

Dr. rer nat. habil. W. Mike Arnold, PhD

Callaghan Innovation

Principal Scientist & Team Leader
Micro Fabrication and Fluidics

Sensors & Automation Group

PO Box 31-310, 69 Gracefield Road
Lower Hutt 5040
New Zealand

Email: mike.arnold@callaghaninnovation.govt.nz

Web: <http://www.irl.cri.nz/our-research/health-technologies/medical-diagnostics/microfluidics>

Phone: +64 49313233

Fax: +64 49313754

Born 29 August 1952 in Bristol, G.B.



Scientific Career

Since 2014	Principal Scientist, Micro Fabrication and Fluidics, Callaghan Innovation
2013 - 2014	Principal Scientist, Nano and Micro Fluidics, Callaghan Innovation
2008 - 2013	Team Manager, Nano and Micro Fluidics, Industrial Research Ltd.
1997 - 2008	Principal Research Scientist, Sensors & Electronics, IRL, Wellington.
1994 - 1997	Senior Scientist, Sensors & Electronics, IRL, Wellington.
1988 - 1994	Assistant Professor, Dept. of Biotechnology, Uni. Würzburg, Germany.
1993	Dr. rer. nat. habil. Biotechnology, Uni. Würzburg, Germany.
1984 - 1988	Research Scientist, Dept. of Biotechnology, University of Würzburg.
1984	PhD, Electronic Engineering Science, University of Wales, UK.
1981 - 1984	Researcher at the Nuclear Research Centre (KFA), Jülich, Germany.
1977	MSc, Marine Science, University of Wales, UK.
1976 - 1977	Technical assistant to Prof. A. Szent-Györgyi, MBL, Woods Hole, USA.
1974	BA (Hons), Natural Sciences (Biochemistry), University of Cambridge, UK.
1971 - 1971	Junior Technician, Postgrad EE (Microwave) Dept, Uni. Bradford, UK.

Scholarships, Awards and Faculty Functions

2010	Member, RACI (Royal Australian Chemical Institute)
Since 2007	Member, editorial board, IET Bionanotechnology.
Since 2004	AI / PI, MacDiarmid Inst. for Advanced Materials and Nanotechnology
2003 - 2005	Board Member, IEEE Conference on Electrical Insulation and Dielectric Phenomena.
2001	Co-Chair, IEEE Workshop "Fast Field Effects in Biosystems", NM, USA
2000 - 2006	Program Committee Member, IEEE Conference on Electrical Insulation and Dielectric Phenomena.

1999	Elected Senior Member IEEE (Inst. Electrical and Electronic Engineers)
1999	Elected Fellow of the Institute of Physics (London)
1999 - 2000	Chair, Physics Section, Wellington Branch of the Royal Society NZ.
1998 - 2009	Council member, Wellington Branch of the Royal Society NZ.
1995	Chair, IEEE/IAS session "Biological Applications of Electrostatics".
1993	Member, IEEE (Inst. Electrical and Electronic Engineers)
1989	University fellowship to work with Prof. C.A. Pasternak's group, St. George's Hospital Med. School, London, to work on membrane properties of cancer cells.
1988 - 1994	Member of DFG SFB 176, Uni. Würzburg.

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. Bubendorfer, A.J.; Ingham, B.; Kennedy, J.V.; Arnold, W.M.: Contamination of PDMS microchannels by lithographic molds. *Lab Chip*, 13, p. 4312-4316, 2013.
2. Jansen, M.L.; Willmott, G.R.; Hoek, I.; Arnold, W.M.: Fast piezoelectric actuation of an elastomeric micropore. *Measurement*, 46(9), p. 3560-3567, 2013.
3. Beal, J.H.L.; Bubendorfer, A.; Kemmitt, T.; Hoek, I.; Arnold, W.M.: A rapid, inexpensive surface treatment for enhanced functionality of polydimethylsiloxane microfluidic channels. *Biomicrofluidics*, 6, 11 paages, 2012.
4. Hoek, I.; Tho, F.; Arnold, W.M.: Sodium hydroxide treatment of PDMS based microfluidic devices. *Lab Chip*, 10(17), p. 2283-2285, 2010.
5. Liu, X, Bumby, C.W.; Spencer J.L.; Arnold, W.M.; Kaiser, A.B.: Multi-walled carbon nanotubes synthesized from different catalysts: morphology, dielectrophoresis and conductance. *Int. J. Nanotechnology*, 6(3-4), p. 329-343, 2009.
6. Arnold, W.M.: Particle Patterning Using Fluidics and Electric Fields. *IEEE Trans. Dielect. Electr. Insul.*, 15(1), p. 144-151, 2009.
7. Liu, X.; Spencer, J.L.; Kaiser, A.B.; Arnold, W.M.: Selective purification of multi-walled carbon nanotubes by dielectrophoresis within a large array. *Current Applied Physics*, 6(3), p. 427-431, 2006.
8. Arnold, W.M.; Franich, N.R.: Cell Isolation and Growth in Electric-Field Defined Micro-Wells. *Current Applied Physics*, 6(3), p. 371-374, 2006.
9. Liu, X.; Spencer, J.L.; Kaiser, A.B.; Arnold, W.M.: Electric-Field Oriented Carbon Nanotubes in Different Dielectric Solvents. *Current Applied Physics*, 4(2-4), p. 125-128, 2004.
10. Willmott, G. R.; Broom, M. F.; Jansen, M. L.; Young, R. M.; Arnold, W.M.: Tunable Elastomeric Pores. Book chapter in *Molecular- and Nano- Tubes* (Eds: Hayden, Nielsch), Springer, p. 209-262, 2011.

B) Other publications

C) Patents

1. Yong, Y.; Andrews, M.K.; Arnold, W.M.; Marlow, B.: Biosensors for Detecting Bond Rupture, WO 2005090973, 2005.

2. Arnold, W.M.: Method and Apparatus for Concentrating and/or Positioning Particles or Cells, WO 99/62622. Australian Patent 785167 granted 2007.
3. Another 6 international patents on cell electro-fusion and electrorotation (1983-1993).

Supervised graduate students since graduation year 2011

No.	Last Name, First Name	Degree	Title of the dissertation	Duration of thesis

Most important research grants since 2011

No.	Research Project	Funding Period	Name(s) of the principal investigator(s)	Funding source and reference number
1	Fast Fluidic Microanalysis	2009 - 2014	Arnold, W.M.	Ministry of Business, Innovation and Employment