

# Tamás Is Vicsek

## List of Publications by Year in descending order

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137  
papers

30,292  
citations

24978

57  
h-index

14156

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. <i>Physical Review Letters</i> , 1995, 75, 1226-1229.	2.9	5,647
2	Uncovering the overlapping community structure of complex networks in nature and society. <i>Nature</i> , 2005, 435, 814-818.	13.7	4,445
3	Simulating dynamical features of escape panic. <i>Nature</i> , 2000, 407, 487-490.	13.7	3,857
4	Collective motion. <i>Physics Reports</i> , 2012, 517, 71-140.	10.3	2,197
5	Quantifying social group evolution. <i>Nature</i> , 2007, 446, 664-667.	13.7	1,405
6	CFinder: locating cliques and overlapping modules in biological networks. <i>Bioinformatics</i> , 2006, 22, 1021-1023.	1.8	845
7	Hierarchical group dynamics in pigeon flocks. <i>Nature</i> , 2010, 464, 890-893.	13.7	814
8	Dynamic Scaling for Aggregation of Clusters. <i>Physical Review Letters</i> , 1984, 52, 1669-1672.	2.9	523
9	Generic modelling of cooperative growth patterns in bacterial colonies. <i>Nature</i> , 1994, 368, 46-49.	13.7	520
10	Freezing by Heating in a Driven Mesoscopic System. <i>Physical Review Letters</i> , 2000, 84, 1240-1243.	2.9	425
11	Clique Percolation in Random Networks. <i>Physical Review Letters</i> , 2005, 94, 160202.	2.9	411
12	Phase transition in the collective migration of tissue cells: Experiment and model. <i>Physical Review E</i> , 2006, 74, 061908.	0.8	382
13	Deterministic scale-free networks. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2001, 299, 559-564.	1.2	381
14	Controlling edge dynamics in complex networks. <i>Nature Physics</i> , 2012, 8, 568-573.	6.5	352
15	Multifractality of self-affine fractals. <i>Physical Review A</i> , 1991, 44, 2730-2733.	1.0	333
16	Collective behavior of interacting self-propelled particles. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2000, 281, 17-29.	1.2	308
17	Optimized flocking of autonomous drones in confined environments. <i>Science Robotics</i> , 2018, 3, .	9.9	304
18	Dynamic cluster-size distribution in cluster-cluster aggregation: Effects of cluster diffusivity. <i>Physical Review B</i> , 1985, 31, 564-569.	1.1	260

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19	Pattern Formation in Diffusion-Limited Aggregation. <i>Physical Review Letters</i> , 1984, 53, 2281-2284.	2.9	259
20	Collective Motion of Self-Propelled Particles: Kinetic Phase Transition in One Dimension. <i>Physical Review Letters</i> , 1999, 82, 209-212.	2.9	220
21	Formation of complex bacterial colonies via self-generated vortices. <i>Physical Review E</i> , 1996, 54, 1791-1801.	0.8	219
22	Self-affine growth of bacterial colonies. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1990, 167, 315-321.	1.2	204
23	Weighted network modules. <i>New Journal of Physics</i> , 2007, 9, 180-180.	1.2	190
24	Hierarchy Measure for Complex Networks. <i>PLoS ONE</i> , 2012, 7, e33799.	1.1	179
25	Cooperative Transport of Brownian Particles. <i>Physical Review Letters</i> , 1995, 75, 374-377.	2.9	168
26	Complexity: The bigger picture. <i>Nature</i> , 2002, 418, 131-131.	13.7	156
27	Determination of fractal dimensions for geometrical multifractals. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1989, 159, 155-166.	1.2	154
28	Context-dependent hierarchies in pigeons. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, 13049-13054.	3.3	150
29	Collective motion of cells: from experiments to models. <i>Integrative Biology (United Kingdom)</i> , 2014, 6, 831-854.	0.6	136
30	Flocking algorithm for autonomous flying robots. <i>Bioinspiration and Biomimetics</i> , 2014, 9, 025012.	1.5	132
31	Cooperative Formation of Chiral Patterns during Growth of Bacterial Colonies. <i>Physical Review Letters</i> , 1995, 75, 2899-2902.	2.9	124
32	Optimal self-organization. <i>New Journal of Physics</i> , 1999, 1, 13-13.	1.2	124
33	Cluster size distribution in chemically controlled cluster-cluster aggregation. <i>Journal of Chemical Physics</i> , 1985, 83, 4144-4150.	1.2	121
34	Transitions of viscous fingering patterns in nematic liquid crystals. <i>Nature</i> , 1986, 323, 424-425.	13.7	114
35	Diffusion-Controlled Deposition: Cluster Statistics and Scaling. <i>Physical Review Letters</i> , 1983, 51, 2382-2385.	2.9	108
36	Directed network modules. <i>New Journal of Physics</i> , 2007, 9, 186-186.	1.2	108

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37	New aspects of the continuous phase transition in the scalar noise model (SNM) of collective motion. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2007, 373, 445-454.	1.2	108
38	Collective motion of organisms in three dimensions. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1999, 264, 299-304.	1.2	105
39	Speed Determines Leadership and Leadership Determines Learning during Pigeon Flocking. <i>Current Biology</i> , 2015, 25, 3132-3137.	1.8	105
40	A question of scale. <i>Nature</i> , 2001, 411, 421-421.	13.7	102
41	Identification of Behaviour in Freely Moving Dogs ( <i>Canis familiaris</i> ) Using Inertial Sensors. <i>PLoS ONE</i> , 2013, 8, e77814.	1.1	99
42	Multifractal spectra of multi-affine functions. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1991, 178, 17-28.	1.2	98
43	Exponential Distribution of Locomotion Activity in Cell Cultures. <i>Physical Review Letters</i> , 1998, 81, 3038-3041.	2.9	94
44	Friction forces position the neural anlage. <i>Nature Cell Biology</i> , 2017, 19, 306-317.	4.6	93
45	Scaling in steady-state cluster-cluster aggregation. <i>Physical Review A</i> , 1985, 32, 1122-1128.	1.0	91
46	Anomalous noise distribution of the interface in two-phase fluid flow. <i>Physical Review Letters</i> , 1991, 67, 3207-3210.	2.9	81
47	Chemomodulation of cellular movement, collective formation of vortices by swarming bacteria, and colonial development. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1997, 238, 181-197.	1.2	81
48	Formation of solidification patterns in aggregation models. <i>Physical Review A</i> , 1985, 32, 3084-3089.	1.0	79
49	Closing in on evaders. <i>Nature</i> , 2010, 466, 43-44.	13.7	79
50	Proliferative and migratory responses of astrocytes to in vitro injury. <i>Journal of Neuroscience Research</i> , 2000, 61, 421-429.	1.3	77
51	Internal structure of diffusion-limited aggregates. <i>Physical Review A</i> , 1985, 32, 685-688.	1.0	71
52	Mass multifractals. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1990, 168, 490-497.	1.2	68
53	Multifractal network generator. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2010, 107, 7640-7645.	3.3	67
54	Collective motion in biological systems. <i>Interface Focus</i> , 2012, 2, 689-692.	1.5	64

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55	Viscous fingering with imposed uniaxial anisotropy. <i>Physical Review A</i> , 1987, 35, 2353-2356.	1.0	63
56	Multifractality of growing surfaces. <i>Physical Review A</i> , 1992, 45, R6951-R6954.	1.0	62
57	Comment on "Self-affine fractal interfaces from immiscible displacement in porous media". <i>Physical Review Letters</i> , 1990, 65, 1388-1388.	2.9	58
58	COMMUNICATION, REGULATION AND CONTROL DURING COMPLEX PATTERNING OF BACTERIAL COLONIES. <i>Fractals</i> , 1994, 02, 15-44.	1.8	57
59	Locomotion and proliferation of glioblastoma cells in vitro: statistical evaluation of videomicroscopic observations. <i>Journal of Neurosurgery</i> , 2000, 92, 428-434.	0.9	55
60	Are Random Fractal Clusters Isotropic?. <i>Physical Review Letters</i> , 1985, 55, 641-644.	2.9	53
61	Leadership and Path Characteristics during Walks Are Linked to Dominance Order and Individual Traits in Dogs. <i>PLoS Computational Biology</i> , 2014, 10, e1003446.	1.5	52
62	Collective Motion of Cells Mediates Segregation and Pattern Formation in Co-Cultures. <i>PLoS ONE</i> , 2012, 7, e31711.	1.1	51
63	Application of statistical mechanics to collective motion in biology. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1999, 274, 182-189.	1.2	49
64	Comparing bird and human soaring strategies. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2008, 105, 4139-4143.	3.3	47
65	Lattice-gas model for collective biological motion. <i>Physical Review E</i> , 1995, 52, 5297-5303.	0.8	46
66	Ballistic deposition with power-law noise: A variant of the Zhang model. <i>Physical Review A</i> , 1991, 43, 7113-7116.	1.0	45
67	Swarming Behavior in Plant Roots. <i>PLoS ONE</i> , 2012, 7, e29759.	1.1	45
68	Fundamental statistical features and self-similar properties of tagged networks. <i>New Journal of Physics</i> , 2008, 10, 123026.	1.2	43
69	Group chasing tactics: how to catch a faster prey. <i>New Journal of Physics</i> , 2017, 19, 053003.	1.2	41
70	A nationwide study of the epidemiology of relapsing polychondritis. <i>Clinical Epidemiology</i> , 2016, Volume 8, 211-230.	1.5	38
71	Topological phase transitions of random networks. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2004, 334, 583-590.	1.2	36
72	Differentiation of Primary Human Submandibular Gland Cells Cultured on Basement Membrane Extract. <i>Tissue Engineering - Part A</i> , 2008, 14, 1915-1926.	1.6	35

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73	Robustness of flight leadership relations in pigeons. <i>Animal Behaviour</i> , 2013, 86, 723-732.	0.8	35
74	Collective foraging in heterogeneous landscapes. <i>Journal of the Royal Society Interface</i> , 2014, 11, 20140674.	1.5	34
75	Modelling hierarchical flocking. <i>New Journal of Physics</i> , 2019, 21, 093048.	1.2	29
76	Dynamics of cell aggregation during in vitro neurogenesis by immortalized neuroectodermal progenitors. <i>Journal of Neuroscience Research</i> , 2000, 60, 184-194.	1.3	27
77	The Critical Point of $k$ -Clique Percolation in the Erdős-Rényi Graph. <i>Journal of Statistical Physics</i> , 2007, 128, 219-227.	0.5	26
78	Group performance is maximized by hierarchical competence distribution. <i>Nature Communications</i> , 2013, 4, 2484.	5.8	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. <i>Journal of Statistical Physics</i> , 2015, 158, 628-646.	0.5	25
81	Patterns, transitions and the role of leaders in the collective dynamics of a simple robotic flock. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2011, 2011, P04010.	0.9	24
82	Shock waves on complex networks. <i>Scientific Reports</i> , 2014, 4, 4949.	1.6	23
83	Adaptive leadership overcomes persistence-responsivity trade-off in flocking. <i>Journal of the Royal Society Interface</i> , 2020, 17, 20190853.	1.5	23
84	Fractal distribution of galaxies modeled by a cellular-automaton-type stochastic process. <i>Physical Review Letters</i> , 1987, 58, 2818-2821.	2.9	22
85	Switching hierarchical leadership mechanism in homing flight of pigeon flocks. <i>Europhysics Letters</i> , 2016, 114, 60008.	0.7	22
86	Hierarchical networks of scientific journals. <i>Palgrave Communications</i> , 2015, 1, .	4.7	21
87	Pattern phase transitions of self-propelled particles: gases, crystals, liquids, and mills. <i>New Journal of Physics</i> , 2016, 18, 103005.	1.2	21
88	Synergistic Benefits of Group Search in Rats. <i>Current Biology</i> , 2020, 30, 4733-4738.e4.	1.8	21
89	Kinetic roughening in a model of sedimentation of granular materials. <i>Physical Review A</i> , 1992, 46, 4577-4581.	1.0	18
90	Extracting Tag Hierarchies. <i>PLoS ONE</i> , 2013, 8, e84133.	1.1	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.	1.2	16
93	Hierarchical Self-Organization of Non-Cooperating Individuals. PLoS ONE, 2013, 8, e81449.	1.1	16
94	COOPERATIVE STRATEGIES IN FORMATION OF COMPLEX BACTERIAL PATTERNS. Fractals, 1995, 03, 849-868.	1.8	15
95	Response of bacterial colonies to imposed anisotropy. Physical Review E, 1996, 53, 1835-1843.	0.8	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.	1.1	15
97	Dystroglycan is involved in laminin-1-stimulated motility of Müller glial cells: Combined velocity and directionality analysis. Glia, 2005, 49, 492-500.	2.5	14
98	HIV Competition Dynamics over Sexual Networks: First Comer Advantage Conserves Founder Effects. PLoS Computational Biology, 2015, 11, e1004093.	1.5	14
99	Realistic models of biological motion. Physica A: Statistical Mechanics and Its Applications, 1998, 249, 397-406.	1.2	13
100	Swarming microtubules. Nature, 2012, 483, 411-412.	13.7	13
101	Possible origin of power-law behavior in Zipf analysis. Physical Review E, 1996, 53, 6371-6375.	0.8	12
102	Glassy nature of hierarchical organizations. Scientific Reports, 2017, 7, 1382.	1.6	12
103	COMMUNITY DYNAMICS IN SOCIAL NETWORKS. Fluctuation and Noise Letters, 2007, 07, L273-L287.	1.0	11
104	Phase transitions and overlapping modules in complex networks. Physica A: Statistical Mechanics and Its Applications, 2007, 378, 20-32.	1.2	11
105	Singularities and asymptotics in diffusion-limited aggregation. Physical Review Letters, 1986, 57, 3303-3303.	2.9	10
106	Deterministic models of fractal and multifractal growth. Physica D: Nonlinear Phenomena, 1989, 38, 356-361.	1.3	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.	1.2	10
108	Laplacian Pattern Formation. Europhysics News, 1988, 19, 24-27.	0.1	9

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109	Overlapping Modularity at the Critical Point of k-Clique Percolation. Journal of Statistical Physics, 2013, 151, 689-706.	0.5	9
110	Simulating Fractal Aggregation. Computers in Physics, 1990, 4, 44.	0.6	8
111	Centrality properties of directed module members in social networks. Physica A: Statistical Mechanics and Its Applications, 2008, 387, 4959-4966.	1.2	8
112	Universal hierarchical behavior of citation networks. Journal of Statistical Mechanics: Theory and Experiment, 2014, 2014, P05023.	0.9	8
113	Optimized phenomenological renormalization group for geometrical models: Applications to diffusion-limited aggregation. Physical Review A, 1985, 32, 2557-2559.	1.0	7
114	Tracing a diffusion-limited aggregate: Self-affine versus self-similar scaling. Physical Review A, 1990, 41, 6881-6883.	1.0	6
115	Self-affine fractal analysis of protein structures. Chaos, Solitons and Fractals, 1991, 1, 431-438.	2.5	6
116	Patterns in the collective behavior of humans. AIP Conference Proceedings, 2005, , .	0.3	6
117	Complex clinical pathways of an autoimmune disease. Journal of Complex Networks, 2018, 6, 206-214.	1.1	6
118	Ontologies and tag-statistics. New Journal of Physics, 2012, 14, 053009.	1.2	5
119	Rotated multifractal network generator. Journal of Statistical Mechanics: Theory and Experiment, 2011, 2011, P02003.	0.9	4
120	To join or not to join: collective foraging strategies. Journal of Physics: Conference Series, 2015, 638, 012015.	0.3	4
121	What makes a phase transition? Analysis of the random satisfiability problem. Physica A: Statistical Mechanics and Its Applications, 2010, 389, 1501-1511.	1.2	3
122	Ecological patterns emerging as a result of the density distribution of organisms. Physics of Life Reviews, 2016, 19, 139-141.	1.5	3
123	Phenomenological theory of collective decision-making. Physica A: Statistical Mechanics and Its Applications, 2017, 479, 287-298.	1.2	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.	1.2	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.	1.2	2



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127	Clustering of tag-induced subgraphs in complex networks. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2010, 389, 5887-5894.	1.2	2
128	PARALLEL CLUSTERING WITH CFINDER. <i>Parallel Processing Letters</i> , 2012, 22, 1240001.	0.4	2
129	Dimensionality constraints of light-induced rotation. <i>Applied Physics Letters</i> , 2015, 107, 204106.	1.5	2
130	Observations and Measurements. <i>SpringerBriefs in Complexity</i> , 2018, , 41-78.	0.1	2
131	Dynamics of cell aggregation during in vitro neurogenesis by immortalized neuroectodermal progenitors. , 2000, 60, 184.		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. <i>Materials Research Society Symposia Proceedings</i> , 1994, 367, 405.	0.1	0
135	An Experimental Study of the Fluctuations in Granular Drag. <i>Materials Research Society Symposia Proceedings</i> , 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