Sergei M Frolov

List of Publications by Year
in descending order

142 papers	2,695 citations	279487 23 h-index	214527 47 g-index
145 all docs	145 docs citations	145 times ranked	688 citing authors

#	Article	IF	Citations
1	Pulse detonation propulsion: challenges, current status, and future perspective. Progress in Energy and Combustion Science, 2004, 30, 545-672.	15.8	724
2	Large-scale hydrogenâ€"air continuous detonation combustor. International Journal of Hydrogen Energy, 2015, 40, 1616-1623.	3.8	209
3	Gaseous detonationsâ€"A selective review. Progress in Energy and Combustion Science, 1991, 17, 327-371.	15.8	87
4	Experimental proof of Zel'dovich cycle efficiency gain over cycle with constant pressure combustion for hydrogenâ€"oxygen fuel mixture. International Journal of Hydrogen Energy, 2015, 40, 6970-6975.	3.8	64
5	Shock wave and detonation propagation through U-bend tubes. Proceedings of the Combustion Institute, 2007, 31, 2421-2428.	2.4	59
6	Hydrogen-fueled detonation ramjet model: Wind tunnel tests at approach air stream Mach number 5.7 and stagnation temperature 1500ÂK. International Journal of Hydrogen Energy, 2018, 43, 7515-7524.	3.8	59
7	Three-dimensional numerical simulation of the operation of a rotating-detonation chamber with separate supply of fuel and oxidizer. Russian Journal of Physical Chemistry B, 2013, 7, 35-43.	0.2	55
8	Continuous detonation combustion of ternary â€œhydrogenâ€"liquid propaneâ€"airâ€•mixture in annular combustor. International Journal of Hydrogen Energy, 2017, 42, 16808-16820.	3.8	54
9	Wind tunnel tests of a hydrogen-fueled detonation ramjet model at approach air stream Mach numbers from 4 to 8. International Journal of Hydrogen Energy, 2017, 42, 25401-25413.	3.8	51
10	Self-ignition of hydrocarbonâ€"hydrogenâ€"air mixtures. International Journal of Hydrogen Energy, 2013, 38, 4177-4184.	3.8	49
11	Liquid-Fueled, Air-Breathing Pulse Detonation Engine Demonstrator: Operation Principles and Performance. Journal of Propulsion and Power, 2006, 22, 1162-1169.	1.3	47
12	Detonation Initiation by Controlled Triggering of Electric Discharges. Journal of Propulsion and Power, 2003, 19, 573-580.	1.3	40
13	Air-breathing pulsed detonation thrust module: Numerical simulations and firing tests. Aerospace Science and Technology, 2019, 89, 275-287.	2.5	40
14	Reactive shock and detonation propagation in U-bend tubes. Journal of Loss Prevention in the Process Industries, 2007, 20, 501-508.	1.7	37
15	Fast deflagration-to-detonation transition. Russian Journal of Physical Chemistry B, 2008, 2, 442-455.	0.2	36
16	Three-dimensional numerical simulation of the characteristics of a ramjet power plant with a continuous-detonation combustor in supersonic flight. Russian Journal of Physical Chemistry B, 2016, 10, 469-482.	0.2	33
17	Three-dimensional numerical simulation of the operation process in a continuous detonation combustor with separate feeding of hydrogen and air. Russian Journal of Physical Chemistry B, 2015, 9, 104-119.	0.2	31
18	Three-dimensional numerical simulation of the operation of the rotating-detonation chamber. Russian Journal of Physical Chemistry B, 2012, 6, 276-288.	0.2	29

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19	Mechanisms of the oxidation and combustion of normal paraffin hydrocarbons: Transition from C1â€“C10 to C11â€“C16. Russian Journal of Physical Chemistry B, 2013, 7, 161-169.	0.2	29
20	Optimization study of spray detonation initiation by electric discharges. Shock Waves, 2005, 14, 175-186.	1.0	26
21	Demonstrator of continuous-detonation air-breathing ramjet: Wind tunnel data. Doklady Physical Chemistry, 2017, 474, 75-79.	0.2	26
22	Spray Detonation Initiation by Controlled Triggering of Electric Dischargers. Journal of Propulsion and Power, 2005, 21, 54-64.	1.3	25
23	Kinetics of â€²blue' flames in the gas-phase oxidation and combustion of hydrocarbons and their derivatives. Russian Chemical Reviews, 2007, 76, 867-884.	2.5	24
24	Energy efficiency of a continuous-detonation combustion chamber. Combustion, Explosion and Shock Waves, 2015, 51, 232-245.	0.3	24
25	Experimental and computational studies of shock wave-to-bubbly water momentum transfer. International Journal of Multiphase Flow, 2017, 92, 20-38.	1.6	23
26	Experimental proof of the energy efficiency of the Zelâ€™dovich thermodynamic cycle. Doklady Physical Chemistry, 2014, 459, 207-211.	0.2	22
27	Chemiionization and acoustic diagnostics of the process in continuous- and pulse-detonation combustors. Doklady Physical Chemistry, 2015, 465, 273-278.	0.2	22
28	Rocket Engine with Continuous Detonation Combustion of the Natural Gasâ€“Oxygen Propellant System. Doklady Physical Chemistry, 2018, 478, 31-34.	0.2	21
29	Flow Structure in Rotating Detonation Engine with Separate Supply of Fuel and Oxidizer: Experiment and CFD. Shock Wave and High Pressure Phenomena, 2018, , 39-59.	0.1	19
30	Rocket Engine with Continuously Rotating Liquid-Film Detonation. Combustion Science and Technology, 2020, 192, 144-165.	1.2	18
31	Formation of nitrogen oxides in detonation waves. Russian Journal of Physical Chemistry B, 2011, 5, 661-663.	0.2	17
32	Numerical simulation of flame propagation and localized preflame autoignition in enclosures. Journal of Loss Prevention in the Process Industries, 2013, 26, 302-309.	1.7	17
33	Gasification of low-melting hydrocarbon material in the airflow heated by hydrogen combustion. International Journal of Hydrogen Energy, 2020, 45, 9098-9112.	3.8	17
34	Hydrogen fueled detonation ramjet: Conceptual design and test fires at Mach 1.5 and 2.0. Aerospace Science and Technology, 2021, 109, 106459.	2.5	16
35	Deflagration-to-detonation transition in a kerosene-air mixture. Doklady Physical Chemistry, 2007, 416, 261-264.	0.2	15
36	The Influence of the Method of Supplying Fuel Components on the Characteristics of a Rotating Detonation Engine. Combustion Science and Technology, 2021, 193, 511-538.	1.2	15

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37	Deflagration-to-detonation transition in stochiometric mixtures of the binary methaneâ€“hydrogen fuel with air. International Journal of Hydrogen Energy, 2021, 46, 34046-34058.	3.8	14
38	Decreasing the predetonation distance in a drop explosive mixture by combined means. Doklady Physical Chemistry, 2005, 401, 28-31.	0.2	13
39	Initiation of strong reactive shocks and detonation by traveling ignition pulses. Journal of Loss Prevention in the Process Industries, 2006, 19, 238-244.	1.7	13
40	Reduction of the deflagration-to-detonation transition distance and time in a tube with regular shaped obstacles. Doklady Physical Chemistry, 2007, 415, 209-213.	0.2	13
41	Mechanism of the oxidation and combustion of normal paraffin hydrocarbons: Transition from C1â€“C6 to C7H16. Russian Journal of Physical Chemistry B, 2010, 4, 985-994.	0.2	13
42	Three-dimensional numerical simulation of a continuously rotating detonation in the annular combustion chamber with a wide gap and separate delivery of fuel and oxidizer. , 2016, , .		13
43	Simulation of the autoignition and combustion of n-heptane droplets using a detailed kinetic mechanism. Russian Journal of Physical Chemistry B, 2010, 4, 995-1004.	0.2	12
44	Numerical simulation of the operation process and thrust performance of an air-breathing pulse detonation engine in supersonic flight conditions. Russian Journal of Physical Chemistry B, 2011, 5, 597-609.	0.2	12
45	Continuous Detonation Combustion of Hydrogen: Results of Wind Tunnel Experiments. Combustion, Explosion and Shock Waves, 2018, 54, 357-363.	0.3	12
46	Gasification of Low-Melting Fuel in a High-Temperature Flow of Inert Gas. Journal of Propulsion and Power, 2021, 37, 20-28.	1.3	12
47	Propagation of shock and detonation waves in channels with U-shaped bends of limiting curvature. Russian Journal of Physical Chemistry B, 2008, 2, 759-774.	0.2	11
48	Pulse-detonation burner unit operating on natural gas. Russian Journal of Physical Chemistry B, 2011, 5, 625-627.	0.2	11
49	Detailed kinetic mechanism of the multistage oxidation and combustion of isobutane. Russian Journal of Physical Chemistry B, 2015, 9, 268-274.	0.2	11
50	How to utilize the kinetic energy of pulsed detonation products?. Applied Thermal Engineering, 2019, 147, 728-734.	3.0	11
51	Pulsed detonation hydroramjet: simulations and experiments. Shock Waves, 2020, 30, 221-234.	1.0	11
52	The mechanisms of oxidation and combustion of normal alkane hydrocarbons: The transition from C1â€“C3 to C4H10. Russian Journal of Physical Chemistry B, 2007, 2, 477-484.	0.2	10
53	Acceleration of the deflagration-to-detonation transition in gases: From Shchelkin to our days. Combustion, Explosion and Shock Waves, 2012, 48, 258-268.	0.3	10
54	Organic Waste Gasification: A Selective Review. Fuels, 2021, 2, 556-651.	1.3	10

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55	Measurement and computation of shock wave attenuation in a rough pipe. Combustion, Explosion and Shock Waves, 1990, 26, 335-338.	0.3	9
56	Air-Breathing Liquid-Fueled Pulse Detonation Engine Demonstrator. Doklady Physical Chemistry, 2005, 402, 93-95.	0.2	9
57	Detonation initiation in a natural gas-air mixture in a tube with a focusing nozzle. Doklady Physical Chemistry, 2011, 436, 10-14.	0.2	9
58	Thrust characteristics of an airbreathing pulse detonation engine in supersonic flight at various altitudes. Russian Journal of Physical Chemistry B, 2013, 7, 276-289.	0.2	9
59	Numerical simulation of momentum transfer from a shock wave to a bubbly medium. Russian Journal of Physical Chemistry B, 2015, 9, 363-374.	0.2	9
60	Breakthrough in the Theory of Ramjets. Russian Journal of Physical Chemistry B, 2021, 15, 318-325.	0.2	9
61	Initiation of Gaseous Detonation by a Traveling Forced Ignition Pulse. Doklady Physical Chemistry, 2004, 394, 16-18.	0.2	8
62	Detonation Initiation in Liquid Fuel Sprays by Successive Electric Discharges. Doklady Physical Chemistry, 2004, 394, 39-41.	0.2	8
63	Detonation initiation by shock wave interaction with the prechamber jet ignition zone. Doklady Physical Chemistry, 2006, 410, 255-259.	0.2	8
64	Initiation of heterogeneous detonation in tubes with coils and Shchelkin spiral. High Temperature, 2006, 44, 283-290.	0.1	8
65	Numerical simulation of shock and detonation waves in bubbly liquids. Shock Waves, 2020, 30, 263-271.	1.0	8
66	Production of highly superheated steam by cyclic detonations of propane- and methane-steam mixtures with oxygen for waste gasification. Applied Thermal Engineering, 2021, 183, 116195.	3.0	8
67	Polyethylene Pyrolysis Products: Their Detonability in Air and Applicability to Solid-Fuel Detonation Ramjets. Energies, 2021, 14, 820.	1.6	8
68	Modelling of Turbulent Gas/Particle Combustion by a Lagrangian PDF Method. Combustion Science and Technology, 1999, 149, 95-113.	1.2	7
69	Simple model of transient drop vaporization. Journal of Russian Laser Research, 2006, 27, 562-574.	0.3	7
70	Initiation of gas detonation in a tube with a shaped obstacle. Doklady Physical Chemistry, 2009, 427, 129-132.	0.2	7
71	Correlation between drop vaporization and self-ignition. Russian Journal of Physical Chemistry B, 2009, 3, 333-347.	0.2	7
72	Mechanisms of the oxidation and combustion of normal alkanes: Passage from C1-C4 to C2H5. Russian Journal of Physical Chemistry B, 2009, 3, 629-635.	0.2	7

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73	Mathematical modeling of the chemical inhibition of the detonation of hydrogen-air mixtures. Russian Journal of Physical Chemistry B, 2010, 4, 308-320.	0.2	7
74	Mechanisms of the oxidation and combustion of normal alkanes: Transition from C1â€“C5 to C6H14. Russian Journal of Physical Chemistry B, 2010, 4, 634-640.	0.2	7
75	Oxidation and combustion mechanisms of paraffin hydrocarbons: Transfer from C1-C7 to C8H18, C9H20, and C10H22. Russian Journal of Physical Chemistry B, 2011, 5, 974-990.	0.2	7
76	Natural-Gas-Fueled Pulse-Detonation Combustor. Journal of Propulsion and Power, 2014, 30, 41-46.	1.3	7
77	Thrust characteristics of a pulse detonation engine operating on a liquid hydrocarbon fuel. Russian Journal of Physical Chemistry B, 2016, 10, 291-297.	0.2	7
78	Wind Tunnel Testing of a Detonation Ramjet Model at Approach Air Stream Mach Number 5.7 and a Stagnation Temperature of 1500 K. Doklady Physical Chemistry, 2018, 481, 100-103.	0.2	7
79	Direct Numerical Simulation of Turbulent Combustion of Hydrogenâ€"Air Mixtures of Various Compositions in a Two-Dimensional Approximation. Russian Journal of Physical Chemistry B, 2019, 13, 75-85.	0.2	7
80	A Detonation Afterburner. Doklady Physics, 2020, 65, 36-39.	0.2	7
81	Interaction of a liquid film with a high-velocity gas flow behind a shock wave. Combustion, Explosion and Shock Waves, 1985, 20, 573-579.	0.3	6
82	A modified model of the ignition of a magnesium particle. Russian Journal of Physical Chemistry B, 2008, 2, 456-462.	0.2	6
83	Numerical and Experimental Investigation of Detonation Initiation in Profiled Tubes. Combustion Science and Technology, 2010, 182, 1735-1746.	1.2	6
84	Autoignition and combustion of hydrocarbon-hydrogen-air homogeneous and heterogeneous ternary mixtures. Russian Journal of Physical Chemistry B, 2013, 7, 457-462.	0.2	6
85	A detailed kinetic mechanism of multistage oxidation and combustion of isooctane. Russian Journal of Physical Chemistry B, 2016, 10, 801-809.	0.2	6
86	Thrust characteristics of an airbreathing pulse detonation engine in flight at mach numbers of 0.4 to 5.0. Russian Journal of Physical Chemistry B, 2016, 10, 272-283.	0.2	6
87	Deflagration-to-detonation transition in crossed-flow fast jets of propellant components. Doklady Physical Chemistry, 2017, 476, 153-156.	0.2	6
88	Hydrojet engine with pulse detonation combustion of liquid-fuel. Doklady Physical Chemistry, 2017, 475, 129-133.	0.2	6
89	Detonability of fuelâ€“air mixtures. Shock Waves, 2020, 30, 721-739.	1.0	6
90	Transition of deflagration to detonation in ethyleneâ€“hydrogenâ€“air mixtures. International Journal of Hydrogen Energy, 2022, 47, 16676-16685.	3.8	6

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91	Updated conceptual design of hydrogen/ethylene fueled detonation ramjet: Test fires at Mach 1.5, 2.0, and 2.5. Aerospace Science and Technology, 2022, 126, 107602.	2.5	6
92	Simple model of detonation in a gas-film system with consideration of mechanical fuel removal. Combustion, Explosion and Shock Waves, 1985, 21, 104-110.	0.3	5
93	Real-gas properties of n-alkanes, O2, N2, H2O, CO, CO2, and H2 for diesel engine operation conditions. Russian Journal of Physical Chemistry B, 2009, 3, 1191-1252.	0.2	5
94	Cyclic deflagration-to-detonation transition in the flow-type combustion chamber of a pulse-detonation burner. Russian Journal of Physical Chemistry B, 2013, 7, 137-141.	0.2	5
95	Momentum transfer from a shock wave to a bubbly liquid. Russian Journal of Physical Chemistry B, 2015, 9, 895-900.	0.2	5
96	Modeling of Low-temperature oxidation and combustion of droplets. Doklady Physical Chemistry, 2016, 470, 150-153.	0.2	5
97	Promotion of the self-ignition of fuelâ€"air mixtures with mechanoactivated Al (Mg)â€"MoO3 particles. Russian Journal of Physical Chemistry B, 2016, 10, 435-443.	0.2	5
98	Calculation of shock wave propagation in water containing reactive gas bubbles. Russian Journal of Physical Chemistry B, 2017, 11, 261-271.	0.2	5
99	Low-Temperature Flameless Combustion of a Large Drop of n-Dodecane under Microgravity Conditions. Russian Journal of Physical Chemistry B, 2018, 12, 245-257.	0.2	5
100	Reactor for Waste Gasification with Highly Superheated Steam. Doklady Physical Chemistry, 2020, 495, 191-195.	0.2	5
101	Natural Gas Conversion and Liquid/Solid Organic Waste Gasification by Ultra-Superheated Steam. Energies, 2022, 15, 3616.	1.6	5
102	Mechanisms of the amplification of a shock wave passing through a cool flame zone. Russian Journal of Physical Chemistry B, 2010, 4, 101-109.	0.2	4
103	Initiation of detonation in a tube with a profiled central body. Doklady Physical Chemistry, 2011, 438, 114-117.	0.2	4
104	Experimental demonstration of the operation process of a pulse-detonation liquid rocket engine. Russian Journal of Physical Chemistry B, 2011, 5, 664-667.	0.2	4
105	Analytical approximation of the thermal and caloric equations of state for real gases over a wide density and temperature range. Russian Journal of Physical Chemistry B, 2011, 5, 1084-1105.	0.2	4
106	Transient modes of propagation of the shock wave-reaction zone complex in methane-air mixtures. Russian Journal of Physical Chemistry B, 2014, 8, 158-164.	0.2	4
107	Stability of 2D two-phase reactive flows. European Physical Journal Special Topics, 2002, 12, 437-444.	0.2	3
108	Initiation of gaseous detonation in tubes with sharp U-bends. Doklady Physical Chemistry, 2008, 418, 22-25.	0.2	3

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109	The calculation of liquid-vapor phase equilibrium in H2O-H2O2 two-component system. High Temperature, 2008, 46, 775-781.	0.1	3
110	3D versus 2D calculation of thrust characteristics of the air-breathing pulse detonation engine under supersonic flight conditions. Russian Journal of Physical Chemistry B, 2014, 8, 859-862.	0.2	3
111	Detailed kinetic mechanism of the multistep oxidation and combustion of isopentane and isohexane. Russian Journal of Physical Chemistry B, 2015, 9, 933-939.	0.2	3
112	Deflagration-to-detonation transition in the gasâ€“liquid-fuel film system. Doklady Physical Chemistry, 2017, 474, 93-98.	0.2	3
113	Three-Dimensional Direct Numerical Simulation of Turbulent Combustion of Hydrogen-Air Mixtures in a Synthetic Turbulent Field. Russian Journal of Physical Chemistry B, 2019, 13, 636-645.	0.2	3
114	Deflagration-to-Detonation Transition in Air Mixtures of Polypropylene Pyrolysis Products. Doklady Physical Chemistry, 2019, 488, 129-133.	0.2	3
115	Pressure measurements in detonation engines. Proceedings of the Institution of Mechanical Engineers, Part G: Journal of Aerospace Engineering, 2021, 235, 2113-2134.	0.7	3
116	ÐœÐžÐ”Ð•Ð›Ð¬ Ð”Ð•Ð¢ÐžÐÐÐ¦Ð˜ÐžÐÐÐžÐ“Ðž ÐŸÐÐ¯ÐœÐžÐ¢ÐžÐ§ÐÐžÐ“Ðž Ð’ÐžÐ—Ð”Ð£Ð¨ÐÐž-Ð ÐÐšÐ•Ð¢ÐÐžÐ“Ðž Ð”Ð’Ð˜Ð	0.1	3
117	Pulsed combustion of fuelâ€“air mixture in a cavity above water surface: modeling and experiments. Shock Waves, 0, , 1.	1.0	3
118	Natural Gas Conversion and Organic Waste Gasification by Detonation-Born Ultra-Superheated Steam: Effect of Reactor Volume. Fuels, 2022, 3, 375-391.	1.3	3
119	Combustion science and problems of contemporary power engineering. Russian Journal of General Chemistry, 2009, 79, 2556-2561.	0.3	2
120	Deflagration-to-detonation transition in a high-velocity flow with separate delivery of fuel and oxidizer. Doklady Physical Chemistry, 2013, 449, 91-93.	0.2	2
121	3D simulation of hydrogen ignition in a rapid compression machine. Journal of Loss Prevention in the Process Industries, 2013, 26, 1558-1568.	1.7	2
122	Magnetohydrodynamic effects of heterogeneous spray detonation. Russian Journal of Physical Chemistry B, 2015, 9, 637-643.	0.2	2
123	Tests of the hydrogen-fueled detonation ramjet model in a wind tunnel with thrust measurements. AIP Conference Proceedings, 2017, , .	0.3	2
124	Well-posed Euler model of shock-induced two-phase flow in bubbly liquid. Shock Waves, 2018, 28, 253-266.	1.0	2
125	Cyclic Detonation of the Ternary Gas Mixture Propaneâ€“Oxygenâ€“Steam for Producing Highly Superheated Steam. Doklady Physical Chemistry, 2020, 490, 14-17.	0.2	2
126	Testing of hydrogen-fueled detonation ramjet in aerodynamic wind tunnel at Mach 1.5 and 2.0. AIP Conference Proceedings, 2021, , .	0.3	2

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127	HYDROGEN-FUELED RAMJET WITH AN ANNULAR DETONATIVE COMBUSTOR. , 2019, , .		2
128	Pulsed combustion of fuelâ€"air mixture in a cavity under the boat bottom: modeling and experiments. Shock Waves, 0, , 1.	1.0	2
129	Modelling of a turbulent reacting gas/particle flow. Acta Mechanica, 2000, 145, 45-63.	1.1	1
130	The pressureâ€"temperatureâ€"concentration correlation for aqueous solutions of hydroperoxide. High Temperature, 2006, 44, 47-56.	0.1	1
131	Kinetic nature of blue flames in the autoignition of methane. Russian Journal of Physical Chemistry B, 2014, 8, 326-331.	0.2	1
132	Promotion of the high-temperature autoignition of hydrogen-air and methane-air mixtures by normal alkanes. Russian Journal of Physical Chemistry B, 2015, 9, 250-254.	0.2	1
133	Rocket Engine with Continuous Film Detonation of Liquid Fuel. Doklady Physical Chemistry, 2018, 481, 105-109.	0.2	1
134	A Detailed Kinetic Mechanism of Multistage Oxidation and Combustion of Octanes. Russian Journal of Physical Chemistry B, 2018, 12, 448-457.	0.2	1
135	Transient combustion phenomena in high-speed flows in ducts. Shock Waves, 2020, 30, 245-261.	1.0	1
136	Deflagration-to-detonation Transition in Stratified Oxygen â€" Liquid Fuel Film Systems. Combustion Science and Technology, 2022, 194, 3432-3466.	1.2	1
137	Heat Capacities and Enthalpies of Normal Alkanes in an Ideal Gas State. Energies, 2021, 14, 2641.	1.6	1
138	Numerical Modeling of Gasification of Solid Hydracarbon Materials in a Heated-Inert-Gas Flow. Journal of Engineering Physics and Thermophysics, 2022, 95, 20-28.	0.2	1
139	Extension of the combustion limits for a porous burner by external heating. Doklady Physical Chemistry, 2006, 406, 43-48.	0.2	0
140	A model of laminar flames in droplet suspensions. Russian Journal of Physical Chemistry B, 2007, 2, 493-499.	0.2	0
141	Hydrogen-fueled detonation ramjet model: Wind tunnel tests. AIP Conference Proceedings, 2018, , .	0.3	0
142	Simulation of Multistage Autoignition in Diesel Engine Based on the Detailed Reaction Mechanism of Fuel Oxidation. Mechanisms and Machine Science, 2022, , 149-165.	0.3	0