Bernd Noack

List of Publications by Citations

159 papers	5,681 citations	35 h-index	72 g-index
178 ext. papers	7,152 ext. citations	2.8 avg, IF	6.41 L-index

#	Paper	IF	Citations
159	A hierarchy of low-dimensional models for the transient and post-transient cylinder wake. *Journal of Fluid Mechanics*, **2003**, 497, 335-363	3.7	611
158	Machine Learning for Fluid Mechanics. *Annual Review of Fluid Mechanics*, **2020**, 52, 477-508	22	523
157	On the transition of the cylinder wake. *Physics of Fluids*, **1995**, 7, 779-794	4.4	300
156	Closed-Loop Turbulence Control: Progress and Challenges. *Applied Mechanics Reviews*, **2015**, 67,	8.6	241
155	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	3.7	240
154	The need for a pressure-term representation in empirical Galerkin models of incompressible shear flows. *Journal of Fluid Mechanics*, **2005**, 523, 339-365	3.7	216
153	Feedback shear layer control for bluff body drag reduction. *Journal of Fluid Mechanics*, **2008**, 608, 161-196	3.7	205
152	Cluster-based reduced-order modelling of a mixing layer. *Journal of Fluid Mechanics*, **2014**, 754, 365-414	3.7	149
151	A global stability analysis of the steady and periodic cylinder wake. *Journal of Fluid Mechanics*, **1994**, 270, 297-330	3.7	144
150	Closed-loop separation control using machine learning. *Journal of Fluid Mechanics*, **2015**, 770, 442-457	3.7	123
149	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	3.7	122
148	Low-dimensional modelling of high-Reynolds-number shear flows incorporating constraints from the Navier-Stokes equation. *Journal of Fluid Mechanics*, **2013**, 729, 285-308	3.7	117
147	Reduced-Order Modelling for Flow Control. *CISM International Centre for Mechanical Sciences, Courses and Lectures*, **2011**,	0.6	115
146	Recursive dynamic mode decomposition of transient and post-transient wake flows. *Journal of Fluid Mechanics*, **2016**, 809, 843-872	3.7	93
145	A low-dimensional Galerkin method for the three-dimensional flow around a circular cylinder. *Physics of Fluids*, **1994**, 6, 124-143	4.4	91
144	Bluff body drag manipulation using pulsed jets and Coanda effect. *Journal of Fluid Mechanics*, **2016**, 805, 422-459	3.7	90
143	Sparse reduced-order modelling: sensor-based dynamics to full-state estimation. *Journal of Fluid Mechanics*, **2018**, 844, 459-490	3.7	86

142	Machine Learning Control – Taming Nonlinear Dynamics and Turbulence. *Fluid Mechanics and Its Applications*, **2017**,	0.2	72
141	On cell formation in vortex streets. *Journal of Fluid Mechanics*, **1991**, 227, 293-308	3.7	69
140	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	3.7	67
139	Model reduction using Dynamic Mode Decomposition. *Comptes Rendus - Mecanique*, **2014**, 342, 410-416	2.1	61
138	Model-based Control of Vortex Shedding Using Low-dimensional Galerkin Models **2003**,		58
137	Identification strategies for model-based control. *Experiments in Fluids*, **2013**, 54, 1	2.5	57
136	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	3.7	54
135	On drag, Strouhal number and vortex-street structure. *Fluid Dynamics Research*, **2002**, 30, 379-399	1.2	53
134	Spatiotemporal Characterization of a Conical Swirler Flow Field Under Strong Forcing. *Journal of Engineering for Gas Turbines and Power*, **2009**, 131,	1.7	48
133	A Finite-Time Thermodynamics of Unsteady Fluid Flows. *Journal of Non-Equilibrium Thermodynamics* , **2008**, 33,	3.8	46
132	Mean field representation of the natural and actuated cylinder wake. *Physics of Fluids*, **2010**, 22, 034102	4.4	45
131	Low-Dimensional Models for Feedback Flow Control. Part I: Empirical Galerkin Models **2004**,		41
130	Mixing Layer Manipulation Experiment. *Flow, Turbulence and Combustion*, **2015**, 94, 155-173	2.5	40
129	Prediction of dynamical systems by symbolic regression. *Physical Review E*, **2016**, 94, 012214	2.4	39
128	Forcing symmetry exchanges and flow reversals in turbulent wakes. *Journal of Fluid Mechanics*, **2017**, 829,	3.7	39
127	Optimal mixing in recirculation zones. *Physics of Fluids*, **2004**, 16, 867-888	4.4	38
126	From snapshots to modal expansions – bridging low residuals and pure frequencies. *Journal of Fluid Mechanics*, **2016**, 802, 1-4	3.7	38
125	Feedback control of bimodal wake dynamics. *Experiments in Fluids*, **2016**, 57, 1	2.5	38

124	Optimal nonlinear eddy viscosity in Galerkin models of turbulent flows. *Journal of Fluid Mechanics*, **2015**, 766, 337-367	3.7	35
123	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	3.7	34
122	On long-term boundedness of Galerkin models. *Journal of Fluid Mechanics*, **2015**, 765, 325-352	3.7	34
121	Drag reduction of a car model by linear genetic programming control. *Experiments in Fluids*, **2017**, 58, 1	2.5	34
120	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	2.4	28
119	Low-Dimensional Models for Feedback Flow Control. Part II: Control Design and Dynamic Estimation **2004**,		28
118	Resonances in the forced turbulent wake past a 3D blunt body. *Physics of Fluids*, **2016**, 28, 065104	4.4	28
117	Discrete shedding modes in the von Kármán vortex street. *Physics of Fluids A, Fluid Dynamics*, **1993**, 5, 1846-1848		27
116	Cluster-based feedback control of turbulent post-stall separated flows. *Journal of Fluid Mechanics*, **2019**, 875, 345-375	3.7	26
115	Reduced-order models for closed-loop wake control. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2011**, 369, 1513-24	3	26
114	Sensor-based estimation of the velocity in the wake of a low-aspect-ratio pyramid. *Experiments in Fluids*, **2015**, 56, 1	2.5	25
113	On least-order flow representations for aerodynamics and aeroacoustics. *Journal of Fluid Mechanics* , **2012**, 697, 367-398	3.7	25
112	Closed-loop separation control over a sharp edge ramp using genetic programming. *Experiments in Fluids*, **2016**, 57, 1	2.5	24
111	Closed-loop control of experimental shear flows using machine learning **2014**,		24
110	Machine learning strategies applied to the control of a fluidic pinball. *Physics of Fluids*, **2020**, 32, 015108	4.4	24
109	Artificial intelligence control of a turbulent jet. *Journal of Fluid Mechanics*, **2020**, 897,	3.7	23
108	Low-order model for successive bifurcations of the fluidic pinball. *Journal of Fluid Mechanics*, **2020**, 884,	3.7	23
107	Numerical Investigation of Active Flow Control Around a Generic Truck A-Pillar. *Flow, Turbulence and Combustion*, **2016**, 97, 1235-1254	2.5	22

106	Data-Driven Methods in Fluid Dynamics: Sparse Classification from Experimental Data **2017**, 323-342		20
105	Extensions of Extremum-Seeking Control to Improve the Aerodynamic Performance of Axial Turbomachines **2009**,		20
104	Drag reduction mechanisms of a car model at moderate yaw by bi-frequency forcing. *Physical Review Fluids*, **2019**, 4,	2.8	20
103	Frequency selection by feedback control in a turbulent shear flow. *Journal of Fluid Mechanics*, **2016**, 797, 247-283	3.7	20
102	Maximum-entropy closure for a Galerkin model of an incompressible periodic wake. *Journal of Fluid Mechanics*, **2012**, 700, 187-213	3.7	19
101	Feedback Control Applied to the Bluff Body Wake **2007**, 369-390		19
100	Jet mixing optimization using machine learning control. *Experiments in Fluids*, **2018**, 59, 1	2.5	18
99	Three-dimensional stability analysis of the periodic flow around a circular cylinder. *Physics of Fluids A, Fluid Dynamics*, **1993**, 5, 1279-1281		18
98	On chaos in wakes. *Physica D: Nonlinear Phenomena*, **1992**, 56, 151-164	3.3	18
97	Nonlinear Flow Control Based on a Low Dimensional Model of Fluid Flow369-386		18
96	Cluster-based analysis of cycle-to-cycle variations: application to internal combustion engines. *Experiments in Fluids*, **2014**, 55, 1	2.5	17
95	On closures for reduced order models A spectrum of first-principle to machine-learned avenues. *Physics of Fluids*, **2021**, 33, 091301	4.4	17
94	Control of a three-dimensional blunt body wake using low and high frequency pulsed jets. *International Journal of Flow Control*, **2014**, 6, 61-74		16
93	Model-based Coherent-structure Control of Turbulent Shear Flows Using Low-dimensional Vortex Models **2003**,		16
92	Wake stabilization using POD Galerkin models with interpolated modes		16
91	Reduced-order modelling of the flow around a high-lift configuration with unsteady Coanda blowing. *Journal of Fluid Mechanics*, **2016**, 800, 72-110	3.7	16
90	Continuous Mode Interpolation for Control-Oriented Models of Fluid Flow **2007**, 260-278		15
89	Control of Tollmien Schlichting instabilities by finite distributed wall actuation. *Theoretical and Computational Fluid Dynamics*, **2011**, 25, 167-178	2.3	14

88	Tuned POD Galerkin models for transient feedback regulation of the cylinder wake **2006**,		14
87	Generalized Mean-Field Model for Flow Control Using a Continuous Mode Interpolation **2006**,		14
86	Construction and analysis of differential equations from experimental time series of oscillatory systems. *Physica D: Nonlinear Phenomena*, **1992**, 56, 389-405	3.3	14
85	Drag Reduction and Energy Saving by Spanwise Traveling Transversal Surface Waves for Flat Plate Flow. *Flow, Turbulence and Combustion*, **2020**, 105, 125-157	2.5	13
84	Identifying Noisy and Quiet Modes in a Jet **2007**,		13
83	Reduced-Order Modelling of Turbulent Jets for Noise Control. *Notes on Numerical Fluid Mechanics and Multidisciplinary Design*, **2009**, 3-27	0.3	13
82	Galerkin Method for Nonlinear Dynamics. *CISM International Centre for Mechanical Sciences, Courses and Lectures*, **2011**, 111-149	0.6	13
81	Modal energy flow analysis of a highly modulated wake behind a wall-mounted pyramid. *Journal of Fluid Mechanics*, **2016**, 798, 717-750	3.7	13
80	Cluster-based network model. *Journal of Fluid Mechanics*, **2021**, 906,	3.7	13
79	On the Extraction of Long-living Features in Unsteady Fluid Flows. *Mathematics and Visualization*, **2011**, 115-126	0.6	12
78	Optimization and sensitivity analysis of active drag reduction of a square-back Ahmed body using machine learning control. *Physics of Fluids*, **2020**, 32, 125117	4.4	12
77	Upstream actuation for bluff-body wake control driven by a genetically inspired optimization. *Journal of Fluid Mechanics*, **2020**, 893,	3.7	12
76	Active Flow Control for High Speed Jets with Large Window PIV. *Flow, Turbulence and Combustion*, **2015**, 94, 97-123	2.5	11
75	REDUCED ORDER GALERKIN MODELS OF FLOW AROUND NACA-0012 AIRFOIL. *Mathematical Modelling and Analysis*, **2008**, 13, 113-122	1.3	11
74	Metric for attractor overlap. *Journal of Fluid Mechanics*, **2019**, 874, 720-755	3.7	10
73	Temporal-Harmonic Specific POD Mode Extraction **2008**,		10
72	Reduced-basis model for active separation control in a planar diffuser flow **2000**,		10
71	Cluster-based network modeling-From snapshots to complex dynamical systems. *Science Advances*, **2021**, 7,	14.3	10

70	Cluster-based control of a separating flow over a smoothly contoured ramp. *Theoretical and Computational Fluid Dynamics*, **2017**, 31, 579-593	2.3	8
69	A hierarchy of maximum entropy closures for Galerkin systems of incompressible flows. *Computers and Mathematics With Applications*, **2013**, 65, 1558-1574	2.7	8
68	Low Order Galerkin Models for the Actuated Flow Around 2-D Airfoils **2007**,		8
67	Discrete shedding modes of the cylinder wake in a jet with a homogeneous core. *Physics of Fluids*, **1994**, 6, 2711-2715	4.4	8
66	Actuation response model from sparse data for wall turbulence drag reduction. *Physical Review Fluids*, **2020**, 5,	2.8	8
65	Reduced Order Models for a High Speed Jet with Time-Resolved PIV **2013**,		7
64	System reduction strategy for Galerkin models of fluid flows. *International Journal for Numerical Methods in Fluids*, **2009**, 63, n/a-n/a	1.9	7
63	Turbulence Control Based on Reduced-Order Models and Nonlinear Control Design. *Notes on Numerical Fluid Mechanics and Multidisciplinary Design*, **2010**, 341-356	0.3	7
62	Galerkin Models Enhancements for Flow Control. *CISM International Centre for Mechanical Sciences, Courses and Lectures*, **2011**, 151-252	0.6	7
61	On the cavity-actuated supersonic mixing layer downstream a thick splitter plate. *Physics of Fluids*, **2020**, 32, 096102	4.4	7
60	Drag reduction of a D-shaped bluff-body using linear parameter varying control. *Physics of Fluids*, **2021**, 33, 077108	4.4	7
59	Closed-Loop Turbulence Control-From Human to Machine Learning (and Retour). *Lecture Notes in Mechanical Engineering*, **2019**, 23-32	0.4	6
58	An Optimal Model Identification for Oscillatory Dynamics with a Stable Limit Cycle. *Journal of Nonlinear Science*, **2014**, 24, 245-275	2.8	6
57	Analysis of High Speed Jet Flow Physics with Time-Resolved PIV **2014**,		6
56	Spatiotemporal Waveform Observers and Feedback in Shear Layer Control **2006**,		6
55	Robust Control in Turbomachinery Configurations. *Notes on Numerical Fluid Mechanics and Multidisciplinary Design*, **2010**, 187-201	0.3	6
54	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	2.3	5
53	Continuous Mode Interpolation between Multiple Operating and Boundary Conditions for Reduced Order Modelling of the Flow **2011**,		5

52	Combination of Image Postprocessing Tools to Identify Coherent Structures of Premixed Flames. *AIAA Journal*, **2010**, 48, 1708-1720	2.1	5
51	Robust nonlinear control versus linear model predictive control of a bluff body wake **2010**,		5
50	Reduced-order representation of turbulent jet flow and its noise source. *ESAIM: Proceedings and Surveys*, **2007**, 16, 33-50		5
49	A Reduced Order Galerkin Model for the Reacting Flame Holder **2006**,		5
48	On the flow around a circular cylinder. Part II: Turbulent regime. *ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik*, **1999**, 79, 227-230	1	5
47	Machine learning open-loop control of a mixing layer. *Physics of Fluids*, **2020**, 32, 111701	4.4	5
46	The need for prediction in feedback control of a mixing layer. *Fluid Dynamics Research*, **2018**, 50, 065514	1.2	5
45	Cluster-based reduced-order modelling of shear flows **2014**,		4
44	Adaptive Control in an Axial Turbofan: Model-Free Implementation with Short Response Time. *AIAA Journal*, **2011**, 49, 1429-1436	2.1	4
43	Erratum to the article “Finite-Time Thermodynamics of Unsteady Fluid Flows” *Journal of Non-Equilibrium Thermodynamics*, **2008**, 33,	3.8	4
42	Vibrational relaxation in compressible isotropic turbulence with thermal nonequilibrium. *Physical Review Fluids*, **2020**, 5,	2.8	4
41	Transfer of internal energy fluctuation in compressible isotropic turbulence with vibrational non-equilibrium. *Journal of Fluid Mechanics*, **2021**, 919,	3.7	4
40	Galerkin force model for transient and post-transient dynamics of the fluidic pinball. *Journal of Fluid Mechanics*, **2021**, 918,	3.7	4
39	Artificial intelligence control applied to drag reduction of the fluidic pinball. *Proceedings in Applied Mathematics and Mechanics*, **2019**, 19, e201900268	0.2	4
38	Open- and closed-loop control investigations of unsteady Coanda actuation on a high-lift configuration **2018**,		4
37	Granger causality in wall-bounded turbulence. *Journal of Physics: Conference Series*, **2014**, 506, 012006	0.3	3
36	Bernoulli, Bode, and Budgie [Ask the Experts]. *IEEE Control Systems*, **2011**, 31, 18-23	2.9	3
35	Fast Approximated POD for a Flat Plate Benchmark with a Time Varying Angle of Attack **2008**,		3

34	Artificial intelligence in fluid mechanics. *Acta Mechanica Sinica/Lixue Xuebao*,1	2	3
33	Genetic-algorithm-based artificial intelligence control of a turbulent boundary layer. *Acta Mechanica Sinica/Lixue Xuebao*,1	2	3
32	Explorative gradient method for active drag reduction of the fluidic pinball and slanted Ahmed body. *Journal of Fluid Mechanics*, **2022**, 932,	3.7	3
31	Stabilization of the fluidic pinball with gradient-enriched machine learning control. *Journal of Fluid Mechanics*, **2021**, 917,	3.7	3
30	Fast triple-parameter extremum seeking exemplified for jet control. *Experiments in Fluids*, **2020**, 61, 1	2.5	2
29	Machine Learning Control (MLC). *Fluid Mechanics and Its Applications*, **2017**, 11-48	0.2	2
28	Taming Nonlinear Dynamics with MLC. *Fluid Mechanics and Its Applications*, **2017**, 93-120	0.2	2
27	MaxEnt analysis of a water distribution network in Canberra, ACT, Australia **2015**,		2
26	Feedback stabilization of an oscillating vertical cylinder by POD Reduced-Order Model. *Journal of Physics: Conference Series*, **2015**, 574, 012137	0.3	2
25	Control Oriented Models & Feedback Design in Fluid Flow Systems: A Review **2006**,		2
24	On the flow around a circular cylinder. Part I: Laminar and transitional regime. *ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik*, **1999**, 79, 223-226	1	2
23	Bayesian optimization for active flow control. *Acta Mechanica Sinica/Lixue Xuebao*,1	2	2
22	Extraction of Coherent Structures from Natural and Actuated Flows. *Notes on Numerical Fluid Mechanics and Multidisciplinary Design*, **2010**, 373-387	0.3	2
21	Optimal Boundary Control Problems Related to High-Lift Configurations. *Notes on Numerical Fluid Mechanics and Multidisciplinary Design*, **2010**, 405-419	0.3	2
20	Cluster-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
19	Microparticle Transport and Sedimentation in a Rhythmically Expanding Alveolar Chip.. *Micromachines*, **2022**, 13,	3.3	2
18	Bayesian cyclic networks, mutual information and reduced-order Bayesian inference **2016**,		1
17	Machine Learning Control for Experimental Turbulent Flow Targeting the Reduction of a Recirculation Bubble **2017**,		1

16	Observers and Feedback Control for Shear Layer Vortices		1
15	Reduced-Order Modeling of the Fluidic Pinball. *Springer Proceedings in Complexity*, **2019**, 205-213	0.3	1
14	Modeling the Fuel/Air Mixing to Control the Pressure Pulsations and NOx Emissions in a Lean Premixed Combustor. *Notes on Numerical Fluid Mechanics and Multidisciplinary Design*, **2010**, 307-321	0.3	1
13	Theoretical Investigation of the Cylinder Wake with a Low-Dimensional Galerkin Method **1993**, 143-146		1
12	Global Stability Analysis for Linear Dynamics. *CISM International Centre for Mechanical Sciences, Courses and Lectures*, **2011**, 77-110	0.6	1
11	Control Volume Analysis, Entropy Balance and the Entropy Production in Flow Systems. *Understanding Complex Systems*, **2014**, 129-162	0.4	1
10	Open- and closed loop control on a D-shaped bluff body equipped with Coanda actuation **2019**,		1
9	Machine-learning flow control with few sensor feedback and measurement noise. *Physics of Fluids*, **2022**, 34, 047118	4.4	1
8	Active Flow Control Experiments on a High-Lift Configuration. *Notes on Numerical Fluid Mechanics and Multidisciplinary Design*, **2021**, 77-90	0.3	0
7	Cartographing dynamic stall with machine learning. *Wind Energy Science*, **2020**, 5, 819-838	3.2	0
6	Coinciding local bifurcations in the Navier-Stokes equations. *Europhysics Letters*, **2021**, 135, 24002	1.6	0
5	Unstable Periodically Forced Navier□Stokes Solutions□owards Nonlinear First-Principle Reduced-Order Modeling of Actuator Performance. *Computational Methods in Applied Sciences (Springer)*, **2019**, 117-145	0.4	
4	Effects of Unsteady Coanda Blowing on the Wake and Drag of a Simplified Blunt Vehicle **2017**, 365-373		
3	Turbulent Flow Modeling via Galerkin Method and Finite Time Thermodynamics. *Notes on Numerical Fluid Mechanics and Multidisciplinary Design*, **2010**, 357-358	0.3	
2	Closed-Loop Drag Reduction Over a D-Shaped Body Via Coanda Actuation. *Lecture Notes in Mechanical Engineering*, **2021**, 243-248	0.4	
1	Artificial Intelligence Control of a Turbulent Jet. *Lecture Notes in Mechanical Engineering*, **2021**, 365-374	0.4	