Be sure to join the ASME Gas Turbine India Group online go.asme.org/IGTI and ask questions, exchange knowledge with some of the leaders in the industry and make plans to attend Gas Turbine India 2019.
Welcome to BANGALORE

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ASME 2017 Gas Turbine India Conference

Address:
Sheraton Grand Bangalore at Brigade Gateway
26/1 Dr. Rajkumar Road, Malleswaram - Rajajinagar,
Bengaluru, Karnataka, 560055, India
The ASME International Gas Turbine Institute presents the Fifth ASME Gas Turbine India Conference in Bengaluru, India on 7th & 8th December, 2017. The two-day event attracts the industry’s leading professionals and key decision makers, whose innovation and expertise will shape the future of turbomachinery. Authors and presenters are invited to participate in this event to exchange ideas on research, development and best practices on Gas Turbines and allied areas. Bengaluru is the Aerospace Capital of India with existence of important national and international gas turbine research, engineering & development organizations. This conference would be an excellent opportunity to connect with eminent R&T and Engineering professionals working in this field across the globe and gain valuable insights on the latest technology trends.

Across the globe, the Governments, Research Institutions and the Industries are investing on critical resources to mature gas turbine technologies towards better fuel consumption, cleaner environment and lower life cycle cost, with an aim to bring competitive technology advantage to the world. Modern digital technologies such as Artificial Intelligence and Machine Learning are gearing-up to transform the gas turbine industry towards smarter gas turbine engines that can be designed, manufactured and serviced in a more digital way. This trend is only going to grow further from gas turbine engine systems to aircraft or plant level optimization, leading to the development & integration of digital system of systems. There is a growing evidence of application of this trend in Aviation, Power, Wind, Solar, Oil & Gas sectors, enabling customers towards greater profitability along with environmental sustainability. Exploring modern gas turbine sciences and technologies in the digital framework would provide even more exciting new area of opportunities for next generation scientists, technologists and engineers.

The conference theme “Energy & Propulsion Technologies for a Digital Future” has been chosen with an objective to provide the conference participants a glimpse of emerging digital trends in the modern gas turbine research and technology domain.

We sincerely thank the organizations who have supported the conference through generous sponsorships, and the speakers who have kindly agreed to devote their time for the conference. We appreciate the dedicated efforts spent by the experts from academia and industry as reviewers, vanguard chairs and session organizers. I would like to extend the gratitude for the conference core team members - Review Chair Dr. Ravikanth Avancha from GE, Technical Program Chair Mr. V Ramana Murthy from GTRE and Prof. Joseph Mathew from IISc. Finally, much appreciation goes to ASME GT India Executive Committee Chair Mr. Joseph Machnaim and all IGTI staff for their dedicated support and guidance in making this conference possible.

On behalf of the 5th ASME Gas Turbine India Conference core committee, I am inviting you all to participate in this conference to gain valuable insights of new technology trends in this domain and collaborate your ideas with world renowned researchers, scientists and engineers who spearhead this technology transformation.

Best regards,

Sasikumar Muthusamy
Head of System and Sub-systems Design Rolls-Royce India
Sponsors

Platinum Sponsors

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- Rolls-Royce

Bronze Sponsor

- QUEST

Lanyard Sponsor

- TURBOCAM INTERNATIONAL

Exhibitors

- ASME
- GE
- Aimil Ltd.
- Convergent Science
- KISTLER
- SoftinWay
“Every 2.2 minutes an aircraft with GE technology lands in the top four airports in India.”
Schedule at a Glance

Thursday, December 7, 2017
Registration
Technical Sessions
Exhibit Hall Open
Inauguration & Keynote Address: Dr. CP Ramanarayanan, “Development of Aero Gas Turbine Engines and Technologies in India – Present and Future”
Coffee Break & Networking
Invited Speaker: Dr. Om Sharma, “Development of a Robust Distortion Tolerant Low Pressure Ratio Fan for Boundary Layer Ingesting Engines”
Technical Sessions
Lunch & Networking
Student Posters
Technical Sessions
Invited Speakers: Srikanth Bontha, PhD; Dr. Dheepa Srinivasan, “Additive Materials: Part A”
Coffee Break & Networking
Panel Session: “Digital Panel Discussion”
Technical Sessions
Invited Speaker: Dr. M. S. Anand “Combustion Simulation Challenges and the Digital Future”
Conference Gala Dinner

Friday, December 8, 2017
Registration
Technical Sessions
Exhibit Hall Open
Coffee Break & Networking
Panel Session: “GT Panel Discussion on Future Gas Turbine Technologies”
Lunch & Networking
Invited Speaker: Dr. Toshinori Watanabe “Recent Studies on Fundamental Mechanisms of Turbomachinery Flutter”
Technical Sessions
Coffee Break & Networking
Technical Sessions
Dinner Event

Thursday, December 7 * 6:00 - 8:00 pm *

All registered conference attendees are welcome to attend the Dinner.

The ASME GT India conference is an 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.
Conference Leadership

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<td>Sasikumar Muthusamy</td>
<td>Mr. V Ramana Murthy, SCG</td>
<td>Ravikanth Avancha</td>
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<td>Rolls-Royce India, Bangalore</td>
<td>Gas Turbine Research Establishment, Bangalore</td>
<td>GE Aviation</td>
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Vanguard Chairs

Pradeep A M, Indian Institute of Technology, Bombay
Ujjwal K. Saha, Indian Institute of Technology Guwahati
Bhamidi V S S Prasad, IIT MADRAS
Satyanarayanan Chakravarthy, IIT Madras
Ramesh T.C., QuEST Global
Jitendra Bijlani, LM Wind Power
Sankaran S, Indian Space Research Organization (ISRO)
Dhinagaran R, Turbo Energy Tech Centre
Hemant Gajjar, Torrent Power Ltd. [SUGEN Mega Power Project]
Yogesh Potdar, GE-Global Research Center
Vinay Jammu, GE India Technology Centre Private Limited
Hitesh Kumar Mistry, GE India Technology Centre Pvt. Ltd.
Anandaroop Bhattacharya, IIT Kharagpur
Fast forward thinking

In an industry that’s accelerating at an ever-increasing pace, here at Rolls-Royce we’re always one step ahead in the development of power systems on land, in the air and at sea. Building on a partnership of over 80 years, we continue to contribute to India’s substantial growth through best-in-class supply chains, excellent engineering capability and effective manufacturing infrastructure.

Our belief in India’s engineering and innovation capabilities, coupled with our commitment towards the government’s ‘Make in India’ initiative to develop India’s aerospace and infrastructure sectors, helps us shape the future together. And finally, to co-design, co-develop and co-manufacture with our highly skilled strategic partners, is as much an honour, as it is a great opportunity.

So here’s to a fantastic future at an ever-increasing pace.
Dr C P Ramanarayanan was the Chief Controller, R&D (HR) of DRDO before taking over as Director General (Aeronautical Systems) from June 2016.

Prior to this he was the Director of Gas Turbine Research Establishment (GTRE), one of the establishments of DRDO. Before joining GTRE, Dr Ramanarayanan was the Director of Vehicle Research & Development Establishment (VRDE), Ahmed Nagar and Technology Director for Thermal Torpedo Naval Science & Technological Laboratory (NSTL), Visakhapatnam. He has also served as a Project Director for Thermal Propulsion development for heavy & light weight torpedoes at NSTL.

Dr Ramanarayanan holds PhD in Energy Systems from Jawaharlal Nehru Technological University, Hyderabad. A fellow of Institute of Engineers, he was conferred “Scientist of the Year Award” in 2005.
Dr. Om Sharma is currently a Senior Research Fellow at the United Technologies Research Center (UTRC) since 2007. He, along with four other Senior Research Fellows, provides guidance and resources to enable the development of new concepts and technical capabilities through the use of Innovation Pipeline and Capability development processes.

He also provides leadership in solving tough technical problems encountered during product development process and provides critical assessment to senior management on technical issues and assisting in the assessment and support for technical excellence. During 1998-2000 Om directed a modeling, analysis, simulation and computation (MASC) initiative to support product development across the UTC divisions.

Om has worked for United Technologies since 1977, when he joined the Pratt & Whitney Turbo-Machinery Technology Group. Included among his technological accomplishments is the development of advanced design concepts and design processes in the turbine aerodynamics and heat transfer disciplines; developing 3-D design concepts for turbines and compressors by utilizing multistage computational fluid dynamics codes; and leading team development on active stall control technology demonstrated in a high bypass ratio large commercial jet engine. At Pratt & Whitney, he served as Chief Technologist, supporting the development of the F119, F135, PW4000, V2500 and GP7000 engines, establishing a Center of Excellence in Aerodynamics and directing the Pratt & Whitney Technical Fellows Program.

Om received a Bachelor of Technology degree and a Master of Science degree from the Indian Institute of Technology, New Delhi, India, and a doctorate from the University of Birmingham, United Kingdom. He is a Fellow with American Society of Mechanical Engineers (ASME) and a recipient of Distinguished Alumni Award from the Indian Institute of Technology, Delhi.
Invited Speakers

Thursday, December 7 * 2:15 - 3:00 pm * Bene

Srikanth Bontha, PhD
Assistant Professor, Department of Mechanical Engineering, National Institute of Technology Karnataka

Computational Modeling of Laser Direct Metal Deposition Processes

Srikanth Bontha is currently an assistant professor in the Mechanical Engineering department at National Institute of Technology Karnataka (NITK). Before Joining NITK in June 2013, he worked as an assistant professor at Indian Institute of Technology Patna (2011 – 2013) and also at Temple University, Philadelphia, USA (2009-2011). Before beginning his academic career, he spent more than three years in Industry at Kennametal Inc, Pittsburgh, USA, where he led product development projects as well as conducted research in the area of metal cutting. Dr. Bontha's research interests include Mechanics and Materials issues in Additive Manufacturing and Machinability of Titanium Alloys. For his experience and research contributions, Dr. Bontha was invited to serve on the International Scientific Committee of the Eleventh International Academy for Production Engineering (CIRP) Conference on Modeling of Machining Operations. He is a recipient of the 2010 Outstanding Young Manufacturing Engineer award from the Society of Manufacturing Engineers (SME). He is also a recipient of the 2009 Young Leader Professional Development Award from The Minerals, Metals and Materials Society (TMS) and the 2009 American Society for Metals (ASM) /Indian Institute of Metals (IIM) Visiting Lecturer. He was selected to represent TMS in the Emerging Leaders Alliance (ELA) Capstone Training Program at Denver, Colorado in November 2010. He holds three patents and has published several articles in top-ranking journals and international conference proceedings.

Dr. Bontha received Ph.D. in Engineering and M.S. in Mechanical Engineering degrees from Wright State University, Ohio and an undergraduate degree in Metallurgical Engineering from Jawaharlal Nehru Technological University, Hyderabad, India.
Dr. Dheepa Srinivasan is a Principal Engineer at GE, Power, GE India Industrial Pvt. Ltds. Bangalore. She has been with GE for over 17 years, as a lead scientist at the Global Research Centre, Technical leader for Materials and Process Engineering and Global Quality lean leader, GE Oil & Gas. She has a PhD, in Metallurgical Engineering, from the Indian Institute of Science, Bangalore. She is a certified Six Sigma Black Belt, in engineering quality management. Her core areas of expertise include development of high temperature structural materials and advanced coatings for gas turbine applications. She leads the repair development efforts for gas turbines, with emphasis on Additive Manufacturing, Cold Spray Coatings and Advanced Materials Characterization, as well as Component Lifting. In particular, she has pioneered the development of Additive Manufacturing in various Gas turbine Repair Applications, as a first of its kind product, that is qualified for production.
Invited Speakers

Thursday, December 7 * 4:00 - 6:00 pm * Jupiter 2

Dr. M. S. Anand
Rolls-Royce Engineering Associate Fellow

Combustion Simulation Challenges and the Digital Future

Dr. Anand has more than 39 years of experience in the modeling and simulation of turbulent reacting flows, and has been with Rolls-Royce for about 32 years. He leads the group that is responsible for the development of advanced computational fluid dynamics (CFD) based design system for all components including combustors, turbomachinery, inlets and nozzles etc.

He is also the global lead for combustion CFD methods for the global corporation. His group also provides advanced analytical design support for all component development and in-service programs. The group has developed industry-leading design tools under his leadership, particularly combustor tools which is his primary area of expertise. He also has joint worldwide corporate responsibility for providing strategic and technical direction for advanced methods R&D and design system development.

Dr. Anand has a strong background and record of advanced methods and model development as well as of experimental investigations. He has over 35 publications in reputed journals and conferences. He has won several Rolls-Royce R&D awards, and the Combustion Institute Student Award.

He has the honor of being appointed a Rolls-Royce Engineering Associate Fellow as well as Associate Fellow of AIAA in recognition of his technical contributions and international standing. He received his B. Tech from Indian Institute of Technology, Madras, India, and his M. S. and Ph. D. from Cornell University in Mechanical and Aerospace Engineering.
Invited Speakers

Friday, December 8 * 2:00 - 3:30 pm * Ceres

Dr. Toshinori Watanabe
Professor, Department of Aeronautics and Astronautics, The University of Tokyo

*Recent Studies on Fundamental Mechanisms of Turbomachinery Flutter*

Dr. Watanabe obtained Dr. Eng, from The University of Tokyo. He is currently Associate Professor, Department of Aeronautics and Astronautics, The University of Tokyo.


**His Social Activities include:**
- President, Japan Society for Aeronautical and Space Sciences;
- Board Member, Gas Turbine Society of Japan;
- Vanguard Chair, ASME/IGTI Structures and Dynamics Committee (2013-2016).

**Awards**
- Best Paper Award of the 7th International Symposium on Fluid Machinery and Fluids Engineering, 2016
- Best Paper Award of Japan Society of Mechanical Engineers, 2013
- Fellow of JSASS, 2013
- Best Paper Award of GTSJ, 1992 and 2006
Panel Session

Digital Panel Discussion
Thursday, December 7 * 4:00 – 6:00 pm * Grand Ballroom

Over the past couple of decades, dramatic improvements in communication and computing technologies have driven the growth of consumer internet that has improved efficiencies, increased customer access and created new business models in many industries including retail, banking, hospitality, and transportation. The panel discussion will focus on how these technologies and business models are changing design, manufacturing and services of industrial assets including gas turbines and what the future holds with artificial intelligence, IOT, cloud and big data technologies.

Panelists

Dr. Kurichi Kumar
Head of Engineering, Rolls Royce India

Leny Thangiah
Head of Research Group, Advanced Data Management, Siemens Corporate Technology

Vinay Jammu
Technology Leader, Physical-Digital Analytics in Digital Research Organization, GE India Technology Centre Private Limited

Dr. Mohan Srinivasa
Engineering Simulations and Predictive Analytics, ANSYS, Inc.
Panel Session

Future Gas Turbine Technologies
Friday, December 8 * 11:30 am – 1:00 pm * Grand Ballroom

Panelists

Dr. Frank Haselbach
Global Head of System Design, Rolls-Royce Group
Rolls-Royce Engineering Fellow

Mr. Alok Nanda
COO, GE India Technology Centre
General Manager, India Engineering, GE Aviation

Dr. B. N. Raghunandan
Advisor to Director, Indian Institute of Science, Bengaluru

Dr. Mukul Saxena
Siemens Corporate Technology Research, India
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Thursday, December 7th 2017

**TRACK 1 Compressors, Fans and Pumps**
Track Organizer: **Pradeep A M**, *Indian Institute of Technology*

1-3 **CENTRIFUGAL COMPRESSORS** I * Neptune
Session Organizer: **Chetan Mistry**, *IIT Kharagpur*
Session Co-Organizer: **Kirubakaran Purushothaman**, *Gas Turbine Research Establishment*

**AN EXPERIMENTAL INVESTIGATION ON HYSTERESIS IN A WET GAS COMPRESSOR**
*Technical Publication*. GTIndia2017-4518
**Martin Bakken, Tor Bjorge**, *Norwegian University of Science and Technology (NTNU)*

**VOLUTE FLOW INFLUENCE ON WET GAS COMPRESSOR PERFORMANCE**
*Technical Publication*. GTIndia2017-4529
**Martin Bakken, Tor Bjorge**, *Norwegian University of Science and Technology (NTNU)*

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**AN IMPROVED STREAMLINE CURVATURE METHOD FOR CENTRIFUGAL COMPRESSOR PERFORMANCE**
*Technical Publication*. GTIndia2017-4531
**Chaowei Zhang, Xuezhi Dong, Xiyang Liu, Qing Gao, Chunqing Tan**, *Institute of Engineering Thermophysics, Chinese Academy of Sciences*

**AN EXPERIMENTAL STUDY OF THE SLIP FACTOR IN A WET GAS CENTRIFUGAL COMPRESSOR WITH IGV**
*Technical Publication*. GTIndia2017-4634
**Levi André Berg Vigdal, Lars Eirik Bakken**, *Norwegian University of Science and Technology*

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**Track 2 Turbines**
Track Organizer: **Ujjwal K. Saha**, *Indian Institute of Technology Guwahati*

2-2 **EXPERIMENTS & SIMULATIONS** * Ceres
Session Organizer: **Sankarkumar J**, *Gas Turbine Research Establishment*
Session Co-Organizer: **Saurya Ray**, *General Electric*

**TOWARDS AN UNDERSTANDING OF TRAVERSE MIGRATION IN THE HIGH PRESSURE STAGE OF A GAS TURBINE: EFFECTS OF GEOMETRY FIDELITY & TURBULENCE MODELLING**
*Technical Publication*. GTIndia2017-4583
**Karthik Srinivasan**, *Rolls-Royce India Private Limited; Simon Bather*, *Rolls-Royce plc*

**DESIGN AND ANALYSIS OF A MARINE CURRENT TURBINE**
*Technical Publication*. GTIndia2017-4912
**T. Karthikeyan, Abdus Samad; IIT Madras; E Avital**, *Queen Mary University of London; Nithya Venkatesan, VIT University*

**COMPUTATIONAL STUDIES ON HIGH PRESSURE TURBINE RIM SEAL CAVITIES**
*Technical Publication*. GTIndia2017-4638
**Manjunath Chengappa, Karthik Srinivasan, Karthik Srinivasan, Rohit Chouhan, Eric Blidmark**, *Rolls-Royce India Pvt. Ltd; Simon Bather*, *Rolls-Royce plc.*

**Experimental Study of Unsteady Pressure Fluctuations Due to Tip Leakage Flows in an Axial Flow Turbine**
*Technical Publication*. GTIndia2017-4868
**Raju Senthil Kumaran, CSIR-NAL, Kishor Kumar, N Poornima**, *National Aerospace Laboratories*
Track 3 Heat Transfer
Track Organizer: BHAMIDI V S S PRASAD, IIT MADRAS

3-3 HEAT TRANSFER WITH FILM COOLING * Jupiter 2
Session Organizer: Debasish Biswas, Toshiba Corp
Session Co-Organizer: Sunil Murthy, GE Global Research

8:00am - 10:00am

COMPUTATIONAL STUDY OF FILM COOLING WITH MIST AND AIR ON A FLAT PLATE
Technical Publication. GTIndia2017-4549
Mallikarjuna Rao Pabbisetty, Pratibha Biswal, BHAMIDI V S S PRASAD, IIT MADRAS

Flow and Heat Transfer Analysis of Mist-Film Cooling on a Flat Plate
Technical Publication. GTIndia2017-4568
Subrata Sarkar, Ankit Verma, Anjali Dwivedi, Indian Institute of Technology Kanpur

SURROGATE BASED DESIGN OPTIMISATION OF COMBUSTOR TILE COOLING FEED HOLES

Track 5 Structures and Dynamics
Track Organizer: Ramesh T.C., QuEST Global

5-3 ROTORS * Grand Ballroom I
Session Organizer: J Srinivasan, QuEST Global
Session Co-Organizer: Chaitanya Srinivas, Rolls Royce India Pvt Ltd

8:00am - 10:00am

FINITE ELEMENT ANALYSIS FOR DYNAMIC RESPONSE OF ROTOR-BEARING SYSTEM WITH CRACKED FUNCTIONALLY GRADDED TURBINE SHAFT
Technical Publication. GTIndia2017-4534
Debabrata Gayen, Debabrata Chakraborty, Rajiv Tiwari, Indian Institute of Technology Guwahati

Imbalance Response of Nonlinear Rotor-SFD Dynamic Systems with Structure Modeled As FRFs Using Harmonic Balance Method
Technical Publication. GTIndia2017-4749
Manoj Settipalli, Rahul Chandran, Venkata Rao Ganji, Honeywell Technology Solutions Lab, Theodore Brockett, Honeywell Aerospace

A Numerical Study on Effect of Electromagnetic Actuator on Rigid Rotor Supported on Gas Foil Bearing
Technical Publication. GTIndia2017-4607
Kamal Kumar Basumatary, Gaurav Kumar, Karuna Kalita, Kakoti SK, Indian Institute of Technology Guwahati

INTERACTION BETWEEN UNBALANCE AND MISALIGNMENT RESPONSES IN FLEXIBLY COUPLED ROTOR SYSTEMS INTEGRATED WITH AMB
Technical Publication. GTIndia2017-4535
Siva Srinivas Rangavajhala, Rajiv Tiwari, IIT Guwahati, Ch KANNA BABU, AERDC, HINDUSTAN AERONAUTICS LIMITED
**Track 6 Renewable Energy (Solar, Wind)**

Track Organizer: **Jitendra Bijlani, LM Wind Power**

**6-1 RENEWABLE ENERGY - I (AERODYNAMICS, PERFORMANCE) * Jupiter 1**

8:00am - 10:00am

Session Organizer: **Ganesh Ramanathan, LM Wind Power Technologies India Pvt Ltd.**
Session Co-Organizer: **Jaikumar Loganathan, GE Global Research**

- **Aerodynamic Performance of an Elliptical-Bladed Savonius Rotor Under The Influence of Number of Blades and Shaft**
  Technical Publication. GTIndia2017-4554
  Nur Alom, National Institute of Technology Meghalaya, Nitish Kumar, Ujjwal K. Saha, Indian Institute of Technology Guwahati

- **Identification of Geographical Locations to Operate Savonius Wind Turbine Rotor for Meeting a Desired Performance**
  Technical Publication. GTIndia2017-4566
  Sukanta Roy, IRPHE, Aix Marseille University Ranjan Das, Indian Institute of Technology Ropar, Ujjwal K. Saha, Indian Institute of Technology Guwahati

- **NUMERICAL SIMULATION OF CLUSTER OF SMALL VERTICAL AXIS WIND TURBINE TO DEVELOP A WIND TREE FOR LOW WIND SPEED REGIME**
  Technical Publication. GTIndia2017-4675
  Micha Premkumar T, Mohan Thangaraj, Hindustan Institute of Technology and Science, Silambarasan Palanivel, Turbenergy Pvt Ltd, Seralathan Sivamani, Hindustan Institute of Technology and Science

- **Engineering and Economic Models of Vertical Axis Wind Turbines**
  Technical Publication. GTIndia2017-4815
  Elhadji Alpha A. Bah, CDI Corporation, Lakshmi Sankar, Jecheil J. Jagoda, Georgia Institute of Technology

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

Track Organizer: **Yogesh Potdar, GE-Global Research Center**

**10-2 COMPOSITES & FUNCTIONAL MATERIALS * Bene**

8:00am - 10:00am

Session Organizer: **Satish Chandra, NAL**
Session Co-Organizer: **Vidyashankar Buravalla, GE**
A Study on Tribological Behavior of Linz-Donawitz Slag Filled Polypropylene Composites Using Experimental Design and Neural Networks
Technical Publication. GTIndia2017-4514
Pravat Ranjan Pati, ICFAI Tech School, IFHE University, Alok Satapathy, National Institute of Technology

Transient Dynamic Analysis of Pretwisted Functionally Graded Conical Shells Subject to low Velocity Impact: A Finite Element Approach
Technical Publication. GTIndia2017-4611
Apurba Das, Ranojit Banerjee, Amit Karmakar, Jadavpur University

Reliability of Ti/SiC Metal Matrix Composites Technical Publication. GTIndia2017-4859
Ashish Mishra, Mahesh Sivasambu, IIT Madras

Optimization of Electrical Discharge Coating Process using MOORA Based Firefly Algorithm Technical Publication. GTIndia2017-4636
Anshuman Kumar Sahu, Siba Sankar Mahapatra, National Institute of Technology, Suman Chatterjee, National Institute of Technology

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TRACK 13 Keynote Lectures

13-1 KEYNOTE: DEVELOPMENT OF AERO GAS TURBINE ENGINES AND TECHNOLOGIES IN INDIA: PRESENT AND FUTURE
Grand Ballroom I & II 10:30am - 11:45am

Development of Aero Gas Turbine Engines and Technologies in India: Present and Future Keynote. GTIndia2017-4946
CP Ramanarayanan, Aeronautical Systems, DRDO

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Track 8 Emerging Technologies (Hybrid Electric Propulsion, UAV,...)
Track Organizer: Dhinagaran R, Turbo Energy Tech Centre

8-1 EMERGING TECHNOLOGIES * Jupiter 1 11:45am - 12:15pm
Session Organizer: Dhinagaran R, Turbo Energy Tech Centre

Design, Development and Dynamic Modelling of Radio Remote Controlled Unmanned Aero Amphibious Vehicle
Technical Publication. GTIndia2017-4643
N. C. Ajay Vishwath, Cris Thomas, Vindhya Devalla, Arjun Jeyarani Arun Jeya Prakash, Amit Kumar Mondal, University of Petroleum and Energy Studies
**Track 3 Heat Transfer**

Track Organizer: **BHAMI DI V S S PRASAD, IIT MADRAS**

**3-4 SECONDARY AIR SYSTEM * Jupiter 2**

11:45am - 1:15pm

Session Organizer: **Abdul Nassar**, SoftInWay Turbomachinery Solutions Pvt. Ltd.
Session Co-Organizer: **Giovanni Cerri**, Roma Tre University - Department of Engineering

- **Experimental Investigation of Perforated Enclosures in Confined Natural Convection**
  Technical Publication. GTIndia2017-4580
  *Ribhu Bhatia, Vinayak Malhotra*, SRM University

- **Secondary Air Performance Optimization of a Combined Impingement and Film Cooled Gas Turbine Nozzle Guide Vane**
  Technical Publication. GTIndia2017-4608
  *Pol Reddy Kukutla, BHAMI DI V S S PRASAD*, Indian Institute of Technology Madras

**Track 5 Structures and Dynamics**

Track Organizer: **Ramesh T.C., QuEST Global**

**5-5 DYNAMICS – 2 * Ceres**

11:45am - 1:15pm

Session Organizer: **Sunderraman Mohan**, Siemens Energy
Session Co-Organizer: **Parag Ravindran**, Indian Institute of Technology Madras, Chennai

- **NECESSITY OF KINEMATIC STRAIN HARDENING IN SIMULATING IMPACT EVENTS**
  Technical Publication. GTIndia2017-4779
  *Sharang Kirloskar, Gurmeet Singh, Avinash Kumar*, Honeywell Technology Solutions Pvt Ltd

- **Parametric Study of Stability Criteria for Rotor Bearing Model with Viscoelastic Support**
  Technical Publication. GTIndia2017-4781
  *Saurabh Chandraker, Jayanta Kumar Dutt*, Indian Institute of Technology Delhi, HARAPRASAD ROY, NATIONAL INSTITUTE OF TECHNOLOGY

- **Dynamic Behaviour of Delaminated Composite Plate Under Blast Loading**
  Technical Publication. GTIndia2017-4847
  *Chetan Kumar Hirwani, Subrata Kumar Panda, Siba Sankar Mahapatra*, National Institute of Technology Rourkela, *Sanjib Kumar Mandal, Apurba Kumar De*, DIC
Track 7 Inlets and exhausts
Track Organizer: Sankaran S, Indian Space Research Organization (ISRO)

7-1 * Neptune
Session Organizer: Sankaran S, Indian Space Research Organization (ISRO)

JET PERFORATIONS FOR GAS TURBINE APPLICATIONS
Technical Publication. GTIndia2017-4623
Anisha Varughese, Lakshmi P, Srilekha Rajarshi Pasula Valmiki, Vinayak Malhotra, abdur rasheed,
SRM university

High Compressible Flow Through Jet Blast Deflector.
Technical Publication. GTIndia2017-4699

ABHIJEET JAISWAL, Dr. Ashwin S. Dhoble, Visvesvaraya National Institute of Technology, Dharmaraj Tidke,
Anand Mine Tools Limited

REVISITING V-3 CANON FOR THE APPLICATION OF SINGLE STAGE GAS GUN
Technical Publication. GTIndia2017-4598
Arun Tom Mathew, VIT University, Tirumala Rao Koka,
Honeywell, Murali Krishnan P, Honeywell Technology Solutions Lab

Track 9 GT Operation and Maintenance
Track Organizer: Hemant Gajjar, Torrent Power Ltd. (SUGEN Mega Power Project)

9-1 AERO ENGINE OPERATION & PERFORMANCE * Bene
Session Organizer: Pallavi Baddam, Mitsubishi Heavy Industries Compressor International Corporation
Co-Organizer: Joseph Machnaim, GE Global Research

PYRO ASSISTED STARTING OF SMALL GAS TURBINE ENGINE FOR UNMANNED APPLICATION
Technical Publication. GTIndia2017-4541
Anil Kumar K, N Balamuralikrishnan, GAS TURBINE RESEARCH ESTABLISHMENT

Aero Engine Performance Evaluation During Missile Firing Test
Technical Publication. GTIndia2017-4544
Sajath kumar M, santhosh kasram, Aeronautical Development Agency, G P Ravishankar, Mahesh P Padwale, Aeronautical Development Agency

Sensor Data Validation in a Developmental Aero Gas Turbine Engine
Technical Publication. GTIndia2017-4841
Usha Srinivasan, Gas Turbine Research Establishment, DRDO, N Muthuveerappan, Gas Turbine Research Establishment, Defence Research and Development Organization
TRACK 15 Invited Sessions

15-1 DEVELOPMENT OF A ROBUST DISTORTION TOLERANT LOW PRESSURE RATIO FAN FOR BOUNDARY LAYER INGESTING ENGINES
Grand Ballroom I & II
11:45am - 1:15pm

Development of a Robust Distortion Tolerant Low Pressure Ratio Fan for Boundary Layer Ingesting Engines
Technical Presentation Only. GTIndia2017-4950
Om Sharma, United Technologies Research Center (UTRC)

Track 11 Analytics & Digital Solutions for Gas Turbines/Rotating Machinery
Track Organizer: Vinay Jammu, GE India Technology Centre Private Limited

11-1 ANALYTICS & DIGITAL SOLUTIONS FOR GAS TURBINES/ROTATING MACHINERY * JUPITER 1
Session Organizer: Vinay Jammu, GE India Technology Centre Private Limited
12:15pm - 1:15pm

Track 1 Compressors, Fans and Pumps
Track Organizer: Pradeep A M, Indian Institute of Technology

1-4 CENTRIFUGAL COMPRESSORS II * Grand Ballroom II
Session Organizer: Quamber Nagpurwala, Retd. MSRUAS
Session Co-Organizer: Aneesh Vadvadgi, GE Power
2:15pm - 3:45pm

CFD Studies on the Performance of the Centrifugal Compressor with Single Wall Rotating Vaneless Diffusers at the wall extension ratios of 1.1 and 1.15
Technical Publication. GTIndia2017-4625
Srinivasa Rao Konakala, Indian Institute of technology Madras, Govardhan M, Mechanical Engineering Department

Numerical Investigation to Assess the Performance of Free Rotating Vaneless Diffuser for a Centrifugal Compressor Stage
Technical Publication. GTIndia2017-4704
Seralathan Sivamani, Roychowdhury D.G, Hindustan Institute of Technology and Science

Performance Evaluation of A Turbocharger Compressor by Varying the Exit Width, Eye Tip Radius and Extending the Shroud and their Impact Using Computational Analysis
Technical Publication. GTIndia2017-4871
Jerry Thomas John, MG UNIVERSITY, Nikhil Mohanan, FEM CFD Research and Development, Arun Kumar D. V., MG UNIVERSITY
1-5 PUMPS AND TURBOCHARGERS * Jupiter 2
Session Organizer: Abdus Samad, IIT Madras
Session Co-Organizer: Akshoy Ranjan Paul, Motilal Nehru National Institute of Technology

Evaluation of Non-Cavitating Steady State Performance of an Aero-Engine Gear Pump by Numerical Methods
Technical Publication. GTIndia2017-4528
SHIVAKUMAR ULAGANATHAN, Ch KANNA BABU, Girish K Degaonkar, AERDC, HINDUSTAN AERONAUTICS LIMITED

Experimental and Numerical Investigation of Operating Range Enhancement Techniques in Centrifugal Compressor for Turbochargers
Technical Publication. GTIndia2017-4753

Track 4 Combustion, fuels and emissions
Track Organizer: Satyanarayanan Chakravarthy, IIT Madras

4-1 COMBUSTION CHARACTERIZATION I * CERES
Session Organizer: Rajani Kumar Akula, GE India Technology Centre
Session Co-Organizer: Renith Richardson, Siemens Technology and Services Private Limited

INFLUENCE OF FUEL JET MOMENTUM ON CHARACTERISTICS OF A REVERSE-CROSS FLOW COLORLESS COMBUSTOR
Technical Publication. GTIndia2017-4600
Shreshtha K. Gupta, Indian Institute of Technology, Vaibhav Arghode, Indian Institute of Technology Kanpur

EXPERIMENTAL INVESTIGATION OF A LOW EMISSION LIQUID FUELLED REVERSE CROSS FLOW COMBUSTOR
Technical Publication. GTIndia2017-4601
Preetam Sharma, IIT Kanpur, Vaibhav Arghode, Indian Institute of Technology Kanpur

Kishore Kumar C, Kirubakaran P, VIDYADHEESH PANDURANGI, Kishore Prasad D, Gas Turbine Research Establishment

Surface Roughness Effect on Performance of an Electric Submersible Pump
Technical Publication. GTIndia2017-4848
DHAIRYASHEEL DESHMUKH, M. H. Siddique, Abdus Samad, IIT Madras

CFD Analysis of Combustor-Diffuser System of Marine Gas Turbine Engine
Technical Publication. GTIndia2017-4739
Srinivasan K, Gas Turbine Research Establishment, Vaibhav Murlidhar Sondur, Bapuji Institute of Engineering and Technology, Gullapalli Sivaramakrishna, Gas Turbine Research Establishment, DRDO, Raju D Navindgi, N Muthuveerappan, Gas Turbine Research Establishment, Defence Research and Development Organization
4-3 COMBUSTORS: PERFORMANCE & EMISSIONS I * Neptune

Session Organizer: Swetaprovo Chaudhuri, Indian Institute of Science (IISc)
Session Co-Organizer: Mohan Sripathi, GE India Technology Centre Pvt Ltd

Flashback and Blow Out Study of a Lean Premixed Pre-Vaporized Can Combustor
Technical Publication. GTIndia2017-4642
Harendra K. Verma, Arvind Kumar, Keshav Kumar, Rinaz Mohammed, Quest Global Engineering Pvt LTD

Performance of an Annular Combustor under Windmill Conditions During Stand-alone and Engine Level Altitude Test
Technical Publication. GTIndia2017-4728
Srinivasan K, Gas Turbine Research Establishment,

Dalton Maurya, Raju D Navindgi, N Muthuveerappan, Gas Turbine Research Establishment, Defence Research and Development Organization

Start Characteristics of A Turbofan Engine In Suction Mode For A Windmill Relight
Technical Publication. GTIndia2017-4872
Ashish Bhatt, Budharaju Balaji, Abdullah Tyeb, Amit Kumar Gupta, Mahesh P Padwale, G P Ravishankar, Aeronautical Development Agency

Track 10 Materials & Manufacturing (including Coatings, Composites, CMCs, Additive Manufacturing)
Track Organizer: Yogesh Potdar, GE-Global Research Center

10-1 ADDITIVE MATERIALS: PART A * Bene
Session Organizer: Dheepa Srinivasan, GE India Technology Center Pvt. Ltd.
Session Co-Organizer: Srikanth Bontha, National Institute of Technology

Computational Modeling of Laser Direct Metal Deposition Processes
Tutorial. GTIndia2017-4952
Srikanth Bontha, National Institute of Technology

Gas Turbine Hot Gas Path Component Repair using Additive Manufacturing Panel. GTIndia2017-4571
Dheepa Srinivasan, GE India Technology Center Pvt. Ltd.
10-3 METALLIC ALLOYS: PART I * Jupiter 1
Session Organizer: Johan Singh, Rolls Royce
Session Co-Organizer: Prita Pant, IIT-Bombay

Parametric Investigation on Microstructure and Mechanical Properties of Ultrasonic Spot Welded Aluminium to Copper Sheets
Technical Presentation Only. GTIndia2017-4533
MANTRA PRASAD SATPATHY, KIIT, Kasinath Das Mohapatra, Susanta Kumar Sahoo, NIT Rourkela

Experimental and Parametric Evaluation of Quality Characteristics in Nd: YAG Laser Micro-Drilling of Ti6Al4V and AISI 316
Technical Publication. GTIndia2017-4679
Suman Chatterjee, Siba Sankar Mahapatra, Anshuman Kumar Sahu, National Institute of Technology - Rourkela, Vijay K. Bhardwaj, Ambar Choubey, Brahma N. Upadhyay, Kushvinder S. Bindra, Raja Ramanna Centre for Advanced Technology

Characterization Of Ti-6Al-4V Alloy Modified by Plasma Nitriding Process
Technical Publication. GTIndia2017-4855

Track 4 Combustion, fuels and emissions
Track Organizer: Satyanarayan Chakravarthy, IIT Madras

4-1 COMBUSTION CHARACTERIZATION II * Ceres
Session Organizer: Rajani Kumar Akula, GE India Technology Centre
Session Co-Organizer: Renith Richardson, Siemens Technology and Services Private Limited

OIL FLOW SIMULATIONS IN THE LUBRICATION SYSTEM OF A TURBOCHARGER
Technical Publication. GTIndia2017-4816

On the dynamics of mitigating instability by actuating the swirler in a lean premixed turbulent combustor
Technical Publication. GTIndia2017-4710
Gopakumar R, Indian Institute of Science (IISc), Rahul B.V, Jasmeet Singh, Ankit Kumar Dutta, Swetaprovo Chaudhuri, Indian Institute of Science (IISc)

Investigation Of Flame Stabilization In A Co-axial Swirl Burner Using Non-Intrusive Laser Diagnostic Technique
Technical Publication. GTIndia2017-4698
DEEPAK KUMAR SAHU, PRATHAP C, IIST, TRIVANDRUM, India

Investigation on the effect of geometrical parameters on the temperature distribution and emission of a sideway faced porous radiant burner
Technical Publication. GTIndia2017-4635
Sangjukta Devi, Indian Institute of Technology Guwahati, NIRANJAN SAHOO, Indian Institute of Technology Guwahati
4-3 COMBUSTORS: PERFORMANCE & EMISSIONS II * Neptune
Session Organizer: Swetaprovo Chaudhuri, Indian Institute of Science (IISc)
Session Co-Organizer: Mohan Sripathi, GE India Technology Centre Pvt Ltd

THE EFFECT OF THE SAMPLE LINE LENGTH ON GAS TURBINE EMISSIONS MEASUREMENT
Technical Publication. GTIndia2017-4512
Thomas Gill, Ihab Ahmed, Emamode Ubogu, Lukai Zheng, Bhupendra Khandelwal, The University of Sheffield

Prediction of Soot Formation Trends in Turbulent Kerosene-Air Diffusion Jet Flames with Elevated Operating Pressure
Technical Publication. GTIndia2017-4736

Pravin Nakod, Saurabh Patwardhan, Ishan Verma, ANSYS Inc, Stefano Orsino, ANSYS Inc

Multi-swirl Lean Direct Injection Burner for Enhanced Combustion Stability and Low Pollutant Emissions
Technical Publication. GTIndia2017-4905
V Deepika, S.R. Chakravarthy, T.M. Muruganandam, N. Raja Bharathi, Indian Institute of Technology Madras

Track 10 Materials & Manufacturing (including Coatings, Composites, CMCs, Additive Manufacturing)
Track Organizer: Yogesh Potdar, GE-Global Research Center

10-1 ADDITIVE MATERIALS: PART B * Bene
Oxidation Coatings on Additively Manufactured CoCrMo
Technical Publication. GTIndia2017-4613
Sujith Somanatha Panicker, GE India Technology Center, Dheepa Srinivasan, GE India Technology Center Pvt. Ltd.

Study of Process Parameter and Powder Variability on the Properties and Recrystallization Behavior of Direct Metal Laser Sintered CoCrMo
Technical Publication. GTIndia2017-4614
Dheepa Srinivasan, GE India Technology Center Pvt. Ltd., Santhosh Kumar Rao, GE India Technology Centre Pvt Ltd, ANIGANI SUDARSHAN REDDY, Durga Ananthanarayanan, GE India Technology Center Pvt. Ltd.

Parametric Study on Laser Additive Manufacturing and Subsequent Post Processing of Inconel 718 Thin Walled Structures
Technical Publication. GTIndia2017-4798
A N Jinoop, Raja Ramanna Centre for Advanced Technology, Paul C.P, RRCAT, Kushvinder S. Bindra, Raja Ramanna Centre for Advanced Technology

Study of Condensate generated during Direct Metal Laser Sintering process
Technical Publication. GTIndia2017-4900
Jagadish C.A., Intech DMLS
10-3 METALLIC ALLOYS: PART II * Jupiter 1

Session Organizer: Johan Singh, Rolls Royce
Session Co-Organizer: Prita Pant, IIT-Bombay

Fatigue crack growth retardation in Titanium alloy
Technical Publication. GTIndia2017-4893
Sachin Biradar, National Centre for Aerospace Innovation and Research, Jyoti Jha, Sushil Mishra, Asim Tewari, IIT Bombay

Development and removal of alpha-case layer from heat treated Titanium alloys
Technical Publication. GTIndia2017-4894
Nikita Mohite, National Centre for Aerospace Innovation and Research, Jyoti Jha, Sushil Mishra, IIT Bombay, Sachin Biradar, National Centre for Aerospace Innovation and Research, Asim Tewari, IIT Bombay

Track 14 Panel Discussions

14-2 DIGITAL PANEL DISCUSSION * Grand Ballroom I & II

Session Organizer: Vinay Jammu, GE India Technology Centre Private Limited

Digital Panel Discussion: Dr. Kurichi Kumar, Rolls Royce India Panel. GTIndia2017-4953

Digital Panel Discussion: Leny Thangiah, Siemens Corporate Technology Panel. GTIndia2017-4954

Digital Panel Discussion: Mohan Srinivasa, ANSYS, Inc. Panel. GTIndia2017-4955

Digital Panel Discussion: Vinay Jammu, GE India Technology Centre Private Limited Panel. GTIndia2017-4956
Track 1 Compressors, Fans and Pumps
Track Organizer: Pradeep A M, Indian Institute of Technology

Validation of a transient turbofan model in windmilling conditions
Technical Publication. GTIndia2017-4577
SOBIN SANTHOSH, Nicolas García Rosa, ISAE-SUPAERO

Numerical Analysis of Aerofoil with Synthetic Jets
Technical Publication. GTIndia2017-4587
Mayuresh Neve, Vilas Kalamkar, Akshay Wagh, VNIT NAGPUR

Flow Studies On a Single Stage Transonic Axial Flow Compressor Retrofitted with Circumferential Grooves and Varied Rotor Stator Axial Gap
Technical Publication. GTIndia2017-4592
Anand P Darji, S.V.I.T Vasad Gujrat, Dilipkumar Bhanudasji Alone, CSIR-NAL, Chetan Mistry, IIT Kharagpur,

Technical Publication. GTIndia2017-4594
Ravi J Chotalia, Propulsion Division, Dilipkumar Bhanudasji Alone, CSIR-NAL

Cold Blade Profile Generation Methodology For Axial Compressor Rotor Blades Using FSI Approach
Technical Publication. GTIndia2017-4762

Design aspects of large diameter, low speed axial flow fan for wind tunnel application.
Technical Publication. GTIndia2017-4880
Track 2 Turbines
Track Organizer: Ujjwal K. Saha, Indian Institute of Technology Guwahati

2-1 DESIGN CONCEPTS AND STUDIES * Jupiter 1
8:00am - 11:00am

Session Organizer: Rajendra Wankhade, GE India Technology Centre Private Limited
Session Co-Organizer: Prathapanayaka Rajeevalochanam, CSIR- National Aerospace Laboratories
Flow Field Investigation In A Partial Admission Supersonic Turbine Of LOX Booster Turbopump For Staged Combustion Cycle Based Rocket Engine
Technical Publication. GTIndia2017-4502
ARPIT MISHRA, Indian Institute of Technology Kharagpur,
Parthasarathi Ghosh, IIT Kharagpur

Design and Analysis of Radial Turbine for Turbocharger Application
Technical Publication. GTIndia2017-4860
Bharathan Desikan, David John R, Sharad Kapil, Ramana Murty S V, Gas Turbine Research Establishment, Bangalore, India, Kishore Prasad D, Gas Turbine Research Establishment, Bengaluru, Karnataka, India

Evaluation Of Impulse Turbines For A Wave Energy Converter
Technical Publication. GTIndia2017-4567
Aravind George, Ranjith B, INDIAN INSTITUTE OF TECHNOLOGY MADRAS, Abud Samad, IIT Madras, Prasad Dudhgaonkar, National Institute of Ocean Technology

Experimental & Numerical Studies on a Curved Back Transonic Airfoil
Technical Publication. GTIndia2017-4874

Mean-Line Modelling of a Variable Geometry Turbocharger (VGT) and prediction of the engine-turbocharger coupled performance
Technical Publication. GTIndia2017-4752
Anand Mammen Thomas, RIC, DRDO, Jensen Samuel, A Ramesh, Indian Institute of Technology Madras

Development of LP Blade Module for High Back Pressure-Aerodynamic Design
Technical Publication. GTIndia2017-4542
Ambrish, Nand Kumar Singh, Bharat Heavy Electrical Limited
Track 3 Heat Transfer
Track Organizer: **BHAMIDI V S S PRASAD, IIT MADRAS**

3-1 THERMODYNAMICS AND CYCLES * Bene

Session Organizer: **Adithya Rao, MOOG India Technology Centre Pvt. Ltd**
Session Co-Organizer: **Quamber Nagpurwala, Retd. MSRUAS**

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**Turbomachinery-Based Vapor Pressure Amplifier for Refrigeration Energy Saving**

Technical Publication. GTIndia2017-4540

*Leila Chennaoui, Roma Tre University, Giovanni Cerri, Roma Tre University - Department of Engineering, Sayyed Benyamin Alavi, Roma Tre University*

**Optimization of FLADE Variable Cycle Engine Performance Based on Improved Differential Evolution Algorithm**

Technical Publication. GTIndia2017-4771

*Xiaobo Zhang, Zhanxue Wang, Northwestern Polytechnical University*

**Impact of Inlet Fogging on the Performance of Steam Injected Cooled Gas Turbine based Combined Cycle Power Plant**

Technical Publication. GTIndia2017-4557

*Anoop Shukla, Amity University Uttar Pradesh, Onkar Singh, Madan Mohan Malaviya University of Technology Gorakhpur*

**Gas turbine inlet air cooling using vapor-adsorption refrigeration driven by power plant exhaust**

Technical Publication. GTIndia2017-4525

*Varuneshwara Reddy Panyam, DEVENDRA DANDOTIYA, Nitin Banker, Shiv Nadar University*

**A Study on Performance of Aero-Engine with Fluidic Thrust Vector Nozzle**

Technical Publication. GTIndia2017-4743

*Xiaobo Zhang, Zhanxue Wang, Jingwei Shi, Northwestern Polytechnical University*

**Methods to Reduce Hot Return Condensate Temperature without Compromising on Plant Efficiency for Combined Heat and Power Plant**

Technical Publication. GTIndia2017-4811

*Anil Kumar Addanky, Black & Veatch*
Identification and avoidance of impeller resonance from Impeller Interference diagram (SAFE diagram) for an open impeller in an integrally geared centrifugal air compressor
Technical Publication. GTIndia2017-4599
Raghavendra Rajendrababu Bejgam, ELGI Equipments, Mathew Pazhathara James, ELGI Equipments Ltd

Structural Design and Analysis of Cylindrical Squirrel Cage to meet Stiffness, Strength and High Cycle Fatigue Life for an Aero Engine
Technical Publication. GTIndia2017-4696
Senthil Kumar K.S., Gas Turbine Research Establishment, Nazar P, GTRE

Vortex Induced Vibrations Of rotating Blade
Technical Publication. GTIndia2017-4709

Lokanna Hoskoti, Ajay Misra, Department of Aerospace Engineering, Defence Institute of Advanced Technology, Mahesh M S, Department of Mechanical and Aerospace Engineering, Indian Institute of Technology

Structural Dynamic Behavior of Axial Compressor Rotor
Technical Publication. GTIndia2017-4715
Satish Kumar S, CSIR-NAL, Ranjan Ganguli, S B Kandagal, Indian Institute Of Science, Soumendu Jana, National Aerospace Laboratories

A Study on the Nonlinear Dynamic Characteristics of Gas Turbine Engine Components
Technical Publication. GTIndia2017-4733
Narayana Murty Pilli, Kondaiah Bommisetty, Lakshman Kasina, Kotur Raghavan, Sreenivas karri, Cyient Limited
Parametric Evaluation on the Response of Damaged Simple Supported Structure under Transit Mass
Technical Publication. GTIndia2017-4537

**SHAKTI JENA, B Subbaratnam, Vardhaman College of Engineering, Dayal R. Parhi, N.I.T. Rourkela,**

Effect of Pressure Ratio on Bending Mode Flutter in a Transonic Linear Cascade
Technical Publication. GTIndia2017-4569

**Prahallada Jutur, Raghuraman N Govardhan, Indian Institute of Science**

Dynamics Of Cracked Viscoelastic Beam An Operator Based Finite Element Approach
Technical Publication. GTIndia2017-4616

**KRISHANU GANGULY, PRADEEP NAHAK, HARAPRASAD ROY, NATIONAL INSTITUTE OF TECHNOLOGY**

A Variable Viscosity Approach for the Analysis of Steady State and Dynamic Characteristics of Two Lobe Journal Bearing with TiO2 Based Nanolubricant
Technical Publication. GTIndia2017-4646

**Ashutosh Kumar, Indian Institute of Technology Guwahati, Kakoty SK, IIT**

Natural Frequencies Of Pre-Twisted Airfoil Blades
Technical Publication. GTIndia2017-4722

**NEERAJ KAVAN CHAKSHU, PES UNIVERSITY, SUNIL K. SINHA, THE OHIO STATE UNIVERSITY**

Sub Modeling in Dynamic Analysis
Technical Publication. GTIndia2017-4837

**Gnanaraj Devadoss, Prasanth Kumar Bysani, Honeywell Technology Solutions, Anil Thokala, Avinash Kumar, Honeywell Technology pvt ltd**
Simulation Study of Transient Responses of Laminated Composite Sandwich Plate
Technical Publication. GTIndia2017-4846
Pankaj Katariya, Subrata Kumar Panda, National Institute of Technology Rourkela

Force estimation in an electromagnetic system using Kalman Filter
Technical Publication. GTIndia2017-4621
Rahul Redekar, Gaurav Kumar, IIT Guwahati, Karuna Kalita, Indian Institute of Technology Guwahati, Kari Tammi, Aalto University

Prediction of Failure Loads For Threaded Fasteners Under Combined Loading Using Finite Element Analysis
Technical Publication. GTIndia2017-4703
Anoop Moodambail, Honeywell Technology Solutions,

Comparative Studies on the dynamic performances of high speed turbocharger rotor supported on Oil-free bearings versus conventional floating ring systems
Technical Publication. GTIndia2017-4734
RAJASEKHARA REDDY MUTRA, Srinivas J, NATIONAL INSTITUTE OF TECHNOLOGY (NIT)

Analysis of Infinitely Short and Infinitely Long Hydrodynamic Journal Bearings under Micro-polar Fluid by Direct Integration Method
Technical Publication. GTIndia2017-4852
Bikash Routh, VIT University-Vellore
Strength of Shear Web with Circular Hole in Wind Turbine Blades and Using Digital Twining Concept to Reduce Material Testing

Technical Publication. GTIndia2017-4603

Anil K. Sahoo, Utsa Majumder, Michael W. Nielsen, Jesper H. Garm, LM Wind Power Technologies

Parametric Studies of Vortex Generators by Source Term Modelling

Technical Publication. GTIndia2017-4645

Arun Kumar KT, Sudhakar Piragalathalwar, LM Wind Power Technologies India Pvt Ltd, Jesper Madsen, LM Wind Power, Aswatha Narayana, IIAEM

Flow Insights Into The Serrated Wind Turbine Blade Section

Technical Publication. GTIndia2017-4861

Hitesh Nanda, SE Blades, Suzlon Energy

Energy and exergy investigations upon tri-generation based combined cooling, heating, and power (CCHP) system for community applications

Technical Publication. GTIndia2017-4559

Meeta Sharma, Amity University Uttar Pradesh, Onkar Singh, Harcourt Butler Technical University

In-situ Experiments to Estimate the Performance Characteristics of a Double-step Helical-bladed Hydrokinetic Turbine

Technical Publication. GTIndia2017-4572


Numerical Analysis of Direct Type Greenhouse Dryer

Technical Publication. GTIndia2017-4784

Vishal Gupta, Radharaman Engineering College, Abhishek Sharma, Amity School of Engineering & Technology, Amity University Gwalior, Khushboo Gupta, M.A. National Institute of Technology
Track 14 Panel Discussions

14-1 GT PANEL DISCUSSION ON FUTURE GAS TURBINE TECHNOLOGIES
* Grand Ballroom I & II *

11:30am - 1:00pm

Session Organizer: Ravikanth Avancha, GE Aviation
Session Co-Organizer: Sasikumar Muthusamy, Rolls-Royce

GT Panel Discussion on Future Gas Turbine Technologies
Panel. GTIndia2017-4947
Frank Haselbach, Rolls-Royce plc

Panel. GTIndia2017-4948
Alok Nanda, GE India Technology Centre/GE Aviation

Panel. GTIndia2017-4949
B. N. Raghunandan, Indian Institute of Science

Panel. GTIndia2017-4957
Mukul Saxena, Siemens Corporate Technology Research

Panel. GTIndia2017-4957
Mukul Saxena, Siemens Corporate Technology Research

Track 1 Compressors, Fans and Pumps
Track Organizer: Pradeep A M, Indian Institute of Technology

1-1 AXIAL COMPRESSORS I: SESSION A * Neptune
2:00pm - 3:30pm

Session Organizer: Ajay Rao, GE
Session Co-Organizer: Dilipkumar Bhanudasji Alone, CSIR-NAL

Axial Compressor Rotor Optimization Using a Novel Ensemble of Surrogates-based Infill Criterion
Technical Publication. GTIndia2017-4516
Jan Kamenik, Michele Stramacchia, David J. J. Toal, Andy J. Keane, University of Southampton, Ron Bates, Rolls-Royce plc,

Aeroelastic Flutter Investigation And Stability Enhancement Of A Transonic Axial Compressor Rotor Using Casing Treatment
Technical Publication. GTIndia2017-4767
Kirubakaran P, Sankarkumar J, Ajay Pratap, Kishore Prasad D, Gas Turbine Research Establishment
Track 2 Turbines
Track Organizer: Ujjwal K. Saha, Indian Institute of Technology Guwahati

2-3 METHODS AND TOOLS I * Jupiter 1
Session Organizer: Vishnuvardhan Tatiparthi, GE India Technology Centre Private Limited
Session Co-Organizer: O.N Ramesh, Indian Institute of Science

Development Of Turbine Blade Profiles Using Iterative Inverse Design Methodology
Technical Publication. GTIndia2017-4553
Nanthini Rajendran, Y V S S Sanyasiraju, Indian Institute of Technology, BHAMIDI V S S S PRASAD, IIT MADRAS

Direct Off-Design Performance Prediction of Micro Gas Turbine Engine for Distributed Power Generation
Technical Publication. GTIndia2017-4617


Adjoint Optimisation of Internal Turbine Cooling Channel Using NURBS-Based Automatic and Adaptive Parametrisation Method.
Technical Publication. GTIndia2017-4669
REJISH JESUDASAN, Xingchen Zhang, Jens-Dominik Müller, QUEEN MARY UNIVERSITY OF LONDON

Track 3 Heat Transfer
Track Organizer: BHAMIDI V S S S PRASAD, IIT MADRAS

3-2 MID ZONE COOLING I * Jupiter 2
Session Organizer: Subrata Sarkar, Indian Institute of Technology Kanpur
Session Co-Organizer: Karthik Srinivasan, Rolls-Royce India Private Limited

Experimental and Numerical Study of Heat Transfer and Pressure Drop in Entry Length of Square Channel with Irregular Spacing of the Ribs
Technical Publication. GTIndia2017-4522
Mohammad Ansari, Majid Bazargan, K. N. Toosi University of Technology

Experimental study of detailed heat transfer and fluid flow characteristics in a rectangular duct with solid and slitted Pentagonal ribs
Technical Publication. GTIndia2017-4651
Naveen Sharma, Andallib Tariq, Manish Mishra, IIT Roorkee

Experiment investigation on the effect of turbulent intensity on heat transfer in a square rotating channel
Technical Publication. GTIndia2017-4633
Ruquan You, Haiwang Li, Zhi Tao, BeiHang University

TRACK 4 Combustion, fuels and emissions
Track Organizer: Satyanarayanan Chakravarthy, IIT Madras
Unsteady Computational Analysis of Kerosene jet in Cross stream air flow using VOF methodology
Technical Publication. GTIndia2017-4655
Muthuselvan G, National aerospace laboratories,
Muralidhara HS, NAL, Prateekkumar Kotegar, Sonali Gupta, VTU, Sanjay shankar, Manoja Deekshith,
Suhruth Mourya, Akshaya kumar, NAL

CFD Analyses of Flow in a Gas Turbine Combustor Swirl Cup
Technical Publication. GTIndia2017-4725
Srinivasan K, Gas Turbine Research Establishment,
Mehul Bhirud, The Maharaja Sayajirao University of Baroda, Gullapalli Sivaramakrishna, Gas Turbine Research Establishment, DRDO, Raju D Navindgi, N Muthuveerappan, Gas Turbine Research Establishment, Defence Research and Development Organization

Technical Publication. GTIndia2017-4732
Rohitkumar Sonawane, Vivek Kumar, Pravin Nakod, ANSYS Inc

Track 5 Structures and Dynamics
Track Organizer: Ramesh T.C., QuEST Global

Flutter Alleviation by Aeroelastic Tailoring of a Transonic Rotor Blade
Technical Publication. GTIndia2017-4662
Sankarkumar J, Kirubakaran Purushothaman, Ramaraja Bhat, Kishore Prasad D, Gas Turbine Research Establishment

Multi-objective Optimisation of an Aero Engine Rotor System using Nondominated Sorting Genetic Algorithm (NSGA)
Technical Publication. GTIndia2017-4681
Joseph Shibu K, AERDC,HAL, Ch KANNA BABU, AERDC, HINDUSTAN AERONAUTICS LIMITED, Girish K Degaonkar, AERDC,HAL, K Shankar, IITM

Blade Fatigue Life Assessment of a Axial Compressor Rotor through Probabilistic Method
Technical Publication. GTIndia2017-4727
S. Esakki Muthu, HINDUSTAN AERONAUTICS LIMITED, Raghu V Prakhu, Indian Institute of Technology Madras, Shakthivel Ammaiappan, RCMA(H/C), CEMILAC
A compliant algorithm to diagnose multiple centrifugal pump faults with corrupted vibration and current signatures in time-domain

Technical Publication. GTIndia2017-4615

Janani Shruti Rapur, Rajiv Tiwari, Indian Institute of Technology Guwahati

Characteristic Parameter Estimation of AMB Supported Coupled Rotor System

Technical Publication. GTIndia2017-4641

SAMPATH KUMAR KUPPA, MOHIT LAL, National Institute of Technology Rourkela

A Comparison of two Reduced Order Methods for Probabilistic Mistuning Investigations

Technical Publication. GTIndia2017-4684

Christian U. Waldherr, Damian Vogt, University of Stuttgart

Track 1 Compressors, Fans and Pumps

Track Organizer: Pradeep A M, Indian Institute of Technology

Effect of Rotor Tip Winglet on the Performance and Stability of a Transonic Axial Compressor Stage

Technical Publication. GTIndia2017-4686

SUBBARAMU SHIVARAMAIAH, Mahesh K. Varpe, Hunsur Krishnamurthy Narahari, Ramaiah university of Applied Sciences, Quamber Nagpurwala, Retd. MSRUAS,

Aeroelastic Flutter Analysis Of Linear Cascade Blades

Technical Publication. GTIndia2017-4773

Kirubakaran P, Sankarkumar J, Sasikanta Parida, Kishore Prasad D, Gas Turbine Research Establishment, Gas Turbine Research Establishment

DRAFT: LARGE EDDY SIMULATION OF A COMPRESSOR STAGE

Technical Publication. GTIndia2017-4849

PRANAB MONDAL, Joseph Mathew, INDIAN INSTITUTE OF SCIENCE
Track 2 Turbines
Track Organizer: Ujjwal K. Saha, Indian Institute of Technology Guwahati

2-3 METHODS AND TOOLS II * Jupiter 1
Session Organizer: Vishnuvardhan Tatiparthi, GE India Technology Centre Private Limited
Session Co-Organizer: O.N Ramesh, Indian Institute of Science

Increase of Efficiency of Axial Uncooled Turbine by Optimization of Its Blades Shape using CFD and Optimization Software
Technical Publication. GTIndia2017-4766
Evgeny Yu. Marchukov, Igor Egorov, Lyulka Design Bureau, Grigorii Popov, Evgenii Goriachkin, Yulia Novikova, Daria Kolmakova, Vasiliu Zubanov, Samara National Research University

Reduction of Secondary Flow Losses in Transonic Nozzle Guide Vane through Axisymmetric Endwall Profile Optimization
Technical Publication. GTIndia2017-4644
Ananthakrishnan K, Indian Institute of Technology, Govardhan M, Mechanical Engineering Department

Track 3 Heat Transfer
Track Organizer: BHAMIDI V S S PRASAD, IIT MADRAS

3-2 MID ZONE COOLING II * Jupiter 2
Session Organizer: Subrata Sarkar, Indian Institute of Technology Kanpur
Session Co-Organizer: Karthik Srinivasan, Rolls-Royce India Private Limited

Performance optimization of trapezium rib parameters using response surface methodology
Technical Publication. GTIndia2017-4881
Naveen Sharma, Vaibhav Sharma, Andallib Tariq, IIT Roorkee

Numerical Analysis of Jet Impingement Cooling using Converging Conical Hole for Blade Leading Edge
Technical Publication. GTIndia2017-4632
Seralathan Sivamani, Chaina Ram, Micha Premkumar T, Hariram V, Hindustan Institute of Technology and Science
Track 4 Combustion, fuels and emissions
Track Organizer: Satyanarayanan Chakravarthy, IIT Madras

4-2 MODELLING AND SIMULATIONS II * Bene
Session Organizer: Jayanth Sekar, GE
Session Co-Organizer: M. S. Anand, Rolls-Royce

Atomization Characteristics Of Jatropha-Derived Alternative Aviation Fuels From Aircraft Engine Injector
Technical Publication. GTIndia2017-4882
SAKTHIKUMAR RAMACHANDRAN, Sivakumar Deivandren, B N Raghunandan, Indian Institute of Science, J T C Hu, Pratt & Whitney Canada

Preliminary CFD Study On The Effect Of Fuel Injector Coking On Fuel Spray Charecteristics
Technical Publication. GTIndia2017-4838

Parash Agarwal, Vishal Sethi, Xiaoxiao Sun, Yize Liu, Cranfield University, Pierre Q. Gauthier, Siemens

Prediction Of Gas Turbine Afterburner Performance Using Cfd For Different Operating Conditions And Reheat Strength
Technical Publication. GTIndia2017-4631
Darshan K S, Purushothama H R, Siddaganga Institute of Technology, Ganesan S, Gursharanjit Singh, GTRE, DRDO

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Track 5 Structures and Dynamics
Track Organizer: Ramesh T.C., QuEST Global

5-2 COMPRESSORS & TURBINES - 2B * Grand Ballroom I
Session Organizer: Baskaran Bhuvaraghan, GE Power
Session Co-Organizer: Murugesan Seerangan, GE India Technology Center

A Study on Multiple Techniques to Simulate Blade out Event
Technical Publication. GTIndia2017-4735
Koti Satish Ramanadham, Lakshman Kasina, Kondaiah Bommisetty, Kotur Raghavan, CYIENT LTD

APPLICATION OF COLD EXPANSION PROCESS TO DOVETAIL SLOTS OF A COMPRESSOR DISC- A NUMERICAL STUDY
Technical Publication. GTIndia2017-4761
ANIL KUMAR S, MAHENDRA BABU N C, M S RAMAIAH UNIVERSITY OF APPLIED SCIENCES

MULTIPLE LOW VELOCITY IMPACT ON TWISTED COMPOSITE STIFFENED BLADE-A FINITE ELEMENT APPROACH
Technical Publication. GTIndia2017-4772
Mrutyunjay Rout, Jadavpur University, Sasank Shekhar Hota, DRIEMS, Cuttack, Amit Karmakar, Jadavpur University,
5-7 CONTROLS & DIAGNOSTICS II * Grand Ballroom II
Session Organizer: Parag Ravindran, Indian Institute of Technology Madras
Session Co-Organizer: Ramesh T.C., QuEST Global

Analysis of Time, Frequency and Wavelet based Features of Vibration and Current Signals for Multiple Fault Diagnosis of Induction Motors using Support Vector Machine Algorithms
Technical Publication. GTIndia2017-4774
Purushottam Gangsar, Rajiv Tiwari, Indian Institute of Technology Guwahati

Dynamic Analysis of Active Vibration Absorber by Time Delay Acceleration Feedback Using Higher Order Method of Multiple Scales

Technical Publication. GTIndia2017-4850
SIBANANDA MOHANTY, Santosha K. Dwivedy, Indian Institute of Technology Guwahati

Probabilistic Design and Analysis of Pressure Measuring Probes for Creep Behavior
Technical Publication. GTIndia2017-4906
Dattatraya Parle, Infosys Limited
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