Mario Castro

List of Publications by Year
in descending order

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99 papers	2,641 citations	218677 26 h-index	214800 47 g-index
106 all docs	106 docs citations	106 times ranked	2113 citing authors

#	Article	IF	Citations
1	Self-Organized Ordering of Nanostructures Produced by Ion-Beam Sputtering. Physical Review Letters, 2005, 94, 016102.	7.8	212
2	Self-organized nanopatterning of silicon surfaces by ion beam sputtering. Materials Science and Engineering Reports, 2014, 86, 1-44.	31.8	142
3	Nonlinear Ripple Dynamics on Amorphous Surfaces Patterned by Ion Beam Sputtering. Physical Review Letters, 2006, 96, 086101.	7.8	140
4	The turning point and end of an expanding epidemic cannot be precisely forecast. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 26190-26196.	7.1	117
5	Tumor Angiogenesis and Vascular Patterning: A Mathematical Model. PLoS ONE, 2011, 6, e19989.	2.5	104
6	Hydrodynamic approach to surface pattern formation by ion beams. Applied Surface Science, 2012, 258, 4171-4178.	6.1	102
7	Stress-induced solid flow drives surface nanopatterning of silicon by ion-beam irradiation. Physical Review B, 2012, 86, .	3.2	92
8	Scaling of Local Slopes, Conservation Laws, and Anomalous Roughening in Surface Growth. Physical Review Letters, 2005, 94, 166103.	7.8	85
9	Phase-field approach to heterogeneous nucleation. Physical Review B, 2003, 67, .	3.2	76
10	Coupling of morphology to surface transport in ion-beam irradiated surfaces: Oblique incidence. Physical Review B, 2008, 78, .	3.2	74
11	Intrinsic anomalous surface roughening of TiN films deposited by reactive sputtering. Physical Review B, 2006, 73, .	3.2	54
12	Order enhancement and coarsening of self-organized silicon nanodot patterns induced by ion-beam sputtering. Applied Physics Letters, 2006, 89, 233101.	3.3	53
13	Nanoscale pattern formation at surfaces under ion-beam sputtering: A perspective from continuum models. Nuclear Instruments & Methods in Physics Research B, 2011, 269, 894-900.	1.4	49
14	Self-Organized Surface Nanopatterning by Ion Beam Sputtering. , 2009, , 323-398.		46
15	Nonuniversality due to inhomogeneous stress in semiconductor surface nanopatterning by low-energy ion-beam irradiation. Physical Review B, 2015, 91, .	3.2	44
16	Anomalous scaling in a nonlocal growth model in the Kardar-Parisi-Zhang universality class. Physical Review E, 1998, 57, R2491-R2494.	2.1	43
17	Model for crystallization kinetics: Deviations from Kolmogorovâ€“Johnsonâ€“Mehlâ€“Avrami kinetics. Applied Physics Letters, 1999, 75, 2205-2207.	3.3	42
18	Multiparticle biased diffusion-limited aggregation with surface diffusion: A comprehensive model of electrodeposition. Physical Review E, 2000, 62, 161-173.	2.1	42

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19	Short-range stationary patterns and long-range disorder in an evolution equation for one-dimensional interfaces. Physical Review E, 2006, 74, 050103.	2.1	36
20	Growth dynamics of reactive-sputtering-deposited AlN films. Journal of Applied Physics, 2005, 97, 123528.	2.5	35
21	Transients due to Instabilities Hinder Kardar-Parisi-Zhang Scaling: A Unified Derivation for Surface Growth by Electrochemical and Chemical Vapor Deposition. Physical Review Letters, 2001, 87, 236103.	7.8	33
22	Universality of cauliflower-like fronts: from nanoscale thin films to macroscopic plants. New Journal of Physics, 2012, 14, 103039.	2.9	33
23	Coupling of morphology to surface transport in ion-beam-irradiated surfaces: normal incidence and rotating targets. Journal of Physics Condensed Matter, 2009, 21, 224020.	1.8	32
24	Performance evaluation of bluetooth low energy in indoor positioning systems. Transactions on Emerging Telecommunications Technologies, 2017, 28, e2864.	3.9	32
25	Unstable Nonlocal Interface Dynamics. Physical Review Letters, 2009, 102, 256102.	7.8	31
26	Testing structural identifiability by a simple scaling method. PLoS Computational Biology, 2020, 16, e1008248.	3.2	31
27	Mathematics in modern immunology. Interface Focus, 2016, 6, 20150093.	3.0	29
28	Universal non-equilibrium phenomena at submicrometric surfaces and interfaces. European Physical Journal: Special Topics, 2007, 146, 427-441.	2.6	28
29	Surface nanopatterns induced by ion-beam sputtering. Journal of Physics Condensed Matter, 2009, 21, 220301.	1.8	28
30	A window of opportunity for cooperativity in the T Cell Receptor. Nature Communications, 2018, 9, 2618.	12.8	27
31	A stochastic T cell response criterion. Journal of the Royal Society Interface, 2012, 9, 2856-2870.	3.4	26
32	Self-assembly of highly ordered DNA origami lattices at solid-liquid interfaces by controlling cation binding and exchange. Nano Research, 2020, 13, 3142-3150.	10.4	26
33	Pseudospectral versus finite-difference schemes in the numerical integration of stochastic models of surface growth. Physical Review E, 2007, 76, 051121.	2.1	25
34	The phase-field model in tumor growth. Philosophical Magazine, 2011, 91, 183-206.	1.6	25
35	Receptor Pre-Clustering and T cell Responses: Insights into Molecular Mechanisms. Frontiers in Immunology, 2014, 5, 132.	4.8	25
36	Scaling Up DNA Origami Lattice Assembly. Chemistry - A European Journal, 2021, 27, 8564-8571.	3.3	25

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37	A unifying mathematical framework for experimental TCR-pMHC kinetic constants. Scientific Reports, 2017, 7, 46741.	3.3	24
38	Tumor growth instability and the onset of invasion. Physical Review E, 2005, 72, 041907.	2.1	22
39	Comment on â€œKinetic Roughening of Ion-Sputtered Pd(001) Surface: Beyond the Kuramoto-Sivashinsky Modelâ€• Physical Review Letters, 2005, 94, 139601; author reply 139602.	7.8	22
40	Independence of interrupted coarsening on initial system order: ion-beam nanopatterning of amorphous versus crystalline silicon targets. Journal of Physics Condensed Matter, 2012, 24, 375302.	1.8	22
41	Cognate Peptideâ€“MHC Complexes Are Expressed as Tightly Apposed Nanoclusters in Virus-Infected Cells To Allow TCR Crosslinking. Journal of Immunology, 2014, 192, 52-58.	0.8	22
42	Unified moving-boundary model with fluctuations for unstable diffusive growth. Physical Review E, 2008, 78, 021601.	2.1	21
43	Stress-driven nonlinear dynamics of ion-induced surface nanopatterns. Physical Review B, 2019, 100, .	3.2	21
44	Surface effects in atomistic mechanical simulations of Al nanocrystals. Physical Review B, 2009, 80, .	3.2	19
45	Toward Functional Nanomaterials. , 2009, , .		19
46	Controlling Viscoelastic Flow in Microchannels with Slip. Langmuir, 2011, 27, 2075-2079.	3.5	19
47	Comment on â€œEffects of Particle Shape on Growth Dynamics at Edges of Evaporating Drops of Colloidal Suspensionsâ€• Physical Review Letters, 2013, 111, 209601.	7.8	19
48	Modulation of HCV replication after combination antiretroviral therapy in HCV/HIV co-infected patients. Science Translational Medicine, 2014, 6, 246ra98.	12.4	19
49	Generic equations for pattern formation in evolving interfaces. New Journal of Physics, 2007, 9, 102-102.	2.9	18
50	Pattern-Wavelength Coarsening from Topological Dynamics in Silicon Nanofoams. Physical Review Letters, 2014, 112, 094103.	7.8	18
51	Lattice model for kinetics and grain-size distribution in crystallization. Physical Review B, 2000, 61, 6579-6586.	3.2	17
52	<scp>CCR</scp> 5 deficiency impairs <scp>CD</scp> 4 ⁺ Tâ€cell memory responses and antigenic sensitivity through increased ceramide synthesis. EMBO Journal, 2020, 39, e104749.	7.8	17
53	Dynamic Characterization of Permeabilities and Flows in Microchannels. Physical Review Letters, 2008, 101, 224501.	7.8	16
54	Hidden structure in the randomness of the prime number sequence?. Physica A: Statistical Mechanics and Its Applications, 2006, 360, 285-296.	2.6	15

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55	Kinetic roughening in a realistic model of non-conserved interface growth. Journal of Statistical Mechanics: Theory and Experiment, 2009, 2009, P02036.	2.3	15
56	First passage events in biological systems with non-exponential inter-event times. Scientific Reports, 2018, 8, 15054.	3.3	14
57	Challenges and Opportunities in Dock-Based Bike-Sharing Rebalancing: A Systematic Review. Sustainability, 2021, 13, 1829.	3.2	14
58	Ion damage overrides structural disorder in silicon surface nanopatterning by low-energy ion beam sputtering. Europhysics Letters, 2015, 109, 48003.	2.0	13
59	Electric field effects in Fibonacci superlattices. Physics Letters, Section A: General, Atomic and Solid State Physics, 1997, 225, 321-325.	2.1	12
60	Front microrheology of the non-Newtonian behaviour of blood: scaling theory of erythrocyte aggregation by aging. Soft Matter, 2017, 13, 3042-3047.	2.7	12
61	Elastic properties of natural single nanofibres. RSC Advances, 2014, 4, 11225.	3.6	10
62	Possible origin for the experimental scarcity of KPZ scaling in non-conserved surface growth. Physica A: Statistical Mechanics and Its Applications, 2002, 314, 192-199.	2.6	9
63	Experimental assessment of the adequacy of Bluetooth for opportunistic networks. Ad Hoc Networks, 2015, 25, 444-453.	5.5	9
64	Symmetry of surface nanopatterns induced by ion-beam sputtering: Role of anisotropic surface diffusion. Physical Review B, 2016, 93, .	3.2	9
65	Numerical Experiments on Noisy Chains: From Collective Transitions to Nucleation-Diffusion. SIAM Journal on Applied Dynamical Systems, 2008, 7, 207-219.	1.6	8
66	Dimensional fragility of the Kardarâ€“Parisiâ€“Zhang universality class. Journal of Statistical Mechanics: Theory and Experiment, 2013, 2013, P11001.	2.3	8
67	Stress vs sputtering effects in the propagation of surface ripples produced by ion-beam sputtering. Nuclear Instruments & Methods in Physics Research B, 2015, 365, 13-16.	1.4	7
68	Concurrent segregation and erosion effects in medium-energy iron beam patterning of silicon surfaces. Journal of Physics Condensed Matter, 2018, 30, 274001.	1.8	7
69	Fate of a Naive T Cell: A Stochastic Journey. Frontiers in Immunology, 2019, 10, 194.	4.8	7
70	Fusion and fission events regulate endosome maturation and viral escape. Scientific Reports, 2021, 11, 7845.	3.3	7
71	Structural improvement of SiGe films by C and F implantation and solid phase crystallization. Thin Solid Films, 2001, 383, 113-116.	1.8	6
72	IDSAI: A Distributed System for Intrusion Detection Based on Intelligent Agents. , 2010, , .		6

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73	IL7 receptor signaling in T cells: A mathematical modeling perspective. Wiley Interdisciplinary Reviews: Systems Biology and Medicine, 2019, 11, e1447.	6.6	6
74	Affinity Selection in Germinal Centers: Cautionary Tales and New Opportunities. Cells, 2021, 10, 1040.	4.1	6
75	Dynamical renormalization group study for a class of non-local interface equations. Journal of Statistical Mechanics: Theory and Experiment, 2011, 2011, P10030.	2.3	5
76	Adaptive Polling Enhances Quality and Energy Saving for Multimedia over Bluetooth. IEEE Communications Letters, 2011, 15, 521-523.	4.1	5
77	Temporal biological variability in dendritic cells and regulatory T cells in peripheral blood of healthy adults. Journal of Immunological Methods, 2016, 431, 63-65.	1.4	5
78	The T Cells in an Ageing Virtual Mouse. , 2017, , 127-140.		5
79	A set point in the selection of the Î±Î²TCR T cell repertoire imposed by pre-TCR signaling strength. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, .	7.1	5
80	Effects of reduced dimensionality in the relaxation dynamics of ionic conductors. Europhysics Letters, 2005, 69, 770-776.	2.0	4
81	Impact of polling on bluetooth piconet performance. , 2011, 49, 84-89.		4
82	Asymptotic Behavior of a Viscoelastic Fluid in a Closed Loop Thermosyphon: Physical Derivation, Asymptotic Analysis, and Numerical Experiments. Abstract and Applied Analysis, 2013, 2013, 1-20.	0.7	4
83	Nanopatterning of rotating highly oriented pyrolytic graphite (0001) surfaces by ion beam irradiation: Experiments and modeling. Physical Review B, 2022, 105, .	3.2	4
84	Stabilizing interplay between thermodiffusion and viscoelasticity in a closed-loop thermosyphon. Discrete and Continuous Dynamical Systems - Series B, 2015, 20, 3267-3299.	0.9	3
85	Interplay between Morphology and Surface Transport in Nanopatterns Produced by Ion-Beam Sputtering. Materials Research Society Symposia Proceedings, 2007, 1059, 1.	0.1	2
86	Single-phase-field model of stepped surfaces. Physical Review E, 2009, 79, 021601.	2.1	2
87	On the origin of multiscaling in stochastic-field models of surface growth. European Physical Journal B, 2016, 89, 1.	1.5	2
88	Front Microrheology of Biological Fluids. Journal of Physics: Conference Series, 2018, 1043, 012058.	0.4	2
89	Red Blood Cells in low Reynolds number flow: a vorticity-based characterization of shapes in two dimensions. Soft Matter, 2021, 17, 9587-9594.	2.7	2
90	Energy dependence of the ripple wavelength for ion-beam sputtering of silicon: Experiments and theory. , 2013, , .		1

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91	Special issue on surfaces patterned by ion sputtering. Journal of Physics Condensed Matter, 2018, 30, 450301.	1.8	1
92	Noise Is Not Error: Detecting Parametric Heterogeneity Between Epidemiologic Time Series. Frontiers in Microbiology, 2018, 9, 1529.	3.5	1
93	On Exact and Approximate Approaches for Stochastic Receptor-Ligand Competition Dynamicsâ€"An Ecological Perspective. Mathematics, 2020, 8, 1014.	2.2	0
94	Frontispiece: Scaling Up DNA Origami Lattice Assembly. Chemistry - A European Journal, 2021, 27, .	3.3	0
95	The limitations, dangers, and benefits of simple methods for testing identifiability. PLoS Computational Biology, 2021, 17, e1009425.	3.2	0
96	Testing structural identifiability by a simple scaling method. , 2020, 16, e1008248.		0
97	Testing structural identifiability by a simple scaling method. , 2020, 16, e1008248.		0
98	Testing structural identifiability by a simple scaling method. , 2020, 16, e1008248.		0
99	Testing structural identifiability by a simple scaling method. , 2020, 16, e1008248.		0