James C Sutherland

List of Publications by Year
in descending order

46 papers	1,364 citations	516215 16 h-index	344852 36 g-index
47 all docs	47 docs citations	47 times ranked	826 citing authors

#	Article	IF	Citations
1	Scalar mixing in direct numerical simulations of temporally evolving plane jet flames with skeletal CO/H2 kinetics. Proceedings of the Combustion Institute, 2007, 31, 1633-1640.	2.4	192
2	Improved boundary conditions for viscous, reacting, compressible flows. Journal of Computational Physics, 2003, 191, 502-524.	1.9	143
3	Combustion modeling using principal component analysis. Proceedings of the Combustion Institute, 2009, 32, 1563-1570.	2.4	121
4	A comparison of various models in predicting ignition delay in single-particle coal combustion. Combustion and Flame, 2014, 161, 1900-1910.	2.8	99
5	Principal component analysis of turbulent combustion data: Data pre-processing and manifold sensitivity. Combustion and Flame, 2013, 160, 340-350.	2.8	89
6	Direct numerical simulation of turbulent combustion: fundamental insights towards predictive models. Journal of Physics: Conference Series, 2005, 16, 65-79.	0.3	88
7	Investigation of the MILD combustion regime via Principal Component Analysis. Proceedings of the Combustion Institute, 2011, 33, 3333-3341.	2.4	81
8	Quantification of differential diffusion in nonpremixed systems. Combustion Theory and Modelling, 2005, 9, 365-383.	1.0	57
9	Scalable Tools for Generating Synthetic Isotropic Turbulence with Arbitrary Spectra. AIAA Journal, 2017, 55, 327-331.	1.5	57
10	An evaluation of the one-dimensional turbulence model: Comparison with direct numerical simulations of CO/H2 jets with extinction and reignition. Proceedings of the Combustion Institute, 2011, 33, 1515-1522.	2.4	45
11	Advanced regression methods for combustion modelling using principal components. Combustion and Flame, 2015, 162, 2592-2601.	2.8	37
12	A filter-independent model identification technique for turbulent combustion modeling. Combustion and Flame, 2012, 159, 1960-1970.	2.8	35
13	An a-posteriori evaluation of principal component analysis-based models for turbulent combustion simulations. Combustion and Flame, 2015, 162, 4025-4035.	2.8	23
14	Graph-Based Software Design for Managing Complexity and Enabling Concurrency in Multiphysics PDE Software. ACM Transactions on Mathematical Software, 2012, 39, 1-21.	1.6	19
15	Large Scale Parallel Solution of Incompressible Flow Problems Using Uintah and Hypre. , 2013, , .		19
16	A comparative study of thermochemistry models for oxy-coal combustion simulation. Combustion and Flame, 2015, 162, 4016-4024.	2.8	19
17	Mitigation strategies for airborne disease transmission in orchestras using computational fluid dynamics. Science Advances, 2021, 7, .	4.7	19
18	An evaluation of the efficacy of various coal combustion models for predicting char burnout. Fuel, 2017, 201, 53-64.	3.4	17

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19	PCAfold: Python software to generate, analyze and improve PCA-derived low-dimensional manifolds. SoftwareX, 2020, 12, 100630.	1.2	17
20	A quantitative method for a priori evaluation of combustion reaction models. Combustion Theory and Modelling, 2007, 11, 287-303.	1.0	16
21	Prediction of oxy-coal flame stand-off using high-fidelity thermochemical models and the one-dimensional turbulence model. Proceedings of the Combustion Institute, 2015, 35, 2829-2837.	2.4	12
22	Comment on â€œDiffusion by a random velocity fieldâ€•[Phys. Fluids 13, 22 (1970)]. Physics of Fluids, 2016, 28, .	1.6	12
23	Manifold-informed state vector subset for reduced-order modeling. Proceedings of the Combustion Institute, 2023, 39, 5145-5154.	2.4	12
24	Wasatch: An architecture-proof multiphysics development environment using a Domain Specific Language and graph theory. Journal of Computational Science, 2016, 17, 639-646.	1.5	11
25	A modified many-body dissipative particle dynamics model for mesoscopic fluid simulation: methodology, calibration, and application for hydrocarbon and water. Molecular Simulation, 2021, 47, 363-375.	0.9	11
26	Low-cost Runge-Kutta integrators for incompressible flow simulations. Journal of Computational Physics, 2021, 443, 110518.	1.9	10
27	The One-Dimensional-Turbulence Model. Fluid Mechanics and Its Applications, 2011, , 249-276.	0.1	10
28	Nebo: An efficient, parallel, and portable domain-specific language for numerically solving partial differential equations. Journal of Systems and Software, 2017, 125, 389-400.	3.3	9
29	On the consistency of state vectors and Jacobian matrices. Combustion and Flame, 2018, 193, 257-271.	2.8	9
30	A technique for characterising feature size and quality of manifolds. Combustion Theory and Modelling, 2021, 25, 646-668.	1.0	9
31	The effect of model fidelity on prediction of char burnout for single-particle coal combustion. Proceedings of the Combustion Institute, 2017, 36, 2165-2172.	2.4	8
32	Dual timestepping methods for detailed combustion chemistry. Combustion Theory and Modelling, 2017, 21, 329-345.	1.0	7
33	Additional criteria for MILD coal combustion. Proceedings of the Combustion Institute, 2021, 38, 4233-4240.	2.4	7
34	One-Dimensional Modeling of Turbulent Premixed Jet Flames - Comparison to DNS. Flow, Turbulence and Combustion, 2016, 97, 913-930.	1.4	6
35	A Fast Turbulence Generator using Graphics Processing Units. , 2018, , .		6
36	Assessment of various tar and soot treatment methods and a priori analysis of the steady laminar flamelet model for use in coal combustion simulation. Fuel, 2020, 265, 116775.	3.4	6

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37	Computational modeling and experiments of an elastoviscoplastic fluid in a thin mold-filling geometry. Journal of Non-Newtonian Fluid Mechanics, 2022, 307, 104851.	1.0	5
38	Reducing overhead in the Uintah framework to support short-lived tasks on GPU-heterogeneous architectures. , 2015, , .		4
39	Automatic Halo Management for the Uintah GPU-Heterogeneous Asynchronous Many-Task Runtime. International Journal of Parallel Programming, 2019, 47, 1086-1116.	1.1	4
40	Characterization of temperature criteria using gas-phase fuel streams for MILD coal combustion. Fuel, 2021, 296, 120445.	3.4	3
41	The Discrete Operator Approach to the Numerical Solution of Partial Differential Equations. , 2011, , .		2
42	PoKiTT: Exposing Task and Data Parallelism on Heterogeneous Architectures for Detailed Chemical Kinetics, Transport, and Thermodynamics Calculations. SIAM Journal of Scientific Computing, 2016, 38, S264-S281.	1.3	2
43	A Framework for Analyzing the Temporal Accuracy of Pressure Projection Methods. , 2019, , .		2
44	Characterizing Tradeoffs in Memory, Accuracy, and Speed for Chemistry Tabulation Techniques. Combustion Science and Technology, 2023, 195, 2614-2633.	1.2	2
45	State space parameterization of explosive eigenvalues during autoignition. Combustion and Flame, 2018, 196, 182-196.	2.8	1
46	PyModPDE: A python software for modified equation analysis. SoftwareX, 2020, 12, 100541.	1.2	1