TamÃ¡s Ìs Vicsek

List of Publications by Year
in descending order

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137 papers	30,292 citations	25034 57 h-index	14208 128 g-index
141 all docs	141 docs citations	141 times ranked	17864 citing authors

#	Article	IF	Citations
1	Novel Type of Phase Transition in a System of Self-Driven Particles. Physical Review Letters, 1995, 75, 1226-1229.	7.8	5,647
2	Uncovering the overlapping community structure of complex networks in nature and society. Nature, 2005, 435, 814-818.	27.8	4,445
3	Simulating dynamical features of escape panic. Nature, 2000, 407, 487-490.	27.8	3,857
4	Collective motion. Physics Reports, 2012, 517, 71-140.	25.6	2,197
5	Quantifying social group evolution. Nature, 2007, 446, 664-667.	27.8	1,405
6	CFinder: locating cliques and overlapping modules in biological networks. Bioinformatics, 2006, 22, 1021-1023.	4.1	845
7	Hierarchical group dynamics in pigeon flocks. Nature, 2010, 464, 890-893.	27.8	814
8	Dynamic Scaling for Aggregation of Clusters. Physical Review Letters, 1984, 52, 1669-1672.	7.8	523
9	Generic modelling of cooperative growth patterns in bacterial colonies. Nature, 1994, 368, 46-49.	27.8	520
10	Freezing by Heating in a Driven Mesoscopic System. Physical Review Letters, 2000, 84, 1240-1243.	7.8	425
11	Clique Percolation in Random Networks. Physical Review Letters, 2005, 94, 160202.	7.8	411
12	Phase transition in the collective migration of tissue cells: Experiment and model. Physical Review E, 2006, 74, 061908.	2.1	382
13	Deterministic scale-free networks. Physica A: Statistical Mechanics and Its Applications, 2001, 299, 559-564.	2.6	381
14	Controlling edge dynamics in complex networks. Nature Physics, 2012, 8, 568-573.	16.7	352
15	Multifractality of self-affine fractals. Physical Review A, 1991, 44, 2730-2733.	2.5	333
16	Collective behavior of interacting self-propelled particles. Physica A: Statistical Mechanics and Its Applications, 2000, 281, 17-29.	2.6	308
17	Optimized flocking of autonomous drones in confined environments. Science Robotics, 2018, 3, .	17.6	304
18	Dynamic cluster-size distribution in cluster-cluster aggregation: Effects of cluster diffusivity. Physical Review B, 1985, 31, 564-569.	3.2	260

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19	Pattern Formation in Diffusion-Limited Aggregation. Physical Review Letters, 1984, 53, 2281-2284.	7.8	259
20	Collective Motion of Self-Propelled Particles: Kinetic Phase Transition in One Dimension. Physical Review Letters, 1999, 82, 209-212.	7.8	220
21	Formation of complex bacterial colonies via self-generated vortices. Physical Review E, 1996, 54, 1791-1801.	2.1	219
22	Self-affine growth of bacterial colonies. Physica A: Statistical Mechanics and Its Applications, 1990, 167, 315-321.	2.6	204
23	Weighted network modules. New Journal of Physics, 2007, 9, 180-180.	2.9	190
24	Hierarchy Measure for Complex Networks. PLoS ONE, 2012, 7, e33799.	2.5	179
25	Cooperative Transport of Brownian Particles. Physical Review Letters, 1995, 75, 374-377.	7.8	168
26	Complexity: The bigger picture. Nature, 2002, 418, 131-131.	27.8	156
27	Determination of fractal dimensions for geometrical multifractals. Physica A: Statistical Mechanics and Its Applications, 1989, 159, 155-166.	2.6	154
28	Context-dependent hierarchies in pigeons. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 13049-13054.	7.1	150
29	Collective motion of cells: from experiments to models. Integrative Biology (United Kingdom), 2014, 6, 831-854.	1.3	136
30	Flocking algorithm for autonomous flying robots. Bioinspiration and Biomimetics, 2014, 9, 025012.	2.9	132
31	Cooperative Formation of Chiral Patterns during Growth of Bacterial Colonies. Physical Review Letters, 1995, 75, 2899-2902.	7.8	124
32	Optimal self-organization. New Journal of Physics, 0, 1, 13-13.	2.9	124
33	Cluster size distribution in chemically controlled clusterâ€“cluster aggregation. Journal of Chemical Physics, 1985, 83, 4144-4150.	3.0	121
34	Transitions of viscous fingering patterns in nematic liquid crystals. Nature, 1986, 323, 424-425.	27.8	114
35	Diffusion-Controlled Deposition: Cluster Statistics and Scaling. Physical Review Letters, 1983, 51, 2382-2385.	7.8	108
36	Directed network modules. New Journal of Physics, 2007, 9, 186-186.	2.9	108

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37	New aspects of the continuous phase transition in the scalar noise model (SNM) of collective motion. Physica A: Statistical Mechanics and Its Applications, 2007, 373, 445-454.	2.6	108
38	Collective motion of organisms in three dimensions. Physica A: Statistical Mechanics and Its Applications, 1999, 264, 299-304.	2.6	105
39	Speed Determines Leadership and Leadership Determines Learning during Pigeon Flocking. Current Biology, 2015, 25, 3132-3137.	3.9	105
40	A question of scale. Nature, 2001, 411, 421-421.	27.8	102
41	Identification of Behaviour in Freely Moving Dogs (Canis familiaris) Using Inertial Sensors. PLoS ONE, 2013, 8, e77814.	2.5	99
42	Multifractal spectra of multi-affine functions. Physica A: Statistical Mechanics and Its Applications, 1991, 178, 17-28.	2.6	98
43	Exponential Distribution of Locomotion Activity in Cell Cultures. Physical Review Letters, 1998, 81, 3038-3041.	7.8	94
44	Friction forces position the neural anlage. Nature Cell Biology, 2017, 19, 306-317.	10.3	93
45	Scaling in steady-state cluster-cluster aggregation. Physical Review A, 1985, 32, 1122-1128.	2.5	91
46	Anomalous noise distribution of the interface in two-phase fluid flow. Physical Review Letters, 1991, 67, 3207-3210.	7.8	81
47	Chemomodulation of cellular movement, collective formation of vortices by swarming bacteria, and colonial development. Physica A: Statistical Mechanics and Its Applications, 1997, 238, 181-197.	2.6	81
48	Formation of solidification patterns in aggregation models. Physical Review A, 1985, 32, 3084-3089.	2.5	79
49	Closing in on evaders. Nature, 2010, 466, 43-44.	27.8	79
50	Proliferative and migratory responses of astrocytes to in vitro injury. Journal of Neuroscience Research, 2000, 61, 421-429.	2.9	77
51	Internal structure of diffusion-limited aggregates. Physical Review A, 1985, 32, 685-688.	2.5	71
52	Mass multifractals. Physica A: Statistical Mechanics and Its Applications, 1990, 168, 490-497.	2.6	68
53	Multifractal network generator. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 7640-7645.	7.1	67
54	Collective motion in biological systems. Interface Focus, 2012, 2, 689-692.	3.0	64

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55	Viscous fingering with imposed uniaxial anisotropy. Physical Review A, 1987, 35, 2353-2356.	2.5	63
56	Multifractality of growing surfaces. Physical Review A, 1992, 45, R6951-R6954.	2.5	62
57	Comment on â€˜â€˜Self-affine fractal interfaces from immiscible displacement in porous mediaâ€™â€™. Physical Review Letters, 1990, 65, 1388-1388.	7.8	58
58	COMMUNICATION, REGULATION AND CONTROL DURING COMPLEX PATTERNING OF BACTERIAL COLONIES. Fractals, 1994, 02, 15-44.	3.7	57
59	Locomotion and proliferation of glioblastoma cells in vitro: statistical evaluation of videomicroscopic observations. Journal of Neurosurgery, 2000, 92, 428-434.	1.6	55
60	Are Random Fractal Clusters Isotropic?. Physical Review Letters, 1985, 55, 641-644.	7.8	53
61	Leadership and Path Characteristics during Walks Are Linked to Dominance Order and Individual Traits in Dogs. PLoS Computational Biology, 2014, 10, e1003446.	3.2	52
62	Collective Motion of Cells Mediates Segregation and Pattern Formation in Co-Cultures. PLoS ONE, 2012, 7, e31711.	2.5	51
63	Application of statistical mechanics to collective motion in biology. Physica A: Statistical Mechanics and Its Applications, 1999, 274, 182-189.	2.6	49
64	Comparing bird and human soaring strategies. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 4139-4143.	7.1	47
65	Lattice-gas model for collective biological motion. Physical Review E, 1995, 52, 5297-5303.	2.1	46
66	Ballistic deposition with power-law noise: A variant of the Zhang model. Physical Review A, 1991, 43, 7113-7116.	2.5	45
67	Swarming Behavior in Plant Roots. PLoS ONE, 2012, 7, e29759.	2.5	45
68	Fundamental statistical features and self-similar properties of tagged networks. New Journal of Physics, 2008, 10, 123026.	2.9	43
69	Group chasing tactics: how to catch a faster prey. New Journal of Physics, 2017, 19, 053003.	2.9	41
70	A nationwide study of the epidemiology of relapsing polychondritis. Clinical Epidemiology, 2016, Volume 8, 211-230.	3.0	38
71	Topological phase transitions of random networks. Physica A: Statistical Mechanics and Its Applications, 2004, 334, 583-590.	2.6	36
72	Differentiation of Primary Human Submandibular Gland Cells Cultured on Basement Membrane Extract. Tissue Engineering - Part A, 2008, 14, 1915-1926.	3.1	35

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73	Robustness of flight leadership relations in pigeons. Animal Behaviour, 2013, 86, 723-732.	1.9	35
74	Collective foraging in heterogeneous landscapes. Journal of the Royal Society Interface, 2014, 11, 20140674.	3.4	34
75	Modelling hierarchical flocking. New Journal of Physics, 2019, 21, 093048.	2.9	29
76	Dynamics of cell aggregation during in vitro neurogenesis by immortalized neuroectodermal progenitors. Journal of Neuroscience Research, 2000, 60, 184-194.	2.9	27
77	The Critical Point of k-Clique Percolation in the ErdÅ‘sâ€“RÃ©nyi Graph. Journal of Statistical Physics, 2007, 128, 219-227.	1.2	26
78	Group performance is maximized by hierarchical competence distribution. Nature Communications, 2013, 4, 2484.	12.8	26
79	Universal Patterns of Collective Motion from Minimal Models of Flocking. , 2008, , .		25
80	Modeling the Emergence of Modular Leadership Hierarchy During the Collective Motion of Herds Made of Harems. Journal of Statistical Physics, 2015, 158, 628-646.	1.2	25
81	Patterns, transitions and the role of leaders in the collective dynamics of a simple robotic flock. Journal of Statistical Mechanics: Theory and Experiment, 2011, 2011, P04010.	2.3	24
82	Shock waves on complex networks. Scientific Reports, 2014, 4, 4949.	3.3	23
83	Adaptive leadership overcomes persistenceâ€“responsivity trade-off in flocking. Journal of the Royal Society Interface, 2020, 17, 20190853.	3.4	23
84	Fractal distribution of galaxies modeled by a cellular-automaton-type stochastic process. Physical Review Letters, 1987, 58, 2818-2821.	7.8	22
85	Switching hierarchical leadership mechanism in homing flight of pigeon flocks. Europhysics Letters, 2016, 114, 60008.	2.0	22
86	Hierarchical networks of scientific journals. Palgrave Communications, 2015, 1, .	4.7	21
87	Pattern phase transitions of self-propelled particles: gases, crystals, liquids, and mills. New Journal of Physics, 2016, 18, 103005.	2.9	21
88	Synergistic Benefits of Group Search in Rats. Current Biology, 2020, 30, 4733-4738.e4.	3.9	21
89	Kinetic roughening in a model of sedimentation of granular materials. Physical Review A, 1992, 46, 4577-4581.	2.5	18
90	Extracting Tag Hierarchies. PLoS ONE, 2013, 8, e84133.	2.5	18

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91	Why We Live in Hierarchies?. SpringerBriefs in Complexity, 2018, , .	0.1	17
92	Anomalous segregation dynamics of self-propelled particles. New Journal of Physics, 2015, 17, 063013.	2.9	16
93	Hierarchical Self-Organization of Non-Cooperating Individuals. PLoS ONE, 2013, 8, e81449.	2.5	16
94	COOPERATIVE STRATEGIES IN FORMATION OF COMPLEX BACTERIAL PATTERNS. Fractals, 1995, 03, 849-868.	3.7	15
95	Response of bacterial colonies to imposed anisotropy. Physical Review E, 1996, 53, 1835-1843.	2.1	15
96	Viral Epidemics in a Cell Culture: Novel High Resolution Data and Their Interpretation by a Percolation Theory Based Model. PLoS ONE, 2010, 5, e15571.	2.5	15
97	Dystroglycan is involved in laminin-1-stimulated motility of MÃ¼ller glial cells: Combined velocity and directionality analysis. Glia, 2005, 49, 492-500.	4.9	14
98	HIV Competition Dynamics over Sexual Networks: First Comer Advantage Conserves Founder Effects. PLoS Computational Biology, 2015, 11, e1004093.	3.2	14
99	Realistic models of biological motion. Physica A: Statistical Mechanics and Its Applications, 1998, 249, 397-406.	2.6	13
100	Swarming microtubules. Nature, 2012, 483, 411-412.	27.8	13
101	Possible origin of power-law behavior inn-tuple Zipf analysis. Physical Review E, 1996, 53, 6371-6375.	2.1	12
102	Glassy nature of hierarchical organizations. Scientific Reports, 2017, 7, 1382.	3.3	12
103	COMMUNITY DYNAMICS IN SOCIAL NETWORKS. Fluctuation and Noise Letters, 2007, 07, L273-L287.	1.5	11
104	Phase transitions and overlapping modules in complex networks. Physica A: Statistical Mechanics and Its Applications, 2007, 378, 20-32.	2.6	11
105	Singularities and asymptotics in diffusion-limited aggregation. Physical Review Letters, 1986, 57, 3303-3303.	7.8	10
106	Deterministic models of fractal and multifractal growth. Physica D: Nonlinear Phenomena, 1989, 38, 356-361.	2.8	10
107	Differences in structure and dynamics of networks retrieved from dark and public web forums. Physica A: Statistical Mechanics and Its Applications, 2019, 525, 326-336.	2.6	10
108	Laplacian Pattern Formation. Europhysics News, 1988, 19, 24-27.	0.3	9

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109	Overlapping Modularity at the Critical Point of k-Clique Percolation. Journal of Statistical Physics, 2013, 151, 689-706.	1.2	9
110	Simulating Fractal Aggregation. Computers in Physics, 1990, 4, 44.	0.5	8
111	Centrality properties of directed module members in social networks. Physica A: Statistical Mechanics and Its Applications, 2008, 387, 4959-4966.	2.6	8
112	Universal hierarchical behavior of citation networks. Journal of Statistical Mechanics: Theory and Experiment, 2014, 2014, P05023.	2.3	8
113	Optimized phenomenological renormalization group for geometrical models: Applications to diffusion-limited aggregation. Physical Review A, 1985, 32, 2557-2559.	2.5	7
114	Tracing a diffusion-limited aggregate: Self-affine versus self-similar scaling. Physical Review A, 1990, 41, 6881-6883.	2.5	6
115	Self-affine fractal analysis of protein structures. Chaos, Solitons and Fractals, 1991, 1, 431-438.	5.1	6
116	Patterns in the collective behavior of humans. AIP Conference Proceedings, 2005, , .	0.4	6
117	Complex clinical pathways of an autoimmune disease. Journal of Complex Networks, 2018, 6, 206-214.	1.8	6
118	Ontologies and tag-statistics. New Journal of Physics, 2012, 14, 053009.	2.9	5
119	Rotated multifractal network generator. Journal of Statistical Mechanics: Theory and Experiment, 2011, 2011, P02003.	2.3	4
120	To join or not to join: collective foraging strategies. Journal of Physics: Conference Series, 2015, 638, 012015.	0.4	4
121	What makes a phase transition? Analysis of the random satisfiability problem. Physica A: Statistical Mechanics and Its Applications, 2010, 389, 1501-1511.	2.6	3
122	Ecological patterns emerging as a result of the density distribution of organisms. Physics of Life Reviews, 2016, 19, 139-141.	2.8	3
123	Phenomenological theory of collective decision-making. Physica A: Statistical Mechanics and Its Applications, 2017, 479, 287-298.	2.6	3
124	Emergence of Leader-Follower Hierarchy Among Players in an On-Line Experiment. , 2018, , .		3
125	Complex spatiotemporal patterns in two lattice models with instability. Physica A: Statistical Mechanics and Its Applications, 1996, 233, 754-766.	2.6	2
126	Initiating a Mexican wave: An instantaneous collective decision with both short- and long-range interactions. Physica A: Statistical Mechanics and Its Applications, 2006, 369, 830-840.	2.6	2

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127	Clustering of tag-induced subgraphs in complex networks. Physica A: Statistical Mechanics and Its Applications, 2010, 389, 5887-5894.	2.6	2
128	PARALLEL CLUSTERING WITH CFINDER. Parallel Processing Letters, 2012, 22, 1240001.	0.6	2
129	Dimensionality constraints of light-induced rotation. Applied Physics Letters, 2015, 107, 204106.	3.3	2
130	Observations and Measurements. SpringerBriefs in Complexity, 2018, , 41-78.	0.1	2
131	Dynamics of cell aggregation during in vitro neurogenesis by immortalized neuroectodermal progenitors. Journal of Neuroscience Research, 2000, 60, 184.	2.9	1
132	Proliferative and migratory responses of astrocytes to in vitro injury. , 2000, 61, 421.		1
133	DYNAMICS OF GROWING SELF-AFFINE SURFACES. , 1992, , 237-248.		1
134	Cooperative Strategies and Genome Cybernetics in Formation of Complex Bacterial Patterns. Materials Research Society Symposia Proceedings, 1994, 367, 405.	0.1	0
135	An Experimental Study of the Fluctuations in Granular Drag. Materials Research Society Symposia Proceedings, 2000, 627, 1.	0.1	0
136	COMPLEXITY IN THE COLLECTIVE BEHAVIOUR OF HUMANS. , 2005, , .		0
137	COMMUNICATION, REGULATION AND CONTROL DURING COMPLEX PATTERNING OF BACTERIAL COLONIES. , 1994, , 3-32.		0