

# *Jaakko Malmivuo*

## *CURRICULUM VITAE*

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### **A Personal Information**

Jaakko Antero Malmivuo

Born: 27.03.1944, Helsinki

Parents: Insurance manager Jussi Malmivuo and Paula Malmivuo

Wife: 1965, Medical laboratory technologist, textile artist Kirsti Malmivuo, née Könönen



### **B Academic Degrees**

1963 Matriculation: Töölön Yhteislyseo, Helsinki

1971 Diploma Engineer (M.Sc. Eng.), Helsinki University of Technology

1973 Licentiate of Technology, Helsinki University of Technology

1976 Doctor of Technology, Helsinki University of Technology



### **C Military Service**

1963-64 Military service

1964 Second lieutenant, Reserve Officer School Course No 115

2006 National Defense Course (Maanpuolustuskurssi) No 177

2011 National Defense Continuation Course (Maanpuolustuksen jatkokurssi) No 89

2016 National Defense Supplementary Education Course (Maanpuolustuksen täydennyskoulutuskurssi) No 58



### **D Main Occupations**

1969 Research assistant, Academy of Finland, Research Council of Medical Sciences

1970 System Planner, Helsinki University, Institute of Physiology

1970-72 Research assistant, Researcher, Helsinki University of Technology

1972-75 Clinical Engineer, Helsinki University, 1st Medical Clinic

1973-74 Project manager, Finnish National Fund for Research and Development (SITRA)

1974-75 ASLA Fulbright Grantee, Stanford University

1975-76 Researcher, Stanford University

1976 Research Assistant, Academy of Finland, Council of Technical Sciences

1976-85 Associate Professor of Bioelectromagnetism, Tampere University of Technology (TUT)

- 1979-80 Acting Professor of Electronics, TUT
- 1981-82 Senior Researcher, Academy of Finland, Council of Technical Sciences
- 1984-85 Acting Professor of Electronics, TUT
- 1986 Senior Researcher, Academy of Finland, Council of Technical Sciences
- 1986 Acting Professor of Bioelectromagnetism, TUT
- 1987-2010 **Professor of Bioelectromagnetism, Tampere University of Technology (TUT)**
- 1988 Visiting Professor, Technische Universität Berlin (West), Apr-July
- 1989 Visiting Professor, Dalhousie University, Halifax, Jan-Apr
- 1990-91 Senior Researcher, Academy of Finland, Council of Technical Sciences
- 1992 – Director, Ragnar Granit Institute, [www.rgi.fi](http://www.rgi.fi)
- 1993 Visiting Professor, Sophia University, Tokyo, May-Aug
- 2006 Visiting Professor, University of Barcelona, Barcelona, January and December
- 2012 Visiting Professor, The University of Aizu, Aizu-Wakamatsu, Japan, Sept-Dec
- 2014-17 Emeritus Professor, Aalto University, Department of Electrical Engineering and Automation
- 2014 [Visiting Professor and Theodore von Kármán Fellow](#), Helmholtz-Institute for Biomedical Engineering at RWTH Aachen University, Aachen, Germany, Apr-July
- 2016- [Visiting Professor, Technische Universität Berlin](#), Faculty of Electrical Engineering and Computer Science, Electronics and Medical Signal Processing



### **E Secondary Occupations**

- 1970-72 Education Engineer, Post-Graduate Education Center of the Finnish Engineering Societies, INSKO
- 1978-88 Member of the Board, Department of Electrical Engineering, TUT
- 2001-07 - " -
- 1978 – Adjunct Professor, University of Tampere, Faculty of Medicine
- 1985-2012 Adjunct Professor, Helsinki University of Technology, Department of Electronics
- 1978-92 [Opera singer](#) (bass), Tampere Opera



### **F Educational Activities in Bioelectromagnetism** (in addition to when serving as Visiting Professor)

- 1978-93 Lecturing annually at University of Tampere, Faculty of Medicine
- 1985 – Lecturing a course (28 h) on Bioelectromagnetism, Helsinki University of Technology
- 1985 Director and one lecturer of Preconference Course, TUT
- 1994 One week (25 h) Intensive Course on Bioelectromagnetism, Tartu University
- 1996 Director and one lecturer of Preconference Course, TUT
- 1999 Director and one lecturer of Preconference Course, Tallinn University of Technology
- 2002 One week (25 h) intensive course on Bioelectromagnetism, Tallinn University of Technology
- 2004 Director and one lecturer of a two weeks [BEST](#) Course on Bioelectromagnetism, TUT
- 2005 One week (25 h) intensive course on Bioelectromagnetism, Tallinn University of Technology
- 2005 One week (25 h) intensive course on Bioelectromagnetism, Czech Technical University
- 2006 Director and lecturer of two Preconference Courses on Bioelectromagnetism, New York
- 2006 Two lecturing courses (25 h and 15 h) on Bioelectromagnetism, University of Barcelona
- 2006 The lecturing course Bioelectromagnetism [on the Internet, EVICAB](#)
- 2007 Two days (15 h) intensive course on Bioelectromagnetism, Tallinn University of Technology
- 2010 Two days (14 h) intensive course on Bioelectromagnetism, University of Florida
- 2011 Two days (13 h) intensive course on Bioelectromagnetism, Tallinn University of Technology
- 2011 Two days (10 h) intensive course on Bioelectromagnetism, Santa Clara, California

### **Supervisor of M. Sc. Theses**

1978- Supervised over 200 M. Sc. Theses

### **Supervisor of Lic. Tech. Theses**

1983- [Supervised 14 Licentiate of Technology Theses ▶](#)

### **Supervisor of Doctoral Theses**

1983- [Supervised 14 Doctoral Theses ▶](#)

### **Evaluator and/or Examiner of the Following Doctoral Theses outside TUT**

1982 Timo Varpula, Helsinki University of Technology  
1985 Risto Ilmoniemi, Helsinki University of Technology  
2001 Tero Aittokoski, University of Turku  
2002 Jaanus Lass, Tallinn University of Technology  
2005 Romulus Lontis, Aalborg University  
2009 Prabhu Britto, Anna University, Chennai, India  
2015 Thomas Schlebusch, RWTH Aachen University, Aachen, Germany  
2015/16 Mark Ulbrich, RWTH Aachen University, Aachen, Germany



### **G Memberships and Positions of Trust in Scientific Societies**

1968 – Finnish Society for Medical Physics and Medical Engineering, Founding Member [www.lfty.fi](http://www.lfty.fi)  
1984-90 Member of Board  
1987-90 President  
2008 – Honorary Member

1970 – Institute of Electrical and Electronics Engineers Inc. (IEEE), Member [www.ieee.org](http://www.ieee.org)  
1995 – Senior Member  
2007 – Fellow, [IEEE Finland fellows](#)  
*"for contributions to theoretical and experimental aspects of bioelectromagnetic phenomena"*

1992 – IEEE Engineering in Medicine and Biology Society EMBS, Member [www.embs.org](http://www.embs.org)  
1998-01 At-Large Representative of the Administrative Committee  
1994-00 Regional Conferences Committee, Member  
1999-00 Regional Conferences Committee, Chairman  
2000-02 Publication Committee, Member

1973 – Finnish Cardiological Society, Member

1973 – Finnish Society of Electronic Engineers, Member  
1979 Chairman of Tampere Section

1994 – International Society for Electrocardiology, Member, [www.electrocardiology.org](http://www.electrocardiology.org)  
1997-2009 Member of the Council

1975 – Finnish Society for Clinical Physiology, Member

1978 – Finnish Brain Research Society, Founding Member

1995 – The New York Academy of Sciences, Member

1995 – The Finnish Academy of Technology, Member

1995 – International Society for Bioelectromagnetism, Founding Member, [www.isbem.org](http://www.isbem.org)  
1995 - 99 President  
1999 - 2013 Member of the Council  
2014 - 2018 Secretary

2003 – International Academy of Medical and Biological Engineering, IAMBE, [Fellow](#)

2012 – European Alliance for Medical and Biological Engineering & Science, EAMBES, [Founding Fellow](#)

2016 – Ragnar Granit Society, Founding Member, Chairman of the Board, [www.rgs.fi](http://www.rgs.fi)



### **H Conference Committees**

1982 The Fourth National Meeting of Medical Physics and Biomedical Engineering, (Tampere), President

- 1985 XIV International Conference on Medical and Biological Engineering &  
VII International Conference on Medical Physics (Espoo), Member of the Scientific Committee
- 1993 The Cardiac Electric Field (Bratislava), Satellite Symposium to the  
20th International Congress of Electrophysiology, Member of the Program Committee
- 1994 IEEE, EMBS Regional Meeting Advisory Committee
- 1995 17th Annual International Conference, IEEE EMBS, (Montreal), International Committee
- 1996 10th Nordic-Baltic Conference on Biomedical Engineering &  
1st International Conference on Bioelectromagnetism, (Tampere), [NBC1996](#)  
President, Chairman of the Program Committee
- 1996 NORSIG 96, IEEE Nordic Signal Processing Symposium (Espoo), Technical Committee
- 1996 18th Annual International Conference, IEEE EMBS, (Amsterdam), International Committee
- 1998 2nd International Conference on Bioelectromagnetism, (Melbourne)  
Co-chairman of the Scientific Committee, Member of the International Advisory Committee
- 1999 11th Nordic-Baltic Conference on Biomedical Engineering, (Tallinn)  
Member of the International Advisory Committee [www.cb.ttu.ee/nbc99/](http://www.cb.ttu.ee/nbc99/)
- 2000 10th European Signal Processing Conference, (Tampere), Member of the Program Committee
- 2003 30th International Conference on Electrophysiology, Helsinki, President, [ICE2003](#)
- 2005 3rd European Med. and Biol. Eng. Conf. EMBEC'05, (Prague), International Scientific Committee
- 2008 14th Nordic-Baltic Conf. on Biomed. Eng. and Med. Phys., Riga, International Scientific  
Committee
- 2009 World Congress on Med. Phys. and Biomed. Eng., München, Advisory Committee
- 2011 15th International Conference - Biomedical Engineering, Kaunas, Lithuania
- 2012 Internat. Symp. on Biomed. Enging. and Med. Phys., Riga, Latvia, Program Committee
- 2013 XIII Mediterranean Conference on Medical and Biological Engineering and Computing,  
MEDICON2013, Sevilla, Spain, International Program Committee
- 2016 15th Biennial Baltic Electronics Conference (BEC2016), Tallinn, Estonia. Scientific Committee



### **I Invited Talks in International Conferences**

- 1992 8th International Conference on Electrical Bio-Impedance, Kuopio, Finland
- 1993 8th Annual Meeting of the Japanese Biomagnetism and Bioelectromagnetics Society, Tokyo
- 1994 ICRA BME94, Hyderabad, India
- 1994 EU-Conference: Biomedical Engineering Network on the Baltic Rim, Lübeck
- 1994 Annual Conference of the American Society of Engineering Education, Edmonton
- 1994 XVII World Conference on Medical Physics and Biomedical Engineering, Rio de Janeiro
- 1996 10th Nordic-Baltic Conference on Biomedical Engineering &  
1st International Conference on Bioelectromagnetism, Tampere
- 1998 2nd International Conference on Bioelectromagnetism, Melbourne
- 1999 11th Nordic-Baltic Conference on Biomedical Engineering, Tallinn
- 2001 23rd IEEE EMBS, Istanbul, Turkey
- 2002 Biomag 2002, Jena, Germany
- 2004 Distinguished Lecturer, 26th IEEE EMBS, San Francisco, California
- 2004 Sci. Conf. 10th Anniversary of the Biomed. Eng. Centre, Tallinn Technical University, Estonia
- 2004 International Workshop for Bioelectromagnetism, University of Aizu, Aizu-Wakamatsu, Japan
- 2005 3rd European Med. and Biol. Eng. Conf. EMBEC'05, Prague
- 2008 14th Nordic-Baltic Conference on Biomedical Engineering and Medical Physics, Riga
- 2010 14th International Conference on Electrical Bioimpedance, Florida
- 2010 12th Biennial Baltic Electronics Conference, Tallinn, Estonia
- 2011 15th International Conference - Biomedical Engineering, Kaunas, Lithuania

- 2013 XIII Mediterranean Conference on Medical and Biological Engineering and Computing, Seville, Spain
- 2014 14th Biennial Baltic Electronics Conference, Tallinn, Estonia
- 2015 10th International Conference on Bioelectromagnetism, Tallinn, Estonia
- 2016 XXV Brazilian Congress on Biomedical Engineering - CBEB 2016, Foz do Iguacu, Brazil, Plenary lecture



### **J Other Scientific Positions of Trust**

- 1980-85 Grant Committee, TUT
- 1989-93 City of Tampere Scientific foundation, member of board
- 1986-94 Finnish Cultural Foundation, Pirkanmaa Fund, member of board
- 1988 – Patron's Association of the Finnish Cultural Foundation, Member
- 1982-90 Scientific Committee, Tampere Dept. of the Defensive Forces (MATINE), Member of Board
- 1988-89 Committee of Biomedical Engineering at Tampere, Member
- 1989-92 Foundation of Health Care Technology, Vice Chairman of Board
- 1994-2014 Ragnar Granit Foundation, Chairman of Board [www.rgs.fi](http://www.rgs.fi)
- 1994- Scientific Advisory Committee, Biomed. Eng. Centre, Tallinn Technical University, Estonia
- 1996 Member of the International Committee evaluating International Research Schools in Denmark
- 2006-07 International Master's Degree Programme in Biomedical Engineering, TUT, Chairman of the Board
- 2007-10 International Graduate School on Medical Physics and Biomedical Engineering, [iBioMEP](#), Chairman of the Board
- 2007-11 COST Action NeuroMath: Advanced Methods for the Estimation of Human Brain Activity and Connectivity, Vice Chairman
- 2008-15 Centre for Integrated Electronic Systems and Biomedical Engineering CEBE, Tallinn University of Technology, Member of International Advisory Board

### **Expert in the Nomination of the Following Academic Positions**

- 1990 Professor of Technical Physics, Helsinki University of Technology (Toivo Katila)
- 1991 Professor in Faculty of Medicine, Dept. of Emergency Medicine, United Arab Emirates University (Dhanjoo N. Ghista)
- 1992 Professor of Medical Engineering and Medical Physics, Turku University (Erkki Soini)
- 1992 Adjunct Professor of Physics, Joensuu University (Hannu Olkkonen)
- 1994 Adjunct Professor of Computational Physics, Helsinki University of Technology (Matti Hämäläinen)
- 1996 Adjunct Professor of Superconducting Electronics, Helsinki University of Technology (Jukka Knutila)
- 1999 Professor of Medical Physic, University of Kuopio (Jyrki Kuikka)
- 1999 Professor of Biomedical Engineering, North Carolina State University (Susan Blanchard)
- 1999 Adjunct Professor of Biomedical Engineering, Oulu University (Timo Jämsä)
- 1999 Professor, University of California, Irvine (Fred Greensite)
- 2003 IEEE Fellow (Martin Arthur)
- 2003 Professor of Biomedical Engineering, Washington University, St. Louis (Yoram Rudy)
- 2003 Professor of Computer Science, University of Oulu (Tapio Seppänen)
- 2006 Professor of Biomedical Engineering, Duke University, Durham, North Carolina (Wanda Krassowska)
- 2009 Professor of Biomedical Engineering, University of Oulu (Tapio Seppänen)
- 2011 IEEE Fellow (Jorma Nieminen)
- 2013 Senior Research Scientist, Tallinn University of Technology (Anna Suhhova)
- 2015 Associate Professor, RMIT University, Melbourne, Australia (Elena Pirogova)

- 2016 IEEE Fellow (Leif Sörnmo)  
2017 IEEE Fellow (Steffen Leonhardt)

### **Evaluator in International Research Projects**

- 1979 National Science Foundation (USA)  
1994 European Union, Biomed 1  
1996 European Union, Biomed 2  
2000 European Union, Quality of Life

### **Member in the Editorial Boards of Scientific Journals**

- 1995-00 Automedica, Member of the Editorial Board  
1996 – IEEE Biomedical Engineering Book Series, Member of the Editorial Board  
1996-97 IEEE Transactions on Biomedical Engineering, Associate Editor  
1999-06 International Journal of Bioelectromagnetism, Editor in Chief, [www.ijbem.org](http://www.ijbem.org)



### **K Positions of Trust**

- 1980-82 Chairman of the Committee of the First Solemn Conferment of the Academic Degrees, TUT  
1982 Master of Ceremonies in the First Solemn Conferment of the Academic Degrees, TUT  
1978 – Finnish Conservative Club of Tampere (Tampereen Suomalainen Klubi), Member  
    1984-89 Member of the Board  
    1989-91 Vice President  
    1992-96 President  
1985-88 Tampere Philharmonic Orchestra, Member of Board  
1985-90 Tampere Opera Council, Member  
1987-90 Pyynikki Evangelical Lutheran Parish, Member of the Parish Council, Tampere  
1989-92 City of Tampere, Council of Cultural Affairs, Member  
2001-02 Rotary Club of Helsinki, Vice President  
2007-08 Rotary Club of Helsinki, President



### **L Medals of Merit**

- 1982 Tampere University of Technology, Medal of Honor  
1996 Finnish Conservative Club of Tampere, "The Ear", (Tampereen Suomalainen Klubi, "Korva")  
2003 International Society for Bioelectromagnetism, Plaque



### **M Publications, Books**

- 1976 On the Detection of the Magnetic Heart Vector - An Application of the Reciprocity Theorem, (Thesis)  
1985 Biomedical Engineering (in Finnish)  
1986 Bioelectronics (in Finnish)  
1995 J. Malmivuo and R. Plonsey: [Bioelectromagnetism](#), Oxford University Press, New York  
2002 ... the aforementioned on the Internet: [www.bem.fi/book/](http://www.bem.fi/book/)  
*Over 20 Plenary talks in international scientific conferences*  
*Over 20 educational books*  
*4 patents*  
*Publications on the Internet [www.researchgate.net](http://www.researchgate.net)*  
*The total number of **publications** is over 680.*