ACGT2022

ASIAN CONGRESS ON GAS TURBINES 2022

Program Book

Asian Congress on Gas Turbines 2022

August 24-26, 2022

Gangneung-Wonju National University

Hybrid Conference(On-Offline)

KSFM 한국유체기계학회
Korean Society for Fluid Machinery

ACGT2022

ASIAN CONGRESS ON GAS TURBINES 2022

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Welcome Message

On behalf of the Local Organizing Committee (LOC) and the International Organizing Committee (IOC) of the Asian Congress on Gas Turbines 2022 (ACGT2022), it is my great pleasure to invite you to the congress, which will be held from August 24-26, 2022 at Gangneung-Wonju National University, Gangneung, Korea.

ACGT has been co-organized by Korean Society for Fluid Machinery (KSFM), Gas Turbine Society of Japan (GTSJ), Chinese Society of Engineering Thermophysics (CSET), and Indian Institute of Technology Bombay (IIT Bombay). Since the 1st ACGT in 2005, the congress has given the opportunity for Asian (and other) professionals and researchers to share their knowledge and experience on gas turbines.

We hope that this ACGT2022 will be another joyful event that provides valuable information on recent advances, new techniques, and applications in the field of gas turbine. Especially, this year, we have eventually decided to change the originally planned face-to-face ACGT2022 to the hybrid conference due to COVID-19. It is believed that the global situation is getting better this year, however, this transition to the hybrid format can enrich the event by providing participants from around the world with a wider range of attendance and presentation options.

Under the theme "the Role of Gas Turbines toward Net Zero", the ACGT2022 will cover a wide range of hot topics as well as the most recent updates in various fields of gas turbine technologies. During ACGT2022, a total of 103 professional papers will be presented in 23 sessions, including 8 organized sessions, 12 technical sessions, and 1 poster session. In addition, we are honored to have Dr. Seung Joo CHOE from KIMM, Dr. Katsuya MORIMOTO from KHI, Dr. Ravikanth AVANCHA from GE Research, and Prof. Xioyi ZHANG from SARI as Keynote speakers.

More importantly, the ACGT2022 will bring together over 200 professionals and researchers in industry, academia, and government over the world, thus providing a perfect opportunity for networking.

I would like to thank many people who made their contributions for the success of this congress. First of all, our sincere thanks should go to authors, presenters, attendees, and session chairs for their participation and interest in ACGT2022. Many thanks to all members of LOC and IOC, and all student volunteers for their great efforts and contributions in organizing ACGT2022. I would also like to express sincere and special thanks to the all of our sponsors; Doosan Enerbility, Hanwha Impact, Hanwha Aerospace, Sung-Il Turbine, Kawasaki Heavy Industries, Mitsubishi Power, Anflux, Gangneung-City, Gangneung Tourism Development Cooperation, and Gangneung-Wonju National University, which have shown a great support to this event.

Gangneung is located in the center of Eastern-Taebaeksan Mountain, the center of the Korean Peninsula. It is most known for its beautiful beaches and densely green mountains, and is one of the most popular resort towns in Korea. We look forward to seeing you in the beautiful city, Gangneung, to develop friendship and to share the joy of a successful ACGT2022.

ACGT2022 Chair

Daesik KIM

Organizing Committee

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- **Prof. Seung Jin SONG** (Seoul National University, Korea)
- **Prof. Tong Seop KIM** (Inha University, Korea)
- **Prof. Wontae HWANG** (Seoul National University, Korea)
- **Prof. Ken-ichi FUNAZAKI** (Iwate University, Japan)
- **Prof. Toshinori WATANABE** (The University of Tokyo, Japan)
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- **Prof. A M PRADEEP** (Indian Institute of Technology Bombay, India)
- **Prof. Hong Guang JIN** (Institute of Engineering Thermophysics, China)
- **Prof. Xiao Feng SUN** (Beijing University, China)
- **Prof. Wei Guang HUANG** (Shanghai Advanced Research Institute, China)

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- **Prof. Joon AHN** (Kookmin University)
- **Dr. Jungchel CHANG** (Korean Energy Technology Evaluation and Planning)
- **Dr. Jaeho CHOI** (Hanwha Aerospace)
- **Prof. Minsuk CHOI** (Myongji University)
- **Prof. Wontae HWANG** (Seoul National University)
- **Dr. Gun-Hee KIM** (Korea Institute of Industrial Technology)
- **Dr. KyungKook KIM** (Doosan Heavy Industries & Construction)
- **Dr. Min Kuk KIM** (Korea Institute Machinery & Materials)
- **Prof. Jun Su PARK** (Korea National University of Transportation)

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Exhibitor

Hanwha Impact

Workon Simulation

Auratech

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ACGT2022 Overview

Conference Period

- August 24 (Wed) ~ 26 (Fri)

Conference Venue

- Education Support Center (C9), 1st Floor
  Gangneung-Wonju National University (GWNU)
  7 Jukheong-gil, Gangneung, Gangwon 25457, Korea

Registration

- Registration Hours : Wednesday 13:00 ~ Friday 12:00
- Registration Desk : 1st floor of Congress Venue

Keynote Sessions

- Keynote Session 1 : August 24 (Wed) 16:30~17:50
  Dr. Seung Joo CHOE (Director, R&D Center for Future Green Technology, KIMM, Korea)
  "**Carbon-Free Electricity for Net-Zero Korea**"
  Dr. Katsuya MORIMOTO (Technology Group Manager, Hydrogen Strategy Division, Kawasaki Heavy Industries, Japan)
  "**International Liquefied Hydrogen Supply Chain**"
- Keynote Session 2 : August 25 (Thu) 16:30~17:50
  Dr. Ravikanth AVANCHA (Technology Manager, Aerothermal Sciences, GE Research, India)
  "**Role of GT towards Net-Zero Emissions**"
  Prof. Xiaoyi ZHANG (Professor, Shanghai Advanced Research Institute, China)
  "**Improving the Operational Flexibility of Heavy-duty Gas Turbines**"

Sessions

- 8 Organized Sessions, 12 Technical Sessions, 1 Poster Session

Networking Events (For the venue location, please see page 11)

- Welcome Reception
  August 24 (Wed) 18:10~19:10, Haeram Culture Center (N5), 2nd floor
- Daily Lunches
  August 25 (Thu) 12:10~13:40, Haeram Culture Center (N5), 2nd floor
  August 26 (Fri) 12:30, Sandwich Box
- Banquet
  August 25 (Thu) 18:00~20:00, Haeram Culture Center (N5), 2nd floor
- Coffee Breaks
  4 Times During The Conference, 1st Floor of the Conference Venue
- Organizing Committee Meeting
  August 25 (Thu) 15:00~16:20, Room 102

Transportation

From Incheon or Seoul to Gangneung

1) Using Train : Airport Railroad (Incheon to Seoul) – KTX (Seoul to Gangneung)
   - Airport Railroad : Incheon International Airport to Seoul Station 43 minutes for Express Train, 59 minutes for All Stop Train (https://www.arex.or.kr)
   - Korea Train Express (KTX: Gangneung Line) : Seoul Station to Gangneung (2 hours) (https://www.letskorail.com)

2) Using Airport Bus (Inchoen International Airport to Gangneung Bus Terminal)
   About 3 hours and 40 minutes (but, highly variable depending on traffic conditions)
   Terminal 1 : 09:40, 12:00, 14:00, 18:00
   Terminal 2 : 09:10, 11:40, 13:30, 17:40
   For more information :
   - Incheon International Airport (https://www.airport.kr/ap/en/tpt/busRouteList.do)
   - Intercity Bus (https://www.bustago.or.kr/newweb/en/index.do)

Gangneung Station or Bus Terminal to Conference Venue

1) From Gangneung KTX Station
   - Taxi (recommended) : 8 minutes (fare : approximately 5,000~6,000 KRW)
   - City Bus : 314, 207 (Get off at the main gate of the campus and walk to the building C9) (Education Support Center)

2) From Gangneung Bus Terminal
   - Taxi (recommended) : 5 minutes (fare : approximately 4,000~5,000 KRW)
   - City Bus : 315, 314, 207 (Get off at the main gate of the campus and walk to the building C9) (Education Support Center)

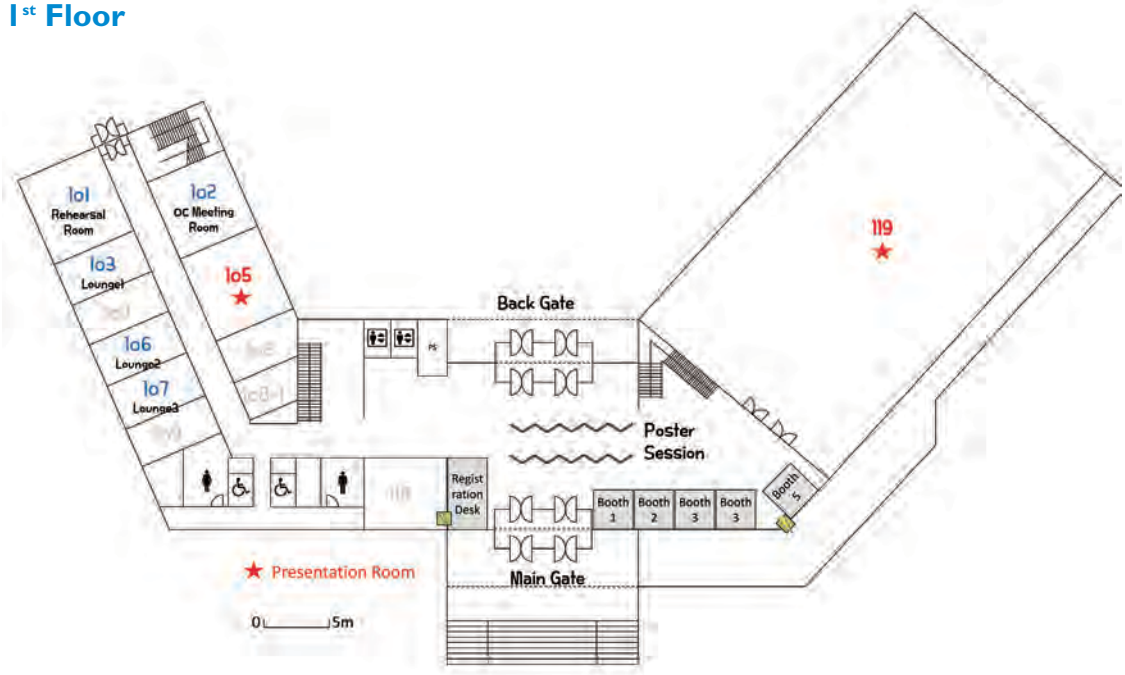
Campus Map


N5 (Haeram Culture Center) Banquet Venue
Main Gate
Library
Student Hall (CVS)
C9 (Education Support Center) Conference Venue
N1
N2
N3
N4
N5
N6
N7
N8
N9
N10
N11
N12
N13
N14
N15
N16
N17
N18
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
D1
D2
D3
D4
D5
D6
D7
S1
S2
S3

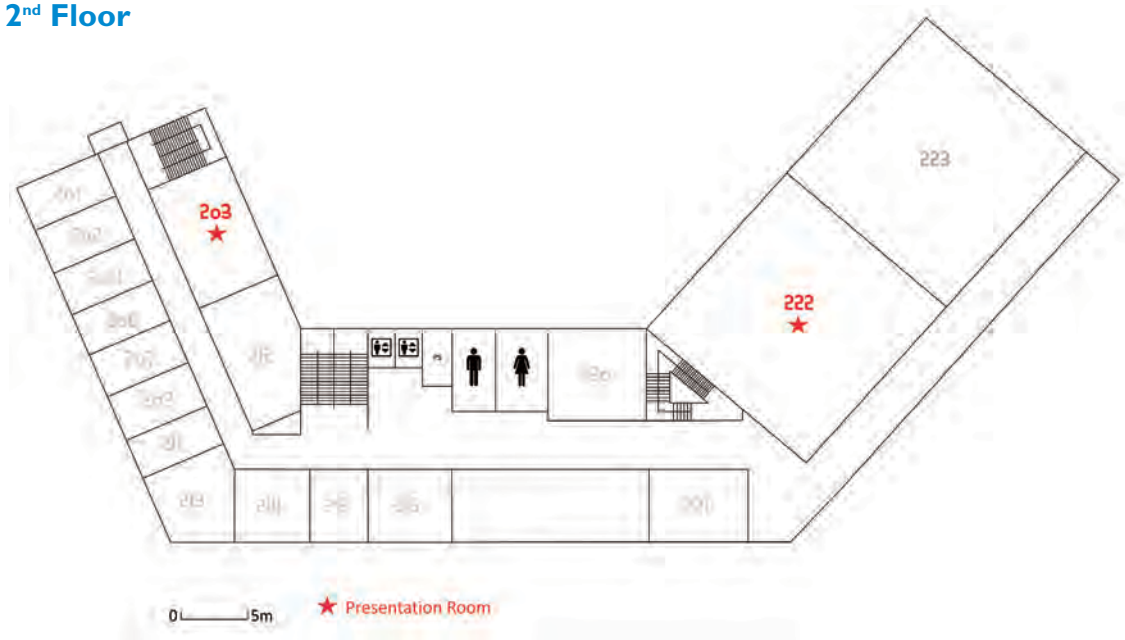
Conference Venue Floor Map

Conference Venue Floor Map

1st Floor



2nd Floor



Conference-at-a-Glance

August 24 (Wed) Day 1

	Room 119	Room 222	Room 203	Room 105
13:00~14:00	Registration (Main Lobby, from 13:00 on Wed. to 11:00 on Fri)			
14:00~15:40	[Organized Session 1] Hanwha's Decarbonization Vision and Execution	[Technical Session 1] Combustion, Fuel and Emissions	[Technical Session 2] Structure and Dynamics 1	[Technical Session 3] Materials and Metallurgy
15:40~16:10	Coffee Break			
16:10~16:30	Opening Address (Room 119, Presider : Joon AHN (Kookmin University))			
16:30~17:50	[Keynote Session 1] Keynote 1, 2 (Room 119)			
17:50~18:10	Break			
18:10~19:10	Welcome Reception (Haeram Culture Center (N5), 2nd floor, Presider : Young Seok KANG (Korea Aerospace Research Institute))			

August 25 (Thu) Day 2

	Room 119	Room 222	Room 203	Room 105
08:30~10:10	[Organized Session 2] Aeroengine Development of Hanwha Aerospace	[Technical Session 4] Control, Diagnostics and Instrumentations	[Technical Session 5] Structure and Dynamics 2	[Technical Session 6] Combustion and Aerodynamics
10:10~10:30	Coffee Break			
10:30~12:10	[Organized Session 3] Hydrogen GT Combustor 1	[Technical Session 7] Heat Transfer 1	[Technical Session 8] Aerodynamics 1	
12:10~13:40	Lunch (Haeram Culture Center (N5), 2nd floor)			
13:40~15:00	[Organized Session 4] Development of Doosan Enerbility Gas Turbine	[Technical Session 9] Heat Transfer 2	[Technical Session 10] Aerodynamics 2	
15:00~15:20	Coffee Break			Organizing Committee Meeting (Room 102)
15:20~16:20	Poster Session (Main Lobby)			
16:20~17:40	[Keynote Session 2] Keynote 3, 4 (Room 119)			
17:40~18:00	Break			
18:00~20:00	Banquet (Haeram Culture Center (N5), 2nd floor, Presider : Wontae HWANG (Seoul National University))			

Conference-at-a-Glance

August 26 (Fri) Day 3

	Room 119	Room 222	Room 203	Room 105
08:50~10:30	[Organized Session 5] Ammonia Combustion	[Organized Session 6] Large Eddy Simulation	[Technical Session 11] Aerodynamics 3	
10:30~10:50	Coffee Break			
10:50~12:30	[Organized Session 7] Hydrogen GT Combustor 2	[Organized Session 8] Additive Manufacturing Technology for Superalloy	[Technical Session 12] Aerodynamics 4	
12:30	Lunch (Sandwich Box)			

Room 119 | August 24 (Wed), 14:00~15:00

Organized Session : Hanwha's Decarbonization Vision and Execution

Presider : Hyunwook JEGAL (Hanwha Impact)

14:00~14:20	ACGT2022-0110 Validation Project for Retrofit of Hydrogen Co-Fired Gas Turbine Byunghee HWANG (Hanwha Impact)
14:20~14:40	ACGT2022-0088 Retrofittable E/F- Class Solutions for Green House Gas Reduction with Low Emissions H2 Combustion Hany RIZKALLA (Power Systems Mfg)
14:40~15:00	ACGT2022-0053 Novel Testing Methods of a Full Hydrogen Combustor Nicolas DEMOUGEOT (Thomassen Energy BV)

Room 222 | August 24 (Wed), 14:00~15:40

Technical Session : Combustion, Fuel and Emissions

Presider : Chae Hoon SOHN (Sejong University)

14:00~14:20	ACGT2022-0109 The Effects of Equivalence Ratio on the Combustion Characteristics of an Axially-staged Reburning Nozzle Ronghai MAO (UGTC)
14:20~14:40	ACGT2022-0089 Laminar/ Turbulent Ammonia Combustion and NOx Emissions with Numerical Simulation Inyeong GU (KAIST)
14:40~15:00	ACGT2022-0117 Model Reduction of NH3/H2 Combustion using Artificial Neural Network Serang KWON (Korea University)
15:00~15:20	ACGT2022-0068 A Modified Thickened Flame Model for Strained Hydrogen/Air Premixed Flames Minjun CHOI (KAIST)
15:20~15:40	ACGT2022-0018 Effect of Supersonic Swirl Flow in Laval Nozzle on Steam Expansion Characteristics and Shock Wave Intensity Jianan CHEN (Xi'an Jiaotong University)

| Room 203 | August 24 (Wed), 14:00~15:40

Technical Session : Structure and Dynamics 1

Presider : Tae Ho KIM (Kookmin University)

14:00~14:20	ACGT2022-0101 Dynamic Response of a Simplified Turbine Blade model with Dual Dry Friction Damper
	Jixin HAN (Institute of Engineering Thermophysics)
14:20~14:40	ACGT2022-0112 Prediction of Drag Torque and Load Capacity for Gas Foil Thrust Bearing with Curved Inclined Geometry
	Sungho HWANG (Kookmin University)
14:40~15:00	ACGT2022-0024 Numerical Investigation of the Effect of Primary Nozzle Geometries on Flow Structure and Ejector Performance for Optimal Design
	Anna LI (Xi'an Jiaotong University)
15:00~15:20	ACGT2022-0016 Analysis Model for Prediction of Force Coefficients of Open-ends Squeeze Film Dampers
	Syed Muntazir MEHDI (Kookmin University)
15:20~15:40	ACGT2022-0010 Experimental Investigation on Heat and Temperature of an Angular Contact Ball Bearing for Aircraft Engine Application
	Donghyun KIM (ADD)

Room 105 | August 24 (Wed), 14:00~15:40

Technical Session : Materials and Metallurgy

Presider : Chiwon KIM (Changwon National University)

14:00~14:20	ACGT2022-0102 Influence of Stabilization Heat Treatment Inducing Co-Precipitates and Grain Boundary η Phase on Tensile and Creep Behaviors of Inconel 706
	Chiwon KIM (Changwon National University)
14:20~14:40	ACGT2022-0097 Heat Treatment Design of Inconel 740H Superalloy for Microstructure Stability and Creep Properties Enhancement
	Dongmin KIM (Changwon National University)
14:40~15:00	ACGT2022-0099 The Effects of Heat Treatments and Microstructural Analysis of Inconel 625 Produced by Selective Laser Melting
	Taehun KIM (Changwon National University)
15:00~15:20	ACGT2022-0098 A Study on Effect of Nb Addition and Fatigue Deformation Behavior of FeMnAlC Lightweight Steels
	Euiseok KO (Changwon National University)
15:20~15:40	ACGT2022-0019 Quantitative Analysis of Carbides and Sigma Phase in Thermally Exposed GTD-111
	Hansang LEE (KEPCO RI)

Room 119 | August 24 (Wed), 16:30~17:50

Keynote Session

Presider : Joon AHN (Kookmin University)

16:30~17:10	Carbon-Free Electricity for Net-Zero Korea
	Dr. Seung Joo CHOE (Director, R&D Center for Future Green Technology, KIMM, Korea)
17:10~17:50	International Liquefied Hydrogen Supply Chain
	Dr. Katsuya MORIMOTO (Technology Group Manager, Hydrogen Strategy Division, Kawasaki Heavy Industries, Japan)

| Room 119 | August 25 (Thu), 08:30~9:50

Organized Session : Aeroengine Development of Hanwha Aerospace

Presider : Jaeho CHOI (Hanwha Aerospace)

08:30~08:50	ACGT2022-0070 Multi-axis Loading Fatigue Test of Composite Fan Blade for Aero-Engine Yunhyuk CHOI (Hanwha Aerospace)
08:50~09:10	ACGT2022-0067 Start-up Sequence Development for Auxiliary Power Unit Sangjae KIM (Hanwha Aerospace)
09:10~09:30	ACGT2022-0064 Evaluation of Thermal Durability in Thermal Barrier Coating Systems Seungjin CHAE (Hanwha Aerospace)
09:30~09:50	ACGT2022-0094 Development of a Prefilming Airblast Atomizer for Aircraft Engine Combustor Jupyoung KIM (Hanwha Aerospace)

| Room 222 | August 25 (Thu), 08:30~09:30

Technical Session : Control, Diagnostics and Instrumentations

Presider : Daesik KIM (Gangneung-Wonju National University)

08:30~08:50	ACGT2022-0103 A Numerical Analysis for Pre-Mixer Design with Ring-Type Rotary Opening Operated by Blowing Pressure Youngbae KIM (Institute for Advanced Engineering)
08:50~09:10	ACGT2022-0037 Surface Temperature Measurements of a Film Cooled Gas Turbine Vane using Infrared Thermography Jaehyun RYU (Seoul National University)
09:10~09:30	ACGT2022-0022 Early Diagnosis of Combustion Instability using Statistical Methods Seungkyu CHOI (Gangneung-Wonju National University)

Room 203 | August 25 (Thu), 08:30~10:10

Technical Session : Structure and Dynamics 2

Presider : Han Sang LEE (KEPCO)

08:30~08:50	ACGT2022-0035 Design Methodology of a Squirrel Cage for Small Gas Turbine Engine under Rotor Dynamics Aspect Nhatminh HOANG (Viettel Aerospace Institute)
08:50~09:10	ACGT2022-0046 Validation of Model Based and Data Driven Solution for Gas Turbine Compressor Performance Optimization Haesu KANG (KEPCO RI)
09:10~09:30	ACGT2022-0025 Thermal Stress Analysis of Steam Turbine Rotor using Analytical and Numerical Solution Myungsoo PARK (KEPCO)
09:30~09:50	ACGT2022-0056 rTBS-Based Isogeometric Analysis for Turbomachinery Donghyeon SONG (Seoul National University)
09:50~10:10	ACGT2022-0014 Multi-Model Transient Approach for Structural Analysis of the Turbine Component of a Small Gas Turbine Engine Nhatminh HOANG (Viettel Aerospace Institute)

Room 105 | August 25 (Thu), 08:30~09:30

Technical Session : Combustion and Aerodynamics

Presider : Dong Hyuk SHIN (KAIST)

08:30~08:50	ACGT2022-0003 Design and Performance Analysis of a Novel Compressor Jingyuan MA (Jimei University)
08:50~09:10	ACGT2022-0114 Influence of an Upstream Transonic Axial Compressor Stage on the Performance of Inert-Stage Duct Lakshya KUMAR (CSIR-National Aerospace Laboratories)
09:10~09:30	ACGT2022-0013 Investigation of Influence by Strut on the Flow Field in the Coupled System of Turbine and Diffuser Bin QIU (Institute of Engineering Thermophysics)

| Room 119 | August 25 (Thu), 10:30~11:50

Organized Session : Hydrogen GT Combustor 1

Presider : Minkuk KIM (Korea Institute of Machinery and Materials)

10:30~10:50	ACGT2022-0071 Characteristic of Boundary Layer Flashback for Micro-mixer Type Hydrogen-air Combustor Nozzles at Elevated Pressure Wonjune LEE (KIMM)
10:50~11:10	ACGT2022-0049 Hydrogen Enriched Combustion of a Single Nozzle for Heavy Duty Gas Turbines Jeongjae HWANG (KIMM)
11:10~11:30	ACGT2022-0023 A Numerical Study on Combustion of Hydrogen/Methane Blended Fuels in a Model Combustor of a Gas Turbine with a Single Nozzle and Multi-nozzles Yuangang WANG (Sejong University)
11:30~11:50	ACGT2022-0058 Preliminary Design of a Premixed Burner Nozzle for Hydrogen-fueled Gas Turbine Combustor Haeji JU (University of Science and Technology)

| Room 222 | August 25 (Thu), 10:30~12:10

Technical Session : Heat Transfer 1

Presider : Jun Su PARK (Korea National University of Transportation)

10:30~10:50	ACGT2022-0104 Energy and Exergy Analysis of Gas Turbine Combined Cycle with Exhaust Gas Recirculation under part-load conditions Keying LI (Institute of Engineering Thermophysics)
10:50~11:10	ACGT2022-0084 Studies on V-Shaped Flow Control Devices to Improve Film Cooling Effectiveness for Air-Cooled Turbines Kenichi FUNAZAKI (Iwate University)
11:10~11:30	ACGT2022-0080 Experimental and Numerical Study on Heat Transfer Characteristics of Impingement/Effusion Cooling System Wonwoo CHOI (Sungkyunkwan University)
11:30~11:50	ACGT2022-0057 Examination of Cooling Flow Nonuniformity within a Turbine Blade using Magnetic Resonance Velocimetry Seungchan BEAK (Seoul National Univerisity)
11:50~12:10	ACGT2022-0042 Effects of Upstream Slot Injection on Film Cooling Performance of a Gas Turbine Shroud Gimun KIM (Korea Aerospace University)

Room 203 | August 25 (Thu), 10:30~12:10

Technical Session : Aerodynamics 1

Presider : A.M. PRADEEP (Indian Institute of Technology Bombay)

10:30~10:50	ACGT2022-0106 Fast Flutter and Forced Response Analysis by a Cubic B-Spline Time Collocation Method Hangkong WU (Northwestern Polytechnical University)
10:50~11:10	ACGT2022-0082 A Numerical Investigation of Leakage Characteristics of the Rotating Labyrinth Seal with Solid and Honeycomb Lands Minseok HUR (Inha University)
11:10~11:30	ACGT2022-0078 Effect of Rotor-Stator Gap on Stall Inception of Subsonic Compressor Hengyi ZHU (Beihang University)
11:30~11:50	ACGT2022-0076 Impact of Surface Roughness on Gas Turbine Engine Fan and Compressor Rotor Ashima MALHOTRA (Airbus Group)
11:50~12:10	ACGT2022-0065 Investigation of Axial Spacing and Effect of Interface Location for The Noise Radiation Generated by Rotor Stator Interaction Wangjian SHU (Beihang University)

Room 119 | August 25 (Thu), 13:40~15:00

Organized Session : Development of Doosan Enerbility Gas Turbine

Presider : Samsik NAM (Doosan Enerbility)

13:40~14:00	ACGT2022-0028 Development and Validation of Doosan Gas and Hydrogen Turbine Minjae KIM (Doosan Enerbility)
14:00~14:20	ACGT2022-0029 Hydrogen Combustor Development Status for Industrial and Heavy Duty Gas Turbine Dongsik HAN (Doosan Enerbility)
14:20~14:40	ACGT2022-0027 DGT6-300H S1 Testing and Validation at In-house Full Load Test Facility Samsik NAM (Doosan Enerbility)
14:40~15:00	ACGT2022-0026 Advanced Cooling Design for Ring Segment using Additive Manufacturing Yunchang JANG (Doosan Enerbility)

| Room 222 | August 25 (Thu), 13:40~15:00

Technical Session : Heat Transfer 2

Presider : Dong-Ho RHEE (Korea Aerospace Research Institute)

13:40~14:00	ACGT2022-0069 Sensitivity Analysis and Optimal Design of Cooling Characteristics and Creep Lifetime of Impingement/Effusion Cooling System Haiwang LI (Beihang University)
14:00~14:20	ACGT2022-0017 Multi-domain Multiscale Physics Informed Neural Network for Heat Transfer Problems Tongsheng WANG (Xi'an Jiaotong University)
14:20~14:40	ACGT2022-0007 Effects of Pin-fins with Trapezoidal Endwall on Heat Transfer Characteristics in Gas Turbine Blade Internal Congtruong DINH (Hanoi University of Science and Technology)
14:40~15:00	ACGT2022-0066 Performance Analysis of Liquid Air Energy Storage-gas Turbine Combined System with Air Injection and Inlet Air Cooling Hyerim KIM (Inha University)

| Room 203 | August 25 (Thu), 13:40~15:00

Technical Session : Aerodynamics 2

Presider : Naoki TANI (IHI Cooperation)

13:40~14:00	ACGT2022-0100 Understanding the Amplitude Over-prediction from a Linear Harmonic Analysis of a Nonlinear Flow Field Dingxi WANG (Northwestern Polytechnical University)
14:00~14:20	ACGT2022-007 Tip Leakage Vortex Interactions in a Tandem Rotor Blade Sushanlal BABU (Indian Institute of Technology Bombay)
14:20~14:40	ACGT2022-0072 Investigation of Flow Behaviour in a Tandem Rotor with a Cantilevered Stator Kornia BAPARI (Indian Institute of Technology Bombay)
14:40~15:00	ACGT2022-0032 Effect of Multi-cavity Tip on Tip Leakage Flow and Aerodynamic Performance in Variable Geometry Nozzle of Radial Expander Jayeon SONG (Seoul National University)

| Room 119 | August 25 (Thu), 16:20~17:40

Keynote Session

Presider : Jae Su KWAK (Korea Aerospace University)

16:20~17:00	Role of GT towards Net-Zero Emissions Dr. Ravikanth AVANCHA (Technology Manager, Aerothermal Sciences, GE Research, India)
17:00~17:40	Improving the Operational Flexibility of Heavy-duty Gas Turbines Prof. Xiaoyi ZHANG (Professor, Shanghai Advanced Research Institute, China)

| Room 119 | August 26 (Fri), 08:50~10:10

Organized Session : Ammonia Combustion

Presider : Min Jung LEE (Korea Institute of Energy Research)

08:50~09:10	ACGT2022-0052 Large Eddy Simulation of Ammonia Gas Turbine Combustor with Artificial Neural Network based Chemistry Model Namsu KIM (Korea Institute of Energy Research)
09:10~09:30	ACGT2022-0036 Development of Ammonia Combustion Technology for Carbon Neutrality in Energy Sector Minjung LEE (Korea Institute of Energy Research)
09:30~09:50	ACGT2022-0033 Effects of Non-thermal Plasma on NH3/CH4 and NH3/H2 - Air Premixed Flames in a Swirl Combustor Gyeongtaek KIM (Ulsan National Institute of Science and Technology)
09:50~10:10	ACGT2022-0038 Characteristics of Ammonia-Air Flames in a Model Gas Turbine Combustor Taesong LEE (Korea Institute of Energy Research)

| Room 222 | August 26 (Fri), 08:50~10:30

Organized Session : Large Eddy Simulation

Presider : Dokyun KIM (Hongik University)

08:50~09:10	ACGT2022-0012 LES Study of Film Cooling Flow from Forward Expansion Hole in Pulsating Flows Byung Wook KIM (Chung-Ang University)
09:10~09:30	ACGT2022-0085 Multi-scale Spray Atomization Simulation of a Swirling Injector for Aero-Engines Dokyun KIM (Hongik University)
09:30~09:50	ACGT2022-0015 Evaluation of a Filter-Derived Conservative Artificial Dissipation for LES Atsushi TATEISHI (IHI Corporation)
09:50~10:10	ACGT2022-0119 Multi-Fidelity Method for Turbulent Transition in Boundary-layer Minwoo KIM (GIST)
10:10~10:30	ACGT2022-0118 Assessment of Sub-Grid-Scale Models in Transitional Boundary-layer Minwoo KIM (GIST)

Room 203 | August 26 (Fri), 08:50~10:30

Technical Session : Aerodynamics 3

Presider : Minsuk CHOI (Myongji University)

08:50~09:10	ACGT2022-0063 Unsteady Flow Analysis Inside an Exhaust Duct System Sindhuja PRIYADARSHINI (Indian Institute of Technology Kanpur)
09:10~09:30	ACGT2022-0062 Optimization of Impedance-boundary-controlled Casing Treatment on Subsonic Compressors Yuqing WANG (Beihang University)
09:30~09:50	ACGT2022-0061 Influence of an Upstream Transonic Axial Compressor Stage on the Performance of Inert-stage Duct Lakshya KUMAR (CSIR-National Aerospace Laboratories, Bangalore)
09:50~10:10	ACGT2022-0060 Correlation Analysis of Inlet Dryness and Tip Leakage Flow of Supercritical Carbon Dioxide Compressor Miaoqin ZHOU (Shanghai Advanced Rsearch Institute,CAS)
10:10~10:30	ACGT2022-0055 Numerical Investigation on Ice Shedding from Rotor Blades Tatsuya BABA (Tokyo University of Science)

Room 119 | August 26 (Fri), 10:50~12:10

Organized Session : Hydrogen GT Combustor 2

Presider : Jeongjae HWANG (Korea Institute of Machinery and Materials)

10:50~11:10	ACGT2022-0051 Measurement of Transverse Mode Self-Excited Instabilities in a Multislit Lean-premixed Hydrogen combustor Dohyung PARK (KAIST)
11:10~11:30	ACGT2022-0048 Effect of Radial Dual-Fuel Staging on Thermoacoustic Oscillations of Lean Premixed Multinozzle H2/CH4/Air Flames Ukhwa JIN (KAIST)
11:30~11:50	ACGT2022-0020 Effects of Flame Transfer Function on Combustion Instability Modeling Results in a Hydrogen-Natural Gas Turbine Combustor Junwoo JUNG (Gangneung-Wonju National University)
11:50~12:10	ACGT2022-0115 Dynamic Pressure Measurements of Hydrogen-Enriched Methane Flame in High Pressure Conditions Hosung BYUN (Seoul National University)

| Room 222 | August 26 (Fri), 10:50~12:30

Organized Session : Additive Manufacturing Technology for Superalloy

Presider : Byoung-Soo LEE (Korea Institute of Industrial Technology)

10:50~11:10	ACGT2022-0096 High Temperature Mechanical Properties and Process Optimization of Additive Manufacturing for Hastelloy X
	Dahye KIM (KITECH)
11:10~11:30	ACGT2022-0095 Effect of Line Energy on Microstructures and Mechanical Properties of Stellite21 Fabricated by Directed Energy Deposition
	Minho CHOI (KITECH)
11:30~11:50	ACGT2022-0093 Influence of Crystal Orientation on the Isothermal Low Cycle Fatigue in Single Crystal Nickel-Based Superalloy
	Jeonyoung SONG (Doosan Enerbility)
11:50~12:10	ACGT2022-0091 Effect of Line Energy on the Microstructure and Mechanical Properties of Modified René80 Superalloys Fabricated by Electron-Beam Melting
	Haejin LEE (KITECH)
12:10~12:30	ACGT2022-0090 Development of a New High Ni-Based Superalloy Suitable for Selective Electron Beam Melting
	Hyunuk HONG (Changwon National University)

Room 222 | August 26 (Fri), 10:50~12:30

Technical Session : Aerodynamics 4

Presider : Cong Truong DINH (Hanoi University of Science and Technology)

10:50~11:10	ACGT2022-0030 Numerical Analysis of Droplet Icing Process by Interface Capture Method Toshinori WATANABE (The University of Tokyo)
11:10~11:30	ACGT2022-0021 Effect of Axial Extension on Parameterized Endwall Contour with Incidence Change for LP Turbine Linear Cascade Anand P. DARJI (Sardar Vallabhbhai Nationl Institute of Technology-Surat)
11:30~11:50	ACGT2022-0045 Effect of Squealer Tip Applied to Compressor Blades on Aerodynamic Performance Jongwoong YOON (Sungkyunkwan University)
11:50~12:10	ACGT2022-0009 Unsteady Behavior of Tip Leakage Vortex on the Formation of Rotating Instability in an Axial Compressor Keita TANIGUCHI (Waseda University)
12:10~12:30	ACGT2022-0006 Aerodynamic Study on Preliminary Modeling of a Ducted Fan for Vertical Take-off and Landing Vehicles Congtruong DINH (Hanoi University of Science and Technology)

Poster Session

| Main Lobby | August 25 (Thu), 15:20~16:20

Presider : Jungchel CHANG (Korean Energy Technology Evaluation and Planning)

1	ACGT2022-0107 Implementation of 3D Integrated Analysis Model of Micro Turbojet Engine
	Dongeun LEE (University of Science and Technology)
2	ACGT2022-0105 A Numerical Analysis for Surface Combustion Characteristics of Flame Length and Quenching Distance Using Metal Fiber Burner
	Youngbae KIM (Institute for Advanced Engineering)
3	ACGT2022-0081 Experimental Investigation into the Effect of Main Stage Swirl on Flow and Spray Characteristics inside a Stratified Partially Premixed Combustor
	Qianpeng ZHAO (Institute of Engineering Thermophysics)
4	ACGT2022-0075 Study on the Influence of Swirl Combination of Stratified Partial Premixed Combustor on Aerodynamic Atomization Field
	Wei GAO (Institute of Engineering Thermophysics)
5	ACGT2022-0059 Numerical Analysis of The flow Characteristics of Burner Nozzle With Different Swirl Vane Configurations
	Haeji JU (University of Science and Technology)
6	ACGT2022-0108 Experimental Study of Film Cooling Effectiveness Enhancement using Fan-shaped Film Cooling Holes with Compound Expansion Configuration
	Seokmin KIM (University of Science and Technology)
7	ACGT2022-0092 A Study on the Flow Characteristics of Exhaust Jet with Nozzle Shapes
	changwook LEE (Jeonbuk National University)
8	ACGT2022-0050 Heat Transfer Characteristics with Radial Crossover Holes in a Gas Turbine Vane Internal Rectangular Channel
	Jeonghun HEO (Yonsei University)

9	ACGT2022-0047 Effects of Blowing Ratio on Film Cooling Performance of The First Stage Turbine Blade Tip
	Heejae LEE (Yonsei University)
10	ACGT2022-0011 An Investigation of Numerical Simulation for Supercritical CO2 Centrifugal Compressors
	Zitian LAI (Xi'an Jiaotong University)
11	ACGT2022-0005 Rotordynamic Characteristics for Superitical CO2 Annular Gas Seals
	Enbo ZHANG (Xi'an Jiaotong University)
12	ACGT2022-0004 Rotor Instability of Rotating Machine by Oil Varnish Effect
	Seunghoon SHIN (Air Products Korea)
13	ACGT2022-0044 Gas Turbine Data Analysis and Prediction of NOx Emission using Machine Learning Techniques
	Sungyeon KIM (Sungkyunkwan University)
14	ACGT2022-0043 Multi-disciplinary Optimization of Axial Compressor Blade Considering Aeromechanics and Aerodynamics
	Hyunsu KANG (Sungkyunkwan University)
15	ACGT2022-0121 Implementation of Lateral Synthetic Jets to Control Low Momentum Flow
	Jihyeon Park (Myongji University)

Registration Information

Registration Information

The registration cost for all the participants and/or presenters in the conference are as follows:

	General	Student
Early Bird Registration until July 31, 2022	US $350 (420,000 KRW)	US $200 (240,000 KRW)
Onsite registration	US $350 (420,000 KRW)	US $200 (240,000 KRW)

Fee includes

- Admission to all sessions
- Online access to all ACGT2022 final accepted papers.
- Access to daily lunches.
- Access to banquet
- The conference registration fee is non-refundable.

Secretariat of ACGT2022

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