Bernd Noack

List of Publications by Year
in descending order

169 papers	8,538 citations	76196 40 h-index	49773 87 g-index
178 all docs	178 docs citations	178 times ranked	3300 citing authors

#	Article	IF	Citations
1	Machine Learning for Fluid Mechanics. Annual Review of Fluid Mechanics, 2020, 52, 477-508.	10.8	1,324
2	A hierarchy of low-dimensional models for the transient and post-transient cylinder wake. Journal of Fluid Mechanics, 2003, 497, 335-363.	1.4	765
3	Closed-Loop Turbulence Control: Progress and Challenges. Applied Mechanics Reviews, 2015, 67, .	4.5	369
4	On the transition of the cylinder wake. Physics of Fluids, 1995, 7, 779-794.	1.6	354
5	Three-dimensional coherent structures in a swirling jet undergoing vortex breakdown: stability analysis and empirical mode construction. Journal of Fluid Mechanics, 2011, 679, 383-414.	1.4	340
6	The need for a pressure-term representation in empirical Galerkin models of incompressible shear flows. Journal of Fluid Mechanics, 2005, 523, 339-365.	1.4	275
7	Feedback shear layer control for bluff body drag reduction. Journal of Fluid Mechanics, 2008, 608, 161-196.	1.4	256
8	Cluster-based reduced-order modelling of a mixing layer. Journal of Fluid Mechanics, 2014, 754, 365-414.	1.4	204
9	A global stability analysis of the steady and periodic cylinder wake. Journal of Fluid Mechanics, 1994, 270, 297-330.	1.4	182
10	Closed-loop separation control using machineÂlearning. Journal of Fluid Mechanics, 2015, 770, 442-457.	1.4	169
11	Reduced-Order Modelling for Flow Control. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2011, , .	0.3	163
12	Sparse reduced-order modelling: sensor-based dynamics to full-state estimation. Journal of Fluid Mechanics, 2018, 844, 459-490.	1.4	155
13	On the need for a nonlinear subscale turbulence term in POD models as exemplified for a high-Reynolds-number flow over an Ahmed body. Journal of Fluid Mechanics, 2014, 747, 518-544.	1.4	153
14	Low-dimensional modelling of high-Reynolds-number shear flows incorporating constraints from the Navierâ€“Stokes equation. Journal of Fluid Mechanics, 2013, 729, 285-308.	1.4	152
15	Recursive dynamic mode decomposition of transient and post-transient wake flows. Journal of Fluid Mechanics, 2016, 809, 843-872.	1.4	145
16	Machine Learning Control â€“ Taming Nonlinear Dynamics and Turbulence. Fluid Mechanics and Its Applications, 2017, , .	0.1	140
17	Bluff body drag manipulation using pulsed jets and Coanda effect. Journal of Fluid Mechanics, 2016, 805, 422-459.	1.4	124
18	A lowâ€dimensional Galerkin method for the threeâ€dimensional flow around a circular cylinder. Physics of Fluids, 1994, 6, 124-143.	1.6	114

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19	Model reduction using Dynamic Mode Decomposition. Comptes Rendus - Mecanique, 2014, 342, 410-416.	2.1	84
20	A generalized mean-field model of the natural and high-frequency actuated flow around a high-lift configuration. Journal of Fluid Mechanics, 2009, 623, 283-316.	1.4	79
21	On closures for reduced order modelsâ€"A spectrum of first-principle to machine-learned avenues. Physics of Fluids, 2021, 33, .	1.6	78
22	On cell formation in vortex streets. Journal of Fluid Mechanics, 1991, 227, 293-308.	1.4	76
23	Model-based Control of Vortex Shedding Using Low-dimensional Galerkin Models. , 2003, , .		74
24	Identification strategies for model-based control. Experiments in Fluids, 2013, 54, 1.	1.1	74
25	Prediction of dynamical systems by symbolic regression. Physical Review E, 2016, 94, 012214.	0.8	70
26	Generalized phase average with applications to sensor-based flow estimation of the wall-mounted square cylinder wake. Journal of Fluid Mechanics, 2013, 736, 316-350.	1.4	68
27	Spatiotemporal Characterization of a Conical Swirler Flow Field Under Strong Forcing. Journal of Engineering for Gas Turbines and Power, 2009, 131, .	0.5	66
28	On drag, Strouhal number and vortex-street structure. Fluid Dynamics Research, 2002, 30, 379-399.	0.6	65
29	Drag reduction of a car model by linear genetic programming control. Experiments in Fluids, 2017, 58, 1.	1.1	55
30	Low-Dimensional Models for Feedback Flow Control. Part I: Empirical Galerkin Models. , 2004, , .		54
31	Feedback control of bimodal wake dynamics. Experiments in Fluids, 2016, 57, 1.	1.1	54
32	Low-order model for successive bifurcations of the fluidic pinball. Journal of Fluid Mechanics, 2020, 884, .	1.4	54
33	A Finite-Time Thermodynamics of Unsteady Fluid Flows. Journal of Non-Equilibrium Thermodynamics, 2008, 33, .	2.4	53
34	From snapshots to modal expansions â€“ bridging low residuals and pure frequencies. Journal of Fluid Mechanics, 2016, 802, 1-4.	1.4	53
35	Forcing symmetry exchanges and flow reversals in turbulent wakes. Journal of Fluid Mechanics, 2017, 829, .	1.4	52
36	Mean field representation of the natural and actuated cylinder wake. Physics of Fluids, 2010, 22, 034102.	1.6	49

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37	Mixing Layer Manipulation Experiment. Flow, Turbulence and Combustion, 2015, 94, 155-173.	1.4	49
38	On long-term boundedness of Galerkin models. Journal of Fluid Mechanics, 2015, 765, 325-352.	1.4	48
39	Artificial intelligence control of a turbulent jet. Journal of Fluid Mechanics, 2020, 897, .	1.4	46
40	Optimal nonlinear eddy viscosity in Galerkin models of turbulent flows. Journal of Fluid Mechanics, 2015, 766, 337-367.	1.4	45
41	Cluster-based feedback control of turbulent post-stall separated flows. Journal of Fluid Mechanics, 2019, 875, 345-375.	1.4	45
42	Optimal mixing in recirculation zones. Physics of Fluids, 2004, 16, 867-888.	1.6	41
43	Closed-loop separation control over a sharp edge ramp using genetic programming. Experiments in Fluids, 2016, 57, 1.	1.1	41
44	Machine learning strategies applied to the control of a fluidic pinball. Physics of Fluids, 2020, 32, .	1.6	41
45	Cluster-based reduced-order modelling of the flow in the wake of a high speed train. Journal of Wind Engineering and Industrial Aerodynamics, 2015, 145, 327-338.	1.7	40
46	Sensor-based estimation of the velocity in the wake of a low-aspect-ratio pyramid. Experiments in Fluids, 2015, 56, 1.	1.1	38
47	Resonances in the forced turbulent wake past a 3D blunt body. Physics of Fluids, 2016, 28, .	1.6	38
48	Low-Dimensional Models for Feedback Flow Control. Part II: Control Design and Dynamic Estimation. , 2004, , .		37
49	Transient dynamics of the flow around a NACA 0015 airfoil using fluidic vortex generators. International Journal of Heat and Fluid Flow, 2010, 31, 450-459.	1.1	36
50	Jet mixing optimization using machine learning control. Experiments in Fluids, 2018, 59, 1.	1.1	34
51	Data-Driven Methods in Fluid Dynamics: Sparse Classification from Experimental Data. , 2017, , 323-342.		32
52	Cluster-based network model. Journal of Fluid Mechanics, 2021, 906, .	1.4	32
53	Reduced-order models for closed-loop wake control. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2011, 369, 1513-1524.	1.6	31
54	Drag reduction mechanisms of a car model at moderate yaw by bi-frequency forcing. Physical Review Fluids, 2019, 4, .	1.0	31

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55	Closed-loop control of experimental shear flows using machine learning. , 2014, , .		30
56	Frequency selection by feedback control in a turbulent shear flow. Journal of Fluid Mechanics, 2016, 797, 247-283.	1.4	30
57	Cluster-based network modelingâ€"From snapshots to complex dynamical systems. Science Advances, 2021, 7, .	4.7	30
58	Discrete shedding modes in the von KÃ¡rmÃ¡n vortex street. Physics of Fluids A, Fluid Dynamics, 1993, 5, 1846-1848.	1.6	29
59	Numerical Investigation of Active Flow Control Around a Generic Truck A-Pillar. Flow, Turbulence and Combustion, 2016, 97, 1235-1254.	1.4	28
60	On least-order flow representations for aerodynamics and aeroacoustics. Journal of Fluid Mechanics, 2012, 697, 367-398.	1.4	27
61	Extensions of Extremum-Seeking Control to Improve the Aerodynamic Performance of Axial Turbomachines. , 2009, , .		26
62	Drag Reduction and Energy Saving by Spanwise Traveling Transversal Surface Waves for Flat Plate Flow. Flow, Turbulence and Combustion, 2020, 105, 125-157.	1.4	26
63	Upstream actuation for bluff-body wake control driven by a genetically inspired optimization. Journal of Fluid Mechanics, 2020, 893, .	1.4	26
64	Cluster-based analysis of cycle-to-cycle variations: application to internal combustion engines. Experiments in Fluids, 2014, 55, 1.	1.1	25
65	Reduced-order modelling of the flow around a high-lift configuration with unsteady CoandaÂblowing. Journal of Fluid Mechanics, 2016, 800, 72-110.	1.4	25
66	Model-based Coherent-structure Control of Turbulent Shear Flows Using Low-dimensional Vortex Models. , 2003, , .		24
67	Stabilization of the fluidic pinball with gradient-enriched machine learning control. Journal of Fluid Mechanics, 2021, 917, .	1.4	24
68	Threeâ€dimensional stability analysis of the periodic flow around a circular cylinder. Physics of Fluids A, Fluid Dynamics, 1993, 5, 1279-1281.	1.6	23
69	Nonlinear Flow Control Based on a Low Dimensional Model of Fluid Flow. , 0, , 369-386.		23
70	Feedback Control Applied to the Bluff Body Wake. , 2007, , 369-390.		23
71	On chaos in wakes. Physica D: Nonlinear Phenomena, 1992, 56, 151-164.	1.3	22
72	Control of a three-dimensional blunt body wake using low and high frequency pulsed jets. International Journal of Flow Control, 2014, 6, 61-74.	0.4	22

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73	Wake stabilization using POD Galerkin models with interpolated modes. , 0, , .		21
74	Maximum-entropy closure for a Galerkin model of an incompressible periodic wake. Journal of Fluid Mechanics, 2012, 700, 187-213.	1.4	21
75	Identifying Noisy and Quiet Modes in a Jet. , 2007, , .		20
76	Optimization and sensitivity analysis of active drag reduction of a square-back Ahmed body using machine learning control. Physics of Fluids, 2020, 32, .	1.6	20
77	Modal energy flow analysis of a highly modulated wake behind a wall-mounted pyramid. Journal of Fluid Mechanics, 2016, 798, 717-750.	1.4	19
78	Galerkin Method for Nonlinear Dynamics. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2011, , 111-149.	0.3	19
79	Explorative gradient method for active drag reduction of the fluidic pinball and slanted Ahmed body. Journal of Fluid Mechanics, 2022, 932, .	1.4	19
80	Machine-learning flow control with few sensor feedback and measurement noise. Physics of Fluids, 2022, 34, .	1.6	19
81	Control of Tollmienâ€“Schlichting instabilities by finite distributed wall actuation. Theoretical and Computational Fluid Dynamics, 2011, 25, 167-178.	0.9	17
82	Galerkin force model for transient and post-transient dynamics of the fluidic pinball. Journal of Fluid Mechanics, 2021, 918, .	1.4	17
83	Actuation response model from sparse data for wall turbulence drag reduction. Physical Review Fluids, 2020, 5, .	1.0	17
84	Artificial intelligence in fluid mechanics. Acta Mechanica Sinica/Lixue Xuebao, 2021, 37, 1715-1717.	1.5	17
85	Construction and analysis of differential equations from experimental time series of oscillatory systems. Physica D: Nonlinear Phenomena, 1992, 56, 389-405.	1.3	16
86	Reduced-basis model for active separation control in a planar diffuser flow. , 2000, , .		16
87	Tuned POD Galerkin models for transient feedback regulation of the cylinder wake. , 2006, , .		16
88	System reduction strategy for Galerkin models of fluid flows. International Journal for Numerical Methods in Fluids, 2010, 63, 231-248.	0.9	16
89	Drag reduction of a D-shaped bluff-body using linear parameter varying control. Physics of Fluids, 2021, 33, .	1.6	16
90	Continuous Mode Interpolation for Control-Oriented Models of Fluid Flow. , 2007, , 260-278.		16

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91	Generalized Mean-Field Model for Flow Control Using a Continuous Mode Interpolation. , 2006, , .		15
92	On the Extraction of Long-living Features in Unsteady Fluid Flows. Mathematics and Visualization, 2011, , 115-126.	0.4	15
93	Metric for attractor overlap. Journal of Fluid Mechanics, 2019, 874, 720-755.	1.4	14
94	Reduced-Order Modelling of Turbulent Jets for Noise Control. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2009, , 3-27.	0.2	14
95	Cluster-based hierarchical network model of the fluidic pinball â€“ cartographing transient and post-transient, multi-frequency, multi-attractor behaviour. Journal of Fluid Mechanics, 2022, 934, .	1.4	14
96	A hierarchy of maximum entropy closures for Galerkin systems of incompressible flows. Computers and Mathematics With Applications, 2013, 65, 1558-1574.	1.4	13
97	Machine learning open-loop control of a mixing layer. Physics of Fluids, 2020, 32, .	1.6	13
98	On the cavity-actuated supersonic mixing layer downstream a thick splitter plate. Physics of Fluids, 2020, 32, .	1.6	13
99	Bayesian optimization for active flow control. Acta Mechanica Sinica/Lixue Xuebao, 2021, 37, 1786-1798.	1.5	13
100	REDUCED ORDER GALERKIN MODELS OF FLOW AROUND NACAâ€0012 AIRFOIL. Mathematical Modelling and Analysis, 2008, 13, 113-122.	0.7	12
101	Cluster-based control of a separating flow over a smoothly contoured ramp. Theoretical and Computational Fluid Dynamics, 2017, 31, 579-593.	0.9	12
102	Closed-Loop Turbulence Control-From Human to Machine Learning (and Retour). Lecture Notes in Mechanical Engineering, 2019, , 23-32.	0.3	12
103	Temporal-Harmonic Specific POD Mode Extraction. , 2008, , .		11
104	Active Flow Control for High Speed Jets with Large Window PIV. Flow, Turbulence and Combustion, 2015, 94, 97-123.	1.4	11
105	Trajectory-optimized cluster-based network model for the sphere wake. Physics of Fluids, 2022, 34, .	1.6	10
106	On the flow around a circular cylinder. Part II: Turbulent regime. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 1999, 79, 227-230.	0.9	9
107	Transfer of internal energy fluctuation in compressible isotropic turbulence with vibrational non-equilibrium. Journal of Fluid Mechanics, 2021, 919, .	1.4	9
108	Genetic-algorithm-based artificial intelligence control of a turbulent boundary layer. Acta Mechanica Sinica/Lixue Xuebao, 2021, 37, 1739-1747.	1.5	9

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109	Discrete shedding modes of the cylinder wake in a jet with a homogeneous core. Physics of Fluids, 1994, 6, 2711-2715.	1.6	8
110	Low Order Galerkin Models for the Actuated Flow Around 2-D Airfoils. , 2007, , .		8
111	Adaptive Control in an Axial Turbofan: Model-Free Implementation with Short Response Time. AIAA Journal, 2011, 49, 1429-1436.	1.5	8
112	Granger causality in wall-bounded turbulence. Journal of Physics: Conference Series, 2014, 506, 012006.	0.3	8
113	The need for prediction in feedback control of a mixing layer. Fluid Dynamics Research, 2018, 50, 065514.	0.6	8
114	Turbulence Control Based on Reduced-Order Models and Nonlinear Control Design. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2010, , 341-356.	0.2	8
115	Galerkin Models Enhancements for Flow Control. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2011, , 151-252.	0.3	8
116	Vibrational relaxation in compressible isotropic turbulence with thermal nonequilibrium. Physical Review Fluids, 2020, 5, .	1.0	8
117	Combination of Image Postprocessing Tools to Identify Coherent Structures of Premixed Flames. AIAA Journal, 2010, 48, 1708-1720.	1.5	7
118	Reduced Order Models for a High Speed Jet with Time-Resolved PIV. , 2013, , .		7
119	On the flow around a circular cylinder. Part I: Laminar and transitional regime. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 1999, 79, 223-226.	0.9	6
120	Spatiotemporal Waveform Observers and Feedback in Shear Layer Control. , 2006, , .		6
121	Robust nonlinear control versus linear model predictive control of a bluff body wake. , 2010, , .		6
122	Analysis of High Speed Jet Flow Physics with Time-Resolved PIV. , 2014, , .		6
123	An Optimal Model Identification for Oscillatory Dynamics with a Stable Limit Cycle. Journal of Nonlinear Science, 2014, 24, 245-275.	1.0	6
124	Machine Learning Control (MLC). Fluid Mechanics and Its Applications, 2017, , 11-48.	0.1	6
125	On the need of mode interpolation for data-driven Galerkin models of a transient flow around a sphere. Theoretical and Computational Fluid Dynamics, 2017, 31, 111-126.	0.9	6
126	Open- and closed-loop control investigations of unsteady Coanda actuation on a high-lift configuration. , 2018, , .		6

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127	Robust Control in Turbomachinery Configurations. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2010, , 187-201.	0.2	6
128	Efficient thrust enhancement by modified pitching motion. Journal of Fluid Mechanics, 2022, 933, .	1.4	6
129	A Reduced Order Galerkin Model for the Reacting Flame Holder. , 2006, , .		5
130	Reduced-order representation of turbulent jet flow and its noise source. ESAIM: Proceedings and Surveys, 2007, 16, 33-50.	0.4	5
131	Continuous Mode Interpolation between Multiple Operating and Boundary Conditions for Reduced Order Modelling of the Flow. AIP Conference Proceedings, 2011, , .	0.3	5
132	Cluster-based reduced-order modelling of shear flows. AIP Conference Proceedings, 2014, , .	0.3	5
133	Artificial intelligence control applied to drag reduction of the fluidic pinball. Proceedings in Applied Mathematics and Mechanics, 2019, 19, e201900268.	0.2	5
134	Fast triple-parameter extremum seeking exemplified for jet control. Experiments in Fluids, 2020, 61, 1.	1.1	5
135	Observers and Feedback Control for Shear Layer Vortices. , 0, , .		4
136	Erratum to the article â€œA Finite-Time Thermodynamics of Unsteady Fluid Flowsâ€• Journal of Non-Equilibrium Thermodynamics, 2008, 33, .	2.4	4
137	Bernoulli, Bode, and Budgie [Ask the Experts]. IEEE Control Systems, 2011, 31, 18-23.	1.0	4
138	MaxEnt analysis of a water distribution network in Canberra, ACT, Australia. , 2015, , .		4
139	Cartographing dynamic stall with machine learning. Wind Energy Science, 2020, 5, 819-838.	1.2	4
140	Microparticle Transport and Sedimentation in a Rhythmically Expanding Alveolar Chip. Micromachines, 2022, 13, 485.	1.4	4
141	Control Oriented Models&Feedback Design in Fluid Flow Systems: A Review. , 2006, , .		3
142	Fast Approximated POD for a Flat Plate Benchmark with a Time Varying Angle of Attack. , 2008, , .		3
143	Feedback stabilization of an oscillating vertical cylinder by POD Reduced-Order Model. Journal of Physics: Conference Series, 2015, 574, 012137.	0.3	3
144	Model reduction and inverse problems and data assimilation with geophysical applications. A special issue in honor of I. Michael Navon's 75th birthday. International Journal for Numerical Methods in Fluids, 2016, 82, 625-630.	0.9	3

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145	Coinciding local bifurcations in the Navier-Stokes equations. Europhysics Letters, 2021, 135, 24002.	0.7	3
146	Control Volume Analysis, Entropy Balance and the Entropy Production in Flow Systems. Understanding Complex Systems, 2014, , 129-162.	0.3	3
147	Taming Nonlinear Dynamics with MLC. Fluid Mechanics and Its Applications, 2017, , 93-120.	0.1	2
148	Clusterâ€based network model for drag reduction mechanisms of an actuated turbulent boundary layer. Proceedings in Applied Mathematics and Mechanics, 2019, 19, e201900219.	0.2	2
149	Open- and closed loop control on a D-shaped bluff body equipped with Coanda actuation. , 2019, , .		2
150	Reduced-Order Modeling of the Fluidic Pinball. Springer Proceedings in Complexity, 2019, , 205-213.	0.2	2
151	Extraction of Coherent Structures from Natural and Actuated Flows. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2010, , 373-387.	0.2	2
152	Optimal Boundary Control Problems Related to High-Lift Configurations. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2010, , 405-419.	0.2	2
153	Theoretical Investigation of the Cylinder Wake with a Low-Dimensional Galerkin Method. , 1993, , 143-146.		2
154	Shift Modes and Transient Dynamics in Low Order, Design Oriented Galerkin Models. , 2007, , .		1
155	Bayesian cyclic networks, mutual information and reduced-order Bayesian inference. AIP Conference Proceedings, 2016, , .	0.3	1
156	Machine Learning Control for Experimental Turbulent Flow Targeting the Reduction of a Recirculation Bubble. , 2017, , .		1
157	Methods of Linear Control Theory. Fluid Mechanics and Its Applications, 2017, , 49-68.	0.1	1
158	Modeling the Fuel/Air Mixing to Control the Pressure Pulsations and NOxÂEmissions in a Lean Premixed Combustor. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2010, , 307-321.	0.2	1
159	Global Stability Analysis for Linear Dynamics. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2011, , 77-110.	0.3	1
160	Spatio-Temporal Characterization of a Conical Swirler Flow Field Under Strong Forcing. , 2008, , .		1
161	Active Flow Control Experiments on a High-Lift Configuration. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2021, , 77-90.	0.2	1
162	Benchmarking MLC Against Linear Control. Fluid Mechanics and Its Applications, 2017, , 69-91.	0.1	0

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163	Effects of Unsteady Coanda Blowing on the Wake and Drag of a Simplified Blunt Vehicle. , 2017, , 365-373.		0
164	Route to Chaos in the Fluidic Pinball. , 2018, , .		0
165	Unstable Periodically Forced Navierâ€“Stokes Solutionsâ€“Towards Nonlinear First-Principle Reduced-Order Modeling of Actuator Performance. Computational Methods in Applied Sciences (Springer), 2019, , 117-145.	0.1	0
166	Closed-Loop Drag Reduction Over aÂD-Shaped Body Via Coanda Actuation. Lecture Notes in Mechanical Engineering, 2021, , 243-248.	0.3	0
167	Sparse Spatial Sampling: A mesh sampling algorithm for efficient processing of big simulation data. , 2021, , .		0
168	Generalized Cluster-Based Network Model for an Actuated Turbulent Boundary Layer. , 2021, , .		0
169	Artificial Intelligence Control of a Turbulent Jet. Lecture Notes in Mechanical Engineering, 2021, , 365-374.	0.3	0