

## Report

# The 9<sup>th</sup> Asian Symposium on Visualization

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**Abstract** : The 9<sup>th</sup> Asian Symposium on Visualization (9ASV) was successfully held in Hong Kong from 4<sup>th</sup> to 8<sup>th</sup> June 2007. The total number of 191 participants from 14 countries/regions attended the Symposium, of which 174 were foreign participants worldwide outside Hong Kong. There were 138 papers covering a broad range of topics presented at the Symposium in 3 parallel × 8 sessions, including 6 keynote and 12 invited papers.

**Keywords** : Visualization, Asian Symposium, Hong Kong, HKUST.

## 1. Introduction

The 9<sup>th</sup> Asian Symposium on Visualization (9ASV) was successfully held from 4<sup>th</sup> to 8<sup>th</sup> June 2007 at the Hong Kong University of Science & Technology in Hong Kong SAR, China. This Symposium is the sequel of the series of Asian Symposium of Visualization, which was first held in Beijing, China (1988) and successively in Hangzhou, China (1992), Chiba, Japan (1994), Beijing, China (1996), Bali, Indonesia (1999), Pusan, Korea (2001), Singapore (2003) and Chiangmai, Thailand (2005).

The main aim of the Symposia is to provide a forum for researcher and practitioners to communicate and exchange information in the field of visualization applied over a wide range of disciplines which utilizes this technique such as acoustics, aerodynamics, bio-fluid mechanics, environmental fluid mechanics, free surface flows, fluid machinery, flow past bluff bodies and sports balls, internal combustion engines, jet flows, microstructure of alloy, micro and nano channel flows, vortex flows and many others.

The total number of 191 participants from 14 countries/regions attended the 9ASV, of which 174 were foreign participants worldwide outside Hong Kong. There were 138 papers covering a broad range of topics and visualization techniques presented at the 9ASV in 3 parallel × 8 sessions. Six keynote and twelve invited papers by distinguished speakers from various parts of the world were delivered.

## 2. Opening Ceremony

The Opening Ceremony of 9ASV was held at the Lecture Theater D at the Hong Kong University of Science & Technology (HKUST) in the morning of Tuesday 5<sup>th</sup> June 2007. Prof. Roland Chin, Vice President for Academic Affairs of the Hong Kong University of Science and Technology, was the Guest of Honor to deliver an address at the Opening Ceremony (Fig. 1).

Prof. C. T. Hsu, the Chairman of the 9ASV Organizing Committee, welcomed all the 9ASV delegates and thanked them for their support. Prof. Roland Chin delivered his welcoming remarks and then formally opened the 9ASV.



Fig. 1. Opening Ceremony Address by Prof. Roland Chin, Vice President for Academic Affairs of the HKUST.

### 3. Keynote and Invited Lectures

The first Keynote Lecture to kick-off the 9ASV was delivered by Prof. N. Huang (Fig. 2). The lists of all the Keynote Lectures and the Invited Papers are given in the next sub-sections.

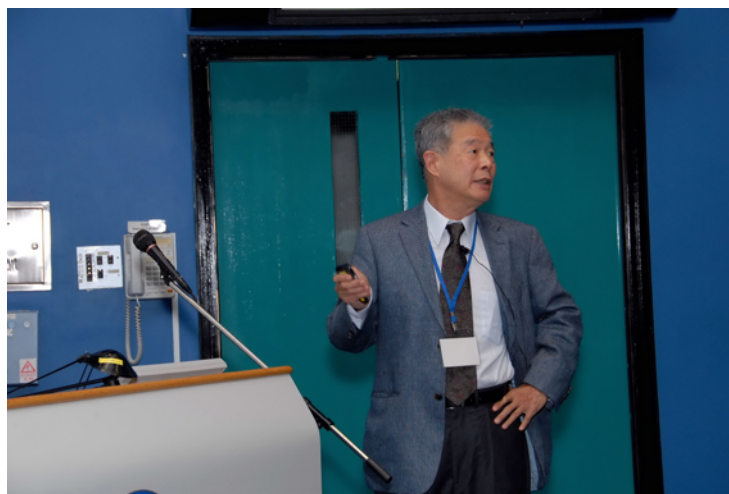


Fig. 2. Prof. N. Huang, the initiator of the Hilbert-Huang Transform (HHT), delivering the first keynote lecture to kick-off the 9ASV series of paper presentations.

#### 3.1 Keynote Lectures

- 1) A Plea for Adaptive Data Analysis (An introduction to HHT), N. Huang
- 2) Visualizing Coherent Vortices in Simulated Engineering and Biological Flows: From Rings and Hairpins to Horseshoes and Worms, F. Sotiropoulos
- 3) Quantitative Visualization by Molecular Tagging in Transport Phenomena, K. Hishida
- 4) Visualizing Multiphase Flows with X-ray Radiography and Phase-Contrast Imaging, J. Wang
- 5) Physics of Rathakrishnan Limit for Jet Control, E. Rathakrishnan
- 6) Numerical Simulation of Fluid Flow Based on the Unified Coordinates, W. H. Hui

### 3.2 Invited Papers

- 1) Accurate Computations of Various Flow Problems in Classical and Quantum Gases with Computer Flow Visualization, J. Y. Yang, J. C. Huang, H. Lin, T. Y. Hsieh, Y. H. Shi
- 2) Effect of Drag Reduction for the Surface Structure of Circular Cylinder with Grooves, K. Yoshida, K. Aoki, H. Okanaga, Y. Nakayama
- 3) Storm Surge Hindcast in the North Sea, M. D. Chiou, C. Winter, C. C. Kao
- 4) A Theoretical Way to Verify Creditability of CFD Simulations and Experimental Measurements for Near-Wall Flows, Z. Gao
- 5) Improvement of Performance of Fin-Tube Type Heat Exchanger by Visualized Flow Analysis, T. Shakouchi, H. Ogawa, N. Satake, K. Tsujimoto, T. Ando
- 6) Electrostatic Sensing Technique for Pulverized Coal Measurement in Power Station, C. Xu, S. Wang, J. Zhang
- 7) NAPPLE Algorithm for Pressure Jump across Liquid-Air Interface without Smearing the Free Surface, S. L. Lee, Y. J. Chang
- 8) Experimental Investigation on Mixing Enhancement Mechanism of Turbulent Jet Flow with Tabbed Nozzle, W. Liu, Z. Y. Xia, Y. Tian, N. Jiang
- 9) Wavelet Applications of Satellite Images, M. K. Hsu, A. K. Liu, Y. Zhao
- 10) Structure and Control of Flow past Cylinder-Plate Junction, J. M. Wang, Q. D. Wei
- 11) The Surface Images of Flow Structures in a Gentle Spilling Breaker, Z. C. Huang, H. H. Hwung, W. Y. Hsu
- 12) Water Mist Generation and Its Applications Based on Effervescent Atomization, G. X. Liao, X. Wang, X. Huang, Y. Liu, J. Qin



Fig. 3. Group photograph of the 9ASV participants.

## 4. Technical Papers

A total of 138 technical papers contributed by the 9ASV participants (Fig. 3) from 14 counties/regions were presented in 3 parallel  $\times$  8 sessions. The presentation time for each paper is 20 minutes (Fig. 4). The papers cover a broad range of topics as well as visualization techniques, including acoustics, aerodynamics, bio-fluid mechanics, environmental fluid mechanics, flow past bluff bodies and sports balls, internal combustion engines, micro and nano channel flows, vortex flows, etc.



Fig. 4. A 9ASV paper presented by Prof. S.C. Ling in a technical session.

The visualization techniques reported in the papers are mainly experimental qualitative techniques using tracers, Particle Image Velocity (PIV) and numerical (computational) methods.

All the technical papers are published in full in the Proceedings of the 9<sup>th</sup> Asian Visualization in the form of CD ROM. The extended abstracts of papers are also published in hard copy as Proceedings of the Abstract of the 9<sup>th</sup> Asian Visualization. The abstracts of keynote papers are published in both proceedings and their Power Point presentations are published on the 9ASV website (<http://www.me.ust.hk/~9asv>). The proceedings were edited by Prof. C. T. Hsu and Prof. H. H. Qiu, the Chairman and the Vice Chairman of 9ASV.

## 5. Social Programs and Visits

A Welcome Reception Dinner for the participants was held on the evening of 5<sup>th</sup> June 2007 at Chinese Restaurant at HKUST. Prof. T. X. Yu, Head of the Mechanical Engineering Department, HKUST, was invited to the reception dinner to welcome all the 9ASV participants.

The 9ASV International Steering Committee Meeting was held on the evening of 6<sup>th</sup> June 2007, followed by the invited western dinner with all the invited speakers and guests at a UC Bistro Restaurant in the University Centre at HKUST. The invited guests had enjoyed greatly not only the foods and wine, but also the spectacular sea-view of the UC Bistro with fantastic atmosphere. This evening was also the free-time evening for the rest of the 9ASV delegates to have an opportunity to visit Hong Kong at night time.

A city tour was organized, free to all the participants, in the afternoon on 7<sup>th</sup> June 2007. Three tour buses with Japanese and English tour guides were chartered for the event. The hottest places visited are (Figs. 5-8):



Fig. 5. Jumbo Kingdom symbolized by the floating seafood restaurant of Hong Kong.



Fig. 6. Repulse Bay with a beach recorded the legends of Hong Kong movie stars.



Fig. 7. Stanley Market, south port of Hong Kong, famous in name-brand outlets of clothing.



Fig. 8. Golden Bauhinia Square registered the return of Hong Kong to China in 1997.

After the city tour on 7<sup>th</sup> June 2007, the Conference Banquet was held at the Chinese Restaurant at HKUST where delegates and their spouses had socially interacted and enjoyed Peking duck, foods and wine. The JOV Award Ceremony was conducted by Prof. Y. Nakayama during the banquet (Fig. 8).

The photos of all the social events, with the paper abstracts and proceeding, are posted on the 9ASV website (<http://www.me.ust.hk/~9asv>).



Fig. 9. Prof. Y. Nakayama (left) presented the JOV award to Prof. C. T. Hsu during the banquet.

## 6. Next Symposia

The International Steering Committee Meeting was held in the evening on 6<sup>th</sup> June 2007. The committee confirmed that the 10<sup>th</sup> Asian Symposium on Visualization (10ASV) will be held in 2009, in Chennai, India, under the leadership of Prof. E. Rathakrishnan, Indian Institute of Technology. For further information, please contact 10ASV Secretariat, Department of Aerospace Engineering, Indian Institute of Technology, Kanpur, India. Phone: +91-512-2597847, E-mail: erath@iitk.ac.in

The International Steering Committee Meeting also decided that the 11<sup>th</sup> Asian Symposium on Visualization (11ASV) tentatively will be held in 2011 in Niigata, Japan. Follow the 11<sup>th</sup> ASV in Japan, Tainan, Taiwan, may be the feasible place for the 12<sup>th</sup> ASV in 2013. These will be further confirmed and decided at the 10ASV.

### *Author Profile*



Prof. C. T. Hsu: He received his PhD from Stanford University in 1977. He has extensive experience in theoretical and experimental research work in the areas of fluid mechanics and heat transfer. Before taking up his teaching post at the Hong Kong University of Science and Technology, Hong Kong, in 1991, he worked in US defense industry for 14 years, conducting experimental works in a wind wave channel, wind tunnel and rapid compression facility, and pioneered theoretical work in heat transfer in porous media. He has served as referee for several prestigious journals, and currently the member of Editorial Board of International Journal of Dynamics of Fluids. He also acted as a consultant to industry and universities in the US, China and Taiwan. His current research interests are mainly on the energy efficient products and testing, enhanced heat transfer, magnetic fluids and heat transfer, and numerical simulation with Navier-Stokes and Boltzmann kinetics formulations.



Prof. H. H. Qiu: He received his Ph.D degree in 1994 from *LSTM*, University of Erlangen, Germany. He has extensive experience in optical particle sizing, micro-resolution PIV, microfluidic devices and particle dynamics in two-phase flows. He is the member of Editorial Advisory Board of *Experiments in Fluids*, *Spinger*. He is the recipient of the Best Paper Award of *Institute of Physics (IOP)* in 1994 and the Distinguished Scientific Achievement Award: State Scientific and Technological Progress Award (SSTPA)(1989). His current research interests are in the areas of optical diagnostics in micro fluid flows, micro/nano droplets, microfluidics and microsensors.