

***International Symposium on  
Distributed Energy Systems in the 21<sup>st</sup> Century***

**An Accompanying Event of Mechanical Engineering Congress, 2002 Japan (MECJ-02)**

Yayoi Conference Hall, The University of Tokyo  
September 24 (Tue)-25 (Wed), 2002

Organized by

**The Japan Society of Mechanical Engineers (JSME)**

Sponsored by

**Mitsubishi Research Institute, Inc. (MRI), Energy Research Division**

Supported by

**Ultra-Small Distributed Energy System Laboratory, The University of Tokyo**

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**Power & Energy System Division**

In corporation with

**The Electrochemical Society of Japan**

**Japan Society of Energy and Resource**

**Gas Turbine Society of Japan**

**Japan Institute of Energy**

Because of the global deregulation of energy supply businesses and also of the urgent need of CO<sub>2</sub> emission reduction in conformity with the COP3 Kyoto Protocol, small-scale distributed power generation and energy utilization systems, in which the energy released from fossil fuels can be used more systematically and efficiently, are expected to play a major role in future energy saving. A sizable number of end users in business and residential sectors will introduce self-designed micro power systems in the next decade. The first generation of micro gas turbines at the power level of 30-100 kW are currently being introduced into the market, while commercial fuel cell units are on their final development stage at various manufacturers. Both of these new technologies will be eventually combined to establish a hybrid system of extremely high efficiency. This international symposium is held as an accompanying forum of the 2002 JSME Annual Meeting to invite prominent speakers to give state-of-the-art review talks on various emerging technologies in the US, Europe and Japan.

## **Organizing Committee**

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| N. Kasagi  | (Univ. Tokyo, Chair) | T. Kaneda | (MRI, Secretary General) |
| C. Arakawa | (Univ. Tokyo)        | S. Kaneko | (Univ. Tokyo)            |
| E. Hihara  | (Univ. Tokyo)        | K. Ota    | (Yokohama Natl. Univ.)   |
| T. Ito     | (Tokai Univ.)        | S. Waseda | (MRI, Secretary)         |

## Program

Sep. 24 (Tue)

8:30-9:00 Registration

9:00-9:10 Opening

9:10-11:40 Chair: N. Kasagi (Univ. Tokyo)

Session 1 Status of Distributed Generation and Energy Utilization

High Efficiency Engines and Turbines – Pathway to a Sustainable, Clean Energy Future

D. Hooie (US DOE/NETL)

Distributed Generation its role in shaping the future electricity system of Europe

S. Minett (COGEN Europe)

Northeast Asian Distributed Energy Systems in the 21st Century: "Hydrogen Era"

M. Hirata (Shibaura Inst. Tech.)

12:50-15:20 Chair: T. Ito (Tokai Univ.)

Session 2 Micro Gas Turbines

Development and Application of Micro Gas Turbine T. W. Simon (Univ. Minnesota)

Micro Gas Turbines for Combined Heat and Power and Other Distributed Energy Applications

L. Malmrup (Turbec)

Development of Ceramic Components for Gas Turbine Engines

S. Tsuruzono (Kyocera)

15:20-15:40 Coffee Break

15:40-18:10 Chair: E. Hihara (Univ. Tokyo)

Session 3 Fuel Cells

Overview of Fuel Cells for Distributed Systems K. Ota (Yokohama Natl. Univ.)

Recent Advances in Proton Exchange Membrane Fuel Cells in the United States

H. R. Kunz, H. Kabumoto, and V. Ramani (Univ. Connecticut)

The Hot Module Programme of MTU - an Approach for the Commercialization of Molten Carbonate Fuel Cells

M. M. Bischoff (MTU Friedrichshafen GmbH)

Sep. 25 (Wed)

8:30-9:00 Registration

9:00-11:30 Chair: K. Ota (Yokohama Natl. Univ.)

Session 4 Hybrid Systems

MGT-SOFC Hybrid Systems

S. Samuelsen (UC Irvine)

Hybrid systems based on high temperature fuel cells for distributed power generation market

A. F. Massardo (Università di Genova)

Solid Oxide Fuel Cell and Micro Gas Turbine Hybrid System for Distributed Energy Generation

K. Suzuki (Kyoto Univ.)

12:50- 14:30 Chair: S. Kaneko (Univ. Tokyo)

Session 5 Waste Heat Recovery

Effective use of waste heat from a distributed power supply

E. Hihara (Univ. Tokyo)

Cogeneration with MGTs: the Italian experience

F. Berti (ENEL)

14:30- 14:40 Closing

### **Exhibition: mGT, Fuel Cells etc.**

Exhibition of equipment will be held at the Symposium site on Sept. 24 and 25 from 8:30 to 17:00, 8:30 to 14:00 on the second day.

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