

# Equipe Turbulence Incompressible et Contrôle (TIC)

## Publication et congrès

### Période 2015/2020

## Journaux / Revues<sup>1</sup>

### Articles scientifiques (40).

#### Les 20% les plus significatifs

##### 2015

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- ACL.C03.1. DAIRAY T., FORTUNÉ V., LAMBALLAIS E. & BRIZZI L. (2015) Direct numerical simulation of a jet impinging on a heated wall. *JFM*, **764**, 362–394.
- ACL.C03.2. DE LAAGE DE MEUX B., AUDEBERT B., MANCEAU R. & PERRIN R. (2015) Anisotropic linear forcing for synthetic turbulence generation in large eddy simulation and hybrid RANS/LES modeling. *PHYSICS OF FLUIDS*, **27**, 035115.

##### 2016

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- ACL.C03.3. PAREZANOVIĆ V., CORDIER L., SPOHN A., DURIEZ T., NOACK B.R., BONNET J.-P., SEGOND M., ABEL M. & BRUNTON S.L. (2016) Frequency selection by feedback control in a turbulent shear flow. *J. FLUID MECH.*, **797**, 247–283.

##### 2017

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- ACL.C03.4. DAIRAY T., LAMBALLAIS E., LAIZET S. & VASSILICOS C. (2017) Numerical dissipation vs. subgrid-scale modelling for large eddy simulation. *JCP*, **337**, 252–274.
- ACL.C03.5. FEINGSICHT M., POLYAKOV A., KERHERVÉ F. & RICHARD J.-P. (2017) SISO model-based control of separated flows: Sliding mode and optimal control approaches. *INTERNATIONAL JOURNAL OF ROBUST AND NONLINEAR CONTROL*, **27**, 5008–5027.

##### 2018

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##### 2019

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- ACL.C03.6. BUCCI M.A., SEMERARO O., ALLAUZEN A., WISNIEWSKI G., CORDIER L. & MATHELIN L. (2019) Control of chaotic systems by Deep Reinforcement Learning. *PROCEEDINGS OF THE ROYAL SOCIETY A: MATHEMATICAL, PHYSICAL AND ENGINEERING SCIENCES*, **475**, 20190351.
- ACL.C03.7. PERRET L. & KERHERVÉ F. (2019) Identification of very large scale structures in the boundary layer over large roughness elements. *EXPERIMENTS IN FLUIDS*, **60**, 97.

##### 2020

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- ACL.C03.8. HAFFNER Y., BORÉE J., SPOHN A. & CASTELAIN T. (2020) Mechanics of bluff body drag reduction during transient near-wake reversals. *J. FLUID MECH*, **894**.
- ACL.C03.9. HAFFNER Y., BORÉE J., SPOHN A. & CASTELAIN T. (2020) Unsteady Coanda effect and drag reduction for a turbulent wake. *JOURNAL OF FLUID MECHANICS*, **899**, A36.

#### Les 80% restants

##### 2015

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- ACL.C03.10. FLAGEUL C., BENHAMADOUCHE S., LAMBALLAIS E. & LAURENCE D. (2015) DNS of turbulent channel flow with conjugate heat transfer: Effect of thermal boundary conditions on the second moments and budgets. *IJHFF*, [HTTP://DX.DOI.ORG/10.1016/J.IJHEATFLUIDFLOW.2015.07.009](http://dx.doi.org/10.1016/j.ijheatfluidflow.2015.07.009), 1–11.

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<sup>1</sup> Doctorant (souligné), chercheur PPRIME (gras), partenaire indus. (pointillés), partenaire acad. (italique)

- ACL.C03.11. **PAREZANOVIĆ V., LAURENTIE J.-C., FOURMENT C., DELVILLE J., BONNET J.-P., SPOHN A., DURIEZ T., CORDIER L., NOACK B.R., ABEL M. & OTHERS** (2015) Mixing layer manipulation experiment. *FLOW, TURBULENCE AND COMBUSTION*, **94**, 155–173.
- ACL.C03.12. **TISSOT G., CORDIER L. & NOACK B.R.** (2015) Feedback stabilization of an oscillating vertical cylinder by POD Reduced-Order Model. *J. PHYS.: CONF. SER.*, 574, 012137.

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## 2016

- ACL.C03.13. **ABOU EL MAJD B. & CORDIER L.** (2016) New Regularisation method for calibrated POD Reduced-Order Models. *MATHEMATICAL MODELLING AND ANALYSIS*, **21**, 47–62.
- ACL.C03.14. **ATAM E., MATHÉLIN L. & CORDIER L.** (2016) Identification-Based Closed-Loop Control Strategies for a Cylinder Wake Flow. *IEEE TRANSACTIONS ON CONTROL SYSTEMS TECHNOLOGY*, **PP**, 1–8.
- ACL.C03.15. **BARROS D., BORÉE J., NOACK B.R. & SPOHN A.** (2016) Resonances in the forced turbulent wake past a 3D blunt body. *PHYSICS OF FLUIDS*, **28**, 065104.
- ACL.C03.16. **BARROS D., BORÉE J., NOACK B.R., SPOHN A. & RUIZ T.** (2016) Bluff body drag manipulation using pulsed jets and Coanda effect. *JOURNAL OF FLUID MECHANICS*, 805, 422–459.
- ACL.C03.17. **CHAPELIER J.-B., PLATA M. DE LA L. & LAMBALLAIS E.** (2016) Development of a multiscale LES model in the context of a modal discontinuous Galerkin method. *COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING*, 307, 275–299.
- ACL.C03.18. **CORNU D., KEIRSBULCK L., KERHERVÉ F., ALOUI F. & LIPPERT M.** (2016) On the vortex dynamics of shear-driven deep cavity flows with asymmetrical walls. *CANADIAN JOURNAL OF PHYSICS*, **94**, 1344–1352.
- ACL.C03.19. **DEBIEN A., VON KRBEK K., MAZELLIER N., DURIEZ T., CORDIER L., NOACK B.R., ABEL M.W. & KOURTA A.** (2016) Closed-loop separation control over a sharp edge ramp using genetic programming. *EXP. FLUIDS*, **57**, 1–19.
- ACL.C03.20. **FADLA F., GRAZIANI A., KERHERVE F., MATHIS R., LIPPERT M., UYSTEPRUYST D. & KEIRSBULCK L.** (2016) Electrochemical measurements for real-time stochastic reconstruction of large-scale dynamics of a separated flow. *JOURNAL OF FLUIDS ENGINEERING*, **138**.
- ACL.C03.21. **LEROUX R. & CORDIER L.** (2016) Dynamic Mode Decomposition for non-uniformly sampled data. *EXP. FLUIDS*, **57**, 94.
- ACL.C03.22. **LI R., BARROS D., BORÉE J., CADOT O., NOACK B.R. & CORDIER L.** (2016) Feedback control of bimodal wake dynamics. *EXP. FLUIDS*, **57**, 158.
- ACL.C03.23. **SEMAAN R., KUMAR P., BURNAZZI M., TISSOT G., CORDIER L. & NOACK B.R.** (2016) Reduced-order modelling of the flow around a high-lift configuration with unsteady Coanda blowing. *J. FLUID MECH.*, 800, 72–110.

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## 2017

- ACL.C03.24. **BARROS D., BORÉE J., CADOT O., SPOHN A. & NOACK B.R.** (2017) Forcing symmetry exchanges and flow reversals in turbulent wakes. *JOURNAL OF FLUID MECHANICS*, **829**.
- ACL.C03.25. **FLAGEUL C., BENHAMADOUCHE S., LAMBALLAIS E. & LAURENCE D.** (2017) On the discontinuity of the dissipation rate associated with the temperature variance at the fluid-solid interface for cases with conjugate heat transfer. *IJHMT*, 111, 321–328.
- ACL.C03.26. **KAISER E., NOACK B.R., SPOHN A., CATTAFESTA L.N. & MORZYŃSKI M.** (2017) Cluster-based control of a separating flow over a smoothly contoured ramp. *THEORETICAL AND COMPUTATIONAL FLUID DYNAMICS*, **31**, 579–593.
- ACL.C03.27. **KERHERVÉ F., ROUX S. & MATHIS R.** (2017) Combining time-resolved multi-point and spatially-resolved measurements for the recovering of very-large-scale motions in high Reynolds number turbulent boundary layer. *EXPERIMENTAL THERMAL AND FLUID SCIENCE*, **82**, 102–115.
- ACL.C03.28. **LI R., NOACK B.R., CORDIER L., BORÉE J. & HARAMBAT F.** (2017) Drag reduction of a car model by linear genetic programming control. *EXP. FLUIDS*, 58, 103.
- ACL.C03.29. **RAIBAUDO C., STANISLAS M. & KERHERVÉ F.** (2017) Transient characterization of the reattachment of a massively separated turbulent boundary layer under flow control. *FLOW, TURBULENCE AND COMBUSTION*, **98**, 1039–1063.

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## 2018

- ACL.C03.30. **CORNU D., LIPPERT M., KERHERVÉ F., ALOUI F. & KEIRSBULCK L.** (2018) Hydrodynamic oscillations inside deep cavities with wall offset. *EUROPEAN JOURNAL OF MECHANICS-B/FLUIDS*, **72**, 403–409.

- ACL.C03.31. DAIRAY T., LAMBALLAIS E. & BENHAMADOUCHE S. (2018) Mesh node distribution in terms of wall distance for large-eddy simulation of wall-bounded flows. *FTC*, **100**, 617–626.
- ACL.C03.32. GRAZIANI A., KERHERVE F., MARTINUZZI R. & KEIRSBULCK L. (2018) Dynamics of the recirculating areas of a forward-facing step. *EXPERIMENTS IN FLUIDS*, **59**, 154.
- ACL.C03.33. LI R., NOACK B.R., CORDIER L., BORÉE J., KAISER E. & HARAMBAT F. (2018) Linear Genetic Programming Control for strongly nonlinear dynamics with frequency crosstalk. *ARCH. MECH.*, **70**, 505–534.
- ACL.C03.34. NAGARAJAN K.K., SINGHA S., CORDIER L. & AIRIAU C. (2018) Open-loop control of cavity noise using Proper Orthogonal Decomposition reduced-order model. *COMPUTERS & FLUIDS*, **160**, 1–13.

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## 2019

- ACL.C03.35. LI R., BORÉE J., NOACK B.R., CORDIER L. & HARAMBAT F. (2019) Drag reduction mechanisms of a car model at moderate yaw by bi-frequency forcing. *PHYS. REV. FLUIDS*, **4**, 034604.
- ACL.C03.36. PINTO B., PLATA M. de la L. & LAMBALLAIS E. (2019) A wavelet-based variational multiscale method for the LES of incompressible flows in a high-order DG-FEM framework. *IJNMF*, **92**, 285–323.
- ACL.C03.37. PLATA M. DE LA L., LAMBALLAIS E. & NADDEI F. (2019) On the performance of a high-order multiscale DG approach to LES at increasing Reynolds number. *CF*, **194**, 104306.

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## 2020

- ACL.C03.38. CHOVET C., FEINGESICHT M., PLUMJEAU B., LIPPERT M., KEIRSBULCK L., KERHERVÉ F., POLYAKOV A., RICHARD J.-P., ABASSI W. & FOUCAUT J.-M. (2020) Sliding mode control applied to a square-back Ahmed body. *EUROPEAN JOURNAL OF MECHANICS-B/FLUIDS*, **81**, 151–164.
- ACL.C03.39. BARTHOLOMEW P., DESKOS G., FRANTZ R.A.S., SCHUCH F.N., LAMBALLAIS E. & LAIZET S. (2020) Xcompact3D: An open-source framework for solving turbulence problems on a Cartesian mesh. *SOFTWAREX*, **12**, 100550.
- ACL.C03.40. NADDEI F., PLATA M. DE LA L. & LAMBALLAIS E. (2020) Spectral and modal energy transfer analyses of the discontinuous Galerkin Variational Multiscale approach. *JCP*, IN REVIEW AFTER REVISION, 1–34.

# Production dans des colloques / congrès, séminaires de recherche

## Articles publiés dans des actes de colloques / congrès (59)

### Les 20% les plus significatifs

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## 2015

- ACT.C03.1. CHAPELIER J.-B., PLATA M. DE LA L., RENAC F. & LAMBALLAIS E. (2015) DNS of Canonical Turbulent Flows Using the Modal Discontinuous Galerkin Method. *DIRECT AND LARGE EDDY SIMULATION IX*, VOL. 20 (FRÖHLICH, J., KUERTEN, H., GEURTS, B., & ARMENIO, V. EDS). SPRINGER, CHAM, PP. 91–96.
- ACT.C03.2. CORDIER L., TISSOT G. & NOACK B.R. (2015) Feedback Stabilization of an Oscillating Vertical Cylinder by POD Reduced-Order Model. *Sixth International Symposium on Instabilities and Bifurcations in Fluid Dynamics*. Paris, France.
- ACT.C03.3. FADLA F., GRAZIANI A., KERHERVÉ F., MATHIS R., LIPPERT M., UYSTEPRUYST D. & KEIRSBULCK L. (2015) Real-Time Reconstruction of Separated Flow Flapping Motion. *Turbulence and Interactions*. Springer, pp. 131–137.

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## 2016

- ACT.C03.4. FEINGESICHT M., RAIBAUDO C., POLYAKOV A., KERHERVE F. & RICHARD J.-P. (2016) A bilinear input-output model with state-dependent delay for separated flow control. *2016 European Control Conference (ECC)*. IEEE, pp. 1679–1684.
- ACT.C03.5. FLAGEUL C., BENHAMADOUCHE S., LAMBALLAIS E., LAURENCE D. & TISELI I. (2016) On the discontinuity of  $\varepsilon_\beta$  - the dissipation rate associated with the temperature variance - at the fluid-solid interface for cases with conjugate heat transfer. *25th International Conference Nuclear Energy for New Europe*. Portoroz, Slovenia, pp. 1–9.

## 2017

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- ACT.C03.6. BARROS D., BORÉE J., NOACK B., SPOHN A. & RUIZ T. (2017) Effects of Unsteady Coanda Blowing on the Wake and Drag of a Simplified Blunt Vehicle. *Whither Turbulence and Big Data in the 21st Century?* Springer, pp. 365–373.
- ACT.C03.7. FEINGESICHT M., POLYAKOV A., KERHERVÉ F. & RICHARD J.-P. (2017) Model-based feedforward optimal control applied to a turbulent separated flow. *IFAC-PapersOnLine*, **50**, 11126–11131.

## 2018

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## 2019

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- ACT.C03.8. BUCCI M.A., SEMERARO O., ALLAUZEN A., CORDIER L., WISNIEWSKI G. & MATHÉLIN L. (2019) Control of a chaotic dynamical system with a Deep Reinforcement Learning approach. *90<sup>th</sup> GAMM Annual Meeting*. Vienna, Austria.
- ACT.C03.9. HAFFNER Y., BORÉE J., SPOHN A. & CASTELAIN T. (2019) Unsteady Coanda forcing for drag reduction of a blunt body. *11th International Symposium on Turbulence and Shear Flow Phenomena (TSFP11)*.
- ACT.C03.10. KUMAR N., KERHERVÉ F. & CORDIER L. (2019) Dynamic reconstruction of a numerical 2D cylinder wake flow using Data Assimilation. *5<sup>th</sup> Symposium on Fluid-Structure-Sound Interactions and Control (FSSIC2019)*. Crete, Greece.
- ACT.C03.11. LAMBALLAIS E., DAIRAY T., LAIZET S. & VASSILICOS C. (2019) Implicit/explicit spectral viscosity and large-scale SGS effects. *Direct and Large-Eddy Simulation XI*, vol. 25 (Salvetti, M., Armenio, V., Fröhlich, J., Geurts, B., & Kuerten, H. eds). Springer, Cham, pp. 107–113.

## 2020

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- ACT.C03.12. CRUZ R.V., LAMBALLAIS E. & PERRIN, R. (2020) Implicit wall-layer modelling in turbulent pipe flow. *Direct and Large Eddy Simulation XII*, vol. 27 (Garcia-Villalba, M., Kuerten, H., & Salvetti, M. eds). Springer, Cham, pp. 425–431.
- ACT.C03.13. KUMAR N., KERHERVÉ F. & CORDIER L. (2020) Dynamical model identification via a method combining data-driven and data-assimilation approaches. *55<sup>th</sup> International Conference on Applied Aerodynamics - AAAF*. Poitiers, France.

## Les 80% restants

## 2015

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- ACT.C03.14. ALFEREZ N., MARY I. & LAMBALLAIS E. (2015) Unsteady Characteristic of Stall Around an Airfoil by Means of High Fidelity LES. *Direct and Large Eddy Simulation IX*, vol. 20 (Fröhlich, J., Kuerten, H., Geurts, B., & Armenio, V. eds). Springer, Cham, pp. 377–382.
- ACT.C03.15. BARROS D., BORÉE J., NOACK B.R., SPOHN A. & RUIZ T. (2015) Drag reduction of a blunt body by unsteady shear layer forcing and Coanda blowing. *Congrès français de mécanique*. AFM, Association Française de Mécanique.
- ACT.C03.16. FLAGEUL C., BENHAMADOUCHE S., LAMBALLAIS E. & LAURENCE D. (2015) DNS of turbulent channel flow: can we imitate conjugate heat-transfer with a Robin boundary condition? *8th international symposium of Turbulence Heat and Mass Transfer*. Sarajevo, Bosnia and Herzegovina, pp. 1–15.
- ACT.C03.17. GRAZIANI A., FADLA F., LIPPERT M., KERHERVE F., MATHIS R., UYSTEPRUYST D. & KEIRSBULCK L. (2015) Estimation stochastique d'un écoulement décollé en aval d'une bosse par méthode électrochimique. *Congrès français de mécanique*. AFM, Association Française de Mécanique.

- ACT.C03.18. GRAZIANI A., LIPPERT M., UYSTEPRUYST D., KEIRSBULCK L. & KERHERVÉ F. (2015) On the Connection Between Two Low-Frequency Instabilities Induced by the Flow Surrounding a Forward Facing Step at High Reynolds Number. *TURBULENCE AND INTERACTIONS*. SPRINGER, PP. 157–162.
- ACT.C03.19. NIVEN R.K., NOACK B.R., KAISER E., CATTAFESTA III L.N., CORDIER L. & ABEL M.W. (2015) Bayesian Cyclic Networks, Mutual Information and Reduced-Order Bayesian Inference. *MaxEnt 2015, 35th International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering*. Potsdam, New York, USA.
- ACT.C03.20. PAREZANOVIĆ V., SPOHN A. & CORDIER L. (2015) Flow separation control using optical feedback. *22<sup>ème</sup> Congrès Français de Mécanique*. Lyon.
- ACT.C03.21. RAIBAUDO C., KERHERVE F. & STANISLAS M. (2015) Characterisation of the transient dynamics of a controlled separated flow using phase averaged PIV. *Instability and Control of Massively Separated Flows*. Springer, pp. 183–188.
- ACT.C03.22. SEMAAN R., KUMAR P., BURNAZZI M., TISSOT G., CORDIER L. & NOACK B.R. (2015) Reduced-order modeling of the flow around a high-lift configuration with unsteady Coanda blowing. *Symposium Whither Turbulence and Big Data In the 21st Century*. Institut d'Etudes Scientifiques de Cargèse, Menasina, F-2130 Cargèse, France.
- ACT.C03.23. TISSOT G., CORDIER L. & NOACK B.R. (2015) 4D-Var data identification of DMD Reduced-Order Models. *22<sup>ème</sup> Congrès Français de Mécanique*. Lyon.
- ACT.C03.24. TISSOT G., CORDIER L. & NOACK B.R. (2015) 4D-Var identification of DMD Reduced-Order Models. *12<sup>ème</sup> Congrès de Mécanique*. Casablanca, Maroc.
- ACT.C03.25. TISSOT G., CORDIER L. & NOACK B.R. (2015) 4D-Var Identification of DMD Reduced-Order Models. *Workshop on Non-Intrusive Measurements for unsteady flows and aerodynamics*. Poitiers.
- ACT.C03.26. TISSOT G., CORDIER L. & NOACK B.R. (2015) Feedback Stabilization of an Oscillating Vertical Cylinder by POD Reduced-Order Model. *12<sup>ème</sup> Congrès de Mécanique*. Casablanca, Maroc.
- ACT.C03.27. TISSOT G., CORDIER L. & NOACK B.R. (2015) Feedback stabilization of an oscillating vertical cylinder by POD Reduced-Order Model. *22<sup>ème</sup> Congrès Français de Mécanique*. Lyon.

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## 2016

- ACT.C03.28. LAMBALLAIS E., DAIRAY T., LAIZET S. & VASSILICOS C. (2016) Explicit vs. implicit subgrid-scale modelling for LES. *24th International Congress of Theoretical and Applied Mechanics*. Montreal, Canada, pp. 1332–1333.
- ACT.C03.29. LI R., NOACK B.R., CORDIER L., BORÉE J. & HARAMBAT F. (2016) Closed-loop aerodynamic drag reduction of a car model using linear genetic programming. *Second International Conference in Numerical and Experimental Aerodynamics of Road Vehicles and Trains (Aerovehicles 2)*. Göteborg, Sweden.
- ACT.C03.30. NIVEN R.K., KAISER E., NOACK B.R., CATTAFESTA L., ABEL M. & CORDIER L. (2016) Rapid Bayesian Dynamical Models from Fluid Flow Data. *20th Australasian Fluid Mechanics Conference*. The University of Western Australia, Perth.
- ACT.C03.31. NIVEN R.K., NOACK B.R., KAISER E., CATTAFESTA L.N., CORDIER L. & ABEL M. (2016) Rapid Bayesian Inference on Bayesian Cyclic Networks. *SIAM Conference on Uncertainty Quantification*. Lausanne, Switzerland.
- ACT.C03.32. PIVOT C., MATHELIN L., CORDIER L. & NOACK B.R. (2016) A statistical learning framework for closed-loop control of turbulent flows. *87<sup>th</sup> GAMM. Session "Flow Control" organisée par Rolf Radespiel (TU Braunschweig) et Richard Semaan (TU Braunschweig)*. Braunschweig, Germany.
- ACT.C03.33. SEMAAN R., KUMAR P., BURNAZZI M., TISSOT G., CORDIER L. & NOACK B.R. (2016) Reduced-order modeling of the flow around a high-lift configuration with unsteady Coanda blowing. *87<sup>th</sup> GAMM. Session "Flow Control" organisée par Rolf Radespiel (TU Braunschweig) et Richard Semaan (TU Braunschweig)*. Braunschweig, Germany.

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## 2017

- ACT.C03.34. BAI Z., BRUNTON S.L., BRUNTON B.W., KUTZ J.N., KAISER E., SPOHN A. & NOACK B.R. (2017) Data-driven methods in fluid dynamics: Sparse classification from experimental data. *Whither Turbulence and Big Data in the 21st Century?* Springer, pp. 323–342.



- ACT.C03.35. BARROS D., BORÉE J., SPOHN A. & NOACK B.R. (2017) Perturbing shear layers in a turbulent wake. *10th International Symposium on Turbulence and Shear Flow Phenomena, TSFP 2017*.
- ACT.C03.36. FEINGESICHT M., POLYAKOV A., KERHERVÉ F. & RICHARD J.-P. (2017) Sliding mode control for turbulent flows. *IFAC-PapersOnLine*, 50, 2690–2695.
- ACT.C03.37. LI R., NOACK B.R., CORDIER L., BORÉE J. & HARAMBAT F. (2017) Machine Learning Control for Drag Reduction of A Car Model in Experiment. *20th World Congress of the International Federation of Automatic Control*. Toulouse, France.
- ACT.C03.38. LI R., NOACK B.R., CORDIER L., BORÉE J. & HARAMBAT F. (2017) Machine learning control of the turbulent wake past a 3D bluff body. *52<sup>nd</sup> International Conference on Applied Aerodynamics - AAAF*. Lyon, France.
- ACT.C03.39. PIVOT C., MATHELIN L., CORDIER L., GUÉNIAT F. & NOACK B.R. (2017) A continuous reinforcement learning strategy for closed-loop control in fluid dynamics. *AIAA Aviation and Aeronautics Forum and Exposition*. Denver, CO.
- ACT.C03.40. PIVOT C., MATHELIN L., CORDIER L., GUÉNIAT F. & NOACK B.R. (2017) Reinforcement Learning strategies for closed-loop control in fluid dynamics. *52nd International Conference of Applied Aerodynamics - AAAF*. Lyon, France.
- ACT.C03.41. SEBASTIAN R., MARX D., FORTUNÉ V. & LAMBALLAIS E. (2017) Numerical simulation of a compressible channel flow with an acoustic liner. *23rd AIAA/CEAS Aeroacoustics Conference*. p. 4034.

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## 2018

- ACT.C03.42. DAIRAY T., LAMBALLAIS E., LAIZET S. & VASSILICOS J.C. (2018) Physical scaling of numerical dissipation for LES. *Direct and Large Eddy Simulation X*, vol. 24 (Grigoriadis, D., Geurts, B., Kuerten, H., & Fröhlich, J. eds). Springer, Cham, pp. 149–155.
- ACT.C03.43. HAFFNER Y., BORÉE J., SPOHN A., CASTELAIN T., MICHARD M., SESMAT S. & BIDEAUX E. (2018) Forcing three-dimensional large-scale flow asymmetries in the wake of blunt body: wake equilibrium and drag reduction. *Third international conference in numerical and experimental aerodynamics of road vehicles and trains (Aerovehicles 3)*.
- ACT.C03.44. LI R., BORÉE J., NOACK B.R., CORDIER L. & HARAMBAT F. (2018) Drag reduction of a yawed car model by combining fluidic flaps and turbulence control. *3rd International Conference in Numerical and Experimental Aerodynamics of Road Vehicles and Trains (Aerovehicles 3)*. Milano, Italy.
- ACT.C03.45. LI R., BORÉE J., NOACK B.R., CORDIER L. & HARAMBAT F. (2018) Drag reduction of a yawed car model by combining fluidic flaps and turbulence control. *19th International Symposium on Applications of Laser and Imaging Techniques to Fluid Mechanics*. Lisbon, Portugal.
- ACT.C03.46. NADDEI F., PLATA M. de la L. & LAMBALLAIS E. (2018) Development of a scale-partition adaptive DG-VMS method for large-eddy simulation of turbulence. *High-Fidelity Industrial LES/DNS (HiFiLeD) Symposium*. Brussels, pp. 1–10.
- ACT.C03.47. NARVAEZ G.F., LAMBALLAIS E. & CAMANO B.E. (2018) Transporte escalar em escoamento em conduto circular forçado. Estudo de caso: transferência de calor. *XXVII Congreso Latinoamericano de hidraulica*. Buenos Aires–Argentina, pp. 475–485.
- ACT.C03.48. PINTO B., PLATA M. DE LA L. & LAMBALLAIS E. (2018) A Wavelet based adaptive discontinuous Galerkin method for incompressible flows. *Turbulence and Interactions*, Book Series: Notes on Numerical Fluid Mechanics and Multidisciplinary Design, vol. 135. pp. 207–215.
- ACT.C03.49. SPOHN A. & PAREZANOVIĆ V. (2018) Optical feedback for closed-loop flow control systems. *5th International Conference on Experimental Fluid Mechanics (ICEFM)*. pp. 291–296.

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## 2019

- ACT.C03.50. CRUZ R.V., LAMBALLAIS E. & PERRIN R. (2019) Implicit Wall-Layer Modelling in Turbulent Pipe Flow. *ERCOTAC Workshop Direct and Large Eddy Simulation*. Springer, pp. 425–431.
- ACT.C03.51. HAFFNER Y., SPOHN A., BORÉE J. & CASTELAIN T. (2019) Transient dynamics of the turbulent wake of a three-dimensional blunt body. *ETC 2019 - 17th European Turbulence Conference*.
- ACT.C03.52. KUMAR N., KERHERVÉ F. & CORDIER L. (2019) Data Assimilation applied to a numerical 2D cylinder wake flow. *24<sup>ème</sup> Congrès Français de Mécanique*. Brest.

- ACT.C03.53. KUMAR N., KERHERVÉ F. & CORDIER L. (2019) Data Assimilation for control of a plane mixing layer. *14<sup>ème</sup> Congrès de Mécanique*. Rabat, Maroc.
- ACT.C03.54. LAMBALLAIS E. & CRUZ R.V. (2019) From explicit to implicit subgrid-scale and wall modelling in large-eddy simulation. *MekIT'19, Tenth national conference on Computational Mechanics* (Skallerud, B. & Andersson, H.I. eds). Trondheim, Norway, pp. 1–24.
- ACT.C03.55. NIVEN R.K., CORDIER L., ABEL M., QUADE M. & MOHAMMAD-DJAFARI A. (2019) Rainfall-Runoff Analysis by Bayesian Inverse Methods. *23rd International Congress on Modelling and Simulation (MODSIM2019)*. Canberra, Australia.
- ACT.C03.56. NIVEN R.K., MOHAMMAD-DJAFARI A., CORDIER L., ABEL M. & QUADE M. (2019) Bayesian Identification of Dynamical Systems. 39th International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (MaxEnt 2019). Garching/Munich, Germany.
- ACT.C03.57. PLATA M. de la L., LAMBALLAIS E. & COUAILLIER V. (2019) A Discontinuous Galerkin Variational Multiscale Approach to LES of Turbulent Flows. *Direct and Large-Eddy Simulation XI*, vol. 25 (Salvetti, M., Armenio, V., Fröhlich, J., Geurts, B., & Kuerten, H. eds). Springer, Cham, pp. 47–52.

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## 2020

- ACT.C03.58. PERRIN R., RATTANASIRI P., LAMBALLAIS E. & YOYEN S. (2020) Influence of the Trailing Edge Shape on the Aerodynamic Characteristics of an Airfoil at Low Re Number Using RANS. *IOP Conference Series: Materials Science and Engineering*, vol. 886. IOP Publishing, p. 012021.
- ACT.C03.59. RATTANASIRI P. & PERRIN R. (2020) Influence of the Wavelength of Cut-In Sinusoidal Trailing Edge Shape to the Aerodynamics Characteristic of the Airfoil. *IOP CONFERENCE SERIES: MATERIALS SCIENCE AND ENGINEERING*, VOL. 886. IOP PUBLISHING, P. 012020.

### Autres produits présentés dans des colloques / congrès et des séminaires de recherche (63)

#### Les 20% les plus significatifs

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## 2015

- COM.C03.1. BAI Z., BRUNTON S.L., BRUNTON B.W., KUTZ J.N., KAISER E., SPOHN A. & NOACK B.R. (2015) Flow classification using machine learning on sparsely sampled experimental flow visualization data. *Annual APS/DFD Meeting*. APS, pp. M27–009.
- COM.C03.2. CORDIER L., TISSOT G. & NOACK B.R. (2015) Reduced-Order Modelling by DMD and Feedback Stabilization of an Oscillating Vertical Cylinder. *SFB 880: Flow control workshop*. Technical University of Braunschweig, Germany.
- COM.C03.3. LAIZET S., LAMBALLAIS E. & VASSILICOS C. (2015) A 2D domain decomposition, a customized immersed boundary method and a zest of numerical dissipation: a successful cocktail to tackle turbulence on HPC systems. *68th Annual Meeting of the APS Division of Fluid Dynamics*.

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## 2016

- COM.C03.4. LI R., BARROS D., BORÉE J., NOACK B.R., CORDIER L., HARAMBAT F. & CADOT O. (2016) Feedback control of bimodal wake dynamics. *Journée GDR-Contrôle des Décollements*. LMFA, Ecole Centrale de Lyon.
- COM.C03.5. PIVOT C., MATHELIN L., CORDIER L., GUÉNIAT F. & NOACK B.R. (2016) A continuous reinforcement learning strategy for closed-loop control in fluid dynamics. *Journée GDR-Contrôle des Décollements*. LMFA, Ecole Centrale de Lyon.

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## 2017

- COM.C03.6. CORDIER L. (2017) Réduction de la dimension dans les dynamiques spatio-temporelles. *ANF "Réduction de la dimension dans la fouille de données massives : enjeux, méthodes et outils pour le calcul."* La Vieille Perrotine, île d'Oléron.

- COM.C03.7. CORDIER L. & MATHELIN L. (2017) Introduction à la réduction de modèles en Dynamique des Fluides. *Workshop Vers le traitement des données massives : Défis et applications en Mécanique des Fluides et en Sciences de l'Ingénieur*. LRI, Orsay.

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## 2018

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- COM.C03.8. CORDIER L. & KERHERVÉ F. (2018) Introduction to Data Assimilation. *Assemblée générale Département Fluides Thermique Combustion de Pprime*. Poitiers.
- COM.C03.9. NADDEI F., DE LA LLAVE PLATA M., LAMBALLAIS E., COUAILLIER V., MASSOT M. & IHME M. (2018) Large-scale space definition for the DG-VMS method based on energy transfer analyses. *CTR Summer Program 2018*.
- COM.C03.10. PAREZANOVIĆ V., SPOHN A. & CORDIER L. (2018) Quasi-periodic behavior of closed-loop control in convective flows. *71<sup>st</sup> Annual APS/DFD Meeting*. Atlanta, Georgia.
- COM.C03.11. RATTANASIRI P. & PERRIN R. (2018) Direct Numerical Simulation study of the aerodynamic performances of NACA0012 with cut-in sinusoidal trailing edge shape. *9th TSME ICoME*.

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## 2019

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- COM.C03.12. BUCCI M.A., SEMERARO O., MATHELIN L., CORDIER L., ALLAUZEN A. & WISNIEWSKI G. (2019) Nonlinear optimal control using deep reinforcement learning. *IUTAM Symposium on Laminar-Turbulent Transition*. London, United Kingdom.
- COM.C03.13. KUMAR N., KERHERVÉ F. & CORDIER L. (2019) Data-driven methods for identification of dynamical systems. *Journée GDR-Contrôle des Décollements*. CNAM, Paris.

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## 2020

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### Les 80% restants

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## 2015

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- COM.C03.14. ABEL M., SEGOND M., DURIEZ T., CORDIER L., NOACK B.R. & BRUNTON S.L. (2015) Machine Learning Control (MLC) — Strategies. *SFB 880: Flow control workshop*. Technical University of Braunschweig, Germany.
- COM.C03.15. CORDIER L. (2015) A model-based flow control story. *First Bayesian Control Workshop for Modelling and Control in Fluid Mechanics (Bayesian Control 2015)*. Institute PPRIME, Poitiers, France.
- COM.C03.16. CORDIER L. (2015) Machine Learning: A change of paradigm in Flow Control? *Kick off meeting ONERA/Carnot INTACOO*. Meudon (ONERA/DAFE).
- COM.C03.17. DURIEZ T., PAREZANOVIĆ V., VON KRBEK K., BONNET J.-P., CORDIER L., NOACK B.R., SEGOND M., ABEL M.W., GAUTIER N., AIDER J.-L., RAIBAUDDO C., CUVIER C., STANISLAS M., DEBIEN A., MAZELLIER N., KOURTA A. & BRUNTON S.L. (2015) Closed-loop control of experimental complex flows with machine learning control. *LIA PMF, Mid-term assesment days*. Buenos Aires, Argentina.
- COM.C03.18. LI R., BARROS D., DURIEZ T., CORDIER L., NOACK B.R., BORÉE J. & RUIZ T. (2015) Drag reduction of an Ahmed body — From open-loop forcing to machine learning control. *SFB 880: Flow control workshop*. Technical University of Braunschweig, Germany.
- COM.C03.19. NOACK B.R., CORDIER L., PAREZANOVIĆ V., BONNET J.-P., GAUTIER N., AIDER J.-L., RAIBAUDDO C., CUVIER C., STANISLAS M., DEBIEN A., MAZELLIER N., KOURTA A., ABEL M. & DURIEZ T. (2015) Closed-loop turbulence control using machine learning. *Journée dédiée aux Reduced-Order Models*. Bordeaux, France.
- COM.C03.20. NOACK B.R., CORDIER L., PAREZANOVIĆ V., BONNET J.-P., GAUTIER N., AIDER J.-L., RAIBAUDDO C., CUVIER C., STANISLAS M., DEBIEN A., MAZELLIER N., KOURTA A., ABEL M., DURIEZ T., BRUNTON S.L. & NIVEN R.K. (2015) Closed-loop turbulence control using machine learning. *First Bayesian Control Workshop for Modelling and Control in Fluid Mechanics (Bayesian Control 2015)*. Institute PPRIME, Poitiers, France.
- COM.C03.21. NOACK B.R., CORDIER L., PAREZANOVIĆ V., BONNET J.-P., GAUTIER N., AIDER J.-L., RAIBAUDDO C., CUVIER C., STANISLAS M., DEBIEN A., MAZELLIER N., KOURTA A., ABEL M., DURIEZ T., BRUNTON S.L. & NIVEN R.K. (2015) Closed-loop turbulence control using machine learning. *Berlin Workshop on Model Reduction for Transport-dominated Phenomena, Einstein Foundation*. Berlin Institute of Technology, Germany.
- COM.C03.22. NOACK B.R., CORDIER L., PAREZANOVIĆ V., BONNET J.-P., GAUTIER N., AIDER J.-L., RAIBAUDDO C., CUVIER C., STANISLAS M., DEBIEN A., MAZELLIER N., KOURTA A., ABEL M.W., DURIEZ T., BRUNTON S.L. & NIVEN R.K. (2015) Closed-loop



- turbulence control using machine learning. *SIAM Conference on Control and Its Applications (CT15)*. Paris, France.
- COM.C03.23. NOACK B.R., CORDIER L., PAREZANOVIC V., KAISER E., ABEL M.W., BRUNTON S., DURIEZ T. & NIVEN R.K. (2015) Closed-loop turbulence control using machine learning. *Fachbereich Mathematik & Statistik*. University of Konstanz, Germany.
- COM.C03.24. NOACK B.R., CORDIER L., PAREZANOVIC V., KAISER E., ABEL M.W., BRUNTON S., DURIEZ T. & NIVEN R.K. (2015) Closed-loop turbulence control using machine learning. *Research Training School LORENTZ FORCE*. Technical University Ilmenau, Germany.
- COM.C03.25. NOACK B.R., DURIEZ T., CORDIER L., PAREZANOVIC V., BONNET J.-P., SEGOND M., ABEL M., GAUTIER N., AIDER J.-L., RAIBAUDDO C., CUVIER C., STANISLAS M., DEBIEN A., MAZELLIER N., KOURTA A. & BRUNTON S.L. (2015) Closed-loop turbulence control of experimental shear flows using MLC. *SFB 880: Flow control workshop*. Technical University of Braunschweig, Germany.
- COM.C03.26. NOACK B.R., DURIEZ T., CORDIER L., VON KRBEK K., KAISER E., PAREZANOVIC V., BONNET J.-P., SEGOND M., ABEL M.W., GAUTIER N., AIDER J.-L., RAIBAUDDO C., CUVIER C., STANISLAS M., DEBIEN A., MAZELLIER N., KOURTA A., BRUNTON S.L. & NIVEN R.K. (2015) Closed-loop turbulence control using machine learning. *FOR 1770 Symposium of Active Drag Reduction*. RWTH Aachen, Germany.
- COM.C03.27. PAREZANOVIC V., CORDIER L., NOACK B.R., BONNET J.-P., DURIEZ T., SEGOND M., ABEL M.W. & BRUNTON S.L. (2015) Genetic Programming for closed-loop flow control. *First Bayesian Control Workshop for Modelling and Control in Fluid Mechanics (Bayesian Control 2015)*. Institute PPRIME, Poitiers, France.
- COM.C03.28. PAREZANOVIC V., CORDIER L. & SPOHN A. (2015) Separation control using hydrogen bubble visualization. *Journées du GDR au LHEEA*.
- COM.C03.29. PIVOT C., MATHELIN L. & CORDIER L. (2015) Contrôle par apprentissage de systèmes dynamiques. *Journée GDR-Contrôle des Décollements*. LHEEA, Ecole Centrale de Nantes.
- COM.C03.30. SEMAAN R., CORDIER L., NOACK B.R., KUMAR P., BURNAZZI M. & TISSOT G. (2015) Reduced-order modeling of the flow around a high-lift configuration with unsteady Coanda blowing. *68<sup>th</sup> Annual APS/DFD Meeting*. Boston, Massachusetts.
- COM.C03.31. SEMAAN R., KUMAR P., BURNAZZI M., TISSOT G., CORDIER L. & NOACK B.R. (2015) Reduced-order modeling of the flow around a high-lift configuration with unsteady Coanda blowing. *SFB 880: Flow control workshop*. Technical University of Braunschweig, Germany.
- COM.C03.32. SEMAAN R., KUMAR P., BURNAZZI M., TISSOT G., CORDIER L. & NOACK B.R. (2015) Reduced-order modeling of the flow around a high-lift configuration with unsteady Coanda blowing. *Workshop Strömung mit Ablösung (STAB)*. Goettingen, Germany.
- COM.C03.33. SPOHN A. (2015) Flow Characteristics of the Separated Flow Region in the ANR SePaCoDe Project - Similarities and Differences. *Journées du GDR au LHEEA*.
- COM.C03.34. VON KRBEK K., DURIEZ T., CORDIER L., NOACK B.R., DEBIEN A., MAZELLIER N. & KOURTA A. (2015) Closed-loop separation control over a smooth ramp using machine learning. *SFB 880: Flow control workshop*. Technical University of Braunschweig, Germany.

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- COM.C03.35. FUKOMOTO H., LI R., DURIEZ T., CORDIER L., NOACK B.R., NONOMURA T. & OYAMA A. (2016) Closed-loop Control over an Airfoil Using Linear Genetic Programming. *First Workshop on Machine Learning Control (wMLC-1)*. LIMSI, Orsay, France.
- COM.C03.36. KAISER E., NOACK B.R., SPOHN A., CATTAFESTA L.N., MORZYNSKI M., DAVILLER G., BRUNTON B.W. & BRUNTON S.L. (2016) A probabilistic approach to modeling and controlling fluid flows. *Annual APS/DFD Meeting*. APS, pp. E10-006.
- COM.C03.37. LI R., NOACK B.R., CORDIER L., BORÉE J., DURIEZ T., KAISER E. & HARAMBAT F. (2016) Drag reduction of an Ahmed body – Feedback control using Linear Genetic Programming. *First Workshop on Machine Learning Control (wMLC-1)*. LIMSI, Orsay, France.
- COM.C03.38. LI R., NOACK B.R., CORDIER L., BORÉE J. & HARAMBAT F. (2016) Linear Genetic Programming Control for drag reduction of a car model. *Séminaire*. LAMIH, Valenciennes.
- COM.C03.39. NIVEN R.K., KAISER E., NOACK B.R., CATTAFESTA L., ABEL M. & CORDIER L. (2016) Rapid Bayesian Inference for Fluid Flow Modeling and Control. *69<sup>th</sup> Annual APS/DFD Meeting*. Portland, Oregon.

- COM.C03.40. NOACK B.R., CORDIER L., DURIEZ T., ABEL M.W. & BRUNTON S.L. (2016) Closed-loop turbulence control using machine learning. *Workshop Journée de Dynamique des Fluides du Plateau de Saclay*. LIMSI, Orsay, France.
- COM.C03.41. PIVOT C., CORDIER L., MATHELIN L., PASTUR L. & LUSSEYRAN F. (2016) Statistical learning for closed-loop flow control. *First Workshop on Machine Learning Control (wMLC-1)*. LIMSI, Orsay, France.
- COM.C03.42. SPOHN A., PAREZANOVIC V. & CORDIER L. (2016) Closed-loop Control of Laminar Separation Bubbles. Emil Hopfinger Colloquium 2016. Grenoble, France.

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- COM.C03.43. CORDIER L., PIVOT C., MATHELIN L. & GORODETSKY A. (2017) Closed-loop control of fluid flows using Reinforcement Learning. *Journée GDR-Contrôle des Décollements*. PRISME, Orléans.
- COM.C03.44. LI R., NOACK B.R., CORDIER L., BORÉE J. & HARAMBAT F. (2017) Aerodynamic drag reduction of a square-back car model using Linear Genetic Programming and physics-based control. *Journée GDR-Contrôle des Décollements*. PRISME, Orléans.
- COM.C03.45. LI R., NOACK B.R., CORDIER L., BORÉE J. & HARAMBAT F. (2017) Linear Genetic Programming control of turbulent wake past a 3D bluff body. *Second Workshop on Machine Learning Control (wMLC-2)*. LAMIH, Valenciennes, France.
- COM.C03.46. LI R., NOACK B.R., CORDIER L., BORÉE J. & HARAMBAT F. (2017) Machine Learning Control for drag reduction of a car model. *Séminaire*. CNAM, Paris.
- COM.C03.47. LI R., NOACK B.R., CORDIER L., BORÉE J. & HARAMBAT F. (2017) Machine Learning Control for drag reduction of a car model. *Journée Centre National de Recherche Technologique Recherche en Aérodynamique et Aéroacoustique*. ONERA Meudon, France.
- COM.C03.48. MATHELIN L., PIVOT C., GORODETSKY A. & CORDIER L. (2017) Closed-loop control of fluid flows using Reinforcement Learning. *Second Workshop on Machine Learning Control (wMLC-2)*. LAMIH, Valenciennes, France.

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## 2018

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- COM.C03.49. BUCCI M.A., SEMERARO O., ALLAUZEN A., CORDIER L., WISNIEWSKI G. & MATHELIN L. (2018) Control-oriented model learning with a recurrent neural network. *71<sup>st</sup> Annual APS/DFD Meeting*. Atlanta, Georgia.
- COM.C03.50. CORDIER L. (2018) Assimilation de données dans des modèles dynamiques d'ordre réduit : application au contrôle des écoulements en mécanique des fluides. *Colloque National d'Assimilation de Données 2018*. Rennes.
- COM.C03.51. CORDIER L. (2018) Machine Learning in Flow Control: A Journey from Model-Based to Data-Driven Control. *Comité de pilotage GDR-Contrôle des Décollements*. Orléans.
- COM.C03.52. CORDIER L. (2018) Présentation du métier de chercheur CNRS et d'enseignant chercheur. *Forum des métiers du Collège Jean Rostand*. Neuville du Poitou.
- COM.C03.53. CORDIER L. (2018) Présentation du métier de chercheur CNRS et d'enseignant chercheur. *Journée d'orientation du Lycée Pilote Innovant International*. Jaunay-Clan.
- COM.C03.54. CORDIER L. (2018) Présentation du métier de chercheur CNRS et d'enseignant chercheur. *Printemps de la Recherche de l'Université de Poitiers*. Chasseneuil du Poitou.
- COM.C03.55. HAFFNER Y., BORÉE J., CASTELAIN T. & SPOHN A. (2018) Manipulation of 3D blunt body turbulent wakes: drag reduction and wake equilibrium. *Annual APS/DFD Meeting*. APS.
- COM.C03.56. KUMAR N., KERHERVÉ F. & CORDIER L. (2018) Data Assimilation for control of a plane mixing layer. *Journée GDR-Contrôle des Décollements*. IMFT.
- COM.C03.57. NIVEN R.K., CORDIER L., KAISER E., SCHLEGEL M., NOACK B.R. & HÉROUARD N. (2018) Generalized Reynolds Transport Theorem, Liouville Equation, and Perron-Frobenius and Koopman Operators. *Séminaire*. IMJ-PRG, Paris.

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## 2019

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- COM.C03.58. BUCCI M.A., ALLAUZEN A., CORDIER L., MATHELIN L., SEMERARO O. & WISNIEWSKI G. (2019) Apprentissage d'un modèle dynamique chaotique par un LSTM. *Conférence sur l'Apprentissage automatique (CAp)*. Toulouse.

- COM.C03.59. BUCCI M.A., SEMERARO O., ALLAUZEN A., WISNIEWSKI G., MATHELIN L. & CORDIER L. (2019) Control of chaotic dynamical system with Deep Reinforcement Learning. The case of the Kuramoto Sivashinsky equation. *Journée CNRT R2A*. Paris.
- COM.C03.60. CORDIER L. (2019) Présentation du métier de chercheur CNRS et d'enseignant chercheur. *Forum des métiers du Collège Jean Rostand*. Neuville du Poitou.
- COM.C03.61. CORDIER L. (2019) Présentation du métier de chercheur CNRS et d'enseignant chercheur. *Journée d'orientation du Lycée Pilote Innovant International*. Jaunay-Clan.
- COM.C03.62. KUMAR N., KERHERVÉ F. & CORDIER L. (2019) Data-driven methods for identification of dynamical systems. *Séminaire du GT Métrologie*. Pprime, Poitiers.
- COM.C03.63. NIVEN R.K., CORDIER L., ABEL M., QUADE M. & MOHAMMAD-DJAFARI A. (2019) A Bayesian Reinterpretation of Dynamical System Identification by Sparse Regression Methods. *72<sup>nd</sup> Annual APS/DFD Meeting*. Seattle, WA.

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2020