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Publications

Peer-reviewed journal articles

18. Marykovskiy, Y., Clark, T., **Deparday**, J., Chatzi, E., and Barber, S. *Architecting a digital twin for wind turbine rotor blade aerodynamic monitoring*. *Frontiers in Energy Research* 12:1428387, 2024. DOI: 10.3389/fenrg.2024.1428387
17. Braud, C., and Podvin, B., and **Deparday**, J. *Study of the wall pressure variations on the stall inception of a thick cambered profile at high Reynolds number*. *Phys. Rev. Fluids*, 9:014605, 2024. DOI: 10.1103/PhysRevFluids.9.014605
16. Polonelli, T., and Moallemi, A., Kong, W., Müller, H., **Deparday**, J., Magno, M. and Benini, L. *A Self-Sustainable and Micro-Second Time Synchronised Multi-Node Wireless System for Aerodynamic Monitoring on Wind Turbines*. *IEEE Access*, 11:119506–119522, 2023. DOI: 10.1109/ACCESS.2023.3327422
15. Marykovskiy, Y., **Deparday**, J., Abdallah, I., Duthé, G., Barber, S. and Chatzi, E. *Hybrid Model for Inflow Conditions Inference on Airfoils Under Uncertainty*. *AIAA Journal*, 61(11):4913–4925, 2023. DOI: 10.2514/1.J063108
14. Polonelli, T., **Deparday**, J., Abdallah, I., Barber, S., Chatzi, E. and Magno, M. *Instrumentation and Measurement Systems: Aerosense: A Wireless, Non-Intrusive, Flexible, and MEMS-Based Aerodynamic and Acoustic Measurement System for Operating Wind Turbines*. *IEEE Instrumentation & Measurement Magazine*, 26(4), 12-18, 2023. DOI: 10.1109/MIM.2023.10146566
13. Barber, S., **Deparday**, J., Marykovskiy, Y., Chatzi, E., Abdallah, I., Duthé, G., Magno, M., Polonelli, T., Fischer, R. and Müller, H. *Development of a wireless, non-intrusive, MEMS-based pressure and acoustic measurement system for large-scale operating wind turbine blades*. *Wind Energy Science*, 7(4):1383–1398, 2022. DOI: 10.5194/wes-7-1383-2022
12. **Deparday**, J., Müller, H., Polonelli, T. and Barber, S. *An experimental system to acquire aeroacoustic properties on wind turbine blades*. *Journal of Physics: Conference Series*, 2265(2):022089, 2022. DOI: 10.1088/1742-6596/2265/2/022089
11. Polonelli, T., **Deparday**, J., Müller, H., Fischer, R., Benini, L., Barber, S. and Magno, M. *Aerosense: Long-Range Bluetooth Wireless Sensor Node for Aerodynamic Monitoring on Wind Turbine Blades*. *Journal of Physics: Conference Series*, 2265(2):022074, 2022. DOI: 10.1088/1742-6596/2265/2/022074
10. **Deparday**, J., He, X., Eldredge, J.D., Mulleners, K. and Williams, D.R. *Experimental quantification of unsteady leading-edge flow separation*. **Journal of Fluid Mechanics**, 941:A60, 2022. DOI: 10.1017/jfm.2022.319

9. Le Fouest, S., **Deparday**, J. and Mulleners, K. *The dynamics and timescales of static stall*. Journal of Fluids and Structures, 104:103304, 2021. DOI: 10.1016/j.jfluidstructs.2021.103304
8. He, G., **Deparday**, J., Siegel, L., Henning, A. and Mulleners, K. *Stall Delay and Leading-Edge Suction for a Pitching Airfoil with Trailing-Edge Flap*. AIAA Journal, 58(12):5146–5155, 2020. DOI: 10.2514/1.J059719
7. **Deparday**, J. and Mulleners, K. *Modeling the interplay between the shear layer and leading edge suction during dynamic stall*. **Physics of Fluids, Editor's Pick**, 31:107104, 2019. DOI: 10.1063/1.5121312
6. **Deparday**, J., Augier, B., and Bot, P. *Experimental analysis of a strong fluid-structure interaction on a soft membrane – Application to the flapping of a yacht downwind sail*. Journal of Fluids and Structures, 81:547–564, 2018. DOI: 10.1016/j.jfluidstructs.2018.06.003
5. **Deparday**, J. and Mulleners, K. *Critical evolution of leading edge suction during dynamic stall*. Journal of Physics: Conference Series, 1037:022017, 2018. DOI: 10.1088/1742-6596/1037/2/022017
4. Aubin, N., Augier, B., **Deparday**, J., Sacher, M., and Bot, P. *Performance enhancement of downwind sails due to leading edge flapping: A wind tunnel investigation*. Ocean Engineering, 169:370–378, 2018. DOI: 10.1016/j.oceaneng.2018.08.037
3. **Deparday**, J., Bot, P., Augier, B., Rabaud, M., Motta, D., and Le Pelley, D. *Modal Analysis of Pressures on a Full-Scale Spinnaker*. SNAME Journal of Sailing Technology, 05:1–21, 2017. DOI: 10.5957.jst.2017.05
2. **Deparday**, J., Bot, P., Hauville, F., Augier, B., and Rabaud, M. *Full-scale flying shape measurement of offwind yacht sails with photogrammetry*. Ocean Engineering, 127:135–143, 2016. DOI: 10.1016/j.oceaneng.2016.09.043
1. Motta, D., Flay, R., Richards, P., Le Pelley, D., **Deparday**, J., and Bot, P. *Experimental investigation of asymmetric spinnaker aerodynamics using pressure and sail shape measurements*. Ocean Engineering, 90:104–118, 2014. DOI: 10.1016/j.oceaneng.2014.07.023

Conference proceedings

21. **Deparday**, J., Stefanini, S., Coletti, F., and Barber, S. *Development of a hybrid inviscid model for airfoils in unsteady flows*. *European Fluid Dynamics Conference 1. Presented at Aachen*, Germany, 2024.
21. **Deparday**, J., Marikovskiy, Y., and Barber, S. *Understanding 3D flows around rotating blades—how to infer the angle of attack in the field?*. *APS Division of Fluid Dynamics. Presented at Washington*, D.C., 2023.
20. Braud, C., Podvin, B. and **Deparday**, J. *On the characteristics of pressure fluctuations around stall on a thick full-scale airfoil at high Reynolds number*. *APS Division of Fluid Dynamics*. Washington, D.C., 2023.
19. Trummer, P., Polonelli, T., **Deparday**, J., Abdallah, I., and Magno, M. *Blade Position and Motion Estimation on the Surface of a Rotating Wind Turbine Through a Single MEMS IMU*. *9th IEEE International Workshop on Advances in Sensors and Interfaces (IWASI 2023)*, pp. 40-45, Bari, Italy, 2023. DOI: 10.1109/IWASI58316.2023.10164363

18. **Deparday**, J., Marikovskiy, Y., Polonelli, T., Clark, T., and Barber, S. *How to analyse blade aerodynamics on an operating wind turbine with low-cost pressure sensors?. Wind Energy Science Conference 2023. presented at Glasgow*, United Kingdom, 2023. DOI: 10.5281/zenodo.7974881
17. Daniele, S., **Deparday**, J., Hammer, F., Milenovic, D., and Barber, S. *A novel non-intrusive wind turbine monitoring system based on soft sensing. Wind Energy Science Conference 2023*. Glasgow, United Kingdom, 2023.
16. Abdallah, I., Duthé, G., Franz, P., Gres, S., **Deparday**, J., and Chatzi, E. *Simulations and experimental validation of structural damage detection using aerodynamic pressure data. Wind Energy Science Conference 2023*. Glasgow, United Kingdom, 2023. DOI: 10.5281/zenodo.8018678
15. Braud, C., **Deparday**, J., Podvin, B., Bouchet, J.B., Barber, S., Abdallah, I., Chatzi, E., Polonelli, T., and Magno, M. *Towards smart sensors for blade flow control purposes: MISTERY project. Wind Energy Science Conference 2023*. Glasgow, United Kingdom, 2023.
14. Abdallah, I., Duthé, G., Gres, S., **Deparday**, J., Fäh, R., Barber, S., and Chatzi, E. *Detecting damage via aerodynamic quantities on an aeroelastic structure. 30th International Conference on Noise and Vibration Engineering (ISMA 2022) in conjunction with the 9th International Conference on Uncertainty in Structural Dynamics (USD 2022)*. Leuven, Belgium, 2022.
13. **Deparday**, J., Marykovskiy, Y., Abdallah, I., Duthé, G., Chatzi, E. *Inflow conditions estimation under uncertainty. 14th European Fluid Mechanics Conference. presented at Athens*, Greece, 2022.
12. Polonelli, T., **Deparday**, J., Müller, H., Fischer, R., Benini, L., Barber, S. and Magno, M. *Aerosense: Long-Range Bluetooth Wireless Sensor Node for Aerodynamic Monitoring on Wind Turbine Blades. The Science of Making Torque from Wind (TORQUE 2022)*. Delft, Netherlands, 2022.
11. **Deparday**, J., Müller, H., Polonelli, T. and Barber, S. *An experimental system to acquire aeroacoustic properties on wind turbine blades. The Science of Making Torque from Wind (TORQUE 2022)., Poster presented at Delft*, Netherlands, 2022.
10. **Deparday**, J, Marykovskiy, Y. and Sarah, B. *Development of a method for obtaining local inflow angle from pressure gradient at leading edge on operating wind turbine blades. Wind Energy Science Conference 2021*. Hannover, Germany, **Presented online**, 2021. DOI: 10.5281/zenodo.4883233
9. Mulleners, K., **Deparday**, J., He, G. and Henne, S. *Predicting unsteady flow separation in response to a flow disturbance. AIAA Scitech Forum*. Orlando FL, 2020. DOI: 10.2514/6.2020-0083
8. **Deparday**, J. and Mulleners, K. *How dynamic is static stall?. APS Division of Fluid Dynamics. Presented at Seattle*, Washington, 2019.
7. **Deparday**, J. and Mulleners, K. *Critical evolution of leading edge suction during dynamic stall. The Science of Making Torque from Wind (TORQUE 2018). Presented at Milano*, Italy, 2018.
6. Henne, S., Parikh, A., **Deparday**, J., and Mulleners, K. *Dynamic stall vortex shedding and associated load fluctuations. 19th International Symposium on the Applications of Laser and Imaging Techniques to Fluid Mechanics*. Lisbon, Portugal, 2018.
5. Aubin, N., Augier, B., **Deparday**, J., and Sacher, M. *To curl or not to curl: wind tunnel investigations of spinnaker performance. Innovation in High Performance Sailing Yacht Conference*. Lorient, France, 2017.

4. **Deparday**, J., Bot, P., Augier, B., Rabaud, M., Motta, D., and Le Pelley, D. *Modal Analysis of Pressures on a Full-Scale Spinnaker*. *The 22nd Chesapeake Sailing Yacht Symposium*, 98–110. **Presented at Annapolis**, Maryland, 2016.
3. Motta, D., Flay, R., Richards, P., Le Pelley, D., Bot, P., and **Deparday**, J. *An investigation of the dynamic behaviour of asymmetric spinnakers at full-scale*. *5th High Performance Yacht Design Conference*, 76–85. Auckland, New-Zealand, 2015.
2. **Deparday**, J., Bot, P., Hauville, F., Motta, D., Le Pelley, D., and Flay, R. *Dynamic measurements of pressures, sail shape and forces on a full-scale spinnaker*. *The 23rd HISWA Symposium on Yacht Design and Yacht Construction*, 61–73. **Presented at Amsterdam**, Netherlands, 2014.
1. Mausolf, J., **Deparday**, J., Graf, K., Renzsch, H., and Böhm, C. *Photogrammetry Based Flying Shape Investigation of Downwind Sails in the Wind Tunnel and at Full Scale on a Sailing Yacht*. *20th Chesapeake Sailing Yacht Symposium*, March, 33–43. **Presented at Annapolis**, Maryland, 2011.

Thesis

2. **Deparday**, J. *Experimental studies of Fluid-Structure Interaction on Downwind Sails*. Phd thesis, IRENav, UBO, 2016. <https://tel.archives-ouvertes.fr/tel-01368071>
1. **Deparday**, J. *Spinnaker Flying Shape determination: Comparison of a spinnaker model in a Twisted Flow Wind Tunnel with a full scale spinnaker using photogrammetric measurements*. Master thesis, ENSIETA, YRU-Kiel, 2010.

Open Research Dataset

4. **Deparday**, J., Abdallah, I., Marykovskiy, Y., and Barber, S. *AeroSense Measurements: Wind Tunnel ETH Zurich (1-)*. [dataset]. Gdańsk University of Technology, 2023 DOI: 10.34808/63k0-vg18
3. Abdallah, I., **Deparday**, J., Marykovskiy, Y., and Barber, S. *AeroSense Measurements: Wind Tunnel EPFL (1-)*. [dataset]. Gdańsk University of Technology, 2023 DOI: 10.34808/gq12-wx33
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1. **Deparday**, J., Marykovskiy, Y., and Barber, S. *AeroSense Measurements: Wind Tunnel Ecole Centrale Lyon (1-)*. [dataset]. Gdańsk University of Technology, 2023 DOI: 10.34808/b549-5v17