7th Conference on

Bluff Body Wakes and Vortex-Induced Vibrations

3-6 July 2018, Carry-le-Rouet (Marseille), France



Program

* Presenting author
Invited lecture: 40 min. Oral presentation: 20 min. (P) Poster presentation: 3 min.

Tuesday 03 July 2018

10:00 – 12:00 **Registration**

12:00 – 13:30 **Lunch**

13:30 – 13:45 **Welcome, introduction, information**

13:45 – 14:25 **Opening lecture** by Anthony Leonard
Vortex-Induced Vibrations with Anatol Roshko

14:25 – 16:05 ***Session 1*: Fundamentals**

Three-dimensional vorticity transport: A tool inspired by Anatol Roshko for evaluating influence of wall junctions on bluff-body wakes
*Nagib, H. M., Vidal, A., Vinuesa, R.

Classifying relative vortex motions in 2P mode wakes
*Stremler, M. A., Yang, W., Masroor, E., Basu, S.

Forced wakes far from threshold: Stuart-Landau equation applied to experimental data
Boury, S., Godoy-Diana, R., Thiria, B., Wesfreid, J. E., Artana, G., *D'Adamo, J.

Diffusion length of the bluff body shear layer
*Lander, D. C., Letchford, C. W., Amitay, M.

Topological fluid mechanics of the formation of the Kármán-vortex street
Heil, M., Nielsen, A. R., Matharu, P., Rosso, J., Hazel, A., *Brøns, M.

16:05 – 16:30 **Break**

16:30 – 17:50 ***Session 2*: Wakes of 3D bodies – 1**

Stochastic fluid structure interaction with 3D bluff bodies
*Cadot, O., Boujo, E.

The influence of circular and rectangular cross-sectional shapes on the near-wake of bluff-based bodies
*Klei-Wichmann, C., Hoernschemeyer, R., Stumpf, E.

Numerical study on the flow regimes of the wake behind a strongly streamwise rotating sphere
*Jiménez-González, J. I., Lorite-Díez, M., Manglano, C.

Instability modes in the wake of a rotating sphere
*Wesfreid, J. E., Skarysz, M., Goujon-Durand, S.

17:50 – 19:10 ***Session 3*: VIV of spheres**

Flow-Induced Vibration of a sphere
Rajamuni, M. M., *Thompson, M. C., Hourigan, K.

Tomo-PIV measurements of the flow field in the wake of a tethered sphere undergoing VIV
*Eshbal, L., Kovalev, D., Rinsky, V., Greenblatt, D., Van Hout, R.

Effect of a free surface on the VIV response of a sphere
*Sareen, A., Zhao, J., Sheridan, J., Hourigan, K., Thompson, M. C.

Experimental and numerical investigation of rolling spheres
*Houdroge, F. Y., Thompson, M. C., Leweke, T., Hourigan, K.

19:10 **Apéritif**

19:45 **Dinner**

21:30 – 22:00 **Evening lecture** by José Eduardo Wesfreid
Henri Bénard (1874-1939): thermal convection and vortex shedding

Wednesday 04 July 2018

08:30 – 09:10 **Invited lecture** by David Sumner
Wake interference effects for two finite cylinders

09:10 – 10:30 ***Session 4*: Wake interference**

Modelling of combined Vortex- and Wake-Induced Vibrations of tandem cylinders
*Srinil, N., Safrendyo, S.

Wake patterns of two stationary/vibrating side-by-side circular cylinders in laminar flow
*Chen, W., Ji, C., Xu, D.

Flow-Induced Vibrations of two rigidly coupled circular cylinders in tandem
*Huera-Huarte, F. J., Jiménez-González, J. I.

(P) *Control of wake interactions for a flow past a pair of side-by-side square bluff-bodies in a thermally stratified flow field*
*Sanyal, A., Dhiman, A.

(P) *Laminar flow past three circular cylinders in equilateral-triangular arrangements*
*Chen, W., Ji, C., Alam, M. M., Xu, D.

(P) *Development wake behind of a moving grid and computational technologies*
*Cherniy, D., Dovgiy, S.

(P) *Vibrations of a square cylinder submerged in the wake of a stationary cylinder*
*Alam, M. M., Bhatt, R.

10:30 – 11:00 **Break**

11:00 – 11:40 **Invited lecture** by Alexander J. Smits
Fast and efficient underwater propulsion inspired by biology

11:40 – 12:50 ***Session 5*: Swimming, flying and propulsion**

Low Reynolds number locomotion of a free pitching foil
Das, A., *Shukla, R. K., Govardhan, R. N.

Vortex dynamics of S-turning in downwind sailing
*Williamson, C. H. K., Schutt, R. R.

Effect of hybrid-heave motions on the propulsive performance of an oscillating airfoil
*Morris, S. E., Young, J. D., Williamson, C. H. K.

(P) *Pattern structures downstream flapping foils of different chords*
*Cros Anne, Franco Llamas, B., Sandoval Hernández, E.

(P) *Multi-fin vortex interactions during jumping acrobatics in archer fish*
*Techet, A. H., Mendelson, L.

12:50 – 14:00 **Lunch**

14:00 – 15:40 ***Session 6*: VIV**

Experimental application of the generalized added-mass and circulatory force decomposition
*Limacher, E., Morton, C., Wood, D.

Flow-induced vibration of elliptical cross-sectional cylinders
*Zhao, J., Hourigan, K., Thompson, M. C.

Flow induced auto-rotating and free-flight square flat plates simulated by LES combined with SAMR and split forcing IBM
*Uchibori, K., Tamura, T.

(P) *Free and forced vibration of a wavy cylinder in cross-flow direction*
*Zhang, K., Zhou, D., Katsuchi, H., Yamada, H., Bao, Y., Han, Z.

(P) *Numerical investigation of the path of a freely vibrating circular cylinder at high reduced frequency value*
*Dorogi, D., Baranyi, L.

(P) *Hydrodynamic forces on circular cylinders oscillating with small amplitude in still fluid or transverse to a free stream*
Konstantinidis, E., *Baranyi, L.

(P) *An experimental study of inline Vortex-Induced Vibration of a circular cylinder*
Gurian, T., *Modarres-Sadeghi, Y.

(P) *Complex wind-induced vibration of hangers in the wake of a long-span suspension bridge tower*
Yang, W.-H., *Chen, W.-L., Zhang, C.-G.

(P) *Vortex induced vibration in a cylinder with an azimuthal degree of freedom*
Dominguez, D. R., Piedra, S., *Ramos, E.

(P) *Analysis of amplitude modulations in the initial branch of Vortex-Induced Vibrations*
*Riches, G., Morton, C.

(P) *Noise and its influence on vortex induced vibrations*
*Aswathy, M. S., Sarkar, S.

15:40 – 16:20 **Invited lecture** by Jens N. Sørensen (with R. F. Mikkelsen, V. L. Okulov, I. V. Naumov, I. K. Kabardin)
Meandering and Strouhal frequencies of wakes behind disks and wind turbine rotors

16:20 – 16:50 **Break**

16:50 – 18:00 ***Session 7*: Airfoil dynamics**

Boundary layer tripping on moderate Reynolds number oscillating foils
Iverson, D., Boudreau, M., Dumas, G., *Oshkai, P.

A coupled model for flexible rotors
*Durán Venegas, E., Le Dizès, S., Eloy, C.

Experimental and numerical study on a model of offshore vertical axis wind turbine with pitching blades
*Branger, H., Paillard, B., Roy, S., Luneau, C., Perrot, E., Bourras, D.

(P) *Structure of the vortex wake behind vertical wind turbines as a criterion for the efficiency*
Golubiev,S., Dovgiy, S., Lebid, O., *Cherniy, D.

(P) *Heave mode stall flutter in a linear cascade at low Reynolds numbers*
*Barman, D., Prahallada, J., Govardhan, R. N.

18:00 – 19:30 ***Session 8*: Control – 1**

Feedback control of bluff-body wakes using flaps
Brackston, R. D., Wynn, A., *Morrison, J. D.

Control of Vortex-Induced Vibrations of a sphere
*McQueen, T., Zhao, J., Sheridan, J., Thompson, M. C.

(P) *Sensitivity analysis applied to the flow around the water line of a ship at low and high Reynolds numbers*
*Patino, G., Gioria, R., Assi, G. R. S, Meneghini, J. R.

(P) *Lift suppression, drag reduction and vortex shedding alleviation of a circular cylinder by active jets*
*Gao, D., Chen, W., Chen, G., Li, H.

(P) *Suppression on the unsteadiness of wind loads on a bridge box girder by using bypass passive jet flow*
Chen, G., Chen, W., Zhang, L., *Gao, D.

(P) *On the effect of low blowing ratio continuous jets on wingtip vortex characteristics*
García-Ortiz, J. H., Parras, L., Del Pino, C., *Blanco-Rodríguez, F. J.

(P) *Suppression of vortex shedding induced forces using a multi-objective genetic algorithm*
*Bingham, C., Martinuzzi, R., Morton, C.

(P) *Control of cylinder oscillations by plasma actuators*
Castro Hebrero, F., *D'Adamo, J., Sosa, R., Artana, G.

(P) *Experimental and numeric study of the control of flow over a circular cylinder using control rods*
*Cicolin, M. M., Serson, D., Meneghini, J. R., Assi, G. R. S.

(P) *Unsteady load measurements: analysis of 2D and 3D cylinder wakes*
*Sicot, C., Paillé, F., Barros, D., Borée, J.

(P) *Span-wise distribution of surface pressure on a circular cylinder in the regime of drag crisis*
*Desai, A., Chopra, G., Mittal, S.

(P) *On the aerodynamic loading on rounded square-section cylinders at very high Reynolds numbers*
*Van Hinsberg, N.

19:45 **Dinner**

21:30 **Entertainment**

Thursday 05 July 2018

08:30 – 09:10 **Invited lecture** by Sébastien Michelin
Energy harvesting from Vortex-Induced Vibrations of flexible cables

09:10 – 10:40 ***Session 9*: VIV of flexible structures**

Experimental investigation on the Vortex-Induced Vibrations of a yawed and inclined flexible cylinder
Vieira, D. P., *Fujarra, A. L. C.

Experimental study of the gap effects on Vortex-Induced Vibrations of free span pipelines
*Chame, M. E. F., Fujarra, A. L. C., Momenti, A. M., Franciss, R., Matt, C. G. C., Gonçalves, R. T.

Numerical prediction of Vortex-Induced Vibration of flexible riser with thick strip method
*Bao, Y., Palacios, R., Sherwin, S., Graham, M.

Modeling and simulation of an elastic cantilever in viscous channel flow
*Tosi, L. F., Colonius, T.

(P) *Vortex-Induced Vibration of an isolated flexible cable in stepped flow with Re=4000: a numerical study*
*Ji, C., Zhang, Z., Xu, D., Fan, D., Xu, W.

(P) *VIV on Steel Lazy-Wave Risers: preliminary results with a combined approach*
Fujarra, A. L. C., *Cenci, F., Barbosa, P. G., Hille, F., Santos, C. M. P. M.

10:40 – 11:00 **Break**

11:00 – 11:35 ***Session 9*: VIV of flexible structures (continued)**

Large-amplitude vibration of conventional and inverted flags
Kim, H., *Kim, D.

(P) *Near wake structure of a rotationally oscillating cylinder with an attached flexible filament*
Sunil, P., *Kumar, S., Poddar, K.

(P) *Drag reduction on the cylinder wake by flexible plates*
*D'Adamo, J., Roger, E., Castro Hebrero, F. N., Sosa, R.

(P) *CFD study on energy harvesting from bluff body wake using a thin flexible plate*
*Mittal, C., Thekkethil, N., Sharma, A.

11:35 – 13:15 ***Session 10*: Wakes of 3D bodies – 2**

Wake of a vertically moving sphere in a linearly stratified fluid
Zhang, J., Magnaudet, J., *Mercier, M.

Controlled coupled 3-DOF dynamics of an axisymmetric body and its near wake
Lambert, T., *Vukasinovic, B., Glezer, A.

Unstable wake dynamics and force of a three-dimensional blunt body with inclination and wall proximity
*Bonnavion, G., Cadot, O.

Spectral/hp methodology study for SVV-LES on an Ahmed body
*Buscariolo, F. F., Sherwin, S., Assi, G. R. S., Meneghini, J. R.

(P) *Symmetry breaking wakes of a square-back Ahmed body: LES and modes analysis using POD*
*Pellerin, S., Podvin, B.

(P) *Flow visualization over low-spinning soccer balls in free flight*
*Asai, T., Kamemoto, T.

(P) *Aerodynamics of sports balls and badminton shuttle-cock*
Shah, K., Shakya, R., *Mittal, S.

(P) *PIV measurements on the flow around circular cylinders with low aspect ratio and different free-end corner shapes*
*Gonçalves, R. T., Sakata, K., Gambarine, D. M., Cicolin, M. M., Hirabayashi, S., Assi, G. R. S.

(P) *Pair of spheres settling in a linearly stratified fluid*
*Mercier, M., Toupoint, C., Ern, P.

13:15 – 14:30 **Lunch**

14:30 – 20:00 **FREE TIME**

14:45 **Shuttle bus from Hotel Vacanciel to Marseille, Old Port**

19:00 **Shuttle bus from Hotel Vacanciel to banquet location**

20:00 – 23:00 **Banquet at the restaurant *"La Table"*, MuCEM museum, Marseille**

23:00 **Buses back to the hotel**

Friday 06 July 2018

08:45 – 09:25 ***Session 11*: Wake instability**

Direct Numerical Simulation of flow over perforated plates
*Singh, A., Narasimhamurthy, V. D.

Identification of regions and responsible mechanisms of transition to three-dimensionality: near wake behind a circular cylinder
*Aleksyuk, A. I., Shkadov, V. Y.

09:25 – 10:05 **Invited lecture** by Gustavo R. S. Assi
BBVIV control with fixed or spinning cylinders

10:05 – 10:45 ***Session 12*: Control – 2**

Control of circular cylinder flow using distributed jets
Clapperton, B. L., *Bearman, P. W.

Experimental research on passive jet control of flow around a rectangular cross section column
*Huang, Y.-W., Chen, W.-L.

10:45 – 11:10 **Break**

11:10 – 12:10 ***Session 12*: Control – 2 (continued)**

Application of a resolvent-based POD decomposition to design of passive control devices for bluff-body wakes
*Blackburn, H. M., Gomez, F.

Flow-Induced Vibration of a cylinder with rigid splitter plate
Jaiswal, Y., Sahu, T. R., Furquan, M., *Mittal, S.

Flow-Induced Vibrations investigation by coordinate transformation at low Reynolds numbers
*Basso, R. L. G., Serson, D., Assi, G. R. S.

12:10 – 12:50 ***Session 13*: Wakes and acoustics**

An investigation of aeroacoustic lock-in phenomena in a rectangular duct with flat plate using CFD
*Geihe, B., Kociok, V., Ashcroft, G.

Effect of acoustic perturbation on transition of vortex street
Afreen, S., *Kumar, S.

12:50 – 13:00 **Closing remarks – end of conference**

13:00 **Lunch**