

# Massimiliano Giona

## List of Publications by Year in descending order

Source: <https://exaly.com/author-pdf/418772/publications.pdf>

Version: 2024-02-01

131  
papers

2,236  
citations

304602

22  
h-index

254106

43  
g-index

131  
all docs

131  
docs citations

131  
times ranked

1704  
citing authors

#	ARTICLE	IF	CITATIONS
1	A Model for the Temperature-Programmed Reduction of Low and High Surface Area Ceria. <i>Journal of Catalysis</i> , 2000, 193, 273-282.	3.1	288
2	Fractional diffusion equation for transport phenomena in random media. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1992, 185, 87-97.	1.2	194
3	Fractional diffusion equation and relaxation in complex viscoelastic materials. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1992, 191, 449-453.	1.2	157
4	On the mechanism of fast oxygen storage and release in ceria-zirconia model catalysts. <i>Applied Catalysis B: Environmental</i> , 2004, 52, 225-237.	10.8	145
5	Functional reconstruction and local prediction of chaotic time series. <i>Physical Review A</i> , 1991, 44, 3496-3502.	1.0	75
6	First-order reaction-diffusion kinetics in complex fractal media. <i>Chemical Engineering Science</i> , 1992, 47, 1503-1515.	1.9	65
7	Fast Distributed Average Consensus Algorithms Based on Advection-Diffusion Processes. <i>IEEE Transactions on Signal Processing</i> , 2010, 58, 826-842.	3.2	61
8	The intermaterial area density generated by time- and spatially periodic 2D chaotic flows. <i>Chemical Engineering Science</i> , 2000, 55, 1497-1508.	1.9	51
9	The geometry of mixing in time-periodic chaotic flows. I. Asymptotic directionality in physically realizable flows and global invariant properties. <i>Physica D: Nonlinear Phenomena</i> , 1999, 132, 298-324.	1.3	48
10	Eigenvalue-eigenfunction analysis of infinitely fast reactions and micromixing regimes in regular and chaotic bounded flows. <i>Chemical Engineering Science</i> , 2004, 59, 2125-2144.	1.9	41
11	A theory of transport phenomena in disordered systems. <i>The Chemical Engineering Journal</i> , 1992, 49, 1-10.	0.4	40
12	Time-series analysis approach for the identification of flooding/loading transition in gas-liquid stirred tank reactors. <i>Chemical Engineering Science</i> , 2000, 55, 5793-5802.	1.9	40
13	Exact solution of linear transport equations in fractal media. I. Renormalization analysis and general theory. <i>Chemical Engineering Science</i> , 1996, 51, 4717-4729.	1.9	36
14	Two-layer shrinking-core model: parameter estimation for the reaction order in leaching processes. <i>Chemical Engineering Journal</i> , 2002, 90, 231-240.	6.6	36
15	A spectral approach to reaction/diffusion kinetics in chaotic flows. <i>Computers and Chemical Engineering</i> , 2002, 26, 125-139.	2.0	34
16	Feasibility, efficiency and transportability of short-horizon optimal mixing protocols. <i>Journal of Fluid Mechanics</i> , 2008, 597, 199-231.	1.4	33
17	Closed-form solution for the reconstruction problem in porous media. <i>AIChE Journal</i> , 1996, 42, 1407-1415.	1.8	28
18	Analytic expression for the short-time rate of growth of the intermaterial contact perimeter in two-dimensional chaotic flows and Hamiltonian systems. <i>Physical Review E</i> , 1998, 58, 447-458.	0.8	27

#	ARTICLE	IF	CITATIONS
19	Some Insight into the Effects of Oxygen Diffusion in the Reduction Kinetics of Ceria. <i>Industrial &amp; Engineering Chemistry Research</i> , 2001, 40, 4828-4835.	1.8	26
20	Reconstruction of chaotic time series by neural models: a case study. <i>Neurocomputing</i> , 2003, 55, 581-591.	3.5	25
21	Convection-Dominated Dispersion Regime in Wide-Bore Chromatography: A Transport-Based Approach To Assess the Occurrence of Slip Flows in Microchannels. <i>Analytical Chemistry</i> , 2009, 81, 8009-8014.	3.2	25
22	Exact solution of linear transport equations in fractal mediaâ€”II. Diffusion and convection. <i>Chemical Engineering Science</i> , 1996, 51, 4731-4744.	1.9	24
23	Quantifying dispersion of finite-sized particles in deterministic lateral displacement microflow separators through Brennerâ€™s macrotransport paradigm. <i>Microfluidics and Nanofluidics</i> , 2013, 15, 431-449.	1.0	23
24	Exact solution of linear transport equations in fractal mediaâ€”III. Adsorption and chemical reaction. <i>Chemical Engineering Science</i> , 1996, 51, 5065-5076.	1.9	22
25	Stress-induced diffusion of hydrogen in metallic membranes: cylindrical vs. planar formulation. I. <i>Journal of Alloys and Compounds</i> , 2003, 358, 268-280.	2.8	22
26	Analysis of controlled release in disordered structures: a percolation model. <i>Journal of Membrane Science</i> , 1996, 113, 21-30.	4.1	21
27	Taming axial dispersion in hydrodynamic chromatography columns through wall patterning. <i>Physics of Fluids</i> , 2018, 30, .	1.6	21
28	Exact moment analysis of transient dispersion properties in periodic media. <i>Physics of Fluids</i> , 2019, 31, .	1.6	21
29	Adsorption Kinetics on Fractal Surfaces. <i>The Journal of Physical Chemistry</i> , 1996, 100, 16690-16699.	2.9	20
30	Generalized Poissonâ€™Kac Processes: Basic Properties and Implications in Extended Thermodynamics and Transport. <i>Journal of Non-Equilibrium Thermodynamics</i> , 2016, 41, 107-114.	2.4	20
31	Transport phenomena in fractal and heterogeneous mediaâ€”input/output renormalization and exact results. <i>Chaos, Solitons and Fractals</i> , 1996, 7, 1371-1396.	2.5	19
32	Stochastic foundations of undulatory transport phenomena: generalized Poissonâ€™Kac processesâ€”part I basic theory. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2017, 50, 335002.	0.7	18
33	Laminar dispersion at low and high Peclet numbers in a sinusoidal microtube: Point-size versus finite-size particles. <i>Physics of Fluids</i> , 2019, 31, .	1.6	18
34	Effective dispersion and separation resolution in continuous particle fractionation. <i>Microfluidics and Nanofluidics</i> , 2015, 19, 1035-1046.	1.0	17
35	Fractal calculus on $[0, 1]$ . <i>Chaos, Solitons and Fractals</i> , 1995, 5, 987-1000.	2.5	16
36	Stochastic foundations of undulatory transport phenomena: generalized Poissonâ€™Kac processesâ€”part III extensions and applications to kinetic theory and transport. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2017, 50, 335004.	0.7	16

#	ARTICLE	IF	CITATIONS
37	Non-uniform stationary measure properties of chaotic area-preserving dynamical systems. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1998, 254, 451-465.	1.2	15
38	Stochastic foundations of undulatory transport phenomena: generalized Poisson-Kac processes—part II Irreversibility, norms and entropies. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2017, 50, 335003.	0.7	15
39	One-dimensional hyperbolic transport: Positivity and admissible boundary conditions derived from the wave formulation. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2016, 449, 176-191.	1.2	14
40	Modified model for the regulation of the tryptophan operon in <i>Escherichia coli</i> . <i>Biotechnology and Bioengineering</i> , 2002, 80, 297-304.	1.7	13
41	A closed-form solution of population-balance models for the dissolution of polydisperse mixtures. <i>Chemical Engineering Journal</i> , 2002, 87, 275-284.	6.6	13
42	Convection-diffusion transport in disordered structures: Numerical analysis based on the exit-time equation. <i>Chemical Engineering Science</i> , 1995, 50, 1001-1011.	1.9	12
43	INFLUENCE OF GEOMETRIC AND ENERGETIC HETEROGENEITY ON ADSORPTION ISOTHERMS. <i>Fractals</i> , 1995, 03, 235-250.	1.8	12
44	Controlled release of theophylline from water-swollen scleroglucan matrices. <i>Journal of Membrane Science</i> , 1996, 113, 7-20.	4.1	12
45	Statistical analysis of anomalous transport phenomena in complex media. <i>AIChE Journal</i> , 1991, 37, 1249-1254.	1.8	11
46	THE APPLICATION OF DIFFUSIONAL TECHNIQUES IN TIME-SERIES ANALYSIS TO IDENTIFY COMPLEX FLUID DYNAMIC REGIMES. <i>Fractals</i> , 1994, 02, 503-520.	1.8	11
47	Long-range correlation properties of area-preserving chaotic systems. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1998, 253, 143-153.	1.2	11
48	The geometry of mixing in 2-d time-periodic chaotic flows. <i>Chemical Engineering Science</i> , 2000, 55, 381-389.	1.9	11
49	Structural modelling for the dissolution of non-porous ores: dissolution with sporulation. <i>Chemical Engineering Journal</i> , 2004, 99, 89-104.	6.6	11
50	Analysis of the advection-diffusion mixing by the mapping method formalism in 3D open-flow devices. <i>AIChE Journal</i> , 2014, 60, 387-407.	1.8	11
51	Continuous Model for Complex Mixture Adsorption. <i>Industrial &amp; Engineering Chemistry Research</i> , 1994, 33, 2764-2770.	1.8	10
52	Steady-state concentration profiles of hydrogen in tubular metallic membranes. <i>International Journal of Hydrogen Energy</i> , 2003, 28, 1279-1284.	3.8	10
53	Variational principles and Lagrangian functions for stochastic processes and their dissipative statistical descriptions. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2017, 473, 561-577.	1.2	10
54	Inertia-driven enhancement of mixing efficiency in microfluidic cross-junctions: a combined Eulerian/Lagrangian approach. <i>Microfluidics and Nanofluidics</i> , 2018, 22, 1.	1.0	10

#	ARTICLE	IF	CITATIONS
55	Necrosis evolution during high-temperature hyperthermia through implanted heat sources. IEEE Transactions on Biomedical Engineering, 2003, 50, 305-315.	2.5	9
56	Solution of Unsteady-State Shrinking-Core Models by Means of Spectral/Fixed-Point Methods: A Nonuniform Reactant Distribution and Nonlinear Kinetics. Industrial & Engineering Chemistry Research, 1997, 36, 2452-2465.	1.8	8
57	Contour Integrals and Vector Calculus on Fractal Curves and Interfaces. Chaos, Solitons and Fractals, 1999, 10, 1349-1370.	2.5	8
58	EXTERIOR ALGEBRA-BASED ALGORITHMS TO ESTIMATE LIAPUNOV SPECTRA AND STRETCHING STATISTICS IN HIGH-DIMENSIONAL AND DISTRIBUTED SYSTEMS. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2002, 12, 353-368.	0.7	8
59	On the influence of reflective boundary conditions on the statistics of Poisson-Kac diffusion processes. Physica A: Statistical Mechanics and Its Applications, 2016, 450, 148-164.	1.2	8
60	Relativistic analysis of stochastic kinematics. Physical Review E, 2017, 96, 042133.	0.8	8
61	Age representation of Lévy walks: partial density waves, relaxation and first passage time statistics. Journal of Physics A: Mathematical and Theoretical, 2019, 52, 384001.	0.7	8
62	Taming Taylor-Aris dispersion through chaotic advection. Journal of Chromatography A, 2022, 1673, 463110.	1.8	8
63	Size-Dependent Adsorption Models in Microporous Materials. 1. Thermodynamic Consistency and Theoretical Analysis. Industrial & Engineering Chemistry Research, 1995, 34, 3848-3855.	1.8	7
64	Chemical Engineering, Fractal and Disordered System Theory. Fractals, 1997, 05, 333-354.	1.8	7
65	Tracer Dispersion in Stirred Tank Reactors: Asymptotic Properties and Mixing Characterization. Canadian Journal of Chemical Engineering, 2002, 80, 580-590.	0.9	7
66	Influence of pore-network topology on the reaction-diffusion kinetics in porous pellets. Chemical Engineering Science, 1992, 47, 2623-2628.	1.9	6
67	Analytic expression for the structure factor and for the moment-generating function of fractal sets and multifractal measures. Journal of Physics A, 1997, 30, 4293-4312.	1.6	6
68	Effects of self-stress on hydrogen diffusion in Pd membranes in the coexistence of $\hat{I}_1$ and $\hat{I}_2$ phases. Journal of Alloys and Compounds, 2004, 368, 287-297.	2.8	6
69	On the estimate of mixing length in interdigital micromixers. Chemical Engineering Journal, 2008, 138, 523-537.	6.6	6
70	Singular eigenvalue limit of advection-diffusion operators and properties of the strange eigenfunctions in globally chaotic flows. European Physical Journal: Special Topics, 2017, 226, 2247-2262.	1.2	6
71	On the long-term simulation of stochastic differential equations for predicting effective dispersion coefficients. Physica A: Statistical Mechanics and Its Applications, 2020, 543, 123392.	1.2	6
72	Thermodynamics and kinetics of adsorption in the presence of geometric roughness. Separation and Purification Technology, 1996, 6, 99-110.	0.7	5

#	ARTICLE	IF	CITATIONS
73	Analysis of linear transport phenomena on fractals. The Chemical Engineering Journal and the Biochemical Engineering Journal, 1996, 64, 45-61.	0.1	5
74	A predictive model for permeability of correlated porous media. The Chemical Engineering Journal and the Biochemical Engineering Journal, 1996, 64, 7-19.	0.1	5
75	Stress-induced diffusion of hydrogen in metallic membranes: cylindrical vs. planar formulation. II. Journal of Alloys and Compounds, 2003, 358, 157-167.	2.8	5
76	Space-time-modulated stochastic processes. Physical Review E, 2017, 96, 042132.	0.8	5
77	Lattice random walk: an old problem with a future ahead. Physica Scripta, 2018, 93, 095201.	1.2	5
78	Swelling and Drug Release in Polymers through the Theory of Poisson-Kac Stochastic Processes. Gels, 2021, 7, 32.	2.1	5
79	Generalized Counting Processes in a Stochastic Environment. Mathematics, 2021, 9, 2573.	1.1	5
80	functional reconstruction of oscillating reaction: prediction and control of chaotic kinetics. Chemical Engineering Science, 1992, 47, 2469-2474.	1.9	4
81	Influence of local fields on macroscopic transport coefficients. Chemical Engineering Science, 1993, 48, 1933-1943.	1.9	4
82	Size-Dependent Adsorption Models in Microporous Materials. 2. Comparison with Experimental Data. Industrial & Engineering Chemistry Research, 1995, 34, 3856-3864.	1.8	4
83	Invariant properties of a class of exactly solvable mixing transformations – A measure-theoretical approach to model the evolution of material lines advected by chaotic flows. Chaos, Solitons and Fractals, 2000, 11, 607-630.	2.5	4
84	Cubic-Interpolation of Discrete Fields on Regular and Irregular Grids. Journal of Computational Physics, 2002, 176, 145-169.	1.9	4
85	Space-time transport schemes and homogenization: II. Extension of the theory and applications. Journal of Statistical Mechanics: Theory and Experiment, 2017, 2017, 033204.	0.9	4
86	Extended Poisson-Kac Theory: A Unifying Framework for Stochastic Processes with Finite Propagation Velocity. Physical Review X, 2022, 12, .	2.8	4
87	Simplified analysis of chromatographic-column dynamics. Chemical Engineering Science, 1994, 49, 541-547.	1.9	3
88	Deviation from Henry's Law: Effects of Energetic Heterogeneity and of Surface Diffusion. Langmuir, 1997, 13, 1138-1144.	1.6	3
89	A Versatile Lattice Simulator for Fluid-Solid Noncatalytic Reactions in Complex Media. Industrial & Engineering Chemistry Research, 1997, 36, 4993-5009.	1.8	3
90	Closed-form solution of abrasion and abrasion-dissolution kinetic models. Chemical Engineering Journal, 2003, 94, 127-137.	6.6	3

#	ARTICLE	IF	CITATIONS
91	Hyperbolic heat/mass transport and stochastic modelling - Three simple problems. <i>Mathematics in Engineering</i> , 2019, 1, 224-251.	0.5	3
92	Hydrodynamic Green functions: paradoxes in unsteady Stokes conditions and infinite propagation velocity in incompressible viscous models. <i>Meccanica</i> , 2022, 57, 1055-1069.	1.2	3
93	Stochastic Modeling of Particle Transport in Confined Geometries: Problems and Peculiarities. <i>Fluids</i> , 2022, 7, 105.	0.8	3
94	IFS-Simulation of Transport Phenomena on Complex Fractal Media. <i>Molecular Simulation</i> , 1992, 8, 265-271.	0.9	2
95	Some observations on quantum mechanics in disordered systems. <i>Chaos, Solitons and Fractals</i> , 1993, 3, 203-209.	2.5	2
96	Multicomponent percolation: Probabilistic properties and application to nonisothermal reactions in granular materials. <i>Physical Review E</i> , 1994, 49, 5287-5294.	0.8	2
97	An energy-barrier model of biased transport in disordered systems. <i>Chaos, Solitons and Fractals</i> , 1994, 4, 461-469.	2.5	2
98	Two-step adsorption models in molecular sieves. <i>The Chemical Engineering Journal and the Biochemical Engineering Journal</i> , 1995, 58, 21-32.	0.1	2
99	Models of adsorption kinetics on rough surfaces. <i>Studies in Surface Science and Catalysis</i> , 1997, 109, 241-250.	1.5	2
100	Geometric and statistical properties in the evolution of material surfaces in three-dimensional chaotic flows. <i>Physics of Fluids</i> , 2001, 13, 1254-1262.	1.6	2
101	The sporulation model for manganiferous ore dissolution. <i>Chemical Engineering Science</i> , 2004, 59, 5107-5112.	1.9	2
102	Influence of surface heterogeneity in electroosmotic flows—Implications in chromatography, fluid mixing, and chemical reactions in microdevices. <i>Applied Surface Science</i> , 2007, 253, 5785-5790.	3.1	2
103	Energetics of Poisson-Kac Stochastic Processes Possessing Finite Propagation Velocity. <i>Journal of Non-Equilibrium Thermodynamics</i> , 2016, 41, .	2.4	2
104	Kac limit and thermodynamic characterization of stochastic dynamics driven by Poisson-Kac fluctuations. <i>European Physical Journal: Special Topics</i> , 2017, 226, 2299-2310.	1.2	2
105	Markovian nature, completeness, regularity and correlation properties of generalized Poisson-Kac processes. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2017, 2017, 023205.	0.9	2
106	Space-time transport schemes and homogenization. I: general theory of Markovian and non-Markovian processes. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2017, 2017, 033210.	0.9	2
107	Multiphase partitions of lattice random walks. <i>Europhysics Letters</i> , 2019, 126, 50002.	0.7	2
108	Inertial effects and long-term transport properties of particle motion in washboard potential. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2022, 585, 126407.	1.2	2

#	ARTICLE	IF	CITATIONS
109	Covariance and Spinorial Statistical Description of Simple Relativistic Stochastic Kinematics. Fluctuation and Noise Letters, 2020, 19, 2050042.	1.0	2
110	Multifractal analysis of frequency spectra. Journal of Non-Crystalline Solids, 1991, 131-133, 71-75.	1.5	1
111	MONTE CARLO SIMULATION OF AGGREGATION PROCESSES STRUCTURAL PROPERTIES OF DEPOSITIONAL AGGREGATES. Chemical Engineering Communications, 1993, 121, 219-234.	1.5	1
112	FIXED POINT METHOD IN STEADY STATE ANALYSIS. APPLICATION TO CATALYST PELLETS. Chemical Engineering Communications, 1993, 122, 57-67.	1.5	1
113	Reconstruction of Nonhomogeneous Porous Media. Industrial & Engineering Chemistry Research, 1997, 36, 5010-5014.	1.8	1
114	Experimental validation of a correlation-based model for permeability. Chemical Engineering Science, 2003, 58, 2449-2454.	1.9	1
115	Dispersion of overdamped diffusing particles in channel flows coupled to transverse acoustophoretic potentials: Transport regimes and scaling anomalies. Physical Review E, 2015, 92, 032104.	0.8	1
116	From simple lattice models to systems of interacting particles: the role of stochastic regularity in transport models. European Physical Journal: Special Topics, 2019, 228, 93-109.	1.2	1
117	Invariant manifold approach for quantifying the dynamics of highly inertial particles in steady and time-periodic incompressible flows. Chaos, 2022, 32, 023121.	1.0	1
118	Transport in porous packings: Statistical characterization of transport, role of fluctuation and data analysis. Environmetrics, 1993, 4, 255-277.	0.6	0
119	Local porosity analysis of disordered porous matrices. Studies in Surface Science and Catalysis, 1994, 87, 197-206.	1.5	0
120	Stochastic Analysis of Dispersion in Size-Exclusion Chromatographic Columns. Studies in Surface Science and Catalysis, 1994, 87, 373-382.	1.5	0
121	Projected Measures: A Simple Way to Characterize Fractal Structures and Interfaces. Fractals, 1997, 05, 295-308.	1.8	0
122	Vector Analysis on Fractal Curves. , 1999, , 155-170.		0
123	Mixing in Laminar Chaotic Flows: Differentiable Structures and Multifractal Features. , 1999, , 263-275.		0
124	Coarse-grained formulation for the time evolution of intermaterial contact area density in mixing systems. Computer Aided Chemical Engineering, 2000, , 451-456.	0.3	0
125	A novel approach to the analysis of distillation columns for multicomponent mixtures. Computer Aided Chemical Engineering, 2000, 8, 529-534.	0.3	0
126	Invariant structures and multifractal measures in 2d mixing systems. , 2005, , 141-155.		0



#	ARTICLE	IF	CITATIONS
127	Application of the theory of stochastic processes possessing finite propagation velocity to transport problems in polymeric systems. AIP Conference Proceedings, 2018, , .	0.3	0
128	Space-Time Inversion of Stochastic Dynamics. Symmetry, 2020, 12, 839.	1.1	0
129	Advection-diffusion in chaotic flows. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2009, , 149-217.	0.3	0
130	Spectral Properties of Stochastic Processes Possessing Finite Propagation Velocity. Entropy, 2022, 24, 201.	1.1	0
131	On the dynamic role of energy in underdamped particle motion. Physica A: Statistical Mechanics and Its Applications, 2022, 597, 127285.	1.2	0