

FULL LIST OF PUBLICATIONS

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(H-index of 63, i10-index 168 & 15,627 citations from Google September 2017)

I. BOOKS, EDITED BOOKS & BOOK CHAPTERS

1. Book chapter: de Luca A, Udrea F, **Gardner JW** et al. 2016 in *Semiconductor Devices in Harsh Conditions*, Weide-Zaage and Chrzanowska-Jeske (Eds), Ch5, pp87-107, CRC Press, Delaware. "Sensors and Sensor Systems for Harsh Environment Applications"
2. Book chapter: Vincent TA, Wilson A, Hattersley JG, Chappell MJ, **Gardner JW** (2016) in *IWBIO 2016*, LNBI 9656, pp. 13–21. Ortuño D and Rojas I (Eds), Springer International Publishing, Switzerland. DOI: 10.1007/978-3-319-31744-1_2
3. Book chapter: Pearce TC, Karout S, Capurro A, Racz Z, Cole M, **Gardner JW** (2013) in *Biomimetic and Biohybrid Systems*, Lepora NF et al (eds), Vol. 8064, pp 204-215, Springer, Berlin "Robust ratiometric infochemical communication in a neuromorphic synthetic moth"
4. Book chapter: Guha P, Santra S and **Gardner JW** (2013) in *Measurement, Instrumentation and Sensors Handbook*, Taylor and Francis, Ch 9 "CMOS integrated gas sensors"
5. Book chapter: Guha P, Santra S and **Gardner JW** (2013) in *Semiconductor Gas Sensors* (Eds. R. Jaaniso, Z. Weiguang and T. Kiang), Ch 15 "Integrated Semiconductor Sensors for Gas and Odour Detection"
6. Book chapter: **Gardner JW**, Covington JA and Che Harun F (2012) in *Human Olfactory Displays and Interfaces: Odor Sensing and Presentation*, T. Nakamoto (Ed.), IGI Global, USA, Ch 12, pp257-274 "Electronic mucosa: a natural successor to the electronic nose system?"
7. Book chapter: Pearce TC, Sanchez-Montanes MA and **Gardner JW** 2009, *Springer series, Ch5, pp75-92*, "Improved odour detection through imposed biomimetic temporal dynamics"
8. Edited book: **Gardner JW** (2007) *Proc. of the 25th IASTED International Multi-conference Biomedical Engineering*, 13-15 Feb. 2007, IASTED, Canada, pp468. ISBN 978-0-88986-648-5
9. 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.
10. 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.
11. Book chapter: Brezmes J, Llobet E, Al-Khalifa S, Maldonado S and **Gardner JW**, in *Support Vector Machines: Theory and Applications*, Lipo W (Ed) "Support Vector Machine: Theory and Applications Chapter: Gas Sensing Using Support Vector Machines", Studies in Fuzziness and soft computing, Springer-Verlag, Berlin, ISBN 3-540-24388-7, June, 2005.
12. Book chapter: 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"

13. 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).
14. 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.
15. Book chapter: **Gardner JW** in *Electronic Noses & Sensors for the Detection of Explosives* (Eds **JW Gardner** and J Yinon), NATO Science Series II Mathematics, Physics and Chemistry – Vol.159, Kluwer, Dordrecht, 2004, pp.1-28, ISBN 1-4020-2317-0 & ISBN 1-4020-2318-9. “Review of conventional electronic noses and their possible application to the detection of explosives”
16. Edited book: Pearce TC, Schiffman SS, Nagle HT, **Gardner JW** (2003) *Handbook of Machine Olfaction*, Wiley-VCH, Dordrecht, pp592. ISBN 3-527-30358-8.
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42. Book chapter: Al-Khalifa S, **Gardner JW** and Craine JF 1997 in *Sensors and Their Applications VIII* (eds. A T Augousti and N M White), p. 89-94 “Characterisation of a thermal wave microsensor for the intelligent analysis of atmospheric gases”
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48. Book chapter: Larkin AB, Hines EL, Thomas SM and **Gardner JW** 1994 in Workshop on Neural Network Applications and Tools, eds. PJ Lisboa & MJ Taylor, IEEE Press, pp6-10, “Supervised learning using the vector memory array method”

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50. 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.
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55. Book chapter: **Gardner JW** and Bartlett PN 1991 in *Techniques & Mechanisms in Gas Sensing* eds. P Moseley, J Norris, D Williams (Bristol: Adam Hilger) pp. 347-380 "Pattern recognition in gas sensing"
56. Book chapter: Schild D and **Gardner JW** 1991 In *Cell to Cell Signals in Plants and Animals*, eds. V Neuhoff & J Friend NATO ASI Series, Vol. H51 (Springer-Verlag: Berlin) pp. 96-117 "Detection and coding of chemical signals: A comparison between artificial & biological systems"
57. Book chapter: **Gardner JW** and Bartlett PN 1991 in *Nanotechnology* eds. DJ Whitehouse and K Kawata (Bristol: Adam Hilger) pp. 19-32 "Potential applications of electropolymerised thin organic films in nanotechnology"
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59. Book chapter: **Gardner JW** 1991 in *From Instrumentation to Nanotechnology* eds. JW Gardner and HT Hingle (London: Gordon & Breach) pp. 119-136 "Recent advances in solid-state microsensors"
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61. Edited book: **Gardner JW** and Hingle HT (1991) *From Instrumentation to Nanotechnology*, Gordon and Breach Science Publishers, Philadelphia, pp336. ISBN 2-88124-794-6.
62. Book chapter: Shurmer HV and **Gardner JW** 1990 *Yearbook of Science & Technology* (New York: McGraw-Hill) p123 "The electronic nose"
63. Book chapter: **Gardner JW**, Bartlett PN, Dodd GH and Shurmer HV 1990 *Chemosensory Information Processing*, ed. D Schild (Berlin: Springer-Verlag) pp. 131-173 "The design of an artificial olfactory system"
64. Book chapter: **Gardner JW**, Hall SF, Hewitt SR, Matthews RH and Mustoe FJ 1987 *Implications of Probabilistic Risk Assessment*, ed. M C Cullingford et al. (London: Elsevier) pp. 331-334 "A
65. Thesis: **Gardner JW** 1983 *Charging of grains in discontinuous metal films*, PhD Thesis, University of Cambridge, UK.

II. REFEREED JOURNAL ARTICLES

66. Ali SZ, de Luca A, Hopper R, Boual S, **Gardner JW**, Udrea F at press *IEEE Sensors Journal* “A low-power, low-cost infra-red emitter in CMOS technology”
67. Xuan W, Cole M, **Gardner JW**, Thomas S, Villa-Lopez F, Wang X, Dong S, Luo J 2017 *J. Micromech. Microeng.* **27** 055017 “A film bulk acoustic resonator oscillator based humidity sensor with graphene oxide as the sensitive layer”
68. Urasinska-Wojcik B and **Gardner JW** 2017 *IEEE Sensors Letters* Vol. 1 No.4 “Identification of H₂S impurity in hydrogen using temperature modulated metal oxide resistive gas sensors with a novel signal processing technique”
69. Urasinska-Wojcik B, Vincent TA, Chowdhury MF, **Gardner JW** 2017 *Sens. Act. B* **239** 1051-1059 “Ultrasensitive WO₃ gas sensors for NO₂ detection in air and low oxygen environment”
70. **Gardner JW** and Vincent TA 2016 *Sensors* **16** 947 “Electronic Noses for Well-Being: Breath Analysis and Energy Expenditure”
71. Vincent TA and **Gardner JW** 2016 *Sens. Act. B* **236** 954-964 “A low cost MEMS based NDIR system for the monitoring of carbon dioxide in breath analysis at ppm levels”
72. Santra S, Sinha AK, de Luca A, Ali SZ, Udrea F, Guha PK, Ray SK, **Gardner JW** 2016 *Nanotechnology* **27** Article 125502 DOI: 10.1088/0957-4484/27/12/125502 “Mask-less deposition of Au-SnO₂ nanocomposites on CMOS MEMS platform for ethanol detection”
73. De Luca A, Santra S, Ghosh R, Ali SZ, **Gardner JW**, Guha PK, Udrea F 2016 *Nanoscale* **8** 4565-4572 “Temperature-modulated graphene oxide resistive humidity sensor for indoor air quality monitoring”
74. Thomas S, Cole M, Villa-Lopez FH, **Gardner JW** 2016 *Sens. Act. A* **244** 138-145 “High frequency surface acoustic wave resonator-based sensor for particulate matter detection”
75. Thomas S, Villa-Lopez F, Theunis J, Peters J, Cole M, **Gardner JW** 2016 *IEEE Sensors Journal* **16** 2282-2289 “Particle sensor using solidly mounted resonators”
76. Villa-Lopez F, Rughoobur G, Thomas S, Flewitt AJ, Cole M, **Gardner JW** 2016 *Measurement Science and Technology* **27** Article 025502 “Design and modelling of solidly-mounted resonators for low-cost particle sensing”
77. Vincent TA, **Gardner JW**, Chappell MJ, Hattersley JG, Wilson A 2016 *Procedia Engineering* **168** 129-132 “Measurement of energy expenditure on a smartphone using a handheld breath analyser”
78. Urasinska-Wojcik B, Vincent TA, **Gardner JW** 2016 *Procedia Engineering* **168** 255-258 “H₂S sensing properties of WO₃ based gas sensor”
79. Chowdhury MF, Hopper R, Ali SZ, **Gardner JW**, Udrea F 2016 *Procedia Engineering* **168** 1204-1207 “MEMS infrared emitter and detector for capnography applications”
80. Santra S, Sinha AK, de Luca A, Ali SZ, Udrea F, Guha PK, Ray SK, **Gardner JW** 2015 *Nanotechnology* “Mask-less deposition of Au-SnO₂ nanocomposites on CMOS MEMS platform for ethanol detection”
81. Santra S, Hu G, Howe R, de Luca A, Ali SZ, Udrea F, **Gardner JW** 2015 *Nature Scientific Reports* **5** 17374 “CMOS integration of inkjet-printed graphene for humidity sensing”
82. Santra S, de Luca A, Bhaumik S, Ali S, Udrea F, **Gardner JW**, Ray SK, Guha PK 2015 *RSC Advances* **5** 47609-47616 “Dip pen nanolithography-deposited zinc oxide nanorods on a CMOS MEMS platform for ethanol sensing”
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84. De Luca A, Cole M, Hopper R, Boual S, Warner J, Robertson A, Ali Z, Udrea F and Gardner JW 2015 *Applied Physics Letters* **106**, 194101 “Enhanced spectroscopic gas sensors using in-situ grown carbon nanotubes”
85. Olsson SB, Challiss RAJ, Cole M, Gardeniers JG, **Gardner JW**, Guerrero A, Hannson BS and Pearce TC 2015 *Bioinspiration & Biomimetics* **10** (4) 043001 “Development of an insect-based infochemical communications technology”
86. Cole M, Spulber I and **Gardner JW** 2015 *Sens. Actuators B: Chem.* **207** 1147-1153 “Surface acoustic wave electronic tongue for robust analysis of sensory components”

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89. Hopper R, Ali SZ, Chowdhury MF, Boual S, de Luca A, **Gardner JW** and Udrea F 2014 *Procedia Engineering* “A CMOS-MEMS thermopile with an integrated temperature sensing diode for Mid-IR thermometry”
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94. Racz Z, Cole M, **Gardner JW**, Chowdhury MF, Bula WP, Gardeniers J, Karout S, Capurro A, Pearce TC 2012 *Int. J. Circ. Theor. Appl. Wiley*, DOI: 10.1002/cta.1829 “Design and implementation of a modular biomimetic infochemical communication system”
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96. Che Harun FK, Covington JA and **Gardner JW** 2012 *IET Nanobiotechnology* **6** 45-51 “Mimicking the biological olfactory system: a portable electronic mucosa”
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103. 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”
104. 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”
105. **Gardner JW**, Guha PK, Udrea F and Covington JA 2010 *IEEE Sensors* **10** 1833-1848 “CMOS interfacing for integrated gas sensors: a review”
106. 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”
107. 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”

108. 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”
109. **Gardner JW** and Taylor JE 2009 *IEEE Sensors Journal* **9** 929-935 “Novel convolution-based signal processing techniques for an artificial olfactory mucosa”
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111. 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”
112. Sanchez-Montanes MA, **Gardner JW** and Pearce TC 2008 *Proc. Roy. Soc. A*, **464**, 1057-1077 “Spatiotemporal information in an artificial olfactory mucosa”
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268. **Gardner JW** and Vincent TA 2017 *ISOEN, Montreal, Canada, 28-31 May 2017* "Towards point of care human energy expenditure measurement on a hand-held breath analyser"
269. Santra S, De Luca A, Guha PK, Udrea F, **Gardner JW**, Ray SK 2017 *E-MRS Spring Meeting, Strasbourg, France, 22-26 May 2017* "Integration of Au-SnO₂ thick film with power efficient CMOS MEMS substrate for acetone sensing"
270. Gammon PM, Li F, Chan CW, Gity F, Trajkovic T, Kilchytska V, Pathirana V, Udugampola, Ben Ali K, Flandre D, **Gardner JW** and Mawby PA 2017 *EUROSOI 2017, 3-5 April, Athens, Greece* "Design and fabrication of a novel power Si/SiC LDMOSFET for high temperature applications"
271. **Gardner JW** and Vincent TA 2017 *ISOCS Winter School, Sniffphone, Ponte di Legno, Italy, 5-10 March 2017* "Development of a handheld side-stream breath analyser for Point-of-Care metabolic rate measurement"
272. De Luca A, Ali SZ, Hopper RH, Boual S, **Gardner JW**, and Udrea F, *MEMS 2017, Las Vegas, USA, 22-26 January 2017* "Filterless non-dispersive infra-red gas detection: a proof of concept"
273. Invited Paper: **Gardner JW**, Chowdhury MF, Ali SZ, Udrea F 2016 *MiNaB-ICT on Sensing for Smart Anything Everywhere, Otranto, Italy, 25-29 June 2016* "Low cost thermopile for gesture detection"
274. Gammon PM, Li F, Chan CW, Sanchez A, Hindmarsh S, Gity F, Trajkovic T, Kilchytska V, Pathirana V, Camuso G, Ben Ali K, Flandre D, Mawby PA, **Gardner JW** 2016 *11th Euro. Conf. on SiC and Related Materials (ECSCRM 2016), Halkidiki, Greece, 25-29 Sept 2016* "Silicon-on-silicon carbide power devices for harsh environment applications"
275. Gammon P, Chan CW, Gity F, Trajkovic T, Kilchytska V, Fan L, Pathirana V, Camuso G, Udugampola N, Ben Ali K, Flandre D, Mawby PA, **Gardner JW** *ESDC 2016* "Design and fabrication of silicon-on-SiC substrates and power devices for space applications"
276. Thomas S, Cole M, Villa-Lopez FH, **Gardner JW**, Peters J, Theunis J 2016 *IEEE Sensors Conference, Florida, USA, 30 Oct - 2 Nov 2016* "A low-cost acoustic micro-sensors based system-in-package for air quality monitoring"
277. Avramescu V, De Luca A, Brezeanu M, Ali SZ, Udrea F, Buiu O, Cbianu C, Serban, B, **Gardner JW**, Dumitr V, Stratulat A 2016 *ESDERC, Lausanne, Switzerland, 12-15 September 2016* "CMOS compatible SOI micro-hotplate based oxygen sensor"
278. Urasinska-Wojcik B, Vincent TA, **Gardner JW** 2016 *Eurosensors, Budapest, Hungary, 4-7 September 2016* "H₂S sensing properties of WO₃ based gas sensor"
279. Vincent TA, **Gardner JW**, Chappell MJ, Hattersley JG, Wilson A 2016 *Eurosensors, Budapest, Hungary, 4-7 September 2016* "Measurement of energy expenditure on a smartphone using a handheld breath analyser"

280. Chowdhury MF, Hopper R, Ali SZ, **Gardner JW**, Udea F 2016 *Euroensors, Budapest, Hungary, 4-7 September 2016* “MEMS infrared emitter and detector for capnography applications”
281. De Luca A, Ali SZ, hopper R, Boual S, Chowdhury MF, **Gardner JW**, Udea F 2016 *IUMRS-ICEM, Suntec, Singapore, 4-8 July 2016* “CMOS plasmonic devices for non-dispersive infrared gas sensors”
282. **Gardner JW**, Xing Y, Urasinska-Wojcik B, de Luca A, Udea F 2016 *7th Int. Conf. on Metamaterials, Photonic Crystals and Plasmonics (META 2016), Malaga, Spain, 25-28 July 2016* “Design of plasmonic structures in CMOS technology for low-cost enhanced infra-red gas sensors”
283. Vincent TA, Wilson A, Hattersley JG, Chappell MJ, **Gardner JW** 2016 *Int. Work-conf. on Bioinformatics and Biomedical Engineering (IWBBIO), Granada, Spain, 20-22 April 2016* “Development of a hand-held side-stream breath analyser for point of care metabolic rate measurement”
284. Vincent T, Urasinska-Wojcik B, and **Gardner JW** 2015 *Euroensors, Bremen, Germany, Sept. 2015* “Development of a NDIR sensor system for the ppm detection of carbon dioxide in exhaled breath analysis”
285. Vincent T, Wilson A, Hattersley J, Chappell M, and **Gardner JW** 2015 *Int. Symp. Olfaction & Electronic Noses July 2015, Dijon, France* “Design and modelling of a handheld side-stream breath sampling system for metabolic rate analysis”
286. Invited Paper: Chowdhury M, Udea F and **Gardner JW** 2015 *AMA Fourth Scientific Meeting EuNetAir, June 2015, Linkoping University, Sweden* “Benefits of CMOS sensors for environmental monitoring”
287. Chowdhury MF, **Gardner JW**, and Udea F 2015 *EU COST action TD1105, New Sensing Technologies for Air Pollution Control and Environmental Sustainability, Riga, March 2015* “CMOS sensor systems for air quality monitorin
288. Ali SZ, de Luca A, Racz Z, Tremlett P, Wotherspoon T, **Gardner JW**, and Udea F 2014 *IEEE SENSORS 2014, Valencia, Spain 2-5 November 2014* “Low power NDIR CO₂ sensor based on CMOS IR emitter for boiler applications”
289. Villa-López FH, Thomas S, Ludurczak W, Cole M, **Gardner JW** 2014 *IEEE SENSORS 2014, Valencia, Spain 2-5 November 2014* “Finite element modelling of particle sensors based on solidly mounted resonators”
290. Invited Paper: Gardner JW *EU COST Action EuNetAir, Brescia, Italy, 10 September 2014* “Smart sensors in mobile phones for environmental monitoring applications”
291. Santra S, Sinha AK, Ray SK, Ali SZ, Udea F, **Gardner JW** and Guha PK 2014 *Euroensors, Brescia, Italy, 7-10 September 2014* “Room temperature carbon nanotube ammonia sensor on CMOS platform”
292. de Luca A, Cole MT, Hopper RH, Ali SZ, Udea F, **Gardner JW** and Milne WI 2014 *Euroensors, Brescia, Italy, 7-10 September 2014* “SOI CMOS MEMS infra-red thermal source with carbon nanotubes coating”
293. Hopper R, Ali SZ, Chowdhury MF, de Luca A, **Gardner JW** and Udea F 2014 *Euroensors, Brescia, Italy, 7-10 September 2014* “CMOS-MEMS thermopile with an integrated temperature sensing diode for thermometry applications”
294. Vincent TA, Wilson A, Hattersley JG, Chappell MJ and **Gardner JW** 2014 *Euroensors, Brescia, Italy, 7-10 September 2014* “Design and modelling of a portable breath analyser for metabolic rate measurement and respiratory disease investigation”
295. Thomas S, Cole M, de Luca A, Torrisi F, Ferrari AC, Udea F and **Gardner JW** 2014 *Euroensors, Brescia, Italy, 7-10 September 2014* “Graphene-coated Rayleigh SAW resonators for NO₂ detection”
296. Thomas S, Villa-Lopez FH, Ludurczak W, Cole M and Gardner JW 2014 *EMRS, Lille, France, 26-30 May 2014* “Design, modelling and development of low-cost, high-frequency piezoelectric particle sensor”

297. Invited Paper: Chowdhury MF, **Gardner JW**, Udrea F, Ali SZ and Stacey S 2014 2nd *International Workshop EuNetAir, Brindisi, Italy, 25-26 March 2014* “CMOS-based sensors for ubiquitous gas detection: challenges and opportunities”
298. Invited Paper: **Gardner JW** 2014 *International Symposium of Olfaction & Chemical Sensors Winter School, Les Houches, France, 9-14 February 2014* “Electronic noses and their application”
299. Thomas S, Cole M and **Gardner JW** 2013 *Proc. New Sensing Technologies for Air Pollution Control and Environmental Sustainability, 18-20 December, Cambridge* “Particulate matter detection based on acoustic resonators for air quality monitoring”
300. Udrea F, **Gardner JW**, Chowdhury MF, Ali SZ and Poenaru I 2013 *Workshop, Munich, Germany November 2013* “MEMS CMOS broadband mid-infrared source”
301. De Luca A, Racz Z, Cole MT, Ali SZ, Udrea F, **Gardner JW** and Milne WI 2013 *Proc. IEEE Sensors Conference, 3-6 November, Baltimore, USA* “In situ grown carbon nanotubes for enhanced CO₂ detection in non-dispersive infra-red system”
302. Thomas S, Racz Z, Cole M, and **Gardner JW** 2013 *Proc. IEEE Sensors Conference, 3-6 November, Baltimore, USA* “Dual high-frequency surface acoustic wave resonator for ultrafine particle sensing”
303. Ghadar A, **Gardner JW** and Dowson C 2013 *Proc. IEEE Sensors Conference, 3-6 November, Baltimore, USA* “Precision transducer for fluorescence-based immunoassays”
304. Invited Paper: **Gardner JW** 2013 *Proc. ESSDERC, Bucharest, Romania, 16-20 September 2013*, “MEMS and Sensors – emerging technologies and applications”
305. Avramescu V, de Luca A, Brezeanu M., Ali SZ, Udrea F, Buiu O, Cobianu C, Serban B, **Gardner JW** et al 2013 *Proc. ESSDERC, Bucharest, Romania, 16-20 September 2013*, “Resistive oxygen sensor based on CMOS-compatible SOI micro-hotplate”
306. Pearce TC, Karout S, Racz Z, Capurro A, **Gardner JW** and Cole M 2013 *1st International Workshop on Odor Spaces, Hannover, Germany, 4-7 September 2013* “Rapid processing of chemosensor transients in a neuromorphic implementation of the insect macroglomerular complex”
307. Thomas S, Racz Z, Cole M, **Gardner JW** 2013 *Proc. IEEE CENICS, Barcelona, Spain, 25-28 August 2013* “High-frequency One-port Colpitts SAW Oscillator for Chemical Sensing”
308. Plenary Paper: **Gardner JW** *Proc. ISOEN 2-5 July 2013, Korea* “A biomimetic olfactory system: insect-based info-chemical communication”
309. Milne WI, Cole MT, DeLuca A, Ali SZ, **Gardner JW**, Udrea F, Stokes R 2013, *Proc. 7th International Conference on Materials for Advanced Technologies (ICMAT 2013) 30 June to 5 July* “SOI platform for smart microsensors”
310. **Gardner JW** et al. 2013 *Proc. Transducers, Barcelona, Spain, 16-20 June 2013* “Graphene SOI CMOS sensors for detection of ppb levels of NO₂ in air”
311. Invited Paper: **Gardner JW** 2013 *Public lecture at UTM, Malaysia, 28th March 2013* “Bioelectronic microsystems in CMOS”
312. Santra S, Guh PK, Ray SK, Udrea F and **Gardner JW** 5th *International Nanoelectronics Conference, Singapore, 2-4 January 2013* “SOI CMOS integrated zinc oxide nanowire for toluene detection”
313. Cole M, Racz Z, **Gardner JW** and Pearce TC 2012 *Proc. IEEE Sensors conference, 28-31 October 2012, Taiwan, pp2219-2222* “A novel biomimetic infochemical communication technology: from insects to robots”
314. Invited Paper: Udrea F, Ali SZ, Brezeanu M, Dumitru V, Buiu O, Poenaru I, Chowdhury MF, Luca A, **Gardner JW** 2012 *IEEE International semiconductor conference (CAS) 2012, Sinaia, Romania, 15-17 October 2012* “SOI sensing technologies for harsh environment”
315. Garcia-Guzman J, Cole M, **Gardner JW**, Mendoza-Gutierrez 2012 *Proc. Euroensors conference, Poland, 9-12 September 2012* “Multiphysics modelling of a resistive polymeric sensor for VOC”

316. Santra S, Guha PK, Ray SK, Ali SZ, Udrea F, **Gardner JW** 2012 *IEEE Nano 2012 conference, UK, 20-23 August 2012* “Carbon nanotube integration on a fully processed CMOS MEMS wafers and their NO₂ response”
317. Invited Paper: **Gardner JW** 2012 Special session for EU EUNetAir at *IMCS 2012, Nuremberg, German, May 20-23* “New Approaches to Chemical Sensing for Application in Environmental Monitoring”
318. Thomas S, Li Tai Leong S, Rácz Z, Cole M and **Gardner JW** 2012 *IMCS 2012, Nuremberg, German, May 20-23* “Design and Implementation of a High-Frequency Surface Acoustic Wave Sensor Array for Pheromone Detection in an Insect-inspired Infochemical Communication System”
319. Cole M, Thomas S, Racz Z, **Gardner JW**, Jordan M, and Challis J 2012 *Biosensors 2012, Cancun, Mexico, May 15-18* “Cell-based surface acoustic wave sensor with transfected olfactory receptors OR67d and OR22a for a highly specific chemo-receiver”
320. Invited Paper: **Gardner JW** 2012 *Irish Forum on Future of Integrated Sensors, SRC, Dublin, Ireland, March 22-24*, “Microsensors for electronic nose and tongue”
321. **Gardner JW** et al. 2012 *Proc. Biomedical Engineering 2012, Innsbruck, Austria, Feb 15-17*, “Classification of field asymmetric ion mobility spectrometry data for detection of bowel bacteria”
322. **Gardner JW**, Ahmed T, Moseley P, Ali SZ, Chowdhury M and Udrea F 2011 *Proc. Eurosensors XXV, Athens, Greece, September 4-7* “High temperature robust SOI ethanol sensor”
323. Vivanos JL, Racz Z, Cole M, Soto J and **Gardner JW** 2011 *Proc. Eurosensors XXV, Athens, Greece, September 4-7* “Detergents sensing system based on SH-SAW devices”
324. Guha P, Santra S, Covington J, Udrea F and **Gardner JW** 2011 *Proc. Eurosensors XXV, Athens, Greece, September 4-7* “Zinc oxide nanowire based hydrogen sensor”
325. Racz Z, Cole M, **Gardner JW**, Pathak S, Jordan M, and Challiss RA 2011 *Proc. Transducers 11, Beijing, China June 5-9* “Cell-based surface acoustic wave resonant microsensor for biomedical agent detection”
326. Pathak S, Jordan M, Racz Z, Challiss RA, **Gardner JW** and Cole M 2011 *Proceedings of EU FET Conference, May 4-6, Budapest, Hungary* “Detection of ligand-elicited secondary cellular responses using surface acoustic wave biosensors”
327. Karout S, Racz Z, Capurro A, Cole M, **Gardner JW** and Pearce TC 2011 *Proc. 14th Int Symp on Olfaction and Electronic Nose, New York, May 3-5 AIP Conf. Proc. 1362 77-78* “Ratiometric chemical blend processing with a neuromorphic model of the insect macroglomerular complex”
328. Aziz M, Che Harun F, Covington J and **Gardner JW** 2011 *Proc. 14th Int Symp on Olfaction and Electronic Nose, New York, May 3-5 AIP Conf. Proc. 1362 223-224* “Towards an analogue neuromorphic VLSI instrument for the sensing of complex odours”
329. Covington J, Ouaret N, **Gardner JW**, et al. 2011 *Proc. 14th Int Symp on Olfaction and Electronic Nose, New York, May 3-5 AIP Conf.* “Detection and identification of inflammatory bowel disease by electronic nose”
330. Ali SZ, Ho W, Chowdhury F, Covington J, Moseley P, Saffell J, **Gardner JW** and Udrea F 2011 *Proc. 14th Int Symp on Olfaction and Electronic Nose, New York, May 3-5 AIP Conf. Proc. 1362 53-54* “A high temperature SOI CMOS NO₂ sensor”
331. **Gardner JW** and Taylor JE 2011 *Proc. Biomedical Engineering, February 16-18, Innsbruck, Austria* “Novel convolution based signal processing technique for an artificial olfactory mucosa”
332. Garcia-Guzman, **Gardner JW** and Cole M 2010 *Proc. Eurosensors XXIV, September 5-8 2010, Linz, Austria* “A duo-type smart gas sensor ASIC chip for use with resistive materials”
333. Invited Paper: **Gardner JW** 2010 *3rd IBEC Symposium on Bioengineering and Biomedicine, Barcelona, Spain, 9-10 April 2010* “Artificial olfaction: a Warwick perspective”
334. Invited Paper: **Gardner JW** 2010 *EC FP7 COST nanoTP Workshop, Berlin, Germany, 18-19 March 2010* “CMOS based gas sensors: progress and problems”
335. Invited Paper: **Gardner JW** *Proceedings of EC Advanced Workshop on Infochemical Communication, Granada, Spain, 10-11 March 2010* “Smart piezoelectric chemoreceiver”

336. Cole M, **Gardner JW**, Pathak S, Racz Z, Challiss R and Markovic D 2010 *Proceedings of 7th IASTED International Conference on Biomedical Engineering, Innsbruck, Austria, 17-19 Feb, 2010*, pp.195-201 ISBN: 978-0-88986-826-7 “Cell-based acoustic sensors for biomedical applications”
337. Covington JA and **Gardner JW** 2009 *Olfaction and Electronic Nose: Proceedings of the 13th International Symposium*, edited by M. Pardo and G. Sberveglieri, American Institute of Physics 978-0-7354-0674-2/09 “Carbon nanomaterial polymer composite ChemFET and chemoresistors for vapour sensing”
338. Taylor JE, Che Harun FK, Covington JA, and **Gardner JW** 2009 *Olfaction and Electronic Nose: Proceedings of the 13th International Symposium*, edited by M. Pardo and G. Sberveglieri, American Institute of Physics 978-0-7354-0674-2/09 “Applying convolution-based processing methods to a dual-channel, large array artificial olfactory mucosa”
339. Udrea F, Santra S, Guha PK, Ali SZ, Covington JA, Milne WI, **Gardner JW**, Maeng S 2009 *Olfaction and Electronic Nose: Proceedings of the 13th International Symposium*, edited by M. Pardo and G. Sberveglieri, American Institute of Physics 978-0-7354-0674-2/09 “Nanotubes and nanorods on CMOS substrates for gas sensing”
340. Santra S, Ali SZ, Guha PK, Hirala P, Unalan HE, Dala SH, Covington JA, Milne WI, **Gardner JW**, Udrea F 2009 *Olfaction and Electronic Nose: Proceedings of the 13th International Symposium*, edited by M. Pardo and G. Sberveglieri, American Institute of Physics 978-0-7354-0674-2/09 “CMOS alcohol sensor employing ZnO nanowire sensing films”
341. Cole M, **Gardner JW**, Racz Z, Pathak Guerrero SA, Muñoz L, Carot G, Pearce TC, Challiss J, Markovic D, Hansson BS, Olsson S, Kübler L 2009 *Proceedings of IEEE Sensors Conference*, 978-1-4244-5335-1/09 “Biomimetic insect infochemical communication system”
342. Ali SZ, Santra S, Haneef I, Schwandt C, Kumar RV, Milne WI, Udrea F, Guha PK, Covington JA, **Gardner JW** 2009 *Proceedings of IEEE Sensors Conference*, 978-1-4244-5335-1/09 “Nanowire hydrogen gas sensor employing CMOS micro-hotplate”
343. Iwaki T, Covington JA, **Gardner JW**, Udrea F 2009 *Proceedings of Transducers, Denver, CO, USA, June 21-25, 2009*, pp592-592 “Novel dual transient temperature modulation technique for multi-vapour detection”
344. Cole M, **Gardner JW**, Pathak S, Pearce TC, Racz Z 2009 *Procedia Chemistry* **1** 305-308, Proceedings of the Eurosensors XXIII conference, Lausanne “Towards a biosynthetic infochemical communication system”
345. Che Harun FK, Covington JA, **Gardner JW** 2009 *Procedia Chemistry* **1** 911-915, Proceedings of the Eurosensors XXIII conference, Lausanne “Portable e-Mucosa System: Mimicking the biological olfactory”
346. **Gardner JW**, Nadarajan S and Kimber P, *Proceedings 6th IASTED International Conf Biomedical Engineering*, 13-15 February 2008, Austria, pp145-150, ISBN:978-0-88986-721-5 “Modelling and measurement of odour transportation within the human nasal cavity”
347. Invited Paper: **Gardner JW**, Southampton Electrochemistry Society, 7-8 April 2008 “The electronic nose; the early days”
348. Che Harun FK, Taylor JE, Covington JA and **Gardner JW** *Proceedings 12th International Meeting on Chemical Sensors*, 13-16 July 2008, Ohio, 296-297 “Dual channel odour separation columns with large chemosensor arrays for advanced odour discrimination”
349. Leonte I, Cole M and **Gardner JW** *Proceedings Eurosensors XXII*, 7-10 September 2008, Germany, pp558-561 “Multivariate analysis of SH-SAW based e-tongue sensors”
350. Santra S, Guha PK, Ali SZ, Haneef I, Udrea F, and **Gardner JW**, "SOI Diode Temperature Sensor Operated at Ultra High Temperatures – A Critical Analysis," *Proceedings of the 7th IEEE Conference on Sensors*, 26-29 October, Lecce, 2008, pp. 78-81.
351. Cole M, Leonte II, **Gardner JW**, and Hesketh P, "Identification of taste solutions and their binary mixtures using SH-SAW resonator-based taste sensor," *Proceedings of the 7th IEEE Conference on Sensors*, 26-29 October, Lecce, 2008, pp. 1556-1559.

352. Invited Paper: Udrea F, Santra S and **Gardner JW**, “CMOS temperature sensors – concepts, state-of-the-art and prospects” *Proceedings of IEEE Conference CAS*, 13-18 October, Romania, 2008, pp31-40.
353. Udrea F, Ali SZ and **Gardner JW**, “CMOS micro-hotplate array design for nanomaterial-based gas sensors” *Proceedings of IEEE Conference CAS*, 13-18 October, Romania, 2008, pp143-146.
354. Best Poster Award: Santra S, Ali SZ, Guha PK, Udrea JW, Gardner JW and Milne WI “Carbon nanotube gas sensor integrated on CMOS substrate” *Cambridge CNT Symposium*, 11 December, Cambridge, 2008.
355. **Gardner JW**, Covington JA, Tan SL and Pearce TC *GOSPEL Workshop on Bio-inspired Signal Processing, Barcelona, Spain, 24-26 January 2007*, “A biologically-inspired artificial olfactory mucosa”
356. **Gardner JW**, Apostolidou A, Cole M, Dowson C, Edmunds S, and Sehra G, *Proc. Biomedical Engineering 2007*, Austria, Feb 2007. “Towards a low-cost optical biosensor system for biomedical immunoassay applications”
357. Cole M, Mutukwa SS, Briand D, de Rooij NF and **Gardner JW** *Proceedings of ISOEN, St. Petersburg, Russia, 3-5 May 2007* “SH-SAW dual delay line based e-tongue system with improved discrimination capabilities”
358. **Gardner JW**, Tan SL, Covington JA and Pearce TC, *Technical Digest of Transducers and Eurosensors 2007*, pp 2465-2467, Lyon, France, June 10-14, 2007 “Enhanced discrimination of complex odours based upon spatio-temporal signals from a micro-mucosa”
359. **Gardner JW** and Taylor JE, *Technical Digest of Transducers and Eurosensors 2007*, pp 2473-2476, Lyon, France, June 10-14, 2007 “Novel convolution based signal processing techniques for a simplified artificial olfactory mucosa”
360. Tan SL, Covington JA, **Gardner JW** and Pearce TC, *AsiaSim 2007, Seoul, Korea, October 10-12, 2007* “Finite element simulation of biomimetic olfactory microsystem for spatio-temporal signal generation”
361. Iwaki T, Covington JA and **Gardner JW**, *Proc. of IEEE Sensors 2007 conference*, pp 1229-1232, Atlanta, USA, October 28-21, 2007 “Identification of vapours using a single carbon black/polymer composite sensor and a novel temperature modulation technique”
362. Che Harun FK, King PH, Covington JA and **Gardner JW**, *Proc. of IEEE Sensors 2007 conference*, pp 1361-1363, Atlanta, USA, October 28-21, 2007 “Novel gas chromatographic microsystem with very large sensor arrays for advanced odour discrimination”
363. Udrea F, Maeng S, **Gardner JW** et al., *Proc. of IEEE Electron Devices Meeting*, pp 831-834, Washington DC, USA, December 9-12, 2007 “Three technologies for a smart miniaturized gas sensor: SOI CMOS, micromachining and CNTs – challenges and performance”
364. **Gardner JW**, Beeby L, Chappell M, Udrea F, Yates J and Dowson CG, *Proc. of the 24th IASTED International Multi-conference Biomedical Engineering*, 15-17 Feb. 2006, “Identification of staphylococcus aureus infections by volatile chemical headspace analysis”
365. Invited Paper: **Gardner JW**, CAPE lecture series, University of Cambridge, UK, 31 March 2006, “Microsensors and MEMS for chemical and biological detection”
366. 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”
367. 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”
368. Keynote Paper: **Gardner JW**, *Eurosensors XX, Gothenberg, Sweden, Sept. 2006*. “Technologies for chemical sensors and microsystems”
369. **Gardner JW**, Covington JA, Tan SL, and Pearce TC, *Eurosensors XX, Gothenberg, Sweden, Sept. 2006*. “A biologically inspired artificial olfactory mucosa”

370. Guha PK, Ali SZ, Udrea F, Milne WI, Iwaki T, Covington JA and **Gardner JW**, *Euroensors XX, Gothenberg, Sweden, Sept. 2006*. “Novel design and characterisation of SOI CMOS micro-hotplates for gas sensors”
371. Khawaja J, Cole M, **Gardner JW**, *Euroensors XX, Gothenberg, Sweden, Sept. 2006*. “Gold nanoparticle CMOS sensor for VOC detection”
372. 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”.
373. 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”
374. **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”
375. 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”
376. Acevedo J, Maldonado S, Al-Khalifa S, Gil P, and **Gardner JW**, *11th International Symposium on Olfaction and Electronic Noses, Barcelona, Spain, 13-15 April 2005* “Design of a programmable, portable low cost electronic nose”
377. Pardo M, Sberveglieri G and **Gardner JW**, *11th International Symposium on Olfaction and Electronic Noses, Barcelona, Spain, 13-15 April 2005* “Benchmarking feature selection for e-noses”
378. Invited Paper: **Gardner JW**, *IEE Seminar on MEMS Sensor Technologies, London, UK 25 April 2005*, “Smart tongue”
379. 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”
380. 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 micro-heaters for high temperature gas sensors”
381. Leonte I, Sehra G, Cole M, Hesketh P and **Gardner JW**, *Proc. of Euroensors XIX, Barcelona, Spain, 11-14 Sept. 2005* “High frequency SH-SAW devices for liquid sensing”
382. Pardo M, Sberveglieri G and **Gardner JW**, *Proc. 4th IEEE Conf. on Sensors, Irvine, California, USA, Oct. 31 – 3 Nov. 2005*, “Feature selection for high dimensionality data in chemical sensing”
383. Cole M, **Gardner JW**, Leonte I, Sehra G, Noh HS and Hesketh PJ, *Proc. 4th IEEE Conf. on Sensors, Irvine, California, USA, Oct. 31 – 3 Nov. 2005*, “Voltage modulated SAW microtrap system: smart assaying of biomaterials”
384. 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”
385. **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”
386. Invited Tutorial: **Gardner JW**, *3rd NOSE Short Course on Fundamentals of Signal and Data Processing, 21-26 March 2004*. “Feature selection techniques”
387. Sun MC, Chetwynd DG, and **Gardner JW**, *Proc. of Euspen 2004, Glasgow, Scotland, May-June 2004* “A simple microtensometer for polymeric microparts”
388. 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”.

389. 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”
390. 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”
391. Invited Paper: **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”
392. Invited Paper: **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”
393. 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”
394. 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”
395. 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”
396. 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”
397. 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”
398. **Gardner JW**, Boilot P, and Hines EL, *Proc. ISOEN, Latvia, 25-27 June 2003*. “Enhancing e-nose performance by data fusion and sensor selection”
399. 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”
400. **Gardner JW**, Covington JA, Shaw G, Parkin I, and Udrea F, *Proc. Eurosensors XVII, Portugal, 21-24 September 2003*. “SOI gas sensors with low temperature CVD films”
401. Sehra G, Cole M and **Gardner JW**, *Proc. Eurosensors XVII, Portugal, 21-24 September 2003*. “Miniature taste sensing system based on dual SAW sensor device”
402. Tamadoni R, Bartlett PN, Chetwynd DG, and Gardner JW, *Proc. Eurosensors XVII, Portugal, 21-24 September 2003*. “Investigation of a conducting polymer O-ring seal for microvalves”
403. Invited Paper: **Gardner JW**, *Nato Advanced Research Workshop on Electronic Noses and Explosive Detection, Coventry, 1-2 October 2003*. “Review of electronic nose technology”
404. 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”
405. Invited Tutorial: **Gardner JW**, *IEEE Sensors 2003 Conference, Canada, 22-24 October 2003*. “Electronic Noses: towards a nose-on-a-chip”
406. Invited Talk: **Gardner JW**, Georgia Institute of Technology, Atlanta, USA, September 2003. “Biosensors, Electronic Noses and Electronic Tongues”
407. 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”
408. Invited Paper: **Gardner JW** *Ist NOSE II Short Course, 24 Feb - 1 Mar, 2002*, “Applications of electronic noses”

409. Invited Paper: **Gardner JW** *Ist NOSE II Short Course, 24 Feb - 1 Mar, 2002*, “Market aspects”
410. Government report: *A Strategic Framework for 2015, Foresight Publication, DTI, March 2002*. DTI Pub 6030/3k/03/02/NP. URN 02/808
411. **Gardner JW** *Public Consultation Document, DTI Conference Centre, 14 March 2002*, “Sensors for trends for monitoring the environment, industrial health and safety”
412. 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”
413. 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”
414. 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”.
415. 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”.
416. Invited Paper: **Gardner JW**, Cole M, Udrea F *Proc. IEEE Sensors 2002, Florida, 12-14 June 2002*, “CMOS gas sensors and smart devices”.
417. 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”.
418. 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”.
419. 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”.
420. 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”.
421. Keynote Paper: **Gardner JW** *Proc. 9th Int. Meeting on Chemical Sensors, Boston, 7-10 July 2002*, “Electronic noses: from macro to nano scaled devices”.
422. Cole M, Guzman G and **Gardner JW** *Proc. Eurosensors XVI, Prague, September 2002*, “Smart ratiometric ASIC chip for a palm-top VOC monitor”.
423. Lu CC, Covington JA, Udrea F, **Gardner JW** *Proc. Eurosensors XVI, Prague, 15-18 September 2002*, “Electro-thermal characterisation of high-temperature smart gas sensors in SOI technology”.
424. Sehra G S, Covington JA, Cole M, and **Gardner JW** *Proc. 9th 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”.
425. Invited Paper: **Gardner JW** *Proc. NOSE II Workshop, Rome, 3-4 October 2002*, “An overview of the electronic nose market”.
426. Invited Talk: **Gardner JW** *Cambridge Physical Society Seminar Series, Cavendish Laboratory, Cambridge, UK, November 2002*, “Electronic noses: from macroscale to nanoscale devices”
427. **Gardner JW** *Advances in Sensor Technologies Symposium, Warwick University, February 2001* “Advances in Microsensors and MEMS”
428. Invited Talk: **Gardner JW**, *Electrochemical Seminar, Southampton University, March 2001*, “Micromachined structures for chemical applications”
429. 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”.
430. 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”

431. Fang Q, Chetwynd DG and **Gardner JW** 2nd *Euspen Conference, May, 2001* “Tensile properties of conducting polymer fibres”
432. 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”
433. **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”
434. **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”
435. Keynote Paper: **Gardner JW** and Cole MV 5th *Int. Conf. on Breath Odor, Tokyo, 1-2 July 2001* “Medical applications of electronic nose technology”
436. Invited Paper: Varadan VK and **Gardner JW** 8th *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”.
437. 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”
438. 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”
439. Searle GE, **Gardner JW**, Chappell M, Godfrey KR and Chapman MJ 12th *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”
440. Covington JA, **Gardner JW** and Briand D 8th *Int. Conf. on Chemical Sensors, Basel, Switzerland, 3-5 July, 2000* “A polymer gate FET sensor array for detecting organic vapours”
441. Covington JA, **Gardner JW**, Toh C, Bartlett PN, Briand D and de Rooij NF 7th *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”
442. 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, 8th *Int. Conf. on Chemical Sensors, Basel, Switzerland, 3-5 July 2000* “A cabin air analyser for automotive application”
443. Llobet E, Rubio J, Vilanova X, Brezmes J, Corrieg X, **Gardner JW** and Hines EL, 8th *Int. Conf. on Chemical Sensors, Basel, Switzerland, 3-5 July 2000* “Electronic nose simulation tool centred on PSPICE”
444. de Matos R, Dow CS and **Gardner JW** 7th *Int. Symposium on Olfaction and Electronic Noses, Brighton, UK, 20-24 July 2000* “Investigation of the growth characteristics of E. coli using headspace”
445. Boilot P, Hines EL, **Gardner JW**, Hero M, Fink C, Mitchell J and Spencer J 7th *Int. Symposium on Olfaction and Electronic Noses, Brighton, UK, 20-24 July 2000* “Detection of bacteria causing eye infection using an electronic nose”
446. Cole M, **Gardner JW**, Covington JA, Fife D, Kwok CY, Brignell JE and Bartlett PN 14th *European Conference on Solid-state Transducers, Copenhagen, Denmark, August 27-30, 2000* “Active bridge polymeric resistive device for vapour sensing”
447. Udrea F, Setiadi D, **Gardner JW**, Covington JA, Dogaru T and LU CC 14th *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”
448. Cole M, **Gardner JW**, Brignell JE and Bartlett PN 6th *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”

449. Lee SM, **Gardner JW**, Dyer DC, Bartlett PN and Tan YM 6th Joint Warwick-Tokyo Nanotechnology Symposium, Coventry, UK, 18-21 September 2000 “Silicon planar pellistor employing nanostructured films and a micro-hotplate”
450. Invited Paper: Varadan VK and **Gardner JW** *Proc. SPIE on Smart Electronics and MEMS, Newport Beach, USA, March 1999* “Smart tongues and smart noses”
451. **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”
452. **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”
453. 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”
454. 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”
455. **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”
456. Shin HW, **Gardner JW**, Hines EL and Dow CS, *International Symposium on Olfaction & Electronic Noses, Tübingen, Germany, 20-2 September 1999* “Classification of toxicity and growth of cyanobacteria in water with an electronic nose”
457. Singh S, Hines E L and **Gardner JW** *Proc. 3rd Int. Conf. on Artificial Neural Networks and Genetic Algorithms, 1998 Wein, Springer 537-540* “Classifier Systems based on possibility distributions: a comparative study”
458. **Gardner JW** 9th CIMTEC, Florence, Italy, June 1998 “Pattern recognition in gas sensing”
459. Ingleby P, **Gardner JW**, 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”
460. Cole M, **Gardner JW**, 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”
461. Hatfield J, Covington JA and **Gardner JW** *Proc. of Int. Conf. on Chemical Sensors, Beijing, June, 1998* “GasFETs incorporating conducting polymers as gate materials”
462. **Gardner JW** *Proc. 5th Int. Symp. on Electronic Noses, Baltimore, USA., 27-30 Sept., 1998* “An electronic nose to diagnose illness”
463. Invited Talk: **Gardner JW** *South East Midlands branch of Institution of Agricultural Engineers, Silsoe, 3 March 1997* “Electronic noses: fabrication and application”
464. 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”
465. Shin H W, Lloyd C and **Gardner JW** *Proceedings of Transducers '97, Chicago, 16-19 June 1997, pp. 935-938* “Combined resistive and calorimetric sensing of gases using a single micromachined device”
466. **Gardner JW**, 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”
467. Scivier P K, White N M, Brignell J E, **Gardner JW** and Vidic M M *Proc. Eurosenors XI, Warsaw, Poland, 21-24 September 1997* “Pulsed current analog CMOS ASIC excitation of polymer-based gas sensors”
468. **Gardner JW** 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”

469. Invited Paper: **Gardner JW** *Proc. of 3rd East Asian Conf. on Chemical Sensors, Seoul, Korea, 5-6 November 1997* “Diagnosing illness with an electronic nose”
470. Shin H W and **Gardner JW** *Proc. of 3rd East Asian Conf. on Chemical Sensors, Seoul, Korea, 5-6 November 1997* “A combined resistive and calorimetric gas sensor”
471. 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”
472. 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”
473. Invited Paper: **Gardner JW**, *The Institute of Physics Annual Congress, 23-25 April 1996, Telford, UK* “Chemical and biological silicon sensors”
474. Bartlett P N, Elliott J and **Gardner JW**, *Euroanalysis IX, 1-7 Sept. 1996, Bologna, Italy* “Applications of, and developments in, machine olfaction”
475. Ingleby P, Covington J, **Gardner JW** and Bartlett P N *10th European Conference on Solid-state Transducers (Euroensors X), Leuven, Belgium, 9-11 September 1996* “Dual resistance-mass polymeric sensor for improved gas sensing”
476. Dyer DC and **Gardner JW** *10th European Conference on Solid-state Transducers (Euroensors X), Leuven, Belgium, 9-11 September 1996* “High precision interface for a hybrid electronic nose”
477. 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”
478. 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”
479. Invited Paper: **Gardner JW** *3rd International Symposium on Olfaction & Electronic Noses, Miami, Florida, 3-6 November 1996* “Electronic nose technology: present & future”
480. **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”
481. 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?”
482. Invited Paper: **Gardner JW** *10th Colloquium of Gas Analysis & Sensing Group, 16-17 December 1996, Swansea* “New electronic noses”
483. **Gardner JW** *1995 IEMRS 1995 Spring Meeting, Strassbourg (France) May 22-26, 1995 Symposium A, Microstructuring and Microsensors.* “Application of conducting polymer technology in Microsensors”
484. Welham CJ, **Gardner JW** and Greenwood J *Technical Digest of Transducers '95-Euroensors IX, Stockholm, Sweden, 25-29 June 1995* “A laterally driven micromachined resonant pressure sensor”
485. **Gardner JW** and Bartlett PN *Technical Digest of Transducers '95-Euroensors IX, Stockholm, Sweden, 25-29 June 1995* “Performance definition and standardisation of electronic noses”
486. **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”
487. 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”
488. **Gardner JW** and Bartlett PN *2nd International Symposium on Olfaction & Electronic Noses, Toulouse, France, 2-3 October 1995* “Microinstrumentation for odour sensing”
489. 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”

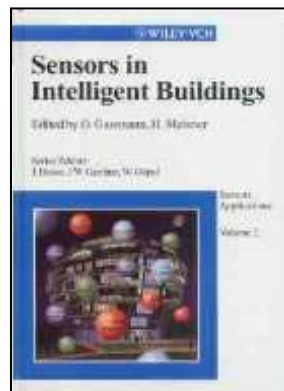
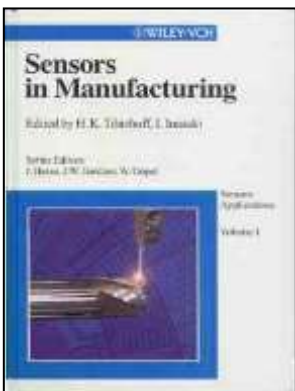
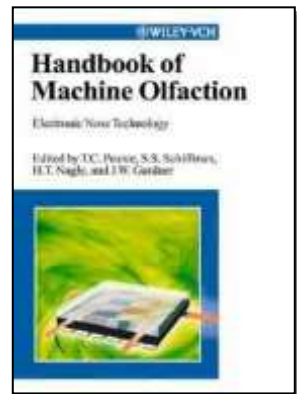
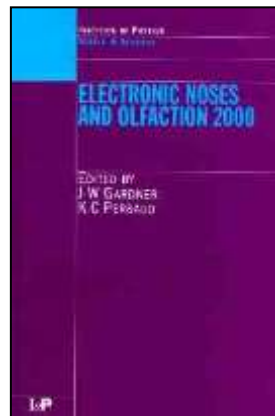
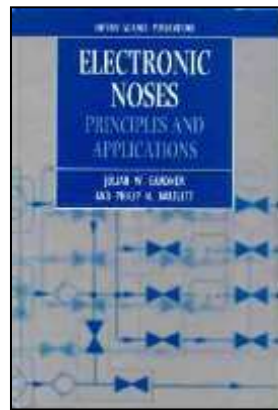
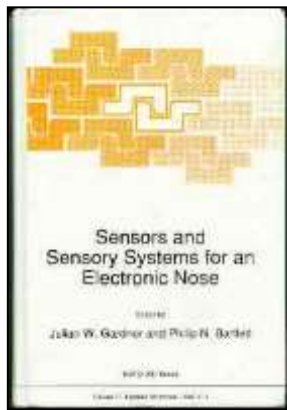
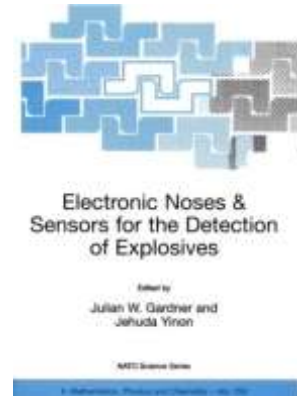
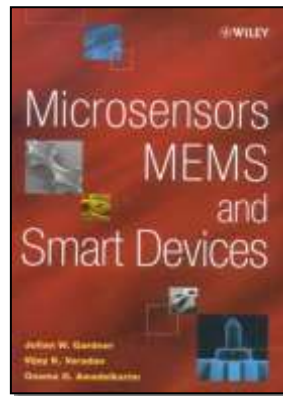
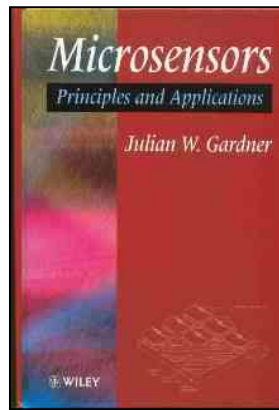
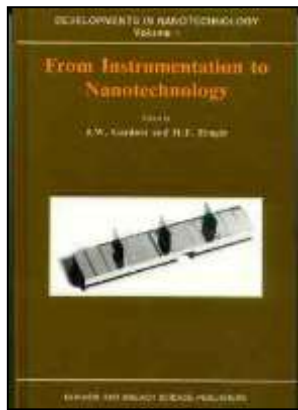
490. Pearce TC, **Gardner JW**, and Goepel W *2nd International Symposium on Olfaction & Electronic Noses, Toulouse, France, 2-3 October 1995* “Olfaction and electronic noses in flavour analysis”
491. Bartlett PN, Beriet C, Chetwynd DG, **Gardner JW**, and Liu X *Proc. Leeds, UK, September 1995* “Tribological properties of conducting polymer films for application in nanotechnology”
492. 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”
493. Invited Paper: **Gardner JW**, 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”
494. Craven M A, Hines E L, **Gardner JW**, 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* “Bacteria detection and classification using artificial neural networks in conjunction with an electronic nose”
495. Gardner JW 1994 *Warwick-Tokyo Conference, Warwick, England, 19-23 September 1994* “Nanoparticle films for reliable semiconducting oxide gas sensor array devices”
496. Holmberg M, Winquist F, Lundstrom I, Hines E L and **Gardner JW** 1994 *Euroensors VIII, Toulouse, France, 25-28 September 1994* “Identification of paper quality with an electronic nose”
497. Craven MA, Hines, **Gardner JW**, Horgan P, Morgan D, and Ene IA 1994 *Proceedings of 2nd Int. Congress on Intelligent Techniques and Soft Computing, Aachen, Germany September 20-23 1994* 768-774 pp. “Application of an artificial neural network based electronic nose to the classification of bacteria”
498. **Gardner JW** 1994 *Euroensors VIII, Toulouse, France, 25-28 September 1994* “Intelligent gas sensing using an integrated sensor pair”
499. **Gardner JW**, Pike A, de Rooij N F, Koudelka-Hep M, Clerc P A, Hierlemann A and Göpel W 1994 *Euroensors VIII, Toulouse, France, 25-28 September 1994* “Integrated polymer array sensor for detecting organic solvents”
500. Invited Paper: **Gardner JW** 1994 *Proceedings of 1st Int. Symposium on Olfaction & Electronic Noses, Toulouse, France, 26-27 September 1994* “Electronic nose technology today”
501. Elliot-Martin R, Bartlett P N and **Gardner JW** 1994 *Proceedings of 1st Int. Symposium on Olfaction & Electronic Noses, Toulouse, France, 26-27 September 1994* “Monitoring of breath odour in dairy cattle”
502. Udrea F, **Gardner JW**, Tan T and Pearce T 1994 *17th Edition of Annual Semiconductor Conference, Sinaia, Romania, 11-16 October 1994* “Design of a silicon sensor array for gas analysis”
503. Fekadu A A, Hines E L and **Gardner JW** 1993 *Int. Conf. on Neural Nets & Genetic Algorithms, Innsbruck, Austria, April 1993* “Neural tree network based electronic nose”
504. Fekadu A A, Hines E L and **Gardner JW** 1993 *Int. Conf. on Neural Nets & Genetic Algorithms, Innsbruck, Austria, April 1993* “Genetic algorithm design of neural net based electronic nose”
505. Mason J D, Hines E L and **Gardner JW** 1993 *Int. Conf. on Neural Nets & Genetic Algorithms, Innsbruck, Austria, April 1993* “Analysis of electronic nose data using neural networks”
506. Mason J D, Hines E L and **Gardner JW** 1993 *Workshop on Computing with Logical Neurones, York University, 6-7 April 1993* “Analysis of electronic nose data using weightless neural networks and genetic algorithms”
507. **Gardner JW** 1993 *Sensors for Laboratory and On-line Analysis, Manchester, UK, 28-29 April 1993* “Tin oxide and polymer semiconductor sensor systems for laboratory or on-line gas and odour detection”
508. Bartlett P N and **Gardner JW** 1993 *15e Colloque Scientifique International sur la Cafe, Montpellier, France, 6-11 June 1993* “Electronic Noses - principles, applications and outlook”
509. **Gardner JW** 1993 *Focus on Micromechanics, IOP Meeting, University of Warwick, UK, 8-9 June 1993* “Micromachining of integrated gas microsensors systems”

510. **Gardner JW** 1993 *Proceedings of 11th National Symposium on Olfaction and Taste, Sapporo, Japan, July 12-16 1993* “Intelligent ChemSADs for artificial odour-sensing of beers and lagers”
511. Herwaarden A W, Sarro P M, **Gardner JW** and Bataillard P 1993 *Technical Digest of Transducers '93, Yokohama, Japan, June 1993* “Microcalorimeters for (bio)chemical measurements in gases and liquids”
512. Tan T T, **Gardner JW**, Farrington J F and Bartlett P N 1993 *EPMS '93, Sheffield, August 1993* “Current-voltage characteristics of evaporated and electroplated metal polypyrrole junctions”
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514. Larkin A B, Hines E L, Thomas S M and **Gardner JW** 1993 Workshop on Neural Network Applications, Liverpool, 13-14 September 1993 “Supervised learning using the vector memory array method: a novel neural network”
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