

## Prof. Peter Hunter

MNZM, DPhil Oxf., ME, FIPENZ(Hon), FRSNZ, FRS

Auckland Bioengineering Institute  
University of Auckland, New Zealand

Distinguished Professor of Engineering Science,  
University of Auckland

Director of the Auckland Bioengineering Institute,  
University of Auckland

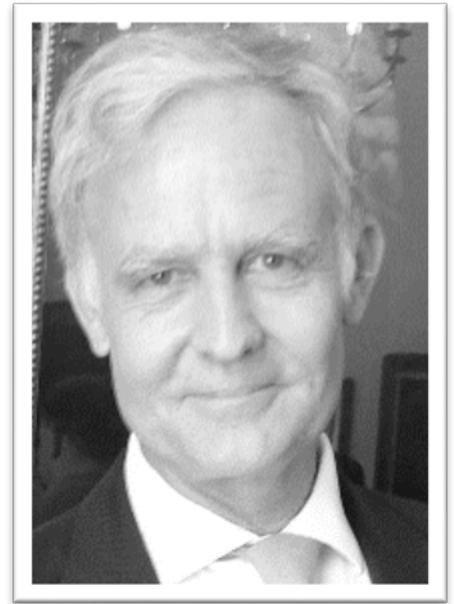
Director of The Medical Technologies CoRE,  
University of Auckland

Email: [p.hunter@auckland.ac.nz](mailto:p.hunter@auckland.ac.nz)

Web: <https://unidirectory.auckland.ac.nz/profile/p-hunter>

Phone: +6421 505033

Born on July 30, 1948 in Auckland, New Zealand



### Scientific Career

- |             |   |
|-------------|---|
| Since 2015  | Director of The Medical Technologies CoRE (Centre of Research Excellence, NZ Tertiary Education Commission) |
| 2013 - 2016 | Director, Callaghan Innovation (NZ Government)  |
| Since 2003  | Co-Director, Computational Physiology, University of Oxford   |
| Since 2001  | Director of Auckland Bioengineering Institute (ABI) at the University of Auckland, NZ                       |
| 2001        | Distinguished Professor, University of Auckland   |
| 1998 - 1999 | Associate Dean of Research in the School of Engineering   |
| Since 1979  | Lecturer to Professor in Engineering Science at Auckland University   |
| 1977 - 1978 | Engineering Lecturer at Keble College, Oxford   |
| 1975 - 1977 | Research Fellow at Rutherford Laboratory, UK  |
| 1975 - 1977 | Research Fellow and tutor at St. Catherine's College, Oxford University                                     |
| 1972 - 1975 | Postgraduate research for D.Phil. in Physiology at Oxford University  |
| 1971 - 1972 | Master's research in the Dept. of Theoretical & Applied Mechanics at Auckland University                    |
| 1971        | B.E. in Engineering Science (1st Class Hons) at Auckland University, NZ                                     |

### Scholarships, Awards and Faculty Functions

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|------|--|
| 2015 | Appointed co-Editor in Chief of the Biomechanics and Modeling in Mechanobiology        |
| 2015 | Appointed to Science Advisory Board, Portal Instruments                                |
| 2015 | Elected Chair of the International Academy of Medical & Biological Engineering (IAMBE) |
| 2015 | Invited member of the Newton Advanced Fellowships Panel (Biological Sciences)          |
| 2014 | Appointed to Science Advisory Panel, AgResearch  |

- 2014 Appointed Associate Editor of Nature Partner Journal Systems Biology and Applications
- 2014 Appointed by Royal Society of NZ to chair a 'Review of the NZ Research System'
- 2013 Appointed to Board of Directors of Callaghan Innovation
- 2012 Appointed Associate Editor Biophysical Journal
- 2012 Chair-Elect of the International Academy of Medical & Biological Engineering (IAMBE)
- 2012 EMBS Career Achievement Award of the IEEE Engineering in Medicine & Biology Society
- 2012 Appointed Chair EAB for BioSyM (Singapore-MIT Alliance for Research & Technology)
- 2011 Appointed to the Science Board of the Ministry of Science and Innovation
- 2011 Appointed Acting 1st Vice President International Union of Physiological Sciences (IUPS)
- 2011 Appointed to SAB, National Institute of Water & Atmospheric Research (NIWA)
- 2010 Appointed Member of the New Zealand Order of Merit (MNZM) by the NZ Government
- 2010 Appointed to EAB for BioSyM (Singapore-MIT Alliance for Research and Technology)
- 2010 Appointed Honorary Fellow of the Institute of Professional Engineers of New Zealand
- 2010 Appointed to Advisory Board for the Biomolecular Interaction Centre (BIC), Canterbury University
- 2009 Awarded Honorary Doctorate by University of Nottingham
- 2009 Appointed Chair of the Marsden Fund Council for 3 year term
- 2009 Appointed to Editorial Board of the Royal Society Journal for cross-disciplinary science: Interface
- 2009 KEA (Kiwi Expats Abroad) 'World Class NZ' award
- 2009 Awarded Rutherford Medal by Royal Society of New Zealand
- 2008 Invitation to give the UK Institute of Mechanical Engineers Prestige Smith & Nephew Lecture
- 2008 Invitation to give the inaugural MERIT Research lecture at the University of Melbourne
- 2008 Nominated for Council of International Union of Physiological Societies
- 2007 Awarded Imperial College Hounsfield medal
- 2007 Appointed to SAB on Systems Engineering Centre at Northeastern University
- 2007 'Augusta' Science award by Auckland Grammar School
- 2006 Appointed 'Collaborative Professor' at Osaka University, Japan
- 2006 Appointed to Marsden Fund Council and Chair of Math & Information Sciences panel
- 2006 Appointed Honorary Professor in School of Information Technology and Electrical Eng., UQ
- 2006 Elected Fellow of the Cardiovascular section of the American Physiological Society
- 2006 Appointed to SAB of SimbiosNat.ICenter for Biomed. Computation at Stanford Univ.
- 2006 Appointed as Special Professor in the School of Math Sciences at Nottingham Univ, UK
- 2006 Elected Fellow of Royal Society (London)

2006 Appointed to advisory panel for Research & Education Advanced Network NZ (REANNZ)

2006 Elected General Secretary of the World Council of Biomechanics

2006 Elected to the Academy Council of the Royal Society of NZ

2005 Appointed as Chair of the Distinguished Lecturer Committee for EMBS

2005 Appointed to Scientific Advisory Board of Hamilton Institute of Systems Biology, Dublin

2005 Awarded Visiting Fellowship at Merton College, Oxford, for Trinity Term,

2005 Appointed to Scientific Advisory board of Functional Imaging and Modelling of the Heart (FIMH)

2005 Appointed to Advisory Committee of UCSD National Biomedical Computation Resource (NBCR)

2005 Appointed to Editorial board of the Journal of Molecular & Cellular Biomechanics (MCB)

2004 Appointed to External Scientific Advisory Cttee of the Mathematical Biosciences Institute (MBI)

2004 Appointed as Visiting Professor at the Centre for Integrative Genetics, Oslo

2004 Appointed as Associate Editor for the PLoS/ISCB Journal of Computational Biology

2003 Appointed for 5 years as Visiting Professor in Computational Physiology at Oxford University

2003 Appointed for 3 years as a Consultant Editor for the Journal of Experimental Physiology

2003 Appointed to Int.al Scientific Programming Committee of IUPS

2003 Elected Fellow of the International Academy of Medical & Biological Engineering (IAMBE)

2002 Elected to the World Council of Biomechanics

2002 Elected to the Council of the IEEE Engineering in Medicine and Biology Society (EMBS)

2002 Appointed to the Governing Board of NZIMA (NZ Institute of Mathematics & Applications)

2001 Elected Fellow of the American Institute for Medical and Biological Engineering (AIMBE)

2001 Appointed as a Visiting Fellow of the Newton Institute, Cambridge, UK

2001 Awarded Distinguished Professorship by the University of Auckland

2000 Appointment as Adjunct Professor in Physiology at the University of Auckland

2000 Invitation to give the Athol Mann lecture for 2000

1999 Awarded a Royal Society of NZ James Cook Fellowship

1998 Nominated as Chair of the Physiome Commission of IUPS

1997 Awarded Personal Chair by the University of Auckland

1994 Elected Fellow of Royal Society (New Zealand)

1990 Appointment as Adjunct Professor at McGill University, Montreal, Canada

1975 Queen's College Fellowship University of Oxford

1975 St. Catherine's College/Atlas Computer Lab. Joint Research Fellowship

1972 N.Z. University Grants Committee Postgraduate Scholarship

1972 Commonwealth Scholarship to Oxford University

1966 N.Z. University Grants Committee Junior Scholarship (Auckland Grammar School)

## Ten most important publications

\* Publications jointly together with UoA-researchers involved within this IRTG

§ Publications jointly together with USTUTT-researchers involved within this IRTG

### A) Published in publication outlets with scientific quality assurance and book publications:

1. \*§ Bradley, C.P.; Bowery, A.; Britten, R.; Budelmann, V.; Camera, O.; Christie, R.; Frangi, A.; Gamage, T.B.; Heidlauf, T.; Krittian, S.; Little, C.; Mithraratne, K.; Nash, M.; Nickerson, D.; Nielsen, P.; Nordbo, O.; Omholt, S.; Pahaei, A.; Paterson, D.; Rajagopal, V.; Reeve, A.; Rohrlé, O.; Safaei, S.; Sebastian, R.; Seghofer, M.; Wu, T.; Yu, Zhang, H.; Hunter, P.J.: OpenCMISS: A multi-physics & multi-scale computational infrastructure for the VPH/Physiome Project. *Progress in Biophysics and Molecular Biology*, 107(1), p. 32-47, 2011
2. Nielsen, P.M.F.; Le Grice, I.J.; Smaill, B.H.; Hunter, P.J.: A mathematical model of the geometry and fibrous structure of the heart. *American Journal of Physiology*, 260(4), p. H1365-H1378, 1991
3. LeGrice, I.J.; Smaill, B.H.; Chai, L.Z.; Edgar, S.G.; Gavin, J.B.; Hunter, P.J.: Laminar structure of the heart: ventricular myocyte arrangement and connective tissue architecture in the dog. *American Journal of Physiology – Heart and Circulatory Physiol*, 269(2), p. H571-H582, 1995.
4. Hunter, P.J.; McCulloch, A.D.; TerKeurs, H.E.D.J.: Modeling the mechanical properties of cardiac muscle. *Progress in Biophysics and Molecular Biology*, 69(2-3), p. 289-331, 1998.
5. Nash, M.P.; Hunter, P.J.: Computational mechanics of the heart. *Journal of elasticity and the physical science of solids*, 61(1-3), p. 113-141, 2000.
6. Tawhai, M.H.; Hunter, P.J.: Characterising respiratory airway gas mixing using a lumped parameter model of the pulmonary acinus. *Respiration Physiology*, 127(2-3), p. 241-248, 2001.
7. Hooks, D.A.; Tomlinson, K.A.; Marsden, S.G.; Le Grice, I.J.; Smaill, B.H.; Pullan, A.J.; Hunter, P.J.: Cardiac microstructure: Implications for electrical propagation and defibrillation in the heart. *Circulation Research*. 91(4), p. 331-338, 2002.
8. Cuellar, A.A.; Lloyd, C.M.; Nielsen, P.F.; Halstead, M.D.B.; Bullivant, D.P.; Nickerson, D.P.; Hunter, P.J.: An overview of CellML 1.1, a biological model description language. *SIMULATION*, 79(12), p. 740-747, 2003.
9. Hunter, P.J.; Borg, T.K.: Integration from proteins to organs: The Physiome Project. *Nature Reviews Molecular and Cell Biology*, 4(3):237-243, 2003.
10. Hunter, P.J.; de Bono, B.: Biophysical constraints on the evolution of tissue structure and function. *Journal of Physiology*, 592 (11), p. 2389-2401, 2014.

### B) Other publications

### C) Patents

1. Hunter, P.J.; Nielsen, P.M.F.; Bullivant, D.P.; Sagar, M.; Charette, P.G.; LaFontaine, S.: Basic functions of three-dimensional models for compression, transformation and streaming. US 6,486,881. 20 June 2001.
2. Hunter, P.J.; Nielsen, P.M.F.; Bullivant, D.P.; Sagar, M.; Charette, P.; LaFontaine, S.: Non-linear morphing of faces and their dynamics. US 20020041285 Patent pending. 2002.
3. Hunter, P.J.; Budgett, D.; Smith, N.: Methods of generating, customising and using a biophysical virtual model of a body and software, apparatus and systems therefore. NZ Pat Appl No 548972 (filed on 4 August 2006).
4. \*§ Smith N.P.; Budgett D.M.; Hunter P.J.; Malcolm D.T.; Cheng L.K.; Nash M.P.; Nielsen P.M.F.; Pullan A.J.; Young A.A.; Röhrle, O.: Biophysical virtual model database and application, Application No. PCT/IB2007/002246, dated August 4, 2007.

Supervised graduate students since graduation year 2011

No.	Last Name, First Name	Degree	Title of the dissertation	Duration of thesis
1	Ma, Renfei	PhD	A multiscale computational framework for the liver lobule	2015 - current
2	Ghotli, Nima	PhD	Nutritional Modelling: modelling nutritional uptake mechanisms in small intestine	2015 - current
3	Alexander Zivaljevic (*co-supervisor)	PhD	Supporting the creation of computable detailed clinical models	2014 - current
4	Yousefi, Hashem (*co-supervisor)	PhD	How does the heart grow?	2014 - current
5	Robertson, Paul (*co-supervisor)	PhD	Interactive Modelling of Neural Systems	2013 - current
6	Ebrahimi, Nazanin	PhD	Identification of therapeutic targets for developmental heart diseases	2012 - current
7	Safaei, So-roush	PhD	Modelling the cardiovascular circulation	2010 - 2015
8	Kim, Nari (*co-supervisor)	PhD	Multiscale Electromechanics of the Heart	2010 - current
9	Ladd, David	PhD	Vortical flow in aortic stent-grafts.	2008 - current
10	Hung, Alice	PhD	An anatomically based biomechanics model of the face for simulation of facial expressions.	2008-2012
11	Tiwari, Abishek	PhD	Modeling hormone dynamics.	2008 - 2012
12	Lu, Xiao Bo	PhD	Models of the vocal tract and speech production.	2007-2016

Most important research grants since 2011

No.	Research Project	Funding Period	Name(s) of the principal investigator(s)	Funding source and reference number
1	MedTech CoRE	2015 - 2020	Hunter, P.J.	Tertiary Education

				Commission (TEC)
2	Mapping Determinants of Arrhythmia in Structural Heart Disease	2013 - 2018	Hunter, P.J. Smaill, B.	Health Research Council Program Grant, NZ.
3	How Does the Heart Grow?	2013 - 2016	Hunte, P.J.	Marsden Fund, NZ.
4	Virtual Clinical Trials (CMDT)	2012 - 2014	Hunter, P.J. Besier, T.	MBIE HVMS, NZ.
5	The Virtual Physiological Rat Project 4	2011 - 2016	Hunter, P.J.	Medical College of Wisconsin, US
6	Virtual Physiological Human sharing for healthcare - a research environment (VPH-Share)	2011 - 2015	Hunter, P.J.	European Commission