

CURRICULUM VITAE OF GRAEME WAKE (July 2009)

Name	Professor Graeme Charles Wake: Born NZ,1943, Married Elizabeth Wake, 1965.
Tertiary Education:	B.Sc in Mathematics, Victoria University, 1961-3, M.Sc with first class honours in Mathematics, Victoria University, 1964 PhD in (Applied) Mathematics, Victoria University, 1965-67 Postdoctoral research scholarship, Brasenose College, University of Oxford 1970-71
Distinctions/ Honours:	Visiting Fellow, Oxford Collaborative Centre for Applied Mathematics June-July 2009 Principal Investigator, National Research Centre for Growth & Development (a CoRE), 2006-on Associate-Investigator, Riddet Centre (Food research) (a CoRE) 2008-onwards Fulbright US/NZ Foundation Travelling award, November 2007: Mass and Cal, US. Maclaurin Fellowship, NZIMA, Mar 2007- Feb 20088, awarded by NZIMA (a CoRE) Awarded the ANZIAM Medal in February 2006, for Research in IAM etc. Fellow of the Royal Society of New Zealand, elected 2004. Visiting Foreign Professor in Applied Mathematics, Korean Advanced Korea Institute for Science and Technology, Daejeon, South Korea, Visiting Professor, January 2003, August 2004, August 2005, August 2006 (One month each time). Visiting Fellow, All Souls College, University of Oxford, UK, 2001-2. Marsden Medal for contributions to mathematics and its applications, NZ Association of Scientists, 1999. Fellowship of the NZ Mathematical Society, 1999. D.Sc in Applied Mathematics, Victoria University, 1997. Director, AgResearch Math Biology Unit, 1997-onwards Chartered Mathematician (IMA, UK), 1992. Fulbright Senior Scholar, Claremont Colleges, California, Oct-Dec 1994. Fellowship of the IMA (UK), 1977. Senior Scholar, Victoria University of Wellington, 1964
Employment Record:	Director, Centre for Mathematics-in-Industry, Massey University 2006-onwards. Adjunct Professor of Industrial Mathematics, Massey University, Albany, 2003-onwards, Adjunct Professor of Mathematics, University of Canterbury, 2004-2006, Professor of Applied Mathematics, University of Canterbury, 1998-2003, Dean of Postgraduate Studies, University of Canterbury 1999-2001, Professor of Industrial and Applied Mathematics, University of Auckland,1995-8, Professor of (Applied) Mathematics, Massey University, 1986-95, HoD of Mathematics Dept 1989-95, Visiting Fulbright Professor, Claremont Colleges, California, USA, 1994, Visiting Professor, Universities of Oxford/Leeds, March-October 1990, Reader in Mathematics, Victoria University, 1980-5, Senior Lecturer in Mathematics, Victoria University, 1973-79, EPSRC Research Fellow, University of Leeds 1976-7, 1990 Lecturer in Mathematics, Victoria University, 1967-72, Senior Hulme (Overseas) Scholar, Brasenose College, University of Oxford, 1970-1, Postdoctoral Fellow. Teaching Fellow in Mathematics, Victoria University, 1965-7 Student Scientist, Chemistry Division, DSIR, 1964 (6 months)
Other information	Nominated for Massey University Auckland: Lecturer of the Year, 2006. Graded A in the Performance Based Research Fund in TEC, 2003 and 2006. Principal-Investigator, National Research Centre for Growth & Development (a CoRE), 2006-on Associate-Investigator, Riddet Centre (Food research) (a CoRE) 2008-onwards Director, Mathematics-in-Industry Study Group (ANZ) 2003-6 Editor: 3 International Journals of Applied Mathematics including Proc Royal Soc Lond A 23 PhD students completed 3 in progress. 6 postdoctoral programmes completed. Author of 200 papers in applied and industrial mathematics: 1964-on President, NZ Mathematical Society 1979-80, 1999-2001. President ANZIAM, 1995-7. Inaugural Chair: Mathematical and Information Sciences Section, RSNZ1993-6.

Publications: G. C. Wake

(a) Journal Articles

Material in Press

(with Luo, WW & Hawk C) “Numerical determination of critical conditions for thermal ignition”, *ANZIAM J of Applied Mathematics*, accepted November 2008.

Published Articles

(with Senararatne GG, Keam RB, Sweatman WL & Simpkin RA) “An inverse method for detection of a foreign object using microwave measurements”; *IET Sciences, Measurement and Technology*, **3**, Issue 2: 2009, pp 146-158.

(with Suebcharoen T & Satiracoo P) “Distributed delay logistic equations with harvesting” ; *J. Differential and Integral Equations*, **22**, Numbers 3-4, (2009), pp 321-337.

(with Pimpunchat B, Sweatman WL, Triampo W & Parshotam A) “A mathematical model for pollution in a river and its remediation by aeration”; *Applied Mathematics Letters* **22**: March 2009, pp 304-308.

(with Korobeinikov A & Norbury J) “Long-term coexistence for a competitive system of spatially varying gradient reaction-diffusion equations”; *J Nonlinear Analysis: Real World Applications*. **10**: January 2009, pp 93-109.

(with Begg RE & Wall DJN) “The steady-states of a multi-compartment, age-size distribution model of cell-growth”; *Euro J of Appl Maths*; **19** 2008, pp 435-458.

(with McKibbin R) “Heating sequences during making of steel from iron-sands”, *Proceedings of Mathematics-in-Industry Study Group, 2003. University of South Australia*; 2008, pp.116-127.

(with Begg RE & Wall DJN) “On the stability of steady-size distributions for a cell-growth process with dispersion”; *J. Differential and Integral Equations: Vol 21*, Nos. **1-2**, 2008, pp 1-24.

(with Begg, RE)“Functional differential equations arising in cell-growth”; *Proc. Appl Math. Mech.* **7**: 2007, 2120025-6, (appeared 2009).

(with Senararatne GG, Keam RB, & Sweatman WL) “Solutions of inverse problems with potential application for breast tumour detection using microwave measurements”; *J Computational and Mathematical Methods in Medicine: Vol 8*, No. **4**, 2007, pp. 245-261.

(with Senaratne GG, Keam RB & Sweatman WL) “Solutions to the inverse problem in a two-dimensional model for microwave breast tumour detection”; *Int. J Intelligent Systems Technologies and Applications*, **3**, Nos.**1/2**: 2007, pp 133-148.

(with Nelson MI, Marchant TR, Balakrishnan E & Chen XD) “ Self-heating in compost piles due to biological effects”; *Chemical Engineering Science*: **42**, 2007, 4612-9.

(with Lesnic D) "A mollified method for the solution of the Cauchy problem for the convection-diffusion equation"; *Inverse Problems in Science and Engineering*, **15**, No 4: 2007, pp 293-302.

(with Pleasants AB & Shorten PR) "The distribution of urine deposited on a pasture from grazing animals" *J Agric Science, Cambridge* **145**, 2007, pp 81-86.

(with Hamzah Norhayati & Ross A) "A bifurcation analysis of a simple phytoplankton and zooplankton model" *Math and Comp Modelling* **45**: 2007, pp 449-458.

(with Senaratne GG, Keam RB & Sweatman WL) "Solutions to the two-dimensional boundary value problem for microwave breast tumor detection" *IEEE Microwave and Wireless Components Letters*, **16**, No **10**, 2006, pp 525-7.

(with Patterson M, McKibbin R & Cole AO) "Ecological pricing and tranformity: A solution method for systems rarely at general equilibrium" *International J of Ecological Economics* **56**: 2006, pp 412-423.

(with Horn B & Anthony G) "Decompression schedule optimization with an iso-probabilistic risk of decompression sickness", *Aviat Space Environ Med.*, **77**, 2006, pp 13-19.

(with Begg R & Wall DJN) "On a functional equation model of transient cell-growth", *IMA Journal of Mathematics in Medicine and Biology*, **22**, 2005, pp 371-390.

"Population dynamics of size-structured populations". *NZ J Ecology*, **30**, no.1 , 2006, pp 153-4.

(with Chase, JG, Shaw, GM, Lin, J, Doran, CV, Bloomfield, M, Broughton, B, Hann, C and Lotz, T . "Impact of insulin-stimulated glucose removal saturation on dynamic modelling and control of hyperglycaemia," *Intl Journal of Intelligent Systems Technologies and Applications (IJISTA)*, **1**, Nos ½, 2005, pp 79-94.

(with Rudge, AD, Chase, JG, Shaw, GM Lee, DS, Hudson, I and Johnston, L.) 2004. "Impact of Control on Agitation-Sedation Dynamics," *Control Engineering Practice (CEP)*, **13**, No. **9**, 2005, 1139-1149.

(with Basse B, Baguley BC, Marshall ES, Wall DJN) "Modelling the flow of cytometric data obtained from unperturbed human tumour cell lines: Parameter fitting and comparison", *Bulletin of Math Biology*, **67**, No **4**, 2005, 815 -830.

(with Chase, JG, Shaw, GM, Lin, J, Doran, CV, Hann, CE, Lotz, T, and Broughton, R.) 2005 "Targeted Glycaemic Reduction in Critical Care Using Closed-Loop Control," *Diabetes Technology & Therapeutics (DT&T)*, **7**, No. **2**, 2005, pp 274-282.

(with Chase, JG, Shaw, GM, Lin, J, Doran, CV, Hann, CE, Robertson, MB, Browne, PM, Lotz, T, and Broughton, R . "Adaptive bolus-based targeted glucose regulation of hyperglycaemia in critical care," *Medical Engineering and Physics*, **27(1)**, 2005, pp 1-11.

(with Basse B, Baguley BC, Marshall E,& Wall DJN) "Modelling cell population growth with applications to cancer therapy in human cell lines", *Prog Biophysics Mol Biol*, **85**, 2004, pp 353-368.

(with Marshall JC & van-Brunt B) "A natural boundary for solutions to the second-order pantograph equation", *J Math Anal and Appl.*, **299**, 2004, pp 314-321.

"The numbers game: Mathematics-in-Industry Study Group comes to New Zealand", *New Zealand Science Review* **61(1)**, 2004, pp 11-16.

(with Chase JG, Rudge AD, Shaw GM, Lee D, Hudson I and Johnston L) "Modelling and Control of the agitation-sedation cycle for critical care patients" *Medical Engineering and Physics J*, Vol 26, No 6, 2004; pp 459-471.

(with van-Brunt, B.& Marshall, JC), " Holomorphic solutions to pantograph type equations with neutral fixed points", *Journal of Mathematical Analysis and Applications*, Vol **295**, 2004 pp 557-569.

(with Shah, AA) "The existence of steady states to a combustion model with internal heating", *Nonlinear Analysis: Real World Applications: Vol 5, No. 3, 2004*, p. 421-439.

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(with Basse B, Baguley BC, Marshall WR, Joseph B, van-Brunt B, Wake GC, & Wall DJN) "Modelling cell death in human tumour cell lines exposed to the anticancer drug paclitaxel", *Journal Mathematical Biology*, **49**, 2004, 329-357.

(with Smith, B W, Chase, J G, Shaw, G M, & Nokes, R.) "Minimal Haemodynamic System Model Including Ventricular Interaction and Valve Dynamics," *Medical Eng and Physics*, Vol 26(2), 2004 pp. 131-139, ISSN: 1350-4533.

(with Balakrishnan, E & Khan QJA) "Analysis of a predator-prey system with predator switching", *Bulletin of Math Biology*, **66**, 2004, pp 109-123

(with Norhayati) "The solution and the stability of a non-linear age-structured population model" *ANZIAM J.*, **45**, 2003, pp 153-165.

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(with Shaw, G M, Chase, J G, Rudge, A D, Starfinger, C, Lam, Z, Lee, D, Greenfield, K and Dove, R) "Rethinking Sedation and Agitation Management in Critical Illness," *Critical Care and Resuscitation*, Vol. **5**, 2003 pp. 109-120 (invited special review).

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models with dispersion" *Comm. Appl. Anal.* **4**, 2000, pp 561-574.

(with B Tsang & S Taylor) "Variational methods for boundary value problems" *J Appl. Math & Decision Sciences* **4**, 2000, pp 193-204.

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(with Gong R & Burnell JG) "Modelling spontaneous combustion in wet lignite" *Combustion Theory Modelling* **3** 1999, pp 215-232.

(with Basse B & McLennan JA) "Analysis of the impact of stoats, *Mustela erminea*, on norther brown kiwi, *Apteryx mantelli*, in New Zealand. *Wild. Res.* **26**,1999, pp 227-237.

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(with Pleasants AB & Rae AL) "The allometric hypothesis when the size variable is uncertain: issues in the study of carcass composition by serial slaughter" *J. Aust Math Soc Series B*, Vol **38**, 1997, pp 477-488.

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"Addendum to "Picoplankton and marine food chain dynamics in a variable mixed layer: a reaction-diffusion model]", Ecological Modelling.82: 105-108, 1995 (with M Hadfield, S K Kumar, W F Vincent, P C Austin).

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"The ignition of combustible material in the presence of a damp combustible atmosphere", Physics Letters A 191: 6] - 70, 1994 (with A C McIntosh, B F Gray).

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