

FSSIC2019 Symposium “Flow - Structure Sound Interactions and Control ”

26-30 August 2019, Minoa Palace Resort, Chania, Crete island, Greece

ROOM 2

The oral presentations: 20 mn, including questions. The poster presentations: 5 min

Monday 26 August 2019:

17:00-18:50 *Early registration*

19:00-21:00 *Cocktail and buffet at the beach in front of the Minoa resort*

Tuesday 27 August 2019:

8:30 - 9:30 *Registration and welcome coffee & refreshments*

9:30 - 9:50 *Welcome address*

Session 7 Immersed Interface methods & Lattice Boltzmann

9:40 - 10:30 *Parviz Moin*, Stanford University, USA

Opening Lecture in room 1

Title : Progress and challenges in numerical simulation of transition and turbulence in aerospace applications

10:30-11:30: **Chairperson in room 2:** Xiaofeng Sun

Simulating the dynamics of primary cilium in pulsatile flow by the immersed boundary-lattice Boltzmann method. Jingyu Cui, Yang Liu, Xiao Lanlan and Chen Shuo

A Hybrid Dual-Grid Level-Set Based Immersed Boundary Method for Study of Multi-Phase Flows with Fluid-Structure Interactions. A. Sagar Mehta, B. Amitabh Bhattacharya and C. Atul Sharma

An immersed interface method for the acoustic wave equation with discontinuous coefficients. J. Jeong, D. You

11:30-12:00 *Coffee break*

13:00 - 14:10 *Lunch*

Session 8 Experimental approaches, energy harvesting

14:10 - 15:00 Julian Hunt, Univ. Cambridge & UCL, UK

Keynote Lecture in room 1

Title: Turbulent interfaces interacting with deformable and vibrating solid structures

15:00 -16:20: **Chairperson in room 2:** Chen Gang

Energy Harvesting Using a Tensioned Membrane with a Spring-Mounted Trailing Edge in Axial Flow. T. X. Chin, R.M. Howell & A.D. Lucey

Effect of flexibility on flow energy extraction of a passively flapping foil. F.W. Zhao, M. N. M. Qadri and H. Tang

Flow structures in the initial region of a round jet with azimuthally deformed vortex rings utilizing a sound wave. A. Muramatsu and K. Tanaka

Pagosa / Match Simulation of Fluid Structure Interaction. Xia Ma

16:20 - 16:50 *Coffee break*

16:50 – 17:50 : **Chairperson:** Zhixiang Xiao

Design of blown flap configurations based on a multi-element airfoil. Yuhui Yin, Yufei Zhang and Haixin Chen

Numerical investigation on the thrust performance of 3D flexible bionic flapping multi-wings in diamond schooling arrangement. Gang Chen , Jiakun Han , Chunlin Gong , Zhe Fang

The phase-average velocity field in the near-wake of a finite square prism. N. Moazamigoodarzi and D.J. Bergstrom

19:00 *Departure for the boat trip, cocktail with finger food in the boat*

Wednesday 28 August 2019:

Session 9.I Wake flows and FSI

9:00 - 9:40 Petros Koumoutsakos, ETH, Zürich.

Plenary Lecture in room 1

Title : Machine Learning for Flow Sensing and Control

9:40 - 10:40: **Chairperson in room 2:** Anthony Lucey

Free-end mean pressure distribution for a finite cylinder: effect of aspect ratio. Adam Beitel and David Sumner

Frequency Lock-in Phenomena of Structures in Separated Flow. Weiwei Zhang, Chuangqiang Gao and Xintao Li

Low-frequency dynamics of the flow around a finite square cylinder. H. Wang, S. Peng

10:40 - 11:10 *Coffee break*

11:10 - 12:00 Prof. Robert Antonia University of Newcastle, Australia

Keynote Lecture in room 1

Title: "Is small scale turbulence really anomalous ?"

Session 9.II Wake flows and FSI

12:00 - 12:20: **Chairperson in room 2:** Anthony Lucey

Effect of front inclined hole diameter on wake flows of a wall-mounted short cylinder. H. Rinoshika and A. Rinoshika

13:00 - 14:10 *Lunch*

14:10 - 14:50 Christophe Bailly, Ecole Centrale de Lyon, France

Plenary Lecture in room 1

Title : The acoustic and turbulent nature of wall pressure fluctuations

Session 9.III Wake flows and FSI

14:50 - 16:10: **Chairperson in room 2:** Yannick Hoarau

Snap-through dynamics of an elastic sheet. Hyeonseong Kim , Junsoo Kim , Ho-Young Kim and Daegyoun Kim

Numerical studying the dynamic stall of reverse flow past a wing. Biao Wang and Zhixiang Xiao

Modeling and Analysis of Robust Stability for Aeroservoelastic Systems Base on Frequency-domain Unsteady Aerodynamic. Yu Jiang, Zhigang Wu, Chao Yang

Dynamic structural analysis of scaled lighting pole model in physically simulated tornadic flow. D. Romanic, H. Shoji and H. Hangan

16:10 – 16:40 *Coffee break*

16:40 – 17:10 **Spiros Pantelakis** University of Patras, Greece and EASN - European Aeronautics Science Network

Invited Technology Lecture in room 1

Title : EASN: Achievements and Challenges on boosting Aeronautics and Space Academia upstream research

17:10-18:30: **Chairperson in room 2:** Erikos Stapountzis

Session 9.IV Wake flows and FSI

Interaction of flow with a surface-mounted flexible fence. A. Tsipropoulos and E. Konstantinidis

POD analysis of 3D wake topology behind a high-speed train. Chao Xia , Shijun Chu , Zhiwei Zhou, Zhigang Yang

Investigation of the asymmetric wake mode of a three-dimensional square-back bluff body. Yajun Fan, Chao Xia , Diandian Ge, Zhigang Yang

A calibration method for cross-hotwire anemometry with implicit temperature correction. J. Zhang, X. N. Wang , C. Doolan , D. Moreau , X. Zheng and Z. C. Li

19:30: *Departure by bus to “Nyxterida” (=”Bat” in english) restaurant - gala dinner*

Thursday 29 August 2019

Session 10 Fluid-Structure Interaction in internal flows

9:00 - 9:40 Yu Zhou, Harbin Institute of Technology, Schenzhen, China

Plenary Lecture in room 1

Title : Artificial intelligence control of turbulence

9:40-10:40: **Chairperson in room 2:** Petros Koumoutsakos

Application of Fluid-Structure Interaction in the Analysis of Alveolar Flow. J. Dong , Y. Yang and Y. Zhu

Drastic Changes of Turbulence in the Ignition Process of an n-Heptane Air Mixture. T. Ishihara and R. Kuno

Wall shear stress measurements for water flow in a long pipe using a novel dual-hot-film sensor. X.H. Liu, H. Wang and N. Gao

10:40-11:10 *Coffee break*

11:10 - 11:50 Alvaro Jara-Rodelgo, Innovation Dept of Airbus Spain

Plenary Lecture in room 1

Title : Increase of rudder efficiency by smart vortex generators: the power of foldable structures in aerodynamics

Session 11 Vibration and flapping

11:50-12:30: **Chairperson in room 2:** Takashi Ishihara

Vibrational relaxation in compressible isotropic turbulence with thermal non-equilibrium. Qinmin Zheng, Jianchun Wang¹, Hui Li, Minping Wan and Shiyi Chen

On the low frequency flapping motion in a backward facing step flow. Z.Y. Li, N. Gao and J.W. Hall

12:50-14:00 *Lunch*

Session 12.I Flow control - Drag reduction

14:00-14:40 Koji Fukagata, Keio University, Japan

Plenary Lecture in room 1

Title : Turbulent Friction Drag Reduction: From Feedback to Predetermined and Feedback Again

14:40 - 15:40: **Chairperson in room 2:** Nicolas Mazellier

Closed-loop drag reduction over a D-shaped body via Coanda actuation. Tamir Shaqarin, Phillip Oswald, Richard Semaan and Bernd R. Noack

Broadband Noise Absorber with Piezoelectric Shunting. Xiang Liu, Chunqi Wang and Lixi Huang

Drag reduction of the 3D bluff body asymmetric wake flow by means of rear perimeteric slit blowing. Manuel Lorite-Diez, José Ignacio Jimenez-Gonzalez, Carlos Martinez-Bazan, Luc Pastur and Olivier Cadot

15:40-16:20 [Xiaofeng Sun](#), University of Beihang, China

Plenary Lecture in ROOM 1

Title : Some progress in the acoustic design of aircraft engine

16:20-16:50 *Coffee break*

16:50-17:50: **Chairperson in room 2:** Koji Fukagata

Turbulent drag reduction above a flat plate boundary layer using compliant coating. Amir Banari, Martin Gehrke and Thomas Rung

Shape Optimization Considering the Stability of Fluid-structure Interaction at Low Reynolds Numbers. W.G. Chen, W.W. Zhang and X.T. Li

Detecting impeller unbalance degradation in centrifugal pumps using vibration condition monitoring. A.Eaton, W.Ahmed and M.Hassan

Rest of the afternoon free

17:50-19:30 *Meeting of the FSSIC2019 Committee Members and selection of Best poster's award*

Friday 30 August 2019:

Session 12.II Flow control - plasma actuation

9:00-9:40 Wolfgang Schröder, RWTH Aachen University, Germany

Plenary Lecture in room 1

Title : Unstructured Flow and Acoustics Analysis.

9:40 - 11:00 **Chairperson in room 2:** Lixi Huang

Active control of a turbulent boundary layer by the combination of plasma-induced blowing and suction. X.Q. Cheng , H.Y. Huang , C.W. Wong and Y. Zhou.

Mechanisms of the aerodynamic improvement of an airfoil controlled by sawtooth plasma actuator. Wanquan Ma, Longjun Wang, Chi Wai Wong and Yu Zhou

Circular jet with annular backflow using DBD plasma actuator. Norimasa Miyagi and Motoaki Kimura

The passive separation control of an airfoil using self-adaptive flap. Chunlin Gong, Zhe Fang, Gang Chen, Alistair Revell, Adrian Harwood and Joseph O'Connor

11:00 - 11:30 *Coffee break*

Session 12.III Flow control and modal analysis

11:30-12:30: **Chairperson in room 2:** Alain Fontaine

Experimental study of nonlinear passive control of aeroelastic wing with a flap-NES. C. Fernandez-Escudero, S. Prothin, G. Michon, E. Laurendeau, A. Ross

Dynamic reconstruction of numerical 2D-cylinder wake flow using data assimilation. N. Kumar, F. Kerherve and L. Cordier

Modal analysis and flow control on a reduced scale generic SUV. S. Edwige , P. Gilotte and I. Mortazavi

12:50 - 13:30: *Closing address and round table discussion*

13:30-14:40 *Lunch*

End of the 5th FSSIC2019