Marco Panesi

List of Publications by Year in descending order

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		201674	223800
126	2,470	27	46
papers	citations	h-index	g-index

128	128	128	634
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Rovibrational internal energy transfer and dissociation of $mathbf { m N_2(^1Sigma _g^+)-m N(^4S_u)}$N2(1Î£g+)â€'N(4Su) system in hypersonic flows. Journal of Chemical Physics, 2013, 138, 044312.	3.0	208
2	Fire II Flight Experiment Analysis by Means of a Collisional-Radiative Model. Journal of Thermophysics and Heat Transfer, 2009, 23, 236-248.	1.6	151
3	Nonequilibrium shock-heated nitrogen flows using a rovibrational state-to-state method. Physical Review E, 2014, 90, 013009.	2.1	139
4	Electronic Excitation of Atoms and Molecules for the FIRE II Flight Experiment. Journal of Thermophysics and Heat Transfer, 2011, 25, 361-374.	1.6	91
5	Boltzmann rovibrational collisional coarse-grained model for internal energy excitation and dissociation in hypersonic flows. Physical Review E, 2014, 89, 023001.	2.1	89
6	Coarse-grain model for internal energy excitation and dissociation of molecular nitrogen. Chemical Physics, 2012, 398, 90-95.	1.9	87
7	General multi-group macroscopic modeling for thermo-chemical non-equilibrium gas mixtures. Journal of Chemical Physics, 2015, 142, 134109.	3.0	76
8	Adaptive coarse graining method for energy transfer and dissociation kinetics of polyatomic species. Journal of Chemical Physics, 2017, 147, 054107.	3.0	74
9	Collisional radiative coarse-grain model for ionization in air. Physics of Fluids, 2013, 25, .	4.0	73
10	Construction of a coarse-grain quasi-classical trajectory method. I. Theory and application to N2â€"N2 system. Journal of Chemical Physics, 2018, 148, 054309.	3.0	71
11	Assessment of predictive capabilities for aerodynamic heating in hypersonic flow. Progress in Aerospace Sciences, 2017, 90, 39-53.	12.1	65
12	Construction of a coarse-grain quasi-classical trajectory method. II. Comparison against the direct molecular simulation method. Journal of Chemical Physics, 2018, 148, 054310.	3.0	59
13	QCT-based vibrational collisional models applied to nonequilibrium nozzle flows. European Physical Journal D, 2012, 66, 1.	1.3	58
14	Modeling of non-equilibrium phenomena in expanding flows by means of a collisional-radiative model. Physics of Plasmas, 2013, 20, .	1.9	56
15	Modeling of dissociation and energy transfer in shock-heated nitrogen flows. Physics of Fluids, 2015, 27, .	4.0	56
16	A computational model for nanosecond pulse laser-plasma interactions. Journal of Computational Physics, 2020, 406, 109190.	3.8	55
17	Laser-induced non-equilibrium plasma kernel dynamics. Journal Physics D: Applied Physics, 2020, 53, 025201.	2.8	48
18	Bayesian Machine Learning Approach to the Quantification of Uncertainties on Ab Initio Potential Energy Surfaces. Journal of Physical Chemistry A, 2020, 124, 5129-5146.	2.5	47

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19	Flow-radiation coupling in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi>CO</mml:mi><mml:mn>2</mml:mn></mml:msub></mml wakes using reduced-order non-Boltzmann models. Physical Review Fluids, 2019, 4, .	2.5	36
20	Estimation of the nitrogen ionization reaction rate using electric arc shock tube data and Bayesian model analysis. Physics of Plasmas, 2012, 19, 023507.	1.9	34
21	Computational challenges for simulations related to the NASA electric arc shock tube (EAST) experiments. Journal of Computational Physics, 2014, 269, 215-233.	3.8	33
22	Comparison of Potential Energy Surface and Computed Rate Coefficients for N2 Dissociation. Journal of Thermophysics and Heat Transfer, 2018, 32, 869-881.	1.6	33
23	Data-Inspired and Physics-Driven Model Reduction for Dissociation: Application to the O₂ + O System. Journal of Physical Chemistry A, 2020, 124, 8359-8372.	2.5	33
24	Probabilistic models and uncertainty quantification for the ionization reaction rate of atomic Nitrogen. Journal of Computational Physics, 2012, 231, 3871-3886.	3.8	29
25	Energy transfer models in nitrogen plasmas: Analysis of $mathbf {m N_2(X,^1Sigma) Tj ETQq1 1 0.784314 rgBT /Overlock 10 Tf 50 5 Physics, 2014, 141, 184302.	3.0	28
26	Plasma-graphene interaction and its effects on nanoscale patterning. Physical Review B, 2016, 93, .	3.2	28
27	Conservative Residual Distribution Method for Viscous Double Cone Flows in Thermochemical Nonequilibrium. Communications in Computational Physics, 2013, 13, 479-501.	1.7	27
28	A Reduced-order NLTE Kinetic Model for Radiating Plasmas of Outer Envelopes of Stellar Atmospheres. Astrophysical Journal, 2017, 838, 126.	4.5	27
29	Nonequilibrium radiation and dissociation of CO molecules in shock-heated flows. Physical Review Fluids, 2016, 1, .	2.5	27
30	Coarse-grained modeling of thermochemical nonequilibrium using the multigroup maximum entropy quadratic formulation. Physical Review E, 2020, 101, 013307.	2.1	26
31	COOLFluiD: an open computational platform for multi-physics simulation and research. , 2013, , .		25
32	First Principles Calculation of Heavy Particle Rate Coefficients. , 2015, , 103-158.		25
33	Analysis of non-equilibrium phenomena in inductively coupled plasma generators. Physics of Plasmas, 2016, 23, .	1.9	24
34	A tightly coupled non-equilibrium model for inductively coupled radio-frequency plasmas. Journal of Applied Physics, 2015, 118, .	2.5	21
35	Modelling of high-enthalpy, high-Mach number flows. Journal Physics D: Applied Physics, 2009, 42, 194004.	2.8	20
36	State-to-State Master Equation and Direct Molecular Simulation Study of Energy Transfer and Dissociation for the N₂â€“N System. Journal of Physical Chemistry A, 2020, 124, 6986-7000.	2.5	20

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37	Collinear dual-pulse laser optical breakdown and energy deposition. Journal Physics D: Applied Physics, 2020, 53, 205202.	2.8	19
38	Impact of state-specific flowfield modeling on atomic nitrogen radiation. Physical Review Fluids, 2018, 3, .	2.5	17
39	Rovibrational-Specific QCT and Master Equation Study on N₂(X¹Î£_g⁺) + O(³P) and NO(X²Î) + N(⁴S) Systems in High-Energy Collisions. Journal of Physical Chemistry A, 2022, 126, 3273-3290.	2.5	17
40	On the assessment of a Bayesian validation methodology for data reduction models relevant to shock tube experiments. Computer Methods in Applied Mechanics and Engineering, 2012, 213-216, 383-398.	6.6	16
41	Self-Consistent Computational Fluid Dynamics of Supersonic Drag Reduction via Upstream-Focused Laser-Energy Deposition. AIAA Journal, 2021, 59, 1214-1224.	2.6	16
42	Electron-vibration relaxation in oxygen plasmas. Chemical Physics, 2016, 472, 44-49.	1.9	15
43	Modeling of Laser-Induced Breakdown Phenomena in Non-Equilibrium Plasmas. , 2018, , .		15
44	Rovibrational Internal Energy Excitation and Dissociation of Molecular Nitrogen in Hypersonic Flows. , 2010, , .		14
45	Analysis of Chemical Nonequilibrium and Elemental Demixing in Plasmatron Facility. Journal of Thermophysics and Heat Transfer, 2007, 21, 57-66.	1.6	13
46	Internal Energy Excitation and Dissociation of Molecular Nitrogen in a Compressing Flow. , 2009, , .		13
47	Communication: Surface-to-bulk diffusion of isolated versus interacting C atoms in Ni(111) and Cu(111) substrates: A first principle investigation. Journal of Chemical Physics, 2015, 142, 061101.	3.0	13
48	Electron-Impact Excitation Cross Sections for Modeling Non-Equilibrium Gas. , 2015, , .		12
49	Comparison of quantum mechanical and empirical potential energy surfaces and computed rate coefficients for N2 dissociation. , 2016, , .		12
50	Modeling of high pressure arc-discharge with a fully-implicit Navierâ€“Stokes stabilized finite element flow solver. Plasma Sources Science and Technology, 2017, 26, 055012.	3.1	12
51	A Multi-Physics Modeling Framework for Inductively Coupled Plasma Wind Tunnels. , 2022, , .		12
52	Self-consistent magneto-hydrodynamic modeling of ICP discharges. , 2022, , .		12
53	On the (In)Validation of a Thermochemical Model with EAST Shock Tube Radiation Measurements. , 2010, , .		11
54	FEM Simulation of Laser-Induced Plasma Breakdown Experiments for Combustion Applications. , 2017, , .		11

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55	Calibration and Uncertainty Quantification of VISTA Ablator Material Database Using Bayesian Inference. Journal of Thermophysics and Heat Transfer, 2019, 33, 356-369.	1.6	11
56	Improved Non-Boltzmann Modeling for Nitrogen Atoms. , 2016, , .		10
57	Predictions of nonequilibrium radiation: analysis and comparison with EAST experiments. , 2008, , .		9
58	Extension of Multiband Opacity-Binning to Molecular, Non-Boltzmann Shock Layer Radiation. Journal of Thermophysics and Heat Transfer, 2018, 32, 816-821.	1.6	9
59	Comparative analysis of reduced-order spectral models and grouping strategies for non-equilibrium radiation. Journal of Quantitative Spectroscopy and Radiative Transfer, 2020, 242, 106752.	2.3	9
60	CHyPS: A High-Order Material Response Solver for Ablative Thermal Protection Systems. , 2022, , .		9
61	Novel Approach for CO2 State-To-State Modeling and Application to Multidimensional Entry Flows. , 2017, , .		8
62	Prediction of shock standoff distance with modified rotational relaxation time of air mixture. Physics of Fluids, 2021, 33, .	4.0	8
63	Analysis of the FIRE II Flight Experiment by Means of a Collisional Radiative Model. , 2008, , .		7
64	Energy transfer study of N2-N2 interactions by using rovibrational state-to-state model. , 2013, , .		7
65	On the development of a new nonequilibrium chemistry model for Mars entry. , 2017, , .		7
66	A Machine Learning Framework for the Quantification of the Uncertainties Associated with Ab-Initio Based Modeling of Non-Equilibrium Flows. , 2019, , .		7
67	Towards Efficient Simulations of Non-Equilibrium Chemistry in Hypersonic Flows: A Physics-Informed Neural Network Framework. , 2022, , .		7
68	Vibrational State to State Kinetics in Expanding and Compressing Nitrogen Flows. , 2010, , .		6
69	Systematic validation of non-equilibrium thermochemical models using Bayesian inference. Journal of Computational Physics, 2015, 298, 125-144.	3.8	6
70	Modeling of Air Breakdown by Single-Mode and Multi-Mode Lasers. , 2019, , .		6
71	Non-equilibrium plasma generation via nano-second multi-mode laser pulses. Journal of Applied Physics, 2022, 131, .	2.5	6
72	Ab initio based rovibrational grouping model for N₂(¹Î£⁺) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 6 dissociation. , 2017, , .		5

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73	State-to-State and Direct Molecular Simulation Study of energy transfer and dissociation in nitrogen mixtures. , 2018, , .		5
74	Supersonic and hypersonic non-equilibrium flow control using laser energy deposition. , 2019, , .		5
75	Effects of Ab-Initio Potential Energy Surfaces on O2-O Non-Equilibrium Kinetics. , 2019, , .		5
76	Nonequilibrium ionization phenomena behind shock waves. , 2011, , .		4
77	Ionization Phenomena behind Shock Waves. , 2012, , 149-192.		4
78	Dissociation and Energy transfer study of N2-N and N2-N2 interactions by using rovibrational and coarse-grained state-to-state models. , 2015, , .		4
79	A Reduced Order Maximum Entropy Model for Chemical and Thermal Non-equilibrium in High Temperature CO₂Gas. , 2016, , .		4
80	Rovibrational grouping for N2(1Î£+ g)-N2(1Î£+ g) energy transfer using state-to-state model. , 2016, , .		4
81	Investigating CO Dissociation by means of Coarse Grained Ab-Initio Rate Constants. , 2018, , .		4
82	Non-equilibrium ionization phenomena behind shock waves. , 2011, , .		3
83	One-dimensional modeling methodology for shock tubes: Application to the EAST facility. , 2018, , .		3
84	Reduced-Order Modeling for Non-equilibrium Air Flows. , 2020, , .		3
85	Effects of problem complexity reduction on parameter sensitivity and classification in charring ablator scenarios. Aerospace Science and Technology, 2022, 124, 107522.	4.8	3
86	Mechanism Reduction for Rovibrational Energy Excitation and Dissociation of Molecular Nitrogen in Hypersonic Flows. , 2011, , .		2
87	Probabilistic Models and Uncertainty Quantification for the Ionization Reaction Rate of Atomic Nitrogen. , 2011, , .		2
88	Calibration of Rates Parameters for Multi-Temperature models using Bayesian Formulation. , 2011, , .		2
89	Refitting of detailed CO2 IR databases to vibrationally specific databases tailored for aerothermodynamic flows. , 2018, , .		2
90	Characterization of non-equilibrium hypersonic flows using maximum entropy linear model. AIP Conference Proceedings, 2019, , .	0.4	2

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91	Refitting of Ro-Vibrational Specific CO2 Radiation Database to Vibrationally Specific. , 2019, , .		2
92	Thermal effects mediating the flow induced by laser-induced optical breakdown. Physical Review Fluids, 2021, 6, .	2.5	2
93	Carbon Clusters: Thermochemistry and Electronic Structure at High Temperatures. Journal of Physical Chemistry A, 2021, 125, 7038-7051.	2.5	2
94	Three-dimensional unsteady model of arc heater plasma flow. Aerospace Science and Technology, 2022, 123, 107465.	4.8	2
95	Reduced Kinetic Mechanism for CFD Applications. , 2009, , .		1
96	Systematic Validation of Non-Equilibrium Thermochemical Models using Bayesian Approach. , 2011, , .		1
97	1D and 2D Simulaations Related to the NASA Electric Arc Shock Tube Experiments. , 2013, , .		1
98	Microscopic Simulation and Macroscopic Modeling for Thermal and Chemical Non-Equilibrium Gases. , 2013, , .		1
99	General Multi-Group Macroscopic Modeling for Thermo-Chemical Non-Equilibrium Gas Mixtures. , 2014, , .		1
100	State-to-State and reduced-order models for recombination and energy transfer in aerothermal environments. , 2016, , .		1
101	Calculation of Thermochemical Properties of Carbon-cluster Ablation Species. , 2018, , .		1
102	High-Order Techniques for Multi-Component Turbulent Non-Equilibrium Hypersonic Flows. , 2020, , .		1
103	Numerical study on early-times laser controlled detonative propulsion. , 2021, , .		1
104	Importance of Exchange Processes in Earth and Mars Atmospheric Kinetics: Application to HCN System. , 2022, , .		1
105	Influence of Non-Boltzmann Radiation around Titan Atmospheric Entry Vehicles. , 2022, , .		1
106	Analysis of Chemical Non-Equilibrium and Elemental Demixing in the VKI Plasmatron. , 2006, , .		0
107	Non Equilibrium and Elemental Demixing Analysis of C02 Flows Inside ICPs. , 2007, , .		0
108	Corrigendum to â€œProbabilistic models and uncertainty quantification for the ionization reaction rate of atomic Nitrogenâ€•[JCOMP 231(9) (2012) 3871â€“3886]. Journal of Computational Physics, 2012, 231, 5216.	3.8	0

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109	Modeling of Non-equilibrium Plasmas in an Inductively Coupled Plasma Facility. , 2014, , .		0
110	Investigation of Dissociation Phenomena in Nonequilibrium Shock Layers. , 2014, , .		0
111	State-to-State Modeling of CO for Mars Entry Applications. , 2015, , .		0
112	NLTE Magneto-Hydrodynamic Model for an Inductively Coupled Plasma Facility. , 2015, , .		0
113	State Specific Modeling of Energy Transfer under Shock Conditions in Nitrogen using High Fidelity Models. , 2015, , .		0
114	Advanced Modeling of Non-equilibrium Flows using a Maximum Entropy â€œQuadraticâ€•Formulation. , 2017, , .		0
115	Multi-Group Maximum Entropy Model for Translational Non-Equilibrium. , 2017, , .		0
116	Coarse Grain Model for Energy Transfer and Dissociation. , 2018, , .		0
117	Reduced-order modeling of non-equilibrium kinetics and radiation for CO2 axisymmetric wake flows. AIP Conference Proceedings, 2019, , .	0.4	0
118	Hybrid reduced order model for N2-N interactions for application to dissociation and energy transfer processes. AIP Conference Proceedings, 2019, , .	0.4	0
119	Application of ab-initio based grouped rates for modeling non-equilibrium flow physics. , 2019, , .		0
120	Novel Approach for Modeling CO2Non-equilibrium Radiation: Application to Wake Flows. , 2019, , .		0
121	State-to-state and direct molecular simulation study of energy transfer and dissociation of nitrogen mixtures. , 2020, , .		0
122	Simulation of Supersonic Flows in Inductively Coupled Plasma Tunnels. , 2006, , 489-494.		0
123	Quantification of Uncertainty in Extrapolation of Charring Ablator Material Performance to Flight. , 2022, , .		0
124	Rovibrational-Specific Master Equation Analysis of High-Temperature Air Mixture. , 2022, , .		0
125	Probabilistic Reduction of a Coarse Graining methodology via Polynomial Chaos expansions: Application to Hypersonic Aerothermodynamics. , 2022, , .		0
126	High-fidelity simulation of RF inductively coupled plasma discharges. , 2022, , .		0