

# FULL LIST OF PUBLICATIONS

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### I. BOOKS, EDITED BOOKS & THESES

1. Edited book: **Gardner JW** (2007) *Proc. of the 25<sup>th</sup> IASTED International Multi-conference Biomedical Engineering*, 13-15 Feb. 2007, IASTED, Canada, pp468. ISBN 978-0-88986-648-5
2. Authored book (Chinese edition): **Gardner JW**, Varadan VJ and Awadelkarim O (2006) *Microsensors, MEMS and Smart Devices*, Tsinghua University Press, Beijing, pp503. ISBN 7-302-08122-0.
3. Edited book (Chinese translation): Hesse J, **Gardner JW** and Göpel W (2005) *Sensors in Household Appliances*, Sensors Applications, Volume 5, Wiley-VCH, Weinheim, pp244. ISBN 7-5025-5446-7.
4. Edited book: **Gardner JW** and Yinon J (2004) *Electronic Noses and Sensors for the Detection of Explosives*, NATO Science Series II Mathematics, Physics and Chemistry – Vol.159, Kluwer, Dordrecht, pp324. ISBN 1-4020-2317-0 (hardbound) and 1-4020-2318-9 (paperback).
5. Edited book: Hesse J, **Gardner JW** and Göpel W (2004) *Sensors in Medicine and Health Care*, Sensors Applications, Volume 3, Wiley-VCH, Dordrecht, ISBN 3-527-29556-9.
6. Edited book: Pearce TC, Schiffman SS, Nagle HT, **Gardner JW** (2003) *Handbook of Machine Olfaction*, Wiley-VCH, Dordrecht, pp592. ISBN 3-527-30358-8.
7. Edited book: Hesse J, **Gardner JW** and Göpel W (2003) *Sensors for Automotive Technology*, Sensors Applications, Volume 4, Wiley-VCH, Dordrecht, pp560. ISBN 3-527-29553-4.
8. Edited book: Hesse J, **Gardner JW** and Göpel W (2003) *Sensors in Household Appliances*, Sensors Applications, Volume 5, Wiley-VCH, Weinheim, pp287. ISBN 3-527-30362-6.
9. Edited book: Nagle T, Gardner JW and Persaud KC (2002) *Special Issue on Artificial Olfaction*, IEEE Sensors Journal, Volume 2, 131-271. ISSN 1530-437X.
10. Edited book: Hesse J, **Gardner JW** and Göpel W (2001) *Sensors in Intelligent Buildings*, Sensors Applications, Volume 2, Wiley-VCH, Dordrecht, pp586. ISBN 3-527-29557-7.
11. Edited book: Hesse J, **Gardner JW** and Göpel W (2001) *Sensors in Manufacturing*, Sensors Applications, Vol. 1, Wiley-VCH, Dordrecht, pp395. ISBN 3-527-29558-5.
12. Authored book: **Gardner JW**, Varadan VJ and Awadelkarim O (2001) *Microsensors, MEMS and Smart Devices*, John Wiley & Sons Ltd, Chichester, pp552. ISBN 0-471-86109-X.
13. Edited book: **Gardner JW** and Persaud KC (2000) *Electronic Noses and Olfaction*, IOP Publishing Ltd, Bristol, pp310. ISBN 0-7503-0764-1.
14. Authored book: **Gardner JW** and Bartlett PN (1999) *Electronic noses: principles and application*, Oxford University Press, Oxford, pp245. ISBN 0-19-855955-0.
15. Edited Book: Middlehoek S and **Gardner JW** (1999) *Proceedings of Eurosensors XII, Part III, Sensors and Actuators B*, Vol. 58, pp283-558.
16. Thesis: **Gardner JW** 1997 *Research and Development of Sensors and Intelligent Instrumentation (Electronic Noses) for Complex Odour and Gas Mixture Analysis*, DSc Thesis, Warwick University, UK.
17. Authored book: **Gardner JW** (1994) *Microsensors: Principles and Applications*, J. Wiley & Sons Ltd, Chichester, pp 320. ISBN 0-471-94135-2.

18. Edited book: **Gardner JW** and Bartlett PN (1992) *Sensors & Sensory Systems for an Electronic Nose*, Kluwer Academic Publishers, Dordrecht, NATO ASI Series: Applied Science Vol. 212, pp327. ISBN 0-7923-1693-2.
19. Edited book: **Gardner JW** and Hingle HT (1991) *From Instrumentation to Nanotechnology*, Gordon and Breach Science Publishers, Philadelphia, pp336. ISBN 2-88124-794-6.
20. Thesis: **Gardner JW** 1983 *Charging of grains in discontinuous metal films*, PhD Thesis, University of Cambridge, UK.

## II. REFEREED JOURNAL ARTICLES & CHAPTERS IN BOOKS

### Journal articles:

21. Cole M, Covington JA, and **Gardner JW** 2011 *Sensors and Actuators B* **156** 832-839 “Combined electronic nose and tongue for a flavour sensing system”
22. RacZ Z, Olsson S, **Gardner JW**, Pearce TC, Hannson, Cole M 2011 *Procedia Computer Science* **7** 106-109 “Challenges of biomimetic infochemical communication”
23. Santra S, Ali SZ, Guha P, Zhong G, Robertson J, Covington JA, Milne WI, **Gardner JW** and UdreA F 2010 *Nanotechnology* **21** 1-7 “Post-CMOS wafer level growth of carbon nanotubes for low cost microsensors – a proof of concept”
24. **Gardner JW**, Guha PK, UdreA F and Covington JA 2010 *IEEE Sensors* **10** 1833-1848 “CMOS interfacing for integrated gas sensors: a review”
25. Santra S, Guha PK, Ali SZ, Hiralal P, Unalan HE, Covington JA, Amaratunga GAJ, Milne WI, **Gardner JW** and UdreA F 2010 *Sensors and Actuators B* **146** 559-565 “ZnO nanowires grown on SOI CMOS substrates for ethanol sensing”
26. Garcia-Guzman J, **Gardner JW** and Cole M 2010 *Procedia Engineering* **5** 176-179 “A duo-type smart gas sensor ASIC chip for use with resistive nanomaterials”
27. Iwaki T, Covington JA, and **Gardner JW** 2009 *IEEE Sensors Journal* **9** 314-318 “Identification of different vapors using a single temperature modulated polymer sensor with a novel signal processing technique”
28. **Gardner JW** and Taylor JE 2009 *IEEE Sensors Journal* **9** 929-935 “Novel convolution-based signal processing techniques for an artificial olfactory mucosa”
29. Iwaki T, Covington JA, UdreA F, **Gardner JW** 2009 *Sensors and Actuators B* **141** 370–380 “Identification and quantification of different vapours using a single polymer chemoresistor and the novel dual transient temperature modulation technique”
30. Che Harun FK, Taylor JE, Covington JA, and **Gardner JW** 2009 *Sensors and Actuators B* **141** 134-140 “An electronic nose employing dual-channel odour separation columns with large chemosensor arrays for advanced odour discrimination”
31. Sanchez-Montanes MA, **Gardner JW** and Pearce TC 2008 *Proc. Roy. Soc. A*, **464**, 1057-1077 “Spatiotemporal information in an artificial olfactory mucosa”
32. Maeng S, Guha P, UdreA F, Ali SZ, **Gardner JW** et al., 2008 *ETRI Journal*, **30**, 516-525 “SOI CMOS-based smart gas sensor system for ubiquitous sensor networks”
33. Ali SZ, UdreA F, Milne WI, and Gardner JW 2008 *J. Microelectromechanical Systems*, **17**, 1408-1417 “Tungsten-based SOI microhotplates for smart gas sensors”
34. Lu CC, Liao K-H, UdreA F, Covington JA and **Gardner JW** 2008 *Journal of Micromechanics and Microengineering*, **18**, 11pp “Multi-field simulations and characterization of CMOS-MEMS high-temperature smart gas sensors based on SOI technology”
35. Koickal T, Hamilton A, Tan SL, Covington JA, **Gardner JW** and Pearce TC 2007 *IEEE Transactions on Circuits and Systems I*, **54**, 60-73 “Analog VLSI circuit implementation of an adaptive neuromorphic olfaction chip”
36. Yates J, Chappell M, and **Gardner JW** 2007 *Proc. Roy. Soc. A*, **463**, 551-568 “Novel phenomena based dynamic model of carbon-black/composite vapour sensors”.

37. Covington JA, **Gardner JW**, Hamilton A, Pearce TC and Tan SL 2007 *IET Proc. Nanobiotechnology*, **1**, 15-21 “Towards a truly biomimetic olfactory microsystem: an artificial olfactory mucosa”
38. **Gardner JW**, Covington JA, Tan S-L and Pearce TC 2007 *Proc. Roy. Soc. A*, **463**, 1713-1728 “Towards an artificial olfactory mucosa for improved odour classification”
39. Guha PK, Ali SZ, Lee CC, Udrea F, Milne WI, Iwaki T, Covington JA and **Gardner JW** 2007 *Sensors and Actuators B*, **127**, 260-266 “Novel design and characterisation of SOI CMOS micro-hotplates for high temperature gas sensors”
40. Tan SL, Covington JA, and **Gardner JW** 2006 *IEE Proc.-Sci. Meas. Technol.*, **153**, 94-100 “Velocity-optimised diffusion for ultra-fast polymer-based resistive gas sensors”
41. Leonte II, Sehra G, Cole M, Hesketh P, and **Gardner JW** 2006 *Sens. Actuators B*, **118**, 349-355 “Taste sensors utilizing high-frequency SH-SAW devices”
42. **Gardner JW**, Boilot P and Hines EL 2005 *Sensors and Actuators B*, **106**, 114-121 “Enhanced electronic nose performance by sensor selection using a new integer based genetic algorithm approach”
43. **Gardner JW**, Hines EL and Dowson C 2005 *Ingenia*, **18738**, 38-39 “Smelling illness”
44. Dutta R, Morgan D, Baker N, **Gardner JW**, and Hines EL 2005 *Sensors and Actuators B*, **109**, 355-352 “Identification of Staphylococcus aureus infections in hospital environment: electronic nose based approach”
45. Yates JWT, **Gardner JW**, Chappell MJ, and Dow CS 2005 *IEE Proc.-Sci. Meas. Technol.*, **152**, 97-102 “Identification of bacterial pathogens using quadrupole mass spectrometer data and radial basis function neural networks”
46. Yates JWT, Chappell MJ, **Gardner JW**, Dow CS, Dowson C, Hamood A, Bolt F and Beeby L 2005 *Computer Methods and Programs in Biomedicine*, **79**, 259-271 “Data reduction in headspace analysis of blood and urine samples for robust bacterial identification”
47. Jacesko S, Abraham JK, Taeksoo J, Varadan VK, Cole M and **Gardner JW** 2005 *Smart Mater. Struct.*, **14**, 1010-1016 “Investigations on an electronic tongue with polymer microfluidic cell for liquid sensing and identification”
48. Dutta R, **Gardner JW** and Hines EL 2005 *Encyclopaedia of Sensors* (<http://www.aspbs.com/eos>), American Scientific Publishers, May 2005 “Object-orientated expert electronic nose system”
49. Barker AL, Unwin PR, **Gardner JW** and Rieley H 2004 *Electrochemistry Communications*, **6**, 91-97 “A multi-electrode probe for parallel imaging in scanning electrochemical microscopy”
50. Dutta R, **Gardner JW** and Hines EL 2004 *MRS Bulletin*, **29**, 697-700, October 2004, 1-5 “Electronic noses diagnose illness: classification of ENT bacteria using a neural-network based electronic nose”
51. Cole M, Sehra G, **Gardner JW** and Varadan VK 2004 *IEEE Sensors Journal*, **4**, 543-550 “Development of smart tongue devices for measurement of liquid properties”
52. Sehra G, Cole M, and **Gardner JW** 2004 *Sensors and Actuators B*, **103**, 233-239 “Miniature tasting system based on dual SH-SAW sensor device: an electronic tongue”
53. Shykon ME, Morgan DW, Dutta R, Hines EL, and **Gardner JW** 2004, *Journal of Laryngology and Otology*, **118**(9), 706-709, ISSN:0022-2151, “Clinical evaluation of the value of the electronic nose in the diagnosis of ear, nose and throat infection – a preliminary study”
54. Covington JA, **Gardner JW**, Bartlett PN and Toh CS 2004 *IEE Proc. G - Circ. Dev. Syst.*, **151**, 326-334 “Conductive polymer gate FET devices for vapour sensing”
55. Dutta R, Hines EL, **Gardner JW**, Udrea DD and Boilot P 2003 *Meas. Sci. Technol.*, **14**, 190-198 “Non-destructive egg freshness determination: an electronic nose based approach”
56. Lee SM, Dyer DC and **Gardner JW** 2003 *Microelectronics Journal*, **34**, 115-126 “Design and optimisation of high-temperature silicon micro-hotplate for nanoporous palladium pellistors”

57. Al-Khalifa S, Maldonado-Bascon S and **Gardner JW** 2003 *IEE Proc.-Sci. Meas. Technol.*, **150**, 11-14 “Identification of CO and NO<sub>2</sub> using a thermally modulated resistive microsensor and support vector machine”
58. Cole M, Olivieri N, Garcia-Guzman J, and **Gardner JW** 2003 *Microelectronics Journal*, **34**, 865-875 “Parametric model of a polymeric chemoresistor for use in smart sensor design and simulation”
59. Dutta R, Kashwan KR, Bhuyan M, Hines EL and **Gardner JW** 2003 *Neural Networks*, **16**, 847-853 “Electronic nose based tea quality standardisation”
60. Garcia-Guzman J, Olivieri N, Cole M, and **Gardner JW** 2003 *Sensors and Actuators B*, **95**, 232-243 “Design and simulation of a smart ratiometric ASIC chip for VOC monitoring”
61. Ionescu R, Llobet E, Al-Khalifa S, **Gardner JW**, Vilanova X, Brezmes J and Correig X 2003 *Sensors and Actuators B*, **95**, 203-211 “Response model for thermally-modulated tin oxide based microhotplate gas sensors”
62. Fang Q, Chetwynd DG, **Gardner JW**, Toh C, and Bartlett PN 2003 *Mat. Sci. Engg A*, **355**, 62-67 “A preliminary study of conducting polymers as microvalve seals”
63. Dutta R, Hines EL, **Gardner JW**, Kashman KR, and Bhuyan M 2003 *Sensors and Actuators B*, **94**, 228-237 “Tea quality prediction using a tin oxide based electronic nose: an artificial Lu C-C, **Gardner JW** and Udea F 2001 *Instruments Today* **121** 76-90 “Design and development of SOI MOSFET micro gas sensors”
64. Fang Q, Chetwynd DG, Covington JA, Toh C-S, **Gardner JW** 2002 *Sensors & Actuators B* **84** 66-71 “Micro-gas-sensor with conducting polymers”
65. Boilot P, Hines EL, **Gardner JW**, Pitt R, John S, Mitchell J, Morgan D 2002 *IEEE Sensors Journal* **2** 247-253 “Classification of bacteria responsible for ENT and eye infections using the Cyranose system”
66. Searle GE, **Gardner JW**, Chappell MJ, Godfrey KR and Chapman MJ 2002 *IEEE Sensors Journal* **2** 218-229 “System identification of electronic nose data from cyanobacteria experiments”
67. Dutta R, Hines EL, **Gardner JW** and Boilot P 2002 *BioMedical Engineering OnLine*, **1:4**, “Bacteria classification using Cyranose 320 electronic nose” <http://www.biomedical-engineering-online.com/content/1/1/4>
68. Fang Q, Chetwynd DG, **Gardner JW** 2002 *Sensors and Actuators A*, **99**, 74-77 “Conducting polymer films by UV-photo processing”
69. Llobet E, Brezmes J, Ionescu X, Al-Khalifa S, **Gardner JW**, Barsan N, and Correig X 2002 *Sensors and Actuators B*, **83**, 238-244 “Wavelet transform and fuzzy ARTMAP-based pattern recognition for fast gas identification using a microhotplate gas sensor”
70. Covington JA, **Gardner JW**, Briand D and de Rooij NF 2001 *Sensors and Actuators B* **77** 155-162 “A polymer gate FET sensor array for detecting organic vapours”
71. Llobet E, Rubio J, Vilanova X, Brezmes J, Correig X, **Gardner JW** and Hines EL 2001 *Sensors and Actuators B* **76** 419-429 “Electronic nose simulation tool centred on PSpice”
72. Llobet E, Ionescu R, Al-Khalifa S, Brezmes J, Vilanova X, Correig X, Bârsan B and **Gardner JW** 2001 *IEEE Sensors Journal* **1** 207-213. “Multicomponent gas mixture analysis using a single tin oxide sensor and dynamic pattern recognition”
73. Udea F, **Gardner JW**, Setiadi D, Covington JA, Dogaru T, Lu C-C and Milne WI 2001 *Sensors and Actuators B* **78** 180-190 “Design and simulations of SOI CMOS micro hot-plate gas sensors”
74. Hatfield JV, Covington JA and **Gardner JW** 2000 *Sensors and Actuators B* **65** 253-256 “GasFETs incorporating conducting polymers as gate materials”
75. Shin HW, Llobet E, **Gardner JW**, Hines EL and Crawford CS 2000 *IEE Proc.- Sci. Meas. Technol.* **147** 158-164 “Classification of the strain and growth phase of cyanobacteria in potable water using an electronic nose system”

76. **Gardner JW**, Shin HW, Hines EL and Dow CS 2000 *Sensors and Actuators B* **69** 336-341 “An electronic nose system for monitoring the quality of potable water”
77. **Gardner JW**, Shin HW and Hines EL 2000 *Sensors and Actuators B* **70** 19-24 “An electronic nose system to diagnose illness”
78. **Gardner JW**, Llobet E and Hines EL 1999 *Meas. Sci. Technol.* **10** 538-548 “Non-destructive banana ripeness determination using a neural network based electronic nose”
79. **Gardner JW**, Hines EL, Molinier F, Bartlett PN and Mottram TT 1999 *IEE Proc.- Sci. Meas. Technol.* **146** 102-6 “Prediction of health of dairy cattle from breath samples using neural network with parametric model of dynamic response of array of semiconducting gas sensors”
80. Craven M A and **Gardner J W** 1999 *Trans Inst MC* **20** 67-73 “Rapid static head-space sampler for automated odour analysis”
81. Hines EL, Llobet E and **Gardner JW** 1999 *Electronic Letters* **35** 821-3 “Neural network based electronic nose for apple ripeness determination”
82. **Gardner JW**, Llobet E and Hines EL 1999 *IEE Proc.- Circuits, Devices and Systems* **146** 101-4 “PSPICE model for resistive gas and odour sensors”
83. Ingleby P, **Gardner JW** and Bartlett PN 1999 *Sensors and Actuators B* **57** 17-27 “Effect of micro-electrode geometry on response of thin-film poly(pyrrole) and poly(aniline) chemoresistive sensors”
84. Cole M, **Gardner JW**, Lim AWY, Scivier PK and Brignell JE 1999 *Sensors and Actuators B* **58** 518-525 “Polymeric resistive bridge gas sensor array driven by a standard cell CMOS current drive chip”
85. Hines EL, Llobet E and **Gardner JW** 1999 *Proc. IEE: Circuits, Systems and Devices* **146** 297-310 “Electronic noses: a review of signal processing techniques”
86. Llobet E, Hines EL, **Gardner JW**, Bartlett PN, Mottram TT 1999 *Sensors and Actuators B* **61** 183-190 “Fuzzy ARTMAP based electronic nose data analysis”
87. Pike A C and **Gardner J W** 1998 *Sensors and Actuators B* **45** 19-26 “Thermal modelling of micropower chemoresistive silicon sensors”
88. **Gardner J W**, Craven M, Hines E L and Dow C 1998 *Meas. Sci. Technol.* **9** 120-127 “Prediction of bacteria type and growth phase by an electronic nose with a multi-layer perceptron network”
89. **Gardner J W**, Vidic M, Ingleby P, Pike A C, Brignell J E, Scivier P, Bartlett P N, Duke A J, Elliott J M 1998 *Sensors and Actuators B* **48** 290-296 “Response of poly(pyrrole) resistive micro-bridge to ethanol vapour”
90. Liu X, Chetwynd D G and **Gardner J W** 1998 *Int. J. Machine Tools and Manufacture* **38** 669-675 “Surface characterisation of electro-active thin polymeric film bearings”
91. Pearce TC and **Gardner JW** 1998 *Analyst* **123** 2047-2055 “Predicting organoleptic scores of sub-ppm flavour notes. Part 1. Theoretical and experimental details.”
92. Pearce TC and **Gardner JW** 1998 *Analyst* **123** 2057-2066 “Predicting organoleptic scores of sub-ppm flavour notes. Part 2. Computational analysis and results.”
93. Liu X, Chetwynd D G, **Gardner J W**, Smith S T, Beriet C and Bartlett P N 1998 *Tribology International* **31** 313-323 “Measurement of friction at light loads and low speeds in poly(pyrrole) thin film bearings”
94. Bartlett P N, Elliott J M and **Gardner J W** 1997 *Annali di Chimica* **87** 33-44 “Applications of, and developments in, machine olfaction”
95. Dyer D C and **Gardner J W** 1997 *Sensors and Actuators* **62** 724-728 “High-precision intelligent interface for a hybrid electronic nose”
96. Bartlett P N, Elliott J M and **Gardner J W** 1997 *Measurement + Control* **30** 273-279 “Integrated sensor arrays for the dynamic measurement of food flavour release”
97. Hines E L, **Gardner J W** and Potter C E R 1997 *Measurement + Control* **30** 262-268 “Olfactory feature maps from an electronic nose”

98. **Gardner J W** and Gardner W E 1997 *Insight* **39** 865-869 “The role of the electronic nose in condition monitoring”
99. Pearce T C and **Gardner J W** 1997 *Seminars in Food Analysis* **2** 275-281 “Prediction of organoleptic flavor notes using multi-sensor arrays”
100. Elliott-Martin R J, Mottram T T, **Gardner J W**, Hobbs P J and Bartlett P N 1997 *J. Agri. Eng. Res.* **67** 267-275 “Method of sampling breath as a monitor of health in dairy cattle”
101. Heilig A, Barsan N, Weimar U, Schweizer-Berberich M, Goepel W and **Gardner J W** 1997 *Sensors and Actuators B* **43** 45-51 “Gas identification by modulating temperatures of tin dioxide based thick-film gas sensors”
102. Bartlett P N, Elliott J M and **Gardner J W** 1997 *Food Technology* **51** 44-48 “Electronic noses and their application within the food industry”
103. Bartlett P N and **Gardner J W** 1996 *Trans. Roy. Soc. London A* **354** 35-57 "Diffusion and binding of molecules to sites within homogeneous thin films"
104. Singh S, Hines E L, **Gardner J W** 1996 *Sensors & Actuators B* **30** 185-190 "Fuzzy neural computing of coffee and tainted water data from an electronic nose”
105. Udrea F and **Gardner J W** 1996 *Microelectronics Journal* **27** 449-457 “Design of a silicon microsensor array device for gas analysis”
106. **Gardner J W**, Hines E L and Pang C 1996 *Measurement & Control* **29** 172-178 “ Detection of vapours and odours from a multisensor array using pattern recognition: self-organising adaptive resonance techniques”
107. Welham C J, **Gardner J W** and Greenwood, J W 1996 *Sensors and Actuators A* **52** 86-91 “A laterally driven micromachined resonant pressure sensor”
108. **Gardner J W** and Bartlett P N 1996 *Sensors and Actuators B* **33** 60-67 “Performance definition and standardisation of electronic noses”
109. Craven M A, **Gardner J W** and Bartlett P N 1996 *Trends in Analytical Chemistry* **15** 486-493 “Electronic noses - development and future prospects”
110. **Gardner J W** 1995 *Sensors and Actuators B* **27** 261-266 "Intelligent gas sensing using an integrated sensor pair"
111. Holmberg M, Winquist F, Lundstrom I, **Gardner J W** and Hines E L 1995 *Sensors and Actuators B* **26-27** 246-249 "Identification of paper quality using a hybrid electronic nose"
112. **Gardner J W**, Pike A, de Rooij N F, Koudelka-Hep M, Clerc P A, Hierlemann A and Gopel W 1995 *Sensors and Actuators B* **26** 135-139 "Integrated chemical sensor array for detecting organic solvents"
113. Tan T, Lucas Q, Moy L, **Gardner J W** and Bartlett P N 1995 *LC GC International* **8(4)** 218-225 "The electronic nose - a new instrument for sensing vapours”
114. **Gardner J W** 1995 *IEE Review, Sept. 1995* 185-188 "Microsensations”
115. **Gardner J W**, Bartlett P N and Pratt K F 1995 *IEE Proc.-Circuits Devices and Syst.* **142** 321-333 "Modelling of gas-sensitive conducting polymer devices"
116. **Gardner J W** and Bartlett P N 1995 *Sensors & Actuators A* **51** 1-10 "Application of conducting polymers in microsystems”
117. Tan T T, **Gardner J W**, Farrington J and Bartlett P N 1994 *International Journal of Electronics* **77** 173-184 "Electronic properties of metal-poly(pyrrole) junctions"
118. **Gardner J W** and Bartlett P N 1994 *Sensors and Actuators B* **18** 211-220 "A brief history of electronic noses"
119. **Gardner J W**, Pearce T C, Friel S, Bartlett P N and Blair N 1994 *Sensors and Actuators B* **18** 240-243 "A multisensor system for beer flavour monitoring using an array of conducting polymers and predictive classifiers"
120. Hines E L and **Gardner J W** 1994 *Sensors and Actuators B* **19** 661-664 "An artificial neural emulator for an odour sensor array"

121. **Gardner J W**, Chetwynd D G, Smith S T, Harb S M, Yao Z Q, Bartlett P N and Eastwick-Field V 1994 *Sensors and Actuators B* **41** 300-303 "Electropolymerised films for low friction microactuator bearings"
122. **Gardner J W** and Bartlett P N 1994 *Olfaction and Taste XI* (eds. K. Kurihara, N. Suzuki & H. Ogawa), Springer-Verlag, Tokyo, pp. 690-693 "Intelligent ChemSADs for artificial odour-sensing of coffees and lager beers"
123. **Gardner J W** and Bartlett P N 1994 *Technische Rundschau Wissen - Sonderpublikation Sensorik, July 1994*, pp. 62-67 "Prinzipien, Anwendungen und Assichten der elektronischen Nasen"
124. Moy L, Mifsud J C and **Gardner J W** 1994 *Perfumer & Flavorist* **19** 11-15 "Monitoring the sensitivity of perfume and body odours with an electronic nose"
125. Pearce T C, **Gardner J W**, Friel S, Bartlett P N and Blair N 1993 *Analyst* **118** 371-377 "An electronic nose for monitoring the flavour of beers"
126. Hines E L, **Gardner J W**, Fung W W and Fekadu A A 1993 in *Neural Computing Research & Applications* (ed. G Orchard) IOP Publishing, Bristol, pages 267-271 "Improved rate of convergence in a MLP based electronic nose"
127. Mason J D, Hines E L and **Gardner J W** 1993 in *Artificial Neural Nets and Genetic Algorithms* (eds. RF Albrecht, CR Reeves, NC Steele), Springer-Verlag, New York, 107-111 "Analysis of electronic nose data using logical neurones"
128. Fekadu A A, Hines E L and **Gardner J W** 1993 in *Artificial Neural Nets and Genetic Algorithms* (eds. RF Albrecht, CR Reeves, NC Steele), Springer-Verlag, New York, 112-116 "Neural tree network based electronic nose"
129. Fekadu A A, Hines E L and **Gardner J W** 1993 in *Artificial Neural Nets and Genetic Algorithms*, (RF Albrecht, CR Reeves, NC Steele), Springer-Verlag, New York, 691-698 "Genetic algorithm design of neural network based electronic nose"
130. Moore S W, **Gardner J W**, Hines E L, Goepel W and Weimar U 1993 *Sensors & Actuators B* **15-16** 344-348 "A modified multilayer perceptron model for gas mixture analysis"
131. Corcoran P, Shurmer H V and **Gardner J W** 1993 *Sensors & Actuators B*, **15-16**, 32-37 "Integrated tin oxide sensors of low power consumption for use in gas and odour sensing"
132. **Gardner J W** and Bartlett P N 1993 *Synthetic Metals* **55-57** 3665-3670 "Design of conducting polymer gas sensors: modelling and experiment"
133. Smith S T, Harb S, Eastwick-Field V, Zao Z Q, Bartlett P N, Chetwynd D G and **Gardner J W** 1993 *Wear* **169** 43-57 "Tribological properties of electroactive polymeric thin film bearings"
134. Bartlett P N, Blair N and **Gardner J W** 1993 Association Scientifique International sur le Cafe, 15<sup>e</sup> Colloque, Montpellier, 616-625 "Electronic Noses: Principles, applications and outlooks"
135. Pearce T C and **Gardner J W** 1993 *Proc. of IEEE conference on Systems, Man and Cybernetics, Le Touquet, France, 17-20 October 1993, Vol. 5, pp.165-170, New York, IEEE*, "Machine olfaction: intelligent sensing of odours"
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262. Covington JA, Tan SL, Pearce TC, Hamilton A and **Gardner JW**, *Proc. of IET Seminar on MEMS Sensors & Actuators*, 27-28 April 2006, London, UK, 107-112 “Towards a truly biomimetic olfactory microsystem: an artificial olfactory mucosa”
263. Koickal TJ, Hamilton A, Pearce TC, Tan SL, Covington JA and **Gardner JW**, *Proc. IEEE Circuits & Systems Symposium (ISCAS 2006)*, May 2006, “Analog VLSI design of an adaptive neuromorphic chip for olfactory systems”
264. Keynote paper: **Gardner JW**, *Eurosensors XX, Gothenberg, Sweden, Sept. 2006*. “Technologies for chemical sensors and microsystems”
265. **Gardner JW**, Covington JA, Tan SL, and Pearce TC, *Eurosensors XX, Gothenberg, Sweden, Sept. 2006*. “A biologically inspired artificial olfactory mucosa”
266. Guha PK, Ali SZ, Udrea F, Milne WI, Iwaki T, Covington JA and **Gardner JW**, *Eurosensors XX, Gothenberg, Sweden, Sept. 2006*. “Novel design and characterisation of SOI CMOS micro-hotplates for gas sensors”
267. Khawaja J, Cole M, **Gardner JW**, *Eurosensors XX, Gothenberg, Sweden, Sept. 2006*. “Gold nanoparticle CMOS sensor for VOC detection”
268. Iwaki T, Covington JA, **Gardner JW**, Udrea F, Blackman CS and Parkin IP, *Proc. IEEE Sensors Conference, Korea, Oct. 2006*. “SOI-CMOS based single crystal silicon micro-heaters for gas sensors”.
269. Ali SZ, Guha PK, Lee CC, Udrea F, Milne WI, Iwaki T, Covington JA and **Gardner JW**, *Proc. IEEE Sensors Conference, Korea, Oct. 2006*. “High temperature SOI CMOS tungsten micro-heaters”
270. **Gardner JW**, Cole M, Dowson CG, Newton P and Sehra G, *IASTED International Conference on Biomedical Engineering*, Innsbruck, Austria, 16-18 Feb 2005 “Smart acoustic sensor for the detection of bacteria in milk”
271. Pearce TC, Covington JA, Tan SL, **Gardner JW**, Koickal TJ and Hamilton A, *IEEE Neural Engineering Conference*, Washington, USA 16-19 March 2005 “Silicon based neuromorphic implementation of the olfactory bulb”
272. Acevedo J, Maldonado S, Al-Khalifa S, Gil P, and **Gardner JW**, *11<sup>th</sup> International Symposium on Olfaction and Electronic Noses*, Barcelona, Spain, 13-15 April 2005 “Design of a programmable, portable low cost electronic nose”

273. Pardo M, Sberveglieri G and **Gardner JW**, *11<sup>th</sup> International Symposium on Olfaction and Electronic Noses*, Barcelona, Spain, 13-15 April 2005 “Benchmarking feature selection for e-noses”
274. Invited paper: **Gardner JW**, *IEE Seminar on MEMS Sensor Technologies*, London, UK 25 April 2005, “Smart tongue”
275. Koickal TJ, Tan SL, Hamilton A, Covington JA, **Gardner JW** and Pearce TC, *IEEE Instrumentation Measurement Conference*, Ottawa, Canada, 17-19 May 2005 “A smart interface circuit to ameliorate the loss of measurement range in chemical microsensor arrays”
276. Iwaki T, Covington JA, Udrea F, Ali SZ, Guha PK and **Gardner JW**, *Journal of Physics: Conference Series* **15** (2005) 27-32, “Design and simulation of resistive SOI CMOS microheaters for high temperature gas sensors”
277. Leonte I, Sehra G, Cole M, Hesketh P and **Gardner JW**, *Proc. of Eurosensors XIX*, Barcelona, Spain, 11-14 Sept. 2005 “High frequency SH-SAW devices for liquid sensing”
278. Pardo M, Sberveglieri G and **Gardner JW**, *Proc. 4<sup>th</sup> IEEE Conf. on Sensors*, Irvine, California, USA, Oct. 31 – 3 Nov. 2005, “Feature selection for high dimensionality data in chemical sensing”
279. Cole M, **Gardner JW**, Leonte I, Sehra G, Noh HS and Hesketh PJ, *Proc. 4<sup>th</sup> IEEE Conf. on Sensors*, Irvine, California, USA, Oct. 31 – 3 Nov. 2005, “Voltage modulated SAW microtrap system: smart assaying of biomaterials”
280. Tan SL, Covington JA, and **Gardner JW**, *SPIE Meeting on Smart Sensors and Materials*, San Diego, March 2004. “Ultra-fast chemical sensing microsystem employing resistive nanomaterials”
281. **Gardner JW**, Garcia-Guzman J, and Cole M SPIE Meeting on Smart Sensors and Materials, San Diego, March 2004. “Smart ASIC chip for vapour detection based upon carbon black/polymer composite materials”
282. Invited tutorial: **Gardner JW**, *3<sup>rd</sup> NOSE Short Course on Fundamentals of Signal and Data Processing*, 21-26 March 2004. “Feature selection techniques”
283. Sun MC, Chetwynd DG, and **Gardner JW**, *Proc. of Euspen 2004*, Glasgow, Scotland, May-June 2004 “A simple microtensometer for polymeric microparts”
284. Covington JA, LLaudet E, Dale N and **Gardner JW**, *8th World Congress on Biosensors: Biosensors 2004*, Granada, Spain 24-26 May 2004. “A bio-probe with integrated electrode array for in-situ chemical measurement”.
285. Pearce TC, Koickal TJ, Fulvi-Mari C, Covington JA, Tan S, **Gardner JW** and Hamilton A, *Brain Inspired Cognitive Systems*, Aug 29-Sept 1 2004, Stirling, Scotland. “Silicon-based neuromorphic olfactory pathway implementation”
286. Leonte I, Hunt M, Sehra G, Cole M and **Gardner JW**, *Proceedings of IEEE Postgraduate Student Colloquium*, Manchester, September 2004, p. 47-52 “SAW bioliquids sensor with RF interrogation”
287. Invited speaker: **Gardner JW**, Workshop on “From chemical communication to olfaction”, Delwart Foundation, Louvain, Belgium, Oct 22-24 2004, “State-of-the-art electronic nose technology and silicon implementation”
288. Invited speaker: **Gardner JW**, Seminario Sensores Inteligentes para a deteçao e separacao de rolhas com aromas estranhos, Portugal, Sept 23 2004 “Application of smart sensors in the cork industry”
289. Yates JWT, Chappell MJ and **Gardner JW**, *Proceedings of IEEE Sensors Conference*, Vienna, Austria, 24-27 Oct 2004, p. 1253-1256 “Phenomena based dynamic model of carbon black polymer composite materials”
290. Leonte I, Hunt MS, Sehra G, Cole M, **Gardner JW**, Noh HS, Hesketh PJ, *Proceedings of IEEE Sensors Conference*, Vienna, Austria, 24-27 October 2004, p. 919-922 “Towards a wireless microsystem for liquid analysis”

291. Tan SL, Covington JA, **Gardner JW** and Hesketh PJ, *Proceedings of IEEE Sensors Conference*, Vienna, Austria, 24-27 Oct 2004, p. 1171-1174 “Ultra fast/ low volume odour delivery package for chemical microsystems”
292. Dutta R, **Gardner JW** and Hines EL, *Proceedings of IEEE Sensors Conference*, Vienna, Austria, Sept. 2004, p. 324-326 “ENT bacteria classification using a neural network based Cyranose 320 electronic nose”
293. Ali SZ, Gonzalez W, **Gardner JW** and Udrea F, *Proceedings of IEEE Semiconductor Conference 2004*, Sinaia, Romania, 4-6 October 2004, vol. 2, p. 351-354 “Analysis of high temperature SOI microhotplates”
294. **Gardner JW**, Boilot P, and Hines EL, *Proc. ISOEN, Latvia, 25-27 June 2003*. “Enhancing e-nose performance by data fusion and sensor selection”
295. Yates JW, **Gardner JW**, Chappell MJ, Bolt F, Beeby L and Dowson C, *IFAC*, 2003. “Chemical sensor screening of blood samples: robust analysis via data set reduction”
296. **Gardner JW**, Covington JA, Shaw G, Parkin I, and Udrea F, *Proc. Eurosenors XVII, Portugal, 21-24 September 2003*. “SOI gas sensors with low temperature CVD films”
297. Sehra G, Cole M and **Gardner JW**, *Proc. Eurosenors XVII, Portugal, 21-24 September 2003*. “Miniature taste sensing system based on dual SAW sensor device”
298. Tamadoni R, Bartlett PN, Chetwynd DG, and Gardner JW, *Proc. Eurosenors XVII, Portugal, 21-24 September 2003*. “Investigation of a conducting polymer O-ring seal for microvalves”
299. Invited paper: **Gardner JW**, *Nato Advanced Research Workshop on Electronic Noses and Explosive Detection, Coventry, 1-2 October 2003*. “Review of electronic nose technology”
300. Covington JA, Tan SL, Hamilton A, Koickal T, Pearce TC, and Gardner JW, *Proc. IEEE Sensors 2003 Conference, Canada, 22-24 October 2003*. “Combined smart chemoresistive/FET sensor array”
301. Invited tutorial: **Gardner JW**, *IEEE Sensors 2003 Conference, Canada, 22-24 October 2003*. “Electronic Noses: towards a nose-on-a-chip”
302. Invited seminar: **Gardner JW**, Georgia Institute of Technology, Atlanta, USA, September 2003. “Biosensors, Electronic Noses and Electronic Tongues”
303. Fang Q, Chetwynd DG, **Gardner JW**, Toh C, Bartlett PN *E\_MRS-2002, Spring Meeting, Symposium Q: Current Trends in Nanotechnologies, 2002*, “Investigation of conducting polymers as microvalve seals”
304. Invited paper: **Gardner JW** *Ist NOSE II Short Course, 24 Feb - 1 Mar, 2002*, “Applications of electronic noses”
305. Invited paper: **Gardner JW** *Ist NOSE II Short Course, 24 Feb - 1 Mar, 2002*, “Market aspects”
306. Government report: *A Strategic Framework for 2015, Foresight Publication, DTI, March 2002*. DTI Pub 6030/3k/03/02/NP. URN 02/808
307. **Gardner JW** *Public Consultation Document, DTI Conference Centre, 14 March 2002*, “Sensors for trends for monitoring the environment, industrial health and safety”
308. Bartlett PN, Guerin S, Marwan J, **Gardner JW**, Lee SM, Willett MJ, LeClerc SA *Proc. Symp. Microfabricated Systems & MEMS, Electrochemical Society, Philadelphia, May 2002*, “A micromachined planar pellistor using an electrochemically deposited nanostructured catalyst”
309. Bartlett PN, Guerin S, Marwan J, **Gardner JW**, Lee SM, Willett MJ, LeClerc SA *Proc. Symp. Microfabricated Systems & MEMS, Electrochemical Society, Philadelphia, May 2002*, “Sensors for trends for monitoring the environment, industrial health and safety”
310. Cole M, Sehra GS, **Gardner JW**, Varadan VJ *Proc. IEEE Sensors 2002, Florida, 12-14 June 2002*, “Fabrication and testing of smart tongue devices for liquid sensing”.
311. Covington JA, Udrea F, **Gardner JW** *Proc. IEEE Sensors 2002, Florida, 12-14 June 2002*, “Resistive gas sensor with integrated MOSFET micro hot-plate based on an analogue SOI CMOS process”.
312. Invited paper: **Gardner JW**, Cole M, Udrea F *Proc. IEEE Sensors 2002, Florida, 12-14 June 2002*, “CMOS gas sensors and smart devices”.

313. Udrea F, Liu CC, Covington JA and **Gardner JW** *Proc. 9th Int. Meeting on Chemical Sensors, Boston, 7-10 July 2002*, “Development of smart gas sensors using SOI technology and embedded micro-FET heaters”.
314. Leclerc SA, Willett MJ, Lee SM, **Gardner JW**, Marwn J and Bartlett PN *Proc. 9th Int. Meeting on Chemical Sensors, Boston, 7-10 July 2002*, “Optimisation of mesoporous catalysts for combustible gas sensor applications”.
315. Leclerc SA, Willett MJ, Lee SM, **Gardner JW**, Marwn J and Bartlett PN *Proc. 9th Int. Meeting on Chemical Sensors, Boston, 7-10 July 2002*, “Novel combustible gas sensors employing micromachined silicon substrates and nanostructured catalysts”.
316. Cole M, **Gardner JW** and Bartlett PN *Proc. 9th Int. Meeting on Chemical Sensors, Boston, 7-10 July 2002*, “Integrated CMOS resistive ratiometric smart devices for odour and vapour sensing”.
317. Keynote paper: **Gardner JW** *Proc. 9th Int. Meeting on Chemical Sensors, Boston, 7-10 July 2002*, “Electronic noses: from macro to nano scaled devices”.
318. Cole M, Guzman G and **Gardner JW** *Proc. Eurosenors XVI, Prague, September 2002*, “Smart ratiometric ASIC chip for a palm-top VOC monitor”.
319. Lu CC, Covington JA, Udrea F, **Gardner JW** *Proc. Eurosenors XVI, Prague, 15-18 September 2002*, “Electro-thermal characterisation of high-temperature smart gas sensors in SOI technology”.
320. Sehra G S, Covington JA, Cole M, and **Gardner JW** *Proc. 9<sup>th</sup> International Symposium on Olfaction and Electronic Nose, Rome, 29 September – 2 October 2002, eds A d’Amico and C di Natale*, “Combined electronic nose/tongue for liquid analysis”.
321. Invited paper: **Gardner JW** *Proc. NOSE II Workshop, Rome, 3-4 October 2002*, “An overview of the electronic nose market”.
322. Invited talk: **Gardner JW** *Cambridge Physical Society Seminar Series, Cavendish Laboratory, Cambridge, UK, November 2002*, “Electronic noses: from macroscale to nanoscale devices”
323. **Gardner JW** *Advances in Sensor Technologies Symposium, Warwick University, February 2001* “Advances in Microsensors and MEMS”
324. Invited talk: **Gardner JW**, *Electrochemical Seminar, Southampton University, March 2001*, “Micromachined structures for chemical applications”
325. Lu C-C, Udrea F, **Gardner JW**, Setiadi D, Dogaru T, Tsai TH and Covington JA, *Proc. of SPIE, 4408*, pp.86-95, (2001). “Design and coupled-effect simulations of CMOS micro gas sensors built on SOI thin membranes”.
326. Cole M, **Gardner JW** and Bartlett PN *Proc. ISOEN 8, Washington DC, USA, 25-28 March 2001* “Low-drift odour ratiometric resistive elements for analogue CMOS smart sensors”
327. Fang Q, Chetwynd DG and **Gardner JW** *2<sup>nd</sup> Euspen Conference, May, 2001* “Tensile properties of conducting polymer fibres”
328. Llobet E, Brezmes J, Ionescu R, Vilanova X, Al-Khalifa S, **Gardner JW**, Barsan N and Corrieg X *Technical Digest of Transducers 01, Munich, 10-14 June 2001* “Wavelet transform and fuzzy ARTMAP based pattern recognition for fast gas identification using a micro-hotplate gas sensor”
329. **Gardner JW**, Lee SM, Bartlett PN, Guerin S, Briand D, de Rooij NF *Technical Digest of Transducers 01, Munich, 10-14 June 2001* “Silicon planar microcalorimeter employing nanostructured films”
330. **Gardner JW**, Covington JA, Udrea F, Dogaru T, Lu C-C and Milne W *Technical Digest of Transducers 01, Munich, 10-14 June 2001* “SOI-based micro-hotplate microcalorimeter gas sensor with integrated BiCMOS transducer”
331. Keynote paper: **Gardner JW** and Cole MV *5<sup>th</sup> Int. Conf. on Breath Odor, Tokyo, 1-2 July 2001* “Medical applications of electronic nose technology”
332. Invited paper: Varadan VK and **Gardner JW** *8<sup>th</sup> Annual International Symposium on Smart Structures and Materials: Smart Electronics and MEMS, 4-8 March, Newport Beach, California, USA, SPIE code no.4334-48, (2001)*. “Smart tongue for monitoring the freshness of orange juice and milk”.

333. Al-Khalifa S, **Gardner JW** and Maldonado-Bascon S *Proc. Sensors and Their Applications, City University, UK, 3-6 September 2001* “Rapid multicomponent analysis using a thermally-modulated resistive gas microsensor and a discrete wavelet transform”
334. Lu C-C, Sediadi D, Udrea F, Milne WI, Covington JA and Gardner *Int. Conference on Modelling & Simulation of Microsystems, MSM 2000, San Diego, USA, March, 2000, pp.297-310* “3D thermo-electro-mechanical simulations of gas sensors based on SOI membranes”
335. Searle GE, **Gardner JW**, Chappell M, Godfrey KR and Chapman MJ *12<sup>th</sup> IFAC Symposium on System Identification, SYSID 2000, Santa Barbara, USA, 21-23 June 2000* “System identification of electronic nose data for monitoring cyanobacteria in potable water: black-box modelling”
336. Covington JA, **Gardner JW** and Briand D *8<sup>th</sup> Int. Conf. on Chemical Sensors, Basel, Switzerland, 3-5 July, 2000* “A polymer gate FET sensor array for detecting organic vapours”
337. Covington JA, **Gardner JW**, Toh C, Bartlett PN, Briand D and de Rooij NF *7<sup>th</sup> Int. Symposium on Olfaction and Electronic Noses, Brighton, UK, 20-24 July 2000* “Array of MOSFET devices with electrodeposited conducting polymer gates for vapour and odour sensing”
338. Tamadoni R, **Gardner JW**, Dyer DC, Krauss A, Weimar U, Besnard I, Bartlett PN, Gier L, Stefano C, Briand D, van der Schoot B, Sundgren H and Davide F, *8<sup>th</sup> Int. Conf. on Chemical Sensors, Basel, Switzerland, 3-5 July 2000* “A cabin air analyser for automotive application”
339. Llobet E, Rubio J, Vilanova X, Brezmes J, Correig X, **Gardner JW** and Hines EL, *8<sup>th</sup> Int. Conf. on Chemical Sensors, Basel, Switzerland, 3-5 July 2000* “Electronic nose simulation tool centred on PSPICE”
340. de Matos R, Dow CS and **Gardner JW** *7<sup>th</sup> Int. Symposium on Olfaction and Electronic Noses, Brighton, UK, 20-24 July 2000* “Investigation of the growth characteristics of E. coli using headspace”
341. Boilot P, Hines EL, **Gardner JW**, Hero M, Fink C, Mitchell J and Spencer J *7<sup>th</sup> Int. Symposium on Olfaction and Electronic Noses, Brighton, UK, 20-24 July 2000* “Detection of bacteria causing eye infection using an electronic nose”
342. Cole M, **Gardner JW**, Covington JA, Fife D, Kwok CY, Brignell JE and Bartlett PN *14<sup>th</sup> European Conference on Solid-state Transducers, Copenhagen, Denmark, August 27-30, 2000* “Active bridge polymeric resistive device for vapour sensing”
343. Udrea F, Setiadi D, **Gardner JW**, Covington JA, Dogaru T and LU CC *14<sup>th</sup> European Conference on Solid-state Transducers, Copenhagen, Denmark, August 27-30, 2000* “A novel class of smart gas sensors using CMOS micro-heaters embedded in an SOI membrane”
344. Cole M, **Gardner JW**, Brignell JE and Bartlett PN *6<sup>th</sup> Joint Warwick-Tokyo Nanotechnology Symposium, Coventry, UK, 18-21 September 2000* “Characterisation of a poly(pyrrole) and poly(bithiophene) five element CMOS-compatible active bridge devices”
345. Lee SM, **Gardner JW**, Dyer DC, Bartlett PN and Tan YM *6<sup>th</sup> Joint Warwick-Tokyo Nanotechnology Symposium, Coventry, UK, 18-21 September 2000* “Silicon planar pellistor employing nanostructured films and a micro-hotplate”
346. Invited paper: Varadan VK and **Gardner JW** *Proc. SPIE on Smart Electronics and MEMS, Newport Beach, USA, March 1999* “Smart tongues and smart noses”
347. **Gardner JW**, Covington JC and Hatfield JV *Proc. SPIE on Smart Electronics and MEMS, Newport Beach, USA, March 1999* “Conducting polymer FET devices for vapour sensing”
348. **Gardner JW**, Udrea F and Milne W *Proc. SPIE on Smart Electronics and MEMS, Newport Beach, USA, March 1999* “Numerical simulation of a new generation of high-temperature micropower gas and odour sensors based on SOI technology”
349. Setiadi D, Udrea F, Milne WI, Covington J and **Gardner JW** *SPIE Meeting, USA, 1999* “3D numerical simulation of novel SOI MOSFET based gas sensors”
350. Plenary paper: **Gardner JW** *Proc. Sensors & their Applications X, Cardiff, 5-8 Sept. 1999* “Towards a nose-on-a-chip: micromachining of a miniature olfactory system”

351. **Gardner JW**, Dow CS, Shin HW, Searle G and Chappell M *International Symposium on Olfaction & Electronic Noses, Tuebingen, Germany, 20-2 September 1999* “Dynamical signal processing techniques for bioprocess monitoring”
352. Shin HW, **Gardner JW**, Hines EL and Dow CS, *International Symposium on Olfaction & Electronic Noses, Tubingen, Germany, 20-2 September 1999* “Classification of toxicity and growth of cyanobacteria in water with an electronic nose”
353. Singh S, Hines E L and **Gardner J W** *Proc. 3<sup>rd</sup> Int. Conf. on Artificial Neural Networks and Genetic Algorithms, 1998 Wein, Springer 537-540* “Classifier Systems based on possibility distributions: a comparative study”
354. **Gardner J W** *9<sup>th</sup> CIMTEC, Florence, Italy, June 1998* “Pattern recognition in gas sensing”
355. Ingleby P, **Gardner J W**, and Bartlett P N *Proc. Eurosenors XII, Vol. 1, ed. N White, IOP Publishing Ltd, Bristol pp. 135-139 1998* “Characterisation of a CMOS current drive chip for an array of six polymeric resistive gas sensors”
356. Cole M, **Gardner J W**, Lim A W Y, Scivier P K and Brignell J E *Proc. Eurosenors XII, Vol. 2, ed. N White, IOP Publishing Ltd, Bristol pp. 1099-1102 1998* “Characterisation of a CMOS current drive chip for an array of six polymeric resistive gas sensors”
357. Hatfield J, Covington JA and **Gardner JW** *Proc. of Int. Conf. on Chemical Sensors, Beijing, June, 1998* “GasFETs incorporating conducting polymers as gate materials”
358. **Gardner JW** *Proc. 5<sup>th</sup> Int. Symp. on Electronic Noses, Baltimore, USA., 27-30 Sept., 1998* “An electronic nose to diagnose illness”
359. Invited talk: **Gardner JW** *South East Midlands branch of Institution of Agricultural Engineers, Silsoe, 3 March 1997* “Electronic noses: fabrication and application”
360. Hines E L, **Gardner JW**, Molinier F, Craven M A and Bartlett P N *Sensor Technology Opportunities in the Upstream Oil and Gas Industries, DTI Conference, London 6 May 1997* “Sensor data processing via intelligent systems”
361. Shin H W, Lloyd C and **Gardner J W** *Proceedings of Transducers’97, Chicago, 16-19 June 1997, pp. 935-938* “Combined resistive and calorimetric sensing of gases using a single micromachined device”
362. **Gardner J W**, Lloyd C R, Pike A C, Brignell J E, Scivier P, Bartlett P N, Duke A J and Elliott J M *Proc. Eurosenors XI, Warsaw, Poland, 21-24 September 1997* “Conducting polymer based resistance micro-bridge for sensing of gases and vapours”
363. Scivier P K, White N M, Brignell J E, **Gardner J W** and Vidic M M *Proc. Eurosenors XI, Warsaw, Poland, 21-24 September 1997* “Pulsed current analog CMOS ASIC excitation of polymer-based gas sensors”
364. **Gardner J W** and Gardner W E *Proc. of British Institute of Non-destructive Testing conference, UK, 16-18 September 1997* “The role of electronic noses in condition monitoring”
365. Invited paper: **Gardner J W** *Proc. of 3<sup>rd</sup> East Asian Conf. on Chemical Sensors, Seoul, Korea, 5-6 November 1997* “Diagnosing illness with an electronic nose”
366. Shin H W and **Gardner J W** *Proc. of 3<sup>rd</sup> East Asian Conf. on Chemical Sensors, Seoul, Korea, 5-6 November 1997* “A combined resistive and calorimetric gas sensor”
367. Invited paper: **Gardner JW** and Bartlett PN, *Pittsburgh Conf. on Analytical Chemistry and Applied Spectroscopy, 4-7 March 1996, Chicago, USA* “The history of electronic noses”
368. Invited paper: **Gardner JW** and Bartlett PN, *Pittsburgh Conf. on Analytical Chemistry and Applied Spectroscopy, 4-7 March 1996, Chicago, USA* “The future of electronic noses”
369. Invited paper: **Gardner JW**, *The Institute of Physics Annual Congress, 23-25 April 1996, Telford, UK* “Chemical and biological silicon sensors”
370. Bartlett P N, Elliott J and **Gardner J W**, *Euroanalysis IX, 1-7 Sept. 1996, Bologna, Italy* “Applications of, and developments in, machine olfaction”
371. Ingleby P, Covington J, **Gardner J W** and Bartlett P N *10th European Conference on Solid-state Transducers (Eurosenors X), Leuven, Belgium, 9-11 September 1996* “Dual resistance-mass polymeric sensor for improved gas sensing”

372. Dyer DC and **Gardner JW** *10th European Conference on Solid-state Transducers (Eurosenors X), Leuven, Belgium, 9-11 September 1996* “High precision interface for a hybrid electronic nose”
373. Chetwynd DG and **Gardner JW** *IEE Colloquium on Conducting Polymers and their applications in transducers and instrumentation, Digest No. 96/242, 30 October 1996* “Tribological applications of conducting polymer films in micromechanical devices”
374. Dyer DC and **Gardner JW** *IEE Colloquium on Conducting Polymers and their applications in transducers and instrumentation, Digest No. 96/242, 30 October 1996* “Interface electronics for resistive and piezoelectric polymer gas sensors”
375. Invited paper: **Gardner JW** *3rd International Symposium on Olfaction & Electronic Noses, Miami, Florida, 3-6 November 1996* “Electronic nose technology: present & future”
376. **Gardner JW**, Craven MA and Hines EL *3rd International Symposium on Olfaction & Electronic Noses, Miami, Florida, 3-6 November 1996* “Classification of bacteria age and type using an array of metal oxide sensors and pattern recognition techniques”
377. Invited paper: Hines EL, **Gardner JW**, Molinier F, Craven MA and Bartlett PN *Royal College of Anaesthetists, Symposium, London, 7-8 November 1996* “Can we mimic human sensory systems?”
378. Invited paper: **Gardner JW** *10th Colloquium of Gas Analysis & Sensing Group, 16-17 December 1996, Swansea* “New electronic noses”
379. **Gardner J W** 1995 *IEMRS 1995 Spring Meeting, Strassbourg (France) May 22-26, 1995 Symposium A, Microstructuring and Microsensors*. “Application of conducting polymer technology in Microsensors”
380. Welham CJ, **Gardner JW** and Greenwood J *Technical Digest of Transducers’95-Eurosenors IX, Stockholm, Sweden, 25-29 June 1995* “A laterally driven micromachined resonant pressure sensor”
381. **Gardner JW** and Bartlett PN *Technical Digest of Transducers’95-Eurosenors IX, Stockholm, Sweden, 25-29 June 1995* “Performance definition and standardisation of electronic noses”
382. **Gardner JW** and Pike P *Sensors and their Applications VII, Dublin, 10-13 September 1995*, p58-59 “Nanoengineered dual sensor device for intelligent monitoring of gases”
383. Elliott-Martin RJ, Bartlett PN, **Gardner JW** and Mottram TT *Sensors and their Applications VII, Dublin, 10-13 September 1995* p12-20 ed. Augousti, IOP Sensor Series, Bristol, “An overview of electronic noses and their applications”
384. **Gardner JW** and Bartlett PN *2nd International Symposium on Olfaction & Electronic Noses, Toulouse, France, 2-3 October 1995* “Microinstrumentation for odour sensing”
385. Bartlett PN and **Gardner JW** *2nd International Symposium on Olfaction & Electronic Noses, Toulouse, France, 2-3 October 1995* “Towards the definition of standards and performance criteria for electronic noses”
386. Pearce TC, **Gardner JW**, and Goepel W *2nd International Symposium on Olfaction & Electronic Noses, Toulouse, France, 2-3 October 1995* “Olfaction and electronic noses in flavour analysis”
387. Bartlett PN, Beriet C, Chetwynd DG, **Gardner JW**, and Liu X *Proc. Leeds, UK, September 1995* “Tribological properties of conducting polymer films for application in nanotechnology”
388. Liu X, Chetwynd DG, **Gardner JW**, Smith ST, Beriet C and Bartlett PN *Proc. 10th Annual Meeting of ASPE, Texas, USA, October 1995* “Measurement of friction at light loads in polypyrrole thin film bearings”
389. Invited paper: **Gardner J W**, Bartlett P N and Goepel W 1994 *24th Int. Conf. on Environmental Systems, Friedrichshafen, Germany, 20-23 June 1994* SAE Technical Paper Series 941266 “An electronic nose for measuring airborne organic compounds”
390. Craven M A, Hines E L, **Gardner J W**, Morgan D, Horgan P, Ene I A 1994 *Int. Conf. on Neural Networks & Expert Systems in Medicine and Healthcare, Plymouth, England, 23-26 August 1994*

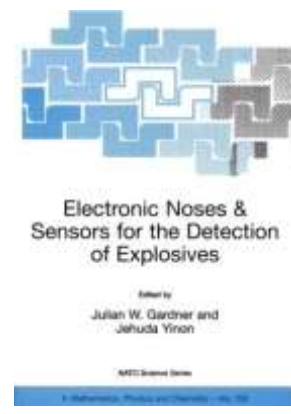
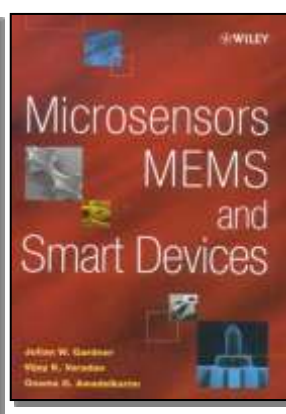
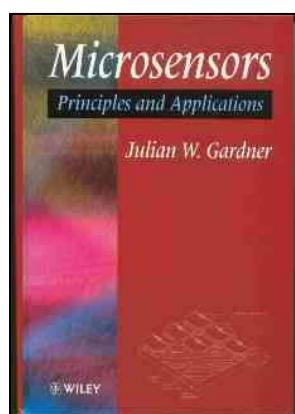
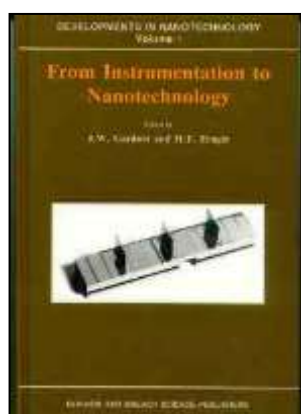
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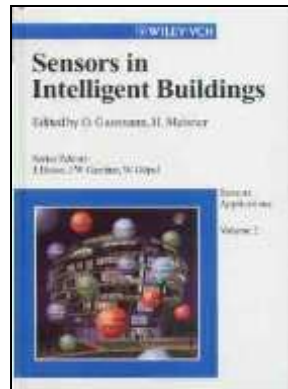
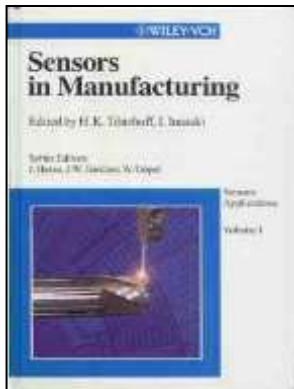
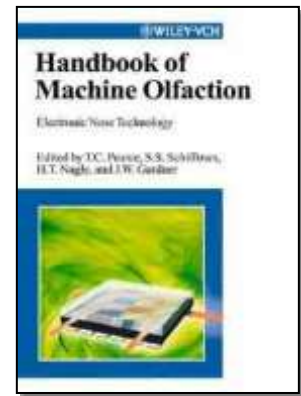
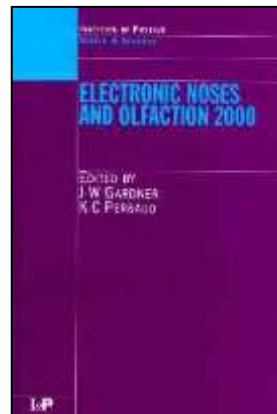
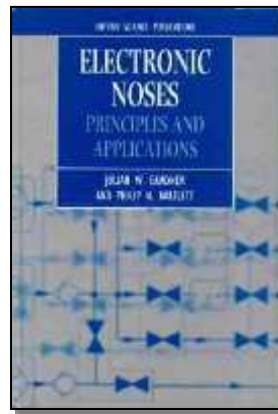
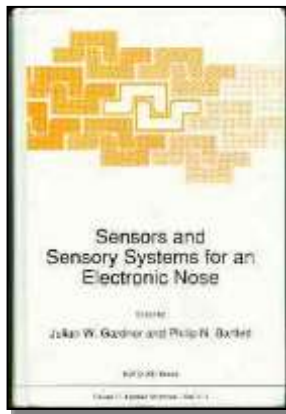
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