AWARDS PROGRAM

ASME International Gas Turbine Institute

The American Society of Mechanical Engineers® (ASME®)

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THE AWARDS

2023

ASME Gas Turbine Award

2023

John P. Davis Award

2025

Dedicated Service Award

2025

Scholar Award

2025

ASME IGTI Aircraft Engine Technology Award

2025

ASME IGTI Industrial Gas Turbine Technology Award

2025

ASME IGTI Dilip R. Ballal Early Career Engineer Award

AWARD COMMITTEES

Honors & Awards Committee

Douglas Nagy

CHAIR

Aircraft Engine Technology Award Committee

Konstantinos Kyprianidis

CHAIR

Industrial Gas Turbine Technology Award Committee

John Gülen

CHAIR

2023 ASME Gas Turbine Award

The Gas Turbine Award was established in 1963 to recognize an outstanding contribution to the literature of combustion gas turbines or gas turbines thermally combined with nuclear or steam power plants.

RECEIVING THE 2023 GAS TURBINE AWARD FOR THEIR PAPER:

"Experimental Investigation of Transient Flow Phenomena in Rotating Compressor Cavities"

Mikolaj Pernak

DOCTORAL RESEARCHER

University of Bath

I am a PhD candidate at the University of Bath, awaiting examination in spring 2025. My research interests are heat transfer and aerospace propulsion. I am experimentally investigating heat transfer in rotating compressor cavities as part of a combined experimental-modelling project ran in collaboration with Rolls-Royce. To date I have authored 2 ASME conference+journal articles, and co-authored 3 ASME conference+journal and 2 other journal publications. I am honored to have been awarded two Best Paper Awards by the Heat Transfer Committee, one as the first author and one as a co-author.

In addition to engineering research, I am passionate about aviation. I have been flying in General Aviation (gliders, gyrocopters and airplanes) since 14 and now hold a Commercial Pilot License. I actively support my local aeroclub as a flying instructor. My experience with flying enables me to see the wider context and application of my research, as well as to provide practical examples and explanations to undergraduate students in my role as a Graduate Teaching Assistant at the University.

Tom E.W. Nicholas

PHD RESEARCHER IN TURBOMACHINERY

University of Bath

My research focuses on the theoretical modelling and data analysis of gas turbine compressor cavity heat transfer. My PhD thesis at the University of Bath was submitted in January 2025, conducted alongside industrial collaborators including Rolls Royce plc and Siemens Energy. I am planning to conclude and be awarded my PhD by summer 2025, and I have an upcoming role as a Research Associate at the University of Bath.

Jake T. Williams

AEROTHERMAL ENGINEER

Rolls-Royce plc.

After graduating from the University of Bath in 2019 I joined the Rolls-Royce plc. on their graduate training scheme and transitioned off the scheme into a permanent role in 2021. My first substantive role was working in the Defence Future Programs team as a Thermofluids engineer specializing in whole engine thermo-mechanical modelling of gas turbine systems. I am now employed as an Aerothermal engineer looking at the cooling design and thermal modelling of gas turbine hot gas path components. During this time I became the Rolls-Royce Industrial Supervisor for buoyancy induced flow research projects at both the University of Bath and the University of Surrey as a result of my continued involvement in this research area since joining Rolls-Royce, coordinating research activities internally and externally, and carrying out my own analytical and experimental research.

Dr. Richard Jackson

LEAD CONSULTANT

Decision Analysis Services Ltd

Richard Jackson was the technical lead for the commissioning and operation of the buoyancy-induced flow rig at the University of Bath, and experimental validation of the Tang-Owen theoretical model of buoyancy-induced flow. His research also included experimental investigation into the application of flow control methods in low-pressure turbine stator-well and tip cavities, for windage torque reduction. He received MEng and PhD degrees from the University of Bath. He is currently a Lead Consultant for Decision Analysis Services Ltd in the UK.

Dr. Hui Tang

LECTURER IN MECHANICAL ENGINEERING

University of Bath

Dr. Hui Tang leads theoretical research at Bath's Turbomachinery Research Group, collaborating with Rolls-Royce, Siemens, Safran, GE Aviation. She has published 35 papers in top journals in Fluid Mechanics, Heat Transfer and Turbomachinery and 17 conference papers in turbomachinery conferences. She has developed theoretical models of buoyancy-induced heat transfer in compressors and hot gas ingestion through rim seals in turbines. She has supervised/co-supervised 10 PhD students and over 20 MEng/MSc students. Her theoretical work is interdisciplinary and collaborative, involving experimental and theoretical collaborators in Bath, Surrey, Oxford, Sussex. Dr. Hui Tang extensively works with manufacturers Rolls-Royce, Siemens, Safran, GE Aviation. Her work on reduced models, developed on engine design requirements, are incorporated in actual engine design, contributing to more efficient reliable designs. Dr. Hui Tang is on the ASME Heat Transfer Committee; vanguard chair and session chair for ASME turbomachinery conferences. Her leadership skills were developed in the AdvanceHE AURORA leadership program for women in higher education sector. Dr. Hui Tang is a mentor for "Women Like Me" peer mentoring outreach programme, serving to boost female representation in engineering.

Gary Lock

PROFESSOR OF AEROSPACE ENGINEERING

University of Bath

Professor Gary Lock was an undergraduate at Queen's University, reading Engineering Physics. He was awarded a PhD from the University of Toronto in 1991. He held a postdoctoral position at Oxford University, working in the Osney Laboratory on projects funded by Rolls-Royce. In Oxford he taught undergraduates as a Fellow of Oriel College. In 1995 he was appointed as a Lecturer in the Department of Mechanical Engineering at the University of Bath, in southwest England. He is now Professor of Aerospace Engineering at Bath and was Head of Department between 2015-2021.

At the University of Bath, Gary worked with Professor JM Owen on three rotating-flow research topics related to the secondary air systems in aero-engines and industrial gas turbines: pre-swirl systems, hot-gas ingress, and buoyancy-induced flow in compressor cavities. His main interests are experimental fluid dynamics and heat transfer. He has published 150+ research papers, including eight best-paper awards from the ASME Heat Transfer Committee and Royal Aeronautical Society. He has led research collaborations with Siemens and Rolls-Royce.

Gary was awarded a UK National Teaching Fellowship in 2005.

Dr. James A. Scobie

ASSOCIATE PROFESSOR

University of Bath

My research focuses on the efficient use and management of gas turbine secondary air systems for turbine cooling. Areas of interest include experimental modelling of hot-gas ingestion through turbine rim seals, fluid dynamics of rotating flow systems, novel shaft sealing technologies and interaction of sealing and mainstream flows in turbines. I have published 61 papers in internationally leading journals, collaborating with companies such as Siemens Energy, Rolls-Royce and Cross Manufacturing. In my role as a Reader (Associate Professor) at the University of Bath, I lean heavily on my research background to teach a fundamental thermodynamics course that directly links to my expertise in gas turbine heat transfer.

2023 John P. Davis Award

Awarded to a paper that focuses on new or continuing gas turbine applications, identifies planning, installation, operating and/or maintenance problems and their solutions, and exemplifies candid exposure of real-world problems and solutions.

RECEIVING THE 2023 JOHN P. DAVIS AWARD FOR THEIR PAPER:

""A Novel Axial Energy-Imparting Turbomachine for High-Enthalpy Gas Heating: Robustness of the Aerodynamic Design"

Dr. Nikolas Karefyllidis

SENIOR AERODYNAMICS ENGINEER

Coolbrook Technologies

Dr. Nikolas Karefyllidis is a senior professional in the field of aero-thermal engineering, currently driving advanced projects at Coolbrook Technologies, an innovator in industrial process-heat decarbonisation.

Nikolas completed a Ph.D. in Engineering Science at the University of Oxford, under the supervision of Prof. Budimir Rosic and Prof. Liping Xu. His expertise encompasses a broad range of topics within thermofluids and turbomachinery, including numerical and experimental aerodynamics, heat transfer, high-speed flows, high-fidelity numerical simulations, turbulence modelling, reacting flows, high-performance computing, and advanced blade-design methodologies for turbomachinery.

Nikolas' doctoral research introduced a revolutionary turbomachinery concept referred to as the turbo-heater—an energy-imparting turbomachine designed for clean and sustainable high-temperature gas heating. This novel concept

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fundamentally aims to convert mechanical energy into internal energy instead of pressurising the gas, enabling ultra-high enthalpy gas heating for a range of high-temperature industrial applications, including those in petrochemical processes where active chemical reactions must be accounted for. His work has not only advanced academic understanding, earning him the prestigious Best Paper Award from the ASME Turbomachinery Committee in 2024 and the GPPS Best Paper Award in 2023 but has also catalysed significant technological advancements and accelerated the industrial deployment of these machines.

Upon completing his doctoral studies, Nikolas joined Coolbrook Technologies, where he oversees the aerodynamics and chemistry campaigns of the first pilot turbo-reactor currently being tested in a large-scale petrochemical plant. He also leads the design of the next-generation, large-scale turbo-reactor product and high thermal-power turbo-heater.

Prior to his Ph.D. studies, Nikolas worked as a CFD test engineer for CFX at ANSYS Inc., and before that, he was an undergraduate researcher at the Surrey Space Centre (SSC). During his time at SSC, he developed and tested a miniaturised satellite cold-gas propulsion system for the AAReST spacecraft, a collaborative mission with CalTech and NASA JPL.

Dylan Rubini

POSTDOCTORAL RESEARCHER IN COMPUTATIONAL MULTIPHYSICS MODELLING

University of Oxford

Dylan Rubini started as a postgraduate research fellow in Engineering Science at the University of Oxford in October 2024. Before this, he completed both the MEng (in 2020) and PhD (in 2024) also at the University of Oxford. During his PhD he investigated complex aerothermal and aerothermochemical flow interactions within a new high-speed turbomachine for decarbonisation of hard-to-abate, high-temperature industrial processes. During this work, he developed a new machine-learning-assisted methodology to efficiently model complex aerochemical interactions at a fraction of the cost of the full-order model. This methodology is now being extended to catalytic surface-phase reactions.

Budimir Rosic

ASSOCIATE PROFESSOR

University of Oxford

Budimir Rosic is an Associate Professor of Engineering Science and a Tutorial Fellow at St Anne's College at the University of Oxford. He completed his PhD at the Whittle Laboratory in Cambridge, where he also worked as a Senior Research Fellow and College Lecturer. His research focuses on turbine aerodynamics and heat transfer, turbomachinery design, combustor-turbine interactions, along with addressing various fluid dynamics and heat transfer challenges in energy and power generation systems. Recently, he has redirected his research efforts towards the flexible operation of power plants, the creation of digital twins for power plants, and the development of a novel turbomachinery concept for decarbonising high-temperature, energy-intensive industrial processes. His research group also focuses on developing numerical tools for efficient multi-physics and multi-fidelity coupling. Over the years, he has received seven Best Paper Awards from ASME IGTI and a Best Peper Award from GPPS, and two Gas Turbine Awards from ASME IGTI.

Dr. Liping Xu

University of Cambridge

Dr. Liping Xu retired in 2022 from University of Cambridge, and now acts as a free-lance researcher and consultant, collaborating researches with colleagues in Cambridge, Oxford and other institutions and industries. He had a PhD from Cambridge in middle 1980s' and since has worked in the field of turbomachinery, briefly in industry but mostly in academia. His interests cover wide range of turbomachinery aero-thermal dynamic problems in aero-engines, gas turbines, steam turbines and turbochargers. In last fifteen years, he has been working with Coolbrook Oy to assist the company to develop their ground-breaking products RDR and RDH, the new turbo-machines which have huge potentials in decarbonizing the hard-to-abate high temperature processing and petroleum chemical industries. He is recipient of multiple ASME IGTI Turbomachinery Committee and I MECH E, as well as an ISABE and a GPPS, best paper awards.

Veli Matti Purola

SENIOR ADVISOR

Coolbrook Oy

Veli Matti Purola started 1987 as a process design engineer in Neste Engineering in Finland. Involved in all types of projects in different process engineering tasks acting as Process Lead Engineer, Engineering Manager and Project Manager.

Veli-Matti Purola has +38 years experience gained in process design of petrochemical and refinery processes process development and support for technology licensing. Such processes include aromatics (benzene, cumene, phenol), etherification, (TAME, ETBE), isooctane (NExOCTANE) and biofuels technologies (NExBTL).

Co-operation with Coolbrook oy started 2011 by technology review and conceptual design of processes. 2017 Veli Matti Purola joined Coolbrook oy as process design engineer. Tasks involved RDR (Rotodynamic Reactor) steam cracking pilot design and construction in Netherlands. Process support and co-operation with the aerodynamics design teams in Coolbrook and with university experts in Oxford and Cambridge (UK) universities has been an important part of the work.

Veli Matti Purola is the author and co-author of numerous patents involving phenol process, Iso-octane process, biodiesel technology and rotodynamic reactor (RDR) and rotodynamic heater (RDH).

2025 ASME Dedicated Service Award

The ASME Dedicated Service Award honors unusual dedicated voluntary service to the Society marked by outstanding performance, demonstrated effective leadership, prolonged and committed service, devotion, enthusiasm and faithfulness.

Timothy C. Lieuwen

EXECUTIVE VICE PRESIDENT FOR RESEARCH

Georgia Institute of Technology

Dr. Tim Lieuwen is the Executive Vice President for Research (EVPR) at the Georgia Institute of Technology. In this role, he oversees the Institute's $1.37 billion portfolio of research, economic development, and sponsored activities. This includes leadership of the Georgia Tech Research Institute (GTRI), the Enterprise Innovation Institute, nine interdisciplinary research institutes (IRIs), and related research administrative support units.

In his 25-plus years at Georgia Tech, Lieuwen earned his master's and Ph.D. degrees in mechanical engineering (1996 and 1999, respectively) and has held multiple leadership positions. He has been the executive director of the Strategic Energy Institute (SEI) since 2012 and began serving as the interim chair of the Daniel Guggenheim School of Aerospace Engineering in 2023.

Lieuwen has received numerous honors and recognition for his work in clean energy systems and policy, national security, and regional economic development. Additionally, he has been awarded the titles of Regents' Professor and the David S. Lewis, Jr. Chair in AE. He is also a member of the National Academy of Engineering and is a fellow of the American Society of Mechanical Engineers and the American Institute of Aeronautics and Astronautics.

Dr. Zhiping Wang

ADVANCED ENGINEERING MANAGER

Morrison Products, Inc

Dr. Zhiping Wang has been the Advanced Engineering Manager at Morrison Products since 2011. His research and product development efforts include aerodynamic design, CFD, aero-acoustic, and design optimization for various fans and blowers most commonly used in the HVAC industry. Because of his excellent work, higher energy efficiency and lower noise fans and blowers have been developed and installed in millions of residential homes and commercial buildings annually.

Outside his work, he has been an active member in IGTI's Fans and Blowers technical committee since 2012 and has served the committee as reviewer, session organizer, vanguard chair, vice chair and chair for many conferences. He has also been active in ASHRAE's Fans technical committee for over 20 years and recently served as vice chair and chair from 2018-2022. He has provided technical support and analysis for the US Department of Energy regulatory efforts for Fans and Blowers along with similar work at the California Energy Commission relative to Fans and Blowers.

Dr. Wang received his Bachelor's and Master's degree in Engineering Mechanics from Tsinghua University (Beijing) in 1991 and 1994, and received his Ph.D. in Mechanical Engineering from University of Kentucky (Lexington) in 2002.

Marc Polanka

PROFESSOR OF AERONAUTICS

Air Force Institute of Technology

Dr. Marc Polanka is a Professor of Aerospace Engineering at the Air Force Institute of Technology. His doctoral work on turbine film cooling was accomplished at the University of Texas. He has been with AFIT for the past 15 years following 17 years within the Turbine Engine Division of AFRL. While at AFRL, he managed the Turbine Research Facility performing heat transfer and aerodynamic measurements on full scale turbine stages. Since joining AFIT, Dr. Polanka's research areas continue to focus on understanding cooling within the turbine and combustor. He has also published heavily on the development of an Ultra Compact Combustor to reduce the size of turbine engines and work on Pressure Gain Combustors include Rotating Detonating Engines. He has written over 70 journal articles on these subjects and over 160 conference articles. He has advised over 50 graduate students. He has received several awards over the years from the Air Force including the Air Force Outstanding Science and Engineering Educator Award, the AETC AF Outstanding Scientist/ Engineer: Senior Civilian Award, the AFIT Civilian Category III of the Year, and the Charles P. Brothers Award for Outstanding Volunteer Service.

Dr. Polanka is a Fellow of the ASME and an Associate Fellow of AIAA. He is a past Associate Editor for the ASME Journal of Engineering for Gas Turbines and Power and recently concluded his two-year term as Chair of the ASME IGTI K-14 Heat Transfer Committee after serving previously as Vice-Chair and four years as the Membership Chair. He currently serves as the Review Chair for the IGTI Turbo Expo Conference. He has also been recognized by ASME winning the IGTI Outstanding Service Award and is a three time Best Paper Award winner.

2025 Scholar Award

The International Gas Turbine Institute Scholar Award is bestowed upon an individual who submits a learned and comprehensive paper that makes a significant and timely contribution to the science and practice of gas turbine engineering. The Scholar presents the award-winning paper as a lecture to an audience of his peers.

Mark G. Turner

SENIOR TECHNOLOGIST OF AEROPROPULSION

NASA Glenn Research Center

Dr. Turner's background is in industry, academia, and the US Federal Government. From 1979-2000, Mark worked for GE Aerospace in both Cincinnati, OH, and Lynn, MA. From 2000-2001, Dr. Turner worked for a small company in Cleveland, AP Solutions. He was a Professor and Associate Department Chair in Aerospace Engineering at the University of Cincinnati, where Mark was from 2001-2020. For the past four years, Mark has been at NASA.

Most of the work that Mark has done has been related to simulation of turbomachinery with emphasis on design and understanding which is the subject of his scholar paper.

Mark Turner has published 27 journal articles, 50 peer reviewed conference papers, 6 technical reports, and 52 non-refereed conference papers. In addition, he has given 22 invited presentations. He has advised and graduated 7 PhD students, 20 Master's students, hired 42 undergraduate coop students, and advised 25 students with Undergraduate Research. In addition, he has taught 62 separate classes at the University of Cincinnati. At NASA, Mark has guided 5 interns.

Mark is a Fellow of ASME, is active in the Gas Turbine

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Segment, was the Conference Chair for Turbo Expo in 2017, and has received five best paper awards. He is an Associate Fellow in AIAA. Mark has three patents. Outside of his professional work, Mark is interested in education. In 2003 he received the Building Excellence Award of Service from Cincinnati Public Schools for volunteer work on passing the $480-million bond issue to be used for the $985-million renovation and rebuilding of all the schools in Cincinnati Public Schools.

Dr. Mark G. Turner received his BS degree in Mechanical Engineering from Virginia Tech in 1979, his MS in Aerospace Engineering from the University of Cincinnati in 1986, and his Doctor of Science (ScD) in Aeronautics and Astronautics from MIT in 1990.

Dr. Mark Turner keeps an electric boat on the Ohio River, is married and has two grown sons.

2025 Aircraft Engine Technology Award

For Outstanding Contribution to Air Breathing Propulsion Through Inspiring Leadership, Education, and Research Having Major Impacts on Aircraft Engine Operational Capability, Performance, and Design.

Atul Kohli

PRINCIPAL TECHNICAL FELLOW, HEAT TRANSFER ENGINE DESIGN & SYSTEM INTEGRATION - AERO THERMAL FLUIDS

Pratt & Whitney

Dr. Atul Kohli is currently Principal Technical Fellow of Heat Transfer focused on developing Analytical Methods in the Aero-Thermal Fluids discipline at Pratt & Whitney (PW). In his more than 27 years at Pratt & Whitney, he has held positions of increasing responsibility within Turbine Aerodynamics, Multi-Disciplinary Optimization, Turbine Durability and Aero-Thermal Systems disciplines. His innovative and sustained efforts to improve analytical modeling of cooling and heat transfer have impacted a broad range of life-limited engine components and developed key technologies for current and future applications in both commercial and military engines.

As Principal Technical Fellow, Atul ensures the thermal discipline at PW remains world-class by driving improvements in design processes and enhancing proficiency of engineers. He has maintained a very strong collaboration with academia and government agencies on technology development throughout his career. As the technical focal point for the P&W Center of Excellence at Penn State University, Atul has led industry-relevant research projects by working closely with students and faculty. His efforts have led to a unique, state-of-the-art turbine testing facility that is heavily supported by government agencies. Atul has more than 30 refereed publications and 15 issued patents with over 30 pending.

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For more than 30 years, Atul has been an active contributor to the heat transfer community through ASME's Turbo Expo conference in different roles as author, reviewer, session organizer, Vanguard Chair, Point Contact and Conference Chair. Atul was elected an ASME fellow in 2009 was bestowed ASME's Dedicated Service Award in 2020 for his efforts. He is the past Chair of the ASME K-14 Committee which focuses on Gas Turbine Heat Transfer.

Atul has a BS in Mechanical Engineering from the Indian Institute of Technology and a MS and PhD in Mechanical Engineering from the University of Texas at Austin. He was a post-doctoral research fellow at the University of Wisconsin at Madison before joining PW.

2025 Industrial Gas Turbine Technology Award

For Outstanding Contributions to the Electric Power and Mechanical Drive Industries Through His Leadership, Research and Development, and Advocacy on Behalf of Industrial Gas Turbines.

Peter Stuttaford

CEO

Thomassen Energy

Peter has served as the CEO of Thomassen Energy, in the Netherlands, since 2018, bringing over 25 years of experience in the design, development and commercialization of gas turbines. Thomassen Energy has a focus on providing clean and affordable energy to all parts of the globe through the upgrade and retrofit of existing gas turbine assets. Peter is recognized as a leading expert in the field, with more than 55 patents related to gas turbines and energy innovation. Prior to his current role, he successfully led the PSM Product Engineering unit, in Florida USA, driving technological advancements and promoting cleaner energy solutions.

Peter's professional journey began at Pratt & Whitney Canada as a combustion engineer. His academic credentials include a Ph.D. from Cranfield University in England, a Master's degree from the University of Florida in the USA, and a Bachelor's degree from the University of Natal in South Africa.

With a focus on innovation and sustainability, Peter continues to work on advancing technologies and adapting gas turbine systems for a clean and reliable future.

2025 Dilip R. Ballal Early Career Engineer Award

Awarded to an individual who has made significant contributions in the gas turbine industry within the first five years of their career.

James Braun

ASSISTANT PROFESSOR

North Carolina State University

James Braun graduated from KU Leuven (Belgium) as a mechanical engineer and completed a research master's degree at the von Karman Institute for Fluid Dynamics (VKI) in 2015. He obtained his PhD from Purdue University in 2019, for which he received the AIAA Gordon C. Oates Air Breathing Propulsion Graduate Award. He then served as an assistant research professor at Purdue until 2022. Since then, he has been an assistant professor at North Carolina State University, where he leads the BE-FAST lab (Braun's Engineering Factory for Advanced Supersonic Technologies). The lab's primary research focuses on the experimental and numerical characterization of rotating detonation engines (RDEs) for high-speed propulsion applications. In 2024, he was awarded the AFOSR Young Investigator Award and has secured multiple research grants from government and industry. He has (co) authored 32 journal publications and 47 conference papers, including one ASME Best Paper Award (awarded by the CDI committee). He has been attending the ASME Turbo Expo since 2017 and is an active member of the Cycle Innovations Committee and the Controls, Diagnostics & Instrumentation Committee.

Outgoing Chairs

The core of IGTI is its committees, and the members of those committees drive our excellence. We greatly appreciate those individuals who commit to leading these committees as chair and recognize their time, expertise and effort required to do the job. Thank you for your service from July 1, 2023, to June 30, 2025.

AIRCRAFT ENGINE
Oscar Kogenhop

CERAMICS
Michael Presby

COMBUSTION, FUELS & EMISSIONS
Dr. Sebastien Ducruix

CYCLE INNOVATIONS
Ward De Paepe

INDUSTRIAL & COGENERATION
Clement Joly

MICROTURBINES, TURBOCHARGERS & SMALL TURBOMACHINES
Aaron M. Rimpel

OIL & GAS APPLICATIONS
Jason Wilkes

STEAM TURBINE
Shigeki Senoo

STUDENT ADVISORY
Marco Castaldi

SUPERCRITICAL CO2
Timothy Allison

TURBOMACHINERY
Dr. Bronwyn Power

WIND ENERGY
Giacomo Persico

ASME IGTI Committee Best Papers

Aircraft Engine

GT2024-124447: Assessing the Environmental Impact of Aircraft / Engine Integration With Respect to Contrails

Joseph Ramsay, Indi Tristanto, Shahrokh Shahpar, Alistair John

GT2024-124103: Analysis of Complex Total Pressure Distortion Screens Using 1-Dimensional Loss Data

John Gillespie, Andrew Hayden, Todd Lowe, Alexandrina Untaroiu, Chase Nessler

Ceramics & Ceramic Composites

GT2024-126286: Design and Manufacture of EBC Coated SiC/SiC Nozzle Guide Vanes for High-Pressure Turbines

Fabia Süß, Robin Schöffler, Lion Friedrich, Anna Petersen, Felix Vogel, Martin Frieß, Andrea Ebach-Stahl

Coal, Biomass & Alternative Fuels

GT2024-126663: Investigation of Viscor and Methanol Spray Dynamics Using Proper Orthogonal Decomposition in Siemens Energy Industrial Atomisers

Ali Alshahrani, Izwan Mohni, Adesile Ajisafe, Marc Furi, Michel Houde, Suresh Sadasivuni, Geoffrey Engelbrecht, Ghenadie Bulat, Midhat Talibi, Ramanarayanan Balachandran, Andrea Ducci

GT2024-127796: Thermodynamic Optimization of Load-Following Operation in a Decarbonized Combined Cycle Power Plant Under Net-Zero Scenarios

Silvia Ravelli

Combustion, Fuel, and Emissions

GT2024-122798: Inferring Flame Transfer Functions of Turbulent Conical Flames From Pressure Measurements

Matthew Yoko, Matthew P. Juniper

GT2024-127332: Flashback Prevention in a Hydrogen-Fueled Reheat Combustor by Water Injection Optimized With Global Sensitivity Analysis

Pablo Rouco Pousada, Nguyen Anh Khoa Doan, Konduri Aditya, Michael Düsing, Andrea Ciani, Ivan Langella

GT2024-124613: Lean Blow-Off Behaviour of Premixed Bluff-Body Stabilized Hydrocarbon-Air Flames and Ammonia/Hydrogen/Nitrogen-Air Flames

Tong Su, Boyan Xu, Rob Bastiaans, Nicholas A. Worth

Controls, Diagnostics & Instrumentation

GT2024-126636: Enhancing Total Temperature Measurement Accuracy: Calibration Procedures and Novel Two-Wire Probes

Diego Sánchez de la Rosa, Guillermo Paniagua

GT2024-125914: Reversionary Control Modes for the Mitigation of Failures in a Partially Turboelectric Aircraft Propulsion System

Donald L. Simon, Amy K. Chicatelli, Santino J. Bianco, Marcus A. Horning, Joseph R. Saus

Cycle Innovations

GT2024-122425: Synergetic and Performance Characteristics of a High-Speed Pre-Cooled Propulsion Concept

Athanasios Chatzistefanou, Spyros Tsentis, Anestis Kalfas

GT2024-129090: Dynamic Performance Analysis of a Turbocharged PEMFC System

Luca Mantelli, Federico Iester, Silvia Crosa, Michele Bozzolo, Loredana Magistri, Aristide Massardo

Education

GT2024-122280: A Comprehensive Educational App for Propulsion Systems

Spyros Tsentis, Aggelos Gaitanis, Vasilis Gkoutzamanis, Anestis Kalfas

Electric Power

GT2024-121044: Hydrogen Co-Firing Demonstration at Constellation Hillabee Siemens Energy SGT6-6000g Power Plant

James Harper, Duane Gibeaut, Mark Lozier, Richard Sake, Thorsten Wolf, David R. Noble

Energy Storage

GT2024-127710: A Perspective on the Process and Turbomachinery Design of Compressed Air Energy Storage Systems

Gianfranco Maffulli, Angelo Grimaldi, Andrew McGillis, Lorenzo Succi, Przemyslaw Przybytko, Nicola Maceli, David Brown, Graham Brook, Scott Earle

Fans and Blowers

GT2024-123991: Enhanced Maodelling of the Phenomenon of Vortex Shedding From a Low-Speed Axial Flow Rotor Blade Profile

Gábor Daku, János Vad

Heat Transfer

GT2024-122559: Geometric and Flow Characterization of Additively Manufactured Turbine Blades with Drilled Film Cooling Holes

Kelsey E. McCormack, Maria Rozman, Reid A. Berdanier, Karen A. Thole

GT2024-124468: Spectral Heat Transfer Coefficient for Thermal Design Analysis - Part 1: Augmenting Law of Cooling for Non-Isothermal Wall

Li He

GT2024-126600: Mass and Heat Exchange in Rotating Compressor Cavities With Variable Cob Separation

Tom E. W. Nicholas, Mikolaj J. Pernak, Gary D. Lock, James A. Scobie, Hui Tang

Industrial & Cogeneration

GT2024-120898: Development of an Efficient Compressor and Turbine for a 2 MW-Class Emergency Gas Turbine

Takao Kohama, Shuichi Anzawa, Yutaro Seki

Manufacturing, Materials and Metallurgy

GT2024-127715: Residual Stress Optimisation for Manufacturing of a Nozzle Guide Vane in Mar-M-509 by Laser Powder Bed Fusion

Sébastien Lani, Yogiraj Pardhi, Hossein Ghasemi, Felix Reinert, Andreas Burn, Charles Soothill

Microturbines, Turbochargers, and Small Turbomachines

GT2024-128096: A High-Speed, High-Temperature, Micro-Cantilever Steam Turbine for Hot Syngas Compression in Small-Scale Combined Heat and Power
Victoria He, Jan Van Herle, Jürg Schiffmann

Oil & Gas Applications

GT2024-122217: Field Performance Testing and Test Codes for Gas Compressors
Klaus Brun, Rainer Kurz

Steam Turbine

GT2024-124848: Relationship Between Wavy Liquid Film Dynamics and Droplet Formation From Trailing Edge
Yoshiaki Kamada, Keito Murakami, Zhenying Wang, Chihiro Inoue, Shigeki Senoo

Structures & Dynamics

GT2024-126793: Comparison of Ingestion of Different Size Hard and Soft Bodies Into a Representative Fan Assembly Model
Rashid E. Mattar, Dushyanth Sirivolu, Kiran D'Souza

GT2024-129186: Non-Synchronous Vibration: Characterisation of the Aerodynamic Disturbance and its Dependency on Local Tip Clearance
Pierre Tharreau, Magnus Hardy-Falch, Sina Stapelfeldt, Christoph Brandstetter

GT2024-134043: An Analytical Study on the Effect of Non-Uniform Vane Spacing on Forced Response Reduction in a Mistuned Blisk Rotor in a Multistage Axial Compressor
Yujun Leng, Jhansi R. Dodda, Nicole L. Key

Supercritical CO2 Power Cycles

GT2024-129572: Experimental Study of the Real Gas Effects of CO2 on the Aerodynamic Performance Characteristics of a 1.5-Stage Axial Compressor
Jeongseek Kang, Alex Vorobiev, Joshua D. Cameron, Scott C. Morris, Mark G. Turner, Kyle Sedlacko, Jason D. Miller, Timothy J. Held

GT2024-129203: High Temperature Industrial-Scale CO2 Heat Pumps: Thermodynamic Analysis and Pilot-Scale Testing
Timothy J. Held, Jason D. Miller, Jason A. Mallinak, Luke Magyar

Turbomachinery

GT2024-129404: A New Non-Linear Time-Domain Flutter Analysis Approach for Distorted Flows
Roque Corral, Salvador Rodríguez-Blanco, Venkata Y. T. Chennuru, Mehdi Vahdati, Fanzhou Zhao

GT2024-128748: Nature of Transonic Compressor Flow: Importance of 3D Athroat/Ainlet Part I: Subsonic Mach Numbers
Demetrios Lefas

GT2024-127179: Turbulence Measurements in Axial Turbines Using Fast Response Aerodynamic Pressure Probes
Andrea Notaristefano, Giacomo Persico, Paolo Gaetani

GT2024-128815: Innovative Cavity Modeling for Centrifugal Compressors Aeromechanical Analysis
Marco Batisti, Lorenzo Pinelli, Lorenzo Toni, Alberto Guglielmo, Michele Marconcini, Andrea Arnone

Wind Energy

GT2024-124830: A CFD Study on the Performance of the Modified H-Shaped VAWTS for Tilted Operation Condition
Otman Kouaissah, Nicoletta Franchina, Giacomo Persico

Best Tutorials

Energy Storage

GT2024-TOB025: Overview of Long-Duration Energy Storage Systems and Technologies: Part 2

Natalie Smith, Timothy C. Allison, Aaron Rimpel, Joshua Schm

Industrial & Cogeneration

GT2024-TOB032: Holistic Heat Pump Design

Clement Joly, Vlad Goldenberg, Leonid Moroz

Supercritical CO2 Power Cycles

GT2024-TOB050: Turbo Machinery Design for Supercritical CO2 Applications

Jeff Moore, Jonathon Wade

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