

Curriculum Vitae

See-Chen Ying

Education:

B.Sc. in General Science, University of Hong Kong, 1963,

B.Sc. in Physics, University of Hong Kong, 1964,

Ph.D. in Physics, Brown University, 1968 “Transport Properties in Fermi Liquids”

Professional Appointments:

Research Associate, Brown University, June 1968–August 1969.

Research Associate, University of California at San Diego, September 1969–August 1971.

Assistant Professor, Brown University, September 1971–June 1975.

Associate Professor, Brown University, July 1975–July 1980.

Professor, Brown University, July 1980 – June 2018

Professor Emeritus, June 2018-present

Visiting Professor Appointment:

I.F.F. der K.F.A., Jülich, Germany, June–October 1974 and June–September 1976.

Laboratoire de Physique des Solides Université Paris–Sud, Orsay, France, October 1974–June 1975.

Imperial College, London, June–August 1975.

Max Planck Institut für Festkörperforschung, Stuttgart, Germany, June–September 1978 and January–June 1977.

INPE, Sao Jose Dos Campos, Brazil, May–August 1980, April–June 2005, May–July 2009, June–July, 2011, June–August, 2016.

University of Hong Kong, Mar.–May 1987.

Helsinki Institute of Physics, Jan.–August, 1998.

Helsinki University of Technology, June–August, 2004, June–August, 2008.

Chinese University of Hong Kong, Jan.–March 2011.

Hong Kong University of Science and Technology, Jan.–April 2015

Honors and Awards:

A. P. Sloan Foundation Fellowship, 1972–1976.

Alexander von Humboldt Foundation, U. S. Senior Scientist Award, 1976.

C.N. Yang Visiting Professor, Chinese University of Hong Kong, 2011.

Fulbright Distinguished Chair award, 2015–2016.

List of Publication in Refereed Journals

1. "Acoustic Nuclear Spin Resonance in Metals" (with J. J. Quinn), Phys. Lett. **23**, 61 (1966)
2. "Fermi Liquid Theory of the Dynamic Spin Susceptibility of Metals" (with J. J. Quinn), Phys. Lett. **26A**, 347 (1968)
3. "Spin Independent Oscillations of a Degenerate Electron Liquid" (with J. J. Quinn), Phys. Rev. Lett. **20**, 1607 (1968)
4. "Angular Dependence of Spin and Plasma Wave Propagation in a Degenerate Electron Liquid" (with B. J. McIntyre and J. J. Quinn), Phys. Rev. Lett. **21**, 1244 (1968)
5. "Fermi Liquid Effects on Plasma Wave Propagation in Metals" (with J. J. Quinn), Phys. Rev. **173**, 473 (1968)
6. "Spin Independent Oscillations of a Degenerate Electron Liquid" (with J. J. Quinn), Phys. Rev. **180**, (1969)
7. "Spin Waves in a Degenerate Electron Liquid" (with J. J. Quinn), Phys. Rev. **180**, 218 (1969)
8. "Magnetization Density Wave State in Metals" (with J. J. Quinn), Phys. Rev. Lett. **22**, 231 (1969)
9. "Magnetization Density Wave State in Metals: Two-Dimensional Case" (with B. J. McIntyre and J. J. Quinn), Phys. Lett. **29A**, 412 (1969)
10. "Theory of Magnetic Interaction Among Conduction Electrons in Metals" (with B. J. McIntyre and J. J. Quinn), Phys. Rev. **B6**, 1801 (1970)
11. "Structure and Dynamics of Submonolayer Films Adsorbed on Solid Surfaces" Phys. Rev. **B12**, 4160 (1971)
12. "Quantum Theory of Lattice Desorption of Adatoms from Solid Surfaces at Low Temperatures" (with B. Bendow), Phys. Lett. **37A**, 41 (1971).
13. "Quantum Theory of Desorption of Adatoms from Solid Surfaces" (with B. Bendow), J. Vac. Sci. Tech. **2**, 575 (1972)
14. "Self-Consistent Screening of Charges Embedded in a Metal Surface" (with J. Smith and W. Kohn), J. Vac. Sci. Tech. **2**, 575 (1972)
15. "Dynamics of Adatoms on Solid Surfaces: Interaction with Phonons" (with B. Bendow), International Conference on Phonon Scattering in Solids, Paris (1972)
16. "Phonon-Induced Desorption of Adatoms from Crystal Surfaces – I. Formal Theory" (with B. Bendow), Phys. Rev. **B7**, 622 (1973)
17. "Phonon-Induced Desorption of Adatoms from Crystal Surfaces – II. Numerical Computations for a Model System" (with B. Bendow), Phys. Rev. **B7**, 637 (1973)
18. "Absorption Due to Higher Order Electronic Moments in Transparent Crystals" (with B. Bendow), Phys. Lett. **42A**, 359 (1973)

19. "Charge Density and Binding in Hydrogen Chemisorption" (with J. Smith and W. Kohn), Phys. Rev. Lett. **30**, 610 (1973)
20. "Theory of Multiphonon Absorption Due to Anharmonicity in Crystals" (with B. Bendow and S. Yukon), Phys. Rev. **B8**, 1679 (1973)
21. "Hydrodynamic Response of Inhomogeneous Metallic Systems" invited paper at the Taormina Conference on the "Perspective of Many Electron Calculations in Solids," published in Nuovo Cimento **23B**, 270 (1974)
22. "Theory of Frequency and Temperature Dependence of Intrinsic Multi-phonon Absorption in Laser Window Materials" (with B. Bendow and S. Yukon), Proc. of the Conf. on High Power IR Laser Window Materials, 1973.
23. "Surface Properties of Electron-Hole Droplets in Semiconductors" (with T. Reinecke), Solid State Comm. **14**, 281 (1974)
24. "Scattering Cross Section and Resonance Level of Chemisorbed Hydrogen" (with J. Smith and W. Kohn), presented at the Physical Electronics Conference, February (1974)
25. "Chemisorbed Hydrogen: Electron Scattering, Resonance Level, and Vibrational Frequency" (with J. Smith and W. Kohn), Solid State Comm. **15**, 1491 (1974)
26. "Theory of Multiphonon Absorption due to Nonlinear Electric Moments in Crystals" (with S. Yukon and B. Bendow), Phys. Rev. **B10**, 2286 (1974)
27. "Surface Properties and Collective Modes of Electron-Hole Droplets in Ge, Si, and Strained Ge" (with F. Crowne and T. Reinecke), Proc. of the 12th Int. Conf. on Semiconductors, Stuttgart (1973)
28. "Theory of Multiphonon Absorption in Semiconducting Crystals" (with S. Yukon and B. Bendow), Proc. of the 12th Int. Conf. on Semiconductors, Stuttgart (1974)
29. "Density Functional Theory of Chemisorption on Metals Surfaces" (with J. Smith and W. Kohn), Phys. Rev. **B11**, 1483 (1975)
30. "Alkali-Metals Chemisorption," (with L. Kahn), Solid State Comm. **16**, 799 (1975).
31. "Influence of Electron Density Profile on Surface Plasmon Dispersion" (with A. Eguiluz and J. J. Quinn), Phys. Rev. **B11**, 2118 (1975)

33. "Droplet Model of Electron-Hole Condensation in Semiconductors" (with T. Reinecke), *Phys. Rev. Lett.* **35**, 311 (1975).
34. "Electron-Hole Liquid Condensation in Semiconductors" (with T. Reinecke), *Proc. of NATO Advanced Study Institute, "Linear and Non-Linear Solids,"* (1975)
35. "Spin Density Functional Formalism for Surface Susceptibility of a Nearly Ferromagnetic Metal" (with L. Kahn and M. T. Beal-Monod), *Solid State Comm.* **18**, 359 (1976)
36. "Temperature Dependent Surface Tension of Electron-Hole Liquid in Semiconductors" (with T. Reinecke), *Phys. Rev.* **B13**, 1850 (1976).
37. "Infrared Cyclotron Resonance in Semiconducting Surface Inversion Layers" (with C. S. Ting and J. J. Quinn), *Phys. Rev. Lett.* **73**, 215 (1976)
38. "Theory of Dynamical Conductivity of Interacting Electrons" (with C. S. Ting and J. J. Quinn), *Phys. Rev.* **B14**, 4439 (1976)
39. "Plasma Assisted Free Carrier Absorption" (with C. S. Ting and J. J. Quinn), *Proc. of the XIII Int. Conf. on the Physics of Semiconductors, Rome, 1976*
40. "A Model for Alkali Chemisorption" (with L. Kahn), *Surf. Sci.* **59**, 333 (1976)
41. "Spin Susceptibility of Metallic Surfaces" (with L. Kahn), *Surf. Sci.* **67**, 278 (1977)
42. "Theory of Cyclotron Resonance of Interacting Electrons in a Semiconducting Surface Inversion Layer" (with C. S. Ting and J. J. Quinn), *Phys. Rev.* **B16**, 5394 (1977)
43. "A Variational Approach Surface Electronic Properties" invited paper at the Conference on Two-Dimensional Adsorbed Phases, Marseilles, 1977, published in *J. Phys. Colloq.* **C4-184** (1977)
44. "Charge Densities and Binding Energies in Hydrogen Chemisorption" (with J. R. Smith and W. Kohn), in *Selected Papers in Physics, Vol. V* (Physical Society of Japan).
45. "Electron-Hole Droplet Condensation in Semiconductors: Phase Diagrams" (with T. Reinecke), *Solid State Electronics* **21**, 1385 (1978)
46. "Memory Function Approach to Electron-Electron Scattering in Multivalley Semiconductors" (with S. P. Joshi and J. J. Quinn), *Proc. of 14th Int. Conf. on Semiconductors, Edinburgh, (1978)*

47. "Electronic Structure of K(001) Surface by the Density Matrix Method" (with K. P. Bohnen), *Solid State Comm.* **30**, 301 (1979)
48. "Model of Electron-Hole Droplet Condensation in Semiconductors" (with M. Lega and T. L. Reinecke), *Phys. Rev.* **B20**, 1562 (1979)
49. "Critical Point for Electron-Hole Droplet Condensation in Semiconductors" (with M. Lega and T. Reinecke), *Phys. Rev.* **B20**, 5405 (1979)
50. "Scaling Relations for Electron-Hole Droplet Condensation in Semiconductors" (with T. L. Reinecke), *Phys. Rev. Lett.* **43**, 1054 (1979)
51. "Density Functional Approach to Chemisorption on Simple Metals" in the Springer-Verlag Monograph *Theory of Chemisorption*, Chapter 2, ed. J. Smith (1980)
52. "Effect of H-Adsorption on the Displacive Transition of W(001) Surface" (with K. H. Lau), *Phys. Rev. Lett.* **44**, 1222 (1980)
53. "Spin Fluctuation at the Surface of Vanadium" (with D. R. Grempel), *Phys. Rev. Lett.* **45**, 1018 (1980)
54. "A Simplified Treatment of Exchange and Correlation in Semiconducting Inversion Layers" (with R. Kalia, G. Kawamoto, and J. J. Quinn), *Solid State Comm.* **34**, 423 (1980).
55. "Hydrogen Chemisorption and the Displacive Transition of W(001) Surface" (with K. H. Lau), *Proc. of the Int. Conf. on "Ordering in Two Dimensions"* Lake Geneva, (1980)
56. "Exchange-Correlation Effects in Silicon Inversion Layers: Valley Occupancy Phase Transitions" (with W. Bloss, J. J. Quinn, T. Cole and B. D. McCombe), *Proc. of the 15th Int. Conf. on Semiconductors*, Kyoto (1980)
57. "Singularities in Surface Magnetization Profile" (with D. R. Grempel and A. Houghton), *Phys. Lett.* **78A**, 295 (1980)
58. "Self-Consistent Study of Surface of Simple Metals by the Density Matrix Method: (100) and (110) Surfaces of Na, K, Rb and Cs" (with K. P. Bohnen), *Phys. Rev.* **B22**, 1806 (1980)
59. "Effect of Substrate Distortion on the Ordered Phases in Chemisorption Systems" invited talk delivered at the 29th National Symposium of AVS, Detroit, 1980.
60. "Effect of a Random Symmetry-Breaking Field on the Topological Order in Two-Dimensions," (with A. Houghton and R. Kenway), *Phys. Rev.* **B23**, 298 (1981)

61. "Valley Occupancy Phase Transition in Silicon Inversion Layer" (with W. Bloss and J. J. Quinn), *Phys. Rev.* **B23**, 1839 (1981)
62. "Density Matrix Approach to the Study of a Monovacancy in Sodium" (with M. C. Lega), *Solid State Comm.* **40**, 1098 (1981).
63. "Linear Response Functions for an Inhomogenous Electron Gas in the Hydro-Dynamic Approximation" (with F. Crowne), *Phys. Rev.* **B24**, 5455 (1981)
64. "Magnetoresistance and Hall Effect of a Disordered Interacting Two-Dimensional Electron Gas" (with A. Houghton and J. Senna), *Proc. of the Fourth Int. Conf. on Electronic Properties of Two-Dimensional Systems*, New Hampshire, 1981; *Surf. Sci.* **113**, 520 (1982)
65. "Magnetococonductance of a Disordered Interacting 2-D Electron Gas" (with J. Senna and A. Houghton), *Proc. of LT-16 Conference*, UCLA, 1981; *Physica Vols.* **109 & 110 B&C**, 2084 (1982)
66. "Magnetoresistance and Hall Effect of a Disordered Interacting Two-Dimensional Electron Gas" (with A. Houghton and J. Senna), *Phys. Rev.* **B25**, 2196 (1982)
67. "Diffusion of Electrons in Two-Dimensions in Arbitrarily Strong Magnetic Fields" (with J. Senna and A. Houghton), *Phys. Rev.* **B25**, 646 (1982)
68. "Compatibility of FIM and LEED Observations for the W(001) Reconstruction" (with P. J. Estrup and L. D. Roelofs), *Surf. Sci.* **123** L703 (1982)
69. "Phase Transitions on W and Mo Surfaces" (with L. Roelofs), invited talk delivered at the International Conference on Phase Transitions on Surfaces, Trieste, Italy; *Surf. Sci.* **125**, 218 (1983)
70. "Quantization of the Hall Conductance in a Two-Dimensional Electron Gas" (with J. J. Quinn and G. F. Giuliani), *Phys. Rev.* **B28**, 2969 (1983)
71. "Monte Carlo and Renormalization Group Calculations of Surface Structural Phase Transition" (with G. Y. Hu and L. D. Roelofs), *Phys. Rev.* **B28**, 6369 (1983)
72. "Resistivity of a Disordered Two-Dimensional Electron Gas Under Magnetic Field" (with I. C. da Cunha Lima), *J. de Physique*, Colloque **C5**-1984.
73. "Effective Two-Dimensional Lattice Dynamical Hamiltonian for Surface Structural Phase Transition" (with G. Y. Hu), *J. Vac. Sci. Tech.* **A2**, 1009 (1984)
74. "Model for the Surface Reconstruction Phase Transition of Clean and Hydrogen Adsorbed W(001) Surface and Approximate Solution" (with L. D. Roelofs and G. Y. Hu), *J. Vac. Sci. Tech.* **A2**, (1984)

75. "Effective Potential for Kinetic Processes on Semiconductor Surfaces" (with T. L. Reinecke), *J. Vac. Sci. Tech.* **B2**, 573 (1984)
76. "Model for Surface Reconstruction Phase Transition for Clean and Hydrogen Adsorbed W(001) Surface: Low Coverage Solution" (with L. D. Roelofs), *Surf. Sci.* **147**, 203 (1984)
77. "Structural Phase Transitions on W and Mo Surfaces" in *Dynamical Phenomena in Surfaces, Interfaces, and Superlattices*, Springer-Verlag series in Surface Science 3, eds. F. Nizzoli, K. H. Rieder and R. F. Willis (1985)
78. "Theory of Commensurate-Incommensurate Transition on W(001)" in *Structure of Surfaces*, Springer-Verlag series in Surface Science 2, eds., M. A. Van Howe and S. Y. Tong.
79. "Effective Two-Dimensional Lattice Hamiltonian for Surface Structural Phase Transition" (with G. Y. Hu), *Surf. Sci.* **150**, 47 (1985).
80. "Resistivity of a 2-D Electron Gas Under Strong Magnetic Field Using Memory Function Formulation" (with I. C. da Cunha Lima), *J. Phys.* **C18**, 2887 (1985)
81. "Soft Phonon of Ni(100) Surface," *Proc. of 4th Int. Conf. on Vibrational Properties of Surfaces*, eds. King, Richardson, and Holloway (Elsevier, 1986)
82. "Vibrational Properties of the $\sqrt{2} \times \sqrt{2}$ R45 \sim W(100) Surface" (with T. L. Reinecke), *Proc. of 4th Int. Conf. on Vibrational Properties of Surfaces*, eds. King, Richardson, and Holloway, (Elsevier, 1986)
83. "The Vibrational Properties of the Si(100) 2×1 Surface" (with S. Tiersten and T. L. Reinecke), *Phys. Rev.* **B33**, 4062 (1986)
84. "Reconstruction of the W(100) Surface Induced by Hydrogen Adsorption" (with J. W. Chung and P. J. Estrup), *Phys. Rev. Lett.* **56**, 749 (1986)
85. "Adsorbate-Induced Reconstruction of Ni(100) Surface" *Phys. Rev. Lett.* **56**, 536 (1986).
86. "Effect of Adsorbate Binding Sites on Surface Reconstruction Phase Diagram: O/W(001) and H/W(001)" (with L. Roelofs, P. Estrup, and J. W. Chung), *Phys. Rev.* **B33**, 6537 (1986)
87. "Vibrational Correlation Function for Si and Ge" (with A. Steif and S. Tiersten), *Phys. Rev.* **B35**, 857 (1987)
88. "Vibrational Properties of the Reconstructed W(100) Surface" (with T. L. Reinecke), *Phys. Rev. Lett.* **58**, 242 (1987)

89. "Monte-Carlo and Coarse Graining Renormalization Studies for the X-Y Model with Cubic Anisotropy" (with G. Y. Hu), *Physica* **140A**, 585 (1987)
90. "Reconstructive Phase Transitions and Effective Adsorbate-Adsorbate Interactions: H/Mo(100) and H/W(100)" (with J. Prybyla, P. J. Estrup, Y. Chabal, and S. B. Christman), *Phys. Rev. Lett.* **58**, 1877 (1987)
91. "Phase Transformations of the H/W(110) and H/Mo(110) Surfaces," (with M. Altman, J. W. Chung, P. J. Estrup, J. M. Kosterlitz, J. Prybyla and D. Sahu), *J. Vac. Sci. Tech.* **A5(4)**, 1045 (1987)
92. "Theory of Phase Transitions in the H/W(110) and H/Mo(110) Systems," (with D. Sahu and J. M. Kosterlitz), "Structure of Surfaces II" eds. J. F. Van Der Veen and M. A. Van Hove (Springer-Verlag) (1988)
93. "Indirect Phonon Mediated Adatom-Adatom Interaction," (with S. Tiersten and T. L. Reinecke), *Proc. of 5th Int. Conf. on Vibration at Surfaces (Germany, 1987)*
94. "Equilibrium Stability of Strained Epitaxial Layers on a Rigid Substrate," (with E. Granato and J. M. Kosterlitz), *Proc. of Latin American Conference on Semiconductor Physics (San Carlos, Brazil, 1987)*
95. "Equilibrium Theory of Strained Epitaxial Layers," (with E. Granato and J. M. Kosterlitz) *Phys. Rev.* **B39**, 3185 (1989)
96. "Melting of a Free Bilayer," (with E. Granato and J. M. Kosterlitz), *Phys. Rev.* **B39**, 4444 (1989)
97. "Phase Diagram of CO/Rh(111) at Low Coverages," (with J. Kjoll and T. Ala-Nissila), *Surf. Sci.* **214**, 448 (1989)
98. "Adatom-Adatom Interaction on Solid Surfaces," (with S. Tiersten and T. Reinecke), *Phys. Rev.* **B39**, 12575 (1989)
99. "Diffusion Anisotropy of Oxygen and Hydrogen Adatoms on W(110)," (with J. Kjoll and T. Ala-Nissila), *Surf. Sci. Lett.* **218**, L476 (1989)
100. "Structural Phase Transition on W(100)," (with W. K. Han) *Phys. Rev.* **B41**, 9163 (1990)
101. "Critical Dynamics near a Surface Structural Phase Transition," (with W. K. Han) *Phys. Rev.* **B41**, 4403 (1990)
102. "Diffusion of Particles in Inhomogeneous Medium: High Friction Limit, *Phys. Rev.* **B41**, 7068 (1990)

103. "Universal Properties of Classical Surface Diffusion," (with T. Ala-Nissila), Phys. Rev. Lett. **65**, 879 (1990)
104. "Microscopic Theory of Diffusion on Lattices with Local Distortion," (with T. Ala-Nissila) Surface Sci. Letters **235**, 6341 (1990).
105. "Quantum Diffusion of Adatoms on a Surface." (with I. C. da Cunha Lima and A. Troper) Phys. Rev. **B41**, 11798 (1990).
106. "Vibrational Properties of the Reconstructed W(100) Surface from Total Energy Results," (with T. L. Reinecke), Superlattices and Microstructures, **7**, 211 (1990).
107. "Microscopic Theory of Surface Diffusion," (with Tapio Ala-Nissila) Phys. Rev. **B42**, 10264 (1990)
108. "Universality in Diffusion of Classical Adatoms on Surfaces", (with T. Ala-Nissila) Modern Physics Lett. B., **Vol 4**, 22 (1990)
109. "Vibrational Excitations Adatom Diffusion Near the Reconstruction Transition of W(100)", (with T. Ala-Nissila and W.K. Han), J. of Electroscopy & Related Phenomena **54/55** (1990).
110. "Anomalous Diffusion Near the Flux Lattice Melting Transition in High Tc Superconductors", (with T. Ala-Nissila and E. Granato), J. Phys. Condens. Matter **2**, 8537, (1990)
111. "Adsorbate Induced Surface Reconstruction on W(100)" (with K. Kankaala and T. Ala-Nissila), Physica Scripta, **T33** 166 (1990)
112. "Vibrational Properties of the Clean Reconstructed W(100) Surface" (with T. Reinecke), Phys. Rev. **B 43**, 12234 (1991).
113. "Phonon Mediated Interactions Between Adatoms Surfaces: O Adatoms on Si(100)" (with S. Tiersten and T. Reinecke) Phys. Rev. **B43**, 12045 (1991)
114. "A Model of Diffusion on Deformable Lattices: I Collective Diffusion" (with T. Ala-Nissila, J. Kjoll and R. A. Tahir-Kheli); Phys. Rev. **B44**, 2122 (1991)
115. "A Model of Diffusion on Deformable Lattices: II Tracer Diffusion" (with T. Ala-Nissila, J. Kjoll and R. A. Tahir-Kheli) Phys. Rev. **B44**, 2133 (1991)
116. "A Model for Diffusion on Deformable Lattices III: Adatom Interaction Effects" (with J. Kjoll and T. Ala-Nissila), Phys. Rev. **B46**, 846 (1992)
117. "Diffusion Anomaly near Structural Phase Transitions" (with T. Ala-Nissila and W. K. Han) Phys. Rev. Lett. **68**, 1866 (1992)

118. "Theory of Classical Surface Diffusion" (with T. Ala-Nissila) invited review paper in Prog. Surface Sci. **39**, 227 (1992)
119. "Anomalous Diffusion near Structural Phase Transitions" (with W. K. Hahn and T. Ala-Nissila) invited brief review in Mod. Phys. Lett. **B6**, 16 (1992)
120. "Surface Interaction and Surface Dynamics on a Clean Reconstructed W(100)" (with W. K. Han) Phys. Rev. **B46**, 1849 (1992)
121. "Theory of Adsorbate Induced Surface Reconstruction on W(100)" (with K. Kankaala and T. Ala-Nissila), Phys. Rev. **B47**, 2333, (1993)
122. "Surface Modes of the Clean Reconstructed W(100)" (with T. Reinecke) Phys. Rev. **B48**, 5679 (1993)
123. "Condensation Energy and High Temperature Phase of the W(100) Reconstruction" (with W. K. Han) Phys. Rev. **B48**, 14524 (1993)
124. "Vibrational Lineshape and Diffusion Constant of Adsorbed Atoms" (with L.Y. Chen) J. Elec. Spectr. & Related Phenomena **64/65**, 797 (1993)
125. "Diffusion and Vibration of Adatoms on a Solid Surface" (with L.Y. Chen) Phys. Rev. Lett. **71**, 4361 (1993)
126. "Theory of Surface Diffusion: Crossover from Classical to Quantum Regime" (with L.Y. Chen) Phys. Rev. Lett. **73**, 700 (1994)
127. "Dynamics of Adatoms on Solid Surfaces" (with L.Y. Chen) Phys. Rev. **B49**, 13838 (1994)
128. "Frequency Response of Mesoscopic Conductors: A Time Dependent Landauer Approach" (with L.Y. Chen) J. Phys. Cond. Matter **6**, 5081 (1994).
129. "Numerical Simulation Studies of X-Y Model with Anisotropy Fields" (with E. Granato, K. Kankaala, T. Ala-Nissila and J.M. Kosterlitz) Phys. Rev. **B50**, 12692 (1994)
130. "Diffusive and Frustrated Translational Modes of Adatom Dynamics" invited brief review (with L.Y. Chen) in Modern Phys. Lett. **B8**, 843 (1994)
131. "Diffusion of Light Adatoms on Solid Surfaces" invited brief review (with L. Y. Chen) Modern Phys. Lett. **B9**, 307 (1995)
132. "Shot Noise Suppression in Quantum Point Contact Structures" (with L. Y. Chen) Modern Phys. Lett. **B9**, 573 (1995)
133. "Sliding Friction in the Frenkel-Kontorova Model" (with E. Granato, M. Baldan) in "Physics of Sliding Friction" ed. B. J. Persson and E. Tosatti, NATO AS1 series, Kluwer Academic Publishers (1996)

134. "Surface Diffusion in the Low-Friction Limit: Occurrence of Long Jumps" (with L. Y. Chen and M. R. Baldan), *Phys. Rev. B* **54**, 8856 (1996).
135. "Memory Effect in the Frictional Damping of Diffusive and Vibrational Motion of Adatoms" (with A. Cucchetti) *Phys. Rev. B* **54**, 3300 (1996)
136. "Non-equilibrium Surface Diffusion in the O/W (110) System" (with J. Vattulainen, J. Merikoski, and T. Ala-Nissila) *Surf. Sci. Lett.* **366**, L697 (1996)
137. "Diffusion on a stepped substrate: Collective diffusion in the Langmuir gas model" (with J. Merikoski), *Phys. Rev. B* **56**, 2166 (1997).
138. "Determination of the Na/Cu(001) Potential Energy Surface from Helium Scattering Studies of the Surface Dynamics" (with A. P. Graham, F. Hofmann, J. P. Toennies and L. Y. Chen) *Phys. Rev. Lett.* **78**, 3900 (1997)
139. "Experimental and theoretical investigation of the microscopic vibrational and diffusional dynamics of sodium atoms on a Cu(001) surface" (with A. P. Graham, F. Hofmann, J. P. Toennies and L. Y. Chen) *Phys. Rev. B* **56**, 10567 (1997)
140. "Non-Arrhenius Behavior of Surface Diffusion near a Phase Transition Boundary" (with I. Vattulainen, J. Merikoski and T. Ala-Nissila) *Phys. Rev. Lett.* **79**, 257 (1997)
141. "A dynamical mean field theory for the study of surface diffusion constant" (with T. Hjelt, I. Vattulainen, J. Merikoski and T. Ala-Nissila) *Surf. Sci. Lett.* **380**, L501 (1997)
142. "Collective Diffusion on a Stepped Substrate" (with J. Merikoski) *Surf. Sci. Lett.* **381**, L623 (1997)
143. "Study of Surface Diffusion through Langevin Dynamics" in *Surface Diffusion: Atomistic and Collective Processes*, ed. M.C. Tringides, NATO ASI series, p. 553, Kluwer Academic Publishers (1997)
144. "Studies of Surface Diffusion under Non-equilibrium Conditions" (with I. Vattulainen, J. Merikoski and T. Ala-Nissila) in *Surface Diffusion: Atomistic and Collective Processes*, ed. M.C. Tringides, NATO ASI series, p. 625, Kluwer Academic Publishers (1997)
145. "Relation between Microscopic Adatom Mobility and Macroscopic Surface diffusion Constant", *J. Kor. Vac. Soc.*, vol. **2**, p.9 (1998)
146. "Adatom Dynamics and Diffusion in a Model of O/W(110)" (with I. Vattulainen, J. Merikoski and T. Ala-Nissila) *Phys. Rev. B* **57**, 1896 (1998)

147. "Dynamics of Chainlike Molecules of Surfaces", (with T. Hjelt, S. Herminghaus and T. Ala-Nissila) Phys. Rev. E **57**, 1864 (1998)
148. "Replay to Comment on 'Non-Arrhenius behavior of surface diffusion near a phase transition boundary'" (with I.Vattulainen, J. Merikoski and T Ala-Nissila) Phys. Rev. Lett.**80**, 5456 (1998)
149. "Dynamical mean field theory: an efficient method to study surface diffusion coefficients" Surf. Sci.**404**, 253 (1998)
150. "Memory Expansion for Diffusion Coefficients" (with I. Vattulainen, J. Merikoski, T. Hjelt and T. Ala-Nissila) Phys. Rev. **B15**, 2170 (1998)
151. "Dynamical Transitions and Sliding Friction in the Two Dimensional Frenkel-Kontorova Model" (with E. Granato), Phys. Rev. **B59**, 5154 (1999)
152. "Memory Effects and Coverage Dependence of Surface Diffusion in a Model Adsorption System" (with I. Vattulainen, T. Ala-Nnissila and J. Merikoski), Phys. Rev. **B59**, 7697 (1999)
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