Fred J Vermolen

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.

113 papers	1,402 citations	21 h-index	32 g-index
116 ext. papers	1,588 ext. citations	2.6 avg, IF	4.84 L-index

#	Paper	IF	Citations
113	A Bayesian finite-element trained machine learning approach for predicting post-burn contraction.. *Neural Computing and Applications*, **2022**, 1-8	4.8	
112	Scar formation from the perspective of complexity science: a new look at the biological system as a whole.. *Journal of Wound Care*, **2022**, 31, 178-184	2.2	1
111	Comparison between a phenomenological approach and a morphoelasticity approach regarding the displacement of extracellular matrix.. *Biomechanics and Modeling in Mechanobiology*, **2022**, 1	3.8	0
110	On the fundamental solutions-based inversion of Laplace matrices. *Results in Applied Mathematics*, **2022**, 15, 100288	1.7	
109	Some Mathematical Properties of Morphoelasticity. *Lecture Notes in Computational Science and Engineering*, **2021**, 1119-1127	0.3	0
108	Several Agent-Based and Cellular Automata Mathematical Frameworks for Modeling Pancreatic Cancer. *Lecture Notes in Computational Science and Engineering*, **2021**, 265-274	0.3	0
107	A formalism for modelling traction forces and cell shape evolution during cell migration in various biomedical processes. *Biomechanics and Modeling in Mechanobiology*, **2021**, 20, 1459-1475	3.8	3
106	A moving finite element framework for fast infiltration in nonlinear poroelastic media. *Computational Geosciences*, **2021**, 25, 793-804	2.7	1
105	Sensitivity and feasibility of a one-dimensional morphoelastic model for post-burn contraction. *Biomechanics and Modeling in Mechanobiology*, **2021**, 20, 2147-2167	3.8	1
104	Stability of a one-dimensional morphoelastic model for post-burn contraction. *Journal of Mathematical Biology*, **2021**, 83, 24	2	2
103	Agent-based modelling and parameter sensitivity analysis with a finite-element method for skin contraction. *Biomechanics and Modeling in Mechanobiology*, **2020**, 19, 2525-2551	3.8	4
102	Point Forces and Their Alternatives in Cell-Based Models for Skin Contraction in Two Dimensions **2020**,		1
101	Network-inspired versus Kozeny□Carman based permeability-porosity relations applied to Biot□s poroelasticity model. *Journal of Mathematics in Industry*, **2020**, 10,	2.9	2
100	Uncertainty quantification on a spatial Markov-chain model for the progression of skin cancer. *Journal of Mathematical Biology*, **2020**, 80, 545-573	2	4
99	A Cellular Automata Model of Oncolytic Virotherapy in Pancreatic Cancer. *Bulletin of Mathematical Biology*, **2020**, 82, 103	2.1	3
98	Computational modeling of therapy on pancreatic cancer in its early stages. *Biomechanics and Modeling in Mechanobiology*, **2020**, 19, 427-444	3.8	7
97	A network model for the biofilm growth in porous media and its effects on permeability and porosity. *Computing and Visualization in Science*, **2019**, 21, 11-22	1	3

96	Uncertainty Assessment of a Hybrid Cell-Continuum Based Model for Wound Contraction. *Lecture Notes in Computational Science and Engineering*, **2019**, 247-255	0.3	
95	A Poroelasticity Model Using a Network-Inspired Porosity-Permeability Relation. *Mathematics in Industry*, **2019**, 83-88	0.2	
94	Computational Cell-Based Modeling and Visualization of Cancer Development and Progression. *Lecture Notes in Computational Vision and Biomechanics*, **2019**, 93-119	0.3	
93	Uncertainty Quantification in Injection and Soil Characteristics for Biot Poroelasticity Model. *Lecture Notes in Computational Science and Engineering*, **2019**, 645-652	0.3	1
92	Mathematical Modeling Tools and Software for BME Applications **2019**, 56-63		
91	Can Mathematics and Computational Modeling Help Treat Deep Tissue Injuries?. *Advances in Wound Care*, **2019**, 8, 703-714	4.8	
90	Monte Carlo Assessment of the Impact of Oscillatory and Pulsating Boundary Conditions on the Flow Through Porous Media. *Transport in Porous Media*, **2018**, 123, 125-146	3.1	4
89	A model for cell migration in non-isotropic fibrin networks with an application to pancreatic tumor islets. *Biomechanics and Modeling in Mechanobiology*, **2018**, 17, 367-386	3.8	13
88	On an integration rule for products of barycentric coordinates over simplexes in Rn. *Journal of Computational and Applied Mathematics*, **2018**, 330, 289-294	2.4	5
87	Continuum-Scale Models for the Evolution of Hypertrophic Scars and Contractions After Burn Injuries. *Lecture Notes in Bioengineering*, **2018**, 99-106	0.8	
86	Conditions for upscalability of bioclogging in pore network models. *Computational Geosciences*, **2018**, 22, 1543-1559	2.7	0
85	A phenomenological model for cell and nucleus deformation during cancer metastasis. *Biomechanics and Modeling in Mechanobiology*, **2018**, 17, 1429-1450	3.8	16
84	A mathematical model for the simulation of the formation and the subsequent regression of hypertrophic scar tissue after dermal wounding. *Biomechanics and Modeling in Mechanobiology*, **2017**, 16, 15-32	3.8	21
83	Biomedical implications from a morphoelastic continuum model for the simulation of contracture formation in skin grafts that cover excised burns. *Biomechanics and Modeling in Mechanobiology*, **2017**, 16, 1187-1206	3.8	13
82	A mathematical model for the simulation of the contraction of burns. *Journal of Mathematical Biology*, **2017**, 75, 1-31	2	6
81	A biomechanical mathematical model for the collagen bundle distribution-dependent contraction and subsequent retraction of healing dermal wounds. *Biomechanics and Modeling in Mechanobiology*, **2017**, 16, 345-361	3.8	6
80	Review on experiment-based two- and three-dimensional models for wound healing. *Interface Focus*, **2016**, 6, 20160038	3.9	9
79	Simulation of Front Instabilities in Density-Driven Flow, Using a Reactive Transport Model for Biogrout Combined with a Randomly Distributed Permeability Field. *Transport in Porous Media*, **2016**, 112, 333-359	3.1	4

78	A Reactive Transport Model for Biogrout Compared to Experimental Data. *Transport in Porous Media*, **2016**, 111, 627-648	3.1	16
77	A multi-agent cell-based model for wound contraction. *Journal of Biomechanics*, **2016**, 49, 1388-1401	2.9	17
76	Modelling the immune system response to epithelial wound infections. *Journal of Theoretical Biology*, **2016**, 393, 158-69	2.3	7
75	Mathematical modelling of angiogenesis using continuous cell-based models. *Biomechanics and Modeling in Mechanobiology*, **2016**, 15, 1577-1600	3.8	21
74	Semi-stochastic cell-level computational modelling of cellular forces: application to contractures in burns and cyclic loading. *Biomechanics and Modeling in Mechanobiology*, **2015**, 14, 1181-95	3.8	15
73	Towards a Mathematical Formalism for Semi-stochastic Cell-Level Computational Modeling of Tumor Initiation. *Annals of Biomedical Engineering*, **2015**, 43, 1680-94	4.7	15
72	Particle methods to solve modelling problems in wound healing and tumor growth. *Computational Particle Mechanics*, **2015**, 2, 381-399	3	9
71	Modeling migration in cell colonies in two and three dimensional substrates with varying stiffnesses **2015**, 2,		8
70	A robust method to tackle pressure boundary conditions in porous media flow: application to biogrout. *Computational Geosciences*, **2014**, 18, 103-115	2.7	1
69	Semi-stochastic cell-level computational modeling of the immune system response to bacterial infections and the effects of antibiotics. *Biomechanics and Modeling in Mechanobiology*, **2014**, 13, 713-34	3.8	12
68	A mathematical model for bacterial self-healing of cracks in concrete. *Journal of Intelligent Material Systems and Structures*, **2014**, 25, 4-12	2.3	23
67	A mathematical model for cell differentiation, as an evolutionary and regulated process. *Computer Methods in Biomechanics and Biomedical Engineering*, **2014**, 17, 1051-70	2.1	15
66	Stability analysis for a peri-implant osseointegration model. *Journal of Mathematical Biology*, **2013**, 66, 351-82	2	1
65	Application of the level-set method to a mixed-mode driven Stefan problem in 2(D) and 3(D). *Computing (Vienna/New York)*, **2013**, 95, 553-572	2.2	3
64	Modelling precipitate nucleation and growth with multiple precipitate species under isothermal conditions: Formulation and analysis. *Computational Materials Science*, **2013**, 79, 933-943	3.2	13
63	A mathematical model for Biogrout. *Computational Geosciences*, **2013**, 17, 463-478	2.7	12
62	A semi-stochastic cell-based model for in vitro infected 'wound' healing through motility reduction: a simulation study. *Journal of Theoretical Biology*, **2013**, 318, 68-80	2.3	12
61	Numerical method for the bone regeneration model, defined within the evolving 2D axisymmetric physical domain. *Computer Methods in Applied Mechanics and Engineering*, **2013**, 253, 117-145	5.7	3

60	A phenomenological model for chemico-mechanically induced cell shape changes during migration and cell-cell contacts. *Biomechanics and Modeling in Mechanobiology*, **2013**, 12, 301-23	3.8	26
59	Wound Healing: Multi-Scale Modeling. *Studies in Mechanobiology, Tissue Engineering and Biomaterials*, **2013**, 321-345	0.5	2
58	Modeling of a self-healing process in blast furnace slag cement exposed to accelerated carbonation. *Journal of Physics: Conference Series*, **2013**, 410, 012088	0.3	1
57	Various Flow Equations to Model the New Soil Improvement Method Biogrout **2013**, 633-641		3
56	On the Construction of Analytic Solutions to a Visco‐Elasticity Model for Soft Tissues **2013**, 607-615		
55	Model for direct bone apposition on pre-existing surfaces, during peri-implant osseointegration. *Journal of Theoretical Biology*, **2012**, 304, 131-42	2.3	11
54	Tailoring the release of encapsulated corrosion inhibitors from damaged coatings: Controlled release kinetics by overlapping diffusion fronts. *Progress in Organic Coatings*, **2012**, 75, 20-27	4.8	25
53	A Mathematical Model and Analytical Solution for the Fixation of Bacteria in Biogrout. *Transport in Porous Media*, **2012**, 92, 847-866	3.1	19
52	A semi-stochastic cell-based formalism to model the dynamics of migration of cells in colonies. *Biomechanics and Modeling in Mechanobiology*, **2012**, 11, 183-95	3.8	37
51	A finite-element model for healing of cutaneous wounds combining contraction, angiogenesis and closure. *Journal of Mathematical Biology*, **2012**, 65, 967-96	2	34
50	In Vitro Wound‐Healing: Experimentally Based Phenomenological Modeling. *Advanced Engineering Materials*, **2012**, 14, B76-B88	3.5	5
49	Mathematical Models to Predict the Critical Conditions for Bacterial Self-healing of Concrete. *Lecture Notes in Computer Science*, **2012**, 108-121	0.9	0
48	Modelling of particle nucleation and growth in binary alloys under elastic deformation: An application to a Cu‐0.95wt%Co alloy. *Computational Materials Science*, **2011**, 50, 2397-2410	3.2	7
47	Two analytical models for the probability characteristics of a crack hitting encapsulated particles: Application to self-healing materials. *Computational Materials Science*, **2011**, 50, 3323-3323	3.2	54
46	Analysis of a Model for Anomalous-Diffusion Behavior of CO2 in the Macromolecular-Network Structure of Coal. *SPE Journal*, **2011**, 16, 856-863	3.1	7
45	Numerical Analysis of Foam Motion in Porous Media Using a New Stochastic Bubble Population Model. *Transport in Porous Media*, **2011**, 86, 461-474	3.1	20
44	Modelling Biogrout: A New Ground Improvement Method Based on Microbial-Induced Carbonate Precipitation. *Transport in Porous Media*, **2011**, 87, 397-420	3.1	66
43	A pilot study of a phenomenological model of adipogenesis in maturing adipocytes using Cahn-Hilliard theory. *Medical and Biological Engineering and Computing*, **2011**, 49, 1447-57	3.1	4

42	Mathematical Modelling of NbC Particle Nucleation and Growth in an HSLA Steel under Elastic Deformation. *Solid State Phenomena*, **2011**, 172-174, 893-898	0.4	2
41	An Analytical Model for the Probability Characteristics of a Crack Hitting an Encapsulated Self-healing Agent in Concrete. *Lecture Notes in Computer Science*, **2010**, 280-292	0.9	9
40	Computer simulations from a finite-element model for wound contraction and closure. *Journal of Tissue Viability*, **2010**, 19, 43-53	3.2	25
39	Application of the numerical density-enthalpy method to the multi-phase flow through a porous medium. *Procedia Computer Science*, **2010**, 1, 781-790	1.6	1
38	Modelling the New Soil Improvement Method Biogrout: Extension to 3D **2010**, 893-900		4
37	A Cut-Cell Finite-Element Method for a Discontinuous Switch Model for Wound Closure **2010**, 929-936		
36	Simplified Finite-Element Model for Tissue Regeneration with Angiogenesis. *Journal of Engineering Mechanics - ASCE*, **2009**, 135, 450-460	2.4	9
35	A mathematical analysis of physiological and morphological aspects of wound closure. *Journal of Mathematical Biology*, **2009**, 59, 605-30	2	51
34	On the construction of analytic solutions for a diffusionfeaction equation with a discontinuous switch mechanism. *Journal of Computational and Applied Mathematics*, **2009**, 231, 983-1003	2.4	8
33	Computing Interfaces in Diverse Applications **2009**, 327-341		
32	A Suite of Continuum Models for Different Aspects in Wound Healing. *Studies in Mechanobiology, Tissue Engineering and Biomaterials*, **2009**, 127-168	0.5	3
31	Numerical Solutions of Some Diffuse Interface Problems: The Cahn-Hilliard Equation and the Model of Thomas and Windle. *International Journal for Multiscale Computational Engineering*, **2009**, 7, 523-543	2.4	3
30	A Suite of Mathematical Models for Bone Ingrowth, Bone Fracture Healing and Intra-Osseous Wound Healing. *Lecture Notes in Computational Science and Engineering*, **2009**, 289-314	0.3	1
29	A level set method for three dimensional vector Stefan problems: Dissolution of stoichiometric particles in multi-component alloys. *Journal of Computational Physics*, **2007**, 224, 222-240	4.1	17
28	A Finite Element Model for Epidermal Wound Healing. *Lecture Notes in Computer Science*, **2007**, 70-77	0.9	5
27	A three-dimensional model for particle dissolution in binary alloys. *Computational Materials Science*, **2007**, 39, 767-774	3.2	21
26	On Similarity Solutions and Interface Reactions for a Vector-Valued Stefan Problem. *Nonlinear Analysis: Modelling and Control*, **2007**, 12, 269-288	1.3	2
25	Modeling of Self Healing of Skin Tissue. *Springer Series in Materials Science*, **2007**, 337-363	0.9	6

24	Cementite dissolution at 860 C in an Fe-Cr-C steel. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2006**, 37, 1841-1850	2.3	26
23	A comparison of numerical models for one-dimensional Stefan problems. *Journal of Computational and Applied Mathematics*, **2006**, 192, 445-459	2.4	98
22	A simplified model for growth factor induced healing of wounds. *Mathematical and Computer Modelling*, **2006**, 44, 887-898		13
21	Self-Similar Solutions for the Foam Drainage Equation. *Transport in Porous Media*, **2006**, 63, 195-200	3.1	4
20	The dependence of the AlFeSi to Al(FeMn)Si transformation kinetics in AlMgSi alloys on the alloying elements. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2005**, 394, 9-19	5.3	114
19	Solution of vector Stefan problems with cross-diffusion. *Journal of Computational and Applied Mathematics*, **2005**, 176, 179-201	2.4	7
18	Cross-diffusion controlled particle dissolution in metallic alloys. *Computing and Visualization in Science*, **2005**, 8, 27-33	1	3
17	Particle dissolution and cross-diffusion in multi-component alloys. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2003**, 347, 265-279	5.3	14
16	A model for a viscous preflush prior to gelation in a porous medium. *Computing and Visualization in Science*, **2002**, 4, 205-212	1	1
15	A mathematical model for the dissolution of stoichiometric particles in multi-component alloys. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2002**, 328, 14-25	5.3	20
14	Numerical analysis of layer and bridging adsorption of flexible polymers in porous media. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, **2002**, 204, 153-168	5.1	
13	Control of flow through porous media using polymer gels. *Journal of Applied Physics*, **2002**, 92, 1143-1153	2.5	28
12	Gel Placement in Porous Media: Constant Injection Rate. *Transport in Porous Media*, **2001**, 44, 247-266	3.1	6
11	A mathematical model for the dissolution of particles in multi-component alloys. *Journal of Computational and Applied Mathematics*, **2000**, 126, 233-254	2.4	21
10	A conserving discretization for a Stefan problem with an interface reaction at the free boundary. *Computing and Visualization in Science*, **2000**, 3, 109-114	1	8
9	Dissolution of particles in an Al?Mg?Si alloy during DSC runs. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **1999**, 272, 250-256	5.3	31
8	A Conserving Discretization for the Free Boundary in a Two-Dimensional Stefan Problem. *Journal of Computational Physics*, **1998**, 141, 1-21	4.1	78
7	The dissolution of a stoichiometric second phase in ternary alloys: a numerical analysis. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **1998**, 246, 93-103	5.3	14

6	A mathematical model for the dissolution kinetics of Mg2Si-phases in AlMgSi alloys during homogenisation under industrial conditions. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **1998**, 254, 13-32	5.3	32
5	A numerical method to compute the dissolution of second phases in ternary alloys. *Journal of Computational and Applied Mathematics*, **1998**, 93, 123-143	2.4	22
4	Modelling The Microstructural Changes During The Homogenisation of Extrudable Aluminium Alloys. *Journal of the Mechanical Behavior of Materials*, **1998**, 9, 115-120	1.9	1
3	Analytical approach to particle dissolution in a finite medium. *Materials Science and Technology*, **1997**, 13, 308-312	1.5	12
2	A numerical model for the dissolution of spherical particles in binary alloys under mixed mode control. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **1996**, 220, 140-146	5.3	24
1	Analytical approach to particle dissolution in a finite medium		2