Bela M Mulder

List of Publications by Year
in descending order

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111 papers	5,111 citations	76196 40 h-index	98622 67 g-index
119 all docs	119 docs citations	119 times ranked	3480 citing authors

#	Article	IF	Citations
1	The hard ellipsoid-of-revolution fluid. Molecular Physics, 1985, 55, 1171-1192.	0.8	457
2	Entropy-driven spatial organization of highly confined polymers: Lessons for the bacterial chromosome. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 12388-12393.	3.3	350
3	Phase Diagram of a System of Hard Ellipsoids. Physical Review Letters, 1984, 52, 287-290.	2.9	294
4	A Mechanism for Reorientation of Cortical Microtubule Arrays Driven by Microtubule Severing. Science, 2013, 342, 1245533.	6.0	264
5	Hard Convex Body Fluids. Advances in Chemical Physics, 2007, , 1-166.	0.3	205
6	Density-functional approach to smectic order in an aligned hard-rod fluid. Physical Review A, 1987, 35, 3095-3101.	1.0	136
7	Isotropic-symmetry-breaking bifurcations in a class of liquid-crystal models. Physical Review A, 1989, 39, 360-370.	1.0	135
8	How the deposition of cellulose microfibrils builds cell wall architecture. Trends in Plant Science, 2000, 5, 35-40.	4.3	127
9	The hard ellipsoid-of-revolution fluid. Molecular Physics, 1985, 55, 1193-1215.	0.8	120
10	Biaxial Nematic Order in the Hard-boomerang Fluid. Molecular Crystals and Liquid Crystals, 1998, 323, 167-189.	0.3	113
11	The making of the architecture of the plant cell wall: How cells exploit geometry. Proceedings of the National Academy of Sciences of the United States of America, 1998, 95, 7215-7219.	3.3	90
12	The Cellulose Synthase Complex: A Polymerization Driven Supramolecular Motor. Biophysical Journal, 2007, 92, 2666-2673.	0.2	87
13	Rates of exocytosis and endocytosis in <i>Arabidopsis</i> root hairs and pollen tubes. Journal of Microscopy, 2008, 231, 265-273.	0.8	84
14	Monte Carlo study of hard pentagons. Physical Review E, 2005, 71, 036138.	0.8	80
15	Transverse interlayer order in lyotropic smectic liquid crystals. Physical Review E, 1995, 52, R1277-R1280.	0.8	79
16	Self-organized patterns of actin filaments in cell-sized confinement. Soft Matter, 2011, 7, 10631.	1.2	78
17	SPR2 protects minus ends to promote severing and reorientation of plant cortical microtubule arrays. Journal of Cell Biology, 2018, 217, 915-927.	2.3	77
18	Non-specific interactions are sufficient to explain the position of heterochromatic chromocenters and nucleoli in interphase nuclei. Nucleic Acids Research, 2009, 37, 3558-3568.	6.5	75

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19	On the stall force for growing microtubules. European Biophysics Journal, 2000, 29, 2-6.	1.2	71
20	Phase behavior of binary mixtures of thick and thin hard rods. Physica A: Statistical Mechanics and Its Applications, 1998, 261, 374-390.	1.2	66
21	Microtubule Organization in Three-Dimensional Confined Geometries: Evaluating the Role of Elasticity Through a Combined In Vitro and Modeling Approach. Biophysical Journal, 2007, 92, 1046-1057.	0.2	64
22	Survival of the Aligned: Ordering of the Plant Cortical Microtubule Array. Physical Review Letters, 2010, 104, 058103.	2.9	63
23	Demixing versus ordering in hard-rod mixtures. Physical Review E, 1996, 54, 6430-6440.	0.8	62
24	Colloidal liquid crystals in rectangular confinement: theory and experiment. Soft Matter, 2014, 10, 7865-7873.	1.2	62
25	Do cylinders exhibit a cubatic phase?. Journal of Chemical Physics, 1999, 110, 11652-11659.	1.2	59
26	How selective severing by katanin promotes order in the plant cortical microtubule array. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 6942-6947.	3.3	56
27	Solution of the excluded volume problem for biaxial particles. Liquid Crystals, 1986, 1, 539-551.	0.9	54
28	Towards a synthetic cell cycle. Nature Communications, 2021, 12, 4531.	5.8	53
29	Microtubules and cellulose microfibrils: how intimate is their relationship?. Trends in Plant Science, 2007, 12, 279-281.	4.3	52
30	CLASP stabilization of plus ends created by severing promotes microtubule creation and reorientation. Journal of Cell Biology, 2019, 218, 190-205.	2.3	52
31	Model for the orientational ordering of the plant microtubule cortical array. Physical Review E, 2010, 82, 011911.	0.8	50
32	Taking directions: the role of microtubule-bound nucleation in the self-organization of the plant cortical array. Physical Biology, 2011, 8, 056002.	0.8	50
33	Continuum Description of the Cytoskeleton: Ring Formation in the Cell Cortex. Physical Review Letters, 2005, 95, 258103.	2.9	49
34	Modelling the role of microtubules in plant cell morphology. Current Opinion in Plant Biology, 2013, 16, 688-692.	3.5	49
35	Finite particle size drives defect-mediated domain structures in strongly confined colloidal liquid crystals. Nature Communications, 2016, 7, 12112.	5.8	47
36	The excluded volume of hard sphero-zonotopes. Molecular Physics, 2005, 103, 1411-1424.	0.8	46

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37	Modeling a Cortical Auxin Maximum for Nodulation: Different Signatures of Potential Strategies. Frontiers in Plant Science, 2012, 3, 96.	1.7	44
38	Alignment of nematic and bundled semiflexible polymers in cell-sized confinement. Soft Matter, 2014, 10, 2354-2364.	1.2	44
39	What is quantitative plant biology?. Quantitative Plant Biology, 2021, 2, .	0.8	43
40	Demixing in a hard rod-plate mixture. Journal De Physique II, 1994, 4, 1763-1769.	0.9	42
41	The diffusive vesicle supply center model for tip growth in fungal hyphae. Journal of Theoretical Biology, 2006, 238, 937-948.	0.8	41
42	Absence of highâ€density consolute point in nematic hard rod mixtures. Journal of Chemical Physics, 1996, 105, 11237-11245.	1.2	39
43	A computational framework for cortical microtubule dynamics in realistically shaped plant cells. PLoS Computational Biology, 2018, 14, e1005959.	1.5	39
44	The hard ellipsoid-of-revolution fluid I. Monte Carlo simulations. Molecular Physics, 2002, 100, 201-217.	0.8	37
45	Phase Diagram of Hard Ellipsoids of Revolution. Molecular Crystals and Liquid Crystals, 1985, 123, 119-128.	0.9	35
46	Phase diagram of Onsager crosses. Physical Review E, 1998, 58, 5873-5884.	0.8	35
47	Why all crystals need not be bcc: Symmetry breaking at the liquid-solid transition revisited. Physical Review E, 1999, 59, 5613-5620.	0.8	34
48	A dynamical model for plant cell wall architecture formation. Journal of Mathematical Biology, 2001, 42, 261-289.	0.8	33
49	Cortical Microtubule Arrays Are Initiated from a Nonrandom Prepattern Driven by Atypical Microtubule Initiation Â Â. Plant Physiology, 2013, 161, 1189-1201.	2.3	33
50	Cubatic phase for tetrapods. Journal of Chemical Physics, 2004, 120, 5486-5492.	1.2	31
51	Hard-sphere solids near close packing: Testing theories for crystallization. Physical Review E, 2000, 61, 3811-3822.	0.8	30
52	Cellulose microfibril deposition: coordinated activity at the plant plasma membrane. Journal of Microscopy, 2008, 231, 192-200.	0.8	30
53	Designing ordered DNA-linked nanoparticle assemblies. Journal of Physics Condensed Matter, 2006, 18, S567-S580.	0.7	29
54	Defect structures mediate the isotropicâ€"nematic transition in strongly confined liquid crystals. Soft Matter, 2015, 11, 608-614.	1.2	26

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55	Self-regulation in tip-growth: The role of cell wall ageing. Journal of Theoretical Biology, 2011, 283, 113-121.	0.8	25
56	From plasmodesma geometry to effective symplasmic permeability through biophysical modelling. ELife, 2019, 8, .	2.8	25
57	Microtubule networks for plant cell division. Systems and Synthetic Biology, 2014, 8, 187-194.	1.0	24
58	Force generation by polymerizing microtubules. Applied Physics A: Materials Science and Processing, 2002, 75, 331-336.	1.1	23
59	Spontaneous Helicity of a Polymer with Side Loops Confined to a Cylinder. Physical Review Letters, 2012, 108, 268305.	2.9	23
60	A closer look at crystallization of parallel hard cubes. Journal of Chemical Physics, 2001, 114, 3653-3658.	1.2	22
61	Poroelasticity of (bio)polymer networks during compression: theory and experiment. Soft Matter, 2020, 16, 1298-1305.	1.2	22
62	Efficient event-driven simulations shed new light on microtubule organization in the plant cortical array. Frontiers in Physics, 2014, 2, .	1.0	21
63	sComment on ``Study of phase-separation dynamics by use of cell dynamical systems. I.nModeling''. Physical Review E, 1997, 55, 3789-3791.	0.8	19
64	Microtubule length distributions in the presence of protein-induced severing. Physical Review E, 2010, 81, 031910.	0.8	18
65	Phase behaviour of a symmetric binary mixture of hard rods. Journal of Chemical Physics, 1996, 105, 7727-7734.	1.2	17
66	High-density scaling solution to the Onsager model of lyotropic nematics. Europhysics Letters, 1996, 34, 201-206.	0.7	17
67	How the geometrical model for plant cell wall formation enables the production of a random texture. Cellulose, 2004, 11, 395-401.	2.4	17
68	Microtubules interacting with a boundary: Mean length and mean first-passage times. Physical Review E, 2012, 86, 011902.	0.8	17
69	A theory for nematic liquids with biaxial molecules. Physica A: Statistical Mechanics and Its Applications, 1982, 113, 145-167.	1.2	16
70	Cell dynamics model of droplet formation in polymer-dispersed liquid crystals. Physical Review E, 1996, 53, 1805-1815.	0.8	16
71	Size and shape of excluded volume polymers confined between parallel plates. Physical Review E, 2011, 83, 031803.	0.8	16
72	Colloidal Liquid Crystals Confined to Synthetic Tactoids. Scientific Reports, 2019, 9, 20391.	1.6	16

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73	On the Landau bicritical point for hard biaxial particles. Liquid Crystals, 1990, 8, 527-532.	0.9	13
74	The Geometrical Model for Microfibril Deposition and the Influence of the Cell Wall Matrix. Plant Biology, 2002, 4, 22-26.	1.8	13
75	Nematic Homopolymers: From Segmented to Wormlike Chains. Soft Materials, 2003, 1, 313-342.	0.8	13
76	Quantitative Analysis of Copolymers:Â Influence of the Structure of the Monomer on the Ionization Efficiency in Electrospray Ionization FTMS. Macromolecules, 2002, 35, 4919-4928.	2.2	12
77	Entropy-induced microphase separation in hard diblock copolymers. Physical Review E, 2004, 70, 031503.	0.8	11
78	Confinement and crowding control the morphology and dynamics of a model bacterial chromosome. Soft Matter, 2019, 15, 2677-2687.	1.2	11
79	Molecular Dynamics Simulation of a Feather-Boa Model of a Bacterial Chromosome. Methods in Molecular Biology, 2018, 1837, 403-415.	0.4	10
80	Isotropic-to-nematic transition in liquid-crystalline heteropolymers: I. Formalism and main-chain liquid-crystalline polymers. Journal of Physics Condensed Matter, 2006, 18, 9335-9357.	0.7	9
81	Designing colloidal ground-state patterns using short-range isotropic interactions. Physical Review E, 2010, 82, 021404.	0.8	9
82	Self-healing microtubules. Nature Materials, 2015, 14, 1080-1081.	13.3	9
83	Numerical simulation of thermally induced phase separation in polymerâ€dispersed liquid crystals. Journal of Chemical Physics, 1996, 105, 10145-10152.	1.2	8
84	Critical threshold for microtubule amplification through templated severing. Physical Review E, 2020, 101, 052405.	0.8	8
85	On Growth and Force. Science, 2008, 322, 1643-1644.	6.0	7
86	The Effect of Anisotropic Microtubule-Bound Nucleations on Ordering in the Plant Cortical Array. Bulletin of Mathematical Biology, 2014, 76, 2907-2922.	0.9	6
87	Modeling Tip Growth: Pushing Ahead. Plant Cell Monographs, 2009, , 103-122.	0.4	6
88	A microtubule-based minimal model for spontaneous and persistent spherical cell polarity. PLoS ONE, 2017, 12, e0184706.	1.1	6
89	Phase Behavior of Mixtures of Wormlike Micelles and Mixtures of Wormlike Micelles with Small Colloidal Particles. Journal of Physical Chemistry B, 1997, 101, 4839-4844.	1.2	5
90	The Landau-de Gennes approach revisited: A minimal self-consistent microscopic theory for spatially inhomogeneous nematic liquid crystals. Journal of Chemical Physics, 2017, 147, 244505.	1.2	5

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91	A plausible mechanism for longitudinal lock-in of the plant cortical microtubule array after light-induced reorientation. Quantitative Plant Biology, 2021, 2, .	0.8	5
92	Microtubule-based actin transport and localization in a spherical cell. Royal Society Open Science, 2020, 7, 201730.	1.1	4
93	Continuous crossover from oblate to prolate backbone conformations in nematic side-chain polymers. Europhysics Letters, 2003, 64, 337-343.	0.7	3
94	A graph-based algorithm for the multi-objective optimization of gene regulatory networks. European Journal of Operational Research, 2018, 270, 784-793.	3.5	3
95	Impact of crowders on the morphology of bacterial chromosomes. Europhysics Letters, 2019, 128, 68003.	0.7	3
96	Thermodynamics of a model wih interacting annealed bond impurities on the Bethe lattice. Journal of Statistical Physics, 1991, 65, 423-444.	0.5	2
97	Onsager chains: Semi-flexible polymers revisited. Macromolecular Symposia, 1994, 81, 329-331.	0.4	2
98	RESEARCH NOTE Virial coefficients of Onsager crosses. Molecular Physics, 1998, 94, 401-405.	0.8	2
99	Sphere size distributions from finite thickness sections: a forward approach employing a genetic algorithm. Journal of Microscopy, 2008, 231, 257-264.	0.8	2
100	On the Robustness of the Geometrical Model for Cell Wall Deposition. Bulletin of Mathematical Biology, 2010, 72, 869-895.	0.9	2
101	Virial coefficients of Onsager crosses. Molecular Physics, 1998, 94, 401-405.	0.8	2
102	Modeling Tip Growth: Pushing Ahead. Plant Cell Monographs, 2009, , 103.	0.4	2
103	Non-equivalence of ensembles in the ground state of a model with annealed bond impurities. Physica A: Statistical Mechanics and Its Applications, 1991, 174, 504-516.	1.2	1
104	Isotropic-to-nematic transition in liquid-crystalline heteropolymers: II. Side-chain liquid-crystalline polymers. Journal of Physics Condensed Matter, 2006, 18, 9359-9374.	0.7	1
105	Scratching a 50-year itch with elongated rods. Molecular Physics, 2018, 116, 2742-2756.	0.8	1
106	Forced apart: a microtubule-based mechanism for equidistant positioning of multiple nuclei in single cells. European Physical Journal Plus, 2021, 136, 1.	1.2	1
107	Frustration-induced complexity in order-disorder transitions of the <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi>J</mml:mi><mml:mn>1</mml:mn></mml:msub><mml: Ising model on the square lattice. Physical Review E, 2022, 106, .	0.8	1
108	Origin magnetisation distribution of the site-diluted Ising model on a rooted Cayley tree. Journal of Physics A, 1989, 22, L913-L918.	1.6	0

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109	Anchoring Transitions of Nematic Liquid Crystals in a Lattice Model. Molecular Crystals and Liquid Crystals, 1998, 323, 97-112.	0.3	0
110	Interfacial wetting in the 4-state Potts model: A cluster approach. Physica A: Statistical Mechanics and Its Applications, 2007, 375, 537-545.	1.2	0
111	Modelling the Plant Microtubule Cytoskeleton. , 2018, , 53-67.		0