

## Gary Rubloff – CONTRIBUTED PRESENTATIONS

1. "Reflectance Measurements Using Synchrotron Radiation from the Electron Storage Ring at the University of Wisconsin", U. Gerhardt, H. Fritzsche, and G. W. Rubloff, APS March meeting, 1969.
2. "Normal-Incidence Reflectance and the Optical Constants of Zn", G. W. Rubloff, APS March meeting, 1970.
3. "Far-Ultraviolet Optical Spectra of Ionic Crystals", G. W. Rubloff, J. Freeouf, K. Murase, and H. Fritzsche, APS March meeting, 1971.
4. "Far-Ultraviolet Reflectance Spectra of Oxides", J. Freeouf, K. Murase, G. W. Rubloff, and H. Fritzsche, APS March meeting, 1971.
5. "Effects of Uniaxial Stress on the 3.4 eV  $E_0$  Optical Structure of Silicon", F.H. Pollak and G. W. Rubloff, APS March meeting, 1972.
6. "Adsorbate-Induced Changes in Optical Reflectance of Metal Surfaces in Ultra-high Vacuum", J. Anderson, G. W. Rubloff, and P.J. Stiles, 19th Nat'l. Symposium of the American Vacuum Society, 1972.
7. "Reflectance Studies of Chemisorption on Metal Surfaces", G. W. Rubloff, J. Anderson, and P.J. Stiles, First International Conference on Modulation Spectroscopy, Tucson, Arizona, 1972.
8. "Resonance Raman Scattering in InAs near the  $E_1$  Gap", G. W. Rubloff, E. Anastassakis, and F.H. Pollak, APS Jan. meeting, 1973.
9. "Stress Dependence of Resonance Raman Scattering in InAs near the  $E_1$  Gap", E. Anastassakis, F.H. Pollak, and G. W. Rubloff, APS Jan. meeting, 1973.
10. "Chemisorption-Induced Changes in Optical Reflectance:  $H_2$  on W(100)", J.A. Anderson, G. W. Rubloff, and P.J. Stiles, APS March meeting, 1973.
11. "Effects of Uniaxial Stress on the  $E_1 - E_1 + \Delta_1$  Optical Structure in Ge", M. Chandrapal, G. W. Rubloff, and F.H. Pollak, APS March meeting, 1973.
12. "Optical Reflectance Spectroscopy of Surface (ORSS): Results for Chemisorption on W(100)", G. W. Rubloff, J. Anderson, M.A. Passler, and P.J. Stiles, 20th Nat'l. Symposium of the American Vacuum Society, 1973.
13. "Surface Reflectance Spectroscopy (SRS): Results for W(100)", M.A. Passler, J. Anderson, G. W. Rubloff, and P.J. Stiles, APS March meeting, 1974.
14. "Adsorption and Decomposition Reactions on ZnO Surfaces Studied by UV Photoemission Spectroscopy", H. Luth, G. W. Rubloff, and W.D. Grobman, 35th Annual Conference on Physical Electronics, 1975.
15. "UV Photoemission Studies of ZnO Surface Reactions", 22nd Nat'l. Symposium of the American Vacuum Society, G. W. Rubloff, H. Luth, and W.D. Grobman, 1975.
16. "Unusual Adsorption-Induced Binding Energy Shifts of Low-Lying Valence Orbitals in Organic Molecules on Surfaces", G. W. Rubloff, W.D. Grobman, and H. Luth, APS March meeting, 1976.
17. "Chemisorption and Decomposition Reactions of Organic Molecules on Clean Pd Surfaces Studied by UV Photoemission", H. Luth, G. W. Rubloff, and W.D. Grobman, Fourth Symposium on Physics and Chemistry of Surfaces Conference, Noordwijk, Holland Sept. 13-16, 1976.
18. "UV Photoemission and Flash Desorption Studies of the Chemisorption and Decomposition of Methanol on Ni(111)", G. W. Rubloff and J.E. Demuth, 23rd Nat'l. Symposium of the American Vacuum Society, 1976.

19. "Surface Optical Excitations Associated with CO Chemisorption on Ni(111)", G. W. Rubloff and J. Freeouf, 37th Annual Conf. on Physical Electronics, 1977.
20. "Exciton Transport in SiO<sub>2</sub>", Z.A. Weinberg and G. W. Rubloff, Internat'l. Topical conf. on the Physics of SiO<sub>2</sub> and Its Interfaces, IBM Research, Yorktown Heights, N.Y., March 22, 1978.
21. "Selection Rule Effects in ELS Studies of Electronic Excitations of Chemisorbed Molecules", G. W. Rubloff, APS March meeting, 1978.
22. "Chemical and Structural Properties of the Pd/Si Interface During the Initial Stages of Silicide Formation", P. S. Ho, T.Y. Tan, J.E. Lewis, and G. W. Rubloff, 6th Annual Conf. on the Physics of Compound Semiconductor Interfaces, Asilomar, California, Jan. 30-Feb. 2, 1979.
23. "Photoemission Studies of Time-Resolved Surface Reactions: Isothermal Desorption of CO from Ni(111)", G. W. Rubloff, 2nd European Conf. on Surface Science, Cambridge, England, March 26-29, 1979.
24. "Microscopic Compound Formation at the Pd/Si(111) Interface", G. W. Rubloff, J. L. Freeouf, P. S. Ho and T.S. Kuan, 26th Nat'l. Symposium of the American Vacuum Society, New York, 1979
25. "Reactive Schottky Barrier Formation: the Pd-Si Interface", J. L. Freeouf, G. W. Rubloff, P. S. Ho and T.S. Kuan, Topical Conference on Physics of Semiconductor Surfaces and Interfaces, Paris, France, Nov. 26-28, 1979.
26. "Reactive Schottky Barrier Formation: the Pd/Si Interface", J. L. Freeouf, G. W. Rubloff, P. S. Ho and T.S. Kuan, 7th Annual Conf. on the Physics of Compound Semiconductor Interfaces, Estes Park, Colorado, Jan. 29-Feb. 1, 1980.
27. "Electronic States Near the Fermi Energy at the Metal/Silicon Interface", G. W. Rubloff, P. S. Ho, J.E. Lewis, and J. L. Freeouf, APS March meeting, New York, N.Y., March, 1980.
28. "Electronic Structure and Chemical Bonding at the Pd/Si Interface", P. S. Ho, G. W. Rubloff, J.E. Lewis, P.E. Schmid, V.L. Moruzzi, and A.R. Williams, 40th Annual Conf. on Physical Electronics, Cornell University, June 16-18, 1980.
29. "Photoemission Studies of Chemical Bonding and Reactions at the Metal/Silicon Interface", G. W. Rubloff, 8th International Vacuum Congress, Cannes, France, Sept. 22-26, 1980.
30. "Electronic Structure of the V/Si Interface", J. G. Clabes and G. W. Rubloff, 27th Nat'l. Symposium of the American Vacuum Society, Detroit, Oct. 14-17, 1980.
31. "Electronic States and Atomic Structure at the Silicide/Si Interface", P.E. Schmid, P. S. Ho, H. Foll, and G. W. Rubloff, 27th Nat'l. Symposium of the American Vacuum Society, Detroit, Oct. 14-17, 1980.
32. "The Formation of the Schottky Barrier at the V/Si Interface", J. G. Clabes, G. W. Rubloff, B. Reihl, R.J. Purtell, P. S. Ho, A. Zartner, F.J. Himpsel, and D.E. Eastman, 28th Nat'l. Symposium of the American Vacuum Society, Anaheim, Calif., Nov. 2-6, 1981.
33. "Schottky Barrier Formation at V/Si and Pd/Si Interfaces", R. J. Purtell, J. G. Clabes, G. W. Rubloff, P. S. Ho, B. Riehl, and F. J. Himpsel, 9th Annual Physics and Chemistry of Semiconductor Interfaces Conference, Asilomar, California, Jan. 27-29, 1982.
34. "Core-Level Spectroscopy at Semiconductor Surfaces and Interfaces", F. J. Himpsel, G. Hollinger, R. J. Purtell, G. W. Rubloff, R. A. Pollak, and P. S. Ho, Conference on Semiconductors in the Vacuum Ultraviolet, Berlin, Sept. 13-15, 1982.
35. "Chemical Bonding and Reactions at Ti/Si and Ti/oxygen/Si Interfaces", R. Butz, G. W. Rubloff, and P. S. Ho, 29th Nat'l. Symposium of the American Vacuum Society, Baltimore, Nov. 16-19, 1982.
36. "Schottky Barrier Formation at Silicon Interfaces with Pd, Pt, and Ni", R. Purtell, G. Hollinger, G. W. Rubloff, and P. S. Ho, 29th Nat'l. Symposium of the American Vacuum Society, Baltimore, Nov. 16-19, 1982.

37. "Soft X-Ray Photoemission Measurement of Schottky Barrier Formation at the Pd/Si Interface", R. Purtell, P. S. Ho, G. W. Rubloff, and G. Hollinger, Interfaces and Contacts Symposium of the Materials Research Society meeting, Boston, Nov. 1-4, 1982.
38. "Chemical Bonding at the Polyimide Surface", P. Hahn, G. W. Rubloff, and P. S. Ho, 30th Nat'l. Symposium of the American Vacuum Society, Boston, Nov. 1-4, 1983.
39. "Chemical Reaction and Silicide Formation at the Pt/Si Interface", R. Matz, R. J. Purtell, Y. Yokota, G. W. Rubloff, and P. S. Ho, 30th Nat'l. Symposium of the American Vacuum Society, Boston, Nov. 1-4, 1983.
40. "Raman Spectroscopy of Silicide Formation at the Pt/Crystalline Si Interface", J. C. Tsang, R. Matz, Y. Yokota, and G. W. Rubloff, 30th Nat'l. Symposium of the American Vacuum Society, Boston, Nov. 1-4, 1983.
41. "High Resolution Synchrotron Photoemission Study of Silicon-Metal Interfaces", R. Purtell, A. Levi, G. Rubloff, and P. S. Ho, 31th Nat'l. Symposium of the American Vacuum Society, Reno, Dec. 4-7, 1984.
42. "Chemical Reactions at Pt/oxide/Si and Ti/oxide/Si Interfaces", M. Liehr, F. LeGoues, G. W. Rubloff, and P. S. Ho, 31th Nat'l. Symposium of the American Vacuum Society, Reno, Dec. 4-7, 1984.
43. "High Temperature Decomposition of SiO<sub>2</sub> at the Si/SiO<sub>2</sub> Interface", G. W. Rubloff, R. M. Tromp, E. J. van Loenen, P. Balk, and F. K. LeGoues, 32th Nat'l. Symposium of the American Vacuum Society, Houston, November 19-22, 1985.
44. "Low Temperature Refractory Metal/Silicon Interfacial Reaction: Ti/Si(111)", R. M. Tromp, G. W. Rubloff, and E. J. van Loenen, 32th Nat'l. Symposium of the American Vacuum Society, Houston, November 19-22, 1985.
45. "Titanium Interactions with Aluminum and Silicon Oxides", H. Lefakis, M. Liehr, G. W. Rubloff, and P. S. Ho, Materials Research Society meeting, Boston, Mass., Dec. 2-6, 1985.
46. "High Temperature Decomposition of SiO<sub>2</sub> at the Si/SiO<sub>2</sub> Interface", R. M. Tromp, G. W. Rubloff, P. Balk, and E. J. van Loenen, Materials Research Society meeting, Boston, Mass., Dec. 2-6, 1985.
47. "Defect Generation in MOS Structures Correlated with the Interface Reaction of Si and SiO<sub>2</sub>", K. Hofmann, G. W. Rubloff, D. R. Young, and S. I. Raider, Proceedings of the European Materials Research Society Meeting Symposium A: "Dielectric Layers in Semiconductors: Novel Technologies and Devices", Strasbourg, France, June 17-20, 1986.
48. "Void Formation in SiO<sub>2</sub> Films Correlated with Crystalline Defects in the Substrate", S. I. Raider, K. Hofmann, and G. W. Rubloff, Electrochemical Society Meeting, San Diego, California, October 19-24, 1986.
49. "A Mechanism for Improving the Quality of Thin Thermal Oxides", T. N. Nguyen, P. Olivo, D. L. Quinlan, and G. W. Rubloff, 33rd Nat'l. Symposium of the American Vacuum Society, Baltimore, October 27-31, 1986.
50. "Integrated System for Studies of Thin Film Chemical Growth Processes on Wafers", M. Renier, M. Liehr, S. M. Gates, J. O'Sullivan, G. W. Rubloff, and B. S. Meyerson, 33rd Nat'l. Symposium of the American Vacuum Society, Baltimore, October 27-31, 1986.
51. "Kinetics of Decomposition of SiO<sub>2</sub> on Si(100) During Vacuum Anneal", J. E. Lewis, M. Liehr, and G. W. Rubloff, 33rd Nat'l. Symposium of the American Vacuum Society, Baltimore, October 27-31, 1986.
52. "High Temperature Reaction and Defect Chemistry at the Si/SiO<sub>2</sub> Interface", G. W. Rubloff, K. Hofmann, M. Liehr, and D. R. Young, 17th IEEE Semiconductor Interface Specialists Conference, San Diego, Dec. 11-13, 1986.

53. "High Temperature Reaction and Defect Chemistry at the Si/SiO<sub>2</sub> Interface", K. Hofmann, G. W. Rubloff, M. Liehr, and D. R. Young, International Conference on Insulating Films on Semiconductors, Leuven, Belgium, April 13-15, 1987.
54. "The SiO<sub>2</sub>/Si Interface Probed with Positrons", B. Nielsen, K. G. Lynn, T. C. Leung, D. O. Welch, and G. Rubloff, Materials Research Society Symposium on SiO<sub>2</sub> and Its Interfaces, Boston, Nov. 30-Dec. 5, 1987.
55. "A Study of Defects at the SiO<sub>2</sub>/Si Interface", K. G. Lynn, Bent Nielsen, D. O. Welch, and G. W. Rubloff, March meeting, American Physical Society, New Orleans, March 21-25, 1988.
56. "Defect Generation at SiO<sub>2</sub>/Si(100) Interfaces by Metal Contamination", M. Liehr, H. Dallaporta, J. E. Lewis, G. B. Bronner, and G. W. Rubloff, International Conference on Solid State Devices and Materials, Toyko, Japan, Aug. 24-26, 1988.
57. "Variable-Energy Positron Beams as a Probe of Submicroscopic Defects at Interfaces", Bent Nielsen, K. G. Lynn, D. O. Welch, T. C. Leung, G. J. van der Kolk, and G. W. Rubloff, World Materials Congress: Interface Science and Engineering, Chicago, Sept. 25-30, 1988.
58. "Surface Analysis of Realistic Semiconductor Microstructures", G. S. Oehrlein, K. K. Chan, M. A. Jaso, and G. W. Rubloff, 35rd Nat'l. Symposium of the American Vacuum Society, Atlanta, October 4-7, 1988.
59. "Defect Studies of the SiO<sub>2</sub>-Si(100) Interface", K. G. Lynn, B. Nielsen, T. C. Leung, D. O. Welch, and G. W. Rubloff, 35rd Nat'l. Symposium of the American Vacuum Society, Atlanta, October 4-7, 1988.
60. "Variable-Energy Positron Beams as a Probe of Submicroscopic Defects at Interfaces", Bent Nielsen, K. G. Lynn, D. O. Welch, T. C. Leung, G. J. van der Kolk, and G. W. Rubloff, MRS spring meeting, Symposium D: Chemistry and Defects in Semiconductor Heterostructures, San Diego, April 24-29, 1989.
61. "Microvoids and Defect Chemistry at the Si/SiO<sub>2</sub> Interface Studied by Positron Annihilation Depth Profiling", G. W. Rubloff, B. Nielsen, K. G. Lynn, D. O. Welch, and T. C. Leung, Int. Conf. on Solid Surfaces (ICSS-7) and Int. Vacuum Congress (IVC-11), Cologne, F. R. Germany, Sept. 25-29, 1989.
62. "Dielectric Breakdown on MOS Capacitors Fabricated by Ultraclean, Integrated Processing", M. Offenberg, M. Liehr, S. Kasi, and G. W. Rubloff, Semiconductor Interface Specialists Conference, Fort Lauderdale, Fla., Dec. 6-9, 1989.
63. "Role of Surface Passivation in the Integrated Processing of MOS Structures", M. Offenberg, M. Liehr, S. R. Kasi, and G. W. Rubloff, VLSI Technology Symposium 1990, Honolulu, Hawaii, June 5-7, 1990.
64. "HF Surface Passivation Failure in Integrated Thermal Oxidation Processing", M. Liehr, M. Offenberg, S. R. Kasi, G. W. Rubloff, and K. Holloway, 1990 Int. Conf. on Solid State Devices and Materials, Sendai, Japan, Aug. 22-24, 1990.
65. "Growth and Surface Chemistry of Passivating Insulators for Silicon Technology", G. W. Rubloff, Office of Naval Research Solid State and Surface Chemistry Contractors' Meeting, Arlington, Va., July 19-21, 1991.
66. "Diffusion of Fluorine in MOS Structures", S.-P. Jeng, T.-P. Ma, R. Canteri, M. Anderle, S. S. Dana, and G. W. Rubloff, 38th National Symposium of the American Vacuum Society, Seattle, WA, Nov. 11-15, 1991.
67. "UHV-RTCVD Studies of Rough Polysilicon Thin Film Growth", S. S. Dana, M. Anderle, G. W. Rubloff, and M. Liehr, 38th National Symposium of the American Vacuum Society, Seattle, WA, Nov. 11-15, 1991.

68. "Positron Annihilation at Si-SiO<sub>2</sub> Interface", Z. A. Weinberg, T. C. Leung, P. Asoka-Kumar, B. Nielsen, G. W. Rubloff, and K. G. Lynn, 22nd IEEE Semiconductor Interface Specialists Conference, Lake Buena Vista, Fla., Dec. 11-14, 1991.
69. "Fundamental Chemistry in Advanced MOS Technology and Manufacturing", G. W. Rubloff, University of Texas Science and Technology Center seminar series on Synthesis, Growth and Analysis of Electronic Materials, Austin, Texas, Jan. 13, 1992.
70. "Surface Control of Silicon Nucleation, Growth, and Morphology in Very Low Pressure CVD", S. S. Dana, G. W. Rubloff, and M. Liehr, Materials Research Society Symposium B: Chemical Surface Preparation, Passivation and Cleaning for Semiconductor Growth and Processing", San Francisco, CA, April 27-May 1, 1992.
71. "Pre-Oxidation Surface Cleaning and Its Relation to MOS Reliability and Process-Induced Damage", S. R. Kasi, G. W. Rubloff, and S. Cohen, Materials Research Society Symposium B: Chemical Surface Preparation, Passivation and Cleaning for Semiconductor Growth and Processing", San Francisco, CA, April 27-May 1, 1992.
72. "Detection of Thin Interfacial Layers by Picosecond Ultrasonics", G. Tas, R. J. Stoner, H. J. Maris, G. W. Rubloff, G. S. Oehrlein, and J. M. Halbout, Materials Research Society Symposium B: Chemical Surface Preparation, Passivation and Cleaning for Semiconductor Growth and Processing", San Francisco, CA, April 27-May 1, 1992.
73. "Detection of Titanium Silicide Formation by Picosecond Ultrasonics", H. N. Lin, R. J. Stoner, H. J. Maris, J. M. E. Harper, C. Cabral Jr., and G. W. Rubloff "Materials Research Society Symposium C: Advanced Metallization and Processing for Semiconductor Devices and Circuits-II, San Francisco, CA, April 27-May 1, 1992.
74. "Bias Dependence of Positron Annihilation Spectra from a Metal-Oxide-Semiconductor (MOS) Capacitor", P. Asoka-Kumar, T. C. Leung, K. G. Lynn, B. Nielsen, Z. A. Weinberg, and G. W. Rubloff, American Physical Society March meeting, Indianapolis, IN, March 16-20, 1992.
75. "Detection of Titanium Silicide Formation by Picosecond Ultrasonics", H.-N. Lin, R. J. Stoner, H. J. Maris, J. M. E. Harper, C. Cabral, Jr., J.-M. Halbout, and G. W. Rubloff, Materials Research Society Symposium on Advanced Metallization and Processing for Semiconductor Devices and Circuits - II, San Francisco, April 27 - May 1, 1992.
76. "Detection of Thin Interfacial Layers by Picosecond Ultrasonics", G. Tas, R. J. Stoner, H. J. Maris, G. W. Rubloff, G. S. Oehrlein, and J.-M. Halbout, Materials Research Society Symposium on Chemical Surface Preparation, Passivation, and Cleaning for Semiconductor Growth and Processing, San Francisco, April 27 - May 1, 1992.
77. "Pre-Oxidation Si Cleaning and its Relation to MOS Reliability and Process-Induced Damage", S. R. Kasi, G. W. Rubloff, S. A. Cohen, and L. C. Hsia, Research Society Symposium on Chemical Surface Preparation, Passivation, and Cleaning for Semiconductor Growth and Processing, San Francisco, April 27 - May 1, 1992.
78. "Surface Control of Silicon Nucleation, Growth, and Morphology in Very Low Pressure CVD", S. S. Dana, G. W. Rubloff, and M. Liehr, Materials Research Society Symposium on Chemical Surface Preparation, Passivation, and Cleaning for Semiconductor Growth and Processing, San Francisco, April 27 - May 1, 1992.
79. "Morphology Control in UHV/CVD Polysilicon Growth", S. S. Dana, M. Anderle, G. W. Rubloff, and A. Schrott, AVS 1992 National Symposium, Chicago, IL, Nov. 9-13, 1992.
80. "Microelectronics Process Manufacturability and 3-D Chemistry", G. W. Rubloff, seminar at Advanced Electronic Materials Processing Distinguished Lecturer Series, North Carolina State University, January 28, 1993.
81. "The Role of Implantation-Induced Defects in Surface-Oriented Diffusion of Fluorine in Silicon", Cs. Szeles, B. Nielsen, P. Asoka-Kumar, K. G. Lynn, M. Anderle, T. P. Ma, and G. W. Rubloff, APS March meeting, March 21-25, 1994, Pittsburgh, PA.

82. "Role of Implantation-Induced Defects in Surface-Oriented Diffusion of Fluorine in Silicon", Cs. Szeles, B. Nielsen, P. Asoka-Kumar, K. G. Lynn, M. Anderle, T. P. Ma, and G. W. Rubloff, Proceedings of the 10th Int. Conf. on Positron Annihilation (Materials Science Forum), Beijing, China, May 23-27, 1994.
83. "Real-Time Process and Product Diagnostics in RTCVD using In-Situ Mass Spectroscopic Sampling", L. L. Tedder, G. W. Rubloff, I. Shareef, M. Anderle, D.-H. Kim, and G. N. Parsons, Topical Conference on Manufacturing Science and Technology, AVS 41st Nat'l. Symp., Denver, Oct. 24-28, 1994.
84. "Sub-Atmospheric CVD (SACVD) Ozone/TEOS for SiO<sub>2</sub> Trench Filling", I. Shareef, G. W. Rubloff, M. Anderle, W. Gill, J. Cotte, and D.-H. Kim, Topical Conference on Manufacturing Science and Technology, AVS 41st Nat'l. Symp., Denver, Oct. 24-28, 1994.
85. "Reaction Behavior and Deposition Consequences in Conformal CVD by Sub-Atmospheric Ozone/TEOS Processes", I. A. Shareef, G. W. Rubloff, M. Anderle, W. N. Gill, and J. Cotte, Topical Conference on the Synthesis & Processing of Electronic Materials, AIChE 1994 Annual Meeting, San Francisco, Nov. 13-18, 1994.
86. "Thickness and Dynamic Rate Metrology during PolySi RTCVD from SiH<sub>4</sub> using Real-Time In-Situ Mass Spectrometry", L. L. Tedder, G. W. Rubloff, and G. N. Parsons, Materials Research Society, San Francisco, CA, April 17-21, 1995.
87. "Real-Time Equipment, Process and Wafer State Sensing of PolySi RTCVD from SiH<sub>4</sub> using Mass Spectrometry", L. L. Tedder and G. W. Rubloff, Process Control, Diagnostics, and Modeling Symposium, The Electrochemical Society, Reno, NV, May 21-26, 1995.
88. "Real-Time Gas Sensor and Simulation for RTPCVD Metrology and Control", L. L. Tedder, G. Lu, B. Conaghan, and G. W. Rubloff, 3rd Int. Rapid Thermal Processing Conference, Amsterdam, Aug. 30 - Sept. 1, 1995.
89. "Semiconductor Manufacturing Research: Challenges in Process Design and Control", G. W. Rubloff, Virginia Commonwealth University, April 20, 1995.
90. "PolySi RTCVD Metrology using Simulator-Based Mass Spec Sensing", L. L. Tedder, G. Lu, and G. W. Rubloff, AVS 42nd Nat'l. Symp., Minneapolis, MN, Oct. 16-20, 1995.
91. "Polysilicon RTCVD Process Optimization for Manufacturing and the Environment", G. Lu, M. Bora, and G. W. Rubloff, AVS 42nd Nat'l. Symp., Minneapolis, MN, Oct. 16-20, 1995.
92. "Dynamic Simulators for Semiconductor Manufacturing Equipment and Processes", G. Lu, M. Bora, L. L. Tedder, and G. W. Rubloff, AVS 42nd Nat'l. Symp., Minneapolis, MN, Oct. 16-20, 1995.
93. "Integrated Dynamic Simulation for Process Optimization & Control", G. B. Lu, L. Tedder, M. Bora, and G. W. Rubloff, Sematech AEC/APC Workshop VII, New Orleans, LA, Nov. 5-8, 1995.
94. "Mass Spectrometry for Equipment, Process & Wafer State Sensing and Control", L. Tedder, G. B. Lu, and G. W. Rubloff, Sematech AEC/APC Workshop VII, New Orleans, LA, Nov. 5-8, 1995.
95. "Real-Time In-Situ Sensors and Dynamic Simulation for the Flexible Semiconductor Factory", Gary W. Rubloff, G. Brian Lu, and Laura L. Tedder, Government Microcircuit Applications Conference (GOMAC), Orlando, FL, March 18-21, 1996.
96. "Sensing and Simulation in Semiconductor Manufacturing Processes: Pathways to Control, Optimization, Environment, and Education", G. W. Rubloff, Seminar, Motorola APRDL, Austin, TX, May 29, 1996.
97. "Equipment and Process Fault Detection and Classification in PolySi RTCVD", L. L. Tedder, G. Lu, N. Rabbani, and G. W. Rubloff, AVS 43<sup>rd</sup> Nat'l. Symp., Philadelphia, PA, Oct. 14-18, 1996.
98. "Education and Training in Semiconductor Manufacturing Processes through Physically-based Dynamic Simulation", G. Lu, M. Oveissi, D. Eckard, and G. W. Rubloff, AVS 43<sup>rd</sup> Nat'l. Symp., Philadelphia, PA, Oct. 14-18, 1996.

99. "Process Sensing and Metrology for RTCVD Oxide Deposition from SiH<sub>4</sub> and N<sub>2</sub>O", G. Lu, L. L. Tedder, and G. W. Rubloff, AVS 43<sup>rd</sup> Nat'l. Symp., Philadelphia, PA, Oct. 14-18, 1996.
100. "Semiconductor Manufacturing Education and Training: Graphic User Interface Issues", M. Oveissi, D. E. Eckard, A. R. Rose, and G. W. Rubloff, AVS 44<sup>th</sup> Nat'l. Symp., San Jose, CA, Oct. 20-24, 1997.
101. "Dynamic Simulation Based Learning Tools for Manufacturing Education and Training", G. W. Rubloff, A. R. Rose, Y. Sankholkar, and D. E. Eckard, AVS 45<sup>th</sup> Nat'l. Symp., Baltimore, MD, Nov. 2-6, 1998.
102. "Physically-based Dynamic Simulation of a Tungsten CVD Cluster Tool", N. Gupta, J. N. Kidder, Jr., and G. W. Rubloff, AVS 45<sup>th</sup> Nat'l. Symp., Baltimore, MD, Nov. 2-6, 1998.
103. "Sensor Integration on a W-CVD Cluster Tool for Real-Time Process Monitoring and Control", J. N. Kidder, Jr., Y. Xu, N. Gupta, T. Gougousi, and G. W. Rubloff, AVS 45<sup>th</sup> Nat'l. Symp., Baltimore, MD, Nov. 2-6, 1998.
104. "Integrating Process Models and Operational Methods", J. W. Herrmann, N. Chandrasekaran, R. Z. Shi, B. F. Conaghan, and G. W. Rubloff, AVS 45<sup>th</sup> Nat'l. Symp., Baltimore, MD, Nov. 2-6, 1998.
105. "Simulator-Based Training for APC Deployment", G. W. Rubloff, AEC/APC Symposium X, sponsored by Sematech and Semi/Sematech, Vail, CO, Oct. 11-16, 1998.
106. "The Design of History Mechanisms and Their Use in Collaborative Educational Simulations", C. Plaisant, A. Rose, G. W. Rubloff, R. Salter, and B. Shneiderman, CSCL 99.
107. "EquiPSim: Hands-On Training in Semiconductor Equipment and Process Behavior", A. R. Rose, G. W. Rubloff, N. Kositsyna, N. Gupta, R. Sreenivasan, and W. S. Levine, AVS 46<sup>th</sup> Nat'l. Symp., Seattle, WA, Oct. 25-29, 1999.
108. "Reaction Sensing in Multicomponent CVD Processes using an Acoustic Sensor ", L. Henn-Lecordier, G. W. Rubloff, J. N. Kidder, Jr., C. Gogol, and A. Wajid, AVS 46<sup>th</sup> Nat'l. Symp., Seattle, WA, Oct. 25-29, 1999.
109. "Chemical Process Sensing using Mass Spectrometry in Multicomponent Reaction Systems ", Y. Xu, T. Gougousi, N. Gupta, J. N. Kidder, Jr., and G. W. Rubloff, AVS 46<sup>th</sup> Nat'l. Symp., Seattle, WA, Oct. 25-29, 1999.
110. "Integrating Process Models and Operational Methods", J. W. Herrmann, N. Chandrasekaran, B. F. Conaghan, M.-Q. Nguyen, G. W. Rubloff, and R. Z. Shi, Proc. 1999 Intl. Conf. on Semiconductor Manufacturing and Operational Modeling and Simulation, The Society for Computer Simulation International, San Diego, 1999.
111. "Engineered Learning Systems for Engineering and Education", Gary W. Rubloff, Center for Environmentally Benign Semiconductor Manufacturing teleseminar, Sept. 23, 1999.
112. "Real-Time Chemical Sensing in Thin Layer Multicomponent CVD", T. Gougousi, Y. Xu, L. Henn-Lecordier, J. N. Kidder, Jr., G. W. Rubloff, and C. R. Tilford, AVS 1<sup>st</sup> Int'l. Conf. on Microelectronics and Interfaces, Santa Clara, CA, Feb. 7-11, 2000.
113. "In-situ Wafer-State Metrology in Multi-Component W CVD Processing Using an Acoustic Sensor", L. Henn-Lecordier, G. W. Rubloff, J. N. Kidder, C. Gogol, and A. Wajid, 2000 International Conference on Characterization and Metrology for ULSI Technology, National Institute of Standards and Technology, Gaithersburg, MD, June 26-29, 2000.
114. "In-situ Sensing Using Mass Spectrometry and its Use for Run-to-Run Control on a W-CVD Cluster Tool", R. Sreenivasan, Y. Xu, TA. Gougousi, L. Henn-Lecordier, G. W. Rubloff, J. N. Kidder, Jr., and E. Zafiriou, 2000 International Conference on Characterization and Metrology for ULSI Technology, National Institute of Standards and Technology, Gaithersburg, MD, June 26-29, 2000.
115. "EquiPSim: Hands-On Training in Semiconductor Equipment and Process Behavior", G. W. Rubloff and A. R. Rose, Sixth Annual Conference/Workshops on Advanced Technological Education in Semiconductor Manufacturing, Lake Buena Vista, FL, July 31-Aug. 4, 2000.

116. "Influence of Gas Composition on Wafer Temperature Control in a Tungsten Chemical Vapor Deposition Reactor", R. A. Adomaitis, H.-Y. Chang, J. N. Kidder, Jr., and G. W. Rubloff, In Control of Microelectronics Manufacturing Processes, AIChE Meeting, Los Angeles, CA, Nov. 12-17, 2000.
117. "Experimental Measurements, Model Development, and Parameter Identification", H.-Y. Chang, R. A. Adomaitis, J. N. Kidder, Jr. and G. W. Rubloff, 2000 AIChE Annual Meeting, November, 2000, Los Angeles.
118. "Operational methods in semiconductor manufacturing: integrating product dynamics and process models", M. Fu, J. W. Herrmann, S. I. Marcus, and G. W. Rubloff, 2000 NSF Design and Manufacturing Research Conference, Vancouver, Canada, Jan. 3-6, 2000.
119. "Understanding the Impact of Equipment and Process Changes with a Heterogeneous Semiconductor Manufacturing Simulation Environment", J.W. Herrmann, B.F. Conaghan, L. Henn-Lecordier, P. Mellacheruvu, M-Q Nguyen, G.W. Rubloff, R.Z. Shi, Proceedings of the 2000 Winter Simulation Conference, December 10-13, 2000, Orlando, FL.
120. "Integrating Process Models, Equipment Logistics, and Factory Flow for Manufacturing Systems Optimization", L. Henn-Lecordier, M.-Q. Nguyen, B. Conaghan, P. Mellacheruvu, R. Kumar, J. W. Herrmann, and G. W. Rubloff, AVS 47<sup>th</sup> Nat'l. Symp., Boston, MA, Oct. 2-6, 2000.
121. "W-CVD Film Thickness Metrology and Process Control using Mass Spectrometry", Y. Xu, T. Gougousi, R. Sreenivasan, G. W. Rubloff, J. N. Kidder, and E. Zafiriou, AVS 47<sup>th</sup> Nat'l. Symp., Boston, MA, Oct. 2-6, 2000.
122. "Collaborative Research among Universities with Differing Research Profiles", B. Ram, E. Park, G. Rubloff, and E. Barnes, 2001 American Association for Higher Education, Washington, DC, March 25, 2001.
123. "Integrated ESH Assessment: Cu CVD Unit Process", Soon Cho and Gary W. Rubloff, Center for Environmentally Benign Semiconductor Manufacturing teleseminar, Oct. 4, 2001.
124. "Thickness Metrology and Real-Time End Point Control in W CVD using in-situ Mass Spectrometry", Y. Xu, L. Henn-Lecordier, T. Gougousi, G. W. Rubloff, S. Cho, and Y. Liu, AVS 48<sup>th</sup> Nat'l. Symp., San Francisco, CA, Oct. 29 - Nov. 2, 2001.
125. "Real-Time CVD Wafer State Metrology using a Downstream Acoustic Sensor", L. Henn-Lecordier, J. N. Kidder, G. W. Rubloff, A. Wajid, and C. Gogol, AVS 48<sup>th</sup> Nat'l. Symp., San Francisco, CA, Oct. 29 - Nov. 2, 2001.
126. "Spatially Programmable Reactor Design: Toward a New Paradigm for Equipment Effectiveness", Y. Liu, J. Choo, L. Henn-Lecordier, G. W. Rubloff, and R. A. Adomaitis, AVS 49<sup>th</sup> Nat'l. Symp., Denver, CO, Nov. 2-8, 2002.
127. "Monitoring and Control of Binary Gas Mixtures from Solid Phase MOCVD Sources using an Acoustic Sensor", L. Henn-Lecordier, J. N. Kidder, and G. W. Rubloff, AVS 49<sup>th</sup> Nat'l. Symp., Denver, CO, Nov. 2-8, 2002.
128. "Dynamic Simulation and Optimization at the Unit Process Level for Environmentally Benign Semiconductor Manufacturing", S. Cho, W. Lei, and G. W. Rubloff, AVS 49<sup>th</sup> Nat'l. Symp., Denver, CO, Nov. 2-8, 2002.
129. "Materials Transformation and Kinetics in the Formation of Porous Low-K Polymer Dielectrics for Advanced Interconnect Technology", P. Lazzeri, L. Vanzetti, M. Bersani, M. Anderle, J. J. Park, Z. Lin, G. Y. Yang, R. M. Briber, G. W. Rubloff, and R. D. Miller, AVS 49<sup>th</sup> Nat'l. Symp., Denver, CO, Nov. 2-8, 2002.
130. "Chitosan - a biomaterial interface that can be selectively deposited onto micropatterned surfaces and conjugated to sensing biomolecules", L.-Q. Wu, A. P. Gadre, H. Yi, M. J. Kastantin, G. W. Rubloff, W. E. Bentley, G. F. Payne, and R. Ghodssi, AVS 49<sup>th</sup> Nat'l. Symp., Denver, CO, Nov. 2-8, 2002.

131. "Simulator Development and Prototype Evaluation for a Spatially Controllable Chemical Vapor Deposition System", Jae-Ouk Choo, Raymond A. Adomaitis, Gary W. Rubloff, Laurent Henn-Lecordier, and Yijun Liu, 2002 Annual AIChE Meeting, Indianapolis, IN, Nov. 2-8, 2002.
132. "Spatially-Selective Assembly of a Reactive Polysaccharide Layer onto Patterned Surfaces", Li-Qun Wu, Hyunmin Yi, Sheng Li, Gary W. Rubloff, William E. Bentley, Gregory F. Payne, and Reza Ghodssi, MEMS Alliance Systems Symposium, Johns Hopkins Applied Physics Lab, Nov. 25, 2002.
133. "Monitoring and control of binary gas mixtures from solid phase MOCVD sources using an acoustic sensor", L. Henn-Lecordier, G. W. Rubloff, and J. N. Kidder, 2003 Intl. Conf. On Characterization and Metrology for ULSI Technology, Austin, TX, March 24-28, 2003.
134. "Materials Characterization and the Formation of Nanoporous PMSSQ Low-K Dielectric", P. Lazzeri, L. Vanzetti, E. Iacob, M. Bersani, M. Anderle, J. J. Park, Z. Lin, R. M. Briber, G. W. Rubloff, and R. D. Miller, 2003 Intl. Conf. On Characterization and Metrology for ULSI Technology, Austin, TX, March 24-28, 2003.
135. "Harnessing the Biopolymer Chitosan for Biosensor Applications", Hyunmin Yi, Li-Qun Wu, Reza Ghodssi, Gary W. Rubloff, Gregory F. Payne, and William E. Bentley, U. Maryland Bioscience and Technology Review Day, College Park, MD, Nov. 19, 2002.
136. "Design, Simulation, and Experimental Testing of a Spatially Controllable CVD Reactor", Raymond A. Adomaitis, Jae-Ouk Choo, Gary W. Rubloff, Laurent Henn-Lecordier, and Yijun Liu, Adchem 2003, Int'l. Symp. On Advanced Control of Chemical Processes, Hong Kong, Jan. 11-14, 2003.
137. "Novel assembly platform for integrating biological species within MEMS devices", Hyunmin Yi, Li-Qun Wu, David A. Small, Tianhong Chen, Reza Ghodssi, Gary W. Rubloff, Gregory F. Payne, and William E. Bentley, 225<sup>th</sup> ACS National Meeting, Division of Biochemical Technology, New Orleans, LA, March 23-27, 2003.
138. "Voltage-Programmable Biofunctionality in MEMS Environments using Electrodeposition of a Reactive Polysaccharide", L.-Q. Wu, Hyunmin Yi, Sheng Li, David A. Small, Jung Jin Park, Gary W. Rubloff, Reza Ghodssi, William E. Bentley, and Gregory F. Payne, Transducers 2003: The 12th International Conference on Solid-State Sensors, Actuators and Microsystems, Boston, MA, June 8-12, 2003.
139. "Surface chemical properties of electrodeposited chitosan thin films for biomaterials and bioMEMS applications", G. Speranza, C. Pederzoli, L. Lunelli, R. Canteri, L. Pasquardini, P. Villani, M. Anderle, J. J. Park, L-Q Wu, G. W. Rubloff, G. F. Payne, and R. Ghodssi, 8<sup>th</sup> European Vacuum Congress, Berlin, Germany, June 23-26, 2003.
140. "MOCVD of highly uniform AlGaIn-GaN HFET structures", D. B. Thomson, M. Aumer, D. P. Partlow, G. Augustine, R. C. Clarke, S. Cho, R. Adomaitis, and G. Rubloff, 15<sup>th</sup> American Conference on Crystal Growth and Epitaxy, Keystone, CO, July 20-24, 2003.
141. "Chitosan at the Interface of Microfabrication and Biotechnology", L.-Q. Wu, R. Fernandes, H. Yi, D. A. Small, G. W. Rubloff, R. Ghodssi, W. E. Bentley, and G. F. Payne, Advances in Chitin Science, EUCHIS 2003, Montreal, Aug. 27-30, 2003, pp. 78-82 (2003).
142. "Real-time In-situ Chemical Sensing in GaN MOCVD for Advanced Process Control", S. Cho, G. W. Rubloff, M. E. Aumer, D. B. Thomson, and D. P. Partlow, AVS 50<sup>th</sup> Natl. Symp., Baltimore, MD, Nov. 2-7, 2003.
143. "[Progress toward spatially programmable CVD](#)", Jae-Ouk Choo, Laurent Henn-Lecordier, Yijun Liu, Raymond A. Adomaitis, and Gary W. Rubloff, AVS 50<sup>th</sup> Natl. Symp., Baltimore, MD, Nov. 2-7, 2003.
144. "Processing and Characterization of PMSSQ Based Materials for Nanoporous Low-K Dielectrics", P. Lazzeri, J. J. Park, Z. Lin, R. M. Briber, L. Vanzetti, M. Anderle, M. Bersani, R. D. Miller, and G. W. Rubloff, AVS 50<sup>th</sup> Natl. Symp., Baltimore, MD, Nov. 2-7, 2003.
145. "[Dynamic Equipment and Process Simulation for Atomic Layer Deposition Technology](#)", W. Lei, Y. Cai, L. Henn-Lecordier, and G. W. Rubloff, AVS 50<sup>th</sup> Natl. Symp., Baltimore, MD, Nov. 2-7, 2003.

146. "Material and Surface Characterization of Electrodeposited Polysaccharide Chitosan Film as a Platform for Biomolecular Reactions in BioMEMS Systems", C. Pederzolli, L. Lunelli, G. Speranza, R. Canteri, M. Anderle, J. J. Park, L.-Q. Wu, H. Yi, R. Ghodssi, W. E. Bentley, G. F. Payne, and G. W. Rubloff, AVS 50<sup>th</sup> Natl. Symp., Baltimore, MD, Nov. 2-7, 2003.
147. "Vacuum-Based Diagnostics of Aqueous Microenvironments using Evaporative Micro-Orifice Technique", T. M. Valentine, G. W. Rubloff, and J. J. Park, AVS 50<sup>th</sup> Natl. Symp., Baltimore, MD, Nov. 2-7, 2003.
148. "Chitosan – A Biomaterial Interface that can be Selectively Deposited onto Micropatterned Surfaces and Conjugated to Sensing Biomolecules", L.-Q. Wu, H. Yi, M. J. Kastantin, S. Li, D. A. Small, J. J. Park, T. Chen, G. W. Rubloff, R. Ghodssi, W. E. Bentley, and G. F. Payne, AVS 50<sup>th</sup> Natl. Symp., Baltimore, MD, Nov. 2-7, 2003.
149. "Assembly and Disassembly of Hydrogels to Entrap, Grow, and Release Cells", G. F. Payne, T. Chen, L.-Q. Wu, D. A. Small, H. Yi, R. Ghodssi, G. W. Rubloff, and W. E. Bentley, AVS 50<sup>th</sup> Natl. Symp., Baltimore, MD, Nov. 2-7, 2003.
150. "Optimizing AlGa<sub>N</sub>-Ga<sub>N</sub> Heterostructures by MOCVD for Microwave Electronics", M. E. Aumer, D. B. Thomson, D. P. Partlow, R. C. Clarke, S. Cho, G. W. Rubloff, and R. A. Adomaitis, AVS 50<sup>th</sup> Natl. Symp., Baltimore, MD, Nov. 2-7, 2003.
151. "In-situ chemical sensing for real-time prediction of material quality and film thickness in Ga<sub>N</sub> MOCVD", Soon Cho, Gary W. Rubloff, Michael E. Aumer, Darren B. Thomson, and Deborah P. Partlow, MRS Fall meeting, Boston, MA, Dec. 1-5, 2003.
152. "Photoluminescence and x-ray diffraction study of AlGa<sub>N</sub>-Ga<sub>N</sub> HEMT structures for microwave electronics", M. E. Aumer, D. B. Thomson, D. Partlow, S. Cho, G. Rubloff, R. Adomaitis, G. Henry, G. Augustine, and R. C. Clarke, MRS Fall meeting, Boston, MA, Dec. 1-5, 2003.
153. "Spatially Controllable CVD: the Programmable Reactor Concept", Raymond A. Adomaitis, Jae-Ouk Choo, Gary W. Rubloff, and Laurent Henn-Lecordier, AIChE Annual Meeting, San Francisco, CA, Nov. 16-21, 2003.
154. "A Modular Simulator Development Approach for the Design of Ga<sub>N</sub> CVD Systems", Raymond A. Adomaitis, Brendan Hoffman, Rinku Parikh, Erin L. Evans, Gary W. Rubloff, Michael Aumer, Darren Thomson, and Deborah Partlow, AIChE Annual Meeting, San Francisco, CA, Nov. 16-21, 2003.
155. "The Development of WaterSim 4.0: a Dynamic Simulation Modeling Cleaning Processes in Semiconductor Wafer Manufacturing", Jessica Jensen, Wei Lei, Mike Schmotzer, Farhang Shadman, and Gary W. Rubloff, AIChE Annual Meeting, San Francisco, CA, Nov. 16-21, 2003.
156. "A Novel Platform for Assembling Biological Species onto Biosensor Surfaces", Hyunmin Yi, Li-Qun Wu, Reza Ghodssi, Gary W. Rubloff, Gregory F. Payne, and William E. Bentley, AIChE Annual Meeting, San Francisco, CA, Nov. 16-21, 2003.
157. "A Novel Biomolecule Assembly Technique onto BioSensor Surfaces", Hyunmin Yi, Li-Qun Wu, Reza Ghodssi, Gary W. Rubloff, Gregory F. Payne, and William E. Bentley, 227<sup>th</sup> ACS National Meeting, Anaheim, CA, March 28-April 1, 2004.
158. "In vitro biocompatibility of deposited chitosan films as a platform for living cells in bioMEMS systems", C. Pederzolli, L. Lunelli, L. Pasquardini, G. Speranza, R. Canteri, P. Villani, J. J. Park, G. F. Payne, G. W. Rubloff, and M. Anderle, 16th International Vacuum Congress, 12th International Conference on Solid Surfaces, and 8th International Conference on Nanometer-Scale Science and Technology, Venice, Italy, June 28 – July 2, 2004.
159. "Combinatorial Studies of Biopolymer Deposition and Surface Functionalization for Biomolecular Reactions in BioMEMS Environments", J. J. Park, T. Valentine, M. Anderle, R. Ghodssi, and G. W. Rubloff, 16th International Vacuum Congress, 12th International Conference on Solid Surfaces, and 8th International Conference on Nanometer-Scale Science and Technology, Venice, Italy, June 28 – July 2, 2004.

160. "A New Approach to Spatially Controllable CVD", Raymond A. Adomaitis, Jae-Ouk Choo, Gary W. Rubloff, Laurent Henn-Lecordier, and Joann Cai, Am. Control Conf., July 1, 2004.
161. "ToF-SIMS Characterization of Low-K Dielectrics: from Materials Development to Key Issues in ULSI Technology", P. Lazzeri, G. W. Rubloff, G. Oehrlein, R. M. Briber, H.-C. Kim, J. Wolf, M. Bersani, and M. Anderle, SIMS Europe 2004, Muenster, Germany, Sept. 26-29, 2004.
162. "Microfluidic Circuit Fabrication and Packaging for Surface-Controlled Bioprocesses in BioMEMS", T. M. Valentine, J. J. Park, G. W. Rubloff, and R. Ghodssi, AVS 51<sup>th</sup> Natl. Symp., Anaheim, CA, Nov. 15-19, 2004.
163. "Development and characterization of RGD peptide coatings for cell adhesion", R. Canteri, C. Pederzoli, L. Lunelli, P. Villani, M. Anderle, L. Pasquardini, M. Vinante, S. Forti, G. Speranza, G. W. Rubloff, and J. J. Park, AVS 51<sup>th</sup> Natl. Symp., Anaheim, CA, Nov. 15-19, 2004.
164. "ToF-SIMS characterization of low-k dielectrics: from materials development to key integration issues in ULSI technology", P. Lazzeri, G. W. Rubloff, G. Oehrlein, R. M. Briber, H.-C. Kim, J. Wolf, M. Bersani, and M. Anderle, Euromat 2005, Prague, Sept. 5-8, 2005.
165. "Development of a Fast-response Microfluidic Gas Concentration Device", Sheng Li, Jung J. Park, Jonathan C. Day, Gary W. Rubloff, Christopher P. Cadou, and Reza Ghodssi, MEMS Alliance, April 18-19, 2005.
166. "Engineering the Biology at a Device Interface: Towards Micromolecular Biomanufacturing", Angela Lewandowski, Hyunmin Yi, Chen-Yu Tsao, Michael Powers, Reza Ghodssi, Gary Rubloff, Gregory Payne, and William Bentley, Best Poster Award, Biochemical Engineering XIV: Frontiers and Advances in Biotechnology, Biology, and Biomolecular Engineering Harrison Hot Springs, BC, Canada, July 2005
167. "Toward a Biophotonic MEMS Cell Sensor", Michael A. Powers, Stephan T. Koev, Arne Schleunitz, Hyunmin Yi, Cynthia Wu, Vildana Hodzic, William E. Bentley, Gregory F. Payne, Gary W. Rubloff, and Reza Ghodssi, MEMS Alliance, April 18-19, 2005.
168. "Gallium Nitride Thin Film Growth Chemistry Modeling and Experimental Validation with a MOVPE Reactor Showerhead System", Rinku Parikh, Raymond A. Adomaitis, Gary W. Rubloff, Erin Robertson, Deborah Partlow, Darren Thompson, and Michael Aumer, Materials Engineering and Sciences Division, AIChE 2005 Annual Meeting, Cincinnati, OH, Oct. 30 – Nov. 4, 2005.
169. "Experimental Results from a Spatially Programmable Chemical Vapor Deposition System", Ramaswamy Sreenivasan, Raymond A. Adomaitis, Gary W. Rubloff, and Yuhong Cai, Materials Engineering and Sciences Division, AIChE 2005 Annual Meeting, Cincinnati, OH, Oct. 30 – Nov. 4, 2005.
170. "Chitosan-mediated Biofabrication: Interfacing Devices and Biology", Hyunmin Yi, Reza Ghodssi, Gary W. Rubloff, Gregory F. Payne, James N. Culver, William E. Bentley, Nanoscale Science and Engineering Forum, AIChE 2005 Annual Meeting, Cincinnati, OH, Oct. 30 – Nov. 4, 2005.
171. "Development of a Fast-Response Microfluidic Gas Concentrating Device", Sheng Li, Jung J. Park, Jonathan C. Day, Gary Rubloff, Christopher P. Cadou, and Reza Ghodssi, Eurosensors XIX, Barcelona, Spain, Sept. 11-14, 2005.
172. "Toward a Biophotonic MEMS Cell Sensor", M. A. Powers, S. Koev, A. Scheunitz, H. Yi, V. Hodzic, W. E. Bentley, G. F. Payne, G. Rubloff, and R. Ghodssi, SPIE Microtechnologies for the New Millennium, Seville, Spain, May 9-11, 2005.
173. "Chitosan Based MEMS Biophotonic Sensor", Michael A. Powers, Stephan T. Koev, Hyunmin Yi, Vildana Hodzic, William E. Bentley, Gregory F. Payne, Gary W. Rubloff, and Reza Ghodssi, The International Conference on Bio-Nano-Informatics (BNI) Fusion, Marina del Ray, CA, July 20-22, 2005.
174. "Integrated Chip and Package Design for Surface-Controlled Bioreaction Processes with Robust, Reusable Fluidic Sealing", J. J. Park, T. M. Valentine, R. Ghodssi, and G. W. Rubloff, MicroTAS 2005, Boston, MA, Oct. 9-13, 2005.

175. "In Situ Optical Characterization of an Electrodeposited Biopolymer Film", S. B. Beatty, J. J. Park, E. C. Dreyer, and G. W. Rubloff, AVS 52<sup>nd</sup> Nat'l. Symp., Boston, MA, Oct. 31 – Nov. 3, 2005.
176. "Novel ALD Reactor Design and Metrology Study for Tungsten ALD Process", W. Lei, L. Henn-Lecordier, and G. W. Rubloff, AVS 52<sup>nd</sup> Nat'l. Symp., Boston, MA, Oct. 31 – Nov. 3, 2005.
177. "Real-time Sensing for Process Dynamics and Metrology in Tungsten Atomic Layer Deposition", L. Henn-Lecordier, W. Lei, and G. W. Rubloff, AVS 52<sup>nd</sup> Nat'l. Symp., Boston, MA, Oct. 31 – Nov. 3, 2005.
178. "Sensing and Control Strategies for Spatially Programmable CVD", Y. Cai, R. Sreenivasan, R. Adomaitis, and G. W. Rubloff, AVS 52<sup>nd</sup> Nat'l. Symp., Boston, MA, Oct. 31 – Nov. 3, 2005.
179. "BioMEMS Chip and Package Design for Surface-Controlled Bioreaction Processes", J. J. Park, M. A. Powers, X. Luo, R. Ghodssi, and G. W. Rubloff, AVS 52<sup>nd</sup> Nat'l. Symp., Boston, MA, Oct. 31 – Nov. 3, 2005.
180. "Chitosan as a Functional Interface between Biology and Microsystems," S. T. Koev, M. A. Powers, J. J. Park, H. Yi, L. Wu, W. E. Bentley, G. F. Payne, G. W. Rubloff, and R. Ghodssi, 2nd ASM - IEEE EMBS Conference on Bio, Micro and Nanosystems, San Francisco, CA, January 15-18, 2006.
181. "Toward a Chitosan-Based Micromechanical Biosensor," S. T. Koev, M. A. Powers, H. Yi, and R. Ghodssi, American Vacuum Society 52nd International Symposium, Boston, MA, October 30 - November 4, 2005.
182. "Chitosan for Biofunctionalization of MEMS", Stephan T. Koev, Vlad Badilita, Michael A. Powers, Hyunmin Yi, William E. Bentley, Gregory F. Payne, Gary W. Rubloff, and Reza Ghodssi, Hilton Head 2006, June 5-8, 2006.
183. "Chitosan for Biofunctionalization of Microsystems", Stephan T. Koev, Michael A. Powers, Vlad Badilita, Hyunmin Yi, William E. Bentley, Gergory F. Payne, Gary W. Rubloff, and Reza Ghodssi, IEEE/NLM Life Science Systems and Applications Workshop, Bethesda, MD, July 13-14, 2006.
184. "Chitosan-mediated Patterned Viral Nanotemplate Assembly onto Inorganic Substrates through Nucleic Acid Hybridization", Hyunmin Yi, Gary W. Rubloff, Reza Ghodssi, and James N. Culver, IEEE/NLM Life Science Systems and Applications Workshop, Bethesda, MD, July 13-14, 2006.
185. "In situ Biomolecule Assembly and Activity within Completely Packaged Microfluidic Devices", Jung Jin Park, Xiaolong Luo, Hyunmin Yi, Reza Ghodssi, and Gary W. Rubloff, IEEE/NLM Life Science Systems and Applications Workshop, Bethesda, MD, July 13-14, 2006.
186. "Facile in Situ Protein Assembly Onto Patterned Electrodes and into Microfluidic Channels through Enzymatic Activation of Genetically Engineered Pro-Tags", Hyunmin Yi, Angela T. Lewandowski, Xiaolong Luo, Reza Ghodssi, Gregory F. Payne, Gary W. Rubloff, and William Bentley, AIChE Annual Meeting, San Francisco, CA, Nov. 12-17, 2006.
187. "Chitosan-mediated Enzyme Assembly toward Rebuilding a Metabolic Pathway in the Microfluidic Environment", Xiaolong Luo, Jung-Jin Park, Hyunmin Yi, Angela T. Lewandowski, William E. Bentley, Gregory F. Payne, Reza Ghodssi, and Gary W. Rubloff, MRS Spring meeting, San Francisco, April 9-13, 2007.
188. "Chitosan for Selective Biofunctionalization of Microsystems", Stephan T. Koev, Vlad Badilita, Hyunmin Yi, William E. Bentley, Gregory F. Payne, Gary W. Rubloff, and Reza Ghodssi, MRS Spring meeting, San Francisco, April 9-13, 2007.
189. "Biofabrication with genetically modified viral nanotemplates", Hyunmin Yi, Gary W. Rubloff, Gregory F. Payne, William E. Bentley, and James N. Culver, Division of Biochemical Technology, 234<sup>th</sup> ACS National Meeting, Boston, MA, Aug 19-23, 2007.
190. "Enzyme Assembly and Catalytic Activity in a Reusable BioMEMS Platform for Metabolic Engineering", Xialong Luo, Angela T. Lewandowski, Gregory F. Payne, Reza Ghodssi, William E.

- Bentley, and Gary W. Rubloff, 11<sup>th</sup> Intl. Conf. on Miniaturized Systems for Chemistry and Life Sciences ( $\mu$ TAS 2007), Paris, France, Oct. 7-11, 2007.
191. "Signal-Guided Sequential Assembly of Nano-Bio-Components in a Completely Packaged Microfluidic Environment", Xialong Luo, Angela T. Lewandowski, Hyunmin Yi, Gregory F. Payne, Reza Ghodssi, William E. Bentley, and Gary W. Rubloff, 11<sup>th</sup> Intl. Conf. on Miniaturized Systems for Chemistry and Life Sciences ( $\mu$ TAS 2007), Paris, France, Oct. 7-11, 2007.
  192. "Combinatorial Strategy to Address the Complexities of Surface Chemistry and Multicomponent Materials in Atomic Layer Deposition", L. Henn-Lecordier, E. Robertson, P. Banerjee, and G. W. Rubloff, AVS 54<sup>th</sup> Intl. Symp., Seattle, WA, Oct. 14-19, 2007.
  193. "Optimization of ALD Conformality in Ultra-High Aspect Ratio Nanopores Formed in Anodic Aluminum Oxide Templates", E. Robertson, I. Perez, L. Henn-Lecordier, S. J. Son, S. B. Lee, and G. W. Rubloff, AVS 54<sup>th</sup> Intl. Symp., Seattle, WA, Oct. 14-19, 2007.
  194. "TEM-Based Metrology and Structural Characterization of HfO<sub>2</sub> ALD Films Formed in Anodic Aluminum Oxide Templates", I. Perez, E. Robertson, L. Henn-Lecordier, P. Banerjee, S. J. Son, S. B. Lee, and G. W. Rubloff, AVS 54<sup>th</sup> Intl. Symp., Seattle, WA, Oct. 14-19, 2007.
  195. "Carbon Nanotube – Chitosan Sites for Direct Electrical Sensing of Biomolecular Events in BioMEMS", S. L. Buckhout-White, S. K. Gupta, M. S. Fuhrer, and G. W. Rubloff, AVS 54<sup>th</sup> Intl. Symp., Seattle, WA, Oct. 14-19, 2007.
  196. "Reversible Biofunctionalization and Catalytic Activity of a Metabolic Pathway Enzyme in Reusable BioMEMS Devices", X. L. Luo, A. T. Lewandowski, G. F. Payne, R. Ghodssi, W. E. Bentley, and G. W. Rubloff, AVS 54<sup>th</sup> Intl. Symp., Seattle, WA, Oct. 14-19, 2007.
  197. "Applications and Improvements of BioMEMS for Chitosan-mediated Enzyme Assembly and Catalytic Activity", Xialong Luo, Angela T. Lewandowski, Dean Berlin, Gregory F. Payne, Reza Ghodssi, William E. Bentley, and Gary W. Rubloff, First Shenyang Intl. Colloq. On Microfluidics (SICOM I), Shenyang, China, Oct. 21-24, 2007.
  198. "Programmable assembly of metabolic pathway enzymes onto patterned microfabricated devices," A. T. Lewandowski, X. Luo, H. Yi, G. F. Payne, R. Ghodssi, G. W. Rubloff, and W. E. Bentley, BMES 2007 Annual Fall Meeting, Los Angeles, CA, September 26-29, 2007.