Prof. Ohmi's Paper

January－December, 1989

35(F) Nobuyoshi Tanaka, Tadahiro Ohmi, and Yoshio Nakamura, “A Novel Bipolar Imaging Devices with Self-noise Reduction Capability,” IEEE Trans. Electron Devices, Vol. 36, No. 1, pp. 31-38, January 1989.

36(F) Nobuyoshi Tanaka, Tadahiro Ohmi, Yoshio Nakamura, and Shigeyuki Matsumoto, “A Low-noise Bi-CMOS Linear Image Sensor with Auto-focusing Function,” IEEE Trans. Electron Devices, Vol. 36, No. 1, pp. 39-45, January 1989.

37(L) Tadahiro Ohmi, Hiroshi Iwabuchi, Tadashi Shibata, and Takeshi Ichikawa, “Electrical Characterization of Epitaxial Silicon Films Formed by a Low Kinetic Energy Particle Process,” Appl. Phys. Letters, Vol. 54, No. 3, pp. 253-255, January 1989.

38(M) Kazuhiko Sugiyama, Tadahiro Ohmi, Takeshi Okumura, and Fumio Nakahara, “Electropolished, Moisture-free Piping Surface Essential for Ultrapure Gas System,” Microcontamination, Vol. 7, No. 1, pp. 37-65, January 1989.

39(L) T. Ohmi, T. Ichikawa, T. Shibata, and H. Iwabuchi,“Crystal Structure Analysis of Epitaxial Silicon Films Formed by a Low Kinetic Energy Particle Process,” Appl. Phys. Letters, Vol. 54, No. 6, pp. 523-525, February 1989.

40(C) Nobuyoshi Tanaka, Seiji Hashimoto, Mahito Shinohara, Shigetoshi Sugawa, Masakazu Morishita, Shigeyuki Matsumoto, Yoshio Nakamura, and Tadahiro Ohmi, “A 310k Pixel Bipolar Imager (BASIS),” Digest of Technical Papers, 1989 IEEE International Solid-state Circuits Conference, New York, pp. 96-97, February 1989.

41(M) Koichi Yabe, Yoshito Motomura, Hiroaki Ishikawa, Tetsuo Mizuniwa, and Tadahiro Ohmi, “Responding to the Future Quality Demands of Ultrapure Water,” Microcontamination, Vol. 7, No. 2, pp. 37-68, February 1989.

42(L) Junichi Murota, Naoto Nakamura, Manabu Kato, Nobuo Mikoshiba, and Tadahiro Ohmi, “Low-temperature Silicon Selective Deposition and Epitaxy on Silicon Using the Thermal Decomposition of Silane under Ultraclean Environment,” Appl. Phys. Letters, Vol. 54, No. 11, pp. 1007-1009, March 1989.

43(M) Koichi Yabe, Toshio Kumagai, Hiroaki Ishikawa, Shigeyuki Akiyama, Tetuo Mizuniwa, and Tadahiro Ohmi, “Evaluating Equipment Technologies for Future Monitoring Demands of Ultrapure Water,” Microcontamination, Vol. 7, No. 3, pp. 25- 30, March 1989.

44(M) Hirohisa Kikuyama, Nobuo Miki, Jun Takano, and Tadahiro Ohmi, “Developing Property-controlled, High-purity Buffered Hydrogen Fluorides for ULSI Processing,” Microcontamination, Vol. 7, No. 4, pp. 25-51, April 1989.

45(M) Toshihito Takenami, Tadahiro Ohmi and Souji Fukuda, “Air Conditioning and Particle Filtration Systems for Energy Saving,” Solid State Technology, pp. 161-168, April 1989.

46(C) T. Ohmi, M. Morita, E. Hasegawa, M. Kawakami, and K. Suma, “Control of Native Silicon Oxide Growth in Air or in Water,” Extended Abstracts, 175th Electrochemical Society Meeting, Los Angeles, Abstract No. 160, pp. 227-228, May 1989.

46-2(E) T. Ohmi, M. Morita, E. Hasagawa, M. Kawakami, and K. Suma, “Control of Native Silicon Oxide Growth in Air or in Water,” C. M. Osburn and J. M. Andrews, eds., ULSI Science and Technology/1989, PV89-9, pp. 327-335, The Electrochemical Society, Pennington, NJ, 1989.

47(C) T. Ohmi, M. Kosugi, M. Morita, G. S. Jong, and H. Kumagai, “A Step Coverage and a Hole Filling of Si Film by Surface Reaction Film Formation Technology,” Extended Abstracts, 175th Electrochemical Society Meeting, Los Angeles, Abstract No. 190, pp. 276-277, May 1989.

47-2(E) T. Ohmi, M. Kosugi, M. Morita, G. S. Jong, and H. Kumagai, "A Step and a Hole Filling of Si Film by Surface Reaction Film Formation Technology," C.M.Osburn and J.M.Andrews, eds., ULSI Science and Technology/1989, PV89-9, pp. 649-659, The Electrochemical Society, Pennington, NJ, 1989.

48(M) Tadahiro Ohmi, Hiroyuki Mishima, Tetsuo Mizuniwa, and Mitsuo Abe, "Developing Contamination-free Cleaning and Drying Technologies," Microcontamination, Vol. 7, No. 5, pp. 25-108, May 1989.

49(C) Tadahiro Ohmi, "Science and Technology of Ultra Clean Systems," Proceedings of Technical Papers, 1989 International Symposium on VLSI Technology, Systems and Applications, Taipei, pp. 327-331, May 1989.

50(C) H. Kuwabara, S. Saitoh, T. Shibata, and T. Ohmi, "High-quality Aluminum ULSI Metallization Realized by Low-kinetic Energy Particle Process," Digest of Technical Papers, 1989 Symposium on VLSI Technology, Kyoto, pp. 71-74, May 1989.

51(C) M. Morita, T. Ohmi, E. Hasegawa, M. Kawakami, and K. Suma, "Native Layer-free Oxidation for Very Thin Gate Oxides," Digest of Technical Papers, 1989 Symposium on VLSI Technology, Kyoto, pp. 75-76, May 1989.

52(C) Tadahiro Ohmi, "Trend of High Performance Power Devices and Power Integrated Circuits," Proceedings, 1989 International Symposium on Power Electronics, Seoul, pp. 13-17, May 1989.

53(C) Hirohisa Kikuyama, Jun Takano, Nobihiro Miki, and Tadahiro Ohmi, "Cleanness Technology of Hydrofluoric Acid," 1989 Proceedings, 35th Annual Technical Meeting "Building Tomorrow's Environment", Anaheim, pp. 369-376, May 1989.

54(C) Tadahiro Ohmi, "Future Trends in Ultra Clean Technology," VII OSK-SEMICONDUCTOR SEMINAR, Kyoto, pp. 81-90, June 1989.

55(C) Tadashi Shibata and Tadahiro Ohmi, "Low-temperature Growth of High Quality Thin Films by Low-energy Ion Bombardment," Technical Proceedings SEMICON/Osaka 1989, Osaka, pp. 63-71, June 1989.

56(C) Hirohisa Kikuyama, Nobuhiro Miki, Masayuki Miyashita, Ichiro Kawanabe, and Tadahiro Ohmi, "Selective Etching of Native Oxide by Dry Processing," Technical Proceedings SEMICON/Osaka 1989, Osaka, pp. 129-140, June 1989.

57(M) Susumu Hashimoto, Masao Kaya, and Tadahiro Ohmi, "Improving and Maintaining Electronics-grade Chemical Quality Requires Technological Advances," Microcontamination, Vol. 7, No. 6, pp. 25-28, June 1989.

58(C) Tadahiro Ohmi, "Future Trends in Ultra Clean Technology," SEMI's European Industry Forecast Conference, Cannes, June 1989.

59(C) Tadahiro Ohmi, "High Quality Metalization by Ion Bombardment Having Precisely Controlled Energy," Digest of Papers, 1989 2nd MicroProcess Conference, Kobe, pp. 112-115, July 1989.

60(C) K. Hashimoto, T. Ichikawa, H. Iwabuchi, T. Shibata, and T. Ohmi, "Reduction in Epitaxial-silicon-growth Temperature below 300 C by Low-energy Ion Bombardment," Digest of Papers, 1989 2nd MicroProcess Conference, Kobe, pp. 116-117, July 1989.

61(C) M. Miyashita, I. Kawanabe, T. Ohmi, N. Miki, and H. Kikuyama, "Gas-phase Etching of PSG Films with Perfect Selectivity on Thermal SiO_2 and CVD SiO_2," Digest of Papers, 1989 2nd MicroProcess Conference, Kobe, pp. 182-183, July 1989.

62(M) Kazuhiko Sugiyama, Fumio Nakahara, and Tadahiro Ohmi, "Designing a Gas Delivery System for Lower Submicron ULSI Processes," Microcontamination, Vol. 7, No. 7, pp. 29-102, July 1989.

63(F) H. Mishima, T. Yasui, T. Mizuniwa, M. Abe, and T. Ohmi, "Particle-free Wafer Cleaning and Drying Technology," IEEE Trans. Semiconductor Manufacturing, Vol. 2, No. 3, pp. 69-75, August 1989.

64(L) M. Morita, T. Ohmi, E. Hasegawa, M. Kawakami, and K. Suma, "Control Factor of Native Oxide Growth on Silicon in Air or in Ultrapure Water," Appl. Phys. Letters, Vol. 55, No. 6, pp. 562-564, August 1989.

65(C) Tatsuyuki Saito, Tadahiro Ohmi, Tadashi Shibata, Masahito Otsuki, and Takahisa Nitta, "Thermal Stability Studies on Copper Thin Films Formed by a Low-kinetic-energy Particle Process," Extended Abstracts, the 21st Conference on Solid State Devices and Materials, Tokyo, pp. 25-28, August 1989.

66(C) Takashi Matsuura, Hiroaki Uetake, Junichi Murota, Kouichi Fukuda, Tadahiro Ohmi, Nobuo Mikoshiba, Tadashi Kawashima, and Yoshihiro Yamashita, "Perfect-selectivity Directional Etching of Silicon Using Ultraclean ECR Plasma," Extended Abstracts, the 21st Conference on Solid State Devices and Materials, Tokyo, pp. 149-152, August 1989.

67(C) Kazuo Tsubouchi, Kazuya Masu, Masanori Tanaka, Yohei Hiura, Tadahiro Ohmi, Nobuo Mikoshiba, Shigeki Hayashi, Takao Marui, Akira Teramoto, Tetsuo Kajikawa and Hiroyoshi Soejima, "Development of Scanning-RHEED Microscopy for Imaging Poly-crystal Grain Structure in LSI," Extended Abstracts, the 21st Conference on Solid State Devices and Materials, Tokyo, pp. 217-220, August 1989.

68(C) Y. Ishihara, A. Okita, K. Yoshikawa, T. Shibata, T. Ohmi, T. Nitta, J. Sugiura, and N. Ohwada, "Reverse-bias Current Reduction in Low- temperature-annealed pn Junctions Using a UHV Ion-Implanter," Extended Abstracts, the 21st Conference on Solid State Devices and Materials, Tokyo, pp. 421-424, August 1989.

69(C) K. Sugiyama, T. Ohmi, N. Miki, and Y.Nakahara, "Outgas-free, Corrosion-free Metal Surface for ULSI Manufacturing," Extended Abstracts, the 21st Conference on Solid State Devices and Materials, Tokyo, pp. 425-428, August 1989.

70(M) Toshihito Takenami, Hitoshi Inaba, and Tadahiro Ohmi, "Total System Cost Effectiveness Must Keep Pace with Submicron Manufacturing," Microcontamination, Vol. 7, No. 8, pp. 25-56, August 1989.

71(C) H. Kikuyama, N. Miki, M. Miyashita, I. Kawanabe, and T. Ohmi, "Cleanliness Technology of Chemicals," Proceedings of the Abstracts, Second Symposium on Particles in Gases and Liquids: Detection, Characterization and Control, Boston, August 1989.

72(C) M. Yasuda and T. Ohmi, "Micro Vibration in Semiconductor Manufacturing," Proceedings of the Abstracts, Second Symposium on Particles in Gases and Liquids: Detection, Characterization and Control, Boston, August 1989.

73(C) T. Takenami, H. Inaba, and T. Ohmi, "Super Clean Room System Based on Power Saving Concept," Proceedings of the Abstracts, Second Symposium on Particles in Gases and Liquids: Detection, Characterization and Control, Boston, August 1989.

74(L) Y. Ishihara, A. Okita, K. Yoshikawa, T. Shibata, and T. Ohmi, "Formation of Low Reverse Current Ion-implanted n^+p Junctions by Low-temperature Annealing," Appl. Phys. Letters, Vol. 55, No. 10, pp. 966-968, September 1989.

75(M) Tadahiro Ohmi and Masashi Yasuda, "Evaluating Passive and Active Microvibration Control Technologies," Microcontamination, Vol. 7, No. 9, pp. 23-30, 90-98, September 1989.

76(C) N. Miki and T. Ohmi, "Ultra Pure Liquid Chemicals --Hydrofluoric Acid--," Technical Proceedings, SEMICON/EAST 89, Boston, pp. 26-35, September 1989.

77(C) Mizuho Morita, Tadahiro Ohmi, and Eiji Hasegawa, "Ultra Clean Oxidation of Si Surface," Abstracts, Sixth International Symposium on Passivity, Sapporo, Abstract No. S2-1, September 1989.

77-2(E) M. Morita, T. Ohmi, and E. Hasegawa, "Ultra Clean Oxidation of Si Surface," H. Hasegawa and T. Sugano, eds., Passivation of Metals and Semiconductors, Part II Passivity of Semiconductors, pp. 143-148, Pergamon Press, Oxford, New York, Beijing, Frankfurt, Sao Paulo, Tokyo, and Toronto, 1990.

78(C) N. Miki, M. Maeno, K. Maruhashi, Y. Nakagawa, and T. Ohmi, "Fluorine Passivation of Metal Surface for Semiconductor Equipments Having Self-cleaning Function," Abstracts, Sixth International Symposium on Passivity, Sapporo, Abstract No. P2-3, September 1989.

78-2(E) N. Miki, M. Maeno, K. Maruhashi, Y. Nakagawa and T. Ohmi, "Fluorine Passivation of Stainless Steel," H. Hasegawa and T. Sugano, eds., Passivation of Metals and Semiconductors, Part I Passivity of Semiconductors, pp. 69-74, Pergamon Press, Oxford, New York, Beijing, Frankfurt, Sao Paulo, Tokyo, and Toronto, 1990

79(C) Haruo Tomari, Fumihiro Satoh, Makoto Terada, Hiroshi Satoh, Tadahiro Ohmi, and Yoshiyuki Nakahara, "The Effect of Dry Passivation and Structure of Surface Oxide Film on Release and Structure of Surface Oxide Film on Electropolished Stainless Steel," Abstracts, Sixth International Symposium on Passivity, Sapporo, Abstract No. M8-6, September 1989.

80(C) Tadahiro Ohmi, "Proposal for Advanced Semiconductor Manufacturing Equipment -An Approach to Automated IC Manufacturing-," Extended Abstracts, 176th Electrochemical Society Meeting, Hollywood, Abstract No. 337, pp. 484-485, October 1989.

80-2(E) Tadahiro Ohmi, "Proposal for Advanced Semiconductor Manufacturing Equipment-An Approach to Automated IC Manufacturing-," V. Akins, ed., Automated Integrated Circuits Manufacturing, PV90-3, pp. 3-18, The Electrochemical Society, Pennington, NJ, 1990.

81(C) K. Sugiyama, T. Ohmi, Y. Mizuguchi, and F. Nakahara, "Ultra Clean Gas Delivery System for Advanced Submicron ULSI Manufacturing," Extended Abstracts, 176th Electrochemical Society Meeting, Hollywood, Abstract No. 352, pp. 510-511, October 1989.

81-2(E) Kazuhiko Sugiyama, Tadahiro Ohmi, Yasumitsu Mizuguchi, and Fumio Nakahara, "Ultra Clean Gas Delivery System for Advanced Submicron ULSI Manufacturing," V.Akins, ed., Automated Integrated Circuits Manufacturing, PV90-3, pp. 148-172, The Electrochemical Society, Pennington, NJ, 1990.

82(C) T. Ohmi, N. Miki, H. Kikuyama, I. Kawanabe and M. Miyashita, "Wafer Dry Cleaning Using Diluted Anhydrous Hydrogen Fluoride Gas," Extended Abstracts, 176th Electrochemical Society Meeting, Hollywood, Abstract No. 389, pp. 567-568, October 1989.

82-2(E) T. Ohmi, N. Miki, H. Kikuyama, I. Kawanabe, and M. Miyashita, "Wafer Dry Cleaning Using Diluted Anhydrous Hydrogen Fluoride Gas," J. Ruzyllo and R. E. Novak, eds., Semiconductor Cleaning Technology/1989, PV90-5, pp. 95-104, The Electrochemical Society, Pennington, NJ, 1990.

83(C) N. Yabumoto, K. Minegishi, K. Saito, Mizuho Morita and Tadahiro Ohmi, "An Analysis for Cleaned Silicon Surface with Thermal Desorption Spectroscopy," Extended Abstracts, 176th Electrochemical Society Meeting, Hollywood, Abstract No. 407, pp. 592-593, October 1989.

83-2(E) Noriyuki Yabumoto, Kazushige Minegishi, Kazuyuki Saito, Mizuho Morita and Tadahiro Ohmi, "An Analysis for Cleaned Silicon Surface with Thermal Desorption Spectroscopy," J. Ruzyllo and R. E. Novak, eds., Semiconductor Cleaning Technology/1989, PU90-5, pp. 265-272, The Electrochemical Society, Pennington, NJ, 1990.

84(C) M. Maeno, Nobuhiro Miki and Tadahiro Ohmi, "Fluoride Passivation of Stainless Steel," Microcontamination 89 Conference Proceedings, Anaheim, pp. 49-56, October 1989.

85(C) Y. Mizuguchi, K. Sugiyama, and T. Ohmi, "Welding Technology for Passivated Tubing Systems," Microcontamination 89 Conference Proceedings, Anaheim, pp. 57-64, October 1989.

86(C) Henry Berger, Fumio Nakahara, Tadahiro Ohmi, Kazuhiko Sugiyama, Yasumitsu Mizuguchi, Masakazu Nakamura, Hiroshi Mihira, and Kiyoshi Sato, "High Purity Gas dilution System and its Evaluation by APIMS," Microcontamination 89 Conference Proceedings, Anaheim, pp. 65-79, October 1989.

87(C) T. Ohmi, Y. Kanno and, S, Mizogami, "Plastic Material-Free and Oxygen-Passivated Gas Tubing System for Ultra-Clean Process Environment," Microcontamination 89 Conference Proceedings, Anaheim, pp. 80-89, October 1989.

88(M) Tadahiro Ohmi, Hitoshi Inaba and Toshihito Takenami, "Research on Adhesion of Particles to Charged Wafers Critical in Contamination Control," Microcontamination, Vol. 7, No. 10, pp. 29-32, 86-97, October 1989.

89(C) H. Inaba, T. Takenami and T. Ohmi, "Particle Adhesion to Electrostatically-Charged Wafer," Abstracts, American Association for Aerosol Research, Reno, pp. 196, October 1989.

90(C) T. Takenami, Hitoshi Inaba, and Tadahiro Ohmi, "Evaluation of Particle Diffusion from Personal and Air Flow Distribution in the Clean Room," Abstracts, American Association for Aerosol Research, Reno, pp. 342, October 1989.

91(M) Tadahiro Ohmi, "Ultraclean Technology: Innovation for Semiconductor Manufacturing," Solid State Technology, Vol. 32, No. 10, pp. S1-S6, October 1989.

92(C) Tadahiro Ohmi, "UHV Environment for Advanced ULSI Manufacturing," Final Program, American Vacuum Society 36th National Symposium, Boston, pp. 230, October 1989.

93(C) K. Sugiyama, T. Ohmi, Y. Nakahara, and Nobuhiro Miki, "Outgas-Free and Corrosion-Free Metal Surface Treatment for UHV Equipment," Final Program, American Vacuum Society 36th National Symposium, Boston, pp. 281, October 1989.

94(C) Tadahiro Ohmi, "Ultra Clean Technology and Its Impact on Future Production Structures," Semiconductor Production, Trends in Manufacturing Equipment and Facilities, Munchen, pp. 7-8, November 1989.

95(M) Tadahiro Ohmi, Hitoshi Inaba, and Toshihito Takenami, "Preventing Electromagnetic Interference Essential for ULSI E-Beam Performance," Microcontamination, Vol. 7, No. 11, November 1989.

96(F) H. Mishima, Tadahiro Ohmi, T. Mizuniwa, and M. Abe, "Deposition Characteristics of Isopropanol (IPA) and Moisture from IPA Vapor Dried Silicon Wafers," IEEE Transactions on Semiconductor Manufacturing, Vol. 2, No. 4, pp. 121-129, November 1989.

97(F) T. Ohmi, T. Ichikawa, H. Iwabuchi, and T. Shibata, "Formation of Device-Grade Epitaxial Silicon Films at Extremely Low Temperature by Low-Energy Bias Sputtering," Journal of Applied Physics, Vol. 66, No. 10, pp. 4756-4766, November 1989.

98(C) Tadahiro Ohmi, "Proposal for Advanced Semiconductor Manufacturing Equipment -An Approach to Automated IC Manufacturing-," Proceeding, 10th Symposium on ULSI Ultra Clean Technology, Advanced Semiconductor Manufacturing, Tokyo, III-1-3 - III-1-26, November 1989.

99(F) T. Ohmi, M. Morita, G. Tei, T. Kochi, M. Kosugi, H. Kumagai, and Masaki Itoh, "Surface Reaction Film Formation by Si_2H_6 Transfer at Molecular Flow," Journal of the Electrochemical Society, Vol. 136, No. 11, pp. 3455-3458, November 1989.

100(F) Kazuo Tsubouchi, Kazuya Masu, Masanori Tanaka, Yohei Hiura, Tadahiro Ohmi, Nobuo Mikoshiba, Shigeki Hayashi, Takao Marui, Akira Teramoto, Tetsuo Kajikawa and Hiroyoshi Soejima, "Development of Scanning-RHEED Microscopy for Imaging Polycrystal Grain Structure in LSI," Jpn. J. Appl. Phys., Vol. 28, No. 11, pp. L2075-L2077, November 1989.

101(C) Tadahiro Ohmi, "Future Trends and Applications of Ultra-Clean Technology," Technical Digest, 1989 International Electron Devices Meeting, Washington, D.C., pp. 49-52, December 1989.

102(C) Tadahiro Ohmi, Keiichi Hashimoto, Makoto Morita, and Tadashi Shibata,"In Situ-Doped Epitaxial Silicon Film Growth at 250 C by an Ultra-Clean Low-Energy Bias Sputtering," Technical Digest, 1989 International Electron Devices Meeting, Washington, D.C., pp. 53-56, December 1989.

103(C) Tadahiro Ohmi and Mizuho Morita, "Ultra-High Clean Oxides," 20th IEEE Semiconductor Interface Specialists Conference, Ft.Lauderdale, pp. V.1, December 1989.

104(M) Tadahiro Ohmi, Hitoshi Inaba, and Toshihito Takenami, "Using Water-Based Cooling Systems In Cleanroom Environments," Microcontamination, Vol. 7, No. 12, pp. 27-34, December 1989.