GTPPS | CHANIA

Global Power & Propulsion TECHNICAL CONFERENCE 2024

PROGRAM

SEPTEMBER 4TH - 6TH

CHANIA, CRETE

Innovate, Integrate, Carbon Mitigate: Exploring Turbomachinery Technology in a Sustainable Era

Welcome to GPPS Chania24

On behalf of the Organizing Committee and the GPPS Executive Committee, I am delighted to welcome you all to the Global Power and Propulsion Society (GPPS) Chania 2024 Technical Conference. Being dedicated to "Innovation, Solution Integration, and Carbon Mitigation" GPPS Chania24 Technical Conference once again, establishes itself as a global platform for researchers, engineers, and industrial and academic leaders to dialogue about shaping methodologies and technologies in response to such a universal call for turbomachinery in the era of sustainability.

The three-day program (September 4th to 6th), inspired by the Cretan myth of Theseus and the Minotaur, is set to showcase how the search for greener technologies entails intertwining a thread made of scientific competences and industrial practices, theory and implementation, and trials and errors. A thread to be unravelled in the labyrinth of industrial sustainability dilemma. A thread of know-hows as a compass to decouple development from nature.

GPPS Chania24, in a nutshell, offers a means to explore the space of solutions.

In detail, the conference program will be animated by two panels on Sustainable Aviation and Sustainable Power Generation, with influential speakers, aiming to confront west-to-east diverse routes to the common goal, depicting the role of turbomachinery in transitioning to a decarbonized world.

To continue exploring the space of sustainable energy solutions, five invited and technical keynotes will set the pace of the conference by a thread which is intertwining topics such as off-shore wind energy in the new frontier of the Mediterranean, and advanced manufacturing in product design and novel repair approaches, to more technical presentations dedicated to improved engine concepts, energy vectors (LNG) and physics based data-driven techniques.

Special attention will be given, as customary at GPPS events, to the future of CFD by querying top-level scientists about the challenges to come in multi-physics and multi-scale turbomachinery simulations. Chania24 will be also launching, with a dedicated CFD workshop, the next-gen compressor data set (thanks to TU Darmstadt) in order to boost code-to-code comparison and validation in a genuine multi-stage and unsteady configuration.

Moving to the technical session program, Chania24 will be the forum for the presentation of 116 papers, distributed over 29 technical sessions, attracting a global community of engineers and researchers. If global is the problem global must be the solution.

There will be plenty of opportunities for discussions and networking in the spirit of ancient dialectic. The conference resort provides an excellent environment, with breaks for lunch and coffee, as well as the welcome reception on Wednesday, September 4th and the Gala Dinner on Thursday, September 5th, which are great occasions for personal exchange.

Together with the Conference Co-Chair Prof. Budimir Rosic, the review Chair Prof. Grant Ingram, the Technical Program Chair Prof. Dingxi Wang, the Conference Advisor Prof. Mehdi Vahdati, and the local liaison chair Prof. Ioannis Nikolos, we welcome you to GPPS Chania24 to enjoy a unique networking experience as part of a vivid scientific community on the beautiful island of Crete.

Prof. Alessandro Corsini
Conference Chair of GPPS Chania24

Track Codes

AN	Aeroacoustics & Noise
CC	Combustor & Combustion
ETR	Energy Transition & Renewables
HTGI	Heat Transfer: General Interest
HTFC	Heat Transfer: Film Cooling
HTIC	Heat Transfer: Internal Cooling
HTDAM	Heat Transfer: Design and Analysis Methods
ICTMD	Instrumentation, Control, Testing, Monitoring & Diagnostics
MMSV	Mechanics and Materials: Stress, Vibration and Life
MMR	Mechanics and Materials: Rotordynamics
TAAFC	Turbomachinery Aerodynamics: Axial-flow Compressors
TADAM	Turbomachinery Aerodynamics: Design and Analysis Methods
SC	Supercritical CO2
TCPP	Thermodynamic Cycles for Power and Propulsion
TARMFC	Turbomachinery Aerodynamics: Radial/ Mixed-flow Compressors
TAFB	Turbomachinery Aerodynamics: Fans/ Blowers
TAT	Turbomachinery Aerodynamics: Turbochargers, Small Turbomachines, New Applications
TAARFT	Turbomachinery Aerodynamics: Axial/ Radial-flow Turbines
TAWT	Turbomachinery Aerodynamics: Wind Turbines
TAEF	Turbomachinery Aeroelasticity: Flutter
TAEDAM	Turbomachinery Aeroelasticity: Design and Analysis Methods
TUARSRIS	Turbomachinery Unsteady Aerodynamics: Rotating Stall, Rotating Instability and Surge
TUABRIID	Turbomachinery Unsteady Aerodynamics: Blade Row Interaction and Inlet Distortion
TUADAM	Turbomachinery Unsteady Aerodynamics: Design and Analysis Methods
P	Pumps

Presenting Authors

Paper Number | **Name**

002 | **Yi Zhong**
003 | **Hans E. Wettstein**
004 | **Yufeng Huang**
005 | **Huidong Tang**
009 | **Yipu Zhang**
011 | **Ziyuan Wang**
012 | **Haosu Zhang**
013 | **Carlos Garcia Guillamon**
019 | **Dominik Suchla**
021 | **Lei Wu**
023 | **Mingyang Hong**
026 | **Christoph Kuestner**
027 | **Martin Bolemant**
029 | **Nicola Zanini**
030 | **Pieter Swanepoel**
031 | **Mark Baker**
032 | **Cheng Tian**
034 | **Davide Lengani**
035 | **Jan Lemmer**
036 | **Shida Yu**
037 | **Frederic Alauzet**
038 | **Piovan Mattia**
039 | **Tobias Soeder**
040 | **Daniel Kessler**
041 | **Martino Köhler**
042 | **Xinze Zhang**
045 | **David Gutiérrez de Arcos**
046 | **Zhenhui lian**
047 | **Martin Niehuis**
054 | **Hans-Peter Kersken**
055 | **Zhongyu Du**
056 | **Yannik Schaefer**
058 | **Conor Gallagher**
061 | **Victor Bicalho**
063 | **Lars Hinz**
065 | **Haowei Zhou**
066 | **Yaqi Liu**
068 | **Kefeng Yang**
071 | **Viacheslav Sedunin**
074 | **Viacheslav Sedunin**
072 | **Florian Goertz**
075 | **Matteo Pini**
076 | **Eloi Guilbert**
077 | **Bojan Kajasa**
078 | **Alberto Remigi**
080 | **Jean-Hugues Beaux**
081 | **Pedro Martinez Castro**
082 | **Massimo Masi**
083 | **Julian Scheibel**
086 | **Shanghong Gao**
088 | **Christian Goßrau**
089 | **Yutian Chen**
093 | **Andrew Pilkington**
094 | **Dennis Sanders**
096 | **Marvin Schwarz**
097 | **Alejandro Castillo Pardo**
099 | **Zhicheng Xiao**
100 | **Grant Ingram**
101 | **Tullio Ancora**
103 | **Venkata Y.T. Chennuru**
104 | **Yanan Li**
106 | **Siji Wang**
107 | **Fabio Beltrame**
108 | **Konstantinos Bollas**
110 | **Matt Taher**
112 | **Botao Lai**
114 | **Konstantinos Fotis**
123 | **Hangkong Wu**
125 | **Yixuan Zhang**
126 | **Zetao Zhu**
127 | **Cillian Thomas**
130 | **Oskar Freytag**
131 | **Martin Bitter**
132 | **Jens Schmeink**
136 | **Lorenzo Battisti**
138 | **Siyu Ding**
141 | **Teng Wan**
142 | **Tongtong Meng**
144 | **Maximilian Karl**
149 | **Benjamin Emerson**
152 | **Guangyu Wang**
154 | **Ahmed Jhinaoui**
155 | **Pengzhong Luo**
156 | **Pengzhong Luo**
157 | **Jinxia Xia**
159 | **Tien-Dung Vuong**
160 | **Feixue Cai**
161 | **Jianshe Zhang**
163 | **Ding Zechen**
164 | **Jongwun Choi**
166 | **Dimitrios Bermperis**
168 | **Zhicheng Xiao**
169 | **Maryam Alshehhi**
170 | **Jonggyu Choi**
171 | **Oskar Freytag**
172 | **Xiaoye Li**
174 | **Rui Zhu**
177 | **Mengyang Wen**
179 | **Bohua Huang**
180 | **Hang Wu**
181 | **Shijun Sun**
184 | **Marcel Seidler**
194 | **Antonio Alguacil Cabrerizo**
196 | **Andrea Giuseppe Sanvito**
197 | **Yifan Guo**
198 | **Xiaomo Jiang**
201 | **Lorenzo Galieti**
205 | **Yuma Iwamoto**
206 | **Stanislaus Reitenbach**
208 | **Masayoshi Hatta**
210 | **Jiayi Gong**
216 | **Jiazi Zhao**
221 | **Yanmin Guan**
223 | **Tianyu Gong**
226 | **Moosa Yazdani**

Detailed Schedule

Wednesday, 4th September | Day 1

07:45 - 08:15 — **Coffee Break Area**

Authors' Briefing

08:30 - 08:45 — **Imperial Congress Hall**

Opening Ceremony GPPS Chania24

Speaker:
Prof. Alessandro Corsini (Conference Chair, Sapienza University of Rome, Italy)

08:45 - 10:15 — **Imperial Congress Hall**

Panel 1

Sustainable Power Generation
Chair → **Bernhard Winkelmann** (S&B Enterprises, USA)
Panelists → **Piero Colonna** (TU Delft, the Netherlands), **Yang Hong** (Shanghai Electric Group, China), **Jürgen Pacholleck** (Ansaldo Energia, Switzerland), **Benjamin Witzel** (Siemens Energy, Germany)

10:15 - 10:45 — **Coffee Break Area**

Coffee Break

10:45 - 12:25

Technical Paper Presentations

10:45

Imperial Congress Hall
Session Chairs
Dylan Rubini + Mark Baker

[CC-094]
Numerical and experimental investigation of the velocity field and spray distribution of a novel H_2-O_2-H_2O burner

→ **Dennis Sanders** [1]
→ **Lars Eichhorn** [2]
→ **Niklas Siwczak** [2]
→ **Roland Scharf** [2]
→ **Friedrich Dinkelacker** [2]
→ **Karsten Oehlert** [1]

[1] **Jade University of Applied Sciences, Germany**
[2] **Leibniz University Hannover, Germany**

Imperial 1
Session Chair
Davide Lengani

[TADAM-077]
Steam Compressor Flow Simulation Close to the Saturation Line Using Non-Ideal Gas Model

→ **Bojan Kajasa**
→ **Michael Lockan**
→ **Eberhard Nicke**

German Aerospace Center (DLR), Germany

Imperial 2
Session Chair
Massimo Masi

[P-029]
Centrifugal pump performance derating with non-Newtonian slurries

→ **Nicola Zanini**
→ **Alessio Suman**
→ **Mattia Piovan**
→ **Michele Pinelli**

University of Ferrara, Italy

Imperial 3
Session Chairs
Andrew Pilkington + Budimir Rosic

[HTFC-012]
Research on particle deposition characteristics and film cooling performance of trench flat plate with mesh morphing

→ **Haosu Zhang**
→ **Yuting Jiang**
→ **Chenlin Chen**
→ **Liangchen Dong**
→ **Yida Chen**

Harbin Engineering University, China

Imperial 4
Session Chairs
Grant Ingram + Ahmed Jhinaoui

[SC-107]
Design of a ram air cooling duct housing the condenser of an airborne orc waste heat recovery unit

→ **Fabio Beltrame**
→ **L. Jasper Van Dongen**
→ **Piero Colonna**
→ **Carlo Maria De Servi**

TU Delft, Netherlands

	Imperial Congress Hall **Session Chairs** Dylan Rubini + Mark Baker	Imperial 1 **Session Chair** Davide Lengani	Imperial 2 **Session Chair** Massimo Masi	Imperial 3 **Session Chairs** Andrew Pilkington + Budimir Rosic	Imperial 4 **Session Chairs** Grant Ingram + Ahmed Jhinaoui
11:10	**[CC-149]** Back To The Future: Revisiting Nonpremixed Designs for Fuel Flexible (H_2/NH_3/CH_4/Liquid fuel), Low NO_X Combustion → **Shivam Patel** [1] → **David Noble** [2] → **Benjamin Emerson** [1] → **Tim Lieuwen** [3] [1] **Georgia Institute of Technology, USA** [2] **Electric Power Research Institute, USA** [3] **Georgia Tech, USA**	**[TADAM-132]** Graph-Driven Interactive Processes in Turbo-Component Preliminary Design → **Jens Schmeink** → **Marius Bröcker** → **Stanislaus Reitenbach** → **Martin Siggel** **German Aerospace Center, Germany**	**[P-126]** Numerical investigation of the scavenge pump performance in an aircraft engine lubrication system under pure oil and oil-air two-phase medium → **Nan Wu** → **Jianping Hu** → **Zhenxia Liu** → **Zhu Zetao** **Northwestern Polytechnical University, China**	**[HTFC-072]** Improved modelling of the turbulent heat flux for film cooling applications in RANS with a machine learned turbulent thermal diffusivity distribution → **Florian Goertz** [1] → **Timm Janetzke** [2] → **Heinz-Peter Schiffer** [1] [1] **Technical University of Darmstadt, Germany** [2] **Rolls-Royce Deutschland Ltd. & Co. KG, Germany**	**[SC-141]** Subgrid-scale modeling considerations for near-wall turbulent flow and heat transfer at supercritical pressure: A priori study → **Teng Wan** → **Xingjian Wang** → **Liufei Chen** **Tsinghua University, China**
11:35	**[CC-164]** Measurement of flame properties using Laser-induced breakdown spectroscopy at elevated pressures → **Jongwun Choi** → **Hosung Byun** → **Hyunseung Rhee** → **Seonwoong Kim** → **Youchan Park** → **Hyungrok Do** **Seoul National University, South Korea**	**[TADAM-170]** Efficient Global Optimization of a Novel Diverterless Supersonic Intake Design Method → **Jonggyu Choi** [1] → **Jaeik Shin** [2] → **Hyungrok Do** [1] [1] **Seoul National University, South Korea** [2] **Agency of Defence Development, South Korea**	**[P-122]** Study of Two-phase Flow and Heat Transfer Characteristics of Double Fulcrum Counter-rotating Bearing Chamber → **Zetao Zhu** → **Yaguo Lyu** → **Yitao Cao** → **Zhenxia Liu** **Northwestern Polytechnical University, China**	**[HTFC-078]** Aerothermic performance prediction of a film cooled Nozzle Guide Vane: about RANS anisotropic mesh adaptation applicability → **Alberto Remigi** [1] → **Enza Parente** [1] → **Frederic Alauzet** [2] [1] **SAFRANTECH, France** [2] **GammaO, Equipe Inria-ONERA, France**	**[SC-201]** Design maps for axial turbines operating with non-ideal organic compounds → **Lorenzo Galieti** [1] → **Carlo De Servi** [2] → **Matteo Pini** [1] → **Piero Colonna** [1] [1] **TU Delft, Netherlands** [2] **VITO, Netherlands**
12:00	**[CC-013]** Effects of air dilution in a lean premixed swirl burner with mixture stratification → **Carlos Guillamón** [1] → **Elkin Ramírez-Correa** [2] → **Jose María García-Oliver** [2] → **Daniel Mira** [1] [1] **Barcelona Supercomputing Center, Spain** [2] **CMT Clean Mobility & Thermofluids, Spain**	**[TADAM-171]** Model Development of Novel Wastegate Valve Design of Double Scroll Turbines Utilised for Engine-Tailored Assessment → **Carola Freytag** [1] → **Pablo Ale Martos** [1] → **Esperanza Barrera-Medrano** [1] → **Ricardo Martinez-Botas** [1] → **Jinnai Yasuaki** [2] [1] **Imperial College London, UK** [2] **Mitsubishi Heavy Industries, Japan**		**[HTFC-221]** Numerical Modelling of Fan-shaped Film Cooling in High Pressure Turbine: Computational Requiements and Influencing Factors → **Yanmin Guan** → **Xiaohua Liu** **Shanghai Jiao Tong University, China**	

12:25 - 14:00 **Elia Main Restaurant**

Conference Lunch

14:00 - 16:15 **Imperial Congress Hall**

CFD Keynotes

CFD for Turbomachinery
Speaker → **Andrea Arnone** (University of Florence, Italy)

Advances in eddy-resolving computational approaches for flow and noise modelling
Speaker → **Sergey Karabasov** (Queen Mary University of London, UK)

Some Machine-Assisted Physical-Learning: 'Scales' and 'Conditions' in Aero-Thermal-Dynamics Modelling
Speaker → **Li He** (University of Oxford, UK)

16:15 - 16:45 **Coffee Break Area**

Coffee Break

16:45 - 18:50

CFD Workshop

Technical Paper Presentations

Imperial Congress Hall
Session Chair
Dingxi Wang

Imperial 1
Session Chairs
Valerio Francesco Barnabei
+ Tullio Ancora

Imperial 2
Session Chair
Martin Bitter

Imperial 3
Session Chairs
Johan van der Spuy
+ Xiaodong Ren

Imperial 4
Session Chairs
Xiaomo Jiang
+ Siji Wang

16:45

CFD Workshop

[ETR-058]
Liquid Hydrogen and Synthetic Sustainable Aviation Fuel: A European Airline Case Study

→ **Conor Gallagher**
→ **Charles Stuart**
→ **Stephen Spence**

Trinity College Dublin, Ireland

[ICTMD-004]
Deep Multimodal Information Fusion Methods for Aero-engine Fault Diagnosis

→ **Yufeng Huang** [1]
→ **Gang Sun** [1]
→ **Jun Tao** [1]
→ **Jinzhang Feng** [2]

[1] **Fudan University, China**
[2] **Fudan University, USA**

[TCPP-047]
Performance Calculation of the Thermal Management System for a Fuel Cell Aircraft Engine

→ **Martin Niehuis**
→ **Peter Jeschke**

Institute of Jet Propulsion and Turbomachinery RWTH Aachen University, Germany

[MMSV-197]
A digital twin-oriented data-physics-AI integrated framework for RUL prediction of gas turbine blade

→ **Yifan Guo**
→ **Xiaomo Jiang**
→ **Zhiyuan Gao**
→ **Zhicheng Wang**
→ **Mingze Geng**

Dalian University of Technology, China

17:10

CFD Workshop

[ETR-088]
Extended Emission Footprint Analysis of Dispatchable Gas-based Power Generation Technologies with Exhaust Aftertreatment Technologies

→ **Nils Petersen**
→ **Christian Goßrau**
→ **Laurenz May**
→ **Manfred Wirsum**
→ **Alexander Lampkowski**
→ **Ariel Schönberger-Alvarez**
→ **Johannes Claßen**
→ **Stefan Pischinger**

RWTH Aachen University, Germany

[ICTMD-009]
Study of Gas Path Analysis Method For Aero-Engine Based on Functions of Health Parameters

→ **Yipu Zhang** [1]
→ **Qiuye Tu** [1]
→ **Chengwu Wang** [2]
→ **Yizhen Xia** [1]
→ **Kun Yang** [2]

[1] **Northwestern Polytechnical University, China**
[2] **AECC Commercial Aircraft Engine Co., Ltd., China**

[TCPP-075]
Impact of the working fluid in ORC-based waste heat recovery systems for turboshaft engines

→ **Francesco Sinopoli** [1]
→ **Raffaele Carandente** [2]
→ **Yannik Schulz** [2]
→ **Dabo Krempus** [1]
→ **Fabio Beltrame** [1]
→ **Carlo Maria De Servi** [1]
→ **Philipp Nachtigal** [2]
→ **Dajan Mimic** [2]
→ **Piero Colonna** [1]
→ **Matteo Pini** [1]

[1] **Delft University of Technology, Netherlands**
[2] **Leibniz University Hannover, Germany**

[MMR-106]
Optimization Design of an Active Elastic Support/Dry Friction Damper for Aero-engine Rotor Systems

→ **Siji Wang**
→ **Dafang Lin**
→ **Quankun Li**
→ **Ruixian Ma**
→ **Xingcheng Xie**
→ **Jiahao Yang**

Northwestern Polytechnical University, China

17:35

CFD Workshop

[ETR-104]
Performance Analysis of Aviation SOFC/GT Hybrid Power System Considering Hydrogen Energy

→ **Yanan Li**
→ **Zhi Tao**
→ **Haiwang Li**
→ **Gang Xie**
→ **Mingxing Yu**

Beihang University, China

[ICTMD-027]
Use of thermodynamic steady-state data for the analysis of turbofan engines: Towards automatic fault detection and analysis

→ **Martin Bolemant**
→ **Stanislaus Reitenback**
→ **Eva Franck**

German Aerospace Center, Germany

[TCPP-169]
Gas Turbine Engine Control and Management using Adaptive Model Predictive Control

→ **Younes Al-Younes**
→ **Maryam Alshehhi**
→ **Zhaohui Cen**
→ **Elias Tsoutsanis**

Technology Innovation Institute, United Arab Emirates

[MMR-159]
Rotordynamic stiffness force due to lateral offset in a mixed flow pump

→ **Tien Dung Vuong** [1]
→ **Youngkuk Yoon** [1]
→ **Seung Jin Song** [1]
→ **Daehee Jeong** [2]
→ **Minchul Kim** [2]
→ **Taegyu Choi** [2]

[1] **Seoul National University, South Korea**
[2] **Doosan Enerbility Nuclear Business Group, South Korea**

	Imperial Congress Hall	Imperial 1	Imperial 2	Imperial 3	Imperial 4
18:00	CFD Workshop	**[ETR-206]** Digital Transformation in Aviation: An End-to-End Digital Twin Approach for Aircraft Engine Maintenance – Exploration of Challenges and Solutions → **Stanislaus Reitenbach** → **Paul Ebel** → **Clemens Grunwitz** → **Martin Siggel** **German Aerospace Center (DLR), Germany**	**[ICTMD-031]** 1D analytic and numerical analysis of the depth response filter and semi-infinite limit of thin film heat transfer gauges → **Mark Baker** → **Budimir Rosic** **University of Oxford, UK**	**[TCPP-036]** Investigation of the influence of different control strategies on the part load performance for the R-Graz cycle → **Shida Yu** → **Xiaodong Ren** → **Bo Hu** → **Chunwei Gu** **Tsinghua University, China**	**[MMR-096]** Structural design and optimization of high-speed radial impellers for light gases → **Marvin Alexander Schwarz** → **Manfred Christian Wirsum** **RWTH Aachen University, Germany**
18:25	CFD Workshop		**[ICTMD-056]** Study of Actuators and Injectors for Tip Air Injection in the Axial Compressor of the Larzac 04 Jet Engine → **Yannik Schäfer** → **Marcel Stößel** → **Dragan Kozulovic** **University of the Bundeswehr Munich, Germany**		

18:50 - 20:00 **Pool Bar Tholos**

Welcome Reception

IHI

IHI Corporation Aero Engine, Space & Defense Business Area/IHI AEROSPACE Co., Ltd.

Thursday, 5th September | Day 2

07:45 - 08:15 — **Coffee Break Area**

Authors' Briefing

08:30 - 10:00 — **Imperial Congress Hall**

Panel 2

Sustainable Aviation
Chair → **John Longley** (University of Cambridge, UK)
Panelists → **Donus Fabian** (MTU Aero Engines, Germany), **Dai Kato** (IHI Corporation, Japan), **Riccardo Procacci** (Avio Aero, Italy), **Philippe Mogilka** (Airbus, France)

10:00 - 10:30 — **Coffee Break Area**

Coffee Break

10:30 - 12:35

Technical Paper Presentations

10:30

Imperial Congress Hall
Session Chairs
Alessandro Corsini
+ Pieter Coenraad Swanepoell

[AN-030]
Numerical investigation of aeroacoustic noise reduction of large diameter axial flow cooling fans through tip clearance and blade number reduction

→ **Pieter Coenraad Swanepoel**
→ **Sybrand Johan van der Spuy**
→ **Hanno Carl Rudolf Reuter**

Stellenbosch University, South Africa

Imperial 1
Session Chair
Atsushi Tateishi

[TADAM-172]
Influence of turbulence models on the numerical prediction of flow in an industrial gas turbine intake system

→ **Xiaoye Li**
→ **Xiaodong Ren**
→ **Yuhong Li**
→ **Chunwei Gu**

Tsinghua University, China

Imperial 2
Session Chairs
Mark Baker
+Dylan Rubini

[ICTMD-100]
Extracting Quantitative Streamline Information From Surface Flow Visualization Images In A Linear Cascade Using Modern Image Processing

→ **Xingyu Liu**
→ **Grant Ingram**
→ **David Sims-Williams**
→ **Toby Breckon**

Durham University, UK

Imperial 3
Session Chair
Min Yao

[HTIC-045]
Effect of protrusions and leading edge ribs on the local heat transfer characteristics in a two-pass cooling channel under rotation

→ **David Gutiérrez de Arcos** [1]
→ **Christian Waidmann** [1]
→ **Rico Poser** [1]
→ **Jens von Wolfersdorf** [1]
→ **Bernhard Jäppelt** [2]
→ **Klaus Semmler** [2]

[1] **University of Stuttgart, Germany**
[2] **MTU Aero Engines, Germany**

Imperial 4
Session Chair
Johan van der Spuy

[TAFB-038]
Airfoil selector for fan applications: a multi-fidelity investigation

→ **Mattia Piovan**
→ **Michele Pinelli**
→ **Alessio Suman**
→ **Nicola Zanini**

University of Ferrara, Italy

	Imperial Congress Hall **Session Chairs** Alessandro Corsini + Pieter Coenraad Swanepoel	Imperial 1 **Session Chair** Atsushi Tateishi	Imperial 2 **Session Chairs** Mark Baker +Dylan Rubini	Imperial 3 **Session Chair** Min Yao	Imperial 4 **Session Chair** Johan van der Spuy
10:55	**[AN-179]** Engine noise control by time-varying duct wall properties → **Bohua Huang** → **Lixi Huang** **The University of Hong Kong, China**	**[TADAM-019]** Application of an Improved Mixing Plane Approach for Steady-State Computations of Turbulent Flows in Turbomachinery → **Dominik A. Suchla** [1] → **Alexander Führing** [2] → **Patrick Bechlars** [2] → **Joerg R. Seume** [1] → **Lars Wein** [1] [1] **Leibniz University Hannover, Germany** [2] **MTU Aero Engines AG, Germany**	**[ICTMD-131]** Total pressure losses from planar Particle Image Velocimetry data: A practical approach for accurate wake flow assessment at turbomachinery-relevant Mach & Reynolds numbers → **Martin Bitter** → **Dragan Kozulovic** **University of the Bundeswehr Munich, Germany**	**[HTIC-068]** Effect of Streamwise Spacing on the Flow and Heat Transfer of Lantern-Shaped Pin Fins in a Rectangular Channel → **Kefeng Yang** → **Xiangyu Wang** → **Shanghong Gao** → **Zhenping Feng** **Xi'an Jiaotong University, China**	**[TAFB-071]** Matching fan and motor design parameters in electric ducted fans → **Viacheslav Sedunin** → **James Taylor** → **Sam Grimshaw** **University of Cambridge, UK**
11:20	**[AN-194]** Broadband interaction noise predictions for an axial compressor stator → **Antonio Alguacil** [1] → **Stefanie Lohse** [2] → **Niklas Maroldt** [2] → **Joerg R. Seume** [2] → **Stéphane Moreau** [1] [1] **Université de Sherbrooke, Canada** [2] **Leibniz University Hannover, Germany**	**[TADAM-083]** Numerical Simulation of a Highly Bent Intake Duct Using Machine Learning Algorithms to Close the RANS Equations → **Markus Carlos Hein** [1] → **Maximilian Reissmann** [2] → **Julian A. Scheibel** [1] → **Marcel Stößel** [1] → **Richard Sandberg** [2] → **Dragan Kožulović** [1] [1] **University of the Bundeswehr Munich, Germany** [2] **The University of Melbourne, Australia**	**[ICTMD-168]** An integrated measurement method of blade tip clearance and blade vibration based on blade tip timing technology → **Yiming Meng** → **Zhicheng Xiao** → **Pengfei Chai** → **Shang Wang** → **Hua Ouyang** **Shanghai Jiao Tong University, China**	**[HTIC-086]** Study of optimization method based on deep learning for flow and heat transfer characteristics within lantern-shaped pin fin channel → **Shanghong Gao** → **Kefeng Yang** → **Weixin Zhang** → **Qingsong Hu** → **Xiangyu Wang** → **Zhao Liu** → **Zhenping Feng** **Xi'an Jiaotong University, China**	**[TAFB-074]** Quantifying Potential Benefits of Partial Infill on Natural Frequencies of the Fan Blade → **Viacheslav Sedunin** [1] → **Igor Melikhov** [2] → **Yurii Marchenko** [2] → **Ilya Kalinin** [2] [1] **University of Cambridge, UK** [2] **Ural Federal University, Russia**
11:45		**[TADAM-161]** Application of Jacobian-Free Newton-Krylov method in RANS simulation of turbomachinery → **Jianshe Zhang** → **Xu Dong** → **Yanfeng Zhang** **Chinese Academy of Sciences, China**	**[ICTMD-099]** Response measurements of a rotating mistuned bladed disk under swept-sine excitations in a new vacuum experimental facility → **Zhicheng Xiao** → **Yiming Meng** → **Hua Ouyang** **Shanghai Jiao Tong University, China**	**[HTIC-152]** Numerical simulation of flow characteristics and heat transfer in ribbed channel using GAS method → **Yangwei Liu** → **Guangyu Wang** → **Yumeng Tang** **Beihang University, China**	**[TAFB-082]** Effects Of Different Blade Loading Strategies Applied To Low Specific Speed Tube-Axial Fans → **Massimo Masi** → **Piero Danieli** → **Enrico Dal Cin** → **Edoardo Bregolin** **University of Padova, Italy**

Imperial Congress Hall **Session Chairs** Alessandro Corsini + Pieter Coenraad Swanepoel	Imperial 1 **Session Chair** Atsushi Tateishi	Imperial 2 **Session Chair** Mark Baker +Dylan Rubini	Imperial 3 **Session Chair** Min Yao	Imperial 4 **Session Chair** Johan van der Spuy
12:10	**[TADAM-002]** Numerical Simulation of Gas-solid Two-phase Flow in Particle Separator → **Yi Zhong** → **Zihan Lei** → **Fangfei Ning** → **Pengcheng Du** **Beihang University, China**		**[HTIC-208]** The Role Of Corrugated Impingement Cooling Geometries At High Temperature Ratios For Future Gas Turbines → **Masayoshi Hatta** [1] → **Thomas Merritt-Webster** [1] → **BudimirRosic** [1] [1] **Mitsubishi Heavy Industries, Ltd., Japan** [2] **University of Oxford, UK**	**[TAFB-216]** Multi-operating-point adjoint aerodynamic optimization of the fan of a high bypass-ratio engine → **Jiazi Zhao** → **Qian Zhang** → **Xiuquan Huang** → **Dingxi Wang** → **Shenren Xu** **Northwestern Polytechnical University, China**

12:35 - 14:00 — **Elia Main Restaurant**

Conference Lunch

14:00 - 14:45 — **Imperial Congress Hall**

Plenary Keynote

Key Challenges in the Simulation of Next-generation Floating Offshore Wind Turbines
Speaker → **Alessandro Bianchini** (University of Florence, Italy)

14:45 - 15:15 — **Imperial 2**

Technical Keynote

Supercritical CO2 Brayton Cycle Research and Development at Sandia National Laboratories
Speaker → **Darryn Fleming** (Sandia National Laboratories, USA)

14:45 - 15:15 — **Imperial 4**

Technical Keynote

Key Technologies for Gas Turbine Engines for Aviation and Engine Development Programs at TUSAS Engine Industries (TEI), Turkey
Speaker → **Erinç Erdem** (TUSAS Engine Industries, Turkey)

15:15 - 15:45 — **Coffee Break Area**

Coffee Break

15:45 - 16:15 — **Imperial 2**

Technical Keynote

An Overview of ASME PTC 10-2022 on Performance Testing of Axial and Centrifugal Compressors
Speaker → **Matt Taher** (Bechtel Energy, USA)

15:45 - 16:15 — **Imperial 4**

Technical Keynote

Development of a turboprop engine compressor with significantly improved key parameters
Speaker → **Arkadiusz Szatkowski** (GE Aerospace, Poland)

16:15 - 17:55

Technical Paper Presentations

	Imperial Congress Hall **Session Chair** Benjamin Emerson	Imperial 1 **Session Chairs** Teng Cao+ Massimo Masi	Imperial 2 **Session Chair** Jan Heners	Imperial 3 **Session Chairs** Zhenping Feng+ Mehdi Vahdati	Imperial 4 **Session Chairs** Alessandro Corsini + Andres Tremante
16:15	**[CC-127]** The Effect of Chemical Kinetic Modelling on the Flame Transfer Function → Cillian Thomas [1] → Stephen Spence [1] → Charles Stuart [1] → Sandeep Jella [2] → Marc Furi [2] → Gilles Bourque [3] [1] Trinity College Dublin, Ireland [2] Siemens Energy Canada, Canada [3] McGill University, Canada	**[TADAM-155]** Improved Prediction of Turbomachinery Flows Using Reynolds Stress Model with Helicity Modification and Modified γ Transition Model → Yangwei Liu → Pengzhong Luo → Yumeng Tang Beihang University, China	**[TUADAM-034]** A high-performance code for the use of Spectral POD on the analysis of turbomachinery high fidelity simulations → Daniele Biassoni → Matteo Russo → Davide Lengani University of Genoa, Italy	**[HTDAM-037]** High-Fidelity Film-Cooled Rotor High-Pressure Turbine Simulation using Metric-Based Anisotropic Mesh Adaptation → Frederic Alauzet [2] → Enza Parente [2] → Alberto Remigi [3] [1] Inria, France [2] Safran Tech, France	**[TAT-026]** Variable Turbine Geometry for a n Automotive Turbocharger With a Small Axial Turbine → Christoph Küstner → Eike Helmsen → Joerg R. Seume Leibniz University Hannover, Germany
16:40	**[CC-138]** Dynamics of elevated dodecane jets in crossflow at supercritical pressures → Siyu Ding → Jiabin Li → Xingjian Wang Tsinghua University, China	**[TADAM-160]** Deep Learning-Aided Active Subspace Exploration for Free Stream Optimization in Fan-Shaped Film Cooling → Feixue Cai → Hua Zhou → Min Yao → Zhuyin Ren Tsinghua University, China	**[TUADAM-123]** Adjoint Harmonic Balance Method for Unsteady Aerodynamic Optimization of Turbomachinery Blades Considering Multiple Disturbances → Wu Hangkong → Dingxi Wang → Xiuquan Huang → Boqian Wang → Jianling Li Northwestern Polytechnical University, China	**[HTDAM-112]** Transient Thermal Stress Analysis of Power Turbine Welded Rotor in a Heavy Duty Gas Turbine during Rapid Load Changes → Botao Lai → Bo Hu → Xuesong Li → Chunwei Gu Tsinghua University, China	**[TAT-046]** Aerodynamic performance analysis of a novel geometry-variable turbine guide vane with a fixed angle of attack → Zhenhui Lian → Xiangyu Wang → Xing Yang → Hang Wu → Zhenping Feng Xi'an Jiaotong University, China
17:05	**[CC-154]** Attentional Hybrid Network for the Prediction of Gas Turbine CO and NOx Emission → Ahmed Jhinaoui → Amanda Pieyre → Areti Malkogianni → Elias Tsoutsanis → Hasani Azamar Technology Innovation Institute, United Arab Emirates	**[TADAM-076]** The Ability of Anisotropic Mesh Adaptation to Capture Complex Physics on a Transonic Tandem Compressor → Eloi Guilbert [1] → Alberto Remigi [2] → Mickael Philit [2] → Frédéric Alauzet [1] [1] GAMMAO INRIA, France [2] Safran Tech, France	**[TUADAM-174]** Explainable Data Mining for Aerodynamic Performance Enhancement of Tandem-Bladed Stators → Rui Zhu → Yaping Ju → Zhen Li → Chuhua Zhang Xi'an Jiaotong University, China	**[HTDAM-180]** Experimental Heat Transfer and Cooling Effectiveness over an Effusion Wall with Internal Jet-Array Impingement: Influence of Hole Arrangement → Hang Wu → Xing Yang → Zhao Liu → Zhenping Feng Xi'an Jiaotong University, China	**[TAT-130]** Experimental Characterisation of a Novel Double Scroll Wastegate Connection Valve Design for Turbochargers → Pablo Ale [1] → Carola Freytag [2] → Chris Noon [2] → Ricardo Martinez-Botas [1] → Jinnai Yasuaki [2] [1] Imperial College London, UK [2] Mitsubishi Heavy Industries, Japan

Imperial Congress Hall **Session Chair** Benjamin Emerson	Imperial 1 **Session Chairs** Teng Cao+ Massimo Masi	Imperial 2 **Session Chair** Jan Heners	Imperial 3 **Session Chairs** Zhenping Feng+ Mehdi Vahdati	Imperial 4 **Session Chairs** Alessandro Corsini + Andres Tremante
17:30 **[IK-226]** Exploring a correlation to predict boundary layer flashback limits → **Moosa Yazdani** → **Milad Esmaili** → **Alireza Ranjbaran** **MAPNA, Iran**	**[TADAM-156]** Study of ω-Based Reynolds Stress Model with Two-Component Limit for predicting complex flows → **Pengzhong Luo** → **Yumeng Tang** → **Yangwei Liu** **Beihang University, China**	**[TUADAM-223]** A Mechanism Investigation on the Influence of Scaling Effect on Transonic Rotor Tip Loss in Gas Turbine → **Tianyu Gong** → **Wei Yuan** **Beihang University, China**	**[HTDAM-125]** An experimental study of the deposition on plates with different film-cooling hole shapes → **Zhengang Liu** → **Yixuan Zhang** → **ZhenxiaLiu** **Northwestern Polytechnical University, China**	

19:00 — **Thalassa Restautant**

GPPS BBQ Gala Dinner

Friday, 6th September | Day 3

08:15 - 08:45 — **Coffee Break Area**

Authors' Briefing

09:00 - 11:05

Technical Paper Presentations

Imperial Congress Hall **Session Chair** Mehdi Vahdati	Imperial 1 **Session Chairs** Hua Ouyang + Zhicheng Xiao	Imperial 2 **Session Chair** Alejandro Castillo Pardo	Imperial 3 **Session Chair** Budimir Rosic	Imperial 4 **Session Chairs** Xiao He + Fanzhou Zhao
09:00 **[TAEF-054]** A Harmonic Balance Solver for the Aeroelastic Analysis of Turbomachinery Components on Unstructured Grids → **Hans-Peter Kersken** → **Pierre Sivel** → **Michael Müller** → **Christian Frey** **German Aerospace Center (DLR), Germany**	**[TUARSRIS-32]** Numerical Investigation on Rotating Instability in a Multistage Axial-Radial Combined Compressor → **Cheng Tian** → **Song Fu** **Tsinghua University, China**	**[TAARFT-003]** Averaged Polytropic Efficiency for Wet Steam Expansion Cycles → **Hans E. Wettstein** **HEW Consulting, Switzerland**	**[HTDAM-005]** Optimal design on double-wall cooling structures by density-based topology optimization for turbine blades → **Huidong Tang** → **Jianqin Zhu** → **Zhi Tao** → **Lu Qiu** **Beihang University, China**	**[TAAFC-021]** Validation of the time-space collocation method in simulating the inlet distortion flows in transonic compressor → **Lei Wu** → **Fangfei Ning** → **Pengcheng Du** **Beihang University, China**

	Imperial Congress Hall **Session Chair** Mehdi Vahdati	Imperial 1 **Session Chairs** Hua Ouyang + Zhicheng Xiao	Imperial 2 **Session Chair** Alejandro Castillo Pardo	Imperial 3 **Session Chair** Budimir Rosic	Imperial 4 **Session Chairs** Xiao He + Fanzhou Zhao
09:25	**[TAEF-055]** Coupled Fluid-structure Aeroelastic Analysis of Turbomachinery Using Conservative Data Transfer Algorithm → Zhongyu Du → Pengcheng Du → Fangfei Ning Beihang University, China	**[TUARSRIS-61]** Transient Throttling and Prestall Disturbances: Insights from Scale-Resolving Simulations → Victor Bicalho Civinelli de Almeida → Ergin Tüzüner → Mario Eck → Dieter Peitsch Technische Universität Berlin, Germany	**[TAARFT-041]** Investigation of the Influence of different Rotor Components on the Axial Impeller Tip Clearance at different Operating Points → Martino Koehler → Robert Schaffrath → Michael Lockan → Eberhard Nicke German Aerospace Center, Germany	**[HTDAM-035]** Suction Side Film Cooling Measurements in a Linear High-Temperature Cascade at Near-Engine Conditions → Jan Lemmer [1] → Yanik Kleine-Hollenhorst [1] → Viola Dehe [1] → Michael Rabs [2] → Peter Jeschke [1] [1] RWTH Aachen University, Germany [2] MAN Energy Solutions SE, Germany	**[TAAFC-040]** On the influence of non-uniform roughness distribution in a compressor rotor row → Daniel Kessler → Jens Friedrichs Technische Universität Braunschweig, Germany
09:50	**[TAEF-103]** Fan Flutter Under Crosswind Distortion → Venkata Y.T. Chennuru [1] → Roque Corral García [1] → Salvador Rodríguez-Blanco [1] → Mehdi Vahdati [2] → Fanzhou Zhao [2] [1] Universidad Politécnica de Madrid, Spain [2] Imperial College London, UK	**[TUARSRIS-163]** A rapid predicting model for the aerodynamic instability in aero-engine → Zechen Ding [1] → Baotong Wang [1] → Hanxuan Zeng [2] → Weihan Kong [1] → Jiaan Li [1] → Xinqian Zheng [1] [1] Tsinghua University, China [2] Huawei Technologies Co., Ltd., China	**[TAARFT-080]** Numerical investigations of a low-pressure turbine purge flow control concept for reducing aerodynamic losses → Jean-Hugues Beaux [1+2] → Julian Girardeau [1] → Sofiane Khelladi [2] → Michael Deligant [2] → Christelle Perilhon [2] [1] Safran Aircraft Engines, France [2] LIFSE, France	**[HTGI-093]** A new subscale test facility for large temperature difference compact heat exchangers → Andrew Pilkington [1] → Peter Ireland [1] → Marko Bacic [1+2] [1] University of Oxford, UK [2] Rolls-Royce Plc, UK	**[TAAFC-144]** Aerodynamic Behavior of a Transonic Compressor Under VIGV-Induced Swirl Distortion → Maximilian Karl [1] → Jan Werner [1] → Silas Mütschard [1] → Heinz-Peter Schiffer [1] → Sebastian Robens [2] [1] Technical University of Darmstadt, Germany [2] Siemens Energy, Germany
10:15	**[TAEF-210]** Investigation of Transonic Buffet on a Civil Aero-Engine Fan Blade → Jiayi Gong [1] → Sina Stapelfeldt [1] → Luis Llano [2] [1] Imperial College London, UK [2] Rolls-Royce plc., UK	**[TUARSRIS-177]** Numerical Study of Fuel Spiking Induced Surge in a Small-scale Aircraft Engine → Mengyang Wen [1] → Heli Yang [1] → Chuang Ding [2] → Jiaan Li [1] → Wangzhi Zou [1] → Baotong Wang [1] → Xinqian Zheng [1] [1] Tsinghua University, China [2] Hawk Power Technology Co., Ltd, China	**[TAARFT-081]** Entropy generation rate optimisation for profiled endwall design for axial turbines → Pedro Martinez-Castro → Grant Ingram → Richard Williams Durham University, UK	**[HTGI-114]** Heat transfer model development for the Free Double Piston engine concept → Konstantinos-Christos Fotis [1+2] → Zinon Vlahostergios [1+2] → Dimitrios Misirlis [2+3] → Kyros Yakinthos [2] [1] Democritus University of Thrace, Greece [2] Aristotle University of Thessaloniki, Greece [3] International Hellenic University, Greece	**[TAAFC-011]** Numerical simulation of effect of blade end slot on flow and performance of compressor cascade → Ziyuan Wang → Xuesong Li → Xiaodong Ren → Chunwei Gu Tsinghua University, China

Imperial Congress Hall	Imperial 1	Imperial 2	Imperial 3	Imperial 4
Session Chair	**Session Chairs** Hua Ouyang + Zhicheng Xiao	**Session Chair**	**Session Chair**	**Session Chairs** Xiao He + Fanzhou Zhao

10:40

[TUARSRIS-42]
Investigation on Rotating Instability in an Axial Compressor With Different Inlet Reynolds Numbers

→ **Xinze Zhang**
→ **Zhenliang Liu**
→ **Zeyuan Yang**
→ **Yadong Wu**
→ **Hua Ouyang**

Shanghai Jiao Tong University, China

[TAAFC-066]
Effects of blade loading distribution on hub leakage flow of cantilevered stator

→ **Yaqi Liu**
→ **Hefang Deng**
→ **Jinfang Teng**
→ **Mingmin Zhu**
→ **Songan Zhang**
→ **Shaopeng Lu**

Shanghai Jiao Tong University, China

11:05 - 11:30 — **Coffee Break Area**

Coffee Break

11:30 - 12:15 — **Imperial Congress Hall**

Plenary Keynote

Additive Manufacturing Challenges and Opportunities at Siemens Energy
Speaker → **Vladimir Navrosky** (Siemens Energy, Sweden)

12:15 - 13:00 — **Imperial Congress Hall**

Plenary Keynote

Data-Driven Method Embedded Physical Knowledge for Entire Lifecycle Degradation Monitoring in Aircraft Engines
Speaker → **Hong Xiao** (Northwestern Polytechnical University, China)

13:00 - 14:30 — **Elia Main Restaurant**

Conference Lunch

GPPS | JOURNAL

The Journal of the Global Power and Propulsion Society is an open access journal, devoted to the advancement of the science and technology of power generation and propulsion systems through the dissemination of original archival papers contributing to advancements in turbomachinery based technologies.

The GPPS Journal is indexed by Scopus and digitally preserved by the Portico Digital preservation archive; making the Journal a great way to promote your research across the industry and to the widest audience.

Scopus®

PORTICO

There have been a number of papers highlighted for inclusion in the GPPS Journal and we look forward to working with you in the future to bring your papers under the Journal press.

www.journal.gpps.global

14:30 - 16:10

Technical Paper Presentations

	Imperial Congress Hall **Session Chair** Michael Pekris	Imperial 1 **Session Chairs** Fanzhou Zhao + Xiao He	Imperial 2 **Session Chairs** Mingmin Zhu + Zhicheng Xiao	Imperial 3 **Session Chair** Matteo Pini	Imperial 4 **Session Chairs** Hangkong Wu + Boqian Wang
14:30	**[TAWT-101]** Novel NBM definition using AI and SCADA data in HAWT fleets → Valerio F. Barnabei → Filippo De Girolamo → Tullio C. M. Ancora → Lorenzo Tieghi → Giovanni Delibra → Alessandro Corsini Sapienza University of Rome, Italy	**[TAEDAM-089]** Proper orthogonal decomposition assisted multi-objective inverse design optimization method for the compressor cascade airfoil → Yutian Chen → Qun Zheng → Yuting Jiang → Bin Jiang Harbin Engineering University, China	**[TARMFC-110]** Polytropic Process and Real Gas Behavior in Performance Testing of Centrifugal Compressors → Matt Taher Bechtel Energy Inc., USA	**[TCPP-063]** Introduction of a preliminary compressor design and investigation of the influence of fluid properties on compressor performance for mechanical vapor compression → Lars Hinz → Jan Goeing → Jens Friedrichs Technische Universität Braunschweig, Germany	**[TUABRIID-039]** Numerical Prediction of Clocking Angle Variations in a Low-Pressure Turbine → Tobias Söder [1] → Josué-Inocente Camarero Pueyo [1] → Juo Furukawa [2] → Kohei Maruyama [2] → Naoki Tani [2] → Jörg R. Seume [1] → Lars Wein [1] [1] Leibniz University Hannover, Germany [2] IHI Corporation, Japan
14:55	**[TAWT-136]** Power limits of wind turbines in the energy transition scenario → Lorenzo Battisti University of Trento, Italy	**[TAEDAM-157]** Numerical Study of GAS method with γ Transition Model → Yangwei Liu → Jinxia Xia → Yumeng Tang Beihang University, China	**[TARMFC-181]** Effect of blade-row axial spacing on the stage performance of an axial supersonic through-flow fan → Shijun Sun [1] → Xiaolong Li [1] → Xiangyu Sui [1] → Yanming Liu [1] → Jianhua Wang [2] [1] Beijing Institute of Technology, China [2] China State Shipbuilding Corporation, China	**[TCPP-108]** Fuel-flexible micro-gas turbines for biomass utilization: an externally-fired case → Konstantinos Bollas → Anestis Kalfas Aristotle University of Thessaloniki, Greece	**[TUABRIID-065]** Time Step Criteria for Rotor-Stator Unsteady Simulations of Turbomachinery → Haowei Zhou → Pengcheng Du → Fangfei Ning Beihang University, China
15:20	**[TAWT-196]** CFD Assessment of a Novel Dynamic Formulation of the Double Multiple Stream-Tube Model for Floating Vertical-Axis Wind Turbines → Andrea Giuseppe Sanvito → Claudio Tomassoni → Giacomo Persico → Vincenzo Dossena Politecnico di Milano, Italy	**[TAEDAM-184]** Impact of Shape-Adaptive Fan Blading on the Performance of a Turbofan Engine → Marcel Seidler → Maximilian Bień → Sebastian Lück → Jan Göing → Jens Friedrichs Technische Universität Braunschweig, Germany	**[TAAFC-023]** Large eddy simulation study on the separation control mechanism of ribbed compressor blade → Mengyao Qi → Xuesong Li → Mingyang Hong → Xiaodong Ren → Chunwei Gu Tsinghua University, China	**[TCPP-166]** Integrated Design of Hydrogen-Fired Turboprop and Commuter Aircraft → Dimitrios Bermperis → Stavros Vouros → Konstantinos Kyprianidis Mälardalen University, Sweden	**[TUABRIID-097]** Crosswind Aerodynamics of Low Pressure Ratio Fans → Alejandro Castillo Padro [1] → Ewan Gunn [2] → Tim Williams [1] → Tobias Brandvik [2] → Cesare Hall [1] → Stephane Baralon [3] [1] University of Cambridge, UK [2] Turbostream Ltd, UK [3] Rolls-Royce plc, UK

	Imperial Congress Hall	Imperial 1	Imperial 2	Imperial 3	Imperial 4
	Session Chair Michael Pekris	**Session Chairs** Fanzhou Zhao + Xiao He	**Session Chairs** Mingmin Zhu + Zhicheng Xiao	**Session Chair** Matteo Pini	**Session Chairs** Hangkong Wu + Boqian Wang
15:45		**[TAEDAM-205]** Acceleration of High-Fidelity Simulation for Unsteady Flows with Low Reduced Frequency Using Harmonic Balance Method: Application for Airfoil Flows → **Yuma Iwamoto** → **Susumu Teramoto** → **Koji Okamoto** **The University of Tokyo, Japan**	**[TAAFC-142]** Combine control method and mechanism analysis for corner separation in the compressor cascade → **Xinyu Ren** → **Tongtong Meng** → **Lucheng Ji** **Tsinghua University, China**	**[TCPP-198]** A digital twin-oriented lightweight modeling approach for gas turbine performance degradation monitoring → **Yiyang Liu** → **Xiaomo Jiang** → **Manman Wei** → **Zhicheng Wang** → **Xin Ge** **Dalian University of Technology, China**	

16:10 - 16:40 — **Coffee Break Area**

Closing Ceremony & GPPS Best Paper Awards Hong Kong23

Speaker → **Prof. Alessandro Corsini** (Chania24 Conference Chair)
Awards Presentation → **Dr. Vladimir Navrotsky** (GPPS Awards Committee Chairman)

GPPS UPCOMING EVENTS

GPPS Forum25

Affordability, Security, Sustainability: is there a priority, and for whom?

In today's world, public opinion, environmental requirements, political agendas, and security concerns often drive strategies, priorities can be widely different, and sometimes technological advancements are hampered or even scientific principles are neglected. Have decisions ever been less influenced by external pressures? Are we able to consider all relevant points of view with balance? Can we better manage choices?

www.gpps.global/**gpps-forum25**

Forum Chair
Prof. Piero Colonna

Forum Co-Chair
Daniel Reitz

Executive Secretary
Prof. Matteo Pini

January 15-16, 2025 | Zurich, Switzerland

Global Power & Propulsion Society | GPPS Chania24 | www.gpps.global | info@gpps.global

FSC
www.fsc.org