

Francesco Nasuti

List of Publications by Year in descending order

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154
papers

2,737
citations

147801
31
h-index

223800
46
g-index

156
all docs

156
docs citations

156
times ranked

586
citing authors

#	ARTICLE	IF	CITATIONS
1	Material-dependent catalytic recombination modeling for hypersonic flows. Journal of Thermophysics and Heat Transfer, 1996, 10, 131-136.	1.6	117
2	Numerical Analysis of Deterioration in Heat Transfer to Near-Critical Rocket Propellants. Numerical Heat Transfer; Part A: Applications, 2010, 57, 297-314.	2.1	109
3	Numerical Analysis of Three-Dimensional Flow of Supercritical Fluid in Cooling Channels. AIAA Journal, 2009, 47, 2534-2543.	2.6	90
4	Numerical Analysis of Nozzle Material Thermochemical Erosion in Hybrid Rocket Engines. Journal of Propulsion and Power, 2013, 29, 547-558.	2.2	89
5	Thermochemical Erosion Analysis for Chraphite/Carbon-Carbon Rocket Nozzles. Journal of Propulsion and Power, 2011, 27, 197-205.	2.2	77
6	Onset of Heat Transfer Deterioration in Supercritical Methane Flow Channels. Journal of Thermophysics and Heat Transfer, 2013, 27, 298-308.	1.6	74
7	Analysis of unsteady supersonic viscous flows by a shock-fitting technique. AIAA Journal, 1996, 34, 1428-1434.	2.6	69
8	Coupled Analysis of Flow and Surface Ablation in Carbon-Carbon Rocket Nozzles. Journal of Spacecraft and Rockets, 2009, 46, 492-500.	1.9	65
9	Navier-Stokes Simulations of Hypersonic Flows with Coupled Graphite Ablation. Journal of Spacecraft and Rockets, 2010, 47, 554-562.	1.9	65
10	Chemical Erosion of Carbon-Phenolic Rocket Nozzles with Finite-Rate Surface Chemistry. Journal of Propulsion and Power, 2013, 29, 1220-1230.	2.2	61
11	CFD analysis of transcritical methane in rocket engine cooling channels. Journal of Supercritical Fluids, 2012, 62, 79-87.	3.2	60
12	Role of Wall Shape on the Transition in Axisymmetric Dual-Bell Nozzles. Journal of Propulsion and Power, 2005, 21, 243-250.	2.2	57
13	Hybrid Rockets with Axial Injector: Port Diameter Effect on Fuel Regression Rate. Journal of Propulsion and Power, 2016, 32, 984-996.	2.2	54
14	Viscous and Inviscid Vortex Generation During Startup of Rocket Nozzles. AIAA Journal, 1998, 36, 809-815.	2.6	53
15	Numerical Parametric Analysis of Dual-Bell Nozzle Flows. AIAA Journal, 2007, 45, 640-650.	2.6	52
16	Simulation of Gaseous Oxygen/Hydroxyl-Terminated Polybutadiene Hybrid Rocket Flowfields and Comparison with Experiments. Journal of Propulsion and Power, 2015, 31, 919-929.	2.2	51
17	Coupled Wall Heat Conduction and Coolant Flow Analysis for Liquid Rocket Engines. Journal of Propulsion and Power, 2013, 29, 34-41.	2.2	48
18	Trade-off analysis of high-aspect-ratio-cooling-channels for rocket engines. International Journal of Heat and Fluid Flow, 2013, 44, 458-467.	2.4	47

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19	Heat transfer modeling for supercritical methane flowing in rocket engine cooling channels. Applied Thermal Engineering, 2015, 75, 600-607.	6.0	47
20	A numerical approach for the study of the gas-surface interaction in carbon-phenolic solid rocket nozzles. Aerospace Science and Technology, 2013, 27, 25-31.	4.8	45
21	Carbon-Carbon Nozzle Erosion and Shape-Change Effects in Full-Scale Solid-Rocket Motors. Journal of Propulsion and Power, 2012, 28, 820-830.	2.2	44
22	Analysis of Curved-Cooling-Channel Flow and Heat Transfer in Rocket Engines. Journal of Propulsion and Power, 2011, 27, 1045-1053.	2.2	43
23	Conditions for the occurrence of heat transfer deterioration in light hydrocarbons flows. International Journal of Heat and Mass Transfer, 2013, 65, 599-609.	4.8	42
24	Chemical Reaction Effects on Heat Loads of CH ₄ /O ₂ and H ₂ /O ₂ Rockets. AIAA Journal, 2016, 54, 1693-1703.	2.6	39
25	Quasi-1D modeling of heat release for the study of longitudinal combustion instability. Aerospace Science and Technology, 2018, 75, 261-270.	4.8	39
26	Parametric Analysis of Heat Transfer to Supercritical-Pressure Methane. Journal of Thermophysics and Heat Transfer, 2012, 26, 450-463.	1.6	38
27	Numerical Analysis of Film Cooling in Advanced Rocket Nozzles. AIAA Journal, 2009, 47, 2558-2566.	2.6	37
28	Shock structure in separated nozzle flows. Shock Waves, 2009, 19, 229-237.	1.9	36
29	Analysis of In-Flight Behavior of Truncated Plug Nozzles. Journal of Propulsion and Power, 2001, 17, 809-817.	2.2	33
30	Effect of Cooling Channel Aspect Ratio on Rocket Thermal Behavior. Journal of Thermophysics and Heat Transfer, 2014, 28, 410-416.	1.6	33
31	Experimental investigation of transcritical methane flow in rocket engine cooling channel. Applied Thermal Engineering, 2016, 101, 61-70.	6.0	33
32	Methodology to Solve Flowfields of Plug Nozzles for Future Launchers. Journal of Propulsion and Power, 1998, 14, 318-326.	2.2	32
33	Convective and Radiative Wall Heat Transfer in Liquid Rocket Thrust Chambers. Journal of Propulsion and Power, 2018, 34, 318-326.	2.2	32
34	Coupled Heat Transfer Analysis in Regeneratively Cooled Thrust Chambers. Journal of Propulsion and Power, 2014, 30, 360-367.	2.2	30
35	Pseudo-boiling and heat transfer deterioration while heating supercritical liquid rocket engine propellants. Journal of Supercritical Fluids, 2021, 168, 105066.	3.2	30
36	Theoretical Analysis and Engineering Modeling of Flowfields in Clustered Module Plug Nozzles. Journal of Propulsion and Power, 1999, 15, 544-551.	2.2	29

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37	Numerical Evaluation of Heat Transfer Enhancement in Rocket Thrust Chambers by Wall Ribs. Numerical Heat Transfer; Part A: Applications, 2014, 66, 488-508.	2.1	29
38	CSP-based chemical kinetics mechanisms simplification strategy for non-premixed combustion: An application to hybrid rocket propulsion. Combustion and Flame, 2017, 186, 83-93.	5.2	29
39	Radius of Curvature Effects on Throat Thermochemical Erosion in Solid Rocket Motors. Journal of Spacecraft and Rockets, 2015, 52, 320-330.	1.9	28
40	A Quasi-2-D Model for the Prediction of the Wall Temperature of Rocket Engine Cooling Channels. Numerical Heat Transfer; Part A: Applications, 2011, 60, 1-24.	2.1	27
41	Radiation and Roughness Effects on Nozzle Thermochemical Erosion in Solid Rocket Motors. Journal of Propulsion and Power, 2014, 30, 314-324.	2.2	26
42	Experimental and numerical methods for radiative wall heat flux predictions in paraffin-based hybrid rocket engines. Acta Astronautica, 2019, 158, 304-312.	3.2	25
43	An Italian network to improve hybrid rocket performance: Strategy and results. Acta Astronautica, 2014, 96, 246-260.	3.2	24
44	Numerical Analysis of Paraffin-Wax/Oxygen Hybrid Rocket Engines. Journal of Propulsion and Power, 2020, 36, 806-819.	2.2	24
45	Navier-Stokes Simulation of Graphite Nozzle Erosion at Different Pressure Conditions. AIAA Journal, 2015, 53, 356-366.	2.6	23
46	Evaluation of turbulence modeling in supersonic afterbody computations. , 2001, , .		22
47	Detached-Eddy Simulation of Shock Unsteadiness in an Overexpanded Planar Nozzle. AIAA Journal, 2017, 55, 2016-2028.	2.6	22
48	Numerical calculation of FSS/RSS transition in highly overexpanded rocket nozzle flows. Shock Waves, 2010, 20, 139-146.	1.9	21
49	Analysis of thermal stratification impact on the design of cooling channels for liquid rocket engines. International Journal of Heat and Mass Transfer, 2019, 135, 811-821.	4.8	21
50	Flowfield analysis of a linear clustered plug nozzle with round-to-square modules. Aerospace Science and Technology, 2007, 11, 110-118.	4.8	20
51	Numerical Investigation on Radiative Heat Loads in Liquid Rocket Thrust Chambers. Journal of Propulsion and Power, 2019, 35, 930-943.	2.2	18
52	Coupled CFD Analysis of Thermochemical Erosion and Unsteady Heat Conduction in Solid Rocket Nozzles. , 2012, , .		17
53	A Numerical Approach for High-Temperature Flows over Ablating Surfaces. , 2007, , .		16
54	Validation of Conjugate Heat Transfer Model for Rocket Cooling with Supercritical Methane. Journal of Propulsion and Power, 2016, 32, 726-733.	2.2	16

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55	Modeling of High Density Polyethylene Regression Rate in the Simulation of Hybrid Rocket Flowfields. Aerospace, 2019, 6, 88.	2.2	15
56	Optimal supersonic intake design for air collection engines (ACE). Acta Astronautica, 1999, 45, 729-745.	3.2	14
57	Numerical Analysis of Heated Channel Flows by a Space-Marching Finite Volume Technique. Journal of Thermophysics and Heat Transfer, 2011, 25, 282-290.	1.6	14
58	Parametric Analysis of Cooling Properties of Candidate Expander-Cycle Fuels. Journal of Propulsion and Power, 2014, 30, 153-163.	2.2	13
59	Simulation of a single-element GCH ₄ /GO _x rocket combustor using a non-adiabatic flamelet method. , 2018, , .		12
60	Modeling and Simulation of Paraffin-Based Hybrid Rocket Internal Ballistics. , 2018, , .		12
61	Numerical Study of Heat Transfer in Film Cooled Thrust Chambers. , 2012, , .		11
62	Conjugate heat transfer analysis of rectangular cooling channels using modeled and direct numerical simulation of turbulence. International Journal of Heat and Mass Transfer, 2021, 181, 121849.	4.8	11
63	Flow Analysis of Transcritical Methane in Rectangular Cooling Channels. , 2008, , .		10
64	Numerical Simulations of the Internal Ballistics of Paraffin-Oxygen Hybrid Rockets at Different Scales. Aerospace, 2021, 8, 213.	2.2	10
65	Theoretical considerations on shock reflections and their implications on the evaluation of air intake performance. Shock Waves, 2001, 11, 151-156.	1.9	9
66	Numerical Study of Transition Between the Two Operating Modes of Dual-Bell Nozzles. , 2002, , .		9
67	Simulations of Paraffin-Based Hybrid Rocket Motors and Comparison with Experiments. , 2017, , .		9
68	Graphite Nozzle Erosion Trends in Paraffin/Oxygen Hybrid Rockets. Journal of Propulsion and Power, 2022, 38, 508-522.	2.2	9
69	Flow analysis and methods of design for dual-bell nozzles. , 2001, , .		8
70	Transition Between Open and Closed Wake in 3D Linear Aerospike Nozzles. , 2005, , .		8
71	Thermochemical Erosion Analysis of Carbon-Carbon Nozzles in Solid-Propellant Rocket Motors. , 2010, , .		8
72	Numerical and Experimental Investigation of Nozzle Thermochemical Erosion in Hybrid Rockets. , 2017, , .		8

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73	A Numerical Methodology to Predict Exhaust Plumes of Propulsion Nozzles. Journal of Fluids Engineering, Transactions of the ASME, 1998, 120, 563-569.	1.5	7
74	Three Dimensional Features of Clustered Plug Nozzle Flows. , 2003, , .		7
75	Effect of Wall Shape and Real Gas Properties on Dual Bell Nozzle Flowfields. , 2005, , .		7
76	Numerical Analysis of Flow Separation Structures in Rocket Nozzles. , 2007, , .		7
77	Film Cooling Effect on Dual-Bell Nozzle Flow Transition. , 2009, , .		7
78	CFD Analysis of Hybrid Rocket Flowfields Including Fuel Pyrolysis and Nozzle Ablation. , 2013, , .		7
79	Low-order model studies of combustion instabilities in a DVRC combustor. , 2014, , .		7
80	Response Function Modeling in the Study of Longitudinal Combustion Instability by a Quasi-1D Eulerian Solver. , 2015, , .		7
81	Numerical issues in modeling combustion instability by quasi-1D Euler equations. International Journal of Spray and Combustion Dynamics, 2017, 9, 349-366.	1.0	7
82	Investigation of Transcritical Methane Flow and Heat Transfer in Curved Cooling Channels. , 2009, , .		6
83	CFD Analysis of Curved Cooling Channel Flow and Heat Transfer in Rocket Engines. , 2010, , .		6
84	Coupled Analysis of Flow and Surface Ablation in Carbon-Carbon Rocket Nozzles. , 2008, , .		5
85	Heat Flux Evaluation in Oxygen/Methane Thrust Chambers by RANS Approach. , 2010, , .		5
86	Analysis on the Effect of Channel Aspect Ratio on Rocket Thermal Behavior. , 2012, , .		5
87	Radius of Curvature Effects on Throat Thermochemical Erosion in Solid Rocket Motors. , 2012, , .		5
88	Numerical study of liquefied natural gas as a coolant in liquid rocket engines. Proceedings of the Institution of Mechanical Engineers, Part G: Journal of Aerospace Engineering, 2013, 227, 1130-1143.	1.3	5
89	A methodology to study the possible occurrence of chugging in liquid rocket engines during transient start-up. Acta Astronautica, 2017, 139, 344-356.	3.2	5
90	Fluidic Control of Transition in a Dual-bell Nozzle. , 2020, , .		5

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91	Modeling liquid rocket engine coolant flow and heat transfer in high roughness channels. Aerospace Science and Technology, 2022, 126, 107672.	4.8	5
92	Shock-Generated Vortices in Rocket Nozzles. , 2005, , .		4
93	Numerical Analysis of Nozzle Flows with Finite-Rate Surface Ablation and Pyrolysis-Gas Injection. , 2011, , .		4
94	Numerical Analysis of Nozzle Material Thermochemical Erosion in Hybrid Rocket Engines. , 2012, , .		4
95	An approximate Riemann solver for real gas parabolized Navier–Stokes equations. Journal of Computational Physics, 2013, 233, 574-591.	3.8	4
96	Numerical Modeling of GOX/HTPB Hybrid Rocket Flowfields and Comparison with Experiments. , 2014, , .		4
97	Determination of Heat Release Response Function from 2D Hybrid RANS-LES Data for the CVRC Combustor. , 2015, , .		4
98	Assessment of a Conjugate Heat Transfer Model for Rocket Engine Cooling Channels Fed with Supercritical Methane. , 2015, , .		4
99	Convective and Radiative Contributions to Wall Heat Transfer in Liquid Rocket Engine Thrust Chambers. , 2015, , .		4
100	Modeling of Paraffin-Based Fuels in the Simulation of Hybrid Rocket Flowfields. , 2016, , .		4
101	A Multi-dimensional Approach for Low Order Modeling of Combustion Instability in a Rocket Combustor. , 2018, , .		4
102	Predictive CFD Model for Internal Ballistics of Hybrid Rocket Engines using Supercritical Paraffin-wax and Oxygen. , 2019, , .		4
103	A Multi-Block Shock-Fitting Technique to Solve Steady and Unsteady Compressible Flows. , 2003, , 217-222.		4
104	Size Effects on the Transition in Dual-Bell Nozzles. , 2004, , .		3
105	Performance Analysis of an Infinite Array Linear Clusterd Plug Nozzle. Journal of Propulsion and Power, 2007, 23, 246-249.	2.2	3
106	Coupled Numerical Simulation of Wall Heat Conduction and Coolant Flow in Liquid Rocket Engines. , 2011, , .		3
107	Navier-Stokes Simulation of Graphite Nozzle Erosion Under a Wide Range of Pressure Conditions. , 2011, , .		3
108	Chemical Reaction Effects on Wall Heat Flux in Liquid Rocket Thrust Chambers. , 2014, , .		3

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109	CFD Analysis of Paraffin-Based Hybrid Rockets with Coupled Nozzle Erosion Characterization. , 2019, , .		3
110	A Computational Tool for the Design of Hybrid Rockets. Aerotecnica Missili & Spazio, 2021, 100, 253-262.	0.9	3
111	Dual-bell nozzle with fluidic control of transition for space launchers. Acta Astronautica, 2022, 193, 130-130.	3.2	3
112	Numerical Estimation of Nozzle Throat Heat Flux in Oxygen-Methane Rocket Engines. Journal of Propulsion and Power, 2023, 39, 71-83.	2.2	3
113	Role of Wall Shape on the Transition in Dual-Bell Nozzles. , 2003, , .		2
114	Thermo-Fluid-Dynamics Analysis of Film Cooling in Overexpanded Rocket Nozzles. , 2006, , .		2
115	Aerothermodynamic Analysis of Reentry Flows with Coupled Ablation. , 2011, , .		2
116	Parametric Analysis of Cooling Properties of Candidate Expander Cycle Fuels. , 2012, , .		2
117	Radiation and Roughness Effects on the Thermochemical Erosion of Ablative Materials in Rocket Nozzles. , 2013, , .		2
118	Quasi-2D Modeling of High-Aspect-Ratio-Cooling-Channel Flows. , 2013, , .		2
119	Flow Separation Response to Unsteady External Disturbances in Dual Bell Nozzles. , 2014, , .		2
120	Cooling Channel Analysis of a LOX/LCH4 Rocket Engine Demonstrator. , 2014, , .		2
121	System Analysis of Low Frequency Combustion Instabilities in Liquid Rocket Engines. , 2015, , .		2
122	Moretti's Shock-Fitting Methods on Structured and Unstructured Meshes. Handbook of Numerical Analysis, 2016, 17, 403-439.	1.8	2
123	Extraction of response function from numerical simulations and their use for longitudinal combustion instability modeling. , 2017, , .		2
124	Driving mechanisms in low order modeling of longitudinal combustion instability. , 2018, , .		2
125	Dual-bell nozzle for space launchers with fluidic control of transition. , 2021, , .		2
126	Steady and Unsteady Shock Interactions by Shock Fitting Approach. Shock Wave and High Pressure Phenomena, 2017, , 33-55.	0.1	2

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127	A numerical study of wake behavior in plug nozzles. , 2001, , .		2
128	Analysis of Three-dimensional Flow Generated by a Linear Aerospike. , 2005, , .		1
129	A Numerical Model for Supercritical Flow in Rocket Engine Applications. , 2007, , .		1
130	Thermochemical Erosion Analysis for Carbon-Carbon Rocket Nozzles. , 2009, , .		1
131	Numerical Analysis of Heated Channel Flows by a Space-Marching Finite-Volume Technique. , 2010, , .		1
132	Numerical Simulation of Hot-Gas Side Heat Transfer Enhancement in Thrust Chambers by Wall Ribs. , 2011, , .		1
133	Parametric Analysis of Heat Transfer to Supercritical Pressure Methane. , 2011, , .		1
134	Coupled Heat Transfer Analysis in Regeneratively Cooled Thrust Chambers. , 2012, , .		1
135	On the Onset of Heat Transfer Deterioration in Supercritical Coolant Flow Channels. , 2012, , .		1
136	Hydrogen storage materials for microthrusters: Basic performance analysis. Acta Astronautica, 2012, 80, 52-57.	3.2	1
137	Supercritical Methane Heat Transfer Modeling in Rocket Engine Cooling Channels. , 2013, , .		1
138	Experimental Investigation on Methane in Transcritical Conditions. , 2014, , .		1
139	Numerical Analysis of Port Diameter Effect on Hybrid Rocket Fuel Regression Rate with Axial Injection. , 2015, , .		1
140	Assessment of detached eddy simulation of a separated flow in a planar nozzle. , 2018, , .		1
141	Numerical Investigation on the Role of Thermal Radiation in Hybrid Rocket Fuel Pyrolysis. , 2018, , .		1
142	A Hybrid Real/Ideal Gas Mixture Computational Framework to Capture Wave Propagation in Liquid Rocket Combustion Chamber Conditions. Aerospace, 2021, 8, 250.	2.2	1
143	A model to predict the Mach reflection of the separation shock in rocket nozzles. , 2009, , 1093-1098.		1
144	Numerical Simulations of Fuel Shape Change in Paraffin-Oxygen Hybrid Rocket Engines. , 2022, , .		1

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145	Modeling of Wall Heat Flux in Oxygen-Methane Liquid Rocket Thrust Chambers. , 2022, , .		1
146	Size Effects on the Performance of Liquid Rocket Engines Fed with LH/LOX, LCH4/LOX and Kerosene/LOX. , 2003, , .		0
147	Ablative Material Behavior in Oxygen/Methane Thruster Environment. , 2012, , .		0
148	Development of Thrust Chamber Components for a System Analysis Tool. , 2014, , .		0
149	Separation Shock Cutoff Frequency in Dual Bell Nozzles. , 2015, , .		0
150	A Sensitivity Study on a CFD Model for Paraffin-based Hybrid Rockets. , 2020, , .		0
151	Film cooling modeling in liquid rocket thrust chambers. , 2021, , .		0
152	Gas-Phase Reaction Effects on Nozzle Erosion in Paraffin/Oxygen Hybrid Rockets. , 2021, , .		0
153	Effect of the Adiabatic Index on the Shock Reflection in Overexpanded Nozzle Flow. , 2017, , 89-93.		0
154	HEM modeling for subcritical flows in liquid rocket engine cooling systems. , 2022, , .		0