

Report

The Eighth International Symposium on Fluid Control, Measurement and Visualization (8th FLUCOME)

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Abstract : This report introduced 8th International Symposium on Fluid Control, Measurement and Visualization that was held in Chengdu, China, from August 22 to 25, 2005. The contents consists of six parts: 1) background, 2) overview, 3) academic exchange, 4) award, 5) meeting of International Steering Committee, 6) acknowledgement.

Keywords : International symposium, FLUCOME, Fluid control, Fluid measurement, Flow Visualization.

1. Background

FLUCOME is the abbreviation of International Symposium on Fluid Control, Measurement and Visualization. It is a successful serial international conference on fluid mechanics. The first FLUCOME was held in 1985 and the eighth one was held in 2005. The interval of one after the other symposium is three years from first symposium to seventh one. The meeting of International Steering Committee of 7th FLUCOME decided to change the interval from three years to two years after seventh (2003), because the interval of the International Symposium on Flow Visualization (ISFV) that is a sister symposium of FLUCOME becomes two years from 10th ISFV (2002). If the interval of FLUCOME keeps three years, it will be happen that the FLUCOME and ISFV are held at the same year in some years, while it will cause trouble to both FLUCOME and ISFV due to they have a big intersection of organizers and participants.

The convocation time, venue and chairman of each FLUCOME arrange below :

The first, 1985, Tokyo, Japan , Prof. Nakayama Y., Tokai University.

The second, 1988, Sheffield, UK, Prof. Boucher R. F., University of Sheffield.

The third, 1991, San Francisco, USA, Prof. Woods R. L., University of Texas.

The forth, 1994, Toulouse, France, Dr. Hebrard P., ENSICA.

The fifth, 1997, Hayama, Japan, Prof. Tsuchiya K., Waseda University.

The sixth, 2000, Sherbrooke, Canada, Prof. Laneville, A. University of Sherbrooke.

The seventh, 2003, Sorrento, Italy, Prof. Carlomagno G. M., University of Naples.

The eighth, 2005, Chengdu, China, Prof. Wei Q. -D., Peking University.

The subjects of FLUCOME include experimental techniques and studies as well as numerical simulation and theoretical studies. Fluid control is the main body of fluid application such as lift increase, drag reduction, mixing enhancement, noise decrease and so on. Fluid measurement and visualization are two aspects of fluid experiments.



Fig. 1. The chairman Prof. Wei Q. -D. addresses opening ceremony speech.

2. Symposium Overview

8th FLUCOME was held from Aug. 22 to 25, 2005 in Chengdu, Sichuan province, China. The venue was Homeland Hotel with five star grade.



Fig. 2. The registration desk at Homeland Hotel of Chengdu.

Chengdu is the provincial capital of Sichuan and is one of big cities of China. It has an area of 12,400 square km and a population of ten million. The 2,000-year old Chengdu got its name in the fourth century. Today the city is the center of science, technology, commerce, trade, and finance as well as a transportations hub in southwestern China. There is Shuangliu International Airport where can be reached by transfer from Tokyo, Osaka, Singapore, Seoul, Pusan, Hong Kong, Shanghai and Beijing.

The sponsors of 8th FLUCOME are China Aerodynamics Research Society and China Society of Theoretical and Applied Mechanics. The undertakers are the State Key Laboratory of Turbulence and Complex System (Peking University, Beijing) and Chinese Aerodynamics Research and Development Center (Mianyang, Sichuan).

The total number of participants from 19 countries is 161. The number of each country is as

follows (by A, B, C order):

Australia: 2; Belgium: 1; Canada: 1; China: 64; France: 6;
Germany: 3; Greek: 1; Indian: 1; Italy: 1; Korea: 8;
Japan: 51; Malaysia: 1; Mexico: 1; Pakistan: 4; Russia: 3;
Singapore: 1; Turkey: 3; UK: 6; USA: 3.

The graduate students account for 24 %.

The program consists of two parts:

1) paper presentation (August 22-24)

156 papers including 8 invited lectures were presented

2) academic excursion

Two visit sites were provided that are China Aerodynamics Research and Development Center (CARDC) and Sanxingdui Museum.

The art performances conducted in the night on Aug. 22 and 24, respectively. Chinese magic, acrobatics, music and Sichuan opera and so on were enjoyed.

3. Academic Exchange

Six invited plenary lectures were presented. The title are:

- 1) Development of Nano-microtechnology for Biomedical and Engineering Applications
Prof. Chen C. -J, Florida A & M University-Florida State University, USA;
- 2) Modern Development of Pneumatic System --- Analysis and its Applications ---
Prof. Kagawa T., Tokyo Institute of Technology, Japan;
- 3) An innovative technique for flow control of slender body at high angle of attack
Prof. Ming X., Naging University of Aeronautics and Astronautics, China;
- 4) PSP and TSP for different Wind Tunnels and Flow Facilities
Dr. Engler R. H., German Aerospace Center, German;
- 5) Visualization and Measurement of Blood Flow in the Macro and Micro Scales
Prof. Oshima M., The University of Tokyo, Japan;
- 6) Development of Doppler based planar velocimetry techniques for high-speed flows at ISL
Dr. Wernert P., French-German Research Institute of Saint-Louis, France.

Besides two invited special lecture presented at Measurement session and Visualization sessions, respectively. They are:

- 1) Recent Improvements in color interferometry
Dr. Desse J. -M., ONERA, France;
- 2) PIV Measurement of Gas-Liquid Two-Phase Flows
Prof. Yamamoto F., Fukui University, Japan.

148 papers were presented at group sessions that were divided into 12 special topics: fluid control, fluid measurement, fluid visualization, heat and mass transfer, jet and flow noise, flow stability and turbulence, flow separation and vortex, aerodynamics, high speed flow, micro-flow and MEMS, complex flow, and flow relevant to life and production.

The studies on nano-microscale fluid that relevant to medical science, biology and engineering caused wide interesting. The advanced technique of fluid control, measurement and visualization was the central issue, though no new technique with epoch-making significance appeared at this symposium.



Fig. 3. The plenary meeting.



Fig. 4. Plenary invited lecture (Prof. Chen C. -J., Florida A & M University-Florida State University, USA).



Fig. 5. Plenary invited lecture (Dr. Engler R. H., German Aerospace Center, Germany).



Fig. 6. Oral presentation at group meeting (Prof. Watton J., Cardiff University, UK).



Fig. 7. Discussions at group meeting (Prof. Sato H., Institute of Flow Research, Japan).



Fig. 8. Giving comments at group meeting (Prof. Yamamoto F., Fukui University, Japan).



Fig. 9. Answering question at group meeting.



Fig. 10. Singing at Banquet (France group).

4. Award of Organizing Committee

2005 is 20th anniversary of FLUCOME. The Organizing Committee of 8th FLUCOME decided to award Professor Yasuki NAKAYAMA, Future Technology Research Institute, Japan. He is the one of founders of FLUCOME and was the chairman of 1st FLUCOME. He joined and supported actively every FLUCOME. The ceremony to issue award was held at the banquet in the evening of Aug. 24, 2005. A “chorale” was read in recognition of his deeds. This chorale does not accord with the demands of rule of rhyming of a poem, therefore the title of the chorale is “Chorale of a no poem”.

Chorale of a no poem

He is an outstanding scientist.

He is an excellent expert of flow visualization,

*He made great contribution to academic exchange
in Japan and as well as in the world.*

He is a founder of FLUCOME,

He is also a founder of ASV,*

*He is chief editor of JOV**,
He is a respectable man, also is a young old man,*

*If ask him "how old?"
The answer is always "I don't know!"
"You look to be 50" someone guesses,
"No, actually more young!" he said.*

*Who is he?
"I also don't know!!!"
Oh! He is a respectable ever-young old man.*

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All participants congratulated warmly Prof. Y. Nakayama on the award.



Fig. 11. Award to Prof. Nakayama Y. (No. 2 from right).



Fig. 12. Performance—acrobatics.



Fig. 13. Performance—Sichuan opera.

5. The Meeting of International Steering Committee on FLUCOME 2007 and FLUCOME 2009

The meeting of International steering Committee of 8th FLUCOME was held at Homeland Hotel on Aug. 24, 2005. The agenda is as follows:

- 1) Introducing the information about 8th FLUCOME (Prof. Wei, Q. -D., Peking University, China)
- 2) Showing the plan to host 9th FLUCOME (2007) (Prof. Shih, C., Florida A & M University-Florida State University, USA)
- 3) Putting forward the Proposal to host 10th FLUCOME (2009) (Prof. Golub, V.V., Russian Academy of Science, Russia)

The Chairman of 8th FLUCOME, Prof. Wei, Q.-D. presided over the meeting and introduced the information of 8th FLUCOME. Prof. Shih C. showed briefly the announcement of 9th FLUCOME. He said that the conference will be host by the College of Engineering of Florida A & M University-Florida State University in Tallahassee, Florida, USA, September 9-12, 2007 and the conference chair will be Prof. Chen, C. J. the dean of the college. The members of the meeting affirmed identically Prof. Shih's report on the prepare of 9th FLUCOME. In the last Prof. Golub V. V. put forward the application to host 10th FLUCOME. He represented strong wish to host 10th FLUCOME in Moscow, Russia in 2009 and stated their excellent condition to organize the conference. The meeting of International Steering Committee decided to accept the application and leave last decision for the next meeting of FLUCOME 2007.

6. Acknowledgement

8th FLUCOME has been conducted successfully. As the chairman of this conference I wish to express my appreciation to the invited lecturers, to all who presented their valuable papers without which it would have been impossible to conduct this symposium. I am also grateful to the members of International Steering Committee and the members of Local Organizing Committee for their advice, assistance and tremendous work for preparing the symposium. I should like to express my sincere thanks to those who have helped in the reviewing and editing of the papers for their respective and excellent works.

I deeply thank the sponsors-China Aerodynamics Research Society, China Society of Theoretical and Applied Mechanics, Natural Science Foundation of China and the undertakers-Peking University and CARDC for their strong support which is the guarantee of the success of this symposium.

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Author Profile



WEI, Qing-Ding: He graduated in Mechanics in 1963 from Peking University. He worked in 7th Institute of Aerodynamic Academy of China as a researcher from 1968 to 1976 , and then he worked at Peking University up to now. He received his Ph. D degree in 1981 from the University of Tokyo. Now he works at State Laboratory of Turbulence and Complex System (Peking University) as a professor. His research interests are environmental fluid dynamics, experimental fluid mechanics and wind engineering.