Mario Nicodemi

List of Publications by Year
in descending order

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172 papers	6,780 citations	81743 39 h-index	82410 72 g-index
190 all docs	190 docs citations	190 times ranked	5140 citing authors

#	Article	IF	Citations
1	Complex multi-enhancer contacts captured by genome architecture mapping. Nature, 2017, 543, 519-524.	13.7	562
2	Complexity of chromatin folding is captured by the strings and binders switch model. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 16173-16178.	3.3	493
3	Slow relaxation and compaction of granular systems. Nature Materials, 2005, 4, 121-128.	13.3	351
4	Hierarchical folding and reorganization of chromosomes are linked to transcriptional changesÂin cellular differentiation. Molecular Systems Biology, 2015, 11, 852.	3.2	305
5	Universal Fluctuations in Correlated Systems. Physical Review Letters, 2000, 84, 3744-3747.	2.9	225
6	Polymer physics predicts the effects of structural variants on chromatin architecture. Nature Genetics, 2018, 50, 662-667.	9.4	179
7	Promoter-proximal CTCF binding promotes distal enhancer-dependent gene activation. Nature Structural and Molecular Biology, 2021, 28, 152-161.	3.6	172
8	Polymer physics of chromosome large-scale 3D organisation. Scientific Reports, 2016, 6, 29775.	1.6	160
9	Single-allele chromatin interactions identify regulatory hubs in dynamic compartmentalized domains. Nature Genetics, 2018, 50, 1744-1751.	9.4	150
10	Dynamic 3D chromatin architecture contributes to enhancer specificity and limb morphogenesis. Nature Genetics, 2018, 50, 1463-1473.	9.4	147
11	A â€œTetris-Likeâ€•Model for the Compaction of Dry Granular Media. Physical Review Letters, 1997, 79, 1575-1578.	2.9	141
12	Preformed chromatin topology assists transcriptional robustness of Shh during limb development. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 12390-12399.	3.3	131
13	Frustration and slow dynamics of granular packings. Physical Review E, 1997, 55, 3962-3969.	0.8	117
14	Thermodynamic Pathways to Genome Spatial Organization in the Cell Nucleus. Biophysical Journal, 2009, 96, 2168-2177.	0.2	113
15	Cell-type specialization is encoded by specific chromatin topologies. Nature, 2021, 599, 684-691.	13.7	112
16	Nonequilibrium Chromosome Looping via Molecular Slip Links. Physical Review Letters, 2017, 119, 138101.	2.9	105
17	Models of chromosome structure. Current Opinion in Cell Biology, 2014, 28, 90-95.	2.6	100
18	Universality in Solar Flare and Earthquake Occurrence. Physical Review Letters, 2006, 96, 051102.	2.9	95

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19	CTCF mediates dosage- and sequence-context-dependent transcriptional insulation by forming local chromatin domains. Nature Genetics, 2021, 53, 1064-1074.	9.4	90
20	Active and poised promoter states drive folding of the extended HoxB locus in mouse embryonic stem cells. Nature Structural and Molecular Biology, 2017, 24, 515-524.	3.6	80
21	Polymer physics indicates chromatin folding variability across single-cells results from state degeneracy in phase separation. Nature Communications, 2020, 11, 3289.	5.8	79
22	Dynamical Response Functions in Models of Vibrated Granular Media. Physical Review Letters, 1999, 82, 3734-3737.	2.9	77
23	Aging in Out-of-Equilibrium Dynamics of Models for Granular Media. Physical Review Letters, 1999, 82, 916-919.	2.9	77
24	Jamming phase diagram for frictional particles. Physical Review E, 2011, 84, 041308.	0.8	76
25	Release of paused RNA polymerase II at specific loci favors DNA double-strand-break formation and promotes cancer translocations. Nature Genetics, 2019, 51, 1011-1023.	9.4	73
26	Shear Instabilities in Granular Mixtures. Physical Review Letters, 2005, 94, 188001.	2.9	71
27	Thermodynamics and Statistical Mechanics of Dense Granular Media. Physical Review Letters, 2006, 97, 158001.	2.9	70
28	Granular Species Segregation under Vertical Tapping: Effects of Size, Density, Friction, and Shaking Amplitude. Physical Review Letters, 2006, 96, 058001.	2.9	69
29	Single-cell analysis of CD4+ T-cell differentiation reveals three major cell states and progressive acceleration of proliferation. Genome Biology, 2016, 17, 103.	3.8	65
30	Symmetry-Breaking Model forX-Chromosome Inactivation. Physical Review Letters, 2007, 98, 108104.	2.9	64
31	Recent results on the jamming phase diagram. Soft Matter, 2010, 6, 2871.	1.2	56
32	Challenges and guidelines toward 4D nucleome data and model standards. Nature Genetics, 2018, 50, 1352-1358.	9.4	47
33	Electrical resistivity tomography and statistical analysis in landslide modelling: A conceptual approach. Journal of Applied Geophysics, 2009, 68, 151-158.	0.9	46
34	Segregation of granular mixtures in the presence of compaction. Europhysics Letters, 1998, 43, 591-597.	0.7	45
35	A statistical mechanics approach to the inherent states of granular media. Physica A: Statistical Mechanics and Its Applications, 2001, 296, 451-459.	1.2	44
36	<scp>RNA</scp> polymerase <scp>II</scp> primes Polycombâ€repressed developmental genes throughout terminal neuronal differentiation. Molecular Systems Biology, 2017, 13, 946.	3.2	44

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37	A Thermodynamic Switch for Chromosome Colocalization. Genetics, 2008, 179, 717-721.	1.2	43
38	Record dynamics and the observed temperature plateau in the magnetic creep-rate of type-II superconductors. Physical Review B, 2005, 71, .	1.1	42
39	Predicting chromatin architecture from models of polymer physics. Chromosome Research, 2017, 25, 25-34.	1.0	42
40	The compaction in granular media and frustrated Ising models. Journal of Physics A, 1997, 30, L379-L385.	1.6	41
41	Equilibrium distribution of the inherent states and their dynamics in glassy systems and granular media. Europhysics Letters, 2002, 59, 642-647.	0.7	40
42	The glassy transition of the frustrated Ising lattice gas. Journal of Physics A, 1997, 30, L187-L194.	1.6	39
43	Creep of Superconducting Vortices in the Limit of Vanishing Temperature: A Fingerprint of Off-Equilibrium Dynamics. Physical Review Letters, 2001, 86, 4378-4381.	2.9	39
44	Comparison of the Hi-C, GAM and SPRITE methods using polymer models of chromatin. Nature Methods, 2021, 18, 482-490.	9.0	39
45	Glass transition in granular media. Europhysics Letters, 2004, 66, 531-537.	0.7	38
46	Flow, Ordering, and Jamming of Sheared Granular Suspensions. Physical Review Letters, 2008, 100, 078001.	2.9	38
47	A Dynamic Folded Hairpin Conformation Is Associated with Î±-Globin Activation in Erythroid Cells. Cell Reports, 2020, 30, 2125-2135.e5.	2.9	38
48	Equilibrium Properties of the Ising Frustrated Lattice Gas. Journal De Physique, I, 1996, 6, 1143-1152.	1.2	38
49	Force Correlations and Arch Formation in Granular Assemblies. Physical Review Letters, 1998, 80, 1340-1343.	2.9	37
50	Thermodynamics and statistical mechanics of frozen systems in inherent states. Physical Review E, 2002, 66, 061301.	0.8	36
51	The jamming transition of granular media. Journal of Physics Condensed Matter, 2000, 12, 6601-6610.	0.7	35
52	Loop-extrusion and polymer phase-separation can co-exist at the single-molecule level to shape chromatin folding. Nature Communications, 2022, 13, .	5.8	35
53	Critical clusters and efficient dynamics for frustrated spin models. Physical Review Letters, 1994, 72, 1541-1544.	2.9	34
54	Macroscopic glassy relaxations and microscopic motions in a frustrated lattice gas. Physical Review E, 1998, 57, R39-R42.	0.8	33

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55	Segregation in hard-sphere mixtures under gravity. An extension of Edwards approach with two thermodynamical parameters. Europhysics Letters, 2002, 60, 684-690.	0.7	33
56	A cellular automaton for the factor of safety field in landslides modeling. Geophysical Research Letters, 2006, 33, n/a-n/a.	1.5	32
57	A polymer model explains the complexity of large-scale chromatin folding. Nucleus, 2013, 4, 267-273.	0.6	32
58	A novel approach to simulate gene-environment interactions in complex diseases. BMC Bioinformatics, 2010, 11, 8.	1.2	31
59	Computational approaches from polymer physics to investigate chromatin folding. Current Opinion in Cell Biology, 2020, 64, 10-17.	2.6	31
60	Continuously driven OFC: A simple model of solar flare statistics. Astronomy and Astrophysics, 2002, 387, 326-334.	2.1	31
61	Conformation Regulation of the X Chromosome Inactivation Center: A Model. PLoS Computational Biology, 2011, 7, e1002229.	1.5	29
62	Performance of genetic programming to extract the trend in noisy data series. Physica A: Statistical Mechanics and Its Applications, 2006, 370, 104-108.	1.2	28
63	Self-Assembly and DNA Binding of the Blocking Factor in X Chromosome Inactivation. PLoS Computational Biology, 2007, 3, e210.	1.5	27
64	Molecular Dynamics simulations of the Strings and Binders Switch model of chromatin. Methods, 2018, 142, 81-88.	1.9	27
65	Structure of the human chromosome interaction network. PLoS ONE, 2017, 12, e0188201.	1.1	27
66	Ageing and memory phenomena in magnetic and transport properties of vortex matter. Journal of Physics A, 2001, 34, 8425-8443.	1.6	26
67	Percolation and cluster Monte Carlo dynamics for spin models. Physical Review E, 1996, 54, 175-189.	0.8	25
68	A stochastic model dissects cell states in biological transition processes. Scientific Reports, 2014, 4, 3692.	1.6	24
69	Finite driving rate and anisotropy effects in landslide modeling. Physical Review E, 2006, 73, 026123.	0.8	22
70	Polymer models of the hierarchical folding of the Hox-B chromosomal locus. Physical Review E, 2016, 94, 042402.	0.8	22
71	Universality in glassy systems. Journal of Physics Condensed Matter, 1999, 11, A167-A174.	0.7	21
72	Modeling Single-Molecule Conformations of the HoxD Region in Mouse Embryonic Stem and Cortical Neuronal Cells. Cell Reports, 2019, 28, 1574-1583.e4.	2.9	21

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73	Granular packs under vertical tapping: Structure evolution, grain motion, and dynamical heterogeneities. Physical Review E, 2007, 75, 021303.	0.8	20
74	Mechanics and Dynamics of X-Chromosome Pairing at X Inactivation. PLoS Computational Biology, 2008, 4, e1000244.	1.5	20
75	Compaction and force propagation in granular packings. Physica A: Statistical Mechanics and Its Applications, 1997, 240, 405-418.	1.2	19
76	A model of the large-scale organization of chromatin. Biochemical Society Transactions, 2013, 41, 508-512.	1.6	19
77	Density fluctuations in a model for vibrated granular media. Physical Review E, 1999, 59, 6830-6837.	0.8	18
78	Off-equilibrium magnetic properties in a model of repulsive particles for vortices in superconductors. Journal of Physics A, 2001, 34, L11-L18.	1.6	18
79	Glass-Glass Transition and New Dynamical Singularity Points in an Analytically Solvablep-Spin Glasslike Model. Physical Review Letters, 2004, 93, 215701.	2.9	18
80	Critical Behavior and Axis Defining Symmetry Breaking inHydraEmbryonic Development. Physical Review Letters, 2012, 108, 158103.	2.9	18
81	Polymer physics reveals a combinatorial code linking 3D chromatin architecture to 1D chromatin states. Cell Reports, 2022, 38, 110601.	2.9	18
82	Dynamically Induced Effective Interaction in Periodically Driven Granular Mixtures. Physical Review Letters, 2006, 97, 038001.	2.9	16
83	BramwelletÂal.Reply:. Physical Review Letters, 2002, 89, .	2.9	15
84	Polymer physics, scaling and heterogeneity in the spatial organisation of chromosomes in the cell nucleus. Soft Matter, 2013, 9, 8631.	1.2	15
85	Polymer models of chromatin organization. Frontiers in Genetics, 2013, 4, 113.	1.1	15
86	Applications of the statistical mechanics of inherent states to granular media. Physica A: Statistical Mechanics and Its Applications, 2001, 302, 193-201.	1.2	14
87	Equilibrium and off-equilibrium dynamics in a model for vortices in superconductors. Physical Review B, 2002, 65, .	1.1	14
88	Shear-induced segregation of a granular mixture under horizontal oscillation. Journal of Physics Condensed Matter, 2005, 17, S2549-S2556.	0.7	14
89	The colocalization transition of homologous chromosomes at meiosis. Physical Review E, 2008, 77, 061913.	0.8	14
90	Models of polymer physics for the architecture of the cell nucleus. Wiley Interdisciplinary Reviews: Systems Biology and Medicine, 2019, 11, e1444.	6.6	14

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91	Scaling properties in off-equilibrium dynamical processes. Physical Review E, 1999, 59, 2812-2816.	0.8	13
92	Jamming transition in granular media: A mean-field approximation and numerical simulations. Physical Review E, 2005, 71, 061305.	0.8	13
93	Segregation in Fluidized versus Tapped Packs. Physical Review Letters, 2004, 93, 198002.	2.9	12
94	Size Segregation in Granular Media Induced by Phase Transition. Physical Review Letters, 2005, 95, 078001.	2.9	12
95	Statistical properties and universality in earthquake and solar flare occurrence. European Physical Journal B, 2008, 64, 551-555.	0.6	12
96	Inference of chromosome 3D structures from GAM data by a physics computational approach. Methods, 2020, 181-182, 70-79.	1.9	12
97	Efficient cluster dynamics for the fully frustrated XY model. Physica A: Statistical Mechanics and Its Applications, 1996, 233, 293-306.	1.2	11
98	Bramwellet al.Reply:. Physical Review Letters, 2001, 87, .	2.9	11
99	Phenomenology and theory of horizontally oscillated granular mixtures. European Physical Journal E, 2007, 22, 227-34.	0.7	11
100	Physical mechanisms behind the large scale features of chromatin organization. Transcription, 2014, 5, e28447.	1.7	11
101	A Polymer Physics Investigation of the Architecture of the Murine Orthologue of the 7q11.23 Human Locus. Frontiers in Neuroscience, 2017, 11, 559.	1.4	11
102	Divergent Transcription of the Nkx2-5 Locus Generates Two Enhancer RNAs with Opposing Functions. IScience, 2020, 23, 101539.	1.9	11
103	8-oxodG accumulation within super-enhancers marks fragile CTCF-mediated chromatin loops. Nucleic Acids Research, 2022, 50, 3292-3306.	6.5	11
104	Cooperative length approach for granular media. Physica A: Statistical Mechanics and Its Applications, 1999, 265, 311-318.	1.2	10
105	Vortex clustering: The origin of the second peak in the magnetisation loops of type-two superconductors. Europhysics Letters, 2000, 52, 210-216.	0.7	10
106	Off-equilibrium properties of vortex creep in superconductors. Europhysics Letters, 2001, 54, 566-572.	0.7	10
107	Symmetry breaking mechanism for epithelial cell polarization. Physical Review E, 2009, 80, 031919.	0.8	10
108	Physical mechanisms of chromatin spatial organization. FEBS Journal, 2022, 289, 1180-1190.	2.2	10

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109	Domains growth and packing properties in driven granular media subject to gravity. Physica A: Statistical Mechanics and Its Applications, 2000, 285, 267-278.	1.2	9
110	Dynamic membrane patterning, signal localization and polarity in living cells. Soft Matter, 2015, 11, 838-849.	1.2	9
111	Memory effects in response functions of driven vortex matter. Europhysics Letters, 2002, 57, 348-354.	0.7	8
112	Probability distribution of inherent states in models of granular media and glasses. European Physical Journal E, 2002, 9, 219-226.	0.7	8
113	Shear- and vibration-induced order-disorder transitions in granular media. European Physical Journal E, 2007, 24, 411-415.	0.7	8
114	Diffusion-based DNA target colocalization by thermodynamic mechanisms. Development (Cambridge), 2010, 137, 3877-3885.	1.2	8
115	Colocalization of Multiple DNA Loci: A Physical Mechanism. Biophysical Journal, 2012, 103, 2223-2232.	0.2	8
116	Polymer models of the organization of chromosomes in the nucleus of cells. Modern Physics Letters B, 2015, 29, 1530003.	1.0	8
117	Polymer models are a versatile tool to study chromatin 3D organization. Biochemical Society Transactions, 2021, 49, 1675-1684.	1.6	8
118	Percolation and cluster formalism in continuous spin systems. Physica A: Statistical Mechanics and Its Applications, 1997, 238, 9-22.	1.2	7
119	Off-Equilibrium Dynamics in a Singular Diffusion Model. Physical Review Letters, 1999, 83, 5054-5057.	2.9	7
120	EdwardsÂ approach to horizontal and vertical segregation in a mixture of hard spheres under gravity. Journal of Physics Condensed Matter, 2003, 15, S1095-S1105.	0.7	7
121	Phase transitions and aging phenomena in dielectriclike polymeric materials investigated by ac measurements. Journal of Applied Physics, 2007, 101, 044910.	1.1	7
122	Generalized percolation models for frustrated spin systems. Nuovo Cimento Della Societa Italiana Di Fisica D - Condensed Matter, Atomic, Molecular and Chemical Physics, Biophysics, 1994, 16, 1259-1264.	0.4	6
123	Dynamics and thermodynamics of the spherical frustrated Blume-Emery-Griffiths model. Physical Review E, 2002, 66, 046101.	0.8	6
124	Stationary probability distribution in granular media. Physica D: Nonlinear Phenomena, 2004, 193, 292-302.	1.3	6
125	On Edwardsâ€™ theory of powders. Physica A: Statistical Mechanics and Its Applications, 2004, 339, 1-6.	1.2	6
126	A model of volcanic magma transport by fracturing stress mechanisms. Geophysical Research Letters, 2008, 35, .	1.5	6

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127	The scaling features of the 3D organization of chromosomes are highlighted by a transformation Ã la Kadanoff of Hi-C data. Europhysics Letters, 2017, 120, 40004.	0.7	6
128	A phenomenological theory of dynamic processes in granular media. Physica A: Statistical Mechanics and Its Applications, 1998, 257, 448-453.	1.2	5
129	Statistical mechanics approach to the jamming transition in granular materials. Physica A: Statistical Mechanics and Its Applications, 2004, 344, 431-439.	1.2	5
130	INTERNAL AVALANCHES IN MODELS OF GRANULAR MEDIA. Fractals, 1999, 07, 51-58.	1.8	4
131	Logarithmic relaxations in a random-field lattice gas subject to gravity. Physical Review E, 1999, 59, 3858-3863.	0.8	4
132	Aggregation of fibrils and plaques in amyloid molecular systems. Physical Review E, 2009, 80, 041914.	0.8	4
133	Polymer Physics of the Large-Scale Structure of Chromatin. Methods in Molecular Biology, 2016, 1480, 201-206.	0.4	4
134	Chromosomes Phase Transition to Function. Biophysical Journal, 2020, 119, 724-725.	0.2	4
135	Single-Cell States in the Estrogen Response of Breast Cancer Cell Lines. PLoS ONE, 2014, 9, e88485.	1.1	4
136	Geometrical frustration: a dynamical motor for dry granular media. Physica A: Statistical Mechanics and Its Applications, 1998, 257, 419-423.	1.2	3
137	Nicodemi and Jensen Reply:. Physical Review Letters, 2001, 87, .	2.9	3
138	Phase coexistence and relaxation of the spherical frustrated Blume-Emery-Griffiths model with attractive particles coupling. Europhysics Letters, 2004, 65, 256-261.	0.7	3
139	Passive DNA shuttling. Europhysics Letters, 2010, 92, 20002.	0.7	3
140	Mean-Field Theory of the Symmetry Breaking Model for X Chromosome Inactivation. Progress of Theoretical Physics Supplement, 2011, 191, 40-45.	0.2	3
141	Logarithmic Compaction in a 3D Model for Granular Media. Journal De Physique, I, 1997, 7, 1535-1540.	1.2	3
142	Slow dynamics and aging in a constrained diffusion model. Physical Review E, 2001, 63, 031106.	0.8	2
143	Interplay of dynamical and equilibrium phenomena in vortex matter. Journal of Physics Condensed Matter, 2002, 14, 2403-2412.	0.7	2
144	Peak effect in a driven lattice gas model. Physical Review E, 2003, 67, 041103.	0.8	2

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145	DNA Loci Cross-Talk through Thermodynamics. Journal of Biomedicine and Biotechnology, 2009, 2009, 1-8.	3.0	2
146	Extreme Value Statistics. , 2012, , 1066-1072.		2
147	Mapping of frustrated spin systems into percolation models and Monte Carlo cluster dynamics. Journal of Physics A, 1996, 29, 1961-1971.	1.6	1
148	Second magnetisation peak relaxation in a model for vortices in superconductors. Physica C: Superconductivity and Its Applications, 2000, 341-348, 1065-1066.	0.6	1
149	VORTEX MATTER OUT OF EQUILIBRIUM. Fractals, 2003, 11, 149-159.	1.8	1
150	Pairing of homologous chromosomes as phase transition. Proceedings of SPIE, 2007, , .	0.8	1
151	STATISTICAL MECHANICS OF STATIC GRANULAR PACKINGS UNDER GRAVITY. International Journal of Modern Physics B, 2009, 23, 5345-5358.	1.0	1
152	Stochastic transitions and jamming in granular pipe flow. Physical Review E, 2011, 83, 031309.	0.8	1
153	A Polymer Physics Model to Dissect Genome Organization in Healthy and Pathological Phenotypes. Methods in Molecular Biology, 2022, 2301, 307-316.	0.4	1
154	Further Delineation of Duplications of ARX Locus Detected in Male Patients with Varying Degrees of Intellectual Disability. International Journal of Molecular Sciences, 2022, 23, 3084.	1.8	1
155	Self-organisations and emergence. , 0, , 1-47.		0
156	Stress Correlations and Weight Distributions in Granular Packs. , 1998, , 137-142.		0
157	Statistical mechanics models for jamming in granular media. AIP Conference Proceedings, 2001, , .	0.3	0
158	Statistical Mechanics of jamming and segregation in granular media. , 2004, , 47-61.		0
159	Time dependent phenomena in transport properties andIâ€“Vcharacteristics of a model for driven vortex matter. Journal of Physics Condensed Matter, 2004, 16, 6789-6810.	0.7	0
160	Statistical mechanics of dense granular media. , 2005, , .		0
161	Editorial. European Physical Journal E, 2007, 22, 193-193.	0.7	0
162	Flow and jamming of sheared granular media. , 2009, , .		0

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163	Rheology of sheared monodisperse granular suspensions. European Physical Journal: Special Topics, 2009, 179, 157-163.	1.2	0
164	COMPLEX FLOW IN GRANULAR MEDIA. International Journal of Modeling, Simulation, and Scientific Computing, 2010, 13, 339-347.	0.9	0
165	STATISTICAL MECHANICS MODELS FOR X-CHROMOSOME INACTIVATION. International Journal of Modeling, Simulation, and Scientific Computing, 2010, 13, 367-376.	0.9	0
166	Flow regimes of a fluid driven granular suspension. Granular Matter, 2012, 14, 175-178.	1.1	0
167	On the Nature of Chromatin 3D Organization. , 2017, , 191-201.		0
168	The Inherent States of Glassy Systems and Granular Media. , 2002, , 74-83.		0
169	Self-assembly and DNA binding of the blocking factor in X Chromosome Inactivation. PLoS Computational Biology, 2005, preprint, e210.	1.5	0
170	Granular media. Journal of Physics Condensed Matter, 2005, 17, .	0.7	0
171	UNIFYING APPROACH TO THE JAMMING TRANSITION IN GRANULAR MEDIA AND THE GLASS TRANSITION IN THERMAL SYSTEMS. , 2005, , .		0
172	The Strings and Binders Switch Model of Chromatin. , 2019, , 57-68.		0