REFERENCES

1. C.S. Smith, “Piezoresistance Effect in Germanium and Silicon,” Phy. Rev. 94, pp. 42-49, 1954.

2. H.R. Robbins and B. Schwartz, “Chemical etching of Silicon-I. The system HF, HNO_3, H_2O and $HC_2C_3O_2$,” J. Electrochem. Soc., 106, pp. 505-508, 1959.

3. A. Uhlir, “Electrolytic shaping of Germanium and silicon,” Bell Syst. Tech. J., 35, pp. 333-347, 1956.

4. A.I. Stoller, “The Etching of Deep Vertical-Walled Patterns in Silicon,” RCA Rev., 31, pp. 271-275, 1970.

5. O.N. Tufte, P.W. Chapman and D. Long, “Silicon Diffused-Element Piezoresistive Diaphragms,” J. Appl. Phys., Vol. 33, pp. 3322, 1962.

6. M.R. Werner and W.R. Fahrner, “Review on Materials, Microsensors, Systems, and Devices for High-Temperature and Harsh-Environment Applications,” IEEE Transactions on Industrial Electronics, Vol. 48, No. 2, pp. 249-257, 2001.

7. E. Obermeier, “Entwicklung von neuartigen Halbleiter – Druckersensoren mittles polykristalliner Siliziumschichten,” Dr.-Ing. Thesis, Technische Universität München, 1983.

8. J. Suski, V. Mosser and J. Goss, “Polysilicon SOI Pressure Sensor,” Sensors and Actuators, 17 (1989), pp. 405-414.

9. H. Schäfer, V. Graeger and R. Kobs, “Temperature-independent pressure sensors using polycrystalline silicon strain gauges,” Sensors and Actuators, 17, pp. 521-527, 1989.

10. W. Germer, “Microcrystalline Silicon Thin Films for Sensor Applications,” Sensors and Actuators, 7, pp. 135-142, 1985.

11. E. Obermeier and P. Kopystynski, “Polysilicon as a Material for Microsensor Applications,” Sensors and Actuators A, 30, pp. 149-155, 1992.

12. G.L. Harris, Properties of Silicon Carbide, INSPEC EMIS Datareviews No. 13, Exeter, 1995.

13. Carl-Mikael Zetterling, Process Technology for Silicon Carbide Devices, INSPECT EMIS Processing No. 2, 2002.

14. G. Müller, G.. Krötz and E. Niemann, “SiC for Sensors and High-Temperature Electronics,” Sensors and Actuators A, 43, pp. 259-268, 1994.

15. M. Mehregany and C.A. Zorman, “SiC MEMS: Opportunities and Challenges for Applications in Harsh Environments,” Thin Solid Films, 355-356, pp. 518-524, 1999.

16. P.M. Sarro, “Silicon Carbide as a New MEMS Technology,” Sensors and Actuators, 82, pp. 210-218, 2000.

17. R. Ziermann, J. von Berg, W. Reichert, E. Obermeier, M. Eickhoff, G. Krötz, “a

High Temperature Pressure Sensor with β-SiC-Piezoresistors on SOI-Substrates," Transducers 97, Chicago, Illinois, USA, June 16-19, 1997, Digest of Technical Papers, pp. 1411-1414, 1997.

18. S. Zappe, J. Franklin, E. Obermeier, M. Eickhoff, H. Möller, G. Krötz, C. Rougeot, O. Lefort, J. Stoemenos, "High Temperature 10 bar Pressure Sensor Based on 3C-SiC/SOI for Turbine Control Applications," Conf. Proc. ECSCRM2000, Kloster Banz, Germany, 2000.
19. I.V. Rapatskaya, G.E. Rudashevskii, etc., "Piezoresistance Coefficients of n-Type α-SiC," Sov. Phys. Solid State, vol. 9, pp.2833-2835, 1968.
20. J.S. Shor, L. Bemis and A.D. Kurtz, "Characterization of Monolithic n-Type 6H-SiC Piezoresistive Sensing Elements," IEEE Trans. Electron Devices, vol. 41, pp. 661-665, 1994.
21. I.V. Rapatskaya and G.E. Rudashevskii, "α-Silicon Carbide Strain Transducers," Measurement Techniques, no. 6, pp. 771-772, 1968.
22. R.S. Okojie, A.A. Ned, A.D. Kurtz and W.N. Carr, "α (6H)-SiC Pressure Sensors for High Temperature Applications," Proc. IEEE Ninth International Workshop on Microelectromechanical Systems, pp. 146-149, 1996.
23. R.S. Okojie, A.A. Ned, A.D. Kurtz and W.N. Carr, "α (6H)-SiC Pressure Sensors at 350ºC, " IEDM 96, pp. 525-528, 1996.

24. R.S. Okojie, G.M. Beheim, G.J. Saad, E. Savrun, "Characteristics of a Hermetic 6H-SiC Pressure Sensor at 600°C, " AIAA Space 2001 Conference and Exposition, Albuguerque, NM, August 28-30, 2001.

25. C.S. Smith, "Macroscopic Symmetry and Properties of Crystals," Solid State Physics, Advance in Research and Application, vol. 6, pp. 175-249, 1958.

26. G. Arlt and G.R. Schodder, "Some Elastic Constants of Sillicon Carbide," J. Acoust. Soc. Am. 37, pp. 384, 1965.

27. K. Kamitani, M. Grimsditch, J.C. Nipko, C.-K. Loong, M. Okada and I. Kimura, "the Elastic Constants of Silicon Carbide: A Brillouin-Scattering Study of 4H and 6H SiC Single Crystals," J. Appl. Phys., 82 (6), pp. 3152, 1997.

28. G.N. Guk, V.M. Lyubimskii, etc., "Temperature Dependence of the Piezoresistance Constant π_{11} of n-Type SiC (6H)," Sov. Phys. Semicond., vol. 9, pp. 104-107, 1974.

29. G.N. Guk, V.M. Lyubimskii and E.P. Gofman, "Influence of Temperature on the Piezoresistance of 6H and 15R Silicon Carbide Polytypes," Sov. Phys. Semicond., vol. 9, pp. 823-825, 1976.

30. S.A. Azimov, M.M. Mirzabaev, etc., "Investigation of the Influence of Uniaxial Elastic Deformation on the Galvanomagnetic Properties of Hexagonal SiC," Sov. Phys. Semicond. Vol. 8, pp. 1427-1428, 1975.

31. G..A. Lomakina, “the Piezoresistance of p-Type 6H-SiC,” Sov. Phys. Solid State, vol. 17, no. 9, pp. 1808-1811, 1976.

32. R.S. Okojie, A.A. Ned, etc., “Characterization of Highly Doped n- and p-Type 6H-SiC Piezoresistors,” IEEE Trans. Electron Devices, vol. 45, pp. 785-790, 1998.

33. M. Shimazoe, Y. Matsuoka, A. Yahukawa and M. Tanabe, “a Special Silicon Diaphragm Pressure Sensor with High Output and High Accuracy,” Sensors and Actuators, 2, pp. 275-282, 1982.

34. A.Yasukawa, M. Shimazoe and Y. Matsuoka, “Simulation of Circular Silicon Pressure Sensors with a Center Boss for Very Low Pressure Measurement,” IEEE Transactions on Electron Devices, Vol. 36, No. 7, 1989.

35. R. Ziermann, J. von Berg, W. Reichert, E. Obermeier, M. Eickhoff, G. Krötz, “a high temperature pressure sensor with β-SiC-piezoresistors on SOI-Substrates,” Transducers 97, Chicago, Illinois, USA, June 16-19, 1997, Digest of Technical Papers, 1411-1414.

36. J. von Berg, R. Ziermann, W. Reichert, E. Obermeier, M. Eickhoff, G. Krötz, U. Thoma, Th. Boltshauser, C. Cavalloni, J.P. Nendza, “high temperature piezoresistive β-SiC-on-SOI pressure sensor for combustion engines,” Proceedings of the International Conference on Silicon Carbide, III –nitrides and

Related Materials – 1997(ICSCIII-N'97), Stockholm, Sweden.

37. R. Ziermann, J. von Berg, E. Obermeier, F. Wischmeyer, E. Niemann, H. Möller, M. Eickhoff, G. Krötz, "high temperature piezoresistive β-SiC-on-SOI pressure sensor with on chip SiC thermistor," Material Science and Engineering, B61-62, 1999, pp.576-578.

38. S. Timoshenko, S. Woinowsky-Krieger, Theory of Plates and Shells, McGRAW-HILL, new york, 1959.

39. W. Engl and D. Mlynski, "Das Linearitätsverhalten elastischer Platten bei der Druckmessung, " Z. Instr. 71, pp. 10-14, 1963.

40. J.J. Wortman and R. A. Evans, "Youngs' Modulus, Shear Modulus and Poisson's Ratio in Silicon and Germanium," J. Applied Physics, Vol. 36, No. 1, pp. 153-156, 1965.

41. ANSYS, Inc. Southpointe, 275 Technology Drive, Canonsburg, PA15317, USA.

42. P. Dario, "Tactile sensing: Technology and applications," Sens. Act. A, vol. 26, no. 1-3, pp. 251-256, 1991.

43. R.D. Howe, "Tactile sensing and control of robotic manipulation," J. Adv. Robot., vol. 8, no. 3, pp. 245-261, 1994.

44. E.S. Kolesar, C.S. Dyson, R.R. Reston, R.C. Fitch, D.G. Ford, S.D. Nelms, "Tactile Integrated Circuit Sensor Realized with a Piezoelectric Polymer," Eighth

Annual IEEE International Conference on Innovative Systems in Silicon, Proceedings, pp. 372-381, 1996.

45. A. S. Fiorillo, “a Piezoresistivie Tactile Sensor,” IEEE Trans. on Instrum. Meas., vol. 46, no. 1, pp. 15-17, 1997.

46. J. Dargahi, M. Parameswaran, S. Payandeh, “a Micromachined Piezoelectric Tactile Sensor for an Endoscopic Grasp – Theory, Fabrication and Experiments,” J. Microelectromech. S., vol. 9, no. 3, pp. 329-335, 2000.

47. V. Todorova, “Ferropiezoelectric Array as a Primary Sensor for Processing of Tactile Information,” Proceeding 22nd International Conference on Microelectronics, Nis, Serbia, 14-17, May, 2000.

48. X. Ding, K. Kuribayashi, T. Hashida, “Development of a New Type Tactile Sensor Using Micro Electromagnetic Coil for Human Robot,” 2000 International Symposium on Micromechatronics and Human Science, pp. 181-187, 2000.

49. F.Y. Obana, A.A. Carvalho, R. Guallda, J.G. da Sillva, “a Semiconductor Strain Gauge Tactile Transducer,” IEEE Instrument and Measurement Technology Conference, Budapest, Hungary, May 21-23, 2001.

50. J.G. da Silva, A.A. de Carvalho, D.D. da Silva, “a Strain Gauge Tactile Sensor for Finger-Mounted Applications,” IEEE Trans. on Instrum. Meas., vol. 51, no. 1, pp. 18-22, 2002.

51. E. So, H. Zhang, Y.-S. Guan, “Sensing Contact with Analog Resistive Technology,” IEEE International Conference on Systems, Man, and Cybernetics, IEEE SMC’99 Conference Proceedings. vol. 2, pp. 806-811, 1999.

52. M.-H. Bao, “Micro Mechanical Transducers: Pressure Sensors, Accelerometers and Gyroscopes,” Handbook of sensors and actuators, vol. 8, series editor S. Middelhoek, Elsevier, New York, 2000.

53. Samaun, K.D. Wise, and J.B. Angell, “An IC Piezoresistive Pressure Sensor for Biomedical Instrumentation,” IEEE Trans. Biomed. Eng., vol. BME-20, pp. 101-109, 1973.

54. W.H. Ko, J. Hynecek, and S.F. Boettcher, “Development of a Miniature Pressure Transducer for Biomedical Applications,” IEEE Trans. Electron Dev., vol. ED-26, pp. 1896-1905, 1979.

55. J. Sorab, R.H. Allen, and B. Gonik, “Tactile Sensory Monitoring of Clinician-Applied Forces during Delivery of Newborns,” IEEE Trans. Biomed. Eng., vol. 35, pp. 1090-1093, 1988.

56. D.J. Beebe, D.D. Denton, R.G. Radwin, J.G. Webster, “a Silicon-Based Tactile Sensor for Finger-Mounted Applications,” IEEE Trans. Biomed. Eng., vol. 45, no. 2, pp. 151-159, 1998.

57. M. Shimazoe, Y. Matsuoka, A. Yasukawa, M. Tanabe, “a Special Silicon

Diaphragm Pressure Sensor with High Output and High Accuracy," Sens. Act., vol. 2, pp. 275-282, 1982.

58. V.J. Jennings, Mat. Res. Bull. Vol. 4, S199-S210, 1969.
59. Bulk Micromachining of n-type 6H-SiC without UV-illumination, Wei-Hsu Chang, Bernt Schellin, Ernst Obermeier, Yu-Chung Huang, Eurosensor XVI, September 15-18, Prague, Czech Republic, 2002.
60. Micromachining of p-type 6H-SiC by Electrochemical Etching, Wei-Hsu Chang and Yu-Chung Huang, accepted by Sensor and Actuator (A), 2003.
61. Cree, Inc., 4600 Silicon Drive, Durham, NC 27703, USA.
62. W. Reichert, D. Stefan, E. Obermeier, W. Wondrak, "Fabrication of Smooth α-SiC Surfaces by Reactive Ion Etching Using a Graphite Electrode," Mat. Sci. Eng. B 46(1-3), pp. 190-193, 1997.
63. K. Gottfried, J. Kriz, J. Leibelt, C. Kaufmann, T. Gessner, "high temperature stable metallization schemes for SiC-technology operating in air," IEEE 1998.
64. Aremco Products, Inc., P.O. Box 517, 707-B Executive Blvd., Valley Cottage, NY 10989, USA.
65. Cotronics, Corp., 3379 Shore Parkway, Brooklyn, NY 11235, USA.
66. Carl Roth, GmbH, Schoemperlenstrasse 1-5 – 76185 Karlsruhe, Germany.
67. Kager, GmbH, Paul-Ehrlich-Str. 10 A, D-63128 Dietzenbach, Germany.

68. Epoxy Tehcnology, 14 Fortune Drive, Billerica, MA 01821, USA.

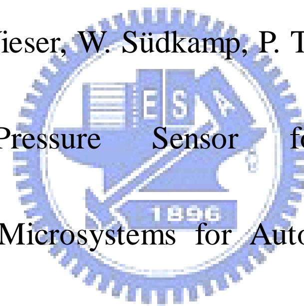
69. Polytec, GmbH, Polytec-Platz 1-7, D-76337 Waldbronn, Germany.

70. W. Germer, "Microcrystalline Silicon Thin Films for Sensor Applications," Sens. Act., vol. 7, pp. 135-142, 1985.

71. J. Crofton, P.G. McMullin, J.R. Williams, M.J. Bozack, high-temperature ohmic contact to n-type 6H-SiC using nickel, J. Appl. Phys. 77 (3), 1317-1319, 1999.

72. R.S. Okojie, A.A. Ned, etc., characterization of highly doped n- and p-type 6H-SiC piezoresistors, IEEE Trans. Electron Devices, vol. 45, pp. 785-790, 1998.

73. L. Tomasi, G. Krötz, E. Wieser, W. Südkamp, P. Thiele, E. Obermeier, "Design of a New Concept Pressure Sensor for X-by-Wire Automotive Application," Advanced Microsystems for Automotive Applications (AMAA) Conference, Berlin, Germany, March 21-22, 2002.



74. R.S. Okojie, A.A. Ned, A.D. Kurtz, W.N. Carr, "Electrical Characterization of Annealed Ti/TiN/Pt contacts on n-type 6H-SiC epilayer," IEEE Transactions on Electron Devices, vol. 46, no. 2, pp.269-274, 1999.

75. F. Masheeb, S. Stefanescu, A.A. Ned, A.D. Kurtz and G. Beheim, "Leadless Sensor Packaging for High Temperature Applications," The Fifteenth IEEE International Conference on Micro Electro Mechanical Systems, pp. 392 –395, 2002.