Zhuyin Ren

List of Publications by Year
in descending order

121 papers	2,501 citations	172386 29 h-index	289141 40 g-index
121 all docs	121 docs citations	121 times ranked	1109 citing authors

#	Article	IF	Citations
1	An investigation of the performance of turbulent mixing models. Combustion and Flame, 2004, 136, 208-216.	2.8	89
2	The invariant constrained equilibrium edge preimage curve method for the dimension reduction of chemical kinetics. Journal of Chemical Physics, 2006, 124, 114111.	1.2	87
3	Analysis of air-staged combustion of NH3/CH4 mixture with low NOx emission at gas turbine conditions in model combustors. Fuel, 2019, 237, 50-59.	3.4	73
4	Second-order splitting schemes for a class of reactive systems. Journal of Computational Physics, 2008, 227, 8165-8176.	1.9	66
5	The use of dynamic adaptive chemistry and tabulation in reactive flow simulations. Combustion and Flame, 2014, 161, 127-137.	2.8	60
6	An experimental study of laminar ammonia/methane/air premixed flames using expanding spherical flames. Fuel, 2021, 290, 120003.	3.4	58
7	Combined dimension reduction and tabulation strategy using ISATâ€“RCCEâ€“GALI for the efficient implementation of combustion chemistry. Combustion and Flame, 2011, 158, 2113-2127.	2.8	55
8	A cell agglomeration algorithm for accelerating detailed chemistry in CFD. Combustion Theory and Modelling, 2009, 13, 721-739.	1.0	52
9	Dynamic adaptive chemistry for turbulent flame simulations. Combustion Theory and Modelling, 2013, 17, 167-183.	1.0	51
10	Dynamic adaptive chemistry with operator splitting schemes for reactive flow simulations. Journal of Computational Physics, 2014, 263, 19-36.	1.9	48
11	The use of slow manifolds in reactive flows. Combustion and Flame, 2006, 147, 243-261.	2.8	47
12	Reduced description of reactive flows with tabulation of chemistry. Combustion Theory and Modelling, 2011, 15, 827-848.	1.0	43
13	Cooling and coke deposition of hydrocarbon fuel with catalytic steam reforming. Fuel Processing Technology, 2014, 128, 128-133.	3.7	43
14	A dynamic adaptive method for hybrid integration of stiff chemistry. Combustion and Flame, 2015, 162, 287-295.	2.8	43
15	A greedy algorithm for species selection in dimension reduction of combustion chemistry. Combustion Theory and Modelling, 2010, 14, 619-652.	1.0	39
16	Computationally efficient implementation of combustion chemistry in parallel PDF calculations. Journal of Computational Physics, 2009, 228, 5490-5525.	1.9	38
17	Shared low-dimensional subspaces for propagating kinetic uncertainty to multiple outputs. Combustion and Flame, 2018, 190, 146-157.	2.8	38
18	Self-acceleration and global pulsation in hydrodynamically unstable expanding laminar flames. Combustion and Flame, 2018, 194, 419-425.	2.8	38

#	Article	IF	Citations
19	Quantifying kinetic uncertainty in turbulent combustion simulations using active subspaces. Proceedings of the Combustion Institute, 2019, 37, 2175-2182.	2.4	38
20	Species reconstruction using pre-image curves. Proceedings of the Combustion Institute, 2005, 30, 1293-1300.	2.4	36
21	Efficient Implementation of Chemistry in Computational Combustion. Flow, Turbulence and Combustion, 2009, 82, 437-453.	1.4	35
22	Flame Diagnostics with a Conservative Representation of Chemical Explosive Mode Analysis. AIAA Journal, 2019, 57, 1355-1363.	1.5	35
23	Uncertainty reduction in laminar flame speed extrapolation for expanding spherical flames. Combustion and Flame, 2018, 189, 155-162.	2.8	34
24	Dynamic adaptive combustion modeling of spray flames based on chemical explosive mode analysis. Combustion and Flame, 2018, 195, 30-39.	2.8	34
25	Application of the ICE-PIC method for the dimension reduction of chemical kinetics coupled with transport. Proceedings of the Combustion Institute, 2007, 31, 473-481.	2.4	33
26	Partially premixed flamelet modeling in a hydrogen-fueled supersonic combustor. International Journal of Hydrogen Energy, 2014, 39, 9497-9504.	3.8	33
27	Simulations of a turbulent non-premixed flame using combined dimension reduction and tabulation for combustion chemistry. Fuel, 2013, 105, 636-644.	3.4	32
28	Evolution of sensitivity directions during autoignition. Proceedings of the Combustion Institute, 2019, 37, 807-815.	2.4	32
29	Analysis of operator splitting errors for near-limit flame simulations. Journal of Computational Physics, 2017, 335, 578-591.	1.9	31
30	Performance of transported PDF mixing models in a turbulent premixed flame. Proceedings of the Combustion Institute, 2017, 36, 1987-1995.	2.4	30
31	Effect of turbulent mixing on the end gas auto-ignition of n-heptane/air mixtures under IC engine-relevant conditions. Combustion and Flame, 2016, 174, 25-36.	2.8	29
32	On the crossover temperature and lower turnover state in the NTC regime. Proceedings of the Combustion Institute, 2017, 36, 343-353.	2.4	29
33	Investigation of mixing model performance in transported PDF calculations of turbulent lean premixed jet flames through Lagrangian statistics and sensitivity analysis. Combustion and Flame, 2017, 181, 136-148.	2.8	28
34	Pulsating detonative combustion in n-heptane/air mixtures under off-stoichiometric conditions. Combustion and Flame, 2021, 226, 285-301.	2.8	28
35	Mechanical-Agitation-Assisted Growth of Large-Scale and Uniform ZnO Nanorod Arrays within 3D Multichannel Monolithic Substrates. Crystal Growth and Design, 2013, 13, 3657-3664.	1.4	27
36	Coke suppression of kerosene by wall catalytic steam reforming. Fuel Processing Technology, 2016, 154, 117-122.	3.7	27

#	Article	IF	Citations
37	A mixing timescale model for TPDF simulations of turbulent premixed flames. Combustion and Flame, 2017, 177, 171-183.	2.8	27
38	Transport-chemistry coupling in the reduced description of reactive flows. Combustion Theory and Modelling, 2007, 11, 715-739.	1.0	25
39	Kinetic Modeling of Thermal Oxidation and Coking Deposition in Aviation Fuel. Energy & Fuels, 2017, 31, 1399-1405.	2.5	25
40	A sparse stiff chemistry solver based on dynamic adaptive integration for efficient combustion simulations. Combustion and Flame, 2016, 172, 183-193.	2.8	24
41	Entropy production and element conservation in the quasi-steady-state approximation. Combustion and Flame, 2004, 137, 251-254.	2.8	23
42	Combustion stability analysis for non-standard low-calorific gases: Blast furnace gas and coke oven gas. Fuel, 2020, 278, 118216.	3.4	22
43	Sensitivity calculations in PDF modelling of turbulent flames. Proceedings of the Combustion Institute, 2009, 32, 1629-1637.	2.4	21
44	Numerical analysis of ignition and flame stabilization in an n-heptane spray flame. International Journal of Heat and Mass Transfer, 2015, 88, 565-571.	2.5	21
45	Extrapolation and DNS-mapping in determining laminar flame speeds of syngas/air mixtures. Combustion and Flame, 2019, 200, 365-373.	2.8	21
46	Modeling hemodynamics in an unoccluded and partially occluded inferior vena cava under rest and exercise conditions. Medical and Biological Engineering and Computing, 2012, 50, 277-287.	1.6	20
47	An analytic model for the effects of nitrogen dilution and premixing characteristics on NOx formation in turbulent premixed hydrogen flames. International Journal of Hydrogen Energy, 2017, 42, 7060-7070.	3.8	20
48	The geometry of reaction trajectories and attracting manifolds in composition space. Combustion Theory and Modelling, 2006, 10, 361-388.	1.0	19
49	Flow Pattern Effects on the Oxidation Deposition Rate of Aviation Kerosene. Energy & Fuels, 2015, 29, 6088-6094.	2.5	19
50	Effects of Spray and Turbulence Modelling on the Mixing and Combustion Characteristics of an n-heptane Spray Flame Simulated with Dynamic Adaptive Chemistry. Flow, Turbulence and Combustion, 2016, 97, 609-629.	1.4	19
51	Transported PDF simulation of turbulent CH4/H2 flames under MILD conditions with particle-level sensitivity analysis. Proceedings of the Combustion Institute, 2019, 37, 4487-4495.	2.4	19
52	A droplet/wall impact model and simulation of a bipropellant rocket engine. Aerospace Science and Technology, 2019, 88, 32-39.	2.5	19
53	Numerical analysis of gasification and emission characteristics of a two-stage entrained flow gasifier. Chemical Engineering Science, 2016, 152, 227-238.	1.9	18
54	Analysis and neural network prediction of combustion stability for industrial gases. Fuel, 2021, 287, 119507.	3.4	18

#	Article	IF	Citations
55	Numerical simulation of turbulent combustion: Scientific challenges. Science China: Physics, Mechanics and Astronomy, 2014, 57, 1495-1503.	2.0	17
56	Reduced Description of Complex Dynamics in Reactive Systems. Journal of Physical Chemistry A, 2007, 111, 8464-8474.	1.1	16
57	Scalable continuous flow synthesis of ZnO nanorod arrays in 3-D ceramic honeycomb substrates for low-temperature desulfurization. CrystEngComm, 2017, 19, 5128-5136.	1.3	16
58	Micromixing Models for PDF Simulations of Turbulent Premixed Flames. Combustion Science and Technology, 2019, 191, 1430-1455.	1.2	16
59	Flame speed scaling in autoignition-assisted freely propagating n-heptane/air flames. Proceedings of the Combustion Institute, 2021, 38, 2153-2161.	2.4	16
60	Effects of small-scale turbulence on NOx formation in premixed flame fronts. Fuel, 2014, 115, 241-247.	3.4	15
61	Differential Diffusion Modeling in LES/FDF Simulations of Turbulent Flames. AIAA Journal, 2019, 57, 3206-3212.	1.5	15
62	An evaluation of gas-phase micro-mixing models with differential mixing timescales in transported PDF simulations of sooting flame DNS. Proceedings of the Combustion Institute, 2021, 38, 2731-2739.	2.4	15
63	LES/TPDF investigation of the role of reaction and diffusion timescales in the stabilization of a jet-in-hot-coflow CH4/H2 flame. Combustion and Flame, 2020, 211, 477-492.	2.8	14
64	A particle mass-based implementation for mixing models with differential diffusion. Combustion and Flame, 2020, 214, 116-120.	2.8	14
65	Effects of evaporation on chemical reactions in counterflow spray flames. Physics of Fluids, 2021, 33, .	1.6	14
66	Large eddy simulation of turbulent premixed combustion using tabulated detailed chemistry and presumed probability density function. Journal of Turbulence, 2016, 17, 327-355.	0.5	13
67	Dynamic adaptive chemistry via species time-scale and Jacobian-aided rate analysis. Proceedings of the Combustion Institute, 2017, 36, 645-653.	2.4	13
68	Self-acceleration and global pulsation in expanding laminar H2â˜'O2â˜'N2 flames. Physical Review Fluids, 2019, 4, .	1.0	13
69	Modeling CO With Flamelet-Generated Manifolds: Part 1â€"Flamelet Configuration. , 2012, , .		12
70	A kinetics-based method for constraint selection in rate-controlled constrained equilibrium. Combustion Theory and Modelling, 2017, 21, 159-182.	1.0	12
71	On the determination of laminar flame speed from low-pressure and super-adiabatic propagating spherical flames. Proceedings of the Combustion Institute, 2019, 37, 1505-1512.	2.4	12
72	Investigation of Reactive Scalar Mixing in Transported PDF Simulations of Turbulent Premixed Methane-Air Bunsen Flames. Flow, Turbulence and Combustion, 2019, 103, 667-697.	1.4	12

#	Article	IF	Citations
73	The correlation of species concentration with heat release rate in an auto-igniting turbulent n-heptane spray flame. Fuel, 2020, 262, 116510.	3.4	12
74	Flow, mixing, and flame stabilization in bluff-body burner with decreased central jet velocity. Physics of Fluids, 2021, 33, .	1.6	12
75	An efficient time scale model with tabulation of chemical equilibrium. Combustion and Flame, 2011, 158, 1977-1979.	2.8	11
76	Decoupled Species and Reaction Reduction: An error-controlled method for Dynamic Adaptive Chemistry simulations. Combustion and Flame, 2015, 162, 1934-1943.	2.8	11
77	A spectral radius scaling semi-implicit iterative time stepping method for reactive flow simulations with detailed chemistry. Journal of Computational Physics, 2018, 368, 47-68.	1.9	11
78	Quantification of modeling uncertainties in turbulent flames through successive dimension reduction. Combustion and Flame, 2020, 222, 476-489.	2.8	11
79	Active Subspace Variation and Modeling Uncertainty in a Supersonic Flame Simulation. AIAA Journal, 2021, 59, 1798-1807.	1.5	11
80	Filtered Density Function Simulations of a Near-Limit Turbulent Lean Premixed Flame. Journal of Propulsion and Power, 2020, 36, 381-399.	1.3	11
81	Structure and propagation speed of autoignition-assisted flames of jet fuels. Combustion and Flame, 2022, 236, 111822.	2.8	11
82	Catalytic oxidation of methane over PdO in wire microcalorimetry. Combustion and Flame, 2013, 160, 149-154.	2.8	10
83	Dynamic adaptive acceleration of chemical kinetics with consistent error control. Combustion and Flame, 2018, 197, 389-399.	2.8	10
84	Modern Developments in Filtered Density Function. Heat and Mass Transfer, 2020, , 181-200.	0.2	10
85	Uncertainty analysis in mechanism reduction via active subspace and transition state analyses. Combustion and Flame, 2021, 227, 135-146.	2.8	10
86	On the modeling of scalar mixing timescale in filtered density function simulation of turbulent premixed flames. Physics of Fluids, 2020, 32, 115130.	1.6	10
87	Sensitivity calculations in PDF particle methods. Combustion and Flame, 2008, 153, 202-215.	2.8	9
88	Analysis of supersonic shear effects on flame characteristics of an evaporating flame-holder. Aerospace Science and Technology, 2021, 116, 106851.	2.5	9
89	Neural network PID control for combustion instability. Combustion Theory and Modelling, 2022, 26, 383-398.	1.0	9
90	SGD-based optimization in modeling combustion kinetics: Case studies in tuning mechanistic and hybrid kinetic models. Fuel, 2022, 324, 124560.	3.4	9

#	Article	IF	Citations
91	Toward Efficient Chemistry Calculations in Engine Simulations Through Static Adaptive Acceleration. Combustion Science and Technology, 2017, 189, 623-642.	1.2	8
92	Structural analysis and regime diagrams of laminar counterflow spray flames with low-temperature chemistry. Proceedings of the Combustion Institute, 2021, 38, 3193-3200.	2.4	8
93	Modeling turbulent transport effects on kernel formation and flame propagation in an ignition process. Chinese Journal of Aeronautics, 2019, 32, 895-905.	2.8	7
94	Extrapolation of Laminar Ethylene/Air Flame Speeds at Elevated Pressures with Flame Chemistry Analysis. Journal of Propulsion and Power, 2019, 35, 424-431.	1.3	7
95	Extrapolations of laminar flame speeds from expanding spherical flames based on the finite-structure stretched flames. Combustion and Flame, 2021, 226, 445-454.	2.8	7
96	Exploring active subspace for neural network prediction of oscillating combustion. Combustion Theory and Modelling, 2021, 25, 570-587.	1.0	7
97	Review of Lagrangian stochastic models for turbulent combustion. Acta Mechanica Sinica/Lixue Xuebao, 2021, 37, 1467.	1.5	7
98	Large Eddy Simulation of an n-Heptane Spray Flame with Dynamic Adaptive Chemistry under Different Oxygen Concentrations. SAE International Journal of Engines, 0, 8, 447-454.	0.4	6
99	Investigation of the Composition and Laminar Flame Speed of Pyrolysis Gases. Journal of Propulsion and Power, 2019, 35, 1065-1072.	1.3	6
100	An exponential distribution scheme for the two-way coupling in transported PDF method for dilute spray combustion. Combustion Theory and Modelling, 2020, 24, 105-128.	1.0	6
101	Dependence of kinetic sensitivity direction in premixed flames. Combustion and Flame, 2020, 220, 16-22.	2.8	6
102	Analysis of operating limits and combustion state regulation for low-calorific value gases in industrial burners. International Journal of Hydrogen Energy, 2022, 47, 1306-1318.	3.8	6
103	Assessment of Finite-Rate Chemistry Effects in a Turbulent Dilute Ethanol Spray Flame. Journal of Propulsion and Power, 2022, 38, 607-622.	1.3	6
104	Rate-controlled constrained equilibrium for large hydrocarbon fuels with NTC. Combustion Theory and Modelling, 2019, 23, 226-244.	1.0	5
105	A numerical study on flame and large-scale flow structures in bluff-body stabilized flames. Chinese Journal of Aeronautics, 2019, 32, 1646-1656.	2.8	5
106	A forced ignition probability analysis method using kernel formation analysis with turbulent transport and Lagrangian flame particle tracking. Chinese Journal of Aeronautics, 2021, 34, 403-415.	2.8	5
107	Explore artificial neural networks for solving complex hydrocarbon chemistry in turbulent reactive flows. Fundamental Research, 2022, 2, 595-603.	1.6	5
108	Large eddy simulation of a supersonic lifted hydrogen flame with sparse-Lagrangian multiple mapping conditioning approach. Combustion and Flame, 2022, 238, 111756.	2.8	5

#	Article	IF	Citations
109	Efficient emission modelling in lean premixed flames with pre-tabulated formation characteristics. Fuel, 2021, 301, 121043.	3.4	5
110	A mixing timescale model for differential mixing in transported probability density function simulations of turbulent non-premixed flames. Physics of Fluids, 2022, 34, 067122.	1.6	4
111	Active Control of Multiple Neural Networks for Oscillating Combustion. AIAA Journal, 2022, 60, 3821-3833.	1.5	3
112	A Lagrangian-based flame index for the transported probability density function method. Theoretical and Applied Mechanics Letters, 2021, , 100316.	1.3	3
113	Exploring the controlling mechanisms for gradient evolution in unsteady detonation flows. Physics of Fluids, 2022, 34, .	1.6	3
114	Modeling CO With Flamelet-Generated Manifolds: Part 2 â€" Application. , 2012, , .		2
115	Modelling ignition probability with pairwise mixing-reaction model for flame particle tracking. Chinese Journal of Aeronautics, 2021, 34, 523-534.	2.8	2
116	Global sensitivity analysis and uncertainty quantification of soot formation in an n-dodecane spray flame. Fuel, 2022, 320, 123855.	3.4	2
117	Assessment of critical species for differential mixing in transported PDF simulations of a non-premixed ethylene DNS flame. Combustion and Flame, 2022, 244, 112240.	2.8	2
118	Analysis of the Mixing and Emission Characteristics in a Model Combustor. , 2018, , .		1
119	Statistics and Dynamics of Instantaneous Leading Point in Nonpremixed Bluff-Body Flames. AIAA Journal, 2022, 60, 3324-3336.	1.5	1
120	Development of Reduced Order Model for the HNCERI Gasifier. , 2016, , 597-601.		0
121	HEEDS Optimized HyChem Mechanisms. , 2017, , .		0