

Geoffrey B. McFadden

177. W.J. Boettinger, M.E. Williams, K.-W. Moon, **G.B. McFadden**, P.N. Patrone, J.H. Perepezco, Interdiffusion in the Ne-Re System: Evaluation of Uncertainties, *Journal of Phase Equilibria and Diffusion* 38 (2017) 750763. DOI: 10.1007/s11669-017-0562-7
176. Sean Colbert-Kelly, **Geoffrey B. McFadden**, Daniel Phillips, and Jie Shen, Numerical Analysis and Simulation for a Generalized Planar Ginzburg-Landau Equation in a Circular Geometry, *Communications in Mathematical Sciences* 15 (2017) 329-357. DOI: 10.4310/CMS.2017.v15.n2.a3
175. R.F. Sekerka, **G.B. McFadden**, and W.J. Boettinger, Analytical Derivation of the Sauer-Freife Flux Equation for Multicomponent Multiphase Diffusion Couples with Variable Partial Molar Volumes *Journal of Phase Equilibria and Diffusion* 37 (2016) 640-650. DOI: 10.1007/s11669-016-0500-0
174. Y. Mishin, **G.B. McFadden**, R.F. Sekerka, W.J. Boettinger, Sharp interface model of creep deformation in crystalline solids *Physical Review B* 92 (2015) 064113. DOI: 10.1103/PhysRevB.92.064113
173. A.K. Nurse, S. Colbert-Kelly, S.R. Coriell, and **G.B. McFadden**, Equilibrium and stability of axisymmetric drops on a conical substrate under gravity *Physics of Fluids* 27 (2015) 084101.
172. A. Luna, **G.B. McFadden**, M.I. Aladjem, K.W. Kohn, Predicted Role of NAD Utilization in the Control of Circadian Rhythms during DNA Damage Response *PLoS Computational Biology* 11 (2015), e1004144. DOI: 10.1371/journal.pcbi.1004144
171. R.F. Sekerka, S.R. Coriell, and **G.B. McFadden**, Morphological Stability, in *Handbook of Crystal Growth*, 2nd Edition, Vol. 1, ed. T. Nishinaga, (Elsevier, Amsterdam, 2015) pp. 595–630. DOI: 10.1016/B978-0-444-56369-9.00014-9
170. A. K. Nurse, S.R. Coriell, and **G.B. McFadden**, On the stability of rotating drops, *Journal of Research of the National Institute of Standards and Technology* 120 (2015) 74-101. DOI: 10.6028/jres.120.007.
169. A. Reiman, N.M. Ferraro, A. Turnbull, J.K. Park, A. Cerfon, T.E. Evans, M.J. Lanctot, E.A. Lazarus, Y. Liu, **G.B. McFadden**, D. Monticello, Y. Suzuki, Tokamak Plasma High Field Side Response to an $n = 3$ Magnetic Perturbation: A Comparison of 3D Equilibrium Solutions from Seven Different Codes, *Nuclear Fusion* 55 (2015) 063026. DOI: 10.1088/0029-5515/55/6/06302
168. Asha K. Nurse, **G.B. McFadden**, and S.R. Coriell, Bubble motion and size variation during thermal migration with phase change, *Physics of Fluids* 25 (2013) 013302.
167. R.F. Sekerka, W.J. Boettinger, and **G.B. McFadden**, Surface morphologies due to grooves at moving grain boundaries having stress-driven fluxes, *Acta Materialia* 61 (2013) 7216–7226.
166. W. Villanueva, W.J. Boettinger, **G.B. McFadden**, and J.A. Warren, A diffuse-interface model of reactive wetting with intermetallic formation, *Acta Materialia* 60 (2012) 3799–3914.

165. R.J. Braun, R. Usha, **G.B. McFadden**, T.A. Driscoll, L.P. Cook, and P.E. King-Smith, Thin film dynamics on a prolate spheroid with application to the cornea, *Journal of Engineering Mathematics* 73 (2012) 121–138.
164. **G.B. McFadden**, S.R. Coriell, and P.A. Lott, Onset of morphological instability in two binary liquid layers, *Physics of Fluids* 23 (2011) 044102-1–044102-8.
163. D.M. Anderson, **G.B. McFadden**, S.R. Coriell, and B.T. Murray, Convective instabilities during the solidification of an ideal ternary alloy in a mushy layer, *Journal of Fluid Mechanics* 647 (2010) 309–333.
162. **G.B. McFadden**, S.R. Coriell, and P.A. Lott, Onset of convection in two layers of a binary liquid, *Journal of Fluid Mechanics* 647 (2010) 105–124.
161. S. Kim, M.I. Aladjem, **G.B. McFadden**, and K.W. Kohn, Predicted functions of MdmX in fine-tuning the response of p53 to DNA damage, *PLoS Computational Biology* 6 (2010) e1000665.
160. P.R. Garabedian and **G.B. McFadden**, The DEMO quasisymmetric stellarator, *Energies* 3 (2010) 277–284.
159. C.S. Pande and **G.B. McFadden**, Self-similar grain size distribution in three dimensions: A stochastic treatment, *Acta Materialia* 58 (2010) 1037–1044.
158. W.J. Boettinger and **G.B. McFadden**, Bending of a bimetallic beam due to the Kirkendall effect, *Journal of Phase Equilibria and Diffusion* 31 (2010) 6–14.
157. P.R. Garabedian and **G.B. McFadden**, Design of the DEMO fusion reactor following ITER, *Journal of Research of the National Institute of Standards and Technology* 114 (2009) 229–236.
156. Y. Mishin, W.J. Boettinger, J.A. Warren, and **G.B. McFadden**, Thermodynamics of grain boundary premelting in alloys. I. Phase-field modeling, *Acta Materialia* 57 (2009) 3771–3785.
155. P.E. King-Smith, B.A. Fink, J.J. Nichols, K.K. Nichols, R.J. Braun, and **G.B. McFadden**, The contribution of lipid layer movement to tear film thinning and breakup, *Investigative Ophthalmology & Visual Science* 50 (2009) 2747–2756.
154. **G.B. McFadden** and S.R. Coriell, Onset of oscillatory convection in two liquid layers with phase change, *Physics of Fluids* 21 (2009) 034101 (pp. 1–8).
153. C.S. Pande, K.P. Cooper, **G.B. McFadden**, Grain size distribution in two dimensions in the long time limit, *Acta Materialia* 56 (2008) 5304–5311.
152. D.L. Cotrell, **G.B. McFadden**, and B.J. Alder, Instability in pipe flow, *Proceedings of the National Academy of Sciences* 105 (2008) 428–430.
151. **G.B. McFadden**, S.R. Coriell, K.F. Gurski, and D.L. Cotrell, Convective instabilities in two liquid layers, *Journal of Research of the National Institute of Standards and Technology* 112 (2007) 271–281.

150. W.J. Boettinger, J.E. Guyer, C.E. Campbell, and **G.B. McFadden**, 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* 463 (2007) 3347–3373.
149. **G.B. McFadden**, S.R. Coriell, K.F. Gurski, and D.L. Cotrell, Onset of convection in two liquid layers with phase change, *Physics of Fluids* 19 (2007) 104109-1 – 104109-13.
148. D.M. Anderson, P. Cermelli, E. Fried, M.E. Gurtin, and **G.B. McFadden**, General dynamical sharp-interface conditions for two-phase viscous heat-conducting fluids, *Journal of Fluid Mechanics* 581 (2007) 323–370.
147. J.A. Dantzig, W.J. Boettinger, J.A. Warren, **G.B. McFadden**, S.R. Coriell, and R.F. Sekerka, Numerical modeling of diffusion-induced deformation, *Metallurgical Transactions A* 37 (2006) 2701–2714.
146. J. Slutsker, K. Thornton, A.L. Roytburd, J.A. Warren, **G.B. McFadden**, Phase field modeling of solidification under stress, *Phys. Rev. B* 74 (2006) 014103-1 – 014103-13.
145. D.L. Cotrell and **G.B. McFadden**, Axial flow effects on the stability of circular Couette flow with viscous heating, *Physics of Fluids* 18 (2006) 084106-1 – 084106-21.
144. K.F. Gurski, **G.B. McFadden**, and M.J. Miksis, The effect of contact lines on the Rayleigh instability with anisotropic surface energy, *SIAM Journal on Applied Mathematics* 66 (2006) 1163–1187.
143. J. Slutsker, A.L. Roytburd, **G.B. McFadden**, and J.A. Warren, Phase field modeling of solidification and melting of a confined nano-particle, in *Nanomechanics of Materials and Structures*, eds. T.-J. Chuang, P.M. Anderson, M.-K. Wu, and S. Hsieh (Springer, The Netherlands, 2006) pp. 33–43.
142. D.L. Cotrell and **G.B. McFadden**, Linear stability of spiral Poiseuille flow with a radial temperature gradient: centrifugal buoyancy effects, *Physics of Fluids* 17 (2005) 114102.
141. M.E. Ali and **G.B. McFadden**, Linear stability of cylindrical Couette flow in the convection regime, *Physics of Fluids* 17 (2005) 054112.
140. W.J. Boettinger, **G.B. McFadden**, S.R. Coriell, R.F. Sekerka, and J.A. Warren, Lateral deformation of diffusion couples, *Acta Materialia* 53 (2005) 1995–2008.
139. D. Wheeler, T.P. Moffat, **G.B. McFadden**, S.R. Coriell, and D. Josell, Influence of a catalytic surfactant on roughness evolution during film growth, *Journal of the Electrochemical Society* 151 (2004) C538–C544.
138. J.E. Guyer, W.J. Boettinger, J.A. Warren, and **G.B. McFadden**, Phase-field modeling of electrochemistry: Kinetics, *Physical Review B* 69 (2004) 021604.
137. J.E. Guyer, W.J. Boettinger, J.A. Warren, and **G.B. McFadden**, Phase-field modeling of electrochemistry: Equilibrium, *Physical Review B* 69 (2004) 021603.
136. K.F. Gurski and **G.B. McFadden**, The effect of surface tension anisotropy on the Rayleigh instability, *Proceedings of the Royal Society (London) A* 459 (2003) 2575–2598.

135. **G.B. McFadden**, S.R. Coriell, T.P. Moffat, D. Josell, D. Wheeler, W. Schwarzacher, and J. Mallett, A mechanism for brightening: Linear stability analysis of the curvature enhanced coverage model, *Journal of the Electrochemical Society* 150 (2003) C591–C599.
134. G.B. Tanoğlu, R.J. Braun, J.W. Cahn, and **G.B. McFadden**, A1–L1₀ phase boundaries and anisotropy via multiple-order-parameter theory for an FCC alloy, *Interfaces and Free Boundaries* 5 (2003) 275–299.
133. J.E. Guyer, W.J. Boettinger, J.A. Warren, and **G.B. McFadden**, Model of electrochemical “double layer” using the phase field method, in *Design and Mathematical Modeling of Electrochemical Systems*, eds. J.W. Van Zee, M.E. Orazem, T. Fuller, and C.M. Doyle, (Electrochemical Society, Pennington, NJ, 2002).
132. D.M. Anderson, **G.B. McFadden**, and A.A. Wheeler, A phase-field model of convection with solidification, Paper AIAA 2002-0891, Proceedings of the 40th AIAA Aerospace Sciences Meeting & Exhibit, Reno, Nevada, January 14–17, 2002.
131. **G.B. McFadden**, S.R. Coriell, and B.T. Murray, Convective and morphological instabilities during crystal growth, Proceedings of the 2002 NASA Microgravity Materials Science Conference, Huntsville, Alabama, June 24–26, 2002.
130. D.M. Anderson, **G.B. McFadden**, and A.A. Wheeler, A phase-field model with convection: Numerical simulations, in *Interfaces for the 21st Century: New Research Directions in Fluid Mechanics and Materials Science*, eds. Marc K. Smith, Michael J. Miksis, Geoffrey B. McFadden, G. Paul Neitzel, David R. Canright (Imperial College Press, London, 2002), pp. 131–145.
129. **G.B. McFadden**, Phase-field models of solidification, in Contemporary Mathematics Vol. 306, *Recent Advances in Numerical Methods for Partial Differential Equations and Applications*, ed. X. Feng and T.P. Schulze, (American Mathematical Society, Providence, RI, 2002), pp. 107–145. [Proceedings of the 2001 Barrett Memorial Lectures on “Trends in Computational Mathematics,” University of Tennessee, Knoxville, TN, May 10–12, 2001.]
128. R.J. Braun, J. Zhang, J.W. Cahn, **G.B. McFadden**, and A.A. Wheeler, Model phase diagrams for an FCC alloy, in *Interfaces for the 21st Century: New Research Directions in Fluid Mechanics and Materials Science*, eds. Marc K. Smith, Michael J. Miksis, Geoffrey B. McFadden, G. Paul Neitzel, David R. Canright (Imperial College Press, London, 2002), pp. 213–230.
127. S.R. Coriell and **G.B. McFadden**, Applications of morphological stability theory, *Journal of Crystal Growth* 237–239 (2002) 8–13.
126. **G.B. McFadden** and A.A. Wheeler, On the Gibbs adsorption equation for diffuse interface models, *Proceedings of the Royal Society (London) A* 458 (2002) 1129–1149.
125. S. Van Vaerenbergh, S.R. Coriell, and **G.B. McFadden**, Morphological Stability of a binary alloy: thermodiffusion and temperature-dependent diffusivity, *Journal of Crystal Growth* 223 (2001) 565–573.

124. S.R. Coriell, **G.B. McFadden**, W.F. Mitchell, B.T. Murray, J.B. Andrews, and Y. Arikawa, Effect of flow due to density change on eutectic growth, *Journal of Crystal Growth* 224 (2001) 145-154.
123. J.J. Eggleston, **G.B. McFadden**, and P.W. Voorhees, A phase-field model for highly anisotropic interfacial energy, *Physica D* 150 (2001) 91-103.
122. D.M. Anderson, **G.B. McFadden**, and A.A. Wheeler, A phase-field model with convection: sharp-interface asymptotics, *Physica D* 151 (2001) 305-331.
121. R.F. Sekerka, S.R. Coriell, and **G.B. McFadden**, Separation of scales for growth of an alloy needle crystal, *Metallurgical and Materials Transactions* 32A (2001) 2669-2670.
120. D.M. Anderson, W.J. Boettinger, **G.B. McFadden**, and A.A. Wheeler, A phase-field/fluid motion model of solidification: Investigation of flow effects during Directional Solidification and dendritic growth, Proceedings of the NASA Materials Science Conference, Huntsville, AL. June 6–8, 2000.
119. S.R. Coriell, **G.B. McFadden**, and B.T. Murray, Convective and morphological instabilities during crystal growth, Proceedings of the NASA Materials Science Conference, Huntsville, AL. June 6–8, 2000.
118. A.A. Chernov, N.A. Booth, P.G. Vekilov, B.T. Murray, S.R. Coriell, and **G.B. McFadden**, Phase shift interferometer and growth set up to study step pattern formation during growth from solutions. Influence of the oscillatory solution flow instability, Proceedings of the NASA Materials Science Conference, Huntsville, AL. June 6–8, 2000.
117. D.M. Anderson, **G.B. McFadden**, and A.A. Wheeler, A phase-field model of solidification with convection, *Physica D* 135 (2000) 175-194.
116. **G.B. McFadden**, S.R. Coriell, and R.F. Sekerka, Analytic solution for a non-axisymmetric isothermal dendrite, *Journal of Crystal Growth* 208 (2000) 726-745.
115. W.J. Boettinger, S.R. Coriell, C.E. Campbell, and **G.B. McFadden**, On the properties of $\alpha/\alpha + \beta$ diffusion couples, *Acta Materialia* 48 (2000) 481–492.
114. Y. Dabo, H. Nguyen Thi, S.R. Coriell, **G.B. McFadden**, Q. Li, and B. Billia, On the origin of microsegregation in Peltier interface demarcation, *Journal of Crystal Growth* 216 (2000) 483-494.
113. S.R. Coriell, **G.B. McFadden**, B. Billia, H. Nguyen Thi, and Y. Dabo, Electrical pulsing during directional solidification: Analysis of transients by Laplace transform, *Journal of Crystal Growth* 216 (2000) 495-500 .
112. **G.B. McFadden**, A.A. Wheeler, and D.M. Anderson, Thin interface asymptotics for an energy/entropy approach to phase-field models with unequal conductivities, *Physica D* 144 (2000) 154-168.
111. **G.B. McFadden**, S.R. Coriell, and R.F. Sekerka, Shape parameter for a non-axisymmetric isothermal dendrite, *Acta Materialia* 48 (2000) 3177-3181.

110. B.T. Murray, S.R. Coriell, A.A. Chernov, and **G.B. McFadden**, The effect of oscillatory shear flow on step bunching, *Journal of Crystal Growth* 218 (2000) 434-446.
109. S.R. Coriell, **G.B. McFadden**, and R.F. Sekerka, Selection mechanisms for multiple similarity solutions for solidification and freezing, *Journal of Crystal Growth* 200 (1999) 276–286.
108. H.P. Grimm, S.H. Davis, and **G.B. McFadden**, Steps, kinetic anisotropy, and long-wavelength instabilities in directional solidification, *Physical Review E* 59 (1999) 5629-5640.
107. J.W. Cahn, S.C. Han, and **G.B. McFadden**, Anisotropy of Interfaces in an Ordered HCP Binary Alloy, *Journal of Statistical Physics* 95 (1999) 1337-1360.
106. R.J. Braun, J. W. Cahn, **G.B. McFadden**, and A.A. Wheeler, Theory of anisotropic growth rates in the ordering of an FCC alloy, *Acta Materialia* 46 (1998) 1–12.
105. D.M. Anderson, **G.B. McFadden**, and A.A. Wheeler, Diffuse-interface methods in fluid mechanics, *Annual Review of Fluid Mechanics* 30 (1998) 139–165.
104. S.R. Coriell, A. A. Chernov, B.T. Murray, and **G.B. McFadden**, Step bunching: generalized kinetics, *Journal of Crystal Growth* 183 (1998) 669–682.
103. S.R. Coriell, **G.B. McFadden**, R.F. Sekerka, and W.J. Boettinger, Multiple similarity solutions for solidification and freezing, *Journal of Crystal Growth* 191 (1998) 573–585.
102. N.A. Ahmad, A.A. Wheeler, W.J. Boettinger, and **G.B. McFadden**, Solute trapping and solute drag in a phase-field model of rapid solidification, *Physical Review E* 58 (1998) 3436–3450.
101. S.R. Coriell and **G.B. McFadden**, Morphological stability during directional melting, Proceedings of the Second Zermatt Workshop on Solidification Microstructures, ed. M. Rappaz and R. Trivedi, Zermatt, Switzerland, July, 1998; available on CD-ROM from Laboratoire de Métallurgie Physique, Ecole Polytechnique Fédérale de Lausanne, CH-1015 Lausanne, Switzerland.
100. Y. Yacobi, **G.B. McFadden**, and E. Drescher-Krasicka, Experimental images of maximal shear stresses in diametrically compressed MMC and aluminum disks. Proceedings of International Conference on Composites Engineering (ICCE/5), Las Vegas, NM, 1998, pp. 979–980.
99. S.R. Coriell, B.T. Murray, A.A. Chernov, and **G.B. McFadden**, Interface morphology during crystal growth: Effects of anisotropy and fluid flow, Proceedings of the Fourth Microgravity Fluid Physics and Transport Phenomena Conference, Nasa Lewis Research Center, Cleveland, OH, August 12-14, 1998.
98. D.M. Anderson, W.J. Boettinger, A.A. Wheeler, and **G.B. McFadden**, A phase-field/fluid motion model of solidification: Investigation of flow effects during directional solidification and dendritic growth, Proceedings of the Microgravity Materials Science Conference, NASA Marshall Space Flight Center, Huntsville, Al, July 14-16, 1998.
97. A.A. Chernov, P.G. Vekilov, S.R. Coriell, B.T. Murray, and **G.B. McFadden**, Step bunching: influence of impurities and solution flow, Proceedings of the Microgravity Materials Science Conference, NASA Marshall Space Flight Center, Huntsville, Al, July 14-16, 1998.

96. S.R. Coriell, B.T. Murray, A. A. Chernov and **G.B. McFadden**, The effect of a shear flow on the morphological stability of a vicinal face: growth from a supersaturated solution, *Advances in Space Research* 22 (1998) 1153–1158.
95. R.F. Sekerka, S.R. Coriell, and **G.B. McFadden**, The effect of container size on dendritic growth in microgravity, *Journal of Crystal Growth* 171 (1997) 303–306.
94. D.M. Anderson and **G.B. McFadden**, A diffuse-interface description of fluid systems, *Physics of Fluids* 9 (1997) 1870–1879.
93. A.A. Wheeler and **G.B. McFadden**, On the ξ -vector and a notion of stress in diffuse interface theories, *Proceedings of the Royal Society of London A* 453 (1997) 1611–1630.
92. R.J. Braun, J.W. Cahn, **G.B. McFadden**, and A.A. Wheeler, Anisotropy of interfaces in an ordered alloy: a multiple-order parameter model, *Philosophical Transactions of the Royal Society of London, Series A* 355
91. R.F. Sekerka, S.R. Coriell, and **G.B. McFadden**, Stagnant film model of the effect of natural convection on the dendrite operating state, *Journal of Crystal Growth* 154 (1995) 370–376.
90. A.A. Wheeler, **G.B. McFadden**, and W.J. Boettinger, Phase-Field model of a eutectic alloy, *Proceedings of the Royal Society of London, Series A.*, 452 (1996) 495–525.
89. S.R. Coriell, B.T. Murray, A.A. Chernov, and **G.B. McFadden**, Effects of shear flow and anisotropic kinetics on the morphological stability of a binary alloy, *Metall. et. Mat. Trans.* 27A (1996) 687–694.
88. Robert F. Berg, M. J. Lyell, **G.B. McFadden**, and Ronald G. Rehm, Internal waves in xenon near the critical point, *Physics of Fluids* 8 (1996) 1464–1475.
87. D. L. VanderHart and **G.B. McFadden**, Some perspectives on the interpretation of NMR proton spin diffusion data in terms of polymer morphologies, *Solid State Nuclear Magnetic Resonance* 7 (1996) 45–66.
86. S.R. Coriell, B.T. Murray, A. A. Chernov, and **G.B. McFadden**, Step bunching on a vicinal face growing in a flowing solution, *Journal of Crystal Growth* 169 (1996) 773–785.
85. R.J. Braun, J.W. Cahn, J. Hagedorn, **G.B. McFadden**, and A.A. Wheeler, Anisotropic interfaces and ordering in fcc alloys: a multiple-order-parameter continuum theory, *Mathematics of Microstructure Evolution*, ed. Long-Qing Chen, Brent Fultz, John W. Cahn, John R. Manning, John E. Morral, and John Simmons, (The Minerals, Metals, & Materials Society, Warrendale, PA, 1996) pp. 225–244.
84. R. B. Hoyle, **G.B. McFadden**, and S.H. Davis, Pattern selection with anisotropy during directional solidification, *Philosophical Transactions of the Royal Society of London A* 354 (1996) 2915–2949.
83. A.A. Wheeler and **G.B. McFadden**, A ξ -vector formulation of anisotropic phase-field models: 3-D asymptotics, *European Journal of Applied Mathematics* 7 (1996) 367–381.

82. S.R. Coriell, B.T. Murray, A.A. Chernov, and **G.B. McFadden**, Interface Morphology during Crystal Growth: Effects of Anisotropy and Fluid Flow, *Proc. Third Microgravity Fluid Physics Conference*, (NASA, Wash. D.C., 1996) (1997) 1787–1833.
81. S. van Vaerenbergh, S.R. Coriell **G.B. McFadden**, B.T. Murray, and J. C. Legros, Modification of morphological stability threshold by Soret diffusion, *Journal of Crystal Growth* 147 (1995) 207-214.
80. R.J. Braun, B.T. Murray, W.J. Boettinger, and **G.B. McFadden**, Lubrication theory for reactive spreading of a thin drop, *Physics of Fluids* 7 (1995) 1797-1810.
79. A. C. Skeldon, **G.B. McFadden**, M. D. Impey, D. S. Riley, K. A. Cliff, A.A. Wheeler, and S.H. Davis, On long-wave morphological instabilities in directional solidification, *IMA J. Appl. Math.* 6 (1995) 639.
78. D. Josell, S.R. Coriell, and **G.B. McFadden**, Evaluating the zero creep conditions for thin film and multilayer thin film specimens, *Acta Metall. et Mater.* 43 (1995) 1987–1999.
77. A.A. Wheeler, N. A. Ahmad, W.J. Boettinger, R.J. Braun, **G.B. McFadden**, and B.T. Murray, Recent developments in phase-field models of solidification, *Advances in Space Research* 16 (1995) (7)163–(7)172.
76. L.N. Brush, **G.B. McFadden**, and S.R. Coriell, The effect of crystalline anisotropy on pattern formation in laser-melted thin silicon films, *Journal of Crystal Growth* 137 (1994) 355-374.
75. S.R. Coriell, R.F. Boisvert, **G.B. McFadden**, L.N. Brush, and J. J. Favier, Morphological stability of a binary alloy during directional solidification: Initial transient, *Journal of Crystal Growth* 140 (1994) 139-147.
74. W.J. Boettinger, A.A. Wheeler, B.T. Murray, and **G.B. McFadden**, Prediction of solute trapping at high solidification rates using a diffuse interface phase-field theory of alloy solidification, *Materials Science and Engineering* A178 (1994) 217-223.
73. R.J. Braun, **G.B. McFadden**, and S.R. Coriell, Morphological instability in phase-field models of solidification, *Phys. Rev. E* 49 (1994) 4336-4352.
72. S.R. Coriell, B.T. Murray, **G.B. McFadden**, and K. Leonartz, Convective and morphological stability during directional solidification of the succinonitrile-acetone system, in *Free Boundaries in Viscous Flows*, The IMA Series in Mathematics and Its Applications, Volume 61, R. A. Brown, S. H. Davis, and S. Kistler, eds., (Springer-Verlag, New York, 1994) pp. 99-112.
71. S.R. Coriell, A.A. Chernov, B.T. Murray, and **G.B. McFadden**, Convection and morphological stability during directional solidification, Proceedings of a conference hosted by NASA Lewis Research Center, Cleveland, Ohio, June 21-23, 1994, in *Second Microgravity Fluid Physics Conference*, NASA Conference Publication 3276, pp. 175-180.
70. W.J. Boettinger, A.A. Wheeler, B.T. Murray, **G.B. McFadden**, and R. Kobayashi, A phase-field, diffuse interface solidification model for pure metals and binary alloys, *Modeling of Coarsening and Grain Growth*, S. P. Marsh and C. Pande, eds. (The Minerals, Metals, and Materials Society, 1993) pp. 45-54.

69. B.T. Murray, S.R. Coriell, **G.B. McFadden**, and A.A. Wheeler, The effect of gravitational modulation on convection in vertical Bridgman growth, Proceedings VIIIth European Symposium on Materials and Fluid Sciences in Microgravity, Brussels, Belgium, 12-16 April 1992, ESA SP-333 (August 1992) pp. 503-506; also *Microgravity Sci. Technol.* VI/2 (1993) 70-73.
68. B.T. Murray, S.R. Coriell, **G.B. McFadden**, A.A. Wheeler, and B.V. Saunders, Gravitational modulation of thermosolutal convection during directional solidification, *Journal of Crystal Growth* 129 (1993) 70-80.
67. A.A. Wheeler, W.J. Boettinger, and **G.B. McFadden**, A phase-field model of solute trapping during solidification, *Phys. Rev. E* 47 (1993) 1893-1909.
66. Anne Greenbaum, Leslie Greengard, and **G.B. McFadden**, Laplace's equation and the Dirichlet-Neumann map in multiply connected domains, *J. Comput. Phys.* 105 (1993) 267-278.
65. R.J. Braun, **G.B. McFadden**, B.T. Murray, S.R. Coriell, M.E. Glicksman, and M.E. Sellack, Asymptotic behavior of modulated Taylor-Couette flow with a crystalline inner cylinder, *Physics of Fluids A* 5 (1993) 1891-1903.
64. **G.B. McFadden**, A.A. Wheeler, R.J. Braun, S.R. Coriell, and R.F. Sekerka, Phase-field models for anisotropic interfaces, *Phys. Rev. E* 48 (1993) 2016-2024.
63. S-L. Wang, R.F. Sekerka, A.A. Wheeler, B.T. Murray, S.R. Coriell, R.J. Braun, and **G.B. McFadden**, Thermodynamically-consistent phase-field models for solidification, *Physica D* 69 (1993) 189-200.
62. S.R. Coriell and **G.B. McFadden**, Morphological Stability, in *Handbook of Crystal Growth*, Vol. 1B, ed. D. T. J. Hurle, (Elsevier, Amsterdam, 1993), pp. 785-857.
61. **G.B. McFadden**, S.R. Coriell, and B.T. Murray, The Rayleigh instability for a cylindrical crystal-melt interface, in *Variational and Free Boundary Problems*, The IMA Series in Mathematics and Its Applications, Volume 53, A. Friedman and J. Spruck, eds., (Springer-Verlag, New York, 1993) pp. 159-169.
60. W.J. Boettinger, A.A. Wheeler, B.T. Murray, **G.B. McFadden**, and R. Kobayashi, Calculation of alloy solidification morphologies using the phase-field method, Proceedings of the Sixth Conference on *Modeling of Casting, Welding, and Advanced Solidification Processes*, March 21-26, 1993, Palm Coast, Florida (to be published by TMS-AIME).
59. **G.B. McFadden**, B.T. Murray, S.R. Coriell, M.E. Glicksman, and M.E. Selleck, Effect of a crystal-melt interface on Taylor-Vortex flow with buoyancy, in *Emerging Applications in Free Boundary Problems*, Pitman Research Notes in Mathematics Series, Vol. 280, J. M. Chadam and H. Rasmussen, eds., (Longman Scientific and Technical, Harlow, England, 1993), pp. 105-119.
58. B.T. Murray, W.J. Boettinger, **G.B. McFadden**, and A.A. Wheeler, Computation of dendritic solidification using a phase-field model, in *Heat Transfer in Melting, Solidification, and Crystal Growth*, HTD-Vol. 234, edited by I. S. Habib and S. Thynell (ASME, New York, 1993) pp. 67-76.

57. A.A. Wheeler, W.J. Boettinger, and **G.B. McFadden**, A phase-field model for isothermal phase transitions in binary alloys, *Phys. Rev. A* 45 (1992) 7424-7439.
56. B.V. Saunders, B.T. Murray, **G.B. McFadden**, S.R. Coriell, and A.A. Wheeler, The effect of gravity modulation on thermosolutal convection in an infinite layer of fluid, *Phys. Fluids A* 4 (1992) 1176-1189.
55. B.J. Spencer, P.W. Voorhees, S.H. Davis, and **G.B. McFadden**, The effect of compositionally-generated elastic stresses on morphological instability during directional solidification, *Acta Metall.* 40 (1992) 1599-1616.
54. P.W. Voorhees, **G.B. McFadden**, and W.C. Johnson, On the morphological development of second phase particles in elastically-stressed solids, *Acta Metall.* 40 (1992) 2979-2992.
53. **G.B. McFadden**, B.T. Murray, S.R. Coriell, M.E. Glicksman, and M.E. Selleck, Effect of modulated Taylor-Couette flow on crystal-melt interfaces: theory and initial experiments, in *On the Evolution of Phase Boundaries*, The IMA Series in Mathematics and Its Applications, Vol. 43, M.E. Gurtin and G.B. McFadden, eds., (Springer-Verlag, New York, 1992), pp. 81-100.
52. S.R. Coriell, B.T. Murray, **G.B. McFadden**, A.A. Wheeler, and B.V. Saunders, Convective and morphological instabilities during crystal growth, proceedings of the Eighth International Symposium on Space Technology and Science, Kagoshima, Japan, 1992, pp. 2155-2160.
51. **G.B. McFadden**, R.J. Braun, B.T. Murray, S.R. Coriell, and M.E. Glicksman, Effect of modulated Taylor-vortex flows on crystal-melt interfaces, in *Interactive Dynamics of Convection and Solidification*, S. H. Davis, H. H. Huppert, U. Muller, and M. G. Worster, eds., (Kluwer Academic Publishers, Dordrecht, 1992) pp. 19-21.
50. B.V. Saunders, B.T. Murray, **G.B. McFadden**, S.R. Coriell, and A.A. Wheeler, The effect of gravity modulation on thermosolutal convection, Proceedings VIIIth European Symposium on Materials and Fluid Sciences in Microgravity, Brussels, Belgium, 12-16 April 1992, ESA SP-333 (1992) pp. 237-241.
49. T. Nguyen, J. Hubbard, and **G.B. McFadden**, A mathematical model for the cathodic blistering of organic coatings on steel immersed in electrolytes, *Journal of Coatings Technology* Vol. 63 No. 794 (1991) 43-52.
48. B.T. Murray, S.R. Coriell, and **G.B. McFadden**, The effect of gravity modulation on solutal convection during directional solidification, *Journal of Crystal Growth* 110 (1991) 713-723.
47. L.N. Brush, **G.B. McFadden**, and S.R. Coriell, Laser melting of thin silicon films, *Journal of Crystal Growth* 114 (1991) 446-466.
46. S.C. Hardy, **G.B. McFadden**, S.R. Coriell, P.W. Voorhees, and R.F. Sekerka, Measurement and analysis of grain boundary grooving by volume diffusion, *Journal of Crystal Growth* 114 (1991) 467-480.
45. A.A. Wheeler, **G.B. McFadden**, B.T. Murray, and S.R. Coriell, Convective stability in the Rayleigh-Benard and directional solidification problems: high frequency gravity modulation, *Phys. Fluids A* 3 (1991) 2847-2858.

44. S.R. Coriell, **G.B. McFadden**, and L.N. Brush, Interface morphologies during laser melting of thin silicon films, IMACS '91: Proceedings of the 13th World Congress on Computation and Applied Mathematics, Vol. 2, (Criterion Press, Dublin, 1991) pp. 533-534.
43. L.N. Brush, **G.B. McFadden**, and S.R. Coriell, Morphological instability of solid-liquid interfaces during the laser melting of thin silicon films, *Proceedings of the 1991 Winter Annual Meeting of the ASME*, Atlanta, 1991.
42. S.R. Coriell, **G.B. McFadden**, and B.T. Murray, Modelling of double-diffusive convection in vertical Bridgman growth, *Proceedings of the VIIth European Symposium on Materials and Fluid Sciences in Microgravity*, Oxford, UK, 10-15 September 1989, European Space Agency SP-295 (January 1990).
41. A.A. Wheeler, **G.B. McFadden**, S.R. Coriell, and D.T.J. Hurle, The effect of an electric field on the morphological stability of the crystal-melt interface. III. Weakly nonlinear theory, *Journal of Crystal Growth* 100 (1990) 78-88.
40. **G.B. McFadden**, S.R. Coriell, L.N. Brush, and K.A. Jackson, Interface instabilities during laser melting of thin films, *Appl. Mech. Rev.* **43** (1990) S70-S75 (Proceedings of the 11th U.S. National Congress of Applied Mechanics, May 21-25, 1990, Tucson, AZ).
39. B.J. Spencer, S.H. Davis, **G.B. McFadden**, and P.W. Voorhees, Effects of elastic stress on the stability of a solid-liquid interface, *Appl. Mech. Rev.* 43 (1990) S54-S55, (Proceedings of the 11th U.S. National Congress of Applied Mechanics, May 21-25, 1990, Tucson, AZ).
38. L.N. Brush, R.F. Sekerka, and **G.B. McFadden**, A numerical and analytical study of nonlinear bifurcations associated with the morphological stability of two-dimensional single crystals, *Journal of Crystal Growth* 100 (1990) 89-108.
37. S.R. Coriell, **G.B. McFadden**, and R.F. Sekerka, Effect of anisotropic thermal conductivity on the morphological stability of a binary alloy, *Journal of Crystal Growth* 100 (1990) 459-466.
36. **G.B. McFadden**, S.R. Coriell, B.T. Murray, M.E. Glicksman, and M.E. Selleck, Effect of a crystal-melt interface on Taylor-vortex flow, *Phys. Fluids A* 2 (1990) 700-705.
35. L.N. Brush, S.R. Coriell, and **G.B. McFadden**, Directional solidification of a planar interface in the presence of a time-dependent electric current, *Journal of Crystal Growth* 102 (1990) 725-742.
34. **G.B. McFadden**, B.T. Murray, and R.F. Boisvert, Elimination of spurious eigenvalues in the Chebyshev tau spectral method, *J. Comput. Phys* 91 (1990) 228-239.
33. B.T. Murray, **G.B. McFadden**, and S.R. Coriell, Stabilization of Taylor-Couette flow due to time-dependent outer cylinder oscillation, *Phys. Fluids A* 2 (1990) 2147-2156.
32. S.R. Coriell, **G.B. McFadden**, and R.F. Sekerka, The effects of crystalline anisotropy and buoyancy-driven convection on morphological stability, *Proceedings of the 1990 Canadian Institute of Metals Symposium on Solidification Processing*, held in Hamilton, Ontario, August 26-29, 1990.

31. S.R. Coriell, and **G.B. McFadden**, Instability during directional solidification, in *Low-Gravity Fluid Dynamics and Transport Phenomena*, Ed. J. N. Koster and R. L. Sani, Progress in Astronautics and Aeronautics, Vol. 130 (American Institute of Astronautics and Aeronautics, Washington, 1990) pp. 369-384.
30. **G.B. McFadden**, and S.R. Coriell, Solutal Convection during directional solidification, Proceedings of the First National Fluid Dynamics Congress in Cincinnati, Ohio, July 24-28, 1988, pp. 1572-1578.
29. S.R. Coriell, **G.B. McFadden**, A.A. Wheeler, and D.T.J. Hurle, The effect of an electric field on the morphological stability of the crystal-melt interface. II. Joule heating and thermoelectric effects, *Journal of Crystal Growth* 94 (1989) pp. 334-346.
28. S.R. Coriell and **G.B. McFadden**, Buoyancy effects on morphological stability during directional solidification, *Journal of Crystal Growth* 94 (1989) pp. 513-521.
27. **G.B. McFadden**, S.R. Coriell, M.E. Glicksman, and M.E. Selleck, Instability of a Taylor-Couette flow interacting with crystal-melt interface, *Physico-Chemical Hydrodynamics* 11 (1989) pp. 387-409.
26. S.R. Coriell and **G.B. McFadden**, Morphological stability during alloy solidification, in *Morphology and Growth Unit of Crystals*, I. Sunagawa, ed., Terra Scientific Publishing Co. (TERRAPUB), Tokyo, 1989, pp. 335-347.
25. S.R. Coriell, and **G.B. McFadden**, Convective and morphological instabilities during directional solidification, in *Principles of Solidification and Materials Processing*, Vol. 1, (R. Trivedi, J. A. Sekhar, and J. Mazumdar, eds.), Oxford and IBH Publishing, New Delhi, 1989, pp. 365-379.
24. P.W. Voorhees, **G.B. McFadden**, R.F. Boisvert, and D.I. Meiron, Numerical simulation of morphological development during Ostwald ripening, *Acta Met.* 36 (1988) pp. 207-222.
23. R.F. Sekerka, P.W. Voorhees, S.R. Coriell, and **G.B. McFadden**, Initial conditions implied by $t^{1/2}$ solidification of a sphere with capillarity and interfacial kinetics, *Journal of Crystal Growth* 87 (1988) pp. 415-420.
22. A.A. Wheeler, S.R. Coriell, **G.B. McFadden**, and D.T.J. Hurle, The effect of an electric field on the morphological stability of the crystal-melt interface of a binary alloy, *Journal of Crystal Growth* 88 (1988) pp. 1-15.
21. **G.B. McFadden**, S.R. Coriell, and J.I.D. Alexander, Hydrodynamic and free boundary instabilities during crystal growth: the effect of a plane stagnation flow, *Comm. Pure Appl. Math.* 16 (1988) pp. 683-706.
20. **G.B. McFadden**, S.R. Coriell, and R.F. Sekerka, Effect of surface tension anisotropy on cellular morphologies, *Journal of Crystal Growth* 91 (1988) 180-198.
19. S.R. Coriell, **G.B. McFadden**, and R.F. Sekerka, Convective and interfacial instabilities during solidification, N.A.T.O. Advanced Workshop on Physicochemical Hydrodynamics: Interfacial Phenomena, in *PhysicoChemical Hydrodynamics*, (M. G. Velarde, ed.), Plenum Publishing, New York, 1988, pp. 559-569.

18. **G.B. McFadden** and S.R. Coriell, Thermosolutal convection during directional solidification. II. Flow transitions, *Phys. Fluids* 30, 1987, pp. 659-671.
17. S.R. Coriell, **G.B. McFadden**, P.W. Voorhees, and R.F. Sekerka, Stability of a planar interface during solidification of a multicomponent system, *Journal of Crystal Growth* 82 (1987) 295-302.
16. **G.B. McFadden**, R.F. Boisvert, and S.R. Coriell, Nonplanar interface morphologies during directional solidification. II. Three-dimensional computations, *Journal of Crystal Growth* 84 (1987) 371-388.
15. **G.B. McFadden** and S.R. Coriell, The effect of fluid flow due to the crystal-melt density change on the growth of a parabolic isothermal dendrite, *Journal of Crystal Growth* 74 (1986) 507-512.
14. **G.B. McFadden**, P.W. Voorhees, R.F. Boisvert, and D.I. Meiron, Numerical simulation of two-dimensional coarsening by volume diffusion, *J. Sci. Comp.* 1 (1986) 117-144.
13. M.E. Glicksman, S.R. Coriell, and **G.B. McFadden**, Interaction of flows with the crystal-melt interface, *Ann. Rev. Fluid Mech.* 18 (1986) 307-335.
12. S.R. Coriell and **G.B. McFadden**, Interfacial and convective instabilities during crystal growth, in *Interfacial phenomena in the New and Emerging Technologies*, (W. B. Krantz and D. T. Wasan, eds.), Proceedings of the Workshop Held at Department of Chemical Engineering, University of Colorado, Boulder, Colorado, May 29-31, 1986, pp. 5/27-5/39.
11. **G.B. McFadden**, S.R. Coriell, and R.F. Boisvert, Double-diffusive convection with sidewalls, *Phys. Fluids* 28 (1985) 2716-2722.
10. S.R. Coriell, **G.B. McFadden**, and R.F. Sekerka, Cellular growth during directional solidification, *Ann. Rev. Mater. Sci.* 15 (1985) 119-145.
9. O. Betancourt and **G.B. McFadden**, Nonparametric solutions to the variational principle of ideal magnetohydrodynamics, in *Analysis, Geometry, and Probability*, Lecture Notes in Pure and Applied Mathematics Vol. 96, R. Chuaqui, ed., Marcel Dekker, Inc., NY, 1985, pp. 159-171.
8. Q.T. Fang, M.E. Glicksman, S.R. Coriell, **G.B. McFadden**, and R.F. Boisvert, Convective influence on the stability of a cylindrical solid-liquid interface, *J. Fluid Mech.* 151 (1985) 121-140.
7. **G.B. McFadden**, S.R. Coriell, and R.F. Boisvert, Double-diffusive convection with sidewalls, *Phys. Fluids* 28 (1985) 2716-2722.
6. S.R. Coriell, **G.B. McFadden**, and R.F. Sekerka, Cellular growth during directional solidification, *Ann. Rev. Mater. Sci.* 15 (1985) 119-145.
5. O. Betancourt and **G.B. McFadden**, Nonparametric solutions to the variational principle of ideal magnetohydrodynamics, in *Analysis, Geometry, and Probability*, Lecture Notes in Pure and Applied Mathematics Vol. 96, R. Chuaqui, ed., Marcel Dekker, Inc., NY, 1985, pp. 159-171.

4. S.R. Coriell, **G.B. McFadden**, R.F. Boisvert, M.E. Glicksman, and Q.T. Fang Coupled convective instabilities at crystal-melt interfaces, in *Modeling of Casting and Welding Processes II* (J. A. Dantzig and J. T. Berry, eds.), 1983 Engineering Foundation Conferences, The Metallurgical Society of the AIME, pp. 89-93.
3. M.E. Glicksman, S.R. Coriell, **G.B. McFadden**, and R.F. Boisvert, Convectively induced crystal-melt instabilities-influence of gravity and rotation, in *Transport Phenomena in Materials Processing* (M.M. Chen, J. Mazumder, and C.L. Tucker III, eds.), American Society of Mechanical Engineers, New York, 1983, pp. 11-13.
2. P.R. Garabedian and **G.B. McFadden**, Computational fluid dynamics of airfoils and wings, in *Transonic, Shock, and Multidimensional Flows: Advances in Scientific Computing*, Academic Press, Inc., 1982, pp. 1-16.
1. P.R. Garabedian and **G.B. McFadden**, Design of supercritical swept wings, *A.I.A.A. Journal* 20 (1982) 289–291.