



Editorial: Seventh Conference on Bluff Body Wakes and Vortex-Induced Vibrations (BBVIV-7)

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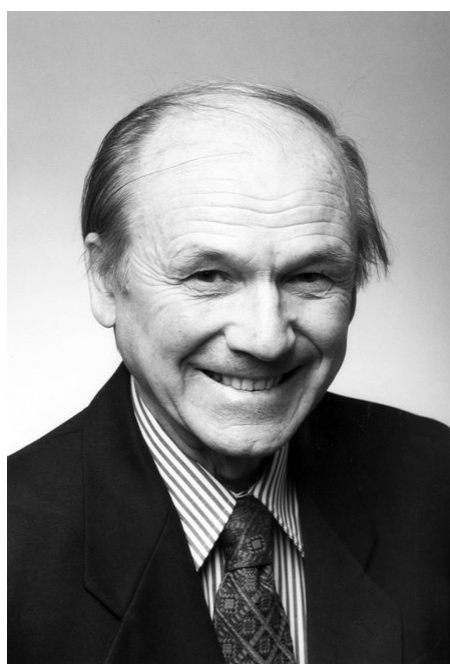
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Dedication of Proceedings
to
PROFESSOR ANATOL ROSHKO
1923–2017



We dedicate this Special Proceedings Issue to Professor Anatol Roshko of the California Institute of Technology. Over the years, Anatol made a remarkable number of seminal contributions to fluid mechanics, beginning with his 1952 Ph.D. thesis entitled “On the Development of Turbulent Wakes from Vortex Streets”, in which he described, for the first time and with deep understanding, the various regimes for flow past a cylinder at Reynolds numbers from 40 to 10000. He then followed with a steady stream of insight works on wakes, bluff body flows, and free shear layers.

From the mid 1980’s until more than twenty years after his official retirement in the mid 1990’s, he turned his attention to forced and freely vibrating cylinder flows, and we remember his spirited participation in our June 2000 IUTAM meeting in Carry-le-Rouet.

This volume is dedicated to the memory of Anatol, a gentle, soft-spoken, legendary figure in the field of fluid mechanics.

Anthony Leonard
California Institute of Technology

April 2019

Seventh Conference on Bluff Body Wakes and Vortex-Induced Vibrations (BBVIV-7)

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

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Fluid Dynamics Research Laboratories – Cornell University

PREFACE

This Special Issue consists of selected papers from the Seventh Conference on Bluff Body Wakes and Vortex-Induced Vibrations, held in Carry-le-Rouet near Marseille, France, during the period 3–6 July 2018. The present conference (BBVIV-7) was the seventh in the series, following on from the Forum on Advances in the Understanding of Bluff Body Wakes and Vortex-Induced Vibrations (BBVIV-1), which was part of the 1998 ASME-FED Summer Meeting in Washington, DC, USA; the IUTAM Symposium on Bluff Body Wakes and Vortex-Induced Vibrations (BBVIV-2) held in Marseille in June 2000; the Conferences on Bluff Body Wakes and Vortex-Induced Vibrations held in Port Douglas, Queensland, Australia, in December 2002 (BBVIV-3), on Santorini Island, Greece, in June 2005 (BBVIV-4), and in Costa do Sauípe, Bahia, Brazil, in December 2007 (BBVIV-5); and the IUTAM Symposium on Bluff Body Wakes and Vortex-Induced Vibrations (BBVIV-6) held on Capri Island, Italy, in June 2010. This series of conferences is designed to provide a stimulating and constructive forum for researchers specializing in the areas of flows around bluff bodies that are either fixed or undergoing vortex-induced vibrations (VIV).

The papers in this volume were selected by the Scientific Committee from amongst the oral presentations at the conference and have all been peer-reviewed. The meeting attracted 99 participants from 21 countries, including many of the most active researchers in the field. The event took place over four days and consisted of single plenary sessions with 6 keynote lectures, 44 oral presentations, 33 poster presentations, as well as one evening lecture. A total of 102 abstracts were received and reviewed by the Scientific Committee and the Chairmen. It is believed that the high standard of the presentations and the science set at the previous six conferences was maintained.

A full set of papers, of both oral and poster presentations, was provided to each participant at the conference site – a detailed list is given below. The presentations were divided into the following sessions.

- Fundamentals (5 talks)
- Wakes of Three-Dimensional Bodies (8 talks, 5 posters)
- Wake Instability (2 talks)
- Wake Interference (3 talks, 3 posters)
- Wakes and Acoustics (2 talks)
- Vortex-Induced Vibrations (3 talks, 8 posters)
- Vortex-Induced Vibrations of Spheres (3 talks)
- Vortex-Induced Vibrations of Flexible Structures (5 talks, 4 posters)
- Swimming, Flying and Propulsion (3 talks, 2 posters)
- Airfoil Aerodynamics (3 talks, 2 posters)
- Control (7 talks, 9 posters)

As with all the BBVIV conferences, one might imagine topics to be limited to classical cylinder bluff body wakes, and vortex-induced vibrations of cylinders. However, behind these titles are a great number of flows which are distinctly different to the classics, as seen in the list above, and by browsing through this volume of papers from our latest conference in Marseille. Ever more research is now being directed towards more exotic flows and fundamentally three-dimensional (3D) shapes, such as: spheres; cylinders and balls running down an incline; wakes and vortex dynamics of rotating bodies; sports ball dynamics; airfoils vibrating at high angles of attack; swimming, flying and propulsion; control and flexibility of bodies. These problems extend much further than the classical cylinder-bluff body flows.

Part of the large increase of studies of 3D body wakes comes from the immense computational power that exists in comparison with our earlier conference in the same location, Carry-le-Rouet, 18 years ago. Stability of wakes in general has been a subject of interest in a number of papers, for a great many fluid flow configurations. Following from recent conferences, there has been more work to reduce VIV, at the same time reducing drag, and this remains relevant. The dynamics of riser tubes continue to be an important topic. Also, the ability to study more complex flows has nowhere been made clearer than by the prolific group of researchers at Monash University (under Hourigan, Thompson, Sheridan, Blackburn), and they are contributing an impressive number of careful studies at high resolution. Experimental, numerical and analytical approaches to all the problems listed above were presented at the conference, and it is quite evident that a great deal remains to be done to understand these varied flows and phenomena.

Our Invited Speakers delivered particularly impressive and interesting presentations. Our “Opening Speaker” on Tuesday afternoon was Tony Leonard, who gave a lovely talk on “Vortex-Induced Vibrations with Anatol Roshko”, which reviewed some of the classical important work of Anatol, including some of his own more recent results on wakes and VIV, in collaboration with Anatol. Tony dedicated this special Proceedings issue to Anatol Roshko, which was met with full support of the participants. Gustavo Assi gave a seminar on his control of fixed or spinning cylinders. Sébastien Michelin looked at the highly topical problem of energy harvesting in the case of flexible cables. Lex Smits talked about his group's research into propulsion inspired by biology, which was extensive and fascinating. Jens Sørensen and a strong group of collaborators looked at the frequencies of wakes behind disks and wind turbine rotors. We are grateful to David Sumner for presenting the final invited seminar at the conference, based on his excellent comprehensive study of wake interference between two finite cylinders.

Our choice to select Carry-le-Rouet, along the Mediterranean coast of France to the west of Marseille, as the venue for BBVIV-7, led to a record number of applicants to participate in the event. We were not disappointed. The conference was held

at a family resort, “Club Vacancier”, in a magnificent location overlooking the blue sea. The hotel possessed a sufficient level of isolation to ensure the scientific sessions were always very well attended, and ample time was available outside the formal sessions for participants to meet in a convivial atmosphere. The hospitality, meals and generous availability of the wine and rosé bottles along the lunch and dinner tables led the participants to indulge in profound discussions, especially after the mealtimes, in the restaurant and cafe further up the small hill.

We took the opportunity to ask a few of the international students what were their most memorable impressions coming from their attendance of BBVIV-7. Here are some of the comments:

- “In my opinion, the most memorable occasions at BBVIV-7 were the scheduled events (after the talks, of course!). The first night was the Cuban jazz concert. That was a fantastic atmosphere, with everyone sitting around the patio area at the bar listening to the band play good music. It was a very relaxed ambiance, and everyone was enjoying some wine/beer/mojitos while catching up with old friends (for the BBVIV veterans) or meeting new ones (for BBVIV newbies like my group).”
- “The food was amazing at the really nice restaurant in the museum, and it was really cool that the world championship of pétanque was going on about 100 meters away. I recall picking a seat next to the windows so I could watch the game while eating my dinner.”
- “On the final day, most of the participants joined together with the resort staff and watched the FIFA World Cup game that afternoon. It was particularly exciting because France was playing so the staff were dressed up with painted faces.”
- “We played an impromptu game of pétanque on the last evening. Thomas was about 10 times better than any of the rest of us.”

Since our BBVIV-2 held 18 years ago at the same resort, we have always made arrangements so that participants and their friends and family could use a free half day to decide for themselves what to explore. Some of the group saw “Les Calanques” (the beautiful steep inlets along the coast), or relaxed in places outside Marseille, famous for their painters (for example Aix-en-Provence), or simply remained at our private beach ... Ultimately the groups met under their own steam for a reception at *MuCEM* museum near the Old Port in Marseille on the Thursday evening, followed by a wonderful banquet at *La Table*. This constituted a beautiful and fitting end to our conference.

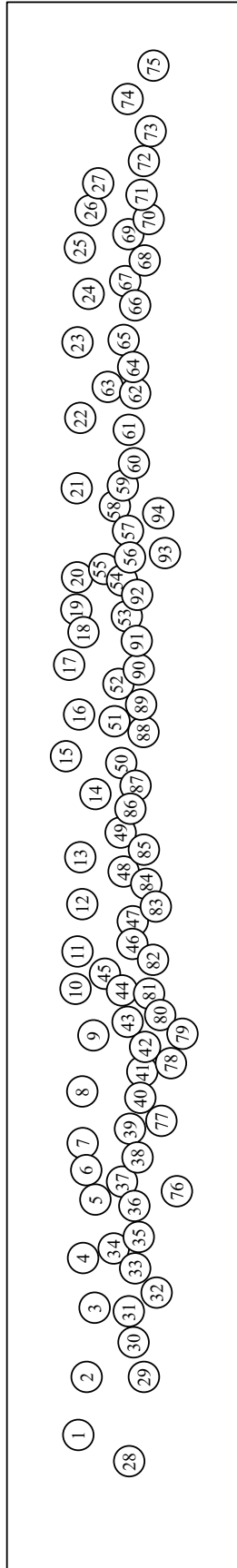
As is customary at these BBVIV conferences: *All participants came away from the meeting in Carry-le-Rouet with both the intellect and the senses stimulated, and with new insights into wakes and VIV.*

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BBVIV-7 group photo – 4 July 2018



- 1 – Conrad BINGHAM 2 – Benedict GEIHE 3 – Robin BASSO 4 – Francisco HUERA-HUARTE 5 – Olena CHERNIY 6 – Ramiro GODOY-DIANA 7 – Édouard BOUJO 8 – Yahya MODARRES-SADEGHI 9 – Sanjay MITTAL 10 – Eduardo DURÁN VENEGAS 11 – Francisco BLANCO RODRÍGUEZ 12 – Yan BAO 13 – José Ignacio JIMÉNEZ GONZÁLEZ 14 – Matthieu MERCIER 15 – Stéphane LE DIZÈS 16 – Jay YOUNG 17 – Charles WILLIAMSON 18 – Hubert BRANGER 19 – Eric LIMACHER 20 – Daegyoun KIM 21 – Vincent KOCHER 22 – Donglai GAO 23 – Gustavo ASSI 24 – Alexandra TECHET 25 – Hugh BLACKBURN 26 – Sarah MORRIS 27 – Ratnesh SHUKLA 28 – Dmytro CHERNIY 29 – Chris MORTON 30 – Graham RICHES 31 – Mark STREMLER 32 – Thomas HERVÉ 33 – Bojan VUKANISOVIC 34 – Morten BRØNS 35 – Fredi CENCI 36 – Pedro LOPES 37 – Jens SØRENSEN 38 – André FUJARRA 39 – Anthony LEONARD 40 – Rodolfo GONÇALVES 41 – Jonathan MORRISON 43 – Andrey ALEKSYUK 44 – Patrice MEUNIER 45 – Juan D'ADAMO 46 – Thomas McQUEEN 47 – Christophe SICOT 48 – David SUMNER 49 – Peter OSHKAI 50 – Thomas LEWEKE 51 – Alexander SMITS 52 – Anne CROS 53 – Lior ESHBAL 54 – Sébastien MICHELIN 55 – Dániel DOROGI 56 – Nils VAN HINSBERG 57 – Patrice LE GAL 58 – Christophe ELOY 59 – Christoffer NORBERG 60 – Gilles BOUCHET 61 – Peter BEARMAN 62 – Aditya DESAI 63 – Emmanuel DE LANGRE 64 – Gustavo PATINO 65 – Kerry HOURIGAN 66 – Murilo CICOLIN 67 – Sanjay KUMAR 68 – Tetsuro TAMURA 69 – Hassan NAGIB 70 – Raghuraman GOVARDHAN 71 – Chunning JI 72 – Md. Mahbub ALAM 73 – Hui LI 74 – Wen-Li CHEN 75 – Yewei HUANG 76 – Eduardo RAMOS 77 – Amélie GAY 78 – Maria CHAME 79 – Charu MITTAL 80 – Aswathy M S 81 – Anchal SAREEN 82 – Christine KLEI-WICHMANN 83 – Narakorn SRINIL 84 – Abhinav SINGH 85 – Dipanjan BARMAN 86 – Daniel LANDER 87 – Aniruddha SANYAL 88 – Florine PARAZ 89 – László BARANYI 90 – José Eduardo WESFREID 91 – Julio MENEHINI 92 – René VAN HOUT 93 – Stéphanie PELLERIN 94 – Shabnam BAHRAMIASL
- Missing:* Takeshi ASAI, Guillaume BONNAVION, Filipe BUSCARIOLO, Olivier CADOT, Philippe MELIGA, Michel PROVANSAL, Phillipe TOSI, Kazuaki UCHIBORI

List of all conference presentations

Invited Lectures

Leonard, A. (Opening Lecture)

Vortex-Induced Vibrations with Anatol Roshko

Assi, G. R. S.

Bluff body wake and Vortex-Induced Vibration control with fixed or spinning cylinders (Assi et al., 2019, this issue)

Michelin, S.

Energy harvesting from Vortex-Induced Vibrations of flexible cables (Grouthier et al., 2014; Antoine et al., 2016)

Smits, A. J.

Fast and efficient underwater propulsion inspired by biology (Floryan et al., 2018; Van Buren et al., 2019)

Sørensen, J. N., Mikkelsen, R. F., Okulov, V. L., Naumov, I. V., Kabardin, I. K.

Meandering and Strouhal frequencies of wakes behind disks and wind turbine rotors (Okulov et al., 2016, 2017; Naumov et al., 2017)

Sumner, D.

Wake interference effects for two finite cylinders (Sumner and Reitenbach, 2019, this issue)

Wesfreid, J. E. (Evening Lecture)

Henri Bénard (1874-1939): thermal convection and vortex shedding (Wesfreid, 2017)

Fundamentals

Boury, S., Godoy-Diana, R., Thiria, B., Wesfreid, J. E., Artana, G., D'Adamo, J.

Forced wakes far from threshold: Stuart-Landau equation applied to experimental data

Heil, M., Nielsen, A. R., Matharu, P., Rosso, J., Hazel, A., Brøns, M.

Topological fluid mechanics of the formation of the Kármán-vortex street

Lander, D. C., Letchford, C. W., Amitay, M.

Diffusion length of the bluff body shear layer

Nagib, H. M., Vidal, A., Vinuesa, R.

Three-dimensional vorticity transport: A tool inspired by Anatol Roshko for evaluating influence of wall junctions on bluff-body wakes (Nagib et al., 2019, this issue)

Stremmer, M. A., Yang, W., Masroor, E., Basu, S.

Classifying relative vortex motions in 2P mode wakes (Yang and Stremmer, 2019, this issue)

Wakes of Three-Dimensional Bodies

Asai, T., Kamemoto, T.

Flow visualization over low-spinning soccer balls in free flight

Bonnaïon, G., Cadot, O.

Unstable wake dynamics and force of a three-dimensional blunt body with inclination and wall proximity (Bonnaïon and Cadot, 2019, this issue)

Buscariolo, F. F., Sherwin, S., Assi, G. R. S., Meneghini, J. R.

Spectral/hp methodology study for SVV-LES on an Ahmed body

Cadot, O., Boujo, E.

Stochastic fluid structure interaction with 3D bluff bodies (Boujo and Cadot, 2019, this issue)

Gonçalves, R. T., Sakata, K., Gambarine, D. M., Cicolin, M. M., Hirabayashi, S., Assi, G. R. S.

PIV measurements on the flow around circular cylinders with low aspect ratio and different free-end corner shapes

Jiménez-González, J. I., Lorite-Díez, M., Mangano, C.

Numerical study on the flow regimes of the wake behind a strongly streamwise rotating sphere

Klei-Wichmann, C., Hörschemeyer, R., Stumpf, E.

The influence of circular and rectangular cross-sectional shapes on the near-wake of bluff-based bodies

Lambert, T., Vukasinovic, B., Glezer, A.

Controlled coupled 3-DOF dynamics of an axisymmetric body and its near wake

Mercier, M., Toupont, C., Ern, P.

Pair of spheres settling in a linearly stratified fluid

Pellerin, S., Podvin, B.

Symmetry breaking wakes of a square-back Ahmed body: LES and modes analysis using POD

Shah, K., Shakya, R., Mittal, S.

Aerodynamics of sports balls and badminton shuttle-cock

Wesfreid, J. E., Skarysz, M., Goujon-Durand, S.

Instability modes in the wake of a rotating sphere

Zhang, J., Magnaudet, J., Mercier, M.

Wake of a vertically moving sphere in a linearly stratified fluid

Wake Instability

Aleksyuk, A. I., Shkadov, V. Y.

Identification of regions and responsible mechanisms of transition to three-dimensionality: near wake behind a circular cylinder (Aleksyuk and Shkadov, 2019, this issue)

Singh, A., Narasimhamurthy, V. D.

Direct Numerical Simulation of flow over perforated plates

Wake Interference

Alam, M. M., Bhatt, R.

Vibrations of a square cylinder submerged in the wake of a stationary cylinder

Chen, W., Ji, C., Xu, D.

Wake patterns of two stationary/vibrating side-by-side circular cylinders in laminar flow (Chen et al., 2019, this issue)

Cherniy, D., Dovgiy, S.

Development wake behind of a moving grid and computational technologies

Huera-Huarte, F. J., Jiménez-González, J. I.

Flow-Induced Vibrations of two rigidly coupled circular cylinders in tandem (Huera-Huarte and Jiménez-González, 2019, this issue)

Sanyal, A., Dhiman, A.

Control of wake interactions for a flow past a pair of side-by-side square bluff-bodies in a thermally stratified flow field

Srinil, N., Safrendy, S.

Modelling of combined Vortex- and Wake-Induced Vibrations of tandem cylinders

Wakes and Acoustics

Afreen, S., Kumar, S.

Effect of acoustic perturbation on transition of vortex street

Geihe, B., Kociok, V., Ashcroft, G.

An investigation of aeroacoustic lock-in phenomena in a rectangular duct with flat plate using CFD

Vortex-Induced Vibrations

Aswathy, M. S., Sarkar, S.

Noise and its influence on vortex induced vibrations

Dominguez, D. R., Piedra, S., Ramos, E.

Vortex induced vibration in a cylinder with an azimuthal degree of freedom

Dorogi, D., Baranyi, L.

Numerical investigation of the path of a freely vibrating circular cylinder at high reduced frequency value

Gurian, T., Modarres-Sadeghi, Y.

An experimental study of inline Vortex-Induced Vibration of a circular cylinder

Konstantinidis, E., Baranyi, L.

Hydrodynamic forces on circular cylinders oscillating with small amplitude in still fluid or transverse to a free stream

Limacher, E., Morton, C., Wood, D.

Experimental application of the generalized added-mass and circulatory force decomposition

Riches, G., Morton, C.

Analysis of amplitude modulations in the initial branch of Vortex-Induced Vibrations

Uchibori, K., Tamura, T.

Flow induced auto-rotating and free-flight square flat plates simulated by LES combined with SAMR and split forcing IBM (Uchibori and Tamura, 2019, this issue)

Yang, W.-H., Chen, W.-L., Zhang, C.-G.

Complex wind-induced vibration of hangers in the wake of a long-span suspension bridge tower

Zhang, K., Zhou, D., Katsuchi, H., Yamada, H., Bao, Y., Han, Z.

Free and forced vibration of a wavy cylinder in cross-flow direction

Zhao, J., Hourigan, K., Thompson, M. C.

Flow-induced vibration of elliptical cross-sectional cylinders (Zhao et al., 2019, this issue)

Vortex-Induced Vibrations of Spheres

Eshbal, L., Kovalev, D., Rinsky, V., Greenblatt, D., Van Hout, R.

Tomo-PIV measurements of the flow field in the wake of a tethered sphere undergoing VIV (Eshbal et al., 2019, this issue)

Rajamuni, M. M., Thompson, M. C., Hourigan, K.

Flow-Induced Vibration of a sphere (Rajamuni et al., 2019, this issue)

Sareen, A., Zhao, J., Sheridan, J., Hourigan, K., Thompson, M. C.

Effect of a free surface on the VIV response of a sphere (Sareen et al., 2019, this issue)

Vortex-Induced Vibrations of Flexible Structures

Bao, Y., Palacios, R., Sherwin, S., Graham, M.

Numerical prediction of Vortex-Induced Vibration of flexible riser with thick strip method (Bao et al., 2019, this issue)

Chame, M. E. F., Fajarra, A. L. C., Momenti, A. M., Franciss, R., Matt, C. G. C., Gonçalves, R. T.

Experimental study of the gap effects on Vortex-Induced Vibrations of free span pipelines

Fajarra, A. L. C., Cenci, F., Barbosa, P. G., Hille, F., Santos, C. M. P. M.

VIV on Steel Lazy-Wave Risers: preliminary results with a combined approach

Ji, C., Zhang, Z., Xu, D., Fan, D., Xu, W.

Vortex-Induced Vibration of an isolated flexible cable in stepped flow with $Re=4000$: a numerical study

Kim, H., Kim, D.

Large-amplitude vibration of conventional and inverted flags

Mittal, C., Thekkethil, N., Sharma, A.

CFD study on energy harvesting from bluff body wake using a thin flexible plate

Sunil, P., Kumar, S., Poddar, K.

Near wake structure of a rotationally oscillating cylinder with an attached flexible filament

Tosi, L. F., Colonius, T.

Modeling and simulation of an elastic cantilever in viscous channel flow (Tosi and Colonius, 2019, this issue)

Vieira, D. P., Fajarra, A. L. C.

Experimental investigation on the Vortex-Induced Vibrations of a yawed and inclined flexible cylinder

Swimming, Flying and Propulsion

Cros, A., Franco Llamas, B., Sandoval Hernández, E.

Pattern structures downstream flapping foils of different chords

Das, A., Shukla, R. K., Govardhan, R. N.

Low Reynolds number locomotion of a free pitching foil (Das et al., 2019, this issue)

Morris, S. E., Young, J. D., Williamson, C. H. K.

Effect of hybrid-heave motions on the propulsive performance of an oscillating airfoil (Young et al., 2019, this issue)

Techet, A. H., Mendelson, L.

Multi-fin vortex interactions during jumping acrobatics in archer fish

Williamson, C. H. K., Schutt, R. R.

Vortex dynamics of S-turning in downwind sailing

Airfoil Aerodynamics

- Barman, D., Prahallada, J., Govardhan, R. N.
Heave mode stall flutter in a linear cascade at low Reynolds numbers
- Branger, H., Paillard, B., Roy, S., Luneau, C., Perrot, E., Bourras, D.
Experimental and numerical study on a model of offshore vertical axis wind turbine with pitching blades
- Durán Venegas, E., Le Dizès, S., Eloy, C.
A coupled model for flexible rotors (Durán Venegas et al, 2019, this issue)
- Golubiev, S., Dovgiy, S., Lebid, O., Cherniy, D.
Structure of the vortex wake behind vertical wind turbines as a criterion for the efficiency
- Iverson, D., Boudreau, M., Dumas, G., Oshkai, P.
Boundary layer tripping on moderate Reynolds number oscillating foils (Iverson et al., 2019, this issue)

Control

- Basso, R. L. G., Serson, D., Assi, G. R. S.
Flow-Induced Vibrations investigation by coordinate transformation at low Reynolds numbers
- Bingham, C., Martinuzzi, R., Morton, C.
Suppression of vortex shedding induced forces using a multi-objective genetic algorithm
- Blackburn, H. M., Gómez, F.
Application of a resolvent-based POD decomposition to design of passive control devices for bluff-body wakes (Zwintzsch et al., 2019, this issue)
- Brackston, R. D., Wynn, A., Morrison, J. D.
Feedback control of bluff-body wakes using flaps
- Castro Hebrero, F., D'Adamo, J., Sosa, R., Artana, G.
Control of cylinder oscillations by plasma actuators
- Cicolin, M. M., Serson, D., Meneghini, J. R., Assi, G. R. S.
Experimental and numeric study of the control of flow over a circular cylinder using control rods
- Clapperton, B. L., Bearman, P. W.
Control of circular cylinder flow using distributed jets
- Desai, A., Chopra, G., Mittal, S.
Span-wise distribution of surface pressure on a circular cylinder in the regime of drag crisis
- Gao, D., Chen, W., Chen, G., Li, H.
Lift suppression, drag reduction and vortex shedding alleviation of a circular cylinder by active jets
- García-Ortiz, J. H., Parras, L., Del Pino, C., Blanco-Rodríguez, F. J.
On the effect of low blowing ratio continuous jets on wingtip vortex characteristics
- Huang, Y.-W., Chen, W.-L.
Experimental research on passive jet control of flow around a rectangular cross section column
- Jaiswal, Y., Sahu, T. R., Furquan, M., Mittal, S.
Flow-Induced Vibration of a cylinder with rigid splitter plate (Sahu et al., 2019, this issue)
- McQueen, T., Zhao, J., Sheridan, J., Thompson, M. C.
Control of Vortex-Induced Vibrations of a sphere
- Patino, G., Gioria, R., Assi, G. R. S., Meneghini, J. R.
Sensitivity analysis applied to the flow around the water line of a ship at low and high Reynolds numbers
- Sicot, C., Paillé, F., Barros, D., Borée, J.
Unsteady load measurements: analysis of 2D and 3D cylinder wakes
- Van Hinsberg, N.
On the aerodynamic loading on rounded square-section cylinders at very high Reynolds numbers

References

- Antoine, G.O., de Langre, E., Michelin, S., 2016. Optimal energy harvesting from vortex-induced vibrations of cables. *Proc. R. Soc. A* 472, 20160583. <https://doi.org/10.1098/rspa.2016.0583>.
- Floryan, D., Van Buren, T., Smits, A.J., 2018. Efficient cruising for swimming and flying animals is dictated by fluid drag. *PNAS* 115, 8116–8118. <https://doi.org/10.1073/pnas.1805941115>.
- Grouthier, C., Michelin, S., Bourguet, R., Modarres-Sadeghi, Y., de Langre, E., 2014. On the efficiency of energy harvesting using vortex-induced vibrations of cables. *J. Fluids Struct.* 49, 427–440. <https://doi.org/j.jfluidstructs.2014.05.004>.
- Okulov, V.L., Mikkelsen, R.F., Naumov, I.V., Litvinov, I.V., Gesheva, E., Sørensen, J.N., 2016. Comparison of the far wake behind dual rotor and dual disk configurations. *J. Phys.: Conf. Ser.* 753, 032060. <https://doi.org/10.1088/1742-6596/753/3/032060>.
- Okulov, V.L., Litvinov, I.V., Mikkelsen, R.F., Naumov, I.V., Sørensen, J.N., 2017. Wake developments behind different configurations of passive disks and active rotors. *J. Phys.: Conf. Ser.* 854, 012035. <https://doi.org/10.1088/1742-6596/854/1/012035>.
- Naumov, I.V., Kabardin, I.K., Mikkelsen, R.F., Okulov, V.L., Sørensen, J.N., 2017. An influence of the different incoming wake-like flows on rotor vibrations. *J. Phys.: Conf. Ser.*, 854, 012034. <https://doi.org/10.1088/1742-6596/854/1/012034>.
- Van Buren, T., Floryan, D., Smits, A.J., 2019. Scaling and performance of simultaneously heaving and pitching foils. *AIAA J.*, in press. <https://doi.org/10.2514/1.J056635>.
- Wesfreid, J.E., 2017. Henri Bénard: Thermal convection and vortex shedding. *C. R. Mécanique* 345, 446–466. <https://doi.org/10.1016/j.crme.2017.06.006>.