4th Symposium on Fluid-Structure-Sound Interactions and Control

21 – 24 August 2017

Tokyo, Japan

Organized by Nihon University

In association with Harbin Institute of Technology

PROGRAMME

Welcome

On behalf of the Local Organizing Committee, the International Organizing Committee and the International Scientific Committee, I take this opportunity to wish you a warm welcome to the 4th Symposium on Fluid-Structure-Sound Interactions and Control (FSSIC2017).

Flow-induced structural vibration and noise are encountered in a myriad engineering and naturally occurring systems. Their phenomenology entails or combines aspects from the broad fields of Fluid Mechanics, Fluid-Structure Interaction and Acoustics. Understanding, controlling or exploiting such phenomena is now enabled by rapidly developing techniques and technologies such as signal processing, flow visualization and diagnostics, new functional materials, and sensors and actuators.

The foregoing range of topics and their interdisciplinary nature is reflected in the contents of this volume wherein some 140 papers to be presented at the conference are overviewed by way of their extended abstracts; these include four invited lectures by undisputed leaders in their research field and five plenary lectures that are anticipated to be of interest to participants across the spectrum of sub-discipline specialisms.

With approximately 150 participants, the 4th Symposium on Fluid-Structure-Sound Interactions and Control (FSSIC) brings together researchers in the rapidly advancing Asia-Pacific region. The meeting provides a forum for academics, scientists and engineers working in all branches of FSSIC to exchange and share latest developments, ideas and advances, bringing them together, from both East and West, to push forward the frontiers of FSSIC.

The 4th Symposium on FSSIC follows on from the successful 3rd Symposium that was held in July 2015 at Curtin University and is the latest meeting. The location and host of the 5th Symposium in the series will be announced during the Closing Ceremony of the present meeting. The Local Organizing Committee would particularly like to welcome you to Tokyo, Japan, and Nihon University that is host to the symposium. While we look forward to your contribution to, and participation in, the symposium, we also encourage you to explore the new city, downtown, historical and cultural attractions of Tokyo city and its environs.

I wish you a fruitful and enjoyable symposium both through its scientific content and the opportunities to renew or establish new friendships and collaborations via the social events.

Professor Motoaki Kimura
Nihon University
Conference Chair

General Information

Registration Desk Opening Hours

Monday 21 August 4:30pm – 6:30pm, 2nd floor, Building 1
Tuesday 22 August 8:30am – 2:00pm, 5th floor, Building 1
Wednesday 23 August 8:30am – 2:00pm, 5th floor, Building 1

Transport

Nihon University (Surugadai school building)

8-14, Kanda-Surugadai 1-chome, Chiyoda-ku, Tokyo 101-8308, Japan
TEL 03-3259-0514 (General Affairs Division)
3 minutes on foot from JR Chuo and Sobu Line "Ochanomizu" station
3 minutes on foot from Tokyo Metro Chiyoda Line "Shin-Ochanomizu" station
5 minutes on foot from Tokyo Metro Marunouchi Line "Ochanomizu" station
http://www.cst.nihon-u.ac.jp/en/access.html
http://www.cst.nihon-u.ac.jp/campus/index.html

Wi-Fi Internet

Wi-Fi Internet connection is available in all the conference rooms.

Smoking

2nd floor balcony, Building 1

Emergency

In a life threatening situation, please call 110.

Badges & Security

All participants will receive their badges upon registration. It is mandatory that participants wear their badges at all times when at the conference venue.

Language

The official language of the conference is English. No translation will be provided.

Liability

The Organizing Committee is not liable for personal accidents or loss/damage of private properties of registered participants during the conference.

Disclaimer

The Organizing Committee reserves the right to make any necessary changes in the programmer. Whilst every attempt is made to ensure that all aspects of the conference will be carried out as scheduled, the Organizing Committee is not responsible for any personal expenses incurred or any loss suffered by any registered participant or his/her accompanying guest in connection with changes in the conference schedule.

Sessions Information

Presentation Guidelines

For the parallel sessions, each presenter will be given 20 minutes (15 minutes presentation+ 5 minutes discussion). Please load your presentation on the AV system before the session starts. The following AV system will be available in all the conference rooms:

- Operating System: Windows 7 or later version
- Format: MS Power Point 2010 or later version
- Pictures and Videos: JPG and video formats supported by Windows Media Player
- Memory Device Connectivity: USB 2.0 (portable hard drive or thumb drive)
- Video Input Connectivity: VGA or HDMI (if you want to connect your own laptop, please make sure you have a VGA output/adaptor)

Student-Presenter Awards

Five awards will be made for the best presentations by students. We request that the session chair serves as a judge by way of completing an evaluation form. There will be additional “roving judges” to supplement the evaluation process. The criteria center on the quality of the presentation as opposed to the scientific merit of the paper presented. The awards will be announced at the closing ceremony of the symposium on Thursday 24.

Conference Rooms

CST Hall (6th Floor, Building 1)

Opening and closing ceremonies, keynote presentations, plenary lectures, Room 1.

5th Floor and 6th Floor, Building 1

Conference parallel sessions take place on the 5th and 6th floor of Building 1.

Room 1: CST Hall

Room 2: 151

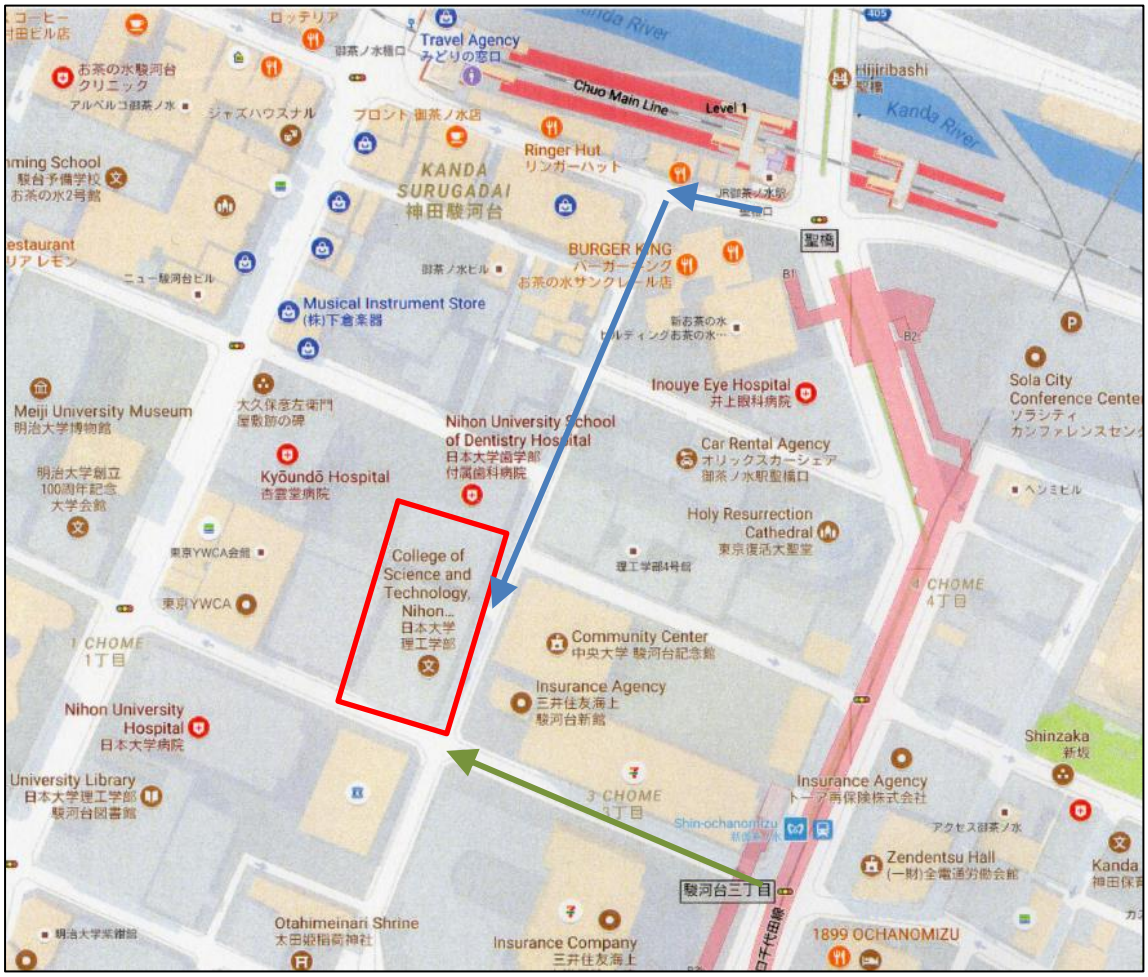
Room 3: 152

Room 4: 153

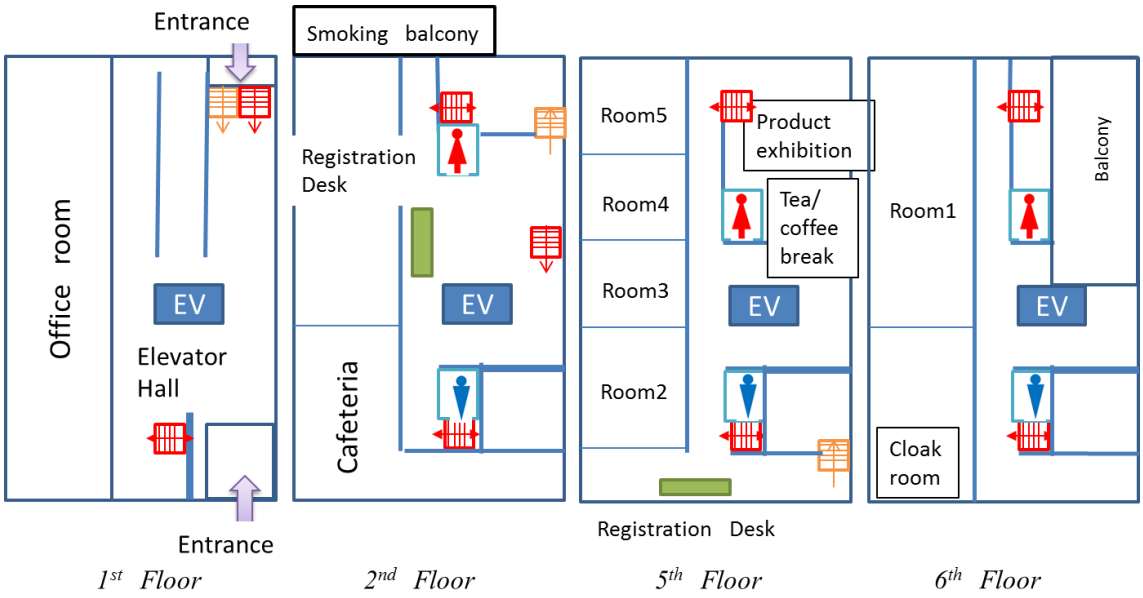
Room 5: 154

Access Map

“Blue line” indicates on foot from JR Chuo and Sobu Line "Ochanomizu" station and “Green line” indicates on foot from Tokyo Metro Chiyoda Line "Shin-Ochanomizu" station



Floor Map



Conference Banquet

The conference banquet will be held on Wednesday 23 August in the Takachiho Banquet Hall of Tokyo Garden Palace, in 15 minutes on foot from the

conference venue.

Social Functions and Catering

As part of the conference registration, catering for the evening meals (except Thursday 24 August) will be provided in addition to lunch and tea & coffee breaks. For participants with special dietary requireme nts, please contact the organizing team at the registration desk.

Lunches, Tea & Coffee breaks

Lunch will be served daily from Tuesday 22 August to Thursday 24 August in the Cafeteria (2nd floor Building 1) on Nihon University. Tea & Coffee breaks will take place daily in the open area of 5th floor, Building 1.

Welcome Reception

The welcome reception will be held on Monday 21 August in the Cafeteria (2nd floor, Building 1). The registration desk will be open in the same location during the reception.

Dinner (Tokyo Bay Cruise)

A buffet dinner (Tokyo Bay Cruise) will be held on the Symphony Ship on Tuesday 22 August. (Free coach transportation for travel from the conference venue to Hinode Terminal: Sealine Tokyo Co., Ltd. Hinode Terminal office)

Conference Banquet

The conference banquet will be held on Wednesday 23 August in the Takachiho Banquet Hall of Tokyo Garden Palace, in 15 minutes on foot from the conference venue.

Programme Overview

Monday, 21 August 2017	
16:30	*Cafeteria (Building 1, 2F)* **Welcome Reception & Pre-Registration**
18:30	End of Day 0

Tuesday, 22 August 2017					
8:30	*5th Floor (Building 1, 5F)* **Registration**				
9:00	*CST Hall (Building 1, 6F)* **Opening Ceremony**				
9:30	*CST Hall (Building 1, 6F)* **Keynote Lecture 1** Speaker: Professor Haecheon Choi, Seoul National University, Korea Chair: Professor Yu Zhou				
10:20	**Tea Break** @ *Open Area (Building 1, 5F)*				
10:40	*Room 1 (CST Hall, 6F)* Wave/Vibration /Noise 1	*Room 2 (151, 5F)* Wave/Vibration /Noise 2	*Room 3 (152, 5F)* Air/Gas Flow 1	*Room 4 (153, 5F)* Air/Gas Flow 2	*Room 5 (154, 5F)* Air/Gas Flow 3
12:20	**Lunch Break** *Cafeteria (Building 1, 2F)*				
13:50	*CST Hall (Building 1, 6F)* **Keynote Lecture 2** Speaker: Professor Earl H. Dowell, Pratt School of Engineering Duke University, USA Chair: Professor Tony Lucey				
14:50	*Room 1 (CST Hall, 6F)* Wave/Vibration /Noise 3	*Room 2 (151, 5F)* Wave/Vibration /Noise 4	*Room 3 (152, 5F)* Wave/Vibration /Noise 5	*Room 4 (153, 5F)* General 1	*Room 5 (154, 5F)* Multiphase Flow 1
16:30	**Tea Break** @ *Open Area (Building 1, 5F)*				
16:50	*CST Hall (Building 1, 6F)* **Plenary Lecture 1** Speaker: Professor Bernd Noack, CNRS, France Chair: Professor Yang Liu				
18:30	**Dinner Cruise** *SYMPHONY Tokyo Bay Cruise (Free Coach for travel from the conference venue to the bay)*				
21:30	End of Day 1				

Wednesday, 23 August 2017					
9:00	*CST Hall (Building 1, 6F)* **Keynote Lecture 3** Speaker: Professor Lixi Huang, University of Hong Kong, China Chair: Professor Yang Liu				
9:50	*CST Hall (Building 1, 6F)* **Plenary Lecture 2** Speaker: Professor Marianna Braza, CNRS, France Chair: Professor Yu Zhou				
10:30	**Tea Break** *@ Open Area (Building 1, 5F)*				
10:50	*Room 1 (CST Hall, 6F)* Wave/Vibration /Noise 6	*Room 2 (151, 5F)* Wave/Vibration /Noise 7	*Room 3 (152, 5F)* Air/Gas Flow 4	*Room 4 (153, 5F)* Air/Gas Flow 5	*Room 5 (154, 5F)* Liquid Flow 1
11:50	**Lunch Break** *Cafeteria (Building 1, 2F)*				
12:50	*CST Hall (Building 1, 6F)* **Plenary Lecture 3** Speaker: Professor Jin-Jun Wang, Beijing University, China Chair: Professor Lixi Huang				
13:40	*Room 1 (CST Hall, 6F)* Wave/Vibration /Noise 8	*Room 2 (151, 5F)* Air/Gas Flow 6	*Room 3 (152, 5F)* Air/Gas Flow 7	*Room 4 (153, 5F)* Bio Flow 1	*Room 5 (154, 5F)* Liquid Flow 2
15:00	**Tea Break** *@ Open Area (Building 1, 5F)*				
15:20	*Room 1 (CST Hall, 6F)* Wave/Vibration /Noise 9	*Room 2 (151, 5F)* Air/Gas Flow 8	*Room 3 (152, 5F)* General 2	*Room 4 (153, 5F)* Bio Flow 2	*Room 5 (154, 5F)* Multiphase Flow 2
16:50	*CST Hall (Building 1, 6F)* **Plenary Lecture 4** Speaker: Professor Shu Takagi, University of Tokyo, Japan Chair: Professor Guoyi Peng				
18:30	**Banquet** *Hotel Tokyo Garden Palace*				
20:30	End of Day 2				

Thursday, 24 August 2017					
9:00	*CST Hall (Building 1, 6F)* **Keynote Lecture 4** Speaker: Professor Hideshi Hanazaki, Kyoto University, Japan Chair: Professor Motoaki Kimura				
10:00	*Room 1 (CST Hall, 6F)* Wave/Vibration/Noise 10	*Room 2 (151, 5F)* Wave/Vibration /Noise 11	*Room 3 (152, 5F)* Wave/Vibration /Noise 12	*Room 4 (153, 5F)* Air/Gas Flow 9	*Room 5 (154. 5F)* Air/Gas Flow 10
11:00	**Tea Break** *@ Open Area (Building 1, 5F)*				
11:20	*Room 1 (CST Hall, 6F)* Wave/Vibration/Noise 13	*Room 2 (151, 5F)* Wave/Vibration /Noise 14	*Room 3 (152, 5F)* Wave/Vibration /Noise 15	*Room 4 (153, 5F)* Wave/Vibration /Noise 16	*Room 5 (154, 5F)* Air/Gas Flow 11
12:20	**Lunch Break** *Cafeteria (Building 1, 2F)*				
13:20	*CST Hall (Building 1, 6F)* **Plenary Lecture 5** Speaker: Professor Samir Ziada, McMaster University, USA Chair: Professor Tony Lucey				
14:10	*Room 1 (CST Hall, 6F)* Wave/Vibration/Noise 17	*Room 2 (151, 5F)* Wave/Vibration /Noise 18	*Room 3 (152, 5F)* Wave/Vibration /Noise 19	*Room 4 (153, 5F)* Air/Gas Flow 12	*Room 5 (154, 5F)* Multiphase Flow 3
15:30	**Tea Break** *@ Open Area (Building 1, 5F)*				
15:50	*CST Hall (Building 1, 6F)* **Informal Plenary Lecture** Speaker: Professor Robert Anthony Antonia, University of Newcastle, Australia Chair: Professor Yu Zhou				
16:30	*CST Hall (Building 1, 6F)* **Closing Ceremony**				
17:00	End of Day 3				

Parallel Sessions Programme

Tuesday, 22 August 10:40 ~ 12:20

Tuesday, 22 August	Wave/Vibration/Noise (1) – Chair: *Sun X. F.* *Room 1 (CST Hall)*
10:40 ~ 11:00	**A150** Heat transfer enhancement by autonomous, aero-elastic reed fluttering *Glezer A, Jha S, Crittenden T*
11:00 ~ 11:20	**A045** Nonlinear aeroelastic behaviors of cylindrical composite panels *An XM, Yan PW, Liu YX*
11:20 ~ 11:40	**A090** Harmonic Response of a Foil in Fully Passive Oscillation *Wang Z, Du L, Zhao J, Sun X*
11:40 ~ 12:00	**A110** Non-linear spring-mounted flexible plates in axial flow *Howell RM, Lucey AD*
12:00 ~ 12:20	**A162** Numerical CFD Approach to Predict the In-Flow Fluidelastic Instability in Air-Water Mixture *Sadek O, Mohany A, Hassan M*

Tuesday, 22 August	Wave/Vibration/Noise (2) – Chair: *Wang X. N.* *Room 2 (151)*
10:40 ~ 11:00	**A046** Separated-reattachment flow structure and the noise generation between the blades of a sirocco fan *Fukao Y, Iwano K, Sakai Y, Ito Y, Sakai M, Oda S, Ochiai T*
11:00 ~ 11:20	**A096** Noise prediction and reduction of multi-blade centrifugal fans *Liu R, Zhang Y, Chen H*
11:20 ~ 11:40	**A026** The simulation of tip-leakage flow and its induced noise *Zhai S, Xion Z*
11:40 ~ 12:00	**A094** Fan tone noise prediction using a hybrid URANS/Goldstein method *Tong F, Qiao WY, Cheng HY, Wang XN*
12:00 ~ 12:20	**A152** Fan casing treatment for tip noise reduction *Liu N, Wang C, Wu K, Huang L*

Tuesday, 22 August	Air/Gas flow (1) – Chair: *Li Y.* *Room 3 (152)*
10:40 ~ 11:00	**A115** Numerical simulation on vortex-structure interaction generating aerodynamic noises for rod-airfoil models *Chen G, Lv J, Jiang S, Liu F, Li Y*
11:00 ~ 11:20	**A157** Hypersonic vehicle wing flutter boundary prediction by numerical simulation and wing tunnel experiment *Wang F, Lyu J, Guo L, Ji C, Liu Z*
11:20 ~ 11:40	**A123** Numerical Study of Variable-Camber Technology on Supercritical Airfoil *Niu W, Chen H, Zhang Y*
11:40 ~ 12:00	**A111** Longitudinal vortex wind turbine: Effect of the blade lengths *Hemsuwan W, Sakamoto K, Takahashi T*
12:00 ~ 12:20	**A139** Experiment and analysis on blade surface pressure of a field HAWT *Li D, Guo T, Li R, Li Y*

Tuesday, 22 August	Air/Gas flow (2) – Chair: *Shakouchi T.* *Room 4 (153)*
10:40 ~ 11:00	**A049** Effect of a louver-type wind barrier on the aerodynamic performance of train-bridge system *Fang D, He X, Wang H, Fei F*
11:00 ~ 11:20	**A061** Investigations on the Strouhal numbers of stationary flat-box girder *Li H, He X, Wang H, Liu M*
11:20 ~ 11:40	**A134** Three-dimensional time-averaged flow fields in the turbulent wake of a surface-mounted finite-height square prism *Chakravarty R, Moazamigoodarzi N, Bergstrom DJ, Sumner D*
11:40 ~ 12:00	**A141** LES analyses of wind turbine wakes in a neutral atmospheric boundary layer *Yang C, Gao Z, Zhang X, Luo S*
12:00 ~ 12:20	**A156** Aerodynamic characteristics of vehicle-bridge system to cross wind *Zou S, He X, Wang H, Zou Y, Jing H*

Tuesday, 22 August	Air/Gas flow (3) – Chair: *Kimura M.* *Room 5 (154)*
10:40 ~ 11:00	**A044** Jet control using the coaxial type DBD-PA by burst modulation *Akimoto M, Matsumori H, Kimura M*
11:00 ~ 11:20	**A011** Flame Control in Combustion Nozzle using a Coaxial Type DBD Plasma Actuator *Kanai S, Tsuchida H, Yoshida K, Akimoto M, Kimura M*
11:20 ~ 11:40	**A022** Effect of burst modulation by coaxial DBD-PA has on jet *Matsumori H, Akimoto M, Kimura M*
11:40 ~ 12:00	**A105** Effect of a perforated wall on the development of an planar offset jet *Gao N, Xia Y*
12:00 ~ 12:20	**A136** Study of Diffusion control of jet using plasma actuator -The influence of the jet diffusion by the plasma induced flow instability- *Miyagi N, Kimura M*

Tuesday, 22 August 14:50 ~ 16:30

Tuesday, 22 August	Wave/Vibration/Noise (3) – Chair: *Dong Y. H.* *Room 1 (CST Hall)*
14:50 ~ 15:10	**A012** An introduction of CARDC 5.5m×4m anechoic wind tunnel and the aeroacoustic tests *Wang XN, Zhang J, Chen P, Chen ZW*
15:10 ~ 15:30	**A039** A comparison of three shear layer phase shift correction methods for open-jet wind tunnel microphone array measurement *Zhang J, Wang X, Chen P, Chen Z, Zhang J*
15:30 ~ 15:50	**A099** A frequency compensation method to smooth frequency fluctuation for locating moving acoustic sources *Mo P, Wang X, Jiang W*
15:50 ~ 16:10	**A114** Frequency domain beamforming for monopole and dipole sources *Gao JZ, Pan XJ, Wang XN, Jiang WK*
16:10 ~ 16:30	**A102** Space-time correlations and sound radiation of porous wall-bounded turbulent shear flows by lattice Boltzmann simulations *Zheng Y, Tang Z, Dong YH*

Tuesday, 22 August	Wave/Vibration/Noise (4) – Chair: *Noack B.* *Room 2 (151)*
14:50 ~ 15:10	**A065** A data-driven approach for modeling vortex-induced vibration of a long-span suspension bridge based on full-scale measurements *Li S, Laima S, Li H*
15:10 ~ 15:30	**A066** Flow induced vibration of tandem inverted flags *Mazharmanesh S, Young J, Tian FB, Lai JCS*
15:30 ~ 15:50	**A119** Excitation and damping forces on a freely vibrating cylinder *Konstantinidis E, Zhao J, Leontini JS, Lo Jacono D, Sheridan J*
15:50 ~ 16:10	**A120** Periodic forcing applied to a backward-facing flow *Chovet C, Lippert M, Keirsbulck L, Noack BR, Foucaut JM*
16:10 ~ 16:30	**A161** Flow-Acoustic Coupling Downstream of a Single Finned Cylinder in Cross-Flow *Arafa N, Mohany A*

Tuesday, 22 August	Wave/Vibration/Noise (5) – Chair: *Choi H.* *Room 3 (152)*
14:50 ~ 15:10	**A016** Generation of frication noise for human speech sound production *Van Hirtum A, Yoshinaga T, Nozaki N, Wada S*
15:10 ~ 15:30	**A063** Numerical modeling of pneumatic speaker with a time-varying geometry orifice *Zhou H, Zhao Y, Gong C, Zeng X*
15:30 ~ 15:50	**A107** Combustion oscillation characteristics of hydrogen-rich fuel *Uemichi A, Kanetsuki I, Kaneko S*
15:50 ~ 16:10	**A133** Numerical simulation of the vibration and unsteady flow of a high intensity air-modulated speaker *Zhao Y, Zeng XW, Gong CC, Tian ZF*
16:10 ~ 16:30	**A081** Effect of Flow Separation on Acoustic Resonance in In-line Tube Banks *Hino S, Mizoguchi T, Hamakawa H, Nishida E, Kurihara E*

Tuesday, 22 August	General (1) – Chair: *Kim D.* *Room 4 (153)*
14:50 ~ 15:10	**A008** The effect of aspect ratio on the normal force and bending moment coefficients for a surface-mounted finite cylinder *Beitel A, Sumner D*
15:10 ~ 15:30	**A080** Friction drag reduction mechanism under DBD plasma control *Cheng XQ, Wong CW, Li YZ, Zhou Y*
15:30 ~ 15:50	**A121** Novel dynamics of a flags in a uniform free stream *Kim H, Kim HY, Kim D*
15:50 ~ 16:10	**A131** Numerical simulations of film cooling effectiveness and flow structure *Shu Z, Dai C, Mi J*
16:10 ~ 16:30	**A151** Measurement of wall shear stress on an airfoil surface by using the oil film interferometry *Yoshioka Y, Suzuki Y*

Tuesday, 22 August	Multiphase flow (1) – Chair: *Muramatsu A.* *Room 5 (154)*
14:50 ~ 15:10	**A007** Flow around a Circular Cylinder inside a Bubble Plume *Degawa T, Uchiyama T, Ishiguro Y*
15:10 ~ 15:30	**A062** Effect of ventilation on the velocity decay of cavitating submerged water jet *Peng G, Itou T, Oguma Y, Shimizu S*
15:30 ~ 15:50	**A074** Model Test and Characterisation of marine propeller cavitation and noise *Huang L, Chen YH, Song MT*
15:50 ~ 16:10	**A109** Interaction between water or air-water bubble flow and tube bundle -Effects of arrangement of tube bundle and void fraction- *Shakouchi T, Kitamura T, Tsujimoto K, Ando T*
16:10 ~ 16:30	**A124** Effect of micro-bubbles on a turbulent boundary layer *Cao HL, Guo W, Li XH, Zhou Y*

Wednesday, 23 August 10:50 ~ 11:50

Wednesday, 23 August	Wave/Vibration/Noise (6) – Chair: *Kiwata T.* *Room 1 (CST Hall)*
10:50 ~ 11:10	**A032** Power output of spring-mounted lifting plates in a cross flow *Maaskant S.A, Howell R.M, Lucey A.D*
11:10 ~ 11:30	**A060** Numerical studies of fluid-structure-interaction noise from a hydrofoil *Xu YB, Chen YH, Tang DH*
11:30 ~ 11:50	**A089** Flow-induced vibration characteristic of cantilevered rectangular and D-section prisms with different aspect ratios *Barata LA, Kiwata T, Mizukami S, Kono T, Nishiguchi H, Ueno T*

Wednesday, 23 August	Wave/Vibration/Noise (7) – Chair: *Huang L.* *Room 2 (151)*
10:50 ~ 11:10	**A078** Turbulent ramp flow control using unsteady blowing upstream of the separation point *Sujar-Garrido P, Zhou Y, Hao JC*
11:10 ~ 11:30	**A086** Experimental investigation of facing rim cavities by covering treatments *Xu L, Guo H, Liu P*
11:30 ~ 11:50	**A088** Thermoacoustic chaotic oscillations control by delayed self-feedback *Delage R, Takayama Y, Hyodo H, Biwa T*

Wednesday, 23 August	Air/Gas flow (4) – Chair: *Iwano K.* *Room 3 (152)*
10:50 ~ 11:10	**A028** Numerical investigation of the post-stall flow patterns over a NACA 0021 hydrofoil with sinusoidal leading edge *Cisonni J, J.C.King A*
11:10 ~ 11:30	**A040** Effects of Reduced Frequency on the Behaviours of Burst Point around a Pitching Double Delta Wing *Liu J, Sun H, Liu Z, Xiao Z*
11:30 ~ 11:50	**A087** Attenuation of Vortex-Structure Interaction noise of a Rod-Airfoil Configuration using “Natural Base Bleed” *Li Y, Huang LX*

Wednesday, 23 August	Air/Gas flow (5) – Chair: *Braza M.* *Room 4 (153)*
10:50 ~ 11:10	**A001** Passive control of combustion instability in a bifurcating thermoacoustic system using an electrical heater *Zhao D, Li S, Wen H, Yang X*
11:10 ~ 11:30	**A024** Time evolution of vortex surface for shock induced vortex breakdown *Zhang S*
11:30 ~ 11:50	**A035** Wind Tunnel Tests on Aerodynamic Characteristics of two types of Iced Conductors with Elastic Support *Li X, Zhu Y, Nie X*

Wednesday, 23 August	Liquid flow (1) – Chair: *Ikoma T.* *Room 5 (154)*
10:50 ~ 11:10	**A017** Numerical investigation on performance improvement by using a runner with splitter for a Francis turbine *Feng JJ, Lin FZ, Wu GK, Guo PC, Zhu GJ, Luo XQ*
11:10 ~ 11:30	**A068** Fluid-structure coupling analysis for the impeller in a mixd flow pump *Haisi G, Ji P, Shouqi Y, Osman MK*
11:30 ~ 11:50	**A103** Hydraulic excitation in the pump transporting high-temperature molten salt *Kang C, Zhu Y, Li Q, Gu Y*

Wednesday, 23 August 13:40 ~ 15:00

Wednesday, 23 August	Wave/Vibration/Noise (8) – Chair: *Hirata K.* *Room 1 (CST Hall)*
13:40 ~ 14:00	**A052** Effect of the structural stiffness on the stability of the pulsatile Poiseuille through a compliant channel *Tsigklifis K, Lucey AD*
14:00 ~ 14:20	**A056** Trident Convection in a Cube *Kodama M, Nobuhara M, Tatsumoto K, Tanigawa H, Hirata K*
14:20 ~ 14:40	**A051** Research on Analysis Technique of Flow-induced Vibration of Ejector *Nie X, Chen Z, Liu Z, Yang Y*
14:40 ~ 15:00	**A058** Numerical Simulation for the Aeroacoustic Wave Propagating in Flow *Wang Y, Luo Y, Zhang S*

Wednesday, 23 August	Air/Gas flow (6) – Chair: *Rinoshika A.* *Room 2 (151)*
13:40 ~ 14:00	**A003** Flow topology around two non-parallel cylinders in tandem *Md Mahbub A, Younis MY, Zhou Y*
14:00 ~ 14:20	**A009** Mutual Interference Vortex Flow Around Two Square Cylinders *Yokoi Y, Hamada S*
14:20 ~ 14:40	**A033** Wake Flow Control of a Finite Wall-mounted Cylinder with a Horizontal Hole *Rinoshika H, Fujimoto S, Rinoshika A*
14:40 ~ 15:00	**A076** On the vortex dynamics in the wake of high-speed low-damping galloping cylinders *Claydon HO, Gan L, Xu SJ*

Wednesday, 23 August	Air/Gas flow (7) – Chair: *Muramatsu A.* *Room 3 (152)*
13:40 ~ 14:00	**A112** A quantitative investigation into the formation of counter-rotating vortex pairs from the inclined jet in crossflow *Dai C, Shu Z, Mi J*
14:00 ~ 14:20	**A149** Mixing control of a round jet by a local sound wave *Nakamura N, Muramatsu A*
14:20 ~ 14:40	**A158** A new method for the formation of free jets with long laminar region *Zayko J, Sudarikova A, Teplovodskii S, Reshmin A, Vedeneev V*
14:40 ~ 15:00	**A138** Flow characteristics of multiple round jets issuing from in-line nozzle arrangement *Teramoto H, Kiwata T*

Wednesday, 23 August	Bio flow (1) – Chair: *Liu Y.* *Room 4 (153)*
13:40 ~ 14:00	**A057** Numerical and experimental study of fluid-structure interaction of microvasculature *Liu SH, Chi TX, Tian S, Su ZD, Luo XY, Liu Y*
14:00 ~ 14:20	**A021** Numerical Simulation on Hemodynamic State of Residual Limb after Trans-femoral Amputation *Dong RQ, Jiang WT, Wong MS*
14:20 ~ 14:40	**A082** Spectral correlation study of skin blood flow oscillation *Chi TX, Luo XY, Liu Y*
14:40 ~ 15:00	**A148** Pulsatile Jet Ejected from Lips *Sekine M, Sugiyama K, Kubota Y, Mochizuki O*

Wednesday, 23 August	Liquid flow (2) – Chair: *Ikoma T.* *Room 5 (154)*
13:40 ~ 14:00	**A025** Wake behind a flapping membrane in water channel *Yu Y, Chen Y, Liu Y*
14:00 ~ 14:20	**A048** Research on slip factor for the turbine operation of centrifugal pump *Wang XH, Yang JH, Xia ZT, Min Z*
14:20 ~ 14:40	**A126** The Relationship of the Performances and the Design Parameters for Non-overload Centrifugal Pumps *Yang J, Huang X, Yang G*
14:40 ~ 15:00	**A137** Investigation on the optimization of the liquid ring pump case *Zhang R, Liang M*

Wednesday, 23 August 15:20 ~ 16:40

Wednesday, 23 August	Wave/Vibration/Noise (9) – Chair: *Sumner D.* *Room 1 (CST Hall)*
15:20 ~ 15:40	**A004** Exploring a universal wake number for finite-height bluff bodies *Unnikrishnan S. , Sumner D*
15:40 ~ 16:00	**A050** Unsteady flow structure behind a low-drag Ahmed body *Zhang YC, Zhang BF, Zhou Y*
16:00 ~ 16:20	**A098** Aerodynamic noise control of bluff bodies with soft porous cover *Wu T, Liu PQ, Guo H*
16:20 ~ 16:40	**A077** Active control of two-dimensional vortex-induced vibration of a circular cylinder using a pair of synthetic jets *Wang C, Duan F, Tang H*

Wednesday, 23 August	Air/Gas flow (8) – Chair: *Xu S. J.* *Room 2 (151)*
15:20 ~ 15:40	**A034** Flow Structures around a Finite Wall-mounted Cylinder having an Inclined Hole *Rinoshika H, Fujimoto S, Rinoshika A*
15:40 ~ 16:00	**A037** Vortex formation and separation effects on St and CD of polygonal cylinders *Wang QY, Zhang WG, Liu JS, Xu SJ*
16:00 ~ 16:20	**A038** Vortex streets behind polygonal cylinders *Wang QY, Zhang WG, Gan L, Xu SJ*
16:20 ~ 16:40	**A059** Numerical study of shock-associated noise in axisymmetric supersonic jet *Li H, Luo Y, Zhang S*

Wednesday, 23 August	General (2) – Chair: *Yokoi Y.* *Room 3 (152)*
15:20 ~ 15:40	**A030** Effect on fluid grid system for numerical bench marking of fluid-structure interaction *Lee CM, Lee I, Paik KJ*
15:40 ~ 16:00	**A029** On the thresholds of vortex identification methods *Wang Y, Fu S*
16:00 ~ 16:20	**A146** A novel methodology to determine optimum sensor locations for bulk carriers *Kefal A, Bunga Mayang J, Oterkus E*
16:20 ~ 16:40	**A014** Small-scale properties in two-dimensional Rayleigh-Taylor turbulence *Zhou Q, Ni R*

Wednesday, 23 August	Bio Flow (2) – Chair: *Mochizuki O.* *Room 4 (153)*
15:20 ~ 15:40	**A091** Experimental study on influence of Syringe volume on foam stability in sclerotherapy for the treatment of varicose veins *Bai T, Jiang W, Fan Y*
15:40 ~ 16:00	**A092** Fluid-Solid Interaction Analysis on a Patient-Specific Model of Aorto-iliac Arteries *Luo K, Jiang WT, Tian XB, Xiong Y, Chen Y, Wang QY, Fan YB*
16:00 ~ 16:20	**A093** Transmission line equations of oxygen transport in blood *Yan F, Jiang WT, Zhou ZH, Wang QY, Fan YB, Zhang M*

Wednesday, 23 August	Multiphase Flow (2) – Chair: *Kofu K.* *Room 5 (154)*
15:20 ~ 15:40	**A118** A numerical study on the capsule deformation in a simple shear flow *Ma J, Tian FB, Xu L, Lai JCS, Young J*
15:40 ~ 16:00	**A142** A horizontal energy-saving pneumatic conveying by using a lattice model *Liu M, Rinoshika A*
16:00 ~ 16:20	**A147** Control of Particle Motion with Ultrasonic Vibration *Ouchi K, Kofu K*
16:20 ~ 16:40	**A075** New method for simulation of the wind-blown sand load on buildings *Xu CH, Jiang CW, Gao ZX, Lee CH*

Thursday, 24 August 10:00 ~ 11:00

Thursday, 24 August	Wave/Vibration/Noise (10) – Chair: *Lai H.* *Room 1 (CST Hall)*
10:00 ~ 10:20	**A053** Study of passive control of jet noise by blind holes on nozzle inner wall *Shi Z, Lin J, Lai H*
10:20 ~ 10:40	**A084** Farfield Noise Experimental Study on Different Slat Gap Width *Jiang C, Liu P, Guo H, Li L, Geng X, Hou Y*

Thursday, 24 August	Wave/Vibration/Noise (11) – Chair: *Oguma Y.* *Room 2 (151)*
10:00 ~ 10:20	**A125** Equivalent Processing Based Civil Aircraft Airworthiness Noise Evaluation *Li Q, Hao L, Wang J, Jin S, Zhang Z*
10:20 ~ 10:40	**A070** Mach number scaling law analysis of a simplified nose landing gear noise *Xing Y, Liu P, Li L, Guo H*
10:40 ~ 11:00	**A117** Rear Cabin Noise Prediction For An Aircraft Based On Finite Element Method *Xu KL, Chen L, Chen YC*

Thursday, 24 August	Wave/Vibration/Noise (12) – Chair: *Kofu K.* *Room 3 (152)*
10:00 ~ 10:20	**A064** Aero-Structural-Acoustic Simulation of a Cavity with Store *Murray AJ, Flaig M, Vio GA, Thornber B, Geoghegan JA*
10:20 ~ 10:40	**A072** Multi-scale Simulation of Rain Wind Induced Vibration *Cheng P, Li WJ, Li H*
10:40 ~ 11:00	**A073** Effects of Riblet Surfaces on Characteristics of Flow Separation and Separation-induced Noise in Turbulent Flow over Backward-facing Step *Aono H, Mamori H, Fukushima N, Yamamoto M, Ishikawa H*

Thursday, 24 August	Air/Gas flow (9) – Chair: *Ohtake T.* *Room 4 (153)*
10:00 ~ 10:20	**A041** Drag reduction on an Ahmed body using combined steady blowings *Liu K, Zhang BF, Zhou Y*
10:20 ~ 10:40	**A042** Control of the aerodynamic forces of a cantilevered square cylinder with free-end suction *Wang HF, Peng S, Li SQ*
10:40 ~ 11:00	**A015** Wave force estimation of bottom-mounted cylinder using the measurement of wave surface elevation around the body surface *Liu J, Guo A, Li H*

Thursday, 24 August	Air/Gas flow (10) – Chair: *Sekiya N.* *Room 5 (154)*
10:00 ~ 10:20	**A023** Adaptive slot control method for unstart hypersonic inlets *Zhu C, Wu M, Chen R, You Y*
10:20 ~ 10:40	**A097** Unsteady Computational Investigation of an Adjustable Single Expansion Ramp Nozzle Using Overset Grid Technique *Li X, Qian Z, Liu Y*
10:40 ~ 11:00	**A108** Usteady numerical simulation research on starting performances of the variable geometry inlet *Liu Y, Xiang X, Qian Z*

Thursday, 24 August 11:20 ~ 12:20

Thursday, 24 August	Wave/Vibration/Noise (13) – Chair: *Wang J-J* *Room 1 (CST Hall)*
11:20 ~ 11:40	**A006** Numerical investigation of vortex-induced vibration of circular cylinder with multiple control rods at low Reynolds number *Liu MM, Zhao M, Lu L, Teng B, Tang GQ*
11:40 ~ 12:00	**A019** Numerical simulation on the vortex-induced vibrations on four cylinders in a square arrangement *Pearcey T, Zhao M, Xiang Y*
12:00 ~ 12:20	**A031** Vibration initiation of a cylinder in the wake of another *Qin B, Md Mahbub A, Zhou Y*

Thursday, 24 August	Wave/Vibration/Noise (14) – Chair: *Miyagi N.* *Room 2 (151)*
11:20 ~ 11:40	**A095** Numerical investigation on the Aeroacoustic Characteristic at a Valve *Wang Y, Guo C*
11:40 ~ 12:00	**A154** Suppression of Inlet Flow Distortion Noise by a Wire-gauze Screen *Wu K, Wang C, Liu N, Li K, Zhang H, Huang L*
12:00 ~ 12:20	**A160** Suppression of Acoustic Pressure Pulsations in Pipeline Systems Using Helmholtz Resonators *Sachedina K, Mohany A, Hassan M*

Thursday, 24 August	Wave/Vibration/Noise (15) – Chair: *Ogawa S.* *Room 3 (152)*
11:20 ~ 11:40	**A043** Influence of camber on wall-mounted finite airfoil tonal noise generation *Moreau DJ, Geyer TF, Doolan CJ, Sarradj E*
11:40 ~ 12:00	**A069** Investigation of the flow and noise generation past 30P30N high-lift configuration *Li L, Liu P, Guo H*
12:00 ~ 12:20	**A071** Blade Vortex Interaction model-based wavelet noise detector for helicopter applications *Liu X, Huang Y, Chen Z, Bao M, Zhang XP*

Thursday, 24 August	Wave/Vibration/Noise (16) – Chair: *Suzuki Y.* *Room 4 (153)*
11:20 ~ 11:40	**A155** Prediction of Aeolian tone radiated from a tapered circular cylinder and vortex sound in wake *Watanabe Y, Suzuki Y*
11:40 ~ 12:00	**A083** Flap side-edge shape modification on noise reduction using VLES simulation *Zhou W, Bai J, Han X, Li Y*
12:00 ~ 12:20	**A144** Engine Noise Investigation with static test and flight test data *Wang J, Sun Y, Qing L, Xu K*

Thursday, 24 August	Air/Gas flow (11) – Chair: *Ohtake T.* *Room 5 (154)*
11:20 ~ 11:40	**A079** Study of spanwise grid resolution for hybrid RANS/LES method on flow around NACA0012 airfoil *Li H, Tang H, Qian Z*
11:40 ~ 12:00	**A135** Use of three-dimensional proper orthogonal decomposition to study the wake of a surface-mounted finite-height square prism *Chakravarty R, Moazamigoodarzi N, Bergstrom DJ, Sumner D*
12:00 ~ 12:20	**A140** Study of windbreaks installation strategy on parallel girders *Shen X, Wang D*

Thursday, 24 August 14:10 ~ 15:30

Thursday, 24 August	Wave/Vibration/Noise (17) – Chair: *Aono H.* *Room 1 (CST Hall)*
14:10 ~ 14:30	**A106** Influence of axial-flow turbulence intensity on fluid-structure interaction for a flexible cylinder *Wong CW, Lu ZY, Wang P, Zhang X, Zhou Y*
14:30 ~ 14:50	**A116** Turbulence intensity effect on axial-flow-induced cylinder vibration *Lu ZY, Zhou Y, Wong CW*
14:50 ~ 15:10	**A085** Effects of Shedding Position of Longitudinal Vortex on a Crucform-Cylinder/Strip-Plate System on Vortex-Induced Vibration *Ueta K, Honma T, Takahashi T*

Thursday, 24 August	Wave/Vibration/Noise (18) – Chair: *Ziada S.* *Room 2 (151)*
14:10 ~ 14:30	**A128** Study on vortical structures and aerodynamic sound of longitudinal vortex system generated around the leading edge of delta wings *Ogawa S, Yano K*
14:30 ~ 14:50	**A129** Characteristics of wing-surface pressure fluctuations and aerodynamic sound of the vortex system generated by the delta wing *Yano K, Ogawa S*
14:50 ~ 15:10	**A130** Mechanism of rear-view mirror vibrations induced aerodynamically by shedding vortices *Sorokin Y, Ogawa S*
15:10 ~ 15:30	**A159** Experimental investigation of flat plates with transverse perforations at zero incidence *Oshkai P, Bossi F, Rahimpour M, Barannyk O, Malavasi S*

Thursday, 24 August	Wave/Vibration/Noise (19) – Chair: *Suzuki Y.* *Room 3 (152)*
14:10 ~ 14:30	**A101** A Study on the Broadband Noise of Ship Propeller with Different Skews and Blade Sections *Chen Y, Huang L, Zhou B*
14:30 ~ 14:50	**A020** Designing of underwater acoustic target simulator based on the measured radiation noise *Zheng X, Kong X, Yang R, Chen J*
14:50 ~ 15:10	**A027** Hydrodynamic selfnoise of several structures of sonar dome *Liu X, Li D, Yu M*

Thursday, 24 August	Air/Gas flow (12) – Chair: *Miyagi N.* *Room 4 (153)*
14:10 ~ 14:30	**A100** Effect of Synthetic Jet on Aerodynamic Characteristics of the Flying Wing *Lu D, Li H, Qian Z, Tanghailong*
14:30 ~ 14:50	**A104** Turbulent boundary layer separation control over a wing-body configuration using a symmetrical plasma actuator *Zhang X, Huang Y*
14:50 ~ 15:10	**A113** Transonic Shock Oscillation Frequency Modulation Using Acoustic Excitation *Geoghegan JA, Giannelis N, Vio GA*
15:10 ~ 15:30	**A153** Flutter Suppression of a Finite Aspect Ratio Wing via Active Flow Control *Fagley C, Seidel J, McLaughlin T*

Thursday, 24 August	Multiphase flow (3) – Chair: *Peng G.* *Room 5 (154)*
14:10 ~ 14:30	**A036** Numerical Study Sediment-laden Two-phase Flow in Centrifugal Pump *Zhao W, Zhao G*
14:30 ~ 14:50	**A122** Measurement of velocity field of an abrasive fan jet by PIV *Oguma Y, Peng G, Shimizu S*
14:50 ~ 15:10	**A127** Measuring the Sectional Bending Stiffness of a Flexible Pipes Conveying a Fluid in an Experiment *Shi A, Tian F, Dowell EH, Sun L, Wu K*
15:10 ~ 15:30	**A145** On the dynamic stability of a straight pipe conveying gas-liquid flow *Ortiz-Vidal LE*