ORNL/TM--11696

DE91 007815

Metals and Ceramics Division

ATOM PROBE FIELD ION MICROSCOPY AND RELATED TOPICS:
A BIBLIOGRAPHY 1989

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Date Published — December 1990

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

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PREFACE

This bibliography includes references related to the following topics: atom probe field ion microscopy (APFIM), field ion microscopy (FIM), field emission microscopy (FEM), liquid metal ion sources (LMIS), scanning tunneling microscopy (STM), and theory. Technique-orientated studies and applications are included.

This bibliography covers the period 1989. Previous publications, *Atom Probe Field-ion Microscopy and Related Topics: A Bibliography 1978-1987*, compiled by M. K. Miller and A. R. McDonald, ORNL/TM-11157, *Atom Probe Field-Ion Microscopy and Related Topics: A Bibliography 1988*, compiled by M. K. Miller and A. R. Hawkins, ORNL/TM-11370, Oak Ridge National Laboratory, Oak Ridge, TN 37831-6285, and *Field-Ion Microscopy and Related Techniques, A Bibliography: 1951-1978*, compiled by R. E. Thurstans and J. M. Walls, published by Warwick, Birmingham, contains the papers published prior to this period.

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 in the year in which they were published. This year differs from previous editions in that the publications are subdivided into the categories listed in paragraph one above.

We would like to thank Dr. G. D. W. Smith of Oxford University, Dr. J. Bentley of Oak Ridge National Laboratory (ORNL), and M. Alexander of the ORNL Central Library for their stoic efforts in the preparation of this document. We would also like to thank the many authors for supplying their personal publications lists and we apologize for any errors or omissions that may have occurred in compiling this document.

M. K. Miller, A. R. Hawkins, and K. F. Russell
Metals and Ceramics Division

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1989

1	Composition in binary Al-Li alloys	Al-Kassab, T.
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<u>C8-50</u> , 419-24
2	Atom-probe field-ion microscopy of grain boundary segregation	Alvensleben, L.v.
Haasen, P.	Characterization of the Structure and Chemistry of Defects in Materials, Mat. Res. Soc. Symp. Proc. (1989) <u>138</u> , 479-84, Larson, B.C., Ruhle, M. and Seidman, D.N. eds., MRS, Pittsburgh, PA
3	An APFIM study of the ageing behaviour of U-6.0 wt % Nb	Beverini, G.
Edmonds, D.V.	J. de Phys. (1989)
<u>C8-50</u> , 429-36
4	Some unresolved issues in phase transformations - the role of microanalysis	Bhadeshia, H.K.D.H.	J. de Phys. (1989)
<u>C8-50</u> , 389-94
5	FIM atom probe investigation of long period superstructures in Cu_{3+x}Pd	Blavette, D.
Chambreland, S.
Loiseau, A.
Planes, J.
Ducastelle, F.	J. de Phys. (1989)
<u>C8-50</u> , 365-70
6	Toward a tomographic atom-probe	Bostel, A.
Blavette, D.
Menand, A.
Sarrau, J.M.	J. de Phys. (1989)
<u>C8-50</u> , 501-6
7	Atom-probe study of some fine-scale features in nickel base superalloys	Buchon, A.
Bostel, A.
Blavette, D.	J. de Phys. (1989)
<u>C8-50</u> , 401-6
8	A combined TEM/APFIM approach to the study of phase transformations: phase identification in the Fe-Be system	Burke, M.G.
Miller, M.K.	Ultramicroscopy (1989) <u>30</u> , 199-209
9	APFIM/TEM characterization of precipitation in alloy 718	Burke, M.G.
Miller, M.K.	J. de Phys. (1989)
<u>C8-50</u> , 395-400

Atom Probe Field Ion Microscopy

10	Oxygen concentration of $\text{Eu}_1\text{Ba}_2\text{Cu}_3\text{O}_{7-x}$ in vacuum: an atom probe study II	Camus, P.P.
Elswijk, H.B.
Melmed, A.J.	J. de Phys. (1989)
<u>C8-50</u> , 477-80
11	APFIM analysis of composite magnetic thin films	Camus, P.P.
Shull, R.D.
Melmed, A.J.	J. de Phys. (1989)
<u>C8-50</u> , 343-8
12	Characterization of ultrafine microstructures using a position-sensitive atom probe	Cerezo, A.
Grovenor, C.R.M.
Hetherington, M.G.
Shallock, B.A.
Smith, G.D.W.	Multicompon.
Ultrafine
Microstruct., Mat.
Res. Soc. Symp.
Proc.(1989) <u>132</u> ,
155-9, McCandlish,
L.E., Kear, B.H., and
Polk, D.E., eds.,
MRS, Pittsburgh, PA
13	Materials analysis with a position-sensitive atom probe	Cerezo, A.
Godfrey, T.J.
Grovenor, C.R.M.
Hetherington, M.G.
Hoyle, R.M.
Jakubovics, J.P.
Liddle, J.A.
Smith, G.D.W.
Worrall, G.M.	J. Microsc. (1989)
<u>154</u> , 215-25
14	Surface analysis with a position-sensitive atom probe	Cerezo, A.
Godfrey, T.J.
Grovenor, C.R.M.
Smith, G.D.W.	J. Phys. Condens.
Matter (1989) <u>1</u> ,
SB99-103
15	Visualisation and analysis of 3-dimensional atom probe data	Cerezo, A.
Hetherington, M.G.	J. de Phys. (1989)
<u>C8-50</u> , 523-8
16	Atom probe characterization of Co/transition-metal multilayer structures	Cerezo, A.
Hetherington, M.G.
Petford-Long, A.K.	J. de Phys. (1989)
<u>C8-50</u> , 349-54
17	Position-sensitive atom probe analysis of multiple quantum well structures	Cerezo, A.
Liddle, J.A.
Grovenor, C.R.M.	Microscopy of
Semiconducting
Materials VI (1989)
75-80, Cullis, A.G.
and Hutchison, J.L.
eds., Inst. Phys. ,
Bristol

18 Application of a position sensitive atom probe to the analysis of the chemistry and morphology of multi-quantum well interfaces	Cerezo, A.
Liddle, J.A.
Grovenor, C.R.M.
Chris, R.M.
Norman, A.G.
Smith, G.D.W.	Characterization of the Structure and Chemistry of Defects in Materials, Mat. Res. Soc. Symp. Proc. (1989) <u>138</u> , 335-40, Larson, B.C., Ruhle, M., and Seidman, D.N., eds., High-Resolution Microscopy of Materials, Mat. Res. Soc. Symp. Proc. (1989) <u>139</u> , 45-50, Krakow, W., Ponce, F.A., and Smith, D.J., eds., MRS, Pittsburgh, PA
19 Proc. 36th Int. Field Emiss. Symp. (1989), Oxford, Great Britain	Cerezo, A.
Miller, M.K.
Smith, G.D.W.
editors	J. de Phys. (1989) <u>C8-50</u>
20 The initial stage of aging iron-nitrogen martensite	Cheng, L.
Stark, I.
Korevaar, B.M.
Mittemeijer, E.J.
Smith, G.D.W.	High Nitrogen Steels (1989) <u>453</u> , 97-101, Proc. Intl. Conf., Lille, France, 1988, Fock, J. and Hendry, A., eds., Institute of Metals, London
21 Oxide films on iron and iron-copper alloys: an imaging atom probe investigation	Cornell, R.
Smith, G.D.W.
Cranstoun, G.K.L.	J. Chem. Technol. Biotechnol. (1989) <u>44</u> , 9-17
22 Time focusing in a field pulsed atom-probe with a reflectron	Drachsel, W.
Alvensleben, L.v.
Melmed, A.J.	J. de Phys. (1989) <u>C8-50</u> , 541-6
23 Oxygen concentration of $\text{Eu}_1\text{Ba}_2\text{Cu}_3\text{O}_{7-x}$ in vacuum: an atom probe study	Elswijk, H.B.
Melmed, A.J.
Camus, P.P.	Appl. Phys. Lett. (1989) <u>55</u> , 2667-9

Atom Probe Field Ion Microscopy

24	Field adsorption of helium and neon on tungsten: an energy-resolved atom-probe study	Ernst, N.	Surf. Sci. (1989) <u>219</u> , 1-32
25	Chromium concentration in and around ferrite-austenite phase boundaries in duplex stainless steels	Gadgil, V.J.
Swens, J.J.
Kolster, B.H.	J. de Phys. (1989) <u>C8-50</u> , 361-4
26	Observation of epitaxial overlayer of metals at atomic level	Gao, Q.J.
Tsong, T.T.	Acta Metall. Sinica (1989) <u>2</u> , 231-6
27	Field ion microscopy and atom probe microanalysis of vanadium	Godfrey, T.J.
Setna, R.P.
Smith, G.D.W.	J. de Phys. (1989) <u>C8-50</u> , 381-8
28	Atom probe studies of the composition of low-temperature oxides on (100) silicon and gallium arsenide surfaces	Grovenor, C.R.M.
Cerezo, A.	J. Appl. Phys. (1989) <u>65</u> , 5089-95
29	Position sensitive atom probe studies of the composition of α and θ' precipitates in Al-Cu-Mg-Ag alloys	Grovenor, C.R.M.
Shollock, B.A.
Knowles, K.M.	J. de Phys. (1989) <u>C8-50</u> , 377-80
30	Some aspects of the measurement of composition in the atom probe	Hetherington, M.G.
Miller, M.K.	J. de Phys. (1989) <u>C8-50</u> , 535-40
31	Studies on age-hardenable aluminum-alloys by atom-probe field-ion microscope	Hirano, K.	Bull. Mater. Sci. (1989) <u>12</u> , 313-23
32	Atom-probe study of selective oxidation of Ni from Cu-Ni alloy	Hono, K.
Nakamura, M.
Pickering, H.W.
Sakurai, T.	High-Resolution Microscopy of Materials, Mat. Res. Soc. Symp. (1989) <u>139</u> , 283-7, Krakow, W., Ponce, F.A., and Smith, D.J., eds., MRS, Pittsburgh, PA

33	Oxygen segregation and oxidation on a copper surface	Hono, K.
Pickering, H.W.
Hashizume, T.
Kamiya, I
Sakurai, T.	Surf. Sci. (1989) <u>213</u> , 90-102
34	An atom-probe field-ion microscope study of the initial stages of oxidation of copper and copper-iron alloy	Hono, K.
Pickering, H.W.
Sakurai, T.	Appl. Surf. Sci. (1989) <u>35</u> , 327-44
35	Atom-probe analysis of GP zones in an Al-1.7 at. % Cu alloy	Hono, K.
Sakurai, T.
Pickering, H.W.	Metall. Trans. (1989) <u>20A</u> , 1585-91
36	Effect of aluminum level on boron clustering in Ni ₃ Al	Horton, J.A.
Miller, M.K.
Liu, C.T.
George, E.P.
Bentley, J.	High-Temperature Ordered Intermetallic Alloys III, Mat. Res. Soc. Symp. Proc. (1989) <u>133</u> , 89-97, Liu, C.T., Taub, A.I., Stoloff, N.S., and Koch, C.C., eds., MRS, Pittsburgh, PA
37	The structure and composition of a Σ -9 interface in a Mo(Re) alloy via transmission electron and atom-probe field-ion microscopies	Hu, J.G.
Kuo, S.M.
Seki, A.
Krakauer, B.W.
Seidman, D.N.	Scripta Metall. (1989) <u>23</u> , 2033-8
38	FIM - atom probe investigation of melt-spun permanent magnets based on NdFeB	Hutten, A.
Haasen, P.	J. de Phys. (1989) <u>C8-50</u> , 337-42
39	Atom probe micro-characterization of grain boundary carbide precipitation and impurity-segregation in type 304 stainless steel	Ishikawa, Y.
Yoshimura, T.
Koguchi, Y.
Takahashi, K.	Boshoku Gijutsu (1989) <u>38</u> , 586-92
40	Atomic-level studies of superconducting and nonsuperconducting YBa ₂ Cu ₃ O _{7-x}	Kellogg, G.L.
Brenner, S.S.	Appl. Phys. A: Solids and Surfaces (1989) <u>48</u> , 197-201

Atom Probe Field Ion Microscopy

41	Novel applications of the field ion microscope and atom probe	Kellogg, G.L.	Microbeam Analysis-1989, 201-206A, Russell, P.E., ed., San Francisco Press, CA
42	Investigations of reactions between pure refractory metals and light gases with the field-ion microscope and atom probe	Krautz, E.
Haiml, G.	High Temp. - High Pressures (1989) <u>21</u> , 515-23
43	Atom probe with compensation for the scatter in the ion kinetic energies	Kudryavtsev, A.N.
Nikonenko, N.V.
Dubenskii, B.M.
Shmikk, D.V.	Pisma Zh. T. (1989) <u>15</u> , 33-6
44	Gold-germanium contacts on gallium arsenide	Kvist, A.
Hu, Q.H.
Andren, H-O.	J. de Phys. (1989) <u>C8-50</u> , 465-70
45	Atom probe analysis of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ - single crystals	Leisch, M.
Eisl, M.
Schweiger, E.
Leising, G.	J. de Phys. (1989) <u>C8-50</u> , 481-6
46	Position-sensitive atom probe analysis of multi-quantum well structures	Liddle, J.A.
Cerezo, A.
Grovenor, C.R.M.	J. de Phys. (1989) <u>C8-50</u> , 437-42
47	Position-sensitive atom probe and STEM analysis of the microchemistry of gallium indium arsenide/indium phosphide quantum wells	Liddle, J.A.
Long, N.J.
Norman, A.G.
Cerezo, A.
Grovenor, C.R.M.	Chem. Defects Semicond. Heterostruct., Mat. Res. Soc. Symp. Proc. (1989) <u>148</u> , 377-82, Kawabe, M., Sands, T.D., Weber, E.R., and Williams, R.S., eds., MRS, Pittsburgh, PA
48	Application of position sensitive atom probe to the study of the microchemistry and morphology of quantum well interfaces	Liddle, J.A.
Norman, A.G.
Cerezo, A.
Grovenor, C.R.M.	Appl. Phys. Lett. (1989) <u>54</u> , 1555-7

49	A new multifunction field ion microscope	Liu, W.
Ren, D.M.	Proc. Intl. Workshop on Physics of Materials (1989), G6-1-4, Shenyang, People's Rep. of China
50	The composition fluctuation in an $\text{Fe}_{46}\text{Ni}_{31}\text{V}_1\text{Si}_8\text{B}_{14}$ glass	Liu, Z.G.
Cao, Y.N.
Chen, Y.	J. de Phys. (1989) <u>C8-50</u> , 355-60
51	Characterization of the oxide film on molybdenum	Liu, Z.G.
Chen, Y.
Wen, X.Z.	Surf. Sci. (1989) <u>208</u> , L15-20
52	Heterogeneity in iron-nickel-boron ($\text{Fe}_{823}\text{Ni}_{1.7}\text{B}_{16}$) glass	Liu, Z.G.
Wu, H.J.
Chen, Y.
Wu, X.
Qin, X.Y.	J. Non-Cryst. Solids (1989) <u>109</u> , 262-6
53	The various charge states of gold ions in the field evaporation process	Lu, H.
Bao, C.L.
Yiong, Y.Y.	J. Phys. D: Appl. Phys. (1989) <u>22</u> , 948-51
54	Composition fluctuations in III-V semiconductors	MacKenzie, R.A.D.
Liddle, J.A.
Grovenor, C.R.M.
Cerezo, A.	J. de Phys. (1989) <u>C8-50</u> , 453-8
55	Pulsed laser atom probe characterization of silicon carbide	Miller, M.K.
Angelini, P.
Cerezo, A.
More, K.L.	J. de Phys. (1989) <u>C8-50</u> , 459-64
56	Atom probe field-ion microscopy and related topics: a bibliography 1988	Miller, M.K.
Hawkins, A.R.	ORNL/TM-11370 (1989) Oak Ridge National Laboratory, Oak Ridge, TN
57	Atom probe analysis of β' precipitation in a model iron-based Fe-Ni-Al-Mo superalloy	Miller, M.K.
Hetherington, M.G.	J. de Phys. (1989) <u>C8-50</u> , 425-8

Atom Probe Field Ion Microscopy

58	Atom probe field-ion microscopy: a technique for microstructural characterization of irradiated materials on the atomic scale	Miller, M.K.
Hetherington, M.G.
Burke, M.G.	Metall. Trans. (1989)
<u>20A</u> , 2651-61
59	An atom probe field-ion microscopy study of phase separation in the Twin City and Santa Catharina meteorites	Miller, M.K.
Russell, K.F.	J. de Phys. (1989)
<u>C8-50</u> , 413-8
60	Atom probe microanalysis: principles and applications to materials problems	Miller, M.K.
Smith, G.D.W.	(1989) MRS,
Pittsburgh, PA
61	Composition and microstructure of a nickel-based superalloy: UDIMET 720	More, K.L.
Miller, M.K.	Proc. 47th Ann.
Meet. Electron
Microsc. Soc. Amer.
(1989) 280-1, Bailey,
G.W., ed., San
Francisco Press, CA
62	The atom-probe with a field emission electron spectrometer	Nishikawa, O.
Koyama, H.
Kodama, N.
Tomitori, M.	J. de Phys. (1989)
<u>C8-50</u> , 507-12
63	Chemical homogeneity of NiPdP metallic glasses studied by atom probe-field ion microscopy	Oehring, M.	Z. Metallkunde
(1989) <u>80</u> , 1-8
64	Vitreous ice as a cryoprotectant for imaging atom-probe studies of adsorption phenomena at a solid-liquid interface	Panitz, J.A.	J. Vac. Sci. Technol.
(1989) <u>A7</u> , 2850-3
65	Annealing induced embrittlement and influence of annealing on ductile to brittle transition in metallic glass $\text{Fe}_{80.7}\text{B}_{12.8}\text{Si}_{3.9}\text{C}_{2.6}$	Qin, X.Y.
Wu, X.J.
Shui, J.P.
Liu, Z.G.	Z. Metallkunde
(1989) <u>80</u> , 626-9
66	The application of field ion microscope atom probe for materials science	Ren, D.	Mater. Sci. Progress
(1989) <u>3</u> , 523-9

Atom Probe Field Ion Microscopy

67	A new method of surface segregation analysis	Ren, D.
Liu, W.	Proc. 3rd Beijing Conf. and Exhib. on Instrum. Analysis (1989) Beijing
68	A study of segregation and cosegregation of some platinum base alloys	Ren, D.M.
Qin, J.H.
Liu, W.	Proc. Intl. Workshop on Physics of Materials (1989), G9-1-5, Shenyang, People's Rep. of China
69	Atom-probe analysis applied to TiC-Ni-based cemented carbides	Rolander, U.
Andren, H-O.	Proc. 12th Intl. Plansee Seminar (1989) <u>2</u> , 379-88, Bildstein, H. and Ortner, H.M., eds., Metallwerk Plansee GmbH, Reutee/Tirol, Austria
70	Evaluation of atom probe spectra from titanium carbonitride	Rolander, U.
Andren, H-O.	J. de Phys. (1989) <u>C8-50</u> , 371-6
71	Statistical correction for pile-up in the atom-probe detector system	Rolander, U.
Andren, H-O.	J. de Phys. (1989) <u>C8-50</u> , 529-34
72	Atom-probe field ion microscopy and its applications	Sakurai, T.
Sakai, A.
Pickering, H.W.	Advances in Electronics and Electron Physics (1989) <u>20</u> , 299 pp, Academic Press
73	Atom-probe study of the decomposition process of an Al-Zn alloy	Sano, N.
Hasegawa, Y.
Hirano, K.
Sakurai, T.
Pickering, H.W.	Scripta Metall. (1989) <u>23</u> , 231-6
74	Atom-probe study of surface segregation of Pt-Rh alloys	Sano, N.
Sakurai, T.	J. de Phys. (1989) <u>C8-50</u> , 321-8

Atom Probe Field Ion Microscopy

75	Study of the structure and chemistry of point, line and planar imperfections via field-ion and atom-probe field-ion microscopy	Seidman, D.N.	Characterization of the Structure and Chemistry of Defects in Materials, Mat. Res. Soc. Symp. Proc. (1989) <u>138</u> , 315-28, Larson, B.C., Ruhle, M., and Seidman, D.N., eds., MRS, Pittsburgh, PA
76	A FIM atom probe study of vanadium oxidation	Setna, R. P.
Godfrey, T.J.
Smith, G.D.W.	J. Phys. Condens. Matter (1989) <u>1</u> , SB215-6
77	A field-ion microscopy and atom probe study of ageing behaviour of a Co-bearing maraging steel	Sha, W.
Cerezo, W.
Smith, G.D.W.	J. de Phys. (1989) <u>C8-50</u> , 407-12
78	The microchemistry of grain boundaries in Ni ₃ Al	Sieloff, D.N.
Brenner, S.S.
Ming-Jian, H.	High-Temperature Ordered Intermetallic Alloys III, (1989) <u>133</u> , 155-60, Liu, C.T., Taub, A.I., Stoloff, N.S., and Koch, C.C., eds., MRS, Pittsburgh, PA
79	Grain boundary chemistry in nickel base alloy 600	Stiller, K.	J. de Phys. (1989) <u>C8-50</u> , 329-34
80	Atom probe field ion analysis of metal surface	Suzuki, T.
Nishi, Y.	Puretingu to Kotingu (1989) <u>2</u> , 64-7
81	Spinodal decomposition during aging of Fe-Ni-C martensites	Taylor, K.A.
Chang, L.
Olson, G.B.
Smith, G.D.W.
Cohen, M.
VanderSande, J.B.	Metall. Trans. (1989) <u>20A</u> , 2717-37
82	Atom-probe field ion microscope analysis of surfaces of materials	Tsong, T.T.
Chen, C.
Liu, J.	J. Mater. Res. (1989) <u>4</u> , 1549-59

83	Surface analysis with pulsed-laser stimulated field desorption	Tsong, T.T.
Liou, Y.
Liu, J.	J. Vac. Sci. Technol.
(1989) <u>A7</u> , 1758-63
84	Investigation of atomic structure and composition of yttrium barium copper oxide ($\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$) single crystals by means of a wide-angle atomic probe	Vlasov, Y.A.
Golubev, O.L.
Samokhvalov, A.A.
Syutkin, N.N.
Tulantsev, E.F.
Chebotaev, N.M.
Shrednik, V.N.	Pisma Zh. T. (1989)
<u>15</u> , 62-7
85	Atom probe analysis of thin oxide layers on zircaloy needles	Wadman, B.
Andren, H-O.
Falk, L.K.L.	J. de Phys. (1989)
<u>C8-50</u> , 303-8
86	Direct measurement of matrix composition in zircaloy-4	Wadman, B.
Andren, H-O.	Proc. 8th Intl. Symp.
Zirconium Nucl. Inc.,
ASTM STP 1023
(1989) 423-34
87	475°C embrittlement of duplex stainless steel	Wahlberg, G.
Rolander, U.
Dunlop, G.L.	Proc. 8th Intl. Conf.
on Strength of Metals
and Alloys, Tampere,
Finland, 1988,
Kettunen, P.O.,
Lepisto, T.K., and
Lehtonen, M.E., eds.,
Pergamon Press,
Oxford, UK (1989) <u>3</u> ,
1263-6
88	Interaction between nitrogen and substitutional elements in the austenitic phase of duplex austenitic-ferritic stainless steels	Wahlberg, G.
Rolander, U.
Andren, H-O.	High Nitrogen Steels
(1989) <u>453</u> , 163-8,
Proc. Intl. Conf.,
Lille, France, 1988,
Fock, J. and Hendry,
A., eds., Institute of
Metals, London
89	Field ion microscopy and atom probe analysis of ion-irradiated alloys (summary)	Wollenberger, H.
Kell, B.
Lang, R.
Wagner, W.	J. de Phys. (1989)
<u>C8-50</u> , 335-6

Atom Probe Field Ion Microscopy

- 90 Atom transport and phase separation in irradiated Cu-Ni-Fe alloys

Wollenberger, H.J.

Characterization of the Structure and Chemistry of Defects in Materials, Mat. Res. Soc. Symp. Proc. (1989) 138, 3-13, Larson, B.C., Ruhle, M., and Seidman, D.N., eds., MRS, Pittsburgh, PA

1	Precision ion milling of field-ion specimens	Alexander, K.B.
Angelini, P.
Miller, M.K.	J. de Phys. (1989)
<u>C8-50</u> , 549-54
2	Experimental techniques in evaluating the dynamics of catalytic surface reactions	Block, J.H.	Dechema
Monographs - VCH
Verlagsgesellschaft
(1989) <u>120</u> , 169-94
3	Solid-state surfaces from atomic view-studies by field-ion microscopy and mass spectrometry	Block, J.H.	Mitteilungsblatt
Chem. Gesell., DDR
(1989) <u>36</u> , 121-8
4	Determination of reaction intermediates of heterogeneous catalytic reactions by field pulse desorption	Block, J.H.
Abend, G.
Kruse, N.
Weimer, J.J.	Chem. Eng. Comm.
(1989) <u>83</u> , 103-9
5	Enhanced formation of multiply charged ions in negative ion field desorption mass spectrometry of organic compounds	Bramer-Weger, E.
Thiebes, S.
Rollgen, F.W.	J. de Phys. (1989)
<u>C8-50</u> , 159-64
6	Studies of individual nanometer-sized metallic clusters using scanning tunneling microscopy, field emission, and field ion microscopy	Castro, T.
Li, Y.Z.
Reifenberger, R.
Choi, E.
Park, S.B.
Andres, R.P.	J. Vac. Sci. Technol.,
(1989) <u>A7</u> , 2845-9
7	Behavior of single Ir adatoms and small Ir clusters on Ir surfaces	Chen, C.L.
Tsong, T.T.	J. de Phys. (1989)
<u>C8-50</u> , 273-8
8	Field ion images of some non-metallic materials	Chen, C.L.
Tsong, T.T.	High-Resolution
Microscopy of
Materials, Mat. Res.
Soc. Symp. Proc.
(1989) <u>139</u> , 181-6.
Krakow, W., Ponce,
F.A., and Smith, D.J.,
eds., MRS,
Pittsburgh, PA

Field Ion Microscopy

9	Methanol adsorption and decomposition on rhodium	Chuah, G.K.
Kruse, N.
Schmidt, W.A.
Block, J.H.
Abend, G.	J. Catalysis (1989)
<u>119</u> , 342-53
10	Photon induced field desorption of water	Dirks, J.
Drachsel, W.
Block, J.H.	J. de Phys. (1989)
<u>C8-50</u> , 153-8
11	Field ion microscopy of quasicrystals	Elswijk, H.B.
DeHosson, J.T.M.	Characterization of the Structure Chemistry of Defects in Materials, Mat. Res. Soc. Symp. Proc. (1989) <u>138</u> , 341-6, Larson, B.C., Ruhle, M., and Seidman, D.N., eds., High-Resolution Microscopy of Materials, Mat. Res. Soc. Symp. Proc. (1989) <u>139</u> , 51-6, Krakow, W., Ponce, F.A., and Smith, D.J., eds., MRS, Pittsburgh, PA
12	An advanced technique for the preparation and TEM examination of FIM specimens	Fischione, P.E.
Haugh, J.J.
Burke, M.G.	J. de Phys. (1989)
<u>C8-50</u> , 555-60
13	Direct observation of atomic image of high T_c superconductors by field ion microscopy	Gao, Z.J.
Zhang, Z.X.
Xu, S.Y.
Feng, S.Q.
Wang, S.Z.	J. de Phys. (1989)
<u>C8-50</u> , 487-90
14	Kinetics of field evaporation of gallium phosphide in the presence of hydrogen	Gaussman, A.
Drachsel, W.
Block, J.H.	J. de Phys. (1989)
<u>C8-50</u> , 141-6

Field Ion Microscopy

15	A field ion microscopy study of nickel oxide	Hono, K.
Iwata, T.
Pickering, H.W.
Sakurai, T.	Surf. Sci. (1989) <u>209</u> ,
L109-17
16	Photon-stimulated desorption of hydrogen from rhodium and nickel in high electric fields	Jaenicke, S.
Dosselmann, J.
Ciszewski, A.
Drachsel, W.
Block, J.H.
Menzel, D.	Surf. Sci. (1989)
<u>211/212</u> , 804-12
17	High-field microscopy of the tungsten/polyethylene system	Karpowicz, A.
Surma, S.	Surf. Sci. (1989) <u>213</u> ,
393-411
18	Field ion microscope and imaging atom-probe investigations of oxide formation on W and Ir field emitters	Kellogg, G.L.	J. de Phys. (1989)
<u>C8-50</u> , 297-302
19	Direct observations of atomic mixing in Pt/Pd surface alloy formation	Kellogg, G.L.
Schwoebel, P.R.	Surf. Sci. (1989) <u>224</u> ,
489-97
20	Field ion microscope investigations of atomic processes at surfaces	Kellogg, G.L.
Schwoebel, P.R.	Proc. 47th Ann.
Meet. Electron
Microsc. Soc. Amer.
(1989) 228-9, Bailey,
G.W., ed., San
Francisco Press, CA
21	Pencil lead tips: a field ion and field electron emission microscopic study	Khairnar, R.S.
Dharmadhikari, C.V.
Joag, D.S.	J. Appl. Phys. (1989)
<u>65</u> , 4735-8
22	Field ion microscopic investigations of deposition, adhesion and field desorption of carbides on tungsten	Krautz, E.
Haiml, G.	J. de Phys. (1989)
<u>C8-50</u> , 309-15
23	Investigations of lattice defects of metals with dissolved hydrogen by the field ion microscope	Krautz, E.
Haiml, G.	Z. Phys. Chem.
(1989) <u>164</u> , 1145-50

Field Ion Microscopy

24	Theory of oscillating reactions	Kreuzer, H.J.	Dechema
Monographs -VCH
Verlagsgesellschaft
(1989) <u>120</u> , 375-89
25	Formation of Rh-subcarbonyls during the reaction of CO, CO ₂ and CH ₃ OH with stepped Rh single crystal surfaces	Kruse, N.
Abend, G.
Block, J.H.	Surf. Sci. (1989)
<u>211/212</u> , 1038-43
26	Kinetics of adsorption, thermal desorption and dissociation of NO on rhodium, studied by pulsed field desorption	Kruse, N.
Abend, G.
Block, J.H.	J. de Phys. (1989)
<u>C8-50</u> , 147-52
27	Observation of Rh-subcarbonyls on stepped Rh surfaces during catalytic reactions	Kruse, N.
Abend, G.
Block, J.H.	J. Chem. Phys. (1989)
<u>91</u> , 577-83
28	Adatom diffusion on metals: Ir on W(110)	Lovisa, M.
Ehrlich, G.	J. de Phys. (1989)
<u>C8-50</u> , 279-84
29	The various charge states of gold ions in the field evaporation process	Lu, H.
Bao, C.L.
Xiong, Y.Y.	J. Phys. D: Appl.
Phys. (1989) <u>22</u> ,
948-51
30	Field evaporation of n-Ge (111) in hydrogen and decomposition of GeH ₄ in high electrostatic fields	Mainka, C.
Drachsel, W.
Block, J.H.
Kozlowski, G.	J. de Phys. (1989)
<u>C8-50</u> , 135-40
31	The method of sharp-pointed shards	Melmed, A.J.	J. de Phys. (1989)
<u>C8-50</u> , 547-8
32	Field ion microscope image simulations for icosahedral Al-Mn	Melmed, A.J.
Elswijk, H.B.
Fowler, H.A.	J. de Phys. (1989)
<u>C8-50</u> , 259-64
33	Field evaporation and field ion microscopy study of the morphology of phases produced as a result of low temperature phase transformations in the iron-chromium system	Miller, M.K.	J. de Phys. (1989)
<u>C8-50</u> , 247-52

34	Vapor-deposition and migration of iron on tungsten tips	Morikawa, H.
Hara, T.
Iwatsu, F.
Terao, T.	J. de Phys. (1989)
<u>C8-50</u> , 285-90
35	FIM observation of monolayer Pd adsorbed on W and Mo surfaces	Okuno, K.
Kim, H.	J. de Phys. (1989)
<u>C8-50</u> , 291-6
36	Field desorption process of Pd adlayer and adatom on W(011), W(112) and W(111)	Okuno, K.
Kim, H.	Jpn. J. Appl. Phys. (1989) <u>28</u> , 1054-60
37	Image effects in the field ionization phenomenon	Radny, M.
Krystof, W.	Surf. Sci. (1989) <u>213</u> , 270-6
38	A combination electron/ion field emission source	Rao, K.A.
Bell, A.E.
Schwind, G.A.
Swanson, L.W.	J. Vac. Sci. Technol., (1989) <u>B7</u> , 1793-7
39	Scanning tunneling microscope equipped with a field ion microscope	Sakurai, T.
Hashizume, T.
Kamiya, I.
Hasegawa, Y.
Ide, T.
Miyao, M.
Sumita, I.
Sakai, A.
Hyodo, S.	J. Vac. Sci. Technol. (1989) <u>A7</u> , 1684-8
40	The latest field ion microscope and its applications	Sakurai, T.
Sano, N.	Kinzoku, (1989) <u>59</u> , 40-7
41	On the surface morphology underlying NFIM images obtained with tetracyanoethylene	Schmitz, R.
Rollgen, F.W.	J. de Phys. (1989)
<u>C8-50</u> , 243-6
42	Structure determination of Ir(111) and (110) surfaces by field ion microscopy	Schutz, O.
Muller, K.	J. de Phys. (1989)
<u>C8-50</u> , 253-8
43	Extraction of Ir-Ir adatom interaction strengths on Ir(100) from field ion microscopy of iridium cluster structures	Schwoebel, P.R.
Feibelman, P.J.	Surf. Sci. (1989) <u>216</u> , 263-9

Field Ion Microscopy

44	Structure of platinum adatom clusters on Pt(100): experimental observation and embedded-atom-methods calculations	Schwoebel, P.R.
Foiles, S.M.
Bisson, C.L.
Kellogg, G.L.	Phys. Rev. B (1989)
<u>40</u> , 639-42
45	Preparation technique of point-samples from $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ monocrystals for investigation in field ion microscope	Talantaev, E.F.
Ivchenko, V.A.
Syutkin, N.N.	Pisma. Zh. T. (1989)
<u>15</u> , 76-9
46	An FIM study on the initial stage of the surface reaction of tungsten with n-octanol under an applied DC voltage	Terao, T.
Iwatsu, F.
Morikawa, H.	J. de Phys. (1989)
<u>C8-50</u> , 315-20
47	Structural investigations on $\text{Al}_7(\text{Mn}_{0.7}\text{Fe}_{0.3})_2$ and Al_4Pd decagonal quasi crystals by FIM	van Bakel, G.P.E.M.
Bronsveld, P.M.
de Hosson, J.T.M.	J. de Phys. (1989)
<u>C8-50</u> , 265-72
48	FIM observation of Fe_{15}N_2 in a nitrated pure iron	Wada, M.
Fujii, A.
Komazaki, T.
Mori, T.	High Nitrogen Steels (HNS 88) Proc. Intl. Conf., Lille, France, 1988, Fock, J. and Hendry, A., eds., Institute of Metals, London (1989), 143-6
49	FIM observation of nitrogen GP zones in iron	Wada, M.
Fujii, A.
Komazaki, T.
Mori, T.	Acta Metall. (1989)
<u>37</u> , 2349-55
50	The FCC to BCC transformation in Fe film on a spherical Cu substrate	Wada, M.
Uda, S.
Kato, M.	Phil. Mag. A (1989)
<u>59</u> , 31-45
51	Binding sites for cluster atoms: Ir on Ir(111)	Wang, S.C.
Ehrlich, G.	Surf. Sci. (1989) <u>217</u> , L397-405
52	Imaging and diffusion of individual iridium adatoms on Ir(111)	Wang, S.C.
Ehrlich, G.	Surf. Sci. (1989) <u>224</u> , L997-1003
53	Cluster motion on metals: Ir on Ir(111)	Wang, S.
Ehrlich, G.	J. Chem. Phys. (1989)
<u>91</u> , 6535

Field Ion Microscopy

54	Self-adsorption sites on a close-packed surface-Ir on Ir(111)	Wang, S.C.
Ehrlich, G.	Phys. Rev. Lett.
(1989) <u>62</u> , 2297-2300
55	Atomic jump lengths in surface-diffusion - Re, Mo, Ir, and Rh on W(211)	Wang, S.C.
Wrigley, J.D.
Ehrlich, G.	J. Chem. Phys. (1989)
<u>91</u> , 5087-96
56	Direct mapping of adatom-adatom interactions	Watanabe, F.
Ehrlich, G.	Phys. Rev. Lett.
(1989) <u>62</u> , 1146-9
57	Field ion microscopy on clean and oxygen-etched W(111) tips	Wengelnik, H.
Neddermeyer, H.	Abstract of 4th Intl.
Conf. on Scanning
Tunneling
Microscopy/
Spectroscopy STM
'89, 128, Oarai,
Ibaraki, Japan
58	Experimental verification of superconducting phase separation model in metallic glass $Zr_{78}Co_{22}$	Xianyi, Z.
Zhiguo, L.
et al.	Solid State
Communication
(1989) <u>69</u> , 981-6
59	Phase transformations at/near the surface of ordering alloys	Yamamoto, M.
Nenno, S.	Surf. Sci. (1989) <u>213</u> ,
502-24

1	Silicon field emitter arrays:
fabrication and operation	Allen, P.C.	Proc. 2nd Intl. Conf.
Vacuum
Microelectronics,
Turner, R.E., ed.,
1989, 17-20, Institute
of Physics, Bristol and
NY
2	Frequency limits of electronic
tubes with field emission cathodes	Anderson, W.A.	Proc. 2nd Intl. Conf.
Vacuum
Microelectronics,
Turner, R.E., ed.,
1989, 217-21, Institute
of Physics, Bristol and
NY
3	Temperature regime of graphite
field-emission cathodes with large
working surface	Astakhov, O.P.
Makukha, V.I.
Sheshin, E.P.	Radiotek. El. (1989)
<u>34</u> , 1310-2
4	Factors influencing the stability of
cold-cathodes formed by coating a
planar electrode with a
metal-insulator composite	Bajic, S.
Mousa, M.S.
Latham, R.V.	J. de Phys. (1989)
<u>C8-50</u> , 79-84
5	Stimulated cold-cathode emission
from metal electrodes coated with
Langmuir-Blodgett multilayers	Bajic, S.
Cade, N.A.
Archer, A.D.
Latham, R.V.	Proc. 2nd Intl. Conf.
Vacuum
Microelectronics,
Turner, R.E., ed.,
1989, 57-60, Institute
of Physics, Bristol and
NY
6	Low-field 'cold-cathode' electron
emission from Cu electrodes
overlayed by a resin-particle
composite	Bajic, S.
Latham, R.V.	Proc. 2nd Intl. Conf.
Vacuum
Microelectronics,
Turner, R.E., ed.,
1989, 101-4, Institute
of Physics, Bristol and
NY
7	Field emission fluctuations
induced by the diffusion of atoms
on a clean metal surface	Bakhtizin, R.Z.
Valeyev, V.G.
Shikhovtseva, E.S.	J. de Phys. (1989)
<u>C8-50</u> , 117-22

Field Emission Microscopy

8	Field emission current fluctuations from semiconductors: surface and bulk effects	Bakhtizin, R.Z.
Ghots, S.S.	J. de Phys. (1989)
<u>C8-50</u> , 103-8
9	Energetic characterization of field emission cathodes	Baptist, R.
Ghis, A.
Meyer, R.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 85-8, Institute of Physics, Bristol and NY
10	Cross-correlation functions of the field emission fluctuations with slit probed regions	Beben, J.
Kleint, C.
Meclewski, R.	J. de Phys. (1989)
<u>C8-50</u> , 97-102
11	Improved adsorbate fluctuation measurements and their explanation by different diffusion mechanisms I. Arguments in favour of single adatoms surface diffusion	Beben, J.
Kleint, C.
Meclewski, R.	Surf. Sci. (1989) <u>213</u> , 438-50
12	Improved adsorbate fluctuation measurements and their explanation by different diffusion mechanisms II. A plausible soliton mechanism	Beben, J.
Kleint, C.
Pawelek, A.	Surf. Sci. (1989) <u>213</u> , 451-63
13	Surface diffusion of lithium on the W(112) plane by field emission spectral density analysis	Biernat, T.
Kleint, C.	J. de Phys. (1989)
<u>C8-50</u> , 123-8
14	A field emission study of silicon	Binh, V.T.
Chaouch, M.	J. de Phys. (1989)
<u>C8-50</u> , 443-9
15	Transfer characteristics of carbon-fiber field-emission current	Bondarenko, B.V.
Cherepanov, A.Y.
Shakhovskoy, A.G.
Sheshin, E.P.	Radiotek. El. (1989)
<u>34</u> , 1307-10

16	Fluctuation phenomena in field emission from molybdenum micropoints	Brodie, I.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 89-93, Institute of Physics, Bristol and NY
17	Keynote address to the first international vacuum microelectronics conference, June 1988: pathways to vacuum microelectronics	Brodie, I.	IEEE Trans. Electr. Devices (1989) <u>36</u> , 2637-40
18	Physical considerations in vacuum microelectronics devices	Brodie, I.	IEEE Trans. Electr. Devices (1989) <u>36</u> , 2641-4
19	Lateral cold cathode triode structures fabricated on insulating substrates	Busta, H.H.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 29-32, Institute of Physics, Bristol and NY
20	Field emission from tungsten-clad silicon pyramids	Busta, H.H.
Shaddock, R.R.
Orvis, W.J.	IEEE Trans. Electr. Devices (1989) <u>36</u> , 2679-85
21	Modeling of electron trajectories in field emission devices	Cade, N.A.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 109-12, Institute of Physics, Bristol and NY
22	Wet etching of cusp structures for field-emission devices	Cade, N.A.
Lee, R.A.
Patel, C.	IEEE Trans. Electr. Devices (1989) <u>36</u> , 2709-14

Field Emission Microscopy

23	Geometry optimization for a lateral triode	Carr, W.N.
Wang, H.J.
Chin, K.K.
Marcus, R.B.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 195-9, Institute of Physics, Bristol and NY
24	Alloy formation of Ni with reacting germane	Ciszewski, A.
Frank, O.
Block, J.H.	Surf. Sci. (1989) <u>213</u> , 316-20
25	Epitaxy of metals on metal substrates: the contribution of field electron emission microscopy	Ciszewski, A.
Melmed, A.J.	Prog. Surf. Sci. (1989) <u>32</u> , 173-210
26	Fine-structure in field-emission resonances at surfaces	Coombs, J.H.
Gimzewski, J.K.	J. Microsc. (1989) <u>152</u> , 841-51
27	Tunneling theory and vacuum microelectronics	Cutler, P.H.
Feuchtwang, T.E.
Huang, Z.
Sullivan, T.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 121-32, Institute of Physics, Bristol and NY
28	Field emission gun for microengineering application	Delong, A.
Kolarik, V.	J. Phys. E: Sci. Instrum. (1989) <u>22</u> , 612-4
29	Focused electron-emission from planar quantum point contacts	Deraedt, H.
Garcia, N.
Saenz, J.J.	Phys. Rev. Lett. (1989) <u>63</u> , 2260-3
30	Nanolithography using field emission and conventional thermionic electron sources	Devenish, R.W.
Eaglesham, D.J.
Maher, D.M.
Humphreys, C.J.	Ultramicroscopy (1989) <u>28</u> , 324-9
31	A creation of grain boundaries by an electric field	Drechsler, M.
Neddermeyer, H.	Surf. Sci. (1989) <u>209</u> , L118-24

32	Effect of thin silicon films on field emission from molybdenum and tantalum cathodes	Duann, J.	(1989) 85, Univ. Microfilms Int., Order No. DA8916999
33	Comparison of vacuum and semiconductor field effect transistor performance limits	Eastman, L.F.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 189-94, Institute of Physics, Bristol and NY
34	Analysis of particle trajectories on an interactive desktop system	Edgcombe, C.J.
Roberts, D.E.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 181-4, Institute of Physics, Bristol and NY
35	Study of the thermal field ion emission from metal-semiconductor system	Egorov, N.V.
Korol'kov, A.E.	Zh. Tekh. Fiz. (1989) <u>59</u> , 129-31
36	Interface phenomena in the field ion and field electron energy spectroscopy of high- T_c superconductors	Ernst, N.
Bozdech, G.
Schmidt, W.A.
Naschitzki, M.
Melmed, A.J.	J. de Phys. (1989) <u>C8-50</u> , 471-5
37	A mathematical model to predict optimum geometry of the elements of a field emitter array cathode	Feeney, R.K.
Cochran, J.K.
Hill, D.D.
Chapman, A.T.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 117-20, Institute of Physics, Bristol and NY
38	Monte Carlo calculation and vacuum emission experiments of hot and ballistic electrons from MIS-structures	Fitting, H-J.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 133-6, Institute of Physics, Bristol and NY

Field Emission Microscopy

39	Electron emission from small sources	Garcia, N.
Saenz, J.J.
de Raedt, H.	J. Phys.: Condens. Matter (1989) <u>1</u> , 9931-56
40	Simulation of the processes in semiconductor surface space-charge region under field-emission conditions	Germ, V.E.
Mileshkina, N.V.
Semykina, E.A.	Radiotek El (1989) <u>34</u> , 843-7
41	Thermal-field-emission electron optics for nanolithography	Gesley, M.	J. Appl. Phys. (1989) <u>65</u> , 914-26
42	Effect of magnetic quantization on field emission from quaternary alloys	Ghatak, K.P.	Fizika (Zagreb) (1989) <u>21</u> , 17-24
43	Surface self-diffusion and thermal roughening study of tungsten single crystal planes by field emission fluctuation method	Gong, Y.	Zhenkong Kexue Yu Jishu (1989) <u>9</u> , 179-84
44	Field emitter arrays-more than a scientific curiosity?	Gray, H.F.	J. de Phys. (1989) <u>C8-50</u> , 67-72
45	An experimental study of the physics of field emission by tip arrays	Harvey, R.J.
Lee, R.A.
Miller, A.J.
Wigmore, J.K.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 113-6, Institute of Physics, Bristol and NY
46	Secondary-electron-field emission for capture site spectroscopy in thin insulator layers	Hecht, D.
Fitting, H.J.	Phys. Halbleitoberflaeche (1989) <u>20</u> , 81-4
47	Electrical characterization of gridded field emission cathodes	Howell, D.F.
Groves, R.D.
Lee, R.A.
Patel, C.
Williams, H.A.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 81-4, Institute of Physics, Bristol and NY

48 Computer simulation of a wave packet tunneling through a square barrier	Huang, Z.-H.
Cutler, P.H.
Feuchtwang, T.E.
Good, R.H., Jr.
Kazes, E.
Nguyen, H.Q.
Park, S.K.	IEEE Trans. Electr. Devices (1989) <u>36</u> , 2665-70
49 Theoretical study of a vacuum field effect transistor	Huang, Z.-H.
Cutler, P.H.
Feuchtwang, T.E.
Gray, H.F.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 223-6, Institute of Physics, Bristol and NY
50 Field-emission properties of surface-processed TiC tips	Ishizawa, Y.
Aoki, S.
Oshima, C.
Otani, S.	J. Phys. D: Appl. Phys. (1989) <u>22</u> , 1763-67
51 Emitters in electric field-ionization type ion gas sources in semiconductor device manufacture	Itakura, T.	Jpn. Kokai Tokkyo Koho (1989), 4
52 Fabrication and theoretical study of micron-size vertical vacuum triodes	Itoh, J.
Hiroshima, H.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 231-4, Institute of Physics, Bristol and NY
53 Changes in the field-emitted electron-energy spectra induced by cerium adsorption on W	Ivanov, V.A.
Kirsanova, T.S.
Tumarova, T.A.	Fizika Tverdogo Tela (1989) <u>31</u> , 82-5
54 Fabrication of sharp field emission structures using ion beam milling	Jacobson, S.E.
Cade, N.A.
Lee, R.A.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 5-8, Institute of Physics, Bristol and NY

Field Emission Microscopy

55	Effect of gases on emission characteristics of the tantalum nitride (Ta_2N) thermal field electron cathode	Jiang, X.	Zhenkong Kexue Yu Jishu (1989) <u>9</u> , 153-9
56	Field emission studies on LaB_6/W , metallic glass and graphite composite	Khairnar, R.S.	Univ. Poena (1989) Thesis, Pune, India
57	Study of direct-current, pulsed, and temperature-field emission from LaB_6 /tungsten field emitter	Khairnar, R.S.
Dharmadhikari, C.V.
Joag, D.S.
Kanitkar, P.L.
Nigavekar, A.S.	J. Vac. Sci. Technol. (1989) <u>A7</u> , 2730-3
58	Metallic glass as a field electron emitter	Khairnar, R.S.
Joag, D.S.	J. Phys. D: Appl. Phys. (1989) <u>22</u> , 547-9
59	Pencil lead field emitter	Khairnar, R.S.
Joag, D.S.	J. de Phys. (1989) <u>C8-50</u> , 85-90
60	Metal-semiconductor (Si,GaAs) interfaces	Kim, H.
Hashio, F.
Sakurai, T.	J. de Phys. (1989) <u>C8-50</u> , 449-53
61	Effect of preadsorbed nickel atoms upon the potassium mobility on the W(112) plane	Kleint, C.
Blaszczynszyn, R.	J. de Phys. (1989) <u>C8 50</u> , 91-6
62	FEM and FIM study of metal-support interaction	Knor, Z.
Sotola, J.	Surf. Sci. (1989) <u>213</u> , 371-80
63	New application of field emission techniques (FEM and FIM) to the study of catalytic systems	Knor, Z.
Sotola, J.	Revue Roumaine de Chimie (1989) <u>34</u> , 1373-6
64	An x-ray projection microscope with field emission gun	Kolarik, V.
Svoboda, V.	J. Microsc. (1989) <u>156</u> , 247-51
65	A wide-bandwidth high-gain small-size distributed amplifier with field-emission triodes (FETRODE's) for the 10 to 300 GHz frequency range	Kosmahl, H.G.	IEEE Trans. Electr. Devices (1989) <u>36</u> , 2728-37

66	An x-band tuned amplifier with a field-emission cathode	Laliy, P.M.
Goren, Y.
Nettesheim, E.A.	IEEE Trans. Electr. Devices (1989) <u>36</u> , 2738-41
67	Field-enhanced emission	Landsberg, P.T.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 149-52, Institute of Physics, Bristol and NY
68	Characterization of individual micro-emission centres distributed in planar arrays	Latham, R.V.
Archer, A.D.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 153-64, Institute of Physics, Bristol and NY
69	Thermal relaxation of a laser illuminated field emitter	Lee, M.J.G.
Robins, E.S.	J. Appl. Phys. (1989) <u>65</u> , 1699-706
70	Construction and performance of field emitting cathodes	Lee, R.A.
Miller, A.J.
Patel, C.
Williams, H.A.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 105-8, Institute of Physics, Bristol and NY
71	Semiconductor fabrication technology applied to micrometer valves	Lee, R.A.
Patel, C.
Williams, H.A.
Cade, N.A.	IEEE Trans. Electr. Devices (1989) <u>36</u> , 2703-8
72	Dissociation of CO on stepped/kinked surface areas of a rounded Pt crystal I. Clean surface	Li, X.Q.D.
Vanselow, R.	Catalysis Lett. (1989) <u>2</u> , 113-20
73	Dissociation of CO on stepped/kinked surface areas of a rounded Pt crystal II. Influence of low Si contamination	Li, X.Q.D.
Vanselow, R.	Surf. Sci. (1989) <u>217</u> , L417-22

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74	Dissociation of CO on rounded Pt crystals III. Influence of high Si contamination on the dissociation activity of {210} and {1195} areas	Li, X.Q.D.
Vanselow, R.	Surf. Sci. (1989) <u>217</u> , L423-9
75	A general formula to calculate the field intensity on the field emitter	Luo, E.
Lin, Y.
Huang, W.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 95-9, Institute of Physics, Bristol and NY
76	Preparation and characterization of zirconium carbide field emitters	Mackie, W.A.
Hinrichs, C.H.
Davis, P.R.	IEEE Trans. Electr. Devices (1989) <u>36</u> , 2697-702
77	Ballistic field emission devices	Makhov, V.I.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 235-8, Institute of Physics, Bristol and NY
78	Simulation and design of field emitters	Marcus, R.B.
Chin, K.K.
Yuan, Y.
Wang, H.J.
Carr, W.N.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 77-80, Institute of Physics, Bristol and NY
79	Investigations of the quantity of elementary acts of field emission with time resolution of 5 μ s - 100 ps	Maslov, V.I.
Fursey, G.N.
Kocheryshenkov, A.V.	J. de Phys. (1989) <u>C8-50</u> , 113-6
80	Statistics of field emission from tungsten over a wide range of current densities	Maslov, V.I.
Fursey, G.N.
Kocheryshenkov, A.V.	Zh. Tekh. Fiz. (1989) <u>59</u> , 164-7

81	An STM controlled field emission microlens electron source	McCord, M.A.
Chang, T.H.P.
Kern, D.P.
Speidell, J.L.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 165-6, Institute of Physics, Bristol and NY
82	Gigatron	McIntyre, P.M.
Bizek, H.M.
Elliott, S.M.
Nassiri, A.
Popovic, M.B.
Raparia, D.
Swenson, C.A.
Gray, H.F.	IEEE Trans. Electr. Devices (1989) <u>36</u> , 2720-7
83	A simplified analysis of the field emission from semiconductor superlattices under magnetic quantization	Mitra, B.
Ghatak, K.P.	Phys. Lett. A (1989) <u>142</u> , 401-4
84	A high-voltage pulse source for electron-beam generation using field-emission	Mizuno, A.
Kamase, Y.	IEEE Ind. Ap. (1989) <u>25</u> , 54-61
85	Field emission gun for surface studies	Morin, P.
Ning, L.H.
Pellerin, F.	Ultramicroscopy (1989) <u>28</u> , 103-7
86	Application of a scanning tunneling microscope to field emission studies	Niedermann, P.
Fischer, O.	IEEE Trans. Electr. Insul. (1989) <u>24</u> , 905-10
87	Investigation of field emitting microstructures by scanning electron and scanning tunnelling microscopy	Niedermann, P.
Reneer, C.
Kent, A.D.
Fischer, O.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 173-6, Institute of Physics, Bristol and NY

Field Emission Microscopy

88	Micro-cavity integrable vacuum devices and triodes	Orvis, W.J.
McConaghy, C.F.
Ciarlo, D.R.
Yee, J.H.
Hee, E.W.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 207-10, Institute of Physics, Bristol and NY
89	Modeling and fabricating micro-cavity integrated vacuum tubes	Orvis, W.J.
McConaghy, C.F.
Ciarlo, D.R.
Yee, J.H.
Hee, E.W.	IEEE Trans. Electr. Devices (1989) <u>36</u> , 2651-8
90	Survey of electron sources for high-resolution microscopy	Orloff, J.	Ultramicroscopy (1989) <u>28</u> , 88-97
91	Electromagnetic properties of a field emission distributed amplifier	Phillips, P.M.
Smith, S.T.
Gray, H.F.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 211-6, Institute of Physics, Bristol and NY
92	Enhanced field emission investigation of aluminum	Renner, C.
Niedermann, P.
Fischer, O.	IEEE Trans. Electr. Insul. (1989) <u>24</u> , 911-6
93	Electron emission from small microtips	Saenz, J.J.
Garcia, N.
de Raedt, H.
Binh, V.T.	J. de Phys. (1989) <u>C8-50</u> , 73-8
94	Energy-distribution of field emitted electrons from glassy-carbon	Schwab, U.	OPTIK (1989) <u>81</u> , 109-12
95	Adsorption of heavy rare-earth atoms on (011) and (111)W	Shakirova, S.A.
Shevchenko, M.A.	J. de Phys. (1989) <u>C8-50</u> , 129-34
96	Emitter and electron-gun	Shimoyama, H.
Ichihashi, M.
Tamura, N.	J. Elec. Microsc. (1989) <u>38</u> , S1-9

97	Influence of condensed gases on field-emission and the performance of superconducting RF cavities	Shu, Q.S.
Gandreau, K.
Hartung, W.
Kirchges, J.
Moffat, D.
Noeu, R.
Padamsee, H.
Rubin, D.L.
Sears, J.	IEEE Magnet. (1989)
<u>25</u> , 1868-72
98	Self-aligned silicon-strip field emitter array	Spallas, J.P.
Arney, S.C.
Cheng, C.C.
MacDonald, N.C.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 1-4, Institute of Physics, Bristol and NY
99	Fabrication of densely packed, sharp, silicon field emitters using dry etching	Stephani, D.
Eibl, J.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 9-12, Institute of Physics, Bristol and NY
100	Metallic glass field emission spectra	Stepien, Z.M.	J. de Phys. (1989)
<u>C8-50</u> , 109-12
101	Investigation of self-diffusion on tungsten by field emission microscopy	Stepien, Z.M.
Kukulka, J.	Surf. Sci. (1989) <u>216</u> , 505-8
102	Nature of photosensitivity of semiconductor field-emission	Stetsenk, B.V.	Pisma Zh. T. (1989)
<u>15</u> , 22-4
103	Low-energy electron projection microscopy	Stocker, W.
Fink, H-W.
Morin, R.	J. de Phys. (1989)
<u>C8-50</u> , 519-22
104	Total energy distribution of field-emitted electrons from polyacrylonitrile-based high-modulus carbon fibres	Tagawa, M.
Nishida, S.
Ohmae, N.
Umeno, M.	Phil. Mag. (1989)
<u>B59</u> , 279-86

Field Emission Microscopy

105 Improvement of beam characteristics by superimposing a magnetic-field on a field-emission gun	Takaoka, A.
Ura, K.
Tomita, T.
Harada, Y.	J. Elec. Microsc.
(1989) <u>38</u> , 83-94
106 A high throughput electron lithography system using a field emission gun	Thompson, W.B.
Nakagawa, Y.
Shearer, Y.
Hassel, M.
Nakazawa, H.
Takemura, H.
Isabe, M.
Gato, N.	Electron-Beam,
X-Ray, Ion-Beam
Technol.:
Submicrometer
Lithogr. 8 (1989)
Proc. SPIE-Int. Soc.
Opt. Eng., 260-7
107 Present and future of electron holography	Tonomura, A.	J. Elec. Microsc.
(1989) <u>38</u> , 43-50
108 Magnetic field emission gun with zirconiased emitter	Troyon, M.	J. Elec. Microsc.
Tech. (1989) <u>11</u> ,
191-5
109 Magnetic field emission gun with zirconiased emitter:
performances at low voltage	Troyon, M.	Ultramicroscopy
(1989) <u>28</u> , 98-102
110 New field emission gun with energy filtering effect	Troyon, M.	J. Appl. Phys. (1989)
<u>66</u> , 1-4
111 Electron sources: Summary	Troyon, M.	Ultramicroscopy
(1989) <u>28</u> , 207-8
112 Emission characteristics of a hafniated oriented tungsten thermal field emission source	Troyon, M.
Pandey, A.K.
Orlikowski, J.P.	J. Vac. Sci. Technol.,
(1989) <u>A7</u> , 3112-6
113 The dynamics and stability of solid surfaces of nanostructures	Tsong, T.T.
Chen, C.	Proc. 2nd Intl. Conf.
Vacuum
Microelectronics,
Turner, R.E., ed.,
1989, 167-72, Institute
of Physics, Bristol and
NY

114 Field electron spectroscopy of barium oxide films of various structures	Tumareva, T.A.
Ivanov, V.A.
Kirsanova, T.S.
Vasilyeva, N.V.	Fiz. Tverd. Tela (Leningrad) (1989) <u>31</u> , 12-8
115 Two-dimensional graphite {0001} island on Pt{110} and its vicinal areas: nucleation, growth mechanism and epitaxial orientation	Vanselow, R.
Braun, M.
van der Merwe, J.H.	Surf. Sci. (1989) <u>214</u> , 197-208
116 Control of silicon field emitter shape with isotropically etched oxide masks	Warren, J.B.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 37-40, Institute of Physics, Bristol and NY
117 Work function measurements of (W-Sc ₂ W ₃ O ₁₂)-coated impregnated cathode by retarding potential method utilizing titaniated W(100) field emitter	Yamamoto, S.
Yaguchi, T.
Sasaki, S.
Watanabe, I.	Jpn. J. Appl. Phys. (1989) <u>28</u> , L865-7

1	Development of focused ion beam systems	Aihara, R.
Sawaragi, H.
Thompson, B.
Shearer, M.H.	Nucl. Instrum.
Methods Phys. Res.
(1989) <u>B37/38</u> , 212-7
2	The emittance characteristics of a gallium liquid-metal ion source	Alton, G.D.
Read, P.M.	J. Appl. Phys. (1989)
<u>66</u> , 1018-22
3	The emittances of $^{69}\text{Ga}^+$ ion beams extracted from a liquid-metal ion source	Alton, G.D.
Read, P.M.	J. Phys. D: Appl.
Phys. (1989) <u>22</u> ,
1029-37
4	Emission characteristics of liquid metal ion source	Arimoto, H.
Komura, M.	J. de Phys. (1989)
<u>C8-50</u> , 165-70
5	Finely-dispersed phases and instability of the emission of liquid-metal ion sources	Badan, V.E.
Gasnov, I.S.	Pisma Zh. T. (1989)
<u>15</u> , 49-52
6	Droplet emission from a gallium liquid metal ion source as observed with an ion streak camera	Barr, D.L.
Brown, W.L.	J. Vac. Sci. Technol.
(1989) <u>B7</u> , 1806-9
7	Lithium ion emission from a liquid metal ion source of lithium nitrate	Bell, A.E.
Schwind, G.A.
Rao, S.
Swanson, L.W.	Int. J. Mass. Spectrum
Ion Phys. (1989) <u>88</u> ,
59-68
8	Vacuum arc liquid-metal ion source	Bernardet, H.
Pauwe, J.C.	Fr. Demande (1989),
14
9	Basic energy characteristics of the electron current of a liquid metal ion source	Burmii, Z.P.
Sikharulidze, G.G.	Vysokochist.
Veshchestva (1989) <u>2</u> ,
193-8
10	Impregnated-electrode-type liquid metal ion source	Chen, G.
Ishikawa, J.
Takagi, T.	Hejishu (1989) <u>12</u> ,
85-8
11	A first-order Navier-Stokes treatment of the shape and instability of liquid metal ion sources	Chung, M.S.
Cutler, P.H.
Miskovsky, N.M.	J. Appl. Phys (1989)
<u>66</u> , 6065-71
12	Manipulating the micron	Clampitt, R.	Physics World (1989)
<u>2</u> , 66

Liquid Metal Ion Sources

13	Modeling of liquid-metal ion sources	Forbes, R.G.
Ljepojevic, N.N.	Vac. (1989) <u>39</u> ,
1153-5
14	Microfocused ion-beam applications in microelectronics	Harriott, L.R.	Appl. Surf. Sci. (1989) <u>36</u> , 432-42
15	Focused ion-beam secondary ion mass-spectrometry - ion images and endpoint detection	Harriott, L.R.
Vasile, M.J.	J. Vac. Sci. Technol. (1989) <u>B7</u> , 181-7
16	A unified description of liquid metal ion source energy distributions	Hornsey, R. I.	J. de Phys. (1989) <u>C8-50</u> , 197-202
17	The emission characteristics of an indium needle-type liquid metal ion source	Hornsey, R.I.	Appl. Phys. A (1989) <u>49</u> , 293-7
18	The high-temperature behavior of gallium and indium liquid metal ion sources	Hornsey, R.I.	Appl. Phys. A (1989) <u>49</u> , 697-705
19	The effects of source temperature and characteristics on the optical emission from a gallium liquid metal ion source	Hornsey, R.I.
Marriott, P.	J. Phys. D: Appl. Phys. (1989) <u>22</u> , 699-704
20	The properties of high-intensity impregnated-electrode-type liquid-metal ion sources	Ishikawa, J.	Nucl. Instrum. Methods Phys. Res. (1989) <u>B40-41</u> , 1037-41
21	Direct deposition of focused ion beams with an impregnated-electrode-type liquid metal ion source	Ishikawa, J.
Tsuji, H.
Kashiwagi, T.
Aoyama, Y.
Takagi, T.	Nucl. Instrum. Methods Phys. Res. (1989) <u>B37-38</u> , 151-4
22	Intense metal ion beam formation by an impregnated-electrode-type liquid metal ion source	Ishikawa, J.
Tsuji, H.
Kashiwagi, T.
Takagi, T.	Nucl. Instrum. Methods Phys. Res. (1989) <u>B37-38</u> , 155-8
23	Observation of doubly-charged dimer ion emission in liquid-metal-ion sources	Ishitani, T.
Umamura, K.
Kawanami, Y.	Surf. Sci. (1989) <u>218</u> , 259-68

24	Development of liquid-metal-ion sources for focused-ion beam applications	Ishitani, T.
Umemura, K.
Kawanami, Y.
Ohnishi, T.	J. Electrochem. Soc.
(1989) <u>136</u> , 3502-5
25	Focused ion beam technologies for lithographic applications	Kato, T.
Yasuoka, A.
Fujikawa, K.	Nucl. Instrum.
Methods Phys. Res.
(1989) <u>B37/38</u> , 218-23
26	Field emission of liquid metals in alternating fields	Kontonistov, A.A.
Radchenko, I.N.
Fursey, G.N.
Shirochin, L.A.	J. de Phys. (1989)
<u>C8-50</u> , 203-10
27	SIMs depth profiling of Si/SiO ₂ /Si layers by using self-sputtered Ga ⁺ from a gallium liquid-metal ion-source	Licciardello, A.
Torrise, A.
Pignataro, S.	Surf. Sci. (1989) <u>14</u> ,
491-5
28	Mass spectra of Au-Ge alloy liquid metal ion sources	Machalett, F.
Muhle, R.
Stiebritz, I.
Götz, G.	Nucl. Instrum.
Methods Phys. Res.
(1989) <u>B37/38</u> , 180-3
29	Focused phosphorus ion beam implantation into silicon	Madokoro, Y.
Shukur, S.
Umemura, K.
Tamura, M.	Nucl. Instrum.
Methods Phys. Res.
(1989) <u>B39</u> , 511-4
30	Instabilities in liquid metal ion emitters	Mair, G.L.R.	J. de Phys. (1989)
<u>C8-50</u> , 171-4
31	On the onset voltage of liquid-metal ion sources	Mair, G.L.R.	Nucl. Instrum.
Methods, Phys. Res.
(1989) <u>B43</u> , 240-2
32	Ions field-emitted from a liquid-gallium-filled capillary	Mair, G.L.R.
Thoms, S.	J. Phys. D: Appl.
Phys. (1989) <u>22</u> , 975-6
33	A hydrodynamical study of the instability of a planar liquid metal ion sources (summary)	Miskovsky, N.M.
He, P.
Cutler, P.H.
Chung, M.	J. de Phys. (1989)
<u>C8-50</u> , 175-8
34	A scanning ion microbeam system with a liquid-metal ion-source	Mittenbacher, J.
Muhle, R.	Phys. Status Solidi A
(1989) <u>112</u> , 825-8

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35	Emission performance of a slit type caesium field ion source	Mitterauer, J.	J. de Phys. (1989) <u>C8-50</u> , 191-6
36	Miniaturized liquid metal field electron and ion sources	Mitterauer, J.	Proc. 2nd Intl. Conf. Vacuum Microelectronics, Turner, R.E., ed., 1989, 61-4, Institute of Physics, Bristol and NY
37	Ion species and energy control of finely focused FIBs for maskless in situ microfabrication processes	Miyauchi, E.
Arimoto, H.
Kitada, H.	Nucl. Instrum. Methods Phys. Res. (1989) <u>B39</u> , 515-20
38	Focused ion beam processing	Namba, S.	Nucl. Instrum. Methods Phys. Res. (1989) <u>B39</u> , 504-10
39	Formation of microclusters by the electrohydrodynamic ion source method from liquid metal	Noda, T.
Saito, Y.	Nippon Butsuri Gakkaiski (1989) <u>44</u> , 234-6
40	Generation of pure gallium ion beams by field ionization of laser-excited Rydberg atoms	Oomori, T.
Ono, K.
Murai, Y.	Nucl. Instrum. Methods Phys. Res. (1989) <u>B37/38</u> , 124-7
41	Focused ion beams in microfabrication	Prewett, P.D.	J. de Phys. (1989) <u>C8-50</u> , 179-90
42	A theoretical and experimental study of liquid metal ion sources and their application to focused ion beam technology	Puretz, J.	(1989) 269, Univ. Microfilms Int., Order No. DA8919368
43	A combination electron/ion field emission source	Rao, K.A.
Bell, A.E.
Schwind, G.A.
Swanson, L.W.	J. Vac. Sci. Technol. (1989) <u>B7</u> , 1793-7
44	Angular distribution and energy spread measurements on Ga clusters emitted from an isotopically pure liquid metal ion source	Rao, S.
Bell, A.E.
Schwind, G.A.
Swanson, L.W.	J. Vac. Sci. Technol. (1989) <u>B7</u> , 1787-92

45	Abundance of Na cluster ions ejected from a liquid-metal ion-source	Saito, Y.
Minami, K.
Ishida, T.
Noda, T.	Z. Phys. D, Atoms, Molecules and Clusters (1989) <u>11</u> , 87-91
46	Cluster cations ejected from liquid metal ion source: alkali metals (Li, Na) and group IV elements (Si, Ge, Sn, Pb)	Saito, Y.
Noda, T.	Z. Phys. D, Atoms, Molecules and Clusters (1989) <u>12</u> , 225-7
47	Liquid metal ion sources	Swanson, L.W.
Bell, A.E.	Phys. Technol. Ion Sources (1989), 313-30
48	Development of an arsenic liquid-metal ion source	Umemura, K.
Kawanami, Y.
Ishitani, T.	Nucl. Instrum. Methods Phys. Res. (1989) <u>B37-38</u> , 208-11
49	Role of fragmentation processes in the liquid metal ion source production of aggregates	van de Walle, J.
Joyes, P.	Z. Phys. D, Atoms, Molecules and Clusters (1989) <u>12</u> , 221-4
50	Focused ion beam repair of lithographic masks	Wagner, A.
Levin, J.P.	Nucl. Instrum. Methods Phys. Res. (1989) <u>B37/38</u> , 224-30
51	Dynamical characteristics of liquid metal ion sources	Zheng, C.
Linsu, T.	J. Vac. Sci. Technol. (1989) <u>B7</u> , 1813-5

1	A new microtip for STM	Akama, Y.
Nishimura, E.
Sakai, A.
Sano, N.
Sakurai, T.	J. de Phys. (1989)
<u>C8-50</u> , 211-6
2	Spin-polarized secondary electrons from a scanning tunneling microscope in field emission mode	Allenspach, R.
Bischof, A.	Appl. Phys. Lett. (1989) <u>54</u> , 587-9
3	Electron-optical performance of a scanning tunneling microscope controlled field-emission microlens system	Chang, T.H.P.
Kern, D.P.
McCord, M.A.	J. Vac. Sci. Technol. (1989) <u>B7</u> , 1855-61
4	A simple new technique for preparing STM tips	Chen, Y.
Xu, W.
Huang, J.	J. Phys. E: Sci. Instrum. (1989) <u>22</u> , 455-7
5	A measurement of a surface self-diffusion coefficient by scanning tunneling microscopy	Drechsler, M.
Blackford, B.L.
Putnam, A.M.
Jericho, M.H.	J. de Phys. (1989)
<u>C8-50</u> , 223-8
6	Direct tip structures determination by scanning tunneling microscopy	Garcia, R.
Huerta, M.A.G.	J. de Phys. (1989)
<u>C8-50</u> , 235-42
7	Imaging of metal-coated biological samples by scanning tunneling microscopy	Garcia, R.
Keller, D.
Panitz, J.
Bear, D.G.
Bustamante, C.	Ultramicroscopy (1989) <u>27</u> , 367-73
8	Fabrication and characterization of microtips for insitu scanning tunneling microscopy	Gewirth, A.A.
Craston, D.H.
Bard, A.J.	J. Elec. Chem. (1989)
<u>261</u> , 477-82
9	New fields for STMs	Gimzewski, J.	Phys. World (1989) <u>2</u> , 25-8

Scanning Tunneling Microscopy

10	Scanning tunneling microscopy study of alkali metal adsorption on the Si(001) 2×1 surface	Hasegawa, Y.
Hashizume, T.
Kamiya, I.
Ide, T.
Sumita, I.
Tochihara, H.
Kubota, M.
Murata, Y.	J. de Phys. (1989)
<u>C8-50</u> , 229-34
11	Field ion-scanning tunneling microscopy investigation of alkali metal (Li, K) adsorption on Si surfaces	Hashizume, T.	Abstracts 4th Intl.
Conf. on Scanning
Tunneling
Microscopy/
Spectroscopy STM
'89, Oarai, Ibaraki,
Japan
12	FI-STM investigation of the Ag(110) surface and its interaction with oxygen	Hashizume, T.
Kamiya, I.
Hasegawa, Y.
Sumita, i.
Hyodo, S.
Sakurai, T.
Tanaka, K.
Hirano, H.
Yamada, T.	Abstracts 4th Intl.
Conf. on Scanning
Tunneling
Microscopy/
Spectroscopy STM
'89, Oarai, Ibaraki,
Japan
13	Scanning tunneling microscope with a field ion microscope	Hashizume, T.
Kamiya, I.
Hasegawa, Y.
Ide, T.
Pickering, H.W.
Sakurai, T.	Characterization of
the Structure and
Chemistry of Defects
in Materials, Mat.
Res. Soc. Symp. Proc.
(1989) <u>139</u> , 297-302,
Krakow, W., Ponce,
F.A., and Smith, D.J.,
eds., MRS,
Pittsburgh, PA

14 Construction of R.T. FI-STMs and its applications	Hashizume, T.
Hasegawa, Y.
Kamiya, I.
Sano, N.
Kakoyama, K.
Tanaka, H.
Sumita, I.
Takao, M.
Hyodo, S.
Sakurai, T.	J. de Phys. (1989)
<u>C8-50</u> , 513-8
15 Mineralogy in two dimensions: scanning tunneling microscopy of semiconducting minerals with implications for geochemical reactivity	Hochella, M.F., Jr.
Eggleston, C.M.
Elings, V.B.
Parks, G.A.
Brown, G.E., Jr.
Wu, C.M.
Kjoller, K.	Am. Mineral (1989)
<u>74</u> , 1233-46
16 Model studies of tunneling time	Huang, Z.H.
Cutler, P.H.
Feuchtwang, T.E.
Kazes, E.
Nguyen, H.Q.
Sullivan, T.E.	Abstracts 4th Intl.
Conf. on Scanning
Tunneling
Microscopy/
Spectroscopy STM
'89, Oarai, Ibaraki,
Japan
17 "2x8" phase of the Si(100) surface studied by the FI-STM	Kamiya, I.
Hashizume, T.
Hasegawa, Y.
Sumita, I.
Hyodo, S.
Pickering, H.W.
Sakurai, T.
Tochihara, H.
Kubota, M.
Muratoa, Y.	Abstracts 4th Intl.
Conf. on Scanning
Tunneling
Microscopy/
Spectroscopy STM
'89, Oarai, Ibaraki,
Japan
18 Development of the field ion-scanning tunneling microscope and its applications	Kamiya, I.
Sakurai, T.	J. de Phys. (1989)
<u>C8-50</u> , 491-6
19 A novel scanning tunneling microscope controlled field-emission microlens electron source	McCord, M.A.
Chang, T.H.P.
Kern, D.P.
Speidell, J.L.	J. Vac. Sci. Technol.
(1989) <u>B7</u> , 1851-4

Scanning Tunneling Microscopy

20	Mechanisms of current rectification in an STM tunnel junction and the measurement of an operational tunneling time	Nguyen, H.Q.
Cutler, P.H.
Feuchtwang, T.E.
Huang, Z-H.
Kuk, Y.
Silverman, P.J.
Lucas, A.A.
Sullivan, T.E.	IEEE Trans. Electr.
Devices (1989) <u>36</u> ,
2671-8
21	Study of field emitting microstructures using a scanning tunneling microscope	Niedermann, P.
Renner, C.
Kent, A.D.
Fischer, O.	Abstracts 4th Intl.
Conf. on Scanning
Tunneling
Microscopy/
Spectroscopy STM
'89, Oarai, Ibaraki,
Japan
22	Correlation between STM/STS images and apex profiles of scanning tips	Nishikawa, O.
Tomitori, M.
Iwawaki, F.
Hirano, N.	Abstracts 4th Intl.
Conf. on Scanning
Tunneling
Microscopy/
Spectroscopy STM
'89, Oarai, Ibaraki,
Japan
23	Image quality of STM and apex profile of a scanning tip	Nishikawa, O.
Tomitori, M.
Iwawaki, F.
Katsuki, F.	J. de Phys. (1989)
<u>C8-50</u> , 217-22
24	Electron emission from small sources	Saenz, J.J.
Garcia, N.
de Raedt, H.	Abstracts 4th Intl.
Conf. on Scanning
Tunneling
Microscopy/
Spectroscopy STM
'89, Oarai, Ibaraki,
Japan

25	FI-STM investigation of hydrogen chemisorption on the Si(111) 7×7 surface	Sakurai, T.
Hasegawa, Y.
Hashizume, T.
Kamiya, I.
Sumita, I.
Hyodo, S.
Ide, T.
Mizutani, T.
Matsui, J.
Ogawa, M.	Abstracts 4th Intl. Conf. on Scanning Tunneling Microscopy/ Spectroscopy STM '89, Oarai, Ibaraki, Japan
26	Room temperature FI-STM and its applications	Sakurai, T.
Hashizume, T.	Abstracts 4th Intl. Conf. on Scanning Tunneling Microscopy/ Spectroscopy STM '89, Oarai, Ibaraki, Japan
27	Scanning tunneling microscope equipped with a field ion microscope	Sakurai, I.
Hashizumi, T.
Kamiya, I.
Hasegawa, Y.
Ide, T.
Miyao, M.
Sumita, I.
Sakai, A.
Hyodo, S.	J. Vac. Sci. Technol. (1989) <u>A7</u> , 1684-8
28	A walking, scanning tunneling microscope combined with a focused ion beam	Shedd, G.M.
Russell, P.E.	J. de Phys. (1989) <u>C8-50</u> , 497-500
29	Fabrication of stylus probes for scanning tunneling microscopy	Ueda, O.	Jpn. Kokai Tokkyo Koho (1989), 4

1	Consideration of rotational tunneling in rare-gas cluster ions	Alberton, C.R.
Castleman, A.W.
Ferguson, E.E.	Chem. P. Lett. (1989)
<u>157</u> , 159-63
2	Conformal mapping for surface modeling	Andion, N.P.
de Castilho, C.M.C.	J. de Phys. (1989)
<u>C8-50</u> , 21-6
3	On charged-surface models and the origin of field adsorption	Forbes, R.G.	Surf. Sci. (1989) <u>223</u> , 326-52
4	On different types of dipole-dipole interaction	Forbes, R.G.	J. de Phys. (1989)
<u>C8-50</u> , 15-20
5	Recent progress in LMIS theory	Forbes, R.G.
Ljepojevic, N.N.	J. de Phys. (1989)
<u>C8-50</u> , 3-8
6	A multidimensional tunneling theory with application to scanning tunneling microscope	Huang, Z.H.
Cutler, P.H.
Feuchtwang, T.E.
Kazes, E.	J. de Phys. (1989)
<u>C8-50</u> , 31-6
7	Model study of tunneling times (Summary)	Huang, Z.H.
Cutler, P.H.
Feuchtwang, T.E.
Kazes, E.
Nguyen, H.Q.
Sullivan, T.E.	J. de Phys. (1989)
<u>C8-50</u> , 27-30
8	Simulation of cross-correlation functions by a suspected soliton mechanism of alkali submonolayer field emission noise	Kleint, C.	J. de Phys. (1989)
<u>C8-50</u> , 47-52
9	Thermal field desorption	Kreuzer, H.J.
Wang, L.C.	J. de Phys. (1989)
<u>C8-50</u> , 9-14
10	Tunneling time and effective capacitance for single electron-tunneling	Laikhtman, B.
Wolf, E.L.	Phys. Lett. A (1989)
<u>139</u> , 257-60
11	Theory of a single-atom point source for electrons	Lang, N.D.
Yacoby, A.
Imry, Y.	Phys. Rev. Lett. (1989) <u>63</u> , 1499-502

Theory

12	On the distribution function of surface charge density with respect to surface curvature	Luo, E.	J. de Phys. (1989)
<u>C8-50</u> , 41-6
13	Comment on "field penetration and band bending near semiconductor surfaces in high electric field" by T.T. Tsong	Tomita, M.
Kuroda, T.	J. de Phys. (1989)
<u>C8-50</u> , 37-40,
14	Numerical calculation of the surface temperature of semiconductor tips in pulsed-laser AP-FIM	Tomita, M.
Kuroda, T.	J. de Phys. (1989)
<u>C8-50</u> , 59-66
15	Formation of Ru-subcarbonyls in high electric field	Wang, L.C.
Kreuzer, H.J.	J. de Phys. (1989)
<u>C8-50</u> , 53-8

*Addendum to Atom Probe Field Ion Microscopy and Related Topics:
A Bibliography for 1978-1987 and 1988*

1	Stationary stochastic adparticle flip-flop as a precursor to surface diffusion	Kleint, C.	Phys. Status Solidi A (1979) <u>55</u> , 447-56
2	Representation of temperature-dependent spectral properties of adsorbate-induced emission noise by Lorentz functions	Kleint, C.	Annalen der Physik (1981) <u>38</u> , 305-18
3	Application of FIM and atom probe to materials science - mainly to radiation damage studies	Igata, N.
Sato, S.	Proc. 6th Symp. on Ion Sources and Ion Assisted Technology (1982) Takagi, T., ed., Inst. Elec. Exprs. Japan
4	On the theory of the equilibrium configuration and stability of an electrostatically stressed conducting fluid: application to liquid metal ion sources	Chung, M.
Cutler, P.H.
Feuchtwang, T.E.
Miskovsky, N.M.
Sujatha, N.	Scanning Electron Microscopy (1984) IV, 1547-56, SEM Inc., Chicago
5	Fundamentals of liquid metal ion sources: experiment, theory and applications	Mair, G.L.R.
Mulvey, T.	Scanning Electron Microscopy (1984) IV, 1531-40, SEM Inc., Chicago
6	The effect of extraction voltage and beam voltage of a liquid metal ion source focused beam system on the current density in a focused spot	Orloff, J.	Scanning Electron Microscopy (1984) IV, 1541-46, SEM Inc., Chicago
7	Oscillations and transient processes in liquid-metal ion emitters	Dudnikov, V.G.
Shabalin, A.L.	Zh. Tech. Fiz. (1985) <u>55</u> , 462

*Addendum to Atom Probe Field Ion Microscopy and Related Topics:
Bibliographies for 1978-1987 and 1988*

8	Helium field ion source for ion beam lithography	Horiuchi, K.
Itakura, T.
Yamamoto, S.	Microcircuit Engineering 84 (1985), 365-72, Heuberge, A. and Beneking, H., eds., Academic Press, London
9	Comment on "variational formulation for the equilibrium condition of a conducting fluid in an electric field"	Kingham, D.R.
Bell, A.E.	Appl. Phys. (1985) <u>A36</u> , 67-70
10	Possible mechanisms of atom transfer in scanning tunneling microscopy	Gomer, R.	IBM J. Res. Develop. (1986) <u>30</u> , 428-30
11	Mono-atomic tips for scanning tunneling microscopy	Fink, H-W.	IBM J. Res. Develop. (1986) <u>30</u> , 460-5
12	Theoretical analysis of the structure in the current versus reciprocal field curves in photofield emission	Kleint, C.
Modinos, A.	Surf. Sci. (1986) <u>177</u> , 389-98
13	The distribution function of surface charge density with respect to surface curvature	Luo, E.	J. Phys. D: Appl. Phys. (1986) <u>19</u> , 1-6
14	Direct observation of uncorrelated long-range migration of self-interstitial atoms in ordered alloys	Aidelberg, J.
Seidman, D.N.	Mat. Sci. Forum (1987) <u>15-18</u> , 273-8
15	Atomic resolution observations of radiation-damage profiles in ordered alloys	Aidelberg, J.
Seidman, D.N.	Mat. Sci. Forum (1987) <u>15-18</u> , 1047-52
16	The application of a surface charge density distribution function to the solution of boundary value problems	Luo, E.	J. Phys. D: Appl. Phys. (1987) <u>20</u> , 1609-15

*Addendum to Atom Probe Field Ion Microscopy and Related Topics:
A Bibliography for 1978-1987 and 1988*

17	Measurement of charge-to-mass ratio (Q/m) distribution of an ionized cluster beam by a special type of quadrupole mass analyzer	Nayak, D.
Pourrezaei, K.
Francois, M.
Bahasadri, A.	Rev. Sci. Instrum.
(1987) <u>58</u> , 2249
18	Proximal probes: gateway to the nanometer scale world	Colton, R.
Murday, J.S.	Nav. Res. Rev. (1988)
<u>40</u> , 2-12
19	A study of martensite and its deformation and aging behavior in dilute uranium alloys using high-voltage electron microscopy and atom-probe field ion microscopy	Edmonds, D.V.	Isr. J. Technol. (1988)
<u>24</u> , 555-66
20	Emission characteristics of field emission cathodes with localization of emission into small solid angles	Fursey, G.N.
Bakhtizin, R.Z.
Ptitsyn, V.E.
Umagyzin, U.M.
Shvarkynov, B.A.	Izv. Akad. Nauk.
SSR. Ser. Fiz. (1988)
<u>52</u> , 1250
21	Fabrication of niobium carbide nitride field emitter	Ishizawa, Y.
Oshima, C.
Otani, S.
Koizumi, M.	Jpn. Kokai Tokkyo
Koho (1988), 4
22	Demonstration of simulated surface diffusion and application to auto- and cross-correlation FEFN measurements	Kleint, C.	Acta Universitatis
Wratislaviensis (1988)
<u>1025</u> , 143-53
23	Electron emission noise	Kleint, C.	Surf. Sci. (1988) <u>200</u> ,
472-89
24	Model study of supported bimetallic catalysts	Knor, Z.
Sotola, J.	Collection
Czechoslovak Chem.
Commun. (1988) <u>53</u> ,
2399-411
25	Nucleation and coarsening of Beta-precipitates in Cu-1.75 at % Co solid solution	Liu, Z.
Guangjun, S.
Yong, C.
Duan, F.	Chinese Phys. Lett.
(1988) <u>5</u> , 537-40

*Addendum to Atom Probe Field Ion Microscopy and Related Topics:
Bibliographies for 1978-1987 and 1988*

26 A study of adsorption of CO on Rh surfaces with AP FIM	Liu, W.
Ren, D.M.
Zhong, H.M.
Ye, S.X.
Zhou, F.M.
Wuhon, J.	University (China)
(1988) <u>10</u> , 15-22
27 Cluster abundance spectra of germanium ions ejected from a liquid-metal ion source	Minami, K.
Saito, Y.
Noda, T.	Rapid Commun.
Mass. Spectrom.
(1988) <u>2</u> , 115-7
28 Implantation studies of hydrogen by field ion microscopy and spectroscopy	Verink, E.D., Jr.
DeHoff, R.T.
Hren, J.J.	(1988) 3,
DOE/ER/45172- <u>T1</u> ,
Order No.
DE88015806
(1988) 209,
DOE/ER/45172- <u>T2</u> ,
Order No.
DE88016020
29 Microstructural characterization of wear resistant coatings	Vuorinen, S.
Skogsmo, J.	Surf. Modification
Technol. (1988), 143-
68, Sudarshan, T.S.
and Bhat, D.G., eds.,
Metall. Soc., TMS
Pittsburgh, Pa
30 The binding energy of surface atoms: a measurement with a high-resolution pulsed-laser atom-probe	Yung, L.	(1988) 102, Univ.
Microfilms Int., Order
No. DA8826783
31 Nickel activated recrystallization of doped tungsten wire	Zonghe, L.
Norden, H.	Inst. Phys. Conf.
Ser. 93 (1988) <u>2</u> , 479-
80

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