

# LIST OF PUBLICATIONS 2018-2022

## BERENGERE PODVIN

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### ARTICLES

1. "Low-order modelling of the wake dynamics of an Ahmed body", B. Podvin, S. Pellerin, Y. Fraigneau, G. Bonnavion, O Cadot, Journal of Fluid Mechanics 2021, 927.
2. "On the role of roughness valleys in turbulent Rayleigh-Bénard convection, M. Belkadi, A. Sergent, Y. Fraigneau, B. Podvin, Journal of Fluid Mechanics 2021, 923.
3. "[Coherent structure identification in turbulent channel flow using Latent Dirichlet Allocation](#)", M. Frihat, B. Podvin, L. Mathelin, Y. Fraigneau, F. Yvon, Journal of Fluid Mechanics 2021, 920.
4. "Low-order models for predicting radiative transfer effects on Rayleigh-Bénard convection in a cubic cell at different Rayleigh numbers", L. Soucasse, B. Podvin, P. Riviere, A. Soufiani, Journal of Fluid Mechanics 2021, 917.
5. "Low Reynolds number investigations on the ability of the strip of e-TellTale sensor to detect flow features over wind turbine blade section: flow stall and reattachment dynamics", Soulier, A., Braud, C., Voisin, D., and Podvin, B., Wind Energ. Science, 2021, 6, (2), 424-429.
6. "Reduced-order modelling of radiative transfer effects on Rayleigh-Bénard convection in a cubic cell", L. Soucasse, B. Podvin, P. Rivière, A. Soufiani, Journal of Fluid Mechanics 2020, 898, A2 doi:10.1017/jfm.2020.3095
7. "Proper Orthogonal Decomposition Analysis and Modelling of the wake deviation behind a squareback Ahmed body", B. Podvin, S. Pellerin, Y. Fraigneau, A. Evrard and O. Cadot, Physical Review Fluids 2020, 5(6), 064612
8. "Physical modeling of simultaneous heat and mass transfer: species interdiffusion, Soret effect and Dufour effect", N. Jiang, E. Studer, B. Podvin, International Journal of Heat and Mass Transfer, 2020, vol. 156
9. "Experimental and numerical shadowgraph in turbulent Rayleigh-Benard convection with a rough boundary: Investigation of plumes", Belkadi, M., Guislain, L., Sergent, A., Podvin, B., Chilla, F., and Salort, J., Journal of Fluid Mechanics 2020, 895, A7. doi:10.1017/jfm.2020.296
10. "Proper orthogonal decomposition analysis and modelling of large-scale flow reorientations in a cubic Rayleigh-Benard cell", L. Soucasse, B. Podvin, P. Rivière, A. Soufiani, Journal of Fluid Mechanics 2019, 881, 23-50
11. "Cessation and reversals of large-scale structures in square Rayleigh-Bénard cells", A. Castillo-Castellanos, A. Sergent, B. Podvin, M Rossi, Journal of Fluid Mechanics 2019, 877, 922-954
12. "On reversals in 2D turbulent Rayleigh-Bénard convection: Insights from embedding theory and comparison with proper orthogonal decomposition analysis", D. Faranda, B. Podvin and A. Sergent, Chaos: An interdisciplinary journal of Science 2019, 29(3), 033110.
13. "Spatio-temporal proper orthogonal decomposition of turbulent channel flow", S. Derebail Muralidhar, B. Podvin, L. Mathelin and Y. Fraigneau, Journal of Fluid Mechanics 2019, 864, 614-639.

14. "On combining LSE and POD for flow reconstruction", B. Podvin, S. Nguimatsia, J.M. Foucaut, C. Cuvier and Y. Fraigneau, *Experiments in Fluids* 2018, 59:58.
15. "Large-scale investigation of a turbulent bifurcation in the swirling Karman flow ", B. Podvin and B. Dubrulle, *Fluid Dynamics Research* 2018, 50(6).
16. "Three-dimensional Instabilities of natural convection between two differentially heated vertical plates: Linear and nonlinear complementary approaches", Z. Gao, B. Podvin , A. Sergent, S. Xin, J. Chergui, *Physical Review E*, 2018, 97(5), 053107.

## INTERNATIONAL CONFERENCES

1. D. Faranda, L. F'ery, B. Dubrulle, B. Podvin, and F. Pons, "Learning a weather dictionary of atmospheric patterns using Latent Dirichlet Allocation to study climate change and extreme events" APS March meeting, 14-18 March 2022.
2. A. Sergent, M. Belkadi, Y. Fraigneau, B. Podvin, ICTAM 2021.
3. "A neural-network-based synthetic boundary condition for the simulation of channel turbulence" H. Yoo, B. Podvin, Y. Fraigneau, A. Allauzen, ICTAM 2021
4. B. Podvin, S. Pellerin, Y. Fraigneau, G. Bonnavion, O. Cadot "Modelling the dynamics of the wake behind a squareback Ahmed body" *Aerovehicles* 4, 2021, 23-25 August.
5. M. Frihat, M. Malhomme, B. Podvin, L. Mathelin, Y. Fraigneau and F. Yvon *Euromech Colloquium*, 16-18 June 2021, Machine learning methods for prediction and control of turbulent flows "Unsupervised identification of motifs in turbulent flows using Latent Dirichlet Allocation"
6. Lucas F'ery, B. Dubrulle, B. Podvin, F. Pons and D. Faranda, *Euromech Colloquium*, 16-18 June 2021, Machine learning methods for prediction and control of turbulent flows "Identification of sea level pressure anomaly patterns using Latent Dirichlet Allocation "
7. S. Pellerin, B. Podvin, Y. Fraigneau, AAAF, Avril 2021, International Conference on Applied Aerodynamics 12 to 14 April 2021, "Three dimensional dynamics in the wake of an Ahmed body"
8. Mathelin L., Gorodetsky A.A. and Podvin B., Flow reconstruction using manifold learning and structure-preserving metrics, *SIAM CSE '21*, March 1 - 5, 2021.
9. A. Agrawal, D. Lucor, Y. Fraigneau, B. Podvin, A. Sergent, PDE-constrained neural network for turbulent Rayleigh-Bénard convection, in: *Workshop on Frontiers of Uncertainty Quantification in Fluid Dynamics (FrontUQ19)*, 11-13 September 2019.
10. Mathelin L., Derebail Muralidhar S. and Podvin B., Flow reconstruction using manifold learning, *SIAM CSE' 9*, Spokane, WA, USA, Feb. 25 - March 1, 2019.
11. A. Soulier, C. Braud, D. Voisin, B. Podvin, *Wind Energy Science Conference*, 2019, Project Weamec "ASAPe", "Ability eTellTale to detect flow features".
12. N. Jiang, B. Podvin, E. Studer, *NURETH* 2018, 18-22 Août 2019, "Improvement of Physical modelling for coupled heat and mass transfer in a square cavity with condensation in the presence of non-condensable gas".
13. B. Podvin, L. Soucasse, P. Rivière, A. Soufiani, *ETC* 2019, "POD analysis and modelling of large-scale reorientations in a cubic Rayleigh- Bénard cell".
14. M. Belkadi, A. Sergent, B. Podvin, Y. Fraigneau, *ETC* 2019, "Heat transfer at the roughness scale in turbulent Rayleigh-Bénard convection".
15. L. Mathelin , S. Derebail Muralidhar S. and B. Podvin, *US-Japan Workshop on bridging Fluid Mechanics and Data Science*, Tokyo, Japan, March 26 - 28, 2018, "Data-driven estimation of a turbulent flow from wall sensors".

16. M. Belkadi, A. Sergent, B. Podvin, International RB conference, 14-18 May 2018, "Numerical Modelling of Turbulent Convection in an Asymmetric Rough RB cell".
17. A. Sergent, A. Castillo Castellanos, B. Podvin, M. Rossi, International Conference on Turbulence and its interactions, 2018, "Reversals in Rayleigh-Bénard convection".
18. S. Pellerin and B. Podvin, Aerovehicles 3, 13-15 Juin 2018, Milan, "Analysis and Control of the symmetry-breaking wakes behind an Ahmed body by Large Eddy Simulation".
19. S. Pellerin and B. Podvin, 7th Conference and Bluff Body Wakes and Vortex-Induced Vibrations, 3-6 July 2018. Carry-le-Rouet (Marseille), France, "Symmetry-breaking wakes of a square-back Ahmed body LES and modes analysis using POD" (poster).