Claus-Dieter Munz

List of Publications by Year
in descending order

110 papers	3,406 citations	201674 27 h-index	144013 57 g-index
119 all docs	119 docs citations	119 times ranked	1849 citing authors

#	Article	IF	Citations
1	A unified framework for the construction of one-step finite volume and discontinuous Galerkin schemes on unstructured meshes. Journal of Computational Physics, 2008, 227, 8209-8253.	3.8	761
2	Efficient, high accuracy ADER-WENO schemes for hydrodynamics and divergence-free magnetohydrodynamics. Journal of Computational Physics, 2009, 228, 2480-2516.	3.8	209
3	Deep neural networks for data-driven LES closure models. Journal of Computational Physics, 2019, 398, 108910.	3.8	175
4	Highâ€order discontinuous Galerkin spectral element methods for transitional and turbulent flow simulations. International Journal for Numerical Methods in Fluids, 2014, 76, 522-548.	1.6	169
5	Explicit discontinuous Galerkin methods for unsteady problems. Computers and Fluids, 2012, 61, 86-93.	2.5	167
6	A contribution to the construction of diffusion fluxes for finite volume and discontinuous Galerkin schemes. Journal of Computational Physics, 2007, 224, 1049-1063.	3.8	165
7	Building Blocks for Arbitrary High Order Discontinuous Galerkin Schemes. Journal of Scientific Computing, 2006, 27, 215-230.	2.3	131
8	A sub-cell based indicator for troubled zones in RKDG schemes and a novel class of hybrid RKDG+HWENO schemes. Journal of Computational Physics, 2007, 226, 586-620.	3.8	105
9	Fast high order ADER schemes for linear hyperbolic equations. Journal of Computational Physics, 2004, 197, 532-539.	3.8	99
10	ADER discontinuous Galerkin schemes for aeroacoustics. Comptes Rendus - Mecanique, 2005, 333, 683-687.	2.1	78
11	Efficient Parallelization of a Shock Capturing for Discontinuous Galerkin Methods using Finite Volume Sub-cells. Journal of Scientific Computing, 2017, 70, 1262-1289.	2.3	74
12	Polymorphic nodal elements and their application in discontinuous Galerkin methods. Journal of Computational Physics, 2009, 228, 1573-1590.	3.8	73
13	FLEXI: A high order discontinuous Galerkin framework for hyperbolicâ€"parabolic conservation laws. Computers and Mathematics With Applications, 2021, 81, 186-219.	2.7	69
14	Three-Dimensional Numerical Simulation of a 30-GHz Gyrotron Resonator With an Explicit High-Order Discontinuous-Galerkin-Based Parallel Particle-In-Cell Method. IEEE Transactions on Plasma Science, 2012, 40, 1860-1870.	1.3	63
15	Linearized acoustic perturbation equations for low Mach number flow with variable density and temperature. Journal of Computational Physics, 2007, 224, 352-364.	3.8	61
16	Explicit one-step time discretizations for discontinuous Galerkin and finite volume schemes based on local predictors. Journal of Computational Physics, 2011, 230, 4232-4247.	3.8	61
17	Coupled Particle-In-Cell and Direct Simulation Monte Carlo method for simulating reactive plasma flows. Comptes Rendus - Mecanique, 2014, 342, 662-670.	2.1	56
18	A highâ€order discontinuous Galerkin method with timeâ€accurate local time stepping for the Maxwell equations. International Journal of Numerical Modelling: Electronic Networks, Devices and Fields, 2009, 22, 77-103.	1.9	54

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19	Efficient implementation of high order unstructured WENO schemes for cavitating flows. Computers and Fluids, 2013, 86, 141-168.	2.5	53
20	Simulation of underresolved turbulent flows by adaptive filtering using the high order discontinuous Galerkin spectral element method. Journal of Computational Physics, 2016, 313, 1-12.	3.8	53
21	An explicit discontinuous Galerkin scheme with local time-stepping for general unsteady diffusion equations. Journal of Computational Physics, 2008, 227, 5649-5670.	3.8	41
22	A sharp interface method for compressible liquidâ€"vapor flow with phase transition and surface tension. Journal of Computational Physics, 2017, 336, 347-374.	3.8	41
23	On the numerical dissipation of high resolution schemes for hyperbolic conservation laws. Journal of Computational Physics, 1988, 77, 18-39.	3.8	39
24	Arbitrary High-Order Discontinuous Galerkin Schemes for the Magnetohydrodynamic Equations. Journal of Scientific Computing, 2007, 30, 441-464.	2.3	37
25	A low Mach number scheme based on multi-scale asymptotics. Computing and Visualization in Science, 2000, 3, 85-91.	1.2	36
26	Preconditioning for modal discontinuous Galerkin methods for unsteady 3D Navierâ€"Stokes equations. Journal of Computational Physics, 2013, 240, 20-35.	3.8	36
27	Direct aeroacoustic simulation of acoustic feedback phenomena on a side-view mirror. Journal of Sound and Vibration, 2016, 371, 132-149.	3.9	30
28	Approximate Riemann solver for compressible liquid vapor flow with phase transition and surface tension. Computers and Fluids, 2018, 169, 169-185.	2.5	26
29	On the Influence of Polynomial De-aliasing on Subgrid Scale Models. Flow, Turbulence and Combustion, 2016, 97, 475-511.	2.6	24
30	Shock Capturing for Discontinuous Galerkin Methods using Finite Volume Subcells. Springer Proceedings in Mathematics and Statistics, 2014, , 945-953.	0.2	20
31	A Discontinuous Galerkin Spectral Element Method for the direct numerical simulation of aeroacoustics. , 2014, , .		16
32	xtroem-fv: a new code for computational astrophysics based on very high order finite-volume methods â€" II. Relativistic hydro- and magnetohydrodynamics. Monthly Notices of the Royal Astronomical Society, 2016, 460, 535-559.	4.4	16
33	xtroem-fv: a new code for computational astrophysics based on very high order finite-volume methods â€" I. Magnetohydrodynamics. Monthly Notices of the Royal Astronomical Society, 2016, 455, 3458-3479.	4.4	15
34	Hybrid DG/FV schemes for magnetohydrodynamics and relativistic hydrodynamics. Computer Physics Communications, 2018, 222, 113-135.	7.5	15
35	Efficient Parallelization of a Three-Dimensional High-Order Particle-in-Cell Method for the Simulation of a 170 GHz Gyrotron Resonator. IEEE Transactions on Plasma Science, 2013, 41, 87-98.	1.3	14
36	A spaceâ€"time adaptive discontinuous Galerkin scheme. Computers and Fluids, 2015, 117, 247-261.	2.5	14

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37	Comparison of macro- and microscopic solutions of the Riemann problem I. Supercritical shock tube and expansion into vacuum. Journal of Computational Physics, 2020, 402, 109077.	3.8	14
38	Aeroacoustic study of a forward facing step using linearized Euler equations. Physica D: Nonlinear Phenomena, 2008, 237, 2184-2189.	2.8	13
39	A High Order Sharp-Interface Method with Local Time Stepping for Compressible Multiphase Flows. Communications in Computational Physics, 2011, 9, 205-230.	1.7	13
40	Comparison of macro- and microscopic solutions of the Riemann problem II. Two-phase shock tube. Journal of Computational Physics, 2021, 429, 110027.	3.8	13
41	A RUNGE-KUTTA BASED DISCONTINUOUS GALERKIN METHOD WITH TIME ACCURATE LOCAL TIME STEPPING. Advances in Computational Fluid Dynamics, 2011, , 95-118.	0.1	12
42	An efficient sliding mesh interface method for high-order discontinuous Galerkin schemes. Computers and Fluids, 2021, 217, 104825.	2.5	12
43	Lax-Wendroff-type schemes of arbitrary order in several space dimensions. IMA Journal of Numerical Analysis, 2006, 27, 593-615.	2.9	10
44	Efficient high-order discontinuous Galerkin computations of low Mach number flows. Communications in Applied Mathematics and Computational Science, 2018, 13, 243-270.	1.8	10
45	Uncertainty Quantification for Direct Aeroacoustic Simulations of Cavity Flows. Journal of Theoretical and Computational Acoustics, 2019, 27, 1850044.	1.1	10
46	A parabolic relaxation model for the Navier-Stokes-Korteweg equations. Journal of Computational Physics, 2020, 421, 109714.	3.8	10
47	An Efficient High Performance Parallelization of a Discontinuous Galerkin Spectral Element Method. Lecture Notes in Computer Science, 2013, , 37-47.	1.3	10
48	Calculation of low Mach number acoustics: a comparison of MPV, EIF and linearized Euler equations. ESAIM: Mathematical Modelling and Numerical Analysis, 2005, 39, 561-576.	1.9	9
49	Visualization of Advectionâ€Diffusion in Unsteady Fluid Flow. Computer Graphics Forum, 2012, 31, 1105-1114.	3.0	9
50	Coupling of compressible and incompressible flow regions using the multiple pressure variables approach. Mathematical Methods in the Applied Sciences, 2015, 38, 458-477.	2.3	9
51	Complex-Frequency Shifted PMLs for Maxwellâ€™s Equations With Hyperbolic Divergence Cleaning and Their Application in Particle-in-Cell Codes. IEEE Transactions on Plasma Science, 2017, 45, 2-14.	1.3	8
52	A particle localization algorithm on unstructured curvilinear polynomial meshes. Computer Physics Communications, 2019, 235, 63-74.	7.5	8
53	On Source Terms and Boundary Conditions Using Arbitrary High Order Discontinuous Galerkin Schemes. International Journal of Applied Mathematics and Computer Science, 2007, 17, 297-310.	1.5	7
54	High-order Particle-In-Cell simulations of laser-plasma interaction. European Physical Journal: Special Topics, 2019, 227, 1603-1614.	2.6	6

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55	Direct Aeroacoustic Simulations Based on High Order Discontinuous Galerkin Schemes. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2018, , 159-204.	0.6	6
56	A p-Adaptive Discontinuous Galerkin Method with hp-Shock Capturing. Journal of Scientific Computing, 2022, 91, 1.	2.3	6
57	CAA Using Domain Decomposition and High Order Methods on Structured and Unstructured Meshes. , 2004, , .		5
58	Heterogeneous Domain Decomposition for CAA. , 2005, , .		5
59	Advances in the Computational Aeroacoustics with the Discontinuous Galerkin Solver NoisSol. , 2010, , .		5
60	Discontinuous Galerkin Schemes for the Direct Numerical Simulation of Fluid Flow and Acoustics. , 2012, , .		5
61	Improving the accuracy of discontinuous Galerkin schemes at boundary layers. International Journal for Numerical Methods in Fluids, 2014, 75, 385-402.	1.6	5
62	Large eddy simulation of tonal noise at a side-view mirror using a high order discontinuous Galerkin method. , 2016, , .		5
63	Recent Advances and Complex Applications of the Compressible Ghost-Fluid Method. SEMA SIMAI Springer Series, 2021, , 155-176.	0.7	5
64	Numerical Investigation of High-Order Gyrotron Mode Propagation in Launchers at 170 GHz. IEEE Transactions on Plasma Science, 2012, 40, 1512-1521.	1.3	4
65	Application and Development of the High Order Discontinuous Galerkin Spectral Element Method for Compressible Multiscale Flows. , 2018, , 387-407.		4
66	An Approximate Riemann Solver for Advectionâ€"Diffusion Based on the Generalized Riemann Problem. Communications on Applied Mathematics and Computation, 2020, 2, 515-539.	1.7	4
67	hp-Multilevel Monte Carlo Methods for Uncertainty Quantification of Compressible Navier--Stokes Equations. SIAM Journal of Scientific Computing, 2020, 42, B1067-B1091.	2.8	4
68	Improvement of the Level-Set Ghost-Fluid Method for the Compressible Euler Equations. Fluid Mechanics and Its Applications, 2020, , 17-29.	0.2	4
69	On the Effect of Flux Functions in Discontinuous Galerkin Simulations of Underresolved Turbulence. Lecture Notes in Computational Science and Engineering, 2014, , 145-155.	0.3	4
70	Fluid-Acoustic Coupling and Wave Propagation. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2009, , 47-74.	0.3	4
71	Unstructured three-dimensional High Order Grids for Discontinuous Galerkin Schemes. , 2011, , .		3
72	Discontinuous Galerkin for High Performance Computational Fluid Dynamics. , 2015, , 499-518.		3

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73	Heterogeneous Domain Decomposition for Numerical Aeroacoustics. , 2006, , 429-459.		3
74	Highly Efficient and Scalable Software for the Simulation of Turbulent Flows in Complex Geometries. , 2012, , 289-307.		3
75	Approximate Riemann Solvers for Fluid Flow with Material Interfaces. Fluid Mechanics and Its Applications, 1998, , 211-235.	0.2	2
76	A Space-Time Expansion Discontinuous Galerkin Scheme With Local Time Stepping for the Ideal and Viscous MHD Equations. IEEE Transactions on Plasma Science, 2009, 37, 513-519.	1.3	2
77	Discontinuous Galerkin schemes with defect corrections based on reconstruction. Computers and Fluids, 2012, 62, 71-85.	2.5	2
78	High Fidelity Scale-Resolving Computational Fluid Dynamics Using the High Order Discontinuous Galerkin Spectral Element Method. , 2016, , 511-530.		2
79	A high-order stochastic Galerkin code for the compressible Euler and Navier-Stokes equations. Computers and Fluids, 2021, 228, 105039.	2.5	2
80	Underresolved Turbulence Simulations with Stabilized High Order Discontinuous Galerkin Methods. ERCOFTAC Series, 2015, , 103-108.	0.1	2
81	Expansion rates of bubble clusters in superheated liquids. , 0, , .		2
82	The numerical modeling of acoustic wave propagation using the multiple pressure variables approach. Computing and Visualization in Science, 2006, 9, 229-237.	1.2	1
83	Domain Decompositions for CAA in Complex Domains. , 2007, , .		1
84	Coupling of LES with LEE for Forward Facing Step Noise Prediction. , 2007, , .		1
85	Direct Noise Simulation of Near Field Noise during a Gas Injection Process with a Discontinuous Galerkin Approach. , 2012, , .		1
86	Discontinuous Galerkin for High Performance Computational Fluid Dynamics. , 2013, , 225-238.		1
87	High-Pressure Real-Gas Jet and Throttle Flow as a Simplified Gas Injector Model Using a Discontinuous Galerkin Method. , 2016, , 289-300.		1
88	Toward a Discontinuous Galerkin Fluid Dynamics Framework for Industrial Applications. , 2016, , 531-545.		1
89	Discontinuous Galerkin for High Performance Computational Fluid Dynamics (hpcdg). , 2012, , 277-288.		1
90	Application and Development of the High Order Discontinuous Galerkin Spectral Element Method for Compressible Multiscale Flows. , 2019, , 291-307.		1

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91	Zonal Hybrid Computational Aeroacoustics Simulation of Trailing Edge Noise Using a High-Order Discontinuous Galerkin Method. , 2022, , .		1
92	Building Blocks for Direct Aeroacoustic Simulations based on Domain Decompositions. , 2008, , .		0
93	On the Numerical Simulation of a Scramjet Intake using a Space-Time-Expansion Discontinuous Galerkin Scheme. , 2012, , .		0
94	The Application of Iterated Defect Corrections Based on WENO Reconstruction. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2013, , 129-154.	0.3	0
95	Complex-frequency shifted perfectly matched layers with respect to particle treatment in a particle-in-cell scheme. , 2015, , .		0
96	Three-dimensional, high-order semi-implicit particle-in-cell solver based on a Discontinuous Galerkin Spectral Element Method. , 2015, , .		0
97	Aeroacoustic Tonal Noise Generation Analysis on a Simplified Side-View Mirror Using a High Order Discontinuous Galerkin Spectral Element Method. , 2016, , .		0
98	Implicit time integration for particle treatment within a Particle-in-Cell solver. , 2016, , .		0
99	Leading-Edge Receptivity to Free-Stream Vorticity of Streamwise Corner-Flow. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2016, , 259-268.	0.3	0
100	PIC-DSMC simulations of plasma plume expansions with ionization and recombination processes. , 2016, , .		0
101	COMPARISON of SUBCRITICAL INTERFACE APPROXIMATIONS at HIGH TEMPERATURE and PRESSURE CONDITIONS. , 2017, , .		0
102	Atomistic Simulations: The Driving Force Behind Modern Thermodynamic Research. , 2021, , 569-581.		0
103	Uncertainty Quantification in High Performance Computational Fluid Dynamics. , 2021, , 355-371.		0
104	A Numerical Diffusion Flux Based on the Diffusive Riemannproblem. , 2009, , 127-132.		0
105	Arbitrary High Order Finite Volume Schemes on Unstructured Meshes. , 2009, , 221-227.		0
106	Explicit One-Step Discontinuous Galerkin Schemes for Unsteady Flow Simulations. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2010, , 53-65.	0.3	0
107	Local Time-Stepping for Explicit Discontinuous Galerkin Schemes. , 2011, , 171-177.		0
108	Enhanced Accuracy for Finite-Volume and Discontinuous Galerkin Schemes via Non-intrusive Corrections. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2013, , 267-282.	0.3	0

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109	A Combined Finite Volume Discontinuous Galerkin Approach for the Sharp-Interface Tracking in Multi-Phase Flow. Springer Proceedings in Mathematics and Statistics, 2014, , 911-918.	0.2	0
110	Godunov-Type Schemes for Diffusion and Advection-Diffusion. , 2020, , 209-215.		0