narayanan**, Indian Institute of Information Technology (Design and Manufacturing), Chennai, India, **Sayan Gupta**, Indian Institute of Technology Madras, Chennai, India*

Analysis of Cracked Rotor with Gyroscopic Effects supported on Textured Journal Bearings

Technical Paper Publication. GTIndia2019-2350

***Shravankumar Chandrasekaran, Jegadeesan Krishnan, TVVLN Rao**, SRM IST, Kattankulathur, India*

TRACK 6 Renewable Energy (Solar, Wind)

Track Organizer: **Ujjwal K. Saha**, *Indian Institute of Technology Guwahati, Guwahati, India*

6-4 SOLAR ENERGY

Hall I **2:15pm - 3:45pm**

Session Organizer: **Sudipta De**, *Jadavpur University, Kolkata, India*

Session Co-Organizer: **Pankaj Kalita**, *Indian Institute of Technology Guwahati, Guwahati, India*

Dynamic Behavior and Off-design Performance Analysis of Solar Driven ORC Using Scroll Expanders

Technical Paper Publication. GTIndia2019-2626

***Ying Zhang**, Tianjin University, tianjin, tianjin, China, **Arun Kumar Narasimhan**, University of South Florida, Tampa, FL, United States, **Mengjie Bai, Li Zhao, Shuai Deng**, Tianjin University, tianjin, China, **D. Yogi Goswami**, Univ Of South Florida, Tampa, FL, United States*

Experimental Investigation of Solar Still With Varying Pressure

Technical Paper Publication. GTIndia2019-2746

***Harender Sinhmar**, Shiv Nadar University, Gautam Budh Nagar, Uttar Pradesh, India, **Jitendra Bhati, Ritanshu Bhati**, Shiv Nadar University, Gautam Buddh Nagar, N/A, India*

TRACK 9 GT Operation and Maintenance

Track Organizer: **Hemant Gajjar**, *TPL, Bharuch, GUJARAT, India*

9-3 AERO GT O&M 2

RJN201 **2:15pm - 3:45pm**

Session Organizer: **Srinivasa Rao Billa**, *Turbo Energy Pvt. Ltd., Bangalore, India*

Session Co-Organizer: **Joseph Machnaim**, *General Aeronautics, Bangalore, India*

Leakage Based Condition Monitoring and Pressure Control of the Swash Plate Axial Piston Pump

Technical Paper Publication. GTIndia2019-2385

***NEERAJ KUMAR, BIKASH KUMAR SARKAR, SUBHENDU MAITY**, NIT MEGHALAYA, SHILLONG, India*

Numerical Simulation of the Effects of Manufacturing Deviations in Compressor Wheel Geometry on Performance

Technical Paper Publication. GTIndia2019-2678

***Dhinagaran Ramachandran**, Turbo Energy Tech Centre, Bangalore, India, **Balamurugan Mayandi**, Turbo Energy Private Ltd, Bangalore, India, **D A Subramani, Vanamurthy M, Ranganathan R S, Saravanan Boolingam**, Turbo Energy Private Ltd, Chennai, India*

Remaining Useful Life Predictions for Turbofan Engine Degradation using Online Long Short-Term Memory Network

Technical Paper Publication. GTIndia2019-2368

***Pallabi Kakati**, Shiv Nadar University, Greater Noida, India, **Devendra Dandotiya, Bhaskar Pal**, Presidency University, Bangalore, Bangalore, Karnataka, India*

TRACK 14 Panel Sessions

14-2 GAS TURBINES IN INDUSTRIAL AND LAND USE APPLICATIONS: OPERATIONAL FLEXIBILITY FOR THE 2022 ENERGY DEMAND

Auditorium **2:15pm - 3:45pm**

Session Organizer: **Dr. Dibakar Rakshit,** *Centre for Energy Studies, IIT Delhi, New Delhi, India*

TRACK 16 Tutorials

16-2 ADDITIVE MANUFACTURING

RJN101 **2:15pm - 3:45pm**

Session Organizer: **Dheepa Srinivasan**, *Pratt and Whitney, Bengaluru, India*

Additive Manufacturing for Gas Turbine Components

Tutorial. GTIndia2019-2838

***Dheepa Srinivasan**, Pratt and Whitney, Bengaluru, India*

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