

Ivo F Sbalzarini

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

101
papers

3,077
citations

28
h-index

54
g-index

109
ext. papers

3,704
ext. citations

5.1
avg, IF

5.32
L-index

#	Paper	IF	Citations
101	Model-based autotuning of discretization methods in numerical simulations of partial differential equations. <i>Journal of Computational Science</i> , 2022 , 57, 101489	3.4	0
100	Quantifying Molecular Dynamics within Complex Cellular Morphologies using LLSM-FRAP.. <i>Small Methods</i> , 2022 , e2200149	12.8	0
99	Fundamentals of the logarithmic measure for revealing multimodal diffusion. <i>Biophysical Journal</i> , 2021 , 120, 829-843	2.9	0
98	Learning physically consistent differential equation models from data using group sparsity. <i>Physical Review E</i> , 2021 , 103, 042310	2.4	2
97	Distributed Sparse Block Grids on GPUs. <i>Lecture Notes in Computer Science</i> , 2021 , 272-290	0.9	1
96	A robustness measure for singular point and index estimation in discretized orientation and vector fields. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2021 , 20, e202000261	0.2	1
95	Robustness of topological defects in discrete domains. <i>Physical Review E</i> , 2021 , 103, 012602	2.4	1
94	A C++ expression system for partial differential equations enables generic simulations of biological hydrodynamics. <i>European Physical Journal E</i> , 2021 , 44, 117	1.5	
93	The OpenPME Problem Solving Environment for Numerical Simulations. <i>Lecture Notes in Computer Science</i> , 2021 , 614-627	0.9	2
92	An Architecture for Interactive In Situ Visualization and its Transparent Implementation in OpenFPM 2020 ,		3
91	A non-linear system patterns Rab5 GTPase on the membrane. <i>ELife</i> , 2020 , 9,	8.9	10
90	Bionic Tracking: Using Eye Tracking to Track Biological Cells in Virtual Reality. <i>Lecture Notes in Computer Science</i> , 2020 , 280-297	0.9	0
89	Big-Data Analytics transformiert die Lebenswissenschaften. <i>Informatik-Spektrum</i> , 2020 , 42, 394-400	0.3	
88	OpenFPM: A scalable open framework for particle and particle-mesh codes on parallel computers. <i>Computer Physics Communications</i> , 2019 , 241, 155-177	4.2	19
87	Minimal Model of Cellular Symmetry Breaking. <i>Physical Review Letters</i> , 2019 , 123, 188101	7.4	14
86	2019 ,		8
85	Self-organized shape dynamics of active surfaces. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2019 , 116, 29-34	11.5	48

84	Fast Interpolation and Fourier Transform in High-Dimensional Spaces. <i>Advances in Intelligent Systems and Computing</i> , 2019 , 53-75	0.4	1
83	Adaptive particle representation of fluorescence microscopy images. <i>Nature Communications</i> , 2018 , 9, 5160	17.4	9
82	How Computational Models Enable Mechanistic Insights into Virus Infection. <i>Methods in Molecular Biology</i> , 2018 , 1836, 609-631	1.4	2
81	A Domain-Specific Language and Editor for Parallel Particle Methods. <i>ACM Transactions on Mathematical Software</i> , 2018 , 44, 1-32	2.3	9
80	Curvature Filters Efficiently Reduce Certain Variational Energies. <i>IEEE Transactions on Image Processing</i> , 2017 , 26, 1786-1798	8.7	55
79	A Predictive 3D Multi-Scale Model of Biliary Fluid Dynamics in the Liver Lobule. <i>Cell Systems</i> , 2017 , 4, 277-290.e9	10.6	50
78	Robust Mapping of Process Networks to Many-Core Systems using Bio-Inspired Design Centering 2017 ,		3
77	L-Adaptation: Simultaneous Design Centering and Robustness Estimation of Electronic and Biological Systems. <i>Scientific Reports</i> , 2017 , 7, 6660	4.9	7
76	pSSAlib: The partial-propensity stochastic chemical network simulator. <i>PLoS Computational Biology</i> , 2017 , 13, e1005865	5	5
75	Infectio: a Generic Framework for Computational Simulation of Virus Transmission between Cells. <i>MSphere</i> , 2016 , 1,	5	8
74	Automatic optimal filament segmentation with sub-pixel accuracy using generalized linear models and B-spline level-sets. <i>Medical Image Analysis</i> , 2016 , 32, 157-72	15.4	23
73	Minimal model for spontaneous cell polarization and edge activity in oscillating, rotating and migrating cells. <i>Nature Physics</i> , 2016 , 12, 367-373	16.2	22
72	A Natural-Scene Gradient Distribution Prior and its Application in Light-Microscopy Image Processing. <i>IEEE Journal on Selected Topics in Signal Processing</i> , 2016 , 10, 99-114	7.5	18
71	A Parallel Distributed-Memory Particle Method Enables Acquisition-Rate Segmentation of Large Fluorescence Microscopy Images. <i>PLoS ONE</i> , 2016 , 11, e0152528	3.7	8
70	Seeing Is Believing: Quantifying Is Convincing: Computational Image Analysis in Biology. <i>Advances in Anatomy, Embryology and Cell Biology</i> , 2016 , 219, 1-39	1.2	21
69	Using DC PSE operator discretization in Eulerian meshless collocation methods improves their robustness in complex geometries. <i>Computers and Fluids</i> , 2016 , 136, 285-300	2.8	19
68	A Self-organizing Adaptive-resolution Particle Method with Anisotropic Kernels. <i>Procedia IUTAM</i> , 2015 , 18, 40-55		2
67	ClearVolume: open-source live 3D visualization for light-sheet microscopy. <i>Nature Methods</i> , 2015 , 12, 480-1	21.6	95

66	A hybrid particle-mesh method for incompressible active polar viscous gels. <i>Journal of Computational Physics</i> , 2015 , 291, 334-361	4.1	8
65	Image Enhancement by Gradient Distribution Specification. <i>Lecture Notes in Computer Science</i> , 2015 , 47-62	0.9	5
64	Segmentation and quantification of subcellular structures in fluorescence microscopy images using Squash. <i>Nature Protocols</i> , 2014 , 9, 586-96	18.8	145
63	Objective comparison of particle tracking methods. <i>Nature Methods</i> , 2014 , 11, 281-9	21.6	571
62	Contact angle at the leading edge controls cell protrusion rate. <i>Current Biology</i> , 2014 , 24, 1126-32	6.3	28
61	A method for modeling growth of organs and transplants based on the general growth law: application to the liver in dogs and humans. <i>PLoS ONE</i> , 2014 , 9, e99275	3.7	7
60	A Pthreads Wrapper for Fortran 2003. <i>ACM Transactions on Mathematical Software</i> , 2014 , 40, 1-15	2.3	1
59	An adaptive distributed resampling algorithm with non-proportional allocation 2014 ,		2
58	Coupling Image Restoration and Segmentation: A Generalized Linear Model/Bregman Perspective. <i>International Journal of Computer Vision</i> , 2013 , 104, 69-93	10.6	51
57	A Meshless Particle Method for Poisson and Diffusion Problems with Discontinuous Coefficients and Inhomogeneous Boundary Conditions. <i>SIAM Journal of Scientific Computing</i> , 2013 , 35, A2469-A2493	2.6	2
56	MosaicIA: an ImageJ/Fiji plugin for spatial pattern and interaction analysis. <i>BMC Bioinformatics</i> , 2013 , 14, 349	3.6	57
55	A portable OpenCL implementation of generic particle-mesh and mesh-particle interpolation in 2D and 3D. <i>Parallel Computing</i> , 2013 , 39, 94-111	1	5
54	Modeling and simulation of biological systems from image data. <i>BioEssays</i> , 2013 , 35, 482-90	4.1	28
53	Local weighted Gaussian curvature for image processing 2013 ,		18
52	Receptor concentration and diffusivity control multivalent binding of Sv40 to membrane bilayers. <i>PLoS Computational Biology</i> , 2013 , 9, e1003310	5	36
51	Fast neighbor lists for adaptive-resolution particle simulations. <i>Computer Physics Communications</i> , 2012 , 183, 1073-1081	4.2	16
50	A self-organizing Lagrangian particle method for adaptive-resolution advection-diffusion simulations. <i>Journal of Computational Physics</i> , 2012 , 231, 3623-3646	4.1	23
49	Choosing the Best Kernel: Performance Models for Diffusion Operators in Particle Methods. <i>SIAM Journal of Scientific Computing</i> , 2012 , 34, A1607-A1634	2.6	8

48	Cell-free transmission of human adenovirus by passive mass transfer in cell culture simulated in a computer model. <i>Journal of Virology</i> , 2012 , 86, 10123-37	6.6	46
47	Active flows cluster cell surface proteins. <i>Developmental Cell</i> , 2012 , 22, 1121-2	10.2	1
46	Discrete region competition for unknown numbers of connected regions. <i>IEEE Transactions on Image Processing</i> , 2012 , 21, 3531-45	8.7	27
45	High-resolution cell outline segmentation and tracking from phase-contrast microscopy images. <i>Journal of Microscopy</i> , 2012 , 245, 161-70	1.9	46
44	Energy landscapes of atomic clusters as black box optimization benchmarks. <i>Evolutionary Computation</i> , 2012 , 20, 543-73	4.3	10
43	Discreteness-induced concentration inversion in mesoscopic chemical systems. <i>Nature Communications</i> , 2012 , 3, 779	17.4	44
42	Coupled signed-distance functions for implicit surface reconstruction 2012 ,		11
41	Global parameter identification of stochastic reaction networks from single trajectories. <i>Advances in Experimental Medicine and Biology</i> , 2012 , 736, 477-98	3.6	1
40	Exact on-lattice stochastic reaction-diffusion simulations using partial-propensity methods. <i>Journal of Chemical Physics</i> , 2011 , 135, 244103	3.9	12
39	Exact stochastic simulations of intra-cellular transport by mechanically coupled molecular motors. <i>Journal of Computational Science</i> , 2011 , 2, 324-334	3.4	2
38	Dynamic measurement of the height and volume of migrating cells by a novel fluorescence microscopy technique. <i>Lab on A Chip</i> , 2011 , 11, 3855-63	7.2	34
37	Intrinsic noise alters the frequency spectrum of mesoscopic oscillatory chemical reaction systems. <i>Scientific Reports</i> , 2011 , 1, 154	4.9	12
36	Proteome sequence features carry signatures of the environmental niche of prokaryotes. <i>BMC Evolutionary Biology</i> , 2011 , 11, 26	3	19
35	An alternating split Bregman algorithm for multi-region segmentation 2011 ,		4
34	A parallel particle method for solving the EEG source localization forward problem 2011 ,		1
33	Histone deacetylase 8 is required for centrosome cohesion and influenza A virus entry. <i>PLoS Pathogens</i> , 2011 , 7, e1002316	7.6	61
32	A partial-propensity formulation of the stochastic simulation algorithm for chemical reaction networks with delays. <i>Journal of Chemical Physics</i> , 2011 , 134, 014106	3.9	10
31	Noise-induced modulation of the relaxation kinetics around a non-equilibrium steady state of non-linear chemical reaction networks. <i>PLoS ONE</i> , 2011 , 6, e16045	3.7	7

30	Global Characterization of the CEC 2005 Fitness Landscapes Using Fitness-Distance Analysis. <i>Lecture Notes in Computer Science</i> , 2011 , 294-303	0.9	22
29	Abstractions and Middleware for Petascale Computing and Beyond. <i>International Journal of Distributed Systems and Technologies</i> , 2010 , 1, 40-56	0.3	12
28	Gaussian Adaptation as a unifying framework for continuous black-box optimization and adaptive Monte Carlo sampling 2010 ,		5
27	Intrinsically disordered regions may lower the hydration free energy in proteins: a case study of nudix hydrolase in the bacterium <i>Deinococcus radiodurans</i> . <i>PLoS Computational Biology</i> , 2010 , 6, e1000854	5	17
26	A partial-propensity variant of the composition-rejection stochastic simulation algorithm for chemical reaction networks. <i>Journal of Chemical Physics</i> , 2010 , 132, 044102	3.9	26
25	Toward an Object-Oriented Core of the PPM Library 2010 ,		6
24	Fast Exact Stochastic Simulation Algorithms Using Partial Propensities 2010 ,		4
23	Antimicrobial Peptides Induce Growth of Phosphatidylglycerol Domains in a Model Bacterial Membrane. <i>Journal of Physical Chemistry Letters</i> , 2010 , 1, 3108-3111	6.4	56
22	A Lagrangian particle method for reaction-diffusion systems on deforming surfaces. <i>Journal of Mathematical Biology</i> , 2010 , 61, 649-63	2	29
21	Discretization correction of general integral PSE Operators for particle methods. <i>Journal of Computational Physics</i> , 2010 , 229, 4159-4182	4.1	40
20	Beyond co-localization: inferring spatial interactions between sub-cellular structures from microscopy images. <i>BMC Bioinformatics</i> , 2010 , 11, 372	3.6	62
19	Gaussian Adaptation Revisited [An Entropic View on Covariance Matrix Adaptation. <i>Lecture Notes in Computer Science</i> , 2010 , 432-441	0.9	8
18	Particle Swarm CMA Evolution Strategy for the optimization of multi-funnel landscapes 2009 ,		16
17	Large-scale parallel discrete element simulations of granular flow. <i>Engineering Computations</i> , 2009 , 26, 688-697	1.4	48
16	pCMALib 2009 ,		6
15	In the eye of the beholder: Inhomogeneous distribution of high-resolution shapes within the random-walk ensemble. <i>Journal of Chemical Physics</i> , 2009 , 130, 214904	3.9	2
14	A new class of highly efficient exact stochastic simulation algorithms for chemical reaction networks. <i>Journal of Chemical Physics</i> , 2009 , 130, 244104	3.9	47
13	Thermophoretic motion of water nanodroplets confined inside carbon nanotubes. <i>Nano Letters</i> , 2009 , 9, 66-71	11.5	109

12	Deconvolving Active Contours for Fluorescence Microscopy Images. <i>Lecture Notes in Computer Science</i> , 2009 , 544-553	0.9	10
11	A novel supervised trajectory segmentation algorithm identifies distinct types of human adenovirus motion in host cells. <i>Journal of Structural Biology</i> , 2007 , 159, 347-58	3.4	77
10	Simulations of (an)isotropic diffusion on curved biological surfaces. <i>Biophysical Journal</i> , 2006 , 90, 878-852.	2.9	76
9	PPM \square highly efficient parallel particle-mesh library for the simulation of continuum systems. <i>Journal of Computational Physics</i> , 2006 , 215, 566-588	4.1	130
8	Effects of organelle shape on fluorescence recovery after photobleaching. <i>Biophysical Journal</i> , 2005 , 89, 1482-92	2.9	107
7	Septin-dependent compartmentalization of the endoplasmic reticulum during yeast polarized growth. <i>Journal of Cell Biology</i> , 2005 , 169, 897-908	7.3	122
6	Single-particle tracking of murine polyoma virus-like particles on live cells and artificial membranes. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2005 , 102, 15110-5	11.5	208
5	Inverse Dirichlet Weighting Enables Reliable Training of Physics Informed Neural Networks. <i>Machine Learning: Science and Technology</i> ,	5.1	2
4	Abstractions and Middleware for Petascale Computing and Beyond161-178		
3	Abstractions and Middleware for Petascale Computing and Beyond1998-2015		
2	An algorithm-centric Monte Carlo method to empirically quantify motion type estimation uncertainty in single-particle tracking		1
1	OMEGA: a software tool for the management, analysis, and dissemination of intracellular trafficking data that incorporates motion type classification and quality control		3