

Fernando PortÃ©-Agel

List of Publications by Year in descending order

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130
papers

9,954
citations

29994

54
h-index

35952

97
g-index

130
all docs

130
docs citations

130
times ranked

3548
citing authors

#	ARTICLE	IF	CITATIONS
1	A new analytical model for wind-turbine wakes. <i>Renewable Energy</i> , 2014, 70, 116-123.	4.3	618
2	A scale-dependent dynamic model for large-eddy simulation: application to a neutral atmospheric boundary layer. <i>Journal of Fluid Mechanics</i> , 2000, 415, 261-284.	1.4	473
3	Wind-Turbine and Wind-Farm Flows: A Review. <i>Boundary-Layer Meteorology</i> , 2020, 174, 1-59.	1.2	458
4	Large-Eddy Simulation of Wind-Turbine Wakes: Evaluation of Turbine Parametrisations. <i>Boundary-Layer Meteorology</i> , 2011, 138, 345-366.	1.2	448
5	A Wind-Tunnel Investigation of Wind-Turbine Wakes: Boundary-Layer Turbulence Effects. <i>Boundary-Layer Meteorology</i> , 2009, 132, 129-149.	1.2	393
6	Large-eddy simulation of atmospheric boundary layer flow through wind turbines and wind farms. <i>Journal of Wind Engineering and Industrial Aerodynamics</i> , 2011, 99, 154-168.	1.7	389
7	Experimental and theoretical study of wind-turbine wakes in yawed conditions. <i>Journal of Fluid Mechanics</i> , 2016, 806, 506-541.	1.4	385
8	Influence of atmospheric stability on wind-turbine wakes: A large-eddy simulation study. <i>Physics of Fluids</i> , 2015, 27, .	1.6	268
9	Atmospheric Turbulence Effects on Wind-Turbine Wakes: An LES Study. <i>Energies</i> , 2012, 5, 5340-5362.	1.6	248
10	Large-eddy simulation of a very large wind farm in a stable atmospheric boundary layer. <i>Physics of Fluids</i> , 2011, 23, .	1.6	241
11	A Numerical Study of the Effects of Wind Direction on Turbine Wakes and Power Losses in a Large Wind Farm. <i>Energies</i> , 2013, 6, 5297-5313.	1.6	227
12	Effects of Thermal Stability and Incoming Boundary-Layer Flow Characteristics on Wind-Turbine Wakes: A Wind-Tunnel Study. <i>Boundary-Layer Meteorology</i> , 2010, 136, 515-533.	1.2	223
13	Modeling turbine wakes and power losses within a wind farm using LES: An application to the Horns Rev offshore wind farm. <i>Renewable Energy</i> , 2015, 75, 945-955.	4.3	212
14	On Monin-Obukhov Similarity In The Stable Atmospheric Boundary Layer. <i>Boundary-Layer Meteorology</i> , 2001, 99, 225-248.	1.2	197
15	Analytical Modeling of Wind Farms: A New Approach for Power Prediction. <i>Energies</i> , 2016, 9, 741.	1.6	178
16	Simulation of Turbulent Flow Inside and Above Wind Farms: Model Validation and Layout Effects. <i>Boundary-Layer Meteorology</i> , 2013, 146, 181-205.	1.2	168
17	Near-wake flow structure downwind of a wind turbine in a turbulent boundary layer. <i>Experiments in Fluids</i> , 2012, 52, 1219-1235.	1.1	165
18	Large-Eddy Simulation of Stably Stratified Atmospheric Boundary Layer Turbulence: A Scale-Dependent Dynamic Modeling Approach. <i>Journals of the Atmospheric Sciences</i> , 2006, 63, 2074-2091.	0.6	144

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19	Turbulent Flow Inside and Above a Wind Farm: A Wind-Tunnel Study. <i>Energies</i> , 2011, 4, 1916-1936.	1.6	142
20	Dynamic subgrid-scale models for momentum and scalar fluxes in large-eddy simulations of neutrally stratified atmospheric boundary layers over heterogeneous terrain. <i>Water Resources Research</i> , 2006, 42, .	1.7	137
21	Field Measurements of Wind Turbine Wakes with Lidars. <i>Journal of Atmospheric and Oceanic Technology</i> , 2013, 30, 274-287.	0.5	133
22	Large Eddy Simulation of Vertical Axis Wind Turbine Wakes. <i>Energies</i> , 2014, 7, 890-912.	1.6	110
23	Wind-Turbine Wakes in a Convective Boundary Layer: A Wind-Tunnel Study. <i>Boundary-Layer Meteorology</i> , 2013, 146, 161-179.	1.2	108
24	The Effect of Free-Atmosphere Stratification on Boundary-Layer Flow and Power Output from Very Large Wind Farms. <i>Energies</i> , 2013, 6, 2338-2361.	1.6	97
25	Revisiting the Local Scaling Hypothesis in Stably Stratified Atmospheric Boundary-Layer Turbulence: an Integration of Field and Laboratory Measurements with Large-Eddy Simulations. <i>Boundary-Layer Meteorology</i> , 2006, 119, 473-500.	1.2	95
26	Wind sheltering of a lake by a tree canopy or bluff topography. <i>Water Resources Research</i> , 2010, 46, .	1.7	95
27	Volumetric Lidar Scanning of Wind Turbine Wakes under Convective and Neutral Atmospheric Stability Regimes. <i>Journal of Atmospheric and Oceanic Technology</i> , 2014, 31, 2035-2048.	0.5	94
28	Estimation of Power Spectra of Acoustic-Doppler Velocimetry Data Contaminated with Intermittent Spikes. <i>Journal of Hydraulic Engineering</i> , 2010, 136, 368-378.	0.7	91
29	Wind farm power optimization via yaw angle control: A wind tunnel study. <i>Journal of Renewable and Sustainable Energy</i> , 2019, 11, .	0.8	91
30	A Scale-Dependent Dynamic Model for Scalar Transport in Large-Eddy Simulations of the Atmospheric Boundary Layer. <i>Boundary-Layer Meteorology</i> , 2004, 112, 81-105.	1.2	90
31	Large-Eddy Simulation of the Stable Atmospheric Boundary Layer using Dynamic Models with Different Averaging Schemes. <i>Boundary-Layer Meteorology</i> , 2007, 126, 1-28.	1.2	89
32	Wake flow in a wind farm during a diurnal cycle. <i>Journal of Turbulence</i> , 2016, 17, 420-441.	0.5	84
33	A Priori Field Study of the Subgrid-Scale Heat Fluxes and Dissipation in the Atmospheric Surface Layer. <i>Journals of the Atmospheric Sciences</i> , 2001, 58, 2673-2698.	0.6	83
34	Analysis of control-oriented wake modeling tools using lidar field results. <i>Wind Energy Science</i> , 2018, 3, 819-831.	1.2	76
35	Wind Turbine Wake Characterization with Nacelle-Mounted Wind Lidars for Analytical Wake Model Validation. <i>Remote Sensing</i> , 2018, 10, 668.	1.8	75
36	Experimental investigation of vertical-axis wind-turbine wakes in boundary layer flow. <i>Renewable Energy</i> , 2018, 118, 1-13.	4.3	70

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37	Experimental study of wall boundary conditions for large-eddy simulation. <i>Journal of Fluid Mechanics</i> , 2001, 446, 309-320.	1.4	67
38	On the influence of gravel bed dynamics on velocity power spectra. <i>Water Resources Research</i> , 2010, 46, .	1.7	66
39	A new analytical model for wind farm power prediction. <i>Journal of Physics: Conference Series</i> , 2015, 625, 012039.	0.3	66
40	A new wake model and comparison of eight algorithms for layout optimization of wind farms in complex terrain. <i>Applied Energy</i> , 2020, 259, 114189.	5.1	65
41	A momentum-conserving wake superposition method for wind farm power prediction. <i>Journal of Fluid Mechanics</i> , 2020, 889, .	1.4	65
42	Effect of Roughness on Surface Boundary Conditions for Large-Eddy Simulation. <i>Boundary-Layer Meteorology</i> , 2006, 118, 169-187.	1.2	64
43	Large-Eddy Simulation of Very-Large-Scale Motions in the Neutrally Stratified Atmospheric Boundary Layer. <i>Boundary-Layer Meteorology</i> , 2015, 155, 397-416.	1.2	64
44	Flow Adjustment Inside and Around Large Finite-Size Wind Farms. <i>Energies</i> , 2017, 10, 2164.	1.6	63
45	A Large-Eddy Simulation Study of Vertical Axis Wind Turbine Wakes in the Atmospheric Boundary Layer. <i>Energies</i> , 2016, 9, 366.	1.6	62
46	Detached eddy simulation of flow around two wall-mounted cubes in tandem. <i>International Journal of Heat and Fluid Flow</i> , 2009, 30, 286-305.	1.1	61
47	Mean and turbulent kinetic energy budgets inside and above very large wind farms under conventionally-neutral condition. <i>Renewable Energy</i> , 2014, 70, 142-152.	4.3	61
48	3D Turbulence Measurements Using Three Synchronous Wind Lidars: Validation against Sonic Anemometry. <i>Journal of Atmospheric and Oceanic Technology</i> , 2014, 31, 1549-1556.	0.5	60
49	A new wind-farm parameterization for large-scale atmospheric models. <i>Journal of Renewable and Sustainable Energy</i> , 2015, 7, .	0.8	60
50	Adjustment of Turbulent Boundary-Layer Flow to Idealized Urban Surfaces: A Large-Eddy Simulation Study. <i>Boundary-Layer Meteorology</i> , 2015, 155, 249-270.	1.2	60
51	The role of coherent structures in subfilter-scale dissipation of turbulence measured in the atmospheric surface layer. <i>Journal of Turbulence</i> , 2004, 5, .	0.5	57
52	A New Miniature Wind Turbine for Wind Tunnel Experiments. Part I: Design and Performance. <i>Energies</i> , 2017, 10, 908.	1.6	57
53	A modulated gradient model for large-eddy simulation: Application to a neutral atmospheric boundary layer. <i>Physics of Fluids</i> , 2010, 22, .	1.6	55
54	An Analytical Model for the Effect of Vertical Wind Veer on Wind Turbine Wakes. <i>Energies</i> , 2018, 11, 1838.	1.6	55

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55	Evaluation of dynamic subgrid-scale models in large-eddy simulations of neutral turbulent flow over a two-dimensional sinusoidal hill. <i>Atmospheric Environment</i> , 2007, 41, 2719-2728.	1.9	53
56	Interaction between Large Wind Farms and the Atmospheric Boundary Layer. <i>Procedia IUTAM</i> , 2014, 10, 307-318.	1.2	52
57	Large-Eddy Simulation of Atmospheric Boundary-Layer Flow Through a Wind Farm Sited on Topography. <i>Boundary-Layer Meteorology</i> , 2017, 163, 1-17.	1.2	52
58	Realistic Wind Farm Layout Optimization through Genetic Algorithms Using a Gaussian Wake Model. <i>Energies</i> , 2018, 11, 3268.	1.6	52
59	Surface Heterogeneity Effects on Regional-Scale Fluxes in Stable Boundary Layers: Surface Temperature Transitions. <i>Journals of the Atmospheric Sciences</i> , 2009, 66, 412-431.	0.6	50
60	Turbulent flow and scalar transport through and over aligned and staggered wind farms. <i>Journal of Turbulence</i> , 2012, 13, N33.	0.5	48
61	Atmospheric stability effect on subgrid-scale physics for large-eddy simulation. <i>Advances in Water Resources</i> , 2001, 24, 1085-1102.	1.7	47
62	Synthetic turbulence, fractal interpolation, and large-eddy simulation. <i>Physical Review E</i> , 2004, 70, 026310.	0.8	46
63	Velocity and Surface Shear Stress Distributions Behind a Rough-to-Smooth Surface Transition: A Simple New Model. <i>Boundary-Layer Meteorology</i> , 2009, 130, 29-41.	1.2	43
64	Wind Turbine Wake Mitigation through Blade Pitch Offset. <i>Energies</i> , 2017, 10, 757.	1.6	43
65	Application of dynamic subgrid-scale concepts from large-eddy simulation to modeling landscape evolution. <i>Water Resources Research</i> , 2006, 42, .	1.7	42
66	Large-Eddy Simulation of Stably-Stratified Flow Over a Steep Hill. <i>Boundary-Layer Meteorology</i> , 2011, 138, 367-384.	1.2	42
67	Wind turbine wakes over hills. <i>Journal of Fluid Mechanics</i> , 2018, 855, 671-702.	1.4	40
68	Experimental investigation and analytical modelling of active yaw control for wind farm power optimization. <i>Renewable Energy</i> , 2021, 170, 1228-1244.	4.3	38
69	Coupled dynamics of the co-evolution of gravel bed topography, flow turbulence and sediment transport in an experimental channel. <i>Journal of Geophysical Research</i> , 2012, 117, .	3.3	37
70	Influence of the Coriolis force on the structure and evolution of wind turbine wakes. <i>Physical Review Fluids</i> , 2016, 1, .	1.0	37
71	Numerical Weather Prediction and Artificial Neural Network Coupling for Wind Energy Forecast. <i>Energies</i> , 2021, 14, 338.	1.6	36
72	A New Miniature Wind Turbine for Wind Tunnel Experiments. Part II: Wake Structure and Flow Dynamics. <i>Energies</i> , 2017, 10, 923.	1.6	34

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73	A wind-tunnel investigation of wind-turbine wakes in yawed conditions. <i>Journal of Physics: Conference Series</i> , 2015, 625, 012014.	0.3	33
74	Wind-tunnel study of surface boundary conditions for large-eddy simulation of turbulent flow past a rough-to-smooth surface transition. <i>Journal of Turbulence</i> , 2010, 11, N1.	0.5	32
75	A modulated gradient model for scalar transport in large-eddy simulation of the atmospheric boundary layer. <i>Physics of Fluids</i> , 2013, 25, .	1.6	32
76	On the Impact of Wind Farms on a Convective Atmospheric Boundary Layer. <i>Boundary-Layer Meteorology</i> , 2015, 157, 81-96.	1.2	32
77	Evaluating the modulated gradient model in large eddy simulation of channel flow with OpenFOAM. <i>Journal of Turbulence</i> , 2018, 19, 600-620.	0.5	31
78	Large-Eddy Simulation of Yawed Wind-Turbine Wakes: Comparisons with Wind Tunnel Measurements and Analytical Wake Models. <i>Energies</i> , 2019, 12, 4574.	1.6	31
79	Some Basic Properties of the Surrogate Subgrid-Scale Heat Flux in the Atmospheric Boundary Layer. <i>Boundary-Layer Meteorology</i> , 1998, 88, 425-444.	1.2	30
80	Experimental study of the impact of large-scale wind farms on land-atmosphere exchanges. <i>Environmental Research Letters</i> , 2013, 8, 015002.	2.2	28
81	Effect of aspect ratio on vertical-axis wind turbine wakes. <i>Journal of Fluid Mechanics</i> , 2020, 889, .	1.4	28
82	A model for the effect of pressure gradient on turbulent axisymmetric wakes. <i>Journal of Fluid Mechanics</i> , 2018, 837, .	1.4	27
83	Subgrid-Scale Dissipation in the Atmospheric Surface Layer: Effects of Stability and Filter Dimension. <i>Journal of Hydrometeorology</i> , 2000, 1, 75-87.	0.7	26
84	A point vortex transportation model for yawed wind turbine wakes. <i>Journal of Fluid Mechanics</i> , 2020, 890, .	1.4	26
85	Large-Eddy Simulation of Atmospheric Boundary-Layer Flow Over Fluvial-Like Landscapes Using a Dynamic Roughness Model. <i>Boundary-Layer Meteorology</i> , 2012, 144, 263-286.	1.2	25
86	Subfilter-scale Fluxes over a Surface Roughness Transition. Part I: Measured Fluxes and Energy Transfer Rates. <i>Boundary-Layer Meteorology</i> , 2007, 126, 157-179.	1.2	24
87	A new boundary condition for large-eddy simulation of boundary-layer flow over surface roughness transitions. <i>Journal of Turbulence</i> , 2012, 13, N23.	0.5	24
88	A Simple Physically-Based Model for Wind-Turbine Wake Growth in a Turbulent Boundary Layer. <i>Boundary-Layer Meteorology</i> , 2018, 169, 1-10.	1.2	24
89	The effect of atmospheric stability on wind-turbine wakes: A large-eddy simulation study. <i>Journal of Physics: Conference Series</i> , 2014, 524, 012138.	0.3	23
90	Evaluation of subgrid-scale models in large-eddy simulation of flow past a two-dimensional block. <i>International Journal of Heat and Fluid Flow</i> , 2013, 44, 301-311.	1.1	22

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91	A Large-Eddy Simulation Study of Turbulent Flow Over Multiscale Topography. <i>Boundary-Layer Meteorology</i> , 2011, 141, 201-217.	1.2	19
92	Characterization of Wind Turbine Wakes with Nacelle-Mounted Doppler LiDARs and Model Validation in the Presence of Wind Veer. <i>Remote Sensing</i> , 2019, 11, 2247.	1.8	18
93	Lidar measurements of yawed-wind-turbine wakes: characterization and validation of analytical models. <i>Wind Energy Science</i> , 2020, 5, 1253-1272.	1.2	17
94	Mixture of Time Scales in Evaporation: Desorption and Self-Similarity of Energy Fluxes. <i>Agronomy Journal</i> , 2000, 92, 832-836.	0.9	16
95	Wind Energy Prediction in Highly Complex Terrain by Computational Fluid Dynamics. <i>Energies</i> , 2019, 12, 1311.	1.6	16
96	Wind turbine wakes on escarpments: A wind-tunnel study. <i>Renewable Energy</i> , 2022, 181, 1258-1275.	4.3	16
97	An intercomparison of subgrid models for large-eddy simulation of katabatic flows. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2014, 140, 1294-1303.	1.0	14
98	Large-Eddy Simulation of Wind Turbine Flows: A New Evaluation of Actuator Disk Models. <i>Energies</i> , 2021, 14, 3745.	1.6	13
99	An experimental investigation of a roof-mounted horizontal-axis wind turbine in an idealized urban environment. <i>Renewable Energy</i> , 2022, 193, 1049-1061.	4.3	13
100	On the Development of a Dynamic Non-linear Closure for Large-Eddy Simulation of the Atmospheric Boundary Layer. <i>Boundary-Layer Meteorology</i> , 2014, 151, 429-451.	1.2	12
101	Using a Virtual Lidar Approach to Assess the Accuracy of the Volumetric Reconstruction of a Wind Turbine Wake. <i>Remote Sensing</i> , 2018, 10, 721.	1.8	12
102	Volumetric scans of wind turbine wakes performed with three simultaneous wind LiDARs under different atmospheric stability regimes. <i>Journal of Physics: Conference Series</i> , 2014, 524, 012164.	0.3	11
103	Large-eddy simulation of the diurnal variation of wake flows in a finite-size wind farm. <i>Journal of Physics: Conference Series</i> , 2015, 625, 012031.	0.3	11
104	Turbulent planar wakes under pressure gradient conditions. <i>Journal of Fluid Mechanics</i> , 2017, 830, .	1.4	11
105	Power Maximization and Fatigue-Load Mitigation in a Wind-turbine Array by Active Yaw Control: an LES Study. <i>Journal of Physics: Conference Series</i> , 2020, 1618, 042036.	0.3	11
106	Field measurements of wake meandering at a utility-scale wind turbine with nacelle-mounted Doppler lidars. <i>Wind Energy Science</i> , 2022, 7, 185-199.	1.2	11
107	A physics-based model for wind turbine wake expansion in the atmospheric boundary layer. <i>Journal of Fluid Mechanics</i> , 2022, 943, .	1.4	11
108	Dynamic Models for the Subgrid-Scale Mixing of Reactants in Atmospheric Turbulent Reacting Flows. <i>Journals of the Atmospheric Sciences</i> , 2008, 65, 1692-1699.	0.6	10

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109	A Modulated-Gradient Parametrization for the Large-Eddy Simulation of the Atmospheric Boundary Layer Using the Weather Research and Forecasting Model. <i>Boundary-Layer Meteorology</i> , 2017, 165, 385-404.	1.2	10
110	Variability of wind turbine noise over a diurnal cycle. <i>Renewable Energy</i> , 2018, 126, 791-800.	4.3	10
111	Wind Farm Area Shape Optimization Using Newly Developed Multi-Objective Evolutionary Algorithms. <i>Energies</i> , 2021, 14, 4185.	1.6	10
112	A Simple Mixing-Length Model for Urban Canopy Flows. <i>Boundary-Layer Meteorology</i> , 2021, 181, 1-9.	1.2	10
113	Large-eddy simulation of flow and scalar dispersion in rural-to-urban transition regions. <i>International Journal of Heat and Fluid Flow</i> , 2016, 60, 47-60.	1.1	9
114	Shifts in wind energy potential following land-use driven vegetation dynamics in complex terrain. <i>Science of the Total Environment</i> , 2018, 639, 374-384.	3.9	9
115	Multirotor UAV-Based Platform for the Measurement of Atmospheric Turbulence: Validation and Signature Detection of Tip Vortices of Wind Turbine Blades. <i>Journal of Atmospheric and Oceanic Technology</i> , 2019, 36, 941-955.	0.5	9
116	Analytical Model for Mean Flow and Fluxes of Momentum and Energy in Very Large Wind Farms. <i>Boundary-Layer Meteorology</i> , 2018, 166, 31-49.	1.2	8
117	Subfilter-Scale Fluxes over a Surface Roughness Transition. Part II: A priori Study of Large-Eddy Simulation Models. <i>Boundary-Layer Meteorology</i> , 2008, 127, 73-95.	1.2	7
118	Evaluation of non-eddy viscosity subgrid-scale models in stratified turbulence using direct numerical simulations. <i>European Journal of Mechanics, B/Fluids</i> , 2017, 65, 168-178.	1.2	7
119	Numerical Framework for Aerodynamic Characterization of Wind Turbine Airfoils: Application to Miniature Wind Turbine WiRE-01. <i>Energies</i> , 2020, 13, 5612.	1.6	7
120	Instability of wind turbine wakes immersed in the atmospheric boundary layer. <i>Journal of Physics: Conference Series</i> , 2015, 625, 012034.	0.3	5
121	Intercomparison of terrain-following coordinate transformation and immersed boundary methods in large-eddy simulation of wind fields over complex terrain. <i>Journal of Physics: Conference Series</i> , 2016, 753, 082008.	0.3	4
122	Multi-rotor Wind Farm Layout Optimization. <i>Journal of Physics: Conference Series</i> , 2020, 1618, 032014.	0.3	4
123	Advective velocity and energy dissipation rate in an oscillatory flow. <i>Water Research</i> , 2005, 39, 2569-2578.	5.3	3
124	Three-dimensional wind-turbine wake characterization via tomographic particle-image velocimetry. <i>Journal of Physics: Conference Series</i> , 2020, 1618, 062045.	0.3	2
125	Channel Bed Slope Effect on the Height of Gravity Waves Produced by a Sudden Downstream Discharge Stoppage. <i>Journal of Hydraulic Engineering</i> , 2010, 136, 328-330.	0.7	1
126	Scale Model Evaluation and Optimization of Sodar Acoustic Baffles. <i>Journal of Atmospheric and Oceanic Technology</i> , 2015, 32, 507-517.	0.5	1

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127	Wind sheltering of a lake by a tree canopy or bluff topography. , 2010, .		1
128	Wind Turbine Wakes in Directionally Varying Wind Shears. Springer Proceedings in Physics, 2019, , 311-316.	0.1	1
129	A Gradient Tensor-Based Subgrid-Scale Parameterization for Large-Eddy Simulations of Stratified Shear Layers Using the Weather Research and Forecasting Model. Monthly Weather Review, 2022, 150, 2279-2298.	0.5	1
130	Wind farm layout and unconstrained hub height optimization using genetic algorithms applied to different power densities. Journal of Physics: Conference Series, 2022, 2265, 042049.	0.3	0