Charles Meneveau

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326 papers	18,463 citations	66 h-index	126 g-index
349 ext. papers	21,020 ext. citations	3.8 avg, IF	7.24 L-index

#	Paper	IF	Citations
326	Scale-Invariance and Turbulence Models for Large-Eddy Simulation. *Annual Review of Fluid Mechanics*, **2000**, 32, 1-32	22	897
325	A Lagrangian dynamic subgrid-scale model of turbulence. *Journal of Fluid Mechanics*, **1996**, 319, 353	3.7	805
324	Simple multifractal cascade model for fully developed turbulence. *Physical Review Letters*, **1987**, 59, 1424-1427	7.4	750
323	The multifractal nature of turbulent energy dissipation. *Journal of Fluid Mechanics*, **1991**, 224, 429-484	3.7	637
322	On the properties of similarity subgrid-scale models as deduced from measurements in a turbulent jet. *Journal of Fluid Mechanics*, **1994**, 275, 83-119	3.7	530
321	Large eddy simulation study of fully developed wind-turbine array boundary layers. *Physics of Fluids* , **2010**, 22, 015110	4.4	489
320	A scale-dependent dynamic model for large-eddy simulation: application to a neutral atmospheric boundary layer. *Journal of Fluid Mechanics*, **2000**, 415, 261-284	3.7	430
319	A scale-dependent Lagrangian dynamic model for large eddy simulation of complex turbulent flows. *Physics of Fluids*, **2005**, 17, 025105	4.4	410
318	A power-law flame wrinkling model for LES of premixed turbulent combustion Part I: non-dynamic formulation and initial tests. *Combustion and Flame*, **2002**, 131, 159-180	5.3	383
317	Analysis of turbulence in the orthonormal wavelet representation. *Journal of Fluid Mechanics*, **1991**, 232, 469	3.7	330
316	The fractal facets of turbulence. *Journal of Fluid Mechanics*, **1986**, 173, 357-386	3.7	322
315	Stretching and quenching of flamelets in premixed turbulent combustion. *Combustion and Flame*, **1991**, 86, 311-332	5.3	310
314	Direct determination of the f(alpha) singularity spectrum and its application to fully developed turbulence. *Physical Review A*, **1989**, 40, 5284-5294	2.6	306
313	Decaying turbulence in an active-grid-generated flow and comparisons with large-eddy simulation. *Journal of Fluid Mechanics*, **2003**, 480, 129-160	3.7	262
312	A public turbulence database cluster and applications to study Lagrangian evolution of velocity increments in turbulence. *Journal of Turbulence*, **2008**, 9, N31	2.1	243
311	Experimental study of the horizontally averaged flow structure in a model wind-turbine array boundary layer. *Journal of Renewable and Sustainable Energy*, **2010**, 2, 013106	2.5	217
310	Linear forcing in numerical simulations of isotropic turbulence: Physical space implementations and convergence properties. *Physics of Fluids*, **2005**, 17, 095106	4.4	212

309	The multifractal spectrum of the dissipation field in turbulent flows. *Nuclear Physics, Section B, Proceedings Supplements*, **1987**, 2, 49-76		203
308	Grand challenges in the science of wind energy. *Science*, **2019**, 366,	33.3	198
307	Optimal turbine spacing in fully developed wind farm boundary layers. *Wind Energy*, **2012**, 15, 305-317	3.4	198
306	Joint multifractal measures: Theory and applications to turbulence. *Physical Review A*, **1990**, 41, 894-913	2.6	194
305	Flow Structure and Turbulence in Wind Farms. *Annual Review of Fluid Mechanics*, **2017**, 49, 311-339	22	179
304	Generalized Smagorinsky model for anisotropic grids. *Physics of Fluids A, Fluid Dynamics*, **1993**, 5, 2306-2308		175
303	Lagrangian Dynamics and Models of the Velocity Gradient Tensor in Turbulent Flows. *Annual Review of Fluid Mechanics*, **2011**, 43, 219-245	22	167
302	Statistics of turbulence subgrid-scale stresses: Necessary conditions and experimental tests. *Physics of Fluids*, **1994**, 6, 815-833	4.4	167
301	A power-law flame wrinkling model for LES of premixed turbulent combustion Part II: dynamic formulation. *Combustion and Flame*, **2002**, 131, 181-197	5.3	164
300	Mixing, entrainment and fractal dimensions of surfaces in turbulent flows. *Proceedings of the Royal Society of London Series A, Mathematical and Physical Sciences*, **1989**, 421, 79-108		161
299	Modeling flow around bluff bodies and predicting urban dispersion using large eddy simulation. *Environmental Science & Technology*, **2006**, 40, 2653-62	10.3	140
298	Large-eddy simulation of neutral atmospheric boundary layer flow over heterogeneous surfaces: Blending height and effective surface roughness. *Water Resources Research*, **2004**, 40,	5.4	139
297	Statistical geometry of subgrid-scale stresses determined from holographic particle image velocimetry measurements. *Journal of Fluid Mechanics*, **2002**, 457, 35-78	3.7	135
296	Multifractal nature of the dissipation field of passive scalars in fully turbulent flows. *Physical Review Letters*, **1988**, 61, 74-77	7.4	133
295	Large eddy simulation study of scalar transport in fully developed wind-turbine array boundary layers. *Physics of Fluids*, **2011**, 23, 126603	4.4	124
294	Wake structure in actuator disk models of wind turbines in yaw under uniform inflow conditions. *Journal of Renewable and Sustainable Energy*, **2016**, 8, 043301	2.5	115
293	Flux-freezing breakdown in high-conductivity magnetohydrodynamic turbulence. *Nature*, **2013**, 497, 466-9	50.4	112
292	Integral wall model for large eddy simulations of wall-bounded turbulent flows. *Physics of Fluids*, **2015**, 27, 025112	4.4	108

291	A concurrent precursor inflow method for Large Eddy Simulations and applications to finite length wind farms. *Renewable Energy*, **2014**, 68, 46-50	8.1	105
290	Generalized logarithmic law for high-order moments in turbulent boundary layers. *Journal of Fluid Mechanics*, **2013**, 719,	3.7	105
289	Lagrangian dynamics and statistical geometric structure of turbulence. *Physical Review Letters*, **2006**, 97, 174501	7.4	105
288	Modeling turbulent flow over fractal trees with renormalized numerical simulation. *Journal of Computational Physics*, **2007**, 225, 427-448	4.1	99
287	Large-eddy simulation of a diurnal cycle of the atmospheric boundary layer: Atmospheric stability and scaling issues. *Water Resources Research*, **2006**, 42,	5.4	98
286	Comparison of wind farm large eddy simulations using actuator disk and actuator line models with wind tunnel experiments. *Renewable Energy*, **2018**, 116, 470-478	8.1	94
285	Singularities of the equations of fluid motion. *Physical Review A*, **1988**, 38, 6287-6295	2.6	93
284	A Web services accessible database of turbulent channel flow and its use for testing a new integral wall model for LES. *Journal of Turbulence*, **2016**, 17, 181-215	2.1	86
283	Large-eddy simulation study of the logarithmic law for second- and higher-order moments in turbulent wall-bounded flow. *Journal of Fluid Mechanics*, **2014**, 757, 888-907	3.7	81
282	Modeling the pressure Hessian and viscous Laplacian in turbulence: Comparisons with direct numerical simulation and implications on velocity gradient dynamics. *Physics of Fluids*, **2008**, 20, 101504	4.4	80
281	A priori testing of a similarity model for large eddysimulations of turbulent premixed combustion. *Proceedings of the Combustion Institute*, **2002**, 29, 2105-2111	5.9	80
280	A mathematical framework for estimating risk of airborne transmission of COVID-19 with application to face mask use and social distancing. *Physics of Fluids*, **2020**, 32, 101903	4.4	78
279	Subgrid-scale stresses and their modelling in a turbulent plane wake. *Journal of Fluid Mechanics*, **1997**, 349, 253-293	3.7	77
278	A fractal model for large eddy simulation of turbulent flow. *Physica D: Nonlinear Phenomena*, **1999**, 127, 198-232	3.3	77
277	Wake-induced relative motion of bubbles rising in line. *International Journal of Multiphase Flow*, **1996**, 22, 239-258	3.6	77
276	A Priori Field Study of the Subgrid-Scale Heat Fluxes and Dissipation in the Atmospheric Surface Layer. *Journals of the Atmospheric Sciences*, **2001**, 58, 2673-2698	2.1	76
275	Unobstructed particle image velocimetry measurements within an axial turbo-pump using liquid and blades with matched refractive indices. *Experiments in Fluids*, **2002**, 33, 909-919	2.5	75
274	Data exploration of turbulence simulations using a database cluster **2007**,		74

273	Interface dimension in intermittent turbulence. *Physical Review A*, **1990**, 41, 2246-2248	2.6	74
272	Dynamic roughness model for large-eddy simulation of turbulent flow over multiscale, fractal-like rough surfaces. *Journal of Fluid Mechanics*, **2011**, 679, 288-314	3.7	73
271	The dynamic Smagorinsky model and scale-dependent coefficients in the viscous range of turbulence. *Physics of Fluids*, **1997**, 9, 3932-3934	4.4	73
270	On the Parameterization of Surface Roughness at Regional Scales. *Journals of the Atmospheric Sciences*, **2007**, 64, 216-227	2.1	72
269	Exponential roughness layer and analytical model for turbulent boundary layer flow over rectangular-prism roughness elements. *Journal of Fluid Mechanics*, **2016**, 789, 127-165	3.7	72
268	Large eddy simulation of pollen transport in the atmospheric boundary layer. *Journal of Aerosol Science*, **2009**, 40, 241-255	4.3	71
267	A dynamic flame surface density model for large eddy simulation of turbulent premixed combustion. *Physics of Fluids*, **2004**, 16, L91-L94	4.4	71
266	Measurement of □ from scaling of histograms, and applications to dynamical systems and fully developed turbulence. *Physics Letters, Section A: General, Atomic and Solid State Physics*, **1989**, 137, 103-112	2.3	71
265	Evolution and modelling of subgrid scales during rapid straining of turbulence. *Journal of Fluid Mechanics*, **1999**, 387, 281-320	3.7	70
264	Spatial Characteristics of Roughness Sublayer Mean Flow and Turbulence Over a Realistic Urban Surface. *Boundary-Layer Meteorology*, **2016**, 160, 425-452	3.4	70
263	Large eddy simulation study of the kinetic energy entrainment by energetic turbulent flow structures in large wind farms. *Physics of Fluids*, **2014**, 26, 025113	4.4	68
262	Origin of non-Gaussian statistics in hydrodynamic turbulence. *Physical Review Letters*, **2005**, 95, 164502	7.4	68
261	Spectral and hyper eddy viscosity in high-Reynolds-number turbulence. *Journal of Fluid Mechanics*, **2000**, 421, 307-338	3.7	68
260	Effects of turbine spacing on the power output of extended wind-farms. *Wind Energy*, **2016**, 19, 359-370	3.4	64
259	Effects of small-scale turbulent motions on the filtered velocity gradient tensor as deduced from holographic particle image velocimetry measurements. *Physics of Fluids*, **2002**, 14, 2456	4.4	64
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254	Multiscale geometry and scaling of the turbulent-nonturbulent interface in high Reynolds number boundary layers. *Physical Review Letters*, **2013**, 111, 044501	7.4	60
253	Intermittency and relative scaling of subgrid-scale energy dissipation in isotropic turbulence. *Physics of Fluids*, **1998**, 10, 928-937	4.4	60
252	Scaling and multifractal properties of mixing in chaotic flows. *Physics of Fluids A, Fluid Dynamics*, **1992**, 4, 1439-1456		60
251	Large-eddy simulation of plant canopy flows using plant-scale representation. *Boundary-Layer Meteorology*, **2007**, 124, 183-203	3.4	59
250	Geometry and scale relationships in high Reynolds number turbulence determined from three-dimensional holographic velocimetry. *Physics of Fluids*, **2000**, 12, 941-944	4.4	58
249	Statistical analysis of kinetic energy entrainment in a model wind turbine array boundary layer. *Journal of Renewable and Sustainable Energy*, **2012**, 4, 063105	2.5	56
248	HATS: Field Observations to Obtain Spatially Filtered Turbulence Fields from Crosswind Arrays of Sonic Anemometers in the Atmospheric Surface Layer*. *Journals of the Atmospheric Sciences*, **2004**, 61, 1566-1581	2.1	56
247	Flow visualization using momentum and energy transport tubes and applications to turbulent flow in wind farms. *Journal of Fluid Mechanics*, **2013**, 715, 335-358	3.7	55
246	Impact of Surface Flux Formulations and Geostrophic Forcing on Large-Eddy Simulations of Diurnal Atmospheric Boundary Layer Flow. *Journal of Applied Meteorology and Climatology*, **2010**, 49, 1496-1516	2.7	55
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244	A comparative quadrant analysis of turbulence in a plant canopy. *Water Resources Research*, **2007**, 43,	5.4	54
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239	Dual spectra and mixed energy cascade of turbulence in the wavelet representation. *Physical Review Letters*, **1991**, 66, 1450-1453	7.4	52
238	Scaling of second- and higher-order structure functions in turbulent boundary layers. *Journal of Fluid Mechanics*, **2015**, 769, 654-686	3.7	51

237	Large Eddy Simulations of Large Wind-Turbine Arrays in the Atmospheric Boundary Layer **2010**,		51
236	A functional form for the energy spectrum parametrizing bottleneck and intermittency effects. *Physics of Fluids*, **2008**, 20, 065109	4.4	51
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231	Dynamic modelling of sea-surface roughness for large-eddy simulation of wind over ocean wavefield. *Journal of Fluid Mechanics*, **2013**, 726, 62-99	3.7	49
230	A dynamic multi-scale approach for turbulent inflow boundary conditions in spatially developing flows. *Journal of Fluid Mechanics*, **2011**, 670, 581-605	3.7	49
229	Numerical study of dynamic Smagorinsky models in large-eddy simulation of the atmospheric boundary layer: Validation in stable and unstable conditions. *Water Resources Research*, **2006**, 42,	5.4	49
228	Orientation dynamics of small, triaxial□ellipsoidal particles in isotropic turbulence. *Journal of Fluid Mechanics*, **2013**, 737, 571-596	3.7	48
227	Pressure Hessian and viscous contributions to velocity gradient statistics based on Gaussian random fields. *Journal of Fluid Mechanics*, **2014**, 756, 191-225	3.7	47
226	Studying Lagrangian dynamics of turbulence using on-demand fluid particle tracking in a public turbulence database. *Journal of Turbulence*, **2012**, 13, N12	2.1	47
225	The top-down model of wind farm boundary layers and its applications. *Journal of Turbulence*, **2012**, 13, N7	2.1	45
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221	Spatial correlations in turbulence: Predictions from the multifractal formalism and comparison with experiments. *Physics of Fluids A, Fluid Dynamics*, **1993**, 5, 158-172		44
220	A Large-Eddy Simulation Model for Boundary-Layer Flow Over Surfaces with Horizontally Resolved but Vertically Unresolved Roughness Elements. *Boundary-Layer Meteorology*, **2010**, 137, 397-415	3.4	43

219	A Dynamic LES Scheme for the Vorticity Transport Equation: Formulation anda PrioriTests. *Journal of Computational Physics*, **1998**, 145, 693-730	4.1	43
218	Field Experimental Study of Dynamic Smagorinsky Models in the Atmospheric Surface Layer. *Journals of the Atmospheric Sciences*, **2004**, 61, 2296-2307	2.1	43
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214	Model-based receding horizon control of wind farms for secondary frequency regulation. *Wind Energy*, **2017**, 20, 1261-1275	3.4	40
213	Pollen clumping and wind dispersal in an invasive angiosperm. *American Journal of Botany*, **2009**, 96, 1703-11	2.7	40
212	Fractal Model for Coarse-Grained Nonlinear Partial Differential Equations. *Physical Review Letters*, **1997**, 78, 867-870	7.4	40
211	Multiscale analysis of fluxes at the turbulent/non-turbulent interface in high Reynolds number boundary layers. *Physics of Fluids*, **2014**, 26, 015105	4.4	39
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208	Experimental Investigation of Unsteady Flow Field Within a Two-Stage Axial Turbomachine Using Particle Image Velocimetry. *Journal of Turbomachinery*, **2002**, 124, 542-552	1.8	39
207	Effect of downwind swells on offshore wind energy harvesting □A large-eddy simulation study. *Renewable Energy*, **2014**, 70, 11-23	8.1	38
206	Spatio-temporal spectra in the logarithmic layer of wall turbulence: large-eddy simulations and simple models. *Journal of Fluid Mechanics*, **2015**, 769,	3.7	37
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202	Turbulent Flow Structure Inside a Canopy with Complex Multi-Scale Elements. *Boundary-Layer Meteorology*, **2015**, 155, 435-457	3.4	36

201	Dynamic Smagorinsky model on anisotropic grids. *Physics of Fluids*, **1997**, 9, 1856-1858	4.4	36
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199	Turbulent kinetic energy budgets in a model canopy: comparisons between LES and wind-tunnel experiments. *Environmental Fluid Mechanics*, **2008**, 8, 73-95	2.2	36
198	The flow field around a freely swimming copepod in steady motion. Part I: Theoretical analysis. *Journal of Plankton Research*, **2002**, 24, 167-189	2.2	36
197	Dynamic LES of Colliding Vortex Rings Using a 3D Vortex Method. *Journal of Computational Physics*, **1999**, 152, 305-345	4.1	36
196	Large-eddy simulation and parameterization of buoyant plume dynamics in stratified flow. *Journal of Fluid Mechanics*, **2016**, 794, 798-833	3.7	36
195	Effect of filter type on the statistics of energy transfer between resolved and subfilter scales from a-priori analysis of direct numerical simulations of isotropic turbulence. *Journal of Turbulence*, **2018**, 19, 167-197	2.1	35
194	Co-spectrum and mean velocity in turbulent boundary layers. *Physics of Fluids*, **2013**, 25, 091702	4.4	35
193	Benefits of collocating vertical-axis and horizontal-axis wind turbines in large wind farms. *Wind Energy*, **2017**, 20, 45-62	3.4	33
192	Inhibition of oil plume dilution in Langmuir ocean circulation. *Geophysical Research Letters*, **2014**, 41, 1632-1638	4.9	33
191	Near-Wake Turbulent Flow Structure and Mixing Length Downstream of a Fractal Tree. *Boundary-Layer Meteorology*, **2012**, 143, 285-308	3.4	33
190	Two-point statistics of multifractal measures. *Physica A: Statistical Mechanics and Its Applications*, **1990**, 164, 564-574	3.3	33
189	Validation of four LES and a vortex model against stereo-PIV measurements in the near wake of an actuator disc and a wind turbine. *Renewable Energy*, **2016**, 94, 510-523	8.1	33
188	Big wind power: seven questions for turbulence research. *Journal of Turbulence*, **2019**, 20, 2-20	2.1	32
187	Lagrangian refined Kolmogorov similarity hypothesis for gradient time evolution and correlation in turbulent flows. *Physical Review Letters*, **2010**, 104, 084502	7.4	32
186	Intermittency trends and Lagrangian evolution of non-Gaussian statistics in turbulent flow and scalar transport. *Journal of Fluid Mechanics*, **2006**, 558, 133	3.7	32
185	Fractal dimension of velocity signals in high-Reynolds-number hydrodynamic turbulence. *Physical Review E*, **1995**, 51, 5594-5608	2.4	32
184	Filtered lifting line theory and application to the actuator line model. *Journal of Fluid Mechanics*, **2019**, 863, 269-292	3.7	31

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179	A minimal multiscale Lagrangian map approach to synthesize non-Gaussian turbulent vector fields. *Physics of Fluids*, **2006**, 18, 075104	4.4	28
178	On the Lagrangian nature of the turbulence energy cascade. *Physics of Fluids*, **1994**, 6, 2820-2825	4.4	28
177	Generalized coupled wake boundary layer model: applications and comparisons with field and LES data for two wind farms. *Wind Energy*, **2016**, 19, 2023-2040	3.4	28
176	Deformation statistics of sub-Kolmogorov-scale ellipsoidal neutrally buoyant drops in isotropic turbulence. *Journal of Fluid Mechanics*, **2014**, 754, 184-207	3.7	27
175	Temporal structure of aggregate power fluctuations in large-eddy simulations of extended wind-farms. *Journal of Renewable and Sustainable Energy*, **2014**, 6, 043102	2.5	27
174	Modeling turbulent flow over fractal trees using renormalized numerical simulation: Alternate formulations and numerical experiments. *Physics of Fluids*, **2012**, 24, 125105	4.4	27
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169	Oil plumes and dispersion in Langmuir, upper-ocean turbulence: Large-eddy simulations and K-profile parameterization. *Journal of Geophysical Research: Oceans*, **2015**, 120, 4729-4759	3.3	26
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166	Hierarchical random additive process and logarithmic scaling of generalized high order, two-point correlations in turbulent boundary layer flow. *Physical Review Fluids*, **2016**, 1,	2.8	26

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164	Experimental study of an active grid-generated shearless mixing layer and comparisons with large-eddy simulation. *Physics of Fluids*, **2008**, 20, 125102	4.4	25
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162	Experimental study of similarity subgrid-scale models of turbulence in the far-field of a jet. *Flow, Turbulence and Combustion*, **1995**, 54, 177-190		25
161	A population balance model for large eddy simulation of polydisperse droplet evolution. *Journal of Fluid Mechanics*, **2019**, 878, 700-739	3.7	24
160	Altering Kinetic Energy Entrainment in Large Eddy Simulations of Large Wind Farms Using Unconventional Wind Turbine Actuator Forcing. *Energies*, **2015**, 8, 370-386	3.1	24
159	A control algorithm for statistically stationary large-eddy simulations of thermally stratified boundary layers. *Quarterly Journal of the Royal Meteorological Society*, **2014**, 140, 2017-2022	6.4	24
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157	Average Passage Flow Field and Deterministic Stresses in the Tip and Hub Regions of a Multistage Turbomachine. *Journal of Turbomachinery*, **2003**, 125, 714-725	1.8	24
156	An Advanced Actuator Line Method for Wind Energy Applications and Beyond **2017**,		23
155	Aerodynamic Properties of Rough Surfaces with High Aspect-Ratio Roughness Elements: Effect of Aspect Ratio and Arrangements. *Boundary-Layer Meteorology*, **2017**, 163, 203-224	3.4	23
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