Program

IGTC2015 Tokyo

INTERNATIONAL GAS TURBINE CONGRESS 2015 Tokyo

November 15(Sun.)-20(Fri.), 2015
TORANOMON HILLS FORUM
Toranomon, Minatoku, Tokyo

GTSJ

Gas Turbine Society of Japan

http://www.gtsj.org/

INTERNATIONAL GAS TURBINE CONGRESS 2015 Tokyo
NOVEMBER 15-20, 2015

Sponsoring Society

Gas Turbine Society of Japan (GTSJ)

Collaborating Societies

Overseas

ASME International Gas Turbine Institute (ASME/IGTI)
European Turbine Network (ETN)
Korean Society for Fluid Machinery (KSFM)
The Korean Society of Mechanical Engineers (KSME)
Verein Deutscher Ingenieure (VDI)
Unione Italiana Termofluidodinamica (UIT)
The Chinese Academy of Sciences, Institute of Engineering Thermophysics (CAS/IET)
The Chinese Academy of Sciences, Shanghai Advanced Research Institute (CAS/SARI)

Domestic

Japan Society of Energy and Resources (JSER)
The Visualization Society of Japan (VSJ)
Thermal and Nuclear Power Engineering Society (TENPES)
Japan Society for the Promotion of Machine Industry (JSPMI)
The Society of Instrument and Control Engineers (SICE)
Advanced Cogeneration and Energy Utilization Center Japan (ACEJ)
Society of Automotive Engineers of Japan (JSAE)
Smart Processing Society for Materials, Environment & Energy (SPS)
Turbomachinery Society of Japan (TSJ)
The Institute of Electrical Engineers of Japan (IEEF)
International Electric Research Exchange (IERE)
The Federation of Electric Power Companies of Japan (FEPC)
Institute for Liquid Atomization and Spray Systems (ILASS-Japan)
The Japan Institute of Energy (JIE)
The Japan Gas Association (JGA)
The Japan Society of Mechanical Engineers (JSME)
The Japan Institute of Metals (JIM)
The Society of Japanese Aerospace Companies (SJAC)
The Japan Society for Aeronautical and Space Science (JSASS)
Japanese Aero Engines Corporation (JAEC)
Japan Aeronautocal Engineers' Association (JAEA)
The Society of Materials Science, Japan (JSMS)
The Ceramic Society of Japan (CerSJ)
The Iron and Steel Institute of Japan (ISIJ)
The Japan Electrical Manufacturers' Association (JEMA)
Heat Transfer Society of Japan (HTSJ)
Japanese Society of Tribologists (JAST)
Japan Internal Combustion Engine Federation (JICEF)
Nippon (Japan) Engine Gererator Association (NEGA)
Combustion Society of Japan (CSJ)
The Japanese Society for Non-Destructive Inspection (JSNDI)
The Japanese society for Quality Control (JSQC)
Japan Fine Ceramics Association (JFCA)
Japan Wind Energy Association (JWEA)
Japan Institute of Marine Engineering (JIME)
Japan Land Engine Manufacturers Association (LEMA)
The Japan Society of Fluid Mechanics (JSFM)
Japan Society of Corrosion Engineering (JSCE)
Japan Welding Society (JWS)

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Research Foundation for the Electrotechnology of Chubu

CONTENTS

Welcome to IGTC2015 Tokyo

On behalf of the Gas Turbine Society of Japan (GTSJ), I wish to thank you for attending the International Gas Turbine Congress 2015 Tokyo (IGTC2015 Tokyo) held from the 15th to the 20th of November 2015 at TORANOMON HILLS FORUM, Minato-ku, Tokyo. The IGTC2015 is supported by collaborating societies around the world. This is the 11th international congress organized by GTSJ, which would succeed the last congress taken place in 2011 in Osaka with great success.

The International Gas Turbine Congress (IGTC) is an international congress held in Japan to exchange information on the latest research and technical achievements in gas turbine related technology. The IGTC was first held in 1971 in Tokyo. The first congress was co-hosted by the American Society of Mechanical Engineers (ASME) and the Japan Society of Mechanical Engineers (JSME). The Gas Turbine Society of Japan took over this IGTC and has continued to organize this international conference to continue the creative discussion initiated in the first congress. Now the congress is the most important international activity of GTSJ providing a leading platform for information exchange in the field of energy technology.

Gas turbines with the characteristics of high efficiency, high reliability and low NOx emissions have been expected to serve as one of the best technologies for CO2 reduction which leads to the inhibition of global warming. IGTC2015 is being organized to exchange the latest research progress, fundamental and applied technologies, product developments, maintenance and service technologies for gas turbines, propulsion engines, steam turbines and related energy systems. It is my great pleasure that the IGTC2015 would contribute to enhance constructive communications among engineers, researchers and users of gas turbines, propulsion engines, steam turbines and related energy systems from all over the world.

On behalf of GTSJ, I would like to thank our worldwide collaborating societies, sponsors and the corporation members of GTSJ who have ensured the success of IGTC 2015. I wish to thank the all authors, reviewers, session organizers, invited lecturers, panelists and exhibitors who contributed so much to make the IGTC2015 valuable conference for gas turbine related technology. I also wish to thank the members of the Executive Committee and our GTSJ staff. IGTC2015 would not be possible without their hearty efforts.

I wish all attendees will have rewarding experience form IGTC2015 and enjoy your stay in Tokyo.

Tadashi Tanuma

Tadashi Tanuma

President
Gas Turbine Society of Japan

Dear IGTC2015 Attendees,

On behalf of the GTSJ Board and the Executive Committee, I would like to welcome you to the International Gas Turbine Congress 2015 Tokyo (IGTC2015), the 11th international congress organized by GTSJ. IGTC is held every four years for exchanging the latest technical information in gas turbines, propulsion, and energy systems. We are happy to have the IGTC2015 in Tokyo together with the experts from all over the world in the sectors of academia, government, and industries.

The program of IGTC2015 includes four Invited Lectures, three Panel Discussions, and three Forum Sessions. A total of 220 papers are to be presented in the technical sessions widely ranged over the gas turbines, steam turbines, jet propulsion, and other energy related fields. The exhibition will present the newest products and technologies at the congress site with 38 exhibiters related to gas turbines, turbomachines, power systems, accessories, parts, materials, instrumentation, application software, etc.

The Invited Lectures present the latest topics for future gas turbines and energy technology. We are honored to have Mr. James Free from NASA GRC, Dr. Shailesh Patal from Special Metals Corporation, Professor Konrad Vogeler from TU Dresden, and Mr. Yoshiaki Tsukuda from MHI as the lecturers. The Panel Discussions feature the trends and perspectives of energy network, aircraft propulsion, and Asian energy strategy. After the Great East Japan Earthquake, there have been intense discussions in Japan concerning energy supply strategy. We expect to have discussion with the participants on the reliable energy system and role of gas turbine in the future energy network. The Forum Sessions are pre-organized sessions of several technical presentations and free discussions, including a new joint session with ASME/IGTI concerning additive manufacturing. The Asian gas turbine market is rapidly growing and the technology is accordingly progressing now. IGTC is expected to provide opportunity to introduce the technical activities in this area, leading an organization of a mutual community.

The congress is made possible based on the contribution and dedication of many individuals and organizations. I extend my sincere gratitude to the sponsors and collaborating societies for their generous support. The invited lecturers, panelists, authors, session chairs, exhibitors, all did tremendous work, and I greatly appreciate their efforts. Finally, I thank the members of the Executive Committee and GTSJ staff who devoted so much effort to ensure the success of IGTC2015.

Thank you all for attending IGTC2015. I hope that you will enjoy your time in Tokyo for fruitful experience of technical exchange and networking.

Toshinori Watanabe

Toshinori Watanabe

Chair
The Executive Committee of IGTC2015 Tokyo
The University of Tokyo

1. WHOLE CONGRESS TIME TABLE

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<tr><td rowspan="2">Nov.15
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Welcome Reception (Room B, 5F) 17:45-20:00</td></tr>
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(Mon)</td><td>Morning</td><td>Afternoon</td><td>Evening</td></tr>
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<tr><td colspan="2">Exhibition 12:00-17:00 (Foyer & Main Hall, 5F)(Foyer, 4F)</td></tr>
<tr><td>Opening Address
9:00-9:10 (Room A, 5F)</td><td>Lunch Break 11:45-13:15</td></tr>
<tr><td>Invited Lecture 1
9:10-10:10 (Room A, 5F)</td><td>Technical Sessions
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<tr><td>Break 10:10-10:30</td><td>Break 14:30-14:50</td></tr>
<tr><td>Technical Sessions
10:30-11:45 (6 Rooms, 4 & 5F)</td><td>Technical Sessions
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(Room A, 5F)</td></tr>
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<tr><td>Technical Sessions
13:05-14:45 (6 Rooms, 4 & 5F)</td></tr>
<tr><td>Break 10:00-10:20</td><td>Break 14:45-15:05</td></tr>
<tr><td>Forum 3
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<tr><td>Nov.20
(Fri)</td><td colspan="2">Optional Facility Tours</td><td></td></tr>
</table>

2. GENERAL INFORMATION

2.1 Language

The official language of the Congress is English.

2.2 Registration Desk

Congress Registration Desk will be open at the times and place indicated below:

Nov. 15 (Sun) 16:30-20:00
Nov. 16 (Mon) 8:00-17:30
Nov. 17 (Tue) 8:30-17:30
Nov. 18 (Wed) 8:30-18:00
Nov. 19 (Thu) 8:30-15:00

in the foyer of 5F.

2.3 Information for Speakers and Chairpersons

Speaker's Meeting

There will be a short meeting among the chairpersons and speakers just before each session. The speakers and chairpersons are requested to arrive the session room 10 minutes before the session start.

Timing of Presentations

Each presentation will be allotted 25 minutes including discussion.

Speakers' Practice

A room (Guest Room 4, 4F) will be reserved for speakers those who wish to check their slides and to practice. Projector, and power supply will be available there.

Audio Visual Equipment

Each session room is equipped with a projector, a screen, a laser pointer, and microphones. Speakers are advised to bring their own PC for presentation and to check their materials in advance of their session.

2.4 Congress Venue

The congress venue is TORANOMON HILLS FORUM located in Toranomon, Minato-ku, Tokyo. For more information on the venue, please visit web site at http://toranomonhills.com/en/.

2.5 Recording Policy

During the plenary and technical sessions, taking photos and recording is prohibited in general. Only congress staffs with an armband ispermitted to taking photos.

2.6 Information for Tourism

Information for tourism is available at the web site of Toranomon Hills Forum & Tourism Bureau, and other organizations. Brochures, maps and other materials for tourism will be available at the Congress Registration Desk, as well as the bureau's web site in some foreign Languages.
(http://www.gotokyo.org/en/index.html)

2.7 Official Agents

The official agents of IGTC2105 are e-side, inc. (http://en.e-side.co.jp/) in charge of collecting papers, administering registration. For further information on registration and payment, please contact the e-side, inc. (c/o Mr. Scott Macdonald).

E-mail: igtc2015-office@e-side.co.jp
Tel: 81-3-6435-8789
Fax: 81-3-6435-8790

3. REGISTRATION & FEE

3.1 Registration Fee

All participants are required to register and pay registration fees according to the categories in Table 1. The registration fee includes a badge to access all sessions of the congress, the welcome reception, coffee breaks, and electronic proceedings CD.

Those who wish to participate in the congress banquet on Wednesday and an optional tour on Friday are requested to register and pay an additional fee(s) for participation. The additional fees for banquet and tour are shown in Table 2.

Early-registration before August 31, 2015 is requested for at least one speaker for each technical paper. Papers will be excluded from the proceedings and the final program unless the executive committee of IGTC2015 confirms the speaker's early-registration.

Table 1 Registration Fee (Tax (8%) not included)

Category	Early-registration before Aug. 31, 2015	Registration after Sep. 1, 2015, and on site
Speaker	55,000 JPY	Early-registration is compulsory
Member *1	55,000 JPY	60,000 JPY
Non-member	65,000 JPY	70,000 JPY
Student	15,000 JPY	15,000 JPY

*1 Members of GTSJ, the collaborating or the cooperative societies listed on the back cover.

Table 2 Additional Fee[*2] (Tax (8%) not included)

Item	Price
Banquet	10,000 JPY/person
Optional Tour	7,000 JPY/person

[*2] Participants of the banquet and the plant tours must be registered participants or accompanying persons.

3.2 Online Registration (in advance)

Online registration is accepted at the Congress Registration Desk (online) at
https://amarys-jtb.jp/igtc2015/ .
Payment should be made by a major credit card (VISA, MASTER, AMEX, Diners, or JCB).

Online registration will be accepted until 19:00 of October 31, 2015 (JST).

3.3 On-site Registration

On-site registration will be accepted at the Congress Registration Desk shown in subsection 2.2. Major credit cards (VISA, MASTER, AMEX, Diners, or JCB) or cash (JPY) will be accepted for payment.

3.4 Congress Kit

All participants including those who have registered in advance are requested to come to the desk to receive a badge, a copy of program and a proceeding on a CD with ISBN number.

4. PLENARY SESSIONS

4.1 Invited Lecture

Place: Room A

Lecture 1
November 16 (Mon) 9:10-10:10
"**NASA Glenn: 75 Years & Beyond Propelling 21st Century Aviation to New Heights**"
Mr. James M. Free (Director, NASA Glenn Research Center)
Chair: Dr. Toshio Nishizawa (JAXA)

Lecture 2
November 17 (Tue) 9:00-10:00
"**Nickel-Base Superalloys Enabling Future Generations of Power Turbines**"
Dr. Shailesh Patel (Vice President, Special Metals Corporation)
Chair: Prof. Yomei Yoshioka (Ehime Univ.)

Lecture 3
November 18 (Wed) 9:00-10:00
"**Probabilistic Analysis of Complex System Behaviour in Turbomachinery Design**"
Prof. Dr.-Ing. Konrad Vogeler (Technische Universität Dresden)
Chair: Prof. Joerg R. Seume (Leibniz Univ. Hannover)

Lecture 4
November 19 (Thu) 9:00-10:00
"**Challenge for Low BTU Blast Furnace Gas Firing GTCC in Steel Works**"
Mr. Yoshiaki Tsukuda (Executive Corporate Adviser, Mitsubishi Heavy Industries, Former president of GTSJ)
Chair: Prof. Yutaka Ohta (Waseda Univ.)

4.2 Panel Discussion

Place: Room A

Panel Discussion 1
November 16 (Mon) 16:15-18:15
"**Challenges in Propulsion Technology for Next Generation Air Transport**"
Chair: Prof. Keiichi Okai (Univ. Tokyo)
Mr. James M. Free (NASA Glenn Research Center)
Mr. Hisao Futamura (Japan Aerospace Exploration Agency)
Dr. Alan Epstein (Pratt & Whitney Technology and Environment)
Mr. Daisuke Koyama (Rolls-Royce Japan)
Mr. Shinji Hiratsuka (Japanese Aero Engines Corporation)
Mr. Hiroki Haraikawa (JAL Engineering)
Mr. Satoru Yasuraoka (Ministry of Economy, Trade and Industry)

Panel Discussion 2
November 17 (Tue) 13:05-14:55
"**Current Status and Future Strategy of Electricity and Energy Supply in Asian Countries**"
Chair: Prof. Shozo Kaneko (Univ. Tokyo)
Mr. Yuji Matsuo (The Institute of Energy Economics, Japan)
Prof. Feng Lin (Chinese Academy of Sciences)
Dr. Jeong Lak Sohn (Korea Institute of Machinery & Materials)
Prof. Souvik Bhattacharyya (Indian Institute of Technology Kharagpur)

Mr. Kornphat Srisuping (Electricity Generating Authority of Thailand)

Panel Discussion 3
November 19 (Thu) 15:05-17:05
"**Energy Strategy: Role of Gas Turbines in the Future Energy Network**"
Chair: Prof. Toshihiko Nakata (Tohoku Univ.)
Dr. Robert Steele (Electric Power Research Institute)
Mr. Christer Björkqvist (European Turbine Network)
Mr. Wataru Horie (GE Power & Water)
Mr. Yasushi Fukuizumi (Mitsubishi Heavy Industries)

5. FORUMS

Forum 1
November 17 (Tue) 10:20-11:35 **Room A**
"**Perspective on Electric Propulsion Technologies for Aircraft Applications**"
Chair: Prof. Keiichi Okai (Univ. Tokyo)
Dr. Nateri Madavan (NASA Ames Research Center)
Mr. Daisuke Koyama (Rolls-Royce Japan)
Dr. Hideyuki Taguchi (Japan Aerospace Exploration Agency)

Forum 2
November 18 (Wed) 13:55-15:00 **Room A**
"**CFRP in Aircraft Engine Technology**"
Chair: Prof. Takahira Aoki (Univ. Tokyo)
Mr. Katsuyoshi Moriya (IHI Corp.)
Dr. Tomo Takeda (Japan Aerospace Exploration Agency)
Mr. Kotaro Akakabe (The Univ. of Tokyo)
Dr. Yoshinori Shiihara (Inst. of Industrial Science, the Univ. of Tokyo)

Forum 3
November 19 (Thu) 10:20-11:35 **Room E**
"**GTSJ-IGTI Joint Forum on Additive Manufacturing**"
Chair: Prof. Seung Jin Song (Seoul National University)
Prof. Hideki Kyogoku (Kinki University)
Mr. Toshihiko Maeda (NTT Data Engineering Systems)
Mr. Wei Bin (GE Global Research in Shanghai)

6. EXHIBITIONS

Following total of 38 industries and research organizations exhibit their products and activities related to gas turbines, turbomachines, power systems and their accessories, parts, materials, instrumentation, and application software in the exhibition hall (Foyer and Main Hall (5F), Foyer (4F)).

- American Society of Mechanical Engineers
- AIKOKU ALPHA CORPORATION AP DIVISION
- AIST (National Institute of Advanced Industrial Science and Technology)
- B&B-AGEMA GmbH
- Camfil / Tominaga & Co., Ltd.
- CD-adapco Co., Ltd.
- Concurrent Nippon Corporation
- Daiichi System Engineering Co., LTD.
- DANTEC DYNAMICS K. K.
- EthosEnergy / Tominaga & Co., Ltd.
- Fuji Technical Research Inc.
- Fuji Techno Industries Corporation
- GE Power & Water
- HAYNES INTERNATIONAL KK
- HODEN SEIMITSU KAKO KENKYUSHO CO., LTD.
- Honda R&D Co., Ltd. Aircraft Engine R&D Center
- IHI Corporation
- Japan Aerospace Exploration Agency
- Japanese Aero Engines Corporation
- Kawasaki Heavy Industries, Ltd.
- KIGUCHI TECHNICS INC.
- Maruwa Electronic Inc.
- MARUYAMA EXCELL CO., LTD.
- Metal Technology Co. Ltd.
- Mitsubishi Heavy Industries Aero Engines, Ltd.
- MITSUBISHI HITACHI POWER SYSTEMS, LTD.
- NewtonWorks Corporation
- NIPPON MUKI CO., LTD.
- NUMECA Japan Co., Ltd.
- OHTE GIKEN, INC.
- SANKYO INTERNATIONAL CORPORATION
- SHINWA CORPORATION
- SINTOKOGIO, LTD.
- Spraying Systems Co., Japan
- SUMITOMO PRECISION PRODUCTS CO., LTD.
- Tasco Corporation / Rochem Technical Services

- TOSHIBA CORPORATION
- UEMURA GIKEN CO., LTD.

Exhibitions by university and technical college laboratories will be held also in pathway of 5th floor.

A brochure in both English and Japanese including a list of the exhibitors will be handed to visitors at the entrance of the hall. Neither admission fee nor registration will be required to have access to this part.

7. SOCIAL PROGRAMS & TOURS

7.1 Welcome Reception

All participants and accompanying persons registered will be invited to attend the Welcome Reception to be held in the Room B (5F) from 17:45 to 20:00 on November 15, Sunday (free of charge).

7.2 Banquet

The banquet will be held in Room A (5F) from 17:45 to 20:30, November 18, Wednesday. Those who wish to participate in the banquet are required to register and pay an additional fee in advance. Dinner will be served in buffet style. A variety of kinds of meals and drinks are offered, including "Sushi chef demonstration". Sake -Japanese rice wine- produced from different sake brewing are served in special tasting area. Entertainment is also offered including the Japanese traditional dance, called "NIHON BUYO".

7.3 Optional Facility Tours

The following two Optional tours are planned on November 20 on Friday. Those who wish to attend are asked to complete the advance registration and pay an additional fee. Because space is limited for all tours, on site registrations are not accepted.

(1) Course A

This tour will be headed for J-POWER, Isogo Thermal Power Plant and Toshiba Corporation Power System Company. The tour bus will depart from the congress venue (Toranomon Hills) on 8:30, and come back to the congress venue at 18:00.

(2) Course B

This tour will be headed for Japan Aerospace Exploration Agency (JAXA) in Chofu and IHI AEROSPACE MUSEUM in Akishima. The tour bus will depart from the congress venue (Toranomon Hills) on 8:30, and come back to the congress venue at 18:45.

7.4 Backyard Tour

Backyard Tour is also planned at TORANOMON HILLS Main Tower during lunch time from November 17, Tuesday to November 19, Thursday.

8. CONGRESS OFFICE

The Congress Office will be set in the GTSJ Secretariat on 5F (Meeting Room 3).

9. SESSION PROGRAMS

9.1 Session Program at a Glance

Monday November 16, 2015

Room A	Room B	Room C	Room D	Room E	Room F	Room G
09:00-09:10 Room A Opening Address						
Invited Lecture 1 09:10-10:10 Room A NASA Glenn: 75 Years & Beyond Propelling 21st Century Aviation to New Heights (Mr. James M. Free, Director, NASA Glenn Research Center)						
10:30-11:45 Combustor Development I	10:30-11:45 Blade Tip Cooling	10:30-11:45 A-USC Technology		10:30-11:45 Frontier CFD in Gas Turbine I	10:30-11:45 Centrifugal Compressor Aerodynamics	10:30-11:45 Cycle Innovation I
13:15-14:30 Combustor Development II	13:15-14:30 Seals and Cavities	13:15-14:30 Materials and Coatings I	13:15-14:30 Control and Simulation	13:15-14:30 Frontier CFD in Gas Turbine II	13:15-14:30 Application of Optimization to Axial Compressor	13:15-14:30 Steam Turbine Long Blade Development Technology Wet Steam Loss Reduction I
14:50-16:05 Emissions	14:50-16:05 Inovation in Wind Turbine Technology	14:50-16:05 Materials and Coatings II		14:50-16:05 Unsteady Flow and Stability Enhancement in Fans and Compressors I	14:50-16:05 Axial Turbine Aerodynamics	14:50-16:05 Steam Turbine Long Blade Development Technology Wet Steam Loss Reduction II
Panel Discussion 1 16:15-18:15 Room A Challenges in Propulsion Technology for Next Generation Air Transport						

Tuesday November 17, 2015

Room A	Room B	Room C	Room D	Room E	Room F	Room G
Invited Lecture 2 09:00-10:00 Room A Nickel-Base Superalloys – Enabling Future Generations of Power Turbines (Dr. Shailesh Patel, Vice President, Special Metals Corporation)						
10:20-11:35 Forum1 Perspective on Electric Propulsion Technologies for Aircraft Applications	10:20-11:35 Novel Cooling Technologies I	10:20-11:35 Component Damage, Failure & Life Assessment I	10:20-11:35 Small Gas Turbines	10:20-11:35 Aerodynamic Design of Centrifugal Compressor	10:20-11:35 Unsteady Flow and Stability Enhancement in Fans and Compressors II	10:20-11:35 Steam Turbine Aerodynamic Efficiency Enhancement I
Panel Discussion 2 13:05-14:55 Room A Current Status and Future Strategy of Electricity and Energy Supply in Asian Countries						
15:15-16:55 Fuels	15:15-16:55 Novel Cooling Technologies II	15:15-16:55 Component Damage, Failure & Life Assessment II	15:15-16:55 Radial Compressors for Turbochargers	15:15-16:55 Aerodynamic Design of Axial Compressor I	15:15-16:55 Unsteady Flow and Stability Enhancement in Axial Compressor I	15:15-16:55 Steam Turbine Aerodynamic Efficiency Enhancement II

Wednesday November 18, 2015

Room A	Room B	Room C	Room D	Room E	Room F	Room G
Invited Lecture 3 09:00-10:00 Room A Probabilistic Analysis of Complex System Behaviour in Turbomachinery Design (Prof. Dr.-Ing. Konrad Vogeler, Technische Universität Dresden)						
10:20-12:25 Numerical Simulation for Combustor Design	10:20-12:25 Heat Transfer Measurement	10:20-12:25 Component Damage, Failure & Life Assessment III	10:20-12:25 Radial Turbines for Turbochargers	10:20-12:25 Aerodynamic Design of Axial Turbines	10:20-12:25 Unsteady Flow and Flow Control in Turbine	10:20-12:25 Cycle Innovation II
13:55-15:00 Forum 2 CFRP in Aircraft Engine Technology	13:55-15:35 Reliability and Maintenance	13:55-15:35 Manufacturing Technologies I	13:55-15:35 Aircraft Engines I	13:55-15:35 Aerodynamic Design of Axial Compressor II	13:55-15:35 Fluid Structure Interaction	13:55-15:35 Cycle Innovation III
	15:55-17:35 Heat Transfer Evaluatoin by CFD	15:55-17:35 Manufacturing Technologies II	15:55-17:35 Aircraft Engines II	15:55-17:35 Unsteady Flow and Stability Enhancement in Axial Compressor II	15:55-17:35 Bearings and Rotor Dynamics	15:55-17:35 Industrial Gas Turbine and Power Systems I
17:45-20:30 Room A Banquet						

Thursday November 19, 2015

Room A	Room B	Room C	Room D	Room E	Room F	Room G
Invited Lecture 4 09:00-10:00 Room A Challenge for Low BTU Blast Furnace Gas Firing GTCC in Steel Works (Mr.Yoshiaki Tsukuda, Executive Corporate Adviser, Mitsubishi Heavy Industries, Former President of GTSJ)						
10:20-11:35 Combustion Instability I		10:20-11:35 Manufacturing Technologies III	10:20-11:35 Health Monitoring and Diagnostics	10:20-11:35 Forum 3 GTSJ-IGTI Joint Forum on Additive Manufacturing	10:20-11:35 Blade Mistuning	10:20-11:35 Industrial Gas Turbine and Power Systems II
13:05-14:45 Combustion Instability II	13:05-14:45 Conjugate Heat Transfer Simulation		13:05-14:45 Measurement	13:05-14:45 Aerodynamic Design of Axial Compressor III	13:05-14:45 Unsteady Flow and Stability Enhancement in Axial Compressor III	13:05-14:45 Industrial Gas Turbine and Power Systems III
Panel Discussion 3 15:05-17:05 Room A Energy Strategy: Role of Gas Turbines in the Future Energy Network						
17:05-17:30 Room A Closing Address						

9.2 Technical Sessions

Legend

- MoPM2B.3
  ⇒**Mo**nday/**P**ost **M**eridiem **2**nd/Room **B**/Session No.**3**

Monday November 16, 2015

MoILPL Room A

NASA Glenn: 75 Years & Beyond Propelling 21st Century Aviation to New Heights (Invited Lecture)

Chair: Nishizawa, Toshio — Japan Aerospace Exploration Agency

9:10-10:10 MoILPL.1

NASA Glenn:75 Years & Beyond Propelling 21st Century Aviation to New Heights

Free, James M. — NASA Glenn Res. Center

MoAMA Room A

Combustor Development I (General Session)

Chair: Hasegawa, Takeharu — Central Res. Inst. of Electric Power Industry

Co-Chair: Horikawa, Atsushi — Kawasaki Heavy Industries, Ltd.

10:30-10:55 MoAMA.1

Development of a Prevaporized Combustor Using a Porous Media for a Kerosene-Fueled Micro Gas Turbine

Harada, Ryo — Tokyo Metropolitan Univ.
Kobori, Yuho — Tokyo Metropolitan Univ.
Sakurai, Takashi — Tokyo Metropolitan Univ.

10:55-11:20 MoAMA.2

Fundamental Study of a Micro Gas Turbine with a Detonation Combustor

Takahashi, Hiroto — Tokyo Metropolitan Univ.
Hirai, Yuki — Tokyo Metropolitan Univ.
Sakurai, Takashi — Tokyo Metropolitan Univ.

11:20-11:45 MoAMA.3

Development of Combustor for Supercritical CO2 Turbine

Nakamura, Yasuaki — Toshiba Corp.
Iwai, Yasunori — Toshiba Corp.
Itoh, Masao — Toshiba Corp.
Morisawa, Yuichi — Toshiba Corp.
Sasaki, Takashi — Toshiba Corp.
Cusano, David — Parametric Solutions, Inc.
Harris, Mark — Parametric Soluitons, Inc.
Petersen, Eric — Texas A&M Univ.

MoAMB Room B

Blade Tip Cooling (General Session)

Chair: Nuntadusit, Chayut — Prince of Songkla Univ.

Co-Chair: Murata, Akira — Tokyo Univ. of Agriculture and Tech.

10:30-10:55 MoAMB.1

Effect of Inlet Temperature Distribution on the Heat Transfer and Film Cooling Performance of Squealer Blade Tip

Li, Jun — Inst. of Turbomachinery, Xi`an Jiaotong Univ.

10:55-11:20 MoAMB.2

Advances in HP-Turbine Heat Transfer, Part II: Experimental Investigations, Film-Cooling Effectiveness on a High Pressure Turbine Blade Tip under Turbine Rotating Condition

Schobeiri, Meinhard T. — Turbo Tech. Consulting
Rezasoltani, Mohsen — Texas A&M Univ.
Lu, Kun — Texas A&M Univ.
Zhang, Yang — Tsinghua Univ.

11:20-11:45 MoAMB.3

Advances in HP-Turbine Heat Transfer, Part I: Numerical Simulations of Film Cooling and Heat Transfer on Rotating Blade Tips within a High-Pressure Turbine

Schobeiri, Meinhard T. — Turbo Tech. Consulting
Rezasoltani, Mohsen — Texas A&M Univ.
Lu, Kun — Texas A&M Univ.
Zhang, Yang — Tsinghua Univ.

MoAMC Room C

A-USC Technology (General Session)

Chair: Imano, Shinya — Mitsubishi Hitachi Power Systems, Ltd.

Co-Chair: Saito, Daizo — Toshiba Corp.

10:30-10:55 MoAMC.1

Development and Evaluation of Ni-Based Superalloys for Large-Scale Components of A-USC Steam Turbine

Miyashita, Shigekazu — Toshiba Corp.
Nemoto, Kuniyoshi — Toshiba Corp.
Oinuma, Shun — Toshiba Corp.
Takaku, Reki — Toshiba Corp.
Imai, Kiyoshi — Toshiba Corp.
Suga, Takeo — Toshiba Corp.

10:55-11:20 MoAMC.2

Feasibility Study of Austenite Steel for A-USC Castings

Kamoshida, Hironori — Mitsubishi Hitachi Power Systems, Ltd.
Imano, Shinya — Mitsubishi Hitachi Power Systems, Ltd.
Takeyama, Masao — Tokyo Inst. of Tech.

11:20-11:45 MoAMC.3

Development of High Temperature Inlet Valves for A-USC Steam Turbines

Takano, Tetsu — Fuji Electric Co., Ltd.
Izumi, Sakae — Fuji Electric Co., Ltd.
Takahashi, Yoichi — Fuji Electric Co., Ltd.

MoAME Room E

Frontier CFD in Gas Turbine I (General Session)

Chair: Yamamoto, Satoru — Tohoku Univ.

Co-Chair: Inoue, Chihiro — The Univ. of Tokyo

10:30-10:55 MoAME.1

Direct Computation of a Hole Tone Feedback System with a Tail Pipe

Matsuura, Kazuo — Ehime Univ.
Nakano, Masami — Tohoku Univ.

10:55-11:20 MoAME.2

Numerical Simulation of Supercritical CO2 Flows in Transonic Turbine and Compressor

Furusawa, Takashi — Tohoku Univ.
Miyazawa, Hironori — Tohoku Univ.
Yamamoto, Satoru — Tohoku Univ.

11:20-11:45	MoAME.3
Numerical Simulation of Sand Erosion Phenomena on Coated Vane of Low Pressure Turbine	
Iwashita, Hiroaki	Tokyo Univ. of Science
Yamamoto, Makoto	Tokyo Univ. of Science
Okita, Yoji	IHI Corp.

MoAMF	Room F
Centrifugal Compressor Aerodynamics (General Session)	
Chair: Sakaguchi, Daisaku	Nagasaki Univ.
Co-Chair: Tamaki, Hideaki	IHI Corp.
10:30-10:55	MoAMF.1
Influence of Root Fillet on the Aerodynamic and Structural Performance of a Centrifugal Impeller	
Liu, Haiqing	Shanghai Advanced Res. Inst. Chinese Acad. of Science
Chi, Zhongran	Shanghai Jiao Tong Univ.
Zhang, Jingxuan	Shanghai Advanced Res. Inst. Chinese Acad. of Science
10:55-11:20	MoAMF.2
Influence of Blade-Loading and Mach Number on Operating Range of Centrifugal Compressor	
Hashimoto, Ryuichi	Hitachi, Ltd.
Yagi, Manabu	Hitachi, Ltd.
Nishioka, Takahiro	Hitachi, Ltd.
Ito, Toshio	Hitachi, Ltd.
11:20-11:45	MoAMF.3
Influences of Tip Leakage Flows on Flow Behavior in Transonic Centrifugal Compressor with Splitter Blade at Design Condition	
Kaneko, Masanao	Hosei Univ.
Tsujita, Hoshio	Hosei Univ.

MoAMG	Room G
Cycle Innovation I (General Session)	
Chair: Morioka, Noriko	IHI Corp.
Co-Chair: Cao, Yunpeng	Harbin Engineering Univ.
10:30-10:55	MoAMG.1
Design of Micro Gas Turbine System Using Commercial Turbocharger	
Rajoo, Srithar	Univ. Teknologi Malaysia
Tan, Feng Xian	Univ. Teknologi Malaysia
Chiong, Meng Soon	Univ. Teknologi Malaysia
Chong, Cheng Tung	Univ. Teknologi Malaysia
Romagnoli, Alessandro	Nanyang Tech. Univ.
Ochiai, Masayuki	Tokai Univ.
10:55-11:20	MoAMG.2
Evaluation of Gas Turbine Exhaust Heat Recovery Utilizing Composite Supercritical CO2 Cycle	
Burlaka, Maksym	SoftInWay
Rudenko, Oleksii	SoftInWay
Moroz, Leonid	SoftInWay
Joly, Clement	SoftInWay
11:20-11:45	MoAMG.3
High Temperature Storage for Hybrid Gas Turbine CSP Plants: Analysis and Experimental Results	
Traverso, Alberto	Univ. of Genoa
Traverso, Alberto Nicola	Univ. of Genoa
Barberis, Stefano	Univ. of Genoa

MoPM1A	Room A
Combustor Development II (General Session)	
Chair: Fujimori, Toshirou	IHI Corp.
Co-Chair: Yamamoto, Takeshi	Japan Aerospace Exploration Agency
13:15-13:40	MoPM1A.1
Investigation of the Pressure Dependence of NOx Emissions of an Industrial Gas Turbine Combustor with High Hydrogen Content Fuels	
Kroniger, Daniel	Inst. for Power Plant Tech. Steam and Gas Turbines, RW
Wirsum, Manfred	Inst. for Power Plant Tech. Steam and Gas Turbines, RW
Horikawa, Atsushi	Kawasaki Heavy Industries, Ltd.
Okada, Kunio	Kawasaki Heavy Industries, Ltd.
Kazari, Masahide	Kawasaki Heavy Industries, Ltd.
13:40-14:05	MoPM1A.2
Development and Testing of a Low NOx Micromix Combustion Chamber for an Industrial Gas Turbine	
Funke, Harald H.-W.	Aachen Univ. of Applied Sciences
Keinz, Jan	Aachen Univ. of Applied Sciences
Kusterer, Karsten	B&B-AGEMA GmbH
Haj Ayed, Anis	B&B-AGEMA GmbH
Kazari, Masahide	Kawasaki Heavy Industries, Ltd.
Kitajima, Junichi	Kawasaki Heavy Industries, Ltd.
Horikawa, Atsushi	Kawasaki Heavy Industries, Ltd.
Okada, Kunio	Kawasaki Heavy Industries, Ltd.
14:05-14:30	MoPM1A.3
Application of Low Nox Micro-Mix Hydrogen Combustion to Industrial Gas Turbine Combustor and Conceptual Design	
Horikawa, Atsushi	Kawasaki Heavy Industries, Ltd.
Kazari, Masahide	Kawasaki Heavy Industries, Ltd.
Okada, Kunio	Kawasaki Heavy Industries, Ltd.
Kusterer, Karsten	B&B-AGEMA GmbH
Haj Ayed, Anis	B&B-AGEMA GmbH
Funke, Harald H.-W.	Aachen Univ. of Applied Sciences
Keinz, Jan	Aachen Univ. of Applied Sciences

MoPM1B	Room B
Seals and Cavities (General Session)	
Chair: Takeishi, Kenichiro	Tokushima Bunri Univ.
Co-Chair: Li, Jun	Inst. of Turbomachinery, Xi`an Jiaotong Univ.
13:15-13:40	MoPM1B.1
A Summary of Computations of Ingestion at the University of Bath	
Wilson, Michael	Univ. of Bath
Lock, Gary	Univ. of Bath
13:40-14:05	MoPM1B.2
Time Resolved Velocity and Pressure Measurements in a Turbine Rotor-Stator Disc Cavity	
Kim, You Il	Seoul National Univ.
Song, Seung Jin	Seoul National Univ.
14:05-14:30	MoPM1B.3
Effect of Fin Overlap and Eccentricity on Rim Seal Performance	
Ishida, Katsuhiko	Kawasaki Heavy Industries, Ltd.
Kato, Hiroshi	Kawasaki Heavy Industries, Ltd.
Hagari, Tomoko	Kawasaki Heavy Industries, Ltd.

MoPM1C Room C

Materials and Coatings I (General Session)

Chair: Kubo, Takahiro	Toshiba Corp.
Co-Chair: Yoshimi, Kyosuke	Tohoku Univ.

13:15-13:40 MoPM1C.1

Effect of the Initial Creep Strain on the Stability of Rafted Structure in Nickel–based Single Crystal Superalloys

Murata, Yoshinori	Graduate School of Engineering, Nagoya Univ.

13:40-14:05 MoPM1C.2

Development of Ni-Base Single-Crystal Superalloy and Casting Technology for High Efficiency Gas Turbine Blade

Oguma, Hidetaka	Mitsubishi Heavy Industries, Ltd.
Okada, Ikuo	Mitsubishi Heavy Industries, Ltd.
Taneike, Masaki	Mitsubishi Heavy Industries, Ltd.
Ito, Eisaku	Mitsubishi Heavy Industries, Ltd.
Harada, Hiroshi	National Inst. for Materials Science
Yokokawa, Tadaharu	National Inst. for Materials Science
Kawagishi, Kyoko	National Inst. for Materials Science
Fujiwara, Kosuke	Mitsubishi Heavy Industries, Ltd.

14:05-14:30 MoPM1C.3

Development of the Advanced Thermal Barrier Coating for High Efficiency Gas Turbine

Okajima, Yoshifumi	Mitsubishi Heavy Industries, Ltd.
Torigoe, Taiji	Mitsubishi Heavy Industries, Ltd.
Mega, Masahiko	Mitsubishi Heavy Industries, Ltd.
Okada, Ikuo	Mitsubishi Heavy Industries, Ltd.

MoPM1D Room D

Control and Simulation (General Session)

Chair: Koh, Masaharu	Japan Aerospace Exploration Agency
Co-Chair: Savenkov, Mark	Alstom Power

13:15-13:40 MoPM1D.1

Automated Control for Electric-Thermal Load Following Operation in Nuclear Gas Turbine Cogeneration System

Sato, Hiroyuki	Japan Atomic Energy Agency
Yan, Xing	Japan Atomic Energy Agency
Sumita, Junya	Japan Atomic Energy Agency
Terada, Atsuhiko	Japan Atomic Energy Agency
Nishihara, Tetsuo	Japan Atomic Energy Agency

13:40-14:05 MoPM1D.2

A Real-Time Gas Path Performance Simulation Platform for Gas Turbine Health Management System

Cao, Yunpeng	Harbin Engineering Univ.
Zhang, Bing	Harbin Engineering Univ.
Li, Shuying	Harbin Engineering Univ.

14:05-14:30 MoPM1D.3

Simulation Study Investigating the Effects of Modeling Errors on Model Based State Estimations of Jet Engines

Kimura, Mai	IHI Corp.
Koguma, Yuji	IHI Corp.
Nakamura, Keiko	IHI Corp.
Kinoshita, Moe	IHI Corp.
Kakiuchi, Daiki	IHI Corp.

MoPM1E Room E

Frontier CFD in Gas Turbine II (General Session)

Chair: Niehuis, Reinhard	Univ. of the German Federal Armed Forces Munich
Co-Chair: Yamada, Kazutoyo	Kyushu Univ.

13:15-13:40 MoPM1E.1

Application of a High Order LES Model to Study Flow Transition under Simulated Low Pressure Turbine Conditions

Biswas, Debasish	Toshiba Corp.
Jimbo, Tomohiko	Toshiba Corp.

13:40-14:05 MoPM1E.2

Fully Resolved Large-Eddy Simulation of a Compressor Cascade Clearance Flow

Ouchi, Takuya	IHI Corp.
Teramoto, Susumu	The Univ. of Tokyo
Okamoto, Koji	The Univ. of Tokyo

14:05-14:30 MoPM1E.3

Numerical Procedure for Hot Gas Ingestion through Rim Seal of High Pressure Turbine

Suzuki, Masaya	Japan Aerospace Exploration Agency
Hayashi, Ryosuke	Tokyo Univ. of Science
Yamamoto, Makoto	Tokyo Univ. of Science
Manabe, Takashi	IHI Corp.

MoPM1F Room F

Application of Optimization to Axial Compressor (General Session)

Chair: Peitsch, Dieter	Tech. Univ. of Berlin
Co-Chair: Kato, Hiromasa	Iwate Univ.

13:15-13:40 MoPM1F.1

Unsteady Aerodynamic Optimization of Compressor with Discrete Adjoint Method

Ma, Can	Tsinghua Univ.
Su, Xinrong	Tsinghua Univ.
Yuan, Xin	Tsinghua Univ.

13:40-14:05 MoPM1F.2

Optimized Multidisciplinary Design of a Small Transonic Compressor for Active High-Lift Systems

Teichel, Sönke	Inst. of Turbomachinery and Fluid Dynamics, Leibniz Univ.
Verstraete, Tom	Von Karman Inst.
Seume, Joerg R.	Inst. of Turbomachinery and Fluid Dynamics, Leibniz Univ.

14:05-14:30 MoPM1F.3

Axial Flow Compressor of MGT-70 Gas Turbine Blade Shape Optimization Based on Operating Condition

Pakatchian, Mohammad Reza	MAPNA Turbine Engineering and Manufacturing Company (TUGA)
Saeidi, Hossein	MAPNA Turbine Engineering and Manufacturing Company (TUGA)
Rafiei Sefid Dashti, Ali	MAPNA Turbine Engineering and Manufacturing Company (TUGA)

MoPM1G Room G

Steam Turbine Long Blade Development Technology Wet Steam Loss Reduction I (General Session)

Chair: Vogt, Damian	Univ. of Stuttgart
Co-Chair: Sasao, Yasuhiro	Mitsubishi Hitachi Power Systems, Ltd.

13:15-13:40 MoPM1G.1

Unsteady Wet Steam Flow Field and Droplet Measurements at the Last Stage of Low-Pressure Steam Turbine

Bosdas, Ilias	ETH Zurich
Mansour, Michel	Lab. for Energy Conversion, ETH Zurich
Kalfas, Anestis	Aristotle Univ. of Thessaloniki
Abhari, Reza S.	ETH Zurich
Senoo, Shigeki	Mitsubishi Hitachi Power Systems, Ltd.

13:40-14:05 MoPM1G.2

A Novel Probe for Measuring Fine and Coarse Droplets of Wet Steam in a 330 MW Steam Turbine

Cai, Xiaoshu	Univ. of Shanghai for Science & Tech.

14:05-14:30 MoPM1G.3

Studies of Condensate Steam Flow and Wetness Loss in Low Pressure Steam Turbine

Tsukuda, Tomohiko	Toshiba Corp.
Nomura, Daisuke	Toshiba Corp.
Kawasaki, Sakae	Toshiba Corp.
Tominaga, Junichi	Toshiba Corp.
Sasaki, Takashi	Toshiba Corp.

MoPM2A Room A

Emissions (General Session)

Chair: Itoh, Masao	Toshiba Corp.
Co-Chair: Inoue, Hiroshi	Mitsubishi Hitachi Power Systems, Ltd.

14:50-15:15 MoPM2A.1

Effects of Hydrogen Addition to Partially Premixed Spray Flame on Combustion and Emission Characteristics

Matsumoto, Takashi	Yamaguchi Univ.
Seo, Takehiko	Yamaguchi Univ.
Mikami, Masato	Yamaguchi Univ.

15:15-15:40 MoPM2A.2

Soot Concentration Distributions of Swirl-Stabilized Non-Premixed Flames in a Model Gas Turbine Combustor

Gulder, Omer L.	Inst. for Aerospace Studies, Univ. of Toronto
Chatterjee, Sandipan	Inst. for Aerospace Studies, Univ. of Toronto

15:40-16:05 MoPM2A.3

The Development of Hydrogen Content Gas Combustion Technology for Kawasaki DLE Combustor

Oda, Takeo	Kawasaki Heavy Industries, Ltd.

MoPM2B Room B

Inovation in Wind Turbine Technology (General Session)

Chair: Abhari, Reza S.	Lab. for Energy Conversion, Inst. for Energy Tech. ETH Zurich
Co-Chair: Matsuda, Hisashi	Toshiba Corp.

14:50-15:15 MoPM2B.1

Plasma Actuation Effect on a MW Class Wind Turbine

Matsuda, Hisashi	Toshiba Corp.
Tanaka, Motofumi	Toshiba Corp.
Osako, Toshiki	Toshiba Corp.
Yamazaki, Kenichi	Toshiba Corp.
Shimura, Naohiko	Toshiba Corp.
Asayama, Masahiro	Toshiba Corp.
Oryu, Yukihiro	Hokutaku Co.,Ltd.

15:15-15:40 MoPM2B.2

Impact of Forest-Elevated Turbulence Levels on Wind Farm Performance

Zendehbad, Mohsen	ETH Zurich
Kazda, Jonas	ETH Zurich
Chokani, Ndaona	ETH Zurich
Abhari, Reza S.	Lab. for Energy Conversion, Inst. for Energy Tech.

15:40-16:05 MoPM2B.3

Numerical Investigation on Effect of Upstream Turbine Wake to Flow Field and Performance of Downstream Wind Turbine

Uemura, Yuta	Tokyo Univ. of Science
Yamamoto, Makoto	Tokyo Univ. of Science
Sugawara, Hideaki	Ryoyu Systems Co., Ltd.
Aoyama, Takashi	Japan Aerospace Exploration Agency
Tanabe, Takashi	Japan Aerospace Exploration Agency

MoPM2C Room C

Materials and Coatings II (General Session)

Chair: Kawagishi, Kyoko	National Inst. for Materials Science
Co-Chair: Taneike, Masaki	Mitsubishi Heavy Industries, Ltd.

14:50-15:15 MoPM2C.1

Phase Stability, Microstructure and Ultrahigh-Temperature Strength of Mo-Si-B-Based Alloys for the Application in Uncooling Turbine Systems

Yoshimi, Kyosuke	Tohoku Univ.
Yamamoto, Shiho	Tohoku Univ.
Nakamura, Junya	Tohoku Univ.
Maruyama, Kouichi	Tohoku Univ.
Katui, Hirokazu	Tohoku Univ.
Goto, Takashi	Tohoku Univ.

15:15-15:40 MoPM2C.2

Development of Ni-Base Superalloy for Large Size Gas Turbine Disks

Shibayama, Takashi	Mitsubishi Hitachi Power Systems, Ltd.
Imano, Shinya	Mitsubishi Hitachi Power Systems, Ltd.

15:40-16:05 MoPM2C.3

Development of Ni-Co-Base Superalloys Based on New Concept for High Temperature Turbine Disk Applications

Fujioka, Junzo	National Inst. for Materials Science
Gu, Yuefeng	National Inst. for Materials Science
Osada, Toshio	National Inst. for Materials Science
Cui, Chuanyong	National Inst. for Materials Science
Yokokawa, Tadaharu	National Inst. for Materials Science
Kobayashi, Toshiharu	National Inst. for Materials Science
Harada, Hiroshi	National Inst. for Materials Science
Fukuda, Tadashi	Hitachi Metals MMC Superalloy, Ltd.
Mitsuhashi, Akira	Mitsubishi Materials Corp.

MoPM2E Room E

Unsteady Flow and Stability Enhancement in Fans and Compressors I (General Session)

Chair: Kim, Sung In	Queen`s Univ. Belfast
Co-Chair: Hirano, Toshiyuki	Kokushikan Univ.

14:50-15:15 MoPM2E.1

Geometrical Effects and Inception of Rotating Stall in Vaneless Diffuser of an Industrial Centrifugal Compressor

Engeda, Abraham	Michigan State Univ.

15:15-15:40 MoPM2E.2

Surge Characteristics and Control Using Microsteam Injection of a Centrifugal Compressor with Vaned Diffuser

Gao, Chuang	Shanghai Advanced Res. Inst. Chinese Acad. of Science

15:40-16:05 MoPM2E.3

Suppression of Rotating Stall in a Low Speed Centrifugal Compressor by Fluid Injection from Variable Heights and Yaw Angles

Otani, Kiyoshi	National Defense Acad. of Japan
Aoki, Yasuhiro	National Defense Acad. of Japan

MoPM2F Room F

Axial Turbine Aerodynamics (General Session)

Chair: Funazaki, Ken-ichi	Iwate Univ.
Co-Chair: Hamabe, Masaaki	IHI Corp.

14:50-15:15 MoPM2F.1

Parameter Study for an Improved Prediction of Wake-Induced Transition in Low-Pressure Turbines

Müller, Christoph	Leibniz Univ. Hannover
Herbst, Florian	Leibniz Univ. Hannover
Fiala, Andreas	MTU Aero Engines AG
Zscherp, Carsten	MTU Aero Engines AG
Kügeler, Edmund	Inst. of Propulsion Tech. German Aerospace Center
Seume, Joerg R.	Inst. of Turbomachinery and Fluid Dynamics, Leibniz Univ.

15:15-15:40 MoPM2F.2

Experimental Investigation of the Aerodynamic Effect of Local Surface Roughness on a Turbine Blade

Hohenstein, Sebastian	Formerly at the Inst. of Turbomachinery and Fluid Dynamics,
Gilge, Philipp	Inst. of Turbomachinery and Fluid Dynamics, Leibniz Univ.
Seume, Joerg R.	Inst. of Turbomachinery and Fluid Dynamics, Leibniz Univ.

15:40-16:05 MoPM2F.3

Development of Turbulence Intensity and Integral Length-Scale in a 1.5 Stage Axial Flow Turbine

Behre, Stephan Karl Hermann	Inst. of Jet Propulsion and Turbomachinery, RWTH Aachen
Kluxen, Robert	Inst. of Jet Propulsion and Turbomachinery, RWTH Aachen
Gündogdu, Yavuz	MTU Aero Engines
Jeschke, Peter	Inst. of Jet Propulsion and Turbomachinery, RWTH Aachen

MoPM2G Room G

Steam Turbine Long Blade Development Technology Wet Steam Loss Reduction II (General Session)

Chair: Kalfas, Anestis	Aristotle Univ. of Thessaloniki
Co-Chair: Senoo, Shigeki	Mitsubishi Hitachi Power Systems, Ltd.

14:50-15:15 MoPM2G.1

Unsteady Force of Wet-Steam Flow on Multi-Stage Turbine Long Blade Rows

Miyazawa, Hironori	Tohoku Univ.
Iwasaki, Toshiki	Tohoku Univ.
Miyake, Satoshi	Tohoku Univ.
Furusawa, Takashi	Tohoku Univ.
Yamamoto, Satoru	Tohoku Univ.

15:15-15:40 MoPM2G.2

The Eulerian-Lagrangian Approach for the Prediction of Large Droplet Behavior in Low-Pressure Steam Turbine

Ooyama, Hiroharu	Mitsubishi Hitachi Power Systems, Ltd.
Momma, Kazuhiro	Mitsubishi Hitachi Power Systems, Ltd.
Sasao, Yasuhiro	Mitsubishi Hitachi Power Systems, Ltd.

15:40-16:05 MoPM2G.3

Experimental Investigation of Liquid Film Instability & Droplet Distribution Aft the Trailing Edge of Cascade Blade

Javed, Baber	The Univ. of Tokyo
Watanabe, Toshinori	The Univ. of Tokyo
Himeno, Takehiro	The Univ. of Tokyo
Uzawa, Seiji	The Univ. of Tokyo

MoPDPL	Room A
Challenges in Propulsion Technology for Next Generation Air Transport (Panel Discussion)	
Chair: Okai, Keiichi	Japan Aerospace Exploration Agency

16:15-18:15	MoPDPL.1
Challenges in Propulsion Technology for Next Generation Air Transport	
Free, James M.	NASA Glenn Res. Center
Futamura, Hisao	Japan Aerospace Exploration Agency
Epstein, Alan	Pratt & Whitney Technology and Environment
Koyama, Daisuke	Rolls-Royce Japan
Hiratsuka, Shinji	Japanese Aero Engines Corp.
Haraikawa, Hiroki	JAL Engineering
Yasuraoka, Satoru	Ministry of Ec. Trade and Industry

Tuesday November 17, 2015

TuILPL Room A

Nickel-Base Superalloys – Enabling Future Generations of Power Turbines (Invited Lecture)

Chair: Yoshioka, Yomei — Ehime Univ.

9:10-10:10 TuILPL.1

Nickel-Base Superalloys – Enabling Future Generations of Power Turbines

Patel, Shailesh — Special Metals Corp.
deBarbadillo, J.J. — Special Metals Corp.

TuAMA Room A

Perspective on Electric Propulsion Technologies for Aircraft Applications (Forum)

Chair: Okai, Keiichi — The Univ. of Tokyo

10:20-11:35 TuAMA.1

Perspective on Electric Propulsion Technologies for Aircraft Applications

Madavan, Nateri — NASA Ames Res. Center
Koyama, Daisuke — Rolls-Royce Japan
Taguchi, Hideyuki — Japan Aerospace Exploration Agency

TuAMB Room B

Novel Cooling Technologies I (General Session)

Chair: Fujimoto, Shuu — IHI Corp.

10:20-10:45 TuAMB.1

Improvement of the NEKOMIMI Film Cooling Technology by Application of an Automated Optimization Algorithm

Kusterer, Karsten — B&B-AGEMA GmbH
Dickhoff, Jens — B&B-AGEMA GmbH
Sugimoto, Takao — B&B-AGEMA GmbH
Tanaka, Ryozo — Kawasaki Heavy Industries, Ltd.
Kazari, Masahide — Kawasaki Heavy Industries, Ltd.
Custer, Chad — CD-Adapco Computational Dynamics Ltd.
Dewan, Yuvraj — CD-Adapco Computational Dynamics Ltd.
Wolfgang, Schroeder — RWTH Aachen Univ.
Bohn, Dieter — RWTH Aachen Univ.

10:45-11:10 TuAMB.2

Semi-Inverse Design Optimization of Film Cooling Arrangement and Its Prediction of Coolant Amount of HPT Vanes

Chi, Zhongran — Shanghai Jiao Tong Univ.
Liu, Haiqing — Shanghai Advanced Res. Inst. Chinese Acad. of Science
Zang, Shusheng — Shanghai Jiao Tong Univ.

11:10-11:35 TuAMB.3

Improvement of Cooling Performance by the Combination of Internal and Film Cooling

Matsushita, Tadayuki — Osaka Inst. of Tech.
Shimizu, Nozomi — Osaka Inst. of Tech.
Kawata, Yutaka — Osaka Inst. of Tech.

TuAMC Room C

Component Damage, Failure & Life Assessment I (General Session)

Chair: Purdy, Daniel — Electric Power Res. Inst.
Co-Chair: Yaguchi, Masatsugu — Central Res. Inst. of Electric Power Industry

10:20-10:45 TuAMC.1

Interaction between Small Crack Propagation and Crystallographic Microstructure in Ni-Base Superalloy under Thermo-Mechanical Loading

Yamazaki, Yasuhiro — Niigata Inst. of Tech.

10:45-11:10 TuAMC.2

Creep Small Crack Propagation of Ni-Based Superalloy under a Graded Temperature Condition

Subramanian, Rajivgandhi — Nagaoka Univ. of Tech.
Metoki, Ayaka — Nagaoka Univ. of Tech.
Yamagishi, Satoshi — Nagaoka Univ. of Tech. Mechanical Department
Okazaki, Masakazu — Nagaoka Univ. of Tech.

11:10-11:35 TuAMC.3

Effect of Crystallographic Arrangement on Fatigue Crack Initiation for Ni-Based Directionally Solidified Superalloy

Yokoyama, Takashi — Mitsubishi Hitachi Power Systems, Ltd.
Sekihara, Masaru — Mitsubishi Hitachi Power Systems, Ltd.

TuAMD Room D

Small Gas Turbines (General Session)

Chair: Rajoo, Srithar — Univ. Teknologi Malaysia
Co-Chair: Tamaki, Hideaki — IHI Corp.

10:20-10:45 TuAMD.1

Re-Compression System for SOFC Hybrid Plants: Tests with an Emulator Rig

Ferrari, Mario Luigi — Univ. of Genoa
Pascenti, Matteo — Univ. of Genoa
Massardo, Aristide Fausto — Univ. of Genoa
Traverso, Alberto — Univ. of Genoa

10:45-11:10 TuAMD.2

Development of Micro Gas Turbine Test Facility and Secondary Flow Stabilization

Lim, Hyung-soo — Korea Inst. of Machinery & Materials
Choi, Bum-seog — Korea Inst. of Machinery & Materials
Sohn, Jeong Lak — Korea Inst. of Machinery & Materials
Park, Moo-ryong — Korea Inst. of Machinery & Materials
Park, Jun-Young — Korea Inst. of Machinery & Materials
Seo, JeongMin — Korea Inst. of Machinery & Materials
Bang, Je-Sung — Korea Inst. of Machinery & Materials
Hwang, Soon-Chan — Korea Inst. of Machinery & Materials
Lim, Young-Chul — Korea Inst. of Machinery & Materials
Oh, In-Kyun — Korea Inst. of Machinery & Materials
Kim, Byung Ok — Korea Inst. of Machinery & Materials

11:10-11:35	TuAMD.3
Dynamic Simulations for Microturbines	
Seki, Keiichi	Tohoku Univ.
Nakano, Susumu	Tohoku Univ.
Takeda, Youichi	Tohoku Univ.

TuAME	Room E
Aerodynamic Design of Centrifugal Compressor (General Session)	
Chair: Engeda, Abraham	Michigan State Univ.
Co-Chair: Watanabe, Hiroyoshi	EBARA Corp.
10:20-10:45	TuAME.1
A 1-D Vaneless Diffuser Model Accounting for the Effects of Spanwise Flow Stratification	
Stuart, Charles	Queen`s Univ. Belfast
Spence, Stephen	Queen`s Univ. Belfast
Kim, Sung in	Queen`s Univ. Belfast
Filsinger, Dietmar	IHI Charging Systems International GmbH
Starke, Andre	IHI Charging Systems International GmbH
10:45-11:10	TuAME.2
An Automatic Optimisation of a Centrifugal Compressor for Improved Performance at Near Surge Operation	
Starke, Andre	IHI Charging Systems International GmbH
Bamba, Takahiro	IHI Charging Systems International GmbH
Filsinger, Dietmar	IHI Charging Systems International GmbH
Harley, Peter	IHI Charging Systems International GmbH

TuAMF	Room F
Unsteady Flow and Stability Enhancement in Fans and Compressors II (General Session)	
Chair: Gao, Chuang	Shanghai Advanced Res. Inst. Chinese Acad. of Sciences
Co-Chair: Goto, Takashi	IHI Corp.
10:20-10:45	TuAMF.1
Modeling of Non-Uniform Flow Fields in Labyrinth Eye Seals in Shrouded Centrifugal Compressors	
Song, Jieun	Seoul National Univ.
Song, Seung Jin	Seoul National Univ.
10:45-11:10	TuAMF.2
Characteristics of Diffuser Stall and Diffuser Leading-Edge Vortex in a Centrifugal Compressor	
Fujisawa, Nobumichi	Waseda Univ.
Hara, Shotaro	Waseda Univ.
Ohta, Yutaka	Waseda Univ.
11:10-11:35	TuAMF.3
Numerical Simulation of a Mixed Flow Compressor under Off-Design Conditions	
Moriyama, Masayuki	Waseda Univ.
Ichimura, Jun	Waseda Univ.
Sato, Tetsuya	Waseda Univ.
Taguchi, Hideyuki	Japan Aerospace Exploration Agency

TuAMG	Room G
Steam Turbine Aerodynamic Efficiency Enhancement I (General Session)	
Chair: Shibukawa, Naoki	Toshiba Corp.
Co-Chair: Kroniger, Daniel	RWTH Aachen Univ.
10:20-10:45	TuAMG.1
Global Aerodynamic Design Optimization and Knowledge Dis-Covery Method of an Exhaust Hood	
Zhu, Peiyuan	Xi`an Jiaotong Univ.
Guo, Zhengdong	Xi`an Jiaotong Univ.
Song, Liming	Xi`an Jiaotong Univ.
Li, Jun	Xi`an Jiaotong Univ.
Ooyama, Hiroharu	Mitsubishi Hitachi Power Systems, Ltd.
10:45-11:10	TuAMG.2
Multi-Objective Design Optimization of a Steam Turbine Exhaust Hood Using Open-Source Optimization Tool	
Ndong-Mefane, Stephane Boris	Fuji Electric Co.,Ltd.
Minematsu, Shigeyuki	Fuji Electric Co.,Ltd.
11:10-11:35	TuAMG.3
PIV Visualization of the Flow Field Inside a Low Pressure Turbine Exhaust Hood for a Large Power Steam Turbine	
Mizumi, Shunsuke	Mitsubishi Hitachi Power Systems, Ltd.
Segawa, Kiyoshi	Mitsubishi Hitachi Power Systems, Ltd.

TuPDPL	Room A
Current Status and Future Strategy of Electricity and Energy Supply in Asian Countries (Panel Discussion)	
Chair: Kaneko, Shozo	Inst. of Industrial Science, the Univ. of Tokyo
13:05-14:55	TuPDPL.1
Current Status and Future Strategy of Electricity and Energy Supply in Asian Countries	
Matsuo, Yuji	The Inst. of Energy Ec
Lin, Feng	Chinese Acad. of Sciences
Sohn, Jeong Lak	Korea Inst. of Machinery & Materials
Bhattacharyya, Souvik	Indian Inst. of Tech. Kharagpur
Srisuping, Kornphat	Electricity Generating Authority of Thailand

TuPMA	Room A
Fuels (General Session)	
Chair: Fujiwara, Hitoshi	Japan Aerospace Exploration Agency
Co-Chair: Iki, Norihiko	AIST
15:15-15:40	TuPMA.1
Degradation Analysis of SOFC for Various Syngas Compositions in IGFC Systems	
Harun, Nor Farida	McMaster Univ.
Zaccaria, Valentina	U.S. Department of Energy NETL
Tucker, David	U.S. Department of Energy NETL
Traverso, Alberto	Univ. of Genoa
Adams II, Thomas A.	McMaster Univ.

15:40-16:05 TuPMA.2

Cogeneration Plant Using Wood Chips Fuel Gasification Technology

Sudarev, Anatoly	«Res. «Ceramic Engines» Center Named after A.M.Boyko»
Avran Patrick, Gilles Bohor	Engineer Group Leader, ENISE
Rogaume Yann, Nikolas	Enstib Ec. Nationale Superieure Des Tech. Et Industries du Bois

16:05-16:30 TuPMA.3

GE`s Aeroderivative Gas Turbines Fuel Flexibility for Japan

Knapczyk, Michal	GE Power&Water

16:30-16:55 TuPMA.4

Recent Advancements in Gas Turbine Fuel Flexibility

Goldmeer, Jeffrey	GE Power & Water
Kihara, Ken	GE Power & Water
Fujimoto, Haruki	GE Power & Water

TuPMB Room B

Novel Cooling Technologies II (General Session)

Chair: Okita, Yoji — IHI Corp.

15:15-15:40 TuPMB.1

Effects of Dimpled-Cutback-Surface Rotation Angle on Film Cooling Performance at Airfoil Trailing Edge

Yano, Kohta	Tokyo Univ. of Agriculture and Tech.
Murata, Akira	Tokyo Univ. of Agriculture and Tech.
Sekijima, Minehide	Tokyo Univ. of Agriculture and Tech.
Saito, Hiroshi	Tokyo Univ. of Agriculture and Tech.
Iwamoto, Kaoru	Tokyo Univ. of Agriculture and Tech.

15:40-16:05 TuPMB.2

Three-Component PTV Measurements of Film Cooling Flow in Multiple Planes Over Cutback Surface with Inclined Teardrop-Shaped Dimples at Airfoil Trailing Edge

Murata, Akira	Tokyo Univ. of Agriculture and Tech.
Hanai, Masaki	Tokyo Univ. of Agriculture and Tech.
Tokutake, Taro	Tokyo Univ. of Agriculture and Tech.
Saito, Hiroshi	Tokyo Univ. of Agriculture and Tech.
Iwamoto, Kaoru	Tokyo Univ. of Agriculture and Tech.

16:05-16:30 TuPMB.3

High-Resolution Heat Transfer Measurements and Crossflow Regulation in Narrow Impingement Cooling Channels with Divergent Geometries

Bontitsopoulos, Stavros	Aristotle Univ. of Thessaloniki
Terzis, Alexandros	Swiss Federal Inst. of Tech. (EPFL)
Ott, Peter	Swiss Federal Inst. of Tech. (EPFL)
Kalfas, Anestis	Aristotle Univ. of Thessaloniki

16:30-16:55 TuPMB.4

Flow and Heat Transfer Characteristics for Array of Impinging Jets with Mounting Some Baffles on Impingement Surface

Nuntadusit, Chayut	Prince of Songkla Univ.

TuPMC Room C

Component Damage, Failure & Life Assessment II (General Session)

Chair: Okazaki, Masakazu	Nagaoka Univ. of Tech.
Co-Chair: Yokoyama, Takashi	Mitsubishi Hitachi Power Systems, Ltd.

15:15-15:40 TuPMC.1

Degradation Evaluation of 1, 300°C-Class 1st-Stage Gas Turbine Blades after Long-Term Service

Ito, Akihiro	Chubu Electric Power Co., Inc
Kobayashi, Daisuke	Chubu Electric Power Co., Inc

15:40-16:05 TuPMC.2

Application of Small Punch Test for Rotor Life Assessment

Purdy, Daniel	Electric Power Res. Inst.
Scheibel, John	Electric Power Res. Inst.

16:05-16:30 TuPMC.3

Statistical Comparison of Cracking Damage Phenomena between Gas Turbines and Steam Turbines

Iida, Yudai	Meijo Univ.
Fujiyama, Kazunari	Meijo Univ.
Saito, Kazuhiro	Toshiba Corp.
Kitayama, Kazuhiro	Toshiba Corp.

16:30-16:55 TuPMC.4

The Effect of Shot Peening and Laser Peening on Thermal and Stress Aging Behavior of INCONEL Alloy 706

Sumiya, Rie	Toshiba Corp.
Saito, Daizo	Toshiba Corp.
Chida, Itaru	Toshiba Corp.
Sakai, Yoshiaki	Toshiba Corp.
Kitayama, Kazuhiro	Toshiba Corp.
Kobayashi, Daisuke	Chubu Electric Power Co.
Ito, Akihiro	Chubu Electric Power Co.
Miyabe, Masamichi	Chubu Electric Power Co.
Achiwa, Masahiro	Chubu Electric Power Co.

TuPMD Room D

Radial Compressors for Turbochargers (General Session)

Chair: Yamagata, Akihiro	IHI Corp.
Co-Chair: Starke, Andre	IHI Charging Systems International GmbH

15:15-15:40 TuPMD.1

Variable Inlet Guide Vane Devices for a Turbocharger Compressor

Kleine Sextro, Thorsten	Inst. of Turbomachinery and Fluid Dynamics
Seume, Joerg R.	Inst. of Turbomachinery and Fluid Dynamics, Leibniz Univ.
Steglich, Tom	IAV GmbH

15:40-16:05 TuPMD.2

Experimental Study of a Centrifugal Compressor with Self Recirculation Casing Treatment for Turbochargers

Kanzaka, Tadashi	Mitsubishi Heavy Industries, Ltd.
Ibaraki, Seiichi	Mitsubishi Heavy Industries, Ltd.
Tomita, Isao	Mitsubishi Heavy Industries, Ltd.

16:05-16:30 TuPMD.3

Low Inertia Centrifugal Compressor Wheels: Back Disk Geometry Optimization

Fischer, Tore	Inst. of Turbomachinery and Fluid Dynamics, Leibniz Univ.
Peters, Melf	Inst. of Turbomachinery and Fluid Dynamics, Leibniz Univ.
Seume, Joerg R.	Inst. of Turbomachinery and Fluid Dynamics, Leibniz Univ.

16:30-16:55 TuPMD.4

Effects of Suction Flow Characteristics on the Performance of Automotive Turbocharger Compressor

Ohuchida, Satoshi	IHI Corp.

TuPME Room E

Aerodynamic Design of Axial Compressor I (General Session)

Chair: Hoenen, Herwart	RWTH Aachen Univ.
Co-Chair: Kato, Dai	IHI Corp.

15:15-15:40 TuPME.1

Investigation of Unsteady Flow Interaction between an Ultra-Compact Inlet and a Transonic Fan

Hah, Chunill	NASA Glenn Res. Center

15:40-16:05 TuPME.2

Numerical and Experimental Investigation on the Effect of Tip Clearance of a Multi-Stage Axial Compressor

Gao, Xuelin	Mitsubishi Heavy Industries, Ltd.
Mito, Ryosuke	Mitsubishi Heavy Industries, Ltd.
Okuzono, Masamitsu	Mitsubishi Heavy Industries, Ltd.
Walker, Thomas	Mitsubishi Heavy Industries, Ltd.
Seki, Ryosuke	Mitsubishi Heavy Industries, Ltd.
Ito, Eisaku	Mitsubishi Heavy Industries, Ltd.

16:05-16:30 TuPME.3

Full Annulus Unsteady CFD Simulations on Effects of Inflow Distortions in a Transonic Axial Compressor Stage

Haug, Jakob Philipp	Univ. Der Bundeswehr München
Barthmes, Sebastian	Univ. Der Bundeswehr München
Niehuis, Reinhard	Univ. Der Bundeswehr München

16:30-16:55 TuPME.4

Effect of Inlet Distortion by Compressed Air Ingestion on Turbojet Engine

Furuta, Yoichiro	Waseda Univ.
Hirayama, Taku	Waseda Univ.
Sato, Tetsuya	Waseda Univ.
Tagashira, Takeshi	Japan Aerospace Exploration Agency
Koh, Masaharu	Japan Aerospace Exploration Agency

TuPMF Room F

Unsteady Flow and Stability Enhancement in Axial Compressor I (General Session)

Chair: Roy, Bhaskar	Indian Inst. of Tech. Bombay
Co-Chair: Pallot, Guillaume	IHI Corp.

15:15-15:40 TuPMF.1

Effects of Rotating Inlet Distortion on Compressor Stability with a Novel Casing Treatment

Dong, Xu	Beihang Univ.
Sun, Dakun	Beihang Univ.
Sun, Xiaofeng	Beihang Univ

15:40-16:05 TuPMF.2

Effects of Novel Casing Treatment on a Low-Speed Axial Compressor with Circumferential Pressure Distortion

Sun, Dakun	Beihang Univ.
Dong, Xu	Beihang Univ.
Sun, Xiaofeng	Beihang Univ.

16:05-16:30 TuPMF.3

Endwall Flow Phenomenon of Transonic Compressor with Circumferential Casing Groove

Sakuma, Yasunori	The Univ. of Tokyo
Watanabe, Toshinori	The Univ. of Tokyo
Himeno, Takehiro	The Univ. of Tokyo
Kato, Dai	IHI Corp.
Murooka, Takeshi	IHI Corp.
Shuto, Yukari	IHI Corp.

16:30-16:55 TuPMF.4

The Control Volume Analysis of the Effectiveness of Casing Treatments for a Low-Speed Compressor

Nan, Xi	Chinese Acaddemy of Scinences
Ma, Ning	Chinese Acaddemy of Scinences
Lu, Qian	Chinese Acaddemy of Scinences
Lin, Feng	Chinese Acaddemy of Scinences

TuPMG Room G

Steam Turbine Aerodynamic Efficiency Enhancement II (General Session)

Chair: Sakai, Yoshihiro	Fuji Electric Co., Ltd.
Co-Chair: Biswas, Debasish	Toshiba Corp.

15:15-15:40 TuPMG.1

Unsteady Aerodynamic Characteristics of Transonic Turbine Blades with Flow Separation

Kimura, Yasunori	Mitsubishi Hitachi Power Systems,Ltd.
Shibata, Takanori	Mitsubishi Hitachi Power Systems,Ltd.
Nakano, Susumu	Mitsubishi Hitachi Power Systems,Ltd.
Ozaki, Shuichi	Mitsubishi Hitachi Power Systems,Ltd.
Hirano, Takanori	Takushoku Univ.
Fujimoto, Ichiro	Takushoku Univ.

15:40-16:05 TuPMG.2

Influence of Tip Seal Configurations on Flow and Efficiency for Shrouded Turbine Blades

Zimmermann, Tobias Winfried	RWTH Aachen Univ.
Curkovic, Oliver	RWTH Aachen Univ.
Wirsum, Manfred	RWTH Aachen Univ.

16:05-16:30 TuPMG.3

Brush Seal Modeling for a 2-Stage Axial Turbine: A Parametric Study with CFD

Curkovic, Oliver	RWTH Aachen Univ.
Zimmermann, Tobias Winfried	RWTH Aachen Univ.
Wirsum, Manfred	RWTH Aachen Univ

16:30-16:55 TuPMG.4

Numerical Simulation of Steam Seal Force and Its Effects on Rotordynamic Stability of Steam Turbine Rotor Shaft

Mimura, Yuki	Toshiba Corp.
Tominaga, Junichi	Toshiba Corp.
Hirano, Toshio	Toshiba Corp.
Shibukawa, Naoki	Toshiba Corp.
Yuan, Xin	Tsinghua Univ.
Lin, Zhirong	Tsinghua Univ.

Wednesday November 18, 2015

WeILPL Room A

Probabilistic Analysis of Complex System Behaviour in Turbomachinery Design (Invited Lecture)

Chair: Seume, Joerg R. — Inst. of Turbomachinery and Fluid Dynamics, Leibniz Univ. Hannover

09:00-10:00 WeILPL.1

Probabilistic Analysis of Complex System Behaviour in Turbomachinery Design

Vogeler, Konrad — Tech. Univ. Dresden

WeAMA Room A

Numerical Simulation for Combustor Design (General Session)

Chair: Watanabe, Hiroaki — Kyushu Univ.
Co-Chair: Makida, Mitsumasa — Japan Aerospace Exploration Agency

10:20-10:45 WeAMA.1

Direct Numerical Simulation of Combustion Noise in Open Hydrogen Diffusion Jet Flames

Pillai, Abhishek — Kyoto Univ.
Kitano, Tomoaki — Kyoto Univ.
Kurose, Ryoichi — Kyoto Univ.
Komori, Satoru — Kyoto Univ.

10:45-11:10 WeAMA.2

Large-Eddy Simulation of Turbulent Spray Combustion Field of Full Annular Combustor for Aircraft Engine

Nishiie, Takayuki — Numerical Flow Designing Co., Ltd.
Makida, Mitsumasa — Japan Aerospace Exploration Agency
Nakamura, Naoki — Advanced Science & Intelligence Res. Inst.
Kurose, Ryoichi — Kyoto Univ.

11:10-11:35 WeAMA.3

Large-Eddy Simulation of Turbulent Spray Combustion Field in a Gas Turbine Combustor

Itoh, Masao — Toshiba Corp.
Iwai, Yasunori — Toshiba Corp.
Nishiie, Takayuki — Numerical Flow Designing Co., Ltd.
Zhang, Huilai — Numerical Flow Designing Co., Ltd.
Kurose, Ryoichi — Kyoto Univ.

11:35-12:00 WeAMA.4

Numerical and Experimental Study on Spray Flux Distribution Produced by Liquid Sheet Atomization

Inoue, Chihiro — The Univ. of Tokyo
Shimizu, Atsushi — The Univ. of Tokyo
Watanabe, Toshinori — The Univ. of Tokyo
Himeno, Takehiro — The Univ. of Tokyo
Uzawa, Seiji — The Univ. of Tokyo

WeAMB Room B

Heat Transfer Measurement (General Session)

Chair: Kawata, Yutaka — Osaka Inst. of Tech.
Co-Chair: Song, Seung Jin — Seoul National Univ.

10:20-10:45 WeAMB.1

Measurement of Film-Cooling Effectiveness on a Turbine Endwall Using a Liquid Crystal Image Method

Baggetta, Luca — Univ. of Genoa
Satta, Francesca — Univ. of Genoa
Tanda, Giovanni — Univ. of Genoa

10:45-11:10 WeAMB.2

A New Hot Gas Test Stand for Gas Turbine Cooling Investigations

Franze, Roman — Tech. Univ. Kaiserslautern
Bihlmaier, Cornelius — Tech. Univ. Kaiserslautern
Boehle, Martin — Tech. Univ. Kaiserslautern
Krewinkel, Robert — MAN Diesel &Turbo SE
Takeishi, Kenichiro — Tokushima Bunri Univ.

11:10-11:35 WeAMB.3

Film Cooling Performance at Combustor Wavy Liner-Wall Measured by Steady-State Infrared Thermography Method Using Two Different Thermal-Conductivity Materials

Murata, Akira — Tokyo Univ. of Agriculture and Tech.
Ogiwara, Yuta — Tokyo Univ. of Agriculture and Tech.
Kondo, Ryosuke — Tokyo Univ. of Agriculture and Tech.
Saito, Hiroshi — Tokyo Univ. of Agriculture and Tech.
Iwamoto, Kaoru — Tokyo Univ. of Agriculture and Tech.
Takahashi, Katsuyoshi — IHI Corp.

11:35-12:00 WeAMB.4

Investigation of Heat Transfer of Vane Endwall at Equivalent Condition of Real Gas Turbine Using Measurement and Analysis

Mizukami, Satoshi — Mitsubishi Heavy Industries,Ltd.
Hase, Takaaki — Mitsubishi Heavy Industries Aero Engines,Ltd.
Yamaguchi, Yoshiaki — Mitsubishi Heavy Industries,Ltd.
Ito, Eisaku — Mitsubishi Heavy Industries,Ltd.

12:00-12:25 WeAMB.5

Realistic Velocity, Turbulence and Temperature Profiles at the Combustor-Turbine Interaction Plane in a Rig

Cresci, Irene — Univ. of Oxford
Bacic, Marko — Univ. of Oxford
Ireland, Peter — Univ. of Oxford
Tibbott, Ian — Rolls-Royce PLC
Rawlinson, Anton — Rolls-Royce PLC

WeAMC Room C

Component Damage, Failure & Life Assessment III (General Session)

Chair: Yamazaki, Yasuhiro — Niigata Inst. of Tech.
Co-Chair: Ito, Akihiro — Chubu Electric Power Co., Inc.

10:20-10:45 WeAMC.1

Evaluation of Low Cycle Fatigue Strength on Directionally Solidified Ni-Base Superalloys for High Efficiency Gas Turbine

Karato, Takanori — Mitsubishi Heavy Industries, Ltd.
Kaneko, Hideaki — Mitsubishi Heavy Industries, Ltd.
Ohara, Toshinobu — Mitsubishi Heavy Industries, Ltd.
Ito, Eisaku — Mitsubishi Heavy Industries, Ltd.

10:45-11:10 WeAMC.2

Crystallographic Orientation Dependence on Friction and Fretting Behavior of Single Crystal Ni-Base Superalloys

Rengaraj, Balavenkatesh	Nagaoka Univ. of Tech.
Baba, Sotaro	Nagaoka Univ. of Tech.
Okazaki, Masakazu	Nagaoka Univ. of Tech.

11:10-11:35 WeAMC.3

Role of Graded Microstructure and Residual Stresses in the Fatigue Behavior of a Friction Stir Welded Ti-6Al-4V

Muzvidziwa, Milton	Nagaoka Univ. of Tech.
Okazaki, Masakazu	Nagaoka Univ. of Tech.
Suzuki, Kenji	Niigata Univ.
Hirano, Satoshi	Hitachi Ltd.
Sekihara, Masaru	Mitsubishi Hitachi Power Systems, Ltd.

11:35-12:00 WeAMC.4

Influence of Shot Peening on Low Cycle Fatigue Property of Ti-6Al-4V

Nakamura , Hiroshi	IHI Corp.
Honda, Tatsuhito	IHI Corp.
Prou, Joris	IHI Corp.
Tsunori, Mitsuyoshi,	IHI Corp.

WeAMD Room D

Radial Turbines for Turbochargers (General Session)

Chair: Spence, Stephen	Queen`s Univ. Belfast
Co-Chair: Ibaraki, Seiichi	Mitsubishi Heavy Industries, Ltd.

10:20-10:45 WeAMD.1

Temperature Gradients in a Radial Turbine in Steady State and Transient Operation

Diefenthal, Mathias	Inst. for Power Plant Tech. Steam and Gas Turbines
Rakut, Christian	Inst. for Power Plant Tech. Steam and Gas Turbines
Tadesse, Hailu	Inst. for Power Plant Tech. Steam and Gas Turbines
Wirsum, Manfred	Inst. for Power Plant Tech. Steam and Gas Turbines
Heuer, Tom	BorgWarner Turbo Systems Engineering GmbH

10:45-11:10 WeAMD.2

Evaluation of Scaled Turbine Matching Method for Steady and Transient Performance Prediction of Turbocharged Passenger Car Engines

Bin Ismail, Muhammad	Imperial Coll. London
Costall, Aaron William	Imperial Coll. London
Martinez-Botas, Ricardo	Imperial Coll. London

11:10-11:35 WeAMD.3

Experimental Investigation of Vaneless Asymmetric Double Entry Turbine for Turbochargers under Steady Flow

Gurunathan, Balamurugan A	Imperial Coll. London
Martinez-Botas, Ricardo	Imperial Coll. London
Sakai, Masa	Imperial Coll. London
Rajoo, Srithar	Univ. Teknologi Malaysia

11:35-12:00 WeAMD.4

Effect of Variable Nozzle Vane Profile on Radial Turbine Performance for Automotive Turbochargers

Yamagata, Akihiro	IHI Corp.

12:00-12:25 WeAMD.5

Entropy Generation Rate in a Mixed Flow Turbine Passage

Newton, Peter	Imperial Coll. London
Seiler, Martin	ABB Turbo Systems
Martinez-Botas, Ricardo	Imperial Coll. London
Palenschat, Torsten	Imperial Coll. London

WeAME Room E

Aerodynamic Design of Axial Turbines (General Session)

Chair: Yuan, Xin	Tsinghua Univ.
Co-Chair: Shibata, Takanori	Mitsubishi Hitachi Power Systems

10:20-10:45 WeAME.1

A Quick Method for Full Flange-To-Flange Industrial Gas Turbine Analysis Based on Through-Flow Modelling

Petrovic, Milan V.	Univ. of Belgrade
Abdel-Rahman, Ahmed	MAN Diesel & Turbo SE
Wiedermann, Alexander	MAN Diesel & Turbo SE

10:45-11:10 WeAME.2

Geometric Parametrization, an Important but Often Overlooked Prerequisite for the Probabilistic Analysis of Turbomachinery Blades

Voigt, Matthias	Tech. Univ. Dresden
Vogeler, Konrad	Tech. Univ. Dresden
Hoegner, Lars	Tech. Univ. Dresden
Backhaus, Thomas	Tech. Univ. Dresden
Meyer, Marcus	Rolls Royce Deutschland
Jens, Scharfenstein	Tech. Univ. Dresden

11:10-11:35 WeAME.3

Trailing Edge Design to Reduce the Wake Mixing Loss of Low Pressure Turbine Airfoil

Furukawa, Juo	IHI Corp.
Hamabe, Masaaki	IHI Corp.
Okamura, Yasuhiro	IHI Corp.
Funazaki, Ken-ichi	Iwate Univ.

WeAMF Room F

Unsteady Flow and Flow Control in Turbine (General Session)

Chair: Seume, Joerg R.	Inst. of Turbomachinery and Fluid Dynamics, Leibniz Univ. Hannover
Co-Chair: Aotsuka, Mizuho	IHI Corp.

10:20-10:45 WeAMF.1

Experimental and Numerical Studies on Aerodynamic Performance of a Single-Stage Low-Pressure Axial Turbine with Purge Air Ejection

Funazaki, Ken-ichi	Iwate Univ.
Kudo, Koki	Iwate Univ.
Kawakatsu, Mitsuhiro	Iwate Univ.
Kikuchi, Mamoru	Iwate Univ.

10:45-11:10 WeAMF.2

On the Numerical Prediction of the Influence of Tip Flow on Diffuser Stability

Drechsel, Bastian	Inst. of Turbomachinery, Leibniz Univ. Hannover
Seume, Joerg R.	Inst. of Turbomachinery, Leibniz Univ. Hannover
Herbst, Florian	Inst. of Turbomachinery, Leibniz Univ. Hannover

11:10-11:35	WeAMF.3
A Study of the Unsteady Flow Field and Turbine Vibration Characteristic of the Supersonic Partial Admission Turbine for a Rocket Engine	
Tokuyama, Yuki	Iwate Univ.
Funazaki, Ken-ichi	Iwate Univ.
Kato, Hiromasa	Iwate Univ.
Shimiya, Noriyuki	Japan Aerospace Exploration Agency
Shimagaki, Mitsuru	Japan Aerospace Exploration Agency
Uchiumi, Masaharu	Japan Aerospace Exploration Agency
11:35-12:00	WeAMF.4
Multi-Electrode Plasma Actuator to Improve Performance of Flow Separation Control	
Asaumi, Norio	IHI Corp.
Matsuno, Shinsuke	IHI Corp.
Matsuno, Takashi	Tottori Univ.
Sugahara, Masataka	Tottori Univ.
Kawazoe, Hiromitsu	Tottori Univ.
12:00-12:25	WeAMF.5
Comparing the Effect of Unsteady Wakes on Parallel and Divergent Endwalls in a LP Turbine Cascade (T106A-EIZ and T106D-EIZ)	
Kirik, Ilker	Univ. of the German Federal Armed Forces Munich
Niehuis, Reinhard	Univ. of the German Federal Armed Forces Munich

WeAMG	Room G
Cycle Innovation II (General Session)	
Chair: Taguchi, Hideyuki	Japan Aerospace Exploration Agency
Co-Chair: Burlaka, Maksym	SoftInWay
10:20-10:45	WeAMG.1
An Automated Process to Create Start Values for Gas Turbine Performance Simulations Using Neural Networks and Evolutionary Algorithms	
Becker, Richard-Gregor	German Aerospace Center - DLR
Bolemant, Martin	Tech. Univ. of Berlin
Peitsch, Dieter	Tech. Univ. of Berlin
10:45-11:10	WeAMG.2
Flexibilization of Compressor and Turbine Characteristics for Optimized Specification in Off-Design Condition	
Sauer, Tim	Tech. Univ. of Berlin
Peitsch, Dieter	Tech. Univ. of Berlin
11:10-11:35	WeAMG.3
Design and Performance Analysis of Partial Mixed Flow Turbofan Engine	
Akiyama, Naoki	Tokyo Univ. of Agriculture and Tech.
Fukuyama, Yoshitaka	Japan Aerospace Exploration Agency

WePM1A	Room A
CFRP in Aircraft Engine Technology (Forum)	
Chair: Aoki, Takahira	The Univ. of Tokyo
13:55-15:00	WePM1A.1
CFRP in Aircraft Engine Technology	
Moriya , Katsuyoshi	IHI Corp.
Takeda, Tomo	Japan Aerospace Exploration Agency
Akakabe, Kotaro	The Univ. of Tokyo
Shiihara , Yoshinori	Inst. of Industrial Science, the Univ. of Tokyo

WePM1B	Room B
Reliability and Maintenance (General Session)	
Chair: Kaplan, Burak	Mitsubishi Hitachi Power Systems Europe
Co-Chair: Fukunaga, Yuya	Mitsubishi Hitachi Power Systems
13:55-14:20	WePM1B.1
GT Blade Inside Crack Inspection Using Ultrasonic Matrix Phased Array Technique	
Kirihigashi, Akihiro	Mitsubishi Heavy Industries,Ltd.
Kimura, Tadashi	Mitsubishi Heavy Industries,Ltd.
Kurokawa, Masaaki	Mitsubishi Heavy Industries,Ltd.
14:20-14:45	WePM1B.2
Emergency Restoration of Damaged 25MW Industrial Gas Turbine through Bearing Retrofit Design and Test Run Result	
Lee, An Sung	KIMM (Korea Inst. of Machinery & Materials)
Byung Ok, Kim	KIMM (Korea Inst. of Machinery & Materials)
Kyung Ho, Sun	KIMM (Koera Inst. of Machinery & Materials)
14:45-15:10	WePM1B.3
Does Filtration Efficiency Matter for Compressor Health?	
Burch, Dan	CLARCOR Industrial Air
Hiner, Steve	CLARCOR Industrial Air
Lenox, Jim	CLARCOR Industrial Air
Nicholas, Tim	CLARCOR Industrial Air
Propp, Sarah	CLARCOR Industrial Air

WePM1C	Room C
Manufacturing Technologies I (General Session)	
Chair: Takahashi, Satoshi	IHI Corp.
Co-Chair: Imano, Shinya	Mitsubishi Hitachi Power Systems, Ltd.
13:55-14:20	WePM1C.1
Close Partnership with Design Technology for Manufacturing of Investment Castings in Aero Engine Industry	
Arai, Mikiya	IHI Castings
Toyama, Hiroki	IHI Castings
14:20-14:45	WePM1C.2
Microstructure and Mechanical Properties of Superalloy Built up by Additive Manufacturing Process	
Kuo, Yen Ling	Tokyo Metropolitan Univ.
Kakehi, Koji	Tokyo Metropolitan Univ.

14:45-15:10	WePM1C.3
Development and Application of Repair Material for Land-Base Gas Turbine Transition Pieces	
Saito, Daizo	Toshiba Corp.
Kitayama, Kazuhiro	Toshiba Corp.
Ishikawa, Yosuke	Toshiba Corp.
Sakai, Yoshiaki	Toshiba Corp.
15:10-15:35	WePM1C.4
Direct Recycle of Used Single Crystal Superalloy Turbine Blades	
Utada, Satoshi	Waseda Univ.
Joh, Yuichiro	Waseda Univ.
Osawa, Makoto	National Inst. for Materials Science
Kobayashi, Toshiharu	National Inst. for Materials Science
Yokokawa, Tadaharu	National Inst. for Materials Science
Kawagishi, Kyoko	National Inst. for Materials Science
Suzuki, Shinsuke	Waseda Univ.
Harada, Hiroshi	National Inst. for Materials Science

WePM1D	Room D
Aircraft Engines I (General Session)	
Chair: Fukuyama, Yoshitaka	Japan Aerospace Exploration Agency
Co-Chair: Zhang, Weiguang	Beihang Univ.
13:55-14:20	WePM1D.1
Preliminary Test of Turbofan Engine for Noise Research	
Ishii, Tatsuya	Japan Aerospace Exploration Agency
Nagai, Kenichiro	Japan Aerospace Exploration Agency
Oinuma, Hideshi	Japan Aerospace Exploration Agency
Kazawa, Junichi	Japan Aerospace Exploration Agency
Enomoto, Shunji	Japan Aerospace Exploration Agency
Oishi, Tsutomu	IHI Corp.
14:20-14:45	WePM1D.2
Effects of Aperture Geometry on Impedance of Active Acoustic Liners	
Tanaka, Yuki	Kyushu Univ.
Yamasaki, Nobuhiko	Kyushu Univ.
Inokuchi, Yuzo	Kyushu Univ.
Ishii, Tatsuya	Japan Aerospace Exploration Agency
14:45-15:10	WePM1D.3
Flow Field Analysis on Acoustic Panel of Fan Duct in Jet Engine	
Kudo, Genki	Tokyo Univ. of Science
Hayashi, Ryosuke	Tokyo Univ. of Science
Yamamoto, Makoto	Tokyo Univ. of Science
Kagaya, Ryo	IHI Corp.
Ooba, Yoshinori	IHI Corp.
Oishi, Tsutomu	IHI Corp.
15:10-15:35	WePM1D.4
Acoustic Excitation for Jet Noise Reduction	
Sawada, Kyohei	The Univ. of Tokyo
Enomoto, Shunji	Japan Aerospace Exploration Agency
Oinuma, Hideshi	Japan Aerospace Exploration Agency
Nagai, Kenichiro	Japan Aerospace Exploration Agency
Ishii, Tatsuya	Japan Aerospace Exploration Agency
Kaneko, Shigehiko	The Univ. of Tokyo

WePM1E	Room E
Aerodynamic Design of Axial Compressor II (General Session)	
Chair: Yamamoto, Makoto	Tokyo Univ. of Science
Co-Chair: Gao, Xuelin	Mitsubishi Heavy Industries, Ltd.
13:55-14:20	WePM1E.1
Investigation of the Unsteady Flow Field of a Low Speed Single-Stage Axial Compressor	
Pallot, Guillaume	IHI Corp.
Kato, Dai	IHI Corp.
Ohta, Yutaka	Waseda Univ.
Kanameda, Wataru	Waseda Univ.
14:20-14:45	WePM1E.2
Feasibility Study on a Single-Stage Tandem Axial Compressor for an Active High-Lift-System	
Vorreiter, Arne	Leibniz Univ. Hannover
14:45-15:10	WePM1E.3
Development of a Stage Stacking Procedure for Evaluation of Axial Compressor Off-Design Performance	
Walker, Thomas	Mitsubishi Heavy Industries, Ltd.
Mito, Ryosuke	Mitsubishi Heavy Industries, Ltd.
Ito, Eisaku	Mitsubishi Heavy Industries, Ltd.
15:10-15:35	WePM1E.4
Uncertainty Quantification of Simultaneous Operational and Geometrical Uncertainties in Turbomachinery Design Practice	
Wunsch, Dirk	NUMECA International
Nigro, Rémy	Univ. of Mons
Coussement, Gregory	Univ. of Mons
Hirsch, Charles	NUMECA International
Takekoshi, Yoshihisa	NUMECA Japan

WePM1F	Room F
Fluid Structure Interaction (General Session)	
Chair: Hah, Chunill	NASA Glenn Res. Center
Co-Chair: Yamasaki, Nobuhiko	Kyushu Univ.
13:55-14:20	WePM1F.1
Fluid Structure Interaction Analysis on Internal Flow Field of Impedance Pump	
Okamoto, Ryoma	The Univ. of Tokyo
Watanabe, Toshinori	The Univ. of Tokyo
Himeno, Takehiro	The Univ. of Tokyo
Inoue, Chihiro	The Univ. of Tokyo

14:20-14:45 WePM1F.2

Forced Response Excitation Due to Variances in a Multi-Stage Axial Turbine

Hauptmann, Thomas	Inst. of Turbomachinery and Fluid Dynamics
Aschenbruck, Jens	Formerly at Inst. of Turbomachinery and Fluid Dynamics
Seume, Joerg R.	Inst. of Turbomachinery and Fluid Dynamics

14:45-15:10 WePM1F.3

Verification and Application of FSI and Modal Identification Technique to Cascade Flutter Simulations

Tateishi, Atsushi	The Univ. of Tokyo
Watanabe, Toshinori	The Univ. of Tokyo
Himeno, Takehiro	The Univ. of Tokyo
Aotsuka, Mizuho	IHI Corp.
Murooka, Takeshi	IHI Corp.

15:10-15:35 WePM1F.4

Design Process of a 1.5-Stage Axial Compressor for Experimental Flutter Investigations

Keller, Christian	Gottfried Wilhelm Leibniz Univ. Hannover
Willeke, Tobias	Gottfried Wilhelm Leibniz Univ. Hannover
Burrafato, Salvatore	Pol. Di Milano
Seume, Joerg R.	Inst. of Turbomachinery and Fluid Dynamics, Leibniz Univ.

WePM1G Room G

Cycle Innovation III (General Session)

Chair: Kojima, Takayuki	Japan Aerospace Exploration Agency
Co-Chair: Becker, Richard-Gregor	German Aerospace Center - DLR

13:55-14:20 WePM1G.1

Exergetic and Sustainability Analysis of 320 MW Reheat Gas Turbine Engine

Almutairi, Abdulrahman	Cranfield Univ.
Pericles, Pilidis	Cranfield Univ.
Al-Mutawa, Nawaf	Kuwait Univ.

14:20-14:45 WePM1G.2

Thermodynamic Evaluation of Constant Volume Combustion for Gas Turbine Power Cycles

Stathopoulos, Panagiotis	Tech. Univ. of Berlin
Paschereit, Christian Oliver	Tech. Univ. of Berlin
Vinkeloe, Johann	Tech. Univ. of Berlin

14:45-15:10 WePM1G.3

Novel Gas Turbine Cycle Concepts for Future Generations

Sane, Shrikrishna	Indian Inst. of Tech. Bombay (Mumbai)

WePM2B Room B

Heat Transfer Evaluatoin by CFD (General Session)

Chair: Wilson, Michael	Univ. of Bath
Co-Chair: Ishida, Katsuhiko	Gas Turbine Div. Kawasaki Heavy Industries, Ltd.

15:55-16:20 WePM2B.1

Assessment of Different CFD Modeling Techniques for Film Cooling

Alameldin, Ahmad	American Univ. of the Middle East
El-Gabry, Lamyaa	American Univ. in Cairo

16:20-16:45 WePM2B.2

Comparative Study between Hole Shapes of Flat Plate Film Cooling Using Numerical Model

Alshehaby, Mohammad	American Univ. in Cairo
El-Gabry, Lamyaa	American Univ. in Cairo

16:45-17:10 WePM2B.3

Numerical Study on Film Cooling Effect of Gap Leakage Flow at First-Stage Stationary Vane

Maehara, Tomohiro	Kansai Univ.
Oda, Yutaka	Kansai Univ.
Takeishi, Kenichiro	Tokushima Bunri Univ.

17:10-17:35 WePM2B.4

Numerical Study on Heat Exchange Characteristics of Surface Air Cooled Oil Cooler Focused on Flow Field Around Cooling Fin

Sekoguchi, Naoya	The Univ. of Tokyo
Watanabe, Toshinori	The Univ. of Tokyo
Himeno, Takehiro	The Univ. of Tokyo
Inoue, Chihiro	The Univ. of Tokyo
Uzawa, Seiji	The Univ. of Tokyo
Sakuma, Yasunori	The Univ. of Tokyo
Tomida, Susumu	Sumitomo Precision Products
Watanabe, Kazushi	Sumitomo Precision Products

WePM2C Room C

Manufacturing Technologies II (General Session)

Chair: Sato, Akihiro	IHI Corp.
Co-Chair: Kakehi, Koji	Tokyo Metropolitan Univ.

15:55-16:20 WePM2C.1

Present Status and Future Prospect of Forging Material Industry for Aero-Engine Component in Japan

Matsui, Takanori	Hitachi Metals MMC Superalloy Ltd

16:20-16:45 WePM2C.2

Effect of Alloy Modifications on Hot Deformability of a Precipitation-Hardened A-286 Superalloy

Kuo, Shih-Ming	China Steel Corp.
Li, Ming-Yen	China Steel Corp.
Pan, Yeong-Tsuen	China Steel Corp.

16:45-17:10 WePM2C.3

Optimization of Additive Manufacturing (AM) Parameters and Selection of the Heat Treatment Conditions Regarding the Gas Turbine Combustor Swirler Production

Sone, Hiroyuki	Uemura Giken Co., Ltd.
Hori, Takusei	Uemura Corp.
Kajihara, Manabu	Uemura Giken Co., Ltd.
Hasegawa, Masaya	Uemura Giken Co., Ltd.

17:10-17:35 WePM2C.4

Mechanical Properties of Cast and Wrought Ni-Co Base Superalloy TMW-4M3 Disk

Kobayashi, Shinichi — Hitachi Metals Ltd.
Ueno, Tomonori — Hitachi Metals Ltd.
Ohno, Takehiro — Hitachi Metals Ltd.
Harada, Hiroshi — National Inst. for Materials Science

WePM2D Room D

Aircraft Engines II (General Session)

Chair: Sato, Tetsuya — Waseda Univ.
Co-Chair: Sauer, Tim — Tech. Univ. of Berlin

15:55-16:20 WePM2D.1

Application of an Algebraic Reconstruction Algorithm to Tomographic BOS Measurements

Hartmann, Ulrich — Inst. of Turbomachinery and Fluid Dynamics, Leibniz Univ.
Seume, Joerg R. — Inst. of Turbomachinery and Fluid Dynamics, Leibniz Univ.

16:20-16:45 WePM2D.2

Suppression of Frost Formation Using Splitter Plates in the Heat Exchanger of Precooled Turbojet Engine

Yoshimura, Yusuke — Shizuoka Univ.
Fukiba, Katsuyoshi — Shizuoka Univ.
Sonobe, Nobuki — Shizuoka Univ.
Sato, Sota — Shizuoka Univ.

16:45-17:10 WePM2D.3

Temperature Measurement Using Particle-Seeded Two Color Optical Pyrometry in an Afterburner for a Pre-Cooled Turbo Jet Engine

Yoshiyama, Tomoyuki — The Univ. of Tokyo
Kita, Shonosuke — The Univ. of Tokyo
Nishida, Shunsuke — Japan Aerospace Exploration Agency
Taguchi, Hideyuki — Japan Aerospace Exploration Agency
Nakaya, Shinji — The Univ. of Tokyo
Tsue, Mitsuhiro — The Univ. of Tokyo

17:10-17:35 WePM2D.4

A Concept Study of Engine/Aircraft Integrated Thermal Management System

Seki, Naoki — IHI Corp.

WePM2E Room E

Unsteady Flow and Stability Enhancement in Axial Compressor II (General Session)

Chair: Amboor Madathil, Pradeep — Indian Inst. of Tech. Bombay
Co-Chair: Nishioka, Takahiro — Hitachi, Ltd., Industrial Products Company

15:55-16:20 WePM2E.1

Study on Influence of Stator Hub Clearance on the Development of Flow in an Axial Flow Compressor

Roy, Bhaskar — Indian Inst. of Tech. Bombay
Ellath, Sangeeth Sudhakaran — Indian Inst. of Tech. Bombay

16:20-16:45 WePM2E.2

Bow Effects on the Inlet Circumferential Fluctuation and Aerodynamic Performance of Compressor Cascades

Xu, Han — Beihang Univ.
Jin, Donghai — Beihang Univ.
Gui, Xingmin — Beihang Univ.

16:45-17:10 WePM2E.3

A Study on Unsteady Flow Phenomena at Near-Stall in a Multi-Stage Axial Flow Compressor by Large-Scale DES with K Computer

Yamada, Kazutoyo — Kyushu Univ.
Furukawa, Masato — Kyushu Univ.
Nakakido, Satoshi — Kyushu Univ.
Tamura, Yuki — Kyushu Univ.
Matsuoka, Akinori — Kawasaki Heavy Industries, Ltd.
Nakayama, Kentarou — Kawasaki Heavy Industries, Ltd.

17:10-17:35 WePM2E.4

Numerical Sensitivity Analysis of the Stator Clearance on the Functionality of Axial-Skewed Slot Hub Treatments

Gand, Olivier — RWTH Aachen Univ.
Hoffmann, Ingo — RWTH Aachen Univ.
Jeschke, Peter — RWTH Aachen Univ.
Brignole, Giovanni — MTU Aero Engines

WePM2F Room F

Bearings and Rotor Dynamics (General Session)

Chair: Torabideh, Reza — Mapna Turbine Blade Engineering & Manufacturing Co.
Co-Chair: Kaneko, Yasutomo — Ryukoku Univ.

15:55-16:20 WePM2F.1

Development and Validation of Vibration Analysis for Friction Dampers Considering Contact Conditions

Umehara, Ryuichi — Mitsubishi Heavy Industries, Ltd.
Akaki, Tomohiro — Mitsubishi Heavy Industries, Ltd.
Onozato, Naoki — Mitsubishi Heavy Industries, Ltd.

16:20-16:45 WePM2F.2

Effect of Supply Oil Flow Rate on the Dynamic Characteristics of Oil Lubricated Journal Bearings

Taura, Hiroo — Nagaoka Univ. of Tech.

16:45-17:10 WePM2F.3

Development of Low Loss Direct Lubricated Two Pads Journal Bearing

Yokoyama, Shimpei — Mitsubishi Heavy Industries, Ltd.
Sano, Takeshi — Mitsubishi Heavy Industries, Ltd.
Yoshimine, Chihiro — Mitsubishi Heavy Industries, Ltd.
Hirokawa, Kazuharu — Mitsubishi Hitachi Power Systems, Ltd.
Hashimoto, Shinya — Mitsubishi Hitachi Power Systems, Ltd.
Iijima, Takayoshi — Mitsubishi Hitachi Power Systems, Ltd.
Kondo, Takahiro — Mitsubishi Hitachi Power Systems, Ltd.

17:10-17:35 WePM2F.4

Development of Model for Axial Vibration of a Rotor Observed in Turbo Pump Considering Compressibility of Fluid

Ohnishi, Itsuki — The Univ. of Tokyo
Kaneko, Shigehiko — The Univ. of Tokyo

WePM2G	Room G
Industrial Gas Turbine and Power Systems I (General Session)	
Chair: Fujimoto, Haruki	GE Power&Water
Co-Chair: Tomita, Yasuoki	Mitsubishi Hitachi Power Systems, Ltd.
15:55-16:20	WePM2G.1
Development of DAIHATSU Two Shaft Gas Turbine DF/DFL-Series for Pump Drive	
Nohara, Hiroyasu	Daihatsu Diesel Mfg. Co., Ltd.
Torii, Yoshio	Daihatsu Diesel Mfg. Co., Ltd.
Watanabe, Kosuke	Daihatsu Diesel Mfg. Co., Ltd.
Miyata, Daisuke	Daihatsu Diesel Mfg. Co., Ltd.
Horisaki, Takashi	Daihatsu Diesel Mfg. Co., Ltd.
Okamoto, Takuya	Daihatsu Diesel Mfg. Co., Ltd.
Saitoh, Takahiro	Daihatsu Diesel Mfg. Co., Ltd.
16:20-16:45	WePM2G.2
F Class Gas Turbine Upgrading Verification Result	
Sakagami, Naoki	Mitsubishi Hitachi Power Systems, Ltd.
Fujii, Keita	Mitsubishi Hitachi Power Systems, Ltd.
Ueda, Osamu	Mitsubishi Hitachi Power Systems, Ltd.
16:45-17:10	WePM2G.3
Verification and Operation Result of M501GAC (Air Cooled G Class Gas Turbine)	
Yamamoto, Tomohiko	Mitsubishi Hitachi Power Systems, Ltd.
Masada, Junichiro	Mitsubishi Hitachi Power Systems, Ltd.
Ai, Toshishige	Mitsubishi Hitachi Power Systems, Ltd.
Takahashi, Tatsuji	Mitsubishi Hitachi Power Systems, Ltd.
Akizuki, Wataru	Mitsubishi Hitachi Power Systems, Ltd.

Thursday November 19, 2015

ThILPL Room A

Challenge for Low BTU Blast Furnace Gas Firing GTCC in Steel Works (Invited Lecture)

Chair: Ohta, Yutaka — Waseda Univ.

09:00-10:00 ThILPL.1

Challenge for Low BTU Blast Furnace Gas Firing GTCC in Steel Works

Tsukuda, Yoshiaki — Mitsubishi Heavy Industries, Ltd.

ThAMA Room A

Combustion Instability I (General Session)

Chair: Tachibana, Shigeru — Japan Aerospace Exploration Agency

Co-Chair: Uemichi, Akane — The Univ. of Tokyo

10:20-10:45 ThAMA.1

Study on Premixed Flame Behavior in a Cylindrical Combustor with Variable Swirl Vanes

Ichikawa, Yuichi — Osaka Univ.
Komiyama, Masaharu — Osaka Univ.
Koyama, Atsushi — Osaka Univ.

10:45-11:10 ThAMA.2

An Investigation of Flashback Phenomenon into the Vortex Core of Swirling Premixed Gas Flow

Nagai, Naonori — Mitsubishi Heavy Industies, Ltd.
Saitoh, Keijiro — Mitsubishi Heavy Industies, Ltd.
Kimura, Yuichiro — Mitsubishi Heavy Industies, Ltd.

11:10-11:35 ThAMA.3

Unsteady Characteristics of a Lean Premixed Turbulent Flame in a Low-Swirl Combustor under Combustion Instability

Moriyama, Kotaro — Keio Univ.
Tachibana, Shigeru — Japan Aerospace Exploration Agency
Yokomori, Takeshi — Keio Univ.

ThAMC Room C

Manufacturing Technologies III (General Session)

Chair: Takahashi, Satoshi — IHI Corp.

Co-Chair: Yoshioka, Yomei — Ehime Univ.

10:20-10:45 ThAMC.1

Laser Welding Repair for Single Crystal Blades

Tsukimoto, Koji — Mitsubishi Heavy Industries, Ltd.
Tanigawa, Shuji — Mitsubishi Heavy Industries, Ltd.
Kitamura, Masashi — Mitsubishi Heavy Industries, Ltd.
Shimohata, Sachio — Mitsubishi Heavy Industries, Ltd.
Mega, Masahiko — Mitsubishi Heavy Industries, Ltd.

10:45-11:10 ThAMC.2

Laser Drilling for Cooling Holes of Blade with TBC

Goya, Saneyuki — Mitsubishi Heavy Industries,Ltd.

11:10-11:35 ThAMC.3

Relationship between Axial Shortening and Integrity of Linear Friction Welded Dissimilar Titanium Joint

Shinohara, Takahiko — IHI Corp.
Watanabe, Kosuke — IHI Corp.
Morita, Ichiro — IHI Corp.
Wakabayashi, Tsukasa — IHI Corp.
Nakamura, Kenji — IHI Corp.
Nezaki, Koji — IHI Corp.
Kuroki, Hiroshi — IHI Corp.

ThAMD Room D

Health Monitoring and Diagnostics (General Session)

Chair: Kakiuchi, Daiki — IHI Corp.

Co-Chair: Mansour, Michel — Lab. for Energy Conversion, ETH Zurich

10:20-10:45 ThAMD.1

Use of Robotic Inspection Technology to Provide a Flexible Solution to Generator Maintenance: A Case Study of an Inspection Performed on a Gas Turbine Generator of Japanese Origin

Savenkov, Mark — Alstom Power
Turner, Michael — Alstom Power
Price, Lloyd — Alstom Power
Aroonpitoon, Somkuan — Alstom Power

10:45-11:10 ThAMD.2

Study on Blade Vibration of Radial Compressor — Experimental Evaluation of Crack Detection by NSMS—

Shimohara, Naoto — IHI Corp.
Hattori, Hiroaki — IHI Corp.
Murae, Shota — IHI Corp.

11:10-11:35 ThAMD.3

Advanced Gas Turbine Monitoring & Diagnostic Service

Tomita, Yasuoki — Mitsubishi Hitachi Power Systems, Ltd.
Kumano, Shintaro — Mitsubishi Hitachi Power Systems, Ltd.
Mikami, Naotaka — Mitsubishi Hitachi Power Systems, Ltd.

ThAME Room E

GTSJ-IGTI Joint Forum on Additive Manufacturing (Forum)

Chair: Song, Seung Jin — Seoul National Univ.

Co-Chair: Watanabe, Toshinori — The Univ. of Tokyo

10:20-11:35 ThAME.1

GTSJ-IGTI Joint Forum on Additive Manufacturing

Kyogoku, Hideki — Kinki Univ.
Maeda, Toshihiko — NTT Data Engineering Systems
Bin, Wei — GE Global Research in Shanghai

ThAMF Room F

Blade Mistuning (General Session)

Chair: Taura, Hiroo — Nagaoka Univ. of Tech.

Co-Chair: Hattori, Hiroaki — IHI Corp.

10:20-10:45 ThAMF.1

Modification of Mistuning Process in a Low Pressure Turbine Blade

Torabideh, Reza — Mapna Turbine Blade Engineering & Manufacturing Co.
Motamedi Zoka, Hamid — Mapna Turbine Blade Engineering & Manufacturing Co.
Savadkouhi, Payam — Mapna Turbine Blade Engineering & Manufacturing Co.
Asadi, Saeed — Mapna Turbine Blade Engineering & Manufacturing Co.
Ghorbani, Reza — Mapna Turbine Blade Engineering & Manufacturing Co.
Bakhshi, Ali — Mapna Turbine Blade Engineering & Manufacturing Co.

10:45-11:10 ThAMF.2

Stability Analysis of Mistuned Bladed Disk of Steam Turbine

Kaneko, Yasutomo	Ryukoku Univ.
Takemura, Masato	Ryukoku Univ.
Mori, Kazushi	Mitsubishi Heavy Industries, Ltd.
Ooyama, Hiroharu	Mitsubishi Hitachi Power Systems, Ltd.

ThAMG Room G

Industrial Gas Turbine and Power Systems II (General Session)

Chair: Wiedermann, Alexander	MAN Diesel & Turbo SE
Co-Chair:Torii, Shunsuke	Mitsubishi Hitachi Power Systems,Ltd.

10:20-10:45 ThAMG.1

Model of a Generic 300 MW F Class Gas Turbine for IGCC

Cerri, Giovanni	Roma Tre Univ.
Chennaoui, Leila	Roma Tre Univ.
Giovannelli, Ambra	Roma Tre Univ.
Mazzoni, Stefano	Roma Tre Univ.

10:45-11:10 ThAMG.2

CCGT Upgrades Focusing on Flexibility Improvements

Kaplan, Burak	Mitsubishi Hitachi Power Systems Europe
Ojiro, Yasuhiro	Mitsubishi Hitachi Power Systems Europe
Miyasaka, Toji	Mitsubishi Hitachi Power Systems Europe
Bratowski, Michal	Mitsubishi Hitachi Power Systems Europe
Myrisidis, Tilemachos	Mitsubishi Hitachi Power Systems Europe
Abe, Katsuhiko	Mitsubishi Hitachi Power Systems

11:10-11:35 ThAMG.3

GE Rapid Response Plant and Operation

Smith, Gordon	GE Power & Water
Smith, Raub	GE Power & Water
Karaca, Erhan	GE Power & Water

ThPMA Room A

Combustion Instability II (General Session)

Chair: Zhao, Dan	Nanyang Tech. Univ.
Co-Chair: Komiyama, Masaharu	Gifu Univ.

13:05-13:30 ThPMA.1

Passive Control of Premixed Flame-Sustained Combustion Instability Using Electrical Heaters in a Bifurcating Thermoacoustic System

Zhao, Dan	Nanyang Tech. Univ.
Li, S. H.	Nanyang Tech. Univ.

13:30-13:55 ThPMA.2

Numerical and Experimental Investigation of the Flame Transfer Function in the Full-Scale Gas Turbine Combustor

Isono, Mitsunori	Mitsubishi Heavy Industries, Ltd.
Saitoh, Toshihiko	Mitsubishi Heavy Industries, Ltd.
Kimura, Yuichiro	Mitsubishi Heavy Industries, Ltd.

13:55-14:20 ThPMA.3

Numerical and Experimental Studies on Self-Sustained Thermoacoustic Combustion Instability of an Experimental Rig for Full Scale Industrial Burners

Laera, Davide	Pol. Di Bari
Camporeale, Sergio Mario	Pol. Di Bari

14:20-14:45 ThPMA.4

Proposal of a Criterion for Combustion Oscillation Considering Fuel Flexibility

Uemichi, Akane	The Univ. of Tokyo
Machida, Riku	The Univ. of Tokyo
Kaneko, Shigehiko	The Univ. of Tokyo

ThPMB Room B

Conjugate Heat Transfer Simulation (General Session)

Chair: Kusterer, Karsten	B&B-AGEMA GmbH
Co-Chair: Takahashi, Toshihiko	CRIEPI

13:05-13:30 ThPMB.1

Combustion and Conjugate Heat Transfer Cfd Simulations to Support Combustor Design

Omote, Hiroshi	Yanmar Co., Ltd.
Hirota, Kazuki	Yanmar Co., Ltd.
Hotta, Takeshi	IDAJ Co., Ltd.
Takase, Hideki	IDAJ Co., Ltd.
Kumar, Gaurav	Convergent Science, Inc.
Drennan, Scott	Convergent Science, Inc.

13:30-13:55 ThPMB.2

Temperature Calculation in an Uncooled Low-Pressure Stage of a Heavy-Duty Gas Turbine Using Conjugate Heat Transfer Analysis

Salemkar, Hossein	MAPNA Turbine Engineering and Manufacturing Co. (TUGA)
Poursamad, Amir	MAPNA Turbine Engineering and Manufacturing Co. (TUGA)
Torabideh, Reza	MAPNA Turbine Blade Engineering and Manufacturing Co.
Savadkouhi, Payam	MAPNA Turbine Blade Engineering and Manufacturing Co.

13:55-14:20 ThPMB.3

Heat Transfer Evaluation under Flow Unsteadiness by Conjugate Heat Transfer Simulation with URANS

Yamane, Takashi	Japan Aerospace Exploration Agency

14:20-14:45 ThPMB.4

Conjugate Heat Transfer CFD Predictions of Metal Walls with Arrays of Short Holes As Used in Impingement and Effusion Cooling

El-Jummah, Abubakar M.	School of Chemical and Process Engineering, Univ. of Leeds
Andrews, Gordon Edward	School of Chemical and Process Engineering, Univ. of Leeds
Staggs, John E. J.	School of Chemical and Process Engineering, Univ. of Leeds

ThPMD Room D

Measurement (General Session)

Chair: Kobayashi, Hiroaki	Japan Aerospace Exploration Agency
Co-Chair: Alameldin, Ahmad	American Univ. of the Middle East

13:05-13:30 ThPMD.1

Development of a Miniaturized Pneumatic Multi-Hole Probe for 3D Turbomachinery Measurements

Hoenen, Herwart	RWTH Aachen Univ.

13:30-13:55 ThPMD.2

Development of TBC Film Thickness Measuring System by Non-Contact Measurement

Iio, Satoshi	Mitsubishi Heavy Industries, Ltd.
Yasui, Jun	Mitsubishi Heavy Industries, Ltd.
Shiotani, Shigetoshi	Mitsubishi Heavy Industries, Ltd.

13:55-14:20 ThPMD.3

An On-Board Wireless Multi-Sensor Measurement System for Rotating Turbomachinery Application

Mansour, Michel	Lab. for Energy Conversion, ETH Zurich
Rebholz, Patrick	Lab. for Energy Conversion, ETH Zurich
Kalfas, Anestis	Aristotle Univ. of Thessaloniki
Abhari, Reza S.	Lab. for Energy Conversion, ETH Zurich

14:20-14:45 ThPMD.4

Measurement Uncertainty Analysis for Multi-Hole Pressure Probes Combined with a Temperature Sensor

Hölle, Magnus	RWTH Aachen Univ.
Bartsch, Christian	RWTH Aachen Univ.
Honen, Herwart	RWTH Aachen Univ.
Fröbel, Tobias	MTU Aero Engines AG
Metzler, Timo	MTU Aero Engines AG
Jeschke, Peter	RWTH Aachen Univ.

ThPME Room E

Aerodynamic Design of Axial Compressor III (General Session)

Chair: Lin, Feng	Chinese Acad. of Science
Co-Chair: Takekoshi, Yoshihisa	NUMECA Japan

13:05-13:30 ThPME.1

Procedure for Analyzing, Manipulating and Meshing of Deteriorated Compressor Blades

Reitz, Gerald	TU Braunschweig, Inst. for Jet Propulsion and Turbomachinery
Friedrichs, Jens	TU Braunschweig, Inst. for Jet Propulsion and Turbomachinery

13:30-13:55 ThPME.2

Design and Analysis of Stator Sweep in Reducing Fan Broadband Noise

Zhang, Weiguang	Beihang Univ.
Wang, Xiaoyu	Beihang Univ.
Sun, Xiaofeng	BeiHang Univ.

13:55-14:20 ThPME.3

Unsteady Pressure Measurement on Oscillating Blade with Pressure-Sensitive Paint

Azuma, Toshihiko	The Univ. of Tokyo
Watanabe, Toshinori	The Univ. of Tokyo
Himeno, Takehiro	The Univ. of Tokyo
Uzawa, Seiji	The Univ. of Tokyo
Inoue, Chihiro	The Univ. of Tokyo
Takahashi, Yasuo	Mitsubishi Hitachi Power Systems,Ltd
Shibata, Takanori	Mitsubishi Hitachi Power Systems,Ltd
Takeda, Hiroki	Mitsubishi Hitachi Power Systems,Ltd

ThPMF Room F

Unsteady Flow and Stability Enhancement in Axial Compressor III (General Session)

Chair: Sun, Xiaofeng	Beihang Univ.
Co-Chair: Sakuma, Yasunori	The Univ. of Tokyo

13:05-13:30 ThPMF.1

CFD Study on the Influence of Geometric and Aerodynamic Parameters on the Ejector Pump Effect

Brehm, Sebastian	Univ. of the German Federal Armed Forces Munich
Niehuis, Reinhard	Univ. of the German Federal Armed Forces Munich

13:30-13:55 ThPMF.2

Near-Casing Flow Behavior of High Aspect Ratio Low Speed Contra Rotating Axial Flow Fan Stage

Dejene Toge, Tegegn	Indian Inst. of Tech. Bombay
Amboor Madathil, Pradeep	Indian Inst. of Tech. Bombay

13:55-14:20 ThPMF.3

Low Speed Study on Extending Axial Compressor Capability by Using Variable Geometry Inlet Guide Vane

Roy, Bhaskar	Indian Inst. of Tech. Bombay
Emandi, Rajesh	National Aeronautical Lab. Bangalore

14:20-14:45 ThPMF.4

Numerical Investigation on the Bleeding Effects of Real Bleeding Geometry in the Compressor Stage

Gou, Jinlan	Univ. of Tsinghua
Zhang, Yang	Univ. of Tsinghua
Yuan, Xin	Univ. of Tsinghua

ThPMG Room G

Industrial Gas Turbine and Power Systems III (General Session)

Chair: Cerri, Giovanni	Univ. Roma Tre
Co-Chair: Fujii, Keita	Mitsubishi Hitachi Power Systems,Ltd.

13:05-13:30 ThPMG.1

Operating Experience with MAN's MGT6200 Gas Turbine

Wiedermann, Alexander	MAN Diesel & Turbo SE
Aschenbruck, Emil	MAN Diesel & Turbo SE
Cagna, Michele	MAN Diesel & Turbo SE
Orth, Ulrich	MAN Diesel & Turbo SE
Spiegel, Andreas	MAN Diesel & Turbo SE
Wiers, Sven-Hendrik	MAN Diesel & Turbo SE
Mueller, Ralf	MAN Diesel & Turbo SE

13:30-13:55	ThPMG.2
Development and Operating Experience of the 1600deg.C J Class Gas Turbine	
Torii, Shunsuke	Mitsubishi Hitachi Power Systems,Ltd.
Hada, Satoshi	Mitsubishi Hitachi Power Systems,Ltd.
Yuri, Masanori	Mitsubishi Hitachi Power Systems,Ltd.
Masada, Junichiro	Mitsubishi Hitachi Power Systems,Ltd.
Tsukagoshi, Keizo	Mitsubishi Hitachi Power Systems,Ltd.

13:55-14:20	ThPMG.3
The Role of Large, Dual-Fuel Gas Turbine Combined Cycle in Achieving Cost-Effective, High-Efficiency, Reliable Power Generation in Asia-Pacific	
Vandervort, Christian	GE Power & Water
Leach, David	GE Power & Water
Kihara, Ken	GE Power & Water
Fujimoto, Haruki	GE Power & Water

14:20-14:45	ThPMG.4
Development of M701F5 Gas Turbine	
Masada, Junichiro	Mitsubishi Hitachi Power Systems,Ltd
Ai, Toshishige	Mitsubishi Hitachi Power Systems,Ltd
Fukunaga, Yuya	Mitsubishi Hitachi Power Systems,Ltd

ThPDPL	Room A
Energy Strategy: Role of Gas Turbines in the Future Energy Network (Panel Discussion)	
Chair: Nakata, Toshihiko	Tohoku Univ.

15:05-17:05	ThPDPL.1
Energy Strategy: Role of Gas Turbines in the Future Energy Network	
Steele, Robert	Electric Power Res. Inst. Inc.
Björkqvist, Christer	European Turbine Network-ETN a.i.s.b.l
Horie, Wataru	GE Power & Water
Fukuizumi, Yasushi	Mitsubishi Heavy Industr0ies, Ltd.

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Shu Fujimoto (IHI Corporation)

11. INFORMATION OF GAS TURBINE SOCIETY OF JAPAN (GTSJ)

ABOUT GTSJ

Gas Turbine Society of Japan (GTSJ), the sponsor of IGTC2015 Tokyo, was founded in 1976, based on Gas Turbine Committee of Japan established in 1972.

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

GTSJ members come from a wide variety of organizations; gas turbine manufacturing companies, users, universities, national laboratories, and other corporations. Currently more than 2,000 individuals join GTSJ and more than 100 corporate members support the activities of GTSJ.

MEMBERSHIP

Member: an individual who agrees to the objective of GTSJ.

Student Member: a student in university (master or bachelor course), technical college, or equivalent organization, who agrees to the objective of GTSJ.
(A PhD candidate is classified into "Member".)

Corporate Member: an organization which agrees to the objective of GTSJ and supports its activity.

Table 3 Enrolment all Annual Membership Fees

Membership	Enrolment Fee	Annual Membership Fee
Member	500yen	8,000yen
Student Member	500yen	2,500yen
Corporate Member	1,000yen	70,000yen/unit

PUBLISHING ACTIVITIES

Journal of the Gas Turbine Society of Japan (published bimonthly, in Japanese)

The Journal provides information on a variety of gas turbine and turbomachinery and energy technologies with original technical papers, reports, and introductions of new products.

International Journal of Gas Turbine, Propulsion and Power Systems (JGPP) (Web journal, published online in English)

JGPP covers a wide range of engineering information concerning gas turbines and related power systems.
URL: http://www.gtsj.org/english/jgpp/index.html

MEMBERSHIP APPLICATION

GTSJ offers several ways for you to apply for membership.
Download the membership application form from:
http://www.gtsj.org/admission/index.html
Please contact GTSJ office for detail.

OFFICE OF GTSJ

Office director: Katsuhide Hiraoka
Address: 7-5-13-402, Nishi-Shinjuku, Shinjuku-ku, Tokyo 160-0023 JAPAN
Fax: +81-3-3365-0387

E-mai1: gtsj-office@gtsj.org

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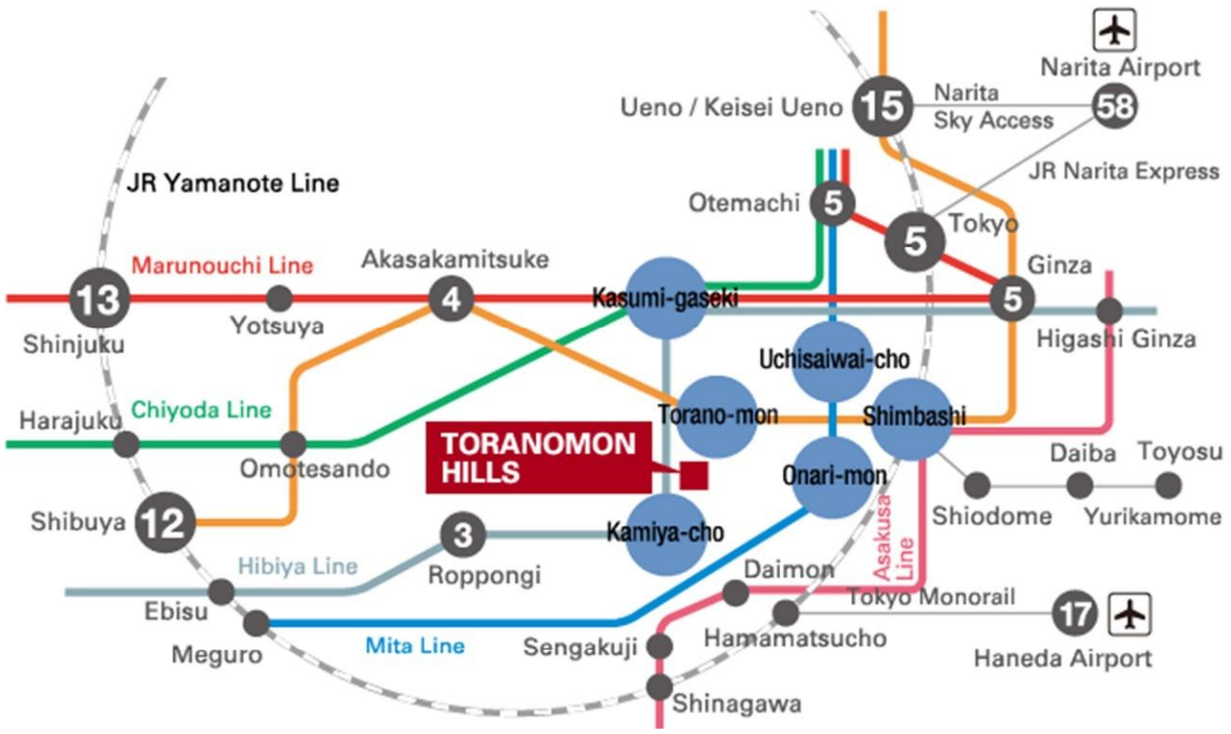
12. ACCESS TO CONGRESS VENUE & FLOOR GUIDE

ACCESS TO CONGRESS VENUE



Ginza Line 5-minute walk from No. 1 Exit of Toranomon Stn.
Hibiya Line 6-minute walk from Exit 3 of Kamiyacho Stn.

Chiyoda Line
Marunouchi Line
Hibiya Line
8-minute walk from Exit A12 of Kasumigaseki Stn.

Ginza Line
Asakusa Line
Yurikamome
JR Yamanote Line, KeihinTohoku Line, Tokaido Line, Yokosuka Line
11-minute walk from the Karasumoriguchi Exit of Shimbashi Stn.

Tokyo Station Approx 10 minutes
Haneda Airport Approx 30 minutes
Narita Airport Approx 90 minutes

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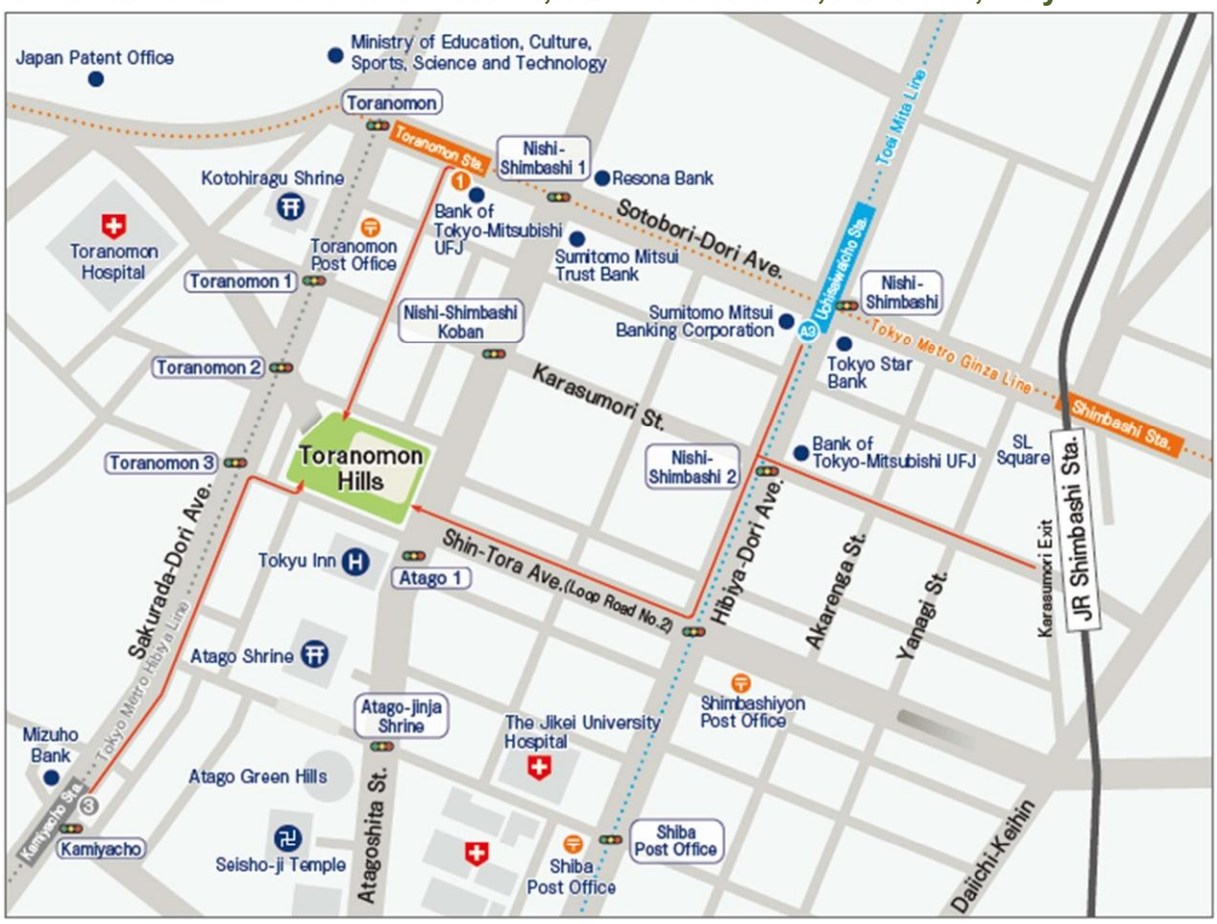
Toranomon Hills Mori Tower 5th Floor, 1-23-3 Toranomon, Minato-ku, Tokyo 105-6305



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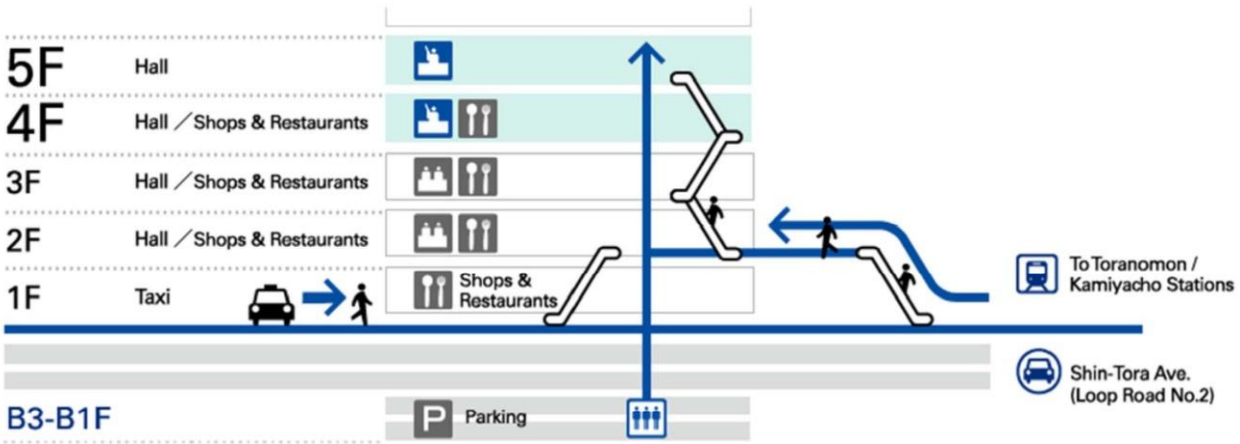
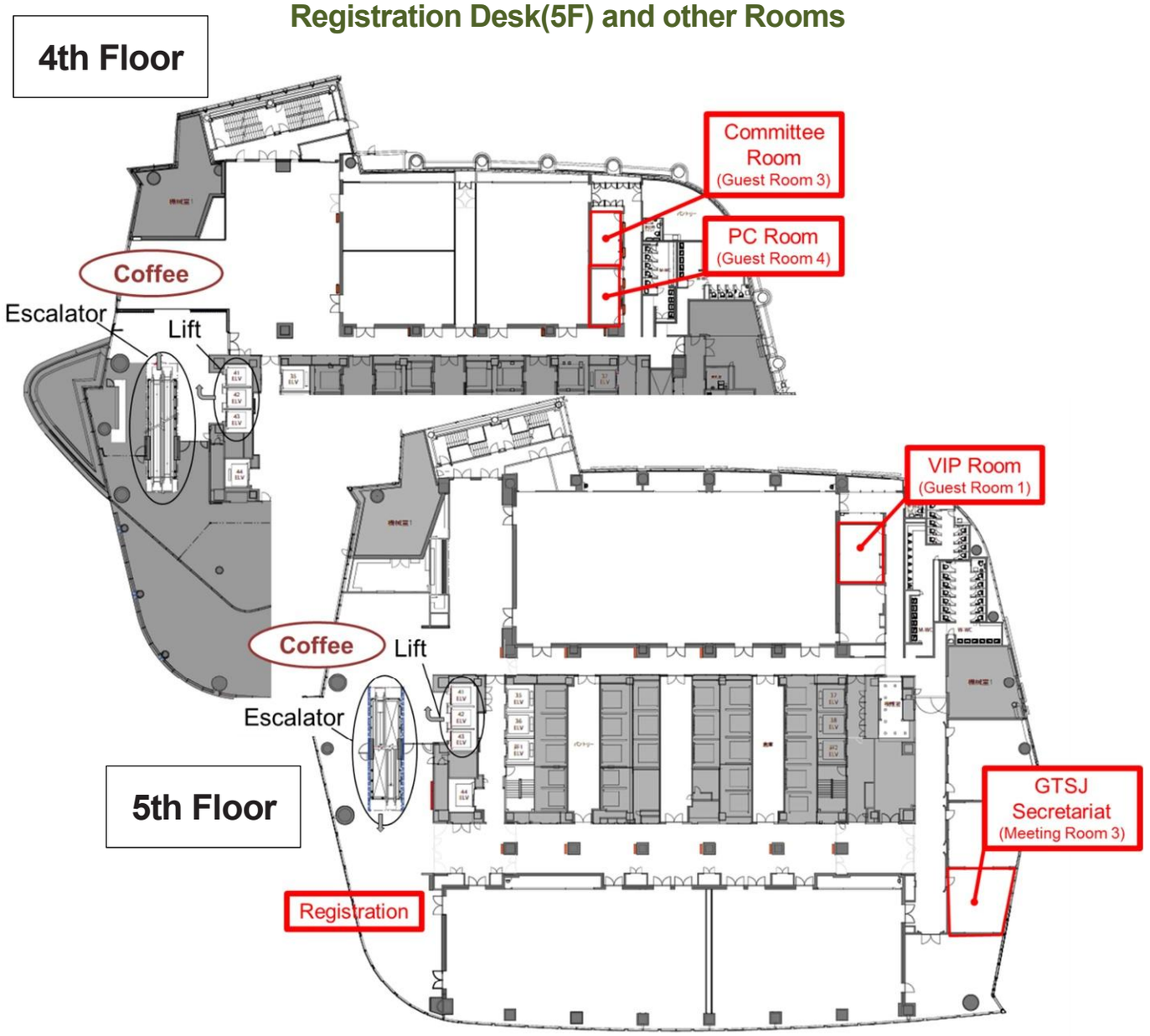
FLOOR GUIDE

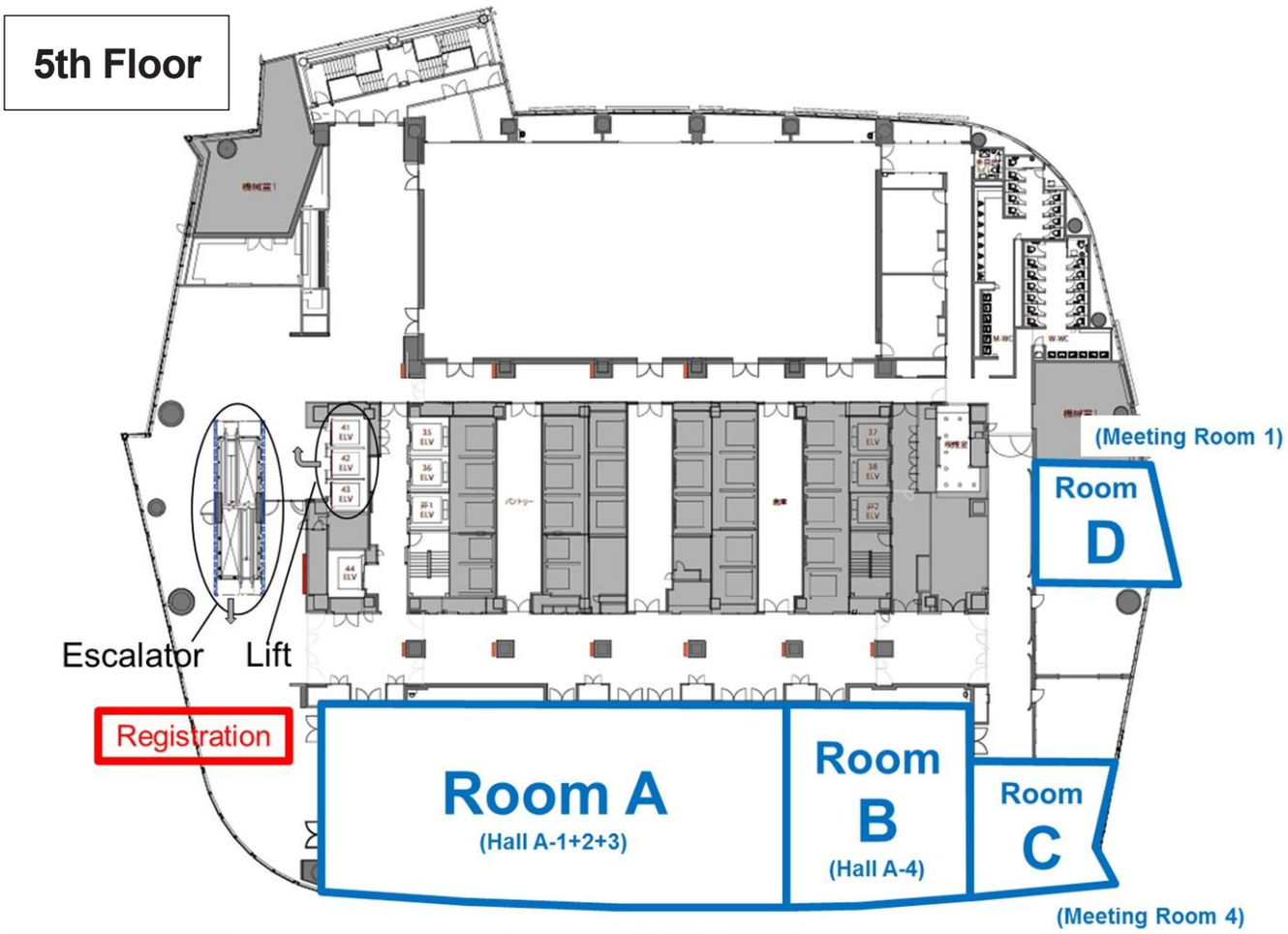
Toranomon Hills Mori Tower 4th and 5th Floor

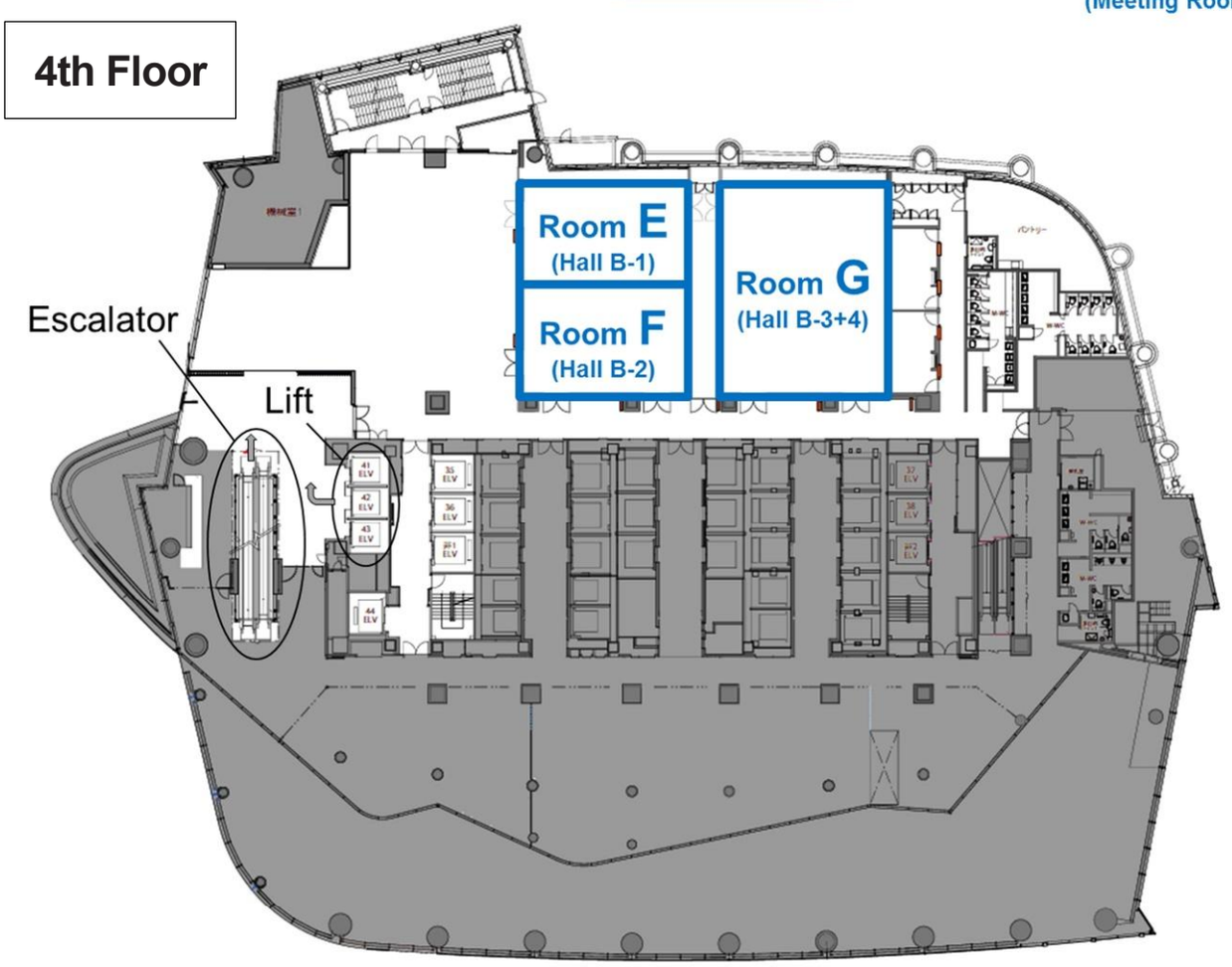


Registration Desk(5F) and other Rooms

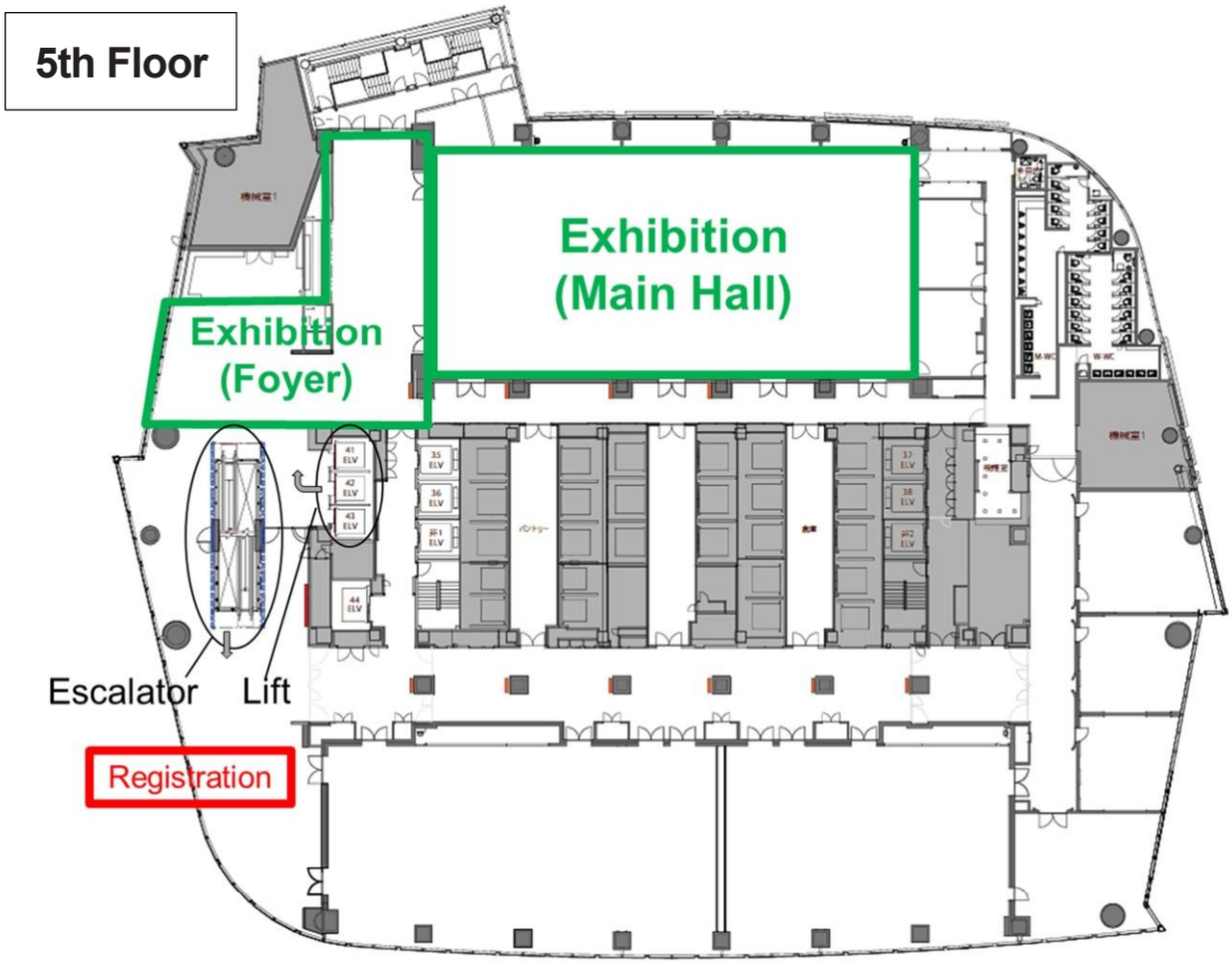


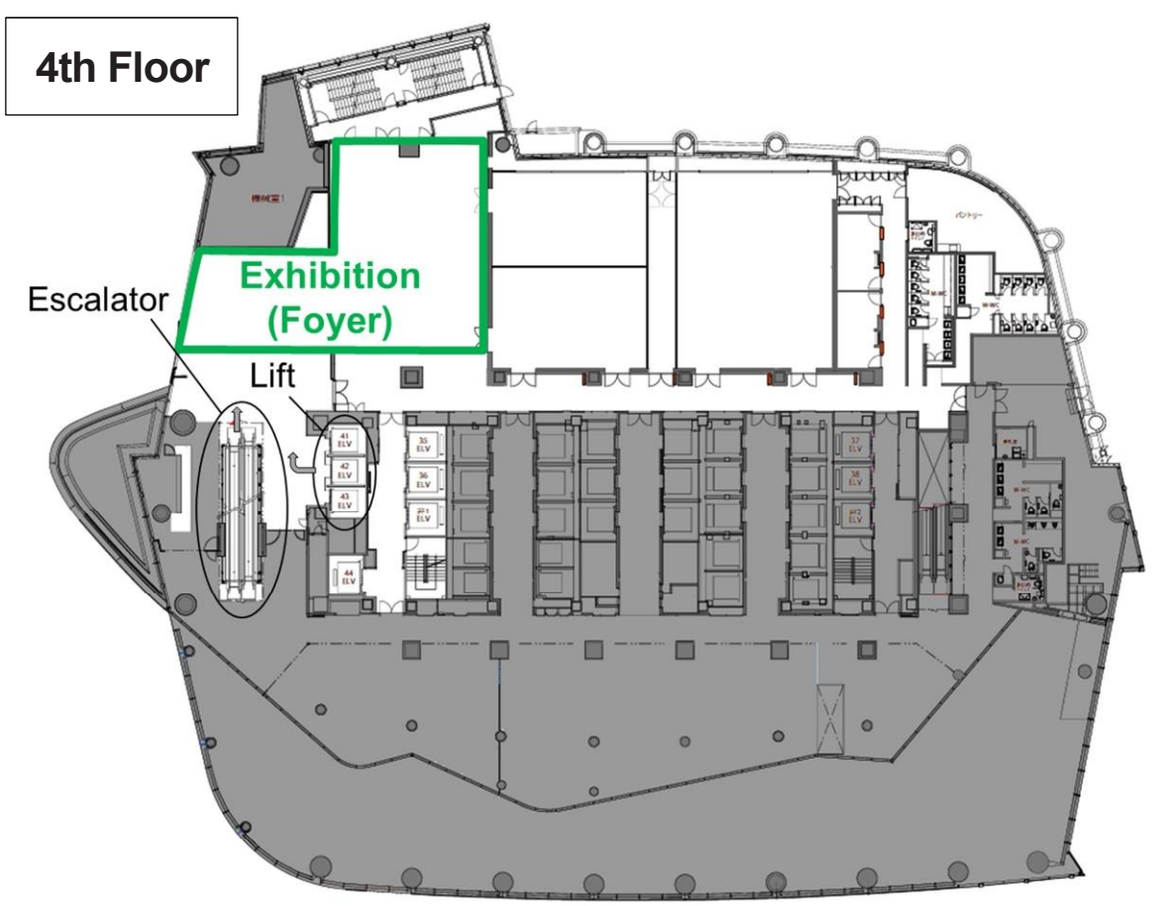
Session Rooms





Exhibition Rooms





IGTC2015 Author Index

Legend

• MoPM2B.3

⇒**Mo**nday/**P**ost **M**eridiem **2**nd/Room **B**/Session No.**3**

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MEMO

Floor Guide