

ornl

**OAK RIDGE
NATIONAL
LABORATORY**

MARTIN MARIETTA

MARTIN MARIETTA ENERGY SYSTEMS LIBRARIES



3 4456 0387463 5

ORNL/TM-12826

**Atom Probe Field Ion Microscopy
and Related Topics:
A Bibliography 1993**

**R. D. Godfrey
M. K. Miller
K. F. Russell**

OAK RIDGE NATIONAL LABORATORY

CENTRAL RESEARCH LIBRARY

CIRCULATION SECTION
4500N ROOM 175

LIBRARY LOAN COPY

DO NOT TRANSFER TO ANOTHER PERSON

If you wish someone else to see this
report, send in name with report and
the library will arrange a loan.

UCN-7969 (3 9-77)

**MANAGED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY**

This report has been reproduced directly from the best available copy.

Available to DOE and DOE contractors from the Office of Scientific and Technical Information, P.O. Box 62, Oak Ridge, TN 37831; prices available from (615) 576-8401, FTS 626-8401.

Available to the public from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Rd., Springfield, VA 22161.

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

ORNL/TM-12826

404
2S

Metals and Ceramics Division

ATOM PROBE FIELD ION MICROSCOPY AND RELATED TOPICS:
A BIBLIOGRAPHY 1993

R. D. Godfrey
M. K. Miller
K. F. Russell

Date Published: October 1994

Prepared for the
DOE Office of Basic Energy Sciences
KC 02 01 01 0

Prepared by the
OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37831-6285
managed by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-84OR21400



3 4456 0387463 5

PREFACE

This bibliography, covering the period 1993, includes references related to the following topics: atom probe field ion microscopy (APFIM), field emission (FE), and field ion microscopy (FIM). Technique-orientated studies and applications are included.

Previous publications containing the papers published prior to this period are as follows:

<i>Atom Probe Field Ion Microscopy and Related Topics: A Bibliography 1978-1987</i>	M.K. Miller and A.R. McDonald	ORNL/TM-11157
<i>Atom Probe Field-Ion Microscopy and Related Topics: A Bibliography 1988</i>	M.K. Miller and A.R. Hawkins	ORNL/TM-11370
<i>Atom Probe Field Ion Microscopy and Related Topics: A Bibliography 1989</i>	M.K. Miller, A.R. Hawkins, and K.F. Russell	ORNL/TM-11696
<i>Atom Probe Field Ion Microscopy and Related Topics: A Bibliography 1990</i>	K.F. Russell and M.K. Miller	ORNL/TM-12005
<i>Atom Probe Field Ion Microscopy and Related Topics: A Bibliography 1991</i>	K.F. Russell and M.K. Miller	ORNL/TM-12223
<i>Atom Probe Field Ion Microscopy and Related Topics: A Bibliography 1992</i>	K.F. Russell, R. D. Godfrey, and M.K. Miller	ORNL/TM-12625
published by Oak Ridge National Laboratory, Oak Ridge, TN 37831-6285 and		
<i>Field-Ion Microscopy and Related Techniques, A Bibliography: 1951-1978</i>	R.E. Thurstans and J.M. Walls	
published by Warwick, Birmingham		

The references contained in this document were compiled from a variety of sources including computer searches and personal lists of publications. To reduce the length of this document, the references have been reduced to the minimum necessary to locate the articles. The references are listed alphabetically by authors. An *Addendum* of references missed in previous bibliographies is included.

We would like to thank Dr. G. D. W. Smith of Oxford University and M. B. Alexander of the ORNL Central Library for their stoic efforts in the preparation of this document.

Sponsored by the Division of Materials Sciences, U.S. Department of Energy, under contract DE-AC05-84OR21400 with Martin Marietta Energy Systems, Inc.

R. D. Godfrey, M. K. Miller, and K. F. Russell
Metals and Ceramics Division

CONTENTS

1993 BIBLIOGRAPHY.....	1
ADDENDUM	31
APPENDIX.....	35

1993

- 1 Study of stochastic relaxation process of concentration fluctuation in alloys by an atom-probe field-ion microscope Abe, T. Diffus. Defect Data (1993) 95-98, 747-52
- 2 Electronic states of carbon nanotubes Ajiki, H. J. Phys. Soc. Jpn. (1993) 62, 1255-66
Ando, T.
- 3 Early stages of precipitation in dilute Al-Ag alloys Al-Kassab, T. Z. Metallkd. (1993) 84, 248-50
Haasen, P.
- 4 Role of space charge in field emission cathodes Anderson, W.A. J. Vac. Sci. Technol. B (1993) 11, 383-86
- 5 Determination of the electronic structure of solids from the field-emitted electron energy spectrum Anisimov, N.A. Fiz. Tverd. Tela (1993) 35, 552-56
Dukhovnyi, O.V.
Moos, E.N.
Tumareva, T.A.
- 6 Atom-probe and field emission electron spectroscope studies of Ge on Ir Ashino, M. Appl. Surf. Sci. (1993) 67, 43-47
Tomitori, M.
Nishikawa, O.
- 7 Triode characteristics and vacuum considerations of evaporated silicon microdevices Asiam, M. J. Vac. Sci. Technol. B (1993) 11, 422-25
Klimecky, P.
Myers, G.P.
Busta, H.H.
Zimmerman, B.J.
Artz, B.E.
Cathey, L.W.
Elder, R.E.
- 8 APFIM studies of some aluminum alloys Babu, S.S. Appl. Surf. Sci. (1993) 67, 361-76
Hono, K.
Okano, R.
Sakurai, T.
- 9 APFIM studies on martensite tempering of Fe-C-Si-Mn low alloy steel Babu, S.S. Appl. Surf. Sci. (1993) 67, 321-27
Hono, K.
Sakurai, T.
- 10 Statistical model of semiconductor field emitter with atomically clean surface Bakhtizin, R.Z. J. Micromech. Microeng. (1993) 3, 45-48
Ghots, S.S.
Glazer, P.V.
- 11 Integrated microtips: Application to flat displays Baptist, R. NATO ASI Ser., Ser. E (Nanosources and Manipulation of Atoms Under High Fields and Temperatures: Applications), V.T. Binh, N. Garcia, and K. Dransfeld, eds. (1993) 235, 165-76

1993 BIBLIOGRAPHY

- 12 Emission characteristics of gated silicon wedges Barry, J.D.
McGruer, N.E.
Warner, K.
Bintz, W.J.
Nagras, A. IEEE Electron Device Lett. (1993) 14, 83-84
- 13 Nonlinear regression technique for parameter extraction from field-emission data Barry, S.W.
Weichold, M.H. J. Vac. Sci. Technol. B (1993) 11, 379-82
- 14 Adatom exclusion zone has its attractions Bassett, D. Phys. World (1993) 6, 21-22
- 15 Microstructural changes occurring during ageing of the thermoelastic martensite of γ -quenched U-6 wt. % Nb alloy below 450°C Beverini, C.G.
Edmonds, D.V. Conf. on Martensitic Transformations (ICOMAT-92), Monterey, CA (1993)
- 16 High-strength (5 GPa) steel wire: an atom-probe study Bhadeshia, H.K.D.H.
Harada, H. Appl. Surf. Sci. (1993) 67, 328-33
- 17 Surface diffusion of lithium across and along atomic rows on the W(112) plane Biernat, T.
Kleint, C.
Meclewski, R. Appl. Surf. Sci. (1993) 67, 206-10
- 18 Reply to "Comment of H.-W. Fink on 'On the electron and metallic ion emission from nanotips fabricated by field-surface-melting technique: experiments on W and Au tips' by V.T. Binh and N. Garcia" Binh, V.T.
Garcia, N. Ultramicroscopy (1993) 50, 103-5
- 19 Nanotip fashioning and nanostructure characteristics Binh, V.T.
Garcia, N.
Purcell, S.T.
Semet, V. NATO ASI Ser., Ser. E (Nanosources and Manipulation of Atoms Under High Fields and Temperatures: Applications), V.T. Binh, N. Garcia, and K. Dransfeld, eds. (1993) 235, 59-76
- 20 Reply to Comment on "Field-emission spectroscopy of single-atom tips" Binh, V.T.
Purcell, S.T.
Garcia, N. Phys. Rev. Lett. (1993) 70, 2504-5
- 21 Field emission current fluctuations of adsorbed layers Blaszczyzyn, R. Prog. Surf. Sci. (1993) 42, 117-29
- 22 The interaction of water with surfaces of Pt and Ir field emitters Blaszczyzyn, R.
Ciszewski, A.
Blaszczyzynova, M.
Bryl, R.
Zuber, S. Appl. Surf. Sci. (1993) 67, 211-17

- 23 An atom probe for three-dimensional tomography
 Blavette, D.
 Bostel, A.
 Sarrau, J.M.
 Deconihout, B.
 Menand, A.
 Nature (1993) 363, 432-35
- 24 The tomographic atom probe: a quantitative three-dimensional nanoanalytical instrument on an atomic scale
 Blavette, D.
 Deconihout, B.
 Bostel, A.
 Sarrau, J.M.
 Bouet, M.
 Menand, A.
 Rev. Sci. Instrum. (1993) 64, 2911-29
- 25 A new generation of three-dimensional atom probe
 Blavette, D.
 Deconihout, B.
 Bostel, A.
 Sarrau, J.
 Menand, A.
 C.R. Acad. Sci. (Paris) Series II (1993) 317, 1279-85
- 26 Microscopy and microanalysis of interfaces on a subnanometric scale with the atom probe
 Blavette, D.
 Letellier, L.
 Deconihout, B.
 Ann. Chim. Fr. (1993) 18, 303-10
- 27 A 3-dimensional atomic analytic probe
 Blavette, D.
 Menand, A.
 Recherche (1993) 24, 464-66
- 28 The atomic probe in physical metallurgy - present limits and future prospects
 Blavette, D.
 Menand, A.
 Rev. Metall. (1993) 90, 651-57
- 29 Dynamic studies of surface reactions with microscopic techniques
 Block, J.H.
 Ehsasi, M.
 Gorodetskii, V.
 Prog. Surf. Sci. (1993) 42, 143-68
- 30 Direct observation of surface mobility with microscopic techniques: photoemission electron- and field electron microscopy
 Block, J.H.
 Ehsasi, M.
 Gorodetskii, V.
 Karpowicz, A.
 Berdau, M.
 Stud. Surf. Sci. Catal. (1993) 77, 189-94
- 31 Making a field-emission tip structure
 Bol, I.I.
 U.S. Patent No. 5269877 (1993)
- 32 Emission characteristics and morphology of wet etched cathodes in p-type silicon
 Boswell, E.C.
 Wilshaw, P.R.
 J. Vac. Sci. Technol. B (1993) 11, 412-15
- 33 Structure and composition of nitrogen enrichments formed in iron-nitrogen martensites at room temperature
 Bottger, A.
 Sha, W.
 van Genderen, M.J.
 Mittemeijer, E.J.
 Smith, G.D.W.
 High Nitrogen Steels 93, V.G. Gavriljuk and V.M. Nadutov, eds., Institute of Metals Physics, Kiev, Ukraine (1993) 255-60
- 34 Laser-triggered photo and field emission from special metallic cathodes
 Boussoukaya, M.
 Ohigashi, N.
 Technol. Rep. Kansai Univ. (1993) 35, 291-304

1993 BIBLIOGRAPHY

- 35 The use of moment estimators to determine the parameters of concentration fluctuations in random area atom probe analyses
 Bowman, K.O.
 Miller, M.K.
 Shenton, L.R.
 Appl. Surf. Sci. (1993) 67,
 424-28
- 36 Ion and electron energies in gated field emitter failures
 Browning, J.
 Meassick, S.
 Xia, Z.
 Chan, C.
 McGruer, N.
 IEEE Trans. Plasma Sci. (1993)
21, 259-60
- 37 Gravity probe B gyroscope charge control using field-emission cathodes
 Buchman, S.
 Quinn, T.
 Keiser, G.M.
 Gill, D.
 J. Vac. Sci. Technol. B (1993) 11,
 407-11
- 38 Applications of atom probe field-ion microscopy to the study of interfaces
 Burke, M.G.
 Miller, M.K.
 Proc. 51st Annual Meeting of the Microscopy Society of America, G.W. Bailey and C.L. Rieder, eds., San Francisco Press, San Francisco, CA (1993) 862-63
- 39 Experimental and theoretical determinations of gate-to-emitter stray capacitances of field emitters
 Busta, H.H.
 Pogemiller, J.E.
 Chan, W.
 Warren, G.
 J. Vac. Sci. Technol. B (1993) 11,
 445-48
- 40 Collector-assisted operation of micromachined field-emitter triodes
 Busta, H.H.
 Pogemiller, J.E.
 Zimmerman, B.J.
 IEEE Trans. Electron Devices (1993) 40, 1537-42
- 41 The field emitter triode as a displacement/pressure sensor
 Busta, H.H.
 Pogemiller, J.E.
 Zimmerman, B.J.
 J. Micromech. Microeng. (1993) 3, 49-56
- 42 Temperature dependence of I-V characteristics of vacuum triodes from 24 to 300 K
 Busta, H.H.
 Zimmerman, B.J.
 Pogemiller, J.E.
 Tringides, M.C.
 Spindt, C.A.
 J. Vac. Sci. Technol. B (1993) 11,
 400-02
- 43 Field-emission cathode structures
 Cade, N.A.
 Eur. Pat. Appl. (Patent) EP 570211 (1993)
- 44 Analysis and design of microwave amplifiers employing field-emitter arrays
 Calame, J.P.
 Gray, H.F.
 Shaw, J.L.
 J. Appl. Phys. (1993) 73,
 1485-1504
- 45 Simulation of rapid thermal pulsing for field evaporation
 Camus, P.P.
 Larson, D.J.
 Kelly, T.F.
 Appl. Surf. Sci. (1993) 67,
 467-72
- 46 Monte Carlo simulation of energy deposition and scattering by fast electrons in a field emission tip
 Camus, P.P.
 Turowski, M.A.
 Kelly, T.F.
 Appl. Surf. Sci. (1993) 67,
 481-86

- 47 Saddle-field ion source deposition of conductive thin films Cardinale, G.F. Howitt, D.G. J. Vac. Sci. Technol. A (1993) 11, 1418-21
- 48 Dynamic Ising model simulations of nucleation and growth in copper-cobalt alloys Cerezo, A. Hyde, J.M. Miller, M.K. Setna, R.P. Smith, G.D.W. Materials Theory and Modelling (Proc. Materials Research Society Fall '92 Meeting), J. Broughton, P. Bristowe and J. Newsam, eds., Materials Research Society, Pittsburgh, PA (1993) 291, 623-28
- 49 Method of fabrication of matrix carbon fiber field emission cathode structures for flat-panel indicators Chakhovskoi, A.G. Sheshin, E.P. Kupryashkin, A.S. Seliverstov, V.A. J. Vac. Sci. Technol. B (1993) 11, 511-13
- 50 Initial results on the Ag/CdO {222} interface: Atomic scale interfacial chemistry and sequencing of ordered cadmium/oxygen planes Chan, D.K. Jang, H. Seidman, D.N. Merkle, K.L. Scr. Metall. Mater. (1993) 29, 1119-24
- 51 Dynamical behavior and energetics of the Ir(001) surface Chen, C.-L. Tsong, T.T. Phys. Rev. B (1993) 47, 15852-59
- 52 Air-bridge-field-emission vacuum device fabrication with 0.1 μm spacing Chen, C.-Y. Klemer, D.P. Shieh, T.-J. Shieh, J.-L. Pujara, M. J. Vac. Sci. Technol. B (1993) 11, 497-500
- 53 An investigation of low aberration electrostatic lenses for use with a field ionization ion source and a proton microprobe Colman, R.A. Legge, G.J.F. Optik (1993) 95, 99-108
- 54 Lateral field emission devices Cronin, J.E. Morrett, K.E. Potter, M.D. Sullivan, T.D. U.S. Patent No. 5233263 (1993)
- 55 Optimum geometry and space-charge effects in vacuum microelectronic devices Cui, Z. Tong, L. IEEE Trans. Electron Devices (1993) 30, 448-52
- 56 Theory of electron emission in high fields from atomically sharp emitters: Validity of the Fowler-Nordheim Equation Cutler, P.H. He, J. Miller, J. Miskovsky, N.M. Weiss, B. Sullivan, T.E. Prog. Surf. Sci. (1993) 42, 169-85

1993 BIBLIOGRAPHY

- 57 Theory of electron emission in high fields from atomically sharp emitters: Validity of the Fowler-Nordheim equation
 Cutler, P.H.
 He, J.
 Miskovsky, N.M.
 Sullivan, T.E.
 Weiss, B.
J. Vac. Sci. Technol. B (1993) 11,
 387-91
- 58 Atom probe and transmission electron microscopy study of reverted duplex stainless steels
 Danoix, F.
 Bas, P.
 Massoud, J.P.
 Guttmann, M.
 Auger, P.
Appl. Surf. Sci. (1993) 67,
 348-55
- 59 Controlled aperture atom probe design and applications
 Danoix, F.
 Bouet, M.
 Pareige, P.
 Menand, A.
Appl. Surf. Sci. (1993) 67,
 451-58
- 60 Local field and image effects in field ionization: relative importance
 de Castilho, C.M.C.
 Andrade, R.F.S.
 Sousa, C.T.
Appl. Surf. Sci. (1993) 67,
 97-100
- 61 Image potential and local field effects on ionization rates in the field ion microscope
 de Castilho, C.M.C.
 Andrade, R.F.S.
 Sousa, C.T.
J. Phys.: Condens. Matter (1993)
5, 1833-40
- 62 On the development of a 3D tomographic atom-probe
 Deconihout, B.
 Bostel, A.
 Menand, A.
 Sarrau, J.M.
 Bouet, M.
 Chambreland, S.
 Blavette, D.
Appl. Surf. Sci. (1993) 67,
 444-50
- 63 Atom-probe investigation of the partitioning of interstitial elements in two-phase $\gamma+\alpha_2$ Ti-Al-based alloys
 Denquin, A.
 Naka, S.
 Huguet, A.
 Menand, A.
Scr. Metall. Mater. (1993) 28,
 1131-36
- 64 Electron focusing: Computer simulation
 deRaedt, H.
 Michielsen, K.
 NATO ASI Ser., Ser. E
 (Nanosources and Manipulation of Atoms Under High Fields and Temperatures: Applications),
 V.T. Binh, N. Garcia, and K. Dransfeld, eds. (1993) 235,
 45-47
- 65 Evidence for reneutralization of field ions generated by electron- stimulated field desorption
 Dirks, J.
 Drachsel, W.
 Block, J.H.
Appl. Surf. Sci. (1993) 67,
 118-23
- 66 Semiconductor-metal composite field-emission cathodes
 Ditchek, B.M.
 Neifeld, M.A.
 Gustafson, J.C.
 PCT Int. Appl. (Patent) WO
 9301610 (1993)

- 67 Field electron emission from large-area yttrium barium copper oxide ($\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$) superconducting films in vacuum Elizondo, J.M. Taylor, J. IEEE Trans. Electr. Insul. (1993) 28, 494-99
- 68 Diffusion stability of ellipsoidal field-emitter microcathodes Eremchenko, D.V. Makhov, V.I. J. Vac. Sci. Technol. B (1993) 11, 416-17
- 69 Appearance energy spectroscopy of field ions Ernst, N. Appl. Surf. Sci. (1993) 67, 82-96
- 70 Thermal field desorption spectroscopy of chemisorbed hydrogen for a single step site Ernst, N. Block, J.H. Kreuzer, H.J. Ye, X. Phys. Rev. Lett. (1993) 71, 891-4
- 71 On the full-width-at-half-maximum of field ion energy distributions Ernst, N. Bozdech, G. Schmidt, H. Schmidt, W.A. Larkins, G.L. Appl. Surf. Sci. (1993) 67, 111-17
- 72 Field electron energy spectroscopy of 2223 BiSrCaCuO below and above T_c Ernst, N. Schmidt, W.A. Kleint, C. Melmed, A.J. Larkins, G.L. Physica C (1993) 213, 495-99
- 73 Comment on "Field-emission spectroscopy of single-atom tips" Ernst, N. Unger, J. Fink, H.-W. Grunze, M. Müller, H.U. Völkl, B. Hofmann, M. Wöll, C. Phys. Rev. Lett. (1993) 70, 2503-4
- 74 Comment on "On the electron and metallic ion emission from nanotips fabricated by field-surface-melting technique: experiments on W and Au tips" by V.T. Binh and N. Garcia Fink, H.-W. Ultramicroscopy (1993) 50, 101-2
- 75 Vacuum emission of hot electrons from insulating and semiconducting films Fitting, H.-J. J. Vac. Sci. Technol. B (1993) 11, 433-36
- 76 Tip sharpening by normal and reverse electrochemical etching Fotino, M. Rev. Sci. Instrum. (1993) 64, 159-67
- 77 Single-atom point source for electrons: field-emission resonance tunneling in scanning tunneling microscopy Gadzuk, J.W. Phys. Rev. B (1993) 47, 12832-39

1993 BIBLIOGRAPHY

- 78 Structurally induced FEES from nanotips: implications for scanning tunneling spectroscopy Garcia, N.
Binh, V.T.
Purcell, S.T. Surf. Sci. (1993) 293, L884-86
- 79 Aggregates of chemisorbed copper on the (110) and (100) surfaces of tungsten Gaudin, G.A.
Lee, M.J.G. Surf. Sci. (1993) 280, 91-105
- 80 Measurement of gated field emitter failures Gilmore, M.
McGruer, N.E.
Browning, J.
Bintz, W.J. Rev. Sci. Instrum. (1993) 64, 581-82
- 81 The electric field under a STM tip apex: implications for adsorbate manipulation Girard, C.
Joachim, C.
Chavy, C.
Sautet, P. Surf. Sci. (1993) 282, 400-410
- 82 Ultrasharp tips for field emission applications prepared by the vapor-liquid-solid growth technique Givargizov, E.I. J. Vac. Sci. Technol. B (1993) 11, 449-53
- 83 Nanometric tips for scanning probe devices Givargizov, E.I.
Kiselev, A.N.
Obolenskaya, L.N.
Stepanova, A.N. Appl. Surf. Sci. (1993) 67, 73-81
- 84 Erratum to "Surface self-diffusion studies on the W(112) plane by the field emission method" [Surf. Sci. 266 (1992) 30] Gong, Y. Surf. Sci. (1993) 295, 485
- 85 Oscillations in the carbon monoxide oxidation on platinum surfaces observed by field electron microscopy Gorodetskii, V.
Block, J.H.
Drachsel, W.
Ehsasi, M. Appl. Surf. Sci. (1993) 67, 198-205
- 86 Imaging the oscillating carbon monoxide-oxidation on platinum-surfaces with field ion microscopy Gorodetskii, V.
Drachsel, W.
Block, J.H. Catal. Lett. (1993) 19, 223-31
- 87 Layered thin-edged field-emitter device Gray, H.F. U.S. Patent No. 5214347 (1993)
- 88 Atom probe microanalysis of a nickel-base single crystal superalloy Harada, H.
Ishida, A.
Murakami, Y.
Bhadeshia, H.K.D.H.
Yamazaki, M. Appl. Surf. Sci. (1993) 67, 299-304
- 89 A method for preparing atom probe specimens for nanoscale compositional analysis of metallic thin films Hasegawa, N.
Hono, K.
Okano, R.
Fujimori, H.
Sakurai, T. Appl. Surf. Sci. (1993) 67, 407-12

- 90 Direct observation of the motion of individual surface atoms on a picosecond timescale Heinzelmann, H.
McClelland, G.M.
Watanabe, F. NATO ASI Ser., Ser. E,
(Nanosources and Manipulation of Atoms Under High Fields and Temperatures: Applications),
V.T. Binh, N. Garcia, and K. Dransfeld, eds. (1993) 235, 111-13
- 91 Observing the motion of a single adsorbed atom with picosecond and subnanometer resolution Heinzelmann, H.
Watanabe, F.
McClelland, G.M. Phys. Rev. Lett. (1993) 70, 3611-14
- 92 Low-voltage field emitter array cathode for high-frequency applications Hill, D.N.
Ohlinger, W.L.
Cochran, J.K., Jr.
Feeney, R.K.
Carter, W.B.
Harris, H.M. J. Vac. Sci. Technol. A (1993) 11, 1297-1301
- 93 Total-energy distribution of field-emitted electrons from a tungsten (100) surface Hirai, Y. Surf. Sci. (1993) 287-288, 605-8
- 94 Atom probe study of phase decomposition of an Al-7.8at.%Li alloy Hono, K.
Babu, S.S.
Hiraga, K.
Okano, R.
Sakurai, T. KEK Proc., 93-4 (Second Workshop on Phase Separation with Ordering) (1992) 5-8
- 95 Atom probe compositional analysis of Co-Cr sputtered magnetic thin films Hono, K.
Babu, S. S.
Maeda, Y.
Hasegawa, N.
Sakurai, T. Appl. Phys. Lett. (1993) 62, 2504-6
- 96 Atom probe analysis of a nanocrystalline Fe-C-Ta sputtered soft magnetic thin film Hono, K.
Hasegawa, N.
Babu, S.S.
Fujimori, H.
Sakurai, T. Appl. Surf. Sci. (1993) 67, 391-97
- 97 Atom probe study of the crystallization process of an $Fe_{73.5}Si_{13.5}B_9Nb_3Cu_1$ amorphous alloy Hono, K.
Li, J.-L.
Ueki, Y.
Inoue, A.
Sakurai, T. Appl. Surf. Sci. (1993) 67, 398-406
- 98 Atom probe analysis of sputtered Co-Cr magnetic thin films Hono, K.
Maeda, Y.
Li, J.-L.
Sakurai, T. Appl. Surf. Sci. (1993) 67, 386-90

1993 BIBLIOGRAPHY

- 99 APFIM studies of compositional inhomogeneity in sputtered Co-Cr thin films Hono, K.
Maeda, Y.
Li, J.-L.
Sakurai, T. IEEE Trans. Magn. (1993) 29,
3745-47
- 100 APFIM studies of nanostructured magnetic materials Hono, K.
Sakurai, T. Ann. Chim. Fr. (1993) 18, 311-18
- 101 Atom probe studies of nanocrystalline soft magnetic materials Hono, K.
Sakurai, T. Proc. 8th Int. Conf. on Rapidly Quenched and Metastable Materials, Aug. 22-27, 1993, Sendai, Japan
- 102 Atom probe study of the precipitation process in Al-Cu-Mg-Ag alloys Hono, K.
Sano, N.
Babu, S.S.
Okano, R.
Sakurai, T. Acta Metall. Mater. (1993) 41,
829-38
- 103 Directly patterned low voltage planar tungsten lateral field emission structures Hoole, A.C.F.
Moore, D.F.
Broers, A.N. J. Vac. Sci. Technol. B (1993) 11,
2574-78
- 104 Field emission from atomic size sources Horch, S.
Morin, R. J. Appl. Phys. (1993) 74,
3652-57
- 105 Towards quantitative analysis of $\text{YBa}_2\text{Cu}_3\text{O}_{6-\delta}$ high- T_c superconductor by APFIM Hu, Q.-H.
Stiller, K.
Andrén, H-O. Appl. Surf. Sci. (1993) 67,
419-23
- 106 Experimental method for preparing nanometer scale Pd probe Huang, L.
Lee, Y.H. Rev. Sci. Instrum. (1993) 64,
3022-23
- 107 Fabrication of large-area field-emission arrays by bonding technology Huang, Q.A.
Xiang, T.
Qin, M.
Chen, J.N.
Zhang, H.Z.
Tong, Q.Y. Chin. Sci. B (1993) 38, 1866-69
- 108 200-nm gated field emitters Huang, Z.
McGruer, N.E.
Warner, K. IEEE Electron Device Lett. (1993)
14, 121-2
- 109 Investigation of heterogeneous $\text{Cu}_{1-x}\text{Co}_x$ alloys with giant magnetoresistance Hütten, A.
Thomas, G. Ultramicroscopy (1993) 52,
581-90
- 110 Work-function anisotropies as an origin of long-range surface forces - Comment (Technical Note) Inglesfield, J.E. Phys. Rev. L (1993) 70, 246

- 111 Influence of cathode material on emission characteristics of field emitters for microelectronics devices
 Ishikawa, J.
 Tsuji, H.
 Gotoh, Y.
 Sasaki, T.
 Kaneko, T.
 Nagao, M.
 Inoue, K.
 J. Vac. Sci. Technol. B (1993) 11, 403-6
- 112 Estimation of metal-deposited field emitters for the micro vacuum tube
 Ishikawa, J.
 Tsuji, H.
 Inoue, K.
 Nagao, M.
 Sasaki, T.
 Kaneko, T.
 Gotoh, Y.
 Jpn. J. Appl. Phys. (1993) 32, Pt. 2, No. 3A, L342-45
- 113 Stable field emission and surface evaluation of surface-processed NbC(110) tips
 Ishizawa, Y.
 Aizawa, T.
 Otani, S.
 Appl. Surf. Sci. (1993) 67, 36-42
- 114 Characteristics of a microfabricated field emitter
 Ishizuka, H.
 Nakahara, Y.
 Fukuoka Kogyo Daigaku Erekutoronikusu Kenkyusho Shoho (1993) 10, 51-57
- 115 Field-emission cathodes
 Ito, S.
 Watanabe, T.
 Taniguchi, M.
 Jpn. Kokai Tokkyo Koho (Patent) JP 05094760 (1993)
- 116 Field-emission electron source
 Ito, Y.
 Jpn. Kokai Tokkyo Koho (Patent) JP 05067426 (1993)
- 117 Fabrication and characterization of comb-shaped lateral field-emitter arrays
 Itoh, J.
 Tsuburaya, K.
 Kanemaru, S.
 Watanabe, T.
 Itoh, S.
 Jpn. J. Appl. Phys. (1993) 32, Pt. 1, No. 3A, 1221-26
- 118 Vacuum microtriode with comb-shaped lateral field-emitter array
 Itoh, J.
 Ushiki, K.
 Tsuburaya, K.
 Kanemaru, S.
 Jpn. J. Appl. Phys. (1993) 32, Pt. 2, No. 6A, L809-12
- 119 Influences of gases on field emission
 Itoh, S.
 Niyyama, T.
 Yokoyama, M.
 J. Vac. Sci. Technol. B (1993) 11, 647-50
- 120 Investigation of cathodoluminescent display device with field emission cathodes
 Itoh, S.
 Watanabe, T.
 Ohtsu, K.
 Yokoyama, M.
 Taniguchi, M.
 Jpn. J. Appl. Phys. (1993) 32, Pt. 1, No. 9A, 3955-61

1993 BIBLIOGRAPHY

- 121 Atomic scale studies of the mechanisms of internal oxidation Jang, H.
Chan, D.K.
Seidman, D.N.
Merkle, K.L. Scr. Metall. Mater. (1993) 29,
69-74
- 122 The chemical composition of a metal/ceramic interface of an atomic scale: The Cu/MgO {111} interface Jang, H.
Seidman, D.N.
Merkle, K.L. Interface Sci. (1993) 1, 61-75
- 123 Atomic scale studies of the chemistry of the Cu/MgO {111} heterophase interface Jang, J.
Seidman, D.N.
Merkle, K.L. Mater. Sci. Forum (1993)
126-128, 639-42
- 124 An atom probe characterization of carbon-doped NiAl Jayaram, R.
Miller, M.K. Appl. Surf. Sci. (1993) 67,
311-15
- 125 An APFIM/AEM investigation of precipitates in model vanadium alloys Jayaram, R.
Miller, M.K. Appl. Surf. Sci. (1993) 67,
380-85
- 126 Characterization of doped nickel aluminide (NiAl) by atom probe field ion microscopy Jayaram, R.
Miller, M.K. Mater. Res. Soc. Symp. Proc. (1993) 288, 355-60
- 127 Applications of the atom probe field ion microscope to the atomic level characterization of metals and alloys Jayaram, R.
Miller, M.K. Proc. 27th Annual Meeting of the Microbeam Analysis Society (MAS), J. T. Armstrong and J. R. Porter, eds., VCH Publishers, Deerfield Beach, FL (1993) 2S, S130-31
- 128 An atom probe study of the substitutional behaviour of beryllium in NiAl Jayaram, R.
Russell, K.F.
Miller, M.K. Appl. Surf. Sci. (1993) 67,
316-20
- 129 Emission area of a field emitter array Jenkins, D.W. IEEE Trans. Electron Devices (1993) 40, 666-72
- 130 Numerical simulation of field emission and tunneling: A comparison of the Wigner function and transmission coefficient approaches Jensen, K.L.
Ganguly, A.K. J. Appl. Phys. (1993) 73,
4409-27
- 131 Numerical simulation of field emission from silicon Jensen, K.L.
Ganguly, A.K. J. Vac. Sci. Technol. B (1993) 11,
371-78
- 132 Field emission from an elliptical boss: exact versus approximate treatments Jensen, K.L.
Zaidman, E.G. Appl. Phys. Lett. (1993) 63,
702-4
- 133 Electron field emission from selectively contaminated cathodes Jimenez, M.
Noer, R.J.
Jouve, G.
Antoine, C.
Jodet, J.
Bonin, B. J. Phys. D: Appl. Phys. (1993)
26, 1503-9

- 134 Adsorption of gold and silver on the tungsten (110) surface studied by field emission microscopy Jones, J.P. J. Solid State Chem. (1993) 104, 149-59
- 135 The field-induced states at the surfaces of the nearly-free-electron metals Jurczyszyn, L. Cezch. J. of Phys. (1993) 43, 925-32
Steslicka, M.
- 136 Manufacture of field-emission electron source Kanazawa, T. Jpn. Kokai Tokkyo Koho (Patent) JP 05182583 (1993)
Sakamoto, H.
Hashiguchi, G.
- 137 A field emission device and method for forming Kane, R.C. EPO (Patent) 523980 (1993)
Hilgers, K.B.
- 138 Electron field emission device Kaneko, A. U.S. Patent No. 5243252 (1993)
Kanno, T.
Tomii, K.
- 139 X-ray diode using a silicon field emission photocathode Karain, W.I. Proc. SPIE-Int. Soc. Opt. Eng., 1741 (Soft X-Ray Microscopy), 12-18
Knight, L.V.
Allred, D.D.
Reyes-Mena, A.
- 140 Pulse methods when studying field electronic emission Karpov, A.G. Instrum. Exper. Tech. (1993) 36, No. 1, Pt. 2, 118-21
- 141 Diffusion behavior of Pt adatoms and clusters on the Rh(100) surface Kellogg, G.L. Appl. Surf. Sci. (1993) 67, 134-41
- 142 Atomic-level studies of diffusion on metal surfaces Kellogg, G.L. Jpn. J. Appl. Phys. (1993) 32, Pt. 1, No. 3B, 1463-69
- 143 Diffusion of individual platinum atoms on single-crystal surfaces of rhodium Kellogg, G.L. Phys. Rev. B (1993) 48, 11305-12
- 144 Electric field inhibition and promotion of exchange diffusion on Pt(001) Kellogg, G.L. Phys. Rev. Letts. (1993) 70, 1631-34
- 145 The effect of an externally applied electric field on the reconstruction of platinum (110) Kellogg, G.L. Surf. Sci. (1993) 290, 295-301
- 146 Field emission device modeling for application to flat panel displays Kesling, W.D. J. Vac. Sci. Technol. (1993) 11, 518-22
Hunt, C.E.
- 147 Image plane position at a charged surface of stabilized jellium Kiejna, A. Surf. Sci. (1993) 287/288, 618-21
- 148 Oxygen processed field emission tips for microcolumn applications Kim, H.S. J. Vac. Sci. Technol. B (1993) 11, 2327-31
Yu, M.L.
Staufer, U.
Muray, L.P.
Kern, D.P.
Chang, T.H.P.

1993 BIBLIOGRAPHY

- 149 Fabrication and characterization of lateral "cusp-edge" and "knife-edge" geometry cathodes Kim, J.M.
Carr, W.N.
Zeto, R.J. J. Vac. Sci. Technol. B (1993) 11, 459-63
- 150 Microfield emitter array triodes with electron bombarded semiconductor anode Kitamura, M.
Tanoue, K. J. Vac. Sci. Technol. B (1993) 11, 474-76
- 151 On the early history of field emission including attempts of tunneling spectroscopy Kleint, C. Prog. Surf. Sci. (1993) 42, 101-15
- 152 Design, fabrication, and characterization of a hot-electron vacuum transistor Klemer, D.P.
Chen, C.-Y.
Shieh, T.-J.
Pujara, M. J. Vac. Sci. Technol. B (1993) 11, 418-21
- 153 Atomic-like states at atoms on transition metal surfaces Knor, Z. Chem. Phys. Lett. (1993) 201, 97-100
- 154 Probing local binding energy differences on the silicon (001) 2 X 1 surface by field-induced atom extraction with the STM Kobayashi, A.
Grey, F.
Snyder, E.
Aono, M. Surf. Sci. (1993) 291, L739-44
- 155 Impregnated cathode emitters Koizumi, Y.
Saito, S. Jpn. Kokai Tokkyo Koho (Patent)
JP 05225894 (1993)
- 156 Design and technology features of heating-free magnetrons with autoemission excitation Kolpylov, M.F. J. Vac. Sci. Technol. B (1993) 11, 481-83
- 157 Manufacture of field emission electrodes Kondo, Y.
Matsura, J. Jpn. Kokai Tokkyo Koho (Patent)
JP 05021003 (1993)
- 158 Atomic scale observations of solute-atom segregation at grain boundaries in an iron (silicon) alloy Krakauer, B.W.
Seidman, B.W. Mater. Sci. Forum (1993)
126-128, 161-64.
- 159 Absolute atomic-scale measurements of the Gibbsian interfacial excess of solute at internal interfaces Krakauer, B.W.
Seidman, D.N. Phys. Rev. B (1993) 48, 6724-27
- 160 Physics and chemistry in high electric fields Kreuzer, H.J. Report, TR-10; Order No.
AD-A257138, 14 pp. Avail.
NTIS from: Govt. Rep.
Announce. Index (U.S.) (1993)
93, Abstr. No. 306,138

- 161 Lensless low energy electron point source microscopy
 Kreuzer, H.J.
 Wierzbicki, A.
 Crawford, M.G.A.
 Roald, C.B.
 NATO ASI Ser., Ser. E
 (Nanosources and Manipulation of Atoms Under High Fields and Temperatures: Applications),
 V.T. Binh, N. Garcia, and K. Dransfeld, eds. (1993) 235, 35-44
- 162 Co-induced morphological changes of Rh crystallites - Mechanisms, kinetics, and real-space imaging on the atomic-scale
 Kruse, N.
 Gaussman, A.
 J. Catal. (1993) 144, 525-43
- 163 Adsorbate-induced structural changes of Rh field emitter tips
 Kruse, N.
 Gaussmann, A.
 Appl. Surf. Sci. (1993) 67, 160-65
- 164 Automated atom probe with space-time ion focusing
 Kudryavtsev, A.N.
 Nikonenkov, N.V.
 Kashirtsev, Y.I.
 Arbuzov, Y.V.
 Konin, A.A.
 Stukalin, V.N.
 Prib. Tekh. Eksp. (1993) 4, 138-44; English Transl.: Instrum. Exper. Tech. (1993) 36, No. 4, Pt. 2, 591-94
- 165 Method of forming field emitter device with diamond emission tips
 Kumar, N.
 U.S. Patent No. 5199918 (1993)
- 166 Model-potential calculations of tunnelling rate constants for the field-ion microscope
 Lam, S.C.
 Needs, R.J.
 J. Phys.: Condens. Matter (1993) 5, 1195-1202
- 167 First-principles calculations of the screening of electric fields at the aluminium (111) and (110) surfaces
 Lam, S.C.
 Needs, R.J.
 J. Phys.: Condens. Matter (1993) 5, 2101-8
- 168 Imaging atoms in the field-ion microscope: tunneling calculations using realistic potentials
 Lam, S.C.
 Needs, R.J.
 Phys. Rev. B (1993) 48, 14698-701
- 169 Field-induced transfer of an electropositive atom between two closely spaced electrodes
 Lang, N.D.
 NATO ASI Ser., Ser. E
 (Nanosources and Manipulation of Atoms Under High Fields and Temperatures: Applications),
 V.T. Binh, N. Garcia, and K. Dransfeld, eds. (1993) 235, 177-83
- 170 Simulated electron beam trajectories toward a field ion microscopy specimen
 Larson, D.J.
 Camus, P.P.
 Kelly, T.F.
 Appl. Surf. Sci. (1993) 67, 473-80

- 171 Development of knife-edge field emission cathodes on (110) silicon wafers
 Lee, B.
 Barasch, E.F.
 Mazumdar, T.
 McIntyre, P.M.
 Pang, Y.
 Trost, H.-J.
 Appl. Surf. Sci. (1993) 67, 66-72
- 172 Grain boundary segregation in nickel base superalloys Astroloy: an atom-probe study
 Letellier, L.
 Chambreland, S.
 Duval, P.
 Blavette, D.
 Appl. Surf. Sci. (1993) 67, 305-10
- 173 Electron emission from an individual, supported C_{60} molecule
 Lin, M.E.
 Andres, R.P.
 Reifenberger, R.
 Huffman, D.R.
 Phys. Rev. B (1993) 47, 7546-53
- 174 Electron emission from nanometer-size metallic clusters: Electronic states and structural stability of supported Au clusters
 Lin, M.E.
 Ramachandra, A.
 Andres, R.P.
 Reifenberger, R.
 NATO ASI Ser., Ser. E (Nanosources and Manipulation of Atoms Under High Fields and Temperatures: Applications), V.T. Binh, N. Garcia, and K. Dransfeld, eds. (1993) 235, 77-88
- 175 Field emission from structures with quantum wells
 Litovchenko, V.G.
 Kryuchenko, Y.V.
 J. Vac. Sci. Technol. B (1993) 11, 362-65
- 176 Emission properties of field cathode tips and structures with quantum wells
 Litovchenko, V.G.
 Kryuchenko, Y.V.
 Il'chenko, L.G.
 J. Micromech. Microeng. (1993) 3, 74-80
- 177 Field emission from silicon through stable contaminant layers
 Liu, J.
 Hren, J.J.
 Son, U.T.
 Jones, G.W.
 Sune, C.T.
 Appl. Surf. Sci. (1993) 67, 48-55
- 178 Spinodal decomposition of copper-cobalt alloys: a computer simulation and some FIM results
 Liu, J.M.
 Busch, R.
 Gaertner, F.
 Haasen, P.
 Liu, Z.G.
 Wu, Z.C.
 Phys. Status Solidi A (1993) 138, 157-74
- 179 Formation of silicon carbide films on silicon field emitters
 Liu, J.
 Son, U.T.
 Stepanova, A.N.
 Christensen, K.N.
 Wojak, G.W.
 Givargizov, E.I.
 Bachmann, K.J.
 Hren, J.J.
 Mater. Res. Soc. Symp. Proc. (1993) 311, 21-26

- 180 Field desorption of carbon oxides from the surface of HTSC-material Loginov, M.V.
Saveljev, O.G.
Shrednik, V.N. Pis'ma Zh. Tekh. Fiz (1993) 19,
71-76
- 181 A study of phase decomposition in Cu-Ni-Fe alloys Lopez, V.M.
Sano, N.
Sakurai, T.
Hirano, K. Acta Metall. Mater. (1993) 41,
265-71
- 182 Ion projection lithography for vacuum microelectronics Löschner, H.
Stengl, G.
Chalupka, A.
Fergeri, J.
Fischer, F.
Lammer, G.
Malek, L.
Nowak, R.
Trahern, C.
Wolf, P. J. Vac. Sci. Technol. B (1993) 11,
487-92
- 183 On the performance of a microchannel plate detector used for atom-probe analysis Lundin, L.
Rolander, U. Appl. Surf. Sci. (1993) 67,
459-66
- 184 Silicon tip field emission cathode arrays and fabrication thereof MacDonald, N.C.
Spallas, J.P. U.S. Patent No. 5199917 (1993)
- 185 Atom-probe microanalysis of metallic nanostructured materials MacKenzie, R.A.D.
Cerezo, A.
Conyers, J.S.
Petford-Long, A.K.
Sijbrandij, S.J.
Smith, G.D.W. Mater. Res. Soc. Symp. Proc. (1993) 286, 167-72
- 186 Characterization of nanometer-scale compositional variations using field ion microscopy and the position sensitive atom probe Mackenzie, R.A.D.
Cerezo, A.
Smith, G.D.W. Nanostruct. Mater. (1993) 3,
203-10
- 187 High current density field emission from transition metal carbides Mackie, W.A.
Hartman, R.L.
Davis, P.R. Appl. Surf. Sci. (1993) 67, 29-35
- 188 Variation of the binding-energy due to high electrostatic fields (NO on Rh(111)) Madenach, R.P.
Abend, G.
Kreuzer, H.J.
Block, J.H. Ber. Bun. Ges (1993) 97, 353-55
- 189 Experiments on enhanced field emission of niobium cathodes Mahner, E.
Minatti, N.
Piel, H.
Pupeter, N. Appl. Surf. Sci. (1993) 67, 23-28

1993 BIBLIOGRAPHY

- 190 Energy spread of a focused ion beam system with a supertip Maisch, T.
Wilbertz, C.
Miller, T.
Kalbitzer, S. Nucl. Instrum. Methods Phys. Res. B (1993) 80/81, 1288-91
- 191 Field-emission electron-beam sources and fabrication thereof Maruo, J.
Ise, T.
Urayama, M.
Akagi, Y. Jpn. Kokai Tokkyo Koho (Patent) JP 05047296 (1993)
- 192 Field-emission electronic device Maruo, Y.
Akagi, Y.
Ise, T.
Urayama, M. Eur. Pat. Appl. (Patent) EP 535953 (1993)
- 193 Field-induced electron emission from broad-area yttrium barium copper oxide high-T_c electrodes Mazurek, B.
Xu, N.S.
Latham, R.V. J. Mater. Sci. (1993) 28, 2833-39
- 194 Ion-space-charge initiation of gated field emitter failure McGruer, N.E.
Browning, J.
Meassick, S.
Gilmore, M.
Bintz, W.J.
Chan, C. J. Vac. Sci. Technol. B (1993) 11, 441-44
- 195 Planar-processed tungsten and polysilicon vacuum microelectronic devices with integral cavity sealing Mei, Q.
Tamagawa, T.
Ye, C.
Lin, Y.
Zurn, S.
Polla, D.L. J. Vac. Sci. Technol. B (1993) 11, 493-96
- 196 Velocity and ion species dependence of the gain of microchannel plates Meier, R.E. Int. J. Mass Spectrom. Ion Processes (1993) 123, 19-27
- 197 APPIM observations of various forms of HTSC's Melmed, A.J.
Camus, P.P.
Vargas, J.
Larbalestier, D.C. Appl. Surf. Sci. (1993) 67, 413-18
- 198 Field ion microscopy of the polyphasic structure of yttrium barium cuprate (YBa₂Cu₃O_{7-δ}) Mikhailovskii, I.M.
Ksenofontov, V.A.
Sadanov, E.V.
Velikodnaya, O.A. Pis'ma Zh. Eksp. Teor. Fiz. (1993) 57, 39-42; English Trans.: JETP Lett. (1993) 57, 40-42
- 199 Structure of platinum(100) for nitric oxide adsorption studied by FEM and LEED Miki, H.
Nagase, T.
Sato, K.
Watanabe, H.
Sugai, S.
Kawasaki, K.
Kioka, T. Surf. Sci. (1993) 287-288, 448-54

- 200 Comparison of models for deconvoluting the compositions of coexisting phases Miller, M.K.
Bowman, K.O.
Cerezo, A.
Hyde, J. M. Appl. Surf. Sci. (1993) 67, 429-35
- 201 An APFIM/AEM characterization of alloy X750 Miller, M.K.
Burke, M.G. Appl. Surf. Sci. (1993) 67, 292-98
- 202 An APFIM survey of grain boundary segregation and precipitation in irradiated pressure vessel steels Miller, M.K.
Burke, M.G. Effects of Radiation on Materials (Proc. 16th International Symposium on Radiation Materials), A.S. Kumar, D.S. Gelles, R.K. Nanstad and E.A. Little, eds., American Society for Testing and Materials, Philadelphia, PA, ASTM STP (1993) 1175, 492-502
- 203 Characterization of copper precipitation in a 17/4 PH steel: A combined APFIM/TEM study Miller, M.K.
Burke, M.G. Proc. 5th Inter. Conference on Environmental Degradation of Materials in Nuclear Power Systems-Water Reactors, E. Simonen, ed., American Nuclear Society, LaGrange Park, IL (1993) 689-95
- 204 Characterization of a $\Sigma 9$ grain boundary in Fe-45%Cr Miller, M.K.
Jayaram, R. Appl. Surf. Sci. (1993) 67, 356-60
- 205 Characterization of internal interfaces by atom probe field ion microscopy Miller, M.K.
Jayaram, R. Atomic Scale Imaging of Surfaces and Interfaces (Proc. Materials Research Society Fall '92 Meeting), D.K. Biegelsen, D.J. Smith and S.Y. Tong, eds., Materials Research Society, Pittsburgh, PA (1993) 295, 247-52
- 206 Atom probe field ion microscopy characterizations of VVER steels Miller, M.K.
Jayaram, R.
Othen, P.J.
Brauer, G. Proc. 6th International Conference on Environmental Degradation of Materials in Nuclear Power Systems - Water Reactors, R.E. Gold and E.P. Simonen, eds., Miner. Metals and Mater. Society (1993) 161-69
- 207 Proc. 39th Intern. Field Emission Symposium Miller, M.K.
Kreuzer, H.J., eds. Appl. Surf. Sci. (1993) 67, 502 pp.
- 208 Russian Translation: "Atom Probe Microanalysis: Principles and applications to materials problems" Miller, M.K.
Smith, G.D.W. Translator, A.L. Suvorov, MIR, Moscow, Russia (1993)

- 209 Chinese Translation: "Atom Probe Microanalysis: Principles and Application to Materials Problems" Miller, M.K.
Smith, G.D.W. Translators, Y. H. Gong and W. Sha, Peking University Press, Peking, China (1993)
- 210 A new FEL concept driven by a vacuum microfield emitter Mima, K.
Nakai, S.
Taguchi, T.
Ohigashi, N.
Tsunawaki, Y.
Imasaki, K.
Yamanaka, C.
Shiho, M. Nucl. Instrum. Methods Phys. Res. A (1993) 331, 550-53
- 211 Positive charge and interface state creation at the silicon-silica interface during low-fluence and high-field electron injections Mir, A.
Vuillaume, D. Appl. Phys. Lett. (1993) 62, 1125-27
- 212 Energy exchange processes in field emission from atomically sharp metallic emitters Miskovsky, N.M.
Sookyoung, H.P.
He, J.
Cutler, P.H. J. Vac. Sci. Technol. B (1993) 11, 366-70
- 213 Atomic manipulation using field evaporation Miskovsky, N.M.
Tsong, T.T.
Wei, C.M. NATO ASI Ser., Ser. E (Nanosources and Manipulation of Atoms Under High Fields and Temperatures: Applications), V.T. Binh, N. Garcia, and K. Dransfeld, eds. (1993) 235, 207-12
- 214 Miniaturized liquid metal ion sources (MILMIS) Mitterauer, J. NATO ASI Ser., Ser. E (Nanosources and Manipulation of Atoms Under High Fields and Temperatures: Applications), V.T. Binh, N. Garcia, and K. Dransfeld, eds. (1993) 235, 139-64
- 215 Dynamic field (DF)-emission: stability criteria of microscopic field emission sites Mitterauer, J.
Till, P. Appl. Surf. Sci. (1993) 67, 17-22
- 216 Field emission spectroscopy Modinos, A. Prog. Surf. Sci. (1993) 42, 45-54
- 217 Metallic materials Morikawa, H. Bunseki (1993) 10, 795-98
- 218 Analysis of some properties of metal-glass microemitters subjected to strong electric fields Mousa, M.S.
Hibbert, D.B. Appl. Surf. Sci. (1993) 67, 59-65
- 219 Field emission of electrons from glass tips with internal conducting coats Mousa, M.S.
Hibbert, D.B. J. Phys. D: Appl. Phys. (1993) 26, 697-703

- 220 The effect of hydrogen and acetylene processing on microfabricated field emitter arrays Mousa, M.S.
Holland, C.E.
Brodie, I.
Spindt, C.A. Appl. Surf. Sci. (1993) 67, 218-21
- 221 Observations of work function changes in field-emitter arrays Mousa, M.S.
Schwoebel, P.R.
Brodie, I.
Spindt, C.A. Appl. Surf. Sci. (1993) 67, 56-58
- 222 Emission properties of electron point sources Müller, H.U.
Völkel, B.
Hofmann, M.
Wöll, C.
Grunze, M. Ultramicroscopy (1993) 50, 57-64
- 223 Fabrication and characterization of electron beam-evaporated silicon field emitter arrays Myers, G.P.
Aslam, M.
Klimecky, P.
Cathey, L.W.
Elder, R.E.
Artz, B.E. J. Vac. Sci. Technol. B (1993) 11, 642-46
- 224 Measurement of emission characteristics of metal-deposited field emitter Nagao, M.
Inoue, K.
Sasaki, T.
Kaneko, T.
Gotoh, Y.
Tsujii, H.
Ishikawa, J. Shinku (1993) 36, 328-30
- 225 Theory of adsorption and desorption in high electric fields Neugebauer, J.
Scheffler, M. Surf. Sci. (1993) 287-288, 572-76
- 226 Physical basis for applying the Fowler-Nordheim J-E relationship to experimental I-V data Nicolaescu, D. J. Vac. Sci. Technol. B (1993) 11, 392-95
- 227 An atom probe study of the site preference of Ge in Ni₃Al Numakura, H.
Yamada, T.
Koiwa, M.
Szabo, I. A.
Hono, K.
Sakurai, T. Defect Diffus. Forum (1993) 95-98, 869-74
- 228 Planar field-emission device Nureki, C.
Ran, M. Jpn. Kokai Tokkyo Koho (Patent) JP 05190078 (1993)
- 229 Model for predicting the effects of device geometry on the capacitance of field emitter array cathodes Ohlinger, W.L.
Hill, D.N.
Feeney, R.K.
Munne, V. J. Vac. Sci. Technol. B (1993) 11, 1270-74

1993 BIBLIOGRAPHY

- 230 Synthesis of tungsten disulfide on tungsten-tip directly inside FIM Ohmae, N.
Mori, N.
Tagawa, M.
Umeno, M. Tribol. Ser. (1993) 25, 127-36
- 231 Cage structure of fullerene (C_{60}) observed by field ion microscopy Ohmae, N.
Tagawa, M.
Umeno, M. J. Phys. Chem. (1993) 97, 11366-67
- 232 FIM observations of palladium/M (M: tungsten, molybdenum, tantalum, niobium) atomic interfaces and Pd growth layer Okuno, K. Shinku (1993) 36, 650-56
- 233 Lateral field-emission devices with subtenth-micron emitter to anode spacing Oro, J.A.
Ball, D.D. J. Vac. Sci. Technol. B (1993) 11, 464-67
- 234 An APFIM study of the microstructure of a ferrite alloy after high fluence neutron irradiation Pareige, P.
Van Duysen, J.C.
Auger, P. Appl. Surf. Sci. (1993) 67, 342-47
- 235 Thermo-field emission and the Nottingham effect Paulini, J.
Klein, T.
Simon, G. J. Phys. D: Appl. Phys. (1993) 26, 1310-15
- 236 Fabrication of $0.4\text{ }\mu\text{m}$ grid apertures for field-emission array cathodes Peters, D.
Bartsch, W.
Stephani, D.
Holland, C.E.
Spindt, C.A. Microelectron. Eng. (1993) 21, 467-70
- 237 Early stages of the oxidation and corrosion of copper and copper-alloys using nanometer-scale techniques Pickering, H.W.
Sakurai, T. Rev. Metall. (1993) 90, 1647-54
- 238 Instability of the metal microcrystal surface at intense electron emission Ptitsin, V.E. J. Vac. Sci. Technol. A (1993) 11, 2447-51
- 239 Electron optical properties of nanometer field emission electron sources Qian, W.
Scheinfein, M.R.
Spence, J.C.H. Appl. Phys. Lett. (1993) 62, 315-17
- 240 Brightness measurements of nanometer-sized field-emission-electron sources Qian, W.
Scheinfein, M.R.
Spence, J.C.H. J. Appl. Phys. (1993) 73, 7041-45
- 241 Transmission low-energy electron diffraction (TLEED) and its application to the low-voltage point-projection microscope Qian, W.
Spence, J.C.H.
Zuo, J.M. Acta Crystallogr. A (1993) 49, 436-45

- 242 A study of atomic distribution in the intermetallic compound by AP-FIM Ren, D.G. Proc. 1st Meeting of the Pacific Rim International Conf. on Advanced Material Processes, C. Shi, H. Li, S. Hengde and S. Alexander, eds., Miner. Metals and Mater. Society, Warrendale, PA (1992) 367-72
- 243 Oscillatory compositional depth profiles in surface segregation of a Pt-Rh alloy Ren, D.M. Qin, J.H. Wang, J.B. Tsong, T.T. Phys. Rev. B (1993) 34, 3944-46
- 244 Negative ion formation by field ionization on a polymer layer grown by field polymerization of tetracyanoethylene Röllgen, F.W. Schmidt, U. Schmitz, R. Theiss, A. Appl. Surf. Sci. (1993) 67, 128-33
- 245 Manufacture of field-emission cathodes Sakai, J. Kumagai, M. Jpn. Kokai Tokkyo Koho (Patent) JP 05225895 (1993)
- 246 Field evaporation of germanium(111) surfaces in presence of hydrogen Sakata, T. Block, J.H. Naschitzki, M. Schmidt, W.A. Jpn. J. Appl. Phys. (1993) 32, 5076-79
- 247 Microanalysis of composite precipitates by atom-probe field ion microscopy Sano, N. Sumitomo Search (1993) 54, 87-97
- 248 Ion current characteristics of an argon field ionization source Sato, M. Surf. Sci. (1993) 285, L525-27
- 249 Molecular orbital theory of field evaporation Sawamura, M. Tsukada, M. Aono, M. Jpn. J. Appl. Phys. (1993) 32, 3257-60
- 250 Aberrations of emission cathodes: Nanometer diameter field-emission electron sources Scheinfein, M.R. Qian, W. Spence, J.C.H. J. Appl. Phys. (1993) 73, 2057-68
- 251 Time aberrations of uniform fields: An improved reflectron mass spectrometer for an atom-probe field-ion microscope Scheinfein, M.R. Seidman, D.N. Rev. Sci. Instrum. (1993) 64, 3126-31
- 252 Combined electron and ion projection microscopy Schmid, H. Fink, H.-W. Appl. Surf. Sci. (1993) 67, 436-43
- 253 Local electric fields at individual atomic surface sites: field ion appearance energy measurements Schmidt, W.A. Ernst, N. Suchorski, Y. Appl. Surf. Sci. (1993) 67, 101-10
- 254 Analytical field ion microscopy of the early stages of the solid state amorphization reaction in vapor-deposited zirconium/cobalt double layers Schneider, S. Busch, R. Bolse, W. Samwer, K. J. Non-Cryst. Solids (1993) 156-158, 498-501

- 255 Field-emitter array performance enhancement using hydrogen glow discharges Schwoebel, P.R.
Spindt, C.A. Appl. Phys. Lett. (1993) 63,
33-35
- 256 Field-Ion Microscopy: Atom-Probe Microanalysis Seidman, D.N. Concise Encyclopedia of Materials Characterization, Robert W. Cahn and E. Lifshin, eds., Pergamon, New York (1993) 151-54
- 257 Field-Ion Microscopy: Observation of Radiation Effects Seidman, D.N. Concise Encyclopedia of Materials Characterization, Robert W. Cahn and E. Lifshin, eds., Pergamon, New York (1993) 154-55
- 258 Shape control possibility of field emission cathode tip fabricated with sputtering deposition Seko, N.
Ishikura, O.
Okamoto, A.
Inoue, K.
Suzuki, Y.
Ogawa, S. Shinku (1993) 36, 375-78
- 259 Position sensitive atom probe study of the decomposition of a Cu-2.6 at. % Co alloy Setna, R.P.
Hyde, J.M.
Cerezo, A.
Smith, G.D.W.
Chisholm, M.F. Appl. Surf. Sci. (1993) 67,
368-79
- 260 Phase chemistry and precipitation reactions in maraging steels: Part I. Introduction and study of Co-containing C-300 steel Sha, W.
Cerezo, A.
Smith, G.D.W. Metall. Trans. (1993) 24A,
1221-33
- 261 Phase chemistry and precipitation reactions in maraging steels: Part II. Co-free T-300 steel Sha, W.
Cerezo, A.
Smith, G.D.W. Metall. Trans. (1993) 24A,
1233-39
- 262 Phase chemistry and precipitation reactions in maraging steels: Part III. Model alloys Sha, W.
Cerezo, A.
Smith, G.D.W. Metall. Trans. (1993) 24A,
1241-49
- 263 Phase chemistry and precipitation reactions in maraging steels: Part IV. Discussion and conclusions Sha, W.
Cerezo, A.
Smith, G.D.W. Metall. Trans. (1993) 24A,
1251-56
- 264 Comparison of a triangular-shape field emitter array and flat surface-emitter vacuum diodes Shieh, J.L.
Ren, R.J.
Shieh, T.J.
Klemer, D.P.
Chen, C.Y. J. Vac. Sci. Technol. B (1993) 11,
501-4
- 265 Pulsed field cleaning of the surface of sharp field electron emitters Shilimanov, S.N.
Shkuratov, S.I. Instrum. Exp. Tech. (1993) 36,
No. 2, 260-63
- 266 High-temperature superconducting thin films in strong electric fields Shkuratov, S.I. J. Vac. Sci. Technol. B (1993) 11,
353-61

- 267 Limiting current densities of $\text{YBa}_2\text{Cu}_3\text{O}_{6.9}$ single crystal submicron specimens Shkuratov, S.I. Ivanov, S.N. Shilimanov, S.N. Physica C (1993) 211, 158-64
- 268 Field electron emission microscopy and spectroscopy of $\text{YBa}_2\text{Cu}_3\text{O}_{6.9}$ single crystals at different temperatures Shkuratov, S.I. Ivanov, S.N. Shilimanov, S.N. Physica C (1993) 213, 321-26
- 269 Preparation of high temperature superconducting single-crystal sharp-pointed specimens for field electron emission microscopy and spectroscopy Shkuratov, S.I. Shilimanov, S.N. Ivanov, S.N. Supercond. Sci. Technol. (1993) 6, 520-24
- 270 Effect of switching over $\text{YBa}_2\text{Cu}_3\text{O}_x$ thin films from the superconducting to the normal state under the action of field-emission currents Shkuratov, S.I. Shilimanov, S.N. Skokov, V.N. Phys. Rev. B (1993) 48, 6456-59
- 271 Field evaporation and field desorption from HTSC single-crystal surfaces Shrednik, V.N. Prog. Surf. Sci. (1993) 42, 131-42
- 272 Analysis of the possibility of performing microelectronic microwave vacuum devices with extended interaction on field emitter arrays Sinitsyn, N.I. Gulyaev, Y.V. Golant, M.B. Nefyodov, I.S. Torgashov, G.V. Zakharchenko, Y.F. Zhbanov, A.I. J. Vac. Sci. Technol. B (1993) 11, 477-80
- 273 Possibility of amplification of microwaves using the negative conduction of an electron beam (polytron) Solntsev, V.A. J. Vac. Sci. Technol. B (1993) 11, 484-86
- 274 A development in the preparation of sharp scanning tunneling microscopy tips Song, J.P. Pryds, N.H. Glejbøl, K. Mørch, K.A. Thölén, A.R. Christensen, L.N. Rev. Sci. Instrum. (1993) 64, 900-03
- 275 Diffusion of oxygen on the Mo(110) plane Song, Y. Gomer, R. Surf. Sci. (1993) 290, 1-14
- 276 FEM study of CO and H₂ interaction with a supported bimetallic catalyst: Mo-Pd/Al₂O₃/W Sotola, J. Knor, Z. Collect. Czech. Chem. Commun. (1993) 58, 2695-700
- 277 FEM study of palladium and molybdenum clusters on an alumina covered field emitter Sotola, J. Knor, Z. Czech. J. Phys. (1993) 43, 1009-13

- 278 Self-aligned silicon field emission cathode arrays formed by selective, lateral thermal oxidation of silicon Spallas, J.P.
Das, J.H.
MacDonald, N.C. J. Vac. Sci. Technol. B (1993) 11, 437-40
- 279 Nanotips and transmission low energy electron diffraction Spence, J.C.H. NATO ASI Ser., Ser. E (Nanosources and Manipulation of Atoms Under High Fields and Temperatures: Applications), V.T. Binh, N. Garcia, and K. Dransfeld, eds. (1993) 235, 19-33
- 280 Field-emitter-array development for high-frequency operation Spindt, C.A.
Holland, C.E.
Rosengreen, J. Vac. Sci. Technol. B (1993) 11, 464-67
- 281 Miniaturized electron microscope Staufer, U.
Muray, L.P.
Kern, D.P.
Change, T.H.P. NATO ASI Ser., Ser. E (Nanosources and Manipulation of Atoms Under High Fields and Temperatures: Applications), V.T. Binh, N. Garcia, and K. Dransfeld, eds. (1993) 235, 101-10
- 282 Field emission microscope investigation of oxide formation on molybdenum field emitters Stepień, Z.M. Czech. J. Phys. (1993) 43, 1029-33
- 283 Cluster ion formation in isothermal ramped field-desorption of amorphous water ice from metal surfaces Stintz, A.
Panitz, J.A. Surf. Sci. (1993) 296, 75-86
- 284 Enhanced local electric fields in field ionization at steps of clean and Au covered Rh(111) Suchorski, Y.
Schmidt, W.A.
Block, J.H. Appl. Surf. Sci. (1993) 67, 124-27
- 285 Field electron emission from transition metals with d-type unsaturated electronic surface states Suchorski, Y.
Schmidt, W.A.
Block, J.H.
Medvedev, V.K. Surf. Sci. (1993) 293, L853-56
- 286 Environmental embrittlement and grain boundary segregation of boron in Ni₃(Si,Ti) and Co₃Ti alloys Takasugi, T.
Hono, K.
Suzuki, S.
Hanada, S.
Sakurai, T. Scr. Metall. Mater. (1993) 29, 1587
- 287 Micromachining of a high-temperature superconductor for field ion microscopy Talantsev, E.F.
Ivchenko, V.A.
Syutkin, N.N. J. Micromech. Microeng. (1993) 3, 87-89
- 288 Temperature of the superconductor-normal state phase transition of a field-emission cathode Talantsev, E.F.
Ivchenko, V.A.
Syutkin, N.N. Zh. Tekh. Fiz. (1993) 63, 199-203

- 289 A field ion microscope study on the surface reaction of tungsten with n-octanol under an applied positive voltage: reaction conditions for the "splitting of" (110) plane
 Terao, T.
 Iwatsu, F.
 Morikawa, H.
 Scr. Metall. Mater. (1993) 28, 1549-54
- 290 Field ion microscope observation of metal-liquid surface reaction. The reaction of tungsten with alcohol
 Terao, T.
 Morikawa, H.
 Iwatsu, F.
 Nippon Kinzoku Gakkai Kaiho (1993) 32, 601-8
- 291 Magnetic microlens with an atomically sharp field emitter
 Terris, B.D.
 Zuger, O.
 Rugar, D.
 J. Vac. Sci. Technol. B (1993) 11, 2315-18
- 292 Atom probe and STEM studies of carbide precipitation in 2 1/4 Cr1Mo steel
 Thomson, R.C.
 Bhadeshia, H.K.D.H.
 Appl. Surf. Sci. (1993) 67, 334-41
- 293 Single micromachined emitter characteristics
 Tringides, M.C.
 Seymour, P.
 Jacobs, K.
 Busta, H.H.
 Pogemiller, J.D.
 J. Vac. Sci. Technol. B (1993) 11, 396-99
- 294 Flat display based on the metal-insulator-metal emitter array
 Troyan, P.E.
 Lubsanov, R.B.
 Vorobyev, G.A.
 Ghyngazov, S.A.
 Lakstroem, I.V.
 Kramor, S.S.
 J. Vac. Sci. Technol. B (1993) 11, 514-17
- 295 Fabrication of gated silicon field-emission cathodes for vacuum microelectronics and electron-beam applications
 Trujillo, J.T.
 Hunt, C.E.
 J. Vac. Sci. Technol. B (1993) 11, 454-58
- 296 Mechanisms and energetics of surface atomic processes, an atom-probe field ion microscope study
 Tsong, T.T.
 Atomic Scale Imaging of Surfaces and Interfaces (Proc. Materials Research Society Fall '92 Meeting), D.K. Biegelsen, D.J. Smith, and S.Y. Tong, eds., Materials Research Society, Pittsburgh, PA (1993) 295, 49-58
- 297 Studies of atomic processes useful for atomic manipulation with STM
 Tsong, T.T.
 Mater. Chem. and Phys. (1993) 33, 1-14
- 298 Mechanisms and energetics of surface atomic processes, an atom-probe field ion microscope study
 Tsong, T.T.
 Mater. Res. Soc. Symp. Proc. (1993) 280, 87-96
- 299 Atom-probe field ion microscopy
 Tsong, T.T.
 Phys. Today (1993) 46, 24-31
- 300 Atom-probe field ion microscopy and applications to surface science
 Tsong, T.T.
 Surf. Sci. (1993) 299/300, 153-69

- 301 Theory of desorption from a negatively biased surface Tsukada, M.
Sawamura, M. Surf. Sci. (1993) 283, 182-88
- 302 Site-specific measurement of adatom binding energy differences by atom extraction with the STM Uchida, H.
Huang, D.
Grey, F.
Aono, M. Phys. Rev. Lett. (1993) 70, 2040-43
- 303 Single-atom manipulation on the Si(111) 7×7 surface by the scanning tunneling microscope (STM) Uchida, H.
Huang, D.H.
Yoshinobu, J.
Aono, M. Surf. Sci. (1993) 287/288, 1056-61
- 304 Manufacture of field-emission electron source Urayama, M.
Ise, T.
Maruo, J.
Akagi, Y. Jpn. Kokai Tokkyo Koho (Patent) JP 05094762 (1993)
- 305 Silicon field emitter capable of low voltage emission Urayama, M.
Ise, T.
Maruo, Y.
Kishi, A.
Imamoto, R.
Takase, T. Jpn. J. Appl. Phys. (1993) 32, 6293-96
- 306 The adsorption and dissociation of CO₂ on Rh van Tol, M.F.H.
Gielbert, A.
Nieuwenhuys, B.E. Appl. Surf. Sci. (1993) 67, 166-78
- 307 Oscillatory behaviour of the reduction of NO by H₂ and NH₃ over Rh studied by FEM van Tol, M.F.H.
Gielbert, A.
Nieuwenhuys, B.E. Appl. Surf. Sci. (1993) 67, 179-87
- 308 The striking difference in the behaviour of Rh and Pt towards their interaction with CO₂ van Tol, M.F.H.
Gielbert, A.
Wolf, R.M.
Lie, A.B.K.
Nieuwenhuys, B.E. Surf. Sci. (1993) 287/288, 201-7
- 309 The adsorption and dissociation of NO on Rh(100) and stepped Rh surfaces van Tol, M.F.H.
Nieuwenhuys, B.E. Appl. Surf. Sci. (1993) 67, 188-97
- 310 Roughening transitions in the vicinal areas of Ta{110} and Ta{100} observed during vapour growth on clean, thermally rounded Ta crystallites Vanselow, R.
Li, X.Q.D. Surf. Sci. Letts. (1993) 281, L326-30
- 311 Oxygen-induced reconstruction of Rh {110} and {113} single crystal planes Voss, C.
Gaussmann, A.
Kruse, N. Appl. Surf. Sci. (1993) 67, 142-46
- 312 Microstructural influence on uniform corrosion of Zircaloy nuclear fuel claddings Wadman, B.
Andrén, H.-O.
Nyström, A.-L.
Rudling, P.
Pettersson, H. J. Nucl. Mater. (1993) 200, 207-17

- 313 Design considerations of silicon avalanche cathodes Wang, M.
Lu, Y.
Lalevic, B. J. Vac. Sci. Technol. B (1993) 11,
426-28
- 314 Electric field effects in the formation of NCO on Ru(001) with co-adsorbed oxygen Wang, R.L.C.
Kreuzer, H.J. Chem. Phys. (1993) 177, 453-59
- 315 Atom condensation at lattice steps and clusters Wang, S.C.
Ehrlich, G. Phys. Rev. Lett. (1993) 71,
4174-77
- 316 Real-time observation of the vibration of a single adsorbed molecule Watanabe, F.
McClelland, G.M.
Heinzelmann, H. Science (1993) 262, 1244-47
- 317 Surface processes in high electric fields Watanabe, K. Hyomen Kagaku (1993) 14, 48-52
- 318 First principles molecular dynamics study on the electronic structures of Si(100) surface in electric fields Watanabe, K.
Satoh, T.
Watanabe, K. Appl. Surf. Sci. (1993) 67, 13-16
- 319 Rhenium tips for stable scanning tunneling microscopy Watanabe, M.O.
Kinno, T. Jpn. J. Appl. Phys. (1993) 32,
Pt. 2, No. 9, L1266-68
- 320 Manufacturable vacuum field emission diodes Weichold, M.H.
Legg, J.D.
Mason, M.E.
James, T.C. J. Vac. Sci. Technol. B (1993) 11,
505-10
- 321 Observation of Fowler-Nordheim tunnelling at atmospheric pressure using Au/Ti lateral tunnel diodes Wong, T.K.S.
Ingram, S.G. J. Phys. D: Appl. Phys. (1993)
26, 979-85
- 322 Electron optical properties and aberrations of field emission microsources Ximen, J.
Ximen, H.
Zhou, L. J. Vac. Sci. Technol. B (1993) 11,
275-80
- 323 On the energy dissipation in field emission and tunneling microscopy Xu, J.
Moeller, R.
Laeuger, K.
Dransfeld, K.
Williams, C.C. NATO ASI Ser., Ser. E
(Nanosources and Manipulation of Atoms Under High Fields and Temperatures: Applications),
V.T. Binh, N. Garcia, and K. Dransfeld, eds. (1993) 235,
89-100
- 324 Field-dependence of the area-density of 'cold' electron emission sites on broad-area CVD diamond films Xu, N.S.
Latham, R.V.
Tzeng, Y. Elect. Letts. (1993) 29, 1596-97
- 325 Similarities in the 'cold' electron emission characteristics of diamond coated molybdenum electrodes and polished bulk graphite surfaces Xu, N.S.
Tzeng, Y.
Latham, R.V. J. Phys. D: Appl. Phys. (1993)
26, 1766-80

- 326 Theory of field adsorption of hydrogen Ye, X.
Kreuzer, H.J.
Salahub, D.R. Appl. Surf. Sci. (1993) 67, 1-8
- 327 Theory of field adsorption of hydrogen Ye, X.
Kreuzer, H.J.
Salahub, D.R. Report, TR-9; Order No.
AD-A257139, 23 pp. Avail.
NTIS from: Govt. Rep.
Announce. Index (U.S.) (1993)
93, Abstr. No. 306,139
- 328 Emission characteristics of metal-oxide-semiconductor electron tunneling cathode Yokoo, K.
Tanaka, H.
Sato, S.
Murota, J.
Oho, S. J. Vac. Sci. Technol. B (1993) 11,
429-32
- 329 Evaluation of mechanical properties of stainless steels after simulated service conditions. 2. Detection of microstructures of aged stainless steels using atom probe Yoshimura, T.
Ishikawa, Y.
Enomoto, K.
Sakata, S. Nippon Kikai Gakkai Ronbunshu,
A-hen (1993) 59, 2034-40
- 330 Simulation of field emission microtriodes Zaidman, E.G. IEEE Trans. Electron Devices
(1993) 40, 1009-16
- 331 Integrated silicon process for microdynamic vacuum field emission cathodes Zhang, Z.L.
MacDonald, N.C. J. Vac. Sci. Technol. B (1993) 11,
2538-43
- 332 Temperature and surface states of point field emitters during the observation of rings on the emission images Zhukov, V.M.
Egorov, N.V.
Prudnikov, A.P. Poverkhnost (1993) 6, 33-37

ADDENDUM

- | | | | |
|----|---|---|--|
| 1 | Monolayer graphite on transition-metal carbides and application to field emitter | Aizawa, T.
Ishizawa, Y. | Tanso (1992) <u>155</u> , 335-46 |
| 2 | Planar field emission devices with three-dimensional gate structures | Araragi, M.
Nureki, C. | J. Micromech. Microeng. (1992) <u>2</u> , 5-9 |
| 3 | Review: Vacuum microelectronics - 1992 | Busta, H.H. | J. Micromech. Microeng. (1992) <u>2</u> , 43-74 |
| 4 | Organic field emission device | Ekusa, T. | Jpn. Kokai Tokkyo Koho (Patent) JP 04352482 (1992) |
| 5 | Field electron emission from large-area yttrium barium copper oxide ($\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$) superconducting films in vacuum | Elizondo, J.M. | 15th Int. Symp. Discharges Electr. Insul. Vac., D. Koenig, ed., VDE-Verlag: Berlin, Germany (1992) 59-62 |
| 6 | Atomic resolution study of solute-atom segregation at grain boundaries: experiments and Monte Carlo simulations | Foiles, S.M.
Seidman, D.N. | Material Interfaces, D. Wolf and S. Yip, eds., Chapman & Hall: London, UK (1992) 497-515 |
| 7 | Oxygen-induced buildup of W(100) and W(111) planes | Gong, Y.M. | Solid State Commun. (1992) <u>84</u> , 1085-88 |
| 8 | Probe-hole field-emission microscope system controlled by computer | Gong, Y.M.
Zeng, H.S. | Chin. Phys. L (1991) <u>8</u> , 446-9 |
| 9 | Material transfer between metallic tips and surface in the STM | Guo, C.
Foiles, S.M.
Seidman, D.N.
Thomson, D.J. | Ultramicroscopy (1992) <u>42-44</u> , 1452-58 |
| 10 | Vacuum microelectronics: application perspectives for future display technology | Herman, M.A. | Opto-Electron. Rev. (1992) <u>1</u> , 30-34 |
| 11 | Ungated vacuum field emission from ordered arrays of microlithographically defined cylinders | Hickman, J.J.
Georger, J.H.
Anderson, M.
Bergeron, G.L.
Kirkpatrick, D.A. | Mater. Res. Soc. Symp. Proc. (1992) <u>260</u> , 423-28 |
| 12 | Nano-scale analysis by atom probe FIM (in Japanese) | Hono, K. | Boundary (1992) <u>8</u> , 18-25 |
| 13 | The microstructure evolution of $\text{Fe}_{73.5}\text{Si}_{13.5}\text{B}_9\text{Nb}_3\text{Cu}_1$ nanocrystalline soft magnetic material | Hono, K.
Hiraga, K.
Wang, Q.
Inoue, A.
Sakurai, T. | Acta Metall. Mater. (1992) <u>40</u> , 2137-47 |
| 14 | Direct evidence for compositional fluctuation in sputtered Co-Cr thin films | Hono, K.
Maeda, Y.
Li, J-D.
Sakurai, T. | J. Magn. Magn. Mater. Lett. (1992) <u>110</u> , L254-58 |

ADDENDUM

- 15 Nano-scale characterization of alloys by atom probe field ion microscopy Hono, K.
Sakurai, T. Nippon Kinzoku Gakkai Kaiho
(1992) 31, 900-903
- 16 Field emission cathode Kobori, Y.
Tanaka, M. U.S. Patent No. 5162704 (1992)
- 17 Field-emission devices Komatsu, H. Jpn. Kokai Tokkyo Koho (Patent)
JP 04332424 (1992)
- 18 A study of silicon avalanche cold microcathode using ultra-shallow pn+ junction Li, Q.
Tang, S.
Yaun, M.
Xue, Z.
Xu, J.
Lin, C.
Zhang, D.
Wu, J. Zhenkong Kexue Yu Jishu (1992)
12, 239-42
- 19 Electronic structures of supported nanometer-size clusters using field emission energy analyzer Lin, M.E. 204 pp. Avail. Univ. Microfilms,
Int., Order No. DA9215598, Diss.
Abstr. Int. B (1992) 53, 366
- 20 Fabrication of self-aligned gated field emitters Liu, D.
Ravi, T.S.
Bagley, B.G.
Chin, K.K.
Marcus, R.B. J. Micromech. Microeng. (1992)
2, 21-24
- 21 Enhanced field emission of niobium single crystals Mahner, E.
Heiderhoff, R.
Minatti, N.
Piel, H. Proc. 3rd Eur. Part. Accel. Conf.
H. Heinke, H. Homeyer, and
C. Petit-Jean-Genaz, eds.,
Frontieres: Gif-sur-Yvette, France
(1992) 2, 1653-55
- 22 Dynamic field emission: stability criteria of microscopic field emission sites Mitterauer, J.
Till, P. 15th Int. Symp. Discharges Electr.
Insul. Vac., D. Koenig, ed.,
(1992) 93-97, VDE-Verlag:
Berlin, Germany
- 23 Application of position-sensitive atom probe in field ion microscopy Sha, W. Cailiao Kexue Yu Gongcheng
(1992) 10, 35-36
- 24 Some new microscopic observation techniques and their applications to material research Shiraga, N.
Minobe, M. Sumitomo Kagaku (Osaka) (1992)
2, 54-67
- 25 Switching over of high-T_c superconducting thin films from superconducting to the normal state by field electron emission current Shkuratov, S.I.
Shilimanov, S.N. 15th Int. Symp. Discharges Electr.
Insul. Vac., D. Koenig, ed.,
(1992) 132-4, VDE-Verlag:
Berlin, Germany
- 26 A field ion microscope and atom-probe study of surface atomic processes Tsong, T.T. China Cent. Adv. Sci. Technol.
(World Lab.) Symp./Workshop
Proc. (1992) 2, 75-88

ADDENDUM

- 27 A study of thermal roughening of clean Pt110 and its vicinal areas by field electron emision microscope (FEM) Vanselow, R. Surf. Sci. (1992) 279, L213-18
- 28 Electron emitter Watanabe, N. Jpn. Kokai Tokkyo Koho Patent, JP 04274123 (1992)
- 29 Direct observations of interfaces in materials Ye, H. Li, D. Ren, D. Ning, X. He, A. He, L. Prog. Nat. Sci. (1992) 2, 289-302
- 30 Microchemical analysis of intermetallic alloys using the field-ion microscope atom probe Brenner, S.S. Report, DOE/ER/45213-T2; Order No. DE92004020, 7 pp. Avail. NTIS from: Energy Res. Abstr. 1992, 17(3), Abstr. No. 6905 (1991)
- 31 Interface studies of high-T_c superconductors by field-ion and field-electron energy spectroscopy Ernst, N. Schmidt, W.A. Bozdech, G. Naschitzki, M. Melmed, A.J. High-Temp. Supercond. Proc. ICMC '90 Top.-Conf. Mater. Aspects High-Temp. Supercond., H.C. Freyhardt, R. Fluekiger, and M. Peuckert, eds., DGM Informationsges: Oberursel, Germany (1991) 2, 859-64
- 32 <310> Single-crystal LaB₆ as thermal field emitter of high brightness electron source Harada, K. Nagata, H. Shimizu, R. J. Elect. Microsc. (1991) 40, 1-4
- 33 Field ion microscopy (in Japanese) Hono, K. Sakurai, T. J. Jpn. Soc. Precis. Eng. (1991) 57, 1145-50
- 34 Structure and compositional analysis with atomic scale resolution by atom probe FIM (in Japanese) Hono, K. Sakurai, T. New Materials (Shinsozai) (1991) 3, 82-87
- 35 Field emission studies of heat treated and chemically treated superconducting cavities Padamsee, H. Barnes, P. Kirchgessner, J. Moffat, D. Rubin, D. Sears, J. Shu, Q.S. Conf. Rec. IEEE Part. Accel. Conf., 14th, Vol. 4, 2420-2 (1991) IEEE: New York, NY
- 36 Equilibrium and steady-state forms of heated metallic crystals in a strong electric field Vlasov, Y.A. Golubev, O.L. Shrednik, V.N. Rost Krist. (1991) 19, 5-21
- 37 Wentzel-Kramers-Brillouin method in multidimensional tunneling Huang, Z.H. Feuchtwang, T.E. Cutler, P.H. Kazes, E. Phys. Rev. A (1990) 41, 32-41

ADDENDUM

- | | | | |
|----|---|--------------------------------------|--|
| 38 | Theory of a single-atom point source
for electrons | Lang, N.D.
Jacobs, A.
Imry, Y. | Phys. Rev. Lett. (1989) <u>63</u> ,
1499-1502 |
| 39 | The screening of an electric field at an
Al(001) surface | Inglesfield, J.E. | Surf. Sci. (1987) <u>188</u> , L701-7 |

APPENDIX

The reports and dissertations listed in the bibliography may generally be obtained through one of the following agencies:

National Technical Information
U. S. Department of Commerce
5285 Port Royal Road
Springfield, VA 21161 USA

Telephone: (703) 487-4650

University Microfilms Int.
Dissertation Information Service
300 North Zeeb Road
Ann Arbor, MI 48106 USA

Telephone: (800) 521-3042 (Toll Free)
or (313) 761-4700

INTERNAL DISTRIBUTION

- 1-2. Central Research Library
- 3. Document Reference Library
- 4-5. Laboratory Records Department
- 6. Laboratory Records, ORNL RC
- 7. ORNL Patent Section
- 8-10. M&C Records Office
- 11. Alexander, K. B.
- 12. Alexander, M. B.
- 13. Babu, S. S.
- 14. Bentley, J.
- 15. Bloom, E. E.
- 16. Craig, D. F.
- 17. Godfrey, R. D.
- 18. Horton, J. A.
- 19. Horton, L. L.
- 20. Hulett, L. D.
- 21. Jayaram, R.
- 22. Kenik, E. A.
- 23-73. Miller, M. K.
- 74. More, K. L.
- 75-77. Russell, K. F.

EXTERNAL DISTRIBUTION

- 78. Dr. Raoulf Z. Bakhtizin
Department of Physical Electronics
Bashkir State University
32 Frunze Street
450074 Ufa
Russia
- 79. Vu Thien Bihn
Department of Physique des Materiaux
University Claude Bernard Lyon1
F-769622 Villeurbanne Cedex
France
- 80. Prof. Didier Blavette
Laboratoire de Microscopie Ionique-URA CNRS 808
Faculé des Sciences et Techniques BP 118
Place Emile Blondel-76134 Mont Saint Aignan Cedex
France

81. Prof. Jochen H. Block
Fritz-Haber Institut MPG
Faradayweg 4-6
W-1000 Berlin 3
Germany
82. Dr. M. G. Burke
Bettis Atomic Power Laboratory
P.O. Box 79
West Mifflin, PA 15122
83. Dr. Patrick P. Camus
University of Wisconsin
Applied Superconductivity Center
1500 Johnson Drive
Madison, WI 53706
84. Dr. Alfred Cerezo
Department of Materials
University of Oxford
Parks Road
Oxford OX1 3PH
United Kingdom
85. Dr. Gaik-Khuan Chuah
Department of Chemistry
National University of Singapore
10 Kent Ridge Crescent
Singapore 0511 - Singapore
86. Dr. Antoin Ciszewski
University of Wroclaw
Institute of Experimental Physics
ul. Cybulskiego 36
50-205 Wroclaw
Poland
87. Dr. Chuck Crawford
Kimball Physics, Inc.
Kimball Hill Road
Wilton, NH 03086
USA

88. Prof. C.M.C. de Castilho
Instituto de Física UFBA
Campus da Fderacão
40210-360 Salvador
89. Dr. Michael Drechsler
CRMC2 CNRS
University d'Aix-Marseille
Campus Luminy Case 913
13288 Marseille Cedex 9
France
90. Prof. Gert Ehrlich
University of Illinois
Coordinator, Science Lab
1101 W. Springfield
Urbana, IL 61801
USA
91. Dr. Norbert Ernst
Fritz-Haber-Institut der Max-Planck-Gesellschaft
Faradayweg 4-6
W1000 Berlin 33
Germany
92. Dr. Richard G. Forbes
University of Surrey
Department of Electronic and Electrical Engineering
Guildford, Surrey GU2 5KH
United Kingdom
93. Prof. Georg H. Frommeyer
MPI fur Eisenforschung
Max-Planck-Str 1
d-4000 Dusseldorf 1
Germany
94. Dr. O. L. Golubev
Ioffe Physical Technical Institute of the Academy of Science
D-4000 Dusseldorf 1
Germany
95. Prof. Yun-Ming Gong
Beijing University
Department of Radio-Electronics
Beijing 100871
P.R. China

96. Dr. Kazuhiro Hono
Tohoku University
Institute for Materials Research
2-1-1 Katahira, Aoba-ku
Sendai 980
Japan
97. Prof. John J. Hren
North Carolina State University
Department of Materials Science and Engineering
Raleigh, NC 27695-7907
98. Dr. Jonathan Hyde
Department of Materials
University of Oxford
Parks Road
Oxford OX1 3PH
United Kingdom
99. Dr. V. A. Ivchenko
Russian Academy of Sciences
Institute of Electrophysics, Ural Division
34 Komsomolskaya Str.
Ekaterinburg 620219
Russia
100. Dr. Gary L. Kellogg
Sandia National Lab
Org. 1114
P.O. Box 5800
Albuquerque, NM 87185
101. Prof. Erich A. P. Krautz
Institut für Festkörperphysik
T.U. Graz
Petersgasse 16
A-8010 Graz
Austria
102. Prof. Hans J. Kreuzer
Dalhousie University
Department of Physics
Halifax, Nova Scotia B3H 3J5
Canada

103. A. N. Kudriatsev
Bardin's Central Research
Institute of Iron and Steel
Industry Baumanskaya-9/23
Moscow 102005
Russia
104. Prof. Wu Liu
Huazhong Normal University
Department of Physics
Wuhan, Hubei
P.R. China
105. Dr. Marcello F. Lovisa
Friedrichstädter Str. 43A
D-2370 Rendsburg
German
106. Dr. Ross A. D. Mackenzie
Department of Materials
University of Oxford
Parks Road
Oxford OX1 3PH
United Kingdom
107. Dr. E. Mahner
University of Wuppertal
Department of Physics
Gaubstr.20
5600 Wuppertal
Germany
108. Dr. G. M. McClelland
IBM Research Division
Almaden Research Center
650 Harry Road
San Jose, CA 95120-6099
109. Dr. Allan J. Melmed
Johns Hopkins University
Department of Materials Science and Engineering
3400 N. Charles Street
Baltimore, MD 21218

110. Dr. Alain Menand
Laboratoire de Microscopie Ionique
UACNRS 808 University de Rouen
Faculte des Sciences BP 118
76134 Mont Saint Aignan Cedex
France

111. Prof. Johannes Mitterauer
Technische Universitat Wien
Institute für Allgemeine und Elektronik
Gusshausstrasse 27-29
A 1040 Wien
Austria

112. Prof. Marwan S. Mousa
Department of Physics
Mutah University
P.O. Box 7
69627 Al Karak
Jordan

113. Dr. Bernard Nieuwenhuys
Leiden University
Department of Heterogeneous Catalysis
P.O. Box 9502
2300 RA Leiden
The Netherlands

114. Prof. Osamu Nishikawa
Kanazawa Institute of Technology
Department of Electronics
7-1 Ohogigaoka
Kanazawa-South
Kanazawa I.T.
Japan

115. Prof. Eiichi Nomura
Aono Atomcraft Project
Kaga, 1-7-13
Itabashi-ku
Tokyo 173
Japan

116. Prof. Dagang Ren
Academia Sinica
Institute of Metals Research
Wenhua Road 72
Shenuyang 110015
P.R. China
117. Prof. Duomin Ren
University of Science and Technology of China
Center of Fundamental Physics
Hefei, Anhui 230026
P.R. China
118. Dr. Ulf Rolander
AB Sandvik Cormant
R&D Materials
S-12680 Stockholm
Sweden
119. Prof. David N. Seidman
Northwestern University
2225 N. Campus Drive
Department of Materials Science and Engineering
Evanston, IL 60208-3108
USA
120. Keesam Shin
506 J. Eagle Heights
Madison, WI 53706
121. Sergei Shkuratov
Institute of Electrophysics
Urals Division of the Russian Academy of Science
3GSP-387, 37 Komsomolshaya Street
Ekaterinburg 620219
Russia
122. Dr. V. N. Shrednik
Ioffe Physical Technical Institute
of the Academy of Science
Polytekhnicheskaya 26
194021 Leningrad
Russia

123. Dr. George D. W. Smith
Department of Materials
University of Oxford
Parks Road
Oxford OX1 3PH
United Kingdom
124. A. L. Suvorov
Institute of Theoretical
and Experimental Physics
B. Cheremushkinskaya 25
Moscow 117259
Russia
125. Dr. E. F. Talantsev
Russian Academy of Sciences
Institute of Electrophysics, Urals Division
34 Komsomolskaya Str.
Ekaterinburg 620219
Russia
126. Dr. Rachel Thomson
Department of Materials Science and Metallurgy
Pembroke Street
Cambridge CB2 3QZ
United Kingdom
127. Y. Ustinovshikov
Physical Technical Inst.
132 Kozov Street
426001 Izhevsk
Russia
128. Dr. Maurits van Tol
Leiden University
Gorlueus Laboratory
P.O. Box 9502
2300 RA Leiden
The Netherlands
129. Dr. Nelia Wanderka
Hahn-Meitner-Institut, N5
Glienicker Str. 100
D-14109 Berlin
Germany

130. Prof. K. Watanabe
Science University of Tokyo
Department of Physics
1-3 Kagurazaka, Shinjuku-ku
Tokyo 162
Japan
131. Prof. Masahiko Yamamoto
Department of Materials Science and Engineering
Osaka University
2-1 Yamadaoka, Suita
Osaka 565
Japan
132. DOE Oak Ridge Operations Office
Office of Assistant Manager for
Energy Research and Development
P.O. Box 2001
Oak Ridge, TN 37831
USA
- 133-134. Department of Energy
Office of Scientific and Technical Information
P.O. Box 62
Oak Ridge, TN 37831
USA

For distribution by microfiche as shown in DOE/TIC-4500
Distribution Category Uc-404 (Materials)