



Turbo Expo 2024

Final Program

JUNE 24-28, 2024


LONDON, ENGLAND

The American Society of Mechanical Engineers®
ASME®



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Welcome to Turbo Expo 2024

It is with immense pleasure that I extend my heartfelt welcome to you on behalf of the organising committee of the 69th ASME Turbo Expo. Our Turbo Expo conferences have been a beacon for sustainability, emphasizing the crucial role of technology in minimizing the environmental impact of propulsion and energy. The urgency of our collective journey towards a sustainable future cannot be overstated. Since 2019, our plenary and keynote speakers have deliberated on challenges, scenarios, and presented potential solutions, mapping out the trajectory towards achieving the 2050 Net Zero goals. Time, as they say, flies swiftly, and in the six years that have passed, we've already traversed nearly a fifth of the time allocated until 2050. ASME Turbo Expo 2024 invites each of you to pause from your daily endeavours, to collectively reflect on our progress thus far. Have we indeed traversed 20% of this transformative journey? More importantly, are adjustments necessary for us to stay on course and achieve our objectives within the stipulated time frame?

The theme that underscores the Keynote and Plenary sessions is a conversation over achievements and enablers towards net zero in propulsion and power. The keynote on Monday will bring leaders in industry, government, and academia to start this dialogue. The plenary on Tuesday will focus on achievements on the journey towards net zero and sustainability, aiming to focus on actual delivery rather than on future plans and projections. We will delve into the most disruptive technologies such as electrification, hydrogen, and other innovative solutions that transcend the realm of traditional gas turbine technology. These discussions and exchanges will be instrumental in shaping our collective roadmap, steering us toward a future where sustainability and innovation coalesce seamlessly.

The Turbo Expo awards ceremony, where winners of ASME and ASME IGTI awardees are honoured, will be held with the during the keynote and plenaries. Please visit the ASME website for a description of these awards and the distinguished recipients. The Expo Hall will be feature over 100 exhibitors and about 40 student posters from Tuesday at lunch through the closing ceremony Thursday after lunch.

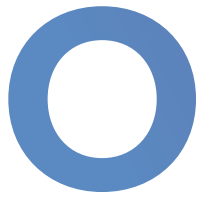
The success of this conference rests on the synergy of ideas, the spirit of collaboration, and the dedication of every participant. I would like to acknowledge the hard work of many from the ASME staff to the large number of willing and dedicated volunteers. On behalf of the ASME Turbo Expo Organizing Committee, we wish to thank our sponsors who have so generously contributed to success of this event. Also, we wish to acknowledge the dedicated service of our Executive Conference Chair Raul Vazquez; Technical Program Tom Verstraete; the Review Chair Andrew Nix; the Vice Review Chairs Marc Polanka, Shahrokh Shahpar and Rudy Dudebout; Tutorial Team Ioanna Aslanidou and Stephen Spence; Representative to the IGTI Executive Committee Natalie Smith; and our Local Liaison Committee Chairs Sina Stapelfeldt and Teng Cao. Special thanks to the keynote and plenary speakers and moderators, who volunteered their time and contributed to the discussion of achievements and enablers towards Net Zero. Turbo Expo is the world's premier gas turbine technology event, enabled by the dedicated time and effort given by the authors, reviewers, session chairs, committee leaders, and ASME staff. Thank you.

I hope you will be energised by the vibrancy of London, as well as by the technical content and the networking possibilities that form the trade mark of this five day conference. Thank you and see you in London.



Ricardo Martinez-Botas
Conference Chair
Imperial College London

Welcome to Turbo Expo 2024



On behalf of the organising team, it is with immense pleasure and honour that I extend a warm welcome to each of you to ASME Turbo Expo 2024, to be held in the vibrant and historic city of London. London, a city steeped in history and renowned for its blend of tradition and innovation, serves as a great host for this esteemed gathering. Its cobblestone streets narrate tales of resilience, while its skyline, adorned with modern architectural marvels, embodies the spirit of progress—a fitting backdrop for the exchange of ideas and advancements in turbomachinery technology.

One of the iconic symbols of London, the Tower of London, stands as a testament to the city's rich history; it was constructed in the 11th century and displays the Crown Jewels. The Great Fire of London in 1666 left an indelible mark on the city. The fire ravaged much of London, destroying thousands of homes and iconic landmarks. The iconic Tower Bridge, with its striking Victorian Gothic design, has been a symbol of London since its inauguration in 1894. Meanwhile, the Millennium Bridge, a modern pedestrian suspension bridge, stands as a marvel of contemporary architecture, linking St. Paul's Cathedral to the Tate Modern. Charles Dickens's novels depict the city's streets and society during the Victorian era. London's diverse neighbourhoods tell stories of immigration and cultural amalgamation. Areas like Chinatown, Little Italy, and Brick Lane bear the imprints of various immigrant communities that have contributed to London's vibrant cultures, cuisines, and traditions.

London's cultural richness is as diverse as its history: the British Museum, the Victoria & Albert Museum, and the Science and Natural History Museums stand out amongst over 200 museums. The over 30 West End's theatres illuminate the city's heritage and showcase performances that attract audiences across the globe.

The United Kingdom has been a cradle of innovation and a nurturing ground for pioneers in the field of engineering and technology. From the Industrial Revolution to present day, this nation has been at the forefront of transformative inventions

and breakthroughs. Visionaries like Sir Frank Whittle, credited as the father of the jet engine, revolutionized propulsion technology, laying the cornerstone for modern turbomachinery. The UK's legacy in turbomachinery extends beyond Whittle's ground-breaking work. From Sir Charles Parsons' pioneering invention of the steam turbine to Alan Arnold Griffith's contributions to gas turbine engineering, this country has been a fertile ground for minds that have shaped the very essence of turbomachinery technology.

The ASME Turbo Expo stands as a testament to this legacy—a platform that celebrates the legacy of these pioneers while propelling us toward an era of unparalleled innovation. It is a space where the collective brilliance of minds from diverse corners of the world converge, fostering a milieu ripe for collaboration, learning, and exploration.

Our agenda for this Expo reflects the multifaceted nature of turbomachinery technology. From aerodynamics to materials science, from combustion to heat transfer, the sessions and discussions are designed to encapsulate the breadth and depth of this field, inviting all participants to engage and contribute to the discourse.

Moreover, beyond the confines of formal sessions, I encourage each of you to immerse yourselves in the vibrant atmosphere of London. Explore its museums steeped in history, revel in its cultural diversity, and partake in the spirit of innovation that permeates its streets—a perfect complement to the ground-breaking discussions that await within the conference halls. The success of this Expo is a culmination of the collective effort of numerous individuals, organizations, and partners. Your support and commitment to advancing turbomachinery technology are invaluable, and I extend my heartfelt gratitude to each one of you.

Welcome to London and welcome to the ASME Turbo Expo 2024, where the legacy of pioneers meets the aspirations of tomorrow.

Warm Regards,



Raul Vazquez

*Engineering Aerothermal Fellow
Rolls-Royce plc.*

London, United Kingdom



About London

London is the capital and largest city of England and the United Kingdom. It is a 21st-century city with history stretching back to Roman times.

London is filled with diversity and excitement with some of the world's best sights, attractions, and activities. It is also the largest metropolitan economy in the United Kingdom by GDP.



Getting Around London

London is a city with a great public transportation network. Underground or "The Tube" is one of the most common ways to travel to and from central London and is an essential part of many people's stay in the capital. Using an Oyster travel smartcard is the easiest and cheapest way to travel around the city's public transport network. Double-decker buses are another fast, easy, and convenient option to travel across the city with sightseeing opportunities along route.

LONDON TOP ATTRACTIONS

- Big Ben
- Coca-Cola London Eye
- Tower of London
- The View from The Shard
- Sea LIFE London
- Buckingham Palace
- Hyde Park
- Old Spitalfields Market
- Hampton Court Palace
- House of Parliament

Essential Information



Currency

The currency in the United Kingdom is the pound sterling, known as the pound (£, GBP). There are 100 pence (p) to the pound (£).

Notes come in denominations of £5, £10, £20 and £50. Coins come in 1p, 2p, 5p, 10p, 20p, 50p, £1 and £2.



Visa Requirements

Some people may require a visa to visit the United Kingdom.

To find out whether you need a visa to visit London and how to apply, see the [UK Visas and Immigration website](#), or check with your local British Embassy or other diplomatic representative before you travel.



Tipping

It is common to leave 10-15% of the bill at restaurants, however some restaurants add on a service charge instead. It is courteous to top 10-15% of the taxi fare to black cabs and licensed mini cabs.

People normally, do not tip at bars and pubs.



Electricity

It is easy to stay connected in London. UK appliances are fitted with a three-pin plug.

Power sockets deliver an average of 230v.

LOCAL LIAISON COMMITTEE



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Teng Cao
Imperial College



Chair
Sina Stapelfeldt
Imperial College



Chris Clark
University of
Cambridge



Joerg Feist
Sensor Coating
Systems



Hamid Hazby
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TURBOMACHINERY
LABORATORY



Accelerating the Transition in Innovation and Technology Towards a Net-Zero World

MONDAY, JUNE 24, 2024 / 10:30 AM – 12:00 PM

Since 2019, our plenary and keynote speakers have deliberated on challenges, scenarios, and presented potential solutions, mapping out the trajectory towards achieving the 2050 Net Zero goals. Time, as they say, flies swiftly, and in the six years that have passed, we've already traversed nearly a fifth of the time allocated until 2050. The keynote will invite us each to pause and to collectively reflect on our progress thus far. Have we indeed traversed 20% of this transformative journey? More importantly, are adjustments necessary for us to stay on course and achieve our objectives within the stipulated time frame?

SPEAKERS



Alan Newby

Director of Research and Technology
Rolls-Royce



Dr. Verena Klapdor

Senior Vice President
Siemens Energy



Tim Lieuwen

Executive Director
Georgia Institute of Technology

MODERATOR



Professor Mary Ryan

Vice Provost for Research and Enterprise and the Armourers
Imperial College London



Raul Vazquez Diaz

Executive Conference Chair
Rolls-Royce

Plenary Panel: Achievements to Date Towards Net-Zero in Propulsion and Power

TUESDAY, JUNE 25, 2024 / 10:30 AM – 12:00 PM

We will focus on achievements on the journey towards net zero and sustainability, aiming to discuss actual delivery rather than on future plans and projections. We will delve into the most disruptive technologies such as electrification, hydrogen, and other innovative solutions that transcend the realm of traditional gas turbine technology. These discussions and exchanges will be instrumental in shaping our collective roadmap, steering us toward a sustainable and innovative future.

SPEAKERS



Mathias Andriamisaina
Head of Hydrogene Demonstrators
AIRBUS



Seiichi Ibaraki
General Manager, Research &
Innovation Center
Mitsubishi Heavy Industries, Ltd.



Kwame Bekoe
Commercial Director
Zero Petroleum Ltd.



Jacqueline Castle
Chief Technology Officer
Aerospace Technology Institute

MODERATORS



Ricardo Martinez-Botas
Professor of Turbo Machinery
Imperial College London



Eva Alvarez Regueiro
Senior Energy Analyst
Aurora Energy Research

TURBO EXPO 2024

Award Recipients

Congratulations to all award recipients and thank you to all ASME IGTI committee award representatives whose work assists the awards and honors chair and the awards committee in the recognition of important gas turbine technological achievements. Thank you to Douglas Nagy for serving as the IGTI Honors and Awards Committee Chair, John Gülen as Industrial Gas Turbine Technology Award Committee Chair, and Konstantinos Kyprianidis as the Aircraft Engine Technology Award Committee Chair.

2024 ASME R. Tom Sawyer Award

Awarded to...

Kenneth C. Hall

2024 Aircraft Engine Technology Award

Awarded to...

David Bogard

2024 Dilip R. Ballal Early Career Award

Awarded to...

Amrita Basak

2022 ASME Gas Turbine Award

Awarded to...

Michael Casey

Chris Robinson

2024 Industrial Gas Turbine Technology Award

Awarded to...

Jay Kapat

2022 John P. Davis Award

Awarded to...

S. Can Gülen

Martin Curtis

2024 ASME Dedicated Service Award

Awarded to...

Peter Baldwin

Jaroslav Szwedowicz

For details on the 2024 award winners,
please refer to the 2024 Awards Program.

Programs will be available on the Turbo Expo Website.



Upcoming Award Opportunities

2025 ASME R. Tom Sawyer Award

NOMINATE TODAY →

by August 15, 2024

2025 Aircraft Engine Technology Award

NOMINATE TODAY →

by October 15, 2024

2025 Industrial Gas Turbine Technology Award

NOMINATE TODAY →

by October 15, 2024

2025 Dilip R. Ballal Early Career Award

NOMINATE TODAY →

by August 1, 2024

2025 ASME Dedicated Service Award

NOMINATE TODAY →

by November 1, 2024

For more information on how to submit a nomination for an award, visit asme.org/about-asme/honors-awards/honors-policy/how-to-nominate

Award Lectures

ASME IGTI AIRCRAFT ENGINE TECHNOLOGY AWARD LECTURE

The Many Facets of Effective Gas Turbine Film Cooling

TUESDAY, JUNE 25 / 1:30 PM



David G. Bogard

Film cooling has been used in the combustors and turbine sections of gas turbine engines since the 1950's and was an integral part of some of the earliest engines. Much of the early research on film cooling focused on quantifying and predicting the cooling performance for slots and rows of cylindrical holes.

In the 1980's, shaped film cooling holes were developed which provided increased cooling effectiveness and coolant flow rates relative to their cylindrical counterparts. In this lecture, the development of improved film cooling technology will be reviewed, including predictions of performance with experimentally based correlations and computational

simulations, which led to the development of improved film cooling hole geometries. More recently, advances in additive manufacturing have opened the possibility of turbine components being manufactured additively, which greatly increases geometric options.

These options and their potential to significantly improve film cooling performance will be considered. Furthermore, recent computational and experimental studies in our laboratory have shown significant Mach number effects when using shaped holes for film cooling. These effects, and the importance of designing film cooling configurations for operation at realistic Mach numbers will be discussed.

Advances in Industrial Turbines – From Neuchâtel to La Porte

THURSDAY, JUNE 27 / 4:00 PM



Jayanta Kapat

World's first electric power-generating gas turbine to go into commercial operation was installed in 1939 at the municipal power station in Neuchâtel, Switzerland. This 4 MW gas turbine is now recognized as an International Historic Mechanical Engineering Landmark. Over the past 8 decades, there has been tremendous improvement in industrial gas turbines, resulting in overall cycle efficiency to increase from 10's to 40's in percentages. This significant increase in cycle efficiency has been possible because of many factors, the most prominent of which have been improvement in advanced

internal cooling technologies and improvement in coating and material technologies. However, the working fluid and overall cycle configuration essentially remained mostly unchanged over these 8 decades. Over the past decade or two, attention has been given to a different working fluid and a different cycle configuration. New technologies and innovations, based on super-critical carbon dioxide as the working fluid, have led to a 50 MWth, first-of-its-kind demonstration power plant in La Porte, Texas, which achieved first fire in May of 2018. The presentation will cover this 80-year long journey.

ASME IGTI Technical Complimentary Webinars On-Demand

The ASME IGTI Student Advisory Committee has organized technical webinars for the benefit of the IGTI community.

REGISTER AT [GO.ASME.ORG/IGTI](https://go.asme.org/IGTI)

Application of Machine Learning to Turbomachinery Design

The latest developments in the world of machine learning and AI have brought about incredible opportunities for synergy with the simulation world. Various developments have been made in terms of applying these techniques to develop better products at a faster pace. From classical statistics-based models to deep neural networks, this lecture will give a flavour of applications of automated model creation for the purposes of turbomachinery design.



Akin Keskin, PH.D.
Rolls Royce



Ricardo Paiva, PH.D.
Rolls Royce

Combustors for Future Energy and Propulsion Needs

Global energy and propulsion systems are evolving rapidly with the push towards decarbonization. Within these evolving systems, the role of gas turbines to meet societal energy, reliability, and propulsion needs are evolving significantly in some ways, and staying the same in others. The combustor is a critical component in the gas turbine, which serves as the ultimate source of energy for the cycle, the source of its emissions, and that influences overall system operational boundaries and performance. The purpose of this talk is to provide a tutorial review of combustion science and technology, explain current R&D needs, and discuss the role of combustion systems in a decarbonizing society.



Tim Lieuwen, PH.D.
Georgia Institute of Technology

Nature of Transonic Compressor Flow and its Design Implications

A key problem in transonic compressor and fan design is that although a 3D description of the flow is necessary to correctly capture the shock, accounting for it during the sectional detailed design is difficult because the key driving design parameters are still poorly understood. In this webinar, it is shown that for inlet relative Mach numbers between 0.85 to 1.20, the pressure rise across the shock is purely a function of the 3D streamtube area at the throat at over the inlet area A_1 . This finding is based on three key transonic flow features, discussed in detail within this seminar, being present together across a wide range of more than 2000 representative transonic compressor and fan designs published online (<https://whittle.digital/>).

The second half of the webinar discusses the implications of this newfound clarity to practical transonic rotor design. First, it outlines the important

preliminary geometric design parameters set prior to the detailed design phase and then describes a simple and efficient physics-based method for designing optimal transonic multistage compressor rotors. The key to this novel method is that the spanwise variation of A_t/A_1 , is extracted directly from the 3D CFD. The spanwise distribution of the area ratio is then adjusted iteratively to 'aerodynamically balance' the shock structure across the blade span.

This simplified design process will be shown, through representative rotor redesign examples, to achieve highly satisfactory results whilst providing a physically intuitive way of understanding how the design was improved. Hence, it is of great practical utility and valuable learning for any compressor or fan designer.



Demetrios Lefas, PH.D.
University of Cambridge

CONTINUED

Exploring Additive Manufacturing for Advancing Turbine Cooling

Commercial aviation is responsible for between 2.0 and 2.5 percent of the total global CO₂ emissions of which 90 percent comes from large single-aisle and twin-aisle aircraft. With the exception of fully electric, the majority of the future aviation propulsion systems will use a gas turbine as the power plant. In response to the International Civil Aviation Organization's pledge to support an aspirational net zero aviation goal by 2050, the pace at which gas turbines are developed must hasten. While increasing turbine efficiencies is key to reducing carbon emissions, this must be balanced with component life, which is set by operational temperatures.

Recent advances in the field of additive manufacturing (AM) have opened up possibilities to evaluate new features for cooling turbine airfoils with a much more rapid turnaround relative to conventional casting. The opportunity is to exploit the use of additive manufacturing in re-thinking cooling schemes for components while considering the inherent effects of the metal additive process. This talk will also provide insights on various challenges associated with additively manufacturing components.



Karen A. Thole, PH.D.

CONTINUED

Accelerating Turbomachinery Design: The Role of High-Fidelity Simulation and Machine Learning

To accelerate the deployment of cleaner energy and propulsion technologies, their development time and costs need to be considerably reduced. A key enabler for this is stronger reliance on computational fluid dynamics (CFD) for the design of turbomachinery components because CFD predictions with sufficient reliability can reduce the number of costly and time-consuming laboratory experiments and test campaigns. First-principles based simulations are most accurate and have the potential to elucidate mechanisms that can be exploited for further efficiency gains. Their excessive computational cost, however, preclude their use in a design context and therefore modelling is required. Unfortunately, the inaccuracies introduced by RANS- or URANS-based CFD modelling approaches can limit the impact CFD can have on technology development.

This presentation will present state-of-the-art high-fidelity simulations of bladed turbomachinery components, harnessing the power of the latest GPU-accelerated supercomputing systems. It will include discussion of cases with fully resolved realistic roughness and show how physical insight relevant to designers has been extracted. The talk will also introduce some of the inherent turbulence modelling errors and how those can be addressed with a novel machine-learning approach that can use both high-fidelity and sparse experimental data. It will be shown that closure models developed using the gene-expression programming approach, which are interpretable and easily implementable into CFD solvers, outperform traditional models both for the cases they were trained on and for cases not seen before.



Richard Sandberg, PH.D.
University of Melbourne

Leadership Team

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Imperial College London



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Air Force Institute of Technology



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Pratt & Whitney



Member
Sina Stapelfeldt
Imperial College



Member
Richard Sandberg
University of Melbourne



Networking Events

Networking Events

EARLY CAREER ENGINEER & STUDENT MIXER

Sunday, June 23

6:00 - 8:00 p.m.

The Student & Early Career Networking Mixer is open to all conference participants and allows for both junior and senior attendees to socialize, network and discuss matters relevant to the turbomachinery field. Hors d'oeuvres and drinks will be available to all attendees. Attendees are encouraged to meet up with old friends, make new contacts and kick-off the conference week. There will be both structured and unstructured opportunities to interact with peers and touch upon pressing topics that impact the turbomachinery community. *Please refer to page 29 for more information.*

WELCOME RECEPTION

Monday, June 24

5:30 - 7:00 p.m.



All Conference registrants are invited to join their colleagues for complimentary light refreshments during the Monday evening event. In a casual atmosphere, greet friends, and meet the thinkers from around the world who are shaping the future of turbomachinery.

DAILY LUNCHES

All Technical Conference delegate badges as well as exhibit booth staff badges include a daily lunch. Additional lunches for guests can be purchased onsite during registration. Take the time during lunch to walk the exhibit floor and visit the many exhibitors from around the world showcasing their products and services.

EXPO HALL RECEPTIONS

Tuesday & Wednesday, June 25 & 26

5:00 - 6:30 p.m.

All registered delegates are invited to the Exhibit Hall for complimentary drinks and networking with industry colleagues while viewing the exhibits of the industry's leading companies.

CELEBRATING WOMEN IN TURBOMACHINERY EVENT

Wednesday, June 26

7:45 - 10:15 p.m.



GE Aerospace

Ticketed Event: \$15 registration fee

The evening provides an opportunity to have discussions on career strategies, work/life balance issues, and professional leadership approaches for women in engineering. These strategies and more will be the topic of dinner speakers who will provide their work and life experiences. We hope you will join us!



Dorota Dorn-Okon

Senior Engineering
Section Manager

GE

Speaker

Dorota is a Site Chief Consulting Engineer for GE Aerospace Poland with a decade and a half experience at GE, 12 of which she has spent in managerial positions. She has a Master's Degree from the Engineering Materials Department of the Warsaw University of Technology, she also took a postgraduate course in education at the same university. Before starting her career at GE, Dorota worked as a math teacher for 2 years.

For over a decade, Dorota managed a growing team of engineering materials experts specializing in materials for aviation and failure analyses of damaged jet engine parts. Throughout her career she has made efforts to mentor and support generations of engineers, especially women, as she personally feels that her biggest challenge has always been juggling between life roles — a good manager, an expert in her field and a mom of two children.



ASME TURBO EXPO 2025

TURBOMACHINERY TECHNICAL CONFERENCE & EXPOSITION

MEMPHIS, TENNESSEE • RENASANT CONVENTION CENTER

SAVE THE DATE

June 16 – 20, 2025

Whether you're looking for your next R&D partner or employer, discovering new research ideas, or building your company's brand, ASME Turbo Expo is where the turbomachinery community gathers. Join 2,600+ professionals from around the globe to advance your career and advance the industry.

THE 2023 PROGRAM INCLUDED:

- 2,600+ Attendees
- 1,000+ Technical Presentations, Tutorials and Panels
- 119+ Exhibitors
- Endless Networking Opportunities

2025

Publication Schedule

2024

October 11

Abstract Submission

2024

November 4

Notification of Abstract
Acceptance

2024

December 16

Submission of Full-Length
Paper for Review

2025

January 20

Paper Review Complete

2025

January 27

Notification of Paper
Acceptance

2025

February 18

Revised Paper Submission

2025

March 4

Notification of Revised
Paper Acceptance

2025

March 13

Copyright Submission
Deadline

2025

March 18

Final Paper Submission/
Author Registration





Student News

Student Activities

The Student Advisory Committee (SAC) is a group of students who work to foster student engagement in the IGTI community and improve the Turbo Expo conference every year. Towards this goal, the SAC organizes various sessions and events during the conference, provides opportunities for students to work behind the scenes with leaders in their technical area, and awards travel funds to eligible degree seeking individuals.

SAC COMMITTEE MEMBERS



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Dimitrios Bermperis
*Mälardalen University,
Sweden*



Secretary

Claire-Phonie Bury
*University of Central
Florida, USA*



Vice Chair

Marco Castaldi
*Politecnico di Torino and
Politecnico di Milano, Italy*



Past-Chair

Dimitra-Eirini Diamantidou
MTU Aero Engines

SAC SESSIONS AT TURBO EXPO

The sessions organized by the SAC during the technical conference are focused on professional development and are open to all conference attendees. In previous years, the SAC has curated panel sessions led by community leaders on Turbomachinery Careers and Networking, as well as tutorial sessions titled “Effective Technical Presentations”, and “The Art of the Peer Review Process”.

THIS YEAR'S ACTIVITIES INCLUDE

Lecture: Career Development in Turbomachinery

Sunday 4:30-6:00 p.m.

Student & Early Career Engineer Networking Mixer

Sunday 6:00-8:00 p.m.

Workshop: Presenting Your Research with Confidence

Monday 1:30-3:00 p.m.

Student Poster Competition

Wednesday 12:00-1:30 p.m.

SAC Meeting

Thursday 4:00-5:30 p.m.

The International Gas Turbine Institute (IGTI) Student Advisory Committee (SAC) is currently opening two vacancies for student volunteers who would like to serve the committee from the position of Vice Chair and Secretary.

Application Deadline: June 7th, 2024.

[CLICK HERE FOR MORE INFORMATION](#)





EARLY CAREER ENGINEER & STUDENT MIXER

ExCeL Convention Center

Sunday, June 23, 6:00 P.M. – 8:00 P.M.

The Student & Early Career Engineer Networking Mixer is open to all conference participants and allows for both junior and senior attendees to socialize, network and discuss matters relevant to the turbomachinery field. Hors d'oeuvres and drinks will be available to all attendees. Attendees are encouraged to meet up with old friends, make new contacts and kick-off the conference week. There will be both structured and unstructured opportunities to interact with peers and touch upon pressing topics that impact the turbomachinery community. Topics include:

- AI in Turbomachinery
- Entrepreneurship in the Gas Turbine Industry
- Green Energy and Net-zero Goals
- Weaving ASME and the Gas Turbine Engine Community into Your Career
- Career Talks from Industry and Academia

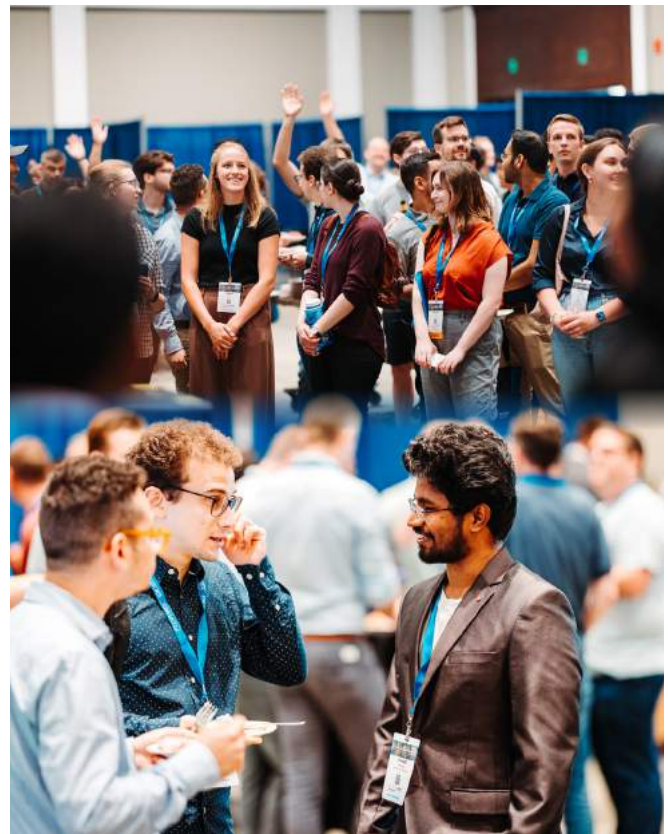
More information regarding the available structured lectures and career talks is available on our website.

POSTER SESSION

Wednesday, June 26, 12:00 P.M. – 1:30 P.M.

The Student Advisory Committee is once again sponsoring a student poster session at ASME Turbo Expo. Student posters will be on display on the main exposition floor on Wednesday, June 26th from 12:00 p.m. – 1:30 p.m. Be sure to stop by the poster session to see the results of their work and encourage them to become active in the ASME IGTI community.

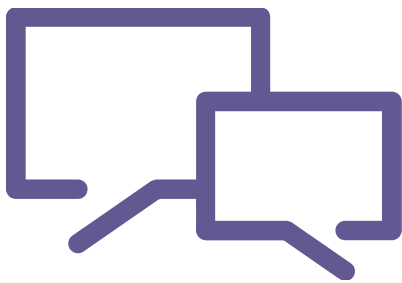
CASH PRIZES FOR POSTER SESSION WINNERS





Career Development in Turbomachinery Panel

SUNDAY, JUNE 27, 2024 / 4:30 PM – 6:00 PM



Distinguished presenters from both industry and academia, at various stages of their careers, will be on hand to:

- Explore the diverse career paths available within the turbomachinery sector.
- Share personal career stories and experiences.
- Offer valuable advice and actionable solutions to help guide your career journey.

CAREER IN TURBOMACHINERY PANEL



Prof Abdulnaser Sayma

Director of the Energy,
Environment and Net-Zero
Research Centre
University of London



Dr. Jon Runyon

GT Combustion Engineer
Uniper



Dr. Angela Serra

Snr Emissions Technical Advisor
Baker Hughes



Dr Yogi Pardhi

Global Lead-Additive
Manufacturing
Sulzer

Presenting Your Research with Confidence

Organized by the IGTI Turbo Expo Student Advisory Committee and the Early Career Engineer Programming Committee

MONDAY, JUNE 24, 2024 / 1:30 - 3:00PM



Michael Alley

Teaching Professor,
Engineering Communication
Pennsylvania State University

In the presentation of our gas turbine research, our most important goals are that the audience understands, remembers, and believes the presentation's content. However, all of us have a secondary goal—namely, that we present with confidence. In a presentation, we are tested on two types of confidence: (1) the confidence that we feel inside ourselves and (2) the confidence that we project to the audience. Building on the ASME online workshop given in May on the [assertion-evidence approach](#), this workshop at IGTI discusses how to achieve both types of confidence.

Participants will have the opportunity to present their initial slides in small groups and receive feedback within a 5-minute timeframe, so please remember to bring your own laptop with your presentation for full participation in the workshop.

RECOMMENDED PREPARATION ASSIGNMENT FOR MAY 28 WORKSHOP

Please spend 10 minutes viewing the first three films at the [following tutorial on the assertion-evidence approach](#) and then download one of the [assertion-evidence templates](#) to begin creating a couple of slides for your research presentation.

ABOUT THE SPEAKER

Holding a master of science in electrical engineering and a master of fine arts in writing, Michael Alley is a teaching professor of engineering communication at Pennsylvania State University. He is the author of *The Craft of Scientific Presentations* (Springer, 2013), which has been translated to Japanese and Chinese, and *The Craft of Scientific Writing* (Springer, 2018).

Over the past decade, he has taught presentations and writing to engineers and scientists on four continents. Sites include Google, Harvard Medical School, MIT, Texas Instruments, the University of Oslo, and the University of Michigan. In addition, Alley's websites on [presentations](#) and on [writing](#) are leading websites for presenting and writing as an engineer or scientist.

Consider attending the corresponding webinar titled: **"Preparing Your IGTI Presentation"** taking place on May 28.

[REGISTER HERE](#)

2024 STUDENT ADVISORY COMMITTEE TRAVEL AWARD RECIPIENTS

Christopher Loving
University of Central Florida

Edwin Joseph Munoz Lopez
Technical University of Munich

Ishita Jain
Indian Institute of Technology Kanpur

Lakshminarayanan Seshadri
Indian Institute of Science, Bengaluru, India

Marzuqa Ahmed
University of Central Florida

Rafael González Almenara
University of Seville

Hara Prakash Mishra
*National Institute of Technology
Rourkela, India*

Ahmed Fakhruddin Safdari
University of Central Florida

Aravind Chandh
Georgia Institute of Technology

Chinmay Nair
University of Virginia

Dandan Peng
KU Leuven

Lorenzo Da Valle
University of Liège

Mahmoud Eltaweel
University of Hertfordshire

Michael Pierro
University of Central Florida

Priyankar Garai
University of Central Florida

Renee Cole
Georgia Institute of Technology

Ruonan Wang
University of Surrey

Shahzad Bobi
University of Central Florida

Syed Jiaul Hoque
Indian Institute of Science, Bengaluru, India

Dahae Jeong
Pennsylvania State University

2024 TURBO EXPO EARLY CAREER ENGINEER TRAVEL RECIPIENTS

Ananth Sivaramakrishnan Malathi
IIT Madras

Andrea Notaristefano
GE Avio Aero

Antoine Durocher
McGill University

Bogdan Cezar Cernat
von Karman Institute for Fluid Dynamics

Deepanshu Singh
University of Cambridge

Dino Celli
Air Force Research Laboratory

Dr. Dimitra Tsakmakidou
Rolls-Royce

Dr. Donato Maria Palermo
GKN Aerospace Sweden AB

Elissavet Boufidi
von Karman Institute for Fluid Dynamics

Eric DeShong
Honeywell Aerospace Technologies

Howon Yi
LG Electronics

Lakshya Bhatnagar
Purdue University
Lukas Benjamin Inhestern Purdue University

Majid Asli
Brandenburg Uni. of Tech. in Germany

Manu S Kamin
University of Cincinnati

Marcel Otto
University of Central Florida

Marco Bicchi
Nuovo Pignone, Baker Hughes

Thomas Corbett
Pratt and Whitney

Xiao He
Imperial College London

Yu Xia
Ansys UK Ltd



Student Poster Presenters

WEDNESDAY, JUNE 26, 2024 / 12:00 PM – 1:30 PM

Taha Sherif

[GT2024-121297](#): Design Optimization, System Modeling, and Dynamic Analysis of Vertical-Axis Wind Turbine Composite Blades

Deokhyoung Kim, *Changwon National University*

[GT2024-121450](#): Heat Transfer Characteristics and Film Cooling Efficiency According to the Diffuser Shape and Compound Angle of the Effusion Hole in a Double-Wall Cooling Structure.

Piotr Klimaszewski, *Institute of Fluid-Flow Machinery Polish Academy of Sciences*

[GT2024-122230](#): Preliminary Design of a Multi-Stage High-Speed Centrifugal Hydrogen Compressor.

Connor McLeod, *Imperial College London*

[GT2024-122506](#): Computational Analysis of Stall Cells in Mal-Scheduled High-Speed Multi-Stage Axial Compressors

Jiayi Gong, *Imperial College London*

[GT2024-122513](#): Investigation of Transonic Buffeting on Civil Aero-Engine Fan Blade

Jae Hyun Kim, *SungKyunKwan University (SKKU)*

[GT2024-123821](#): Combustion Characteristics of Ammonia-Hydrogen/air Swirl Premixed Flames at Elevated Pressure in a Model Combustor

Mohammed Alqahtani, *Saudi Aramco*

[GT2024-127670](#): Multi-Stage Steam Turbine Blade Reverse Engineering

Jungwoo Son, *Changwon National University*

[GT2024-133768](#): An Experimental Study on Flow and Heat Transfer Characteristics in the Leading Edge Internal Cooling Channel for Gas Turbine Blade

Sabyasachi Mohapatra, *National Institute of Technology Rourkela*

[GT2024-137332](#): Performance Investigation of Common Header Pulsating Heat Pipe for Thermal Management of Machines

Ritesh Ghorpade

[GT2024-137363](#): Micro-Piv Investigation of Near-Critical and Supercritical Co₂ Conditions Inside a T-Channel Setup

Tinashe Ngwenya, *University of Oxford*

[GT2024-137514](#): Modelling Secondary Combustion on Turbine Blade Film Cooling

Yuan Fang, *University of Melbourne*

[GT2024-137603](#): Exploiting a Transformer Architecture to Simultaneous Development of Transition and Turbulence Models for Turbine Flow Predictions

Troy Krizak

[GT2024-137902](#): Using Reduced Order Models to Capture Variations in Mode Shapes of a Bladed Disk in Rotating Experiments

Charlie Westpfel

[GT2024-138856](#): Design and Modelling of a Blowdown Test Facility for Two-Phase Turbomachinery Flows

Kilian Bartsch

[GT2024-138875](#): Assessing Thermal Management Feasibility in Hydrogen Aircraft Concepts

Maria Rozman

[GT2024-138877](#): Impacts of Cooling Flows on Turbine Stage Performance

Marco Rosenzweig, *The University of Melbourne*

[GT2024-138970](#): Bridging the Gap Between Academia and Industry via Multi-Fidelity Computational Fluid Dynamics

Neha Vishnoi, *Indian Institute of Technology Ropar*

[GT2024-138982](#): Experimental Investigation of Noise-Induced Dynamics in a Thermoacoustic System



Patrick Brunow

GT2024-139072: Experimental Testing Environment for Coupled Fan Intake Interaction of UHBR Propulsors

Giacomo Pastorino, von Karman Institute for Fluid Dynamics

GT2024-139074: Experimental Assessment and Modelling of the Effect of Free-Stream Turbulence on Turbomachinery Boundary Layers

Peter Cassidy

GT2024-139075: Aerodynamics at Extreme Off-Design Incidences in High-Speed Low-Pressure Turbines

Johannes Tesch

GT2024-139079: A New Research Facility for Testing Heat Exchangers for Efficient Thermal Management System of Next-Generation Jet Engine's

Edgar Romero Rahal

GT2024-139085: An Experimental Study of Flow Behaviour in Additively Manufactured TPMS Structures

Rafael González-Almenara, University of Seville

GT2024-139153: Analysis of Heat Transfer Effect on Solar Micro Gas Turbine Applications

Elena Torres, CATER | University of Central Florida

GT2024-139164: Computational Analysis of Alkali Metal Heat Pipes for Use in Power Generation Cycles

Francesco Mangini, Graz University of Technology

GT2024-139197: Sparsity-Promoting-Based Analysis of the Cavity Flow in a Two-Spool Test Rig

Sajan Tamang, Changwon National University

GT2024-139234: An Investigation Into the Effects of Effusion Cooling Holes on Combustor Liner Cooling Performance

Hyder Abedi

GT2024-139258: Investigation of Ekman Layer Transition in Rotating Flows

Tammy Nguyen-Huynh, The Ohio State University

GT2024-139262: Development of a Computational Fluid Dynamics Model for a High-Speed Centrifugal Compressor

Marzuqa Ahmed, University of Central Florida

GT2024-139265: Design and Development of a Laser Diagnostic System for NOx and NH₃ Measurements for a Toroidal Jet Stirred Reactor at Aircraft Gas Turbine Operating Conditions

Ahmed Safdari, University of Central Florida

GT2024-139267: Laminar Burning Speed Measurements of Hydrogen/natural Gas Mixtures at 10 Atm

Christopher Loving, UCF

GT2024-139271: Auto-Ignition Characteristics of Hydrogen-Natural Gas Mixtures at Elevated Pressures for Power Plant Safety

Keun Ryu

GT2024-139279: Dynamic Force Coefficients of Hybrid Journal Bearings: A Comparative Analysis of Various Recess Geometries

Chinmay Nair, University of Virginia

GT2024-139280: High Pressure Flow Reactor for High-Temperature Material Testing of Ceramics and Environmental Barrier Coatings in Steam Environment

Priyankar Garai, University of Central Florida

GT2024-139282: Utilizing Chemical Reactor Network Modeling to Analyze NOx and Ammonia Slip in an NH₃-H₂ Powered Aviation Gas Turbine

Keun Ryu

GT2024-139285: Design and Fabrication of Additively Manufactured Compliant Hydrostatic Thrust Bearings for Turbomachinery

Keun Ryu

GT2024-139286: The Influence of Orifice and Recess Configurations on the Static and Dynamic Performance of Hydrostatic Thrust Bearings

Kangana Patel, University of Central Florida

GT2024-139288: Flight Phase Adaptive-Modelling: Ammonia's Potential in Dynamic Aircraft Engine Performance

Keun Ryu

GT2024-139291: Estimation of Force Coefficients in Cryogenic Hybrid Journal Bearings Using Circular Journal Motions

Shahzad Bobi, University of Central Florida

GT2024-139292: Effect of Lean and Rich Equivalence Ratio on NOx Formation From NH₃-H₂ Powered Aviation Gas Turbine

Abhilash M. Prasad, CATER / UCF

GT2024-139293: Numerical Evaluation of Spark Plasma Sintered High-Temperature Alkali Metal Heat Pipe for Energy Generation

Thank you 2024 Turbo Expo Poster Judges!

The ASME IGTI Student Advisory Committee would like to take this opportunity to thank the Turbo Expo Student Poster Judges for their diligent and meticulous judging efforts.

Clement Joly
SoftInWay, Inc.

Ferrari Lorenzo
University of Pisa

Raghu Kancherla
Power Systems Mfg. LLC

Lubomir Ribarov
U.S. Merchant Marine Academy

Klaus Brun
Ebara Elliott Energy

Martina Ricci
Baker Hughes

Tim Allison
Southwest Research Institute

Christian Aalburg
GE Aerospace

Spencer Jeffs
Swansea University

Mario Luigi Ferrari
University of Genoa

Sergio Camporeale
Politecnico di Bari (ITALY)

Marco Astolfi
Politecnico di Milano

Konstantinos Kyprianidis
Mälardalen University

Angela Serra
Baker Hughes

Kurt Rouser
Oklahoma State University

Vlad Goldenberg
SoftInWay, Inc.



Session Participant Information

*NEW SESSION ORGANIZER INFORMATION APP

Session Organizers

The conference application contains all the information you need to run your session: Session Chair and Co-Session Chair guidelines, digital evaluation forms and speaker bios. Please be sure to download the app before the start of the conference.

Certificates

Session Organizer certificates and PDH certificates will be emailed to you one month after the conference ends.

Presentation Uploads

Presenters (authors, panelists, tutorial instructors, lecturers) should plan to upload their presentations only on the computer in their session room. Please arrive 15 to 30 minutes prior to your session to upload your presentation. Presentations may be uploaded from a USB flash drive. There will not be a central network server for the sessions. **It is recommended that presentations be removed from the computer as soon as the presentation has ended.

Audiovisual Equipment Provided

Standard AV equipment provided in meeting rooms: LCD Projector, Laptop Computer, Projection Screen, Microphone(s), Wireless Remote/Laser Pointer and Microphone. Aspect Ratio is 16:9.

Speaker Ready Room

Sunday, June 23	3:00 pm – 6:00 pm
Monday, June 24	7:00 am – 5:30 pm
Tuesday, June 25	7:00 am – 5:30 pm
Wednesday, June 26	7:00 am – 5:30 pm
Thursday, June 27	7:00 am – 5:30 pm
Friday, June 28	7:00 am – 12:00 pm

Registration

As a non-profit organization, ASME requires all presenters to register for the conference and pay an appropriate fee. We are pleased to offer all presenters the discounted ASME Member registration rate.

Badge Ribbons

Role and attendance ribbons are available on the ribbon wall in the Registration area. See the display for available options.

Need Assistance?

ASME staff (red badges) and Hall Monitors are circulating the session room hallways to provide assistance as needed.



The Exhibition

Turbo Expo 2024 has value added activities to promote traffic to your booth! Daily lunches and afternoon open bars in the exhibit hall are included in the registration package for exhibit booth staff. ASME Turbo Expo is known for its high-quality exhibitions of leading companies in the turbomachinery industry. This is your chance to:



Attract new clients & visit current ones



Learn more about changing needs of the industry



Increase your sales

The 3-day exposition will be held June 25-27 in London, England, UK

Turbo Expo brings together the top players in the turbomachinery industry and academia - attracting a key audience from aerospace, power generation and other prime mover-related industries.

EXHIBITION INFORMATION

Secure your booth now for prime space availability and see how this event can generate bottom-line results for your marketing dollars.

BOOTH SPACE

\$3600

+ applicable UK VAT

Each exhibit space is constructed from the modular system.

Booths use aluminum profiles with white infill panels to rear 2.5m walls and 1m high dividing walls, 300mm deep fascia to all open sides.

A standard name board is attached per side detailing company name and stand number.



Advertising

40-Word Company Listing

In the digital Conference Program.

Discounted Advertising Options

in the Advance and Final Programs, along with Mechanical Engineering Magazine and other ASME publications.

Product Category & Company Description

In the online exhibitor directory/ Marketplace with press releases, logo, chat function, videos, meeting setting and brochures.

Opportunity to Present

On the exhibitor stage in the Hall.

Badges and Passes

1 Technical Conference Badge

Per 9sqm of space & access to technical conference papers.

3 Booth Personnel Badges

Per 9sqm of exhibit space.

Complimentary Exhibit Hall Passes

To share with customers and prospects.

Savings

Complimentary Lead Retrieval App

Savings of over \$400.

Discounted Technical Conference Registration

For non-author company employees.

Visit the online floor plan and reserve your booth today.

Contact exhibits@asme.org for more information.



ASME TURBO EXPO 2025

TURBOMACHINERY TECHNICAL CONFERENCE & EXPOSITION

CONFERENCE: JUNE 16-20, 2025
EXPOSITION: JUNE 17-19, 2025

RENASANT CONVENTION CENTER
MEMPHIS, TENNESSEE

Closing Ceremony and Kick-Off to Memphis 2025

EXHIBITION HALL: EXHIBITOR THEATER STAGE / THURSDAY / 1:00PM – 2:15PM

The Closing Ceremony recognizes several of Turbo Expo’s volunteers and award recipients. Join us in celebrating the following individuals:

- IGTI’s Outgoing Committee Chairs
- Turbo Expo Early Career Engineer Travel Award Recipients (TEECE)
- Student Advisory Committee Travel Award Recipients (SACTA)
- Student Poster Session Winners (including People’s Choice!)
- Turbo Expo 2025’s Incoming Conference Committee

Stop by for your chance to win one of the People’s Choice cash prizes. To be eligible for a cash prize, vote for the Exhibition Best Large and Small Displays and the People’s Choice Student Poster. Voting systems are setup at the posters as well as the entrance to the exhibition.

£ 80

£ 200

£ 400

CAST YOUR BALLOT FOR:

- Most creative display design
- Best display of technology
- Best overall exhibit
- Best method of crowd attraction

One vote per attendee. Entrants must be present to win at the Closing Ceremony. To qualify for the prize drawings, votes must be cast by 6:30pm on Wednesday.

Stop by the ASME Turbo Expo 2025 Booth in the Hall and pick up Memphis collateral and plan your trip to the **70th Annual Turbo Expo June 16-20, 2025 – Memphis, Tennessee – USA!**



Turbo Expo Exhibit Advisory Committee Roster

MISSION

To assist in the growth and expansion of the Turbo Expo exhibit with continued support to exhibiting companies and ASME IGTI expositions staff. Representatives serve as experts for fielding questions and providing resources and initiatives for continued success of the exposition.

If you are interested in joining this committee, contact exhibits@asme.org.

COMMITTEE ROSTER



JT Stone

MMP Technology/
BINC Industries
Term: 2022-2026



Kate Guerrina

Concepts NREC
Term: 2020-2024



Dr. Jakob Hermann

IfTA Systems GmbH
Term: 2018-2026



Kimberly Squillante

SoftInWay Inc.
Term: 2024-2028

Solar Turbines
A Caterpillar Company

TITAN 350 (35-39MW)

INNOVATIVE,
SUSTAINABLE
ENERGY SOLUTIONS

SOLARTURBINES.COM



Exhibitor Listings

We look forward to seeing you in the exhibition hall. Be sure to stop by and visit with the exhibitors and sponsors. For more information on the exhibitors, download the Conference app today. Exhibitor full listings and an interactive floor map are available. You can also plan your visit in advance with marking favorites and must-see companies.

BOOTH 100

ACTE Heat Exchangers

acte-sa.com

With a proven record of expertise, we've established ourselves as pioneers in the field of gas turbine heat recuperation. Besides our renowned COMPACT and GAP heat exchanger ranges, we tailor engineering solutions to meet the unique needs of our clients.

BOOTH 203

ADS CFD Inc.

adscfd.com

Aerospace CFD you can count on.



BOOTH 318

Advanced Design Technology Ltd.

adtechnology.com

ADT's software gives you full control of the aerodynamic design process to revolutionize your turbomachinery components.



BOOTH 719

HIRING

Aerodyn Ltd

aerodyn-global.com

Aerodyn have extensive experience in serving the Aerospace, Power Generation, Defense, and Industrial markets. We specialize in slip rings, design and analysis, precision manufacturing, instrumentation, assembly, component and subsystem test, in-house and on-site validation, and test support.

BOOTH 619

Aeroprobe Corporation

aeroprobe.com/

Aeroprobe is a leading producer of air data and flow measurement systems for the turbomachinery industry around the world. Our precision manufactured Multi-Hole probes and rakes have been trusted by designers, engineers, and researchers since 1993.

BOOTH 322

AIKOKU ALPHA Corporation

aikoku.co.jp/en/

AIKOKU ALPHA is one of the world's most sought-after manufacturers of the structural aerospace components, engine parts, and impellers that require this sophisticated technology.

BOOTH 422

Ambrell Corporation

ambrell.com

Ambrell is a leading manufacturer of induction heating systems. With power supplies ranging from 1 kW to 1,000 kW, there is a system that's perfect for your heating application. Free applications testing is available from THE LAB.



BOOTH 305

Ansys

ansys.com

When visionary companies need to know how their world-changing ideas will perform, they close the gap between design and reality with Ansys simulation. For more than 50 years, Ansys software has enabled innovators across industries to push boundaries by using the predictive power of simulation. From sustainable transportation to advanced semiconductors, from satellite systems to life-saving medical devices, the next great leaps in human advancement will be powered by Ansys.

BOOTH 509

APEX Turbine Testing Technologies

apexturbine.com

APEX Turbine Testing Technologies is a supplier of turbomachinery test and analysis solutions with a proven record of delivering integrated, reliable, industry-leading software applications world-wide for over 20 years.



BOOTH 230

ASME Headshot Lounge

Go by the Headshot Lounge and have a complimentary professional photo taken for social media, future award honors or, just because. It is free! Your company should sponsor the area in 2025!



BOOTH 623

ASME Recharge and Relax Station

Take some time to charge up electronics and play a game with a colleague or new friend. Rest, relax and recharge for the day!



BOOTH 127

ASME Turbo Expo 2025

turboexpo.org

Join us as a sponsor or exhibitor in Memphis. Stop by to secure your spot!

BOOTH 521

ATE Antriebstechnik und Entwicklungs GmbH & Co. KG

ate-system.de/en/

ATE produces highly efficient electric motors and generators. Typically, stator and rotor are supplied as components to be integrated in our customers' product.

BOOTH 223

Axiometrix Solutions

axiometrixsolutions.com

Our customers span the world and can be found in most technology-intensive industries including aerospace and automotive. Our focus is to support testing & measurement set-ups in R&D, Production and Manufacturing as well as various kinds of Advanced Research.

BOOTH 317

BeCOVER

becover.eu

BeCOVER is a test center designed for low and high pressure compressors for civil and military applications. With a power of 20MW, closed loop capability and dual / triple flow configurations, BeCOVER is capable of testing the future compressor configurations

cadence®

BOOTH 410

Cadence Design Systems, Inc.

cadence.com

Cadence is a worldwide provider of computational fluid dynamics (CFD) and optimization software. With an industry-leading meshing approach and a robust host of solver and post-processing capabilities, Cadence CFD technology enables designers to reach superior product quality and performance at a reduced engineering cost and time to market. Cadence CFD customers are the world's most innovative companies in markets such as turbomachinery, marine, automotive, and aerospace. For nine years in a row, Fortune magazine has named Cadence one of the 100 Best Companies to Work For. Learn more at www.cadence.com.

BOOTH 617

Calspan Systems Corporation

calspan.com

Calspan designs, manufactures and tests rigs and supplies engine test cells. We excel at our in-house capability to engineer, analyze, manufacture, instrument and assemble complex turbomachinery equipment. Calspan collaborates with our customers to develop test articles, prototypes and test facilities.

BOOTH 309

Cambustion

cambustion.com

We develop and support high grade instrumentation for a range of gas and particle applications.



BOOTH 405

CFD FEA SERVICE S.R.L.

cloudhpc.cloud

A startup established in 2018 focused on engineering and IT Services. In 2020 the cloudHPC (<https://cloudhpc.cloud>) has been released as a platform to allow engineers to perform CAE / CFD / FEA / FEM analysis using remote hardware resources.

BOOTH 616

CFturbo GmbH

cfturbo.com

We are a Turbomachinery Software and Engineering company. Develop and sell Turbomachinery Software. Provide CAE Engineering Services.

BOOTH 115

Chell Instruments

chell.co.uk/

For more than 40 years, Chell Instruments have been a leading producer of pressure, vacuum and gas flow measurement and control solutions. Designed by engineers for engineers, Chell's products are depended upon by many of the largest names in industries including research, pharmaceuticals, aerospace, energy and Formula 1.

BOOTH 202

CHUBU Electric Power Co., Inc

chuden.co.jp/english

Our material evaluation methods for gas turbine components used under loading at high temperature can help ensure a stable energy supply from thermal power generation at a lower cost & improve generator availability. Additionally, these methods can be applied to evaluate materials used in aircraft engines.



PUB BIN

COMPRESSORtech2

compressortech2.com

Dedicated to global gas compression products and applications



BOOTH 304

Concepts NREC

concepts-nrec.com

Concepts NREC is the only company in the world with end-to-end capabilities to take turbomachinery products from concept to reality. For more than 65 years, Concepts NREC has been at the forefront of turbomachinery design and innovation, providing engineering services, design software, CAM software, precision manufacturing, assembly, testing, training, and installation. Our mission is to provide the cutting-edge turbomachinery products, tools, and solutions the world needs for a sustainable future.

BOOTH 400

Convergent Science GmbH

converge-cfd.com

An innovative, rapidly expanding computational fluid dynamics (CFD) company. Our flagship product, CONVERGE, is a revolutionary CFD software with truly autonomous meshing capabilities that eliminate the grid generation bottleneck from the simulation process.

BOOTH 708

Cranfield University

cranfield.ac.uk

The Centre for Propulsion and Thermal Power Engineering is one of the largest research, education and consultancy activities at Cranfield University in the UK. The activity spans across various land, off-shore, marine, air and space power and propulsion applications.

BOOTH 513

Cross Manufacturing

crossmanufacturing.com

Specializing in the design and manufacture of wrought alloy products, combining technology with innovation to achieve the highest quality. Producing advanced high performance seals, retaining rings, brush seals and other products.

BOOTH 509

datatel Telemetry

datatel-telemetry.de

datatel provides a wide range of wireless telemetry solutions for testing of rotor components, eg. in aero engines and industrial turbomachinery, gas and steam turbines, turbo pumps, CF compressors and turbochargers, bearing and seal test rigs etc.

BOOTH 205

Dimaxer Technology

dimaxer.co.uk

We provide new generation of computational fluid dynamics(CFD) solutions for wide range of application areas, including aerospace, automotive, turbomachinery, multi-phase flow, environment, marine, etc.



BOOTH 415

e+a

eandausa.com

e+a makes rotors and stators that OEM customers use to build motors and generators for high-speed, high-power embedded applications including: turbo-machinery, machine tool spindles, micro-turbine generators, waste-water & fuel cell blowers, direct drive gearbox replacements, compressors & turbochargers, and more.



BOOTH 520

Early Career Engineer Programming Committee (ECEPC)

asme.org/asme-programs/early-careers/future-me/volunteer-and-lead/volunteer-opportunities-with-ecepc

Under the direction of the Student and Early Career Development (SECD) Sector, the Early Career Engineer (ECE) Programming Committee (ECEPC) was formed and is looking to add volunteers to the committee and associated ECEPC Teams.

The purpose of the ECEPC is to serve as the core effort in workforce development specific to early career professionals within ASME. The ECEPC's vision is to ensure that ASME is the premier provider of professional, technical, and career development resources and to provide the direction to make ASME an irresistible society to attract and retain early career professionals worldwide.

BOOTH 420

Element Digital Engineering

element.com/materials-testing-services

Element Digital Engineering provides insight, understanding, and answers to complex engineering and technology challenges. We are engineers, mathematicians, software specialists, and digitalization experts, providing services throughout product lifecycles and across industries.

BOOTH 206

HIRING

ENOGIA

enogia.com

At Enogia, we tackle energy transition challenges with our innovative micro-turbomachinery, seeking to provide our customers with the most advanced solutions available on the market. Our industry-leading ORC machines (up to 180 kW) convert low-grade heat (70°C+) into clean electricity.

BOOTH 210

EOS GmbH- Electro Optical Systems

eos.info

We provide responsible solutions based on additive manufacturing (AM) technology to companies around the world.

BOOTH 502

Ergon Research

ergonresearch.it

A consulting and research firm operating in the mechanical, energy and informatics engineering fields. The mission of the company is the supply of specialized services for the development and design of innovative products.



ETN
Global

BOOTH 311

ETN Global

etn.global

Energy & Turbomachinery Network (ETN Global) is a non-profit membership association bringing together the entire value chain of the gas turbine technology.

Through cooperative efforts and by initiating common activities and projects, ETN encourages and facilitates information exchange and cooperation to accelerate research, development, demonstration, and deployment of safe, secure, affordable and dispatchable carbon-neutral energy solutions by 2030.

BOOTH 314

Evolution Measurement

evolutionmeasurement.com

Evolution Measurement are experts in industries that require highly accurate physical measurement, instrumentation and calibration.

BOOTH 129;131

Exhibitor Meeting Room

This room can be rented by exhibiting companies for meetings during Show hours.



BOOTH 503

Flownex Simulation Environment

flownex.com

Delivers technology that enables you to study how flow and heat transfer systems will behave in the real world, where fluid is the driving factor. Flownex® SE system simulation relays the overall effect of changing specific properties on components, allowing you to examine extensively all possible variations in the design and optimization phase of systems.

BOOTH 308

FOGALE Sensors

fogale.com/turbomachinery/

Fogale Sensors is a world leader in the procurement, installation and maintenance of clearance and vibration measurement systems for gas turbine blades and shaft monitoring for aerospace and power applications.

BOOTH 710

Franke Industrie AG

industech.ch

When it comes to fabricated and machined components, Franke Industries is your reliable partner within the Energy, Aerospace, Space and other specialized industries. Since 1950, we inventively support your projects from the very first concept to the engine-ready component.

BOOTH 722

HIRING

Frewer Engineering

frewer-engineering.com/

Frewer Engineering is a design and analysis consultancy capable of providing turnkey solutions for their customers through collaboration with existing manufacturers.

BOOTH 611

FRIENDSHIP SYSTEMS AG

CAESES.com

The developer and distributor of CAESES, a software solution for the simulation-driven design of turbomachinery. CAESES combines a specialized CAD environment for the generation of smart and efficient parametric models of turbomachinery components.

BOOTH 507

GadCap Technical Solutions Ltd.

capacisense.com

With over 30 years of experience, the GadCap CapaciSense system combines contactless blade tip clearance measurements and blade vibration monitoring using state-of-the-art high temperature captive capacitive probes.



BOOTH 211

Gas Turbine Society of Japan

gtsj.or.jp/english/

GTSJ aims to promote science, technology and social development through information exchange, publication, technology research and other activities in the fields of all types of gas turbines, and energy conversion systems.

BOOTH 716

GasTurb GmbH

gasturb.com

GasTurb is a powerful and flexible program for calculating design and off-design performance of gas turbines. It simulates the most common types of both aircraft and power generation turbines with a user-friendly graphical interface.



GE Aerospace

BOOTH 200

HIRING

GE Aerospace

geaerospace.com/

GE Aerospace is a world-leading provider of jet engines, components and integrated systems for commercial and military aircraft. GE Aerospace has a global service network to support these offerings. GE Aerospace will build upon our established 100+ years of expertise, extensive partnerships, and commitment to customers. Together we will mobilize a new era of growth in aerospace and defense — one that balances the current needs of our industry with those of future generations, surpassing what is expected.



GE Aerospace

BOOTH 201

HIRING

GE Aerospace Research

geaerospace.com

GE Aerospace is a world-leading provider of jet engines, components and systems for commercial and military aircraft with a global service network to support these offerings. GE Aerospace and its joint ventures have an installed base of more than 40,000 commercial and 26,000 military aircraft engines, and the business is playing a vital role in shaping the future of flight.

BOOTH 523

GridPro

gridpro.com

GridPro has reinvented traditional structured grid generation, with automation in its veins. For 25 years, we have set standards on mesh quality by focusing on orthogonality, smoothness and precise control.



BOOTH 209

GTI Energy

gti.energy

A leading research and training organization. Our trusted team works to scale impactful solutions that shape energy transitions by leveraging gases, liquids, infrastructure, and efficiency. We embrace systems thinking, open learning, and collaboration to develop, scale, and deploy the technologies needed for low-carbon, low-cost energy systems.

Honeywell

BOOTH 628

HIRING

Honeywell International

aerospace.honeywell.com/

ABOUT HONEYWELL AEROSPACE TECHNOLOGIES Thinkers. Doers. Dreamers. Makers. Since the invention of autopilot in 1914, we've been a leader in innovation for the Air Travel industry. Today, thousands of Honeywell products are used in aircraft and airports around the world. We create safer, healthier, more comfortable and sustainable air travel with one of the industry's broadest and most innovative offering portfolios spanning takeoff to landing.

BOOTH 213

HPI Energy Services Limited

hpienergy.com

HPI Energy Services is a global supplier of "Turnkey" Retrofit Control Systems for high-speed rotating equipment and Gas Turbine related maintenance services to the Energy sector.

BOOTH 321

Hydrobolt

hydrobolt.com

Hydrobolt Ltd are a market leading manufacturer of First-Level Special fasteners and Machined components.

IFTA

BOOTH 618

IFTA GmbH

ifta.com/en/

IFTA systems monitor and prevent combustion dynamics in gas turbines for power generation worldwide and assure that engines are running reliably and efficiently. For more than 25 years IFTA has been dedicated to measure, analyze and monitor dynamics and vibrations.

BOOTH 718

IHI Bernex AG

ihi-bernex.com/en/

Since their introduction in the 1970s, Bernex CVD systems have proven their reliability in hundreds of installations, providing hard, wear-resistant coatings for customers worldwide.

BOOTH 718

IHI Hauser Techno Coating B.V.

hauser.nl

The right coating can improve a product's performance dramatically, with increased wear resistance, reduced friction or protection against the elements. Hauser Techno Coating specialises in manufacturing top-of-the-line coating equipment with a flexible, modular design that can provide the optimal solution for your business.

BOOTH 501

ILT TECNOLOGIE SRL

ilttecnologie.eu/en/

ILT Tecnologie is dedicated to offer high-quality services for the fabrication of sheet metal parts with a wide range of sheet metals. ILT Energia produces Hydrogen and Oxygen Separate Gas Generators, PSA Nitrogen Generators for multiple industrial applications.

BOOTH 424

Impro Aerotek Europe SARL

improrecision.com

A global leading manufacturer of high-precision, high-complexity and mission-critical casting and machined components for diverse end-markets. We supply customized casting and machined products and provide surface treatment services to a well-diversified global customer base.

IPETRONIK

BOOTH 219

IPETRONIK GmbH & Co. KG

ipetronik.com/en/

IPETRONIK's highly precise measurement technology, rugged DAQ and recorders are used for engine test cells, flight tests and new propulsion system tests under extreme climate conditions. For hybrid-electric engines, jet engines, gas turbines, flight test instrumentation (FTI), thermal vacuum test. Our highly rugged, fail-safe, and innovative data acquisition hardware and software provides perfect measurements solutions for development and maintenance tests of engines. Our DAQ for thermocouple, RTD, voltage, frequency, flow, vibration, strain gauge and pressure are a perfect fit for aerospace applications. IPETRONIK's thermocouple scanners with up to 96 channels and 0,2K accuracy are installed at the engine's pylon.

BOOTH 603

Kingsbury, Inc US

kingsbury.com/

Kingsbury, in business since 1912, is the first and leading manufacturer of fluid-film thrust and journal bearings. With shaft sizes ranging from 25 to 1400 mm, and sliding velocities up to 130 m/sec. Please visit www.kingsbury.com for more details.



BOOTH 610

Kulite Semiconductor Products, Inc.

kulite.com

Globally recognized as the leading name in transducer technology, Kulite Semiconductor Products, Inc. maintains its edge with vigilant research, ingenious designs and forward-thinking minds. Kulite, which boasts over 400 patents, has developed high-performance, state-of-the-art custom and stock products.

BOOTH 217

LG Tech-Link Global, LLC

lqtechlinkglobal.com

Providing access and support services to a unique sensor technology that enables accurate max temperature measurement in hostile environments.

BOOTH 519

Main-Metall International AG

main-metall.com

Main-Metall is a developer, producer and supplier of a wide range of plain bearings for more than 90 years. Internally developed products and manufacturing processes based on research and technical know-how have made us an eagerly sought after business partner.

BOOTH 215

MECALC Technologies

quantusseries.com

MECALC is an engineering hub which designs, develops, and manufactures advanced data acquisition and control systems. Our systems are used globally in applications where accuracy and the quality of signal conditioning are paramount.

MECHANICAL ENGINEERING

PUB BIN

Mechanical Engineering Magazine

Location

asme.org/membership/

mechanical-engineering-magazine

Mechanical Engineering Magazine is the award-winning flagship publication of ASME.

BOOTH 216

Miba Industrial Bearings

[miba.com/en/product-areas/
industrial-bearings](http://miba.com/en/product-areas/industrial-bearings)

The Industrial Bearing Branch produces hydrodynamic bearings and labyrinth seals for use in critical rotating equipment, such as turbines, compressors, generators, motors, and industrial pumps.

BOOTH 720

Mjorud

mjorud.no

Mjorud – the experienced Gas Turbine Off-Engine equipment partner.

With more than 100 years of history, Mjorud is the No 1 technology partner for Gas Turbine operators. Our core business is "Gas Turbine Off-Engine Services."



BOOTH 620

Modern Power Systems

modernpowersystems.com

The international monthly magazine Modern Power Systems provides in-depth independent coverage of power plant and transmission and distribution technology. Widely read throughout the world of electricity generation, it specialises in presenting key engineering and commercial developments in an authoritative but accessible style. From advanced power plant and transmission design to repair and maintenance case studies, Modern Power Systems is unrivalled as a platform for exploring cutting edge developments in the power industry.

BOOTH 312

MTU Aero Engines AG

mtuusa.com

MTU is a specialist in stationary industrial gas turbines and offers its customers worldwide the full range of first-class performance and services.



BOOTH 300

National Aeronautics and Space Administration

nasa.gov/

NASA Aeronautics is engaging with industry, academia, and other agencies to advance turbine engine technologies to meet the extreme challenge of aviation decarbonization. Visit the NASA booth to learn about our turbine work in the Sustainable Flight National Partnership.



BOOTH 514

NDTL Propulsion and Power

ndtl.nd.edu/

NDTL is a research and development organization focused on large-scale, high-energy, high-complexity testing and leading-edge computational and analysis capabilities to develop advanced technologies for conventional and high Mach air-breathing propulsion, energy generation, advanced thermal management, and energy storage solutions.

BOOTH 714

Northwestern Polytechnical University

en.nwpu.edu.cn

A comprehensive university situated in the historic city of Xi'an which is at the geographical center of China and the starting point of the Silk Road. Its research and education cover everything from fundamental science and engineering to the humanities, management, and social sciences.

BOOTH 508

OROS

oros.com/

OROS designs and manufactures noise and vibration testing systems (instruments and software) for more than 35 years, meeting the requirements and expectations of automotive, aerospace, marine energy & process, manufacturing and automation industries.

BOOTH

Oxsensis

oxsensis.com

Oxsensis Ltd pioneers optical dynamic pressure sensors for extreme environments. Our cutting-edge technology ensures reliability and precision in demanding conditions. Visit us at booth 723 to explore our innovative solutions for aerospace, energy, and beyond.

BOOTH 607

Pacific Instruments

pacificinstruments.com

Pacific Instruments, Inc. is an industry leader in the design, manufacture and support of state-of-the-art, computer-automated physical measurement systems. Major aerospace and vehicle companies, government-funded research agencies and the military use these systems to measure, store and analyze information and results from research and development projects.

BOOTH 411

Parker Hannifin Corporation

parker.com

Parker Hannifin is a Fortune 250 global leader in motion and control technologies. For more than 10 years the company has engineered the success of its customers in a wide range of diversified industrial and aerospace markets.

BOOTH 310

PCA Engineers Limited

pcaeng.co.uk

PCA Engineers Limited is a UK consultancy specialist in aero-mechanical design of turbomachinery and the supply of engineering software. Experienced in radial and axial flow technologies, PCA has supported many of the world's leading manufacturers for over 30 years.

PIEZOCRYST

ADVANCED SENSORICS GMBH

BOOTH 622

Piezocryst Strainsense

strainsense.co.uk/sensors/pressure-sensors/piezoelectric-pressure-sensors/

Piezocryst is a technology-driven company specializing in high-precision pressure sensors and accelerometers for most demanding applications. We excel in gas turbine control and monitoring, spanning from mobile units up to the world largest and most efficient gas turbines.

Our sensors were designed to directly measure pressure pulsations in gas turbine combustors, ensuring the highest signal quality to tackle the new challenges presented by hydrogen combustion.

BOOTH 409

Präwest Präzisionswerkstätten GmbH & Co. KG.

praewest.com

24 hours a day, 365 days a year, we are meeting the challenges of our customers in our workshop with its ultra-modern machine park. A relationship of mutual trust has grown between ourselves and our customers based on decades of successful cooperation.

BOOTH 407

SycoTec with Principle Engineering Ltd.

principle-eng.co.uk

SycoTec produces a wide range of motor components operating as asynchronous motors, synchronous motors and as turbo generators (high-speed generators), with all key parameters being flexibly tailored to your requirements. We offer solutions within a wide operating envelope from 5W to 600 kW and from 3 Ncm to 800 Nm.

BOOTH 323

První brněnská strojírna Velká Bíteš, a.s.

pbsvb.com

One of the leading European foundries focusing predominantly on investment casting with more than 50 years of experience. At present our production program mainly consists of: blades and segments of stationary gas turbines, turbocharger wheels for the automotive industry, impellers and guide wheels for aircraft engines, and spinner discs for the glass industry.

BOOTH 703

Altair

researchinflight.com/

Altair is a global leader in computational intelligence that provides software and cloud solutions in simulation, high-performance computing (HPC), data analytics, and AI. Altair enables organizations across all industries to compete more effectively and drive smarter decisions in an increasingly connected world – all while creating a greener, more sustainable future.

BOOTH 314

Scanivalve

scanivalve.com

Scanivalve's line of Ethernet pressure and temperature measurement equipment serve applications in aerospace, power generation, turbomachinery, automation, process control, wind turbines, wind tunnels and more. Let us use our years of experience and innovation to meet your physical measurement requirements



BOOTH 711

Sensor Coating Systems Limited

sensorcoatings.com

Advanced heat transfer diagnostic: SCS provides advanced thermal mapping, digitizing thousands of temperature data points on mission-critical components. The thermal history technology measures a range of 150°C – 1,600°C +/- 300°F – 2,900°F+, with increased capabilities enabling faster product delivery.



BOOTH 421

Sensorade

sensorade.eu/

SENSORADE is specialized in ultra-miniaturized pressure sensors for harsh environments. This unique technology served the Wind Tunnel and Testing Engineering community. SENSORADE is the only OEM offering the smallest (1.2mm) sensor with the highest performance in the world.

BOOTH 500

Sesta Lab

sestalab.com/

Sesta Lab is an industrial area to test combustion system for gas turbine. The test size is between 1MW to 100MW in particular conditions. Sesta Lab is leader in fuel flex thanks to syngas systems, hydrogen, and many others. One of our test cell has optical analysis instrumentations.

SOHRE TURBOMACHINERY
by Shaft Current Solutions

BOOTH 423

Shaft Current Solutions, DBA Sohre Turbomachinery

sohreturbo.com

Protecting rotating equipment from the damaging effects of stray shaft electrical currents. Sohre Turbomachinery® grounding brushes use a proprietary silver and gold fiber technology. Continuous protection in adverse conditions, our brushes are the preferred long term, low maintenance choice.



BOOTH 506

Siemens Energy

siemens-energy.com

We support companies and countries to reduce emissions across the energy landscape – for a more reliable, affordable and sustainable energy system.

BOOTH 624

Siemens Industry Software Limited

siemens.com

Siemens Digital Industries Software helps organizations digitally transform using software, hardware and services from the Siemens Xcelerator business platform. Siemens' software and the comprehensive digital twin enable companies to optimize their design, engineering and manufacturing processes and accelerate transformation.





BOOTH 518

SoftInWay Inc.

softinway.com

SoftInWay is an international R&D engineering company specializing in the development of clean, efficient, reliable turbomachinery & propulsion systems. SoftInWay supports its customers through its integrated & automated software platform, AxSTREAM® for all steps in the turbomachinery design, redesign, analysis, & optimization process. We also offer a number of engineering services & educational courses. SoftInWay is ISO 9001:2015 & AS9100:2016 certified, and we support 500+ global customers including

BOOTH 208

SpinDrive

spindrive.fi/

SpinDrive is specialized in active magnetic bearing technology. SpinDrive improves the energy efficiency of industrial processes by at least 10% and enables a 2-year payback time by providing active magnetic bearings for original equipment manufacturers.

BOOTH 221

Technetics

technetics.com

At Technetics Group, we deliver highly engineered solutions for critical applications in the most demanding environments leveraging our material, sealing and systems expertise.

BOOTH 207

Tecplot

tecplot.com

Tecplot is the leading post-processing software developer in CFD data visualization. Tecplot software differs from other visualization tools in that it is easy to learn and use, offers broader capabilities, and produces better-quality images and output.



BOOTH 510

TEES - Turbomachinery Laboratory

tps.tamu.edu/

The Turbomachinery and Pump Symposia (TPS) serves as the premier training and networking opportunity for professionals in both pump and turbomachinery industries. TPS 2024 will be held August 2024 at the George R. Brown Convention Center in Houston, Texas. The annual event combines a world-class program with an international exhibit hall. Each year the event attracts more than 4,500 people and 350 exhibiting companies from 48 countries.

BOOTH 418

TEMA ENERGY srl

tema-energy.it

TEMA Energy is an Italian Company specialized in manufacturing BURNERS & COMBUSTORS for Gas Turbines

BOOTH 522

Texys Group

texysgroup.com

For 25 years, Texys Group has been designing, developing, manufacturing and distributing embedded and laboratory solutions for the measurement of physical quantities (pressure, effort, temperature, current, inertia), and is praised worldwide for mastering various technologies (infrared, fiber optics, extensometry, wireless communication, signal conditioning) through its flagship brand Texense.

BOOTH 204

Thermoflow Inc.

thermoflow.com/

Thermoflow is the leading developer of thermal engineering software for the power and cogeneration industries. Since 1987, Thermoflow's software product line has grown to become the most popular, well-proven, and comprehensive system available today.



BOOTH 315

Torquemeters Ltd.

torquemeters.com/

Pioneers in test driveline development, Torquemeters is a long-established company, specialising in the design and manufacture of high-performance power transmission and measurement systems, which are used by many of the world's leading aerospace & industrial turbomachinery companies and independent R&D organisations.



BOOTH 517

Turbocam International

turbocam.com

TURBOCAM specializes in manufacturing core turbomachinery flow path components for aviation, rocketry, automotive turbocharger, and power generation, offering bold and creative solutions to today's challenges.

BOOTH 613

Turbostream Ltd

turbostream-cfd.com

Turbostream is a multi-physics simulation suite for turbomachines. Built from the ground up to take advantage of GPU hardware, it offers unparalleled speed for design simulations or large-scale unsteady simulations and digital twin modelling.

BOOTH 609

Tutco SureHeat

tutcosureheat.com

TUTCO Sureheat electric heaters meets the demanding needs of high-temperature process heat applications. Our products have been integrated into a variety of OEM manufacturing processes and facilities worldwide.

BOOTH 612

Valmet Limited

valmet.com

Valmet is a leading global developer and supplier of process technologies, automation and services for a wide base of process industries. Valmet DNA Turbine automation is Valmet's future-proof integrated turbine control system for improved control, protection and vibration monitoring.

BOOTH 417

Vectoflow GmbH

vectoflow.de/en

Vectoflow makes standard and customized measurement solutions to determine the state of a flow! Our customized multi-hole-probes and fluid measurement solutions determine, e.g., pressure, velocity, flow angle, and temperature and can be easily customized using advanced additive manufacturing processes.

BOOTH 704

Wärtsilä Bearing Centre

wartsila.com

Wärtsilä is a global leader in innovative technologies and lifecycle solutions for the marine and energy markets.

BOOTH 324

ZEISS

zeiss.com

Our product range includes coordinate measuring machines, optical and multisensor systems as well as metrology software for the automotive, aircraft, mechanical engineering, plastics and medical technology industries. Innovative technologies such as 3D X-ray metrology for quality inspection and Industrial Microscopy for material analysis round off the product portfolio.

Join us as an exhibitor in Memphis. Contact exhibits@asme.org or stop by the Sales Office in the exhibition to get more information!



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FACILITY TOUR

Sensor Coating Systems



THURSDAY, JUNE 27, 2024 AT 1:15P.M.

Sensor Coating Systems provides high resolution thermal mapping technology for customers with a need for rapid evaluation of mission critical components. SCS works predominantly with customers in the Aerospace, Automotive, Power Generation, Oil & Gas and Industrial sectors around the globe, supporting them with their heat transfer requirements.

The Industrial visit will consist of a trip on a Historic Red London Routemaster bus to the SCS office and laboratory facility to view the technology and its processes and to meet with some of the team. The visit, including travel time, will be approximately 3 hours and will offer local London photography opportunities and refreshments.

Location: Londoneast-uk Business & Technical Park, Dagenham.

Transportation: Bus

Registration: Booth 711. As numbers for this visit are restricted to 30, SCS may pre-screen participants.

Meals: Refreshments on site.

More info: Contact SCS via email on s.craggs@sensorcoatings.com





/ Accelerating a Sustainable Future with Simulation

Discover how we can help take your sustainability efforts from idea to reality with the power of simulation.

Visit us at Booth 305



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Powering Innovation that Drives Human Advancement™

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Incoming Vice Chair: Kurt Rouser

Ceramics

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Coal, Biomass & Alternative Fuels

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Current Vice Chair: Rakesh Bhargava

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Current Chair: Aaron M. Rimpel
Current Vice Chair: Mihai Mihaescu

Oil & Gas Applications

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Steam Turbine

Current Chair: Shigeki Senoo
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Structures & Dynamics

Current Chair: Thomas Weiss
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Incoming Vice Chair: Adolfo Delgado

Student Advisory

Current Chair: Dimitrios Bermperis
Current Vice Chair: Marco Castaldi

Supercritical CO₂

Current Chair: Timothy Allison
Current Vice Chair: Renaud Le Pierres

Turbomachinery

Current Chair: Dr. Bronwyn Power
Current Vice Chair: Hamid Hazby

Wind Energy

Current Chair: Giacomo Persico
Current Vice Chair: Lorenzo Ferrari

Technical Committee Meetings

Refer to the app for the room assignments.

Committee	Day	Time
Aircraft Engine	Thursday	6:00PM – 7:30PM
Ceramics	Wednesday	6:00PM – 7:30PM
Coal, Biomass & Alternative Fuels	Wednesday	6:00PM – 7:30PM
Combustion, Fuels & Emissions	Tuesday	6:00PM – 7:30PM
Controls, Diagnostics & Instrumentation	Wednesday	6:00PM – 7:30PM
Cycle Innovations	Thursday	6:00PM – 7:30PM
Electric Power	Wednesday	6:00PM – 7:30PM
Energy Storage	Tuesday	6:00PM – 7:30PM
Fans and Blowers	Wednesday	6:00PM – 7:30PM
Heat Transfer	Wednesday	6:00PM – 7:30PM
Industrial & Cogeneration	Tuesday	6:00PM – 7:30PM
Manufacturing Materials & Metallurgy	Wednesday	6:00PM – 7:30PM
Microturbines, Turbochargers & Small Turbomachines	Wednesday	6:00PM – 7:30PM
Oil & Gas Applications	Thursday	6:00PM – 7:30PM
Steam Turbine	Tuesday	6:00PM – 7:30PM
Structures & Dynamics	Tuesday	6:00PM – 7:30PM
Student Advisory	Thursday	4:00PM – 5:30PM
Supercritical CO ₂	Wednesday	6:00PM – 7:30PM
Turbomachinery	Tuesday	6:00PM – 7:30PM
Wind Energy	Thursday	6:00PM – 7:30PM



Track Organizers

Track 01: Aircraft Engine

Oscar Kogenhop, *EPCOR*
Harald Funke, *FH Aachen*
Todd Lowe, *Virginia Tech*
Mavroudis Kavvalos, *German Aerospace Centre DLR*

Track 02: Ceramics and Ceramic Composites

Michael Presby, *NASA Glenn Research Center*
Spencer Jeffs, *Swansea University*

Track 03: Coal, Biomass, Hydrogen & Alternative Fuels

Marina Braun-Unkhoff, *German Aerospace Center (DLR)*
Angela Serra, *Baker Hughes*
Pietro Bartocci, *University of Perugia*
Francesco Fantozzi, *University of Perugia*
Pierre Gauthier, *Siemens-Energy*

Track 04: Combustion, Fuels & Emissions

Santosh Hemchandra, *Indian Institute of Science - Bangalore*
Samir Rida, *Ansys*
Mirko Bothien, *Zurich University of Applied Sciences*
Manfred Klein, *retired*

Track 05: Controls, Diagnostics & Instrumentation

Igor Loboda, *National Polytechnic Institute, Mexico*
Lubomir Ribarov, *U.S. Merchant Marine Academy*
Craig Davison, *National Research Council, Canada*
Liang Tang, *GE*
Lorenzo Ferrari, *University of Pisa – DESTEC, Italy*

Track 06: Cycle Innovations

Ward De Paepe, *University of Mons (UMONS)*
Alessandro Sorce, *University of Genova*

Track 07: Education

Ioanna Aslanidou, *Mälardalen University*

Track 8: Electric Power

Ben Emerson, *Georgia Institute of Technology*
Rick Tomlinson, *Chevron*
Thomas Christiansen, *Strategic Power Systems, Inc.*
Bin Jou, *FM Global*

Track 9: Energy Storage

David Sánchez, *University of Seville*
Klaus Brun, *Elliot Group*
Timothy Allison, *Southwest Research Institute*

Track 10: Fans and Blowers

Zhiping Wang, *Morrison Products, Inc.*
Till Biedermann, *Pollrich GmbH*

Track 11: Heat Transfer: Combustors

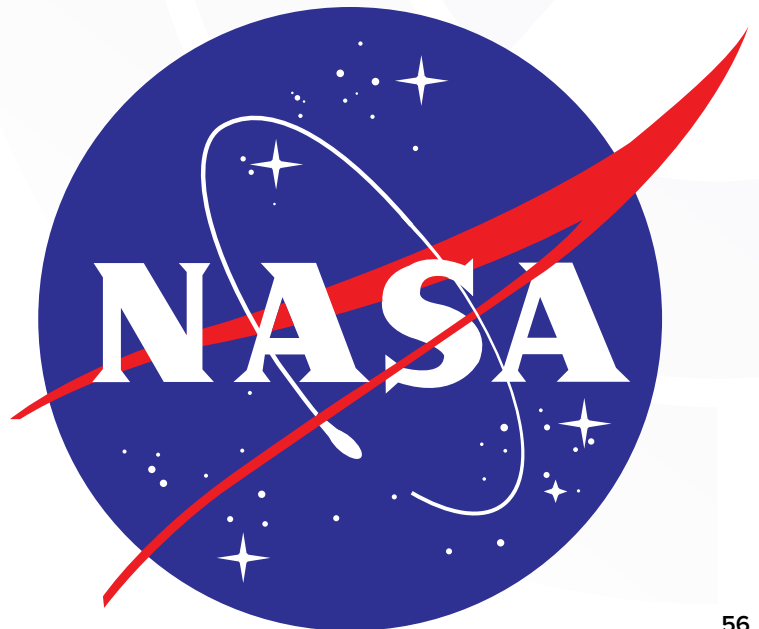
Antonio Andreini, *University of Florence*
Cosimo Bianchini, *Ergon Research*
Stephen Lynch, *Penn State University*
Lesley Wright, *Texas A&M University*

Track 12: Heat Transfer: Film Cooling

Silvia Ravelli, *University of Bergamo*
James Rutledge, *Air Force Institute of Technology*
Stephen Lynch, *Penn State University*
Lesley Wright, *Texas A&M University*

Track 13: Heat Transfer: General Interest/ Additive Manufacturing Impacts on Heat Transfer

Robert Krewinkel, *Technical University Graz*
Guillermo Paniagua, *Purdue University*
Stephen Lynch, *Penn State University*
Lesley Wright, *Texas A&M University*



Track 14: Heat Transfer: Internal Air Systems

Carl Sangan, *University of Bath*
Michael Barringer, *Penn State University*
Stephen Lynch, *Penn State University*
Lesley Wright, *Texas A&M University*

Track 15: Heat Transfer: Internal Cooling

Hongzhou Xu, *Solar Turbines*
Ardeshir Riahi, *Honeywell*
Stephen Lynch, *Penn State University*
Lesley Wright, *Texas A&M University*

Track 16: Heat Transfer: Tutorials

Riccardo Da Soghe, *Ergon Research*
James Scobie, *University of Bath*
Stephen Lynch, *Penn State University*
Lesley Wright, *Texas A&M University*

Track 17: Industrial & Cogeneration

Clement Joly, *SoftInWay, Inc.*
Rakesh Bhargava, *Innovative Turbomachinery Technologies Corp*

Track 18: Manufacturing Materials & Metallurgy

Sascha Gierlings, *Fraunhofer*
Scott Keller, *Doosan*

Track 20: Oil & Gas Applications

Jason Wilkes, *Southwest Research Institute*
Michele Pinelli, *University of Ferrara*

Track 21: Steam Turbine

Christian Siewert, *Siemens Energy Global GmbH & Co. KG*
Sebastian Schuster, *University of Duisburg-Essen*
Shigeki Senoo, *Mitsubishi Heavy Industries, LTD.*

Track 22: Structures and Dynamics: Aerodynamics Excitation & Damping

Yoon S. Choi, *GE Aerospace*

Track 23: Structures and Dynamics: Bearing & Seal Dynamics

Jürg Schiffmann, *EPFL*

Track 24: Structures and Dynamics: Emerging Methods in Design & Eng.

Partha Das, *Honeywell*

Track 25: Structures and Dynamics: Fatigue, Fracture & Life Prediction

Michael Krämer, *TU Darmstadt*

Track 26: Structures and Dynamics: Probabilistic Methods

Liping Wang, *GE Corp Research*

Track 27: Structures and Dynamics: Rotordynamics

Ted Brockett, *Honeywell*

Track 28: Structures and Dynamics: Structural Mechanics & Vibration

Azzedine Dadouche, *NRC Canada*

Track 29: Student Poster

Dimitrios Bermpis, *Mälardalen University*
Marco Castaldi, *von Karman Institute for Fluid Dynamics*

Track 30: Supercritical CO₂

Tim Allison, *Southwest Research Institute*
Renaud Le Pierres, *Heatric*

Track 31: Turbomachinery: Axial Flow Fan & Compressor Aerodynamics

Lisa Brilliant, *Pratt & Whitney*

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Track 32: Turbomachinery: Axial Flow Turbine Aerodynamics

Emil Göttlich, *Graz University of Technology*

Track 33: Turbomachinery: Deposition, Erosion, Fouling, and Icing

Sergio Lavagnoli, *von Karman Institute for Fluid Dynamics*

Track 34: Turbomachinery: Design Methods & CFD Modeling for Turbomachinery

Pat Cargill, *GE*

Track 35: Turbomachinery: Ducts, Noise & Component Interactions

Duncan Walker, *University of Loughborough*

Track 36: Turbomachinery: Multidisciplinary Design Approaches, Optimization, and Uncertainty Quantification

Marcus Meyer, *Rolls Royce Deutschland*

Track 37: Turbomachinery: Radial Turbomachinery Aerodynamics

Bob Mischo, *MAN Energy Solutions Switzerland Ltd.*

Track 38: Turbomachinery: Turbomachinery General Interest

Hamid Hazby, *Mercedes AMG High Performance Powertrains*

Track 39: Turbomachinery: Tutorials

Anna Laufer, *GE Aviation*

Track 40: Turbomachinery: Unsteady Flows in Turbomachinery

Reid Berdanier, *Penn State University*

Track 41: Wind Energy

Giacomo Persico, *Politecnico di Milano*

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Registration Information

TURBO EXPO 2024

Registration Details

Turbo Expo will be held in London, England, UK June 24-28, 2024.

FULL CONFERENCE REGISTRATION INCLUDES:



Access to all conference sessions
including technical presentations, keynote sessions, panel discussions, tutorial of basics sessions, and award ceremonies



Admission to networking sessions
including the Welcome Reception, Student/Early Career Engineer Reception & Exhibit Hall receptions



Opportunity to register for the Celebrating Women in Turbomachinery Dinner



Access to the Student Poster Session



Online access to all Turbo Expo 2024 final accepted papers



Admittance into the Turbo Expo exhibition hall



Opportunity to attend facility tours



Access to daily lunches

Conference Registration Pricing

Registration prices are exclusive of VAT 20%. VAT will be applied at checkout.

AUTHOR/PRESENTER REGISTRATION

Registration Category	REGISTER BY April 18, 2024	LATE REGISTRATION May 25, 2024
Author/Presenter	£1,310	All presenters must be registered by April 18, 2024 to submit their final paper.

PARICIPANT ONLY REGISTRATION (ASME MEMBERS)

Registration Category	REGISTER BY May 24, 2024	LATE REGISTRATION May 25, 2024
Member (5 Days)	£1,310	£1,415
Member (3 Days)	£1,125	£1,210
Lifetime (5 days)	£545	£645
Student (5 days)	£545	£645

PARICIPANT ONLY REGISTRATION (NON-ASME MEMBERS)

Registration Category	REGISTER BY May 24, 2024	LATE REGISTRATION May 25, 2024
Non-Member (5 Days)	£1,515	£1,620
Non-Member (3 Days)	£1,310	£1,415
Student Non-Member (5 days)	£570	£670

PARTICIPANT ONLY – GROUPS AND SPONSORS

Registration Category	REGISTER BY May 26, 2024	LATE REGISTRATION May 26, 2024
Group 10+	£1,190	-
Group 31+	£1,125	-
Exhibiting Company Employee	£1,100	£1,150
Platinum Sponsor Employee	£1,050	£1,200



VAT

Why am I paying a VAT on the Congress Registration Fee?

You are paying a Value Added Tax (VAT) on the registration fee because it is required by the UK VAT Act 1994: VAT must be paid on the fees in the country where the congress is held.

Note that the Registration Fees for the virtual participation at the live event are subject to different VAT rules. They can be either subject to French VAT, or subject to the Reverse charge.

Can the VAT be recovered?

Possibly. Only applicants registered for business purposes in a country outside the UK can use the scheme to reclaim VAT paid in the UK.

The applicant does not have to be, or can't be, VAT-registered in the UK and he does not have a place of business or other residence in the UK. Also, he must not make any taxable supplies in the UK for which he is responsible for paying the VAT.

To recover the VAT you must provide a certificate proving your business activity. The certificate must contain some details (the

name, the address of the official stamp of the authorizing body, the nature of your business, your own name and address, your business registration number...) – for all expense invoices and submit all original documentation to your company for its processing.

Note that VAT can't be reclaimed on certain items, like the cost of buying a car, or for goods and services bought for resale, used for business entertainment or used for non-business activities.

What process should companies follow to recover the VAT?

Companies outside the UK must send the VAT refund application directly to the UK Tax Administration (HMRC) at the address below:

HM Revenue and Customs - Compliance Centres
VAT Overseas Repayment Unit S1250
Benton Park View
Newcastle upon Tyne
NE98 1YX
United Kingdom

You must make the claim no later than six months after the end of the 'prescribed year' in which you incurred the VAT. The prescribed year is the twelve months from 1 July to 30 June of the following calendar year, so you must make your application no later than 31 December.

Companies must make their application on [Form VAT 65A](#).

Instructions on how the form must be filled in are available [here](#):

gov.uk/government/publications/vat-application-for-vat-refund-by-a-business-person-not-established-in-the-community-vat65a

The application form must be supported by the original version of all invoices included in the claim, as well as an original certificate from the official authority in your own country showing that you are registered for business purposes in that country (you may use [form VAT 66A](#) for the certificate).

There are also minimum VAT amounts that must be met. If the application is for a period covering less than 12 months, the total amount of VAT claimed must not be less than GBP 130. However, when the application is for the full 12 months of the prescribed year, or the period remaining in the prescribed year, the amount of VAT claimed must not be less than GBP 16.

STUDENT REGISTRATION RATES

Student registration rates are only available to undergraduate and graduate students who are enrolled full-time and have not yet received their Ph.D. Post-docs may not register as students.

Persons who register at the Student Member or Student Non-Member rate will be required to submit current valid student identification to ASME. If the identification is not validated, the attendee will need to register in one of the non-student registration categories.

GROUP REGISTRATION

Group registration is for groups of 10-30 or 31-50. Please contact igtiprogram@asme.org for assistance with group registration. All group registrations must be paid in full by June 3.

COMPLIMENTARY MEMBERSHIP

Attendees who pay the Non-Member registration rate will be offered a complimentary 4-month ASME trial membership following the conference. ASME will contact eligible registrants and invite them to join ASME within 90 days after the conference. For more information, visit ASME Membership website.

LETTERS OF INVITATION

You will be able to request your Conference Letter of Invitation during the Registration process which will be sent as a PDF attachment via email. **Once your fee is paid in full, your letter will be sent.** If you require a hard copy invitation letter to be mailed to you, you may request and pay for a hard copy invitation letter during the registration process.

BADGE PICK-UP INFORMATION

Badges will not be mailed. All badges must be picked-up onsite. Photo identification is required for badge pick-up at the on-site registration desk. Full Payment is required to attend Turbo Expo. Badges will not be given to anyone with an outstanding payment.

INSURANCE AND LIABILITY

Participation in Turbo Expo 2024 is at your own risk. Please make your own health and travel insurance arrangements.

PROFESSIONAL DEVELOPMENT HOURS (PDH)

A PDH Certificate will be emailed to you after the conference indicating the number of PDHs earned during the conference.

PHOTOS/VIDEOS, AUDIO RECORDINGS

Participants are reminded that material presented at ASME conferences is under the copyright of ASME. As a result, participants are prohibited from recording, screen-capturing, or photographing presentations in their entirety with the intent to distribute them to others.

Frequently Asked Questions

Registration

Why didn't I receive any tickets with my badge?

The tickets and/or products you purchased with your registration are encoded onto your badge. Please wear this badge to all Turbo Expo related events.

Registration Questions:

Refer to the registration desk onsite.

Do you have a list of registrants?

ASME does not share attendee lists.

Can I attend the Keynote Session?

The keynote session is open to all Turbo Expo badged registrants.

Can I pay cash onsite for the registration fees?

Yes. Payment must be made in GBP.

Will I receive a receipt onsite for the fees paid?

There is a registration receipt station in registration.

Can I visit the exposition?

Exposition entry is included for all attendees with a technical conference badge or an exhibitor badge.

To purchase a badge on-site, visit the Registration Desk.

I lost my badge. What should I do?

Go to the registration counter and ask for another badge to be printed. Registrants must provide a proper ID.

Technical Program & Awards

Session and Schedule Details:

See complete session details in the Final Program or on the Conference App.

Am I supposed to get a CD-ROM/DVD of Conference Papers?

No, there is no CD or DVD for the Conference. Conference papers are available online.

Where/when is my committee meeting?

The Conference App, or the website for the schedule.

What audiovisual equipment is in the meeting rooms?

Each room will have a laptop and microphone, and laser pointer. Authors must have their presentation on a flash drive.

Do I have to upload my presentation onto a central network before my session?

No. Presenters (authors, panelists, lecturers, tutorial instructors) should plan to use their flash drive presentations only on the laptop in the session room in which they will be presenting. Please arrive 15 to 30 minutes prior to your session to prepare your presentation.

Where do I pick up the Best Paper Awards for my committee?

Committee awards are picked up by the designated leader at the Information Desk in Registration.



Exposition

Can I take pictures in the exhibit hall?

If you are an exhibitor, you may take pictures of your own booth. Otherwise, there is no photography allowed in the hall without the permission of the exhibitor.

Where is my booth?

Refer to the Exhibit Directory in the Final Program.

When is the Expo open?

Exhibit Hall Hours are Tuesday and Wednesday from 12pm-6:30pm and Thursday from 10am-2:30pm.

Where are the Priority meetings for Turbo Expo 2025 exhibit space?

IGTI Exhibit Sales Office in the exhibit hall.

Where is the exhibitor service contractor desk?

GES is available in the exhibit hall.

City & Venue

Is there parking at the ExCel?

Yes. You can pre-book parking at the ExCel. Pre-booking is the only way to guarantee your parking at the venue. It is recommended you book to avoid disappointment should the car park be full on arrival. Read more on parking options on [their website](#).

Where is the nearest metro/bus stop?

You can arrive at the ExCel via the DLR (Docklands Light Railway), London Underground, or London Overground. Directions for each can be found here: [excel.london/visitor/getting-here/underground-dlr](https://www.excel.london/visitor/getting-here/underground-dlr)

Is there a shuttle service between the ExCel and my hotel?

No. However, depending on which hotel you booked, the ExCel is a short walk or short railway ride away. Read more here: event.asme.org/Turbo-Expo/Venue-Travel/Hotel-Accommodations

Is there any Wi-Fi access at the ExCel?

There is complimentary Wi-Fi at the ExCel. Network: _ExCeL free Wi-Fi (no password required).

Is there a bank or ATM close by?

Attendees can find multiple ATMs within the venue, along the central boulevard. Additionally, there are numerous banks located in the Canary Wharf area, just a 3-minute journey via the Elizabeth Line.

Where can I purchase coffee or lunch?

There are scheduled coffee/tea breaks each morning and afternoon of the Conference. Lunch is included with all technical conference badges as well as exhibitor badges. Zero Sette is also located just outside the West Entrance (Italian restaurant). There are also plenty of dining options 3 minutes away at the Canary Wharf and West India Key.

Where is the nearest grocery store?

There is a grocery store located near the Novotel ExCel and another located near the Crowne Plaza Hotel.

Where can I find information about the city of London, restaurants, and tourist information?

City information is available at the London Info Desk (located near registration and available on Sunday from 3pm-6:30pm and Monday from 8am-3pm).

Where can I get information on public transit services?

They are included in the Turbo Expo Final [Program](#), you can also find them on the Turbo Expo website.

What is a good resource for information on the city?

The Visit London app is a great resource. There is a wealth of information on the app, on how to get around London, things to do, tours, attractions, theatre, etc.



Attendee Services

Where are the first aid services?

For first aid assistance, contact an IGTI staff person or a security officer.

Is there a coat check/luggage check service available?

There is a complimentary luggage check available to conference attendees located in the registration area. No coat check service available.

Please visit the registration desk for assistance.

Are there any Spouse/Guest Tours, and where can I get tickets or information?

See the Final Program for details or drop by the London Info desk (located near registration and available on Sunday from 3pm-6:30pm and Monday from 8am-3pm).

Is there a dedicated space for nursing mothers?

Yes. The Mother's Room is located by S9/S10.

Is there a dedicated space for prayer?

Yes. The newly refurbished prayer room is located on the boulevard, next to the S9 entrance.

Are there any charging ports for my cellphone?

No, but you can grab a power bank, conveniently located all along the boulevard (next to Venue Services and at the entrance of exhibition halls N4, N7, and S9). It costs £2.00 for first hour or £4.00 for 24 hours.

How do I become a member of ASME?

asme.org/Membership/Join/

Will I be issued a PDH certificate?

Technical Conference delegates will receive an email by August with a certificate of their attendance (Professional Development Hours).

How do I get involved in an IGTI Committee?

If you are interested in getting involved with an IGTI Committee, attend the Technical Committee Meeting of your choice. IGTI Committee meetings are open to all.

The Technical Committee Meeting Schedule can be found in the Final Program, the Conference App, and the website.

Additional Information

Use the free water refill stations on the Boulevard to keep hydrated.

They are located East and West Entrances and by the halls S4 and S7.

Lost Property:

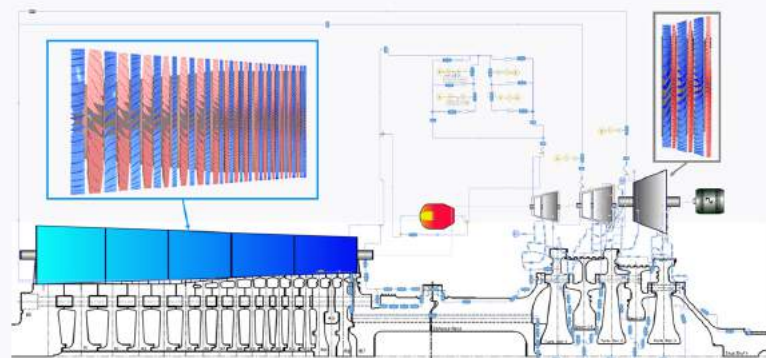
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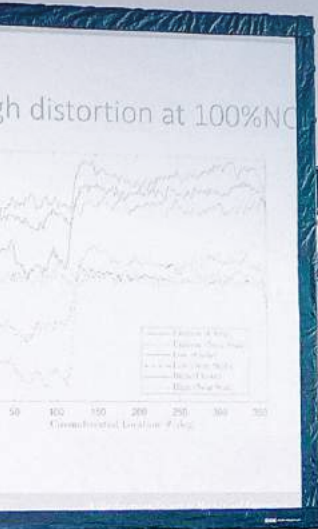


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Tutorials of Basics

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Turbo Expo 2024 offers more high quality Tutorials of Basics that ever before. More than 50 tutorials from established experts in industry and academia will cover a broad spectrum of applications including aircraft propulsion, power generation, energy storage, hydrogen and wind. As the turbomachinery industry grows and adapts to meet the global need for clean and flexible energy, these tutorials are a great opportunity for professionals to broaden their perspectives into other technologies and applications.

Track 01: Aircraft Engine

Basics of Gas Turbine Engine Core

Author: Keith Boyer, Practical Aeronautics, Inc.

The Basics of Gas Turbine and Aircraft Engine Performance

Author: Joachim Kurzke, Kurzke-Consulting

Electrified Aircraft Propulsion Approaches for Modeling and Electrical Hardware in the Loop Testing

Author: Joseph Connolly, NASA Glenn Research Center

Basics of Turbohaft Engine Cycle Design and Optimization

Author: Taylan Ercan, Middle East Technical University

Boundary Layer Ingesting Propulsion

Author: David Hall, The Pennsylvania State University

Introduction to Aircraft Engine Cycle Modeling

Author: Robert Clark, Georgia Institute of Technology

Climate Impact of Aviation Emissions and the Implications to Aircraft Engine Design

Author: Feijia Yin, Delft University of Technology

Track 02: Ceramics and Ceramic Composites

Environmental Barrier Coatings for Gas Turbine Applications

Author: Michael Presby, NASA Glenn Research Center

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Lunch & Learn

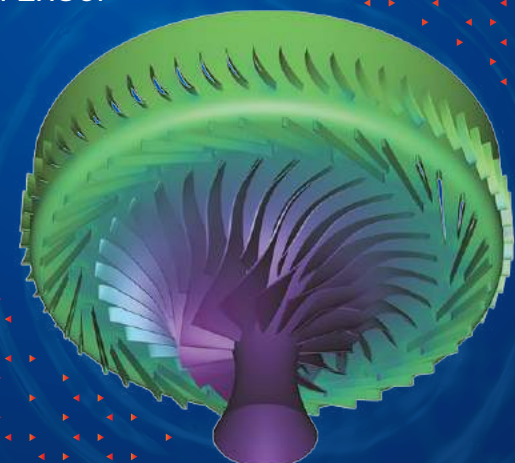
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Monday, June 24 12:00 - 13:30 BST
Aloft London ExCel



SAVE MY SEAT



Track 03: Coal, Biomass, Hydrogen & Alternative Fuels

Life Cycle Assessment (Lca) Basics and Application to Optimize the Environmental Sustainability of Gas Turbines

Author: Angela Serra, Baker Hughes

Track 04: Combustion, Fuels & Emissions

Combustion Dynamics Tutorial of Basics

Author: Jacqueline O'Connor, Pennsylvania State University

Combustion Fundamentals

Author: Michael Klassen, Combustion Science & Engineering, Inc.

Adjoint-Accelerated Data Assimilation into CFD and Low Order Models

Author: Matthew Juniper, University of Cambridge

Combustion Dynamics in Gas Turbines – Phenomenon, Monitoring and Control

Author: Thomas Steinbacher, IFTA

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EDUCATION



WORKFORCE DEVELOPMENT



RESEARCH

The Turbomachinery Laboratory at Texas A&M conducts a variety of fundamental and applied research through traditional grants and the Turbomachinery Lab Research Consortia.

RESEARCH AREAS

Rotordynamics & Mechanical Systems • Thermal Fluids & Combustion • Computational Modeling & Design



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Track 05: Controls, Diagnostics & Instrumentation

Optical Diagnostics for Turbomachinery Applications

Author: Tamy Guimarães, The Pennsylvania State University

Gas Turbine Gas Path Diagnostics

Author: Yiguang Li, Cranfield University

Track 06: Cycle Innovations

Closed Thermodynamic Cycle Analysis and Optimization

Author: Owen Pryor, Southwest Research Institute

Micro-Gas Turbine: Technological Advancements and Market Research

Author: Antonio Escamilla, University of Seville

Second Law Analysis of Heat Engines

Author: Seyfettin (John) Gulen, Bechtel Infrastructure & Power, Inc.

Energy Storage Cycles at Power Plant Scale

Author: Alberto Traverso, University of Genoa

Track 08: Electric Power

“Numbers to live by” or The Physics

Behind the Energy Transition

Author: Alessandro Ramaglia, Industry

Hydrogen Impacts 101: Are You Asking the Right Questions?

Author: Christopher Perullo, Turbine Logic

Track 09: Energy Storage

Principles of Compressed Air Energy Storage

Author: David Sánchez, University of Seville

Overview of Long-Duration Energy Storage Systems and Technologies: Part 1

Author: Natalie Smith, Southwest Research Institute

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

Author: Natalie Smith, Southwest Research Institute

Hydrogen for Power and Energy Storage

Author: Francesco Di Sabatino

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Track 10: Fans and Blowers

Basic Design and Analysis of Axial-Flow Industrial Fans

Author: Massimo Masi, University of Padova

Track 16: Heat Transfer: Tutorials

Optical Diagnostic Techniques Based on Luminescent Paints for Heat Transfer Investigations

Author: Alessio Picchi, University of Florence Department of industrial engineering

Additive Manufacturing for Gas Turbine Heat Transfer Applications

Author: Stephen Lynch, Penn State University

Track 17: Industrial & Cogeneration

Combustion and Emissions

Author: Manfred Klein, MA Klein and Associates

Closed Cycle Gas Turbines for Emissions Free Power Generation

Author: Rakesh Bhargava, Innovative Turbomachinery Technologies

Holistic Heat Pump Design

Author: Clement Joly, SoftInWay, Inc.

Track 18: Manufacturing Materials & Metallurgy

Basics of Narrow Gap Brazing and

Wide Gap Diffusion Brazing

Author: Warren Miglietti

Technology and Applications of PVD and CVD Coatings

Author: Xiao Huang

Ecological Assessment and Sustainable
Productivity for Aircraft Engine Machining

Author: Stefan Schröder

Track 19: Microturbines

Best Practices for the Numerical Prediction of Noise
Generated by Small Centrifugal Compressors

Author: Roberto Navarro, CMT – Clean Mobility &

Thermofluids, Universitat Politècnica de València



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Track 20: Oil & Gas Applications

Oil and Gas Applications for Turbomachinery

Author: Rainer Kurz, Solar Turbines

Industrial Gas Turbines

Author: Rainer Kurz, Solar Turbines

Gas Turbines for LNG Production Processes

Author: Manfred Klein, MA Klein and Associates

H2 Compression Technology Solutions

Author: Lorenzo Cappelli, Baker Hughes

Track 21: Steam Turbine

An Introduction to Steam Turbines: A Basic Tutorial

Author: Adam Neil, Elliott Group

Track 23: Structures and Dynamics: Bearing & Seal Dynamics

A Review of Active Magnetic Bearing Technology: Past, Present, and Future

Author: Rasish Khatri, Calnetix Technologies

Track 27: Structures and Dynamics: Rotordynamics

Introduction to Rotordynamic Fundamentals

Author: Thomas Kerr, Southwest Research Institute

Know How on Squeeze Film Dampers
for Aircraft Engines - Engineering Models
& Experimental Verification

Author: Luis San Andrés, Texas A&M University



Track 30: Supercritical CO₂

Turbo Machinery Design for Supercritical CO₂ Applications

Author: Jeff Moore

Materials for Supercritical CO₂ Applications

Author: Henry Saari, Carleton University

Introduction to sCO₂ Power Cycles

Author: Jason Wilkes

Heat Exchangers for Supercritical CO₂ Power Cycle Applications

Author: Michael Marshall, Southwest Research Institute

Track 39: Turbomachinery: Tutorials

Compressible Flow Turbomachinery CFD With OpenFOAM

Author: Jeff Defoe, University of Windsor

Introduction to Large Eddy Simulations

Author: Joseph Mathew, Indian institute of Science

Reduced Order Modelling Approach for Turbomachinery Secondary Flow System

Author: Clement Joly, SoftInWay, Inc.

Adjoint-based Turbomachinery Shape Optimization: Basic Concepts, Challenges and Applications

Author: Matteo Pini, Delft University of Technology

Track 41: Wind Energy

Challenges in Developing the New Generation of Wind Turbines

Author: Alessandro Bianchini, Università degli Studi di Firenze

Introduction to the Small Wind Turbine Design Using Open-Source Software Qblade

Author: Jesús Alejandro Franco Piña, Escuela Nacional de Estudios Superiores Juriquilla , UNAM Mexico

Stage Presentation Schedule

Tuesday	Presenter	From	Time
Serial Additive Manufacturing for Turbomachinery	Jens Karnapp	<i>EOS GmbH Electro Optical Systems</i>	1:00PM – 1:30PM
Combining Simulation with Machine Learning During Various Design Phases of Turbomachinery	Erik Munktell	<i>Siemens</i>	1:45PM – 2:15PM
The Use of Fast Response Emissions Analyzers for Rapid Spatial Mapping of Combustion Constituents	Jamie Parnell, Principal Product Engineer	<i>Cambustion</i>	2:30PM – 3:00PM
High Resolution Thermal Mapping for Advanced Engine Diagnostics: A Comparison with Traditional Techniques	Mike Connolly, Elmira Parsa & Logan Whalen	<i>Sensor Coating Systems</i>	3:15PM - 3:45PM
100BOND White Metal Technology	Beatriz García, Bearing Centre Manager	<i>Wärtsilä Shaft Line Solutions</i>	4:00PM – 4:30PM
The Importance of Turbine Bolting Integrity	Richard Barnes and Michael Lloyd	<i>Hydrobolt</i>	4:45PM – 5:15PM
Holistic Modeling of Energy Conversion & Thermal Management Systems	Clement Joly	<i>SoftinWay Inc.</i>	5:30PM – 6:00PM
Wednesday	Presenter	From	Time
High-Fidelity CFD for Next-Generation Design of “Green” Turbomachinery	Frank Ham, VP CFD Solver Development	<i>Cadence Design Systems</i>	1:00PM – 1:30PM
Aspects of Using Active Magnetic Bearing (AMB) System in High-Speed Rotating Machinery with a Turbo Blower Example	Nikita Uzhegov, Co-Founder and COO	<i>SpinDrive</i>	1:45PM – 2:15PM
Design and Development of a 140KW, 64,000 RPM Permanent Magnet Generator Driven by a Gas Turbine Engine	Mike Drumm	<i>e+a</i>	2:30PM – 3:00PM
Harnessing Power of GPUs for Turbomachinery Simulations	Sunil Patil, Gas Turbine Program Manager	<i>Ansys</i>	3:15PM - 3:45PM
The Cloud HPC Technology for CFD Turbomachinery Optimization	Ruggero Poletto, CEO and CAE Analyst	<i>CFD FEA SERVICE SRL</i>	4:00PM – 4:30PM
Simplifying Turbomachinery Design with AxSTREAM's AI-Powered Solutions	Valentine Moroz	<i>SoftinWay Inc.</i>	4:45PM – 5:15PM
Unlocking Integrated Airframe and Engine Analysis in the Design Cycle	Michael Ni	<i>ADS CFD</i>	5:30PM – 6:00PM
Thursday	Presenter	From	Time
Ansys SimAI – Generative AI for Simulations	Jeff Bronson, Principal Engineer	<i>Ansys</i>	12:15PM – 12:45PM
Closing Ceremony and Kick-off to Memphis 2025			1:00PM - 2:15PM

Exhibition Floor Plan

