Curriculum vitae

of

Piergiorgio ALOTTO

Personal information

Surname:	Alotto
Name:	Piergiorgio
Date of birth:	20.02.1968
Luogo di nascita:	Genova (GE)
Nationality:	Italian
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Instruction

- German and italian **Maturità scientifica** (Abitur)
- M.S. Degree in Electrical Engineering **(Laurea in Ingegneria Elettrotecnica)** at the University of Genova, Italy, on October 7, 1992 (110/110, honours and right of publication), discussing the thesis: “A finite element formulation of Preisach’s model for the study of magnetic hysteresis.
- Ph.D. degree (**Dottore di Ricerca)** on July 18, 1997, from the University of Genova, Italy, discussing the tesi: “Innovative stochastic methods for the optimization of electromagnetic devices”.

Languages

Language	**Comprehension**		**Spoken**		**Written**	**Note**
	Listening	Reading	Interaction	Production		
Tedesco	C1	C1	C1	C1	C1	German Abitur
Inglese	C1	C1	C1	C1	C1	Two years working in Oxford, U.K.

Professional activities

From November 1992 to July 1994 employed at the scientific software house Vector Fields Ltd, Oxford, UK, as **Software Development Engineer**, including three months at the Aurora, Illinois, USA branch. Main activities concerned the theoretical development and implementation of procedures for the finite element analysis of electromagnetic problems.

From December 1996 to September 30, 2005, Assistant Professor (**Ricercatore Universitario)** at the Department of Electrical Engineering of the University of Genova, Italy,.

From October 1, 2005, Associate Professor (**Professore Associato)** at the Department of Electrical Engineering of the University of Padova, Italy,.

Scientific publications

Over 130 publications in international journals and international conference proceedings (available upon request).

Scientific activities

Main research activities, which have led to publications on international journals and have been presented at International conferences, concern following topics:

1. Automatic optimization procedures for finite element problems and scattered data interpolation techniques.
2. Error estimation techniques in finite element codes and adaptive meshing in 3D nodal and mixed formulations.
3. Numerical modelling of scalar and vector hysteresis.
4. Alberaic linear equativo solvers.
5. Parallel computing for field problem solvers.
6. Electromagnetic formulations in terms of fields and potentials for 3D problems, especially mixed formulations for magnetostatics.
7. Electromagnetic coupled problems (circuit, thermal, mechanical).
8. Meshing techniques for surfaces and volumes in 3D.
9. Software environments for the design of electromagnetic problems.

10. Special finite element techniques.

11. Cell method (FIT)

12. Numerical methods for the solution of complex engineering problems.

13. Coupled numerical modelling of fuel cells.

National and international cooperations

Some of the above activities have been performer in cooperation with academic and industrial research groups and have led to the publication of joint papers:

- TU Graz (Austria)
- Università Pontificia di Paranà (Brazil)
- Ecole Centrale de Lille (France)
- Politecnico di Bucarest (Romania)
- Università di Oxford (U.K.)
- Università di Minneapolis (U.S.A.)
- Los Alamos National Labs (U.S.A.)
- Politecnico di Torino (Italy)
- Politecnico di Milano (Italy)
- Università di Napoli (Italy)
- Università di Pavia (Italy)
- Università di Udine (Italy)
- IMA CNR (Italy)
- Labein (Spain)
- Vector Fields Ltd (U.K.)
- Philips (Netherlands)
- Ansaldo Ricerche (Italy)
- Ansaldo Trasporti (Italy)
- ABB Servomotors (Italy)
- Tesi Srl (Italy)

International conferences

Piergiorgio Alotto presented papers at following national and international conferences:

- 19th COMPUMAG, June 30-July 4, 2013, Budapest, Hungary
- 5th Conference on Computational Methods for Coupled Problems in Science and Engineering, June 17-19, 2013, Ibiza, Spain (oral)
- 15th IEEE CEFC, November 11-14, 2012, Oita, Japan
- 11th OIPE, September 19–21, 2012, Ghent, Belgium
- 15th International IGTE Symposium, Sept. 16-19, 2012, Graz, Austria (oral)
- 11th Biennial Conference on Engineering System Design and Analysis, ESDA 2012, July 2-4, 2012, Nantes, France (oral)
- 18th COMPUMAG, July 12-15, 2011, Sydney, Australia

- 4th Conference on Computational Methods for Coupled Problems in Science and Engineering, June 20-22, 2011, Kos, Greece. (oral)
- 14th International IGTE Symposium, Sept. 19-22, 2010, Graz, Austria (oral, invitated)
- 14th IEEE CEFC, May 9-12, 2010, Chicago, IL, USA (oral)
- 17th COMPUMAG, November 22-26, 2009, Florianopolis, Brazil
- EMF 2009, 8th Int. Symp. on Electric and Magnetic Fields From Numerical Models to Industrial Applications, May 26-29, 2009, Mondovì, Italy
- 13th International IGTE Symposium and TEAM Workshop, Sept. 21-24, 2008, Graz, Austria
- 13th IEEE CEFC, May 11-15, 2008, Athens, Greece (oral)
- 16th COMPUMAG, June 24-28, 2007, Aachen, Germany
- 12th International IGTE Symposium and TEAM Workshop, Sept. 17-20, 2006, Graz, Austria
- 9 th OIPE, September 13–15, 2006, Sorrento, Italy (oral)
- 12th IEEE CEFC, April 30-May 3, 2006, Miami, FL, USA
- 15th COMPUMAG, June 26-30, 2005, Shenyang, China
- 11th International IGTE Symposium and TEAM Workshop, Sept. 13-15, 2004, Graz, Austria
- 14th COMPUMAG, July 13-18, 2003, Saratoga Springs, NY, USA
- 10th International IGTE Symposium and TEAM Workshop, Sept. 16-18, 2002, Graz, Austria
- 10th IEEE CEFC, June 16-19, 2002, Perugia, Italy
- European Conference on Numerical Mathematics and Advanced Applications, July 23-28, 2001, Ischia Porto, Italy (oral)
- 13th COMPUMAG and TEAM Workshop, July 2-6, 2001, Evian, France
- OIPE 2000, 6th International Workshop on Optimization and Inverse Problems in Electromagnetis, Sept. 25-27, 2000, Turin, Italy
- 9th International IGTE Symposium and TEAM Workshop, Sept. 11-14, 2000, Graz, Austria (oral)
- 9th IEEE CEFC, June 4-7, 2000, Milwaukee, Wisconsin, USA
- 12th COMPUMAG and TEAM Workshop, October 25-28, 1999, Sapporo, Japan
- ISEF '99, 23-25 September 1999, Pavia, Italy (oral)
- CAPI'98, 19-21 November 1998, Milan, Italy
- 8th International IGTE Symposium and TEAM Workshop, Sept. 21-25, 1998, Graz, Austria
- Congresso Nazionale della SIMAI (Società Italiana di Matematica Applicata ed Industriale), 1-5 Giugno 1998, Taormina, Italia
- 11th COMPUMAG and VI Round of the TEAM Workshop , November 2-7, 1997, Rio de Janeiro, Brazil
- 7th CEFC, March 18-20, 1996, Okayama, Japan
- 10th COMPUMAG and Fifth International TEAM Workshop, July 10-14, 1995, Berlin, Germany (oral)
- MT14, June 11-16, 1995, Tampere, Finland (oral)
- 9th COMPUMAG and TEAM/ACES Workshop, Oct. 31-Nov. 5, 1993, Miami, FL, USA
- 8th COMPUMAG and Third International TEAM Workshop, July 7-12, 1991, Sorrento, Italy

Session chairmanship

Piergiorgio Alotto has been session chairman at following conferences:

- 19th COMPUMAG, June 30-July 4, 2013, Budapest, Hungary

- 5th Conference on Computational Methods for Coupled Problems in Science and Engineering, June 17-19, 2013, Ibiza, Spain
- 15th IEEE CEFC, November 11-14, 2012, Oita, Japan
- 15th International IGTE Symposium, Sept. 16-19, 2012, Graz, Austria
- 11th Biennial Conference on Engineering System Design and Analysis, ESDA 2012, July 2-4, 2012, Nantes, France
- 18th COMPUMAG, July 12-15, 2011, Sydney, Australia
- 4th Conference on Computational Methods for Coupled Problems in Science and Engineering, June 20-22, 2011, Kos, Greece.
- 14th International IGTE Symposium, Sept. 19-22, 2010, Graz, Austria
- 14th IEEE CEFC, May 9-12, 2010, Chicago, IL, USA
- EMF 2009, 8th Int. Symp. on Electric and Magnetic Fields From Numerical Models to Industrial Applications, May 26-29, 2009, Mondovì, Italy
- 17th COMPUMAG, November 22-26, 2009, Florianopolis, Brazil
- 13th International IGTE Symposium and TEAM Workshop, Sept. 21-24, 2008, Graz, Austria
- 13th IEEE CEFC, May 11-15, 2008, Athens, Greece
- 16th COMPUMAG, June 24-28, 2007, Aachen, Germany
- 12th International IGTE Symposium and TEAM Workshop, Sept. 17-20, 2006, Graz, Austria
- 9 th OIPE, September 13–15, 2006, Sorrento, Italy
- 12th IEEE CEFC, April 30-May 3, 2006, Miami, FL, USA
- 15th COMPUMAG, June 26-30, 2005, Shenyang, China
- 11th International IGTE Symposium and TEAM Workshop, Sept. 13-15, 2004, Graz, Austria
- 14th COMPUMAG, July 13-18, 2003, Saratoga Springs, NY, USA
- 10th International IGTE Symposium and TEAM Workshop, Sept. 16-18, 2002, Graz, Austria
- 13th COMPUMAG and TEAM Workshop, July 2-6, 2001, Evian, France
- 9th International IGTE Symposium and TEAM Workshop, Sept. 11-14, 2000, Graz, Austria
- OIPE 2000, 6th International Workshop on Optimization and Inverse Problems in Electromagnetis, Sept. 25-27, 2000, Turin, Italy
- 9th CEFC, June 4-7, 2000, Milwaukee, Wisconsin, USA
- 8th International IGTE Symposium and TEAM Workshop, Sept. 21-25, 1998, Graz, Austria

International editorial boards

Piergiorgio Alotto has been member of following international editorial boards:

- Editorial Board of 19th COMPUMAG, June 30-July 4, 2013, Budapest, Hungary
- Editorial Board of 15th IEEE CEFC, November 11-14, 2012, Oita, Japan
- Editorial Board of 18th COMPUMAG, July 12-15, 2011, Sydney, Australia
- Editorial Board of the 8th International Conference on the Computation in Electromagnetics (CEM 2011), April 11-14, 2011, Wroclaw, Poland
- Editorial Board of 14th IEEE CEFC, May 9-12, 2010, Chicago, IL, USA
- Editorial Board of 17th COMPUMAG, November 22-26, 2009, Florianopolis, Brazil
- Editorial Board of 10th OIPE, September 14–17, 2008, Ilmenau, Germany
- Editorial Board of 13th IEEE CEFC, May 11-15, 2008, Athens, Greece
- Editorial Board of 16th COMPUMAG, June 24-28, 2007, Aachen, Germany
- Editorial Board of 12th IEEE CEFC, April 30-May 3, 2006, Miami, FL, USA

- Editorial Board of 19th International Conference on Magnetic Technology (MT-19), September 18-23, 2005, Genova, Italy
- Editorial Board of 15th COMPUMAG, June 26-30, 2005, Shenyang, China
- Editorial Board 9 th OIPE, September 6-8, 2006, Sorrento, Italy
- Editorial Board of 11th IEEE CEFC, June 6-9, 2004, Seoul, Korea
- Editorial Board of 8 th OIPE, September 6-8, 2004, Grenoble, France
- Editorial Board of 14th COMPUMAG, July 13-18, 2003, Saratoga Springs, NY, USA

He has been coeditor of following journals:

- Coeditor of COMPEL: The International Journal for Computation and Mathematics in Electrical and Electronic Engineering, Volume 32, Issue 5, Emerald, 2013
- Coeditor of COMPEL: The International Journal for Computation and Mathematics in Electrical and Electronic Engineering, Volume 30, Issue 6, Emerald, 2011
- Coeditor of COMPEL: The International Journal for Computation and Mathematics in Electrical and Electronic Engineering, Volume 28, Issue 4, Emerald, 2009
- Coeditor of COMPEL: The International Journal for Computation and Mathematics in Electrical and Electronic Engineering, Volume 26, Issue 3, Emerald, 2007
- Coeditor of COMPEL: The International Journal for Computation and Mathematics in Electrical and Electronic Engineering, Volume 24, Issue 2, Emerald, 2005
- Coeditor of COMPEL: The International Journal for Computation and Mathematics in Electrical and Electronic Engineering, Volume 22, Issue 3, Emerald, 2003

Editorial initiatives

Since 2011 he is editor of the ebook series “Elettrotecnica ed Elettromagnetismo” of the Italian section of IEEE.

International committees

He has been member of following committees:

- In April 2012 he is nominated as a member of the EPUE (European Platform of Universities Engaged in Energy Research, Education and Training) Mirror Expert Group for Energy Storage.
- In October 2012 he is nominated as a member of the Steering Committee of EERA (European Energy Research Alliance) for the Joint Programme on Energy Storage.
- International Steering Committee of the International Compumag Society (elective position, from 2008 to 2014)

International conference committees

- Local organizing committee of 19th International Conference on Magnetic Technology (MT-19), September 18-23, 2005, Genova, Italy
- International Scientific Committee of EMF 2009, 8th International Symposium on Electric and Magnetic Fields From Numerical Models to Industrial Applications, Mondovì, Italy, May 26-29, 2009

Visiting professor

From October to December 2010 Prof. Alotto has been invited by the Institut für Grundlagen und Theorie der Elektrotechnik of the Technische Universität Graz as Visiting Professor. In that time he carried out research in the area of stochastic optimization of electromagnetic devices.

International project referee

In 2013 Prof. Alotto has been International referee for the evaluation of the project “magnet Systems (OT/13/077)” of the K.U.Leuven, Belgium.
In 2012 he has been external evaluator of the Research Foundation, Flanders (Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO) for the project “Simulation of microphoning and detuning effects in superconductive cavities”.
In 2009 Prof. Alotto has been International referee for the evaluation of the project “Electromagnetic Field Simulation for Future Particle Accelerators (STRT1/09/041)” of the K.U.Leuven, Belgium.

Local scientific evaluation committees

Since January 2012 he is a member of the Research Commission of the Department of Industrial Engineering of the University di Padova, responsible for the VQR2004-2010 procedure.
In 2012 Prof. Alotto was member of the Research Grant Commission of the Department of Industrial Engineering of the University di Padova.
In 2009 Prof. Alotto has been a member of the Industrial Engineering Research Grant Commission of the University of Padova, dealing with:

- Selection of research projects on which to fund research grants for a total of € 401.772 (total € 1.164.460)

From November 2002 to September 2005 Prof. Alotto has been a member of the Industrial Engineering Scientific Commission dealing with:

- Awarding University-funded research grants
- Selection of University co-funded research projects
- National University System evaluation

International Ph.D. thesis

In October 2007 Prof. Alotto was invited by the Department of Electrical Engineering of the Tampere University of Technology, Finland, to serve as Opponent of Jari Kangas in his public defense of the thesis “Algebraic decompositions in Analysis of Quasistatic Electromagnetic Problems”.
In February 2011 Prof. Alotto was invited by the Institut für Grundlagen und Theorie der Elektrotechnik of the Technische Universität Graz to serve as external examiner for Michael Jaindl in his public defense of the thesis “Numerical Simulation of Weakly Coupled Multiphysical Problems in Electrical Engineering”.

Further commissions

Il Prof. Alotto has been member of the commission for the selection of an Assitant Professor of Electrical Engineering at the Faculty of Engineering of the University of Bologna, Italy, in 2001.

He has been a member of the following final Ph.D. examination commissions:

- University of Udine, Italy, 2007.
- Università di Genova, Italy, 2009, 2010 and 2013
- Politechnic of Torino, Italy, 2010

Affiliations

Since 01.03.2010 Prof. Alotto is associate member of the Istituto di Matematica Applicata e Tecnologie Informatiche of CNR directed by Prof. Franco Brezzi.
He is a member of the IEEE.

Awards

The paper “A Hybrid Multiobjective Differential Evolution Method for Electromagnetic Device Optimization” published in the international journal COMPEL received the Highly Commended Award of the Literati Network Awards for Excellence 2012.

Erasmus

Prof. Alotto is responsible for the Erasmus exchanges with the Technische Universität Graz, Austria, the Universidad Pontificia Comillas, Madrid, Spain, and the University of Barcelona, Spain.

Industrial research contracts

In parallel with strictly scientific activities, Prof. Alotto has been involved in several industrial research contracts with compagnie including:

- Laben SpA (aerospace)
- ABB Ricerca Srl (induction motors)
- Ansaldo Trasporti SpA (mass transportation systems)
- Ansaldo Ricerche Srl (resistive and superconducting magnets)
- Tesi Srl (medium voltage terminals)
- Esaote SpA (magnets for biomedical applications)
- Itel Srl (electromagnetic compatibility)
- Eurocontrol SpA (induction motors)
- Inarca SpA (electrical connectors).

Among these the research projects the one with Laben SpA is worth highlighting since it concerned microgravità experiments on board the Space Shuttle.

EU funded research projects

Prof. Alotto has been involved in several EU (and before EC) funded projects within the Esprit and Craft frameworks including:

- 1994-1996 : Progetto Esprit MIDAS
- 1996-1997 : Progetto Esprit PARTEL
- 1997-1998 : Progetto Esprit EPOCH
- 2001-2002 : Progetto Craft ADETEC

National research projects

Prof. Alotto has participated in following projects funded by the National Ministry for University and Research a:

- COFIN 1998: Innovative software platform for the optimization of electromagnetic devices
- COFIN 2000: SAOPE – Advanced tools for design optimization in electromagnetics
- PRIN 2002: Discrete and mixed formulations: theoretical and numerical comparisons
- PRIN 2004: A discrete approach for the solution of electromagnetic propagation problems
- PRIN 2006: Methanol powered fuel cells for portable electronics: copled simulation, characterization and optimization
- PRIN 2008: Direct feed, polymer-membrane-based fuel cells: non-linear multiphysics modelling, functional and structural optimization, circuit integration

Teaching

Prof. Alotto has been teaching courses at the **Universiy of Genova, Politechnic of Milano, University of Padova**, as well as short-courses in Italy and abroad.

University of Genova

Automatic design of electrical and magnetic devices	In 2001/02, 2002/03, 2003/04, 2004/05, for students of the 5th year of the MS curriculum in Electrical Engineering
Electrotechnics 1	In 2002/03, 2003/04, 2004/05 for students of the 2nd year of the BSc curriculum in Mechanical Engineering In 2012/2013 for students of the 3rd year of the BSc curriculum in Naval Engineering
Electric and electronic systems	In 2002/03, 2003/04, 2004/05 for students of the 2nd year of the BSc curriculum in Mechanical Engineering

In the same years he has been supervisor for ten graduation theses and two PhD students.

Politechnic of Milano

In 2000/01, 2001/02, 2002/03, 2003/04, 2004/05, 2005/06, 2006/07 Prof. Alotto taught Basic Circuit Theory (**Elettrotecnica A)** for students of the BSc curriculum in Electronic Engineering and Information Engineering.

University of Padova

Computational electrical engineering	From 2005/06 to 2012/13 for students of the 5th year of the MS curriculum in Electrical Engineering (in English since 2011/2012)
Principles of electrotechnics	From 2006/07 to 2009/10 for students of the 2th year of the BSc curriculum in Environmental Engineering
Electrotechnics	From 2006/07 to 2007/08 for students of the 2th year of the BSc curriculum in Mechanical Engineering
Electrotechnics	From 2010/11 to 2012/13 for students of the 3th year of the BSc curriculum in Environmental Engineering
Electrotechnics	In 2010/11 for students of the 2th year of the BSc curriculum in Materials Engineering
Electrotechnics	In 2005/06 for students of the 2th year of the BSc curriculum in Information Engineering

In the same years Prof. Alotto has been supervisor for five MS and BSc graduation theses and taught graduate corse on the use of numerical methods for the design of electromagnetic devices.

Further teaching activities

Besides university courses Prof. Alotto has been teaching in the framework of national and international short-courses organized by C.I.L.E.A. (Consorzio Interuniversitario Lombardo per l'Elaborazione Automatica) in October 1995, February 1996 and September 1997 and in i "Continuing Education Workshops" organized by the University of Milwaukee, Wisconsin, U.S.A. in March and October 1994.
In November 1999 Prof. Alotto was invited by the Institut für Grundlagen und Theorie der Elektrotechnik, of the Technische Universität Graz, Austria, to hold seminars regarding 3D meshing and special finite element methods.
In March 2000 Prof. Alotto was invited by IEEE to hold a seminar on computational electromagnetics at the International Millennium Symposium of Electrical Engineering, Teheran, Iran.

In January 2003 prof. Alotto taught an intensive course on electromagnetic fields for the MBA course organized by Scuola di Formazione Aziendale SOGEA.
In February 2011 he was invited by the “Virtual Vehicle Competence Center” of Graz, Austria, to teach a course on stochastic and multiobjective optimization.
In February 2010 he was invited by the Scuola di Dottorato del Politecnico di Torino to teach a course on the Cell Method within the framework of the Alta Formazione initiative.
In November 2011 and November 2012 he taught courses on stochastic optimization methods at the Fakultät für Elektotechnik und Informationstechnik of the Graz University of Technology, Graz, Austria.

Padova, 17.05.2013

Piergiorgio Alotto