

## White Paper XII

### **Traditional Science Tiller Publication List**

1. The Redistribution of Solute During the Solidification of Metals (with K.A. Jackson, J.W. Rutter and B. Chalmers) Acta Met. 1, p. 428 (1953).
2. Instability of a Smooth Solid – Liquid Interface During Solidification, (with D. Walton, J.W. Rutter and W.C. Winegard) Trans. AIME, 203, 1023 (1955).
3. Conditions for Dendritic Growth in Alloys, (with W. Morris, J.W. Rutter, and W.C. Winegard) ASM Transactions, p. 463 (1955).
4. Grain Boundary Segregation, (with W.C. Winegard) Acta Met. 3, (1955).
5. A Mathematical Analysis of Solute Redistribution During Solidification, (with V.G. Smith and J.W. Rutter) Canadian Journal of Physics, 33, 723 (1955).
6. The Effect of Growth Conditions Upon the Solidification of a Binary Alloy, (with J.W. Rutter) Canadian Journal of Physics, 34, 96 (1956).
7. Growth Twins in Germanium, (with G.F. Bolling and J.W. Rutter) Canadian Journal of Physics, 34, 234 (1956).
8. Alloy Dendritic Growth, Canadian Journal of Physics, 34, 729 (1956).
9. The Modification of Eutectic Structures, Acta Met., 5, 56 (1957).
10. Preferred Growth Direction of Metals, Trans. AIME, 209, 847 (1957).

11. The Relationship Between Growth Forms and the Preferred Direction of Growth, (with A. Rosenberg) *Acta Met.*, 5, 565 (1957).
12. The Production of Dislocations During Growth from the Melt, *Journal of Applied Physics*, 29, 611 (1958).
13. Solute Segregation During Ingot Solidification, *Journal of British Iron and Steel Inst.*, 192, 338 (1959).
14. Polyphase Solidification, *Seminar on Liquid Metals and Solidification*, ASM, (1958) p. 276.
15. Zone Refining, *The Encyclopedia of Chemistry (Supplement 1958)* p. 321.
16. The Use of Controlled Solidification in Equilibrium Diagram Studies, *Trans. of AIME*, 215, 555 (1959).
17. Solid-Liquid Phase Equilibrium in the Pseudo-Binary System  $\text{Bi}_2\text{Te}_3\text{-Bi}_2\text{-Se}_3$ , (with J.P. McHugh) *Trans. of AIME*, 215, 651 (1959).
18. Alloy Crystal Growth, *Growth and Perfection of Crystals*, J. Wiley and Sons, (1958) p. 332.
19. Grain Size Control During Ingot Solidification – Part I, *J. of Metals*, August (1959) p. 512.
20. On Dislocation Formation by Vacancy Condensation, (with G. Shoenck) *Phil. Mag.*, 5, No. 49, 43 (1960).
21. The Use of Controlled Solidification for Polycomponent Phase Diagram and Ingot Segregation Studies, (with J.P. McHugh and M.L. Hill) *Physical Chemistry of Processed Metallurgy, Part I*, Interscience, (1961) p. 601.

22. The Germanium-Tellurium Phase Diagram in the Vicinity of the Compound GeTe, (with J.P. McHugh) Trans. AIME, 218, 198 (1960).
23. The Function of Constitutional Supercooling in Crystal Growth, Canadian Journal of Physics, 37, 1204 (1959).
24. Growth from the Melt: Part I – The Influence of Surface Intersections in Pure Metals, (with G.F. Bolling) Journal of Applied Physics, 31, 1345 (1960).
25. Ultrasonic Vibrations Refine Grain Size, (with D.H. Lane and J.W. Cunningham) Metal Progress, September 1959, p. 108.
26. The Application of Ultrasonic Energy to Ingot Solidification – Part I, (with D.H. Lane and J.W. Cunningham) Trans. AIME, 218, 986 (1961).
27. The Application of Ultrasonic Energy to Ingot Solidification – Part II, (with D.H. Lane) Trans. AIME, 218, 991 (1960).
28. Crystal Growth: The Science and Engineering of Thermoelectricity by R.R. Heikes and R. Ure (Interscience, 1961), Chapter 8.
29. Fluid Flow Control During Solidification – Part I, Magnetic Stirring in the Plane of the Solid-Liquid Interface, (with W.C. Johnston) Trans. AIME, 221, 331 (1961).
30. Growth from the Melt – Part II, The Cellular Interface Morphology, (with G.F. Bolling) Journal of Applied Physics, 31, 2040 (1960).
31. A Structural Study of the Compound AgSbTe<sub>2</sub>, (with R.W. Armstrong and J.W. Faust, Jr.) Journal of Applied Physics, 31, 1954 (1960).
32. The Effect of Freezing Conditions on the Thermoelectric Properties of BiSbTe<sub>3</sub> Crystals, (with G.J. Cosgrove and J.P. McHugh) Journal of Applied Physics, 32, 621 (1961).
33. The Fundamentals of Dendritic Growth, (with G.F. Bolling) Elemental and Compound Semiconductors II, AIME (Interscience, 1961), vol. 12, p. 97.

34. Observations of Macromosaic Substructure in Lead, (with R.F. Sekerka and G.F. Bolling) Canadian Journal Physics, 38, 883 (1960).
35. Optimum Conditions for Zone Refining, (with J.D. Harrison) Trans. AIME, 221, 649 (1961).
36. Grain Size Control During Ingot Solidification – Part II, Columnar-Equiaxed Transition, Trans. AIME, 224, 448 (1962).
37. Growth from the Melt – Part III, Dendritic Growth, (with G.F. Bolling) J. of Applied Physics, 32, 2587 (1961).
38. Growth of ZnSb Single Crystals, (with R. Eisner and R. Mazelsky) J. Applied Physics, 32, 1833 (1961).
39. Phase Diagram for the Pseudo Binary System  $\text{Ag}_2\text{Te-Sb}_2\text{Te}_3$ , (with J.P. McHugh, S.E. Haszko and J.H. Wernick) J. Applied Physics, 32, 1785 (1961).
40. Controlled Freezing of Water, (with J.D. Harrison) Ice & Snow (Properties, Processes and Application), M.I.T. Press, (1962), p. 215.
41. Fluid Flow Control During Solidification – Part II: Programmed Solute Distribution, (with W.C. Johnston) Trans. AIME, 224, 214 (1962).
42. The Effect of Heavy Deformation and Annealing on the Electrical Properties of  $\text{Bi}_2\text{Te}_3$ , (with J. Schultz and J.P. McHugh) J. Applied Physics, 33, 2443 (1962).
43. The Degree of Microsegregation at Cell Boundaries, Acta Met., 10, 681 (1962).
44. The Effect of Grain Boundaries on the Solute Partitioning During Progressive Solidification, J. Applied Physics, 33, 3106 (1962).
45. Principles of Solidification, (Book on Art and Science of Crystal Growing, John Wiley & Sons, 1963), p. 276.
46. Preferred Orientations Developed During the Solidification of High Purity Metals, (with G.F. Bolling and J. Kramer) Trans. AIME, 227, 47 (1963).

47. Solute Concentration at Cellular and Dendritic Interface During Solidification, (with J.J. Kramer and G.F. Bolling), Trans. AIME, 227, 374 (1963).
48. Determination of the Atomic Kinetics of the Freezing Process, Part I – Theory I, (with J.J. Kramer) J. Chem. Phys., 37, 841 (1962).
49. A Study of the Growth Mechanism and Twin Habits of  $Ba_2TiP_2O_9$ , (with D.E. Harrison) J. Applied Physics, 33, 2451 (1962).
50. Corrigendum to Growth from the Melt III, (with G.F. Bolling) J. Applied Physics (1962).
51. On the Applicability of Minimum Rate of Entropy Production to Crystal Growth Phenomena, J. Applied Physics, 34, 3615 (1963).
52. The Influence of Electromagnetic Stirring on the Nucleation of Tin and Tin-Lead Alloys, (with W.C. Johnston and G.R. Kotler) Trans. AIME, 227, 890 (1963).
53. The Migration of a Liquid Zone Through a Solid: Part I, J. Applied Physics, 34, 2757 (1963).
54. The Migration of a Liquid Zone Through a Solid: Part II, J. Applied Physics, 34, 2763 (1963).
55. Preferred Casting Orientations for High Purity Zinc and Tin, (with J.J. Kramer and G.F. Bolling) Trans. AIME, 227, 1453 (1963).
56. The Solidification of Lamellar Eutectic Systems, (with R. Mrdjenovich) J. Applied Physics, 34, 3639 (1963).
57. Ice Interface Morphology and Texture developed During Freezing, (with J.D. Harrison) J. Applied Physics, 34, 3349 (1963).
58. Solidification “Advanced Physical Metallurgy”, North-Holland Publishing Company (1965).
59. Redistribution of Solute During Phase Transformations, (with R.F. Sekerka) J. Applied Physics, 35, 2726 (1964).

60. Dendrites, *Science*, 146, 871 (1964).
61. Migration of a Liquid Zone Through a Solid: Part III, *J. Applied Physics*, 36, 261 (1965).
62. Determination of the Atomic Kinetics of the Freezing Process: II. Experimental, (with J.J. Kramer) *J. Chem. Physics*, 42, 257 (1965).
63. The Growth of Large Single Crystals of Hexagonal Selenium From the Melt at High Pressures, (with D.E. Harrison) *J. Applied Physics*, 36, 1680 (1965).
64. Isothermal Solidification of Fe-C and Fe-C-Si Alloys, *ASM Cast Iron Symposium*, Gordon and Breach Publishing Co. (1967).
65. Mathematical Analysis of the Thermal Wave Technique for Linear Kinetics, (with R.F. Sekerka) *J. Chem. Physics*, 44, 3829, (1966).
66. Grain Refinement Via Electromagnetic Stirring during Solidification, (with W. C. Johnston, G.R. Kotler, S. O'Hara and H.V. Ashcom), *Trans. AIME*, 233, 1856 (1965).
67. Commentary on the Rigney and Blakely paper "Kinetics of the Solid-Liquid Transition in Tin", *Acta Met.*, 14, 1383 (1966).
68. The Instability of a Cylindrical Crystal During Growth from an Alloy Melt, (with G.R. Kotler), "Crystal Growth", H.S. Peiser, Ed. (Pergamon Press, 1967) p. 721.
69. The Importance of Attachment Kinetics on the Stability of a Planar Solid-Liquid Interface (with L.A. Tarshis), "Crystal Growth", H.S. Peiser, Ed. (Pergamon Press, 1967) p. 709.
70. Interface Morphology During Crystallization, "Advances in Materials Research", Vol. III (John Wiley & Sons, Inc., 1967).
71. The Generation of Science-Based Technology in the Field of Crystallization, "Proceedings of the OAR Research Application Conference" (1967).

72. Limitations of the Thermal Wave Technique for Determining Molecular Attachment Kinetics (with S. O'Hara and L.A. Tarshis), J. Chem. Physics, 46, 2800 (1967).
73. On the Mechanisms of Crystal Multiplication During Solidification in the Presence of Fluid Motion, Part I, (with S. O'Hara), Trans. AIME, 239, 497 (1967).
74. Migration of a Liquid Zone Through a Solid: Part IV, Data Evaluation for Aqueous Droplets in Ice, I.J.C.G. 6, 77 (1969).
75. On Electrostatic Potentials at the Ice-Water Interface, (with B.K. Jindal) Surface Science, 9, 137 (1968).
76. Generation of Chemical Potentials by Analysis of Phase Diagrams, Part I, (with R. Hiskes), Mater. Sci. Eng. 2, 320 (1967/68).
77. On the Diffusion of Solute During the Cellular Mode of Crystallization, (with L. Donaghey), "The Solidification of Metals" (Iron & Steel Inst., Brighton Conference) (1968).
78. The Effect of Fluid Motion on the Grain Size of Tin, (with S. O'Hara), Trans. AIME, 239, 497 (1967).
79. On the Mechanisms of Crystal Multiplication During Solidification in the Presence of Fluid Motion, Part II, (with S. O'Hara), "The Solidification of Metals" (Iron & Steel Inst., Brighton Conference) (1968).
80. The Solidification of Spheroidal and Flake Graphite Cast Iron, (with W. Oldfield and G. Geering), "The Solidification of Metals" (Iron & Steel Inst.) (1968).
81. The Evolution of Crystal Shape: A Computer Model, (with W. Oldfield and G. Geering), Mater. Sci. Eng., 2, 91 (1967).
82. On the Diffusion of Solute During the Eutectoid and Eutectic Transformations, Part I, (with L. Donaghey), Mater. Sci. Eng. 3, 231 (1968/69).
83. The Supercooling Dependence for Nucleation of Some Metals on the Liquid Drop Size, (with T. Takahashi), Acta Met. 17, 643 (1969).

84. Nucleation Experiments on Some Alloys with Low Eutectic Temperatures, (with T. Takahashi), Acta Met. 17, 651 (1969).
85. A Study of the Nucleation Process in Liquid Bi and Bi-Te Alloys Using the Nuclear Magnetic Resonance (NMR) Technique, (with T. Takahashi), Acta Met. 17, 657 (1969).
86. The Electrostatic Contribution in Heterogeneous Nucleation Theory: Pure Liquids, (with T. Takahashi), Acta Met. 17, 483 (1969).
87. Stability of the Needle Crystal, (with G.R. Kotler), I.J.C.G., 2, 287 (1968).
88. Discussion of Interface Stability of Large Facets on Solution Grown Crystals, (with S. O'Hara, L.A. Tarshis and J.P. Hunt), I.J.C.G., 3,4, 555 (1968).
89. Theoretical Requirements for Crystal Growth from Solution, I.J.C.G., 2, 69 (1968).
90. Theory of Non-Equilibrium Distribution Coefficients During Crystallization, (with B. Jindal), J. Chem. Phys., 49, 4632 (1968).
91. On the Growth Rate of Crystals from Solution, (with C. Kang), I.J.C.G., 2, 145 (1968).
92. The Use of Phase Diagrams in Solidification, "The Use of Phase Diagrams in Ceramic, Glass & Metal Technology" (A. Alper, Ed., Academic Press, 1969).
93. Solidification, "Physical Metallurgy" (R. Cahn, Ed., revised edition, North Holland Press, 1970).
94. On the Effective Dielectric Constant of Metal Interfaces, Scripta Met. 3, 273 (1969).
95. Applied Science/Materials Science: A Personal Philosophy of What They Are and Where They Are Going, Science 165, 469 (1969).
96. Generation of Chemical Potentials by Analysis of Phase Diagrams, Part II: Isomorphous Systems, (with R. Hiskes), Mat. Sci. & Eng. 4, 163 (1969).



97. Generation of Chemical Potentials by Analysis of Phase Diagrams, Part III: Eutectic Systems, (with R. Hiskes), *Mat. Sci. & Eng.* 4, 173 (1969).
98. A Critique on the Mathematical Theory of Spinodal Decomposition, (with G.M. Pound and J.P. Hirth), *Acta Met.* 18, 225 (1970).
99. A Hydrogen Pump for Stress Corrosion Cracking, (with R. Schrieffer), *Scripta Met.* 4, 57 (1970).
100. Rationale for Computer Simulation in Materials Science, "An Introduction to Computer Simulation in Applied Science" (F. Abraham and W.A. Tiller. Eds., IBM, 1970).
101. Excess Free Energies in the Ge, Si and Ga Binary Systems – The  $\alpha$ -Parameter Approach, (with M.V. Rao), *J. of Phys. And Chem. Of Solids* 31, 191 (1970).
102. Interface Morphology Control, "Interfaces" (R. Gifkins, ed., Gordon and Breach, 1970).
103. On Nonstructural Applications of Composites, (with M.B. Bever and P. Duwez), *Mat. Sci. & Eng.* 6, 149 (1970).
104. On the Thermodynamics of Inhomogeneous Systems, (with J.P. Hirth and G.M. Pound), *Phil. Mag.*, 1971.
106. On the Energetics, Kinetics & Topography of Interfaces, in "Treatise on Materials Science and Technology," H. Herman, ed. (Academic Press, Inc., N.Y., 1972). Also published in ASM Proceedings, "Solidification" (1971), p. 59.
107. On the Lattice-Liquid Model for Interface Roughening, (with D. Nason) *JCG* 10, 117 (1971).
108. On Surface Creation During Phase Transformations, (with B.K. Jindal), Intl. Conf. Crystal Growth 1971. *Acta Met.* 20, 543 (1972).
109. Freezing Potentials, I: Effect of Substrate on Potential During the Freezing of Aqueous Solutions at a Uniform Rate, (with B.K. Jindal), *J. of Colloid and Interface Science* 39, 339 (May 1972).

110. The Systems In-Ga: Thermodynamics and Computed Phase Equilibria, (with M.V. Rao), J. Mater. Sci. 7, 14 (1972).
111. Further Comments on Spinodal Decomposition (with G.M. Pound and J.P. Hirth), Acta Met. 19, 475 (1971).
112. Interface Morphology Development during Stress Corrosion Cracking, Part I: Via Surface Diffusion (with R.J. Asaro), Met. Trans. 3, 1783 (1972).
113. Determination of Solute Interaction Parameters by Analysis of Phase Equilibria Using a Linear Programming Technique (with M. Vikram Rao and R. Hiskes), Acta Met. 21, 733 (1973).
114. Computed Low Temperature Phase Equilibria in the System Fe-Cr (with M. Vikram Rao), Scripta Met. 6, 417 (1972),
115. Impurity Striations in Czochralski Grown Al -Doped Si Single Crystals (with B.K. Jindal and V. Karelin), J. of Electrochem. Soc. 120, 101, (1973).
116. Thermochemistry of Non-Regular Multicomponent Metallic Solutions: The System Fe-Cr-Ni (with M. Vikram Rao), J. Mater. Sci. and Engrg. 11, 61 (1973).
117. On the Entropy of Fusion of Liquid Metals (with D.O. Nason), Acta Met. 21, 747 (1973).
118. On Corona Discharge Photography (with D.G. Boyers), J. of Appl. Phys. 44, 3102 (1973).
119. Thermodynamic-Kinetic Model of Stress Corrosion Cracking; Intl. Conf. on Stress Corrosion Cracking and Hydrogen Embrittlement, France, 6/1973.
120. Hydrogen Induced Phase Transformation of Austenite to Martensite, (with R.J. Asaro and A.J. West); *ibid.*
121. The System Fe-Cr and Fe-Ni: Thermochemistry and Phase Equilibria (with M. Vikram Rao), J. Mater. Sci. And Engrg. 14, 47 (1974).

122. Solid/Liquid Interfacial Free Energies in Binary Systems, (with D.O. Nason), surface Science 40, 109 (1973).
123. The System Fe-Mn: Thermochemistry and Phase Equilibria (with M. Vikram Rao), Mat. Sci. and Engrg. 15, 87 (1974).
124. The Hydrogen Pump Model Revisited; Scripta Met. 8, 487 (1974).
125. Some Applications of the Bond Orbital Model (with S. Ciraci), Phys. Stat. Sol. 65, 711 (1974).
126. Interface Morphology Development during Stress Corrosion Cracking, Part II: Via Volume Diffusion (with P. Vasudev and A.J. Asaro), Acta Met. 23, 341 (1975).
127. Electronic Structure for the (111) Surface of Semiconductors (with S. Ciraci and I.P. Batra), Phys. Rev. B, 12, 5811 (1975).
128. Orientation Dependence of the Solid/Liquid Interfacial Free Energy in Binary Systems (with D.O. Nason), Surface Science 57, 406 (1976).
129. Some Effects of Inhomogeneous Strain on Surface Properties of Metals (with S. Ciraci and I.P. Batra), Surface Science 65, 173 (1977).
130. On the Cross-Pollination of Crystallization Ideas Between Metallurgy and Geology, Phys. Chem. Minerals 1, 125 (1977).
131. Interface Morphology During Crystallization, Part I: Single Filament, Unconstrained Growth from a Pure Melt (with R. Trivedi), Acta Met. 26, 671 (1978).
132. Interface Morphology During Crystallization, Part II: Single Filament, Unconstrained Growth from a Binary Alloy Melt (with R. Trivedi), Acta Met. 26, 679 (1978).
133. Citation Classic – “The Redistribution of Solute Atoms During the Solidification of Metals (Acta Met. 1428-437, (1953)),” Institute for Scientific Information, Current Contents, no. 9, 16 (1979).

134. A Simple and Economical Capacitative Displacement System for UHV Operation (with Robert Chow), *Review of Scientific Instruments* 50, no. 12, 1649-50 (1979).
135. On the Kinetics of the Thermal Oxidation of Silicon, Part I: A Theoretical Perspective, *J. Electrochem. Soc.* 127, no. 3, 619-624 (1980).
136. On the Kinetics of the Thermal Oxidation of Silicon, Part II: Some Theoretical Evaluation, *J. Electrochem. Soc.* 127, no. 3, 625-632 (1980).137.
137. Interface Field Effects on Solute Redistribution During Crystallization (with K-S Ahn), *J. Crystal Growth* 49, no. 3, 483-501 (1980).
138. The Fundamentals of Crystal Growth, Doping and Solid Solubility, chapter in "Integrated Circuit Process Models," ed. J.D. Meindl (Prentiss-Hall, to be published in 1981).
139. On the Kinetics of the Thermal Oxidation of Silicon, Part III: Coupling with Other Key Phenomena, *J. Electrochem. Soc.* 128, 689 (1981).
140. Non-Equilibrium Water/Rock Interactions, I. Model for Interface-Controlled Reactions (with W.E. Dibble, Jr.), *Geochimica et Cosmochimica Acta* 45, 79 (1981).
141. The Growth of Oxidation Stacking Faults and the Point Defect Generation at Si-SiO<sub>2</sub> Interface During Thermal oxidation of Silicon (with A.M. Lin, R.W. Dutton and D.A. Antoniadis), *J. Electrochem. Soc.* 128, no. 5, 1121 (1981).
142. Kinetic Model of Zeolite Paragenesis in Tuffaceous Sediments (with W.E. Dibble, Jr.), *Clays and Clay Minerals*, Special Issue on Zeolites (October 1981).
143. Plasma Bubble domains: A Magnetic Bubble Analog (with D.G. Boyers), *Appl. Phys. Lett.* 41 (1), 28 (1982).
144. Steric Origin of the Si-O-Si Angle Distribution in Silica (with Y.T. Thathachari), *Appl. Phys. Lett.* 53 (12), 8615 (1982).

145. Steric Factors in the Spatial Structure of Silicas (with Y.T. Thathachari), in Conformation in Biology, Eds: R. Srinivasan and R.H. Sarma (Adenine Press, N.Y., 1982) p. 445.
146. Photon Enhanced Oxidation of Silicon (with E.M. Young), Appl. Phys. Lett. 42 (1), 63 (1983).
147. On the Kinetics of the Thermal Oxidation of Silicon, Part IV: The Two Layer Film Approximation, J. Electrochem. Soc. 130, no. 2, 502 (1983).
148. Modeling the Spatial Structure of Silicas (with Y.T. Thathachari), Progress in Crystal Growth and Characterization 6, 415 (1983).
149. Deformation-Induced Work Function Changes in Cu Single Crystals, Part I: Experimental (with R. Chow), J. Appl. Phys. 55, 1339 (1984).
151. Deformation-Induced Work Function Changes in Cu Single Crystals, Part II: Theoretical (with R. Chow), *ibid*, p 1346.
152. Crystallization of Polymers Under High Tension: A Dendrite Model (with J.M. Schultz), J. Polymer Science, 22, 143 (1984).
153. Controlled Reactive Sputter Synthesis of Refractory Oxides: SiO<sub>x</sub> – The Silicon-Oxygen System (with T.W. Barbee, Jr., D.L. Keith and L. Nagel), J. Electrochem. Soc. 131 (2) 434 (1984).
154. Quantitative Solidification Science, Foreword to Mats. Sci. and Engrg., Special Issue, Solidification Microstructure: Thirty Years After Constitutional Supercooling, Mats. Soc. & Engrg. 65, 3 (1984).
155. Crystal Growth of GaN by the Reaction between Gallium and Ammonia (with D. Elwell, R.S. Feigelson and M.M. Simkins), J. Crystal Growth 66, 45 (1984).
156. Thin Film Deposition for High-Performance, Low-Cost Photovoltaic Solar Cells (with A.M. Barnett, M.G. Mauk and J.C. Zolper), 5<sup>th</sup> European Community Photovoltaic Solar Energy Conf., Athens, Greece, 1983.

157. Thermal Oxidation of Silicides (with L.N. Lie and K.C. Saraswat), J. Appl. Phys. 56 (7), 2127 (1984).
158. On the Importance of Oxygen-Oxygen Interactions in Silica Structures (with Y.T. Thathachari), J. Applied Phys. 57 (6), 1805 (1984).
159. Ledge Growth, Strain Accommodation and Stacking Fault Formation During Silicon Oxidation (with J.P. Hirth), J. Appl. Physics 56 (4), 947 (1984).
160. An Apparatus for Producing Controlled Positive or Negative Corona Discharge for Semiconductor Materials Processing (with D.N. Modlin), Rev. Sci. Inst. 55 (9), 1433 (1984).
161. Effective Gettering of Gold at 900°C by Low Current Corona Discharge (with R.J. Falster, D.N. Modlin and J.F. Gibbons), J. of Appl. Physics 57 (2), 554 (1985).
162. Some Unresolved Theoretical Problems in Crystal Growth (Proceedings of the ACCG-6/ICVGE-6 Conference July 1984), J. Crystal Growth 70, 13 (1984).
163. Computer Modeling of Si and SiC Surfaces and Surface Processes Relevant to Crystal Growth from the Vapor (with E. Pearson, T. Takai and T. Halicioglu), *ibid.*, p 33.
164. Thin-film Silicon Crystal Growth on Low Cost Substrates (with J.B. McNeely, R.B. Hall, and A.M. Barnett), J. Crystal Growth 70, 420 (1984).
165. The Structure and Surface Energy of Au(110) Studied by Monte Carlo Method (with T. Halicioglu and T. Takai), Proceedings of the Intl. Conf. on the Structure of Surfaces, UC-Berkeley, August 1984), in The Structure of Surfaces, Eds: M.A. Van Hove and S.T. Tong (Springer-Verlag, New York, 1985).
166. The Effect of Three-Body Forces on the Vibrational Frequencies Triatomic Clusters (with T. Halicioglu and T. Takai), Surface Science 156, 556 (1985).
167. Effects of Corona-Discharge Induced Oxygen Ion Beams and Electric Fields on Silicon Oxidation Kinetics, I: Ion Beam Effects (with D.N. Modlin), J. Electrochem. Soc. 132, 1163 (1985).

168. Predictions for the Pressure and Temperature Phase Transitions of Silicon Using a Semiempirical Potential (with t. Takai and T. Halicioglu), *Scripta Met.* 19, 709 (1985).
169. Absolute Crystal Stability and Elastic Constants for Cubic Structure (with T. Takai and T. Halicioglu), *Scripta Met.* 19, 715 (1985).
170. Laplace-Transform Technique for Deriving Thermodynamic Equations from the Classical Microcanonical Ensemble (with E.M. Pearson and T. Halicioglu), *Phys. Rev. A* 32 (5), 3030 (1985).
171. A Parametric Study of Crystal Stability and Surface Energy for Diamond Cubic Structures (with T. Takai and T. Halicioglu), *Phys. Stat. Sol. (b)* 130, 131 (1985).
172. Calculation of Potential Energy Parameters for the Silicon-Carbon System (with T. Takai and T. Halicioglu), *Phys. Stat. Sol. (b)* 130, 475 (1985).
173. Effects of Corona Discharge-Induced Oxygen Ion Beams and Electric Fields on Silicon Oxidation Kinetics, II: Electric Field Effects (with D.N. Modlin), *J. Electrochem. Soc.* 132 (7), 1659 (1985).
174. Adsorption, Potential Maps and Diffusion of Si, C, and SiC on a Si(111) Surface with T. Takai and T. Halicioglu), *Surface Science* 164, 327 (1985).
175. Reconstruction and Energetics for Surfaces of Silicon, Diamond and –SiC (with T. Takai and T. Halicioglu), *Surface Science* 164, 341 (1985).
176. The Synthesis of SiC<sub>x</sub> Films by Dual-Source Sputter Deposition (with K.L. Seaward and T.W. Barbee, Jr.), *J. Vac. Sci. Technol. A* 4 (1), 31 (1986).
177. The Effect of Surface Stress on the Reconstruction of the Si(111) Surface (with E. Pearson and T. Halicioglu), *Surface Science* 168, 46 (1986).
178. Thermodynamic and Kinetic Considerations on the Equilibrium Shape for Thermally-Induced Microdefects in Czochralski Silicon, (with S. Hahn and F.A. Ponce), *J. Appl. Phys.* 59 (9), 3255 (1986).

179. Thermodynamic and Kinetic Considerations for Crystal Growth of Complex Molecules from Solution, *J. Crystal Growth* 76 (no. 3), 527 (1986).
180. The Role of Strongly Interface/Surface Adsorbed Impurities on the Purification process Via Crystallization Methods, *J. Crystal Growth* 75, 132 (1986).
181. The Effect of HCl on Silicon Point Defect Formation During Thermal Oxidation of (100) Float Zone Silicon Wafers (with S. Oh and S. Hahn), *Appl. Phys. Lett.*, 48 (17), 1125 (1986).
182. Stress Relaxation Techniques for Thermally Grown SiO<sub>2</sub> (with L. M. Landsberger), *Appl. Phys. Lett.* 49 (3), 143 (1986).
183. The Effect of HCl on Silicon Point Defect Formation During Thermal Oxidation of (100) Float Zone Silicon Wafers: A Theoretical Analysis (with S. Oh and S. Hahn), *Mats. Res. Soc. Symp. Proc.* 71, 39 (1986).
184. Electron Population Factor in Light Enhanced Oxidation of Silicon (with E.M. Young), *Appl. Phys. Lett.* 50 (1), 80 (1987).
185. Ultraviolet Light Stimulated Thermal Oxidation of Silicon (with E.M. Young), *Applied. Phys. Lett.* 50 (1), 80 (1987).
186. Effects of 405°C Thermal Annealing Upon Oxygen Precipitations in Heavily B- and Sb-Doped CZ Si (with S. Hahn, M. Arst, Z.U. Rek, V. Stojanoff, D.A. Bulla and W.E. Castro), *Appl. Phys. Lett.* (Feb. 1987).
187. Corona Discharge-Induced Stress Relaxation in Silicon Dioxide Films on Silicon (with L.M. Landsberger), *Materials Research Society Symposia Proceedings Series* 75, 803 (1987).
188. Surface Stress Tensor Mediation of the Ledge Nucleation/Growth Process with the Surface Reconstruction Process in GaAs (with D. K. Choi and T. Halicioglu), *Materials Research Society Symposia Proceedings Series* 94, 91 (1987).
189. Adatom Diffusion and Adatom-Ledge Interaction on the Si(111) Surface Using a Semiempirical Potential Energy Function (with E.M. Pearson and T. Halicioglu), *J. Crystal Growth* 83, 499 (1987).



190. Kink-Site Formation Energies on the Si(111) Surface Using a Semiempirical Potential Energy Function (with E.M. Pearson and t. Halicioglu), J. Crystal Growth 83, 502 (1987).
191. Long Range Ledge-Ledge Interactions on Si(111) Surfaces: Part I, No Kinks or Surface Point Defects (with E.M. Pearson and T. Halicioglu), Surface Science 87, 401 (1987).
192. Si(111) Cleavage and the (2x1) Reconstruction Process (with E.M. Pearson and T. Halicioglu), J. of Vacuum Sci. & Tech. 5, 293 (1987).
193. Indicators of Stress Relaxation in Two-Step Thermally Grown Silicon Dioxide Films on Silicon (with L.M. Landsberger), Conference Proceedings of the Electrochemical Society, San Diego, October 22, 1986.
194. Determination of Modeling Parameters for Silicon Interstitial Diffusion using Silicon Membranes (with S. T. Ahn and J.D. Shott), Conference Proceedings of the Electrochemical Society, San Diego, October 22, 1986.
195. Silicon Membrane Studies of Point Defect Transport Kinetics During Thermal Oxidation (with S.T. Ahn and J.D. Shott), Materials Research Society Symposia Proceedings Series 77, 393 (1987).
196. A Model for Bulk Effects on Si Interstitial Diffusivity in Silicon (with P.B. Griffin, S.T. Ahn and J.D. Plummer), Appl. Phys. Lett. 51, 115 (1987).
197. Refractive Index, Relaxation Time and the Viscoelastic Model in Dry-Grown SiO<sub>2</sub> Films on Si (with L. M. Landsberger), Appl. Phys. Lett. 51, 1416 (1987).
198. Computer Simulation of Thin Amorphous Si Films on Crystalline Si Substrates (with S. Erkoc and T. Halicioglu), Materials Research Society Symposia Proceedings 95 (1987).
199. Free Surfaces and Multilayer Interfaces in the GaAs/AlAs System (with D.K. Choi, T. Takai, S. Erkoc and T. Halicioglu), J. Crystal Growth 85, 9 (1987).

200. Computer Simulation of Ledge Formation and Ledge Interaction for the Silicon (111) Free Surface (with H. Balamane and T. Halicioglu), J. Crystal Growth 85 16 (1987).
201. Computer Simulation of Thin Amorphous Si Films on Crystalline Si Substrates (with S. Erkoc and T. Halicioglu), Materials Research Society Symposia Proceedings 94, 28 (1987).
202. Effects of Boron Concentration Upon Oxygen Precipitation in CZ Silicon (with D.A.P. Bulla, W.E. Castro, Jr., V. Stojanoff, F.A. Ponce and S. Hahn), J. Crystal Growth 85, 91 (1987).
203. A Study of Silicon Interstitial Kinetics Using Silicon Membranes – Application to 2-D Diffusion (with S.T. Ahn, P.B. Griffin and J.D. Plummer), J. Appl. Phys., 62, 4745 (1987).
204. A Structural Analysis of Thin Amorphous Silicon Films (with S. Erkoc and T. Halicioglu), Mats. Res. Soc. Symp. Proc. 94, 77 (1987).
205. Rate Constants for Light-Enhanced Thermal Oxidation of Silicon (with E..M. Young) J. Appl. Phys. 62, 2086 (1987).
206. Computer Simulation of Thin Amorphous Si Films on Crystalline Si Substrates (with S. Erkoc and T. Halicioglu), J. Non-Cryst. Solids 94, 28 (1987).
207. Silicon membrane Studies of Point Defect transport Kinetics During Thermal Oxidation (with S.T. Ahn and J.D. Shott), Mats. Res. Soc. Symp. Proc. 77, 393 (1987).
208. Surface Stress Tensor Mediation of the Ledge Nucleation/Growth Process with the Surface Reconstruction Process in GaAs (with D.K. Choi and T. Halicioglu), Mats. Res. Soc. Symp. Proc. 94, 91 (1987).
209. Effects of 450°C Thermal Annealing Upon Oxygen Precipitation in Heavily B- and Sb-Doped Czochralski (with S. Hahn, M. Arst, Z.U. Rek, V. Stajanoff, D.A. Bulla and W.E. Castro, Jr.), Appl. Phys. Lett. 50, 401 (1987).

210. Some Unresolved Theoretical Problems in Crystal Growth, Part II: Consequences of Properly Accounting for Surface Creation, Proc. Of the Indo-US Workshop in Solidification, Hyderabad, Jan. 1988.
211. Effect of Frenkel Defect Formation on Spherical SiO<sub>2</sub> Precipitate Growth in Silicon Wafers (with Seajin Oh), J. Appl. Phys. 64 (1), 375 (1988).
212. Effect of Oxygen Precipitation on Phosphorus Diffusion in Czochralski Silicon (with S.T. Ahn, H.W. Kennel, J.D. Plummer, A. U. Rek and S. R. Stock), Appl. Phys. Lett. 53, 34 (1988).
213. Effect of High Carbon Concentration Upon Oxygen Precipitation and Related Phenomena in CZ Si (with S. Hahn, M. Arst, K.N. Ritz, S. Shatas, H.J. Stein and Z.U. Rek), J. Appl. Phys. 64, 849 (1988).
214. Some Implications of Colloid Stability Theory for Protein Crystallization (with C.C. Young, R.C. De Mattei and R.S. Feigelson), J. Crystal Growth 90, 79 (1988).
215. Simulation of Ga/As Cluster Formation on GaAs(001), AlAs(001), Si(001) and As<sub>2</sub>/Si(001) Surfaces (with D.K. Choi, S.M. Koch and T. Takai), J. Vac. Sci. Technology, B 6, 1140 (1988).
216. Conformal Two-Dimensional SiO<sub>2</sub> Layers on Silicon Grown by Low Temperature Corona Discharge (with L.M. Landsberger and D.B. Kao), J. Electrochem. Soc. 135 (7), 1766 (1988).
217. A Staining Technique for the Study of Two-Dimensional Dopant Diffusion in Silicon (with S.T. Ahn), Electrochem. Soc. 135 (9), 2370 (1988).
218. Enhanced Sb Diffusion in Si Under Thermal Si<sub>3</sub>N<sub>4</sub> Films During Annealing in Ar (with S.T. Ahn, H.W. Kennel and J.D. Plummer), Appl. Phys. Lett. 53 (17), 1593 (1988).
219. Effects of Heavy Boron Doping Upon Oxygen Precipitation in Czochralski Silicon (with S. Hahn, F.A. Ponce, S. Stojanoff, D.A.P. Bulla and W.E. Castro), J. Appl. Phys. 64, 4454 (1988).

220. Film Stress-Related Vacancy Supersaturation in Silicon Under Low-Pressure Chemical Vapor Deposited Silicon Nitride Films (with S.T. Ahn, H.W. Kennel and J.D. Plummer), J. Appl. Phys. 64 (10), 4914 (1988).
221. Adsorption of Gold Adatoms on the GaAs(111) Surface: A Molecular-Dynamics Simulation (with S. Erkoc and T. Halicioglu), Phys. Stat. Sol. (b) 156, 105 (1989).
222. The Effect of a Potential Function Range on Surface Properties (with T. Halicioglu, H.O. Pamuk and S. Erkoc), Phys. Stat. Sol. (b) 156, K113 (1989).
223. Vacancy Supersaturation in Si Under SiO<sub>2</sub> Caused by SiO Formation During Annealing in Ar (with S.T. Ahn and H.W. Kennel), J. Appl. Phys. 65, 2957 (1989).
224. Nonlinear Viscoelastic Dilation of SiO<sub>2</sub> Films (with C.S. Rafferty, L.M. Landsberger and R.W. Dutton), Appl. Phys. Lett. 54, 151 (1989).
225. Fundamental Aspects of Film Nucleation and Growth, J. Vac. Sci. Technol. A7, 1353 (1989).
226. Vacancy and Adatom Induced  $\sqrt{3}\times\sqrt{3}$  Reconstruction of the Si(111) Surface (with H. Balamane and T. Halicioglu), Phys. Rev. B. 40, 9999 (1989).
227. A Potential Energy Function for GaAs Systems (with T. Takai, D.K. Choi, Y.T. Thathachari and T. Halicioglu) Phys. Stat. Sol. (b) 157, K77 (1990).
228. Simulation Calculations on Energetics and Reconstruction Patterns for the GaAs(100) Surface (with S. Erkoc and T. Halicioglu), Phys. Stat. Sol. (b) 157, K23 (1990).
229. A Model Potential Energy Function for Systems Containing Al, Ga, and As Atoms (with T. Takai and T. Halicioglu), Phys. Stat. Sol. (b) 157, K77 (1990).
230. A High Spatial Resolution Optical Pyrometer (with D.O. Nason, C.T. Yen and R. S. Feigelson), Rev. Sci. Instruments 61 (3), 1024 (1990).
231. A Model Potential Function for Carbon Systems: Clusters (with T. Takai, C. Lee and T. Halicioglu), J. Phys. Chem. 94 (11), 4480 (1990).

232. Reduction of Lateral Phosphorus Diffusion in CMOS n-Wells (with S.T. Ahn, H.W. Kennel and J.D. Plummer), IEEE Trans. On Electron Devices 37 (3), 806.
233. Two-Step Oxidation Experiments to Determine Structural Thermal History Effects in Thermally-Grown SiO<sub>2</sub> Films on Si (with L.M. Landsberger), J. Electrochem. Soc. 137 (9), 2825 (1990).
234. Measurements of Optical Properties of Some Molten Oxides (with D.O. Nason and C.T. Yen), J. Crystal Growth 106, 221 (1990).
235. On Controlled Solidification Studies of Some TiO<sub>2</sub> Binary Alloys (with C.T. Yen and D.O. Nason), J. Mater. Res. 7, 1 (1992).
236. The Role of Ledges in Stress Tensor-Mediated Surface Processes for Si and GaAs, Met. Trans. 22A, 1317 (1991).
237. Oxygen Partitioning Analysis During Czochralski Silicon Crystal Growth Via a Dopant Marker and a Simple Transfer Function Modeling Technique: I. Rotation Rates (with C.T. Yen), J. Crystal Growth 109, 142 (1991).
238. Incorporating Convection Into One-Dimensional Solute Redistribution During Crystal Growth from the Melt: I. The Steady-State Solution (with C.T. Yen), J. Crystal Growth 118, 259 (1992).
239. Some Consequences of a strong Interface Field-Effect Operating During the Growth of TiO<sub>2</sub>-Alloy Crystals from the melt (with C.T. Yen), J. Crystal Growth 109, 120 (1991).
240. A Modeling Study on the Early Stages of GaAs Deposition on the GaAs(100) Surface (with T. Halicioglu), J. Vac. Sci. & Tech. A9, 274 (1991).
241. Dynamic Oxygen Concentration in Silicon Melts During Czochralski Crystal Growth (with C.T. Yen) 113, 549 (1991).
242. Stress Relaxation in SiO<sub>2</sub> Films on Silicon by a Negative Point Oxygen Corona Discharge (with L. Landsberger), J. Electrochem. Soc. 139 (1), 218 (1992).

243. Oxygen Partitioning analysis During Czochralski Silicon Crystal Growth Via a Dopant Marker and a Simple Transfer Function Modeling Technique: II. Growth, Velocity and Applied Magnetic Field Transients (with C.T. Yen), *J. Crystal Growth* 118, 85 (1992).
244. Simulation Calculations for Gold Clusters on the GaAs(110) Surface (with S. Erkoc and T. Halicioglu), *Surface Science* 274, 359 (1992).
245. Fundamental Aspects of Film Nucleation and Growth in Chemical Vapor Deposition, *Surface and Coatings Technology* 54/55, 211 (1992).
246. The Dissociation and Ionization of LiNbO<sub>3</sub> Melts (with S. Uda), *J. Crystal Growth* 121, 155 (1992).
247. The Influence of an interface Electric Field on the Distribution Coefficient of Chromium in LiNbO<sub>3</sub> (with S. Uda), *J. Crystal Growth* 121, 93 (1992).
248. Comparative Study of Silicon Empirical Interatomic potentials (with H. Balamane and T. Halicioglu), *Phys. Rev.* B46, 2250 (1992).
249. Cr Migration Associated with Interface Electric Fields During Transient LiNbO<sub>3</sub> Crystal Growth (with S. Uda), *J. Crystal Growth* 126, (1993) 396.
250. Intrinsic LiNbO<sub>3</sub> Melt Species Partitioning at the Congruent Melt Composition, I. Static Interface Case (with S. Uda), *J. Crystal Growth* 129, (1993) 328.
251. Intrinsic LiNbO<sub>3</sub> Melt Species Partitioning at the Congruent Melt Composition, II. Dynamic Interface Case (with S. Uda), *J. Crystal Growth* 129, (1993) 341.
252. Incorporating Convection into One-Dimensional Solute Redistribution During Crystal Growth from the Melt, II. The Initial Transient Solution (with C.T. Yen), *J. Crystal Growth* 129 (1993) 224.
253. Point Defect Structures and Energetics in Si Using an Empirical Potential (with J. Ungar, T. Takai and T. Halicioglu), *J. Vac. Sci. Technol.* A11, Jan/Feb (1993) 224.

254. Free Energies, Structures and Diffusion of Point Defects in Si Using an Empirical potential, Phys. Rev. B 50 (1994) 7344 (with P.J. Ungar and T. Halicioglu).
255. Energetics of Microvoid Formation in Si From Supersaturated Vacancies, Appl. Phys. Lett. 67 (1995) 1063 (with N. Cuendet and T. Halicioglu).
256. The Energetics of {113} Stacking Fault Formation in Si From Supersaturated Interstitials, Appl. Phys. Lett. 68 (1996) 19.
257. The Science of Crystallization: Microscopic Interfacial Phenomena (Cambridge University Press, New York, 1991).
258. The Science of Crystallization: Macroscopic Phenomena and Defect Formation (Cambridge University Press, New York, 1991).
259. Direct Current Magnetic Field and Electromagnetic Field Effects on the pH and Oxygen-Reduction Potential Equilibrium Rates of Water, I: Purified Water, Langmuir, 19 (17) (2003) 6851-6856 (with M. Yamashita and C. Duffield).