

FULL LIST OF PUBLICATIONS

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(H-index of 72, i10-index 240 & 22,106 citations from Google Aug 2023)

I. BOOKS, EDITED BOOKS & BOOK CHAPTERS

1. Book chapter: Guha P, Santra S and **Gardner JW** (2020) in *Semiconductor Gas Sensors 2nd edition* (Eds. R. Jaaniso et al.), Ch 15 pp465-487, Woodhead Publishing. “Integrated CMOS-based sensors for gas and odour detection” ISBN: 9780081025598
2. Book chapter: **Gardner JW** and Guha P (2020) in *Advanced Nanomaterials for Inexpensive Gas Microsensors*, Llobet (Ed) Ch7, pp125-141. Advanced Nanomaterials Series, Elsevier “CMOS based resistive and FET devices for smart gas sensors”
3. 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”
4. 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
5. 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”
6. 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”
7. 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”
8. 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?”
9. Book chapter: Pearce TC, Sanchez-Montanes MA and **Gardner JW** 2009, *Springer series, Ch5, pp75-92*, “Improved odour detection through imposed biomimetic temporal dynamics”
10. 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
11. 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.
12. 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.
13. 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.
14. 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"
 15. 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).
 16. 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.
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 18. 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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 27. 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.
 28. Book chapter: **Gardner JW** and Chetwynd DG 2001" in *Metrology and Properties of Engineering Surfaces*, eds E Mainsah, JA Greenwood, DG Chetwynd, Kluwer Academic Publishers, London, Ch 11, pp361-386, ISBN 0-412-80640-1, "Thin-film conducting polymer bearings".
 29. Book chapter: Al-Khalifa S, **Gardner JW** and Maldonado-Bascón S 2001 in *Sensors and their Applications XI*, (Eds K.T.V. Grattan & S.H. Khan), Series in Sensors, (Series Ed. B.E. Jones), IOP Publishing, Bristol, pp.103-108, ISBN 0-7503-0821-4. "Rapid multicomponent analysis using a thermally-modulated resistive gas microsensor and a discrete wavelet transform".
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34. Book chapter: Covington JA, **Gardner JW**, Toh C, Bartlett PN, Briand D and de Rooij NF 2000 in **Gardner JW and Persaud KC (eds.)** *Electronic Noses and Olfaction*, IOP Publishing Ltd, Bristol, pp35-42, ISBN 0-7503-0764-1. “Characterisation of an electrodeposited conducting polymer FET array for vapour and odour sensing”.
35. Book chapter: Boilot P, Hines EL and **Gardner JW** 2000 in *Sensors Update*, vol. 8, Wiley-VCH Verlag GmbH, Weinheim, pp.73-94, ISBN 3-527-30258-1 “Knowledge extraction from electronic nose data sets using hybrid neuro-fuzzy systems”.
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41. Book chapter: Pike AC, Welham CJ and **Gardner JW** 1998 *McGrawHill Yearbook of Science and Technology* “Microsensors”
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44. 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”
45. Book chapter: **Gardner JW** and Hines EL 1996 in *Handbook of Biosensors: Medicine, Food & the Environment* (ed. E. Kress-Rogers) "Pattern analysis techniques" Ch. 27 pp633-652
46. Book chapter: Bartlett PN, Beriet C, Chetwynd DG, **Gardner JW** and Liu X 1996 in *The Mechanics of Thin Film Coatings* (eds. PH Gaskell, MD Savage and JL Summers), World Scientific, Singapore “Tribological properties of conducting polymers for application in Nanotechnology”
47. Book chapter: **Gardner JW** and Pike A 1995 in *Sensors and their Applications VII*, ed. AT Augousti, IOP Publishing, Bristol, pp58-59, “Nanoengineered dual sensor device for intelligent monitoring of gases”
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49. Authored book: **Gardner JW** (1994) *Microsensors: Principles and Applications*, J. Wiley & Sons Ltd, Chichester, pp 320. ISBN 0-471-94135-2.
50. 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"
51. Book chapter: Hines EL, Gianna CC and **Gardner JW** 1993 *Neural Networks: Techniques & Applications* eds. PJ Lisboa and MJ Taylor (Ellis Horwood) Ch. 8 "Neural network based electronic nose using constructive algorithms"
52. 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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54. Book chapter: Bartlett PN and **Gardner JW** 1992 in *Sensors & Sensory Systems for an Electronic Nose* eds. J W Gardner and P N Bartlett (Dordrecht: Kluwer Academic Publishers) NATO ASI Series E: Applied Science **Vol. 212** Ch. 4 pp. 31-52 "Odour sensors for an electronic nose"
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56. Book chapter: Olafsson R, Martinsdottir E, Olafsdottir G, Sigfusson TI and **Gardner JW** 1992 in *Sensors & Sensory Systems for an Electronic Nose* eds. J W Gardner and P N Bartlett (Dordrecht: Kluwer Academic Publishers) NATO ASI Series E: Applied Science **Vol. 212** Ch. 15 pp. 257-272 "Monitoring of fish freshness"
57. 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"
58. 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"
59. 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"
60. Book chapter: Corcoran P, Shurmer HV and **Gardner JW** 1991 in *Sensors: Systems & Their Applications* ed. KV Grattan (Bristol: Adam Hilger) pp. 99-105 "Technological aspects of the design and performance of metal oxide odour sensors"
61. 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"
62. Book chapter: **Gardner JW** and Bartlett PN 1991 in *Advances in Nanoscale Physics Electronics and Engineering Series: Nanotechnology* eds. DJ Whitehouse and K Kawata (London: Adam Hilger) pp. 19-32 "Potential applications of electropolymerised thin organic films in nanotechnology"
63. Edited book: **Gardner JW** and Hingle HT (1991) *From Instrumentation to Nanotechnology*, Gordon and Breach Science Publishers, Philadelphia, pp336. ISBN 2-88124-794-6.
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65. 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"

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67. Thesis: **Gardner JW** 1983 *Charging of grains in discontinuous metal films*, PhD Thesis, University of Cambridge, UK.

II. REFEREED JOURNAL ARTICLES

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69. Zhou B, Cheng Q, Chen Z, Liang D, Munro E, Yun G, Kawaii Y, Chen J, Xiao M, Matsumoto H, Padmanathan K, Yang L, Occhipinti L, **Gardner JW**, SU B, Hasan T 2023 *Nature Communications* “Generalising Murray’s law for synthetic structure” Submitted.
70. Wardana I, Fahmy S, **Gardner JW** 2023 *IEEE Sensor Letters* “TinyML models for a low-cost air quality monitoring device”. Submitted.
71. Wardana I, **Gardner JW** and Fahmy S 2023 *IEEE Trans Inst Meas* “Collaborative learning at the edge for air pollution prediction”. Submitted.
72. Gardner E, **Gardner JW**, Udrea F 2023 *Sensors* **23** 681 “Micro-machined thermal gas sensors – a review”.
73. Wardana I, **Gardner JW** and Fahmy SA 2022 *Neural Computing & Applications* **34** pp.16129-16154 “Estimation of missing air pollution data using a spatiotemporal convolutional autoencoder”
74. Specht JP, Esfahani S, **Gardner JW** 2022 *IEEE Trans on Instrumentation and Measurement* **71** “Thermally modulated CMOS-compatible particle sensor for air quality monitoring”
75. Wardana I, **Gardner JW**, Fahmy S 2021 *Sensors* **21** 1064 “Optimising deep learning at the edge for accurate hourly air quality prediction”
76. Popa D, Hopper R, **Gardner JW** and Udrea F 2021 *Nature Scientific Reports* **11** “A highly stable, nanotube-enhanced CMOS-MEMS thermal emitter for mid-IR gas sensing”
77. Specht JP, Esfahani S, **Gardner JW** 2021 *IEEE Sensors Journal* **21** “AlN FBAR particle sensor with a thermophoretic sampling mechanism”
78. Wardana I, **Gardner JW**, Fahmy S 2021 *Sensors* **21** 1064 “Optimising deep learning at the edge for accurate hourly air quality prediction”
79. Esfahani S, Rollins P, Specht J, Cole M, **Gardner JW** 2020 *IEEE Sensors* “Smart city battery operated indoor air quality monitoring system”
80. Esfahani S, Shanta M, Specht J, Xing Y, Cole M and **Gardner JW** 2020 *IEEE Sensors* “Wearable IoT electronic nose for urinary incontinence detection”
81. Esfahani S, Specht J, Jolly G, Cole M, **Gardner JW** 2020 *MDPI Proceedings* **56** 11 “Solidly mounted resonators for biomedical applications”
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83. Xing Y, Urasinska-Wojcik, **Gardner JW** 2019 *Sens. Act. B* “Plasmonic enhanced CMOS non-dispersive infrared gas sensor for low-cost application”
84. Gardner EL, Vincent TA, Jones RG, **Gardner JW**, Coull J, de Luca A, Udrea F 2019 *IEEE Sensors Journal* **19** 2991-2998 “MEMS thermal flow sensors – an accuracy investigation”
85. Vincent TA, Xing Y, Cole M, **Gardner JW** 2019 *Sens. Act. B* **279** 351-360 “Investigation of response of high bandwidth MOX sensors to gas plumes for application on a mobile robot in hazardous environments”

86. Xing Y, Vincent TA, Cole M, **Gardner JW** 2019 *Sensors* **19** 1180 “Real-time thermal modulation of high bandwidth MOX gas sensors for mobile robot applications”
87. Ghosh R, Gardner JW, Guha P 2019 *IEEE Trans on Electron Devices* **66** 3254-3264 “Air pollution monitoring using near room temperature resistive gas sensors: a review”
88. Xing Y, Vincent TA, Fan H, Schaffernicht E, Lilienthal AJ, Cole M, **Gardner JW** 2019 *IEEE Sensors Journal* **19** 12418-12431. “FireNose on mobile robot in harsh environments”
89. Urasinska-Wojcik B and **Gardner JW** 2018 *IEEE Sensors Journal* **18** 3502-3508 “H₂S sensing in dry and humid H₂ environment with p-type CuO thick-film gas sensors”
90. Vincent TA, Xing Y, Cole M, **Gardner JW** 2018 *MDPI Proceedings* **2** 858 “Thermal modulation of a high bandwidth gas sensor array in real-time for application on a mobile robot”
91. 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”
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95. 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”
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97. 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”
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111. 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”
112. Santra S, Sinha AK, Ray SK, Ali SZ, Udrea F, **Gardner JW** and Guha PK 2014 *Procedia Engineering* “Ambient temperature carbon nanotube ammonia sensor on CMOS platform”
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114. 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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401. 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”
402. 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”
403. 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”
404. 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”
405. 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”
406. 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”
407. 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”
408. 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”
409. 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”
410. **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”
411. Invited Paper: **Gardner JW**, Southampton Electrochemistry Society, 7-8 April 2008 “The electronic nose; the early days”
412. 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”
413. 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”
414. 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.
415. 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.

416. 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.
417. 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.
418. 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.
419. **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”
420. **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”
421. 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”
422. **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”
423. **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”
424. 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”
425. 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”
426. 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”
427. 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”
428. **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”
429. Invited Paper: **Gardner JW**, CAPE lecture series, University of Cambridge, UK, 31 March 2006, “Microsensors and MEMS for chemical and biological detection”
430. 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”
431. 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”
432. Keynote Paper: **Gardner JW**, *Eurosensors XX, Gothenberg, Sweden, Sept. 2006*. “Technologies for chemical sensors and microsystems”
433. **Gardner JW**, Covington JA, Tan SL, and Pearce TC, *Eurosensors XX, Gothenberg, Sweden, Sept. 2006*. “A biologically inspired artificial olfactory mucosa”

434. 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”
435. Khawaja J, Cole M, **Gardner JW**, *Euroensors XX, Gothenberg, Sweden, Sept. 2006*. “Gold nanoparticle CMOS sensor for VOC detection”
436. 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”.
437. 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”
438. **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”
439. 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”
440. 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”
441. 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”
442. Invited Paper: **Gardner JW**, *IEE Seminar on MEMS Sensor Technologies, London, UK 25 April 2005*, “Smart tongue”
443. 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”
444. 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”
445. 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”
446. 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”
447. 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”
448. 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”
449. **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”
450. Invited Tutorial: **Gardner JW**, *3rd NOSE Short Course on Fundamentals of Signal and Data Processing, 21-26 March 2004*. “Feature selection techniques”
451. Sun MC, Chetwynd DG, and **Gardner JW**, *Proc. of Euspen 2004, Glasgow, Scotland, May-June 2004* “A simple microtensometer for polymeric microparts”
452. 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”.

453. 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”
454. 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”
455. 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”
456. 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”
457. 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”
458. 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”
459. 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”
460. 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 Cyrano 320 electronic nose”
461. 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”
462. **Gardner JW**, Boilot P, and Hines EL, *Proc. ISOEN, Latvia, 25-27 June 2003*. “Enhancing e-nose performance by data fusion and sensor selection”
463. 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”
464. **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”
465. 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”
466. 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”
467. Invited Paper: **Gardner JW**, *Nato Advanced Research Workshop on Electronic Noses and Explosive Detection, Coventry, 1-2 October 2003*. “Review of electronic nose technology”
468. 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”
469. Invited Tutorial: **Gardner JW**, *IEEE Sensors 2003 Conference, Canada, 22-24 October 2003*. “Electronic Noses: towards a nose-on-a-chip”
470. Invited Talk: **Gardner JW**, Georgia Institute of Technology, Atlanta, USA, September 2003. “Biosensors, Electronic Noses and Electronic Tongues”
471. 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”
472. Invited Paper: **Gardner JW** *Ist NOSE II Short Course, 24 Feb - 1 Mar, 2002*, “Applications of electronic noses”

473. Invited Paper: **Gardner JW** *Ist NOSE II Short Course, 24 Feb - 1 Mar, 2002*, “Market aspects”
474. Government report: *A Strategic Framework for 2015, Foresight Publication, DTI, March 2002*. DTI Pub 6030/3k/03/02/NP. URN 02/808
475. **Gardner JW** *Public Consultation Document, DTI Conference Centre, 14 March 2002*, “Sensors for trends for monitoring the environment, industrial health and safety”
476. 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”
477. 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”
478. 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”.
479. 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”.
480. Invited Paper: **Gardner JW**, Cole M, Udrea F *Proc. IEEE Sensors 2002, Florida, 12-14 June 2002*, “CMOS gas sensors and smart devices”.
481. 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”.
482. 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”.
483. 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”.
484. 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”.
485. Keynote Paper: **Gardner JW** *Proc. 9th Int. Meeting on Chemical Sensors, Boston, 7-10 July 2002*, “Electronic noses: from macro to nano scaled devices”.
486. Cole M, Guzman G and **Gardner JW** *Proc. Eurosenors XVI, Prague, September 2002*, “Smart ratiometric ASIC chip for a palm-top VOC monitor”.
487. 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”.
488. 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”.
489. Invited Paper: **Gardner JW** *Proc. NOSE II Workshop, Rome, 3-4 October 2002*, “An overview of the electronic nose market”.
490. Invited Talk: **Gardner JW** *Cambridge Physical Society Seminar Series, Cavendish Laboratory, Cambridge, UK, November 2002*, “Electronic noses: from macroscale to nanoscale devices”
491. **Gardner JW** *Advances in Sensor Technologies Symposium, Warwick University, February 2001* “Advances in Microsensors and MEMS”
492. Invited Talk: **Gardner JW**, *Electrochemical Seminar, Southampton University, March 2001*, “Micromachined structures for chemical applications”
493. 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”.
494. 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”

495. Fang Q, Chetwynd DG and **Gardner JW** 2nd *Euspen Conference, May, 2001* “Tensile properties of conducting polymer fibres”
496. 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”
497. **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”
498. **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”
499. Keynote Paper: **Gardner JW** and Cole MV 5th *Int. Conf. on Breath Odor, Tokyo, 1-2 July 2001* “Medical applications of electronic nose technology”
500. 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”.
501. 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”
502. 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”
503. 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”
504. 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”
505. 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”
506. 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”
507. 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”
508. 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”
509. 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”
510. 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”
511. 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”
512. 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”

513. 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”
514. Invited Paper: Varadan VK and **Gardner JW** *Proc. SPIE on Smart Electronics and MEMS, Newport Beach, USA, March 1999* “Smart tongues and smart noses”
515. **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”
516. **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”
517. 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”
518. 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”
519. **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”
520. 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”
521. 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”
522. **Gardner JW** 9th CIMTEC, Florence, Italy, June 1998 “Pattern recognition in gas sensing”
523. 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”
524. 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”
525. Hatfield J, Covington JA and **Gardner JW** *Proc. of Int. Conf. on Chemical Sensors, Beijing, June, 1998* “GasFETs incorporating conducting polymers as gate materials”
526. **Gardner JW** *Proc. 5th Int. Symp. on Electronic Noses, Baltimore, USA., 27-30 Sept., 1998* “An electronic nose to diagnose illness”
527. Invited Talk: **Gardner JW** *South East Midlands branch of Institution of Agricultural Engineers, Silsoe, 3 March 1997* “Electronic noses: fabrication and application”
528. 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”
529. 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”
530. **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”
531. 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”
532. **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”

533. 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”
534. 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”
535. 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”
536. 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”
537. Invited Paper: **Gardner JW**, *The Institute of Physics Annual Congress, 23-25 April 1996, Telford, UK* “Chemical and biological silicon sensors”
538. Bartlett P N, Elliott J and **Gardner JW**, *Euroanalysis IX, 1-7 Sept. 1996, Bologna, Italy* “Applications of, and developments in, machine olfaction”
539. 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”
540. 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”
541. 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”
542. 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”
543. Invited Paper: **Gardner JW** *3rd International Symposium on Olfaction & Electronic Noses, Miami, Florida, 3-6 November 1996* “Electronic nose technology: present & future”
544. **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”
545. 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?”
546. Invited Paper: **Gardner JW** *10th Colloquium of Gas Analysis & Sensing Group, 16-17 December 1996, Swansea* “New electronic noses”
547. **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”
548. 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”
549. **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”
550. **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”
551. 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”
552. **Gardner JW** and Bartlett PN *2nd International Symposium on Olfaction & Electronic Noses, Toulouse, France, 2-3 October 1995* “Microinstrumentation for odour sensing”
553. 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”

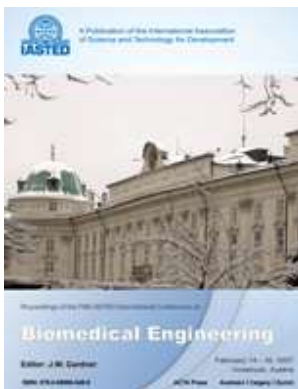
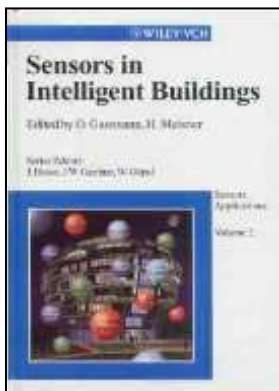
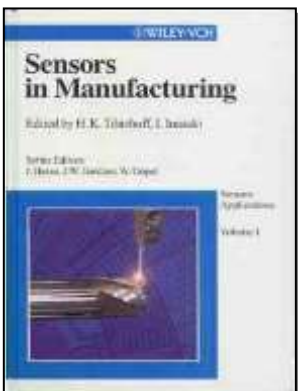
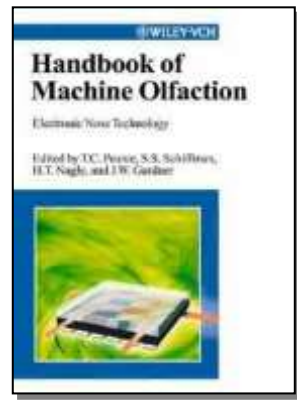
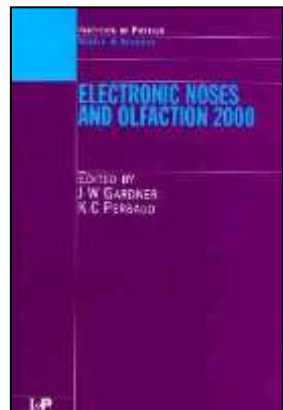
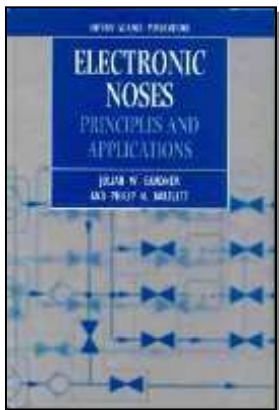
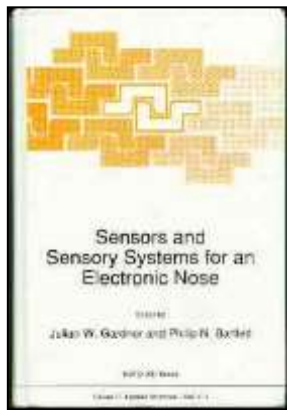
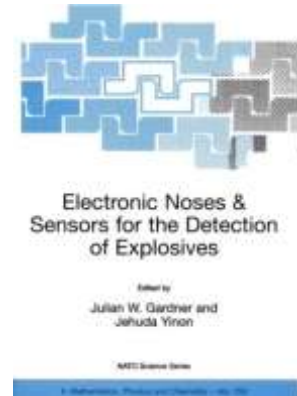
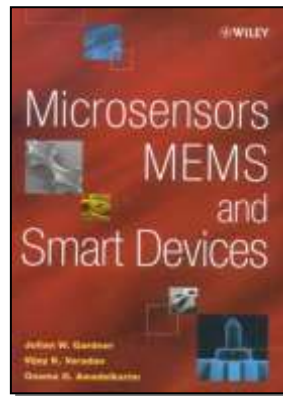
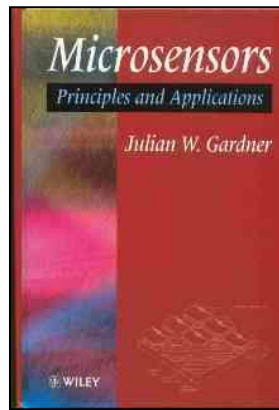
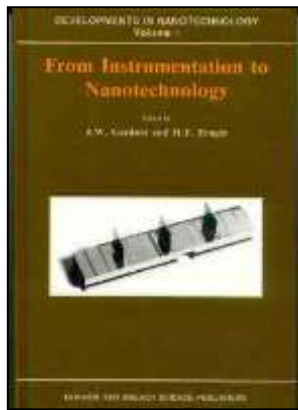
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555. Bartlett PN, Beriet C, Chetwynd DG, **Gardner JW**, and Liu X *Proc. Leeds, UK, September 1995* “Tribological properties of conducting polymer films for application in nanotechnology”
556. Liu X, Chetwynd DG, **Gardner JW**, Smith ST, Beriet C and Bartlett PN *Proc. 10th Annual Meeting of ASPE, Texas, USA, October 1995* “Measurement of friction at light loads in polypyrrole thin film bearings”
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558. 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”
559. Gardner JW 1994 *Warwick-Tokyo Conference, Warwick, England, 19-23 September 1994* “Nanoparticle films for reliable semiconducting oxide gas sensor array devices”
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562. **Gardner JW** 1994 *Euroensors VIII, Toulouse, France, 25-28 September 1994* “Intelligent gas sensing using an integrated sensor pair”
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564. Invited Paper: **Gardner JW** 1994 *Proceedings of 1st Int. Symposium on Olfaction & Electronic Noses, Toulouse, France, 26-27 September 1994* “Electronic nose technology today”
565. 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”
566. 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”
567. 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”
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570. 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”
571. **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”
572. 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”
573. **Gardner JW** 1993 *Focus on Micromechanics, IOP Meeting, University of Warwick, UK, 8-9 June 1993* “Micromachining of integrated gas microsensors systems”

574. **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”
575. 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”
576. 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”
577. **Gardner JW** and Hines E L 1993 *USITT Colloquium on Sensor Update: New Developments in Signal Processing, Southampton, 9 September 1993* “Signal processing for an electronic nose”
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582. **Gardner JW**, Chetwynd D G, Smith S T, Harb S M, Yao Z Q, Bartlett P N and Eastwick-Field V 1993 *Euroensors VII, Budapest, Hungary, 27-29 September 1993* “Electropolymerised films for low friction microactuator bearings”
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584. Pearce T C and **Gardner JW** 1993 *IEEE Int. Conf. on Systems, Man and Cybernetics, Vol. 5, 165-170, France, 17-20 October 1993* “Machine olfaction: Intelligent sensing of odours”
585. Hines E L, **Gardner JW** and Stansfield R N 1992 *Proceedings of IEE Colloquium on DSP in Instrumentation 1992/009 10/1-4* “A stand alone neural network based electronic nose”
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590. Hines E L, Gianna C and **Gardner JW** 1992 *Workshop on Neural Networks: Techniques and Applications, University of Liverpool, UK, 7-8 September 1992* “Neural network based electronic nose using constructive algorithms”
591. **Gardner JW**, Friel S, Pearce T, Dodd G H, Bartlett P N and Blair N 1992 *RSC Symposium on Sensors & Signals, Trinity College, Dublin, Ireland, 16-18 September 1992* “The Warwick-Bath electronic nose: Application to beer flavour monitoring”
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593. Hines EL, Moore S, Goepel W and **Gardner JW** 1992 *Euroensors VI, San Sebastian, Spain, 5-7 October 1992* “A modified multilayer perceptron model for gas mixture analysis”

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596. **Gardner JW**, Bartlett PN, Dodd GH and Shurmer HV 1991 *Institute of Non-destructive Testing, Northampton, February 20* "An electronic nose in process control"
597. Invited Paper: Bartlett PN, Dodd GH, Shurmer HV and **Gardner JW** 1991 *The Pittsburgh Conference, Chicago, March 4-8* "The design of an artificial olfactory system"
598. **Gardner JW**, Shurmer HV and Tan TT 1991 *Microengineering Report* "Application of electronic nose to coffee discrimination"
599. Shurmer HV and **Gardner JW** 1991 East-West Workshop on Microelectronic sensors, Sozopol, Bulgaria, May 7-9 "Odour discrimination with an electronic nose"
600. Bartlett PN and **Gardner JW** 1991 NATO Workshop on Sensors & Sensory Systems for an Electronic Nose, Reykjavik, 5-9 August "Conducting polymers as odour sensors"
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602. Olafsson R, Martinsdottir E, Olafsdottir G, Sigfusson T and **Gardner JW** 1991 NATO Workshop on Sensors & Sensory Systems for an Electronic Nose, Reykjavik, 5-9 August "Monitoring of fish freshness"
603. **Gardner JW** 1991 *European workshop on Pyrolysis Mass Spectrometry, Biosensors and Data Analysis Portugal, 16-20 September* "Data processing and pattern recognition techniques in odour sensing"
604. Corcoran P, Shurmer HV and **Gardner JW** 1991 *Sensors & Their applications V, Edinburgh, 22-25 September* "Technological aspects of the design and performance of metal oxide odour sensors"
605. **Gardner JW**, Shurmer HV and Tan TT 1991 *Eurosenors V Conference, Rome, 30 Sept. - 2 Oct* "Application of an electronic nose to the discrimination of coffees"
606. Invited Paper: **Gardner JW** 1991 *Sensors & Systems '91, NEC, Birmingham, 30-31 October 1991* "On-line monitoring of odours using chemical sensor arrays"
607. **Gardner JW** 1990 *Meeting on Trends in Gas Monitoring, SIRA Ltd, May* "The Warwick Electronic Nose"
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609. **Gardner JW** 1990 *Electronic Engineering*, **62** "Electronic nose developments at Warwick" p15
610. Springett MB, Shurmer HV, **Gardner JW**, Tan TT and Moore TT 1990 *CFDRA report*, "Applications of an electronic nose in the food and drink industry"
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613. Shurmer H V, Corcoran P, **Gardner JW** 1990 *Eurosenors IV Conference, Karlsruhe, October 1-3* "Integrated arrays of gas sensors using conducting polymers with molecular sieves"
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616. **Gardner JW** 1989 *8th Meeting of Chemical Sensors Club, HSE Laboratory, Sheffield, April* "Integrated sensor arrays in the Warwick electronic nose"
617. **Gardner JW** and Bryanston-Cross PJ 1989 *Microengineering Report 77*, University of Warwick "Automated feature extraction from surfaces and interferograms by optical techniques"

618. **Gardner JW** and Bartlett PN 1989 *Microengineering Report 82*, University of Warwick "Chemical sensing using a multisensor array and pattern recognition"
619. **Gardner JW** and Tan TT 1989 *Conf. on Solid State Physics*, University of Warwick, December "Current Voltage characteristics of metal-conjugated polymer heterocontacts"
620. **Gardner JW** 1988 *Euroensors II Conf.*, University of Twente, November "Electrical characteristics of semiconductor gas sensors"
621. Shurmer HV, **Gardner JW** and Dalby D 1988 *Euroensors II Conf.*, University of Twente, November "Pattern recognition for gas sensor arrays"
622. **Gardner JW** and Hines EL 1988 *Proceedings of IEE Colloquium on New Trends in Sensor array Processing 1988/30* 7/1-4 "Integrated sensor array processing in an electronic nose"
623. **Gardner JW**, Dalby D and Shurmer HV 1988 *Microengineering Report 68*, University of Warwick "Results of feasibility study on detection of oil leaks from underground cables"
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625. Bryanston-Cross PJ, Andonov DA and **Gardner JW** 1987 *FASTIG Colloquium*, University of Loughborough, November "Interferometric fringe processing applied to a 1000 C combustion flame"
626. **Gardner JW** 1987 *8th Int. Congress of European Chemoreception Res. Organisation*, University of Warwick, July "Pattern recognition in the Warwick electronic nose"
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629. Byrne JP, **Gardner JW**, Hall SF and Shaw PM 1985 *UKAEA SRD Report R395*, December "Procedural details of a concern tree/fault tree analysis for Sizewell B PWR"
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