# **Asian Congress on Gas Turbines 2018**

August 22 - 24, 2018

Aiina Center, Morioka, Japan

Gas Turbine Society of Japan

Korean Society for Fluid Machinery

Chinese Society of Engineering Thermophysics

Indian Institute of Technology Bombay



# Table of Contents

Organizing Committee	p.
Message from Local Organizing Committee	p.
About Asian Congress on Gas Turbines 2018	p.
Access to Congress and Banquet Venues	p.
Schedule at a Glance	p.
Program Overview	p.
Session Program	p.
Abstracts	p.
General Information	p.

# Organizing Committee

# Organizing Society

- •Gas Turbine Society of Japan (GTSJ)
- Korean Society for Fluid Machinery (KSFM)
- ·Chinese Society of Engineering Thermophysics (CSET)
- Indian Institute of Technology Bombay (IIT Bombay)

# Organizing Committee

Prof. Toshinori Watanabe	(University of Tokyo, Japan)
Dr. Chiyuki Nakamata	(IHI, Japan)
Prof. S. J. Song	(Seoul National University, Korea)
Prof. T. S. Kim	(Inha University, Korea)
Prof. Hongguang Jin	(Chinese Society of Engineering Thermophysics, China)
Prof. Xiaofeng Sun	(Beihang University, China)
Prof. Weiguang Huang	(Shanghai Advanced Research Institute, China)
Prof. Bhaskar Roy	(IIT Bombay, India)
Prof. A M Pradeep	(IIT Bombay, India)
Prof. B V S SS Prasad	(IIT Madras, India)

# Local Organizing Committee

Chair	Takashi Yamane	(JAXA)
	Chihiro Inoue	(Kyushu University)
	Naoki Tani	(IHI)
	Takashi Furusawa	(Tohoku University)
	Tomoko Tsuru	(KHI)
	Ichiro Miyoshi	(MHPS)
	Ken-ichi Funazaki	(Iwate University)
	Kazutoyo Yamada	(Iwate University)
	Hideo Taniguchi	(Iwate University)

Message from Local Organizing Committee

# **About Asian Congress on Gas Turbines 2018**

# Term of Session

August 22 (Wed.) – 24 (Fri.)

Congress Venue

Aiina Center 1-7-1 Morioka Station West, Morioka, Iwate, 020-0045

## Banquet Venue

Hotel Metropolitan Morioka (main building) 1-44 Morioka Ekimae Dori, Morioka, Iwate, 020-0034

## Keynote Speech

Keynote 1: Dr. Chunill Hah (NASA Glenn Research Center) [Aug.22 am] " Evolution of Computational Fluid Dynamics for the Advanced Gas Turbine Development"

Keynote 2: Dr. Eisaku Ito (Mitsubishi Heavy Industries) [Aug.23 pm] "R&D Experiences of Industrial Gas Turbines"

## Tutorial Session

Prof. Toshinori Watanabe (University of Tokyo) [Aug.24 am] "Aeroelasticity"

## Forum

Topics will deal with strategic issues related to gas turbines which are emerging in Asia

Forum 1 – "Alternative Fuel for Gas Turbines" [Aug.22 pm] Forum 2 – "Education and Human Resource Development for Gas Turbines"

[Aug.24 pm]

## Topic of Technical session

Aerodynamics

Heat Transfer

Combustion

Materials and Coatings Gas Turbine Systems

Acoustic

Environment

Simulation and Measurement Technologies

# Access to Congress and Banquet Venues

# ■ From Haneda/Narita Airport to Morioka Station

2 h 10 min from Tokyo St. to Morioka St. by Tohoku Shinkansen

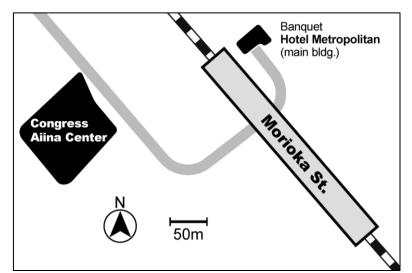
•	Tokyo Monorail $\rightarrow$ Hamamatsu-cho St. $\rightarrow$ Tokyo St. $\rightarrow$ <i>🚈</i> Tohoku Shinkansen $\rightarrow$ Morioka St.
<b>Դ</b> Narita Airport  → Morioka St.	Narita Express $\rightarrow$ <b>Tokyo St.</b> $\rightarrow$ <b>T</b> ohoku Shinkansen $\rightarrow$
<del>) </del> Narita Airport  → Morioka St.	Skyliner $\rightarrow$ <b>Ueno St.</b> $\rightarrow$ <i><math>\blacksquareTohoku Shinkansen <math>\rightarrow</math></math></i>



# Access to Aiina Center and Banquet

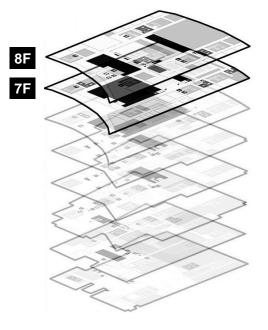
- \* 4 Minutes by walk from Morioka Station West Gate to Aiina Center
- **<sup>†</sup> 9 Minutes by walk** from Aiina Center to Hotel Metropolitan Main Building.
- A Banquet starts from **18:00 on 23th** (2nd day evening)

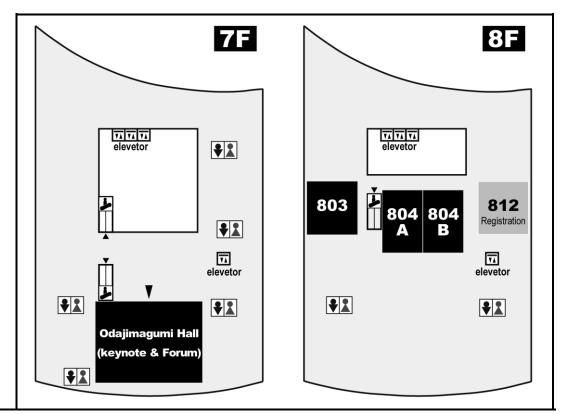
and



# Floor map inside Aiina Center

- $\bigcirc$  **7**<sup>th</sup> and **8**<sup>th</sup> floors for ACGT2018
- $\mathbb{Q}$  Registration desk opens at **# 812** in 8<sup>th</sup> floor
- $\mathbb{Q}$  Plenary Sessions (Keynote and Forum) : **Odajimagumi Hall** in 7<sup>th</sup> floor
- $\mathbb{Q}$  Tutorial and Technical Sessions : **# 803 · # 804A · # 804B** in 8<sup>th</sup> floor





# Schedule at a Glance

# ■ August 22, Wednesday

9:00	-	10:00	Registration	
10:00	-	10:20	Opening Address	(Odajimagumi Hall)
10:20	-	11:20	Keynote Speech 1	(Odajimagumi Hall)
11:20	-	12:40	Lunch Break	
12:40	-	14:00	Technical Sessions	(3 parallel session)
14:00	-	14:20	Coffee Break	
14:20	-	15:40	Technical Sessions	(3 parallel session)
15:40	-	16:00	Coffee Break	
16:00	-	17:40	Forum Session 1	(Odajimagumi Hall)

# ■ August 23, Thursday

9:00	-	9:40	Registration	
9:40	-	11:00	Technical Sessions	(3 parallel session)
11:00	-	11:20	Coffee Break	
11:20	-	12:40	Technical Sessions	(3 parallel session)

12	2:40	-	14:00	Lunch Break	
14	1:00	-	15:40	Technical Sessions	(3 parallel session)
15	5:40	-	16:00	Coffee Break	
16	6:00	-	17:00	Keynote Speech 2	(Odajimagumi Hall)
18	8:00	-		Banquet	(Hotel Metropolitan)

# August 24, Friday

9:00	-	9:40	Registration	
9:40	-	11:00	Technical Sessions	(3 parallel session)
11:00	-	11:20	Coffee Break	
11:20	-	12:40	Technical Sessions	(2 parallel session) and Tutorial Session
12:40	-	14:00	Lunch Break	
14:00	-	15:20	Technical Sessions	(3 parallel session)
15:20	-	15:40	Coffee Break	
15:40	-	17:20	Forum Session 2	(Odajimagumi Hall)
17:20	-	17:40	Closing Address	(Odajimagumi Hall)

			Aug. 22		Aug. 23		Aug. 24			
Start	End	Room803	Room804A	Room804B	Room803	Room804A	Room804B	Room803	Room804A	Room804B
9:00	9:40	F	REGISTRATION OPE 9:00	N	I	REGISTRATION OPE 9:00	in .	REGISTRATION OPEN 9:00		N
9:40	10:00									
10:00	10:20	Opening	Address at Odajima	gumi Hall	2-1-A	2-1-B Combustor	2-1-C Combustion	3-1-A Compressors and	3-1-B Gas Turbine	3-1-C Heat transfer and
10:20	10:40				Multiphysics	Performance	Physics	Fans	Systems and Materials	cooling
10:40	11:00		ote1 at Odajimagum hunill Hah (NASA G						materials	
11:00	11:20		,	,		Break			Break	
11:20	11:40									
11:40	12:00		LUNCH		2-2-A Acoustic and	2-2-B Gas Turbine	2-2-C Heat transfer and	3-2-A	Tutorial Session	3-2-C Heat transfer and
12:00	12:20		LUNCH		Environment	Systems	cooling	Compressors	cooling	
12:20	12:40									
12:40	13:00									
13:00	13:20	1-1-A	1-1-B Materials and	1-1-C		LUNCH		LUNCH		
13:20	13:40	Compressors	Coatings	Film cooling						
13:40	14:00									
14:00	14:20		Break							
14:20	14:40				2-3-A	2-3-B Simulation and	2-3-C	3-3-A	3-3-B Gas Turbine	3-3-C Combustion
14:40	15:00	1-2-A	1-2-B Gas Turbine	1-2-C Heat transfer and	Turbines	Measurement	Fuel Injection	Multiphysics	Systems	Physics
15:00	15:20	Compressors	Systems	cooling		Technologies	Technologies			
15:20	15:40								Break	
15:40	16:00		Break			Break				
16:00	16:20				Kevn	ote2 at Odajimagun	ni Hall		ession2 at Odajima	
16:20	16:40	Forum S	ession1 at Odajima	gumi Hall		Dr. Eisaku Ito (MHI)		"Education ar	nd Human Resource for Gas Turbines"	Development
16:40	17:00		ative Fuel for Gas T					for Gas Turbines"		
17:00	17:20									
17:20	17:40							Closing at Odajimagumi Hall		
17:40	18:00									
18:00						Banquet (18:00 Oper Hotel Metropolitan				

	August 22								
	August 22								
9:00		Registration Open							
10:00		Odajimagumi Hall							
10:20	н	Opening Address onorary member Commendatic	on						
10:20		Odajimagumi Hall							
10120	Keyno	te1 : Dr. Chunill Hah(NASA	Glenn)						
11:20		on of Computational Fluid D Advanced Gas Turbine Deve							
11:20 12:40		Lunch Break							
	Room803	Room804A	Room804B						
	1-1-A Compressors	1-1-B Materials and Coatings	1-1-C Film cooling						
	Session Chair: Debasish Biswas	Session Chair: Hideo Hiraguchi	Session Chair: Takashi Yamane						
12:40	ACGT2018-TS01	ACGT2018-TS31							
	Total Pressure Loss Reduction in Annular Diffusers	Investigation of hot corrosion attack on MCrAIY coating and superalloy interface for gas turbine applications	(No show)						
	Dajan Mimic, Christoph Jaetz, Phili	Pimin Zhang, Ru Lin Peng and Xin-Hai Li							
13:00	ACGT2018-TS02 Numerical Analysis of Impeller-Diffuser Interaction in a Transonic Centrifugal Compressor using Inclined Leading Edge in Diffuser Vanes Ali Zamiri and Jin Taek Chung	ACGT2018-TS32 Thermal cyclic behavior of thermal barrier coatings after mixed-gas corrosion at 780 °C Krishna Praveen Jonnalagadda, Robert Eriksson, Xin-Hai Li and Ru	ACGT2018-TS59 Numerical investigation of the film cooling effectiveness on the suction squealer tip with different film-hole arrangements Zhiqiang Yu, Jianjun Liu, Baitao An and Chen Li						
13:20	ACGT2018-TS03	Lin Peng ACGT2018-TS33	ACGT2018-TS60						
	Diffuser Rotating Stall Development in a Centrifugal Compressor with Vaned Diffuser Tetsuya Inui, Saki Watanabe, Nobumichi Fujisawa and	Sand Erosion Behavior of CMC and Ni-based Superalloy in Turbine Stator Manabu Ueno, Hiroya Mamori, Koji Fukudome,	About Film Cooling						
	Yutaka Ohta	Makoto Yamamoto and Masaya Suzuki							
13:40	ACGT2018-TS04 Application of 3D Printing Measurement Blades for Oil Flow Visualization in High	ACGT2018-TS34 Creep Life Analysis of Gas Turbine under TBC Partial Delaminations							

#### Speed Axial Compressor Test Rig

Ryosuke Saito, Satoshi Yamashita, Masahisa Honda and Ryosuke Mito Seon Ho Kim, Minho Bang, Seok Min Choi, Jeongju Kim, Dong Kwan Kim and Hyung Hee Cho

14:00

14:00 14:20

17:40

Coffee Break

-	Room803	Room804A	Room804B			
	1-2-A	1-2-B	1-2-C			
	Compressors	Gas Turbine Systems	Heat transfer and cooling			
	Session Chair: Takahiro Nishioka	Session Chair: Limin Gao	Session Chair: Tomoko Tsuru			
14:20	ACGT2018-TS05	ACGT2018-TS35	ACGT2018-TS61			
	A Numerical Validation on Cascade Flow Plasma Actuator at Endwall	Optimal Design of Closed-Cycle Gas Turbine Based on Helium-N2 Working Fluid	Heat Transfer Study of a Rotational and Stationary Smooth U-Shape Duct			
	Tetsuya Oshio, Yoshiki Yoshioka, Haruki Hosaka and Norio Asaumi	Jingxuan Zhang, Cao Ting and Weiguang Huang	Mandana Saravani and Ryoichi S. Amano			
14:40	ACGT2018-TS06	ACGT2018-TS36	ACGT2018-TS62			
	A comparative study of three various corner separation control methods on a 1.5-stage axial compressor stator	Adaptive Control Method for Compressor Stability	Studies on flow field characteristics in a realistic serpentine cooling channel with S-shaped inlet			
	Shuai Wu, Juan Du, Jichao Li, Hongwu Zhang and Chaoqun Nie	Xu Dong, Dakun Sun and Xiaofeng Sun	Hikaru Odagiri, Ken-Ichi Funazaki, Takeshi Horiuchi, Mei Fukuda and Hiroyuki Kashihara			
15:00	ACGT2018-TS07	ACGT2018-TS37	ACGT2018-TS63			
	Optimization of Vaned Diffuser of Mixed Flow Compressor	Design of Waste Heat Recovery System based on ORC for Locomotive Gas Turbine	Effect of Embossed Surface of Gas Turbine Blades on the Film-Cooling Performance			
	Avinash Nakod and Salim Channiwala	Abdul Nassar, Nishit Mehta, Oleksii Rudenko, Leonid Moroz and Gaurav Giri	Yo-Hwan Kim and Youn-Jea Kim			
15:20	ACGT2018-TS08	ACGT2018-TS38				
	Optimization of the Gap-nozzle in Tandem Configuration	Performance analysis of the gas turbine combined cycle with recuperation and bypass				
15:40	Amit Kumar and A M Pradeep	Seong Won Moon, Jeong Ho Kim and Tong Seop Kim				
15:40 16:00		Coffee Break				
16:00		Odajimagumi Hall				
	Forum Session1:					

#### "Alternative Fuel for Gas Turbines"

	August 23						
9:00		Registration Open					
	Room803	Room804A	Room804B				
	2-1-A Multiphysics	2-1-B Combustor Performance	2-1-C Combustion Physics				
	Session Chair: Yu Ito	Session Chair: Norihiko Iki	Session Chair: Chihiro Inoue				
9:40	ACGT2018-TS09 Fundamental Research of Measurement Method for Clear Icing on Fan Blades Nobutada Wada, Sachiko Hashimoto, Takuya Mizuno, Masaya Suzuki, Junichi	(No show)	ACGT2018-TS64 Azimuthal combustion instability: characterization of laboratory scale annular test rig Balasundaram Mohan and Sathesh Mariappan				
10:00	Kazawa and Osamu Nozaki ACGT2018-TS10		ACGT2018-TS65				
	Transonic Flow Simulation of High Pressure CO2 with Nonequilibrium Condensation Takashi Furusawa, Hironori Miyazawa, Shota Moriguchi	(No show)	V-gutter flame holder analysis using POD and DMD Yang Yang and Xiaodi Tang				
10:20	and Satoru Yamamoto ACGT2018-TS11	manaroorappann	ACGT2018-TS66				
	The Wet Compression Effect on An Opposed-Setting-2-Stage Centrifugal Compressor Ming Ni, Shaojuan Geng and Hongwu Zhang	(No show)	Evaluation of compressible flamelet tabulation method using artificial neural network Rui Toyonaga, Himeko Yamamoto, Yusuke Komatsu, Koki Kabayama, Yasuhiro Mizobuchi and Tetsuya Sato				
10:40		ACGT2018-TS42 Large-eddy simulation of fluid-structure interaction for a supercritical CO2 combustor Yoshihisa Kobayashi, Yasunori Iwai, Masao Itoh,	ACGT2018-TS67 Premixed conical flame dynamics analysis with LES/SI Xiaofeng Sun, Yang Yang, Jiaheng Xu and Chaoqun Nie				
11:00		Takayuki Nishiie and Ryoichi Kurose	- · ·				
11:00 11:20		Coffee Break					
	Room803	Room804A	Room804B				
	2-2-A	2-2-B	2-2-C				
	Acoustic and Environment Session Chair: Jingxuan Zhang	Gas Turbine Systems Session Chair: Hisao Futamura	Heat transfer and cooling Session Chair: Ken-ichi Funazaki				
11:20	ACGT2018-TS12	ACGT2018-TS43	ACGT2018-TS68				

	Testing of Gas Turbine KingTech with Biodiesel	Performance enhancement of PtM-GTCC system by oxygen injection	Investigation of the Effect Caused by Biot Number and Internal Impingement Configurations with Combined Film and Impingement Cooling
	Nicolas Lipchak, Franco Aiducic and Baieli Santiago	Dong Hyeok Won, Min Jae Kim, Jae Hong Lee and Tong Seop Kim	Jing-Lun Fu, Ying Cao, Peng Zhang and Jian-Jun Liu
11:40	ACGT2018-TS13 Experimental Research on the Characteristic of Pressure Drop Influenced by the Temperature Distribution in Liquid Hydrogen Storage	ACGT2018-TS44 Transient performance simulation of a Small Gas Turbine	ACGT2018-TS69 COMPUTATIONAL STUDY ON COOLING EFFECTIVENESS DURING MIST ASSISTED FILM COOLING
	Vessel Kazuma Tani, Takehiro Himeno, Yasunori Sakuma, Toshinori Watanabe, Hiroaki Kobayashi, Terukuni Toge, Hiroaki Kagaya, Shoji Kamiya and Osamu Muragishi	Tianhua Zheng, Chuang Gao and Weiguang Huang	Mallikarjuna Rao and B.V.S.S.S. Prasad
12:00	ACGT2018-TS14	ACGT2018-TS45	ACGT2018-TS70
	Bias Flow Acoustic Liner with Tapered Aperture Soufiane Ramdani, Nobuhiko	Flight mission fuel burn evaluation for aero-engine related technology variation. Yoshitaka Fukuyama and	Wake Effects on Heat Transfer of Turbine Blade Tip and Shroud with Various Tip Configurations Seok Min Choi, Minho Bang,
	Yamasaki, Yuzo Inokuchi and Tatsuya Ishii	Takashi Yamane	Jeongju Kim, Sehjin Park, Eui Yeop Jung and Hyung Hee Cho
12:20	ACGT2018-TS15	ACGT2018-TS46	
	Study on Boundary Layer Flow of Diffusion Cascade and Laminar Blade Design	Application of Diffusion-Brazing Repair Technology for Land-based Gas turbine Buckets	
12:40	Guanhua Yang and Limin Gao	Daizo Saito, Akihiro Sakamoto, Kazuhiro Kitayama	

#### 12:40 14:00

#### Lunch Break

	Room803	Room804A	Room804B
	2-3-A Turbines	2-3-B Simulation and Measurement Technologies	2-3-C Fuel Injection Technologies
	Session Chair: Hideo Taniguchi	Session Chair: Naoki Tani	Session Chair: Digvijay Kulshreshtha
14:00	ACGT2018-TS16	ACGT2018-TS47	ACGT2018-TS71
	Parametric Studies on Aerodynamic Performance of Various Types of LP Turbine Airfoils for Aero-Engines	Pressure Measurement on Oscillating Blade Surface with Fast-Response PSP	The aero-thermal layout for one low-emission partially pre-mixed burner
	Daichi Murakami, Ken-Ichi Funazaki and Juo Furukawa	Jiuliang Gan, Toshinori Watanabe, Takehiro Himeno and Yasunori Sakuma	Yang Yang

14:20	ACGT2018-TS17 Inverse Design of gas turbine blades Nanthini R, B V S S S Prasad and Y V S S Sanyasiraju	ACGT2018-TS48 Prediction Performance of the k-ε Elliptic-Blending Turbulence Model in Axial Diffusers Christoph Jaetz, Dajan Mimic, Florian Herbst and Joerg R. Seume	ACGT2018-TS72 Effect of dilution air distribution on performance of upward swirl can combustor Parag Rajpara, Rupesh Shah and Jyotirmay Banerjee	
14:40	ACGT2018-TS18 Effect of Thickness and	ACGT2018-TS49	ACGT2018-TS73	
	Axially Shifted Angle of a Strut on the Turbine Exhaust Diffuser Performance Byung Ju Lee, Dae Hyun Kim, Ik Sang Lee and Jin Taek Chung	Upgrades of an Overset LES Code for Simulating Near-Stall Transonic Flow in Fan Cascades Atsushi Tateishi, Toshinori Watanabe and Takehiro Himeno	Experimental investigation of flow fields and turbulent combustion characteristics in a gas turbine swirl combustor Jiang Lei, Yang Yang and Hu Hongbin	
15:00	ACGT2018-TS19	ACGT2018-TS50	ACGT2018-TS74	
	Axial gap effects on mixing loss of incoming wake across downstream airfoil rows Takuya Mitsukawa, Masaaki Hamabe and Juo Furukawa	Influence of Wall Roughness on the Laminar Separation Bubble Subrata Sarkar and Pradeep Singh	Numerical study of flowfield of swirler of gas turbine combustor for various shroud configurations Kruti Choksi and Salim Channiwala	
15:20 15:40		ACGT2018-TS51 Theoretical and Experimental Study of Pressure Sensor Based On D.C. Glow Discharge Plasma Fan Li, Juan Du, Haiyun Luo, Jichao Li, Feng Lin and Chaoqun Nie		
15:40		Coffee Break		
16:00		Joneo Broak		
16:00		Odajimagumi Hall		
17:00	Keynote2 : Dr. Eisaku Ito(MHI) "R&D Experiences of Industrial Gas Turbines"			
18:00		Hotel Metropolitan		
	Banquet			

	August 24		
9:00	Registration Open		
	Room803	Room804A	Room804B
	3-1-A Compressors and Fans	3-1-B Gas Turbine Systems and Materials	3-1-C Heat transfer and cooling
	Session Chair: Yutaka Ohta	Session Chair: Yoshitaka Fukuyama	Session Chair: B.V.S.S.S. Prasad
9:40	ACGT2018-TS20 Effect of Speed Ratio on the Performance of a Low Aspect Ratio Contra-Rotating Fan	ACGT2018-TS52 Numerical Study on Relationship between Heat Exchange and Air Flow Characteristics of Surface Air Cooled Oil Cooler	ACGT2018-TS75 Thermal Conductivity Effect on Overall Heat Transfer of Airfoil Heat Exchanger
	Manas M P and A M Pradeep	Tsukasa Ishii, Toshinori Watanabe, Takehiro Himeno, Yasunori Sakuma and Susumu Tomida	Yu Ito, Hitoshi Nakanishi and Takao Nagasaki
10:00	ACGT2018-TS21 Effects of Non-Axisymmetric Inflow on Vaneless Diffuser Rotating Stall Inception	ACGT2018-TS53 Study on the display formula of the rate constant α of the creep equation by the modified θ projection applied to the turbine material	ACGT2018-TS76 Heat Transfer of Matrix Cooling Channel with Various Shape of Rib turbulators
	Suyong Kim, Jieun Song, Bong-Jun Cha, Tae Choon Park, Kilyoung Kim, Taewook Lee, Joosung Hong, Donghun Lim and Seung Jin Song	Hideo Hiraguchi	Hyoungmin Lee, Seok Min Choi, Minho Bang, Taehyun Kim, Won-Gu Joo and Hyung Hee Cho
10:20	ACGT2018-TS22 A Numerical Study on the Performance Variation of a Transonic Centrifugal Compressor using Impeller Trimming Methods Kun Sung Park and Jin Taek Chung	ACGT2018-TS54 2MW Recuperated Gas Turbine Engine with Compact Design-ZK2000R Chuang Gao, Weiguang Huang and Tianhua Zheng	ACGT2018-TS77 Three-Component PTV Measurements of Pulsating Film-Cooling Flow over Smooth Cutback Surface at Trailing Edge of Gas Turbine Airfoil Shohei Yamamoto, Akira Murata, Shumpei Hayakawa
10:40 11:00	ACGT2018-TS23 Axial-slot Casing Treatment on a Mixed-flow Compressor with Various Tip Clearances Qianfeng Zhang, Juan Du, Joerg R. Seume and Hongwu Zhang		and Kaoru Iwamoto
11:00 11:20		Coffee Break	

	Room803	Room804A	Room804B
	3-2-A Compressors	3-2-B Tutorial Session	3-2-C Heat transfer and cooling
	Session Chair: A M Pradeep	Session Chair: Chuang Gao	Session Chair: Yasuhiro Mizobuchi
11:20	ACGT2018-TS24 Design Optimization of Stator Vanes in a Transonic Axial Compressor Using Neural Networks Method		ACGT2018-TS78 Three-dimensional Velocity Field Measurements of a Rectangular Channel with an Inclined Pin-Fin Array on a Flat and Wavy Endwall Using Magnetic Resonance
	Hyungjin Kim and Youn-Jea Kim		<b>Velocimetry</b> Simla Saglam, Junya Fujita, Kenichiro Takeishi and Yutaka Oda
11:40	ACGT2018-TS25		ACGT2018-TS79
	Transitional Flow Analysis of a C-D Stator Compressor Blade through LES. Subrata Sarkar and Shubham	Tutorial Session	Application of a High-order LES Model to Study Transitional Heat Transfer Characteristics over Turbine Vane Surface Debasish Biswas
	Katiyar	Prof. Toshinori Watanabe	
12:00	ACGT2018-TS26	(University of Tokyo)	ACGT2018-TS80
	Unsteady Hubside Velocity Measurement of Multistage Axial Compressor	"Aeroelasticity"	Experimental Study on the Film Cooling Effect of Gap Leakage Flow at First-Stage Vane Using Pressure Sensitive Paint Technique
	Jaehyoung Lee, Sungkyung Lim, Namjun Yoon, Sungryoung Lee and Seung Jin Song		Toshiki Hosokawa, Yutaka Oda, Hisashi Shirazawa and Kenichiro Takeishi
12:20	ACGT2018-TS27		
12:40	Large Eddy Simulation of Stator Cascade Flow in a Transonic Axial Compressor Kazutoyo Yamada, Seishiro Saito, Masato Furukawa, Akinori Matsuoka and Naoyuki Niwa		
12:40 14:00		Lunch Break	

14.00			
	Room803	Room804A	Room804B
	3-3-A Multiphysics	3-3-B Gas Turbine Systems	3-3-C Combustion Physics
	Session Chair: Osamu Nozaki	Session Chair: Naoki Tani	Session Chair: Chihiro Inoue
14:00	ACGT2018-TS28 Effect of Surface Wettability on the Movement of Droplets around Compressor Blade in Humid Air Flow	ACGT2018-TS55 Experimental and Theoretical Study on Water Ingestion of Turbojet Engines	ACGT2018-TS81 Rich-lean Low-NOx Combustor for Micro Gas Turbine Firing Ammonia Gas

	Ryo Murata, Toshinori Watanabe, Takehiro Himeno, Yasunori Sakuma and Chihiro Inoue	Hisao Futamura	Osamu Kurata, Norihiko Iki, Takahiro Inoue, Takayuki Matsunuma, Taku Tsujimura, Hirohide Furutani, Masato Kawano, Keisuke Arai, Ekenechukwu Okafor, Akihiro Hayakawa and Hideaki Kobayashi	
14:20	ACGT2018-TS29 Real Gas Effects on Inlet Boundary Condition with Supercritical CO2 as the Working Fluid	ACGT2018-TS56 Design of S-type submerged air intake of slender aerodynamic body	ACGT2018-TS82 Experimental Investigations of a Non-Premixed Gas Turbine Combustor using Regenerated Ethanol Vapour as a Fuel	
	Xi Nan, Takehiro Himeno and Toshinori Watanabe	Ashwini Dalvi, R. D. Shah and S. A. Channiwala	Taha Poonawala, Parth Shah and Digvijay Kulshreshtha	
14:40	ACGT2018-TS30 A Feasibility Study of Anti-Icing Method for Fan Rotor Blade using UPACS	ACGT2018-TS57 Development of JAC Gas Turbine	ACGT2018-TS83 Soot Formation in Swirl-Stabilized Spray Combustion of Jet A-1 in a Model Gas Turbine Combustor	
	Takuya Wada, Hiroya Mamori, Koji Fukudome, Makoto Yamamoto, Junichi Kazawa, Takuya Mizuno, and Masaya Suzuki	Tomohiko Yamamoto, Satoshi Hada, Masanori Yuri and Junichiro Masada	Lu-Yin Wang and Omer Gulder	
15:00 15:20			ACGT2018-TS84 Acoustic transfer function in a lean premixed gas turbine combustion for modeling combustion instabilities Yeongmin Pyo, Jeongun Park, Myunggon Yoon and Daesik Kim	
15:20 15:40	Coffee Break			
15:40		Odajimagumi Hall		
17:20	Forum Session 2 "Education and Human Resource Development for Gas Turbines"			
17:20		Odajimagumi Hall		
17:40	Closing			

# Abstracts

# **General information**

#### Language

The official language of ACGT2018 is English.

#### 

Registration and Information Desk at Room 812 in 8<sup>th</sup> floor

Aug. 22(Wed) 09:00 - 16:00 Aug. 23(Thr) 09:00 - 16:00 Aug. 24(Fri) 09:00 - 12:00

## Registration

The registration fee is 30,000JPY (6,000JPY for students). The registration fee includes access to all sessions, final program with paper abstracts, CD-ROM proceedings, and banquet.

# For Speakers in Technical Sessions

#### 1. Author biography form

Presenting authors, who haven't submitted the biography form to chairperson in advance, should fill out the form and hand it over to chairperson before their sessions start.

#### 2. Arrival at the session room

All speakers should arrive at their session rooms well before their sessions start. Authors who will use the beam projector can upload the presentation files to the PC equipped in the room. Authors can use their own PC on their own responsibility. All the time required for the computer setting for presentation will be included in their presentation time.

#### 3. Presentation time

20 minutes, including 5 minutes for discussion, are allotted for each session.

#### 

## For Chairperson in Technical Sessions

Session chairpersons should arrive at the session room well before the session begins. Check if all presenting authors come and their biography forms have been submitted. **Please keep the allocated presentation time as the final program** and allow sufficient time for discussion.

## Proceedings

CD-ROM Proceedings will be distributed to all registrants. Additional Proceedings are available at the price of 10,000JPY.

## Lunch

Many Restaurants are located around East area of Morioka St.

## Banquet

From 18:00 on Aug.23(Thr), banquet will be held at Hotel Metropolitan Morioka Main Building (not New Wing). It takes 10-minute walk from Aiina Center.