

International Gas Turbine Congress 2019 Tokyo Flash Report

IGTC2019 Executive Committee
Chairman Toshio Nishizawa

1. Introduction

The International Gas Turbine Congress 2019 Tokyo (IGTC2019 Tokyo) was held at the Toranomon Hills Forum from November 17th (Sunday) to 22nd (Friday) 2019. Thanks to the diligent efforts and cooperation from the parties concerned, the Congress concluded successfully. The results were highly satisfactory, a case in point being the number of papers submitted from overseas exceeding the number from Japan for the first time in IGTC history. The Executive Committee is still putting together the final report, but in this flash report we want to provide a summary of the event. The details of the Congress shall be reported again in publications such as the Society newsletter after the Executive Committee have completed their activities.

2. Participants

The total number of pre-registered and on-site registration participants was 493 people. There were 155 people from 20 foreign countries and 338 Japanese people in attendance. The number of foreign participants reached a record high, more than the attendees at IGTC2015 Tokyo. The number of participants from China stood out with 48 people, other countries with strong attendance were Germany with 37 people, South Korea with 18 people, the UK with 16 people, and the United States with 10 people. There were also participants from Asia and the Middle East: 3 from Indonesia, 3 from Malaysia, 2 from Iran, and 1 from Kuwait. The number of accompanying persons was 11.

3. Presentations

(1) Paper presentations

There were 226 abstracts submitted and 179 papers were adopted. There was 1 paper withdrawn, so the number of paper presentations was 178. There were 96 papers from overseas and 82 were from Japan. That was the first time IGTC presentations by participants from overseas surpassed the number of presentations by Japanese. The time schedule of technical sessions was slightly changed, but there were no no-shows.

(2) Invited presentations

Seven speakers were invited from foreign countries, and one from Japan. The plenary lectures were held by the following four speakers : Dr. James D. Heidmann of the NASA Glenn Research Center presented on the theme of the history and future of aviation technology at NASA, Professor Timothy C. Lieuwen of Georgia Institute of Technology presented the key combustion challenges for future gas turbine, Professor Joerg R. Seume of Leibniz University Hannover presented on the improvement of

aerothermal and aeromechanical turbomachinery design by combining high-fidelity methods with multi-stage approaches, and Dr. Thomas H. Pang of GE Additive presented on the future of additive manufacturing.

In addition, the presentations of the following four speakers were held as part of the technical sessions : Dr. Frank Haselbach of the Rolls-Royce presented on the key technologies for future aircraft engines, Professor Mehdi Vahdati presented on computational aeroelasticity of civil fan blades, Dr. Francesco Montomoli presented on the machine learning for turbomachinery, and Dr. Toshio Nishizawa presented advanced fan jet research (aFJR). All of the presentations had many attendees, and lively Q&A sessions were held as well.

(3) Panel Discussions

A panel discussion was held on two of the themes in the plenary session. In the Future of Aircraft Propulsion Technology: a Manufactures' Perspective session, panelists from jet engine-related research institutes and manufacturers took the stage, and a discussion of next generation aero-propulsion was carried out in a widely perspective manner. In the Turbine Technology Development in a Low Carbon Society and a Hydrogen Society session, there was lively debate among the panelists in realizing a low carbon society, and many participants commented that they found the sessions useful.

4. Exhibition

28 companies and institutions set up a total of 62 booths in the exhibition halls on the 4th and 5th floors of Toranomon Hills Forum from November 18th (Tuesday) to November 21st (Thursday). In addition to displays of hardware, such as gas turbines, jet engines, models and parts, many people also gathered at the software exhibition booths. ASME/IGTI had a booth to introduce activities and publications. GTSJ has been exhibiting at the ASME Turbo Expo since 2014, and this exhibition displays the feelings of mutual cooperation. There was a total of 1000 visitors. Additionally, a survey was conducted at the venue. The results will be summarized into a document to allow the opinions to be reflected in the future. The laboratories of eleven universities displayed A0 size posters on the 5th floor. During breaks, students of the laboratories explained their research projects or results of them to the participants of the Congress.

5. Events

Registration began on the evening of the first day, and a welcome reception was held in the evening. About 120 attended, and the event was crowded with people catching up with old friends and meeting others for the first time.

A banquet was held on November 20th (Wednesday) after the sessions ended, and a large number of participants attended. The banquet was a great success with at least 200 people there. The *nigiri* sushi and *sake* tasting corners were very popular, and the performance of *Daikagura* by Mr. Sennari Kagami really brought the event to life. Several foreign participants also participated in the

performance.

On November 22nd (Friday), two plant tours (National Institute of Materials Science and Kawasaki Thermal Power Station of JERA) were conducted. In addition, tours to see the Toranomom Hills Tower generation system were conducted during the Congress lunch breaks and about 70 people participated in them.

6. Related Events

(1) Public Lecture on Jet Engine and Gas Turbine

A Public Lecture on Jet Engine and Gas Turbine was held at Toranomom Hills Forum on November 17th (Sunday) from 13:00 to 14:30. Professor Takehiro Himeno of the University of Tokyo gave a lecture with the aim of deepening understanding about jet engines, gas turbines and energy technology among the general public, including high school students and junior high school students. Thirty-seven people attended, including elementary school students, and there was a positive reaction to it with comments like the lecture was easy to understand. The Technology Adoption Committee was responsible for the planning and operation.

(2) Women's Meeting

As we had at IGTC2015, a women's meeting was held. Seventeen ladies participated in it on November 21st (Thursday) during their lunch break. The meeting greatly facilitated communication between female engineers. After IGTC2015, the Gas Turbine Society of Japan established a Committee for the Promotion of Participation by Women in order to encourage activities to promote women's participation in Society.

7. Final Words

The fact that IGTC2019 was such a great success is thanks to the support of various organizations, the efforts of those concerned, and the grants and sponsorships received. We would like to express our deep gratitude to the Executive Committee members for sparing the time from their busy schedules to devotedly work so hard for the event. We would also like to express our sincere thanks to the Society administrative office, President Toshinori Watanabe, and Vice President Tomoharu Shikina for their great cooperation. We would also like to say thank you to the event office e-side inc., who provided strong support, and the Toranomom Hills Forum staff. We are also very much indebted to the International Advisory Committee for encouraging participation from overseas. And finally we would like to conclude this flash report by expressing our most sincere gratitude to everyone who contributed to the peer reviews and those who attended the Congress.