Geoffrey B Mcfadden

List of Publications by Year in Descending Order

137 papers	7,044 citations	38 h-index	81 g-index
142 ext. papers	7,634 ext. citations	3.2 avg, IF	5.46 L-index

#	Paper	IF	Citations
137	Elimination of MHD current sheets by modifications to the plasma wall in a fixed boundary model. *Plasma Physics and Controlled Fusion*, **2020**, 62,	2	2
136	Effect of vacancy creation and annihilation on grain boundary motion. *Acta Materialia*, **2020**, 185,	8.4	1
135	Model reduction of rigid-body molecular dynamics via generalized multipole potentials. *Physical Review E*, **2019**, 100, 063302	2.4	
134	Interdiffusion in the Ni-Re System: Evaluation of Uncertainties. *Journal of Phase Equilibria and Diffusion*, **2017**, 38, 750-763	1	7
133	Numerical analysis and simulation for a generalized planar Ginzburg□andau equation in a circular geometry. *Communications in Mathematical Sciences*, **2017**, 15, 329-357	1	1
132	Analytical Derivation of the Sauer-Freise Flux Equation for Multicomponent Multiphase Diffusion Couples with Variable Partial Molar Volumes. *Journal of Phase Equilibria and Diffusion*, **2016**, 37, 640-650	1	4
131	Predicted Role of NAD Utilization in the Control of Circadian Rhythms during DNA Damage Response. *PLoS Computational Biology*, **2015**, 11, e1004144	5	12
130	Equilibrium and stability of axisymmetric drops on a conical substrate under gravity. *Physics of Fluids*, **2015**, 27,	4.4	2
129	Sharp interface model of creep deformation in crystalline solids. *Physical Review B*, **2015**, 92,	3.3	2
128	On the Stability of Rotating Drops. *Journal of Research of the National Institute of Standards and Technology*, **2015**, 120, 74-101	1.3	9
127	Tokamak plasma high field side response to ann= 3 magnetic perturbation: a comparison of 3D equilibrium solutions from seven different codes. *Nuclear Fusion*, **2015**, 55, 063026	3.3	21
126	Surface morphologies due to grooves at moving grain boundaries having stress-driven fluxes. *Acta Materialia*, **2013**, 61, 7216-7226	8.4	3
125	Bubble motion and size variation during thermal migration with phase change. *Physics of Fluids*, **2013**, 25, 013302	4.4	0
124	Thin film dynamics on a prolate spheroid with application to the cornea. *Journal of Engineering Mathematics*, **2012**, 73, 121-138	1.2	39
123	A diffuse-interface model of reactive wetting with intermetallic formation. *Acta Materialia*, **2012**, 60, 3799-3814	8.4	21
122	Onset of morphological instability in two binary liquid layers. *Physics of Fluids*, **2011**, 23, 044102	4.4	1
121	The DEMO Quasisymmetric Stellarator. *Energies*, **2010**, 3, 277-284	3.1	1

120	Convective instabilities during the solidification of an ideal ternary alloy in a mushy layer. *Journal of Fluid Mechanics*, **2010**, 647, 309-333	3.7	12
119	Predicted functions of MdmX in fine-tuning the response of p53 to DNA damage. *PLoS Computational Biology*, **2010**, 6, e1000665	5	7
118	Onset of convection in two layers of a binary liquid. *Journal of Fluid Mechanics*, **2010**, 647, 105-124	3.7	4
117	Self-similar grain size distribution in three dimensions: A stochastic treatment. *Acta Materialia*, **2010**, 58, 1037-1044	8.4	19
116	Bending of a Bimetallic Beam Due to the Kirkendall Effect. *Journal of Phase Equilibria and Diffusion*, **2010**, 31, 6-14	1	6
115	The contribution of lipid layer movement to tear film thinning and breakup **2009**, 50, 2747-56		98
114	Onset of oscillatory convection in two liquid layers with phase change. *Physics of Fluids*, **2009**, 21, 034101	4.4	10
113	Thermodynamics of grain boundary premelting in alloys. I. Phase-field modeling. *Acta Materialia*, **2009**, 57, 3771-3785	8.4	88
112	Design of the DEMO Fusion Reactor Following ITER. *Journal of Research of the National Institute of Standards and Technology*, **2009**, 114, 229-36	1.3	6
111	Instability in pipe flow. *Proceedings of the National Academy of Sciences of the United States of America*, **2008**, 105, 428-30	11.5	10
110	General dynamical sharp-interface conditions for phase transformations in viscous heat-conducting fluids. *Journal of Fluid Mechanics*, **2007**, 581, 323-370	3.7	27
109	Computation of the Kirkendall velocity and displacement fields in a one-dimensional binary diffusion couple with a moving interface. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2007**, 463, 3347-3373	2.4	21
108	Onset of convection in two liquid layers with phase change. *Physics of Fluids*, **2007**, 19, 104109	4.4	14
107	Convective Instabilities in Two Liquid Layers. *Journal of Research of the National Institute of Standards and Technology*, **2007**, 112, 271-81	1.3	5
106	Numerical modeling of diffusion-induced deformation. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2006**, 37, 2701-2714	2.3	10
105	Axial flow effects on the stability of circular Couette flow with viscous heating. *Physics of Fluids*, **2006**, 18, 084106	4.4	
104	Phase field modeling of solidification under stress. *Physical Review B*, **2006**, 74,	3.3	38
103	The Effect of Contact Lines on the Rayleigh Instability with Anisotropic Surface Energy. *SIAM Journal on Applied Mathematics*, **2006**, 66, 1163-1187	1.8	20

102	Lateral deformation of diffusion couples. *Acta Materialia*, **2005**, 53, 1995-2008	8.4	18
101	Linear stability of cylindrical Couette flow in the convection regime. *Physics of Fluids*, **2005**, 17, 054112	4.4	5
100	Linear stability of spiral Poiseuille flow with a radial temperature gradient: Centrifugal buoyancy effects. *Physics of Fluids*, **2005**, 17, 114102	4.4	2
99	Phase field modeling of electrochemistry. I. Equilibrium. *Physical Review E*, **2004**, 69, 021603	2.4	117
98	Phase field modeling of electrochemistry. II. Kinetics. *Physical Review E*, **2004**, 69, 021604	2.4	86
97	Influence of a Catalytic Surfactant on Roughness Evolution During Film Growth. *Journal of the Electrochemical Society*, **2004**, 151, C538	3.9	27
96	The effect of anisotropic surface energy on the Rayleigh instability. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2003**, 459, 2575-2598	2.4	40
95	A Mechanism for Brightening. *Journal of the Electrochemical Society*, **2003**, 150, C591	3.9	34
94	Applications of morphological stability theory. *Journal of Crystal Growth*, **2002**, 237-239, 8-13	1.6	6
93	On the Gibbs adsorption equation and diffuse interface models. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2002**, 458, 1129-1149	2.4	18
92	Phase-field models of solidification. *Contemporary Mathematics*, **2002**, 107-145	1.6	19
91	Separation of scales for growth of an alloy needle crystal. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2001**, 32, 2669-2670	2.3	2
90	A phase-field model for highly anisotropic interfacial energy. *Physica D: Nonlinear Phenomena*, **2001** , 150, 91-103	3.3	189
89	A phase-field model with convection: sharp-interface asymptotics. *Physica D: Nonlinear Phenomena*, **2001**, 151, 305-331	3.3	50
88	Morphological stability of a binary alloy: thermodiffusion and temperature-dependent diffusivity. *Journal of Crystal Growth*, **2001**, 223, 565-572	1.6	12
87	Effect of flow due to density change on eutectic growth. *Journal of Crystal Growth*, **2001**, 224, 145-154	1.6	20
86	Electrical pulsing during directional solidification: analysis of transients by Laplace transform. *Journal of Crystal Growth*, **2000**, 216, 495-500	1.6	10
85	Microsegregation in Peltier interface demarcation. *Journal of Crystal Growth*, **2000**, 216, 483-494	1.6	13

84	The effect of oscillatory shear flow on step bunching. *Journal of Crystal Growth*, **2000**, 218, 434-446	1.6	19
83	Analytic solution for a non-axisymmetric isothermal dendrite. *Journal of Crystal Growth*, **2000**, 208, 726-745	1.6	35
82	Effect of surface free energy anisotropy on dendrite tip shape. *Acta Materialia*, **2000**, 48, 3177-3181	8.4	24
81	On the properties of □ ternary diffusion couples. *Acta Materialia*, **2000**, 48, 481-492	8.4	30
80	Thin interface asymptotics for an energy/entropy approach to phase-field models with unequal conductivities. *Physica D: Nonlinear Phenomena*, **2000**, 144, 154-168	3.3	57
79	A phase-field model of solidification with convection. *Physica D: Nonlinear Phenomena*, **2000**, 135, 175-194	3.3	146
78	Steps, kinetic anisotropy, and long-wavelength instabilities in directional solidification. *Physical Review E*, **1999**, 59, 5629-40	2.4	
77	Selection mechanisms for multiple similarity solutions for solidification and melting. *Journal of Crystal Growth*, **1999**, 200, 276-286	1.6	12
76	Anisotropy of Interfaces in an Ordered HCP Binary Alloy. *Journal of Statistical Physics*, **1999**, 95, 1337-1360	1.5	10
75	Step bunching: generalized kinetics. *Journal of Crystal Growth*, **1998**, 183, 669-682	1.6	45
74	Multiple similarity solutions for solidification and melting. *Journal of Crystal Growth*, **1998**, 191, 573-585	1.6	20
73	DIFFUSE-INTERFACE METHODS IN FLUID MECHANICS. *Annual Review of Fluid Mechanics*, **1998**, 30, 139-165	12	1377
72	Theory of anisotropic growth rates in the ordering of an f.c.c. alloy. *Acta Materialia*, **1998**, 46, 1-12	8.4	28
71	Solute trapping and solute drag in a phase-field model of rapid solidification. *Physical Review E*, **1998**, 58, 3436-3450	2.4	159
70	A diffuse-interface description of internal waves in a near-critical fluid. *Physics of Fluids*, **1997**, 9, 1870-1879	4.4	47
69	Anisotropy of interfaces in an ordered alloy: a multiple□order□parameter model. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **1997**, 355, 1787-1833	3	50
68	On the notion of a □ector and a stress tensor for a general class of anisotropic diffuse interface models. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **1997**, 453, 1611-1630	2.4	66
67	The effect of container size on dendritic growth in microgravity. *Journal of Crystal Growth*, **1997**, 171, 303-306	1.6	15

66	Effects of shear flow and anisotropic kinetics on the morphological stability of a binary alloy. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **1996**, 27, 687-694	2.3	12
65	Some perspectives on the interpretation of proton NMR spin diffusion data in terms of polymer morphologies. *Solid State Nuclear Magnetic Resonance*, **1996**, 7, 45-66	3.1	128
64	Step bunching on a vicinal face of a crystal growing in a flowing solution. *Journal of Crystal Growth*, **1996**, 169, 773-785	1.6	61
63	A □vector formulation of anisotropic phase-field models: 3D asymptotics. *European Journal of Applied Mathematics*, **1996**, 7, 367-381	1	51
62	Internal waves in xenon near the critical point. *Physics of Fluids*, **1996**, 8, 1464-1475	4.4	11
61	Recent developments in phase-field models of solidification. *Advances in Space Research*, **1995**, 16, 163-172	1.4	19
60	Stagnant film model of the effect of natural convection on the dendrite operating state. *Journal of Crystal Growth*, **1995**, 154, 370-376	1.6	35
59	Modification of morphological stability by Soret diffusion. *Journal of Crystal Growth*, **1995**, 147, 207-214	1.6	15
58	Lubrication theory for reactive spreading of a thin drop. *Physics of Fluids*, **1995**, 7, 1797-1810	4.4	46
57	On long-wave morphological instabilities in directional solidification. *European Journal of Applied Mathematics*, **1995**, 6, 639-652	1	4
56	Evaluating the zero creep conditions for thin film and multilayer thin film specimens. *Acta Metallurgica Et Materialia*, **1995**, 43, 1987-1999		19
55	Morphological instability in phase-field models of solidification. *Physical Review E*, **1994**, 49, 4336-4352	2.4	36
54	Prediction of solute trapping at high solidification rates using a diffuse interface phase-field theory of alloy solidification. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **1994**, 178, 217-223	5.3	34
53	Morphological stability of a binary alloy during directional solidification: initial transient. *Journal of Crystal Growth*, **1994**, 140, 139-147	1.6	20
52	The effect of crystalline anisotropy on pattern formation in laser-melted thin silicon films. *Journal of Crystal Growth*, **1994**, 137, 355-374	1.6	4
51	Convective and Morphological Stability during Directional Solidification of the Succinonitrile-Acetone System. *The IMA Volumes in Mathematics and Its Applications*, **1994**, 99-112	0.5	1
50	Phase-field model of solute trapping during solidification. *Physical Review E*, **1993**, 47, 1893-1909	2.4	255
49	Asymptotic behavior of modulated Taylor□ouette flows with a crystalline inner cylinder. *Physics of Fluids A, Fluid Dynamics*, **1993**, 5, 1891-1903		4

48	Laplace's Equation and the Dirichlet-Neumann Map in Multiply Connected Domains. *Journal of Computational Physics*, **1993**, 105, 267-278	4.1	104
47	Gravitational modulation of thermosolutal convection during directional solidification. *Journal of Crystal Growth*, **1993**, 129, 70-80	1.6	8
46	Thermodynamically-consistent phase-field models for solidification. *Physica D: Nonlinear Phenomena*, **1993**, 69, 189-200	3.3	439
45	Phase-field models for anisotropic interfaces. *Physical Review E*, **1993**, 48, 2016-2024	2.4	270
44	The Rayleigh Instability for a Cylindrical Crystal-Melt Interface. *The IMA Volumes in Mathematics and Its Applications*, **1993**, 159-169	0.5	1
43	The effect of gravity modulation on thermosolutal convection in an infinite layer of fluid. *Physics of Fluids A, Fluid Dynamics*, **1992**, 4, 1176-1189		23
42	On the morphological development of second-phase particles in elastically-stressed solids. *Acta Metallurgica Et Materialia*, **1992**, 40, 2979-2992		130
41	Phase-field model for isothermal phase transitions in binary alloys. *Physical Review A*, **1992**, 45, 7424-7439	2.6	688
40	The effect of compositionally-generated elastic stresses on morphological instability during directional solidification. *Acta Metallurgica Et Materialia*, **1992**, 40, 1599-1616		25
39	Effect of Modulated Taylor-Vortex Flows on Crystal-Melt Interfaces **1992**, 19-21		
38	Effect of Modulated Taylor-Couette Flows on Crystal-Melt Interfaces: Theory and Initial Experiments. *The IMA Volumes in Mathematics and Its Applications*, **1992**, 81-100	0.5	
37	Laser melting of thin silicon films. *Journal of Crystal Growth*, **1991**, 114, 446-466	1.6	9
36	Measurement and analysis of grain boundary grooving by volume diffusion. *Journal of Crystal Growth*, **1991**, 114, 467-480	1.6	27
35	The effect of gravity modulation on solutal convection during directional solidification. *Journal of Crystal Growth*, **1991**, 110, 713-723	1.6	43
34	Convective stability in the Rayleigh-Bénard and directional solidification problems: High-frequency gravity modulation. *Physics of Fluids A, Fluid Dynamics*, **1991**, 3, 2847-2858		39
33	Effect of a crystal-melt interface on Taylor-vortex flow. *Physics of Fluids A, Fluid Dynamics*, **1990**, 2, 700-705		16
32	Elimination of spurious eigenvalues in the Chebyshev tau spectral method. *Journal of Computational Physics*, **1990**, 91, 228-239	4.1	33
31	A numerical and analytical study of nonlinear bifurcations associated with the morphological stability of two-dimensional single crystals. *Journal of Crystal Growth*, **1990**, 100, 89-108	1.6	17

30	Directional solidification of a planar interface in the presence of a time-dependent electric current. *Journal of Crystal Growth*, **1990**, 102, 725-742	1.6	18
29	Effect of anisotropic thermal conductivity on the morphological stability of a binary alloy. *Journal of Crystal Growth*, **1990**, 100, 459-466	1.6	16
28	The effect of an electric field on the morphological stability of the crystal-melt interface of a binary alloy III. Weakly nonlinear theory. *Journal of Crystal Growth*, **1990**, 100, 78-88	1.6	6
27	Stabilization of Taylor□ouette flow due to time-periodic outer cylinder oscillation. *Physics of Fluids A, Fluid Dynamics*, **1990**, 2, 2147-2156		15
26	The effect of an electric field on the morphological stability of the crystal-melt interface of a binary alloy. *Journal of Crystal Growth*, **1989**, 94, 334-346	1.6	22
25	Buoyancy effects on morphological instability during directional solidification. *Journal of Crystal Growth*, **1989**, 94, 513-521	1.6	16
24	Numerical simulation of morphological development during ostwald ripening. *Acta Metallurgica*, **1988**, 36, 207-222		70
23	Hydrodynamic and free boundary instabilities during crystal growth: The effect of a plane stagnation flow. *Communications on Pure and Applied Mathematics*, **1988**, 41, 683-706	2.5	16
22	Effect of surface tension anisotropy on cellular morphologies. *Journal of Crystal Growth*, **1988**, 91, 180-198	1.6	32
21	The effect of an electric field on the morphological stability of the crystal-melt interface of a binary alloy. *Journal of Crystal Growth*, **1988**, 88, 1-15	1.6	26
20	Initial conditions implied by t12 solidification of a sphere with capillarity and interfacial kinetics. *Journal of Crystal Growth*, **1988**, 87, 415-420	1.6	5
19	Convective and Interfacial Instabilities During Solidification. *NATO ASI Series Series B: Physics*, **1988**, 559-569		
18	Thermosolutal convection during directional solidification. II. Flow transitions. *Physics of Fluids*, **1987**, 30, 659		22
17	Nonplanar interface morphologies during unidirectional solidification of a binary alloy: II. Three-dimensional computations. *Journal of Crystal Growth*, **1987**, 84, 371-388	1.6	52
16	Stability of a planar interface during solidification of a multicomponent system. *Journal of Crystal Growth*, **1987**, 82, 295-302	1.6	36
15	The effect of fluid flow due to the crystal-melt density change on the growth of a parabolic isothermal dendrite. *Journal of Crystal Growth*, **1986**, 74, 507-512	1.6	44
14	A boundary integral method for the simulation of two-dimensional particle coarsening. *Journal of Scientific Computing*, **1986**, 1, 117-144	2.3	20
13	Interaction of Flows with the Crystal-Melt Interface. *Annual Review of Fluid Mechanics*, **1986**, 18, 307-335	22	181

12	Double-diffusive convection with sidewalls. *Physics of Fluids*, **1985**, 28, 2716-2722		14
11	Cellular Growth During Directional Solidification. *Annual Review of Materials Research*, **1985**, 15, 119-145		106
10	Convective influence on the stability of a cylindrical solid□quid interface. *Journal of Fluid Mechanics*, **1985**, 151, 121	3.7	32
9	Asymmetric instabilities in buoyancy-driven flow in a tall vertical annulus. *Physics of Fluids*, **1984**, 27, 1359		26
8	Nonplanar interface morphologies during unidirectional solidification of a binary alloy. *Physica D: Nonlinear Phenomena*, **1984**, 12, 253-261	3.3	23
7	Effect of a forced Couette flow on coupled convective and morphological instabilities during unidirectional solidification. *Journal of Crystal Growth*, **1984**, 69, 15-22	1.6	64
6	The effect of anisotropic crystal-melt surface tension on grain boundary groove morphology. *Journal of Crystal Growth*, **1984**, 67, 425-440	1.6	74
5	Coupled convective instabilities at crystal-melt interfaces. *Journal of Crystal Growth*, **1984**, 66, 514-524	1.6	17
4	Morphological stability in the presence of fluid flow in the melt. *Metallurgical and Materials Transactions A - Physical Metallurgy and Materials Science*, **1984**, 15, 2117-2124		22
3	Thermosolutal convection during directional solidification. *Metallurgical and Materials Transactions A - Physical Metallurgy and Materials Science*, **1984**, 15, 2125-2137		54
2	Design of supercritical swept wings. *AIAA Journal*, **1982**, 20, 289-291	2.1	54
1	Computation of complex solidification morphologies using a phase-field model		4