

# Graham V Candler

## List of Publications by Year in descending order

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155  
papers

7,445  
citations

66315

42  
h-index

58549

82  
g-index

156  
all docs

156  
docs citations

156  
times ranked

1692  
citing authors

#	ARTICLE	IF	CITATIONS
1	Data-Parallel Line Relaxation Method for the Navier-Stokes Equations. AIAA Journal, 1998, 36, 1603-1609.	1.5	774
2	Review of chemical-kinetic problems of future NASA missions. II - Mars entries. Journal of Thermophysics and Heat Transfer, 1994, 8, 9-23.	0.9	660
3	The solution of the Navier-Stokes equations using Gauss-Seidel line relaxation. Computers and Fluids, 1989, 17, 135-150.	1.3	429
4	Computation of weakly ionized hypersonic flows in thermochemical nonequilibrium. Journal of Thermophysics and Heat Transfer, 1991, 5, 266-273.	0.9	330
5	A fully discrete, kinetic energy consistent finite-volume scheme for compressible flows. Journal of Computational Physics, 2009, 228, 1347-1364.	1.9	278
6	Predicting failure of the continuum fluid equations in transitional hypersonic flows. Physics of Fluids, 1995, 7, 210-219.	1.6	277
7	Thermal rate constants of the $N_2+O^+ \rightarrow NO+N$ reaction using ab initio $3A^{\prime\prime}$ and $3A^{\prime}$ potential energy surfaces. Journal of Chemical Physics, 1996, 104, 2825-2833.	1.2	203
8	An improved potential energy surface and multi-temperature quasiclassical trajectory calculations of $N_2 + N_2$ dissociation reactions. Journal of Chemical Physics, 2015, 143, 054304.	1.2	178
9	Data-parallel lower-upper relaxation method for the Navier-Stokes equations. AIAA Journal, 1996, 34, 1371-1377.	1.5	163
10	Numerical study of hypersonic reacting boundary layer transition on cones. Physics of Fluids, 1998, 10, 2676-2685.	1.6	159
11	Thermal rate constants of the $O_2+N^+ \rightarrow NO+O$ reaction based on the $A_2^{\prime\prime}$ and $A_4^{\prime\prime}$ potential-energy surfaces. Journal of Chemical Physics, 1997, 107, 6136-6145.	1.2	151
12	Rate Effects in Hypersonic Flows. Annual Review of Fluid Mechanics, 2019, 51, 379-402.	10.8	137
13	Effect of Vibrational Nonequilibrium on Hypersonic Double-Cone Experiments. AIAA Journal, 2003, 41, 2162-2169.	1.5	136
14	Development of the US3D Code for Advanced Compressible and Reacting Flow Simulations. , 2015, , .		129
15	Direct Simulation Methods for Low-Speed Microchannel Flows. Journal of Thermophysics and Heat Transfer, 2000, 14, 368-378.	0.9	120
16	Effects of Numerics on Navier-Stokes Computations of Hypersonic Double-Cone Flows. AIAA Journal, 2005, 43, 616-623.	1.5	118
17	Modeling shock unsteadiness in shock/turbulence interaction. Physics of Fluids, 2003, 15, 2290-2297.	1.6	113
18	Linear Stability of Hypersonic Flow in Thermochemical Nonequilibrium. AIAA Journal, 1997, 35, 958-964.	1.5	106

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19	Numerical Studies of Laser-Induced Energy Deposition for Supersonic Flow Control. AIAA Journal, 2004, 42, 2266-2275.	1.5	103
20	Numerical study of inviscid shock interactions on double-wedge geometries. Journal of Fluid Mechanics, 1997, 352, 1-25.	1.4	101
21	Data-parallel lower-upper relaxation method for reacting flows. AIAA Journal, 1994, 32, 2380-2386.	1.5	93
22	A hybrid continuum/particle approach for modeling subsonic, rarefied gas flows. Journal of Computational Physics, 2004, 194, 256-277.	1.9	93
23	Modeling the Effect of Shock Unsteadiness in Shock/ Turbulent Boundary-Layer Interactions. AIAA Journal, 2005, 43, 586-594.	1.5	87
24	Dissociation modeling in low density hypersonic flows of air. Physics of Fluids, 1995, 7, 1757-1763.	1.6	75
25	Hybrid Reynolds-Averaged and Large-Eddy Simulation of Normal Injection into a Supersonic Crossflow. Journal of Propulsion and Power, 2010, 26, 533-544.	1.3	75
26	Reattachment streaks in hypersonic compression ramp flow: an input-output analysis. Journal of Fluid Mechanics, 2019, 880, 113-135.	1.4	71
27	Direct numerical simulation of high-speed transition due to an isolated roughness element. Journal of Fluid Mechanics, 2014, 748, 848-878.	1.4	68
28	Detailed simulation of nitrogen dissociation in stagnation regions. Physics of Fluids, 1997, 9, 2108-2117.	1.6	65
29	Finite-Rate Oxidation Model for Carbon Surfaces from Molecular Beam Experiments. AIAA Journal, 2017, 55, 1644-1658.	1.5	61
30	Computation of Rarefied Gas Flows Around a NACA 0012 Airfoil. AIAA Journal, 2001, 39, 618-625.	1.5	60
31	Boundary-Layer Stability Calculations for the HIFiRE-1 Transition Experiment. Journal of Spacecraft and Rockets, 2008, 45, 1125-1133.	1.3	60
32	Examination of theory for bow shock ultraviolet rocket experiments. II. Journal of Thermophysics and Heat Transfer, 1994, 8, 453-459.	0.9	57
33	Characterization of Freestream Disturbances in Conventional Hypersonic Wind Tunnels. Journal of Spacecraft and Rockets, 2019, 56, 357-368.	1.3	55
34	Simulation and stability analysis of oblique shock-wave/boundary-layer interactions at Mach 5.92. Physical Review Fluids, 2018, 3, .	1.0	54
35	Measurements of ultraviolet radiation from a 5-km/s bow shock. Journal of Thermophysics and Heat Transfer, 1994, 8, 441-446.	0.9	52
36	Kinetics of the N <sub>2</sub> + O yields NO + N reaction under thermodynamic nonequilibrium. Journal of Thermophysics and Heat Transfer, 1996, 10, 148-154.	0.9	52

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37	Effect of chemical reactions on decaying isotropic turbulence. <i>Physics of Fluids</i> , 1998, 10, 1715-1724.	1.6	52
38	Direct Simulation of Hypersonic Crossflow Instability on an Elliptic Cone. <i>AIAA Journal</i> , 2017, 55, 1769-1782.	1.5	52
39	Examination of theory for bow shock ultraviolet rocket experiments. I. <i>Journal of Thermophysics and Heat Transfer</i> , 1994, 8, 447-452.	0.9	50
40	Experimental and Computational Study of High Enthalpy Double-Wedge Flows. <i>Journal of Thermophysics and Heat Transfer</i> , 1999, 13, 431-440.	0.9	50
41	Monte Carlo modeling of nitric oxide formation based on quasi-classical trajectory calculations. <i>Physics of Fluids</i> , 1997, 9, 1162-1170.	1.6	48
42	Advances in Computational Fluid Dynamics Methods for Hypersonic Flows. <i>Journal of Spacecraft and Rockets</i> , 2015, 52, 17-28.	1.3	47
43	Potential energy surface fitting by a statistically localized, permutationally invariant, local interpolating moving least squares method for the many-body potential: Method and application to N <sub>4</sub> . <i>Journal of Chemical Physics</i> , 2014, 140, 054302.	1.2	43
44	Simulations of Mixing for Normal and Low-Angled Injection into a Supersonic Crossflow. <i>AIAA Journal</i> , 2011, 49, 2792-2804.	1.5	40
45	Flight measurements of low-velocity bow shock ultraviolet radiation. <i>Journal of Thermophysics and Heat Transfer</i> , 1993, 7, 37-41.	0.9	39
46	Vibrational energy conservation with vibration-dissociation coupling: General theory and numerical studies. <i>Physics of Fluids</i> , 1995, 7, 1764-1774.	1.6	39
47	Nonequilibrium flow through porous thermal protection materials, Part I: Numerical methods. <i>Journal of Computational Physics</i> , 2019, 380, 408-426.	1.9	39
48	Onset of three-dimensionality in supersonic flow over a slender double wedge. <i>Physical Review Fluids</i> , 2018, 3, .	1.0	39
49	Thermo-chemical nonequilibrium effects on the aerothermodynamics of aerobraking vehicles. <i>Journal of Spacecraft and Rockets</i> , 1993, 30, 647-655.	1.3	38
50	Simulation of hypersonic flows using a detailed nitric oxide formation model. <i>Physics of Fluids</i> , 1997, 9, 1171-1181.	1.6	34
51	Decoupled Implicit Method for Aerothermodynamics and Reacting Flows. <i>AIAA Journal</i> , 2013, 51, 1245-1254.	1.5	33
52	Nonequilibrium flow through porous thermal protection materials, Part II: Oxidation and pyrolysis. <i>Journal of Computational Physics</i> , 2019, 380, 427-441.	1.9	33
53	Quasiclassical Trajectory Analysis of Nitrogen for High-Temperature Chemical Kinetics. <i>Journal of Thermophysics and Heat Transfer</i> , 2018, 32, 833-845.	0.9	32
54	Implementation of a Chemical Kinetics Model for Hypersonic Flows in Air for High-Performance CFD. , 2020, , .		30

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55	Numerical Simulation of Gas Flow over Microscale Airfoils. Journal of Thermophysics and Heat Transfer, 2002, 16, 171-179.	0.9	29
56	A parallel implicit method for the direct numerical simulation of wall-bounded compressible turbulence. Journal of Computational Physics, 2006, 215, 153-171.	1.9	29
57	Numerical Simulation of Instabilities in the Boundary-Layer Transition Experiment Flowfield. Journal of Spacecraft and Rockets, 2021, 58, 90-99.	1.3	28
58	Rate-dependent energetic processes in hypersonic flows. Progress in Aerospace Sciences, 2015, 72, 37-48.	6.3	27
59	Subgrid-scale model for the temperature fluctuations in reacting hypersonic turbulent flows. Physics of Fluids, 1999, 11, 2765-2771.	1.6	26
60	Advanced Model of Nitric Oxide Formation in Hypersonic Flows. Journal of Thermophysics and Heat Transfer, 1998, 12, 214-222.	0.9	25
61	Wall-Modeled Large-Eddy Simulation of Autoignition-Dominated Supersonic Combustion. AIAA Journal, 2017, 55, 2410-2423.	1.5	25
62	Direct numerical simulation of BOLT hypersonic flight vehicle. , 2018, , .		25
63	US3D Predictions of Double-Cone and Hollow Cylinder-Flare Flows at High-Enthalpy (Invited). , 2014, , .		23
64	Direct Numerical Simulation of Mach 6 Flow over a Cone with a Highly Swept Fin. , 2018, , .		23
65	Direct numerical simulation of high-speed transition due to roughness elements. Journal of Fluid Mechanics, 2019, 868, 762-788.	1.4	23
66	A multiple translational temperature gas dynamics model. Physics of Fluids, 1994, 6, 3776-3786.	1.6	22
67	Examination of OH ultraviolet radiation from shock-heated air. Journal of Thermophysics and Heat Transfer, 1996, 10, 200-208.	0.9	22
68	Statistical Analyses of Quasiclassical Trajectory Data for Air Dissociation. , 2019, , .		22
69	Detached-Eddy Simulations of Hypersonic Capsule Wake Flow. AIAA Journal, 2015, 53, 70-80.	1.5	21
70	Computing Measured Spectra from Hypersonic Pitot Probes with Flow-Parallel Freestream Disturbances. AIAA Journal, 2017, 55, 4155-4166.	1.5	21
71	Vibrational Modeling of CO2 in High-Enthalpy Nozzle Flows. Journal of Thermophysics and Heat Transfer, 2010, 24, 9-17.	0.9	20
72	Understanding effects of nose-cone bluntness on hypersonic boundary layer transition using input-output analysis. , 2018, , .		19

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73	Input-Output Analysis of Shock Boundary Layer Interaction. , 2018, , .		18
74	Simulations of Unsteady Three-Dimensional Hypersonic Double-Wedge Flow Experiments. AIAA Journal, 2020, 58, 4055-4067.	1.5	18
75	Analysis of thermochemical nonequilibrium models for carbon dioxide flows. AIAA Journal, 1993, 31, 2255-2262.	1.5	17
76	An Improved Ducros Sensor for the Simulation of Compressible Flows with Shocks. , 2018, , .		17
77	Subgrid-scale effects in compressible variable-density decaying turbulence. Journal of Fluid Mechanics, 2018, 846, 428-459.	1.4	17
78	Analysis of Crossflow Instability on HIFiRE-5 using Direct Numerical Simulation. , 2015, , .		15
79	Characterization of Carbon Ablation Models Including Effects of Gas-Phase Chemical Kinetics. Journal of Thermophysics and Heat Transfer, 2017, 31, 512-526.	0.9	15
80	Vehicle-Scale Simulations of Hypersonic Flows using the MMT Chemical Kinetics Model. , 2020, , .		15
81	Numerical Investigation of Unsteady Heat Transfer on a Double Wedge Geometry in Hypervelocity Flows. , 2014, , .		14
82	Boundary-Layer Stability Analysis of the High Enthalpy Shock Tunnel Transition Experiments. Journal of Spacecraft and Rockets, 2014, 51, 455-467.	1.3	14
83	Detached-Eddy Simulation of Capsule Wake Flows and Comparison to Wind-Tunnel Test Data. Journal of Spacecraft and Rockets, 2015, 52, 439-449.	1.3	14
84	Instabilities in Mach 6 Flow over a Cone with a Swept Fin. , 2018, , .		14
85	Implementation of a Nitrogen Chemical Kinetics Model Based on ab-Initio Data for Hypersonic CFD. , 2018, , .		14
86	Theory of plume radiance from the bow shock ultraviolet 2 rocket flight. Journal of Thermophysics and Heat Transfer, 1993, 7, 709-716.	0.9	12
87	Multispectral Shock-Layer Radiance from a Hypersonic Slender Body. Journal of Thermophysics and Heat Transfer, 2000, 14, 237-243.	0.9	11
88	Boundary layer instabilities on BoLT subscale geometry. , 2019, , .		11
89	Overlay Method for Calculating Excited State Species Properties in Hypersonic Flows. AIAA Journal, 1997, 35, 288-294.	1.5	10
90	Quasiclassical Trajectory Analysis of the N <sub>2</sub> + N <sub>2</sub> Reaction Using a New Ab Initio Potential Energy Surface. , 2014, , .		10

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91	Optimal spatial growth of streaks in oblique shock/boundary layer interaction. , 2017, , .		10
92	Transient growth analysis of oblique shock-wave/boundary-layer interactions at Mach 5.92. Physical Review Fluids, 2020, 5, .	1.0	10
93	CFD Methods for Hypersonic Flows and Aerothermodynamics. , 2015, , 203-237.		9
94	Computational-Fluid-Dynamics-Based Axisymmetric Aeroshell Shape Optimization in Hypersonic Entry Conditions. Journal of Spacecraft and Rockets, 2015, 52, 76-88.	1.3	9
95	Computations of Measured Pitot-Probe Spectra using Angled Freestream Disturbances and Comparisons to Experiments. , 2019, , .		9
96	Detached Eddy Simulations and Reynolds-Averaged Navier- Stokes Calculations of a Spinning Projectile. Journal of Spacecraft and Rockets, 2008, 45, 935-945.	1.3	8
97	In situ plume radiance measurements from the bow shock ultraviolet 2rocket flight. Journal of Thermophysics and Heat Transfer, 1993, 7, 704-708.	0.9	7
98	Comparison of theory with atomic oxygen radiance data from a rocket flight. Journal of Thermophysics and Heat Transfer, 1995, 9, 629-635.	0.9	7
99	Laminar-to-turbulent transitions over an ablating reentry capsule. Acta Astronautica, 2000, 47, 745-751.	1.7	7
100	Energy Bin Model for High-Enthalpy Flows Using Prior Recombination Distribution. Journal of Thermophysics and Heat Transfer, 2012, 26, 545-558.	0.9	7
101	Microscale Simulations of Porous TPS Materials: Application to Permeability. , 2014, , .		7
102	Quasiclassical Trajectory Analysis of N2+O2 and Implications for Hypersonic CFD. , 2017, , .		7
103	Scalar conservation and boundedness in simulations of compressible flow. Journal of Computational Physics, 2017, 348, 827-846.	1.9	7
104	Scalar Conservation in Large Eddy Simulations of Reacting Flows. , 2014, , .		6
105	Parallelization of Unsteady Adaptive Mesh Refinement for Unstructured Navier-Stokes Solvers. , 2014, , .		6
106	Thermal non-equilibrium effects in turbulent compressible shear flows. , 2015, , .		6
107	Interaction of an oblique shock with a transitional Mach 5.92 boundary layer. , 2016, , .		6
108	Study of Trip-Induced Hypersonic Boundary Layer Transition. , 2017, , .		6

#	ARTICLE	IF	CITATIONS
109	LES of Subsonic Reacting Mixing Layers. Flow, Turbulence and Combustion, 2020, 104, 947-976.	1.4	6
110	Numerical Simulations of Shock Propagation Under Strong Nonequilibrium Conditions. Journal of Thermophysics and Heat Transfer, 2020, 34, 556-569.	0.9	6
111	Assessment of Linear Methods for Analysis of Boundary Layer Instabilities on a Finned Cone at Mach 6. , 2022, , .		6
112	Comparison of CFD and theoretical post-shock gradients in hypersonic flow. Progress in Aerospace Sciences, 2010, 46, 81-88.	6.3	5
113	Direct Numerical Simulation of Roughness-Induced Transition in the VKI Mach 6 Tunnel. , 2015, , .		5
114	Recovery of Freestream Acoustic Disturbances from Stagnation Pressure Spectrum in Hypersonic Flow. , 2016, , .		5
115	Direct Numerical Simulation of Crossflow Instability Excited by Microscale Roughness on HIFiRE-5. , 2016, , .		5
116	Three-Dimensional Simulations of Hypersonic Double Wedge Flow Experiments. , 2017, , .		5
117	Sensitivity of hypersonic flows to distributed surface roughness using input-output analysis. , 2018, , .		5
118	Numerical Simulation of Hypersonic Shock Wave???Boundary-Layer Interactions. , 0, , 314-335.		4
119	LES of a high-Reynolds number, chemically reacting mixing layer. , 2013, , .		4
120	Computational Verification of Acoustic Damping in High-Enthalpy Environments. AIAA Journal, 2014, 52, 2615-2618.	1.5	4
121	Direct Numerical Simulation of Trip Induced Transition. , 2016, , .		4
122	LES of the Volvo Combustion Experiment with an Ignition-Delay Variable. , 2018, , .		4
123	Effects of Freestream Reynolds Number and Trip Height on High-Speed Transition. , 2018, , .		4
124	Computational Study of Flow on a Sliced Cone-Flap Geometry. , 2018, , .		4
125	Receptivity analysis of BOLT to distributed surface roughness using input-output analysis. , 2019, , .		4
126	Estimation of inflow uncertainties in laminar hypersonic double-cone experiments. , 2019, , .		4



#	ARTICLE	IF	CITATIONS
127	A coupled ablation approach using Icarus and US3D. , 2021, , .		4
128	Adaptive Mesh Refinement in US3D. , 2021, , .		4
129	Modal Analysis of Instabilities in the BoLT-2 Flowfield. , 2022, , .		4
130	LES of Reacting Mixing Layers: Species Concentration Boundedness and Inflow Conditions. , 2015, , .		3
131	Finite-rate oxidation model for carbon surfaces from molecular beam experiments. , 2016, , .		3
132	Numerical Simulation of Propagation of Strong Shock Waves. , 2017, , .		3
133	Large Eddy Simulation of Supersonic Combustion using the Flamelet/Progress-Variable Approach and the Evolution-Variable Manifold Approach. , 2019, , .		3
134	A frequency domain analysis of compressible linearized Navier-Stokes equations in a hypersonic compression ramp flow. , 2020, , .		3
135	Three-dimensionality in shock/boundary layer interactions: a numerical and experimental investigation. , 2020, , .		3
136	Effect of steady forcing on BoLT flowfield for flight Reynolds numbers. , 2020, , .		3
137	Hypersonic simulations of the BoLT-II subscale geometry. , 2021, , .		3
138	Numerical Investigation of Nosedtip Bluntness Effects on Cone Frustum Boundary Layer Transition in Hypersonic Flow. , 2022, , .		3
139	Implementation of Adaptive Mesh Refinement in an Implicit Unstructured Finite-Volume Flow Solver. , 2013, , .		2
140	Large-Eddy Simulation of Supersonic Reacting Mixing Layers. , 2014, , .		2
141	Baroclinic Torque and Implications for Subgrid-Scale Modeling. , 2014, , .		2
142	Application of the Evolution-Variable Manifold Approach to Cavity-Stabilized Ethylene Combustion. , 2016, , .		2
143	Numerical Study of Trip Spacing in Hypersonic Boundary Layer Transition. , 2018, , .		2
144	The Influence of Computer Architecture on Performance and Scaling for Hypersonic Flow Simulations. , 2021, , .		2

#	ARTICLE	IF	CITATIONS
145	Large-Eddy Simulation of Autoignition-Dominated Supersonic Combustion. , 2015, , .		1
146	Sensitivity analysis for the control of oblique shock wave/laminar boundary layer interactions at Mach 5.92. , 2017, , .		1
147	Wall-Modeled Large Eddy Simulation of Supersonic Combustion using Flamelet/Progress-Variable Modeling. , 2018, , .		1
148	Görtler instability analysis of Mach 6 flow on a flared axisymmetric cone with and without suction. , 2019, , .		1
149	Input-output analysis for Görtler-type instability in axisymmetric hypersonic boundary-layers. , 2020, , .		1
150	Investigation of Atmospheric Turbulence and Shock Interaction for a Hypersonic Sphere-Cone. , 2021, , .		1
151	Simulation of Drogue Parachute for the Multi-Purpose Crew Vehicle using Computational Fluid Dynamics. , 2013, , .		0
152	Rate-Dependent Energetic Processes in Hypersonic Flows. , 2013, , .		0
153	Transient growth in oblique shock wave/laminar boundary layer interactions at Mach 5.92. , 2018, , .		0
154	Stability Analysis of HIFiRE 1 with Flight Wall Temperatures. , 2020, , .		0
155	Wake-Fabric Interactions in ADEPT-Venus. , 2013, , .		0